



ECS Southeast, LLP

Geotechnical Baseline Report

I-26 at I-95 Interchange Improvements

SCDOT Project ID: P038677

Orangeburg County, South Carolina

ECS Project No. 34:4266

April 18, 2023





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Mr. Brian Nickerson, P.E.
Director of Transportation / Project Management
Civil Engineering Consulting Services, Inc.
2000 Park Street – Suite 201
Columbia, South Carolina 29201

SCDOT Project ID: P038677
ECS Project No: 34:4266

Reference: Geotechnical Baseline Report (GBR)
I-26 at I-95 Interchange Improvements
Orangeburg County, South Carolina

Dear Mr. Nickerson:

ECS Southeast, LLP (ECS) submits this Geotechnical Baseline Report (GBR) to provide geotechnical information and preliminary geotechnical recommendations to Civil Engineering Consulting Services, Inc. (CECS) and the South Carolina Department of Transportation (SCDOT) for the above referenced project. Our services were performed in general accordance with our Subconsultant Agreement for Professional Services executed on August 12, 2022, and in general accordance with the 2022 SCDOT Geotechnical Design Manual (GDM). This report presents our understanding of the geotechnical aspects of the project, the results of the field exploration and laboratory testing conducted, and our design and construction considerations for informational purposes only.

It has been our pleasure to be of service to CECS and SCDOT as your geotechnical consultant of this project. 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

Michael R. Bailey, P.E.
Associate Principal Engineer
MBailey@ecslimited.com

Kelly N de Montbrun, P.E.
Senior Project Engineer
KdeMontbrun@ecslimited.com
SC Registration No. 33477

William M. Porter, P.E.
Principal Engineer
WPorter@ecslimited.com



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1.0 INTRODUCTION

ECS is please to present this Geotechnical Baseline Report for the I-26 at I-95 Interchange Improvements project. The purpose of this report is to provide subsurface information and baseline data to be utilized for information for the design build project. This report presents a general discussion of preliminary design and construction issues anticipated for the proposed construction. While this geotechnical baseline report may include some design considerations, it does not provide a level of exploration or recommendations to support final design recommendations. Additional subsurface exploration will be required for GDM compliance based on the interchange configuration.

Our services were performed in general conformance with the 2022 SCDOT Geotechnical Design Manual (GDM) and the referenced agreement. The objective of this exploration was to explore the subsurface conditions within the project corridor, replacement bridge bents, and proposed bridge bents, ramps, and roadway structures as they pertain to the proposed improvements.

2.0 PROJECT INFORMATION

The project site is located along I-26 at the interchange with I-95 in Orangeburg County, South Carolina. This project will be a full interchange replacement to address the operational deficiencies of the current configuration. The improvements will address merge and weave movements as traffic enters the mainline I-26 EB/WB travel lanes from I-95 along I-26 EB/WB and I-95 NB/SB.

The interchange ramps are anticipated to be realigned to provide more direct movement from interstate to interstate and improve operations and safety and include the following:

- Ramp from Florence to Charleston (FCH2)
- Ramp from Charleston to Florence (CHF2)
- Ramp from Charleston to Georgia (CHG2)
- Ramp from Georgia to Charleston (GCH2)
- Ramp from Columbia to Florence (COF2)
- Ramp from Columbia to Georgia (COG2)
- Ramp from Georgia to Columbia (GCO2)

The existing twin bridges on I-95 over I-26 will be replaced to allow additional travel lanes on I-26 as well as a 12-foot depth shoulders on both I-95 and I-26 for evacuation purposes. Additionally, State Road S-38 will be re-aligned, and a new bridge will be constructed along the new alignment over I-26. New bridges are proposed along new ramp alignments as listed below:

- Bridge on FCH2 over GCO2
- Bridge on FCH2 over I-26
- Bridge on FCH2 over I-95
- Bridge on GCO2 over I-26
- Bridge on GCO2 over I-95

3.0 EXPLORATION PROCEDURES AND SITE CONDITIONS

3.1 FIELD EXPLORATION

3.1.1 Geophysical study

Downhole Seismic Testing

Shear wave velocities of the subsurface materials in the upper 100 feet were measured using downhole seismic test methods at SPT Boring B-8 shown on the Testing Location Diagram located in Appendix II. The Downhole Seismic Test makes direct measurements of compression (P) and shear (S) wave velocities in a borehole advanced through soil. A seismic source is used to generate a seismic wave train at the ground surface that is offset horizontally from the top of a cased borehole. Downhole receivers are used to detect the arrival of the seismic wave train. The downhole receiver(s) are generally positioned at selected test depths in a borehole. The seismic source is connected to and triggers a data recording system that records the response of the downhole receivers, thus measuring the travel time of the wave train between the source and receivers. Measurements of the arrival times of the generated P and S waves are then made so that the low strain (<10—4 %) in-situ P-wave and S-wave velocities can be determined. The calculated seismic velocities are used to characterize the engineering properties of the stratigraphic profile by correlating for elastic constants of Poisson's ratio, shear modulus, bulk modulus, and Young's modulus. The Downhole Seismic Testing results are included in Appendix V of the report.

Surface Wave Testing

Shear wave velocities of the subsurface materials in the upper 100+ feet were also measured using surface wave methods. Specifically, ECS performed shear wave velocity testing using Multi-Channel Analysis of Surface Waves (MASW) near the end bents of each of the proposed replacement bridges. The test locations and configurations are labeled "MASW (B-2)" and "MASW (B-8)" on the Testing Location Diagram located in Appendix II. A combination of active and passive sources were utilized to develop the wave frequencies required to obtain velocities to a depth of 100 feet. The results were combined to produce a single Shear Wave Velocity Profile at each location. These Shear Wave Velocity Profiles are included in Appendix V of the report.

3.1.2 Soil Test Borings

ECS completed a total of twenty-four (24) Proposed Bridge soil test borings (B-01 through B-24), eighteen (18) Roadway/Shoulder Widening soil test borings (P-01 through P-18), and twenty-three (23) Proposed Ramp soil test borings (R-01 through R-23) with CME 75, CME 750X, and Diedrich D-50 drill rigs. Photographic documentation of the drill rig setup at the boring location is included in Appendix IV. The borings were located in the field by an ECS representative at the approximate locations approved by the SCDOT. After completion, the test locations were obtained by a licensed surveyor. Approximate test locations are summarized in Appendix I and as shown on the Testing Location Diagram included in Appendix II.

The soil test borings were drilled using the rotary wash drilling method with a 4-inch bit. Standard Penetration Tests (SPTs) were generally conducted continuously within the top 10 ft. and at 5-ft. intervals thereafter until refusal or the boring termination depth was encountered. At Borings B-02 and B-08, continuous sampling was performed to a depth of 50 feet below the existing ground surface and at 5-ft. intervals thereafter. The SPT is used to provide an index for estimating soil strength and density. In conjunction with the penetration testing, split barrel soil samples were recovered for soil classification and laboratory testing at various intervals. The N-values presented

in the boring logs are uncorrected, field N-values. The hammer calibration records are included in Appendix VII. An ECS Geotechnical Professional was on site and visually classified each sample during drilling. Samples from each split spoon were sealed in plastic bags and returned to the ECS office for laboratory testing. The boring logs are included in Appendix III.

In addition to the SPT samples, ECS attempted to collect eight (8) Undisturbed Shelby Tube Samples (UD-1 through UD-6) in offset borings B-05U, B-15U, CPT-08U, CPT-10U and four (4) Bulk Samples in offset hand auger borings B-01MA, B-06MA, B-07MA, P-12MA. Shelby Tube and Bulk samples were sealed and transported to our lab for potential laboratory testing. Shelby Tube recovery photos are included in Appendix IV.

3.1.3 CPT Soundings

ECS completed a total of thirteen (13) Cone Penetrometer Tests (CPT) (CPT-01 through CPT-13). The CPT test soundings were performed with a skid steer mounted rig in general conformance with ASTM D 5778. The Vertek S4 cone used in the soundings has a tip area of 15 cm² and a sleeve area of 225 cm². The CPT soundings recorded tip resistance and sleeve friction measurements to assist in determining pertinent index and engineering properties of the site soils. The results of the CPT soundings are included in Appendix III.

3.1.4 DMT Soundings

ECS completed a total of seven (7) Dilatometer Tests (DMT) (DMT-01 through DMT-07). The DMT test soundings were performed with a skid steer mounted rig in general conformance with ASTM D 6635. The results of the DMT soundings are included in Appendix III.

3.2 LABORATORY TESTING

The laboratory testing frequency was determined by the SCDOT and laboratory testing was performed in accordance with the respective ASTM and AASHTO standards. Individual laboratory test results and a Laboratory Testing Summary are presented in Appendix VI. Table 3.2.1 provides a quantitative overview of the testing performed:

Table 3.2.1 Laboratory Test Quantities

Test Type	Quantity
Atterberg Limits	177
Natural Moisture Content	175
Sieve Analysis	177
Corrosion Series Testing	2
Organic Content	4
Standard Proctor	4
CBR	4
CU Triaxial Compression	7

3.3 REGIONAL/SITE GEOLOGY

The site is located in the Coastal Plain Physiographic Province of South Carolina. The Coastal Plain is typically characterized by marine, alluvial, and aeolian sediments that were deposited during periods of fluctuating sea levels and moving shorelines. Basal formations are typical of those laid down in a shallow sloping sea bottom, dense sand, consolidated clay, limestone, chalk, marl, claystone, and sandstone. Overburden soils include marine interbedded gravel, sand, silt, and clay. Many of the clays have been pre-consolidated by desiccation from frequent rising and lowering of the sea level and groundwater table. Alluvial gravel, sand, silt, and clay are typically present near rivers and creeks.

At the project site, the surface geology generally consists of Holocene materials (Alluvium) underlain by Pleistocene materials (Penholoway Terrace Sediments and/or Waccamaw Formation) and Oligocene materials (Ashley Formation) and then Eocene materials (Calcareous Sediments). The Calcareous Sediments were formed during the middle to upper Eocene epoch, and may consist of sediments from the Santee Limestone, Harleyville, and Cross formations. The Santee Limestone is composed of fossiliferous limestone with sand, marl, and shell beds. The Harleyville formation consists of olive gray and greenish gray, compact, fine-grained, fossiliferous, phosphatic calcarenite. The Cross formation consists of grayish yellow biomicrite, deeply burrowed and containing bryozoans, brachiopods, and bivalves.

This investigation and those done at nearby sites have identified weak soil conditions (i.e. 0 blows per foot or very low N-values) below the Santee Formation. Based on previous studies in the area and consultation with the South Carolina Geological Survey, it was noted that the formation below the Santee Limestone may be the Warley Hill Formation; and the weak soil zones are not likely to be relic karst sinkholes but are likely to be relic scour holes caused by wave action, which were filled with sands and then overlain by the Santee Limestone Formation. However, during the subsurface exploration, some of the borings encountered intervals of drilling fluid loss (possible void) and weight of hammer sampling intervals with zero recovery above the Calcareous Sediments that could be indicative of karst sinkholes.

In addition, it is apparent that the natural geology within the site has been modified in the past by grading that included the 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.

For generalized characterizations of the soil strata encountered during our subsurface exploration, refer to the Soil Stratification Tables presented in Appendix II. For subsurface information at a specific location, refer to the logs presented in Appendix III.

3.4 GROUNDWATER

Where encountered, groundwater was measured between approximately 1 and 17.3 feet below the existing ground surface after a stabilization period of at least 24 hours; corresponding to elevations ranging between 108.7 feet and 81.7 feet. Groundwater elevations should be expected to vary depending on seasonal fluctuations in precipitation, surface water absorption characteristics, and other factors not readily apparent at the time of our exploration and may be higher or lower than

inferred from the recent test boring data. Groundwater observations are noted on the individual Soil Test Logs provided in Appendix III.

Due to the presence of shallow groundwater in portions of the site, careful consideration by the design team regarding depth to groundwater within proposed cut excavations and proposed borrow materials in areas of shallow groundwater should be reviewed for potential of wet borrow materials.

4.0 DESIGN AND CONSTRUCTION CONSIDERATIONS

As defined in the SCDOT GDM, the scope of this Geotechnical Baseline Report is limited to very preliminary engineering considerations. The following sections present general geotechnical considerations concerning foundations, embankments, and site construction.

4.1 FOUNDATIONS

4.1.1 Pile Foundations

We expect driven pile foundations will be used to support bridge end bents and interior bents for the project. Due to the presence of very dense and/or hard soils encountered in the bridge borings, hard driving conditions should be anticipated during driven pile installation. Pile foundation considerations are discussed in the following sections.

Axial Resistance

We expect driven piles will develop their required resistance through a combination of skin friction and tip resistance in the deeper formations beneath any layers susceptible to Shear Strength Loss (SSL) during the design seismic event. As discussed in Section 3.3, weak soil zones encountered in the borings below very dense/hard limestone strata may be encountered at bridge bent locations and should be considered by the GEOR. We expect medium- to large-sized pile hammers will be required to advance the piles through very dense/hard soil strata to minimum tip elevation.

We anticipate the pile driving termination criteria will be based on either a wave equation analysis or Pile Dynamic Analyses (PDA) with capacity verification analyses (ie. CAPWAP). If the required driving resistance is not attained during initial drive, then a wait period may be implemented to allow for pile “freeze” or “set-up”. Following the wait period, pile driving re-strikes should be performed. The number of required PDA tests should be in accordance with the GDM.

Lateral Resistance

Abutment piles will likely develop adequate lateral stability from the embankment fill and underlying Coastal Plain soils. Seismic bridge abutment backwall passive pressures should be calculated in accordance with Chapter 14 of the GDM. Soil SSL during the Extreme Event I condition should be anticipated in the on-site lower consistency saturated sands and soils subject to SSL should not be relied upon for lateral resistance.

Driveability

We anticipate that low-displacement piles (ie. steel H-piles) will be used at the end bents. Displacement piles (ie. pre-stressed concrete piles) or composite piles are anticipated at the interior bents. Depending on actual pile lengths, pile splicing may be needed to reach pile tip elevations. Driven piles will likely use a diesel hammer. The contractor should limit time between sequences to avoid pile freeze that may inhibit further advancement to minimum pile tip elevation.

Medium- to large-size pile hammers will likely be required to advance the piles into very dense/hard soils. Hard driving is anticipated in very dense/hard strata. The contractor should address earth-borne vibrations in their pile installation plan.

4.1.2 Drilled Shaft Foundations

Drilled shafts could be an alternative foundation option at interior bent locations. We anticipate that drilled shaft sizes would range from 36 to 60 inches in diameter. Drilled shaft considerations are presented in the following sections.

Axial Resistance

We expect drilled shafts will develop their required resistance through a combination of side and end resistance in the deeper formations beneath any layers susceptible to SSL during the design seismic event. Based on the soil and groundwater conditions, construction casing will be required during drilled shaft construction. Per SCDOT policy, the drilled shaft design will need to generate the required side resistance in the uncased portion of the shaft. The design team should determine whether load testing would benefit the project and if load testing is performed, it must meet the GDM requirements.

Lateral Resistance

Soil SSL during the Extreme Event I condition should be anticipated in the on-site lower consistency saturated sands and soils subject to SSL should not be relied upon for lateral resistance. Careful consideration of the potential of a long unsupported foundation length due to SSL should be exercised by the design team to develop structural and geotechnical shaft designs.

Constructability

We anticipate that drilled shafts will be installed using the wet method of construction with casing. Steel casing should be advanced and seated into an appropriate stratum to seal the casing and reduce water intrusion. Drilled shaft construction may require excavation of very dense, hard soils. Contractors should prepare their drilled shaft installation plan to efficiently excavate the reported materials.

4.1.3 Shallow Foundations

Due to the subsurface conditions encountered at the site, shallow foundations are not a recommended foundation option for proposed interchange structures. Shallow foundations are not typically utilized on SCDOT bridges due to the difficulty with balancing both settlement and bearing capacity requirements as well as constructability issues.

4.2 SEISMIC CONSIDERATIONS

The “2008 SCDOT Seismic Design Specifications for Highway Bridges” should be utilized to determine the seismic induced ground shaking at the foundations. Bridge Structures on the state highway system are split into Operational Classifications I, II, and III depending on Table 3.1 in the Seismic Design Specification. We anticipate the majority of the bridges for this project are Operational Classification I Structures. Operational Classification I Structures require an evaluation for the Safety Evaluation Earthquake (SEE) and Functional Evaluation Earthquake (FEE). The performance criteria required for each successive earthquake are included in Section 3.2.3 of the Seismic Design Specifications for both the FEE and SEE.

4.2.1 Ground Motion

For this preliminary analysis, ECS was provided the Acceleration Design Response Spectrum (ADRS) for the project. The values of SDS, SD1, and PGA for the project for the Functional Evaluation Earthquake (FEE) and Safety Evaluation Earthquake (SEE) are provided on the preliminary ADRS, included in Appendix V.

4.2.2 Site Stiffness

The shear wave velocities at each bridge location were obtained by a combination of performing Multi-channel Analysis of Surface Waves (MASW), CPT Seismic Soundings, and Downhole Seismic Testing performed within the vicinity of locations B-02 and B-08 shown on the appended Testing Location Diagram (Appendix II). The shear wave velocity data for the project are provided in Appendix III on CPT log C-02 and in Appendix V. Review of the provided SCDOT ADRS indicates a site stiffness ($V_{s,H}^*$) over an approximately 500 foot depth ($H=506.9$ ft) of approximately 1,690 ft/sec.

4.2.3 Liquefaction Potential

Based on a preliminary liquefaction screening of the site soils using both SPT and CPT data, there appears to be the potential for liquefaction and lateral soil spreading to occur. Holocene deposits generally have a higher potential for liquefaction, but we expect some of the Pleistocene materials may also have the potential for liquefaction during the SEE design event. It is generally accepted that the older encountered deposits have a lower potential for liquefaction. The Design-Build Team should carefully evaluate the liquefaction potential of the site soils and determine whether ground improvement is necessary to accommodate seismically induced deformations.

4.3 PAVEMENTS

Sixteen (16) asphalt pavement cores were obtained from borings along I-26, generally performed within the existing shoulder and/or right travel lanes of east and west-bound routes. Photographs of the cores are provided in Appendix IV. Review of the extracted cores indicates the existing asphalt thickness along the I-26 corridor varies from 6 to 14 inches.

Near-surface bulk samples were collected from four (4) locations throughout the project corridor for CBR and Proctor testing. Additionally, index testing was performed on Split Spoon samples from each of the pavement boring locations immediately under the existing asphalt pavement section. Based on the results of the laboratory testing, the near surface soil material included soils from AASHTO soil classifications A-2-4, A-2-6, and A-4. At the bulk sample locations, the CBR values ranged from 4.3 to 15.1 when remolded to 95% of their respective standard Proctor maximum dry density value.

4.4 EMBANKMENTS AND RETAINING WALLS

New roadway and bridge approach embankments are anticipated for the project with fill heights up to approximately 50 feet. Static and seismic embankment slope stability analyses are required at the bridge approach embankments and static slope stability for applicable roadway embankments. Based on preliminary slope stability analyses using a representative soil profile modelled from the data provided on the boring logs and sounding reports, there is potential for static and seismic slope instability at bridge abutments and new roadway embankments. The Design-build team should evaluate whether the associated loading can be withstood by the bridge structure or ground improvement and/or modification may be required to reduce the applied forces.

Based on proposed fill heights and the presence of lower consistency soils noted on the logs, there is a potential for static soil settlement below proposed roadway embankments within the project corridor. The subsurface profile primarily consists of sands; however, pockets of very soft and soft cohesive materials were encountered below proposed roadway and bridge approach embankments. The Design-Build Team should consider the potential effects of long-term consolidation in their embankment analyses. We expect secondary compression will be a lower percentage of the total consolidation settlement, but layers with an elevated organic content like those encountered in boring B-07 should be analyzed further. Waiting periods with monitoring should be anticipated to meet the required performance criteria. Lightweight fills, surcharging, prefabricated vertical drains, and other ground improvements could be considered to mitigate the anticipated waiting periods.

Besides the MSE walls that are anticipated for some of the bridge abutments, site retaining walls are anticipated within the project corridor to accommodate changes in grade and/or reduce right-of-way requirements. Applicable retaining wall types will need to be evaluated during the design phase of the project following an additional geotechnical investigation to be carried out by the Design-Build team. The potential effects of long-term consolidation should be considered during wall design. Monitoring of staged vertical construction in addition to use of lightweight fill materials, surcharging, prefabricated vertical drains, and other ground improvements should be considered to meet the required performance criteria. Retaining wall design shall meet the requirements of the SCDOT GDM. External stability analysis must be performed for these walls and soil improvement measures, such as undercutting and replacement with suitable materials, or other mitigation actions, shall be determined.

4.5 CORROSIVITY

The effects of corrosion and deterioration from in-situ environmental conditions should be considered in the selection of foundations. Corrosion of steel pile foundations typically occurs in fill soils with low pH and in marine environments. Deterioration of concrete piles occurs because of high levels of sulfate, chloride, and acid attack. Section 10.7.5 of the AASHTO LRFD Specifications describes soil conditions that are considered as indicative of a potential corrosive environment include having a resistivity less than 2,000 ohm-cm, a pH less than 5.5, and/or a sulfate concentration greater than 1,000 parts per million (ppm). Additionally, FHWA Publication No. FHWA-RD-89-186 discusses soils could be potentially corrosive if having chloride content greater than 100 ppm and sulfate greater than 200 ppm. Results of the corrosivity testing are summarized in Table 4.5.1.

Table 4.5.1 Corrosion Testing

Boring Number	Resistivity (ohm-cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
B-01MA	12,596	6.7	6.2	134
B-07MA	4,267.9	6.4	4.6	68

Based on the laboratory testing results and Table 7-34 of the GDM, a non-aggressive environmental classification for substructure and ERSs is present at the site.

5.0 CLOSING

ECS has prepared this Geotechnical Baseline Report in general accordance with the 2022 SCDOT GDM and with generally accepted geotechnical engineering practices for the specific application to this project. The preliminary recommendations and conclusions in this report are based on the applicable standards of our practice in the project geology at the time this report was prepared. The Geotechnical Engineer of Record (GEOR) for the project must review the data in this report and develop their own interpretation of the testing results for their design.

If any of the information in this report is inaccurate, either due to our interpretation of the documents provided or site or design changes that may occur later, ECS should be contacted immediately so that we can review the report in light of the changes and provide additional or alternate recommendations, as may be required, to reflect the proposed construction. ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

Appendix I - Boring Summary Tables

Summary of Bridge Boring Locations (Table 1.1)

Summary of Pavement and Shoulder Boring Locations (Table 1.2)

Summary of Ramp Boring Locations (Table 1.3)

Summary of CPT Sounding Locations (Table 1.4)

Summary of DMT Sounding Locations (Table 1.5)





I-26 at I-95 Interchange Improvements
 Orangeburg County, South Carolina
 SCDOT Project ID: P038677, ECS Project No. 34:4266

TABLE 1.1 - SUMMARY OF BRIDGE BORING LOCATIONS

Boring Number	Bridge Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survey Coordinates			
							Latitude	Longitude	Northing	Easting
B-01	S-38-1302	S-38-1302	100.0	99.6	46+02.14	LT 9.11	33.3255110	-80.5542640	543201.00	2136134.66
B-02	S-38-1302	S-38-1302	100.0	99.9	44+65.33	LT 5.22	33.3252330	-80.5545660	543099.48	2136042.87
B-03	S-38-1302	S-38-1302	100.0	102.9	43+79.16	LT 8.00	33.3250670	-80.5547700	543038.93	2135981.06
B-04	I-95	I-26 / I-95 Replacement	100.0	102.6	3204+63.46	LT 88.22	33.3189640	-80.5479540	540827.54	2138072.44
B-05	I-95	I-26 / I-95 Replacement	100.0	99.8	3204+74.71	LT 1.34	33.3187900	-80.5481520	540764.00	2138012.13
B-06	I-95	I-26 / I-95 Replacement	83.4	102.9	3205+28.79	RT 84.02	33.3185270	-80.5482590	540668.19	2137980.01
B-07	I-95	I-26 / I-95 Replacement	100.0	102.8	3207+41.47	RT 83.10	33.3180730	-80.5478190	540503.75	2138114.89
B-08	I-95	I-26 / I-95 Replacement	100.0	99.9	3207+50.37	LT 1.38	33.3182000	-80.5475860	540550.14	2138186.06
B-09	I-95	I-26 / I-95 Replacement	100.0	102.3	3206+70.10	LT 88.99	33.3185230	-80.5475270	540667.69	2138203.40
B-10	FCH2-1	Florence to Charleston	100.0	96.8	26+24.44	RT 39.43	33.3216200	-80.5488590	541792.76	2137791.63
B-11	FCH2-2	Florence to Charleston	100.0	98.9	31+38.38	RT 25.48	33.3204680	-80.5503680	541371.66	2137332.72
B-12	FCH2-2	Florence to Charleston	100.0	99.9	29+66.05	LT 35.25	33.3209220	-80.5496330	541537.74	2137556.47
B-13	FCH2-2	Florence to Charleston	100.0	98.6	30+91.50	LT 10.23	33.3207290	-80.5499730	541467.05	2137452.84
B-14	FCH2-3	Florence to Charleston	100.0	111.8	50+38.76	LT 71.77	33.3162120	-80.5491630	539824.80	2137707.40
B-15	FCH2-3	Florence to Charleston	100.0	107.1	48+13.85	RT 29.67	33.3163880	-80.5499290	539887.89	2137473.30
B-16	FCH2-3	Florence to Charleston	100.0	110.7	49+31.73	LT 17.57	33.3162630	-80.5495390	539842.91	2137592.61
B-17	FCH2-4	Florence to Charleston	100.0	96.4	56+69.78	LT 48.30	33.3153910	-80.5473830	539528.60	2138252.32
B-18	FCH2-4	Florence to Charleston	98.6	96.3	55+44.88	RT 14.89	33.3153820	-80.5478420	539524.48	2138112.41
B-19	GCO2-1	Georgia to Columbia	100.0	99.3	51+62.88	RT 31.50	33.3165830	-80.5455490	539964.65	2138810.59
B-20	GCO2-1	Georgia to Columbia	100.0	100.1	49+58.61	LT 17.67	33.3162390	-80.5461050	539838.77	2138641.56
B-21	GCO2-1	Georgia to Columbia	100.0	98.6	50+57.47	LT 1.42	33.3164060	-80.5458480	539899.91	2138719.60
B-22	GCO2-2	Georgia to Columbia	100.0	102.6	69+99.85	RT 19.09	33.3211270	-80.5466020	541616.35	2138481.97
B-23	GCO2-2	Georgia to Columbia	100.0	103.4	67+15.39	RT 56.25	33.3206800	-80.5457950	541454.65	2138729.12
B-24	GCO2-2	Georgia to Columbia	100.0	111.8	68+47.02	LT 1.04	33.3208270	-80.5462410	541507.51	2138592.65



I-26 at I-95 Interchange Improvements
 Orangeburg County, South Carolina
 SCDOT Project ID: P038677, ECS Project No. 34:4266

TABLE 1.2 - SUMMARY OF PAVEMENT AND SHOULDER BORING LOCATIONS

Boring Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survey Coordinates			
						Latitude	Longitude	Northing	Easting
P-01	I-26 Widening	5	104.9	3149+30.19	LT 67.93	33.3304120	-80.5598960	544976.65	2134407.24
P-02	I-26 Widening	5	104.8	3156+95.40	LT 67.07	33.3288630	-80.5582000	544415.35	2134927.33
P-03	I-26 Widening	6.6	104.5	3164+32.87	RT 77.81	33.3271020	-80.5569140	543776.37	2135323.00
P-04	I-26 Shoulder	6	104	3164+30.91	LT 82.02	33.3274040	-80.5565330	543886.57	2135438.78
P-05	I-26 Shoulder	6	103.3	3171+74.30	RT 83.89	33.3255910	-80.5552840	543228.94	2135823.08
P-06	I-26 Widening	5.1	104.9	3171+73.79	LT 66.48	33.3258720	-80.5549230	543331.64	2135932.92
P-07	I-26 Shoulder	6.6	104.5	3179+31.49	RT 77.56	33.3240610	-80.5536150	542674.18	2136335.20
P-08	I-26 Widening	6	103.9	3179+35.84	LT 82.94	33.3243410	-80.5532100	542776.88	2136458.62
P-09	I-26 Widening	5	103.6	3186+57.76	RT 110.39	33.3224830	-80.5521690	542102.28	2136779.25
P-10	I-26 Widening	5.5	103.9	3200+72.40	LT 67.10	33.3197650	-80.5488110	541117.64	2137809.35
P-11	I-26 Widening	6.5	102.4	3208+24.19	RT 87.38	33.3178890	-80.5476600	540436.87	2138163.76
P-12	I-26 Widening	5	101.3	3223+57.52	LF 65.34	33.3148710	-80.5441210	539343.49	2139249.55
P-13	I-26 Shoulder	6	100	3229+17.36	LF 84.71	33.3137060	-80.5429220	538921.33	2139617.76
P-14	I-26 Widening	6.8	100.2	3231+05.37	RT 83.05	33.3130140	-80.5429640	538669.62	2139606.20
P-15	I-26 Shoulder	6	99.2	3234+74.03	RT 85.30	33.3122210	-80.5422120	538382.15	2139837.02
P-16	I-26 Widening	5	100	3238+72.21	LT 67.13	33.3116320	-80.5410060	538169.36	2140206.48
P-17	I-26 Widening	6.8	99.1	3246+13.02	RT 74.86	33.3098010	-80.5398460	537504.99	2140563.65
P-18	I-26 Shoulder	5	98	3249+36.72	RT 82.33	33.3090950	-80.5392000	537249.12	2140762.06



I-26 at I-95 Interchange Improvements
 Orangeburg County, South Carolina
 SCDOT Project ID: P038677, ECS Project No. 34:4266

TABLE 1.3 - SUMMARY OF RAMP BORING LOCATIONS

Boring Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survey Coordinates			
						Latitude	Longitude	Northing	Easting
R-1	Charleston to Florence	20	97.6	20+01.84	RT 27.42	33.3164970	-80.5443460	539934.76	2139178.34
R-2	Charleston to Florence	20	95	40+62.06	LT 37.38	33.3221620	-80.5446600	541995.45	2139073.30
R-3	Charleston to Georgia	40	96.6	23+95.55	RT 15.88	33.3212290	-80.5476070	541652.20	2138174.61
R-4	Columbia to Florence	20	99.4	19+66.66	RT 33.95	33.3160560	-80.5470860	539770.69	2138342.12
R-5	Columbia to Florence	60	103	24+30.68	LT 13.94	33.3158290	-80.5484040	539686.57	2137939.81
R-6	Columbia to Georgia	20	102.7	25+05.78	LT 68.19	33.3202330	-80.5510450	541285.20	2137126.13
R-7	Columbia to Georgia	30	103.6	38+54.00	LT 62.96	33.3165290	-80.5509110	539937.60	2137173.02
R-8	Columbia to Georgia	20	104	49+87.24	LT 42.54	33.3135130	-80.5519520	538839.19	2136859.76
R-9	Georgia to Columbia	60	99.5	62+82.09	RT 15.51	33.3195810	-80.5451470	541055.93	2138928.87
R-10	Florence to Charleston	40	99.5	34+56.02	LT 9.54	33.3198940	-80.5506040	541162.37	2137261.44
R-11	Florence to Charleston	20	102.5	39+90.23	LT 78.15	33.3184840	-80.5506750	540649.15	2137242.04
R-12	Florence to Charleston	20	95.9	65+13.06	LT 1.27	33.3142800	-80.5449560	539127.65	2138995.69
R-13	Florence to Charleston	20	97.1	09+84.01	RT 5.00	33.3240200	-80.5443480	542671.69	2139165.63
R-14	Florence to Charleston	20	95.2	15+25.18	RT 28.14	33.3231360	-80.5457450	542348.48	2138740.39
R-15	Georgia to Columbia	20	98	85+11.08	RT 2.59	33.3225610	-80.5511780	542131.94	2137081.82
R-16	Georgia to Columbia	20	96.4	80+55.39	RT 26.31	33.3219650	-80.5498960	541916.80	2137474.52
R-17	Florence to Columbia	20	98.4	31+67.72	RT 13.10	33.3229020	-80.5508460	542256.52	2137182.81
R-18	Florence to Columbia	20	98.3	88+37.39	RT 18.19	33.3232420	-80.5518740	542378.62	2136868.15
R-19	Georgia to Charleston	20	98.7	29+92.58	RT 28.96	33.3131220	-80.5511580	538697.99	2137103.02
R-20	Georgia to Charleston	20	99	33+00.33	LT 26.71	33.3137570	-80.5504560	538929.92	2137316.28
R-21	Georgia to Charleston	20	98.4	25+81.22	RT 21.32	33.3121190	-80.5517800	538332.29	2136914.51
R-22	Georgia to Columbia	20	98.2	34+37.24	RT 9.22	33.3140990	-80.5503380	539054.29	2137351.80
R-23	Georgia to Columbia	40	99.1	55+05.17	LT 3.06	33.3174740	-80.5451450	540289.38	2138932.78



I-26 at I-95 Interchange Improvements
 Orangeburg County, South Carolina
 SCDOT Project ID: P038677, ECS Project No. 34:4266

TABLE 1.4 - SUMMARY OF CPT SOUNDING LOCATIONS

Boring Number	Bridge Number	Route/ Alignment	Depth of Sounding (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survey Coordinates			
							Latitude	Longitude	Northing	Easting
CPT-1	S-38-1302	S-38-1302	60.1	101.5	43+68.16	LT 30.05	33.32509	-80.55485	543046.46	2135957.74
CPT-2	I-95	I-26 / I-95 Replacement	48.6	124	3205+32.65	LT 184.64	33.31898	-80.54757	540834.68	2138190.90
CPT-3	I-95	I-26 / I-95 Replacement	60.0	123.3	3206+62.55	RT 177.93	33.31808	-80.54822	540505.16	2137991.53
CPT-4	FCH2-1	Florence to Charleston	18.8	96.6	26+35.53	RT 21.84	33.32156	-80.54886	541771.99	2137791.16
CPT-5	FCH2-2	Florence to Charleston	60.0	98.6	31+67.17	LT 15.56	33.32034	-80.55030	541323.74	2137355.02
CPT-6	FCH2-3	Florence to Charleston	41.0	107.4	48+08.71	RT 9.51	33.31644	-80.54989	539905.79	2137483.99
CPT-7	GCO2-1	Georgia to Columbia	60.1	96.2	55+79.24	LT 16.81	33.31542	-80.54770	539538.59	2138156.98
CPT-8	GCO2-2	Georgia to Columbia	29.5	99.7	49+35.20	RT 15.59	33.31613	-80.54608	539798.50	2138647.97
CPT-9	GCO2-3	Georgia to Columbia	34.7	105.9	69+78.77	RT 5.22	33.32106	-80.54657	541592.99	2138491.96
CPT-10	N/A	Georgia to Columbia	60.1	99.9	60+19.21	LT 41.04	33.31885	-80.54512	540790.66	2138938.98
CPT-11	N/A	Georgia to Columbia	29.1	102.4	70+90.75	LT 33.87	33.32113	-80.54694	541617.54	2138377.27
CPT-12	N/A	Florence to Charleston	29.7	99.9	45+07.96	RT 9.91	33.31710	-80.55049	540147.15	2137301.84
CPT-13	N/A	Charleston to Georgia	24.2	99.1	21+41.43	RT 54.90	33.32080	-80.54918	541493.51	2137694.66



I-26 at I-95 Interchange Improvements
 Orangeburg County, South Carolina
 SCDOT Project ID: P038677, ECS Project No. 34:4266

TABLE 1.5 - SUMMARY OF DMT SOUNDING LOCATIONS

Boring Number	Bridge Number	Route/ Alignment	Depth of Sounding (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survey Coordinates			
							Latitude	Longitude	Northing	Easting
DMT-01	S-38-1302	S-38-1302	12.17	102.9	45+79.26	RT 7.15	33.325435	-80.554278	543173.18	2136130.59
DMT-02	I-95	I-26 / I-95 Replacement	15.22	100.9	3205+90.41	RT 0.62	33.318539	-80.547919	540672.99	2138083.60
DMT-03	FCH2-1	Florence to Charleston	7.09	110.8	67+54.34	RT 30.52	33.320712	-80.545947	541466.27	2138682.64
DMT-04	FCH2-2	Florence to Charleston	29.46	100.6	29+80.13	RT 5.50	33.320979	-80.549757	541558.08	2137518.52
DMT-05	FCH2-3	Florence to Charleston	38.62	111.7	50+28.25	RT 24.68	33.316010	-80.549370	539750.96	2137644.49
DMT-06	GCO2-1	Georgia to Columbia	4.04	96.4	56+34.47	LT 10.72	33.315340	-80.547541	539509.61	2138204.39
DMT-07	GCO2-2	Georgia to Columbia	23.36	99.3	51+79.75	LT 28.29	33.316715	-80.545679	540012.38	2138770.79

Appendix II – Drawings & Reports

Site GeoScoping Form

Site Location Diagram

Testing Location Diagram (Sheets A-1 through A-6)

Soil Stratification Tables:

S-38-1302 over I-26

Twin Bridges I-95 over I-26

Bridge Bridge on FCH2 over I-26

Bridge on FCH2 over I-95

Bridge on FCH2 over GCO2

Bridge on GCO2 over I-26

Bridge on GCO2 over I-95

Subsurface Profiles:

S-38-1302 over I-26

Bridge I-95 South Bound over I-26

Bridge I-95 North Bound over I-26

Bridge on FCH2 over I-26

Bridge on FCH2 over I-95

Bridge on FCH2 over GCO2

Bridge on GCO2 over I-26

Bridge on GCO2 over I-95



GeoScoping Form

PROJECT INFORMATION	
Project ID: P038677	Date of Trip: November 2022
County: Orangeburg County	Location: I-26/I-95 Interchange
Rd/Route: I-26, I-95, associated ramps & roads	Local Name: I-26/I-95 Interchange
Attendees: J. Wadford, A. Guest, ECS drilling representative	

EXISTING BRIDGE INFORMATION	
Bridge Length: ~320 ft.	Bridge Width: ~52 ft
Superstructure Type:	Substructure Type:
Begin Bridge Sta.:	End Bridge Sta.:
Begin Bridge Embankment Sta. ¹ :	End Bridge Embankment Sta. ¹ :
Structure Number:	Posted Weight Limit:
Crossing: bridges over I26	Skew:
Latitude: 33.318465°	Longitude: -80.547827°
Existing Fill Height: varies	Approximate Existing Slope Angle:

¹Begin and End Bridge Embankment 100 feet down station or up station from bridge, respectively

EXISTING ROADWAY EMBANKMENT INFORMATION		
Begin Project Sta.: various alignments	Begin Bridge Embankment Sta. ¹ :	
Accessibility Issues: active travel lanes		
Ground Cover: asphalt pavement with maintained grass shoulders		
Existing Fill Height:	Approximate Existing Slope Angle:	
Local Development (undeveloped, developed residential, developed commercial, developed industrial, etc.): ex. interchange		
Topography (level, flat, rolling, steep, hillside, valley, swamp, gully, etc.): flat, level ground predominantly		
Traffic Control Necessary (Y/N): Night work required for interstate lane and/or shoulder closures		
Surface Soil: Silty SANDS	Muck (Y/N): N	
Exposed Rock (Y/N): N	In Stream Bed (Y/N): N	In Banks (Y/N): N
Wetlands On-Site (Y/N): N	Wetlands Adjacent (Y/N): N	
Depth FG to Water: N/A	Water Depth: N/A	
Depth to Existing Ground:		
Scour Condition at EB: N/A	Scour Condition at IB: N/A	
End Bridge Embankment Sta. ¹ :	End Project Sta.:	
Accessibility Issues:		
Ground Cover: concrete apron at existing I95 bridge embankments over I26		
Existing Fill Height: varies	Approximate Existing Slope Angle:	
Local Development (undeveloped, developed residential, developed commercial, developed industrial, etc.):		
Topography (level, flat, rolling, steep, hillside, valley, swamp, gully, etc.):		
Traffic Control Necessary (Y/N): Night work required for lane/shoulder closures along interstate		
Surface Soil: Silty SANDS	Muck (Y/N): N	
Exposed Rock (Y/N): N	In Stream Bed (Y/N): N	In Banks (Y/N): N
Wetlands On-Site (Y/N): N	Wetlands Adjacent (Y/N): N	
Depth FG to Water: N/A	Water Depth: N/A	
Depth to Existing Ground:		
Scour Condition at EB: N/A	Scour Condition at IB: N/A	

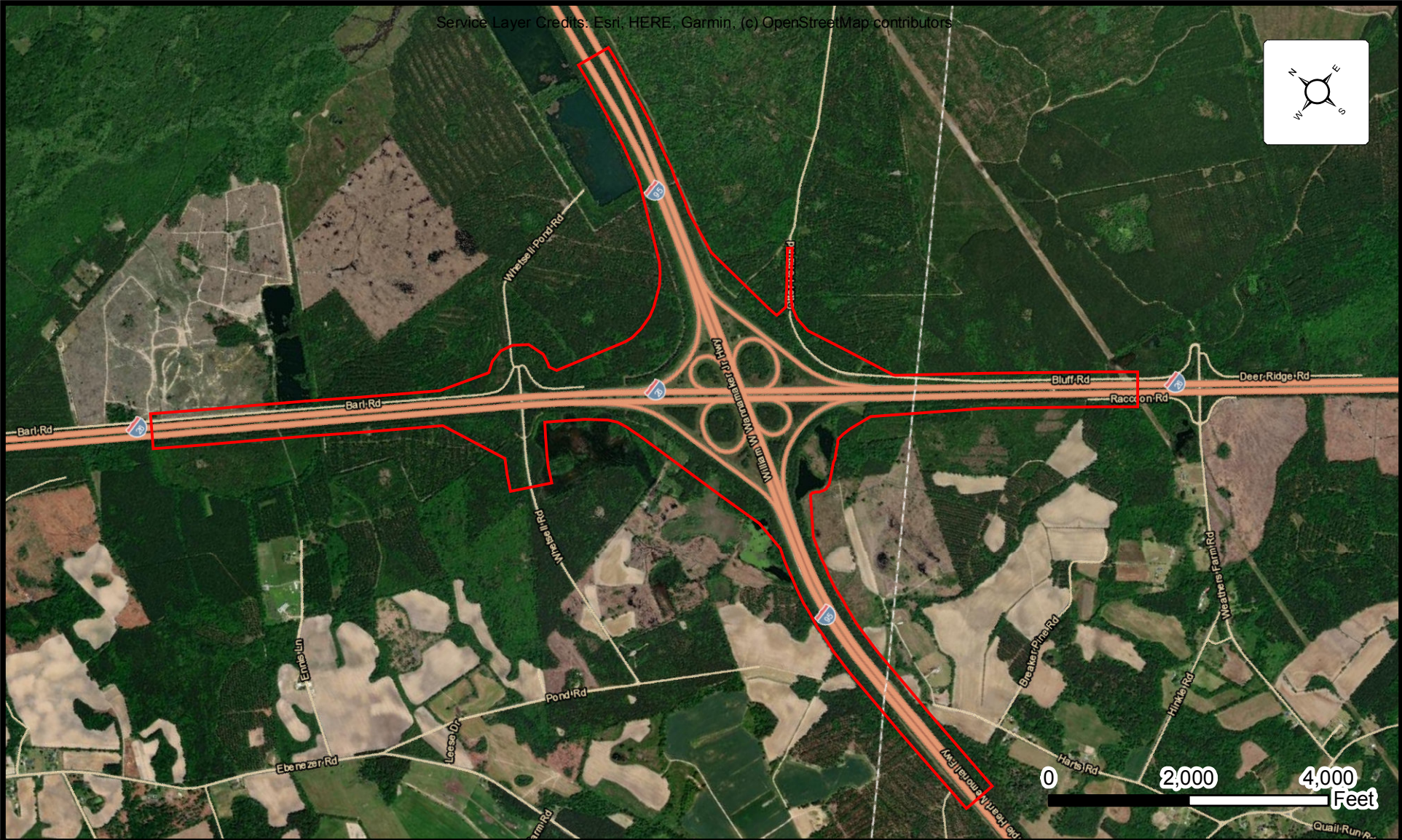
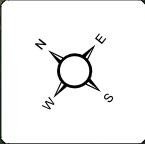
GeoScoping Form

UTILITIES INFORMATION
Attached: Testing Location Diagram, site photographic Log
Above Ground/ Overhead: overhead power not observed along majority of the existing roads/ramps
Underground: field indicators of underground electric for light poles

COMMENTS
-night work necessary for roadway/pavement borings and/or bridge borings on I95 over I26 bridges -some of the new ramp alignments on private property -new ramp alignments in ponded areas -clearing required in undeveloped wooded areas where new alignments proposed.

Instructions:

1. Attach boring location plan for bridge and roadway.
2. Attach all photographs taken, photographs to be labeled as to direction looking in and what is being depicted.
3. Fill out GeoScoping Form as completely as possible, using additional sheets as necessary to describe site conditions.
4. If representative of GEC on site during GeoScoping, include GEC representative's name and contact number in Attendees block.

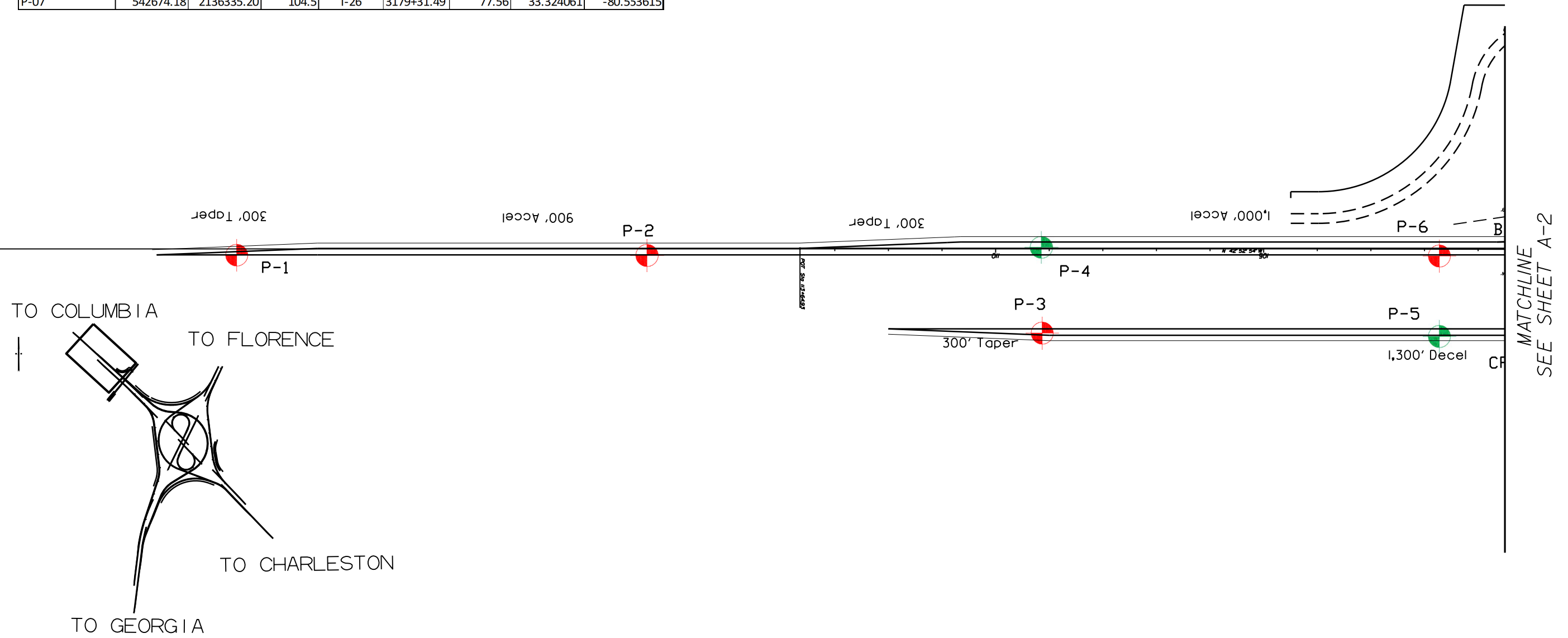
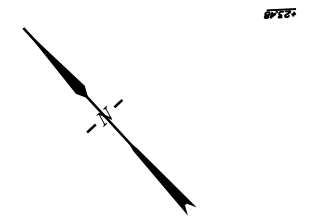


SITE LOCATION DIAGRAM I-95 & I-26 INTERCHANGE IMPROVEMENTS

ORANGEBURG COUNTY
CIVIL ENGINEERING CONSULTING SERVICES

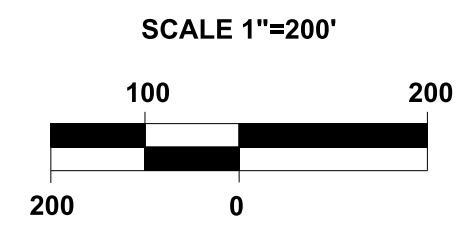
ENGINEER MRB2
SCALE AS NOTED
PROJECT NO. 34:4266
FIGURE 1 OF 1
DATE 3/23/2023

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
P-01	544976.65	2134407.24	104.9	I-26	3149+30.19	-67.93	33.330412	-80.559896
P-02	544415.35	2134927.33	104.8	I-26	3156+95.40	-67.07	33.328863	-80.558200
P-03	543776.37	2135323.00	104.5	I-26	3164+32.87	77.81	33.327102	-80.556914
P-04	543886.57	2135438.78	104.0	I-26	3164+30.91	-82.02	33.327404	-80.556533
P-05	543228.94	2135823.08	103.3	I-26	3171+74.30	83.89	33.325591	-80.555284
P-06	543331.64	2135932.92	104.9	I-26	3171+73.79	-66.48	33.325872	-80.554923
P-07	542674.18	2136335.20	104.5	I-26	3179+31.49	77.56	33.324061	-80.553615



LEGEND

	APPROXIMATE RAMP BORING LOCATION		APPROXIMATE CPT SOUNDING LOCATION
	APPROXIMATE ROADWAY BORING LOCATION		APPROXIMATE DMT SOUNDING LOCATION
	APPROXIMATE SHOULDER BORING LOCATION		APPROXIMATE BRIDGE BORING LOCATION

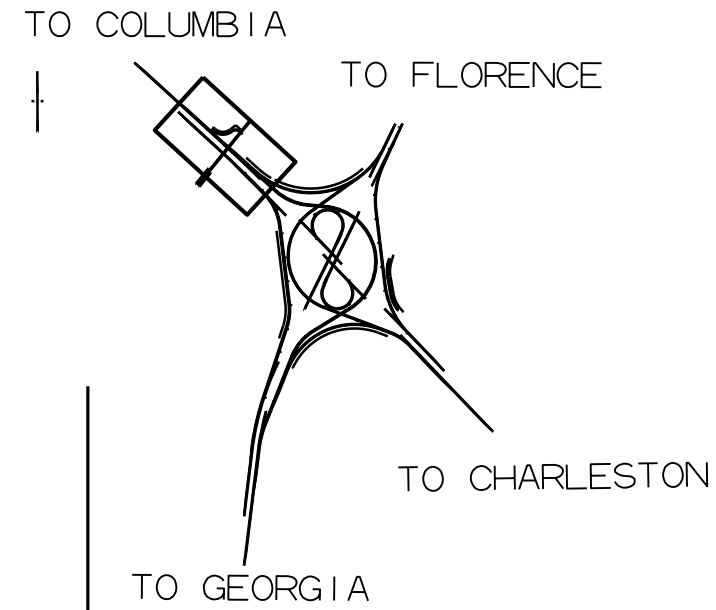


I-26/I-95 INTERCHANGE IMPROVEMENTS

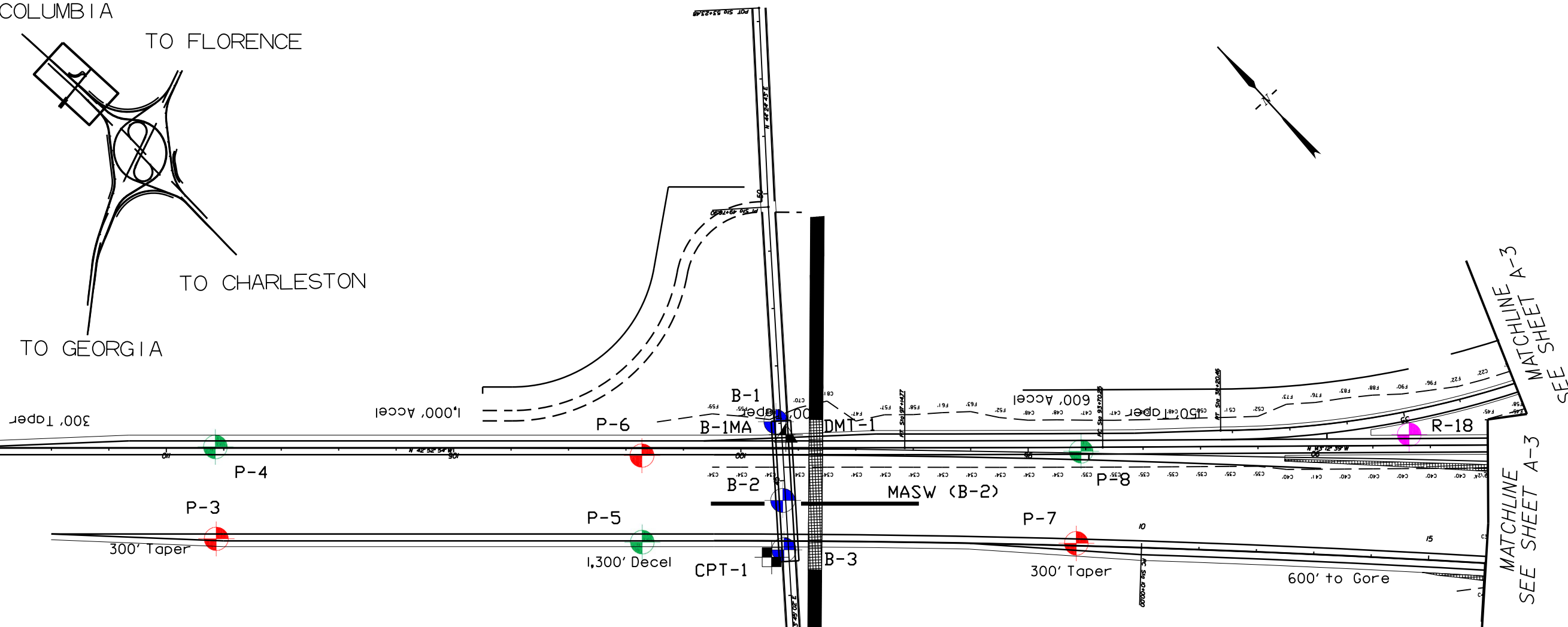


TESTING LOCATION DIAGRAM
I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT
SHEET: A-1

SCDOT PROJECT ID: P038677	COUNTY: ORANGEBURG
DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34:4266	



MATCHLINE SEE SHEET A-1



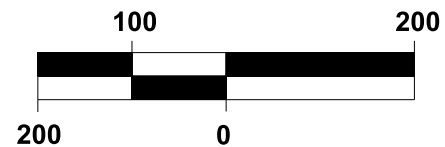
MATCHLINE A-3 SEE SHEET A-3

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
B-01	543201.00	2136134.66	99.6	I-26	3174+06.22	-125.65	33.325511	-80.554264
B-01MA	543151.68	2136123.85	103.7	I-26	3174+35.09	-84.32	33.325375	-80.554300
B-02	543099.48	2136042.87	99.9	I-26	3174+18.79	10.63	33.325233	-80.554566
B-03	543038.93	2135981.06	102.9	I-26	3174+21.55	97.11	33.325067	-80.554770
CPT-01	543046.46	2135957.74	101.5	I-26	3174+00.13	109.18	33.325088	-80.554846
DMT-01	543173.18	2136130.59	102.9	I-26	3174+23.86	-103.83	33.325435	-80.554278
P-03	543776.37	2135323.00	104.5	I-26	3164+32.87	77.81	33.327102	-80.556914
P-04	543886.57	2135438.78	104.0	I-26	3164+30.91	-82.02	33.327404	-80.556533
P-05	543228.94	2135823.08	103.3	I-26	3171+74.30	83.89	33.325591	-80.555284
P-06	543331.64	2135932.92	104.9	I-26	3171+73.79	-66.48	33.325872	-80.554923
P-07	542674.18	2136335.20	104.5	I-26	3179+31.49	77.56	33.324061	-80.553615
P-08	542776.88	2136458.62	103.9	I-26	3179+35.84	-82.94	33.324341	-80.553210
R-18	542378.62	2136868.15	98.3	I-26	3185+02.11	-134.59	33.323242	-80.551874

LEGEND

- APPROXIMATE RAMP BORING LOCATION
- APPROXIMATE ROADWAY BORING LOCATION
- APPROXIMATE SHOULDER BORING LOCATION
- APPROXIMATE CPT SOUNDING LOCATION
- APPROXIMATE DMT SOUNDING LOCATION
- APPROXIMATE BRIDGE BORING LOCATION

SCALE 1"=200'



I-26/I-95 INTERCHANGE IMPROVEMENTS

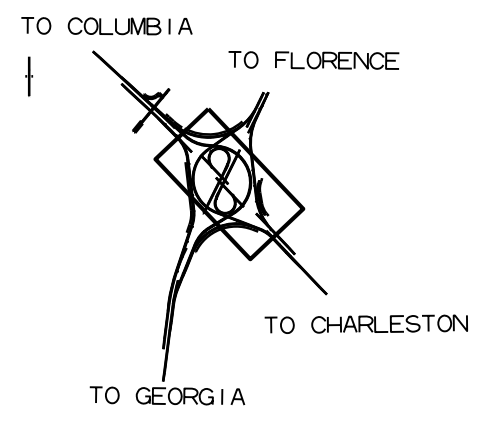


TESTING LOCATION DIAGRAM

I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT

SHEET: A-2

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DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34:4266	



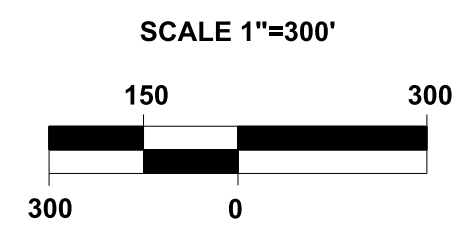
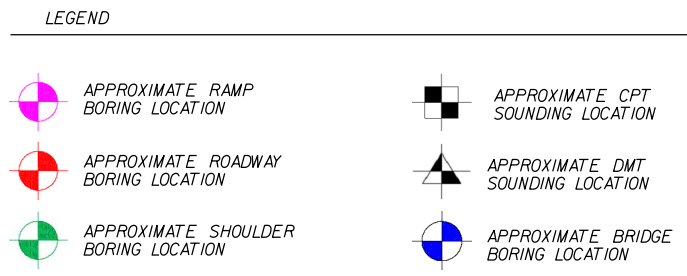
Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
R-01	539934.76	2139178.34	97.6	I-26	3218+53.82	-383.09	33.316497	-80.544346
R-03	541652.20	2138174.61	96.6	I-95	5999+59.18	430.84	33.321229	-80.547607
R-04	539770.69	2138342.12	99.4	I-26	3214+53.60	369.25	33.316056	-80.547088
R-05	539686.57	2137939.81	103.0	I-95	6017+66.62	-376.63	33.315829	-80.548404
R-06	541285.20	2137126.13	102.7	I-26	3195+11.38	357.31	33.320233	-80.551045
R-09	541055.93	2138928.87	99.5	I-95	6000+83.74	-522.54	33.319581	-80.545147
R-10	541162.37	2137261.44	99.5	I-26	3196+92.04	329.81	33.319894	-80.550604
R-11	540649.15	2137242.04	102.5	I-95	6012+98.70	716.30	33.318484	-80.550675
R-12	539127.65	2138995.69	95.9	I-26	3223+64.84	267.80	33.314280	-80.544956
R-15	542131.94	2137081.82	98.0	I-26	3188+26.44	-142.47	33.327561	-80.551178
R-16	541916.80	2137474.52	96.4	I-26	3192+41.09	-311.45	33.321965	-80.549896
R-17	542256.52	2137182.81	98.4	I-26	3187+93.91	-299.44	33.322902	-80.550846
R-23	540289.38	2138932.78	99.1	I-26	3214+23.76	-416.27	33.317474	-80.545145

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
P-09	542102.28	2136779.25	103.6	I-26	3186+57.76	110.39	33.322483	-80.552169
P-10	541117.64	2137809.35	103.9	I-26	3200+72.40	-67.10	33.319765	-80.548811
P-11	540436.87	2138163.76	102.4	I-26	3208+24.19	87.38	33.317889	-80.547600
P-12	539343.49	2139249.55	101.3	I-26	3223+57.52	-65.34	33.314871	-80.544121
P-12MA	539418.09	2139216.86	99.9	I-26	3222+79.01	-87.03	33.315076	-80.544227
P-13	538921.33	2139617.76	100.0	I-26	3229+17.36	-84.71	33.313706	-80.542922

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
CPT-01	543046.46	2135957.74	101.5	I-26	3174+00.13	109.18	33.325088	-80.554846
CPT-02	540834.68	2138190.90	124.0	I-26	3205+32.65	-184.64	33.318982	-80.547566
CPT-03	540505.16	2137991.53	123.3	I-26	3206+62.55	-177.93	33.318079	-80.548223
CPT-04	541771.99	2137791.16	96.6	I-26	3195+53.21	-465.78	33.321563	-80.548861
CPT-05	541323.74	2137355.02	98.6	I-26	3196+25.87	155.40	33.320336	-80.550295
CPT-06	539905.79	2137483.99	107.4	I-95	6018+12.46	127.09	33.316437	-80.549893
CPT-07	539538.59	2138156.98	96.2	I-95	6017+82.14	-638.96	33.315420	-80.547695
CPT-08	539798.50	2138647.97	99.7	I-26	3216+24.97	114.39	33.316129	-80.546084
CPT-08U	539773.53	2138633.50	99.2	I-26	3216+35.21	141.37	33.316066	-80.546132
CPT-10	540790.66	2138938.98	99.9	I-26	3210+38.73	-737.31	33.318852	-80.545117
CPT-10U	540799.48	2138928.72	99.2	I-26	3210+25.41	-734.91	33.318877	-80.545151
CPT-11	541617.54	2138377.27	102.4	I-95	5998+84.90	239.12	33.321132	-80.546944
CPT-12	540147.15	2137301.84	99.9	I-95	6016+98.82	407.30	33.317103	-80.550486
CPT-13	541493.51	2137894.66	99.1	I-26	3197+08.40	-215.22	33.320799	-80.549181

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
DMT-02	540672.95	2138083.60	100.9	I-26	3205+90.41	0.62	33.318539	-80.547919
DMT-03	541466.27	2138682.64	110.8	I-95	5998+57.97	-100.60	33.320712	-80.545947
DMT-04	541558.08	2137518.52	100.6	I-26	3195+47.19	-119.29	33.320979	-80.549757
DMT-05	539750.96	2137644.49	111.7	I-95	6018+62.95	-90.13	33.316010	-80.549370
DMT-06	539509.65	2138204.39	96.4	I-95	6017+82.68	-694.52	33.315340	-80.547541
DMT-07	540012.38	2138770.79	99.3	I-26	3215+36.50	-115.83	33.316715	-80.546679

Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
B-04	540877.54	2138072.44	102.6	I-26	3204+63.46	-88.22	33.318964	-80.547954
B-05	540764.00	2138012.13	99.8	I-26	3204+74.71	-1.94	33.318790	-80.548152
B-05MA	540769.76	2138008.18	99.7	I-26	3204+67.75	-1.91	33.318806	-80.548165
B-06	540668.19	2137980.01	102.9	I-26	3205+28.79	84.02	33.318527	-80.548259
B-06MA	540649.05	2137954.02	106.4	I-26	3205+27.24	116.26	33.318475	-80.548344
B-07	540503.75	2138114.89	102.8	I-26	3207+41.47	83.10	33.318073	-80.547819
B-07U	540488.58	2138090.09	107.7	I-26	3207+40.37	115.07	33.318018	-80.547901
B-08	540550.14	2138186.06	99.9	I-26	3207+50.37	-1.38	33.318200	-80.547596
B-09	540667.69	2138203.40	102.3	I-26	3206+70.10	-88.99	33.318523	-80.547527
B-10	541792.76	2137791.63	96.8	I-26	3195+37.39	-479.25	33.321620	-80.548859
B-11	541371.66	2137332.72	98.9	I-26	3195+74.62	142.48	33.320468	-80.550368
B-12	541537.74	2137556.47	99.9	I-26	3195+86.91	-135.90	33.320922	-80.549633
B-13	541467.05	2137452.84	98.6	I-26	3195+76.38	-10.90	33.320729	-80.549973
B-14	539824.80	2137707.40	111.8	I-95	6017+67.29	-106.22	33.316212	-80.549163
B-15	539887.89	2137473.30	107.1	I-95	6018+33.31	127.07	33.316388	-80.549929
B-16	539842.91	2137592.61	110.7	I-95	6018+10.67	1.59	33.316263	-80.549539
B-17	539528.60	2138252.32	96.4	I-95	6017+41.78	-725.91	33.315391	-80.547383
B-18	539524.48	2138112.41	96.3	I-95	6018+17.13	-607.95	33.315382	-80.547842
B-19	539964.65	2138810.59	99.3	I-26	3215+98.64	-116.60	33.316583	-80.545549
B-20	539838.77	2138641.56	100.1	I-26	3215+89.68	93.96	33.316239	-80.546105
B-21	539899.91	2138719.60	98.6	I-26	3215+91.47	-5.16	33.316406	-80.545848
B-22	541616.35	2138481.97	102.6	I-95	5998+32.18	148.66	33.321127	-80.546002
B-23	541454.65	2138729.12	103.4	I-95	5998+44.09	-146.45	33.320680	-80.545795
B-24	541507.51	2138592.65	111.8	I-95	5998+68.77	-2.20	33.320827	-80.546241

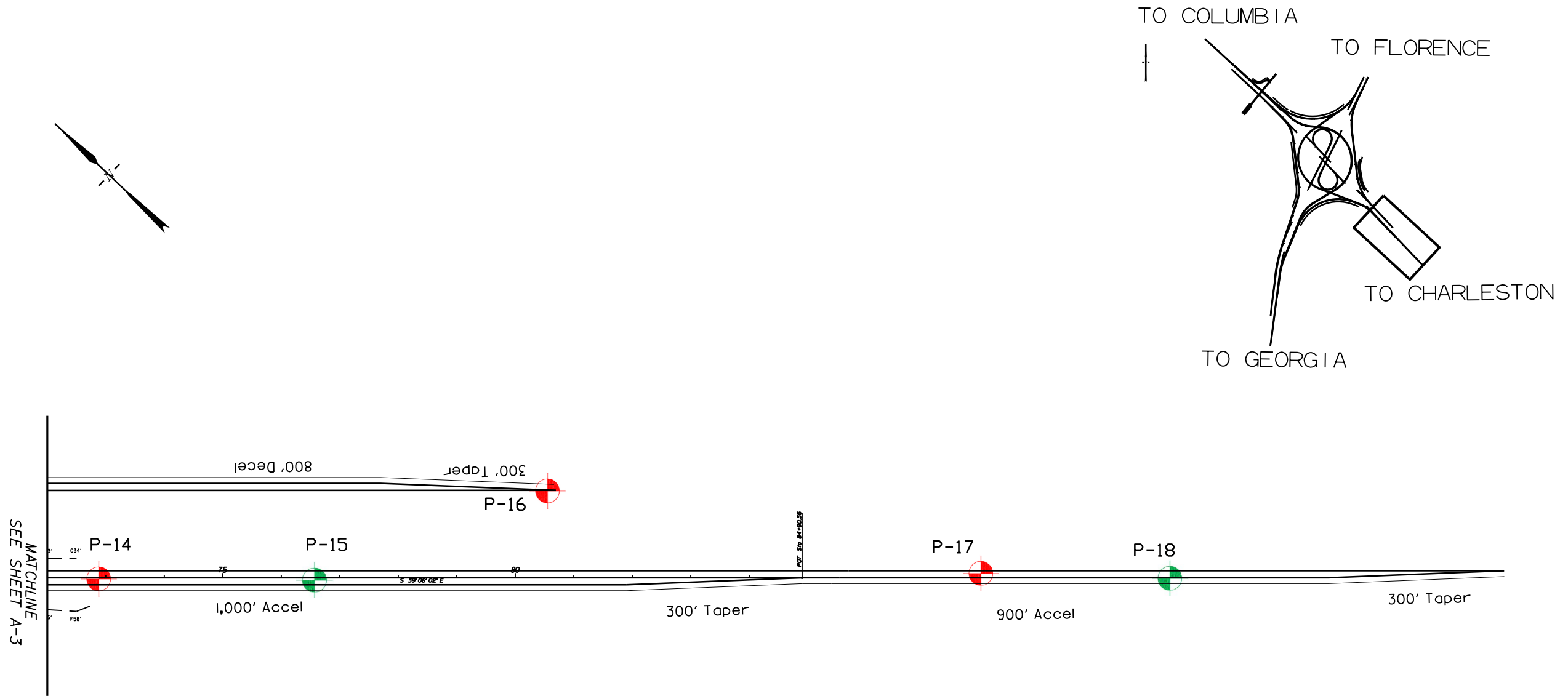


I-26/I-95 INTERCHANGE IMPROVEMENTS



TESTING LOCATION DIAGRAM
I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT
SHEET: A-3

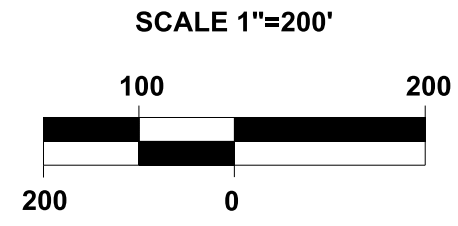
SCDOT PROJECT ID: P038667	COUNTY: ORANGEBURG
DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34-4266	



Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
P-14	538669.62	2139606.20	100.2	I-26	3231+05.37	83.05	33.313014	-80.542964
P-15	538382.15	2139837.02	99.2	I-26	3234+74.03	85.30	33.312221	-80.542212
P-16	538169.36	2140206.48	100.0	I-26	3238+72.21	-67.13	33.311632	-80.541006
P-17	537504.99	2140563.65	99.1	I-26	3246+13.02	74.86	33.309801	-80.539846
P-18	537249.12	2140762.06	98.0	I-26	3249+36.72	82.33	33.309095	-80.539200

LEGEND

- APPROXIMATE RAMP BORING LOCATION
- APPROXIMATE ROADWAY BORING LOCATION
- APPROXIMATE SHOULDER BORING LOCATION
- APPROXIMATE CPT SOUNDING LOCATION
- APPROXIMATE DMT SOUNDING LOCATION
- APPROXIMATE BRIDGE BORING LOCATION



I-26/I-95 INTERCHANGE IMPROVEMENTS

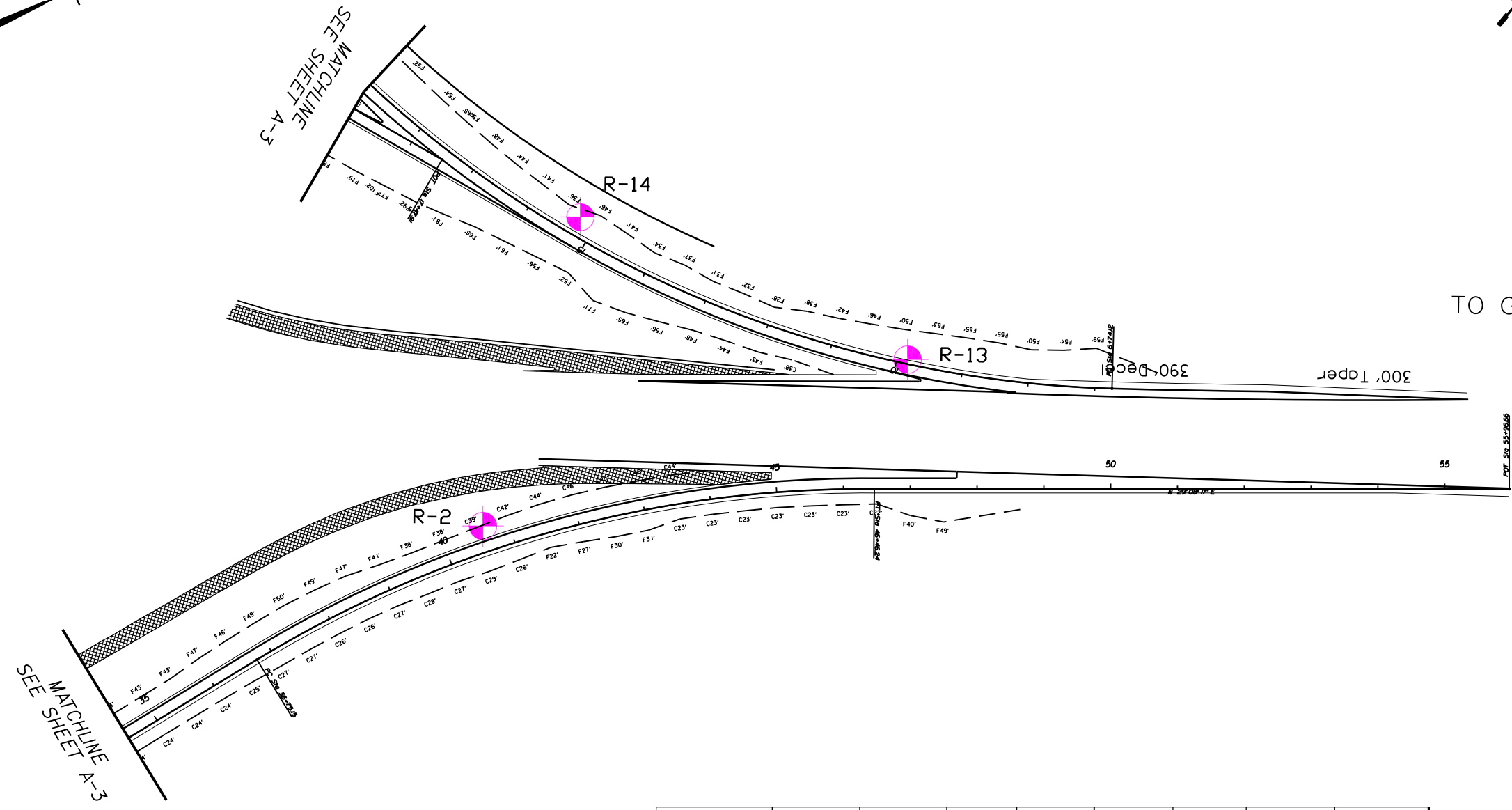
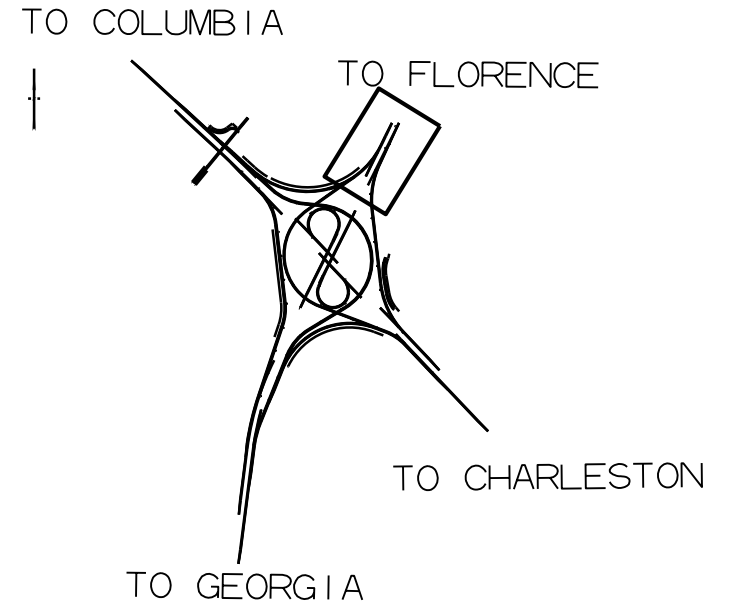
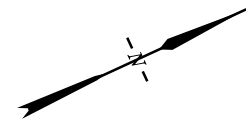


TESTING LOCATION DIAGRAM

I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT

SHEET: A-4

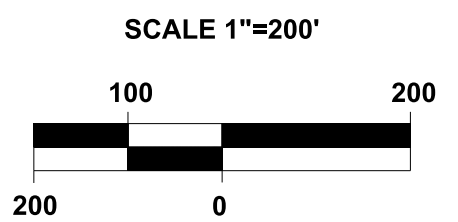
SCDOT PROJECT ID: P038667	COUNTY: ORANGEBURG
DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34:4266	



Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
R-02	541995.45	2139073.30	95.0	I-95	5992+03.30	-164.23	33.322162	-80.544660
R-13	542671.69	2139165.63	97.1	I-95	5985+75.55	103.65	33.324020	-80.544348
R-14	542348.48	2138740.39	95.2	I-95	5990+71.21	302.69	33.323136	-80.545745

LEGEND

- APPROXIMATE RAMP BORING LOCATION
- APPROXIMATE ROADWAY BORING LOCATION
- APPROXIMATE SHOULDER BORING LOCATION
- APPROXIMATE CPT SOUNDING LOCATION
- APPROXIMATE DMT SOUNDING LOCATION
- APPROXIMATE BRIDGE BORING LOCATION



I-26/I-95 INTERCHANGE IMPROVEMENTS

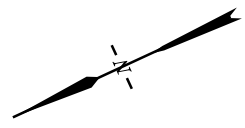


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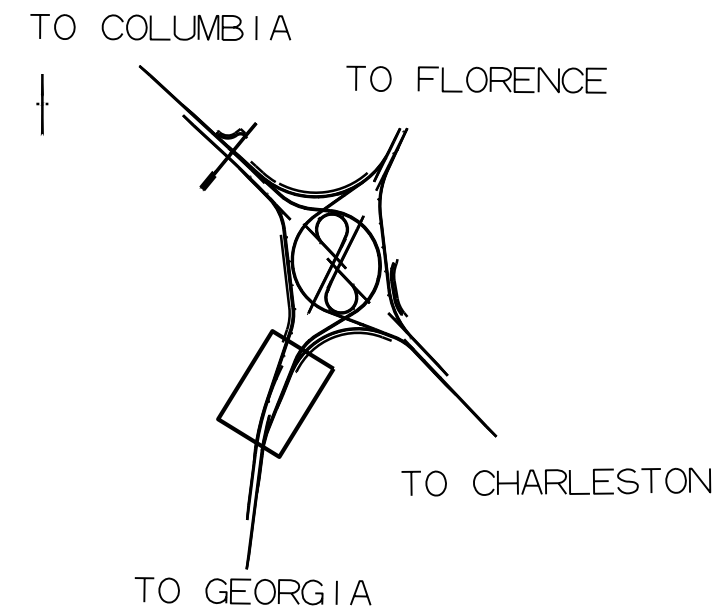
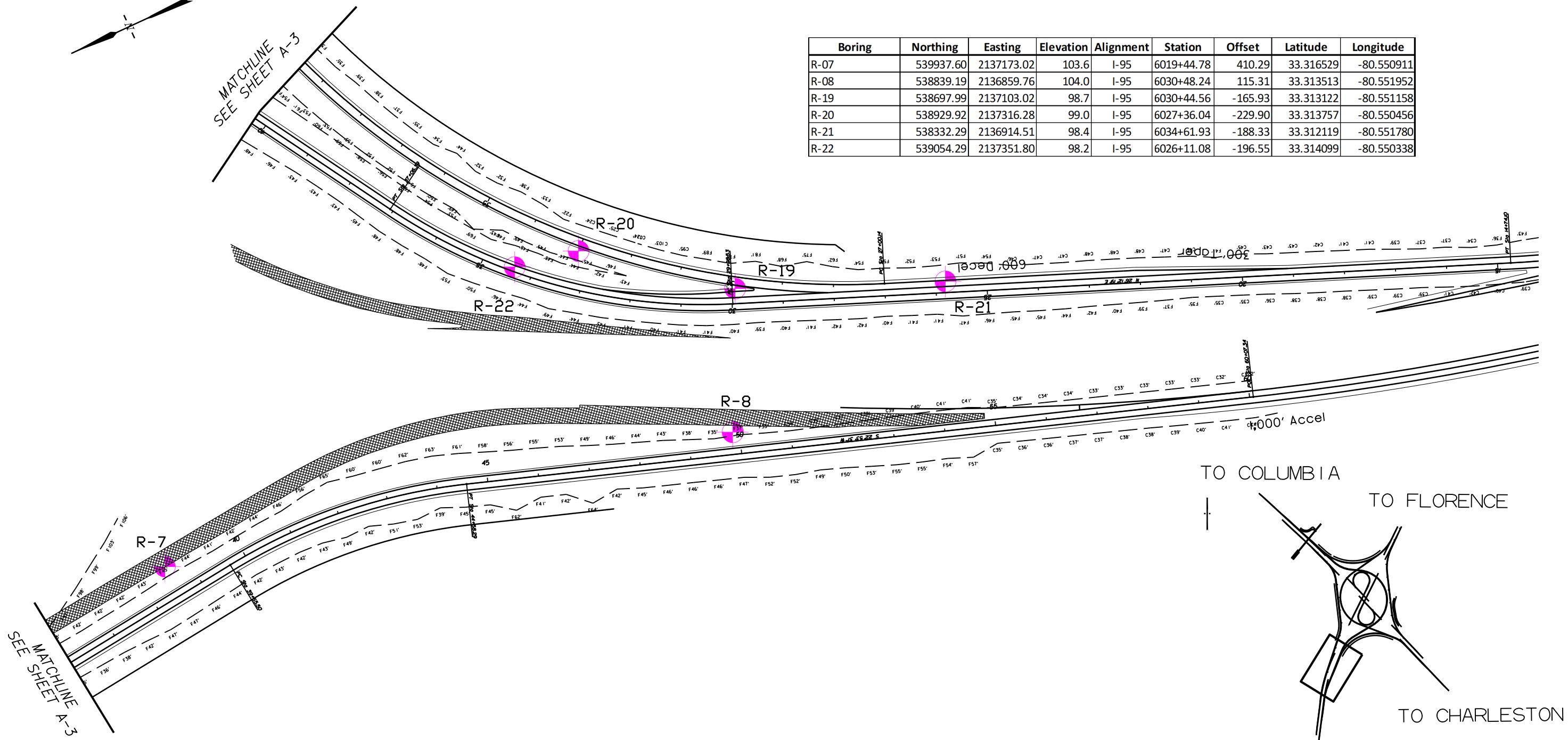
I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT

SHEET: A-5

SCDOT PROJECT ID: P038667	COUNTY: ORANGEBURG
DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34:4266	

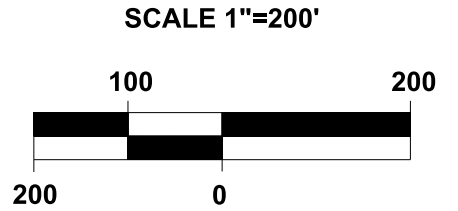


Boring	Northing	Easting	Elevation	Alignment	Station	Offset	Latitude	Longitude
R-07	539937.60	2137173.02	103.6	I-95	6019+44.78	410.29	33.316529	-80.550911
R-08	538839.19	2136859.76	104.0	I-95	6030+48.24	115.31	33.313513	-80.551952
R-19	538697.99	2137103.02	98.7	I-95	6030+44.56	-165.93	33.313122	-80.551158
R-20	538929.92	2137316.28	99.0	I-95	6027+36.04	-229.90	33.313757	-80.550456
R-21	538332.29	2136914.51	98.4	I-95	6034+61.93	-188.33	33.312119	-80.551780
R-22	539054.29	2137351.80	98.2	I-95	6026+11.08	-196.55	33.314099	-80.550338



LEGEND

- APPROXIMATE RAMP BORING LOCATION
- APPROXIMATE ROADWAY BORING LOCATION
- APPROXIMATE SHOULDER BORING LOCATION
- APPROXIMATE CPT SOUNDING LOCATION
- APPROXIMATE DMT SOUNDING LOCATION
- APPROXIMATE BRIDGE BORING LOCATION



I-26/I-95 INTERCHANGE IMPROVEMENTS



TESTING LOCATION DIAGRAM
I-26 AND I-95 INTERCHANGE IMPROVEMENT PROJECT
SHEET: A-6

SCDOT PROJECT ID: P038667	COUNTY: ORANGEBURG
DRAWN BY: KND	CHECKED BY: MRB
ECS PROJECT NO.: 34:4266	

Soil Stratification Tables

Soil Stratification Table: Bridge on S-38-1302 over I-26

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Fill	102.9	0	SM, SC	6 to 17	-	13	Embankment Fill (not encountered in B-03)
Penholoway Terrace	95.8	4	SP, SM	6 to 26	-	10	Original Ground Surface (B-01)
Waccamaw Formation	102.9	0	SP-SM, SM, SC, SC-SM	4 to 100+	25	-	Original Ground Surface (B-02, B-03)
Calcareous Sediments	80.9	22	GP-GM, SP-SM, SM	6 to 56	125	-	

Soil Stratification Table: Twin Bridges on I-95 over I-26

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Existing Fill	102.9	0	SP, SC, SM, SC-SM	2 to 24	75	7	
Alluvial	97.3	5	SP-SM, SM, ML, SC, CL, CH	0 to 27	20	13	
Waccamaw Formation	77.9	25	SP, SM	0 to 26	-	-	
Calcareous Sediments	71.9	28	SP-SM, SP, SM	0 to 100+	-	-	

Soil Stratification Table: Bridge on FCH2 over I-26

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Waccamaw Formation	99.9	0	SP, SM, SP-SM, SC	2 to 100+	10	11	
Calcareous Sediments	74.9	27	SP, SM, SP-SM, SW-SM	10 to 100+	100	-	

Soil Stratification Tables

Soil Stratification Table: Bridge on FCH2 over I-95

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Existing Fill	107.1	0	SC	6 to 21	15	-	Existing Fill encountered only in B-15
Alluvial	111.8	0	SC, CL	11 to 20	-	10	Alluvial soils only encountered in B-14
Waccamaw Formation	110.7	0	SM, SC, CL, CH	1 to 28	5	11	Original Ground Surface
Calcareous Sediments	83.7	27	SP, SM, SP-SM, SC	18 to 100+	-	-	

Soil Stratification Table: Bridge on FCH2 over GCO2

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Alluvial	111.8	0	SC, CL	11 to 20	-	10	
Waccamaw Formation	110.7	0	SM, SC, CL, CH	1 to 28	5	11	
Calcareous Sediments	83.7	27	SP, SM, SP-SM, SC	18 to 100+	-	-	

Soil Stratification Table: Bridge on GCO2 over I-26

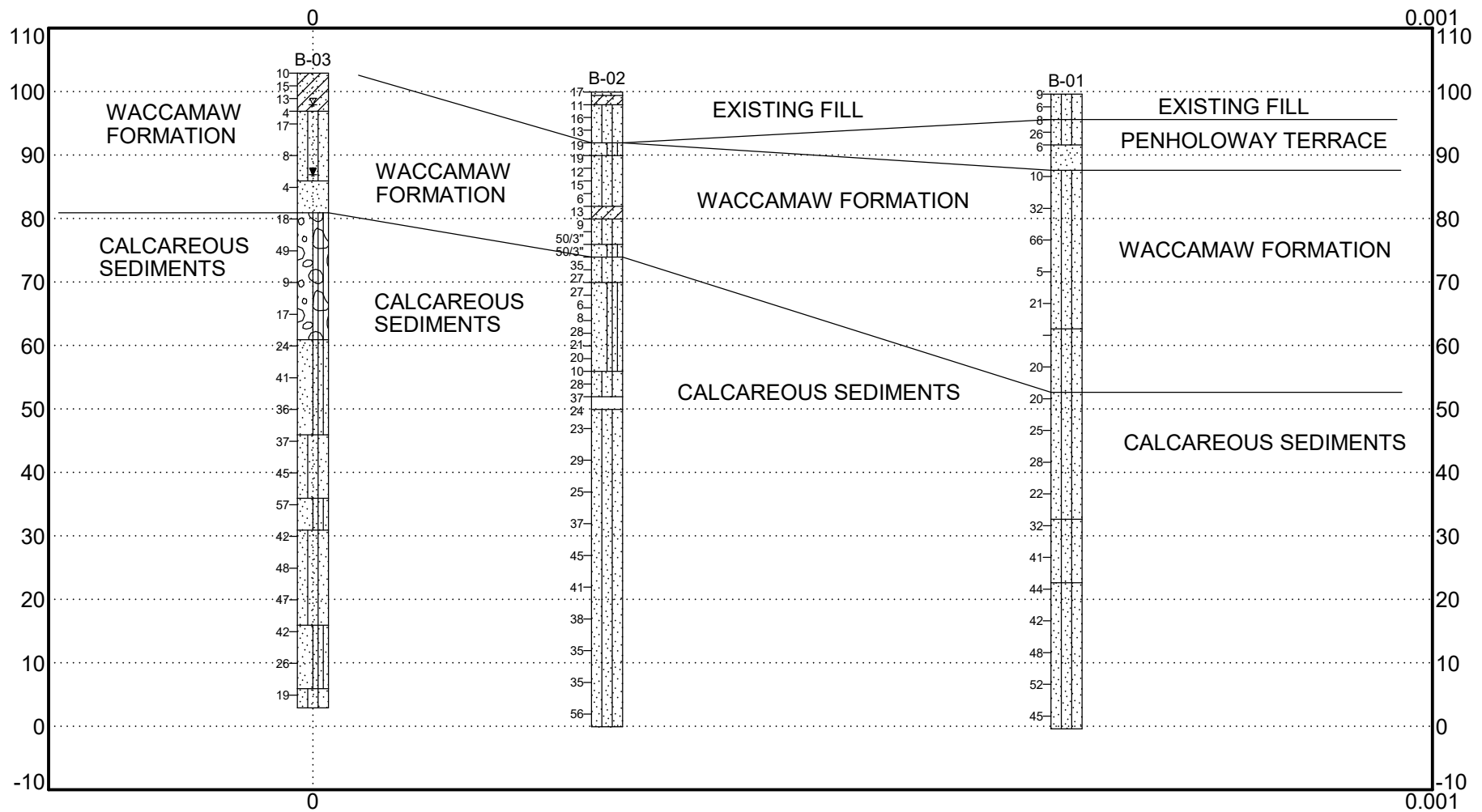
Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Existing Fill	100.1	0	SM, SC	5 to 22	25	11	Existing Fill encountered at B-20 and B-21
Waccamaw Formation	99.3	0	SM, SC, SC-SM, CH	0 to 38	10	-	Original Ground Surface
Calcareous Sediments	71.6	27	SP, SM, SP-SM, SC	4 to 100+	-	-	

Soil Stratification Tables

Soil Stratification Table: Bridge on GCO2 over I-95

Geologic Formation	Elevation of Top of Layer (ft)	Depth to Top of Layer (ft)	USCS Soil Type	SPT N-Values (bpf)	Average CPT Tip Resistance (tsf)	Average DMT P ₁ Pressure (bar)	Comments
Waccamaw Formation	103.4	0	SP-SM, SM, SC, SC- SM, SP	0 to 48	100	10	
Ashley Formation	81.4	22	SP, SM, CL	3 to 100+	-	-	
Calcareous Sediments	75.6	29	SP, SM, SC	21 to 100+	-	-	

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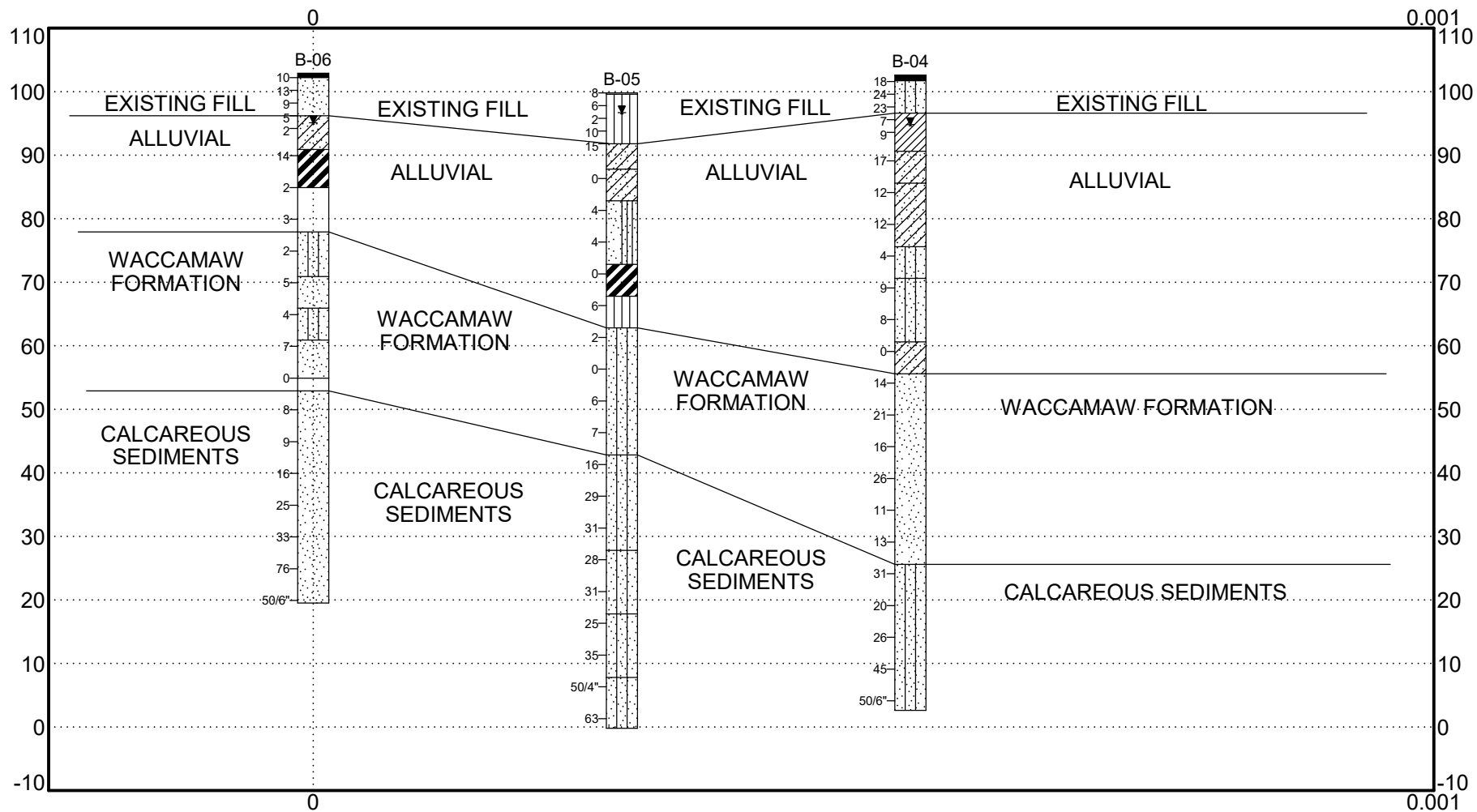


Boring	Elev.	Sta. No.	Offset
B-01	99.6	46+02.14	LT 9.11
B-02	99.9	44+65.33	LT 5.22
B-03	102.9	43+79.16	LT 8.00



SUBSURFACE PROFILE Bridge on S-38-1302 over I-26		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Mar 23	1

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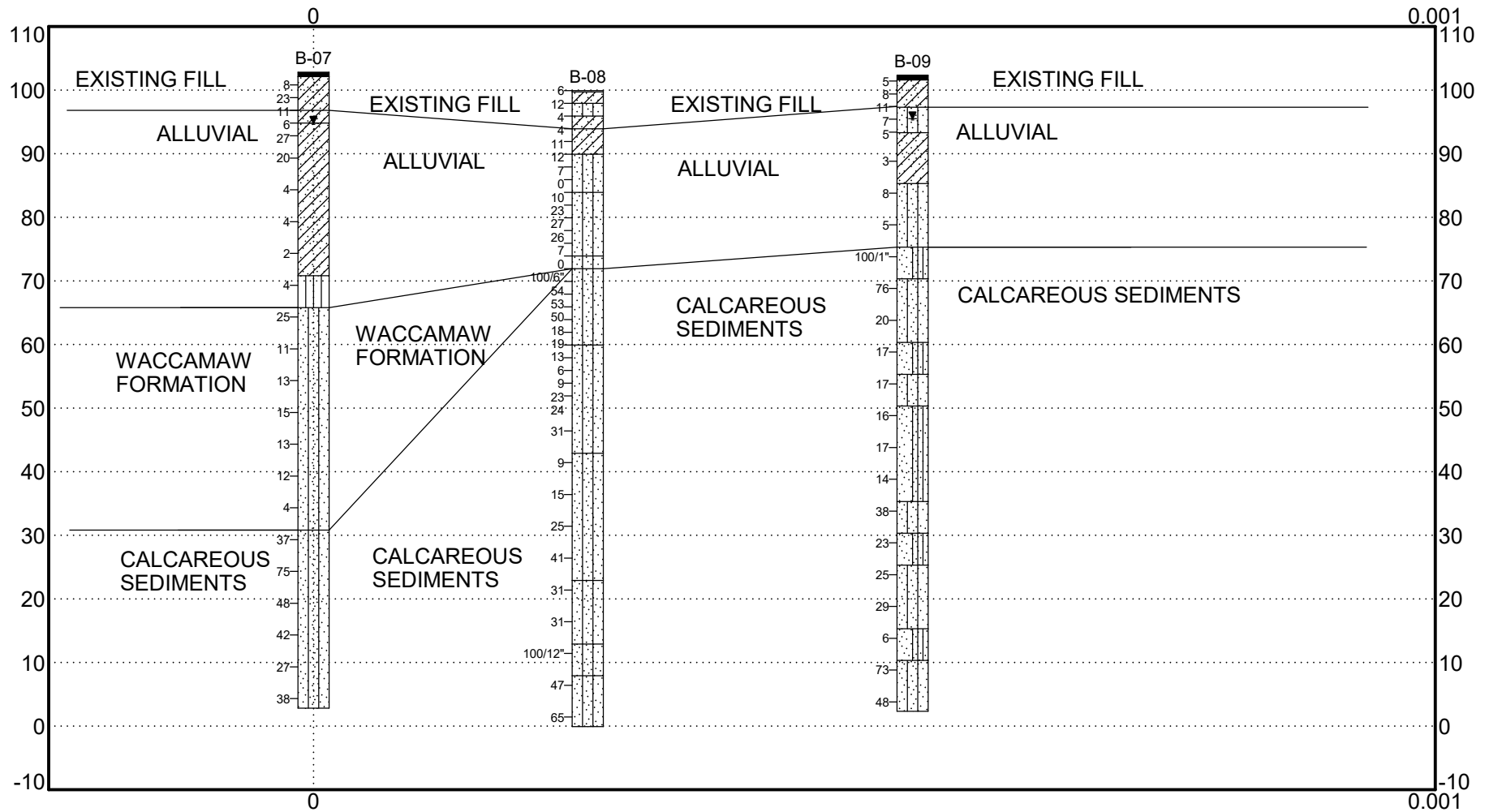


Boring	Elev.	Sta. No.	Offset
B-04	102.6	3204+63.46	LT 88.22
B-05	99.8	3204+74.71	LT 1.34
B-06	102.9	3205+28.79	RT 84.02



SUBSURFACE PROFILE Bridge on I-95 SB over I-26		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Apr 23	1

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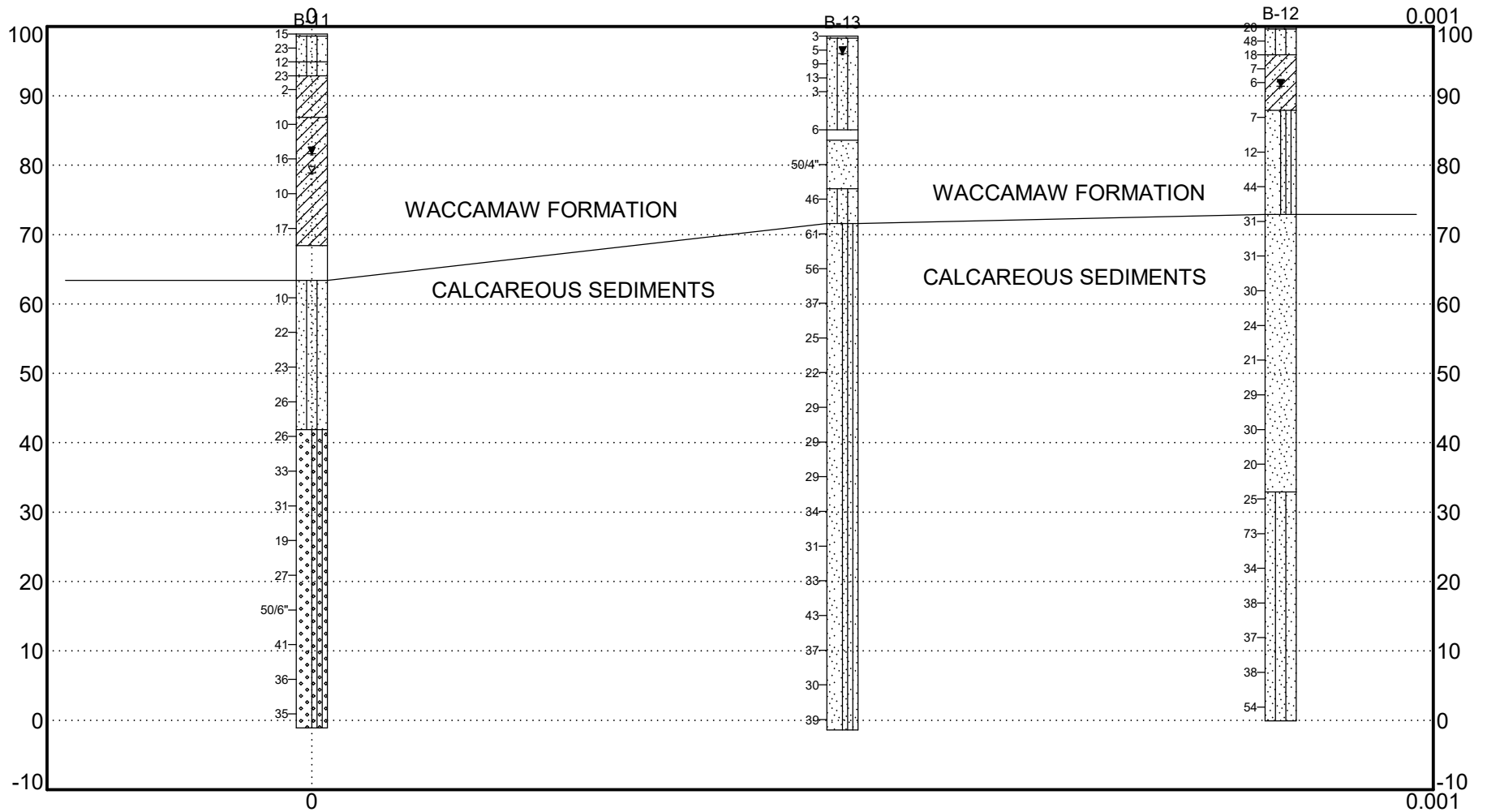


Boring	Elev.	Sta. No.	Offset
B-07	102.8	3207+41.47	RT 83.10
B-08	99.9	3207+50.37	LT 1.38
B-09	102.3	3206+70.10	LT 88.99



SUBSURFACE PROFILE Bridge on I-95 NB over I-26		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Mar 23	1

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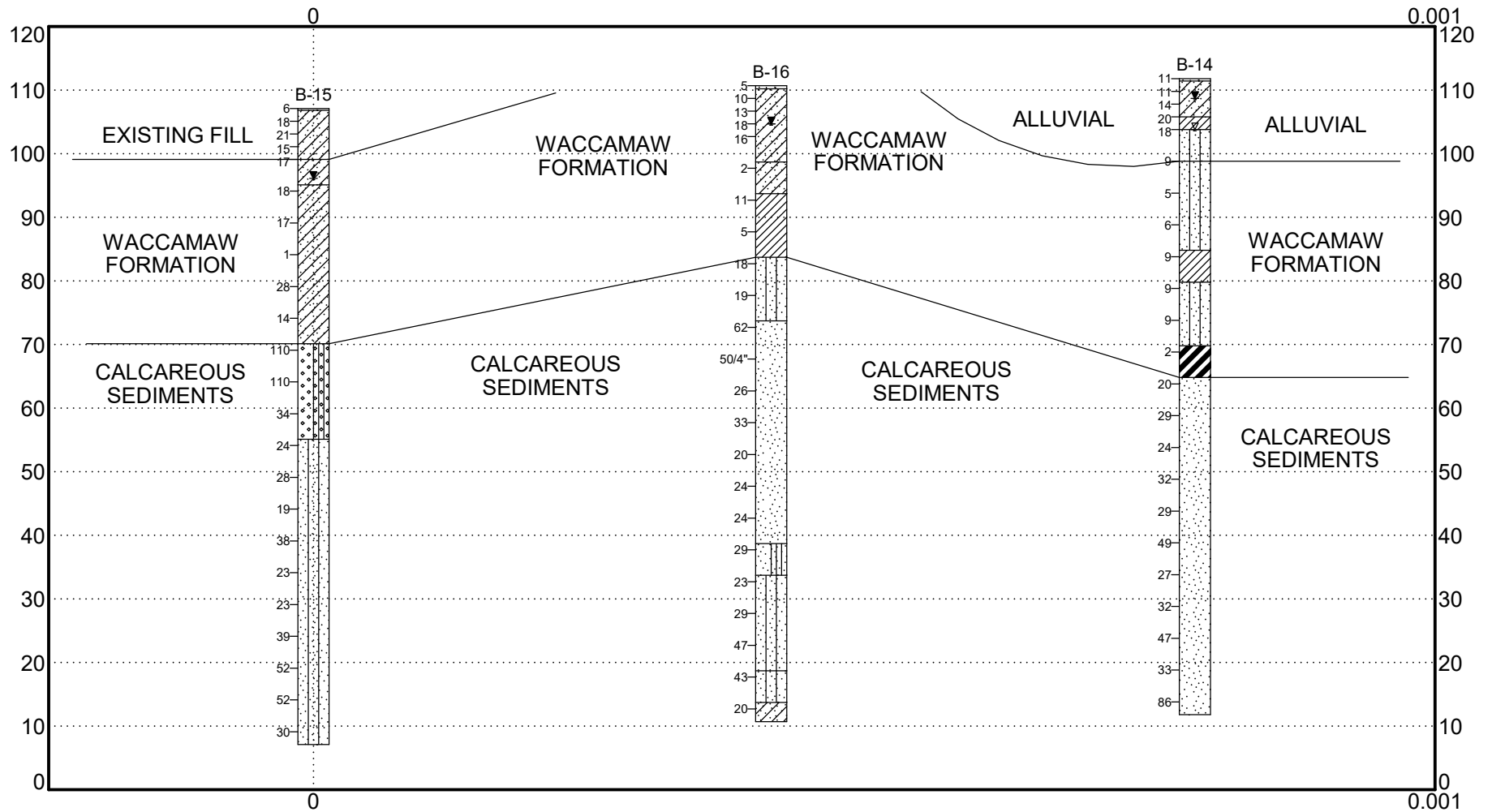


Boring	Elev.	Sta. No.	Offset
B-11	98.9	31+38.38	RT 25.48
B-12	99.9	29+66.05	LT 35.25
B-13	98.6	30+91.50	LT 10.23



SUBSURFACE PROFILE Bridge on FCH2 over I-26		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Apr 23	1

SPROETOE_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA\TEMPLATE.GDT_4/14/23

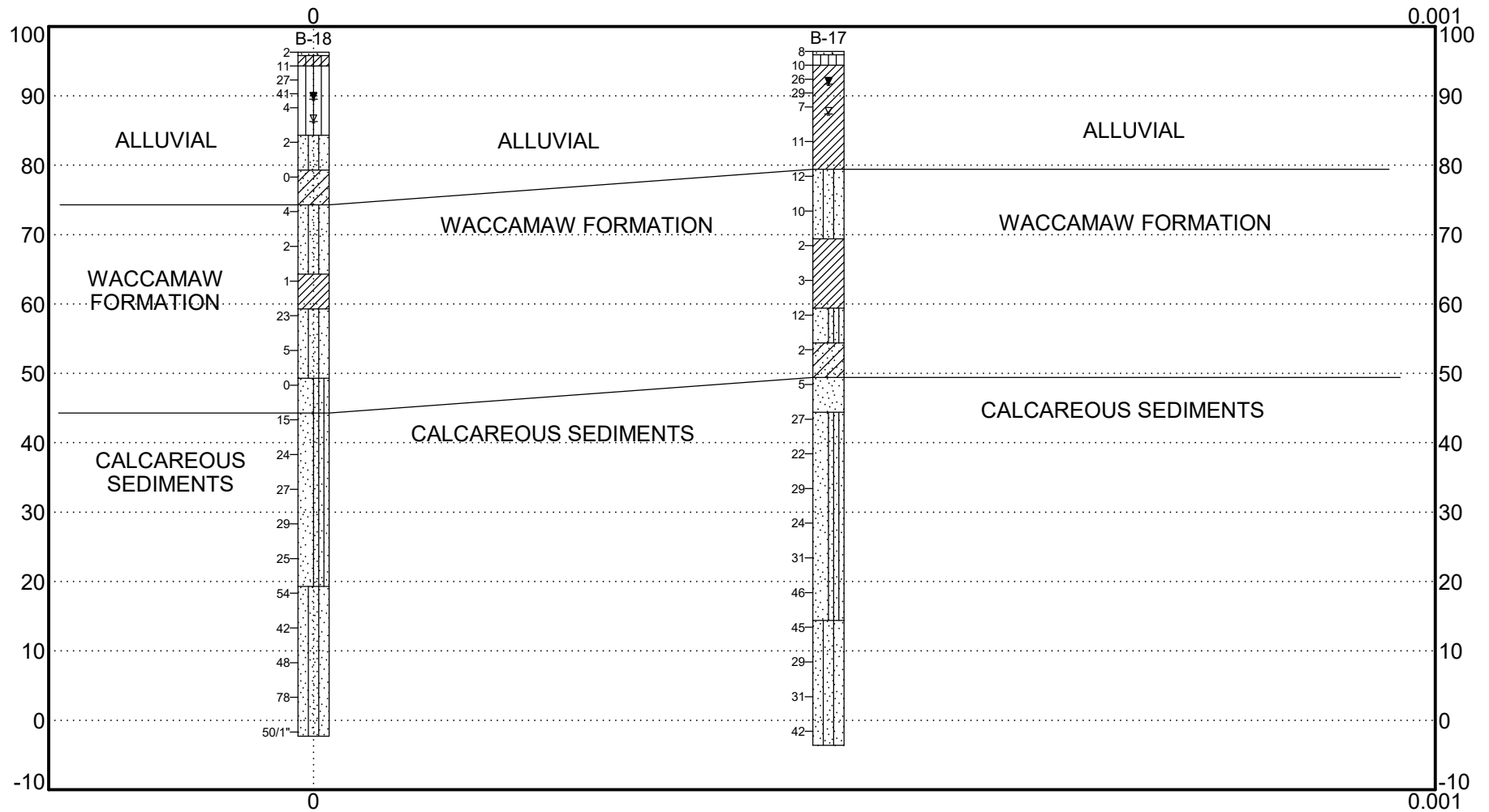


Boring	Elev.	Sta. No.	Offset
B-14	111.8	50+38.76	LT 71.77
B-15	107.1	48+13.85	RT 29.67
B-16	110.7	49+31.73	LT 17.57



SUBSURFACE PROFILE Bridge on FCH2 over I-95		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Apr 23	1

SPROETOE P038677 I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT DATA TEMPLATE 01 30 2015.GDT 3/10/23

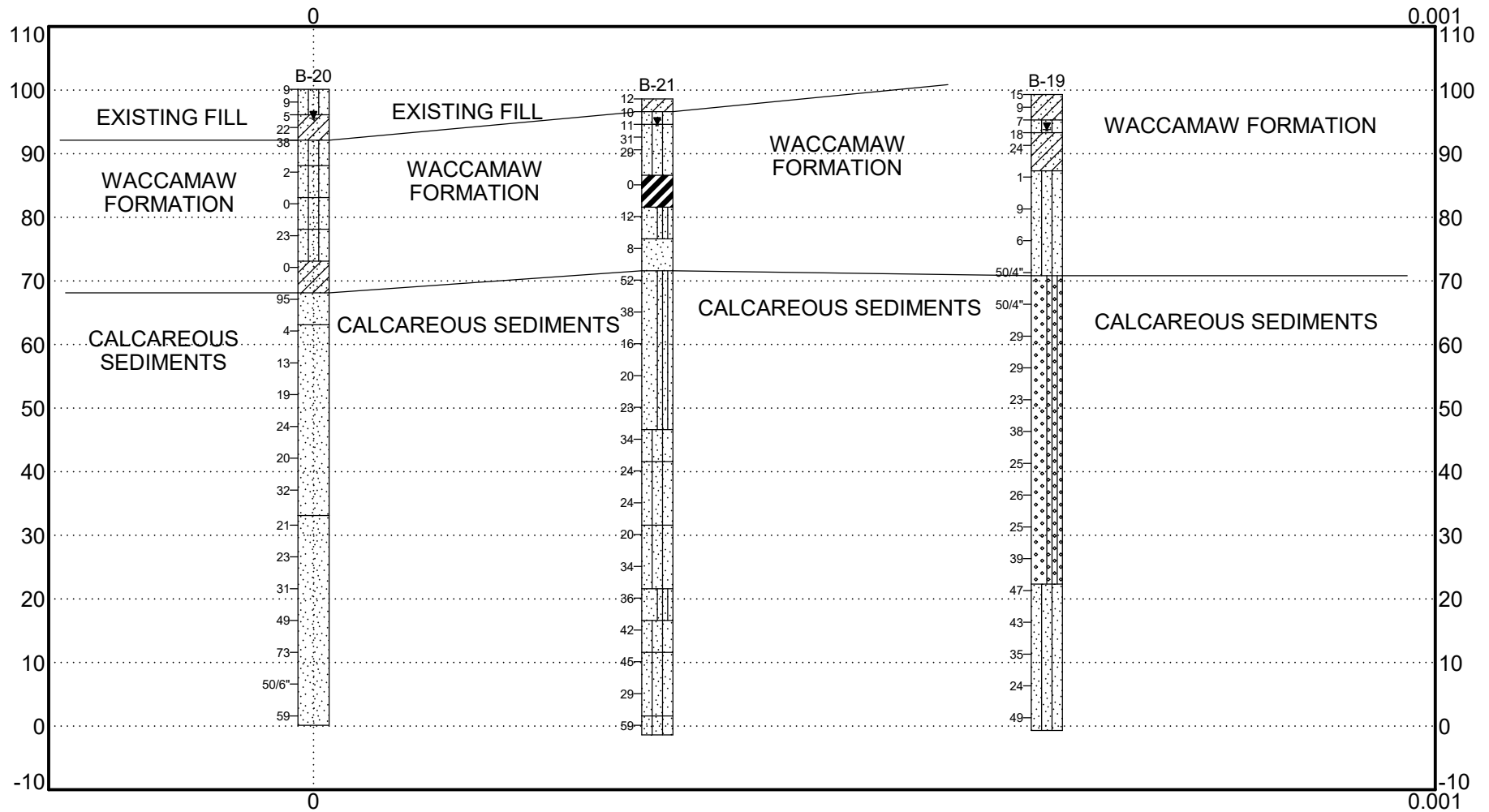


Boring	Elev.	Sta. No.	Offset
B-17	96.4	56+69.78	LT 48.30
B-18	96.3	55+44.88	RT 14.89



SUBSURFACE PROFILE Bridge on FCH2 over GCO2		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Mar 23	1

SPROETOE_P038677_126 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA\TEMPLATE.GDT_4/14/23

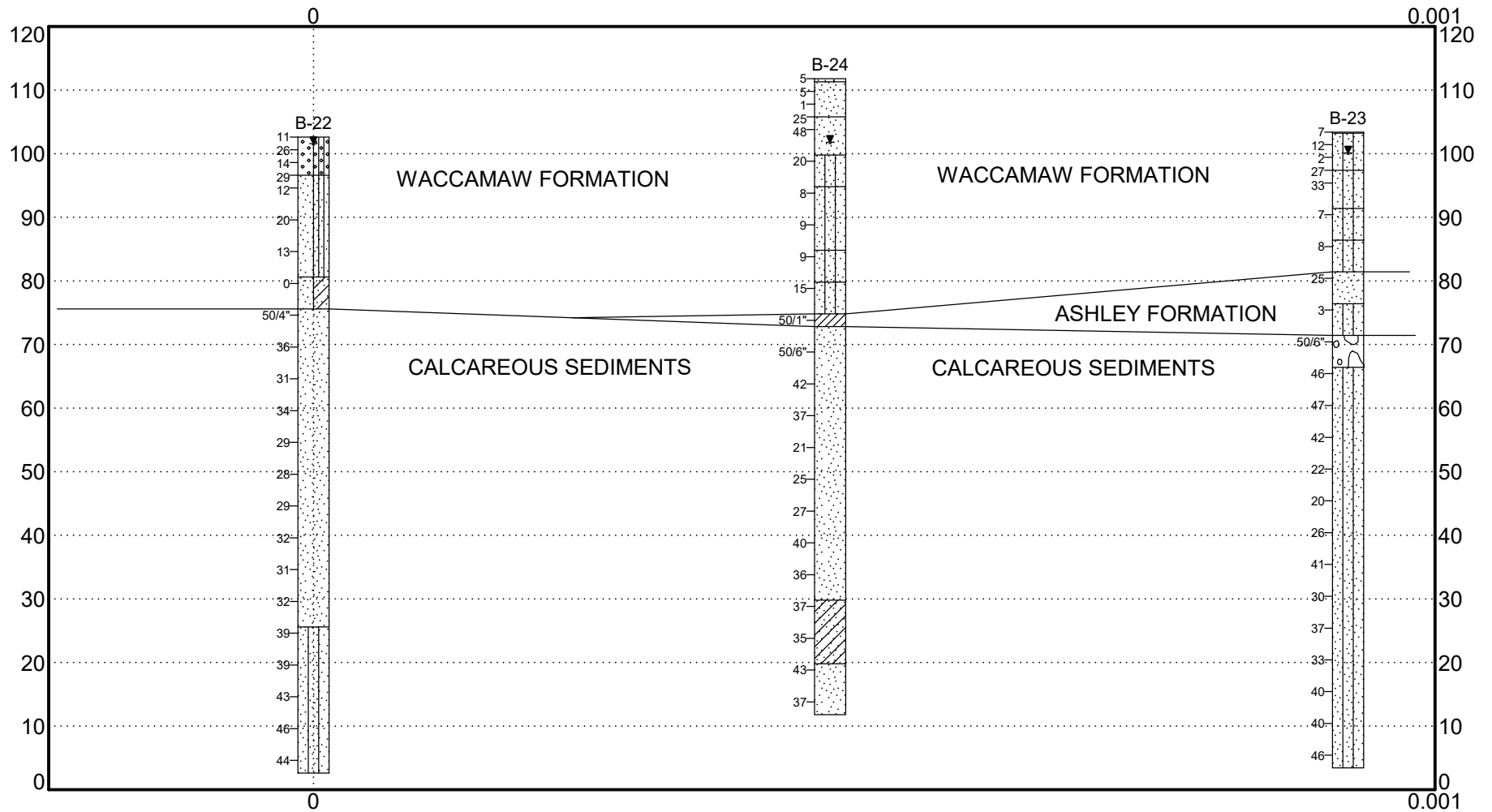


Boring	Elev.	Sta. No.	Offset
B-19	99.3	51+62.88	RT 31.50
B-20	100.1	49+58.61	LT 17.67
B-21	98.6	50+57.47	LT 1.42



SUBSURFACE PROFILE Bridge on GCO2 over I-26		
I-26 at I-95 Interchange Improvement Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Apr 23	1

SPROETOE_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA\TEMPLATE.GDT_4/14/23



Boring	Elev.	Sta. No.	Offset
B-22	102.6	69+99.85	RT 19.09
B-23	103.4	67+15.39	RT 56.25
B-24	111.8	68+47.02	LT 1.04



SUBSURFACE PROFILE Bridge on GCO2 over I-95		
I-26 at I-95 Interchange Improvement		
Orangeburg County		
PROJECT #	DATE	PLATE
P038677	Apr 23	1

Appendix III – Soil Test Logs

Reference Notes for Boring Logs

Bridge Borings (B-01 through B-24)

CPT Soundings (CPT-1 through CPT-13)

DMT Soundings (DMT-1 through DMT-7)

Widening & Shoulder Borings (P-01 through P-18)

Ramp Borings (R-01 through R-23)

Manual Auger Borings (B-01MA, B-06MA, B-07MA, P-12MA)

Auger Probe Borings (B-05U, CPT-08U, CPT-10U)

Shelby Tube Logs (UD-1, UD-2, UD-3, UD-4, UD-5, UD-6)





ECS REFERENCE NOTES FOR SCDOT BORING LOGS - SOIL DESCRIPTIONS

The descriptions noted on the boring logs generally conform to the SCDOT GDM format.

DESCRIPTION FORMAT

RELATIVE DENSITY/CONSISTENCY

SANDS AND GRAVELS

SPT Density description

0 - 4	Very loose
4 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
> 50	Very Dense

SILTS AND CLAYS

SPT Consistency Description

0 - 2	Very Soft
3 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
>30	Hard

MOISTURE CONDITION

Dry	Dusty, dry to touch
Moist	Moisture can be felt but not visible
Wet	Water is visible

COLOR

Basic colors (when moist) using the Munsell color chart
 Mottled, indicates splotches of various colors
 Variegated, indicates thin layers of various colors

ANGULARITY

Angular	Particles have sharp edges and relatively plane sides with unpolished surfaces
Subangular	Particles are similar to angular description but have rounded edges
Subrounded	Particles have nearly plane sides but have well-rounded corners and edges
Rounded	Particles have smoothly curved sides and no edges

HCL REACTION

None Reactive	No visible reaction
Weakly Reactive	Some reaction, with bubbles forming slowly
Strongly Reactive	Violent reaction, with bubbles forming immediately

CEMENTATION

Weakly Cemented	Crumbles or breaks with handing or little finger pressure
Moderately Cemented	Crumbles or breaks with considerable finger pressure
Strongly Cemented	Will no crumble or break with finger pressure

PARTICLE-SIZE RANGE

SIZE:	12"	3"	¾"	#4	#10	#40	#200
DESCRIPTION:	BOULDER	COBBLE	GRAVEL		SAND		SILT to CLAY
RANGE:			Coarse	Fine	Coarse	Medium	Fine
EXAMPLE:	basketball	softball	golf ball	marble	pea	sugar	beach sand
							flour

USCS SOIL DESIGNATION

USCS classification per ASTM D 2487 and D 2488



AASHTO SOIL DESIGNATION

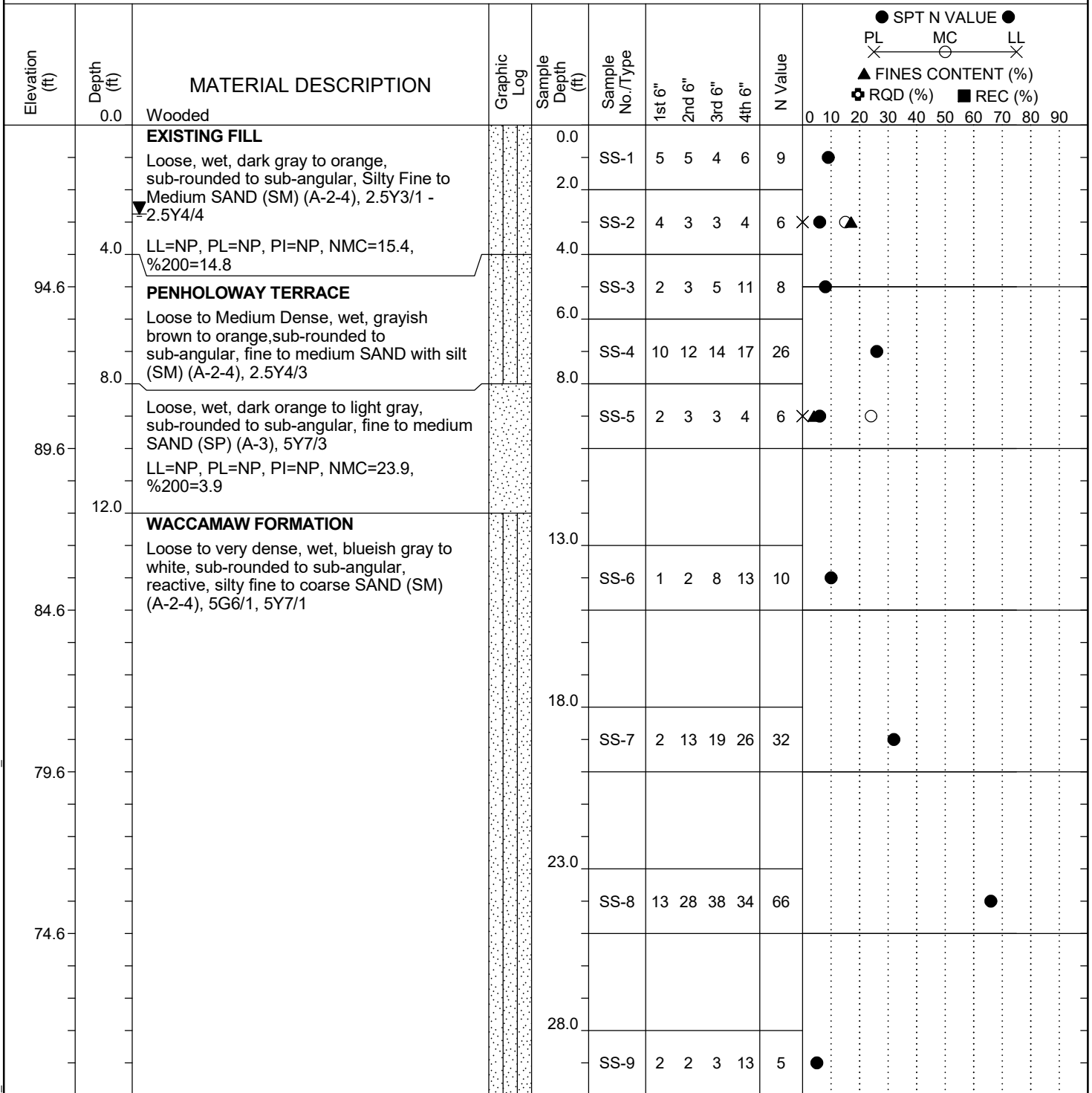
AASHTO classification per AASHTO M 145 and ASTM D 3282

CONTAINS

Contains is used to describe non-ASTM components such as roots, construction debris, asphalt concrete, etc. "contains slight" is used for occasional particles, "contains" is used for about 10% to 30% particles, "contains significant" is used for > 30% particles

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-01
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: R. Nolte	Boring Location: 46+02.14	Offset: LT 9.11
Elev.: 99.6 ft	Latitude: 33.325511	Longitude: -80.554264
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 2.75 ft



LEGEND

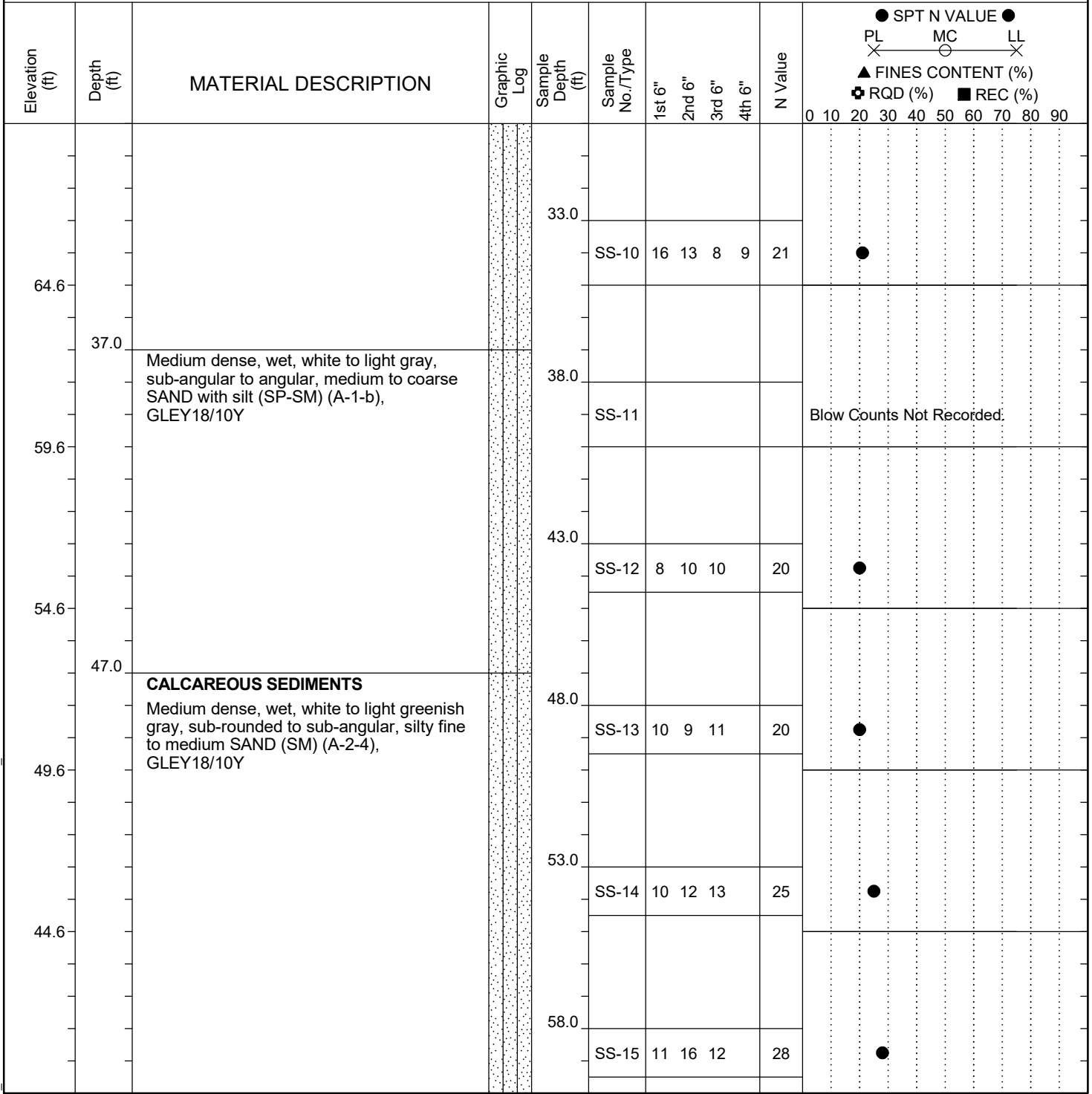
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-01
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: R. Nolte	Boring Location: 46+02.14	Offset: LT 9.11
Elev.: 99.6 ft	Latitude: 33.325511	Longitude: -80.554264
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 2.75 ft
Date Started: 2/6/2023	Date Completed: 2/6/2023	Liner Used: Y (N)



LEGEND

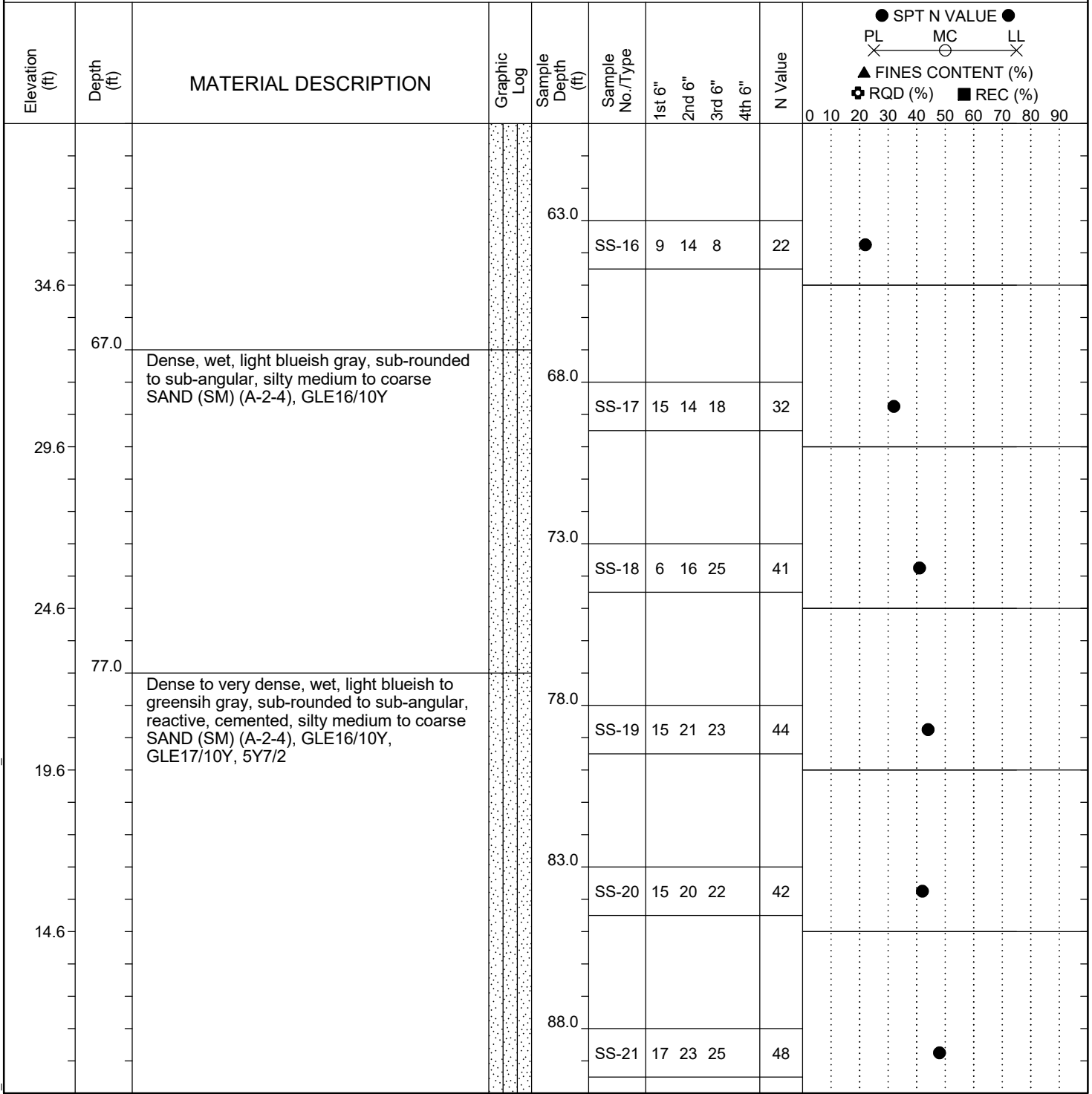
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-01
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: R. Nolte	Boring Location: 46+02.14	Offset: LT 9.11
Alignment: Existing	Date Started: 2/6/2023	
Elev.: 99.6 ft	Latitude: 33.325511	Longitude: -80.554264
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/6/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 2.75 ft



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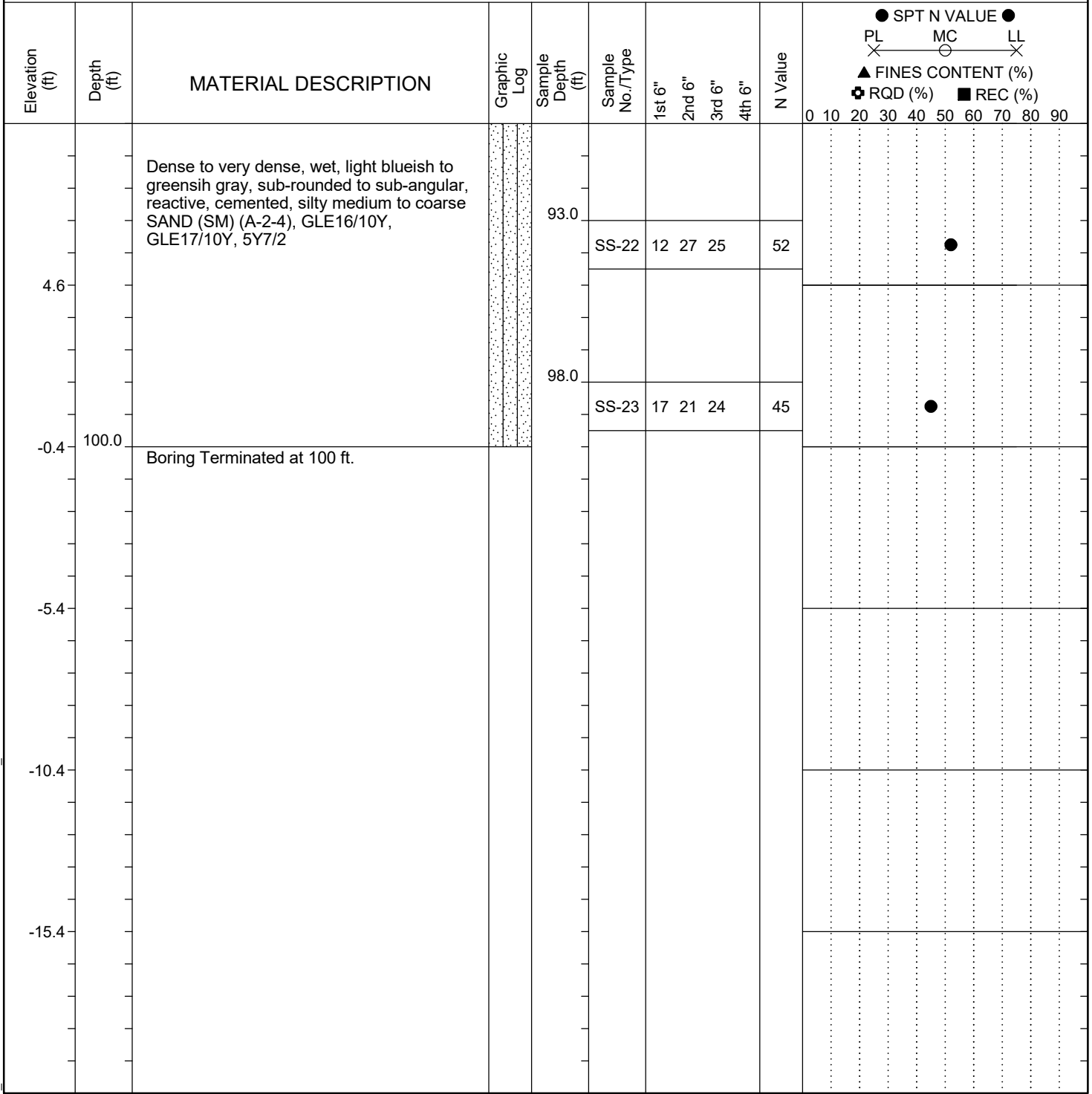
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-01
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: R. Nolte	Boring Location: 46+02.14	Offset: LT 9.11
Elev.: 99.6 ft	Latitude: 33.325511	Longitude: -80.554264
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 2.75 ft



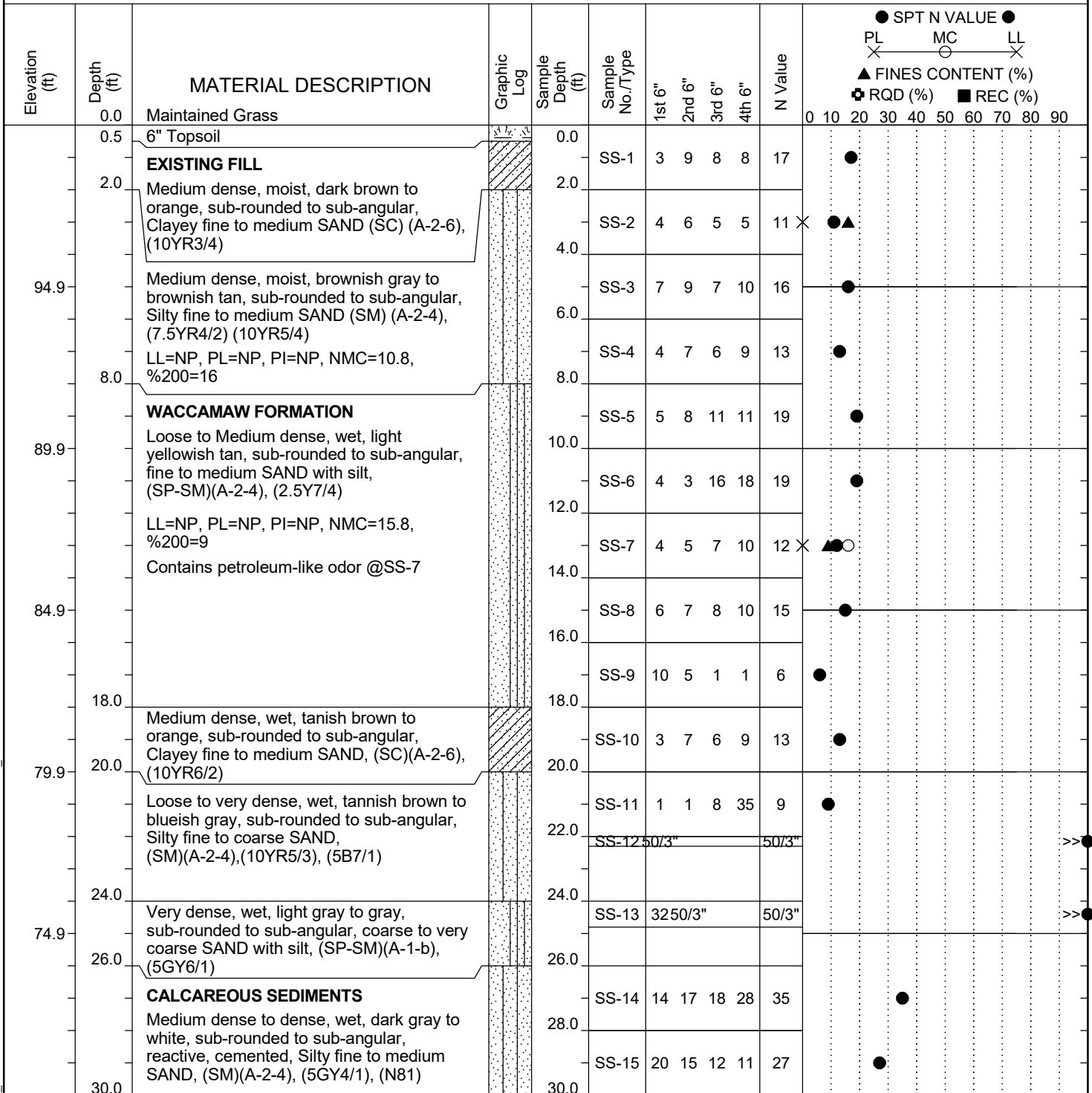
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-02	
Site Description: I-26 at I-95 Interchange Improvement				Route: S-38-1302	
Eng./Geo.: J. Webb		Boring Location: 44+65.33		Offset: LT 5.22	Alignment: Existing
Elev.: 99.9 ft	Latitude: 33.325233	Longitude: -80.554566	Date Started: 2/4/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft	Date Completed: 2/4/2023		
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic		Energy Ratio: 96%	
Core Size:	Driller: W. King	Groundwater: TOB	NM	24HR	NM



LEGEND

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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-02
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: J. Webb	Boring Location: 44+65.33	Offset: LT 5.22
Elev.: 99.9 ft	Latitude: 33.325233	Longitude: -80.554566
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	SPT N VALUE				N Value	SOIL PROPERTIES																	
						1st 6"	2nd 6"	3rd 6"	4th 6"		PL	MC	LL	FINES CONTENT (%)			RQD (%)		REC (%)									
64.9	32.0	Loose to medium dense, wet, white to light gray, sub-angular to angular, medium to very coarse SAND with silt, (SP-SM)(A-1-A), (7.5YYR8/1), (10YR8/1), (5Y8/2), (N81)		-	SS-16	9	11	16	20	27																		
					SS-17	1	4	2	3	6																		
					SS-18	6	4	4	6	8																		
					SS-19	8	12	16	22	28																		
					SS-20	10	9	12	20	21																		
					SS-21	6	9	11	12	20																		
54.9	44.0	Medium dense to dense, wet, light blue to light gray, sub-rounded to sub-angular, Silty medium to coarse SAND, (SM)(A-1-b), (5G7/1), (5GY7/1)		-	SS-22	8	6	4	7	10																		
					SS-23	13	13	15	13	28																		
48.0	48.0	NO RECOVERY		-	SS-24	10	17	20	32	37																		
					SS-25	3	8	16	15	24																		
44.9	50.0	Medium dense to dense, wet, light gray to blueish gray, sub-rounded to sub-angular, reactive, cemented, Silty fine to coarse SAND, (SM)(A-2-4), (5G6/1), (5B7/1), (5GY7/1), (5G7/1)		-	SS-26	10	10	13	12	23																		
					SS-27	13	14	15	7	29																		

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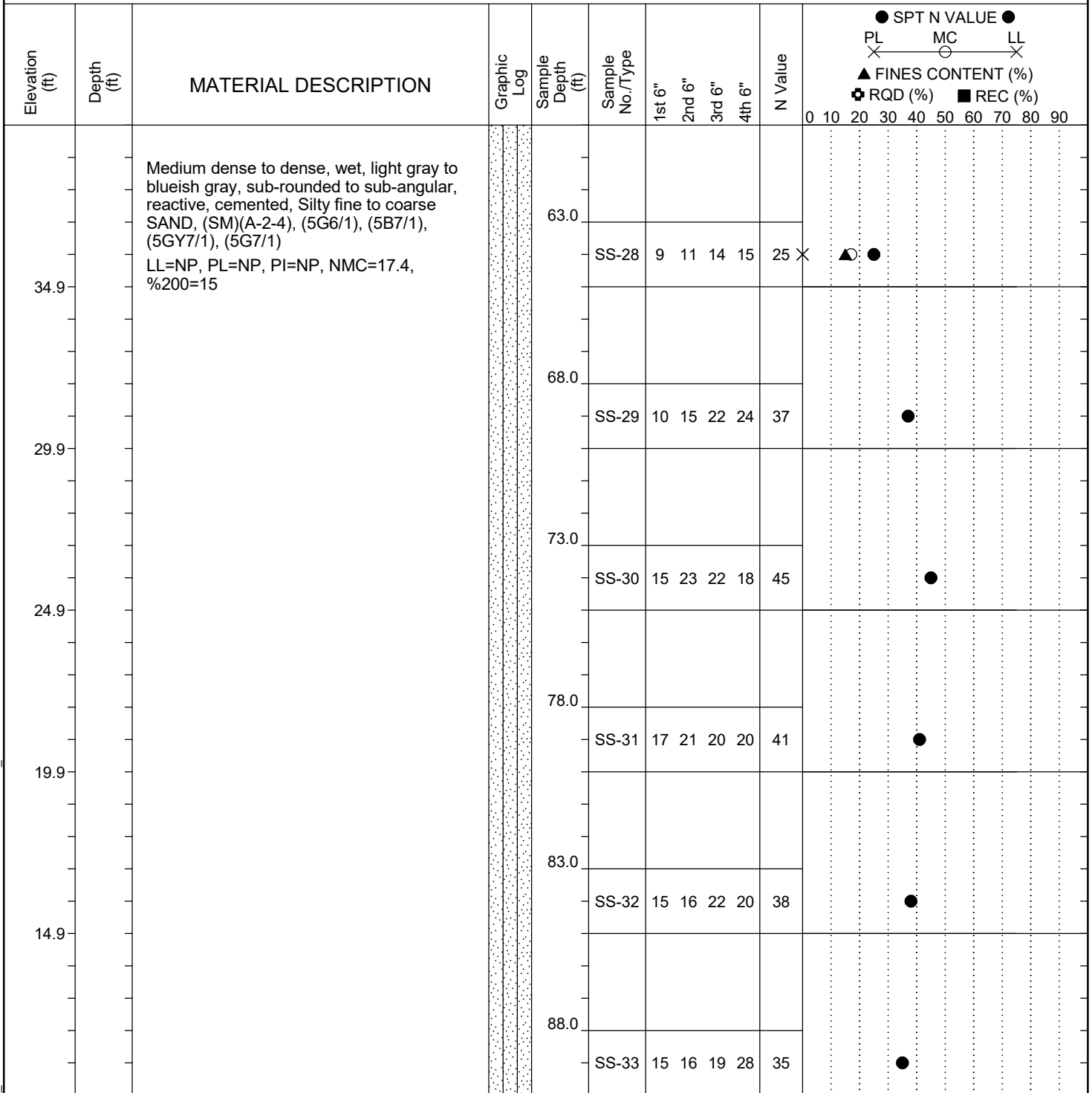
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-02
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: J. Webb	Boring Location: 44+65.33	Offset: LT 5.22
Elev.: 99.9 ft	Latitude: 33.325233	Longitude: -80.554566
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM



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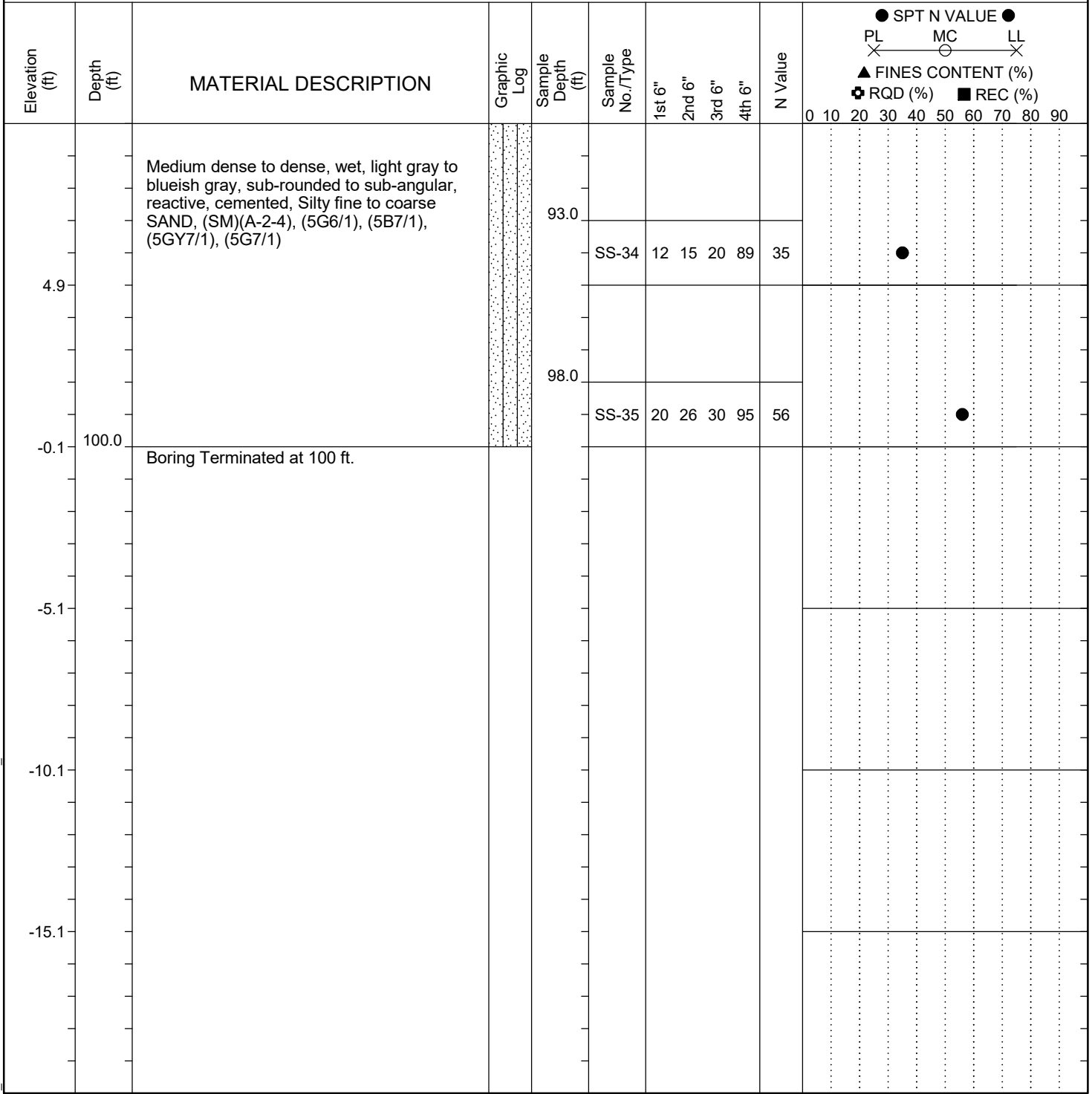
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-02	
Site Description: I-26 at I-95 Interchange Improvement				Route: S-38-1302	
Eng./Geo.: J. Webb		Boring Location: 44+65.33		Offset: LT 5.22	Alignment: Existing
Elev.: 99.9 ft	Latitude: 33.325233	Longitude: -80.554566	Date Started: 2/4/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft	Date Completed: 2/4/2023		
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic		Energy Ratio: 96%	
Core Size:	Driller: W. King	Groundwater: TOB	NM	24HR:	NM



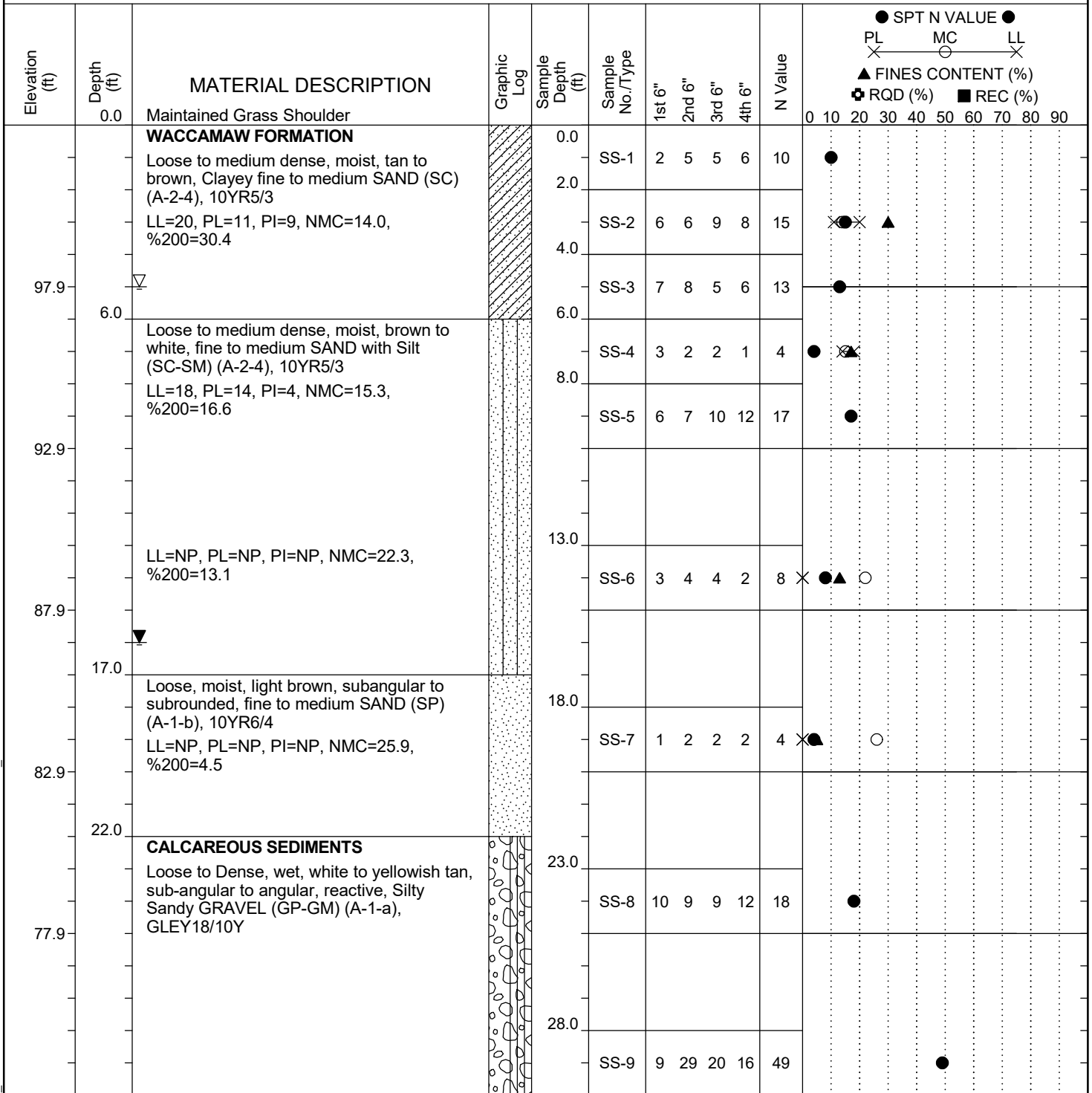
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/18/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-03
Site Description: I-26 at I-95 Interchange Improvement		Route: S-38-1302
Eng./Geo.: J. Wadford	Boring Location: 43+79.16	Offset: LT 8.00
Alignment: Existing	Date Started: 12/7/2022	Date Completed: 12/8/2022
Elev.: 102.9 ft	Latitude: 33.325067	Longitude: -80.55477
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Groundwater: TOB 5 ft
Core Size:	Driller: W. King	24HR: 16 ft



LEGEND

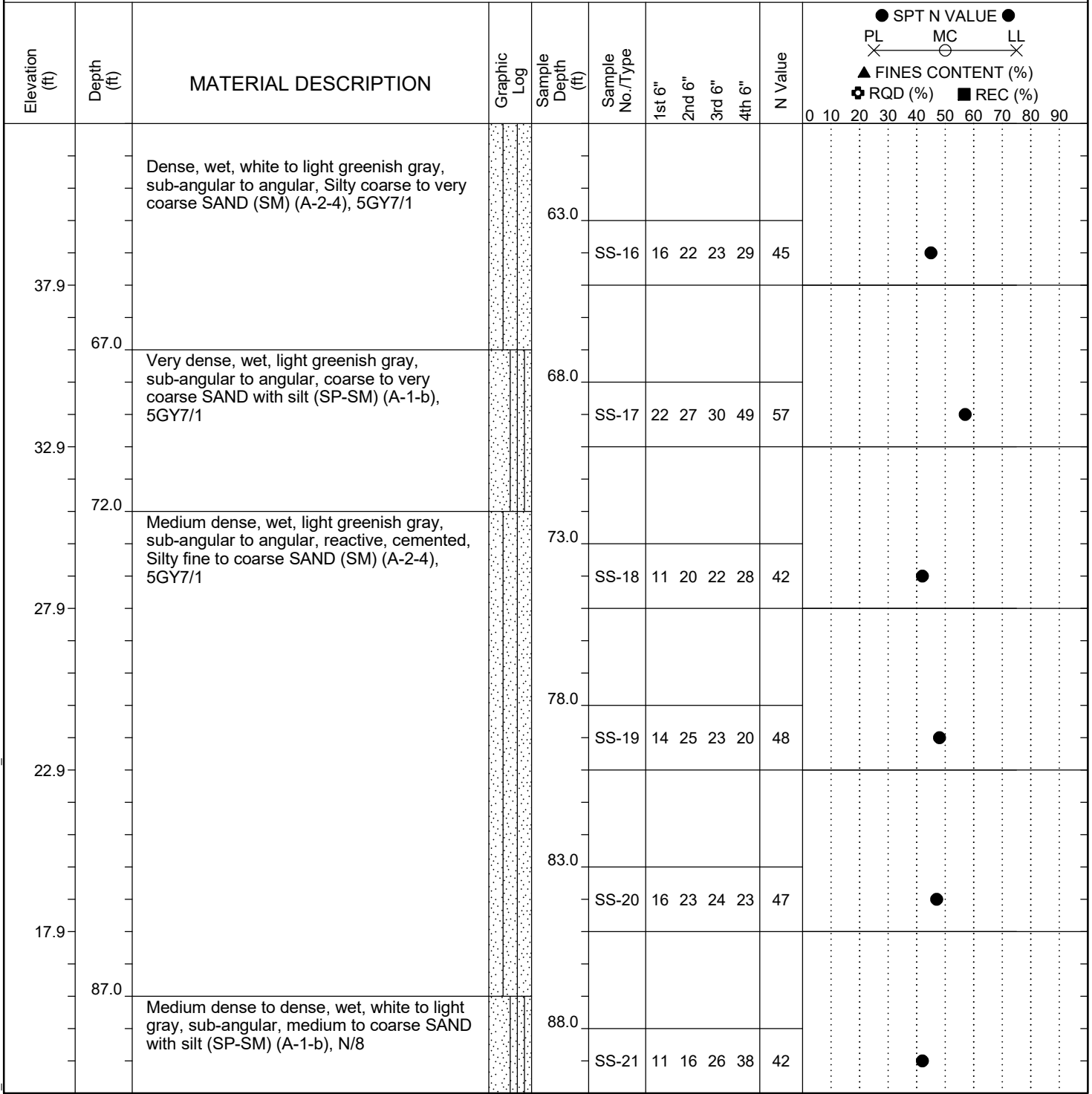
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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-03
Site Description: I-26 at I-95 Interchange Improvement		Route: S-38-1302
Eng./Geo.: J. Wadford	Boring Location: 43+79.16	Offset: LT 8.00 Alignment: Existing
Elev.: 102.9 ft	Latitude: 33.325067	Longitude: -80.55477 Date Started: 12/7/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/8/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 5 ft 24HR 16 ft



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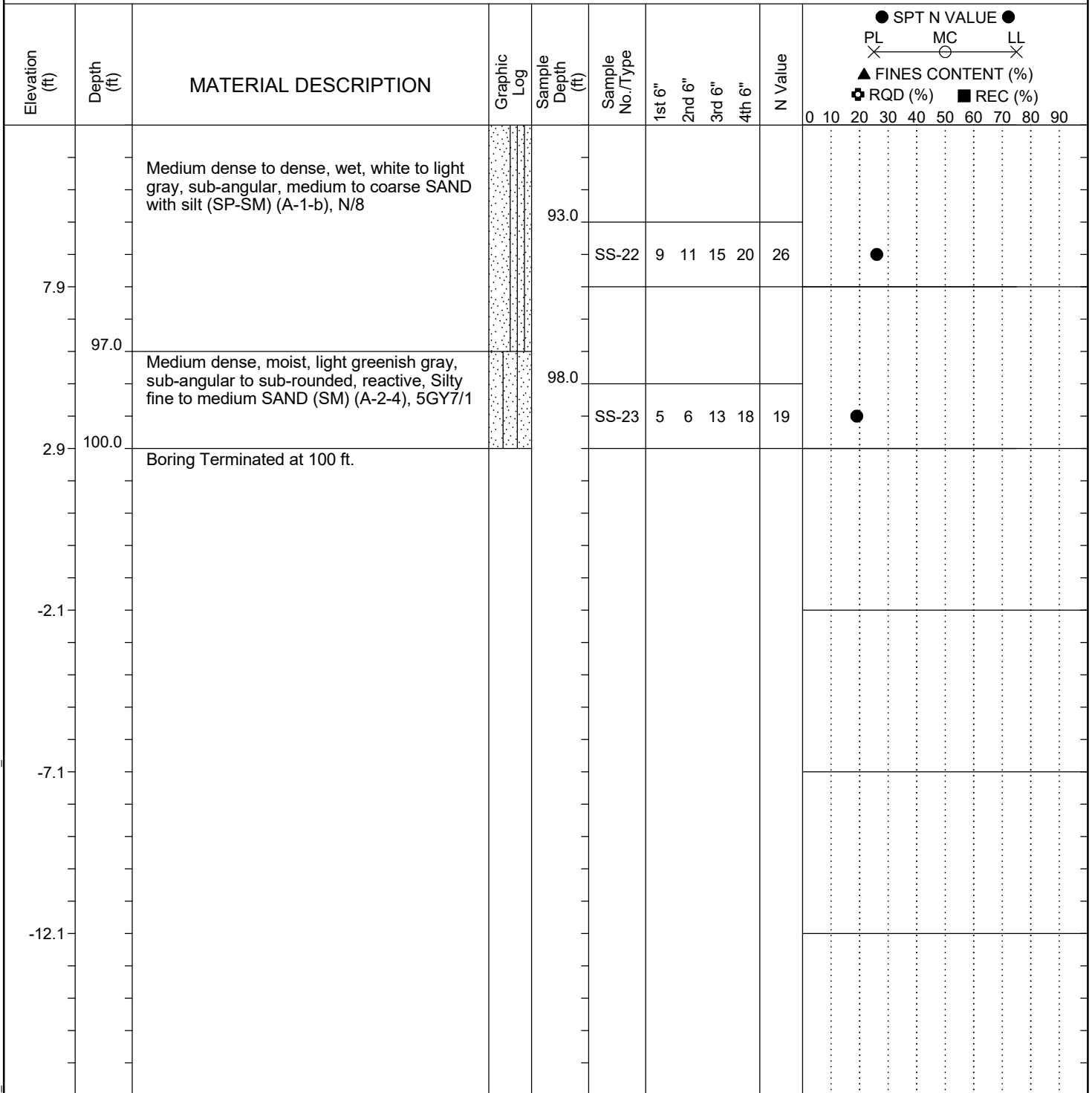
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SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8" NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	
--	--	--	--

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-03
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Eng./Geo.: J. Wadford	Boring Location: 43+79.16	Offset: LT 8.00
Elev.: 102.9 ft	Latitude: 33.325067	Longitude: -80.55477
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB	24HR: 5 ft
		16 ft



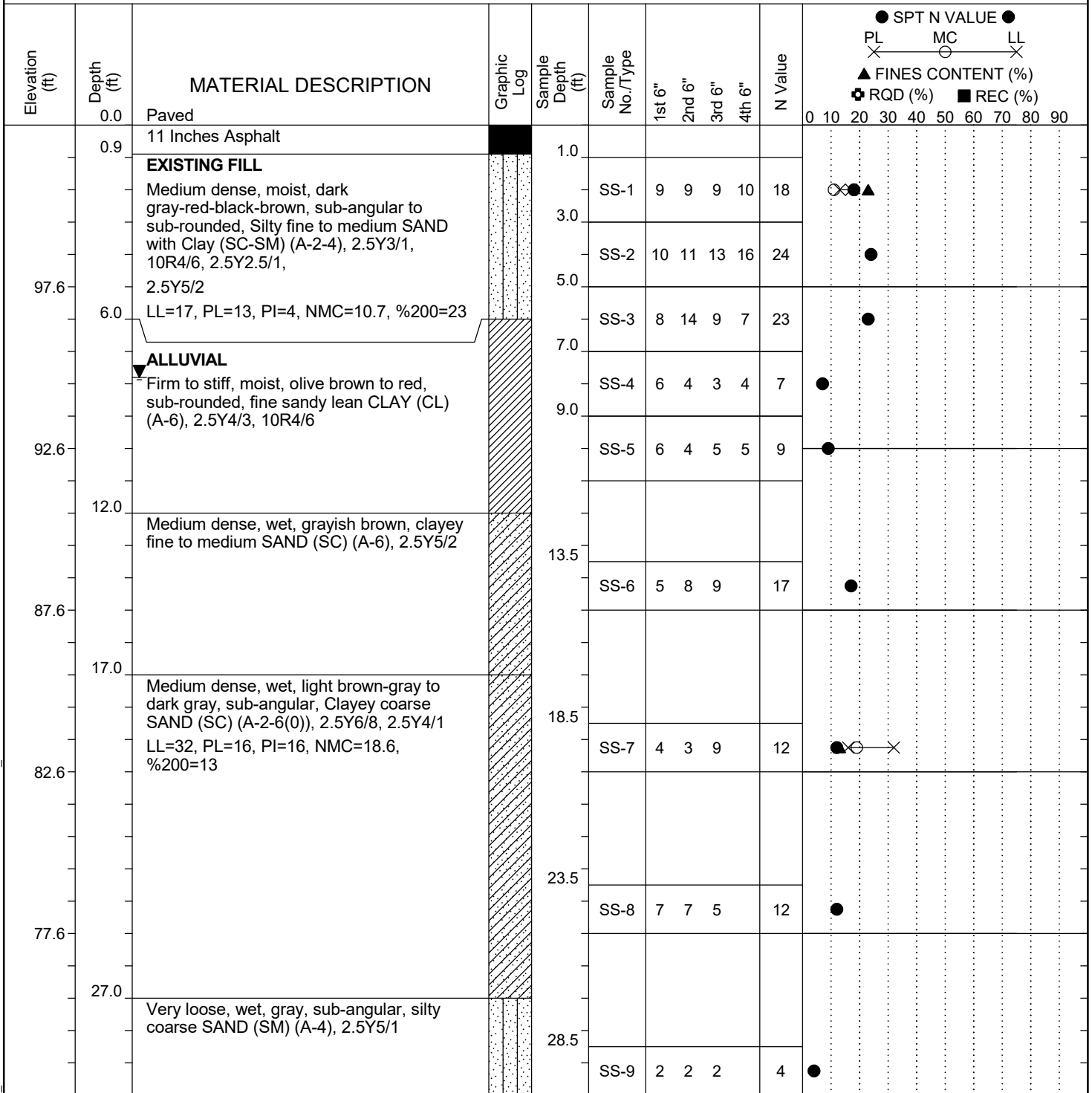
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-04
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3204+63.46	Offset: LT 88.22 Alignment: Existing
Elev.: 102.6 ft	Latitude: 33.318964	Longitude: -80.547954 Date Started: 2/7/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/7/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM 24HR: 7.8 ft



LEGEND

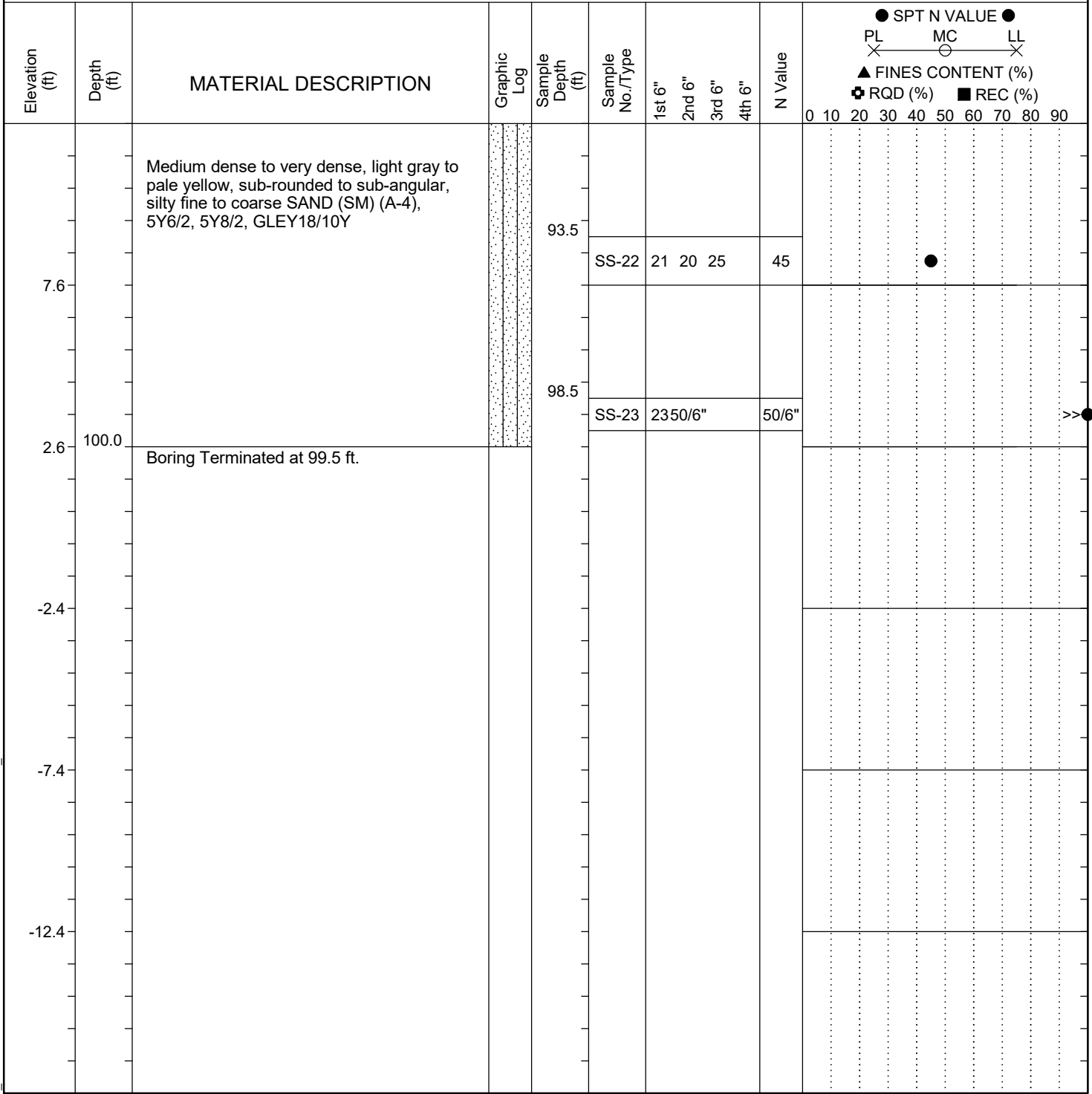
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-04
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	A. Guest	Boring Location:	3204+63.46	Offset:	LT 88.22	Alignment:	Existing
Elev.:	102.6 ft	Latitude:	33.318964	Longitude:	-80.547954	Date Started:	2/7/2023
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	2/7/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	Diedrich D-50	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	93%
Core Size:		Driller:	H. McDaniel	Groundwater:	TOB NM	24HR	7.8 ft



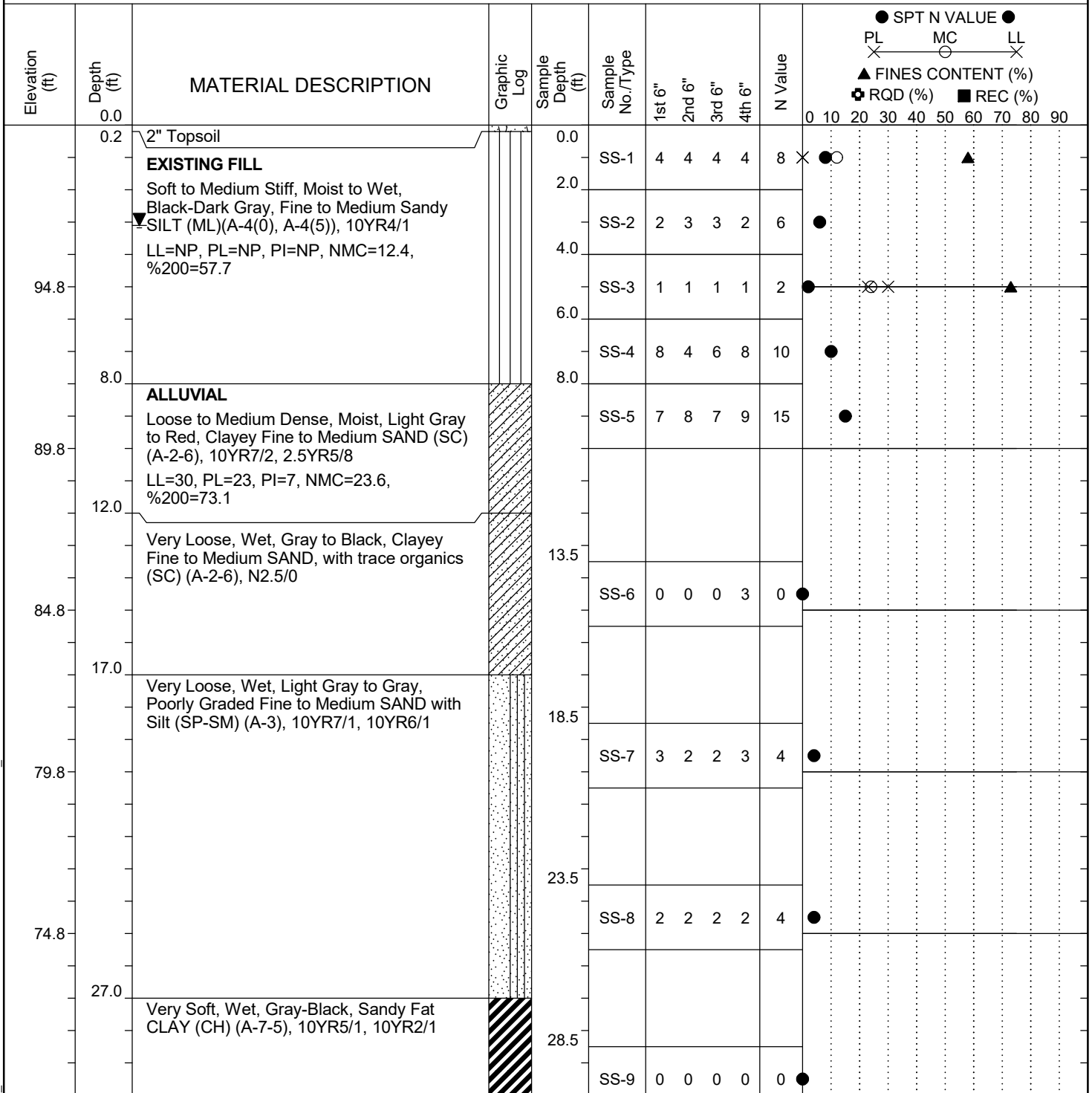
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-05
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 3204+74.71	Offset: LT 1.34
Alignment: Existing	Date Started: 1/31/2023	Date Completed: 1/31/2023
Elev.: 99.8 ft	Latitude: 33.31879	Longitude: -80.548152
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Core Size:
Driller: H. McDaniel	Groundwater: TOB NM	24HR: 3.1 ft



LEGEND

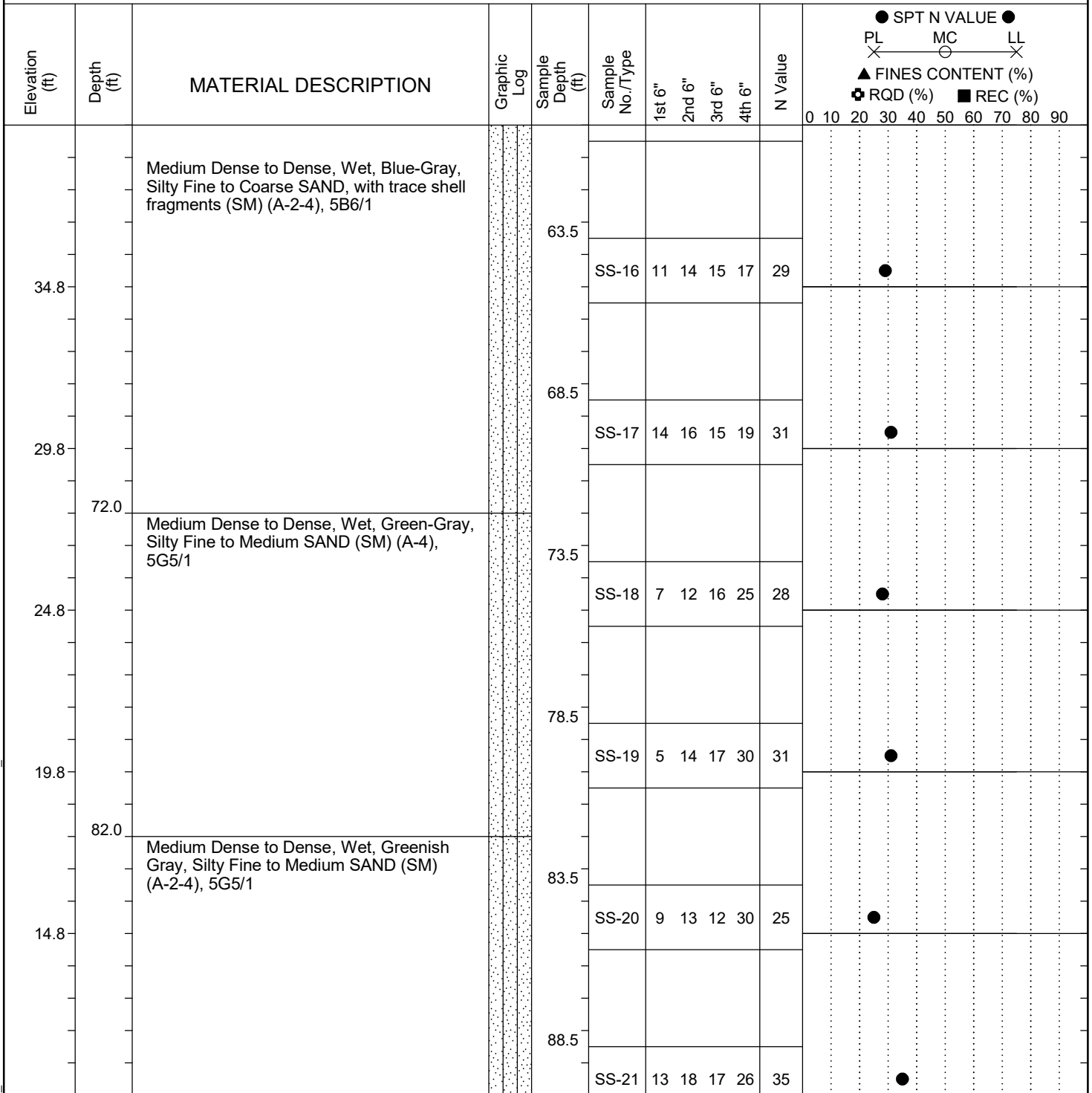
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-05
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: B. Cook	Boring Location: 3204+74.71	Offset: LT 1.34
Alignment: Existing		
Elev.: 99.8 ft	Latitude: 33.31879	Longitude: -80.548152
Date Started: 1/31/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/31/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM
		24HR: 3.1 ft



LEGEND

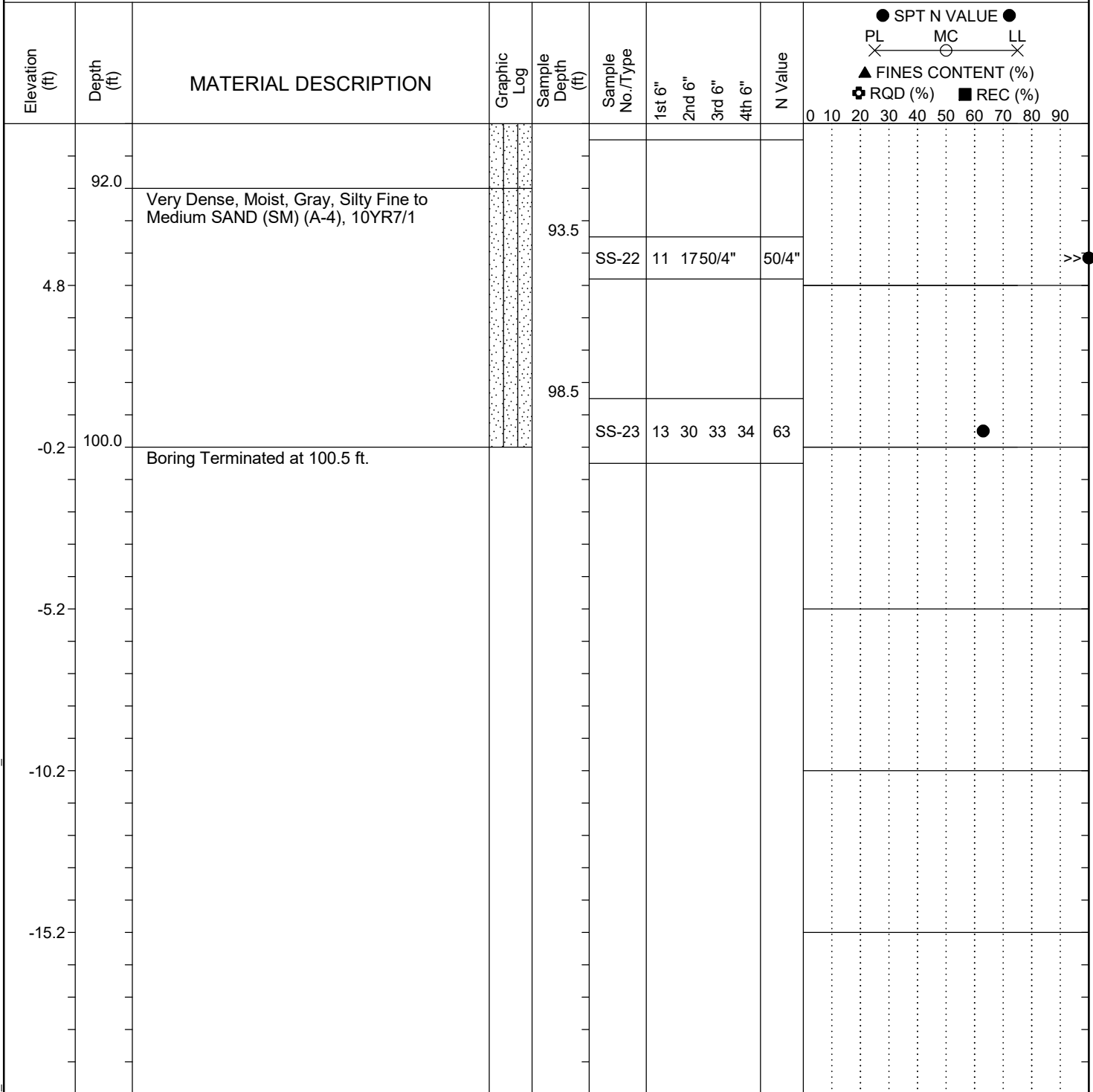
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-05
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 3204+74.71	Offset: LT 1.34
Alignment: Existing		
Elev.: 99.8 ft	Latitude: 33.31879	Longitude: -80.548152
Date Started: 1/31/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/31/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM
		24HR: 3.1 ft



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-06
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3205+28.79	Offset: RT 84.02
Elev.: 102.9 ft	Latitude: 33.318527	Longitude: -80.548259
Total Depth: 83.4 ft	Soil Depth: 83.4 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 7.8 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE										
											0	10	20	30	40	50	60	70	80	90	
67.9	32.0 - 37.0	Loose, Moist, White-Tan, Sub-angular to Sub-rounded, Fine to Medium SAND (SP) (A-1-b), 10YR8/1, 10YR7/3	[Pattern]	33.0	SS-10	2	2	3	5	5	●										
62.9	37.0 - 42.0	Very Loose, Moist, Gray, Sub-angular to Sub-rounded, Silty Fine to Medium SAND (SM) (A-2-4), 10YR6/1	[Pattern]	38.0	SS-11	1	2	2	3	4	●										
57.9	42.0 - 48.0	Loose, Moist, Gray, Sub-angular to Sub-rounded, Fine to Medium SAND (SP) (A-1-b), 10YR6/1	[Pattern]	43.0	SS-12	2	3	4	0	7	●										
52.9	48.0 - 50.0	No Recovery	[Pattern]	48.0	SS-13	0	0	0	0	0	●										
47.9	50.0 - 58.0	CALCAREOUS SEDIMENTS Loose to Very Dense, Moist, White-Tan-Gray, Sub-angular to Sub-rounded, Reactive, Fine to Medium SAND (SP) (A-1-b), 10YR6/1, 10YR8/2	[Pattern]	53.0	SS-14	3	3	5	7	8	●										
				58.0	SS-15	5	5	4	4	9	●										

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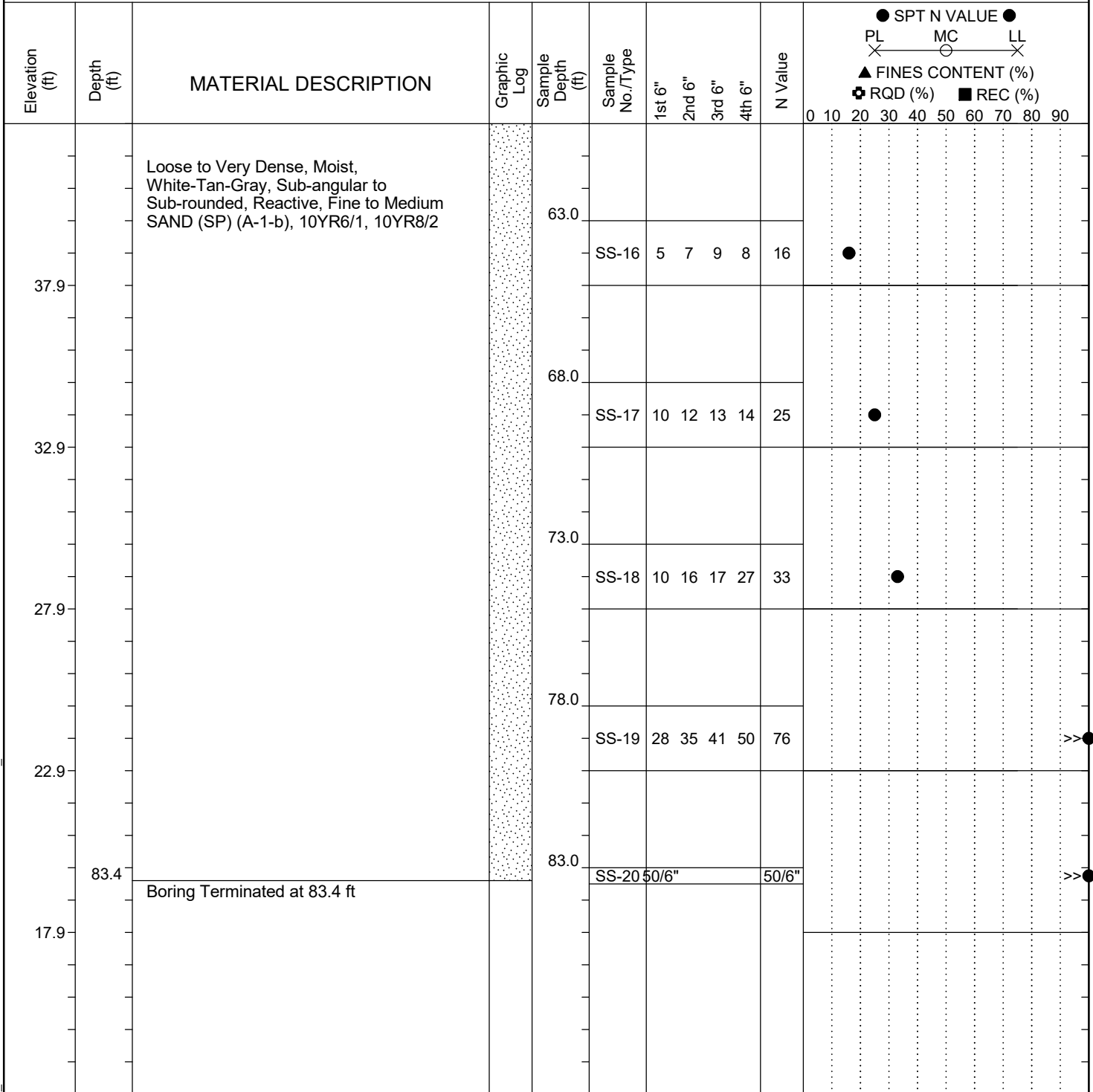
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-06	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-26	
Eng./Geo.: J. Webb		Boring Location: 3205+28.79		Offset: RT 84.02	Alignment: Existing
Elev.: 102.9 ft	Latitude: 33.318527	Longitude: -80.548259	Date Started: 12/8/2022		
Total Depth: 83.4 ft	Soil Depth: 83.4 ft	Core Depth: ft	Date Completed: 12/8/2022		
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic		Energy Ratio: 96%	
Core Size:	Driller: W. King	Groundwater: TOB	NM	24HR	7.8 ft



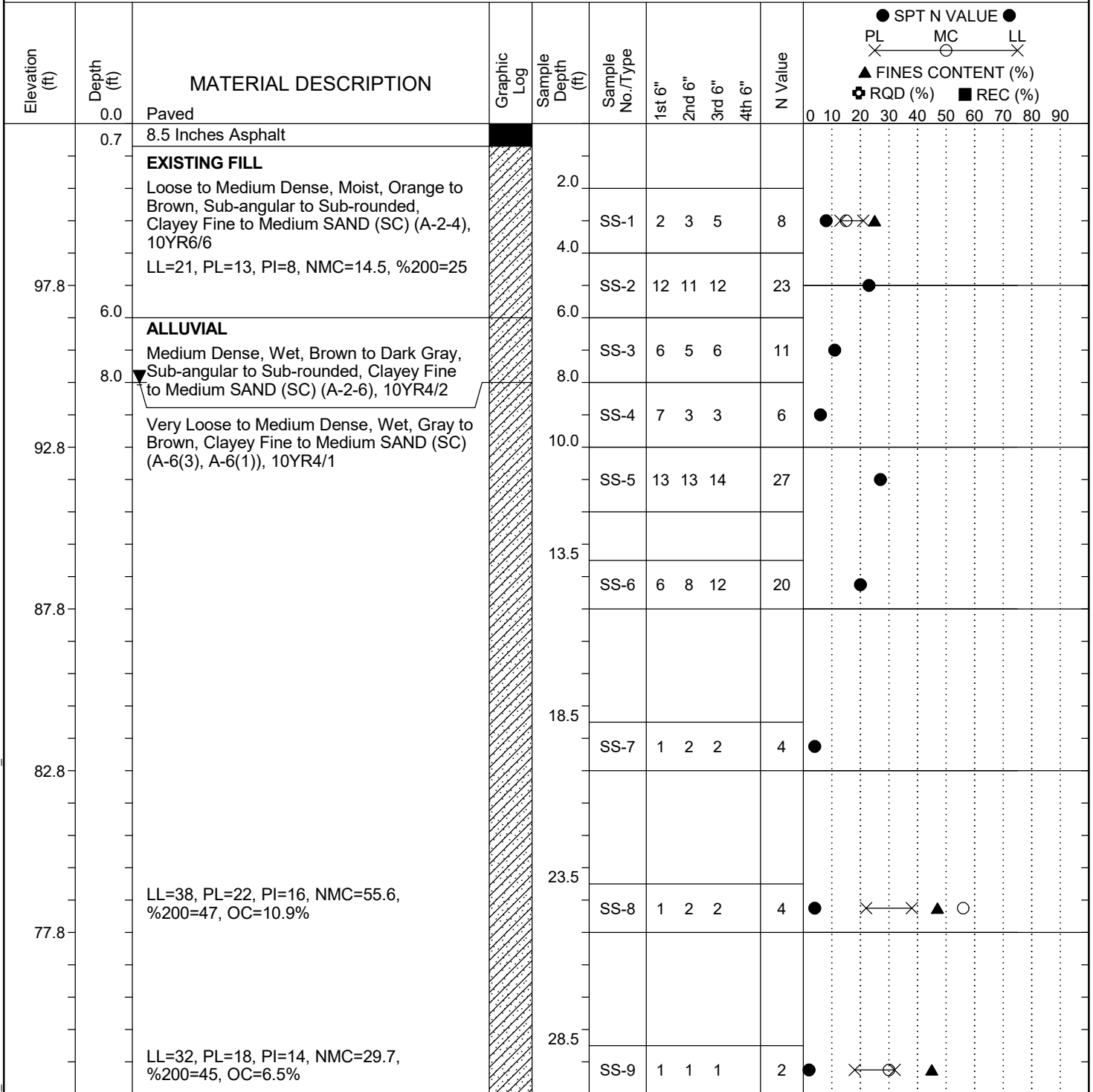
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-07
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3207+41.47	Offset: RT 83.10 Alignment: Existing
Elev.: 102.8 ft	Latitude: 33.318073	Longitude: -80.547819 Date Started: 2/8/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/8/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 8 ft



LEGEND

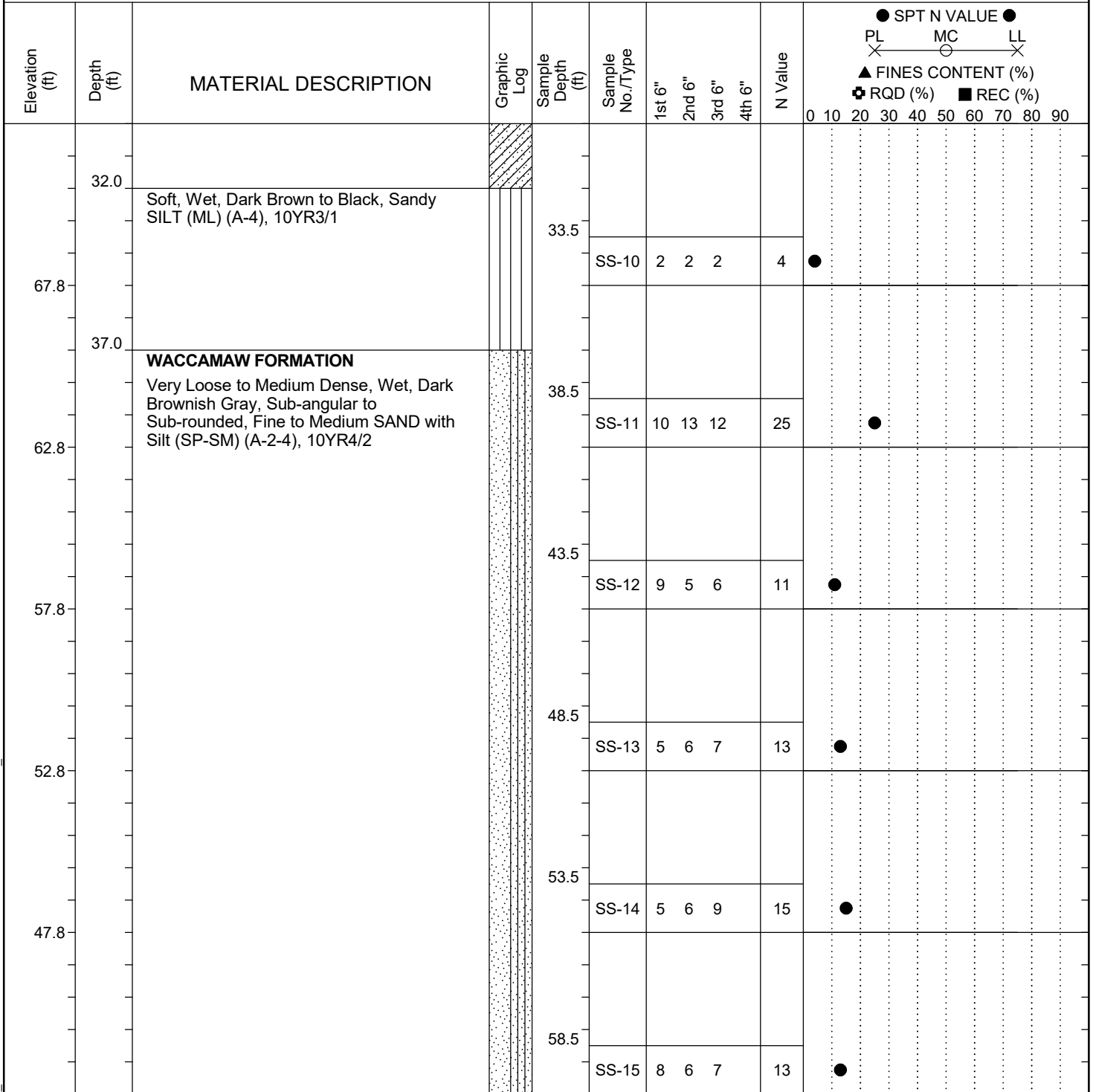
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-07
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3207+41.47	Offset: RT 83.10
Alignment: Existing		
Elev.: 102.8 ft	Latitude: 33.318073	Longitude: -80.547819
Date Started: 2/8/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/8/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 8 ft



LEGEND

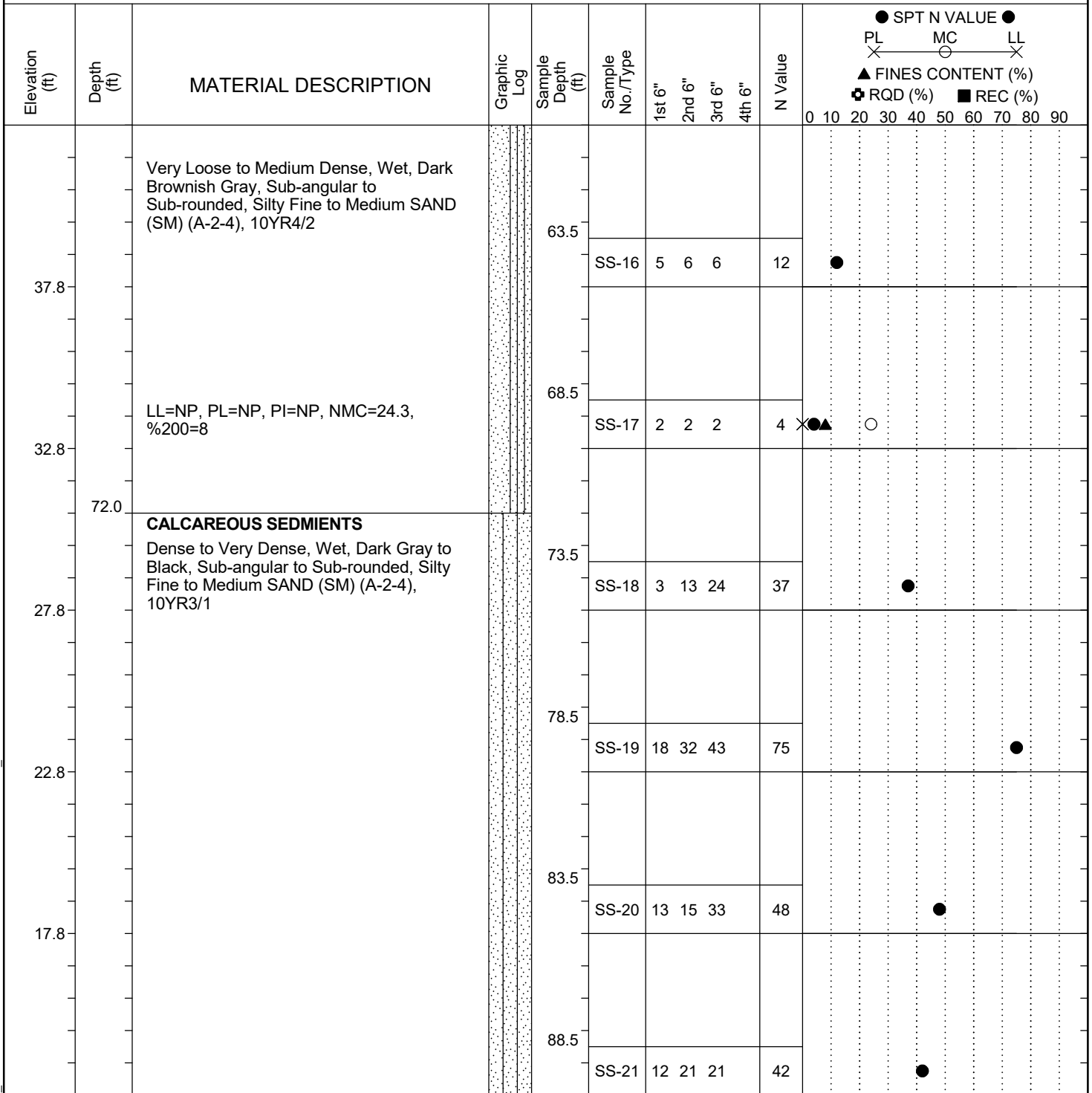
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-07
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3207+41.47	Offset: RT 83.10 Alignment: Existing
Elev.: 102.8 ft	Latitude: 33.318073	Longitude: -80.547819 Date Started: 2/8/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/8/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 8 ft



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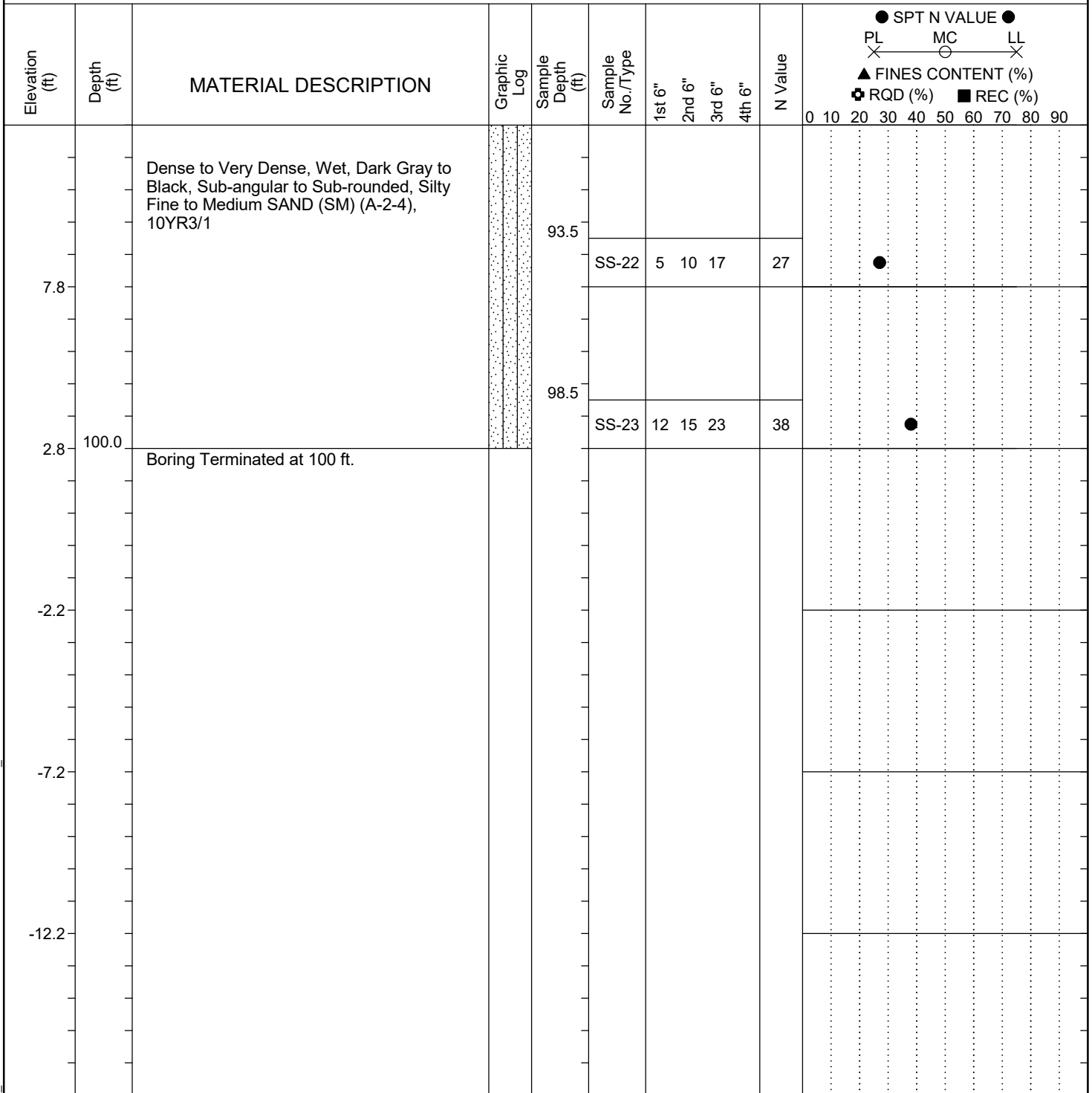
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-07
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3207+41.47	Offset: RT 83.10
Elev.: 102.8 ft	Latitude: 33.318073	Longitude: -80.547819
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 8 ft



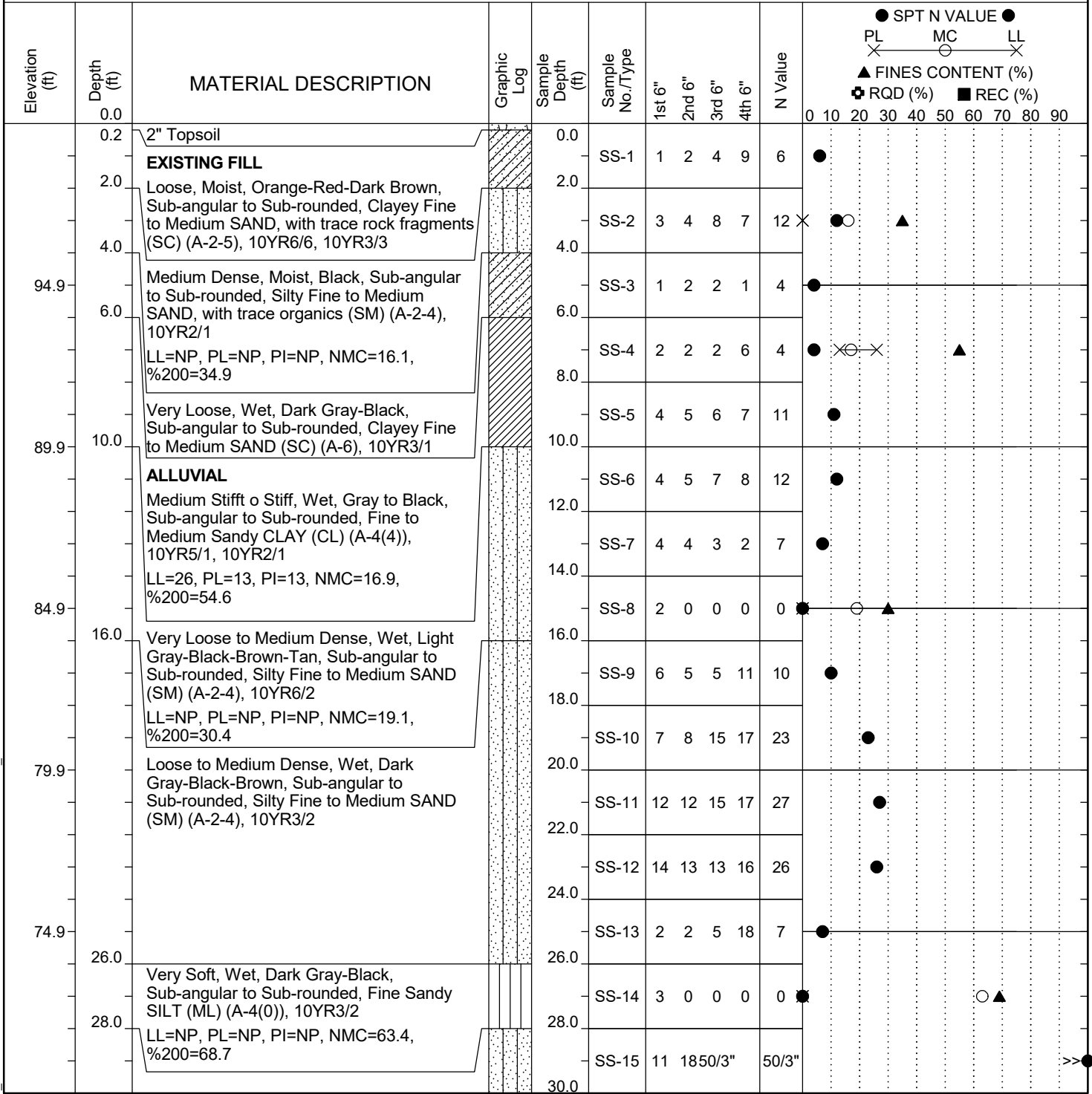
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-08
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 3207+50.37	Offset: LT 1.38
Alignment: Existing	Date Started: 1/23/2023	Date Completed: 1/23/2023
Elev.: 99.9 ft	Latitude: 33.3182	Longitude: -80.547586
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Groundwater: TOB NM
Core Size:	Driller: W. King	24HR: NM



LEGEND

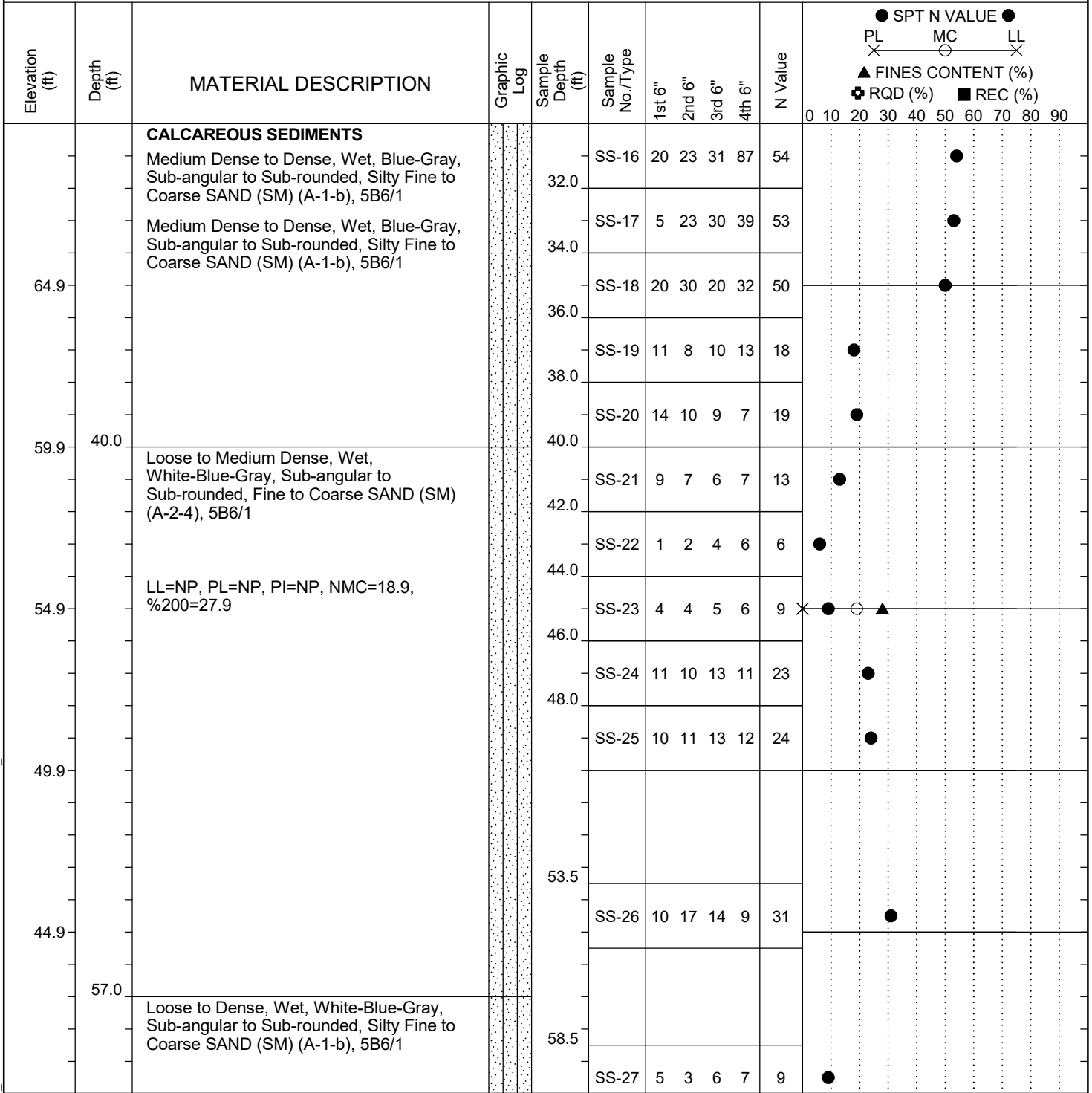
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg		Boring No.:	B-08		
Site Description:	I-26 at I-95 Interchange Improvement						Route:	I-26		
Eng./Geo.:	B. Cook		Boring Location:	3207+50.37		Offset:	LT 1.38		Alignment:	Existing
Elev.:	99.9 ft		Latitude:	33.3182		Longitude:	-80.547586		Date Started:	1/23/2023
Total Depth:	100 ft		Soil Depth:	100 ft		Core Depth:	ft		Date Completed:	1/23/2023
Bore Hole Diameter (in):	6		Sampler Configuration			Liner Required:	Y (N)		Liner Used:	Y (N)
Drill Machine:	CME 750X		Drill Method:	RW		Hammer Type:	Automatic		Energy Ratio:	96%
Core Size:			Driller:	W. King		Groundwater:	TOB NM		24HR	NM



LEGEND

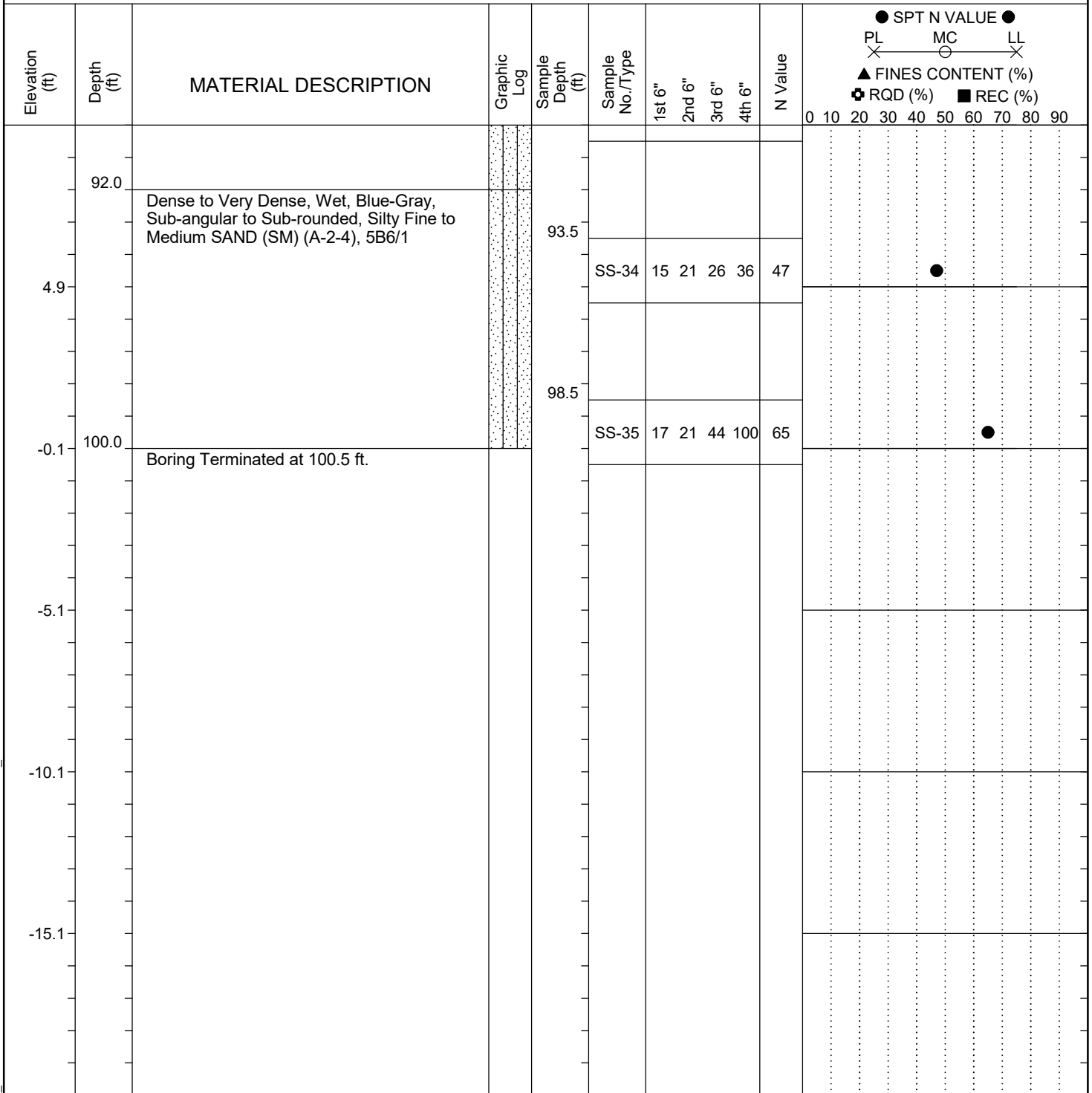
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-08
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 3207+50.37	Offset: LT 1.38
Alignment: Existing		
Elev.: 99.9 ft	Latitude: 33.3182	Longitude: -80.547586
Date Started: 1/23/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/23/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: NM



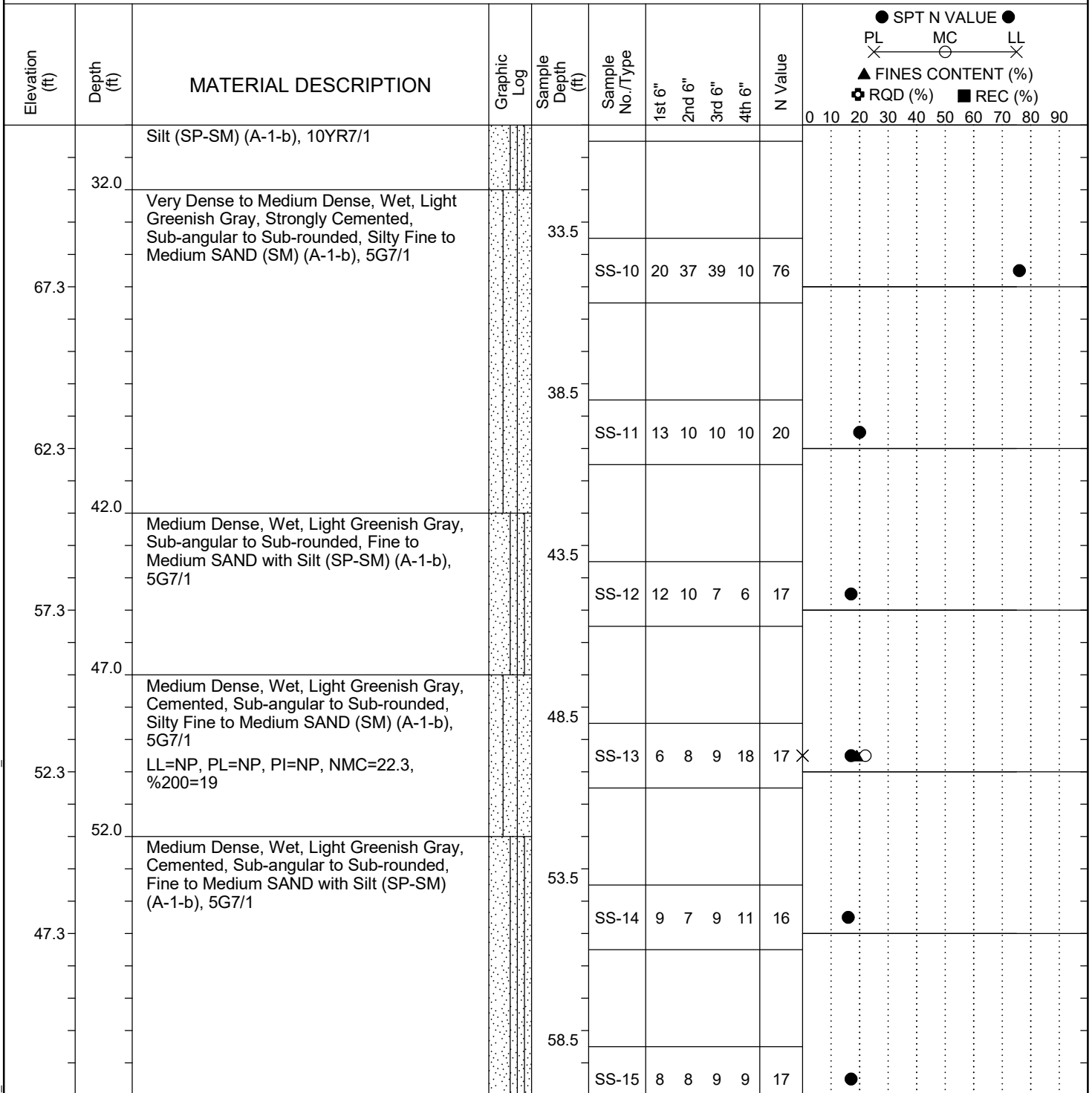
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-09
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3206+70.10	Offset: LT 88.99 Alignment: Existing
Elev.: 102.3 ft	Latitude: 33.318523	Longitude: -80.547527 Date Started: 2/7/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/7/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: T. Hibdon	Groundwater: TOB NM 24HR: 6.8 ft



LEGEND

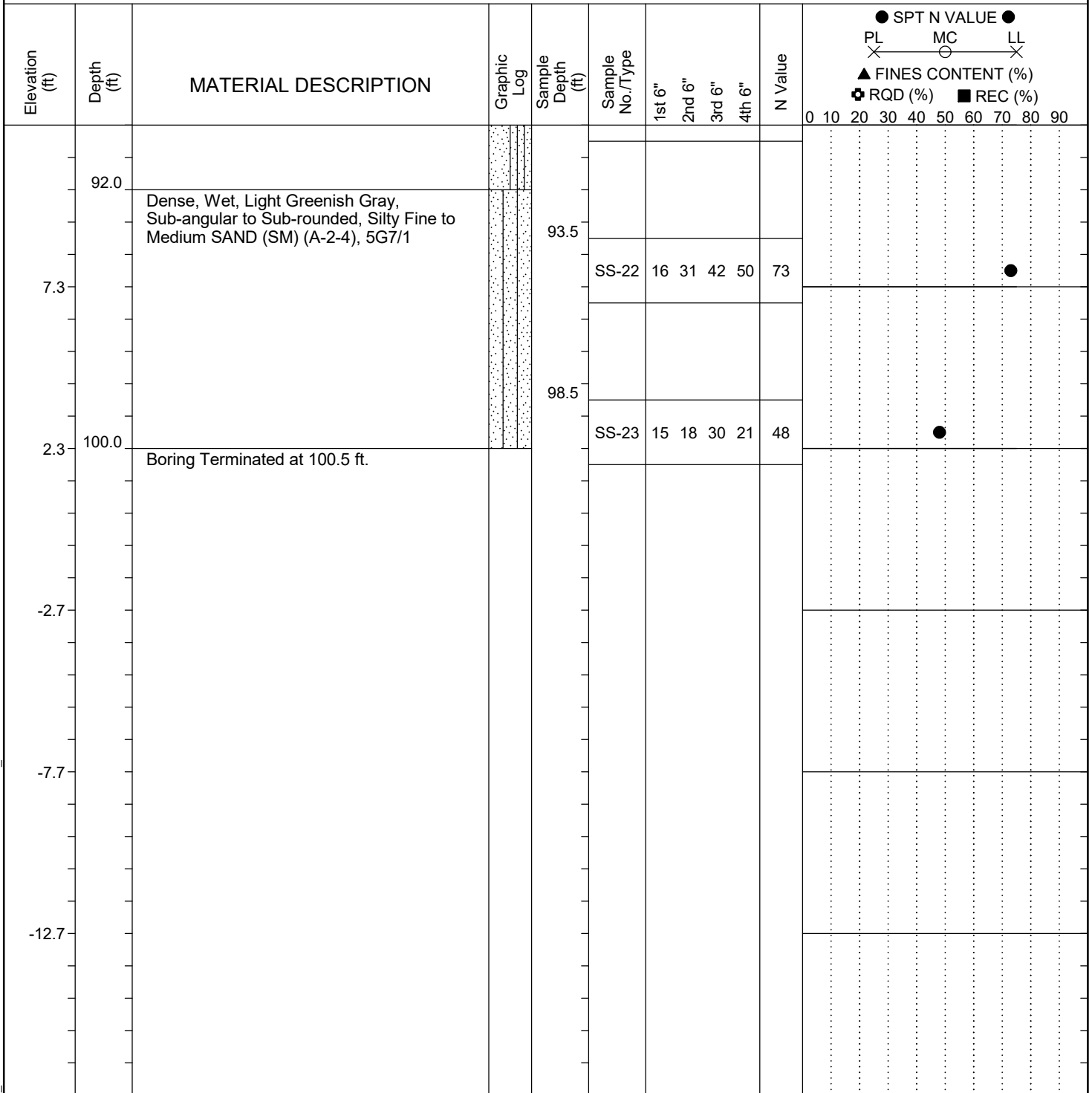
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-09
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 3206+70.10	Offset: LT 88.99
Alignment: Existing		
Elev.: 102.3 ft	Latitude: 33.318523	Longitude: -80.547527
Date Started: 2/7/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/7/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 93%		
Core Size:	Driller: T. Hibdon	Groundwater: TOB NM
24HR: 6.8 ft		



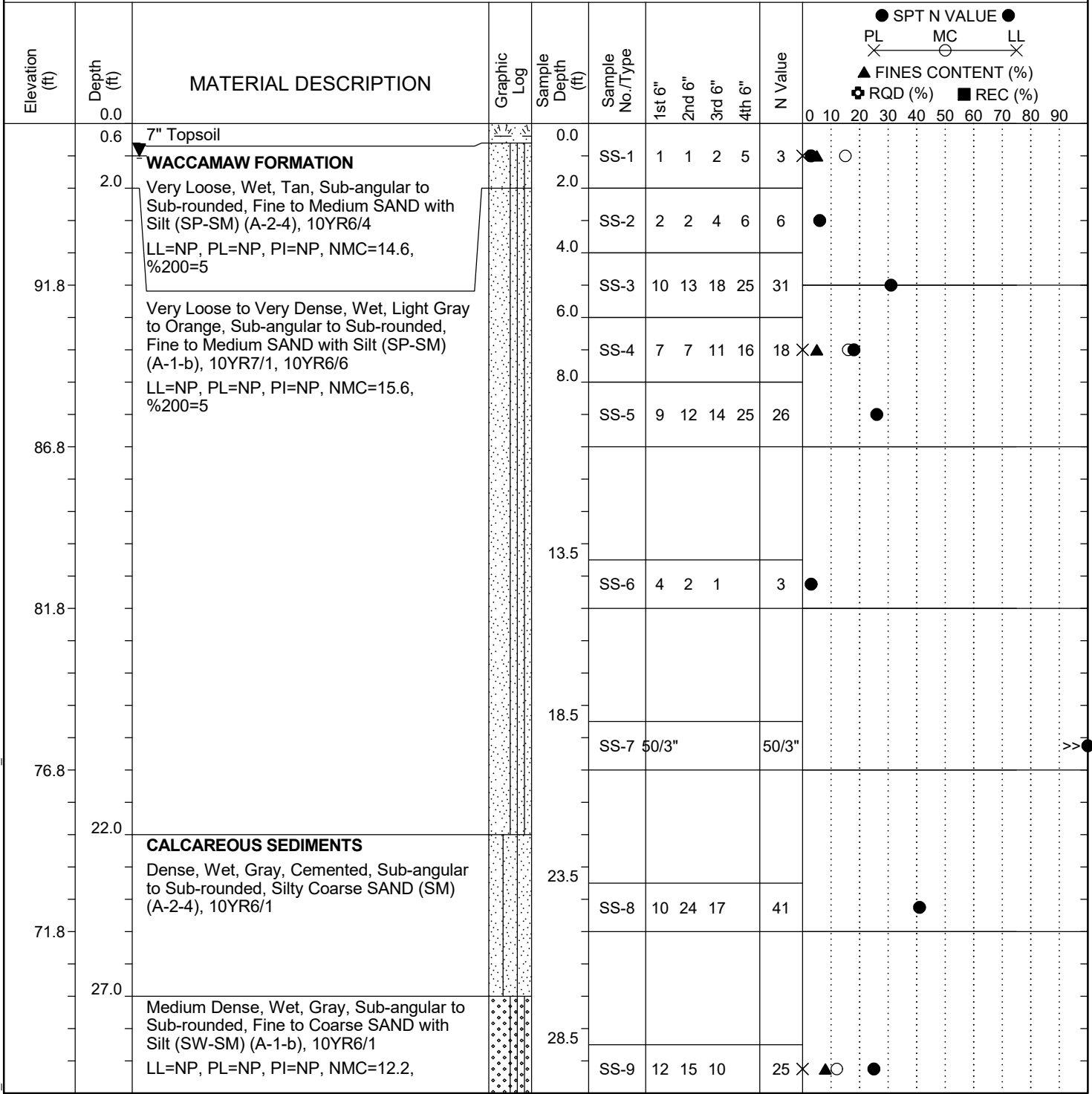
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-10
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 26+24.44	Offset: RT 39.43
Alignment: Existing	Date Started: 1/31/2023	Date Completed: 1/31/2023
Elev.: 96.8 ft	Latitude: 33.32162	Longitude: -80.548859
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: Diedrich D-50	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 93%	Groundwater: TOB NM
Core Size:	Driller: T. Hibdon	24HR: 1 ft



LEGEND

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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-10
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 26+24.44	Offset: RT 39.43
Alignment: Existing		
Elev.: 96.8 ft	Latitude: 33.32162	Longitude: -80.548859
Date Started: 1/31/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/31/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 93%		
Core Size:	Driller: T. Hibdon	Groundwater: TOB NM
24HR: 1 ft		

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE									
											PL	MC	LL	FINES CONTENT (%)						
		%200=8									0	10	20	30	40	50	60	70	80	90
61.8	37.0	Medium Dense, Wet, Gray, Sub-angular to Sub-rounded, Coarse SAND with Silt (SP-SM) (A-1-b), 10YR6/1		33.5	SS-10	4	19	3		22										
56.8	42.0	Medium Dense, Wet, Light Gray, Strongly Reactive, Sub-angular to Sub-rounded, Silty Fine to Coarse SAND (SM) (A-2-4), 10YR7/1		38.5	SS-11	11	18	8		26										
51.8	48.5	Medium Dense, Wet, Tan to Gray, Strongly Reactive, Sub-angular to Sub-rounded, Coarse graded SAND (SP) (A-1-b), 10YR7/1, 10YR6/4		43.5	SS-12	10	9	12		21										
46.8	50.0	NO RECOVERY		48.5	SS-13	6	4	5		9										
41.8	53.5	Loose to Dense, Moist to Wet, Gray to Tannish Gray, Strongly Reactive, Sub-angular to Sub-rounded, Coarse SAND, with Silt (SP-SM), 10YR7/1		53.5	SS-14	7	3	12		15										
	58.5			58.5	SS-15	7	3	6		9										

LEGEND

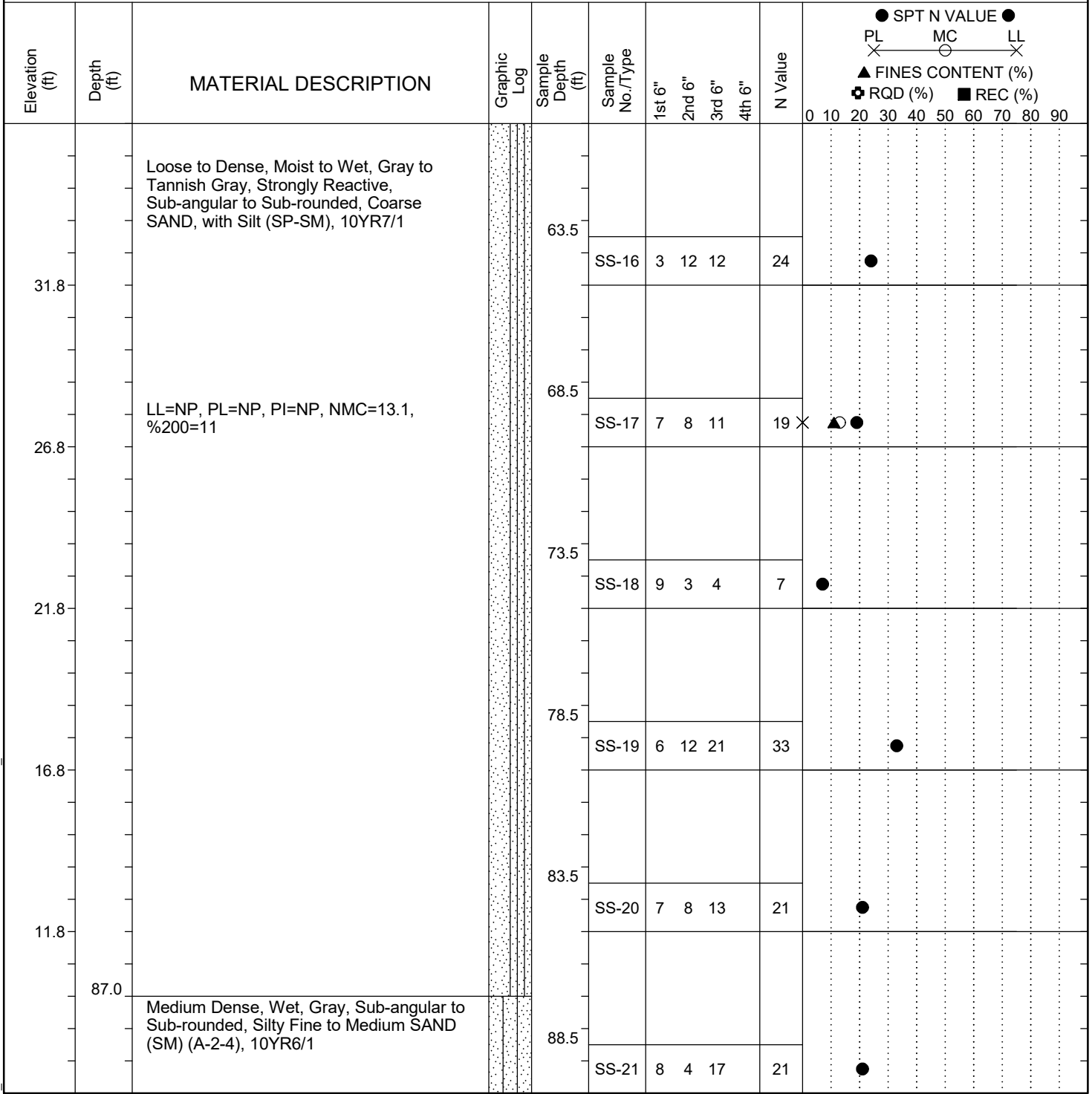
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-10
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 26+24.44	Offset: RT 39.43
Alignment: Existing		
Elev.: 96.8 ft	Latitude: 33.32162	Longitude: -80.548859
Date Started: 1/31/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/31/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 93%		
Core Size:	Driller: T. Hibdon	Groundwater: TOB NM
		24HR: 1 ft



LEGEND

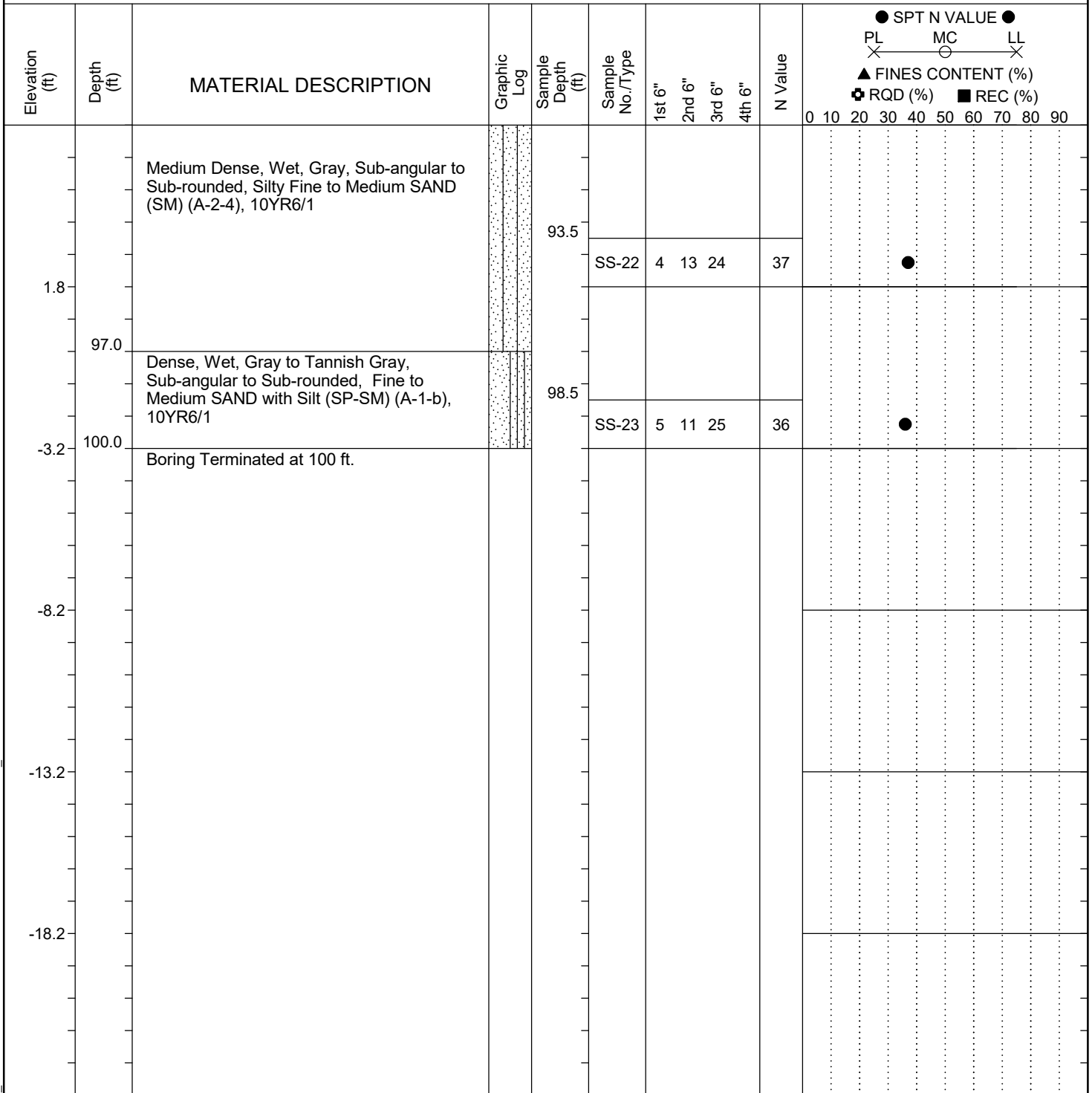
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677			County: Orangeburg			Boring No.: B-10		
Site Description: I-26 at I-95 Interchange Improvement					Route: I-26			
Eng./Geo.: A. Guest		Boring Location: 26+24.44		Offset: RT 39.43		Alignment: Existing		
Elev.: 96.8 ft		Latitude: 33.32162		Longitude: -80.548859		Date Started: 1/31/2023		
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft		Date Completed: 1/31/2023		
Bore Hole Diameter (in): 6			Sampler Configuration			Liner Required: Y (N)		Liner Used: Y (N)
Drill Machine: Diedrich D-50		Drill Method: RW		Hammer Type: Automatic		Energy Ratio: 93%		
Core Size:		Driller: T. Hibdon		Groundwater: TOB NM		24HR		1 ft

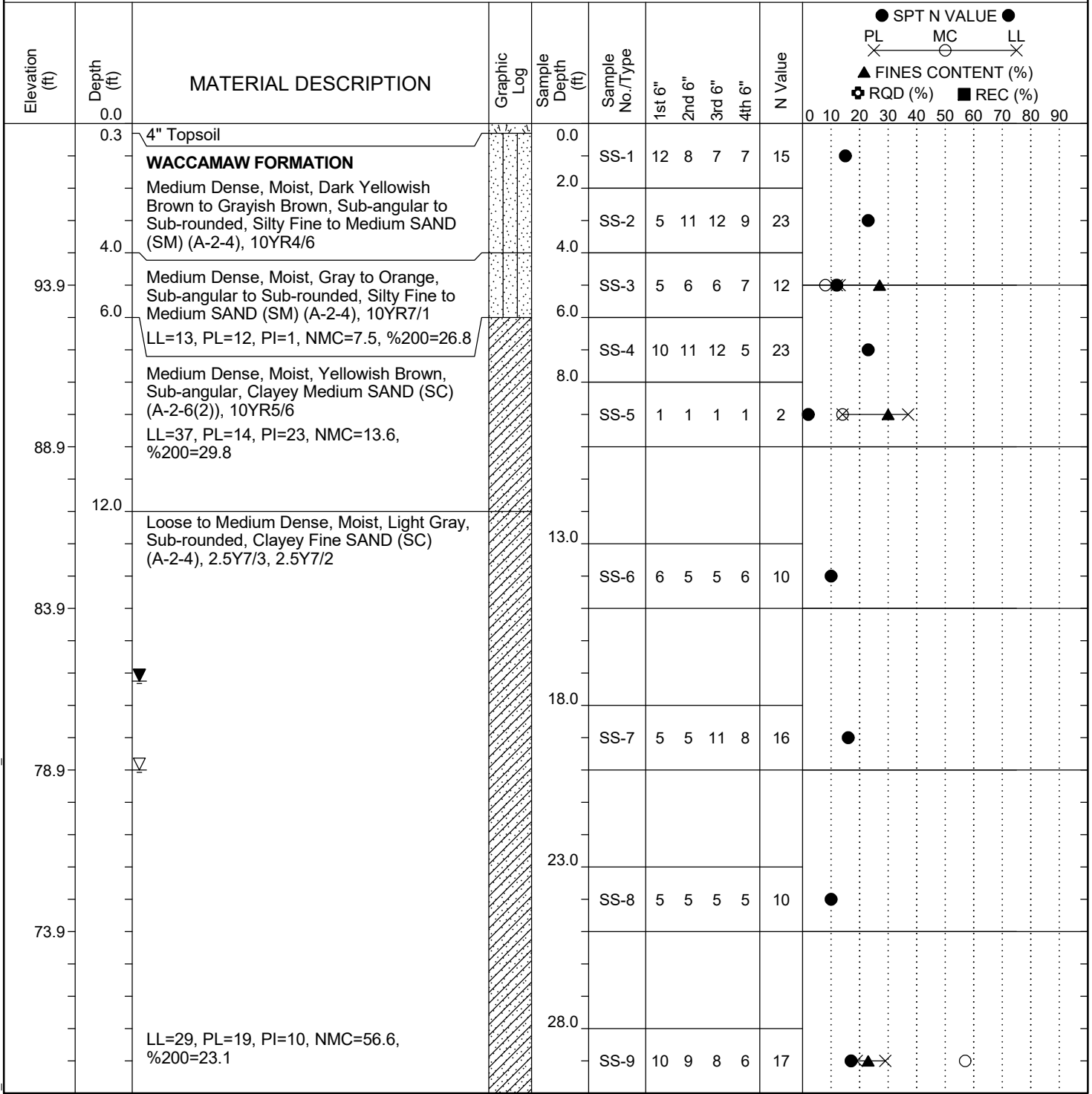


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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-11
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 31+38.38	Offset: RT 25.48 Alignment: Existing
Elev.: 98.9 ft	Latitude: 33.320468	Longitude: -80.550368 Date Started: 12/13/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/14/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 20 ft 24HR: 17.25 ft



LEGEND Continued Next Page

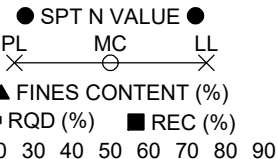
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-11
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 31+38.38	Offset: RT 25.48
Alignment: Existing		
Elev.: 98.9 ft	Latitude: 33.320468	Longitude: -80.550368
Date Started: 12/13/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/14/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB 20 ft
		24HR: 17.25 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE										
											0	10	20	30	40	50	60	70	80	90	
	30.5	Void Noted By Drillers from 30.5 to 35.5																			
63.9	35.5	CALCAREOUS SEDIMENTS Loose to Medium Dense, Moist, Pale Brown to Light Gray, Angular, Silty Coarse SAND (SM) (A-2-4), 2.5Y7/4, 5Y8/2																			
58.9				38.0	SS-10	5	5	5	6	10											
53.9				43.0	SS-11	5	11	11	5	22											
48.9				48.0	SS-12	10	11	12	11	23											
43.9		LL=NP, PL=NP, PI=NP, NMC=22.9, %200=24.8		53.0	SS-13	13	13	13	14	26 X											
	57.0	Medium Dense to Very Dense, Moist, Light Gray, Sub-angular to Angular, Fine to Coarse SAND with Silt (SW-SM) (A-1-b), 5Y7/1		58.0	SS-14	12	14	12	14	26											



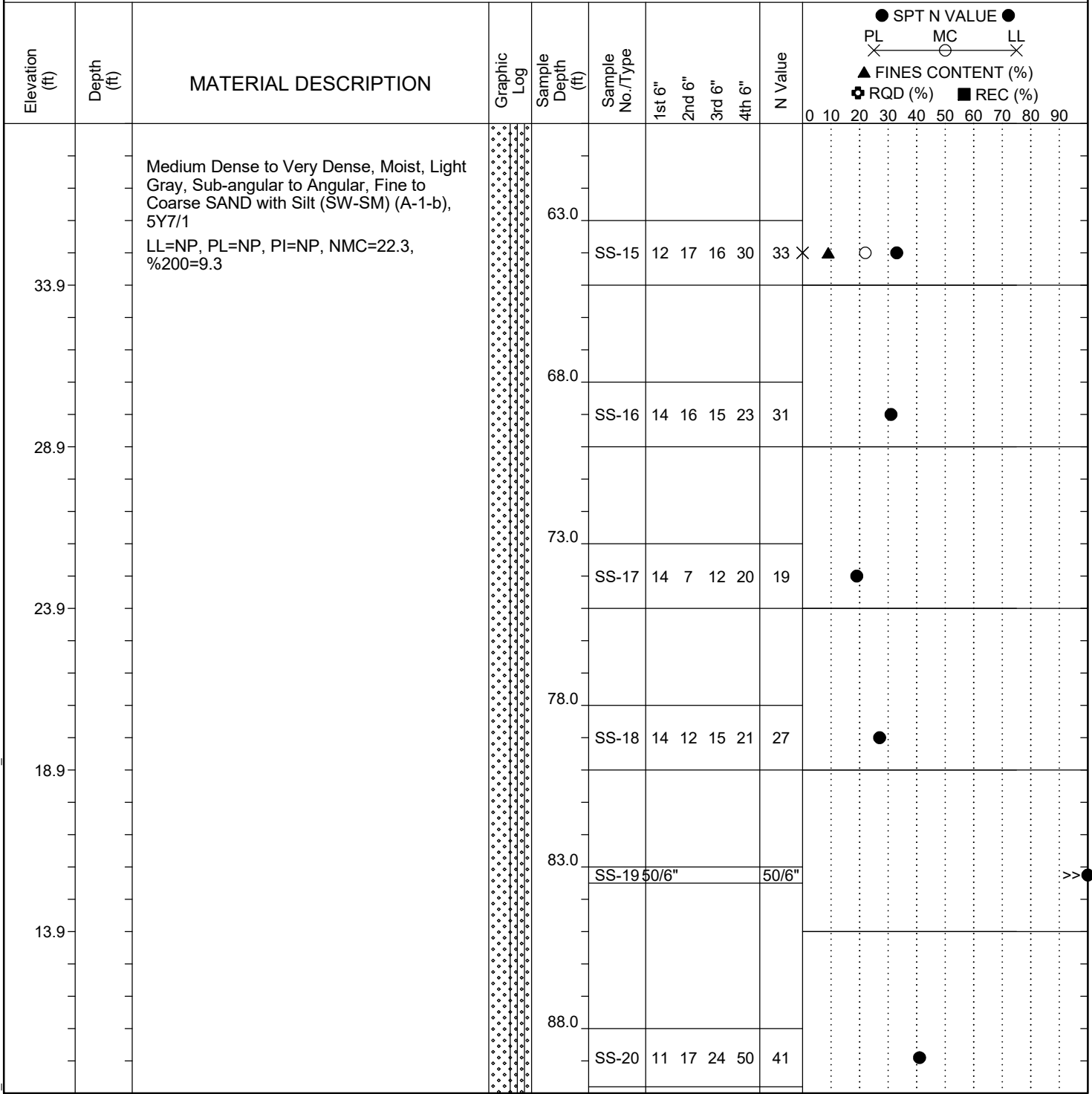
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-11
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 31+38.38	Offset: RT 25.48 Alignment: Existing
Elev.: 98.9 ft	Latitude: 33.320468	Longitude: -80.550368 Date Started: 12/13/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/14/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 20 ft 24HR: 17.25 ft



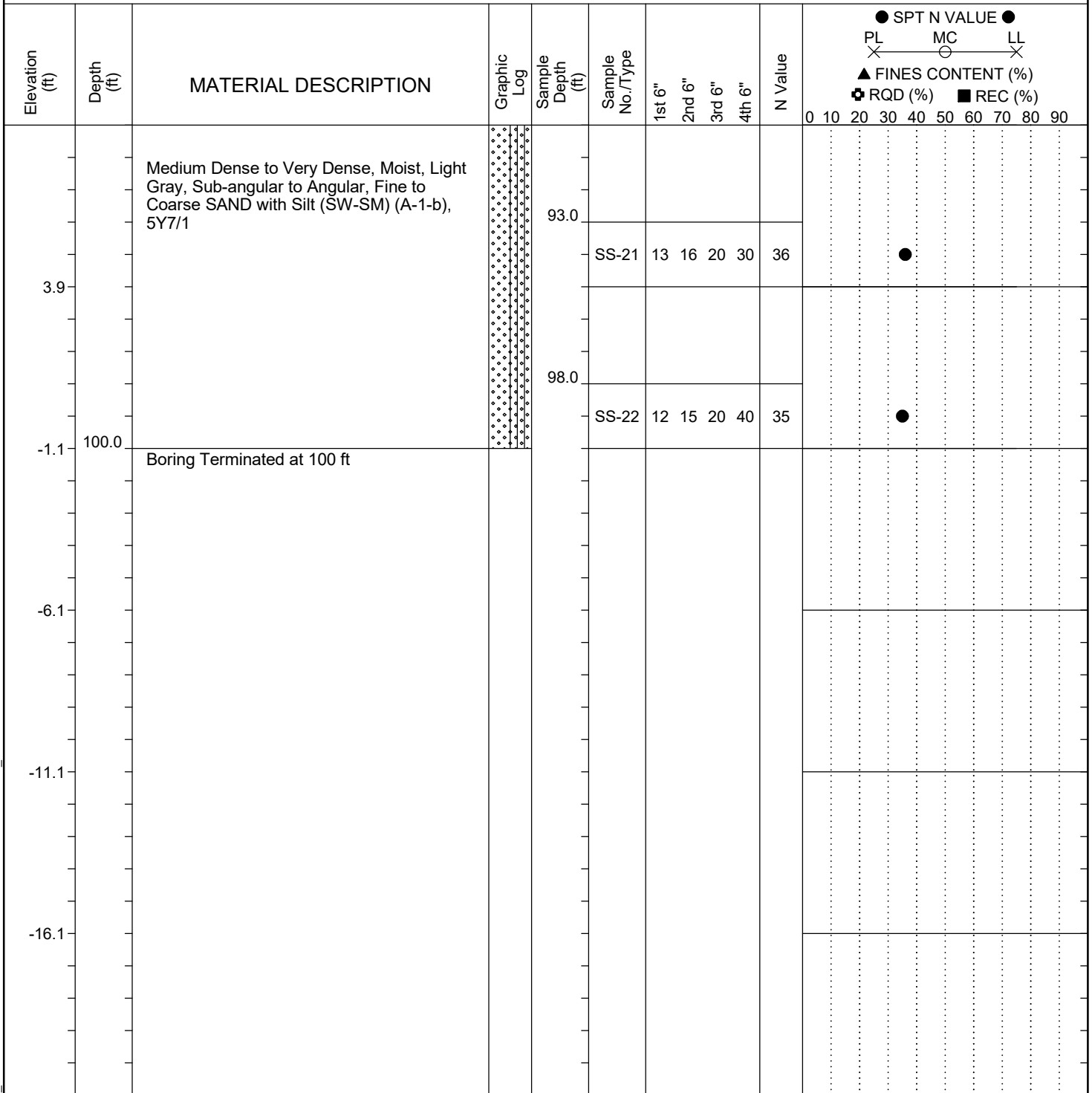
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-11
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 31+38.38	Offset: RT 25.48 Alignment: Existing
Elev.: 98.9 ft	Latitude: 33.320468	Longitude: -80.550368 Date Started: 12/13/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/14/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 20 ft 24HR: 17.25 ft



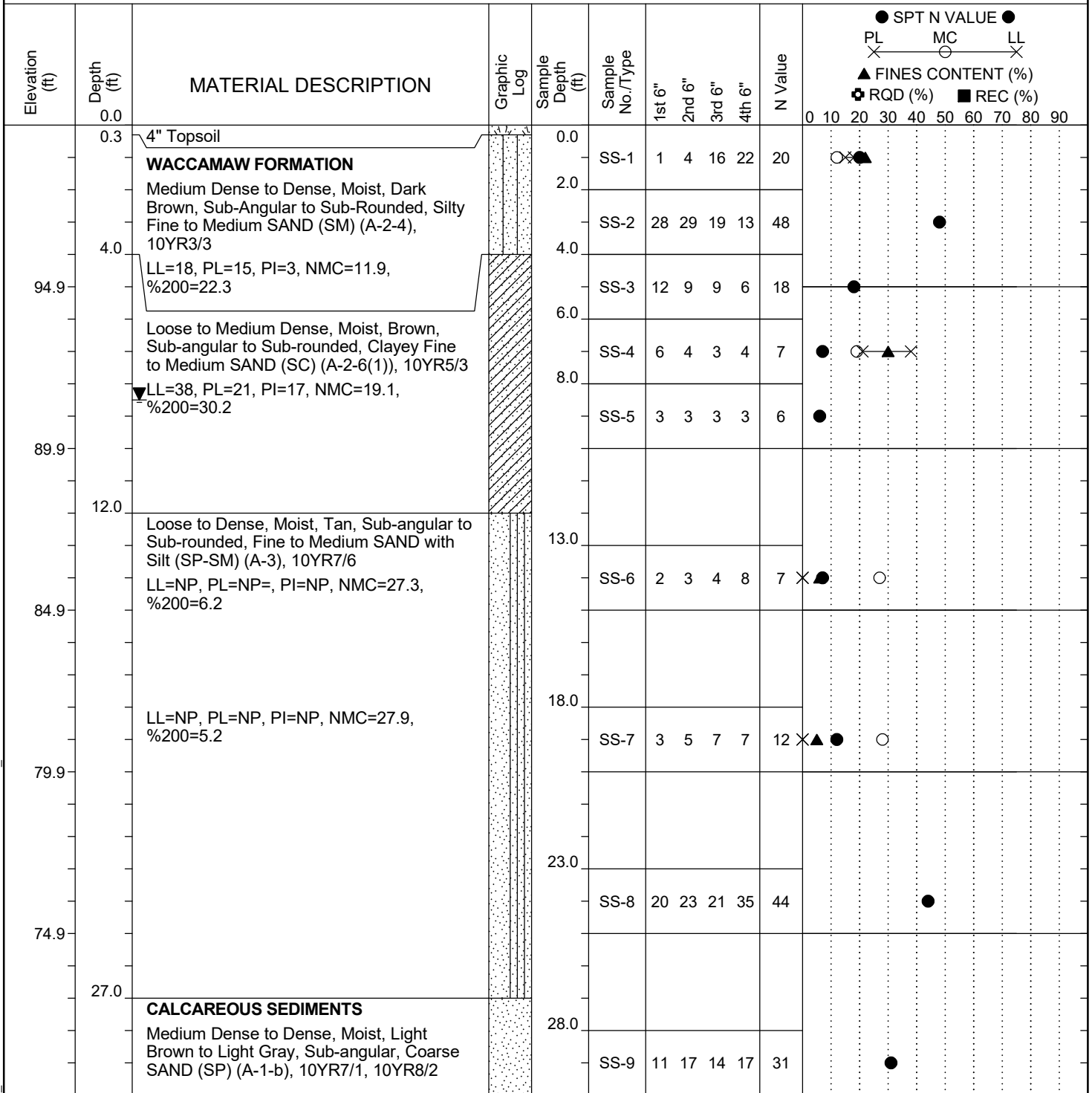
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-12
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 29+66.05	Offset: LT 35.25 Alignment: Existing
Elev.: 99.9 ft	Latitude: 33.320922	Longitude: -80.549633 Date Started: 12/15/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/16/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 8.5 ft



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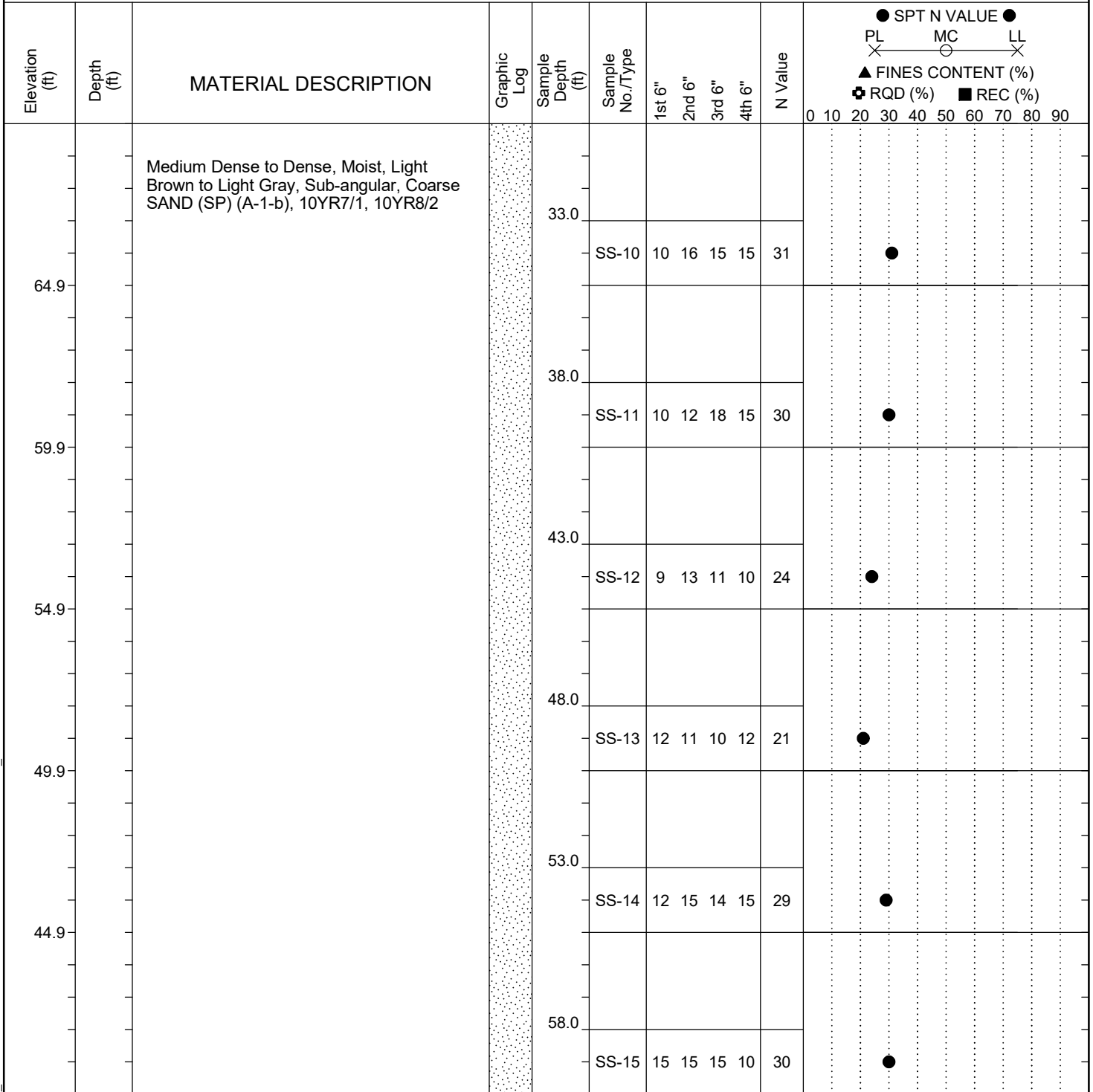
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-12
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 29+66.05	Offset: LT 35.25
Elev.: 99.9 ft	Latitude: 33.320922	Longitude: -80.549633
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 8.5 ft



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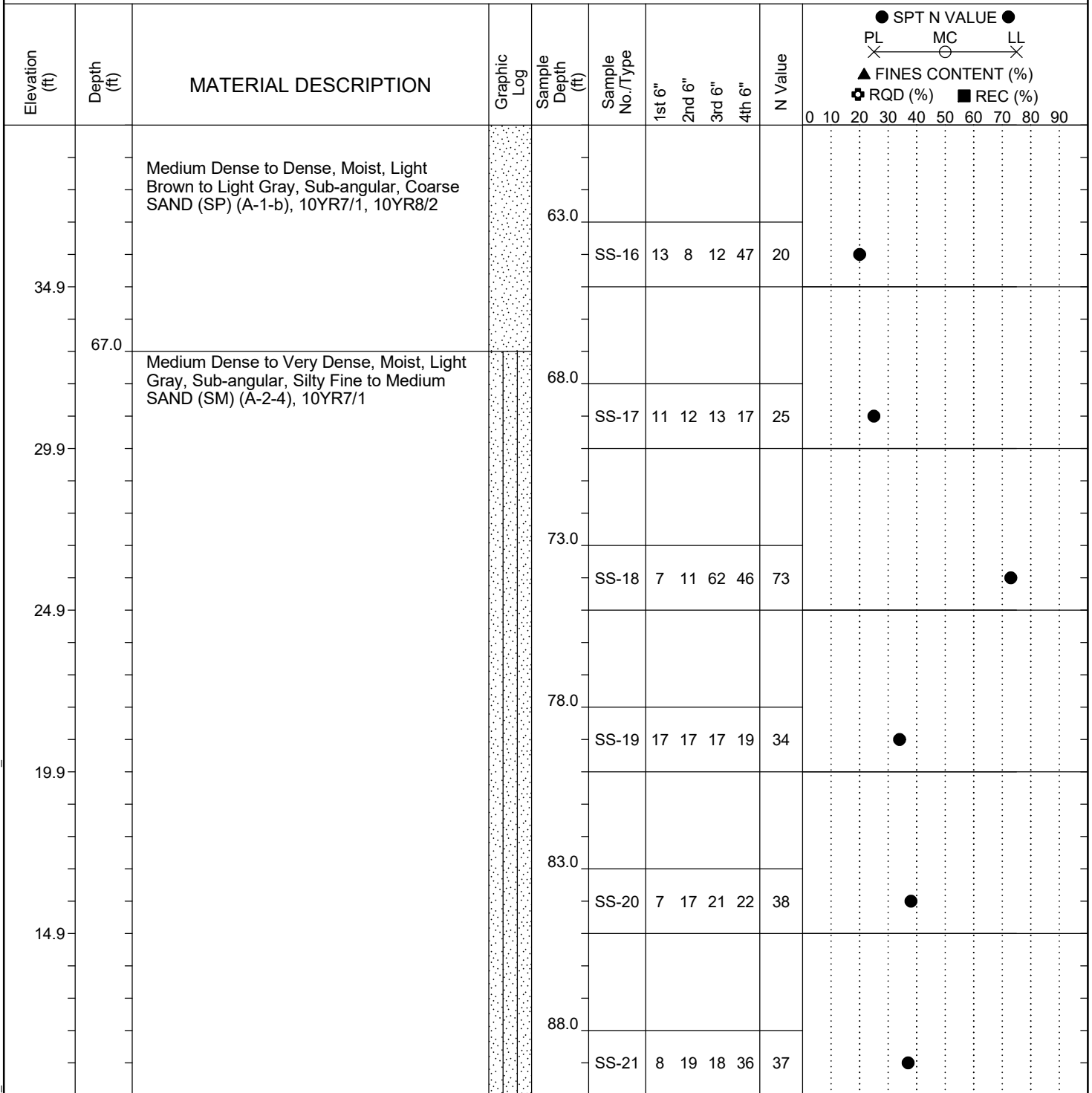
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-12
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 29+66.05	Offset: LT 35.25 Alignment: Existing
Elev.: 99.9 ft	Latitude: 33.320922	Longitude: -80.549633 Date Started: 12/15/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 12/16/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 8.5 ft



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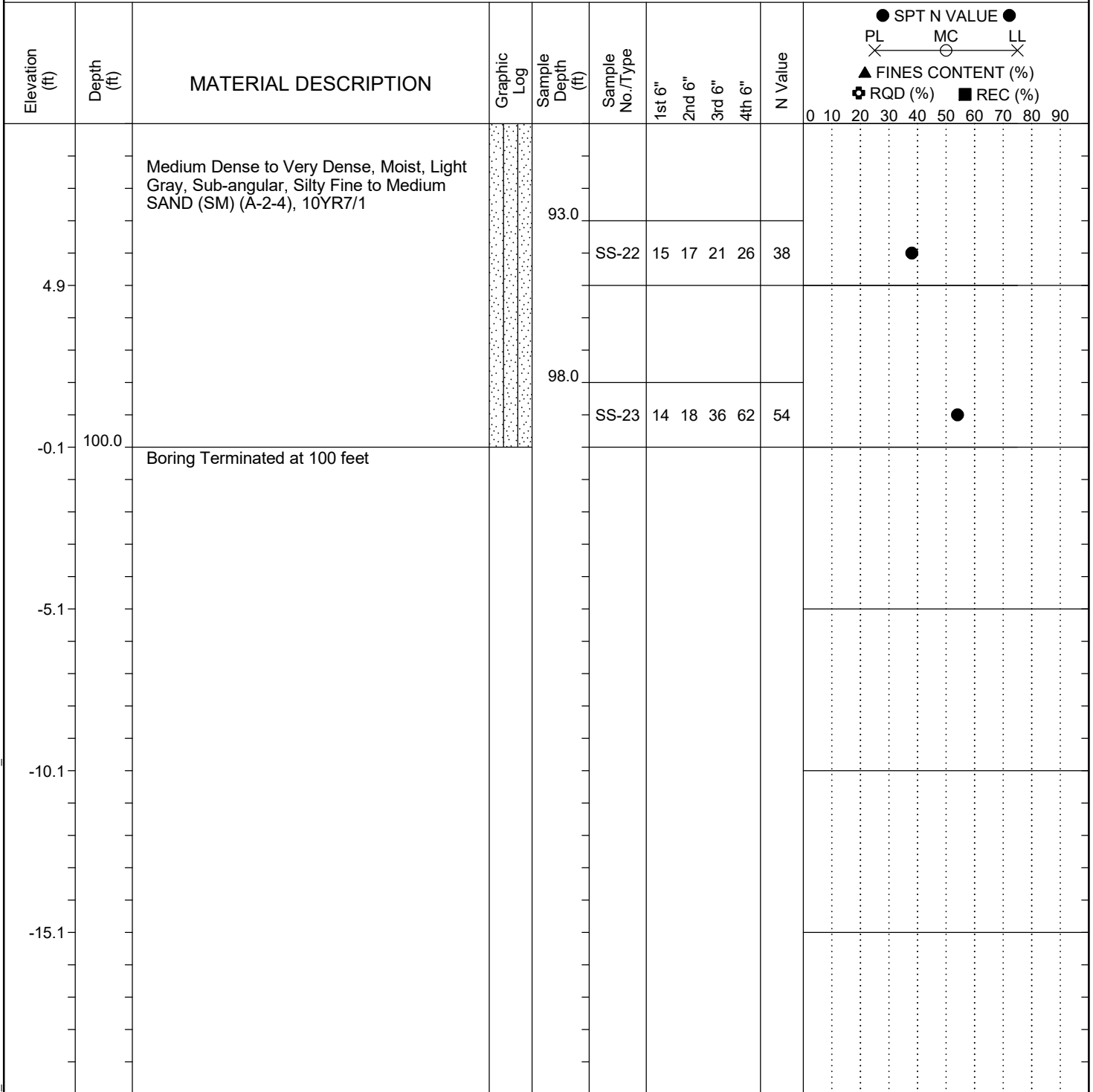
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-12
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 29+66.05	Offset: LT 35.25
Alignment: Existing		
Elev.: 99.9 ft	Latitude: 33.320922	Longitude: -80.549633
Date Started: 12/15/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/16/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 8.5 ft



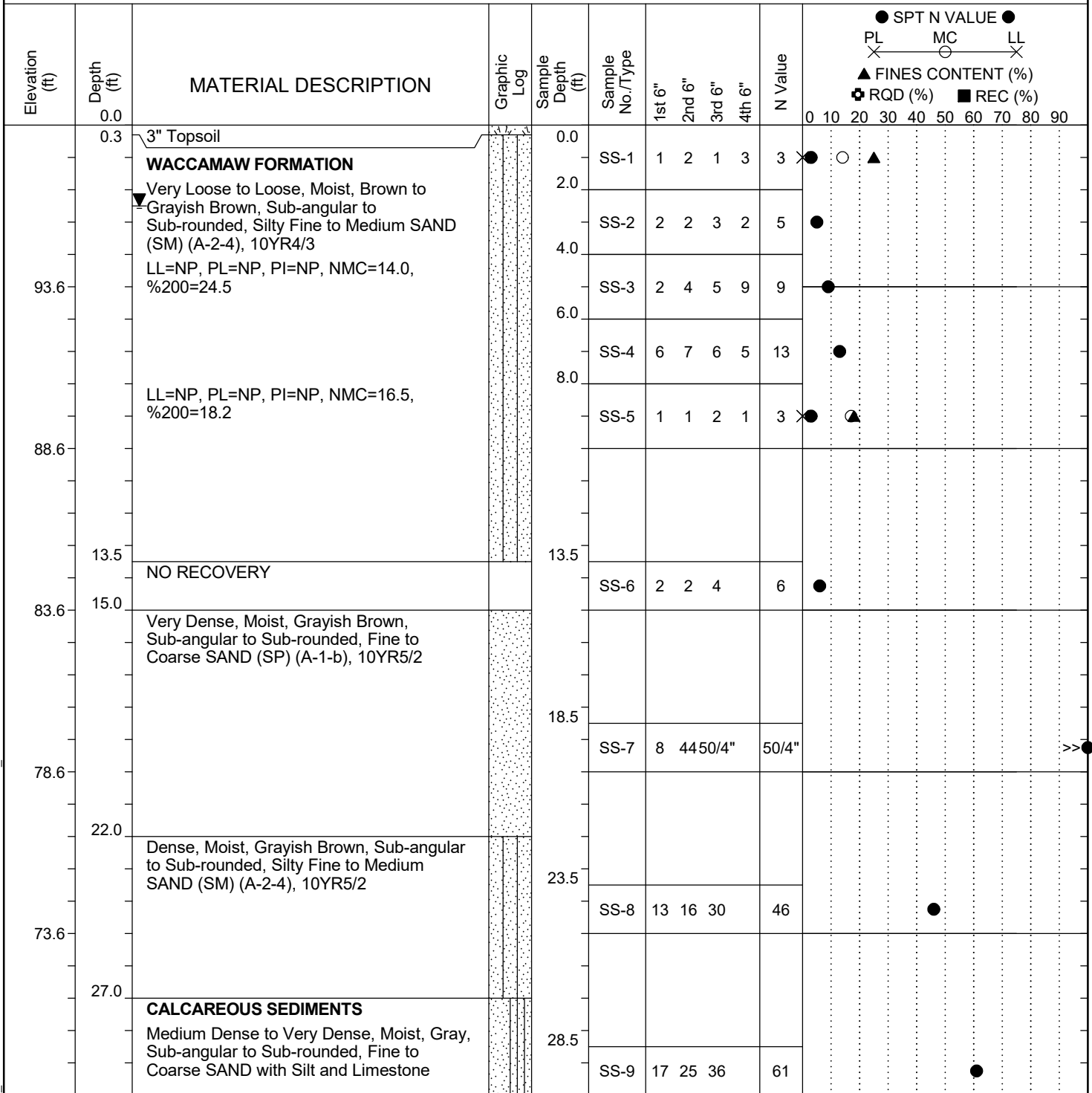
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-13
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: L. Valicek	Boring Location: 30+91.50	Offset: LT 10.23 Alignment: Existing
Elev.: 98.6 ft	Latitude: 33.320729	Longitude: -80.549973 Date Started: 2/2/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/2/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 2.5 ft



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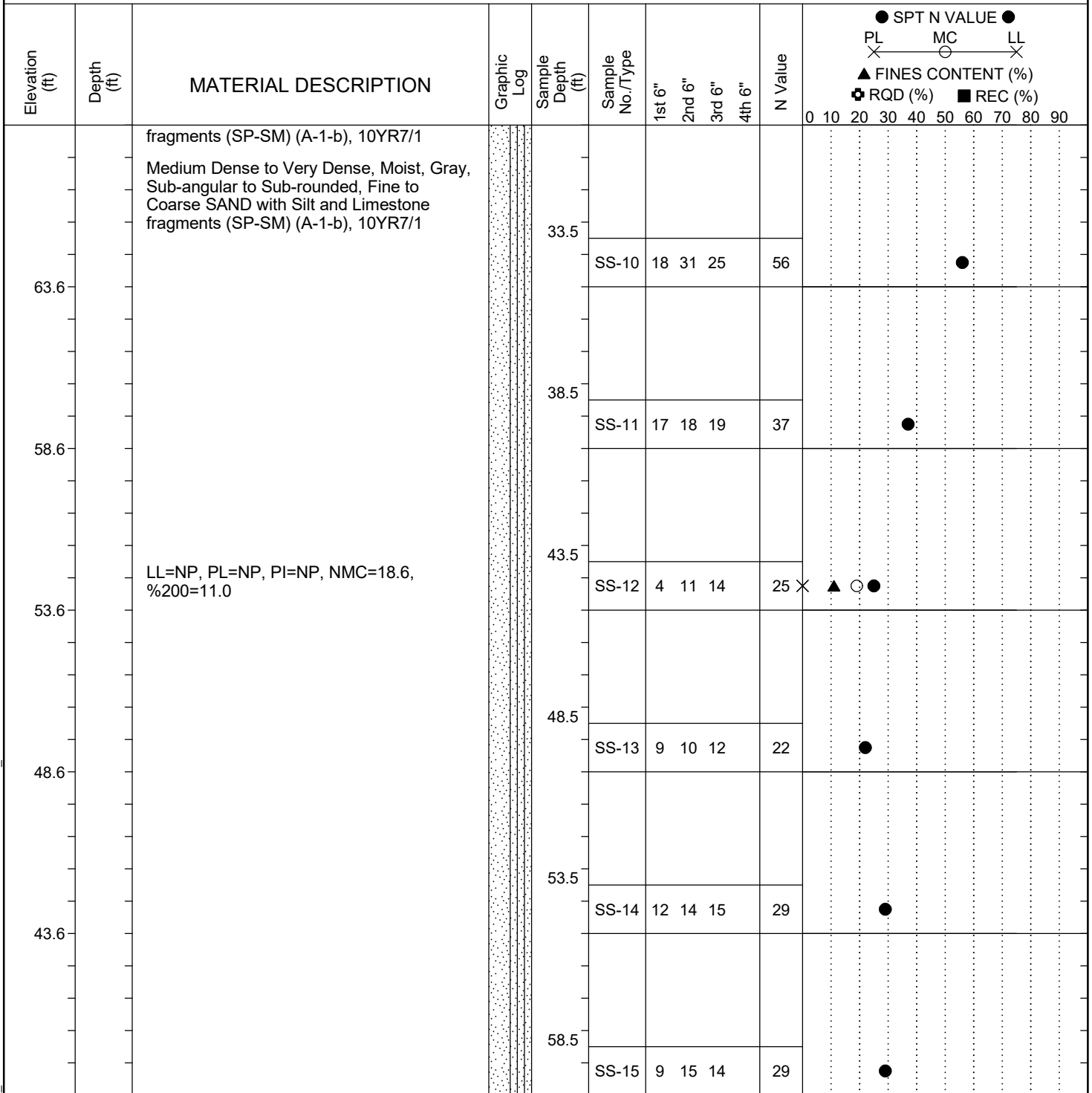
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-13
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: L. Valicek	Boring Location: 30+91.50	Offset: LT 10.23
Elev.: 98.6 ft	Latitude: 33.320729	Longitude: -80.549973
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 2.5 ft



LEGEND

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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-13
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: L. Valicek	Boring Location: 30+91.50	Offset: LT 10.23 Alignment: Existing
Elev.: 98.6 ft	Latitude: 33.320729	Longitude: -80.549973 Date Started: 2/2/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/2/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 2.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE													
											0	10	20	30	40	50	60	70	80	90				
33.6	63.5	Medium Dense to Very Dense, Moist, Gray, Sub-angular to Sub-rounded, Fine to Coarse SAND with Silt and Limestone fragments (SP-SM) (A-1-b), 10YR7/1 LL=NP, PL=NP, PI=NP, NMC=19.3, %200=29.3 (SM) (A-2-4)	[Graphic Log]	63.5	SS-16	7	15	14		29 X	○	●												
28.6	68.5			SS-17	10	13	21		34			●												
23.6	73.5			SS-18	10	10	21		31				●											
18.6	78.5			SS-19	11	12	21		33				●											
13.6	83.5			SS-20	17	21	22		43					●										
	88.5			SS-21	14	17	20		37					●										

LEGEND

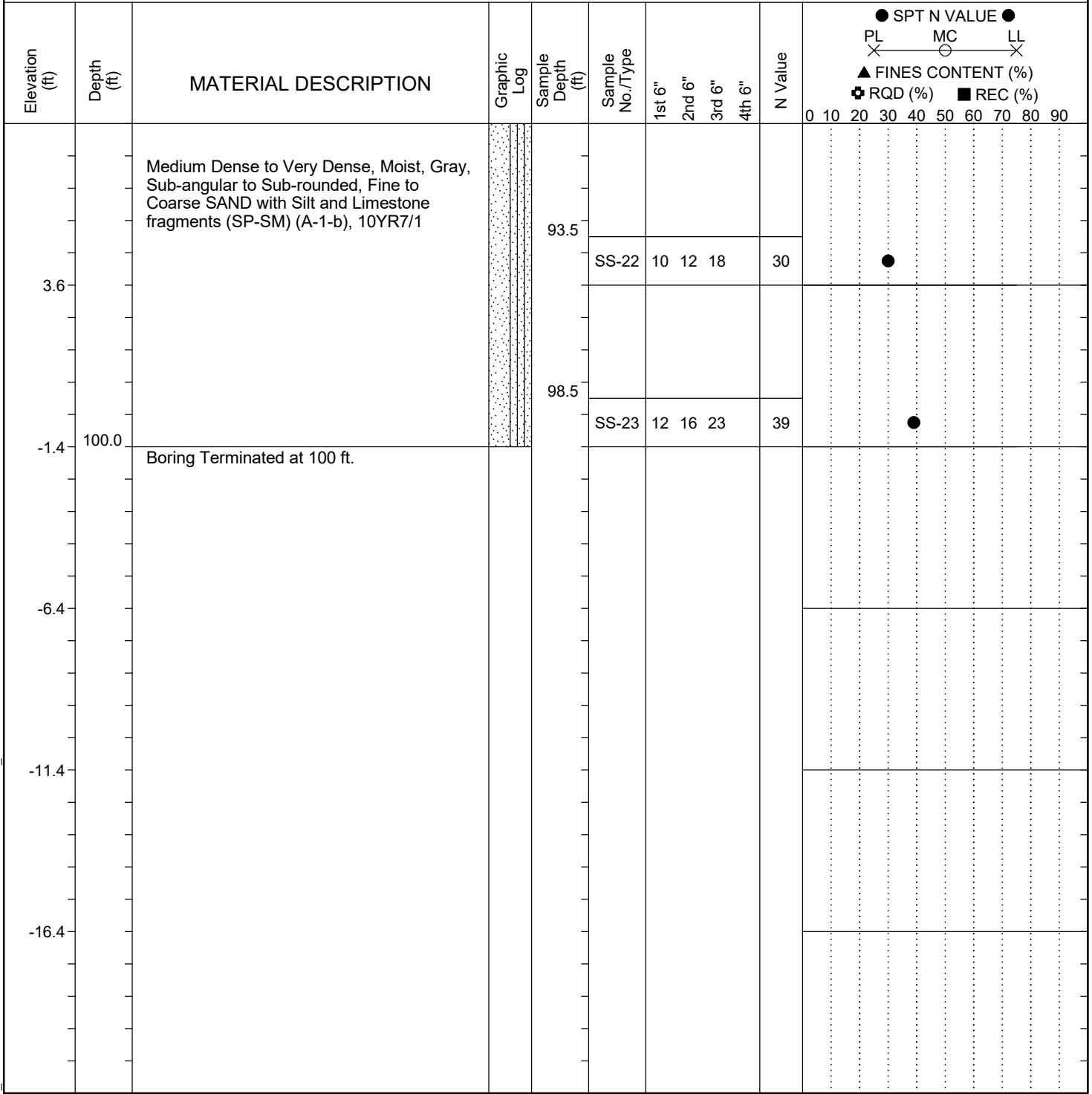
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SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8"		DRILLING METHOD NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube		HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing		RW - Rotary Wash RC - Rock Core	
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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-13
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: L. Valicek	Boring Location: 30+91.50	Offset: LT 10.23 Alignment: Existing
Elev.: 98.6 ft	Latitude: 33.320729	Longitude: -80.549973 Date Started: 2/2/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/2/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 2.5 ft



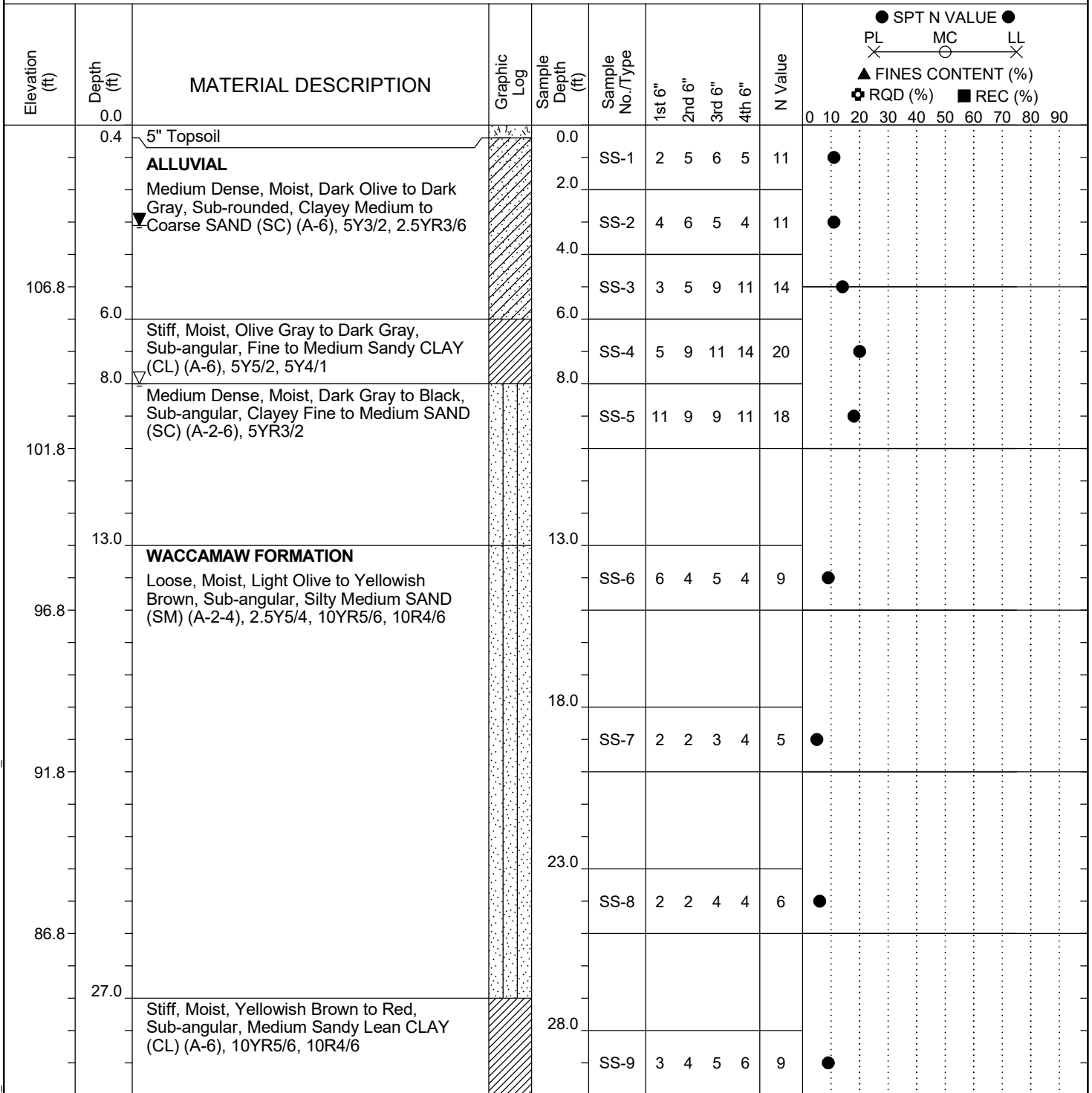
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-14
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: A. Guest	Boring Location: 50+38.76	Offset: LT 71.77 Alignment: Existing
Elev.: 111.8 ft	Latitude: 33.316212	Longitude: -80.549163 Date Started: 1/5/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/5/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 8 ft 24HR: 3.1 ft



LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-14	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: A. Guest		Boring Location: 50+38.76		Offset: LT 71.77	
Alignment: Existing		Date Started: 1/5/2023		Date Completed: 1/5/2023	
Elev.: 111.8 ft		Latitude: 33.316212		Longitude: -80.549163	
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Liner Used: Y (N)		Drill Machine: CME 750X		Drill Method: RW	
Hammer Type: Automatic		Energy Ratio: 96%		Core Size:	
Driller: W. King		Groundwater: TOB		24HR: 3.1 ft	

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE										
											0	10	20	30	40	50	60	70	80	90	
76.8	32.0	Loose, Moist, Light Gray to Yellowish Brown, Sub-rounded, Silty Fine to Medium SAND (SM) (A-2-4), 2.5Y7/1, 10YR6/4		33.0	SS-10	3	3	6	7	9	●										
71.8	38.0			SS-11	3	4	5	8	9	●											
66.8	42.0	Very Soft, Moist, Olive Gray, Sub-rounded, Fat CLAY (CH) (A-7-6), 5Y4/2		43.0	SS-12	0	0	2	6	2	●										
61.8	47.0			CALCAREOUS SEDIMENTS Medium Dense to Very Dense, Moist, Light Gray to Light Greenish Gray, Angular, Medium to Coarse SAND (SP) (A-1-b), 5Y7/1, GLEY18/10Y		48.0	SS-13	8	10	10	12	20	●								
56.8	53.0	SS-14	18			16	13	14	29	●											
	58.0	SS-15	12			12	12	14	24	●											

LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-14
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-95
Eng./Geo.:	A. Guest	Boring Location:	50+38.76	Offset:	LT 71.77	Alignment:	Existing
Elev.:	111.8 ft	Latitude:	33.316212	Longitude:	-80.549163	Date Started:	1/5/2023
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	1/5/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB 8 ft	24HR	3.1 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE									
											0	10	20	30	40	50	60	70	80	90
46.8	63.0	Medium Dense to Very Dense, Moist, Light Gray to Light Greenish Gray, Angular, Medium to Coarse SAND (SP) (A-1-b), 5Y7/1, GLEY18/10Y		63.0	SS-16	15	16	16	20	32	● SPT N VALUE ● PL X MC O LL X ▲ FINES CONTENT (%) ⊕ RQD (%) ■ REC (%)									
41.8	68.0			68.0	SS-17	12	12	17	22	29										
36.8	73.0			73.0	SS-18	15	19	30	23	49										
31.8	78.0			78.0	SS-19	13	15	12	12	27										
26.8	83.0			83.0	SS-20	17	15	17	17	32										
	88.0			88.0	SS-21	13	23	24	24	47										

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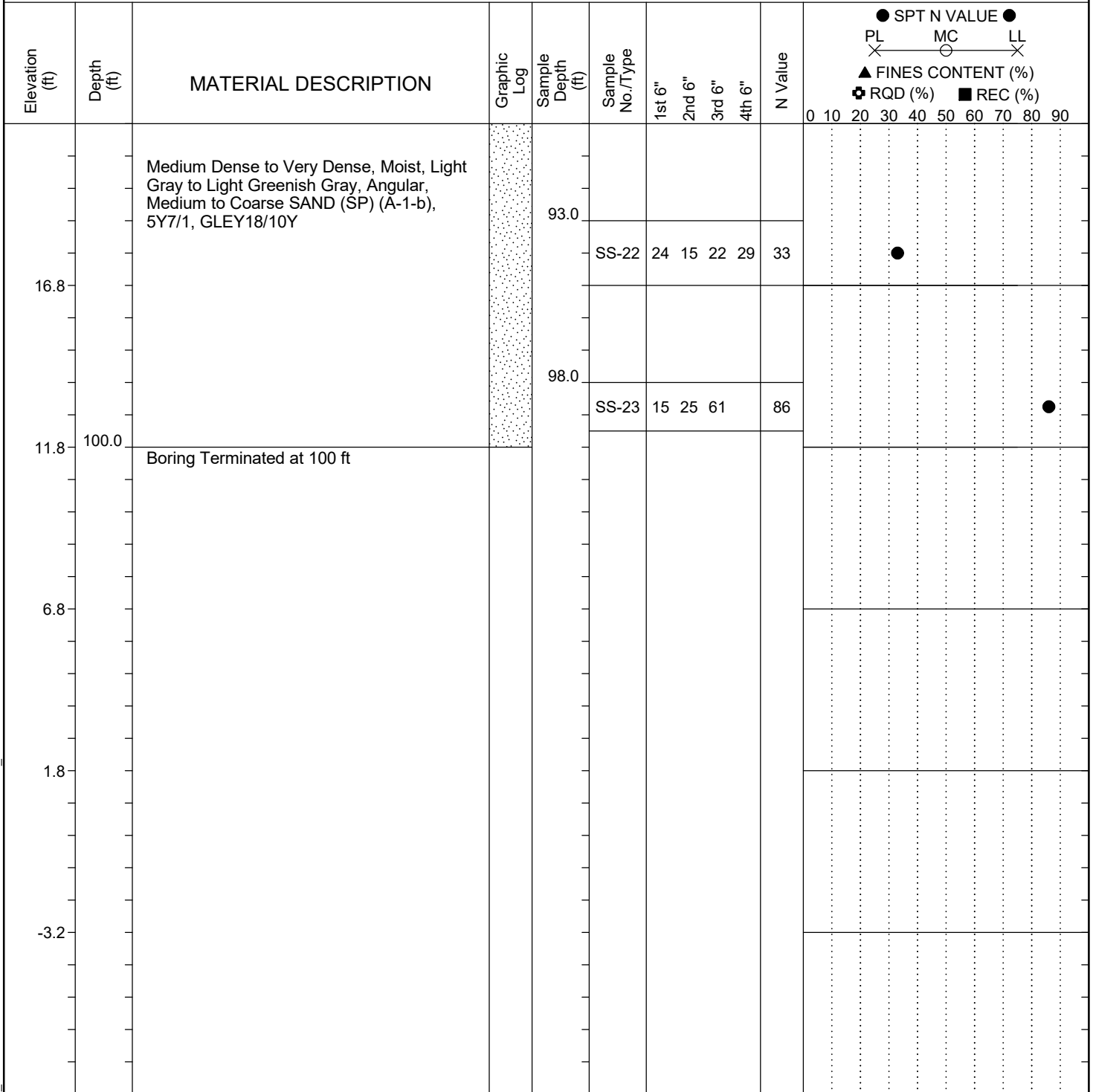
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SAMPLER TYPE SS - Split Spoon UD - Undisturbed Sample AWG - Rock Core, 1-1/8" NQ - Rock Core, 1-7/8" CU - Cuttings CT - Continuous Tube		DRILLING METHOD HSA - Hollow Stem Auger CFA - Continuous Flight Augers DC - Driving Casing RW - Rotary Wash RC - Rock Core	
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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-14
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-95
Eng./Geo.:	A. Guest	Boring Location:	50+38.76	Offset:	LT 71.77	Alignment:	Existing
Elev.:	111.8 ft	Latitude:	33.316212	Longitude:	-80.549163	Date Started:	1/5/2023
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	1/5/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB 8 ft	24HR	3.1 ft



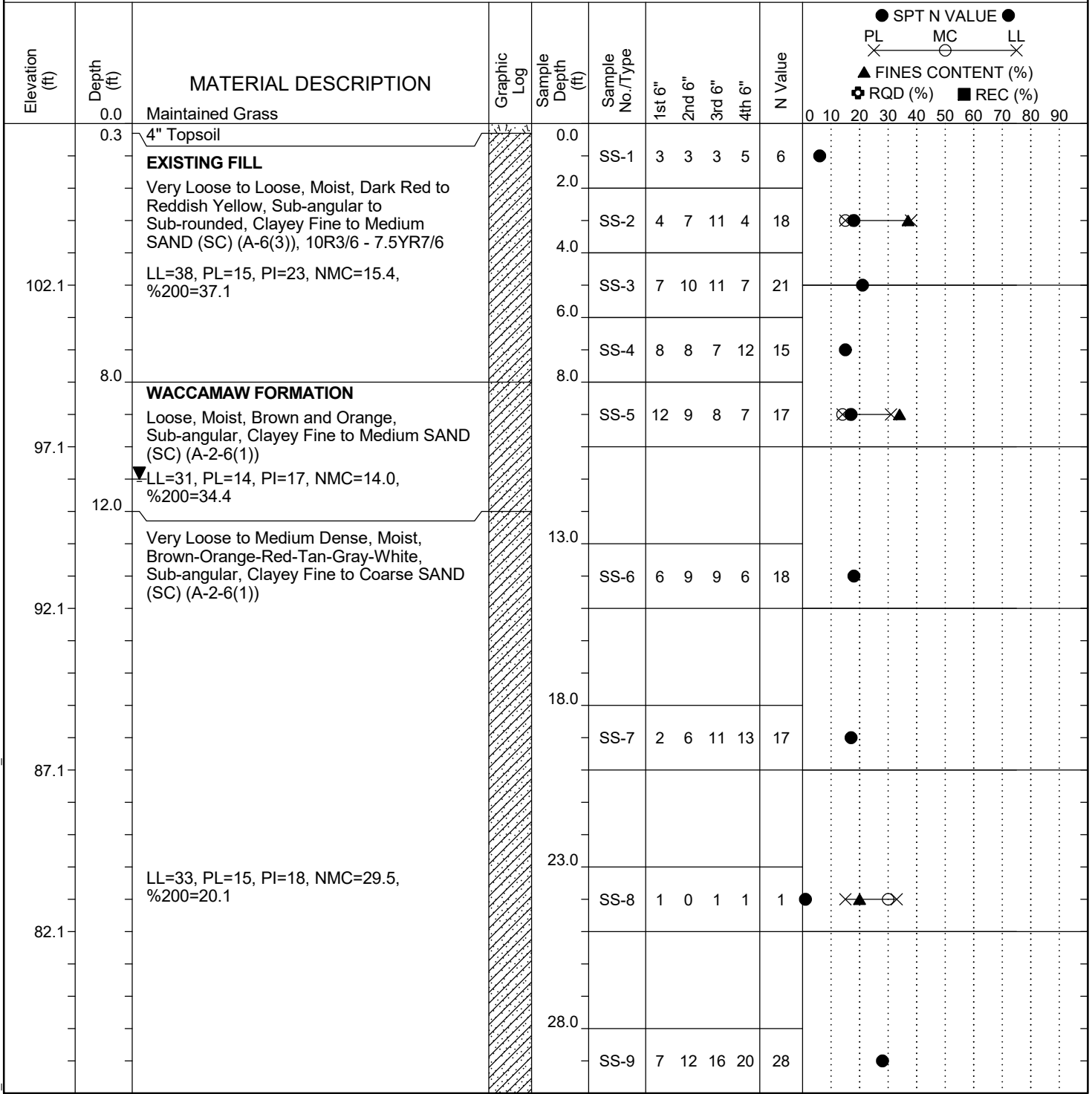
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-15	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Webb		Boring Location: 48+13.85		Offset: RT 29.67	
Alignment: Existing		Date Started: 12/19/2022		Date Completed: 12/19/2022	
Elev.: 107.1 ft		Latitude: 33.316388		Longitude: -80.549929	
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Liner Used: Y (N)		Drill Machine: CME 750X		Drill Method: RW	
Hammer Type: Automatic		Energy Ratio: 96%		Core Size:	
Driller: W. King		Groundwater: TOB NM		24HR: 11 ft	



LEGEND

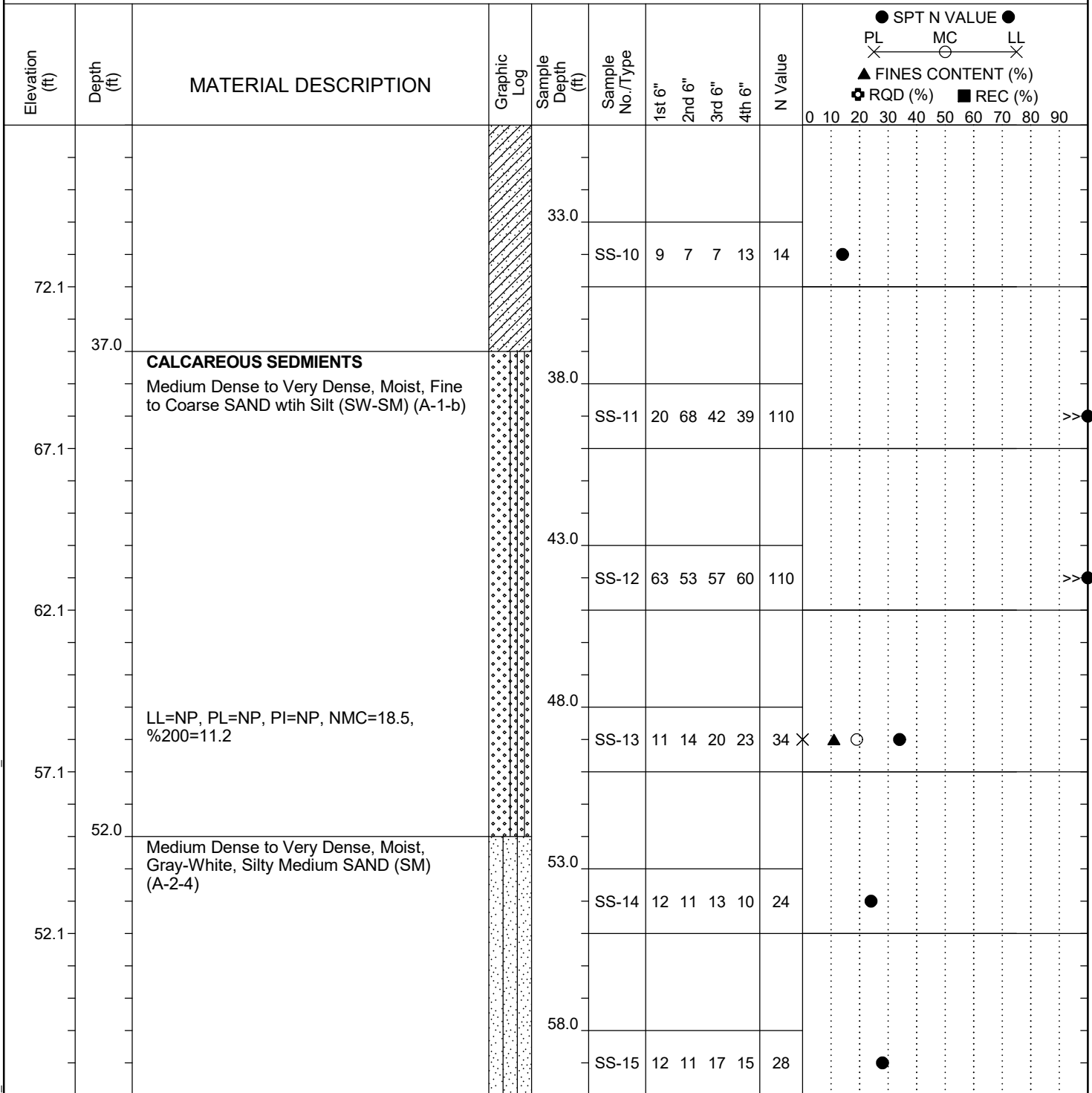
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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-15
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 48+13.85	Offset: RT 29.67
Alignment: Existing		
Elev.: 107.1 ft	Latitude: 33.316388	Longitude: -80.549929
Date Started: 12/19/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/19/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 11 ft



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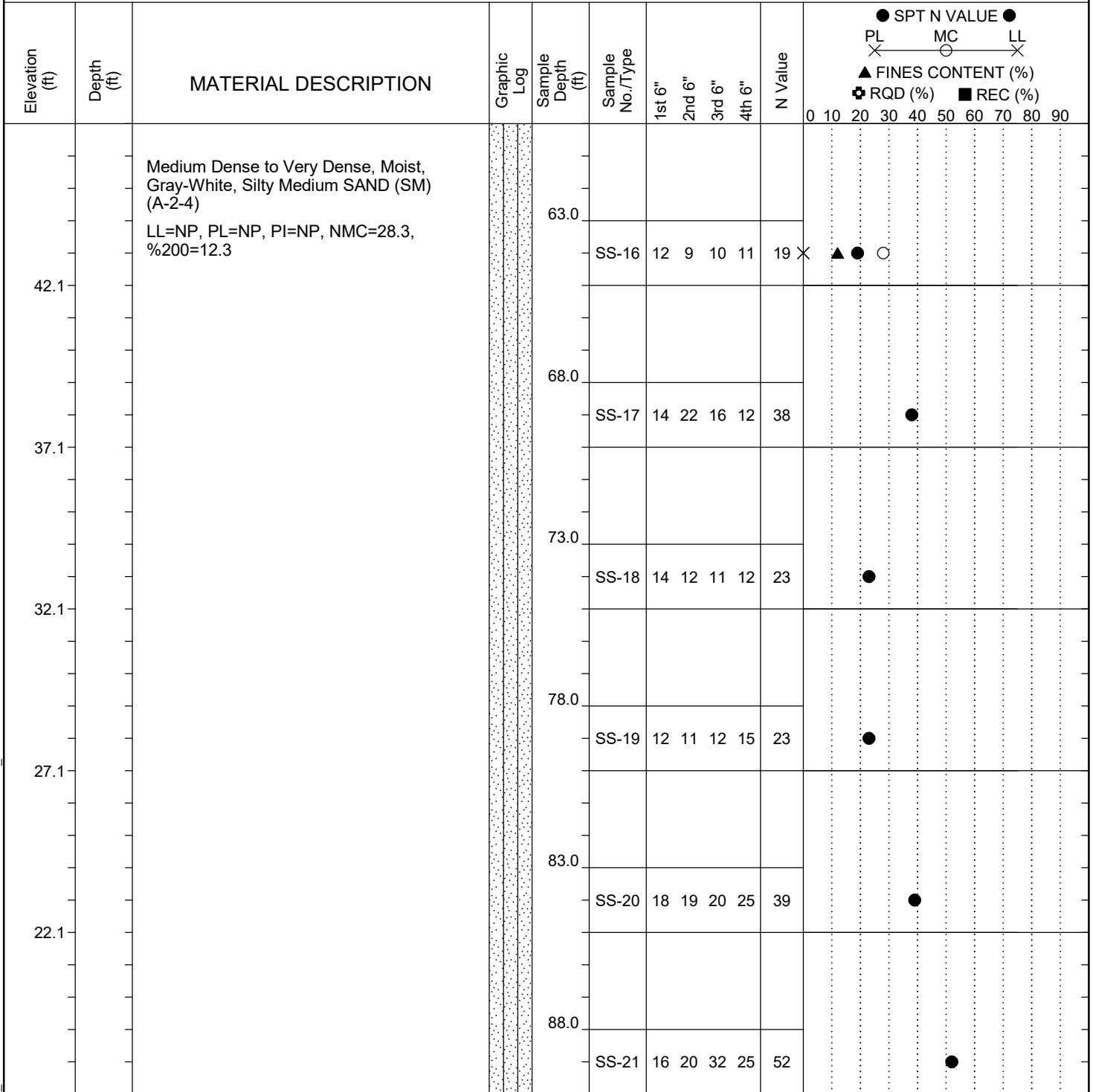
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SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-15	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Webb		Boring Location: 48+13.85		Offset: RT 29.67	Alignment: Existing
Elev.: 107.1 ft	Latitude: 33.316388	Longitude: -80.549929	Date Started: 12/19/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft	Date Completed: 12/19/2022		
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic		Energy Ratio: 96%	
Core Size:	Driller: W. King	Groundwater: TOB	NM	24HR	11 ft



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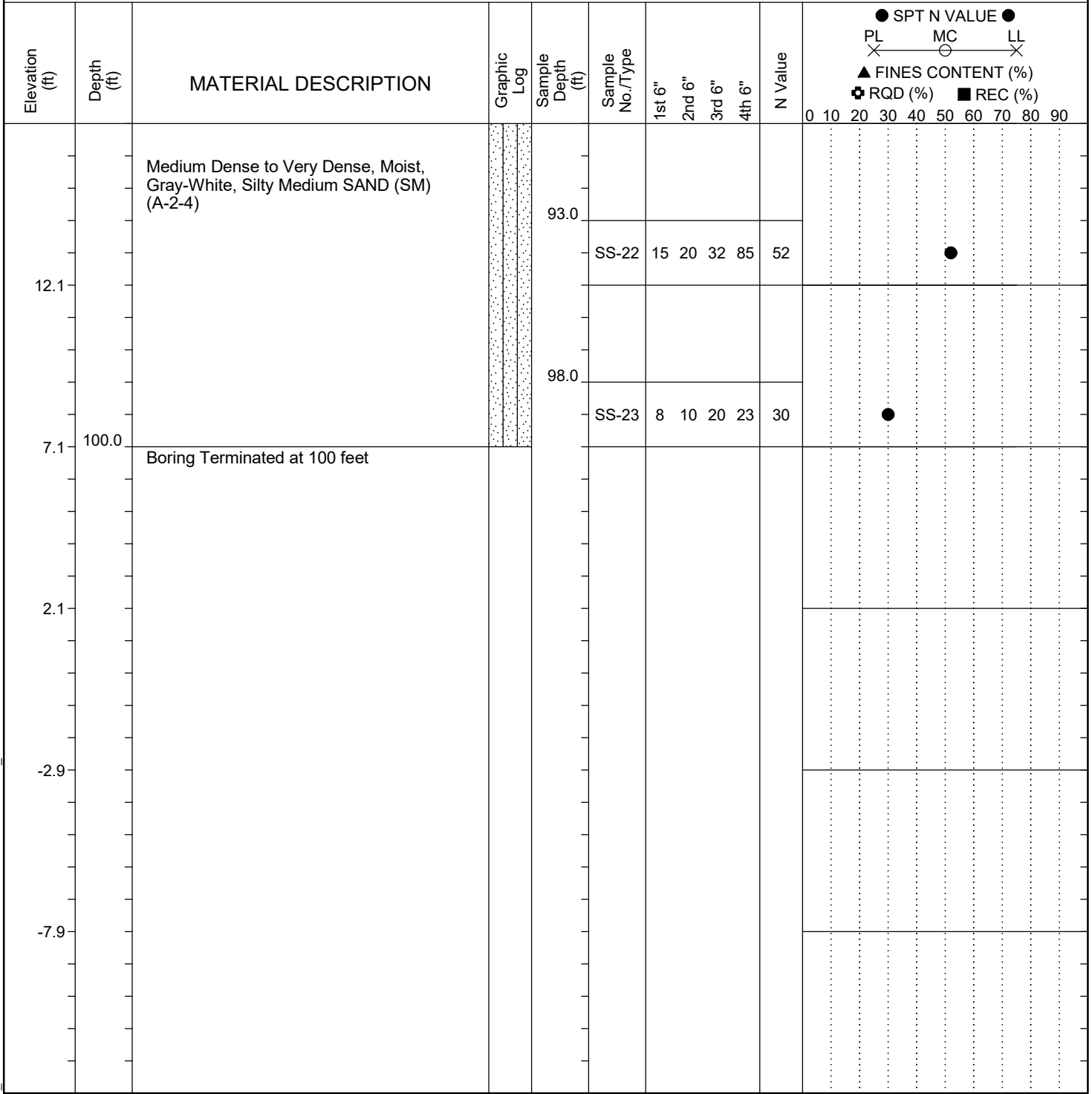
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-15
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 48+13.85	Offset: RT 29.67
Alignment: Existing		
Elev.: 107.1 ft	Latitude: 33.316388	Longitude: -80.549929
Date Started: 12/19/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/19/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 11 ft



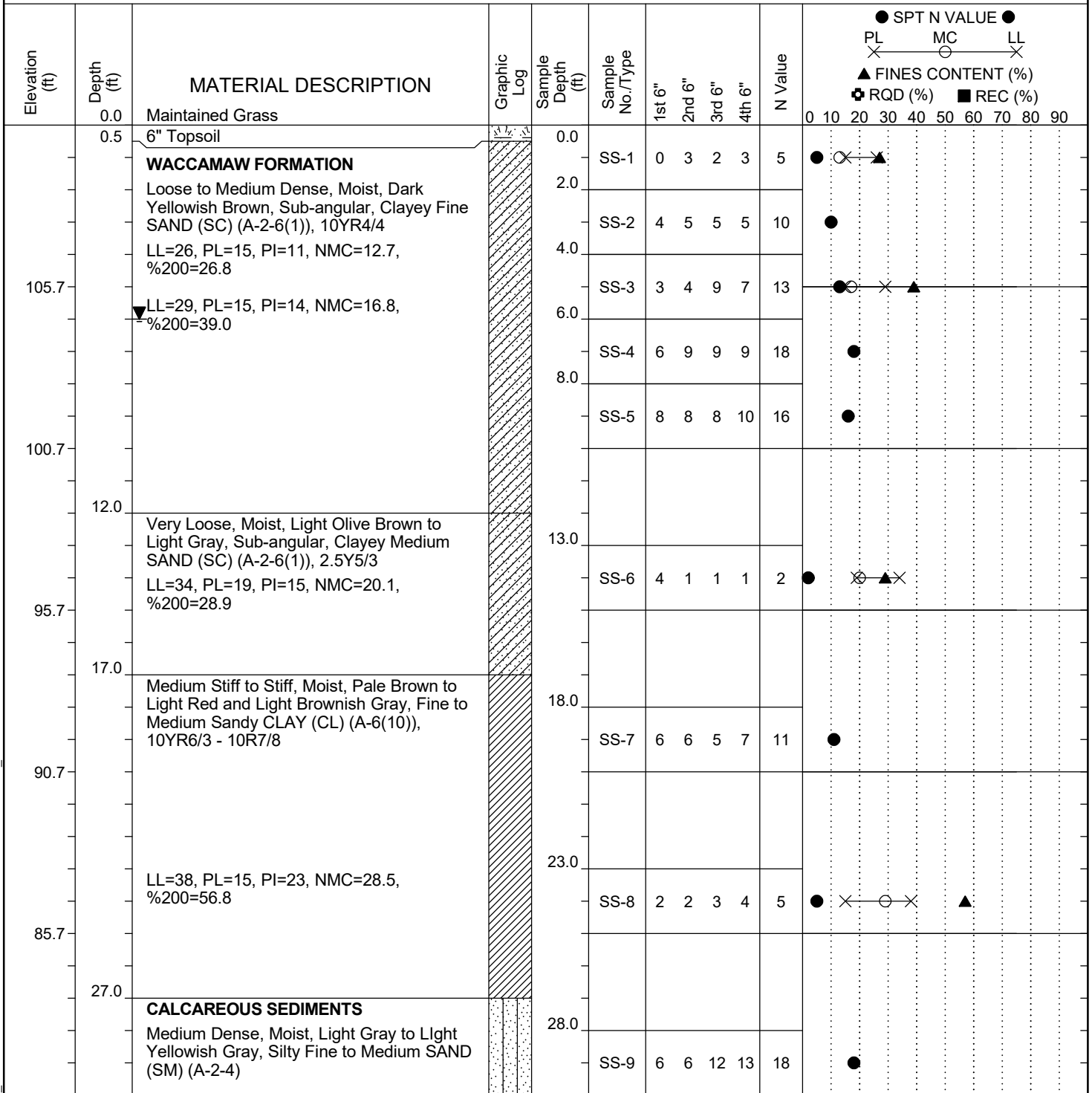
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-16
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 49+31.73	Offset: LT 17.57 Alignment: Existing
Elev.: 110.7 ft	Latitude: 33.316263	Longitude: -80.549539 Date Started: 1/9/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/10/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 6 ft 24HR 6 ft



LEGEND

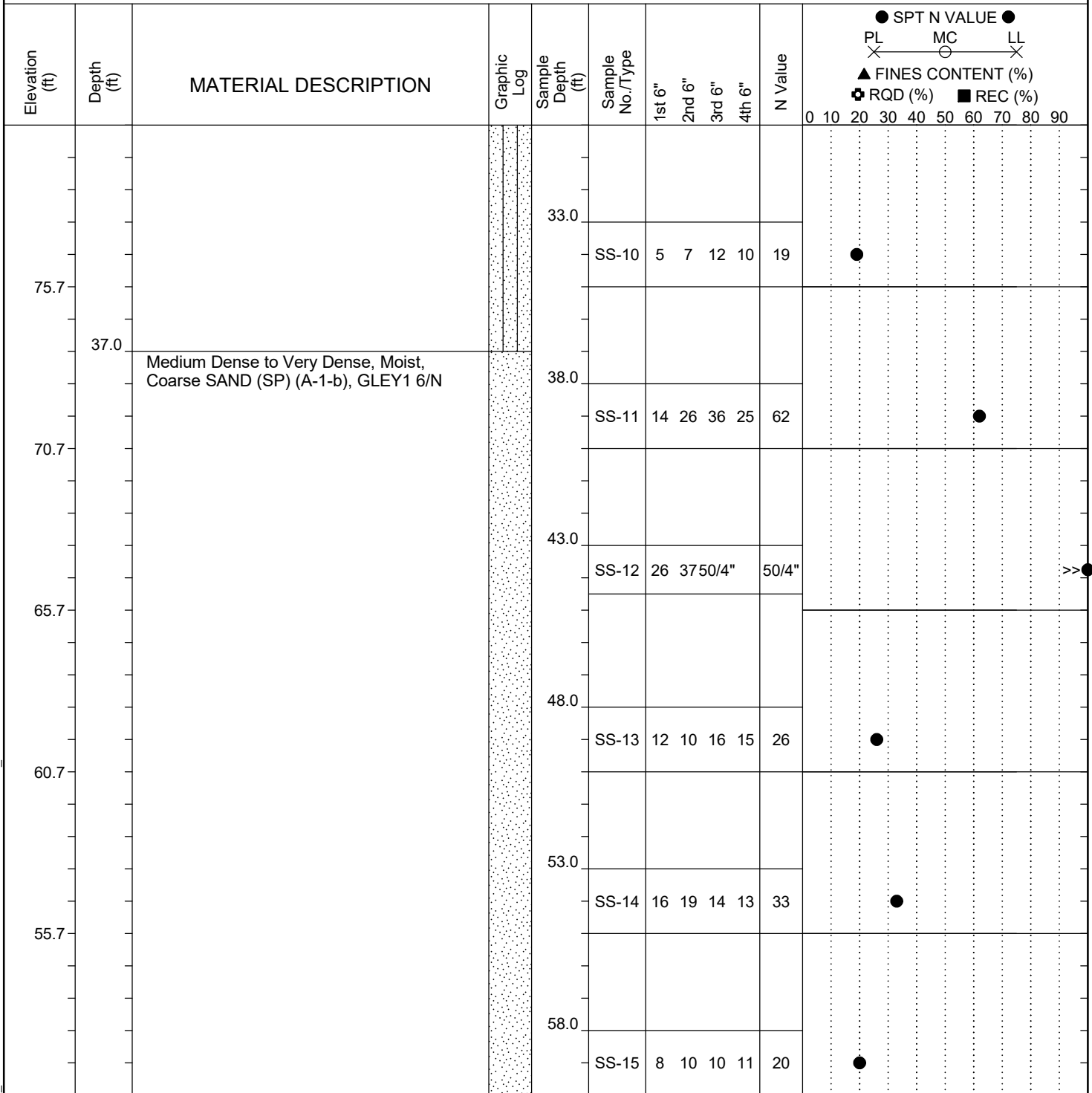
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-16
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 49+31.73	Offset: LT 17.57
Alignment: Existing		
Elev.: 110.7 ft	Latitude: 33.316263	Longitude: -80.549539
Date Started: 1/9/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/10/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB 6 ft
		24HR 6 ft



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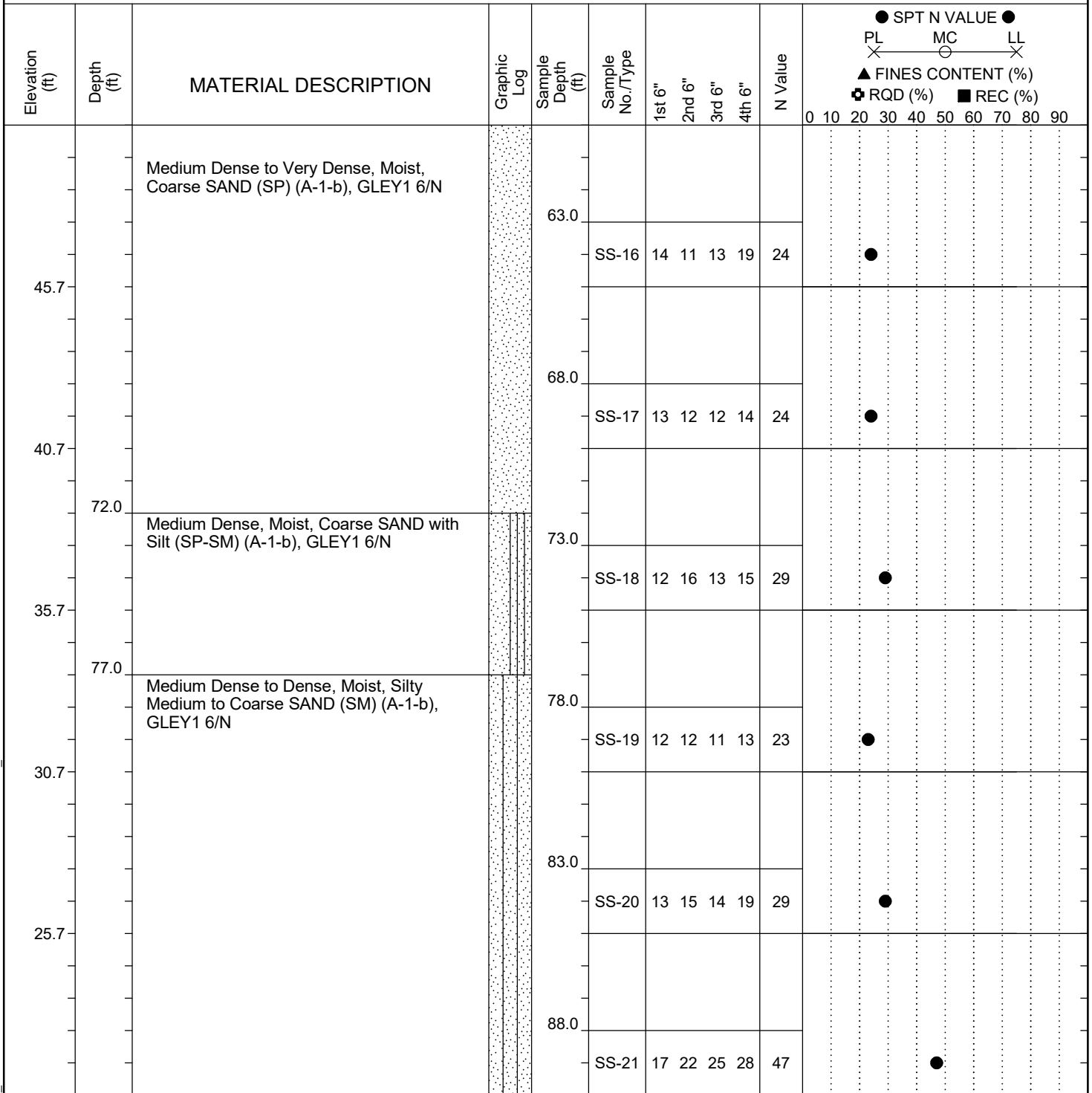
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-16
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 49+31.73	Offset: LT 17.57 Alignment: Existing
Elev.: 110.7 ft	Latitude: 33.316263	Longitude: -80.549539 Date Started: 1/9/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/10/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 6 ft 24HR 6 ft



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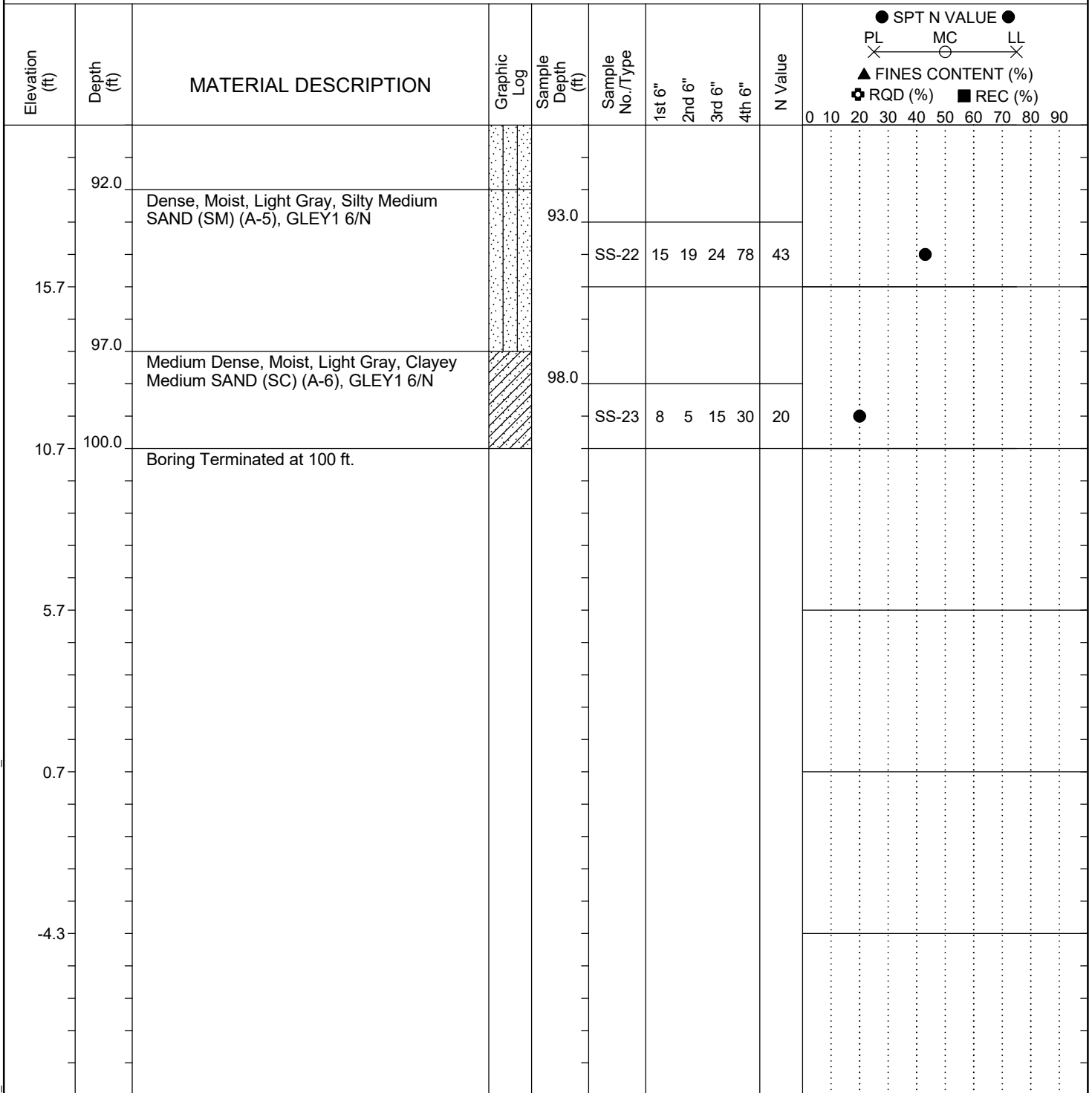
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-16
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 49+31.73	Offset: LT 17.57 Alignment: Existing
Elev.: 110.7 ft	Latitude: 33.316263	Longitude: -80.549539 Date Started: 1/9/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/10/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 6 ft 24HR 6 ft



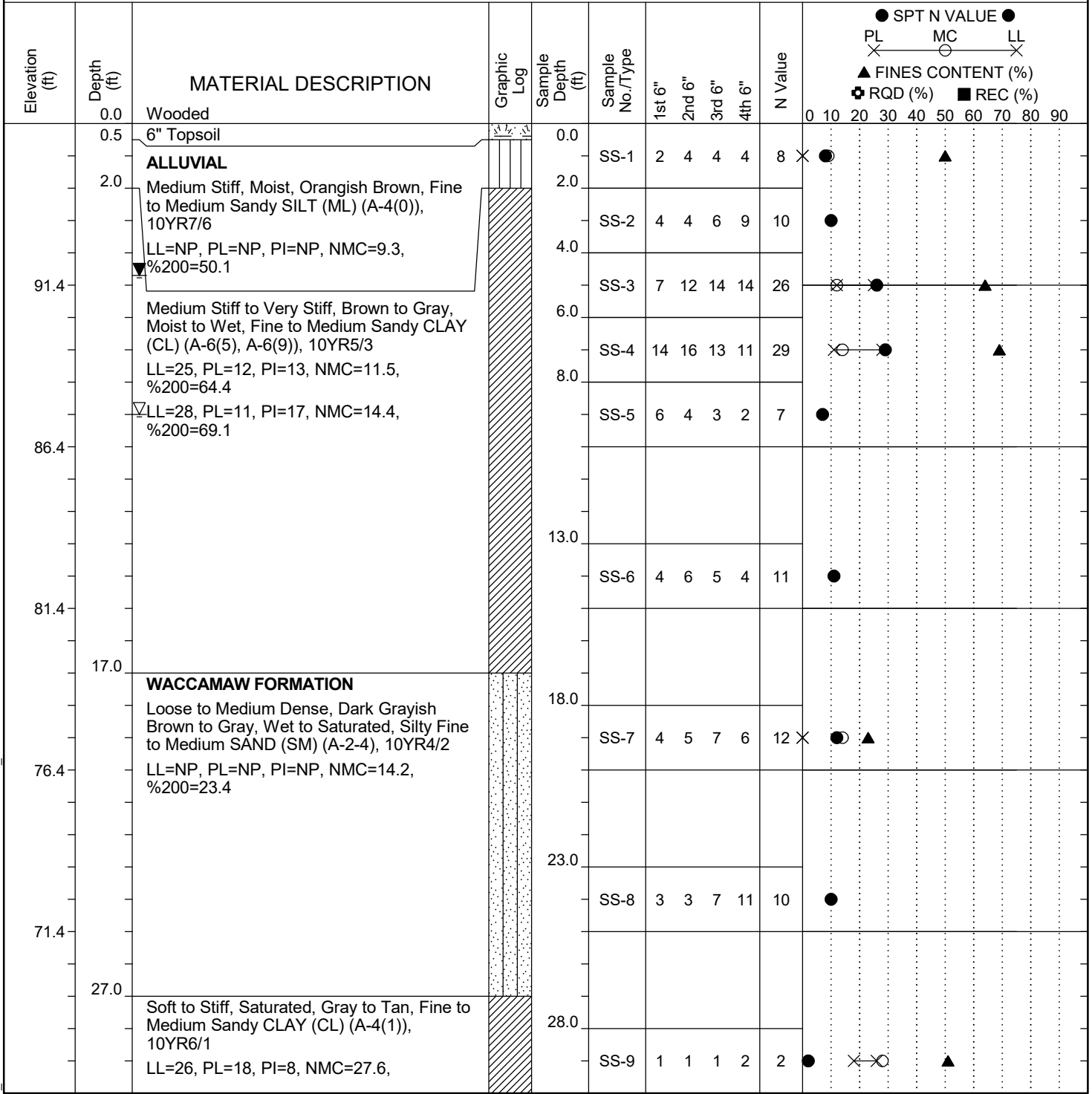
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-17
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 56+69.78	Offset: LT 48.30 Alignment: Existing
Elev.: 96.4 ft	Latitude: 33.315391	Longitude: -80.547383 Date Started: 1/17/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/17/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 9 ft 24HR: 4.7 ft



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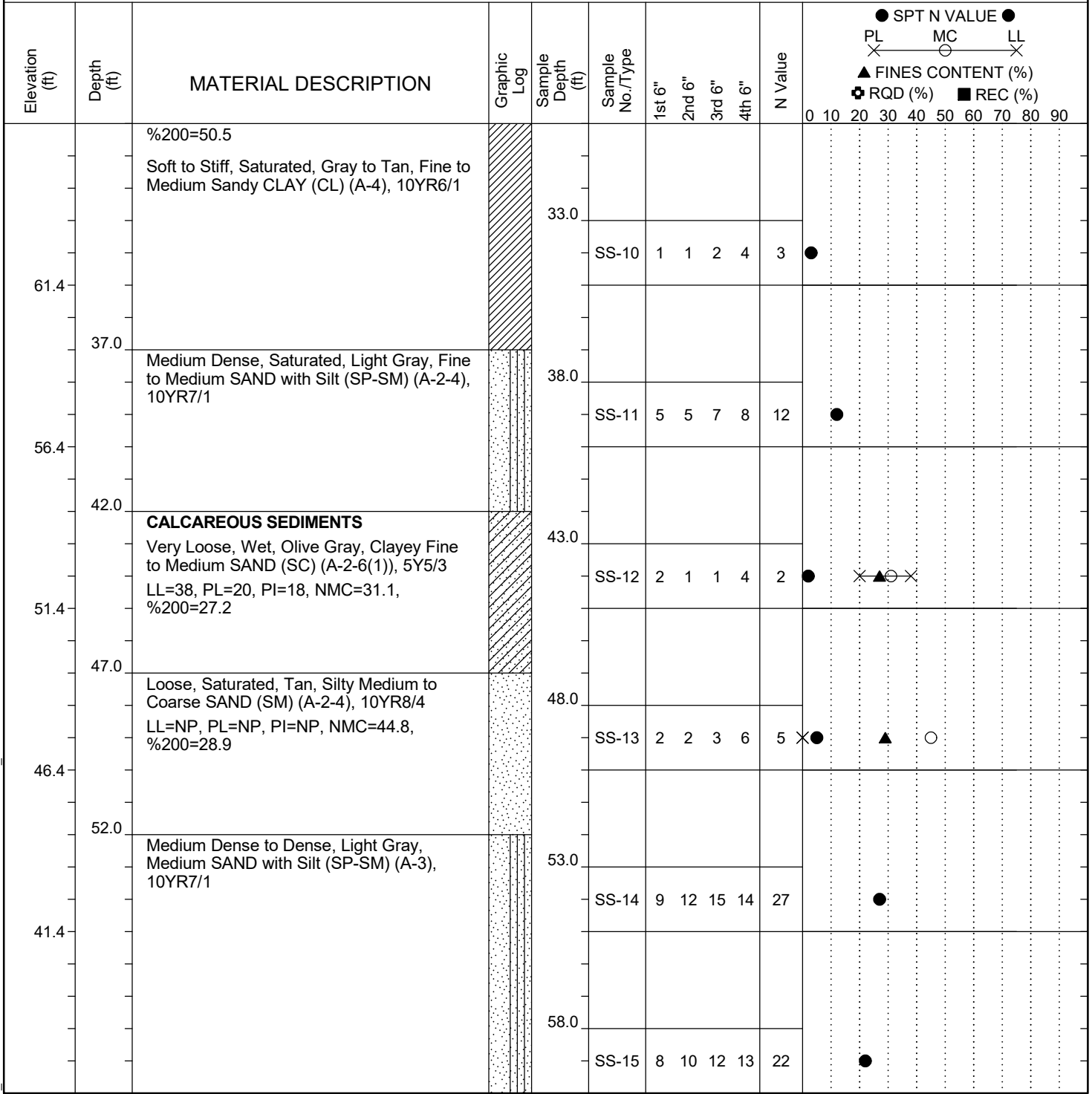
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-17
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 56+69.78	Offset: LT 48.30
Alignment: Existing	Date Started: 1/17/2023	Date Completed: 1/17/2023
Elev.: 96.4 ft	Latitude: 33.315391	Longitude: -80.547383
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Core Size:
Driller: W. King	Groundwater: TOB 9 ft	24HR: 4.7 ft



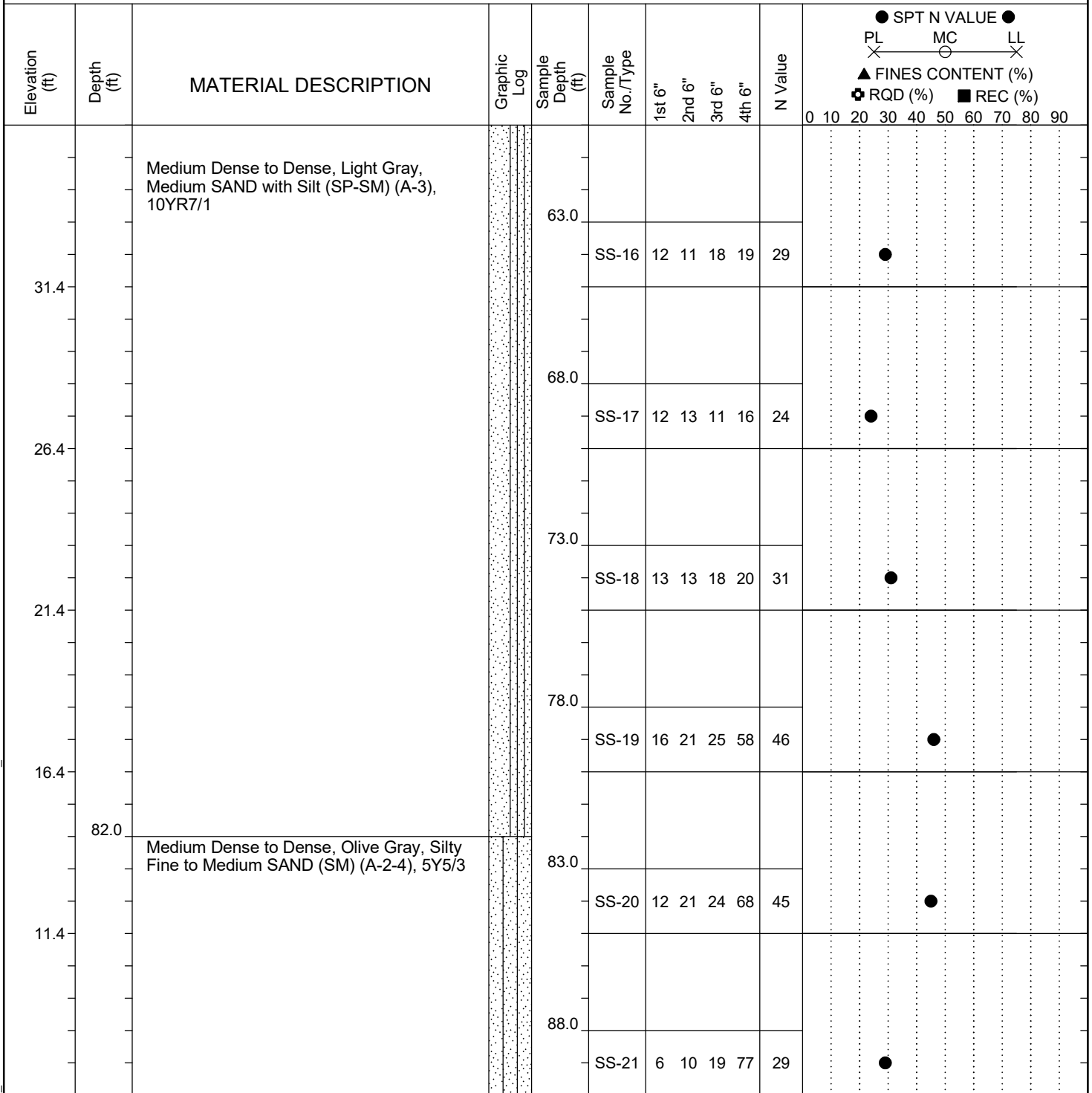
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-17	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Wadford		Boring Location: 56+69.78		Offset: LT 48.30	
Elev.: 96.4 ft		Latitude: 33.315391		Longitude: -80.547383	
Total Depth: 100 ft		Soil Depth: 100 ft		Date Started: 1/17/2023	
Core Depth: ft		Date Completed: 1/17/2023			
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Drill Machine: CME 750X		Drill Method: RW		Energy Ratio: 96%	
Core Size:		Driller: W. King		Groundwater: TOB 9 ft	
				24HR: 4.7 ft	



LEGEND

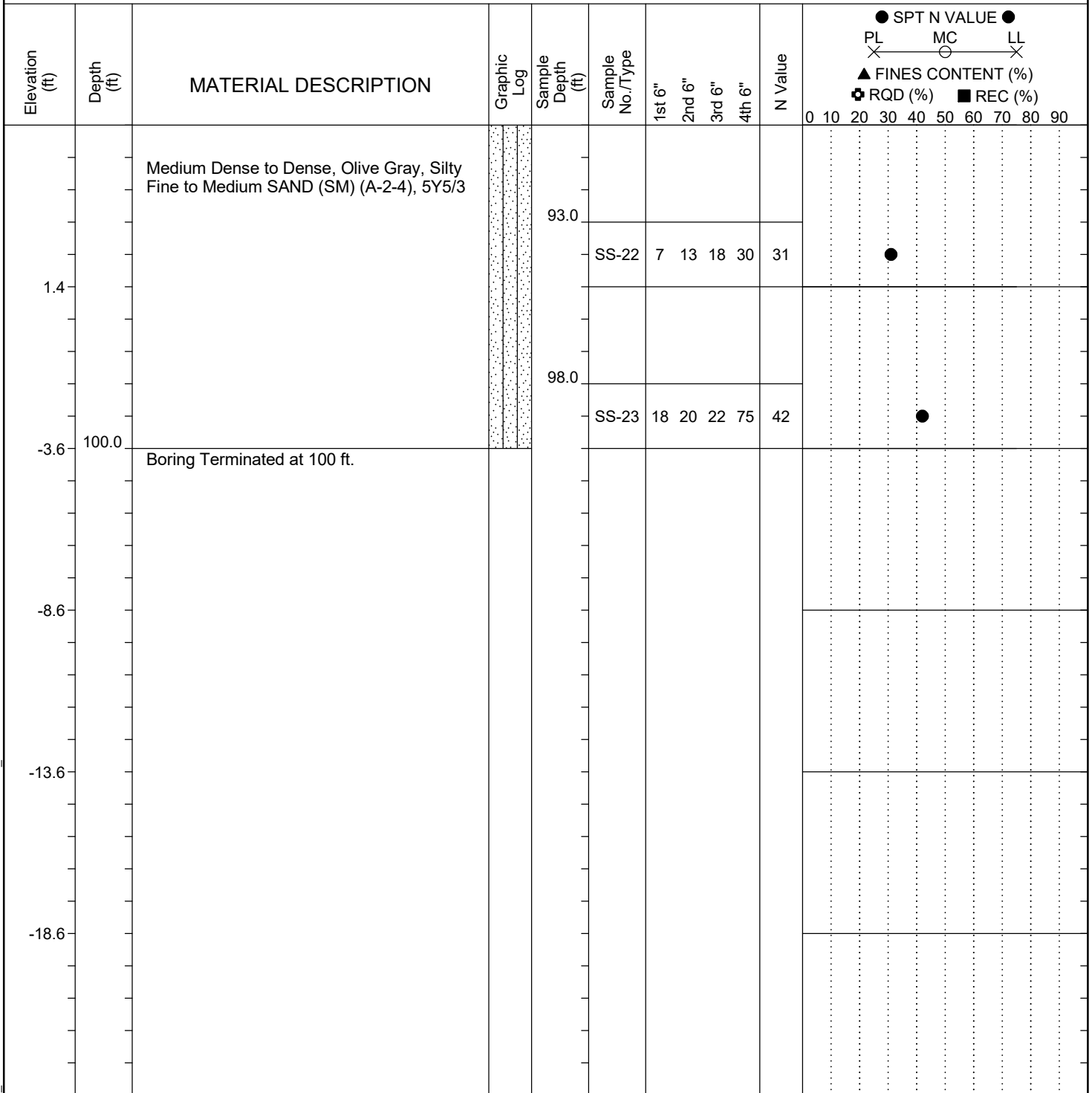
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-17
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 56+69.78	Offset: LT 48.30 Alignment: Existing
Elev.: 96.4 ft	Latitude: 33.315391	Longitude: -80.547383 Date Started: 1/17/2023
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 1/17/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 9 ft 24HR: 4.7 ft



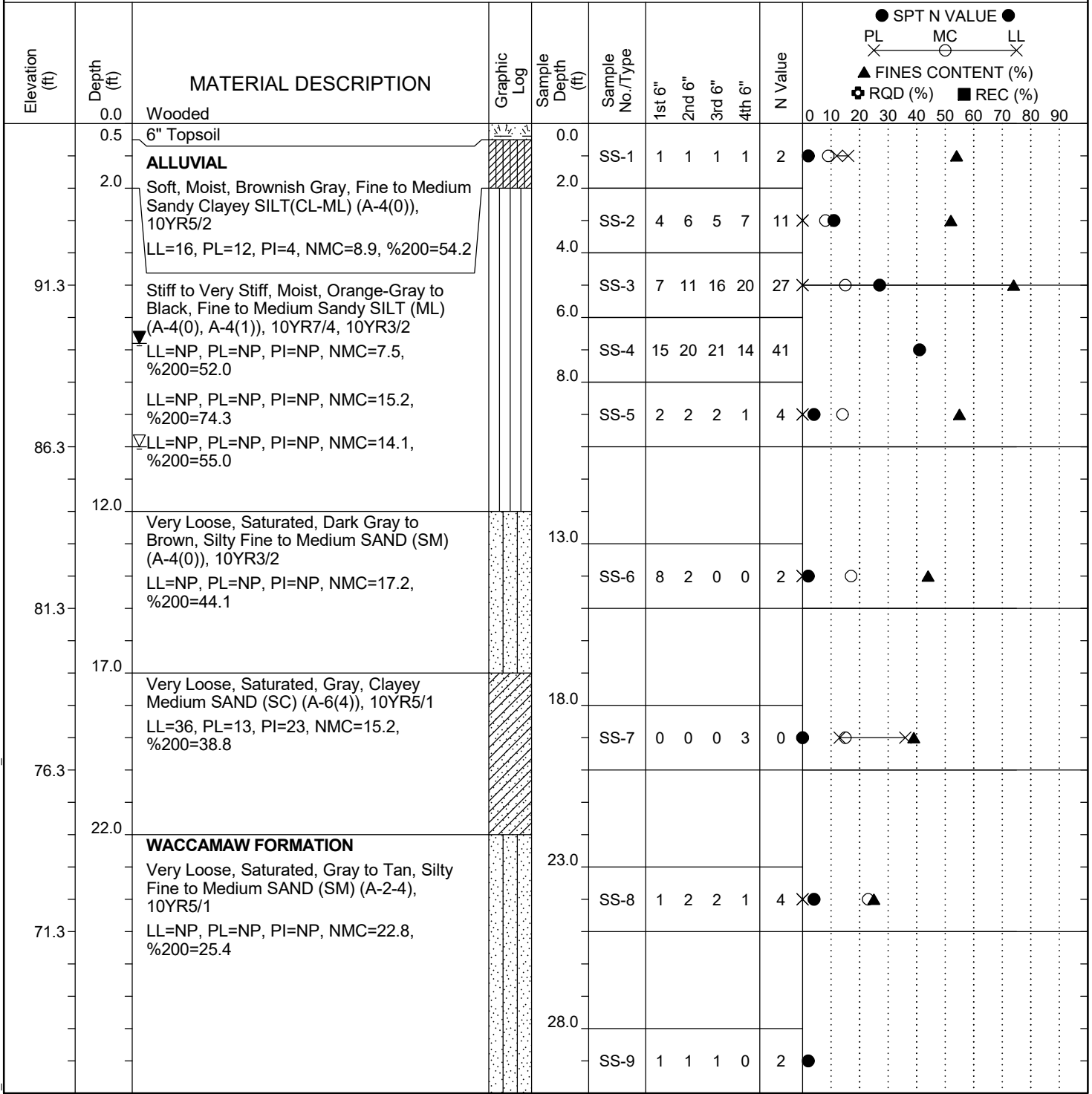
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-18
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 55+44.88	Offset: RT 14.89
Alignment: Existing	Date Started: 1/18/2023	Date Completed: 1/19/2023
Elev.: 96.3 ft	Latitude: 33.315382	Longitude: -80.547842
Total Depth: 98.6 ft	Soil Depth: 98.6 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Groundwater: TOB 10 ft
Core Size:	Driller: W. King	24HR: 6.8 ft



LEGEND

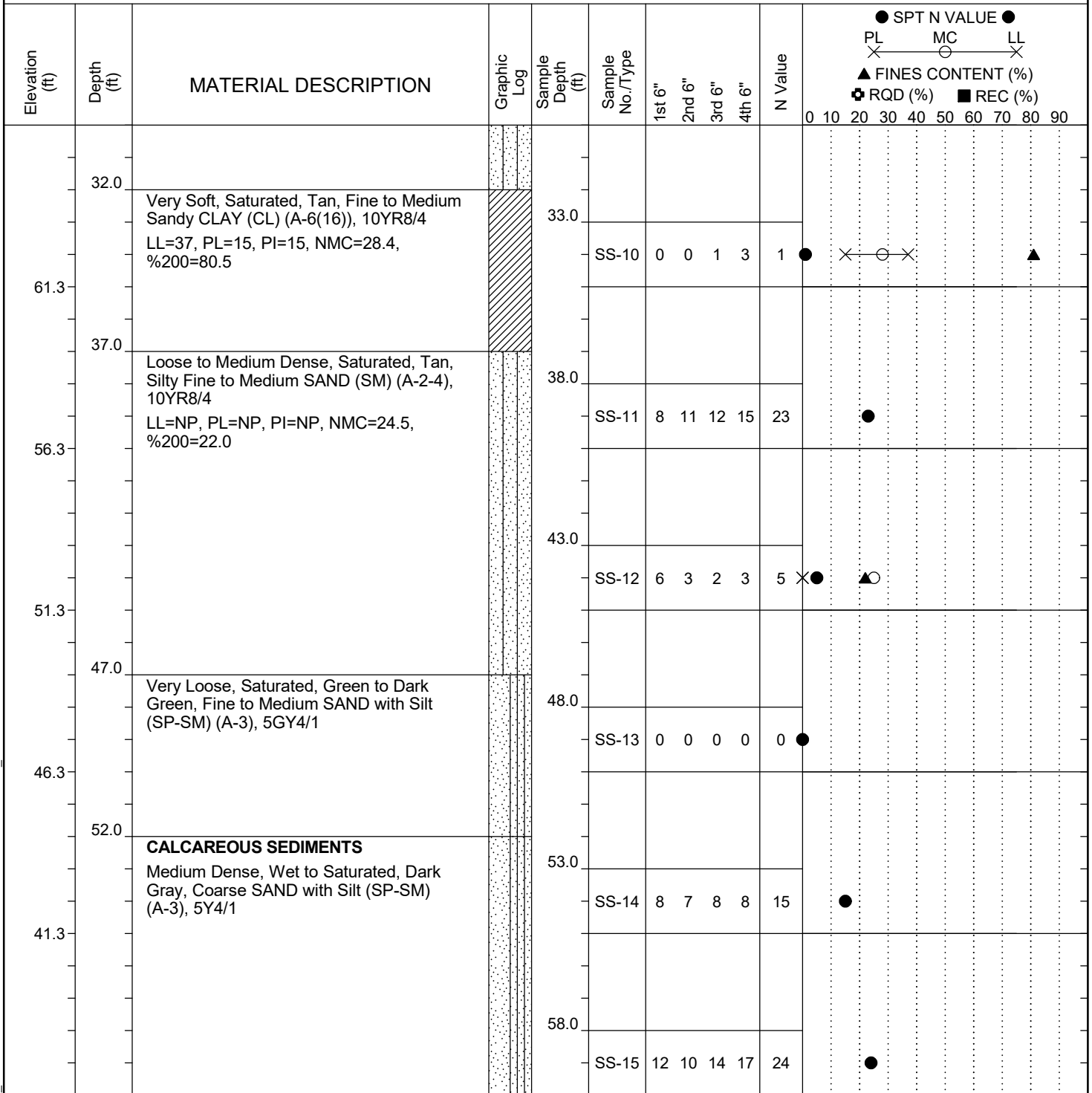
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-18
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 55+44.88	Offset: RT 14.89
Alignment: Existing	Date Started: 1/18/2023	
Elev.: 96.3 ft	Latitude: 33.315382	Longitude: -80.547842
Total Depth: 98.6 ft	Soil Depth: 98.6 ft	Core Depth: ft
Date Completed: 1/19/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB 10 ft
		24HR: 6.8 ft



LEGEND

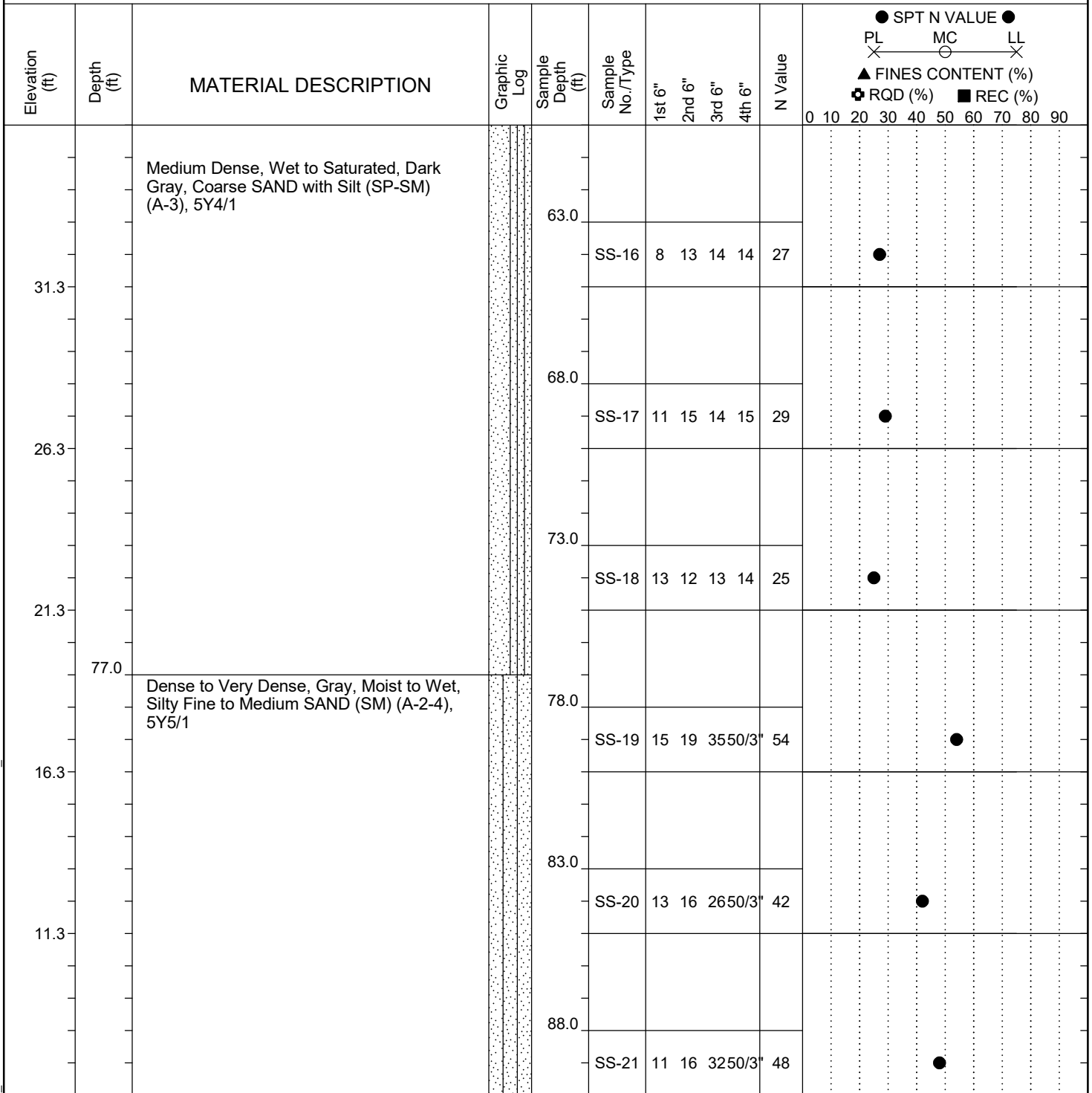
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-18
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 55+44.88	Offset: RT 14.89 Alignment: Existing
Elev.: 96.3 ft	Latitude: 33.315382	Longitude: -80.547842 Date Started: 1/18/2023
Total Depth: 98.6 ft	Soil Depth: 98.6 ft	Core Depth: ft Date Completed: 1/19/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB 10 ft 24HR: 6.8 ft



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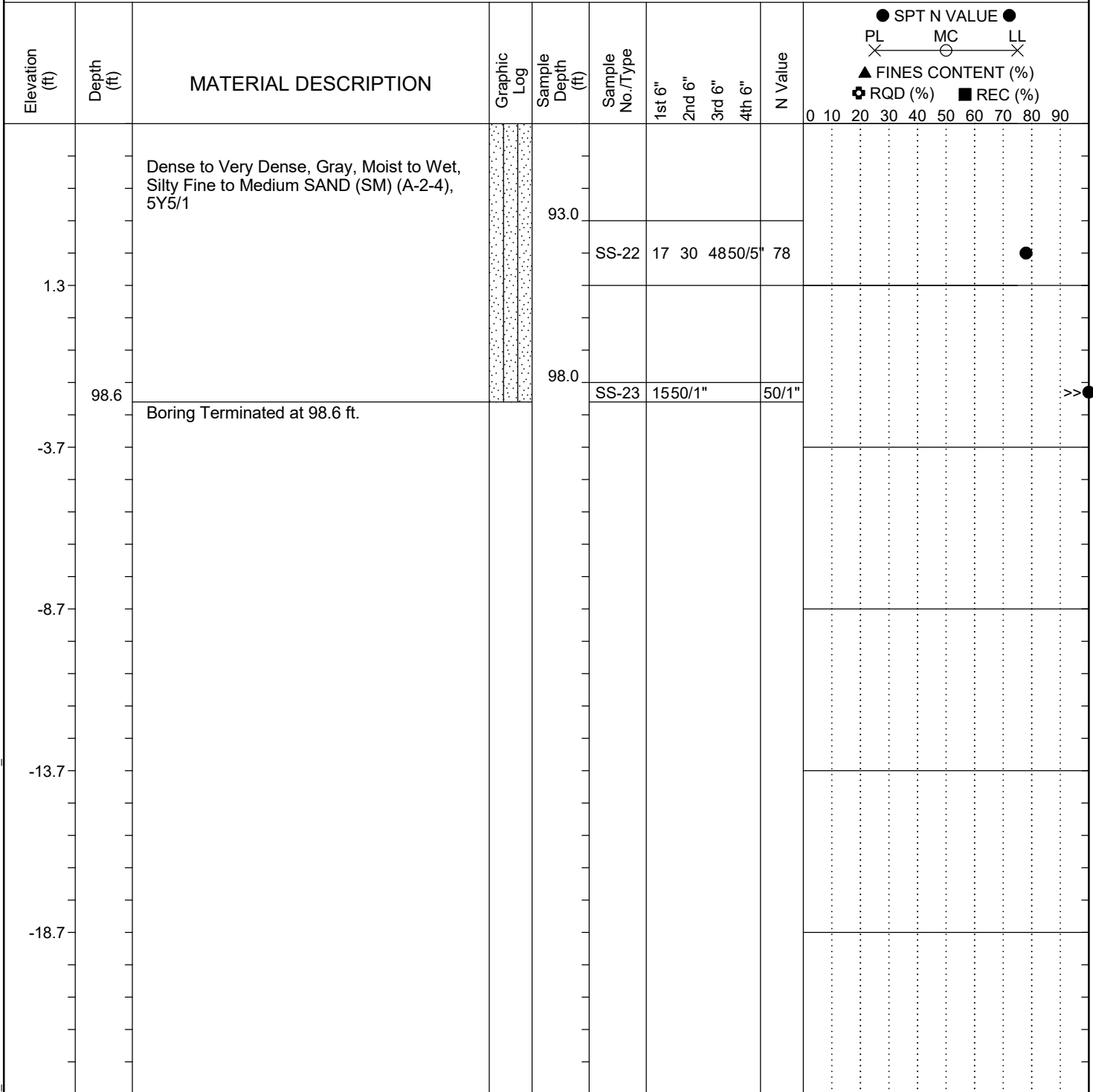
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-18
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Wadford	Boring Location: 55+44.88	Offset: RT 14.89
Elev.: 96.3 ft	Latitude: 33.315382	Longitude: -80.547842
Total Depth: 98.6 ft	Soil Depth: 98.6 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB	24HR: 10 ft
		6.8 ft



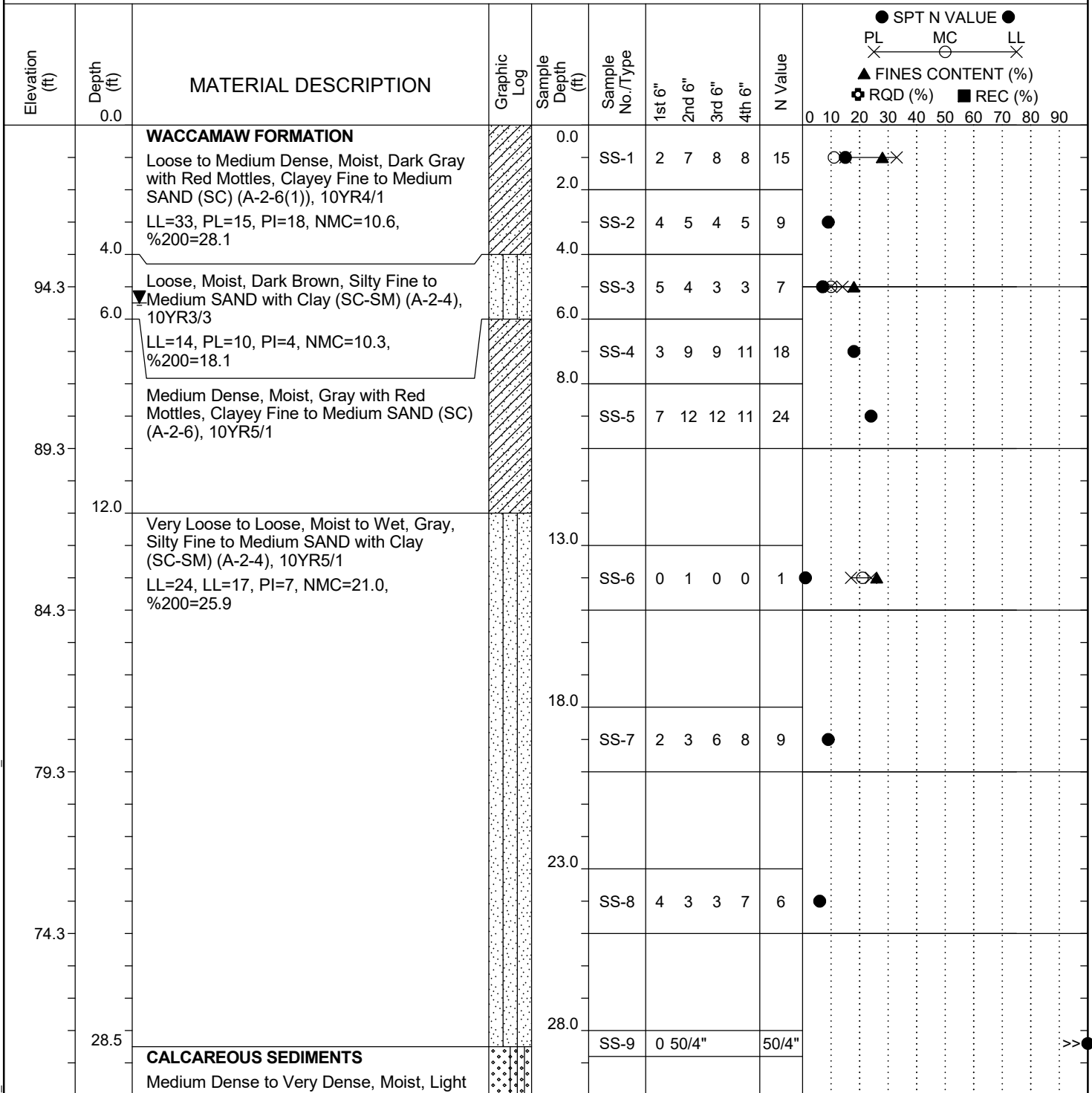
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-19
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 51+62.88	Offset: RT 31.50
Alignment: Existing	Date Started: 12/16/2022	Date Completed: 12/17/2022
Elev.: 99.3 ft	Latitude: 33.316583	Longitude: -80.545549
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Groundwater: TOB NM
Core Size:	Driller: W. King	24HR: 5.5 ft



LEGEND

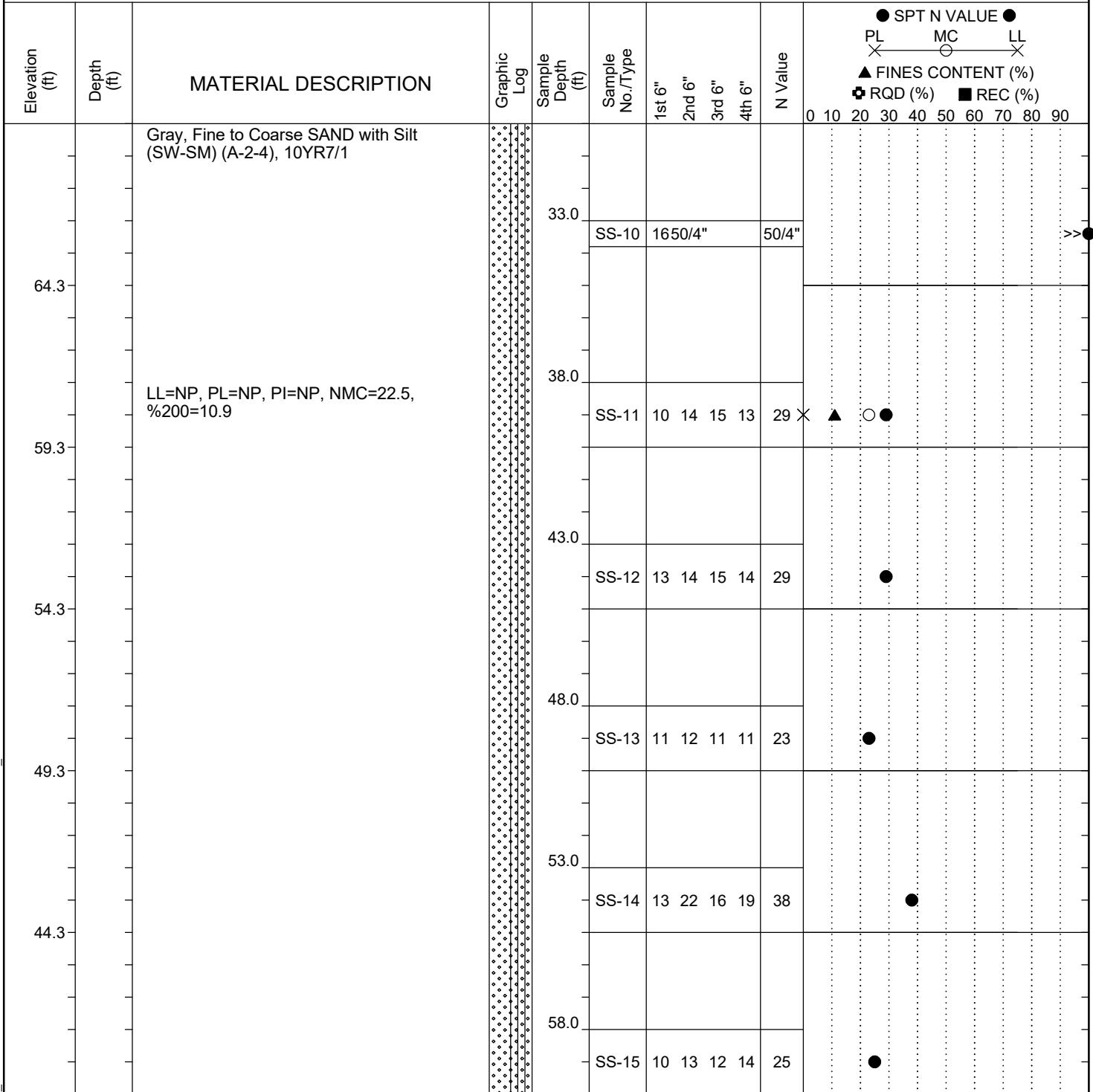
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-19
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 51+62.88	Offset: RT 31.50
Alignment: Existing		
Elev.: 99.3 ft	Latitude: 33.316583	Longitude: -80.545549
Date Started: 12/16/2022		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/17/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
24HR: 5.5 ft		



LEGEND

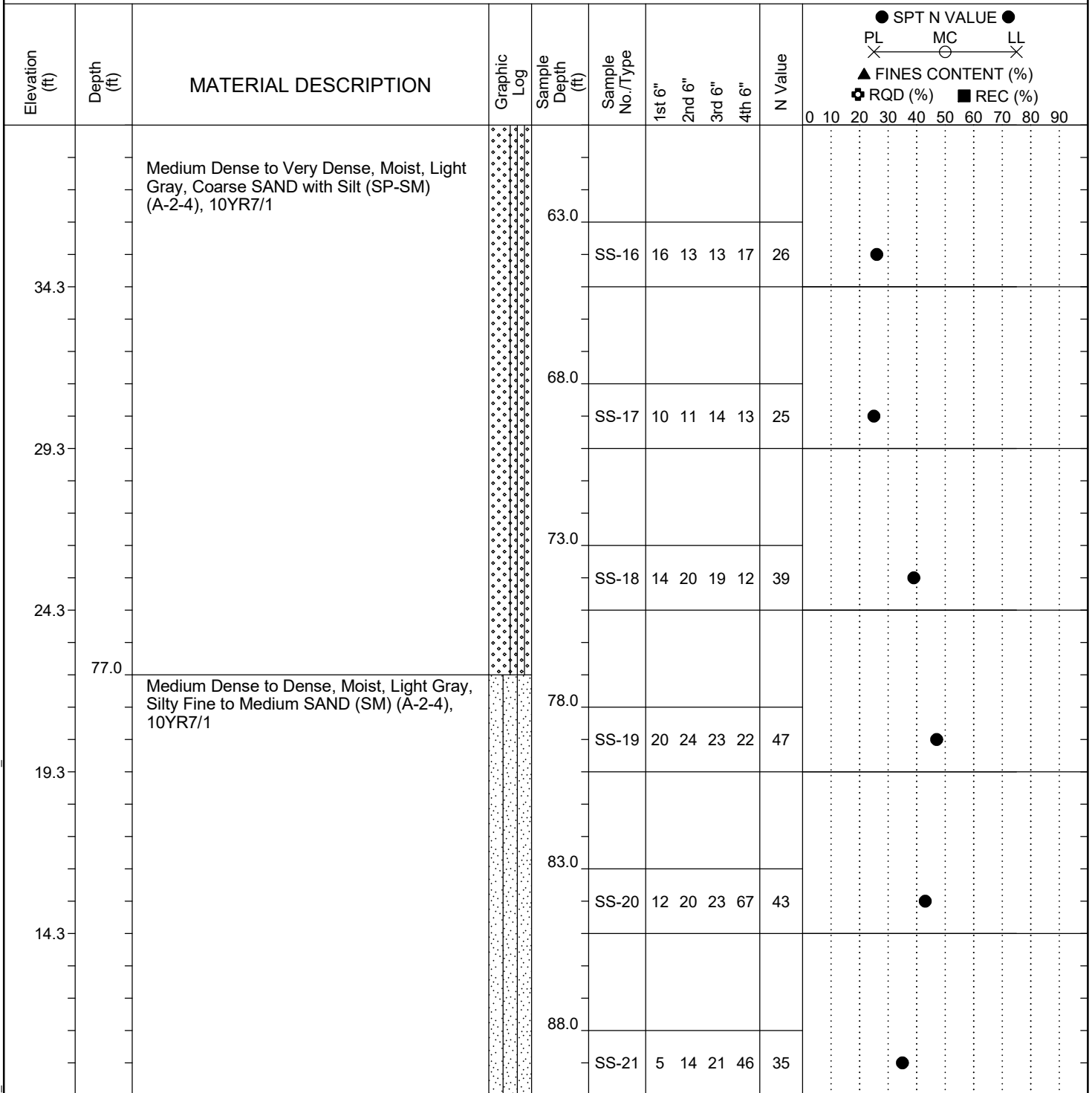
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-19
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 51+62.88	Offset: RT 31.50
Alignment: Existing	Date Started: 12/16/2022	Latitude: 33.316583
Elev.: 99.3 ft	Longitude: -80.545549	Date Completed: 12/17/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 96%	Core Size:
Groundwater: TOB NM	24HR: 5.5 ft	Driller: W. King



LEGEND

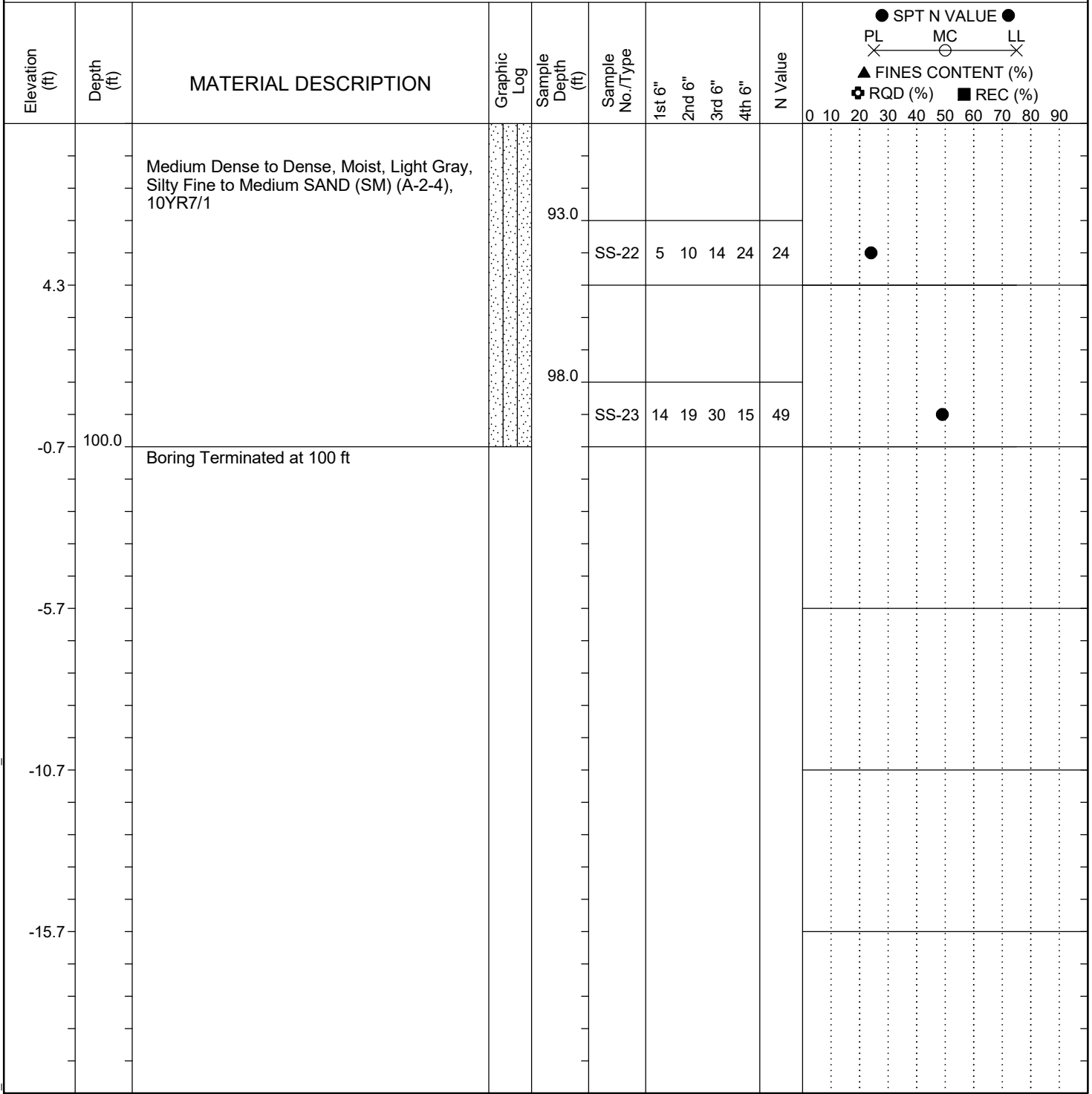
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-19
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 51+62.88	Offset: RT 31.50
Alignment: Existing	Date Started: 12/16/2022	
Elev.: 99.3 ft	Latitude: 33.316583	Longitude: -80.545549
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/17/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	
Drill Method: RW	Hammer Type: Automatic	Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM
	24HR: 5.5 ft	



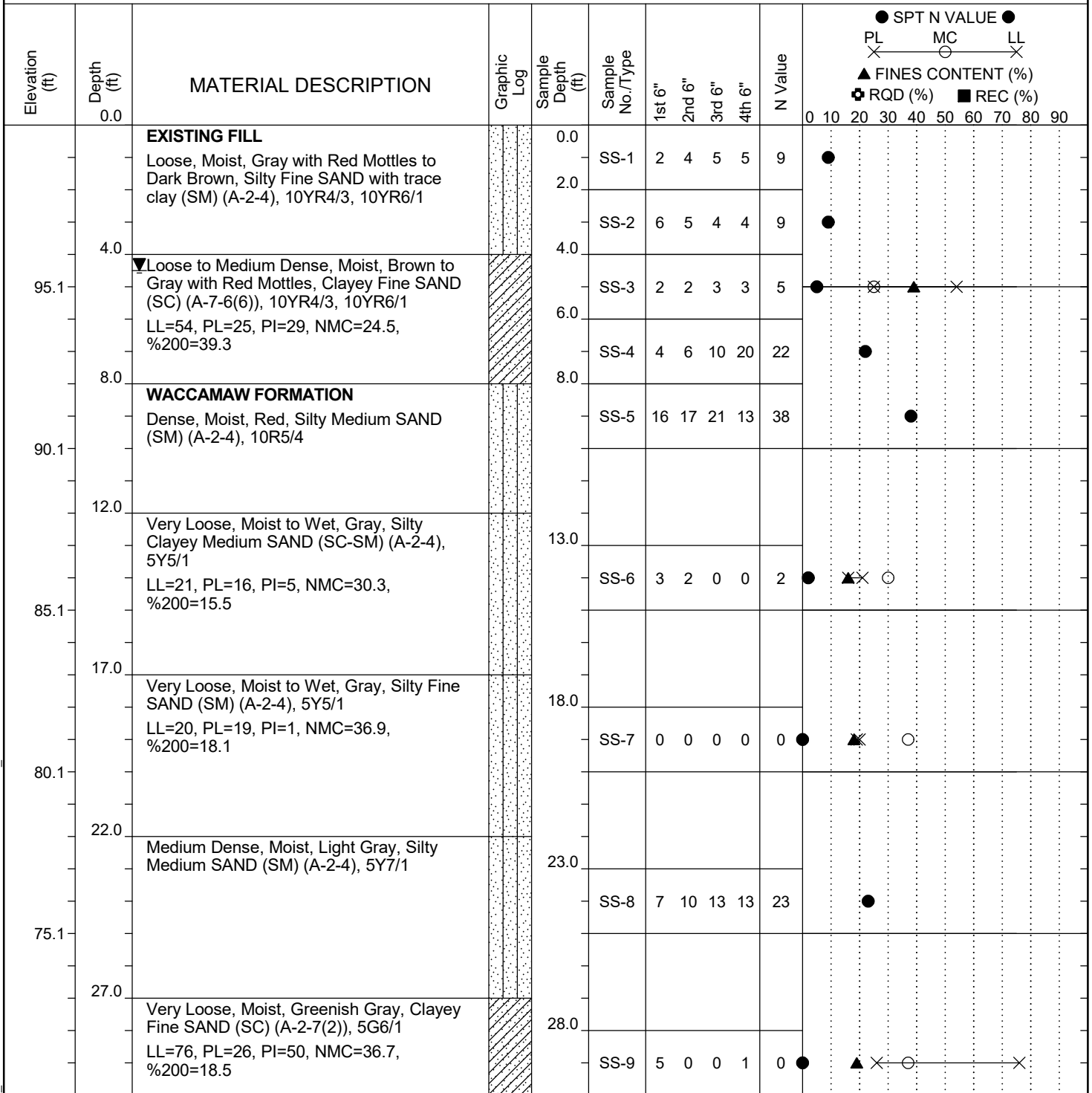
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-20
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 49+58.61	Offset: LT 17.67 Alignment: Existing
Elev.: 100.1 ft	Latitude: 33.316239	Longitude: -80.546105 Date Started: 12/8/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/9/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 4.5 ft



LEGEND

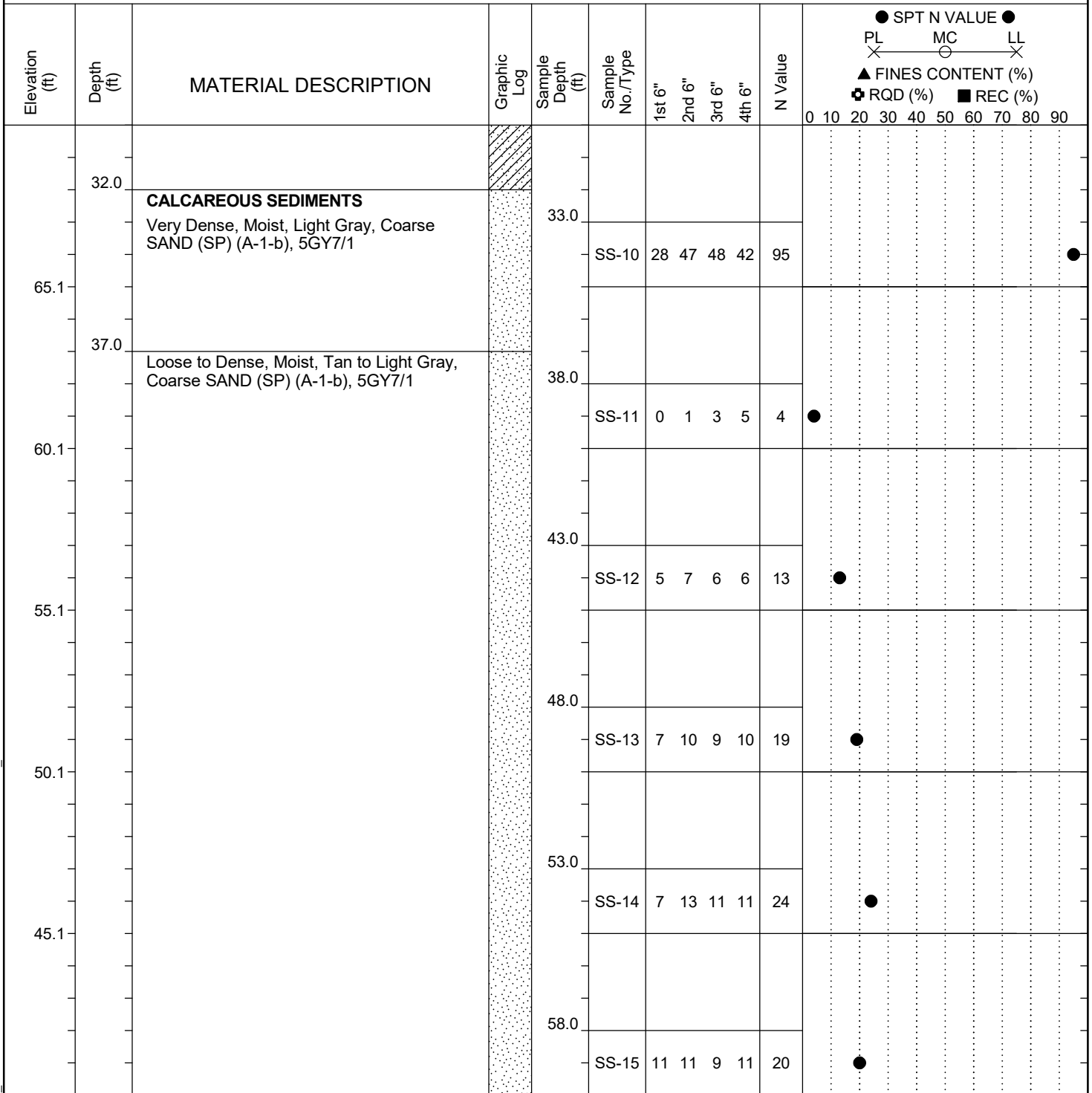
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677			County: Orangeburg		Boring No.: B-20	
Site Description: I-26 at I-95 Interchange Improvement					Route: I-26	
Eng./Geo.: A. Guest		Boring Location: 49+58.61		Offset: LT 17.67		Alignment: Existing
Elev.: 100.1 ft		Latitude: 33.316239		Longitude: -80.546105		Date Started: 12/8/2022
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft		Date Completed: 2/9/2023
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)		Liner Used: Y (N)
Drill Machine: CME 750X		Drill Method: RW		Hammer Type: Automatic		Energy Ratio: 96%
Core Size:		Driller: W. King		Groundwater: TOB NM		24HR: 4.5 ft



LEGEND

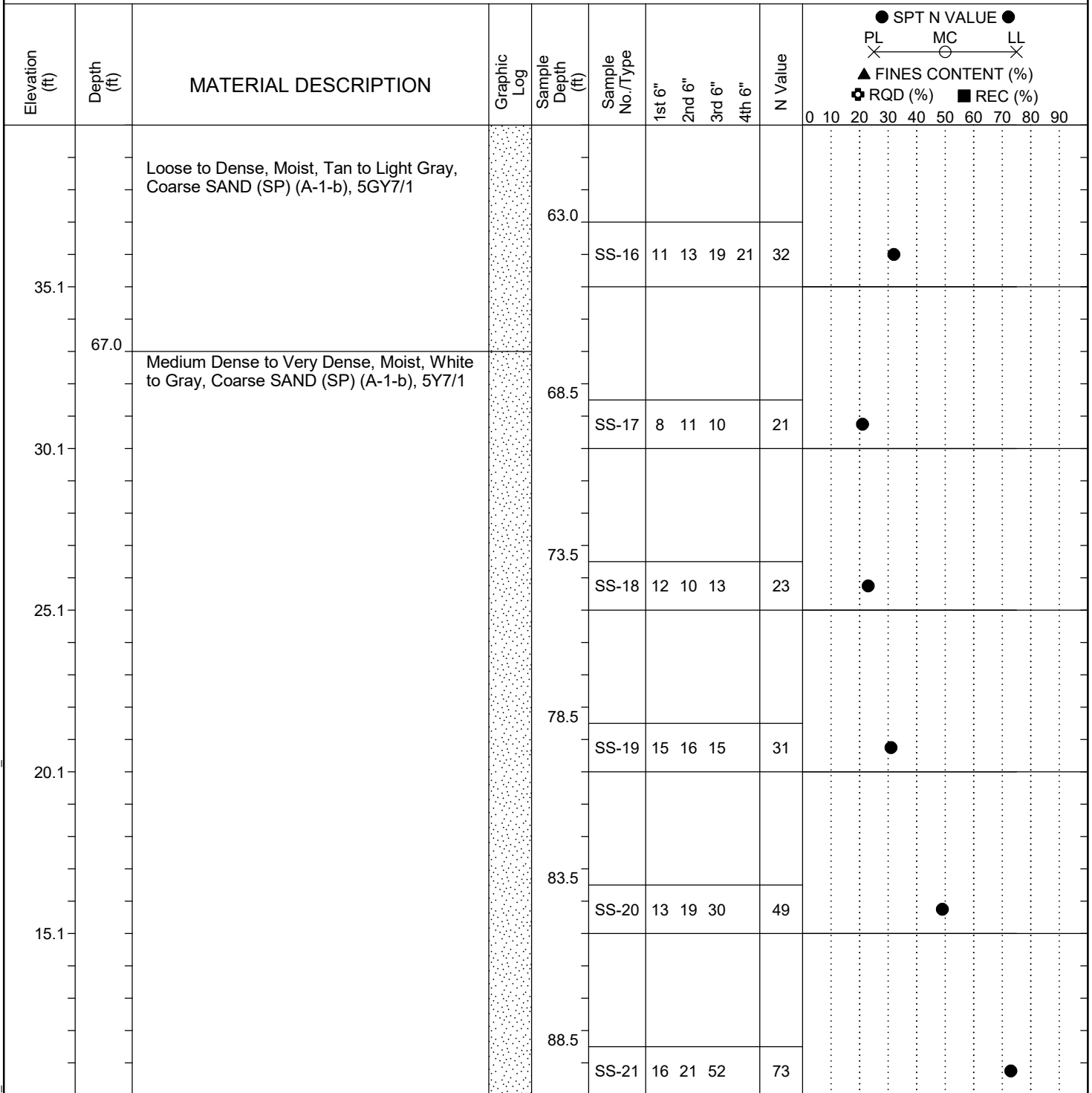
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT 4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-20
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 49+58.61	Offset: LT 17.67 Alignment: Existing
Elev.: 100.1 ft	Latitude: 33.316239	Longitude: -80.546105 Date Started: 12/8/2022
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft Date Completed: 2/9/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 4.5 ft



LEGEND

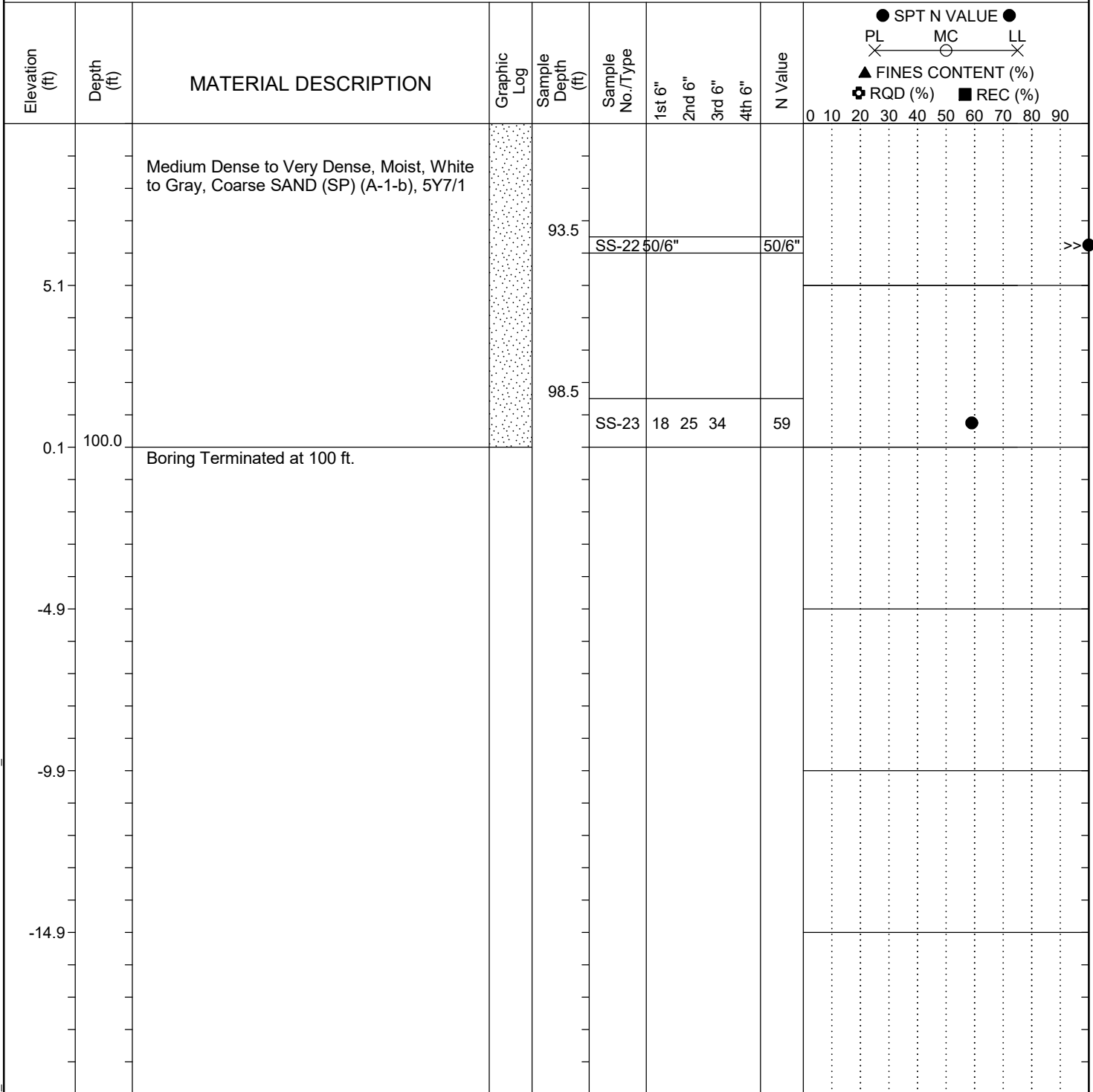
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-20
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	A. Guest	Boring Location:	49+58.61	Offset:	LT 17.67	Alignment:	Existing
Elev.:	100.1 ft	Latitude:	33.316239	Longitude:	-80.546105	Date Started:	12/8/2022
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	2/9/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB NM	24HR	4.5 ft



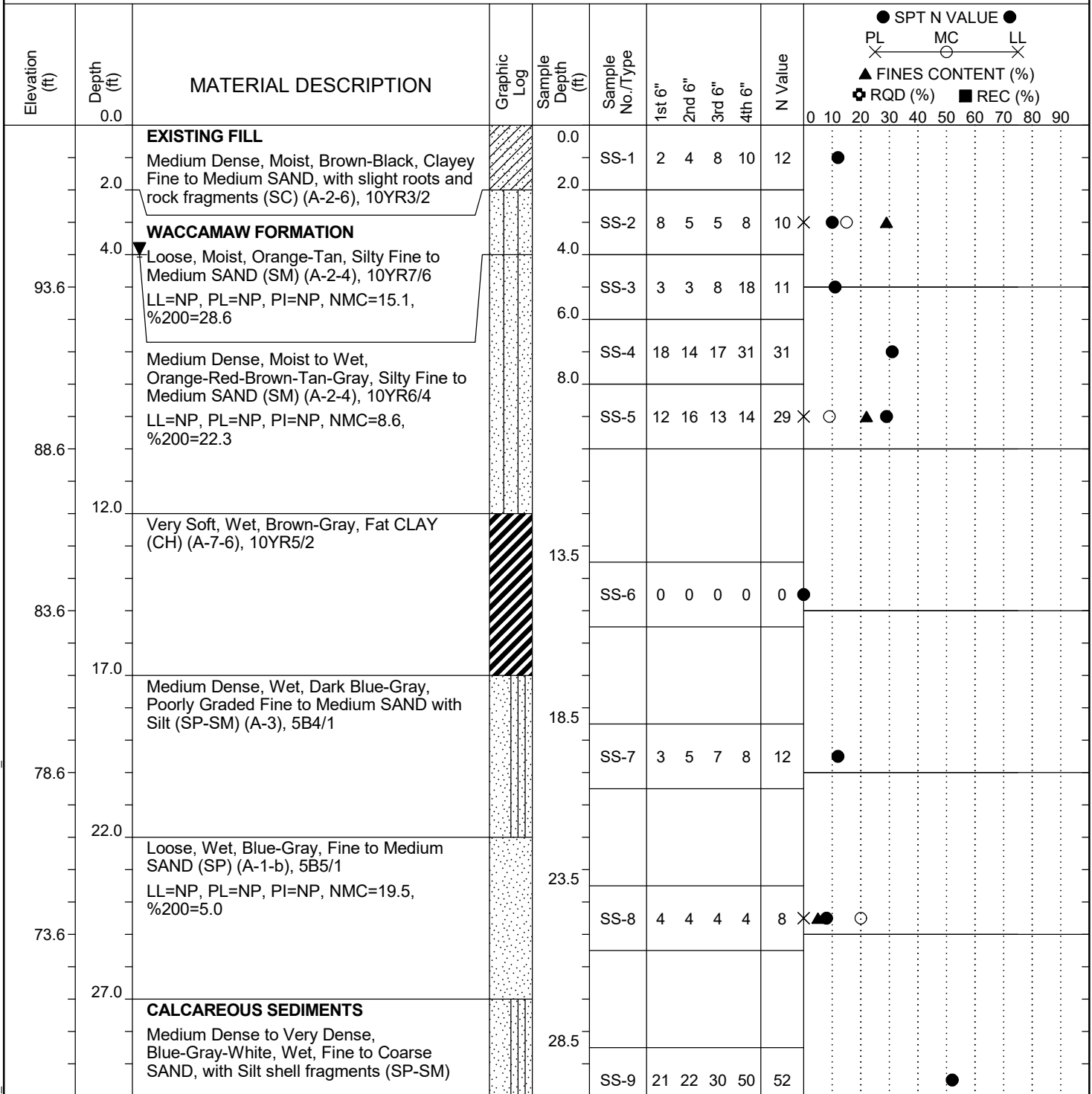
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-21
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	B. Cook	Boring Location:	50+57.47	Offset:	LT 1.42	Alignment:	Existing
Elev.:	98.6 ft	Latitude:	33.316406	Longitude:	-80.545848	Date Started:	2/1/2023
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	2/1/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB NM	24HR	4 ft



LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-21
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 50+57.47	Offset: LT 1.42
Alignment: Existing	Date Started: 2/1/2023	
Elev.: 98.6 ft	Latitude: 33.316406	Longitude: -80.545848
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/1/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 4 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	SPT N VALUE				FINES CONTENT (%)		
						1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	PL	MC
		(A-2-4), 5B7/1 Medium Dense to Very Dense, Blue-Gray-White, Wet, Fine to Coarse SAND, with Silt shell fragments (SP-SM) (A-2-4), 5B7/1										
63.6				33.5	SS-10	20	17	21	23	38		
58.6				38.5	SS-11	9	6	10	12	16		
53.6				43.5	SS-12	8	9	11	14	20		
48.6		LL=NP, PL=NP, PI=NP, NMC=14.3, %200=12.4		48.5	SS-13	10	11	12	14	23	X	
	52.0	Dense, Wet, White-Blue, Silty Fine to Coarse SAND, with shell fragments (SM) (A-1-b), 5B7/1		53.5	SS-14	8	15	19	17	34		
43.6				58.5	SS-15	8	11	13	13	24		
57.0		Medium Dense, Wet, White-Gray, Silty Fine to Coarse SAND, with shell fragments (SM) (A-2-4), 5B7/1										

LEGEND

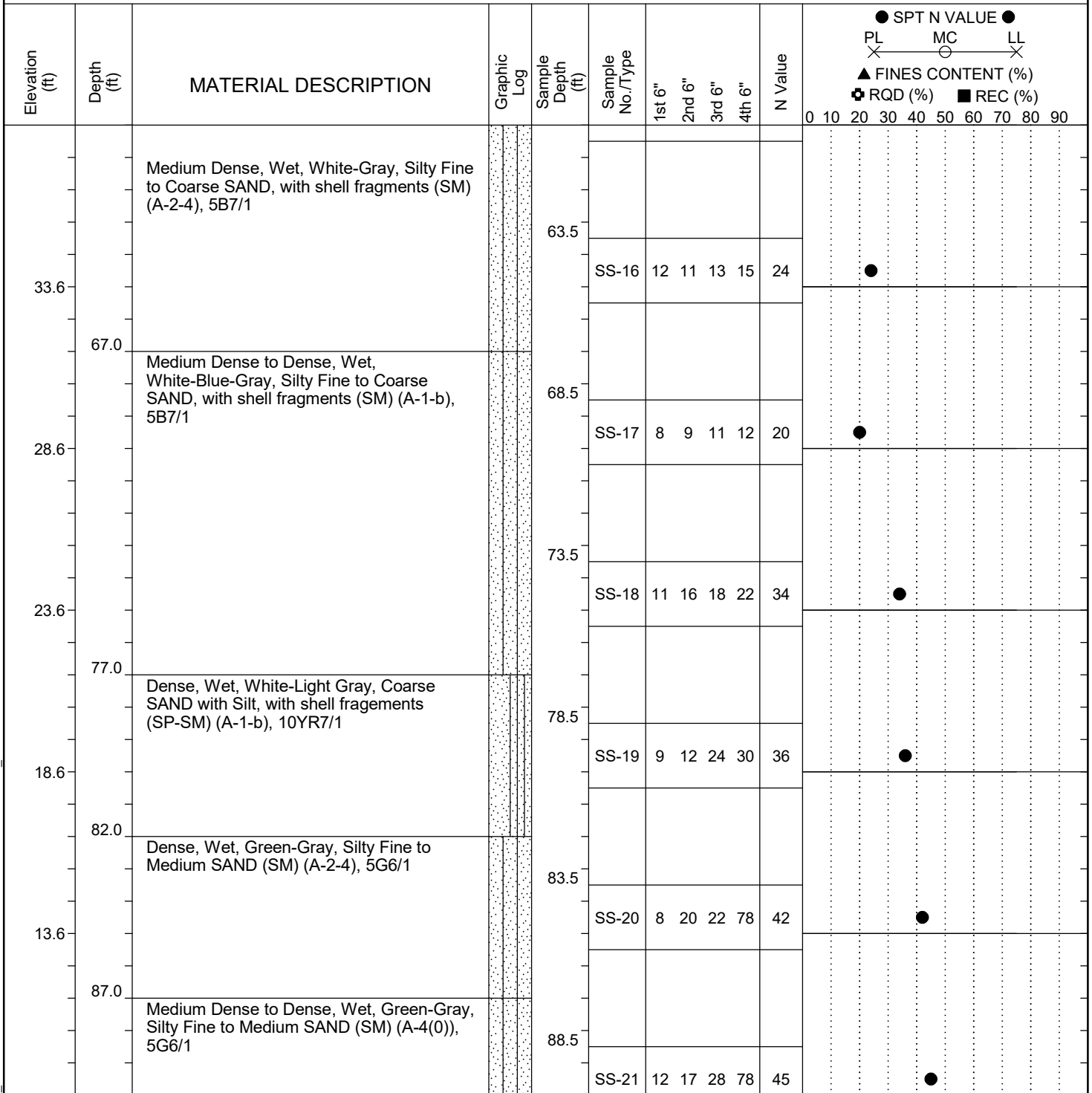
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-21
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: B. Cook	Boring Location: 50+57.47	Offset: LT 1.42
Alignment: Existing		
Elev.: 98.6 ft	Latitude: 33.316406	Longitude: -80.545848
Date Started: 2/1/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/1/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 4 ft



LEGEND

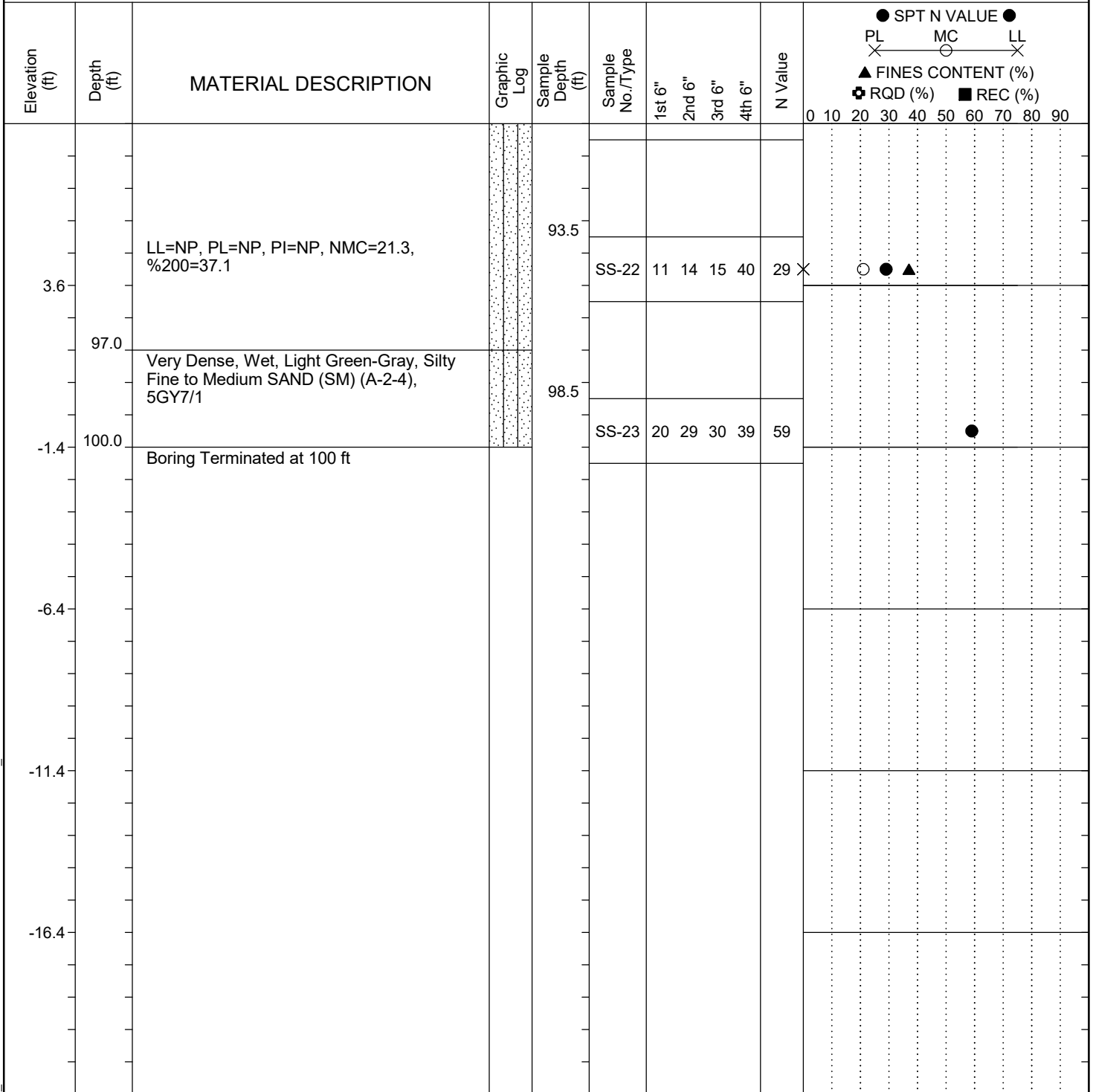
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-21
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 50+57.47	Offset: LT 1.42
Alignment: Existing		
Elev.: 98.6 ft	Latitude: 33.316406	Longitude: -80.545848
Date Started: 2/1/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 2/1/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 4 ft



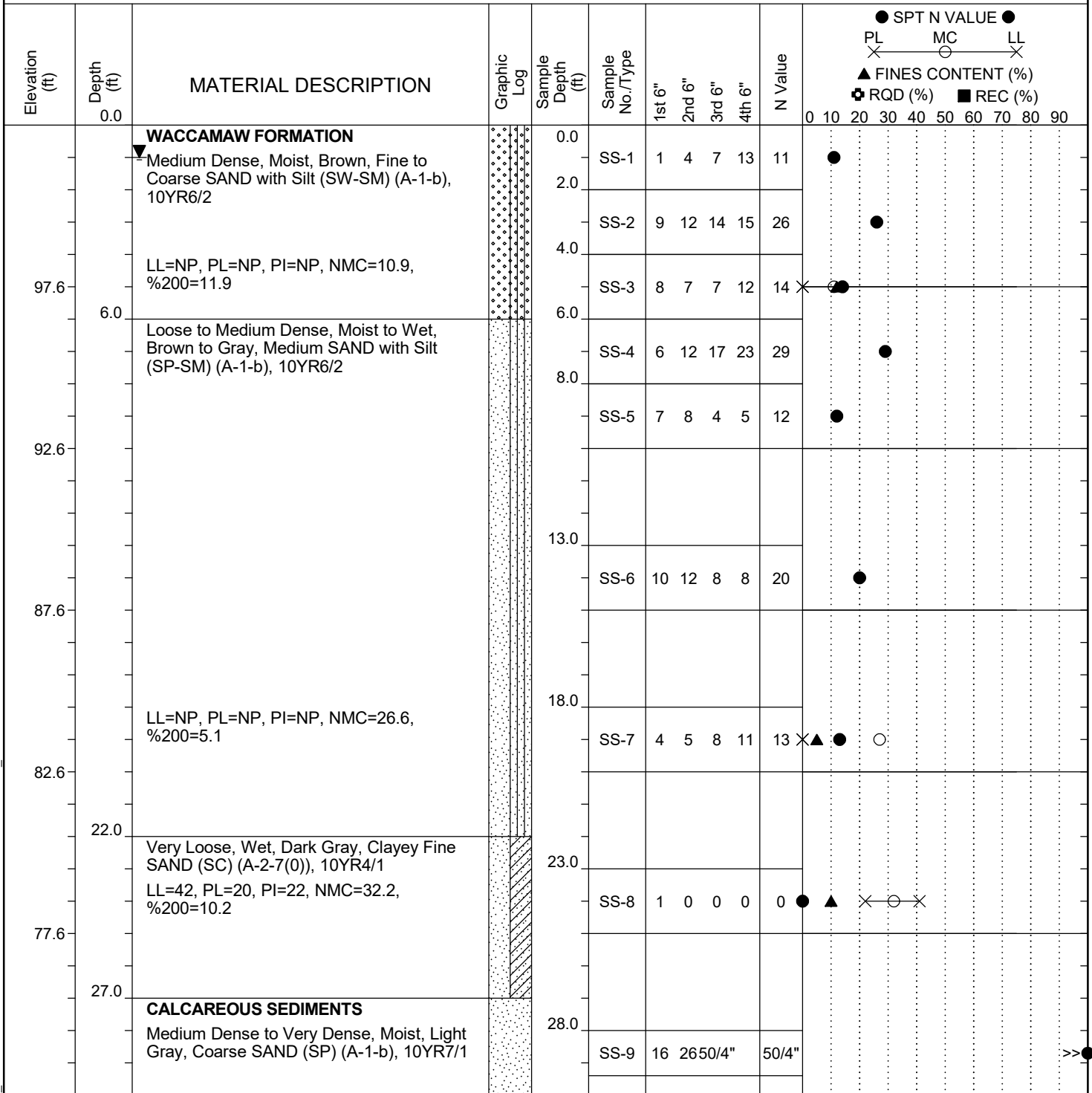
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-22
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 69+99.85	Offset: RT 19.09
Elev.: 102.6 ft	Latitude: 33.321127	Longitude: -80.546602
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 1 ft



LEGEND

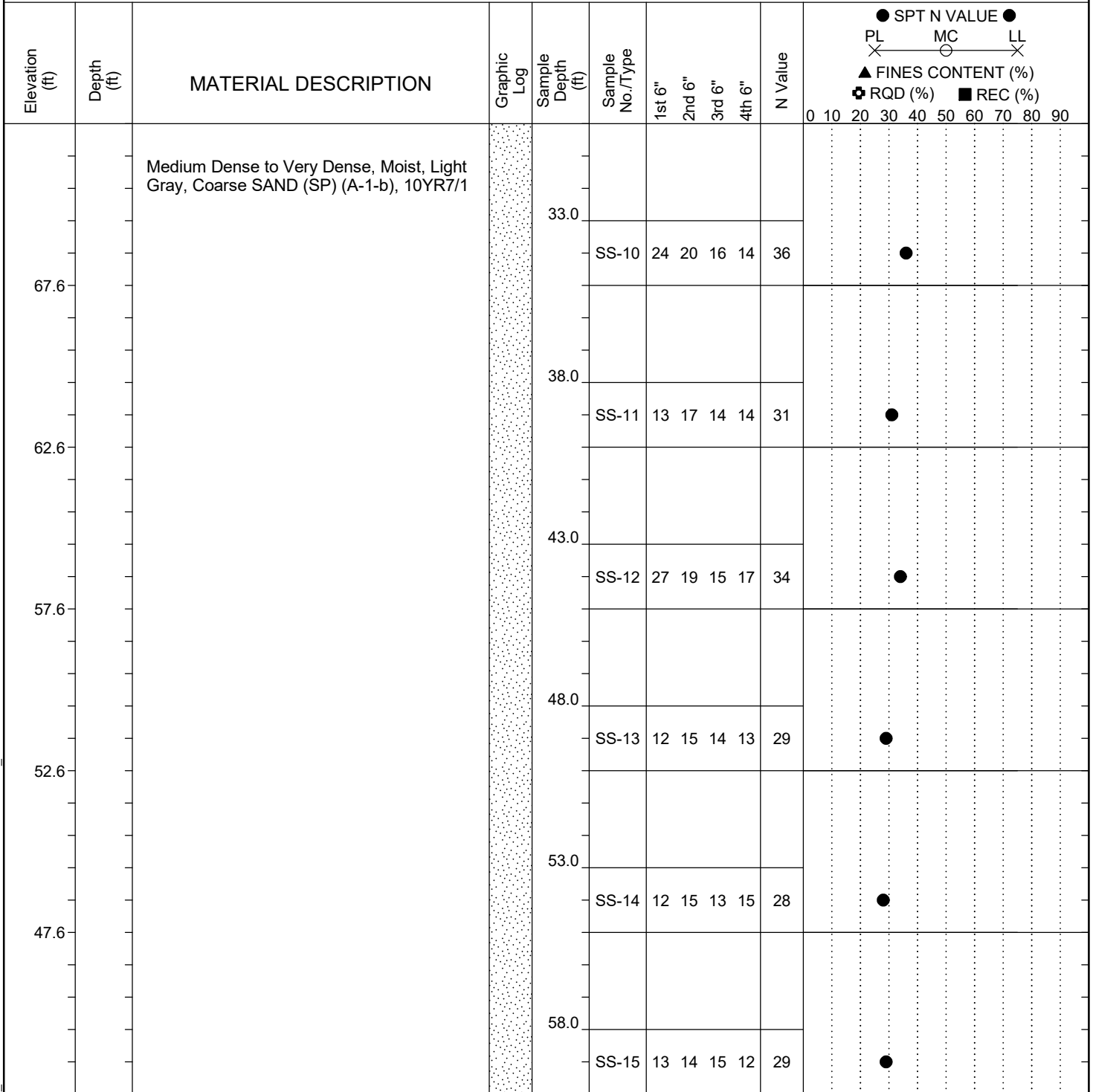
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-22	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Webb		Boring Location: 69+99.85		Offset: RT 19.09	
Alignment: Existing		Date Started: 12/18/2022		Date Completed: 12/18/2022	
Elev.: 102.6 ft		Latitude: 33.321127		Longitude: -80.546602	
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Liner Used: Y (N)		Drill Machine: CME 750X		Drill Method: RW	
Hammer Type: Automatic		Energy Ratio: 96%		Core Size:	
Driller: W. King		Groundwater: TOB NM		24HR: 1 ft	



LEGEND

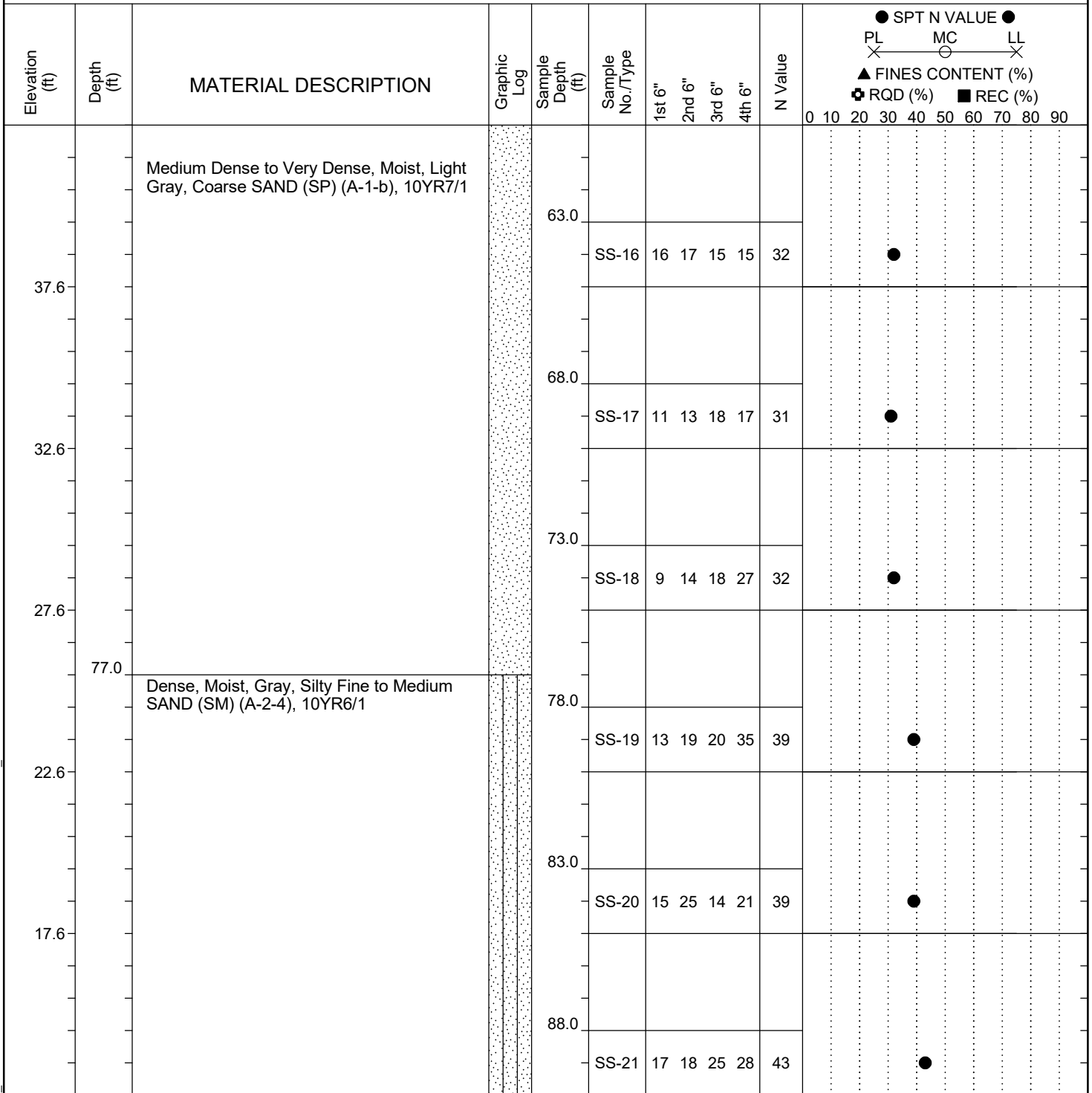
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-22
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 69+99.85	Offset: RT 19.09
Alignment: Existing	Date Started: 12/18/2022	
Elev.: 102.6 ft	Latitude: 33.321127	Longitude: -80.546602
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 12/18/2022		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 750X	
Drill Method: RW	Hammer Type: Automatic	Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM
	24HR: 1 ft	



LEGEND

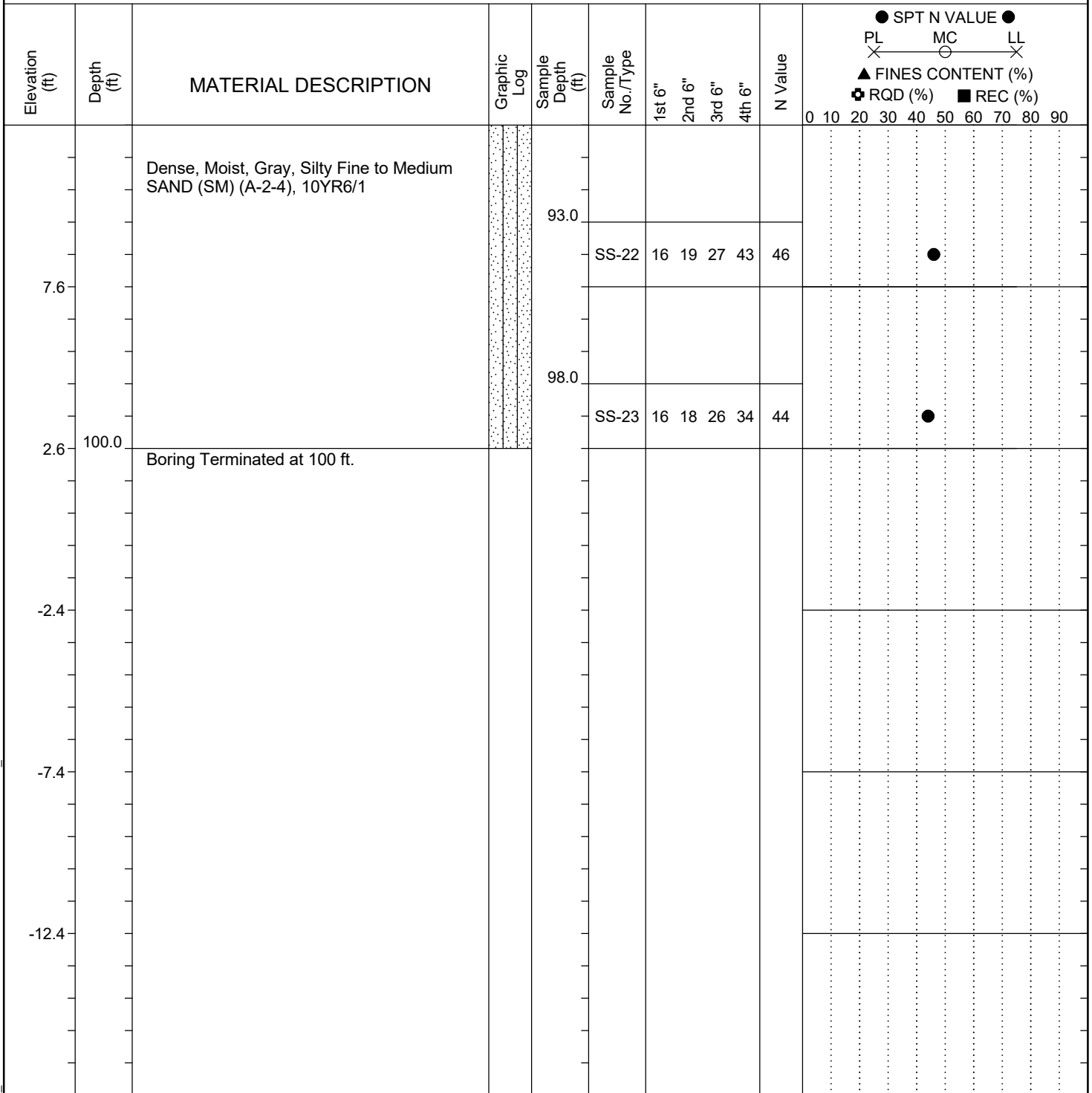
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	B-22
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-95
Eng./Geo.:	J. Webb	Boring Location:	69+99.85	Offset:	RT 19.09	Alignment:	Existing
Elev.:	102.6 ft	Latitude:	33.321127	Longitude:	-80.546602	Date Started:	12/18/2022
Total Depth:	100 ft	Soil Depth:	100 ft	Core Depth:	ft	Date Completed:	12/18/2022
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB NM	24HR	1 ft



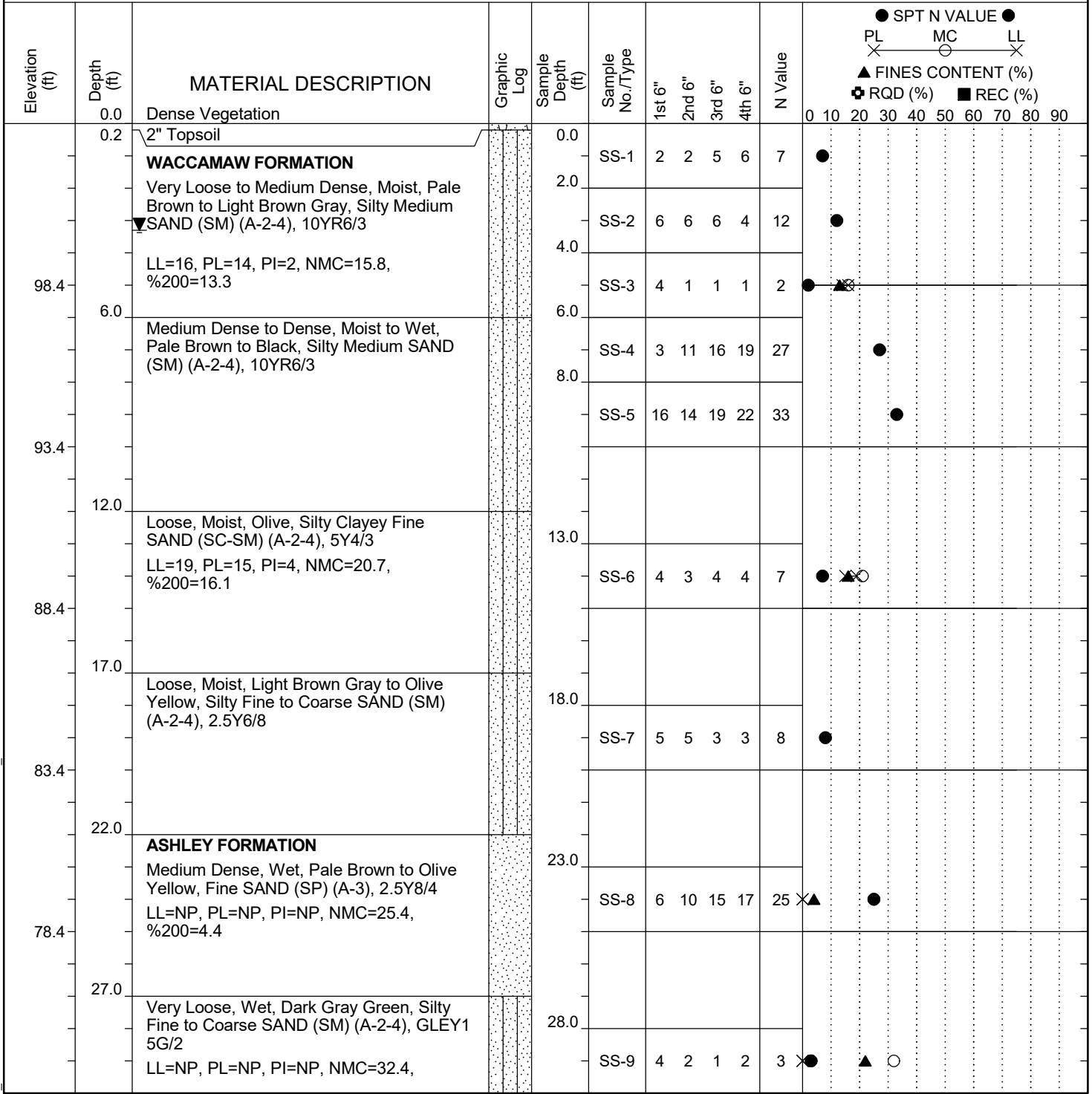
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-23
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 67+15.39	Offset: RT 56.25
Alignment: Existing	Date Started: 1/6/2023	
Elev.: 103.4 ft	Latitude: 33.32068	Longitude: -80.545795
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/6/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 3.3 ft



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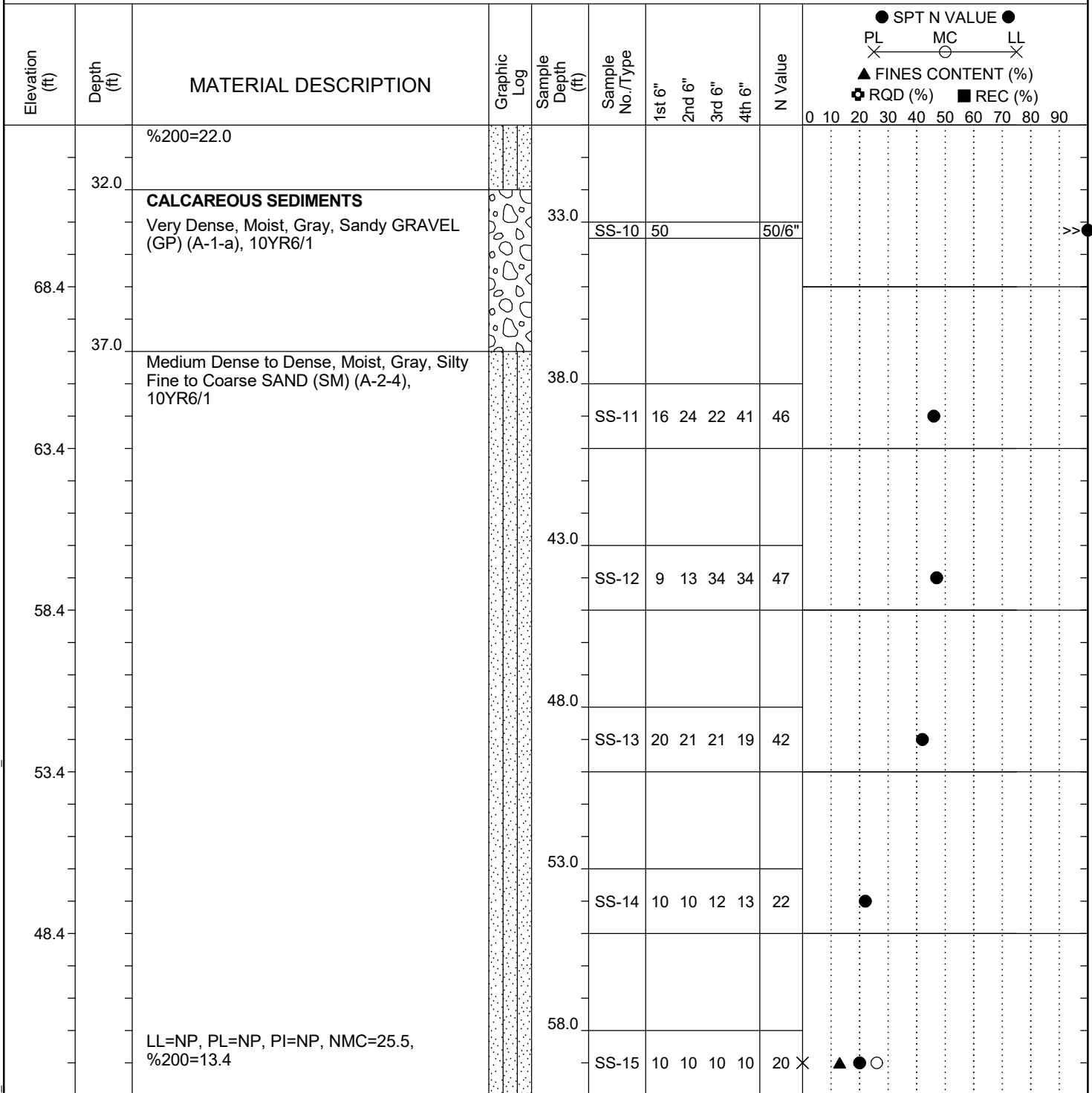
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-23	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Webb		Boring Location: 67+15.39		Offset: RT 56.25	
Alignment: Existing					
Elev.: 103.4 ft		Latitude: 33.32068		Longitude: -80.545795	
Date Started: 1/6/2023					
Total Depth: 100 ft		Soil Depth: 100 ft		Core Depth: ft	
Date Completed: 1/6/2023					
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Liner Used: Y (N)					
Drill Machine: CME 750X		Drill Method: RW		Hammer Type: Automatic	
Energy Ratio: 96%					
Core Size:		Driller: W. King		Groundwater: TOB NM	
24HR: 3.3 ft					



LEGEND

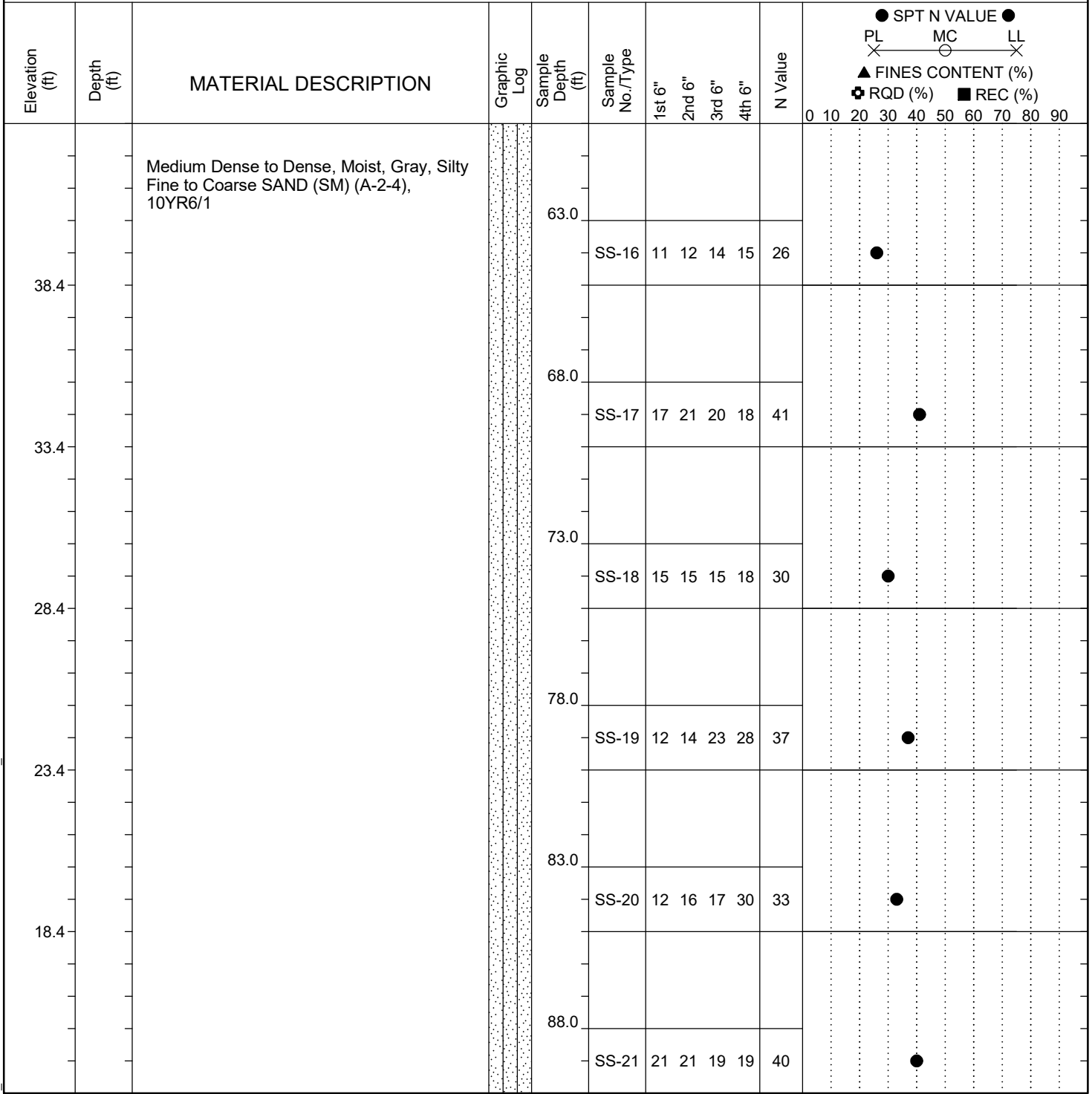
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: B-23	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-95	
Eng./Geo.: J. Webb		Boring Location: 67+15.39		Offset: RT 56.25	Alignment: Existing
Elev.: 103.4 ft	Latitude: 33.32068	Longitude: -80.545795	Date Started: 1/6/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft	Date Completed: 1/6/2023		
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic		Energy Ratio: 96%	
Core Size:	Driller: W. King	Groundwater: TOB	NM	24HR	3.3 ft



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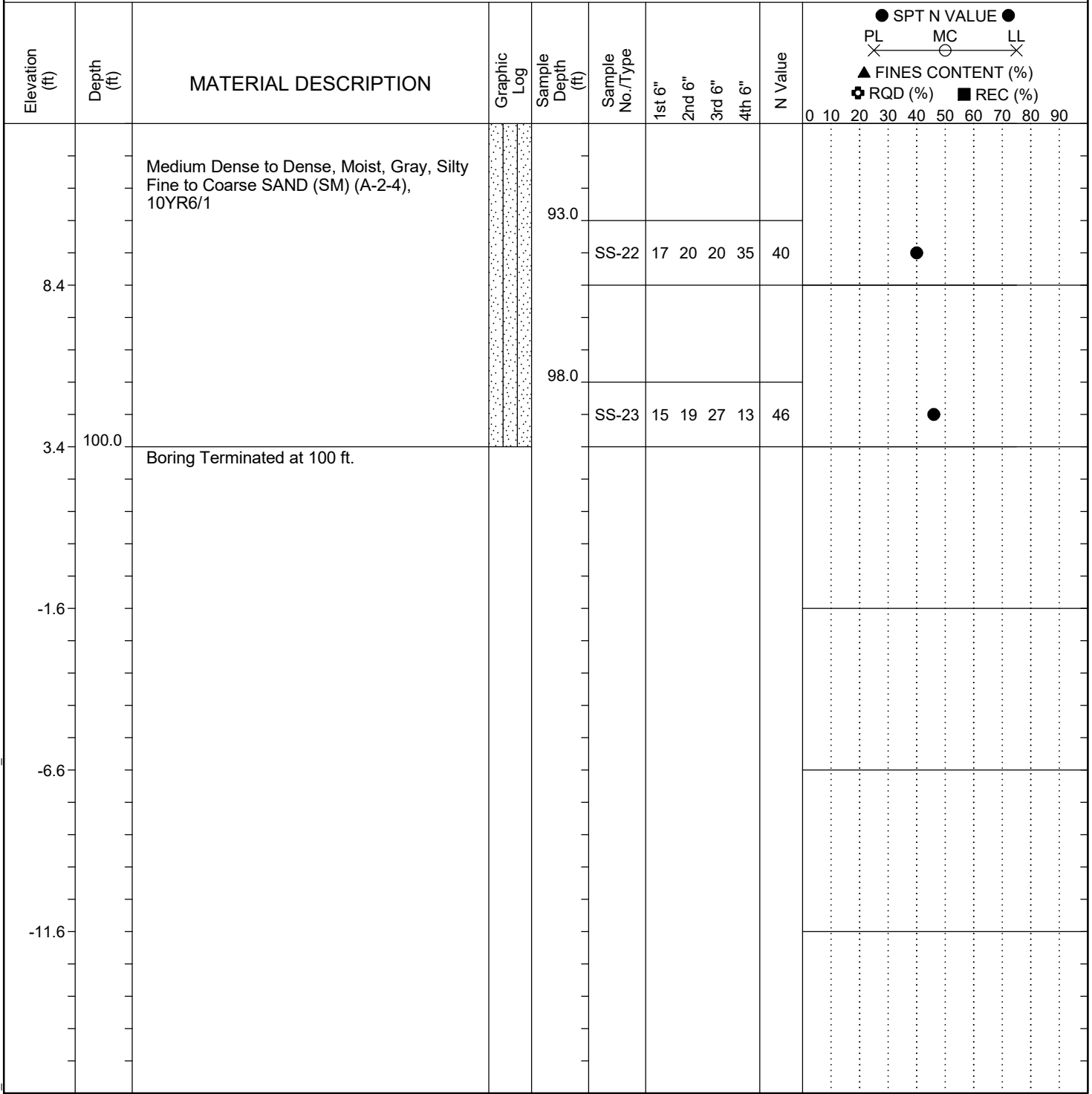
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-23
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 67+15.39	Offset: RT 56.25
Alignment: Existing		
Elev.: 103.4 ft	Latitude: 33.32068	Longitude: -80.545795
Date Started: 1/6/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/6/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 3.3 ft



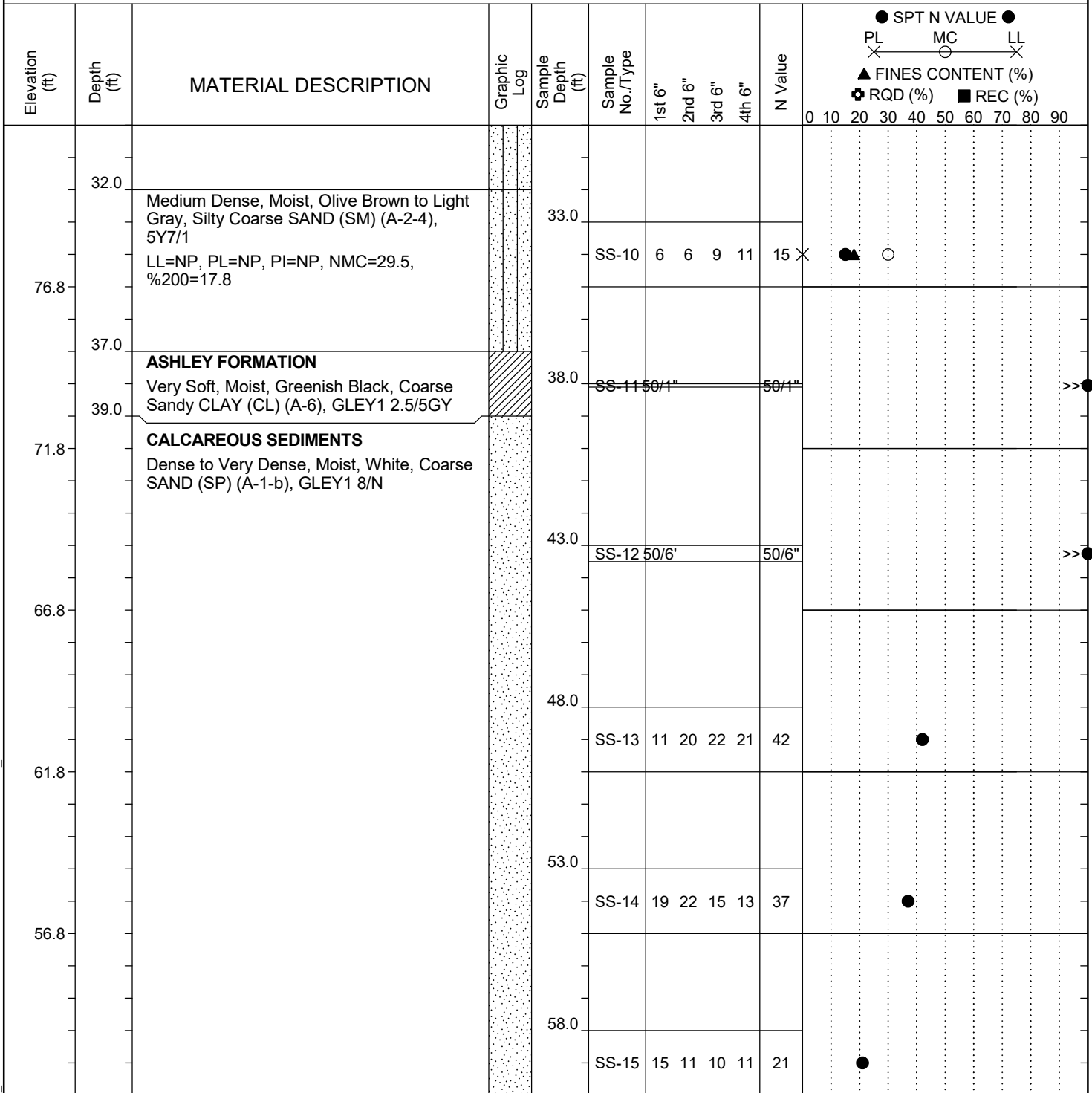
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-24
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 68+47.02	Offset: LT 1.04
Alignment: Existing	Date Started: 1/8/2023	
Elev.: 111.8 ft	Latitude: 33.320827	Longitude: -80.546241
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/8/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 10 ft



LEGEND

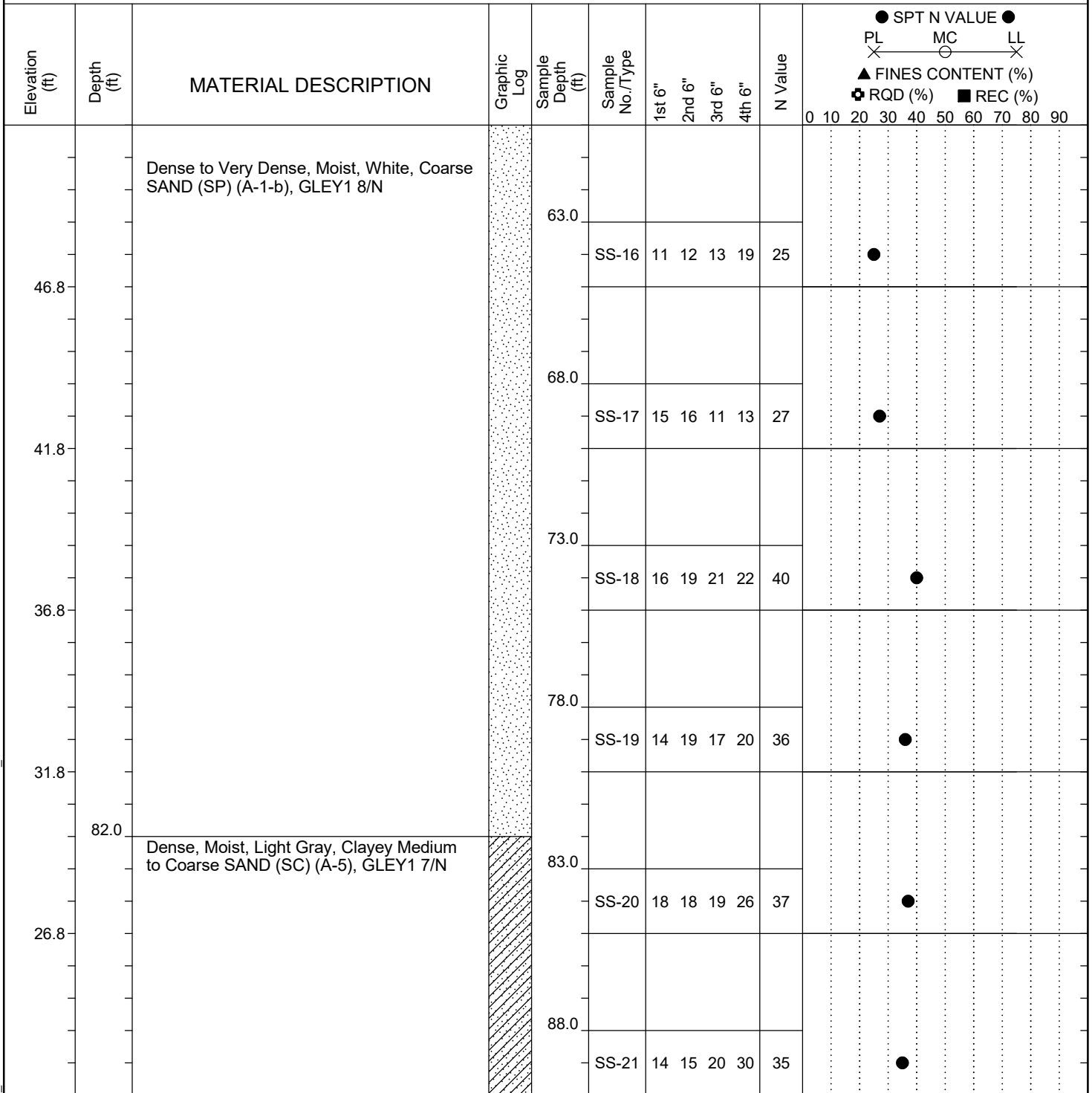
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-24
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 68+47.02	Offset: LT 1.04
Alignment: Existing	Date Started: 1/8/2023	
Elev.: 111.8 ft	Latitude: 33.320827	Longitude: -80.546241
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/8/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 10 ft



LEGEND

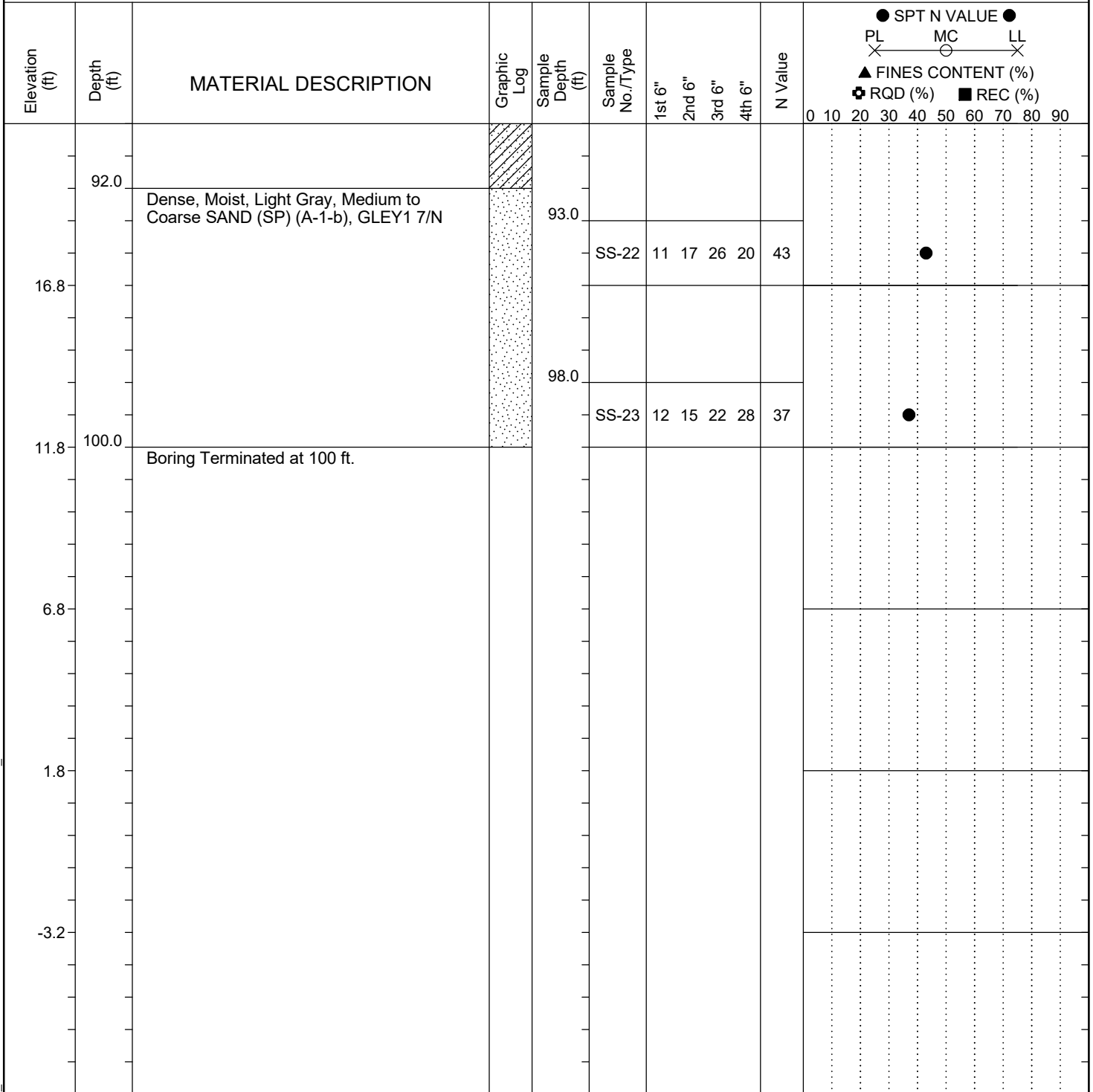
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: B-24
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 68+47.02	Offset: LT 1.04
Alignment: Existing		
Elev.: 111.8 ft	Latitude: 33.320827	Longitude: -80.546241
Date Started: 1/8/2023		
Total Depth: 100 ft	Soil Depth: 100 ft	Core Depth: ft
Date Completed: 1/8/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 96%		
Core Size:	Driller: W. King	Groundwater: TOB NM
		24HR: 10 ft



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23



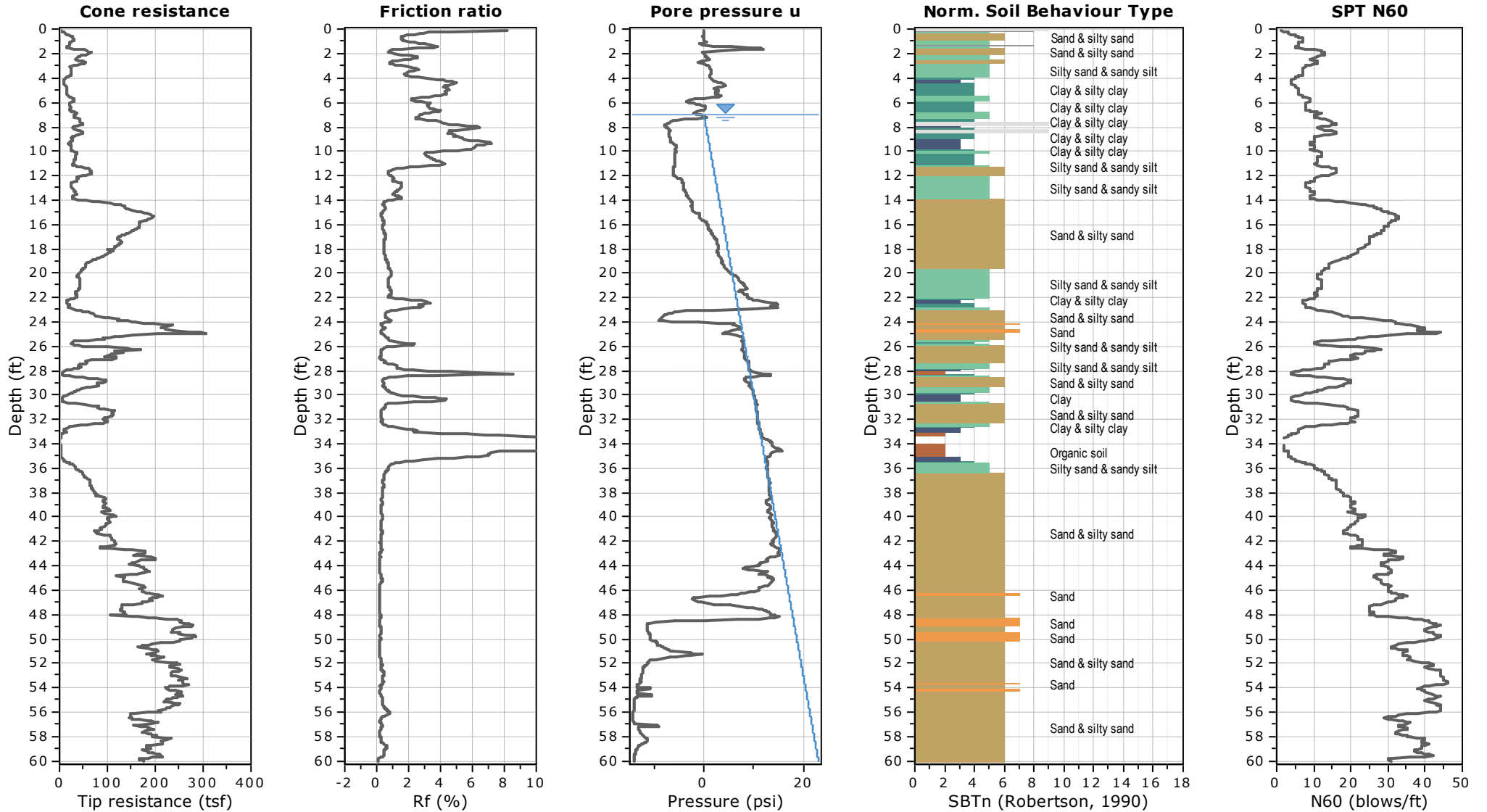
ECS Southeast, LLP
2031 Industrial Blvd.
Lexington, SC

Route: S-38-1302
Station: 43+68.16
Offset: LT 30.05'
Surface Elevation: 101.5 ft.

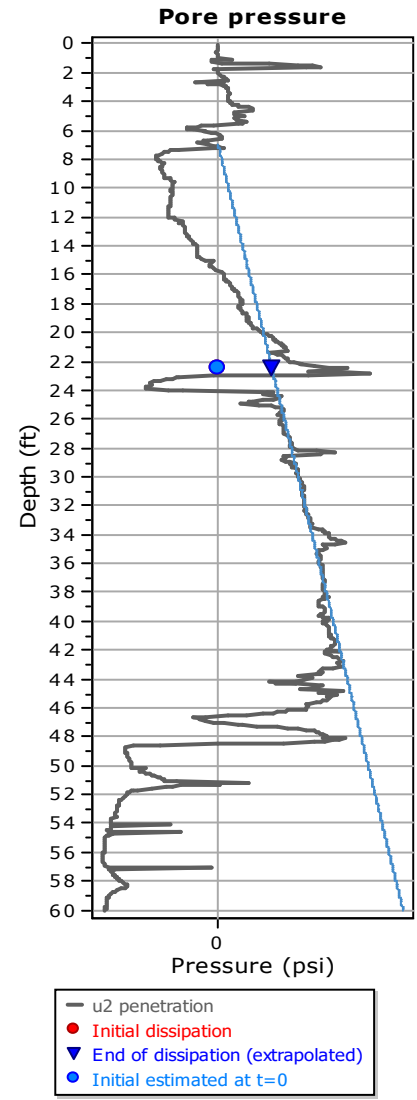
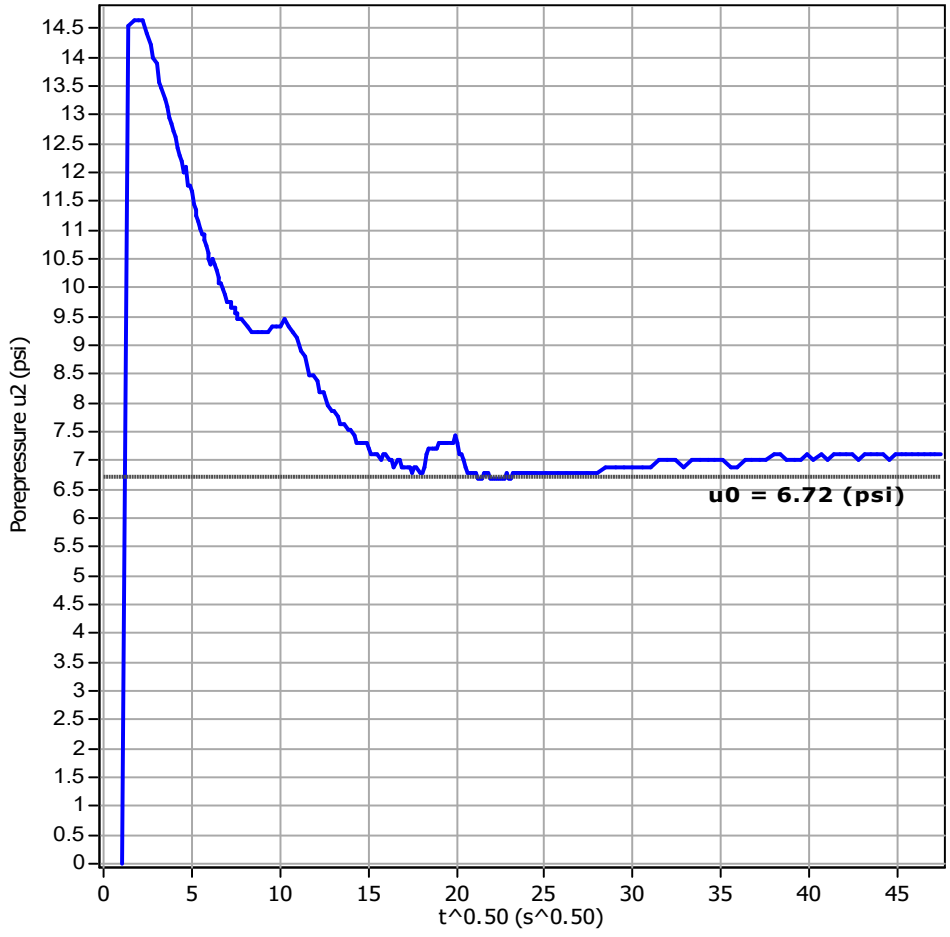
CPT: C-01

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Total depth: 60.06 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



Piezocene Dissipation Test: C-01 Depth: 22.50 (ft)



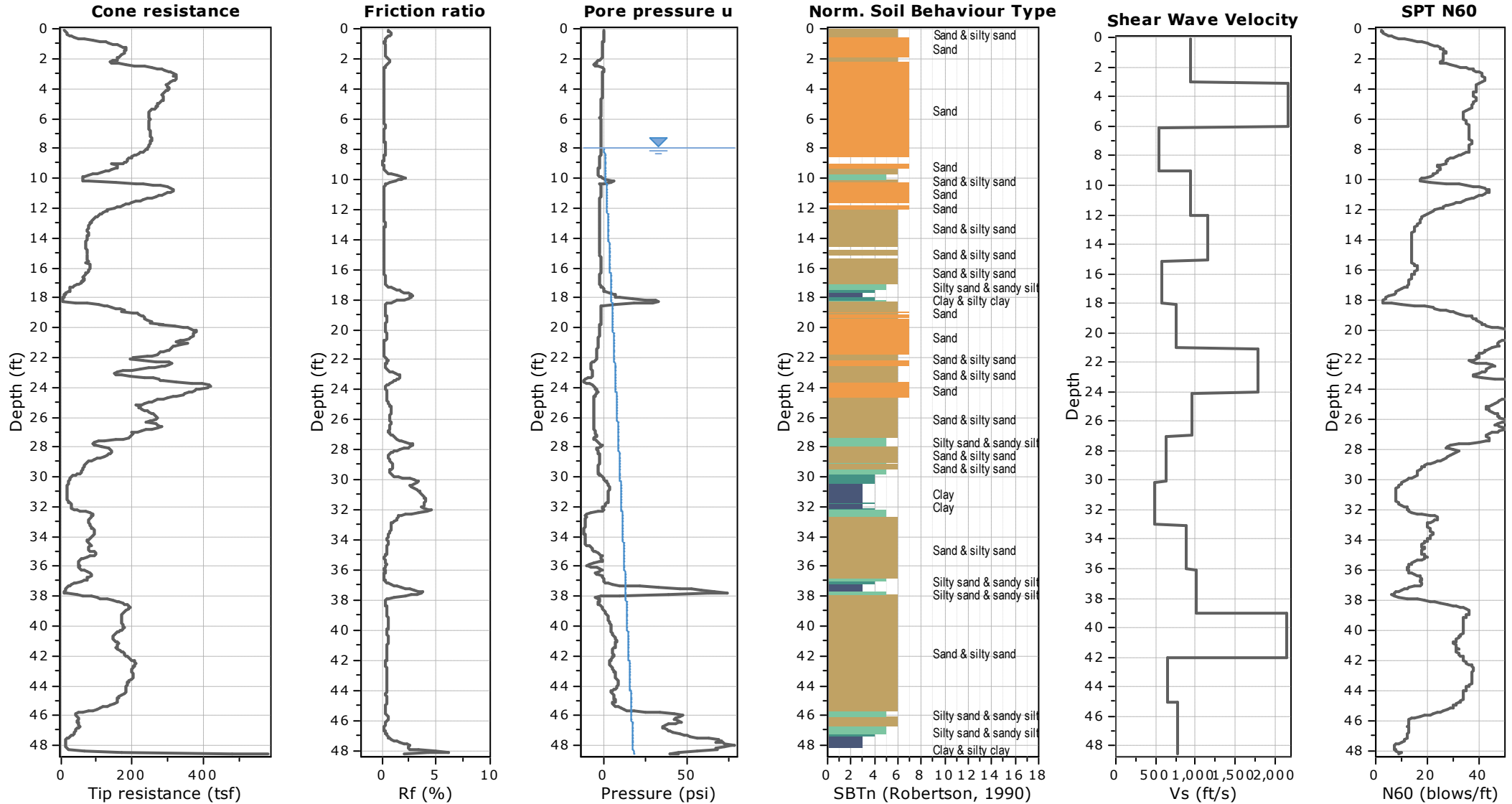


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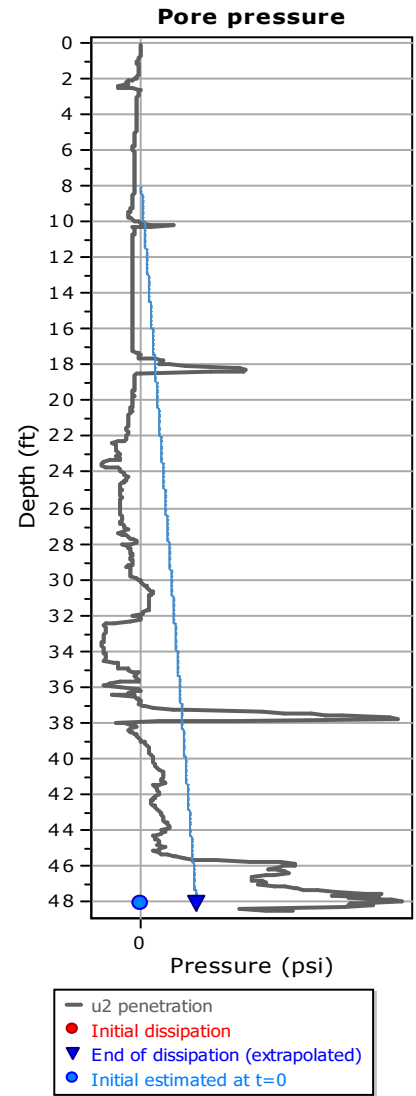
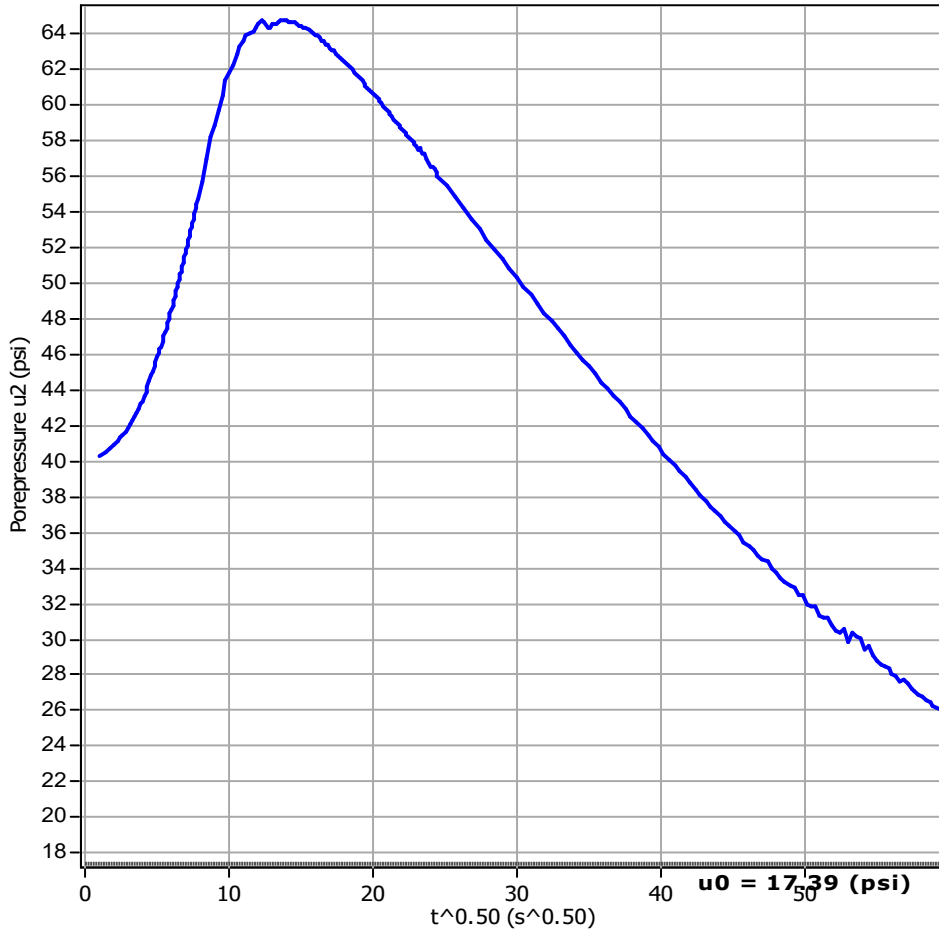
Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: I-95
Station: 3205+32.65
Offset: LT 184.64'
Surface Elevation: 124.0 ft.

CPT: C-02
 Total depth: 48.56 ft, Date: 3/7/2023
 Cone Type: Vertek S4 15 cm2
 Cone Operator: Longview Exploration



Piezocone Dissipation Test: C-02 Depth: 48.10 (ft)





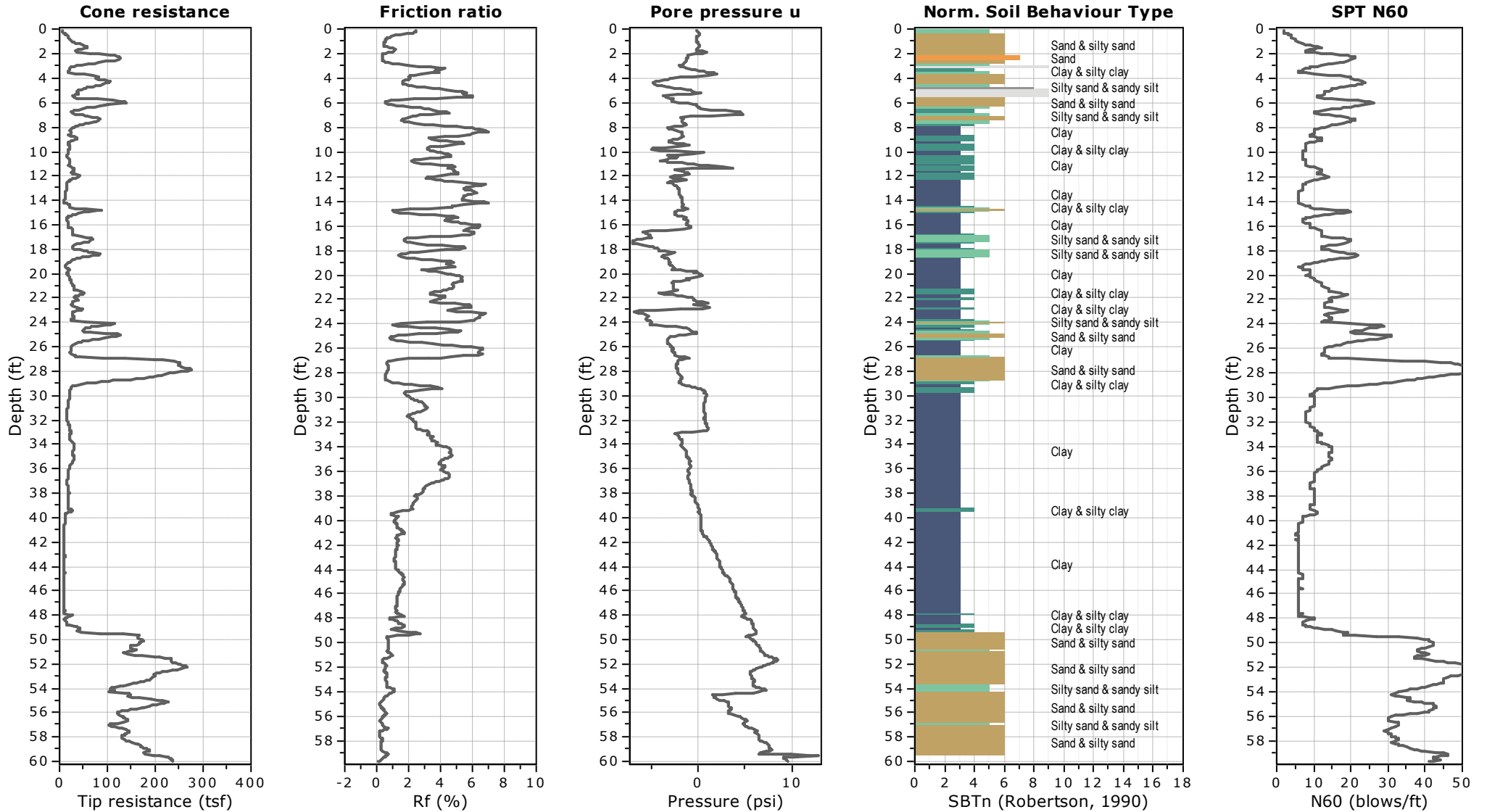
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Lexington, SC

Route: I-95
Station: 3206+62.55
Offset: RT 177.93'
Surface Elevation: 123.3 ft.

CPT: C-03

Total depth: 59.99 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC



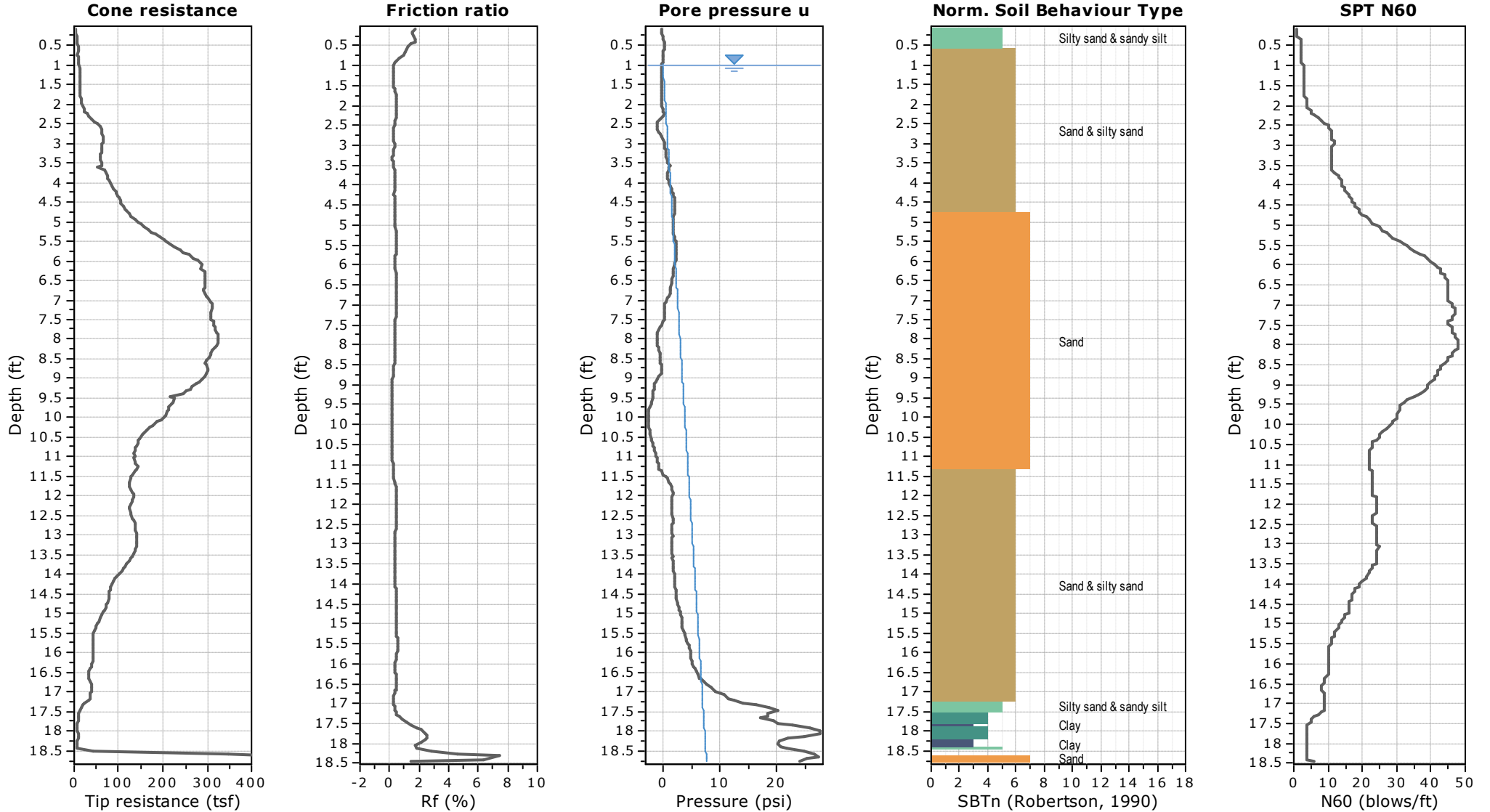


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Lexington, SC

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: FCH2
Station: 26+35.53
Offset: RT 21.84'
Surface Elevation: 96.6 ft.

CPT: C-04
Total depth: 18.77 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



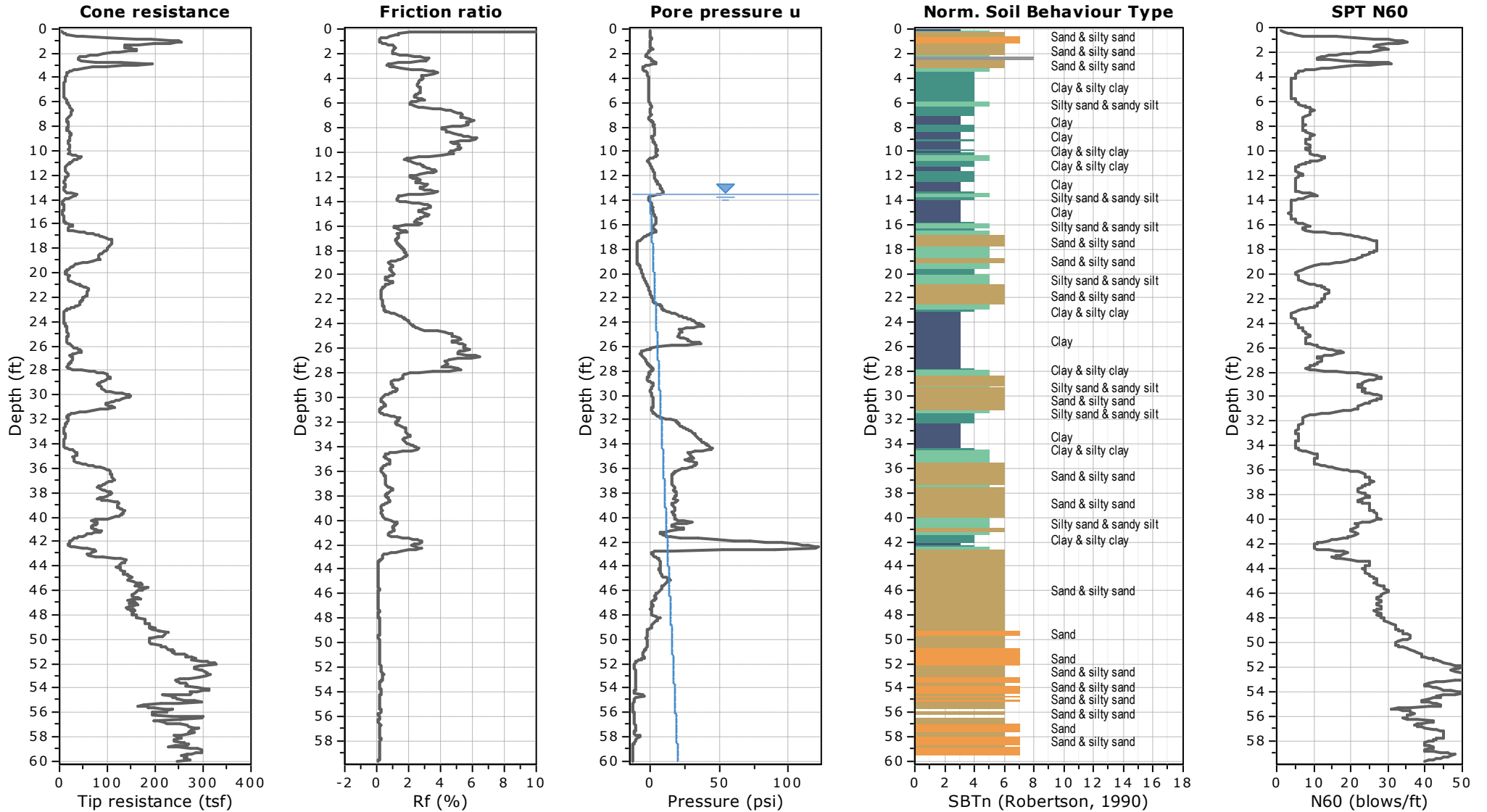


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Lexington, SC

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: FCH2
Station: 31+67.17
Offset: LT 15.56'
Surface Elevation: 98.6 ft.

CPT: C-05
Total depth: 60.01 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



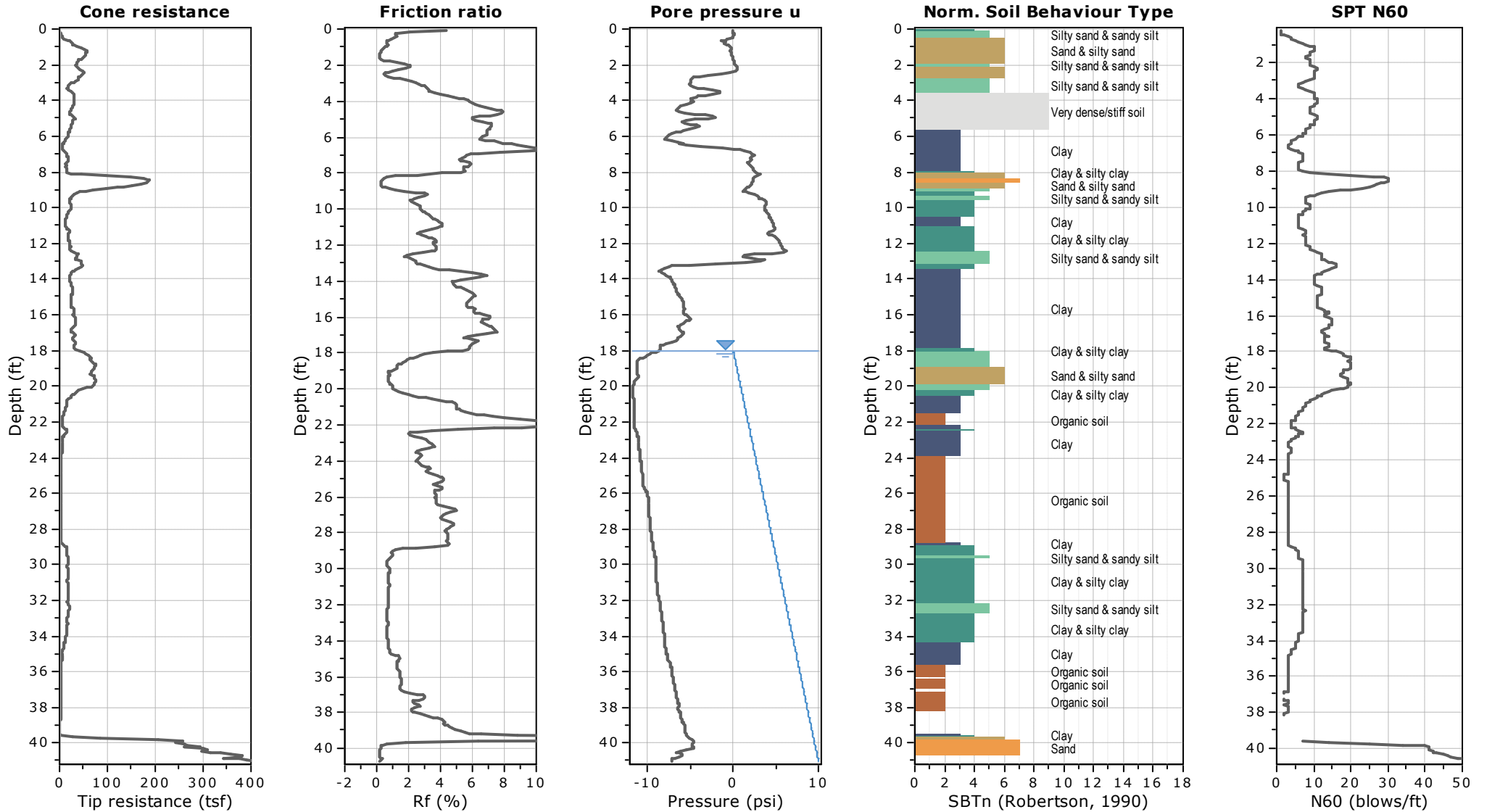


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Lexington, SC

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: FCH2
Station: 48+08.71
Offset: RT 9.51'
Surface Elevation: 107.4 ft.

CPT: C-06
Total depth: 41.02 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



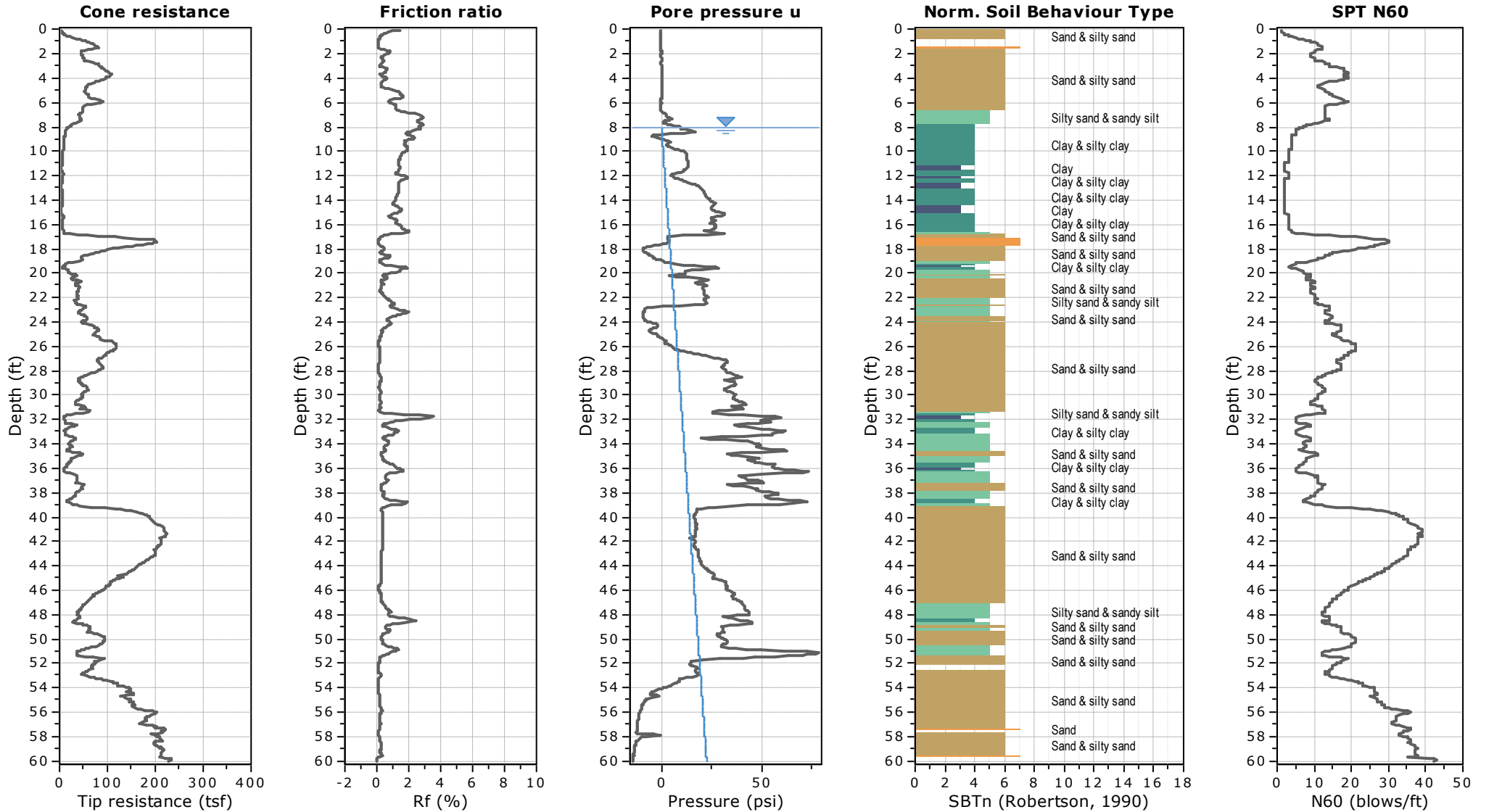


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Lexington, SC

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: GCO2
Station: 55+79+.24
Offset: LT 16.81'
Surface Elevation: 96.2 ft.

CPT: C-07
Total depth: 60.05 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



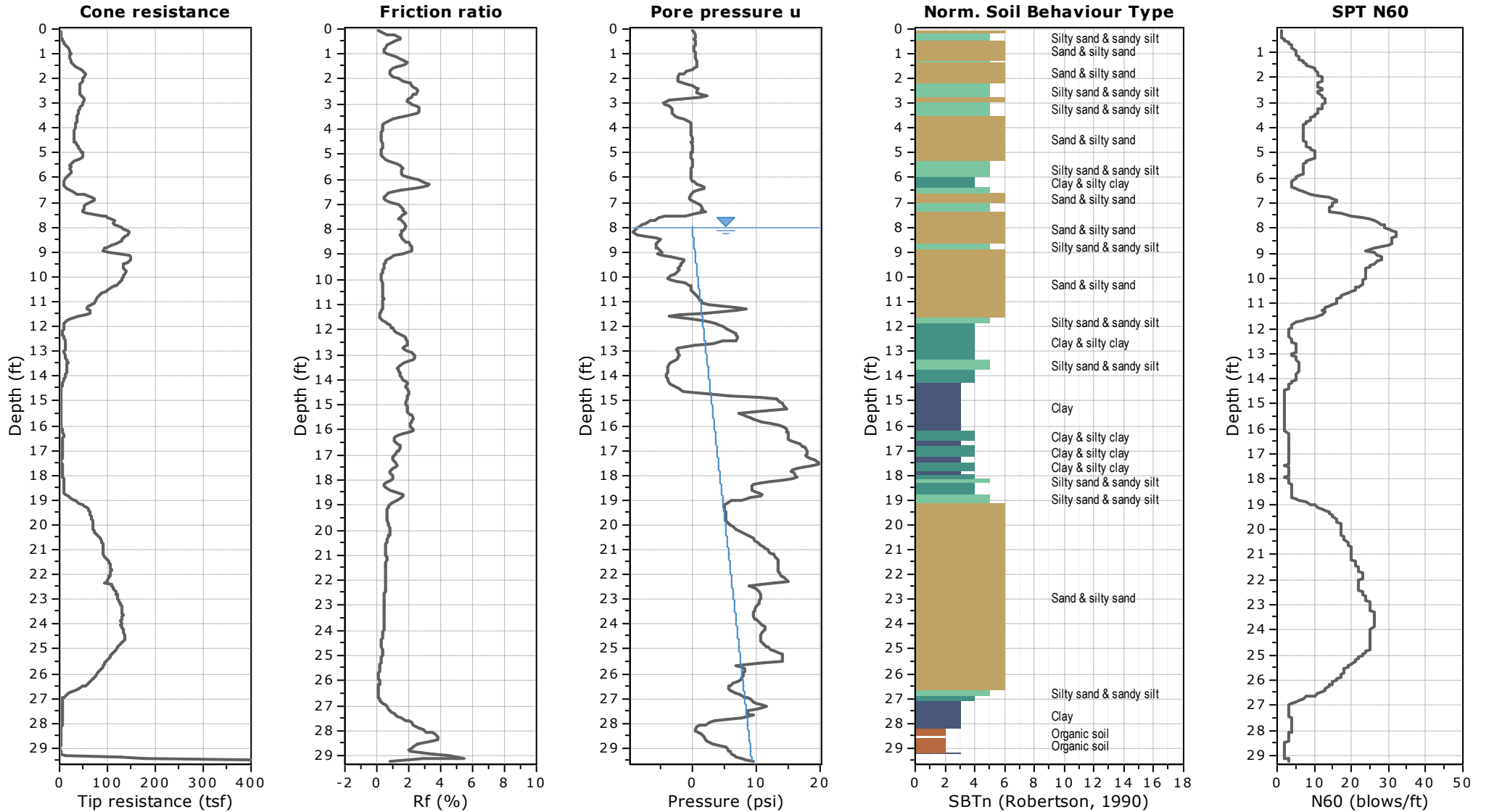


ECS Southeast, LLP
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Lexington, SC

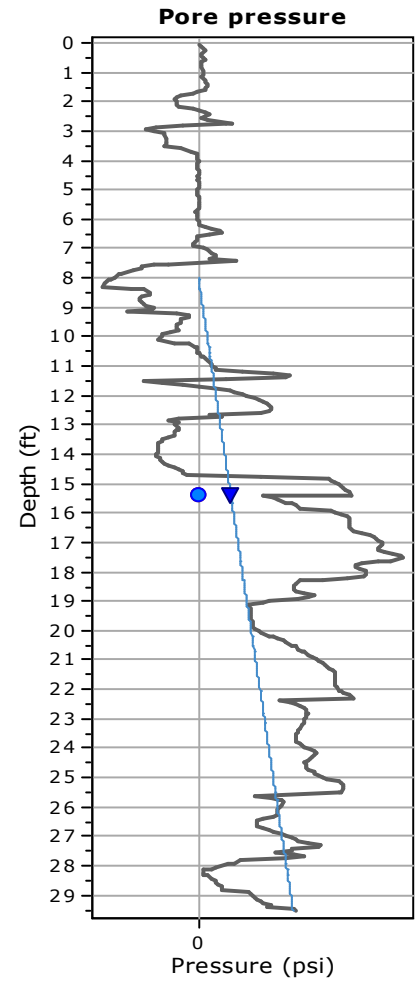
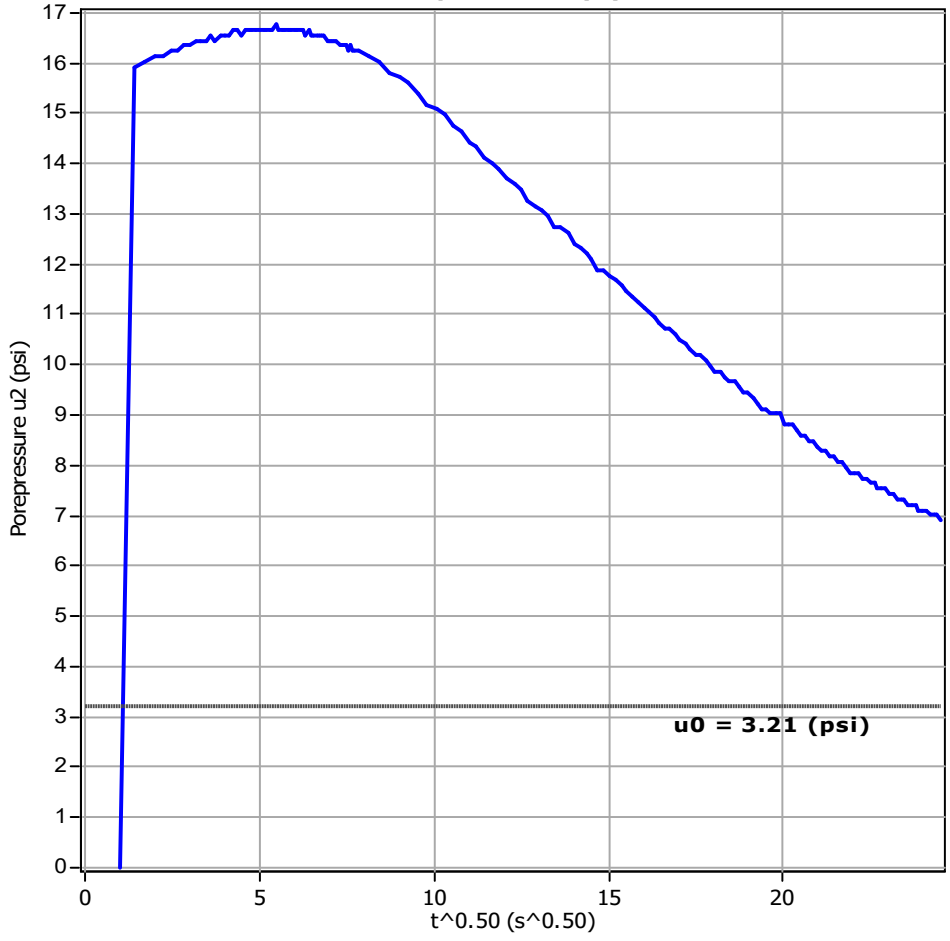
Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: GCO2
Station: 49+35.20
Offset: RT 15.59'
Surface Elevation: 99.7 ft.

CPT: C-08
Total depth: 29.53 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



Piezocone Dissipation Test: C-08 Depth: 15.40 (ft)



- u_2 penetration
- Initial dissipation
- ▼ End of dissipation (extrapolated)
- Initial estimated at $t=0$

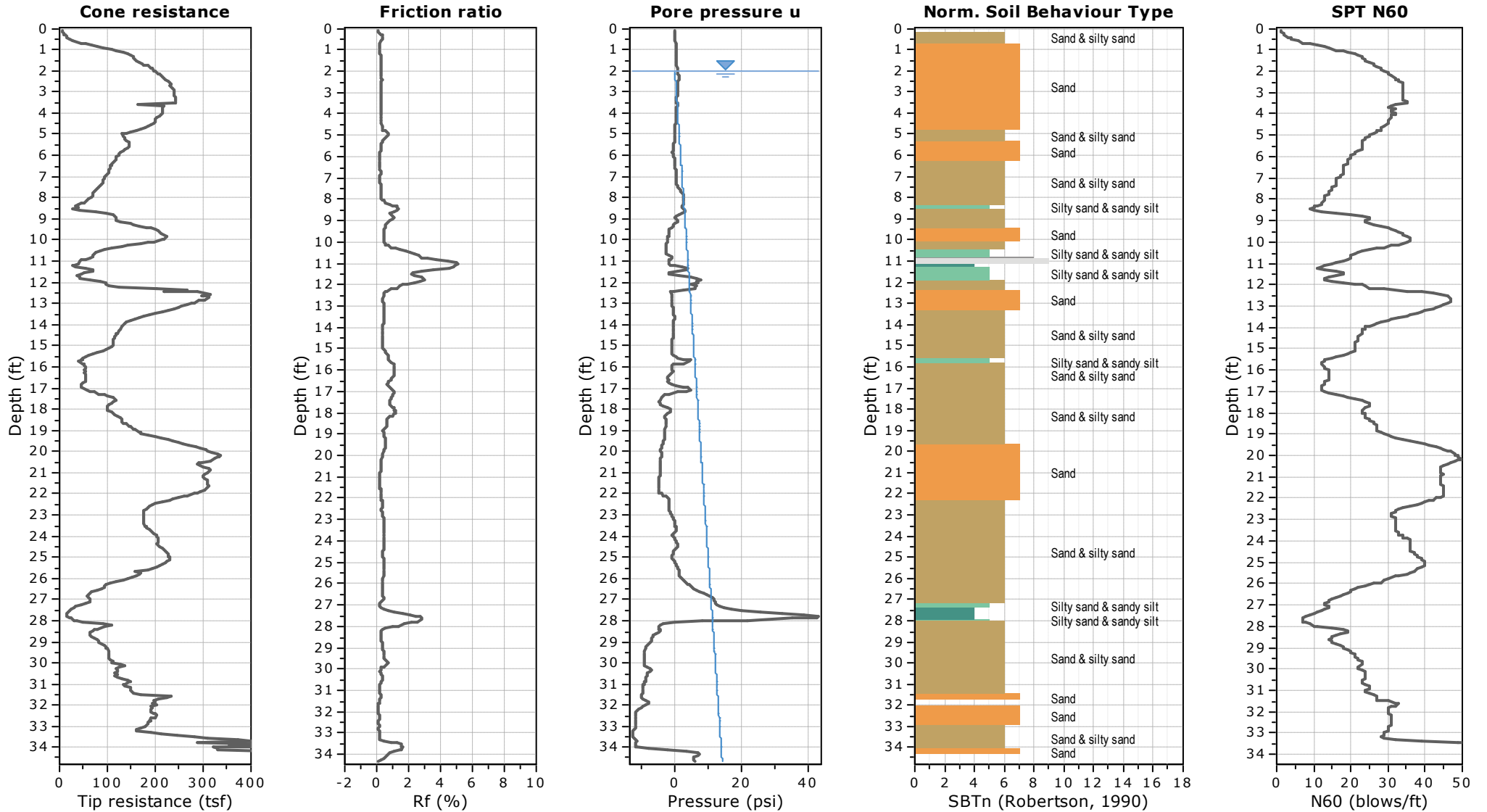


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Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: GCO2
Station: 69+78.77
Offset: RT 5.22'
Surface Elevation: 105.9 ft.

CPT: C-09
Total depth: 34.65 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



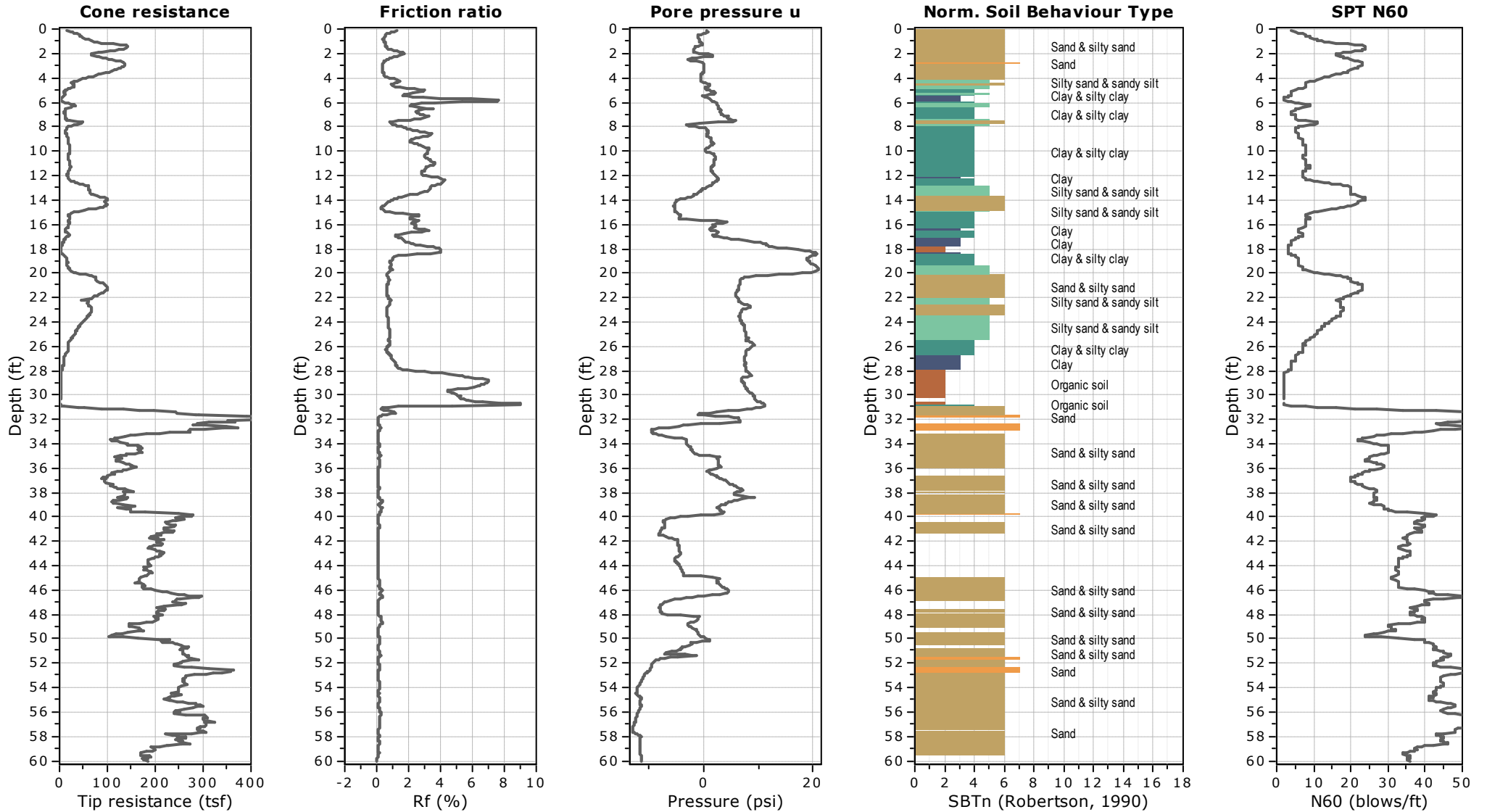


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Lexington, SC

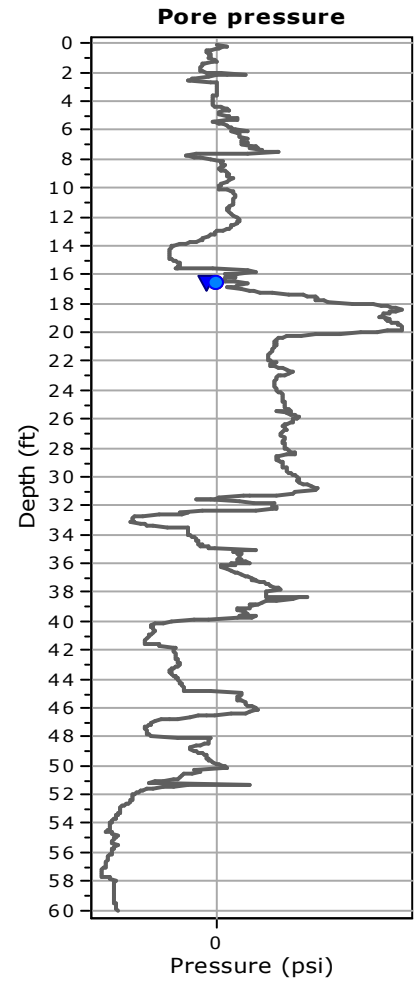
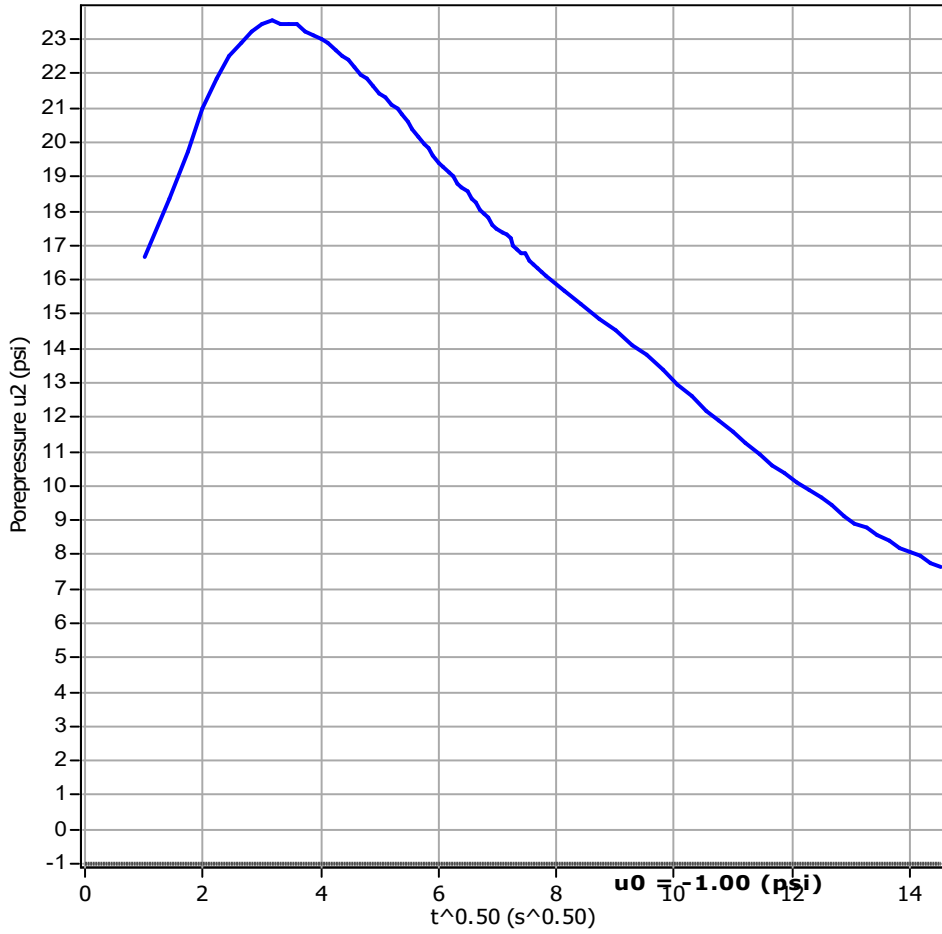
Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: GCO2
Station: 60+19.21
Offset: LT 41.01'
Surface Elevation: 99.9 ft.

CPT: C-10
Total depth: 60.06 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



Piezocone Dissipation Test: C-10 Depth: 16.60 (ft)



- u2 penetration
- Initial dissipation
- ▼ End of dissipation (extrapolated)
- Initial estimated at t=0

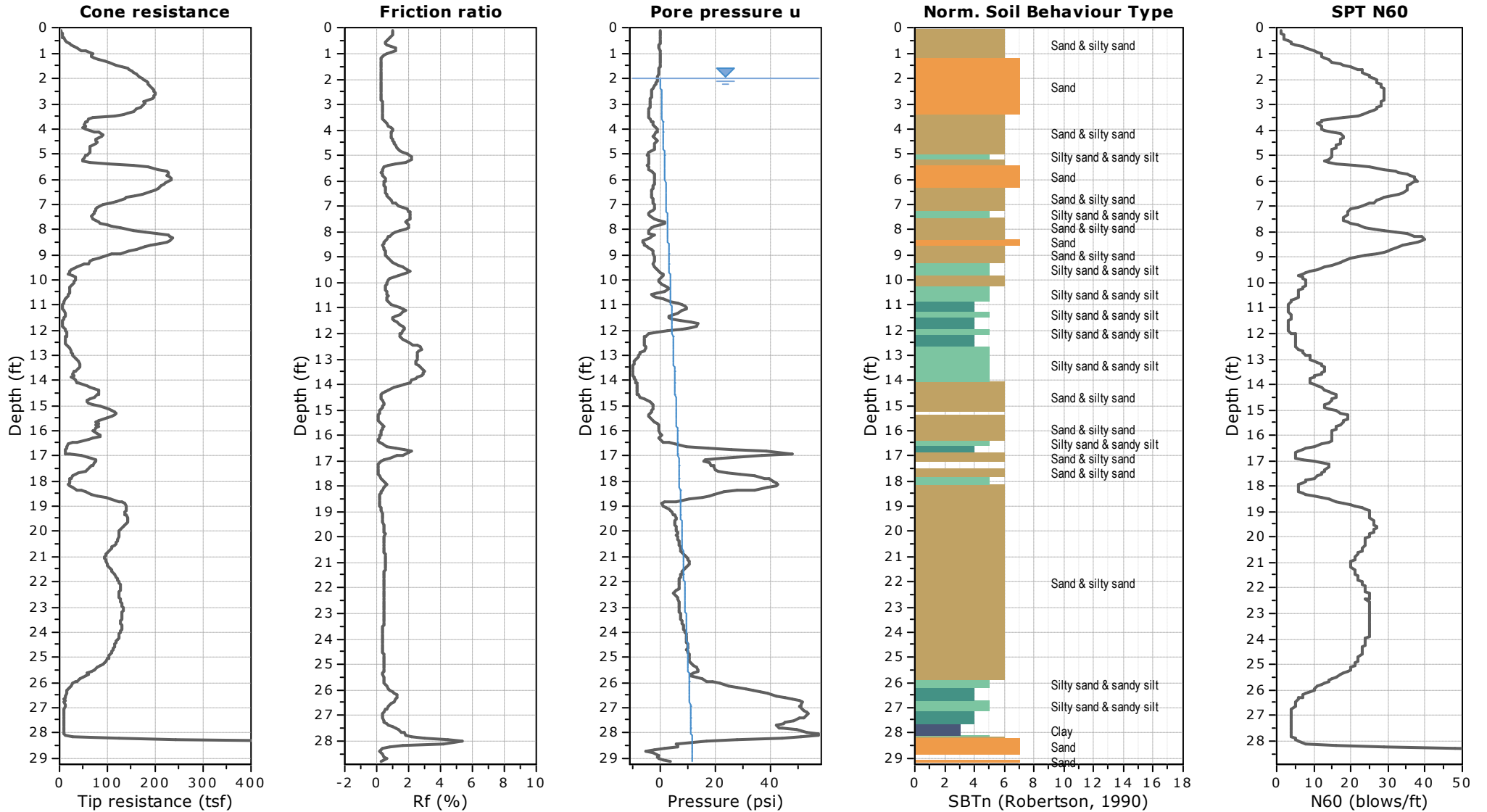


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Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: GCO2
Station: 70+90.75
Offset: LT 33.87'
Surface Elevation: 102.4 ft.

CPT: C-11
Total depth: 29.14 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration



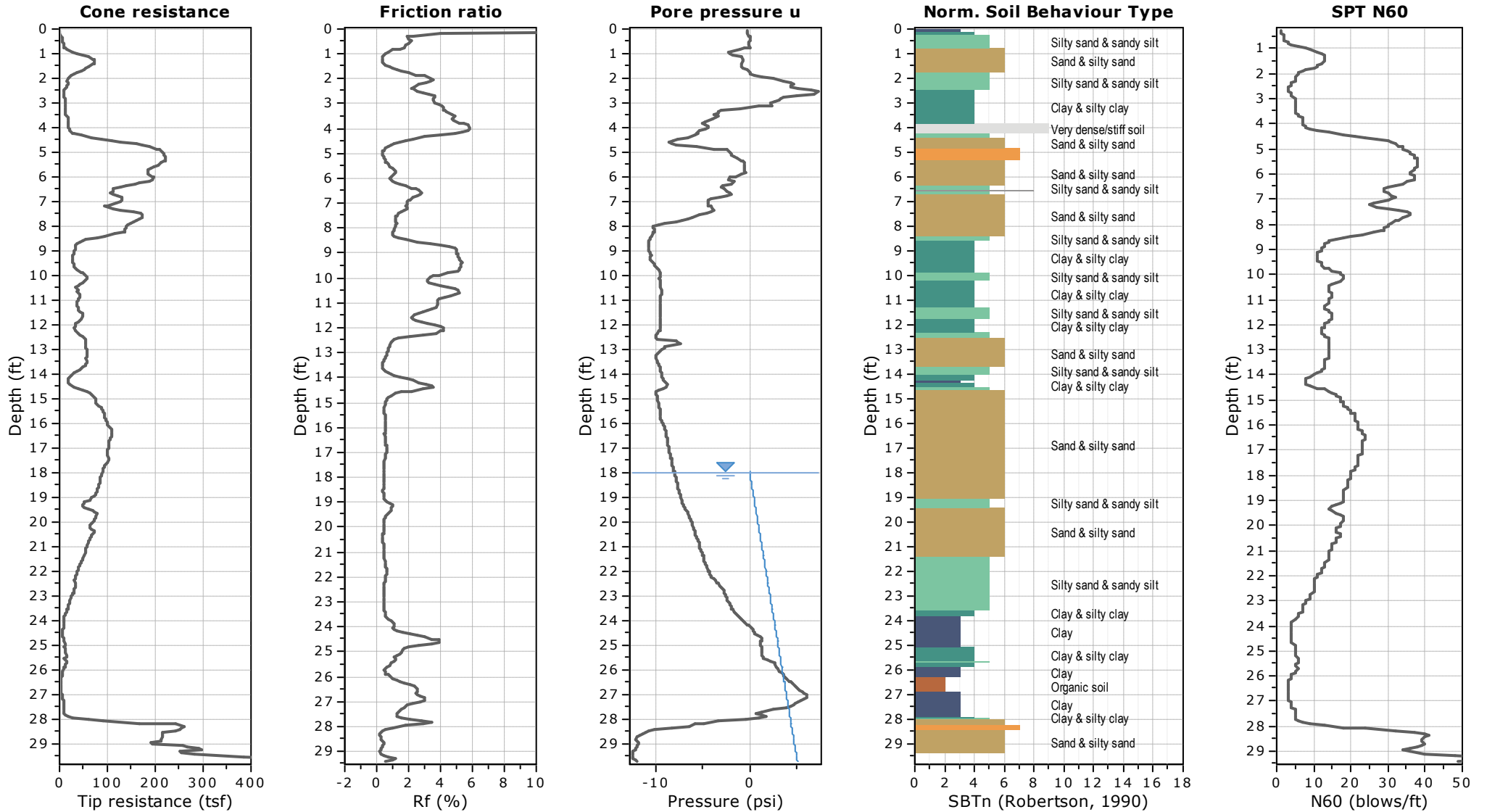


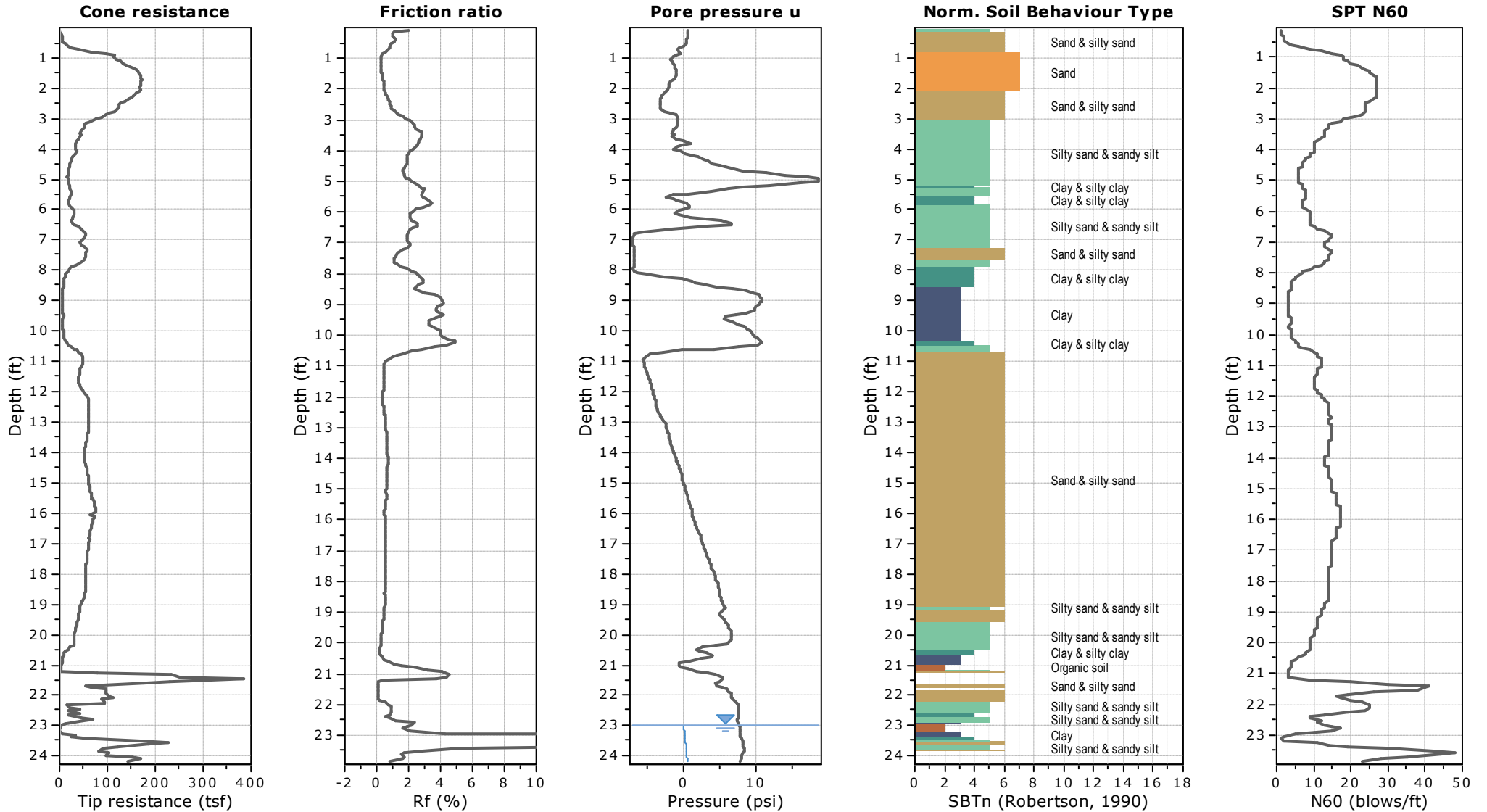
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2031 Industrial Blvd.
Lexington, SC

Project: I-26 and I-95 Interchange Improvements (P038677)
Location: Orangeburg County, SC

Route: CHG2
Station: 21+41.43
Offset: RT 54.90'
Surface Elevation: 99.1 ft.

CPT: C-12
Total depth: 29.73 ft, Date: 2/9/2023
Cone Type: Vertek S4 15 cm2
Cone Operator: Longview Exploration





Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-1 ΔA= 0.1
 Ground Water Depth (ft): 2.75 ΔB= 0.14

Station: 45+79.26
 Offset (ft): RT 7.15
 Latitude: 33.325435
 Longitude: -80.554278
 Elevation (ft): 102.9

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

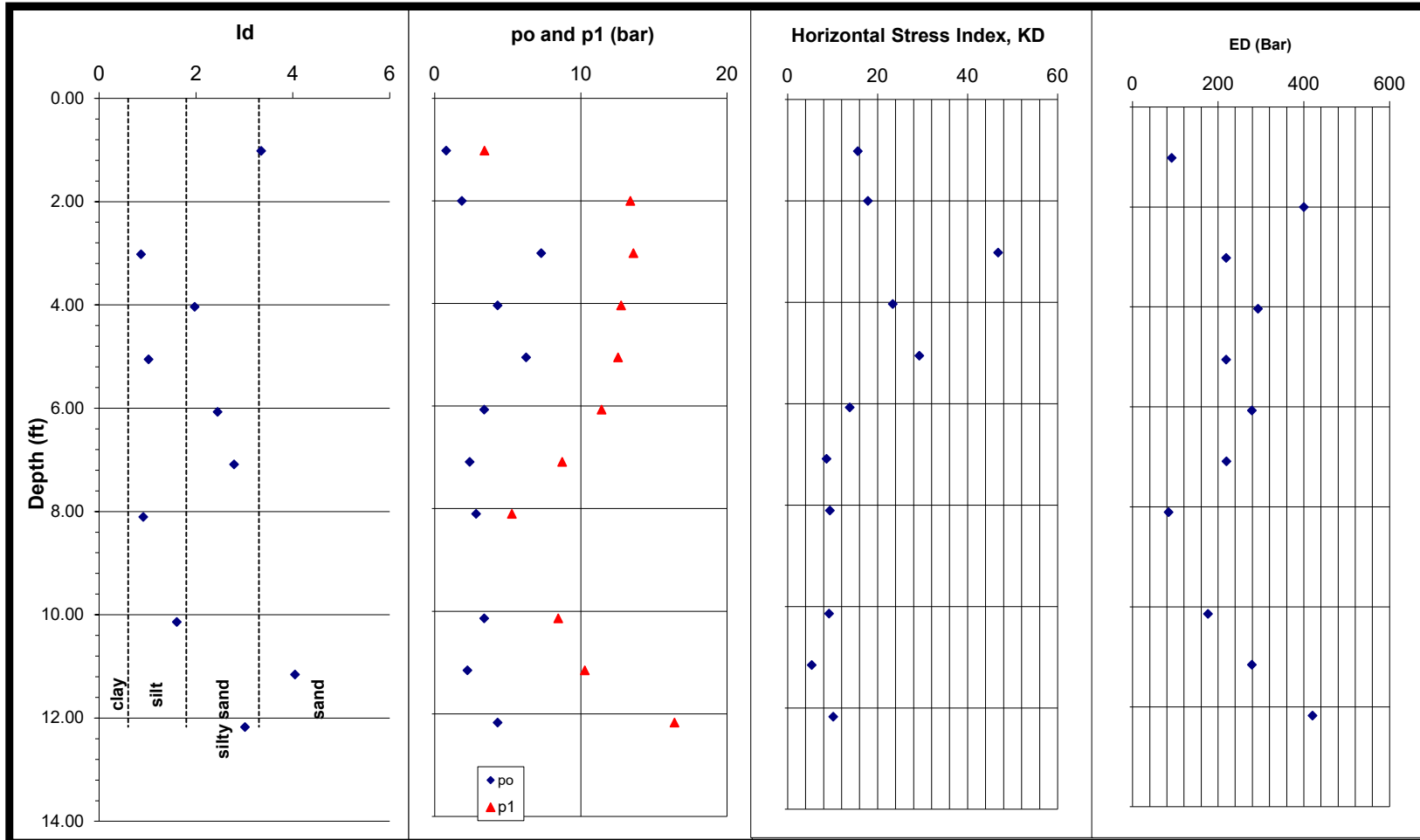


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p1 (bar)	p2 (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^s	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	0.81	3.55		0.8	3.41		0	103	105	105	3.34	15.6	91				42.4	2.92	190			556
2.0	2.32	13.53		1.9	13.39		0	116	219	219	6.15	17.8	400				43.0	3.05	835			2544
3.0	7.49	13.73		7.3	13.59		17	120	342	325	0.87	46.8	219	4.4	23.8	136.8		3.96	457	3680	1521	1809
4.0	4.62	12.9		4.3	12.76		80	119	463	383	1.97	23.4	293				44.0	3.30	612			2021
5.1	6.45	12.69		6.3	12.55		144	120	584	441	1.02	29.3	219	3.4	14.9	65.9		3.52	457	2778	1291	1606
6.1	3.67	11.56		3.4	11.42		207	117	704	496	2.44	13.8	279				41.9	2.81	582			1634
7.1	2.6	8.86		2.4	8.72		271	114	819	549	2.79	8.6	219				39.8	2.37	458			1086
8.1	2.86	5.42		2.8	5.28		334	109	930	596	0.91	9.4	85	1.8	4.8	11.2		2.44	177	908	561	430
9.1	0.19	0.23					398	130	1063	665												
10.1	3.53	8.6		3.4	8.46		461	114	1179	718	1.60	9.2	176					2.42	368			890
11.2	2.52	10.41		2.2	10.27		524	114	1295	771	4.04	5.4	279				37.6	1.96	582			1142
12.2	4.78	16.54		4.3	16.4		588	121	1418	830	3.01	10.1	420				40.6	2.51	877			2202



DILATOMETER TEST RESULTS

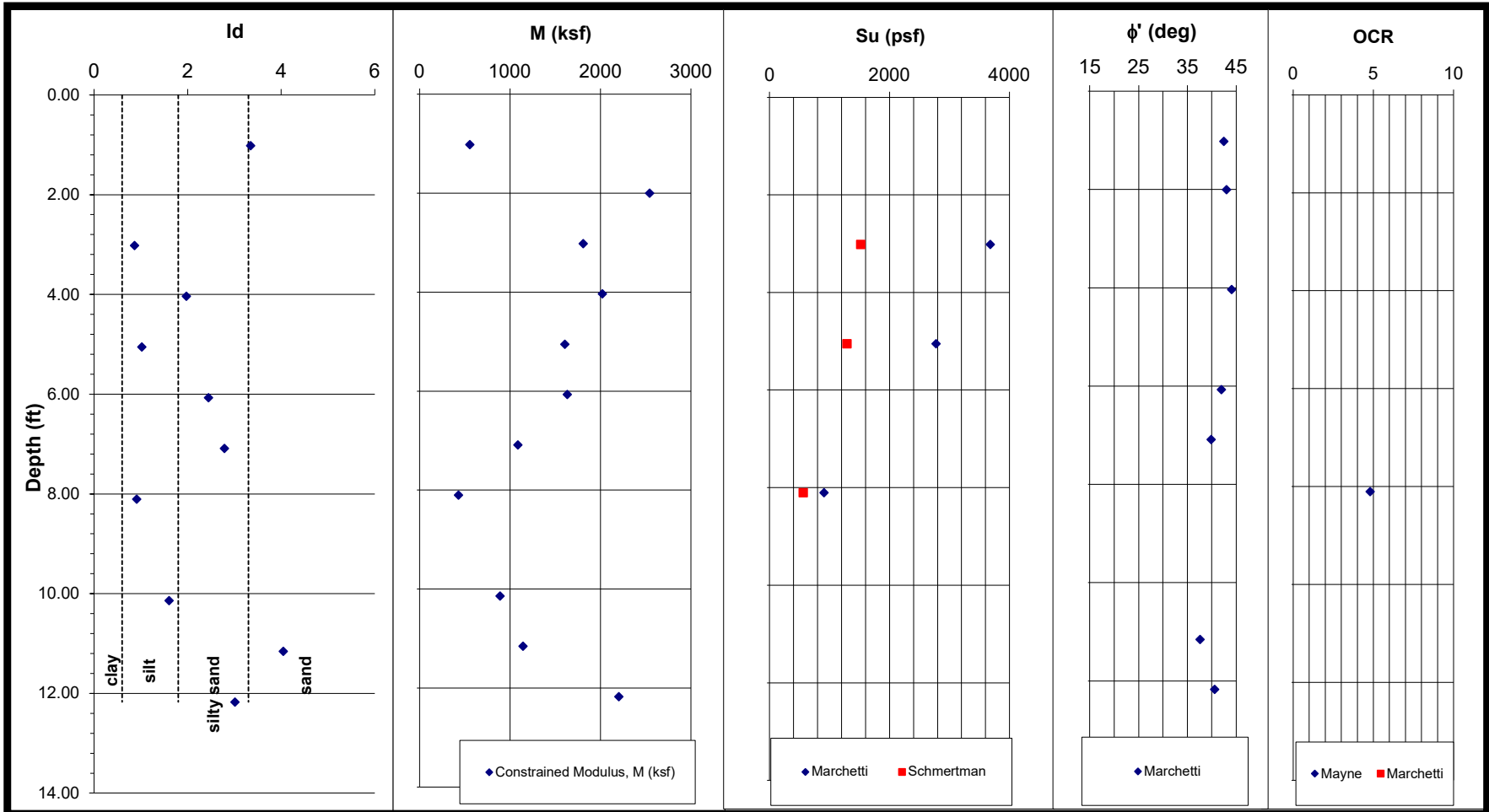
Test ID: DMT-1
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-1
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-2 ΔA= 0.08
 Ground Water Depth (ft): 7 ΔB= 0.17

Station: 3205+90.41
 Offset (ft): RT 0.62
 Latitude: 33.318539
 Longitude: -80.547919
 Elevation: 100.9

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

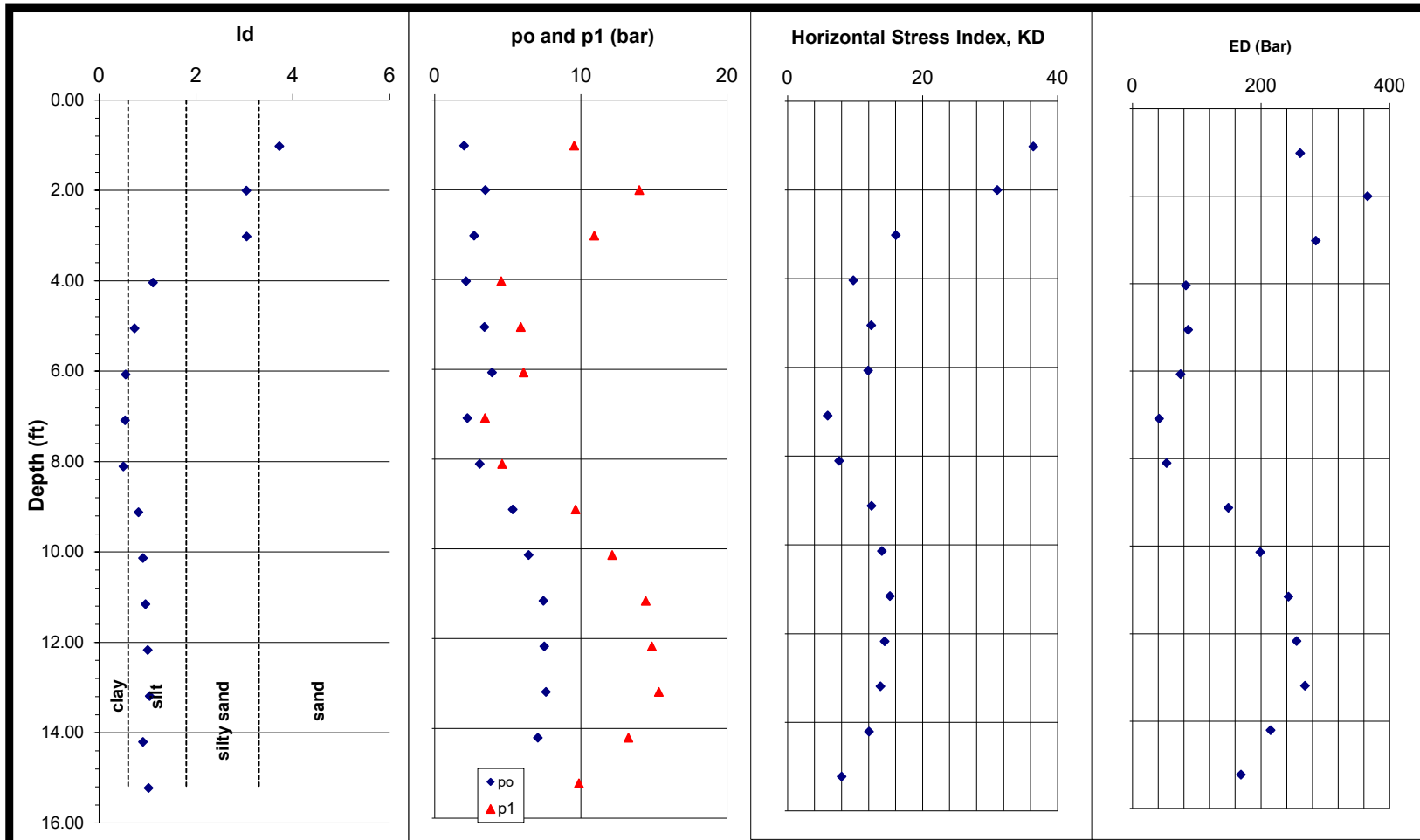


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p ₁ (bar)	p ₂ (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^a	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	2.3	9.71		2.0	9.54		0	114	116	116	3.72	36.4	261				45.7	3.72	545			2029
2.0	3.89	14.17		3.5	14		0	119	233	233	3.04	31.1	365				45.1	3.57	763			2727
3.0	3.01	11.09		2.7	10.92		0	116	351	351	3.05	16.0	285				42.5	2.95	596			1756
4.0	2.19	4.72		2.2	4.55		0	108	461	461	1.11	9.8	83	1.8	5.0	11.9		2.48	173	736	450	430
5.1	3.45	6.07		3.4	5.9		0	111	574	574	0.73	12.4	86	2.1	6.3	17.3		2.70	180	1237	713	488
6.1	3.95	6.25		3.9	6.08		0	111	687	687	0.55	11.9	75	2.1	6.1	16.3		2.67	156	1411	820	416
7.1	2.22	3.61		2.2	3.44		5	105	793	787	0.53	5.9	42	1.3	3.0	5.5		1.97	87	676	468	171
8.1	3.08	4.79		3.1	4.62		69	107	902	833	0.50	7.7	53	1.6	3.9	8.1		2.23	111	981	638	247
9.1	5.47	9.81		5.3	9.64		132	116	1021	888	0.81	12.4	149	2.1	6.3	17.3		2.71	311	1916	1103	842
10.1	6.62	12.32		6.4	12.15		196	119	1142	946	0.90	14.0	199	2.3	7.1	20.8		2.82	415	2366	1323	1169
11.2	7.69	14.6		7.4	14.43		259	121	1265	1006	0.96	15.2	243	2.4	7.7	23.6		2.90	507	2789	1527	1468
12.2	7.77	15.02		7.5	14.85		323	121	1388	1066	1.00	14.4	255	2.3	7.3	21.7		2.84	533	2764	1534	1515
13.2	7.9	15.51		7.6	15.34		386	122	1512	1126	1.04	13.8	268	2.2	7.0	20.3		2.80	560	2764	1551	1570
14.2	7.28	13.43		7.1	13.26		450	120	1634	1185	0.90	12.1	215	2.1	6.1	16.5		2.68	449	2467	1431	1203
15.2	5.16	10.04		5.0	9.87		513	116	1753	1240	1.02	8.0	169	1.6	4.1	8.7		2.28	352	1549	995	803



DILATOMETER TEST RESULTS

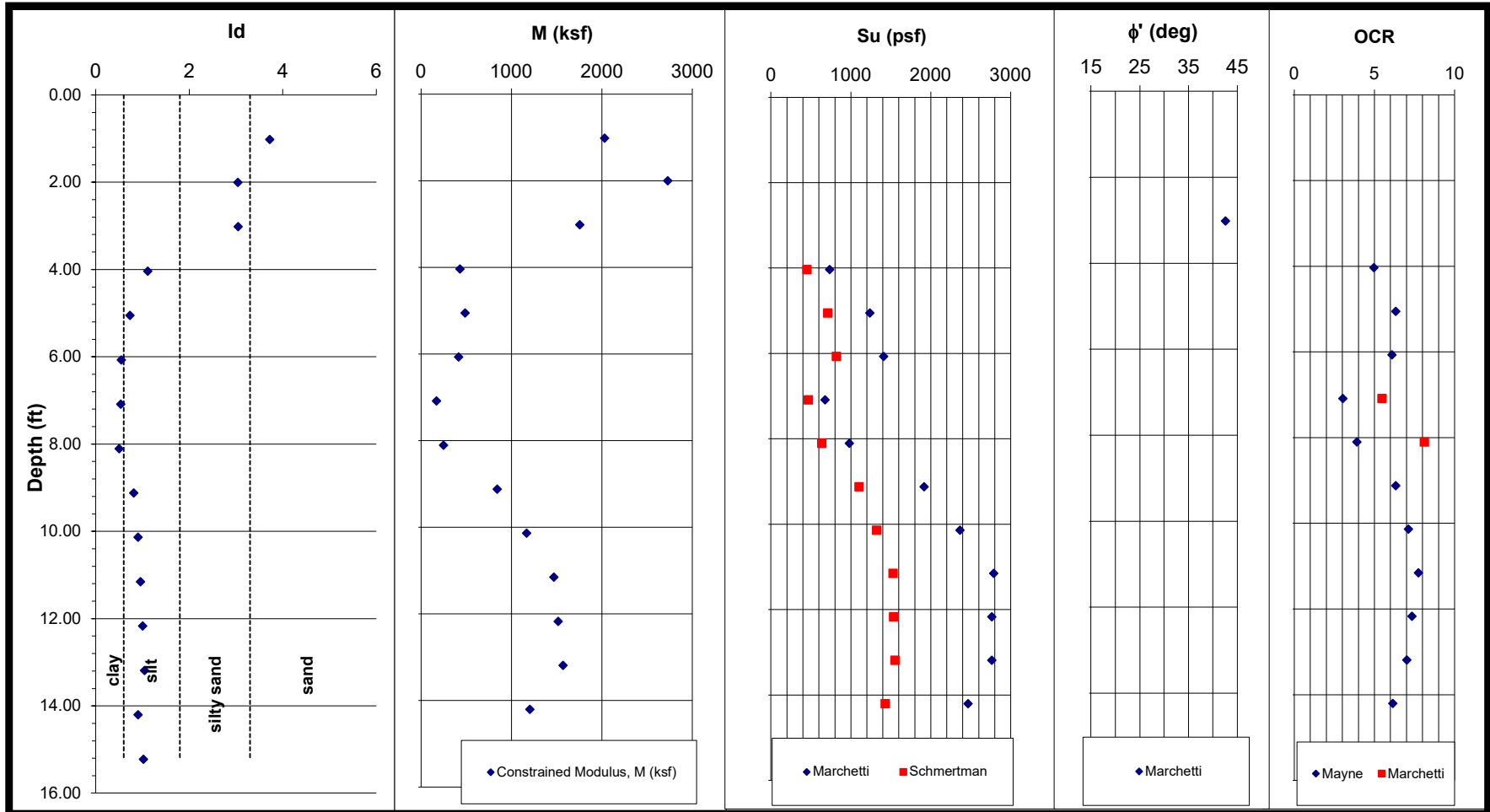
Test ID: DMT-2
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-2
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-3 ΔA= 0.11
 Ground Water Depth (ft): 3.3 ΔB= 0.14

Station: 67+54.34
 Offset (ft): RT 30.52
 Latitude: 33.320712
 Longitude: -80.545947
 Elevation: 110.8

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

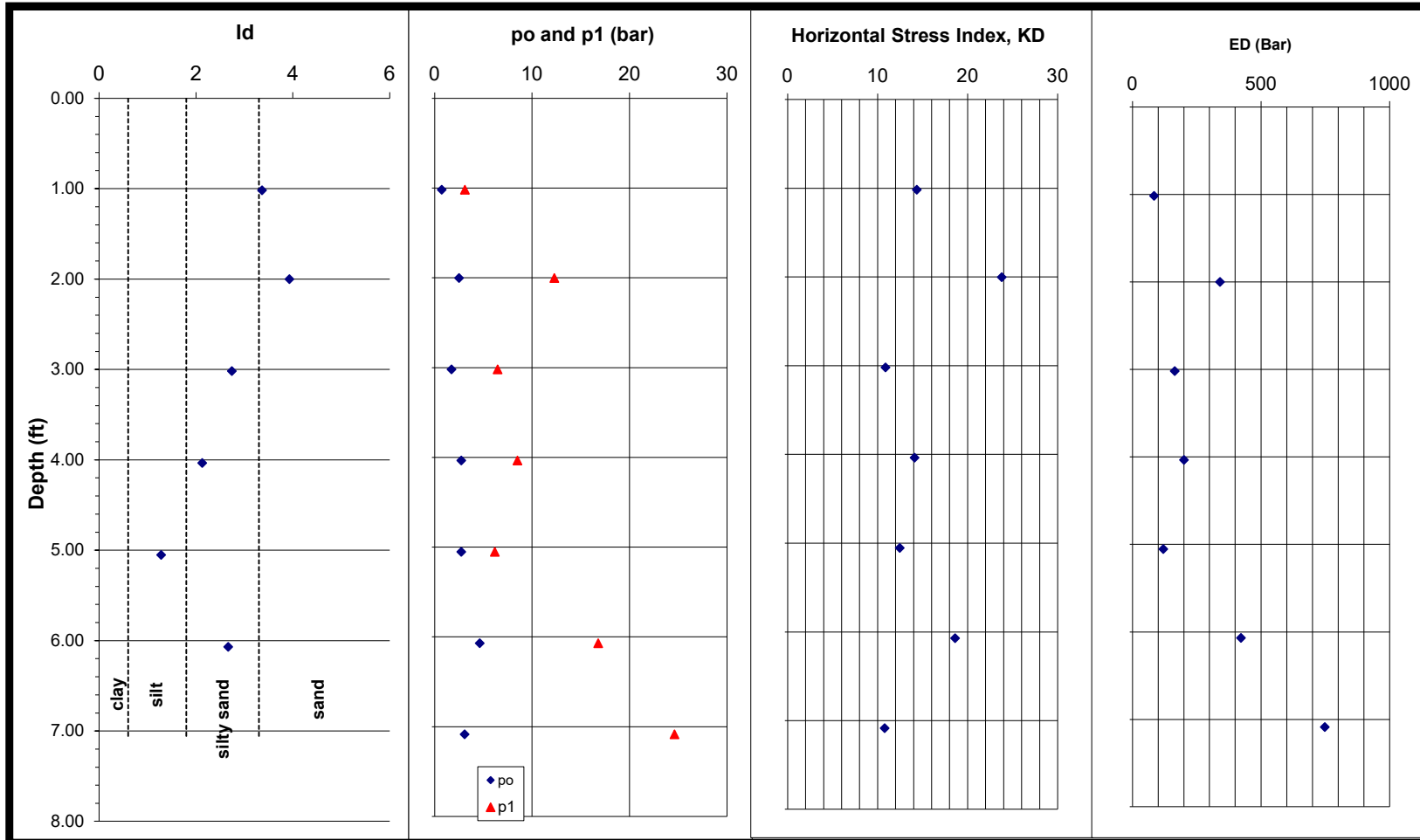


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p ₁ (bar)	p ₂ (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^a	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	0.72	3.26		0.7	3.12		0	102	104	104	3.36	14.4	83				42.1	2.84	174			495
2.0	2.85	12.43		2.5	12.29		0	117	219	219	3.93	23.8	340				44.1	3.32	710			2357
3.0	1.84	6.59		1.7	6.45		0	111	331	331	2.74	10.9	164				40.9	2.58	342			883
4.0	2.9	8.64		2.7	8.5		46	114	447	402	2.12	14.1	200				42.0	2.83	418			1181
5.1	2.8	6.33		2.7	6.19		109	111	561	451	1.28	12.5	120					2.71	250			676
6.1	5.11	16.93		4.6	16.79		173	122	684	511	2.66	18.6	422				43.2	3.09	880			2719
7.1	3.99	24.75		3.1	24.61		236	122	809	573	7.27	10.8	747				40.8	2.57	1561			4016



DILATOMETER TEST RESULTS

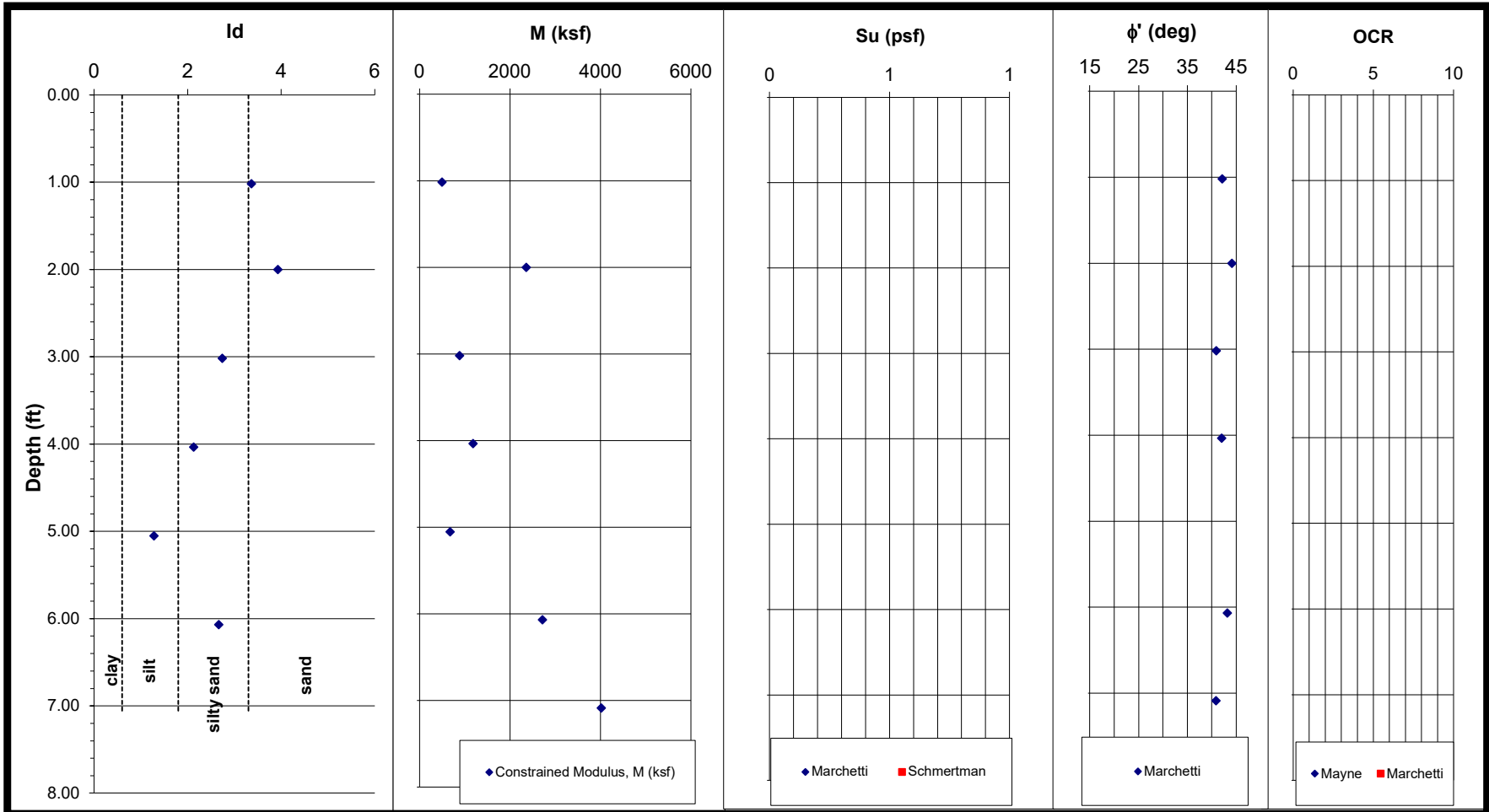
Test ID: DMT-3
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-3
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-4 ΔA= 0.08
 Ground Water Depth (ft): 8.5 ΔB= 0.24

Station: 29+80.13
 Offset (ft): RT 5.50
 Latitude: 33.320979
 Longitude: -80.549757
 Elevation: 100.6

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

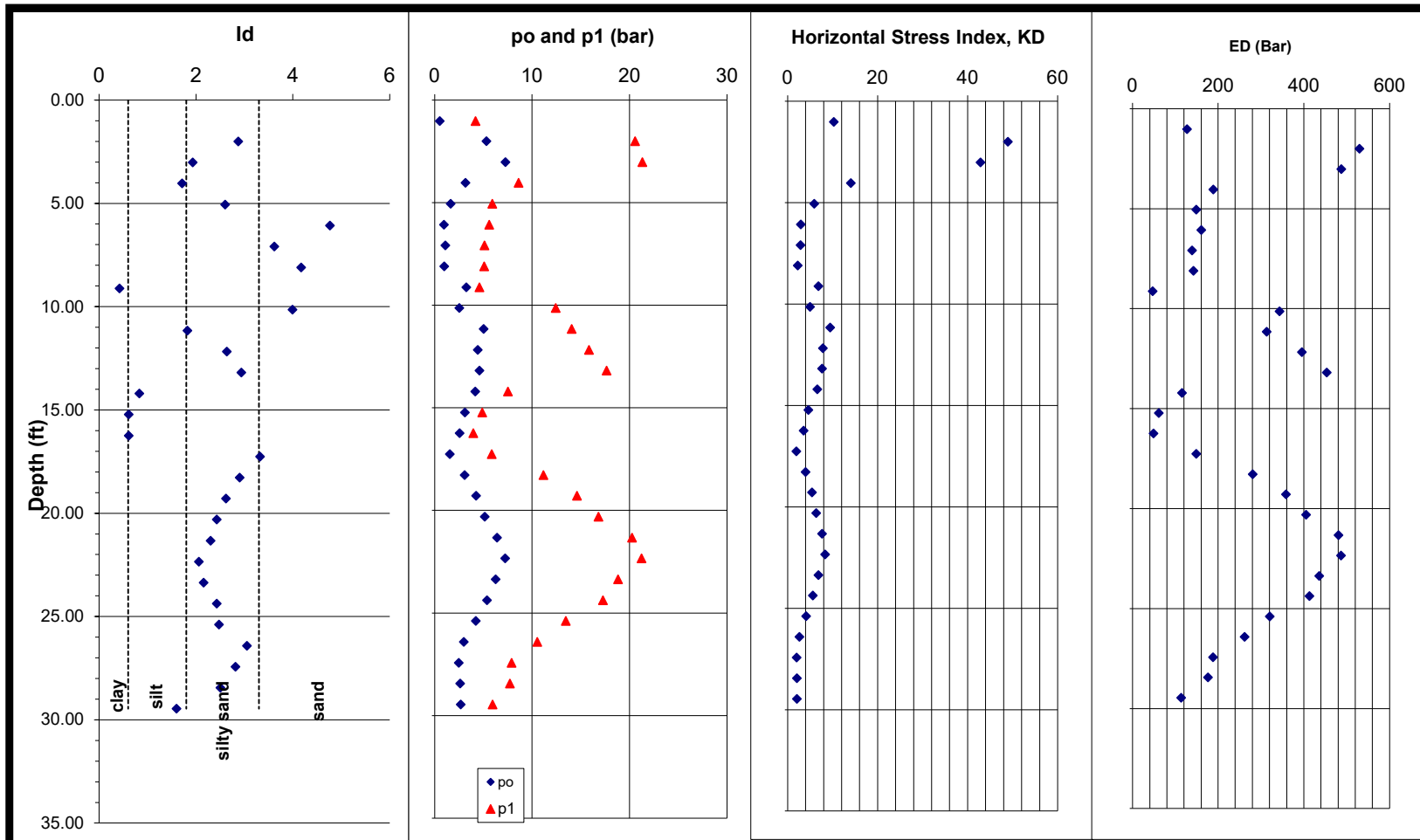


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p ₁ (bar)	p ₂ (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^s	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	0.61	4.43		0.5	4.19		0	103	104	104	7.14	10.3	128				40.6	2.53	266			673
2.0	5.96	20.82		5.3	20.58		0	124	227	227	2.87	49.0	530				46.7	4.00	1106			4431
3.0	7.86	21.55		7.3	21.31		0	125	354	354	1.93	42.9	487				46.2	3.88	1017			3946
4.0	3.35	8.84		3.2	8.6		0	115	471	471	1.71	14.1	188					2.82	393			1111
5.1	1.77	6.17		1.6	5.93		0	110	582	582	2.60	5.9	149				38.0	2.03	310			630
6.1	1.11	5.83		1.0	5.59		0	107	691	691	4.76	2.9	160				34.4	1.43	335			480
7.1	1.22	5.36		1.1	5.12		0	107	801	801	3.62	2.9	139				34.3	1.42	291			414
8.1	1.1	5.33		1.0	5.09		0	107	909	909	4.17	2.3	142				32.9	1.21	298			360
9.1	3.23	4.84		3.2	4.6		39	107	1018	979	0.42	6.9	47	1.4	3.5	6.9		2.12	98	1010	674	208
10.1	2.92	12.66		2.5	12.42		102	117	1137	1035	3.99	5.0	343				37.2	1.90	717			1361
11.2	5.38	14.3		5.0	14.06		166	120	1259	1093	1.82	9.5	313				40.2	2.45	654			1601
12.2	4.9	16.07		4.4	15.83		229	121	1382	1153	2.63	7.8	395				39.4	2.28	826			1885
13.2	5.13	17.88		4.6	17.64		293	122	1506	1214	2.93	7.7	453				39.3	2.27	946			2144
14.2	4.26	7.75		4.2	7.51		356	113	1621	1265	0.83	6.6	115	1.4	3.4	6.5		2.08	241	1243	838	503
15.2	3.11	5.12		3.1	4.88		420	108	1731	1312	0.61	4.6	62	1.1	2.4	3.7		1.71	129	823	607	220
16.2	2.54	4.21		2.6	3.97		483	106	1839	1356	0.61	3.6	49	0.9	1.8	2.5		1.45	103	617	485	149
17.3	1.68	6.09		1.6	5.85		547	108	1949	1402	3.32	1.9	149				32.0	1.07	311			333
18.3	3.38	11.39		3.1	11.15		610	116	2067	1457	2.90	4.0	280				36.0	1.70	585			992
19.3	4.68	14.83		4.3	14.59		673	120	2189	1516	2.62	5.4	358				37.6	1.96	748			1463
20.3	5.63	17.06		5.2	16.82		737	122	2313	1576	2.43	6.4	405				38.4	2.09	845			1767
21.3	6.99	20.5		6.4	20.26		800	124	2439	1639	2.30	7.7	481				39.3	2.26	1004			2267
22.3	7.81	21.48		7.2	21.24		864	125	2566	1702	2.06	8.4	486				39.7	2.33	1016			2370
23.4	6.78	19.05		6.3	18.81		927	123	2692	1764	2.16	6.9	435				38.8	2.16	909			1960
24.4	5.86	17.51		5.4	17.27		991	122	2816	1825	2.43	5.6	413				37.8	1.98	862			1704
25.4	4.59	13.69		4.2	13.45		1054	119	2936	1882	2.47	4.1	320				36.2	1.70	668			1138
26.4	3.28	10.77		3.0	10.53		1118	115	3054	1936	3.05	2.7	261				33.8	1.35	546			737
27.4	2.67	8.15		2.5	7.91		1181	112	3167	1986	2.81	2.0	188				32.3	1.09	393			429
28.4	2.79	7.95		2.6	7.71		1245	112	3281	2037	2.50	2.1	176				32.4	1.09	368			400
29.5	2.75	6.18		2.7	5.94		1308	109	3392	2084	1.59	2.1	113				0.98	237				232



DILATOMETER TEST RESULTS

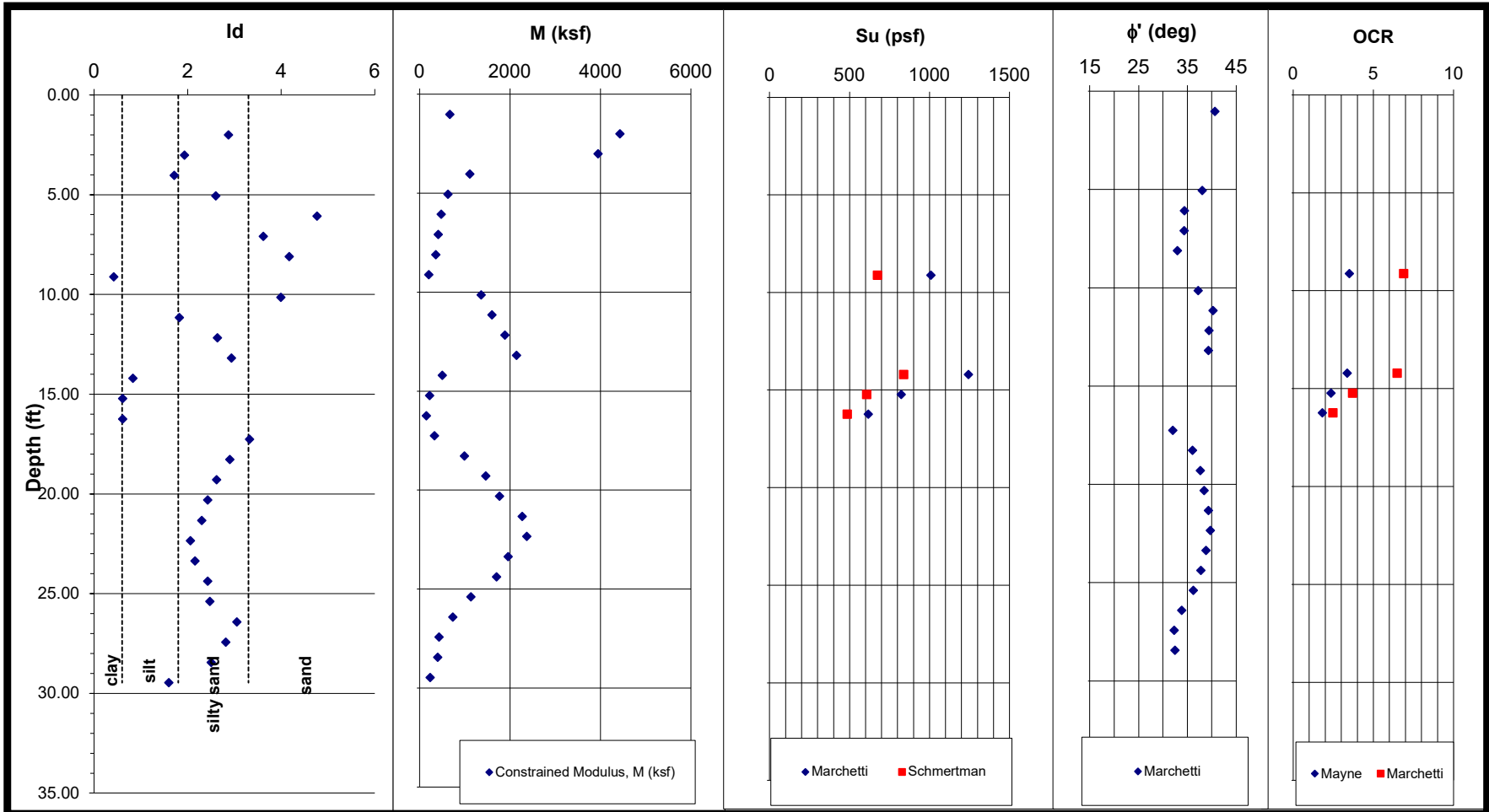
Test ID: DMT-4
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-4
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34-4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-5 ΔA= 0.09
 Ground Water Depth (ft): 8 ΔB= 0.23

Station: 50+28.25
 Offset (ft): RT 24.68
 Latitude: 33.316010
 Longitude: -80.549370
 Elevation: 111.7

- ¹ Depth Below Existing Ground Surface
- ² Mayne, 1995
- ³ Marchetti, 2001
- ⁴ Schmertman, 1981
- ⁵ Mayne, 2002

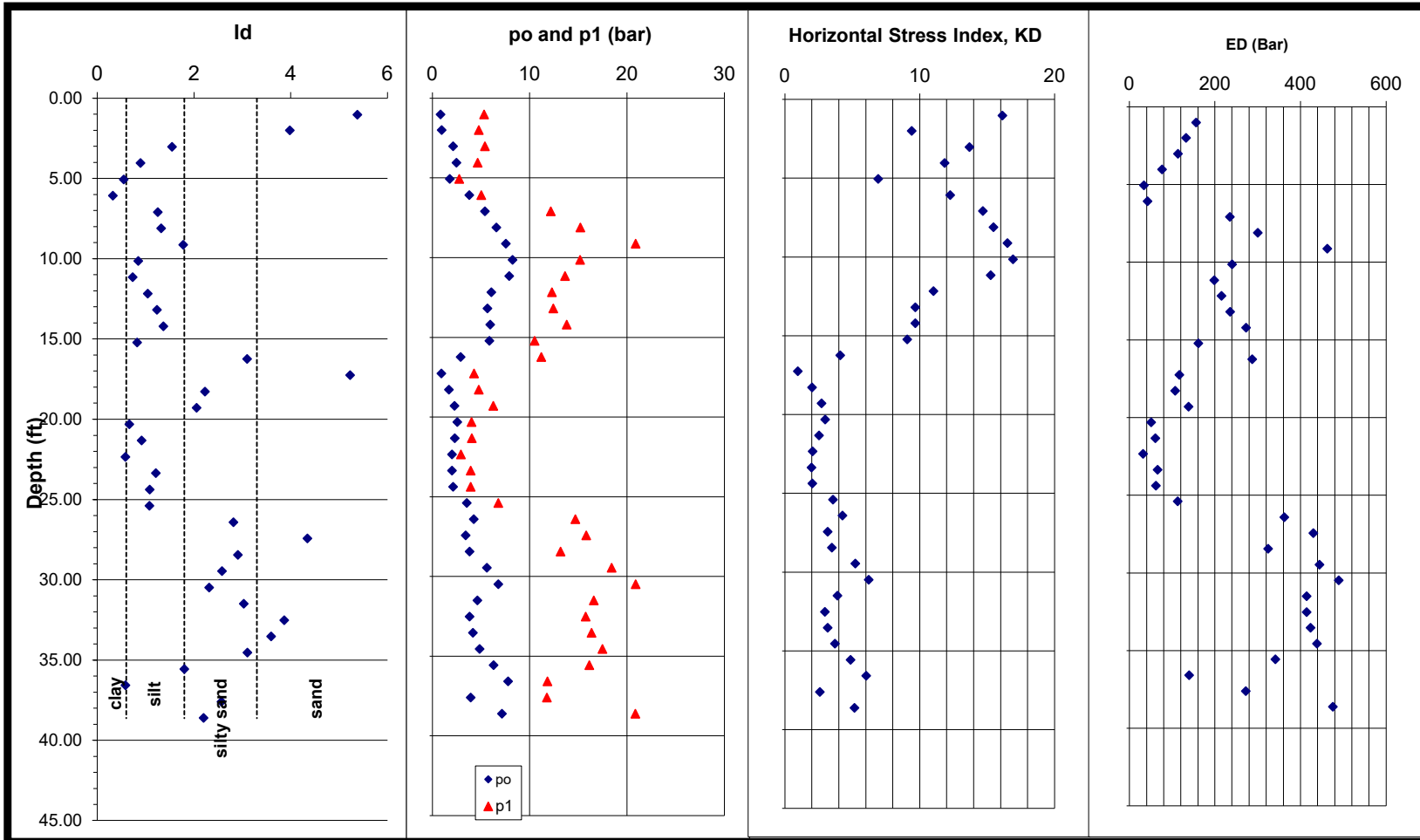


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p ₀ (bar)	p ₁ (bar)	p ₂ (bar)	u ₀ (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K ₀	OCR ^c	OCR ^a	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	0.96	5.56		0.8	5.33		0	106	108	108	5.38	16.1	156				42.6	2.95	326			962
2.0	1.05	5		1.0	4.77		0	106	213	213	3.98	9.4	132				40.2	2.45	276			676
3.0	2.19	5.63		2.1	5.4		0	110	324	324	1.54	13.7	114					2.80	237			664
4.0	2.48	4.9		2.5	4.67		0	108	434	434	0.89	11.9	77	2.0	6.0	16.1		2.66	160	884	515	425
5.1	1.74	2.99		1.8	2.76		0	102	538	538	0.55	6.9	34	1.5	3.5	6.9		2.12	71	559	372	150
6.1	3.77	5.26		3.8	5.03		0	107	648	648	0.32	12.3	43	2.1	6.2	16.9		2.69	89	1374	794	240
7.1	5.64	12.4		5.4	12.17		0	119	769	769	1.25	14.7	235					2.86	490			1404
8.1	6.89	15.45		6.6	15.22		6	122	893	886	1.32	15.5	300					2.91	627			1827
9.1	8.09	21.1		7.5	20.87		70	125	1020	950	1.77	16.5	462					2.97	966			2873
10.1	8.49	15.4		8.3	15.17		133	122	1144	1011	0.85	16.9	240	2.5	8.6	28.0		3.00	501	3208	1710	1503
11.2	8.09	13.85		7.9	13.62		197	120	1266	1070	0.73	15.3	198	2.4	7.8	23.8		2.90	414	2983	1632	1201
12.2	6.28	12.51		6.1	12.28		260	119	1388	1127	1.04	11.0	215	2.0	5.6	14.3		2.59	450	2094	1243	1166
13.2	5.88	12.66		5.6	12.43		324	119	1509	1185	1.24	9.7	235					2.47	492			1213
14.2	6.23	14.04		5.9	13.81		387	120	1631	1244	1.37	9.7	273					2.47	570			1406
15.2	5.99	10.73		5.9	10.5		451	117	1751	1300	0.82	9.1	161	1.7	4.6	10.6		2.40	336	1892	1179	808
16.2	3.22	11.41		2.9	11.18		514	116	1869	1354	3.09	4.1	287				36.2	1.73	599			1036
17.3	0.99	4.51		0.9	4.28		578	103	1974	1396	5.22	1.0	117				27.8	0.85	244			207
18.3	1.75	5.01		1.7	4.78		641	107	2083	1442	2.23	2.0	107				32.2	1.02	224			229
19.3	2.38	6.5		2.3	6.27		705	110	2195	1490	2.05	2.7	138				34.0	1.29	289			373
20.3	2.55	4.26		2.6	4.03		768	105	2302	1534	0.66	3.0	51	0.8	1.5	1.9		1.27	106	560	460	134
21.3	2.3	4.28		2.3	4.05		832	106	2410	1578	0.91	2.5	60	0.7	1.3	1.4		1.12	126	465	399	141
22.3	1.97	3.17		2.0	2.94		895	101	2513	1618	0.58	2.0	32	0.6	1.0	1.0		0.88	67	367	332	59
23.4	2.03	4.16		2.0	3.93		959	105	2620	1661	1.21	2.0	66					0.90	138			124
24.4	2.14	4.17		2.1	3.94		1022	105	2727	1705	1.08	2.0	62	0.6	1.0	1.0		0.92	130	382	346	119
25.4	3.59	7		3.5	6.77		1085	112	2840	1755	1.08	3.6	113	0.9	1.8	2.5		1.48	235	799	628	348
26.4	4.66	14.91		4.3	14.68		1149	119	2962	1813	2.82	4.3	362				36.4	1.75	756			1322
27.4	3.93	16.04		3.4	15.81		1212	119	3082	1870	4.34	3.2	430				34.8	1.51	897			1351
28.4	4.18	13.39		3.8	13.16		1276	118	3202	1927	2.90	3.5	324				35.3	1.58	676			1067
29.5	6.13	18.64		5.6	18.41		1339	122	3327	1988	2.58	5.2	444				37.4	1.92	928			1779
30.5	7.35	21.1		6.8	20.87		1403	124	3454	2051	2.31	6.2	489				38.3	2.06	1022			2110
31.5	5.12	16.8		4.6	16.57		1466	121	3576	2110	3.03	3.9	414				35.9	1.68	864			1454
32.5	4.3	15.98		3.8	15.75		1530	119	3697	2168	3.86	3.0	414				34.4	1.45	864			1251
33.5	4.65	16.59		4.2	16.36		1593	120	3819	2226	3.59	3.2	423				34.8	1.51	884			1332
34.5	5.37	17.71		4.9	17.48		1657	121	3943	2286	3.10	3.7	438				35.6	1.64	915			1500
35.6	6.67	16.36		6.3	16.13		1720	121	4066	2346	1.80	4.9	341					1.82	713			1297
36.6	7.89	12.04		7.8	11.81		1784	118	4186	2402	0.58	6.0	140	1.3	3.1	5.6		1.98	291	2099	1448	577
37.6	4.22	12		3.9	11.77		1847	117	4304	2457	2.57	2.6	272				33.7	1.29	568			732
38.6	7.71	21.07		7.1	20.84		1911	124	4431	2520	2.20	5.2	475				37.3	1.89	992			1877



DILATOMETER TEST RESULTS

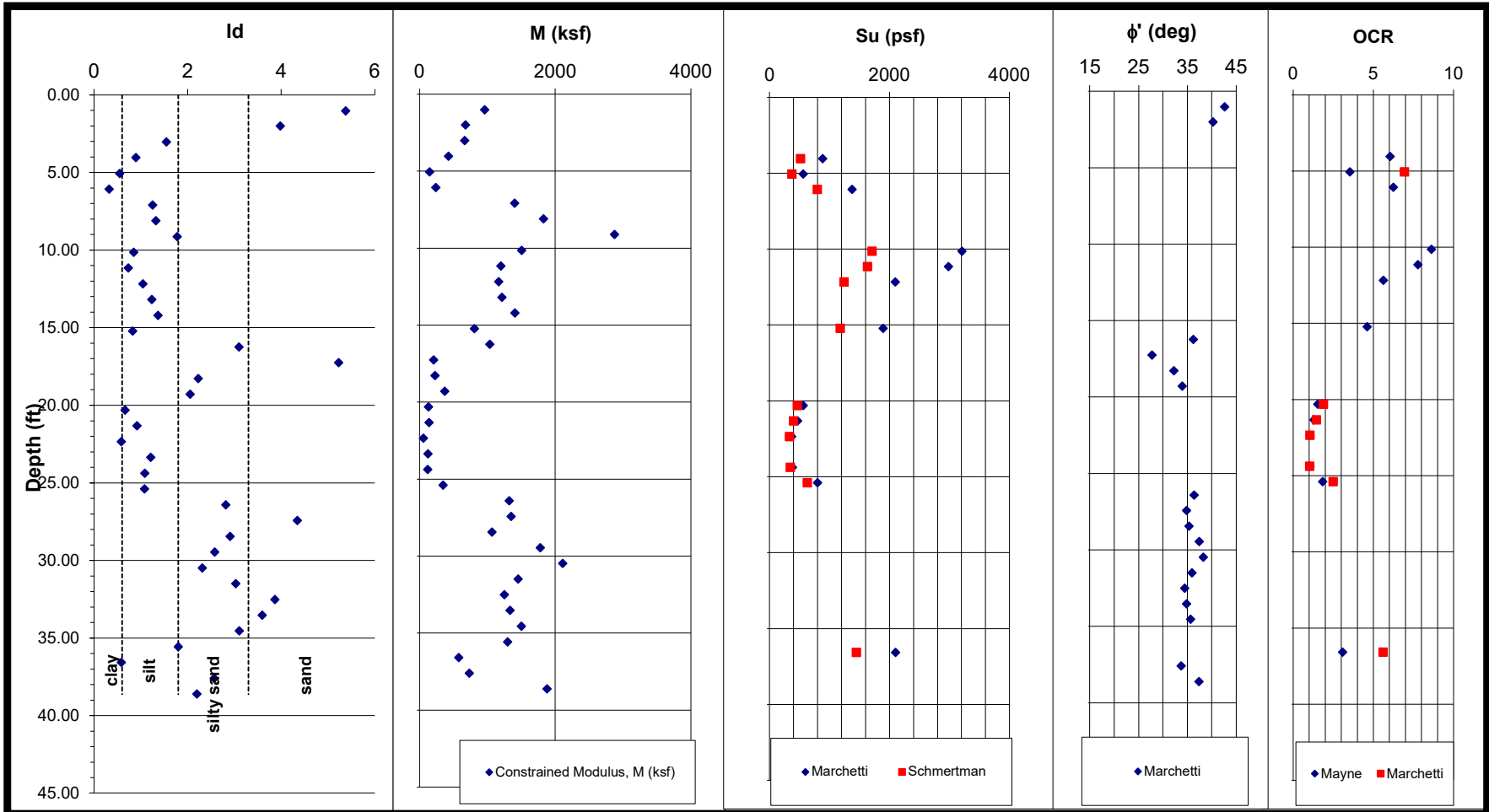
Test ID: DMT-5
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-5
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-6 ΔA= 0.28
 Ground Water Depth (ft): 9 ΔB= 0.08

Station: 56+34.47
 Offset (ft): LT 10.72
 Latitude: 33.315340
 Longitude: -80.547541
 Elevation: 96.4

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

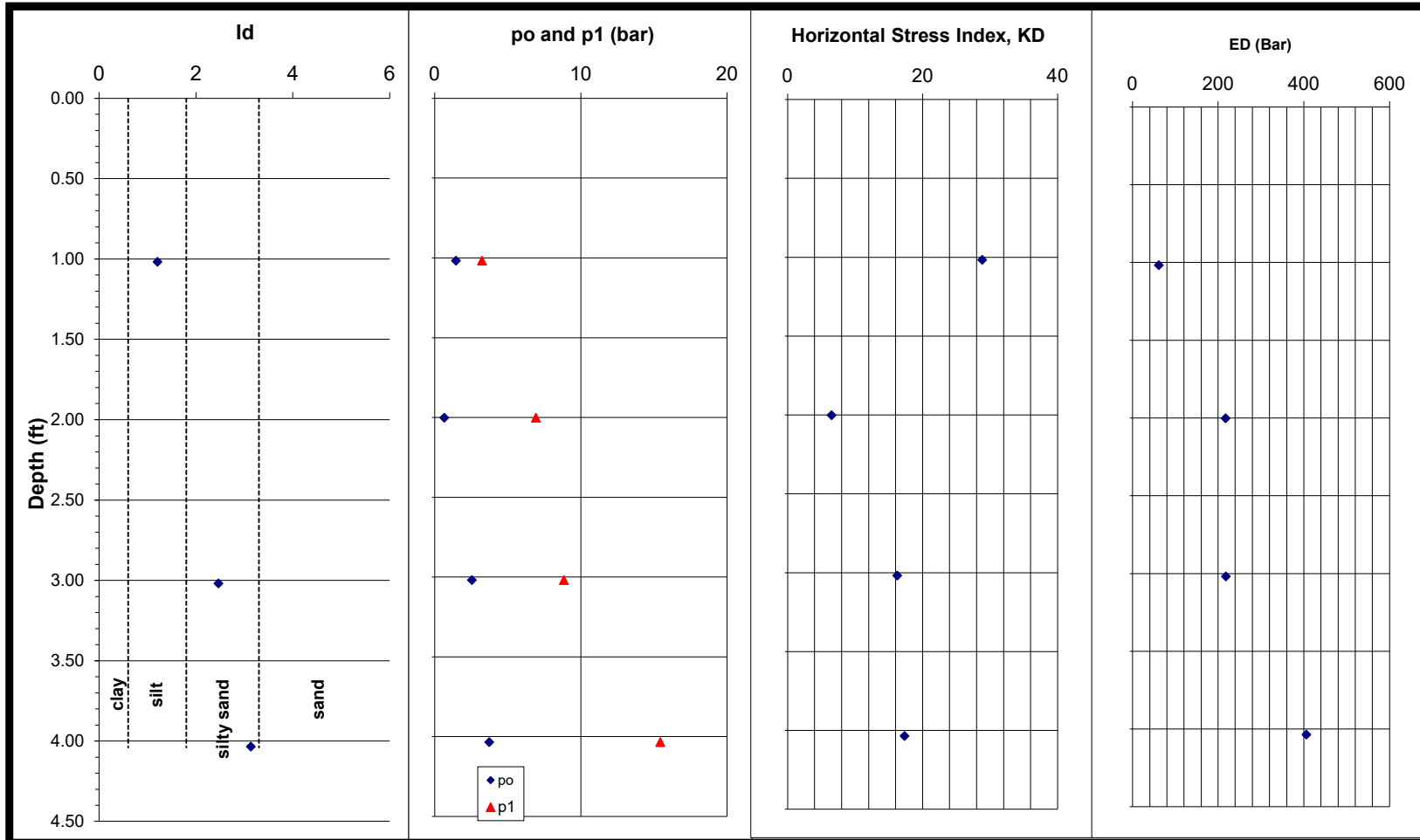


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p ₁ (bar)	p ₂ (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^s	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	1.27	3.31		1.5	3.23		0	104	106	106	1.20	28.8	61					3.50	128			448
2.0	0.68	7.01		0.7	6.93		0	107	211	211	9.48	6.5	218				38.5	2.13	454			968
3.0	2.57	8.91		2.6	8.83		0	114	328	328	2.46	16.3	218				42.6	2.96	455			1347
4.0	4.01	15.51		3.7	15.43		0	120	450	450	3.13	17.3	406				42.9	3.02	848			2561



DILATOMETER TEST RESULTS

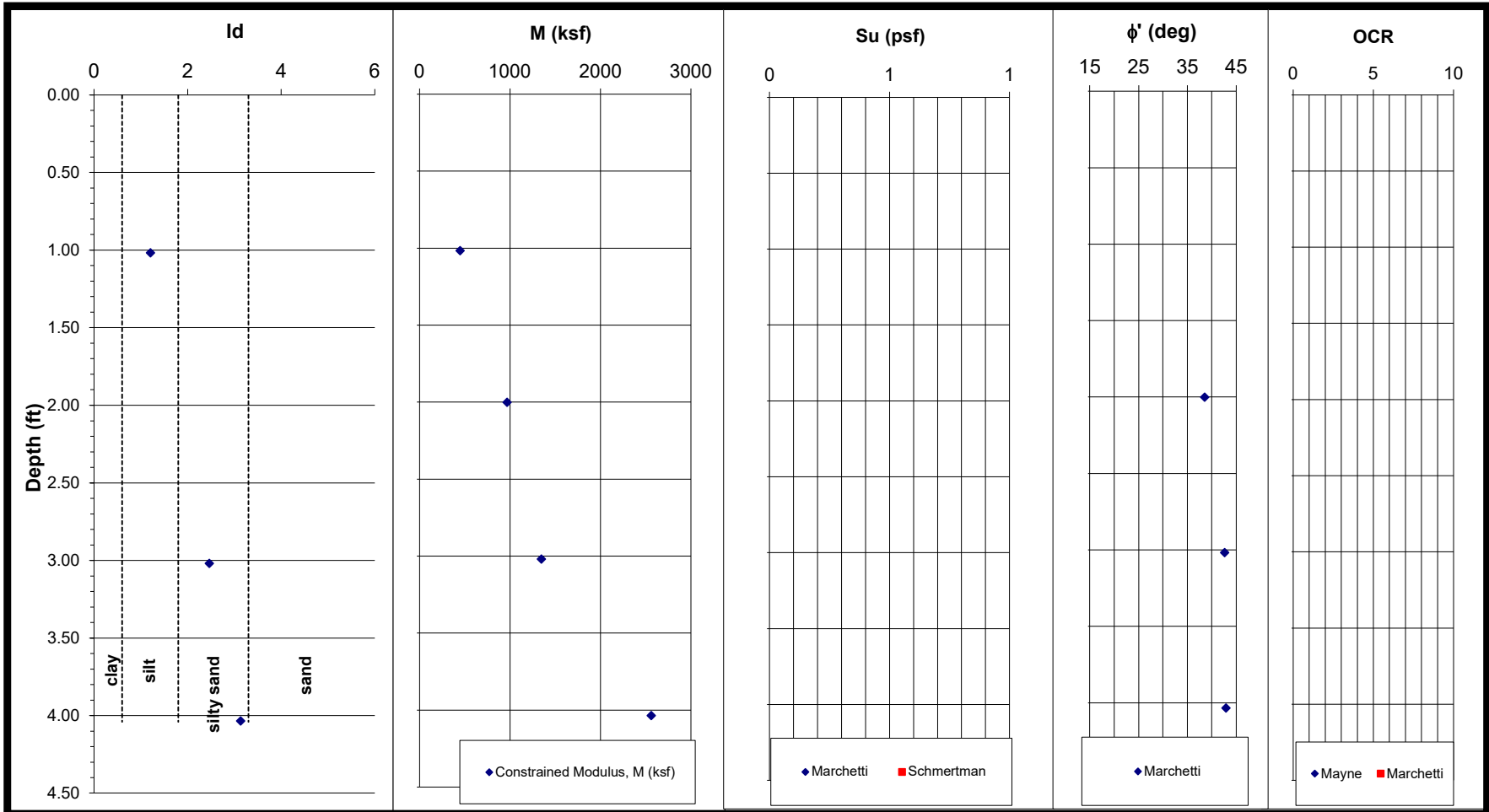
Test ID: DMT-6
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





DILATOMETER TEST RESULTS

Test ID: DMT-6
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



Job No: SCDOT ID P038677 (ECS 34:4266)
 Job Name: I-26 at I-95 Interchange Improvements
 Job Location: Orangeburg County, South Carolina
 Date: 1/12/23

Sounding No: DMT-7 ΔA= 0.07
 Ground Water Depth (ft): 8 ΔB= 0.2

Station: 51+79.75
 Offset (ft): LT 28.29
 Latitude: 33.316715
 Longitude: -80.545679
 Elevation: 99.3

¹ Depth Below Existing Ground Surface
² Mayne, 1995
³ Marchetti, 2001
⁴ Schmertman, 1981
⁵ Mayne, 2002

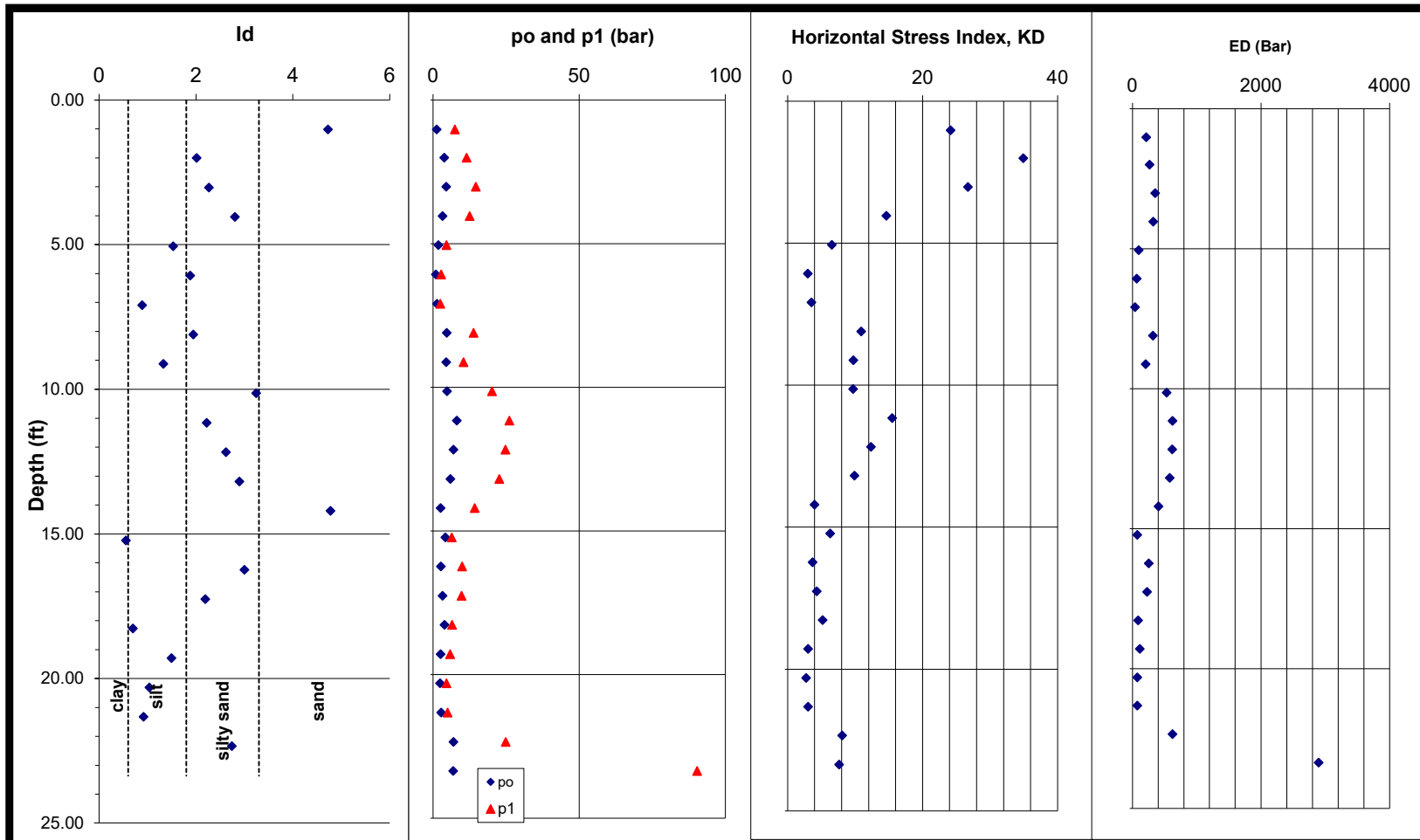


Depth ¹ (ft)	A (bar)	B (bar)	C (bar)	p _o (bar)	p ₁ (bar)	p ₂ (bar)	u _o (psf)	γ _T ⁵ (pcf)	σ _{vo} (psf)	σ _{vo} ' (psf)	l _d	K _D	E _D (bar)	K _o	OCR ^c	OCR ^s	φ ³ (deg)	R _M	E _D (ksf)	s _u ³ (psf)	s _u ⁴ (psf)	M (ksf)
1.0	1.52	7.63		1.3	7.43		0	110	112	112	4.72	24.1	213				44.2	3.33	444			1482
2.0	4.11	11.68		3.8	11.48		0	118	228	228	2.01	34.9	266				45.5	3.68	556			2046
3.0	4.9	14.86		4.5	14.66		0	120	351	351	2.27	26.7	353				44.6	3.43	737			2529
4.0	3.67	12.75		3.3	12.55		0	118	471	471	2.80	14.6	321				42.2	2.86	670			1918
5.1	1.89	4.82		1.8	4.62		0	108	581	581	1.53	6.6	97				2.10	2.10	202			424
6.1	1	3.03		1.0	2.83		0	103	685	685	1.88	3.0	64				34.5	1.36	134			183
7.1	1.32	2.72		1.3	2.52		0	102	788	788	0.89	3.5	41	0.9	1.8	2.4		1.45	86	353	279	125
8.1	5.09	14.1		4.7	13.9		6	120	911	904	1.94	10.9	318				40.9	2.58	665			1717
9.1	4.73	10.67		4.5	10.47		70	117	1030	960	1.33	9.8	207					2.48	431			1068
10.1	5.47	20.37		4.8	20.17		133	123	1155	1022	3.24	9.7	533				40.4	2.47	1113			2753
11.2	8.95	26.29		8.2	26.09		197	128	1285	1088	2.22	15.5	622				42.4	2.91	1299			3786
12.2	7.73	25.01		6.9	24.81		260	127	1414	1154	2.62	12.4	620				41.4	2.70	1294			3495
13.2	6.66	22.85		5.9	22.65		324	125	1541	1217	2.89	9.9	580				40.5	2.49	1211			3020
14.2	3.1	14.43		2.6	14.23		387	118	1661	1273	4.78	4.0	403				36.0	1.70	842			1432
15.2	4.25	6.62		4.2	6.42		451	111	1774	1323	0.55	6.3	77	1.4	3.2	6.0		2.03	160	1225	835	324
16.2	2.96	10.19		2.7	9.99		514	115	1890	1376	3.00	3.7	254				35.6	1.64	530			866
17.3	3.48	9.93		3.2	9.73		578	115	2008	1430	2.19	4.3	225				36.4	1.73	470			813
18.3	4.03	6.74		4.0	6.54		641	111	2121	1480	0.70	5.2	89	1.2	2.6	4.4		1.83	186	1070	767	340
19.3	2.65	6.08		2.6	5.88		705	110	2233	1528	1.49	3.0	115					1.35	240			324
20.3	2.46	4.77		2.4	4.57		768	107	2342	1574	1.04	2.7	74	0.7	1.4	1.6		1.21	155	512	430	188
21.3	2.8	5.14		2.8	4.94		832	108	2452	1620	0.92	3.1	75	0.8	1.6	1.9		1.31	158	605	495	206
22.3	7.73	25.02		6.9	24.82		895	126	2580	1685	2.74	8.1	620				39.5	2.31	1295			2994
23.4	10.78	90.51		6.9	90.31		959	136	2719	1760	13.00	7.6	2895				39.2	2.26	6047			13686



DILATOMETER TEST RESULTS

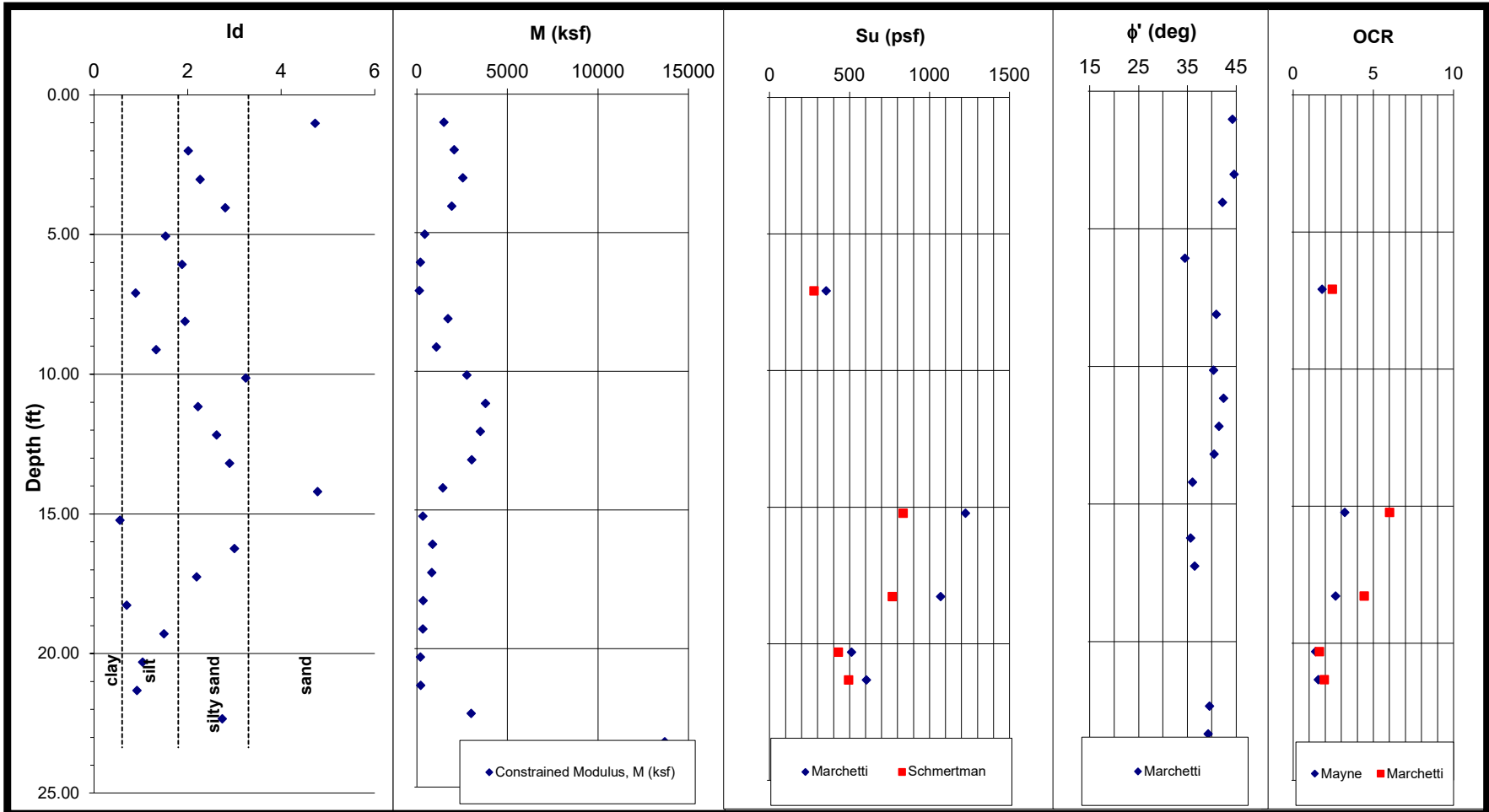
Test ID: DMT-7
Site: I-26 at I-95 Interchange Improvements
Location: Orangeburg County, South Carolina
Project No.: SCDOT ID P038677 (ECS 34:4266)





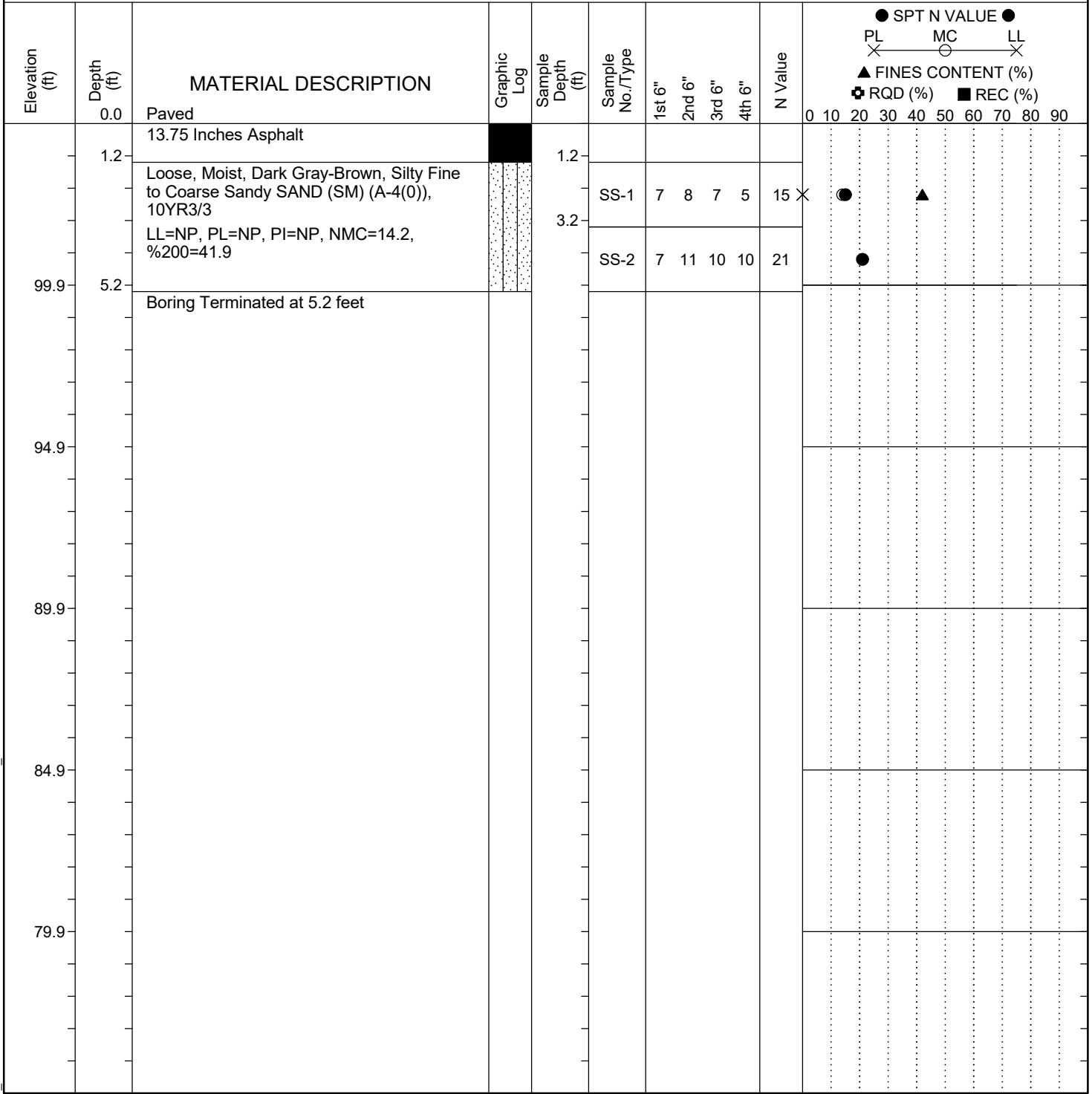
DILATOMETER TEST RESULTS

Test ID: DMT-7
 Site: I-26 at I-95 Interchange Improvements
 Location: Orangeburg County, South Carolina
 Project No.: SCDOT ID P038677 (ECS 34:4266)



SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-01
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3149+30.19	Offset: LT 67.93 Alignment: Existing
Elev.: 104.9 ft	Latitude: 33.330412	Longitude: -80.559896 Date Started: 2/6/2023
Total Depth: 5.2 ft	Soil Depth: 5.2 ft	Core Depth: ft Date Completed: 2/6/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



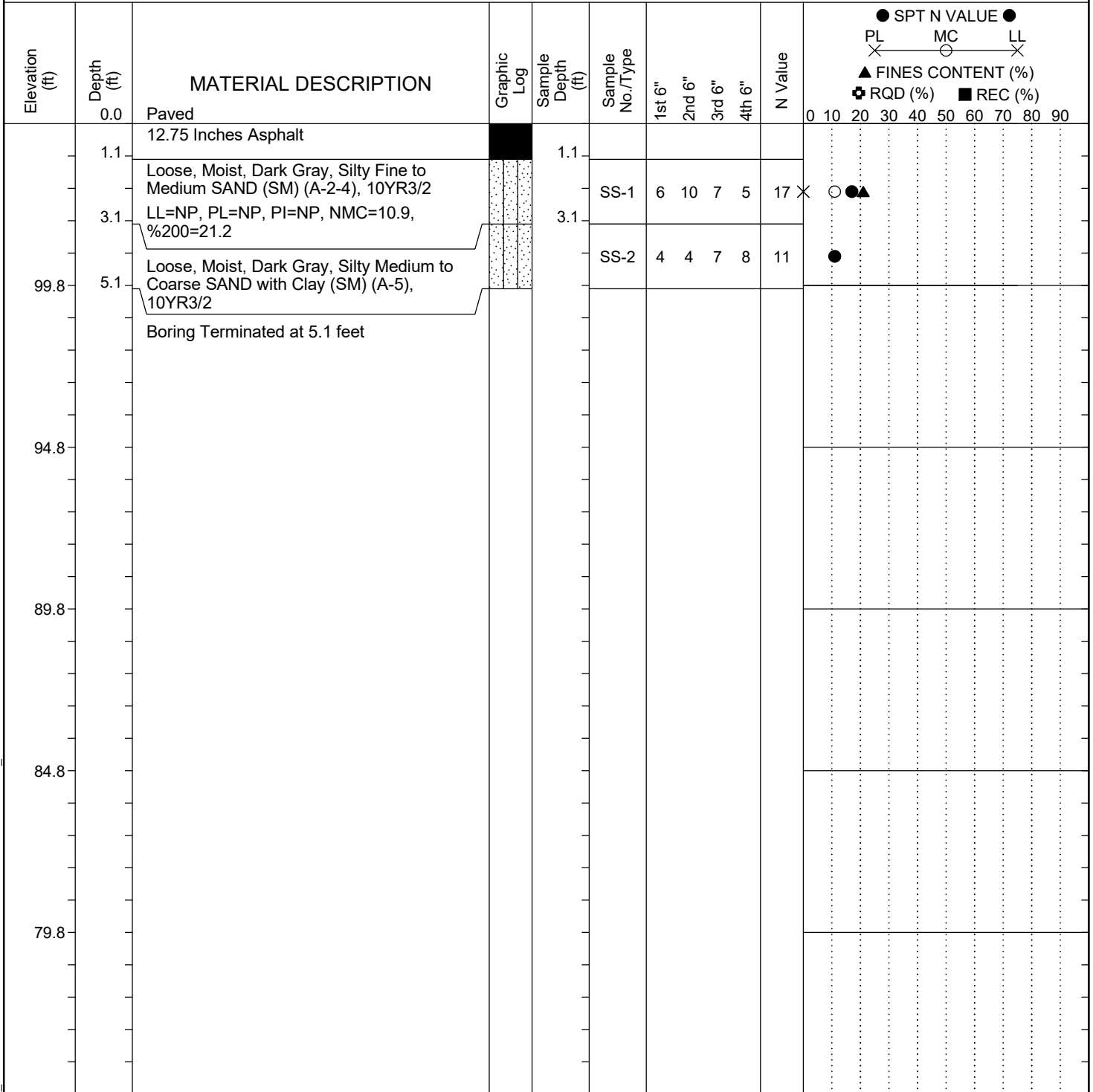
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: P-02	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-26	
Eng./Geo.: J. Webb		Boring Location: 3156+95.40		Offset: LT 67.07	
Elev.: 104.8 ft		Latitude: 33.328863		Longitude: -80.5582	
Total Depth: 5.1 ft		Soil Depth: 20 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Drill Machine: CME 750X		Drill Method: RW		Hammer Type: Automatic	
Core Size:		Driller: W. King		Energy Ratio: 96%	
		Groundwater: TOB NM		24HR: NM	



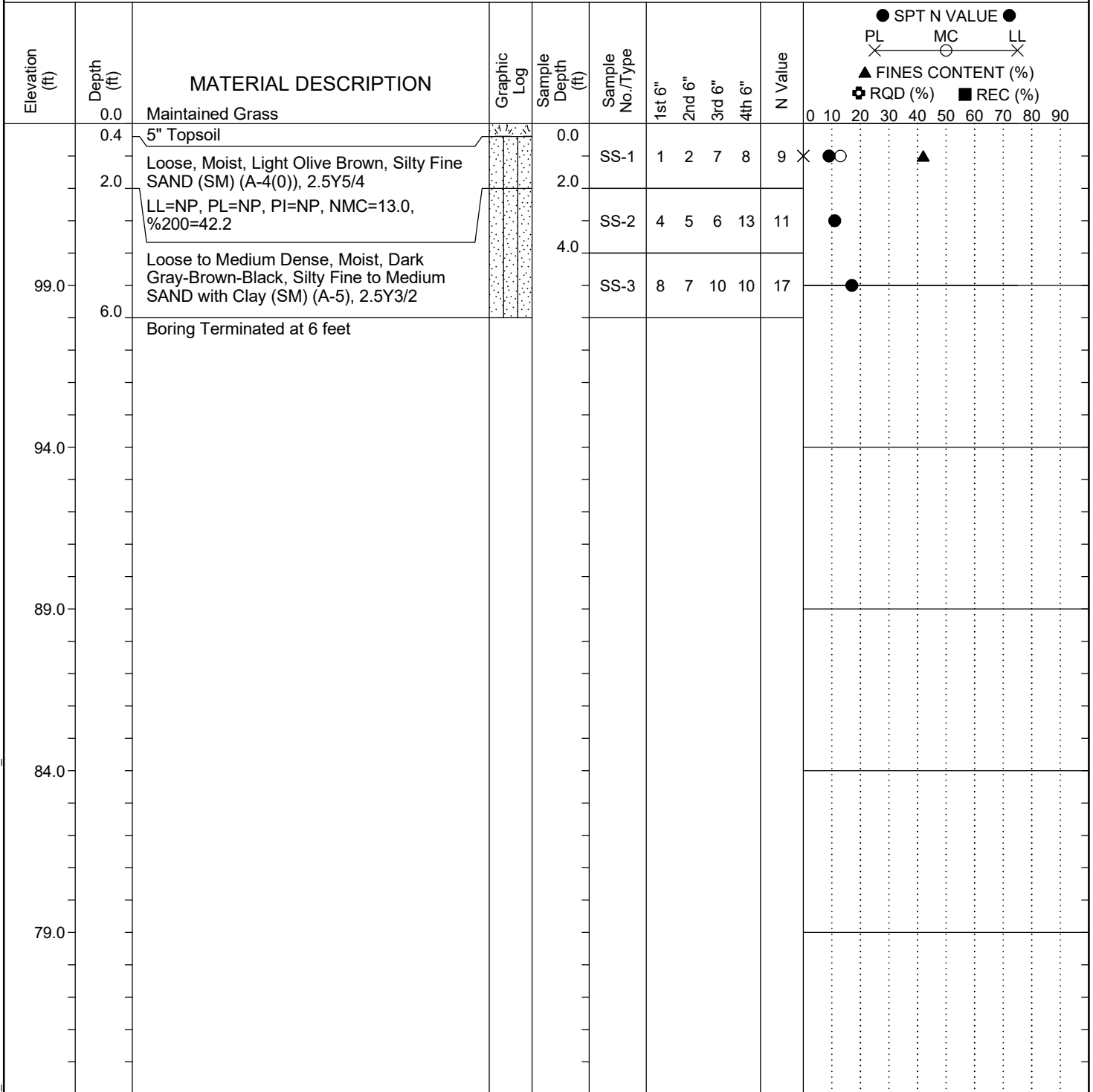
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-04
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3164+30.91	Offset: LT 82.02 Alignment: Existing
Elev.: 104.0 ft	Latitude: 33.327404	Longitude: -80.556533 Date Started: 2/6/2023
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft Date Completed: 2/6/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT 3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-05
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3171+74.30	Offset: RT 83.89
Elev.: 103.3 ft	Latitude: 33.325591	Longitude: -80.555284
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 75	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: C. Osbourne	Groundwater: TOB NM
		Energy Ratio: 92%
		24HR: NM

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE												
											0	10	20	30	40	50	60	70	80	90			
	0.0	Loose to Medium Dense, Moist, Brown to Grayish Brown, Silty Medium to Coarse SAND (SM) (A-2-4), 10YR5/3		0.0	SS-1	3	3	7	8	10	●												
				2.0	SS-2	10	7	7	6	14	●												
98.3	6.0			Boring Terminated at 6 feet		4.0	SS-3	6	6	6	5	12	●										
93.3																							
88.3																							
83.3																							
78.3																							

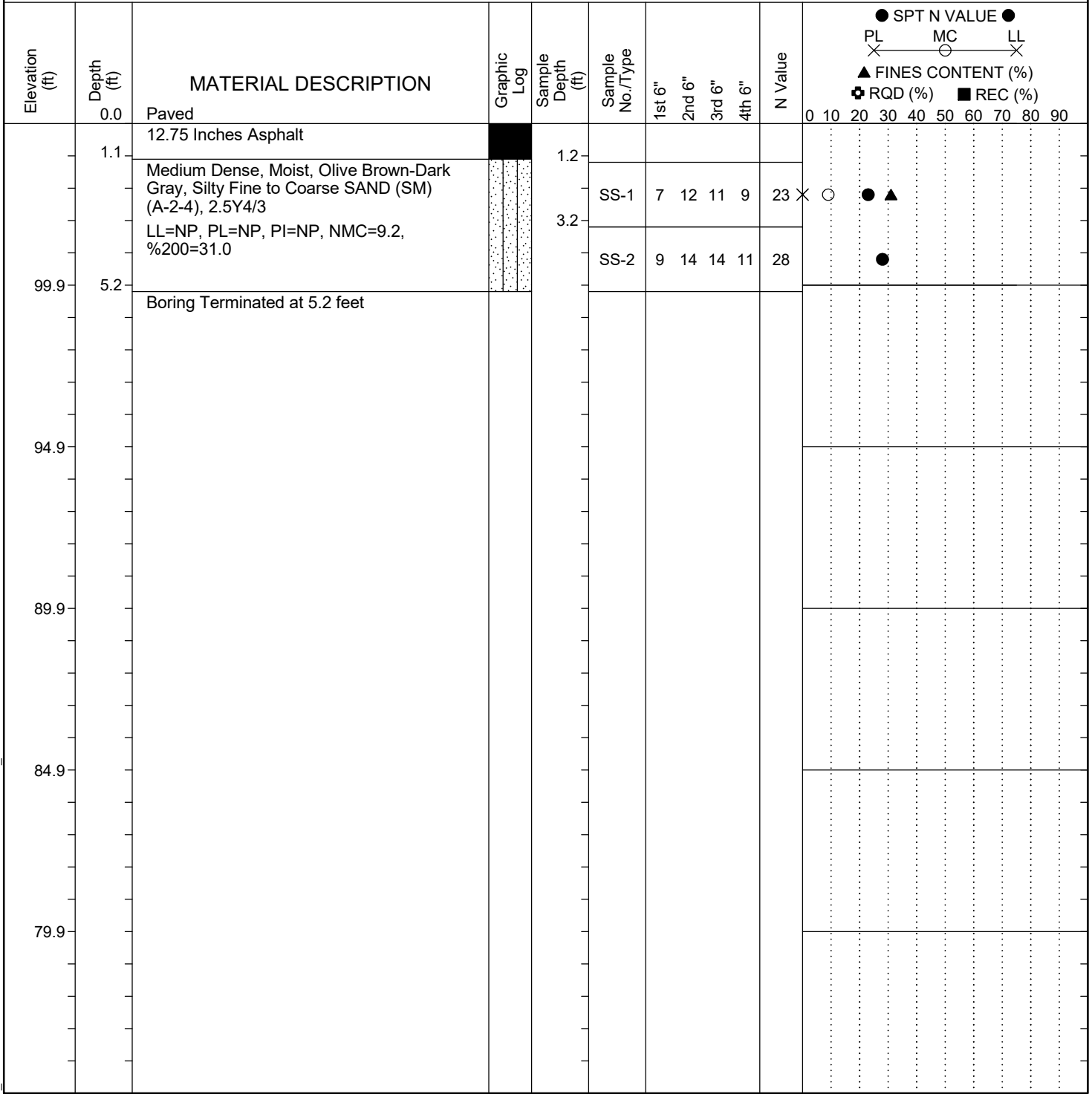
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-06
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3171+73.79	Offset: LT 66.48 Alignment: Existing
Elev.: 104.9 ft	Latitude: 33.325872	Longitude: -80.554923 Date Started: 2/6/2023
Total Depth: 5.2 ft	Soil Depth: 5.2 ft	Core Depth: ft Date Completed: 2/6/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



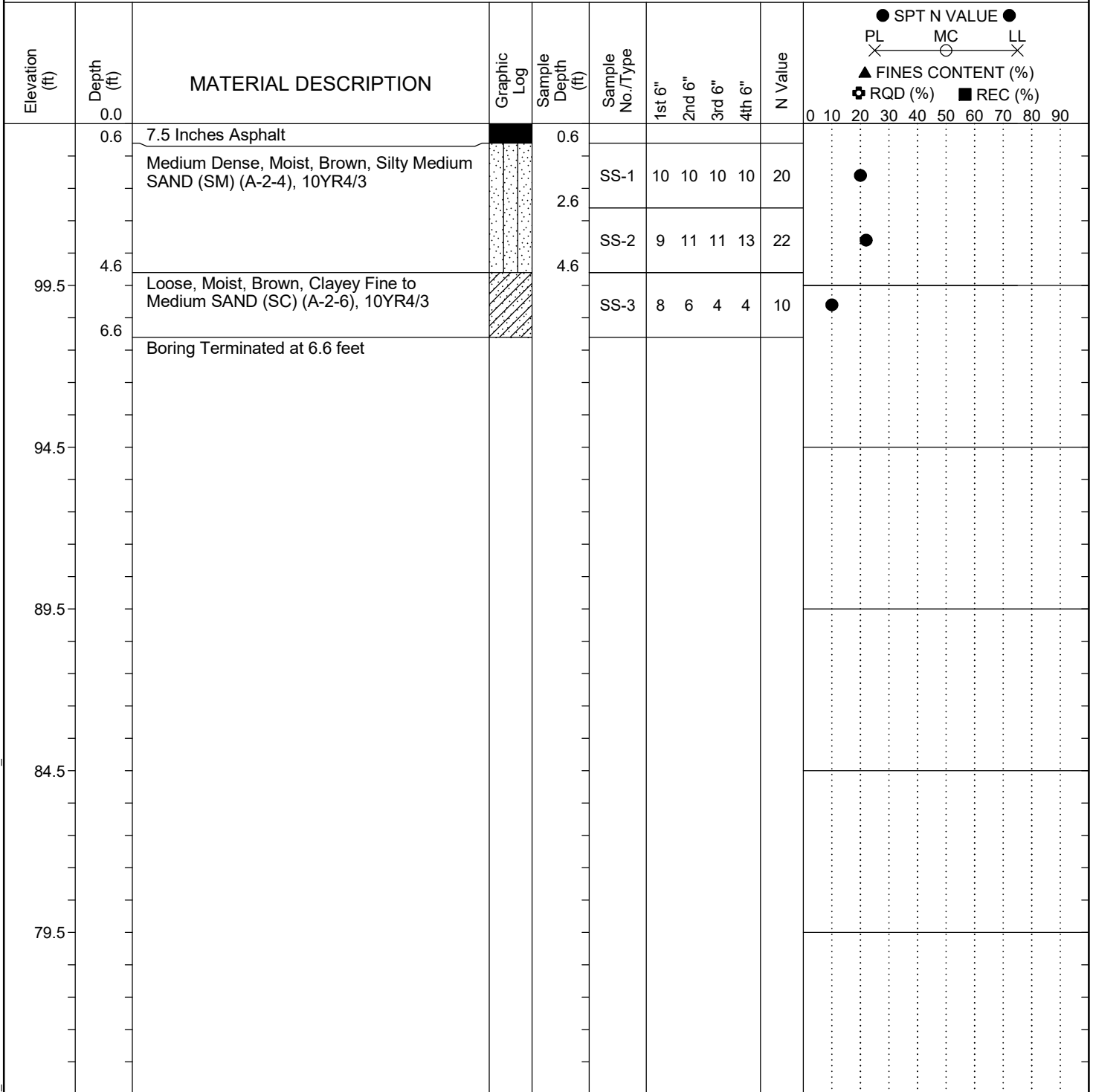
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	P-07
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	J. Webb	Boring Location:	3179+31.49	Offset:	RT 77.56	Alignment:	Existing
Elev.:	104.5 ft	Latitude:	33.324061	Longitude:	-80.553615	Date Started:	12/7/2022
Total Depth:	6.6 ft	Soil Depth:	6.6 ft	Core Depth:	ft	Date Completed:	12/7/2022
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 75	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	92%
Core Size:		Driller:	C. Osbourne	Groundwater:	TOB NM	24HR	NM



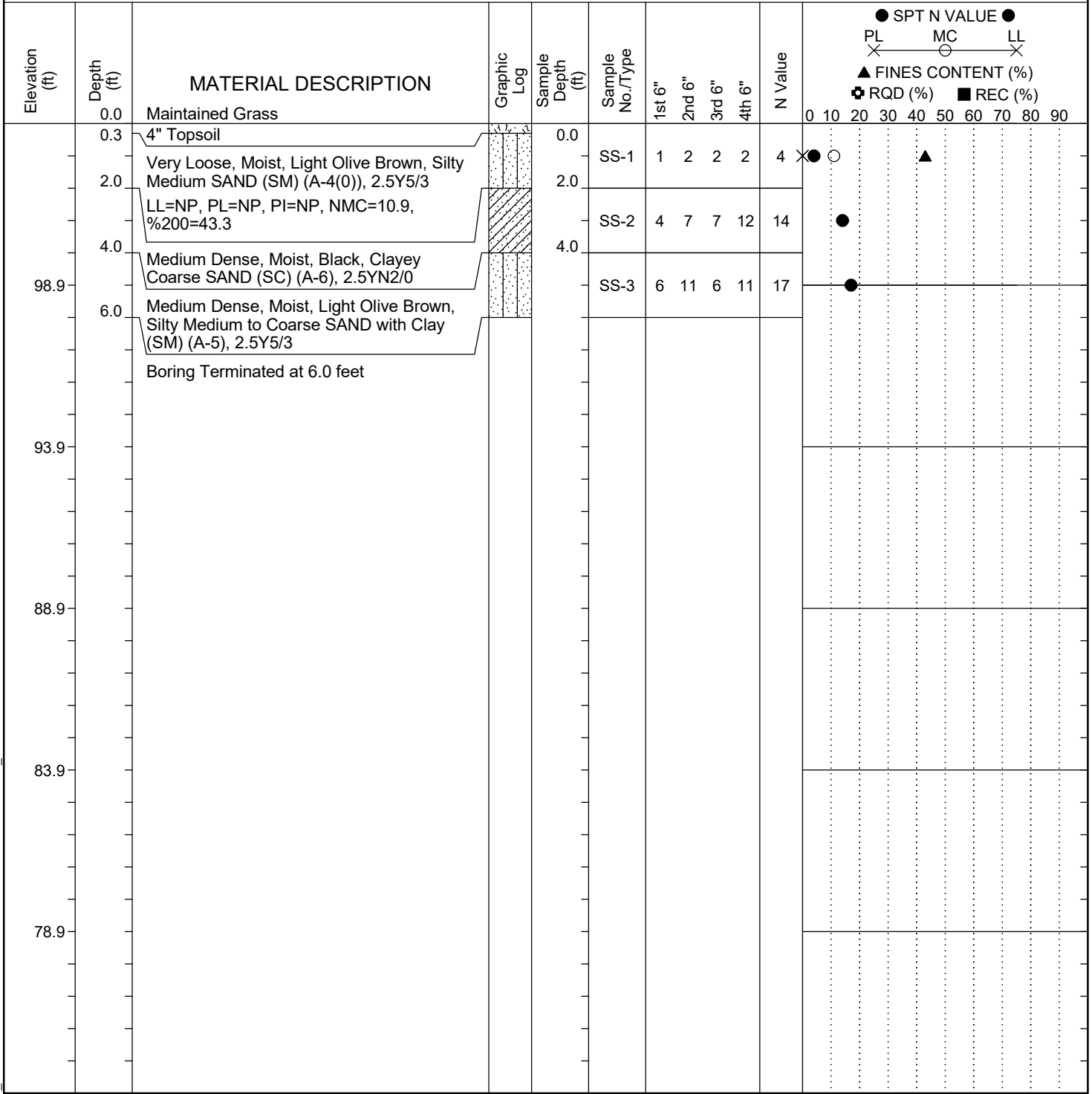
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-08
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3179+35.84	Offset: LT 82.94 Alignment: Existing
Elev.: 103.9 ft	Latitude: 33.324341	Longitude: -80.55321 Date Started: 2/6/2023
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft Date Completed: 2/6/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



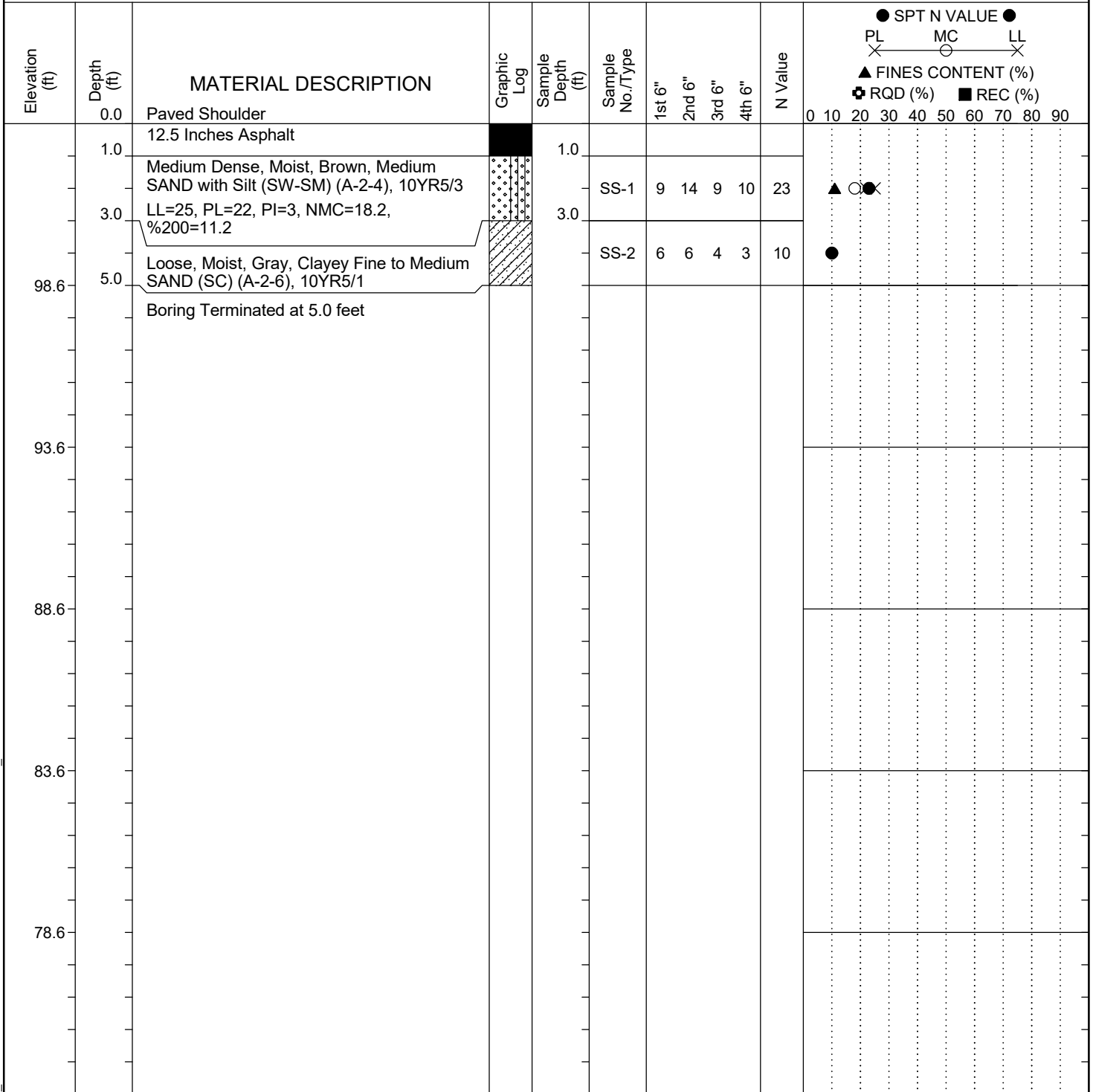
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-09
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3186+57.76	Offset: RT 110.39
Elev.: 103.6 ft	Latitude: 33.322483	Longitude: -80.552169
Total Depth: 5 ft	Soil Depth: 5 ft	Core Depth: ft
Date Started: 12/7/2022	Date Completed: 12/7/2022	
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Hammer Type: Automatic	
Drill Machine: CME 75	Drill Method: RW	Energy Ratio: 92%
Core Size:	Driller: C. Osbourne	Groundwater: TOB NM
		24HR: NM



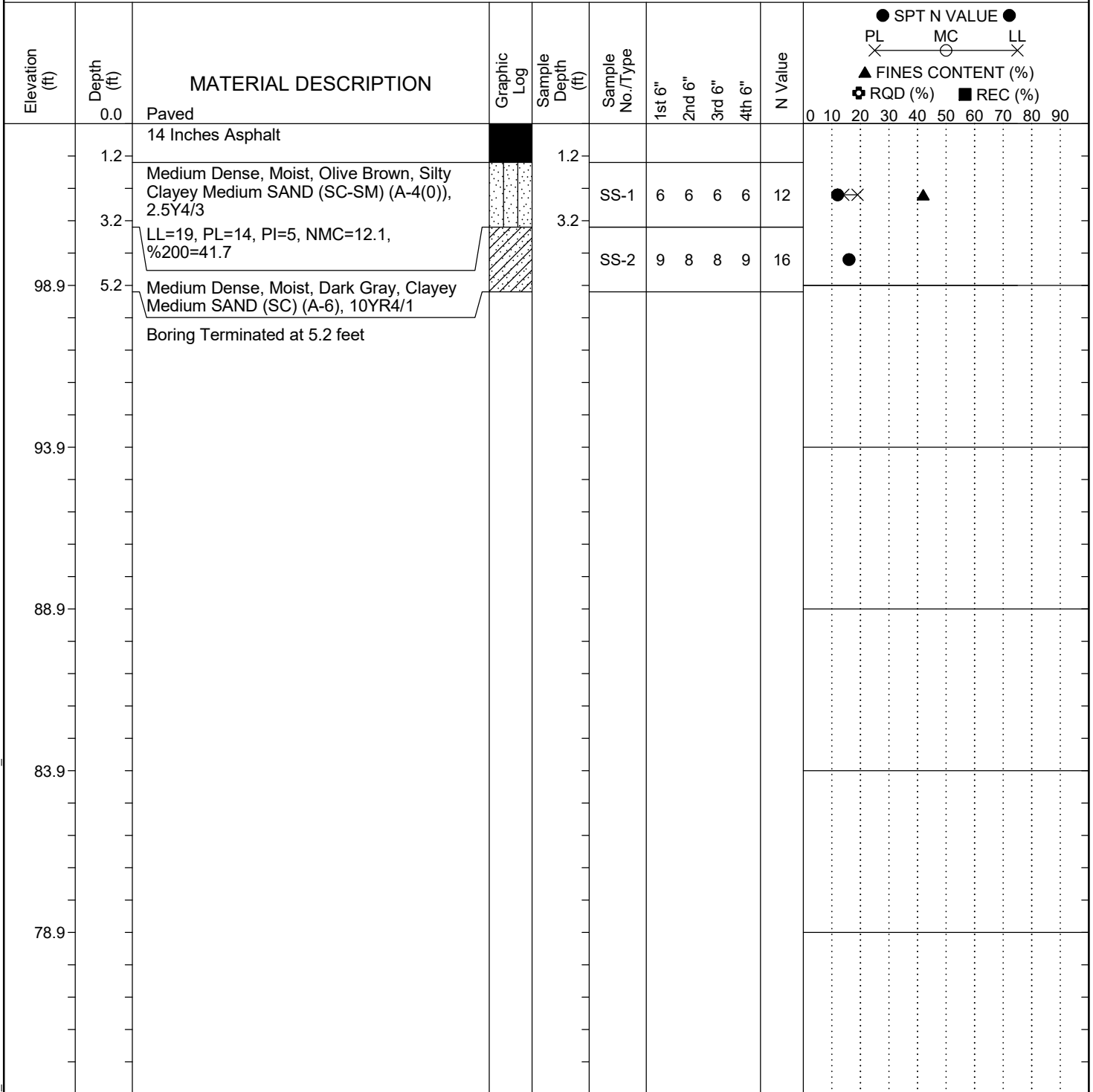
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: P-10	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-26	
Eng./Geo.: J. Webb		Boring Location: 3200+72.40		Offset: LT 67.10	
Elev.: 103.9 ft		Latitude: 33.319765		Longitude: -80.548811	
Total Depth: 5.2 ft		Soil Depth: 5.2 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Drill Machine: CME 750X		Drill Method: RW		Hammer Type: Automatic	
Core Size:		Driller: W. King		Energy Ratio: 96%	
		Groundwater: TOB NM		24HR: NM	
				Liner Used: Y (N)	



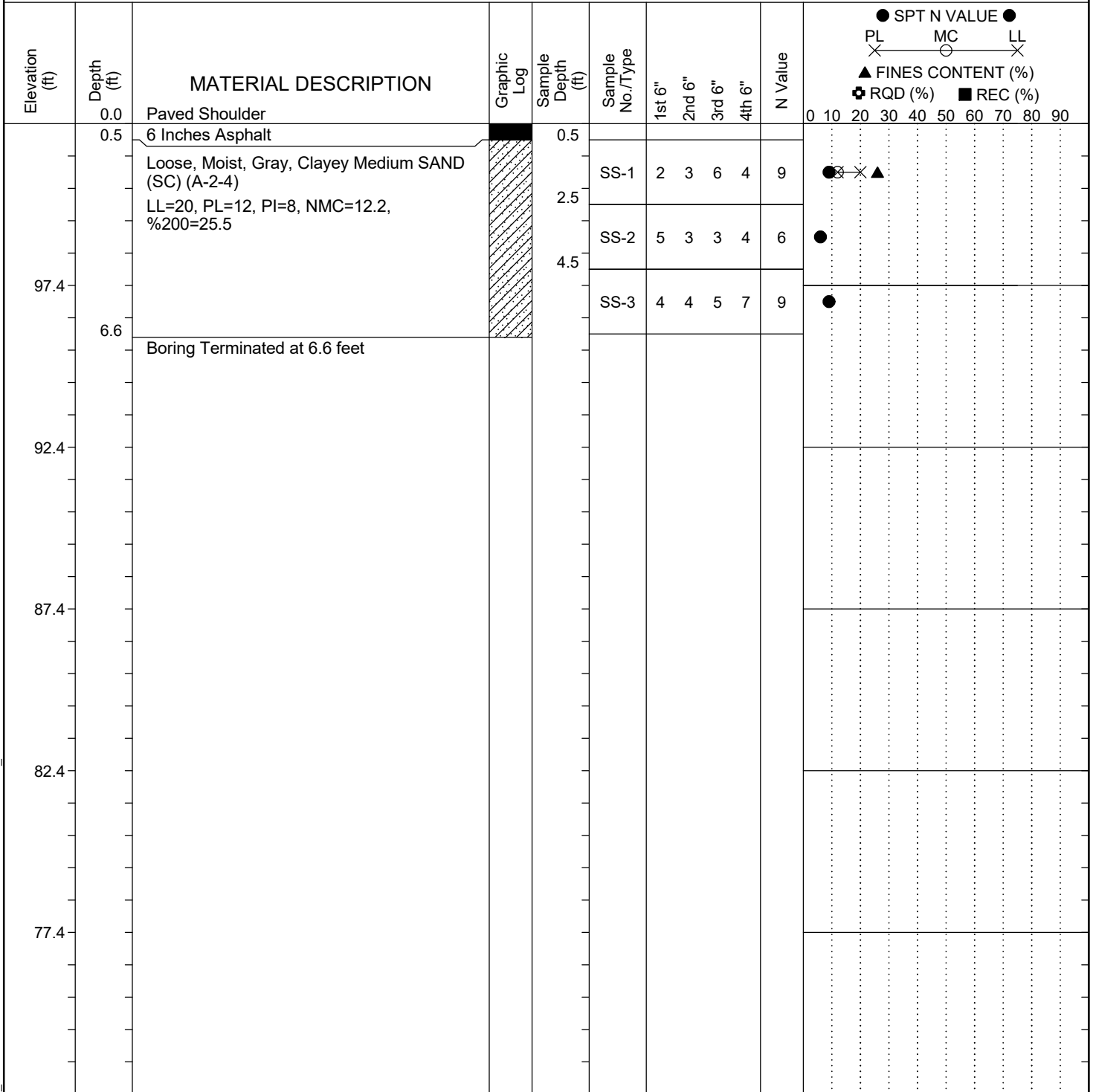
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: P-11	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-26	
Eng./Geo.: J. Webb		Boring Location: 3208+24.19		Offset: RT 87.38	
Elev.: 102.4 ft		Latitude: 33.317889		Longitude: -80.54766	
Total Depth: 6.5 ft		Soil Depth: 6.5 ft		Date Started: 12/7/2022	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Drill Machine: CME 75		Drill Method: RW		Energy Ratio: 92%	
Core Size:		Driller: C. Osbourne		Groundwater: TOB NM	
				24HR: NM	

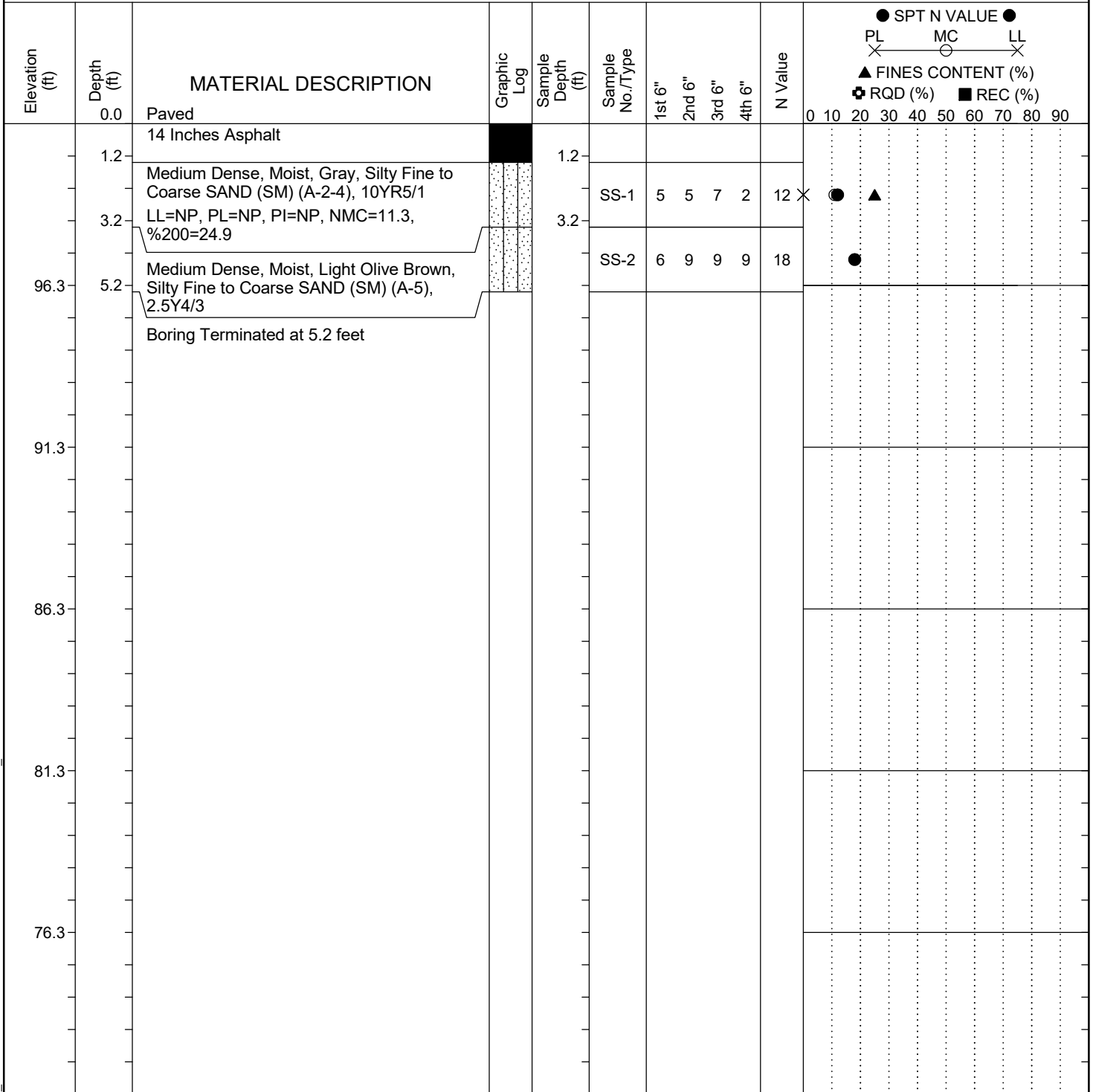


LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	P-12
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	J. Webb	Boring Location:	3223+57.52	Offset:	LF 65.34	Alignment:	Existing
Elev.:	101.3 ft	Latitude:	33.314871	Longitude:	-80.544121	Date Started:	2/6/2023
Total Depth:	5.2 ft	Soil Depth:	5.2 ft	Core Depth:	ft	Date Completed:	2/6/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 750X	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	96%
Core Size:		Driller:	W. King	Groundwater:	TOB NM	24HR	NM



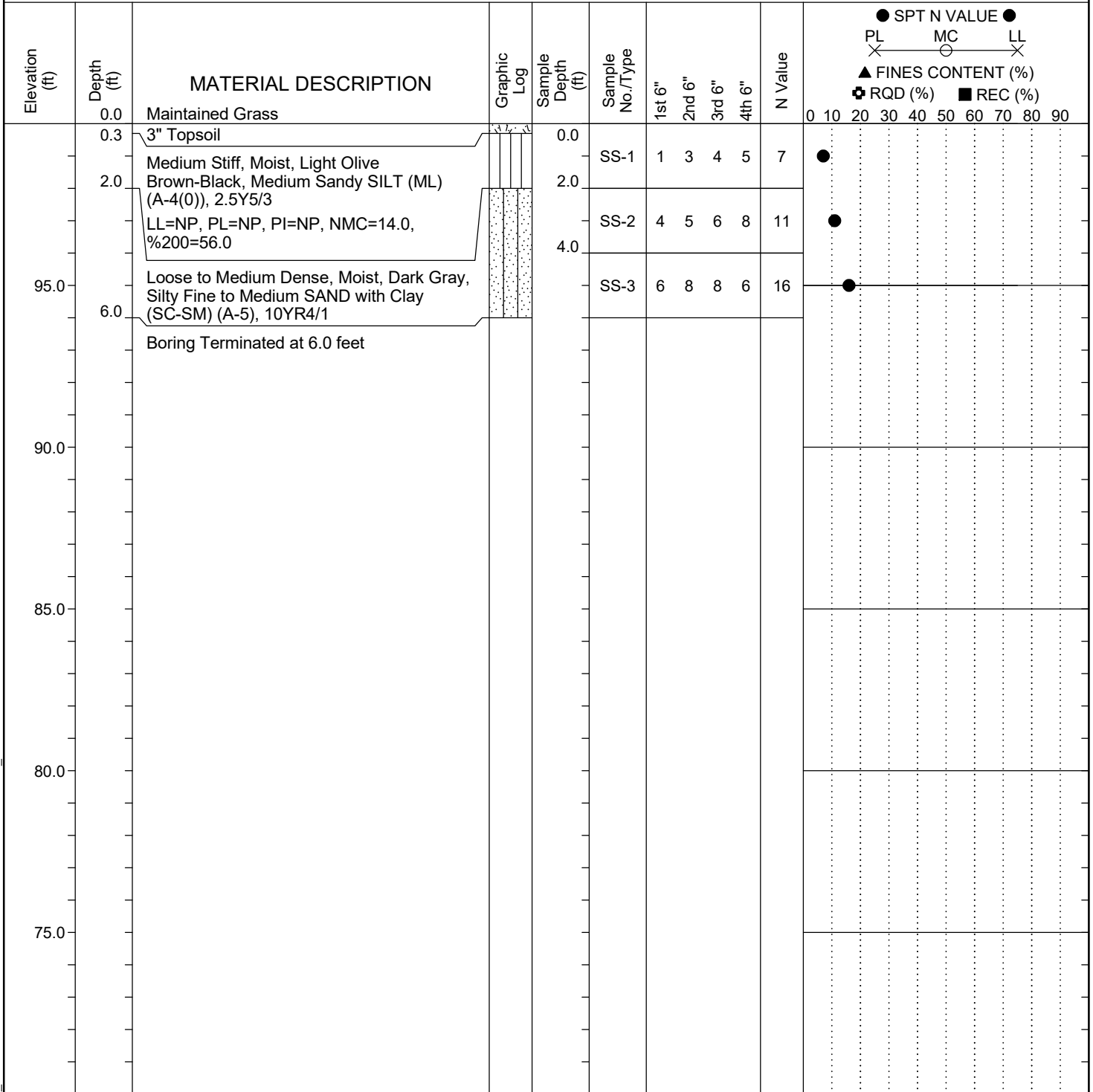
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-13
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3229+17.36	Offset: LF 84.71 Alignment: Existing
Elev.: 100.0 ft	Latitude: 33.313706	Longitude: -80.542922 Date Started: 2/7/2023
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft Date Completed: 2/7/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



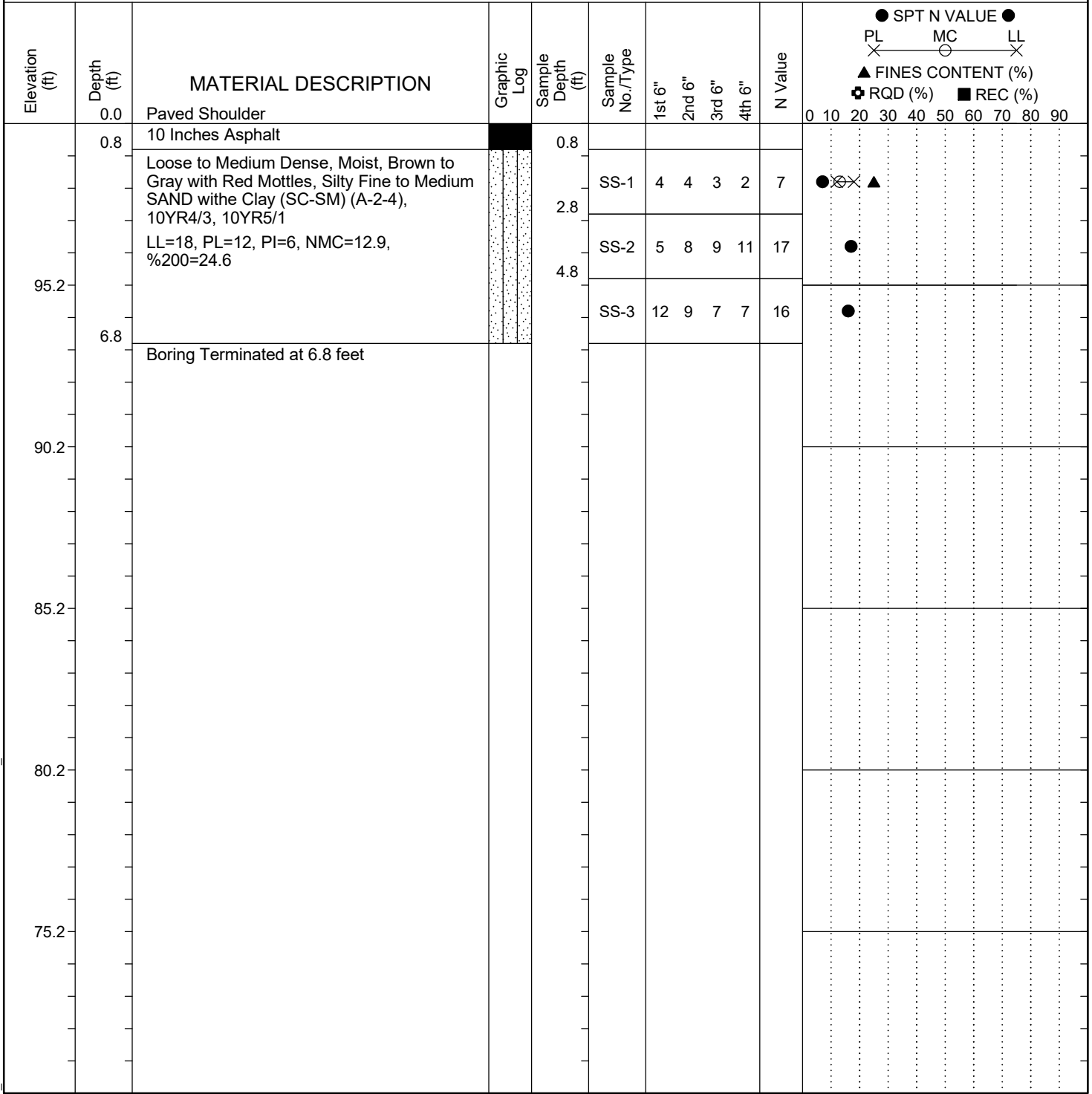
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg	Boring No.:	P-14
Site Description:	I-26 at I-95 Interchange Improvement					Route:	I-26
Eng./Geo.:	J. Webb	Boring Location:	3231+05.37	Offset:	RT 83.05	Alignment:	Existing
Elev.:	100.2 ft	Latitude:	33.313014	Longitude:	-80.542964	Date Started:	12/7/2022
Total Depth:	6.8 ft	Soil Depth:	6.8 ft	Core Depth:	ft	Date Completed:	12/7/2022
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	CME 75	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	92%
Core Size:		Driller:	C. Osbourne	Groundwater:	TOB NM	24HR	NM



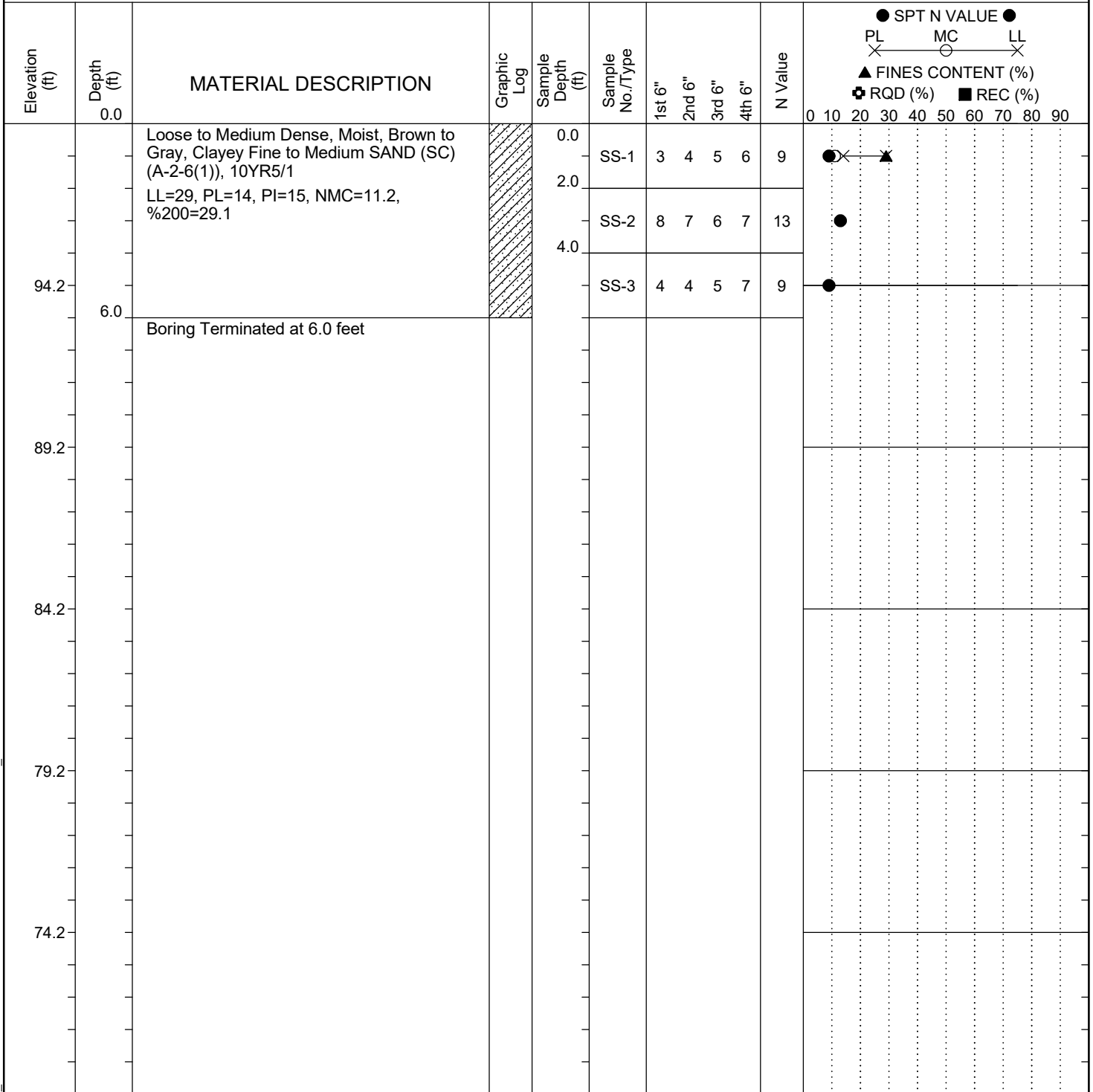
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-15
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3234+74.03	Offset: RT 85.30
Elev.: 99.2 ft	Latitude: 33.312221	Longitude: -80.542212
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft
Date Started: 12/7/2022	Date Completed: 12/7/2022	
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: CME 75	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 92%	
Core Size:	Driller: C. Osbourne	Groundwater: TOB NM
		24HR: NM



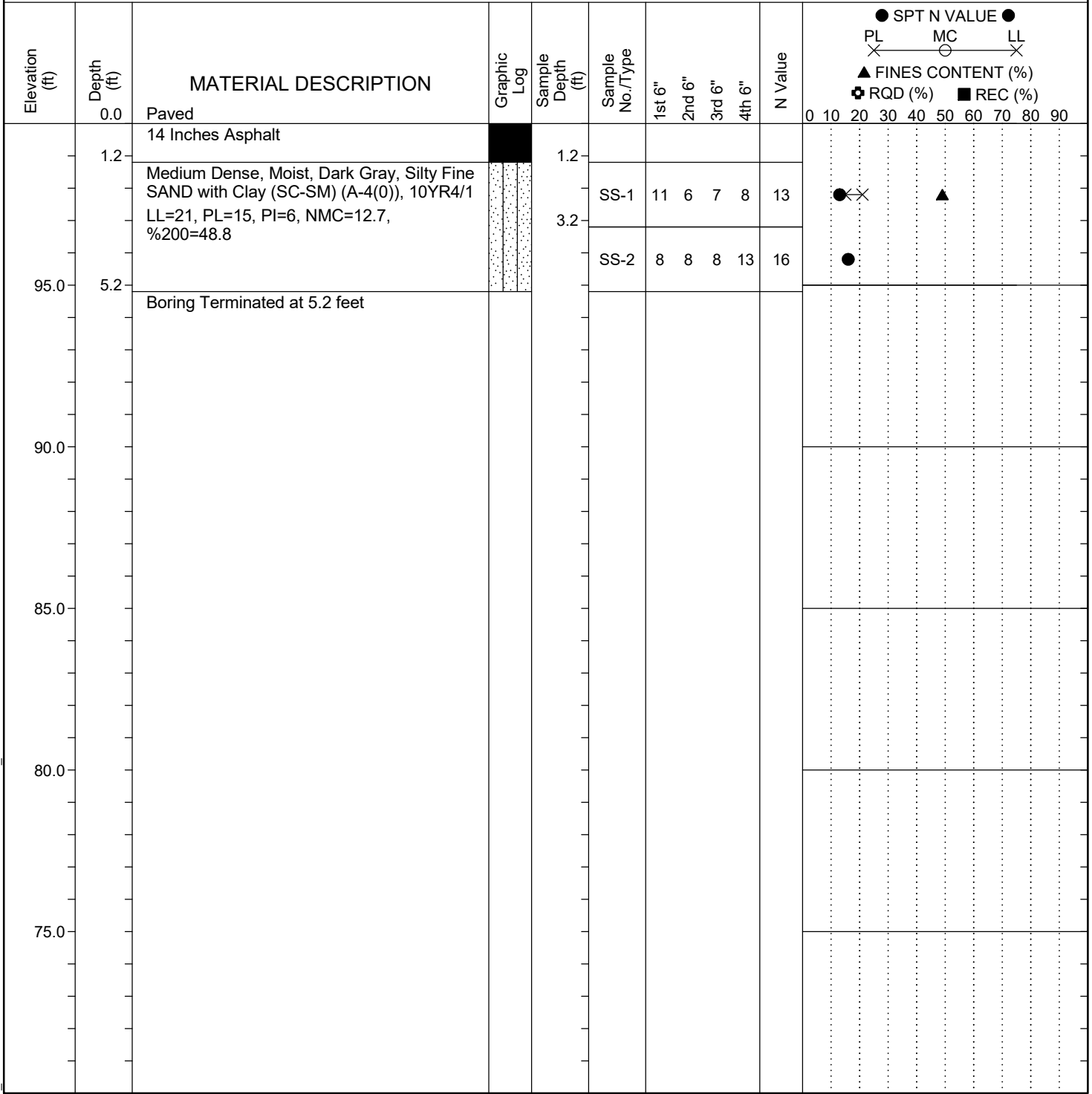
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-16
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3238+72.21	Offset: LT 67.13
Elev.: 100.0 ft	Latitude: 33.311632	Longitude: -80.541006
Total Depth: 5.2 ft	Soil Depth: 5.2 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM



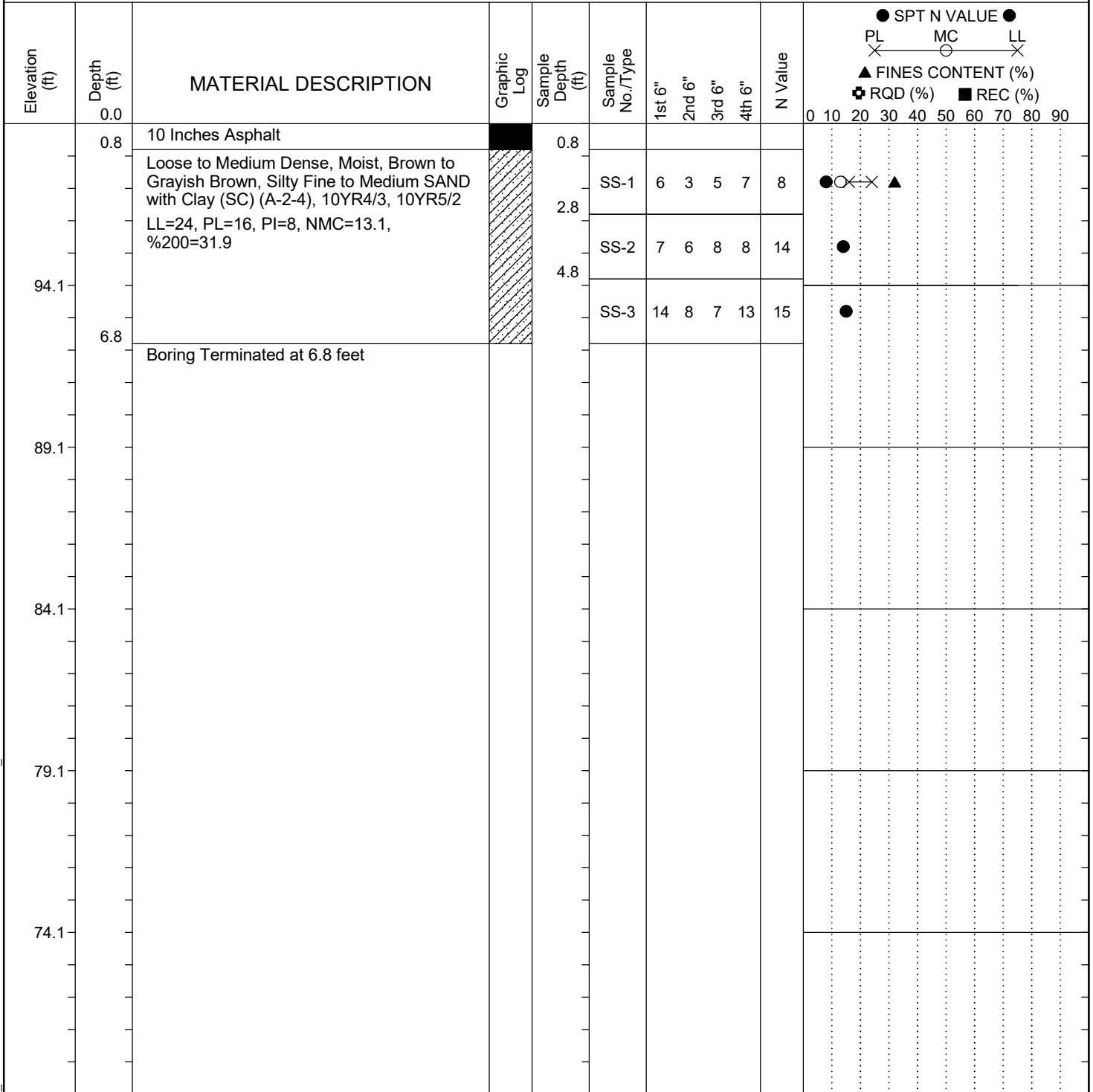
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-17
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Webb	Boring Location: 3246+13.02	Offset: RT 74.86 Alignment: Existing
Elev.: 99.1 ft	Latitude: 33.309801	Longitude: -80.539846 Date Started: 12/7/2022
Total Depth: 6.8 ft	Soil Depth: 6.8 ft	Core Depth: ft Date Completed: 12/7/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 75	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 92%
Core Size:	Driller: C. Osbourne	Groundwater: TOB NM 24HR: NM



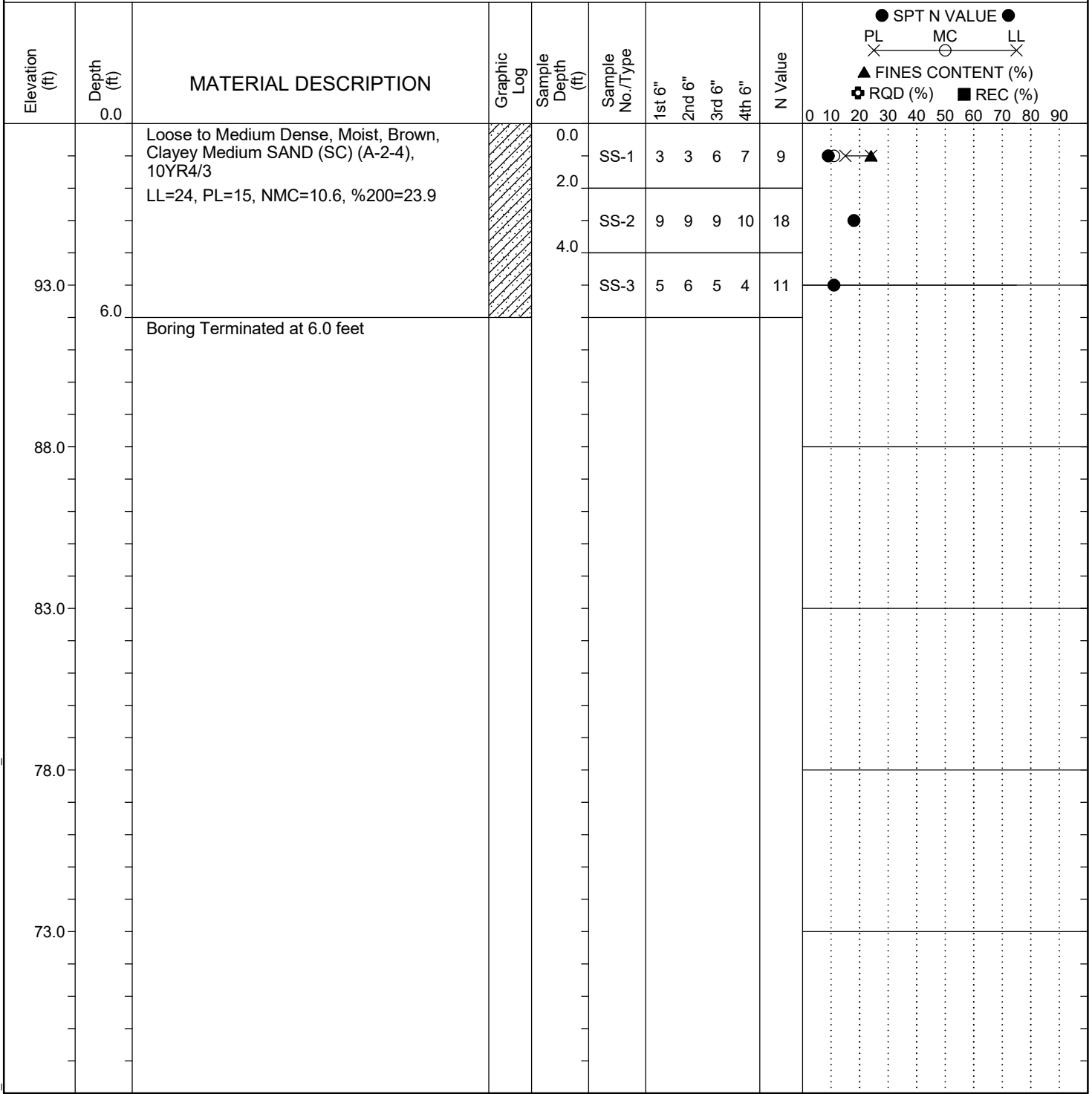
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: P-18
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: J. Webb	Boring Location: 3249+36.72	Offset: RT 82.33 Alignment: Existing
Elev.: 98.0 ft	Latitude: 33.309095	Longitude: -80.5392 Date Started: 12/7/2022
Total Depth: 6 ft	Soil Depth: 6 ft	Core Depth: ft Date Completed: 12/7/2022
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 75	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 92%
Core Size:	Driller: C. Osbourne	Groundwater: TOB NM 24HR: NM



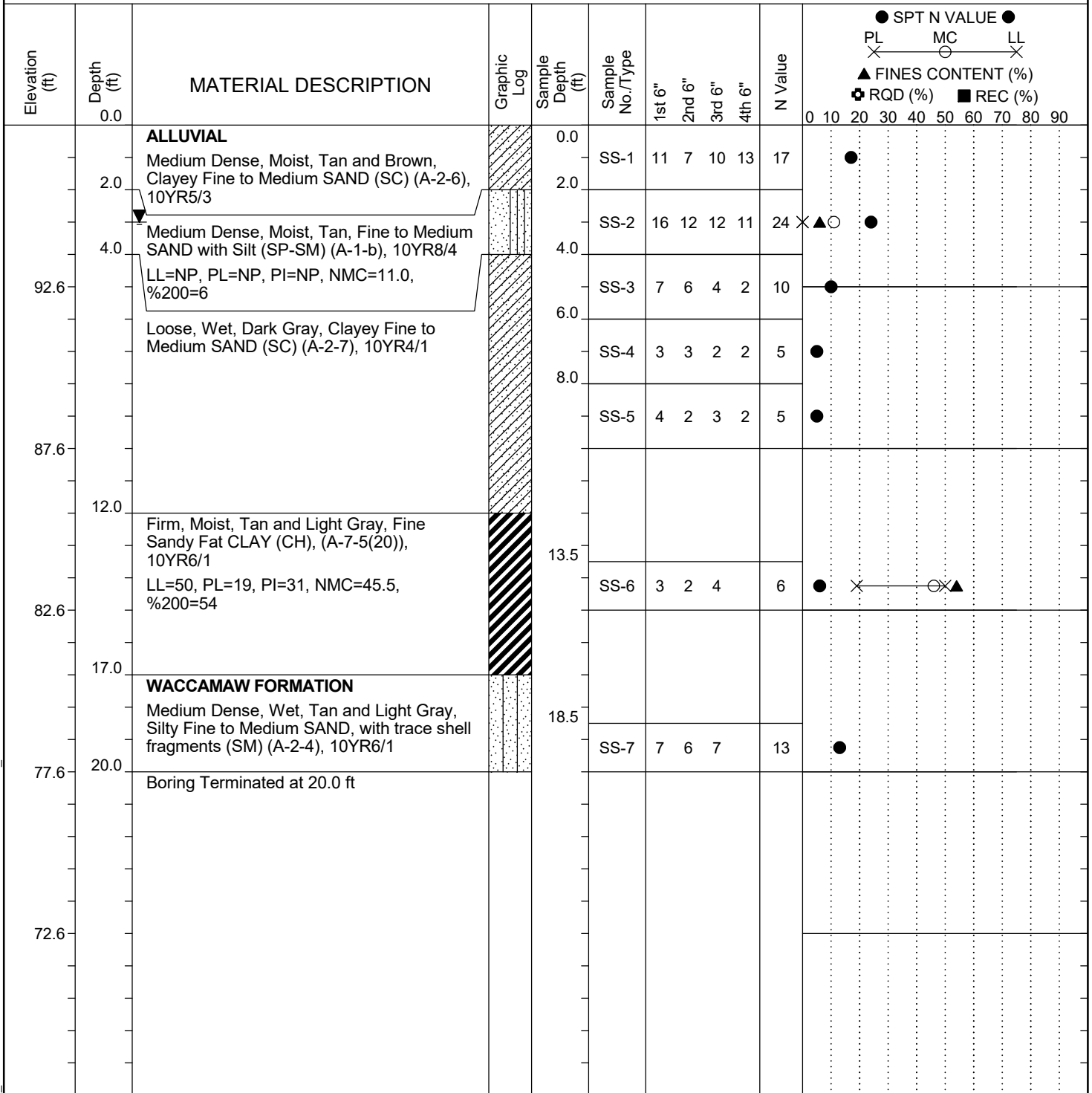
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-01
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: B. Cook	Boring Location: 20+01.84	Offset: RT 27.42
Alignment: Existing		
Elev.: 97.6 ft	Latitude: 33.316497	Longitude: -80.544346
Date Started: 2/6/2023		
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Date Completed: 2/6/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 93%		
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM
		24HR 3 ft



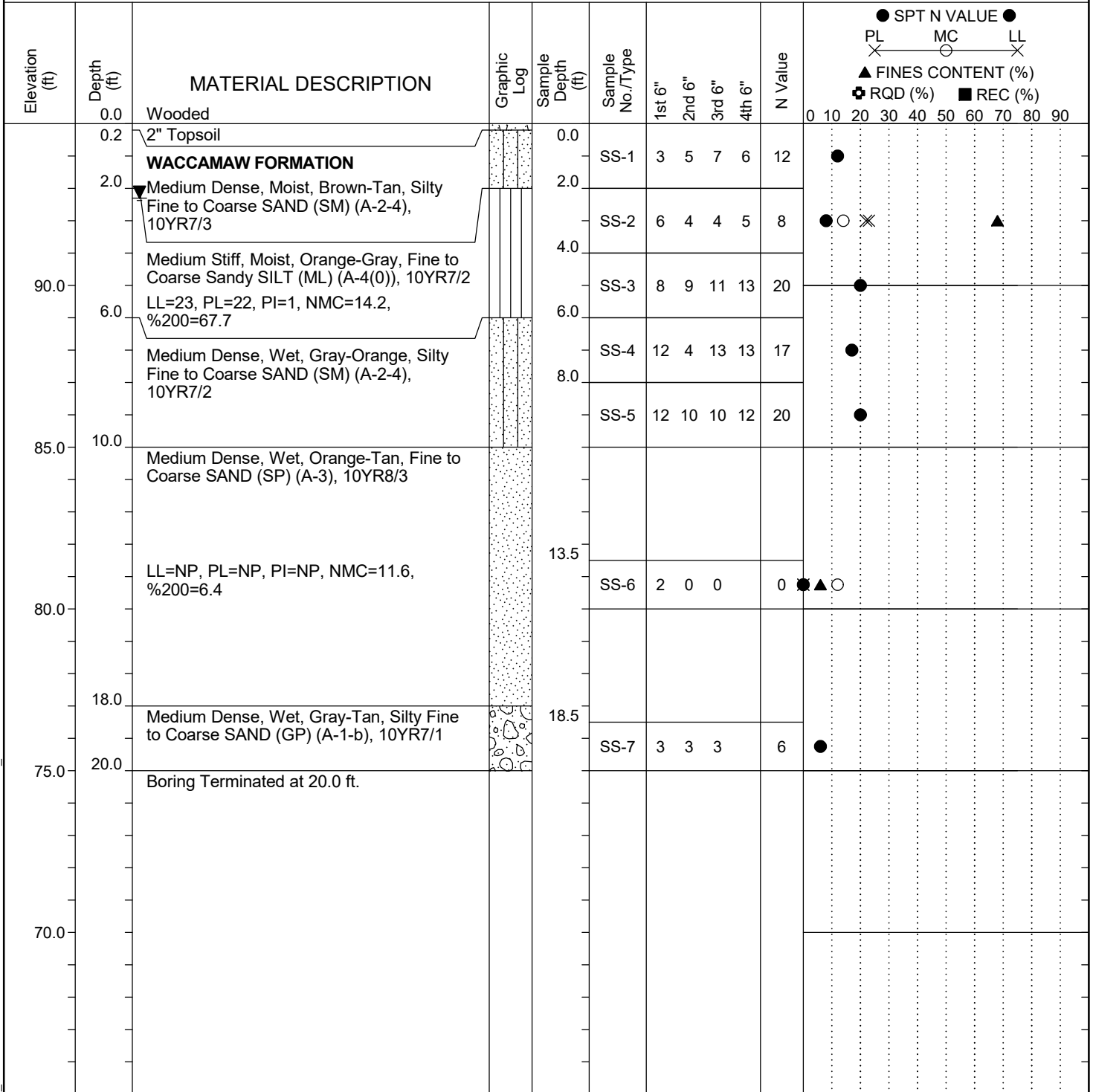
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-02
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 40+62.06	Offset: LT 37.38 Alignment: Existing
Elev.: 95.0 ft	Latitude: 33.322162	Longitude: -80.54466 Date Started: 2/4/2023
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft Date Completed: 2/4/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 2.3 ft



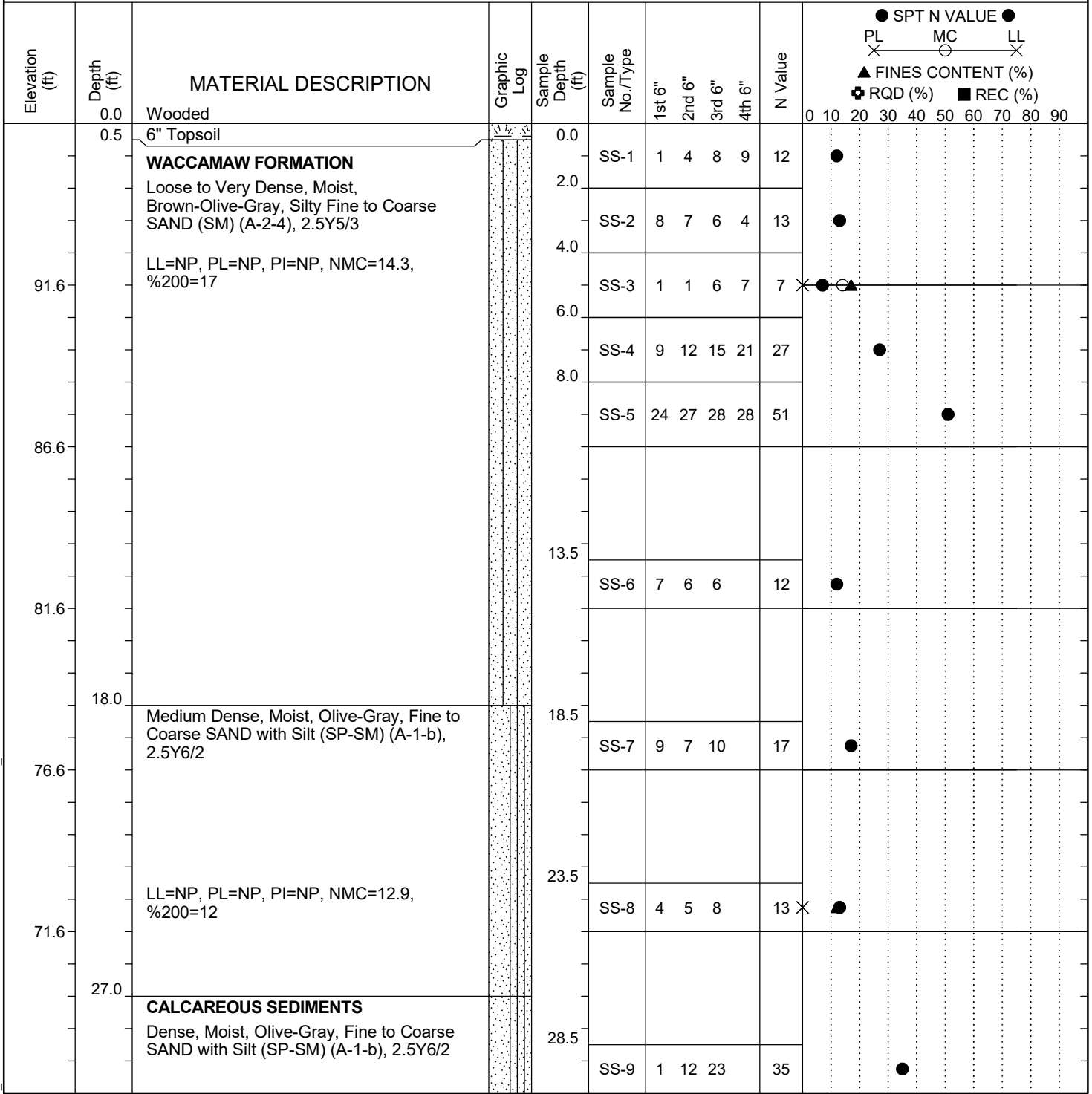
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-03
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Webb	Boring Location: 23+95.55	Offset: RT 15.88
Elev.: 96.6 ft	Latitude: 33.321229	Longitude: -80.547607
Total Depth: 40 ft	Soil Depth: 40 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: H. McDaniel	Energy Ratio: 93%
	Groundwater: TOB NM	24HR: Caved



LEGEND

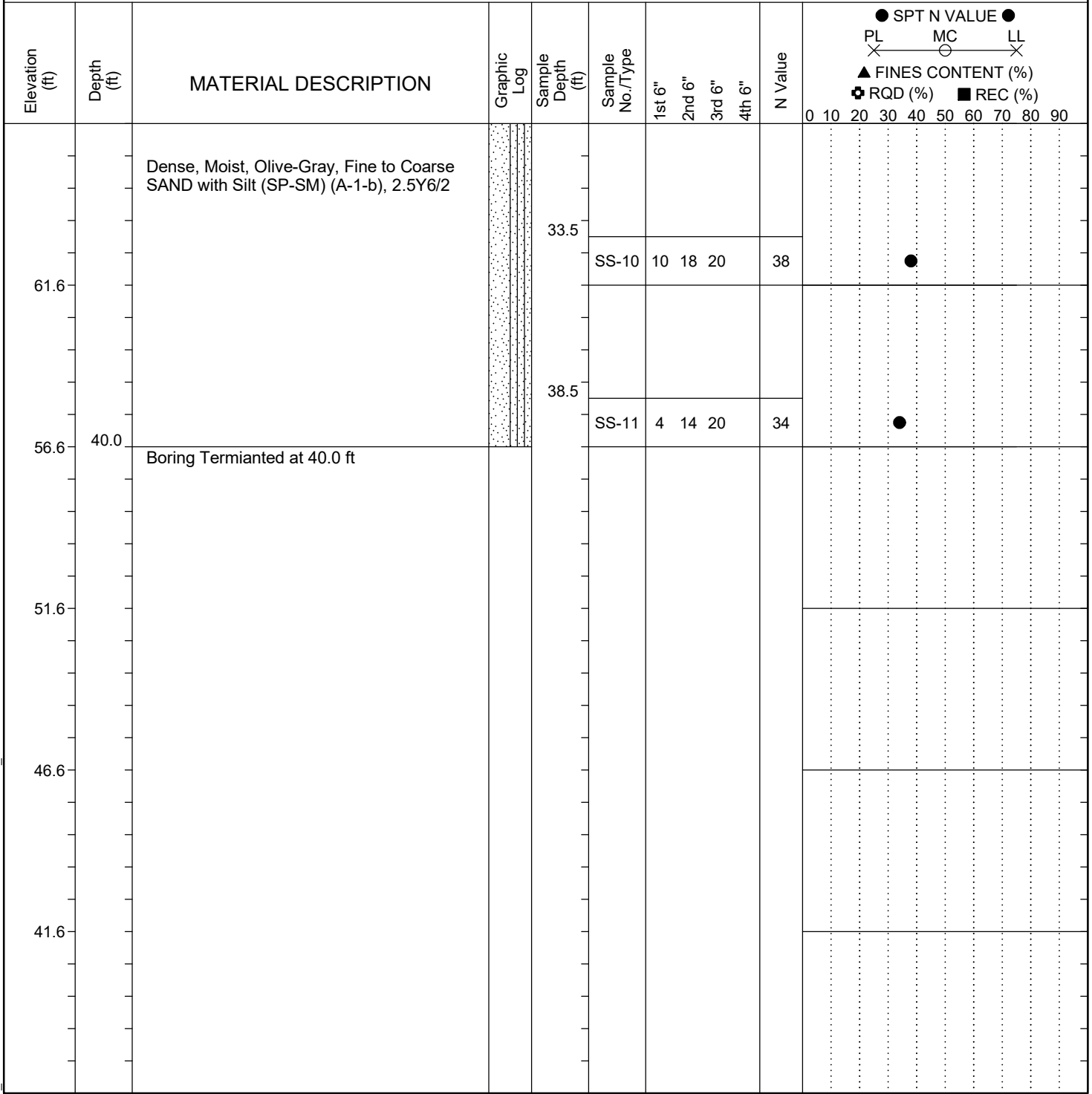
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-03
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Webb	Boring Location: 23+95.55	Offset: RT 15.88 Alignment: Existing
Elev.: 96.6 ft	Latitude: 33.321229	Longitude: -80.547607 Date Started: 1/24/2023
Total Depth: 40 ft	Soil Depth: 40 ft	Core Depth: ft Date Completed: 1/24/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM 24HR: Caved



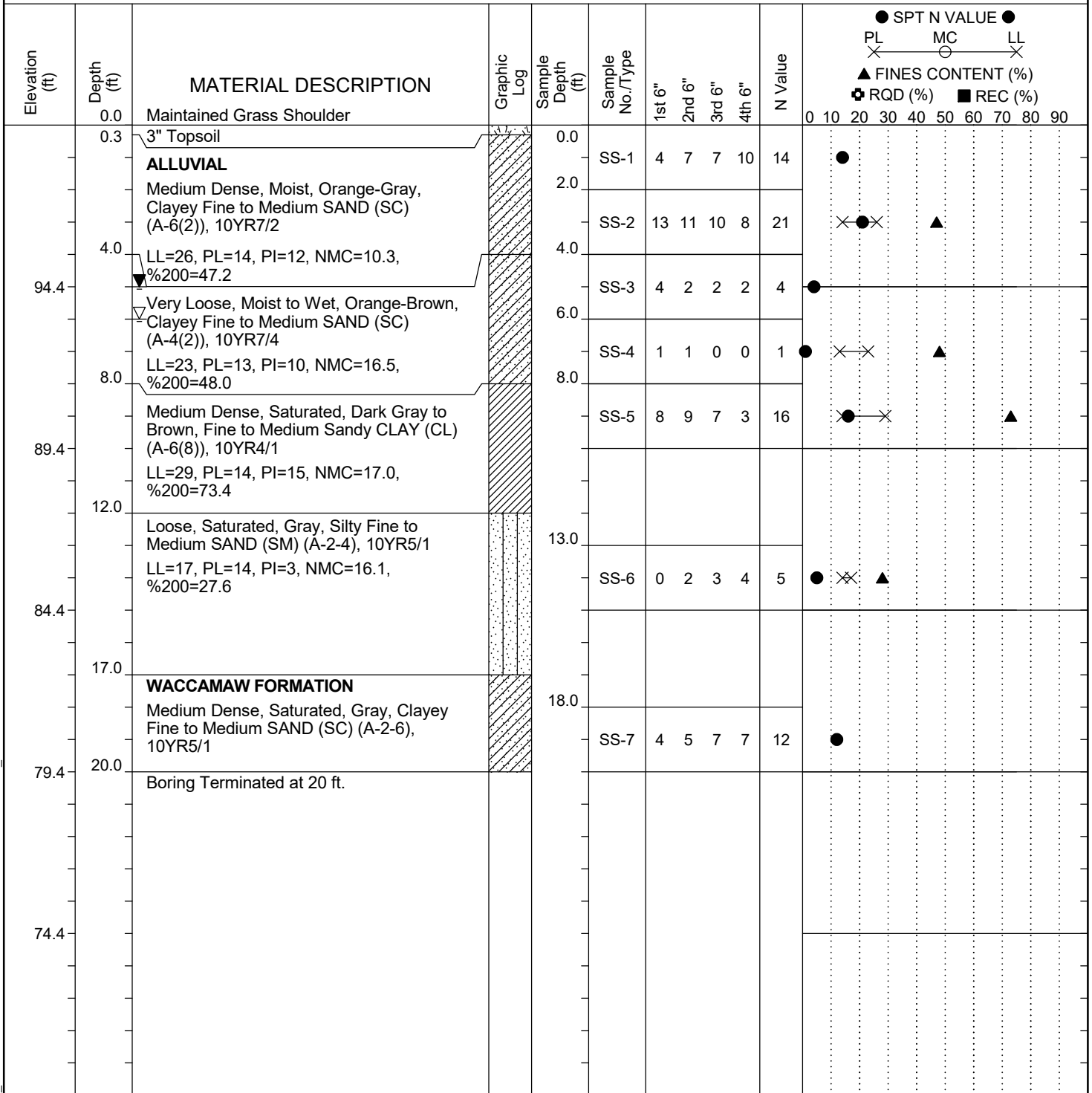
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677		County: Orangeburg		Boring No.: R-04	
Site Description: I-26 at I-95 Interchange Improvement				Route: I-26	
Eng./Geo.: J. Wadford		Boring Location: 19+66.66		Offset: RT 33.95	
Elev.: 99.4 ft		Latitude: 33.316056		Longitude: -80.547086	
Total Depth: 20 ft		Soil Depth: 20 ft		Core Depth: ft	
Bore Hole Diameter (in): 6		Sampler Configuration		Liner Required: Y (N)	
Drill Machine: CME 750X		Drill Method: RW		Hammer Type: Automatic	
Core Size:		Driller: W. King		Energy Ratio: 96%	
		Groundwater: TOB		24HR: 5 ft	



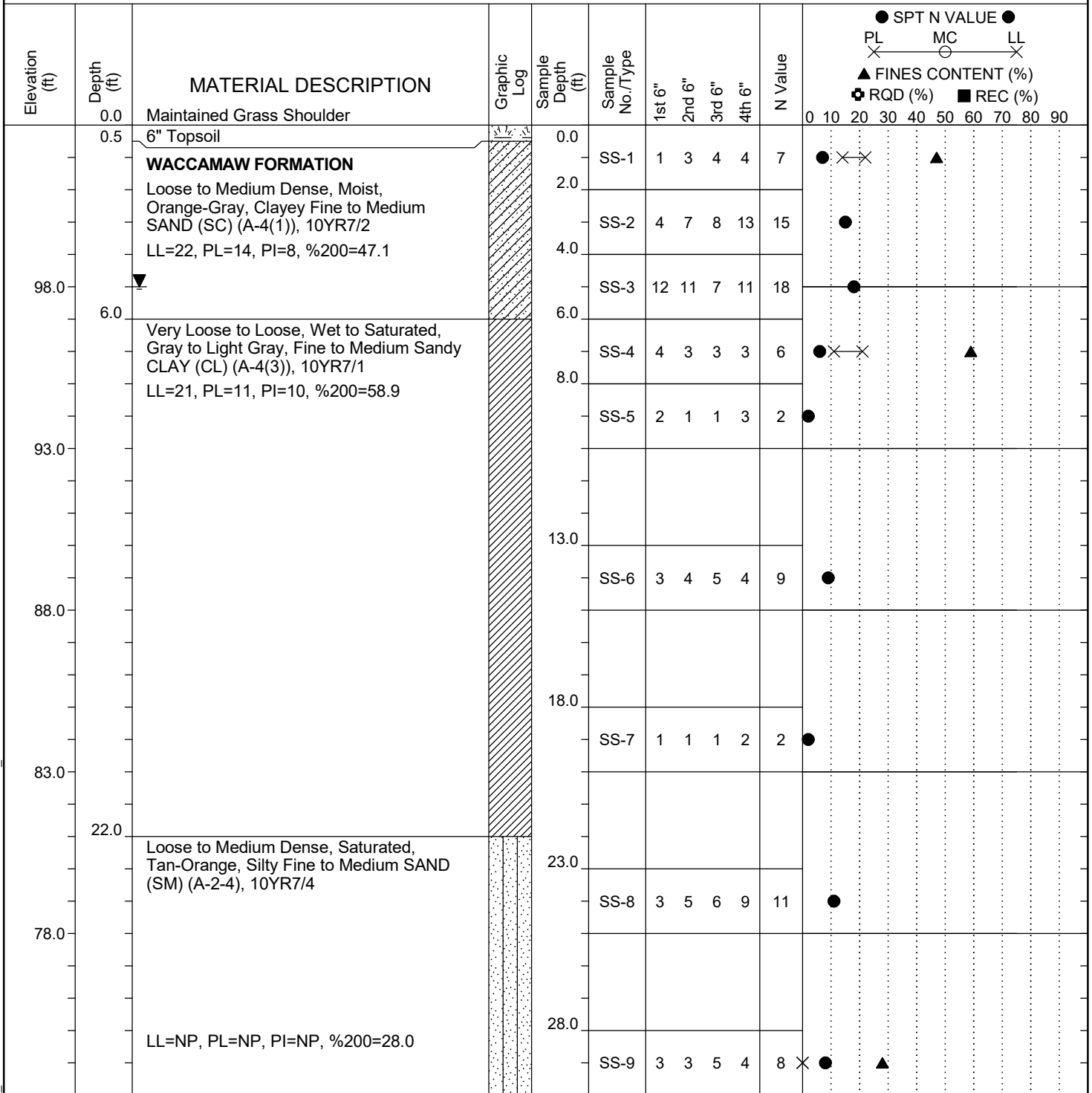
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-05
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 24+30.68	Offset: LT 13.94 Alignment: Existing
Elev.: 103.0 ft	Latitude: 33.315829	Longitude: -80.548404 Date Started: 1/21/2023
Total Depth: 60 ft	Soil Depth: 60 ft	Core Depth: ft Date Completed: 1/21/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 5 ft



LEGEND

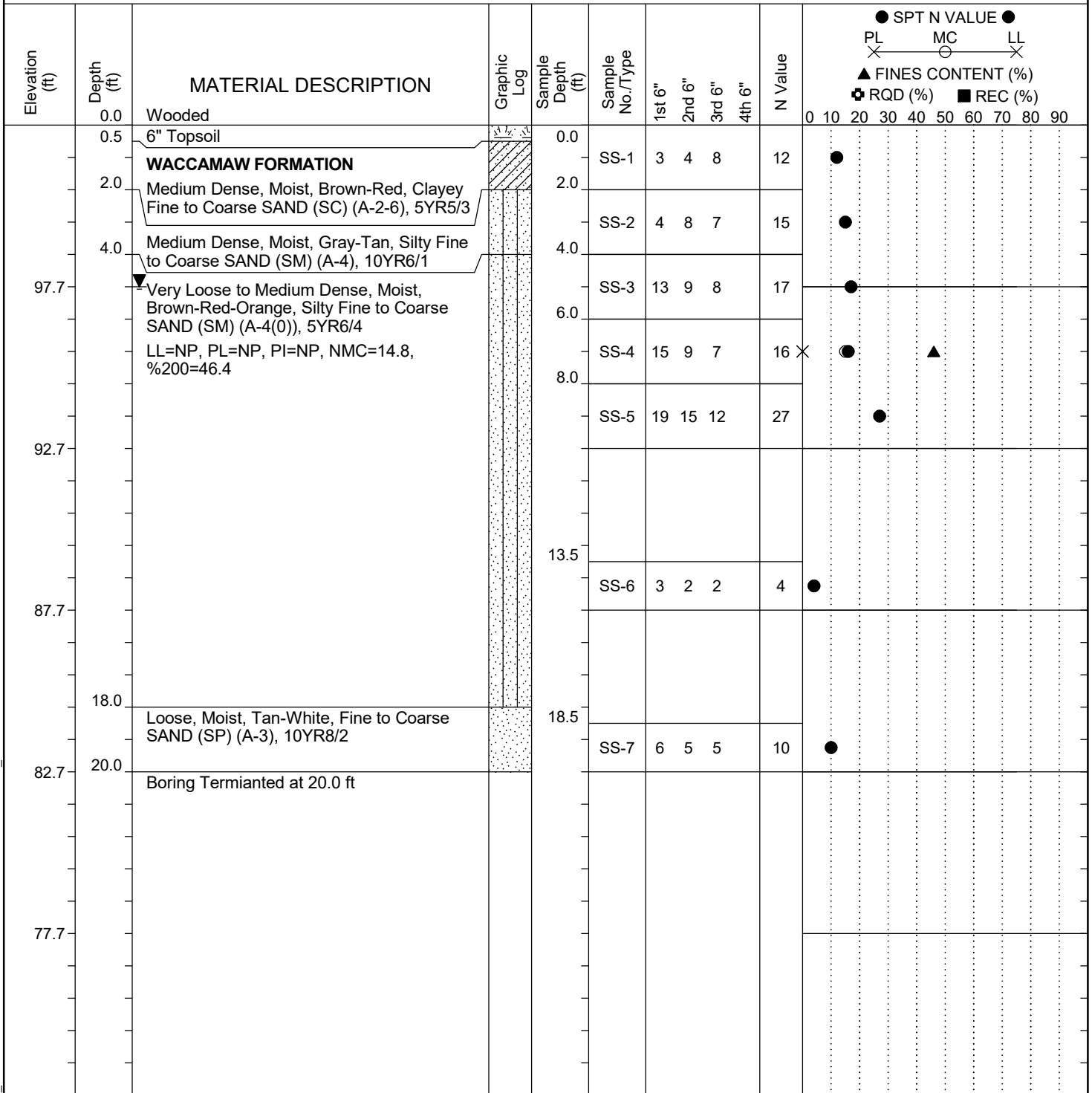
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-06
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 25+05.78	Offset: LT 68.19 Alignment: Existing
Elev.: 102.7 ft	Latitude: 33.320233	Longitude: -80.551045 Date Started: 1/20/2023
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft Date Completed: 1/20/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM 24HR: 5 ft



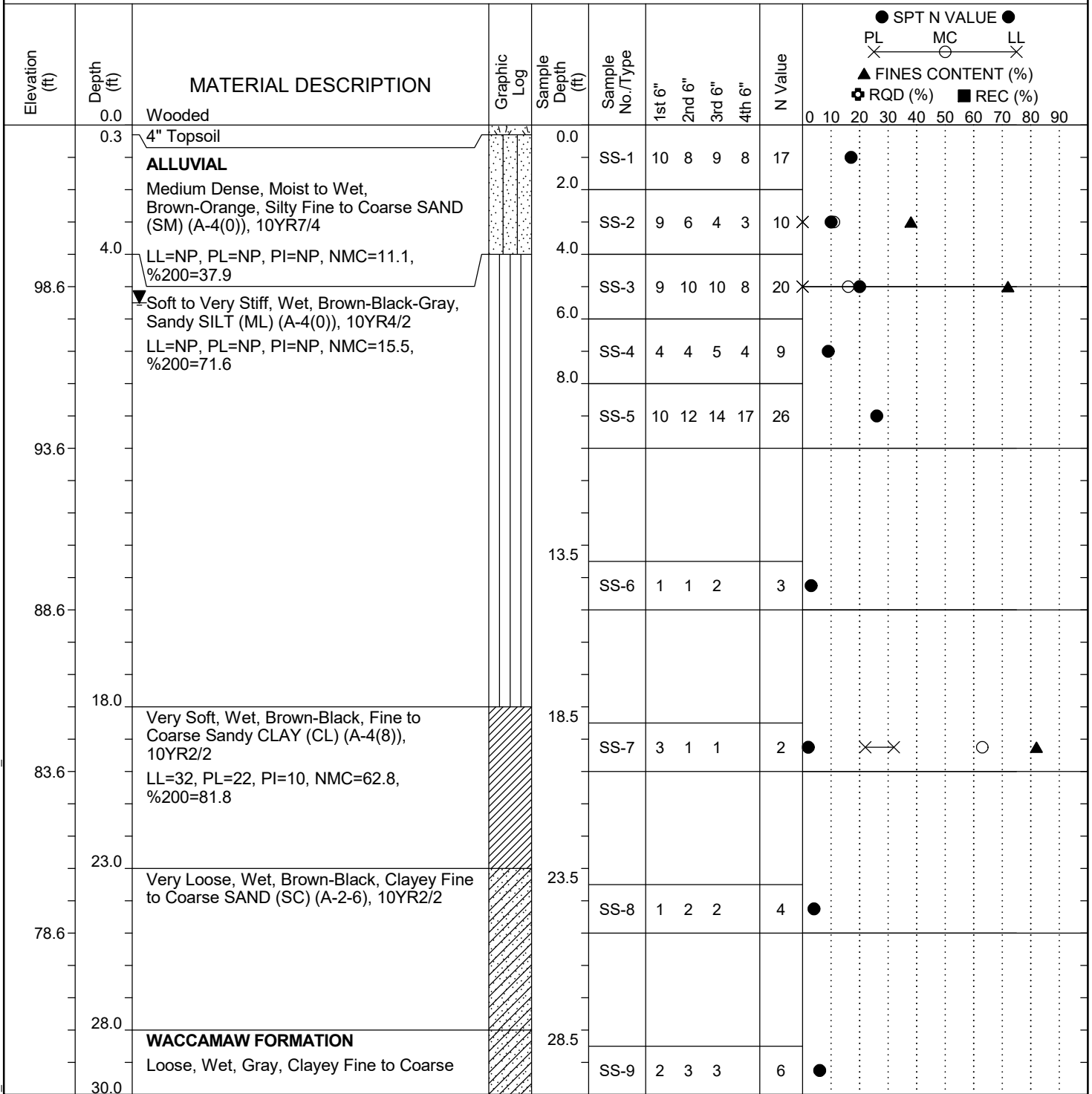
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-07
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 38+54.00	Offset: LT 62.96 Alignment: Existing
Elev.: 103.6 ft	Latitude: 33.316529	Longitude: -80.550911 Date Started: 1/20/2023
Total Depth: 30 ft	Soil Depth: 30 ft	Core Depth: ft Date Completed: 1/20/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 5.5 ft



LEGEND

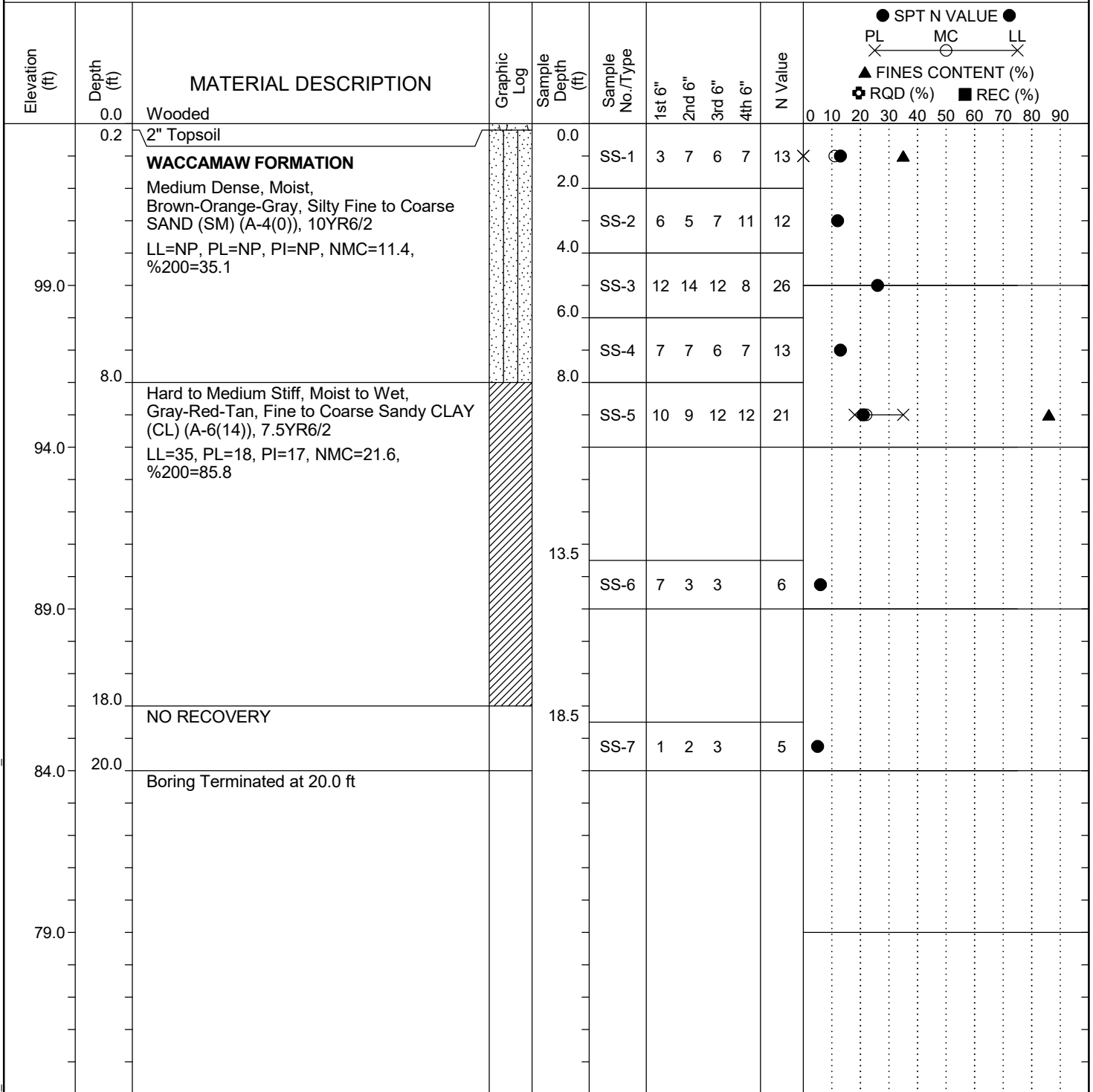
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-08
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 49+87.24	Offset: LT 42.54 Alignment: Existing
Elev.: 104.0 ft	Latitude: 33.313513	Longitude: -80.551952 Date Started: 1/20/2023
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft Date Completed: 1/20/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: NM



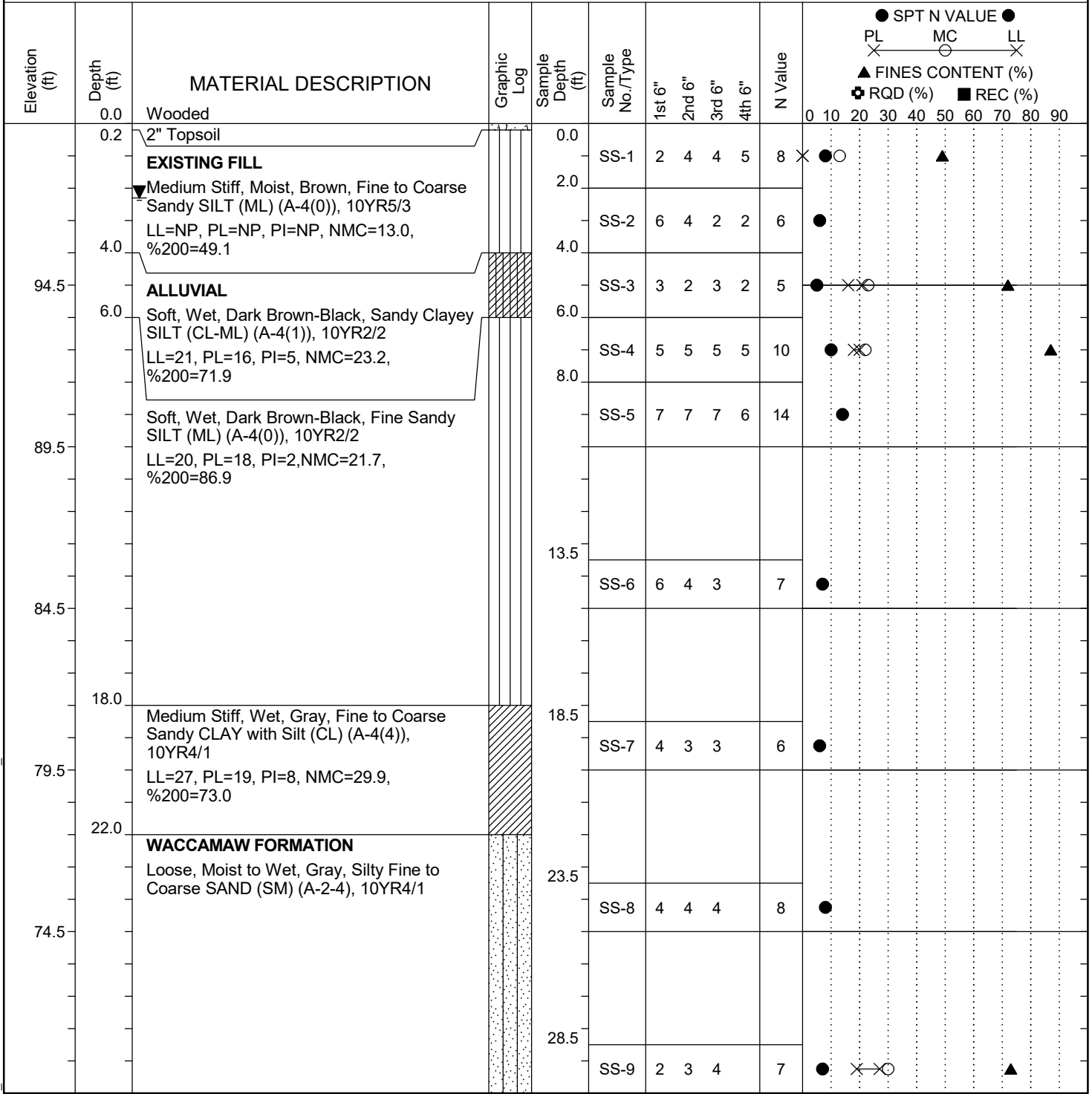
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-09
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 62+82.09	Offset: RT 15.51
Elev.: 99.5 ft	Latitude: 33.319581	Longitude: -80.545147
Total Depth: 60 ft	Soil Depth: 60 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: H. McDaniel	Energy Ratio: 93%
	Groundwater: TOB NM	24HR: 2.3 ft



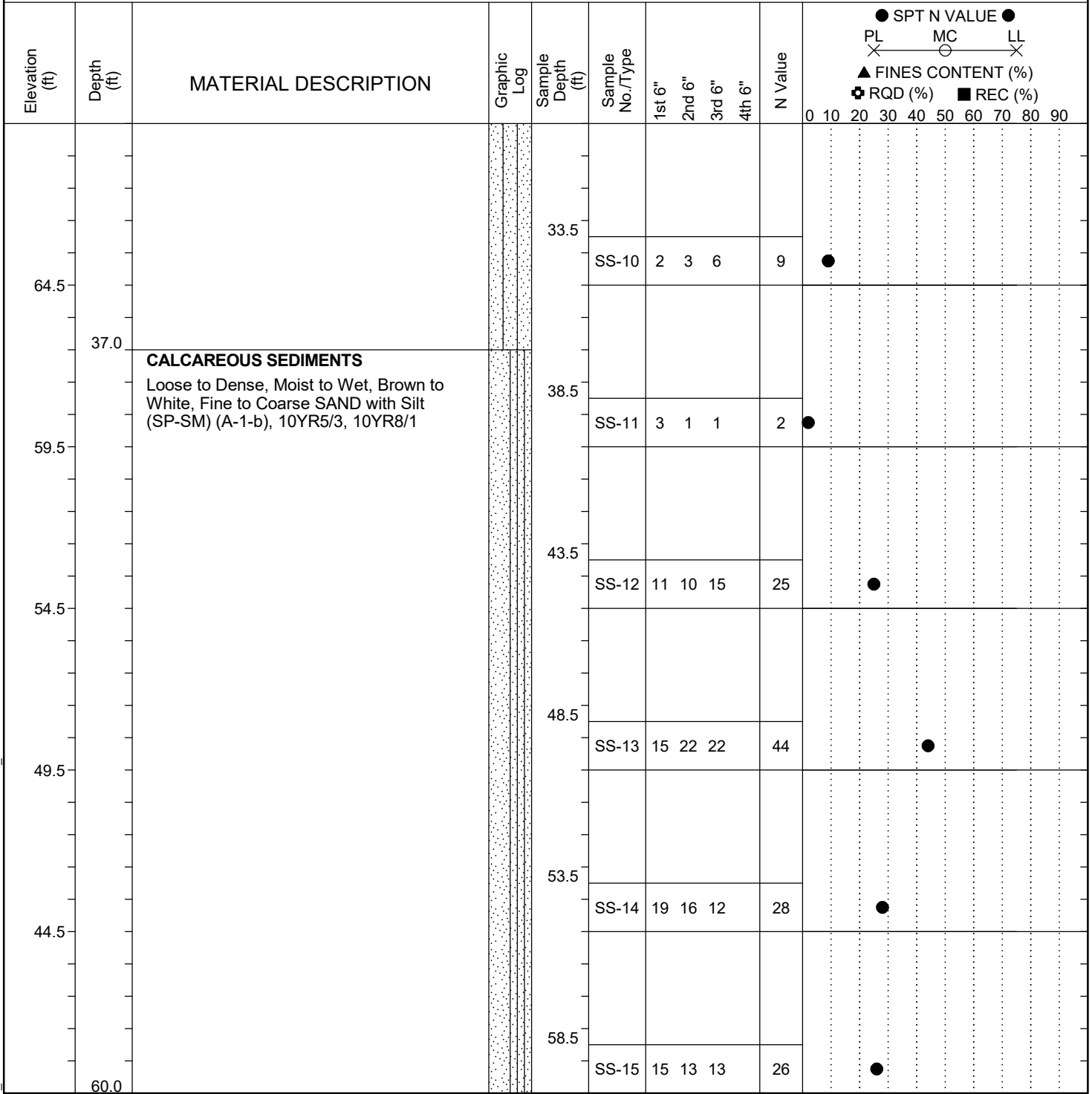
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-09
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 62+82.09	Offset: RT 15.51 Alignment: Existing
Elev.: 99.5 ft	Latitude: 33.319581	Longitude: -80.545147 Date Started: 2/4/2023
Total Depth: 60 ft	Soil Depth: 60 ft	Core Depth: ft Date Completed: 2/4/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM 24HR: 2.3 ft



LEGEND

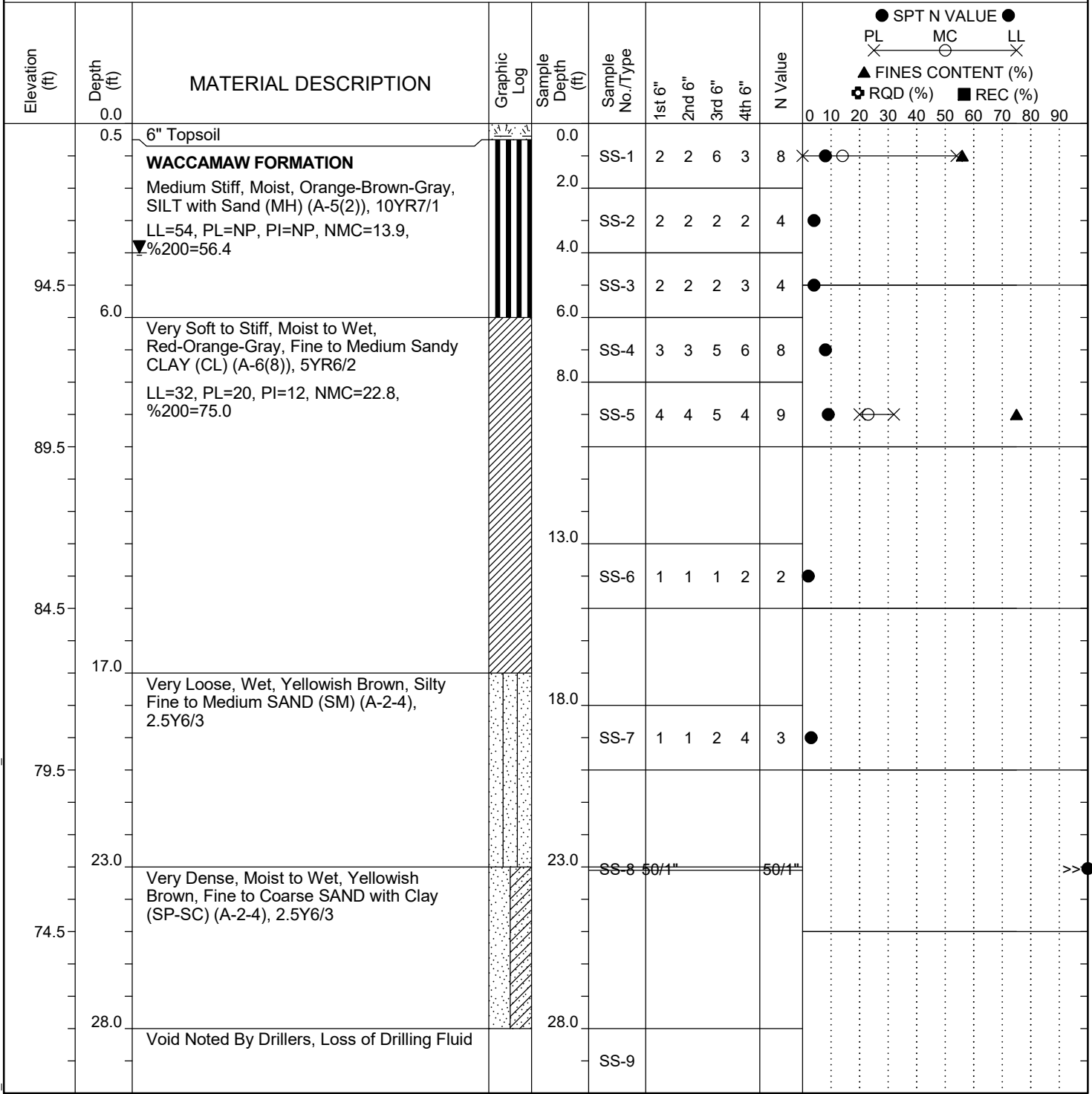
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-10
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Wadford	Boring Location: 3196+92.04	Offset: RT 329.81
Elev.: 99.5 ft	Latitude: 33.319894	Longitude: -80.550604
Total Depth: 40 ft	Soil Depth: 40 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 4 ft



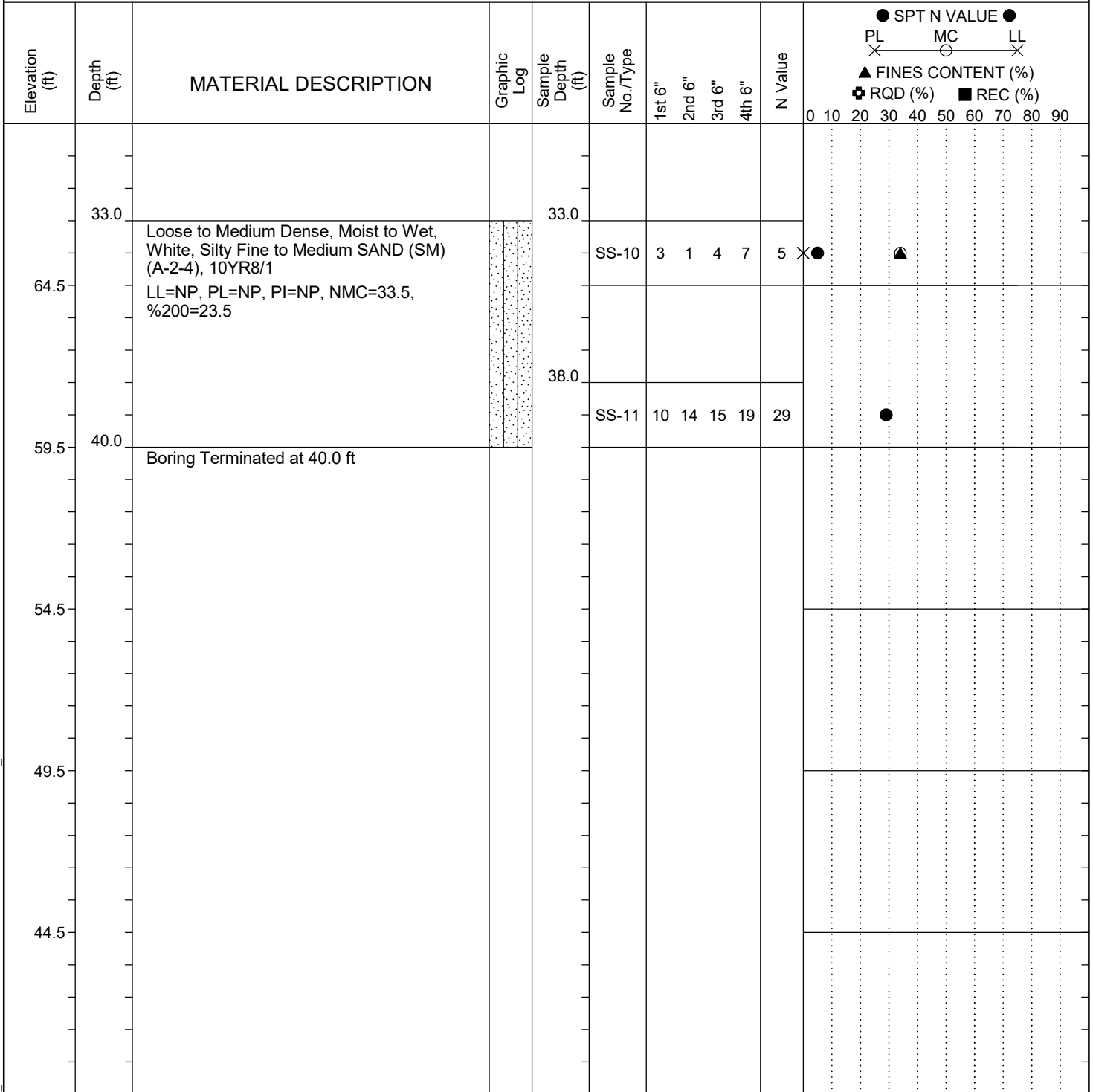
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-10
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Wadford	Boring Location: 3196+92.04	Offset: RT 329.81
Elev.: 99.5 ft	Latitude: 33.319894	Longitude: -80.550604
Total Depth: 40 ft	Soil Depth: 40 ft	Core Depth: ft
Bore Hole Diameter (in): 6		Sampler Configuration: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
Groundwater: TOB NM		24HR: 4 ft



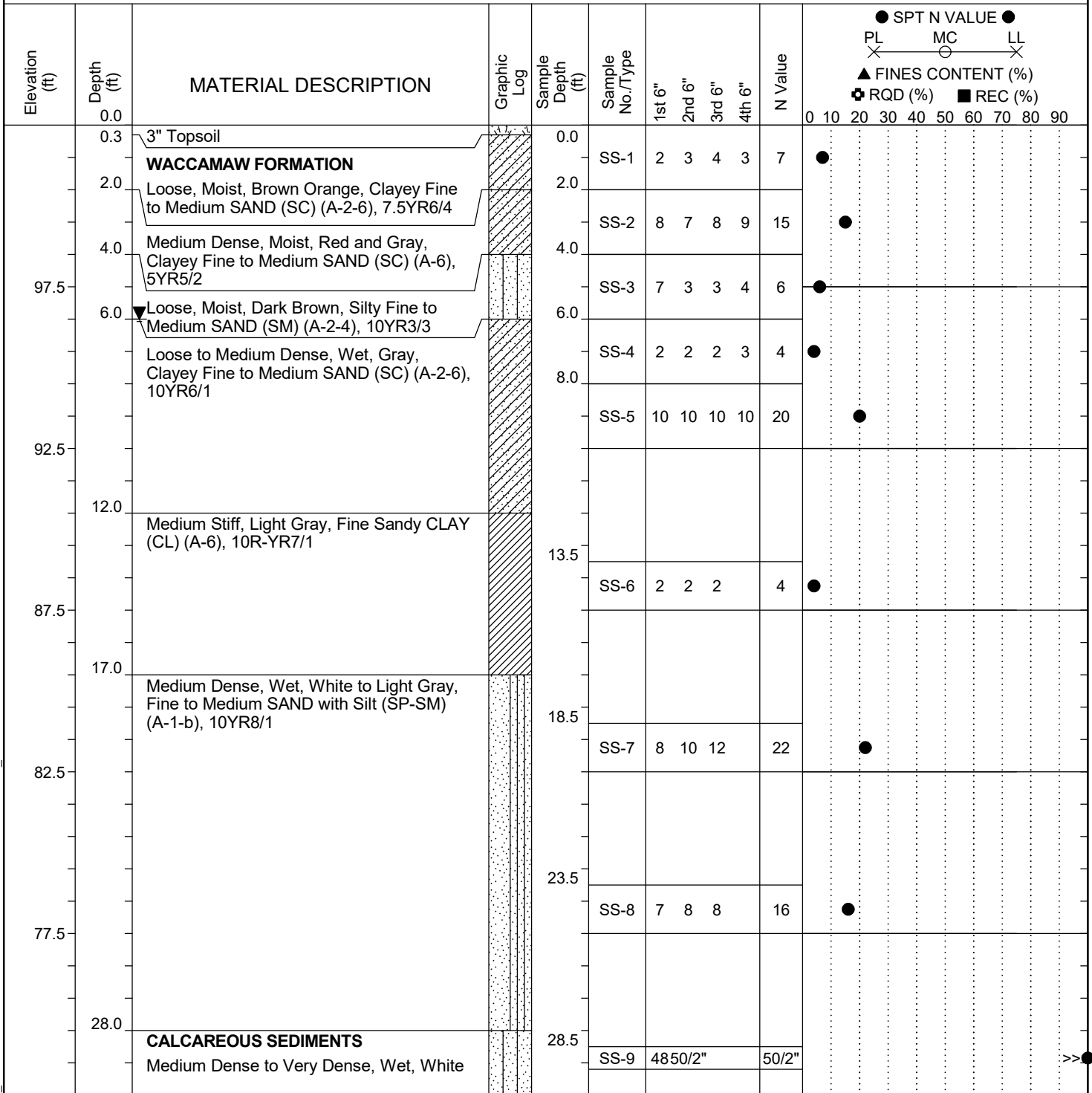
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-11
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 6012+98.70	Offset: RT 716.30
Elev.: 102.5 ft	Latitude: 33.318484	Longitude: -80.550675
Total Depth: 60 ft	Soil Depth: 60 ft	Date Started: 1/20/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Date Completed: 1/23/2023
Drill Machine: Diedrich D-50	Drill Method: RW	Liner Required: Y (N)
Core Size:	Driller: W. King	Liner Used: Y (N)
	Hammer Type: Automatic	Energy Ratio: 93%
	Groundwater: TOB NM	24HR: 6 ft



LEGEND

Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-11
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: B. Cook	Boring Location: 6012+98.70	Offset: RT 716.30
Alignment: Existing	Date Started: 1/20/2023	Date Completed: 1/23/2023
Elev.: 102.5 ft	Latitude: 33.318484	Longitude: -80.550675
Total Depth: 60 ft	Soil Depth: 60 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: Diedrich D-50	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 93%	Core Size:
Driller: W. King	Groundwater: TOB NM	24HR: 6 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE										
											0	10	20	30	40	50	60	70	80	90	
		to Light Greenish Gray, Silty Fine to Medium SAND with shell fragments (SM) (A-2-4), 5GY7/1																			
67.5				33.5	SS-10	14	22	24		46											
62.5				38.5	SS-11	5	20	22		42											
57.5				43.5	SS-12	7	0	19		19											
52.5				48.5	SS-13	6	11	16		27											
47.5				53.5	SS-14	13	15	14		29											
				58.5	SS-15	11	11	13		24											

LEGEND

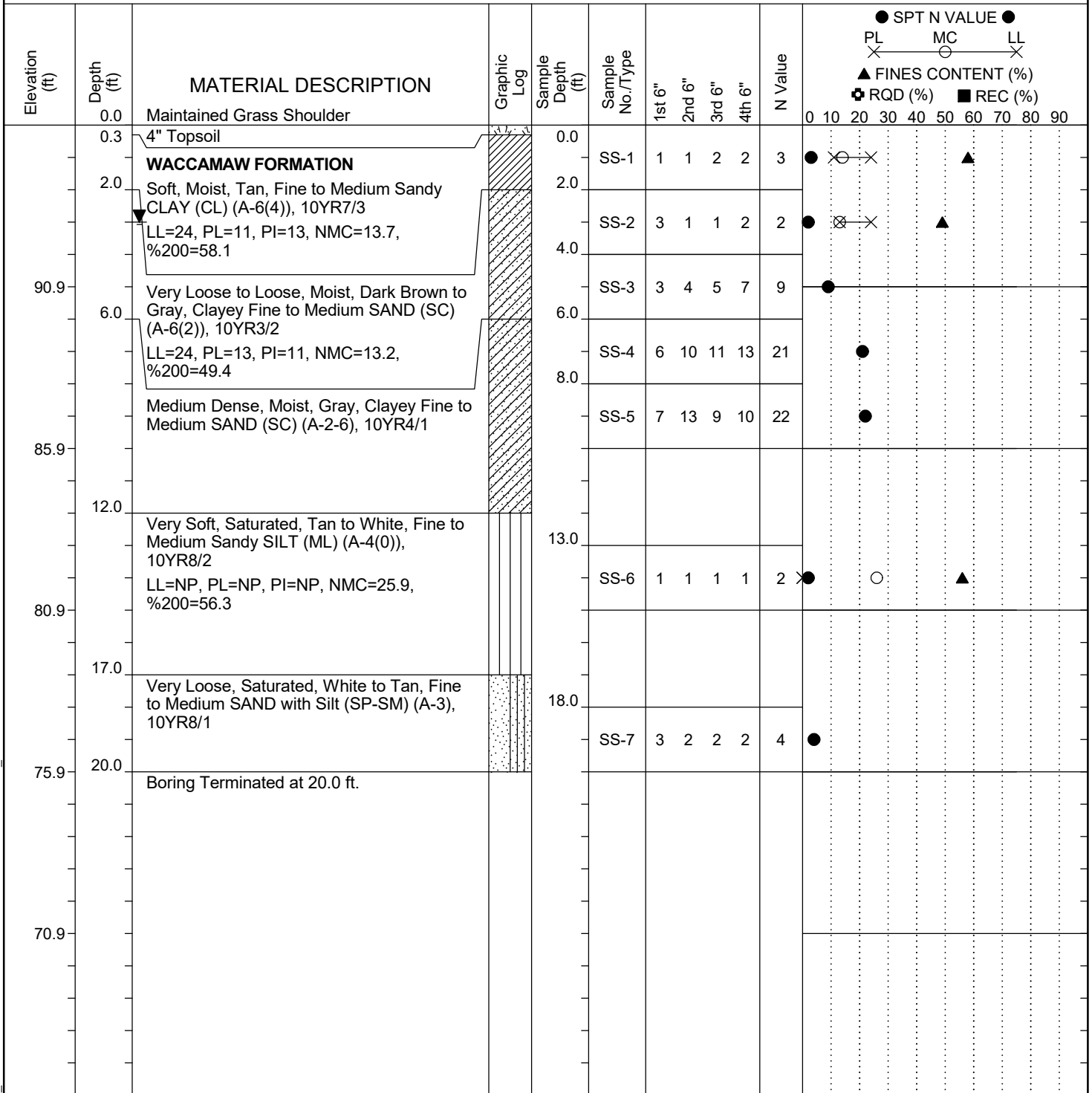
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-12
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: J. Wadford	Boring Location: 65+13.06	Offset: LT 1.27
Elev.: 95.9 ft	Latitude: 33.31428	Longitude: -80.544956
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 3 ft



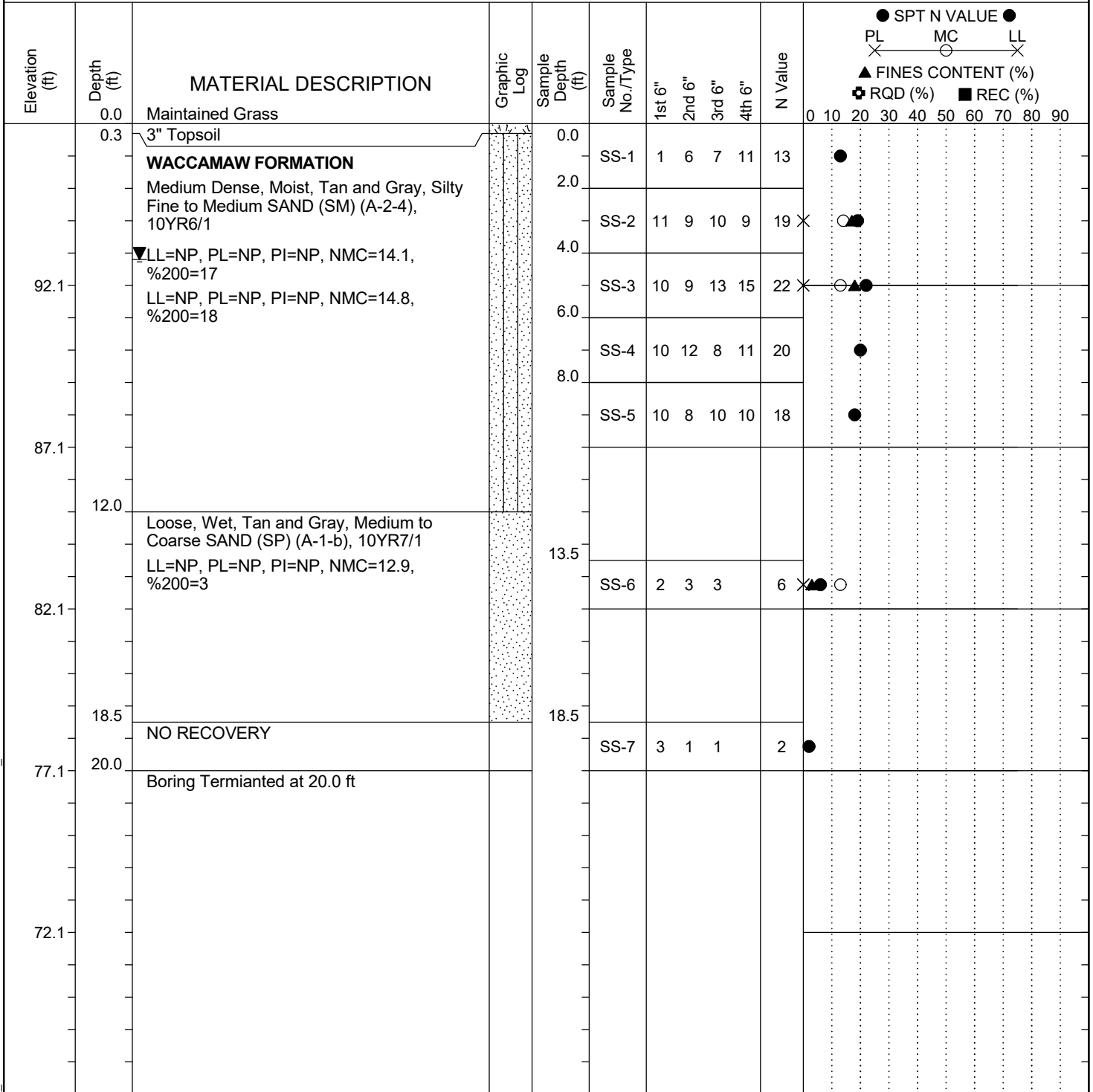
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677		County:	Orangeburg	Boring No.:	R-13	
Site Description:	I-26 at I-95 Interchange Improvement				Route:	I-95	
Eng./Geo.:	A. Guest	Boring Location:	09+84.01	Offset:	RT 5.00	Alignment:	Existing
Elev.:	97.1 ft	Latitude:	33.32402	Longitude:	-80.544348	Date Started:	1/3/2023
Total Depth:	20 ft	Soil Depth:	20 ft	Core Depth:	ft	Date Completed:	1/3/2023
Bore Hole Diameter (in):	6	Sampler Configuration		Liner Required:	Y (N)	Liner Used:	Y (N)
Drill Machine:	Diedrich D-50	Drill Method:	RW	Hammer Type:	Automatic	Energy Ratio:	93%
Core Size:		Driller:	H. McDaniel	Groundwater:	TOB NM	24HR	4.2 ft



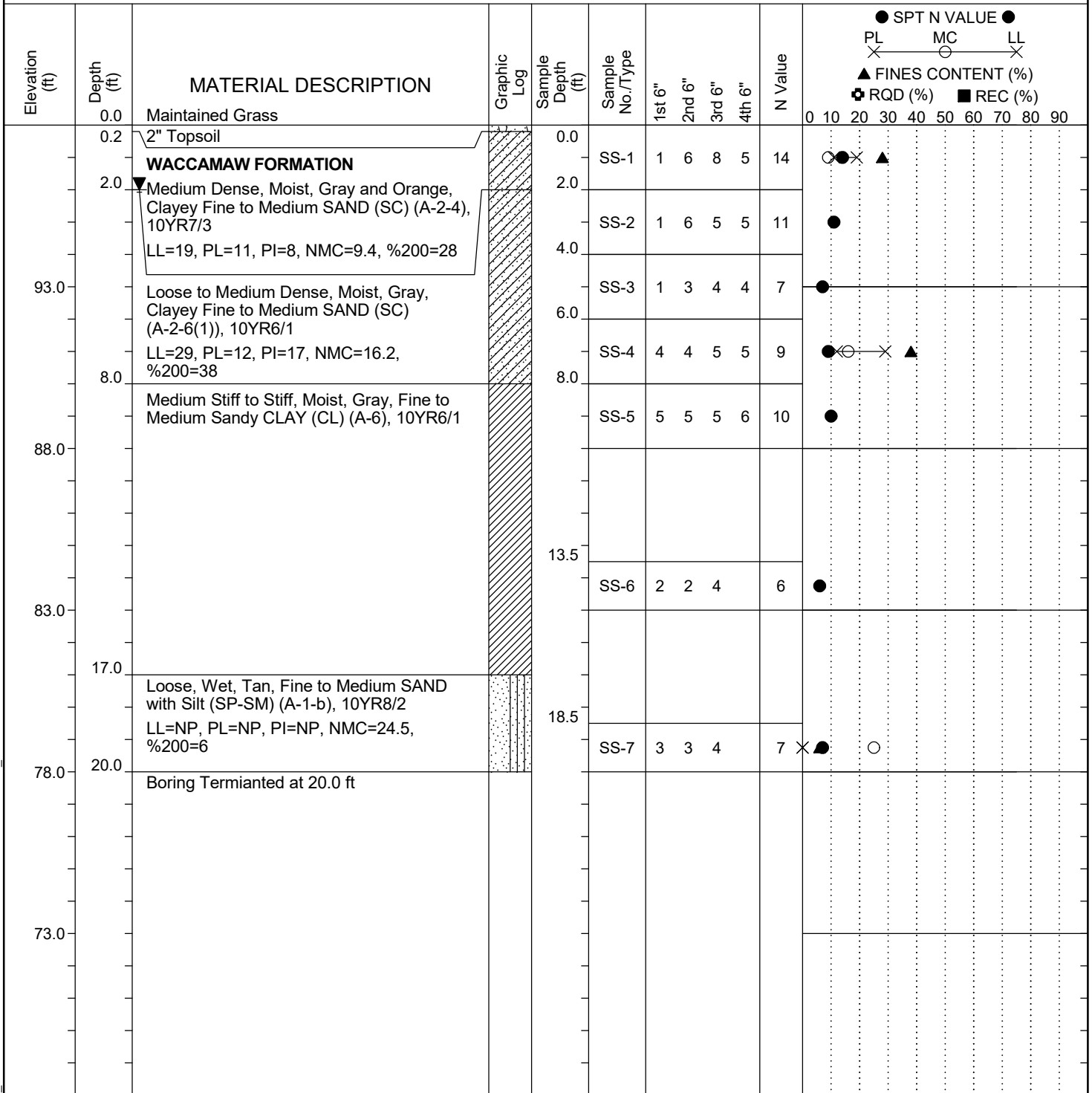
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-15
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3188+26.44	Offset: LT 142.47
Alignment: Existing	Date Started: 1/23/2023	Date Completed: 1/23/2023
Elev.: 98.0 ft	Latitude: 33.322561	Longitude: -80.551178
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: Diedrich D-50	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 93%	Groundwater: TOB NM
Core Size:	Driller: H. McDaniel	24HR: 2 ft



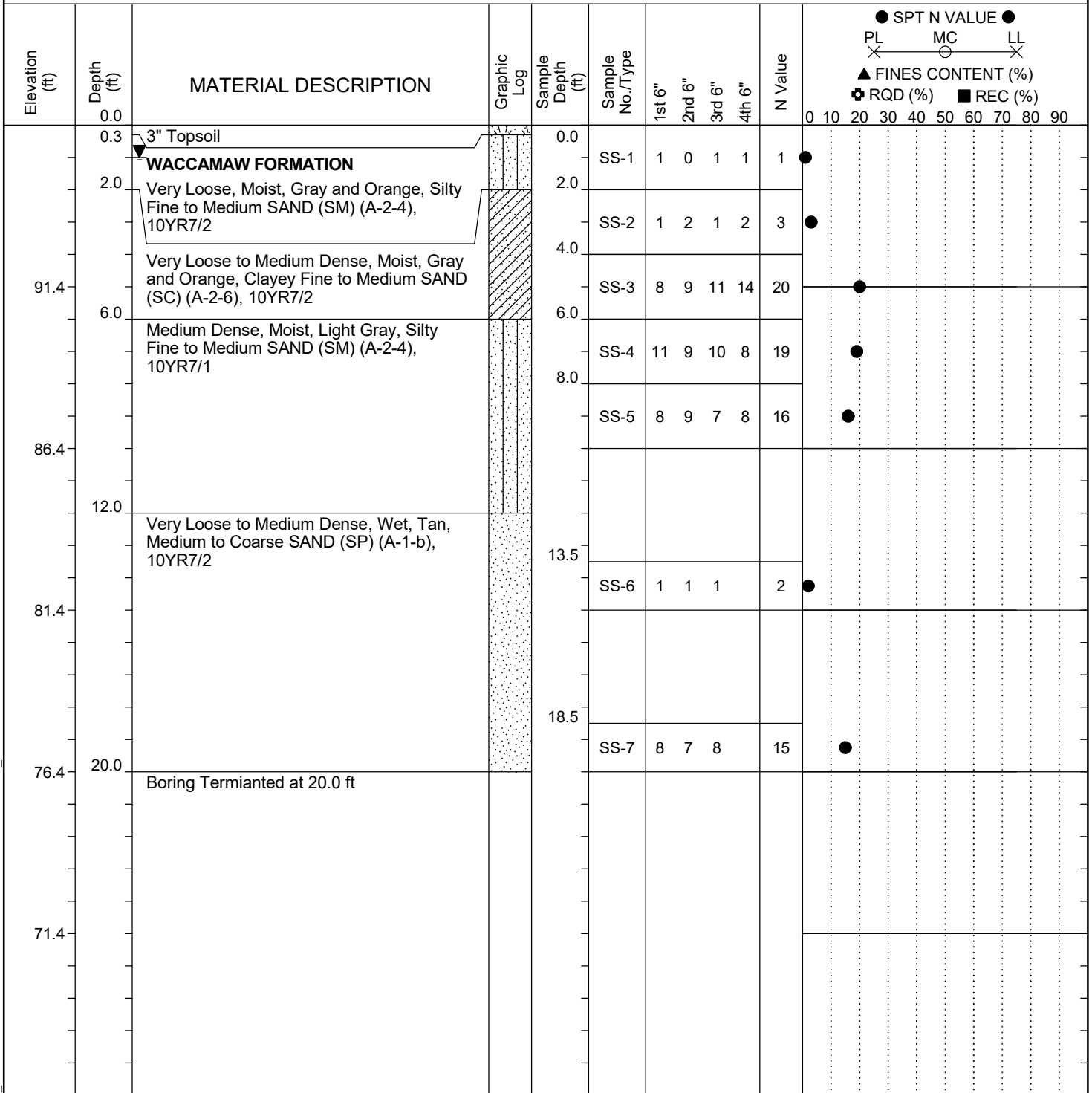
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-16
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3192+41.09	Offset: LT 311.45
Alignment: Existing		
Elev.: 96.4 ft	Latitude: 33.321965	Longitude: -80.549896
Date Started: 1/24/2023		
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Date Completed: 1/24/2023		
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)		
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Energy Ratio: 93%		
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM
		24HR: 1 ft



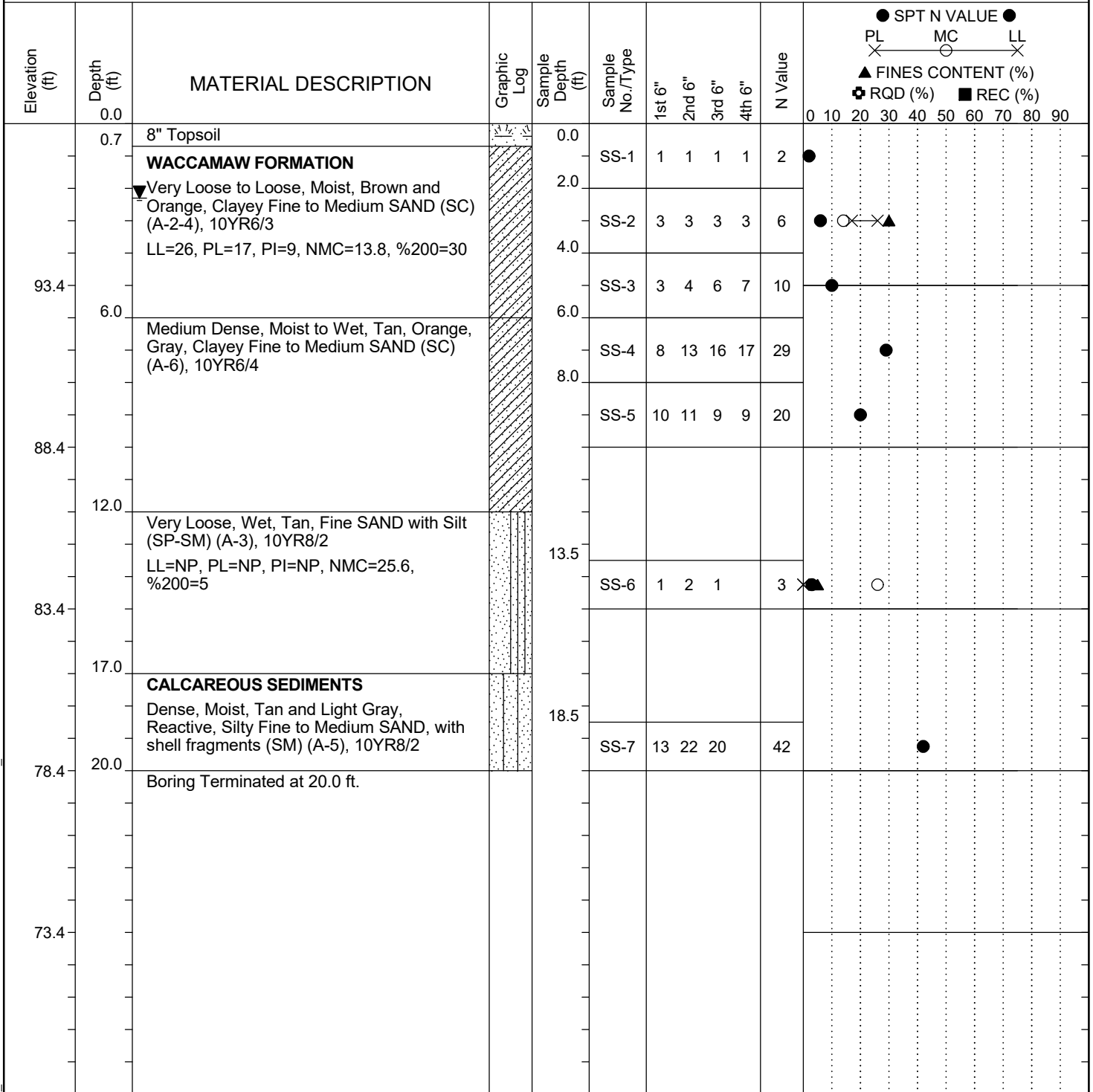
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-17
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3187+93.91	Offset: LT 299.44 Alignment: Existing
Elev.: 98.4 ft	Latitude: 33.322902	Longitude: -80.550846 Date Started: 1/24/2023
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft Date Completed: 1/24/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 93%
Core Size:	Driller: H. McDaniel	Groundwater: TOB NM 24HR: 2.3 ft



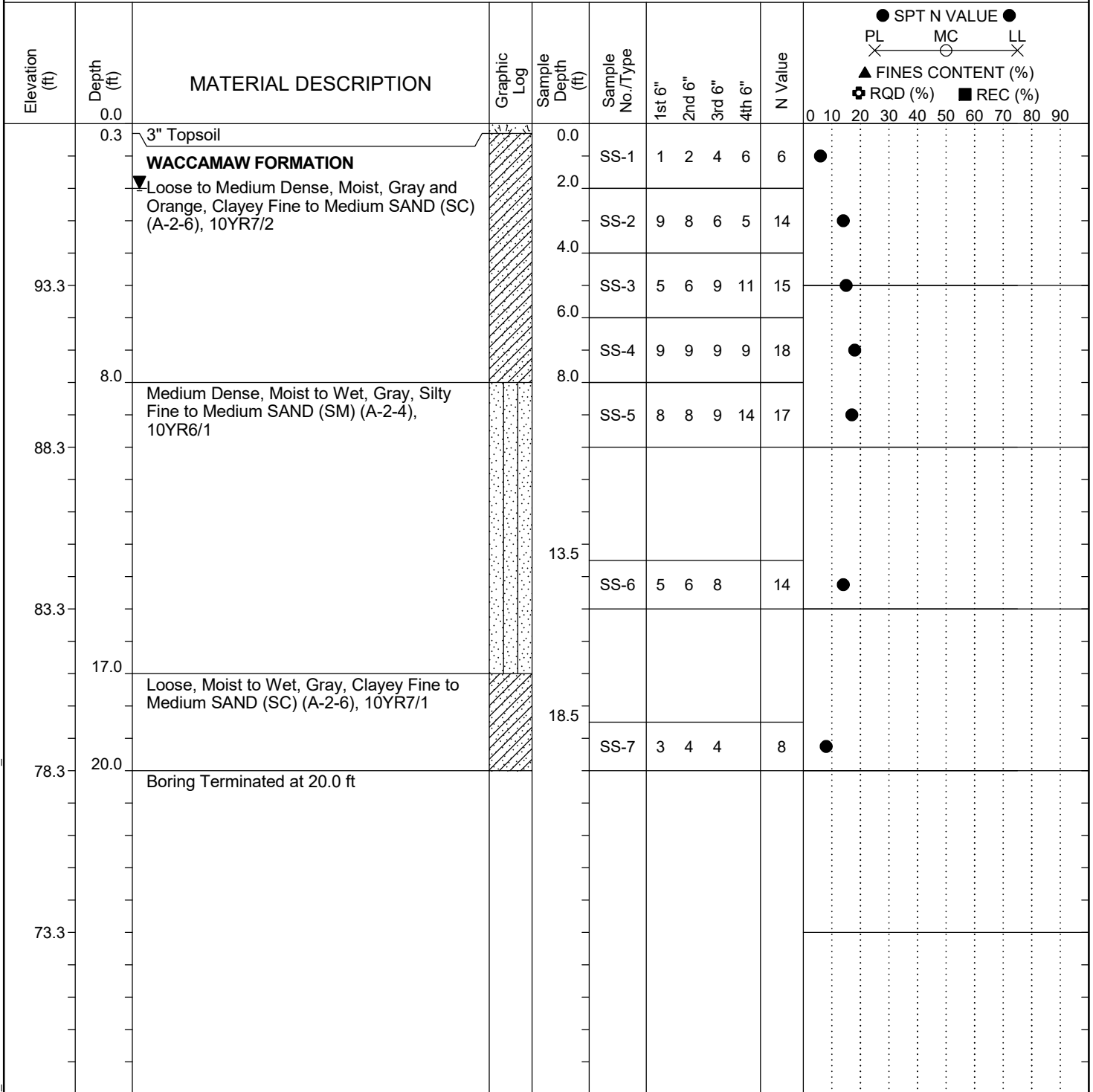
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-18
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3185+02.11	Offset: LT 134.59
Elev.: 98.3 ft	Latitude: 33.323242	Longitude: -80.551874
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: Diedrich D-50	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: H. McDaniel	Energy Ratio: 93%
	Groundwater: TOB NM	24HR: 2 ft



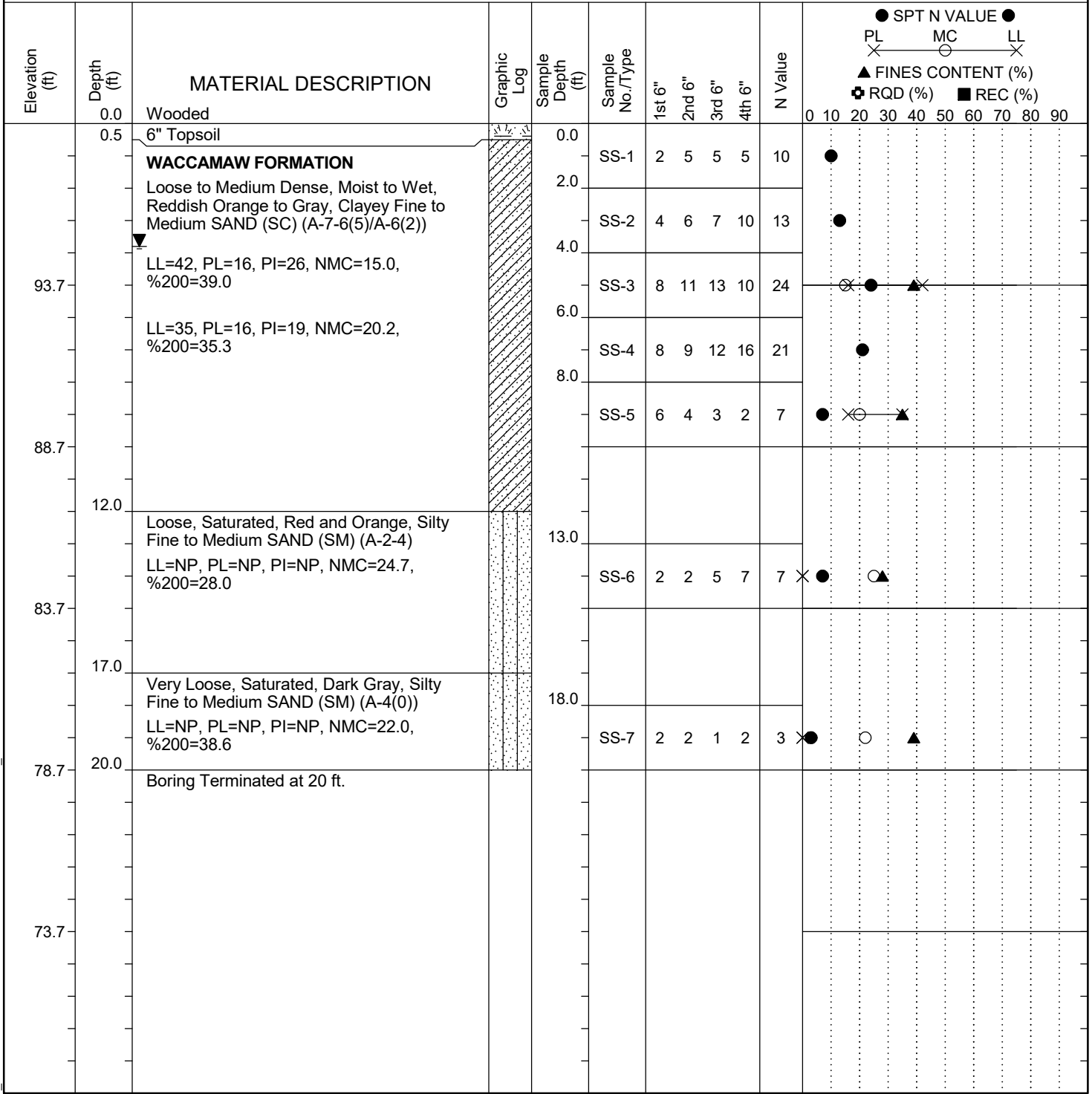
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-19
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 29+92.58	Offset: RT 28.96 Alignment: Existing
Elev.: 98.7 ft	Latitude: 33.313122	Longitude: -80.551158 Date Started: 1/20/2023
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft Date Completed: 1/20/2023
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N) Liner Used: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic Energy Ratio: 96%
Core Size:	Driller: W. King	Groundwater: TOB NM 24HR: 3.8 ft



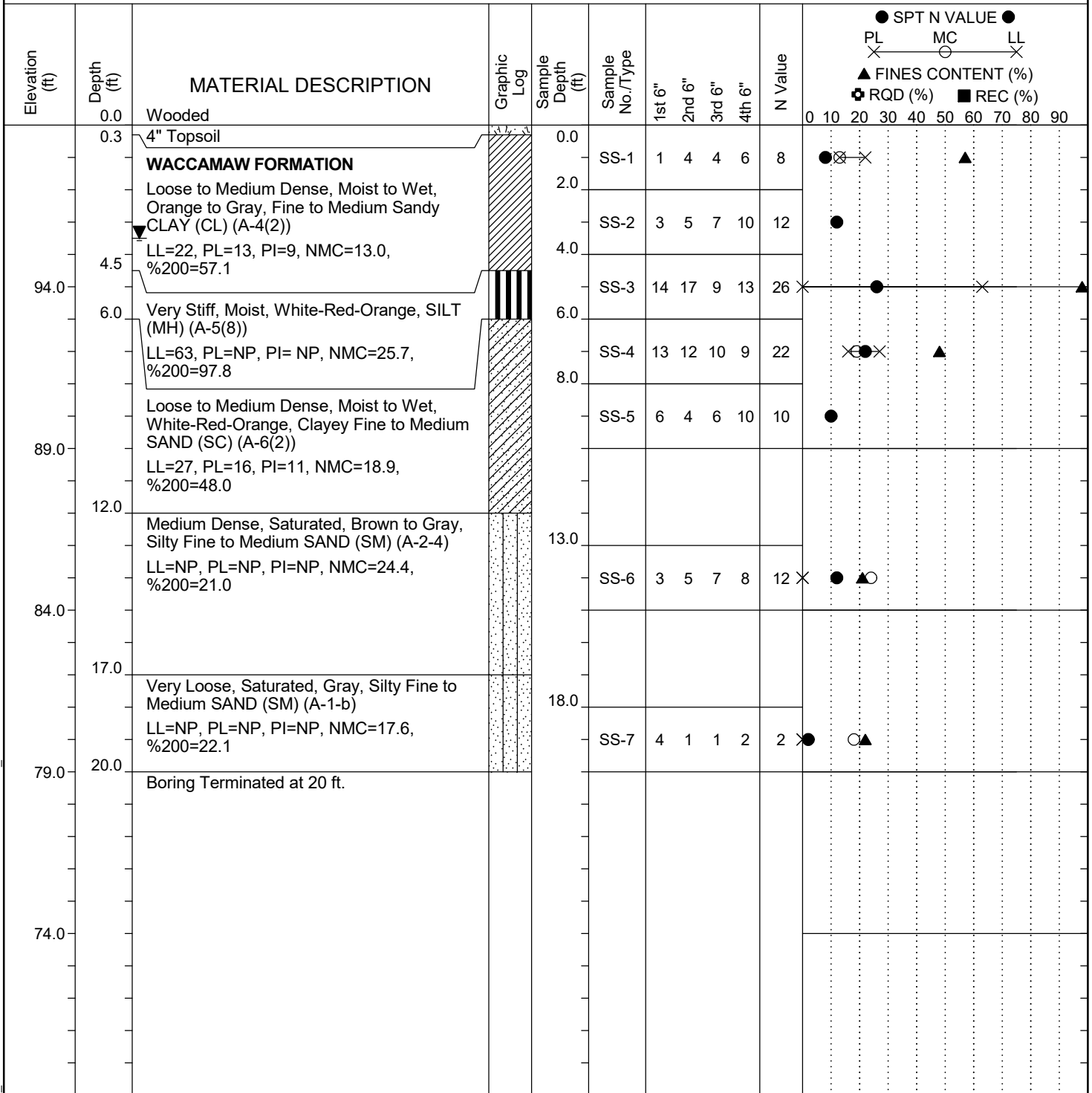
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-20
Site Description: I-26 at I-95 Interchange Improvement	Route: I-95	
Eng./Geo.: J. Wadford	Boring Location: 33+00.33	Offset: LT 26.71
Elev.: 99.0 ft	Latitude: 33.313757	Longitude: -80.550456
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 3.5 ft



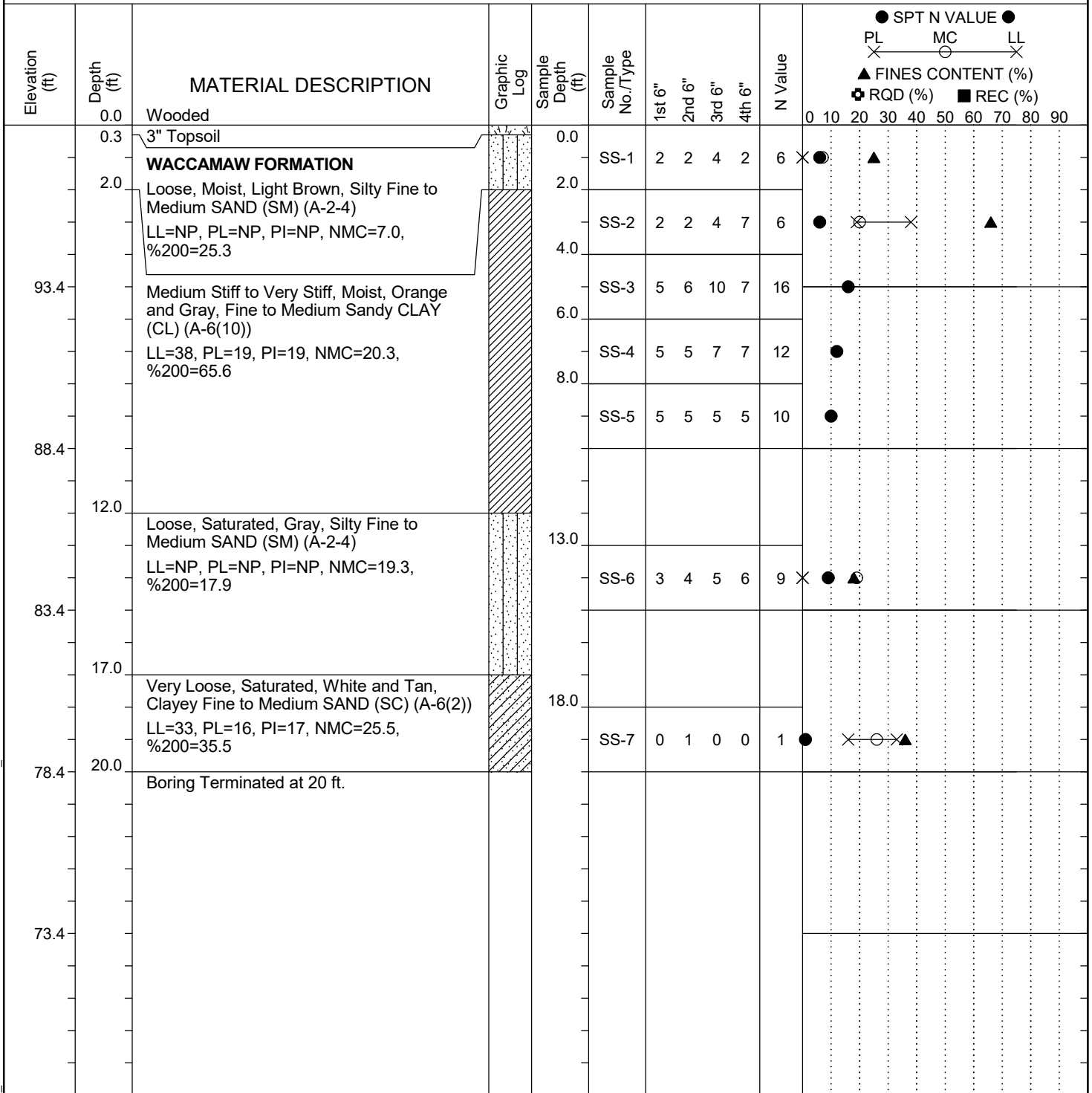
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-21
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 25+81.22	Offset: RT 21.32
Elev.: 98.4 ft	Latitude: 33.312119	Longitude: -80.55178
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM



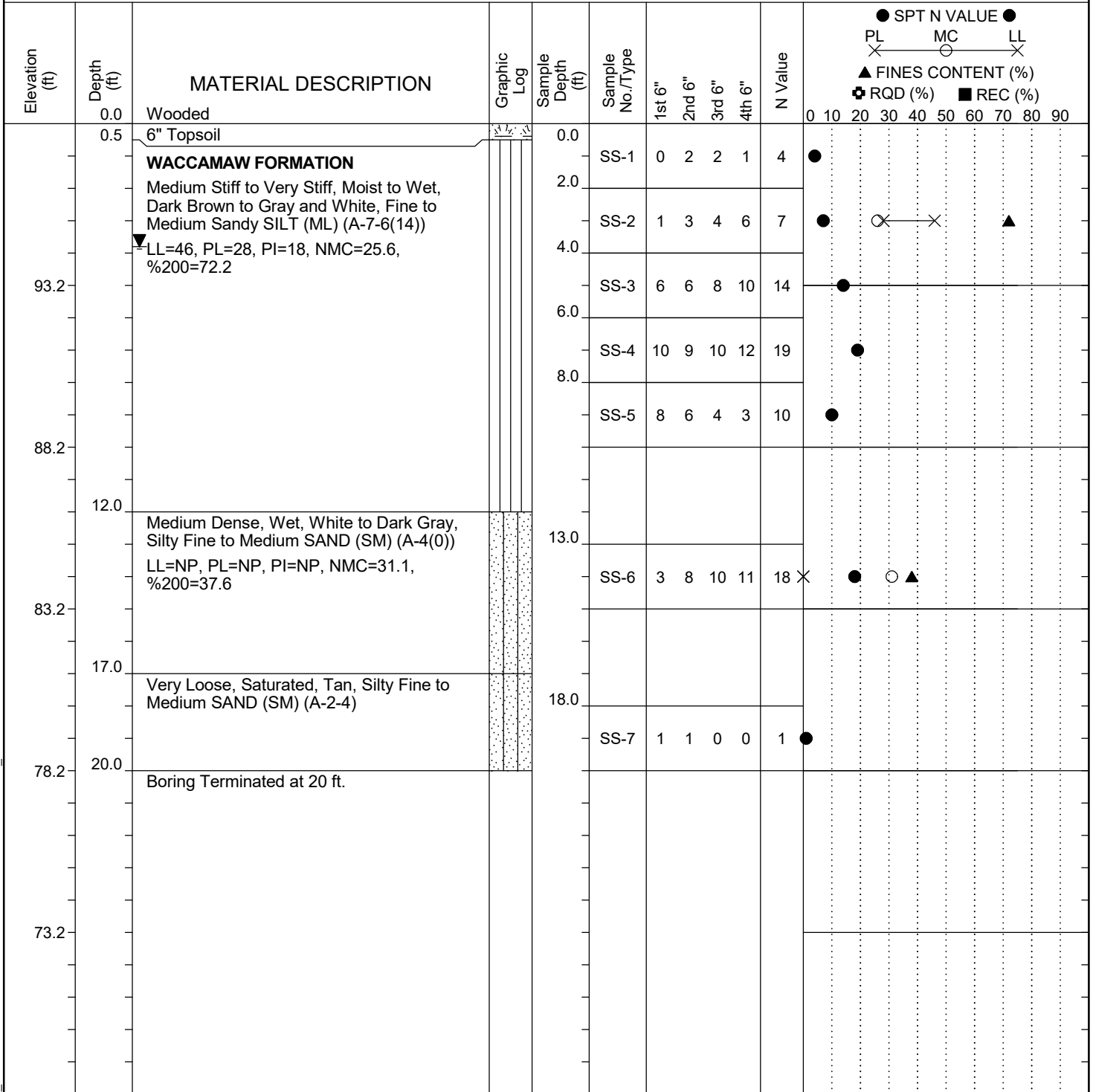
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-22
Site Description: I-26 at I-95 Interchange Improvement		Route: I-95
Eng./Geo.: J. Wadford	Boring Location: 34+37.24	Offset: RT 9.22
Elev.: 98.2 ft	Latitude: 33.314099	Longitude: -80.550338
Total Depth: 20 ft	Soil Depth: 20 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type: Automatic
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: 3.8 ft



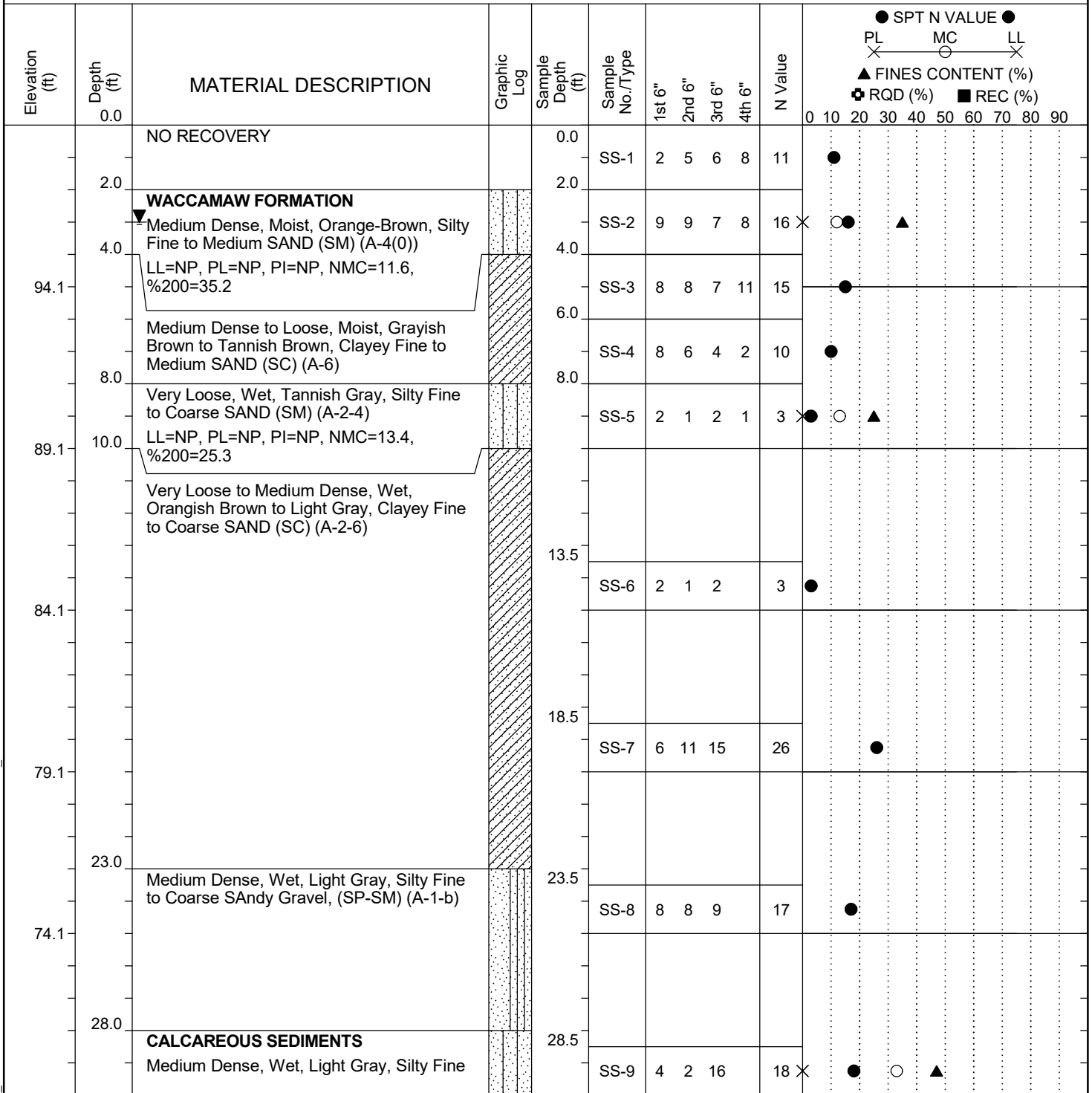
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC.DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: R-23
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: B. Cook	Boring Location: 55+05.17	Offset: LT 3.06
Alignment: Existing	Date Started: 2/4/2023	Elev.: 99.1 ft
Latitude: 33.317474	Longitude: -80.545145	Date Completed: 2/4/2023
Total Depth: 40 ft	Soil Depth: 40 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Liner Used: Y (N)	Drill Machine: Diedrich D-50	Drill Method: RW
Hammer Type: Automatic	Energy Ratio: 93%	Core Size:
Groundwater: TOB NM	24HR	3 ft



LEGEND

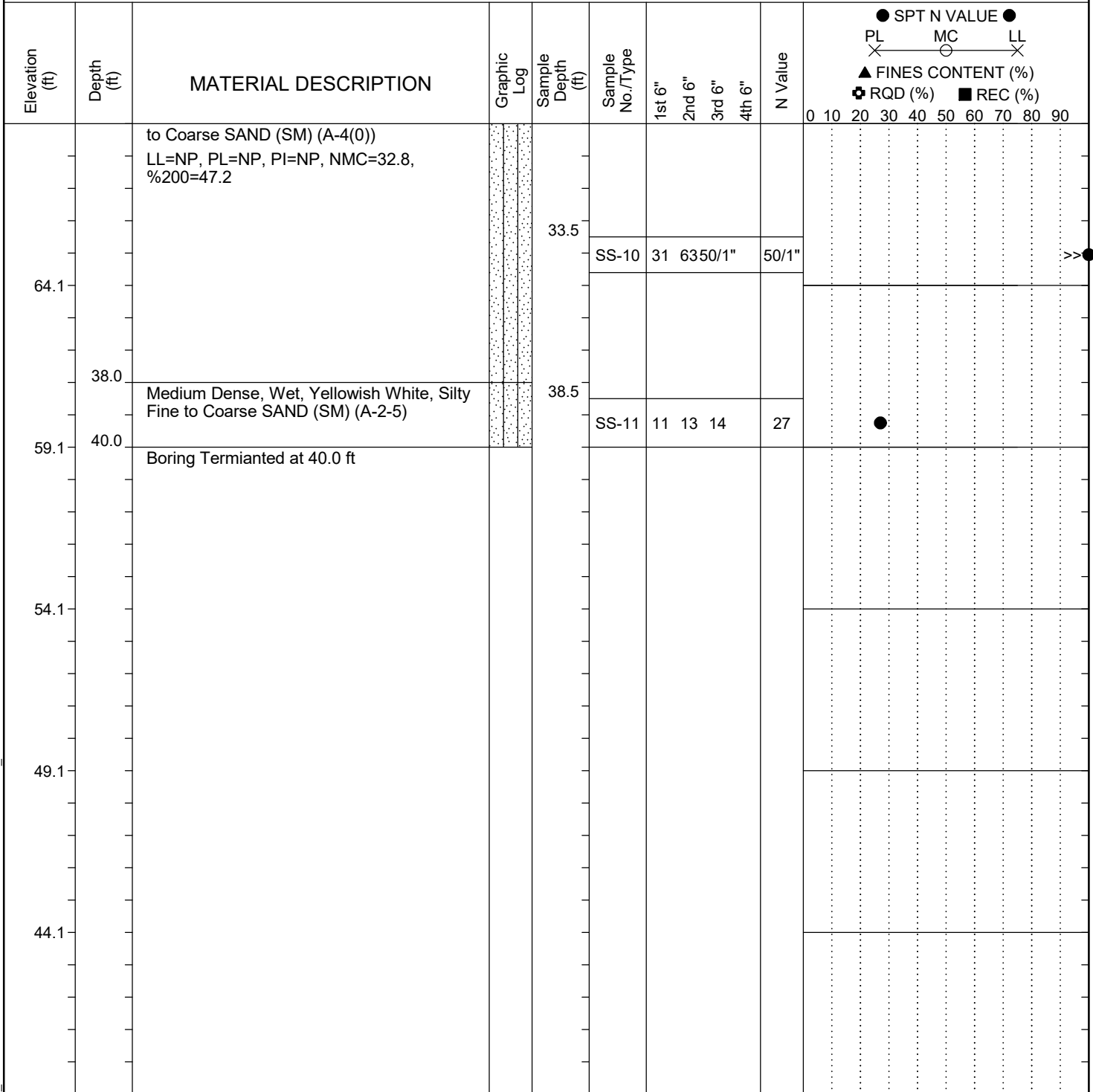
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SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Soil Test Log

Project ID:	P038677			County:	Orangeburg		Boring No.:	R-23			
Site Description:	I-26 at I-95 Interchange Improvement						Route:	I-26			
Eng./Geo.:	B. Cook		Boring Location:	55+05.17		Offset:	LT 3.06		Alignment:	Existing	
Elev.:	99.1 ft		Latitude:	33.317474		Longitude:	-80.545145		Date Started:	2/4/2023	
Total Depth:	40 ft		Soil Depth:	40 ft		Core Depth:	ft		Date Completed:	2/4/2023	
Bore Hole Diameter (in):	6		Sampler Configuration			Liner Required:	Y (N)		Liner Used:	Y (N)	
Drill Machine:	Diedrich D-50		Drill Method:	RW		Hammer Type:	Automatic		Energy Ratio:	93%	
Core Size:			Driller:	H. McDaniel		Groundwater:	TOB NM		24HR	3 ft	



LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_4/14/23

SCDOT Manual Auger Log

Project ID: P038677	County: Orangeburg	Boring No.: B-01MA
Site Description: I-26 at I-95 Interchange Improvement	Route: S-38-1302	
Driller: J. Wadford	Boring Location: 3174+35.09	Offset: LT 84.32
Elev.: 103.7 ft	Latitude: 33.325375	Longitude: -80.5543
Total Depth: 4 ft	Groundwater: TOB	Date Started: 2/8/2023
	24 hr NM	Date Completed: 2/8/2023
Dynamic Cone Penetrometer Test Procedure:		

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	DCP-Value	● DCP-VALUE ● PL — MC — LL ▲ FINES CONTENT (%)										
											0	10	20	30	40	50	60	70	80	90	
	0.0	Loose, Wet, Grayish Brown to Orange, Sub-rounded to Sub-angular, Silty Clayey Fine to Medium SAND (SC-SM) (A-2-4), 2.5Y4/3 LL=17, PL=13, PI=4, NMC=7.8, %200=20.1	[Dotted Pattern]	0.0																	
	4.0	Manual Auger Terminated at 4.0 feet			BULK																
	98.7																				

LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

MANUAL AUGER LOG P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/23/23

SCDOT Manual Auger Log

Project ID: P038677	County: Orangeburg	Boring No.: B-06MA
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Driller: J. Wadford	Boring Location: 3205+27.24	Offset: RT 116.26
Elev.: 116.3 ft	Latitude: 33.318475	Longitude: -80.548344
Total Depth: 4 ft	Groundwater: TOB	Date Started: 2/8/2023
	24 hr NM	Date Completed: 2/8/2023
Dynamic Cone Penetrometer Test Procedure:		

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	DCP-Value	● DCP-VALUE ● PL — MC — LL ▲ FINES CONTENT (%)										
											0	10	20	30	40	50	60	70	80	90	
111.3	0.0	Loose, Moist, Brown-Tan, Sub-angular to Sub-rounded, Silty Clayey Fine to Medium SAND (SC-SM) (A-2-4), 10YR5/1 LL=17, PL=13, PI=4, NMC=13.1, %200=19.9	[Dotted Pattern]	0.0	BULK						▲										
	4.0	Manual Auger Terminated 4.0 feet																			

LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

MANUAL AUGER LOG P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/23/23

SCDOT Manual Auger Log

Project ID: P038677	County: Orangeburg	Boring No.: P-12MA
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Driller: J. Wadford	Boring Location: 3222+79.01	Offset: LT 87.03
Elev.: 99.9 ft	Latitude: 33.315076	Longitude: -80.544227
Total Depth: 4 ft	Groundwater: TOB	Date Started: 2/8/2023
Dynamic Cone Penetrometer Test Procedure:		Date Completed: 2/8/2023

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	DCP-Value	DCP-VALUE ●										
											PL	MC	LL	▲ FINES CONTENT (%)							
	0.0										0	10	20	30	40	50	60	70	80	90	
		Loose to Medium Dense, Moist, Gray, Silty Clayey Fine to Coarse SAND (SC-SM) (A-2-4), 10YR5/1 LL=21, PL=16, PI=5, NMC=16.4, %200=22.7	●●●●●●●●●●	0.0																	
	4.0	Manual Auger Terminated at 4.0 feet			BULK																
94.9																					

LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	DCP Dynamic Cone Penetrometer	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

MANUAL AUGER LOG P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: CPT-10U
Site Description: I-26 at I-95 Interchange Improvement		Route: I-26
Eng./Geo.: A. Guest	Boring Location: 3210+25.41	Offset: LT 734.91
Elev.: 99.2 ft	Latitude: 33.318877	Longitude: -80.545151
Total Depth: 30 ft	Soil Depth: 30 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type:
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	SPT N VALUE				FINES CONTENT (%)	
						1st 6"	2nd 6"	3rd 6"	4th 6"	RQD (%)	REC (%)
94.2		See CPT Test Record CPT-10 for Soils REC=100%		9.0	UD-5						
89.2											
84.2											
79.2		See CPT Test Record CPT-10 for Soils REC=100%		28.0	UD-6						
74.2											
30.0	0.0										

● SPT N VALUE ●
 PL — MC — LL
 X — O — X
 ▲ FINES CONTENT (%)
 ⊕ RQD (%) ■ REC (%)

LEGEND Continued Next Page

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Soil Test Log

Project ID: P038677	County: Orangeburg	Boring No.: CPT-10U
Site Description: I-26 at I-95 Interchange Improvement	Route: I-26	
Eng./Geo.: A. Guest	Boring Location: 3210+25.41	Offset: LT 734.91
Elev.: 99.2 ft	Latitude: 33.318877	Longitude: -80.545151
Total Depth: 30 ft	Soil Depth: 30 ft	Core Depth: ft
Bore Hole Diameter (in): 6	Sampler Configuration	Liner Required: Y (N)
Drill Machine: CME 750X	Drill Method: RW	Hammer Type:
Core Size:	Driller: W. King	Energy Ratio: 96%
	Groundwater: TOB NM	24HR: NM
		Liner Used: Y (N)

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	4th 6"	N Value	SPT N VALUE										
											0	10	20	30	40	50	60	70	80	90	
		Boring Terminated at 30.0 feet																			
64.2																					
59.2																					
54.2																					
49.2																					
44.2																					

● SPT N VALUE ●
 PL — MC — LL
 X — O — X
 ▲ FINES CONTENT (%)
 ⊕ RQD (%) ■ REC (%)

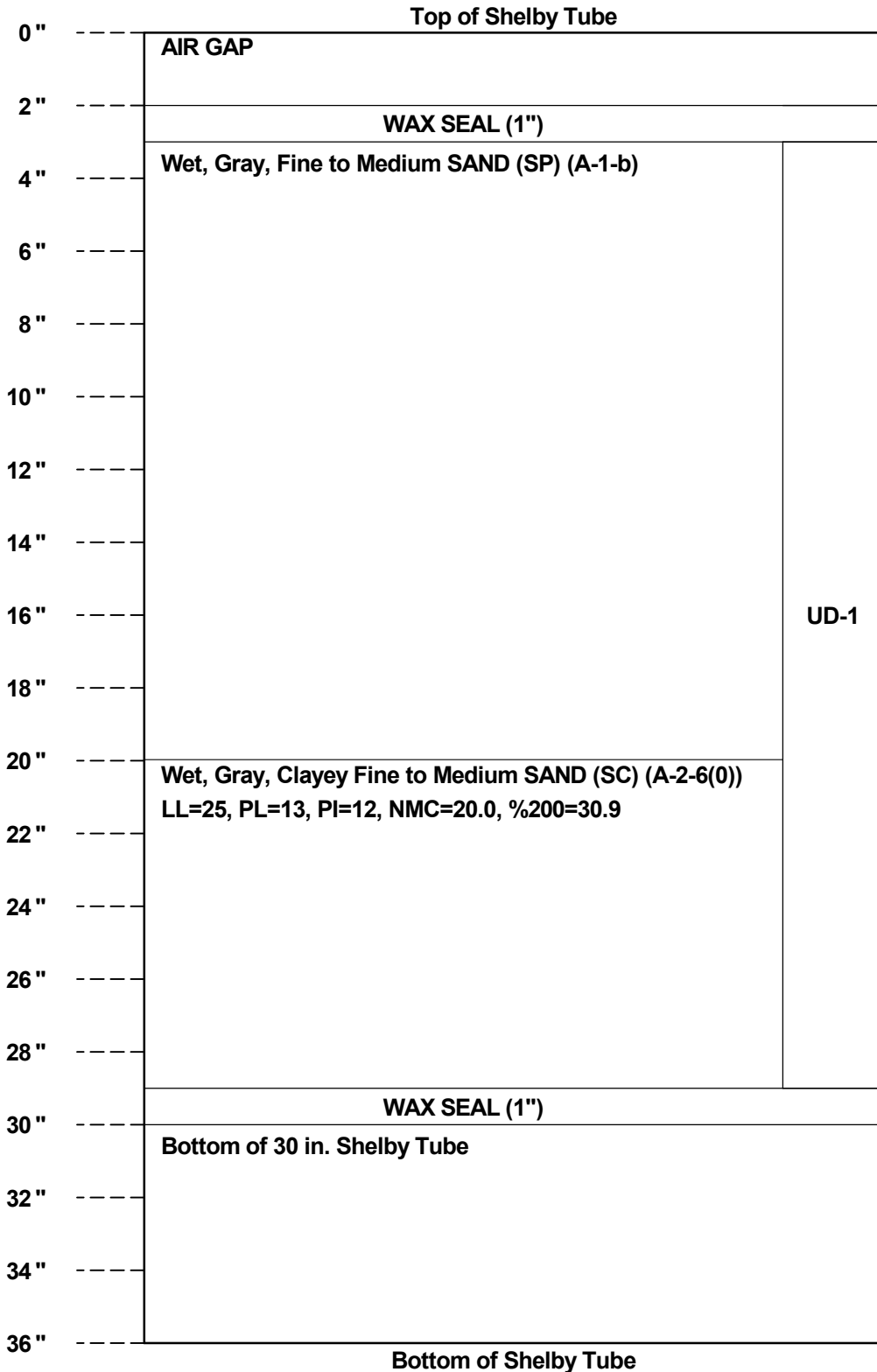
LEGEND

SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/23/23

SCDOT Shelby Tube Log

Project ID:	P038677	County:	Orangeburg	Boring No.:	B-05U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-1	Depth:	14' - 16'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



SC_DOT_SHELBY_TUBE_LOG_PICTURES_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT 3/22/23

SCDOT Undisturbed Sample Pictures

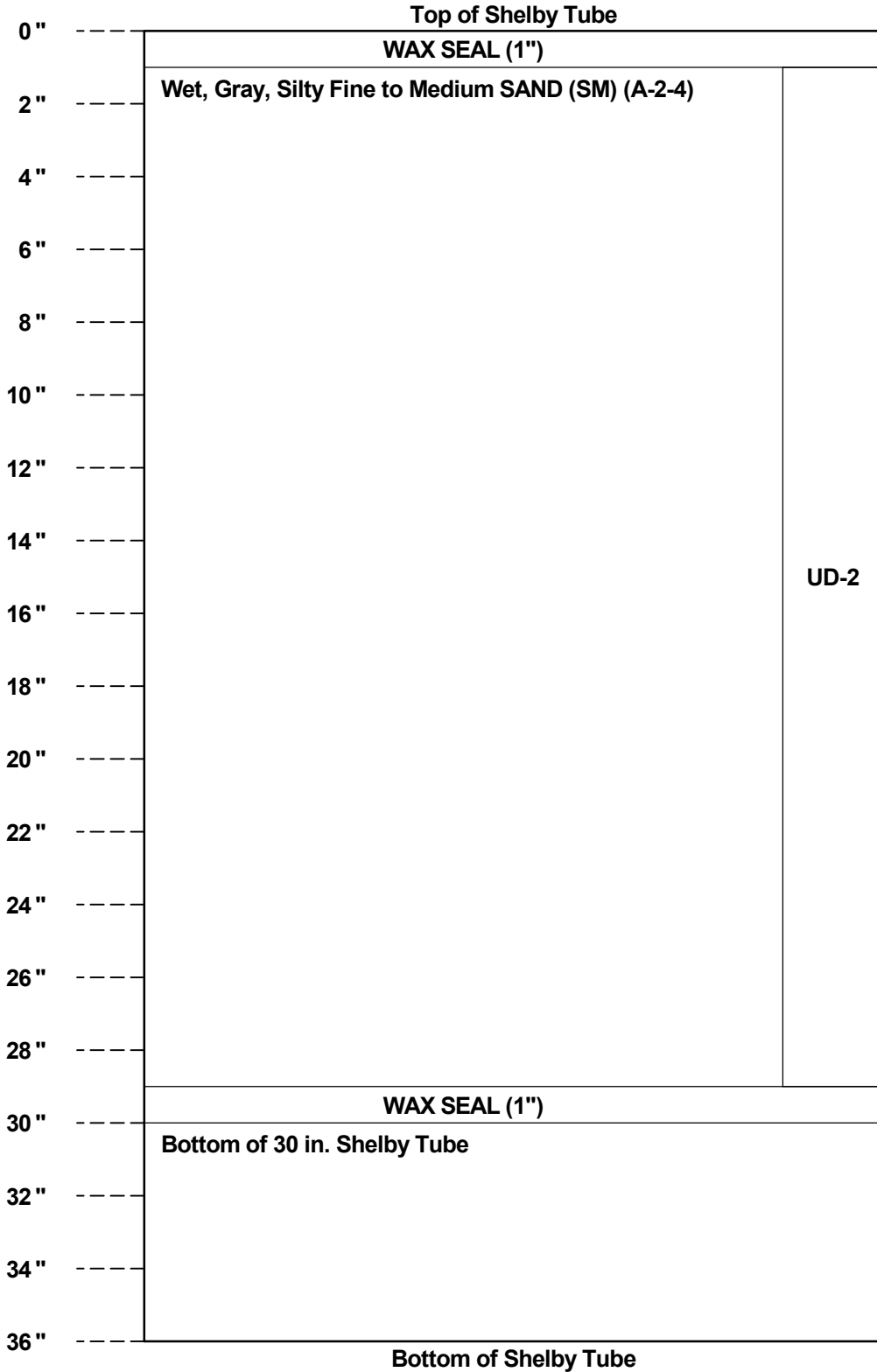
Project ID: P038677	County: Orangeburg	Boring No.: B-05U
Project Description: I-26 at I-95 Interchange Improvement		Route: I-26
UD Sample No.: UD-1	Depth: 14' - 16'	
Date Sampled: 2/21/2023	Date Extracted: 3/15/2023	
Extracted By: TEST	Eng. Firm: ECS Southeast, LLP	



Specimen No. UD-1

SCDOT Shelby Tube Log

Project ID: P038677	County: Orangeburg	Boring No.: B-05U
Project Description: I-26 at I-95 Interchange Improvement		Route: I-26
UD Sample No.: UD-2	Depth: 28' - 30'	
Date Sampled: 2/21/2023	Date Extracted: 3/27/2223	
Extracted By: E. Blackwood	Eng. Firm: ECS Southeast, LLP	



SCDOT Undisturbed Sample Pictures

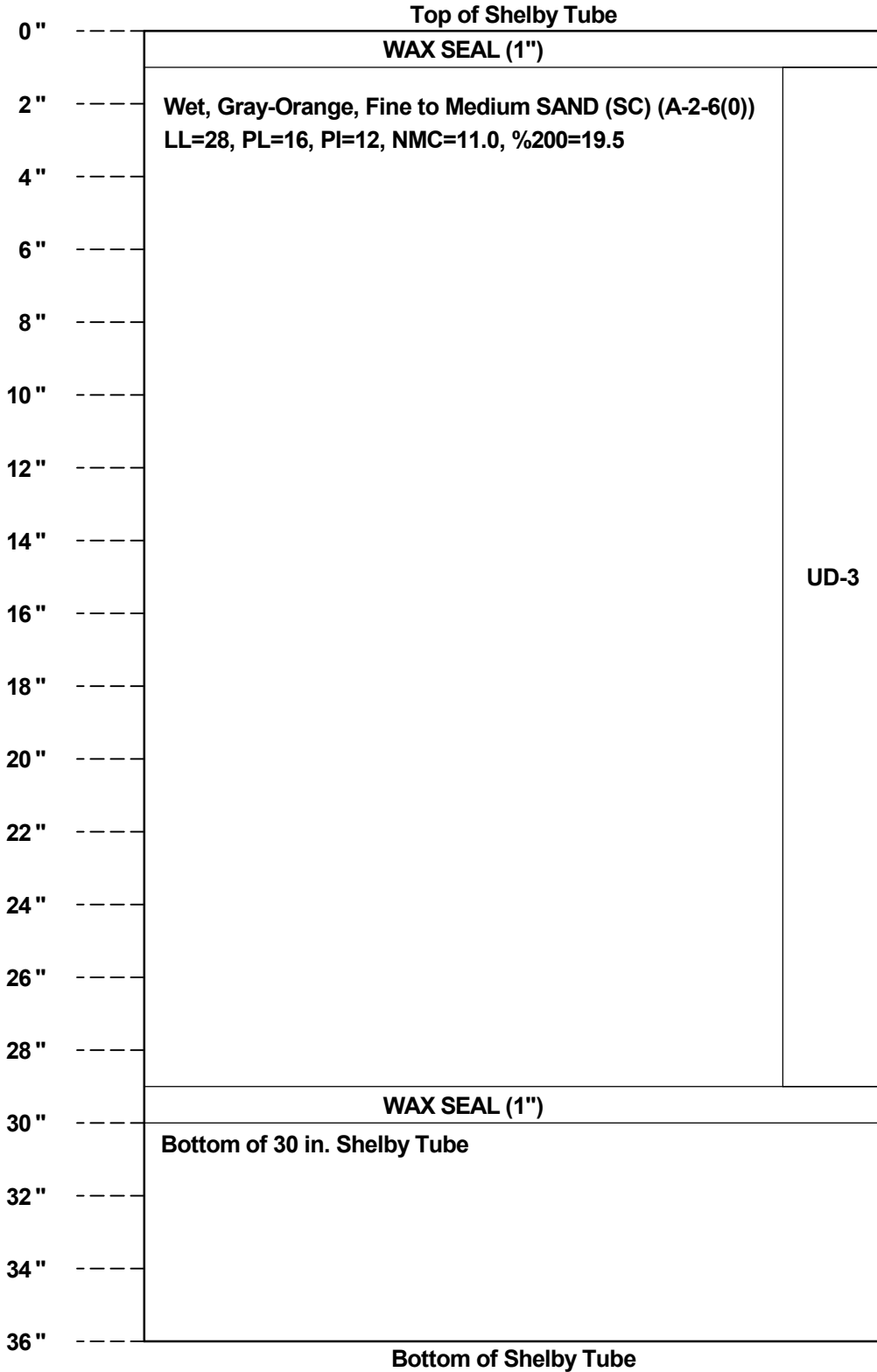
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Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-2	Depth:	28' - 30'		
Date Sampled:	2/21/2023	Date Extracted:	3/27/2223		
Extracted By:	E. Blackwood	Eng. Firm:	ECS Southeast, LLP		



Specimen No. UD-2

SCDOT Shelby Tube Log

Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-08U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-3	Depth:	4' - 6'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



SCDOT Undisturbed Sample Pictures

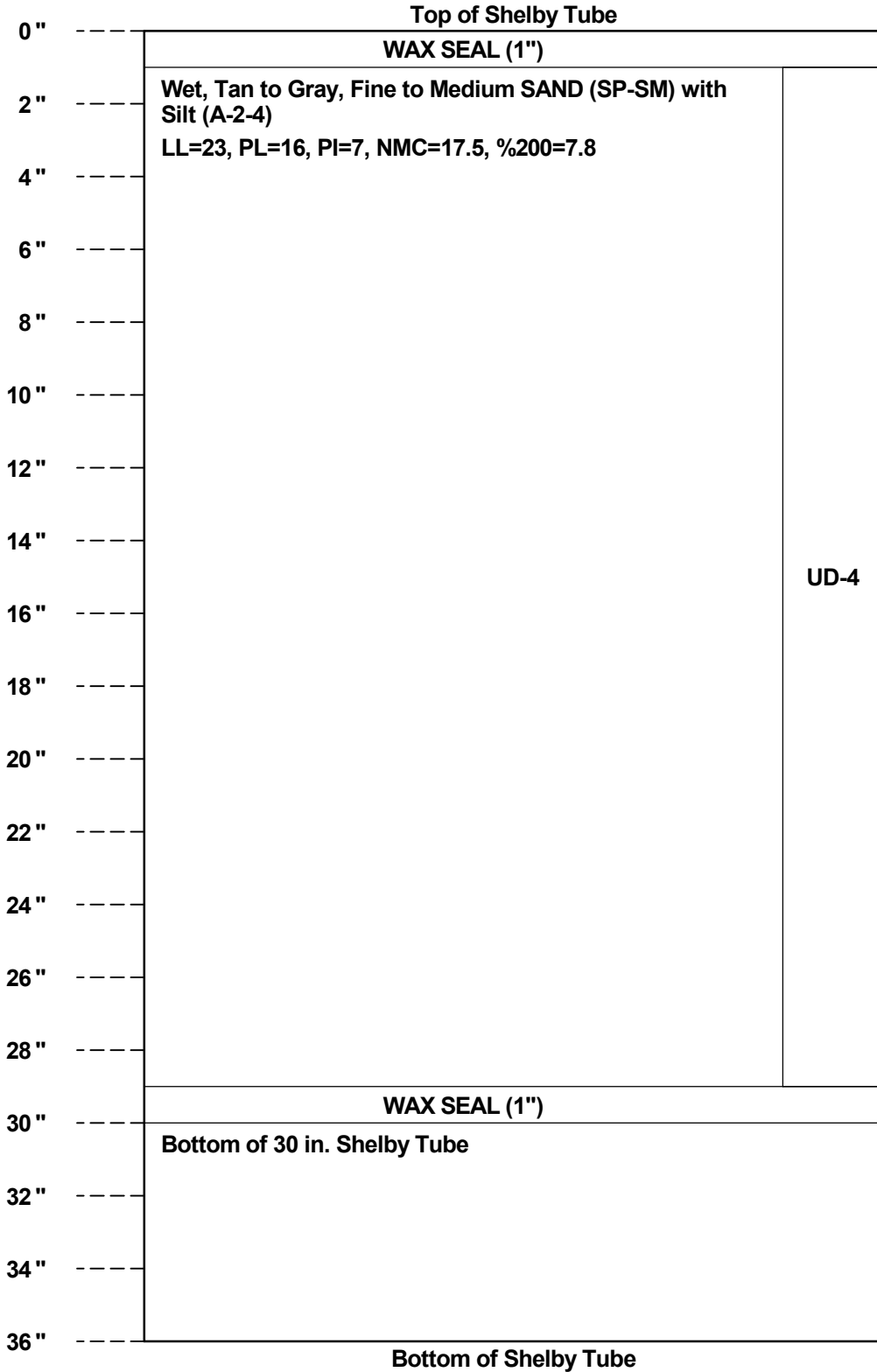
Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-08U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-3	Depth:	4' - 6'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



Specimen No. UD-3

SCDOT Shelby Tube Log

Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-08U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-4	Depth:	15' - 17'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



SCDOT Undisturbed Sample Pictures

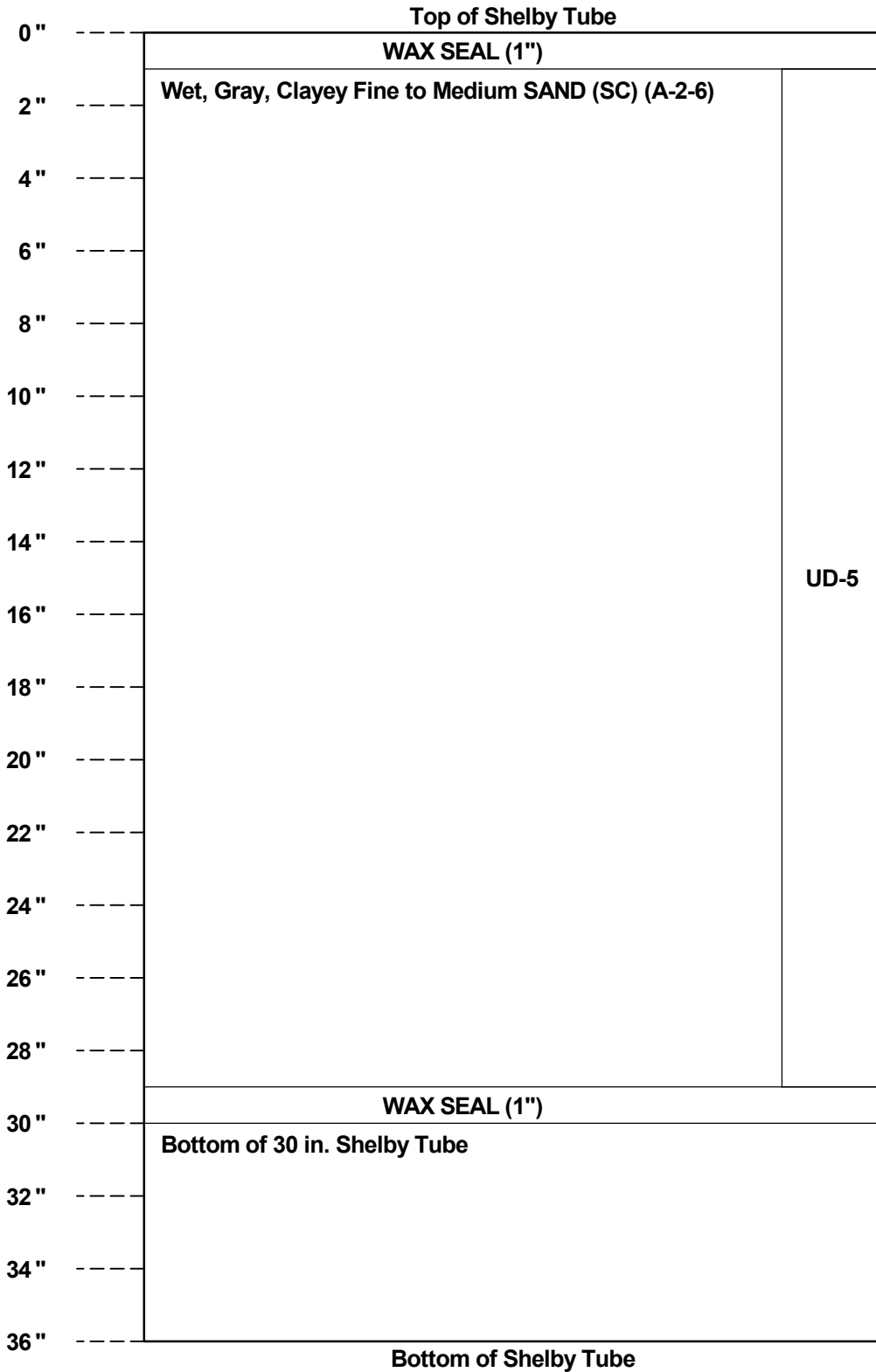
Project ID: P038677	County: Orangeburg	Boring No.: CPT-08U
Project Description: I-26 at I-95 Interchange Improvement	Route: I-26	
UD Sample No.: UD-4	Depth: 15' - 17'	
Date Sampled: 2/21/2023	Date Extracted: 3/15/2023	
Extracted By: TEST	Eng. Firm: ECS Southeast, LLP	



Specimen No. UD-4

SCDOT Shelby Tube Log

Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-10U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-5	Depth:	9' - 11'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



SCDOT Undisturbed Sample Pictures

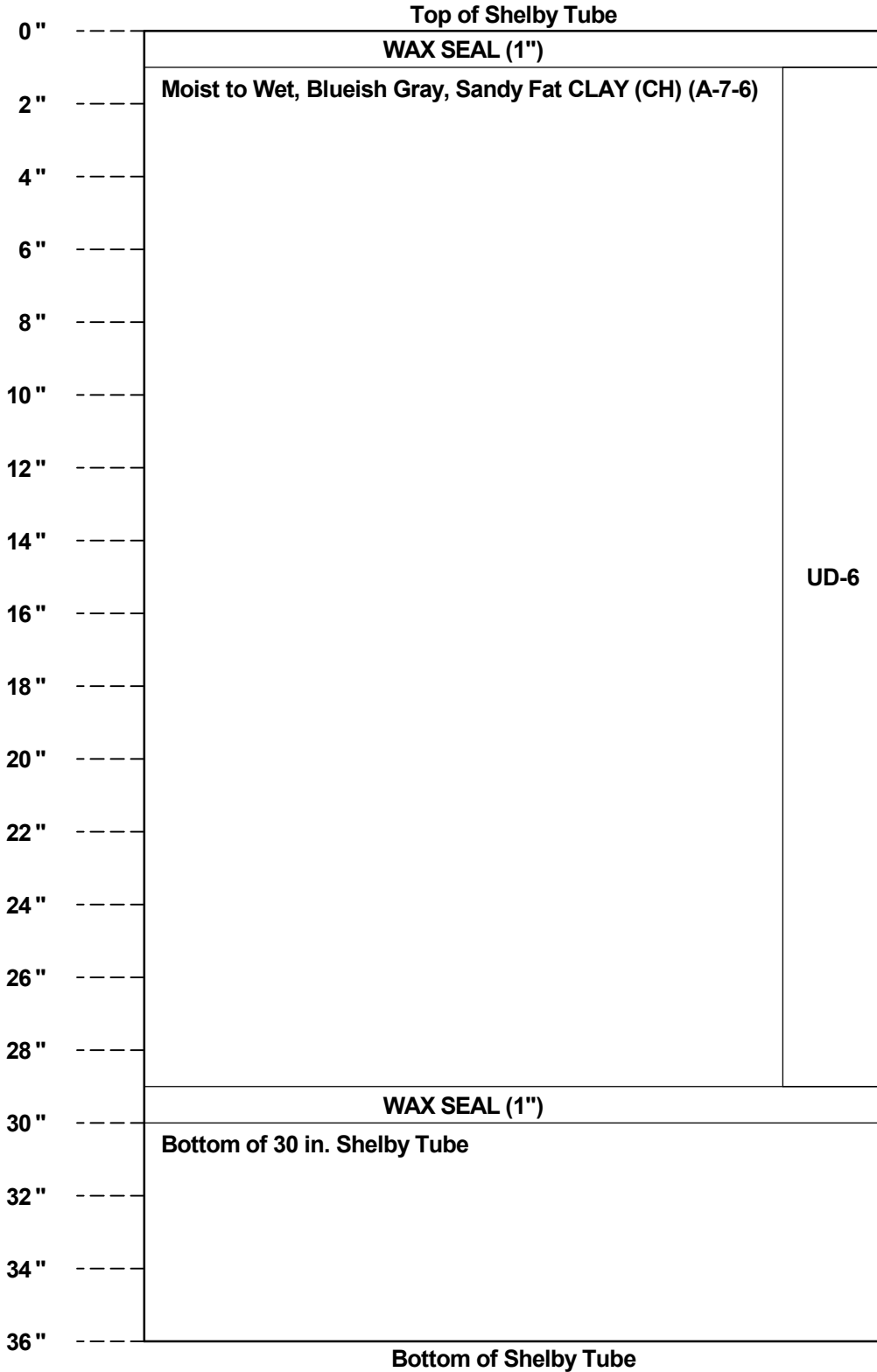
Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-10U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-5	Depth:	9' - 11'		
Date Sampled:	2/21/2023	Date Extracted:	3/15/2023		
Extracted By:	TEST	Eng. Firm:	ECS Southeast, LLP		



Specimen No. UD-5

SCDOT Shelby Tube Log

Project ID:	P038677	County:	Orangeburg	Boring No.:	CPT-10U
Project Description:	I-26 at I-95 Interchange Improvement			Route:	I-26
UD Sample No.:	UD-6	Depth:	28' - 30'		
Date Sampled:	2/21/2023	Date Extracted:	3/27/2223		
Extracted By:	E. Blackwood	Eng. Firm:	ECS Southeast, LLP		



SCDOT Undisturbed Sample Pictures

Project ID: P038677	County: Orangeburg	Boring No.: CPT-10U
Project Description: I-26 at I-95 Interchange Improvement	Route: I-26	
UD Sample No.: UD-6	Depth: 28' - 30'	
Date Sampled: 2/21/2023	Date Extracted: 3/27/2223	
Extracted By: E. Blackwood	Eng. Firm: ECS Southeast, LLP	



Specimen No. UD-6

Appendix IV – Photo Logs

Boring Location Photo Log

Asphalt Core Photo Log





ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

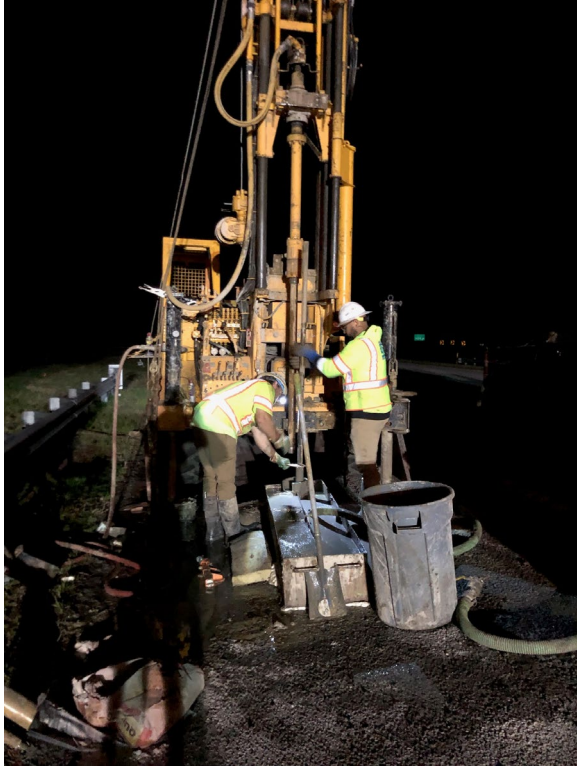
Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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ECS Southeast, LLP
2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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2031 Industrial Boulevard
Lexington, SC 29072
Phone: 803-250-3377

DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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B-23



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B-23





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Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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B-24



CPT-3



CPT-2



CPT-4





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Project Location: Orangeburg County, South Carolina

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CPT-5



CPT-7



CPT-6



CPT-8





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Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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CPT-9



CPT-11



CPT-10



CPT-12





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Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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CPT-13



DMT-3



DMT-1



DMT-4





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Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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DMT-5



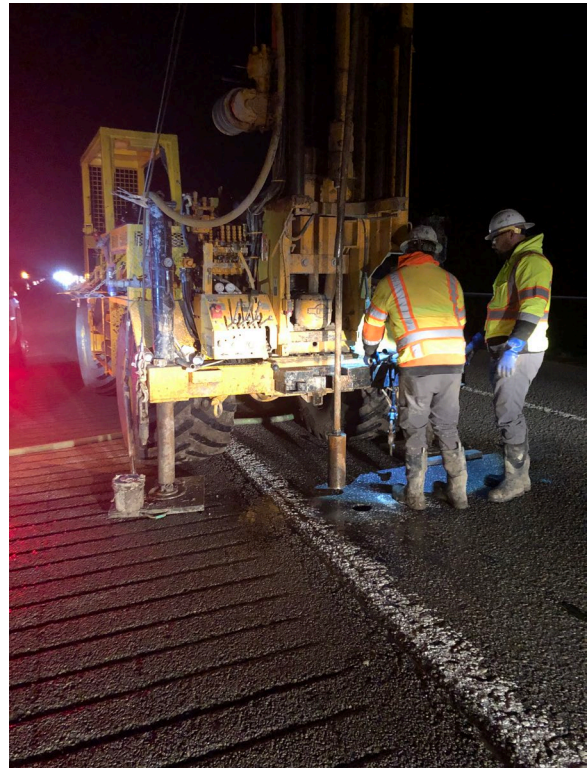
DMT-7



DMT-6



P-01





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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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P-02



P-4



P-3



P-5





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DRILL RIG PHOTO LOG

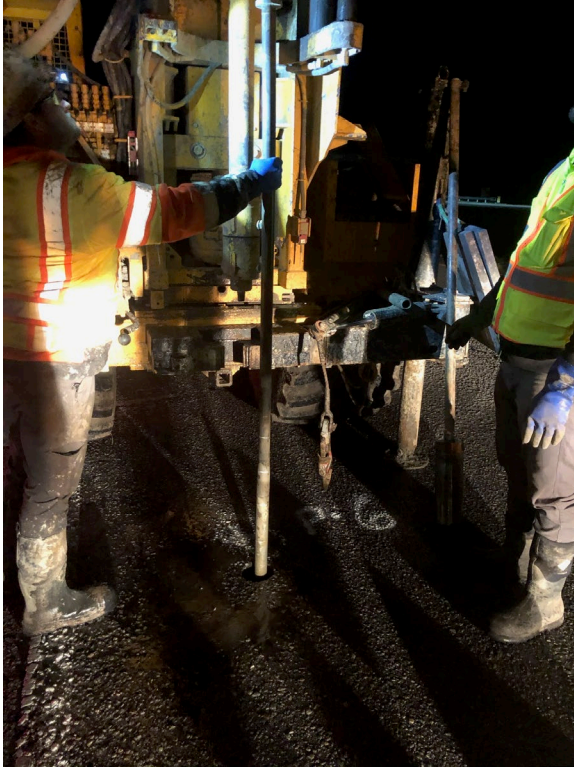
Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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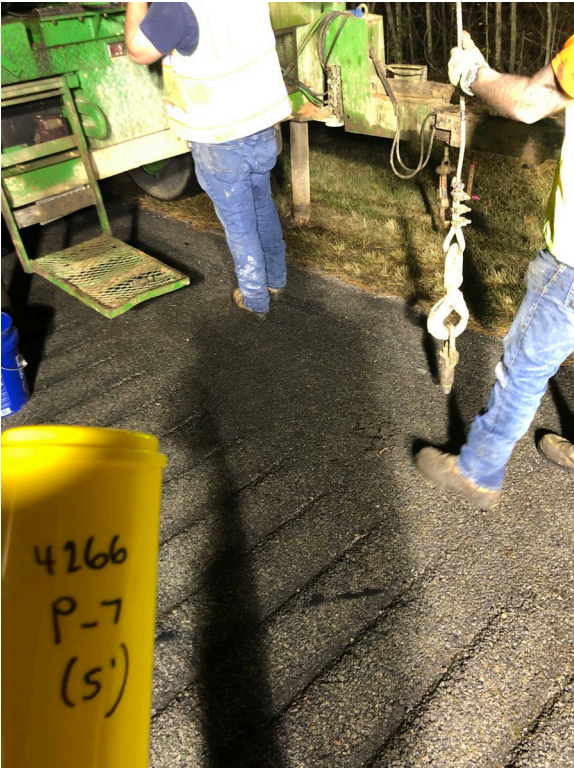
P-6



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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

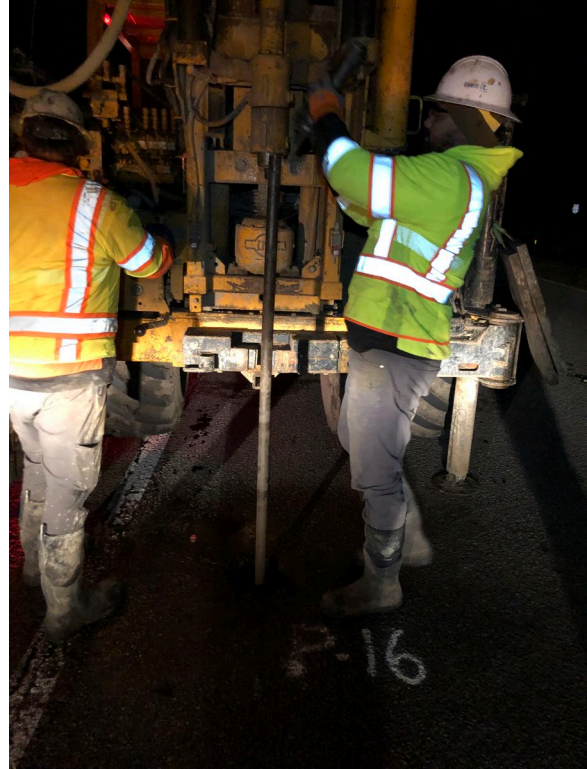
Project Location: Orangeburg County, South Carolina

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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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R-1



R-3





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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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DRILL RIG PHOTO LOG

Project Name: I-95 & I-26 Interchange Improvements

Project Number: 34:4266

Project Location: Orangeburg County, South Carolina

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5935 Rivers Avenue
Suite 105A
North Charleston, SC 29406

ASPHALT CORES PHOTO LOG

Project Name: I-26/I-95

Project Number: 34:4426

Project Location: Orangeburg County, South Carolina

Date: 3/10/2023

Photo 1: B-4

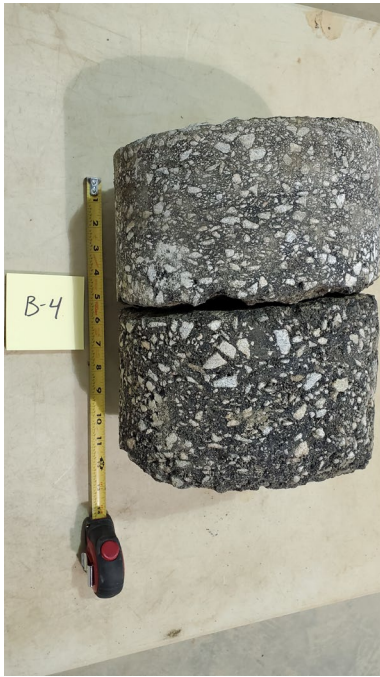


Photo 3: B-7

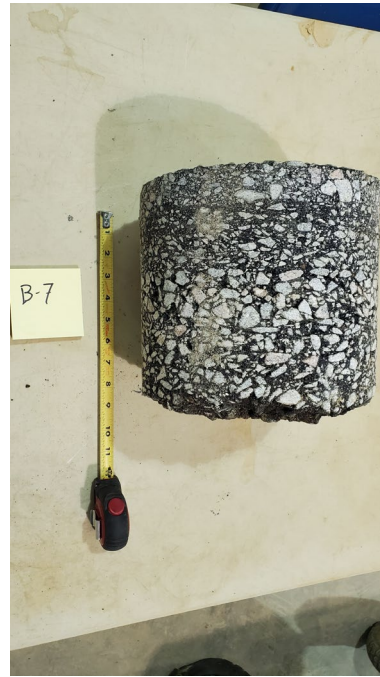


Photo 2: B-06



Photo 4: B-9





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5935 Rivers Avenue
Suite 105A
North Charleston, SC 29406

ASPHALT CORES PHOTO LOG

Project Name: I-26/I-95

Project Number: 34:4426

Project Location: Orangeburg County, South Carolina

Date: 3/10/2023

Photo 5: P-1

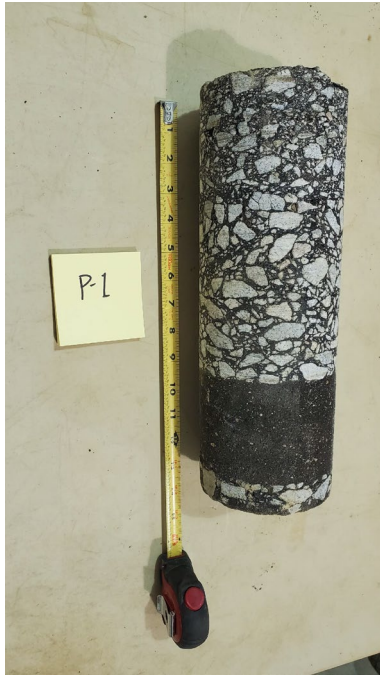


Photo 7: P-3



Photo 6: P-2

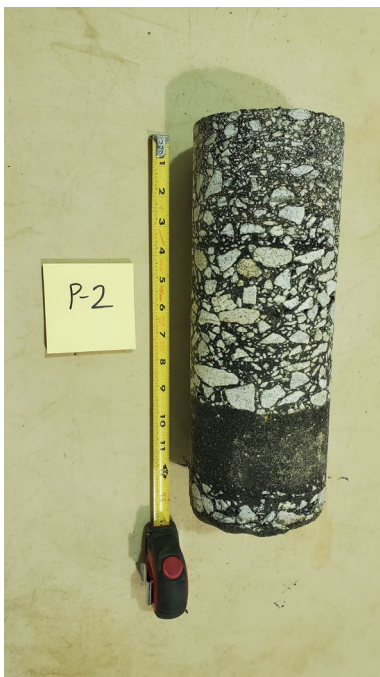


Photo 8: P-6





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North Charleston, SC 29406

ASPHALT CORES PHOTO LOG

Project Name: I-26/I-95

Project Number: 34:4426

Project Location: Orangeburg County, South Carolina

Date: 3/10/2023

Photo 9: P-7



Photo 11: P-10



Photo 10: P-9



Photo 12: P-11





ECS Southeast, LLP
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Suite 105A
North Charleston, SC 29406

ASPHALT CORES PHOTO LOG

Project Name: I-26/I-95

Project Number: 34:4426

Project Location: Orangeburg County, South Carolina

Date: 3/10/2023

Photo 13: P-12



Photo 15: P-16

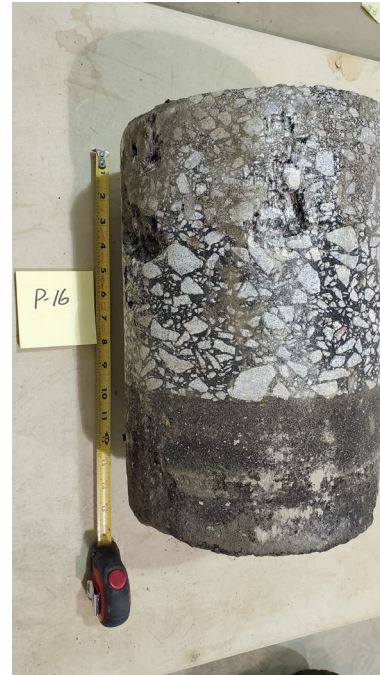


Photo 14: P-14



Photo 16: P-17



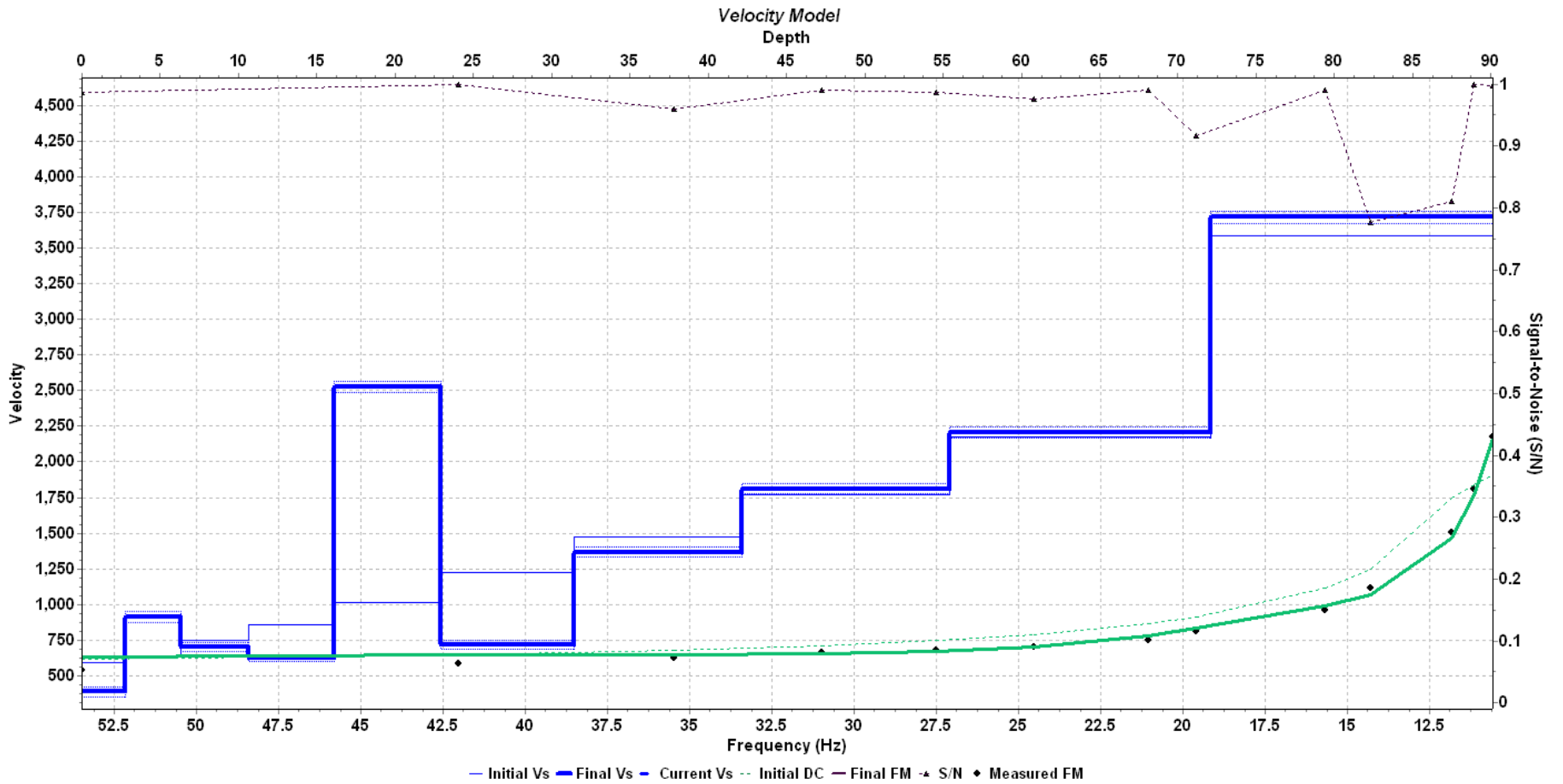
Appendix V – Geophysical Testing

Shear Wave Velocity Profiles

Downhole Seismic Results (Boring B-08)

3-Point Acceleration Design Response Spectrum

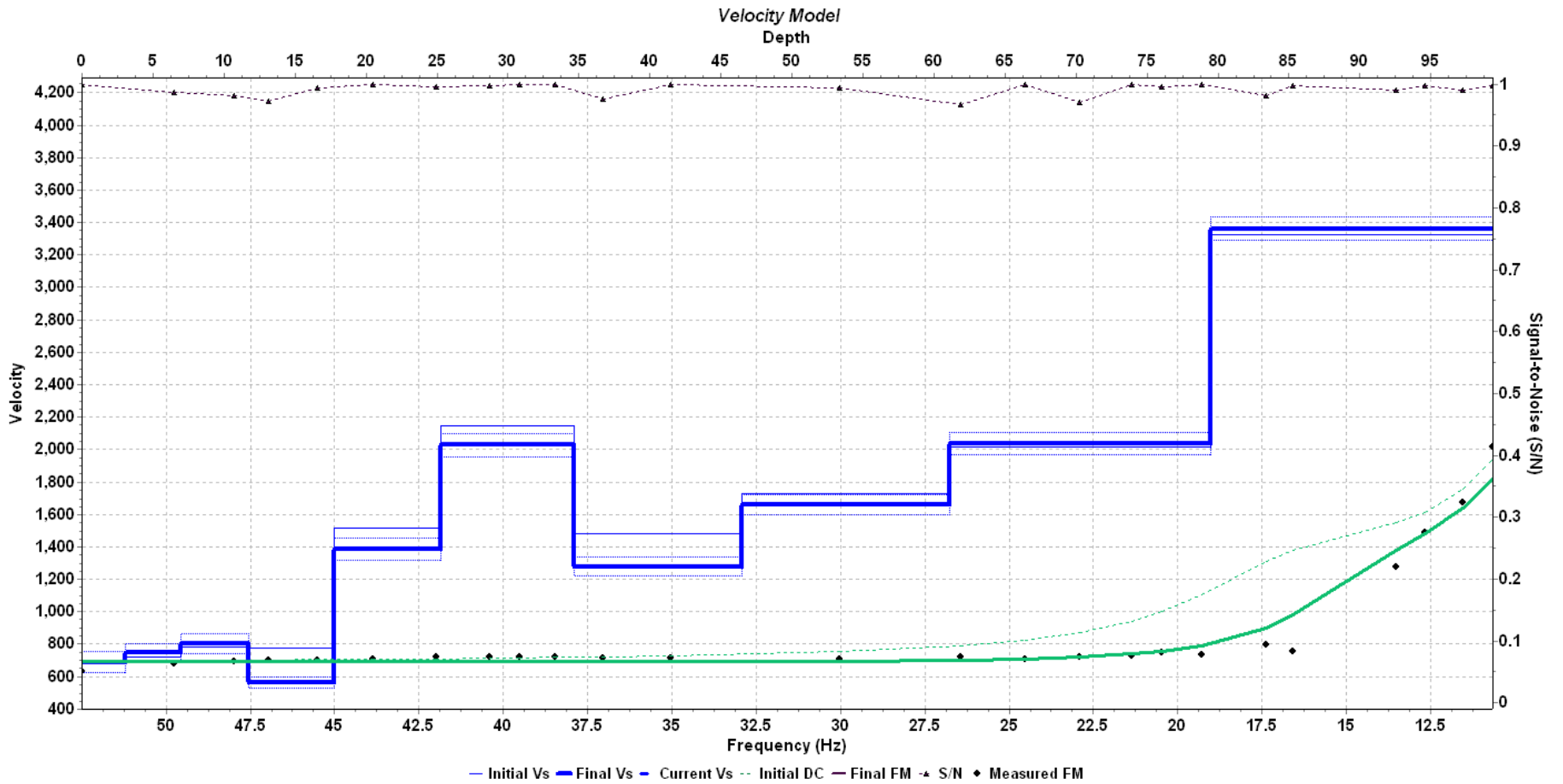




MASW PROFILES
 AT BORING B-2
 CIVIL ENGINEERING CONSULTING SERVICES



I-95 & I-26 DESIGN BUILD PREP - PRELIMINARY CONSULTING
 ECS PROJECT NO. 34:4266
 ORANGEBURG, SOUTH CAROLINA



MASW PROFILES
 AT BORING B-8
 CIVIL ENGINEERING CONSULTING SERVICES



I-95 & I-26 DESIGN BUILD PREP - PRELIMINARY CONSULTING
 ECS PROJECT NO. 34:4266
 ORANGEBURG, SOUTH CAROLINA



I-26 at I-95 Interchange Improvements
Down-Hole Seismic Survey: B-08
P-Wave Velocity Chart

Orangeburg County, South Carolina
 SCDOT Project No.: P038667
 ECS Project No.: 38:4266

Geophone Depth (ft) D _G	Source Offset (ft.) X	Source Slant Distance L _R	Arrival Time 1 (ms)	Arrival Time 2 (ms)	Average Arrival Time (sec)	Arrival Time Difference ΔT_{R2-R1}	Average Interval P-Wave Velocity (ft.sec) V _s
5	10	11.18	4.445975	4.660239	0.005548	0.001129	2624
10	10	14.14	5.374452	5.338742	0.006677	0.000765	5078
15	10	18.03	7.499236	7.499236	0.007442	0.001033	4194
20	10	22.36	8.43664	8.490206	0.008475	0.000899	5077
25	10	26.93	9.079432	9.481176	0.009374	0.000937	5011
30	10	31.62	10.284666	10.123968	0.010311	0.000937	5097
35	10	36.40	11.061373	11.543467	0.011249	0.000937	5153
40	10	41.23	11.918427	12.320172	0.012186	0.001033	4711
45	10	46.10	12.695134	13.391492	0.013219	0.000899	5441
50	10	50.99	13.605756	13.82002	0.014118	0.001052	4669
55	10	55.90	15.185952	14.382463	0.015170	0.000957	5148
60	10	60.83	15.88231	15.319867	0.016127	0.000918	5377
65	10	65.76	16.792931	16.096573	0.017045	0.000861	5745
70	10	70.71	17.516071	17.382156	0.017906	0.000918	5394
75	10	75.66	18.721306	18.078514	0.018825	0.000899	5515
80	10	80.62	19.230183	19.230183	0.019724	0.000937	5295
85	10	85.59	20.221153	20.140804	0.020661		



I-26 at I-95 Interchange Improvements
 Down-Hole Seismic Survey: B-08
 S-Wave Velocity Chart

Orangeburg County, South Carolina
 SCDOT Project No.: P038667
 ECS Project No.: 38:4266

Geophone Depth (ft) D _G	Source Offset (ft.) X	Source Slant Distance L _R	Arrival Time 1 (ms)	Arrival Time 2 (ms)	Average Arrival Time (sec)	Arrival Time Difference ΔT _{R2-R1}	Average Interval Shear Wave Velocity (ft.sec) V _s
5	9	10.30	19.934191	20.355066	0.020145	0.007187	439
10	9	13.45	27.293135	27.369658	0.027331	0.007773	520
15	9	17.49	34.970921	35.238750	0.035105	0.005098	871
20	9	21.93	39.830120	40.576218	0.040203	0.003942	1177
25	9	26.57	43.437504	44.851933	0.044145	0.003486	1363
30	9	31.32	50.103310	45.158024	0.047631	0.001052	4579
35	9	36.14	48.553722	48.811985	0.048683	0.001033	4706
40	9	41.00	50.232441	49.199383	0.049716	0.002367	2066
45	9	45.89	50.332874	53.833794	0.052083	0.005316	924
50	9	50.80	54.622940	60.175629	0.057399	0.002583	1908
55	9	55.73	58.755173	61.208687	0.059982	0.003628	1362
60	9	60.67	61.026936	66.192223	0.063610	0.002506	1975
65	9	65.62	65.656563	66.574837	0.066116	0.002714	1826
70	9	70.58	66.919189	70.740128	0.068830	0.002107	2355
75	9	75.54	69.500080	72.373978	0.070937	0.002267	2191
80	9	80.50	72.830582	73.576675	0.073204	0.001884	2638
85	9	85.48	74.533211	75.642792	0.075088		

3-Point Acceleration Design Response Spectrum

SCDOT v3.1.1 - 11/29/2022

Project ID: P038677	Latitude: 33.3186
Route: I-26	County: 38 - Orangeburg
Project: I-26 and I-95 Interchange	Longitude: 80.5479

Designer: N. Harman - Support
Date: 3/13/2023

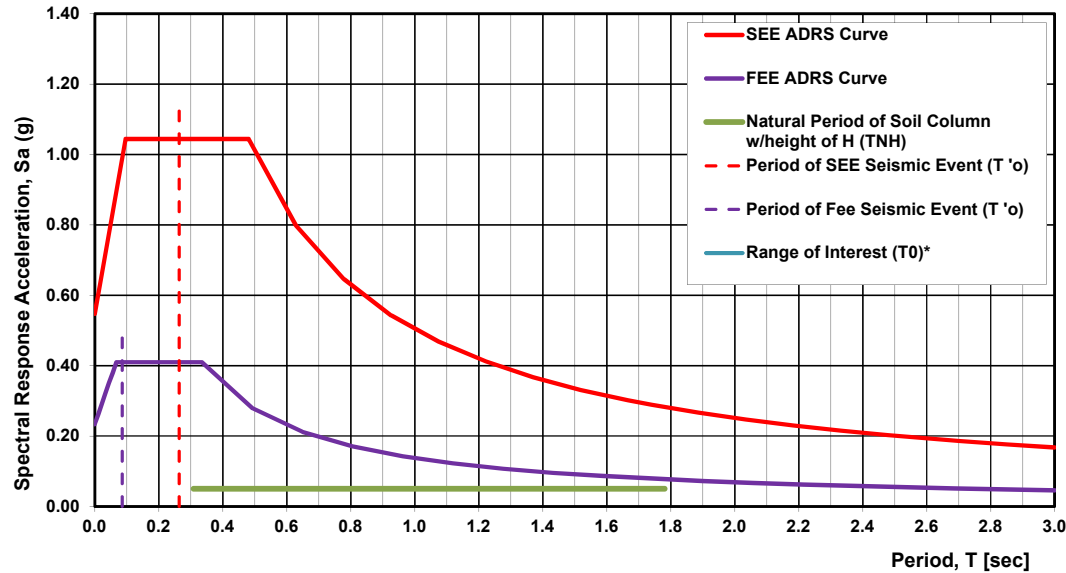
Design EQ	PGA	S _{DS}	S _{D1}	M _W	R	PGV	D ₅₋₉₅	T' _o
	g	g	g	-	km	inches/sec	sec	sec
FEE	0.23	0.41	0.14	7.30	47.83	5.22	26.38	0.09
SEE	0.55	1.04	0.50	7.30	47.67	19.12	26.35	0.26

Fundamental Period of Structure, T ₀	Range of Interest		V* _{s,H}	H	T _{NH}	
	sec				sec	
sec	0.5*T ₀	2.0*T ₀	ft/sec	ft	(4*H)/V* _{s,H}	(6*H)/V* _{s,H}
0.00	0.00	0.00	1690.36	506.90	0.31	1.78
0.00	0.00	0.00				

Damping: 5%	Geologic Condition: Geologically Realistic (Q = 100)*
	SCCP
ADRS Location within Soil Column: At Ground Surface	

South Carolina Coastal Plain
*Same Geologic Condition as used in SCENARIO_PC (2006)

SC Seismic ADRS Curve



FEE Data

T	S _a
0.00	0.234
0.01	0.263
0.02	0.292
0.03	0.322
0.04	0.351
0.06	0.380
0.07	0.410
0.09	0.410
0.11	0.410
0.13	0.410
0.16	0.410
0.18	0.410
0.20	0.410
0.22	0.410
0.25	0.410
0.27	0.410
0.29	0.410
0.31	0.410
0.34	0.410
0.49	0.279
0.65	0.212
0.81	0.171
0.96	0.143
1.12	0.123
1.28	0.108
1.43	0.096
1.59	0.086
1.75	0.079
1.90	0.072
2.06	0.067
2.22	0.062
2.37	0.058
2.53	0.054
2.69	0.051
2.84	0.048
3.00	0.046

SEE Data

T	S _a
0.00	0.547
0.02	0.630
0.03	0.713
0.05	0.796
0.06	0.879
0.08	0.961
0.10	1.044
0.13	1.044
0.16	1.044
0.19	1.044
0.22	1.044
0.26	1.044
0.29	1.044
0.32	1.044
0.35	1.044
0.39	1.044
0.42	1.044
0.45	1.044
0.48	1.044
0.63	0.799
0.78	0.647
0.93	0.543
1.07	0.468
1.22	0.412
1.37	0.367
1.52	0.331
1.67	0.302
1.81	0.277
1.96	0.256
2.11	0.238
2.26	0.223
2.41	0.209
2.56	0.197
2.70	0.186
2.85	0.176
3.00	0.168

Appendix VI – Laboratory Test Results

Laboratory Summary Table

Consolidated Undrained Triaxial Compression Test Results

California Bearing Ratio (CBR) Test Results

Proctor Test Results

Corrosion Series Test and Organic Content Test Results

Atterberg Limits' Results

Particle Size Distribution Test Reports





SUMMARY OF LABORATORY RESULTS

PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%-#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Saturation (%)	Void Ratio
B-01	2.0	NP	NP	NP	4.75	17	SM	15.4			
B-01	8.0	NP	NP	NP	2.36	4	SP	3.9			
B-01MA	2.0	17	13	4	0.075	20	SC-SM	7.8			
B-02	2.0	NP	NP	NP	2.36	16	SM	10.8			
B-02	12.0	NP	NP	NP	1.18	9	SP-SM	15.8			
B-02	63.0	NP	NP	NP	4.75	15	SM	17.4			
B-03	2.0	20	11	9	0.075	30	SC	14.0			
B-03	6.0	18	14	4	0.075	17	SC-SM	15.3			
B-03	13.0	NP	NP	NP	0.075	13	SM	22.3			
B-03	18.0	NP	NP	NP	1.18	5	SP	25.9			
B-03	33.0	24	21	3	19	8	GP-GM	23.4			
B-04	0.0	17	13	4	4.75	23	SC-SM	10.7			
B-04	18.5	32	16	16	4.75	13	SC	18.6			
B-04	43.5	33	17	16	2.36	41	SC	96.7			
B-04	78.5	NP	NP	NP	4.75	29	SM	25.8			
B-05	0.0	NP	NP	NP	0.075	58	ML	12.4			
B-05	4.0	30	23	7	0.075	73	ML	23.6			
B-05	33.5	NP	NP	NP	0.075	56	ML	21.0			
B-05	48.5	NP	NP	NP	0.075	35	SM	20.7			
B-05U	28.0	NP	NP	NP	4.75	15	SM				
B-06MA	2.0	17	13	4	0.075	20	SC-SM	13.1			
B-07	2.0	21	13	8	4.75	25	SC	14.5			
B-07	23.5	38	22	16	4.75	47	SC	55.6			
B-07	28.5	32	18	14	2.36	45	SC	29.7			
B-07	68.5	NP	NP	NP	4.75	8	SP-SM	24.3			
B-07MA	2.0	27	13	14	0.075	30	SC	17.5			
B-08	2.0	NP	NP	NP	0.075	35	SM	16.1			
B-08	6.0	26	13	13	0.075	55	CL	16.9			
B-08	14.0	NP	NP	NP	0.075	30	SM	19.1			
B-08	26.0	NP	NP	NP	0.075	69	ML	63.4			
B-08	44.0	NP	NP	NP	0.075	28	SM	18.9			
B-09	2.0	24	12	12	4.75	21	SC	13.1			
B-09	13.5	34	15	19	2.36	34	SC	29.8			
B-09	48.5	NP	NP	NP	4.75	19	SM	22.3			
B-10	0.0	NP	NP	NP	2.36	5	SP-SM	14.6			
B-10	6.0	NP	NP	NP	2.36	5	SP-SM	15.6			
B-10	28.5	NP	NP	NP	4.75	8	SW-SM	12.2			
B-10	68.5	NP	NP	NP	4.75	11	SP-SM	13.1			
B-11	4.0	13	12	1	0.075	27	SM	7.5			
B-11	8.0	37	14	23	0.075	30	SC	13.6			
B-11	28.0	29	19	10	0.075	23	SC	56.6			
B-11	53.0	NP	NP	NP	0.075	25	SM	22.9			
B-11	63.0	NP	NP	NP	4.75	9	SW-SM	22.3			

LAB SUMMARY P038677 I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



SUMMARY OF LABORATORY RESULTS

PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%-#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Saturation (%)	Void Ratio
B-12	0.0	18	15	3	0.075	22	SM	11.9			
B-12	6.0	38	21	17	0.075	30	SC	19.1			
B-12	13.0	NP	NP	NP	1.18	6	SP-SM	27.3			
B-12	18.0	NP	NP	NP	2.36	5	SP-SM	27.9			
B-13	0.0	NP	NP	NP	0.075	25	SM	14.0			
B-13	8.0	NP	NP	NP	0.075	18	SM	16.5			
B-13	43.5	NP	NP	NP	0.075	11	SP-SM	18.6			
B-13	63.5	NP	NP	NP	0.075	29	SM	19.3			
B-15	2.0	38	15	23	0.075	37	SC	15.4			
B-15	8.0	31	14	17	0.075	34	SC	14.0			
B-15	23.0	33	15	18	0.075	20	SC	29.5			
B-15	48.0	NP	NP	NP	4.75	11	SW-SM	18.5			
B-15	63.0	NP	NP	NP	4.75	12	SM	28.3			
B-16	0.0	26	15	11	0.075	27	SC	12.7			
B-16	4.0	29	15	14	0.075	39	SC	16.8			
B-16	13.0	34	19	15	0.075	29	SC	20.1			
B-16	23.0	38	15	23	0.075	57	CL	28.5			
B-17	0.0	NP	NP	NP	0.075	50	ML	9.3			
B-17	4.0	25	12	13	0.075	64	CL	11.5			
B-17	6.0	28	11	17	0.075	69	CL	14.4			
B-17	18.0	NP	NP	NP	0.075	23	SM	14.2			
B-17	28.0	26	18	8	0.075	51	CL	27.6			
B-17	43.0	38	20	18	0.075	27	SC	31.1			
B-17	48.0	NP	NP	NP	0.075	29	SM	44.8			
B-18	0.0	16	12	4	0.075	54	CL-ML	8.9			
B-18	2.0	NP	NP	NP	0.075	52	ML	7.5			
B-18	4.0	NP	NP	NP	0.075	74	ML	15.2			
B-18	8.0	NP	NP	NP	0.075	55	ML	14.1			
B-18	13.0	NP	NP	NP	0.075	44	SM	17.2			
B-18	18.0	36	13	23	0.075	39	SC	15.2			
B-18	23.0	NP	NP	NP	0.075	25	SM	22.8			
B-18	33.0	37	15	22	0.075	81	CL	28.4			
B-18	43.0	NP	NP	NP	0.075	22	SM	24.5			
B-19	0.0	33	15	18	0.075	28	SC	10.6			
B-19	4.0	14	10	4	0.075	18	SC-SM	10.3			
B-19	13.0	24	17	7	0.075	26	SC-SM	21.0			
B-19	38.0	NP	NP	NP	4.75	11	SW-SM	22.5			
B-20	4.0	54	25	29	0.075	39	SC	24.5			
B-20	13.0	21	16	5	0.075	16	SC-SM	30.3			
B-20	18.0	20	19	1	0.075	18	SM	36.9			
B-20	28.0	76	26	50	0.075	19	SC	36.7			
B-21	2.0	NP	NP	NP	0.075	29	SM	15.1			
B-21	8.0	NP	NP	NP	0.075	22	SM	8.6			

LAB SUMMARY P038677 I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



SUMMARY OF LABORATORY RESULTS

PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%-#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Saturation (%)	Void Ratio
B-21	23.5	NP	NP	NP	0.075	5	SP	19.5			
B-21	48.5	NP	NP	NP	0.075	12	SP-SM	14.3			
B-21	93.5	NP	NP	NP	0.075	37	SM	21.3			
B-22	4.0	NP	NP	NP	2.36	12	SW-SM	10.9			
B-22	18.0	NP	NP	NP	1.18	5	SP-SM	26.6			
B-22	23.0	42	20	22	4.75	10	SP-SC	32.2			
B-23	4.0	16	14	2	0.075	13	SM	15.8			
B-23	13.0	19	15	4	0.075	16	SC-SM	20.7			
B-23	23.0	NP	NP	NP	1.18	4	SP	25.4			
B-23	28.0	NP	NP	NP	0.075	22	SM	32.4			
B-23	58.0	NP	NP	NP	0.075	13	SM	25.5			
B-24	2.0	NP	NP	NP	4.75	3	SP	8.1			
B-24	8.0	NP	NP	NP	4.75	4	SP	16.6			
B-24	13.0	17	13	4	0.075	19	SC-SM	13.7			
B-24	18.0	18	15	3	0.075	25	SM	16.6			
B-24	33.0	NP	NP	NP	0.075	18	SM	29.5			
CPT-10U	28.0	88	39	49	0.075	87	MH				
P-01	1.2	NP	NP	NP	0.075	42	SM	14.2			
P-02	1.1	NP	NP	NP	0.075	21	SM	10.9			
P-04	0.0	NP	NP	NP	0.075	42	SM	13.0			
P-06	1.1	NP	NP	NP	0.075	31	SM	9.2			
P-08	0.0	NP	NP	NP	0.075	43	SM	10.9			
P-09	1.0	25	22	3	4.75	11	SW-SM	18.2			
P-10	1.2	19	14	5	0.075	42	SC-SM	12.1			
P-11	0.5	20	12	8	0.075	26	SC	12.2			
P-12	1.2	NP	NP	NP	0.075	25	SM	11.3			
P-12MA	2.0	21	16	5	0.075	23	SC-SM	16.4			
P-13	0.0	NP	NP	NP	0.075	56	ML	14.0			
P-14	0.8	18	12	6	0.075	25	SC-SM	12.9			
P-15	0.0	29	14	15	0.075	29	SC	11.2			
P-16	1.2	21	15	6	0.075	49	SC-SM	12.7			
P-17	0.8	24	16	8	0.075	32	SC	13.1			
P-18	0.0	24	15	9	0.075	24	SC	10.6			
R-01	2.0	NP	NP	NP	4.75	6	SP-SM	11.0			
R-01	13.5	50	19	31	2.36	54	CH	45.5			
R-02	2.0	23	22	1	0.075	68	ML	14.2			
R-02	13.5	NP	NP	NP	0.075	6	SP	11.6			
R-03	4.0	NP	NP	NP	4.75	17	SM	14.3			
R-03	23.5	NP	NP	NP	4.75	12	SP-SM	12.9			
R-04	2.0	26	14	12	0.075	47	SC	10.3			
R-04	6.0	23	13	10	0.075	48	SC	16.5			
R-04	8.0	29	14	15	0.075	73	CL	17.0			
R-04	13.0	17	14	3	0.075	28	SM	16.1			

LAB SUMMARY P038677 I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



SUMMARY OF LABORATORY RESULTS

PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%-#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Saturation (%)	Void Ratio
R-05	0.0	22	14	8	0.075	47	SC	10.5			
R-05	6.0	21	11	10	0.075	59	CL	14.4			
R-05	28.0	NP	NP	NP	0.075	28	SM	28.9			
R-05	43.0	NP	NP	NP	0.075	20	SM	25.2			
R-06	6.0	NP	NP	NP	0.075	46	SM	14.8			
R-07	2.0	NP	NP	NP	0.075	38	SM	11.1			
R-07	4.0	NP	NP	NP	0.075	72	ML	15.5			
R-07	18.5	32	22	10	0.075	82	CL	62.8			
R-08	0.0	NP	NP	NP	0.075	35	SM	11.4			
R-08	8.0	35	18	17	0.075	86	CL	21.6			
R-09	0.0	NP	NP	NP	0.075	49	SM	13.0			
R-09	4.0	21	16	5	0.075	72	CL-ML	23.2			
R-09	6.0	20	18	2	0.075	87	ML	21.7			
R-09	28.5	27	19	8	0.075	73	CL	29.9			
R-10	0.0	54	NP	NP	0.075	56	MH	13.9			
R-10	8.0	32	20	12	0.075	75	CL	22.8			
R-10	33.5	NP	NP	NP	0.075	24	SM	33.5			
R-12	0.0	24	11	13	0.075	58	CL	13.7			
R-12	2.0	24	13	11	0.075	49	SC	13.2			
R-12	13.0	NP	NP	NP	0.075	56	ML	25.9			
R-13	2.0	NP	NP	NP	4.75	17	SM	14.1			
R-13	4.0	NP	NP	NP	4.75	18	SM	14.8			
R-13	13.5	NP	NP	NP	4.75	3	SP	12.9			
R-14	2.0	16	14	2	4.75	30	SM	13.3			
R-14	8.0	NP	NP	NP	2.36	8	SP-SM	15.5			
R-15	0.0	19	11	8	4.75	28	SC	9.4			
R-15	6.0	29	12	17	2.36	38	SC	16.2			
R-15	18.5	NP	NP	NP	1.18	6	SP-SM	24.5			
R-17	2.0	26	17	9	4.75	30	SC	13.8			
R-17	13.5	NP	NP	NP	1.18	5	SP-SM	25.6			
R-19	4.0	42	16	26	0.075	39	SC	15.0			
R-19	8.0	35	16	19	0.075	35	SC	20.2			
R-19	13.0	NP	NP	NP	0.075	28	SM	24.7			
R-19	18.0	NP	NP	NP	0.075	39	SM	22.0			
R-20	0.0	22	13	9	0.075	57	CL	13.0			
R-20	4.0	63	NP	NP	0.075	98	MH	25.7			
R-20	6.0	27	16	11	0.075	48	SC	18.9			
R-20	13.0	NP	NP	NP	0.075	21	SM	24.4			
R-20	18.0	NP	NP	NP	0.075	22	SM	17.6			
R-21	0.0	NP	NP	NP	0.075	25	SM	7.0			
R-21	2.0	38	19	19	0.075	66	CL	20.3			
R-21	13.0	NP	NP	NP	4.75	18	SM	19.3			
R-21	18.0	33	16	17	0.075	36	SC	25.5			

LAB SUMMARY P038677 I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



SUMMARY OF LABORATORY RESULTS

PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

Borehole	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Classification	Water Content (%)	Dry Density (pcf)	Saturation (%)	Void Ratio
R-22	2.0	46	28	18	0.075	72	ML	25.6			
R-22	13.0	NP	NP	NP	0.075	38	SM	31.1			
R-23	2.0	NP	NP	NP	0.075	35	SM	11.6			
R-23	8.0	NP	NP	NP	0.075	25	SM	13.4			
R-23	28.5	NP	NP	NP	0.075	47	SM	32.8			



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Tested By **EB**
Date **02/14/23**
Checked By **16**

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.990
Diameter, in	2.875	2.832
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.30
Volume, cm ³	638.29	618.21
Mass of Wet Sample, g	1322.90	1379.60
Mass of Dry Sample, g	1205.12	1209.26
Wet Density, pcf	129.4	139.3
Dry Density, pcf	117.9	122.1
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	446.34	447.88
Volume of Voids, cm ³	191.95	170.34
Void Ratio	0.43	0.38
% Saturation	61.4	100.0

WATER CONTENT DETERMINATION (initial) (final)

Mass of Wet Sample and Tare, g	436.60	1678.80
Mass of Dry Sample and Tare, g	410.30	1508.50
Mass of Tare, g	141.20	299.50
Moisture, %	9.77	14.09

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	85.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	5.0
Change in Height, in	0.010
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s' ₁ -s' ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	24.5	80.0	0.0	0.00	6.30	0.0	5.0	5.0	1.00	5.0	0.0	5.0
1.1	0.011	85.2	80.4	0.4	0.18	6.31	9.6	14.6	14.3	3.08	9.4	4.8	4.6
2.1	0.021	108.9	79.8	-0.2	0.35	6.32	13.4	18.4	18.5	3.59	11.8	6.7	5.2
3.1	0.031	129.4	79.1	-0.9	0.52	6.33	16.6	21.6	22.5	3.82	14.2	8.3	5.9
4.1	0.041	147.6	78.3	-1.7	0.69	6.34	19.4	24.4	26.1	3.92	16.4	9.7	6.7
5.1	0.051	162.4	77.6	-2.4	0.86	6.35	21.7	26.7	29.1	3.95	18.2	10.9	7.4
7.2	0.072	185.1	76.4	-3.6	1.20	6.37	25.2	30.2	33.8	3.94	21.2	12.6	8.6
10.2	0.102	206.5	75.2	-4.8	1.71	6.41	28.4	33.4	38.2	3.90	24.0	14.2	9.8
12.3	0.123	215.6	74.7	-5.3	2.05	6.43	29.7	34.7	40.0	3.88	25.2	14.9	10.3
15.3	0.153	224.7	74.1	-5.9	2.56	6.46	31.0	36.0	41.8	3.85	26.4	15.5	10.9
17.4	0.174	229.7	73.9	-6.1	2.90	6.49	31.6	36.6	42.8	3.84	26.9	15.8	11.1
20.4	0.204	237.1	73.8	-6.2	3.41	6.52	32.6	37.6	43.8	3.91	27.5	16.3	11.2
24.5	0.245	244.1	73.4	-6.6	4.09	6.57	33.4	38.4	45.0	3.89	28.3	16.7	11.6
29.6	0.296	252.6	73.0	-7.0	4.94	6.63	34.4	39.4	46.4	3.87	29.2	17.2	12.0
35.7	0.357	263.2	72.5	-7.5	5.96	6.70	35.6	40.6	48.1	3.86	30.3	17.8	12.5
40.8	0.408	271.7	72.1	-7.9	6.81	6.76	36.6	41.6	49.5	3.84	31.2	18.3	12.9
45.9	0.459	281.0	71.7	-8.3	7.66	6.82	37.6	42.6	51.0	3.82	32.2	18.8	13.3
50.0	0.500	287.8	71.3	-8.7	8.34	6.87	38.3	43.3	52.0	3.80	32.8	19.2	13.7
60.2	0.602	304.4	70.7	-9.3	10.05	7.00	40.0	45.0	54.3	3.80	34.3	20.0	14.3
70.4	0.704	318.8	70.0	-10.0	11.75	7.14	41.2	46.2	56.2	3.75	35.6	20.6	15.0
80.6	0.806	331.9	69.4	-10.6	13.45	7.28	42.2	47.2	57.9	3.71	36.7	21.1	15.6
85.6	0.856	337.9	69.1	-10.9	14.30	7.35	42.7	47.7	58.6	3.68	37.2	21.3	15.9
90.0	0.900	344.7	68.9	-11.1	15.03	7.41	43.2	48.2	59.3	3.68	37.7	21.6	16.1

Values @ Failure	-2.4	0.86	6.35	21.7	26.7	29.1	3.95	18.2	10.9	7.4	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Tested By: EB
Date: 02/14/23
Checked By: *[Signature]*

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. # 34:4266
Pr. Name I-26 and I-95 Interchange Improvements
Sample ID 44729/B-01MA
Location B-01MA

Laboratory Project # 2320L-01-1
Sample Type Remold
Depth/Elevation 0-4'
Additional Info -

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.975
Diameter, in	2.875	2.841
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.34
Volume, cm ³	638.29	620.56
Mass of Wet Sample, g	1322.60	1381.40
Mass of Dry Sample, g	1204.85	1208.40
Wet Density, pcf	129.4	139.0
Dry Density, pcf	117.8	121.6
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	446.24	447.56
Volume of Voids, cm ³	192.05	173.00
Void Ratio	0.43	0.39
% Saturation	61.3	100.0

WATER CONTENT DETERMINATION (initial) (final)

Mass of Wet Sample and Tare, g	436.60	1679.40
Mass of Dry Sample and Tare, g	410.30	1506.50
Mass of Tare, g	141.20	298.80
Moisture, %	9.77	14.32

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	10.0
Change in Height, in	0.025
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	25.6	80.0	0.0	0.00	6.34	0.0	10.0	10.0	1.00	10.0	0.0	10.0
1.0	0.010	101.3	81.5	1.5	0.17	6.35	11.9	21.9	20.4	2.40	14.5	6.0	8.5
2.0	0.020	134.6	81.6	1.6	0.34	6.36	17.1	27.1	25.5	3.05	16.9	8.6	8.4
3.1	0.031	161.2	81.1	1.1	0.51	6.37	21.3	31.3	30.2	3.40	19.5	10.6	8.9
4.1	0.041	184.4	80.4	0.4	0.68	6.38	24.9	34.9	34.5	3.59	22.1	12.4	9.6
5.1	0.051	204.1	79.6	-0.4	0.85	6.39	27.9	37.9	38.4	3.67	24.4	14.0	10.4
7.1	0.071	234.6	78.0	-2.0	1.19	6.41	32.6	42.6	44.5	3.73	28.2	16.3	12.0
10.2	0.102	266.9	76.2	-3.8	1.71	6.45	37.4	47.4	51.2	3.72	32.5	18.7	13.8
12.2	0.122	281.3	75.4	-4.6	2.05	6.47	39.5	49.5	54.2	3.70	34.4	19.8	14.6
15.3	0.153	298.1	74.4	-5.6	2.56	6.50	41.9	51.9	57.5	3.68	36.5	20.9	15.6
17.3	0.173	307.1	74.0	-6.0	2.90	6.53	43.1	53.1	59.1	3.69	37.6	21.6	16.0
20.4	0.204	318.3	73.5	-6.5	3.41	6.56	44.6	54.6	61.1	3.71	38.8	22.3	16.5
24.5	0.245	329.1	72.9	-7.1	4.09	6.61	45.9	55.9	63.0	3.69	40.0	23.0	17.1
29.6	0.296	341.4	72.3	-7.7	4.95	6.67	47.4	57.4	65.0	3.68	41.4	23.7	17.7
35.7	0.357	353.3	71.8	-8.2	5.97	6.74	48.6	58.6	66.9	3.66	42.6	24.3	18.2
40.8	0.408	362.5	71.3	-8.7	6.82	6.80	49.5	59.5	68.2	3.65	43.4	24.8	18.7
45.9	0.459	370.0	71.0	-9.0	7.68	6.86	50.2	60.2	69.2	3.64	44.1	25.1	19.0
49.9	0.499	377.3	70.8	-9.2	8.36	6.92	50.8	60.8	70.0	3.65	44.6	25.4	19.2
60.1	0.601	389.5	70.5	-9.5	10.06	7.05	51.6	61.6	71.2	3.64	45.4	25.8	19.5
70.3	0.703	398.9	70.1	-9.9	11.77	7.18	52.0	62.0	71.8	3.61	45.9	26.0	19.9
80.5	0.805	406.9	69.9	-10.1	13.47	7.32	52.1	62.1	72.2	3.58	46.2	26.0	20.1
85.6	0.856	411.5	70.0	-10.0	14.33	7.40	52.2	62.2	72.1	3.61	46.1	26.1	20.0
90.0	0.900	415.0	69.9	-10.1	15.07	7.46	52.2	62.2	72.3	3.60	46.2	26.1	20.1

Values @ Failure: -2.0, 1.19, 6.41, 32.6, 42.6, 44.5, 3.73, 28.2, 16.3, 12.0
 Failure criteria used* 3 *Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s'₁/s'₃)



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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.950
Diameter, in	2.875	2.847
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.37
Volume, cm ³	638.29	620.83
Mass of Wet Sample, g	1322.50	1379.60
Mass of Dry Sample, g	1204.76	1205.10
Wet Density, pcf	129.3	138.7
Dry Density, pcf	117.8	121.2
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	446.21	446.34
Volume of Voids, cm ³	192.08	174.50
Void Ratio	0.43	0.39
% Saturation	61.3	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	436.60	1678.90
Mass of Dry Sample and Tare, g	410.30	1504.46
Mass of Tare, g	141.20	299.70
Moisture, %	9.77	14.48

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	20.0
Change in Height, in "B" Value	0.050
	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	28.6	80.0	0.0	0.00	6.37	0.0	20.0	20.0	1.00	20.0	0.0	20.0
1.0	0.010	142.2	82.8	2.8	0.16	6.38	17.8	37.8	35.0	2.04	26.1	8.9	17.2
2.0	0.020	202.7	84.2	4.2	0.34	6.39	27.2	47.2	43.0	2.73	29.4	13.6	15.8
3.0	0.030	242.8	84.6	4.6	0.51	6.40	33.5	53.5	48.9	3.17	32.2	16.7	15.4
4.0	0.040	270.9	84.1	4.1	0.68	6.41	37.8	57.8	53.7	3.37	34.8	18.9	15.9
5.1	0.051	293.8	83.5	3.5	0.85	6.42	41.3	61.3	57.8	3.50	37.1	20.7	16.5
7.1	0.071	328.1	82.3	2.3	1.19	6.44	46.5	66.5	64.2	3.62	41.0	23.2	17.7
10.1	0.101	362.5	80.6	0.6	1.71	6.48	51.5	71.5	70.9	3.66	45.2	25.8	19.4
12.2	0.122	378.3	79.9	-0.1	2.05	6.50	53.8	73.8	73.9	3.68	47.0	26.9	20.1
15.2	0.152	396.3	79.0	-1.0	2.56	6.53	56.3	76.3	77.3	3.68	49.2	28.1	21.0
17.3	0.173	405.3	78.7	-1.3	2.91	6.56	57.4	77.4	78.7	3.70	50.0	28.7	21.3
20.4	0.204	416.3	77.8	-2.2	3.43	6.59	58.8	78.8	81.0	3.65	51.6	29.4	22.2
24.5	0.245	427.2	77.2	-2.8	4.11	6.64	60.0	80.0	82.8	3.63	52.8	30.0	22.8
29.6	0.296	437.2	76.7	-3.3	4.97	6.70	61.0	81.0	84.3	3.62	53.8	30.5	23.3
35.7	0.357	446.1	76.4	-3.6	5.99	6.77	61.6	81.6	85.2	3.61	54.4	30.8	23.6
40.8	0.408	454.0	76.4	-3.6	6.85	6.84	62.2	82.2	85.9	3.63	54.8	31.1	23.6
45.9	0.459	460.2	76.3	-3.7	7.71	6.90	62.6	82.6	86.3	3.64	55.0	31.3	23.7
49.9	0.499	463.8	76.2	-3.8	8.39	6.95	62.6	82.6	86.4	3.63	55.1	31.3	23.8
60.1	0.601	473.7	76.0	-4.0	10.11	7.08	62.8	82.8	86.9	3.62	55.4	31.4	24.0
70.3	0.703	483.1	75.9	-4.1	11.82	7.22	62.9	82.9	87.1	3.61	55.6	31.5	24.1
80.5	0.805	491.0	75.7	-4.3	13.53	7.36	62.8	82.8	87.1	3.58	55.7	31.4	24.3
85.6	0.856	494.2	75.6	-4.4	14.39	7.44	62.6	82.6	87.0	3.56	55.7	31.3	24.4
90.0	0.900	496.7	75.5	-4.5	15.13	7.50	62.4	82.4	86.9	3.55	55.7	31.2	24.5

Values @ Failure	-1.3	2.91	6.56	57.4	77.4	78.7	3.70	50.0	28.7	21.3	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Tested By

EB

Date

02/14/23

Check

EB

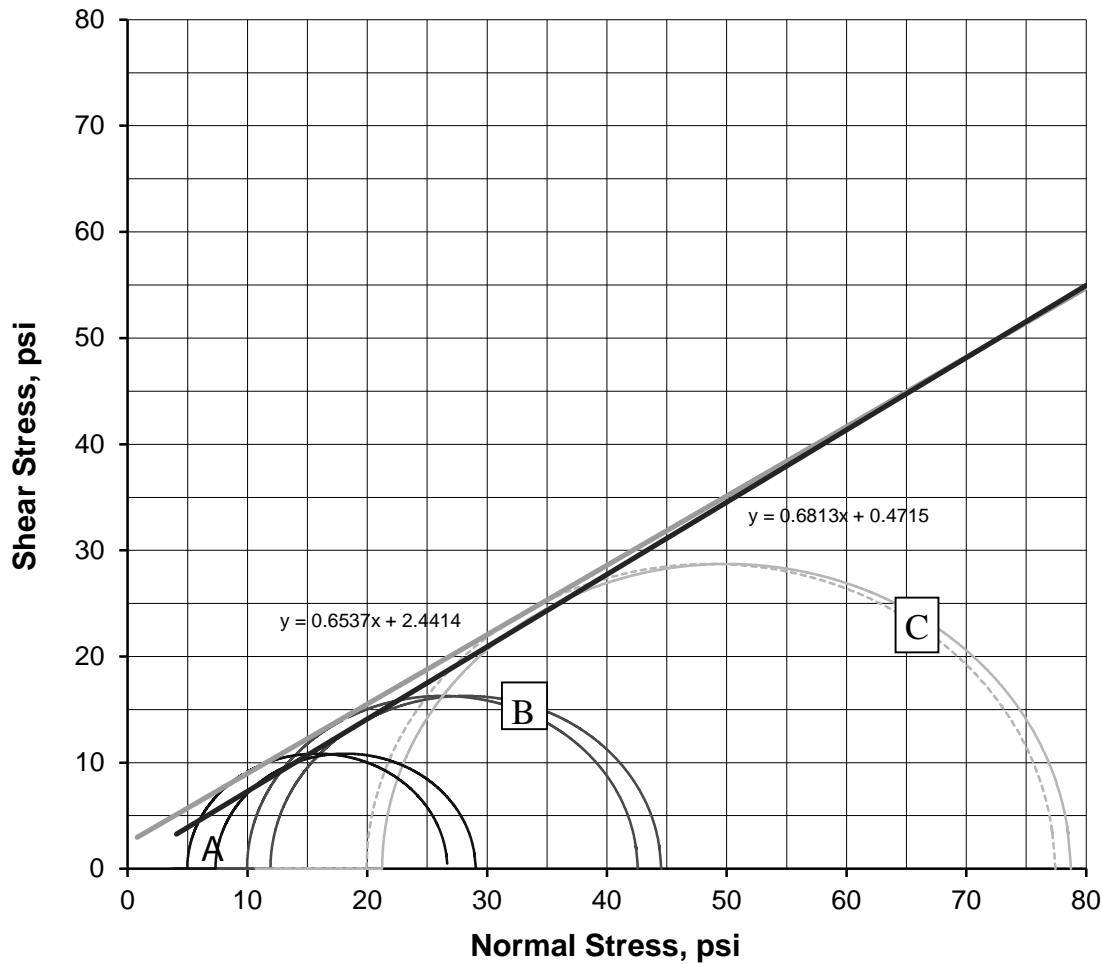
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Total and Effective Mohr's Circles



Specimen	A	B	C
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	21.7	32.6	57.4
Effective Minor Principal Stress at Failure, psi	7.4	12.0	21.3
Effective Major Principal Stress at Failure, psi	29.1	44.5	78.7
Axial Strain at Failure, %	0.86	1.19	2.91

STRENGTH PARAMETERS*				
	Total		Effective	
f °	33.2	f ' °	34.3	
C, psi	2.4	C', psi	0.5	

***Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report**

Triaxial CU.xls [Mohr's Circles], REV. 1; 10-10-05



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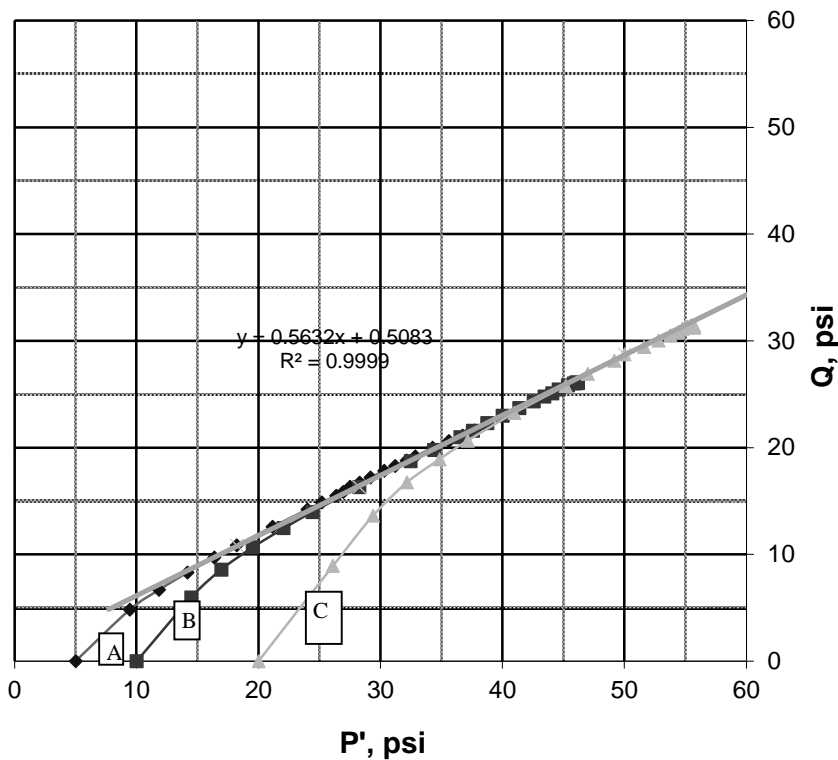
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

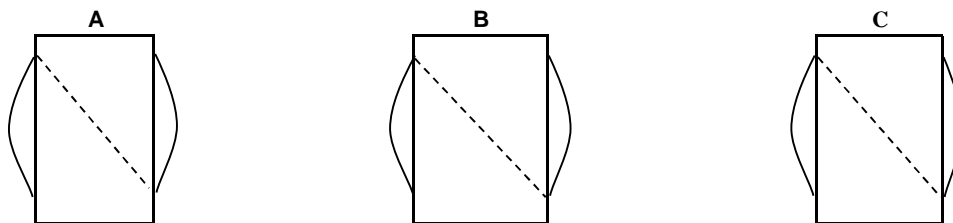
Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

P' - Q Graph



a, psi	0.5
a, degree	29.4

FAILURE SKETCH



REMOULDING PROPERTIES

	A	B	C
% Compaction of Max Dry Density	95.1	95.1	95.1
% Difference from Optimum M.C.	0.1	0.1	0.1



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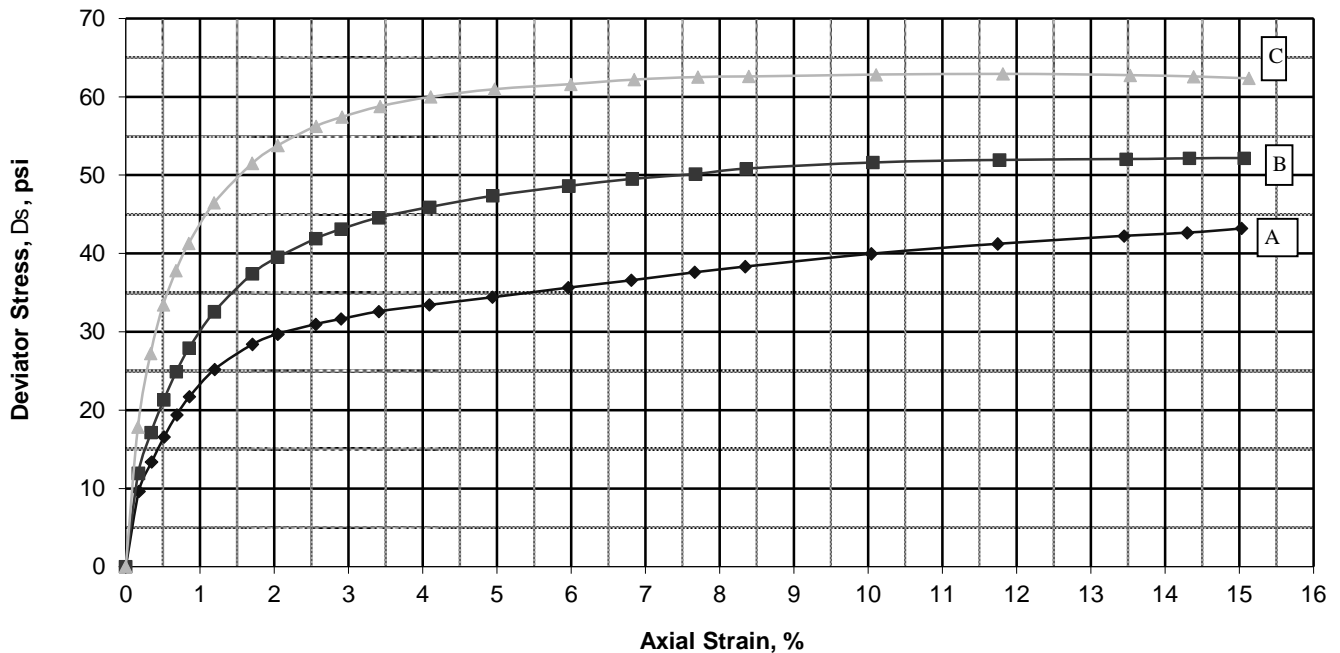
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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700	Samples (Material passing #4 Sieve) were remolded to specified % compaction and moisture content of Standard Proctor values	NA
Oven ID Number	496/610		
Deformation Indicator ID #	178/349/689		
Digital Caliper ID #	370/458		
Load Cell ID #	347/692/815		
Apparatus ID #	293/693/814		

NOTES:

- Method for Saturation
- Method for determination of cross-sectional after consolidation
- Initial specimen moisture content obtained from cuttings
- Final specimen moisture content obtained from entire sample

WET
B

LL	-
PL	-
PI	-
Gs	-

USCS (ASTM D2487: D2488)

NA



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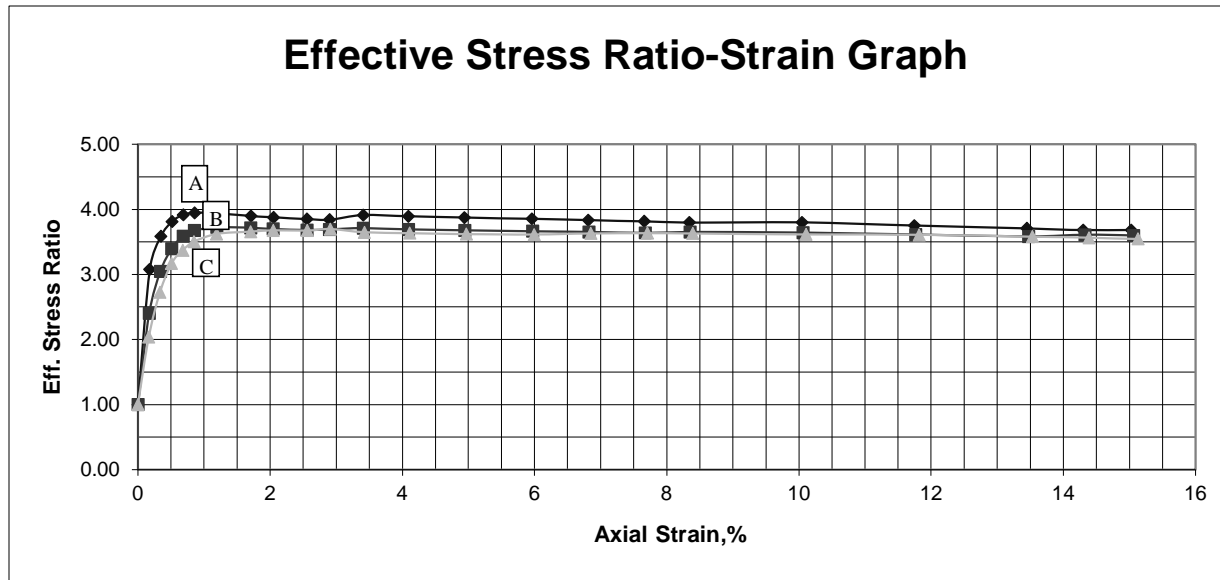
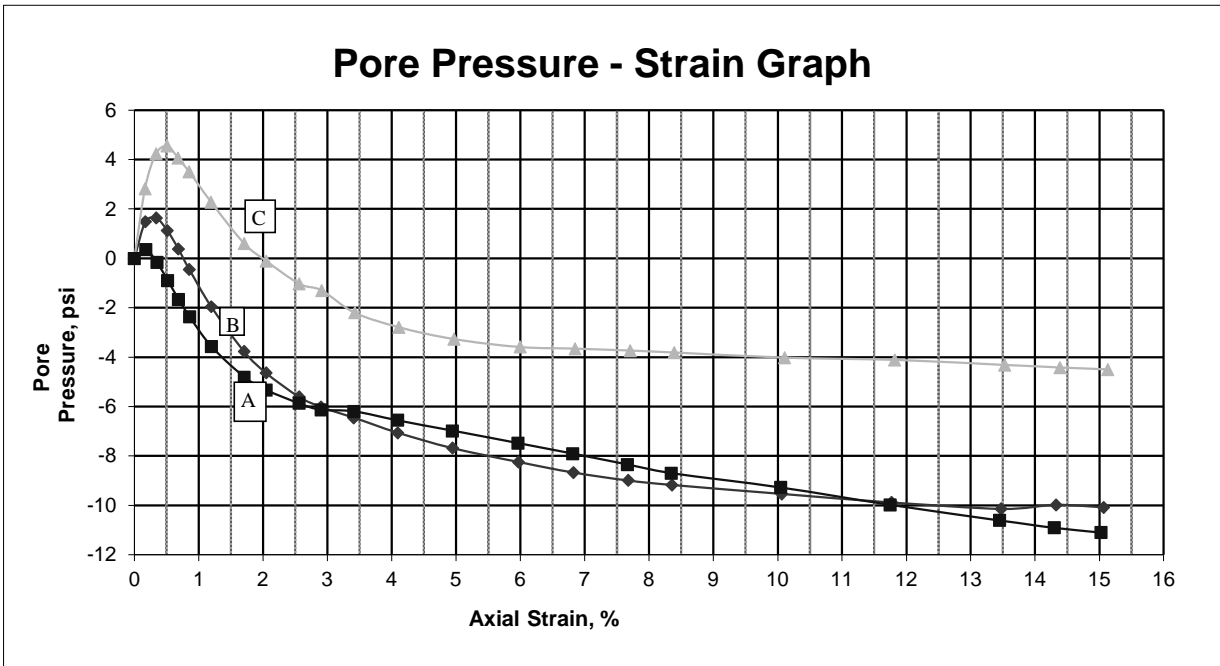
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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-



Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain GRAPH], REV. 1; 10-10-05



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Tested By **EB**
Date **02/15/23**
Checked By **16**

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.988
Diameter, in	2.875	2.847
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.36
Volume, cm ³	638.29	624.53
Mass of Wet Sample, g	1277.60	1342.40
Mass of Dry Sample, g	1139.98	1140.15
Wet Density, pcf	125.0	134.2
Dry Density, pcf	111.5	114.0
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	422.21	422.28
Volume of Voids, cm ³	216.08	202.25
Void Ratio	0.51	0.48
% Saturation	63.7	100.0

WATER CONTENT DETERMINATION (initial) (final)

Mass of Wet Sample and Tare, g	423.20	1644.90
Mass of Dry Sample and Tare, g	392.50	1442.68
Mass of Tare, g	138.20	302.70
Moisture, %	12.07	17.74

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	85.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	5.0
Change in Height, in	0.012
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s' ₁ -s' ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	20.1	80.0	0.0	0.00	6.36	0.0	5.0	5.0	1.00	5.0	0.0	5.0
1.0	0.010	58.1	81.2	1.2	0.17	6.38	6.0	11.0	9.7	2.58	6.7	3.0	3.8
2.0	0.020	70.5	81.6	1.6	0.34	6.39	7.9	12.9	11.3	3.29	7.4	3.9	3.4
3.1	0.031	77.1	81.6	1.6	0.51	6.40	8.9	13.9	12.3	3.65	7.8	4.5	3.4
4.1	0.041	80.9	81.7	1.7	0.68	6.41	9.5	14.5	12.8	3.84	8.1	4.7	3.3
5.1	0.051	83.1	81.6	1.6	0.85	6.42	9.8	14.8	13.2	3.92	8.3	4.9	3.4
7.1	0.071	85.5	81.5	1.5	1.19	6.44	10.2	15.2	13.6	3.93	8.5	5.1	3.5
10.2	0.102	87.7	81.4	1.4	1.70	6.47	10.4	15.4	14.0	3.89	8.8	5.2	3.6
12.2	0.122	88.8	81.3	1.3	2.04	6.50	10.6	15.6	14.3	3.86	9.0	5.3	3.7
15.3	0.153	90.1	81.3	1.3	2.55	6.53	10.7	15.7	14.5	3.86	9.1	5.4	3.8
17.3	0.173	91.1	81.4	1.4	2.89	6.55	10.8	15.8	14.5	3.98	9.0	5.4	3.6
20.4	0.204	92.2	81.3	1.3	3.40	6.59	10.9	15.9	14.6	3.98	9.1	5.5	3.7
24.5	0.245	93.9	81.2	1.2	4.08	6.64	11.1	16.1	14.9	3.93	9.4	5.6	3.8
29.6	0.296	96.0	81.0	1.0	4.94	6.70	11.3	16.3	15.3	3.83	9.7	5.7	4.0
35.7	0.357	98.7	80.9	0.9	5.96	6.77	11.6	16.6	15.7	3.82	9.9	5.8	4.1
40.8	0.408	101.1	80.7	0.7	6.81	6.83	11.9	16.9	16.1	3.77	10.2	5.9	4.3
45.9	0.459	103.3	80.6	0.6	7.66	6.89	12.1	17.1	16.5	3.76	10.4	6.0	4.4
49.9	0.499	105.2	80.6	0.6	8.34	6.94	12.2	17.2	16.6	3.78	10.5	6.1	4.4
60.1	0.601	109.1	80.5	0.5	10.04	7.08	12.6	17.6	17.1	3.77	10.8	6.3	4.5
70.3	0.703	112.5	80.2	0.2	11.74	7.21	12.8	17.8	17.6	3.68	11.2	6.4	4.8
80.5	0.805	115.8	80.2	0.2	13.45	7.35	13.0	18.0	17.8	3.71	11.3	6.5	4.8
85.6	0.856	117.7	80.1	0.1	14.30	7.43	13.1	18.1	18.0	3.68	11.5	6.6	4.9
90.0	0.900	119.0	80.0	0.0	15.03	7.49	13.2	18.2	18.2	3.64	11.6	6.6	5.0

Values @ Failure	1.4	2.89	6.55	10.8	15.8	14.5	3.98	9.0	5.4	3.6	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Tested By	EB
Date	02/15/23
Checked By	<i>[Signature]</i>

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.983
Diameter, in	2.875	2.843
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.35
Volume, cm ³	638.29	622.46
Mass of Wet Sample, g	1277.90	1340.50
Mass of Dry Sample, g	1140.25	1140.42
Wet Density, pcf	125.0	134.4
Dry Density, pcf	111.5	114.4
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	422.31	422.38
Volume of Voids, cm ³	215.98	200.08
Void Ratio	0.51	0.47
% Saturation	63.7	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	423.20	1618.90
Mass of Dry Sample and Tare, g	392.50	1418.85
Mass of Tare, g	138.20	278.60
Moisture, %	12.07	17.54

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	10.0
Change in Height, in	0.017
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	28.0	80.0	0.0	0.00	6.35	0.0	10.0	10.0	1.00	10.0	0.0	10.0
1.0	0.010	87.4	82.6	2.6	0.17	6.36	9.3	19.3	16.7	2.27	12.0	4.7	7.4
2.0	0.020	102.5	83.4	3.4	0.34	6.37	11.7	21.7	18.3	2.77	12.5	5.8	6.6
3.1	0.031	112.0	83.6	3.6	0.51	6.38	13.2	23.2	19.6	3.05	13.0	6.6	6.4
4.1	0.041	118.0	83.6	3.6	0.68	6.39	14.1	24.1	20.5	3.19	13.5	7.0	6.4
5.1	0.051	121.8	83.5	3.5	0.85	6.40	14.6	24.6	21.1	3.26	13.8	7.3	6.5
7.1	0.071	125.6	83.4	3.4	1.19	6.43	15.2	25.2	21.8	3.31	14.2	7.6	6.6
10.2	0.102	127.4	83.3	3.3	1.70	6.46	15.4	25.4	22.0	3.31	14.4	7.7	6.7
12.2	0.122	127.7	83.3	3.3	2.04	6.48	15.4	25.4	22.0	3.31	14.3	7.7	6.7
15.3	0.153	127.9	83.4	3.4	2.56	6.52	15.3	25.3	22.0	3.31	14.3	7.7	6.6
17.3	0.173	128.1	83.4	3.4	2.90	6.54	15.3	25.3	21.9	3.32	14.3	7.7	6.6
20.4	0.204	128.1	83.4	3.4	3.41	6.57	15.2	25.2	21.8	3.32	14.2	7.6	6.6
24.5	0.245	128.8	83.7	3.7	4.09	6.62	15.2	25.2	21.5	3.43	13.9	7.6	6.3
29.6	0.296	129.3	83.7	3.7	4.94	6.68	15.2	25.2	21.4	3.42	13.9	7.6	6.3
35.7	0.357	130.4	83.7	3.7	5.96	6.75	15.2	25.2	21.4	3.42	13.9	7.6	6.3
40.8	0.408	131.4	83.7	3.7	6.81	6.81	15.2	25.2	21.4	3.42	13.9	7.6	6.3
45.9	0.459	132.4	83.7	3.7	7.67	6.88	15.2	25.2	21.5	3.42	13.9	7.6	6.3
49.9	0.499	133.3	83.6	3.6	8.35	6.93	15.2	25.2	21.6	3.38	14.0	7.6	6.4
60.1	0.601	135.9	83.6	3.6	10.05	7.06	15.3	25.3	21.7	3.39	14.0	7.6	6.4
70.3	0.703	138.5	83.5	3.5	11.75	7.19	15.4	25.4	21.9	3.36	14.2	7.7	6.5
80.5	0.805	141.3	83.5	3.5	13.46	7.34	15.4	25.4	21.9	3.38	14.2	7.7	6.5
85.6	0.856	143.1	83.4	3.4	14.31	7.41	15.5	25.5	22.1	3.35	14.4	7.8	6.6
90.0	0.900	144.5	83.4	3.4	15.04	7.47	15.6	25.6	22.2	3.36	14.4	7.8	6.6

Values @ Failure	3.7	4.09	6.62	15.2	25.2	21.5	3.43	13.9	7.6	6.3	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Tested By: EB
Date: 02/15/23
Checked By: *[Signature]*

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.965
Diameter, in	2.875	2.845
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.36
Volume, cm ³	638.29	621.43
Mass of Wet Sample, g	1277.70	1339.30
Mass of Dry Sample, g	1140.07	1140.15
Wet Density, pcf	125.0	134.5
Dry Density, pcf	111.5	114.5
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	422.25	422.28
Volume of Voids, cm ³	216.04	199.15
Void Ratio	0.51	0.47
% Saturation	63.7	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	423.20	1642.00
Mass of Dry Sample and Tare, g	392.50	1442.87
Mass of Tare, g	138.20	302.80
Moisture, %	12.07	17.47

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	20.0
Change in Height, in	0.035
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	29.5	80.0	0.0	0.00	6.36	0.0	20.0	20.0	1.00	20.0	0.0	20.0
1.1	0.011	108.2	84.0	4.0	0.18	6.37	12.4	32.4	28.3	1.77	22.1	6.2	16.0
2.1	0.021	129.3	86.9	6.9	0.35	6.38	15.6	35.6	28.8	2.19	21.0	7.8	13.1
3.1	0.031	139.2	88.6	8.6	0.52	6.39	17.2	37.2	28.6	2.50	20.0	8.6	11.4
4.1	0.041	144.8	89.7	9.7	0.69	6.40	18.0	38.0	28.3	2.75	19.3	9.0	10.3
5.1	0.051	148.1	90.4	10.4	0.86	6.41	18.5	38.5	28.1	2.93	18.8	9.2	9.6
7.2	0.072	151.0	91.2	11.2	1.20	6.43	18.9	38.9	27.7	3.15	18.2	9.4	8.8
10.2	0.102	152.7	91.8	11.8	1.72	6.47	19.0	39.0	27.3	3.31	17.7	9.5	8.2
12.3	0.123	153.5	92.0	12.0	2.06	6.49	19.1	39.1	27.1	3.37	17.6	9.6	8.0
15.3	0.153	154.3	92.1	12.1	2.57	6.53	19.1	39.1	27.0	3.43	17.4	9.6	7.9
17.4	0.174	155.2	92.2	12.2	2.91	6.55	19.2	39.2	27.0	3.47	17.4	9.6	7.8
20.4	0.204	155.8	92.3	12.3	3.42	6.58	19.2	39.2	26.9	3.49	17.3	9.6	7.7
24.5	0.245	155.9	92.4	12.4	4.11	6.63	19.1	39.1	26.7	3.50	17.2	9.5	7.6
29.6	0.296	156.2	92.5	12.5	4.96	6.69	18.9	38.9	26.5	3.52	17.0	9.5	7.5
35.7	0.357	156.6	92.6	12.6	5.99	6.76	18.8	38.8	26.2	3.54	16.8	9.4	7.4
40.8	0.408	156.9	92.7	12.7	6.84	6.82	18.7	38.7	26.0	3.56	16.6	9.3	7.3
45.9	0.459	157.6	92.7	12.7	7.70	6.89	18.6	38.6	25.9	3.55	16.6	9.3	7.3
50.0	0.500	158.3	92.6	12.6	8.38	6.94	18.6	38.6	26.0	3.51	16.7	9.3	7.4
60.2	0.602	160.8	92.6	12.6	10.09	7.07	18.6	38.6	26.0	3.51	16.7	9.3	7.4
70.4	0.704	163.4	92.5	12.5	11.80	7.21	18.6	38.6	26.1	3.48	16.8	9.3	7.5
80.6	0.806	166.7	92.4	12.4	13.50	7.35	18.7	38.7	26.3	3.46	16.9	9.3	7.6
85.6	0.856	168.3	92.4	12.4	14.36	7.42	18.7	38.7	26.3	3.46	16.9	9.3	7.6
90.0	0.900	169.9	92.3	12.3	15.08	7.49	18.8	38.8	26.5	3.44	17.1	9.4	7.7

Values @ Failure	12.7	6.84	6.82	18.7	38.7	26.0	3.56	16.6	9.3	7.3	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Phone: 770-938-8233

Fax: 770-923-8973

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Tested By

EB

Date

02/15/23

Check

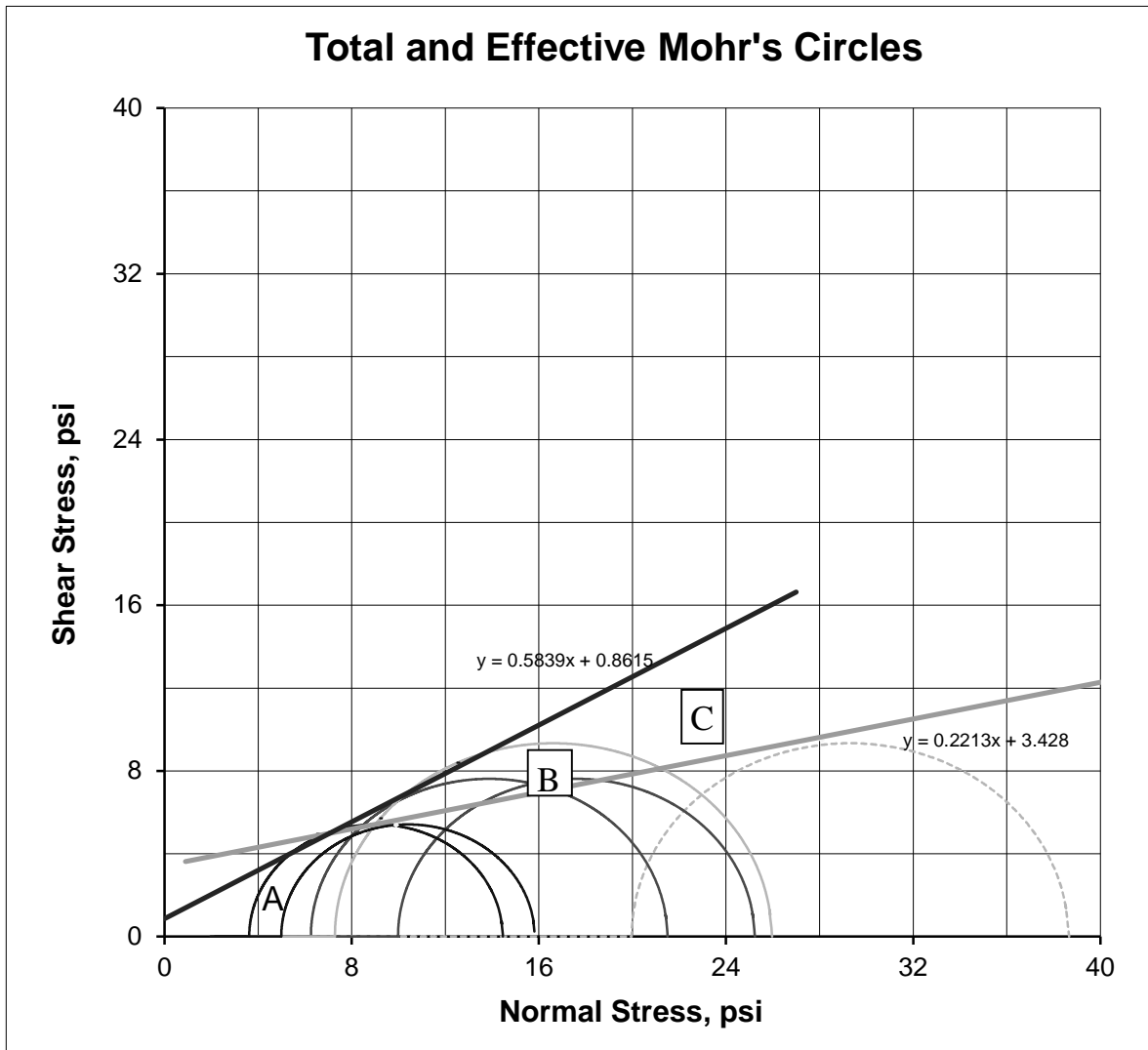
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Total and Effective Mohr's Circles



Specimen	A	B	C
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	10.8	15.2	18.7
Effective Minor Principal Stress at Failure, psi	3.6	6.3	7.3
Effective Major Principal Stress at Failure, psi	14.5	21.5	26.0
Axial Strain at Failure, %	2.89	4.09	6.84

STRENGTH PARAMETERS*			
	Total	Effective	
f °	12.5	f ' °	30.3
C, psi	3.4	C', psi	0.9

***Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report**

Triaxial CU.xls [Mohr's Circles], REV. 1; 10-10-05



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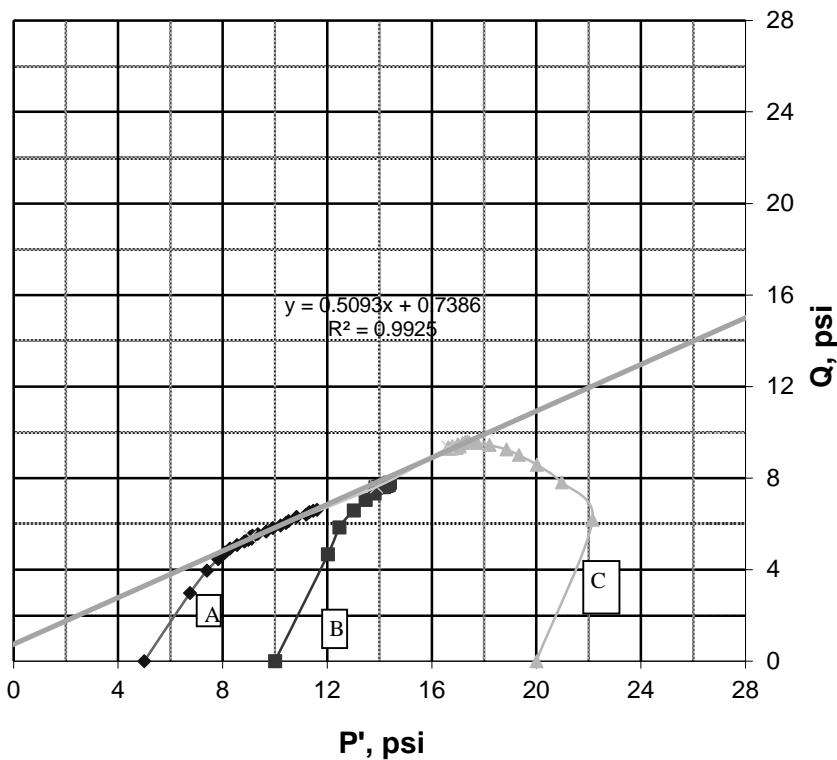
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

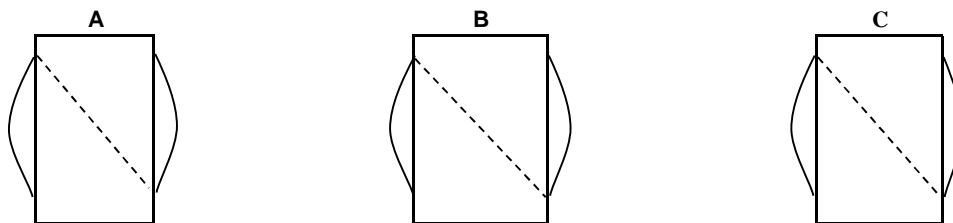
Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

P' - Q Graph



a, psi	0.7
a, degree	27.0

FAILURE SKETCH



REMOULDING PROPERTIES

	A	B	C
% Compaction of Max Dry Density	95.1	95.1	95.1
% Difference from Optimum M.C.	0.1	0.1	0.1



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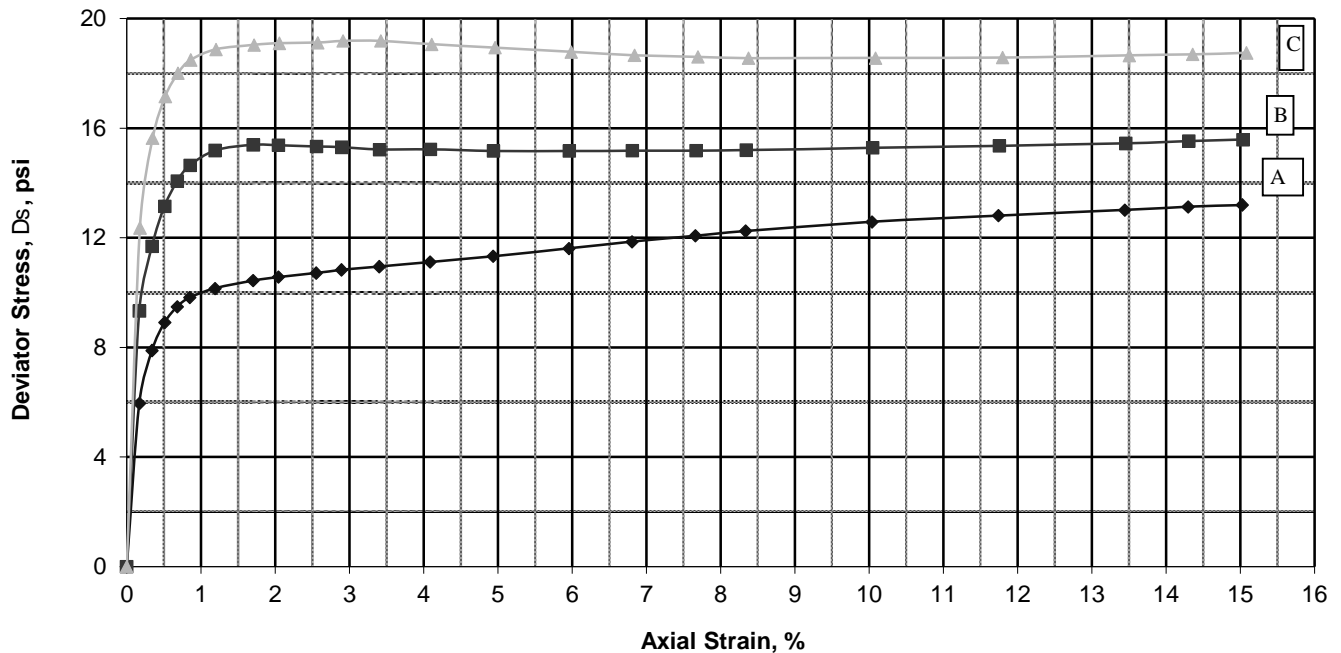
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Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700
Oven ID Number	496/610
Deformation Indicator ID #	178/349/689
Digital Caliper ID #	370/458
Load Cell ID #	347/692/815
Apparatus ID #	293/693/814

Samples (Material passing #4 Sieve) were remolded to specified % compaction and moisture content of Standard Proctor values

NA

NOTES:

- Method for Saturation
- Method for determination of cross-sectional after consolidation
- Initial specimen moisture content obtained from cuttings
- Final specimen moisture content obtained from entire sample

WET
B

LL	-
PL	-
PI	-
Gs	-

USCS (ASTM D2487: D2488)

NA



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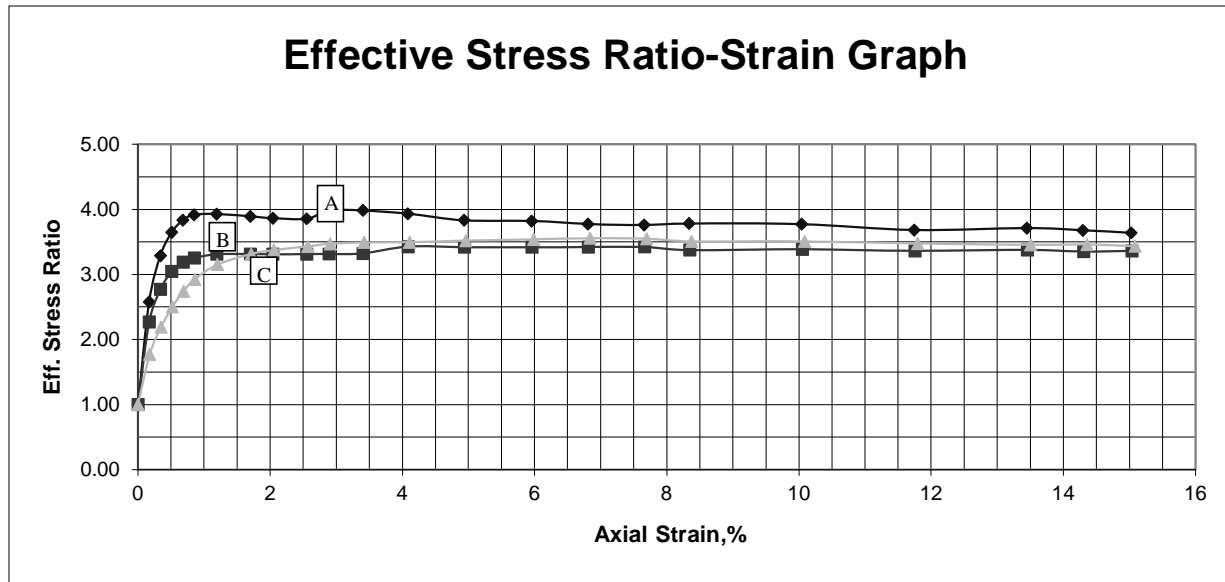
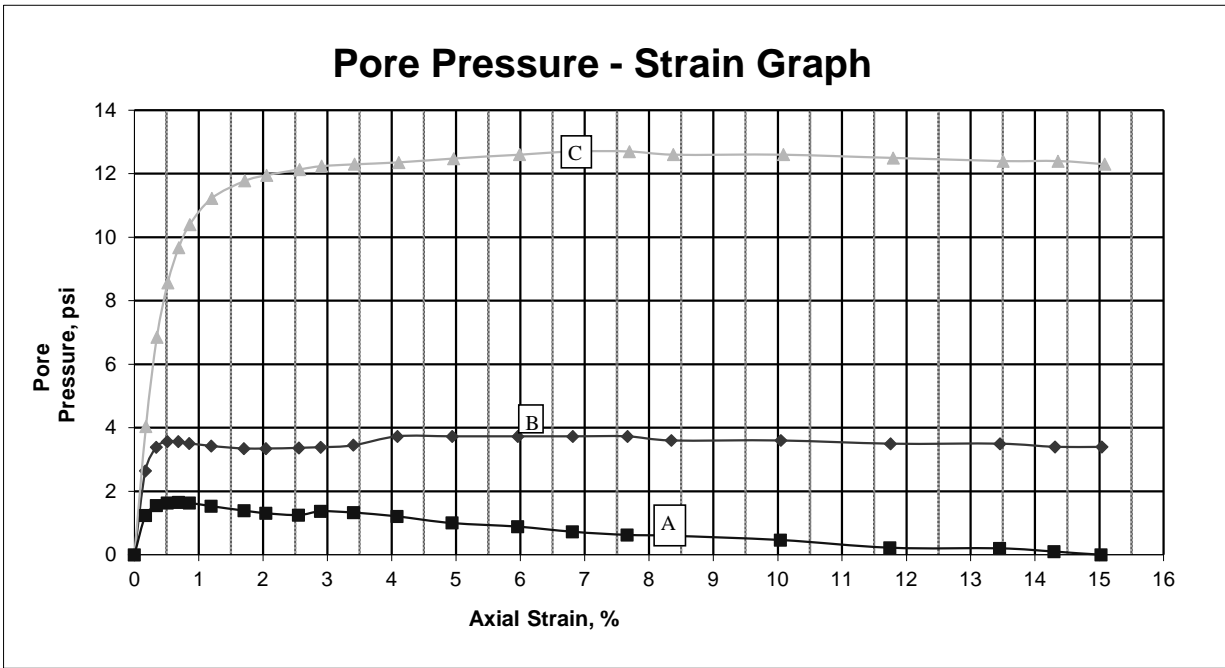
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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-



Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain GRAPH], REV. 1; 10-10-05



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Date: 02/15/23
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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266	Laboratory Project #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	Sample Type	Remold
Sample ID	44731/B-06MA	Depth/Elevation	0-4'
Location	B-06MA	Additional Info	-

SPECIMEN PROPERTIES

(initial) (after consol.)

Height, in	6.000	5.990
Diameter, in	2.875	2.816
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.23
Volume, cm ³	638.29	611.20
Mass of Wet Sample, g	1284.30	1330.80
Mass of Dry Sample, g	1142.46	1142.89
Wet Density, pcf	125.6	135.9
Dry Density, pcf	111.7	116.7
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	423.13	423.29
Volume of Voids, cm ³	215.16	187.91
Void Ratio	0.51	0.44
% Saturation	65.9	100.0

WATER CONTENT DETERMINATION (initial) (final)

Mass of Wet Sample and Tare, g	469.50	1635.50
Mass of Dry Sample and Tare, g	432.80	1447.66
Mass of Tare, g	137.20	305.20
Moisture, %	12.42	16.44

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	85.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	5.0
Change in Height, in	0.010
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	22.1	80.0	0.0	0.00	6.23	0.0	5.0	5.0	1.00	5.0	0.0	5.0
1.0	0.010	57.2	80.7	0.7	0.17	6.24	5.6	10.6	9.9	2.32	7.1	2.8	4.3
2.0	0.020	67.9	80.8	0.8	0.34	6.25	7.3	12.3	11.5	2.77	7.8	3.7	4.2
3.1	0.031	75.5	80.8	0.8	0.51	6.26	8.5	13.5	12.7	3.04	8.4	4.3	4.2
4.1	0.041	81.2	80.7	0.7	0.68	6.27	9.4	14.4	13.7	3.20	9.0	4.7	4.3
5.1	0.051	85.6	80.6	0.6	0.85	6.28	10.1	15.1	14.5	3.32	9.4	5.1	4.4
7.1	0.071	92.5	80.4	0.4	1.19	6.30	11.2	16.2	15.7	3.45	10.1	5.6	4.6
10.2	0.102	99.7	80.2	0.2	1.70	6.33	12.3	17.3	17.1	3.55	10.9	6.1	4.8
12.2	0.122	103.4	80.0	0.0	2.04	6.36	12.8	17.8	17.8	3.58	11.4	6.4	5.0
15.3	0.153	107.9	79.8	-0.2	2.55	6.39	13.4	18.4	18.6	3.60	11.9	6.7	5.2
17.3	0.173	110.3	79.7	-0.3	2.89	6.41	13.8	18.8	19.0	3.61	12.1	6.9	5.3
20.4	0.204	113.4	79.6	-0.4	3.40	6.45	14.2	19.2	19.5	3.63	12.5	7.1	5.4
24.5	0.245	116.5	79.5	-0.5	4.08	6.49	14.5	19.5	20.0	3.64	12.8	7.3	5.5
29.6	0.296	120.3	79.4	-0.6	4.93	6.55	15.0	20.0	20.6	3.66	13.1	7.5	5.6
35.7	0.357	124.5	79.1	-0.9	5.95	6.62	15.5	20.5	21.4	3.62	13.6	7.7	5.9
40.8	0.408	127.5	79.0	-1.0	6.81	6.68	15.8	20.8	21.8	3.63	13.9	7.9	6.0
45.9	0.459	130.6	78.9	-1.1	7.66	6.74	16.1	21.1	22.2	3.64	14.1	8.0	6.1
49.9	0.499	132.6	78.7	-1.3	8.34	6.79	16.3	21.3	22.6	3.58	14.4	8.1	6.3
60.1	0.601	138.1	78.6	-1.4	10.04	6.92	16.8	21.8	23.2	3.62	14.8	8.4	6.4
70.3	0.703	143.0	78.5	-1.5	11.74	7.05	17.1	22.1	23.6	3.64	15.1	8.6	6.5
80.5	0.805	148.0	78.4	-1.6	13.44	7.19	17.5	22.5	24.1	3.65	15.4	8.8	6.6
85.6	0.856	150.5	78.3	-1.7	14.29	7.26	17.7	22.7	24.4	3.64	15.5	8.8	6.7
90.0	0.900	152.7	78.2	-1.8	15.02	7.33	17.8	22.8	24.6	3.62	15.7	8.9	6.8

Values @ Failure	-0.6	4.93	6.55	15.0	20.0	20.6	3.66	13.1	7.5	5.6	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Phone: 770-938-8233

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**AASHTO
ACCREDITED**

Tested By

EB

Date

02/15/23

Checked By

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.979
Diameter, in	2.875	2.818
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.24
Volume, cm ³	638.29	611.08
Mass of Wet Sample, g	1284.50	1332.20
Mass of Dry Sample, g	1142.64	1145.30
Wet Density, pcf	125.6	136.1
Dry Density, pcf	111.8	117.0
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	423.20	424.19
Volume of Voids, cm ³	215.09	186.90
Void Ratio	0.51	0.44
% Saturation	66.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	469.50	1635.00
Mass of Dry Sample and Tare, g	432.80	1448.54
Mass of Tare, g	137.20	305.90
Moisture, %	12.42	16.32

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	10.0
Change in Height, in	0.021
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	23.0	80.0	0.0	0.00	6.24	0.0	10.0	10.0	1.00	10.0	0.0	10.0
1.1	0.011	81.2	82.0	2.0	0.18	6.25	9.3	19.3	17.3	2.16	12.7	4.7	8.0
2.1	0.021	95.5	83.0	3.0	0.35	6.26	11.6	21.6	18.6	2.66	12.8	5.8	7.0
3.1	0.031	102.8	83.5	3.5	0.52	6.27	12.7	22.7	19.2	2.96	12.9	6.4	6.5
4.1	0.041	107.5	83.8	3.8	0.69	6.28	13.4	23.4	19.7	3.15	13.0	6.7	6.3
5.1	0.051	110.9	83.9	3.9	0.86	6.29	14.0	24.0	20.0	3.30	13.1	7.0	6.1
7.2	0.072	115.4	84.1	4.1	1.20	6.31	14.6	24.6	20.5	3.48	13.2	7.3	5.9
10.2	0.102	119.0	84.2	4.2	1.71	6.35	15.1	25.1	20.9	3.61	13.4	7.6	5.8
12.3	0.123	120.5	84.3	4.3	2.05	6.37	15.3	25.3	21.1	3.67	13.4	7.7	5.7
15.3	0.153	121.8	84.3	4.3	2.56	6.40	15.4	25.4	21.1	3.71	13.4	7.7	5.7
17.4	0.174	122.5	84.4	4.4	2.90	6.42	15.5	25.5	21.1	3.74	13.4	7.7	5.6
20.4	0.204	123.3	84.4	4.4	3.42	6.46	15.5	25.5	21.1	3.77	13.4	7.8	5.6
24.5	0.245	124.1	84.4	4.4	4.10	6.50	15.5	25.5	21.1	3.78	13.4	7.8	5.6
29.6	0.296	125.9	84.4	4.4	4.95	6.56	15.7	25.7	21.3	3.81	13.4	7.8	5.6
35.7	0.357	128.5	84.4	4.4	5.97	6.63	15.9	25.9	21.5	3.83	13.6	8.0	5.6
40.8	0.408	130.6	84.3	4.3	6.83	6.69	16.1	26.1	21.7	3.84	13.7	8.0	5.7
45.9	0.459	132.8	84.3	4.3	7.68	6.76	16.3	26.3	22.0	3.84	13.9	8.1	5.7
50.0	0.500	134.8	84.2	4.2	8.36	6.81	16.4	26.4	22.2	3.84	14.0	8.2	5.8
60.2	0.602	140.0	84.1	4.1	10.06	6.93	16.9	26.9	22.8	3.84	14.4	8.4	5.9
70.4	0.704	145.4	83.9	3.9	11.77	7.07	17.3	27.3	23.4	3.84	14.8	8.7	6.1
80.6	0.806	151.0	83.7	3.7	13.47	7.21	17.8	27.8	24.0	3.82	15.2	8.9	6.3
85.6	0.856	153.6	83.6	3.6	14.32	7.28	17.9	27.9	24.3	3.81	15.4	9.0	6.4
90.0	0.900	155.9	83.5	3.5	15.06	7.34	18.1	28.1	24.6	3.78	15.5	9.0	6.5

Values @ Failure

4.3 6.83 6.69 16.1 26.1 21.7 3.84 13.7 8.0 5.7

Failure criteria used*

3

*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s'₁/s'₃)



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Phone: 770-938-8233

Fax: 770-923-8973

Web: www.test-llc.com



Tested By

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Date

02/15/23

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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.948
Diameter, in	2.875	2.814
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.22
Volume, cm ³	638.29	606.19
Mass of Wet Sample, g	1284.70	1325.90
Mass of Dry Sample, g	1142.81	1143.07
Wet Density, pcf	125.6	136.5
Dry Density, pcf	111.8	117.7
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	423.26	423.36
Volume of Voids, cm ³	215.03	182.83
Void Ratio	0.51	0.43
% Saturation	66.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	469.50	1623.90
Mass of Dry Sample and Tare, g	432.80	1441.11
Mass of Tare, g	137.20	298.30
Moisture, %	12.42	15.99

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	20.0
Change in Height, in "B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	25.6	80.0	0.0	0.00	6.22	0.0	20.0	20.0	1.00	20.0	0.0	20.0
1.0	0.010	97.1	84.1	4.1	0.17	6.23	11.5	31.5	27.4	1.72	21.7	5.7	15.9
2.0	0.020	116.7	87.0	7.0	0.34	6.24	14.6	34.6	27.6	2.12	20.3	7.3	13.0
3.1	0.031	125.4	88.7	8.7	0.51	6.25	16.0	36.0	27.3	2.41	19.3	8.0	11.3
4.1	0.041	130.4	89.9	9.9	0.69	6.26	16.7	36.7	26.9	2.65	18.5	8.4	10.1
5.1	0.051	133.4	90.6	10.6	0.86	6.27	17.2	37.2	26.6	2.83	18.0	8.6	9.4
7.1	0.071	137.5	91.5	11.5	1.20	6.29	17.8	37.8	26.3	3.08	17.4	8.9	8.5
10.2	0.102	142.2	91.9	11.9	1.71	6.33	18.4	38.4	26.5	3.27	17.3	9.2	8.1
12.2	0.122	145.1	92.0	12.0	2.06	6.35	18.8	38.8	26.9	3.34	17.5	9.4	8.0
15.3	0.153	148.8	91.9	11.9	2.57	6.38	19.3	39.3	27.4	3.39	17.7	9.6	8.1
17.3	0.173	150.9	91.9	11.9	2.91	6.41	19.6	39.6	27.7	3.41	17.9	9.8	8.1
20.4	0.204	153.8	91.9	11.9	3.43	6.44	19.9	39.9	28.0	3.45	18.1	10.0	8.1
24.5	0.245	157.6	92.0	12.0	4.11	6.49	20.3	40.3	28.3	3.54	18.2	10.2	8.0
29.6	0.296	161.3	91.8	11.8	4.97	6.54	20.7	40.7	28.9	3.54	18.5	10.4	8.2
35.7	0.357	165.3	91.7	11.7	6.00	6.62	21.1	41.1	29.4	3.54	18.9	10.6	8.3
40.8	0.408	168.4	91.6	11.6	6.85	6.68	21.4	41.4	29.8	3.54	19.1	10.7	8.4
45.9	0.459	171.8	91.6	11.6	7.71	6.74	21.7	41.7	30.1	3.59	19.2	10.8	8.4
49.9	0.499	174.4	91.6	11.6	8.40	6.79	21.9	41.9	30.3	3.61	19.3	11.0	8.4
60.1	0.601	180.2	91.4	11.4	10.11	6.92	22.3	42.3	31.0	3.59	19.8	11.2	8.6
70.3	0.703	185.9	91.3	11.3	11.82	7.05	22.7	42.7	31.4	3.61	20.1	11.4	8.7
80.5	0.805	191.6	91.1	11.1	13.54	7.19	23.1	43.1	32.0	3.60	20.4	11.5	8.9
85.6	0.856	194.5	91.0	11.0	14.39	7.26	23.2	43.2	32.3	3.58	20.6	11.6	9.0
90.0	0.900	196.9	90.9	10.9	15.13	7.33	23.4	43.4	32.5	3.56	20.8	11.7	9.1

Values @ Failure	11.6	8.40	6.79	21.9	41.9	30.3	3.61	19.3	11.0	8.4	
Failure criteria used*	3	*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Date

02/15/23

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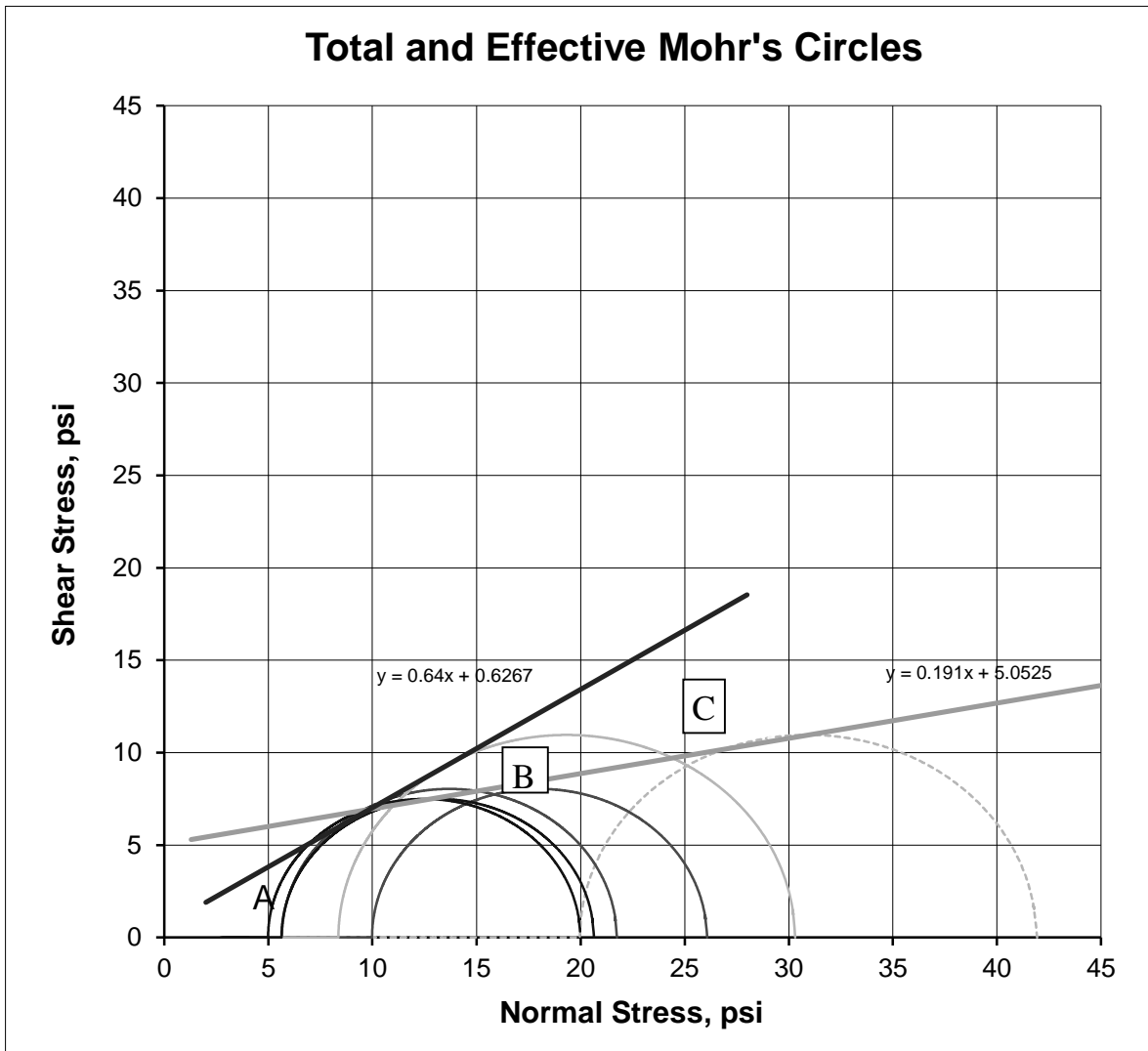
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Total and Effective Mohr's Circles



Specimen	A	B	C
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	15.0	16.1	21.9
Effective Minor Principal Stress at Failure, psi	5.6	5.7	8.4
Effective Major Principal Stress at Failure, psi	20.6	21.7	30.3
Axial Strain at Failure, %	4.93	6.83	8.40

STRENGTH PARAMETERS*			
	Total	Effective	
f °	10.8	f ' °	32.6
C, psi	5.1	C', psi	0.6

***Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report**

Triaxial CU.xls [Mohr's Circles], REV. 1; 10-10-05



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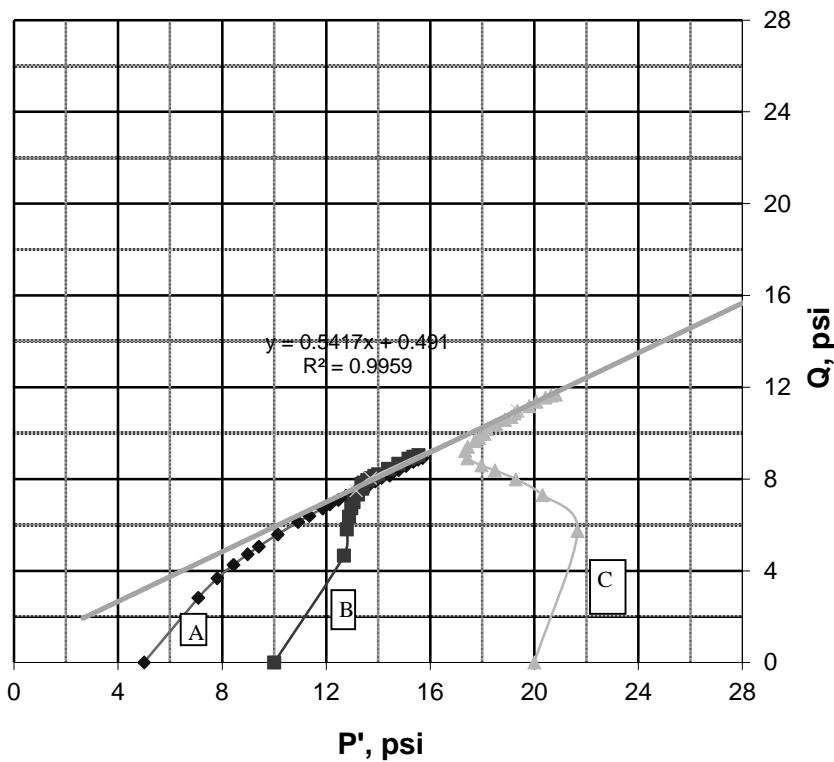
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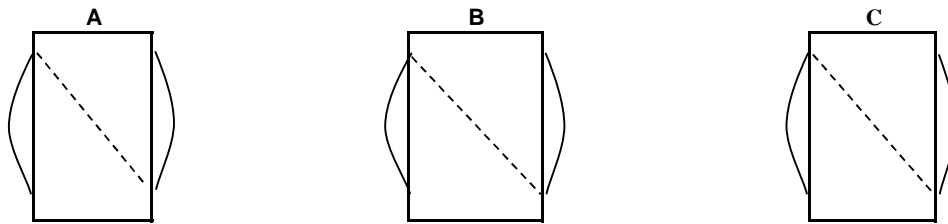
Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

P' - Q Graph



a, psi	0.5
a, degree	28.4

FAILURE SKETCH



REMODELING PROPERTIES

	A	B	C
% Compaction of Max Dry Density	95.0	95.0	95.0
% Difference from Optimum M.C.	0.1	0.1	0.1



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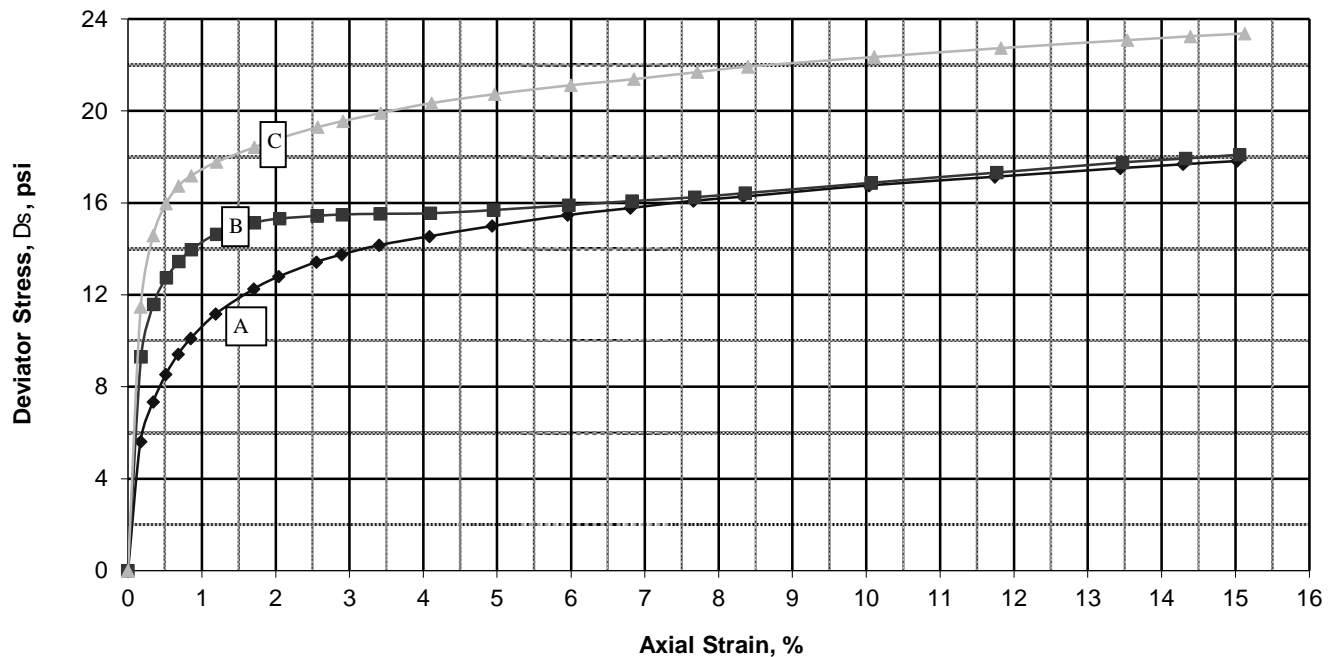
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Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700	Samples (Material passing #4 Sieve) were remolded to specified % compaction and moisture content of Standard Proctor values	NA
Oven ID Number	496/610		
Deformation Indicator ID #	178/349/689		
Digital Caliper ID #	370/458		
Load Cell ID #	347/692/815		
Apparatus ID #	293/693/814		

NOTES:

- Method for Saturation
- Method for determination of cross-sectional after consolidation
- Initial specimen moisture content obtained from cuttings
- Final specimen moisture content obtained from entire sample

WET
B

LL	-
PL	-
PI	-
Gs	-

USCS (ASTM D2487: D2488)

NA



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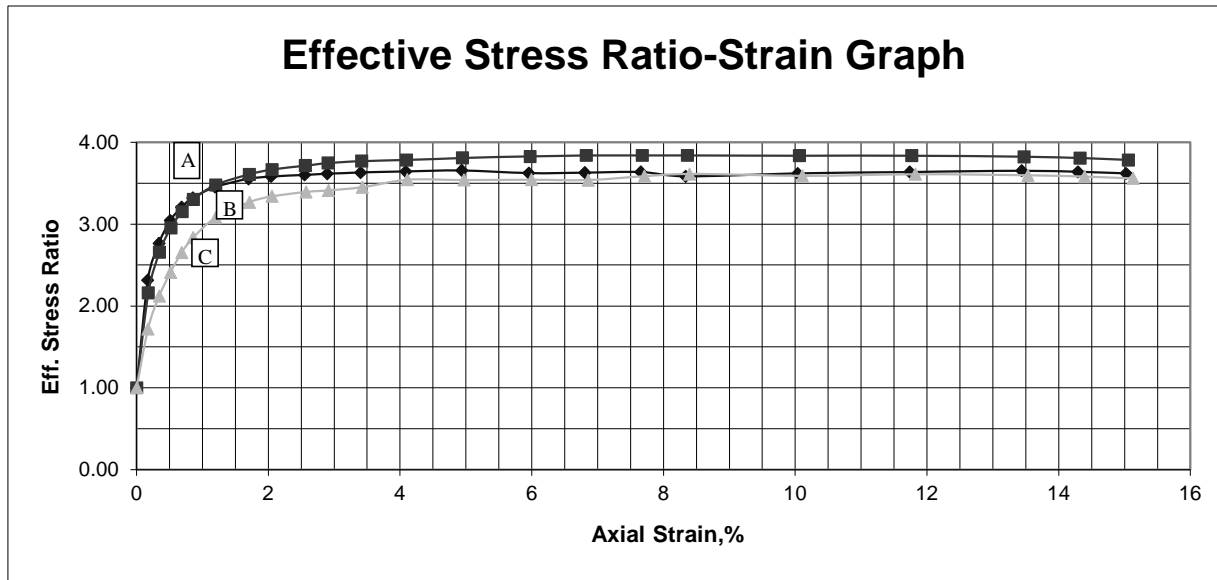
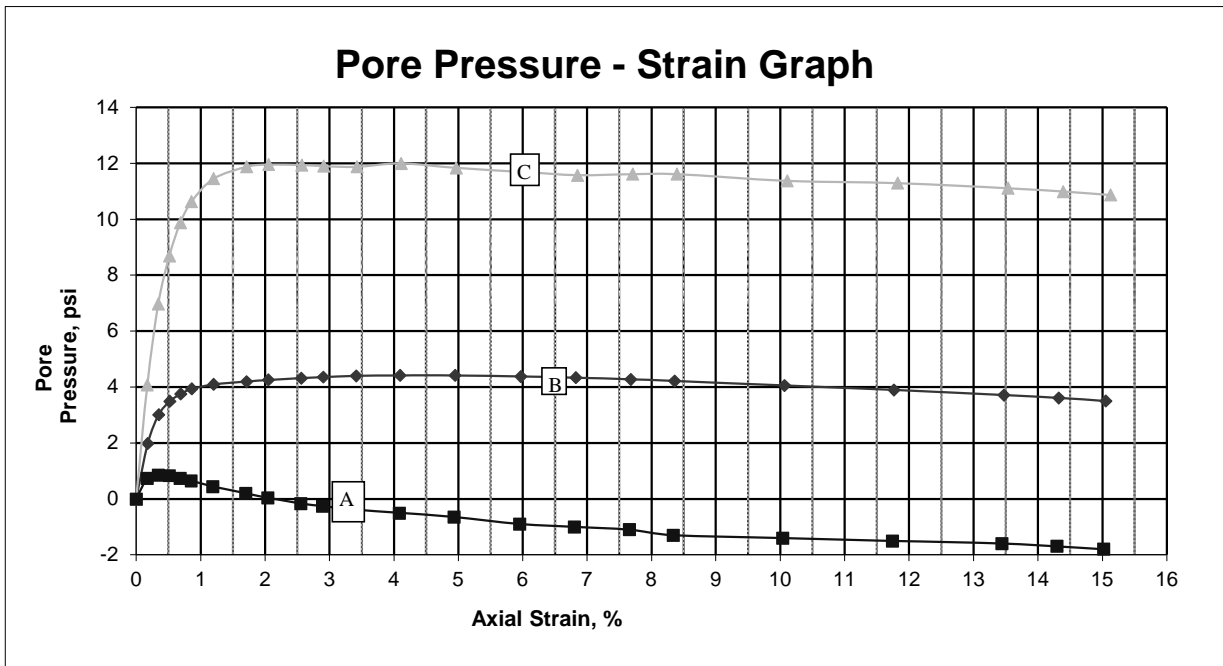
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Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-



Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain GRAPH], REV. 1; 10-10-05



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Date: 02/16/23
Checked By: *EB*

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.982
Diameter, in	2.875	2.841
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.34
Volume, cm ³	638.29	621.46
Mass of Wet Sample, g	1257.60	1331.40
Mass of Dry Sample, g	1127.39	1127.56
Wet Density, pcf	123.0	133.7
Dry Density, pcf	110.3	113.3
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	417.55	417.61
Volume of Voids, cm ³	220.74	203.84
Void Ratio	0.53	0.49
% Saturation	59.0	100.0

WATER CONTENT DETERMINATION (initial) (final)

Mass of Wet Sample and Tare, g	470.30	1632.10
Mass of Dry Sample and Tare, g	435.80	1428.29
Mass of Tare, g	137.10	300.90
Moisture, %	11.55	18.08

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	85.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	5.0
Change in Height, in	0.018
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s' ₁ -s' ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	17.3	80.0	0.0	0.00	6.34	0.0	5.0	5.0	1.00	5.0	0.0	5.0
1.0	0.010	57.2	81.2	1.2	0.17	6.35	6.3	11.3	10.0	2.67	6.9	3.1	3.8
2.0	0.020	68.8	81.7	1.7	0.33	6.36	8.1	13.1	11.4	3.42	7.4	4.1	3.3
3.0	0.030	75.4	81.8	1.8	0.50	6.37	9.1	14.1	12.3	3.83	7.8	4.6	3.2
4.0	0.040	80.5	81.8	1.8	0.67	6.38	9.9	14.9	13.1	4.08	8.2	4.9	3.2
5.0	0.050	84.4	81.8	1.8	0.84	6.39	10.5	15.5	13.7	4.24	8.5	5.3	3.2
7.0	0.070	90.2	81.7	1.7	1.17	6.41	11.4	16.4	14.7	4.45	9.0	5.7	3.3
10.0	0.100	96.1	81.6	1.6	1.67	6.45	12.2	17.2	15.6	4.60	9.5	6.1	3.4
12.0	0.120	99.2	81.4	1.4	2.01	6.47	12.7	17.7	16.2	4.57	9.9	6.3	3.6
15.0	0.150	103.3	81.2	1.2	2.51	6.50	13.2	18.2	17.0	4.48	10.4	6.6	3.8
17.0	0.170	105.7	81.0	1.0	2.84	6.53	13.6	18.6	17.5	4.42	10.7	6.8	4.0
20.0	0.200	108.8	80.8	0.8	3.34	6.56	14.0	19.0	18.1	4.35	11.1	7.0	4.2
24.0	0.240	112.4	80.6	0.6	4.01	6.60	14.4	19.4	18.8	4.26	11.6	7.2	4.4
29.0	0.290	116.2	80.3	0.3	4.85	6.66	14.9	19.9	19.5	4.17	12.1	7.4	4.7
35.0	0.350	120.1	80.3	0.3	5.85	6.73	15.3	20.3	20.0	4.22	12.4	7.6	4.7
40.0	0.400	123.0	80.1	0.1	6.69	6.79	15.6	20.6	20.5	4.16	12.7	7.8	4.9
45.0	0.450	125.6	79.9	-0.1	7.52	6.86	15.8	20.8	20.9	4.11	13.0	7.9	5.1
49.0	0.490	127.6	79.8	-0.2	8.19	6.91	16.0	21.0	21.2	4.08	13.2	8.0	5.2
59.0	0.590	132.3	79.8	-0.2	9.86	7.03	16.4	21.4	21.6	4.12	13.4	8.2	5.2
69.0	0.690	136.5	79.5	-0.5	11.53	7.17	16.6	21.6	22.1	4.04	13.8	8.3	5.5
79.0	0.790	140.5	79.3	-0.7	13.21	7.30	16.9	21.9	22.6	3.97	14.1	8.4	5.7
84.0	0.840	142.6	79.4	-0.6	14.04	7.38	17.0	22.0	22.6	4.04	14.1	8.5	5.6
89.0	0.890	144.4	79.3	-0.7	14.88	7.45	17.1	22.1	22.8	4.00	14.2	8.5	5.7

Values @ Failure: 1.6, 1.67, 6.45, 12.2, 17.2, 15.6, 4.60, 9.5, 6.1, 3.4
 Failure criteria used* 3 *Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio(s'₁/s'₃)



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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.972
Diameter, in	2.875	2.830
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.29
Volume, cm ³	638.29	615.50
Mass of Wet Sample, g	1257.70	1325.50
Mass of Dry Sample, g	1127.48	1127.65
Wet Density, pcf	123.0	134.4
Dry Density, pcf	110.3	114.4
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	417.58	417.65
Volume of Voids, cm ³	220.71	197.85
Void Ratio	0.53	0.47
% Saturation	59.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	470.30	1631.00
Mass of Dry Sample and Tare, g	435.80	1433.18
Mass of Tare, g	137.10	305.70
Moisture, %	11.55	17.55

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	10.0
Change in Height, in	0.028
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	23.5	80.0	0.0	0.00	6.29	0.0	10.0	10.0	1.00	10.0	0.0	10.0
1.0	0.010	77.9	82.5	2.5	0.17	6.30	8.6	18.6	16.1	2.15	11.8	4.3	7.5
2.0	0.020	94.1	83.6	3.6	0.33	6.31	11.2	21.2	17.5	2.76	11.9	5.6	6.4
3.0	0.030	102.6	84.2	4.2	0.50	6.32	12.5	22.5	18.3	3.16	12.0	6.3	5.8
4.0	0.040	107.8	84.5	4.5	0.67	6.33	13.3	23.3	18.8	3.42	12.2	6.7	5.5
5.0	0.050	111.6	84.7	4.7	0.84	6.34	13.9	23.9	19.2	3.60	12.3	6.9	5.3
7.0	0.070	116.6	84.7	4.7	1.17	6.36	14.6	24.6	19.9	3.79	12.6	7.3	5.3
10.0	0.100	121.9	84.9	4.9	1.67	6.40	15.4	25.4	20.5	4.02	12.8	7.7	5.1
12.0	0.120	124.6	85.0	5.0	2.01	6.42	15.8	25.8	20.7	4.15	12.9	7.9	5.0
15.0	0.150	127.7	84.8	4.8	2.51	6.45	16.2	26.2	21.4	4.09	13.3	8.1	5.2
17.0	0.170	129.3	84.6	4.6	2.85	6.47	16.3	26.3	21.7	4.05	13.5	8.2	5.4
20.0	0.200	131.5	84.5	4.5	3.35	6.51	16.6	26.6	22.1	4.01	13.8	8.3	5.5
24.0	0.240	134.1	84.3	4.3	4.02	6.55	16.9	26.9	22.6	3.97	14.1	8.4	5.7
29.0	0.290	136.8	84.1	4.1	4.86	6.61	17.1	27.1	23.0	3.92	14.4	8.6	5.9
35.0	0.350	140.5	84.3	4.3	5.86	6.68	17.5	27.5	23.2	4.08	14.4	8.8	5.7
40.0	0.400	142.5	84.2	4.2	6.70	6.74	17.6	27.6	23.5	4.02	14.7	8.8	5.8
45.0	0.450	144.6	84.0	4.0	7.54	6.80	17.8	27.8	23.8	3.97	14.9	8.9	6.0
49.0	0.490	146.2	83.9	3.9	8.21	6.85	17.9	27.9	24.0	3.94	15.1	9.0	6.1
59.0	0.590	150.9	84.1	4.1	9.88	6.98	18.3	28.3	24.2	4.07	15.1	9.1	5.9
69.0	0.690	154.7	83.8	3.8	11.55	7.11	18.5	28.5	24.7	3.95	15.5	9.2	6.2
79.0	0.790	158.8	83.5	3.5	13.23	7.25	18.7	28.7	25.2	3.87	15.8	9.3	6.5
84.0	0.840	161.2	83.4	3.4	14.07	7.32	18.8	28.8	25.4	3.85	16.0	9.4	6.6
90.0	0.900	163.0	83.3	3.3	15.07	7.41	18.8	28.8	25.5	3.81	16.1	9.4	6.7

Values @ Failure

5.0 2.01 6.42 15.8 25.8 20.7 4.15 12.9 7.9 5.0

Failure criteria used*

3

*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s'₁/s'₃)



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1874 Forge Street Tucker, GA 30084

Phone: 770-938-8233

Fax: 770-923-8973

Web: www.test-llc.com



Tested By

EB

Date

02/16/23

Checked By

EB

ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	6.000	5.962
Diameter, in	2.875	2.835
Height-to-Diameter Ratio	2.1	2.1
Area, in ²	6.49	6.31
Volume, cm ³	638.29	616.61
Mass of Wet Sample, g	1257.90	1329.40
Mass of Dry Sample, g	1127.66	1132.08
Wet Density, pcf	123.0	134.6
Dry Density, pcf	110.3	114.6
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	417.65	419.29
Volume of Voids, cm ³	220.64	197.32
Void Ratio	0.53	0.47
% Saturation	59.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	470.30	1622.40
Mass of Dry Sample and Tare, g	435.80	1425.86
Mass of Tare, g	137.10	298.20
Moisture, %	11.55	17.43

TEST DATA PRIOR TO LOADING

Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	20.0
Change in Height, in "B" Value	0.038
	0.95

SHEAR DATA

Elapsed Time (min)	Deformation (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q [(s ₁ -s ₃)/2] (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	30.5	80.0	0.0	0.00	6.31	0.0	20.0	20.0	1.00	20.0	0.0	20.0
1.0	0.010	109.5	83.6	3.6	0.17	6.32	12.5	32.5	28.9	1.76	22.7	6.2	16.4
2.0	0.020	135.1	86.0	6.0	0.34	6.33	16.5	36.5	30.5	2.18	22.3	8.3	14.0
3.0	0.030	149.6	87.6	7.6	0.50	6.34	18.8	38.8	31.2	2.51	21.8	9.4	12.4
4.0	0.040	158.5	88.6	8.6	0.67	6.35	20.1	40.1	31.6	2.76	21.5	10.1	11.4
5.0	0.050	164.2	89.3	9.3	0.84	6.36	21.0	41.0	31.7	2.96	21.2	10.5	10.7
7.0	0.070	170.8	90.0	10.0	1.17	6.39	22.0	42.0	32.0	3.20	21.0	11.0	10.0
10.0	0.100	176.2	90.6	10.6	1.68	6.42	22.7	42.7	32.1	3.40	20.8	11.4	9.4
12.0	0.120	178.3	90.7	10.7	2.01	6.44	22.9	42.9	32.2	3.48	20.7	11.5	9.3
15.0	0.150	180.7	90.8	10.8	2.52	6.47	23.2	43.2	32.4	3.53	20.8	11.6	9.2
17.0	0.170	182.2	90.8	10.8	2.85	6.50	23.4	43.4	32.5	3.55	20.8	11.7	9.2
20.0	0.200	183.9	90.8	10.8	3.35	6.53	23.5	43.5	32.7	3.57	20.9	11.7	9.2
24.0	0.240	185.8	90.9	10.9	4.03	6.58	23.6	43.6	32.8	3.58	20.9	11.8	9.1
29.0	0.290	187.2	90.9	10.9	4.86	6.63	23.6	43.6	32.7	3.59	20.9	11.8	9.1
35.0	0.350	189.6	90.9	10.9	5.87	6.70	23.7	43.7	32.8	3.62	20.9	11.9	9.1
40.0	0.400	190.9	91.0	11.0	6.71	6.77	23.7	43.7	32.8	3.62	20.9	11.9	9.0
45.0	0.450	192.4	91.0	11.0	7.55	6.83	23.7	43.7	32.8	3.62	20.9	11.9	9.0
49.0	0.490	193.3	91.0	11.0	8.22	6.88	23.7	43.7	32.7	3.62	20.9	11.8	9.0
59.0	0.590	196.9	90.9	10.9	9.90	7.00	23.8	43.8	32.9	3.61	21.0	11.9	9.1
69.0	0.690	199.3	90.9	10.9	11.57	7.14	23.7	43.7	32.8	3.60	20.9	11.8	9.1
79.0	0.790	202.5	90.8	10.8	13.25	7.28	23.6	43.6	32.8	3.57	21.0	11.8	9.2
84.0	0.840	204.2	90.7	10.7	14.09	7.35	23.6	43.6	32.9	3.54	21.1	11.8	9.3
90.0	0.900	206.1	90.7	10.7	15.10	7.43	23.6	43.6	32.9	3.54	21.1	11.8	9.3

Values @ Failure

11.0	7.55	6.83	23.7	43.7	32.8	3.62	20.9	11.9	9.0
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Failure criteria used*

3

*Note: "1"=Max Deviator Stress; "2"=Deviator Stress @ 15% Strain; "3"=Max Eff. Stress Ratio (s'₁/s'₃)



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Fax: 770-923-8973

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Date	02/16/23
Check	<i>EB</i>

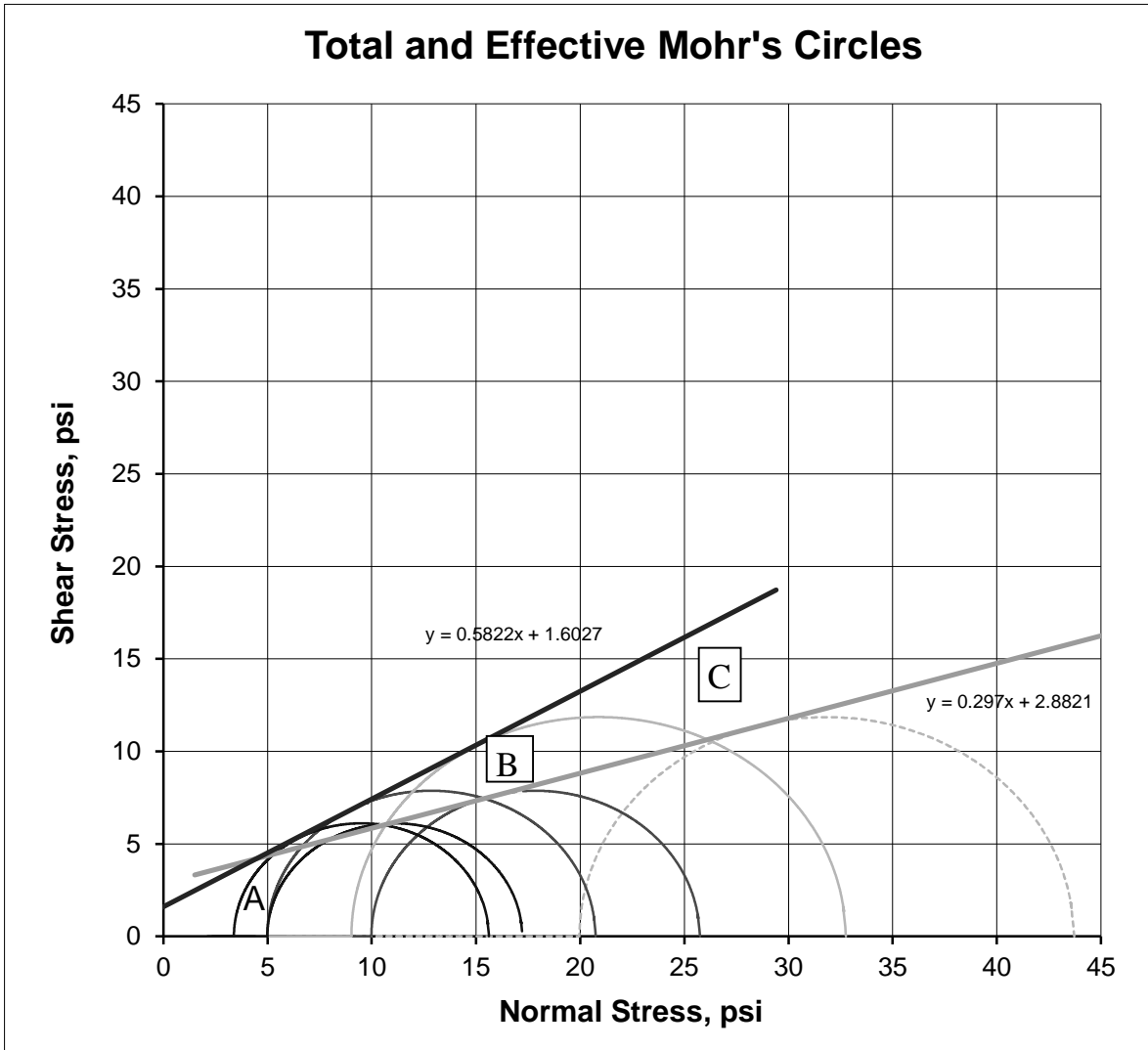
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Total and Effective Mohr's Circles



Specimen	A	B	C
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	12.2	15.8	23.7
Effective Minor Principal Stress at Failure, psi	3.4	5.0	9.0
Effective Major Principal Stress at Failure, psi	15.6	20.7	32.8
Axial Strain at Failure, %	1.67	2.01	7.55

STRENGTH PARAMETERS*				
	Total		Effective	
f °	16.5	f ' °	30.2	
C, psi	2.9	C', psi	1.6	

***Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report**

Triaxial CU.xls [Mohr's Circles], REV. 1; 10-10-05



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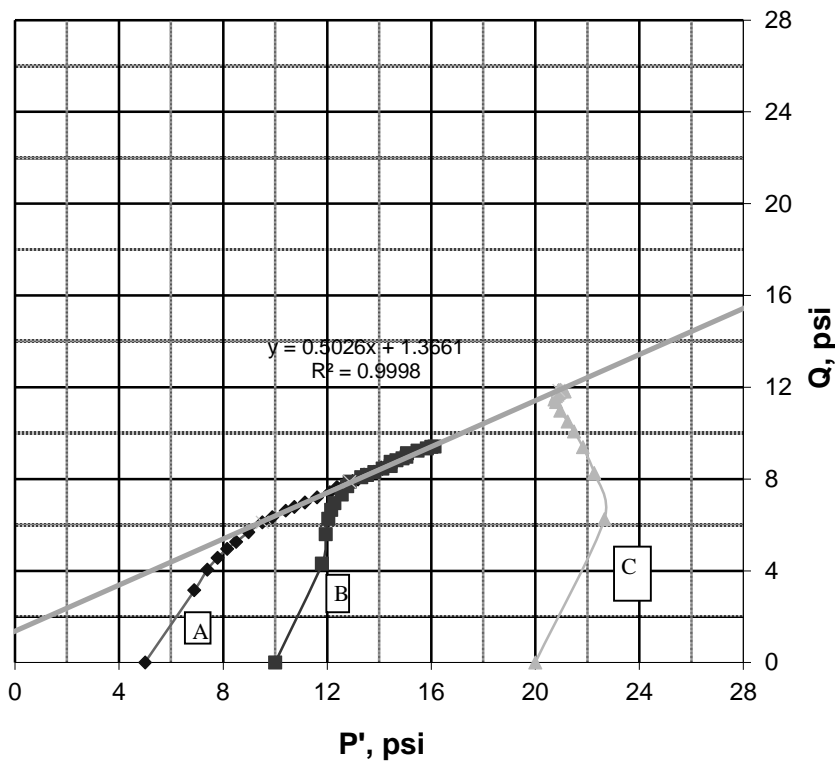
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

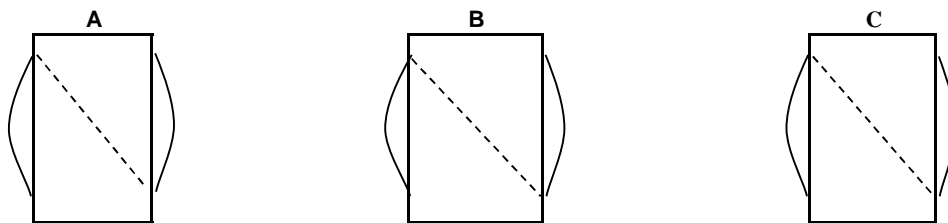
Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

P' - Q Graph



a, psi	1.4
a, degree	26.7

FAILURE SKETCH



REMODELING PROPERTIES

	A	B	C
% Compaction of Max Dry Density	95.0	95.0	95.0
% Difference from Optimum M.C.	0.2	0.2	0.2



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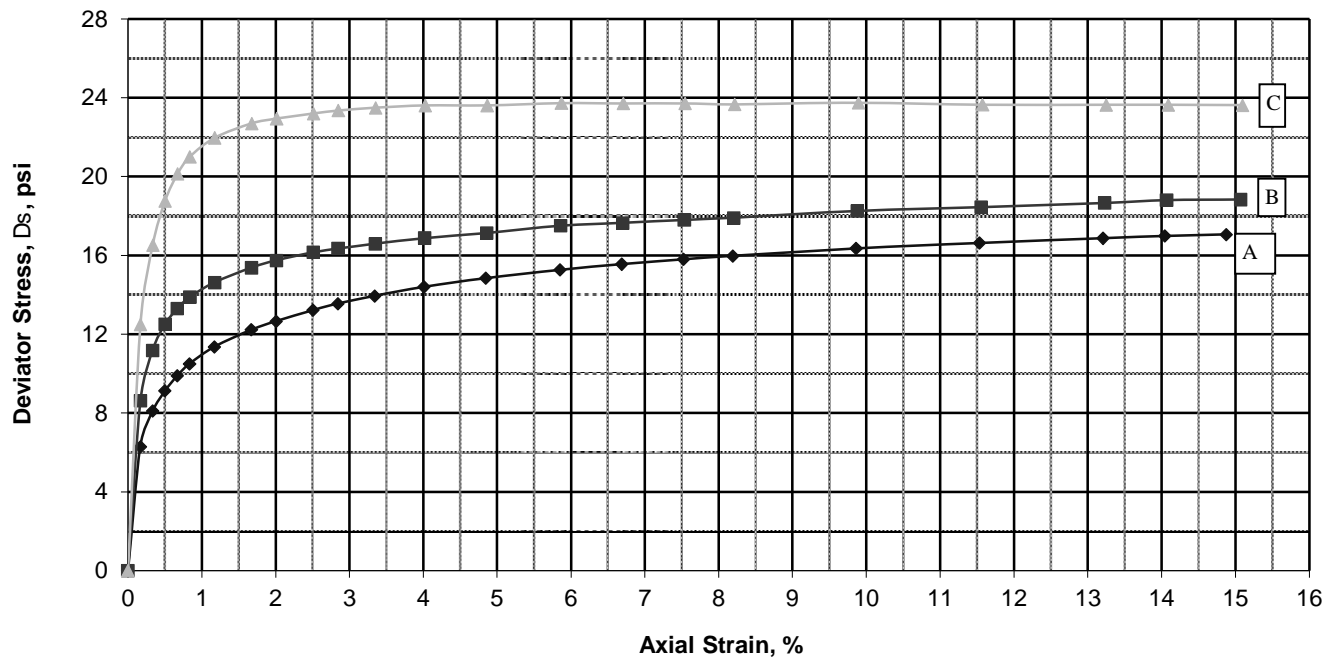
ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Laboratory Project #	2320L-01-1
Sample Type	Remold
Depth/Elevation	0-4'
Additional Info	-

Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700	Samples (Material passing #4 Sieve) were remolded to specified % compaction and moisture content of Standard Proctor values	NA
Oven ID Number	496/610		
Deformation Indicator ID #	178/349/689		
Digital Caliper ID #	370/458		
Load Cell ID #	347/692/815		
Apparatus ID #	293/693/814		

NOTES:

- Method for Saturation
- Method for determination of cross-sectional after consolidation
- Initial specimen moisture content obtained from cuttings
- Final specimen moisture content obtained from entire sample

WET
B

LL	-
PL	-
PI	-
Gs	-

USCS (ASTM D2487: D2488)

NA



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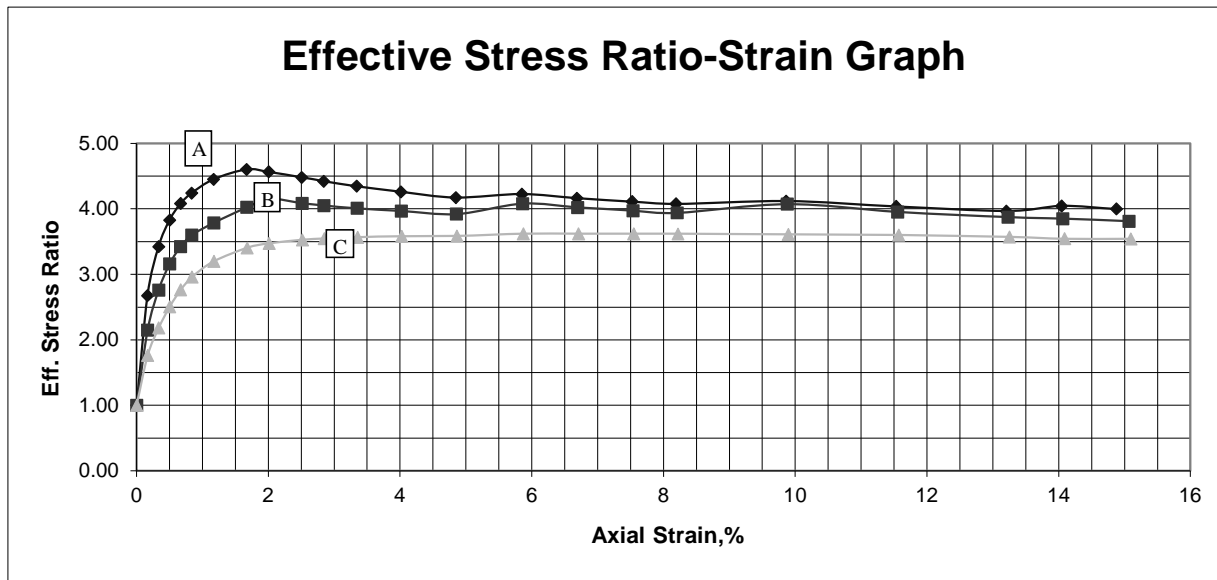
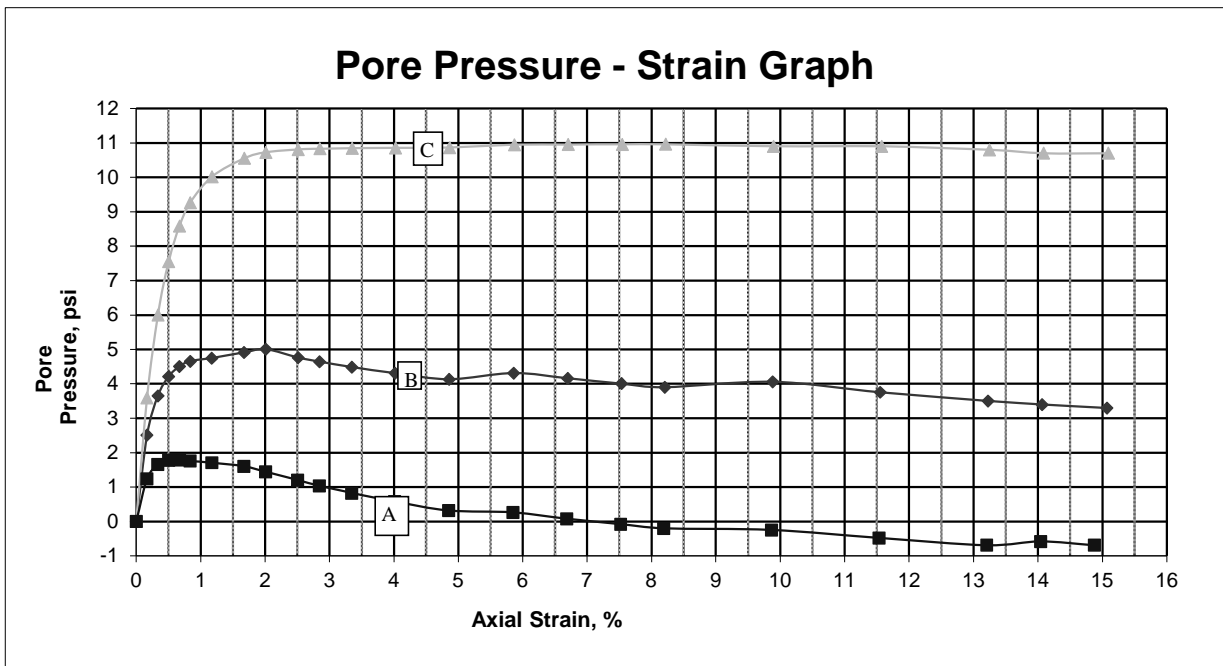


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Date	02/16/23
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ASTM D 4767 / AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	34:4266	Laboratory Project #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	Sample Type	Remold
Sample ID	44732/P-12MA	Depth/Elevation	0-4'
Location	P-12MA	Additional Info	-



Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain GRAPH], REV. 1; 10-10-05



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Date 03/17/23
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ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45138/B-05
Location	B-05

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	14-16'
Additional Info	-

SPECIMEN PROPERTIES

WATER CONTENT DETERMINATION

	(initial)	(after consol.)
Height, in	5.724	5.686
Diameter, in	2.877	2.820
Height-to-Diameter Ratio	2.0	2.0
Area, in ²	6.50	6.25
Volume, cm ³	609.78	581.99
Mass of Wet Sample, g	1251.70	1235.90
Mass of Dry Sample, g	1038.56	1038.56
Wet Density, pcf	128.1	132.6
Dry Density, pcf	106.3	111.4
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	384.65	384.65
Volume of Voids, cm ³	225.13	197.34
Void Ratio	0.59	0.51
% Saturation	94.7	100.0

	(initial)	(final)
Mass of Wet Sample and Tare, g	1251.70	1235.90
Mass of Dry Sample and Tare, g	1038.56	1038.56
Mass of Tare, g	0.00	0.00
Moisture, %	20.52	19.00

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-15.8
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.18
Chamber Pressure, psi	87.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	7.0
Change in Height, in	0.038
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation Stage 1 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain Stage 1 (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	14.5	80.00	0.0	0.00	6.25	0.0	7.0	7.0	1.00	7.0	0.0	7.0
0.5	0.005	31.9	81.07	1.1	0.09	6.25	2.8	9.8	8.7	1.47	7.3	1.4	5.9
1.0	0.010	36.2	81.61	1.6	0.18	6.26	3.5	10.5	8.9	1.64	7.1	1.7	5.4
1.5	0.015	38.3	81.94	1.9	0.26	6.26	3.8	10.8	8.9	1.75	7.0	1.9	5.1
2.0	0.020	39.9	82.21	2.2	0.35	6.27	4.1	11.1	8.8	1.85	6.8	2.0	4.8
2.5	0.025	41.3	82.42	2.4	0.44	6.27	4.3	11.3	8.9	1.93	6.7	2.1	4.6
3.0	0.030	42.5	82.62	2.6	0.53	6.28	4.5	11.5	8.8	2.02	6.6	2.2	4.4
3.5	0.035	43.7	82.80	2.8	0.62	6.28	4.6	11.6	8.8	2.11	6.5	2.3	4.2
4.0	0.040	44.5	82.96	3.0	0.70	6.29	4.8	11.8	8.8	2.18	6.4	2.4	4.0
5.0	0.050	46.1	83.24	3.2	0.88	6.30	5.0	12.0	8.8	2.33	6.3	2.5	3.8
6.0	0.060	47.6	83.47	3.5	1.06	6.31	5.2	12.2	8.8	2.49	6.2	2.6	3.5
7.0	0.070	48.9	83.66	3.7	1.23	6.32	5.4	12.4	8.8	2.63	6.1	2.7	3.3
8.0	0.080	50.1	83.84	3.8	1.41	6.34	5.6	12.6	8.8	2.78	6.0	2.8	3.2
9.0	0.090	51.4	83.99	4.0	1.58	6.35	5.8	12.8	8.8	2.93	5.9	2.9	3.0
10.0	0.100	52.5	84.11	4.1	1.76	6.36	6.0	13.0	8.9	3.07	5.9	3.0	2.9
14.0	0.140	56.2	84.48	4.5	2.46	6.40	6.5	13.5	9.0	3.58	5.8	3.3	2.5
18.0	0.180	58.9	84.71	4.7	3.17	6.45	6.9	13.9	9.2	4.01	5.7	3.4	2.3
22.0	0.220	61.7	84.84	4.8	3.87	6.50	7.3	14.3	9.4	4.36	5.8	3.6	2.2
24.0	0.240	63.0	84.89	4.9	4.22	6.52	7.4	14.4	9.5	4.52	5.8	3.7	2.1
26.0	0.260	64.2	84.92	4.9	4.57	6.55	7.6	14.6	9.7	4.65	5.9	3.8	2.1
27.0	0.270	64.7	84.90	4.9	4.75	6.56	7.7	14.7	9.8	4.65	5.9	3.8	2.1
28.0	0.280	65.4	84.86	4.9	4.92	6.57	7.7	14.7	9.9	4.62	6.0	3.9	2.1
29.0	0.290	65.8	84.84	4.8	5.10	6.58	7.8	14.8	10.0	4.61	6.1	3.9	2.2

Values @ Failure	4.9	4.57	6.55	7.6	14.6	9.7	4.65	5.9	3.8	2.1	
Failure criteria used*	3	*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'/s')									



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Tested By: EB
Date: 03/19/23
Checked By: *[Signature]*

ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45138/B-05
Location	B-05

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	14-16'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.396	5.434
Diameter, in	2.895	2.850
Height-to-Diameter Ratio	1.9	1.9
Area, in ²	6.58	6.38
Volume, cm ³	581.99	567.99
Mass of Wet Sample, g	1235.90	1221.90
Mass of Dry Sample, g	1038.56	1038.56
Wet Density, pcf	132.6	134.3
Dry Density, pcf	111.4	114.1
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	384.65	384.65
Volume of Voids, cm ³	197.34	183.34
Void Ratio	0.51	0.48
% Saturation	100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1235.90	1221.90
Mass of Dry Sample and Tare, g	1038.56	1038.56
Mass of Tare, g	0.00	0.00
Moisture, %	19.00	17.65

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-14.0
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.18
Chamber Pressure, psi	94.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	14.0
Change in Height, in	-0.038
"B" Value	0.95

SHEAR DATA

Deformation Stage 2 (inch)	Total Deformation ST.1 + ST.2 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Strain Stage 2 %	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Effective Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)	Total Strain ST.1 + ST.2 %
			Total, U	Change, DU				Total s ₁	Eff. s' ₁					
0.000	0.252	28.0	80.00	0.0	0.00	6.38	0.0	14.0	14.0	1.00	14.0	0.0	14.0	4.43
0.005	0.257	58.9	83.71	3.7	0.09	6.38	4.8	18.8	15.1	1.47	12.7	2.4	10.3	4.52
0.010	0.262	71.8	85.16	5.2	0.18	6.39	6.9	20.9	15.7	1.78	12.3	3.4	8.8	4.61
0.015	0.267	79.6	86.03	6.0	0.28	6.40	8.1	22.1	16.0	2.01	12.0	4.0	8.0	4.70
0.020	0.272	85.5	86.74	6.7	0.37	6.40	9.0	23.0	16.2	2.24	11.8	4.5	7.3	4.78
0.025	0.277	90.3	87.36	7.4	0.46	6.41	9.7	23.7	16.4	2.46	11.5	4.9	6.6	4.87
0.030	0.282	93.7	87.77	7.8	0.55	6.41	10.2	24.2	16.5	2.64	11.4	5.1	6.2	4.96
0.035	0.287	96.8	88.14	8.1	0.64	6.42	10.7	24.7	16.6	2.83	11.2	5.4	5.9	5.05
0.040	0.292	98.9	88.45	8.5	0.74	6.43	11.0	25.0	16.6	2.99	11.1	5.5	5.6	5.14
0.050	0.302	103.2	88.94	8.9	0.92	6.44	11.7	25.7	16.7	3.31	10.9	5.8	5.1	5.31
0.060	0.312	106.1	89.31	9.3	1.10	6.45	12.1	26.1	16.8	3.58	10.7	6.1	4.7	5.49
0.070	0.322	108.1	89.55	9.6	1.29	6.46	12.4	26.4	16.8	3.79	10.6	6.2	4.5	5.66
0.080	0.332	110.0	89.75	9.8	1.47	6.47	12.7	26.7	16.9	3.98	10.6	6.3	4.3	5.84
0.090	0.342	111.5	89.90	9.9	1.66	6.49	12.9	26.9	17.0	4.14	10.5	6.4	4.1	6.01
0.100	0.352	112.8	90.00	10.0	1.84	6.50	13.0	27.0	17.0	4.26	10.5	6.5	4.0	6.19
0.110	0.362	113.8	90.09	10.1	2.02	6.51	13.2	27.2	17.1	4.37	10.5	6.6	3.9	6.37
0.120	0.372	114.9	90.16	10.2	2.21	6.52	13.3	27.3	17.2	4.47	10.5	6.7	3.8	6.54
0.150	0.402	117.6	90.26	10.3	2.76	6.56	13.7	27.7	17.4	4.65	10.6	6.8	3.7	7.07
0.160	0.412	118.5	90.27	10.3	2.94	6.57	13.8	27.8	17.5	4.69	10.6	6.9	3.7	7.25
0.180	0.432	120.0	90.27	10.3	3.31	6.60	13.9	27.9	17.7	4.74	10.7	7.0	3.7	7.60
0.190	0.442	120.7	90.27	10.3	3.50	6.61	14.0	28.0	17.8	4.76	10.7	7.0	3.7	7.77
0.200	0.452	121.6	90.25	10.3	3.68	6.62	14.1	28.1	17.9	4.77	10.8	7.1	3.8	7.95
0.210	0.462	122.3	90.22	10.2	3.86	6.63	14.2	28.2	18.0	4.76	10.9	7.1	3.8	8.13

Values @ Failure: 10.3, 3.68, 6.62, 14.1, 28.1, 17.9, **4.77**, 10.8, 7.1, 3.8, 7.95
 Failure criteria used* **3** *Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'₁/s'₃)



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Phone: 770-938-8233
Fax: 770-923-8973
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Tested By: EB
Date: 03/20/23
Checked By: [Signature]

ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45138/B-05
Location	B-05

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	14-16'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.224	5.264
Diameter, in	2.907	2.879
Height-to-Diameter Ratio	1.8	1.8
Area, in ²	6.63	6.51
Volume, cm ³	567.99	561.59
Mass of Wet Sample, g	1221.90	1215.50
Mass of Dry Sample, g	1038.56	1038.56
Wet Density, pcf	134.3	135.1
Dry Density, pcf	114.1	115.4
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	384.65	384.65
Volume of Voids, cm ³	183.34	176.94
Void Ratio	0.48	0.46
% Saturation	100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1221.90	1493.00
Mass of Dry Sample and Tare, g	1038.56	1316.10
Mass of Tare, g	0.00	277.80
Moisture, %	17.65	17.04

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-6.4
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.19
Chamber Pressure, psi	101.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	21.0
Change in Height, in	-0.040
"B" Value	0.95

SHEAR DATA

Deformation Stage 3 (inch)	Total Deformation ST.1 + ST.2 + ST.3 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Strain Stage 3 %	Corrected Area (in ²)	Deviator Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Effective Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change, DU				Total s ₁	Eff. s' ₁					
0.000	0.422	29.5	80.00	0.0	0.00	6.51	0.0	21.0	21.0	1.00	21.0	0.0	21.0	7.42
0.010	0.432	92.0	86.58	6.6	0.19	6.52	9.6	30.6	24.0	1.66	19.2	4.8	14.4	7.60
0.020	0.442	118.8	89.32	9.3	0.38	6.54	13.7	34.7	25.4	2.17	18.5	6.8	11.7	7.77
0.030	0.452	136.3	91.01	11.0	0.57	6.55	16.3	37.3	26.3	2.63	18.1	8.2	10.0	7.95
0.040	0.462	147.4	92.04	12.0	0.76	6.56	18.0	39.0	26.9	3.01	17.9	9.0	9.0	8.13
0.050	0.472	153.9	92.67	12.7	0.95	6.57	18.9	39.9	27.3	3.27	17.8	9.5	8.3	8.30
0.070	0.492	161.6	93.32	13.3	1.33	6.60	20.0	41.0	27.7	3.60	17.7	10.0	7.7	8.65
0.100	0.522	166.5	93.79	13.8	1.90	6.64	20.6	41.6	27.8	3.86	17.5	10.3	7.2	9.18
0.120	0.542	168.6	93.86	13.9	2.28	6.66	20.9	41.9	28.0	3.92	17.6	10.4	7.1	9.53
0.150	0.572	170.9	93.72	13.7	2.85	6.70	21.1	42.1	28.4	3.90	17.8	10.6	7.3	10.06
0.170	0.592	172.3	93.61	13.6	3.23	6.73	21.2	42.2	28.6	3.87	18.0	10.6	7.4	10.41
0.200	0.622	174.0	93.41	13.4	3.80	6.77	21.4	42.4	28.9	3.82	18.3	10.7	7.6	10.94
0.230	0.652	175.8	93.22	13.2	4.37	6.81	21.5	42.5	29.3	3.76	18.5	10.7	7.8	11.47
0.260	0.682	177.1	93.01	13.0	4.94	6.85	21.6	42.6	29.5	3.70	18.8	10.8	8.0	11.99
0.280	0.702	178.0	92.88	12.9	5.32	6.88	21.6	42.6	29.7	3.66	18.9	10.8	8.1	12.35
0.310	0.732	179.3	92.69	12.7	5.89	6.92	21.7	42.7	30.0	3.61	19.1	10.8	8.3	12.87
0.330	0.752	180.0	92.66	12.7	6.27	6.95	21.7	42.7	30.0	3.60	19.2	10.8	8.3	13.23
0.360	0.782	181.3	92.66	12.7	6.84	6.99	21.7	42.7	30.1	3.60	19.2	10.9	8.3	13.75
0.370	0.792	181.6	92.57	12.6	7.03	7.00	21.7	42.7	30.2	3.58	19.3	10.9	8.4	13.93
0.380	0.802	182.1	92.49	12.5	7.22	7.02	21.7	42.7	30.3	3.55	19.4	10.9	8.5	14.11
0.390	0.812	182.5	92.42	12.4	7.41	7.03	21.8	42.8	30.3	3.54	19.5	10.9	8.6	14.28
0.410	0.832	183.4	92.29	12.3	7.79	7.06	21.8	42.8	30.5	3.50	19.6	10.9	8.7	14.63
0.450	0.872	184.6	92.03	12.0	8.55	7.12	21.8	42.8	30.8	3.43	19.9	10.9	9.0	15.34

Values @ Failure: 13.9, 2.28, 6.66, 20.9, 41.9, 28.0, **3.92**, 17.6, 10.4, 7.1, 9.53

Failure criteria used* **3** *Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'₁/s'₃)



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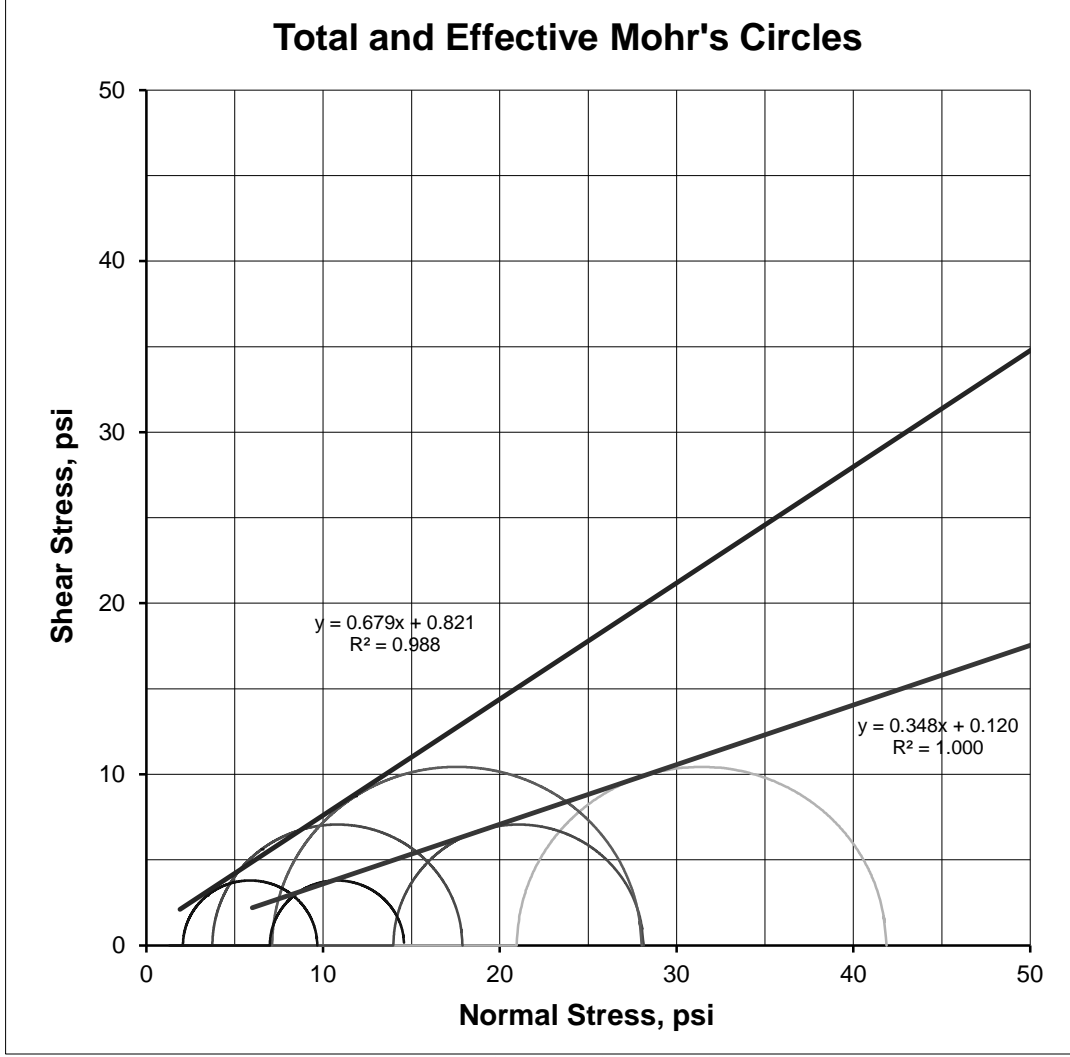
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ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45138/B-05
Location	B-05

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	14-16'
Additional Info	-



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	7.0	14.0	21.0
Deviator Stress at Failure, psi	7.6	14.1	20.9
Effective Minor Principal Stress at Failure, psi	2.1	3.8	7.1
Effective Major Principal Stress at Failure, psi	9.7	17.9	28.0
Axial Strain at Failure, %	4.57	3.68	2.28

STRENGTH PARAMETERS*			
Total		Effective	
f °	19.2	f ' °	34.2
C, psi	0.1	C', psi	0.8

*Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report



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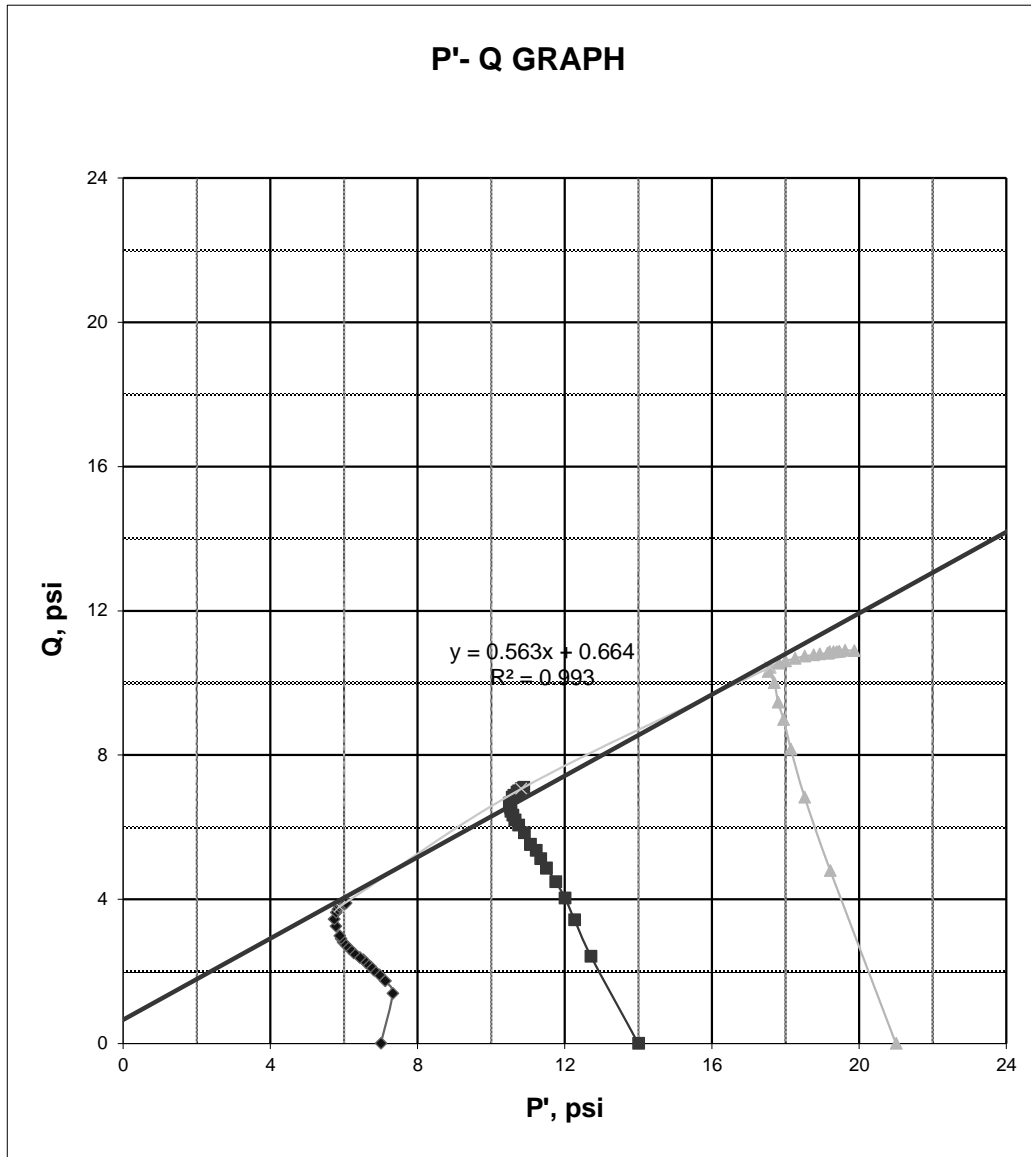


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Date	03/20/23
Check	<i>EB</i>

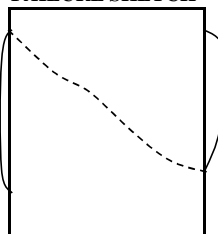
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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45138/B-05	Depth/Elev.	14-16'
Location	B-05	Additional Info	-



FAILURE SKETCH



a, psi
a, degree

a, psi	0.7
a, degree	29.4



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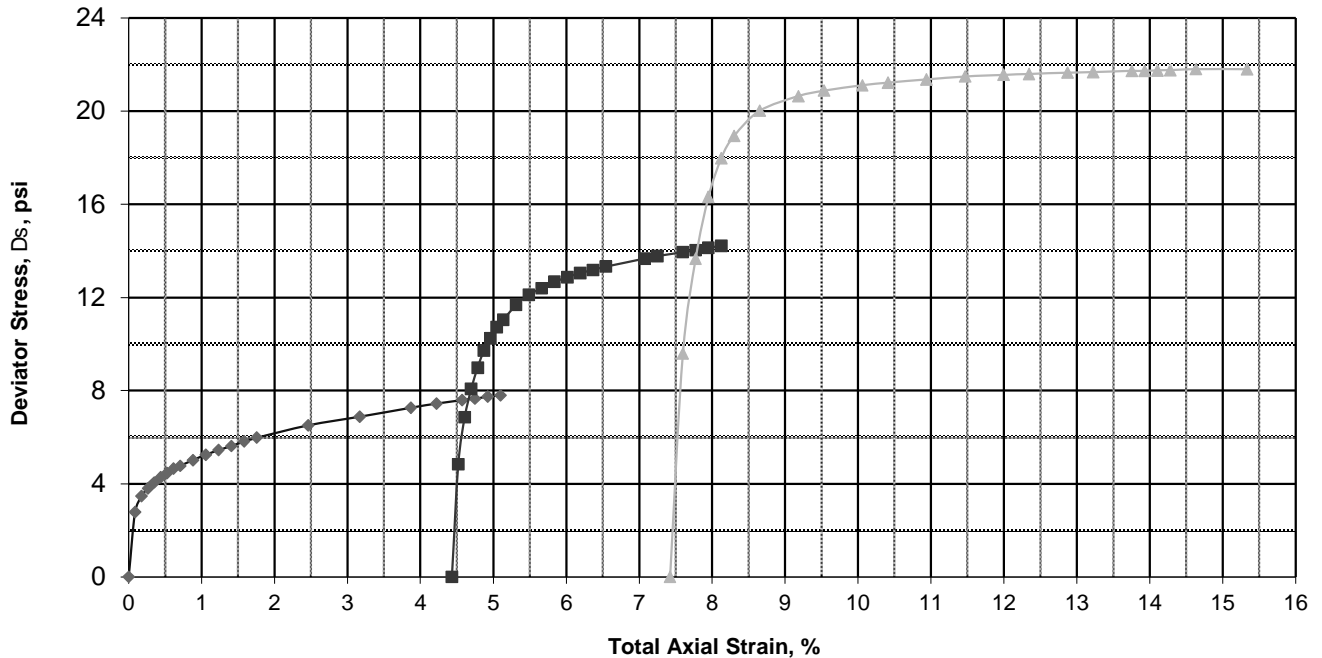
ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45138/B-05
Location	B-05

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	14-16'
Additional Info	-

Deviator Stress - Strain Graph



		REMARKS	DESCRIPTION
Balance ID Number	563/700	Material from shelly tube was not homogeneous and/or not long enough to select 3 uniform specimens 6" long each. Most representative portion of sample (0.5" above the bottom of shelly tube) was selected for multi-stage triaxial testing (per ASTM STP 883).	NA
Oven ID Number	496/610		
Deformation Indicator ID #	178/349/689		
Digital Caliper ID #	370/458		
Load Cell ID #	11/347/692		
Apparatus ID #	10/293/693		
NOTES:			USCS (ASTM D2487: D2488)

- Method for Saturation
- Method for determination of cross-sectional area after consol.
- Final moisture content (Stage 3) obtained from entire sample

WET	LL	-
B	PL	-
	PI	-
	Gs	-

NA



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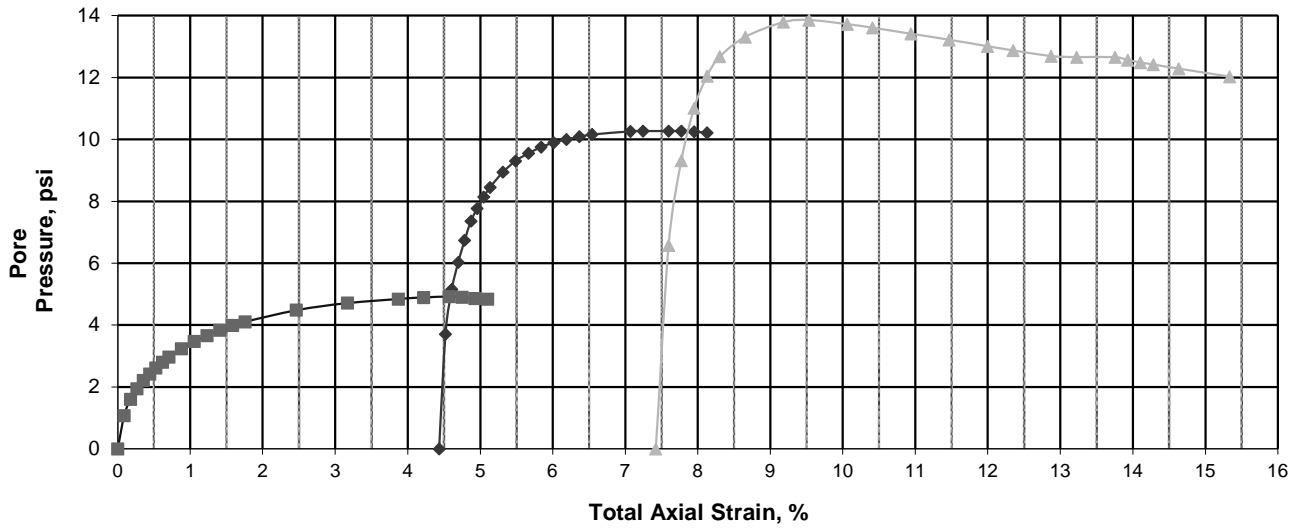
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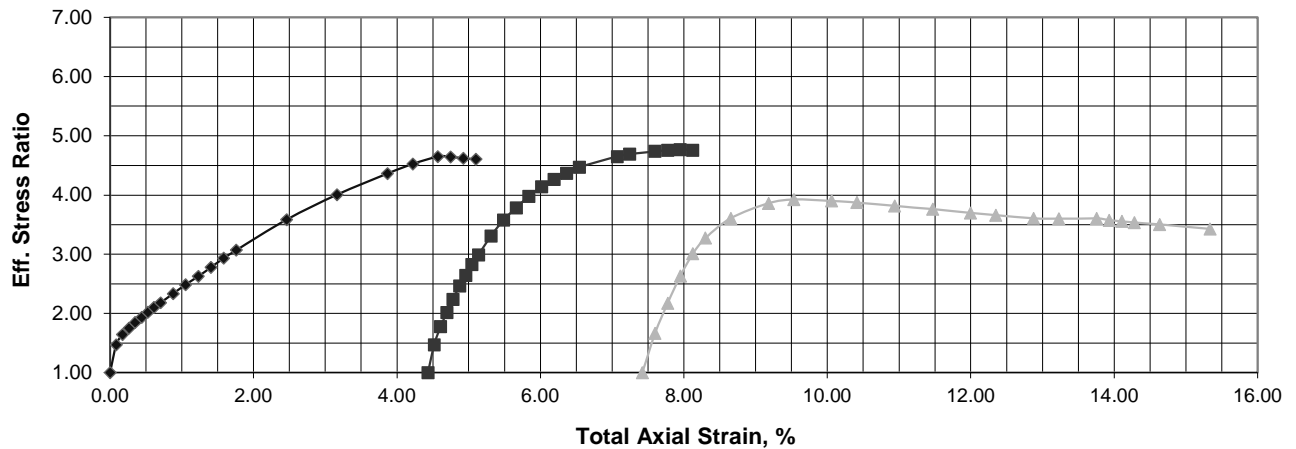
Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45138/B-05	Depth/Elev.	14-16'
Location	B-05	Additional Info	-

Pore Pressure - Strain Graph



Effective Stress Ratio-Strain Graph





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Fax: 770-923-8973

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Date 03/17/23

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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45139/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	4-6'
Additional Info	-

SPECIMEN PROPERTIES

WATER CONTENT DETERMINATION

	(initial)	(after consol.)
Height, in	5.693	5.664
Diameter, in	2.858	2.833
Height-to-Diameter Ratio	2.0	2.0
Area, in ²	6.42	6.30
Volume, cm ³	598.49	584.94
Mass of Wet Sample, g	1255.30	1265.40
Mass of Dry Sample, g	1080.73	1080.73
Wet Density, pcf	130.9	135.0
Dry Density, pcf	112.7	115.3
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	400.27	400.27
Volume of Voids, cm ³	198.22	184.67
Void Ratio	0.50	0.46
% Saturation	88.1	100.0

	(initial)	(final)
Mass of Wet Sample and Tare, g	1255.30	1265.40
Mass of Dry Sample and Tare, g	1080.73	1080.73
Mass of Tare, g	0.00	0.00
Moisture, %	16.15	17.09

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	10.1
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.18
Chamber Pressure, psi	87.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	7.0
Change in Height, in	0.029
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation Stage 1 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain Stage 1 (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	14.5	80.00	0.0	0.00	6.30	0.0	7.0	7.0	1.00	7.0	0.0	7.0
0.5	0.005	58.2	81.17	1.2	0.09	6.31	6.9	13.9	12.8	2.19	9.3	3.5	5.8
1.0	0.010	70.4	81.67	1.7	0.18	6.31	8.9	15.9	14.2	2.66	9.8	4.4	5.3
1.5	0.015	75.5	81.94	1.9	0.26	6.32	9.7	16.7	14.7	2.91	9.9	4.8	5.1
2.0	0.020	78.6	82.11	2.1	0.35	6.32	10.1	17.1	15.0	3.07	10.0	5.1	4.9
2.5	0.025	81.7	82.26	2.3	0.44	6.33	10.6	17.6	15.4	3.24	10.0	5.3	4.7
3.0	0.030	84.7	82.38	2.4	0.53	6.34	11.1	18.1	15.7	3.40	10.2	5.5	4.6
3.5	0.035	87.5	82.49	2.5	0.62	6.34	11.5	18.5	16.0	3.55	10.3	5.8	4.5
4.0	0.040	90.5	82.57	2.6	0.71	6.35	12.0	19.0	16.4	3.70	10.4	6.0	4.4
5.0	0.050	96.0	82.65	2.7	0.88	6.36	12.8	19.8	17.2	3.95	10.8	6.4	4.3
6.0	0.060	102.0	82.65	2.7	1.06	6.37	13.7	20.7	18.1	4.16	11.2	6.9	4.3
7.0	0.070	108.5	82.60	2.6	1.24	6.38	14.7	21.7	19.1	4.35	11.8	7.4	4.4
8.0	0.080	114.8	82.49	2.5	1.41	6.39	15.7	22.7	20.2	4.48	12.4	7.8	4.5
9.0	0.090	122.0	82.36	2.4	1.59	6.40	16.8	23.8	21.4	4.62	13.0	8.4	4.6
10.0	0.100	127.8	82.22	2.2	1.77	6.42	17.7	24.7	22.4	4.69	13.6	8.8	4.8
11.0	0.110	134.1	82.05	2.1	1.94	6.43	18.6	25.6	23.6	4.76	14.3	9.3	5.0
12.0	0.120	140.4	81.85	1.8	2.12	6.44	19.6	26.6	24.7	4.80	14.9	9.8	5.2
13.0	0.130	146.3	81.64	1.6	2.30	6.45	20.4	27.4	25.8	4.81	15.6	10.2	5.4
14.0	0.140	152.0	81.42	1.4	2.47	6.46	21.3	28.3	26.9	4.81	16.2	10.6	5.6
15.0	0.150	157.6	81.19	1.2	2.65	6.47	22.1	29.1	27.9	4.80	16.9	11.1	5.8
16.0	0.160	162.5	80.96	1.0	2.82	6.49	22.8	29.8	28.9	4.78	17.5	11.4	6.0

Values @ Failure	1.4	2.47	6.46	21.3	28.3	26.9	4.81	16.2	10.6	5.6
Failure criteria used*	3									

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'₁/s'₃)



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Tested By: EB
Date: 03/20/23
Checked By: *[Signature]*

ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45139/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	4-6'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.414	5.444
Diameter, in	2.891	2.880
Height-to-Diameter Ratio	1.9	1.9
Area, in ²	6.56	6.51
Volume, cm ³	582.34	581.04
Mass of Wet Sample, g	1262.80	1261.50
Mass of Dry Sample, g	1080.73	1080.73
Wet Density, pcf	135.4	135.5
Dry Density, pcf	115.9	116.1
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	400.27	400.27
Volume of Voids, cm ³	182.07	180.77
Void Ratio	0.45	0.45
% Saturation	100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1262.80	1536.80
Mass of Dry Sample and Tare, g	1080.73	1355.60
Mass of Tare, g	0.00	272.30
Moisture, %	16.85	16.73

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-1.3
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.18
Chamber Pressure, psi	101.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	21.0
Change in Height, in	-0.030
"B" Value	0.95

SHEAR DATA

Deformation Stage 3 (inch)	Total Deformation ST.1 + ST.2 + ST.3 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Strain Stage 3 %	Corrected Area (in ²)	Deviator Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Effective Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change, DU				Total s ₁	Eff. s' ₁					
0.000	0.220	32.5	80.00	0.0	0.00	6.51	0.0	21.0	21.0	1.00	21.0	0.0	21.0	3.88
0.010	0.230	177.4	84.70	4.7	0.19	6.53	22.2	43.2	38.5	2.36	27.4	11.1	16.3	4.06
0.020	0.240	252.4	85.44	5.4	0.37	6.54	33.6	54.6	49.2	3.16	32.4	16.8	15.6	4.24
0.031	0.251	281.7	85.14	5.1	0.56	6.55	38.0	59.0	53.9	3.40	34.9	19.0	15.9	4.42
0.041	0.261	295.8	84.76	4.8	0.75	6.56	40.1	61.1	56.4	3.47	36.3	20.1	16.2	4.60
0.051	0.271	305.2	84.40	4.4	0.94	6.57	41.5	62.5	58.1	3.50	37.3	20.7	16.6	4.78
0.071	0.291	318.0	83.81	3.8	1.31	6.60	43.3	64.3	60.5	3.52	38.8	21.6	17.2	5.14
0.102	0.322	331.7	82.98	3.0	1.87	6.64	45.1	66.1	63.1	3.50	40.6	22.5	18.0	5.68
0.122	0.342	339.2	82.44	2.4	2.25	6.66	46.0	67.0	64.6	3.48	41.6	23.0	18.6	6.04
0.153	0.373	348.0	81.81	1.8	2.81	6.70	47.1	68.1	66.3	3.45	42.7	23.5	19.2	6.58
0.173	0.393	357.7	81.41	1.4	3.18	6.73	48.3	69.3	67.9	3.47	43.8	24.2	19.6	6.94
0.204	0.424	369.6	80.91	0.9	3.74	6.77	49.8	70.8	69.9	3.48	45.0	24.9	20.1	7.48
0.234	0.454	381.6	80.46	0.5	4.31	6.81	51.3	72.3	71.8	3.50	46.2	25.6	20.5	8.02
0.265	0.485	391.3	79.84	-0.2	4.87	6.85	52.4	73.4	73.6	3.48	47.4	26.2	21.2	8.56
0.285	0.505	398.3	79.44	-0.6	5.24	6.87	53.2	74.2	74.8	3.47	48.2	26.6	21.6	8.92
0.316	0.536	408.1	78.87	-1.1	5.80	6.91	54.3	75.3	76.5	3.45	49.3	27.2	22.1	9.46
0.367	0.587	426.2	78.00	-2.0	6.74	6.98	56.4	77.4	79.4	3.45	51.2	28.2	23.0	10.36
0.418	0.638	445.9	76.79	-3.2	7.68	7.05	58.6	79.6	82.8	3.42	53.5	29.3	24.2	11.26
0.479	0.699	467.7	75.44	-4.6	8.80	7.14	60.9	81.9	86.5	3.38	56.0	30.5	25.6	12.34
0.530	0.750	482.2	74.19	-5.8	9.73	7.22	62.3	83.3	89.1	3.32	58.0	31.2	26.8	13.24
0.591	0.811	508.3	72.58	-7.4	10.86	7.31	65.1	86.1	93.5	3.29	61.0	32.6	28.4	14.32
0.622	0.842	518.3	71.79	-8.2	11.42	7.35	66.1	87.1	95.3	3.26	62.2	33.0	29.2	14.86
0.645	0.865	524.9	71.27	-8.7	11.84	7.39	66.6	87.6	96.4	3.24	63.1	33.3	29.7	15.26

Values @ Failure

3.8	1.31	6.60	43.3	64.3	60.5	3.52	38.8	21.6	17.2	5.14
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Failure criteria used*

3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'₁/s'₃)



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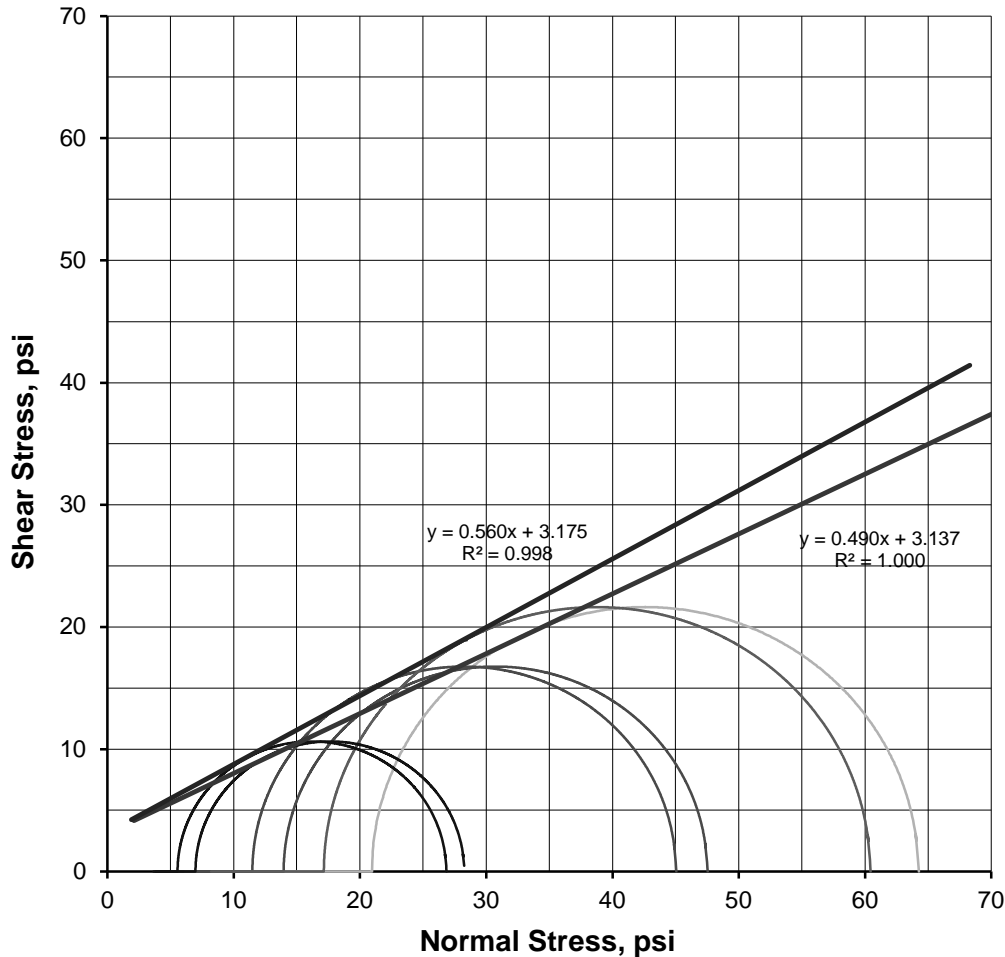
ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45139/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	4-6'
Additional Info	-

Total and Effective Mohr's Circles



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	7.0	14.0	21.0
Deviator Stress at Failure, psi	21.3	33.5	43.3
Effective Minor Principal Stress at Failure, psi	5.6	11.5	17.2
Effective Major Principal Stress at Failure, psi	26.9	45.1	60.5
Axial Strain at Failure, %	2.47	1.63	1.31

STRENGTH PARAMETERS*			
Total		Effective	
f °	26.1	f ' °	29.2
C, psi	3.1	C', psi	3.2

*Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report



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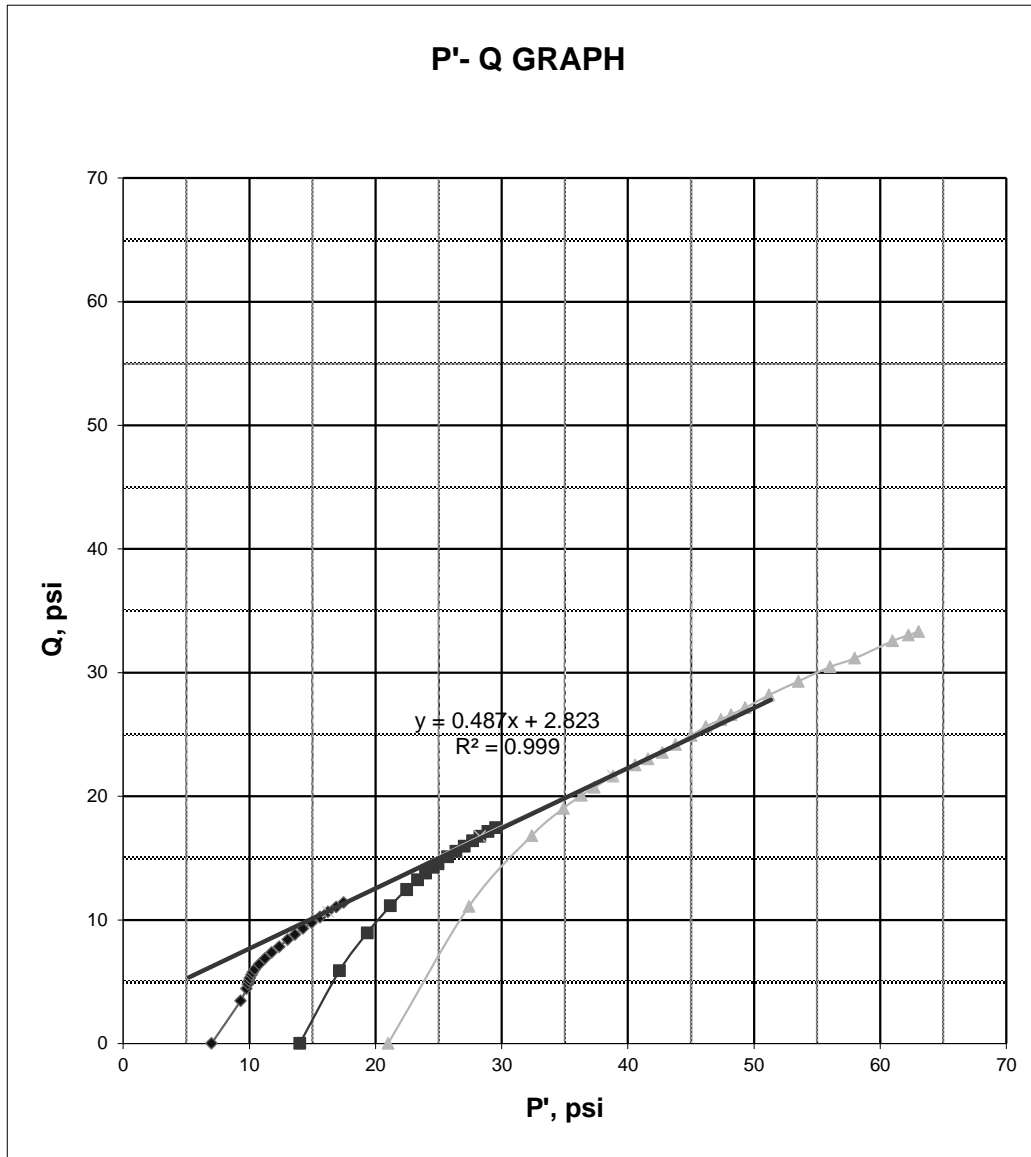


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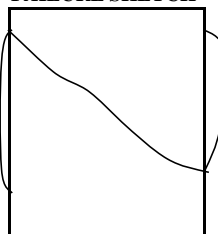
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Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45139/C-08	Depth/Elev.	4-6'
Location	C-08	Additional Info	-



FAILURE SKETCH



a, psi	2.8
a, degree	26.0



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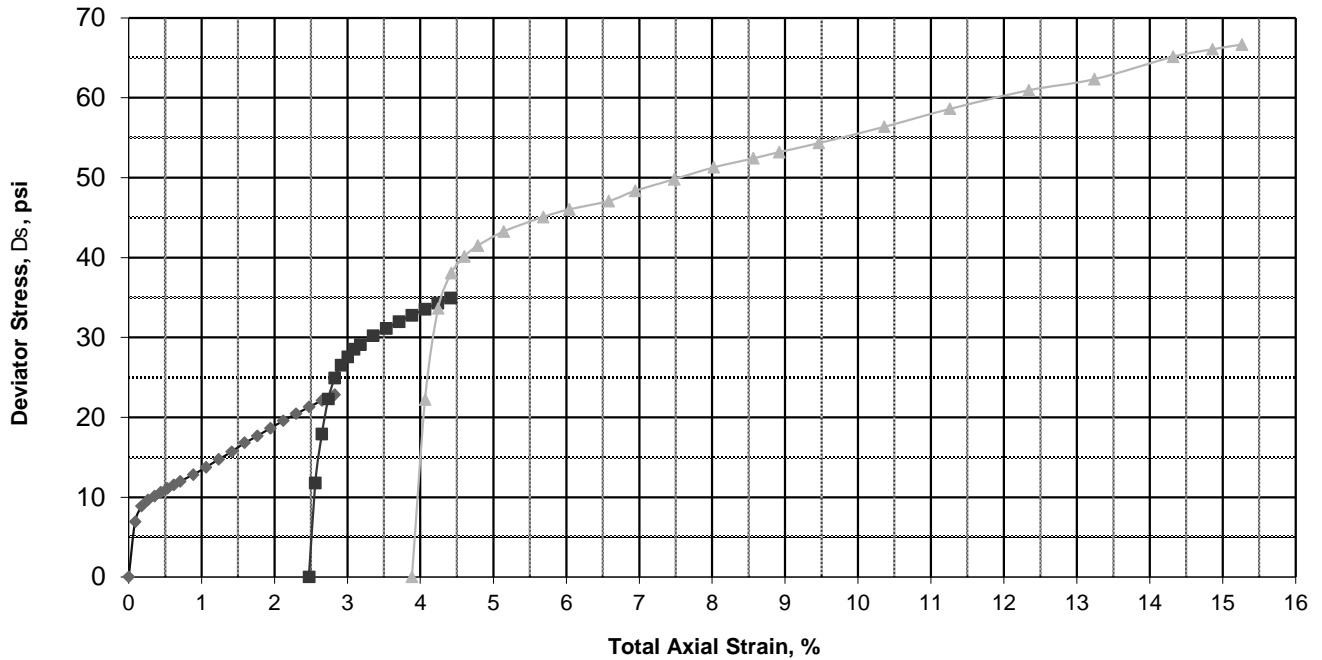
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Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45139/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	4-6'
Additional Info	-

Deviator Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700	Material from shelly tube was not homogeneous and/or not long enough to select 3 uniform specimens 6" long each. Most representative portion of sample (2" above the bottom of shelly tube) was selected for multi-stage triaxial testing (per ASTM STP 883).
Oven ID Number	496/610	
Deformation Indicator ID #	178/349/689	
Digital Caliper ID #	370/458	
Load Cell ID #	11/347/692	
Apparatus ID #	10/293/693	

USCS (ASTM D2487: D2488)

NA

NOTES:

1. Method for Saturation
2. Method for determination of cross-sectional area after consol.
3. Final moisture content (Stage 3) obtained from entire sample

WET	LL	-
B	PL	-
	PI	-
	Gs	-



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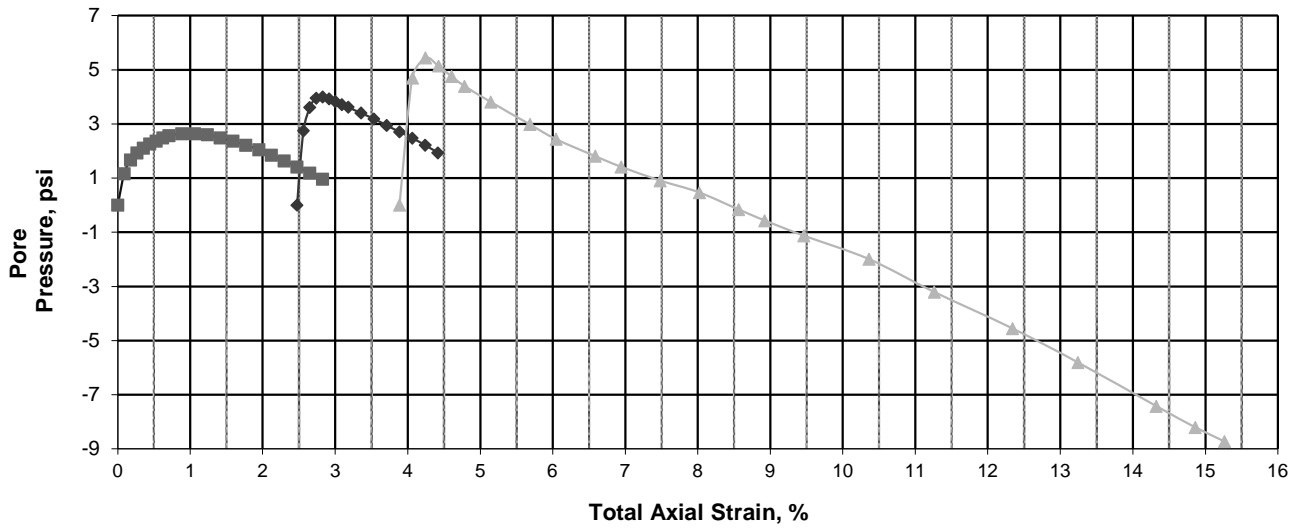
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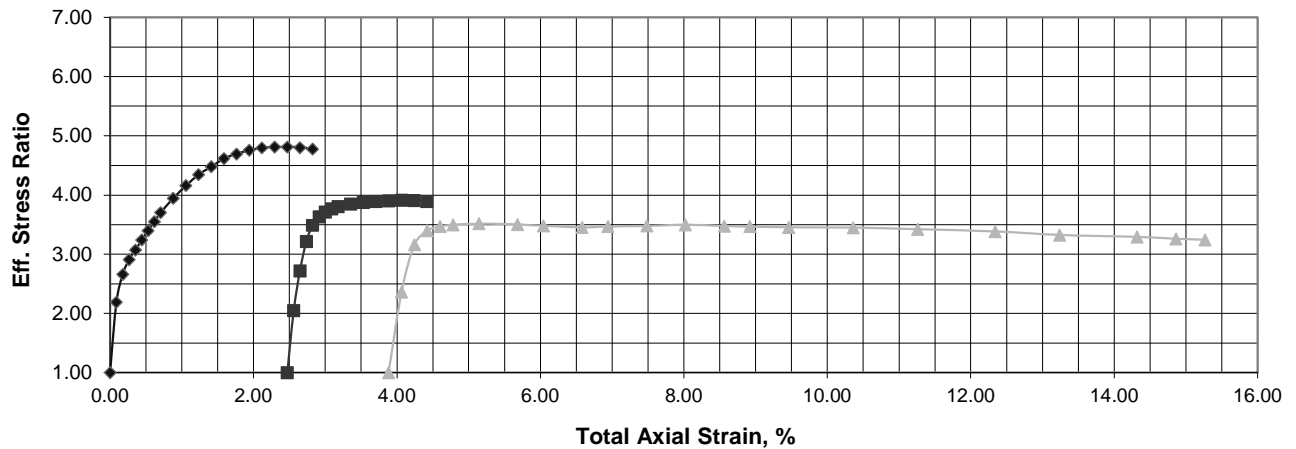
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Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45139/C-08	Depth/Elev.	4-6'
Location	C-08	Additional Info	-

Pore Pressure - Strain Graph



Effective Stress Ratio-Strain Graph





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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45140/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	15-17'
Additional Info	-

SPECIMEN PROPERTIES

WATER CONTENT DETERMINATION

	(initial)	(after consol.)
Height, in	5.842	5.860
Diameter, in	2.885	2.807
Height-to-Diameter Ratio	2.0	2.1
Area, in ²	6.54	6.19
Volume, cm ³	625.81	594.29
Mass of Wet Sample, g	1321.90	1288.20
Mass of Dry Sample, g	1102.09	1102.09
Wet Density, pcf	131.9	135.3
Dry Density, pcf	109.9	115.8
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	408.18	408.18
Volume of Voids, cm ³	217.63	186.11
Void Ratio	0.53	0.46
% Saturation	101.0	100.0

	(initial)	(final)
Mass of Wet Sample and Tare, g	1321.90	1288.20
Mass of Dry Sample and Tare, g	1102.09	1102.09
Mass of Tare, g	0.00	0.00
Moisture, %	19.94	16.89

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-33.7
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.17
Chamber Pressure, psi	87.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	7.0
Change in Height, in	-0.018
"B" Value	0.95

SHEAR DATA

Elapsed Time (min)	Deformation Stage 1 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Total Strain Stage 1 (%)	Corrected Area (in ²)	Dev. Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Eff. Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)
			Total, U	Change, DU				Total s ₁	Eff. s' ₁				
0.0	0.000	17.9	80.00	0.0	0.00	6.19	0.0	7.0	7.0	1.00	7.0	0.0	7.0
0.5	0.005	36.0	81.78	1.8	0.09	6.19	2.9	9.9	8.1	1.56	6.7	1.5	5.2
1.0	0.010	44.7	82.54	2.5	0.17	6.20	4.3	11.3	8.8	1.97	6.6	2.2	4.5
1.5	0.015	49.3	82.98	3.0	0.26	6.20	5.1	12.1	9.1	2.26	6.6	2.5	4.0
2.0	0.020	52.8	83.24	3.2	0.34	6.21	5.6	12.6	9.4	2.49	6.6	2.8	3.8
2.5	0.025	54.3	83.40	3.4	0.43	6.22	5.9	12.9	9.5	2.63	6.5	2.9	3.6
3.0	0.030	56.3	83.49	3.5	0.51	6.22	6.2	13.2	9.7	2.76	6.6	3.1	3.5
3.5	0.035	58.5	83.56	3.6	0.60	6.23	6.5	13.5	10.0	2.90	6.7	3.3	3.4
4.0	0.040	60.1	83.58	3.6	0.68	6.23	6.8	13.8	10.2	2.98	6.8	3.4	3.4
5.0	0.050	63.5	83.56	3.6	0.85	6.24	7.3	14.3	10.7	3.12	7.1	3.7	3.4
6.0	0.060	67.4	83.50	3.5	1.02	6.25	7.9	14.9	11.4	3.26	7.5	4.0	3.5
7.0	0.070	71.1	83.40	3.4	1.19	6.26	8.5	15.5	12.1	3.36	7.8	4.2	3.6
8.0	0.080	74.1	83.27	3.3	1.37	6.27	9.0	16.0	12.7	3.40	8.2	4.5	3.7
9.0	0.090	77.3	83.12	3.1	1.54	6.29	9.5	16.5	13.3	3.44	8.6	4.7	3.9
10.0	0.100	80.9	82.99	3.0	1.71	6.30	10.0	17.0	14.0	3.50	9.0	5.0	4.0
11.0	0.110	84.4	82.84	2.8	1.88	6.31	10.5	17.5	14.7	3.53	9.4	5.3	4.2
12.0	0.120	87.7	82.70	2.7	2.05	6.32	11.0	18.0	15.3	3.57	9.8	5.5	4.3
13.0	0.130	90.8	82.55	2.6	2.22	6.33	11.5	18.5	16.0	3.59	10.2	5.8	4.5
14.0	0.140	94.1	82.39	2.4	2.39	6.34	12.0	19.0	16.6	3.61	10.6	6.0	4.6
15.0	0.150	97.3	82.21	2.2	2.56	6.35	12.5	19.5	17.3	3.61	11.0	6.3	4.8
16.0	0.160	100.5	82.00	2.0	2.73	6.36	13.0	20.0	18.0	3.60	11.5	6.5	5.0

Values @ Failure	2.2	2.56	6.35	12.5	19.5	17.3	3.61	11.0	6.3	4.8	
Failure criteria used*	3	*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s' ₁ /s' ₃)									



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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45140/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	15-17'
Additional Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.572	5.614
Diameter, in	2.867	2.850
Height-to-Diameter Ratio	1.9	2.0
Area, in ²	6.45	6.38
Volume, cm ³	589.39	586.99
Mass of Wet Sample, g	1283.30	1280.90
Mass of Dry Sample, g	1102.09	1102.09
Wet Density, pcf	135.9	136.2
Dry Density, pcf	116.7	117.2
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm ³	408.18	408.18
Volume of Voids, cm ³	181.21	178.81
Void Ratio	0.44	0.44
% Saturation	100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1283.30	1300.40
Mass of Dry Sample and Tare, g	1102.09	1158.00
Mass of Tare, g	0.00	280.30
Moisture, %	16.44	16.22

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-2.4
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.18
Chamber Pressure, psi	101.0
Back Pressure, psi	80.0
Eff. Consol. Stress, (Minor pr. stress, s ₃), psi	21.0
Change in Height, in	-0.042
"B" Value	0.95

SHEAR DATA

Deformation Stage 3 (inch)	Total Deformation ST.1 + ST.2 + ST.3 (inch)	Axial Load (lb)	Pore-Water Pressure, psi		Strain Stage 3 %	Corrected Area (in ²)	Deviator Stress (Ds=s ₁ -s ₃) (psi)	Major Principal Stress, psi		Effective Stress Ratio s' ₁ /s' ₃	P' (s' ₁ +s' ₃)/2 (psi)	Q (s ₁ -s ₃)/2 (psi)	Eff. Minor Pr. Stress s' ₃ (psi)	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change, DU				Total s ₁	Eff. s' ₁					
0.000	0.246	26.8	80.00	0.0	0.00	6.38	0.0	21.0	21.0	1.00	21.0	0.0	21.0	4.20
0.005	0.251	61.8	82.42	2.4	0.08	6.39	5.5	26.5	24.1	1.29	21.3	2.7	18.6	4.27
0.009	0.255	101.0	84.59	4.6	0.16	6.39	11.6	32.6	28.0	1.71	22.2	5.8	16.4	4.35
0.014	0.260	131.1	85.67	5.7	0.24	6.40	16.3	37.3	31.6	2.06	23.5	8.2	15.3	4.43
0.018	0.264	153.3	86.15	6.2	0.33	6.40	19.8	40.8	34.6	2.33	24.7	9.9	14.9	4.51
0.023	0.269	173.1	86.23	6.2	0.41	6.41	22.8	43.8	37.6	2.55	26.2	11.4	14.8	4.59
0.033	0.279	211.8	85.93	5.9	0.58	6.42	28.8	49.8	43.9	2.91	29.5	14.4	15.1	4.76
0.047	0.293	253.5	85.30	5.3	0.84	6.43	35.2	56.2	50.9	3.24	33.3	17.6	15.7	5.01
0.067	0.313	280.6	84.59	4.6	1.20	6.46	39.3	60.3	55.7	3.39	36.1	19.7	16.4	5.34
0.097	0.343	300.3	84.14	4.1	1.73	6.49	42.1	63.1	59.0	3.50	37.9	21.1	16.9	5.86
0.117	0.363	309.9	83.89	3.9	2.09	6.52	43.4	64.4	60.6	3.54	38.8	21.7	17.1	6.20
0.147	0.393	316.2	83.63	3.6	2.62	6.55	44.2	65.2	61.5	3.54	39.5	22.1	17.4	6.71
0.177	0.423	326.2	83.31	3.3	3.16	6.59	45.4	66.4	63.1	3.57	40.4	22.7	17.7	7.22
0.207	0.453	336.7	83.11	3.1	3.68	6.62	46.8	67.8	64.7	3.62	41.3	23.4	17.9	7.72
0.227	0.473	343.2	82.71	2.7	4.03	6.65	47.6	68.6	65.9	3.60	42.1	23.8	18.3	8.06
0.256	0.502	349.1	82.46	2.5	4.56	6.69	48.2	69.2	66.7	3.60	42.6	24.1	18.5	8.57
0.307	0.553	367.1	81.60	1.6	5.46	6.75	50.4	71.4	69.8	3.60	44.6	25.2	19.4	9.43
0.357	0.603	380.5	81.03	1.0	6.35	6.81	51.9	72.9	71.9	3.60	45.9	26.0	20.0	10.28
0.416	0.662	399.9	80.15	0.2	7.41	6.89	54.1	75.1	75.0	3.60	47.9	27.1	20.9	11.29
0.465	0.711	409.2	79.74	-0.3	8.29	6.96	55.0	76.0	76.2	3.59	48.7	27.5	21.3	12.14
0.556	0.802	432.9	78.75	-1.3	9.91	7.08	57.3	78.3	79.6	3.58	50.9	28.7	22.3	13.69
0.616	0.862	451.6	78.12	-1.9	10.96	7.17	59.3	80.3	82.2	3.59	52.5	29.6	22.9	14.70
0.650	0.896	457.7	77.86	-2.1	11.58	7.22	59.7	80.7	82.9	3.58	53.0	29.9	23.1	15.29

Values @ Failure: 3.1, 3.68, 6.62, 46.8, 67.8, 64.7, **3.62**, 41.3, 23.4, 17.9, 7.72

Failure criteria used* **3** *Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff. Stress Ratio (s'₁/s'₃)



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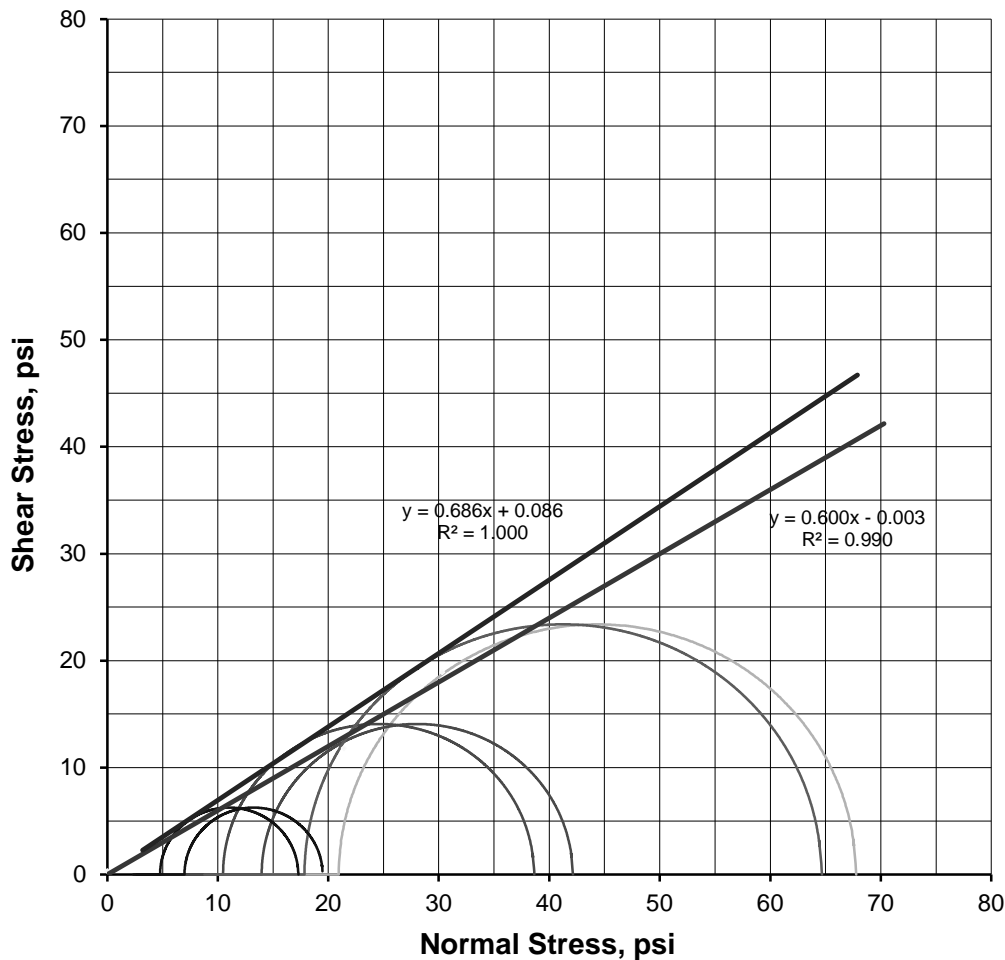
ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45140/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	15-17'
Additional Info	-

Total and Effective Mohr's Circles



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	7.0	14.0	21.0
Deviator Stress at Failure, psi	12.5	28.1	46.8
Effective Minor Principal Stress at Failure, psi	4.8	10.5	17.9
Effective Major Principal Stress at Failure, psi	17.3	38.6	64.7
Axial Strain at Failure, %	2.56	2.61	3.68

STRENGTH PARAMETERS*			
Total		Effective	
f °	31.0	f ' °	34.5
C, psi	0.0	C', psi	0.1

*Valid only for Received Material at Reported Densities and Moisture Contents. Please see remarks on page 6 of this report



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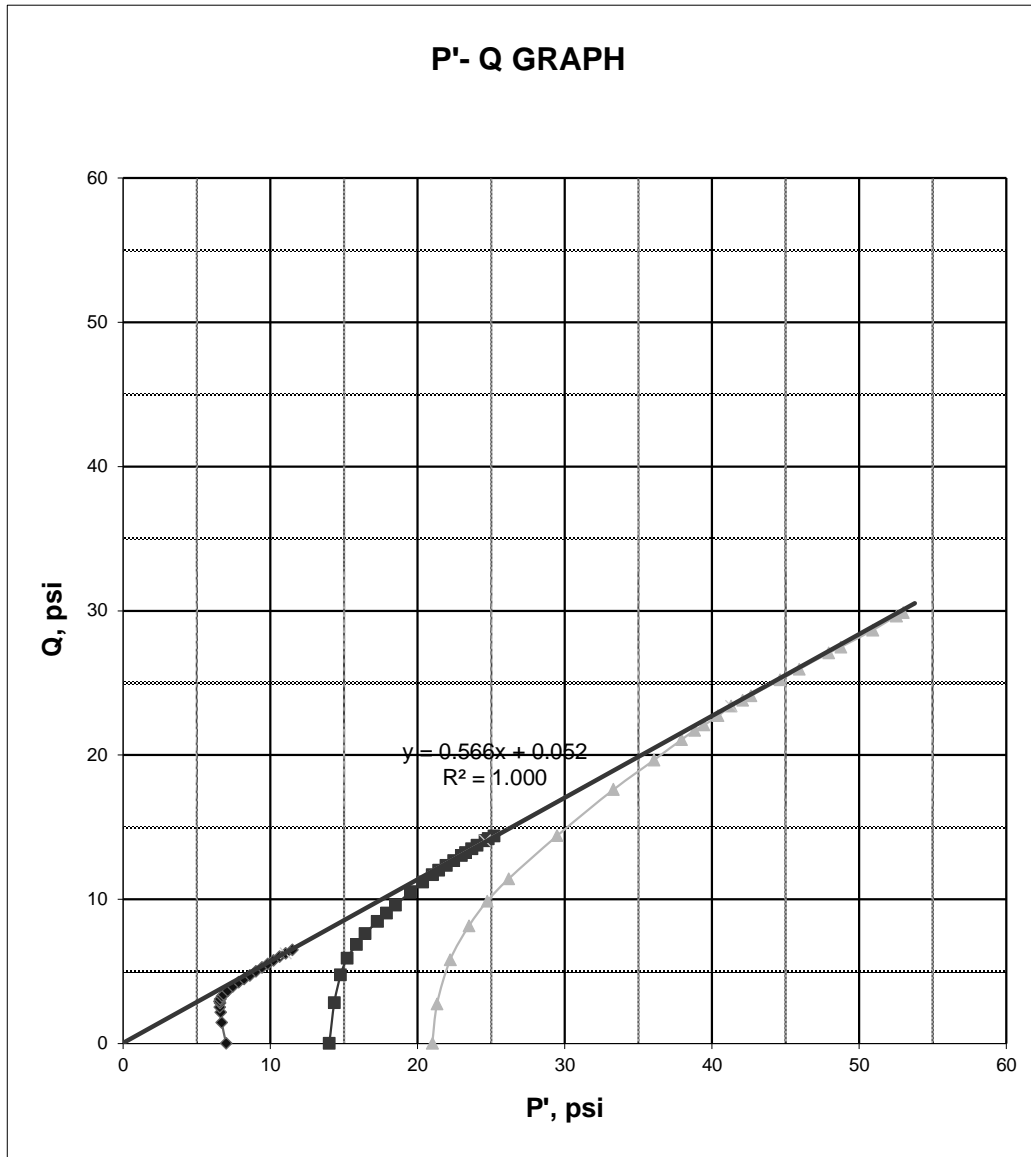


Tech	EB
Date	03/21/07
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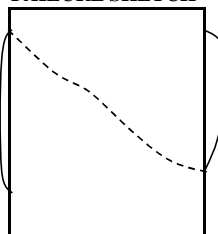
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Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45140/C-08	Depth/Elev.	15-17'
Location	C-08	Additional Info	-



FAILURE SKETCH



a, psi	0.1
a, degree	29.5



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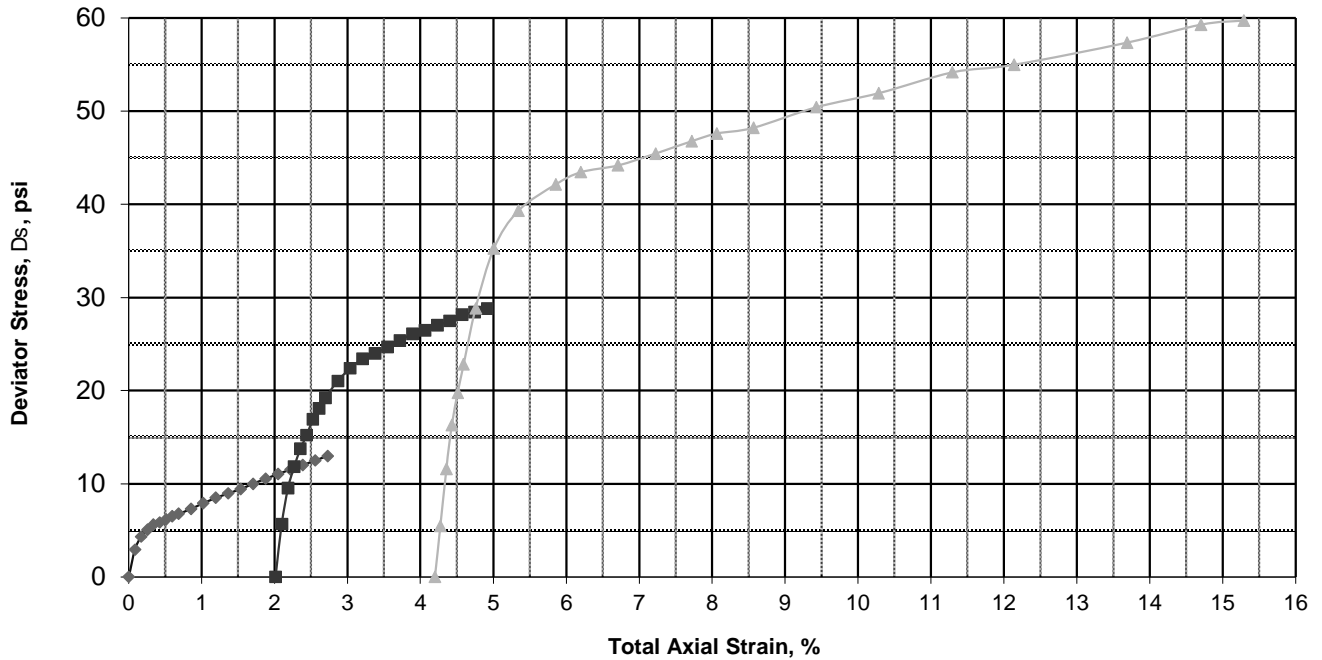
ASTM D 4767/AASHTO T 297

Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266
Project Name	I-26 and I-95 Interchange Improvements
Sample ID	45140/C-08
Location	C-08

Laboratory Project #	2320L-01-2
Sample Type	UD
Depth/Elev.	15-17'
Additional Info	-

Deviator Stress - Strain Graph



REMARKS

DESCRIPTION

Balance ID Number	563/700	Material from shelly tube was not homogeneous and/or not long enough to select 3 uniform specimens 6" long each. Most representative portion of sample (0.5" above the bottom of shelly tube) was selected for multi-stage triaxial testing (per ASTM STP 883).
Oven ID Number	496/610	
Deformation Indicator ID #	178/349/689	
Digital Caliper ID #	370/458	
Load Cell ID #	11/347/692	
Apparatus ID #	10/293/693	

USCS (ASTM D2487: D2488)

NA

NOTES:

1. Method for Saturation
2. Method for determination of cross-sectional area after consol.
3. Final moisture content (Stage 3) obtained from entire sample

WET
B

LL	-
PL	-
PI	-
Gs	-



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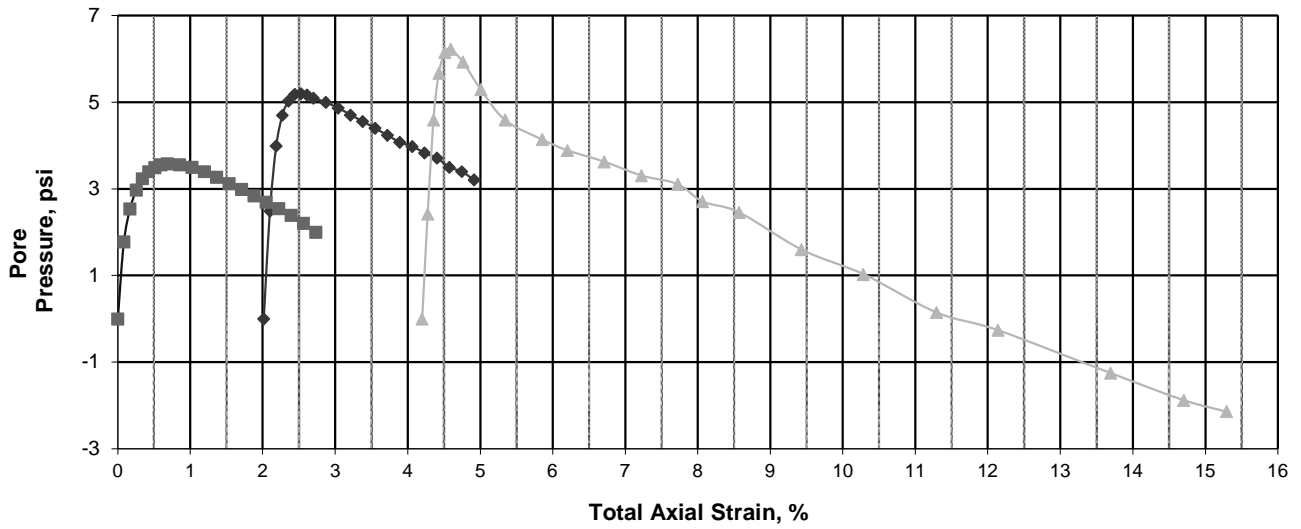
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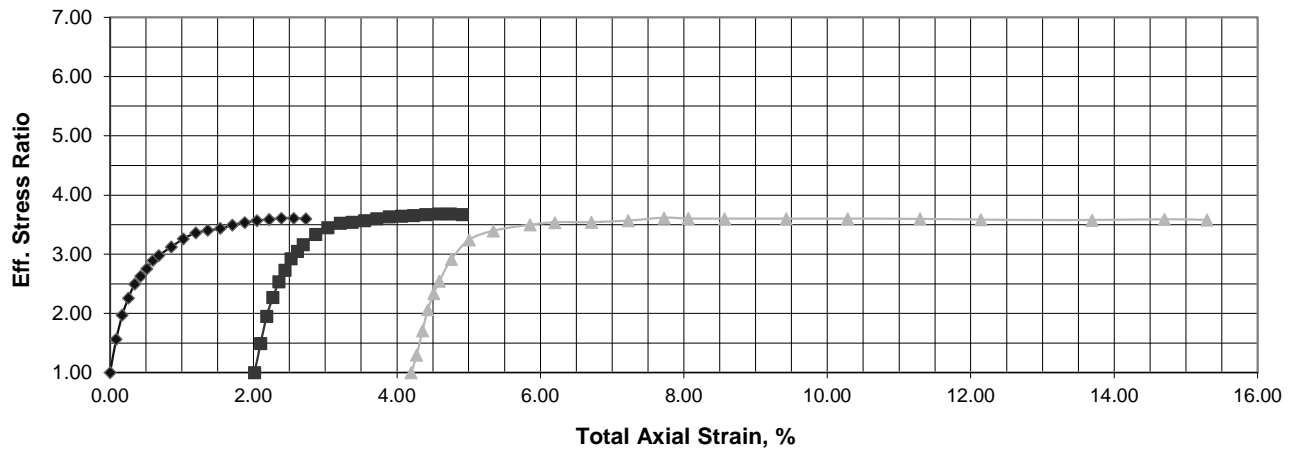
Standard Test Method for Consolidated Undrained Triaxial Compression Test for Cohesive Soils (Multistage per ASTM STP 883)

Client Project #	34:4266	Laboratory Project #	2320L-01-2
Project Name	I-26 and I-95 Interchange Improvements	Sample Type	UD
Sample ID	45140/C-08	Depth/Elev.	15-17'
Location	C-08	Additional Info	-

Pore Pressure - Strain Graph



Effective Stress Ratio-Strain Graph





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ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Lab. PR. #	2320L-01-1
S. Type	Remold
Depth/Elev.	0-4'
Add. Info	-

Proctor Method Description

Compaction Procedure	D698	T99	Other	Max Dry Density, pcf	123.9
	x			Optimum Moisture Content, %	9.7

CBR Method Description & Test Data

Point #	1	Mass of material before separation on 3/4" sieve, g	NA
Specified Moisture Cont., %	9.7	Mass of material retained on 3/4" sieve, g	NA
Specified % Compaction	95.0	Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Number of Layers	3	Replaced Portion,%	NA
Number of Blows per layer	NA		
Mold ID	116	Penetration Piston ID	123
Height of Sample before Soaking, in	4.583	Rammer Type (Effort)	STD Manual
Volume of Sample, ft ³	0.07510	Height of Drop, in	12
Mass of Mold, g	6958	Mass of Rammer, kg	2.5
Mass of Wet Soil & Mold, g	11355.0	Condition of Sample	Soaked
Mass of Wet Soil, g	4397	Soaking Duration	96 hr
Wet Density, pcf	129.1	Surcharge Load	10 lb
Dry Density before Soaking, pcf	117.7	Surcharge Press., psi	0.35
Dial Gage Reading before Soaking, in	0.206	Penetration Rate, in/min	0.05
Dial Gage Reading after Soaking, in	0.206	Balance ID	598/1090
Swell of Sample, in	0.000	Load Cell ID	11
Swell of Sample, %	0.0	Oven ID	496/758
Height of Sample after Soaking, in	4.583	Penetration Machine ID	10
Dry Density after Soaking, pcf	117.7	Rammer ID	315
Mass of Sample & Mold after Soaking, g	11485.0	Material was compacted at around optimum moisture content of Standard Proctor	
% Compaction	95.0		

Moisture Content

	Point 1		
	Before Comp.	After Comp.	After Soaking*
Mass of Wet Sample and Tare, g	524.3	464.8	1268.2
Mass of Dry Sample and Tare, g	489.0	436.0	1157.7
Mass of Tare, g	125.0	139.3	201.3
Moisture Content, %	9.7	9.7	11.6
Average Moisture Content, %	9.7		

* Portion of sample used for determination of moisture content after soaking and penetration:

Top 1 inch	Av. Representative
YES	NO

Load - Penetration Data

Point 1		
Penetration, in	Load, lb	Stress, psi
0.000	4	0.0
0.0250	24	6.7
0.0500	89	28.4
0.0750	221	72.5
0.1000	349	115.2
0.1250	440	145.6
0.1500	518	171.7
0.1750	586	194.4
0.2000	637	211.4
0.3000	801	266.2
0.4000	908	301.9
0.5000	997	331.6



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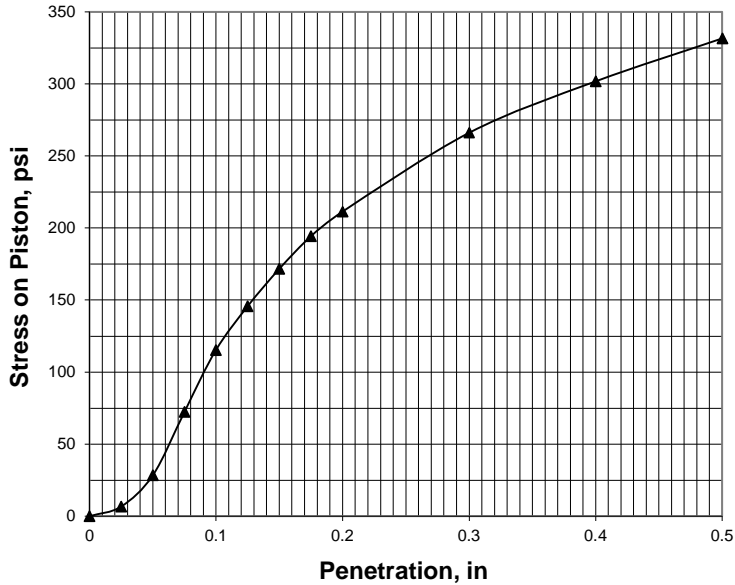
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44729/B-01MA
Location	B-01MA

Lab. PR. #	2320L-01-1
S. Type	Remold
Depth/Elev.	0-4'
Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	145.6	14.6
	0.2	226.4	15.1

DESCRIPTION

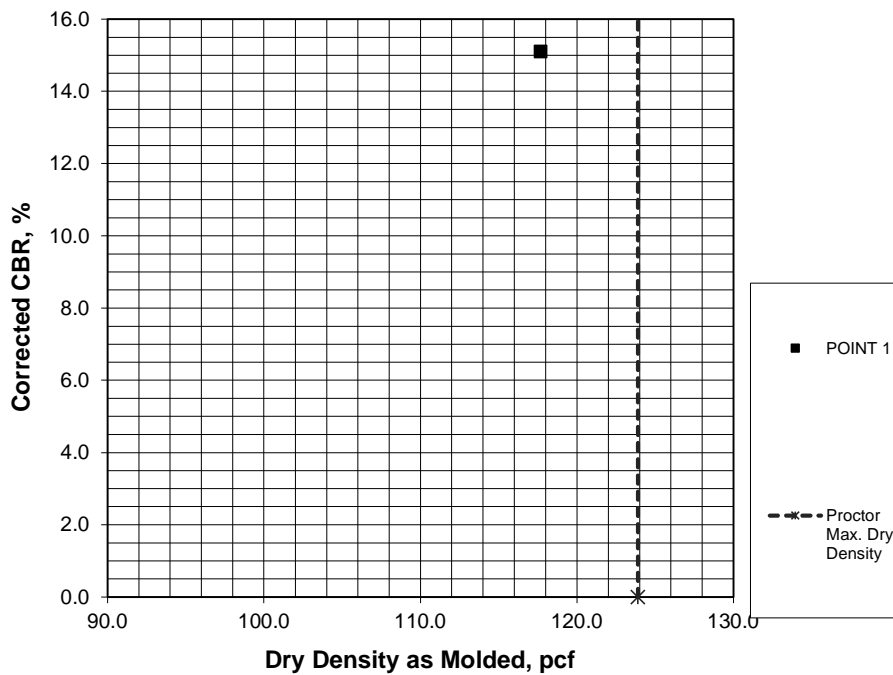
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USCS (ASTM D2487;2488)

NA

Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	117.7	15.1	NA

DRY DENSITY vs. CBR





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Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Lab. PR. #	2320L-01-1
S. Type	Remold
Depth/Elev.	0-4'
Add. Info	-

Proctor Method Description

Compaction Procedure	D698	T99	Other	Max Dry Density, pcf	117.3
	x				Optimum Moisture Content, %

CBR Method Description & Test Data

Point #	1	Mass of material before separation on 3/4" sieve, g	NA
Specified Moisture Cont., %	12.0	Mass of material retained on 3/4" sieve, g	NA
Specified % Compaction	95.0	Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Number of Layers	3	Replaced Portion,%	NA
Number of Blows per layer	NA		
Mold ID	117	Penetration Piston ID	123
Height of Sample before Soaking, in	4.582	Rammer Type (Effort)	STD Manual
Volume of Sample, ft ³	0.07510	Height of Drop, in	12
Mass of Mold, g	6997	Mass of Rammer, kg	2.5
Mass of Wet Soil & Mold, g	11244.0	Condition of Sample	Soaked
Mass of Wet Soil, g	4247	Soaking Duration	96 hr
Wet Density, pcf	124.7	Surcharge Load	10 lb 4.54 kg
Dry Density before Soaking, pcf	111.3	Surcharge Press., psi	0.35
Dial Gage Reading before Soaking, in	0.079	Penetration Rate, in/min	0.05
Dial Gage Reading after Soaking, in	0.094	Balance ID	598/1090
Swell of Sample, in	0.015	Load Cell ID	11
Swell of Sample, %	0.3	Oven ID	496/758
Height of Sample after Soaking, in	4.597	Dial Gage ID	450
Dry Density after Soaking, pcf	110.8	Rammer ID	315
Mass of Sample & Mold after Soaking, g	11382.0		
% Compaction	94.9		

Material was compacted at around optimum moisture content of Standard Proctor

Moisture Content

	Point 1		
	Before Comp.	After Comp.	After Soaking*
Mass of Wet Sample and Tare, g	521.3	413.3	1558.0
Mass of Dry Sample and Tare, g	479.2	383.6	1385.0
Mass of Tare, g	125.0	139.0	212.7
Moisture Content, %	11.9	12.1	14.8
Average Moisture Content, %	12.0		

* Portion of sample used for determination of moisture content after soaking and penetration:

Top 1 inch	Av. Representative
YES	NO

Load - Penetration Data

Point 1		
Penetration, in	Load, lb	Stress, psi
0.000	4	0.0
0.0250	47	14.4
0.0500	100	32.1
0.0750	146	47.4
0.1000	186	60.8
0.1250	207	67.8
0.1500	217	71.1
0.1750	233	76.5
0.2000	247	81.2
0.3000	302	99.5
0.4000	348	114.9
0.5000	392	129.6



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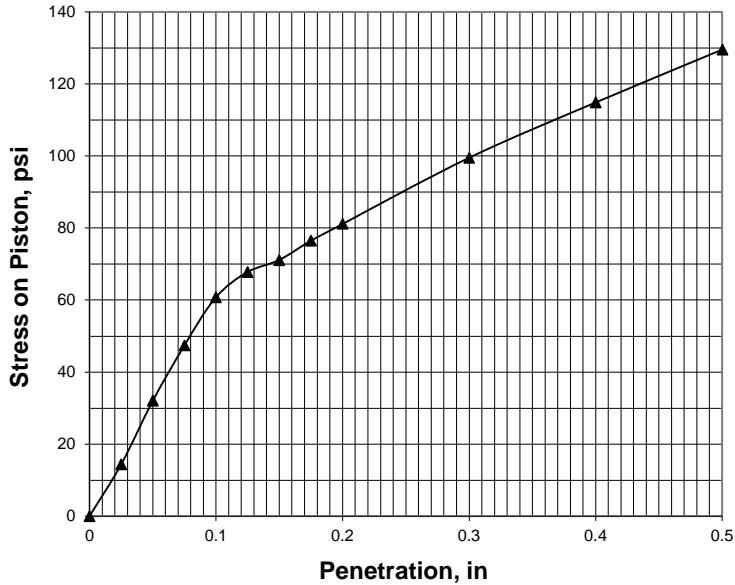
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Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44730/B-07MA
Location	B-07MA

Lab. PR. #	2320L-01-1
S. Type	Remold
Depth/Elev.	0-4'
Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	60.8	6.1
	0.2	81.2	5.4

DESCRIPTION

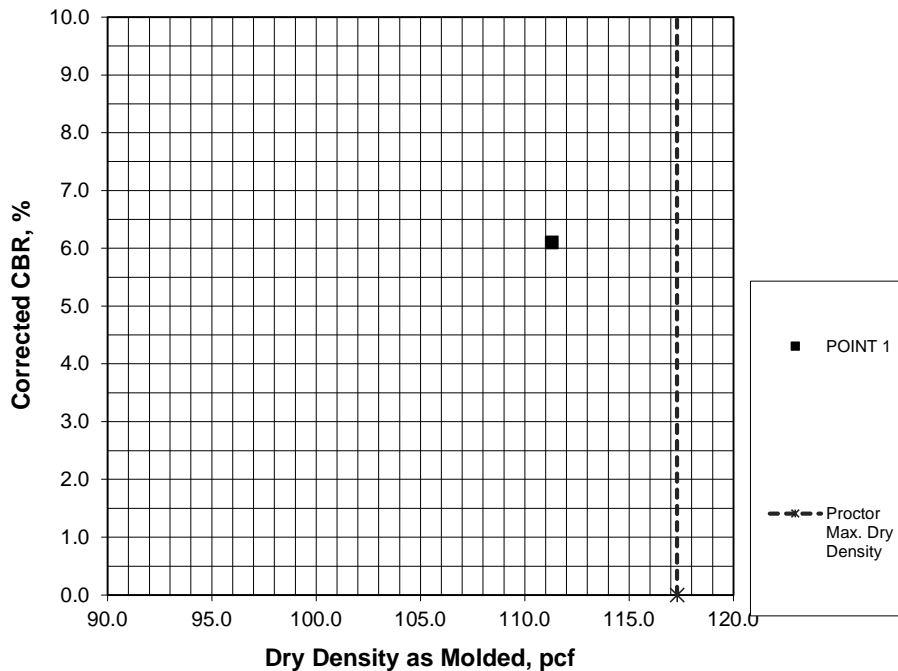
NA

USCS (ASTM D2487;2488)

NA

Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	111.3	6.1	NA

DRY DENSITY vs. CBR





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Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Remold
Sample ID	44731/B-06MA	Depth/Elev.	0-4'
Location	B-06MA	Add. Info	-

Proctor Method Description

Compaction Procedure	D698	T99	Other	Max Dry Density, pcf	117.6
	x				Optimum Moisture Content, %

CBR Method Description & Test Data

Point #	1	Mass of material before separation on 3/4" sieve, g	NA
Specified Moisture Cont., %	12.3	Mass of material retained on 3/4" sieve, g	NA
Specified % Compaction	95.0	Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Number of Layers	3	Replaced Portion,%	NA
Number of Blows per layer	NA		
Mold ID	232	Penetration Piston ID	123
Height of Sample before Soaking, in	4.582	Rammer Type (Effort)	STD Manual
Volume of Sample, ft ³	0.07497	Height of Drop, in	12
Mass of Mold, g	7024	Mass of Rammer, kg	2.5
Mass of Wet Soil & Mold, g	11292.0	Condition of Sample	Soaked
Mass of Wet Soil, g	4268	Soaking Duration	96 hr
Wet Density, pcf	125.5	Surcharge Load	10 lb
Dry Density before Soaking, pcf	111.7	Surcharge Press., psi	0.35
Dial Gage Reading before Soaking, in	0.257	Penetration Rate, in/min	0.05
Dial Gage Reading after Soaking, in	0.256	Balance ID	598/1090
Swell of Sample, in	-0.001	Load Cell ID	11
Swell of Sample, %	0.0	Oven ID	496/758
Height of Sample after Soaking, in	4.581	Penetration Machine ID	10
Dry Density after Soaking, pcf	111.6		
Mass of Sample & Mold after Soaking, g	11380.0	Material was compacted at around optimum moisture content of Standard Proctor	
% Compaction	95.0		

Moisture Content

	Point 1		
	Before Comp.	After Comp.	After Soaking*
Mass of Wet Sample and Tare, g	524.9	477.9	1082.7
Mass of Dry Sample and Tare, g	480.3	440.5	977.5
Mass of Tare, g	115.0	140.0	214.1
Moisture Content, %	12.2	12.4	13.8
Average Moisture Content, %	12.3		

* Portion of sample used for determination of moisture content after soaking and penetration:

Top 1 inch	Av. Representative
YES	NO

Load - Penetration Data

Point 1		
Penetration, in	Load, lb	Stress, psi
0.000	4	0.0
0.0250	31	9.0
0.0500	77	24.4
0.0750	121	39.1
0.1000	170	55.4
0.1250	216	70.8
0.1500	257	84.5
0.1750	296	97.5
0.2000	331	109.2
0.3000	454	150.3
0.4000	560	185.7
0.5000	663	220.1



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Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

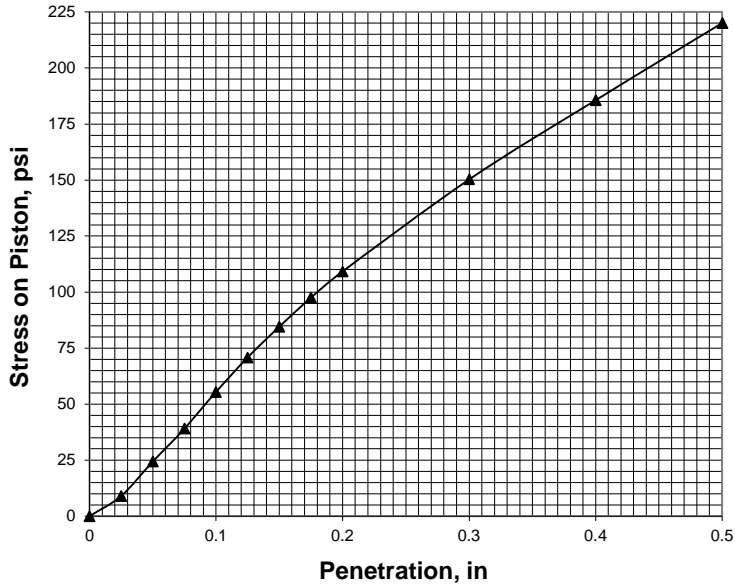
Client Pr. #
Pr. Name
Sample ID
Location

34:4266
I-26 and I-95 Interchange Improvements
44731/B-06MA
B-06MA

Lab. PR. #
S. Type
Depth/Elev.
Add. Info

2320L-01-1
Remold
0-4'
-

LOAD-PENETRATION CURVE



▲ POINT 1

	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	55.4	5.5
	0.2	109.2	7.3

DESCRIPTION

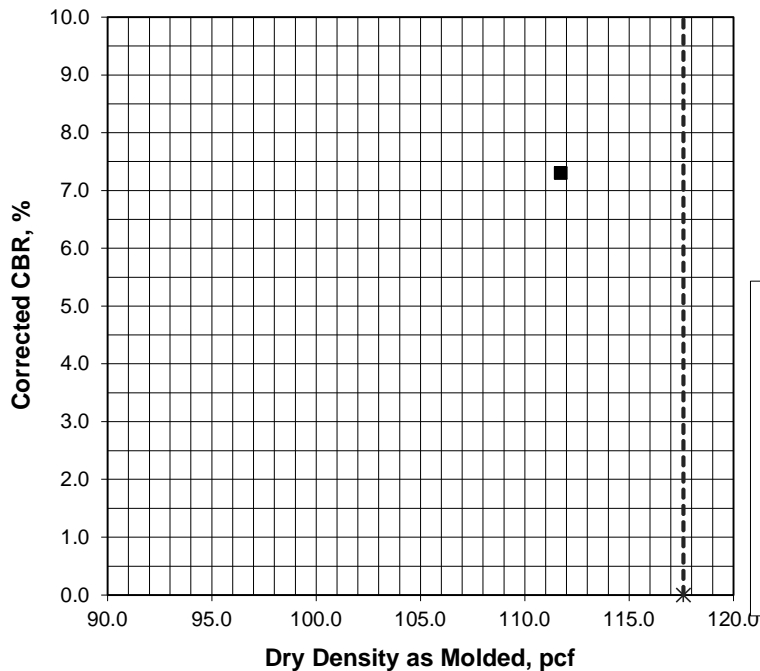
NA

USCS (ASTM D2487;2488)

NA

Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	111.7	7.3	NA

DRY DENSITY vs. CBR



■ POINT 1

---*--- Proctor Max. Dry Density



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Tested By	AS
Date	02/13/23
Checked By	<i>LB</i>

ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Remold
Sample ID	44732/P-12MA	Depth/Elev.	0-4'
Location	P-12MA	Add. Info	-

Proctor Method Description

Compaction Procedure	D698	T99	Other	Max Dry Density, pcf	116.1
	x			Optimum Moisture Content, %	11.4

CBR Method Description & Test Data

Point #	1	Mass of material before separation on 3/4" sieve, g	NA
Specified Moisture Cont., %	11.4	Mass of material retained on 3/4" sieve, g	NA
Specified % Compaction	95.0	Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Number of Layers	3	Replaced Portion, %	NA
Number of Blows per layer	NA		
Mold ID	233	Penetration Piston ID	123
Height of Sample before Soaking, in	4.582	Rammer Type (Effort)	STD Manual
Volume of Sample, ft ³	0.07497	Height of Drop, in	12
Mass of Mold, g	6961	Mass of Rammer, kg	2.5
Mass of Wet Soil & Mold, g	11144.0	Condition of Sample	Soaked
Mass of Wet Soil, g	4183	Soaking Duration	96 hr
Wet Density, pcf	123.0	Surcharge Load	10 lb
Dry Density before Soaking, pcf	110.3	Surcharge Press., psi	0.35
Dial Gage Reading before Soaking, in	0.209	Penetration Rate, in/min	0.05
Dial Gage Reading after Soaking, in	0.217	Balance ID	598/1090
Swell of Sample, in	0.008	Load Cell ID	11
Swell of Sample, %	0.2	Oven ID	496/758
Height of Sample after Soaking, in	4.590	Penetration Machine ID	10
Dry Density after Soaking, pcf	110.0	Rammer ID	315
Mass of Sample & Mold after Soaking, g	11298.5	Material was compacted at around optimum moisture content of Standard Proctor	
% Compaction	95.0		

Moisture Content

	Point 1		
	Before Comp.	After Comp.	After Soaking*
Mass of Wet Sample and Tare, g	585.6	516.7	1082.1
Mass of Dry Sample and Tare, g	538.6	477.4	966.7
Mass of Tare, g	125.6	139.4	208.1
Moisture Content, %	11.4	11.6	15.2
Average Moisture Content, %	11.5		

* Portion of sample used for determination of moisture content after soaking and penetration:

Top 1 inch	Av. Representative
YES	NO

Load - Penetration Data

Point 1		
Penetration, in	Load, lb	Stress, psi
0.000	4	0.0
0.0250	32	9.4
0.0500	68	21.4
0.0750	102	32.7
0.1000	126	40.7
0.1250	147	47.8
0.1500	165	53.8
0.1750	181	59.1
0.2000	195	63.8
0.3000	248	81.5
0.4000	293	96.5
0.5000	339	111.9



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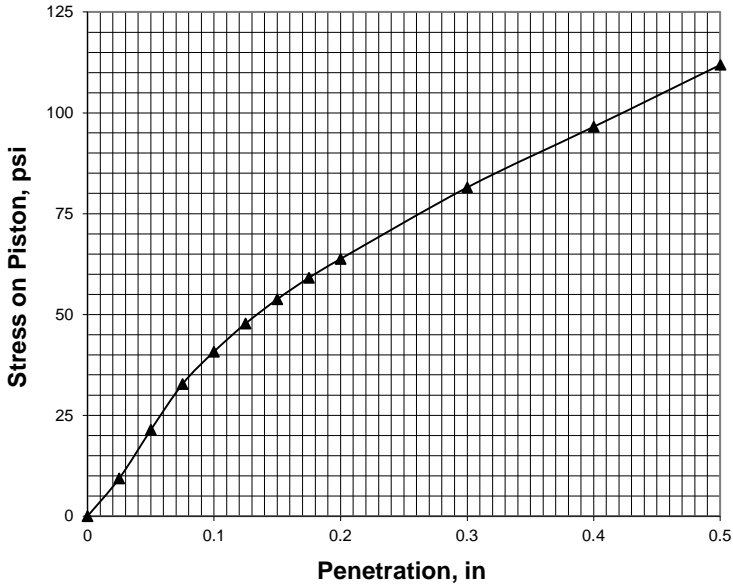
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44732/P-12MA
Location	P-12MA

Lab. PR. #	2320L-01-1
S. Type	Remold
Depth/Elev.	0-4'
Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	40.7	4.1
	0.2	63.8	4.3

DESCRIPTION

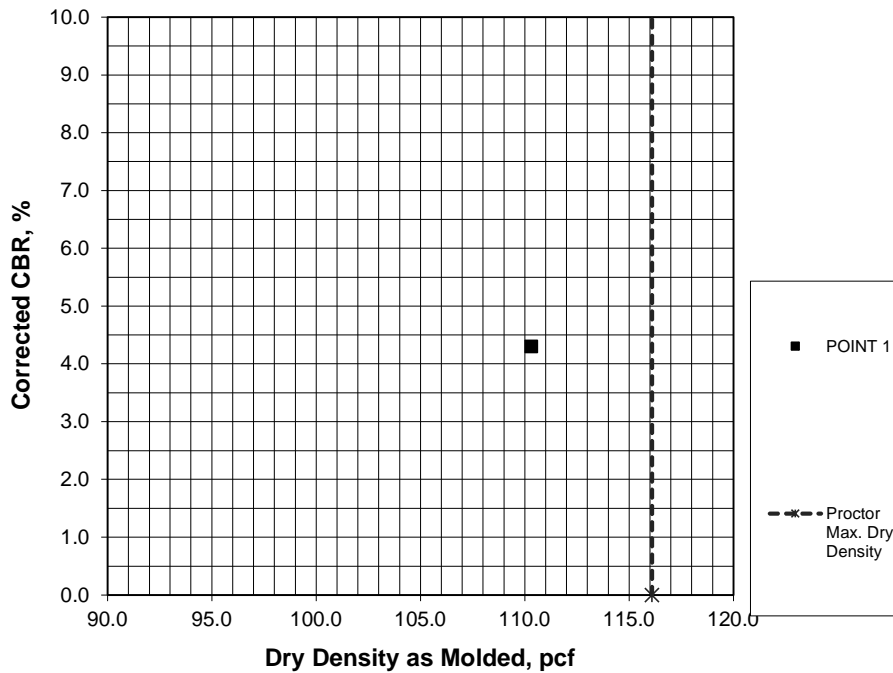
NA

USCS (ASTM D2487;2488)

NA

Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	110.3	4.3	NA

DRY DENSITY vs. CBR





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Date

02/10/23

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JB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44729/B-01MA	Depth/Elev.	0-4'
Location	B-01MA	Add. Info	-

**ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using
Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³))**

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	49020.0	45460.8
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	85.8	85.8
Mass of Mat. Retained on 3/4" sieve, g		
Material Retained on No. 4 Sieve, %		
Material Retained on 3/8" Sieve, %	0.2	
Material Retained on 3/4" Sieve, %		
Total, % (oversized)	0.2	

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1164.3	85.8
Mass of Dry Sample & Tare, g	1100.0	85.8
Mass of Tare, g	278.7	0.0
Moisture Content, %	7.8	0.0

Procedure B

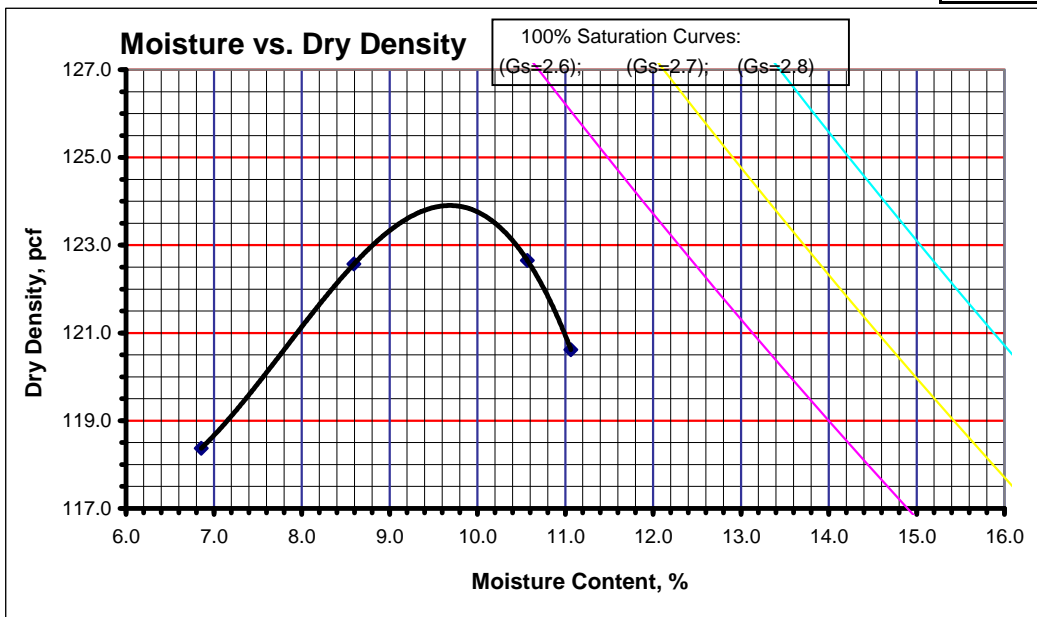
TEST DATA

Points	1	2	3	4	5		
Mass of Mold and Soil, g	6129.0	6229.0	6267.0	6242.0		Mold ID Number	798
Mass of Wet Sample & Tare, g	530.7	528.3	530.1	530.1		Mass of Mold, g	4218.5
Mass of Dry Sample & Tare, g	505.0	496.7	491.4	489.8		Volume of Mold, ft ³	0.0333
Mass of Tare, g	130.1	129.0	125.2	125.6		Hammer ID Number	743
Moisture Content, %	6.9	8.6	10.6	11.1		Number of Blows per layer	25
						Number of Layers	3
						Mechanical Compactor ID Number	317

Wet Density, pcf	126.5	133.1	135.6	134.0	
Dry Density, pcf	118.4	122.6	122.7	120.6	

Method A: Material retained on No. 4 Sieve \leq 25%
 Method B: Material retained on 3/8" Sieve \leq 25%
 Method C: Material retained on 3/4" Sieve \leq 30%

Oven ID #	495	60°C
Oven ID #	496/758	110°C



REMARKS

DESCRIPTION

NA

USCS (ASTM D2487; D2488)

NA

AASHTO M145

NA

NA

NA

Maximum Dry Density, pcf 123.9
 Optimum Moisture Content, % 9.7

Corrected Maximum Dry Density, pcf
 Corrected Optimum Moisture Content, %



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Checked By

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Client Pr. #	34:4266
Pr. Name	I-26 and I-95 Interchange Improvements
Sample ID	44731/B-06MA
Location	B-06MA

Lab. PR. #	2320L-01-1
S. Type	Bulk
Depth/Elev.	0-4'
Add. Info	-

**ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using
Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³))**

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	38460.0	34019.3
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	122.8	122.8
Mass of Mat. Retained on 3/4" sieve, g		
Material Retained on No. 4 Sieve, %		
Material Retained on 3/8" Sieve, %	0.4	
Material Retained on 3/4" Sieve, %		
Total, % (oversized)	0.4	

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	532.5	122.8
Mass of Dry Sample & Tare, g	481.5	122.8
Mass of Tare, g	90.8	0.0
Moisture Content, %	13.1	0.0

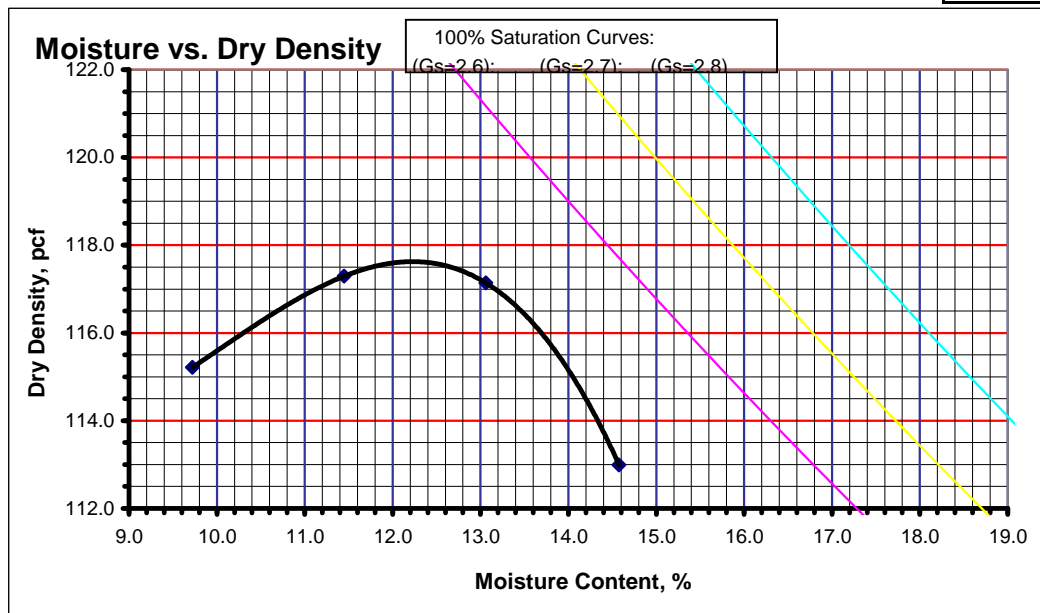
Procedure B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6128.0	6193.0	6219.0	6174.0	
Mass of Wet Sample & Tare, g	530.8	528.1	530.7	530.7	
Mass of Dry Sample & Tare, g	495.2	487.2	484.4	479.2	
Mass of Tare, g	129.0	129.9	129.9	125.9	
Moisture Content, %	9.7	11.4	13.1	14.6	
Wet Density, pcf	126.4	130.7	132.4	129.5	
Dry Density, pcf	115.2	117.3	117.1	113.0	

Mold ID Number	798
Mass of Mold, g	4218.5
Volume of Mold, ft ³	0.0333
Hammer ID Number	743
Number of Blows per layer	25
Number of Layers	3
Mechanical Compactor ID Number	317

Method A: Material retained on No. 4 Sieve \leq 25%
 Method B: Material retained on 3/8" Sieve \leq 25%
 Method C: Material retained on 3/4" Sieve \leq 30%



Oven ID #	495	60°C
Oven ID #	496/758	110°C

REMARKS

DESCRIPTION

NA

USCS (ASTM D2487; D2488)

NA

AASHTO M145

NA

NA

NA

Maximum Dry Density, pcf	117.6
Optimum Moisture Content, %	12.3

Corrected Maximum Dry Density, pcf	
Corrected Optimum Moisture Content, %	



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Date

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Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44730/B-07MA	Depth/Elev.	0-4'
Location	B-07MA	Add. Info	-

**ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using
Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³))**

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	42800.0	36438.5
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	49.1	49.1
Mass of Mat. Retained on 3/4" sieve, g		
Material Retained on No. 4 Sieve, %		
Material Retained on 3/8" Sieve, %	0.1	
Material Retained on 3/4" Sieve, %		
Total, % (oversized)	0.1	

MOISTURE CONTENT

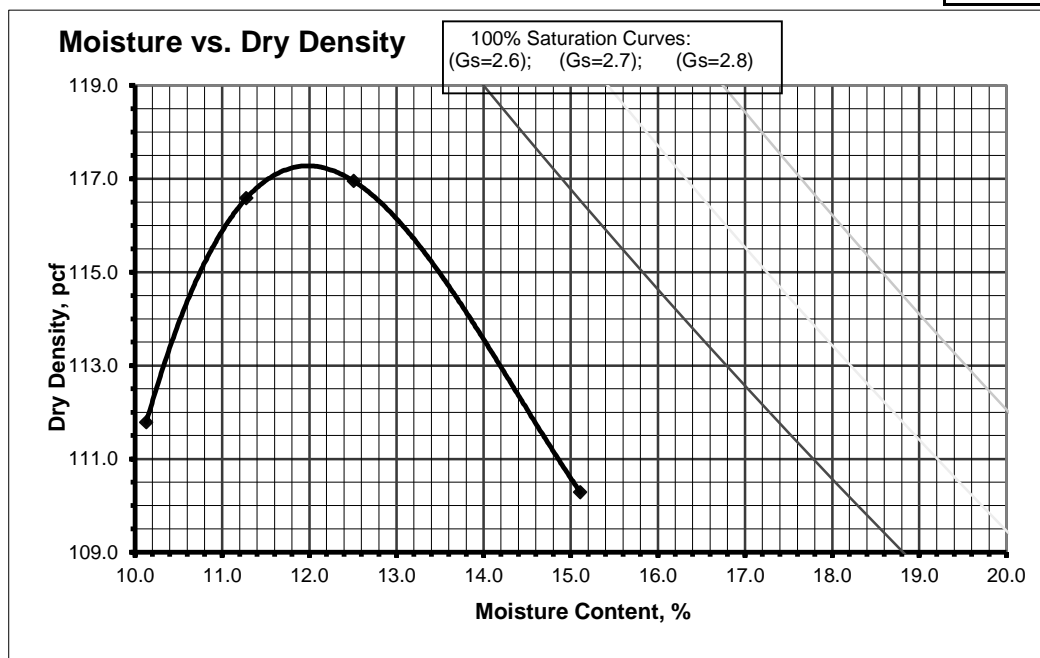
	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1228.1	49.1
Mass of Dry Sample & Tare, g	1087.3	49.1
Mass of Tare, g	280.8	0.0
Moisture Content, %	17.5	0.0

Procedure B

TEST DATA

Points	1	2	3	4	5	Mold ID Number	798
Mass of Mold and Soil, g	6078.0	6178.0	6206.0	6136.0		Mass of Mold, g	4218.5
Mass of Wet Sample & Tare, g	948.4	938.3	943.8	1040.5		Volume of Mold, ft ³	0.0333
Mass of Dry Sample & Tare, g	902.4	887.5	888.0	974.0		Hammer ID Number	743
Mass of Tare, g	448.3	437.0	441.9	533.9		Number of Blows per layer	25
Moisture Content, %	10.1	11.3	12.5	15.1		Number of Layers	3
						Mechanical Compactor ID Number	317

Wet Density, pcf	123.1	129.7	131.6	126.9		Method A: Material retained on No. 4 Sieve \leq 25%
Dry Density, pcf	111.8	116.6	117.0	110.3		Method B: Material retained on 3/8" Sieve \leq 25%
						Method C: Material retained on 3/4" Sieve \leq 30%



Oven ID #	495	60°C
Oven ID #	496/758	110°C

REMARKS

DESCRIPTION

NA

USCS (ASTM D2487; D2488)

NA
AASHTO M145
NA
NA
NA

Maximum Dry Density, pcf	117.3
Optimum Moisture Content, %	12.0

Corrected Maximum Dry Density, pcf	
Corrected Optimum Moisture Content, %	



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Date

02/10/23

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Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44732/P-12MA	Depth/Elev.	0-4'
Location	P-12MA	Add. Info	-

**ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using
Standard Effort (12,400 ft-lbf/ft³ (600kN-m/m³))**

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	45000.0	38668.3
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	234.6	234.6
Mass of Mat. Retained on 3/4" sieve, g		
Material Retained on No. 4 Sieve, %		
Material Retained on 3/8" Sieve, %	0.6	
Material Retained on 3/4" Sieve, %		
Total, % (oversized)	0.6	

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	591.8	234.6
Mass of Dry Sample & Tare, g	528.3	234.6
Mass of Tare, g	140.5	0.0
Moisture Content, %	16.4	0.0

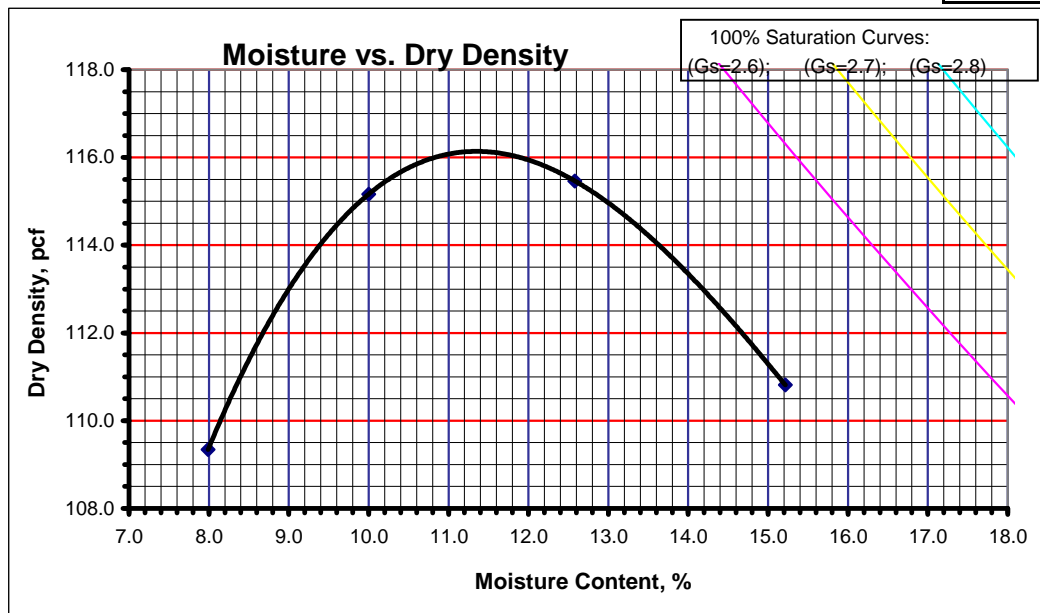
Procedure B

TEST DATA

Points	1	2	3	4	5		
Mass of Mold and Soil, g	6002.0	6132.0	6182.0	6147.0		Mold ID Number	798
Mass of Wet Sample & Tare, g	620.5	620.1	620.8	620.2		Mass of Mold, g	4218.5
Mass of Dry Sample & Tare, g	587.8	580.4	571.8	562.4		Volume of Mold, ft ³	0.0333
Mass of Tare, g	178.5	183.4	182.3	182.5		Hammer ID Number	743
Moisture Content, %	8.0	10.0	12.6	15.2		Number of Blows per layer	25
						Number of Layers	3
						Mechanical Compactor ID Number	317

Wet Density, pcf	118.1	126.7	130.0	127.7	
Dry Density, pcf	109.3	115.2	115.5	110.8	

Method A: Material retained on No. 4 Sieve \leq 25%
 Method B: Material retained on 3/8" Sieve \leq 25%
 Method C: Material retained on 3/4" Sieve \leq 30%



Oven ID #	495	60°C
Oven ID #	496/758	110°C

REMARKS

DESCRIPTION

NA

USCS (ASTM D2487; D2488)

NA

AASHTO M145

NA

NA

NA

Maximum Dry Density, pcf	116.1
Optimum Moisture Content, %	11.4

Corrected Maximum Dry Density, pcf	
Corrected Optimum Moisture Content, %	



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Date 02/16/23

Checked By *LB*

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44729/B-01MA	Depth/Elev.	0-4'
Location	B-01MA	Add. Info	-

ASTM G187/AASHTO T 288

Standard Test Method for Determining Minimum Laboratory Soil Resistivity

Determination of Resistivity at as-received moisture content

As-received Moisture Content	Remarks
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	

TEST DATA	
Mass of Soil Box, g	-
Mass of Soil Box + Soil, g	-
Mass of Soil, g	-
Calibrated Volume of Soil Box, ft ³	0.00274
Wet Density of as-placed Soil, pcf	-
Dry Density of as-placed Soil, pcf	-
Meter Dial Reading, ohms	-
Reading of Meter Range Multiplier	-
Measured Resistance, ohms	NA
Calibrated Soil Box Multiplier, cm	0.67
Reported Soil Resistivity, ohms-cm	NA

Determination of Minimum Soil Resistivity

TEST DATA

Trials at Various Moisture Content

TRIAL #	1	2	3	4	5	6	7	8	9
Meter Dial Reading, ohms	20.8	19.1	18.8	18.8					
Reading of Meter Range Multiplier	K	K	K	K					
Measured Resistance, ohms	20800	19100	18800	18800					
Calibrated Soil Box Multiplier, cm	0.67	0.67	0.67	0.67					
Measured Resistivity, ohms-cm	13936	12797	12596	12596					

Reported Soil Minimum Resistivity, ohms-cm **12596**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610	Description NA
Balance ID #	563/700	
Soil Box ID #	612	
Resistivity Meter ID #	706	
USCS (D2487; D2488)	NA	
AASHTO (M145)	NA	



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Tested By AS

Date 02/16/23

Checked By *LB*

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44730/B-07MA	Depth/Elev.	0-4'
Location	B-07MA	Add. Info	-

ASTM G187/AASHTO T 288

Standard Test Method for Determining Minimum Laboratory Soil Resistivity

Determination of Resistivity at as-received moisture content

As-received Moisture Content	Remarks
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	

TEST DATA	
Mass of Soil Box, g	-
Mass of Soil Box + Soil, g	-
Mass of Soil, g	-
Calibrated Volume of Soil Box, ft ³	0.00274
Wet Density of as-placed Soil, pcf	-
Dry Density of as-placed Soil, pcf	-
Meter Dial Reading, ohms	-
Reading of Meter Range Multiplier	-
Measured Resistance, ohms	NA
Calibrated Soil Box Multiplier, cm	0.67
Reported Soil Resistivity, ohms-cm	NA

Determination of Minimum Soil Resistivity

TEST DATA

Trials at Various Moisture Content

TRIAL #	1	2	3	4	5	6	7	8	9
Meter Dial Reading, ohms	9.8	8.2	6.37	6.37					
Reading of Meter Range Multiplier	K	K	K	K					
Measured Resistance, ohms	9800	8200	6370	6370					
Calibrated Soil Box Multiplier, cm	0.67	0.67	0.67	0.67					
Measured Resistivity, ohms-cm	6566	5494	4267.9	4267.9					

Reported Soil Minimum Resistivity, ohms-cm **4267.9**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610	Description NA
Balance ID #	563/700	
Soil Box ID #	612	
Resistivity Meter ID #	706	
USCS (D2487; D2488)	NA	
AASHTO (M145)	NA	



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Date

01/15/23

Checked By

EB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44731/B-06MA	Depth/Elev.	0-4'
Location	B-06MA	Add. Info	-

ASTM D2974, Standard Test Method for Determining Ash Content, and Organic Material of Peat and Other Organic Soils (Method A)

Remarks

Material was dried in the oven at 110+/-5°C prior to ignition.
Moisture Content Determination of received material was not requested by the Client

Organic Matter Determination

Mass of Oven-dried Sample and Dish, g	232.11
Mass of Ashed Sample and Dish, g	229.18
Mass of Dish, g	112.66
Ash Content, %	97.5
Organic Matter, %	2.5

- Notes: 1. Muffle furnace temperature used for ash and organic matter content determination was 440+/-40°C
2. Duration of Ignition was 4.25 hrs

Description

NA

USCS

NA



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Tested By

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Date

02/15/23

Checked By

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Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44732/P-12MA	Depth/Elev.	0-4'
Location	P-12MA	Add. Info	-

ASTM D2974, Standard Test Method for Determining Ash Content, and Organic Material of Peat and Other Organic Soils (Method A)

Remarks

Material was dried in the oven at 110+/-5°C prior to ignition.
Moisture Content Determination of received material was not requested by the Client

Organic Matter Determination

Mass of Oven-dried Sample and Dish, g	225.24
Mass of Ashed Sample and Dish, g	222.21
Mass of Dish, g	117.98
Ash Content, %	97.2
Organic Matter, %	2.8

- Notes: 1. Muffle furnace temperature used for ash and organic matter content determination was 440+/-40°C
2. Duration of Ignition was 4.25 hrs

Description

NA

USCS

NA

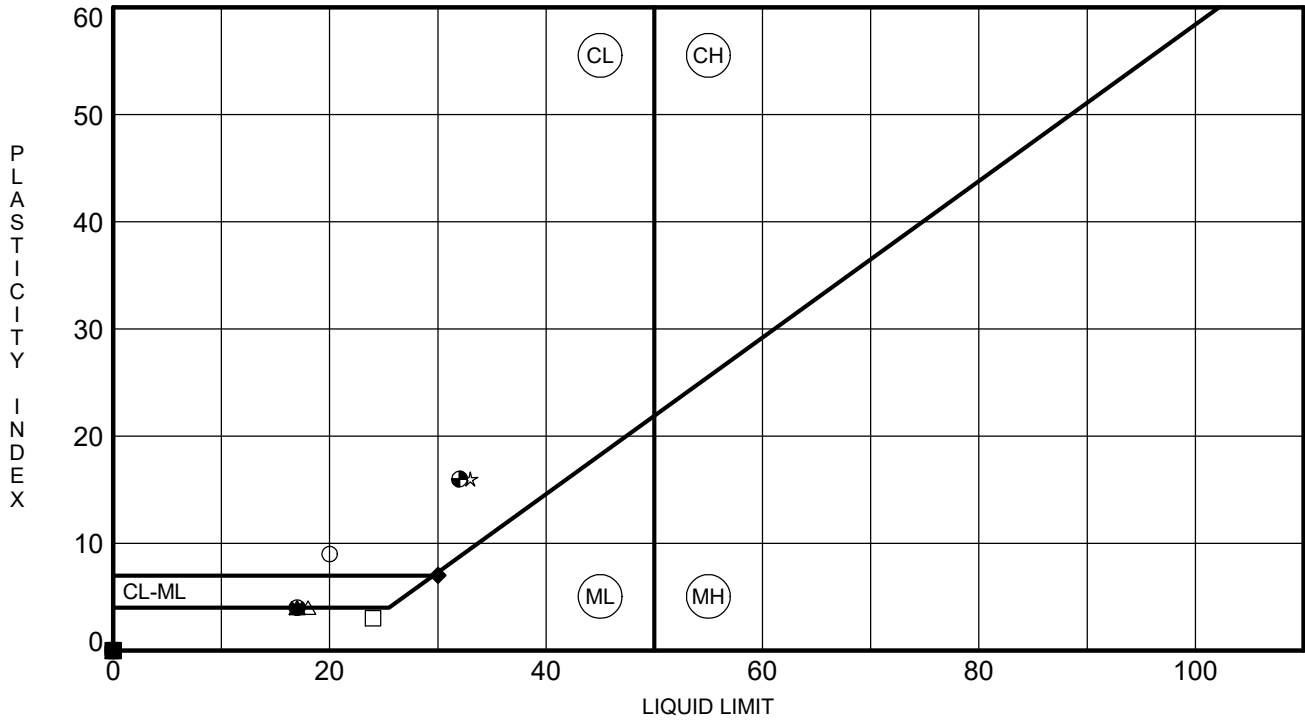


ATTERBERG LIMITS' RESULTS

PROJECT ID P038677

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ATTERBERG LIMITS I-26 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA_TEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-01	2.0	NP	NP	NP	17	Silty SAND (SM) (A-2-4)
☒	B-01	8.0	NP	NP	NP	4	SAND (SP)(A-3)
▲	B-01MA	2.0	17	13	4	20	Silty Clayey SAND (SC-SM) (A-2-4)
★	B-02	2.0	NP	NP	NP	16	Silty SAND (SM) (A-2-4)
⊙	B-02	12.0	NP	NP	NP	9	SAND with Silt (SP-SM) (A-2-4)
⊕	B-02	63.0	NP	NP	NP	15	Silty SAND (SM) (A-2-4)
○	B-03	2.0	20	11	9	30	Clayey SAND (SC) (A-2-4)
△	B-03	6.0	18	14	4	17	Clayey Silty SAND (SC-SM) (A-2-4)
⊗	B-03	13.0	NP	NP	NP	13	Silty SAND (SM) (A-2-4)
⊕	B-03	18.0	NP	NP	NP	5	SAND(SP) (A-1-b)
□	B-03	33.0	24	21	3	8	Silty Sandy GRAVEL (GP-GM) (A-1-a)
⊕	B-04	0.0	17	13	4	23	Silty Clayey SAND (SC-SM) (A-2-4)
●	B-04	18.5	32	16	16	13	Clayey SAND (SC) (A-2-6(0))
★	B-04	43.5	33	17	16	41	Clayey SAND (SM) (A-6(10))
⊗	B-04	78.5	NP	NP	NP	29	Silty SAND (SM) (A-4(0))
■	B-05	0.0	NP	NP	NP	58	Sandy SILT (ML) (A-4(0))
◆	B-05	4.0	30	23	7	73	Sandy SILT (ML) (A-4(5))
◇	B-05	33.5	NP	NP	NP	56	Sandy SILT (ML) (A-4(0))
×	B-05	48.5	NP	NP	NP	35	Silty SAND (SM) (A-4(0))
⬛	B-05U	28.0	NP	NP	NP	15	Gravel (GW) (A-1-b)

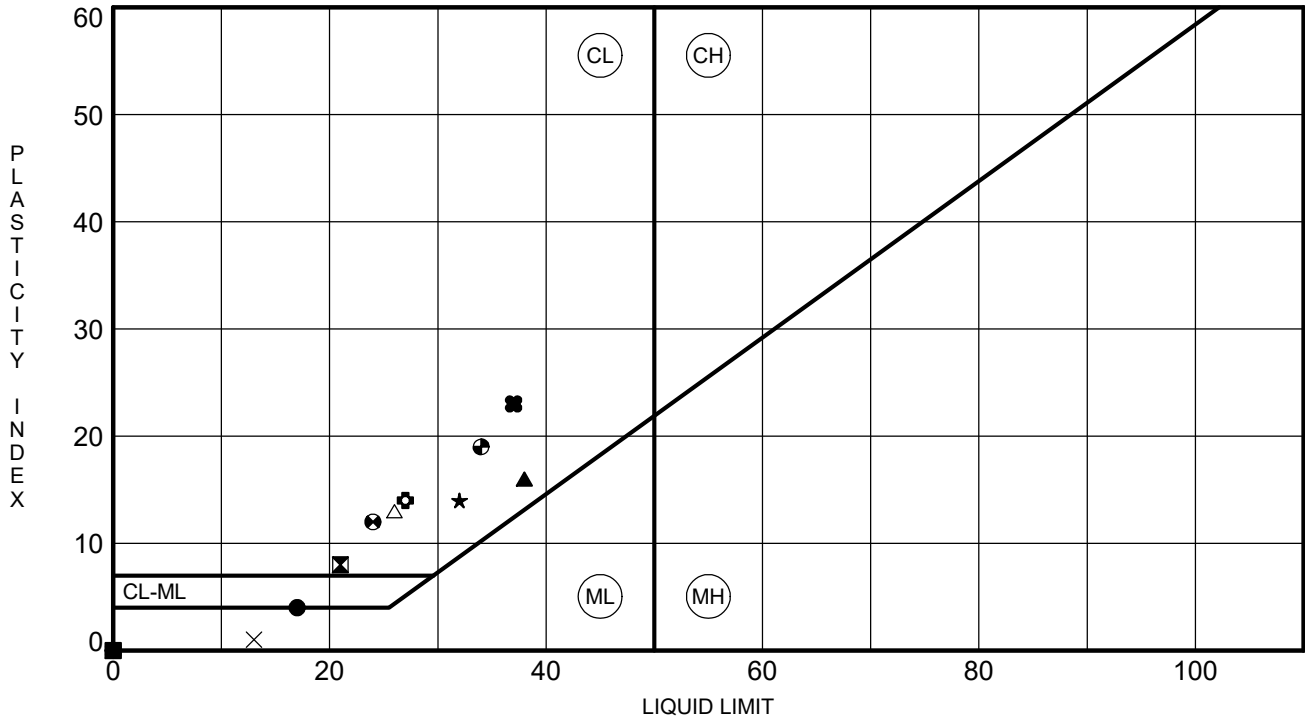


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ATTERBERG LIMITS I-26 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA_TEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-06MA	2.0	17	13	4	20	Silty Clayey SAND (SC-SM) (A-2-4)
⊠	B-07	2.0	21	13	8	25	Clayey SAND (SC) (A-2-4)
▲	B-07	23.5	38	22	16	47	Clayey SAND (SC) (A-6(3))
★	B-07	28.5	32	18	14	45	Clayey SAND (SC) (A-6(1))
⊙	B-07	68.5	NP	NP	NP	8	SAND with Silt (SP-SM) (A-2-4)
⊕	B-07MA	2.0	27	13	14	30	Clayey SAND (SC) (A-2-6(1))
○	B-08	2.0	NP	NP	NP	35	Silty SAND (SM) (A-2-4)
△	B-08	6.0	26	13	13	55	Sandy CLAY (CL) (A-4(4))
⊗	B-08	14.0	NP	NP	NP	30	Silty SAND (SM) (A-2-4)
⊕	B-08	26.0	NP	NP	NP	69	Sandy SILT (ML) (A-4(0))
□	B-08	44.0	NP	NP	NP	28	Silty SAND (SM) (A-2-4)
⊕	B-09	2.0	24	12	12	21	Clayey SAND (SC) (A-2-6(0))
⊕	B-09	13.5	34	15	19	34	Clayey SAND (SC) (A-6(4))
★	B-09	48.5	NP	NP	NP	19	Silty SAND (SM) (A-1-b)
⊗	B-10	0.0	NP	NP	NP	5	SAND with Silt (SP-SM) (A-2-4)
■	B-10	6.0	NP	NP	NP	5	SAND with Silt (SP-SM) (A-1-b)
◆	B-10	28.5	NP	NP	NP	8	SAND with Silt (SW-SM) (A-1-b)
◇	B-10	68.5	NP	NP	NP	11	SAND with Silt (SP-SM) (A-1-b)
×	B-11	4.0	13	12	1	27	Silty SAND (SM) (A-2-4)
⊕	B-11	8.0	37	14	23	30	Clayey SAND (SC) (A-2-6(2))

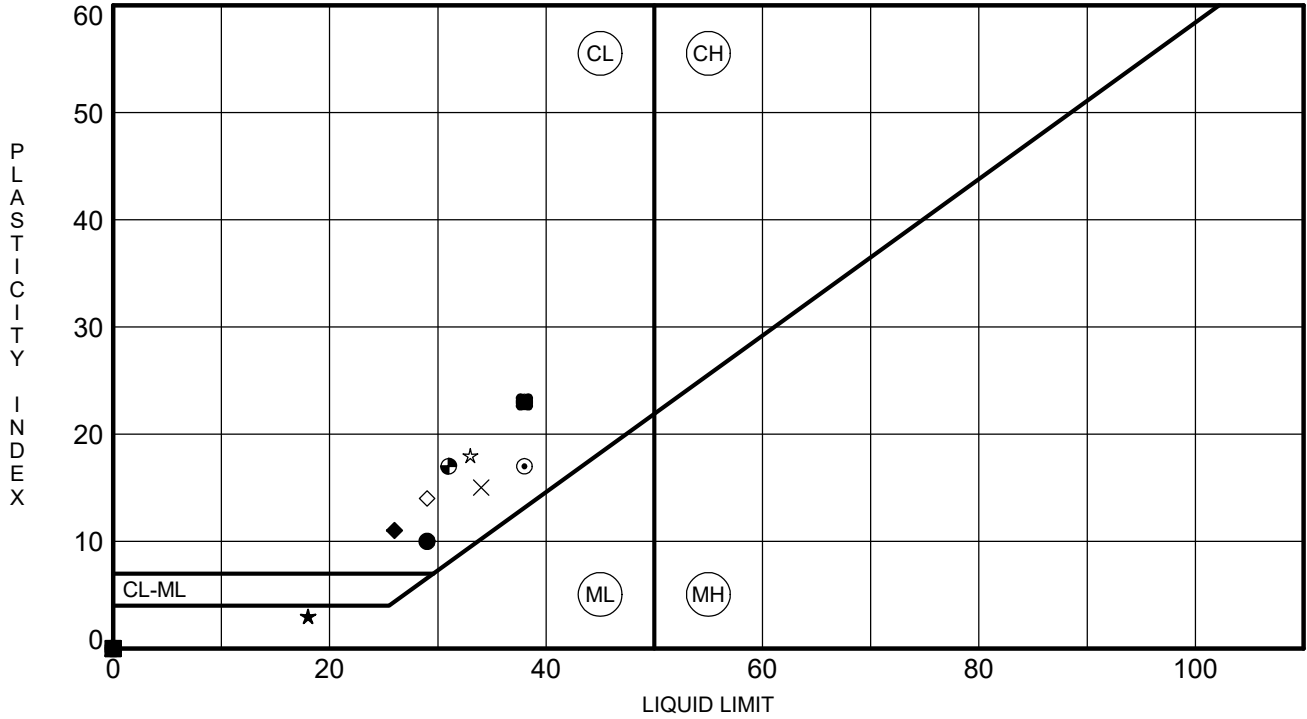


ATTERBERG LIMITS' RESULTS

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ATTERBERG LIMITS I-26 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA_TEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-11	28.0	29	19	10	23	Clayey SAND (SC) (A-2-4)
⊠	B-11	53.0	NP	NP	NP	25	Silty SAND (SM) (A-2-4)
▲	B-11	63.0	NP	NP	NP	9	SAND with Silt (SW-SM) (A-1-b)
★	B-12	0.0	18	15	3	22	Silty SAND (SM) (A-2-4)
⊙	B-12	6.0	38	21	17	30	Clayey SAND (SC) (A-2-6(1))
⊕	B-12	13.0	NP	NP	NP	6	SAND with Silt (SP-SM) (A-3)
○	B-12	18.0	NP	NP	NP	5	SAND with Silt (SP-SM) (A-3)
△	B-13	0.0	NP	NP	NP	25	Silty SAND (SM) (A-2-4)
⊗	B-13	8.0	NP	NP	NP	18	Silty SAND (SM) (A-2-4)
⊕	B-13	43.5	NP	NP	NP	11	SAND with Silt (SP-SM) (A-1-b)
□	B-13	63.5	NP	NP	NP	29	Silty SAND (SM) (A-2-4)
⊕	B-15	2.0	38	15	23	37	Clayey SAND (SC) (A-6(3))
⊕	B-15	8.0	31	14	17	34	Clayey SAND (SC) (A-2-6(1))
★	B-15	23.0	33	15	18	20	Clayey SAND (SC) (A-2-6(1))
⊗	B-15	48.0	NP	NP	NP	11	SAND with Silt (SW-SM) (A-1-b)
■	B-15	63.0	NP	NP	NP	12	Silty SAND (SM) (A-2-4)
◆	B-16	0.0	26	15	11	27	Clayey SAND (SC) (A-2-6(2))
◇	B-16	4.0	29	15	14	39	Clayey SAND (SC) (A-2-6(2))
×	B-16	13.0	34	19	15	29	Clayey SAND (SC) (A-2-6(1))
■	B-16	23.0	38	15	23	57	Sandy CLAY (CL) (A-6(10))

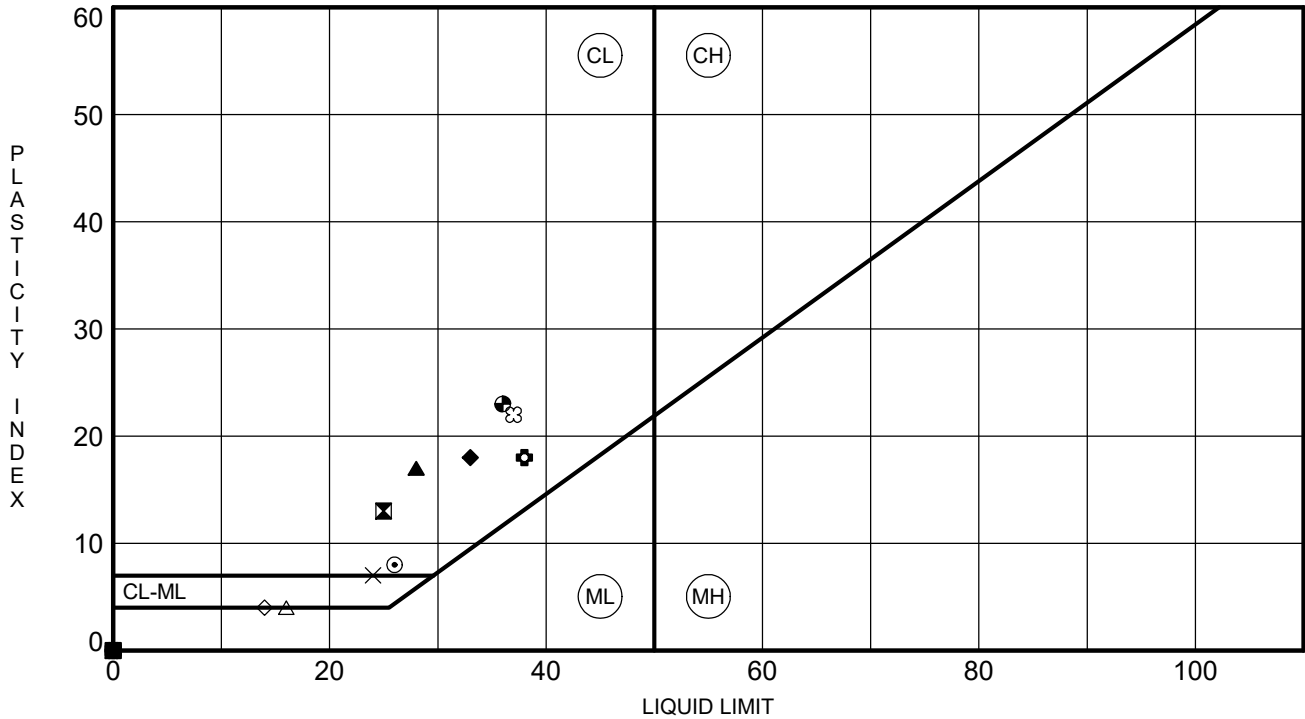


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	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-17	0.0	NP	NP	NP	50	Sandy SILT (ML) (A-4(0))
⊠	B-17	4.0	25	12	13	64	Sandy CLAY (CL) (A-6(5))
▲	B-17	6.0	28	11	17	69	Sandy CLAY (CL) (A-6(9))
★	B-17	18.0	NP	NP	NP	23	Silty SAND (SM) (A-2-4)
⊙	B-17	28.0	26	18	8	51	Sandy CLAY (CL) (A-4(1))
⊕	B-17	43.0	38	20	18	27	Clayey SAND (SC) (A-2-6(1))
○	B-17	48.0	NP	NP	NP	29	Silty SAND (SM) (A-2-4)
△	B-18	0.0	16	12	4	54	Sandy Clayey SILT (CL-ML) (A-4(0))
⊗	B-18	2.0	NP	NP	NP	52	Sandy SILT (ML) (A-4(0))
⊕	B-18	4.0	NP	NP	NP	74	Sandy SILT (ML) (A-4(0))
□	B-18	8.0	NP	NP	NP	55	Sandy SILT (ML) (A-4(0))
⊕	B-18	13.0	NP	NP	NP	44	Silty SAND (SM) (A-4(0))
⊕	B-18	18.0	36	13	23	39	Clayey SAND (SC) (A-6(4))
★	B-18	23.0	NP	NP	NP	25	Silty SAND (SM) (A-2-4)
⊗	B-18	33.0	37	15	22	81	Sandy CLAY (CL) (A-6(16))
■	B-18	43.0	NP	NP	NP	22	Silty SAND (SM) (A-2-4)
◆	B-19	0.0	33	15	18	28	Clayey SAND (SC) (A-2-6(1))
◇	B-19	4.0	14	10	4	18	Silty SAND with Clay (SC-SM) (A-2-4)
×	B-19	13.0	24	17	7	26	Silty SAND with Clay (SC-SM) (A-2-4)
⊕	B-19	38.0	NP	NP	NP	11	SAND with Silt (SW-SM) (A-2-4)

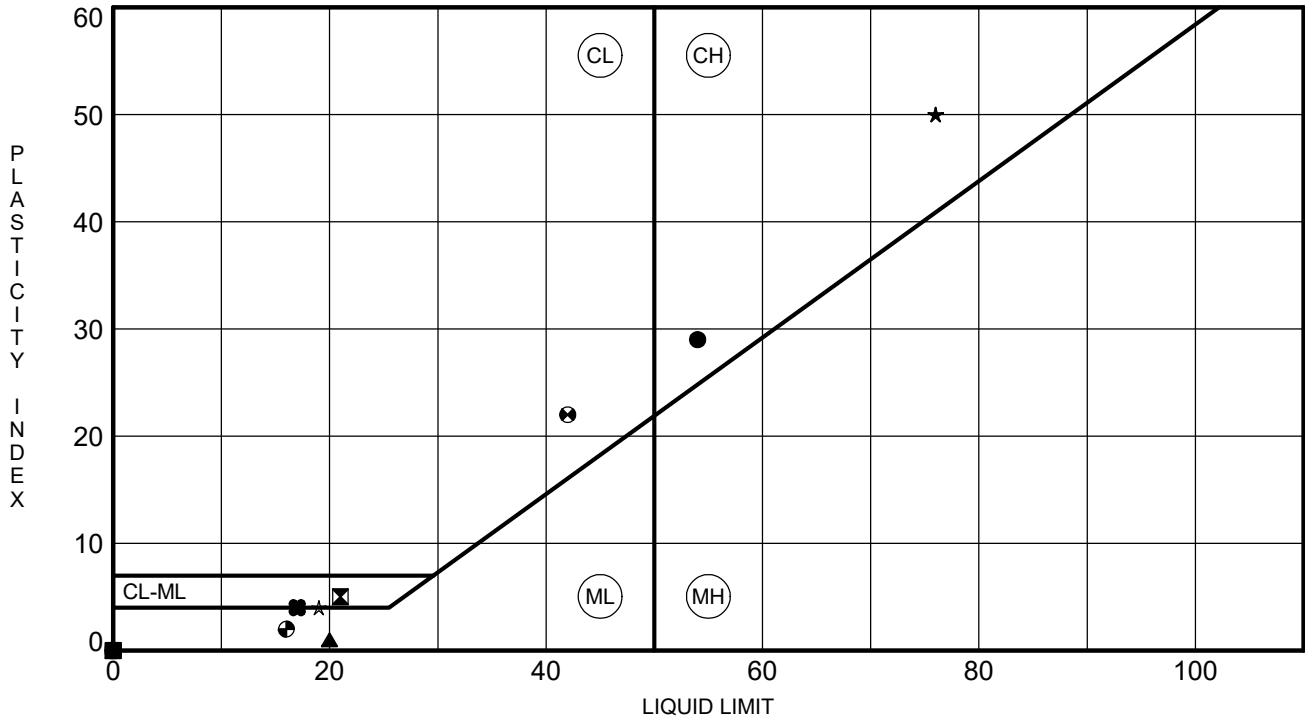


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	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-20	4.0	54	25	29	39	Clayey SAND (SC) (A-7-6(6))
⊠	B-20	13.0	21	16	5	16	Silty Clayey SAND (SC-SM) (A-2-4)
▲	B-20	18.0	20	19	1	18	Silty SAND (SM) (A-2-4)
★	B-20	28.0	76	26	50	19	Clayey SAND (SC) (A-2-7(2))
⊙	B-21	2.0	NP	NP	NP	29	Silty SAND (SM) (A-2-4)
⊕	B-21	8.0	NP	NP	NP	22	Silty SAND (SM) (A-2-4)
○	B-21	23.5	NP	NP	NP	5	SAND (SP) (A-1-b)
△	B-21	48.5	NP	NP	NP	12	SAND with Silt (SP-SM) (A-2-4)
⊗	B-21	93.5	NP	NP	NP	37	Silty SAND (SM) (A-4(0))
⊕	B-22	4.0	NP	NP	NP	12	SAND with Silt (SW-SM) (A-1-b)
□	B-22	18.0	NP	NP	NP	5	SAND with Silt (SP-SM) (A-1-b)
⊕	B-22	23.0	42	20	22	10	SAND with Clay (SP-SC) (A-2-7(0))
●	B-23	4.0	16	14	2	13	Silty SAND (SM) (A-2-4)
★	B-23	13.0	19	15	4	16	Silty Clayey SAND (SC-SM) (A-2-4)
⊗	B-23	23.0	NP	NP	NP	4	SAND (SP) (A-3)
■	B-23	28.0	NP	NP	NP	22	Silty SAND (SM) (A-2-4)
◆	B-23	58.0	NP	NP	NP	13	Silty SAND (SM) (A-2-4)
◇	B-24	2.0	NP	NP	NP	3	SAND with Silt (SP) (A-1-b)
×	B-24	8.0	NP	NP	NP	4	SAND (SP) (A-3)
⊕	B-24	13.0	17	13	4	19	Silty Clayey SAND (SC-SM) (A-2-4)

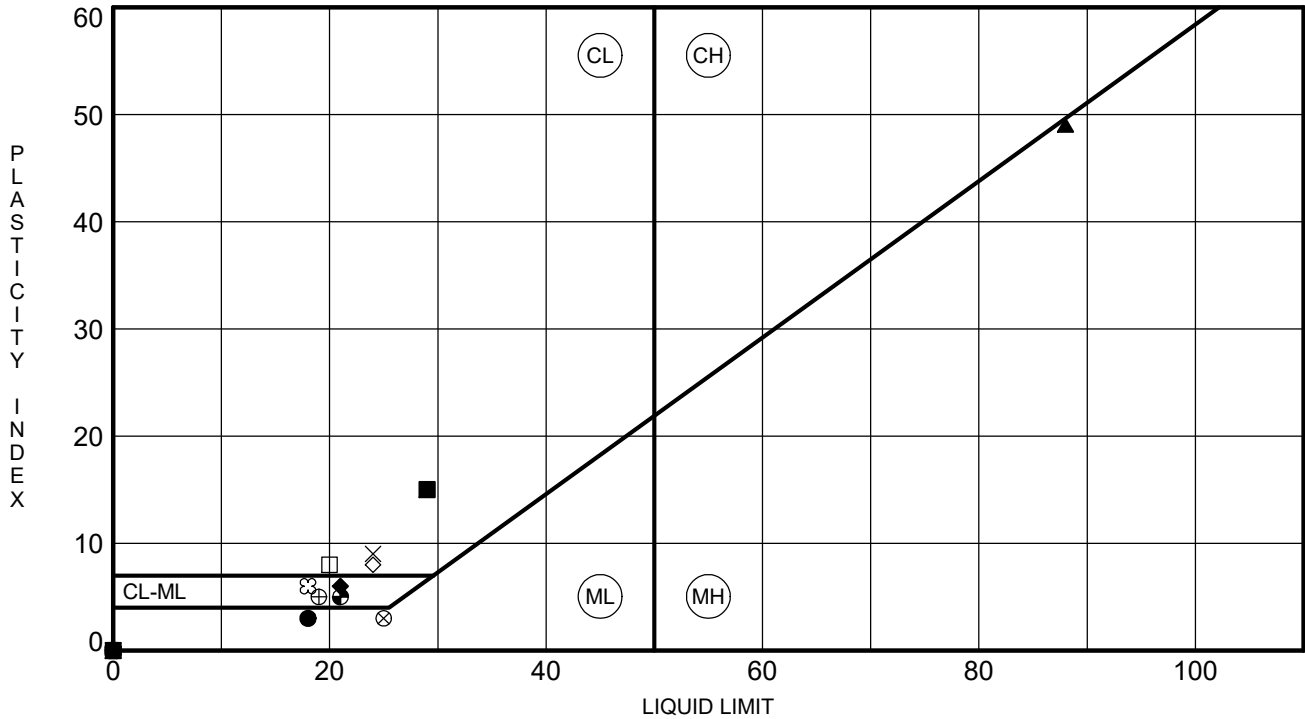


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ATTERBERG LIMITS' I-26 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA_TEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	B-24	18.0	18	15	3	25	Silty SAND (SM) (A-2-4)
⊠	B-24	33.0	NP	NP	NP	18	Silty SAND (SM) (A-2-4)
▲	CPT-10U	28.0	88	39	49	87	Sandy Elastic SILT (MH) (A-7-5(51))
★	P-01	1.2	NP	NP	NP	42	Silty SAND (SM) (A-4(0))
⊙	P-02	1.1	NP	NP	NP	21	Silty SAND (SM) (A-2-4)
⊕	P-04	0.0	NP	NP	NP	42	Silty SAND (SM) (A-4(0))
○	P-06	1.1	NP	NP	NP	31	Silty SAND (SM) (A-2-4)
△	P-08	0.0	NP	NP	NP	43	Silty SAND (SM) (A-4(0))
⊗	P-09	1.0	25	22	3	11	SAND with Silt (SW-SM) (A-2-4)
⊕	P-10	1.2	19	14	5	42	Silty Clayey SAND (SC-SM) (A-4(0))
□	P-11	0.5	20	12	8	26	Clayey SAND (SC) (A-2-4)
⊕	P-12	1.2	NP	NP	NP	25	Silty SAND (SM) (A-2-4)
⊕	P-12MA	2.0	21	16	5	23	Silty Clayey SAND (SC-SM) (A-2-4)
★	P-13	0.0	NP	NP	NP	56	Sandy SILT (ML) (A-4(0))
⊗	P-14	0.8	18	12	6	25	Silty SAND with Clay (SC-SM) (A-2-4)
■	P-15	0.0	29	14	15	29	Clayey SAND (SC) (A-2-6(1))
◆	P-16	1.2	21	15	6	49	Silty Clayey SAND (SC-SM) (A-4(0))
◇	P-17	0.8	24	16	8	32	Clayey SAND (SC) (A-2-4)
×	P-18	0.0	24	15	9	24	Clayey SAND (SC) (A-2-4)
⬛	R-01	2.0	NP	NP	NP	6	SAND with Silt (SP-SM) (A-1-b)

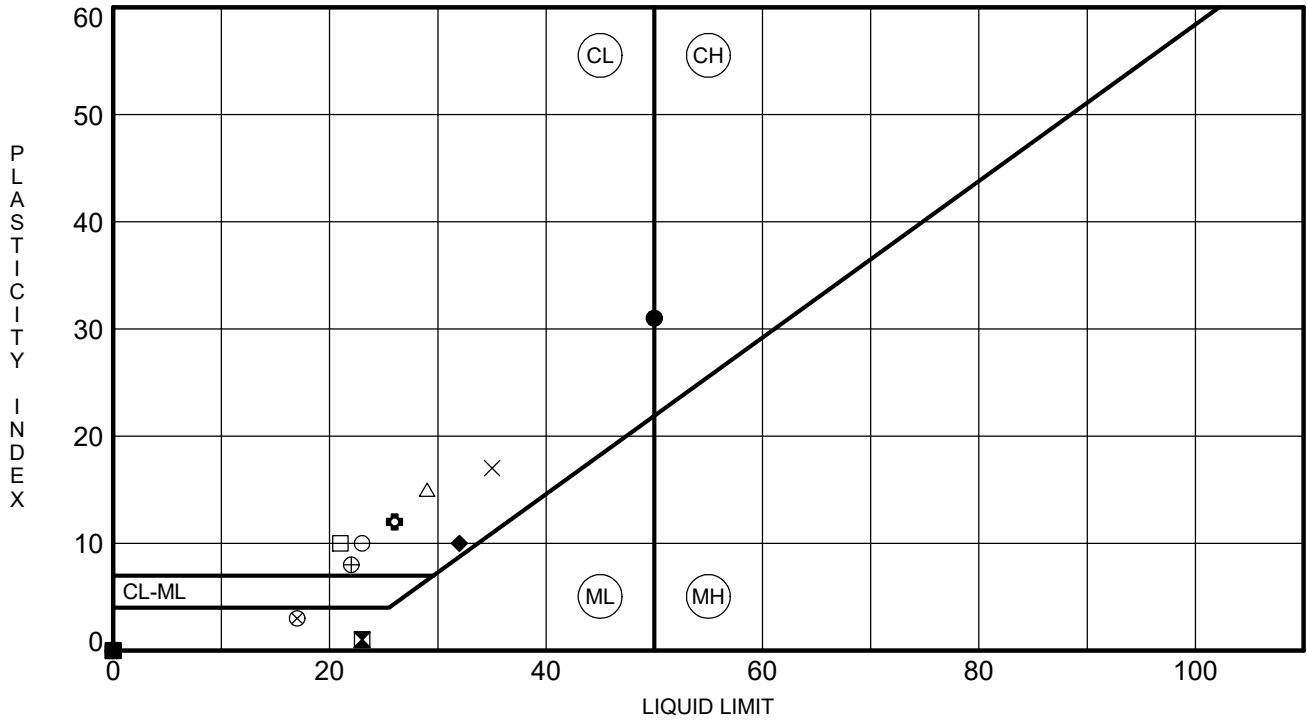


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ATTERBERG LIMITS I-26 AT I-95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATA_TEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	R-01	13.5	50	19	31	54	Fat CLAY (CH) (A-7-5(20))
■	R-02	2.0	23	22	1	68	Sandy SILT (ML) (A-4(0))
▲	R-02	13.5	NP	NP	NP	6	SAND (SP) (A-1-b)
★	R-03	4.0	NP	NP	NP	17	Silty SAND (SM) (A-2-4)
⊙	R-03	23.5	NP	NP	NP	12	SAND with Silt (SP-SM) (A-1-b)
⊕	R-04	2.0	26	14	12	47	Clayey SAND (SC) (A-6(2))
○	R-04	6.0	23	13	10	48	Clayey SAND (SC) (A-4(2))
△	R-04	8.0	29	14	15	73	Sandy CLAY (CL) (A-6(8))
⊗	R-04	13.0	17	14	3	28	Silty SAND (SM) (A-2-4)
⊕	R-05	0.0	22	14	8	47	Clayey SAND (SC) (A-4(1))
□	R-05	6.0	21	11	10	59	Sandy CLAY (CL) (A-4(3))
⊕	R-05	28.0	NP	NP	NP	28	Silty SAND (SM) (A-2-4)
●	R-05	43.0	NP	NP	NP	20	Silty SAND (SM) (A-1-b)
★	R-06	6.0	NP	NP	NP	46	Silty SAND (SM) (A-4(0))
⊗	R-07	2.0	NP	NP	NP	38	Silty SAND (SM) (A-4(0))
■	R-07	4.0	NP	NP	NP	72	Sandy SILT (ML) (A-4(0))
◆	R-07	18.5	32	22	10	82	Sandy CLAY (CL) (A-4(8))
◇	R-08	0.0	NP	NP	NP	35	Silty SAND (SM) (A-4(0))
×	R-08	8.0	35	18	17	86	Sandy CLAY (CL) (A-6(14))
●	R-09	0.0	NP	NP	NP	49	Sandy SILT (ML) (A-4(0))

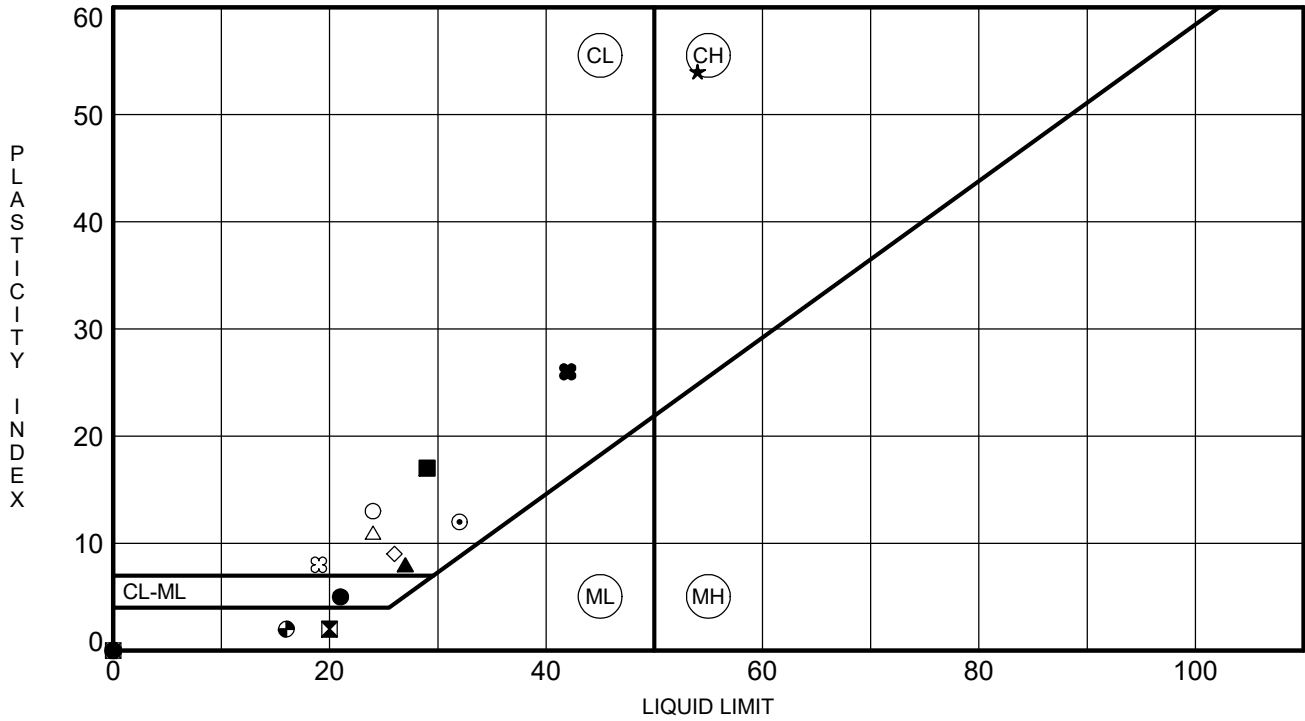


ATTERBERG LIMITS' RESULTS

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ATTERBERG LIMITS I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT 3/29/23

	BOREHOLE	DEPTH	LL	PL	PI	Fines	Classification
●	R-09	4.0	21	16	5	72	Sandy Clayey SILT (CL-ML) (A-4(1))
⊠	R-09	6.0	20	18	2	87	Sandy SILT (ML) (A-4(0))
▲	R-09	28.5	27	19	8	73	Sandy CLAY (CL) (A-4(4))
★	R-10	0.0	54	NP	NP	56	SILT with Sand (MH) (A-5(2))
⊙	R-10	8.0	32	20	12	75	Sandy CLAY (CL) (A-6(8))
⊕	R-10	33.5	NP	NP	NP	24	Silty SAND (SM) (A-2-4)
○	R-12	0.0	24	11	13	58	Sandy CLAY (CL) (A-6(4))
△	R-12	2.0	24	13	11	49	Clayey SAND (SC) (A-6(2))
⊗	R-12	13.0	NP	NP	NP	56	Sandy SILT (ML) (A-4(0))
⊕	R-13	2.0	NP	NP	NP	17	Silty SAND (SM) (A-2-4)
□	R-13	4.0	NP	NP	NP	18	Silty SAND (SM) (A-2-4)
⊕	R-13	13.5	NP	NP	NP	3	SAND (SP) (A-1-b)
⊕	R-14	2.0	16	14	2	30	Silty SAND (SM) (A-2-4)
★	R-14	8.0	NP	NP	NP	8	SAND with Silt (SP-SM) (A-1-b)
⊗	R-15	0.0	19	11	8	28	Clayey SAND (SC) (A-2-4)
■	R-15	6.0	29	12	17	38	Clayey SAND (SC) (A-2-6(1))
◆	R-15	18.5	NP	NP	NP	6	SAND with Silt (SP-SM) (A-1-b)
◇	R-17	2.0	26	17	9	30	Clayey SAND (SC) (A-2-4)
×	R-17	13.5	NP	NP	NP	5	SAND with Silt (SP-SM) (A-1-b)
■	R-19	4.0	42	16	26	39	Clayey SAND (SC) (A-7-6(5))



INDEX PROPERTIES VERSUS DEPTH

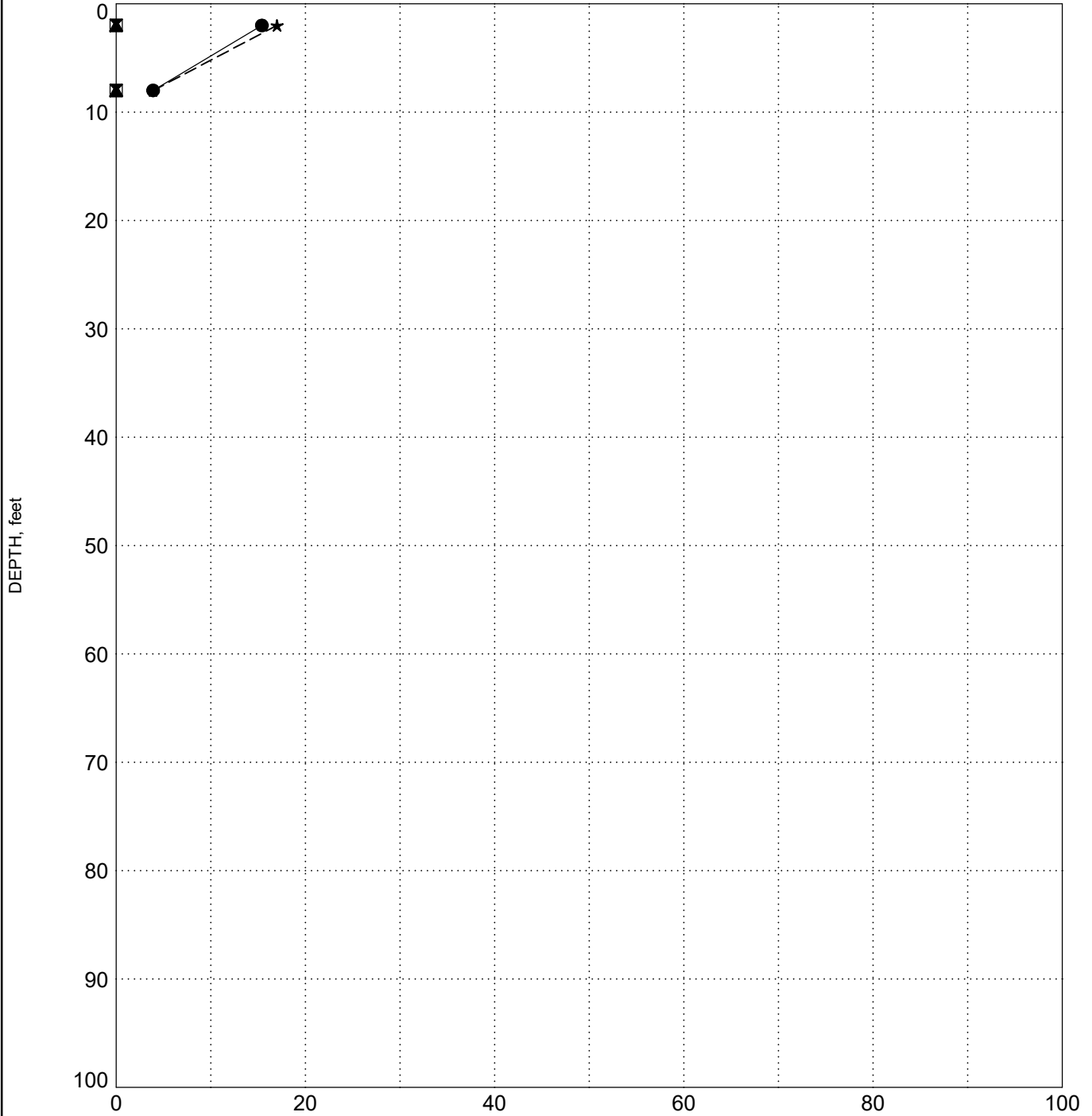
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-01

SURFACE ELEVATION: 99.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

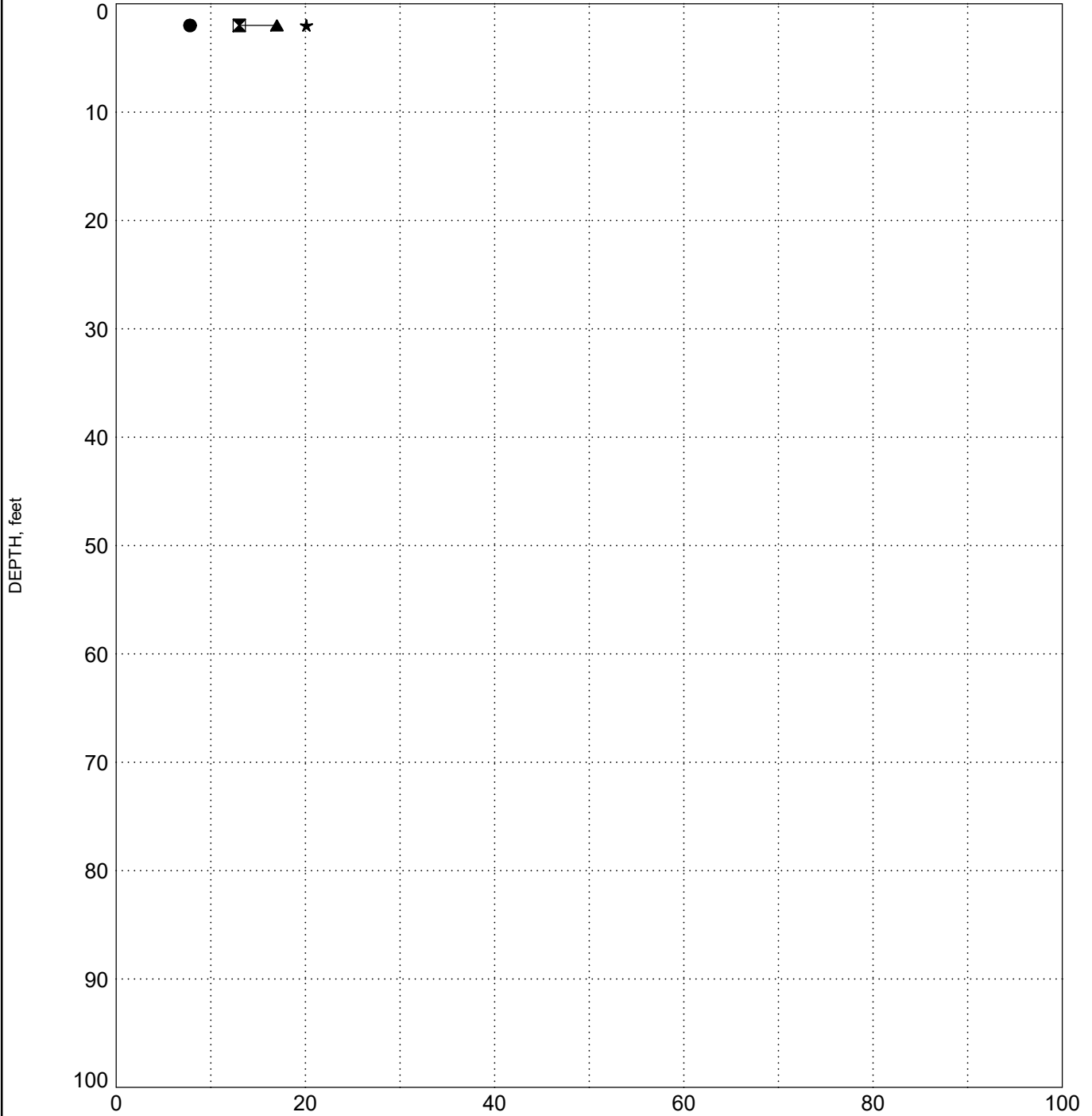
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-01MA

SURFACE ELEVATION: 103.7



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

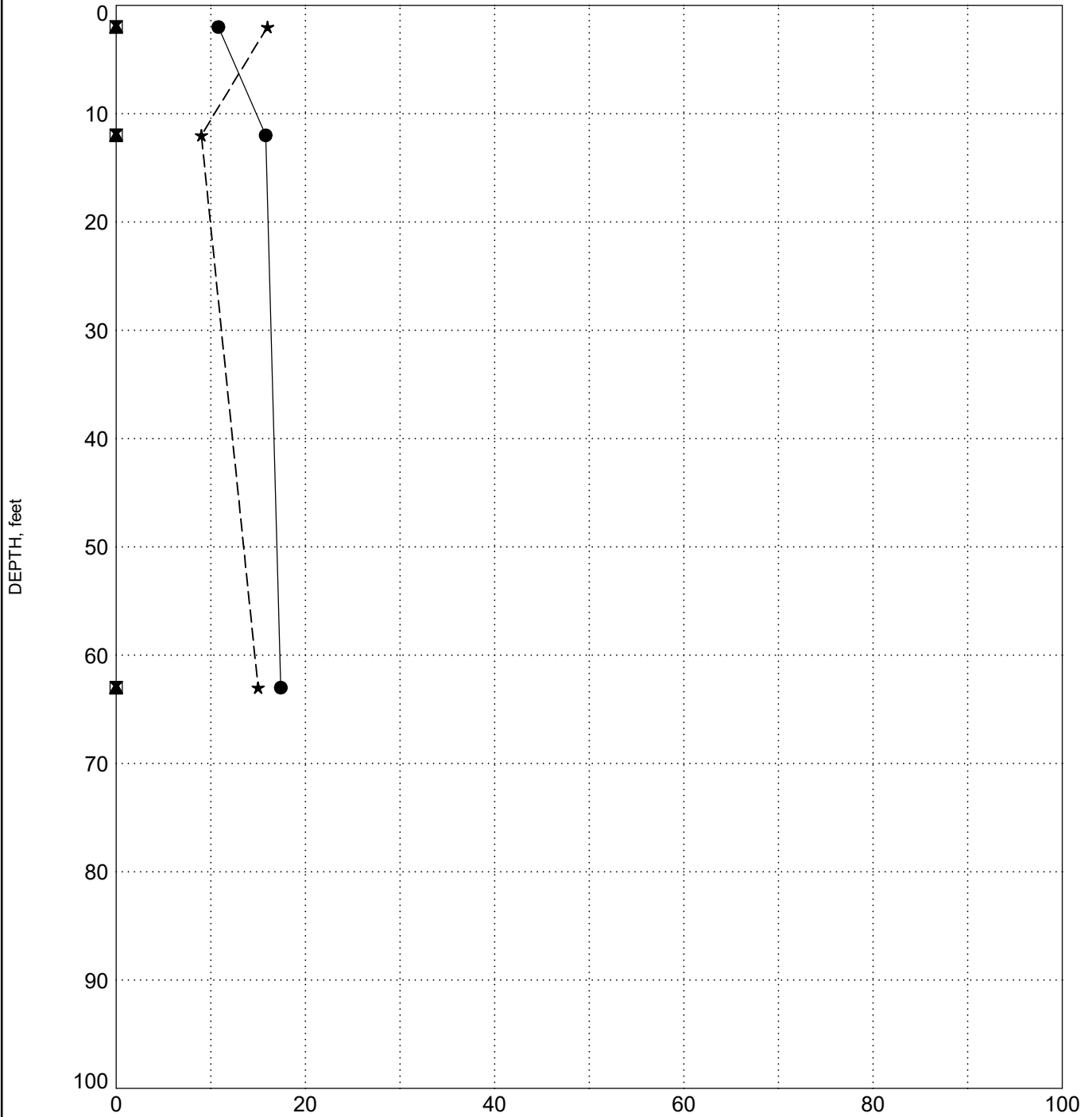
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-02

SURFACE ELEVATION: 99.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

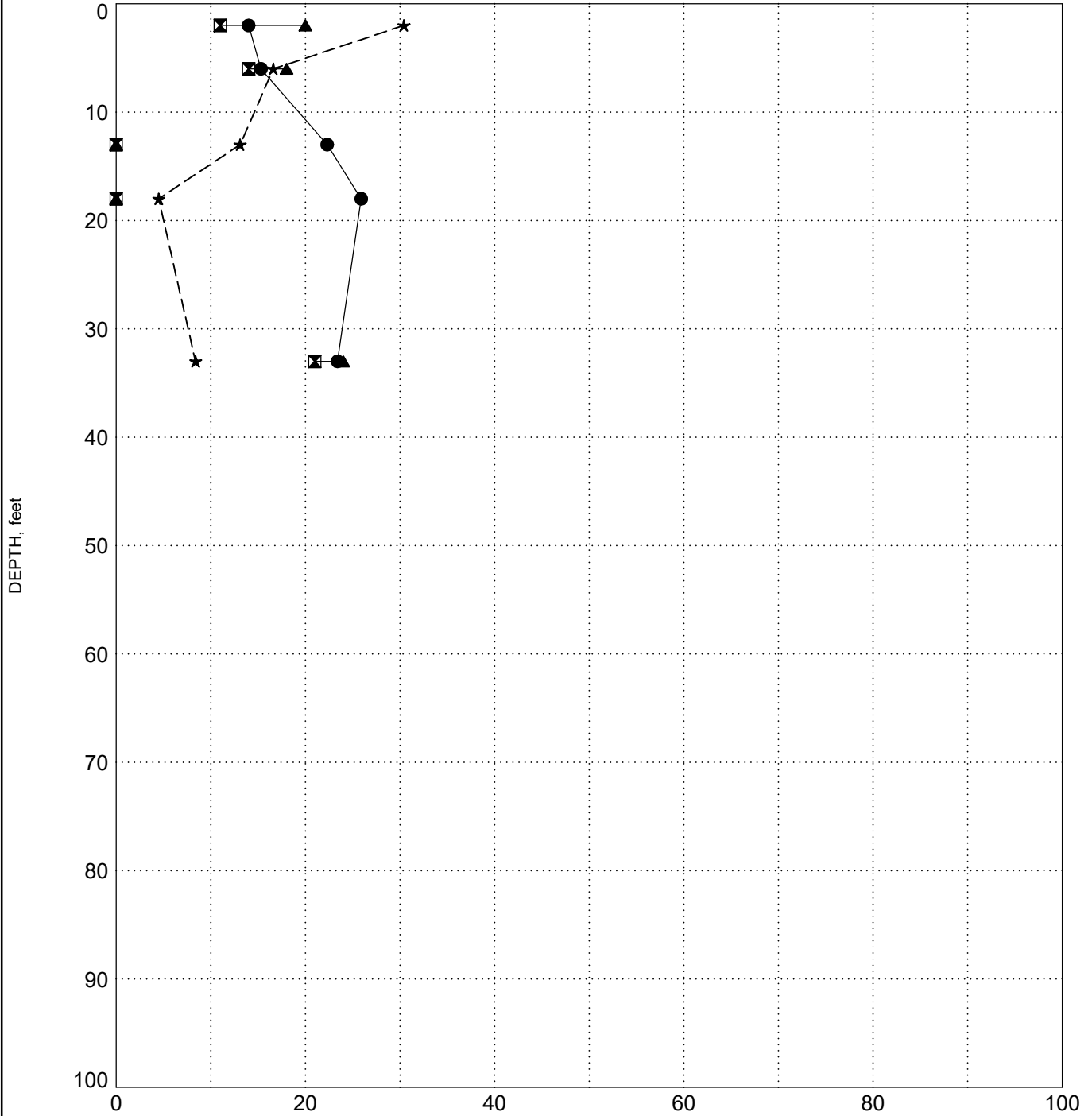
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-03

SURFACE ELEVATION: 102.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

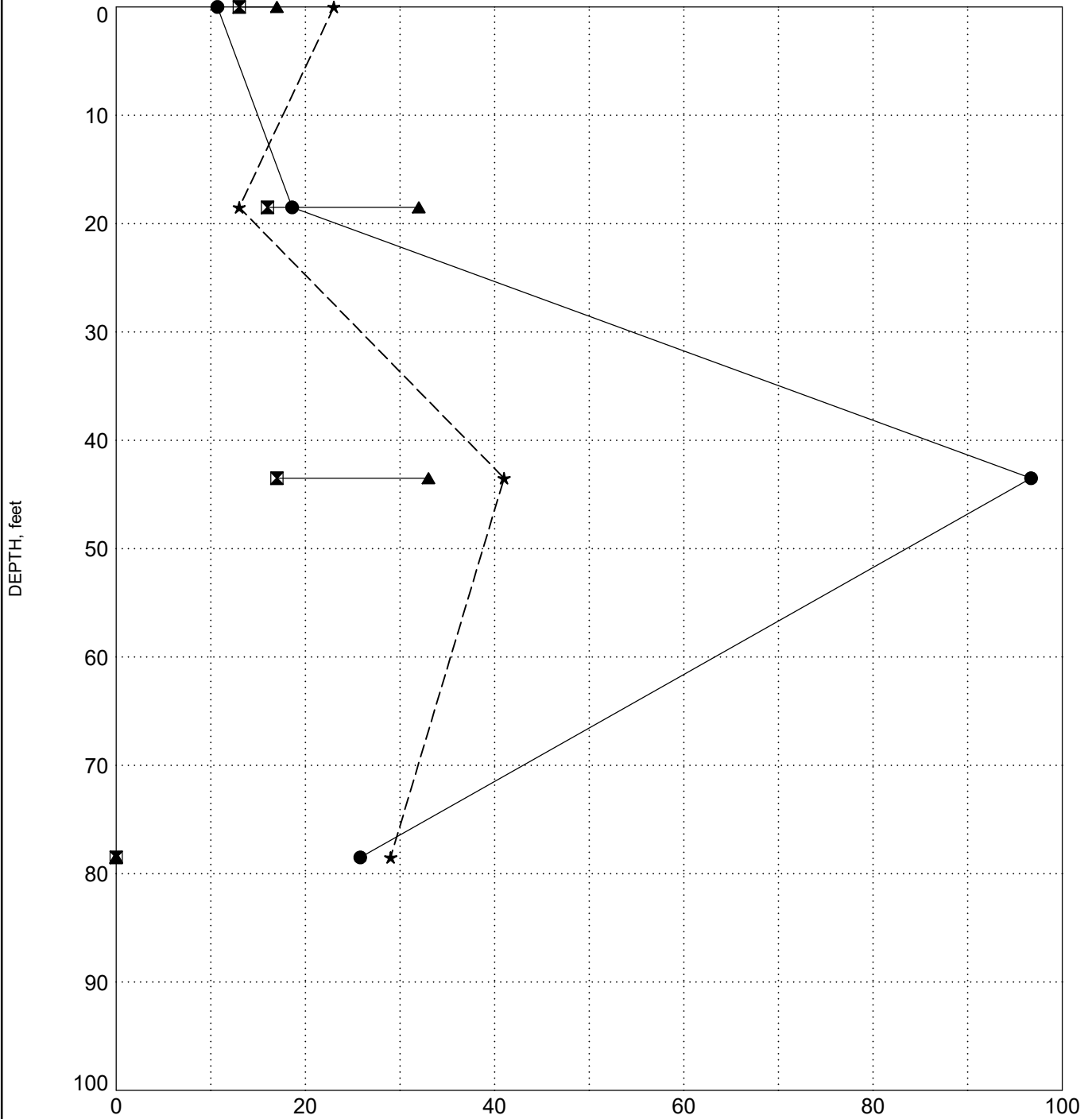
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-04

SURFACE ELEVATION: 102.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

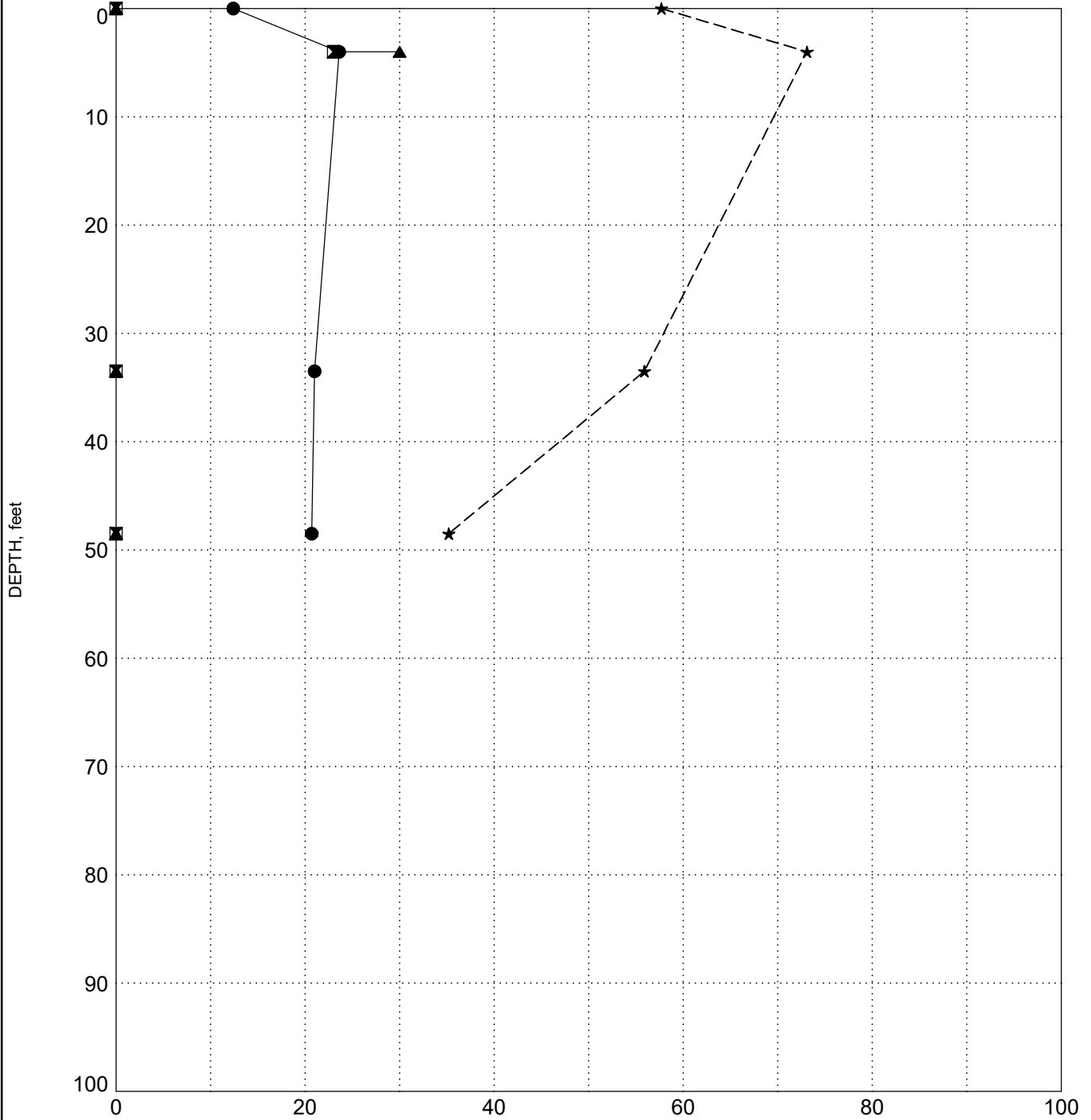
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.8

BORING B-05



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

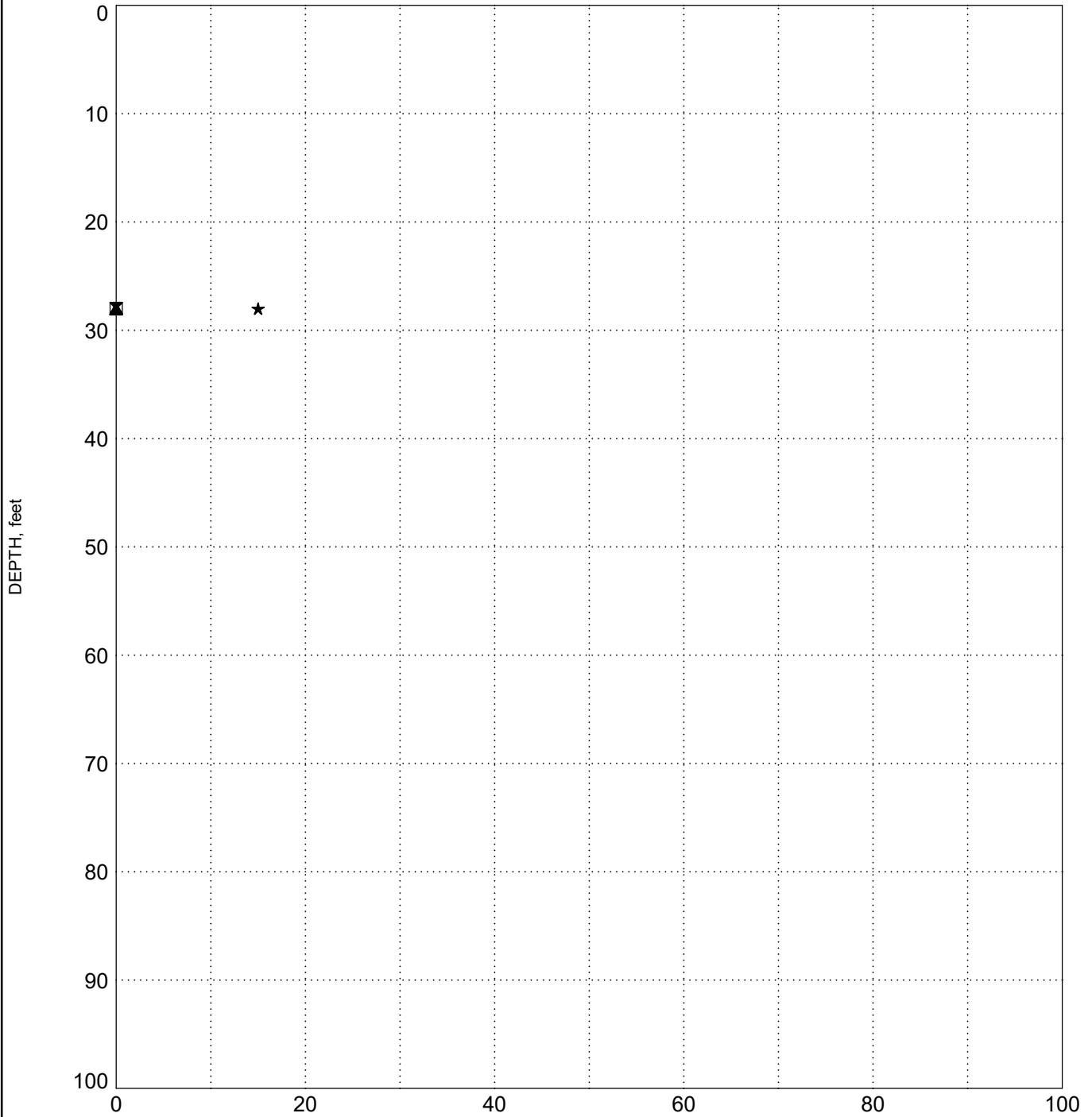
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.7

BORING B-05U



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

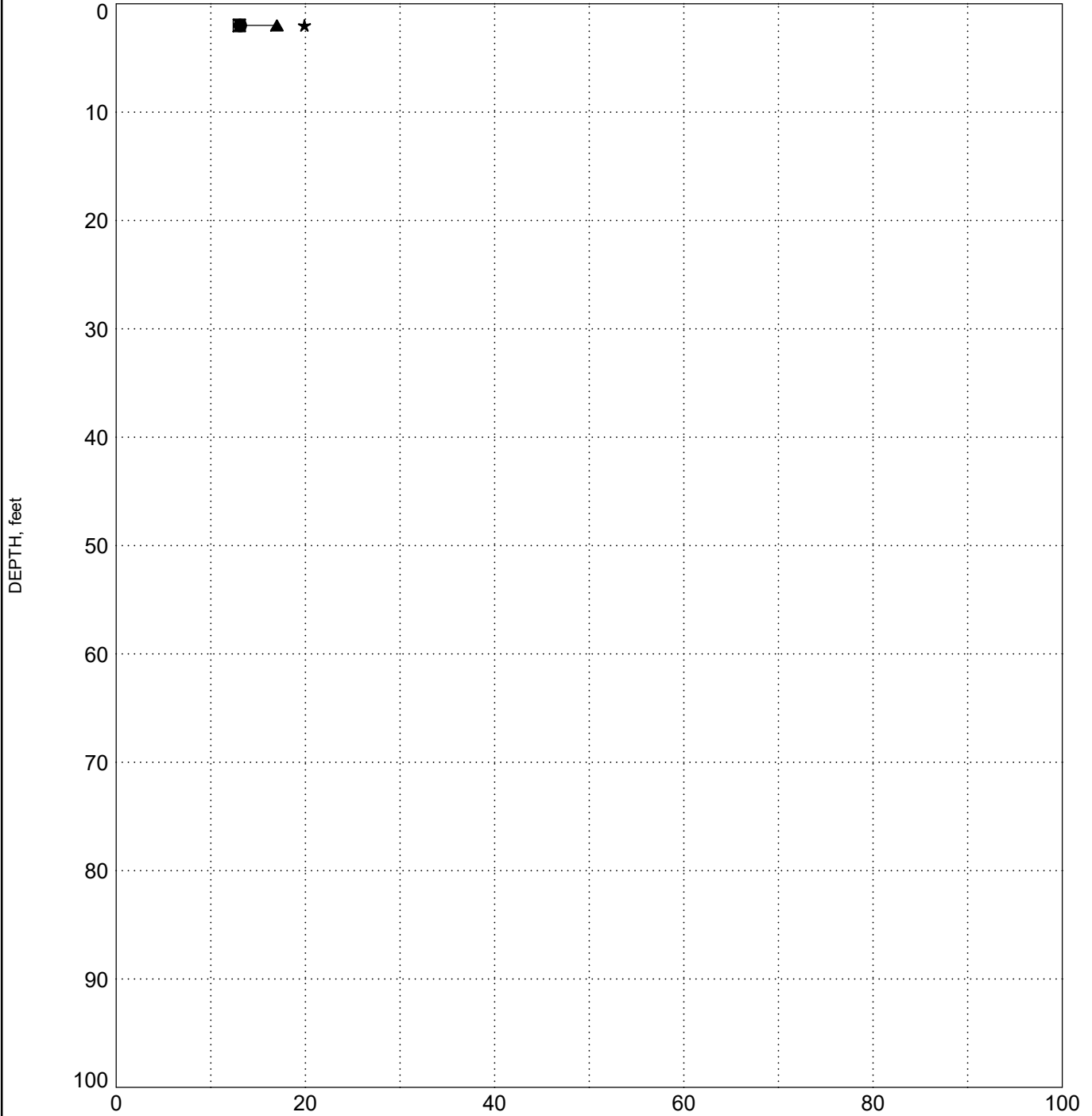
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-06MA

SURFACE ELEVATION: 116.3



LEGEND	
●	Water Content
■	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

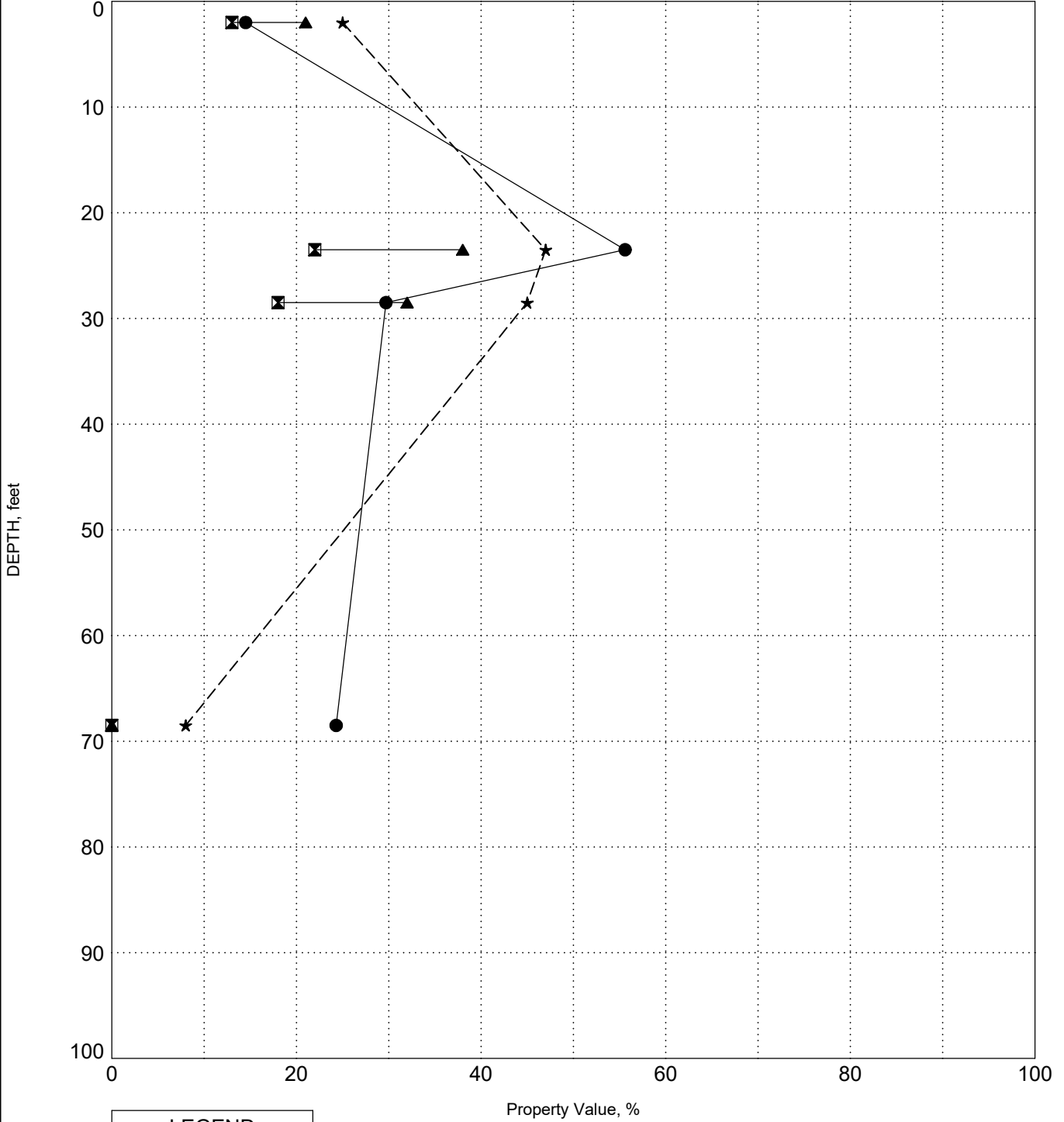
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 102.8

BORING B-07



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

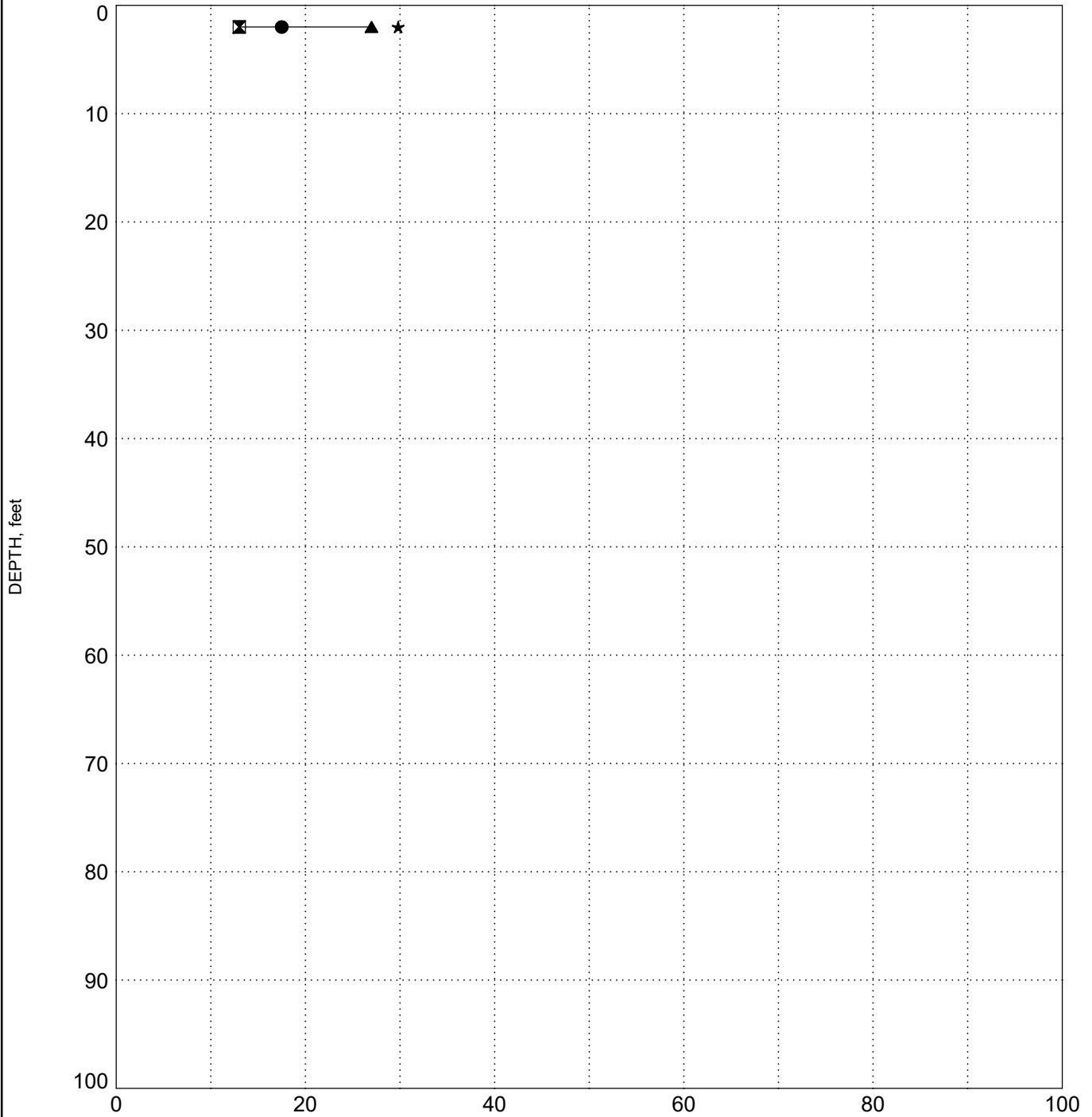
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-07MA

SURFACE ELEVATION: 115.1



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

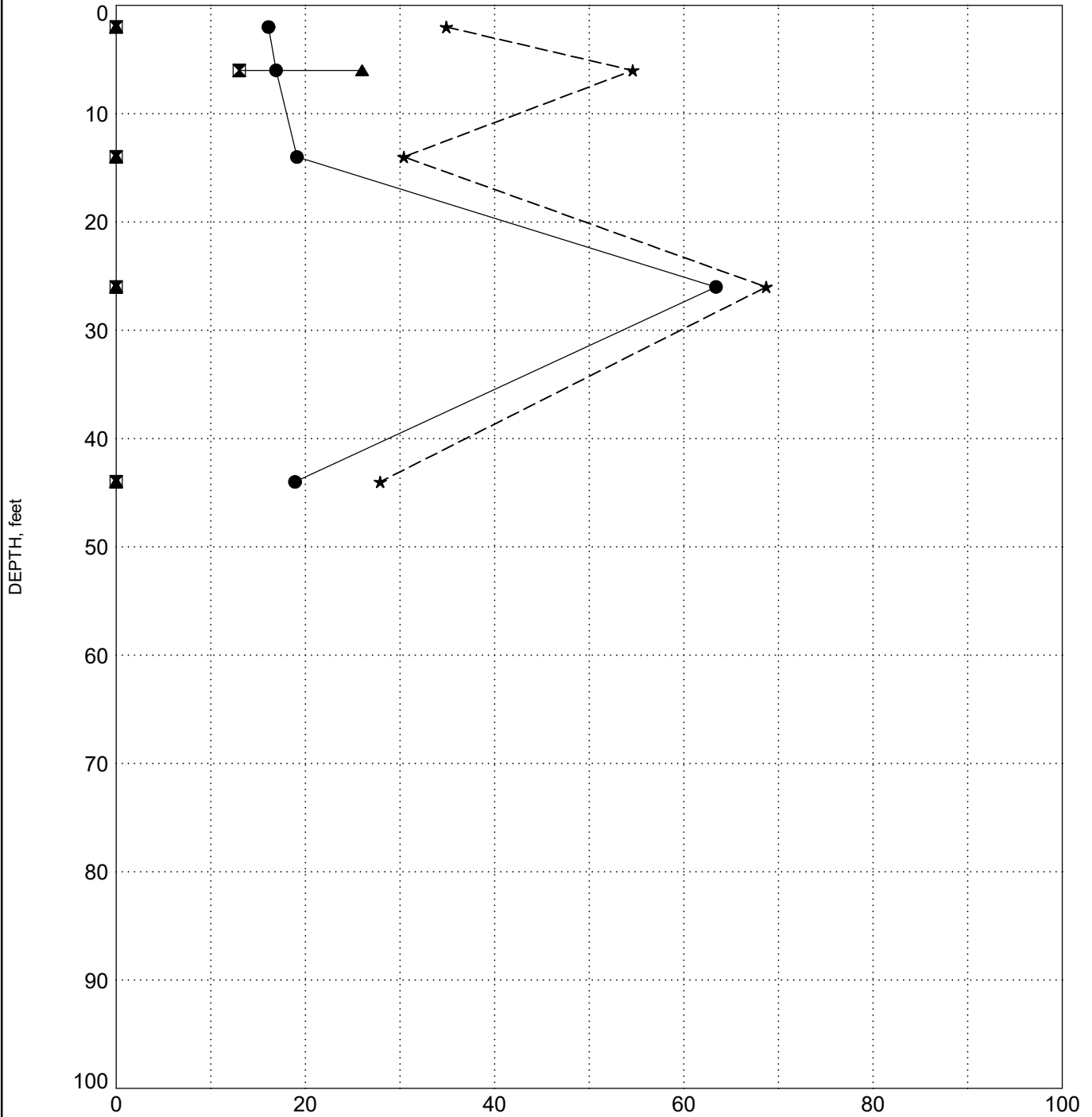
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.9

BORING B-08



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

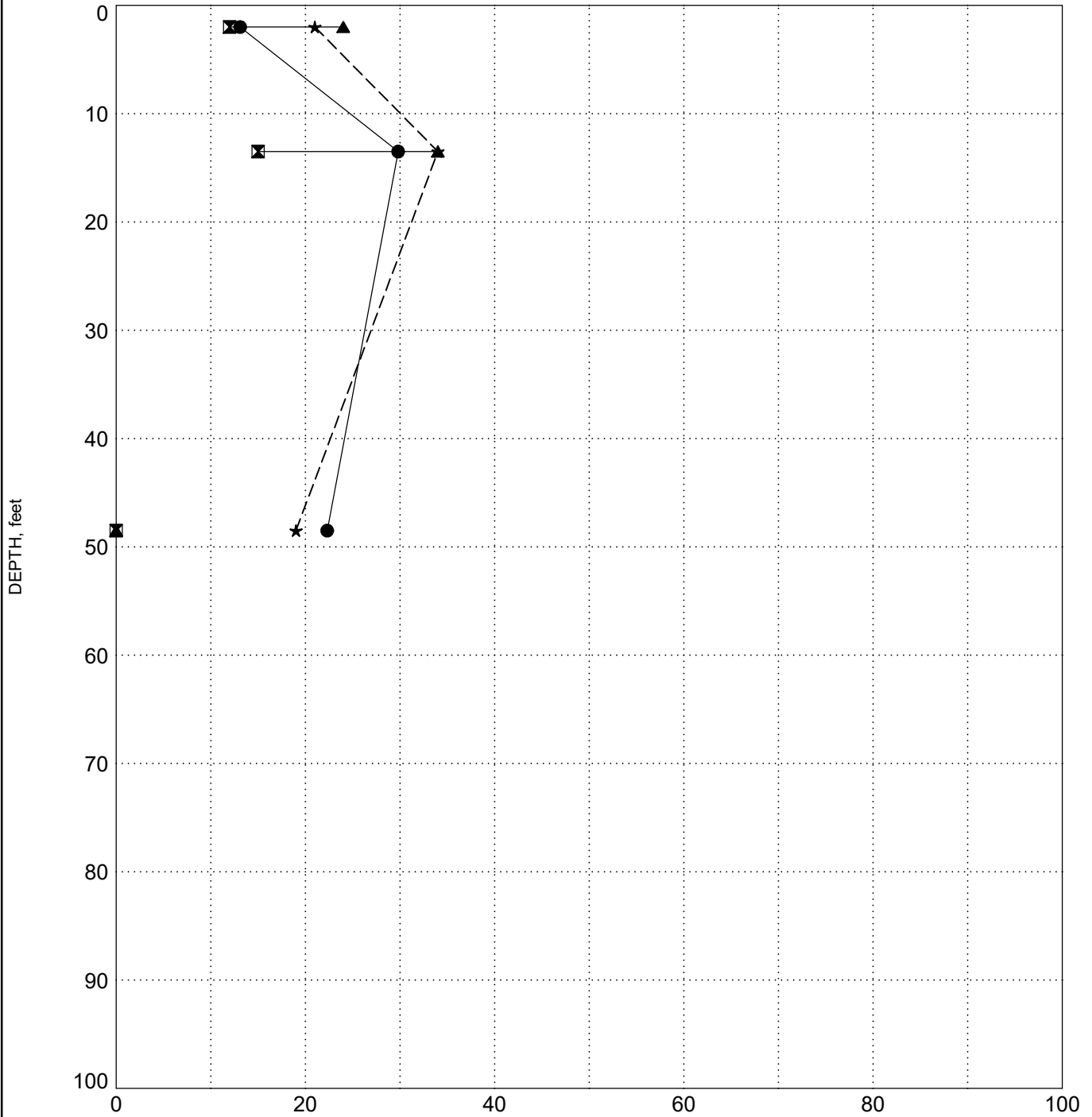
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-09

SURFACE ELEVATION: 102.3



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

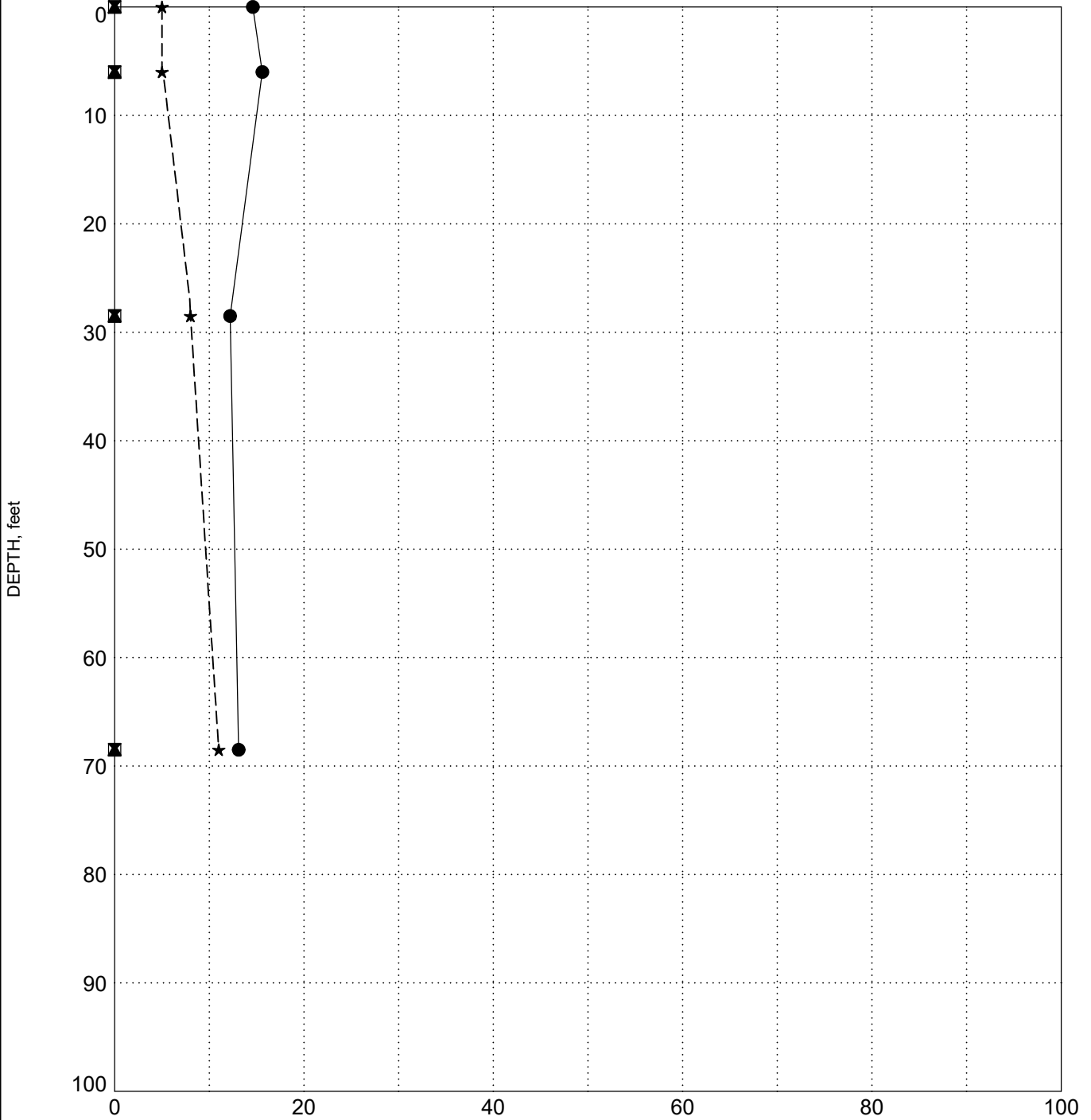
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-10

SURFACE ELEVATION: 96.8



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

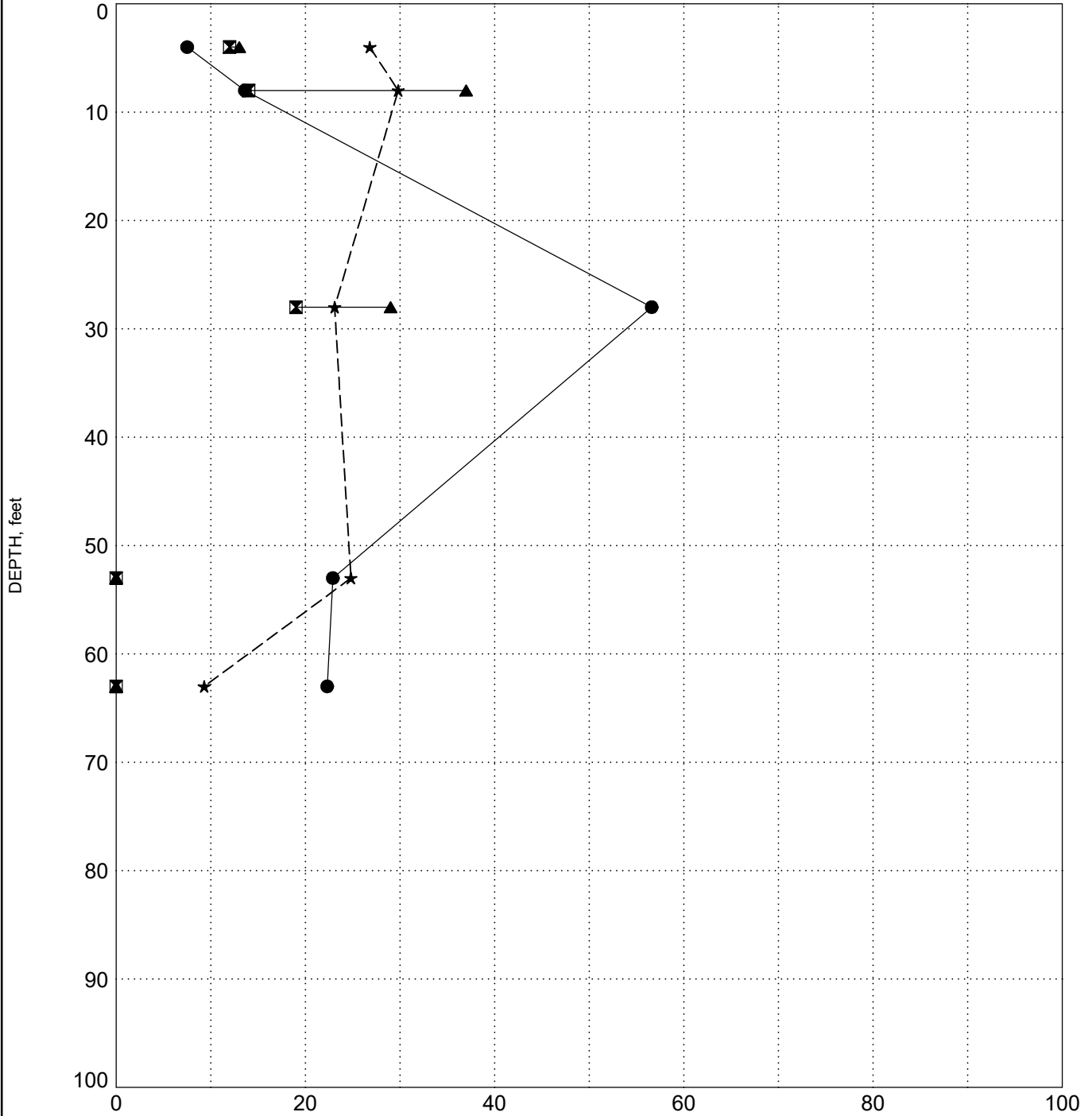
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-11

SURFACE ELEVATION: 98.9



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

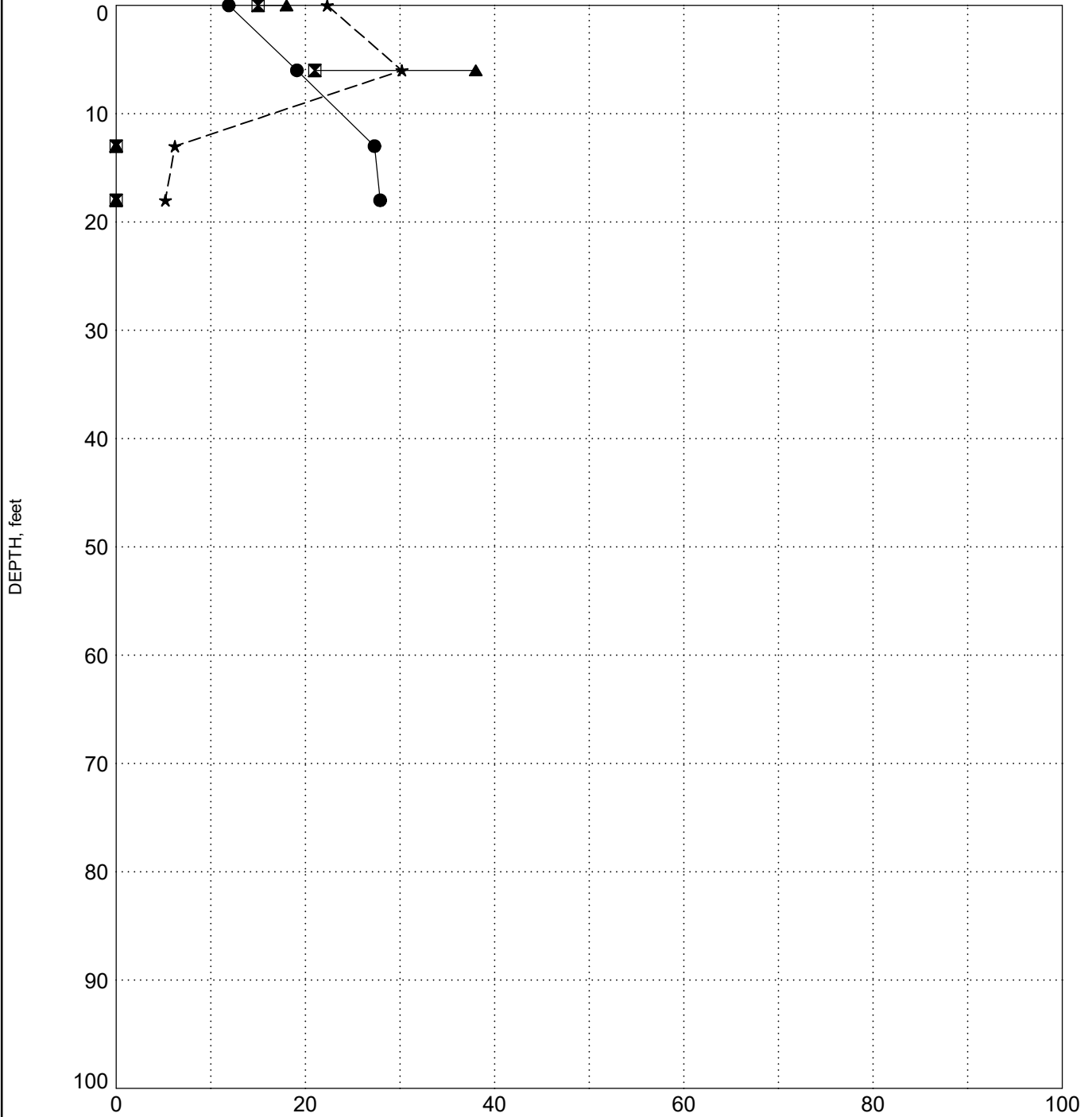
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-12

SURFACE ELEVATION: 99.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

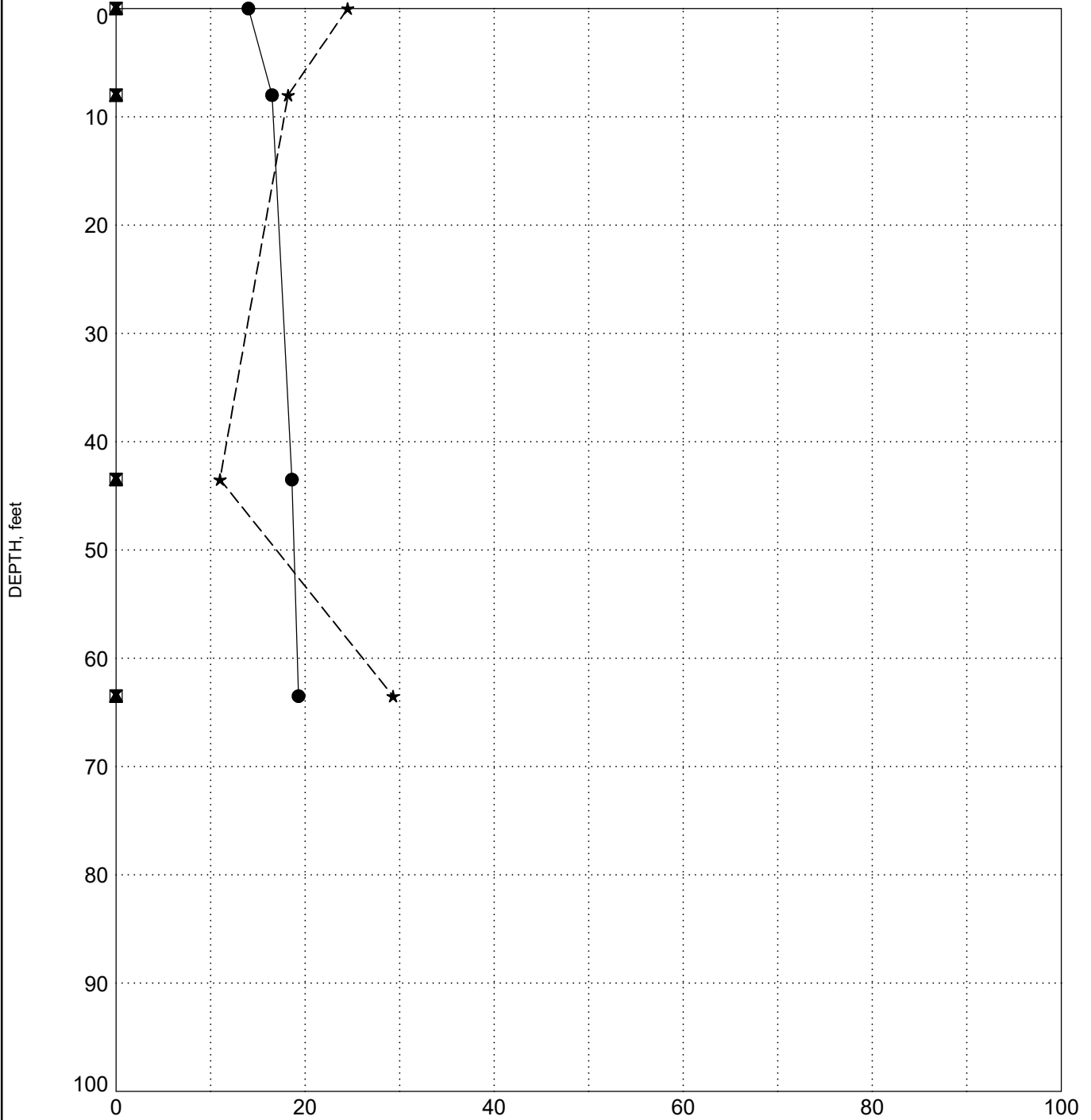
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-13

SURFACE ELEVATION: 98.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

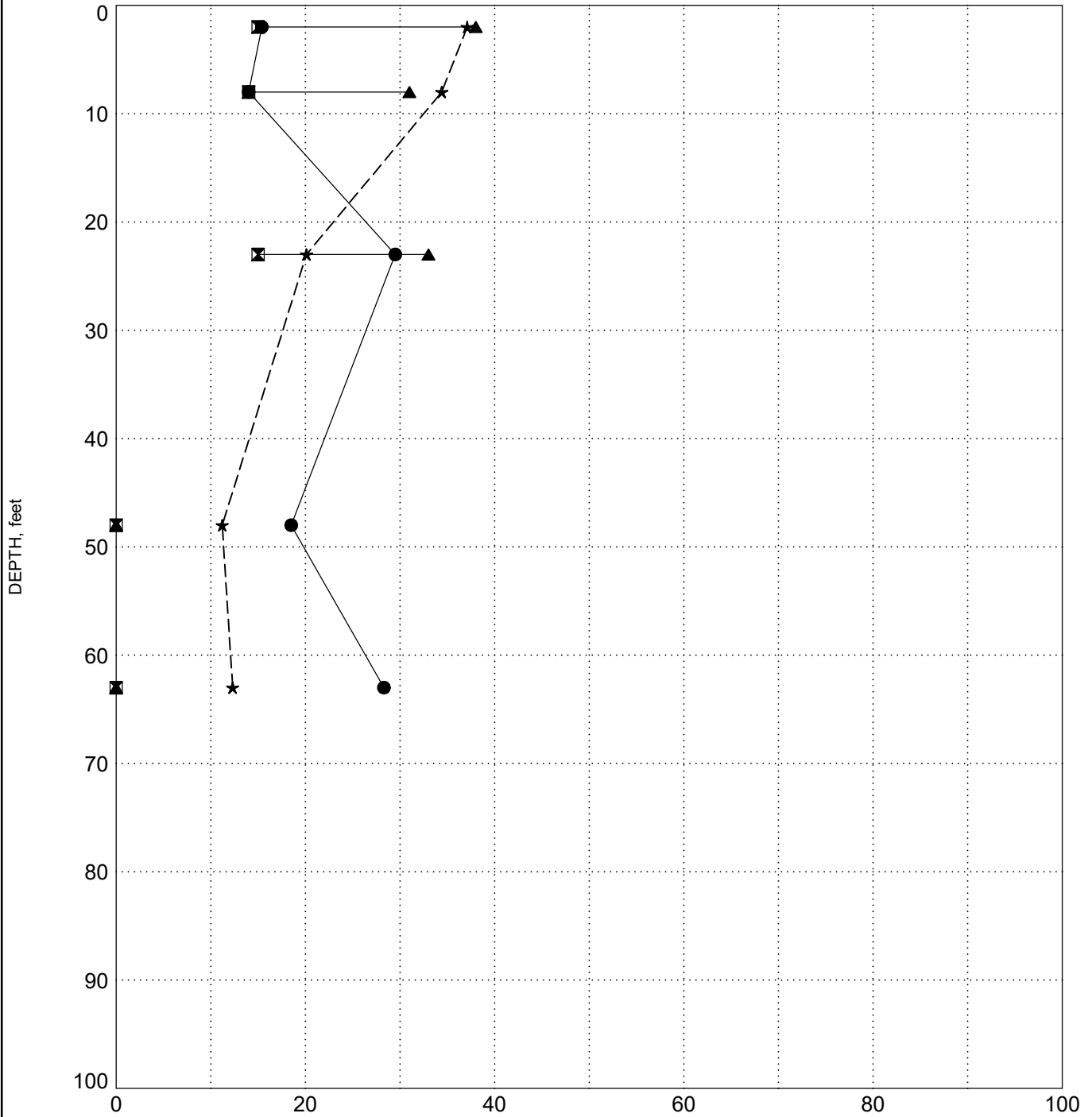
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 107.1

BORING B-15



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

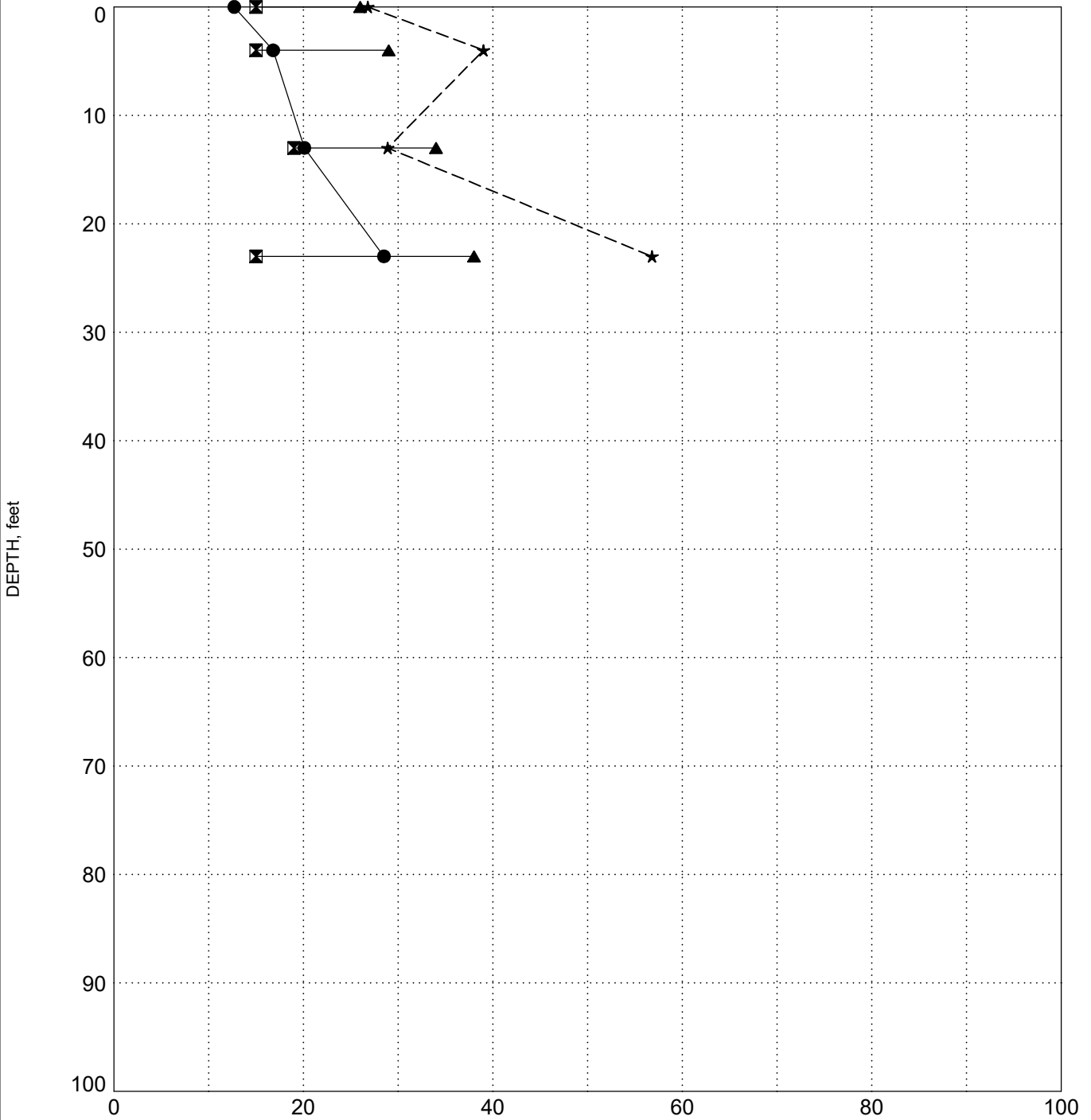
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-16

SURFACE ELEVATION: 110.7



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

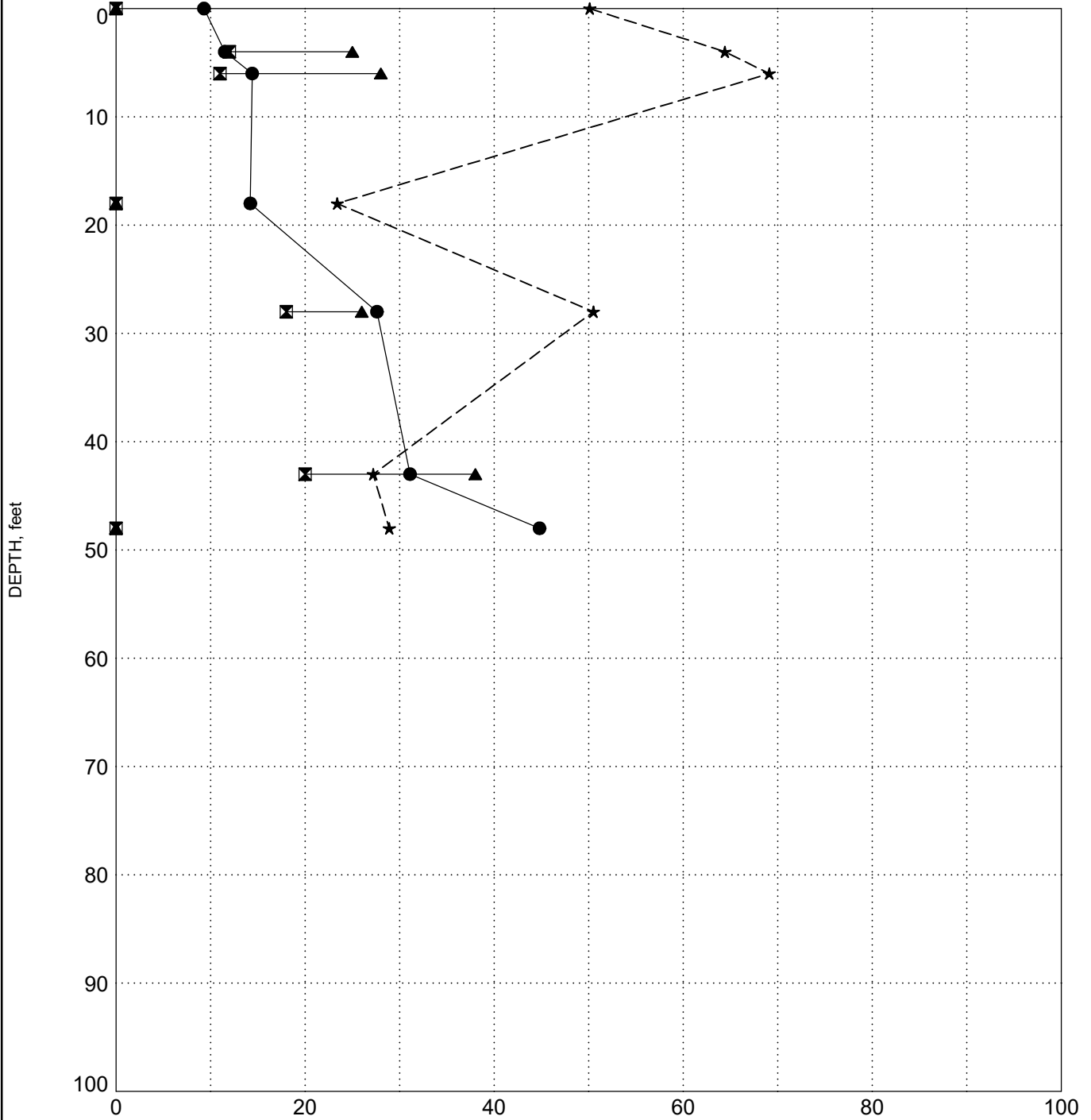
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 96.4

BORING B-17



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

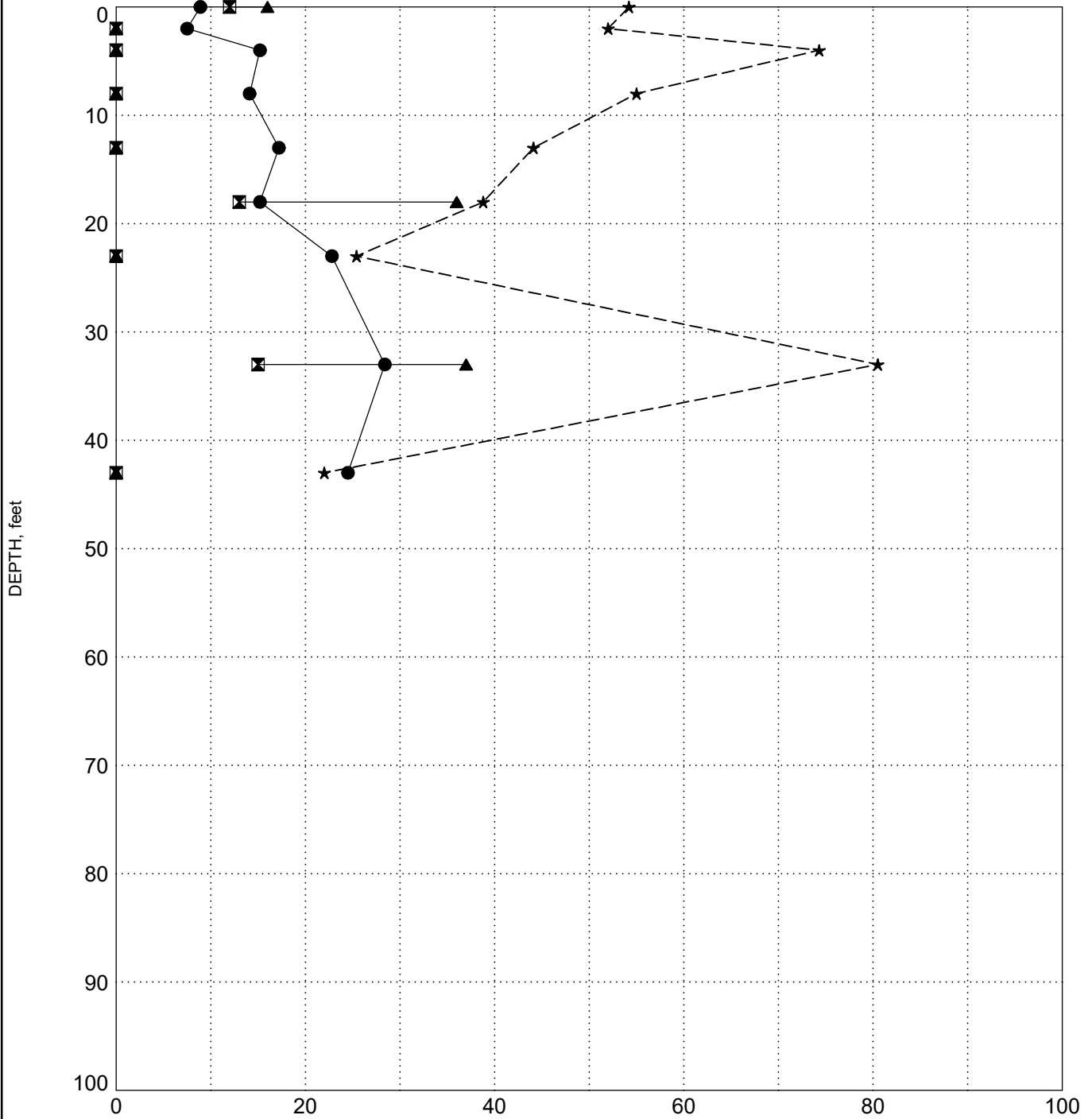
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 96.3

BORING B-18



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

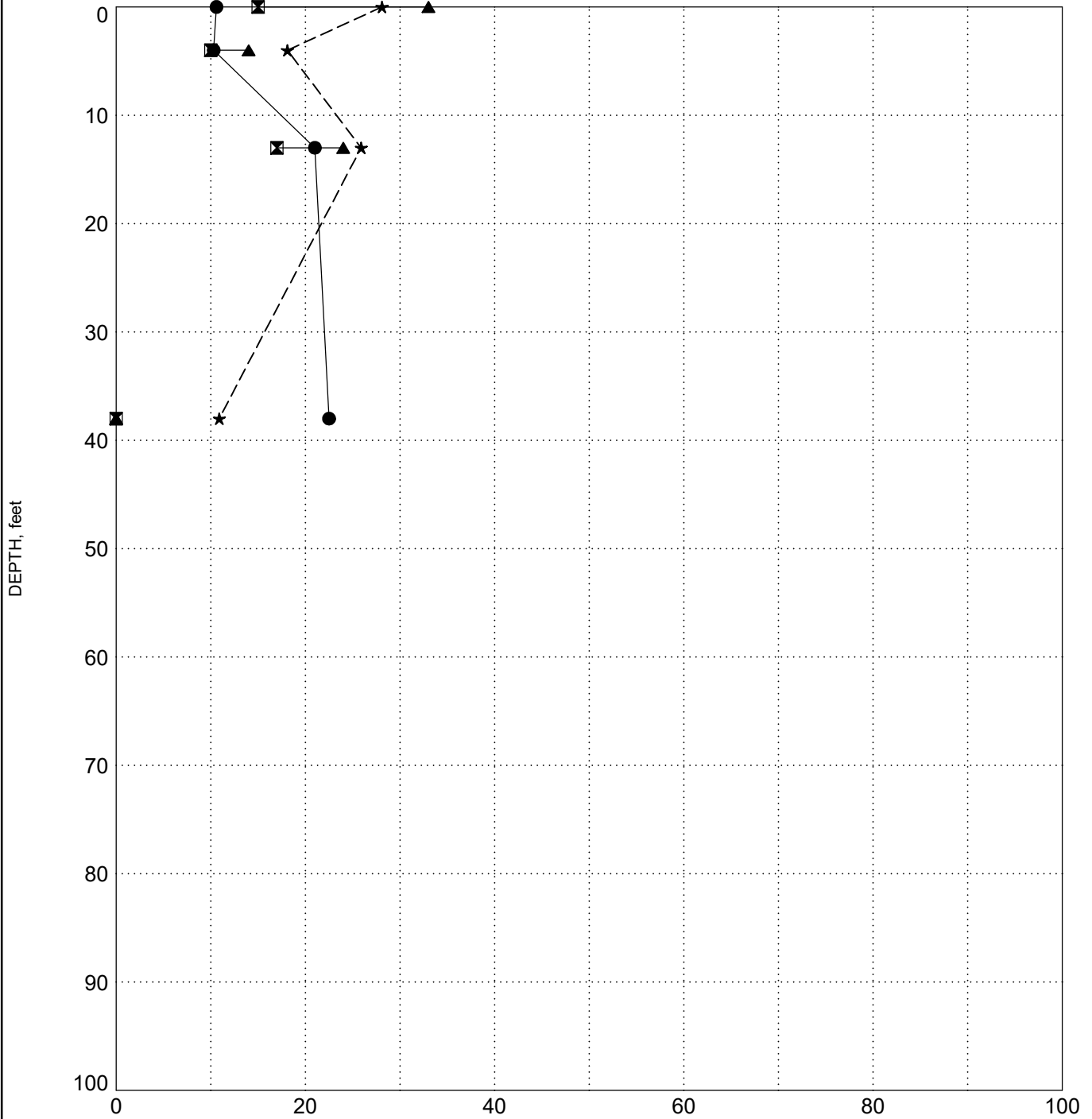
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-19

SURFACE ELEVATION: 99.3



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

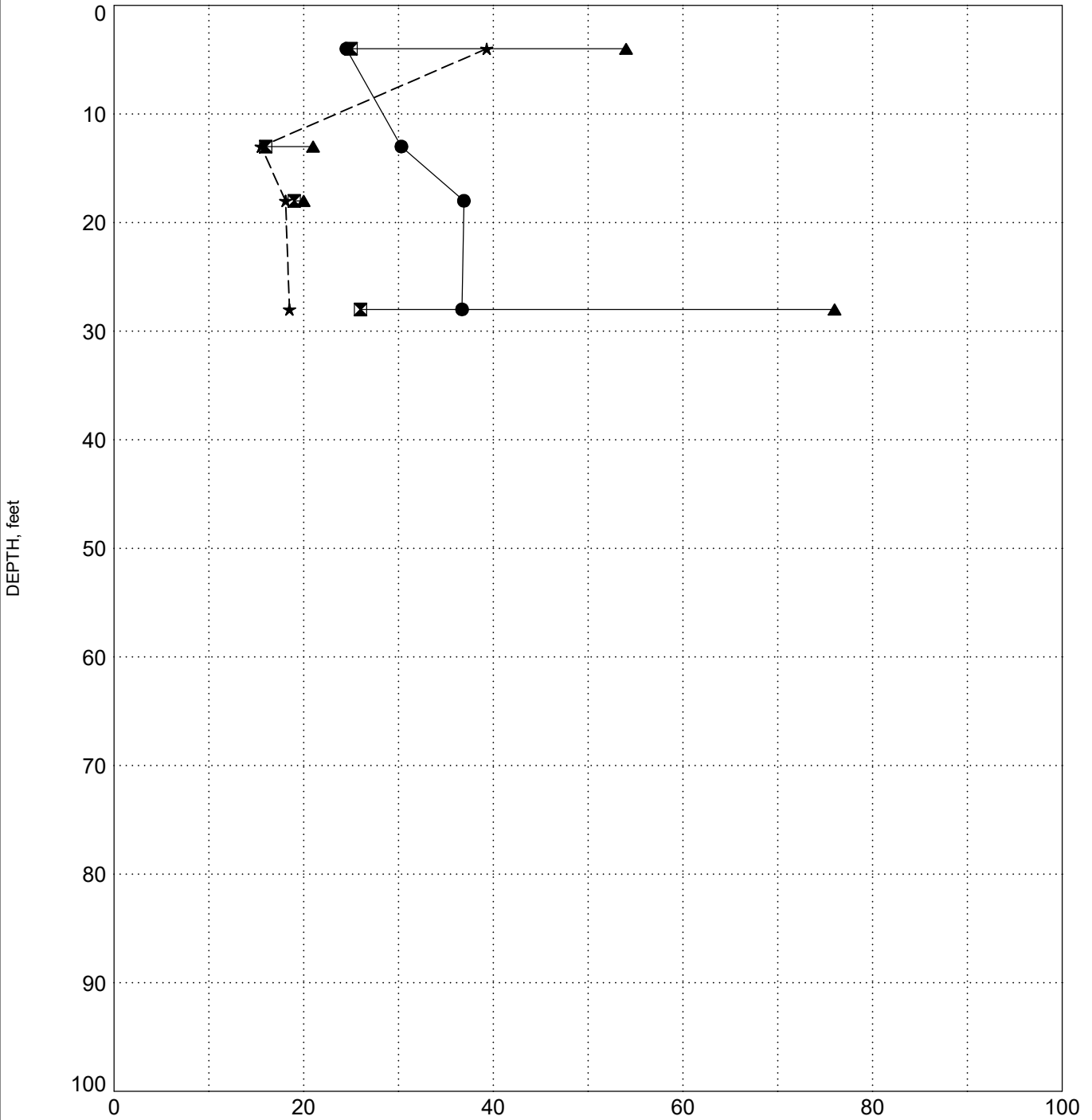
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 100.1

BORING B-20



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

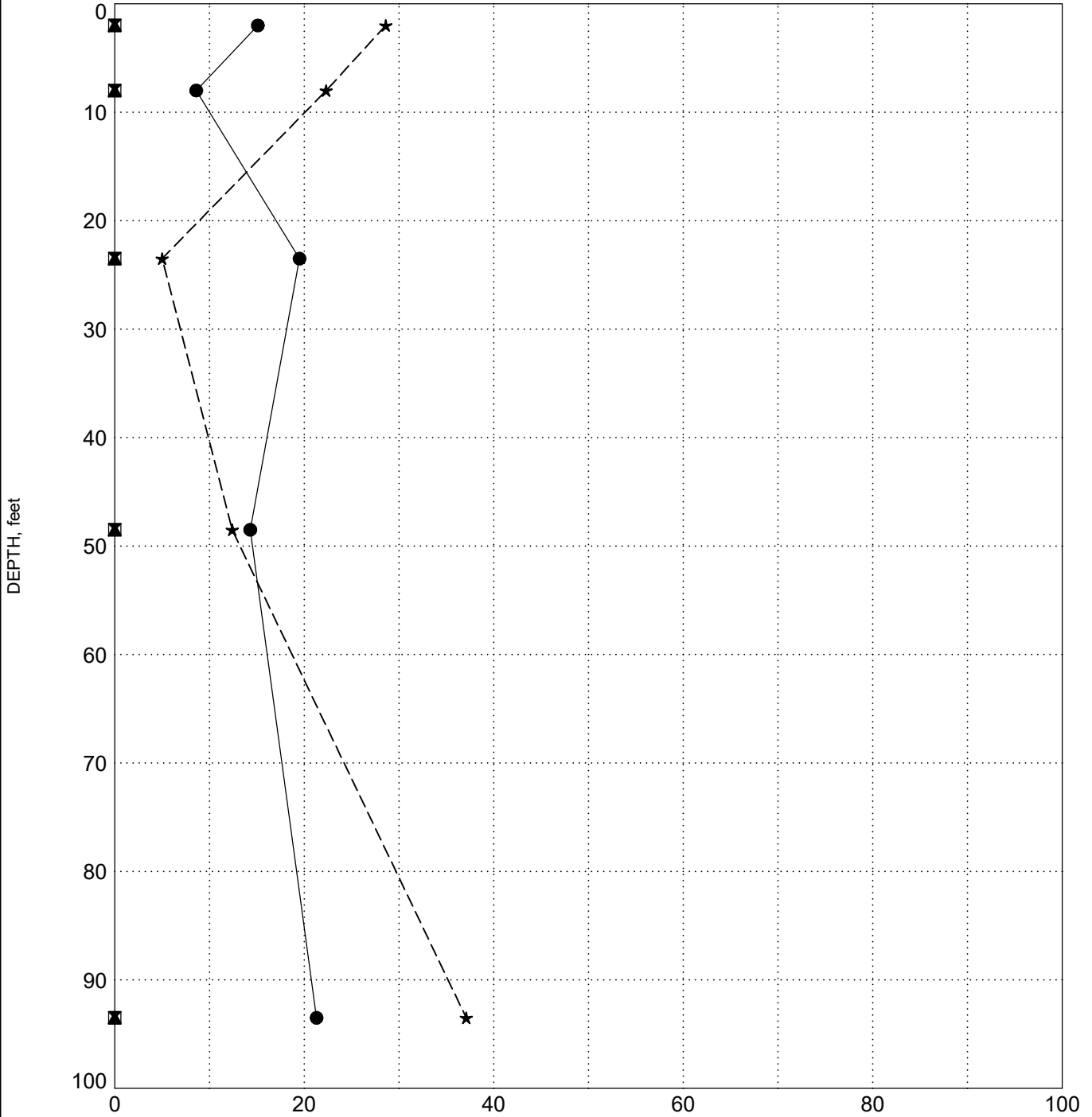
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-21

SURFACE ELEVATION: 98.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

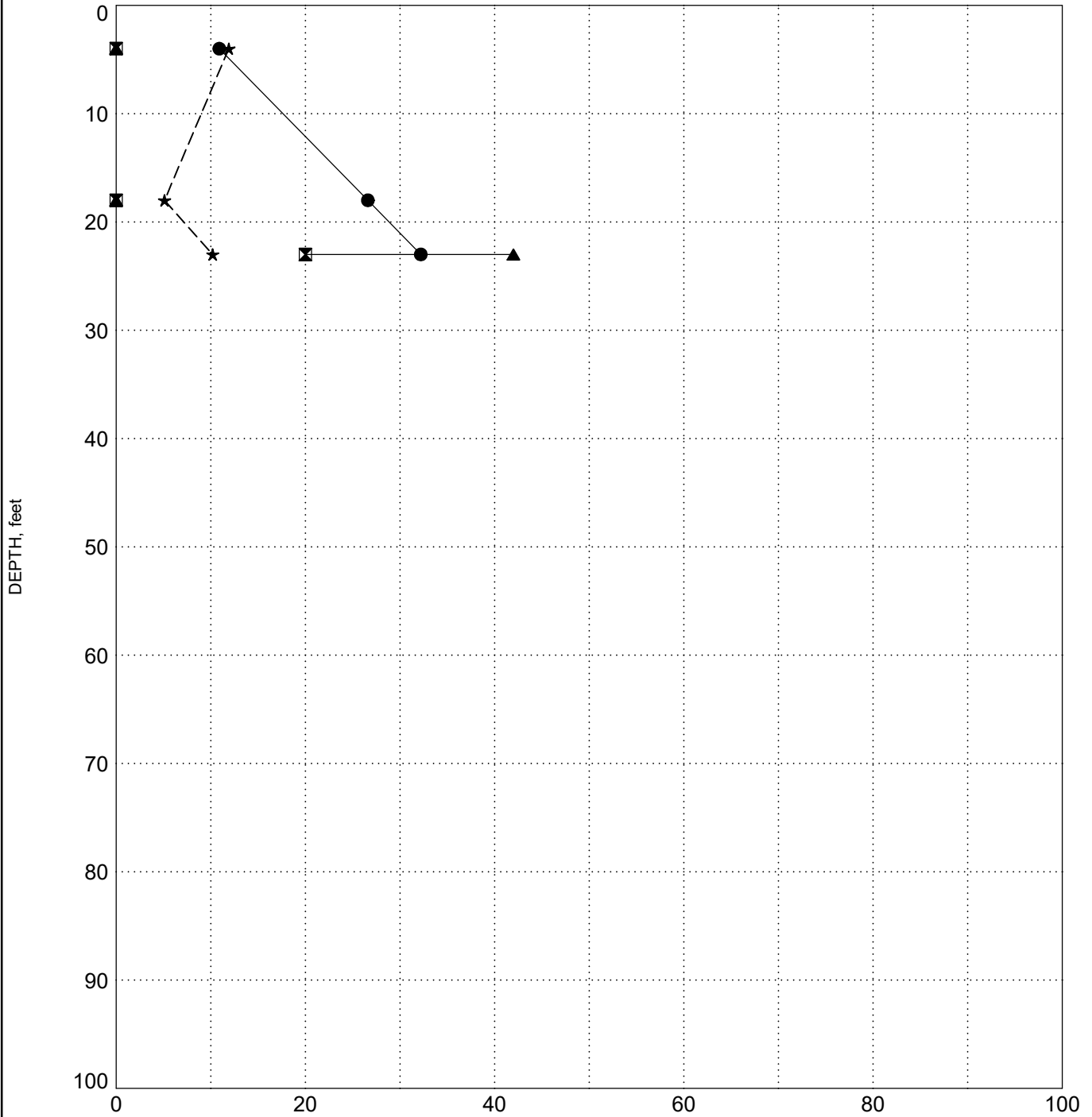
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-22

SURFACE ELEVATION: 102.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

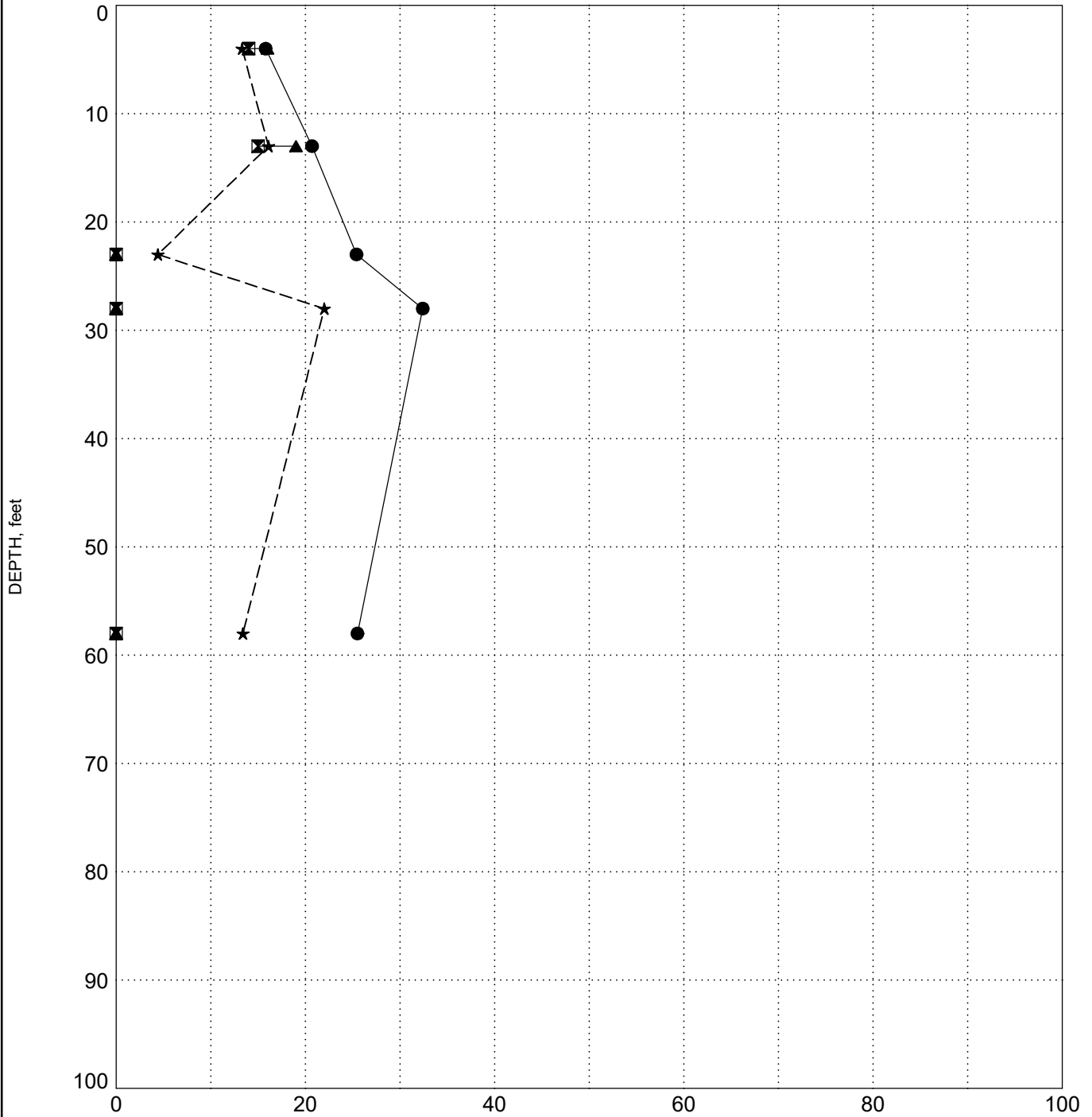
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING B-23

SURFACE ELEVATION: 103.4



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

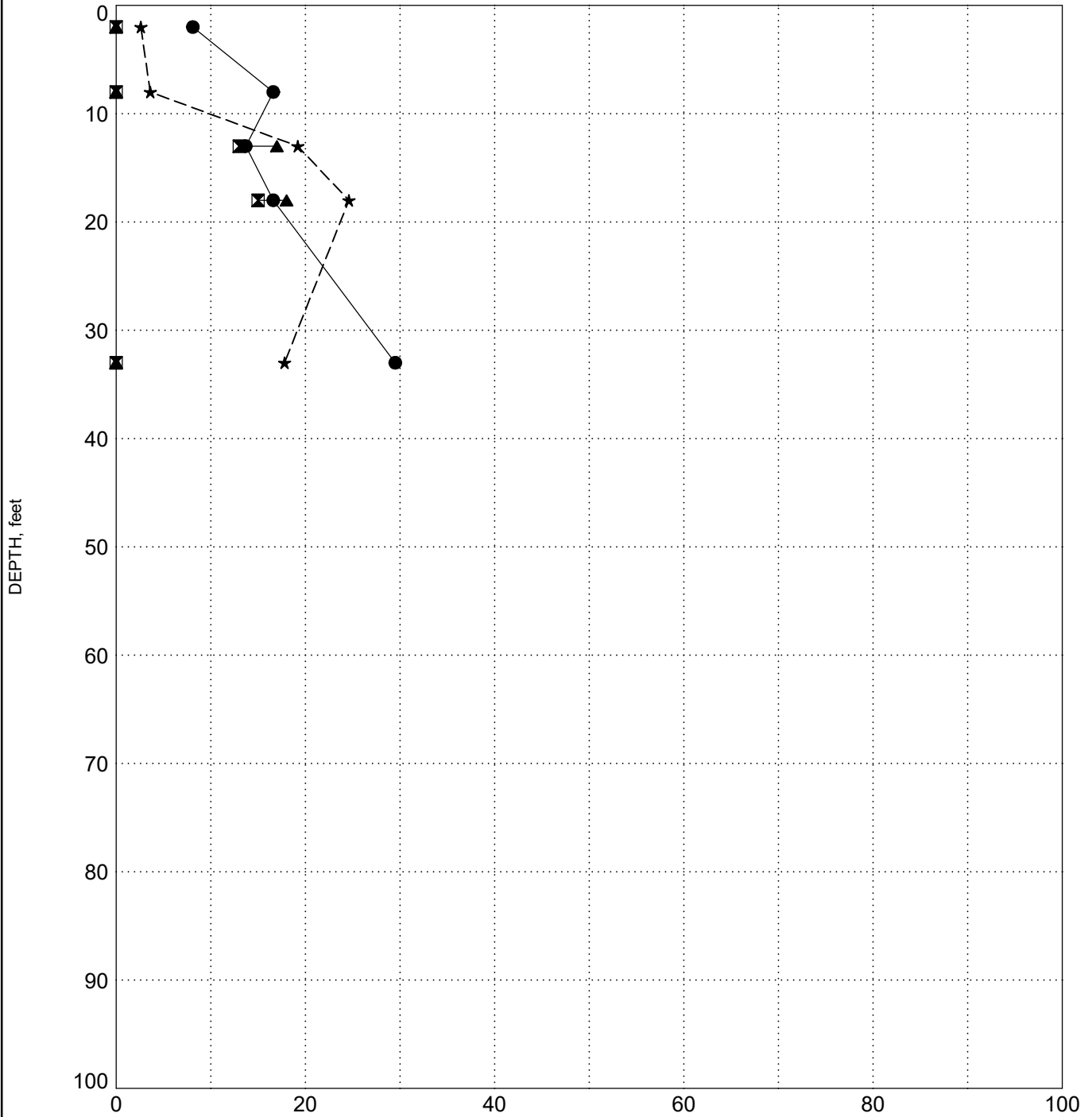
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 111.8

BORING B-24



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

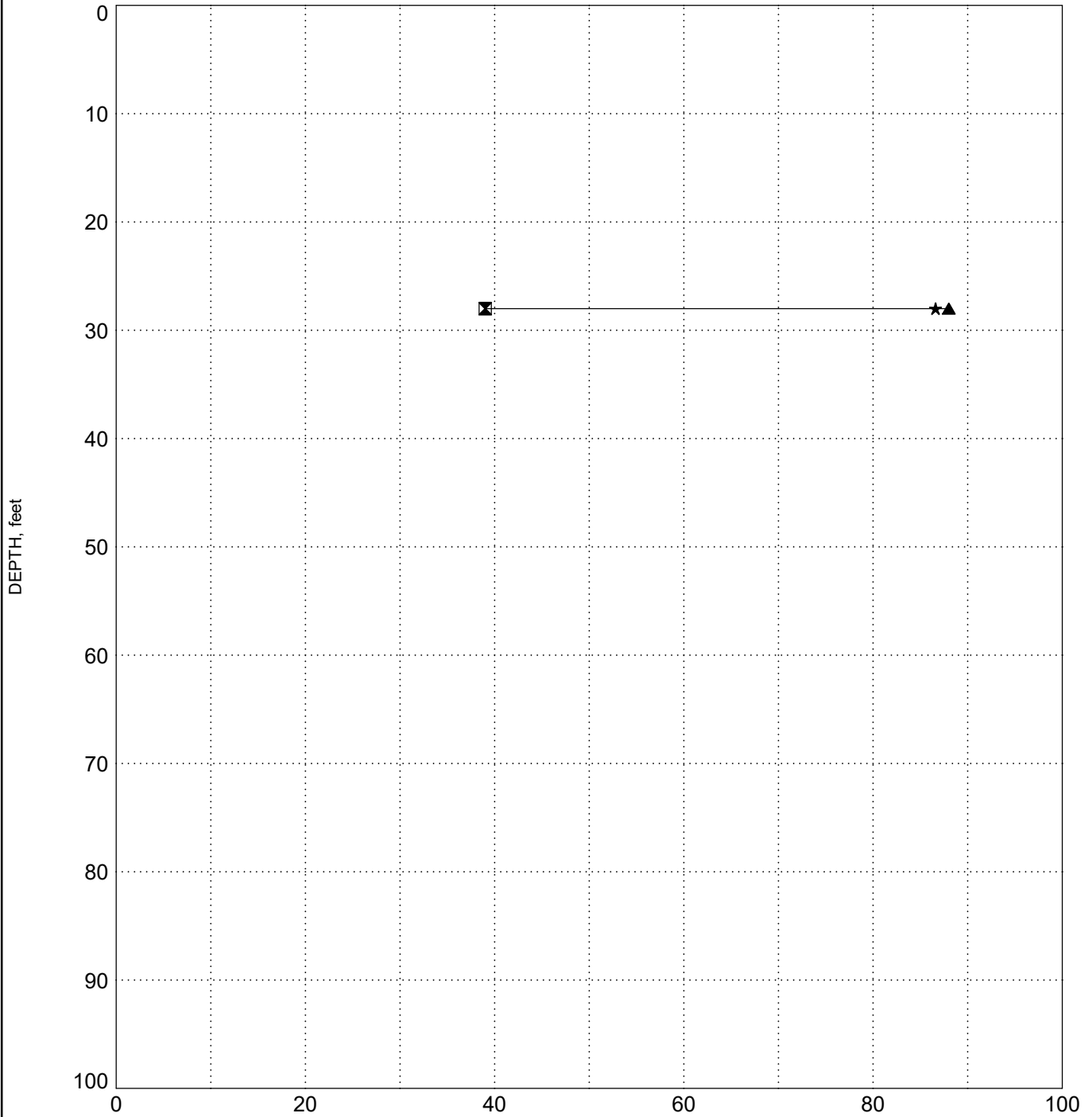
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.2

BORING CPT-10U



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

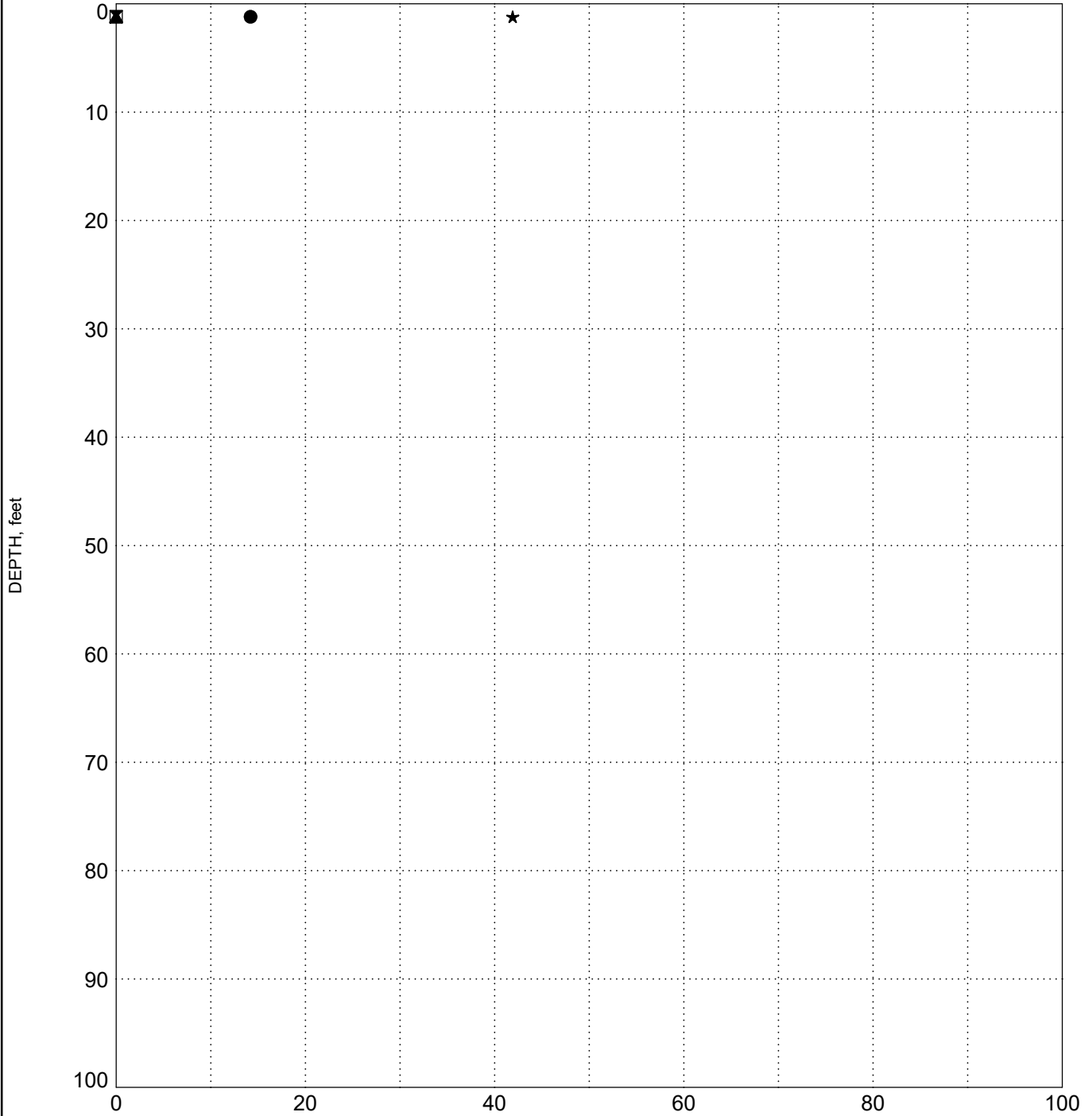
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 104.9

BORING P-01



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

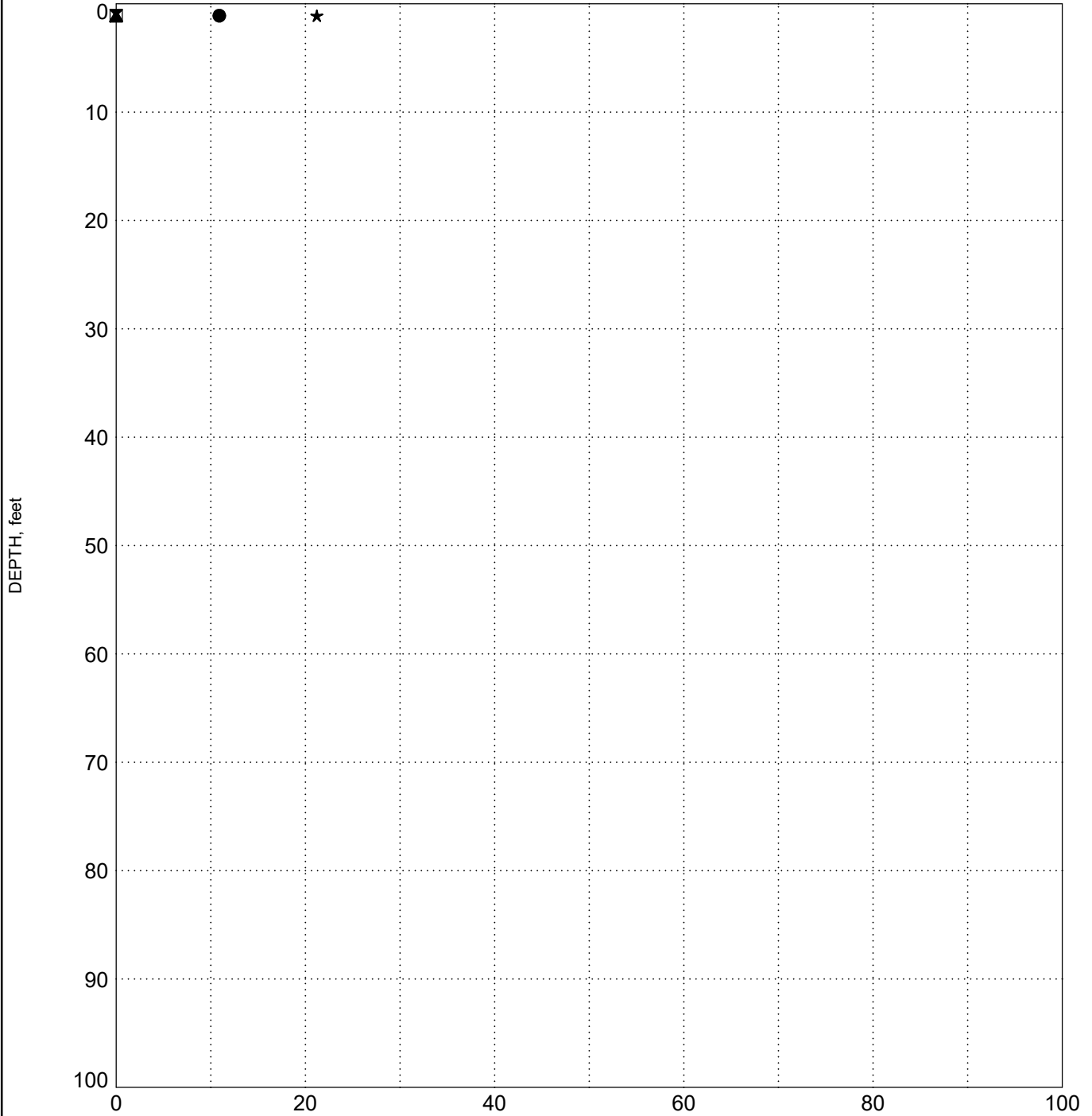
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-02

SURFACE ELEVATION: 104.8



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

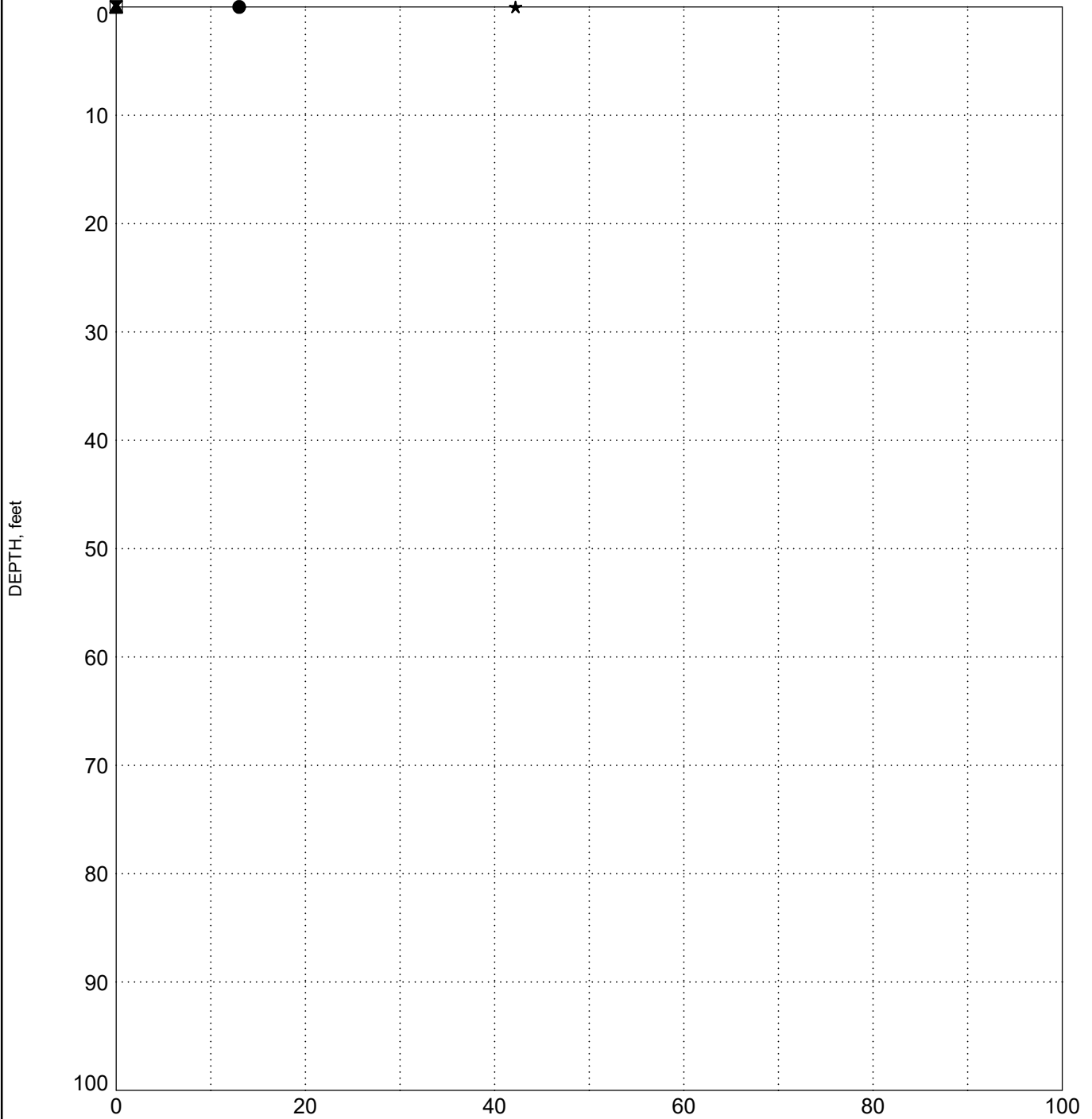
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 104.0

BORING P-04



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

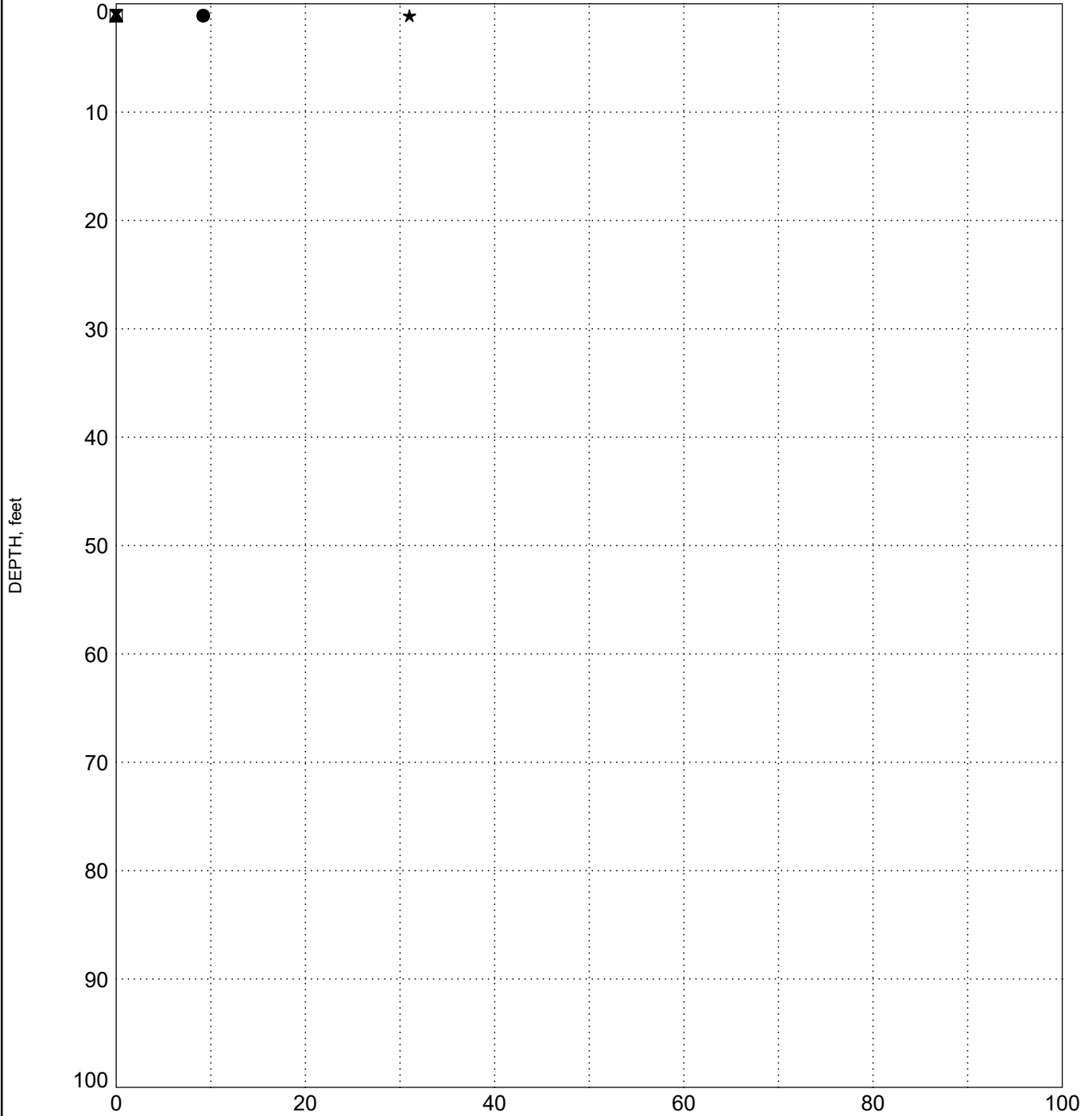
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 104.9

BORING P-06



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

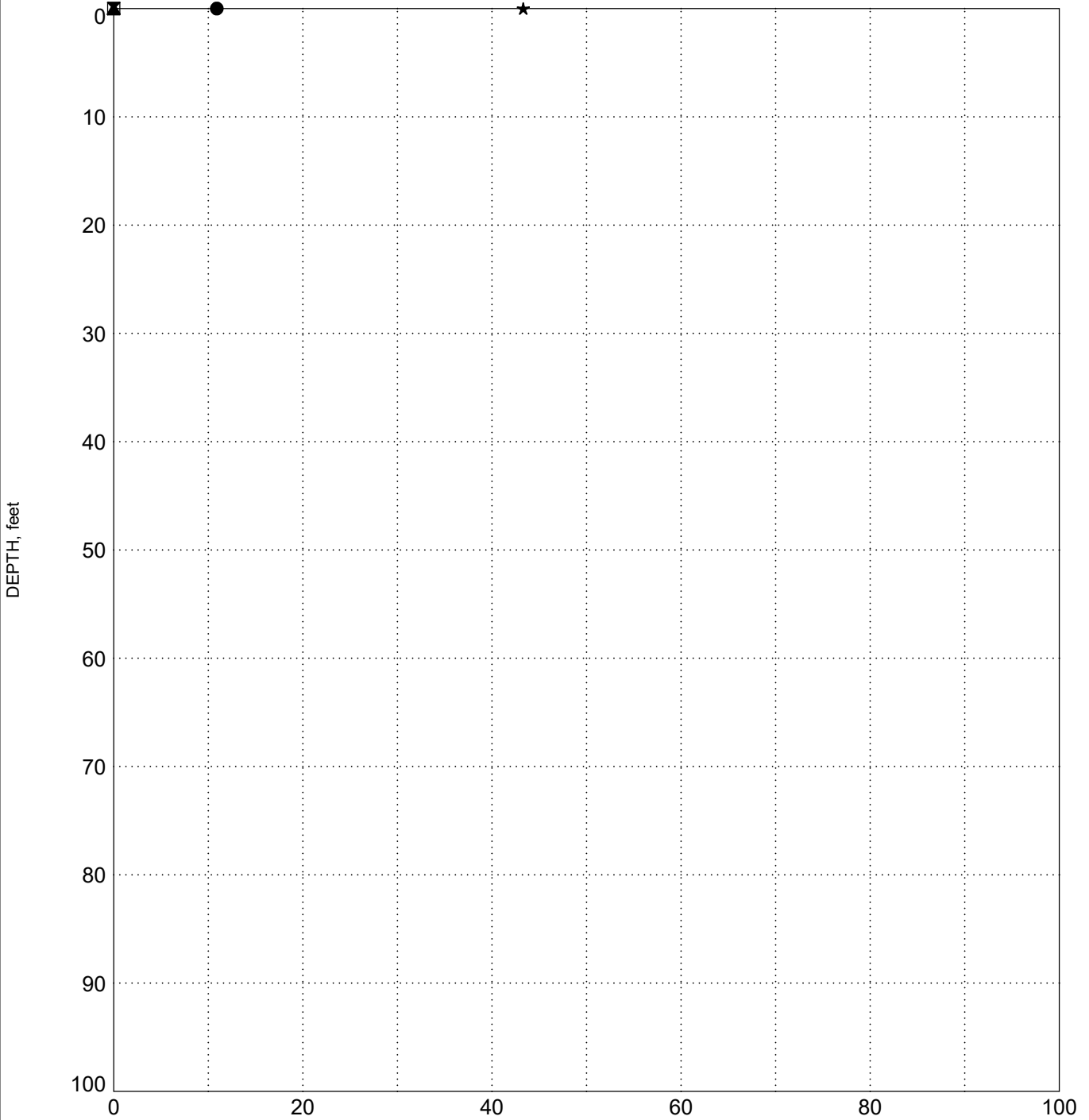
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 103.9

BORING P-08



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

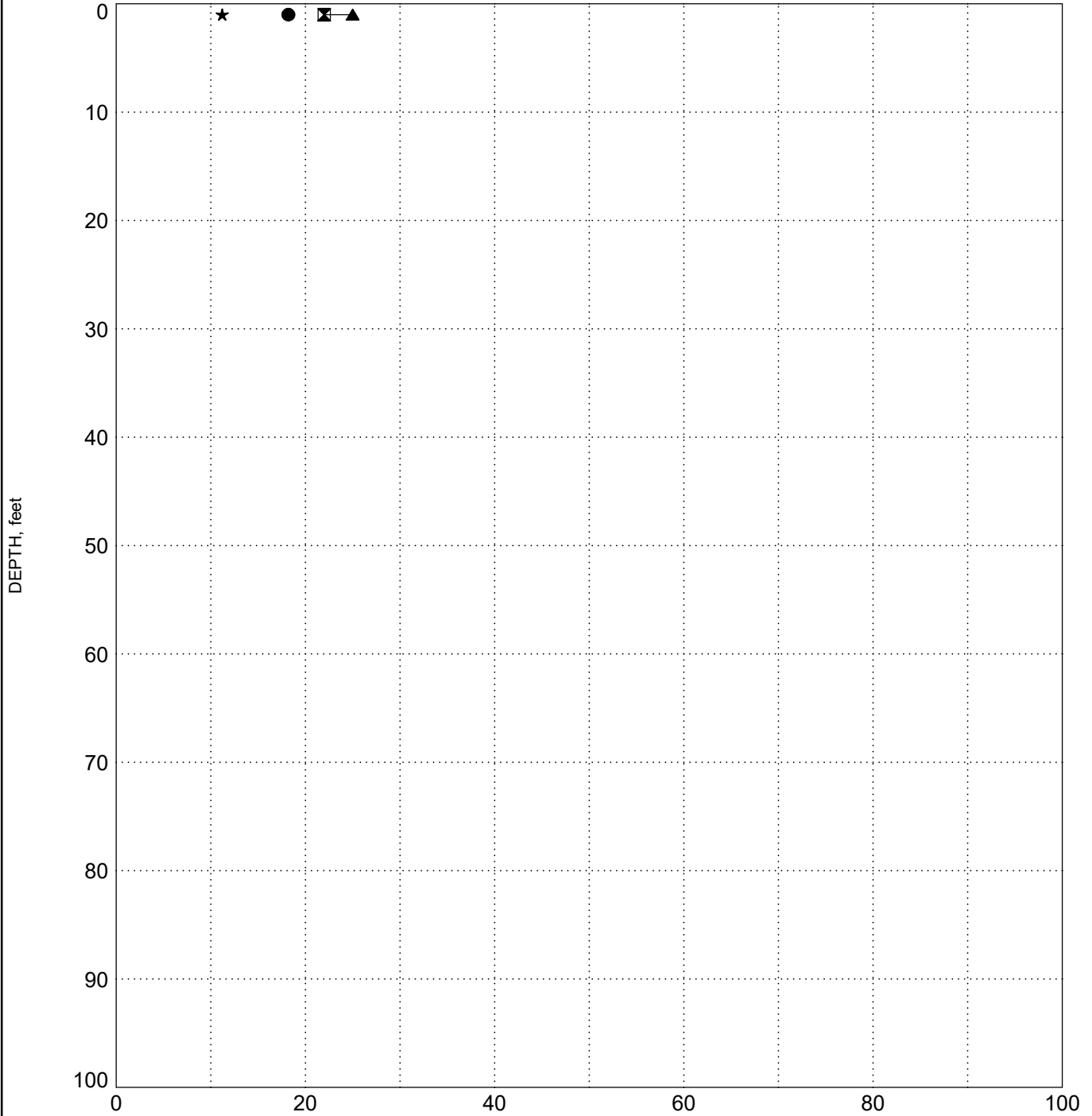
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-09

SURFACE ELEVATION: 103.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

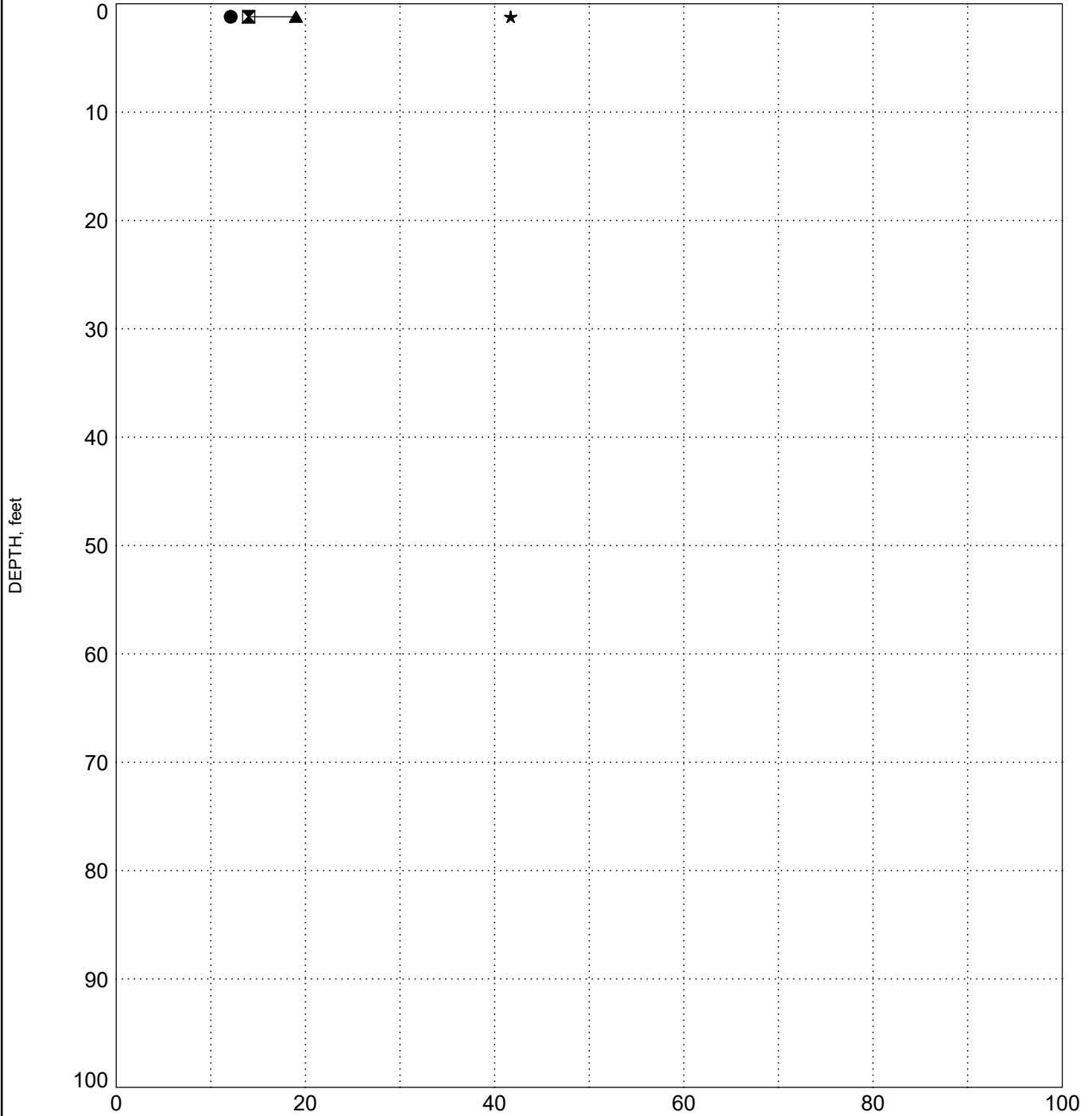
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-10

SURFACE ELEVATION: 103.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

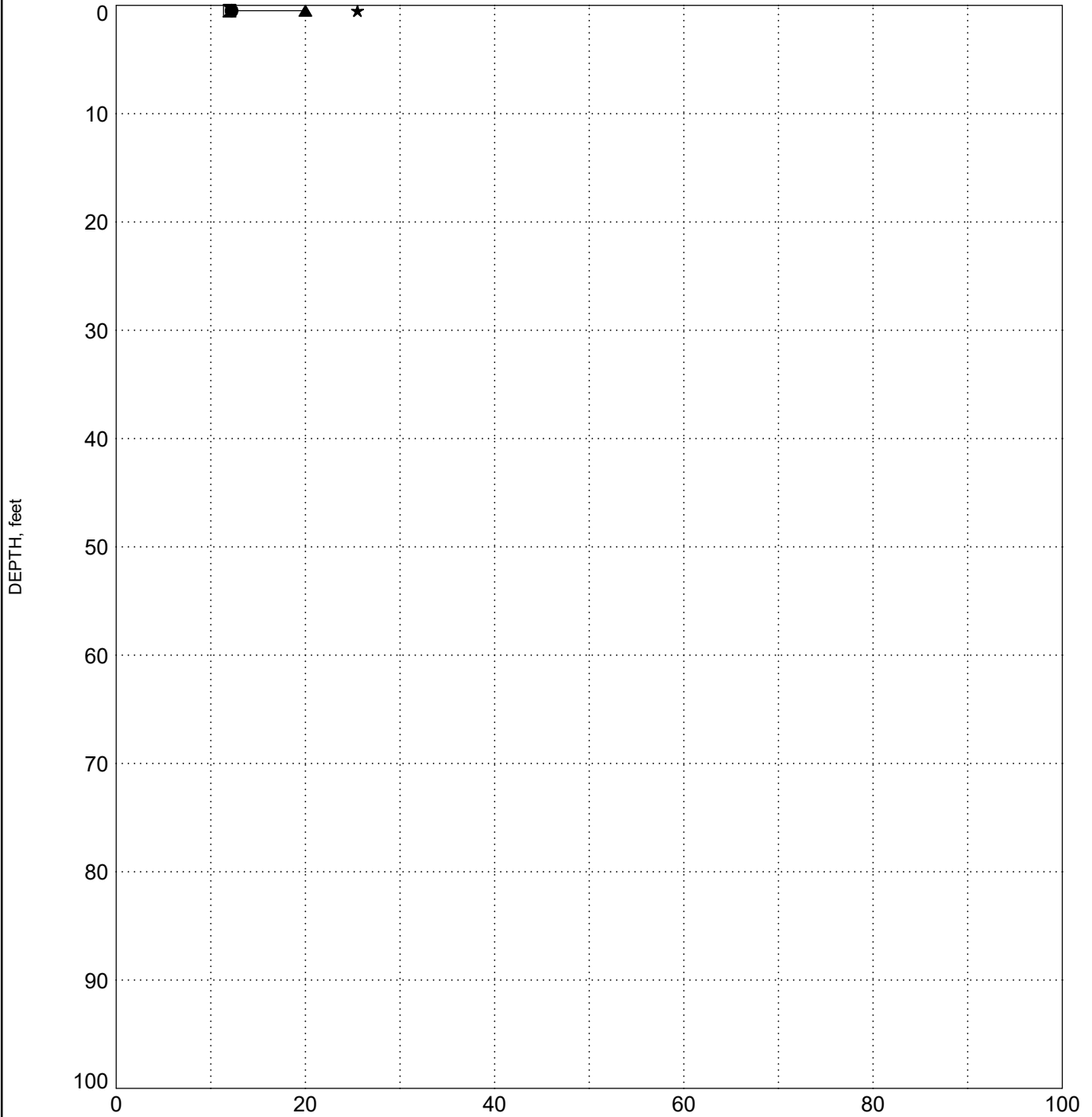
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-11

SURFACE ELEVATION: 102.4



LEGEND	
●	Water Content
■	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

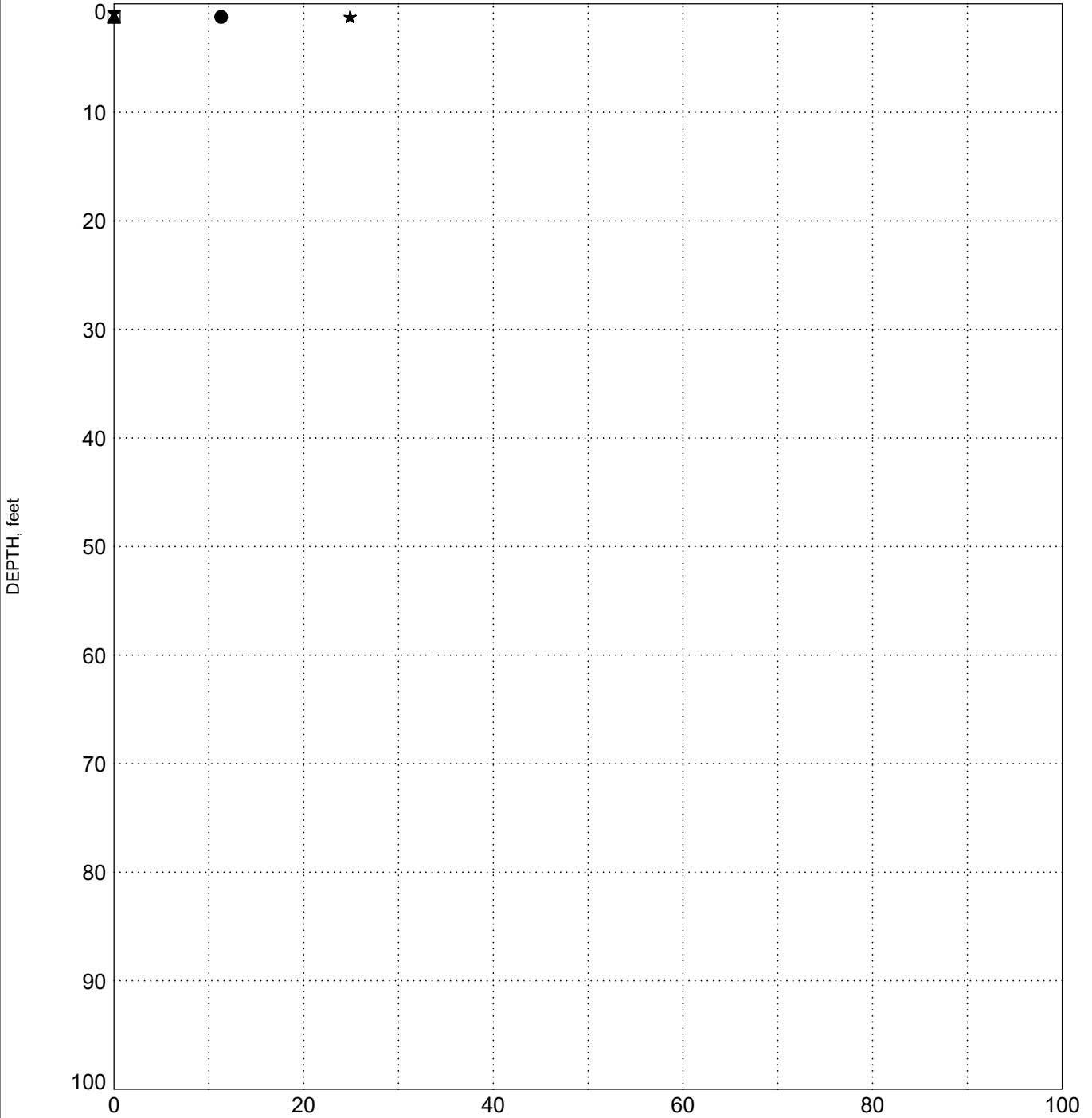
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-12

SURFACE ELEVATION: 101.3



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

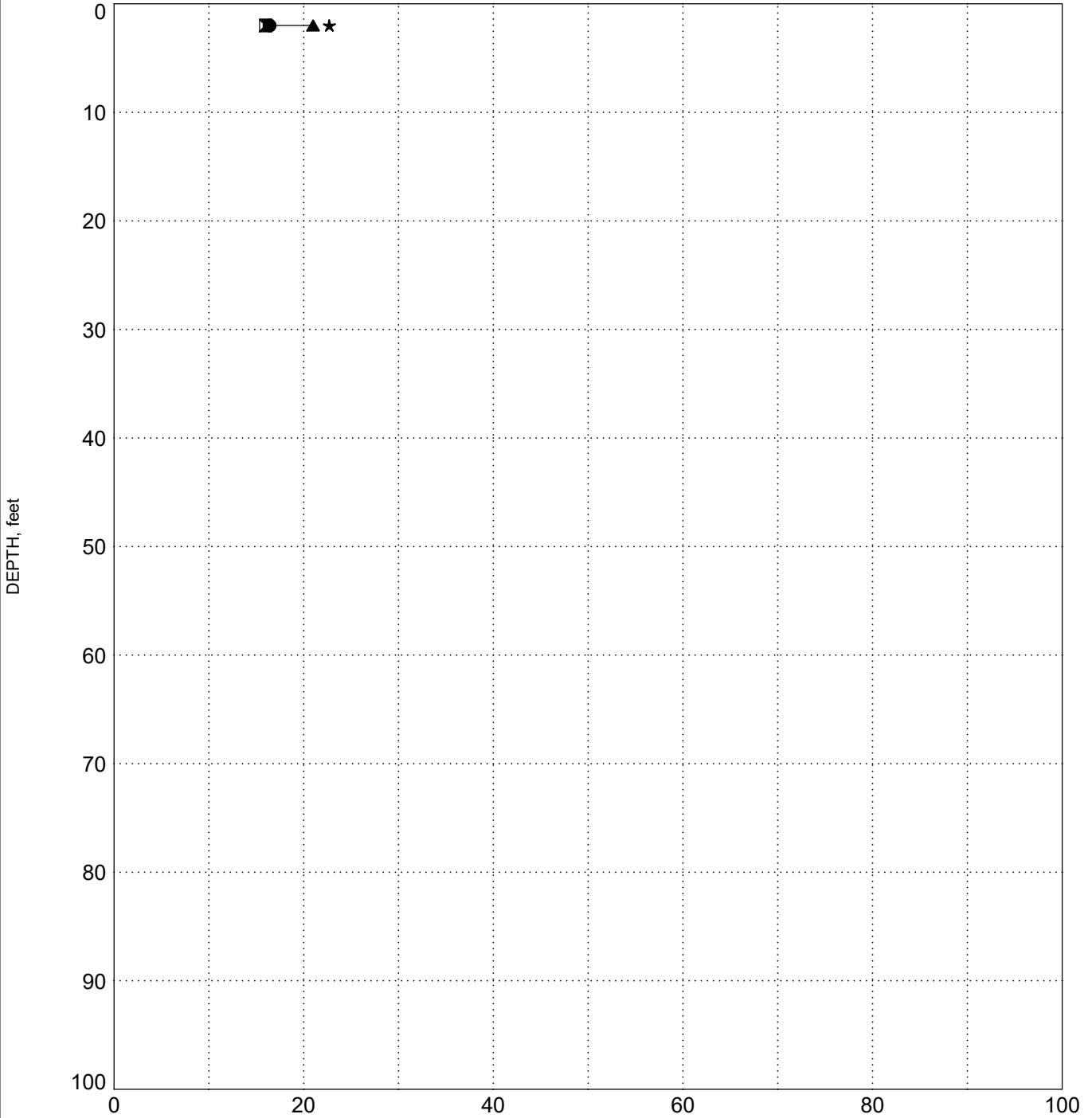
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-12MA

SURFACE ELEVATION: 99.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

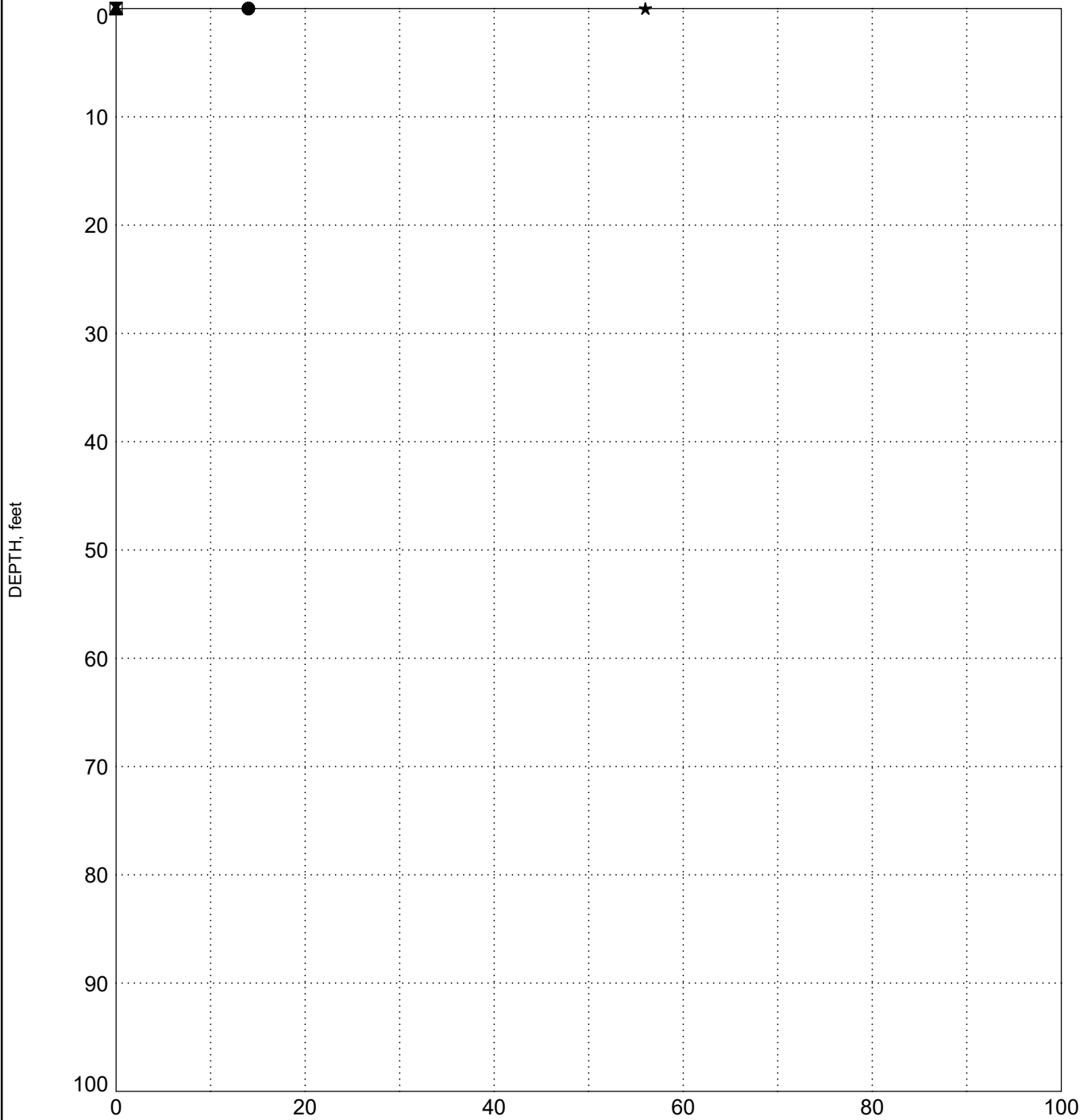
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-13

SURFACE ELEVATION: 100.0



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

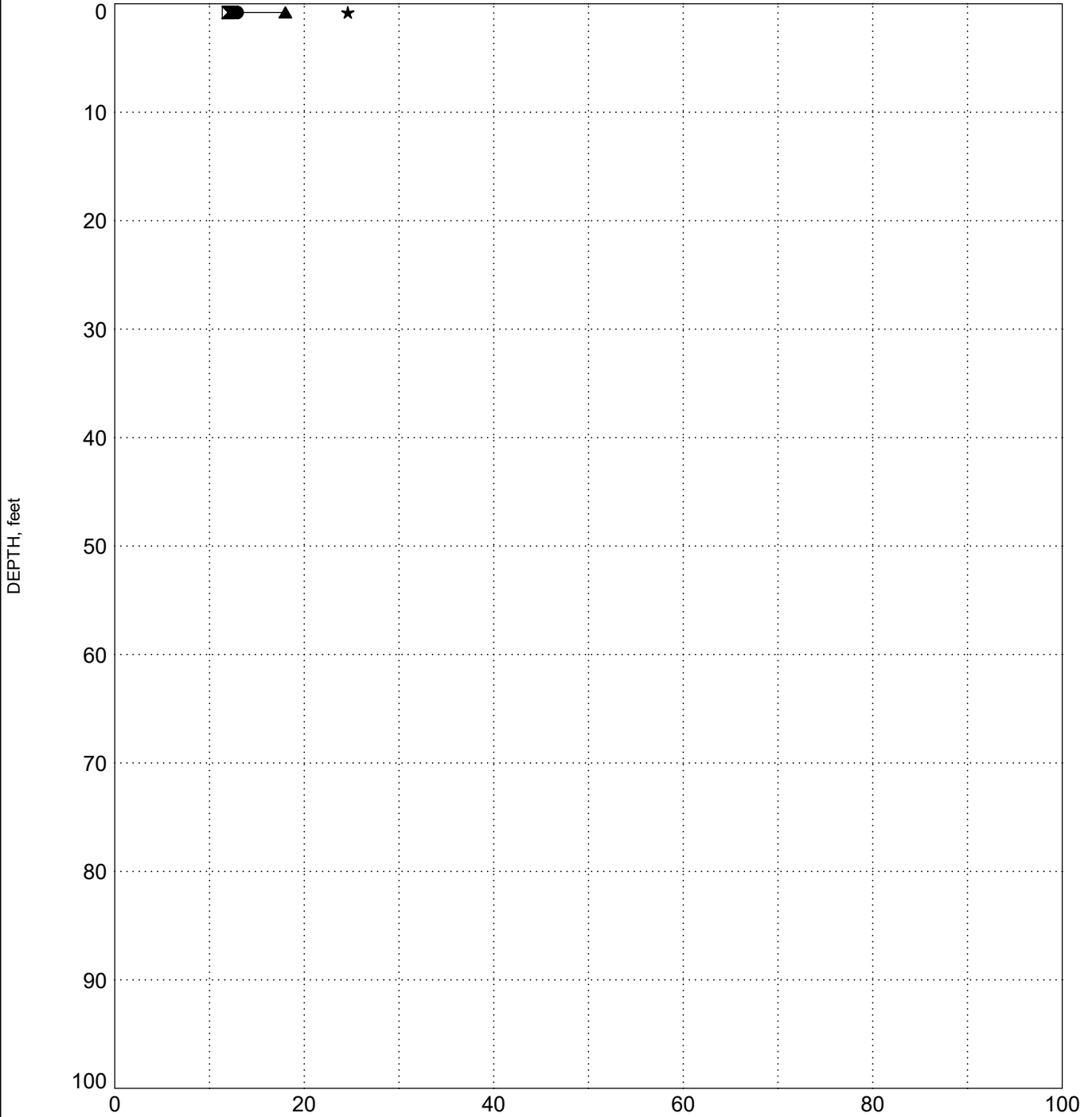
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-14

SURFACE ELEVATION: 100.2



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

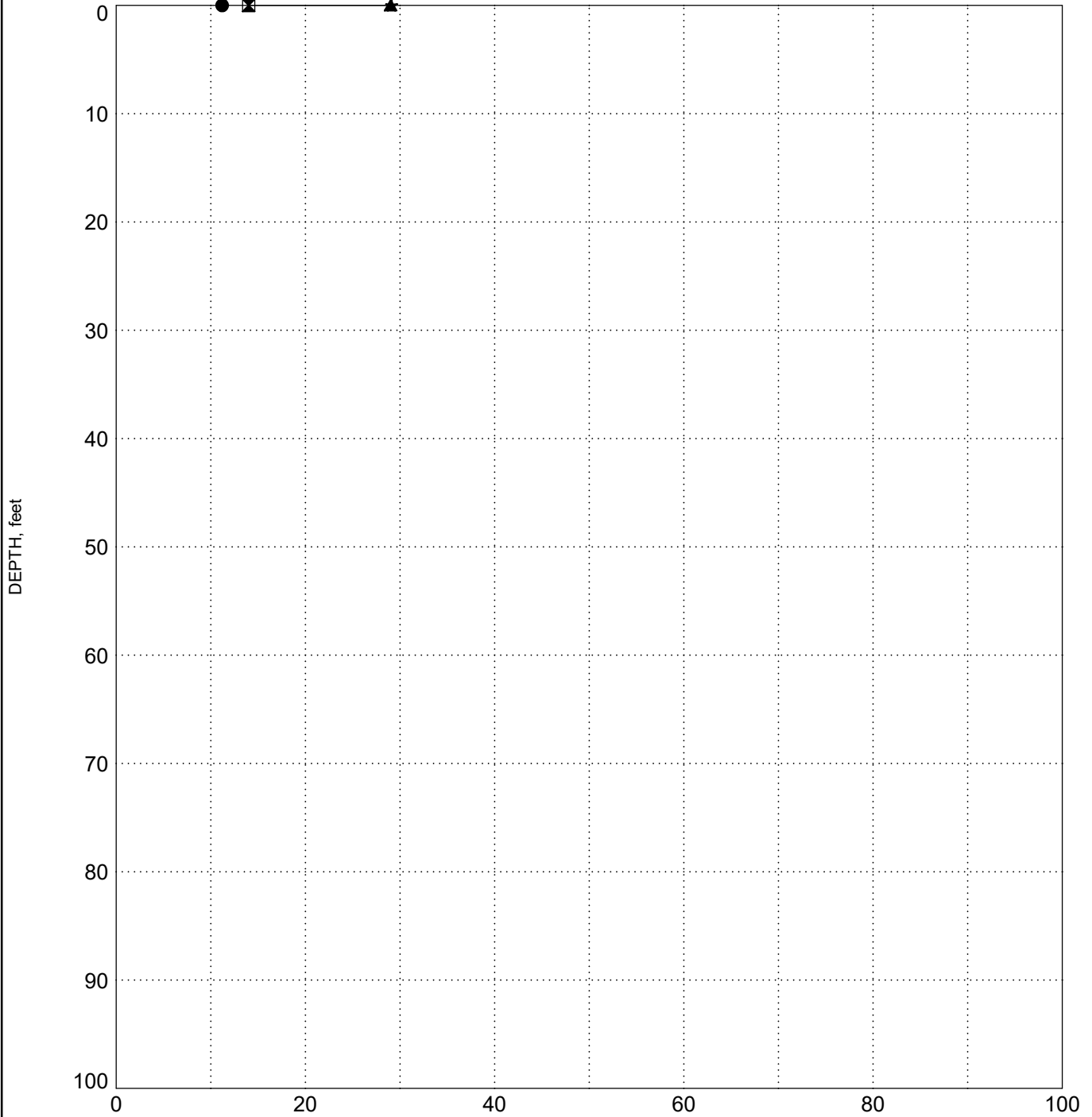
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-15

SURFACE ELEVATION: 99.2



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

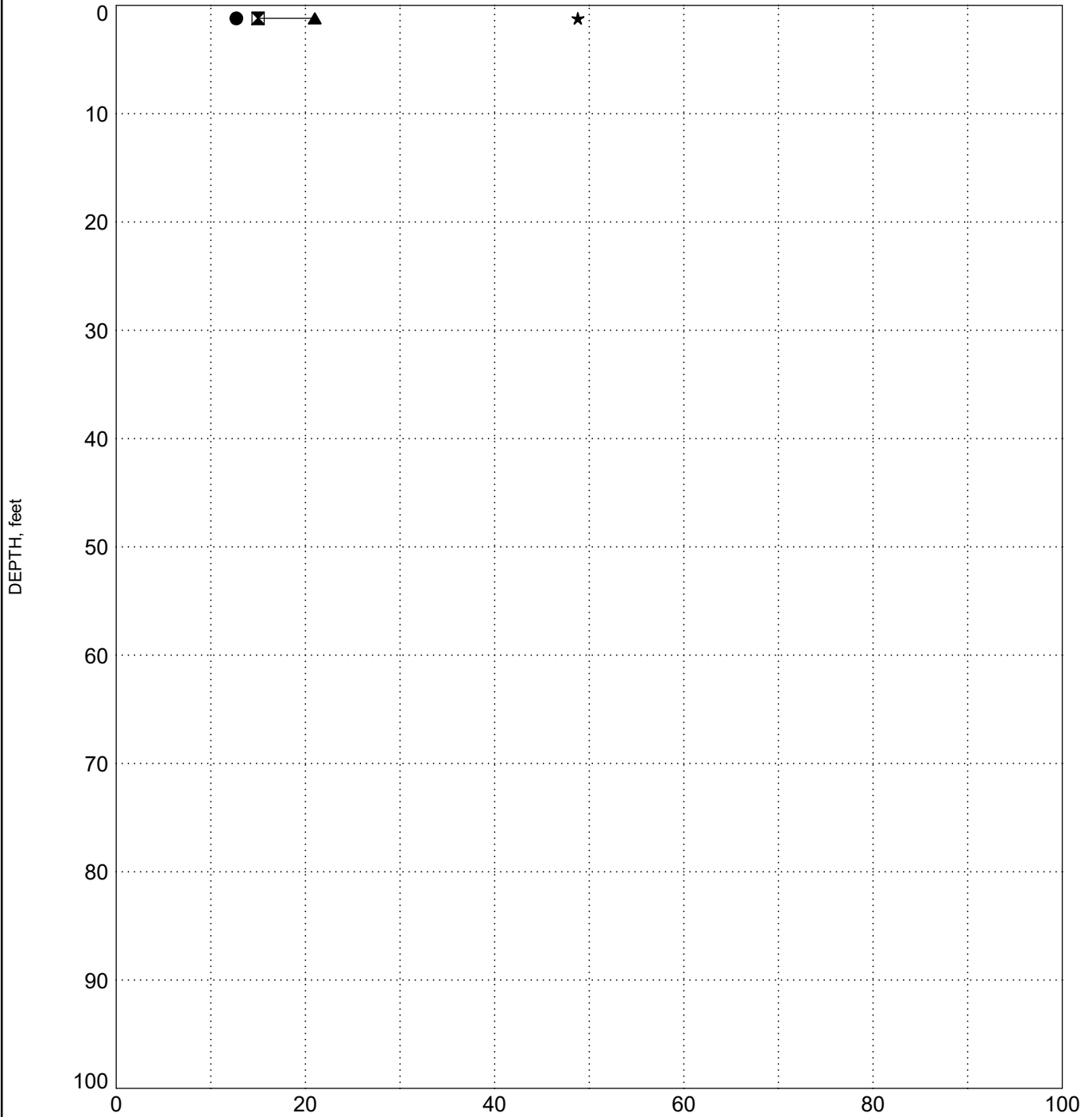
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-16

SURFACE ELEVATION: 100.0



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

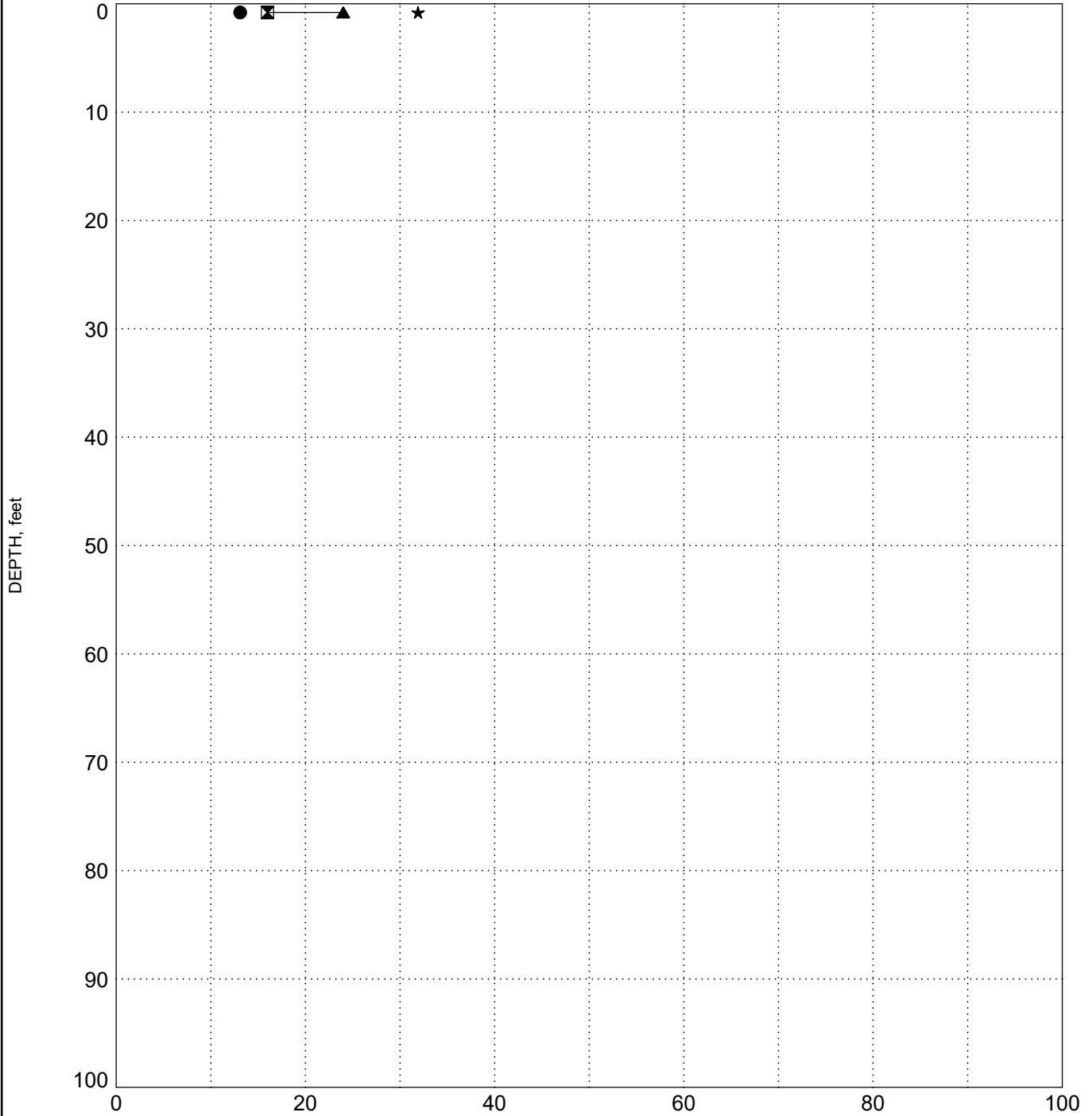
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.1

BORING P-17



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

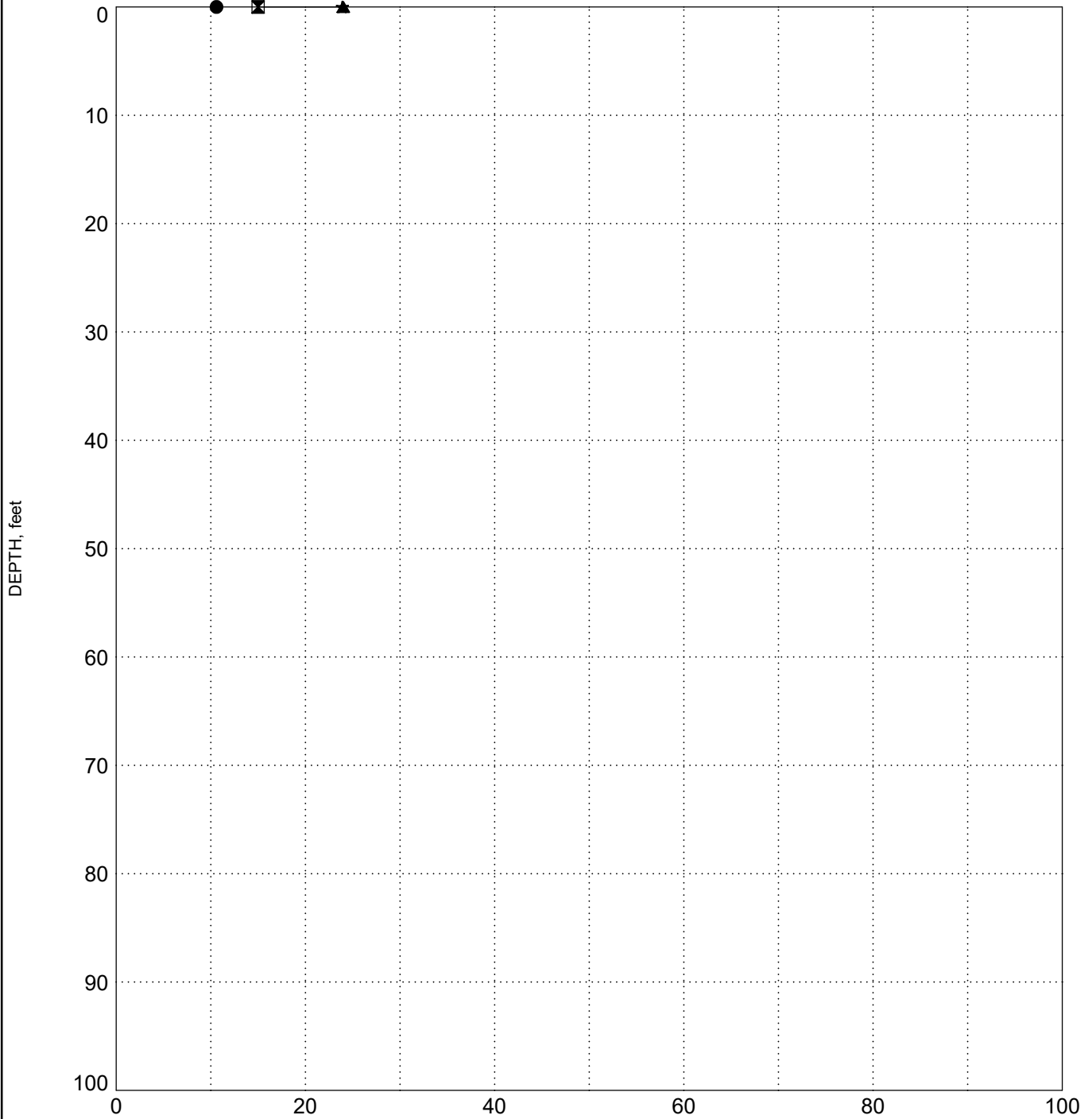
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING P-18

SURFACE ELEVATION: 98.0



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

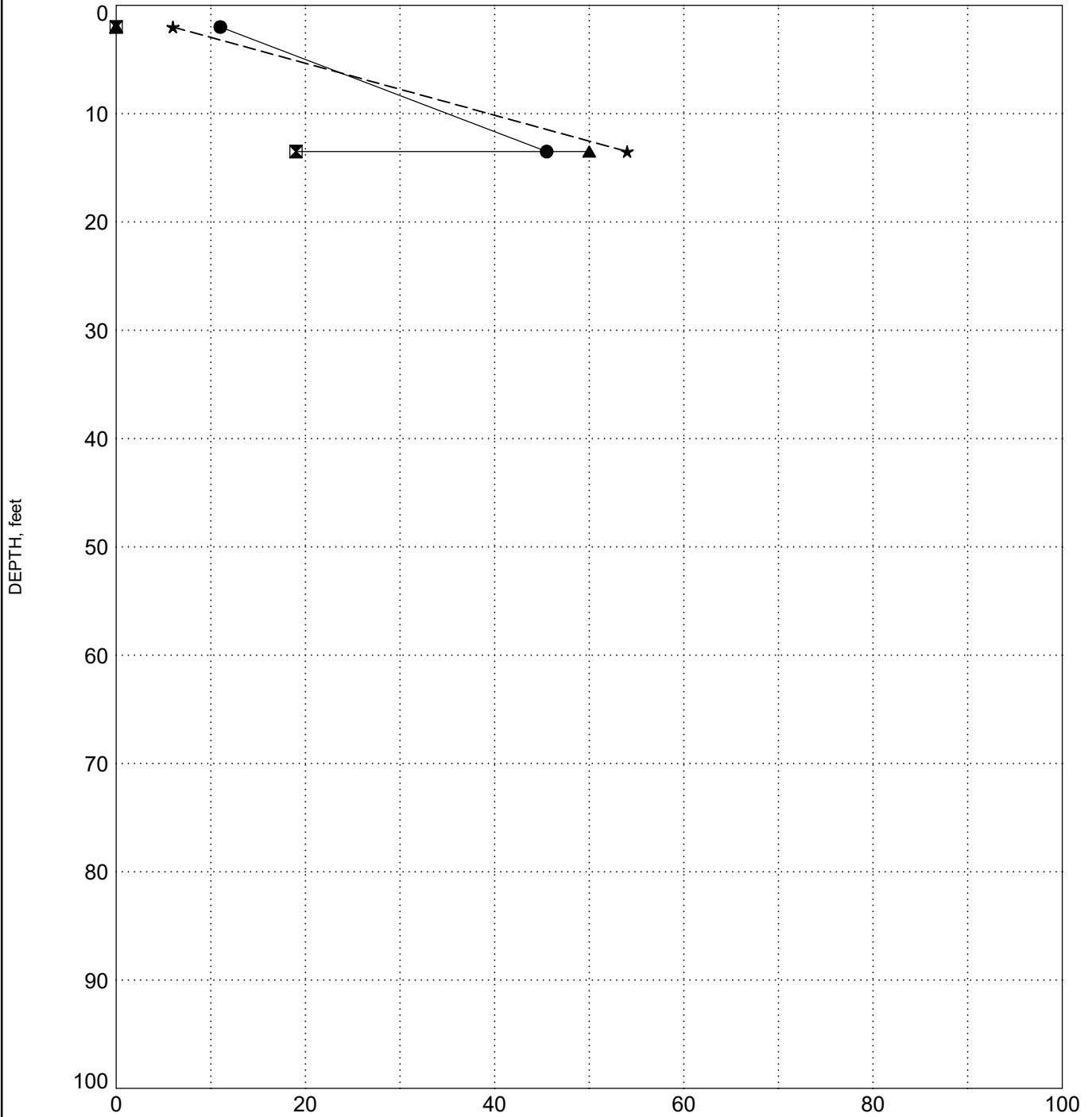
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-01

SURFACE ELEVATION: 97.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

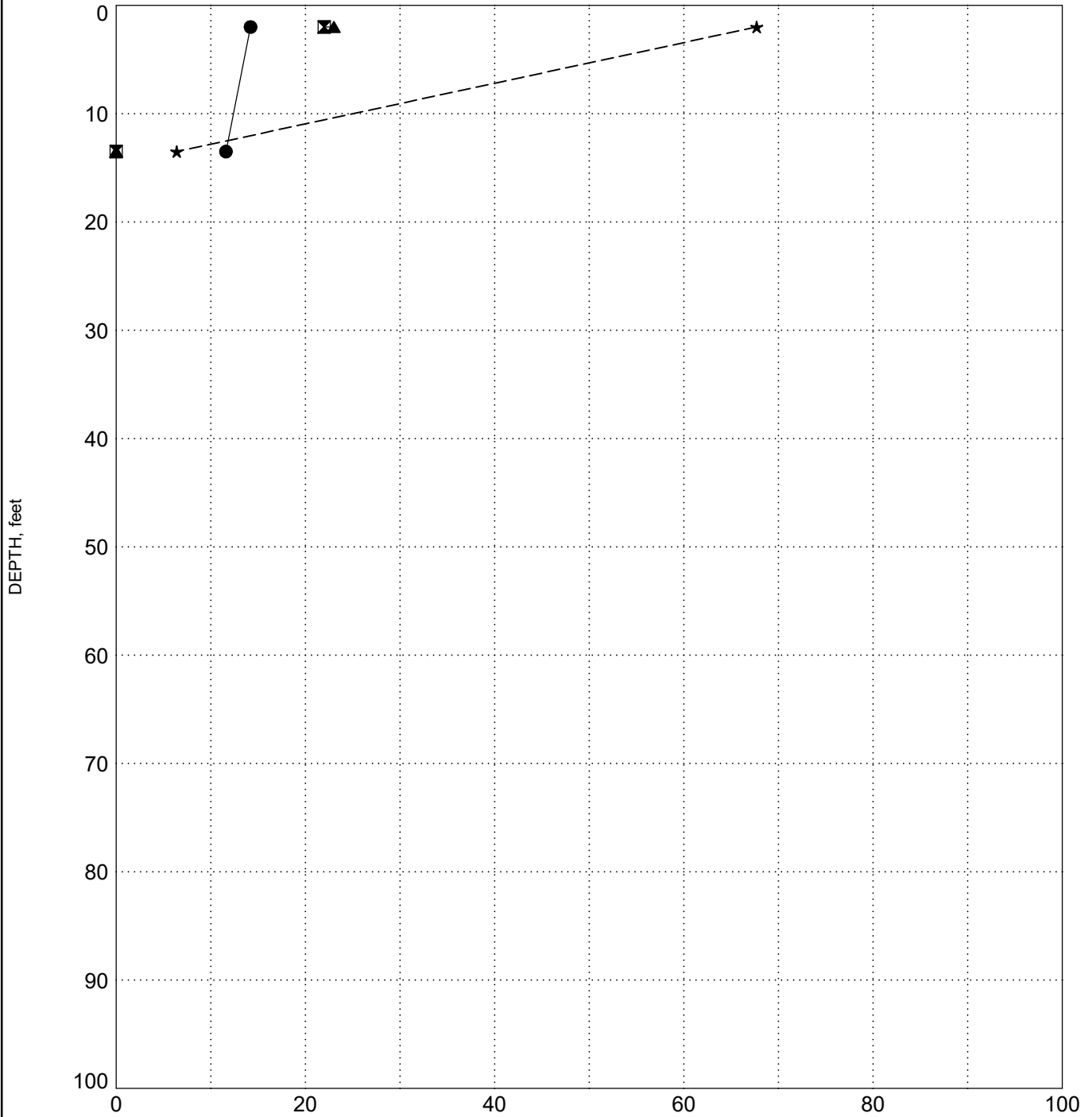
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-02

SURFACE ELEVATION: 95.0



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



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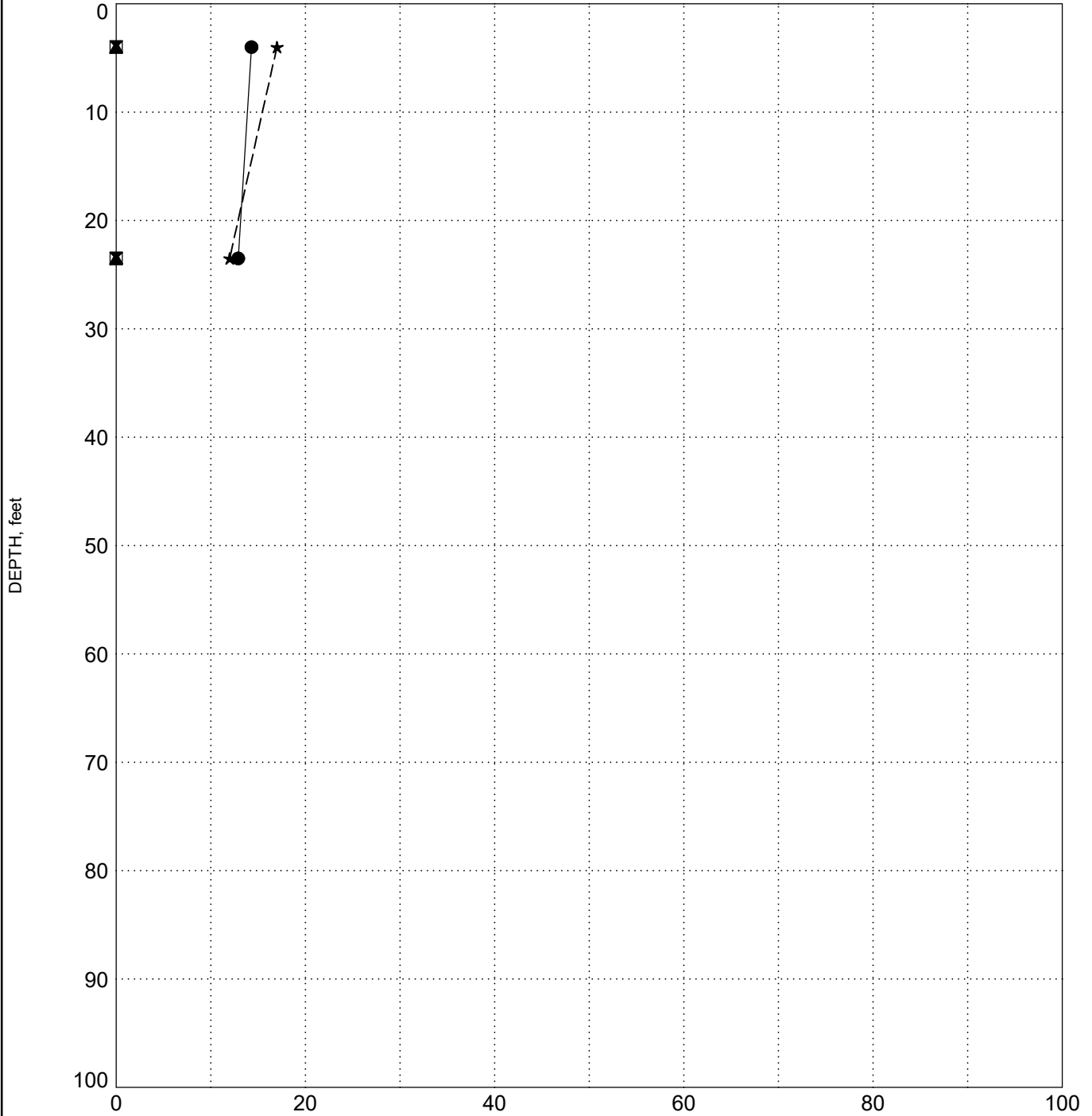
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-03

SURFACE ELEVATION: 96.6



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

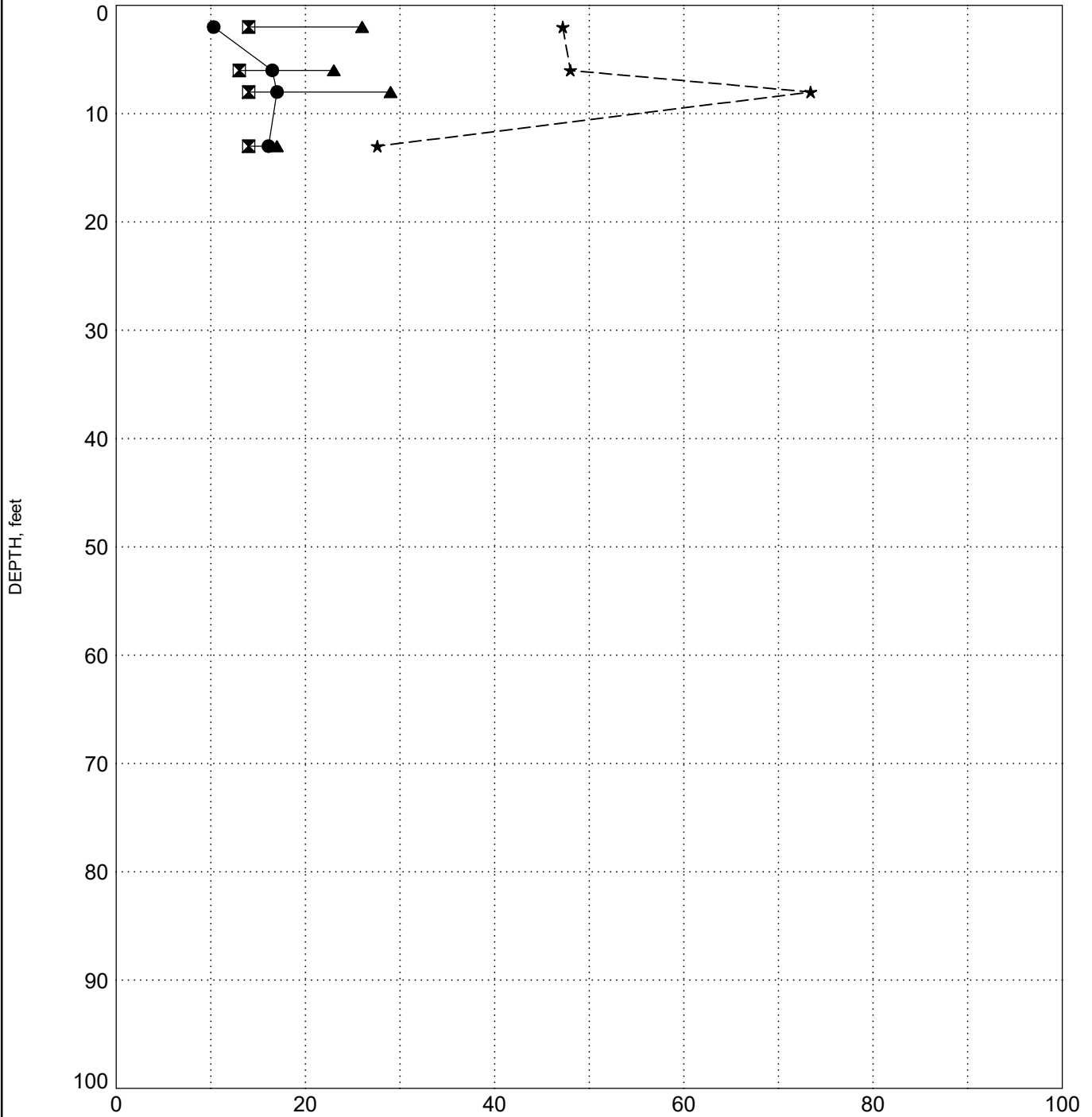
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.4

BORING R-04



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

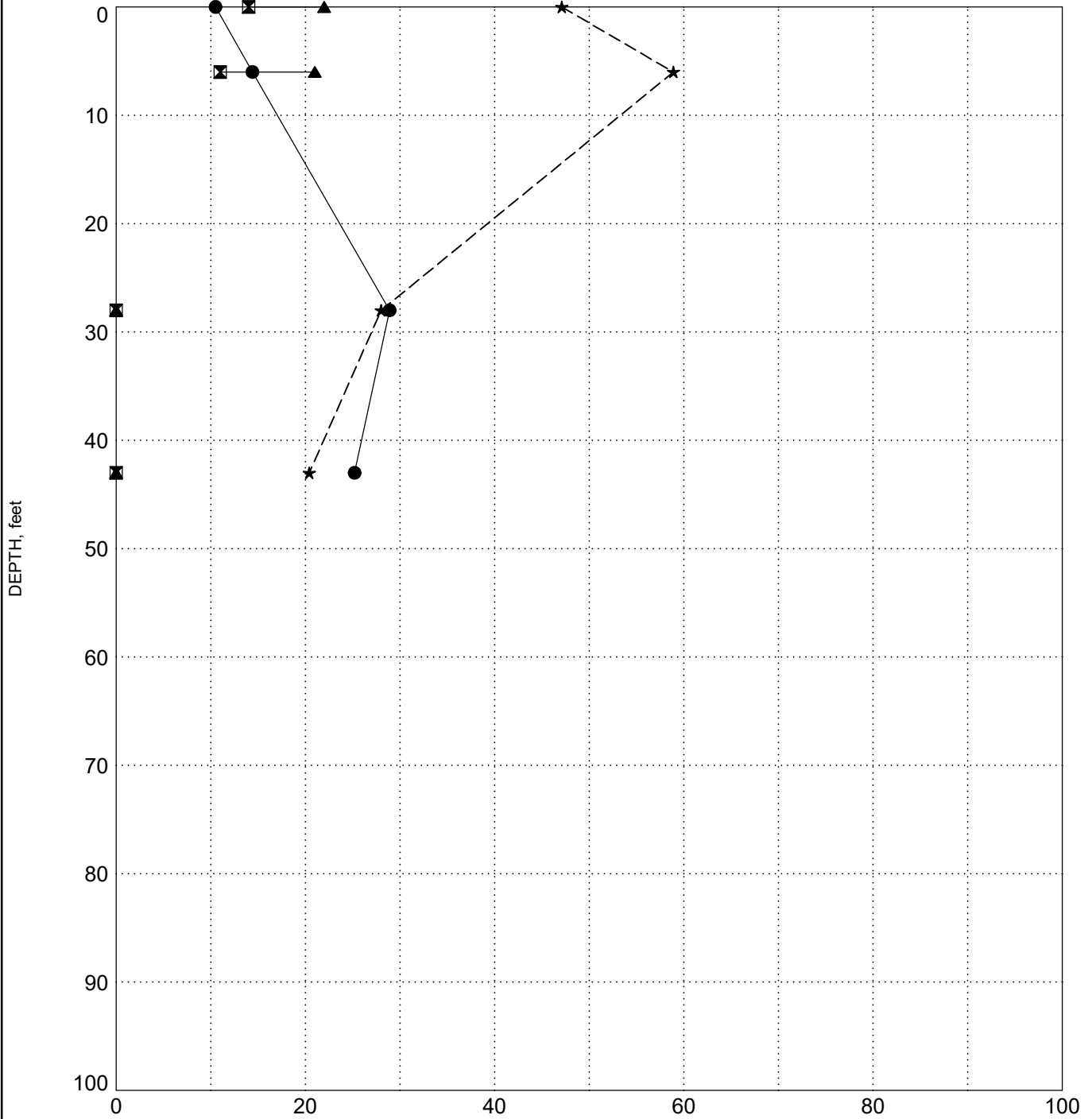
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 103.0

BORING R-05



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

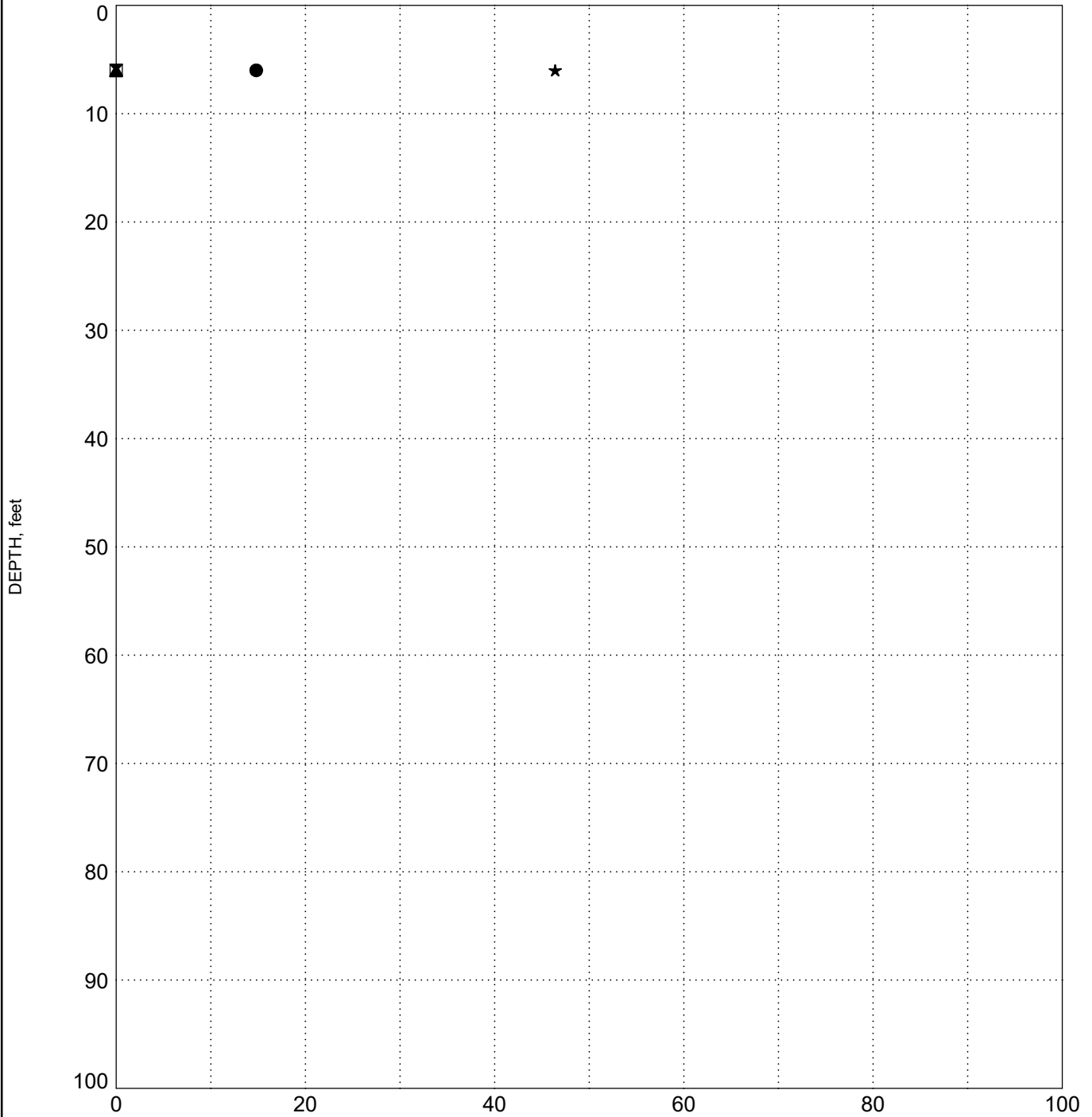
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 102.7

BORING R-06



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

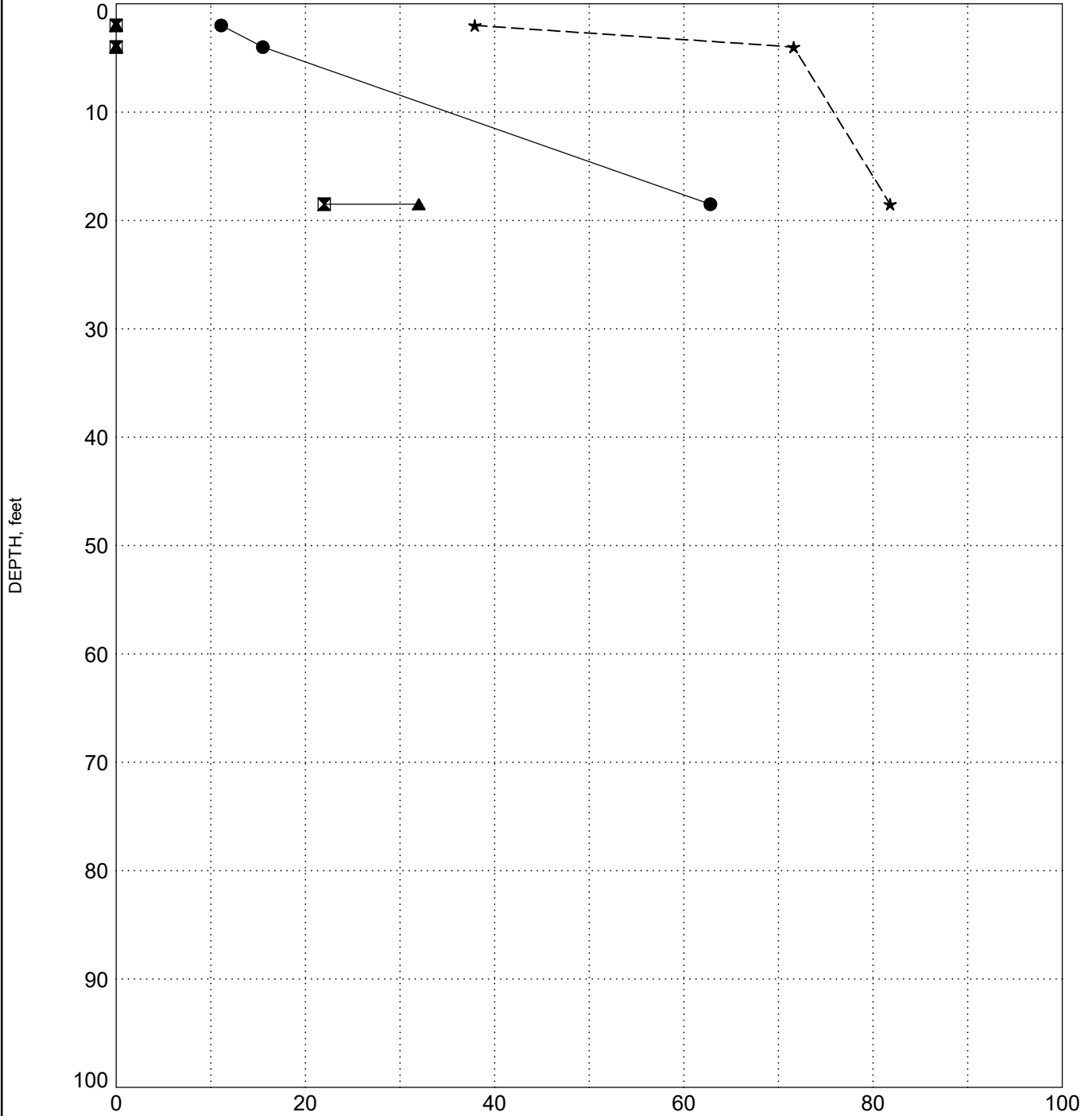
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 103.6

BORING R-07



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

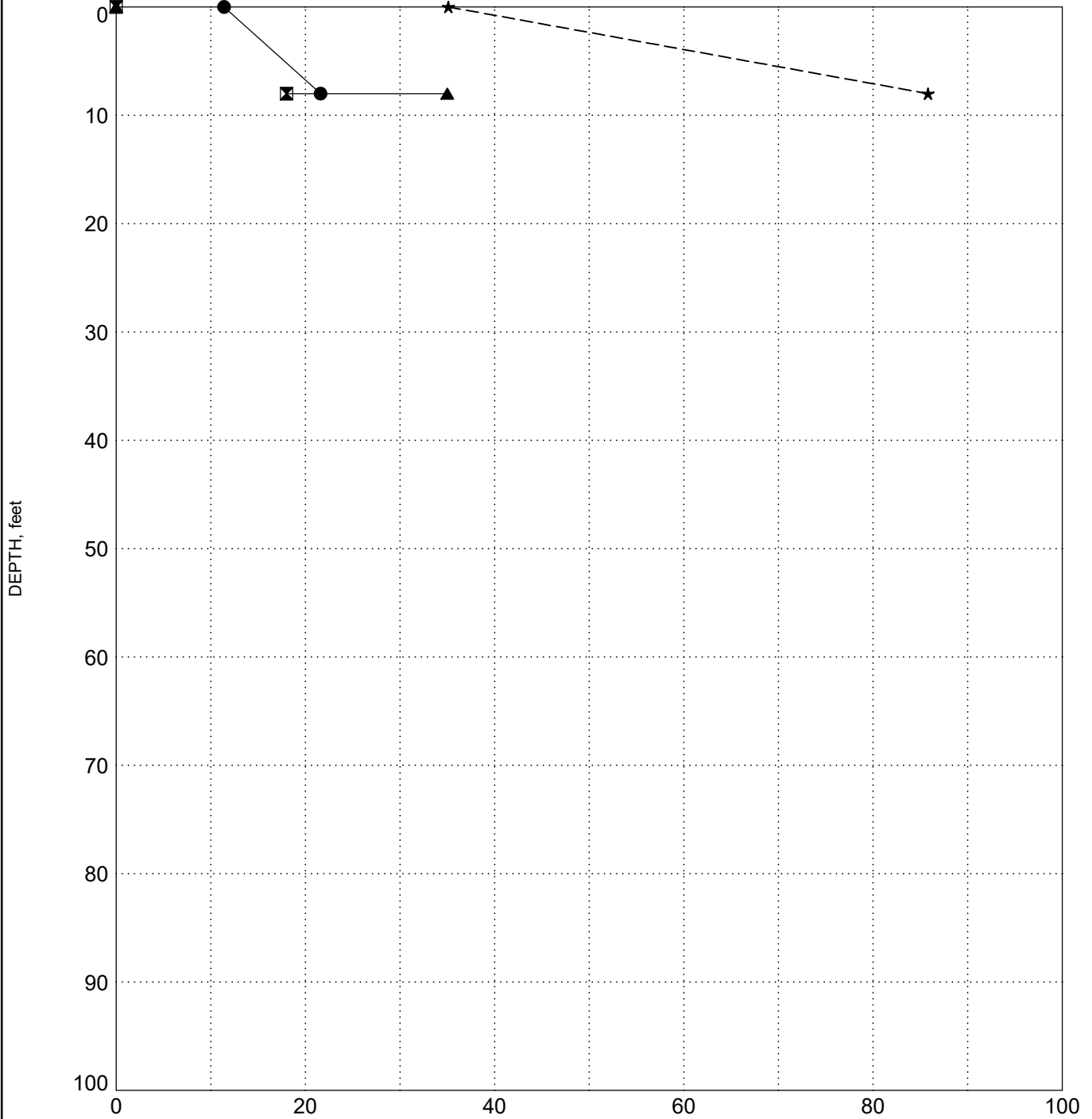
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-08

SURFACE ELEVATION: 104.0



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

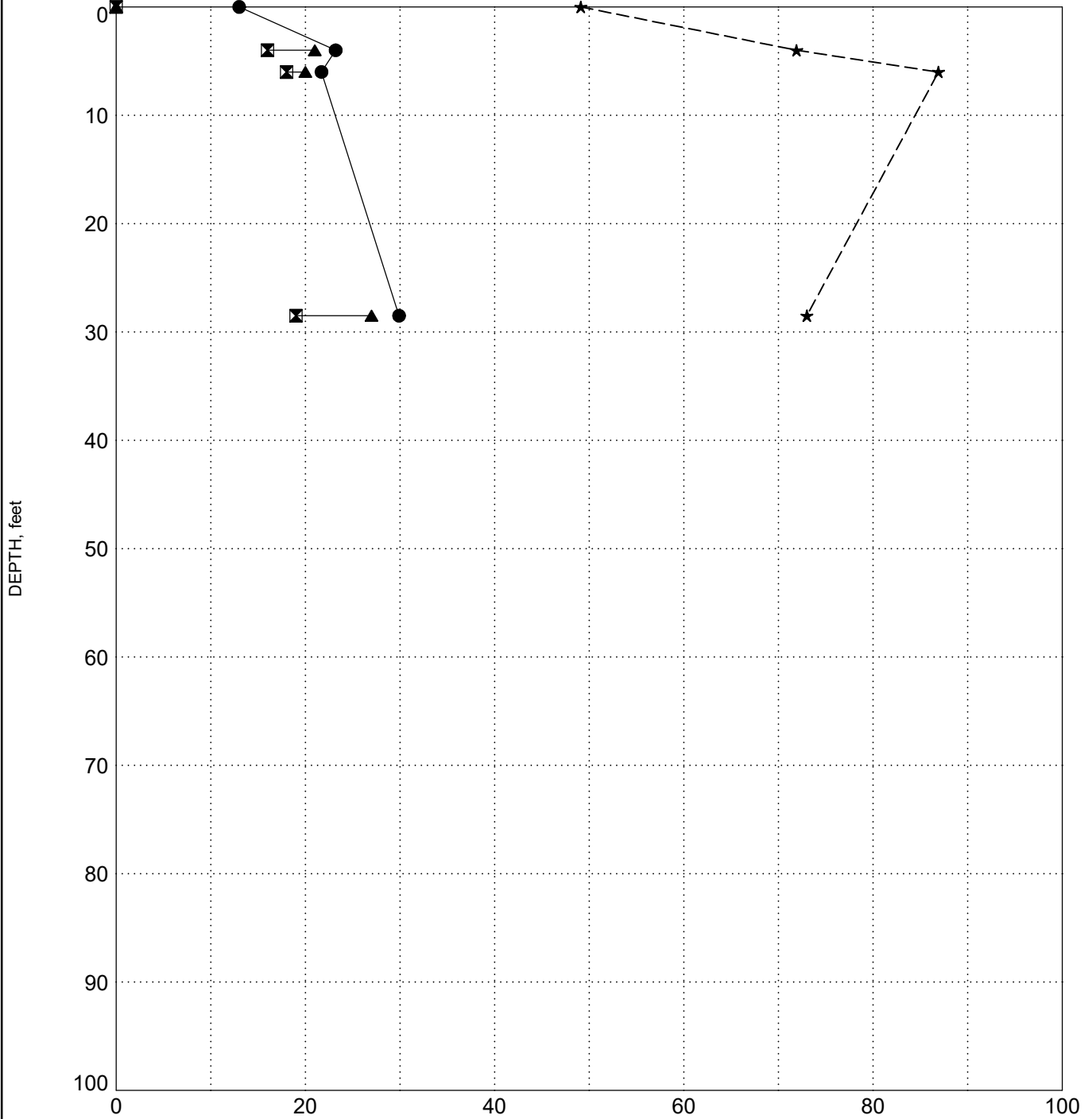
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.5

BORING R-09



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

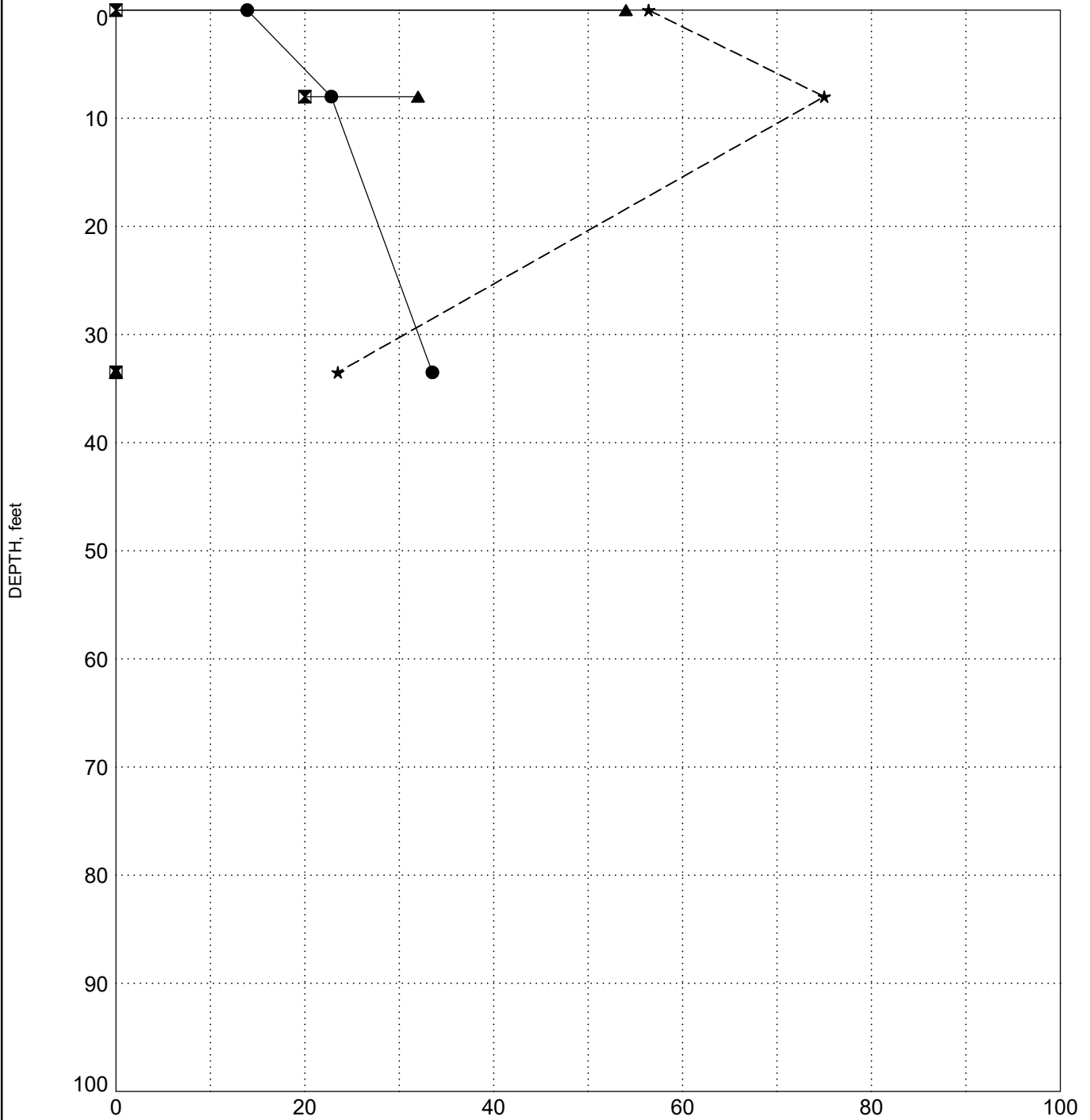
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.5

BORING R-10



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

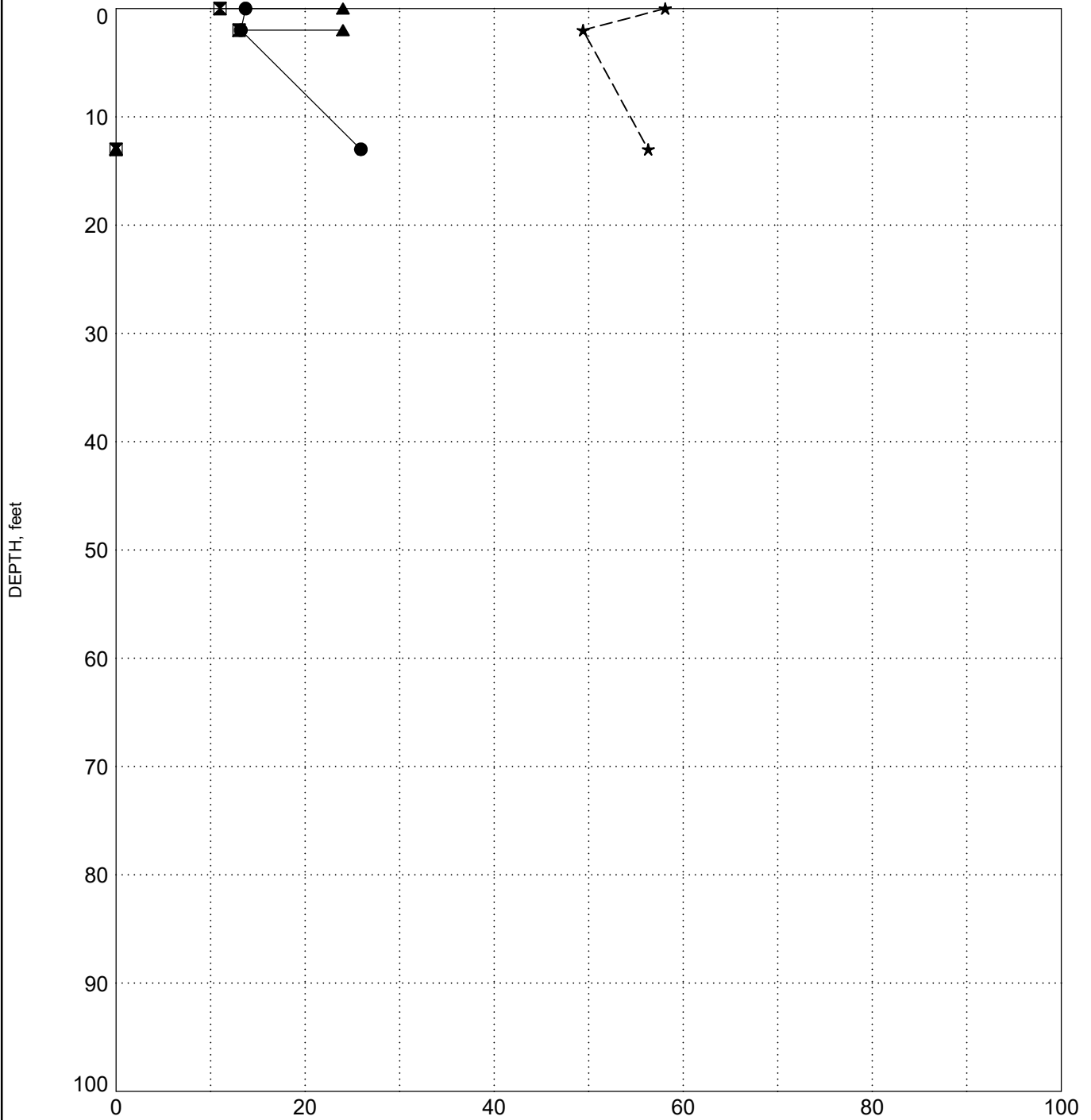
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-12

SURFACE ELEVATION: 95.9



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

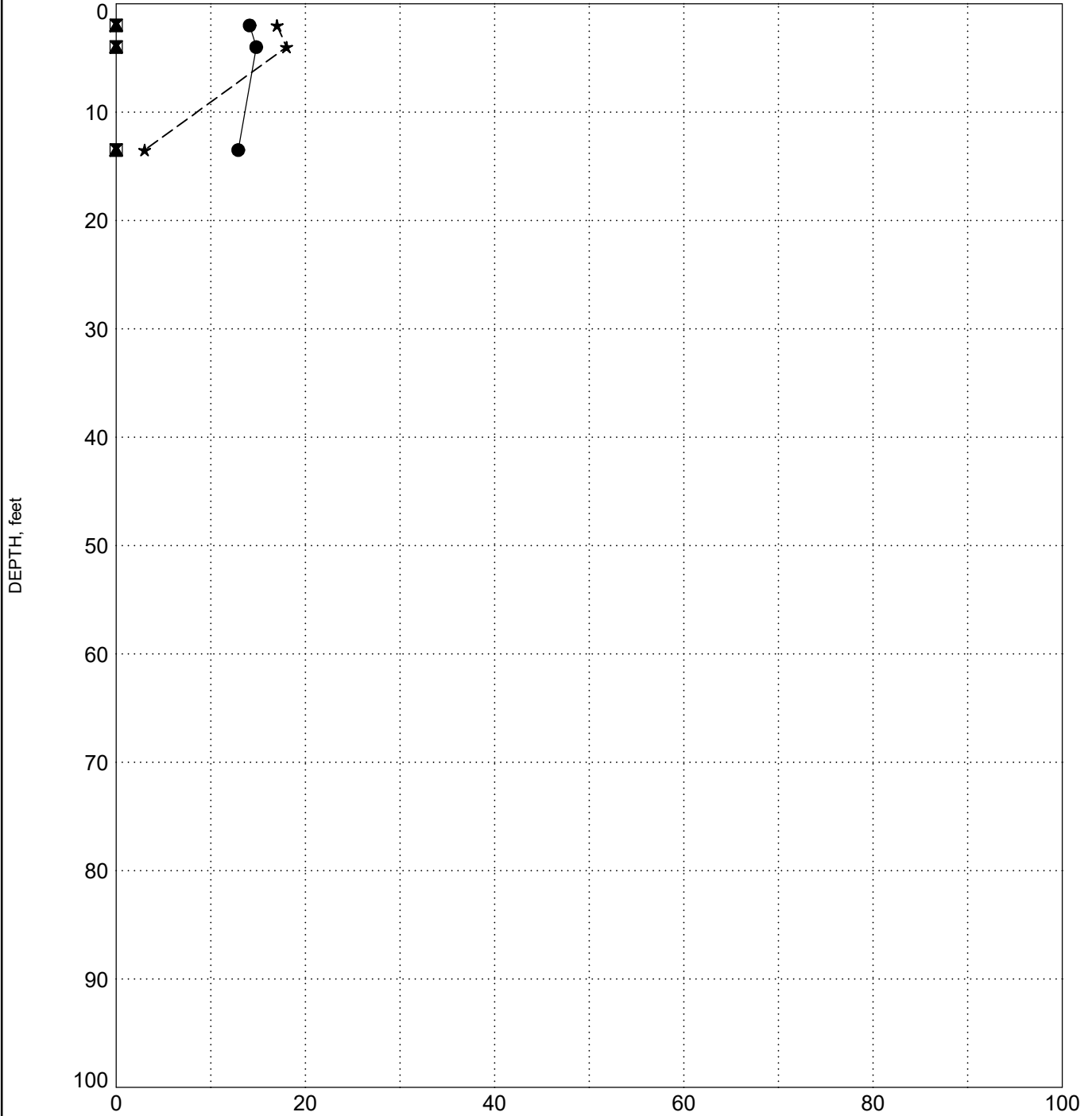
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-13

SURFACE ELEVATION: 97.1



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

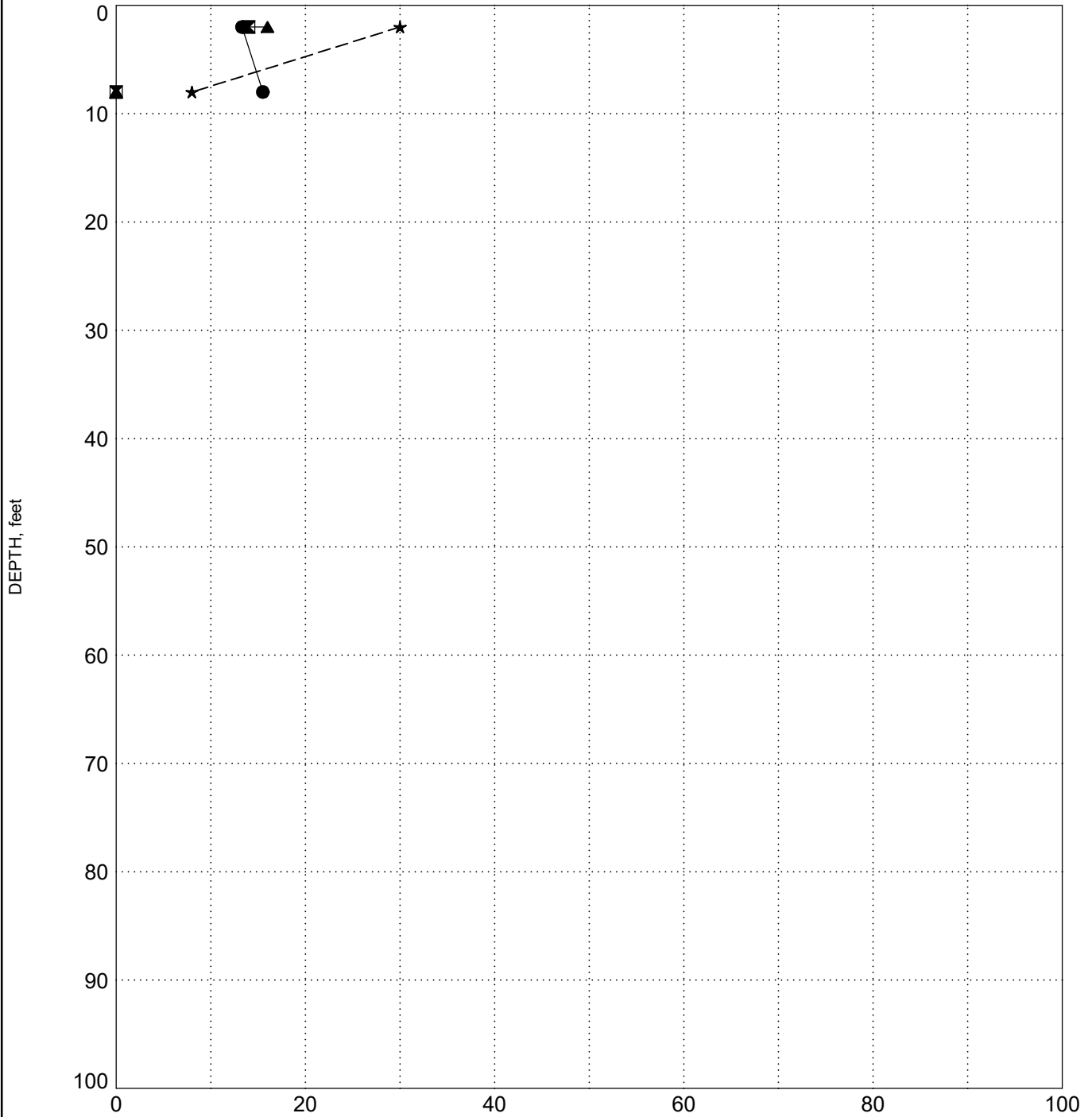
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-14

SURFACE ELEVATION: 95.2



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

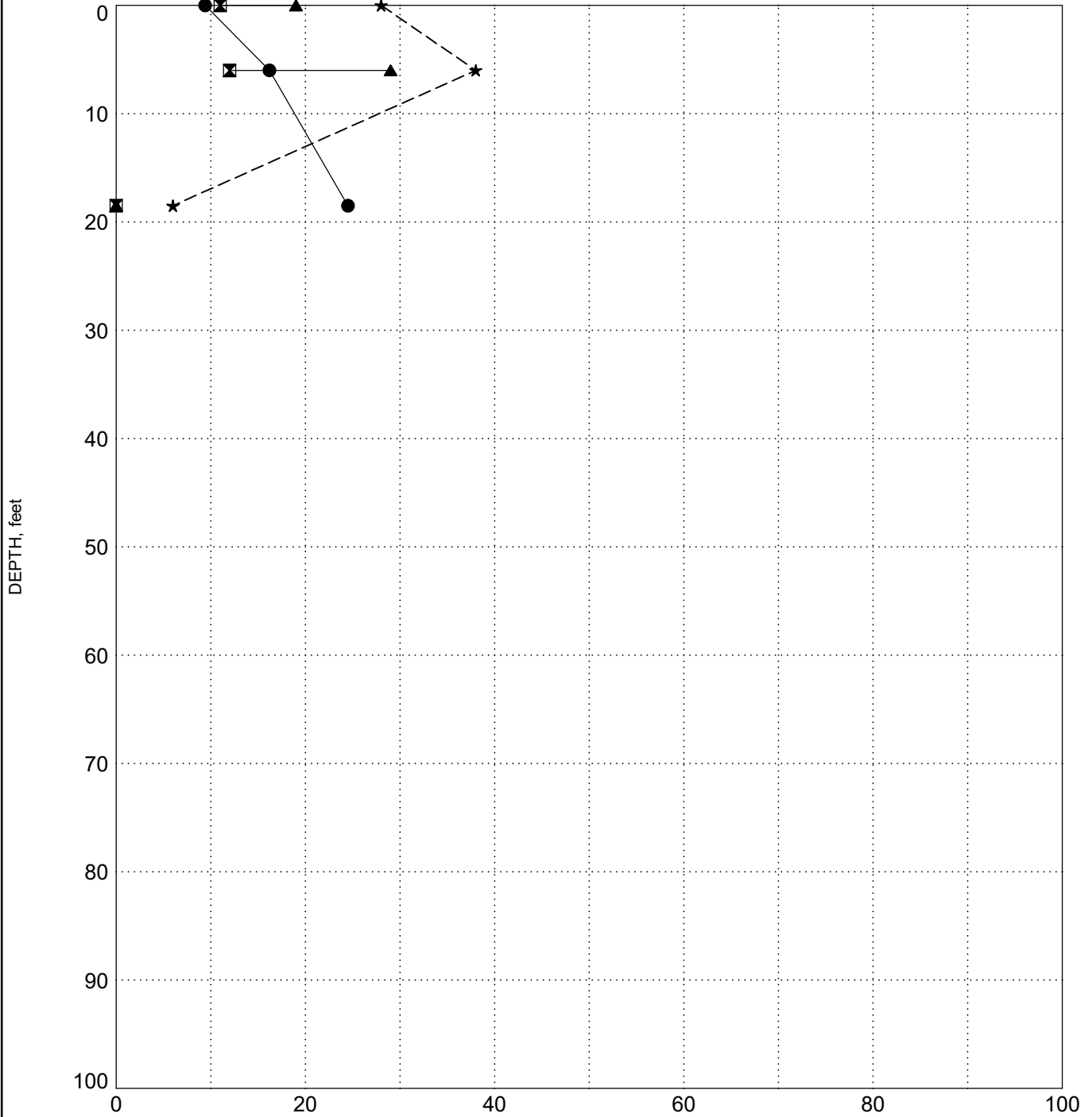
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-15

SURFACE ELEVATION: 98.0



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

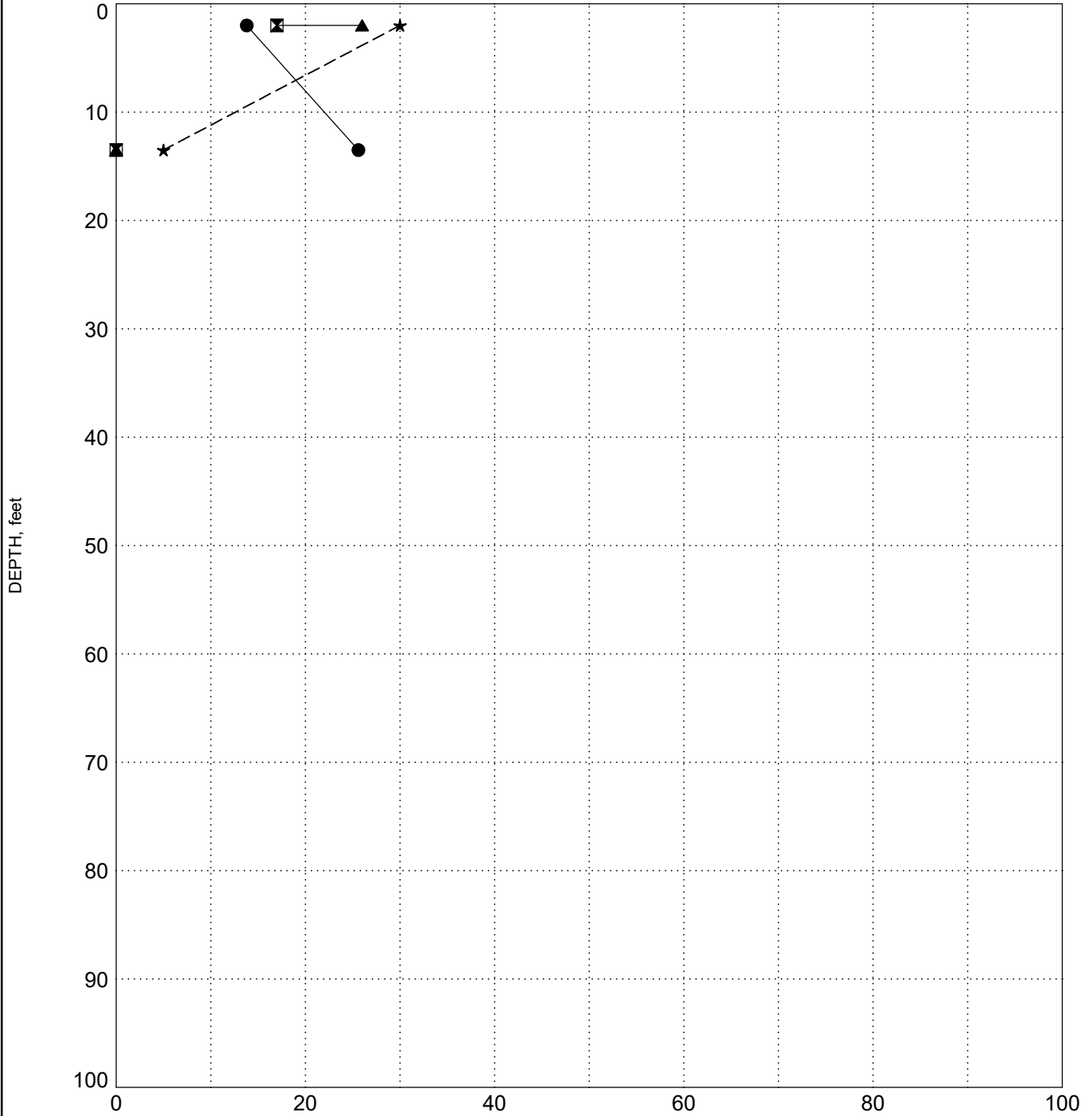
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-17

SURFACE ELEVATION: 98.4



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

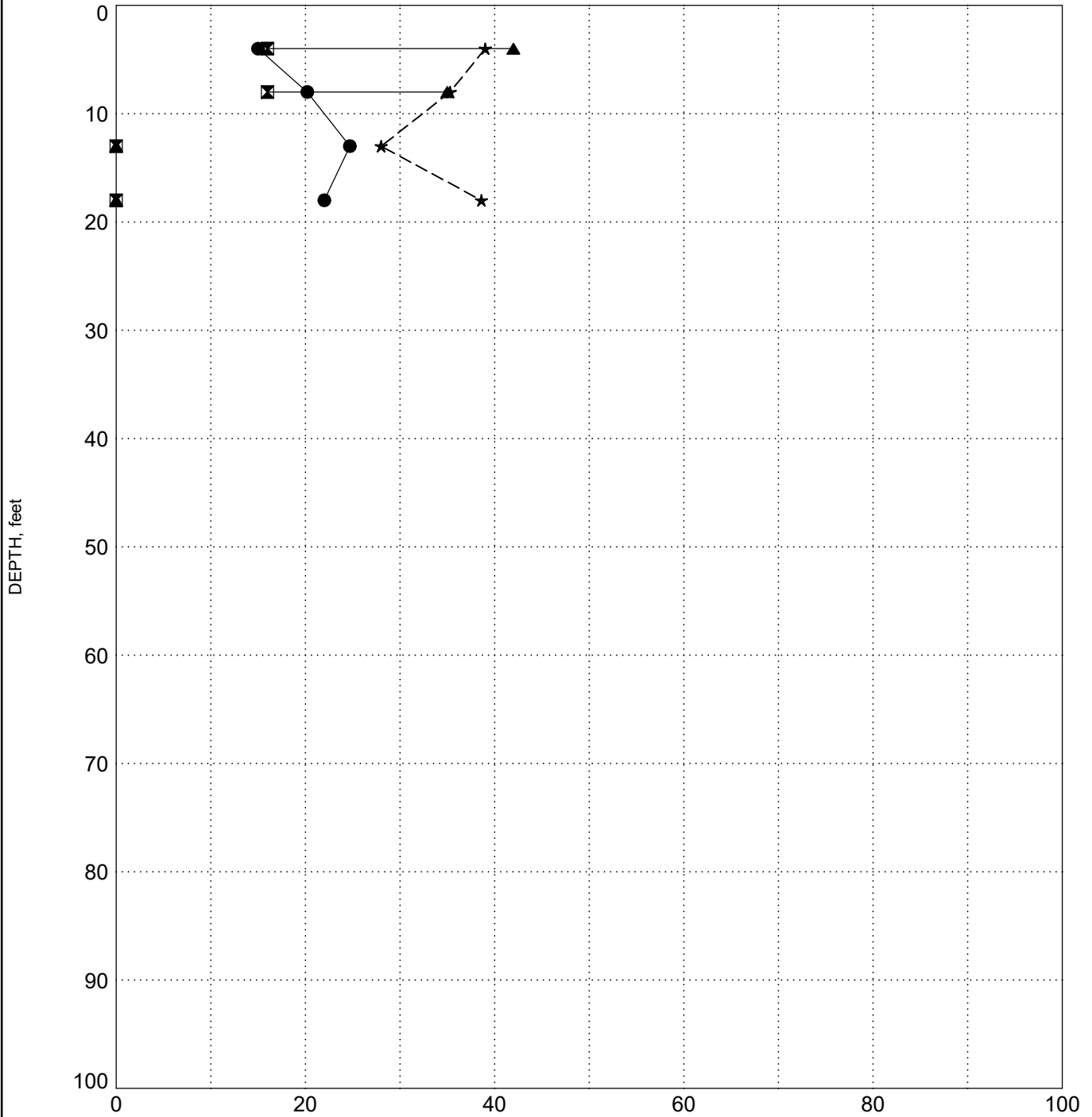
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 98.7

BORING R-19



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

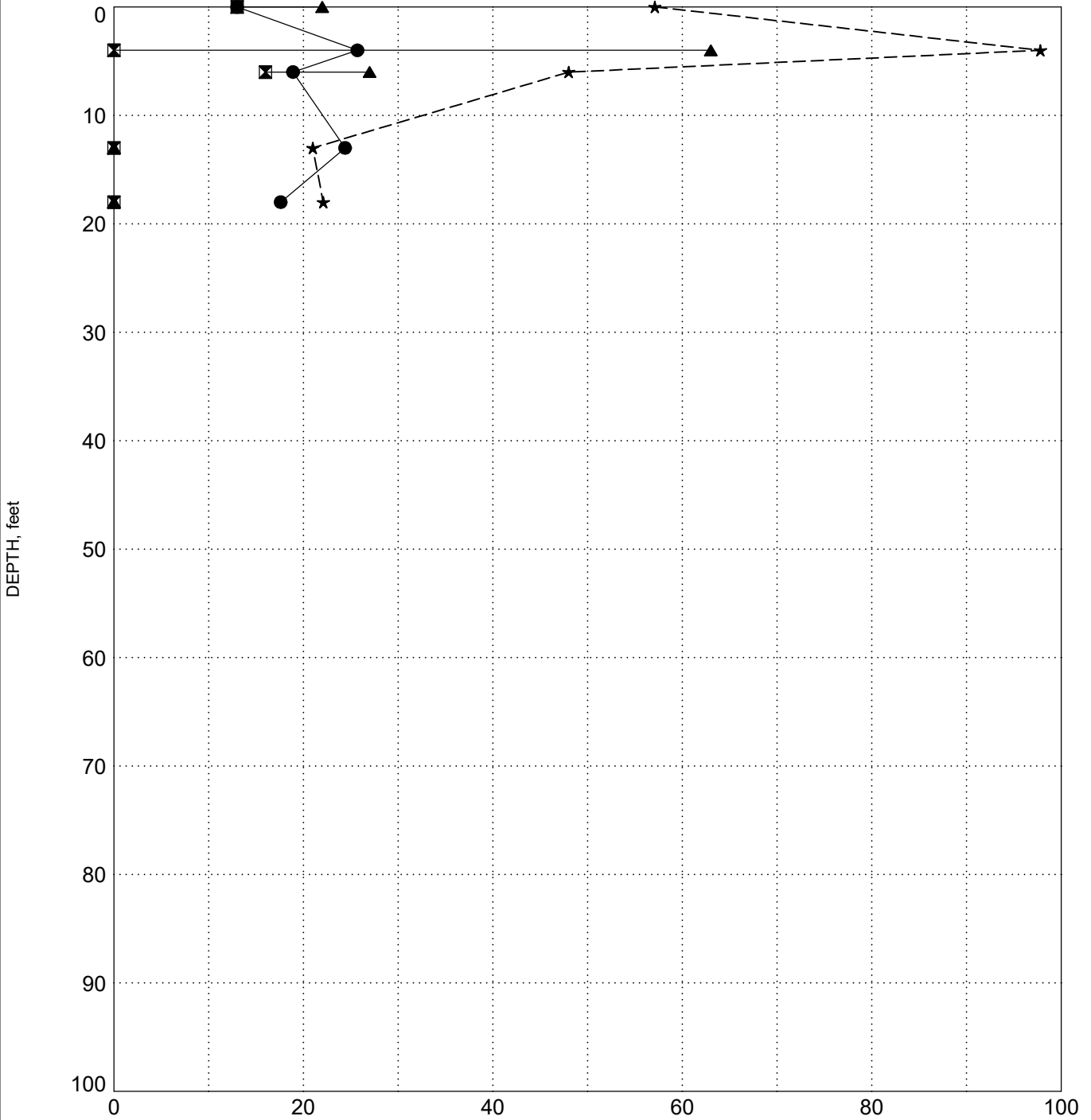
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

BORING R-20

SURFACE ELEVATION: 99.0



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines



INDEX PROPERTIES VERSUS DEPTH

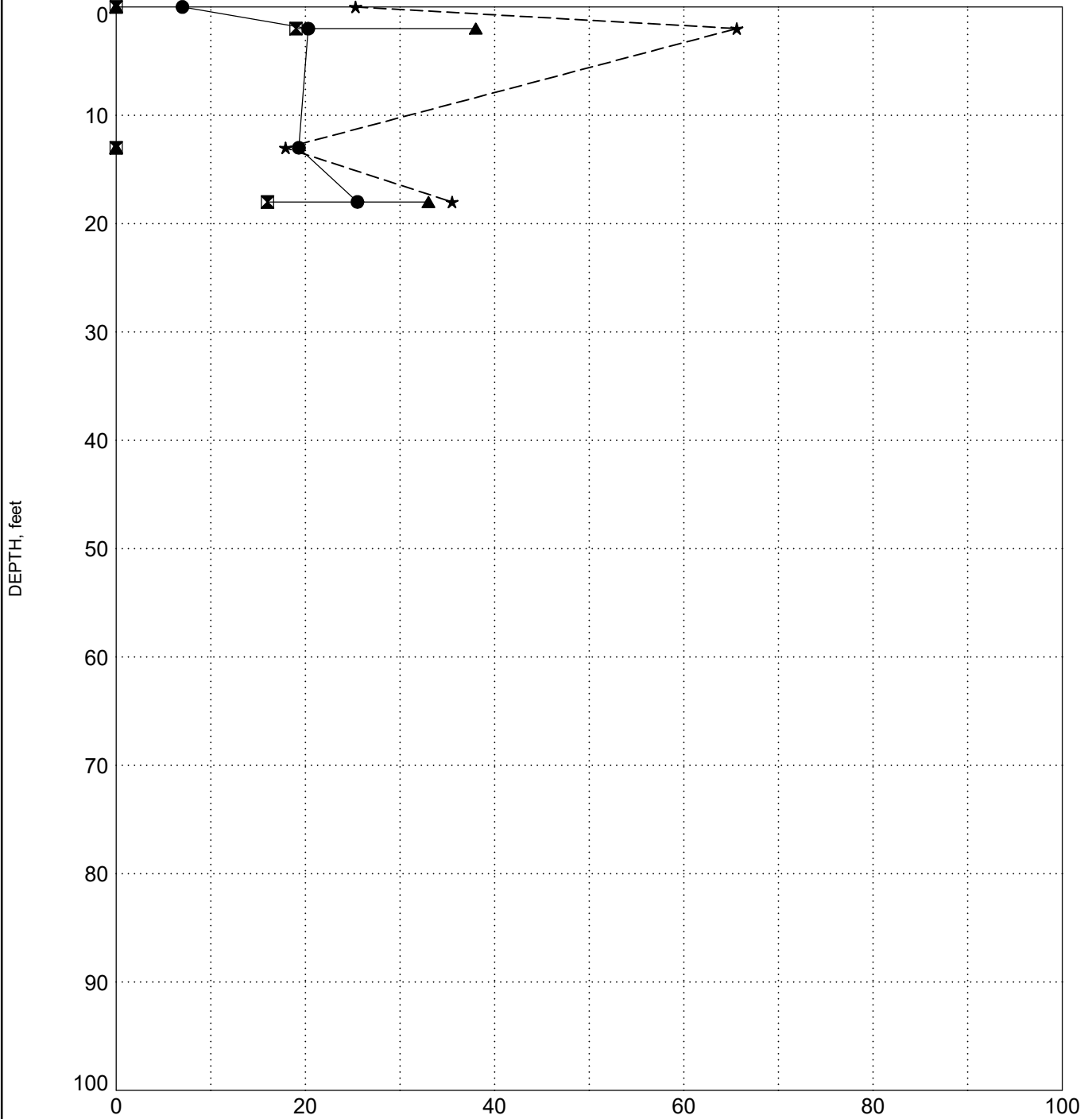
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 98.4

BORING R-21



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ SCDOT_DATATEMPLATE.GDT 3/29/23



INDEX PROPERTIES VERSUS DEPTH

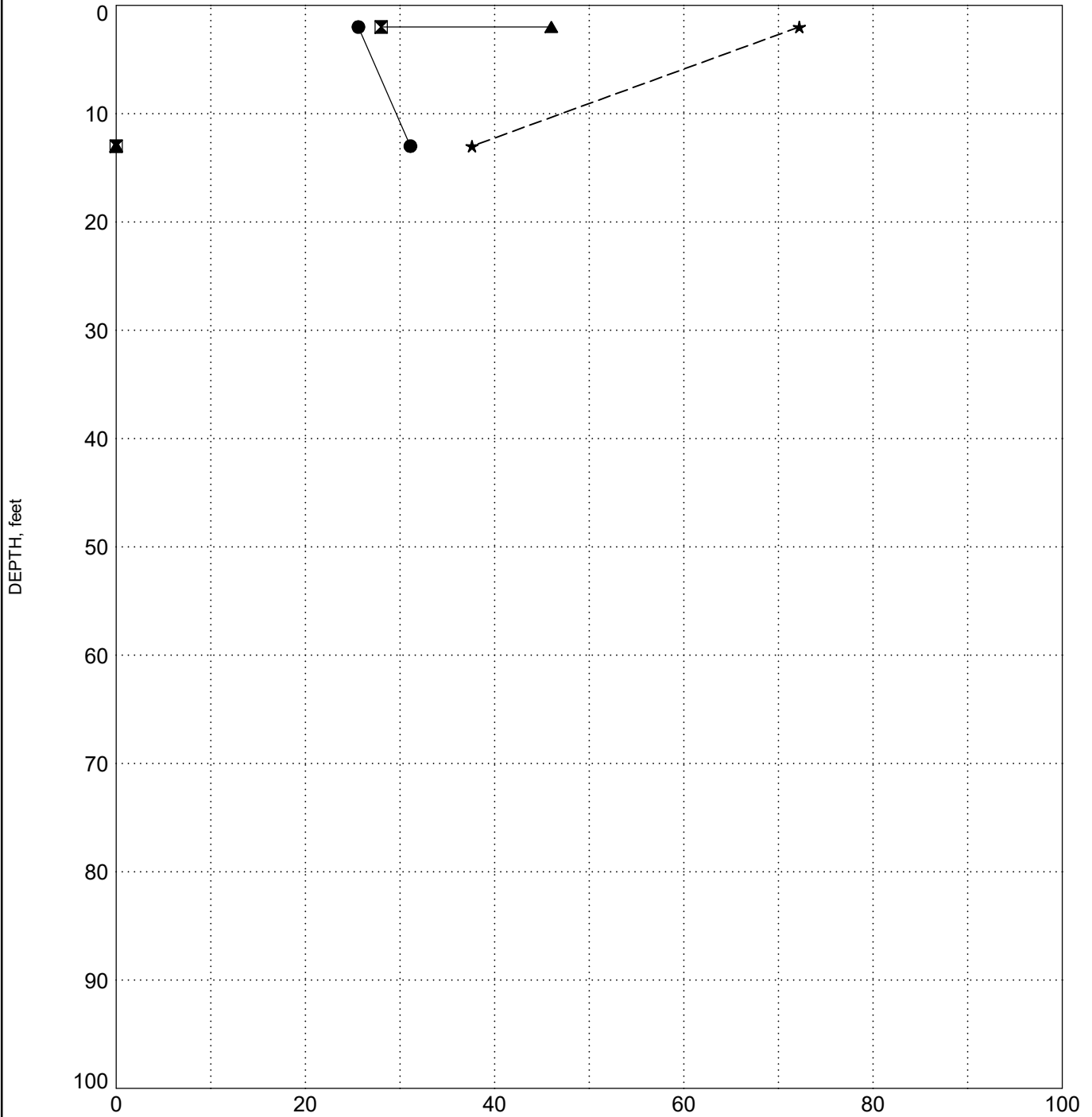
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 98.2

BORING R-22



LEGEND	
●	Water Content
☒	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23



INDEX PROPERTIES VERSUS DEPTH

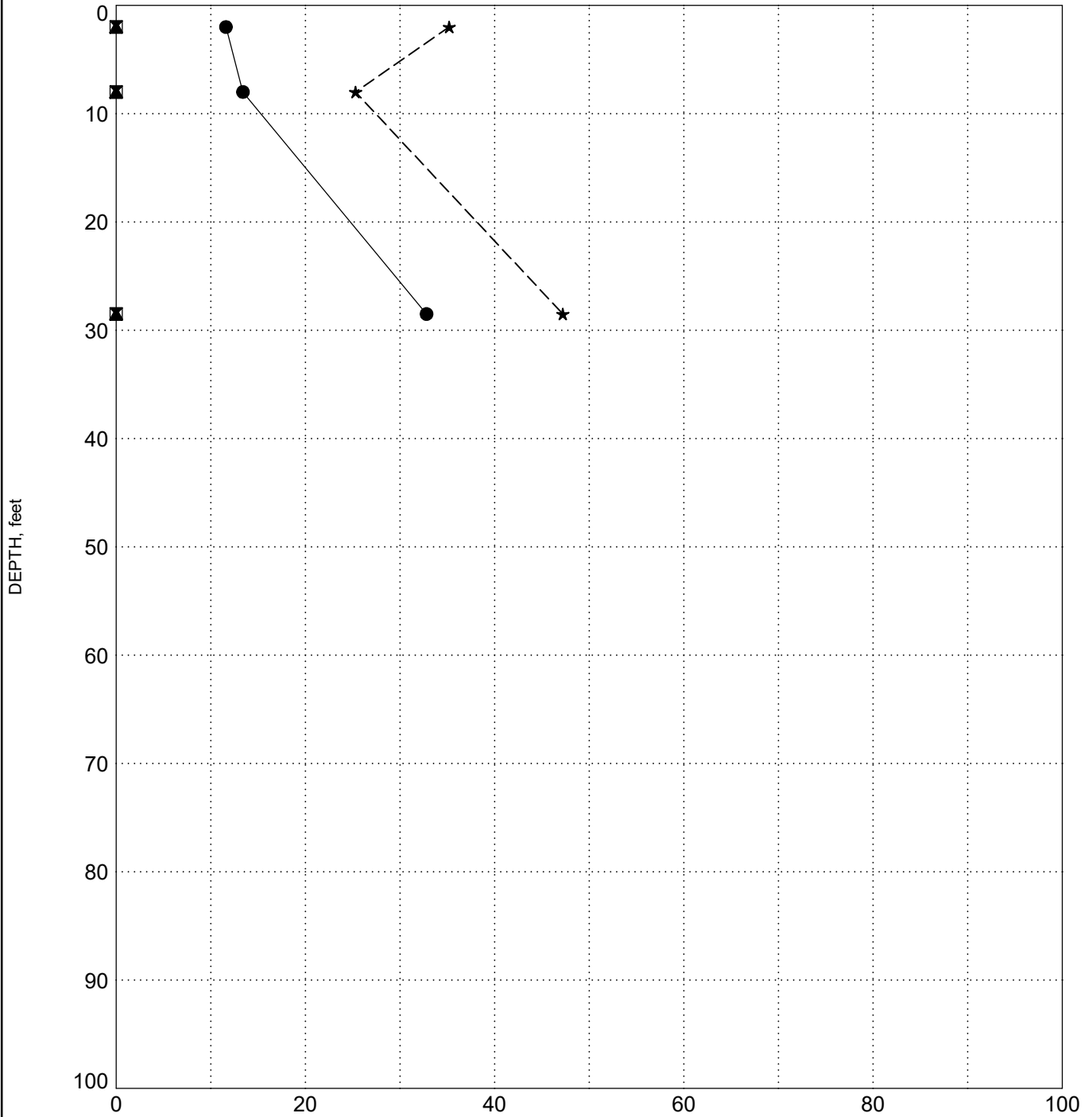
PROJECT ID P038677

PROJECT NAME I-26 at I-95 Interchange Improvement

PROJECT COUNTY Orangeburg

SURFACE ELEVATION: 99.1

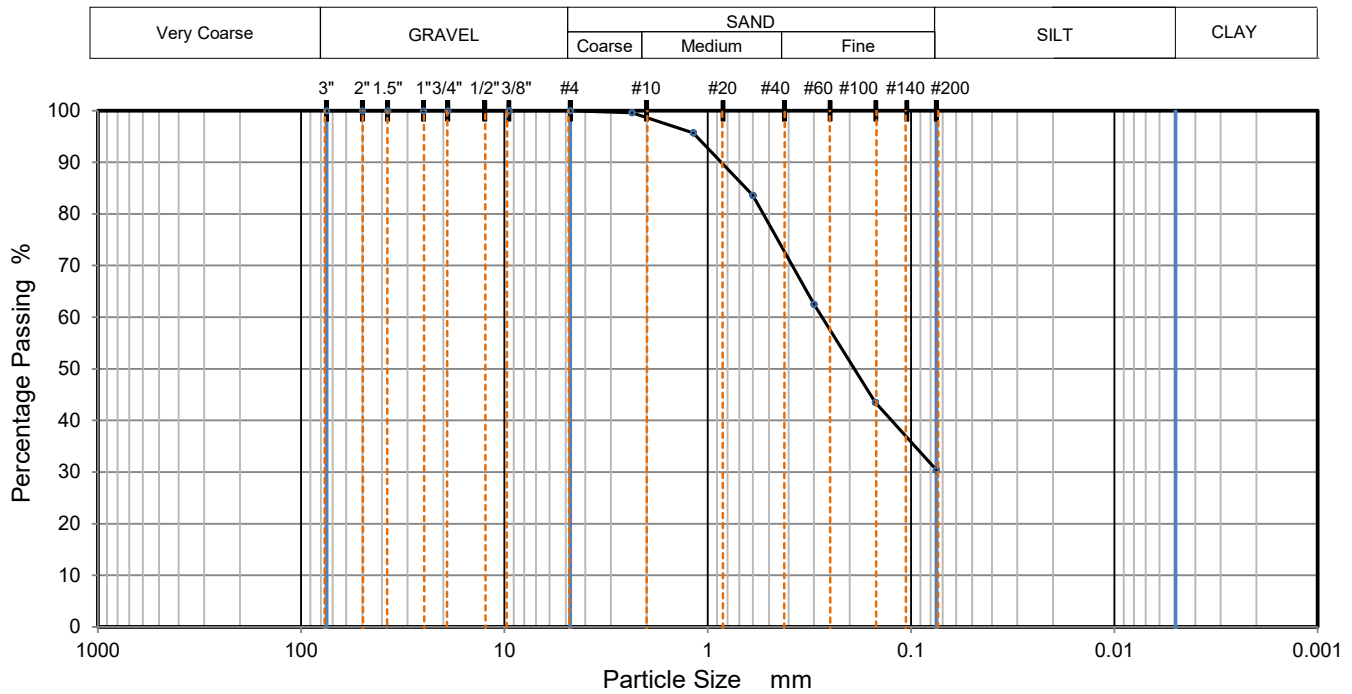
BORING R-23



LEGEND	
●	Water Content
⊠	Plastic Limit
▲	Liquid Limit
★	Fines

INDEX PROPS_P038677_I26 AT I95 INTERCHANGE IMPROVEMENTS.GPJ_SCDOT_DATATEMPLATE.GDT_3/29/23

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	84		
#50	63		
#100	44		
#200	30		

Dry Mass of sample, g

128.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	30

USCS	SC	Liquid Limit	20	D90	0.858	D50	0.190	D10	
AASHTO		Plastic Limit	11	D85	0.649	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	9	D60	0.274	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-03

Date Reported: 2/7/2023



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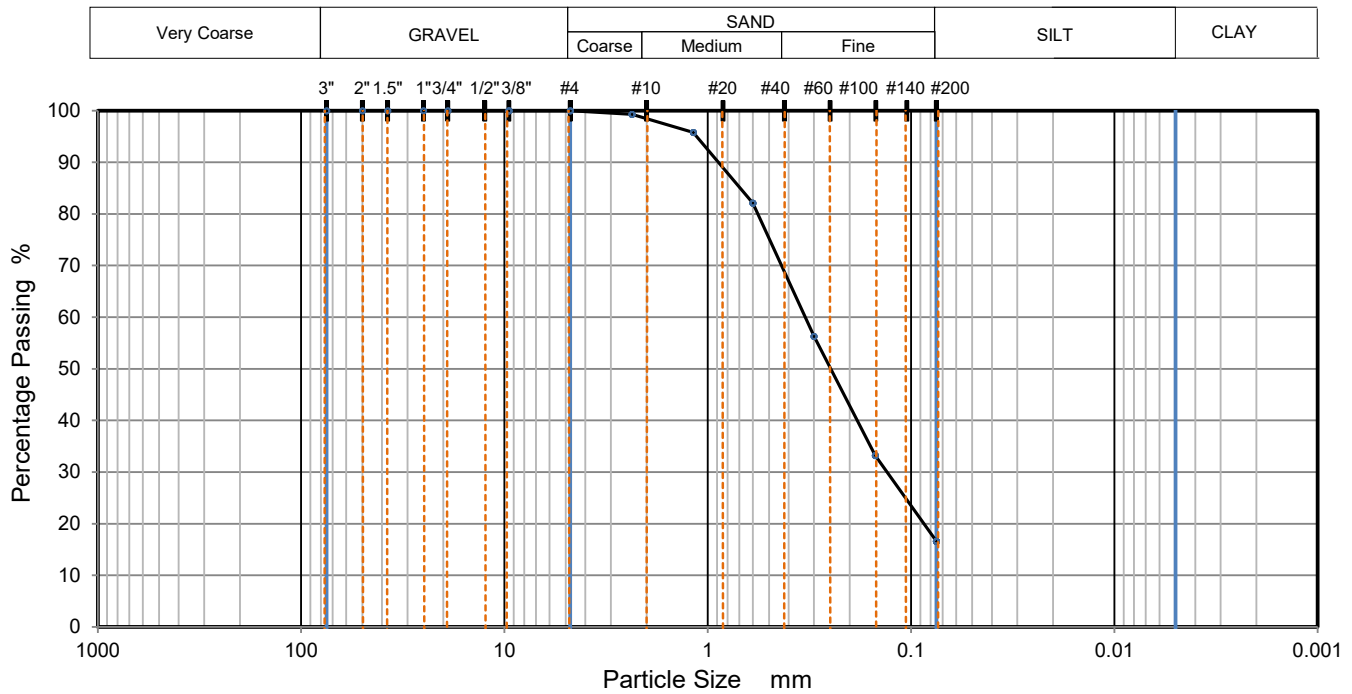
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(704)357-0023

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			1/12/2023	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	96		
#30	82		
#50	56		
#100	33		
#200	17		

Dry Mass of sample, g

116.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	17

USCS	SC-SM	Liquid Limit	18	D90	0.886	D50	0.248	D10	
AASHTO		Plastic Limit	14	D85	0.692	D30	0.131	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	4	D60	0.331	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: B-03

Date Reported: 2/7/2023



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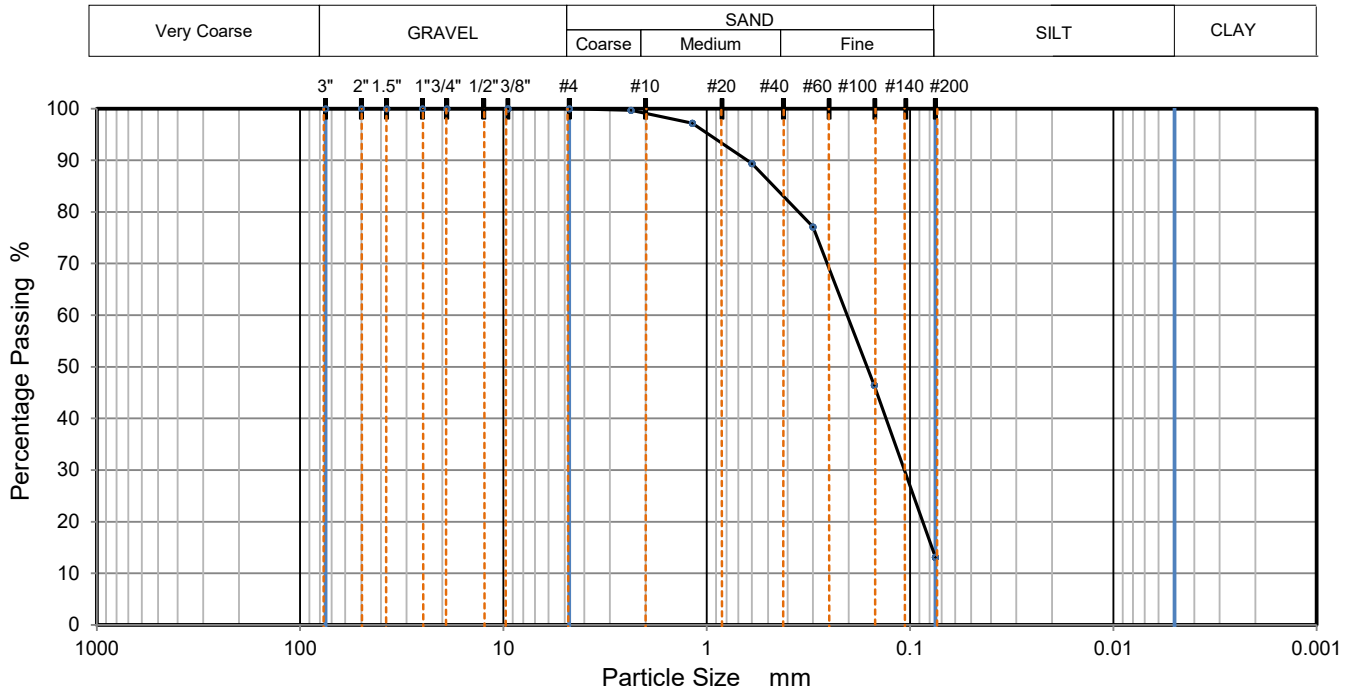
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	97		
#30	89		
#50	77		
#100	46		
#200	13		

Dry Mass of sample, g

113.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	13

USCS	SM	Liquid Limit	NP	D90	0.632	D50	0.163	D10	
AASHTO		Plastic Limit	NP	D85	0.468	D30	0.107	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.204	D15	0.078	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-03

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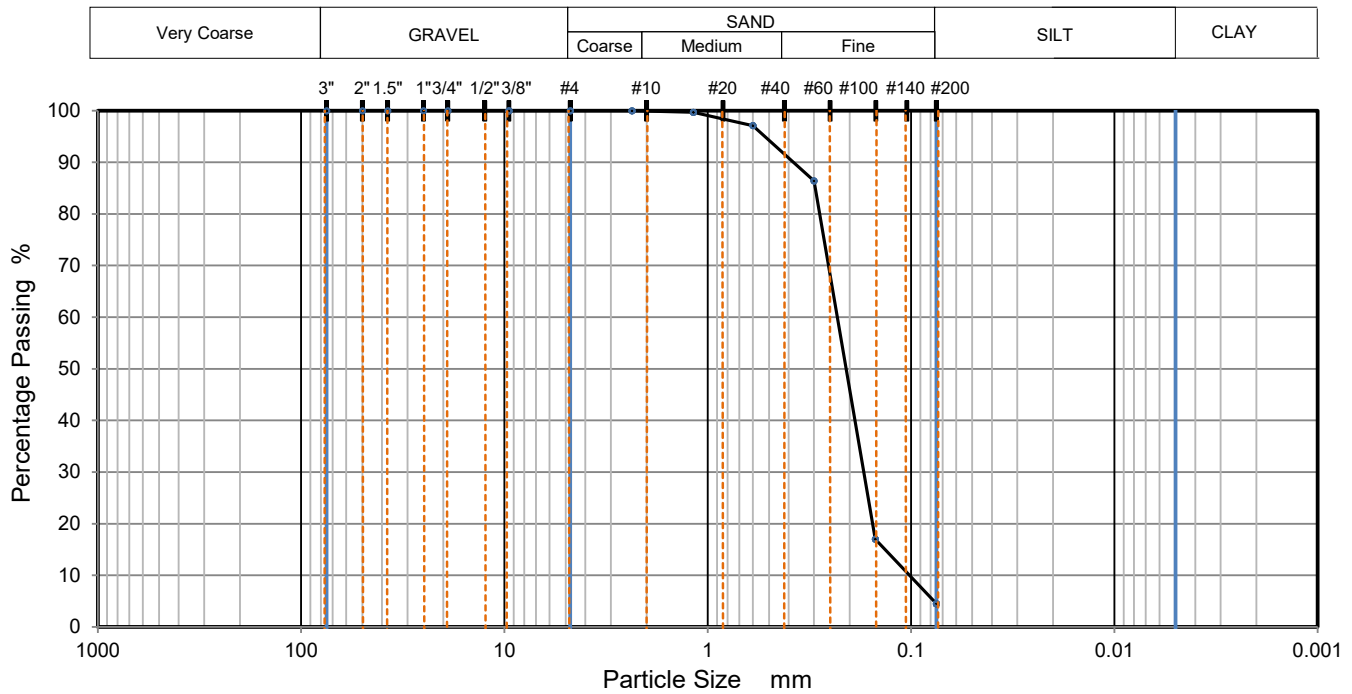
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	97		
#50	86		
#100	17		
#200	5		

Dry Mass of sample, g

123.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP	Liquid Limit	NP	D90	0.379	D50	0.209	D10	0.102
AASHTO		Plastic Limit	NP	D85	0.296	D30	0.171	Cu	2.266
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	0.231	D15	0.134	Cc	1.244

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-03

Date Reported: 2/7/2023



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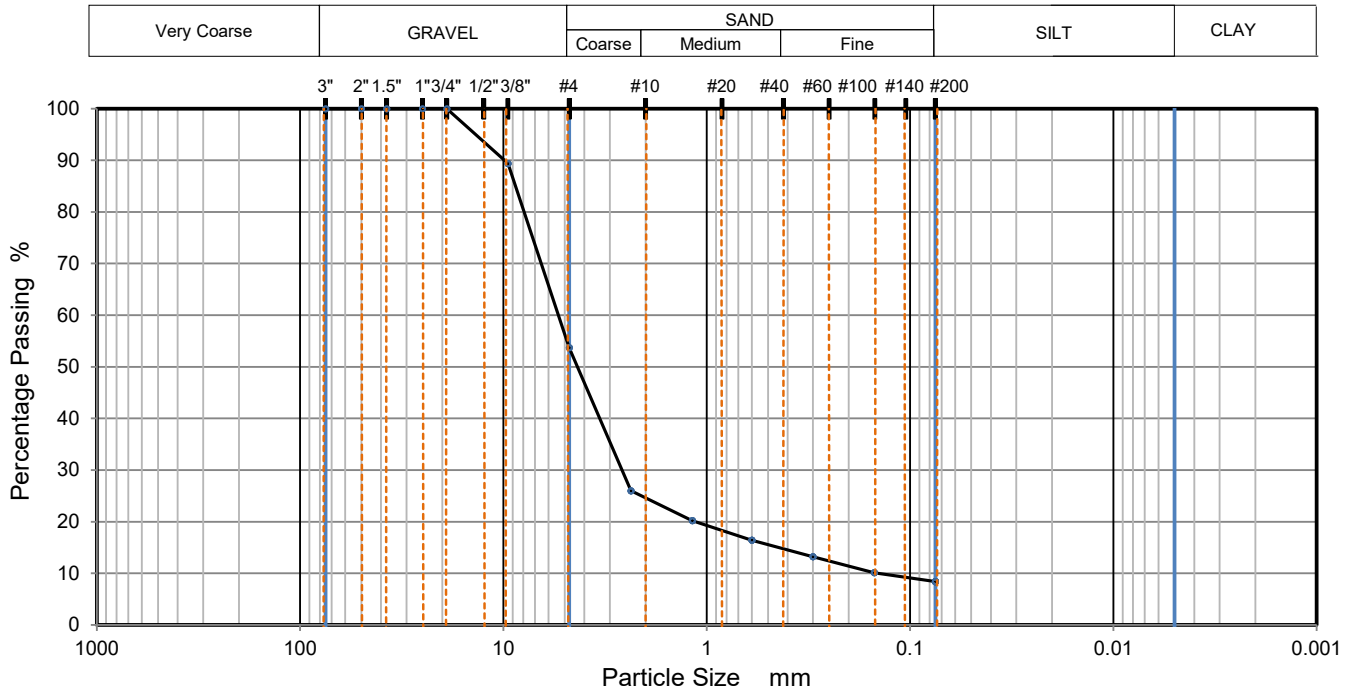
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	89		
#4	54		
#8	26		
#16	20		
#30	16		
#50	13		
#100	10		
#200	8		

Dry Mass of sample, g

127.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	46
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	8

USCS	GP-GM	Liquid Limit	24	D90	9.880	D50	4.326	D10	0.144
AASHTO		Plastic Limit	21	D85	8.722	D30	2.611	Cu	37.278
USCS Group Name	Poorly graded gravel with silt and sand	Plasticity Index	3	D60	5.368	D15	0.443	Cc	8.819

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 33 - 35

Sample Description:

Sample No.: SS-10

Sample Source: B-03

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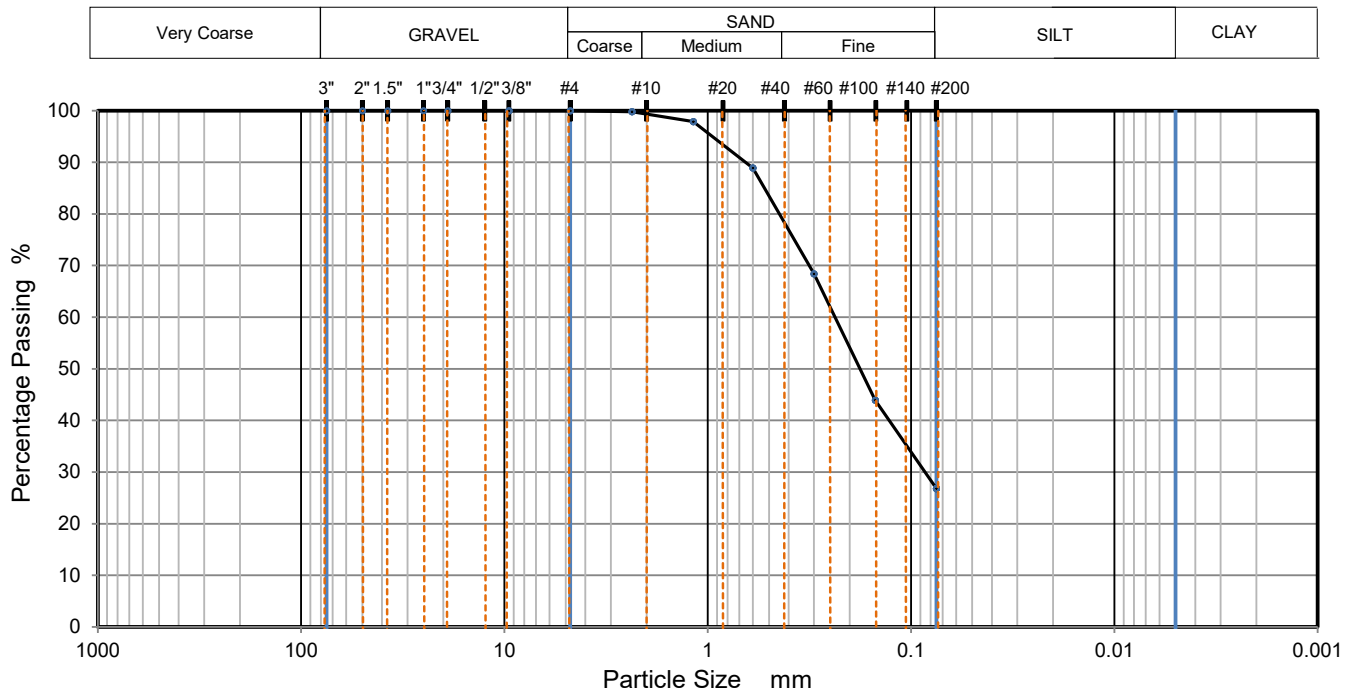
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			1/12/2023	

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	98		
#30	89		
#50	68		
#100	44		
#200	27		

Dry Mass of sample, g

107.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	27

USCS	SM	Liquid Limit	13	D90	0.652	D50	0.178	D10	
AASHTO		Plastic Limit	12	D85	0.526	D30	0.085	Cu	
USCS Group Name	Silty sand	Plasticity Index	1	D60	0.237	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-11

Date Reported: 2/7/2023



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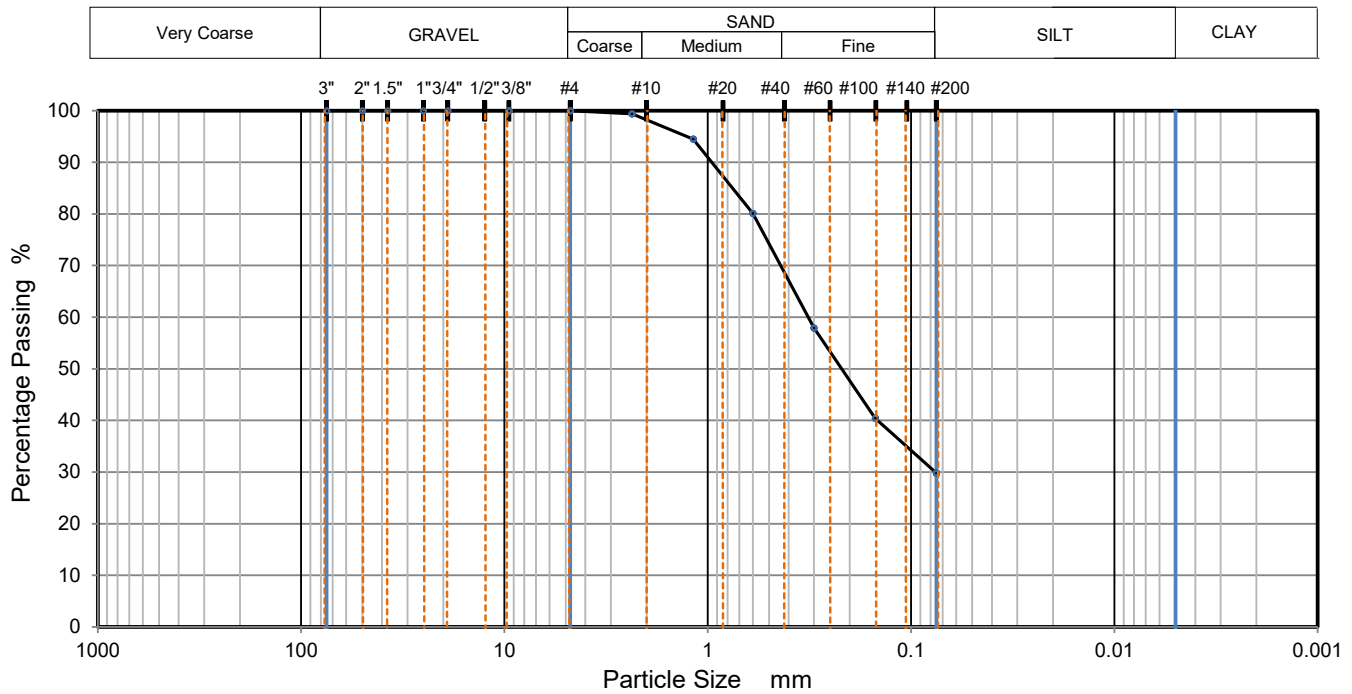
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	95		
#30	80		
#50	58		
#100	40		
#200	30		

Dry Mass of sample, g

103.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	30

USCS	SC	Liquid Limit	37	D90	0.955	D50	0.219	D10	
AASHTO		Plastic Limit	14	D85	0.755	D30	0.076	Cu	
USCS Group Name	Clayey sand	Plasticity Index	23	D60	0.320	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: B-11

Date Reported: 2/7/2023



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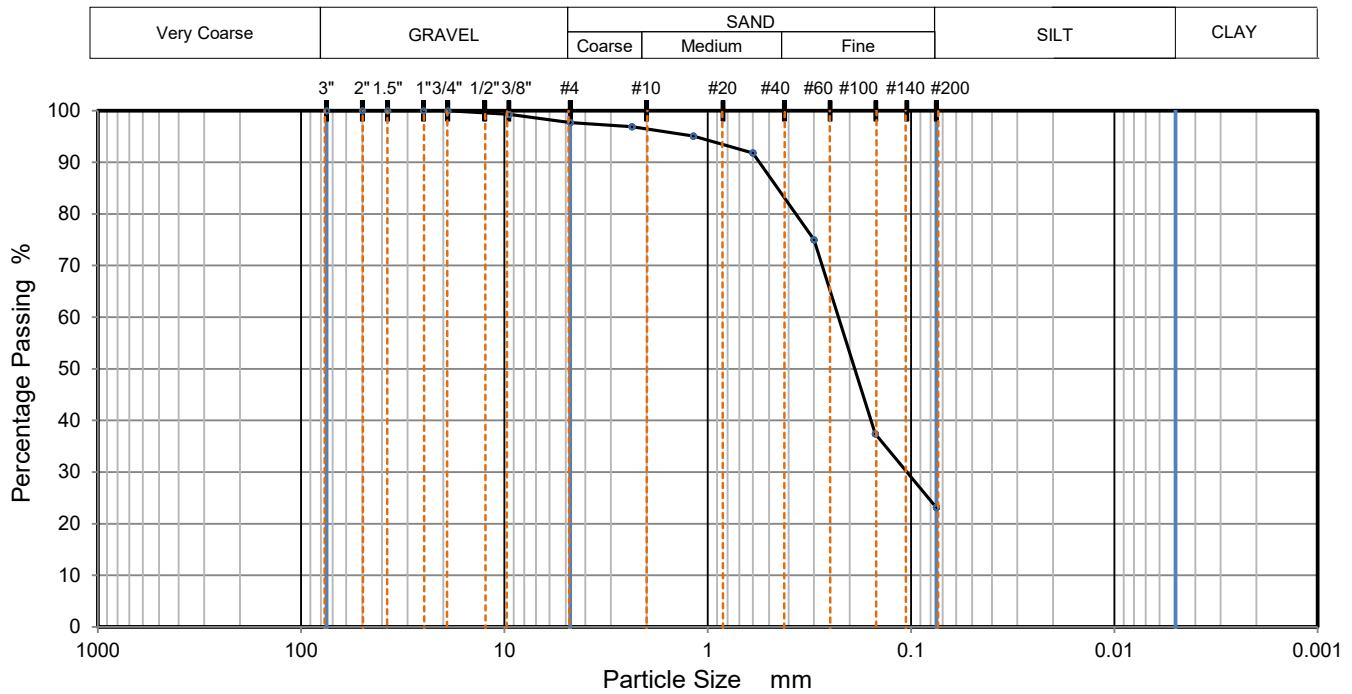
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	99		
#4	98		
#8	97		
#16	95		
#30	92		
#50	75		
#100	37		
#200	23		

Dry Mass of sample, g

98.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	2
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	23

USCS	SC	Liquid Limit	29	D90	0.557	D50	0.189	D10	
AASHTO		Plastic Limit	19	D85	0.453	D30	0.105	Cu	
USCS Group Name	Clayey sand	Plasticity Index	10	D60	0.228	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: SS-9

Sample Source: B-11

Date Reported: 2/7/2023



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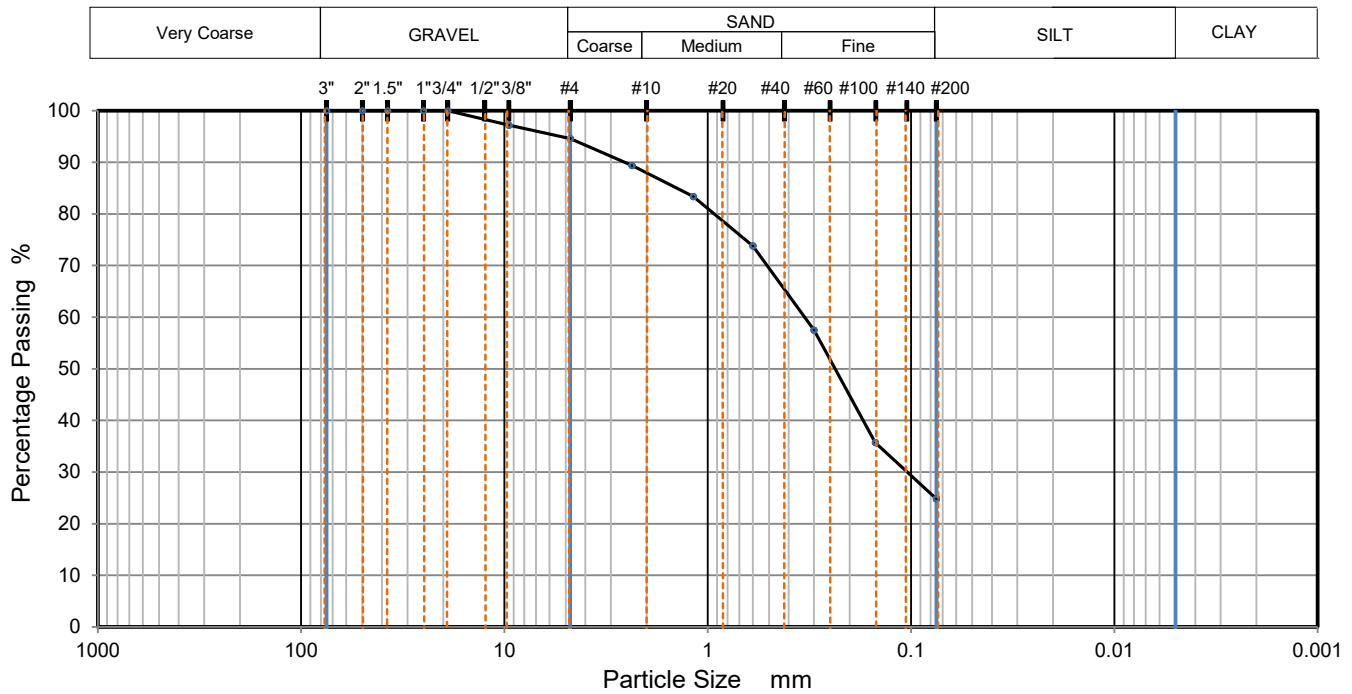
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	97		
#4	95		
#8	89		
#16	83		
#30	74		
#50	58		
#100	36		
#200	25		

Dry Mass of sample, g

126.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	5
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	25

USCS	SM	Liquid Limit	NP	D90	2.558	D50	0.236	D10	
AASHTO		Plastic Limit	NP	D85	1.420	D30	0.104	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.334	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 53 - 55

Sample Description:

Sample No.: SS-13

Sample Source: B-11

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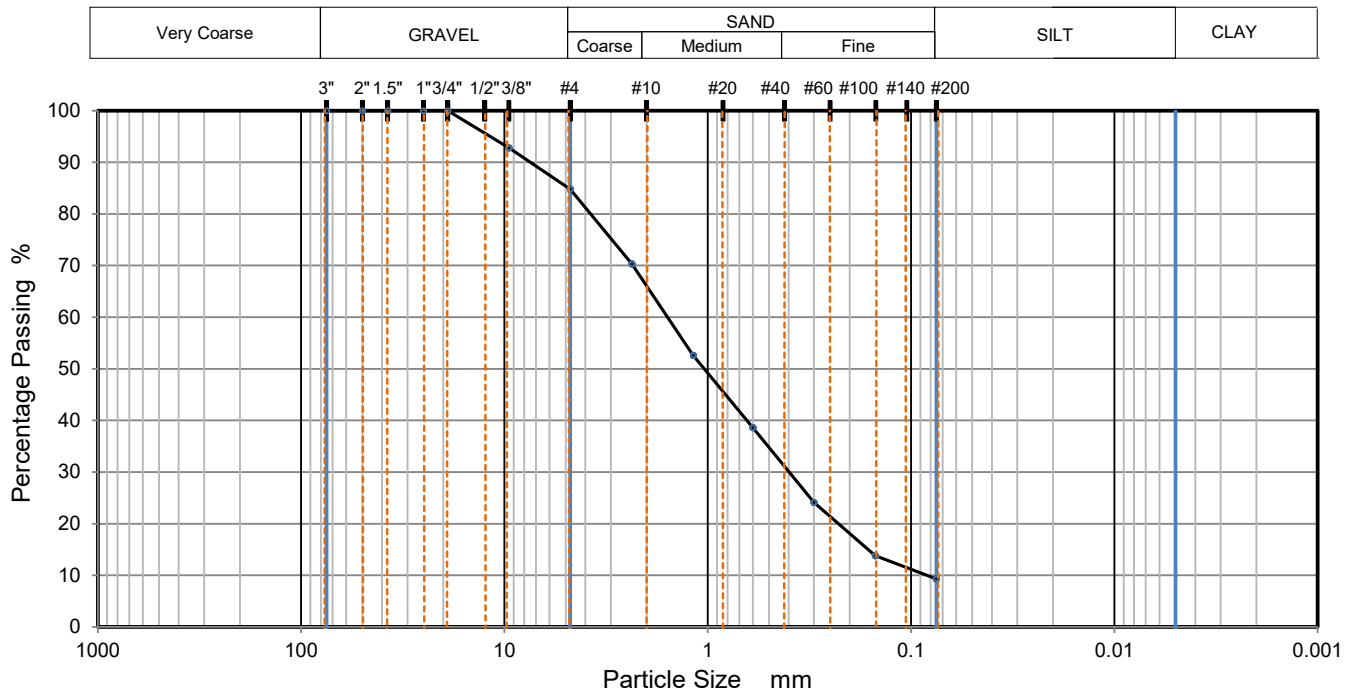
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	93		
#4	85		
#8	70		
#16	53		
#30	39		
#50	24		
#100	14		
#200	9		

Dry Mass of sample, g

104.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	15
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	9

USCS	SW-SM	Liquid Limit	NP	D90	7.454	D50	1.041	D10	0.084
AASHTO		Plastic Limit	NP	D85	4.833	D30	0.398	Cu	18.877
USCS Group Name	Well graded sand with silt and gravel	Plasticity Index	NP	D60	1.577	D15	0.163	Cc	1.201

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 63 - 65

Sample Description:

Sample No.: SS-15

Sample Source: B-11

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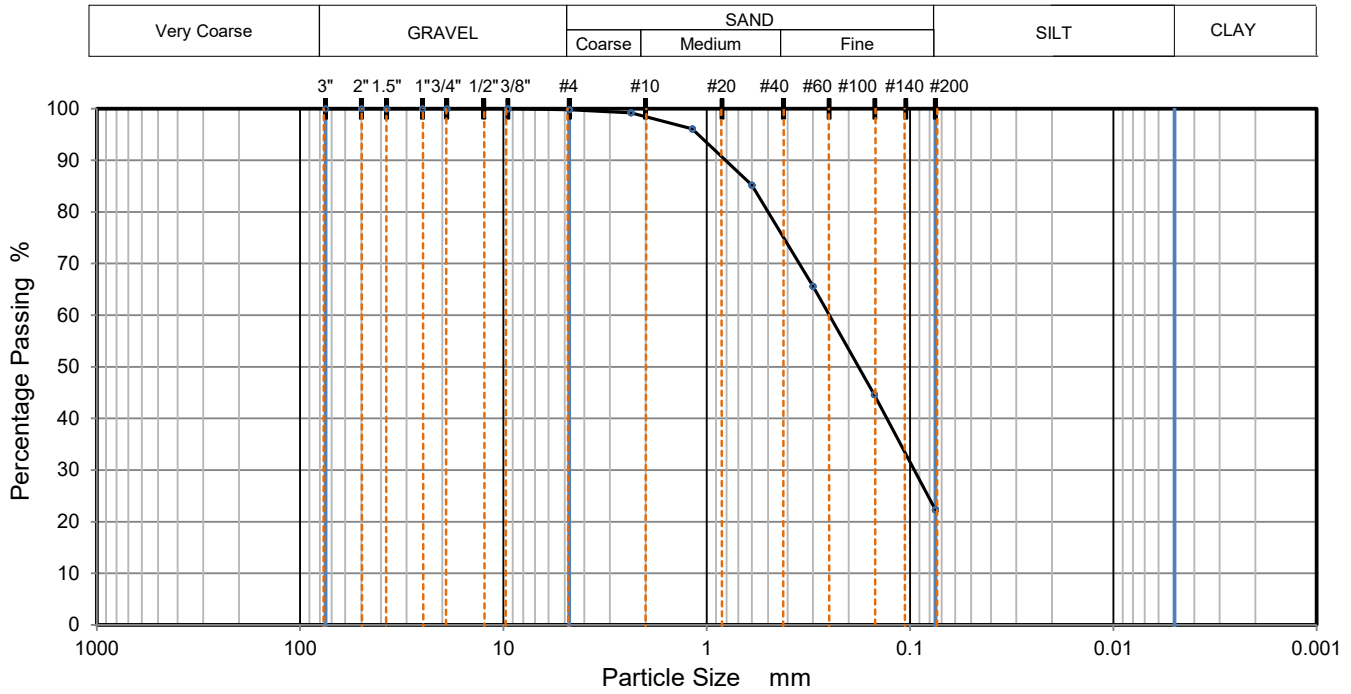
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	96		
#30	85		
#50	66		
#100	45		
#200	22		

Dry Mass of sample, g

109.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	22

USCS	SM	Liquid Limit	18	D90	0.808	D50	0.179	D10	
AASHTO		Plastic Limit	15	D85	0.596	D30	0.095	Cu	
USCS Group Name	Silty sand	Plasticity Index	3	D60	0.249	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-12

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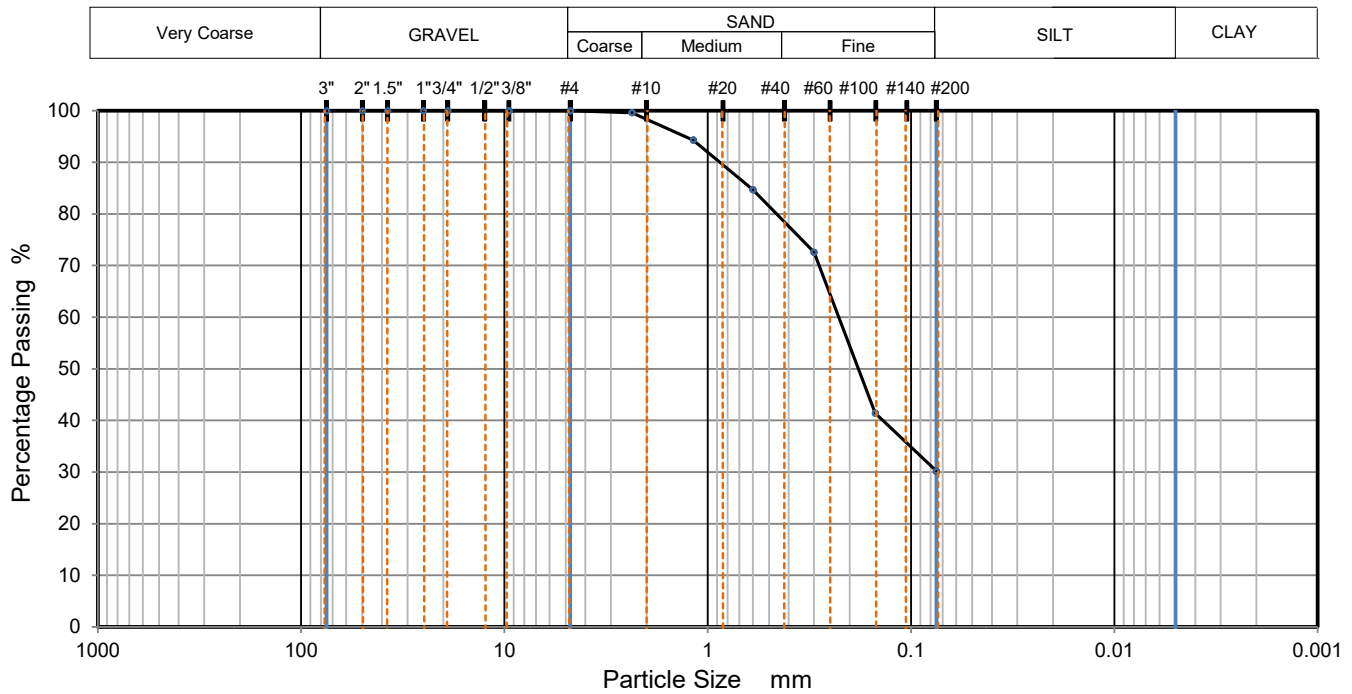
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	94		
#30	85		
#50	73		
#100	41		
#200	30		

Dry Mass of sample, g

110.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	30

USCS	SC	Liquid Limit	38	D90	0.872	D50	0.182	D10	
AASHTO		Plastic Limit	21	D85	0.613	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	17	D60	0.227	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: B-12

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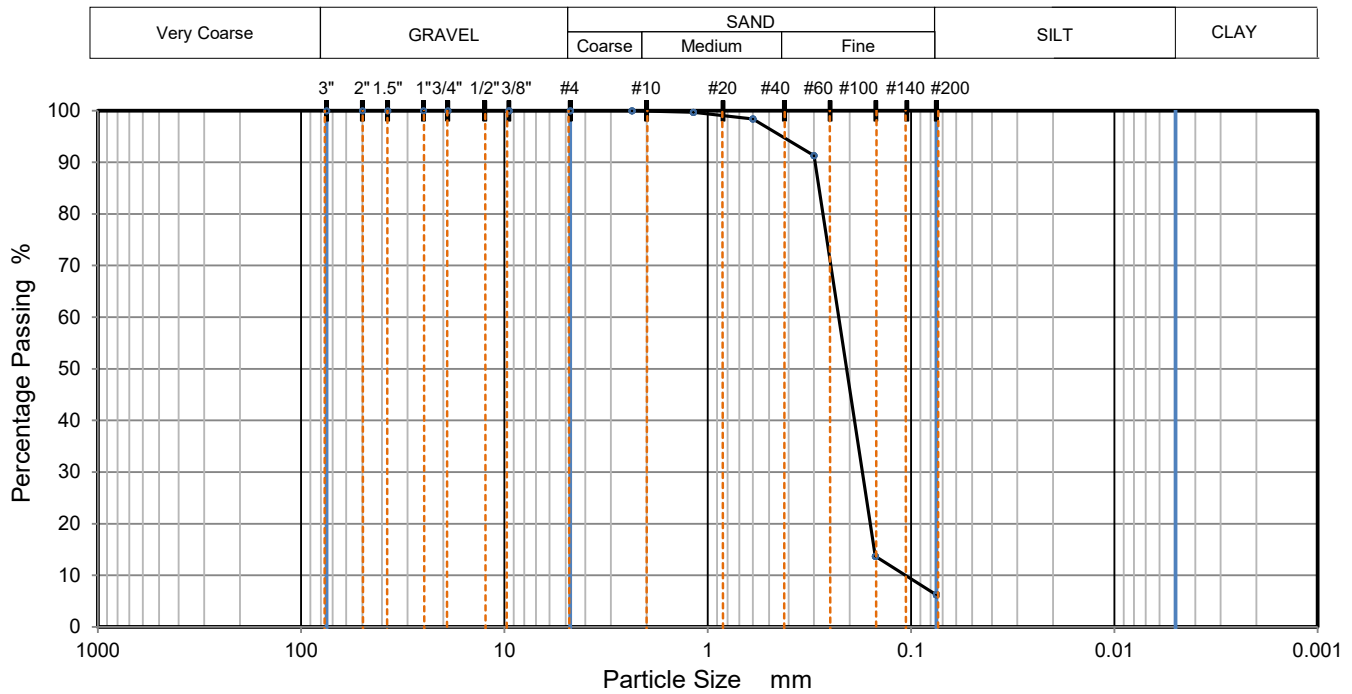
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	98		
#50	91		
#100	14		
#200	6		

Dry Mass of sample, g

111.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	6

USCS	SP-SM	Liquid Limit	NP	D90	0.297	D50	0.207	D10	0.107
AASHTO		Plastic Limit	NP	D85	0.284	D30	0.174	Cu	2.128
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.227	D15	0.152	Cc	1.245

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-12

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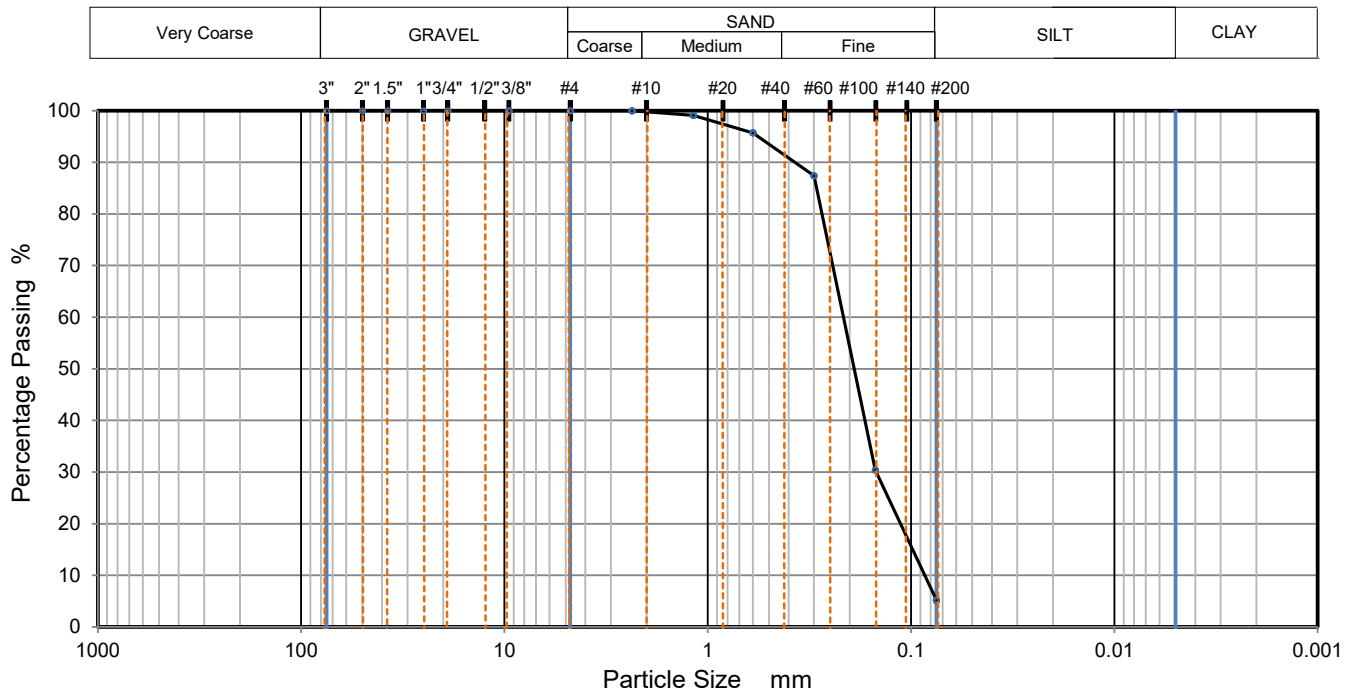
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	96		
#50	87		
#100	30		
#200	5		

Dry Mass of sample, g

100.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP-SM	Liquid Limit	NP	D90	0.373	D50	0.190	D10	0.086
AASHTO		Plastic Limit	NP	D85	0.291	D30	0.148	Cu	2.512
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.215	D15	0.098	Cc	1.197

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-12

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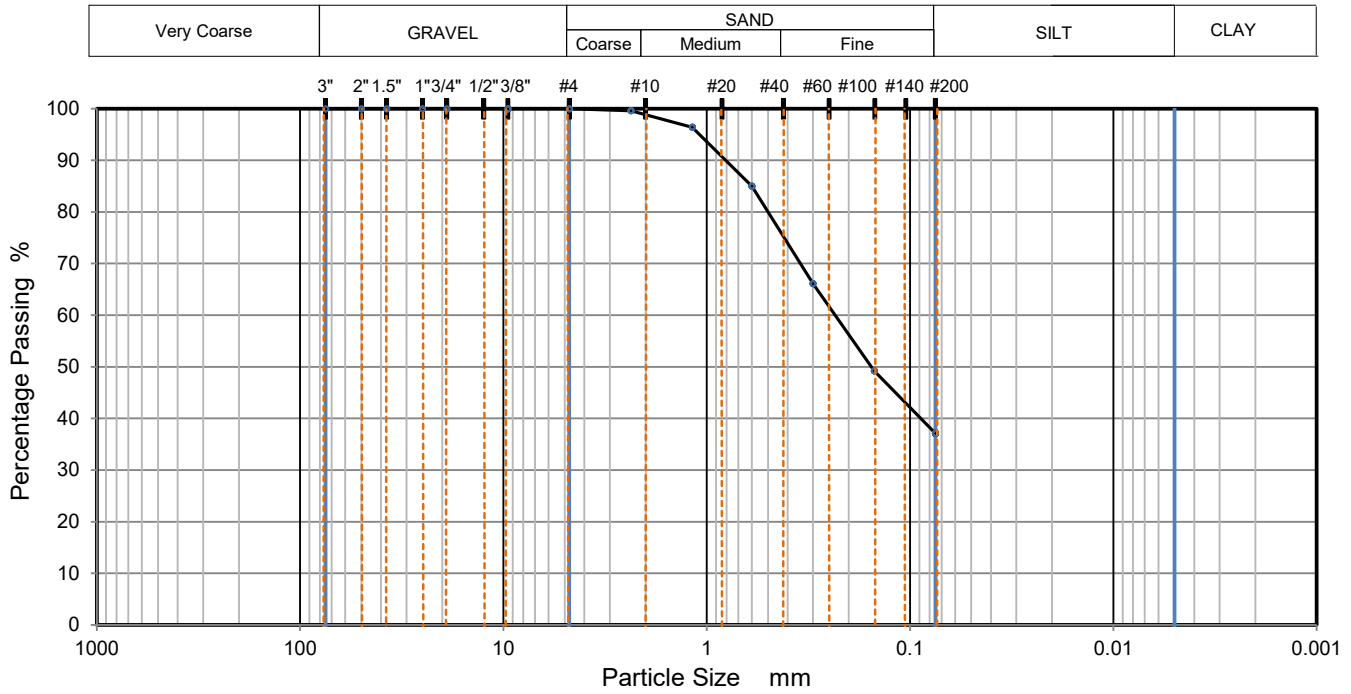
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	85		
#50	66		
#100	49		
#200	37		

Dry Mass of sample, g	114.2	
Sample Proportions		% dry mass
Very coarse, >3" sieve		0
Gravel, 3" to # 4 sieve		0
Coarse Sand, #4 to #10 sieve		
Medium Sand, #10 to #40		
Fine Sand, #40 to #200		
Fines <#200		37

USCS	SC	Liquid Limit	38	D90	0.807	D50	0.155	D10	
AASHTO		Plastic Limit	15	D85	0.600	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	23	D60	0.234	D15		Cc	

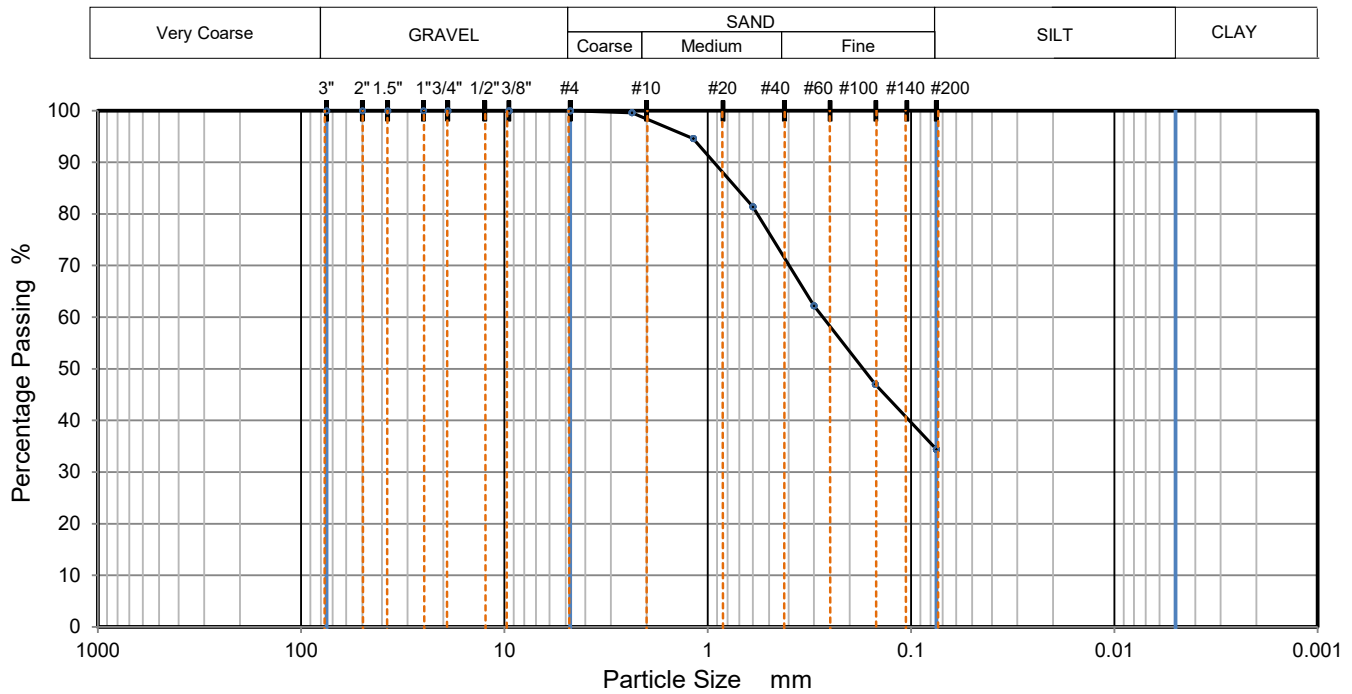
Project: I-95 & I-26 Design Build Prep - Preliminary Consulting Client: Civil Engineering Consulting Services Sample Description: Sample Source: B-15	Project No.: 34:4266 Depth (ft): 2 - 4 Sample No.: SS-2 Date Reported: 2/7/2023
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	95		
#30	81		
#50	62		
#100	47		
#200	34		

Dry Mass of sample, g

150.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	34

USCS	SC	Liquid Limit	31	D90	0.932	D50	0.172	D10	
AASHTO		Plastic Limit	14	D85	0.722	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	17	D60	0.271	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: B-15

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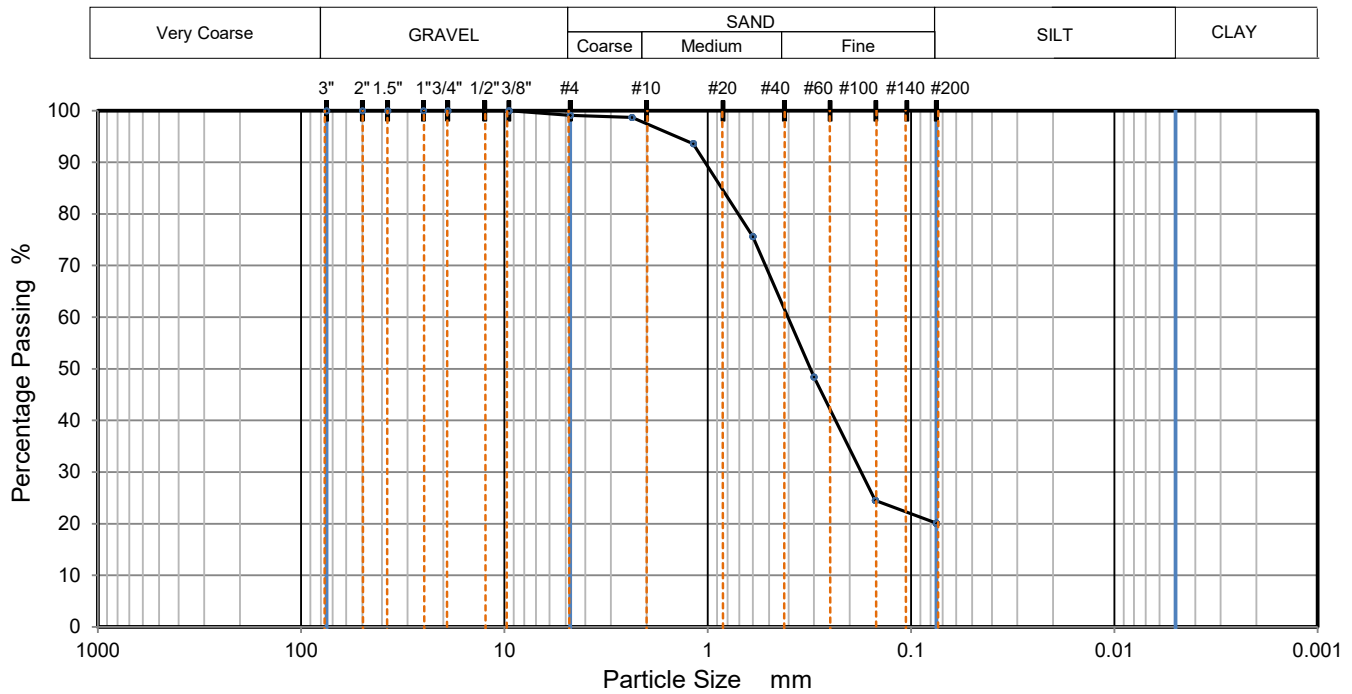
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	99		
#16	94		
#30	76		
#50	48		
#100	25		
#200	20		

Dry Mass of sample, g

121.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	20

USCS	SC	Liquid Limit	33	D90	1.031	D50	0.313	D10	
AASHTO		Plastic Limit	15	D85	0.854	D30	0.176	Cu	
USCS Group Name	Clayey sand	Plasticity Index	18	D60	0.403	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23 - 25

Sample Description:

Sample No.: SS-8

Sample Source: B-15

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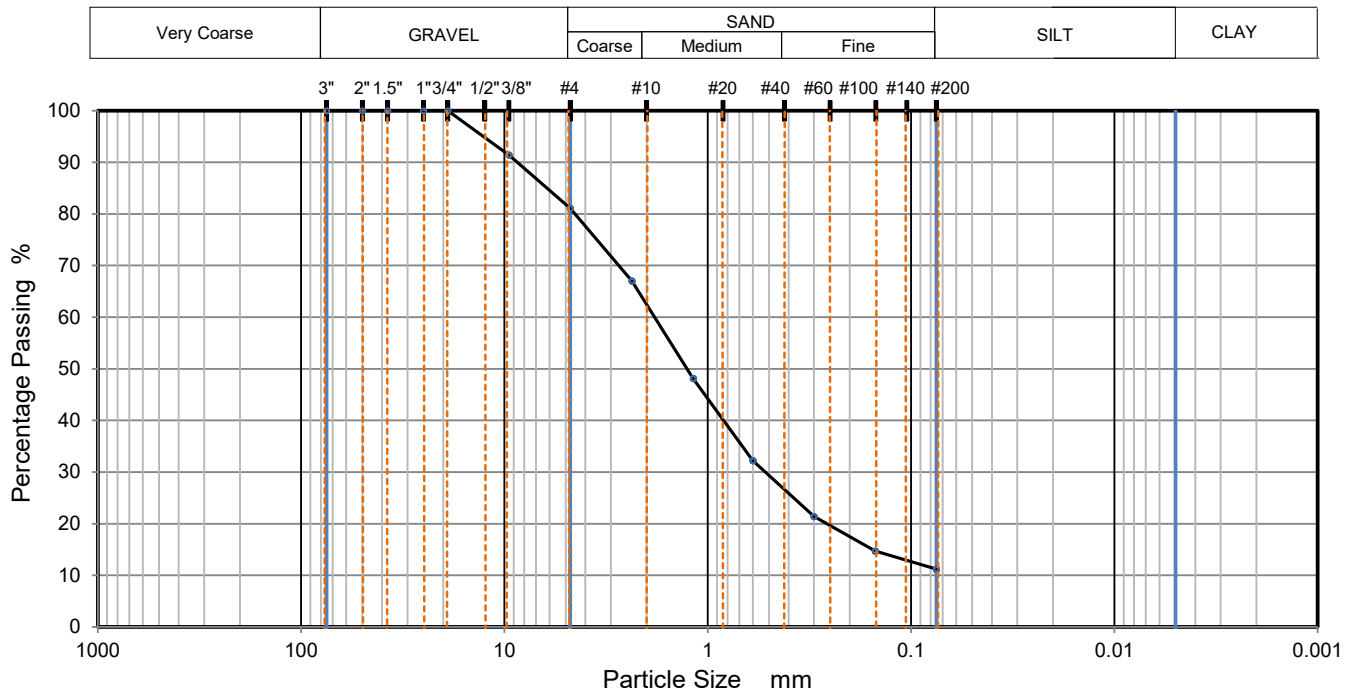
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	91		
#4	81		
#8	67		
#16	48		
#30	32		
#50	21		
#100	15		
#200	11		

Dry Mass of sample, g

148.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	19
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	11

USCS	SP-SM	Liquid Limit	NP	D90	8.646	D50	1.265	D10	
AASHTO		Plastic Limit	NP	D85	6.176	D30	0.521	Cu	
USCS Group Name	Poorly graded sand with silt and gravel	Plasticity Index	NP	D60	1.826	D15	0.155	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 48 - 50

Sample Description:

Sample No.: SS-13

Sample Source: B-15

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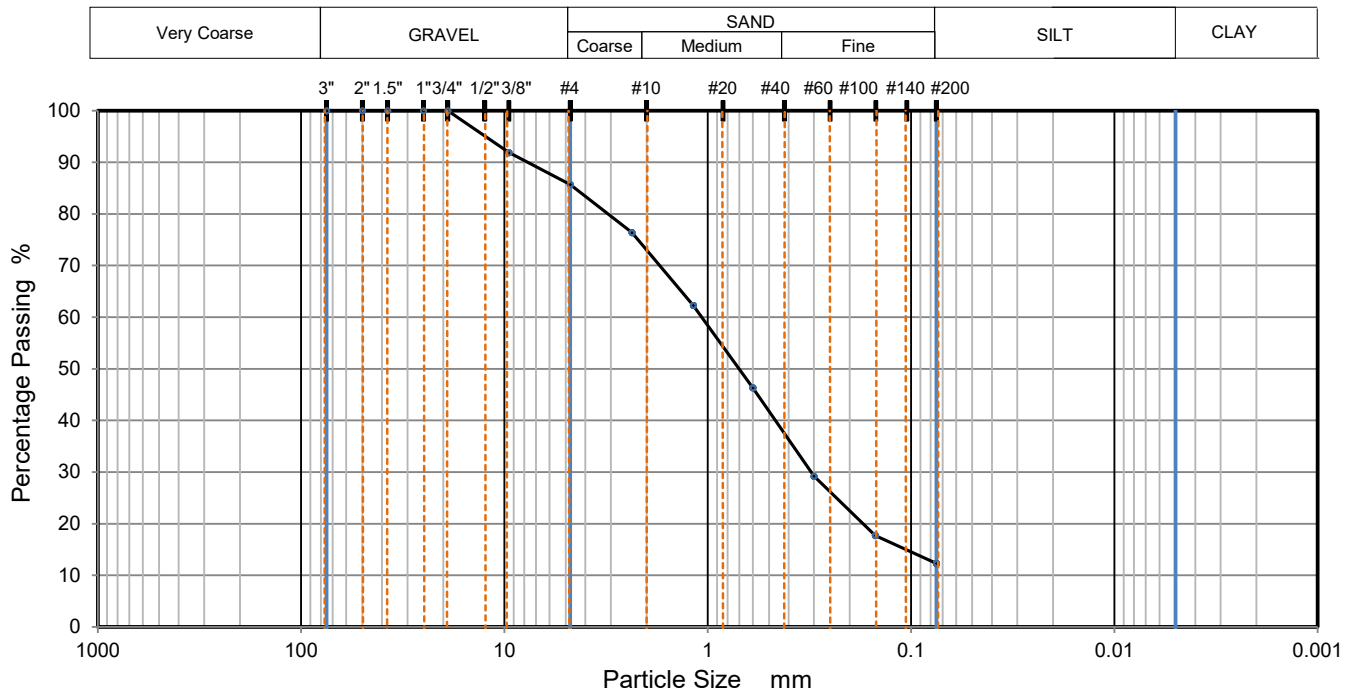
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	92		
#4	86		
#8	76		
#16	62		
#30	46		
#50	29		
#100	18		
#200	12		

Dry Mass of sample, g

132.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	14
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	12

USCS	SM	Liquid Limit	NP	D90	7.682	D50	0.702	D10	
AASHTO		Plastic Limit	NP	D85	4.506	D30	0.310	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	1.071	D15	0.106	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 63 - 65

Sample Description:

Sample No.: SS-16

Sample Source: B-15

Date Reported: 2/7/2023



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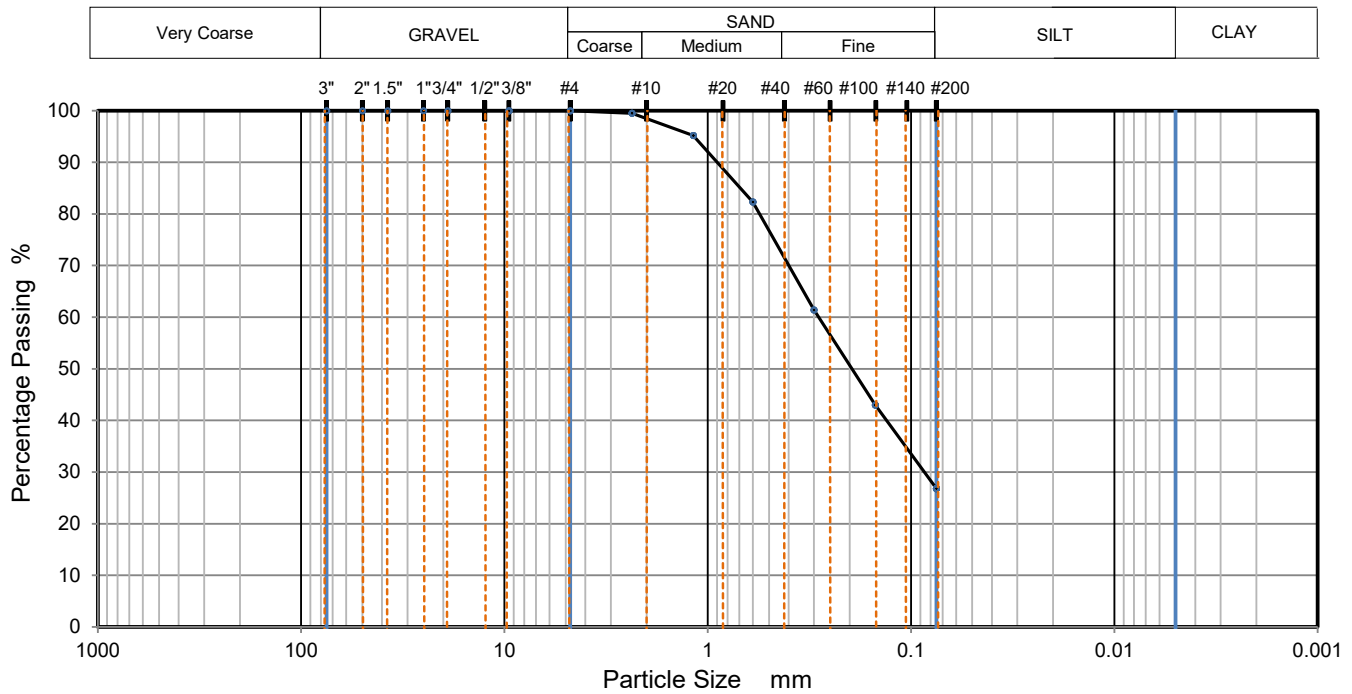
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	95		
#30	82		
#50	61		
#100	43		
#200	27		

Dry Mass of sample, g

140.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	27

USCS	SC	Liquid Limit	26	D90	0.898	D50	0.195	D10	
AASHTO		Plastic Limit	15	D85	0.691	D30	0.086	Cu	
USCS Group Name	Clayey sand	Plasticity Index	11	D60	0.285	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-16

Date Reported: 2/7/2023



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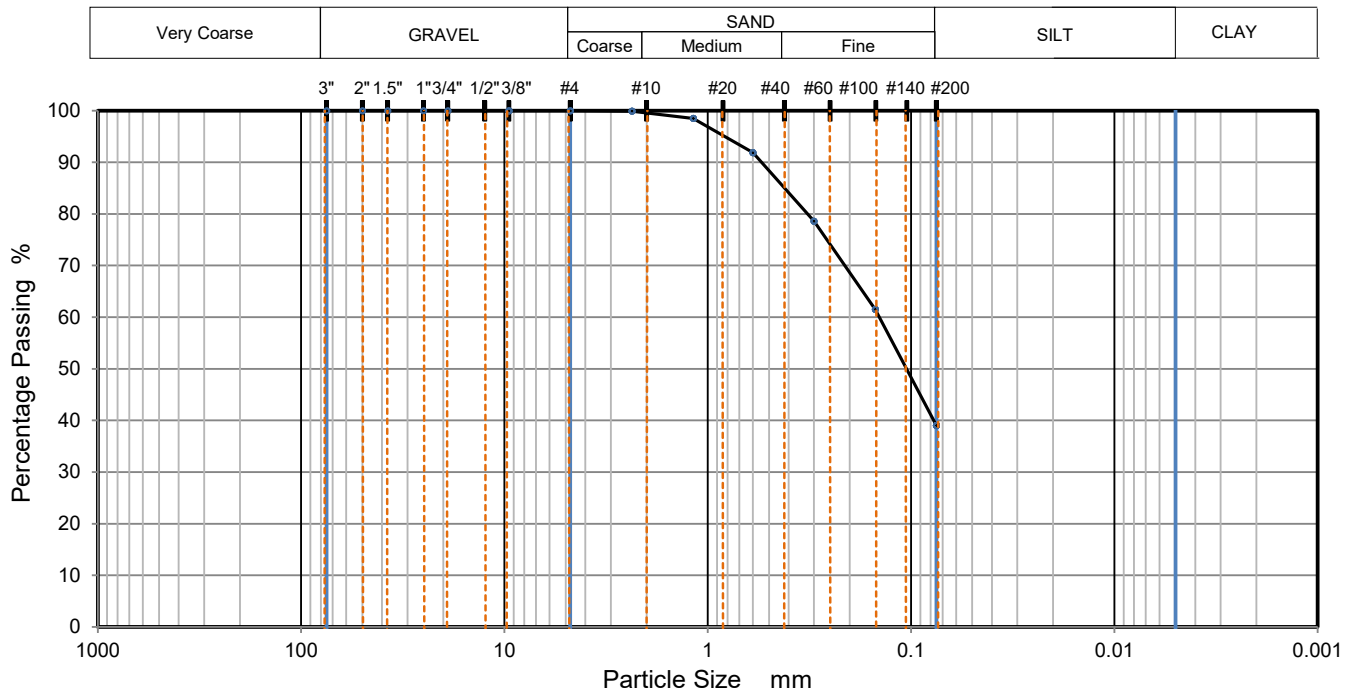
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	92		
#50	79		
#100	62		
#200	39		

Dry Mass of sample, g

100.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	39

USCS	SC	Liquid Limit	29	D90	0.543	D50	0.105	D10	
AASHTO		Plastic Limit	15	D85	0.419	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	14	D60	0.143	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-16

Date Reported: 2/7/2023



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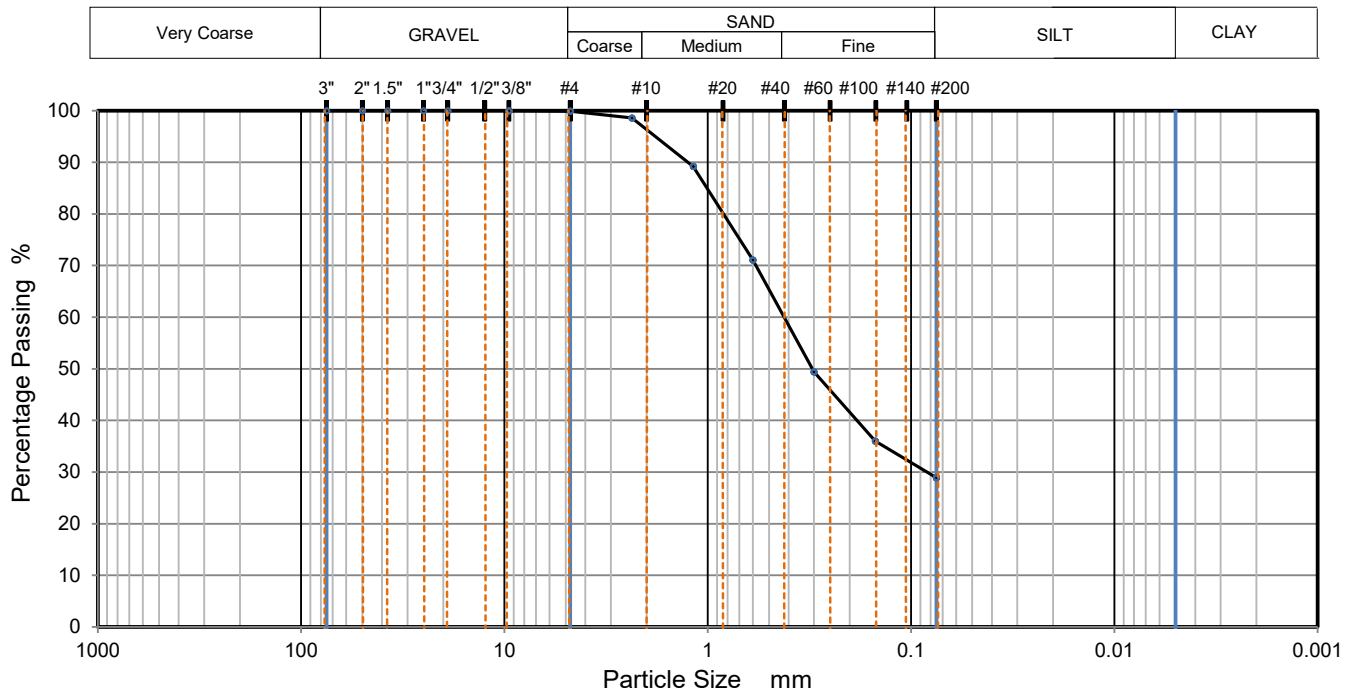
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	89		
#30	71		
#50	49		
#100	36		
#200	29		

Dry Mass of sample, g

117.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	29

USCS	SC	Liquid Limit	34	D90	1.252	D50	0.306	D10	
AASHTO		Plastic Limit	19	D85	1.009	D30	0.084	Cu	
USCS Group Name	Clayey sand	Plasticity Index	15	D60	0.421	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-16

Date Reported: 2/7/2023



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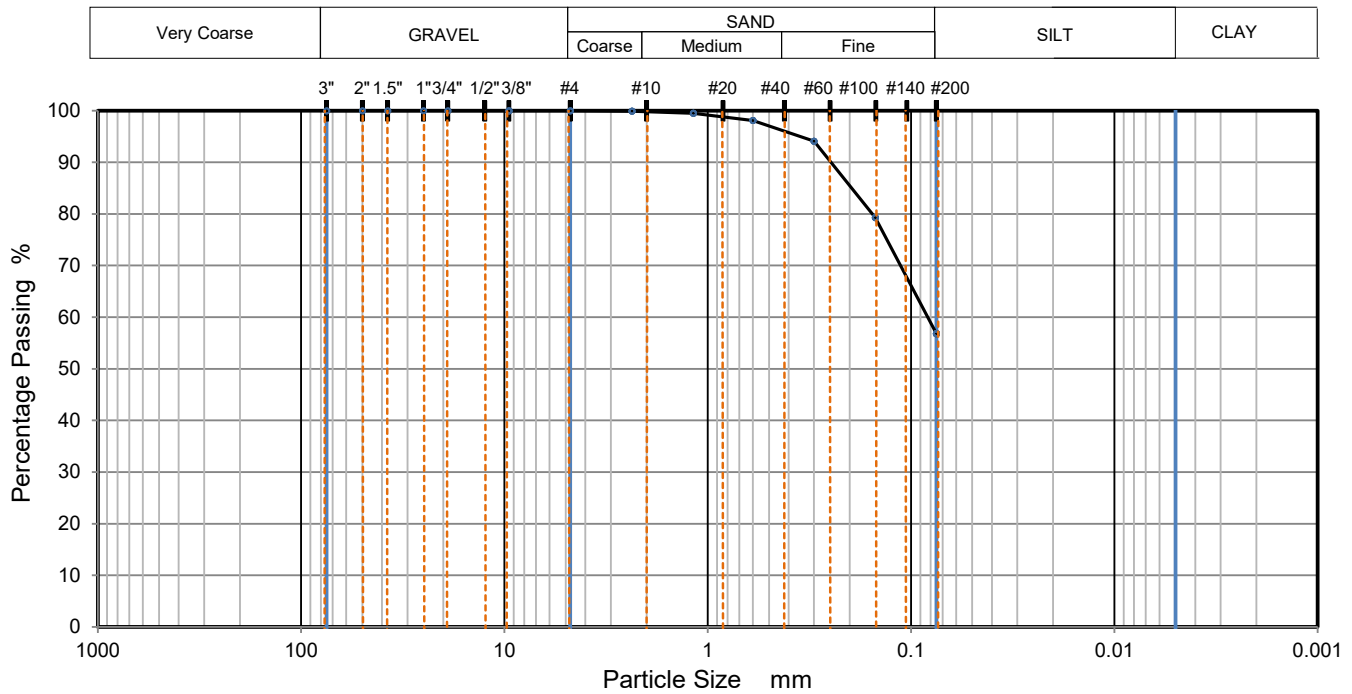
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	98		
#50	94		
#100	79		
#200	57		

Dry Mass of sample, g

121.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	57

USCS	CL	Liquid Limit	38	D90	0.248	D50		D10	
AASHTO		Plastic Limit	15	D85	0.196	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	23	D60	0.083	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23 - 25

Sample Description:

Sample No.: SS-8

Sample Source: B-16

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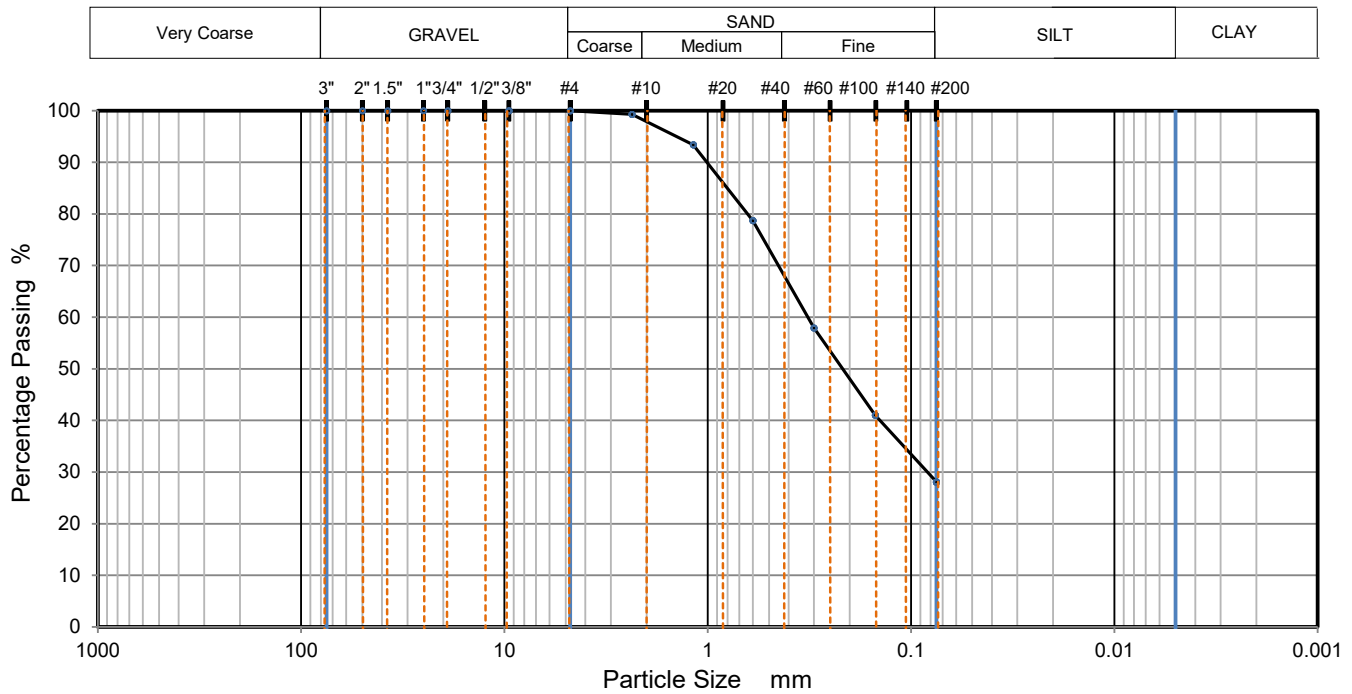
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	93		
#30	79		
#50	58		
#100	41		
#200	28		

Dry Mass of sample, g

140.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	28

USCS	SC	Liquid Limit	33	D90	1.009	D50	0.217	D10	
AASHTO		Plastic Limit	15	D85	0.802	D30	0.083	Cu	
USCS Group Name	Clayey sand	Plasticity Index	18	D60	0.322	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-19

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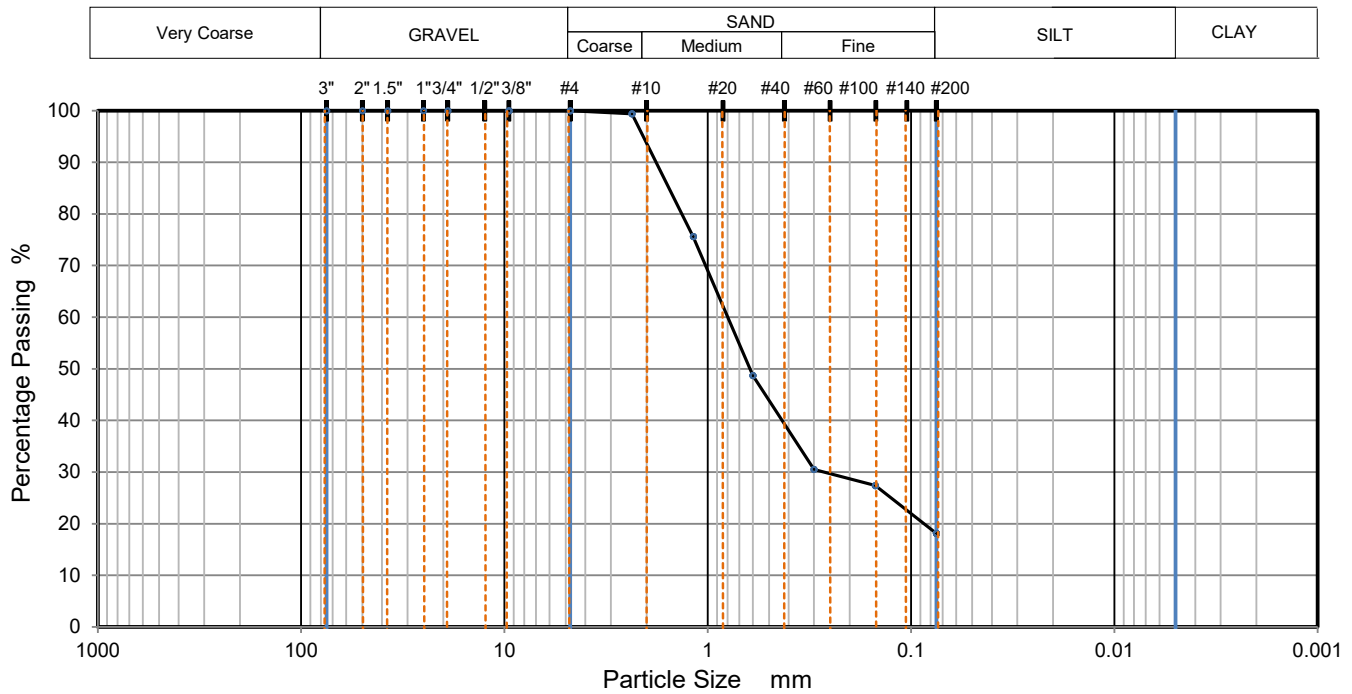
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	76		
#30	49		
#50	31		
#100	27		
#200	18		

Dry Mass of sample, g

125.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	18

USCS	SC-SM	Liquid Limit	14	D90	1.795	D50	0.620	D10	
AASHTO		Plastic Limit	10	D85	1.552	D30	0.268	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	4	D60	0.797	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-19

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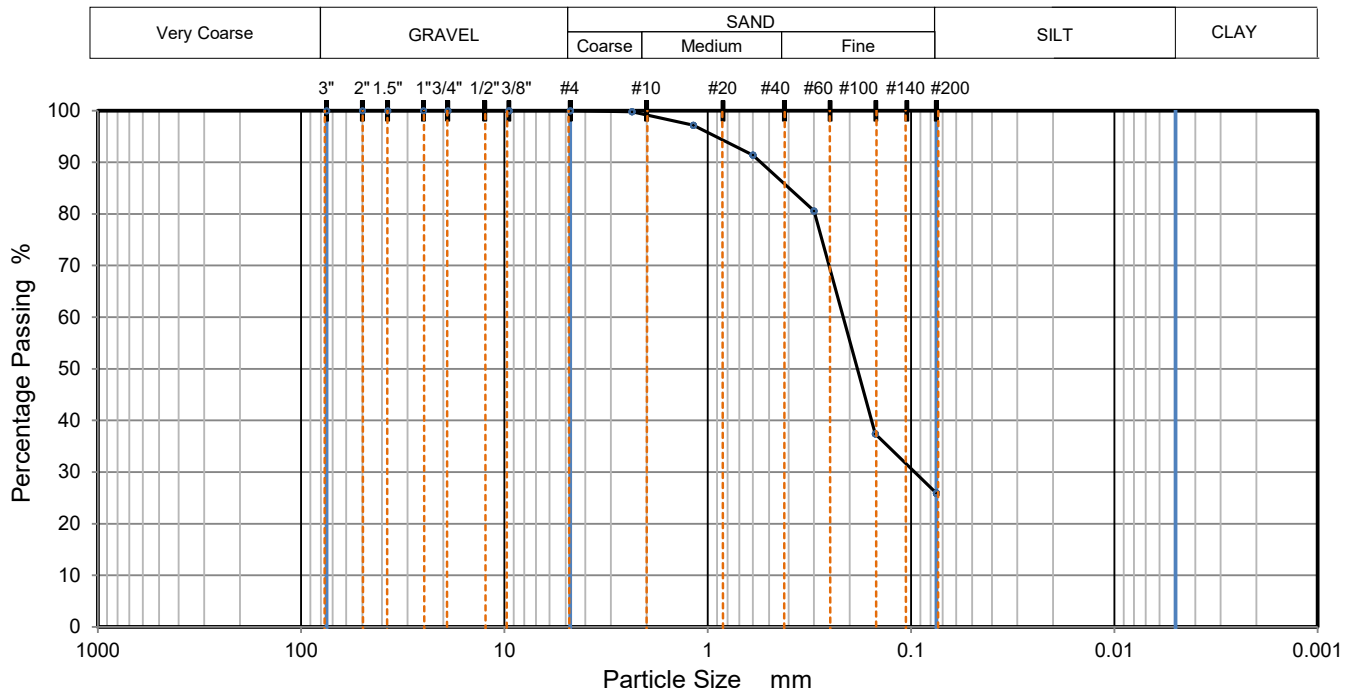
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	97		
#30	91		
#50	81		
#100	37		
#200	26		

Dry Mass of sample, g

211.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	26

USCS	SC-SM	Liquid Limit	24	D90	0.548	D50	0.184	D10	
AASHTO		Plastic Limit	17	D85	0.398	D30	0.096	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	7	D60	0.216	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-19

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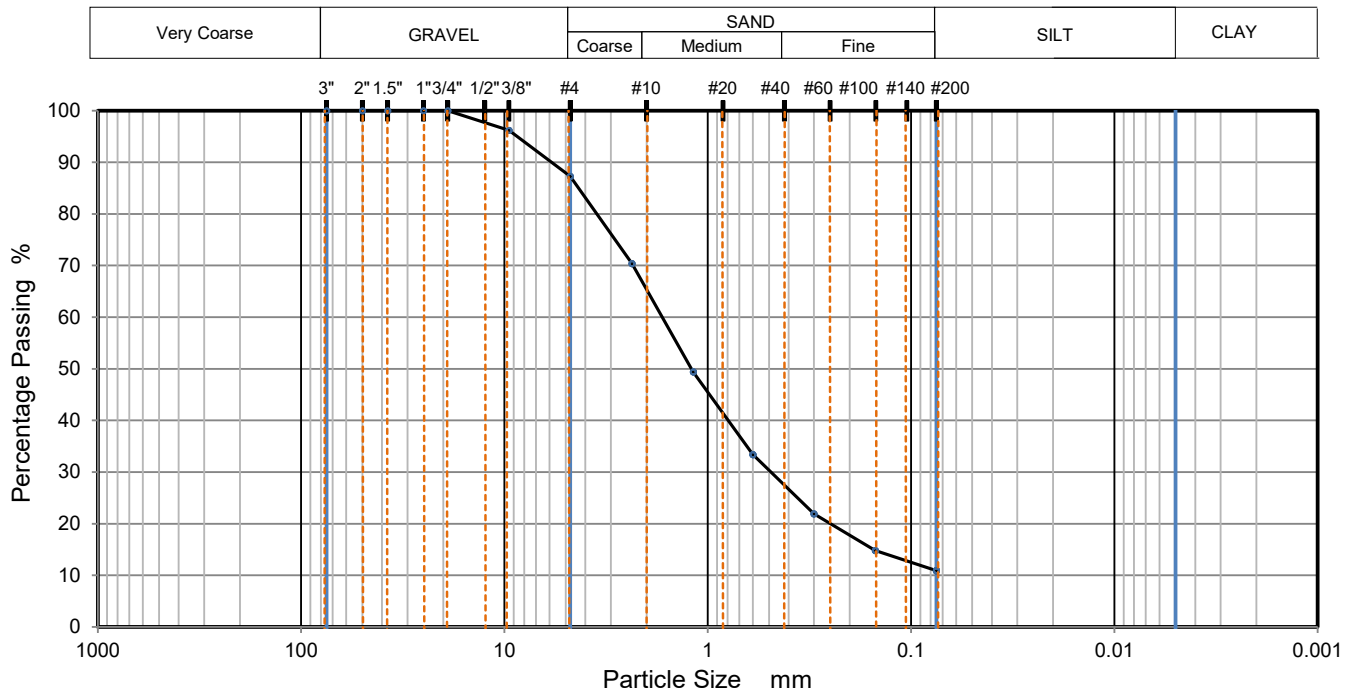
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	96		
#4	87		
#8	70		
#16	49		
#30	33		
#50	22		
#100	15		
#200	11		

Dry Mass of sample, g

134.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	13
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	11

USCS	SP-SM	Liquid Limit	NP	D90	5.862	D50	1.204	D10	
AASHTO		Plastic Limit	NP	D85	4.319	D30	0.489	Cu	
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	1.674	D15	0.153	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 38 - 40

Sample Description:

Sample No.: SS-11

Sample Source: B-19

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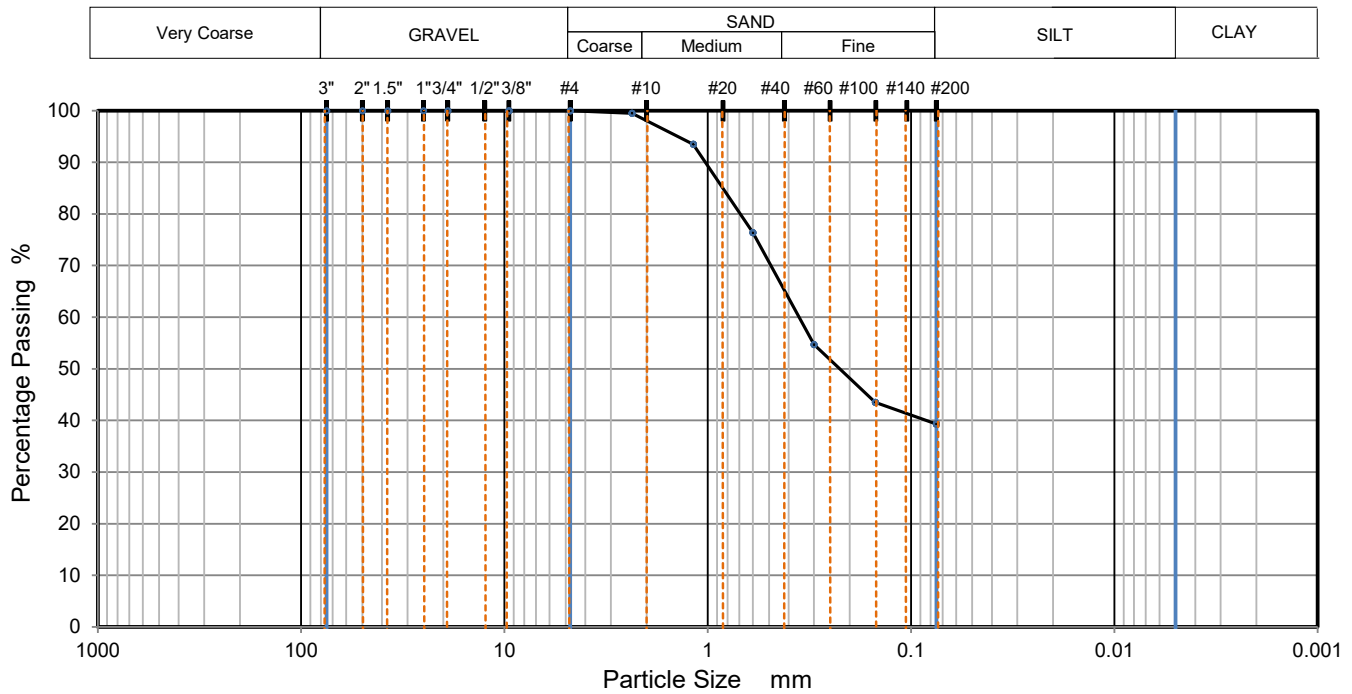
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	94		
#30	76		
#50	55		
#100	44		
#200	39		

Dry Mass of sample, g

116.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	39

USCS	SC	Liquid Limit	54	D90	1.027	D50	0.224	D10	
AASHTO		Plastic Limit	25	D85	0.843	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	29	D60	0.355	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-20

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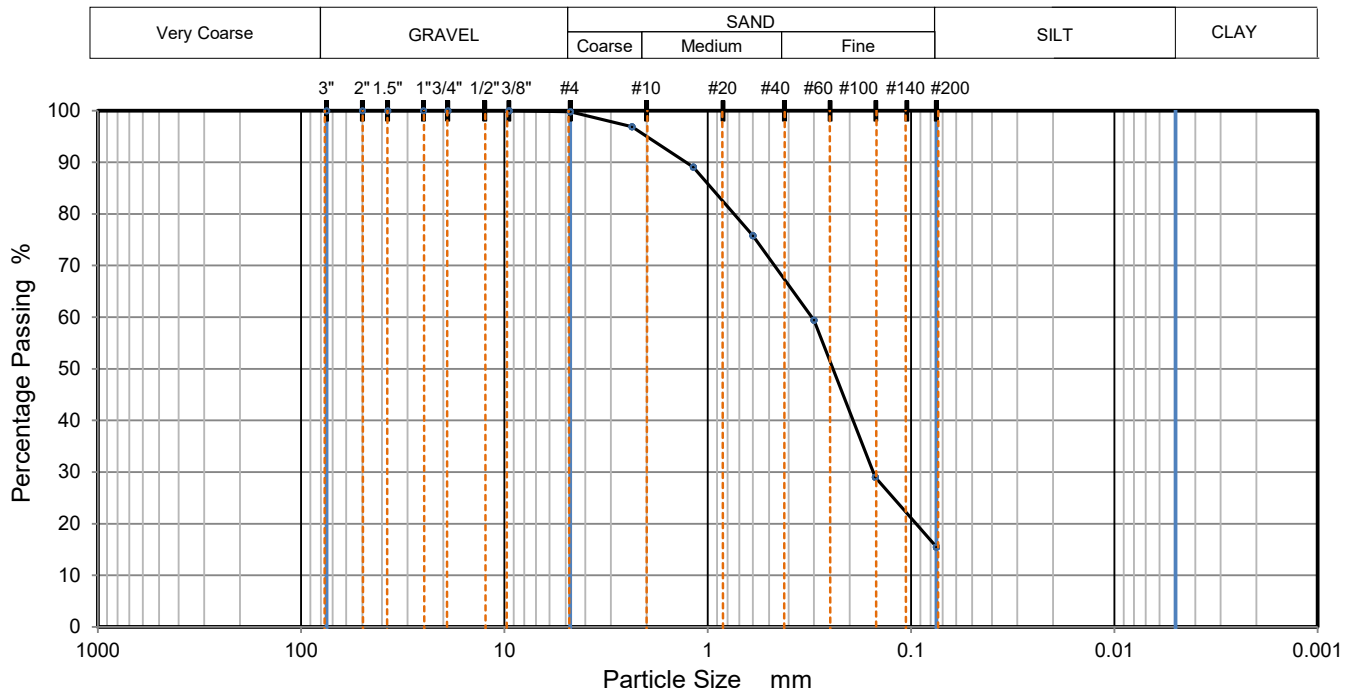
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	97		
#16	89		
#30	76		
#50	59		
#100	29		
#200	16		

Dry Mass of sample, g

121.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	16

USCS	SC-SM	Liquid Limit	21	D90	1.278	D50	0.242	D10	
AASHTO		Plastic Limit	16	D85	0.958	D30	0.154	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	5	D60	0.308	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-20

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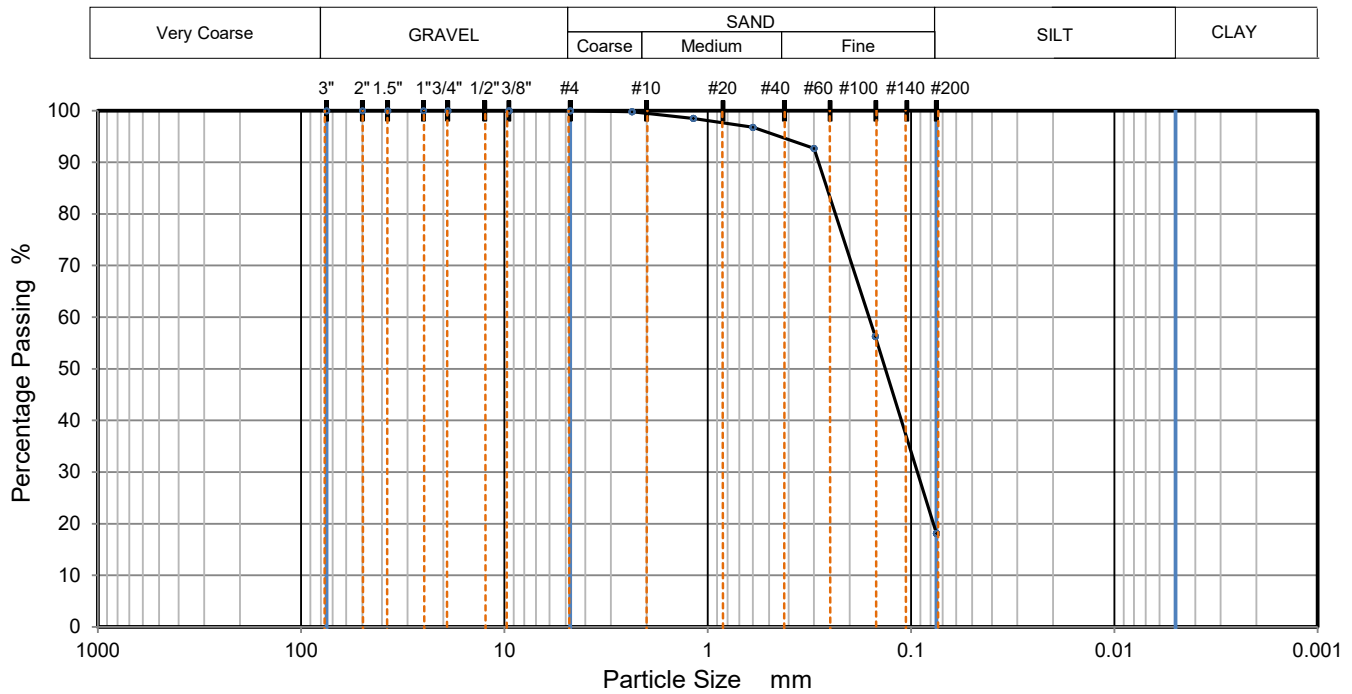
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	97		
#50	93		
#100	56		
#200	18		

Dry Mass of sample, g

147.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	18

USCS	SM	Liquid Limit	20	D90	0.285	D50	0.134	D10	
AASHTO		Plastic Limit	19	D85	0.259	D30	0.093	Cu	
USCS Group Name	Silty sand	Plasticity Index	1	D60	0.161	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-20

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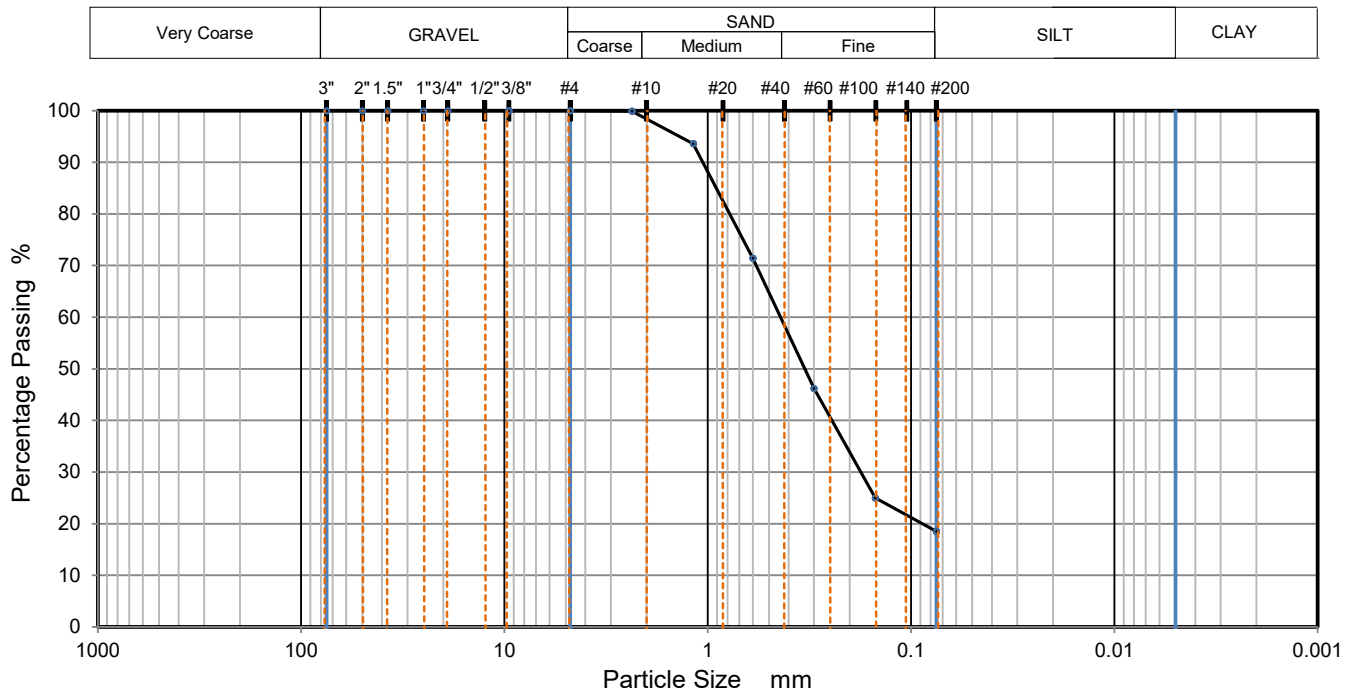
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	94		
#30	71		
#50	46		
#100	25		
#200	19		

Dry Mass of sample, g

103.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	19

USCS	SC	Liquid Limit	76	D90	1.057	D50	0.333	D10	
AASHTO		Plastic Limit	26	D85	0.908	D30	0.177	Cu	
USCS Group Name	Clayey sand	Plasticity Index	50	D60	0.439	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: SS-9

Sample Source: B-20

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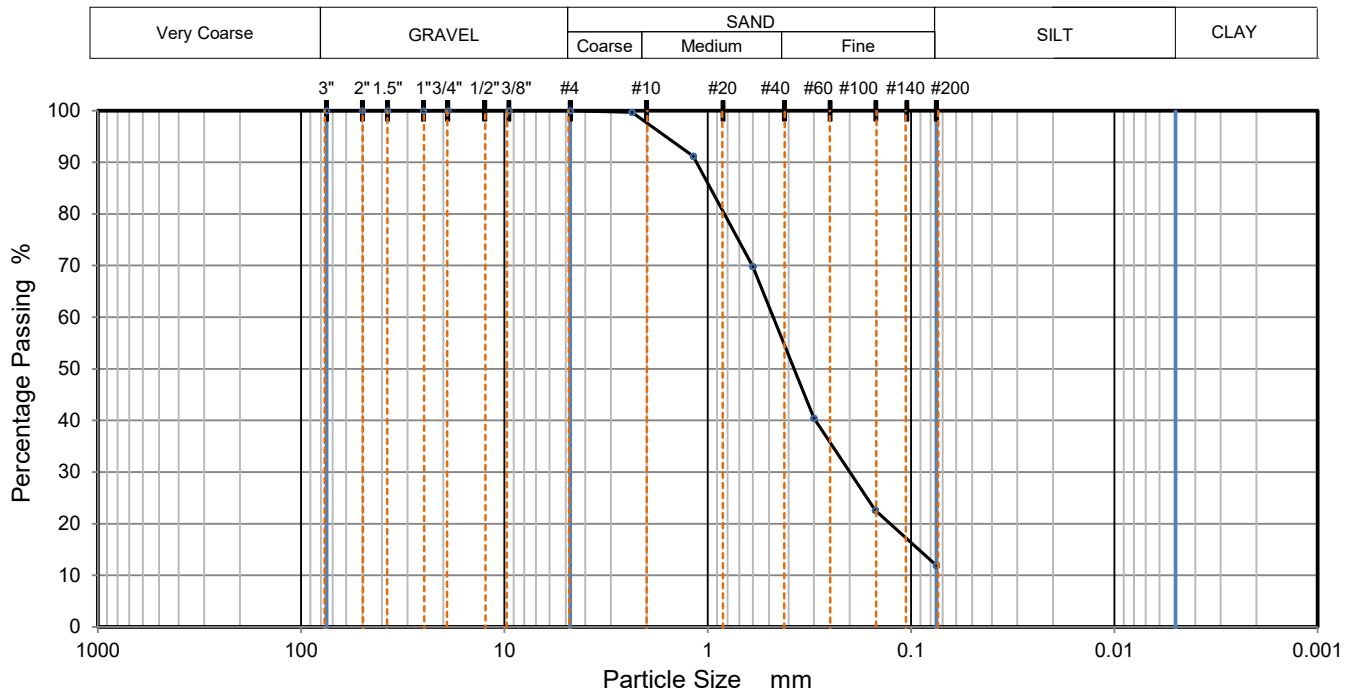
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	91		
#30	70		
#50	40		
#100	23		
#200	12		

Dry Mass of sample, g

109.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	12

USCS	SP-SM	Liquid Limit	NP	D90	1.136	D50	0.376	D10	
AASHTO		Plastic Limit	NP	D85	0.970	D30	0.200	Cu	
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.476	D15	0.092	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-22

Date Reported: 2/7/2023



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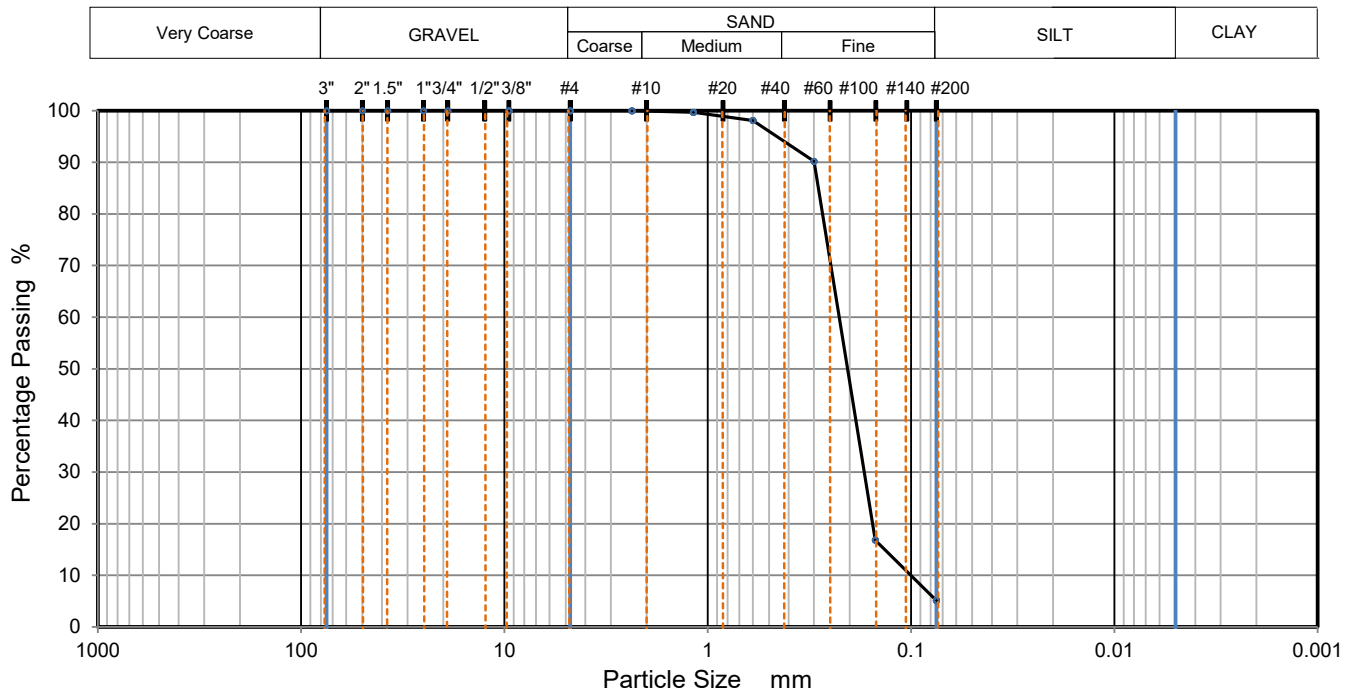
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	98		
#50	90		
#100	17		
#200	5		

Dry Mass of sample, g

112.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP-SM	Liquid Limit	NP	D90	0.299	D50	0.205	D10	0.100
AASHTO		Plastic Limit	NP	D85	0.286	D30	0.170	Cu	2.249
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.226	D15	0.135	Cc	1.276

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-22

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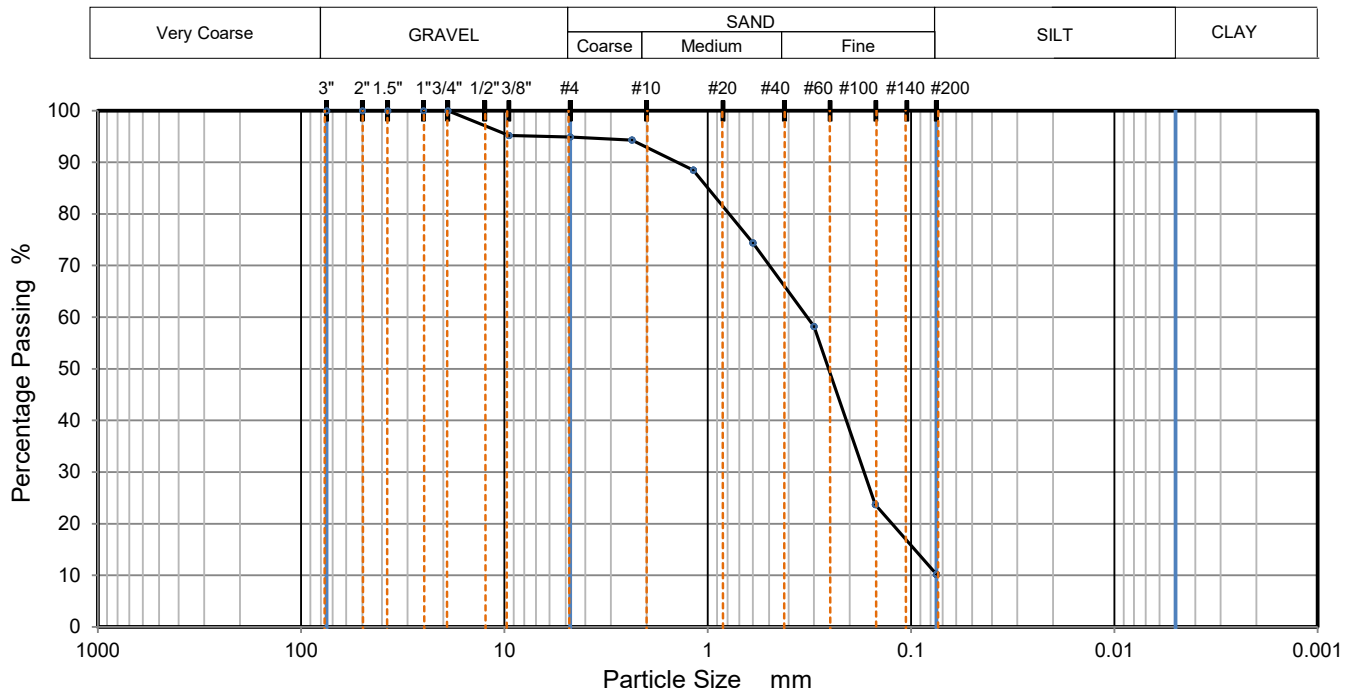
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	95		
#4	95		
#8	94		
#16	89		
#30	74		
#50	58		
#100	24		
#200	10		

Dry Mass of sample, g

112.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	5
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	10

USCS	SP-SC	Liquid Limit	42	D90	1.412	D50	0.254	D10	
AASHTO		Plastic Limit	20	D85	0.998	D30	0.170	Cu	
USCS Group Name	Poorly graded sand with clay	Plasticity Index	22	D60	0.324	D15	0.096	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23 - 25

Sample Description:

Sample No.: SS-8

Sample Source: B-22

Date Reported: 2/7/2023



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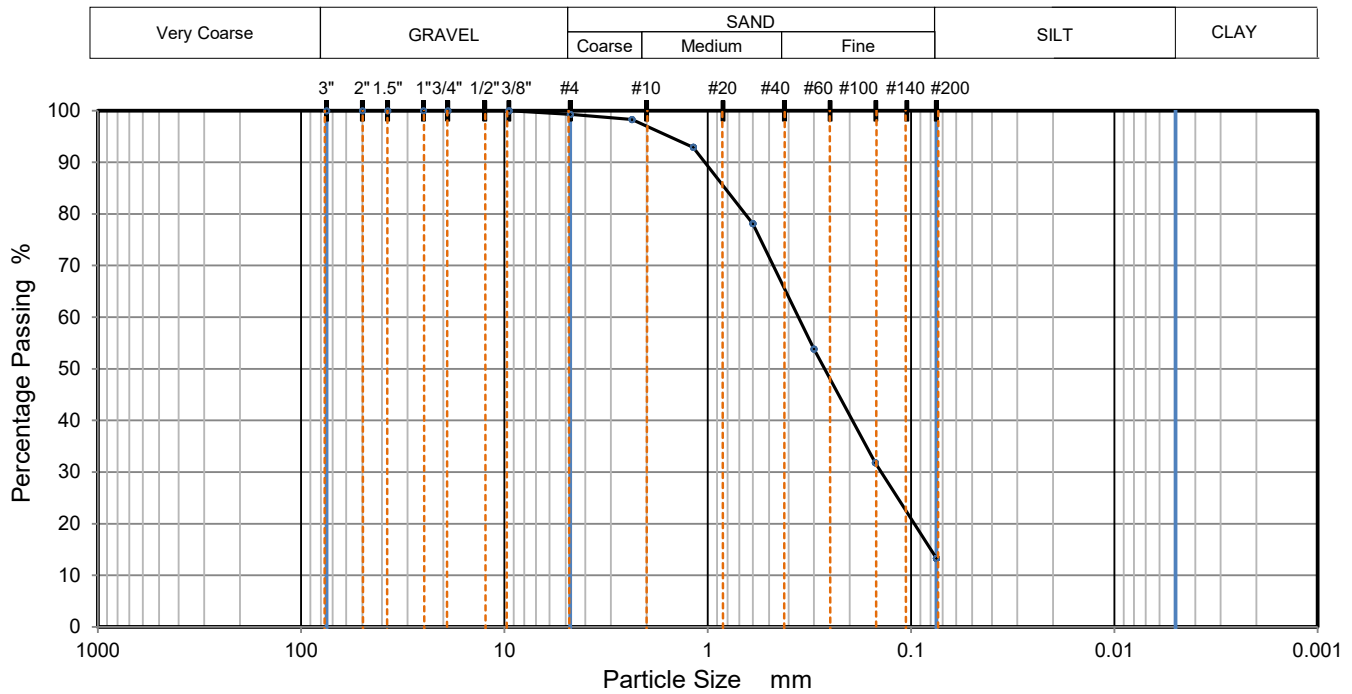
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	98		
#16	93		
#30	78		
#50	54		
#100	32		
#200	13		

Dry Mass of sample, g

127.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	13

USCS	SM	Liquid Limit	16	D90	1.034	D50	0.266	D10	
AASHTO		Plastic Limit	14	D85	0.822	D30	0.140	Cu	
USCS Group Name	Silty sand	Plasticity Index	2	D60	0.358	D15	0.080	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-23

Date Reported: 2/7/2023



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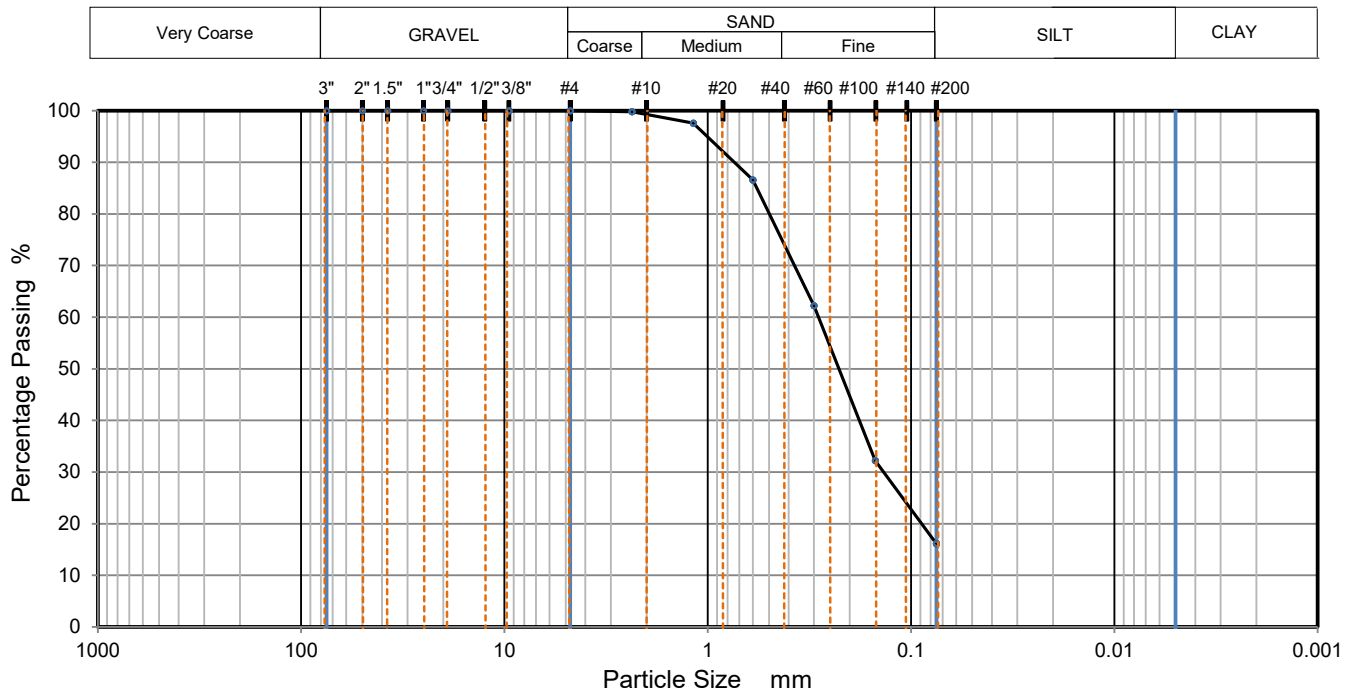
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	98		
#30	87		
#50	62		
#100	32		
#200	16		

Dry Mass of sample, g

80.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	16

USCS	SC-SM	Liquid Limit	19	D90	0.740	D50	0.226	D10	
AASHTO		Plastic Limit	15	D85	0.573	D30	0.136	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	4	D60	0.285	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-23

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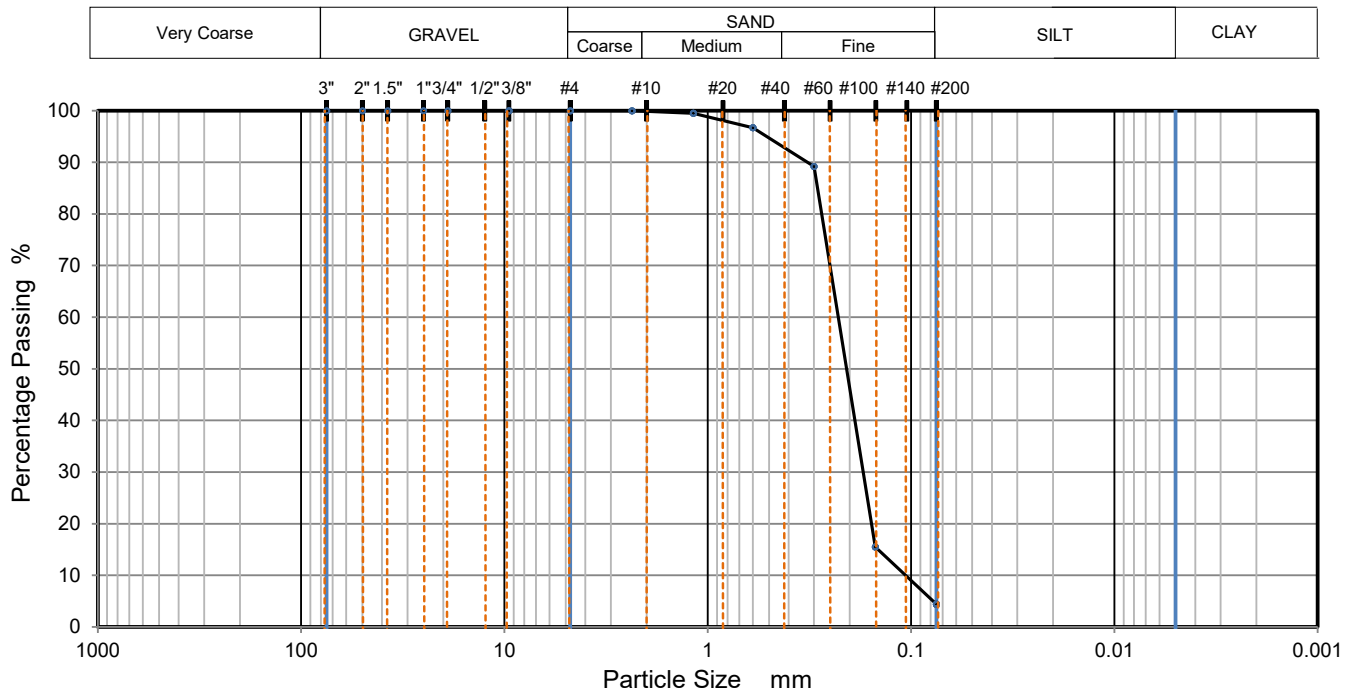
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	97		
#50	89		
#100	16		
#200	4		

Dry Mass of sample, g

108.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	4

USCS	SP	Liquid Limit	NP	D90	0.323	D50	0.208	D10	0.106
AASHTO		Plastic Limit	NP	D85	0.288	D30	0.172	Cu	2.143
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	0.228	D15	0.145	Cc	1.218

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23 - 25

Sample Description:

Sample No.: SS-8

Sample Source: B-23

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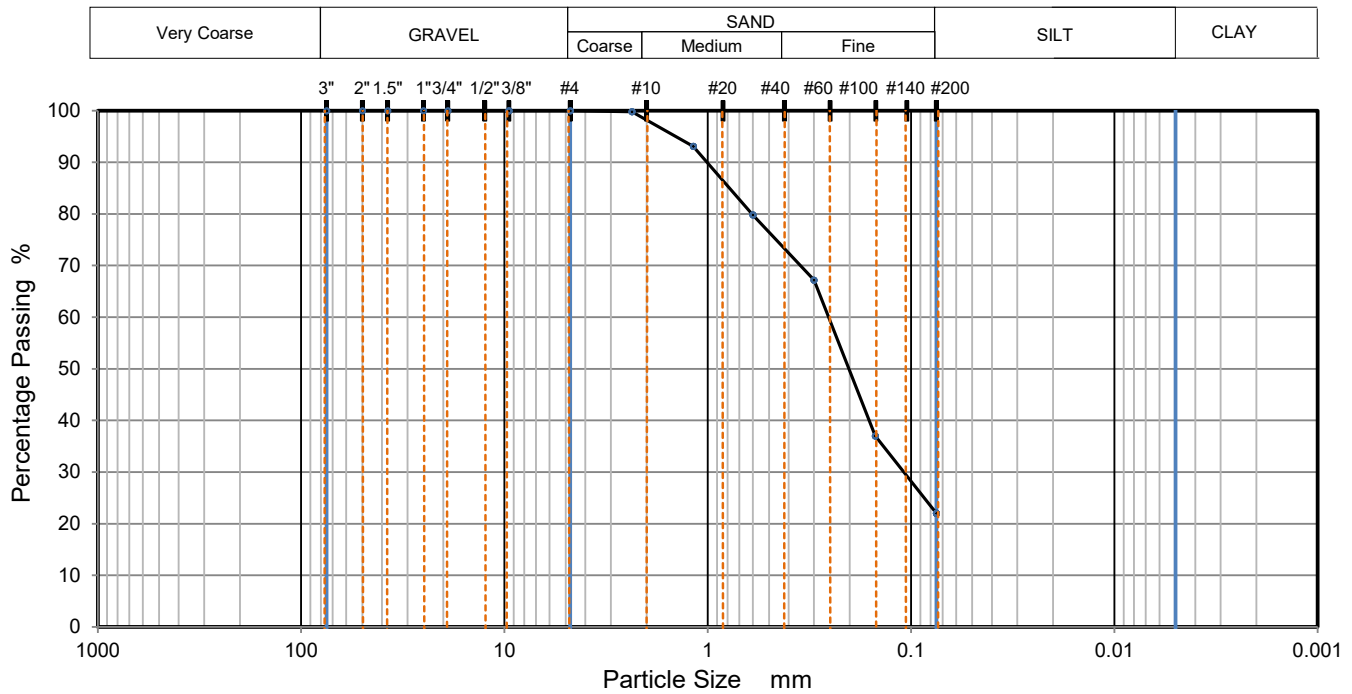
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	93		
#30	80		
#50	67		
#100	37		
#200	22		

Dry Mass of sample, g

103.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	22

USCS	SM	Liquid Limit	NP	D90	1.008	D50	0.202	D10	
AASHTO		Plastic Limit	NP	D85	0.782	D30	0.109	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.254	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: SS-9

Sample Source: B-23

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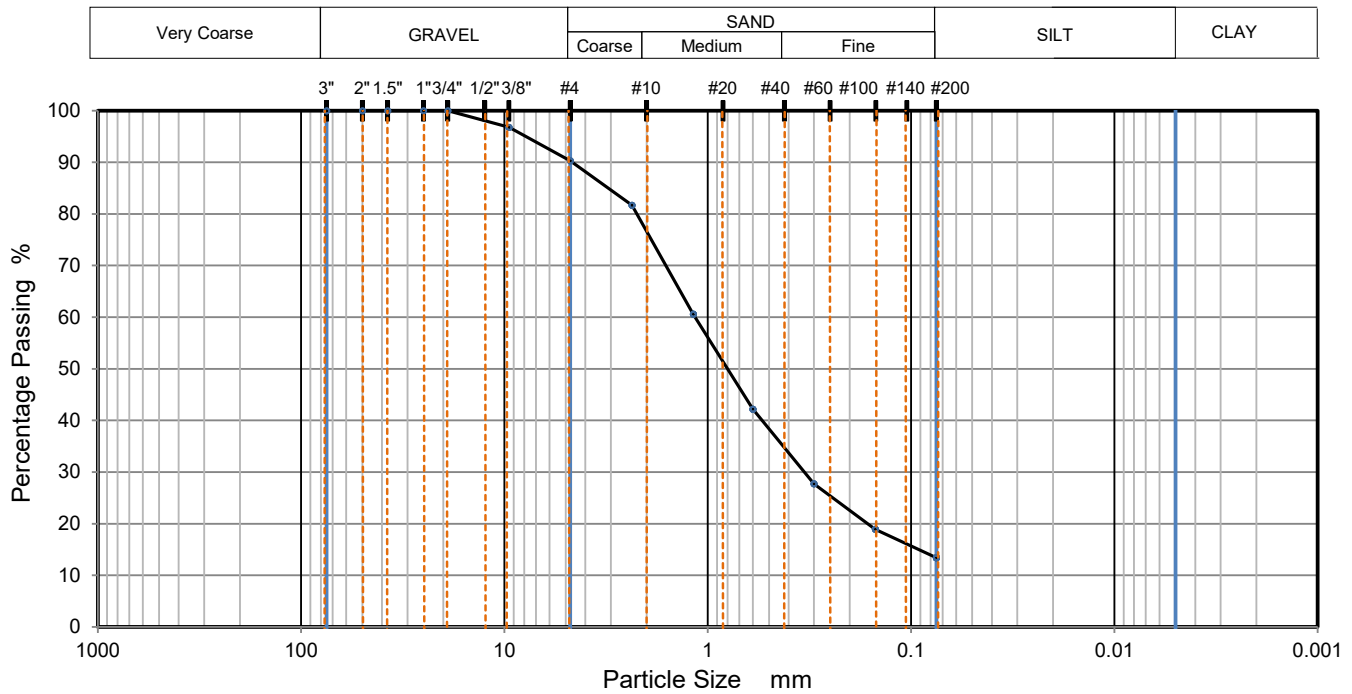
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	97		
#4	90		
#8	82		
#16	61		
#30	42		
#50	28		
#100	19		
#200	13		

Dry Mass of sample, g

128.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	10
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	13

USCS	SM	Liquid Limit	NP	D90	4.635	D50	0.799	D10	
AASHTO		Plastic Limit	NP	D85	3.087	D30	0.335	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	1.154	D15	0.092	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 58 - 60

Sample Description:

Sample No.: SS-15

Sample Source: B-23

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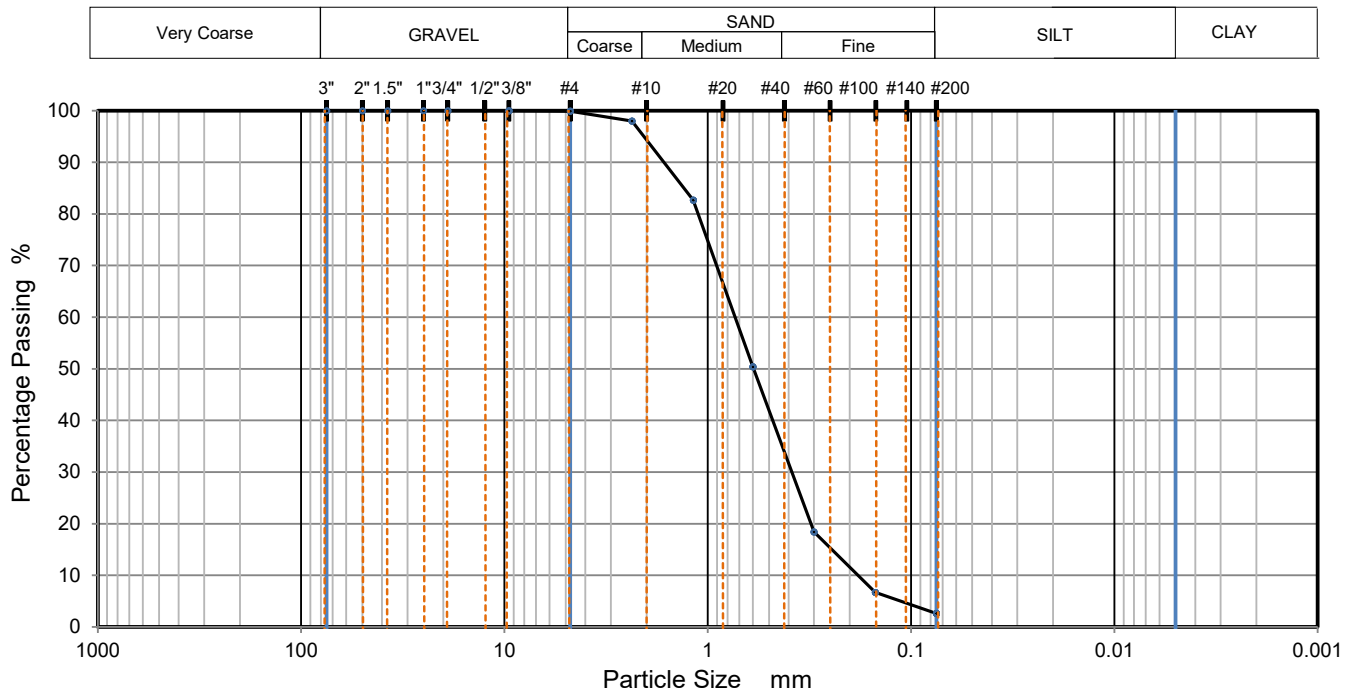
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	98		
#16	83		
#30	50		
#50	18		
#100	7		
#200	3		

Dry Mass of sample, g

111.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	3

USCS	SP	Liquid Limit	NP	D90	1.643	D50	0.595	D10	0.182
AASHTO		Plastic Limit	NP	D85	1.310	D30	0.386	Cu	4.022
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	0.734	D15	0.245	Cc	1.112

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-24

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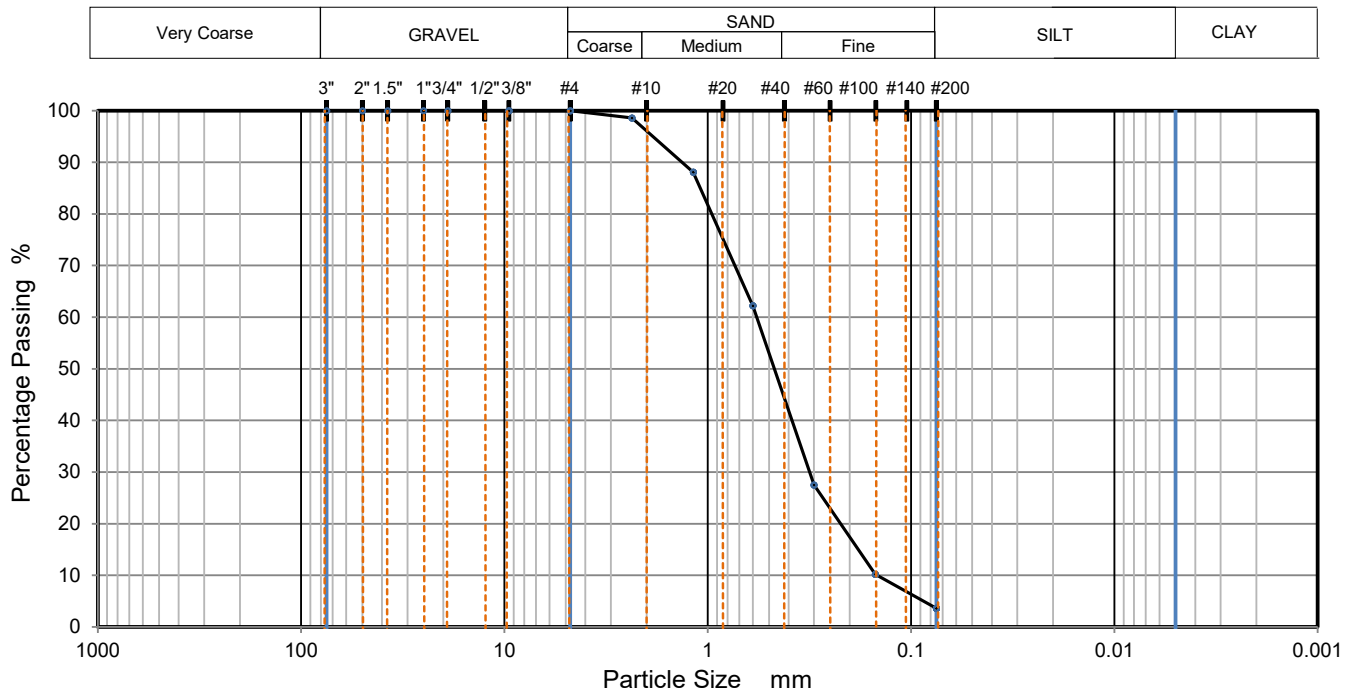
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	88		
#30	62		
#50	28		
#100	10		
#200	4		

Dry Mass of sample, g

118.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	4

USCS	SP	Liquid Limit		D90	1.338	D50	0.470	D10	0.147
AASHTO		Plastic Limit	NP	D85	1.088	D30	0.315	Cu	3.909
USCS Group Name	Poorly graded sand	Plasticity Index		D60	0.574	D15	0.182	Cc	1.179

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: B-24

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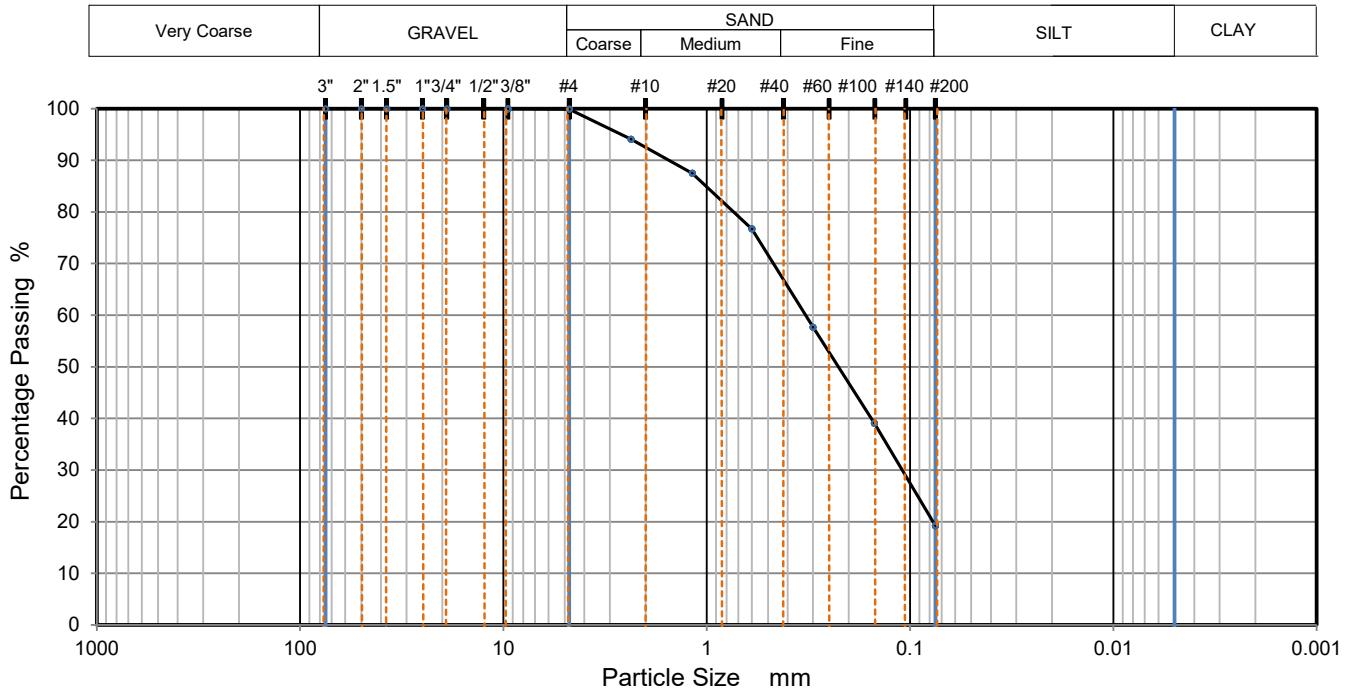
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	94		
#16	88		
#30	77		
#50	58		
#100	39		
#200	19		

Dry Mass of sample, g

131.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	19

USCS	SC-SM	Liquid Limit	17	D90	1.534	D50	0.225	D10	
AASHTO		Plastic Limit	13	D85	1.009	D30	0.109	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	4	D60	0.326	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-24

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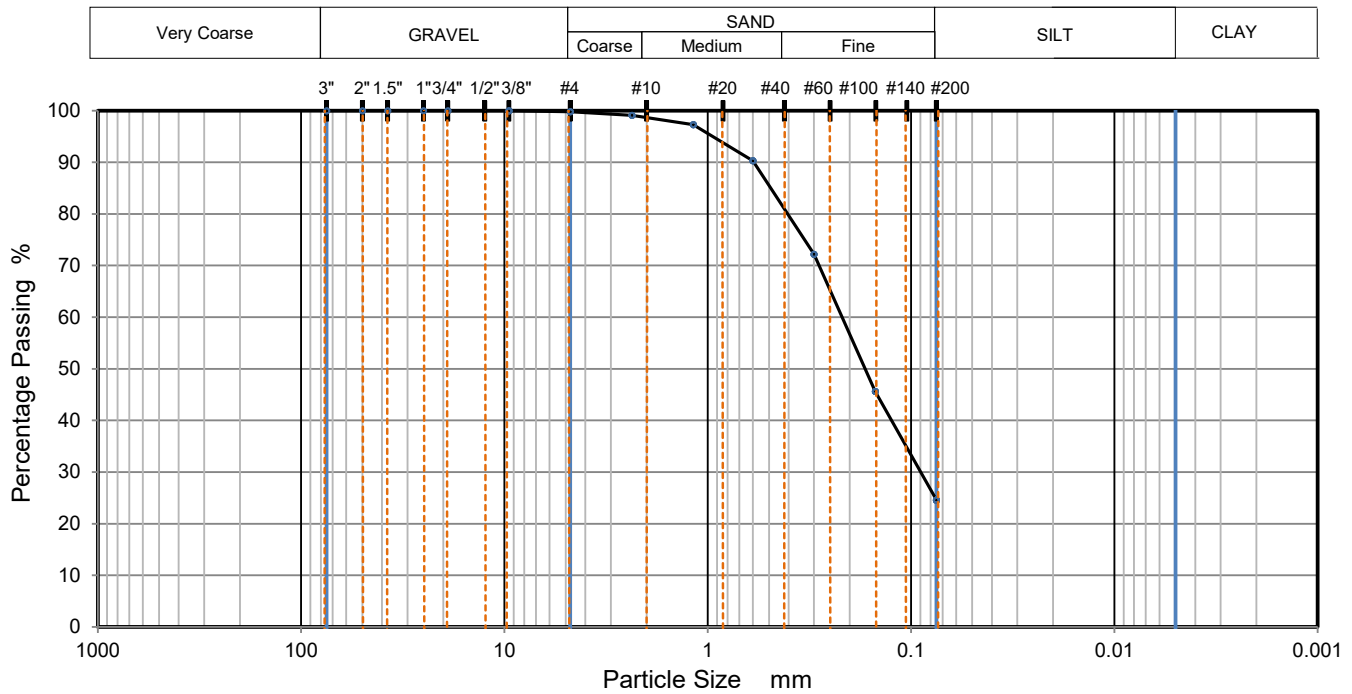
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	97		
#30	90		
#50	72		
#100	46		
#200	25		

Dry Mass of sample, g

105.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	25

USCS	SM	Liquid Limit	18	D90	0.593	D50	0.168	D10	
AASHTO		Plastic Limit	15	D85	0.490	D30	0.090	Cu	
USCS Group Name	Silty sand	Plasticity Index	3	D60	0.218	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

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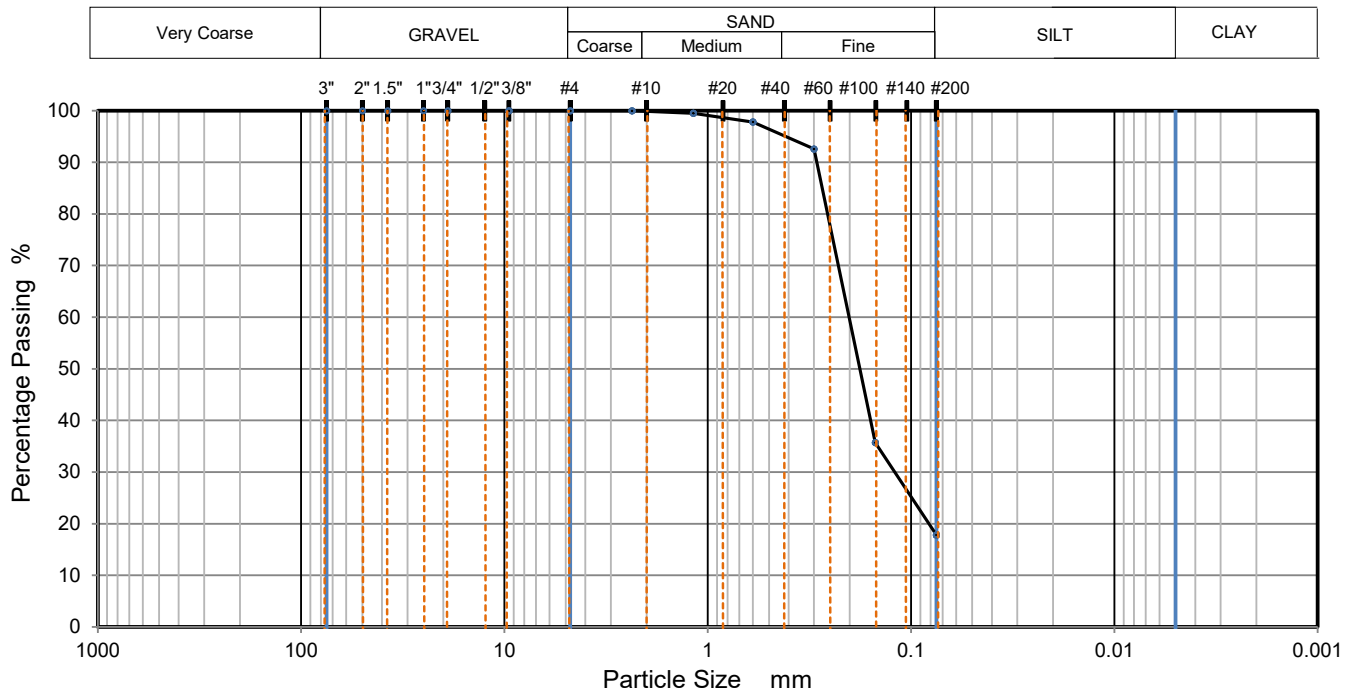
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	98		
#50	93		
#100	36		
#200	18		

Dry Mass of sample, g

105.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	18

USCS	SM	Liquid Limit	NP	D90	0.291	D50	0.179	D10	
AASHTO		Plastic Limit	NP	D85	0.274	D30	0.120	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.202	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 33 - 35

Sample Description:

Sample No.: SS-10

Sample Source: B-24

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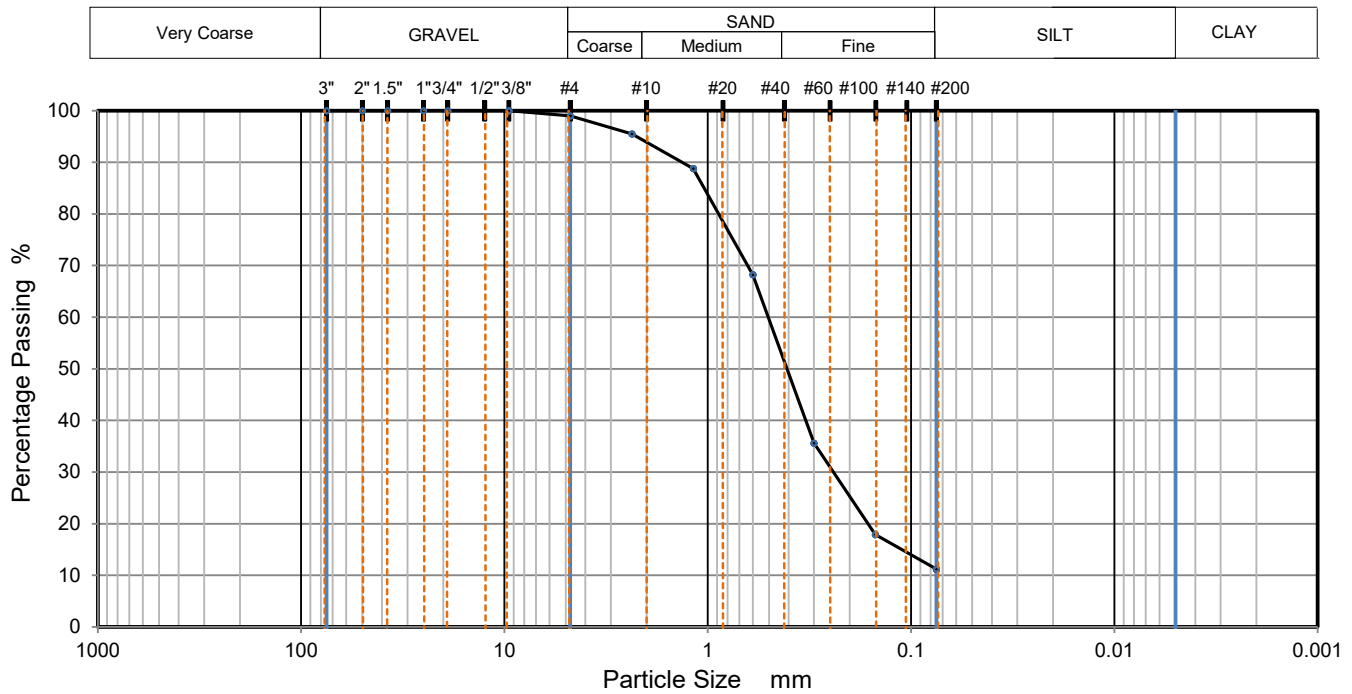
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	96		
#16	89		
#30	68		
#50	36		
#100	18		
#200	11		

Dry Mass of sample, g

105.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	11

USCS	SP-SM	Liquid Limit	25	D90	1.336	D50	0.408	D10	
AASHTO		Plastic Limit	22	D85	1.042	D30	0.241	Cu	
USCS Group Name	Poorly graded sand with silt	Plasticity Index	3	D60	0.504	D15	0.111	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: P-09

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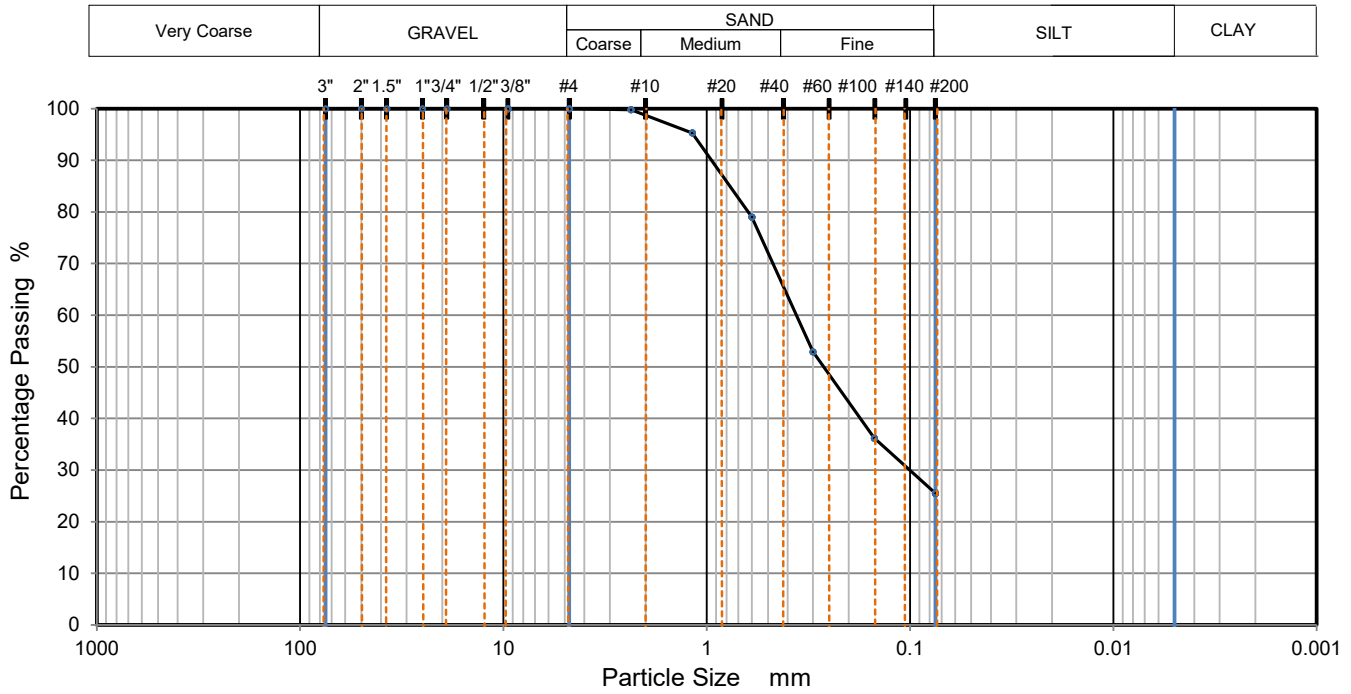
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	95		
#30	79		
#50	53		
#100	36		
#200	26		

Dry Mass of sample, g

168.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	26

USCS	SC	Liquid Limit	20	D90	0.947	D50	0.266	D10	
AASHTO		Plastic Limit	12	D85	0.770	D30	0.100	Cu	
USCS Group Name	Clayey sand	Plasticity Index	8	D60	0.362	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0.5 - 2.5

Sample Description:

Sample No.: SS-1

Sample Source: P-11

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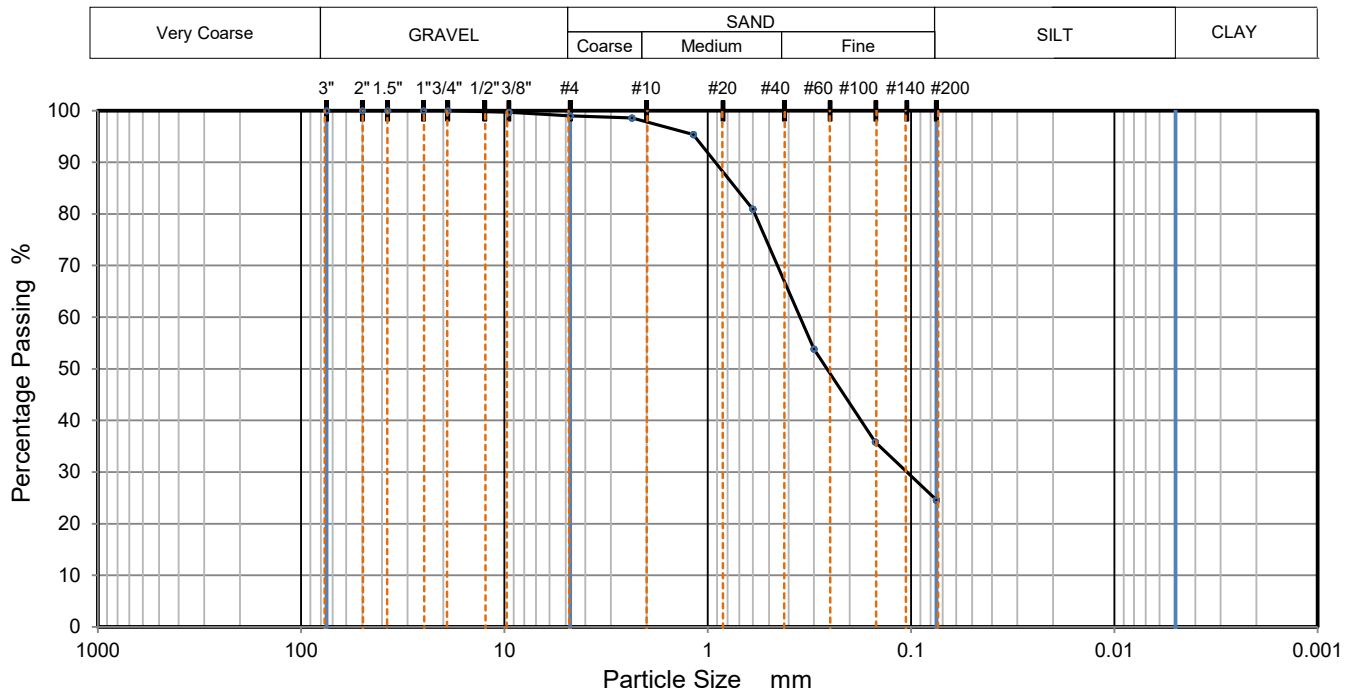
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	99		
#16	95		
#30	81		
#50	54		
#100	36		
#200	25		

Dry Mass of sample, g

115.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	25

USCS	SC-SM	Liquid Limit	18	D90	0.917	D50	0.259	D10	
AASHTO		Plastic Limit	12	D85	0.727	D30	0.105	Cu	
USCS Group Name	Silty, clayey sand	Plasticity Index	6	D60	0.352	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0.8 - 2.8

Sample Description:

Sample No.: SS-1

Sample Source: P-14

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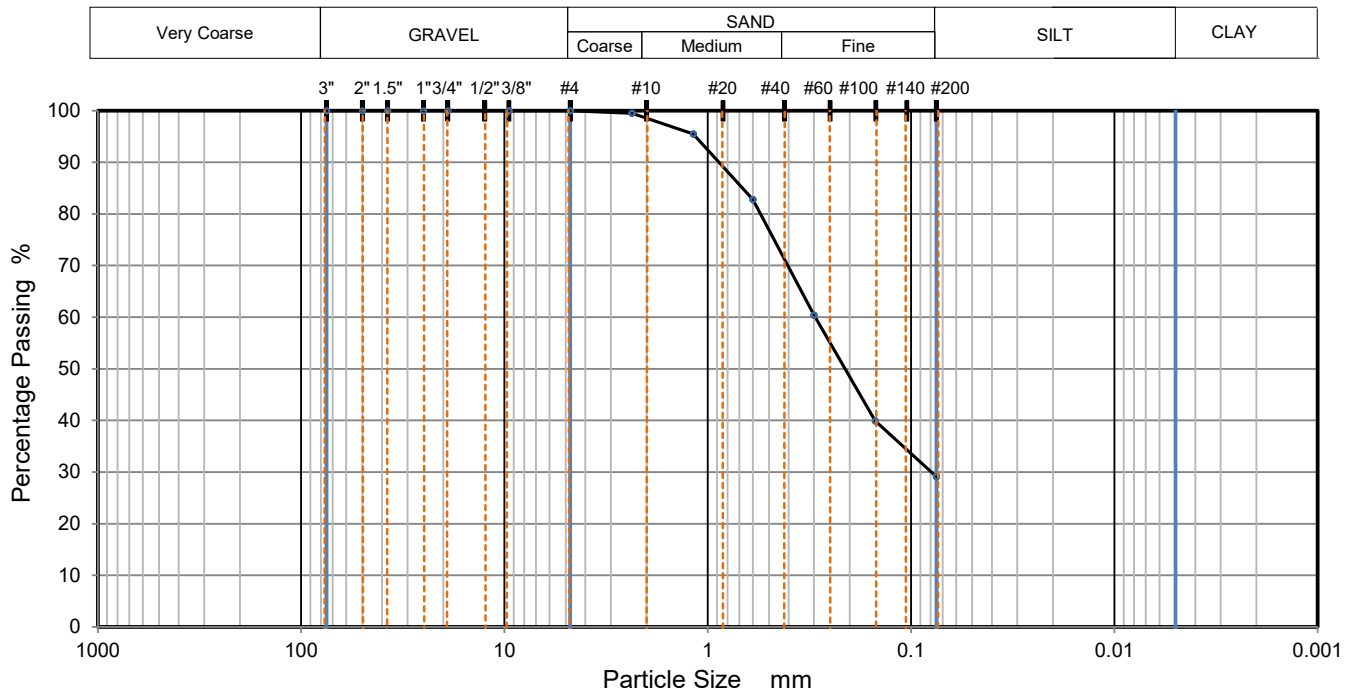
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	83		
#50	60		
#100	40		
#200	29		

Dry Mass of sample, g

123.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	29

USCS	SC	Liquid Limit	29	D90	0.880	D50	0.211	D10	
AASHTO		Plastic Limit	14	D85	0.675	D30	0.079	Cu	
USCS Group Name	Clayey sand	Plasticity Index	15	D60	0.296	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: P-15

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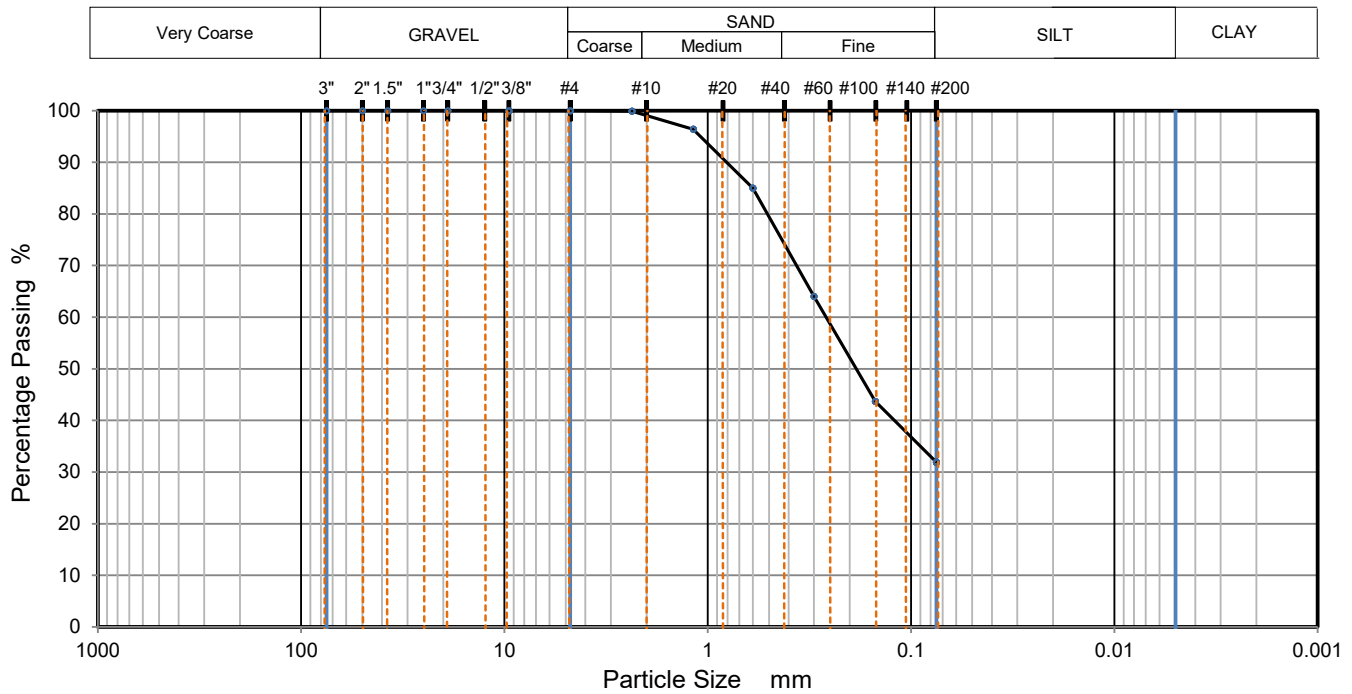
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	85		
#50	64		
#100	44		
#200	32		

Dry Mass of sample, g

101.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	32

USCS	SC	Liquid Limit	24	D90	0.807	D50	0.186	D10	
AASHTO		Plastic Limit	16	D85	0.600	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	8	D60	0.262	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0.8 - 2.8

Sample Description:

Sample No.: SS-1

Sample Source: P-17

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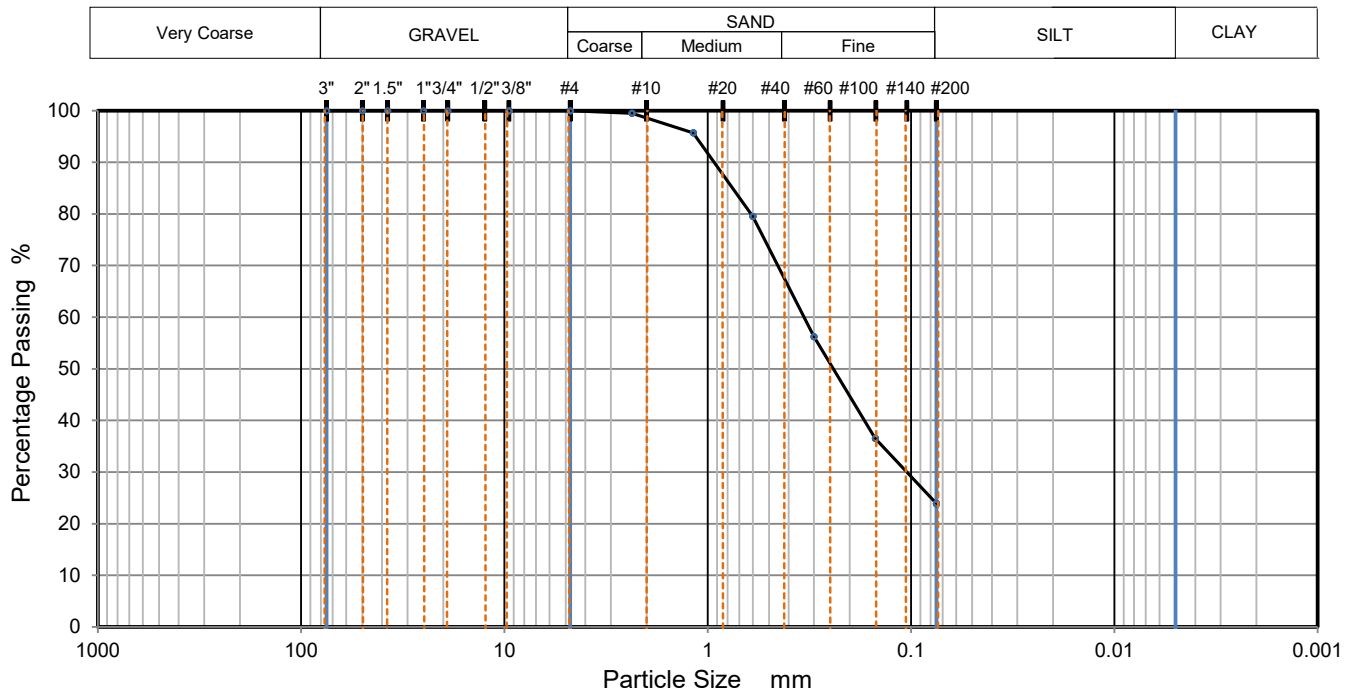
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	80		
#50	56		
#100	37		
#200	24		

Dry Mass of sample, g

122.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	24

USCS	SC	Liquid Limit	24	D90	0.930	D50	0.241	D10	
AASHTO		Plastic Limit	15	D85	0.755	D30	0.105	Cu	
USCS Group Name	Clayey sand	Plasticity Index	9	D60	0.336	D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: P-18

Date Reported: 2/7/2023



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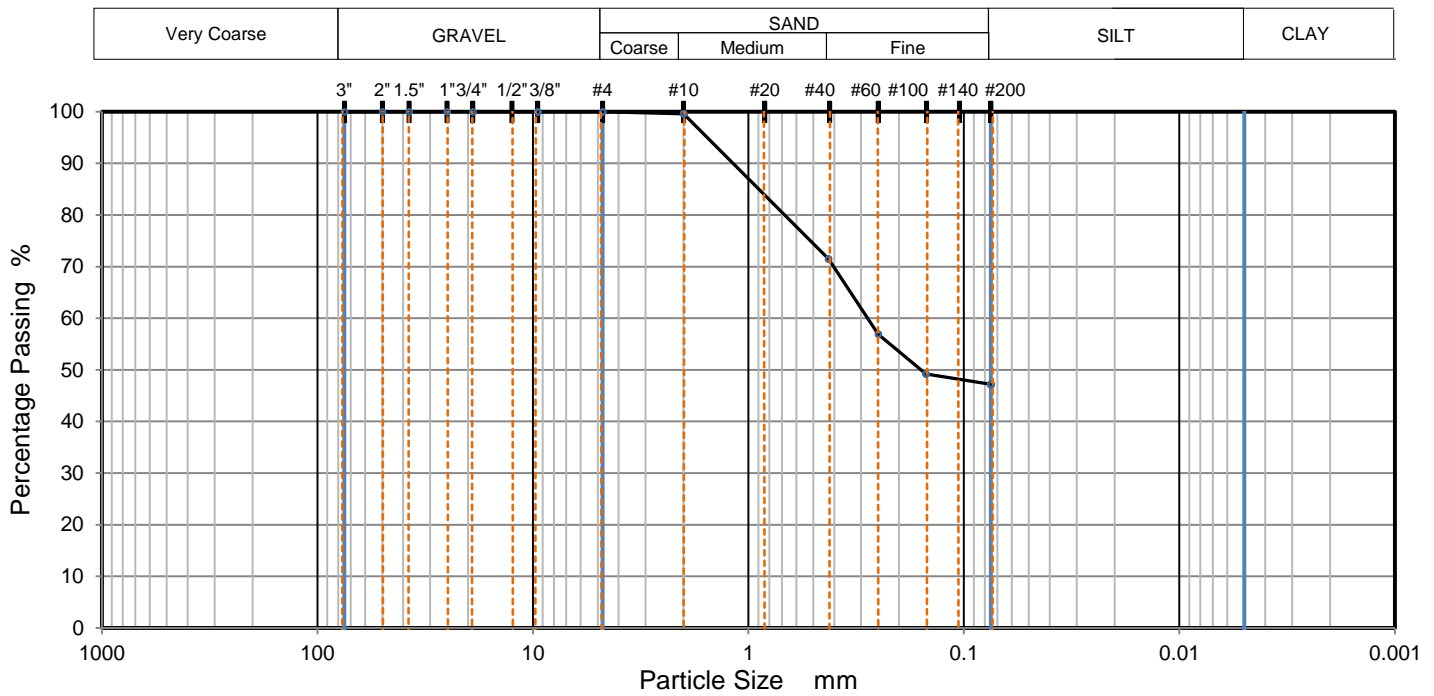
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.6		
#40	71.5		
#60	56.9		
#100	49.2		
#200	47.2		

Dry Mass of sample, g

287.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	28.1
Fine Sand, #40 to #200	24.3
Fines <#200	47.2

USCS	SC	Liquid Limit	26	D90	1.178	D50	0.158	D10	
AASHTO	A-6	Plastic Limit	14	D85	0.894	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	12	D60	0.280	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-04

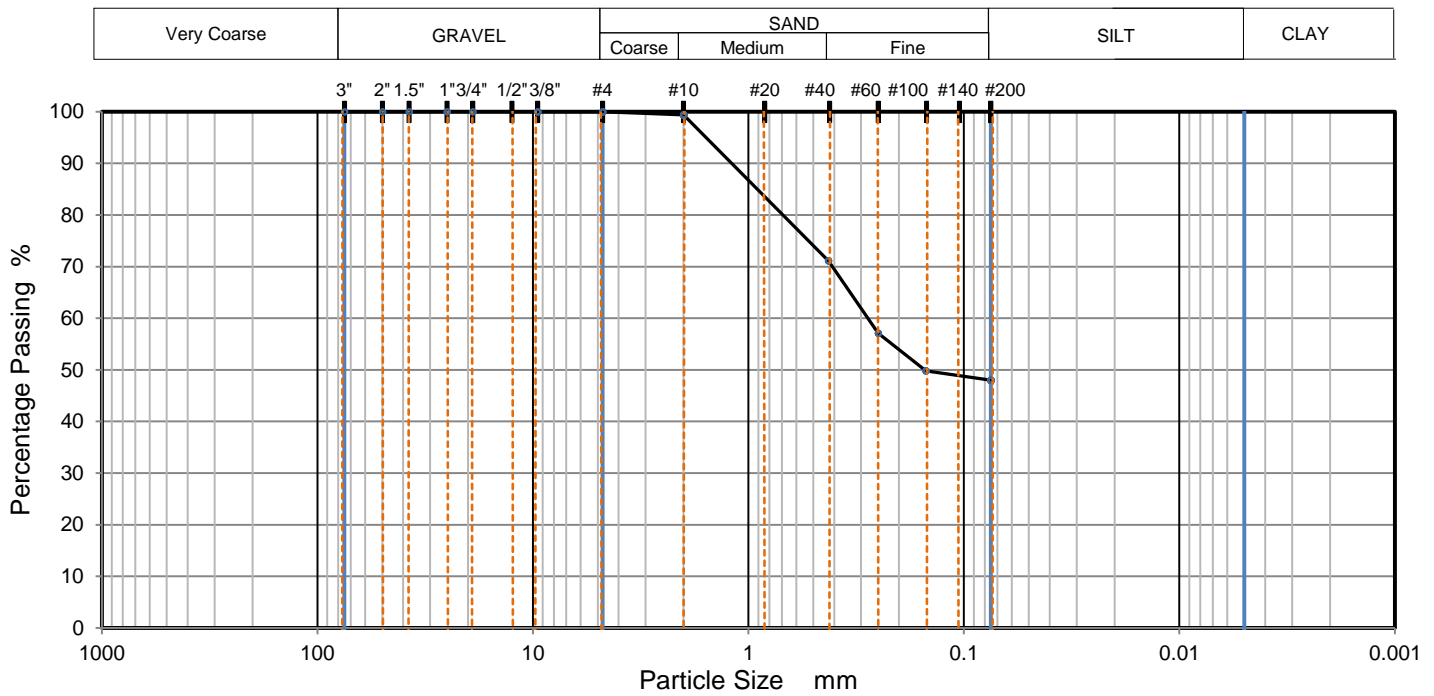
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.4		
#40	71.1		
#60	57.1		
#100	49.8		
#200	48.0		

Dry Mass of sample, g

272.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.6
Medium Sand, #10 to #40	28.3
Fine Sand, #40 to #200	23.1
Fines <#200	48.0

USCS	SC	Liquid Limit	23	D90	1.196	D50	0.152	D10	
AASHTO	A-4	Plastic Limit	13	D85	0.909	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	10	D60	0.279	D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: R-04

Date Reported: 3/1/2023



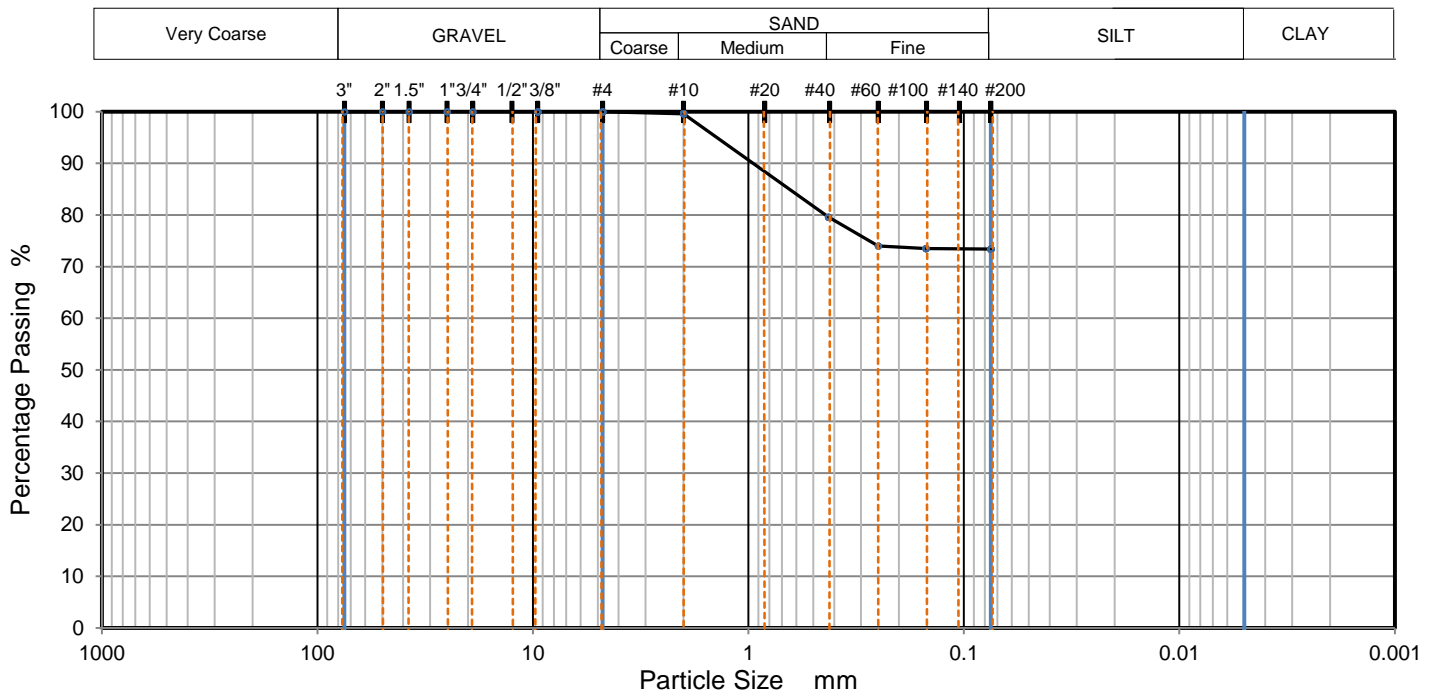
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.6		
#40	79.6		
#60	74.0		
#100	73.5		
#200	73.4		

Dry Mass of sample, g

307.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	20.0
Fine Sand, #40 to #200	6.2
Fines <#200	73.4

USCS	CL	Liquid Limit	29	D90	0.951	D50		D10	
AASHTO	A-6	Plastic Limit	14	D85	0.646	D30		Cu	
USCS Group Name	Lean clay with sand	Plasticity Index	15	D60		D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: R-04

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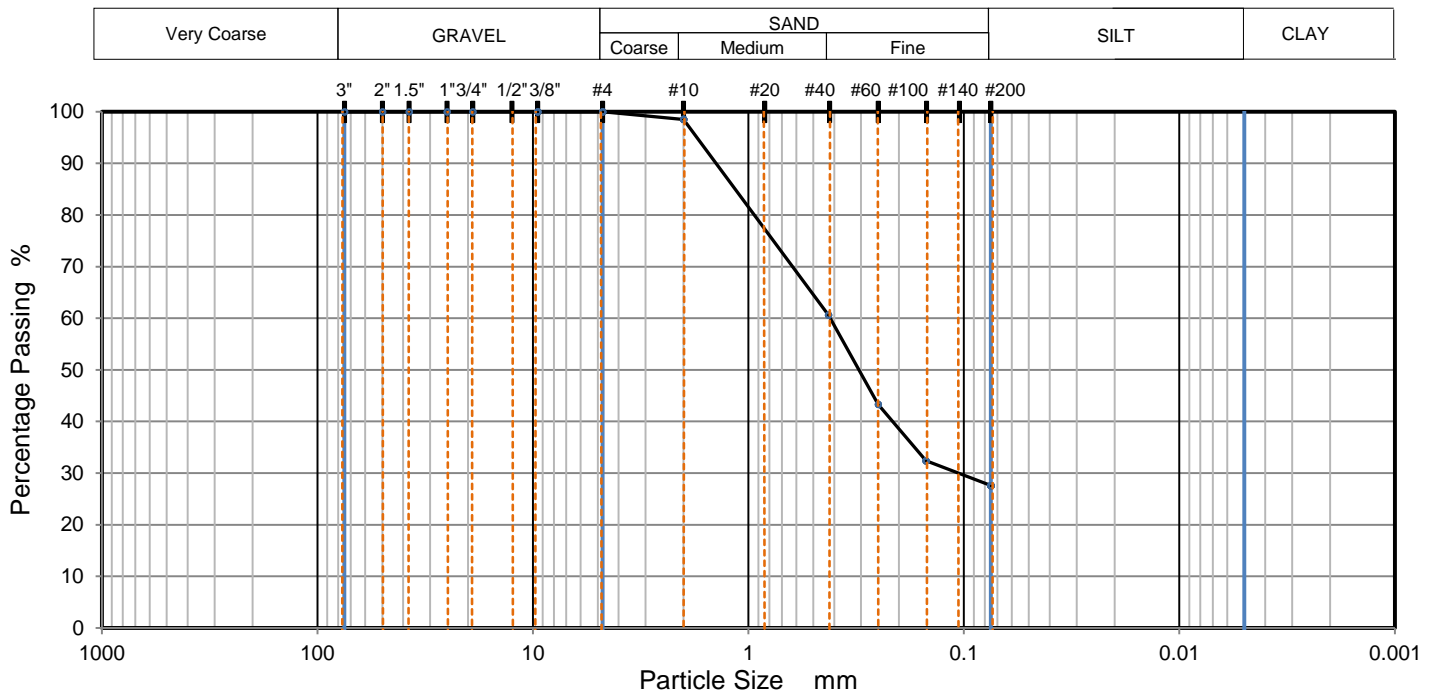
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	98.5		
#40	60.6		
#60	43.3		
#100	32.4		
#200	27.6		

Dry Mass of sample, g

294.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	1.5
Medium Sand, #10 to #40	37.9
Fine Sand, #40 to #200	33.0
Fines <#200	27.6

USCS	SM	Liquid Limit	17	D90	1.413	D50	0.307	D10	
AASHTO	A-2-4	Plastic Limit	14	D85	1.152	D30	0.106	Cu	
USCS Group Name	Silty sand	Plasticity Index	3	D60	0.417	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-04

Date Reported: 3/1/2023



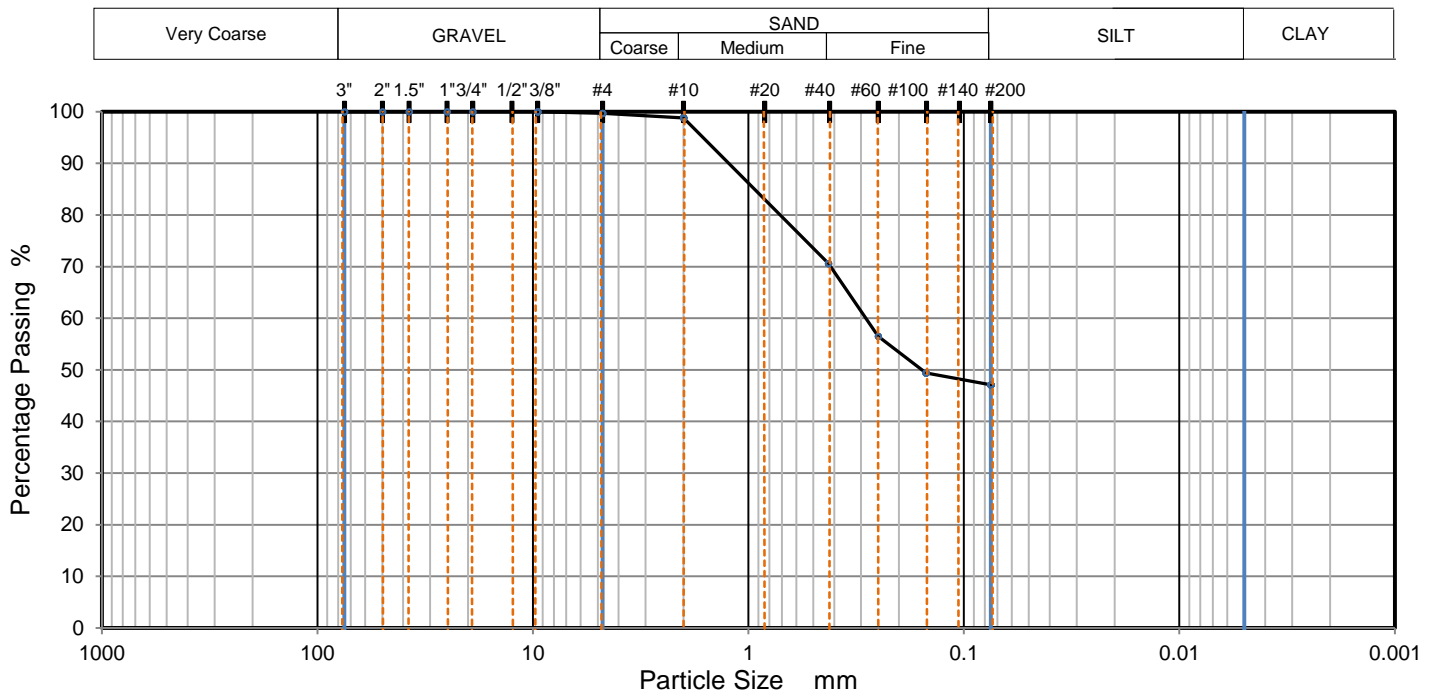
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.7		
#10	98.8		
#40	70.6		
#60	56.5		
#100	49.4		
#200	47.1		

Dry Mass of sample, g

310.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.3
Coarse Sand, #4 to #10 sieve	0.9
Medium Sand, #10 to #40	28.2
Fine Sand, #40 to #200	23.5
Fines <#200	47.1

USCS	SC	Liquid Limit	22	D90	1.233	D50	0.157	D10	
AASHTO	A-4	Plastic Limit	14	D85	0.937	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	8	D60	0.285	D15		Cc	

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Project No.: 34:4266

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Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: R-05

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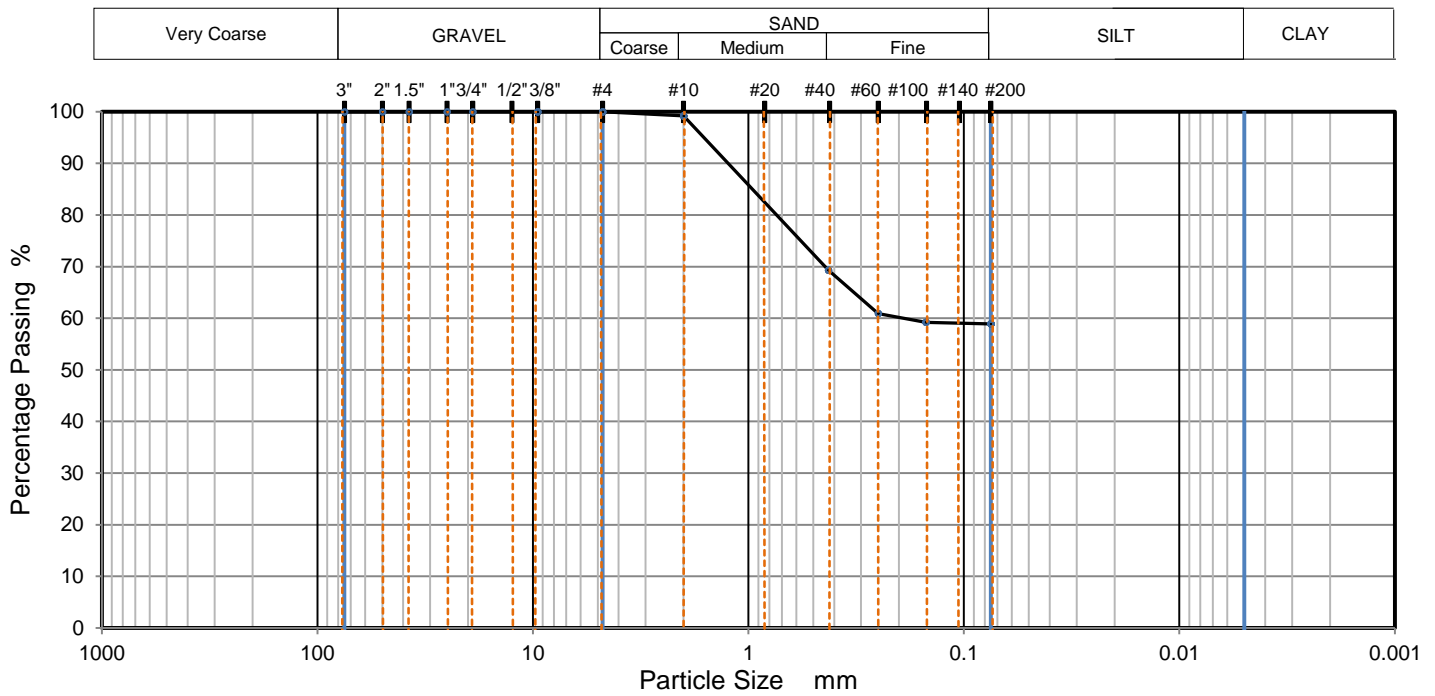
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TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.2		
#40	69.3		
#60	60.9		
#100	59.2		
#200	58.9		

Dry Mass of sample, g

325.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.8
Medium Sand, #10 to #40	29.9
Fine Sand, #40 to #200	10.4
Fines <#200	58.9

USCS	CL	Liquid Limit	21	D90	1.242	D50		D10	
AASHTO	A-4	Plastic Limit	11	D85	0.959	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	10	D60	0.191	D15		Cc	

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Project No.: 34:4266

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Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

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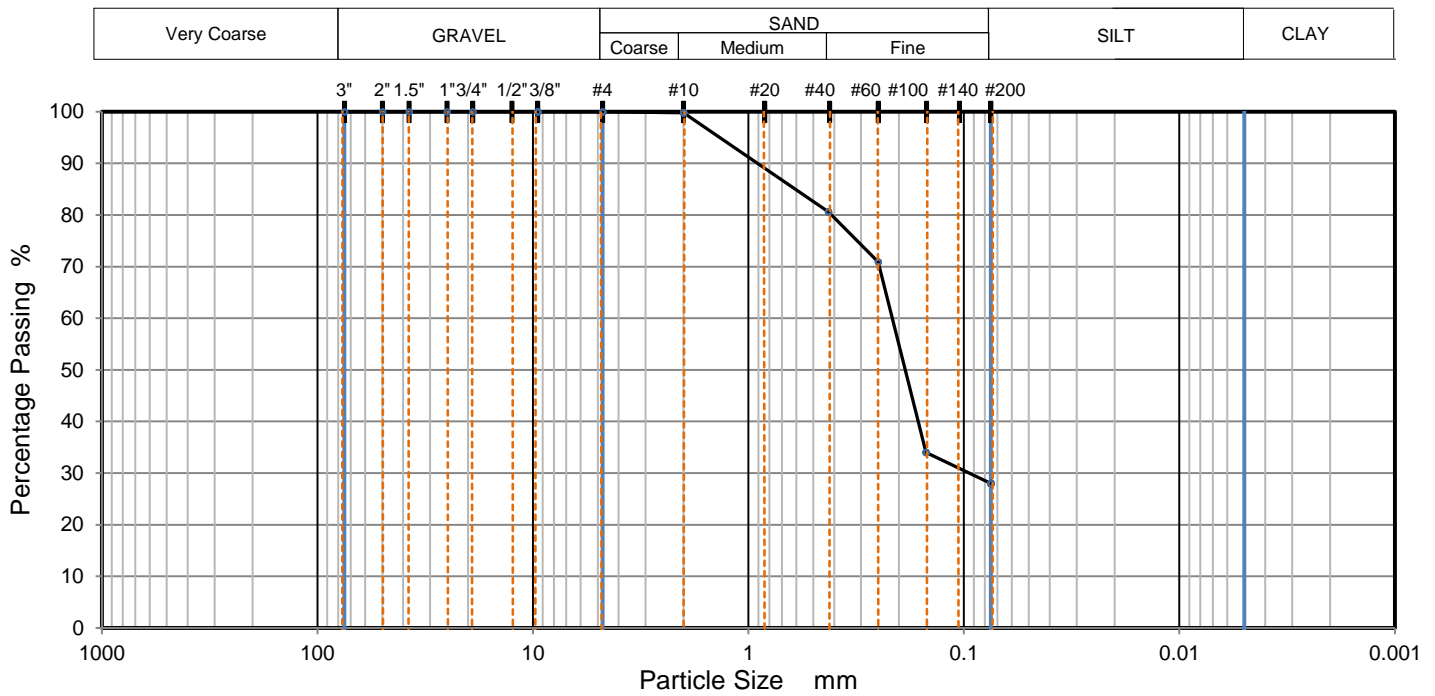
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	80.6		
#60	70.9		
#100	34.0		
#200	28.0		

Dry Mass of sample, g

310.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	19.2
Fine Sand, #40 to #200	52.6
Fines <#200	28.0

USCS	SM	Liquid Limit	NP	D90	0.907	D50	0.187	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.606	D30	0.094	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.215	D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: SS-9

Sample Source: R-05

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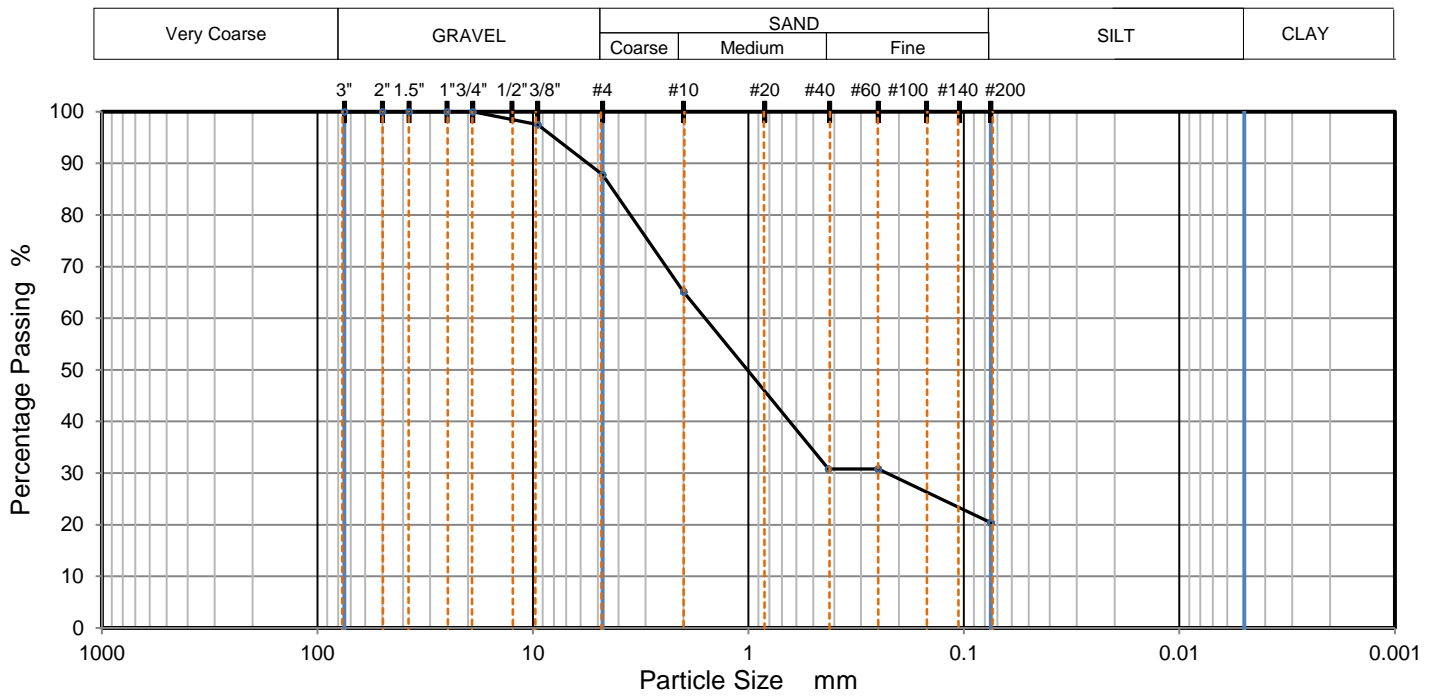
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	97.5		
#4	87.8		
#10	65.1		
#40	30.8		
#60	30.8		
#200	20.4		

Dry Mass of sample, g

314.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	12.2
Coarse Sand, #4 to #10 sieve	22.7
Medium Sand, #10 to #40	34.3
Fine Sand, #40 to #200	10.4
Fines <#200	20.4

USCS	SM	Liquid Limit	NP	D90	5.559	D50	1.011	D10	
AASHTO	A-1-b	Plastic Limit	NP	D85	4.269	D30	0.228	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	1.589	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 43 - 45

Sample Description:

Sample No.: SS-12

Sample Source: R-05

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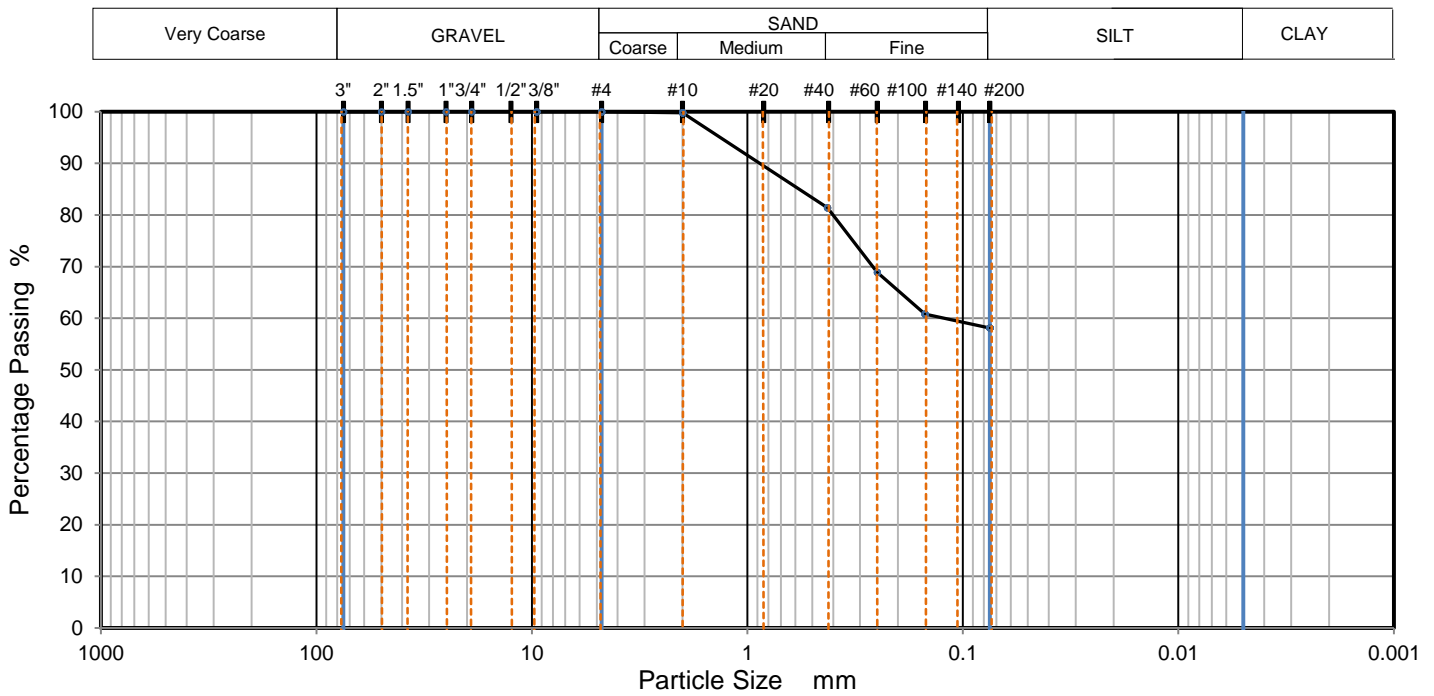
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	81.4		
#60	68.9		
#100	60.8		
#200	58.1		

Dry Mass of sample, g

327.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	18.4
Fine Sand, #40 to #200	23.3
Fines <#200	58.1

USCS	CL	Liquid Limit	24	D90	0.877	D50		D10	
AASHTO	A-6	Plastic Limit	11	D85	0.575	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	13	D60	0.122	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: R-12

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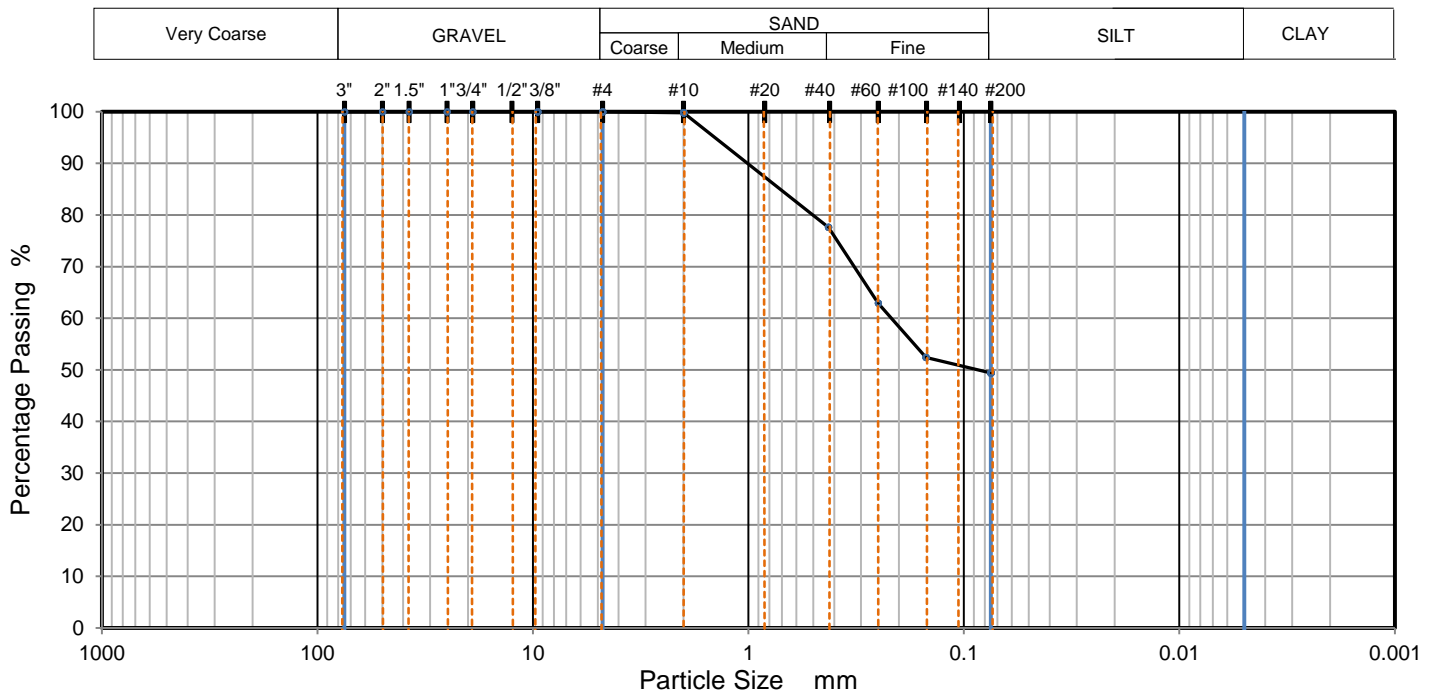
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	77.6		
#60	62.9		
#100	52.4		
#200	49.4		

Dry Mass of sample, g

401.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	22.2
Fine Sand, #40 to #200	28.2
Fines <#200	49.4

USCS	SC	Liquid Limit	24	D90	1.009	D50	0.086	D10	
AASHTO	A-6	Plastic Limit	13	D85	0.712	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	11	D60	0.217	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-12

Date Reported: 3/1/2023



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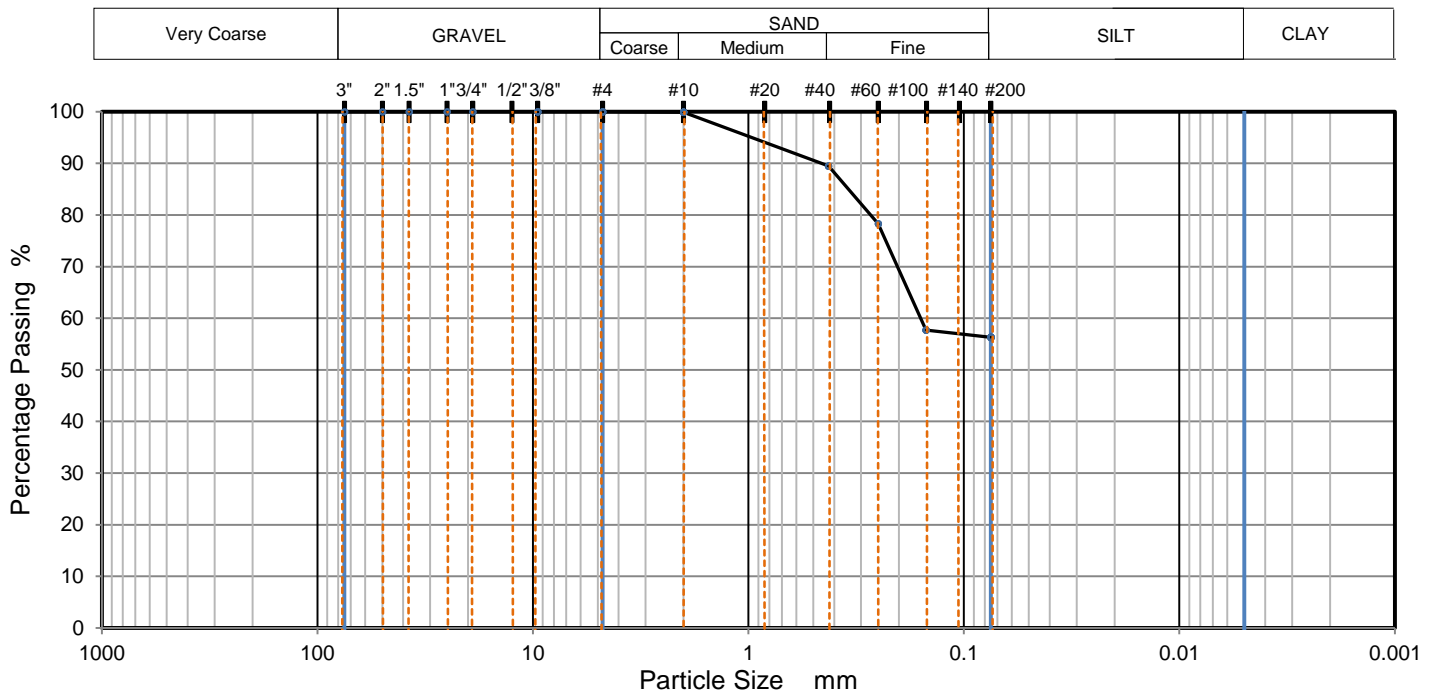
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WJacques		WJacques		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.9		
#40	89.5		
#60	78.3		
#100	57.7		
#200	56.3		

Dry Mass of sample, g

418.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.1
Medium Sand, #10 to #40	10.4
Fine Sand, #40 to #200	33.2
Fines <#200	56.3

USCS	ML	Liquid Limit	NP	D90	0.458	D50		D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.343	D30		Cu	
USCS Group Name	Sandy silt	Plasticity Index	NP	D60	0.159	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-12

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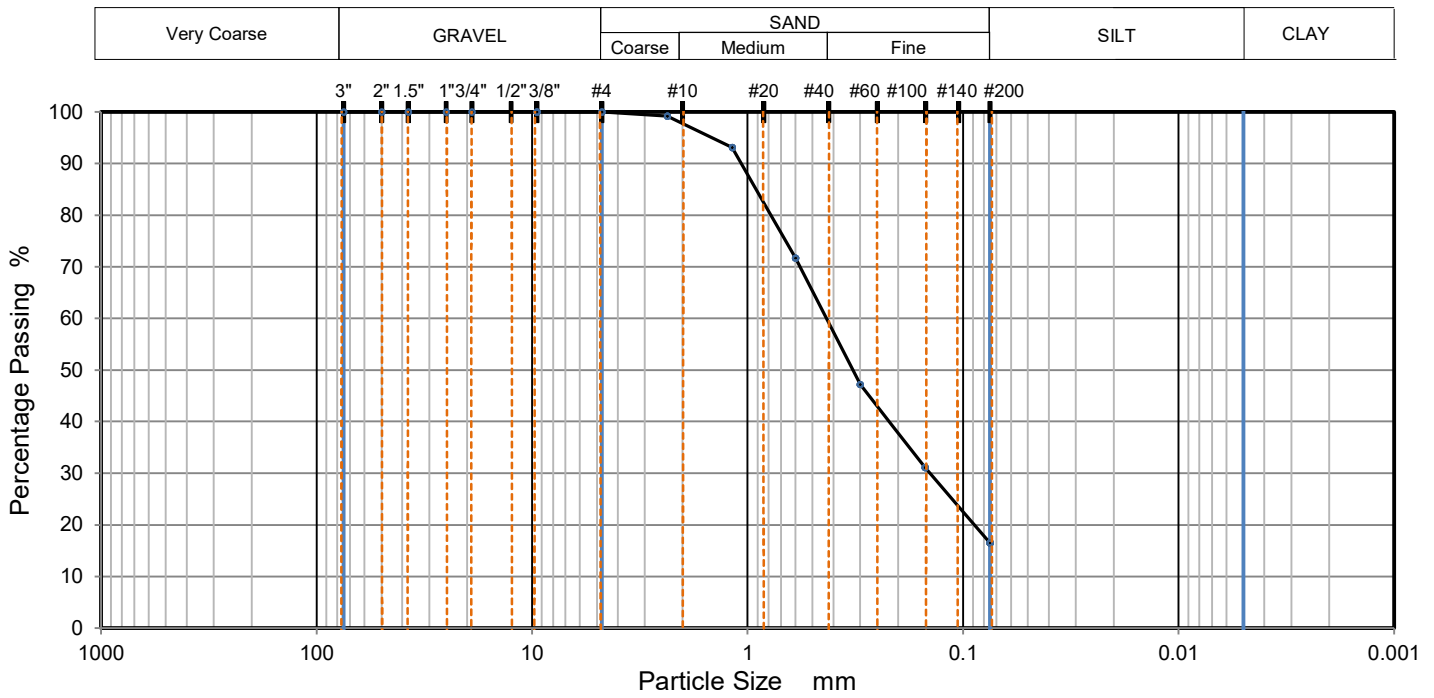
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	93		
#30	72		
#50	47		
#100	31		
#200	17		

Dry Mass of sample, g

135.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	17

USCS	SM	Liquid Limit	NP	D90	1.070	D50	0.325	D10	
AASHTO		Plastic Limit	NP	D85	0.914	D30	0.142	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.431	D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-01

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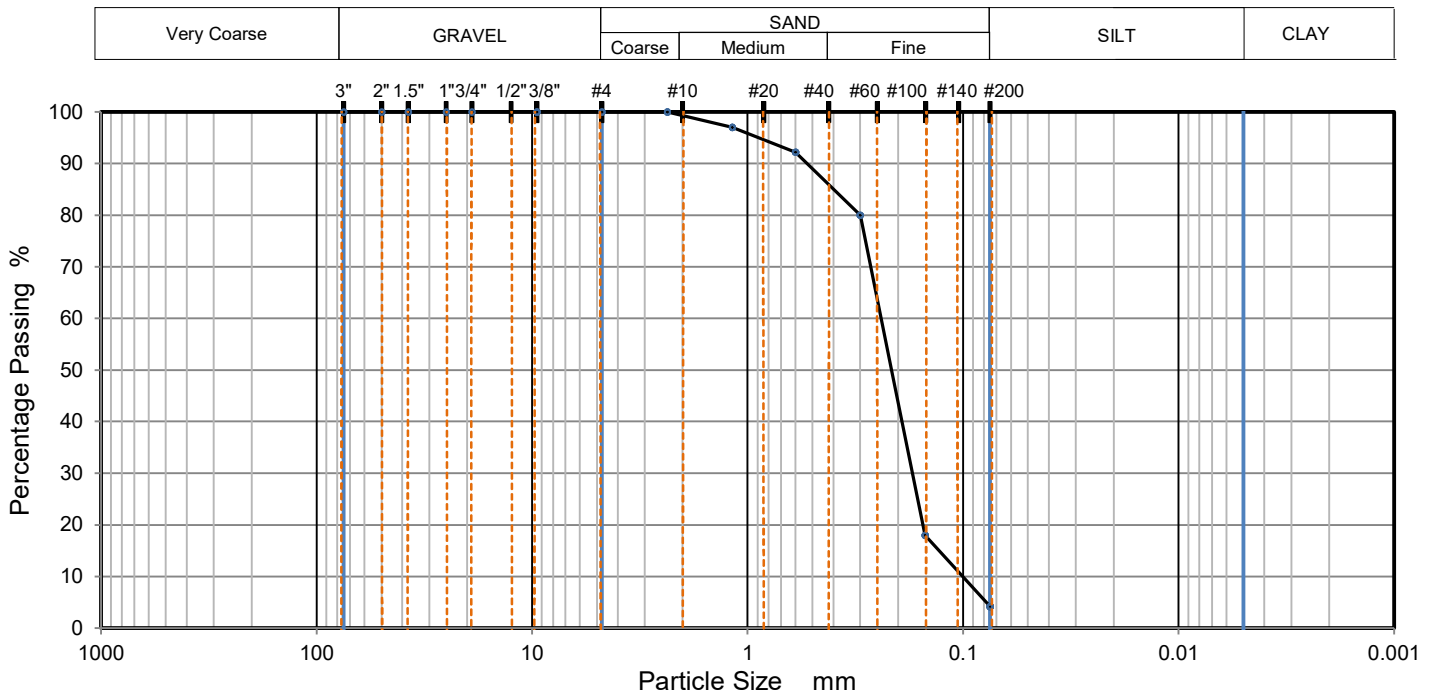
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	97		
#30	92		
#50	80		
#100	18		
#200	4		

Dry Mass of sample, g

101.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	4

USCS	SP	Liquid Limit	NP	D90	0.530	D50	0.215	D10	0.100
AASHTO		Plastic Limit	NP	D85	0.399	D30	0.172	Cu	2.389
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	0.240	D15	0.129	Cc	1.221

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: B-01

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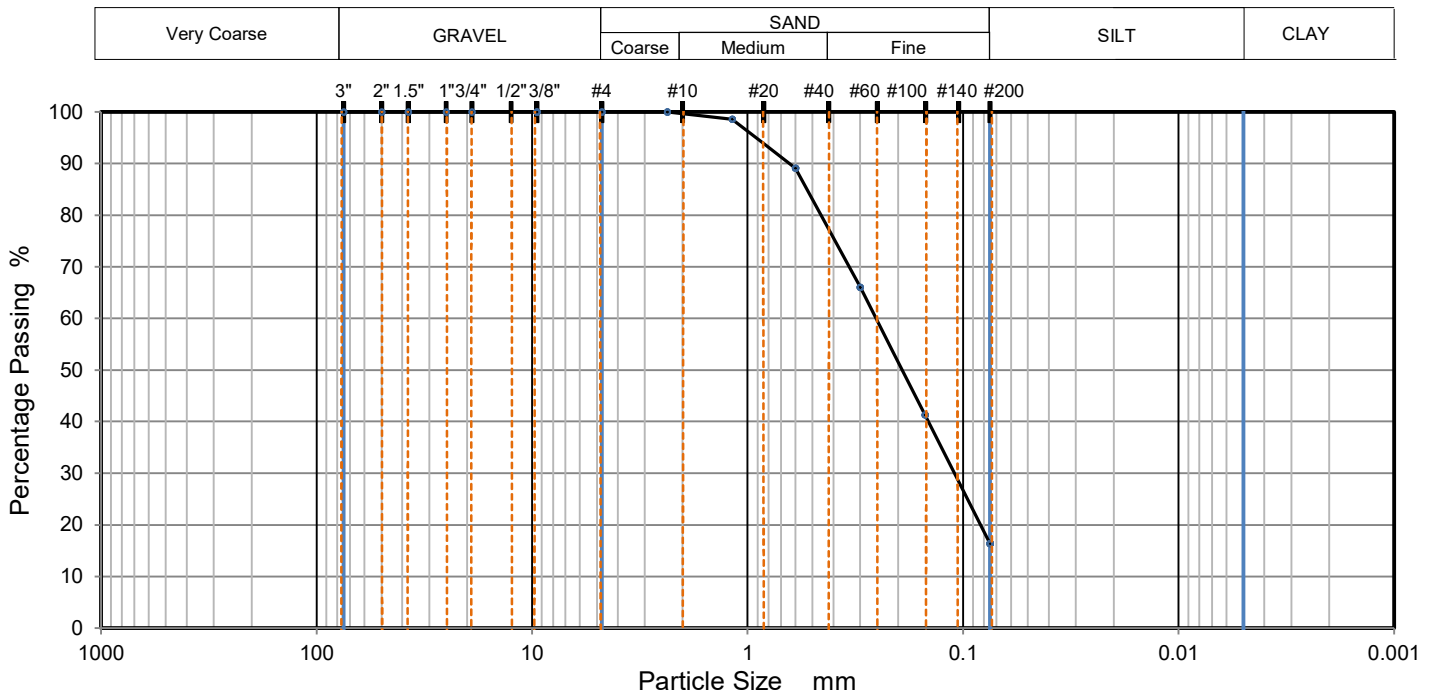
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	89		
#50	66		
#100	41		
#200	16		

Dry Mass of sample, g

105.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	16

USCS	SM	Liquid Limit	NP	D90	0.640	D50	0.192	D10	
AASHTO		Plastic Limit	NP	D85	0.531	D30	0.110	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.254	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-02

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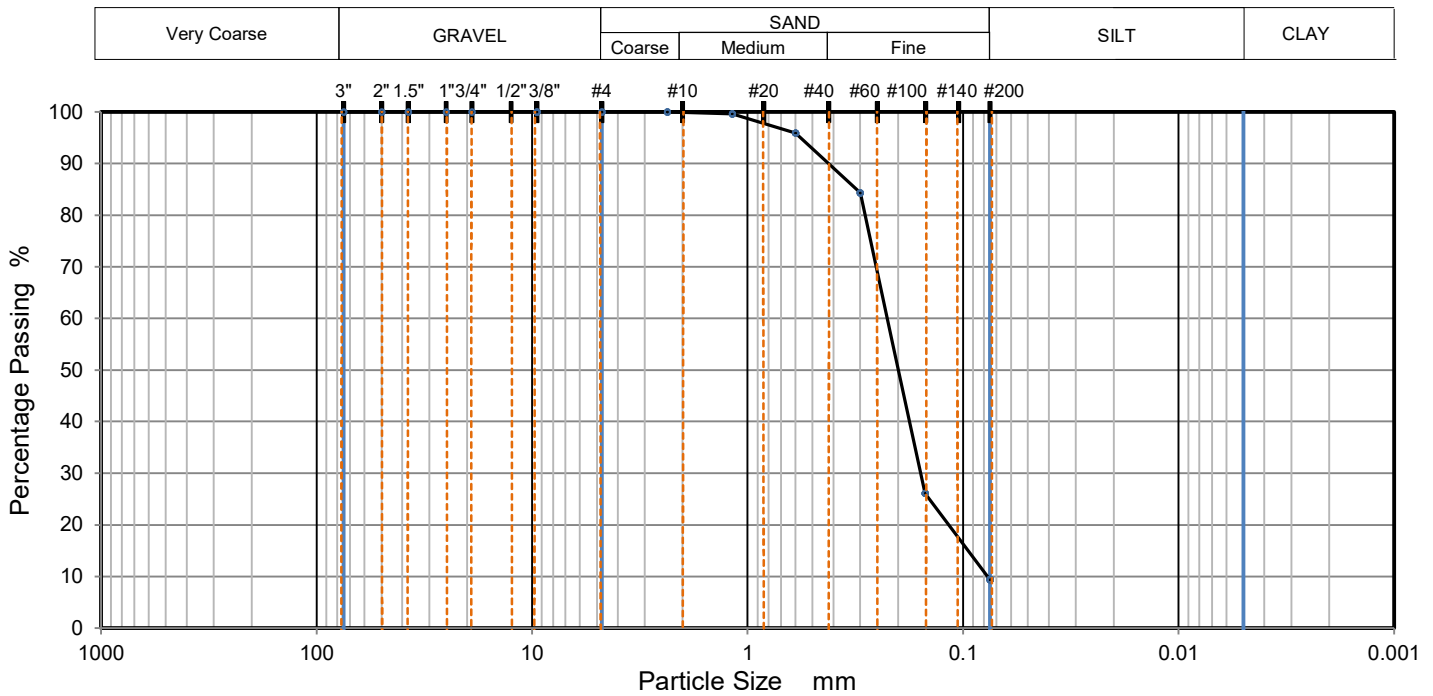
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	96		
#50	84		
#100	26		
#200	9		

Dry Mass of sample, g

113.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	9

USCS	SP-SM	Liquid Limit	NP	D90	0.422	D50	0.199	D10	0.077
AASHTO		Plastic Limit	NP	D85	0.313	D30	0.157	Cu	2.921
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.225	D15	0.095	Cc	1.429

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 12 - 14

Sample Description:

Sample No.: SS-7

Sample Source: B-02

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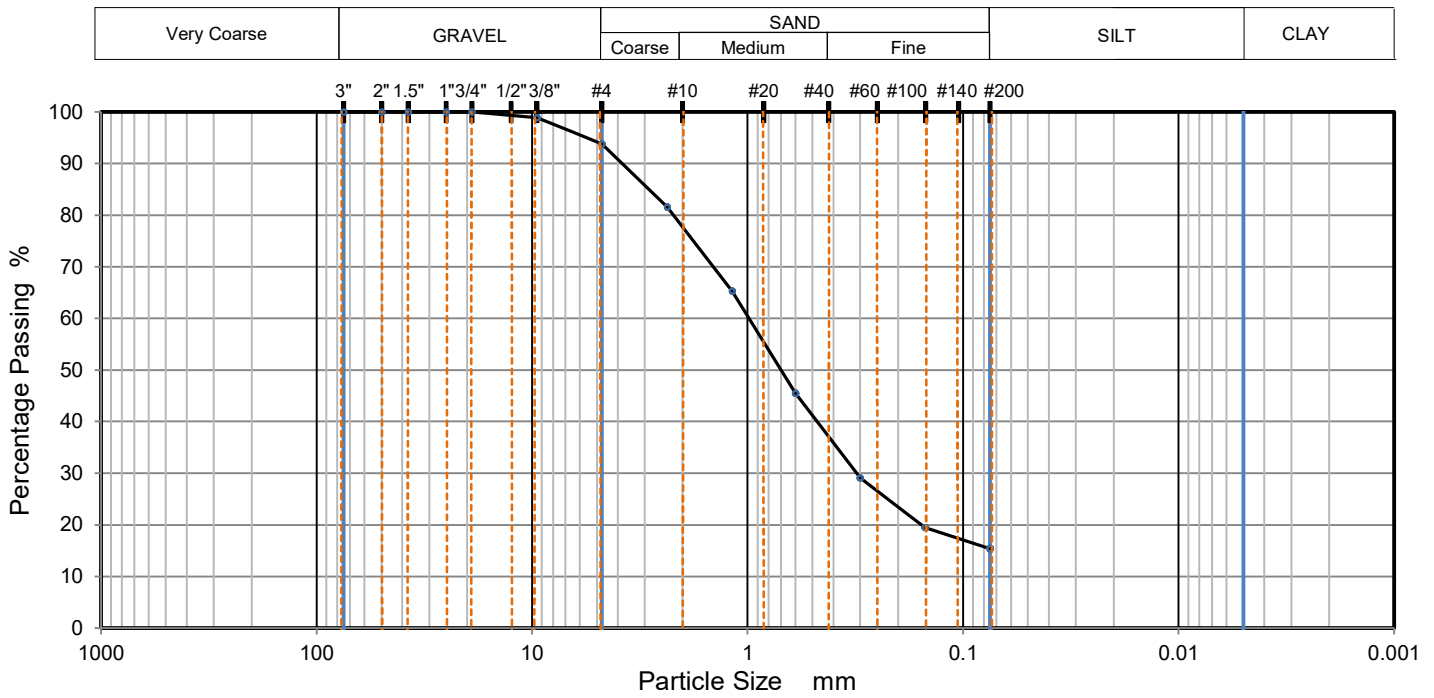
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	99		
#4	94		
#8	82		
#16	65		
#30	46		
#50	29		
#100	20		
#200	15		

Dry Mass of sample, g

83.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	6
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	15

USCS	SM	Liquid Limit	NP	D90	3.820	D50	0.700	D10	
AASHTO		Plastic Limit	NP	D85	2.868	D30	0.312	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.985	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 63.5 - 65

Sample Description:

Sample No.: SS-28

Sample Source: B-02

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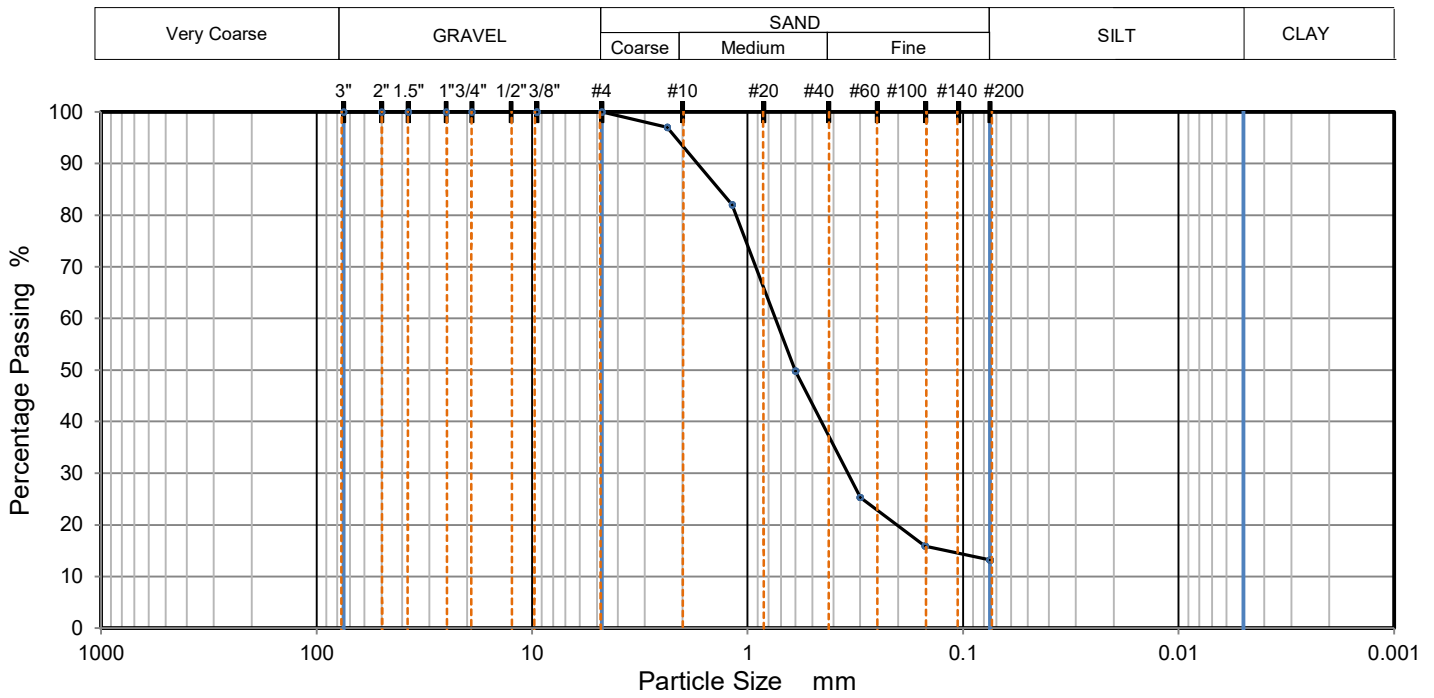
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	97		
#16	82		
#30	50		
#50	25		
#100	16		
#200	13		

Dry Mass of sample, g

63.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	13

USCS	SC	Liquid Limit	32	D90	1.708	D50	0.603	D10	
AASHTO		Plastic Limit	16	D85	1.355	D30	0.343	Cu	
USCS Group Name	Clayey sand	Plasticity Index	16	D60	0.743	D15	0.119	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18.5 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-04

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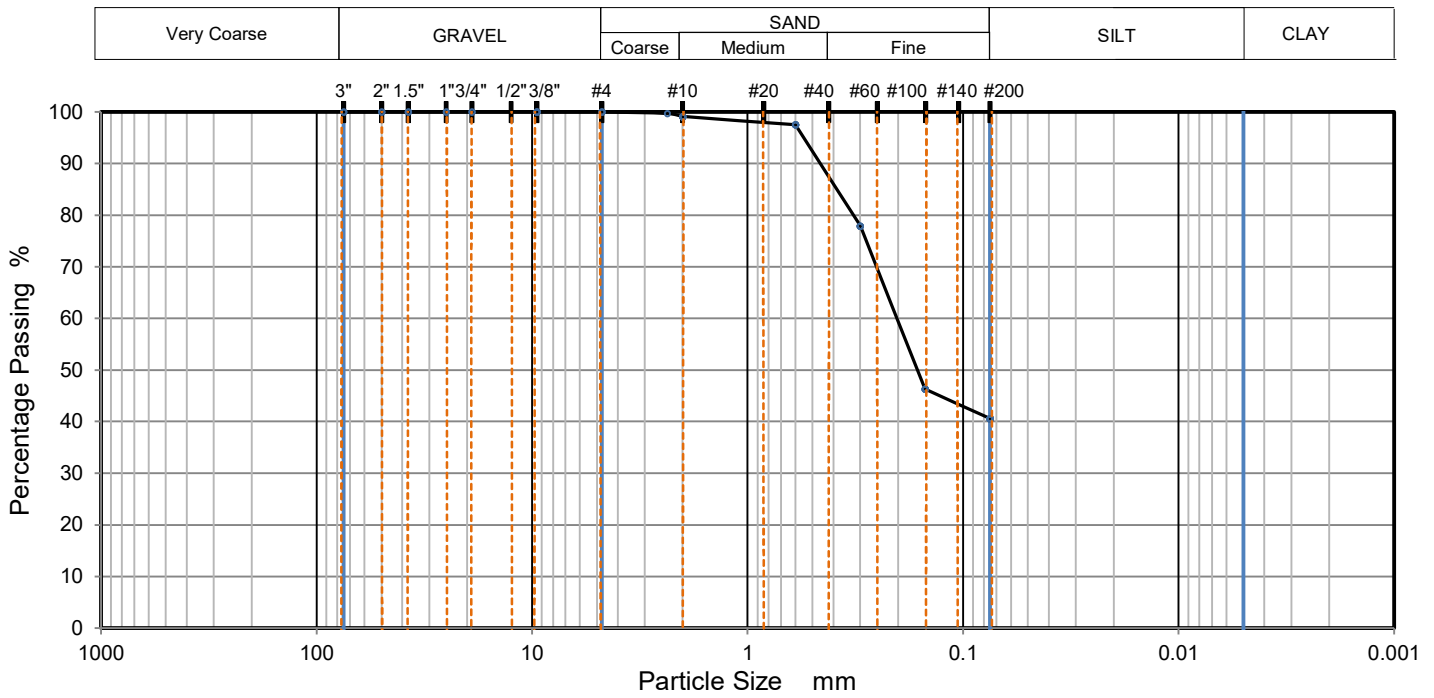
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#10	99		
#30	98		
#50	78		
#100	46		
#200	41		

Dry Mass of sample, g

109.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	1
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	41

USCS	SC	Liquid Limit	33	D90	0.460	D50	0.163	D10	
AASHTO		Plastic Limit	17	D85	0.386	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	16	D60	0.203	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 43.5 - 45

Sample Description:

Sample No.: SS-12

Sample Source: B-04

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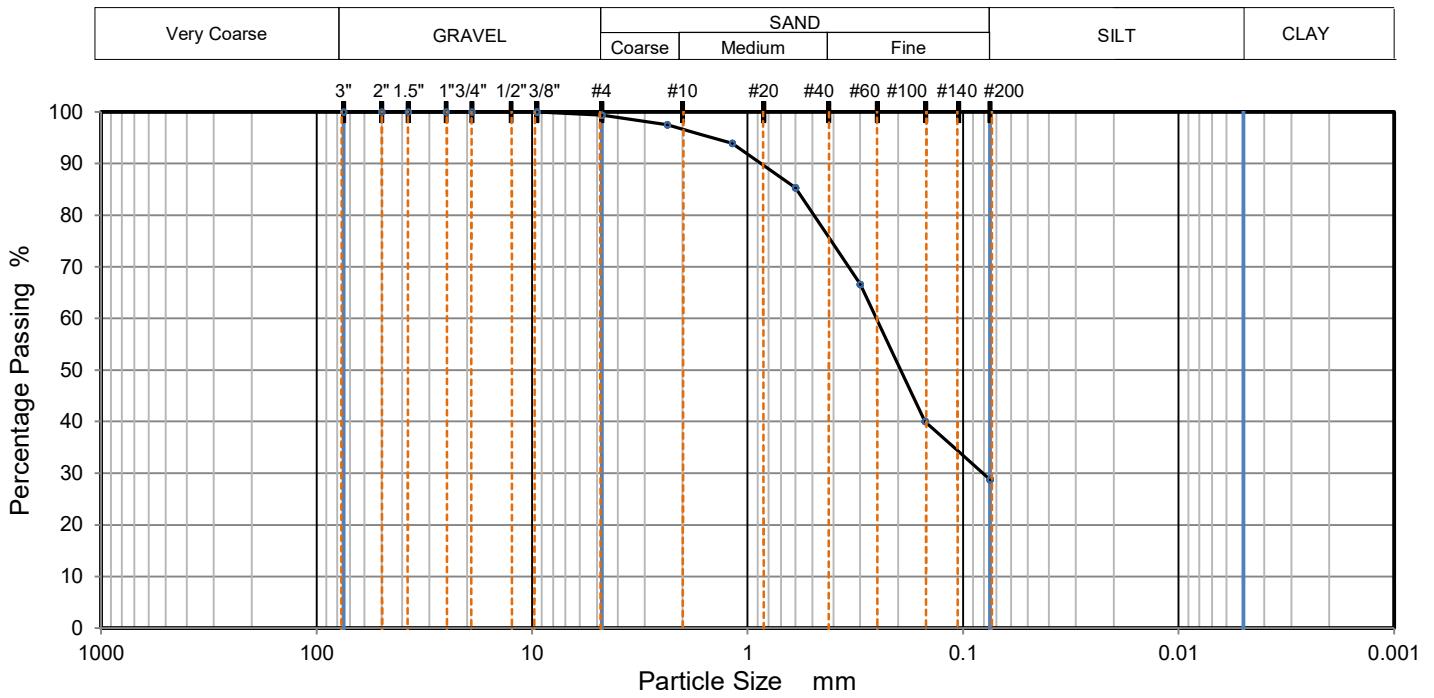
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	98		
#16	94		
#30	85		
#50	67		
#100	40		
#200	29		

Dry Mass of sample, g

98.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	29

USCS	SM	Liquid Limit	NP	D90	0.868	D50	0.195	D10	
AASHTO		Plastic Limit	NP	D85	0.593	D30	0.081	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.253	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 78.5 - 80

Sample Description:

Sample No.: SS-19

Sample Source: B-04

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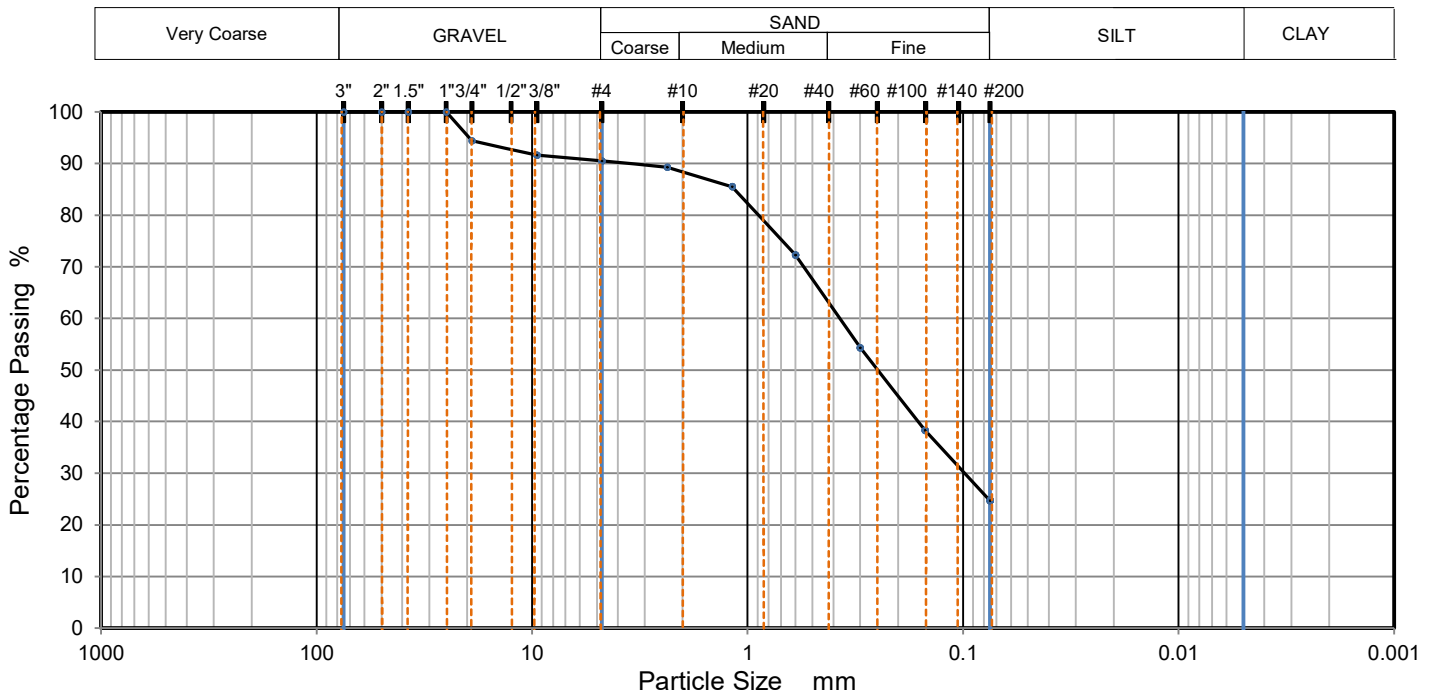
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	94		
3/8"	92		
#4	91		
#8	89		
#16	86		
#30	72		
#50	54		
#100	38		
#200	25		

Dry Mass of sample, g

201.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	10
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	25

USCS	SC	Liquid Limit	21	D90	3.549	D50	0.249	D10	
AASHTO		Plastic Limit	13	D85	1.150	D30	0.098	Cu	
USCS Group Name	Clayey sand	Plasticity Index	8	D60	0.374	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-07

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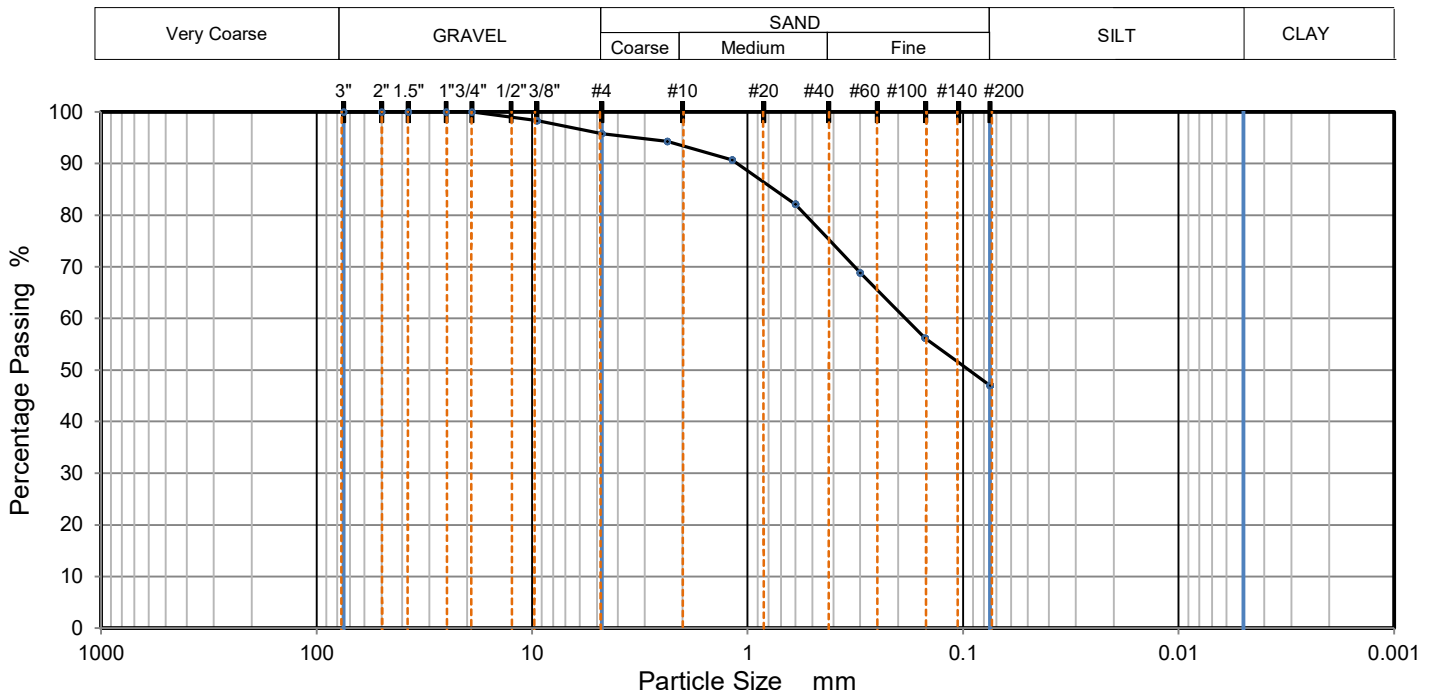
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	98		
#4	96		
#8	94		
#16	91		
#30	82		
#50	69		
#100	56		
#200	47		

Dry Mass of sample, g

42.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	4
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	47

USCS	SC	Liquid Limit	38	D90	1.117	D50	0.094	D10	
AASHTO		Plastic Limit	22	D85	0.754	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	16	D60	0.185	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting
 Client: Civil Engineering Consulting Services
 Sample Description: brown black lean clay
 Sample Source: B-07

Project No.: 34:4266
 Depth (ft): 23.5 - 25
 Sample No.: SS-8
 Date Reported: 3/14/2023



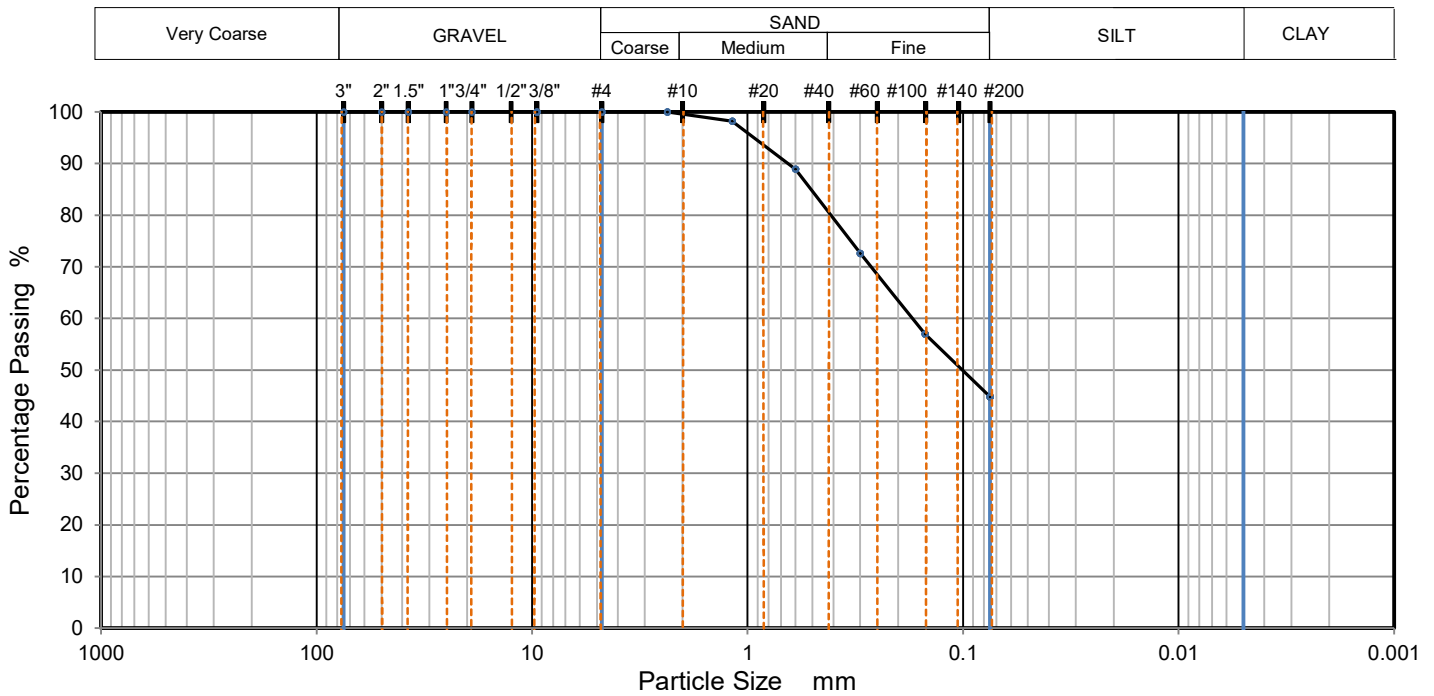
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	98		
#30	89		
#50	73		
#100	57		
#200	45		

Dry Mass of sample, g

39.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	45

USCS	SC	Liquid Limit	32	D90	0.650	D50	0.101	D10	
AASHTO		Plastic Limit	18	D85	0.508	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	14	D60	0.171	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting
 Client: Civil Engineering Consulting Services
 Sample Description: black lean clay
 Sample Source: B-07

Project No.: 34:4266
 Depth (ft): 28.5 - 30
 Sample No.: SS-9
 Date Reported: 3/14/2023



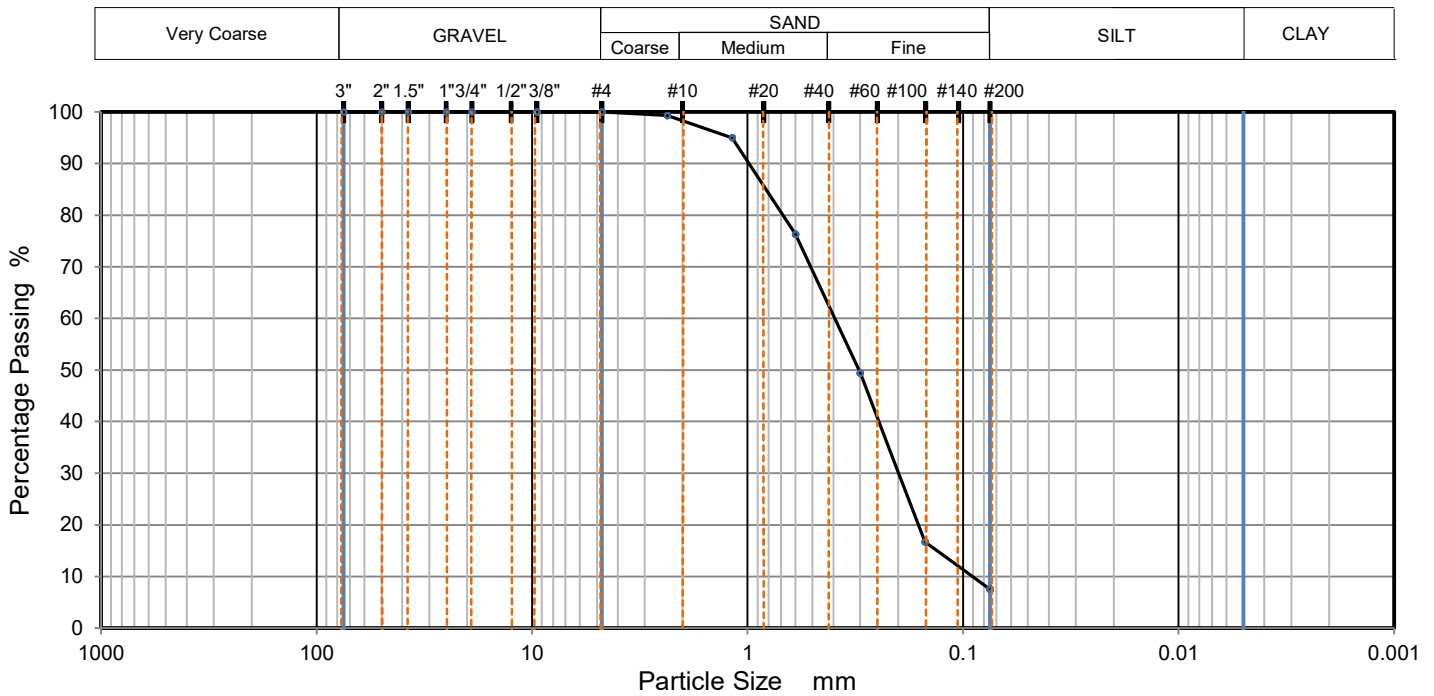
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	95		
#30	76		
#50	49		
#100	17		
#200	8		

Dry Mass of sample, g

100.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	8

USCS	SP-SM	Liquid Limit	NP	D90	0.985	D50	0.305	D10	0.091
AASHTO		Plastic Limit	NP	D85	0.822	D30	0.199	Cu	4.354
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.394	D15	0.132	Cc	1.108

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 68.5 - 70

Sample Description:

Sample No.: SS-17

Sample Source: B-07

Date Reported: 3/14/2023



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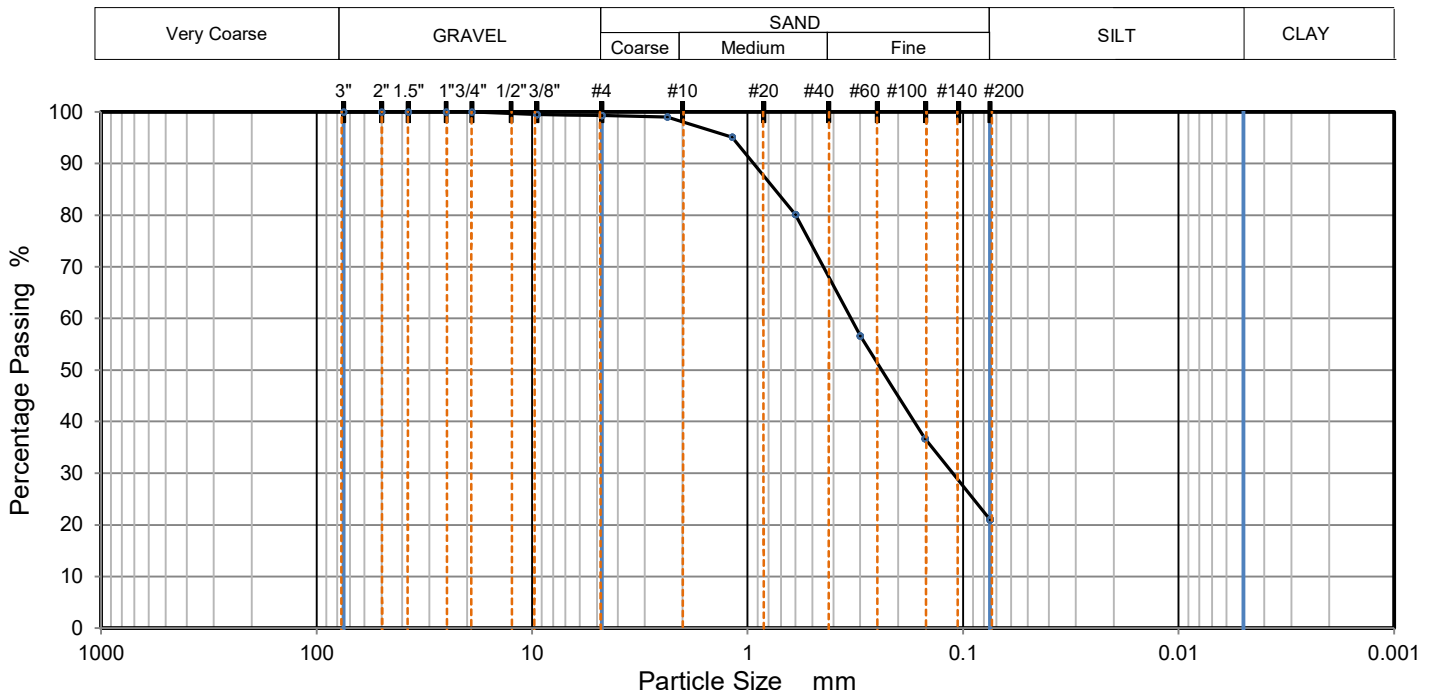
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	99		
#16	95		
#30	80		
#50	57		
#100	37		
#200	21		

Dry Mass of sample, g

135.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	21

USCS	SC	Liquid Limit	24	D90	0.938	D50	0.238	D10	
AASHTO		Plastic Limit	12	D85	0.748	D30	0.112	Cu	
USCS Group Name	Clayey sand	Plasticity Index	12	D60	0.332	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-09

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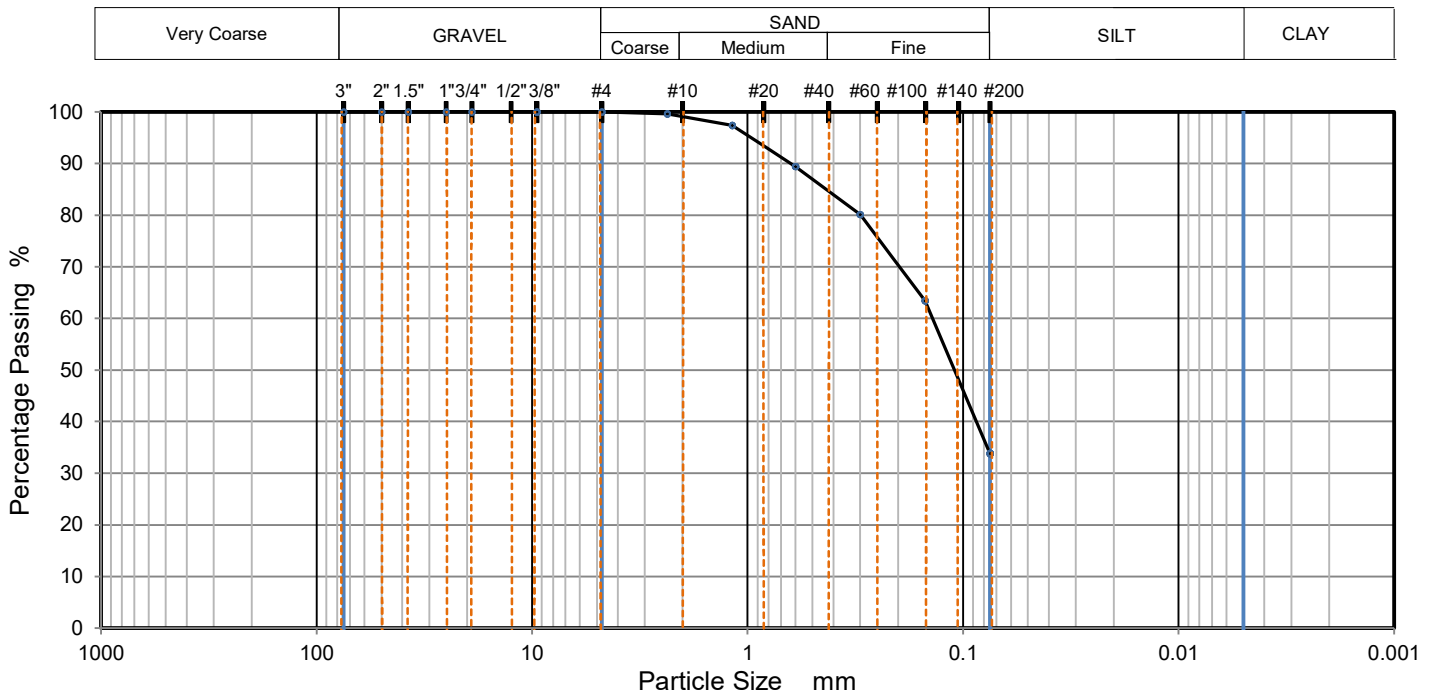
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	97		
#30	89		
#50	80		
#100	63		
#200	34		

Dry Mass of sample, g

88.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	34

USCS	SC	Liquid Limit	34	D90	0.631	D50	0.110	D10	
AASHTO		Plastic Limit	15	D85	0.432	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	19	D60	0.139	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13.5 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-09

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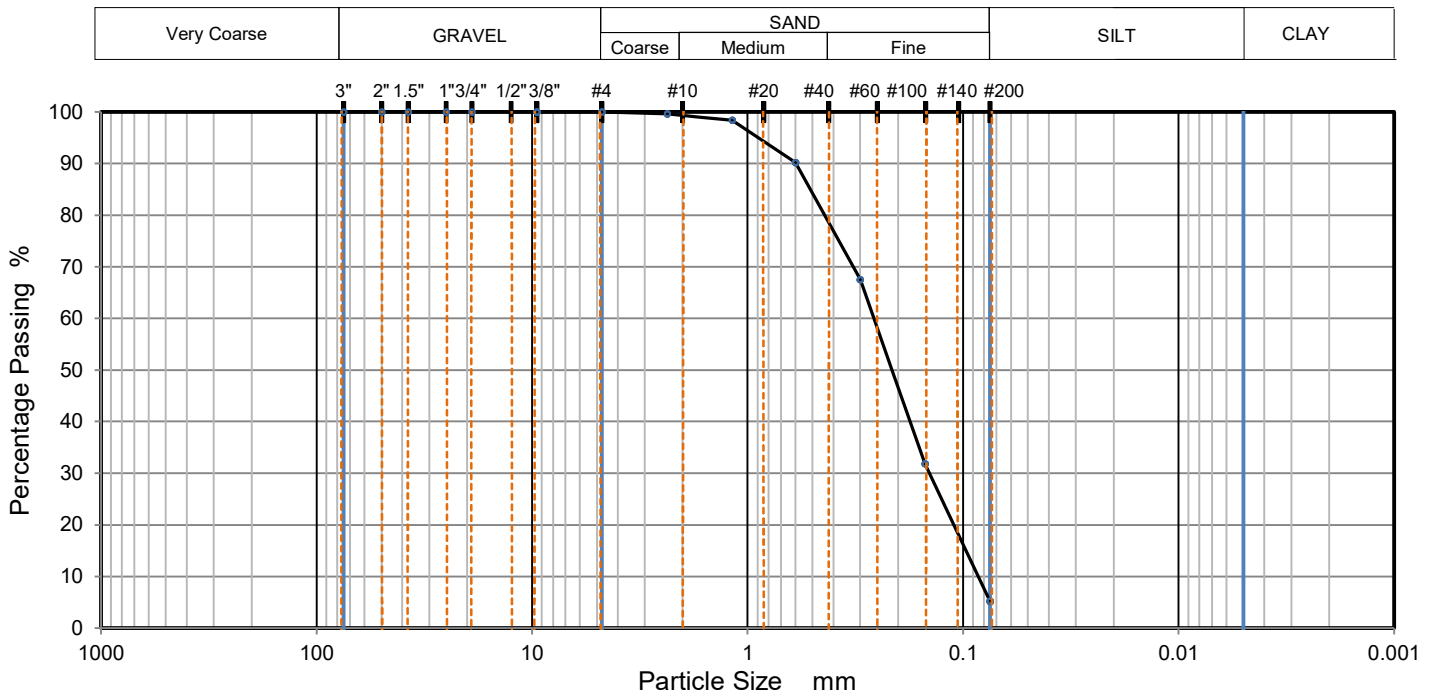
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	98		
#30	90		
#50	68		
#100	32		
#200	5		

Dry Mass of sample, g

89.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP-SM	Liquid Limit	NP	D90	0.596	D50	0.214	D10	0.085
AASHTO		Plastic Limit	NP	D85	0.512	D30	0.143	Cu	3.051
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.259	D15	0.097	Cc	0.929

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-10

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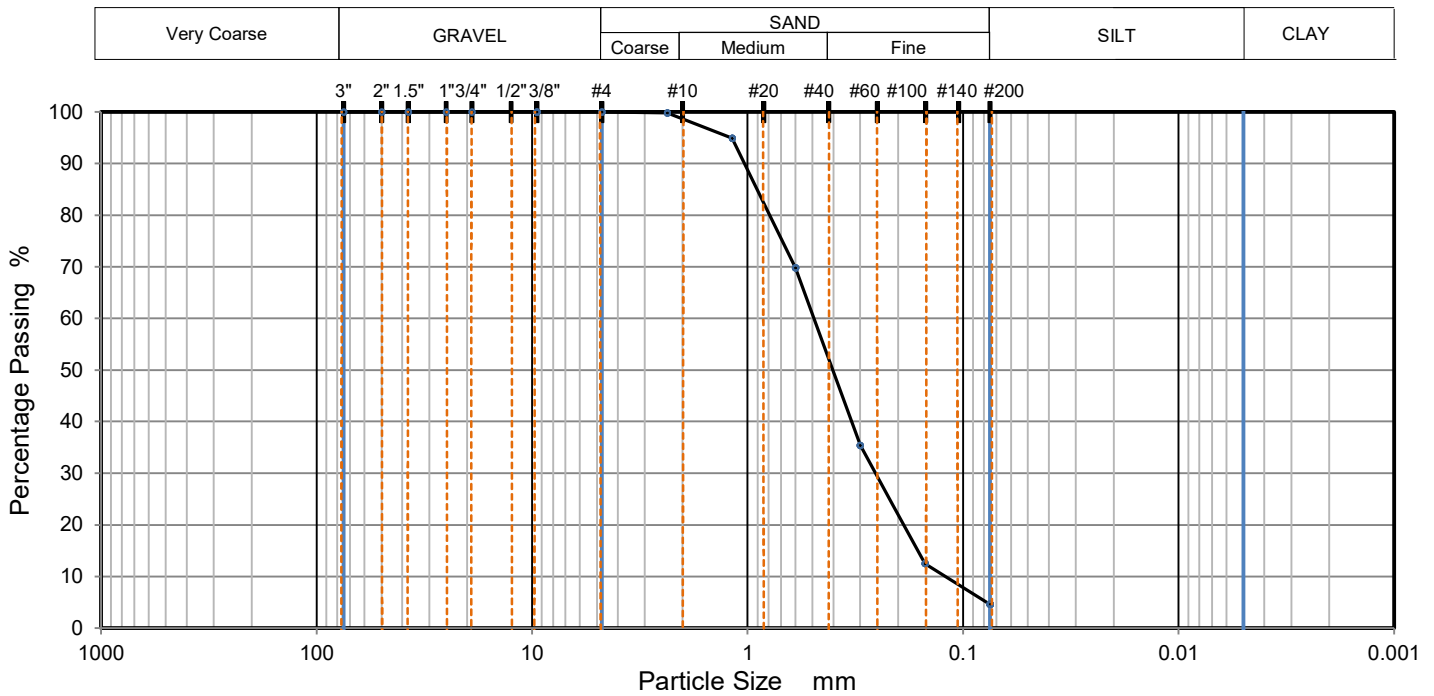
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	95		
#30	70		
#50	35		
#100	13		
#200	5		

Dry Mass of sample, g

102.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP	Liquid Limit	NP	D90	1.034	D50	0.403	D10	0.121
AASHTO		Plastic Limit	NP	D85	0.904	D30	0.255	Cu	4.087
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	0.493	D15	0.162	Cc	1.094

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: B-10

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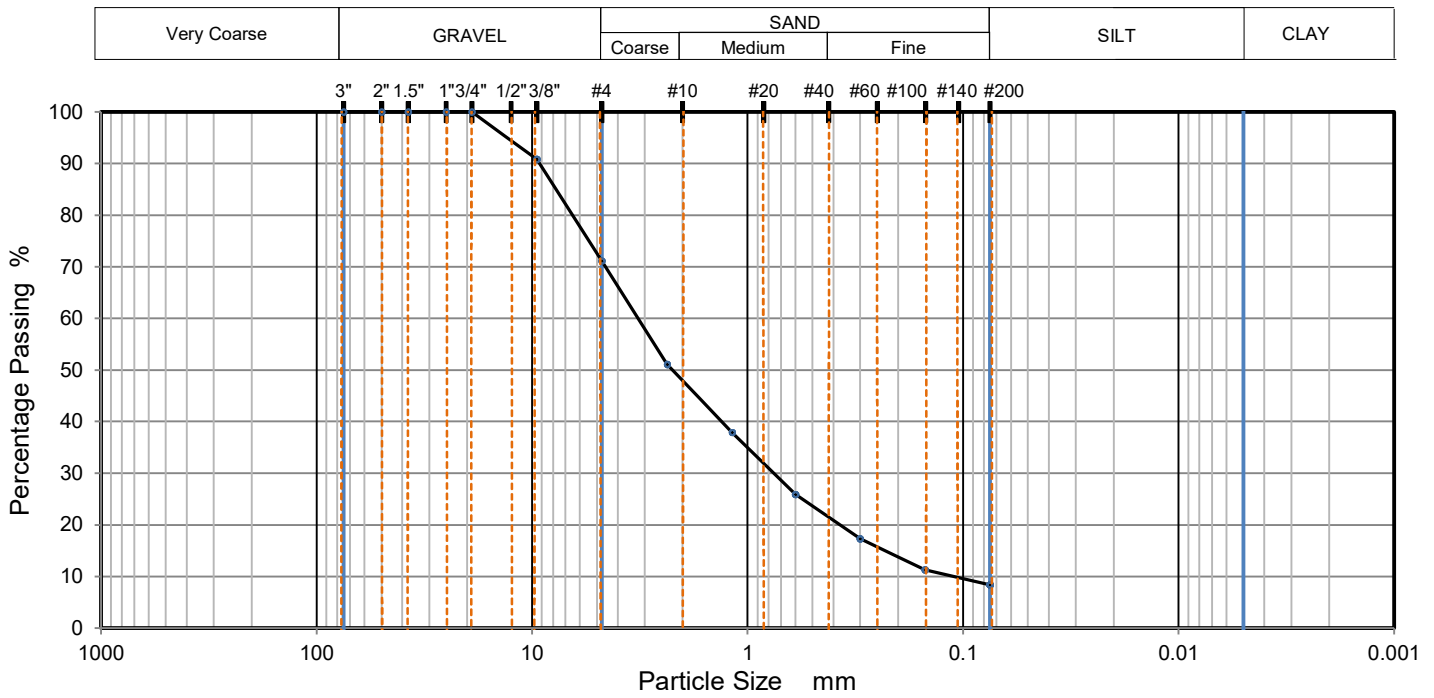
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	91		
#4	71		
#8	51		
#16	38		
#30	26		
#50	17		
#100	11		
#200	8		

Dry Mass of sample, g 100.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to #4 sieve	29
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	8

USCS	SW-SM	Liquid Limit	NP	D90	9.236	D50	2.228	D10	0.110
AASHTO		Plastic Limit	NP	D85	7.746	D30	0.756	Cu	29.318
USCS Group Name	Well graded sand with silt and gravel	Plasticity Index	NP	D60	3.222	D15	0.230	Cc	1.614

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 Client: Civil Engineering Consulting Services
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 Sample Source: B-10

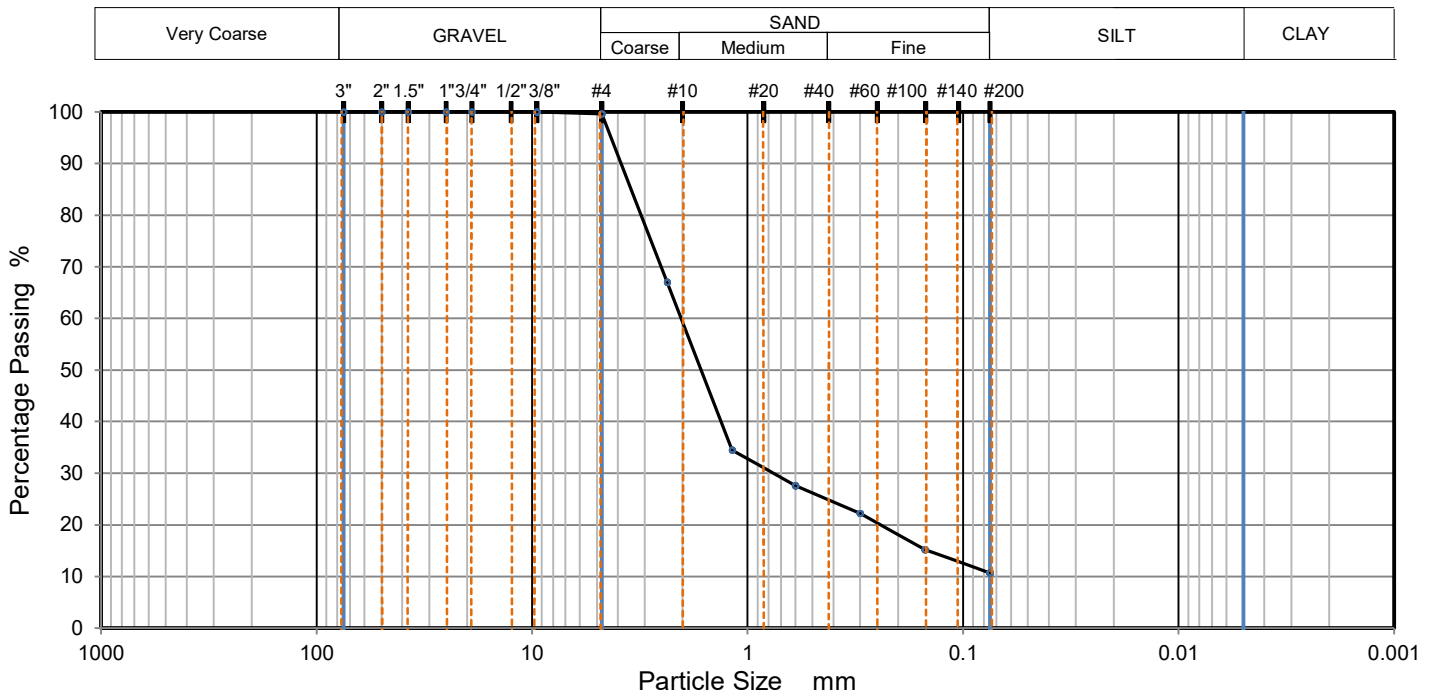
Project No.: 34:4266
 Depth (ft): 28.5 - 30
 Sample No.: SS-9
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	67		
#16	35		
#30	28		
#50	22		
#100	15		
#200	11		

Dry Mass of sample, g

139.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	11

USCS	SP-SM	Liquid Limit	NP	D90	3.866	D50	1.642	D10	
AASHTO		Plastic Limit	NP	D85	3.473	D30	0.759	Cu	
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	2.033	D15	0.145	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 68.5 - 70

Sample Description:

Sample No.: SS-17

Sample Source: B-10

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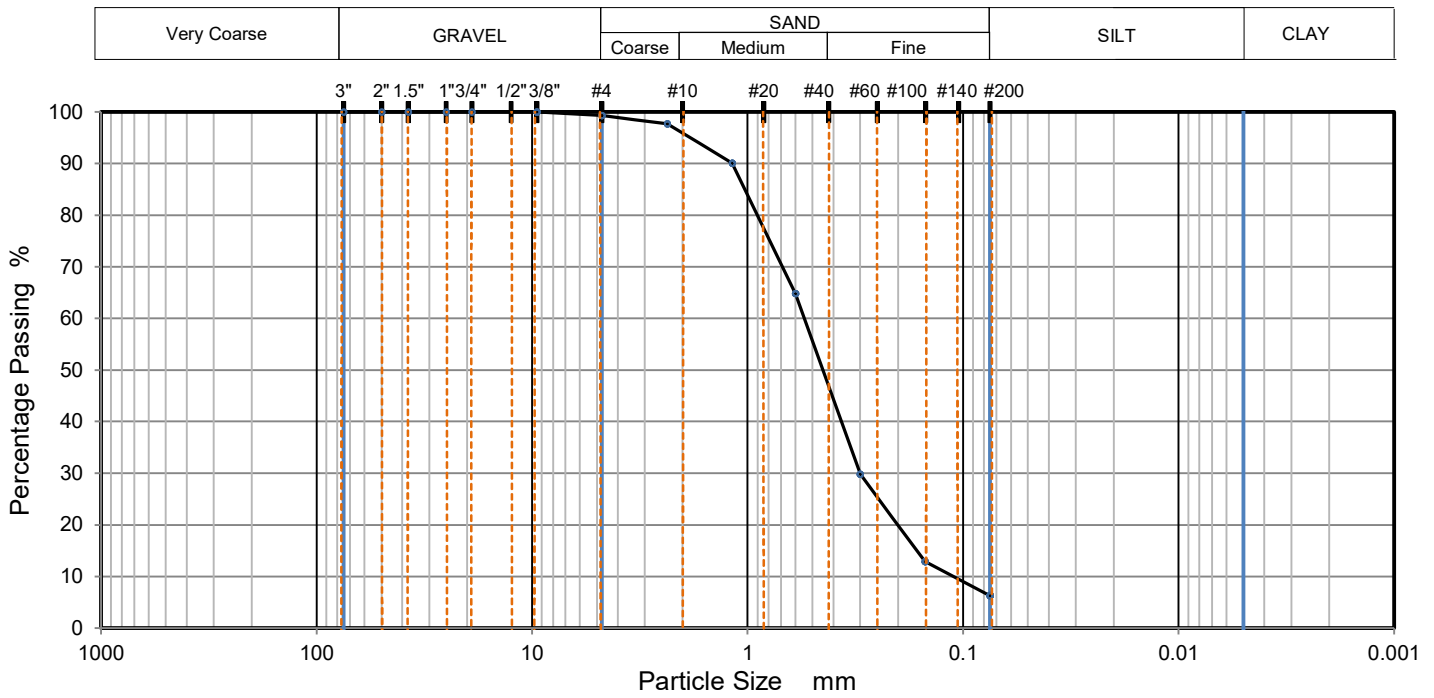
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TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#8	98		
#16	90		
#30	65		
#50	30		
#100	13		
#200	6		

Dry Mass of sample, g

113.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	6

USCS	SP-SM	Liquid Limit	NP	D90	1.177	D50	0.448	D10	0.111
AASHTO		Plastic Limit	NP	D85	1.030	D30	0.301	Cu	4.933
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.546	D15	0.164	Cc	1.503

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-01

Date Reported: 3/14/2023



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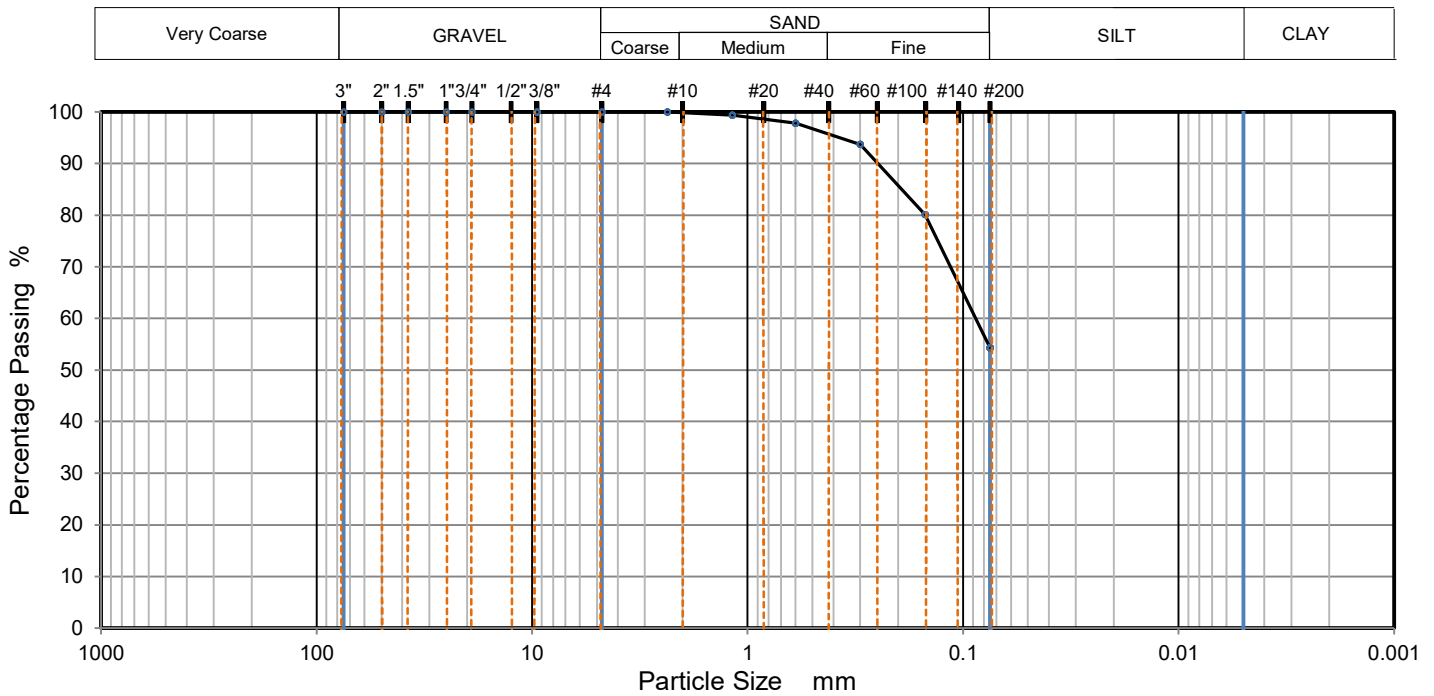
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	99		
#30	98		
#50	94		
#100	80		
#200	54		

Dry Mass of sample, g

49.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	54

USCS	CH	Liquid Limit	50	D90	0.248	D50		D10	
AASHTO		Plastic Limit	19	D85	0.193	D30		Cu	
USCS Group Name	Sandy fat clay	Plasticity Index	31	D60	0.087	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13.5 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-01

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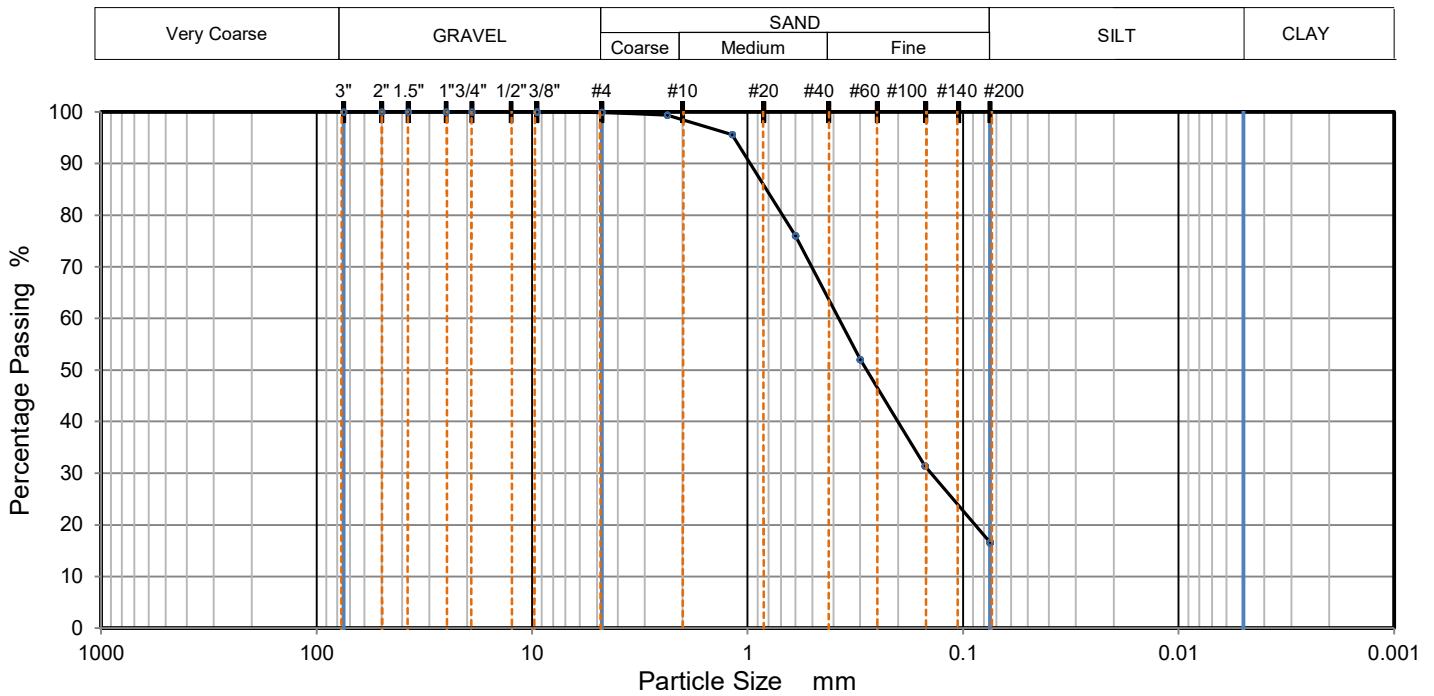
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	96		
#30	76		
#50	52		
#100	31		
#200	17		

Dry Mass of sample, g

104.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	17

USCS	SM	Liquid Limit	NP	D90	0.973	D50	0.281	D10	
AASHTO		Plastic Limit	NP	D85	0.819	D30	0.141	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.378	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: R-03

Date Reported: 3/14/2023



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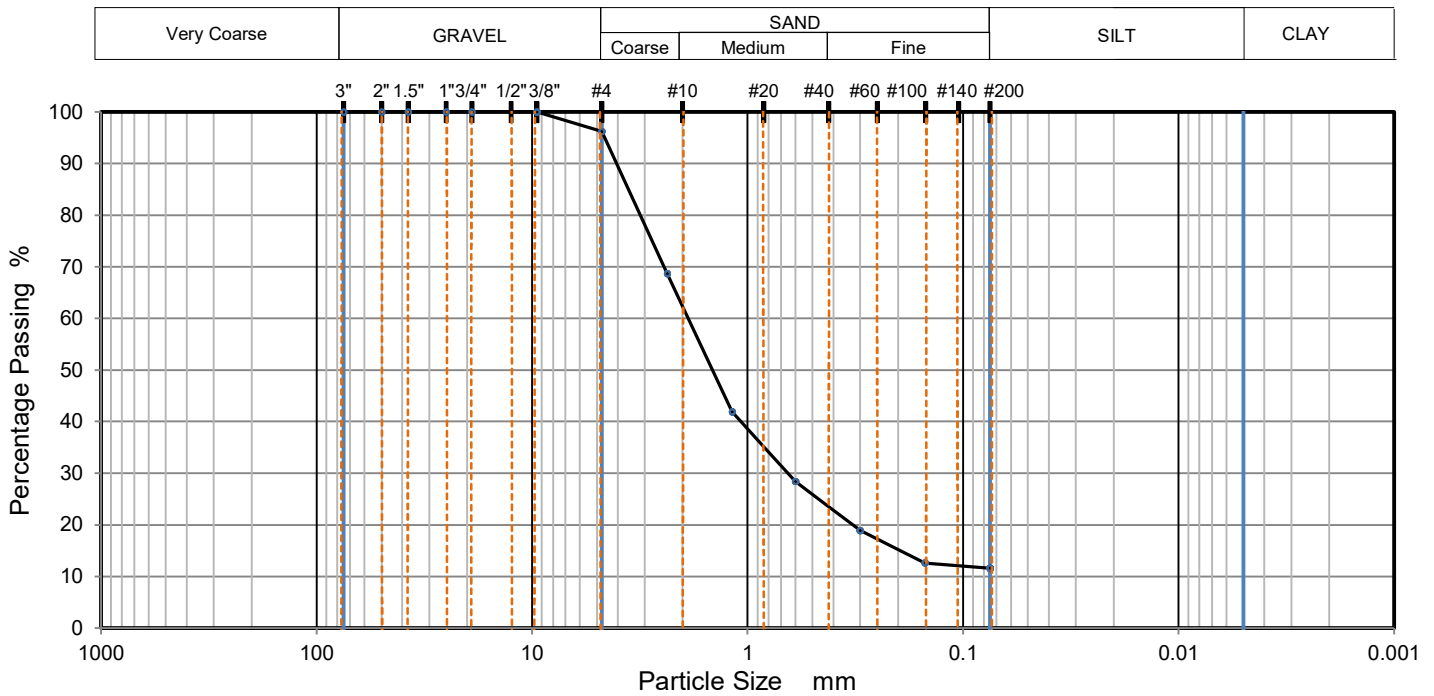
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	96		
#8	69		
#16	42		
#30	28		
#50	19		
#100	13		
#200	12		

Dry Mass of sample, g

33.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	4
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	12

USCS	SP-SM	Liquid Limit	NP	D90	4.057	D50	1.455	D10	
AASHTO		Plastic Limit	NP	D85	3.572	D30	0.650	Cu	
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	1.884	D15	0.195	Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23.5 - 25

Sample Description:

Sample No.: SS-8

Sample Source: R-03

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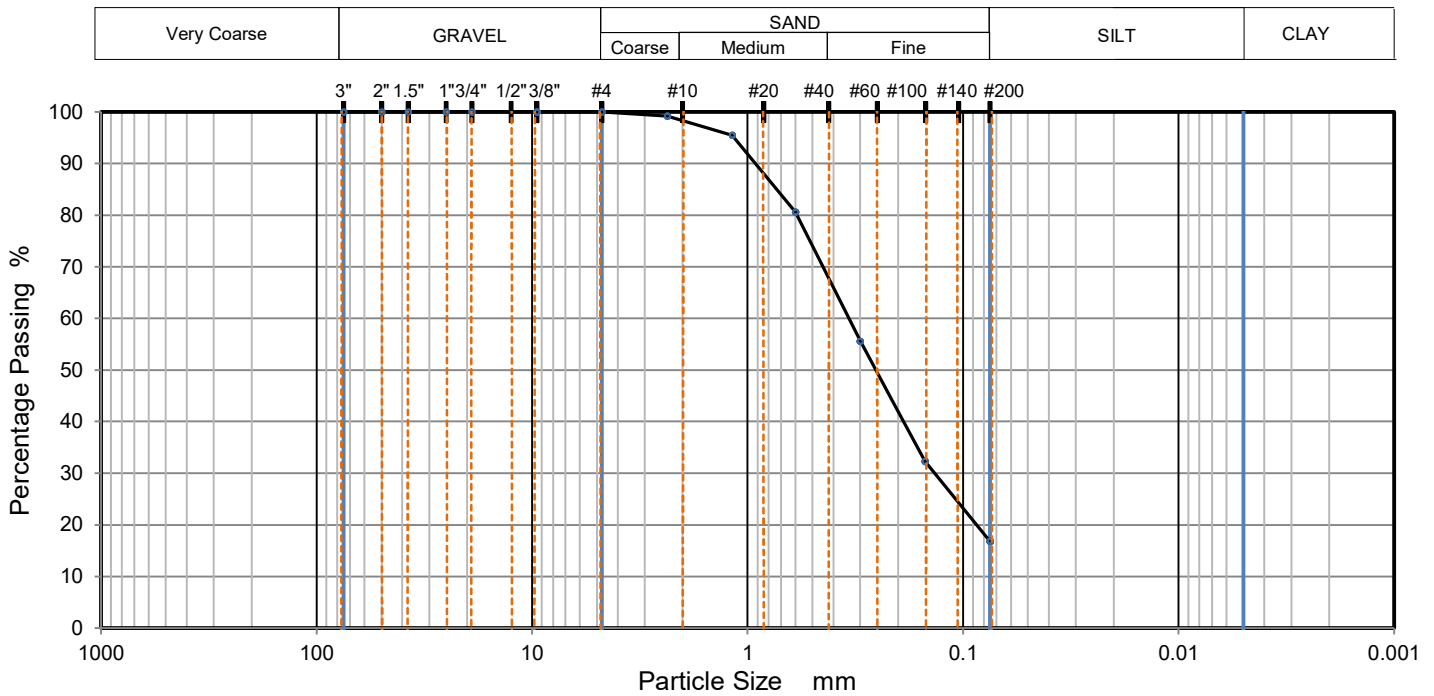
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	96		
#30	81		
#50	56		
#100	32		
#200	17		

Dry Mass of sample, g

124.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	17

USCS	SM	Liquid Limit	NP	D90	0.919	D50	0.254	D10	
AASHTO		Plastic Limit	NP	D85	0.733	D30	0.135	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.339	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-13

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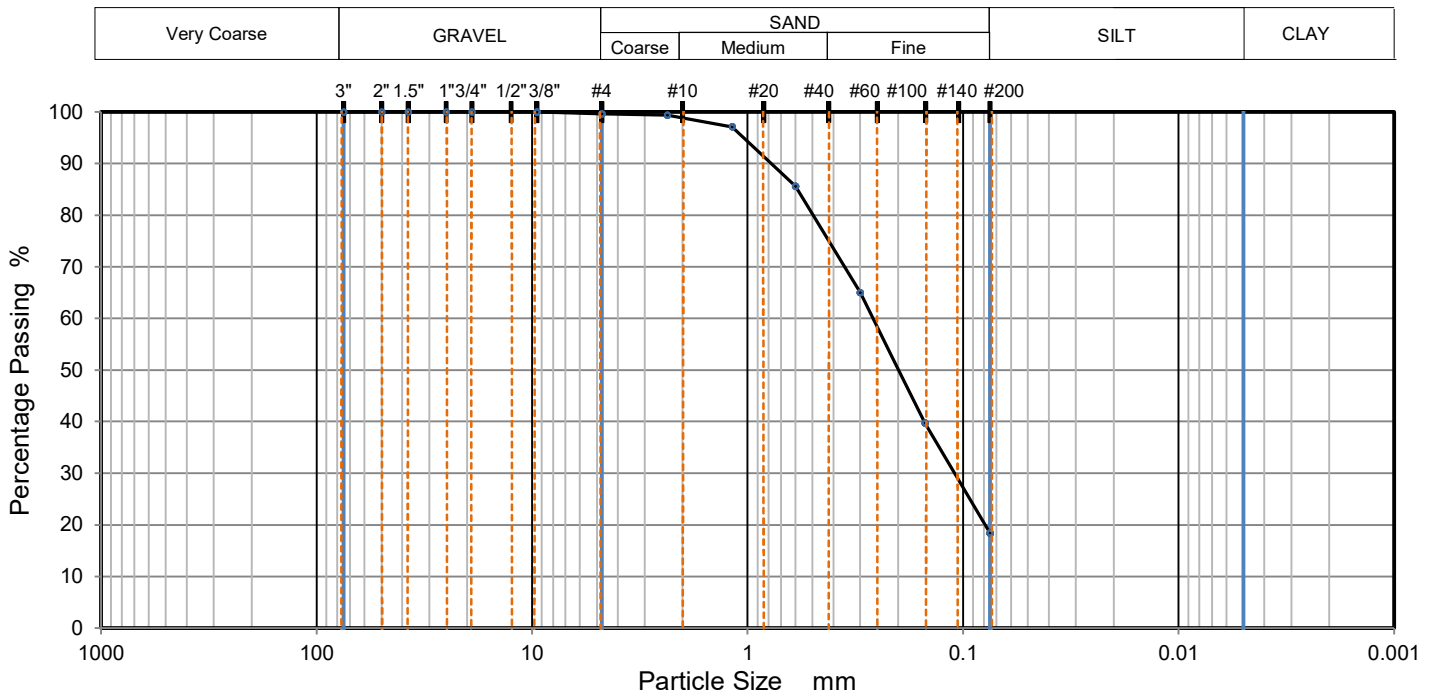
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	97		
#30	86		
#50	65		
#100	40		
#200	18		

Dry Mass of sample, g

111.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	18

USCS	SM	Liquid Limit	NP	D90	0.777	D50	0.199	D10	
AASHTO		Plastic Limit	NP	D85	0.588	D30	0.109	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.262	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

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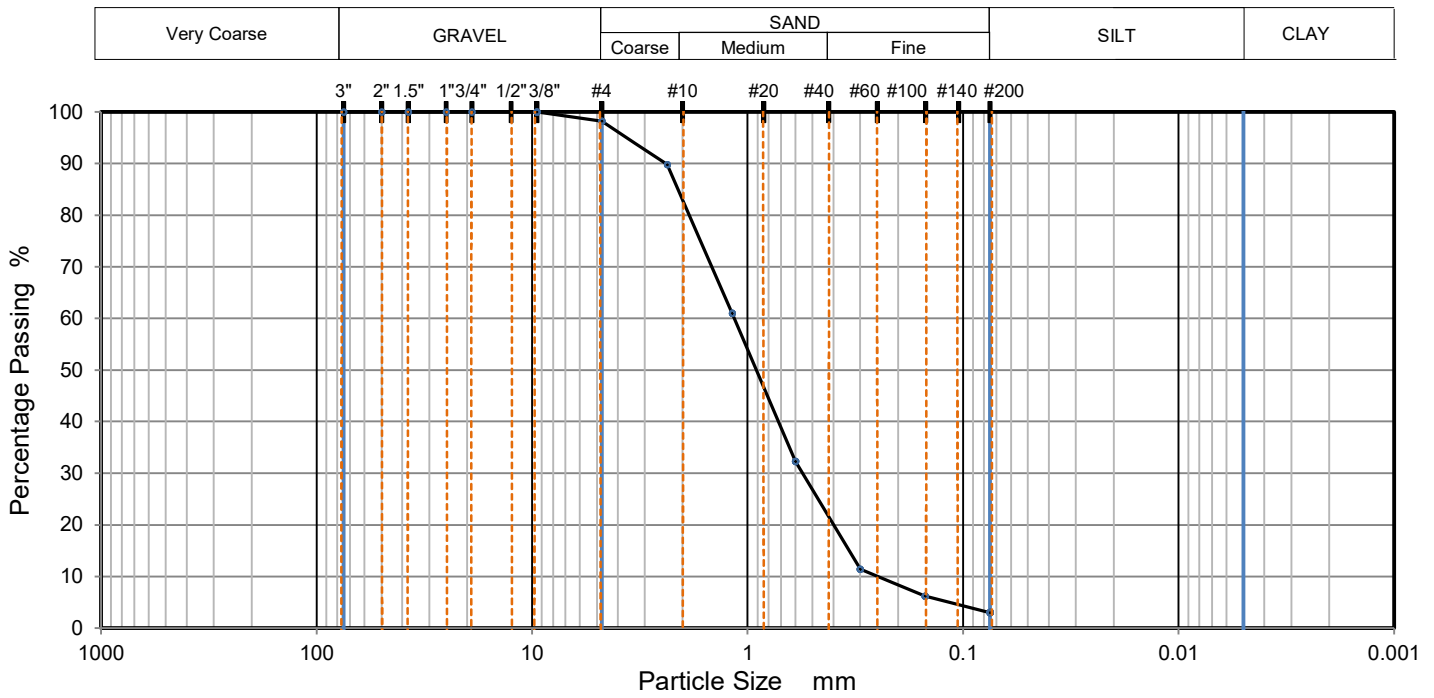
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	98		
#8	90		
#16	61		
#30	32		
#50	11		
#100	6		
#200	3		

Dry Mass of sample, g

129.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	2
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	3

USCS	SP	Liquid Limit	NP	D90	2.400	D50	0.911	D10	0.249
AASHTO		Plastic Limit	NP	D85	2.103	D30	0.556	Cu	4.632
USCS Group Name	Poorly graded sand	Plasticity Index	NP	D60	1.153	D15	0.338	Cc	1.077

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13.5 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-13

Date Reported: 3/14/2023



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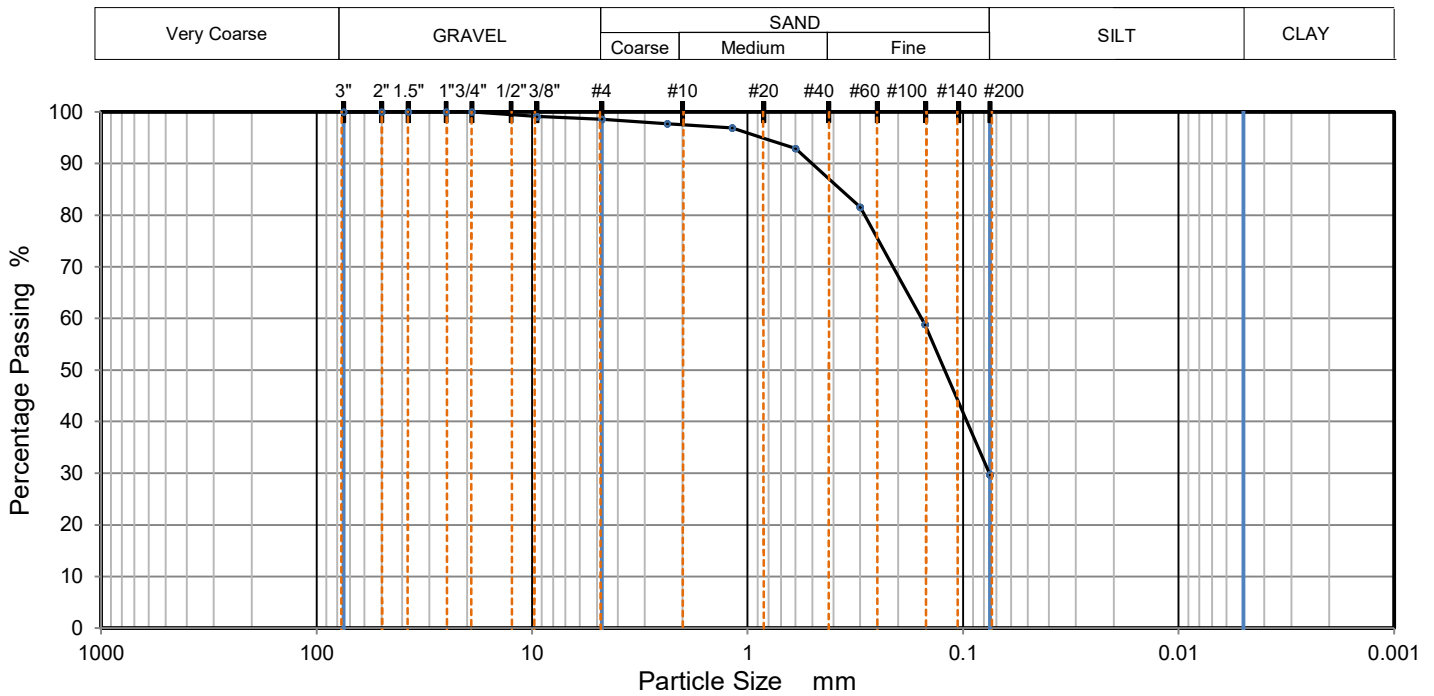
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	99		
#4	99		
#8	98		
#16	97		
#30	93		
#50	82		
#100	59		
#200	30		

Dry Mass of sample, g

108.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	30

USCS	SM	Liquid Limit	16	D90	0.503	D50	0.122	D10	
AASHTO		Plastic Limit	14	D85	0.371	D30	0.076	Cu	
USCS Group Name	Silty sand	Plasticity Index	2	D60	0.156	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-14

Date Reported: 3/14/2023



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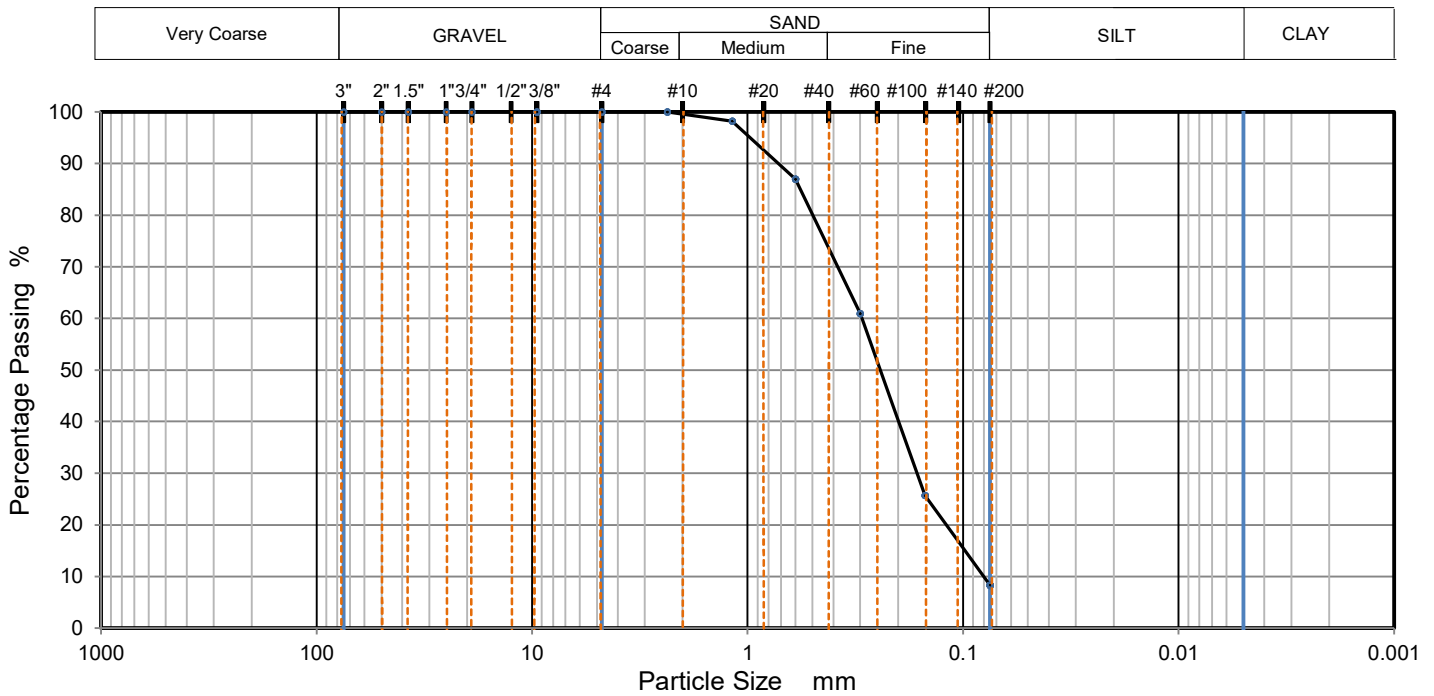
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	98		
#30	87		
#50	61		
#100	26		
#200	8		

Dry Mass of sample, g

117.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	8

USCS	SP-SM	Liquid Limit	NP	D90	0.719	D50	0.242	D10	0.080
AASHTO		Plastic Limit	NP	D85	0.569	D30	0.163	Cu	3.672
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.295	D15	0.098	Cc	1.127

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: R-14

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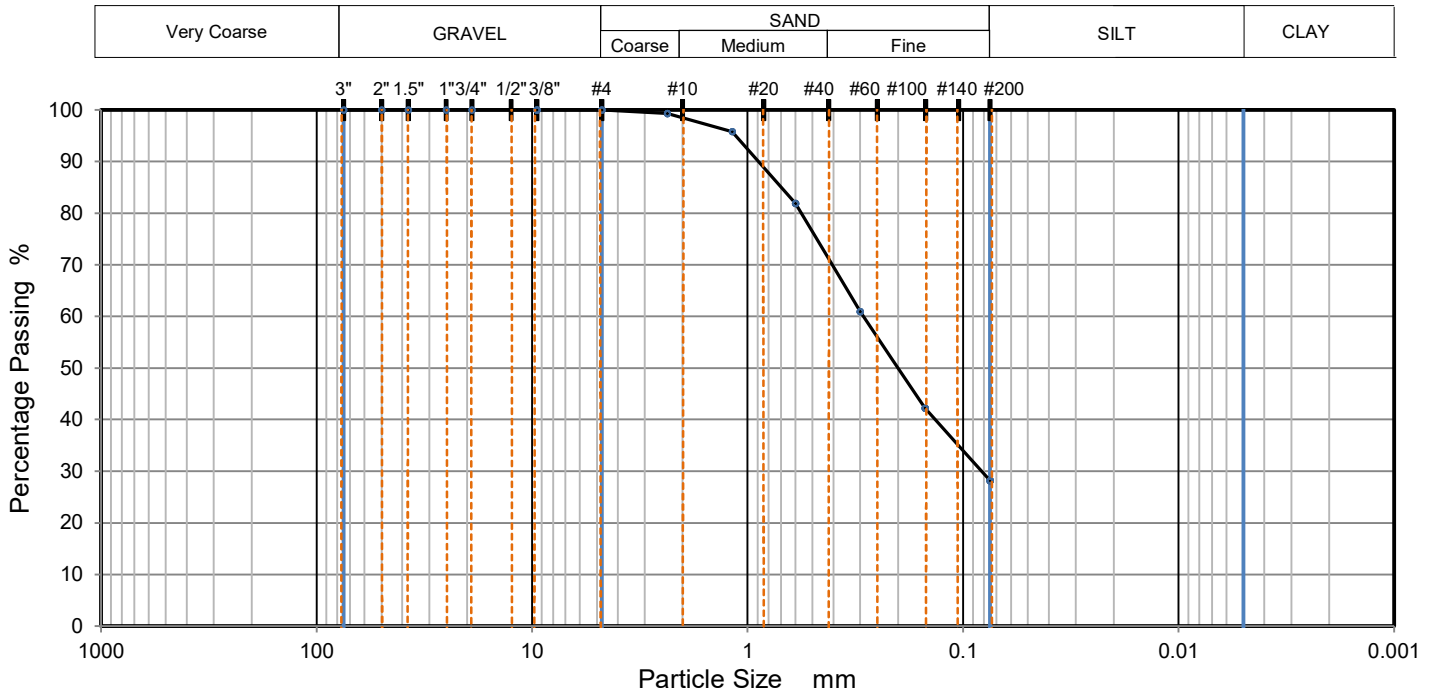
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	96		
#30	82		
#50	61		
#100	42		
#200	28		

Dry Mass of sample, g

128.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	28

USCS	SC	Liquid Limit	19	D90	0.890	D50	0.200	D10	
AASHTO		Plastic Limit	11	D85	0.698	D30	0.082	Cu	
USCS Group Name	Clayey sand	Plasticity Index	8	D60	0.290	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: R-15

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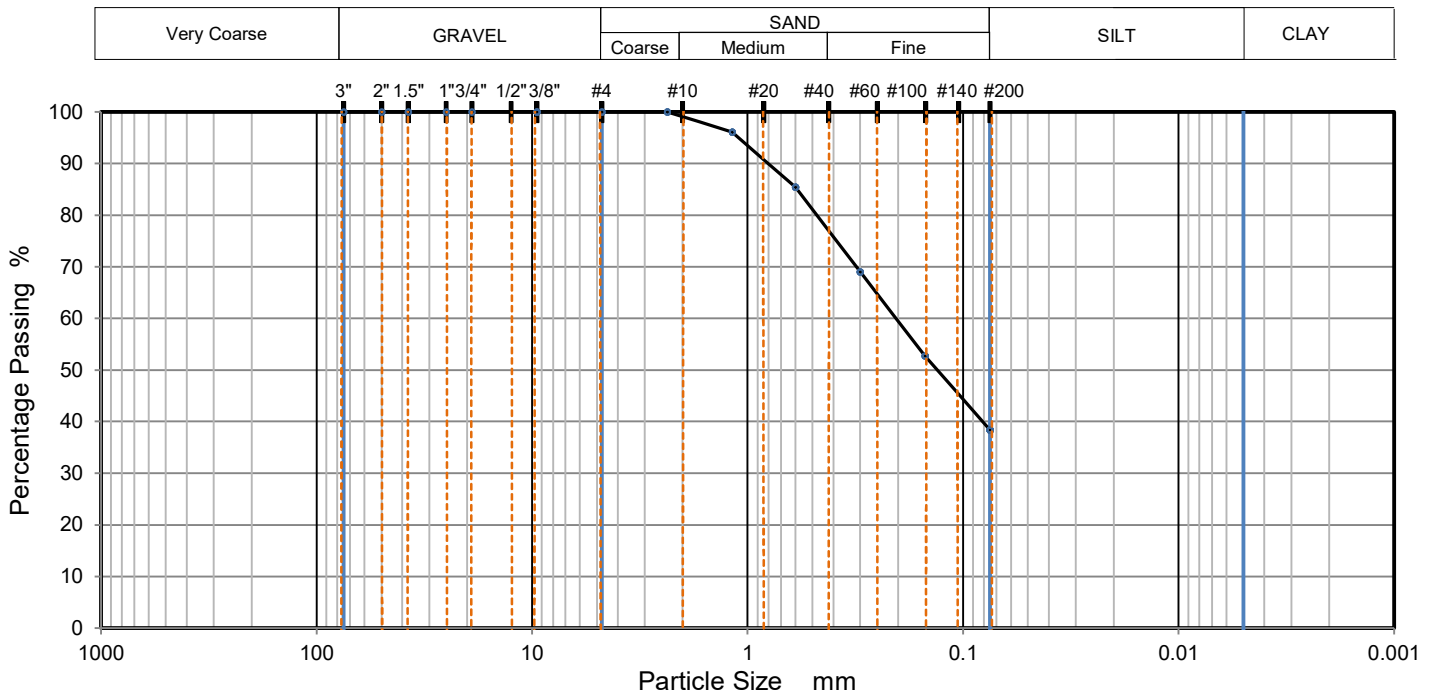
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	96		
#30	85		
#50	69		
#100	53		
#200	38		

Dry Mass of sample, g

139.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	38

USCS	SC	Liquid Limit	29	D90	0.803	D50	0.132	D10	
AASHTO		Plastic Limit	12	D85	0.590	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	17	D60	0.205	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: R-15

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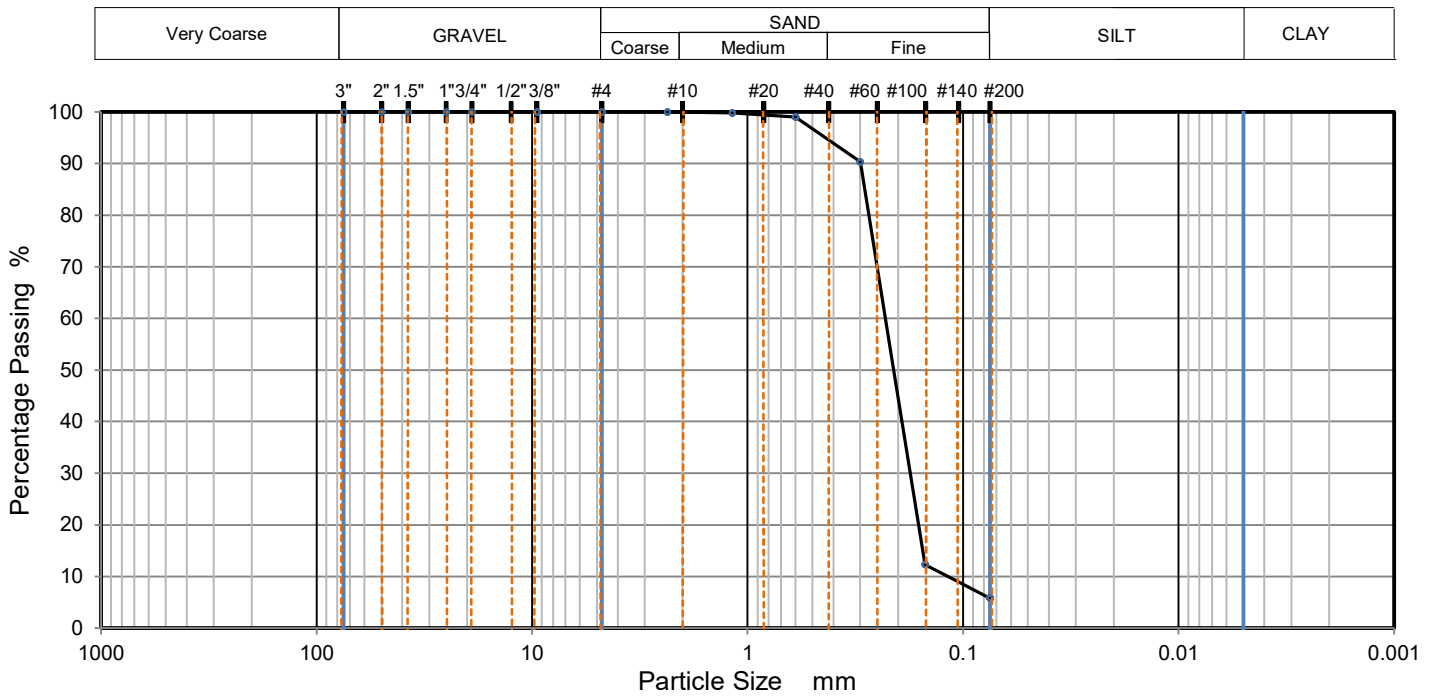
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	99		
#50	90		
#100	12		
#200	6		

Dry Mass of sample, g

105.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	6

USCS	SP-SM	Liquid Limit	NP	D90	0.299	D50	0.210	D10	0.117
AASHTO		Plastic Limit	NP	D85	0.286	D30	0.176	Cu	1.952
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.229	D15	0.154	Cc	1.146

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18.5 - 20

Sample Description:

Sample No.: SS-7

Sample Source: R-15

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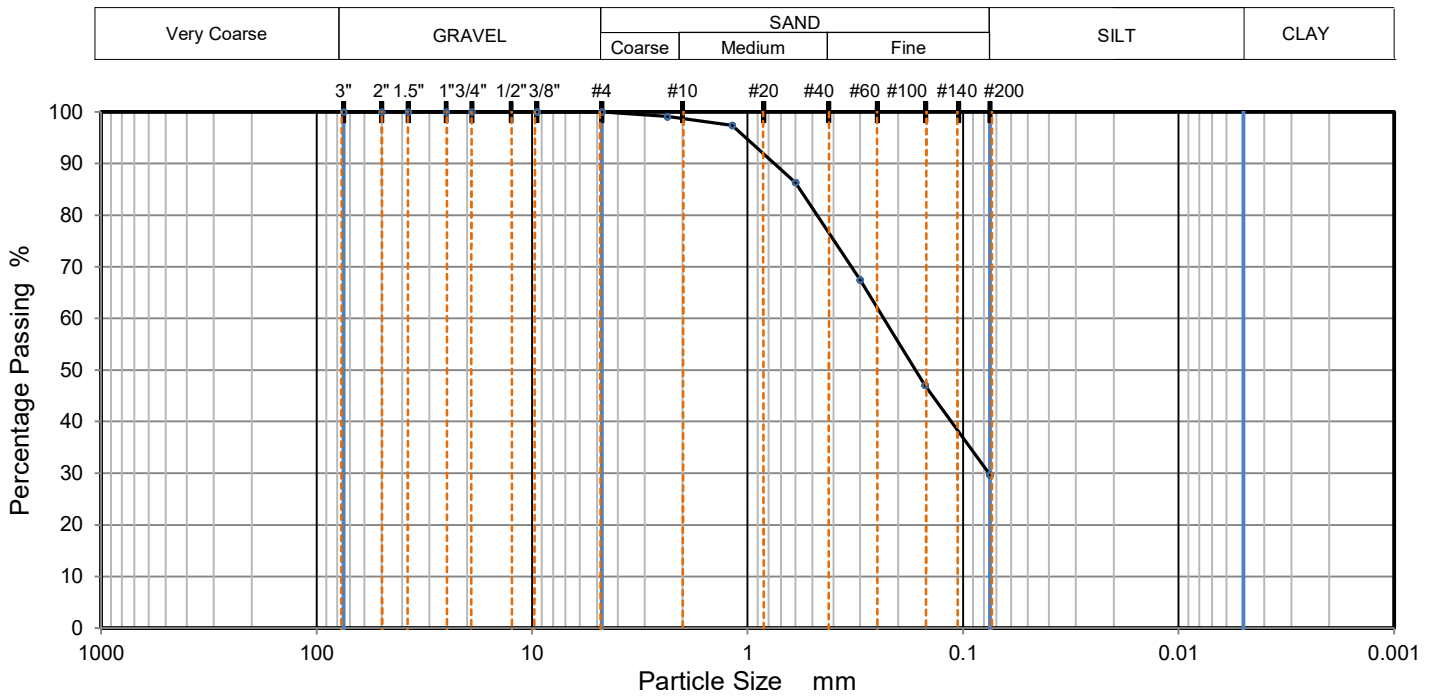
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	99		
#16	97		
#30	86		
#50	67		
#100	47		
#200	30		

Dry Mass of sample, g

112.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	30

USCS	SC	Liquid Limit	26	D90	0.752	D50	0.166	D10	
AASHTO		Plastic Limit	17	D85	0.572	D30	0.076	Cu	
USCS Group Name	Clayey sand	Plasticity Index	9	D60	0.233	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-17

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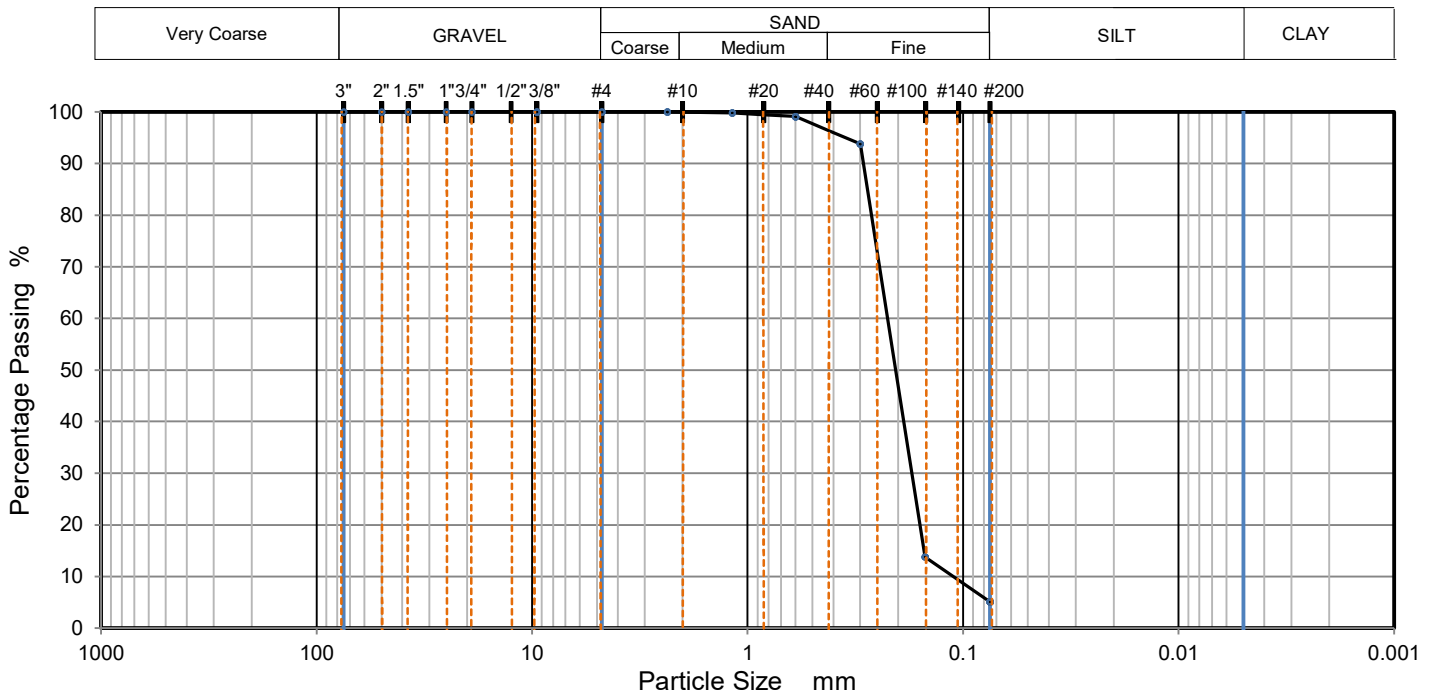
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	99		
#50	94		
#100	14		
#200	5		

Dry Mass of sample, g

107.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	5

USCS	SP-SM	Liquid Limit	NP	D90	0.290	D50	0.205	D10	0.111
AASHTO		Plastic Limit	NP	D85	0.278	D30	0.173	Cu	2.020
USCS Group Name	Poorly graded sand with silt	Plasticity Index	NP	D60	0.224	D15	0.152	Cc	1.201

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13.5 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-17

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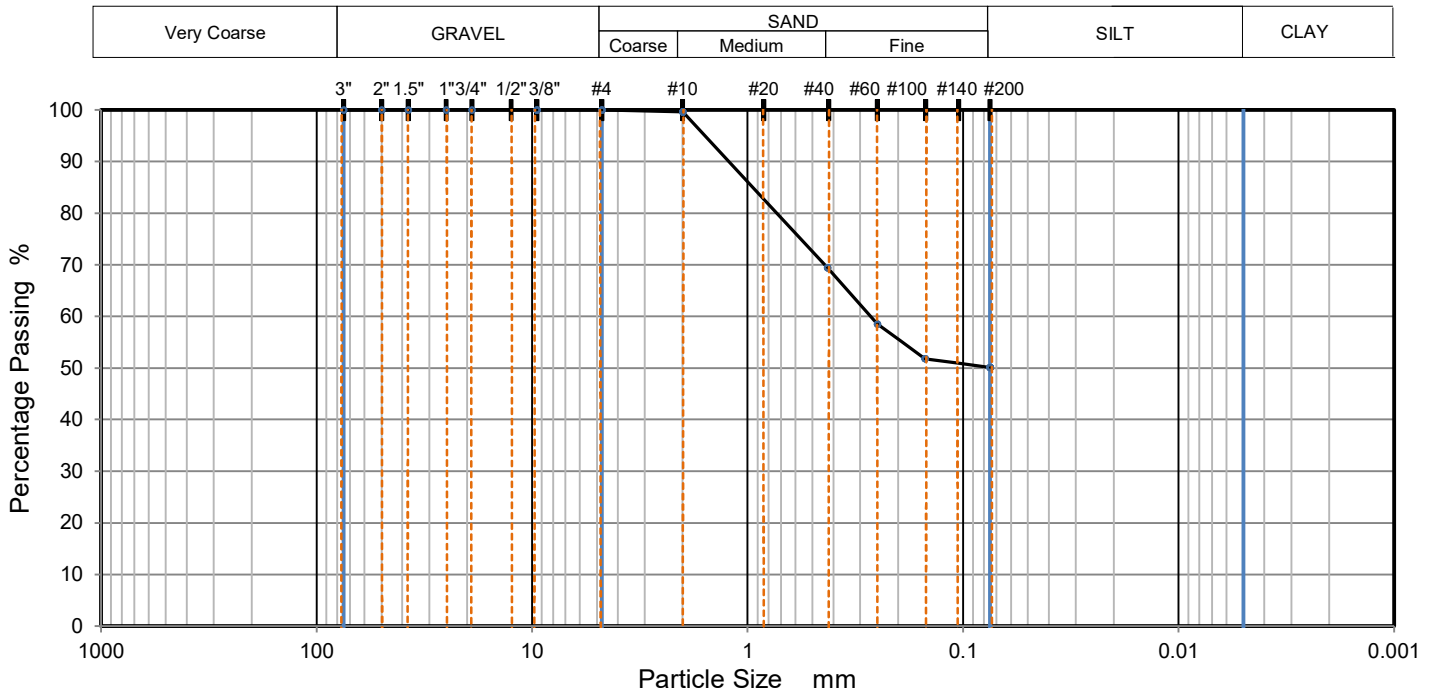
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.6		
#40	69.4		
#60	58.5		
#100	51.8		
#200	50.1		

Dry Mass of sample, g

299.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	30.2
Fine Sand, #40 to #200	19.3
Fines <#200	50.1

USCS	ML	Liquid Limit	NP	D90	1.222	D50		D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.946	D30		Cu	
USCS Group Name	Sandy silt	Plasticity Index	NP	D60	0.269	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-17

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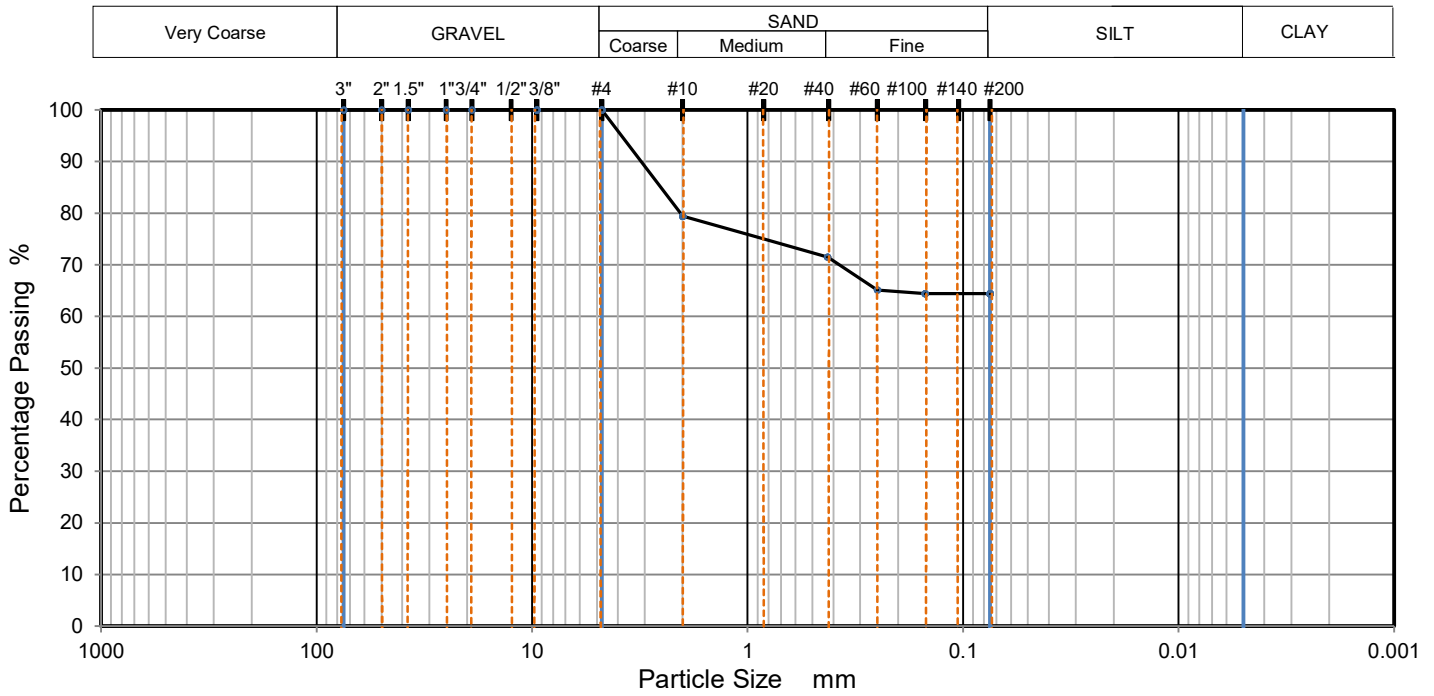
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	79.4		
#40	71.5		
#60	65.1		
#100	64.4		
#200	64.4		

Dry Mass of sample, g

298.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	20.6
Medium Sand, #10 to #40	7.9
Fine Sand, #40 to #200	7.1
Fines <#200	64.4

USCS	CL	Liquid Limit	25	D90	3.121	D50		D10	
AASHTO	A-6	Plastic Limit	12	D85	2.530	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	13	D60		D15		Cc	

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Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-17

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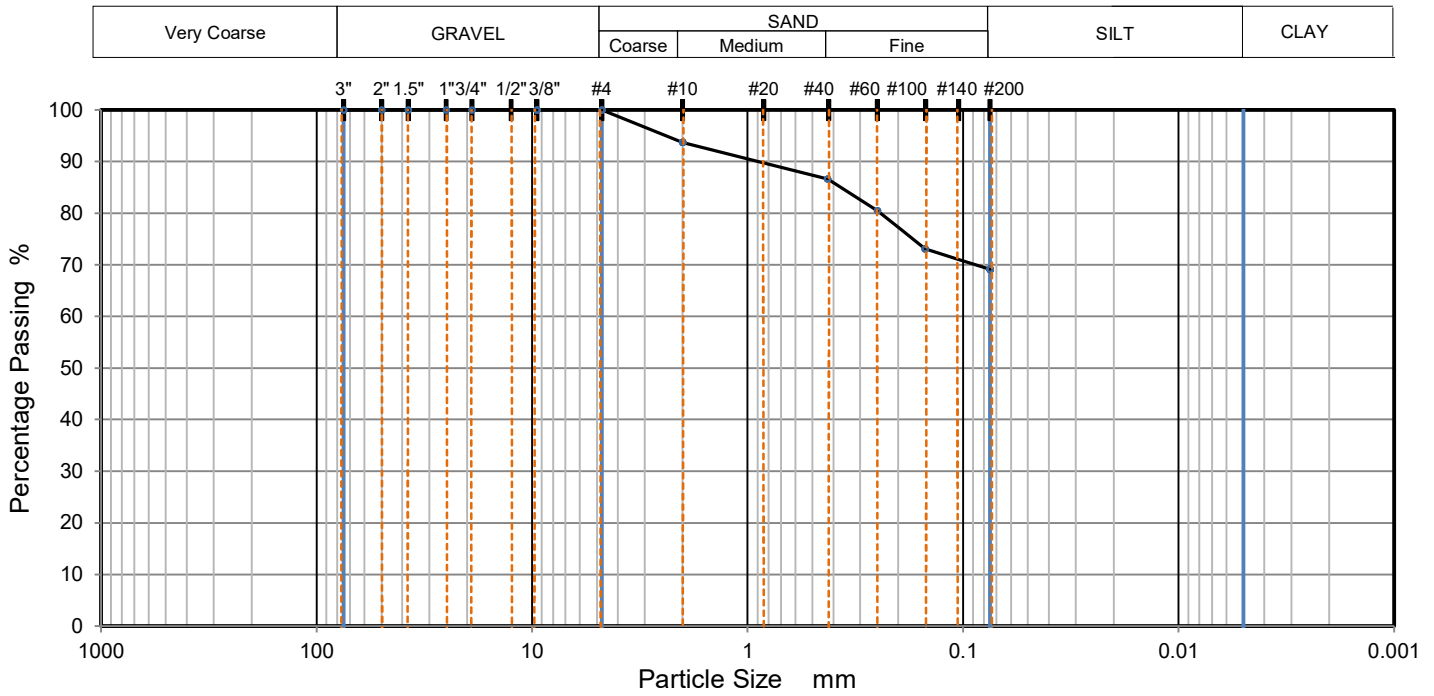
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	93.7		
#40	86.6		
#60	80.5		
#100	73.1		
#200	69.1		

Dry Mass of sample, g

303.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	6.3
Medium Sand, #10 to #40	7.1
Fine Sand, #40 to #200	17.5
Fines <#200	69.1

USCS	CL	Liquid Limit	28	D90	0.892	D50		D10	
AASHTO	A-6	Plastic Limit	11	D85	0.370	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	17	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: B-17

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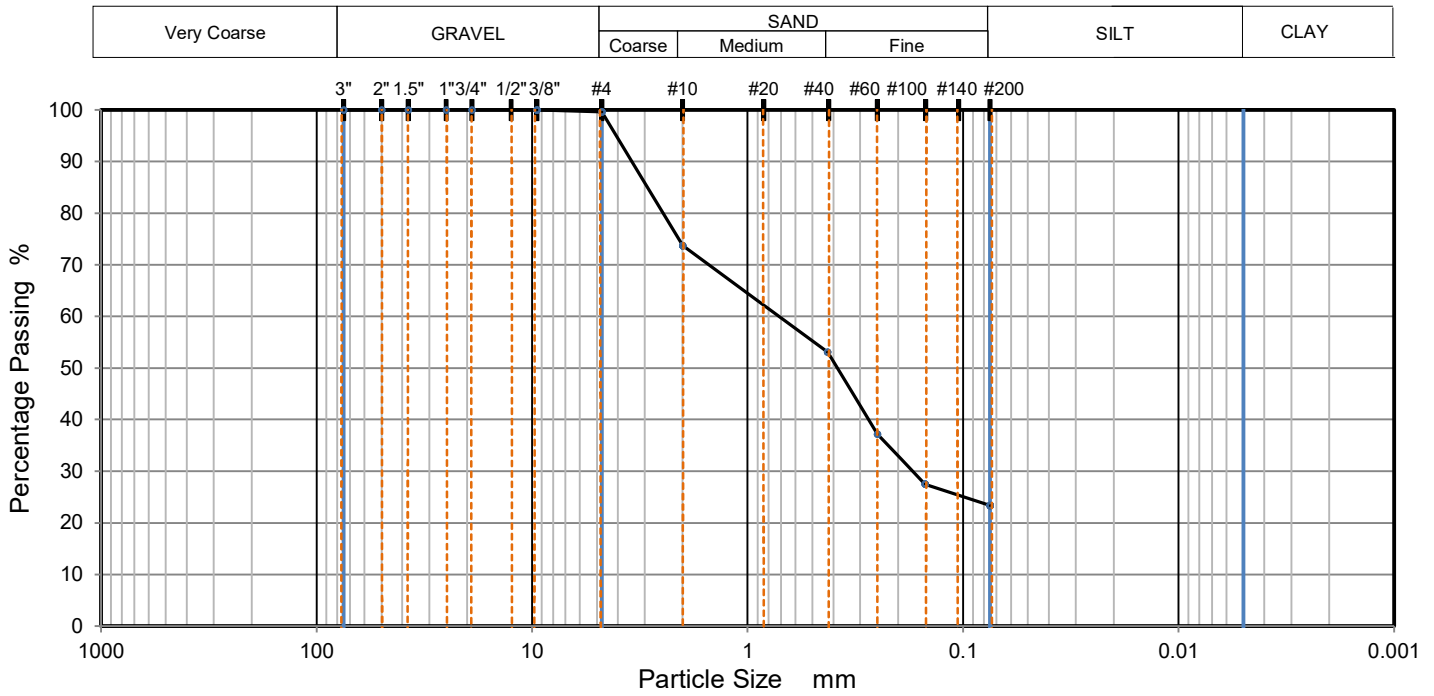
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.6		
#10	73.7		
#40	53.1		
#60	37.2		
#100	27.5		
#200	23.4		

Dry Mass of sample, g

336.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.4
Coarse Sand, #4 to #10 sieve	25.9
Medium Sand, #10 to #40	20.6
Fine Sand, #40 to #200	29.7
Fines <#200	23.4

USCS	SM	Liquid Limit	NP	D90	3.447	D50	0.383	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	2.917	D30	0.171	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.714	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

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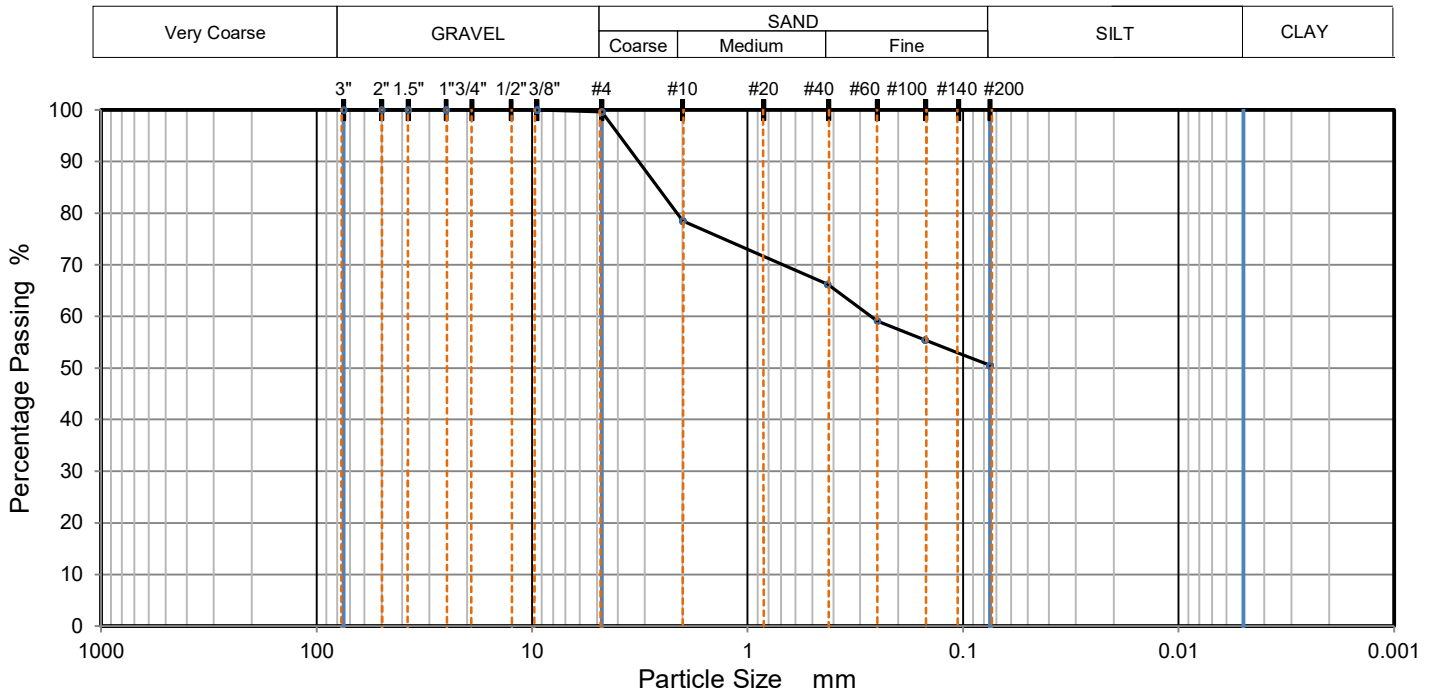
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/8"	100.0		
#4	99.6		
#10	78.5		
#40	66.2		
#60	59.1		
#100	55.4		
#200	50.5		

Dry Mass of sample, g

256.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.4
Coarse Sand, #4 to #10 sieve	21.1
Medium Sand, #10 to #40	12.3
Fine Sand, #40 to #200	15.7
Fines <#200	50.5

USCS	CL	Liquid Limit	26	D90	3.205	D50		D10	
AASHTO	A-4	Plastic Limit	18	D85	2.611	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	8	D60	0.267	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: SS-9

Sample Source: B-17

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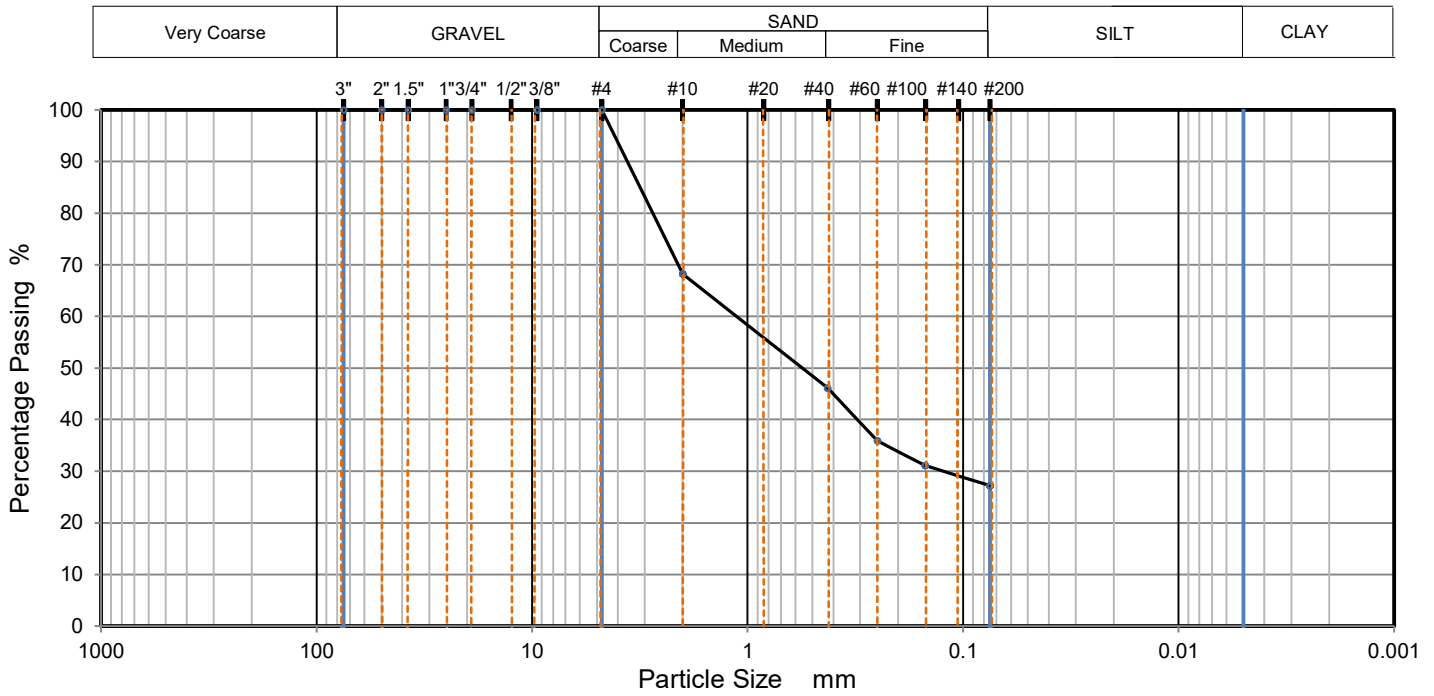
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	68.2		
#40	46.1		
#60	35.9		
#100	31.1		
#200	27.2		

Dry Mass of sample, g

287.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	31.8
Medium Sand, #10 to #40	22.1
Fine Sand, #40 to #200	18.9
Fines <#200	27.2

USCS	SC	Liquid Limit	38	D90	3.619	D50	0.559	D10	
AASHTO	A-2-6	Plastic Limit	20	D85	3.159	D30	0.123	Cu	
USCS Group Name	Clayey sand	Plasticity Index	18	D60	1.126	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 43 - 45

Sample Description:

Sample No.: SS-12

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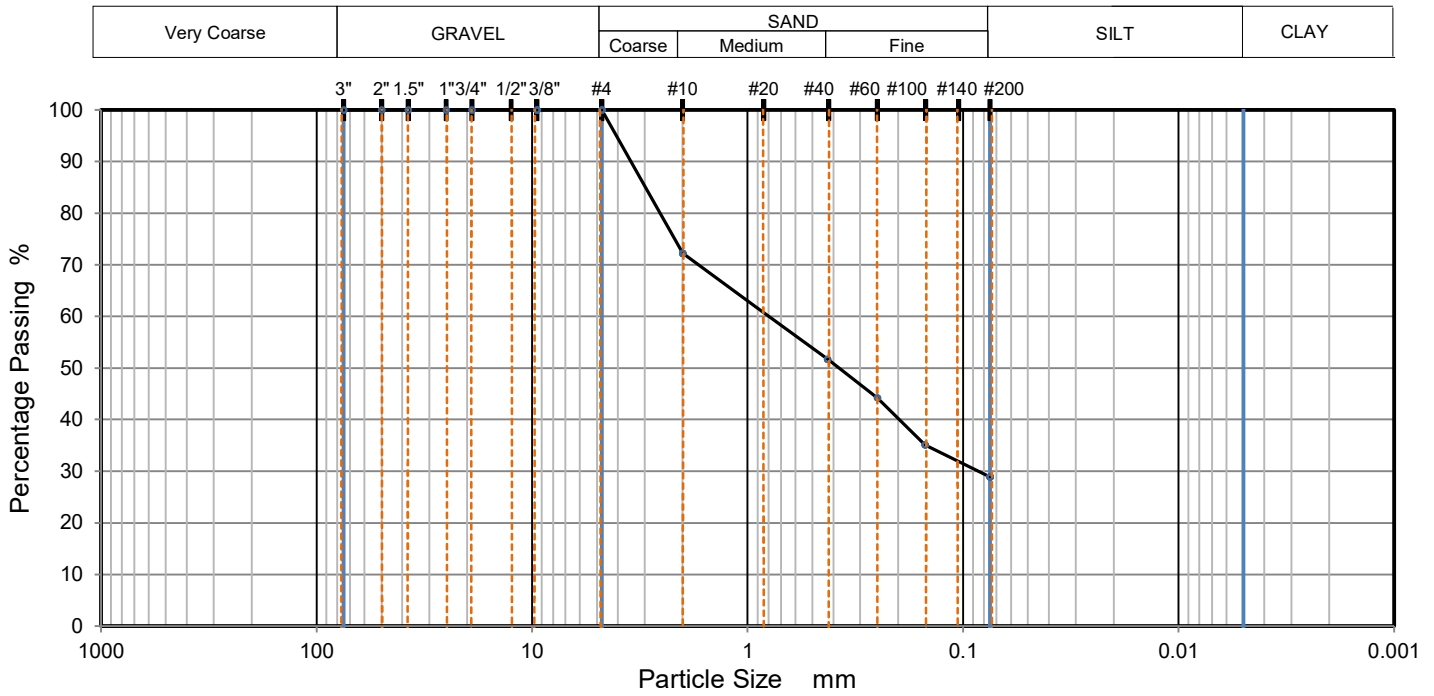
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	72.2		
#40	51.7		
#60	44.2		
#100	35.1		
#200	28.9		

Dry Mass of sample, g

314.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	27.8
Medium Sand, #10 to #40	20.5
Fine Sand, #40 to #200	22.8
Fines <#200	28.9

USCS	SM	Liquid Limit	NP	D90	3.480	D50	0.377	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	2.978	D30	0.085	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.796	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 48 - 50

Sample Description:

Sample No.: SS-13

Sample Source: B-17

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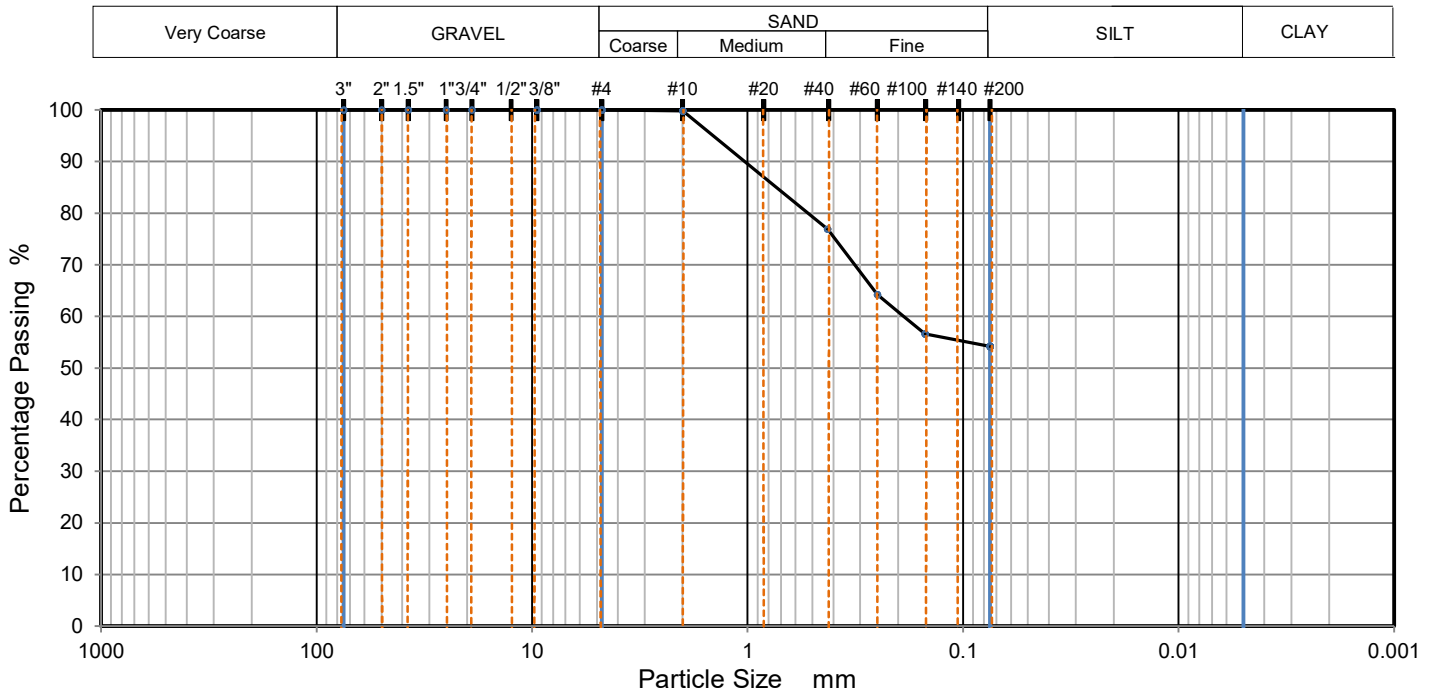
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	76.9		
#60	64.2		
#100	56.6		
#200	54.2		

Dry Mass of sample, g

363.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	22.9
Fine Sand, #40 to #200	22.7
Fines <#200	54.2

USCS	CL-ML	Liquid Limit	16	D90	1.031	D50		D10	
AASHTO	A-4	Plastic Limit	12	D85	0.735	D30		Cu	
USCS Group Name	Sandy silty clay	Plasticity Index	4	D60	0.189	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: B-18

Date Reported: 3/13/2023



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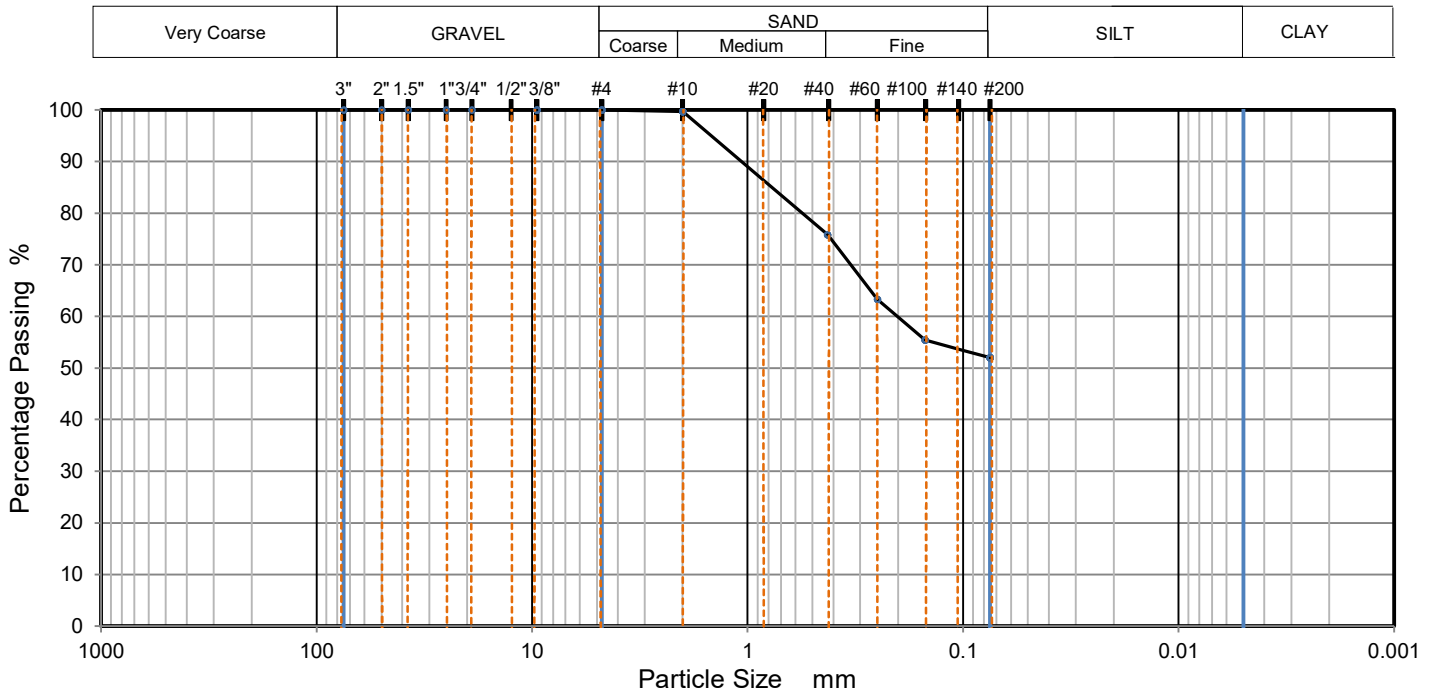
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	75.8		
#60	63.3		
#100	55.4		
#200	52.0		

Dry Mass of sample, g

317.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	23.9
Fine Sand, #40 to #200	23.8
Fines <#200	52.0

USCS	ML	Liquid Limit	NP	D90	1.067	D50		D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.772	D30		Cu	
USCS Group Name	Sandy silt	Plasticity Index	NP	D60	0.202	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: B-18

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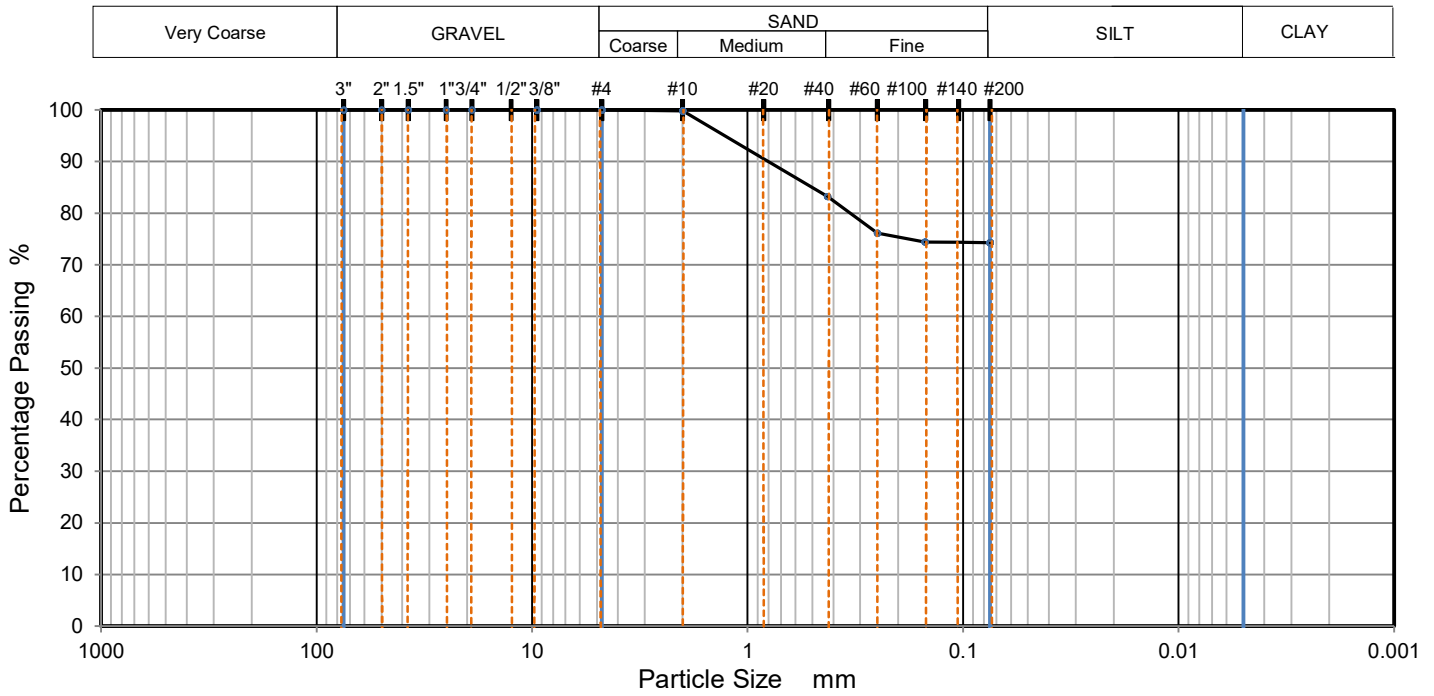
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	83.2		
#60	76.1		
#100	74.4		
#200	74.3		

Dry Mass of sample, g

337.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	16.6
Fine Sand, #40 to #200	8.9
Fines <#200	74.3

USCS	ML	Liquid Limit	NP	D90	0.802	D50		D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.503	D30		Cu	
USCS Group Name	Silt with sand	Plasticity Index	NP	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: B-18

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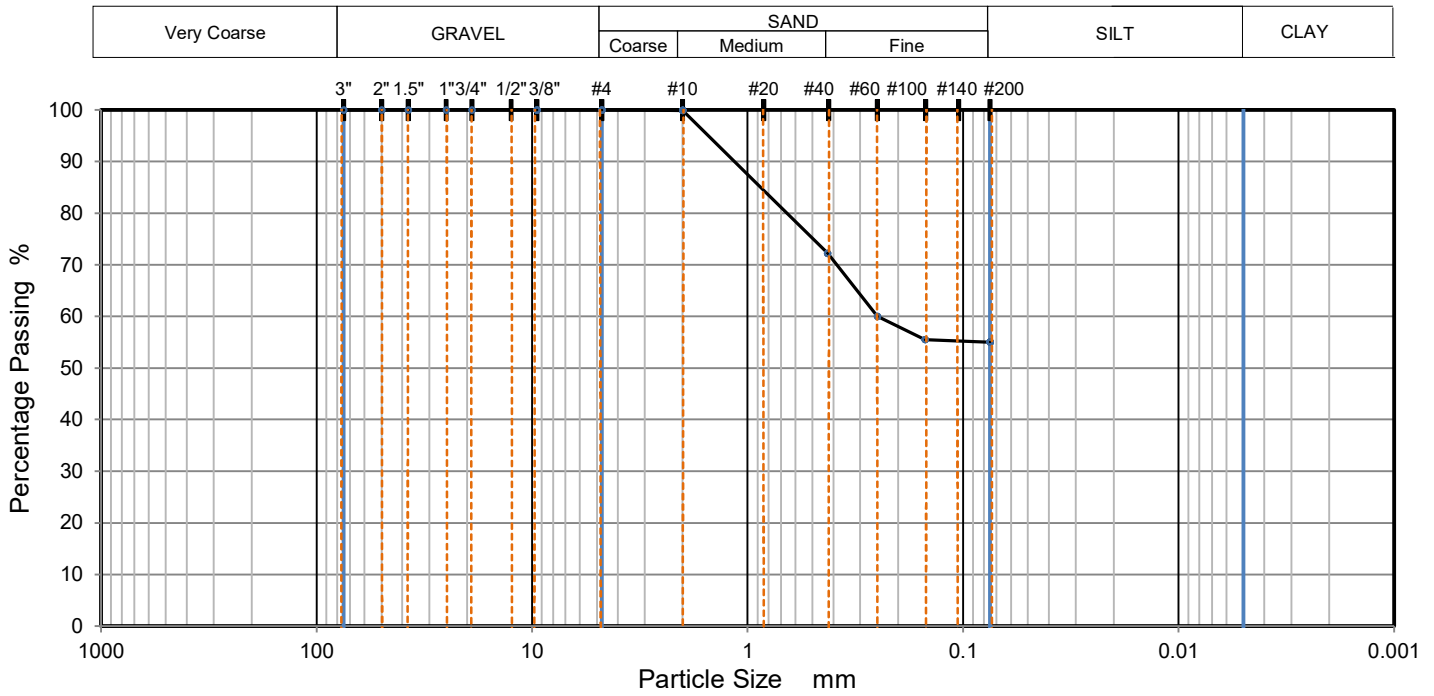
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.9		
#40	72.2		
#60	60.0		
#100	55.5		
#200	55.0		

Dry Mass of sample, g

290.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.1
Medium Sand, #10 to #40	27.7
Fine Sand, #40 to #200	17.2
Fines <#200	55.0

USCS	ML	Liquid Limit	NP	D90	1.150	D50		D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.869	D30		Cu	
USCS Group Name	Sandy silt	Plasticity Index	NP	D60	0.250	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: B-18

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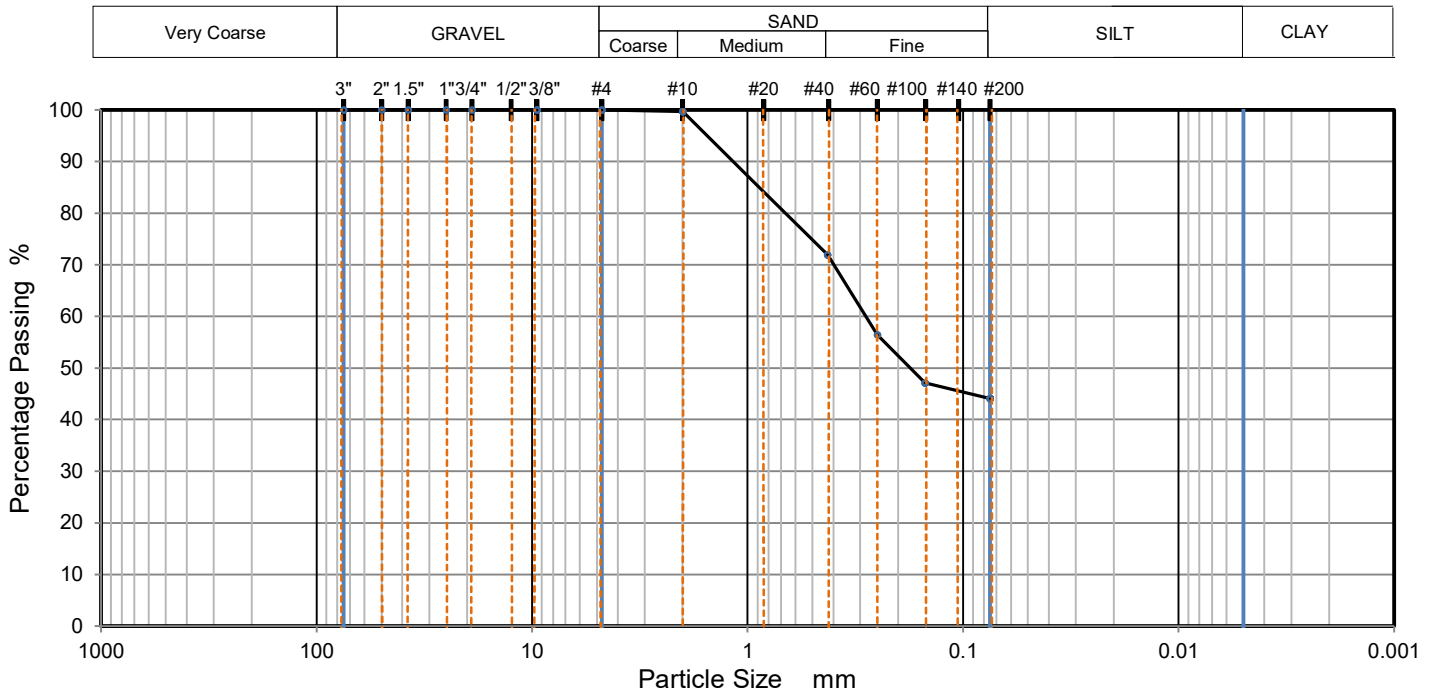
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	71.9		
#60	56.4		
#100	47.1		
#200	44.1		

Dry Mass of sample, g

310.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	27.8
Fine Sand, #40 to #200	27.8
Fines <#200	44.1

USCS	SM	Liquid Limit	NP	D90	1.165	D50	0.176	D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.882	D30		Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.283	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: B-18

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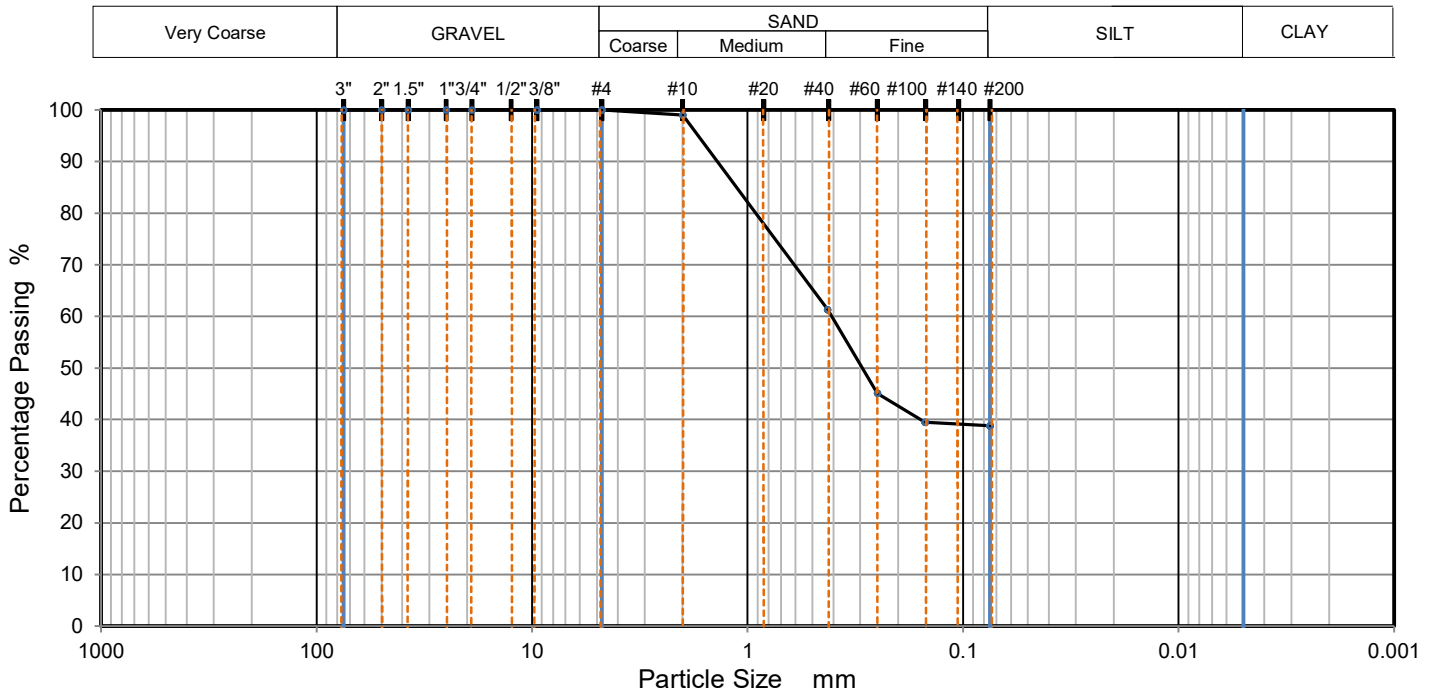
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.0		
#40	61.3		
#60	45.1		
#100	39.5		
#200	38.8		

Dry Mass of sample, g

288.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	1.0
Medium Sand, #10 to #40	37.7
Fine Sand, #40 to #200	22.5
Fines <#200	38.8

USCS	SC	Liquid Limit	36	D90	1.382	D50	0.294	D10	
AASHTO	A-6	Plastic Limit	13	D85	1.125	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	23	D60	0.407	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: B-18

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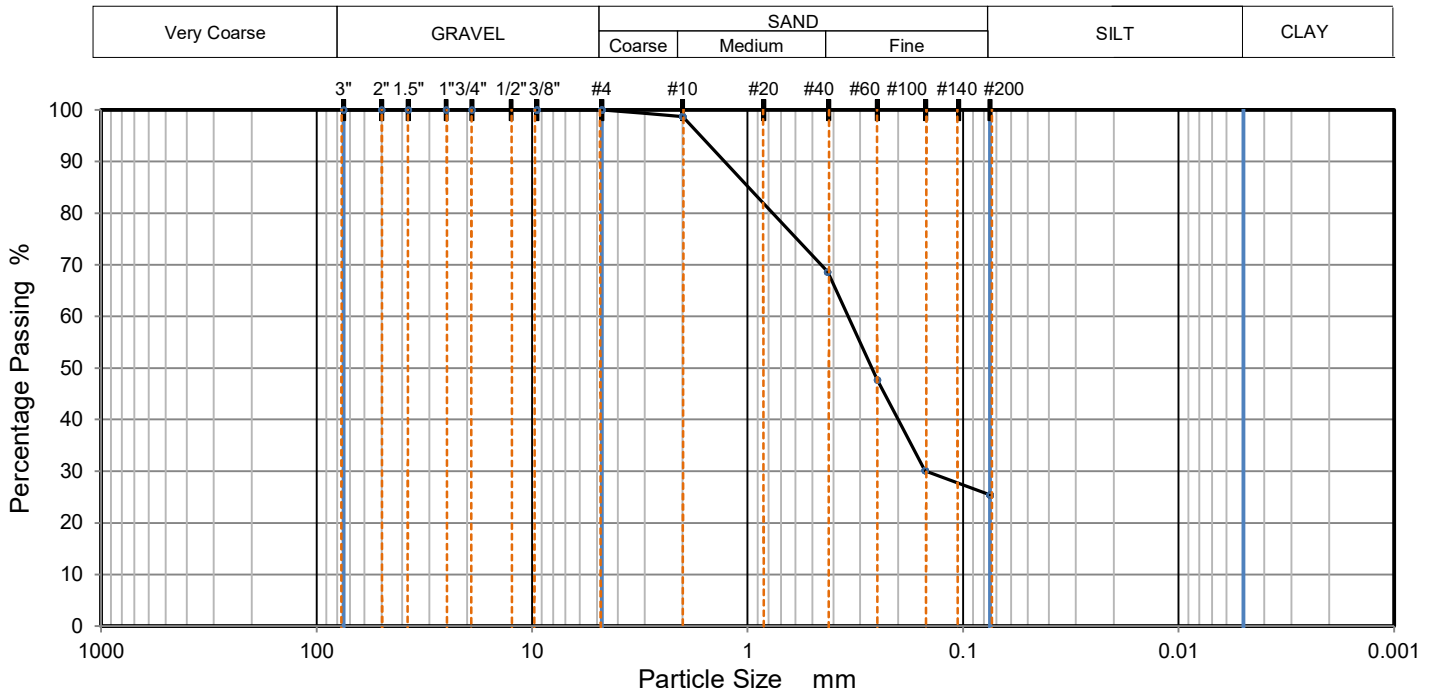
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	98.7		
#40	68.6		
#60	47.7		
#100	30.1		
#200	25.4		

Dry Mass of sample, g

250.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	1.3
Medium Sand, #10 to #40	30.1
Fine Sand, #40 to #200	43.2
Fines <#200	25.4

USCS	SM	Liquid Limit	NP	D90	1.278	D50	0.265	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.988	D30	0.148	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.342	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 23 - 25

Sample Description:

Sample No.: SS-8

Sample Source: B-18

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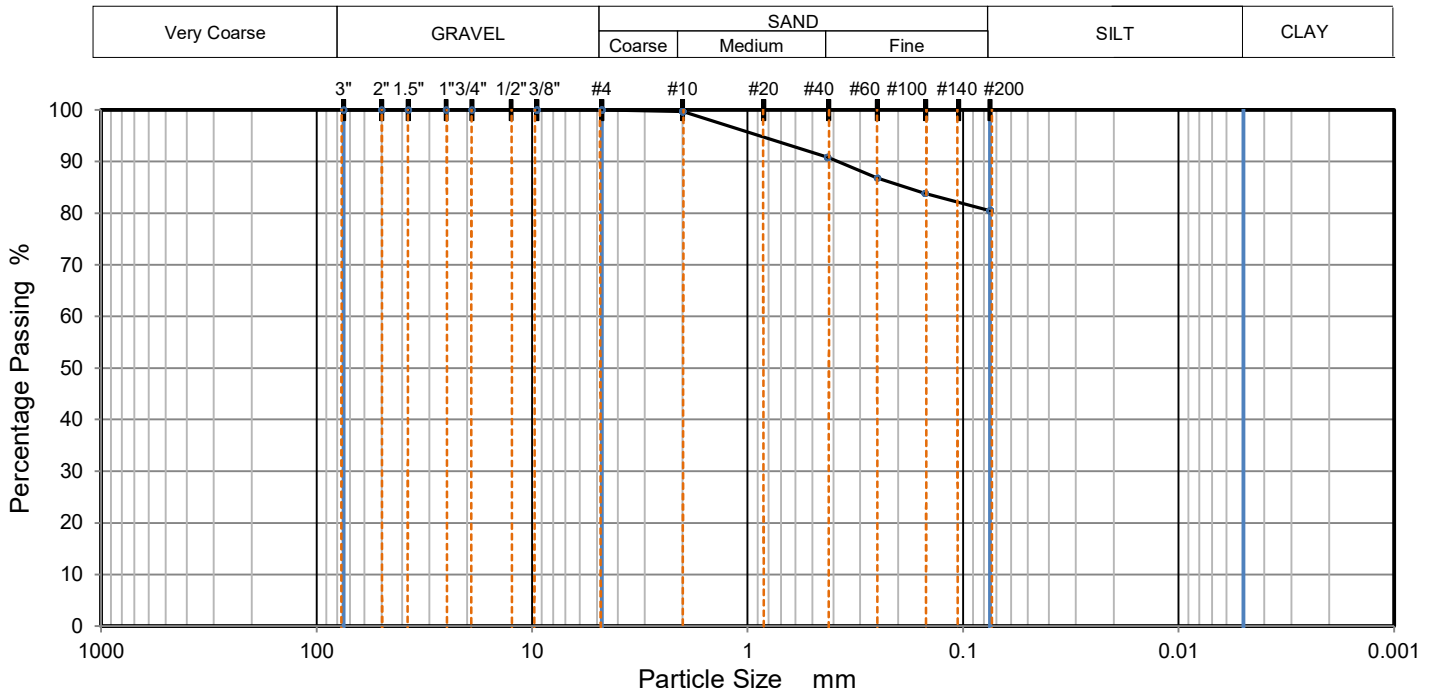
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	90.8		
#60	86.8		
#100	83.8		
#200	80.5		

Dry Mass of sample, g

256.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	8.9
Fine Sand, #40 to #200	10.3
Fines <#200	80.5

USCS	CL	Liquid Limit	37	D90	0.382	D50		D10	
AASHTO	A-6	Plastic Limit	15	D85	0.184	D30		Cu	
USCS Group Name	Lean clay with sand	Plasticity Index	22	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 33 - 35

Sample Description:

Sample No.: SS-10

Sample Source: B-18

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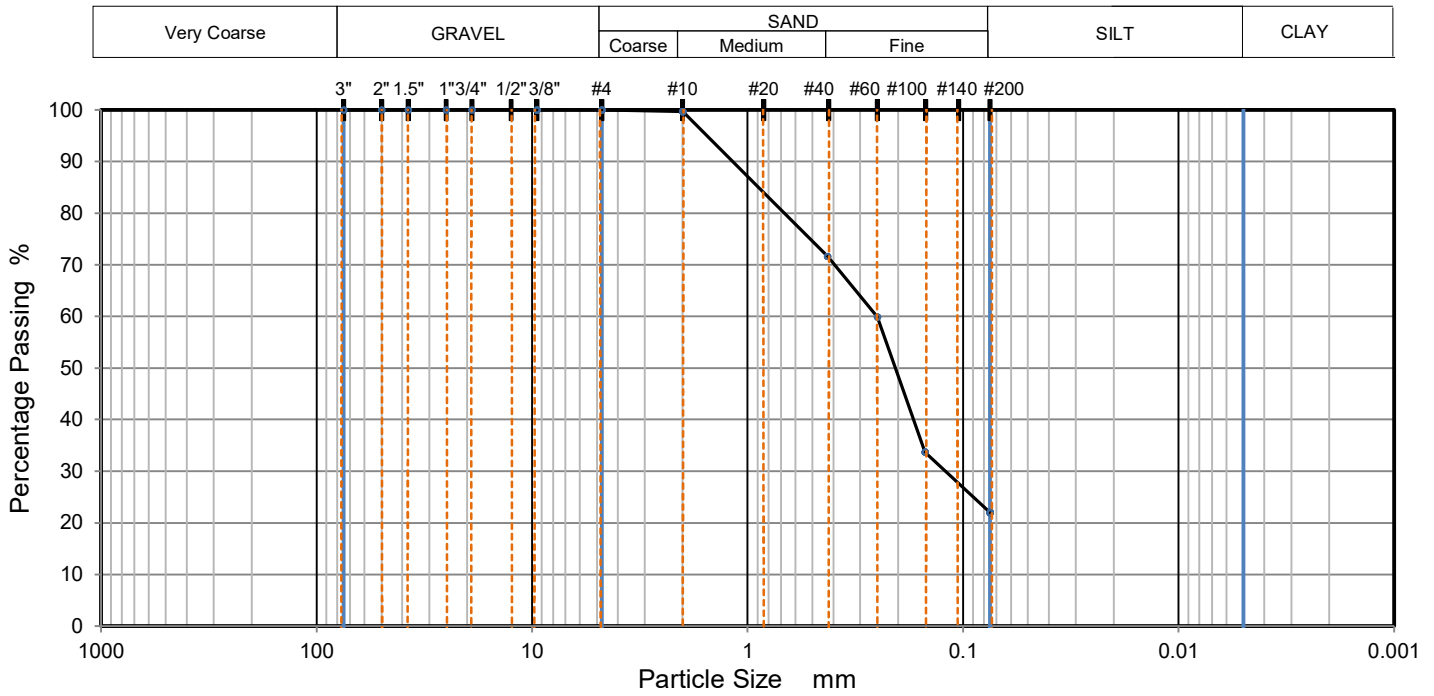
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	71.6		
#60	59.9		
#100	33.7		
#200	22.0		

Dry Mass of sample, g

274.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	28.1
Fine Sand, #40 to #200	49.6
Fines <#200	22.0

USCS	SM	Liquid Limit	NP	D90	1.172	D50	0.206	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.890	D30	0.121	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.251	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 43 - 45

Sample Description:

Sample No.: SS-12

Sample Source: B-18

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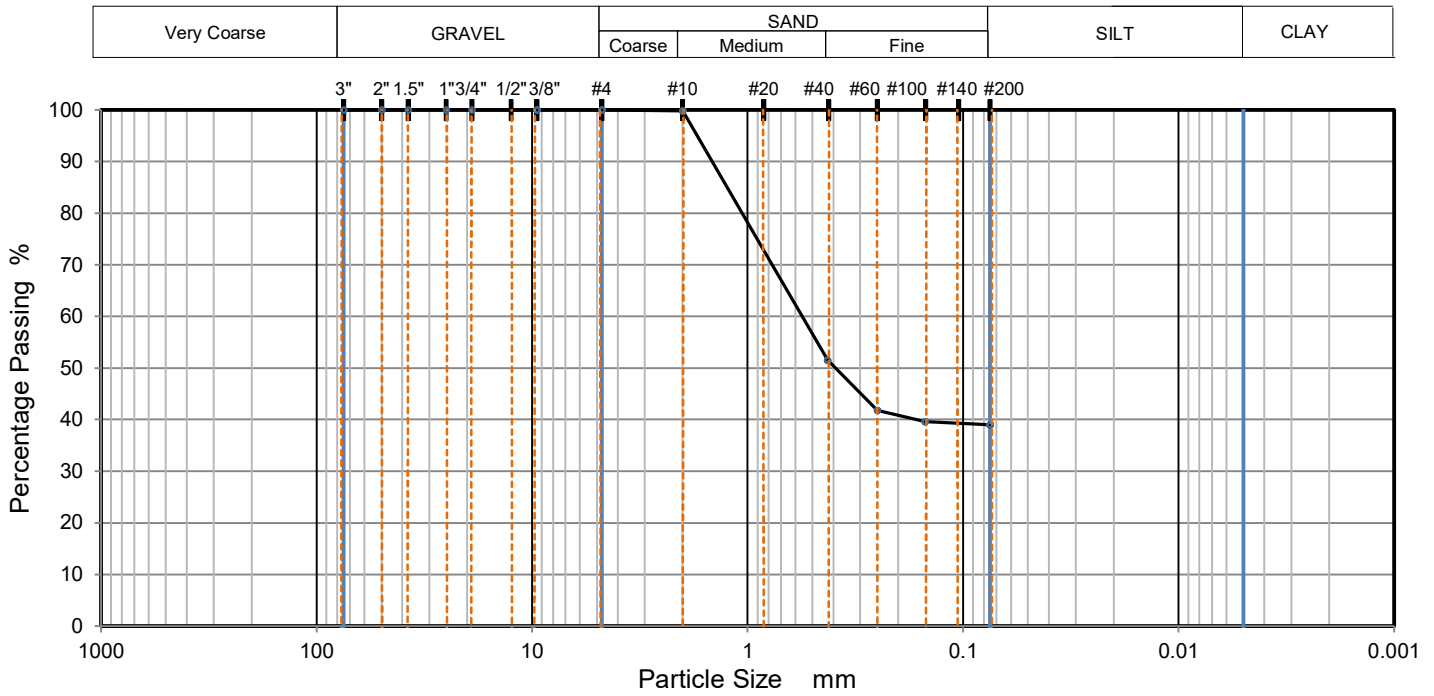
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	51.5		
#60	41.8		
#100	39.6		
#200	39.0		

Dry Mass of sample, g

359.0

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	48.3
Fine Sand, #40 to #200	12.5
Fines <#200	39.0

USCS	SC	Liquid Limit	42	D90	1.461	D50	0.392	D10	
AASHTO	A-7-6	Plastic Limit	16	D85	1.244	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	26	D60	0.558	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: R-19

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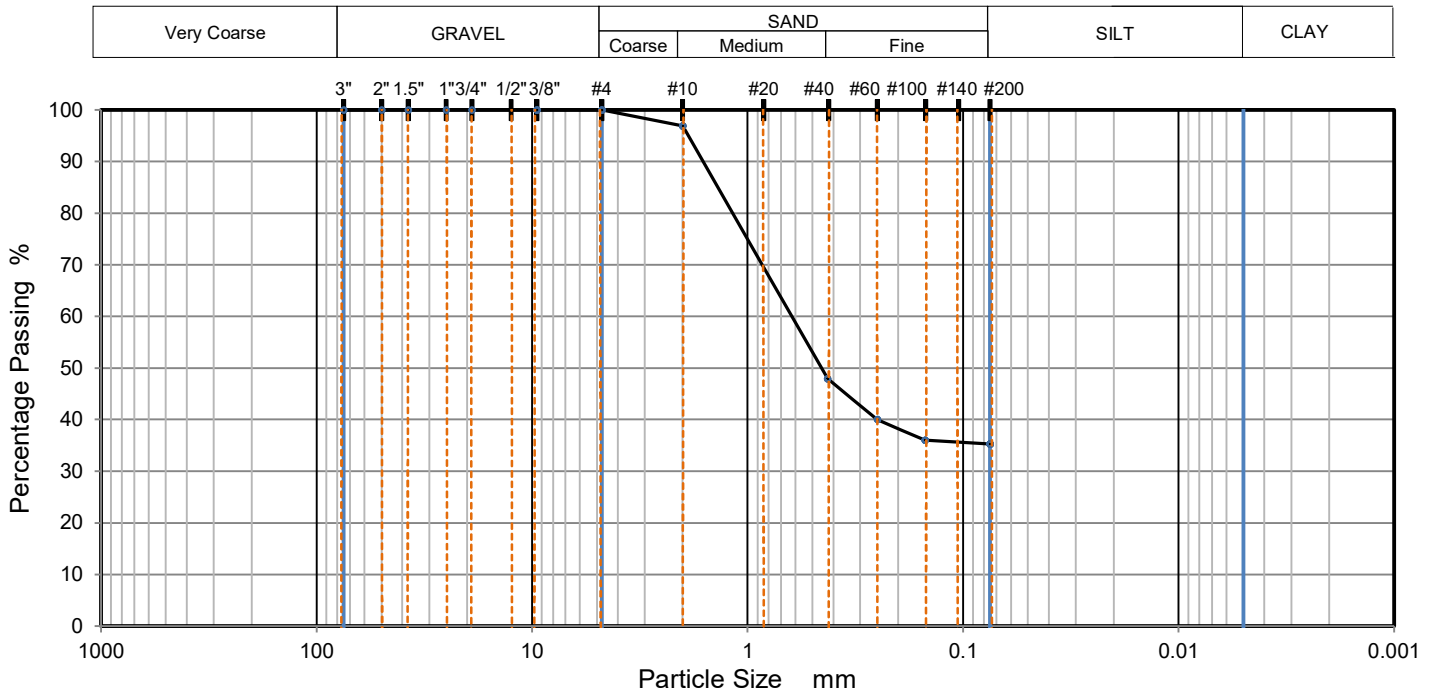
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	96.9		
#40	47.9		
#60	40.0		
#100	36.0		
#200	35.3		

Dry Mass of sample, g

420.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	3.1
Medium Sand, #10 to #40	49.0
Fine Sand, #40 to #200	12.6
Fines <#200	35.3

USCS	SC	Liquid Limit	35	D90	1.608	D50	0.454	D10	
AASHTO	A-6	Plastic Limit	16	D85	1.373	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	19	D60	0.623	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 8 - 10

Sample Description:

Sample No.: SS-5

Sample Source: R-19

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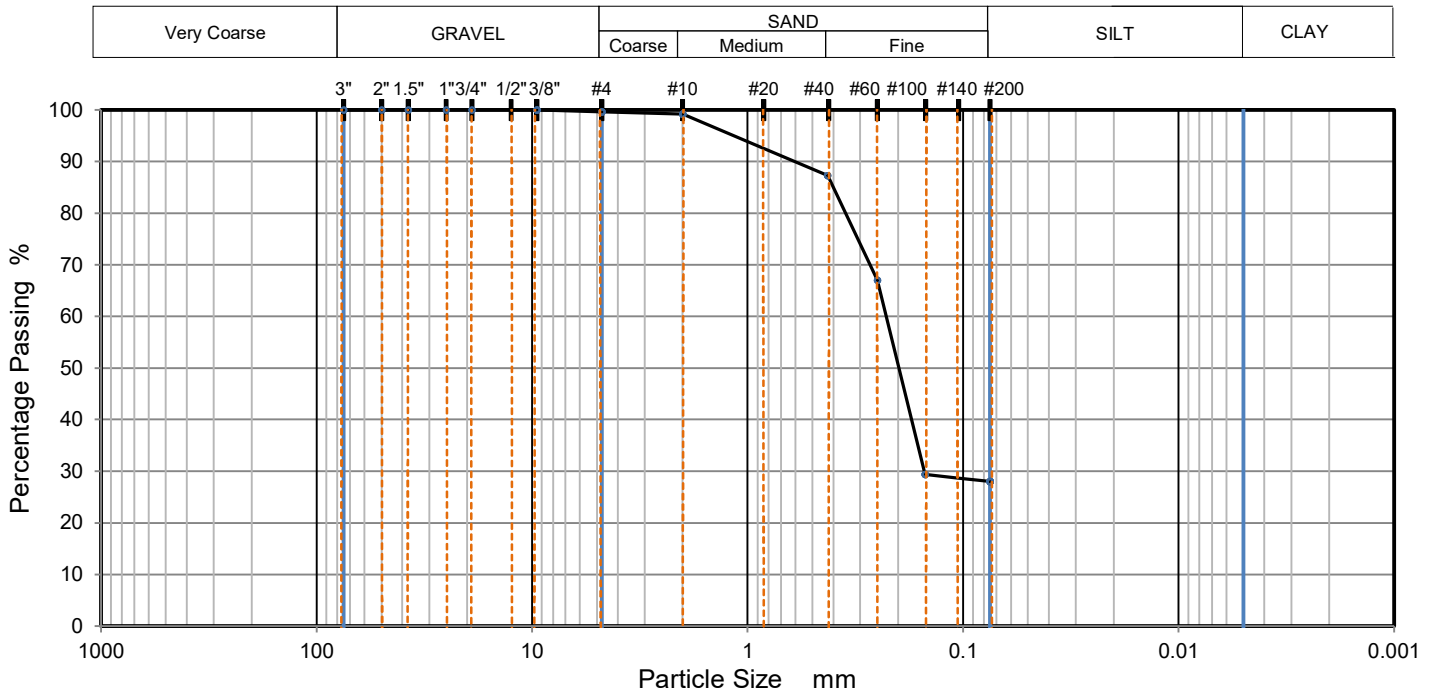
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.6		
#10	99.2		
#40	87.3		
#60	67.0		
#100	29.4		
#200	28.0		

Dry Mass of sample, g

388.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.4
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	11.9
Fine Sand, #40 to #200	59.3
Fines <#200	28.0

USCS	SM	Liquid Limit	NP	D90	0.604	D50	0.198	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.400	D30	0.151	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.227	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-19

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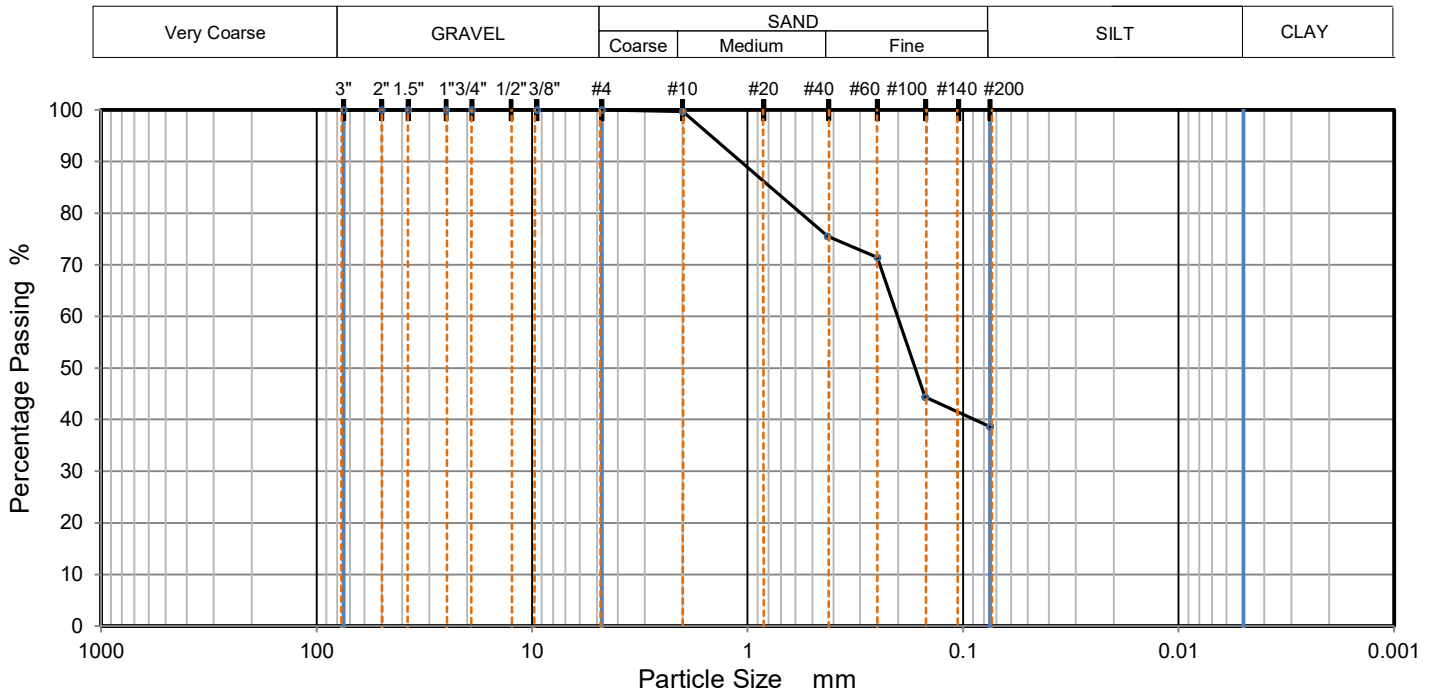
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#40	75.5		
#60	71.4		
#100	44.4		
#200	38.6		

Dry Mass of sample, g

366.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	24.2
Fine Sand, #40 to #200	36.9
Fines <#200	38.6

USCS	SM	Liquid Limit	NP	D90	1.075	D50	0.167	D10	
AASHTO	A-4	Plastic Limit	NP	D85	0.781	D30		Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.202	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: R-19

Date Reported: 3/13/2023



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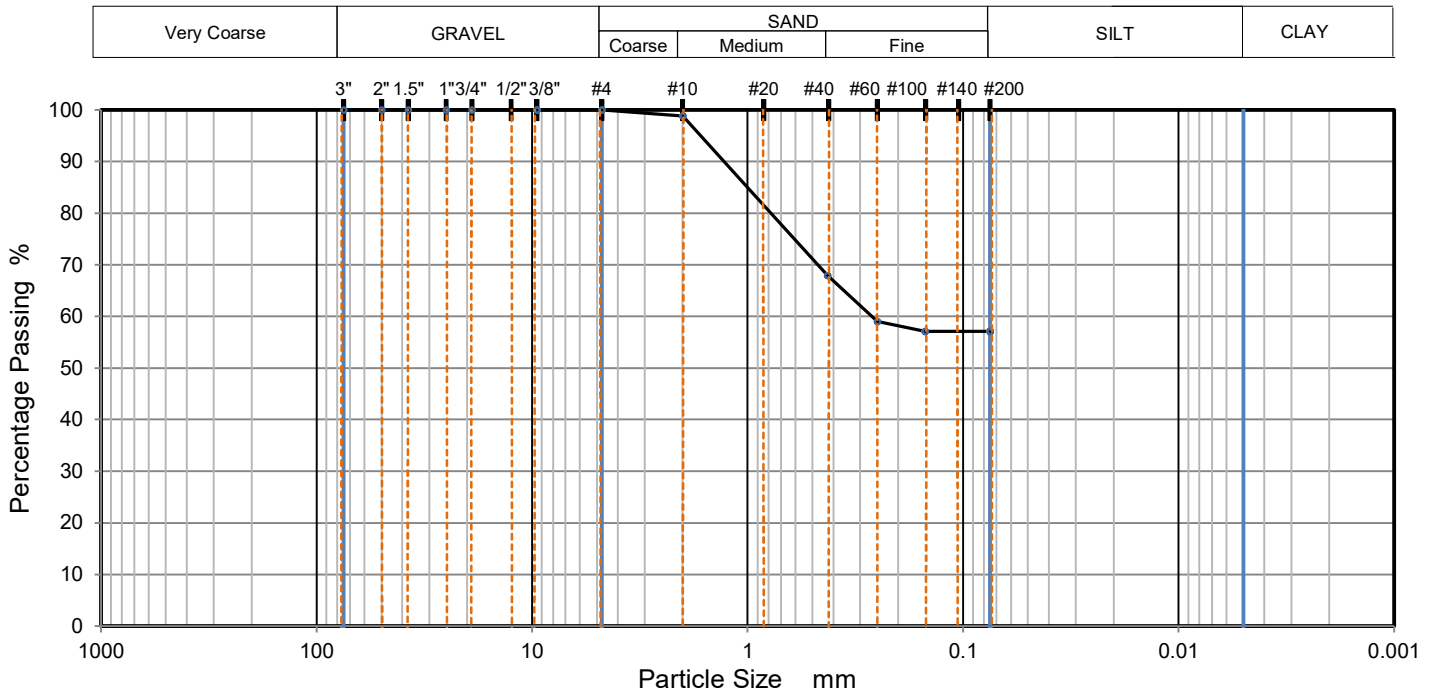
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	98.8		
#40	67.9		
#60	59.0		
#100	57.1		
#200	57.1		

Dry Mass of sample, g

272.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	1.2
Medium Sand, #10 to #40	30.9
Fine Sand, #40 to #200	10.8
Fines <#200	57.1

USCS	CL	Liquid Limit	22	D90	1.287	D50		D10	
AASHTO	A-4	Plastic Limit	13	D85	1.001	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	9	D60	0.265	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: R-20

Date Reported: 3/13/2023



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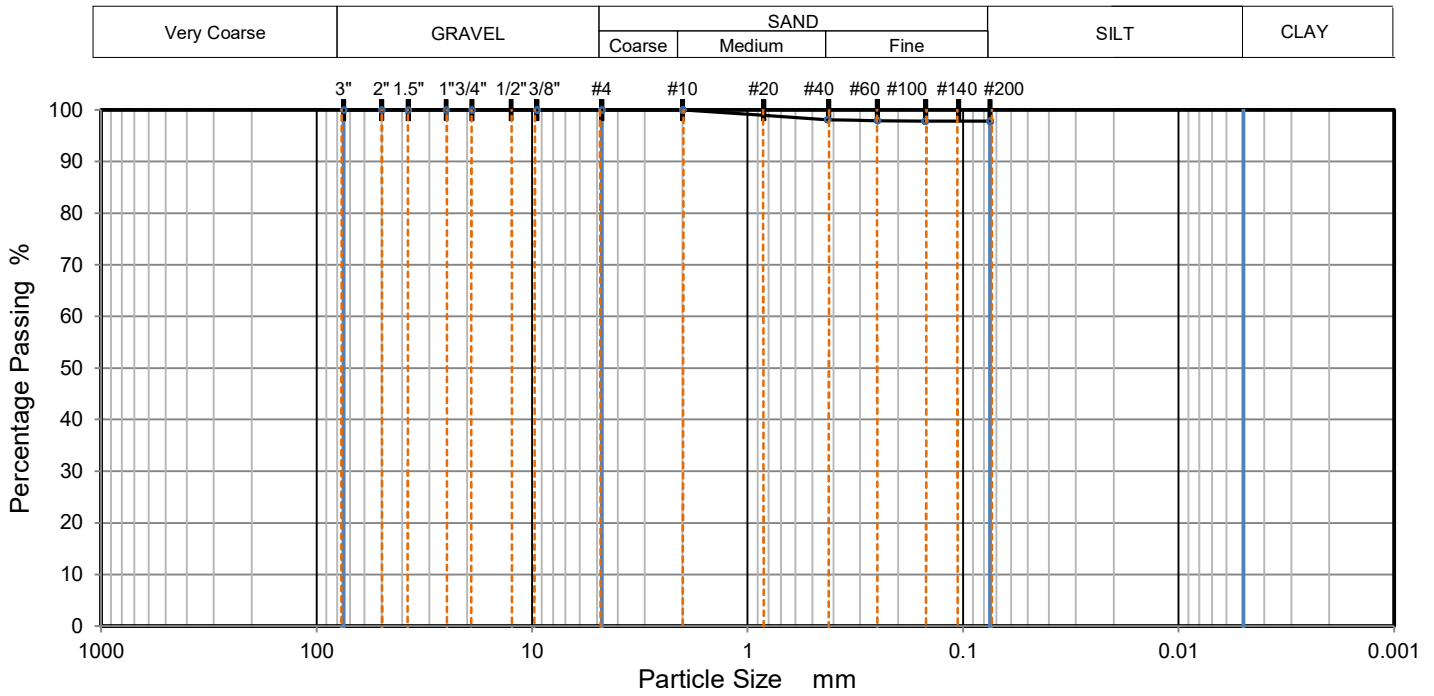
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	100.0		
#40	98.1		
#60	97.9		
#100	97.8		
#200	97.8		

Dry Mass of sample, g

245.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.0
Medium Sand, #10 to #40	1.9
Fine Sand, #40 to #200	0.3
Fines <#200	97.8

USCS	MH	Liquid Limit	63	D90		D50		D10	
AASHTO	A-5	Plastic Limit	NP	D85		D30		Cu	
USCS Group Name	Elastic silt	Plasticity Index		D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 4 - 6

Sample Description:

Sample No.: SS-3

Sample Source: R-20

Date Reported: 3/13/2023



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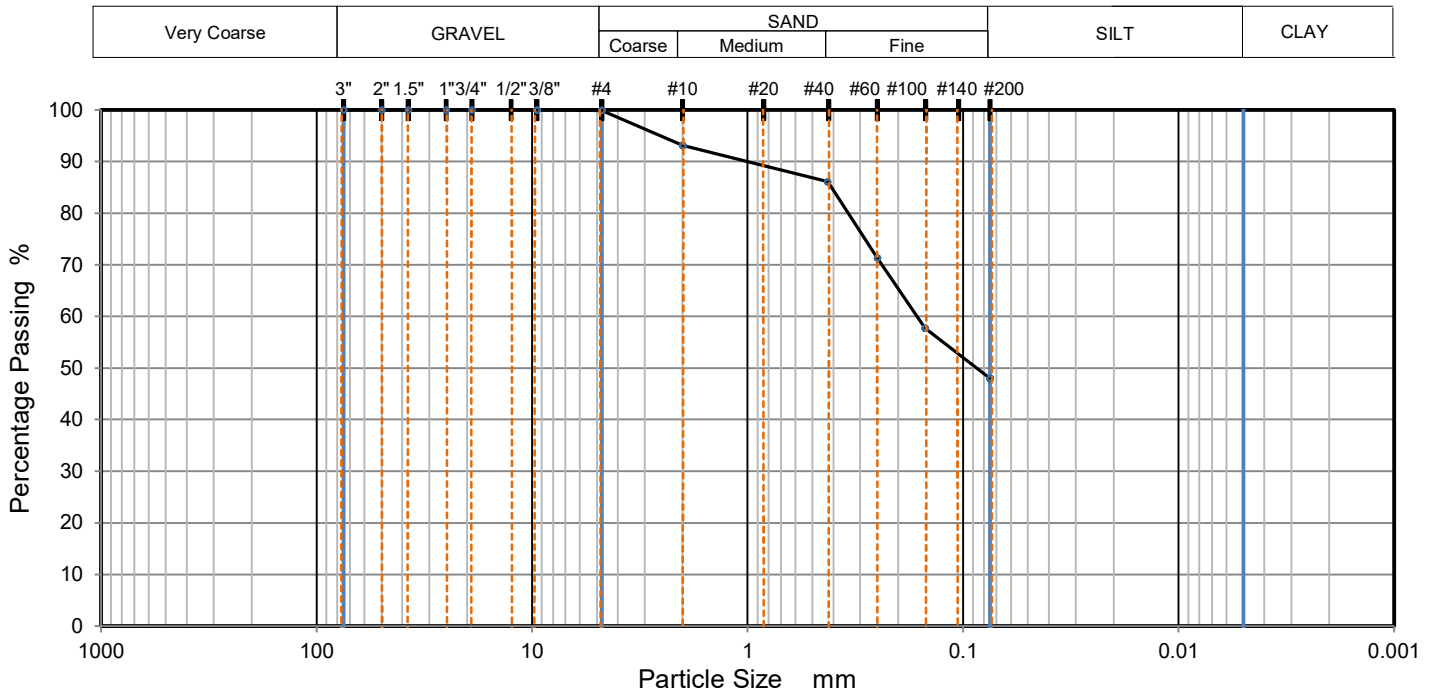
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.9		
#10	93.1		
#40	86.1		
#60	71.3		
#100	57.7		
#200	48.0		

Dry Mass of sample, g

257.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.1
Coarse Sand, #4 to #10 sieve	6.8
Medium Sand, #10 to #40	7.0
Fine Sand, #40 to #200	38.1
Fines <#200	48.0

USCS	SC	Liquid Limit	27	D90	1.007	D50	0.087	D10	
AASHTO	A-6	Plastic Limit	16	D85	0.409	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	11	D60	0.164	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 6 - 8

Sample Description:

Sample No.: SS-4

Sample Source: R-20

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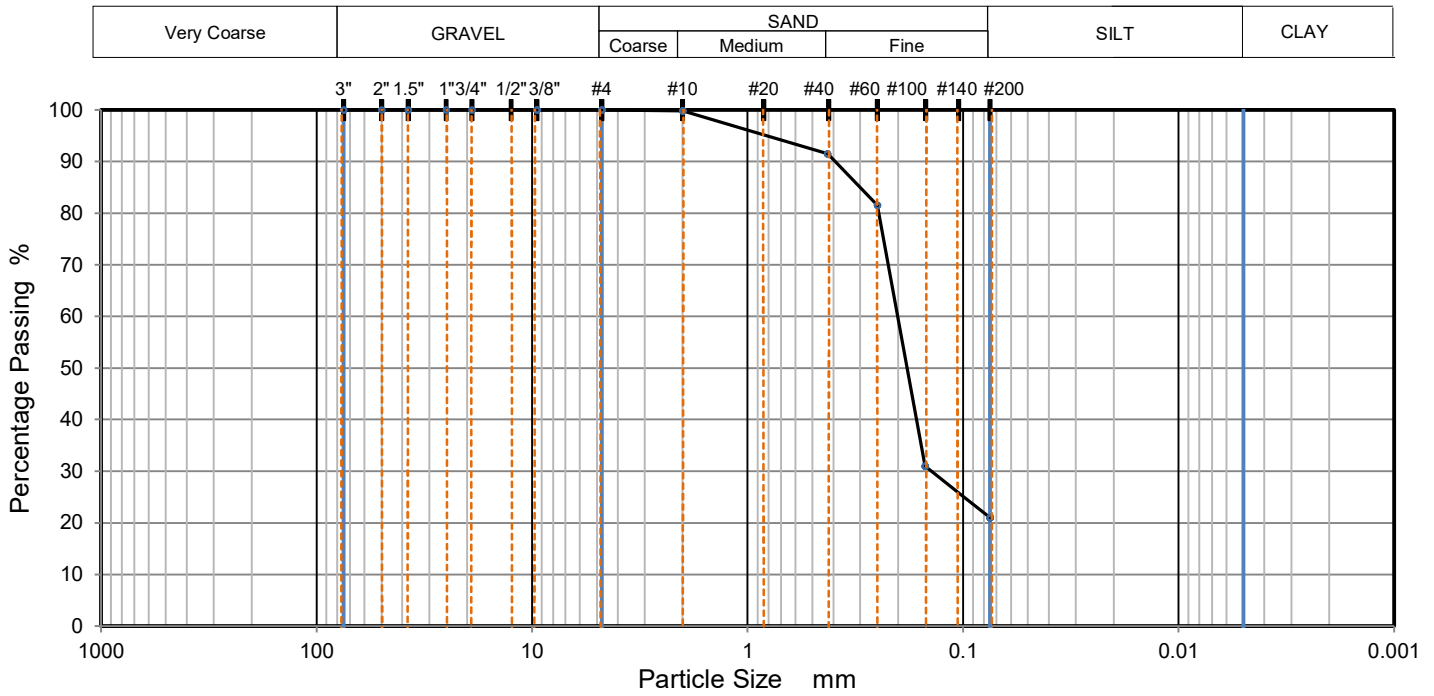
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	91.5		
#60	81.5		
#100	31.0		
#200	21.0		

Dry Mass of sample, g

296.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	8.3
Fine Sand, #40 to #200	70.5
Fines <#200	21.0

USCS	SM	Liquid Limit	NP	D90	0.393	D50	0.182	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.301	D30	0.140	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.201	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-20

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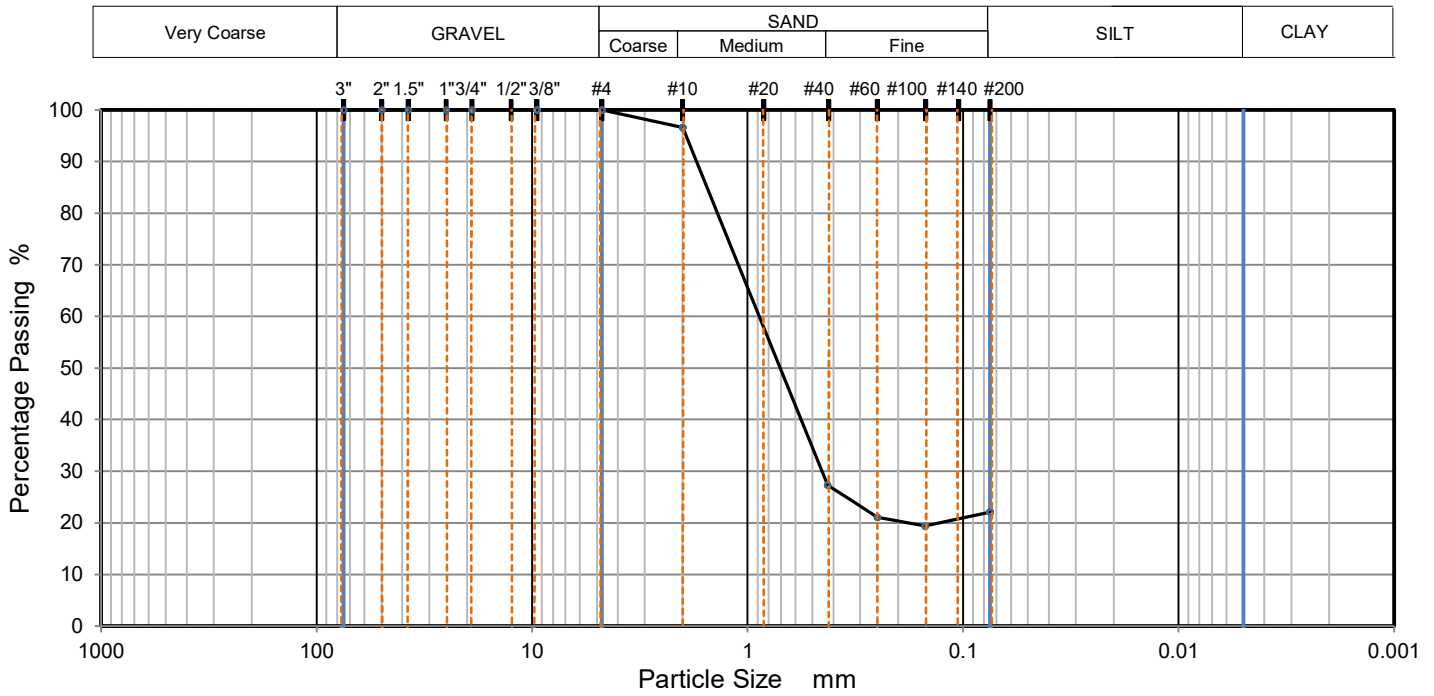
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	96.6		
#40	27.3		
#60	21.1		
#100	19.4		
#200	22.1		

Dry Mass of sample, g

314.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	3.4
Medium Sand, #10 to #40	69.3
Fine Sand, #40 to #200	5.2
Fines <#200	22.1

USCS	SM	Liquid Limit	NP	D90	1.726	D50	0.706	D10	
AASHTO	A-1-b	Plastic Limit	NP	D85	1.543	D30	0.451	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.883	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: R-20

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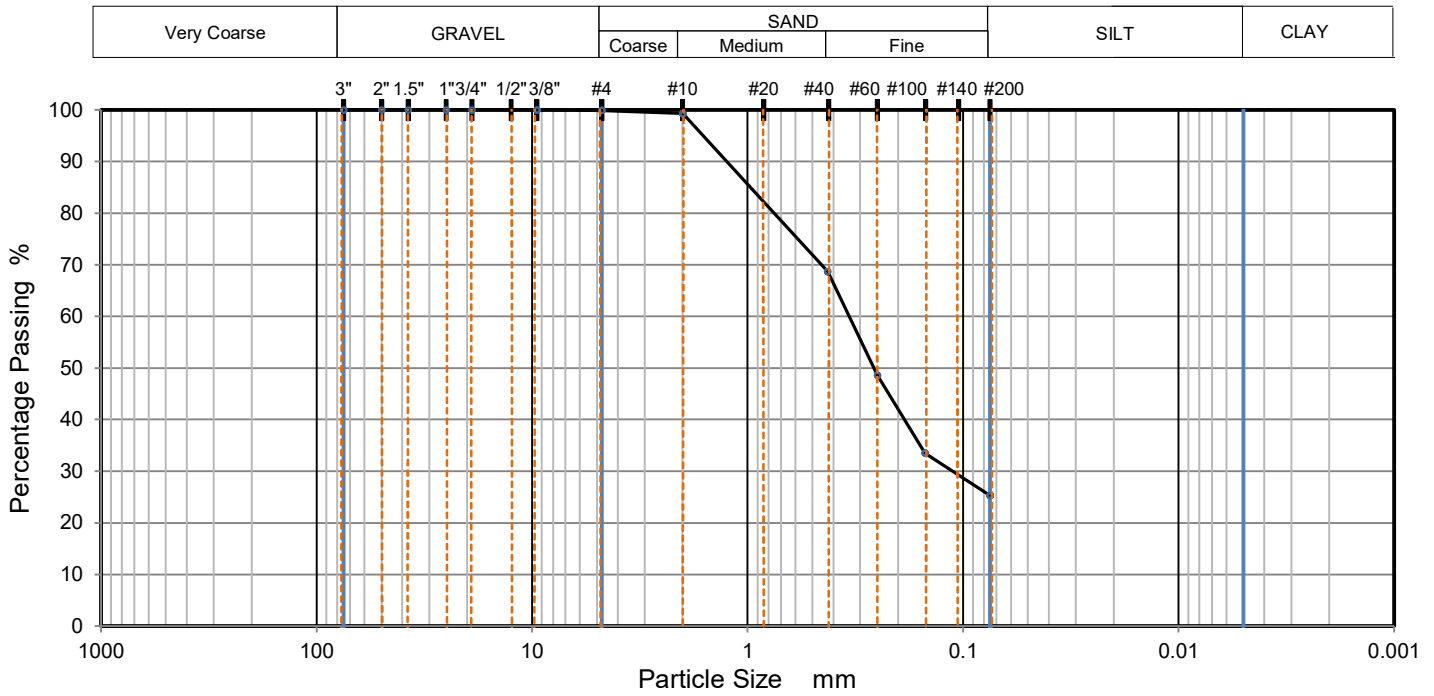
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.9		
#10	99.3		
#40	68.7		
#60	48.6		
#100	33.5		
#200	25.3		

Dry Mass of sample, g

303.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.1
Coarse Sand, #4 to #10 sieve	0.6
Medium Sand, #10 to #40	30.6
Fine Sand, #40 to #200	43.4
Fines <#200	25.3

USCS	SM	Liquid Limit	NP	D90	1.249	D50	0.259	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	0.970	D30	0.112	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.338	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 0 - 2

Sample Description:

Sample No.: SS-1

Sample Source: R-21

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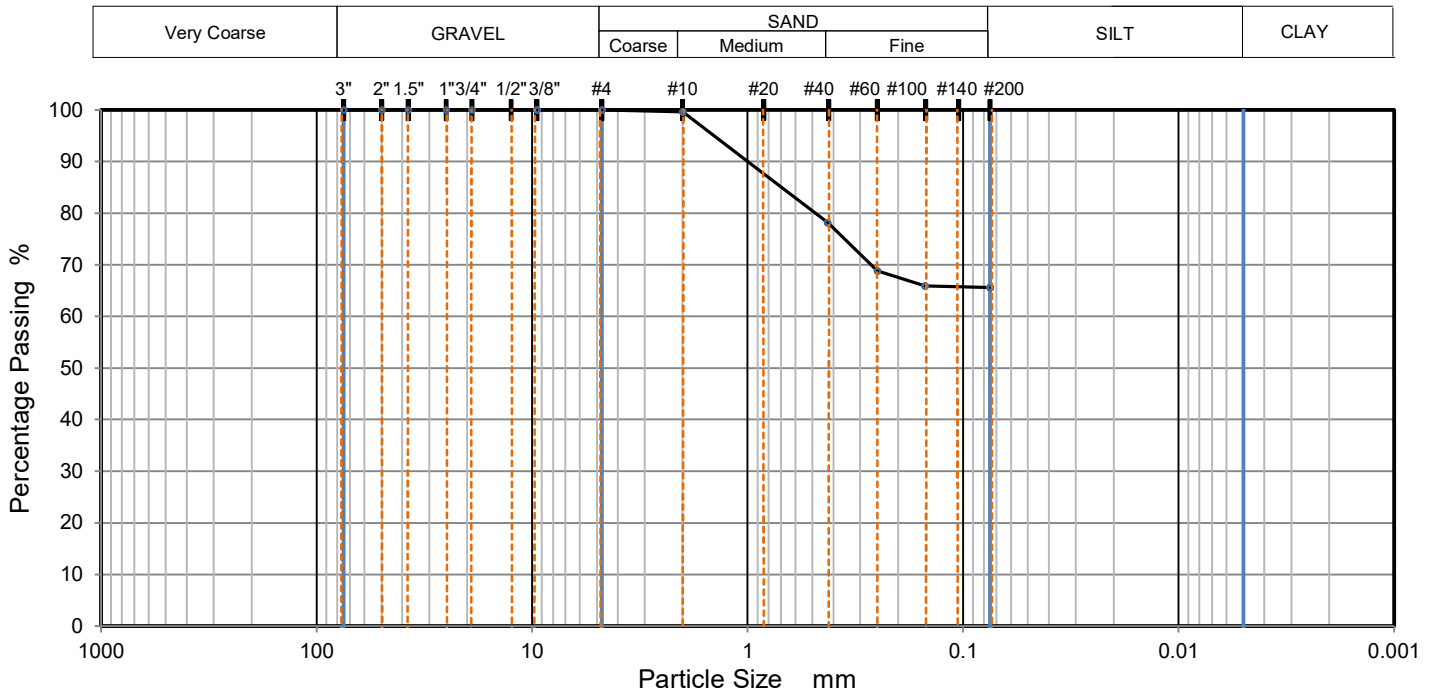
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.6		
#40	78.2		
#60	68.8		
#100	65.9		
#200	65.6		

Dry Mass of sample, g

284.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.4
Medium Sand, #10 to #40	21.4
Fine Sand, #40 to #200	12.6
Fines <#200	65.6

USCS	CL	Liquid Limit	38	D90	0.998	D50		D10	
AASHTO	A-6	Plastic Limit	19	D85	0.695	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	19	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-21

Date Reported: 3/13/2023



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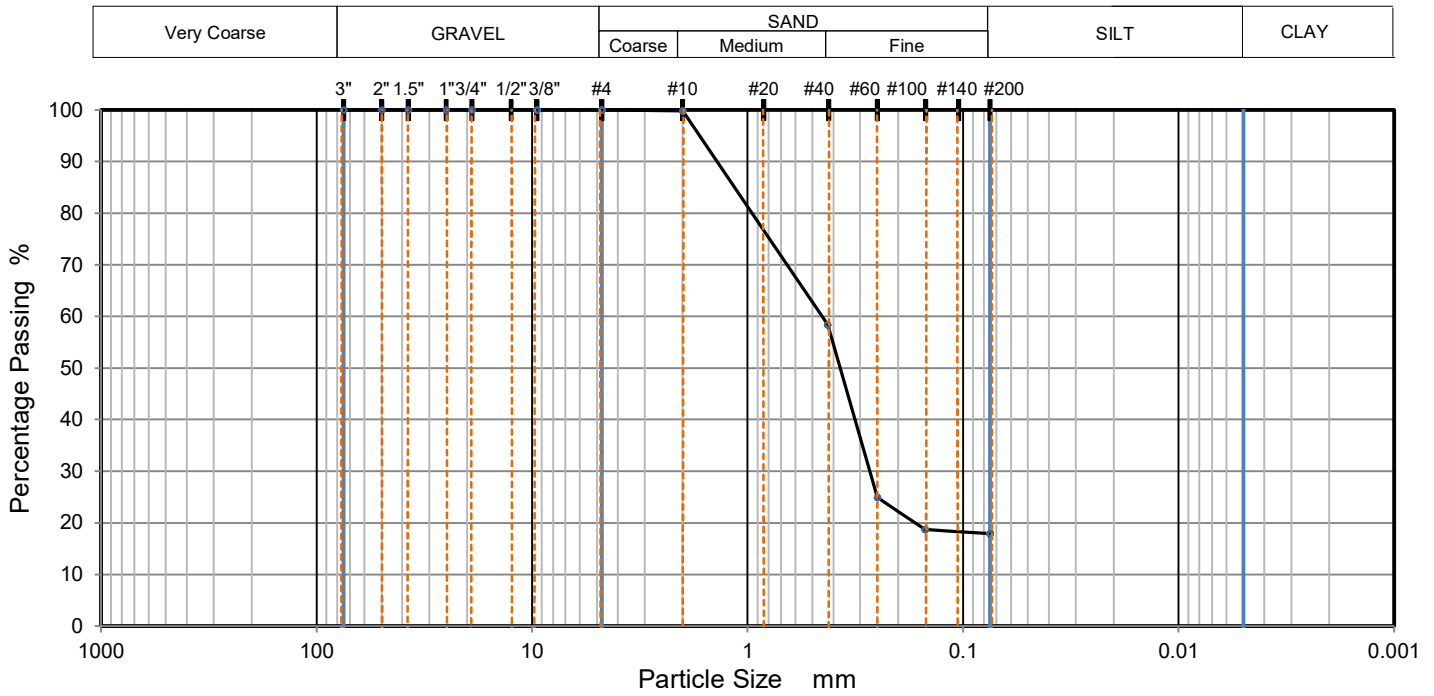
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (VTM-25)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.8		
#40	58.4		
#60	24.9		
#100	18.7		
#200	17.9		

Dry Mass of sample, g

271.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.2
Medium Sand, #10 to #40	41.4
Fine Sand, #40 to #200	40.5
Fines <#200	17.9

USCS	SM	Liquid Limit	NP	D90	1.386	D50	0.372	D10	
AASHTO	A-2-4	Plastic Limit	NP	D85	1.150	D30	0.271	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.451	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-21

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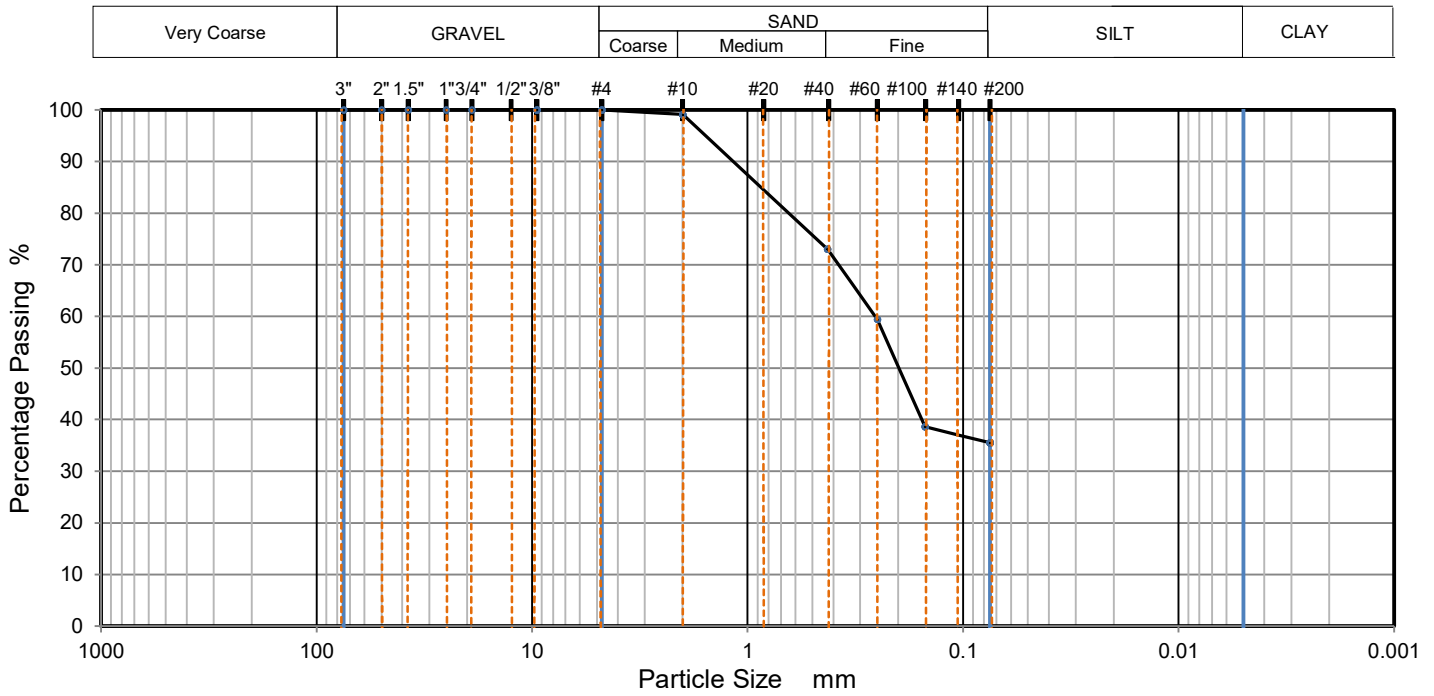
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.1		
#40	73.0		
#60	59.4		
#100	38.6		
#200	35.5		

Dry Mass of sample, g

296.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.9
Medium Sand, #10 to #40	26.1
Fine Sand, #40 to #200	37.5
Fines <#200	35.5

USCS	SC	Liquid Limit	33	D90	1.165	D50	0.199	D10	
AASHTO	A-6	Plastic Limit	16	D85	0.866	D30		Cu	
USCS Group Name	Clayey sand	Plasticity Index	17	D60	0.256	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 18 - 20

Sample Description:

Sample No.: SS-7

Sample Source: R-21

Date Reported: 3/13/2023



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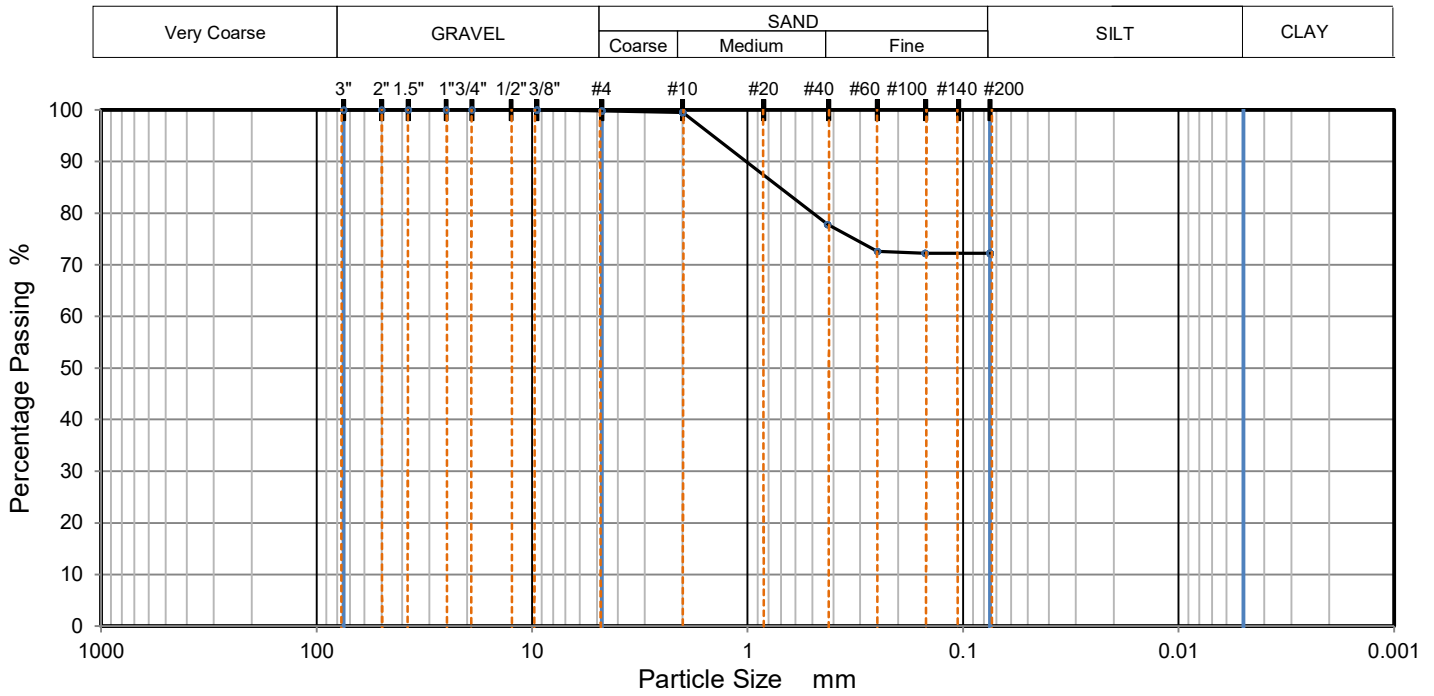
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.8		
#10	99.5		
#40	77.8		
#60	72.6		
#100	72.2		
#200	72.2		

Dry Mass of sample, g

266.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.2
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	21.7
Fine Sand, #40 to #200	5.6
Fines <#200	72.2

USCS	ML	Liquid Limit	46	D90	1.015	D50		D10	
AASHTO	A-7-6	Plastic Limit	28	D85	0.711	D30		Cu	
USCS Group Name	Silt with sand	Plasticity Index	18	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 2 - 4

Sample Description:

Sample No.: SS-2

Sample Source: R-22

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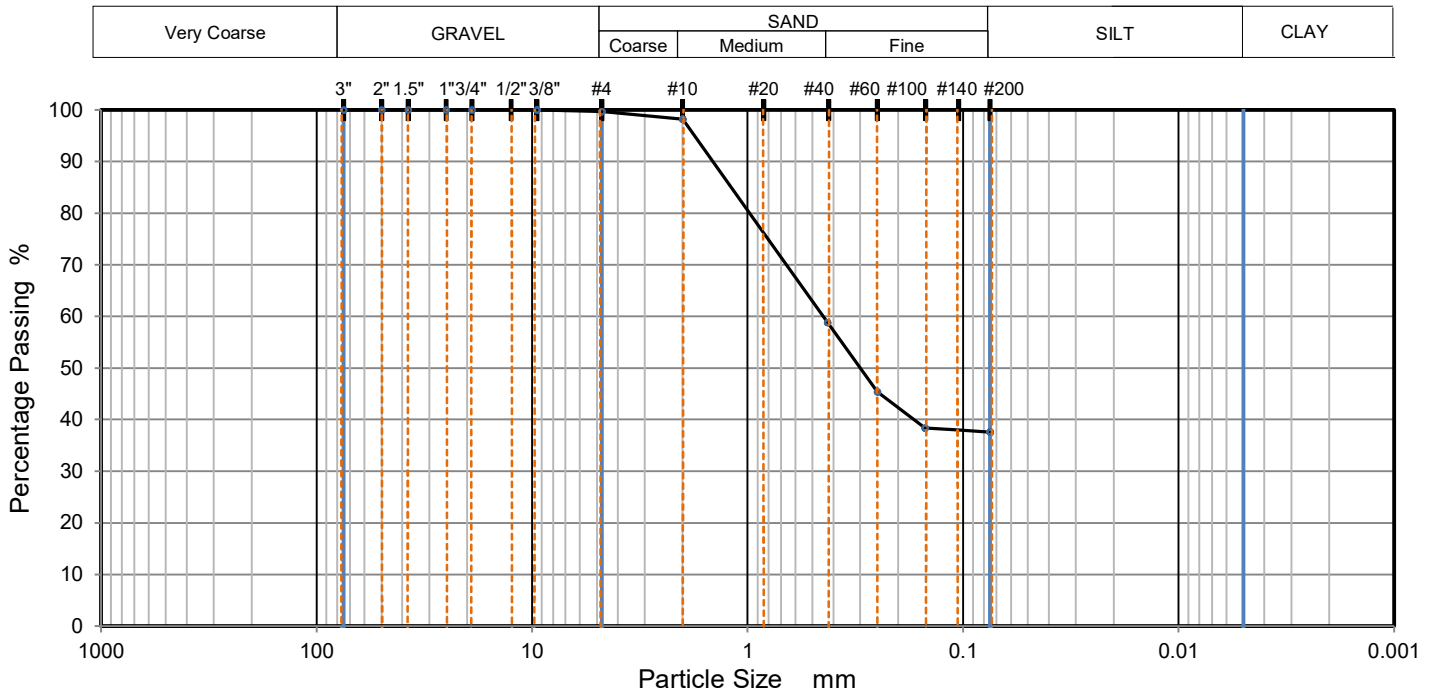
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM C136M - 19)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.7		
#10	98.2		
#40	58.8		
#60	45.4		
#100	38.4		
#200	37.6		

Dry Mass of sample, g

230.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.3
Coarse Sand, #4 to #10 sieve	1.5
Medium Sand, #10 to #40	39.4
Fine Sand, #40 to #200	21.2
Fines <#200	37.6

USCS	SM	Liquid Limit	NP	D90	1.449	D50	0.300	D10	
AASHTO	A-4	Plastic Limit	NP	D85	1.190	D30		Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.446	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 13 - 15

Sample Description:

Sample No.: SS-6

Sample Source: R-22

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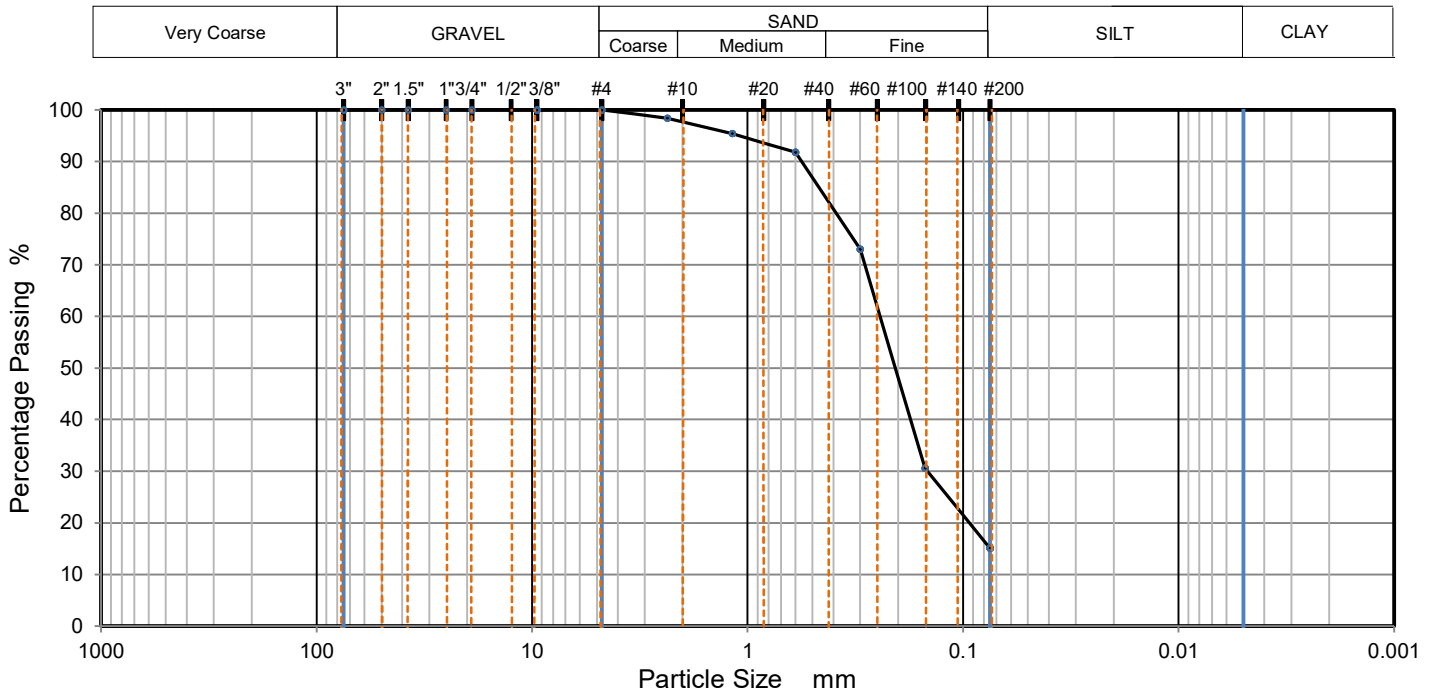
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	98		
#16	95		
#30	92		
#50	73		
#100	31		
#200	15		

Dry Mass of sample, g

120.4

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	15

USCS	SM	Liquid Limit	NP	D90	0.562	D50	0.206	D10	
AASHTO		Plastic Limit	NP	D85	0.467	D30	0.146	Cu	
USCS Group Name	Silty sand	Plasticity Index	NP	D60	0.243	D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28 - 30

Sample Description:

Sample No.: UD-2

Sample Source: B-5U

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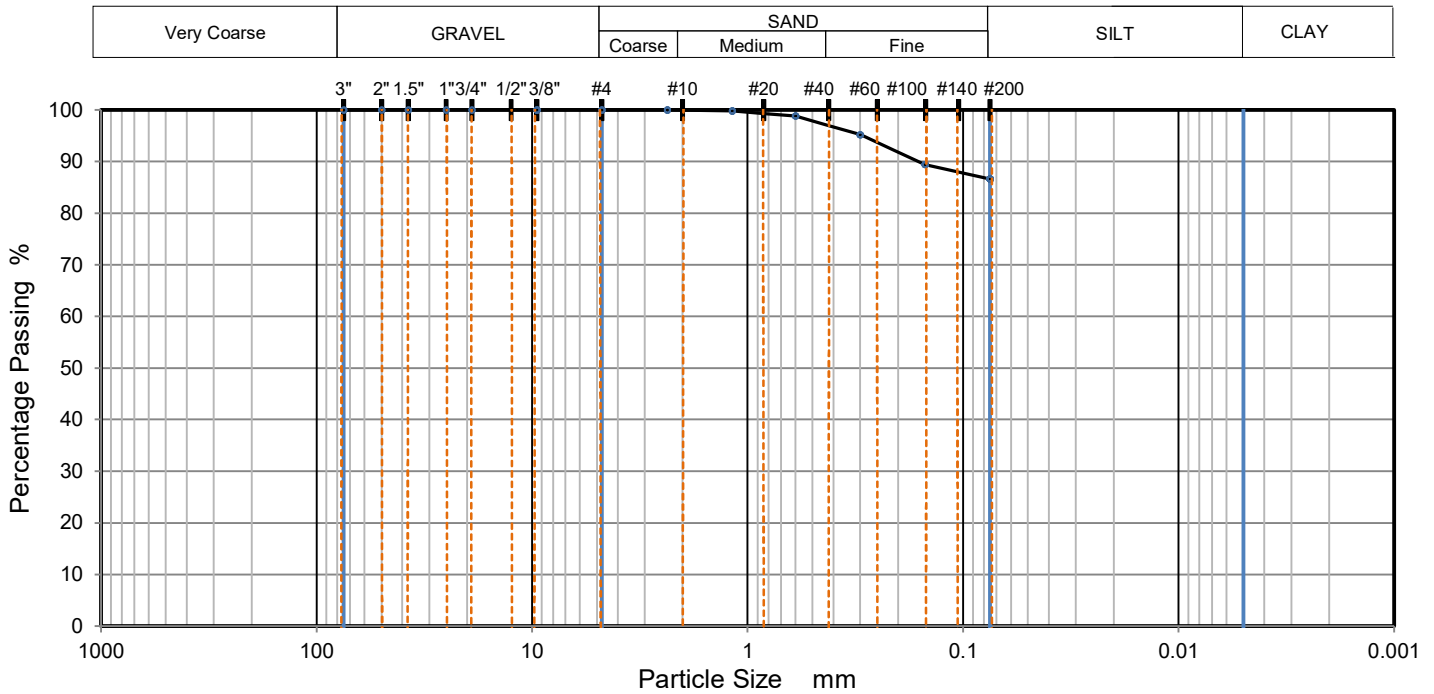
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PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	100		
#8	100		
#16	100		
#30	99		
#50	95		
#100	89		
#200	87		

Dry Mass of sample, g

100.8

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	0
Coarse Sand, #4 to #10 sieve	
Medium Sand, #10 to #40	
Fine Sand, #40 to #200	
Fines <#200	87

USCS	MH	Liquid Limit	88	D90	0.161	D50		D10	
AASHTO		Plastic Limit	39	D85		D30		Cu	
USCS Group Name	Elastic silt	Plasticity Index	49	D60		D15		Cc	

Project: I-95 & I-26 Design Build Prep - Preliminary Consulting

Project No.: 34:4266

Client: Civil Engineering Consulting Services

Depth (ft): 28-30

Sample Description:

Sample No.: UD-6

Sample Source: CPT-10U

Date Reported: 3/28/2023



Office / Lab

Address

Office Number / Fax

ECS Southeast LLP - Charleston

382U Faber Place Drive
Suite 200
North Charleston, SC
29405

(843)654-4448

(843)884-7990

Tested by	Checked by	Approved by	Date Received	Remarks
EBlackwood		EBlackwood		



**TIMELY
ENGINEERING
SOIL
TESTS, LLC**

1874 Forge Street Tucker, GA 30084

Phone: 770-938-8233

Fax: 770-923-8973

Web: www.test-llc.com



Tested By

IH

Date

02/13/23

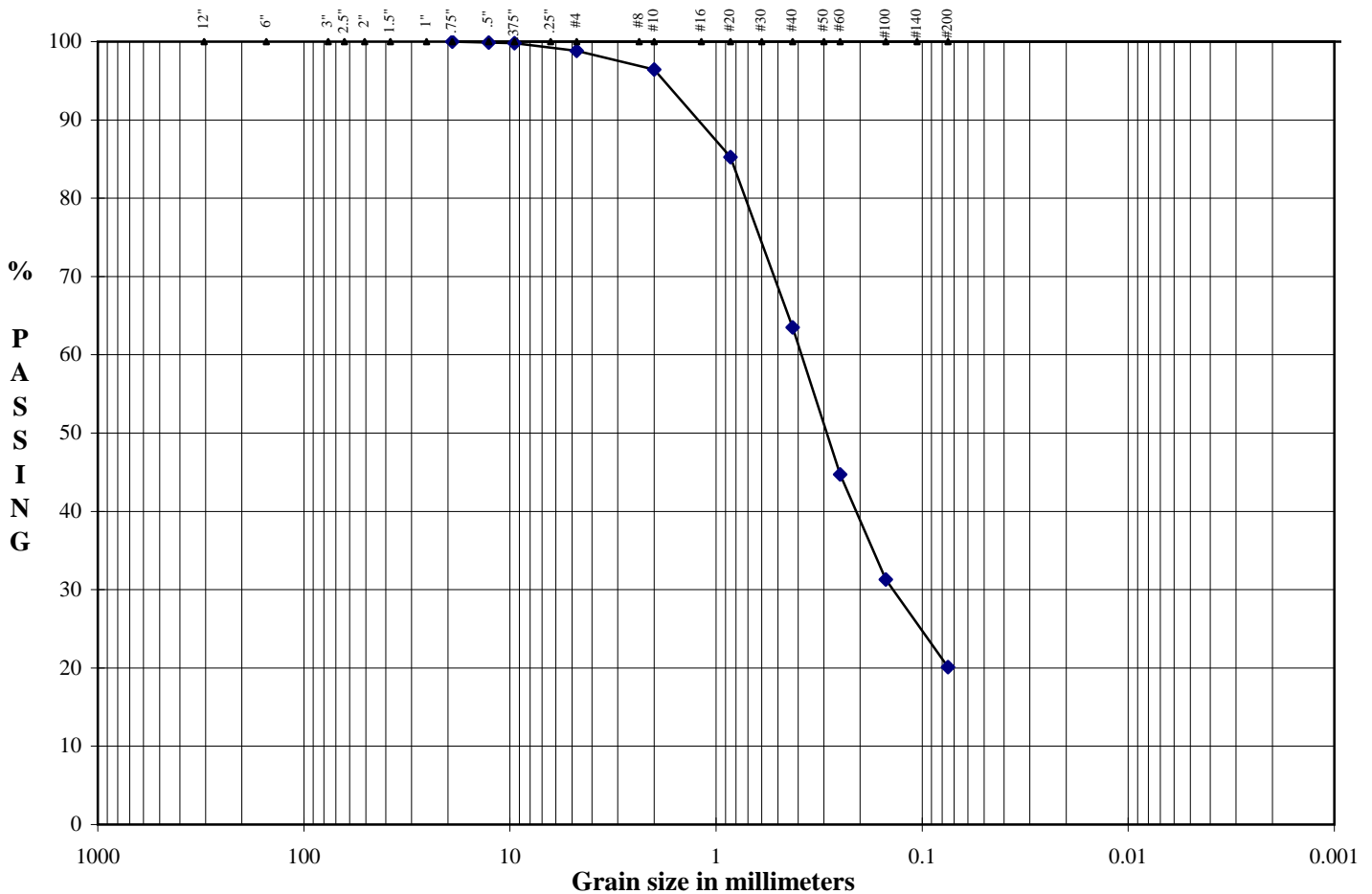
Checked By

IB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44729/B-01MA	Depth/Elev.	0-4'
Location	B-01MA	Add. Info	-

ASTM D 6913 (D 422 old version), D 1140, C 136, C 117 / AASHTO T 88, T 27, T 11, T 311
Standard Test Method for Particle-Size Analysis of Soils and Aggregates (Split Sieve)

Particle-Size Analysis



Boulders	Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
		Gravel		Sand			Fines

D ₁₀	NA	mm
D ₃₀	NA	mm
D ₆₀	NA	mm
Cu	NA	
Cc	NA	

Project's Specific % Passing NA

Project's Specific Particle Size, mm NA



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Date

02/10/23

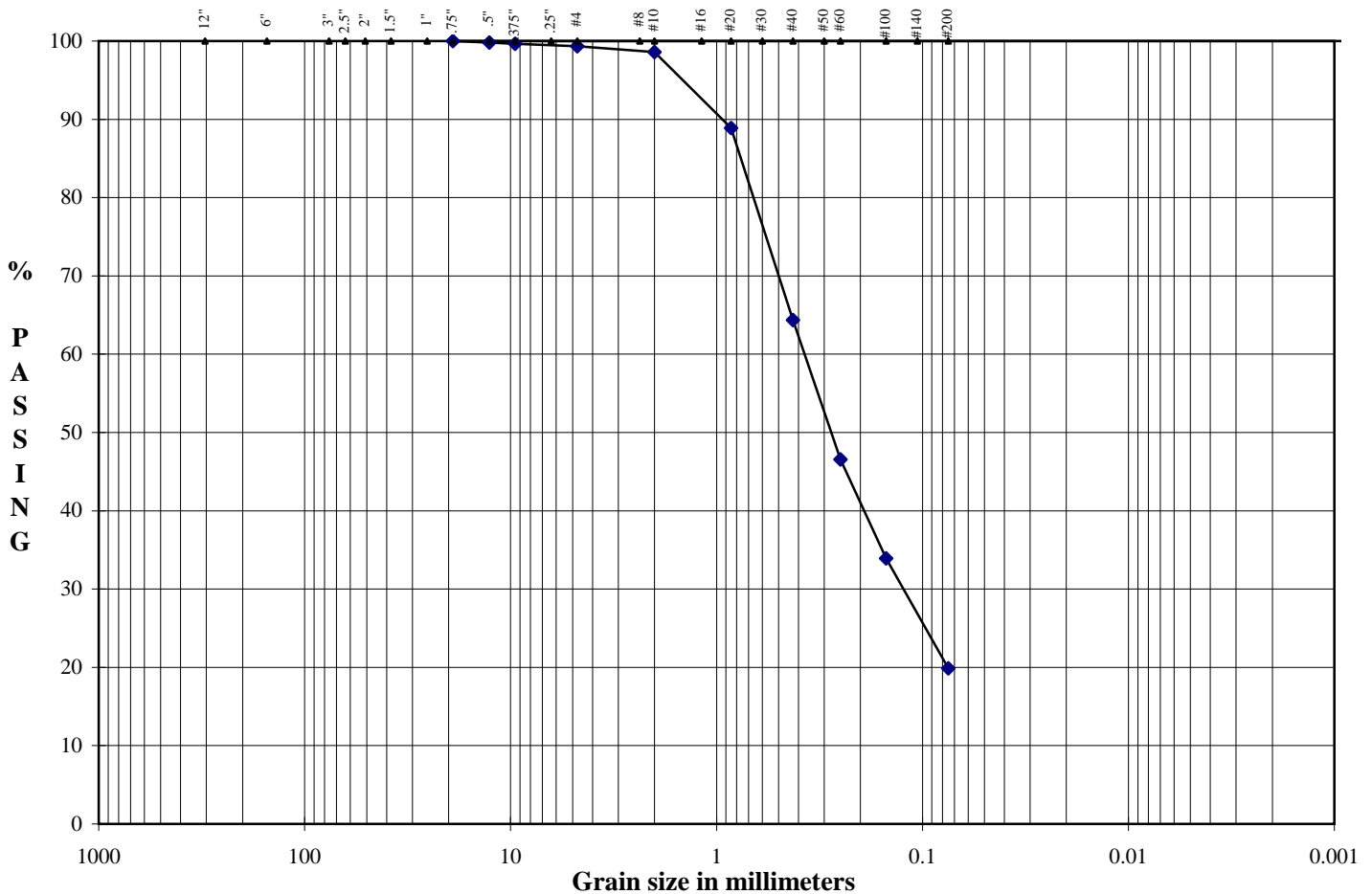
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IB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44731/B-06MA	Depth/Elev.	0-4'
Location	B-06MA	Add. Info	-

ASTM D 6913 (D 422 old version), D 1140, C 136, C 117 / AASHTO T 88, T 27, T 11, T 311
Standard Test Method for Particle-Size Analysis of Soils and Aggregates (Split Sieve)

Particle-Size Analysis



Boulders	Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
		Gravel		Sand			Fines

D ₁₀	NA	mm
D ₃₀	NA	mm
D ₆₀	NA	mm
Cu	NA	
Cc	NA	

Project's Specific % Passing NA

Project's Specific Particle Size, mm NA



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Date

02/13/23

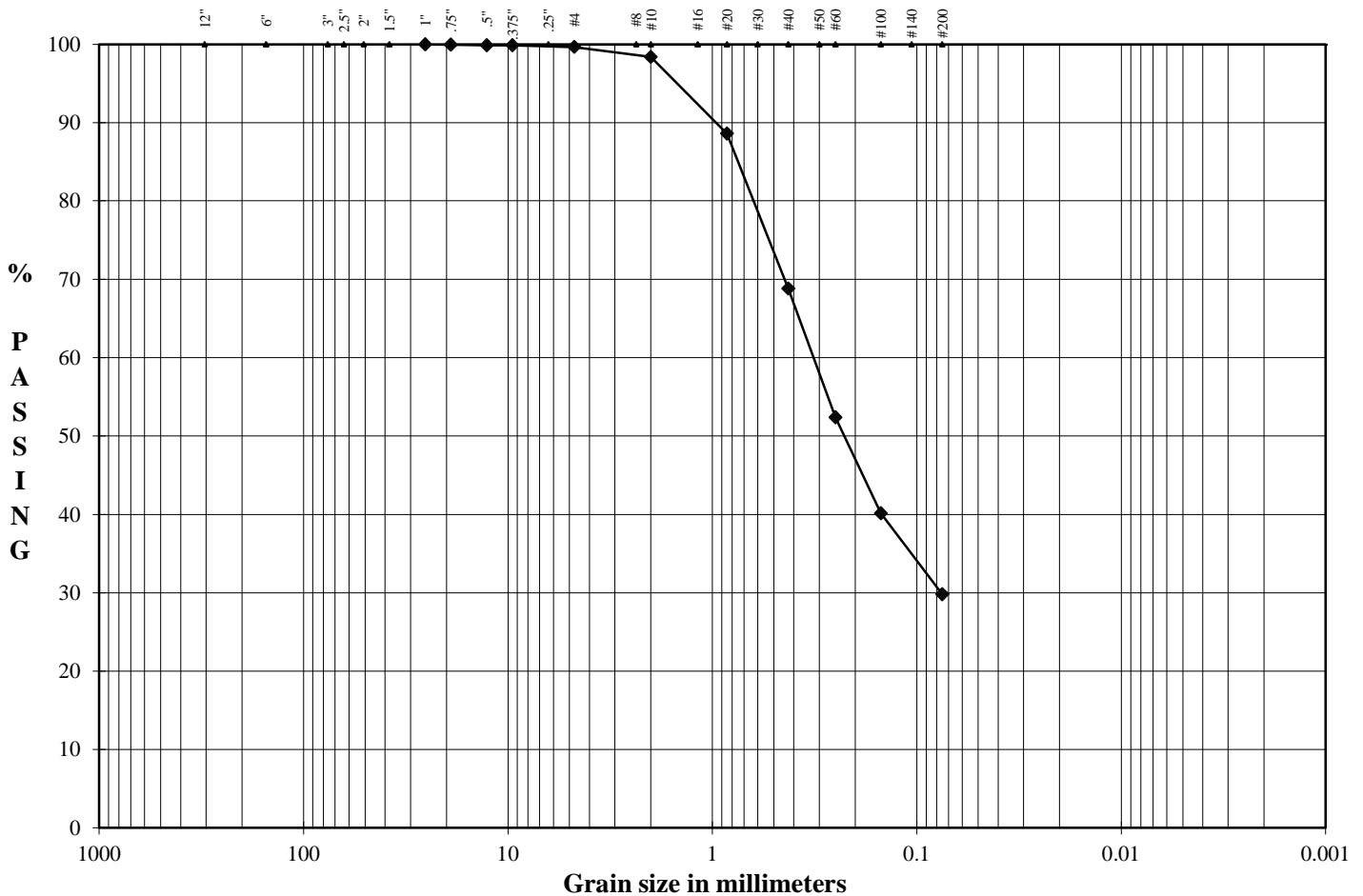
Checked By

IB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44730/B-07MA	Depth/Elev.	0-4'
Location	B-07MA	Add. Info	-

ASTM D 6913 (D 422 old version), D 1140, C 136, C 117 / AASHTO T 88, T 27, T 11, T 311
Standard Test Method for Particle-Size Analysis of Soils and Aggregates (Split Sieve)

Particle-Size Analysis



Boulders	Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
		Gravel		Sand			Fines

D ₁₀	NA	mm
D ₃₀	NA	mm
D ₆₀	NA	mm
Cu	NA	
Cc	NA	

Project's Specific % Passing NA

Project's Specific Particle Size, mm NA



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Tested By

IH

Date

02/10/23

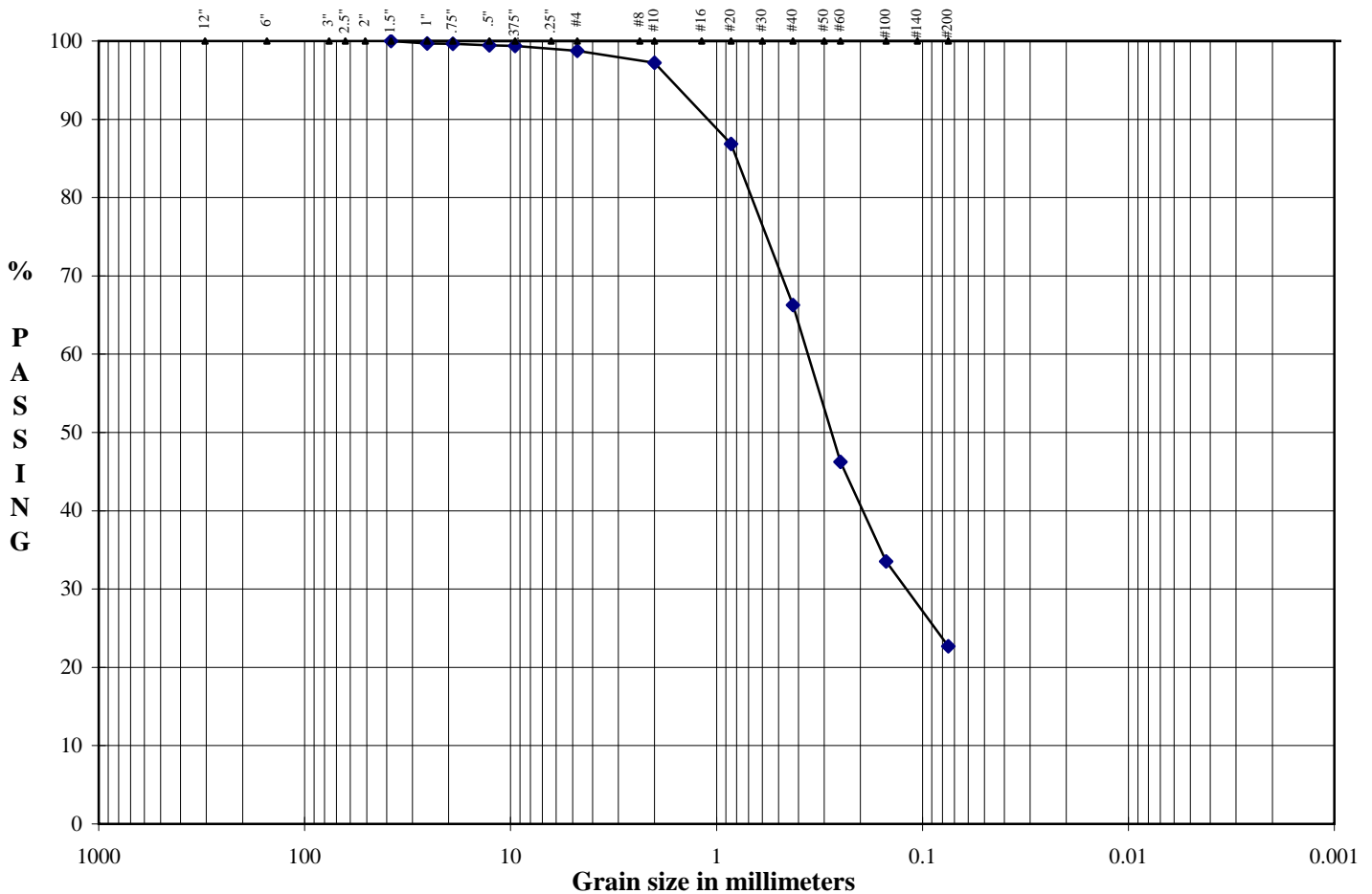
Checked By

IB

Client Pr. #	34:4266	Lab. PR. #	2320L-01-1
Pr. Name	I-26 and I-95 Interchange Improvements	S. Type	Bulk
Sample ID	44732/P-12MA	Depth/Elev.	0-4'
Location	P-12MA	Add. Info	-

ASTM D 6913 (D 422 old version), D 1140, C 136, C 117 / AASHTO T 88, T 27, T 11, T 311
Standard Test Method for Particle-Size Analysis of Soils and Aggregates (Split Sieve)

Particle-Size Analysis



Boulders	Cobbles	Coarse	Fine	Coarse	Medium	Fine	Silt or Clay
		Gravel		Sand			Fines

D ₁₀	NA	mm
D ₃₀	NA	mm
D ₆₀	NA	mm
Cu	NA	
Cc	NA	

Project's Specific % Passing NA

Project's Specific Particle Size, mm NA

Appendix VII – Hammer Calibrations

ECS CME 75 Hammer Calibration Report

ECS CME 750X Hammer Calibration Report

ECS Diedrich D-50 Hammer Calibration Report






GRL
engineers, inc.

SPT Energy Calibration Services



Job No. 229037-1
July 29, 2022

**Project: Standard Penetration Test Energy Measurements
 CME 75 (SN 156727)
 Richmond County, North Carolina**

Prepared For: ECS Southeast, LLC

By: Joel S. Webster, P.E. & Scott D. Webster, P.E.

www.grlengineers.com



July 29, 2022

Mr. Mohammed A Mulla, P.E., PhD.
ECS Southeast, LLP
5260 Greens Dairy Road
Raleigh, NC 27616

**Re: Standard Penetration Test Energy Measurements
CME 75 – SN 156727**
Richmond County, North Carolina

GRL Job No. 229037-1

Dear Mr. Mulla:

This report presents results of energy measurements obtained on July 21, 2022, during Standard Penetration Test (SPT) sampling. One automatic hammer mounted on a drill rig owned by ECS Southeast, LLC was tested. The drill rig was a truck mounted CME 75 (SN 156727). All dynamic tests were performed on AW drill rods having J threads. GRL Engineers, Inc. obtained the dynamic measurements using an 8G Model Pile Driving Analyzer® and an instrumented AW-J rod subsection. This report describes the testing procedures and summarizes the test results. Appendix A describes our measurement and analysis methods, Appendix B contains the instrumentation calibrations and certificates, and Appendix C contains a summary of the field data.

PURPOSE AND SCOPE OF WORK

At the request of ECS Southeast, GRL Engineers conducted SPT energy measurements in general accordance with ASTM D4633-16 during SPT sampling at a site near the intersection of Airport Road and Energy Way in Richmond County, North Carolina. The drilling method used to advance the boring was hollow stem auger. SPT energy measurements were performed at 5-foot sampling intervals between 58.5 and 90.0 feet. A total of seven energy measurement events were performed for this drill rig. However, only sampling intervals with instrumented lengths greater than 30 feet are included in the analysis for this report. Additionally, only sampling intervals with SPT N-Values between 8 and 50 blows per foot for the final foot of driving have been included. The SPT samples were driven for a total of three, 6-inch increments, or 1.5 feet, and the blow counts for each increment were recorded. This testing was performed by Joel Webster, P.E.

Instrumentation

An 8G Model Pile Driving Analyzer (PDA) (S/N 5193 LE) data acquisition system manufactured by Pile Dynamics, Inc. was used to collect and process the dynamic measurements of force and velocity. A two-foot-long subsection of standard AW rod with J tapered threads (S/N 168AWJ) was instrumented with two full bridge foil resistance strain gages (S/N 168AWJ1 and 168AWJ2) and two piezoresistive accelerometers (S/N K4805 and K10509) mounted in the midpoint of the instrumented rod.

RESULTS

Upon return to the office, the records collected by the PDA were checked for consistency and accuracy. For example, records from very weak startup or final impacts were not included in average results. The results include the EFV (transferred energy by the FV method, as recommended by ASTM D4633-16), ETR (energy transfer ratio for the EFV method), BLC (increment blow count), BPM (hammer operating

rate), FMX (maximum rod-top force) and VMX (maximum rod-top velocity). Appendix C contains summary plots of the ETR with respect to rod length, summary plots of sampling results (BLC, BPM, FMX, VMX, EFV, ETR) with respect to depth below grade, a representative plot of force and normalized velocity versus time, as well as tables of results for all hammer blows at each dynamically monitored sampling depth. The tables show statistical summaries for the last two 6-inch increments over which the SPT N value is calculated. At the end of each table is a statistical evaluation of these results which include the average and standard deviation.

The table below summarizes the average transferred energy values calculated by the EFV method. The Energy Transfer Ratio (ETR) is defined as the ratio of maximum transferred energy EFV divided by the theoretical hammer potential energy of 350 foot-pounds (i.e., computed from the 140-pound SPT hammer and the standard 30 inch drop as specified by ASTM D1586-99).

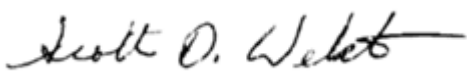
Drill Rig	Avg. EFV (ft-lbs)	Avg. ETR (%)	Range of EFV (ft-lbs)	Range of ETR (%)
CME 75 S/N 156727	321	92	309 – 352	88 – 100

Please review both ASTM D4633-16 and ASTM D1586-99 prior to applying these test results. The energy calibrations reported herein are valid for the same hammer/drill rig, with the same drill operator, same anvil dimensions, and same drilling methods.

We appreciate the opportunity to be of assistance to you on this project. Please contact our office should you have any questions regarding this submittal, require additional information, or if we may be of further service.

Sincerely,

GRL Engineers, Inc.



Scott Webster, P.E.



Joel S. Webster, P.E.



GRL Engineers, Inc. – NC
PE License Number C-2391

Appendix A
An Introduction into SPT Pile Testing

APPENDIX A

AN INTRODUCTION INTO SPT DYNAMIC PILE TESTING

The following has been written by GRL Engineers, Inc. and may only be copied with its written permission.

1. BACKGROUND

The Standard Penetration Test is frequently conducted as an in-situ assessment of soil strength. This test requires that a 140 lb weight is dropped 30 inches onto a drive rod at whose bottom a sampler is usually installed. The sampler is driven for 18 inches; the number of blows required for the last 12 inches of driving is the so-called N-value. The N-value may be used as a strength indicator for foundation design or as a means of assessing the liquefaction potential of soils.

Obviously, the SPT hammer efficiency is an important consideration when using the N-values for design purposes. Measurements have indicated that the energy in the drive rod is sometimes only 30% and may reach 90% of the potential or rated energy of the SPT hammer (E-rated = 0.35 kip-ft or 0.475 kJ). The type of hammer used to drive the rod is the main reason for these variations. On the average, the energy in the drive rod is 60% of the standard rated energy.

Because of the variability of energy, methods based on N-values are considered unreliable. However, measurements during SPT testing using the Case Method can be done on a routine basis and these measurements yield the transferred energy values. With measured energy, E_m , known, an adjustment of the measured N-value, N_m , can be made as follows.

$$N_{60} = N_m [E_m / (0.6E_r)] \quad (1)$$

Thus, if the measured energy value is equal to the normally expected transferred energy of 60% of E-rated then the adjusted and measured N-values are identical. On the other hand, if the measured energy is only 30% then the adjusted blow count will be reduced by 50%.

2. DYNAMIC TESTING AND ANALYSIS METHODS APPLIED TO SPT

The Case Method of dynamic pile testing, named after the Case Institute of Technology where it was

developed between 1964 and 1975, requires that a substantial ram mass (e.g. a pile driving hammer) impacts the pile top such that the pile undergoes at least a small permanent set. Thus, the method is also referred to as a "High Strain Method". The Case Method requires dynamic measurements on the pile or shaft under the ram impact and then a calculation of various quantities. Conveniently, for SPT applications, the measurements and analyses are done by a single piece of equipment: the SPT Analyzer. The Pile Driving Analyzer® (PDA) is also suitable to perform these measurements and data processing.

A related analysis method is the "Wave Equation Analysis" which calculates a relationship between bearing capacity, pile stresses, transferred energy and field blow count. The GRLWEAP™ program performs this analysis and provides a complete set of helpful information and input data. This program can be used very effectively to simulate the SPT driving process.

3. MEASUREMENTS

GRL uses equipment manufactured by Pile Dynamics, Inc. The system includes either an SPT-Analyzer™ (SPTA) or a Pile Driving Analyzer® (PDA), an instrumented rod section and two accelerometers. SPT energy testing is very closely related to and borrows procedures from dynamic pile testing. Those interested in the basis of the SPT energy testing method may obtain extensive literature on dynamic pile testing from GRL Engineers, Inc.

3.1 SPT Analyzer or Pile Driving Analyzer

The basis for the results calculated by the SPTA or PDA are strain and acceleration measured in an instrumented rod section. These signals are converted to rod top force, $F(t)$, and rod top velocity, $v(t)$. The SPTA or PDA conditions, calibrates and displays these signals and immediately computes average pile force and velocity thereby eliminating bending effects. The product of these two

measurements is then integrated over time which yields the energy transferred to the instrumented section as a function of time (see Section 4.1).

For convenience and accuracy, strain measurements are usually taken on an instrumented section of SPT drive rod. Ideally, the section properties of the instrumented rod and those of the drive rod are the same, however, using subs, other sections can also be utilized.

For the instrumented section, PDI provides a force calibration in such a way that the output of the instrumented rod is directly calculated without the need for an accurate elastic modulus or cross sectional area of the rod section.

The acceleration measurements are often demanding in the SPT environment, because of high frequency and high acceleration motion components. An experienced measurement engineer, therefore, has to evaluate the quality of this data before final conclusions are drawn from the numerical results calculated by SPTA or PDA.

SPTA or PDA records are taken while the standard N-value is acquired in the conventional manner. This then allows a direct correlation between N-value and average transferred energy.

3.2 HPA

The SPT hammer's ram velocity may be directly obtained using radar technology in the Hammer Performance Analyzer™. The impact velocity results can be automatically processed with a PC or recorded on a strip chart. HPA measurements yield a hammer kinetic energy, but not the energy transferred to the drive rod.

4 RECORD EVALUATION BY SPTA OR PDA

4.1 HAMMER PERFORMANCE

The PDA calculates the energy transferred to the pile top from:

$$E(t) = \int_0^t F(\tau)v(\tau) d\tau \quad (2)$$

The maximum of the $E(t)$ curve is often called **ENTHRU or EMX**; it is the most important quantity for an overall evaluation of the performance of a hammer

and driving system. **EMX** allows for a classification of the hammer's performance when presented as, e_T , the rated transfer efficiency, also called energy transfer ratio (**ETR**) or global efficiency.

$$e_T = EMX/E_R \quad (3)$$

where E_R is the hammer manufacturer's rated energy value or 0.35 kip-ft (0.475 kJ) in the case of the SPT hammer.

Often in the SPT literature one finds also reference to the EF2 energy. This evaluation is based on assumed proportionality between force and velocity (see also Section 5):

$$v(t) = F(t) / Z \quad (4)$$

where $Z = EA/c$ is the pile impedance, E is the elastic modulus, A is the cross sectional area and c is the speed of the stress wave in the pile material..

Combining equations 2 and 4 leads to

$$EF(t) = \int_0^t F(\tau)^2 / Z d\tau \quad (5)$$

The EF2 transferred energy value is the EF-value at the time $t = 2L/c$, where L is the drive rod length and c is the stress wave speed in steel (16,800 ft/s or 5,124 m/s). Since the force is easier to measure than both force and velocity, Equation 5 is preferred by some test engineers. However, the EF method is fraught with errors and certain correction factors have to be applied to make it approximately correct. Among the error sources are the following:

- Proportionality is often violated prior to time $2L/c$. The proportionality between force and velocity in a downward traveling wave only holds if the wave does not encounter a disturbance prior to reflecting off the pile toe. Such disturbances include a change in cross sectional area, an open or loose splice or joint, or resistance along the shaft.
- Using only one force measurement precludes a data quality check based on the proportionality between force and velocity. Thus, a force measurement that is for some reason in error may not be detectable, which will lead to errors in the EF2 value. Data quality checks will be discussed further in Section 5.

The use of EF2 is therefore not recommended but it is often included in result presentations for the sake of completeness.

4.2 STRESSES

During SPT monitoring, it is also of interest to monitor compressive stresses at both the top of the drive rod and at its bottom.

At the pile top (location of sensors) the maximum compression stress averaged over the rod's cross section, **CSX**, is directly obtained from the measurements. Note that this stress value refers to the instrumented section. If the rod has a different cross sectional area then the stress in the rod will be different from CSX.

The SPTA or PDA can also calculate, in an approximate manner, the force at the rod bottom, **CFB**. To obtain the corresponding stress, this force value should be divided by the appropriate cross sectional area, e.g. by the rod area just above the sampler or by the sampler area itself. Of course, non-uniform stress components as they might occur at the sampler tip due to a sloping rock are not considered in this calculation.

5. DATA QUALITY CHECKS

Quality data is the first and foremost requirement for accurate dynamic testing results. It is therefore important that the measurement engineer performing SPTA or PDA tests has the experience necessary to recognize measurement problems and take appropriate corrective action should problems develop. Fortunately, dynamic pile testing allows for certain data quality checks because two independent measurements are taken that have to conform to the so-called proportionality relationship.

As long as there is only a wave traveling in one direction, as is the case during impact when only a downward traveling wave exists in the rod, force and velocity measured at its top are proportional

$$F = v Z \quad (5)$$

where Z is again the pile impedance, $Z = EA/c$. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v (E/c) \quad (6)$$

or strain

$$\epsilon = \sigma/E = v / c \quad (7)$$

This means that the early portion of strain times wave speed must be equal to the velocity unless the proportionality is affected by high friction near the pile top or by a pile cross sectional change not far below the sensors. Checking the proportionality is an excellent means of assuring meaningful measurements but is only truly meaningful for perfectly uniform rods. Open or loose splices, for example, will lead to a non-proportionality. For SPT rods it is fortunate that usually no soil resistance acts along the shaft and for that reason, proportionality can exist until the stress wave returns from sampler top or rod bottom unless connectors are not sufficiently tightened or have a significant mass.

Velocity data quality can also be checked by looking at the final displacement, DFN, which is calculated from the acceleration by double integration. If the calculated final displacement is much higher or lower than indicated by the N-value, the accelerometer attachment may be loose or the sensor may be faulty. If major drift in the velocity is observed, the EMX value may be in error, even though proportionality from impact to time $2L/c$ exists. In this case, it may be useful to evaluate the energy transferred to the drill rod at time $2L/c$, which is calculated by the PDA or SPTA as the E2E quantity.

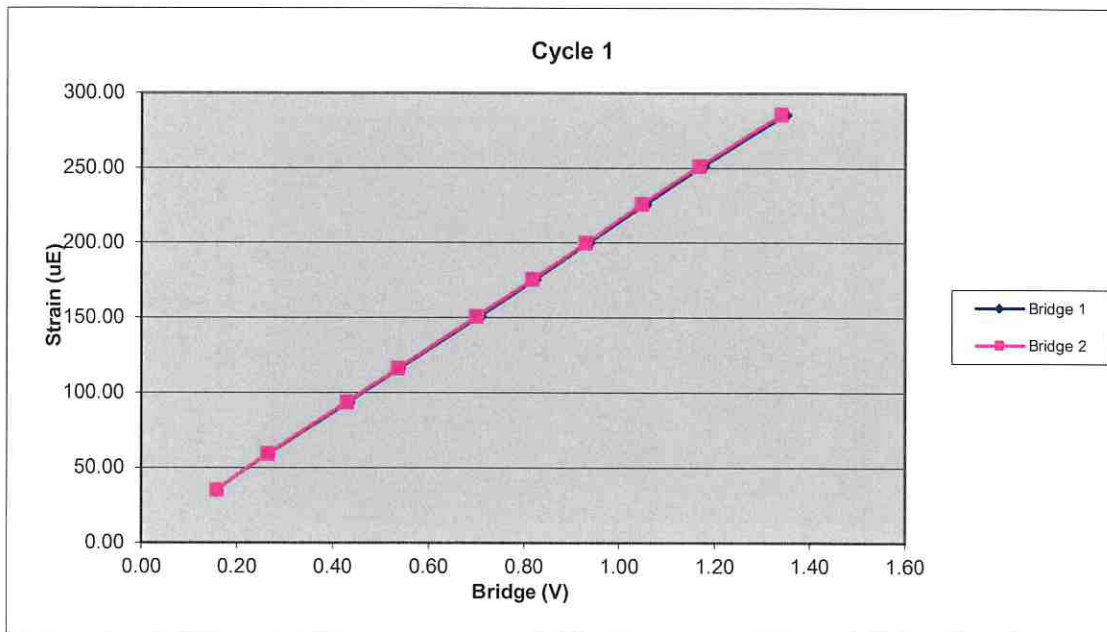
APPENDIX B

Instrumentation Calibration Information

168AWJ		Cycle 1		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1196.32	34.91	0.16	0.16
3	2006.35	58.87	0.26	0.26
4	3277.05	93.19	0.43	0.43
5	4095.36	115.66	0.54	0.53
6	5368.40	150.50	0.71	0.70
7	6254.75	175.14	0.82	0.82
8	7123.46	199.56	0.93	0.93
9	8029.80	225.48	1.05	1.05
10	8955.53	250.91	1.17	1.17
11	10278.58	285.27	1.35	1.34

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7636.98	Force Calibration (lb/V)	7681.56
Offset	-10.39	Offset	-7.11
Correlation	0.999998	Correlation	1.000000
Strain Calibration ($\mu\text{E}/\text{V}$)	210.98	Strain Calibration ($\mu\text{E}/\text{V}$)	212.21
Offset	2.34	Offset	2.43
Correlation	0.999960	Correlation	0.999963

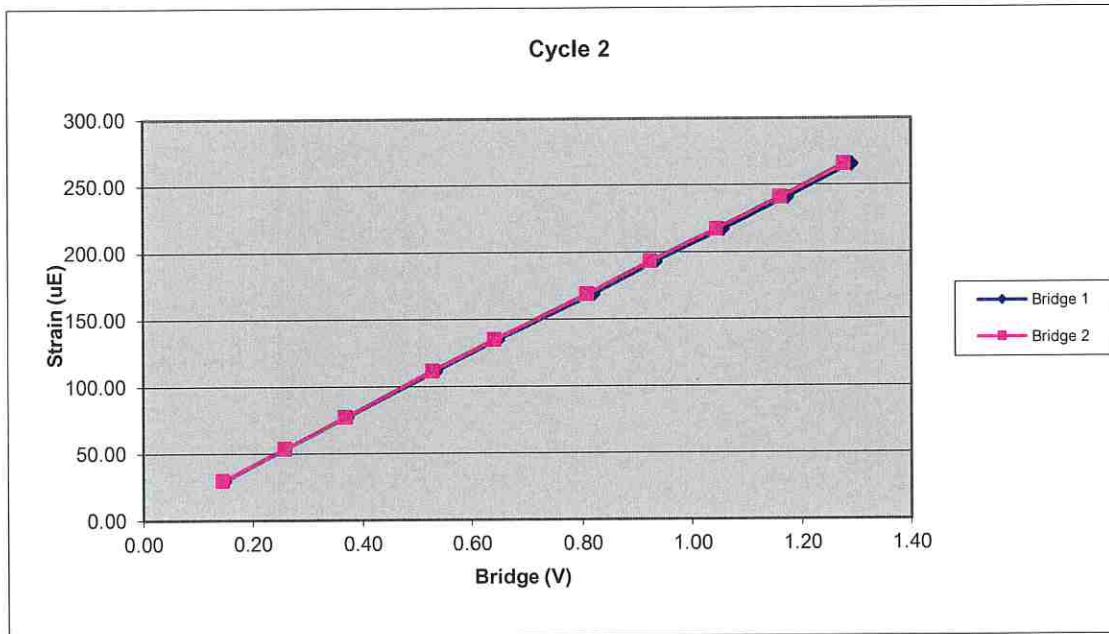
Force Strain Calibration	
EA (Kips)	36194.84
Offset	-94.57
Correlation	0.999959



168AWJ		Cycle 2		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1109.47	29.07	0.15	0.14
3	1967.17	52.87	0.26	0.26
4	2813.55	76.52	0.37	0.37
5	4041.75	110.93	0.53	0.53
6	4906.95	134.25	0.65	0.64
7	6205.14	168.08	0.82	0.81
8	7079.89	192.48	0.93	0.92
9	8004.16	216.71	1.06	1.04
10	8895.58	240.38	1.17	1.16
11	9788.95	265.05	1.29	1.28

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7585.36	Force Calibration (lb/V)	7679.61
Offset	-2.10	Offset	-3.63
Correlation	0.999998	Correlation	0.999997
Strain Calibration ($\mu\text{E}/\text{V}$)	205.52	Strain Calibration ($\mu\text{E}/\text{V}$)	208.07
Offset	0.07	Offset	0.03
Correlation	0.999949	Correlation	0.999957

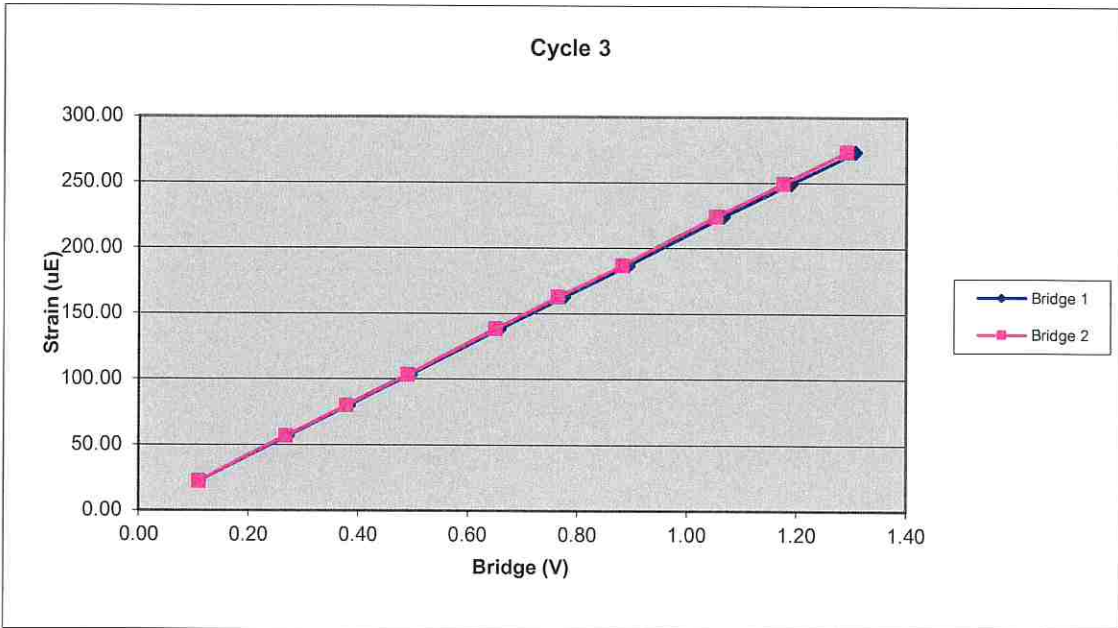
Force Strain Calibration	
EA (Kips)	36904.95
Offset	-4.08
Correlation	0.999952



168AWJ		Cycle 3		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	824.16	22.13	0.11	0.11
3	2048.17	56.32	0.27	0.27
4	2886.56	79.66	0.38	0.38
5	3737.43	103.11	0.49	0.49
6	4981.03	138.03	0.66	0.65
7	5858.03	162.40	0.77	0.76
8	6754.90	186.72	0.89	0.88
9	8076.39	224.00	1.07	1.05
10	8998.61	249.12	1.19	1.17
11	9899.88	273.12	1.31	1.29

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7574.60	Force Calibration (lb/V)	7676.61
Offset	-1.93	Offset	-3.53
Correlation	0.999999	Correlation	0.999998
Strain Calibration ($\mu\text{E}/\text{V}$)	209.89	Strain Calibration ($\mu\text{E}/\text{V}$)	212.71
Offset	-0.40	Offset	-0.45
Correlation	0.999988	Correlation	0.999987

Force Strain Calibration	
EA (Kips)	36087.89
Offset	12.74
Correlation	0.999988



Bridge Excitation (V) 5
Shunt Resistor (ohm) 60.4k

Calibration Factors	168AWJ		
Bridge 1 ($\mu\text{E/V}$)	208.80	Bridge 2 ($\mu\text{E/V}$)	211.00
EA Factor (Kips)	36395.89	Area (in²)	1.21

Calibrated by: 
Calibrated Date: 12/9/2021

Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
Calibration performed on 01Dec2021

Serial No: K4805 Temperature: 20.3 °C
Model: PR Humidity: 31%
Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

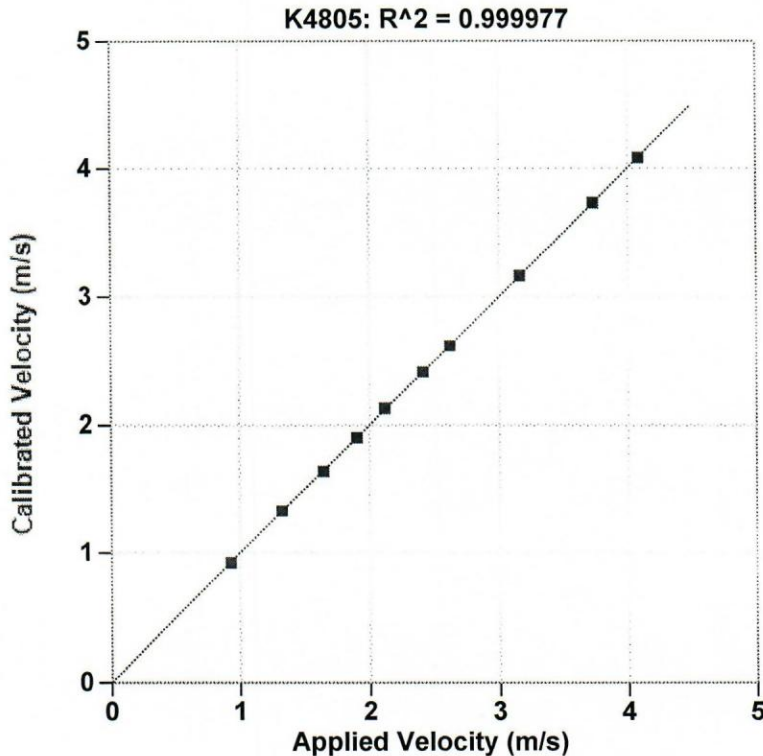
392.2 mv/5000g
(78.4 $\mu\text{v/g}$)
R²: 0.999977 [Chip programmed]

Ref Acc 1: 69096! Cal on: 27Jan2021
978 g's/volt
Ref Acc 2: 69132! Cal on: 09Feb2021
960 g's/volt

Operator: William Johnson

Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity m/s	S/N K4805 Velocity m/s
0.928	0.923
1.323	1.326
1.647	1.639
1.902	1.902
2.119	2.129
2.413	2.412
2.619	2.618
3.161	3.164
3.732	3.735
4.087	4.083

Maximum Acceleration: 900 g's

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
 Calibration performed on 06Jun2022

Serial No: K10509 **Temperature:** 70.0 °F
Model: PR **Humidity:** 47%
Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

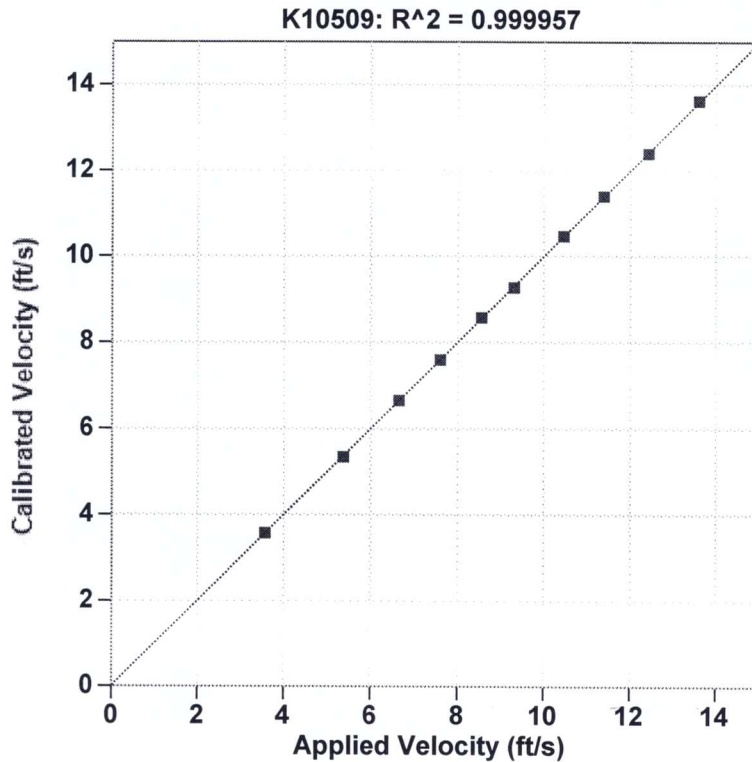
406.5 mv/5000g
 (81.3 $\mu\text{v/g}$)
 R²: 0.999957 [Chip programmed]

Ref Acc 1: 72517! **Cal on:** 24Mar2022
 1049 g's/volt
Ref Acc 2: 72505! **Cal on:** 24Mar2022
 1035 g's/volt

Operator: William Johnson

William Johnson
 Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity ft/s	S/N K10509 Velocity ft/s
3.570	3.576
5.367	5.340
6.650	6.650
7.599	7.598
8.548	8.567
9.306	9.271
10.460	10.461
11.383	11.399
12.427	12.405
13.602	13.630
Maximum Acceleration: 914 g's	

Certificate of Calibration

Pile Dynamics, Inc. certifies that the

Pile Driving Analyzer®, Model 8G

Serial Number: 5193 LE

was calibrated on 13 OCTOBER 2021
using a PDA Calibration Box whose output was calibrated with test equipment
traceable to NIST.

This certificate is valid for 2 years from above date.



Tested by: *[Signature]*



Pile Dynamics, Inc.
30725 Aurora Road
Cleveland, Ohio 44139 USA



This documents that
Joel S. Webster
GRL Engineers, Inc.

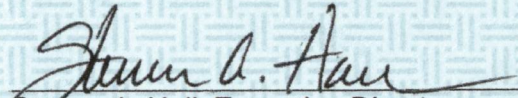
has on October 5, 2018 achieved the rank of

ADVANCED

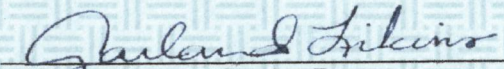
on the Dynamic Measurement and Analysis Proficiency Test.

The individual identified on this document demonstrated to the degree granted above an understanding of theory, data quality evaluation, interpretation and signal matching for high strain dynamic testing of deep foundations. ***It is recommended that Individuals at the Advanced level seek Master or Expert levels through additional study within six years of the date of this document.***

The ability of the individual named to provide appropriate knowledge and advice on a specific project is not implied or warranted by the Pile Driving Contractors Association or Pile Dynamics, Inc. **This certificate can be verified at www.PDAproficiencytest.com.** The Pile Driving Contractors Association or Pile Dynamics, Inc. assumes no liability for foundation testing and analysis work performed by the bearer of this certificate.


Steven A. Hall, Executive Director
Pile Driving Contractors Association




Garland Likins, Senior Partner
Pile Dynamics, Inc.

No. 2730

Appendix C

SPT Calibration Results

Average ETR versus Rod Length

Rig Make and Model: CME 75 - SN 156727
Richmond County, North Carolina

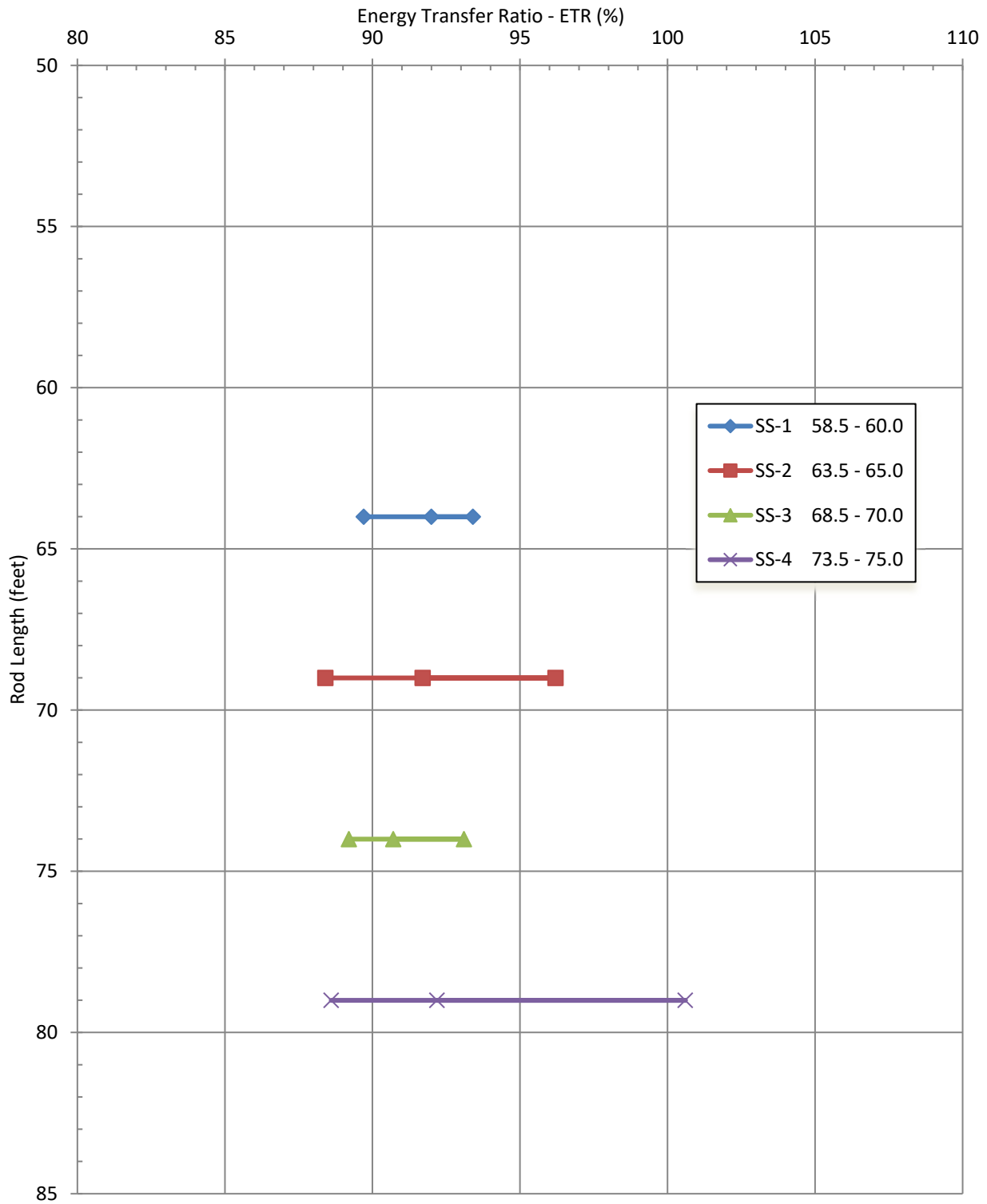


Figure 1 - CME 75 - ERT vs. Rod Length

Summary of SPT Test Results

Project: ECS SPT 2022 - CME 75 (SN 156727), Test Date: 7/21/2022

FMX: Maximum Force

VMX: Maximum Velocity

BPM: Blows/Minute

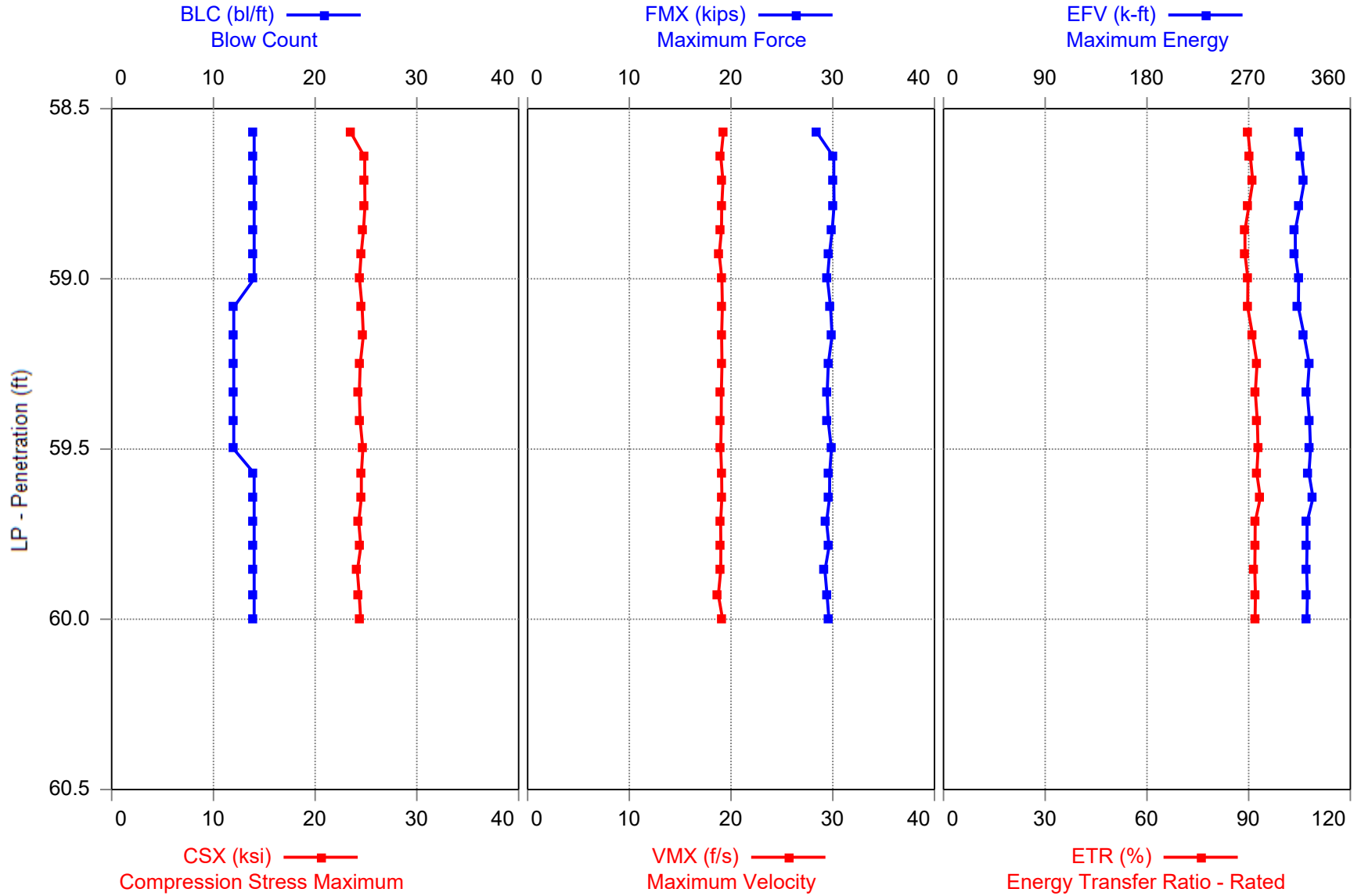
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated

Instr. Length ft	Blows Applied /6"	N Value	N60 Value	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
64.00	7-6-7	13	19	30	19.0	52.8	322	92.0
69.00	4-5-4	9	13	29	19.6	53.7	321	91.7
74.00	12-10-6	16	24	28	19.5	52.2	317	90.7
79.00	10-13-16	29	44	28	19.9	55.3	323	92.2
Overall Average Values:				28	19.6	53.9	321	91.7
Standard Deviation:				1	0.4	6.1	7	1.9
Overall Maximum Value:				30	20.4	56.4	352	100.6
Overall Minimum Value:				26	18.8	10.9	309	88.4



ECS SPT 2022 - CME 75 (SN 156727) - SS1 (58.5 - 60)



ECS SPT 2022 - CME 75 (SN 156727)

SN 156727

JW

Interval start: 7/21/2022

B-03

AR: 1.21 in²

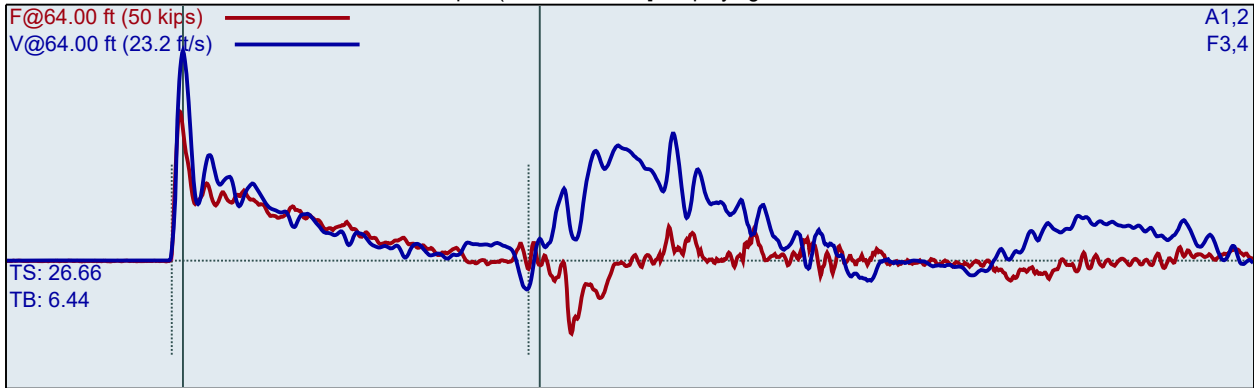
SP: 0.492 k/ft³

LE: 64.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s

Depth: (58.50 - 60.00 ft), displaying BN: 18



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

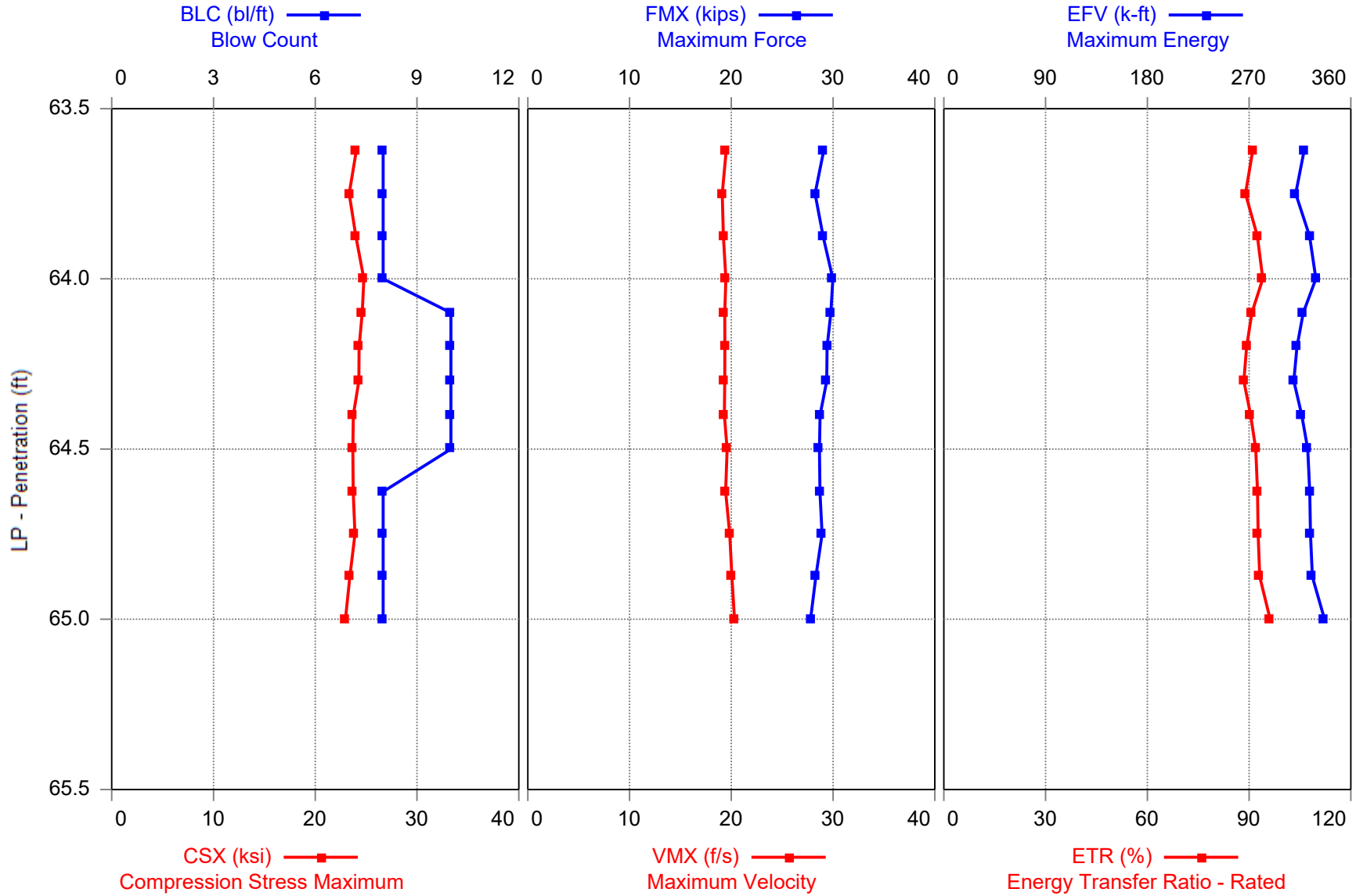
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
1	7	28	19.2	1.9	314	89.8
2	7	30	19.0	56.2	317	90.5
3	7	30	19.2	53.2	319	91.2
4	7	30	19.1	53.5	315	90.1
5	7	30	19.1	53.9	311	88.9
6	7	30	18.8	54.8	311	88.9
7	7	29	19.1	54.2	314	89.8
8	6	30	19.1	54.4	314	89.7
9	6	30	19.1	54.6	319	91.2
10	6	30	19.1	54.2	324	92.5
11	6	29	19.0	54.3	322	91.9
12	6	30	19.0	54.6	324	92.5
13	6	30	19.0	53.8	325	92.8
14	7	30	19.1	30.3	323	92.4
15	7	30	19.1	55.4	327	93.4
16	7	29	19.0	56.1	322	91.9
17	7	30	19.0	54.5	322	91.9
18	7	29	19.0	54.7	321	91.8
19	7	29	18.8	54.6	322	92.0
20	7	30	19.2	54.3	322	91.9
Average		30	19.0	52.8	322	92.0
Std Dev		0	0.1	6.5	3	0.8
Maximum		30	19.2	56.1	327	93.4
Minimum		29	18.8	30.3	314	89.7

N-value: 13

Sample Interval Time: 21.83 seconds.



ECS SPT 2022 - CME 75 (SN 156727) - SS2 (63.5 - 65)

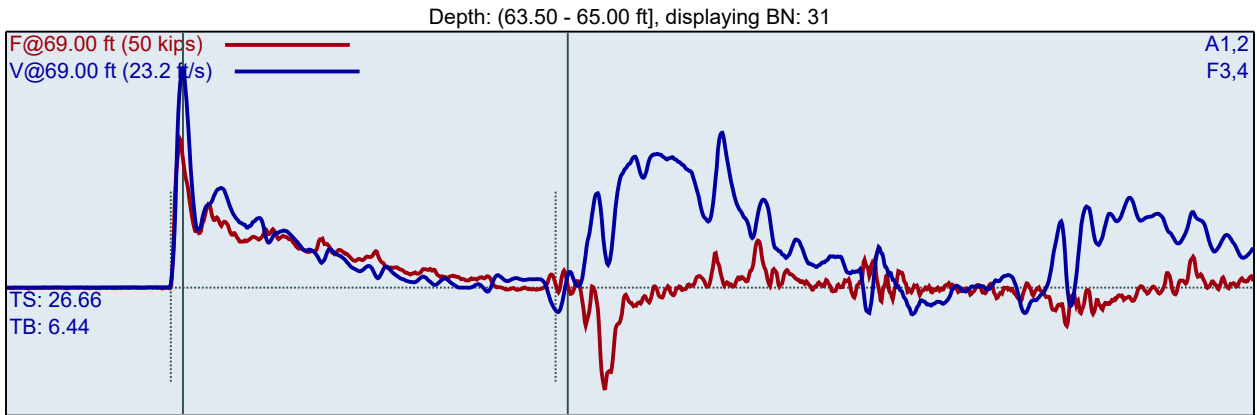


ECS SPT 2022 - CME 75 (SN 156727)
JW
B-03

SN 156727
Interval start: 7/21/2022

AR: 1.21 in²
LE: 69.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

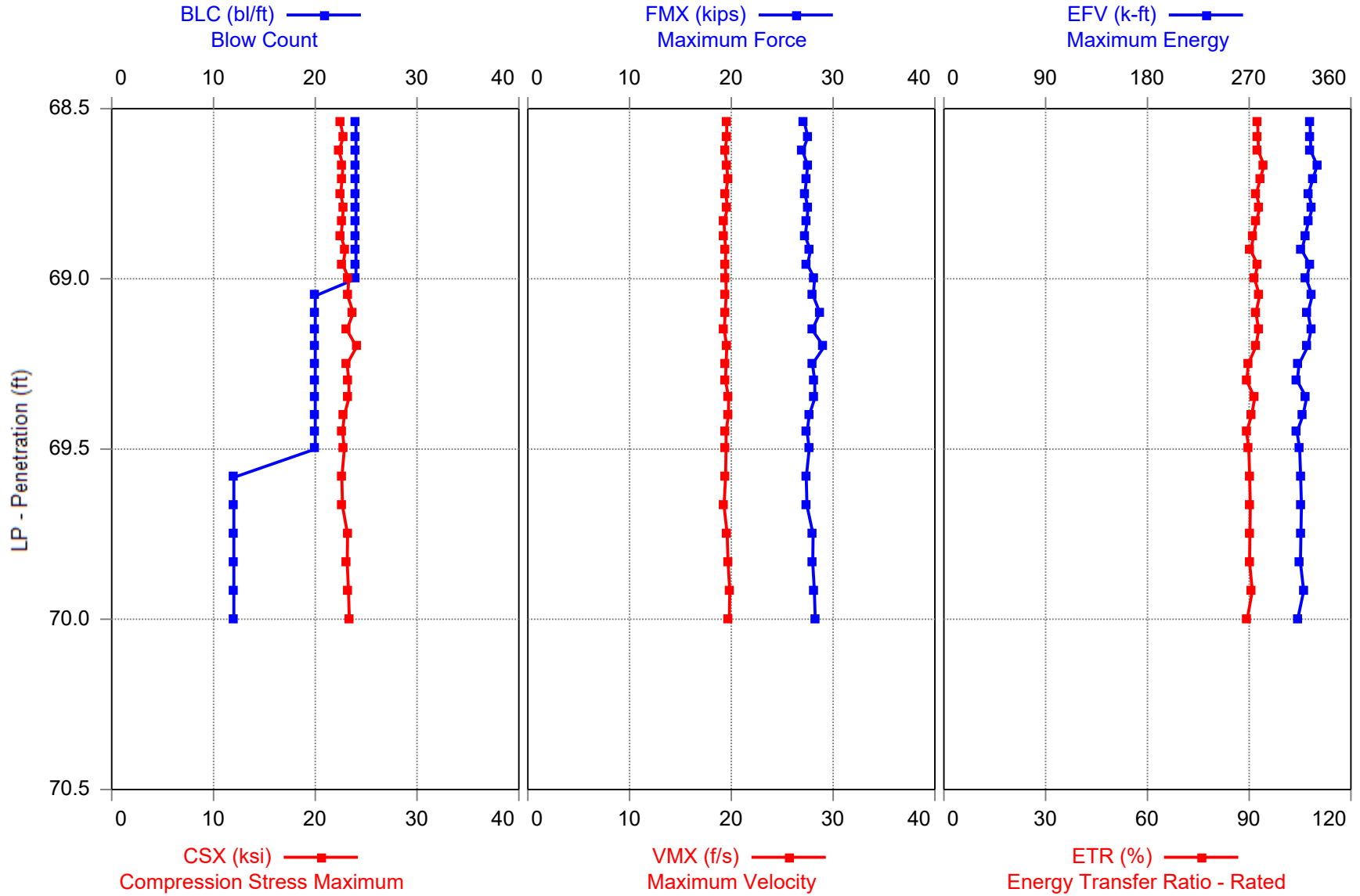
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
21	4	29	19.5	1.9	319	91.0
22	4	28	19.1	55.3	311	88.9
23	4	29	19.2	52.3	324	92.4
24	4	30	19.5	52.3	329	94.0
25	5	30	19.3	53.8	318	90.8
26	5	29	19.4	53.1	312	89.2
27	5	29	19.4	53.3	309	88.4
28	5	29	19.3	54.0	317	90.4
29	5	29	19.6	53.6	322	92.0
30	4	29	19.4	53.8	324	92.5
31	4	29	19.8	53.5	324	92.7
32	4	28	20.1	54.2	326	93.1
33	4	28	20.3	54.0	337	96.2
Average		29	19.6	53.7	321	91.7
Std Dev		1	0.3	0.3	8	2.2
Maximum		30	20.3	54.2	337	96.2
Minimum		28	19.3	53.1	309	88.4

N-value: 9

Sample Interval Time: 13.44 seconds.



ECS SPT 2022 - CME 75 (SN 156727) - SS3 (68.5 - 70)



ECS SPT 2022 - CME 75 (SN 156727)

SN 156727

JW

Interval start: 7/21/2022

B-03

AR: 1.21 in²

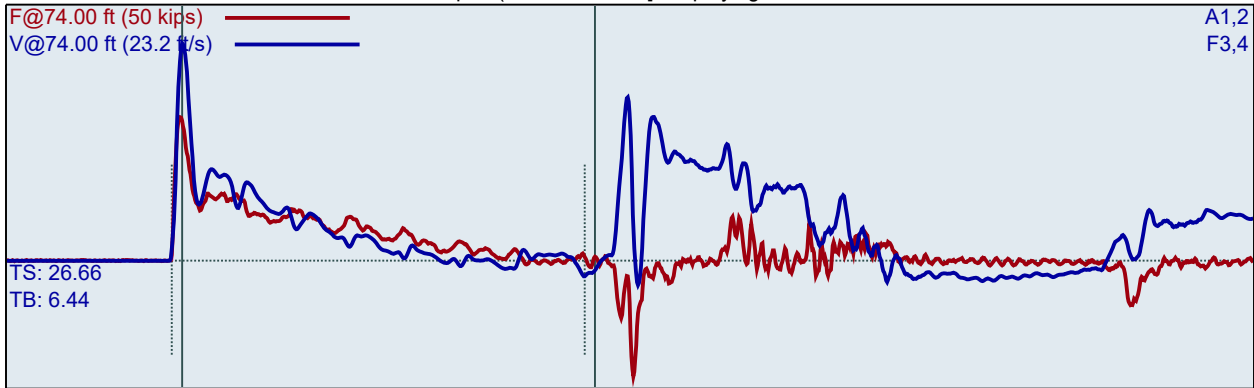
SP: 0.492 k/ft³

LE: 74.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s

Depth: (68.50 - 70.00 ft), displaying BN: 59



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
34	12	27	19.5	55.7	324	92.5
35	12	28	19.5	55.3	324	92.6
36	12	27	19.4	55.4	324	92.7
37	12	27	19.6	55.6	330	94.3
38	12	27	19.7	55.8	326	93.2
39	12	27	19.5	55.9	322	92.1
40	12	28	19.6	55.9	326	93.1
41	12	27	19.3	55.6	322	92.1
42	12	27	19.3	55.9	320	91.3
43	12	28	19.5	55.6	317	90.4
44	12	27	19.4	55.5	324	92.5
45	12	28	19.5	55.4	321	91.6
46	10	28	19.5	55.4	326	93.1
47	10	29	19.4	55.6	322	92.0
48	10	28	19.3	55.1	325	92.8
49	10	29	19.5	55.9	322	91.9
50	10	28	19.5	55.3	314	89.7
51	10	28	19.4	55.1	313	89.3
52	10	28	19.7	55.4	321	91.6
53	10	28	19.7	55.0	318	90.7
54	10	27	19.5	55.1	312	89.2
55	10	28	19.5	55.2	315	89.9
56	6	27	19.4	10.9	316	90.1
57	6	27	19.3	54.1	316	90.3
58	6	28	19.6	53.9	316	90.2
59	6	28	19.7	54.5	315	90.1
60	6	28	19.8	54.9	318	90.9
61	6	28	19.8	54.3	313	89.4

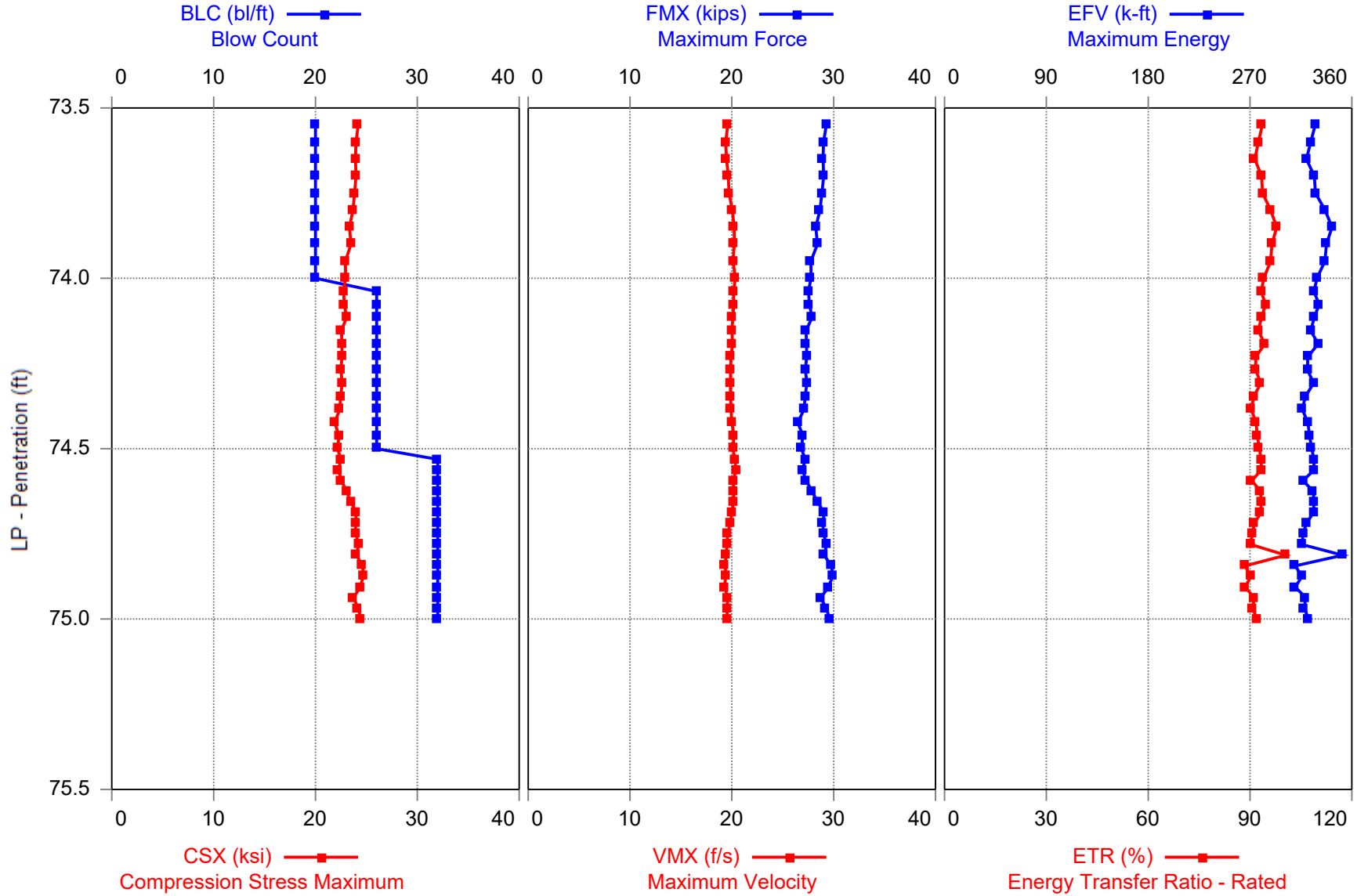
Average	28	19.5	52.2	317	90.7
Std Dev	0	0.2	10.7	4	1.2
Maximum	29	19.8	55.9	326	93.1
Minimum	27	19.3	10.9	312	89.2

N-value: 16

Sample Interval Time: 33.72 seconds.



ECS SPT 2022 - CME 75 (SN 156727) - SS4 (73.5 - 75)



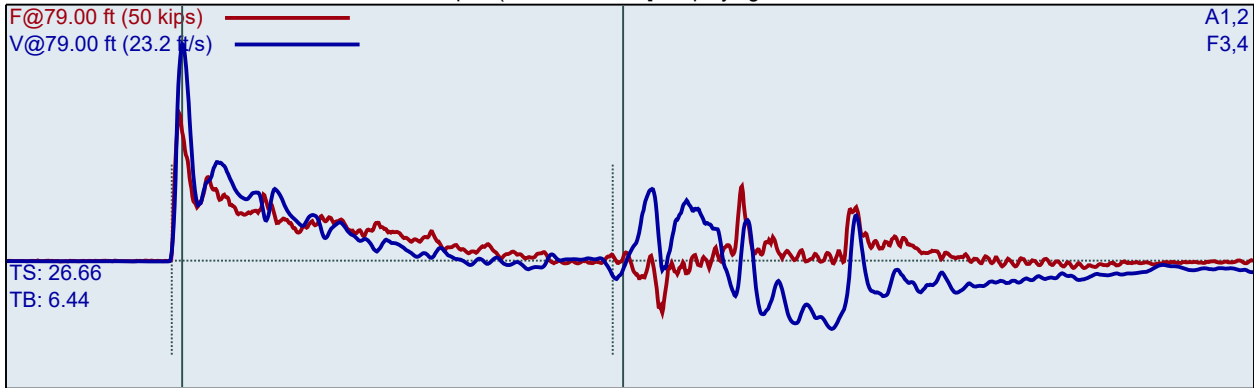
ECS SPT 2022 - CME 75 (SN 156727)
JW
B-03

SN 156727
Interval start: 7/21/2022

AR: 1.21 in²
LE: 79.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi

Depth: (73.50 - 75.00 ft), displaying BN: 98



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
62	10	29	19.6	1.9	328	93.6
63	10	29	19.4	57.0	324	92.5
64	10	29	19.5	54.8	320	91.4
65	10	29	19.6	54.5	327	93.4
66	10	29	19.7	55.6	328	93.7
67	10	29	20.0	55.8	336	96.1
68	10	28	20.2	56.1	342	97.8
69	10	28	20.2	56.1	338	96.4
70	10	28	20.1	55.9	336	96.1
71	10	28	20.3	55.9	329	94.1
72	13	28	20.2	55.5	326	93.3
73	13	28	20.2	55.1	331	94.6
74	13	28	20.1	55.4	327	93.3
75	13	27	20.0	55.2	324	92.4
76	13	27	20.1	54.8	330	94.3
77	13	27	19.9	54.8	321	91.7
78	13	27	19.9	54.5	321	91.7
79	13	27	19.8	54.3	326	93.2
80	13	27	19.9	54.5	319	91.1
81	13	27	19.9	54.5	316	90.3
82	13	26	20.0	54.4	321	91.8
83	13	27	20.2	54.1	322	92.1
84	13	27	20.1	55.5	325	92.7
85	16	27	20.3	55.9	326	93.3
86	16	27	20.4	56.4	327	93.3
87	16	27	20.1	55.8	317	90.5
88	16	28	20.2	55.9	326	93.1
89	16	28	20.1	55.8	326	93.3
90	16	29	20.0	56.0	326	93.2
91	16	29	19.8	56.2	320	91.3
92	16	29	19.6	55.5	317	90.6

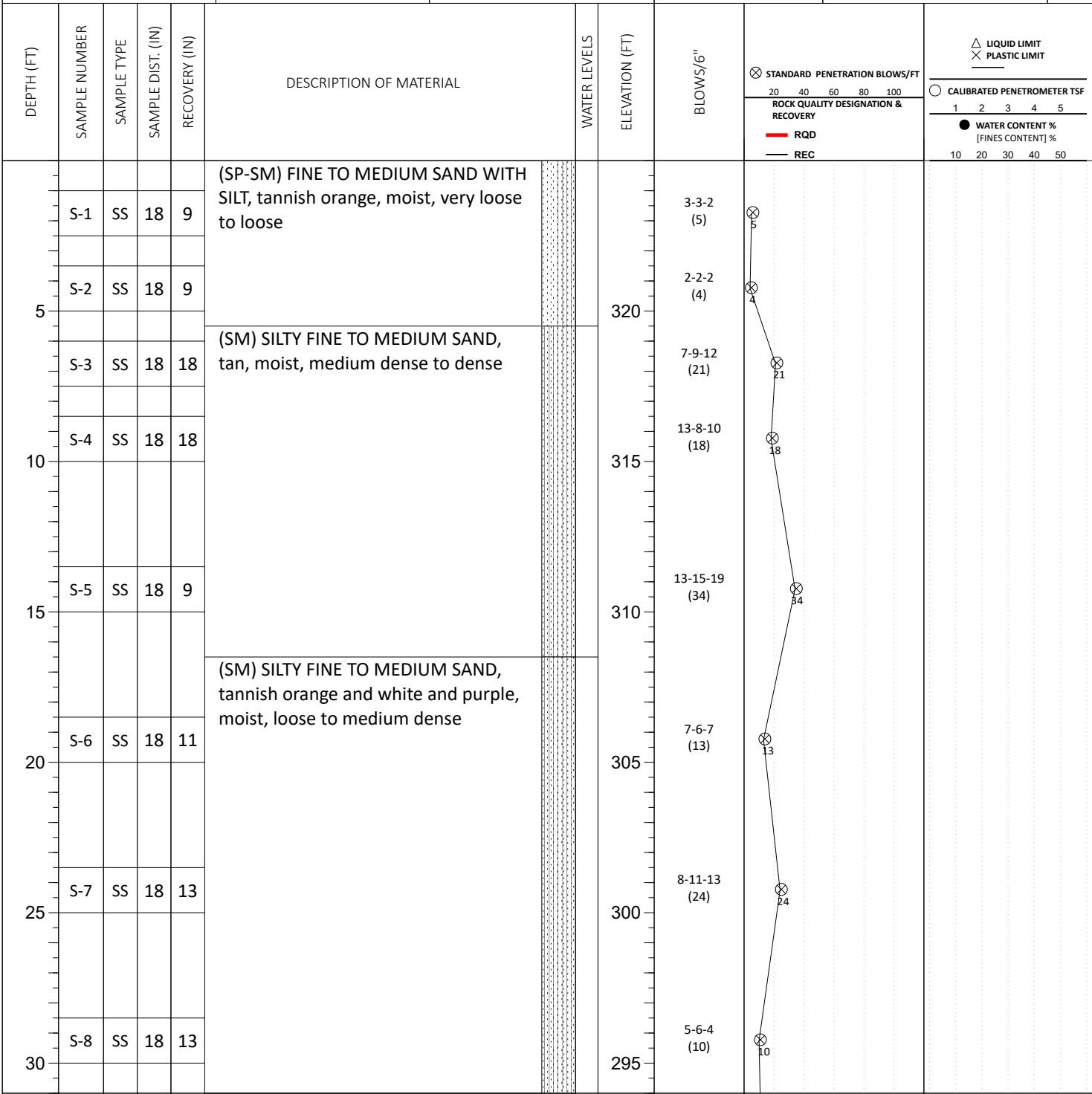
93	16	29	19.5	55.8	316	90.3
94	16	29	19.4	55.7	352	100.6
95	16	30	19.4	55.8	310	88.6
96	16	30	19.4	55.7	316	90.2
97	16	29	19.3	55.5	310	88.6
98	16	29	19.6	55.5	319	91.2
99	16	29	19.5	55.4	318	90.8
100	16	30	19.5	55.2	322	91.9
Average		28	19.9	55.3	323	92.2
Std Dev		1	0.3	0.6	8	2.2
Maximum		30	20.4	56.4	352	100.6
Minimum		26	19.3	54.1	310	88.6
N-value: 29						

Sample Interval Time: 41.16 seconds.

Appendix D
Soil Boring Logs

SITE LOCATION:
1601 Airport Road, Hamlet, North Carolina 28345

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 325	LOSS OF CIRCULATION
				BOTTOM OF CASING



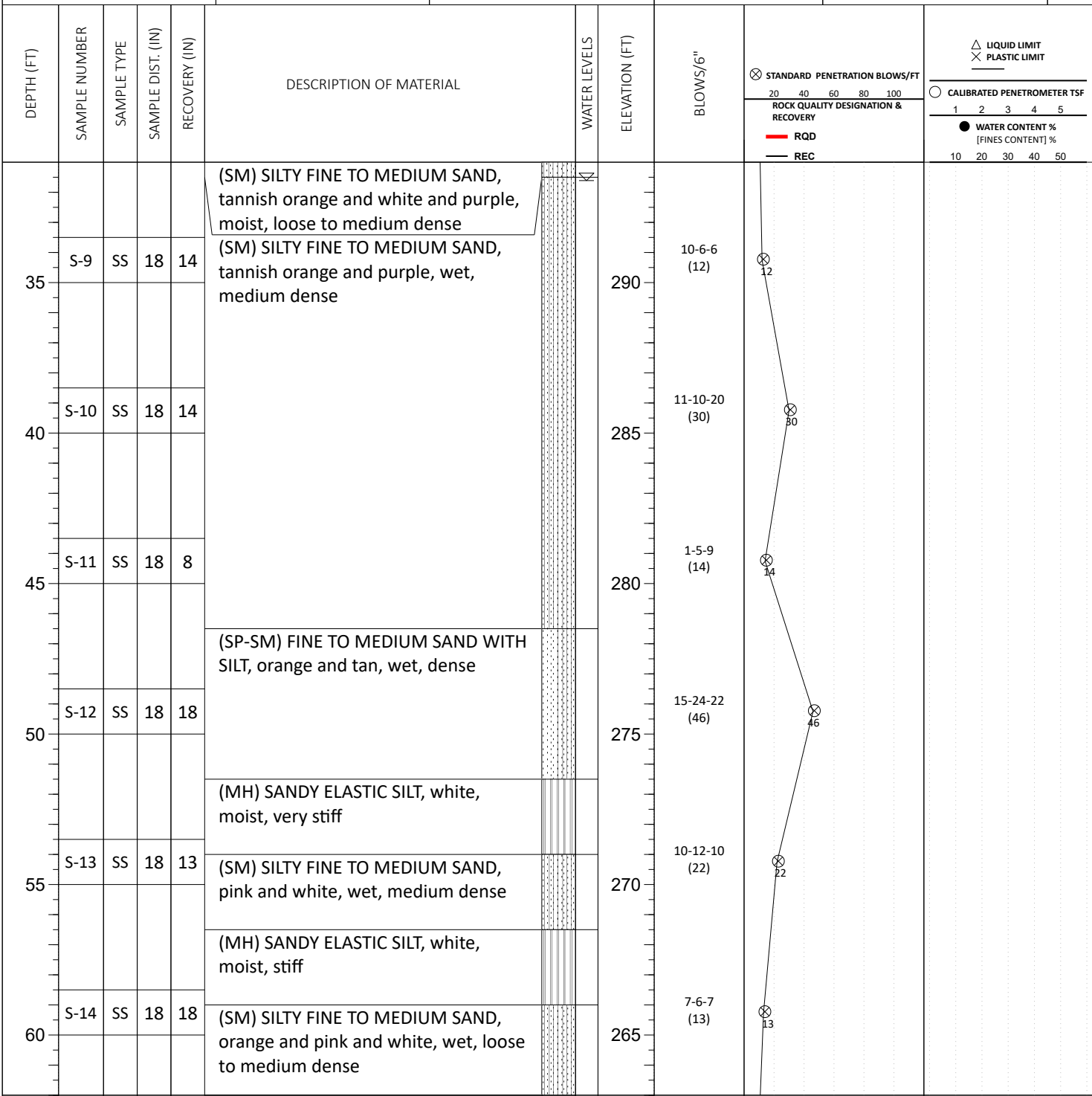
CONTINUED ON NEXT PAGE

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

<input checked="" type="checkbox"/> WL (First Encountered) 31.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
<input checked="" type="checkbox"/> WL (Seasonal High Water)	EQUIPMENT: CME 75	LOGGED BY: TE01
<input checked="" type="checkbox"/> WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION: 1601 Airport Road, Hamlet, North Carolina 28345			LOSS OF CIRCULATION
NORTHING:	EASTING:	STATION:	BOTTOM OF CASING



CONTINUED ON NEXT PAGE

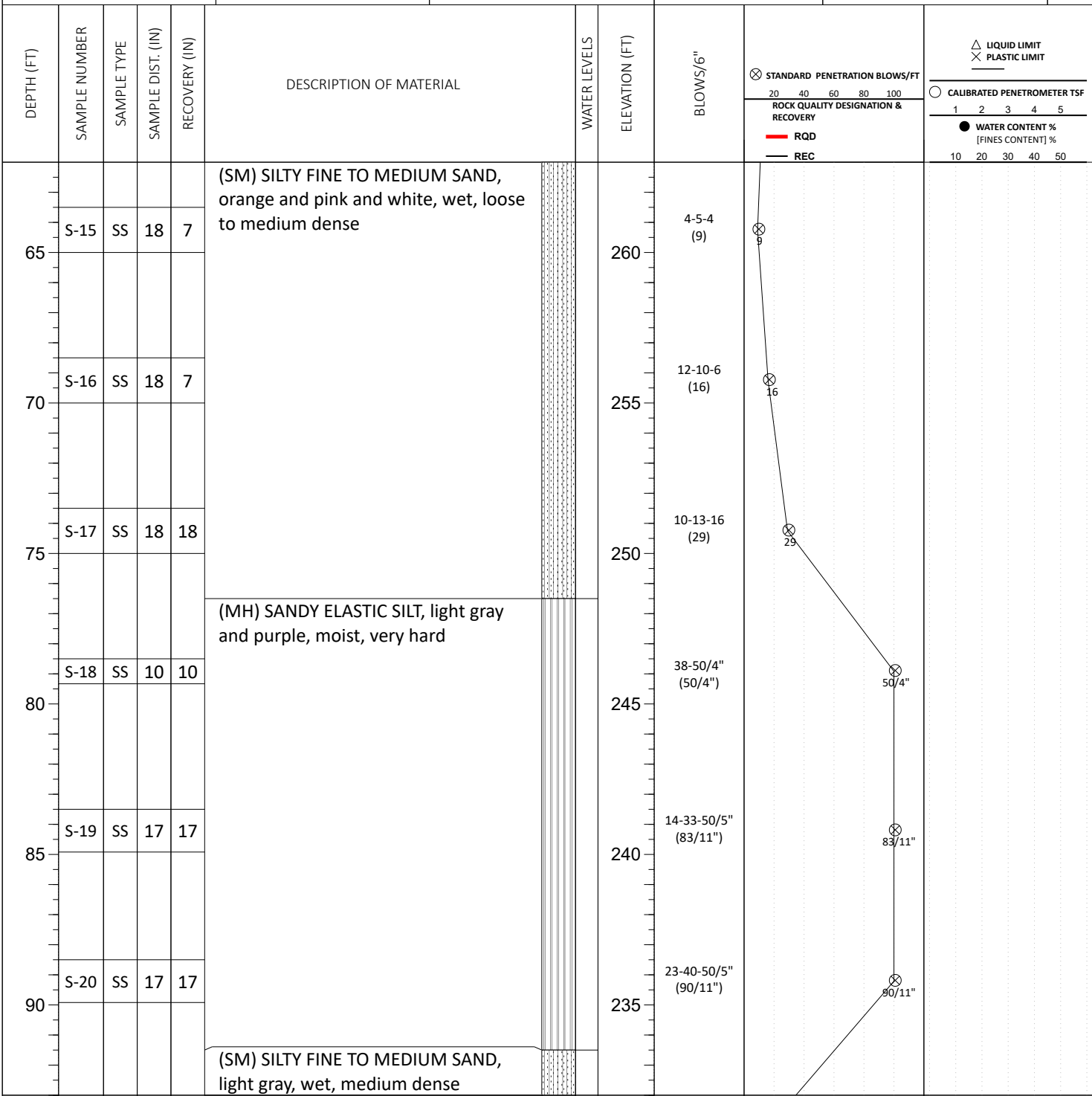
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

▽ WL (First Encountered) 31.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
▽ WL (Seasonal High Water)	EQUIPMENT: CME 75	LOGGED BY: TE01
▾ WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION: **1601 Airport Road, Hamlet, North Carolina 28345**

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 325	LOSS OF CIRCULATION
				BOTTOM OF CASING



CONTINUED ON NEXT PAGE

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

<input checked="" type="checkbox"/> WL (First Encountered) 31.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
<input checked="" type="checkbox"/> WL (Seasonal High Water)	EQUIPMENT: CME 75	LOGGED BY: TE01
<input checked="" type="checkbox"/> WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG




GRL
engineers, inc.

SPT Energy Calibration Services



Job No. 229037-1
July 29, 2022

**Project: Standard Penetration Test Energy Measurements
 CME 750X (SN 303518)
 Richmond County, North Carolina
 Prepared For: ECS Southeast, LLC**

By: Joel S. Webster, P.E. & Scott D. Webster

www.grlengineers.com



July 29, 2022

Mr. Mohammed A Mulla, P.E., PhD.
ECS Southeast, LLP
5260 Greens Dairy Road
Raleigh, NC 27616

**Re: Standard Penetration Test Energy Measurements
CME 750X – SN 303518**
Richmond County, North Carolina

GRL Job No. 229037-1

Dear Mr. Mulla:

This report presents results of energy measurements obtained on July 21, 2022, during Standard Penetration Test (SPT) sampling. One automatic hammer mounted on a drill rig owned by ECS Southeast, LLC was tested. The drill rig was a truck mounted CME 750X (SN 303518). All dynamic tests were performed on AW drill rods having J threads. GRL Engineers, Inc. obtained the dynamic measurements using an 8G Model Pile Driving Analyzer® and an instrumented AW-J rod subsection. This report describes the testing procedures and summarizes the test results. Appendix A describes our measurement and analysis methods, Appendix B contains the instrumentation calibrations and certificates, and Appendix C contains a summary of the field data.

PURPOSE AND SCOPE OF WORK

At the request of ECS Southeast, GRL Engineers conducted SPT energy measurements in general accordance with ASTM D4633-16 during SPT sampling at a site near the intersection of Airport Road and Energy Way in Richmond County, North Carolina. The drilling method used to advance the boring was hollow stem auger. SPT energy measurements were performed at 5-foot sampling intervals between 48.5 and 70.0 feet. A total of five energy measurement events were performed for this drill rig. However, only sampling intervals with instrumented lengths greater than 30 feet are included in the analysis for this report. Additionally, only sampling intervals with SPT N-Values between 8 and 50 blows per foot for the final foot of driving have been included. The SPT samples were driven for a total of three, 6-inch increments, or 1.5 feet, and the blow counts for each increment were recorded. This testing was performed by Joel Webster, P.E.

Instrumentation

An 8G Model Pile Driving Analyzer (PDA) (S/N 5193 LE) data acquisition system manufactured by Pile Dynamics, Inc. was used to collect and process the dynamic measurements of force and velocity. A two-foot-long subsection of standard AW rod with J tapered threads (S/N 168AWJ) was instrumented with two full bridge foil resistance strain gages (S/N 168AWJ1 and 168AWJ2) and two piezoresistive accelerometers (S/N K4805 and K10509) mounted in the midpoint of the instrumented rod.

RESULTS

Upon return to the office, the records collected by the PDA were checked for consistency and accuracy. For example, records from very weak startup or final impacts were not included in average results. The results include the EFV (transferred energy by the FV method, as recommended by ASTM D4633-16), ETR (energy transfer ratio for the EFV method), BLC (increment blow count), BPM (hammer operating

rate), FMX (maximum rod-top force) and VMX (maximum rod-top velocity). Appendix C contains summary plots of the ETR with respect to rod length, summary plots of sampling results (BLC, BPM, FMX, VMX, EFV, ETR) with respect to depth below grade, a representative plot of force and normalized velocity versus time, as well as tables of results for all hammer blows at each dynamically monitored sampling depth. The tables show statistical summaries for the last two 6-inch increments over which the SPT N value is calculated. At the end of each table is a statistical evaluation of these results which include the average and standard deviation.

The table below summarizes the average transferred energy values calculated by the EFV method. The Energy Transfer Ratio (ETR) is defined as the ratio of maximum transferred energy EFV divided by the theoretical hammer potential energy of 350 foot-pounds (i.e., computed from the 140-pound SPT hammer and the standard 30 inch drop as specified by ASTM D1586-99).

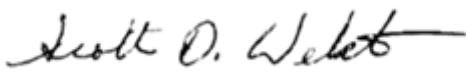
Drill Rig	Avg. EFV (ft-lbs)	Avg. ETR (%)	Range of EFV (ft-lbs)	Range of ETR (%)
CME 750X S/N 303518	336	96	315 – 361	90 – 103

Please review both ASTM D4633-16 and ASTM D1586-99 prior to applying these test results. The energy calibrations reported herein are valid for the same hammer/drill rig, with the same drill operator, same anvil dimensions, and same drilling methods.


We appreciate the opportunity to be of assistance to you on this project. Please contact our office should you have any questions regarding this submittal, require additional information, or if we may be of further service.

Sincerely,

GRL Engineers, Inc.



Scott Webster, P.E.



Joel S. Webster, P.E.



GRL Engineers, Inc. – NC
PE License Number C-2391

Appendix A
An Introduction into SPT Pile Testing

APPENDIX A

AN INTRODUCTION INTO SPT DYNAMIC PILE TESTING

The following has been written by GRL Engineers, Inc. and may only be copied with its written permission.

1. BACKGROUND

The Standard Penetration Test is frequently conducted as an in-situ assessment of soil strength. This test requires that a 140 lb weight is dropped 30 inches onto a drive rod at whose bottom a sampler is usually installed. The sampler is driven for 18 inches; the number of blows required for the last 12 inches of driving is the so-called N-value. The N-value may be used as a strength indicator for foundation design or as a means of assessing the liquefaction potential of soils.

Obviously, the SPT hammer efficiency is an important consideration when using the N-values for design purposes. Measurements have indicated that the energy in the drive rod is sometimes only 30% and may reach 90% of the potential or rated energy of the SPT hammer (E-rated = 0.35 kip-ft or 0.475 kJ). The type of hammer used to drive the rod is the main reason for these variations. On the average, the energy in the drive rod is 60% of the standard rated energy.

Because of the variability of energy, methods based on N-values are considered unreliable. However, measurements during SPT testing using the Case Method can be done on a routine basis and these measurements yield the transferred energy values. With measured energy, E_m , known, an adjustment of the measured N-value, N_m , can be made as follows.

$$N_{60} = N_m [E_m / (0.6E_r)] \quad (1)$$

Thus, if the measured energy value is equal to the normally expected transferred energy of 60% of E-rated then the adjusted and measured N-values are identical. On the other hand, if the measured energy is only 30% then the adjusted blow count will be reduced by 50%.

2. DYNAMIC TESTING AND ANALYSIS METHODS APPLIED TO SPT

The Case Method of dynamic pile testing, named after the Case Institute of Technology where it was

developed between 1964 and 1975, requires that a substantial ram mass (e.g. a pile driving hammer) impacts the pile top such that the pile undergoes at least a small permanent set. Thus, the method is also referred to as a "High Strain Method". The Case Method requires dynamic measurements on the pile or shaft under the ram impact and then a calculation of various quantities. Conveniently, for SPT applications, the measurements and analyses are done by a single piece of equipment: the SPT Analyzer. The Pile Driving Analyzer® (PDA) is also suitable to perform these measurements and data processing.

A related analysis method is the "Wave Equation Analysis" which calculates a relationship between bearing capacity, pile stresses, transferred energy and field blow count. The GRLWEAP™ program performs this analysis and provides a complete set of helpful information and input data. This program can be used very effectively to simulate the SPT driving process.

3. MEASUREMENTS

GRL uses equipment manufactured by Pile Dynamics, Inc. The system includes either an SPT-Analyzer™ (SPTA) or a Pile Driving Analyzer® (PDA), an instrumented rod section and two accelerometers. SPT energy testing is very closely related to and borrows procedures from dynamic pile testing. Those interested in the basis of the SPT energy testing method may obtain extensive literature on dynamic pile testing from GRL Engineers, Inc.

3.1 SPT Analyzer or Pile Driving Analyzer

The basis for the results calculated by the SPTA or PDA are strain and acceleration measured in an instrumented rod section. These signals are converted to rod top force, $F(t)$, and rod top velocity, $v(t)$. The SPTA or PDA conditions, calibrates and displays these signals and immediately computes average pile force and velocity thereby eliminating bending effects. The product of these two

measurements is then integrated over time which yields the energy transferred to the instrumented section as a function of time (see Section 4.1).

For convenience and accuracy, strain measurements are usually taken on an instrumented section of SPT drive rod. Ideally, the section properties of the instrumented rod and those of the drive rod are the same, however, using subs, other sections can also be utilized.

For the instrumented section, PDI provides a force calibration in such a way that the output of the instrumented rod is directly calculated without the need for an accurate elastic modulus or cross sectional area of the rod section.

The acceleration measurements are often demanding in the SPT environment, because of high frequency and high acceleration motion components. An experienced measurement engineer, therefore, has to evaluate the quality of this data before final conclusions are drawn from the numerical results calculated by SPTA or PDA.

SPTA or PDA records are taken while the standard N-value is acquired in the conventional manner. This then allows a direct correlation between N-value and average transferred energy.

3.2 HPA

The SPT hammer's ram velocity may be directly obtained using radar technology in the Hammer Performance Analyzer™. The impact velocity results can be automatically processed with a PC or recorded on a strip chart. HPA measurements yield a hammer kinetic energy, but not the energy transferred to the drive rod.

4 RECORD EVALUATION BY SPTA OR PDA

4.1 HAMMER PERFORMANCE

The PDA calculates the energy transferred to the pile top from:

$$E(t) = \int_0^t F(\tau)v(\tau) d\tau \quad (2)$$

The maximum of the $E(t)$ curve is often called **ENTHRU** or **EMX**; it is the most important quantity for an overall evaluation of the performance of a hammer

and driving system. **EMX** allows for a classification of the hammer's performance when presented as, e_T , the rated transfer efficiency, also called energy transfer ratio (**ETR**) or global efficiency.

$$e_T = EMX/E_R \quad (3)$$

where E_R is the hammer manufacturer's rated energy value or 0.35 kip-ft (0.475 kJ) in the case of the SPT hammer.

Often in the SPT literature one finds also reference to the EF2 energy. This evaluation is based on assumed proportionality between force and velocity (see also Section 5):

$$v(t) = F(t) / Z \quad (4)$$

where $Z = EA/c$ is the pile impedance, E is the elastic modulus, A is the cross sectional area and c is the speed of the stress wave in the pile material..

Combining equations 2 and 4 leads to

$$EF(t) = \int_0^t F(\tau)^2 / Z d\tau \quad (5)$$

The EF2 transferred energy value is the EF-value at the time $t = 2L/c$, where L is the drive rod length and c is the stress wave speed in steel (16,800 ft/s or 5,124 m/s). Since the force is easier to measure than both force and velocity, Equation 5 is preferred by some test engineers. However, the EF method is fraught with errors and certain correction factors have to be applied to make it approximately correct. Among the error sources are the following:

- Proportionality is often violated prior to time $2L/c$. The proportionality between force and velocity in a downward traveling wave only holds if the wave does not encounter a disturbance prior to reflecting off the pile toe. Such disturbances include a change in cross sectional area, an open or loose splice or joint, or resistance along the shaft.
- Using only one force measurement precludes a data quality check based on the proportionality between force and velocity. Thus, a force measurement that is for some reason in error may not be detectable, which will lead to errors in the EF2 value. Data quality checks will be discussed further in Section 5.

The use of EF2 is therefore not recommended but it is often included in result presentations for the sake of completeness.

4.2 STRESSES

During SPT monitoring, it is also of interest to monitor compressive stresses at both the top of the drive rod and at its bottom.

At the pile top (location of sensors) the maximum compression stress averaged over the rod's cross section, **CSX**, is directly obtained from the measurements. Note that this stress value refers to the instrumented section. If the rod has a different cross sectional area then the stress in the rod will be different from CSX.

The SPTA or PDA can also calculate, in an approximate manner, the force at the rod bottom, **CFB**. To obtain the corresponding stress, this force value should be divided by the appropriate cross sectional area, e.g. by the rod area just above the sampler or by the sampler area itself. Of course, non-uniform stress components as they might occur at the sampler tip due to a sloping rock are not considered in this calculation.

5. DATA QUALITY CHECKS

Quality data is the first and foremost requirement for accurate dynamic testing results. It is therefore important that the measurement engineer performing SPTA or PDA tests has the experience necessary to recognize measurement problems and take appropriate corrective action should problems develop. Fortunately, dynamic pile testing allows for certain data quality checks because two independent measurements are taken that have to conform to the so-called proportionality relationship.

As long as there is only a wave traveling in one direction, as is the case during impact when only a downward traveling wave exists in the rod, force and velocity measured at its top are proportional

$$F = v Z \quad (5)$$

where Z is again the pile impedance, $Z = EA/c$. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v (E/c) \quad (6)$$

or strain

$$\epsilon = \sigma/E = v / c \quad (7)$$

This means that the early portion of strain times wave speed must be equal to the velocity unless the proportionality is affected by high friction near the pile top or by a pile cross sectional change not far below the sensors. Checking the proportionality is an excellent means of assuring meaningful measurements but is only truly meaningful for perfectly uniform rods. Open or loose splices, for example, will lead to a non-proportionality. For SPT rods it is fortunate that usually no soil resistance acts along the shaft and for that reason, proportionality can exist until the stress wave returns from sampler top or rod bottom unless connectors are not sufficiently tightened or have a significant mass.

Velocity data quality can also be checked by looking at the final displacement, DFN, which is calculated from the acceleration by double integration. If the calculated final displacement is much higher or lower than indicated by the N-value, the accelerometer attachment may be loose or the sensor may be faulty. If major drift in the velocity is observed, the EMX value may be in error, even though proportionality from impact to time $2L/c$ exists. In this case, it may be useful to evaluate the energy transferred to the drill rod at time $2L/c$, which is calculated by the PDA or SPTA as the E2E quantity.

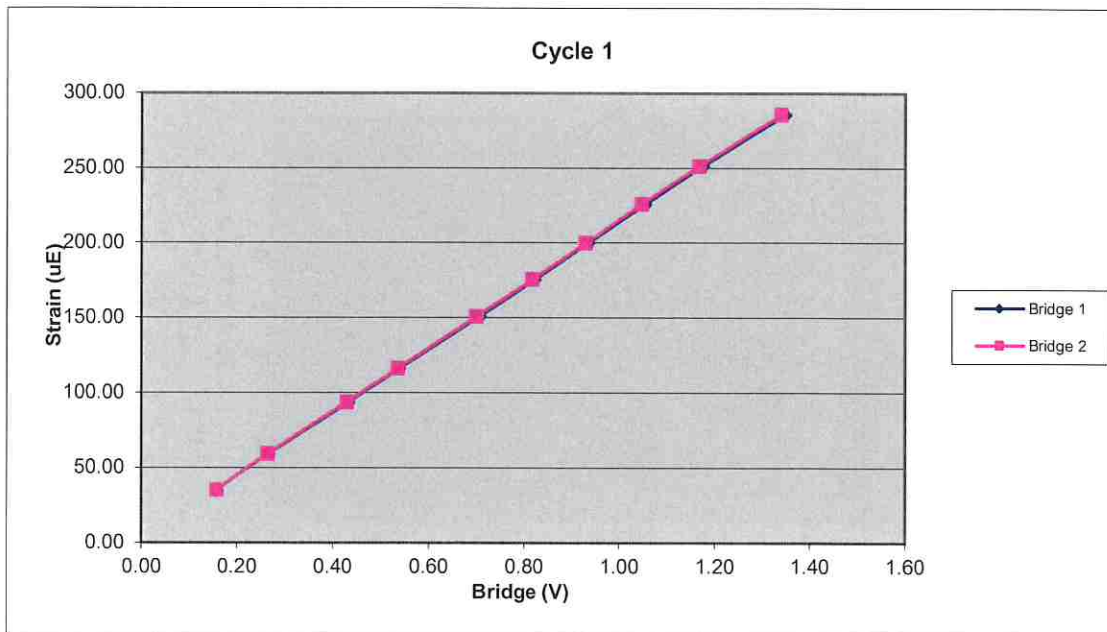
APPENDIX B

Instrumentation Calibration Information

168AWJ		Cycle 1		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1196.32	34.91	0.16	0.16
3	2006.35	58.87	0.26	0.26
4	3277.05	93.19	0.43	0.43
5	4095.36	115.66	0.54	0.53
6	5368.40	150.50	0.71	0.70
7	6254.75	175.14	0.82	0.82
8	7123.46	199.56	0.93	0.93
9	8029.80	225.48	1.05	1.05
10	8955.53	250.91	1.17	1.17
11	10278.58	285.27	1.35	1.34

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7636.98	Force Calibration (lb/V)	7681.56
Offset	-10.39	Offset	-7.11
Correlation	0.999998	Correlation	1.000000
Strain Calibration ($\mu\text{E}/\text{V}$)	210.98	Strain Calibration ($\mu\text{E}/\text{V}$)	212.21
Offset	2.34	Offset	2.43
Correlation	0.999960	Correlation	0.999963

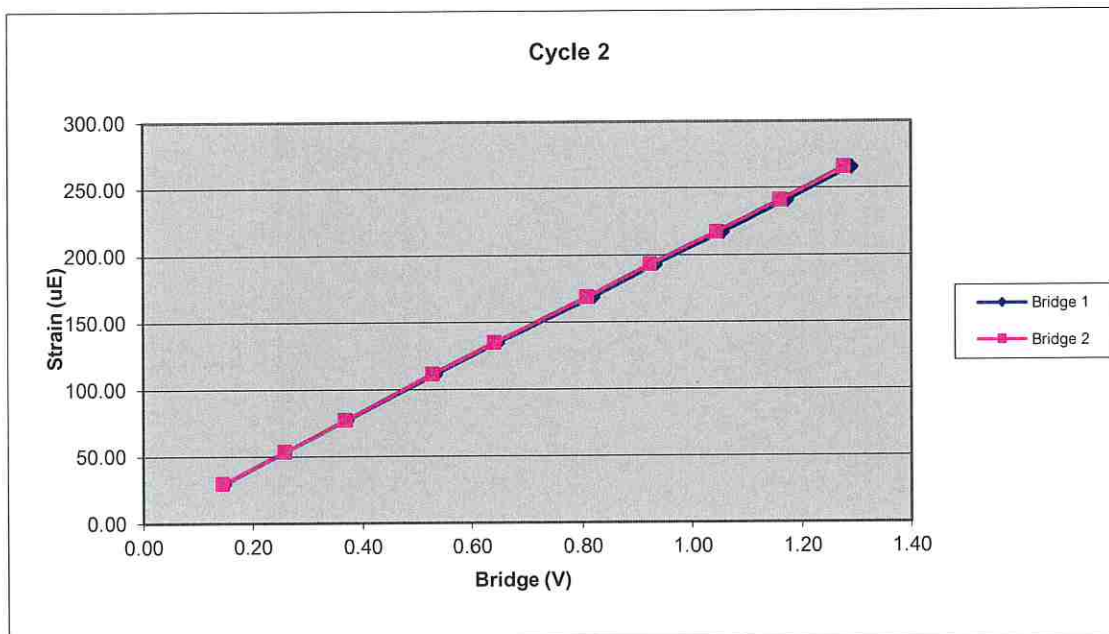
Force Strain Calibration	
EA (Kips)	36194.84
Offset	-94.57
Correlation	0.999959



168AWJ		Cycle 2		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1109.47	29.07	0.15	0.14
3	1967.17	52.87	0.26	0.26
4	2813.55	76.52	0.37	0.37
5	4041.75	110.93	0.53	0.53
6	4906.95	134.25	0.65	0.64
7	6205.14	168.08	0.82	0.81
8	7079.89	192.48	0.93	0.92
9	8004.16	216.71	1.06	1.04
10	8895.58	240.38	1.17	1.16
11	9788.95	265.05	1.29	1.28

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7585.36	Force Calibration (lb/V)	7679.61
Offset	-2.10	Offset	-3.63
Correlation	0.999998	Correlation	0.999997
Strain Calibration ($\mu\text{E}/\text{V}$)	205.52	Strain Calibration ($\mu\text{E}/\text{V}$)	208.07
Offset	0.07	Offset	0.03
Correlation	0.999949	Correlation	0.999957

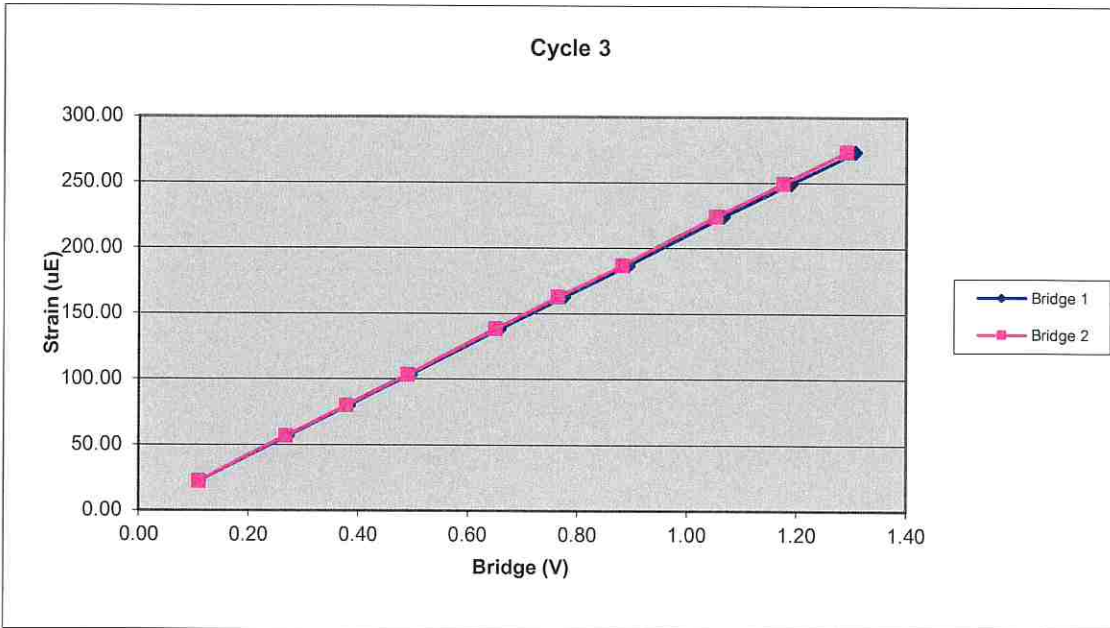
Force Strain Calibration	
EA (Kips)	36904.95
Offset	-4.08
Correlation	0.999952



168AWJ		Cycle 3		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	824.16	22.13	0.11	0.11
3	2048.17	56.32	0.27	0.27
4	2886.56	79.66	0.38	0.38
5	3737.43	103.11	0.49	0.49
6	4981.03	138.03	0.66	0.65
7	5858.03	162.40	0.77	0.76
8	6754.90	186.72	0.89	0.88
9	8076.39	224.00	1.07	1.05
10	8998.61	249.12	1.19	1.17
11	9899.88	273.12	1.31	1.29

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7574.60	Force Calibration (lb/V)	7676.61
Offset	-1.93	Offset	-3.53
Correlation	0.999999	Correlation	0.999998
Strain Calibration ($\mu\text{E}/\text{V}$)	209.89	Strain Calibration ($\mu\text{E}/\text{V}$)	212.71
Offset	-0.40	Offset	-0.45
Correlation	0.999988	Correlation	0.999987

Force Strain Calibration	
EA (Kips)	36087.89
Offset	12.74
Correlation	0.999988



Bridge Excitation (V) 5
Shunt Resistor (ohm) 60.4k

Calibration Factors	168AWJ		
Bridge 1 ($\mu\text{E/V}$)	208.80	Bridge 2 ($\mu\text{E/V}$)	211.00
EA Factor (Kips)	36395.89	Area (in²)	1.21

Calibrated by: 
Calibrated Date: 12/9/2021

Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
 Calibration performed on 01Dec2021

Serial No: K4805 Temperature: 20.3 °C
 Model: PR Humidity: 31%
 Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

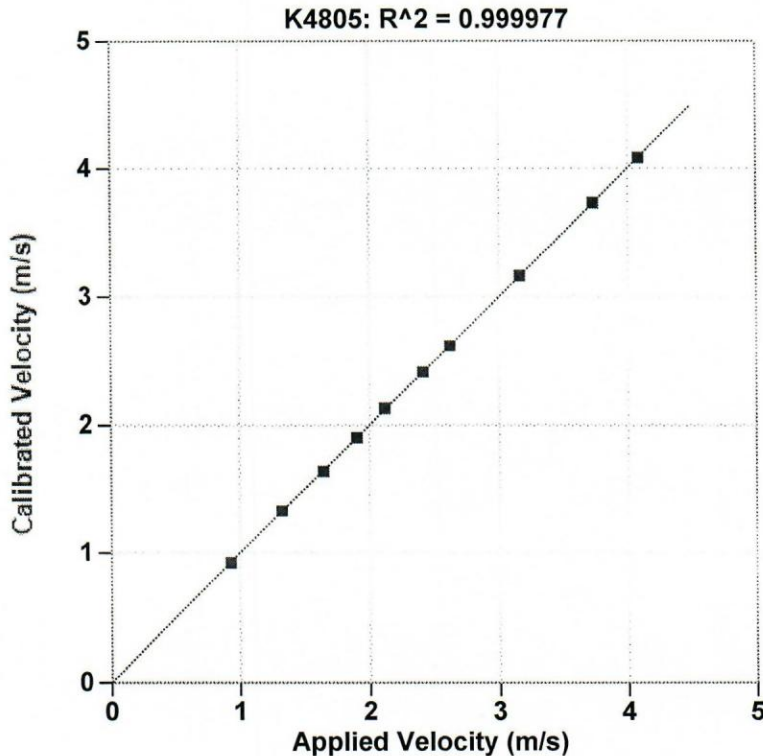
392.2 mv/5000g
 (78.4 $\mu\text{v/g}$)
 R²: 0.999977 [Chip programmed]

Operator: William Johnson

Ref Acc 1: 69096! Cal on: 27Jan2021
 978 g's/volt
 Ref Acc 2: 69132! Cal on: 09Feb2021
 960 g's/volt

William Johnson
 Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity m/s	S/N K4805 Velocity m/s
0.928	0.923
1.323	1.326
1.647	1.639
1.902	1.902
2.119	2.129
2.413	2.412
2.619	2.618
3.161	3.164
3.732	3.735
4.087	4.083

Maximum Acceleration: 900 g's

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
 Calibration performed on 06Jun2022

Serial No: K10509 **Temperature:** 70.0 °F
Model: PR **Humidity:** 47%
Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

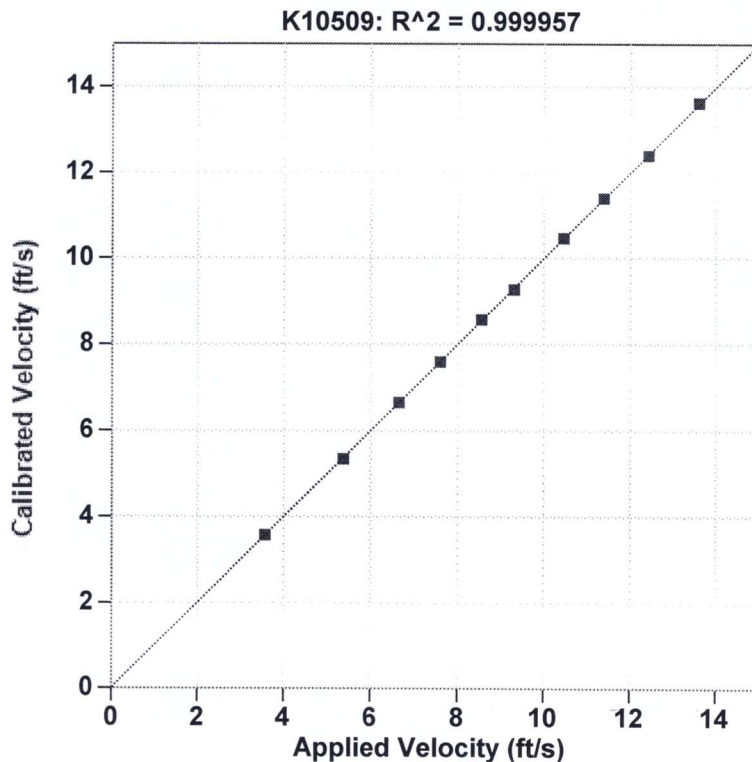
406.5 mv/5000g
 (81.3 μ v/g)
 R²: 0.999957 [Chip programmed]

Ref Acc 1: 72517! **Cal on:** 24Mar2022
 1049 g's/volt
Ref Acc 2: 72505! **Cal on:** 24Mar2022
 1035 g's/volt

Operator: William Johnson

William Johnson
 Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity ft/s	S/N K10509 Velocity ft/s
3.570	3.576
5.367	5.340
6.650	6.650
7.599	7.598
8.548	8.567
9.306	9.271
10.460	10.461
11.383	11.399
12.427	12.405
13.602	13.630
Maximum Acceleration: 914 g's	

Certificate of Calibration

Pile Dynamics, Inc. certifies that the



Pile Driving Analyzer®, Model 8G

Serial Number: 5193 LE

was calibrated on 13 OCTOBER 2021
using a PDA Calibration Box whose output was calibrated with test equipment
traceable to NIST.

This certificate is valid for 2 years from above date.



Tested by: 
 Pile Dynamics, Inc.
30725 Aurora Road
Cleveland, Ohio 44139 USA



This documents that
Joel S. Webster
GRL Engineers, Inc.

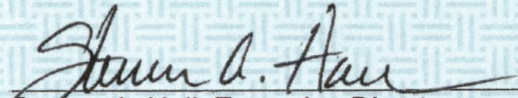
has on October 5, 2018 achieved the rank of

ADVANCED


on the Dynamic Measurement and Analysis Proficiency Test.

The individual identified on this document demonstrated to the degree granted above an understanding of theory, data quality evaluation, interpretation and signal matching for high strain dynamic testing of deep foundations. ***It is recommended that Individuals at the Advanced level seek Master or Expert levels through additional study within six years of the date of this document.***

The ability of the individual named to provide appropriate knowledge and advice on a specific project is not implied or warranted by the Pile Driving Contractors Association or Pile Dynamics, Inc. **This certificate can be verified at www.PDAproficiencytest.com.** The Pile Driving Contractors Association or Pile Dynamics, Inc. assumes no liability for foundation testing and analysis work performed by the bearer of this certificate.


Steven A. Hall, Executive Director
Pile Driving Contractors Association




Garland Likins, Senior Partner
Pile Dynamics, Inc.

No. 2730

Appendix C

SPT Calibration Results

Average ETR versus Rod Length

Rig Make and Model: CME 750X - SN 303518
Richmond County, North Carolina

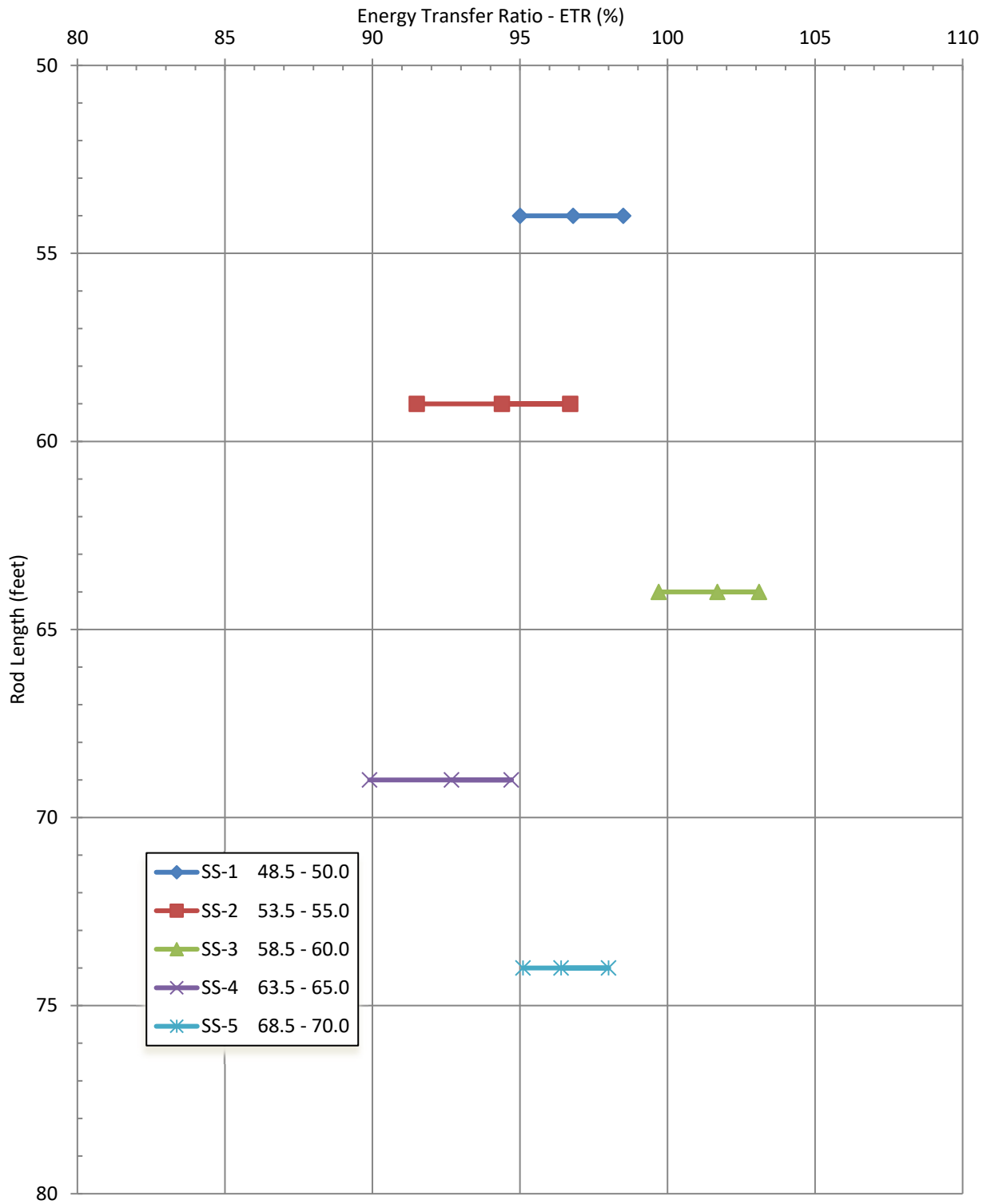


Figure 1 - CME 750X - ETR vs. Rod Length

ETR versus Rod Length

Rig Make and Model: CME 750X SN 303518
Richmond County, North Carolina

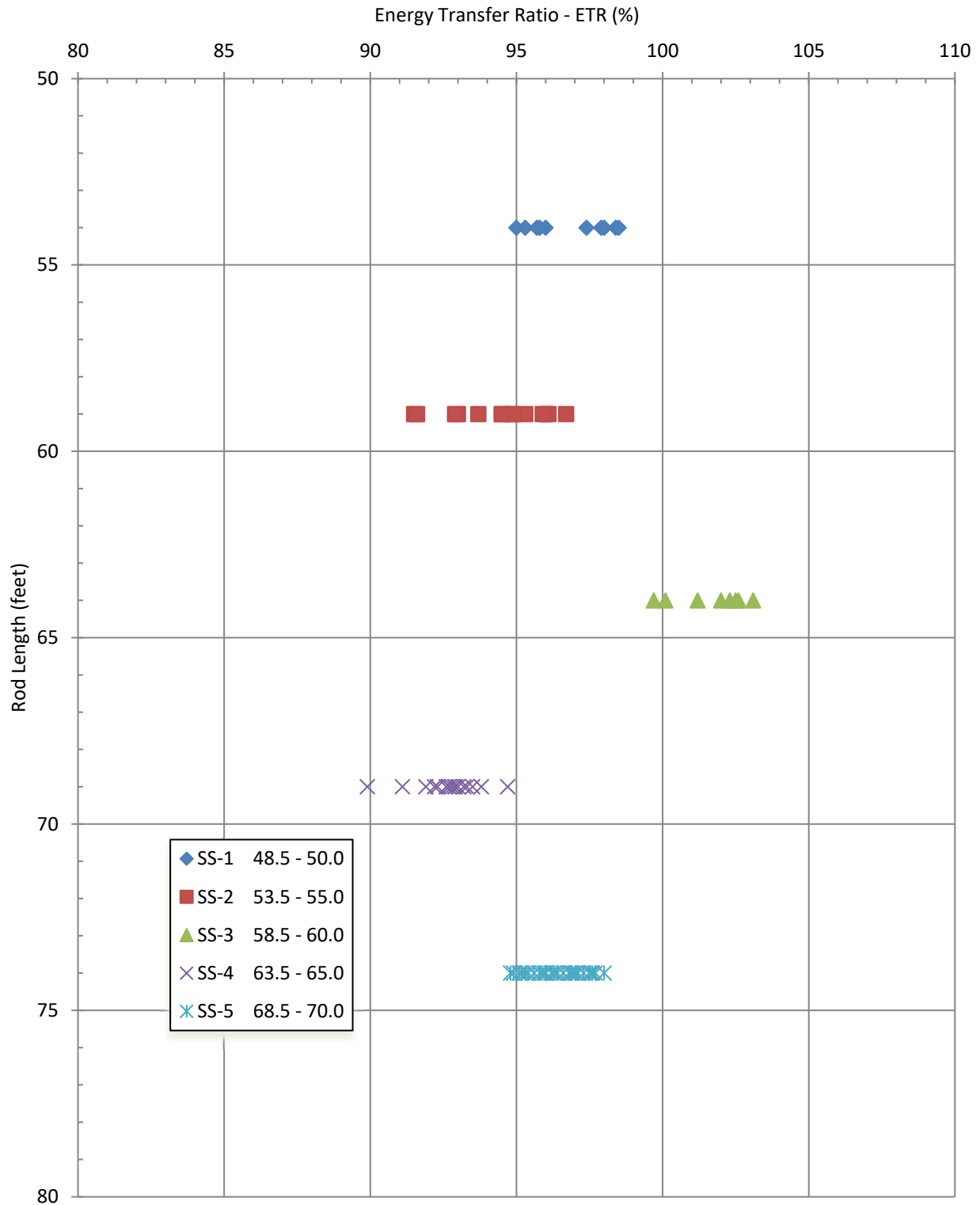


Figure 2 - CME 750X ETR vs. Road Length

Summary of SPT Test Results

Project: ECS SPT 2022 - CME 750X (SN 303518), Test Date: 7/21/2022

FMX: Maximum Force

VMX: Maximum Velocity

BPM: Blows/Minute

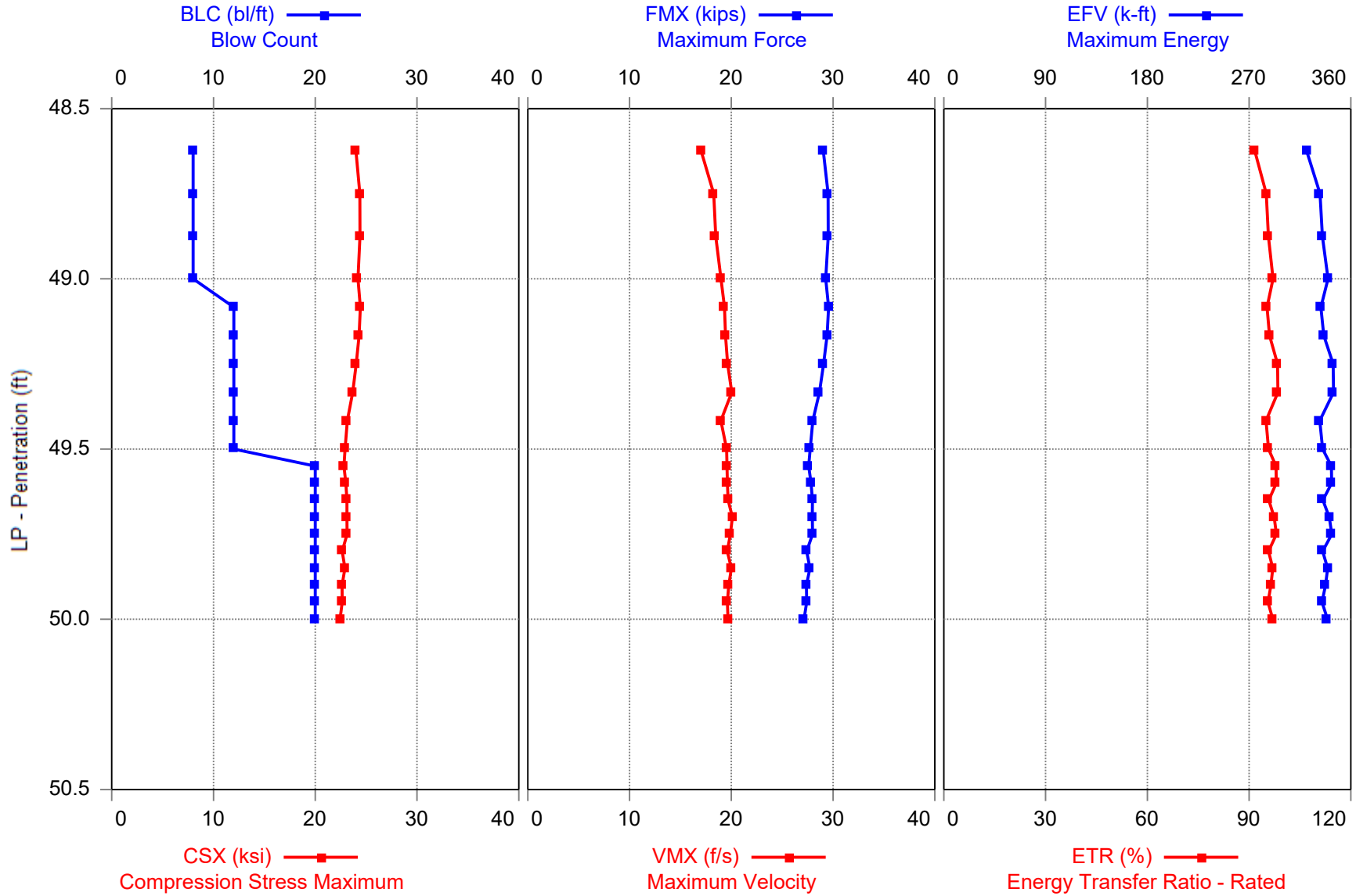
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated

Instr. Length ft	Blows Applied /6"	N Value	N60 Value	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR %
54.00	4-6-10	16	25	28	19.7	54.5	339	96.7
59.00	7-7-7	14	22	28	19.6	52.0	330	94.4
64.00	7-5-3	8	12	28	19.3	49.4	356	101.7
69.00	8-8-9	17	27	26	21.1	54.7	324	92.7
74.00	12-14-17	31	49	29	19.6	55.4	338	96.4
Overall Average Values:				28	19.9	54.0	336	95.9
Standard Deviation:				2	0.9	5.0	9	2.7
Overall Maximum Value:				32	23.1	56.0	361	103.1
Overall Minimum Value:				24	18.4	9.3	315	89.9



ECS SPT 2022 - CME 750X (SN 303518) - SS1 (48.5 - 50)



ECS SPT 2022 - CME 750X (SN 303518)

(SN 303518)

JW

Interval start: 7/21/2022

B-03

AR: 1.21 in²

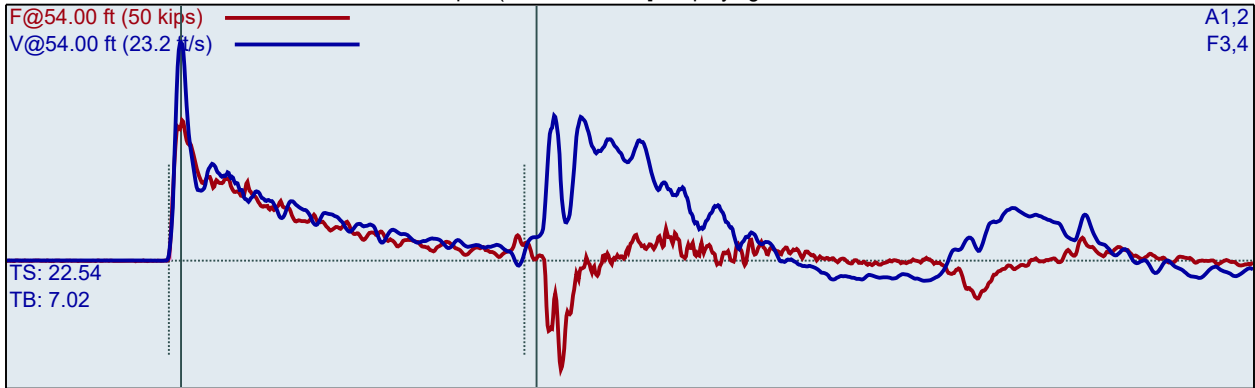
SP: 0.492 k/ft³

LE: 54.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s

Depth: (48.50 - 50.00 ft), displaying BN: 18



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute

EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated

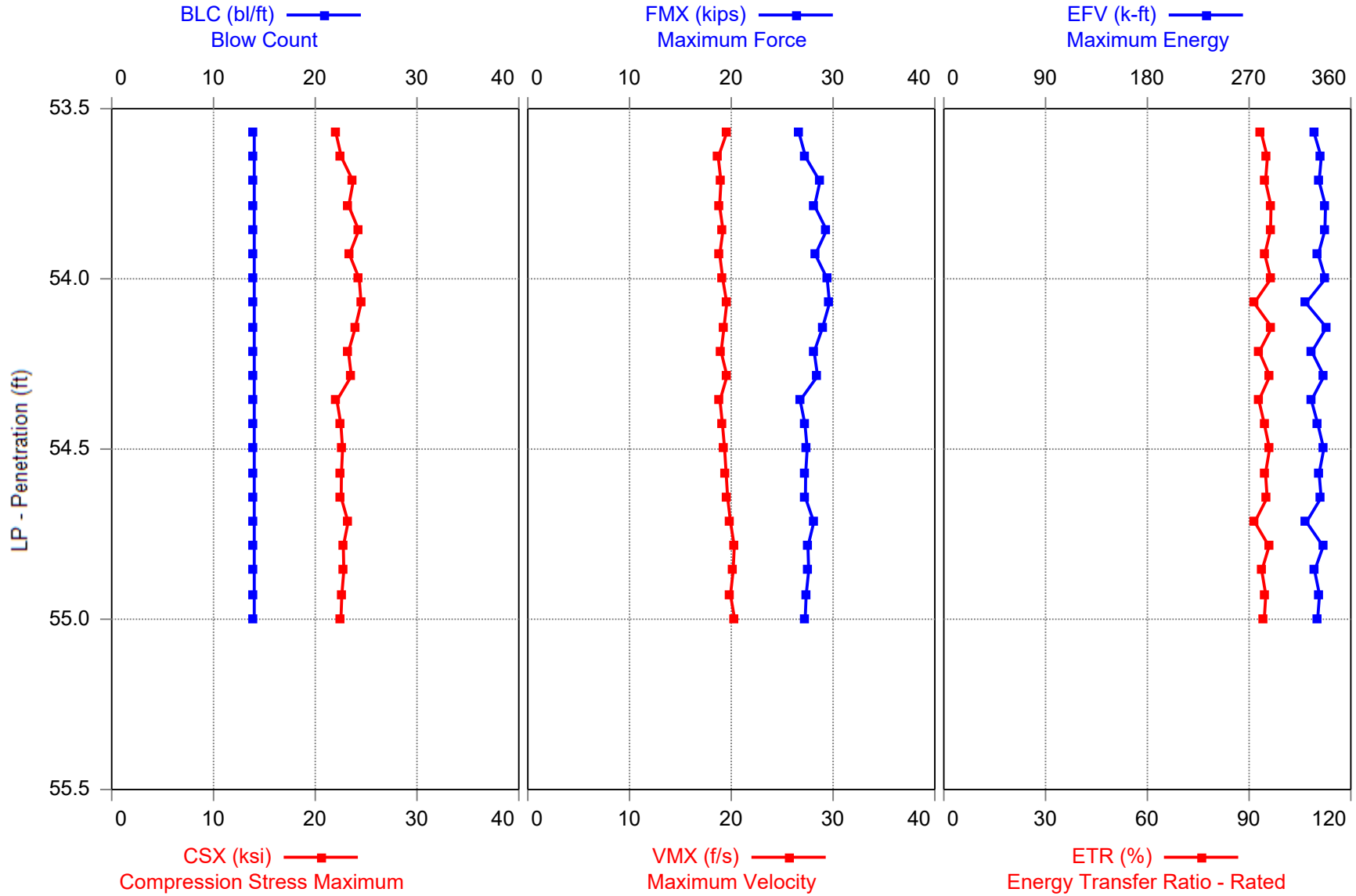
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
1	4	29	17.0	1.9	321	91.7
2	4	30	18.3	53.9	333	95.1
3	4	30	18.5	54.2	335	95.7
4	4	29	19.0	54.5	340	97.1
5	6	30	19.3	54.6	334	95.3
6	6	29	19.4	54.7	336	96.0
7	6	29	19.6	54.3	344	98.4
8	6	29	20.0	54.6	345	98.5
9	6	28	19.0	54.7	332	95.0
10	6	28	19.5	54.7	335	95.7
11	10	28	19.6	54.1	343	97.9
12	10	28	19.6	54.4	343	98.0
13	10	28	19.7	54.6	335	95.8
14	10	28	20.1	54.4	341	97.4
15	10	28	19.9	54.6	343	98.0
16	10	27	19.6	54.6	335	95.7
17	10	28	20.0	54.5	339	97.0
18	10	27	19.7	54.3	338	96.4
19	10	27	19.6	54.3	335	95.6
20	10	27	19.7	54.7	339	97.0
Average		28	19.7	54.5	339	96.7
Std Dev		1	0.3	0.2	4	1.1
Maximum		30	20.1	54.7	345	98.5
Minimum		27	19.0	54.1	332	95.0

N-value: 16

Sample Interval Time: 20.92 seconds.



ECS SPT 2022 - CME 750X (SN 303518) - SS2 (53.5 - 55)



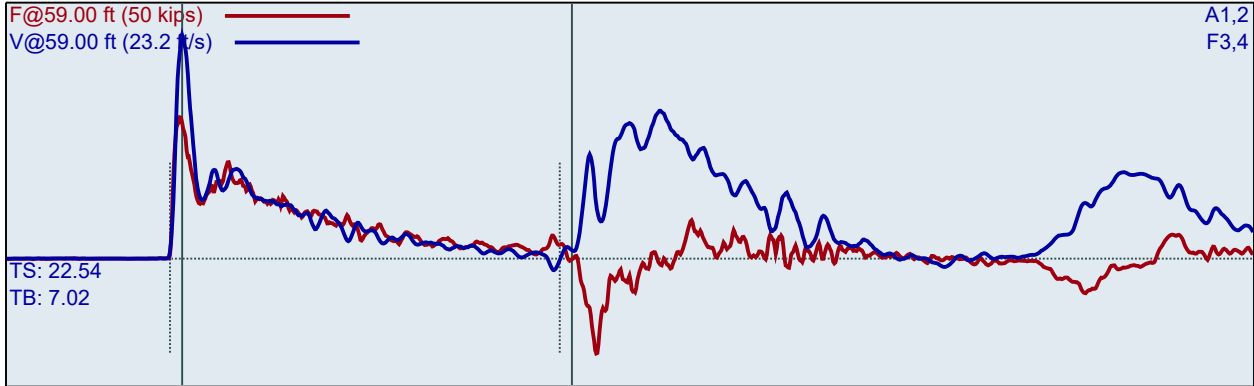
ECS SPT 2022 - CME 750X (SN 303518)
JW
B-03

(SN 303518)
Interval start: 7/21/2022

AR: 1.21 in²
LE: 59.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi

Depth: (53.50 - 55.00 ft), displaying BN: 39



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

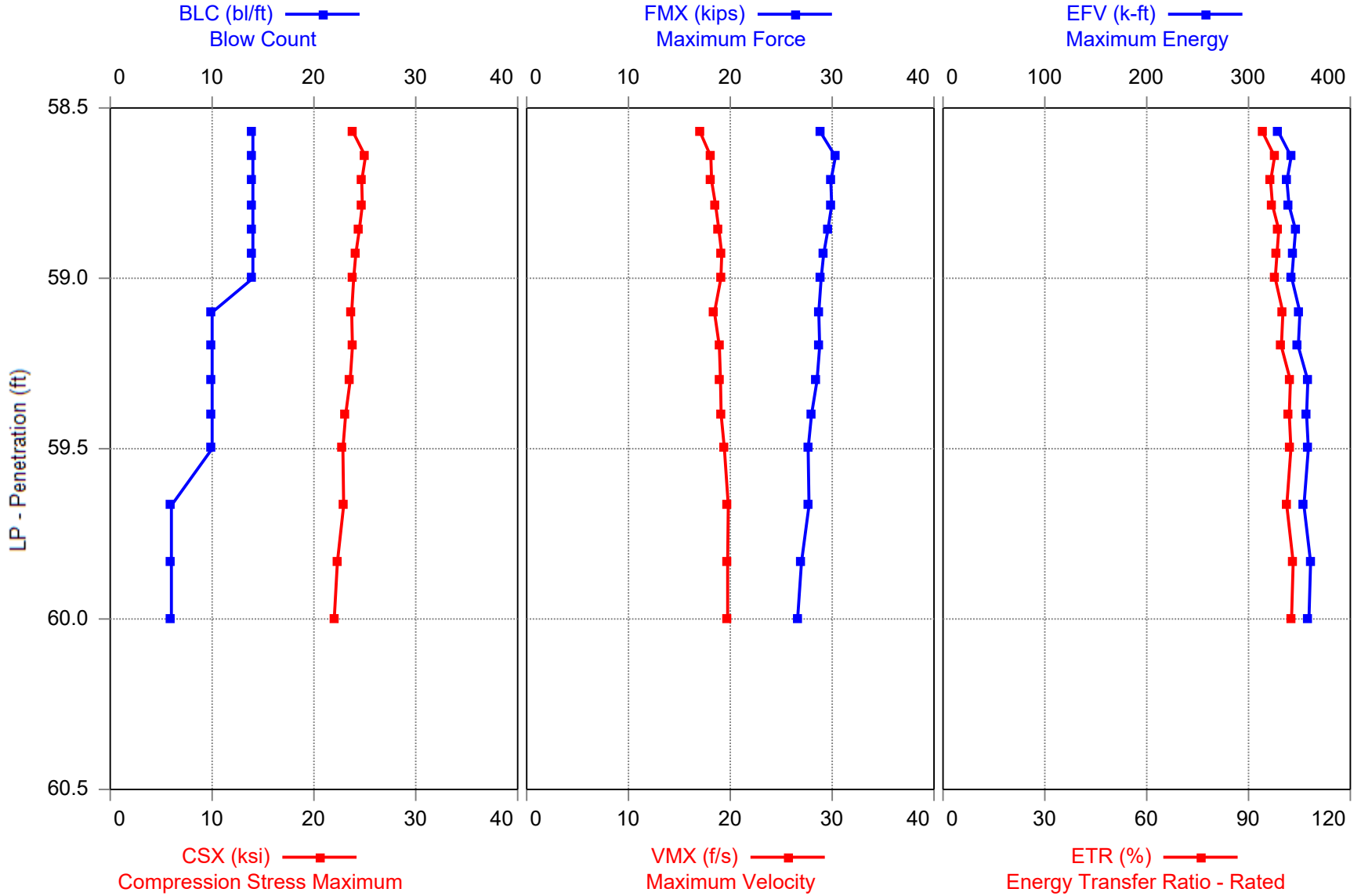
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
21	7	27	19.5	1.9	327	93.6
22	7	27	18.7	50.5	334	95.4
23	7	29	19.0	51.3	332	94.8
24	7	28	18.8	51.6	338	96.5
25	7	29	19.2	51.8	337	96.3
26	7	28	18.9	51.9	331	94.6
27	7	29	19.2	51.7	337	96.4
28	7	30	19.5	52.0	320	91.5
29	7	29	19.3	52.1	338	96.7
30	7	28	19.0	52.0	325	93.0
31	7	28	19.6	52.0	336	96.1
32	7	27	18.9	52.1	325	92.9
33	7	27	19.1	52.0	331	94.5
34	7	27	19.3	52.1	336	96.0
35	7	27	19.5	51.8	332	94.8
36	7	27	19.6	52.3	334	95.3
37	7	28	19.9	52.0	321	91.6
38	7	28	20.3	51.8	336	95.9
39	7	28	20.2	52.1	328	93.7
40	7	27	19.9	51.9	332	94.9
41	7	27	20.3	52.0	331	94.5
Average		28	19.6	52.0	330	94.4
Std Dev		1	0.4	0.1	6	1.6
Maximum		30	20.3	52.3	338	96.7
Minimum		27	18.9	51.8	320	91.5

N-value: 14

Sample Interval Time: 23.19 seconds.



ECS SPT 2022 - CME 750X (SN 303518) - SS3 (58.5 - 60)

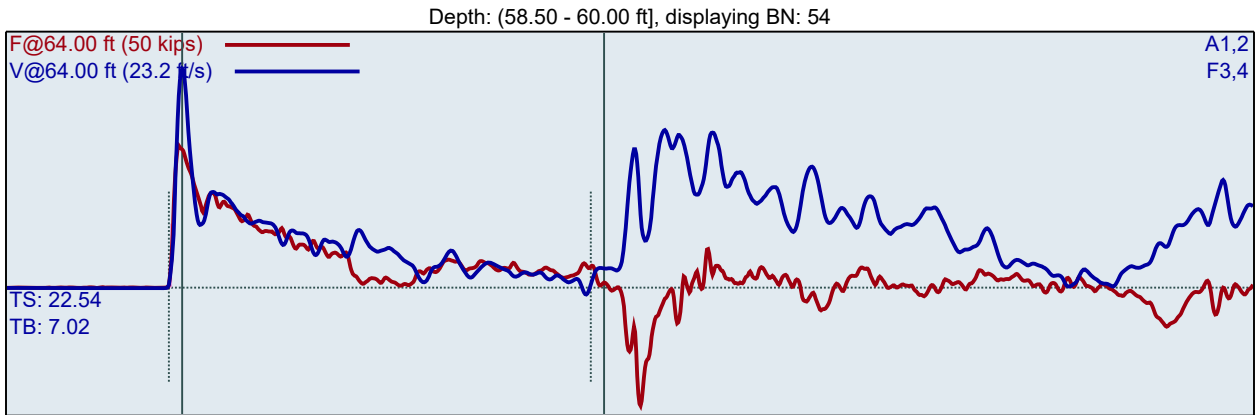


ECS SPT 2022 - CME 750X (SN 303518)
JW
B-03

(SN 303518)
Interval start: 7/21/2022

AR: 1.21 in²
LE: 64.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft³
EM: 30000 ksi



F3 : [168AWJ2] 211 PDICAL (1) FF3
F4 : [168AWJ1] 208.8 PDICAL (1) FF3

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF3
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF3

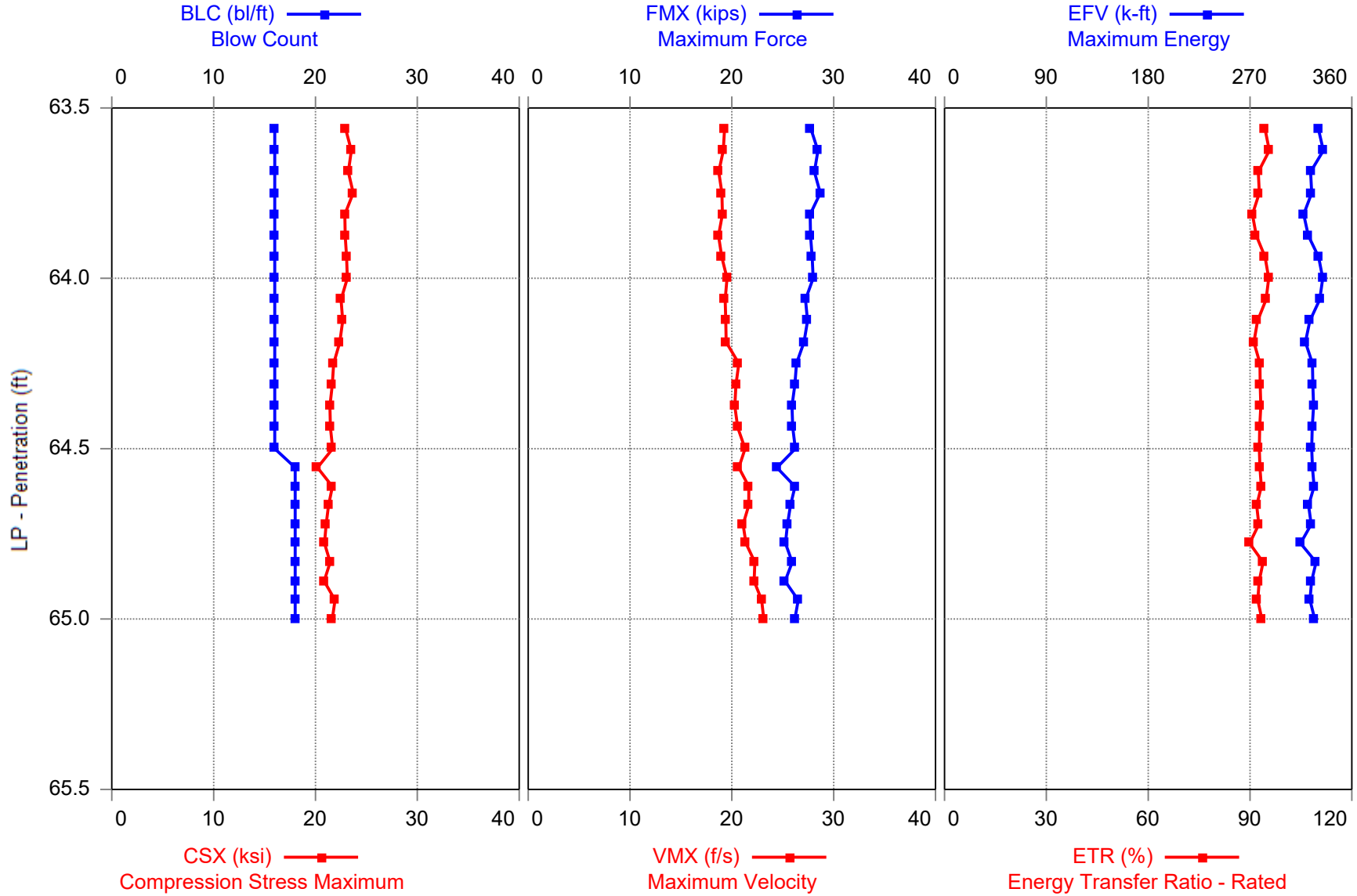
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
42	7	29	17.0	1.9	330	94.2
43	7	30	18.1	53.9	342	97.7
44	7	30	18.2	54.9	338	96.5
45	7	30	18.6	54.9	340	97.1
46	7	30	18.9	54.8	346	98.9
47	7	29	19.2	55.4	344	98.4
48	7	29	19.1	55.1	342	97.8
49	5	29	18.4	54.8	350	100.1
50	5	29	18.9	55.8	349	99.7
51	5	29	19.0	54.7	358	102.3
52	5	28	19.1	55.3	357	102.0
53	5	28	19.4	54.8	359	102.5
54	3	28	19.8	55.4	354	101.2
55	3	27	19.7	55.0	361	103.1
56	3	27	19.7	9.3	359	102.6
Average		28	19.3	49.4	356	101.7
Std Dev		1	0.4	15.1	4	1.2
Maximum		29	19.8	55.8	361	103.1
Minimum		27	18.4	9.3	349	99.7

N-value: 8

Sample Interval Time: 20.64 seconds.



ECS SPT 2022 - CME 750X (SN 303518) - SS4 (63.5 - 65)



ECS SPT 2022 - CME 750X (SN 303518)

(SN 303518)

JW

Interval start: 7/21/2022

B-03

AR: 1.21 in²

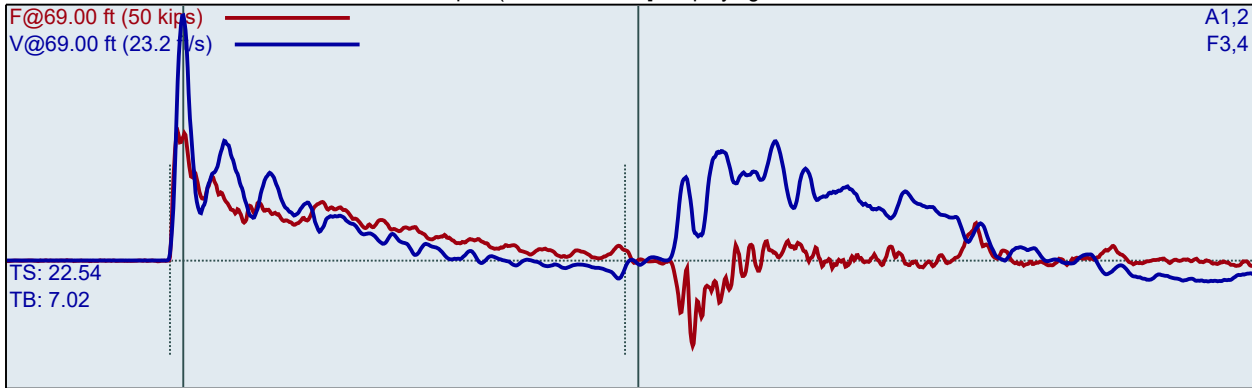
SP: 0.492 k/ft³

LE: 69.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s

Depth: (63.50 - 65.00 ft), displaying BN: 79



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

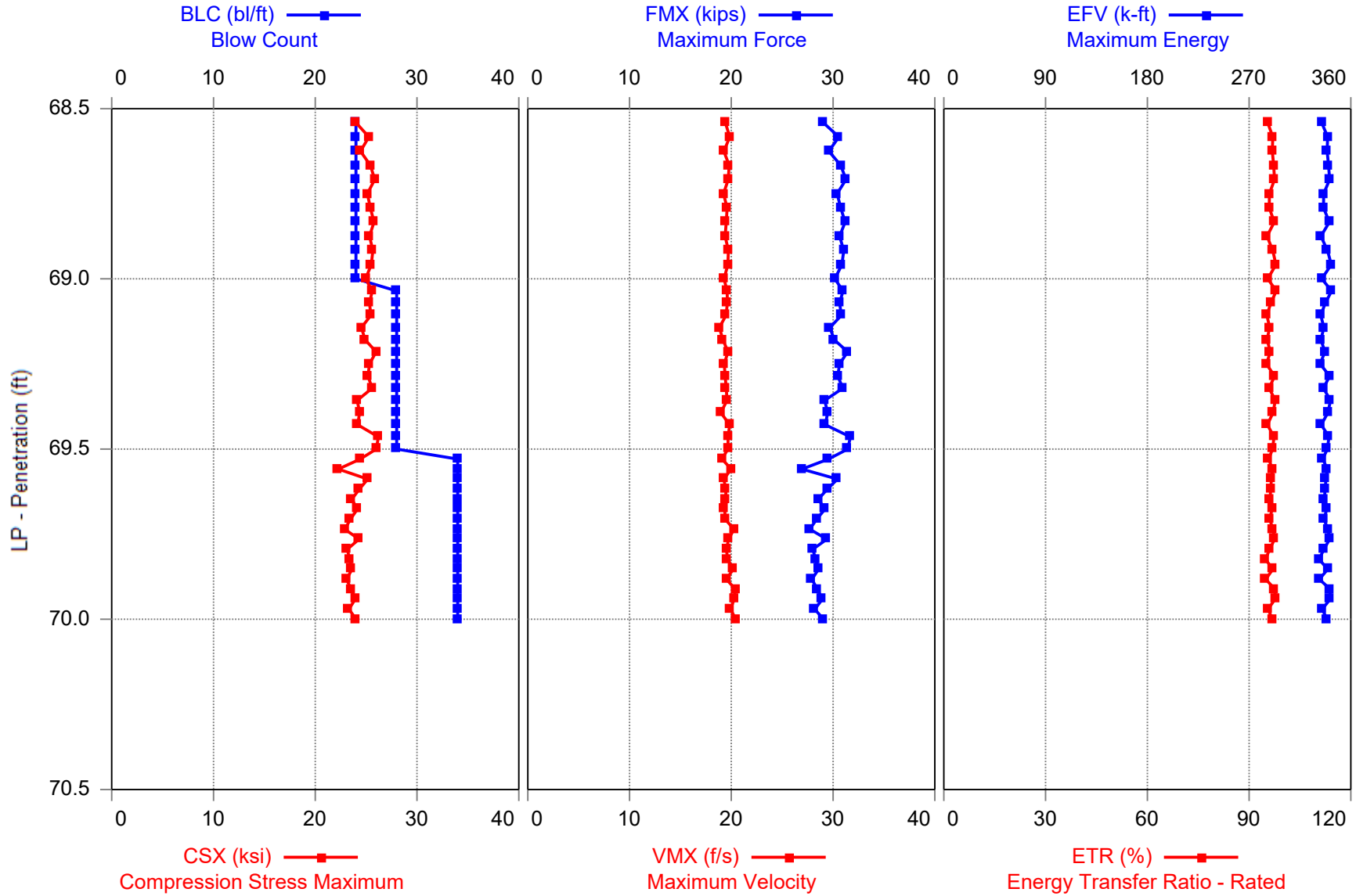
BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
57	8	28	19.3	1.9	331	94.4
58	8	28	19.2	54.3	335	95.7
59	8	28	18.7	55.0	323	92.4
60	8	29	19.0	54.7	325	92.7
61	8	28	19.1	54.5	317	90.7
62	8	28	18.7	54.3	321	91.8
63	8	28	19.0	54.9	331	94.4
64	8	28	19.5	54.7	334	95.5
65	8	27	19.3	55.0	332	94.7
66	8	27	19.4	54.6	323	92.2
67	8	27	19.4	54.9	319	91.1
68	8	26	20.7	54.5	325	92.9
69	8	26	20.4	54.7	325	93.0
70	8	26	20.3	54.6	326	93.2
71	8	26	20.6	54.7	325	92.8
72	8	26	21.3	54.8	325	92.7
73	9	24	20.7	54.9	325	92.9
74	9	26	21.7	54.5	327	93.3
75	9	26	21.7	54.8	322	91.9
76	9	25	21.1	54.5	324	92.6
77	9	25	21.4	54.8	315	89.9
78	9	26	22.3	54.5	328	93.8
79	9	25	22.2	54.9	324	92.7
80	9	27	22.9	54.5	323	92.3
81	9	26	23.1	54.7	327	93.5
Average		26	21.1	54.7	324	92.7
Std Dev		1	1.1	0.2	4	1.0
Maximum		27	23.1	55.0	332	94.7
Minimum		24	19.3	54.5	315	89.9

N-value: 17

Sample Interval Time: 26.28 seconds.



ECS SPT 2022 - CME 750X (SN 303518) - SS5 (68.5 - 70)



ECS SPT 2022 - CME 750X (SN 303518)

(SN 303518)

JW

Interval start: 7/21/2022

B-03

AR: 1.21 in²

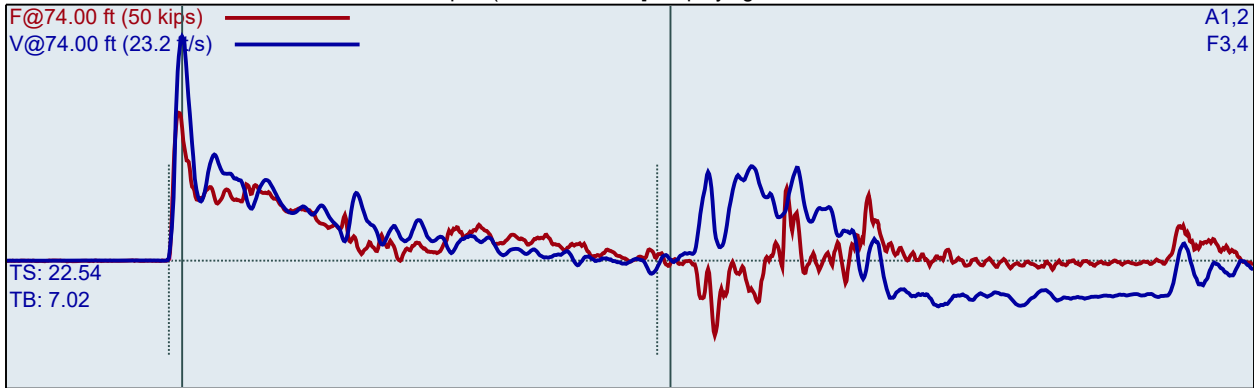
SP: 0.492 k/ft³

LE: 74.00 ft

EM: 30000 ksi

WS: 16807.9 ft/s

Depth: (68.50 - 70.00 ft), displaying BN: 122



F3 : [168AWJ2] 211 PDICAL (1) FF1
F4 : [168AWJ1] 208.8 PDICAL (1) FF1

A1 (PR): [K4805] 392.158 mv/6.4v/5000g (1) VF1
A2 (PR): [K10509] 406.481 mv/6.4v/5000g (1) VF1

BL#	BC /6"	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR %
82	12	29	19.4	1.9	334	95.5
83	12	31	19.8	55.2	339	97.0
84	12	30	19.3	55.8	339	96.8
85	12	31	19.8	55.7	340	97.2
86	12	31	19.7	55.6	341	97.5
87	12	30	19.2	55.7	336	96.0
88	12	31	19.6	55.8	336	95.9
89	12	31	19.5	55.6	341	97.4
90	12	31	19.4	55.5	333	95.3
91	12	31	19.7	55.6	339	97.0
92	12	31	19.7	55.7	343	97.9
93	12	30	19.3	55.5	334	95.5
94	14	31	19.6	55.3	343	98.0
95	14	31	19.6	55.8	337	96.4
96	14	31	19.5	55.7	333	95.2
97	14	30	18.8	55.4	336	96.0
98	14	30	19.2	56.0	333	95.3
99	14	31	19.7	55.2	337	96.3
100	14	31	19.3	55.6	333	95.1
101	14	30	19.4	55.1	341	97.5
102	14	31	19.5	56.0	336	95.9
103	14	29	19.6	55.4	342	97.7
104	14	29	19.0	55.5	340	97.0
105	14	29	19.8	55.8	334	95.4
106	14	32	19.7	54.7	341	97.3
107	14	31	19.7	55.7	339	96.9
108	17	30	19.1	55.8	335	95.8
109	17	27	20.0	55.0	339	96.9
110	17	30	19.3	55.9	338	96.6
111	17	29	19.5	55.4	337	96.3
112	17	29	19.4	55.2	337	96.2

113	17	29	19.4	55.0	339	96.8
114	17	28	19.4	55.5	336	96.0
115	17	28	20.3	55.4	340	97.1
116	17	29	19.7	55.0	341	97.5
117	17	28	19.5	55.6	336	96.0
118	17	28	19.6	55.5	332	94.8
119	17	29	20.2	54.9	339	97.0
120	17	28	19.5	55.6	332	94.9
121	17	28	20.4	55.2	342	97.6
122	17	29	20.3	55.1	342	97.6
123	17	28	19.9	55.4	335	95.6
124	17	29	20.4	55.2	339	96.9
Average		29	19.6	55.4	338	96.4
Std Dev		1	0.4	0.3	3	0.9
Maximum		32	20.4	56.0	343	98.0
Minimum		27	18.8	54.7	332	94.8

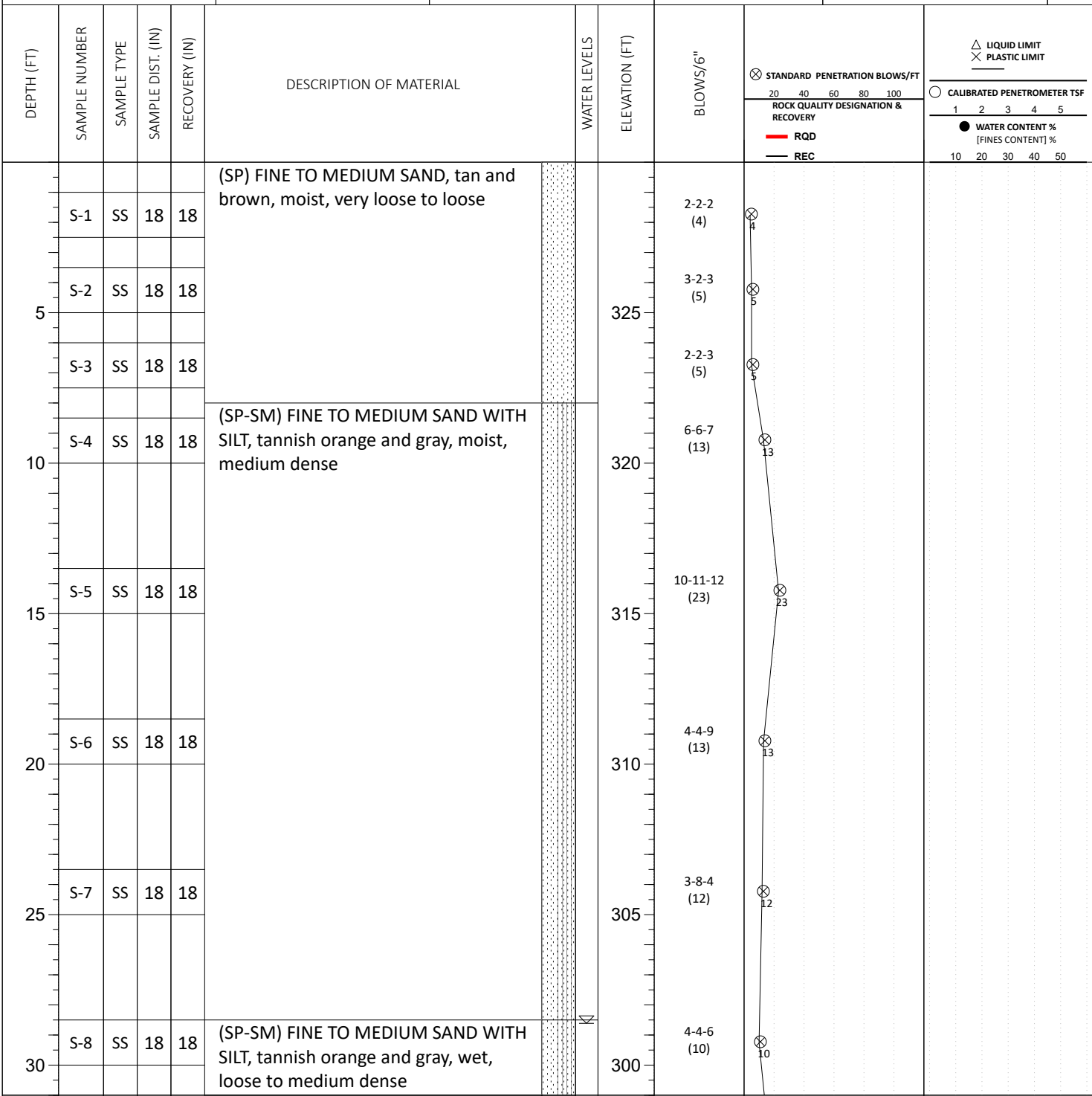
N-value: 31

Sample Interval Time: 45.42 seconds.

Appendix D
Soil Boring Logs

CLIENT:	PROJECT NO.: 33:6097	BORING NO.: B-03	SHEET: 1 of 4	
PROJECT NAME: Project Titan	DRILLER/CONTRACTOR: ECS			

SITE LOCATION: 1601 Airport Road, Hamlet, North Carolina 28345			LOSS OF CIRCULATION 	
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 330	BOTTOM OF CASING



CONTINUED ON NEXT PAGE

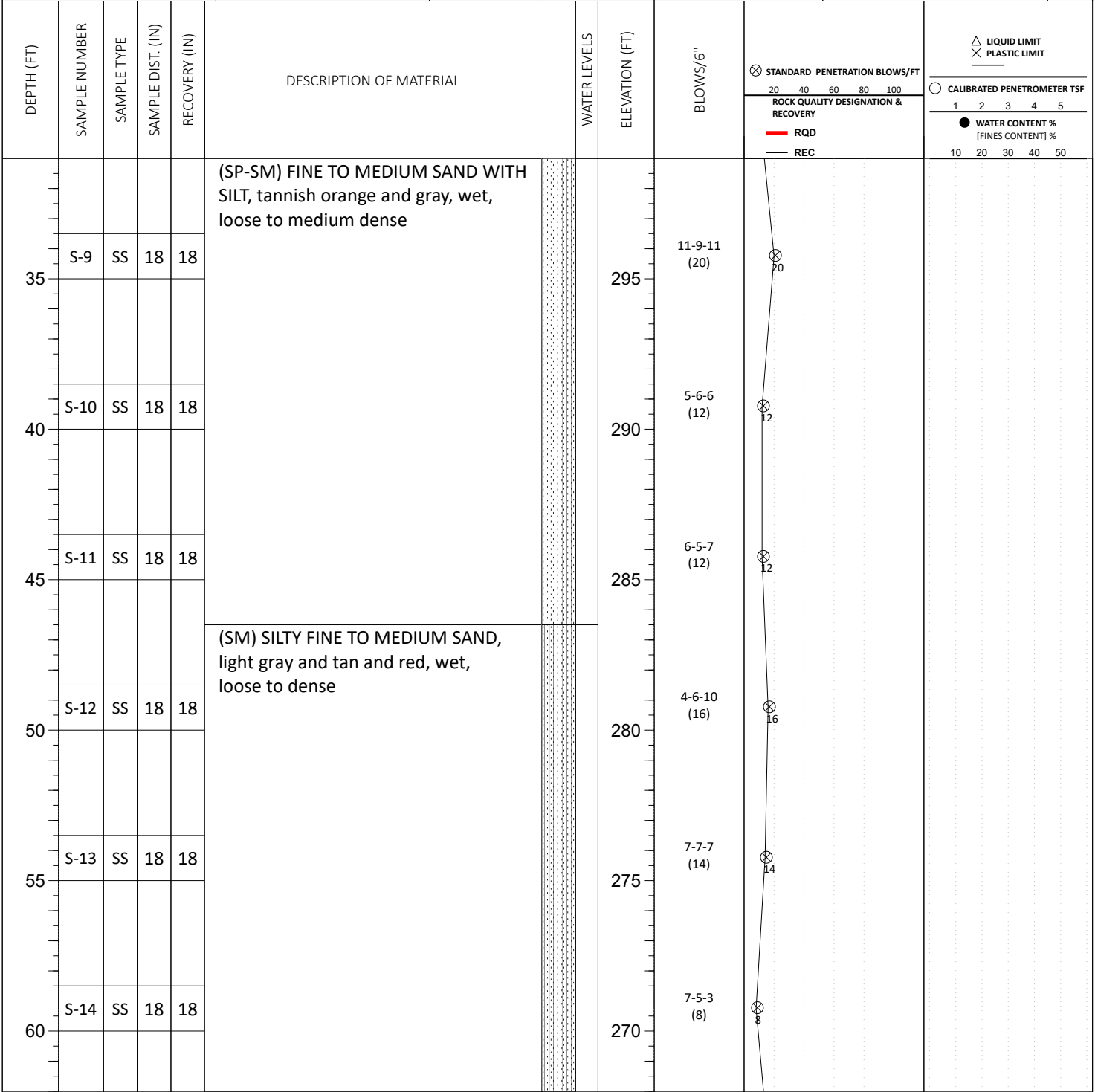
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

∇ WL (First Encountered) 28.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
▼ WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
∇ WL (Seasonal High Water)	EQUIPMENT: CME-750X	LOGGED BY: AW
∇ WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.: 33:6097	BORING NO.: B-03	SHEET: 2 of 4	
PROJECT NAME: Project Titan	DRILLER/CONTRACTOR: ECS			

SITE LOCATION: 1601 Airport Road, Hamlet, North Carolina 28345			LOSS OF CIRCULATION 	
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 330	BOTTOM OF CASING



CONTINUED ON NEXT PAGE

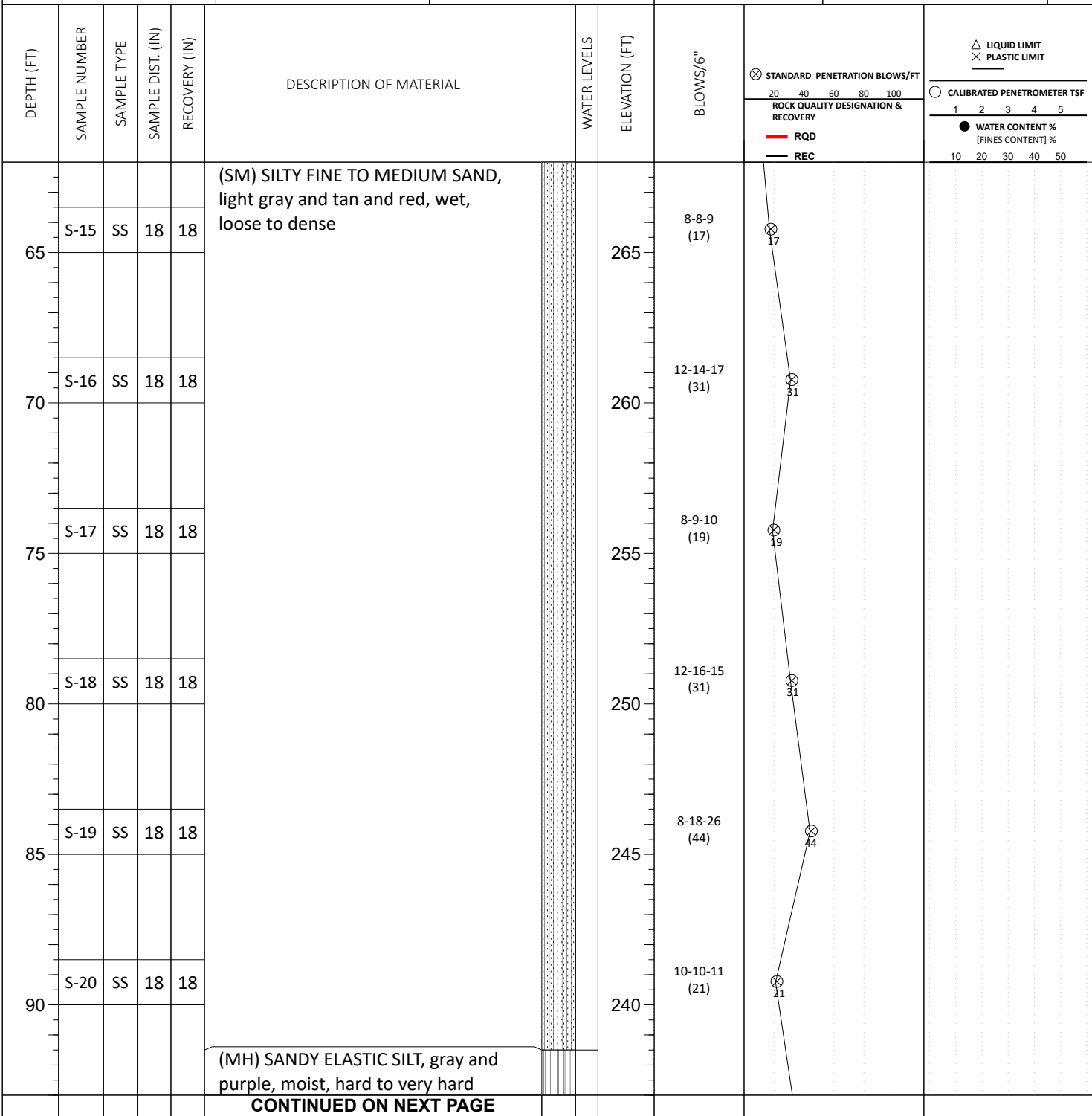
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

<input checked="" type="checkbox"/> WL (First Encountered) 28.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
<input checked="" type="checkbox"/> WL (Seasonal High Water)	EQUIPMENT: CME-750X	LOGGED BY: AW
<input checked="" type="checkbox"/> WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG

SITE LOCATION: **1601 Airport Road, Hamlet, North Carolina 28345**

NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 330	LOSS OF CIRCULATION
				BOTTOM OF CASING



CONTINUED ON NEXT PAGE

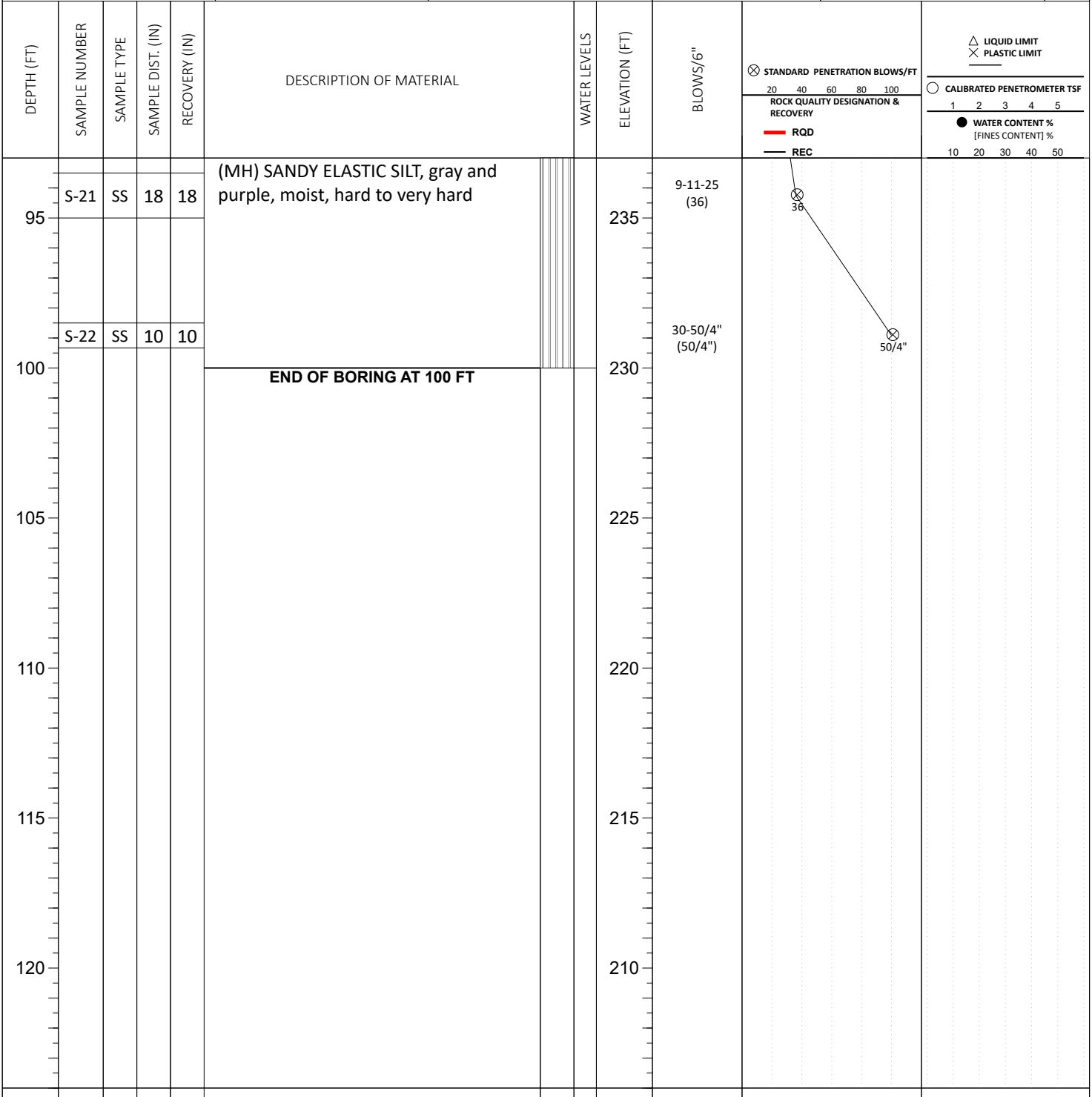
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

<input checked="" type="checkbox"/> WL (First Encountered) 28.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
<input checked="" type="checkbox"/> WL (Seasonal High Water)	EQUIPMENT: CME-750X	LOGGED BY: AW
<input checked="" type="checkbox"/> WL (Stabilized)		DRILLING METHOD: Wash Rotary

GEOTECHNICAL BOREHOLE LOG

CLIENT:	PROJECT NO.: 33:6097	BORING NO.: B-03	SHEET: 4 of 4	
PROJECT NAME: Project Titan	DRILLER/CONTRACTOR: ECS			

SITE LOCATION: 1601 Airport Road, Hamlet, North Carolina 28345			LOSS OF CIRCULATION 	
NORTHING:	EASTING:	STATION:	SURFACE ELEVATION: 330	BOTTOM OF CASING



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

<input checked="" type="checkbox"/> WL (First Encountered) 28.50	BORING STARTED: Jul 21 2022	CAVE IN DEPTH:
<input checked="" type="checkbox"/> WL (Completion)	BORING COMPLETED: Jul 21 2022	HAMMER TYPE: Auto
<input checked="" type="checkbox"/> WL (Seasonal High Water)	EQUIPMENT: CME-750X	LOGGED BY: AW
<input checked="" type="checkbox"/> WL (Stabilized)	DRILLING METHOD: Wash Rotary	

GEOTECHNICAL BOREHOLE LOG




GRL
engineers, inc.

SPT Energy Calibration Services



GRL Job No. 229058-1

**Project: Standard Penetration Test Energy Measurements
Diedrich D-50 Drill Rig
Gaston County, North Carolina**

November 28, 2022

Prepared For: ECS Southeast, LLC

www.grlengineers.com

By: Mark A. Rawlings & Scott D. Webster, P.E.



November 29, 2022

Mr. Mohammed Mulla
ECS Southeast, LLP
5260 Greens Dairy Road
Raleigh, NC 27616

Re: Standard Penetration Test Energy Measurements
Diedrich D-50 Drill Rig – S/N D-50/195
Gaston County, North Carolina

GRL Job No. 229058-1

Dear Mr. Mulla:

This report presents results of energy measurements obtained on November 18, 2022, during Standard Penetration Test (SPT) sampling with an automatic hammer mounted on a Diedrich D-50 drill rig. The dynamic testing was performed on AW drill rods having J threads. GRL Engineers, Inc. obtained the dynamic measurements with an instrumented AW-J subsection and an 8G Model Pile Driving Analyzer®. This report describes the testing procedures and summarizes the test results. Appendix A describes our measurement and analysis methods, Appendix B contains the instrumentation calibrations and certificates, Appendix C contains a summary of the field data, and Appendix D contains plots of the force and velocity measurements.

PURPOSE AND SCOPE OF WORK

At the request of ECS Southeast, GRL Engineers conducted SPT energy measurements in accordance with ASTM D4633-16 at an ECS Southeast project site in Gaston County, North Carolina. Energy measurements on the rig were taken during four sampling events.

EQUIPMENT

Drilling and SPT Hammer Equipment

Diedrich D-50 Drill Rig (Serial Number D-50/195)

The Diedrich D-50 drill rig was mounted on a Morooka MST 800 tracked chassis. The drill rig was equipped with a Diedrich automatic SPT hammer. Continuous flight, hollow stem augers were used to advance the sampling hole. AW-J rod with a split spoon sampler was used to collect the soil samples.

Instrumentation

An 8G Model Pile Driving Analyzer (PDA) data acquisition system was used to collect and process the dynamic measurements of force and velocity. A two-foot-long subsection of AW-J rod was instrumented with two full-bridge, foil resistance strain gages and two piezoresistive accelerometers mounted at the midpoint location of the instrumented rod.

Analog signals from the strain gages and accelerometers were conditioned, digitized, processed, and stored with the PDA. Selected output from the PDA for each recorded

impact included the maximum energy transfer by the FV method as recommended by ASTM D4633-16, (EFV); the energy transfer ratio (ETR) which is defined as the ratio of the EFV value divided by the theoretical hammer potential energy of 350 ft-lbs (i.e., computed from the 140 pound SPT hammer and the standard 30 inch drop as specified by ASTM D1586-11); the maximum rod top force, (FMX); maximum rod top velocity, (VMX); the hammer operating rate, (BPM); the maximum computed displacement, (DMS); the final displacement, (DFN); and the maximum compressive stress at the gage location, (CSX). These results are presented in graphical and tabular form and as a function of blow number and depth in Appendix C.

TESTING SEQUENCE

ASTM D4633-16 indicates that SPT energy measurements are more reliable when the rod length below the instrumentation is 30 feet or greater. It was known before starting that bedrock could be encountered at a depth near to or less than 30 feet. Energy measurements started with sample 6 at an initial depth of 18.5 feet below the existing ground surface and finished with sample 9 at a final depth of 35.0 feet. Four samples were taken at five-foot intervals between these depths. Sampling was discontinued at 35 feet due to the near-refusal conditions that were encountered during the fourth sample. SPT samples were driven for a total of three, 6-inch increments, or 1.5 feet. The blow count for each of the increments was recorded. The N-value blow count is the sum of the blow counts for the second and third increments. Results from the first sample (sample 6) are presented but are not included in the overall results due to the rod length below the instrumentation location being only 24 feet. The soil retrieved was generally classified at that time as brown sandy silt, or silty sand.

RESULTS

The records collected by the PDA were checked for consistency and accuracy during preparation of the final report. For example, records from very weak startup of final impacts were not included in average results. The table below and Table 1 summarize the average transferred energy values calculated by the EFV method over the last 12 inches (i.e., N value) at each dynamically monitored sampling depth.

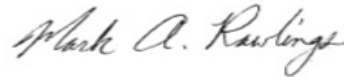
Drill Rig	Average EFV (ft-lbs)	Average ETR (%)
Diedrich D-50 S/N D-50/195	324	93

Please review both ASTM D4633-16 and ASTM D1586-99 prior to applying these test results. The energy calibrations reported herein are valid for the same hammer/drill rig, with the same drill operator, same anvil dimensions, and same drilling methods.

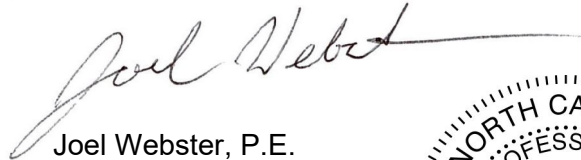
We appreciate the opportunity to be of assistance to you on this project. Please contact our office should you have any questions regarding this submittal, require additional information, or if we may be of further service.

Sincerely,

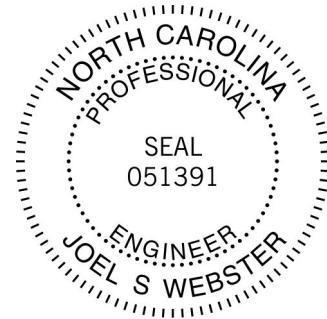
GRL Engineers, Inc.



Mark Rawlings



Joel Webster, P.E.



GRL Engineers, Inc. - NC
PE License Number C-2391

**TABLE 1: Summary of SPT Energy Measurements
ECS Diedrich D-50 - S/N D-50/195
Caston County, North Carolina - November 18, 2022**

Soil Sample	Reported Sample Depth (feet)	Reported Rod Length ⁽¹⁾ (feet)	Reported Blow Count (blows/6")	SPT Field N Value	Average Energy Transfer To Rod ⁽²⁾ (ft-lbs)	Average Energy Transfer Ratio ⁽³⁾ (%)	SPT Hammer Operating Rate (blows / min.)	SPT N Value Corrected for 60% Energy ⁽⁴⁾ N60
Diedrich Auto Hammer - AW-J Rod								
6*	18.5 - 20.0	24.0	4-5-5	10	335	96	58.1	16
7	23.5 - 25.0	29.0	4-5-6	11	326	93	57.7	17
8	28.5 - 30.0	34.0	2-7-10	17	331	95	59.0	27
9	33.5 - 35.0	39.0	11-19-21	40	321	92	58.6	61
Average					324	93	58.6	
Standard Deviation					9	3	0.5	

- 1) Below the testing gage location. Add 1.0 foot for total rod length.
- 2) Average energy transfer over second and third increment from FV Method.
- 3) Energy calculated by FV method divided by 350 ft-lbs (140 pound ram dropped 2.5 feet).
- 4) SPT N value corrected for 60% energy using the Seed Correction Method.

* Sample does not meet rod length recommendations; results are not included

Average ETR versus Rod Length

Diedrich D-50 - S/N D-50/195
Gaston County, North Carolina

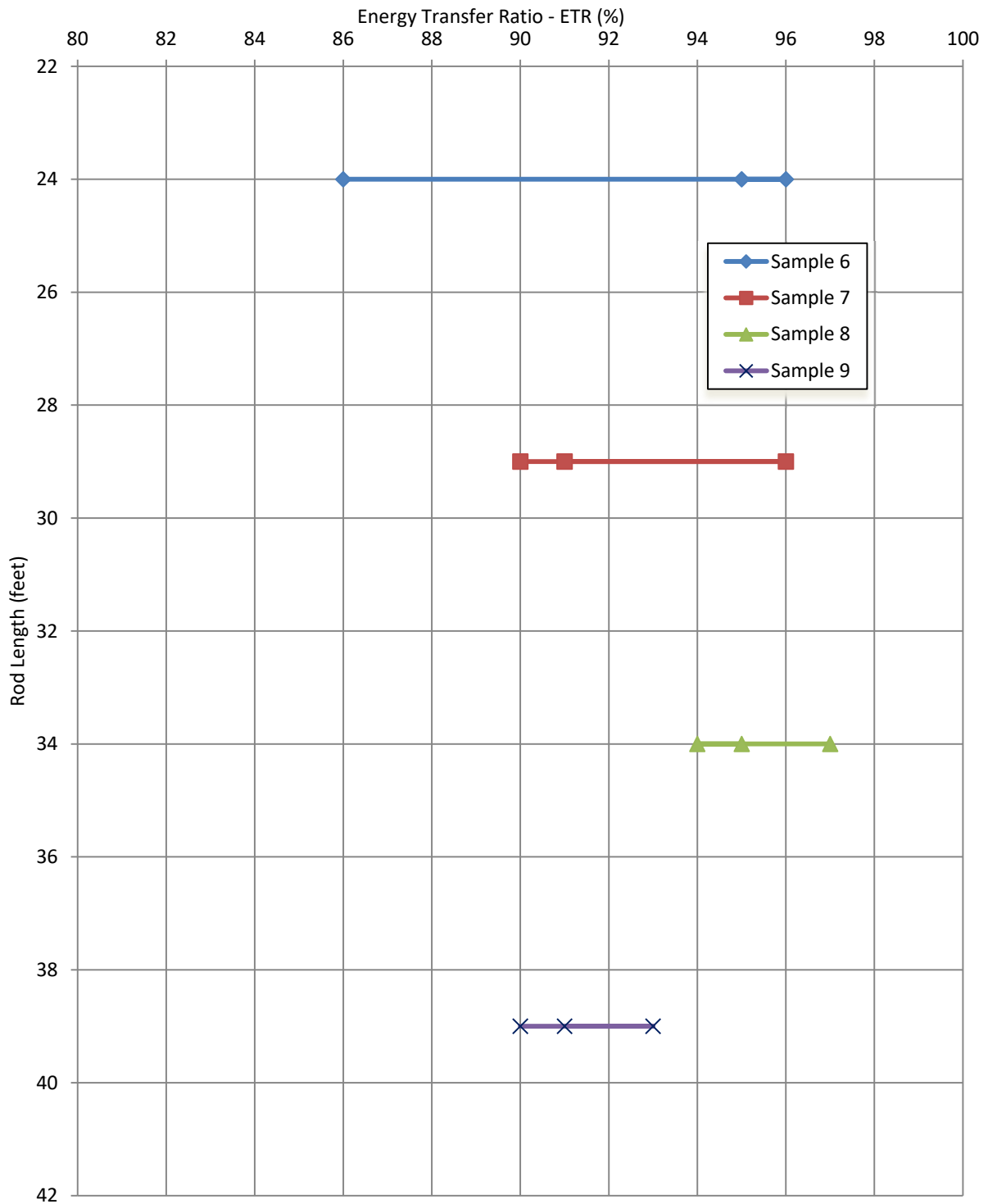


Figure 1 - Diedrich D-50 - ETR vs. Rod Length

ETR versus Rod Length

Diedrich D50 S/N D-50/195
Gaston County, North Carolina

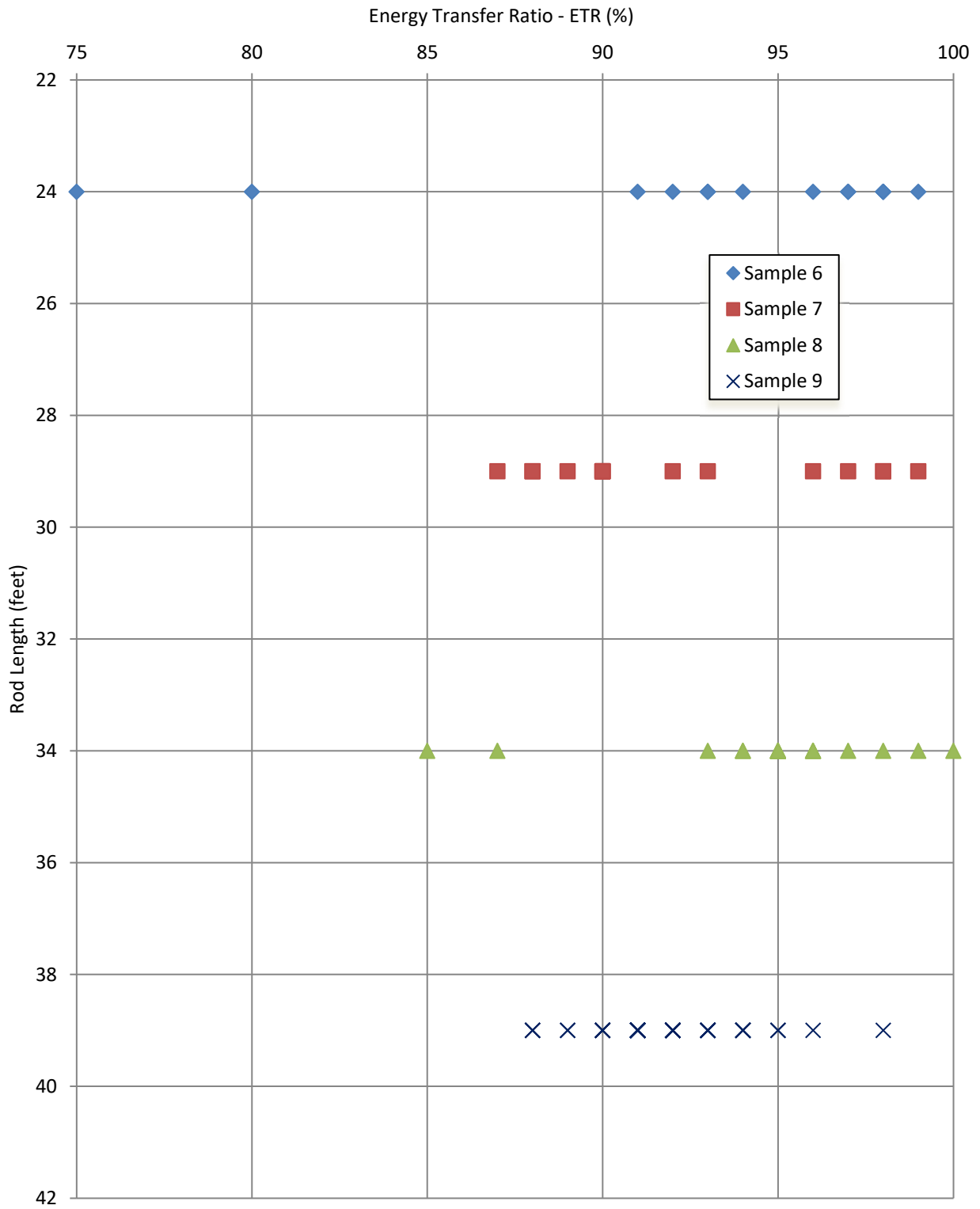


Figure 2 - Diedrich D-50 ETR vs. Road Length

APPENDIX A

An Introduction Into SPT Dynamic Testing Methods

APPENDIX A

AN INTRODUCTION INTO SPT DYNAMIC PILE TESTING

The following has been written by GRL Engineers, Inc. and may only be copied with its written permission.

1. BACKGROUND

The Standard Penetration Test is frequently conducted as an in-situ assessment of soil strength. This test requires that a 140 lb weight is dropped 30 inches onto a drive rod at whose bottom a sampler is usually installed. The sampler is driven for 18 inches; the number of blows required for the last 12 inches of driving is the so-called N-value. The N-value may be used as a strength indicator for foundation design or as a means of assessing the liquefaction potential of soils.

Obviously, the SPT hammer efficiency is an important consideration when using the N-values for design purposes. Measurements have indicated that the energy in the drive rod is sometimes only 30% and may reach 90% of the potential or rated energy of the SPT hammer (E-rated = 0.35 kip-ft or 0.475 kJ). The type of hammer used to drive the rod is the main reason for these variations. On the average, the energy in the drive rod is 60% of the standard rated energy.

Because of the variability of energy, methods based on N-values are considered unreliable. However, measurements during SPT testing using the Case Method can be done on a routine basis and these measurements yield the transferred energy values. With measured energy, E_m , known, an adjustment of the measured N-value, N_m , can be made as follows.

$$N_{60} = N_m [E_m / (0.6E_r)] \quad (1)$$

Thus, if the measured energy value is equal to the normally expected transferred energy of 60% of E-rated then the adjusted and measured N-values are identical. On the other hand, if the measured energy is only 30% then the adjusted blow count will be reduced by 50%.

2. DYNAMIC TESTING AND ANALYSIS METHODS APPLIED TO SPT

The Case Method of dynamic pile testing, named after the Case Institute of Technology where it was developed between 1964 and 1975, requires that a substantial ram mass (e.g. a pile driving hammer) impacts the pile top such that the pile undergoes at least a small permanent set. Thus, the method is also referred to as a "High Strain Method". The Case Method requires dynamic measurements on the pile or shaft under the ram impact and then a calculation of various quantities. Conveniently, for SPT applications, the measurements and analyses are done by a single piece of equipment: the SPT Analyzer (SPTA). The Pile Driving Analyzer® (PDA) is also suitable to perform these measurements and data processing.

A related analysis method is the "Wave Equation Analysis" which calculates a relationship between bearing capacity, pile stresses, transferred energy and field blow count. The GRLWEAP™ program performs this analysis and provides a complete set of helpful information and input data. This program can be used very effectively to simulate the SPT driving process.

3. MEASUREMENTS

GRL uses equipment manufactured by Pile Dynamics, Inc. The system includes either an SPT-Analyzer™ (SPTA) or a Pile Driving Analyzer® (PDA), an instrumented rod section and two accelerometers. SPT energy testing is very closely related to and borrows procedures from dynamic pile testing. Those interested in the basis of the SPT energy testing method may obtain extensive literature on dynamic pile testing from GRL Engineers, Inc.

3.1 SPT Analyzer or Pile Driving Analyzer

The basis for the results calculated by the SPTA or PDA are strain and acceleration measured in an instrumented rod section. These signals are

converted to rod top force, $F(t)$, and rod top velocity, $v(t)$. The SPTA or PDA conditions, calibrates and displays these signals and immediately computes average pile force and velocity thereby eliminating bending effects. The product of these two measurements is then integrated over time which yields the energy transferred to the instrumented section as a function of time (see Section 4.1).

For convenience and accuracy, strain measurements are usually taken on an instrumented section of SPT drive rod. Ideally, the section properties of the instrumented rod and those of the drive rod are the same, however, using subs, other sections can also be utilized.

For the instrumented section, PDI provides a force calibration in such a way that the output of the instrumented rod is directly calculated without the need for an accurate elastic modulus or cross sectional area of the rod section.

The acceleration measurements are often demanding in the SPT environment, because of high frequency and high acceleration motion components. An experienced measurement engineer, therefore, has to evaluate the quality of this data before final conclusions are drawn from the numerical results calculated by SPTA or PDA.

SPTA or PDA records are taken while the standard N-value is acquired in the conventional manner. This then allows a direct correlation between N-value and average transferred energy.

3.2 HPA

The SPT hammer's ram velocity may be directly obtained using radar technology in the Hammer Performance Analyzer™. The impact velocity results can be automatically processed with a PC or recorded on a strip chart. HPA measurements yield a hammer kinetic energy, but not the energy transferred to the drive rod.

4 RECORD EVALUATION BY SPTA OR PDA

4.1 HAMMER PERFORMANCE

The PDA calculates the energy transferred to the pile top from:

$$E(t) = \int_0^t F(\tau)v(\tau) d\tau \quad (2)$$

The maximum of the $E(t)$ curve is often called **ENTHRU** or **EMX**; it is the most important quantity for an overall evaluation of the performance of a hammer and driving system. **EMX** allows for a classification of the hammer's performance when presented as, e_T , the rated transfer efficiency, also called energy transfer ratio (**ETR**) or global efficiency.

$$e_T = EMX/E_R \quad (3)$$

where E_R is the hammer manufacturer's rated energy value or 0.35 kip-ft (0.475 kJ) in the case of the SPT hammer.

Often in the SPT literature one finds also reference to the EF2 energy. This evaluation is based on assumed proportionality between force and velocity (see also Section 5):

$$v(t) = F(t) / Z \quad (4)$$

where $Z = EA/c$ is the pile impedance, E is the elastic modulus, A is the cross sectional area and c is the speed of the stress wave in the pile material..

Combining equations 2 and 4 leads to

$$EF(t) = \int_0^t F(\tau)^2 / Z d\tau \quad (5)$$

The EF2 transferred energy value is the EF-value at the time $t = 2L/c$, where L is the drive rod length and c is the stress wave speed in steel (16,800 ft/s or 5,124 m/s). Since the force is easier to measure than both force and velocity, Equation 5 is preferred by some test engineers. However, the EF method is fraught with errors and certain correction factors have to be applied to make it approximately correct. Among the error sources are the following:

- Proportionality is often violated prior to time $2L/c$. The proportionality between force and velocity in a downward traveling wave only

holds if the wave does not encounter a disturbance prior to reflecting off the pile toe. Such disturbances include a change in cross sectional area, an open or loose splice or joint, or resistance along the shaft.

- Using only one force measurement precludes a data quality check based on the proportionality between force and velocity. Thus, a force measurement that is for some reason in error may not be detectable, which will lead to errors in the EF2 value. Data quality checks will be discussed further in Section 5.

The use of EF2 is therefore not recommended but it is often included in result presentations for the sake of completeness.

4.2 STRESSES

During SPT monitoring, it is also of interest to monitor compressive stresses at both the top of the drive rod and at its bottom.

At the pile top (location of sensors) the maximum compression stress averaged over the rod's cross section, **CSX**, is directly obtained from the measurements. Note that this stress value refers to the instrumented section. If the rod has a different cross sectional area then the stress in the rod will be different from CSX.

The SPTA or PDA can also calculate, in an approximate manner, the force at the rod bottom, **CFB**. To obtain the corresponding stress, this force value should be divided by the appropriate cross sectional area, e.g. by the rod area just above the sampler or by the sampler area itself. Of course, non-uniform stress components as they might occur at the sampler tip due to a sloping rock are not considered in this calculation.

5. DATA QUALITY CHECKS

Quality data is the first and foremost requirement for accurate dynamic testing results. It is therefore important that the measurement engineer performing SPTA or PDA tests has the experience necessary to recognize measurement problems and take appropriate corrective action should problems develop. Fortunately, dynamic pile testing allows for

certain data quality checks because two independent measurements are taken that have to conform to the so-called proportionality relationship.

As long as there is only a wave traveling in one direction, as is the case during impact when only a downward traveling wave exists in the rod, force and velocity measured at its top are proportional

$$F = v Z \tag{5}$$

where Z is again the pile impedance, $Z = EA/c$. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v (E/c) \tag{6}$$

or strain

$$\epsilon = \sigma/E = v / c \tag{7}$$

This means that the early portion of strain times wave speed must be equal to the velocity unless the proportionality is affected by high friction near the pile top or by a pile cross sectional change not far below the sensors. Checking the proportionality is an excellent means of assuring meaningful measurements but is only truly meaningful for perfectly uniform rods. Open or loose splices, for example, will lead to a non-proportionality. For SPT rods it is fortunate that usually no soil resistance acts along the shaft and for that reason, proportionality can exist until the stress wave returns from sampler top or rod bottom unless connectors are not sufficiently tightened or have a significant mass.

Velocity data quality can also be checked by looking at the final displacement, DFN, which is calculated from the acceleration by double integration. If the calculated final displacement is much higher or lower than indicated by the N-value, the accelerometer attachment may be loose or the sensor may be faulty. If major drift in the velocity is observed, the EMX value may be in error, even though proportionality from impact to time $2L/c$ exists. In this case, it may be useful to evaluate the energy transferred to the drill rod at time $2L/c$, which is calculated by the PDA or SPTA as the E2E quantity.

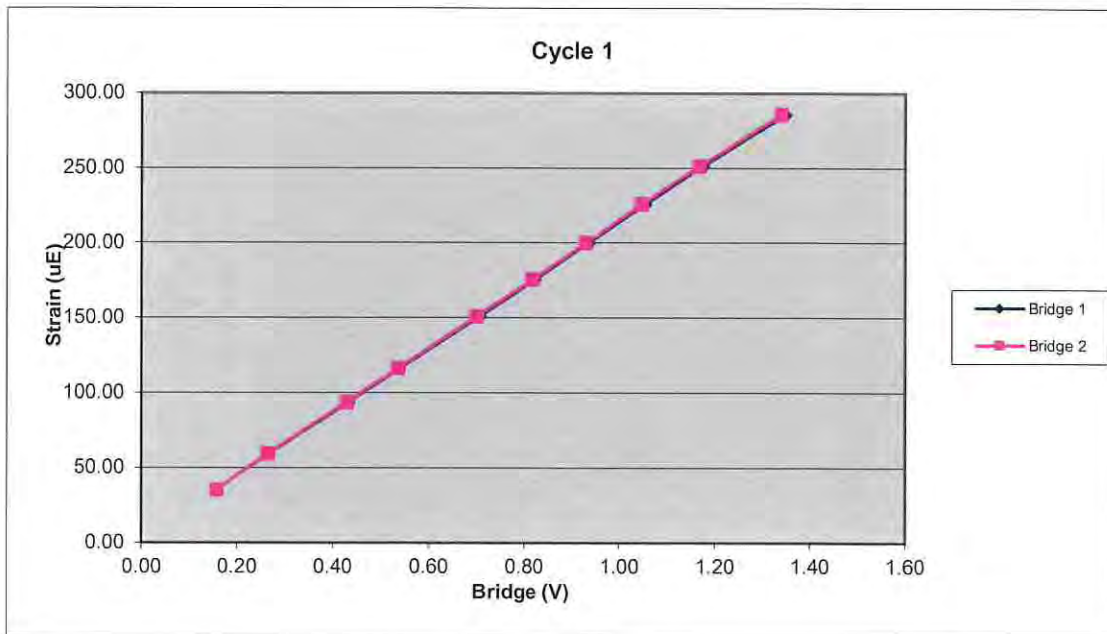
APPENDIX B

Instrumentation Calibration Information

168AWJ		Cycle 1		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1196.32	34.91	0.16	0.16
3	2006.35	58.87	0.26	0.26
4	3277.05	93.19	0.43	0.43
5	4095.36	115.66	0.54	0.53
6	5368.40	150.50	0.71	0.70
7	6254.75	175.14	0.82	0.82
8	7123.46	199.56	0.93	0.93
9	8029.80	225.48	1.05	1.05
10	8955.53	250.91	1.17	1.17
11	10278.58	285.27	1.35	1.34

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7636.98	Force Calibration (lb/V)	7681.56
Offset	-10.39	Offset	-7.11
Correlation	0.999998	Correlation	1.000000
Strain Calibration ($\mu\text{E}/\text{V}$)	210.98	Strain Calibration ($\mu\text{E}/\text{V}$)	212.21
Offset	2.34	Offset	2.43
Correlation	0.999960	Correlation	0.999963

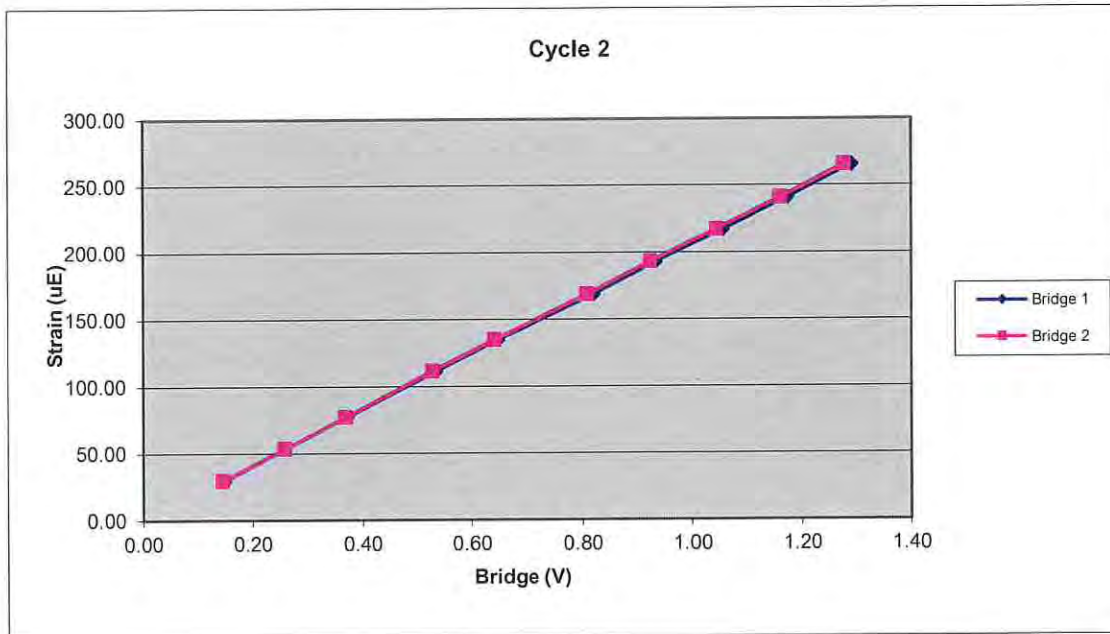
Force Strain Calibration	
EA (Kips)	36194.84
Offset	-94.57
Correlation	0.999959



168AWJ		Cycle 2		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	1109.47	29.07	0.15	0.14
3	1967.17	52.87	0.26	0.26
4	2813.55	76.52	0.37	0.37
5	4041.75	110.93	0.53	0.53
6	4906.95	134.25	0.65	0.64
7	6205.14	168.08	0.82	0.81
8	7079.89	192.48	0.93	0.92
9	8004.16	216.71	1.06	1.04
10	8895.58	240.38	1.17	1.16
11	9788.95	265.05	1.29	1.28

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7585.36	Force Calibration (lb/V)	7679.61
Offset	-2.10	Offset	-3.63
Correlation	0.999998	Correlation	0.999997
Strain Calibration ($\mu\text{E}/\text{V}$)	205.52	Strain Calibration ($\mu\text{E}/\text{V}$)	208.07
Offset	0.07	Offset	0.03
Correlation	0.999949	Correlation	0.999957

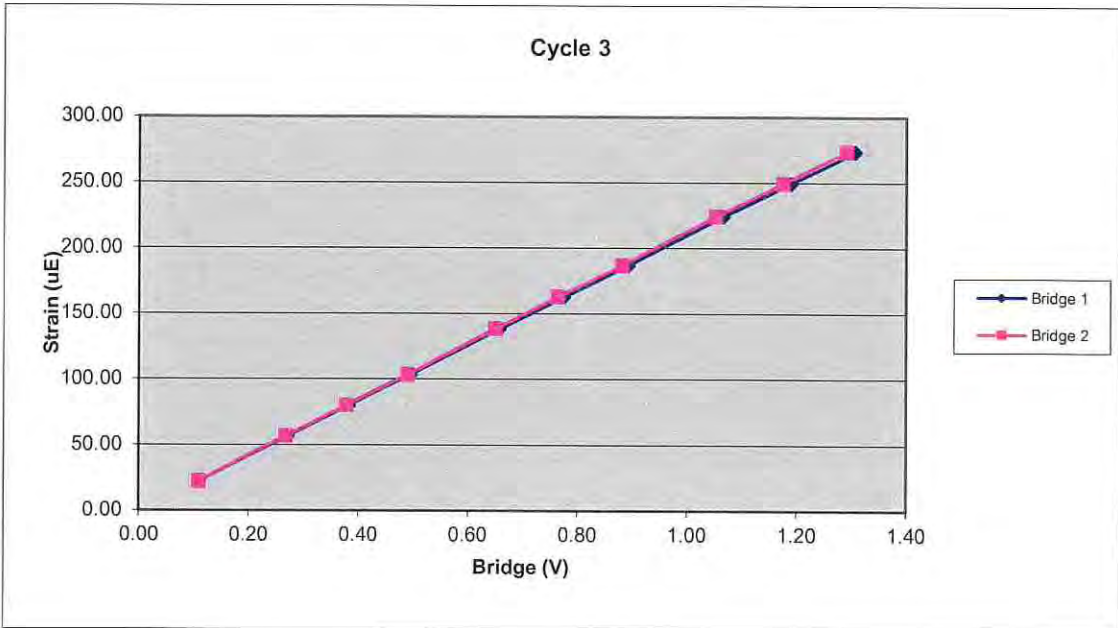
Force Strain Calibration	
EA (Kips)	36904.95
Offset	-4.08
Correlation	0.999952



168AWJ		Cycle 3		
Sample	Force (lb)	Strain (μE)	Bridge 1 (V)	Bridge 2 (V)
1	0.00	0.00	0.00	0.00
2	824.16	22.13	0.11	0.11
3	2048.17	56.32	0.27	0.27
4	2886.56	79.66	0.38	0.38
5	3737.43	103.11	0.49	0.49
6	4981.03	138.03	0.66	0.65
7	5858.03	162.40	0.77	0.76
8	6754.90	186.72	0.89	0.88
9	8076.39	224.00	1.07	1.05
10	8998.61	249.12	1.19	1.17
11	9899.88	273.12	1.31	1.29

Bridge 1		Bridge 2	
Force Calibration (lb/V)	7574.60	Force Calibration (lb/V)	7676.61
Offset	-1.93	Offset	-3.53
Correlation	0.999999	Correlation	0.999998
Strain Calibration ($\mu\text{E}/\text{V}$)	209.89	Strain Calibration ($\mu\text{E}/\text{V}$)	212.71
Offset	-0.40	Offset	-0.45
Correlation	0.999988	Correlation	0.999987

Force Strain Calibration	
EA (Kips)	36087.89
Offset	12.74
Correlation	0.999988



Bridge Excitation (V) 5
Shunt Resistor (ohm) 60.4k

Calibration Factors	168AWJ		
Bridge 1 ($\mu\text{E/V}$)	208.80	Bridge 2 ($\mu\text{E/V}$)	211.00
EA Factor (Kips)	36395.89	Area (in²)	1.21

Calibrated by: 
Calibrated Date: 12/9/2021

Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
 Calibration performed on 29Jul2021

Serial No: K0281 Temperature: 23.5 °C
 Model: PR Humidity: 49%
 Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

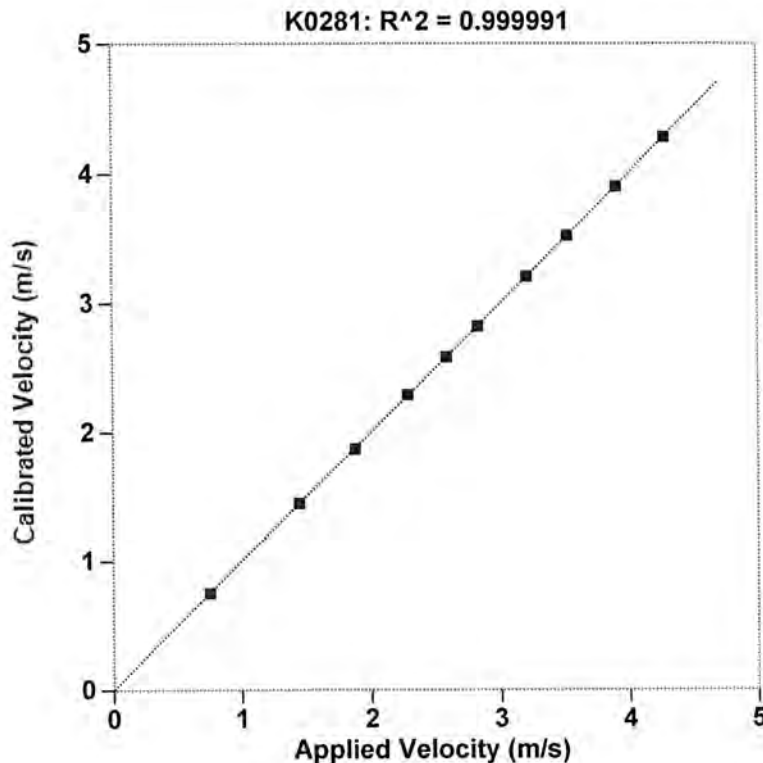
355.2 mv/5000g
 (71.0 μ v/g)
 R²: 0.999991 [Chip programmed]

Operator: William Johnson

Ref Acc 1: 69132! Cal on: 09Feb2021
 960 g's/volt
 Ref Acc 2: 69096! Cal on: 27Jan2021
 978 g's/volt

William Johnson
 Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity m/s	S/N K0281 Velocity m/s
0.752	0.751
1.448	1.448
1.878	1.876
2.284	2.293
2.586	2.584
2.825	2.823
3.207	3.206
3.522	3.525
3.902	3.900
4.279	4.278

Maximum Acceleration: 952 g's

Accelerometer Calibration Certificate

Pile Dynamics, Inc.



Calibrated by Pile Dynamics, Inc.
Calibration performed on 14Dec2021

Serial No: K569 Temperature: 20.7 °C
Model: PR Humidity: 30%
Calibrated on: Channel 3 on 8G 5161 LE

PDA CALIBRATION FACTOR

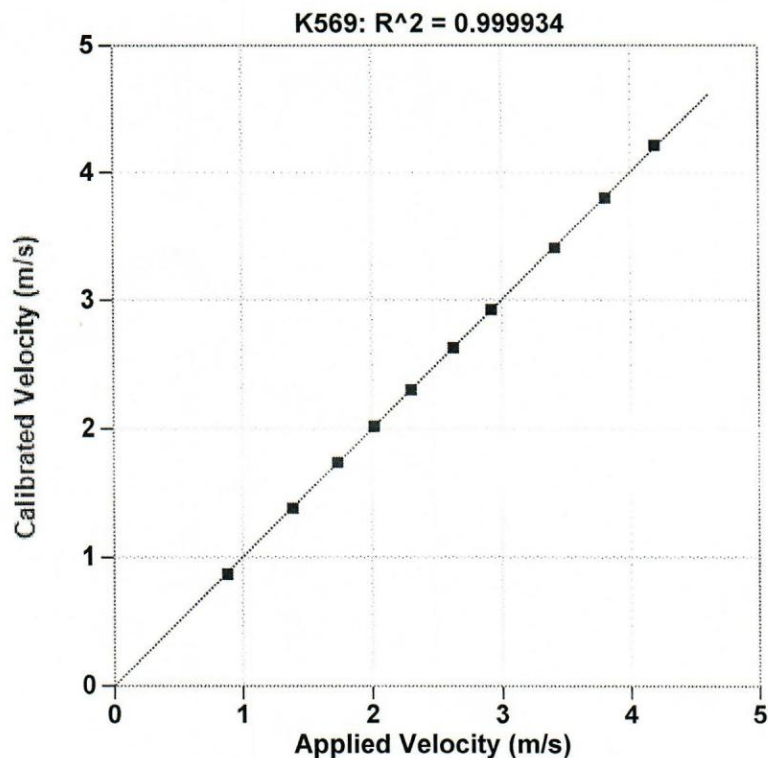
307.8 mv/5000g
(61.6 $\mu\text{v/g}$)
R²: 0.999934 [Chip programmed]

Ref Acc 1: 69132! Cal on: 09Feb2021
960 g's/volt
Ref Acc 2: 69096! Cal on: 27Jan2021
978 g's/volt

Operator: William Johnson


Signed

Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).



Reference Velocity	S/N K569 Velocity
m/s	m/s
0.881	0.869
1.389	1.382
1.735	1.738
2.017	2.018
2.302	2.298
2.627	2.626
2.921	2.926
3.416	3.406
3.808	3.801
4.195	4.212

Maximum Acceleration: 935 g's



This documents that
Mark Rawlings
GRL Engineers, Inc.

has on January 26, 2017 achieved the rank of

MASTER


on the Dynamic Measurement and Analysis Proficiency Test.

The individual identified on this document demonstrated to the degree granted above an understanding of theory, data quality evaluation, interpretation and signal matching for high strain dynamic testing of deep foundations. ***It is recommended that individuals at the Master level seek to attain Expert level through additional study within eight years of the date of this document***

The ability of the individual named to provide appropriate knowledge and advice on a specific project is not implied or warranted by the Pile Driving Contractors Association or Pile Dynamics, Inc. The Pile Driving Contractors Association or Pile Dynamics, Inc. assumes no liability for foundation testing and analysis work performed by the bearer of this certificate. This certificate can be verified at www.PDAproficiencytest.com.


Steven A. Hall, Executive Director
Pile Driving Contractors Association




Garland Likins, Senior Partner
Pile Dynamics, Inc.

No. 2181

APPENDIX C

Dynamic Energy Measurement Results



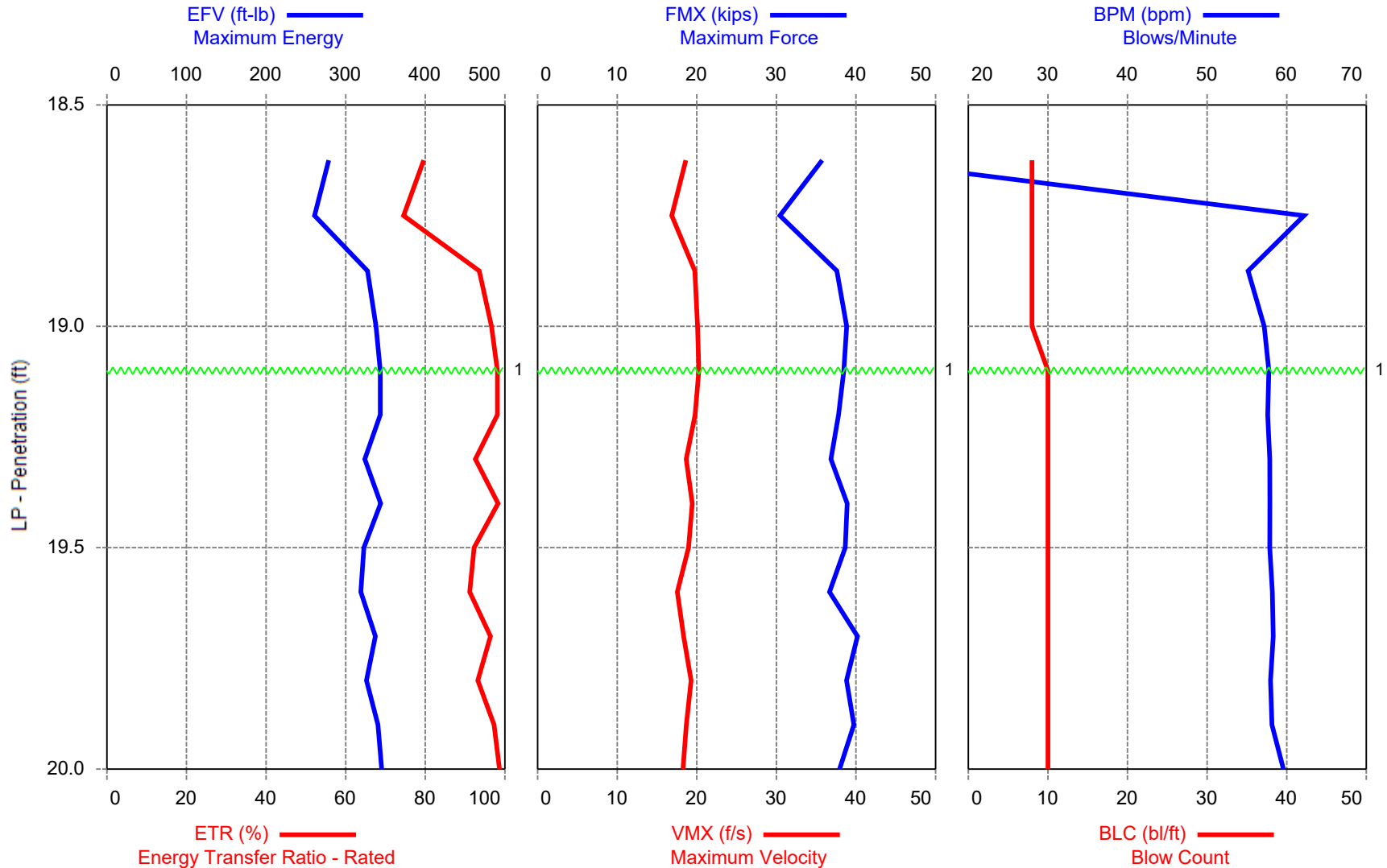
Printed: 18-November-2022

GRL Engineers, Inc. - PDILOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Test started: 18-November-2022



ECS Drill Rig Calibration - Boring B-21 Sample 6 Diedrich D-50 S/N 195, AW-J rod



1 - Start of N value blows

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 6
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 24.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
5	19.10	10	343	98	38	20	57.7	1.7	1.2	31.8	4,527
6	19.20	10	343	98	38	20	57.6	1.7	1.2	31.2	4,377
7	19.30	10	324	93	37	19	57.9	1.5	1.2	30.5	4,415
8	19.40	10	344	98	39	19	57.9	1.9	1.2	32.1	4,998
9	19.50	10	323	92	39	19	57.9	1.3	1.2	31.9	4,630
10	19.60	10	319	91	37	18	58.2	1.2	1.2	30.3	4,000
11	19.70	10	337	96	40	18	58.3	1.5	1.2	33.2	4,718
12	19.80	10	326	93	39	19	58.0	1.3	1.2	32.1	4,598
13	19.90	10	341	97	40	19	58.1	1.6	1.2	32.8	4,296
14	20.00	10	345	99	38	18	59.6	1.5	1.2	31.4	4,525
Average			335	96	38	19	58.1	1.5	1.2	31.7	4,509
Std. Dev.			10	3	1	1	0.5	0.2	0.0	0.9	252
Maximum			345	99	40	20	59.6	1.9	1.2	33.2	4,998
Minimum			319	91	37	18	57.6	1.2	1.2	30.3	4,000

Total number of blows analyzed: 10

BL# Sensors

1-14 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

5 Start of N value blows

Time Summary

Drive 13 seconds 11:06 AM - 11:06 AM BN 1 - 14

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 6
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 24.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	TYPE	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
4	19.00	8	AV4	301	86	36	19	45.2	2.1	1.5	29.5	4,089
			STD	32	9	3	1	22.6	0.2	0.0	2.6	502
			MAX	338	97	39	20	62.2	2.4	1.5	32.1	4,588
			MIN	261	75	30	17	6.4	1.9	1.5	25.2	3,450
9	19.50	10	AV5	336	96	38	19	57.8	1.6	1.2	31.5	4,590
			STD	10	3	1	1	0.1	0.2	0.0	0.6	223
			MAX	344	98	39	20	57.9	1.9	1.2	32.1	4,998
			MIN	323	92	37	19	57.6	1.3	1.2	30.5	4,377
14	20.00	10	AV5	334	95	39	18	58.4	1.4	1.2	32.0	4,427
			STD	10	3	1	1	0.6	0.1	0.0	1.0	254
			MAX	345	99	40	19	59.6	1.6	1.2	33.2	4,718
			MIN	319	91	37	18	58.0	1.2	1.2	30.3	4,000
			Average	325	93	38	19	54.4	1.7	1.3	31.1	4,389
			Std. Dev.	24	7	2	1	13.4	0.3	0.1	1.9	391
			Maximum	345	99	40	20	62.2	2.4	1.5	33.2	4,998
			Minimum	261	75	30	17	6.4	1.2	1.2	25.2	3,450

Total number of blows analyzed: 14

BL# Sensors

1-14 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

5 Start of N value blows

Time Summary

Drive 13 seconds 11:06 AM - 11:06 AM BN 1 - 14



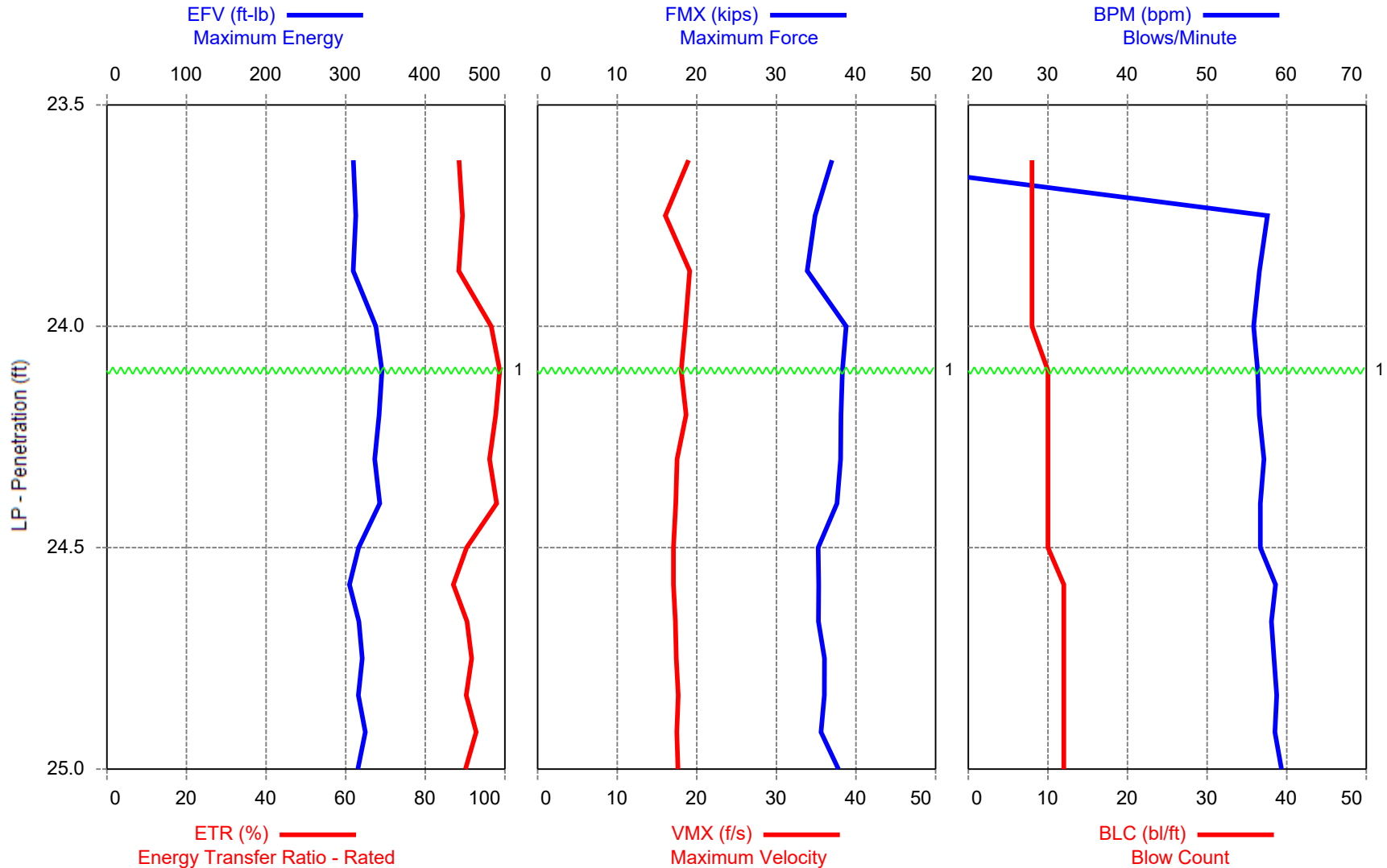
Printed: 18-November-2022

GRL Engineers, Inc. - PDILOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Test started: 18-November-2022



ECS Drill Rig Calibration - Boring B-21 Sample 7 Diedrich D-50 S/N 195, AW-J rod



1 - Start of N value blows

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 7
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 29.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
5	24.10	10	346	99	38	18	56.3	1.7	1.2	31.7	4,079
6	24.20	10	342	98	38	19	56.6	1.5	1.2	31.5	4,398
7	24.30	10	337	96	38	18	57.1	1.6	1.2	31.5	4,420
8	24.40	10	343	98	38	17	56.7	1.7	1.2	31.1	4,374
9	24.50	10	316	90	35	17	56.7	1.5	1.2	29.1	4,065
10	24.58	12	305	87	35	17	58.6	1.4	1.0	29.2	3,899
11	24.67	12	317	90	35	17	58.1	1.1	1.0	29.2	3,637
12	24.75	12	321	92	36	17	58.4	1.2	1.0	29.8	4,066
13	24.83	12	316	90	36	18	58.7	1.2	1.0	29.8	3,894
14	24.92	12	325	93	36	17	58.5	1.2	1.0	29.4	3,933
15	25.00	12	315	90	38	18	59.3	1.1	1.0	31.2	4,030
Average			326	93	37	18	57.7	1.4	1.1	30.3	4,072
Std. Dev.			13	4	1	0	1.0	0.2	0.1	1.0	232
Maximum			346	99	38	19	59.3	1.7	1.2	31.7	4,420
Minimum			305	87	35	17	56.3	1.1	1.0	29.1	3,637

Total number of blows analyzed: 11

BL# Sensors

1-15 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

5 Start of N value blows

Time Summary

Drive 14 seconds 11:14 AM - 11:14 AM BN 1 - 15

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 7
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 29.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	TYPE	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
4	24.00	8	AV4	317	91	36	18	43.3	2.2	1.5	29.9	3,950
			STD	12	3	2	1	23.1	0.3	0.0	1.6	440
			MAX	338	97	39	19	57.6	2.7	1.5	32.0	4,412
			MIN	309	88	34	16	3.2	2.0	1.5	28.0	3,398
9	24.50	10	AV5	337	96	37	18	56.7	1.6	1.2	31.0	4,267
			STD	11	3	1	1	0.3	0.1	0.0	0.9	160
			MAX	346	99	38	19	57.1	1.7	1.2	31.7	4,420
			MIN	316	90	35	17	56.3	1.5	1.2	29.1	4,065
15	25.00	12	AV6	316	90	36	17	58.6	1.2	1.0	29.8	3,910
			STD	6	2	1	0	0.4	0.1	0.0	0.7	138
			MAX	325	93	38	18	59.3	1.4	1.0	31.2	4,066
			MIN	305	87	35	17	58.1	1.1	1.0	29.2	3,637
			Average	323	92	37	18	53.9	1.6	1.2	30.2	4,040
			Std. Dev.	13	4	1	1	13.6	0.4	0.2	1.2	306
			Maximum	346	99	39	19	59.3	2.7	1.5	32.0	4,420
			Minimum	305	87	34	16	3.2	1.1	1.0	28.0	3,398

Total number of blows analyzed: 15

BL# Sensors

1-15 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

5 Start of N value blows

Time Summary

Drive 14 seconds 11:14 AM - 11:14 AM BN 1 - 15



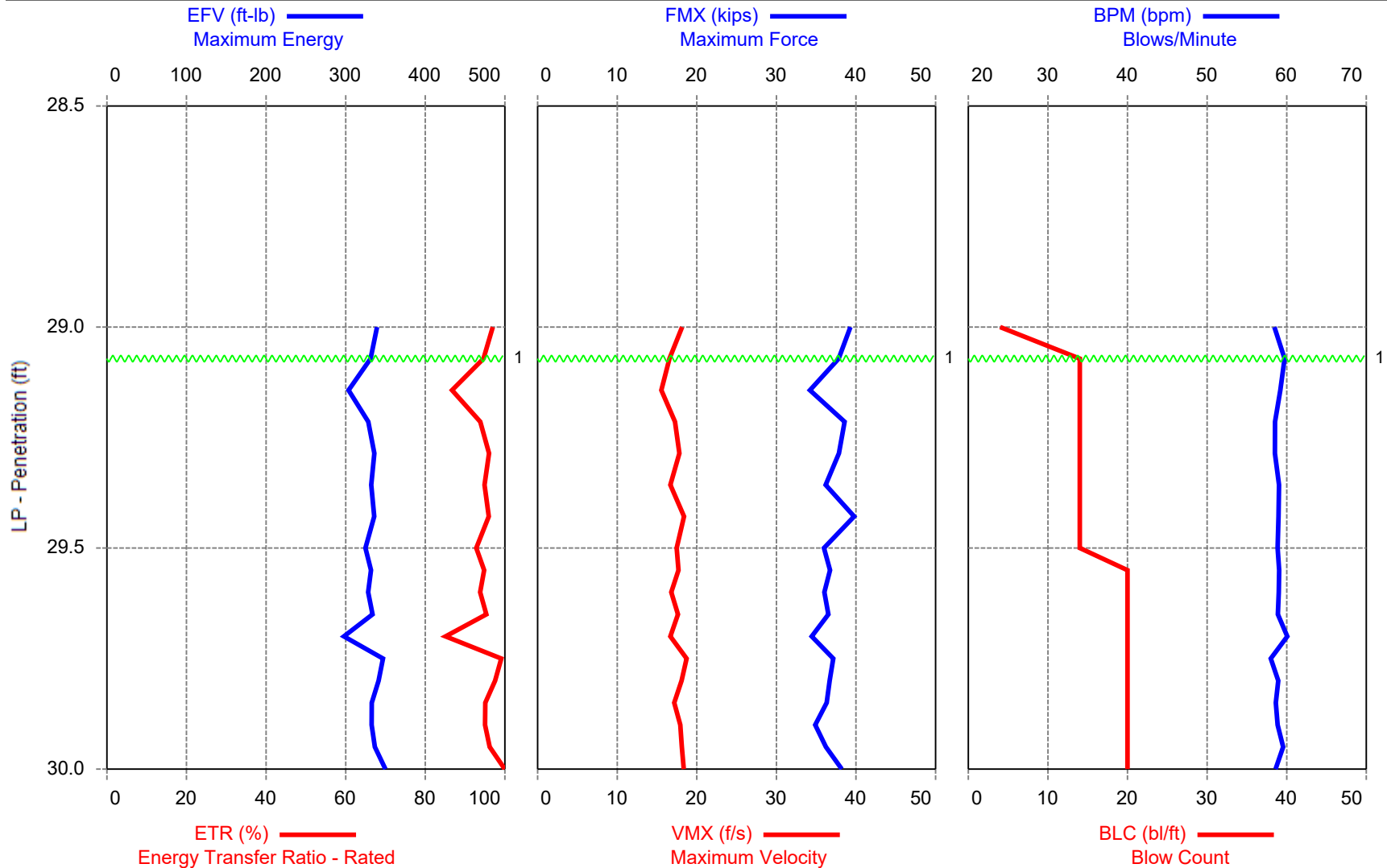
Printed: 28-November-2022

GRL Engineers, Inc. - PDILOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Test started: 18-November-2022



ECS Drill Rig Calibration - Boring B-21 Sample 8 Diedrich D-50 S/N 195, AW-J rod



1 - Start of N value blows

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 8
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 34.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
3	29.07	14	331	95	38	17	59.7	1.5	0.9	31.3	4,177
4	29.14	14	304	87	34	16	59.2	1.0	0.9	28.3	2,591
5	29.21	14	328	94	39	17	58.5	1.1	0.9	31.9	4,175
6	29.29	14	336	96	38	18	58.5	1.0	0.9	31.3	3,807
7	29.36	14	332	95	36	17	59.0	1.1	0.9	29.9	3,885
8	29.43	14	336	96	40	18	59.0	0.9	0.9	32.9	4,573
9	29.50	14	325	93	36	17	58.9	0.9	0.9	29.7	3,742
10	29.55	20	332	95	37	18	59.1	0.7	0.6	30.4	4,092
11	29.60	20	328	94	36	17	59.0	0.7	0.6	29.8	3,684
12	29.65	20	334	95	37	18	58.9	0.8	0.6	30.2	4,150
13	29.70	20	298	85	34	17	60.1	0.9	0.6	28.5	3,708
14	29.75	20	347	99	37	19	58.0	0.9	0.6	30.7	4,331
15	29.80	20	341	98	37	18	58.9	0.8	0.6	30.3	4,065
16	29.85	20	333	95	36	17	58.6	0.9	0.6	30.0	3,445
17	29.90	20	333	95	35	18	58.9	0.8	0.6	28.8	3,884
18	29.95	20	337	96	36	18	59.6	0.8	0.6	29.9	4,189
19	30.00	20	350	100	38	18	58.6	0.8	0.6	31.6	4,512
Average			331	95	37	17	59.0	0.9	0.7	30.3	3,942
Std. Dev.			13	4	1	1	0.5	0.2	0.1	1.2	446
Maximum			350	100	40	19	60.1	1.5	0.9	32.9	4,573
Minimum			298	85	34	16	58.0	0.7	0.6	28.3	2,591

Total number of blows analyzed: 17

BL# Sensors

2-19 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

Time Summary

Drive 18 seconds 11:23 AM - 11:23 AM BN 1 - 19

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 8
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 34.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	TYPE	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
2	29.00	4	AV1	339	97	39	18	58.5	3.0	3.0	32.5	4,745
			STD	0	0	0	0	0.0	0.0	0.0	0.0	0
			MAX	339	97	39	18	58.5	3.0	3.0	32.5	4,745
			MIN	339	97	39	18	58.5	3.0	3.0	32.5	4,745
9	29.50	14	AV7	327	94	37	17	59.0	1.1	0.9	30.7	3,850
			STD	10	3	2	1	0.4	0.2	0.0	1.4	578
			MAX	336	96	40	18	59.7	1.5	0.9	32.9	4,573
			MIN	304	87	34	16	58.5	0.9	0.9	28.3	2,591
19	30.00	20	AV10	333	95	36	18	59.0	0.8	0.6	30.0	4,006
			STD	14	4	1	1	0.5	0.1	0.0	0.8	308
			MAX	350	100	38	19	60.1	0.9	0.6	31.6	4,512
			MIN	298	85	34	17	58.0	0.7	0.6	28.5	3,445
			Average	331	95	37	18	58.9	1.0	0.8	30.4	3,986
			Std. Dev.	12	4	2	1	0.5	0.5	1.2	471	
			Maximum	350	100	40	19	60.1	3.0	3.0	32.9	4,745
			Minimum	298	85	34	16	58.0	0.7	0.6	28.3	2,591

Total number of blows analyzed: 18

BL# Sensors

2-19 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

Time Summary

Drive 18 seconds 11:23 AM - 11:23 AM BN 1 - 19



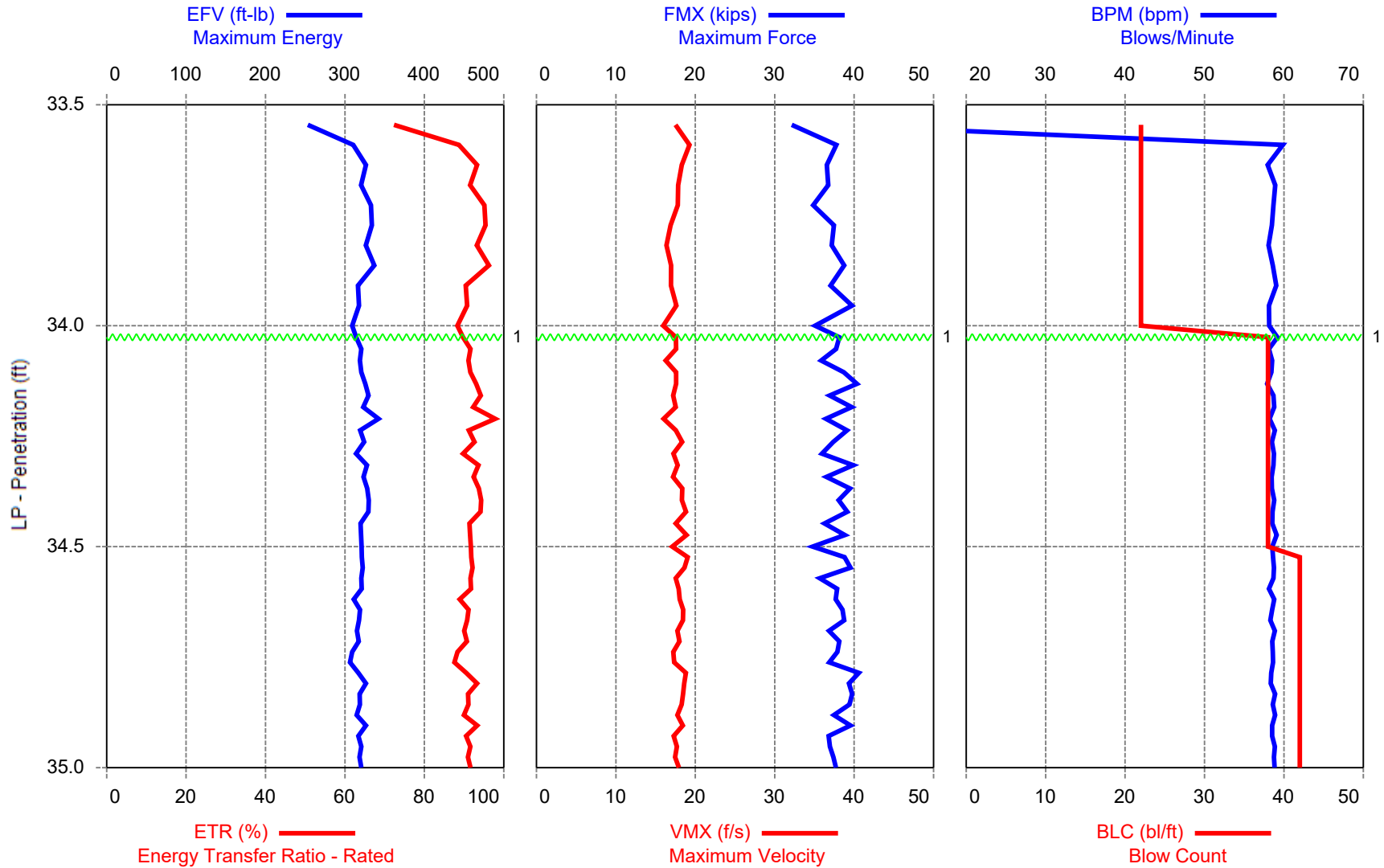
Printed: 18-November-2022

GRL Engineers, Inc. - PDILOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Test started: 18-November-2022



ECS Drill Rig Calibration - Boring B-21 Sample 9 Diedrich D-50 S/N 195, AW-J rod



1 - Start of N value blows

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 9
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 39.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
12	34.03	38	314	90	38	18	59.2	0.5	0.3	31.5	4,473
13	34.05	38	321	92	38	18	58.1	0.5	0.3	31.2	3,980
14	34.08	38	319	91	36	16	58.5	0.5	0.3	29.6	3,504
15	34.11	38	321	92	39	18	58.4	0.4	0.3	32.0	4,356
16	34.13	38	326	93	40	18	57.9	0.4	0.3	33.3	4,465
17	34.16	38	330	94	37	17	58.7	0.6	0.3	30.5	4,147
18	34.18	38	323	92	40	18	58.8	0.4	0.3	32.8	4,494
19	34.21	38	342	98	36	16	58.2	0.8	0.3	30.1	3,696
20	34.24	38	319	91	39	18	58.9	0.4	0.3	32.3	4,330
21	34.26	38	324	93	37	18	58.5	0.4	0.3	30.9	4,292
22	34.29	38	314	90	36	17	58.7	0.4	0.3	29.7	3,887
23	34.32	38	328	94	40	18	58.7	0.4	0.3	33.0	4,693
24	34.34	38	323	92	37	17	58.5	0.4	0.3	30.2	3,739
25	34.37	38	328	94	39	18	58.5	0.4	0.3	32.6	4,713
26	34.39	38	330	94	38	18	58.8	0.4	0.3	31.4	4,286
27	34.42	38	329	94	39	19	58.6	0.4	0.3	32.3	4,747
28	34.45	38	320	91	36	18	58.5	0.4	0.3	30.0	4,089
29	34.47	38	320	92	39	19	59.1	0.4	0.3	32.1	4,958
30	34.50	38	321	92	35	17	58.5	0.4	0.3	28.7	3,873
31	34.52	42	321	92	39	19	58.6	0.4	0.3	32.1	4,881
32	34.55	42	322	92	40	19	58.7	0.4	0.3	32.7	4,422
33	34.57	42	321	92	36	18	58.7	0.4	0.3	29.5	4,113
34	34.60	42	321	92	38	18	58.1	0.4	0.3	31.3	3,794
35	34.62	42	311	89	38	18	58.8	0.4	0.3	31.1	3,726
36	34.64	42	319	91	39	18	58.5	0.4	0.3	31.8	3,821
37	34.67	42	318	91	39	18	58.3	0.4	0.3	32.0	3,832
38	34.69	42	315	90	37	18	58.9	0.4	0.3	30.4	3,920
39	34.71	42	317	91	38	18	58.5	0.4	0.3	31.5	4,426
40	34.74	42	309	88	38	17	58.6	0.4	0.3	31.3	4,027
41	34.76	42	306	88	37	17	58.6	0.4	0.3	30.5	3,612
42	34.79	42	317	91	41	19	58.4	0.4	0.3	33.5	4,612
43	34.81	42	326	93	39	19	58.3	0.4	0.3	32.5	4,493
44	34.83	42	318	91	40	18	58.9	0.4	0.3	32.9	4,356
45	34.86	42	319	91	39	18	58.6	0.4	0.3	32.6	4,362
46	34.88	42	315	90	37	18	58.9	0.4	0.3	30.9	3,746
47	34.90	42	327	93	40	18	58.5	0.4	0.3	32.7	4,439
48	34.93	42	317	91	37	17	58.5	0.4	0.3	30.4	3,908
49	34.95	42	321	92	37	18	58.9	0.4	0.3	30.5	3,943
50	34.98	42	318	91	37	17	58.7	0.4	0.3	30.9	4,037
51	35.00	42	321	92	38	18	58.8	0.4	0.3	31.2	4,201
Average			321	92	38	18	58.6	0.4	0.3	31.4	4,185
Std. Dev.			6	2	1	1	0.3	0.1	0.0	1.2	365
Maximum			342	98	41	19	59.2	0.8	0.3	33.5	4,958
Minimum			306	88	35	16	57.9	0.4	0.3	28.7	3,504

Total number of blows analyzed: 40

BL# Sensors

1-51 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

12 Start of N value blows

Time Summary

Drive 51 seconds 11:30 AM - 11:31 AM BN 1 - 51

Case Method & iCAP® Results

ECS Drill Rig Calibration - Boring B-21 Sample 9
 OP: MR

Diedrich D-50 S/N 195, AW-J rod
 Date: 18-November-2022

AR: 1.21 in² SP: 0.492 k/ft³
 LE: 39.0 ft EM: 30,000 ksi
 WS: 16,807.9 f/s JC: 0.00

EFV: Maximum Energy DMX: Maximum Displacement
 ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
 FMX: Maximum Force CSX: Compression Stress Maximum
 VMX: Maximum Velocity AMX: Maximum Acceleration
 BPM: Blows/Minute

BL#	Depth ft	BLC bl/ft	TYPE	EFV ft-lb	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	CSX ksi	AMX g's
11	34.00	22	AV11	317	90	37	17	53.4	0.8	0.5	30.3	3,899
			STD	22	6	2	1	16.3	0.3	0.0	1.6	397
			MAX	337	96	40	19	59.9	1.3	0.5	32.8	4,523
			MIN	253	72	32	16	1.9	0.5	0.5	26.6	3,228
30	34.50	38	AV19	324	93	38	18	58.6	0.4	0.3	31.3	4,249
			STD	6	2	2	1	0.3	0.1	0.0	1.3	387
			MAX	342	98	40	19	59.2	0.8	0.3	33.3	4,958
			MIN	314	90	35	16	57.9	0.4	0.3	28.7	3,504
51	35.00	42	AV21	318	91	38	18	58.6	0.4	0.3	31.5	4,127
			STD	5	1	1	1	0.2	0.0	0.0	1.0	333
			MAX	327	93	41	19	58.9	0.4	0.3	33.5	4,881
			MIN	306	88	36	17	58.1	0.4	0.3	29.5	3,612
			Average	320	91	38	18	57.5	0.5	0.3	31.2	4,123
			Std. Dev.	12	3	2	1	7.9	0.2	0.1	1.3	390
			Maximum	342	98	41	19	59.9	1.3	0.5	33.5	4,958
			Minimum	253	72	32	16	1.9	0.4	0.3	26.6	3,228

Total number of blows analyzed: 51

BL# Sensors

1-51 F3: [168AWJ1] 208.8 (1.00); F4: [168AWJ2] 211.0 (1.00); A1: [K0281] 355.2 (1.00); A2: [K569] 307.8 (1.00)

BL# Comments

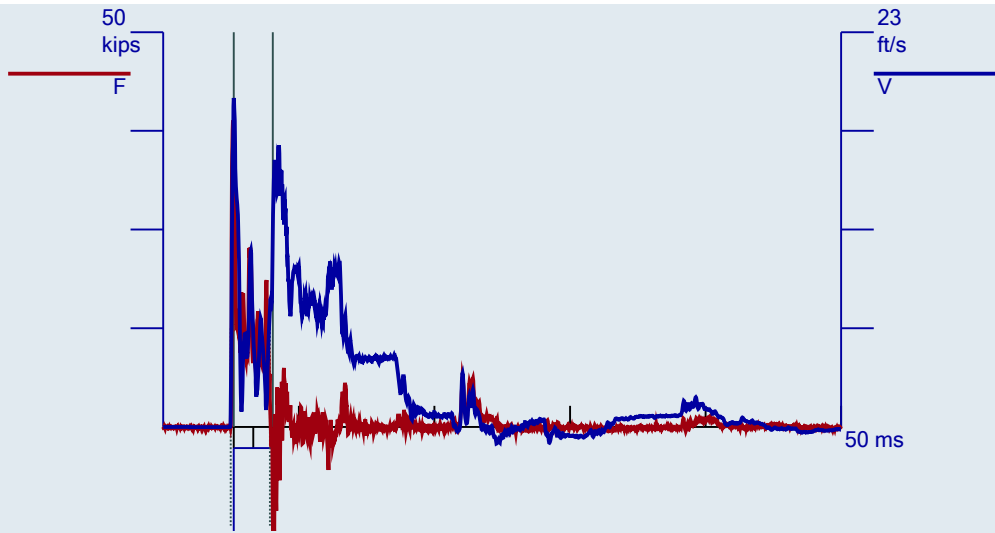
12 Start of N value blows

Time Summary

Drive 51 seconds 11:30 AM - 11:31 AM BN 1 - 51

APPENDIX D

Force and Velocity Plots

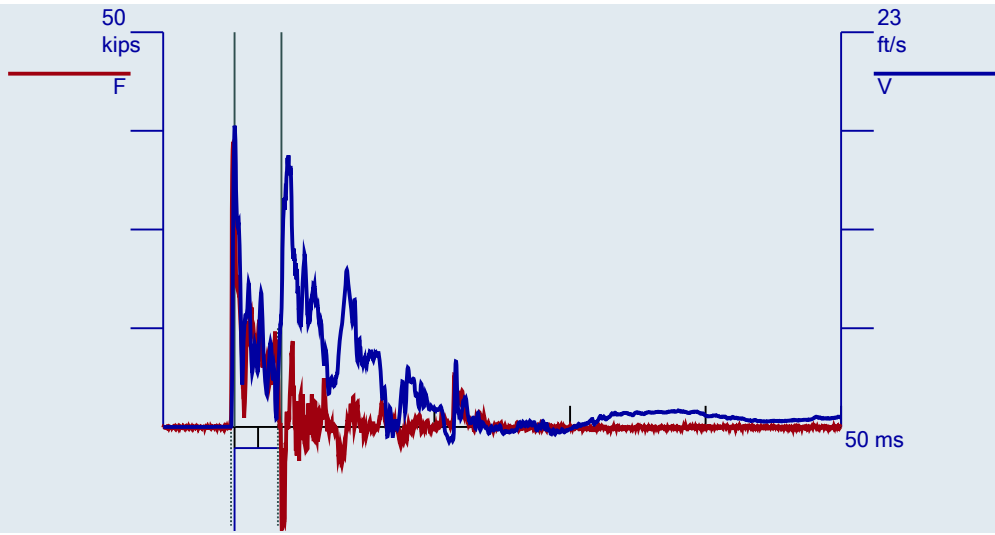


BN 12
18Nov2022 11:06:29 AM

EFV	326 ft-lb
ETR	93 %
BPM	58.0 bpm
VMX	19 ft/s
FMX	39 kips
DFN	1.2 in
AMX	4598 g's
FVP	0.75
CSX	32.1 ksi

LE	24.00 ft
AR	1.21 in ²
EM	30000 ksi
SP	0.492 k/ft ³
WS	16807.9 ft/s
WC	16666.7 ft/s
JC	0.90
JF	1.00

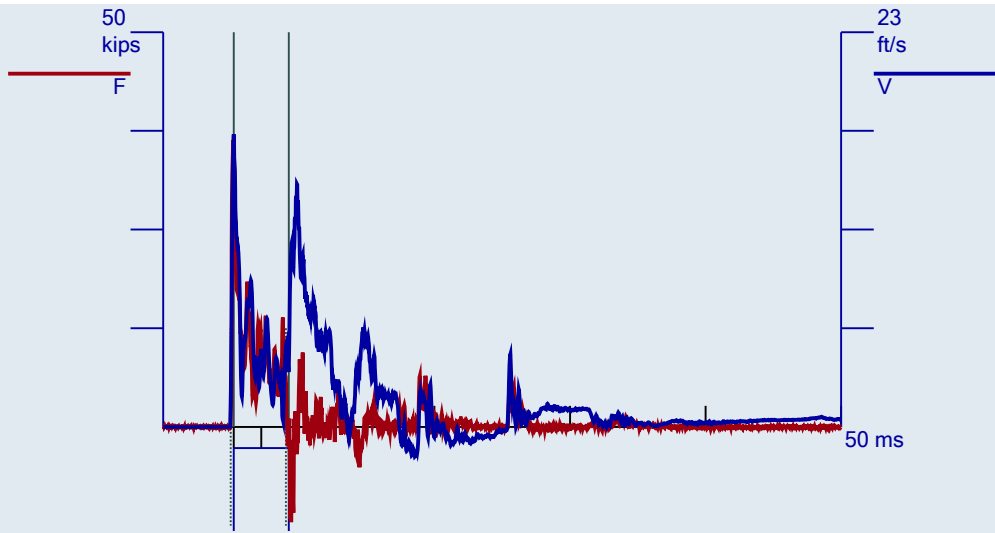
A1 (PR): [K0281]	355.231 mv/6.4v/5000g (1) VF1
A2 (PR): [K569]	307.846 mv/6.4v/5000g (1) VF1
F3: [168AWJ1]	208.8 PDICAL (1) FF1
F4: [168AWJ2]	211 PDICAL (1) FF1



BN 13
18Nov2022 11:14:26 AM

EFV	316 ft-lb
ETR	90 %
BPM	58.7 bpm
VMX	18 ft/s
FMX	36 kips
DFN	1.0 in
AMX	3894 g's
FVP	0.86
CSX	29.8 ksi
LE	29.00 ft
AR	1.21 in ²
EM	30000 ksi
SP	0.492 k/ft ³
WS	16807.9 ft/s
WC	16763.0 ft/s
JC	0.90
JF	1.00

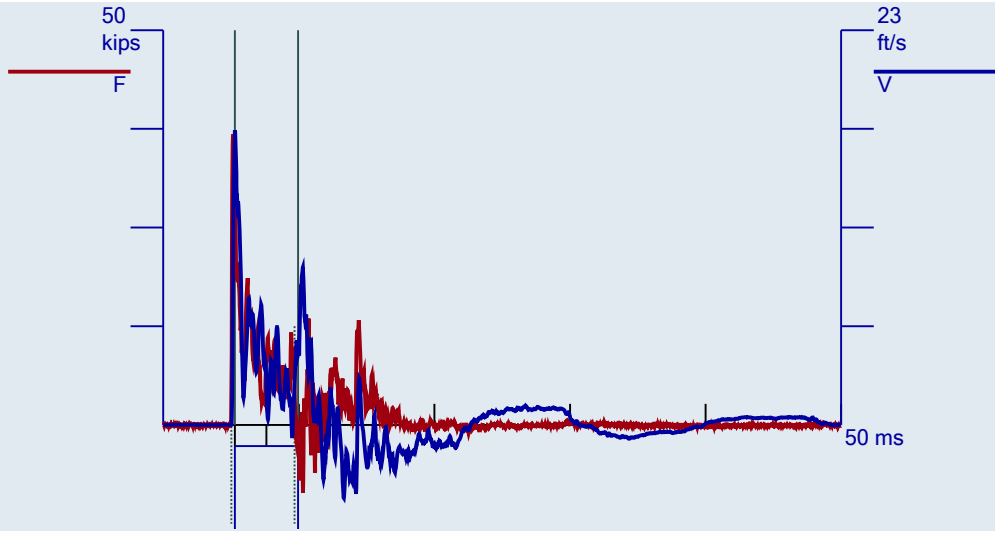
A1 (PR): [K0281]	355.231 mv/6.4v/5000g (1) VF1
A2 (PR): [K569]	307.846 mv/6.4v/5000g (1) VF1
F3: [168AWJ1]	208.8 PDICAL (1) FF1
F4: [168AWJ2]	211 PDICAL (1) FF1



BN 16
18Nov2022 11:23:16 AM

EFV	333 ft-lb
ETR	95 %
BPM	58.6 bpm
VMX	17 ft/s
FMX	36 kips
DFN	0.6 in
AMX	3445 g's
FVP	0.95
CSX	30.0 ksi
LE	34.00 ft
AR	1.21 in ²
EM	30000 ksi
SP	0.492 k/ft ³
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90
JF	1.00

A1 (PR): [K0281]	355.231 mv/6.4v/5000g (1) VF1
A2 (PR): [K569]	307.846 mv/6.4v/5000g (1) VF1
F3: [168AWJ1]	208.8 PDICAL (1) FF1
F4: [168AWJ2]	211 PDICAL (1) FF1



BN 48
18Nov2022 11:31:07 AM

EFV	317 ft-lb
ETR	91 %
BPM	58.5 bpm
VMX	17 ft/s
FMX	37 kips
DFN	0.3 in
AMX	3908 g's
FVP	0.87
CSX	30.4 ksi
LE	39.00 ft
AR	1.21 in ²
EM	30000 ksi
SP	0.492 k/ft ³
WS	16807.9 ft/s
WC	16738.2 ft/s
JC	0.90
JF	1.00

A1 (PR): [K0281]	355.231 mv/6.4v/5000g (1) VF1
A2 (PR): [K569]	307.846 mv/6.4v/5000g (1) VF1
F3: [168AWJ1]	208.8 PDICAL (1) FF1
F4: [168AWJ2]	211 PDICAL (1) FF1