South Carolina Department of Transportation

Geotechnical Base Line Report (GBLR)

I-26 Widening MM85-101
Project ID 029208
ECS Project Number 08-11888

Prepared for:

SCDOT
South Carolina
Department of Transportation

Lexington, Richland, and Newberry Counties, South Carolina

May 23, 2018

ECS

CES Civil Engineering Consulting Services, Inc.

ECS SOUTHEAST, LLP
Geotechnical • Construction Materials • Environmental • Facilities
"Setting the Standard for Service"
NC Registered Engineering Firm F-1078
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May 23, 2018

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SCDOT Project ID: 029208
ECS Project No: 08:11888

Reference: Geotechnical Base Line Report (GBLR)
I-26 Widening MM85-101
Lexington, Richland, and Newberry Counties, South Carolina

Dear Mr. Nickerson:

ECS Southeast, LLP (ECS) submits this Geotechnical Base Line Report (GBLR) to provide geotechnical information and preliminary geotechnical recommendations to Civil Engineering Consulting Services, Inc. (CECS) and the South Carolina Department of Transportation for the above referenced project. Our services were performed in general accordance with our Subconsultant Agreement executed on September 21, 2016, and in general accordance with the 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 purposed 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

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1.0 PROJECT INFORMATION

SCDOT proposes improvements to an approximately 16-mile long section of the I-26 corridor designed to increase capacity and upgrade interchanges and overpass bridges to meet state and federal design requirements. Improvements would take place from 1.6 miles west of the SC202 (Exit 85) interchange to the US 176 (Exit 101) interchange. From exit 97 to Exit 101, additional through travel lanes would be added for a total of eight lanes, four in each direction of this segment. A total of seven overpasses that cross I-26 would be replaced including S-36-167 (Parr Road), S-36-39 (Holy Trinity Church Road), S-32-49 (Peak Street), S-40-405 (Old Hilton Road), S-40-234 (Mt. Vernon Church Road), S-40-80 (Shady Grove Road), and S-40-58 (Koon Road). The interchanges at Exits 85, 91, and 97 would be reconstructed.

The geotechnical exploration for Columbia Ave (Route S-48) was previously completed by Mead & Hunt, and dated January 2017. The preliminary geotechnical exploration for Shady Grove Road (Route S-80) was previously completed by Froehling & Robertson, Inc. (F&R), and dated August 22, 2012. Additionally, a subsurface exploration was previously completed by F&ME Consultants for Shady Grove Road (Route S-80) dated June 24, 2010.

The geotechnical exploration for Koon Road (Route S-58) was previously completed by F&ME Consultants, and dated June 24, 2010. Soil Borings and MASW testing from these subsurface explorations are included in Appendix VIII of this report. Geotechnical data and the as-built plans for the existing bridges is available; however not included in this report.

Our services were performed in general conformance with Chapter 21.2.2 of the "2010 SCDOT Geotechnical Design Manual" (GDM) as modified by Bridge Design Memorandum 0510 dated October 22, 2010, and the referenced scope.

The objective of this exploration was to explore the subsurface conditions along I-26 alignment, replacement bridge bents, ramps, culvert structure locations, and sound walls as they pertain to the proposed improvements. The field and laboratory testing of this exploration provides geotechnical base line data to be utilized for preliminary design and estimating as part of a future design-build letting process.

This report presents a general discussion of preliminary design and construction issues anticipated for the proposed construction. While this geotechnical base line 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 final widening and bridge alignments.

2.0 EXPLORATION PROCEDURES AND SITE CONDITIONS

2.1 FIELD EXPLORATION

2.1.1 Soil Borings

The geotechnical scope of work performed included a total of three hundred thirteen (313) borings as shown on Summary Tables included in Appendix I, and the Boring Location Plans included in Appendix II. Borings labeled B-1 through B-21 were performed along the bridge replacement alignments not already obtained by the SCDOT from earlier projects. Borings labeled R-1 through R-25 were performed along the existing ramp alignments along Pomaria Street (SC-202) and Columbia Ave (S-48). Borings labeled C-1 through C-6 were performed near the existing culverts near mile marker 92. Borings labeled P-1 through P-173 were performed for the I-26 mainline widening, with borings approximately every 500 feet staggered within the proposed NB and SB widening areas. Borings P-174 to P-231 were performed for the I-26 widening, approximately every 1,500 feet staggered within proposed NB and SB outside shoulder areas. Borings labeled P-243 to P-266 were performed at observed locations of subsidence, potential instability, and/or critical embankment height and slope inclinations. Borings labeled SW-1 to SW-5 were performed for the two (2) proposed I-26 sound walls.

The borings indicated above for this phase of exploration were conducted within the current SCDOT Right-of-Way. Traffic control (lane closures) was required to perform the field work. ECS subcontracted the traffic control operations to Traffic Control Safety Services, Inc., and installed temporary traffic control devices in general accordance with SCDOT requirements for lane closures along Interstate highways. ECS also complied with SCDOT's work operation time restrictions for lane closures along Interstate highways.

The borings were performed utilizing five drilling rigs and included two CME 55 Truck-mounted drill rigs, a Diedrich D-120 (S/N 027) Track-mounted drill rig, a Diedrich D-50 Track-mounted drill rig, and a CME 550X Truck-mounted drill rig. Borings labeled P-1 through P-231 were continuously sampled (through Standard Penetration Testing, SPT) using three consecutive 1.5-foot split-spoons starting approximately ½ foot below existing ground surface for the 5 foot deep borings. The remaining borings were sampled every 2 feet in the first ten (10) feet, and every five (5) feet thereafter until boring termination. The bridge borings were extended to 100 feet below existing ground surface or auger refusal, whichever occurred first. Depths of the bridge borings ranged from 6 to 100 feet below existing ground surface. After encountering auger refusal, borings reaching auger refusal before reaching 100 feet in depths were extended into rock approximately 20 feet using NQ coring procedures. Upon completion of coring, the rock core samples were placed in rock core boxes and transported to our laboratory, where the cores were visually and manually classified by a staff geologist. In addition to the split-spoon samples, twenty-five (25) bulk samples and four (4) undisturbed Shelby tube samples were collected from various borings. Photographic logs of the rock cores and recovered Shelby tube samples are presented in Appendix IV. Rock coring recovery (REC) and Rock Quality Designation (RQD) were recorded and are included on the boring logs in Appendix III of this report. Unconfined compressive strength tests were performed on rock core samples chosen based on visual observations to aid in limiting test specimens with fracturing. The core testing from borings B-1 through B-21 resulted in unconfined compressive strengths ranging from approximately 1,006.4 to 17,544.7 psi. Rock quality and compressive strength will vary significantly with depth and bridge location, and the test results may or may not be representative of rock across the entire project.

Subsurface water was not encountered in the median borings at the time of drilling. Due to their locations near the active Interstate, these borings were immediately backfilled upon completion. Subsurface water was encountered at Bridge Borings B-5, B-6, B-8, B-9, B-16, and B-18 at depths ranging from approximately 16 to 46 feet below existing ground surface at the time of drilling or after a period of approximately 24 hours. Subsurface water was encountered at Sound Wall borings SW-2, SW-2A, SW-3, SW-4, and SW-5 at depths ranging from approximately 1 to 3 feet below existing ground surface at the time of drilling. It should be noted the subsurface water levels will fluctuate during the year and future water levels will very. Following the completion of the borings, laboratory testing was conducted on selected split-spoon samples and bulk samples, as assigned by ECS Senior Project Engineer Michael Bailey.

2.1.2 Shear Wave Velocity

Shear wave velocities of the subsurface materials in the upper 100+ feet were 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-1 through MASW-10” on the Boring Location Plan located in Appendix II. MASW is a seismic method for near surface characterization of shear wave velocity (Vs). A combination of active and passive sources was 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.

2.1.3 Visual Inspection of Outside Shoulder Embankments

ECS visually observed the outside shoulder embankments and determined locations of potential subsidence, potential instability, and/or critical embankment height and slope inclination. ECS drilled twenty-four borings (P-243 through P-266) at these locations to depths ranging from approximately 20 to 58.6 feet below the existing grade. Engineering recommendations and photographic logs have been included in the Appendix VI of the report.

2.1.4 Scope Exclusions

While preparing our subsurface investigation plan, it was determined that three (3) bridge overpasses were previously drilled by others and would be excluded from our subsurface exploration. These bridge overpasses included Koon Road (Bridge 1 – Route S-58), Shady Grove Road (Bridge 2 – Route S-80), and Columbia Avenue (Bridge 6 – Route S-48). These subsurface reports have been included in Appendix VII of the report. Conceptual bridge foundation discussions have been completed utilizing these subsurface exploration reports.

2.2 BORING LOCATIONS AND ELEVATIONS

The boring locations were initially established in the field using a handheld GPS unit. Some of the locations prepared in our subsurface investigation plan were offset due to conflicts with overhead power lines, underground utilities, and/or current Right-of-Way limits. At the completion of the subsurface exploration, a licensed surveyor recorded the “as-drilled” locations. The approximate boring locations are shown on the Boring Location Plans included in Appendix II. A summary of soil test boring locations including stations, offset distances, coordinates, boring depths, and boring elevations are included in Appendix I. The elevations and locations in Appendix I and in our Soil Test Logs include the “as-drilled” locations/elevations.

Soil sampling and penetration testing were performed in general accordance with ASTM D1586 "Standard Test Method for Penetration Test and Split Barrel Sampling of Soils". The borings were drilled utilizing truck and ATV-mounted drill rigs with automatic SPT hammers, using both hollow stem augers and rotary wash boring methods. Split-spoon samples were generally obtained continuously in the upper 10 feet and at 5-foot intervals thereafter. Where applicable, rock coring was performed upon encountering auger refusal within the bridge borings utilizing NQ-2 core barrel and wireline retrieval system. After completion of drilling, subsurface water levels and/or cave-in depths were attempted. Borings were then backfilled with soil cuttings and (where applicable) attached with asphalt cold patch. The hammer energy ratio is identified on each boring log and the SPT hammer energy reports are included in Appendix VIII.

2.3 SOIL CLASSIFICATION

Per the SCDOT Geotechnical Design Manual (GDM), recovered samples were classified in general accordance with ASTM D2487 and D2488, as well as AASHTO classification system. Rock core descriptions generally follow those described in the SCDOT GDM. Subsurface conditions encountered by the SPT borings are shown on the Soil Test Logs in Appendix III. These logs represent our interpretation of the subsurface conditions based on the subsurface data collected. The soil was then placed in strata's based on our interpretation of the approximate boundaries between soil types; however, the actual transition may be gradual, and the thicknesses of the strata will vary. Photographs of the UD/Shelby tube samples and rock core samples are included in Appendix IV.

2.4 LABORATORY TESTING

Laboratory testing was performed in general accordance with ASTM or AASHTO test procedures. The samples were classified in accordance with the Unified Soil Classification System (USCS) and AASHTO classification system. Laboratory testing included Index property testing consisting of Atterberg limits, grain-size distribution, natural moisture content, organic content, moisture-density (standard proctor) testing, California Bearing Ratio (CBR) tests, one-dimensional consolidation, consolidated undrained (CU) triaxial shear, corrosion series tests, and unconfined compressive strength testing. The following Table 2.4.1 is a quantity summary of the laboratory tests performed. Laboratory testing results have been included in Appendix IX.

Table 2.4.1 Assigned Laboratory Tests

Test Type	Quantity
Natural Moisture	307
Atterberg Limits	307
Grain Size Analysis	307
Organic Content	7
Standard Proctor	29
California Bearing Ratio	15
CU Triaxial Shear	3
Consolidation	3
Corrosion Series	7
Unconfined Compression (Rock)	42

2.5 REGIONAL/SITE GEOLOGY

The site is located in the Piedmont Physiographic Province of South Carolina. The native soils in the Piedmont Province consist mainly of residuum with underlying saprolites weathered from the parent bedrock, which can be found in both weathered and unweathered states. Although the surficial materials normally retain the structure of the original parent bedrock, they typically have a much lower density and exhibit strengths and other engineering properties typical of soil. In a mature weathering profile of the Piedmont Province, the soils are generally found to be finer grained at the surface where more extensive weathering has occurred. The particle size of the soils generally becomes more granular with increasing depth and gradually changes first to weathered and finally to unweathered parent bedrock. The mineral composition of the parent rock and the environment in which weathering occurs largely control the resulting soil's engineering characteristics. The residual soils are the product of the weathering of the parent bedrock.

The boundary between soil and rock is not sharply defined. This transitional zone termed "partially weathered rock" (PWR) is normally found overlying the parent bedrock. Partially weathered rock is defined, for engineering purposes and by Section 11.4 of the GDM, as residual material with Standard Penetration Test resistances greater than 100 blows per foot (bpf). The partially weathered rock is considered in geotechnical engineering as an Intermediate Geomaterial (IGM). The degree of weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of the PWR and hard rock is generally irregular and erratic, even over short horizontal distances.

The published information pertaining to the geology in the general vicinity of the site indicates the parent bedrock underlying the property is metagabbro and metagranodiorite rock derived from granitic rocks that have experienced metamorphism and intrusion by igneous diorite and quartzite which have in turn experienced further metamorphism. More severe or advanced weathering of the rock is commonly encountered along the intrusive dikes of diabase and diorite. The onsite residual soils are the product of the weathering of the parent bedrock.

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.

2.6 BRIDGE REALIGNMENT BORING STRATIFICATIONS

The subsurface exploration encountered up to four general strata (fill, residual, partially weathered rock, and mass rock) based on the physical properties, visual appearance, and apparent geologic origin. General descriptions of the samples recovered are presented below for each of the proposed bridge replacements.

2.6.1 Bridge 1 – Koon Road (S-58)

The subsurface exploration performed by F&ME for Koon Road (S-58) includes Borings B-1 and B-2 which were performed near the northeast and southwest end bents of this bridge replacement. Based on the conceptual plans provided by CECS, the replacement bridge will be along the same alignment as the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 5 to 10 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the northeast and southwest embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during F&ME's subsurface exploration at Bridge 1 – Koon Road (S-58). For subsurface information at a specific location, refer to the Boring Logs by F&ME in Appendix VII.

Table 2.6.1.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT (1) N-values (bpf)
0 to 1 (Surface cover)	El 423.3 – 422.3	n/a	Varying amounts of asphalt and gravel were present at the ground surface at each boring location.	N/A
1 to 14.5	El 422.3 – 408.8	I	RESIDUAL - Firm to Stiff, Dry to Wet, Red/Brown/Gray, Fine to Coarse Sandy SILT (ML) with quartz fragments.	6 to 15
14.5 to 19.5	El 408.8 – 403.8	II	PWR- Partially Weathered Rock sampled as Fine Sandy SILT (ML), Gray/Brown/Black.	50 blows per 3.5 inches to 50 blows per 5.5 inches of penetration
19.5 to 56.2	El 403.8 – 381.6	III	SLATE - Very Weak to Medium Strong, highly weathered, very close joints, Tan/Orange/Black.	REC (2) ranging from 9.2% to 100% RQD (3) ranging from 0% to 62.9%

(1) Uncorrected SPT N-values
(2) Rock Recovery
(3) RQD – Rock Quality Designation

2.6.2 Bridge 2 – Shady Grove Road (S-80)

The subsurface exploration performed by F&R for Shady Grove Road (S-80) includes Borings B-1 through B-6 which were performed near the north, center, and south end bents of this bridge replacement. Additionally, a subsurface exploration was performed by F&ME Consultants for Shady Grove Road (S-80) which includes Borings B-1 and B-2 which were performed near the north and south end bents of this bridge replacement. Based on the conceptual plans provided by CECS, the replacement bridge will be offset approximately 45 feet west of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 8 to 10 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during F&R and F&ME's subsurface explorations at Bridge 2 – Shady Grove Road (S-80). For subsurface information at a specific location, refer to the Boring Logs by F&R & F&ME in Appendix VII.

Table 2.6.2.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT (1) N-values (bpf)
0 to 0.5 (Surface cover)	El 394 – 393.5	n/a	Varying amounts of topsoil were present at the ground surface at each boring location.	N/A
0.5 to 2	El 393.5 – 392	I	FILL (2) – Medium Dense to Very Stiff, Moist, Gray to Brown, Clayey SAND (SC) to Sandy CLAY (CL).	15 to 19
2 to 4	El 392 - 390	II	RESIDUAL – Stiff to Very Hard, Dry to Moist, Reddish Brown to Light Brown, Sandy SILT (ML).	7 to 79
4 to 40 (4 to 20 for B-3 and B-4)	El 390 – 354 (El 390 – 374 for B-3 and B-4)	III	PWR- Partially Weathered Rock sampled as Fine Silty SAND (SM), Yellowish Brown to Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
40 to 100 (20 to 40 for B-3 and B-4)	El 354 – 294 (El 374 – 354 for B-3 and B-4)	IV	Metamorphic Schist to Metamorphic Phyllite – Moderately to Slightly Weathered	REC (3) ranging from 83% to 100% RQD (4) ranging from 0% to 98.8%

(1) Uncorrected SPT N-values
(2) Fill was recorded in Borings B-2, B-3, B-4, and B-5 to depths ranging from 2 to 3 feet below existing grade.
(3) REC – Rock Recovery
(4) RQD – Rock Quality Designation

2.6.3 Bridge 3 – Broad River Road (US-176)

Borings B-19, B-20, and B-21 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 5 to 10 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.3.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 380 – 379.5	n/a	Varying amounts of topsoil were present at the ground surface at each boring location.	N/A
0.5 to 3	El 379.5 – 377	I	FILL (2) –Medium Dense/Stiff to Very Stiff, Moist, Orangish Brown to Dark Brown, Silty SAND (SM)(A-4), and Elastic SILT (MH)(A-5).	9 to 17
3 to 20	El 377 - 360	II	RESIDUAL – Very Stiff/Dense to Very Dense, Moist, Orangish to Grayish Brown, Sandy CLAY (CL) (A-6), Silty CLAY (CL-ML) (A-4), Silty SAND (SM)(A-2-4), and Sandy SILT (ML)(A-4).	21 to 90
20 to 35	El 360 – 345	III	PWR(3) - Partially Weathered Rock sampled as Sandy SILT (ML)(A-4), Plastic CLAY (CH)(A-7-5), and Silty SAND (SM)(A-2-4)(A-4), Grayish to Tannish Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
35 to 60	El 345 – 320	IV	Slate/Phyllite/Metagraywacke –Slightly to Moderately Weathered	REC (4) ranging from 36% to 100% RQD (5) ranging from 4% to 100%

(1) Uncorrected SPT N-values
(2) Fill was recorded in Borings B-1, B-2, and B-3 to depths of approximately 17 to 27 feet below existing grade.
(3) Additional lenses of PWR were encountered in Borings B-19, B-20, and B-21 between 4 and 12 feet below existing grade.
(4) Rock Recovery
(5) RQD – Rock Quality Designation

2.6.4 Bridge 4 – Mt. Vernon Church Road (S-234)

Borings B-16, B-17, and B-18 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 15 to 23 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.4.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 405 – 404.5	n/a	Varying amounts of topsoil/asphalt were present at the ground surface at each boring location.	N/A
0.5 to 2.5	El 404.5 – 402.5	I	FILL – Medium Dense to Very Stiff, Moist, Orangish Brown to Dark Brown, Silty SAND (SM)(A-2-5)(A-4) to Sandy SILT (ML)(A-5).	13 to 23
2.5 to 15	El 402.5 - 390	II	RESIDUAL – Very Stiff to Very Hard, Moist, Orangish Tan to Tannish Brown, Sandy SILT (ML)(A-4)(A-5), Sandy CLAY (CL)(A-6), and Clayey SAND (SC)(A-2-6).	17 to 99
15 to 55 (15 to 72 for B-16)	El 390 – 355 (El 390 – 338 for B-16)	III	PWR- Partially Weathered Rock sampled as Sandy SILT (ML)(A-4)(A-6) and Silty SAND (SM)(A-2-4)(A-4), Orangish to Tannish Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
55 to 80 (72 to 93 for B-16)	El 355 – 325 (El 338 – 312 for B-3 and B-4)	IV	Quartzite/Slate/Granite – Freshly to Very Slight Weathered	REC(2) ranging from 6.7% to 100% RQD(3) ranging from 0% to 90%

(1)Uncorrected SPT N-values
(2)Rock Recovery
(3)RQD – Rock Quality Designation

2.6.5 Bridge 5 – Old Hilton Road (S-405)

Borings B-13, B-14, and B-15 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 20 to 23 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.5.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT[(1)] N-values (bpf)
0 to 0.5 (Surface cover)	El 335 – 334.5	n/a	Varying amounts of topsoil were present at the ground surface at each boring location.	N/A
0.5 to 2	El 334.5 – 333	I	FILL [(2)] –Very Stiff, Moist, Tannish Brown, Sandy SILT (ML)(A-4).	22 to 30
2 to 5	El 333 - 330	II	RESIDUAL – Medium Dense/Hard to Very Hard, Moist, Tannish Brown, Silty SAND (SM)(A-4) and Sandy SILT (ML)(A-4).	24 to 82
5 to 10	El 330 – 325	III	PWR- Partially Weathered Rock sampled as Sandy SILT (ML)(A-5) and Silty SAND (SM)(A-2-4)(A-4), Tannish Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
10 to 35	El 325 – 300	IV	Slate –Slightly Weathered	REC[(2)] ranging from 56% to 100% RQD[(3)] ranging from 0% to 70%

(1)Uncorrected SPT N-values
(2) Fill was recorded in Borings B-14 and B-15 to depths of approximately 2 to 3 feet below existing grade.
(3) Rock Recovery
(4) RQD – Rock Quality Designation

2.6.6 Bridge 6 – Columbia Avenue (S-48)

The subsurface exploration performed by Terracon for Columbia Avenue (S-48) includes Borings B-29 through B-34 performed near the northeast and southwest end bents of this bridge replacement. Based on the bridge plans provided by Mead & Hunt, conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 10 to 20 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the northeast and southwest embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutment.

The following sections provide generalized characterizations of the soil and rock strata encountered during Terracon's subsurface exploration at Bridge 6 – Columbia Avenue. For subsurface information at a specific location, refer to the Boring Logs by Terracon in Appendix IX.

Table 2.6.6.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT [(1)] N-values (bpf)
0 to 0.5 (Surface cover)	El 392 – 391.5	n/a	Varying amounts of topsoil were present at the ground surface at each boring location.	N/A
0.5 to 2	El 391.5 – 390	I	FILL [(2)] – Soft to Stiff, Moist, Red, Elastic SILT (MH).	4 to 10
2 to 50	El 390 - 342	II	RESIDUAL – Soft to Very Hard, Dry to Moist, Light Red to Brownish Yellow, Elastic SILT (MH), Sandy SILT (ML) and Clayey SAND (SC).	3 to 79
50 to 100	El 342 – 292	III	PWR [(3)]- Partially Weathered Rock sampled as Sandy SILT (ML), Silty SAND (SM) and Sandy CLAY (CL), Yellowish Brown to Olive Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration

(1) Uncorrected SPT N-values
(2) Fill was recorded in Borings B-32, B-33, and B-34 to depths of approximately 2 to 3 feet below existing grade.
(3) Additional lenses of PWR were encountered in Borings B-29 and B-30 between 22 and 42 feet below existing grade.

2.6.7 Bridge 7 – Peak Street (S-49)

Borings B-10, B-11, and B-12 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 18 to 23 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.7.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 445 – 444.5	n/a	Varying amounts of topsoil were present at the ground surface at each boring location.	N/A
0.5 to 7	El 444.5 – 438	I	FILL –Very Stiff to Hard, Dry to Moist, Reddish Tan to Brown, Elastic SILT (MH)(A-7-5) to Sandy SILT (ML)(A-5).	24 to 44
7 to 50	El 438 - 395	II	RESIDUAL – Stiff to Very Hard, Dry to Moist, Reddish Brown to Tannish Brown, Elastic SILT (MH)(A-7-5) to Sandy SILT (ML)(A-4)(A-5).	10 to 80
50 to 65	El 395 – 380	III	PWR- Partially Weathered Rock sampled as Sandy SILT (ML)(A-4) to Silty SAND (SM)(A-2-4), Tannish Brown to Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
65 to 85	El 380 – 360	IV	Metamudstone/Metatuff – Moderately to Very Slightly Weathered	REC(2) ranging from 25% to 96% RQD(3) ranging from 0% to 79%

(1)Uncorrected SPT N-values
(2)Rock Recovery
(3)RQD – Rock Quality Designation

2.6.8 Bridge 8 – Holy Trinity Church Road (S-39)

Borings B-7, B-8, and B-9 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 7 to 15 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.8.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 570 – 569.5	n/a	Varying amounts of topsoil/asphalt were present at the ground surface at each boring location.	N/A
0.5 to 12	El 569.5 – 558	I	FILL – Medium Stiff to Hard, Moist, Reddish Brown, Elastic SILT (MH)(A-5)(A-4) to Sandy SILT (ML) (A-5)(A-4).	5 to 41
12 to 90	El 558 - 480	II	RESIDUAL – Stiff to Very Hard, Dry to Moist, Reddish Brown to Light Brown, Elastic SILT (MH) (A-5), Sandy SILT (ML)(A-4)(A-5), to Silty SAND (SM)(A-7-5)(A-4).	15 to 79
90 to 100	El 480 – 470	III	PWR (2)- Partially Weathered Rock sampled as Sandy SILT (ML)(A-5)(A-4) to Silty SAND (SM) (A-4)(A-2-4), Orangish to Grayish Brown	50 blows per 1 inches to 50 blows per 5½ inches of penetration

(1) Uncorrected SPT N-values
(2) PWR was encountered in Borings B-8 and B-9 at depths ranging from approximately 77 to 92 feet below existing grade.

2.6.9 Bridge 9 – Parr Road (S-167)

Borings B-4, B-5, and B-6 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 17 to 25 feet above the current grade elevation. The preferred conceptual alternate anticipates that that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.9.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 507 – 506.5	n/a	Varying amounts of asphalt were present at the ground surface at each boring location.	N/A
0.5 to 20	El 506.5 – 487	I	FILL – Soft to Very Stiff, Moist, Reddish Brown, Elastic SILT (MH)(A-7-5) to Sandy SILT (ML)(A-5) (A-4).	4 to 29
20 to 80	El 487 - 427	II	RESIDUAL – Medium Stiff to Very Hard to Dense to Very Dense, Moist, Orangish to Tannish Brown, Elastic SILT (MH)(A-7-5)(A-5), Sandy SILT (ML) (A-5)(A-4), to Silty SAND (SM)(A-4).	8 to 68
80 to 100	El 427 – 407	III	PWR- Partially Weathered Rock sampled as Sandy SILT (ML)(A-4) to Silty SAND (SM)(A-4)(A-2-4), Orangish to Greyish Brown	50 blows per 0 inches to 50 blows per 4 inches of penetration
92 to 112	El 415 – 488	IV	Diorite/Metatonalite(2) –Slightly to Very Slightly Weathered	REC(2) ranging from 64% to 100% RQD(3) ranging from 33% to 91%

(1) Uncorrected SPT N-values
(2) Rock was encountered during drilling of Boring B-5
(3) Rock Recovery
(4) RQD – Rock Quality Designation

2.6.10 Bridge 10 – Pomaria Street (SC-202)

Borings B-1, B-2, and B-3 were performed near the north, center, and south bents of this bridge replacement, respectively. Based on the conceptual plans provided by CECS, the replacement bridge will be offset directly to the east of the existing bridge. Conceptual grading information shown on the plans indicate new embankments will be constructed at each abutment and will raise site grades approximately 15 to 45 feet above the current grade elevation. The preferred conceptual alternate anticipates that both the north and south embankments will be constructed with a Mechanically Stabilized Earth (MSE) wall in front of the abutments.

The following sections provide generalized characterizations of the soil and rock strata encountered during our subsurface exploration. For subsurface information at a specific location, refer to the Boring Logs in Appendix III.

Table 2.6.10.1 Subsurface Stratigraphy

Approximate Average Thickness (ft)	Approximate Average Elevation (ft)	Stratum	Description	Ranges of SPT(1) N-values (bpf)
0 to 0.5 (Surface cover)	El 414 – 413.5	n/a	Varying amounts of topsoil or asphalt were present at the ground surface at each boring location.	N/A
0.5 to 20	El 413.5 – 394	I	FILL(2) – Medium Stiff to Very Stiff, Moist, Gray to Reddish Brown, Elastic SILT (MH)(A-7-5)(A-5), Sandy SILT (ML)(A-5)(A-7-5), and Sandy CLAY (CL)(A-7-5)(A-7-6).	5 to 16
20 to 40	El 394 - 374	II	RESIDUAL – Very Stiff to Very Hard, Moist, Orangish to Tannish Brown, Elastic SILT (MH) (A-7-5), Silty SAND (SM)(A-4), and Sandy SILT (ML)(A-7-6)(A-4).	16 to 80
40 to 80	El 374 – 334	III	PWR(3)(4)- Partially Weathered Rock sampled as Silty SAND (SM)(A-4)(A-2-4) and Sandy SILT (ML)(A-4), Tannish Brown to Brown	50 blows per 0 inches to 50 blows per 5 inches of penetration
80 to 100	El 334 – 314	IV	Amphibolite –Slightly Weathered	REC(5) ranging from 8% to 100% RQD(6) ranging from 0% to 90%

(1) Uncorrected SPT N-values
(2) Fill was recorded in Borings B-1, B-2, and B-3 to depths of approximately 17 to 27 feet below existing grade.
(3) Additional lenses of PWR were encountered in Borings B-1, B-2, and B-3 between 22 and 37 feet below existing grade.
(4) Boring B-3 was terminated in PWR at a depth approximately 100 feet below existing grade.
(5) Rock Recovery
(6) RQD – Rock Quality Designation

2.7 GROUNDWATER OBSERVATIONS

Groundwater measurements were attempted at the termination of drilling and prior to demobilization from the site. Groundwater was observed at Borings B-5, B-6, B-8, B-9, B-16, B-18, C-1, R-7, R-8, R-9, SW-2, SW-2A, SW-3, SW-4, and SW-5 at depths ranging from approximately 1 to 46 feet below ground surface. Each of the remaining boring locations was dry at the time of drilling and to the depths explored. Below is a table with the groundwater readings at the time of drilling and after 24 hours at each boring where groundwater was encountered.

Table 2.7.1 Groundwater Depths

Boring Number	Depth of Groundwater	
	At time of Drilling (1)	After 24 Hours (1)(2)
B-5	36.5	36.5
B-6	40.0	40.0
B-8	28.6	GNE
B-9	46.0	GNE
B-16	GNE	19.5
B-18	GNE	16.0
C-1	37.0	37.0
R-7	12.0	GNE
R-8	15.0	GNE
R-9	10.0	GNE
SW-2	1.0	NM
SW-2A	1.0	NM
SW-3	2.5	NM
SW-4	3.0	NM
SW-5	2.5	NM

(1) GNE = Groundwater not encountered or observed.
(2) NM = 24 hour Groundwater Readings Not Measured

Fluctuations in the groundwater elevation should be expected depending on precipitation, run-off, utility leaks, and other factors not evident at the time of our evaluation. Normally, highest groundwater levels occur in late winter and spring and the lowest levels occur in late summer and fall. Depending on time of construction, groundwater may be encountered at shallower depths and locations not explored during this study. If encountered during construction, engineering personnel from our office should be notified immediately.

3.0 DESIGN AND CONSTRUCTION CONSIDERATIONS

As defined in the SCDOT GDM and modified by the Bridge Design Memorandum 0510 dated October 22, 2010, the scope of this Geotechnical Base Line Report is limited to "very preliminary engineering recommendations." The following section is general recommendations concerning foundations and/or ground improvement requirements.

3.1 BRIDGE 1 – KOON ROAD (S-58)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.1 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 196-foot total bridge length with two 98-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil.

However, the borings indicate PWR or rock may be encountered at the interior bent. Shallow foundations may be considered along the interior bent if the foundation bears on PWR or rock. Additional exploration, especially for the interior bent, will be required during the project design phase to complete the evaluation and recommendations for the bridge foundations.

The use of shallow foundations does not appear feasible for this bridge at the end bents, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location, but may be necessary if pile penetration cannot be achieved.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 15 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 10 to 15 feet of fill for the approach embankments will induce consolidation

settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. The rock strata is moderately shallow (approximately 20 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Based on the shorter shaft length, installation of rock sockets would provide additional axial resistance, and will likely be required to help resist lateral loads. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.2 BRIDGE 2 – SHADY GROVE ROAD (S-80)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.2 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 212-foot total bridge length with two 106-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil.

However, borings indicate PWR or rock may be encountered at the interior bent. Shallow foundations may be considered along the interior bent if the foundation bears on PWR or rock. Additional exploration, especially for the interior bent, will be required during the project design phase to complete the evaluation and recommendations for the bridge foundations.

The use of shallow foundations does not appear feasible for this bridge at the end bents, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or

interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone. Due to the presence of shallow PWR, predrilling of H-piles may be required.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 18 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 8 to 10 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. Rock strata is moderately shallow (approximately 20 to 40 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Based on the shorter shaft length, installation of rock sockets would provide additional axial resistance, and will likely be required to help resist lateral loads. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.3 BRIDGE 3 – BROAD RIVER ROAD (US-176)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.3 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 246-foot total bridge length with two 123-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil.

However, borings indicate PWR or rock may be encountered at the interior bent. Shallow foundations may be considered along the interior bent if the foundation bears on PWR or rock. Additional exploration, especially for the interior bent, will be required during the project design phase to complete the evaluation and recommendations for the bridge foundations.

The use of shallow foundations does not appear feasible for this bridge at the end bents, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Due to the presence of shallow lenses of PWR, predrilling of H-piles may be required.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on conceptual grades, we expect the MSE wall height will be at least 20 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 10 to 20 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the

design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. Rock strata is moderately shallow (approximately 40 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR below approximate elevation 360 feet, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Based on the shorter shaft length, installation of rock sockets would provide additional axial resistance, and will likely be required to help resist lateral loads. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.4 BRIDGE 4 – MT. VERNON CHURCH ROAD (S-234)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.4 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 172-foot total bridge length with two 86-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil.

However, borings indicate PWR or rock may be encountered at the interior bent. Shallow foundations may be considered along the interior bent if the foundation bears on PWR or rock. Additional exploration, especially for the interior bent, will be required during the project design phase to complete the evaluation and recommendations for the bridge foundations.

The use of shallow foundations does not appear feasible at the end bents, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Due to the presence of shallow lenses of PWR, predrilling of H-piles may be required.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 20 feet.

Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 15 to 22 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. Rock strata is moderately shallow (approximately 40 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Based on the shorter shaft length, installation of rock sockets would provide additional axial resistance, and will likely be required to help resist lateral loads. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.5 BRIDGE 5 – OLD HILTON ROAD (S-405)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.5 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 176-foot total bridge length with two 88-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil.

However, borings indicate PWR or rock may be encountered at the interior bent. Shallow foundations may be considered along the interior bent if the foundation bears on PWR or rock. Additional exploration, especially for the interior bent, will be required during the project design phase to complete the evaluation and recommendations for the bridge foundations.

The use of shallow foundations does not appear feasible at the end bents, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be

present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Due to the presence of shallow PWR, predrilling of H-piles may be required.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 20 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 20 to 25 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. Rock strata is shallow (approximately 10 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Based on the shorter shaft length, installation of rock sockets would provide additional axial resistance, and will likely be required to help resist lateral loads. Construction casing will be required in the upper portions

of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.6 BRIDGE 6 – COLUMBIA AVENUE (S-48)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.6 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 187-foot total bridge length with two 93.5-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil. Additionally, shallow foundations at the interior bent do not appear feasible based on the depths of PWR and/or rock.

The use of shallow foundations does not appear feasible for the end bents this bridge, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 20 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 15 to 30 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. Rock strata is relatively deep (greater than 100 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, and to a lesser extent from side friction in the residual soils above. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.7 BRIDGE 7 – PEAK STREET (S-49)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.7 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 250-foot total bridge length with two 125-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil. Additionally, shallow foundations at the interior bent do not appear feasible based on the depths of PWR and/or rock.

The use of shallow foundations does not appear feasible for at the end bents for this bridge, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 20 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 20 to 25 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. The rock strata is relatively deep (approximately 65 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.8 BRIDGE 8 – HOLY TRINITY CHURCH ROAD (S-39)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.8 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 191-foot total bridge length with two 95.5-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil. Additionally, shallow foundations do not appear feasible at the interior bent based on the depths of PWR and/or rock.

The use of shallow foundations does not appear feasible for the end bents at this bridge, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 28 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 10 to 15 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. The rock strata is relatively deep (greater than 100 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, and to a lesser extent from side friction in the residual soils above. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.9 BRIDGE 9 – PARR ROAD (S-167)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.9 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 177.5-foot total bridge length with two 88.75-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil. Additionally, shallow foundations at the interior bent do not appear feasible based on the depths of PWR and/or rock.

The use of shallow foundations does not appear feasible for the end bents at this bridge, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 20 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 20 to 25 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement

(when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. The rock strata is relatively deep (approximately 100 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, and to a lesser extent from side friction in the residual soils above. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.10 BRIDGE 10 – POMARIA STREET (SC-202)

A generalized subsurface stratigraphy of the borings conducted at this structure is provided in Table 2.6.1.10 to help illustrate the following conceptual discussions for bridge foundation support. Assuming a 173-foot total bridge length with two 86.5-foot long spans, this arrangement would likely result in moderately heavy column loads for the interior bent, which would preclude the use of shallow foundations bearing on residual soil. Additionally, shallow foundations at the interior bent do not appear feasible based on the depths of PWR and/or rock.

The use of shallow foundations does not appear feasible at the end bents for this bridge, as the conditions described in Section 15.1 of the GDM (beneath bents that are located within the reinforced soil mass associated with MSE walls), which preclude use of shallow foundations, appear to be present. Therefore, installation of deep foundations will be required to support the end bents at this bridge.

Acceptable driven pile types include steel H-piles, steel pipe piles, prestressed concrete piles, or composite piles of shapes and dimensions typically used by the SCDOT and listed in Table 16-2 of the GDM. Because these types would bear in very dense/hard PWR, group settlements would be very small. Each of these pile types appear technically feasible for use at either end bents or interior bents; however, the use of prestressed concrete piles can be problematic and not typically used in the Piedmont due to the variable PWR/rock surface and potential for encountering PWR/rock lenses in the residual soil zone.

H-piles driven to bear in very dense PWR would begin to develop substantial capacity in end bearing. Pipe piles driven either open- or close-ended will develop very high axial resistance at similar elevation. Precast concrete piles may require a driving shoe or stinger if driven near these elevations. Drilled piles described in Section 16.5 of the GDM do not appear necessary at this location.

We anticipate the widened interstate lane configuration will require the both approach embankments and end bents to be contained by Mechanically Stabilized Earth (MSE) retaining walls. Based on the conceptual grading, we expect the MSE wall height will be at least 30 feet. Foundation piles for both end bents will be located within the reinforced zone of the abutment MSE walls. Per SCDOT Supplemental Technical Specification SC-M-713 (May 2014) for MSE wall construction, piles should be installed prior to installation of the MSE wall at the end bent

abutment, following excavation of the wall area to near its plan wall foundation subgrade elevation. Following initial pile installation (and prior to MSE wall construction), the piles should be sleeved/encased for protection during placement and compaction of the wall backfill. Placement of 15 to 35 feet of fill for the approach embankments will induce consolidation settlement of the underlying subgrade soils. However, because the piles will have been installed prior to fill placement, they may be subject to downdrag loading caused by the subgrade settlement. Therefore, the pile loading demand for the abutment piles may need to include the additional downdrag load.

Evaluation of subgrade settlement magnitude was not included in the GBLR scope. Depending on performance criteria for the MSE wall and approach slab/embankment, some ground improvement could be required prior to MSE wall construction; although, based on our experience in the Piedmont Geology and the information provided in this GBLR, ground improvement is not anticipated. Typical ground improvement methods for reducing settlement (when undercutting is not practical) include: soil mixing, injection grouting, fortifying the subgrade with stone columns or controlled-modulus columns, and installation of a deep foundation system (micropiles, continuous flight auger piles, driven timber piles). Also, the design-phase geotechnical evaluation should include detailed external stability analyses for the end bent walls.

Drilled shafts may be considered for support of interior bent foundations since their use would preclude requirement for excavation of a pile cap. The rock strata is relatively deep (approximately 85 feet), so drilled shafts would derive axial resistance primarily as side friction in PWR, end bearing on/in rock, and to a lesser extent from side friction in the residual soils above. Construction casing will be required in the upper portions of the shafts. Alternatively, micropiles may be considered as discussed in Section 16.7 of the GDM. If utilized, micropiles shall follow Article 10.9 of the AASHTO LRFD Bridge Design Specifications.

3.11 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 bridges for this project are Operational Classification II Structures. Operational Classification II Structures require an evaluation for the Safety Evaluation Earthquake (SEE) and Functional Evaluation Earthquake (FFE).

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. For this preliminary analysis, the Acceleration Design Response Spectrum (ADRS) for each bridge was not included; however, if not initially provided by the SCDOT, the design-phase geotechnical engineer should request the ADRS curves and include them in the Bridge Geotechnical Engineering Report. The Seismic Design Category (SDC), and values of SDS, SD1, and PGA for each structure can be determined at that time from the ADRS output for the FEE and SEE earthquakes

3.11.1 Seismic Site Class

The SCDOT GDM requires seismic site classification using shear wave velocity values. Shear wave velocities were attempted at each of the replacement bridge locations. The shear wave velocities were collected by the utilization of Multichannel Analysis of Surface Waves (MASW). MASW is a nondestructive seismic method used to evaluate the shear-wave velocity distribution and arrangement of overburden soil deposits and the bedrock as well. It analyses dispersion properties of certain types of seismic surface waves (fundamental-mode Rayleigh waves) propagating horizontally along the surface of measurement directly from impact points to receivers, or from passive noise sources such as traffic nearby. Due to the very shallow PWR and rock observed in Bridges 3 and 5, MASW could not obtain an average shear wave velocity. For these two bridges, the average N-value method was performed to determine the seismic site class. The seismic site class definitions for the weighted average of shear wave velocity or SPT N-value in the upper 100 feet of the soil profile are shown in Table 3.11.1.1. Table 3.11.1.2 is a summary of the average shear wave velocities and seismic site class at each bridge location.

Table 3.11.1.1: Seismic Site Classification (Table 12-22 in SCDOT GDM)

Site Class	Soil Profile Name	Shear Wave Velocity, Vs, (ft./s)	N value (bpf)
A	Hard Rock	Vs > 5,000 fps	N/A
B	Rock	2,500 < Vs ≤ 5,000 fps	N/A
C	Very dense soil and soft rock	1,200 < Vs ≤ 2,500 fps	>50
D	Stiff Soil Profile	600 ≤ Vs ≤ 1,200 fps	15 to 60
E	Soft Soil Profile	Vs < 600 fps	<15

Table 3.11.1.2 Shear Wave Velocities

Bridge Number	Route	Average Shear Wave Velocity (ft/sec) *Average N-Value (For Bridge 3 & 5)	Seismic Site Class
1	Koon Road (S-58)	1420	C
2	Shady Grove Road (S-80)	2347	C
3	Broad River Road (US-176)	93*	C
4	Mt. Vernon Church Road (S-234)	1797 (West Bound) 2256 (East Bound)	C
5	Old Hilton Road (S-405)	85*	C
6	Columbia Avenue (S-48)	1251	C
7	Peak Street (S-49)	900 (West Bound) 1179 (East Bound)	D
8	Holy Trinity Church Road (S-39)	891 (West Bound) 897 (East Bound)	D
9	Parr Road (S-167)	880 (West Bound) 805 (East Bound)	D
10	Pomaria Street (SC-202)	1400 (West Bound) 1285 (East Bound)	C

3.11.2 Liquefaction Potential

The general potential for liquefaction of sands below explored roadway embankments and bridge abutments for this project was qualitatively assessed to be low, due to the depth, relative density and fines contents of the soils. Since the project is located in the South Carolina Piedmont geological region and subsurface profile consists primarily of residual soils derived from the in-place weathering of parent bedrock. Liquefiable soils did not appear to be present beneath the approach embankment areas at the proposed bridge abutments.

3.12 CORROSIVITY

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. A sample was obtained from bridge realignments (Bridge 3, 4, 5, 7, 8, 9, and 10) during our subsurface exploration. Results of the corrosivity testing are summarized in Table 3.12.1.

Table 3.12.1 Corrosion Testing

Bridge Number	Boring Number	Resistivity (ohm-cm)	pH	Chloride Content (ppm)	Sulfate Content (ppm)
3	B-21	132	6.8	4990	279
4	B-16	433	4.8	1010	540
5	B-13	4380	6.5	2	3
7	B-12	11800	5.1	1	5
8	B-7	6410	6.2	9	<1
9	B-6	8350	6.4	17	18
10	B-1	3610	6.0	32	2

3.13 DIFFICULT EXCAVATION

Difficult excavation conditions due to PWR (and possibly rock in boulder, pinnacle, or mass form) should be expected during grading and slope excavation. Please keep in mind that the depth and consistency of PWR and rock vary significantly in this geologic region, and PWR/rock could be encountered at shallower depths intermediate of the boring locations.

Dense residual soils and most of the PWR can likely be excavated by pre-loosening these materials with a single-tooth ripper drawn with a large bulldozer (such as a CAT D8K). PWR in trenches and isolated areas can typically be removed with a large tracked excavator (such as a CAT 330), with a bucket equipped with hardened rock teeth. It is our experience that PWR with N-values greater than roughly 50 over 2 inches could require rock excavation methods, such as blasting or the use of pneumatic equipment.

Prospective bidding contractors should review the boring information carefully, anticipate the potential for difficult excavation conditions due to PWR (and possibly rock), and prepare their grading estimates accordingly.

3.14 VIBRATION MONITORING

Construction activities such as demolition, clearing, grading, compaction, and pile driving generate vibrations. Our experience indicates the perception of neighboring property owners can be more significant than the actual potential for damage. Vibrations, when coupled with noise from activities such as pile driving, are readily perceptible by people. The human perception threshold is actually much smaller than the threshold for damage to structures. When neighbors perceive vibrations, which may be well below damaging magnitudes, they can become more attuned to potential property damage, often noticing old problems such as cracks in walls and driveways previously overlooked.

SCDOT should require contractors to perform pre- and post-construction surveys on applicable structures within at least 150 feet of the site boundaries to document their condition before and after vibration generating construction activities. This survey should include video and photographic records and the installation of crack monitors throughout the area. Vibration monitoring should be performed during initial construction activity such as driving of sheet piles or light blasting. Depending on the levels recorded, vibration monitoring might also be continued throughout major construction activities to maintain a record of vibrations and to confirm that established thresholds are not exceeded.

3.15 PAVEMENT SUPPORT

California Bearing Ratio (CBR) tests were performed on fifteen (15) bulk samples obtained from median/roadway, bridge embankments, and ramps/interchange improvements. The results of the CBR testing are summarized in Table 3.15.1 below. The test specimens were remolded at 95 percent of the Standard Proctor's maximum dry density.

Table 3.15.1 CBR Results

Boring Number	Location	CBR Results	Soil Type
B-5	West Bound Widening	6.5	Plastic CLAY (CH)
B-17	West Bound Widening	1.7	Elastic SILT (MH)
P-50	West Bound Widening	6.7	Sandy CLAY (CL)
P-140	West Bound Widening	4.2	Sandy CLAY (CL)
P-195	West Bound Shoulder	3.4	Elastic SILT (MH)
P-223	West Bound Shoulder	3.2	Sandy CLAY (CL)
P-178	East Bound Shoulder	4.2	Plastic CLAY (CH)
P-262	East Bound Shoulder	5.4	Elastic SILT (MH)
P-11	East Bound Widening	3.0	Sandy CLAY (CL)
P-43	East Bound Widening	3.0	Sandy CLAY (CL)
P-113	East Bound Widening	4.5	Sandy CLAY (CL)
P-145	East Bound Widening	5.0	Sandy SILT (ML)
R-11	Interchange Improvements	6.6	Clayey SAND (SC)
R-21	Interchange Improvements	5.7	Sandy CLAY (CL)
R-25	Interchange Improvements	7.7	Clayey SAND (SC)

3.16 ROADWAY EMBANKMENTS

Placement of new fill embankments may be required to achieve the proposed final roadway grades. In general, cut slopes in residual soils and fill slopes placed with engineered fill may be constructed at a 2:1 (horizontal:vertical) or flatter; however these slopes should be designed in accordance with the SCDOT GDM. In accordance with the SCDOT GDM, the roadway embankments (beyond 150 feet of the bridge) shall be designed and evaluated for the SLS limit state using resistance factors in Chapter 9 and performance limits in Chapter 10 of the SCDOT GDM. Slope stability and settlement analyses shall be completed at critical roadway embankment sections during the final design process in accordance with the SCDOT GDM. Potential slope stability issues may be encountered at fill locations where very loose, low plasticity, or alluvial deposits are exposed beneath the toe of the new slope. Alluvial soils were not encountered during subsurface exploration; however very loose, low plasticity soils were encountered in existing outside shoulder embankment Boring P-247 at a depth of approximately 17 feet below existing grade.

Besides the MSE walls that are anticipated for some of the bridge abutments and discussed in Section 3 of this report, and the median barrier walls along I-26, there may be locations where retaining wall may help 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. All retaining wall design shall meet the requirements of the SCDOT GDM. External stability analysis must be performed for all of these walls and soil improvement measures, such as undercutting and replacement with suitable materials, cement treatment, or other mitigation actions, shall be determined.

Construction of the new embankments for this project should comply with Section 205-Embankment Construction, of the latest edition of SCDOT Standard Specifications for Highway Construction. Overall, the compacted fill should be constructed by spreading acceptable soil in loose layers of acceptable thickness. The soils used within embankments should be compacted to at least 95 percent of the standard Proctor maximum dry density (AASHTO T 99). The temporary fill surfaces must be sloped during construction to prevent water from ponding in or on the fill. If the fill materials become wet or absorb excessive moisture, the geotechnical engineer should be consulted for guidance. Where side-hill embankments are to be placed on existing slopes that are steeper than 3H:1V, the new embankment fill shall be “keyed” and benched into the existing ground to reduce the possibility of the formation of a failure surface between the existing soil and the new fill. Prior to placing any new fill material, existing topsoil, roots and vegetative material should be removed and existing fill should be scarified and compacted. Suitable vegetation shall be installed on the finished slope face to reduce the potential for erosion.

ECS performed a site walk to observe the existing outside shoulder embankments and determined locations of potential subsidence, potential instability, and/or critical embankment height and slope inclination. A photographic log of the results of the site walk has been included in Appendix VI. Additionally, ECS drilled twenty-four borings (P-243 through P-266) at locations of potential subsidence/instability to depths ranging from approximately 20 to 58.6 feet below the existing grade. Table 3.16.1 identifies each outside shoulder embankment boring in reference to notable issues and potential causes.

Table 3.16.1 Outside Shoulder Embankment Borings

Boring Number	Approximate MM Location	Notable Issues	Potential Causes
P-243	Eastbound 86 + ~1650	Pavement Cracking	Settlement
P-244	Eastbound 86 + ~2000	Pavement Cracking	Settlement
P-245	Eastbound 87 + ~550	Pavement Cracking	Settlement / Subsidence due to underground drainage
P-246	Eastbound 87 + ~550	Pavement Cracking	Settlement / Subsidence due to underground drainage
P-247	Eastbound 87 + ~2500	Pavement Cracking	Slope Stability / Settlement / Subsidence due to underground drainage
P-248	Eastbound 87 + ~2500	Pavement Cracking	Settlement / Subsidence due to underground drainage
P-249	Eastbound 88 + ~4060	Slope	Drainage/Erosion
P-250	Eastbound 88 + ~4060	Slope	Drainage/Erosion
P-251	Westbound 89 + ~00 Shoulder	Pavement Cracking/Subsidence	Settlement
P-252	Westbound 89 + ~00 Shoulder	Pavement Cracking/Subsidence	Settlement
P-253	Westbound 92 + ~1320	Pavement Cracking	Settlement
P-254	Westbound 92 + ~1320	Pavement Cracking	Settlement
P-255	Westbound 92 + ~2780	Soil Loss along Culvert	Subsidence due to underground drainage
P-256	Westbound 92 + ~2780	Soil Loss along Culvert	Subsidence due to underground drainage
P-257	Westbound 95 + ~4200	Pavement Cracking	Settlement
P-258	Westbound 95 + ~4200	Pavement Cracking	Settlement
P-259	Eastbound 97 + ~160	Pavement Cracking/Subsidence	Settlement
P-260	Eastbound 97 + ~160	Pavement Cracking/Subsidence	Settlement
P-261	Eastbound 99 + ~320	Pavement Cracking	Drainage/Erosion
P-262	Eastbound 99 + ~320	Pavement Cracking	Drainage/Erosion
P-263	Eastbound 85 + ~560	Pavement Cracking	Settlement/Underground drainage subsidence
P-264	Median 88 + ~00	Pavement Cracking/Subsidence	Settlement
P-265	Median 88 + ~00	Pavement Cracking/Subsidence	Settlement
P-266	Eastbound 90+~4400	Slope	Settlement / Subsidence due to underground drainage

The noted distress and potential causes should be further evaluated by the design build team, and applicable repairs should be incorporated into the final roadway plans.

3.17 PIPE CULVERTS

Culverts should be constructed in accordance with SCDOT Standard Specifications for Highway Construction and with SCDOT Standard Drawings for Pipe Culverts. The contractor should have appropriate equipment and backups on hand at all times to effectively dewater excavations, should it be needed.

Unsuitable soils, including loose, soft, yielding, highly plastic or excessively wet soils should be removed from the foundation area and replaced with materials meeting the bedding requirements. The width and depth of undercutting should meet the minimum requirements as noted in Standard Drawing 714-005-00.

3.18 SOUND WALLS

Borings SW-1, SW-2, and SW-2A were performed along the westbound Sound Wall from station 890+00.00 to station 934+00.00. Borings SW-3, SW-4, and SW-5 were performed along the eastbound Sound Wall from station 768+00.00 to station 788+91.36. Sound Walls should be constructed in accordance with SCDOT Standard Specifications for Highway Construction.

4.0 CLOSING

ECS has prepared this Geotechnical Base Line Report in general accordance with the SCDOT GDM Charter 21 as modified in SCDOT Bridge Design Memorandum 0510 dated October 22, 2010, and with generally accepted geotechnical engineering practice 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 Piedmont geology at the time this report was prepared. The Geotechnical Engineer of Record 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 this 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 in order 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 Culvert Boring Locations (Table 1.2)

Summary of Ramp Boring Locations (Table 1.3)

Summary of Widening Boring Locations (Table 1.4)

Summary of Shoulder Boring Locations (Table 1.5)

Summary of Outside Shoulder Embankment Boring Locations (Table 1.6)

Summary of Sound Wall Boring Locations (Table 1.7)

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

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" Survery Coordinates			
							Latitude	Longitude	Northing	Easting
B-1	10	Pomaria Street (SC-202)	88.7	436.3	94+72.91	69' RT	34.2206681	-81.4103490	868840.89	1875962.33
B-2	10	Pomaria Street (SC-202)	103.0	414.8	93+55.66	115' RT	34.2203283	-81.4102737	868717.17	1875984.60
B-3	10	Pomaria Street (SC-202)	100.0	440.3	92+06.98	69' RT	34.2199498	-81.4105162	868579.74	1875910.75
B-4	9	Parr Road (S-167)	100.0	522.8	53+88.64	87' LT	34.2163494	-81.3988832	867255.87	1879421.95
B-5	9	Parr Road (S-167)	112.0	502.6	52+67.98	43' LT	34.2160028	-81.3987973	867129.65	1879447.41
B-6	9	Parr Road (S-167)	100.0	522.9	51+42.41	66' LT	34.2156718	-81.3989377	867009.39	1879404.50
B-7	8	Holy Trinity Church Road (S-39)	100.0	585.5	18+88.54	44' RT	34.2041105	-81.3697794	862769.81	1888203.45
B-8	8	Holy Trinity Church Road (S-39)	100.0	565.2	19+88.00	3' RT	34.2038629	-81.3699748	862679.92	1888144.03
B-9	8	Holy Trinity Church Road (S-39)	100.0	582.2	21+40.92	20' RT	34.2036641	-81.3704239	862608.08	1888008.01
B-10	7	Peak Street (S-49)	98.6	444.5	83+70.99	3' LT	34.1927211	-81.3491926	858603.91	1894413.25
B-11	7	Peak Street (S-49)	83.5	440.6	82+39.17	13' RT	34.1923745	-81.3490529	858477.66	1894455.06
B-12	7	Peak Street (S-49)	72.0	438.8	81+13.08	6' RT	34.1920318	-81.3489935	858352.91	1894472.62
B-13	5	Old Hilton Road (S-405)	26.0	326.9	124+68.73	13' RT	34.1667810	-81.2913979	849111.03	1911861.53
B-14	5	Old Hilton Road (S-405)	28.0	326.5	123+81.21	4' RT	34.1665503	-81.2914801	849027.18	1911836.44
B-15	5	Old Hilton Road (S-405)	35.0	334.8	122+79.58	4' LT	34.1662800	-81.2915717	848928.88	1911808.46
B-16	4	Mt. Vernon Church Road (S-234)	91.2	399.6	58+27.41	3' RT	34.1596886	-81.2728565	846515.06	1917462.65
B-17	4	Mt. Vernon Church Road (S-234)	73.5	399.6	57+93.03	1' RT	34.1596039	-81.2729042	846484.28	1917448.12
B-18	4	Mt. Vernon Church Road (S-234)	79.8	402.5	57+02.10	26' LT	34.1593988	-81.2731002	846409.80	1917388.66
B-19	3	Broad River Road (US 176)	57.4	383.0	34+38.41	4' RT	34.1463265	-81.2378848	841626.94	1928029.62
B-20	3	Broad River Road (US 176)	61.0	371.8	32+71.13	9' RT	34.1458866	-81.2377208	841466.75	1928078.88
B-21	3	Broad River Road (US 176)	41.0	370.6	31+53.84	12' RT	34.1455792	-81.2376028	841354.83	1928114.32

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
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TABLE 1.2 - SUMMARY OF CULVERT BORING LOCATIONS

Boring Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
C-1	I26_CL	47.1	305.28	1073+42.09	147' LT	34.1727326	-81.3107519	851293.65	1906014.38
C-2	I26_CL	58.6	304.35	1072+81.88	114' LT	34.1727667	-81.3105272	851305.88	1906082.37
C-3	I26_CL	52	295.29	1071+74.36	40' LT	34.1728626	-81.3101111	851340.39	1906208.32
C-4	I26_CL	55	303.91	1071+50.04	46' RT	34.1730616	-81.3099456	851412.63	1906258.60
C-5	I26_CL	28.6	312.1	1079+50.45	10' RT	34.1736917	-81.3124829	851644.23	1905491.92
C-6	I26_CL	48.5	309.42	1078+46.18	79' RT	34.1737732	-81.3120816	851673.53	1905613.38

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 1.3 - SUMMARY OF RAMP BORING LOCATIONS

Boring Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
R-1	Pomaria Street (202R2)	12.5	434.95	1433+41.78	2' RT	34.2212376	-81.4140163	869052.56	1874854.68
R-2	Pomaria Street (202R2)	20	449.92	1428+98.84	32' LT	34.2203660	-81.4130038	868734.17	1875159.43
R-3	Pomaria Street (202R2)	20	447.7	1423+13.69	147' LT	34.2189864	-81.4116920	868230.60	1875553.95
R-4	Pomaria Street (SC-202)	20	446.41	90+18.78	2' LT	34.2194798	-81.4108641	868409.13	1875804.92
R-5	Pomaria Street (202R2)	20	444.38	1425+83.95	9' LT	34.2197691	-81.4122506	868516.07	1875386.25
R-6	Pomaria Street (202R2)	20	431.9	1426+22.07	220' RT	34.2202660	-81.4117643	868696.27	1875533.96
R-7	Pomaria Street (202R4)	20	439.55	1431+97.93	204' LT	34.2216219	-81.4131140	869191.29	1875127.97
R-8	Pomaria Street (202R3)	20	434.16	1431+40.35	50' RT	34.2219522	-81.4117400	869309.83	1875543.73
R-9	Pomaria Street (SC-202)	13.2	413.27	99+62.37	33' LT	34.2220406	-81.4103805	869340.35	1875954.80
R-10	Pomaria Street (SC-202)	16	422.34	97+45.34	13' RT	34.2214325	-81.4103612	869119.04	1875959.74
R-11	Pomaria Street (202R3)	19.1	422.64	1433+83.44	107' RT	34.2219511	-81.4110491	869308.57	1875752.57
R-12	Pomaria Street (202R3)	20	427.96	1426+43.83	108' RT	34.2211806	-81.4115285	869028.79	1875606.55
R-13	Columbia Avenue (RPCR)	20	377.63	1120+84.70	6' LT	34.1782756	-81.3249586	853323.79	1901724.16
R-14	Columbia Avenue (RPCR)	20	394.71	1117+63.98	2' LT	34.1775892	-81.3242981	853073.41	1901923.12
R-15	Columbia Avenue (RPDR)	20	409.81	1113+84.84	210' LT	34.1769497	-81.3237191	852840.16	1902097.49
R-16	Columbia Avenue (RPDR)	20	414.19	1113+33.63	69' LT	34.1765758	-81.3232839	852703.69	1902228.69
R-17	Columbia Avenue (RPDR)	20	410.89	1110+58.60	9' RT	34.1763356	-81.3222663	852615.34	1902536.14
R-18	Columbia Avenue (RPDR)	20	393.82	1107+35.71	26' RT	34.1760963	-81.3212357	852527.28	1902847.56
R-19	Columbia Avenue (RPBR)	20	380.59	1118+86.70	15' LT	34.1784070	-81.3240352	853370.73	1902003.57
R-20	Columbia Avenue (RPBR)	20	389.34	1116+31.26	69' LT	34.1780512	-81.3232822	853240.53	1902230.88
R-21	Columbia Avenue (I26_CL)	20	403.48	1113+63.54	251' RT	34.1778821	-81.3223562	853178.15	1902510.71
R-22	Columbia Avenue (RPAR)	20	405.97	1111+29.71	79' RT	34.1776627	-81.3217558	853097.73	1902692.02
R-23	Columbia Avenue (RPAR)	20	400.77	1109+79.77	34' LT	34.1772182	-81.3214024	852935.67	1902798.41
R-24	Columbia Avenue (RPAR)	20	388.74	1107+19.69	55' LT	34.1766712	-81.3208690	852736.14	1902959.08
R-25	Pomaria Street (202R1)	20	402	1415+44.09	67' RT	34.2193911	-81.4085586	868324.85	1876495.39

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Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 1.4 - SUMMARY OF WIDENING BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-1	I26_CL	15	427.3	1467+69.61	10' LT	34.22479	-81.42452	870359.16	1871685.64
P-2	I26_CL	9.5	416.1	1462+71.25	10' RT	34.22434	-81.42296	870192.35	1872155.81
P-3	I26_CL	10	409.57	1457+65.57	6' LT	34.22380	-81.42141	869995.10	1872622.44
P-4	I26_CL	5	403.63	1452+75.78	0' RT	34.22334	-81.41990	869823.56	1873080.84
P-5	I26_CL	20	399.93	1447+60.92	10' LT	34.22281	-81.41832	869630.39	1873557.63
P-6	I26_CL	5	404.13	1442+62.89	3' RT	34.22235	-81.41676	869461.75	1874026.79
P-7	I26_CL	5	423	1437+64.97	10' LT	34.22183	-81.41524	869270.97	1874486.87
P-8	I26_CL	5	436.14	1432+66.22	0' RT	34.22137	-81.41368	869100.78	1874955.77
P-9	I26_CL	5	433.79	1427+63.14	1' LT	34.22088	-81.41213	868918.85	1875424.75
P-10	I26_CL	5	417.6	1422+63.82	11' RT	34.22042	-81.41057	868750.17	1875895.13
P-11	I26_CL	6.5	411.39	1417+63.08	14' LT	34.21986	-81.40905	868546.20	1876352.50
P-12	I26_CL	5	424.56	1412+62.15	14' RT	34.21944	-81.40747	868390.36	1876830.44
P-13	I26_CL	6.5	444.7	1407+57.51	14' LT	34.21882	-81.40597	868164.21	1877281.95
P-14	I26_CL	5	462.17	1402+63.64	15' RT	34.21831	-81.40446	867975.14	1877738.64
P-15	I26_CL	5	479.71	1397+52.59	8' LT	34.21763	-81.40297	867728.06	1878187.26
P-16	I26_CL	5	496.27	1392+52.09	3' RT	34.21706	-81.40147	867517.44	1878640.77
P-17	I26_CL	5	504.81	1387+50.82	9' LT	34.21642	-81.40000	867284.00	1879084.70
P-18	I26_CL	5	501.52	1382+40.89	11' RT	34.21586	-81.39845	867076.22	1879551.06
P-19	I26_CL	5	503.73	1377+49.49	9' LT	34.21522	-81.39702	866841.00	1879983.32
P-20	I26_CL	5	506.43	1372+45.44	2' LT	34.21462	-81.39551	866624.23	1880438.18
P-21	I26_CL	5	502.07	1367+38.34	10' LT	34.21399	-81.39402	866392.48	1880888.83
P-22	I26_CL	5	491.8	1362+41.42	2' RT	34.21342	-81.39252	866183.34	1881340.30
P-23	I26_CL	5	473.53	1357+39.24	8' LT	34.21279	-81.39105	865951.55	1881786.21
P-24	I26_CL	5	457.61	1352+34.73	1' RT	34.21220	-81.38953	865736.43	1882242.06
P-25	I26_CL	5	464.48	1347+35.25	10' LT	34.21157	-81.38807	865505.37	1882684.71
P-26	I26_CL	5	478.81	1342+28.04	1' RT	34.21099	-81.38654	865291.03	1883145.20
P-27	I26_CL	5	481.66	1337+26.31	10' LT	34.21035	-81.38507	865058.82	1883589.54
P-28	I26_CL	5	474.38	1332+33.86	3' RT	34.20979	-81.38359	864852.00	1884037.02
P-29	I26_CL	5	480.1	1327+31.24	8' LT	34.20916	-81.38211	864619.77	1884482.67
P-30	I26_CL	5	487.14	1322+22.70	3' RT	34.20857	-81.38058	864405.35	1884944.23
P-31	I26_CL	5	494.82	1317+24.99	6' LT	34.20795	-81.37912	864176.00	1885385.89
P-32	I26_CL	5	501.6	1312+15.57	1' RT	34.20735	-81.37759	863957.38	1885845.50
P-33	I26_CL	5	519.27	1307+16.98	11' LT	34.20672	-81.37613	863726.34	1886288.43
P-34	I26_CL	5	538.12	1302+12.91	1' RT	34.20614	-81.37461	863513.49	1886745.16
P-35	I26_CL	5	556.4	1297+11.79	9' LT	34.20548	-81.37316	863270.20	1887183.03
P-36	I26_CL	5	560.77	1292+01.16	1' RT	34.20477	-81.37170	863013.12	1887623.80
P-37	I26_CL	5	564.4	1287+26.35	12' LT	34.20402	-81.37041	862738.89	1888012.40
P-38	I26_CL	5	566.55	1281+95.50	6' RT	34.20326	-81.36892	862459.76	1888463.64
P-39	I26_CL	5	567.82	1276+96.28	18' LT	34.20245	-81.36758	862162.57	1888865.98
P-40	I26_CL	5	554.85	1271+94.82	23' RT	34.20178	-81.36612	861919.25	1889306.44
P-41	I26_CL	5	536.26	1267+00.59	8' LT	34.20096	-81.36482	861619.07	1889699.80
P-42	I26_CL	5	515.19	1261+98.58	3' RT	34.20023	-81.36341	861350.28	1890123.91
P-43	I26_CL	5	495.42	1256+94.36	4' LT	34.19945	-81.36203	861064.94	1890539.86
P-44	I26_CL	5	484.21	1251+85.42	6' RT	34.19870	-81.36061	860790.74	1890968.79
P-45	I26_CL	5	486.81	1246+85.64	22' LT	34.19787	-81.35928	860489.65	1891368.51
P-46	I26_CL	5	478.92	1241+89.46	3' RT	34.19718	-81.35787	860236.29	1891795.93
P-47	I26_CL	5	472.99	1236+93.28	8' LT	34.19641	-81.35652	859952.42	1892202.90
P-48	I26_CL	5	452.29	1231+92.66	18' RT	34.19570	-81.35509	859695.63	1892633.85
P-49	I26_CL	5	432.34	1226+81.53	12' LT	34.19486	-81.35373	859387.88	1893043.45
P-50	I26_CL	5	425.56	1221+79.76	8' RT	34.19415	-81.35231	859126.55	1893471.89
P-51	I26_CL	5	434.83	1216+86.39	10' LT	34.19336	-81.35098	858839.27	1893873.12
P-52	I26_CL	5	441.91	1211+72.14	11' RT	34.19263	-81.34952	858571.84	1894313.17
P-53	I26_CL	5	432.78	1206+75.44	9' LT	34.19184	-81.34819	858281.45	1894715.67
P-54	I26_CL	5	412.98	1201+66.75	6' RT	34.19110	-81.34676	858011.52	1895148.00

TABLE 1.4 (Continued) - SUMMARY OF WIDENING BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of [illegible] (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-55	I26_CL	5	392.87	1196+67.28	10' LT	34.19031	-81.34541	857721.99	1895555.04
P-56	I26_CL	5	372.88	1191+61.63	8' RT	34.18958	-81.34398	857456.80	1895985.82
P-57	I26_CL	4.5	357.25	1186+65.21	10' LT	34.18879	-81.34264	857167.95	1896389.87
P-58	I26_CL	5	344.97	1181+54.86	3' RT	34.18805	-81.34121	856896.28	1896821.68
P-59	I26_CL	5	339.74	1176+57.59	10' LT	34.18727	-81.33986	856610.10	1897229.25
P-60	I26_CL	5	337.29	1171+49.73	8' RT	34.18654	-81.33842	856344.22	1897661.86
P-61	I26_CL	5	343.47	1166+27.79	12' LT	34.18571	-81.33702	856039.29	1898085.53
P-62	I26_CL	5	342.38	1201+70.29	42' RT	34.19119	-81.34670	858043.58	1895164.92
P-63	I26_CL	5	372.63	1156+37.56	15' LT	34.18417	-81.33432	855479.31	1898901.57
P-64	I26_CL	5	378.35	1151+46.12	5' RT	34.18343	-81.33296	855206.02	1899311.35
P-65	I26_CL	5	382.76	1146+43.29	11' LT	34.18258	-81.33164	854897.43	1899708.18
P-66	I26_CL	5	380.05	1141+39.03	5' RT	34.18181	-81.33026	854613.39	1900124.86
P-67	I26_CL	5	366.5	1136+43.99	10' LT	34.18097	-81.32897	854308.79	1900515.56
P-68	I26_CL	5	359.51	1131+29.35	4' RT	34.18017	-81.32756	854017.21	1900940.45
P-69	I26_CL	5	367.88	1126+34.10	10' LT	34.17935	-81.32626	853714.41	1901332.23
P-70	I26_CL	5	375.56	1121+33.06	4' RT	34.17857	-81.32489	853429.88	1901744.68
P-71	I26_CL	5	385.2	1116+35.01	11' LT	34.17773	-81.32359	853125.24	1902138.94
P-72	I26_CL	5	392.35	1111+19.59	0' RT	34.17694	-81.32217	852836.05	1902565.57
P-73	I26_CL	5	384.34	1106+19.72	8' LT	34.17623	-81.32076	852574.15	1902992.47
P-74	I26_CL	5	365.25	1101+19.87	2' LT	34.17565	-81.31926	852362.17	1903445.33
P-75	I26_CL	5	345.12	1095+97.38	43' LT	34.17504	-81.31768	852138.09	1903920.38
P-76	I26_CL	5	333.52	1091+12.25	0' RT	34.17471	-81.31612	852018.42	1904391.96
P-77	I26_CL	3.7	324.75	1086+19.48	85' LT	34.17404	-81.31468	851774.62	1904829.17
P-78	I26_CL	5	315.4	1081+14.92	11' RT	34.17384	-81.31299	851699.27	1905337.35
P-79	I26_CL	5	305.77	1076+06.00	117' LT	34.17305	-81.31155	851410.30	1905774.78
P-80	I26_CL	5	303.91	1071+50.04	46' RT	34.17306	-81.30995	851412.50	1906258.61
P-81	I26_CL	5	310.87	1066+04.94	83' LT	34.17224	-81.30838	851112.62	1906732.23
P-82	I26_CL	5	329.63	1061+14.26	12' RT	34.17205	-81.30674	851043.06	1907227.23
P-83	I26_CL	5	341.51	1055+88.78	40' LT	34.17144	-81.30516	850818.21	1907703.69
P-84	I26_CL	5	336.12	1050+90.88	10' RT	34.17106	-81.30357	850678.51	1908183.88
P-85	I26_CL	4.5	316.84	1045+85.10	10' LT	34.17045	-81.30207	850454.55	1908637.67
P-86	I26_CL	5	296.81	1040+91.92	2' RT	34.16992	-81.30057	850262.47	1909091.53
P-87	I26_CL	5	292.93	1035+86.18	9' LT	34.16932	-81.29906	850043.09	1909547.86
P-88	I26_CL	5	295.09	1030+87.12	4' RT	34.16879	-81.29753	849848.58	1910007.53
P-89	I26_CL	5	300.69	1025+82.38	10' LT	34.16819	-81.29603	849628.32	1910461.51
P-90	I26_CL	5	304.37	1020+67.68	3' RT	34.16764	-81.29446	849426.61	1910935.56
P-91	I26_CL	5	311.24	1015+71.37	10' LT	34.16705	-81.29298	849210.53	1911382.88
P-92	I26_CL	5	329.75	1010+00.38	12' RT	34.16646	-81.29123	848995.27	1911911.50
P-93	I26_CL	4.25	345.65	1005+61.69	9' LT	34.16592	-81.28994	848794.81	1912302.89
P-94	I26_CL	5	362.44	1000+63.96	5' RT	34.16539	-81.28842	848602.01	1912761.83
P-95	I26_CL	4.25	368.37	995+61.03	10' LT	34.16478	-81.28692	848380.86	1913214.37
P-96	I26_CL	5	370.92	990+59.07	9' RT	34.16427	-81.28538	848190.90	1913678.68
P-97	I26_CL	5	373.17	985+48.71	10' LT	34.16364	-81.28387	847962.65	1914135.98
P-98	I26_CL	5	376.01	980+32.01	8' RT	34.16311	-81.28228	847765.84	1914614.17
P-99	I26_CL	5	378.65	975+44.99	13' LT	34.16251	-81.28085	847546.45	1915048.55
P-100	I26_CL	5	391.46	970+49.64	9' RT	34.16200	-81.27932	847360.51	1915509.04
P-101	I26_CL	5	407.13	965+38.37	10' LT	34.16138	-81.27781	847133.33	1915967.10
P-102	I26_CL	5	413.3	960+43.78	4' RT	34.16085	-81.27630	846940.94	1916423.02
P-103	I26_CL	5	408.69	955+48.38	9' LT	34.16026	-81.27482	846724.55	1916869.34
P-104	I26_CL	3.5	401.81	950+64.79	9' RT	34.15976	-81.27334	846541.86	1917317.30
P-105	I26_CL	5	394.15	945+45.90	9' LT	34.15913	-81.27180	846310.55	1917782.35
P-106	I26_CL	5	389.98	940+44.69	2' RT	34.15859	-81.27027	846113.72	1918242.80
P-107	I26_CL	5	386.56	935+48.31	8' LT	34.15801	-81.26879	845899.59	1918690.62
P-108	I26_CL	5	385.98	930+50.24	2' RT	34.15747	-81.26727	845703.56	1919149.36
P-109	I26_CL	5	396.09	925+52.12	9' LT	34.15688	-81.26579	845488.04	1919598.04
P-110	I26_CL	5	406.59	920+58.27	9' RT	34.15637	-81.26428	845300.27	1920055.18
P-111	I26_CL	5	412.85	915+51.46	10' LT	34.15575	-81.26277	845073.71	1920508.72
P-112	I26_CL	5	403.36	910+57.86	1' RT	34.15522	-81.26127	844879.70	1920963.37
P-113	I26_CL	5	392.52	905+52.62	12' LT	34.15462	-81.25976	844659.96	1921418.37
P-114	I26_CL	8	379.97	900+46.36	3' RT	34.15408	-81.25822	844464.06	1921885.48

TABLE 1.4 (Continued) - SUMMARY OF WIDENING BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-115	I26_CL	5	369.61	895+29.04	10' LT	34.15347	-81.25668	844239.04	1922351.35
P-116	I26_CL	5	365.41	890+27.66	5' RT	34.15294	-81.25514	844046.21	1922813.99
P-117	I26_CL	5	365.79	885+74.98	12' LT	34.15238	-81.25381	843842.64	1923218.58
P-118	I26_CL	5	376.85	879+99.77	3' RT	34.15177	-81.25205	843619.23	1923748.65
P-119	I26_CL	5	386.27	874+75.25	9' LT	34.15115	-81.25048	843391.56	1924222.07
P-120	I26_CL	5	379.87	869+67.34	2' RT	34.15061	-81.24894	843191.83	1924688.61
P-121	I26_CL	4.8	371.99	864+59.78	9' LT	34.15001	-81.24742	842972.87	1925146.78
P-122	I26_CL	3	362.85	859+48.12	9' RT	34.14947	-81.24586	842777.22	1925619.99
P-123	I26_CL	5	354.87	854+29.44	10' LT	34.14880	-81.24434	842532.82	1926078.27
P-124	I26_CL	6.5	352.66	849+13.86	5' RT	34.14817	-81.24282	842301.67	1926538.61
P-125	I26_CL	5	359.86	843+91.48	10' LT	34.14745	-81.24132	842037.64	1926990.07
P-126	I26_CL	5	364.47	838+79.05	2' RT	34.14680	-81.23982	841802.34	1927444.74
P-127	I26_CL	5	371.09	833+86.77	10' LT	34.14613	-81.23841	841555.33	1927871.48
P-128	I26_CL	5	368.87	828+41.55	10' RT	34.14546	-81.23679	841310.82	1928358.63
P-129	I26_CL	4.25	365.07	823+29.30	9' LT	34.14474	-81.23534	841048.42	1928798.99
P-130	I26_CL	5	360.28	818+19.98	2' RT	34.14410	-81.23384	840813.43	1929250.66
P-131	I26_CL	3.7	348.59	813+18.76	9' LT	34.14341	-81.23240	840562.41	1929685.06
P-132	I26_CL	5	332.07	807+88.46	3' RT	34.14274	-81.23085	840317.95	1930155.65
P-133	I26_CL	4	325.25	802+74.23	10' LT	34.14204	-81.22937	840059.87	1930600.63
P-134	I26_CL	5	323.62	797+59.56	2' RT	34.14139	-81.22786	839822.82	1931057.96
P-135	I26_CL	5	336.32	792+48.04	10' LT	34.14069	-81.22640	839566.62	1931500.64
P-136	I26_CL	5	349.2	787+33.86	3' RT	34.14004	-81.22488	839331.48	1931958.19
P-137	I26_CL	4.75	361.58	782+15.07	12' LT	34.13932	-81.22340	839069.29	1932405.92
P-138	I26_CL	5	365.35	776+87.17	5' RT	34.13867	-81.22184	838830.35	1932876.99
P-139	I26_CL	5	370.13	771+90.73	10' LT	34.13798	-81.22043	838577.61	1933305.18
P-140	I26_CL	5	372.9	766+74.31	2' RT	34.13733	-81.21891	838340.94	1933763.71
P-141	I26_CL	4.75	378.35	761+49.30	11' LT	34.13661	-81.21741	838077.48	1934217.79
P-142	I26_CL	2	375.26	756+30.25	3' RT	34.13596	-81.21588	837839.81	1934680.03
P-143	I26_CL	2.5	373.37	751+27.19	10' LT	34.13527	-81.21444	837587.21	1935114.86
P-144	I26_CL	5	369.9	746+12.01	2' RT	34.13461	-81.21293	837347.13	1935571.45
P-145	I26_CL	5	369.05	740+96.96	6' LT	34.13382	-81.21152	837057.99	1935996.98
P-146	I26_CL	5	370.47	735+96.22	2' LT	34.13298	-81.21021	836750.90	1936391.82
P-147	I26_CL	4.5	374.69	730+75.10	11' LT	34.13198	-81.20898	836387.39	1936763.59
P-148	I26_CL	5	375.89	725+59.50	0' RT	34.13094	-81.20782	836009.36	1937114.09
P-149	I26_CL	5	378.49	720+60.66	3' LT	34.12990	-81.20675	835628.48	1937435.63
P-150	I26_CL	5	381.99	715+64.35	9' RT	34.12888	-81.20566	835258.32	1937766.84
P-151	I26_CL	5	382.48	710+40.54	4' LT	34.12776	-81.20456	834850.59	1938097.40
P-152	I26_CL	5	377.81	705+32.62	4' RT	34.12672	-81.20345	834469.71	1938432.92
P-153	I26_CL	5	375.03	700+35.70	9' LT	34.12566	-81.20241	834082.89	1938745.46
P-154	I26_CL	5	381.54	695+46.78	6' RT	34.12466	-81.20133	833721.40	1939074.22
P-155	I26_CL	5	391.03	690+28.49	9' LT	34.12356	-81.20026	833317.31	1939399.42
P-156	I26_CL	5	400.31	685+37.61	8' RT	34.12256	-81.19915	832954.74	1939730.79
P-157	I26_CL	4.2	400.31	680+18.47	9' LT	34.12145	-81.19808	832548.98	1940054.55
P-158	I26_CL	1.5	396.13	675+20.64	9' RT	34.12044	-81.19696	832182.91	1940392.58
P-159	I26_CL	5	391.31	670+15.61	0' RT	34.11937	-81.19589	831793.41	1940714.19
P-160	I26_CL	1.5	389.13	665+10.39	6' RT	34.11833	-81.19479	831412.86	1941047.46
P-161	I26_CL	5	390.38	659+87.02	21' LT	34.11719	-81.19373	830998.37	1941366.54
P-162	I26_CL	2	383.49	654+84.52	2' RT	34.11618	-81.19259	830630.72	1941711.47
P-163	I26_CL	1.5	377.28	649+89.69	13' LT	34.11513	-81.19157	830245.27	1942021.38
P-164	I26_CL	1.5	364.74	644+95.10	2' RT	34.11412	-81.19046	829879.06	1942353.98
P-165	I26_CL	6.5	350.38	639+44.09	15' LT	34.11294	-81.18932	829448.57	1942699.30
P-166	I26_CL	6.5	337.9	634+62.62	4' RT	34.11197	-81.18824	829095.54	1943026.57
P-167	I26_CL	5	339.32	629+89.38	2' RT	34.11098	-81.18722	828735.48	1943332.83
P-168	I26_CL	5	345.33	624+98.59	11' RT	34.11098	-81.18722	828368.13	1943658.87
P-169	I26_CL	5	349.89	619+84.02	3' LT	34.10888	-81.18507	827968.06	1943982.69
P-170	I26_CL	5	343.93	614+86.06	5' RT	34.10785	-81.18398	827594.55	1944313.39
P-171	I26_CL	5	329.23	609+88.96	3' LT	34.10680	-81.18293	827212.47	1944629.65
P-172	I26_CL	5	323.08	605+03.15	6' RT	34.10581	-81.18186	826848.94	1944953.14
P-173	I26_CL	5.5	319.21	599+75.13	8' LT	34.10468	-81.18076	826439.16	1945285.68

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 1.5 - SUMMARY OF SHOULDER BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-174	I26_CL	5	414.36	1461+69.15	55' LT	34.224074	-81.422719	870095.42	1872228.40
P-175	I26_CL	5	400	1446+58.11	46' RT	34.222852	-81.417932	869644.62	1873673.62
P-176	I26_CL	5	438.04	1431+71.09	57' LT	34.221131	-81.413455	869013.17	1875024.14
P-177	I26_CL	5	412.19	1416+62.43	47' RT	34.219921	-81.408671	868567.11	1876468.57
P-178	I26_CL	5	464.2	1401+55.79	59' LT	34.217996	-81.404246	867861.40	1877803.14
P-179	I26_CL	5	504.89	1386+43.62	54' RT	34.216448	-81.399589	867292.66	1879208.63
P-180	I26_CL	5	507.85	1371+44.60	48' LT	34.214389	-81.395281	866538.28	1880508.05
P-181	I26_CL	5	469.93	1356+37.86	54' RT	34.212819	-81.390655	865961.59	1881904.35
P-182	I26_CL	5	480.36	1341+31.75	60' LT	34.210721	-81.386346	865193.43	1883204.09
P-183	I26_CL	5	482.06	1326+16.46	51' RT	34.209166	-81.381680	864622.48	1884612.49
P-184	I26_CL	3.9	503.37	1312+12.24	49' LT	34.207222	-81.377654	863910.57	1885826.95
P-185	I26_CL	5	559.35	1296+16.40	56' RT	34.205498	-81.372782	863277.95	1887297.62
P-186	I26_CL	5	567.51	1281+05.93	58' LT	34.202978	-81.368782	862356.61	1888503.40
P-187	I26_CL	5	531.3	1265+94.07	59' RT	34.200955	-81.364400	861615.76	1889825.86
P-188	I26_CL	5	489.39	1250+91.97	60' LT	34.198406	-81.360471	860684.11	1891010.45
P-189	I26_CL	5	468.65	1235+95.08	58' RT	34.196405	-81.356126	859951.52	1892321.37
P-190	I26_CL	5	427.47	1220+75.58	48' LT	34.193865	-81.352125	859023.04	1893527.95
P-191	I26_CL	5	429.69	1205+71.06	48' RT	34.191807	-81.347797	858269.91	1894834.03
P-192	I26_CL	5	429.91	1357+44.27	59' RT	34.212960	-81.390965	866013.51	1881810.93
P-193	I26_CL	5	339.28	1175+50.42	52' RT	34.187250	-81.339447	856603.39	1897353.36
P-194	I26_CL	5	362.24	1160+43.87	48' LT	34.184737	-81.335478	855685.12	1898550.75
P-195	I26_CL	3.75	383.13	1145+42.35	58' RT	34.182572	-81.331240	854893.05	1899829.57
P-196	I26_CL	5	360.92	1130+37.67	64' LT	34.179873	-81.327444	853907.54	1900974.47
P-197	I26_CL	5	386.43	1115+35.10	56' RT	34.177719	-81.323188	853119.50	1902258.94
P-198	I26_CL	5	365.16	1100+26.91	83' LT	34.175341	-81.319075	852250.52	1903500.14
P-199	I26_CL	5	321.74	1084+90.07	57' RT	34.174298	-81.314120	851866.40	1904997.53
P-200	I26_CL	4.8	304.44	1070+58.43	140' LT	34.172499	-81.309856	851207.94	1906285.12
P-201	I26_CL	5	343.13	1054+86.18	53' RT	34.171578	-81.304734	850868.11	1907833.12
P-202	I26_CL	5	295.98	1039+95.80	48' LT	34.169689	-81.300345	850177.02	1909158.67
P-203	I26_CL	5	301.6	1024+89.45	56' RT	34.168253	-81.295659	849650.41	1910574.30
P-204	I26_CL	3.7	330.96	1009+60.81	53' LT	34.166255	-81.291199	848919.37	1911921.24
P-205	I26_CL	2	369.33	994+64.29	63' RT	34.164859	-81.286531	848407.44	1913331.62
P-206	I26_CL	5	375.93	979+50.40	58' LT	34.162847	-81.282129	847671.70	1914661.08
P-207	I26_CL	5	409.58	964+46.44	54' RT	34.161432	-81.277444	847152.92	1916076.80
P-208	I26_CL	5.4	399.48	949+30.04	48' LT	34.159466	-81.273009	846434.14	1917416.28
P-209	I26_CL	5	386.16	934+48.35	55' RT	34.158052	-81.268404	845916.02	1918807.83
P-210	I26_CL	5	408.84	919+62.82	47' LT	34.156120	-81.264065	845209.69	1920118.60
P-211	I26_CL	5	390.38	904+49.93	52' RT	34.154664	-81.259369	844676.41	1921537.64
P-212	I26_CL	5	365.99	889+19.13	47' LT	34.152687	-81.254891	843953.49	1922890.63
P-213	I26_CL	5	386.48	874+74.19	54' RT	34.151311	-81.250396	843449.47	1924249.00
P-214	I26_CL	4.9	361.15	858+44.69	47' LT	34.149212	-81.245628	842682.50	1925689.62
P-215	I26_CL	5	361.43	842+85.30	59' RT	34.147476	-81.240909	842047.47	1927115.75
P-216	I26_CL	3.2	368.45	827+32.40	60' LT	34.145146	-81.236587	841196.52	1928421.28
P-217	I26_CL	3.5	346.47	812+04.67	51' RT	34.143406	-81.231977	840560.33	1929814.45
P-218	I26_CL	5	325.62	796+88.76	48' LT	34.141174	-81.227735	839745.09	1931096.07
P-219	I26_CL	2	362.33	781+21.51	59' RT	34.139371	-81.223016	839086.10	1932522.26
P-220	I26_CL	5	375.63	765+56.50	48' LT	34.137053	-81.218644	838239.64	1933843.21
P-221	I26_CL	5	372.94	750+25.96	59' RT	34.135299	-81.214032	837598.57	1935237.33
P-222	I26_CL	5	371.5	734+88.19	48' LT	34.132685	-81.210045	836644.98	1936441.68
P-223	I26_CL	5	379.94	719+30.65	57' RT	34.129732	-81.206321	835568.12	1937566.39
P-224	I26_CL	5	379.02	705+34.23	47' LT	34.126631	-81.203582	834438.41	1938392.99

TABLE 1.5 (Cont.) - SUMMARY OF SHOULDER BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of [illegible] (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-225	I26_CL	3.25	394.15	689+23.54	54' RT	34.123448	-81.199868	833277.97	1939514.67
P-226	I26_CL	4.8	398.03	673+98.77	53' LT	34.120079	-81.196853	832050.20	1940424.75
P-227	I26_CL	5	387.58	658+87.97	64' RT	34.117136	-81.193308	830977.55	1941495.54
P-228	I26_CL	4	362.95	643+79.65	60' LT	34.113771	-81.190373	829751.29	1942381.51
P-229	I26_CL	3.5	341.89	628+90.18	67' RT	34.110892	-81.186846	828701.78	1943446.81
P-230	I26_CL	5	342.91	613+91.76	59' LT	34.107544	-81.183933	827482.23	1944326.35
P-231	I26_CL	3.5	317.58	598+74.19	53' RT	34.104582	-81.180386	826402.41	1945397.89

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 1.6 - SUMMARY OF OUTSIDE SHOULDER EMBANKMENT BORING LOCATIONS

Boring Number	Route/ Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
P-243	I26_CL	40	506.03	1370+09.99	47' LT	34.21423	-81.39488	866478.66	1880629.30
P-244	I26_CL	39.6	498.65	1365+01.53	54' LT	34.21360	-81.39338	866247.68	1881082.25
P-245	I26_CL	38.8	475.89	1331+62.12	48' LT	34.20958	-81.38345	864775.32	1884079.23
P-246	I26_CL	43.9	475.75	1331+25.44	48' LT	34.20954	-81.38334	864759.28	1884111.74
P-247	I26_CL	36.7	505.11	1311+28.16	47' LT	34.20712	-81.37740	863874.89	1885902.50
P-248	I26_CL	35.6	506.17	1310+90.59	47' LT	34.20708	-81.37729	863858.87	1885936.95
P-249	I26_CL	40	484.38	1242+45.77	59' LT	34.19713	-81.35813	860216.28	1891715.05
P-250	I26_CL	40	484.19	1242+11.94	59' LT	34.19708	-81.35804	860197.35	1891743.27
P-251	I26_CL	58.6	443.68	1229+68.74	52' RT	34.19544	-81.35441	859599.84	1892838.86
P-252	I26_CL	53.5	442.13	1229+29.92	51' RT	34.19538	-81.35431	859578.31	1892870.75
P-253	I26_CL	40	338.16	1058+38.22	46' RT	34.17189	-81.30584	850983.90	1907499.28
P-254	I26_CL	39.5	339.37	1058+05.45	46' RT	34.17186	-81.30574	850972.97	1907530.21
P-255	I26_CL	38.6	311.61	1044+26.46	54' RT	34.17043	-81.30150	850448.17	1908808.72
P-256	I26_CL	33.5	310.04	1043+88.48	53' RT	34.17038	-81.30139	850430.83	1908843.25
P-257	I26_CL	25.3	386.03	873+73.30	59' RT	34.15121	-81.25009	843411.56	1924342.58
P-258	I26_CL	20	385.76	873+24.97	59' RT	34.15115	-81.24994	843391.65	1924387.23
P-259	I26_CL	20.1	331.96	807+53.01	47' LT	34.14257	-81.23082	840257.01	1930162.95
P-260	I26_CL	23.3	331	807+15.90	46' LT	34.14253	-81.23071	840239.55	1930196.36
P-261	I26_CL	39.3	378.07	704+31.40	47' LT	34.12642	-81.20336	834360.15	1938459.55
P-262	I26_CL	28.9	378.09	704+13.84	44' LT	34.12638	-81.20332	834347.69	1938472.50
P-263	I26_CL	36.5	429.7	1435+73.79	64' LT	34.22151	-81.41471	869152.39	1874645.88
P-264	I26_CL	38.5	442.23	1229+67.72	7' RT	34.19534	-81.35449	859561.68	1892814.57
P-265	I26_CL	58.5	442	1229+30.81	15' RT	34.19530	-81.35437	859547.75	1892850.20
P-266	I26_CL	38.6	360.09	1133+29.86	47' LT	34.18038	-81.32820	854094.40	1900747.67

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 1.7 - SUMMARY OF SOUND WALL BORING LOCATIONS

Boring Number	Route/Alignment	Depth of Boring (ft)	Surface Elevation (ft)	Station	Offset (ft)	"As-Drilled" Survery Coordinates			
						Latitude	Longitude	Northing	Easting
SW-1	I26_CL	20	386.2	925+29.48	126' RT	34.1571826	-81.2655177	845601.02	1919675.16
SW-2	I26_CL	10	375.7	899+62.49	82' RT	34.1541125	-81.2577276	844501.86	1921994.25
SW-2A	I26_CL	20	375.5	899+57.53	82' RT	34.1541806	-81.2578443	844499.24	1921998.50
SW-3	I26_CL	25	353.5	786+71.90	117' LT	34.1394513	-81.2248225	839195.62	1931954.47
SW-4	I26_CL	20	370.5	778+29.65	110' LT	34.1394513	-81.2248225	838797.47	1932696.71
SW-5	I26_CL	20	371.6	769+10.36	88' LT	34.1374043	-81.2198677	838375.14	1933513.56

Appendix II - Boring Location Plan & Bridge Subsurface Profiles

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(704) 357-0023 [FAX]
NC REGISTERED
ENGINEERING
FIRM # F-1078

GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	1	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT

8/17/99

REVISIONS

$$$$SYSTIME$$$$
$$$$FILENAME$$$$ $$DGN$$ $$$$$

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(704) 357-0023 [FAX]
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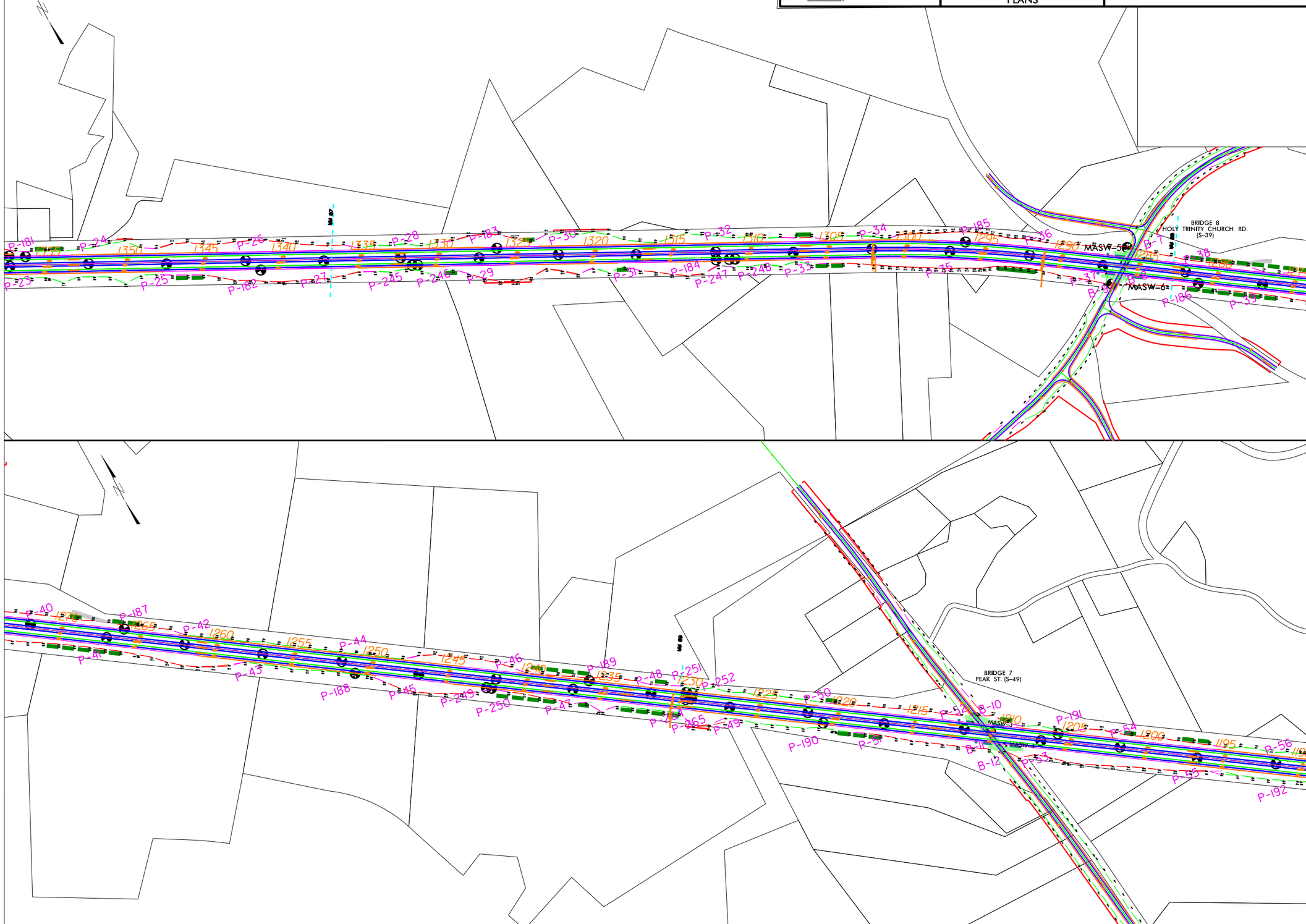
ENGINEERING
FIRM # F-1078

GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	2	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT



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8/17/99

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1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	3	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT

BRIDGE 6
COLUMBIA AVE. (S-48)

$$$$SYSTIME$$$$
$$$$USERNAME$$$$
$$$$FILENAME$$$$

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FIRM # F-1078

GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	4	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT

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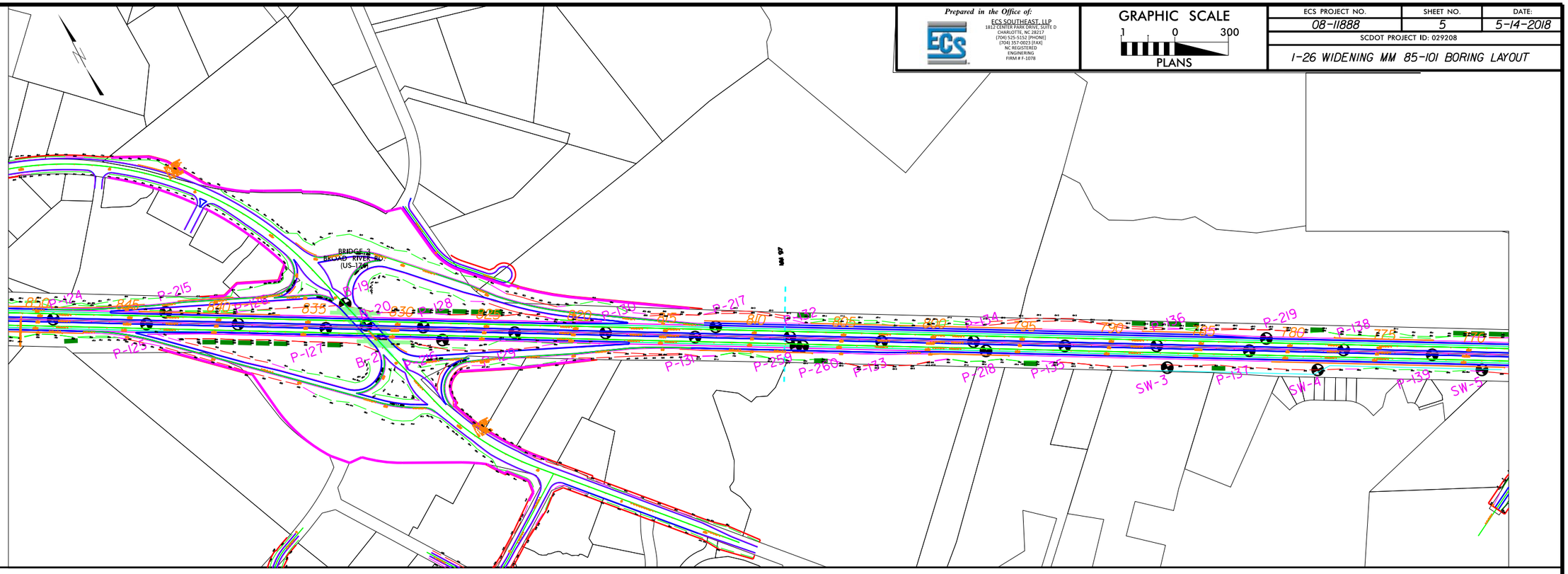
GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	5	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT



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$$$$SYSTIME$$$$
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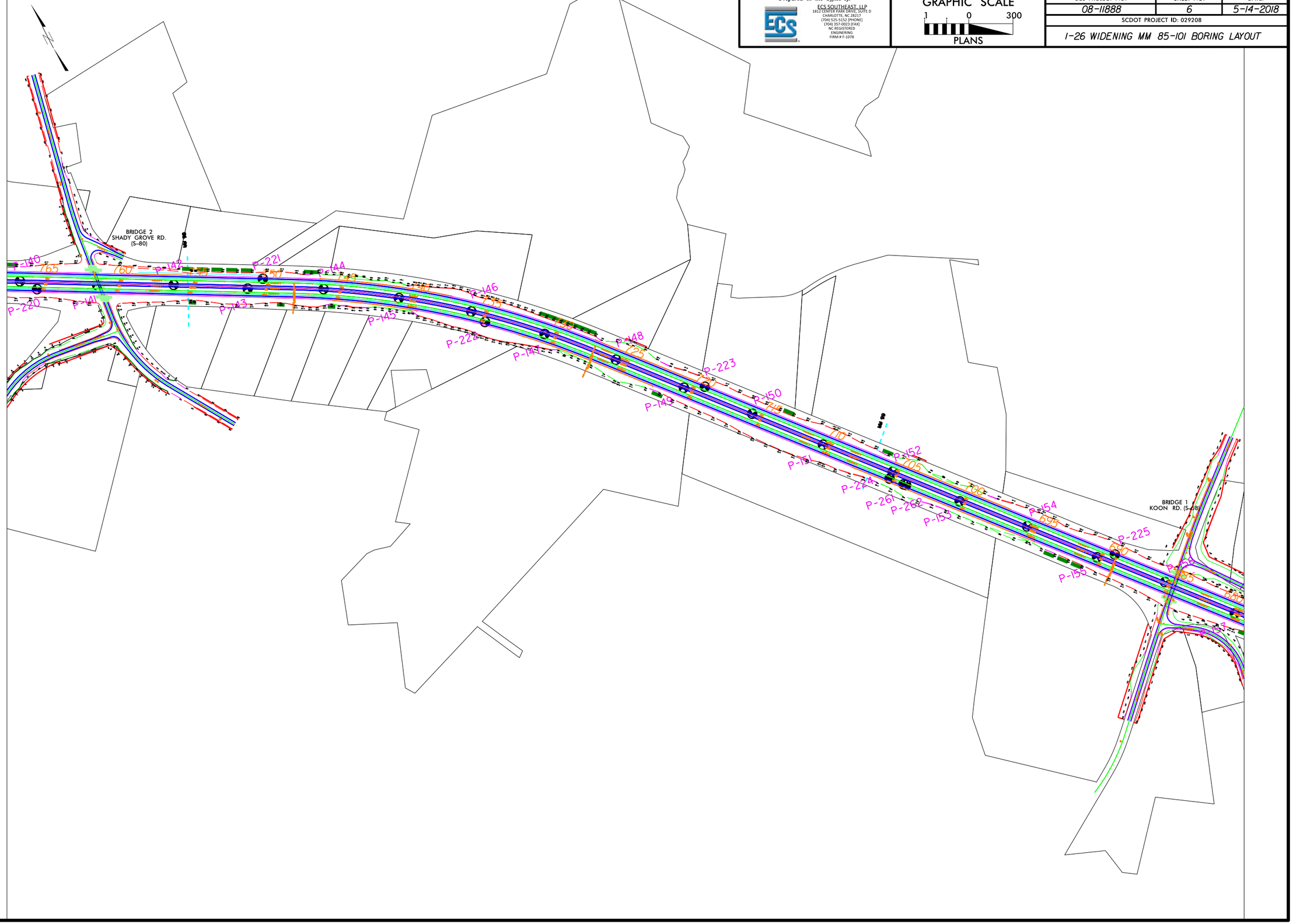
GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	6	5-14-2018

SCDOT PROJECT ID: 029208

1-26 WIDENING MM 85-101 BORING LAYOUT



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$$$$$$DGN$$$$$$
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ENGINEERING
FIRM # F-1078

GRAPHIC SCALE
1 0 300
PLANS

ECS PROJECT NO.	SHEET NO.	DATE:
08-11888	7	5-14-2018

SCDOT PROJECT ID: 029208

I-26 WIDENING MM 85-101 BORING LAYOUT

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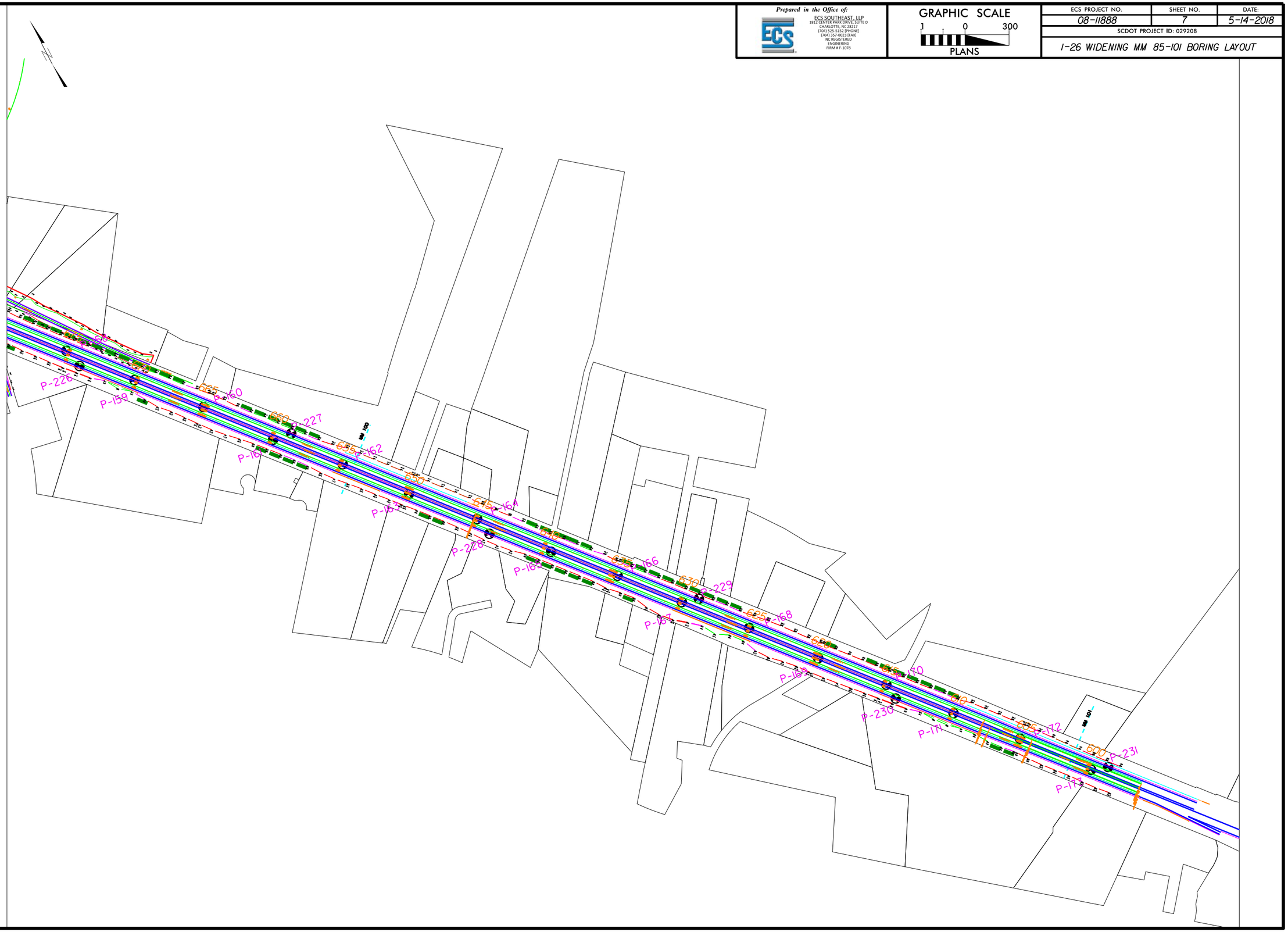

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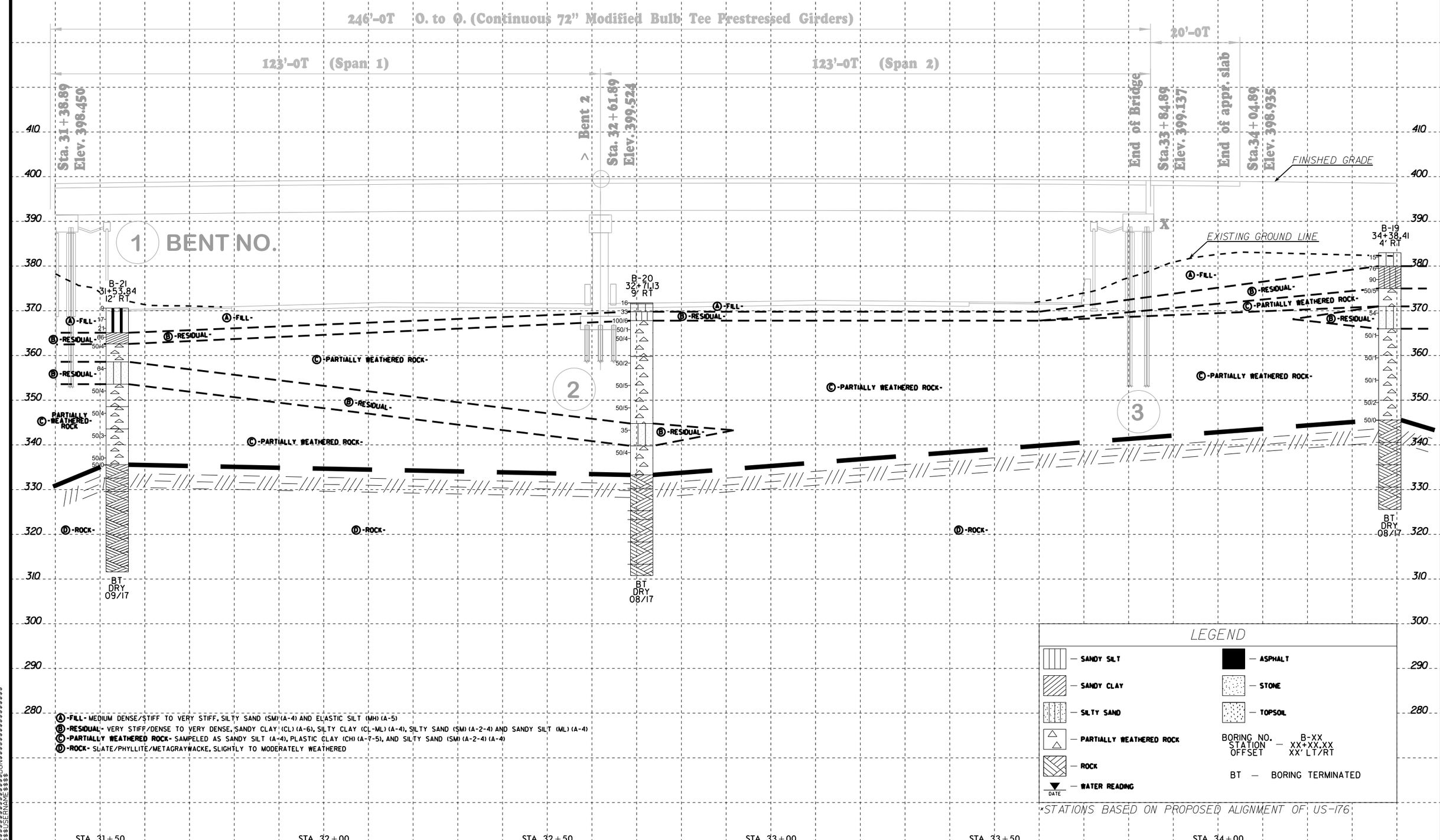
NC REGISTERED ENGINEERING FIRM # F-1078

0 10 20
VE=1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	14

BRIDGE 3
BROAD RIVER ROAD (US-176)

BRIDGE 3 BROAD RIVER ROAD (US-176) SUBSURFACE PROFILE



6/23/16

6/23/16

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VE = 1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	13

BRIDGE 4
MT. VERNON CHURCH ROAD (S-234)

BRIDGE 4 MT.VERNON CHURCH ROAD (S-234) SUBSURFACE PROFILE

STA 56+50 | STA 57+00 | STA 57+50 | STA 58+00 | STA 58+50 | STA 59+00

20'-0T Approach Slab | 86'-0T (Span 1) | 172'-0T (3 @ 57'-4" c. to c. Continuous Type III Prestressed Girders) | 86'-0T (Span 3) | 20'-0T Approach Slab

Beg. Approach Slab Sta. 56+76.42 Elev. 422.784
Beg. Bridge Sta. 56+96.42 Elev. 423.198
Bent 2 Sta. 57+82.42 Elev. 424.529
End of Bridge Sta. 58+68.42 Elev. 425.612
End Approach Slab Sta. 58+86.42 Elev. 425.821

FINISHED GRADE

EXISTING GROUND LINE

BENT NO. 1 | 2 | 3

B-18
57+02.10
26' LT

B-17
57+93.03
1' RT

B-16
58+27.41
3' RT

B-18		B-17		B-16	
20		13		23	
24		36		46	
18		17		50	
15		44		27	
42		99		71	
37		50/2		59	
09/17		50/3		58	
61/4		50/5		09/17	
83		67		50/2	
50/3		69		50/5	
50/4		50/2		50/1	
50/2		50/2		50/1	
50/1		50/2		50/2	
50/0		60/0		50/1	
50/1				50/0	
50/0				50/0.5	
				50/0.5	
				50/1	
				50/0	

Ⓐ-FILL- Ⓑ-RESIDUAL- Ⓒ-PARTIALLY WEATHERED ROCK- Ⓓ-ROCK-

BT | BT DRY 08/17 | BT

LEGEND

- SANDY SILT
- SANDY CLAY
- SILTY SAND
- PARTIALLY WEATHERED ROCK
- ROCK
- WATER READING (DATE)
- ASPHALT
- STONE
- TOPSOIL

BORING NO. — B-XX
STATION — XX+XX.XX
OFFSET — XX' LT/RT

BT — BORING TERMINATED

Ⓐ-FILL- MEDIUM DENSE TO VERY STIFF, SILTY SAND (SM) (A-2-5) (A-4) TO SANDY SILT (ML) (A-5)
Ⓑ-RESIDUAL- VERY STIFF TO VERY HARD, SANDY SILT (ML) (A-4) (A-5), SANDY CLAY (CL) (A-6) AND CLAYEY SAND (SC) (A-2-6)
Ⓒ-PARTIALLY WEATHERED ROCK- SAMPLED AS SANDY SILT (ML) (A-4) (A-6) AND SILTY SAND (SM) (A-2-4) (A-4)
Ⓓ-ROCK- QUARTZITE/SLATE/GRANITE, FRESHLY TO VERY SLIGHT WEATHERED

*STATIONS BASED ON PROPOSED ALIGNMENT OF S-234

$$$$SYSTIME$$$$
$$$$SYSDATE$$$$
$$$$USERNAME$$$$
$$$$DGN$$$$

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(704) 357-0023 [FAX]
NC REGISTERED ENGINEERING FIRM # P-1078

0 10 20
VE = 1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	12

BRIDGE 5
OLD HILTON ROAD (S-405)

BRIDGE 5 OLD HILTON ROAD (S-405) SUBSURFACE PROFILE

STA 122+50 STA 123+00 STA 123+50 STA 124+00 STA 124+50 STA 125+00

176'-0TH O. TO O. (CONTINUOUS TYPE III PRESTRRESSED GIRDERS)

20'-0TH APPROACH SLAB | 88'-0TH (SPAN 1) | 88'-0TH (SPAN 2) | 20'-0TH APPROACH SLAB

BEG. APPROACH SLAB STA. 122+63.99 ELEV. 354.579
BEG. BRIDGE STA. 122+83.99 ELEV. 354.078
VPT (STA. 123+50.00)
L BRDG STA. 123+77.99 ELEV. 351.749
END OF BRIDGE STA. 124+33.99 ELEV. 299.382
END OF APPROACH SLAB STA. 124+73.99 ELEV. 348.419

FINISHED GRADE
EXISTING GROUND LINE

B-15
122+79.58
4' LT
22
33
82
50/5
50/5
50/5
50/0
BT
DRY
09/17

B-14
123+81.21
4' RT
30
50/4
50/2
50/0
BT
DRY
08/17

B-13
124+68.73
13' RT
24
100
60/0
BT
DRY
08/17

Ⓐ-FILL-
Ⓑ-RESIDUAL-
Ⓒ-PARTIALLY WEATHERED ROCK-
Ⓓ-ROCK-

1 BENT NO. 2 3

370 360 350 340 330 320 310 300 290 280 270 260 250

Ⓐ-FILL- VERY STIFF SANDY SILT (ML) (A-4)
Ⓑ-RESIDUAL- MEDIUM DENSE/HARD TO VERY HARD, SILTY SAND (SM) (A-4) AND SANDY SILT (ML) (A-4)
Ⓒ-PARTIALLY WEATHERED ROCK- SAMPLED AS SANDY SILT (ML) (A-5) AND SILTY SAND (SM) (A-2-4) (A-4)
Ⓓ-ROCK- SLATE, SLIGHTLY WEATHERED

LEGEND

- SANDY SILT
- SANDY CLAY
- SILTY SAND
- PARTIALLY WEATHERED ROCK
- ROCK
- WATER READING (DATE)
- ASPHALT
- STONE
- TOPSOIL

BORING NO. — B-XX
STATION — XX+XX.XX
OFFSET — XX' LT/RT
BT — BORING TERMINATED

*STATIONS BASED ON PROPOSED ALIGNMENT OF S-405

$$$$SYSTIME$$$$
$$$$SYSNAME$$$$
$$$$USERNAME$$$$

6/23/16

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CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED
ENGINEERING
FIRM # F-0278

VE = 1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	11

BRIDGE 7
PEAK STREET (S-49)

BRIDGE 7 PEAK STREET (S-49) SUBSURFACE PROFILE

STA 81+00 STA 81+50 STA 82+00 STA 82+50 STA 83+00 STA 83+50

250'-0" Out to Out

20'-0" Approach Slab | 125'-0" (Span 1) | 125'-0" (Span 2) | 20'-0" Approach Slab

Begin Approach Slab Sta. 80+91.75 Elev. 462.629

Begin Bridge Sta. 81+11.75 Elev. 462.947

Bent 2 Sta. 82+36.75 Elev. 464.382

End Bridge Sta. 83+61.75 Elev. 464.869

End Approach Slab Sta. 83+81.75 Elev. 464.859

490 480 470 460 450 440 430 420 410 400 390 380 370

B-12
81+13.08
6' RT

18 42 32 36 29 11 16 14 24 50/3.5 50/2 50/.25 50/1.5

BENT NO 1

BT
DRY
08/17

B-11
82+39.17
13' RT

24 26 20 11 10 15 26 40 34 29 50/5 80 50/3 50/5 50/0

2

BT
DRY
08/17

B-10
83+70.99
3' LT

26 44 31 26 10 10 11 18 60 50/3 65 50/5 50/5 50/1 50/3 51 50/1 50/0 50/0 50/0

3

BT
DRY
08/17

Ⓐ-FILL-

Ⓑ-RESIDUAL-

Ⓒ-PARTIALLY WEATHERED ROCK-

Ⓓ-ROCK-

PARTIALLY Ⓒ-WEATHERED-ROCK

E

LEGEND

- SANDY SILT
- SANDY CLAY
- SILTY SAND
- PARTIALLY WEATHERED ROCK
- ROCK
- WATER READING (DATE)
- ASPHALT
- STONE
- TOPSOIL

BORING NO. B-XX
STATION XX+XX.XX
OFFSET XX' LT/RT

BT — BORING TERMINATED

*STATIONS BASED ON PROPOSED ALIGNMENT OF S-49

Ⓐ-FILL- VERY STIFF TO HARD, ELASTIC SILT (MH) (A-7-5) TO SANDY SILT (ML) (A-5)
Ⓑ-RESIDUAL- STIFF TO VERY HARD, ELASTIC SILT (MH) (A-7-5) TO SANDY SILT (ML) (A-4) (A-5)
Ⓒ-PARTIALLY WEATHERED ROCK- SAMPLED AS SANDY SILT (ML) (A-4) TO SILTY SAND (SM) (A-2-4)
Ⓓ-ROCK- METAMUDSTONE/METATUFF/METATUNITE, MODERATELY TO VERY SLIGHTLY WEATHERED

$$$$SYSTIME$$$$
$$$$DGN$$$$
$$$$USERNAME$$$$

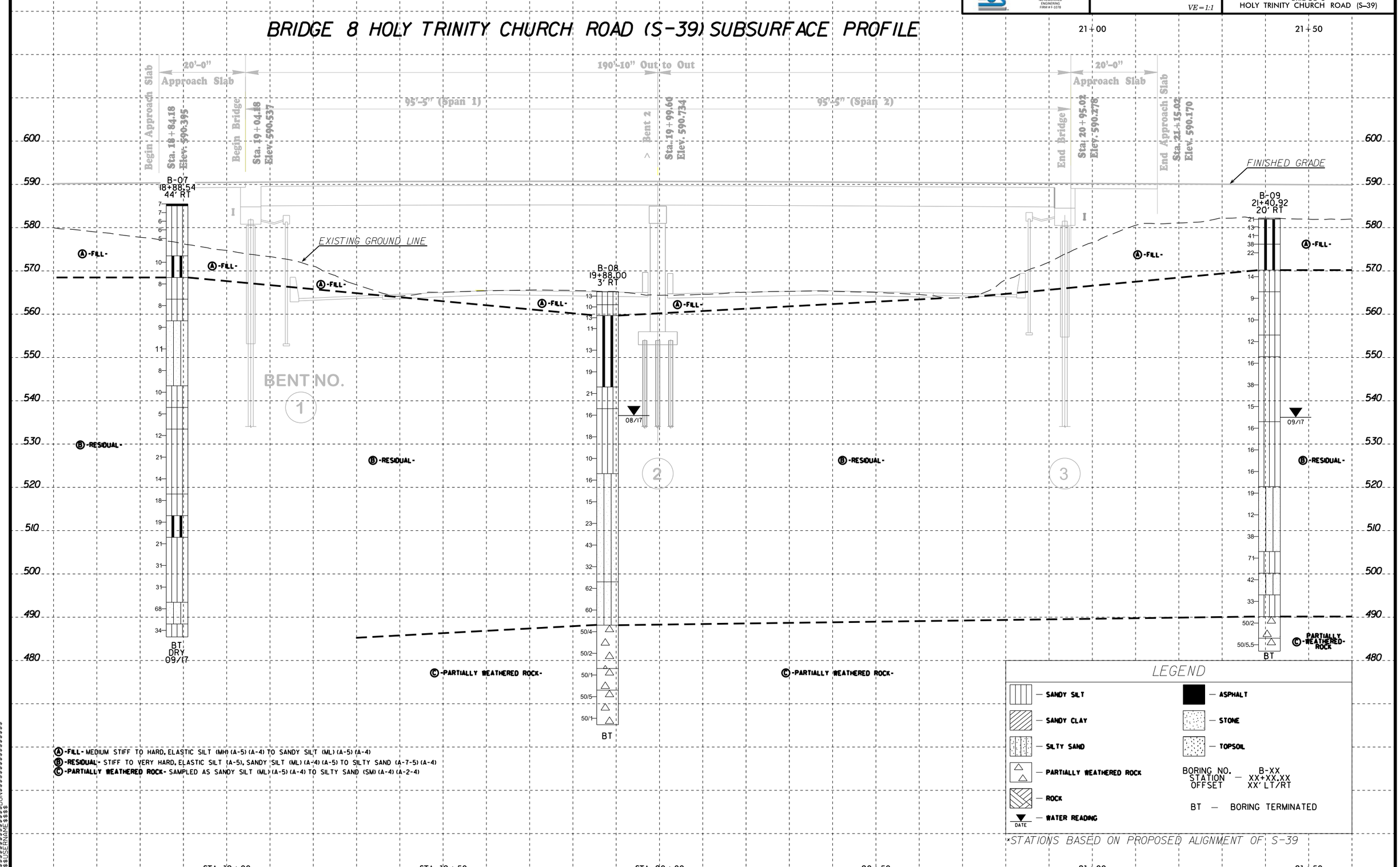
Prepared in the Office of:
ECS SOUTHEAST, LLP
1812 CENTER PARK DRIVE, SUITE D
CHARLOTTE, NC 28217
(704) 525-5152 [PHONE]
(704) 357-0023 [FAX]
NC REGISTERED ENGINEERING FIRM # F-1078

0 10 20
VE=1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	10

BRIDGE 8
HOLY TRINITY CHURCH ROAD (S-39)

BRIDGE 8 HOLY TRINITY CHURCH ROAD (S-39) SUBSURFACE PROFILE



A -FILL- MEDIUM STIFF TO HARD, ELASTIC SILT (MH) (A-5) (A-4) TO SANDY SILT (ML) (A-5) (A-4)
B -RESIDUAL- STIFF TO VERY HARD, ELASTIC SILT (A-5), SANDY SILT (ML) (A-4) (A-5) TO SILTY SAND (A-7-5) (A-4)
C -PARTIALLY WEATHERED ROCK- SAMPLED AS SANDY SILT (ML) (A-5) (A-4) TO SILTY SAND (SM) (A-4) (A-2-4)

6/23/16

$$$$$$$SYSTIME$$$$
$$$$$$$USERNAME$$$$

6/23/16

Prepared in the Office of:
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NC REGISTERED ENGINEERING FIRM # P-1078

0 10 20
VE = 1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	9

BRIDGE 9
PARR ROAD (S-167)

BRIDGE 9 PARR ROAD (S-167) SUBSURFACE PROFILE

STA 51+50 STA 52+00 STA 52+50 STA 53+00 STA 53+50 STA 54+00

80'-0TH o. to o. (Continuous Type III Prestressed Girders)

20'-0TH Approach Slab | 90'-0TH (Span 1) | 90'-0TH (Span 2) | 20'-0TH Approach Slab

Begin Appr. Slab Sta. 51+30.62 Elev. 528.441
Begin of Bridge Sta. 51+50.62 Elev. 528.255
Bent 2 Sta. 52+40.62 Elev. 527.301
End of Bridge Sta. 53+30.62 Elev. 526.153
End Appr. Slab Sta. 53+50.62 Elev. 525.871

FINISHED GRADE
EXISTING GROUND LINE

B-06
51+42.41
66' LT
SEE NOTE

B-05
52+67.98
43' LT

B-04
53+88.64
87' LT
SEE NOTE

Ⓐ-FILL-
Ⓑ-RESIDUAL-
Ⓒ-PARTIALLY WEATHERED ROCK-
Ⓓ-ROCK-

1 BENT NO.
2
3

09/17
08/17
BT
BT
DRY
09/17

LEGEND

- SANDY SILT
- SANDY CLAY
- SILTY SAND
- PARTIALLY WEATHERED ROCK
- ROCK
- WATER READING (DATE)
- ASPHALT
- STONE
- TOPSOIL

BORING NO. B-XX
STATION XX+XX.XX
OFFSET XX' LT/RT

BT — BORING TERMINATED

Ⓐ-FILL- MEDIUM STIFF TO VERY HARD TO DENSE TO VERY DENSE, ELASTIC SILT (MH) (A-7-5) TO SANDY SILT (ML) (A-5) (A-4)
Ⓑ-RESIDUAL- MEDIUM STIFF TO VERY HARD TO VERY DENSE, ELASTIC SILT (MH) (A-7-5) (A-5), SANDY SILT (ML) (A-5) (A-4) TO SILTY SAND (SM) (A-4)
Ⓒ-PARTIALLY WEATHERED ROCK- SAMPLED AS SANDY SILT (ML) TO SILTY SAND (SM) (A-4) (A-2-4)
Ⓓ-ROCK- DIORITE/METATONALITE, SLIGHTLY TO VERY SLIGHTLY WEATHERED

NOTE: BORING DRILLED AT EXISTING EMBANKMENT DUE TO ACCESS ISSUES

*STATIONS BASED ON PROPOSED ALIGNMENT OF S-167

$$$$SYSTIME$$$$
$$$$USERNAME$$$$

6/23/16

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CHARLOTTE, NC 28217
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NC REGISTERED ENGINEERING FIRM # P-3378

0 10 20
VE = 1:1

PROJECT REFERENCE NO.	SHEET NO.
08-11888	8

BRIDGE 10
POMARIA STREET (SC-202)

BRIDGE 10 POMARIA STREET (SC-202) SUBSURFACE PROFILE

STA 92+00 STA 92+50 STA 93+00 STA 93+50 STA 94+00 STA 94+50

20'-0" Approach Slab | 88'-0" (Span 1) | 176'-0" c. to c. (Continuous Type III Prestressed Girders) | 88'-0" (Span 2) | 20'-0" Approach Slab

Beg. Approach Slab Sta. 92+55.16 Elev. 454.236
Beg. Bridge Sta. 92+75.16 Elev. 453.491
Bent 2 Sta. 93+63.16 Elev. 449.633
End of Bridge Sta. 94+51.16 Elev. 444.834
End Approach Slab Sta. 94+71.16 Elev. 443.634

FINISHED GRADE
EXISTING GROUND LINE

B-3
92+06.98
69' RT

B-2
93+55.66
115' RT

B-1
94+72.91
69' RT

BENT NO. 1 BENT NO. 2 END OF BRIDGE

SEE NOTE

Ⓐ-FILL- Ⓑ-RESIDUAL- Ⓒ-PARTIALLY WEATHERED ROCK- Ⓓ-ROCK-

BT
DRY
09/17

Ⓐ-FILL- MEDIUM STIFF TO VERY STIFF, ELASTIC SILT (MH) (A-7-5) (A-5), SANDY SILT (ML) (A-5) (A-7-5), AND SANDY CLAY (CL) (A-7-5) (A-7-6)
Ⓑ-RESIDUAL- VERY STIFF TO VERY HARD, ELASTIC SILT (MH) (A-7-5), SILTY SAND (SM) (A-4), AND SANDY SILT (ML) (A-7-6) (A-4)
Ⓒ-PARTIALLY WEATHERED ROCK- SAMPLED AS FINE SILTY SAND (SM) (A-4) (A-2-4) AND SANDY SILT (ML) (A-4)
Ⓓ-ROCK- AMPHIBOLITE, SLIGHTLY WEATHERED

NOTE: BORING DRILLED AT EXISTING EMBANKMENT DUE TO ACCESS ISSUES

LEGEND

- SANDY SILT
- SANDY CLAY
- SILTY SAND
- PARTIALLY WEATHERED ROCK
- ROCK
- WATER READING (DATE)
- ASPHALT
- STONE
- TOPSOIL

BORING NO. — B-XX
STATION — XX+XX.XX
OFFSET — XX' LT/RT

BT — BORING TERMINATED

*STATIONS BASED ON PROPOSED ALIGNMENT OF SC-202

$$$$SYSTIME$$$$
$$$$DRAWING$$$$
$$$$USERNAME$$$$

Appendix III - Soil Test Logs

Bridge Borings

Culvert Borings

Ramp Borings

Widening Borings

Shoulder Borings

Outside Shoulder Embankment Borings

Sound Wall Borings

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-01
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	94+72.91	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	436.3 ft	**Latitude:**	34.2206681	**Longitude:**	-81.410349	**Date Started:**	9/14/2017
Total Depth:	88.7 ft	**Soil Depth:**	66.5 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0									
	0.5	6.00" Asphalt		1.0						
		FILL Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)			SS-1	3	4	4	8	
	3.0			3.5	SS-2	2	3	3	6	
431.3	5.5	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		6.0	SS-3	3	6	5	11	
	8.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		8.5	SS-4	5	4	4	8	
426.3		**FILL** Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with slight roots LL=65, PL=34, PI=31, NMC=26.5, %200=72		13.5	SS-5	3	4	6	10	
421.3				18.5	SS-6	4	4	3	7	
416.3	22.0	**FILL** Very stiff, moist, reddish orange to brown, Low Plasticity CLAY (CL) (A-7-5)		23.5	SS-7	4	7	9	16	
411.3	27.0	**RESIDUAL** Very stiff, moist, orangish brown, Sandy SILT (ML) (A-7-6) LL=44, PL=28, PI=16, NMC=21.6, %200=57		28.5	SS-8	13	13	16	29	
406.3				33.5	SS-9	8	10	9	19	
401.3	37.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, brown to grayish tan, sampled as Sandy SILT (A-4)		38.5	SS-10	50/2			50/2	>>

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-01
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	94+72.91	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	436.3 ft	**Latitude:**	34.2206681	**Longitude:**	-81.410349	**Date Started:**	9/14/2017
Total Depth:	88.7 ft	**Soil Depth:**	66.5 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / FINES CONTENT (%)
			43.5	SS-11	10	50/5		50/5	>>
391.3	47.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)	48.5	SS-12	46	50/4		50/4	>>
386.3	52.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)	53.5	SS-13	50/5	50/6		50/6	>>
381.3	57.0	Very hard, moist, tannish brown, Sandy SILT (ML) (A-4)	58.5	SS-14	17	32	48	80	
376.3	61.2	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown to grayish brown, sampled as Silty SAND (A-4)	61.2	SS-15	50/1			50/1.25	>>
			63.5	SS-16	50/.5			50/.5	>>
371.3	66.5	Auger Refusal at 66.5 feet. Started rock coring.	66.5	NQ-1					REC=20%, RQD=18%
	68.5	AMPHIBOLITE, pink to dark gray, very closely fractured, very hard	68.5						
366.3		AMPHIBOLITE, pink to dark gray, very closely fractured, very hard		NQ-2					REC=8%, RQD=0%
	73.5	AMPHIBOLITE, pink to dark gray, very closely fractured, very hard	73.5						
361.3				NQ-3					REC=30%, RQD=0%
	78.5	AMPHIBOLITE, pink to dark gray, very closely fractured, very hard	78.5						

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-01
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	94+72.91	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	436.3 ft	**Latitude:**	34.2206681	**Longitude:**	-81.410349	**Date Started:**	9/14/2017
Total Depth:	88.7 ft	**Soil Depth:**	66.5 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
351.3					NQ-4			REC=32%, RQD=9%, UCS=9513.0 psi
	88.7			88.1				UCS=9939.6 psi
346.3		Boring terminated at 88.7 feet						
341.3								
336.3								
331.3								
326.3								
321.3								

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

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:	029208			**County:**	Lexington	**Boring No.:**	B-02
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	93+55.66	**Offset:**	115' RT	**Alignment:**	PROPOSED
Elev.:	414.8 ft	**Latitude:**	34.2203283	**Longitude:**	-81.4102737	**Date Started:**	9/25/2017
Total Depth:	103 ft	**Soil Depth:**	84.8 ft	**Core Depth:**	18.2 ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.0	SS-1	5	6	5	11
	0.4	5.00" Topsoil Depth	2.0					
	2.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with slight roots		SS-2	5	6	10	16
	4.0		4.0	SS-3	5	6	7	13
409.8	6.0	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	6.0	SS-4	3	4	3	7
		FILL Stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-5)	8.0	SS-5	2	2	4	6
404.8		**FILL** Medium stiff, moist to wet, reddish brown to gray, Elastic SILT (MH) (A-7-5) with trace roots LL=61, PL=36, PI=25, NMC=25.9, %200=68	13.5	SS-6	1	2	4	6
399.8	17.0	**RESIDUAL** Medium stiff, moist to wet, reddish brown to gray, Elastic SILT (MH) (A-7-5) with trace roots	18.5	SS-7	2	6	10	16
394.8	22.0	Very stiff, moist, reddish brown to gray, Sandy CLAY (CL) (A-7-5) LL=41, PL=22, PI=19, NMC=31.4, %200=52	23.5	SS-8	5	7	11	18
389.8	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)	28.5	SS-9	50/2			50/2
384.8	32.0	Very dense, moist, tannish brown, Silty SAND (SM) (A-4)	33.5	SS-10	15	25	40	65
379.8	37.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)	38.5	SS-11	50/3.5			50/3.5

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-02
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	93+55.66	**Offset:**	115' RT	**Alignment:**	PROPOSED
Elev.:	414.8 ft	**Latitude:**	34.2203283	**Longitude:**	-81.4102737	**Date Started:**	9/25/2017
Total Depth:	103 ft	**Soil Depth:**	84.8 ft	**Core Depth:**	18.2 ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	42.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet to moist, brown to tannish brown, sampled as Silty SAND (A-4) with slight rock fragments		43.5	SS-12	50/0			50/0	>>
369.8				48.5	SS-13	50/1			50/1	>>
364.8				53.5	SS-14	50/1			50/1	>>
359.8				58.5	SS-15	50/1			50/1	>>
354.8				63.5	SS-16	50/0			50/0	>>
349.8				68.5	SS-17	50/1.5			50/1.5	>>
344.8	72.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, brown, sampled as Sandy SILT (A-4)		73.5	SS-18	50/1			50/1	>>
339.8	76.5	**PARTIALLY WEATHERED ROCK** NO RECOVERY		76.5	SS-19	50/0			50/0	>>

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-02
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	93+55.66	**Offset:**	115' RT	**Alignment:**	PROPOSED
Elev.:	414.8 ft	**Latitude:**	34.2203283	**Longitude:**	-81.4102737	**Date Started:**	9/25/2017
Total Depth:	103 ft	**Soil Depth:**	84.8 ft	**Core Depth:**	18.2 ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
			83.5	SS-20	50/.5	50/.5	>>
329.8	84.8	Auger Refusal at 84.8 feet. Started rock coring.	84.8				
		AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard		NQ-1			REC=85%, RQD=13%
	87.4		87.4				
	87.7		87.7	NQ-2			REC=83%, RQD=0%
324.8		AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard		NQ-3			REC=81%, RQD=64%, UCS=10866.8 psi
	92.9	AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard	92.7				
319.8		AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard		NQ-4			REC=100%, RQD=90%, UCS=12733.9 psi
	97.0		97.0				
	97.9	AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard	97.9	NQ-5			REC=89%, RQD=0%
314.8		AMPHIBOLITE, light pink to dark gray, very closely fractured, slight weathering, very hard		NQ-6			REC=68%, RQD=62%, UCS=14283.2 psi
	103.0	Boring terminated at 103 feet					
309.8							
304.8							
299.8							

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-03
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	92+06.98	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	440.3 ft	**Latitude:**	34.2199498	**Longitude:**	-81.4105162	**Date Started:**	9/12/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.6	7.00" Asphalt Depth		1.0					
		FILL Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) LL=49, PL=34, PI=15, NMC=25.9, %200=68			SS-1	3	3	3	6
				3.5	SS-2	2	2	3	5
435.3				6.0	SS-3	2	2	3	5
				8.5	SS-4	2	2	3	5
430.3									
				13.5	SS-5	3	5	5	10
425.3									
	17.0	**FILL** Medium stiff, moist, reddish brown to gray, Sandy CLAY (CL) (A-7-6) LL=36, PL=21, PI=15, NMC=16, %200=54		18.5	SS-6	2	3	4	7
420.3									
	22.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, reddish brown to gray, sampled as Clayey SAND (A-2-6) with trace gravel		23.5	SS-7	50/4			50/4
415.3									
	27.0	**RESIDUAL** Medium dense, moist, grayish brown, Silty SAND (SM) (A-4)		28.5	SS-8	13	14	14	28
410.3									
	32.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish tan, Silty SAND (SM) (A-2-4)		33.5	SS-9	58	50/3.5		50/3.5
405.3									
	37.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown to orangish tan, sampled as Silty SAND (A-4)		38.5	SS-10	50/2			50/2

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	B-03		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	SC-202		
Eng./Geo.:	M. Bailey	**Boring Location:**	92+06.98	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	440.3 ft	**Latitude:**	34.2199498	**Longitude:**	-81.4105162	**Date Started:**	9/12/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		with trace mica								
				43.5	SS-11	50/0			50/0	>>
395.3										
				48.5	SS-12	50/2			50/2	>>
390.3										
				53.5	SS-13	50/2			50/2	>>
385.3										
	57.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4) with trace mica		58.5	SS-14	36	50/3		50/3	>>
380.3										
	62.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)		63.5	SS-15	50/1.5			50/1.5	>>
375.3				65.0	SS-16	50/.5			50/.5	>>
				68.5	SS-17	50/1			50/1	>>
370.3										
	72.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)		73.5	SS-18	50/.5			50/.5	>>
365.3										
	77.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish tan to tannish brown, sampled as Silty SAND		78.5	SS-19	50/.5			50/.5	>>

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-03
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	SC-202
Eng./Geo.:	M. Bailey	**Boring Location:**	92+06.98	**Offset:**	69' RT	**Alignment:**	PROPOSED
Elev.:	440.3 ft	**Latitude:**	34.2199498	**Longitude:**	-81.4105162	**Date Started:**	9/12/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
		(A-4)		83.5	SS-20	50/3			50/3
355.3	87.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan to brown, sampled as Sandy SILT (A-4)		88.5	SS-21	50/.5			50/.5
350.3	92.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)		93.5	SS-22	50/.5			50/.5
345.3	97.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)		98.5	SS-23	50/.5			50/.5
340.3	100.0	Boring Terminated at 100 feet							
335.3									
330.3									
325.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-04
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	53+88.64	**Offset:**	87' LT	**Alignment:**	PROPOSED
Elev.:	522.8 ft	**Latitude:**	34.2163494	**Longitude:**	-81.3988832	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.5	6.00" Asphalt Depth								
		FILL Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		1.0	SS-1	3	2	4	6	
				3.5	SS-2	2	3	3	6	
517.8				6.0	SS-3	1	2	2	4	
				8.5	SS-4	4	4	4	8	
512.8										
				13.5	SS-5	2	3	3	6	
507.8										
	17.0	**FILL** Stiff to very stiff, moist to dry, reddish brown, Elastic SILT (MH) (A-7-5) with trace gravel LL=62, PL=37, PI=25, NMC=22.6, %200=81		18.5	SS-6	4	5	5	10	
502.8										
				23.5	SS-7	11	14	14	28	
497.8										
				28.5	SS-8	9	12	14	26	
492.8										
	32.0	**RESIDUAL** Stiff to medium stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-5) LL=57, PL=44, PI=13, NMC=31.1, %200=73		33.5	SS-9	4	5	5	10	
487.8										
				38.5	SS-10	3	4	5	9	

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	B-04	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	S-167	
Eng./Geo.:	M. Bailey	**Boring Location:**	53+88.64	**Offset:**	87' LT	**Alignment:**	PROPOSED
Elev.:	522.8 ft	**Latitude:**	34.2163494	**Longitude:**	-81.3988832	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				43.5	SS-11	4	4	4	8	
477.8										
				48.5	SS-12	3	4	4	8	
472.8										
	52.0	Medium stiff to stiff, moist, tannish brown, Sandy SILT (ML) (A-5)		53.5	SS-13	4	4	8	12	
467.8										
				58.5	SS-14	2	3	4	7	
462.8										
	62.0	Very stiff to stiff, moist, tannish brown to orange, Sandy SILT (ML) (A-5)		63.5	SS-15	6	8	12	20	
457.8										
				68.5	SS-16	3	4	8	12	
452.8										
				73.5	SS-17	17	11	17	28	
447.8										
	77.0	Hard, moist, tannish brown, Sandy SILT (ML) (A-4)		78.5	SS-18	13	21	31	52	

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	B-04		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	S-167		
Eng./Geo.:	M. Bailey	**Boring Location:**	53+88.64	**Offset:**	87' LT	**Alignment:**	PROPOSED
Elev.:	522.8 ft	**Latitude:**	34.2163494	**Longitude:**	-81.3988832	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● / PL MC LL / ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	82.0	Hard, moist, tannish brown, Sandy SILT (ML) (A-5)		83.5	SS-19	10	21	21	42	
437.8	87.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Silty SAND (A-4)		88.5	SS-20	50/2.5			50/2.5	>>
432.8	92.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish brown to gray, sampled as Sandy SILT (A-4)		93.5	SS-21	8	38	50/3	50/3	>>
427.8	97.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish brown to tan, sampled as Silty SAND (A-4)		98.5	SS-22	50/2			50/2	>>
422.8	100.0	Boring Terminated at 100 feet								
417.8										
412.8										
407.8										

LEGEND

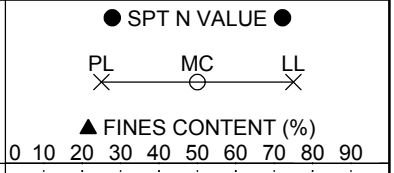
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-05
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	52+67.98	**Offset:**	43' LT	**Alignment:**	PROPOSED
Elev.:	502.6 ft	**Latitude:**	34.2160028	**Longitude:**	-81.3987973	**Date Started:**	8/25/2017
Total Depth:	112 ft	**Soil Depth:**	92 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 36.5 ft	**24HR**	36.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		1.0	SS-1	8	6	7	13
	3.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		3.5	SS-2	2	7	9	16
497.6	5.5	**RESIDUAL** Stiff, moist, reddish brown to tan, Elastic SILT (MH) (A-7-5) with trace mica LL=53, PL=39, PI=14, NMC=35, %200=73		6.0	SS-3	3	4	7	11
				8.5	SS-4	3	5	7	12
492.6				13.5	SS-5	4	4	6	10
487.6				18.5	SS-6	2	4	6	10
482.6	22.0	Stiff to very stiff, moist, orangish tan to reddish brown, Sandy SILT (ML) (A-5)		23.5	SS-7	3	4	6	10
477.6				28.5	SS-8	3	4	7	11
472.6				33.5	SS-9	2	4	6	10
467.6				38.5	SS-10	4	7	9	16



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-05
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	52+67.98	**Offset:**	43' LT	**Alignment:**	PROPOSED
Elev.:	502.6 ft	**Latitude:**	34.2160028	**Longitude:**	-81.3987973	**Date Started:**	8/25/2017
Total Depth:	112 ft	**Soil Depth:**	92 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 36.5 ft	**24HR**	36.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				43.5	SS-11	5	12	14	26	
457.6	47.0	Dense to very dense, moist, grayish tan to brown, Silty SAND (SM) (A-4) with trace mica		48.5	SS-12	12	16	26	42	
452.6				53.5	SS-13	28	34	34	68	
447.6	57.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown to dark brown, sampled as Silty SAND (A-4) with trace mica		58.5	SS-14	34	41	50/4	50/4	>>
442.6				63.5	SS-15	50/3			50/3	>>
437.6				68.5	SS-16	50/2			50/2	>>
432.6				73.5	SS-17	50/2			50/2	>>
427.6				78.5	SS-18	50/0			50/0	>>

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-05
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	52+67.98	**Offset:**	43' LT	**Alignment:**	PROPOSED
Elev.:	502.6 ft	**Latitude:**	34.2160028	**Longitude:**	-81.3987973	**Date Started:**	8/25/2017
Total Depth:	112 ft	**Soil Depth:**	92 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 36.5 ft	**24HR**	36.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
			83.5	SS-19	50/1	50/1	>>
417.6			88.5	SS-20	50/1	50/1	>>
412.6	92.0	Auger refusal at 92.0 feet. Started rock coring.	92.0				
		DIORITE, dark gray, closely fractured, very slight weathering, hard		NQ-1			REC=91%, RQD=90%, UCS=13252.0 psi
407.6	97.0	DIORITE, dark gray, closely fractured, slight weathering, hard	97.0	NQ-2			REC=64%, RQD=33%, UCS=8935.6 psi
402.6	102.0	METATONALITE, gray, closely fractured, slight weathering, hard	102.0	NQ-3			REC=93%, RQD=49%, UCS=17544.7 psi
397.6	107.0	METATONALITE, gray, closely fractured, slight weathering, hard	107.0	NQ-4			REC=100%, RQD=91%
392.6	112.0	Boring terminated at 112.0 feet					
387.6							

LEGEND

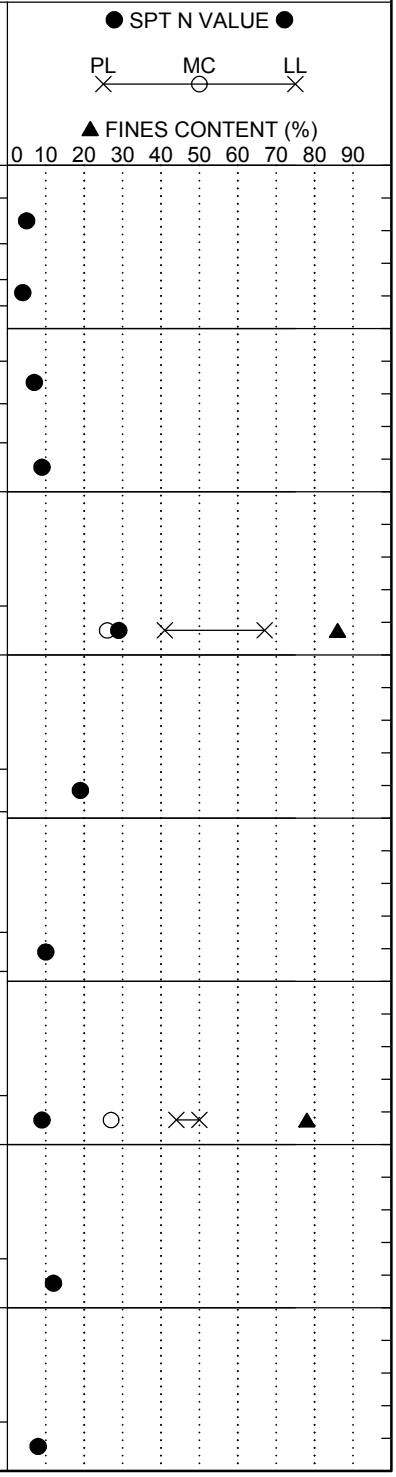
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-06
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	51+42.41	**Offset:**	66' LT	**Alignment:**	PROPOSED
Elev.:	522.9 ft	**Latitude:**	34.2156718	**Longitude:**	-81.3989377	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 40 ft	**24HR**	40 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.5	6.00" Asphalt Depth	1.0					
		FILL Medium stiff to soft, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		SS-1	3	2	3	5
			3.5	SS-2	2	1	3	4
517.9	5.5	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	6.0	SS-3	3	3	4	7
	8.0		8.5	SS-4	3	4	5	9
512.9		**FILL** Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=67, PL=41, PI=26, NMC=25.8, %200=86	13.5	SS-5	5	12	17	29
507.9	17.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4)	18.5	SS-6	7	9	10	19
502.9	22.0	**RESIDUAL** Stiff, moist, tannish brown, Elastic SILT (MH) (A-5) LL=50, PL=44, PI=6, NMC=26.7, %200=78	23.5	SS-7	5	5	5	10
497.9			28.5	SS-8	4	4	5	9
492.9	32.0	Stiff, moist, tannish brown to brown, Sandy SILT (ML) (A-5)	33.5	SS-9	5	6	6	12
487.9			38.5	SS-10	3	4	4	8



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-06
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	51+42.41	**Offset:**	66' LT	**Alignment:**	PROPOSED
Elev.:	522.9 ft	**Latitude:**	34.2156718	**Longitude:**	-81.3989377	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 40 ft	**24HR**	40 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				43.5	SS-11	5	5	8	13	
477.9				48.5	SS-12	3	4	6	10	
472.9				53.5	SS-13	3	4	7	11	
467.9				58.5	SS-14	3	4	5	9	
462.9	62.0	Very stiff to very hard, moist, brown to tannish brown, Sandy SILT (ML) (A-4)		63.5	SS-15	7	8	11	19	
457.9				68.5	SS-16	4	8	13	21	
452.9				73.5	SS-17	10	11	14	25	
447.9				78.5	SS-18	10	26	33	59	

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-06
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-167
Eng./Geo.:	M. Bailey	**Boring Location:**	51+42.41	**Offset:**	66' LT	**Alignment:**	PROPOSED
Elev.:	522.9 ft	**Latitude:**	34.2156718	**Longitude:**	-81.3989377	**Date Started:**	9/19/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 40 ft	**24HR**	40 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	82.0									
437.9		**PARTIALLY WEATHERED ROCK** Extremely dense, moist to wet, tannish brown to brown, sampled as Silty SAND (A-4)		83.5	SS-19	15	38	50/5	50/5	>>
				88.5	SS-20	50/5			50/5	>>
432.9										
				93.5	SS-21	50/2.5			50/2.5	>>
427.9										
	97.0									
		PARTIALLY WEATHERED ROCK Extremely dense, moist, brown, sampled as Silty SAND (A-2-4)		98.5	SS-22	50/3			50/3	>>
422.9	100.0	Boring Terminated at 100 feet								
417.9										
412.9										
407.9										

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

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:	029208			**County:**	Lexington	**Boring No.:**	B-07
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	18+88.54	**Offset:**	44' RT	**Alignment:**	PROPOSED
Elev.:	585.5 ft	**Latitude:**	34.2041105	**Longitude:**	-81.3697794	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.4	5.00" Asphalt Depth		0.0	SS-1	4	3	4	7	●
		FILL Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		2.0	SS-2	2	4	3	7	●
				4.0	SS-3	2	2	4	6	●
580.5				6.0	SS-4	2	3	3	6	●
				8.0	SS-5	2	3	2	5	●
575.5										
	12.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		13.5	SS-6	2	4	6	10	●
570.5										
	17.0	**RESIDUAL** Medium stiff, moist, reddish tan, Sandy SILT (ML) (A-4) with trace mica		18.5	SS-7	4	4	4	8	●
565.5										
	22.0	Medium stiff, moist, reddish tan, Sandy SILT (ML) (A-5) with trace mica		23.5	SS-8	3	3	5	8	●
560.5										
	27.0	Loose to medium dense, moist, tan, Silty SAND (SM) (A-7-5) with trace mica LL=48, PL=36, PI=12, NMC=19.6, %200=44		28.5	SS-9	3	4	5	9	● ○ ×▲×
555.5										
				33.5	SS-10	4	5	6	11	●
550.5										
				38.5	SS-11	3	4	4	8	●

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	B-07	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	S-39	
Eng./Geo.:	M. Bailey	**Boring Location:**	18+88.54	**Offset:**	44' RT	**Alignment:**	PROPOSED
Elev.:	585.5 ft	**Latitude:**	34.2041105	**Longitude:**	-81.3697794	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	42.0									
		Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica		43.5	SS-12	3	4	6	10	
540.5										
	47.0									
		Medium stiff, moist, orangish brown to tan, Sandy SILT (ML) (A-4)		48.5	SS-13	1	2	3	5	
535.5										
	52.0									
		Stiff to very stiff, moist, reddish brown to orangish brown, Sandy SILT (ML) (A-5)		53.5	SS-14	1	3	9	12	
530.5										
				58.5	SS-15	6	7	14	21	
525.5										
				63.5	SS-16	3	6	8	14	
520.5										
	67.0									
		Very stiff, moist, orangish tan, Sandy SILT (ML) (A-4) with trace mica		68.5	SS-17	6	8	10	18	
515.5										
	72.0									
		Very stiff, moist, brown, Sandy SILT (MH) (A-5) with trace mica		73.5	SS-18	6	8	11	19	
510.5										
	77.0									
		Very stiff to hard, moist, orangish brown to tan, Sandy SILT (ML) (A-4)		78.5	SS-19	9	10	11	21	

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-07
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	18+88.54	**Offset:**	44' RT	**Alignment:**	PROPOSED
Elev.:	585.5 ft	**Latitude:**	34.2041105	**Longitude:**	-81.3697794	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
				83.5	SS-20	8	12	19	31
500.5									
				88.5	SS-21	9	11	20	31
495.5									
	92.0	Very dense, moist, orangish tan, Silty SAND (SM) (A-4)		93.5	SS-22	19	30	38	68
490.5									
	97.0	Hard, moist, orangish brown, Sandy SILT (ML) (A-5)		98.5	SS-23	9	16	18	34
485.5	100.0	Boring Terminated at 100 feet							
480.5									
475.5									
470.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

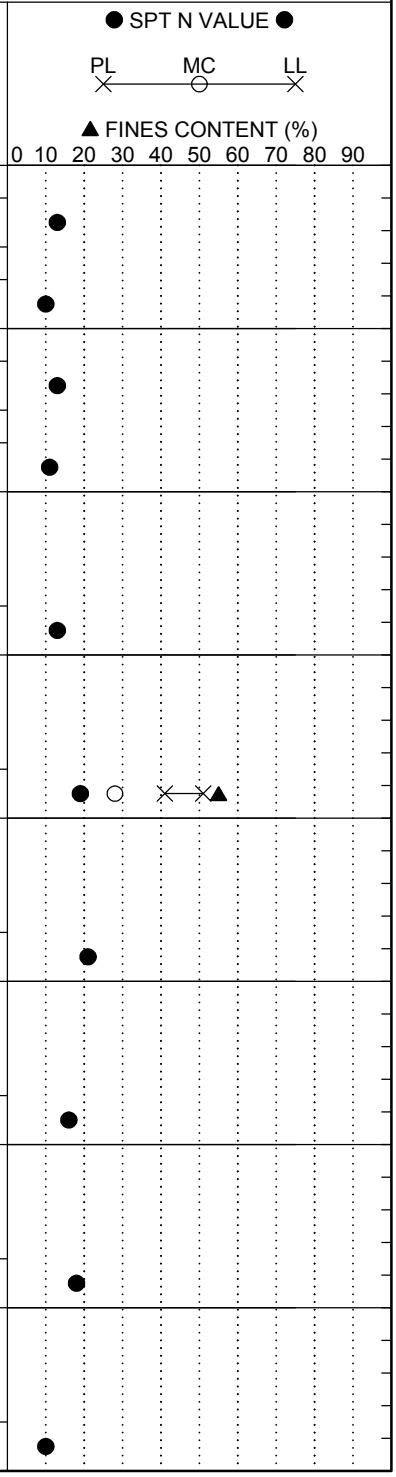
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-08
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	19+88.00	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	565.2 ft	**Latitude:**	34.2038629	**Longitude:**	-81.3699748	**Date Started:**	8/24/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 28.6 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		1.0	SS-1	7	7	6	13
	3.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) A-4)		3.5	SS-2	3	4	6	10
560.2	5.5	**RESIDUAL** Stiff to very stiff, moist, reddish brown to orangish tan, Elastic SILT (MH) (A-5) with trace gravel-sized rock fragments and mica LL=51, PL=41, PI=10, NMC=28.4, %200=55		6.0	SS-3	3	6	7	13
				8.5	SS-4	3	4	7	11
555.2				13.5	SS-5	3	6	7	13
550.2				18.5	SS-6	3	7	12	19
545.2	22.0	Very stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-5)		23.5	SS-7	8	9	12	21
540.2	27.0	Very stiff to stiff, moist to wet, reddish brown to orangish tan, Sandy SILT (ML) (A-4) with trace mica		28.5	SS-8	4	6	10	16
535.2				33.5	SS-9	5	8	10	18
530.2				38.5	SS-10	5	4	6	10



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-08
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	19+88.00	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	565.2 ft	**Latitude:**	34.2038629	**Longitude:**	-81.3699748	**Date Started:**	8/24/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 28.6 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	42.0								
		Medium dense to dense, moist, orangish tan to tannish brown, Silty SAND (SM) (A-4) with trace mica		43.5	SS-11	7	7	9	16
520.2									
				48.5	SS-12	4	6	9	15
515.2									
				53.5	SS-13	5	10	13	23
510.2									
				58.5	SS-14	12	21	22	43
505.2									
				63.5	SS-15	11	14	18	32
500.2									
	67.0	Very dense, moist to wet, orangish tan to brown, Silty SAND (SM) (A-4)		68.5	SS-16	17	29	33	62
495.2									
				73.5	SS-17	21	30	30	60
490.2									
	77.0	**PARTIALLY WEATHERED ROCK**							
		Very hard, wet to moist, grayish brown, sampled as Sandy SILT (A-5) with trace		78.5	SS-18	21	48	50/4	50/4

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-08
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	19+88.00	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	565.2 ft	**Latitude:**	34.2038629	**Longitude:**	-81.3699748	**Date Started:**	8/24/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 28.6 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		mica		83.5	SS-19	32 50/2	50/2	>>
480.2	87.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, tannish brown, sampled as Silty SAND (A-4)		88.5	SS-20	50/1	50/1	>>
475.2	92.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, grayish brown, sampled as Sandy SILT (A-4) with trace mica		93.5	SS-21	50/5	50/5	>>
470.2				98.5	SS-22	50/1	50/1	>>
465.2	100.0	Boring Terminated at 100 feet						
460.2								
455.2								
450.2								

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-09
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	21+40.92	**Offset:**	20' RT	**Alignment:**	PROPOSED
Elev.:	582.2 ft	**Latitude:**	34.2036641	**Longitude:**	-81.3704239	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 46 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.3	SS-1	7	9	12	21
	0.3	3.00" Topsoil Depth	2.0	SS-2	9	5	8	13
		FILL Very stiff to hard, dry to moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel and roots	4.0	SS-3	7	18	23	41
577.2	6.0	**FILL** Hard to very stiff, dry to moist, reddish brown, Elastic SILT (MH) (A-4)	6.0	SS-4	8	17	21	38
			8.0	SS-5	5	10	12	22
572.2	12.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	13.5	SS-6	4	6	8	14
567.2	17.0	**RESIDUAL** Stiff, moist, reddish brown to orangish tan, Sandy SILT (ML) (A-4)	18.5	SS-7	4	4	5	9
562.2			23.5	SS-8	4	4	6	10
557.2	27.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) LL=48, PL=39, PI=9, NMC=27.0, %200=64	28.5	SS-9	4	5	7	12
552.2	32.0	Very stiff to stiff, moist, orangish tan to tannish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments and mica	33.5	SS-10	5	7	9	16
547.2			38.5	SS-11	7	8	30	38

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-09
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-39
Eng./Geo.:	M. Bailey	**Boring Location:**	21+40.92	**Offset:**	20' RT	**Alignment:**	PROPOSED
Elev.:	582.2 ft	**Latitude:**	34.2036641	**Longitude:**	-81.3704239	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 46 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
				43.5	SS-12	5	7	8	15
537.2									
	47.0	Very stiff, moist, brown to orangish tan, Sandy SILT (ML) (A-5) with trace gravel-sized rock fragments		48.5	SS-13	4	6	10	16
532.2									
				53.5	SS-14	3	6	10	16
527.2									
				58.5	SS-15	5	6	10	16
522.2									
	62.0	Medium dense to dense, moist, orangish tan to brown, Silty SAND (SM) (A-4)		63.5	SS-16	4	8	11	19
517.2									
				68.5	SS-17	3	4	8	12
512.2									
				73.5	SS-18	8	17	21	38
507.2									
	77.0	Very hard, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		78.5	SS-19	8	28	43	71

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

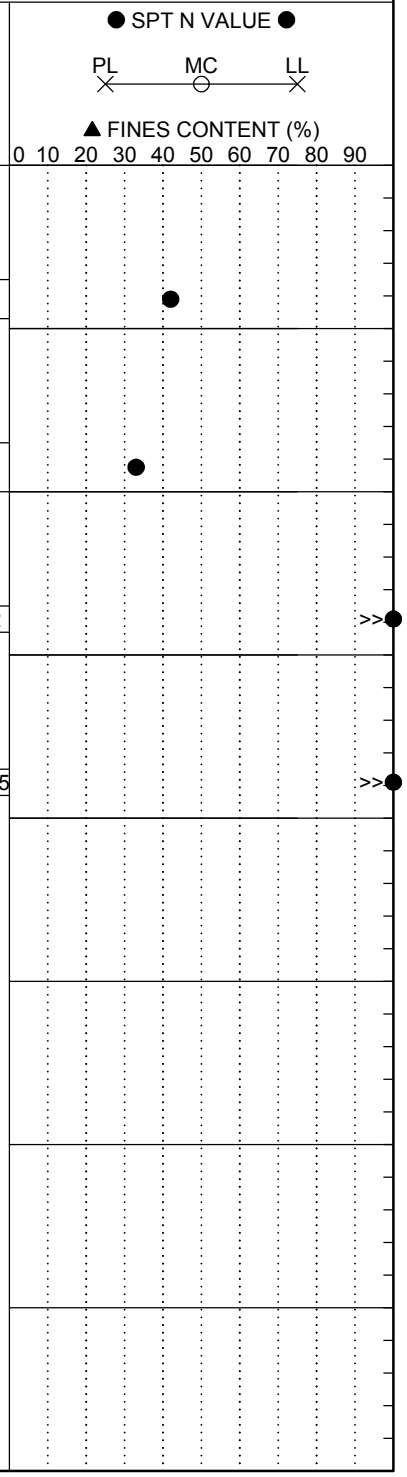
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	B-09	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	S-39	
Eng./Geo.:	M. Bailey	**Boring Location:**	21+40.92	**Offset:**	20' RT	**Alignment:**	PROPOSED
Elev.:	582.2 ft	**Latitude:**	34.2036641	**Longitude:**	-81.3704239	**Date Started:**	9/21/2017
Total Depth:	100 ft	**Soil Depth:**	100 ft	**Core Depth:**	0 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Gravity	**Energy Ratio:**	84%
Core Size:		**Driller:**	Patriot	**Groundwater:**	**TOB** 46 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	82.0								
		Dense, moist, orangish tan to brown, Silty SAND (SM) (A-4)		83.5	SS-20	22	23	19	42
497.2									
	87.0	Hard, moist, tannish brown, Sandy SILT (ML) (A-5)		88.5	SS-21	5	10	23	33
492.2									
	92.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish brown, sampled as Silty SAND (A-2-4)		93.5	SS-22	50/2			50/2
487.2									
	97.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, brown, sampled as Sandy SILT (A-5)		98.5	SS-23	50/5.5			50/5.5
482.2	100.0	Boring Terminated at 100 feet							
477.2									
472.2									
467.2									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-10
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	83+70.99	**Offset:**	3' LT	**Alignment:**	PROPOSED
Elev.:	444.5 ft	**Latitude:**	34.1927211	**Longitude:**	-81.3491926	**Date Started:**	9/6/2017
Total Depth:	98.6 ft	**Soil Depth:**	98.6 ft	**Core Depth:**	82 ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff to hard, dry, reddish tan to brown, Sandy SILT (ML) (A-5) with trace gravel		1.0	SS-1	11	14	12	26
				3.5	SS-2	12	26	18	44
439.5	5.5	**RESIDUAL** Hard to very stiff, dry to moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=68, PL=46, PI=22, NMC=19.0, %200=95		6.0	SS-3	11	15	16	31
				8.5	SS-4	10	12	14	26
434.5	12.0	Stiff to very hard, moist, orangish tan to tannish brown, Sandy SILT (ML) (A-4) with trace mica LL=33, PL=25, PI=8, NMC=11.2, %200=80		13.5	SS-5	6	5	5	10
429.5				18.5	SS-6	4	5	5	10
424.5				23.5	SS-7	4	5	6	11
419.5				28.5	SS-8	5	8	10	18
414.5				33.5	SS-9	16	26	34	60
409.5	37.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tan, sampled as Sandy SILT (A-4)		38.5	SS-10	49	50/3		50/3

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-10
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	83+70.99	**Offset:**	3' LT	**Alignment:**	PROPOSED
Elev.:	444.5 ft	**Latitude:**	34.1927211	**Longitude:**	-81.3491926	**Date Started:**	9/6/2017
Total Depth:	98.6 ft	**Soil Depth:**	98.6 ft	**Core Depth:**	82 ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	42.0								
		Hard, moist, tannish brown, Sandy SILT (ML) (A-4)	43.5	SS-11	28	35	30	65	
399.5	47.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown to grayish tan, sampled as Sandy SILT (A-4)	48.5	SS-12	32	50/5		50/5	>>
394.5			53.5	SS-13	43	50/5		50/5	>>
389.5			58.5	SS-14	50/1			50/1	>>
384.5			63.5	SS-15	50/3			50/3	>>
379.5	67.0	Hard, moist, grayish tan to brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments	68.5	SS-16	57	20	31	51	
374.5	71.5		71.5						
	72.2	METATUNITE, tan to red-brown, close to very close fractured, moderate weathering, moderately hard	72.2	NQ-1					REC=31%, RQD=0%, UCS=5740.8psi
369.5		METATUNITE, tan to red-brown, close to very close fractured, moderate weathering, moderately hard		NQ-2					REC=100%, RQD=65.5%, UCS=2766.0psi
	77.0	METATUFF, tan to brown, highly fractured, highly weathered, soft	77.0						

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-10
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	83+70.99	**Offset:**	3' LT	**Alignment:**	PROPOSED
Elev.:	444.5 ft	**Latitude:**	34.1927211	**Longitude:**	-81.3491926	**Date Started:**	9/6/2017
Total Depth:	98.6 ft	**Soil Depth:**	98.6 ft	**Core Depth:**	82 ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
					NQ-3					REC=8.3%, RQD=0%,
	83.5			83.5						
		PARTIALLY WEATHERED ROCK			SS-17	50/.1			50/.1	>>
359.5		Very hard, moist, brown, sampled as Sandy SILT (A-4)								
				88.5	SS-18	50/.0			50/.0	>>
354.5										
	92.0									
		PARTIALLY WEATHERED ROCK		93.5						
		Extremely dense, moist, gray, sampled as Silty SAND (A-2-4)			SS-19	50/.0			50/.0	>>
349.5										
	98.6			98.5						
		Boring Terminated at 98.6 feet			SS-20	50/.0			50/.0	>>
344.5										
339.5										
334.5										
329.5										

LEGEND

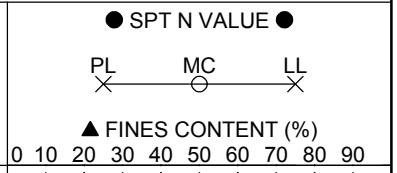
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-11
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	82+39.17	**Offset:**	13' RT	**Alignment:**	PROPOSED
Elev.:	440.6 ft	**Latitude:**	34.1923745	**Longitude:**	-81.3490529	**Date Started:**	8/25/2017
Total Depth:	83.5 ft	**Soil Depth:**	63.5 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		1.0	SS-1	12	11	13	24
	3.0	**RESIDUAL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		3.5	SS-2	6	11	15	26
435.6	5.5	Very stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica		6.0	SS-3	5	8	12	20
				8.5	SS-4	3	5	6	11
430.6				13.5	SS-5	3	5	5	10
425.6				18.5	SS-6	3	6	9	15
420.6				23.5	SS-7	7	11	15	26
415.6		LL=44, PL=39, PI=5, NMC=22.3, %200=89							
	27.0	Hard to very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		28.5	SS-8	12	18	22	40
410.6				33.5	SS-9	11	16	18	34
405.6				38.5	SS-10	12	14	15	29



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-11
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	82+39.17	**Offset:**	13' RT	**Alignment:**	PROPOSED
Elev.:	440.6 ft	**Latitude:**	34.1923745	**Longitude:**	-81.3490529	**Date Started:**	8/25/2017
Total Depth:	83.5 ft	**Soil Depth:**	63.5 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	42.0									
		PARTIALLY WEATHERED ROCK Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)		43.5	SS-11	30	40	50/5	50/5	>>
395.6	47.0	Hard, moist, tannish brown, Sandy SILT (ML) (A-4)		48.5	SS-12	20	32	48	80	
390.6	52.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan, sampled as Sandy SILT (A-4)		53.5	SS-13	50/3			50/3	>>
385.6	57.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish brown, sampled as Silty SAND (A-2-4)		58.5	SS-14	50/5			50/5	>>
380.6	63.5	Auger refusal at 63.5 feet. Started rock coring.		63.5	SS-15	50/0			50/0	>>
375.6		METAMUDSTONE, black, closely fractured, very slight weathering, hard		63.5	NQ-1					REC=25%, RQD=0%
370.6	67.9	METAMUDSTONE, black, closely fractured, very slight weathering, hard		67.9	NQ-2					~~REC=84%, RQD=0%, UCS=5008.5 psi~~
365.6	71.9	METAMUDSTONE, black, closely fractured, very slight weathering, hard		71.9	NQ-3					REC=42%, RQD=0%
	76.9	METATUFF, black, closely fractured, very slight weathering, hard		76.9	NQ-4					REC=92%, RQD=20%

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-11
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	82+39.17	**Offset:**	13' RT	**Alignment:**	PROPOSED
Elev.:	440.6 ft	**Latitude:**	34.1923745	**Longitude:**	-81.3490529	**Date Started:**	8/25/2017
Total Depth:	83.5 ft	**Soil Depth:**	63.5 ft	**Core Depth:**	20 ft	**Date Completed:**	8/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	81.9			81.9						
	83.5	METATUFF, black, closely fractured, very slight weathering, hard			NQ-5					REC=90%, RQD=79%, UCS=5731.7 psi
355.6		Boring terminated at 83.5 feet								
350.6										
345.6										
340.6										
335.6										
330.6										
325.6										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-12
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	81+13.08	**Offset:**	6' RT	**Alignment:**	PROPOSED
Elev.:	438.8 ft	**Latitude:**	34.1920318	**Longitude:**	-81.3489935	**Date Started:**	
Total Depth:	72 ft	**Soil Depth:**	50.5 ft	**Core Depth:**	21.5 ft	**Date Completed:**	
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.0	SS-1	3	6	12	18
	0.2	2.00" Topsoil Depth	2.0					
	2.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		SS-2	12	17	25	42
433.8		**FILL** Hard to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace gravel	4.0	SS-3	6	14	18	32
			6.0	SS-4	9	16	20	36
			8.0	SS-5	7	13	16	29
428.8	12.0	**RESIDUAL** Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-5) with trace mica LL=43, PL=35, PI=8, NMC=31, %200=83	13.5	SS-6	4	5	6	11
423.8			18.5	SS-7	5	8	8	16
418.8			23.5	SS-8	6	7	7	14
413.8			28.5	SS-9	10	12	12	24
408.8	32.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)	33.5	SS-10	50/3.5			50/3.5 >>
403.8			38.5	SS-11	50/2			50/2 >>

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-12
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-49
Eng./Geo.:	M. Bailey	**Boring Location:**	81+13.08	**Offset:**	6' RT	**Alignment:**	PROPOSED
Elev.:	438.8 ft	**Latitude:**	34.1920318	**Longitude:**	-81.3489935	**Date Started:**	
Total Depth:	72 ft	**Soil Depth:**	50.5 ft	**Core Depth:**	21.5 ft	**Date Completed:**	
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	42.0	**PARTIALLY WEATHERED ROCK** Very hard, wet, tannish brown, sampled as Sandy SILT (A-5)		43.5	SS-12	50/.25	50/.25	>>
393.8				48.5	SS-13	50/1.5	50/1.5	>>
388.8	50.5	Auger Refusal at 50.5 feet. Started rock coring.		50.5	NQ-1			REC=96%, RQD=44%
	51.9	METATUFF, grayish tan, very closely fractured, slight weathering, very hard		51.9				
383.8		METATUFF, grayish tan, very closely fractured, moderate weathering, very hard			NQ-2			REC=75%, RQD=21%, UCS=8859.7 psi
	57.2	METATUFF, grayish tan, very closely fractured, moderate weathering, very hard		57.2				
378.8					NQ-3			~~REC=68%, RQD=0%~~
	63.0	METATUFF, grayish tan, very closely fractured, slight weathering, very hard		63.0				
373.8					NQ-4			~~REC=95%, RQD=25%, UCS=11779.9~~ psi
	67.0	METATUFF, grayish tan, very closely fractured, slight weathering, very hard		67.0				
368.8					NQ-5			REC=86%, RQD=42%, UCS=14371.1 psi
	72.0	Boring terminated at 72.0 feet						
363.8								

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-13
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-405
Eng./Geo.:	M. Bailey	**Boring Location:**	124+68.73	**Offset:**	13' RT	**Alignment:**	PROPOSED
Elev.:	326.9 ft	**Latitude:**	34.166781	**Longitude:**	-81.2913979	**Date Started:**	8/30/2017
Total Depth:	26 ft	**Soil Depth:**	6 ft	**Core Depth:**	20 ft	**Date Completed:**	8/31/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	**RESIDUAL**		1.0						
		Medium dense, dry, tannish brown, Silty SAND (SM) (A-4) with trace mica and gravel-sized rock fragments			SS-1	11	9	15	24	●
	3.0			3.5						
		PARTIALLY WEATHERED ROCK			SS-2	34	37	63	100	●
321.9		Very hard, dry, tannish brown, sampled as Sandy SILT (A-5)		6.0						
	6.0			6.0	SS-3	60/0			60/0	>>●
		Auger refusal at 6.0 feet. Started rock coring.			NQ-1					REC=56%, RQD=16%, UCS=5877.7 psi
316.9		SLATE, grayish green, very closely fractured, slight weathering, very hard								
	11.0			11.0						
		SLATE, grayish green, very closely fractured, slight weathering, very hard			NQ-2					REC=68%, RQD=16%
311.9										
	16.0			16.0						
		SLATE, grayish green, very closely fractured, slight weathering, very hard			NQ-3					REC=100%, RQD=44%, UCS=6623.8 psi
306.9										
	21.0			21.0						
		SLATE, grayish green, very closely fractured, slight weathering, very hard			NQ-4					REC=70%, RQD=8%, UCS=6457.3 psi
301.9										
	26.0	Boring terminated at 26.0 feet								
296.9										
291.9										

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	

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SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-14
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-405
Eng./Geo.:	M. Bailey	**Boring Location:**	123+81.21	**Offset:**	4' RT	**Alignment:**	PROPOSED
Elev.:	326.5 ft	**Latitude:**	34.1665503	**Longitude:**	-81.2914801	**Date Started:**	8/16/2017
Total Depth:	28 ft	**Soil Depth:**	8 ft	**Core Depth:**	20 ft	**Date Completed:**	8/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	**FILL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		1.0						
					SS-1	7	13	17	30	●
	3.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, grayish brown, sampled as Silty SAND (A-2-4)		3.5						
					SS-2	50/4			50/4	>>
321.5	5.5	**PARTIALLY WEATHERED ROCK** Sampled as Rock fragments		6.0						
					SS-3	50/2			50/2	>>
	7.9	Auger refusal at 7.9 feet. Started rock coring.		7.9						
				7.9	SS-4	50/0			50/0	>>
316.5		SLATE, grayish green to white, very closely fractured, slight weathering, hard			NQ-1					REC=100%, RQD=42%, UCS=8335.1 psi
	12.9	SLATE, grayish green to white, very closely fractured, slight weathering, hard		12.9						
311.5					NQ-2					REC=100%, RQD=41%, UCS=7312.9 psi
	16.9			16.9						
	18.0	SLATE, grayish green to white, very closely fractured, slight weathering, hard		18.0	NQ-3					REC=100%, RQD=36%
306.5		SLATE, grayish green to white, very closely fractured, slight weathering, hard			NQ-4					REC=96%, RQD=39%
	23.0	SLATE, grayish green to white, very closely fractured, slight weathering, hard		23.0						
301.5					NQ-5					REC=100%, RQD=70%, UCS=5251.9 psi
	28.0	Boring terminated at 28.0 feet								
296.5										
291.5										

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	

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SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-15
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-405
Eng./Geo.:	M. Bailey	**Boring Location:**	122+79.58	**Offset:**	4' LT	**Alignment:**	PROPOSED
Elev.:	334.8 ft	**Latitude:**	34.16628	**Longitude:**	-81.2915717	**Date Started:**	9/29/2017
Total Depth:	35 ft	**Soil Depth:**	15 ft	**Core Depth:**	20 ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0		0.0	SS-1	7	11	11	22	
	0.3	3.00" Topsoil Depth							
	2.0	**FILL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel	2.0	SS-2	12	13	20	33	
			4.0	SS-3	26	30	52	82	
329.8	6.0	**RESIDUAL** Hard to very hard, moist, tannish brown, Sandy SILT (A-4)	6.0	SS-4	66	50	50/5	50/5	>>
		PARTIALLY WEATHERED ROCK Very hard, moist, tannish brown, sampled as Silty SAND (A-4) LL=28, PL=23, PI=5, NMC=10.5, %200=47	8.0	SS-5	50/5			50/5	>>
324.8	12.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Silty SAND (A-4)	13.5	SS-6	50/5			50/5	>>
319.8	15.0	Auger Refusal at 15 feet. Started rock coring	15.0	SS-7	50/0			50/0	>>
			15.0	NQ-1					REC=82%, RQD=43%, UCS=3094.3 psi
	18.0	SLATE, grayish green, very closely fractured, slight weathering, very hard	18.0						
314.8		SLATE, grayish green, very closely fractured, slight weathering, very hard		NQ-2					REC=92%, RQD=45%, UCS=4047.4 psi
	23.4		23.4						
309.8		SLATE, grayish green, very closely fractured, slight weathering, very hard		NQ-3					REC=81%, RQD=7%, UCS=2951.1 psi
	28.7		28.7						
304.8		SLATE, grayish green, very closely fractured, slight weathering, very hard		NQ-4					REC=86%, RQD=13%
	34.0		34.0						
299.8		SLATE, grayish green, very closely fractured, slight weathering, very hard		NQ-5					REC=110%, RQD=0%
	37.0	Boring terminated at 37.0 feet							

LEGEND

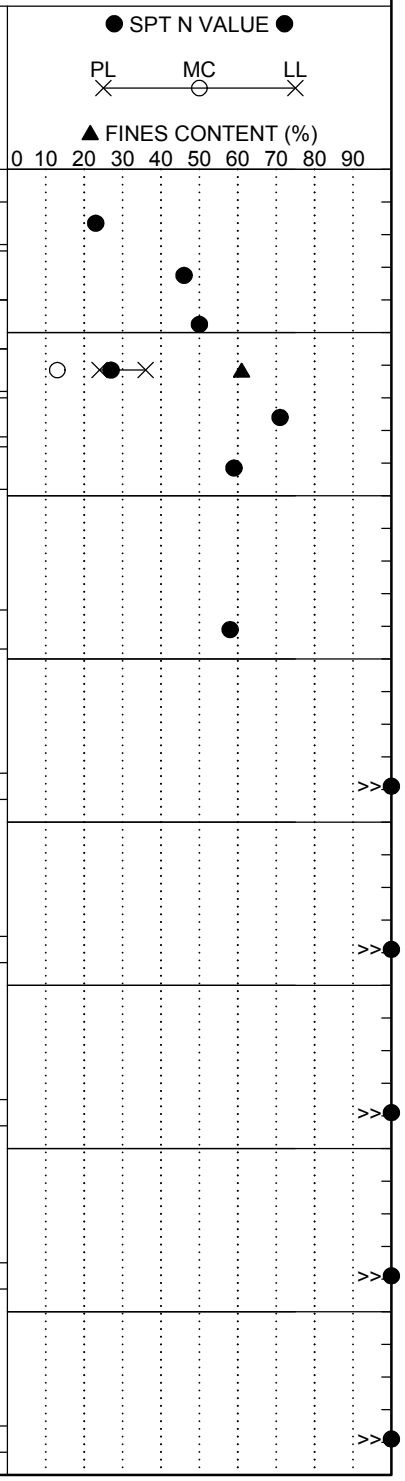
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-16
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	58+27.41	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	399.6 ft	**Latitude:**	34.1596886	**Longitude:**	-81.2728565	**Date Started:**	8/30/2017
Total Depth:	91.2 ft	**Soil Depth:**	71 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	19.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**	1.0					
		Medium dense, moist, orangish gray to brown, Silty SAND (SM) (A-2-5) with trace gravel	2.5	SS-1	8	9	14	23
	3.0		4.0	SS-2	16	21	25	46
		RESIDUAL	5.5	SS-3	19	22	28	50
394.6	5.5	Hard to very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)	7.0	SS-4	10	12	15	27
		Very stiff to hard, moist, orangish tan to brown, Sandy CLAY (CL) (A-6)	8.5	SS-5	11	31	40	71
		LL=36, PL=24, PI=12, NMC=13, %200=61		SS-6	18	25	34	59
389.6	10.0		13.5	SS-7	12	23	35	58
		Hard, moist, orangish tan, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments						
384.6			18.5	SS-8	50	50/2		50/2
	17.0	**PARTIALLY WEATHERED ROCK**						
		Very hard, moist, orangish tan to tannish brown, sampled as Sandy SILT (A-4)	23.5	SS-9	50/5			50/5
379.6								
374.6			28.5	SS-10	49	50/1		50/1
369.6			33.5	SS-11	50/1			50/1
364.6			38.5	SS-12	50/2			50/2



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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-16
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	58+27.41	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	399.6 ft	**Latitude:**	34.1596886	**Longitude:**	-81.2728565	**Date Started:**	8/30/2017
Total Depth:	91.2 ft	**Soil Depth:**	71 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	19.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				43.5	SS-13	50/1	50/1	>>
354.6	47.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist to wet, gray, sampled as Silty SAND (A-2-4)		48.5	SS-14	50/0	50/0	>>
349.6				53.5	SS-15	50/0.5	50/0.5	>>
344.6				58.5	SS-16	50/0.5	50/0.5	>>
339.6	62.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, gray, sampled as Silty SAND (A-4)		63.5	SS-17	50/1	50/1	>>
334.6				68.5	SS-18	50/0	50/0	>>
329.6	72.0	Auger Refusal at 72.0 feet. Started rock coring.		72.0	NQ-1			REC=64.9%, RQD=62.3%, UCS=4104.3 psi
324.6	75.3	QUARTZITE, gray, freshly weathered, moderately hard, very widely jointed		75.3				
	76.2	QUARTZITE, gray, freshly weathered, moderately hard, very widely jointed		76.2	NQ-2			REC=100%, RQD=100%
		QUARTZITE, gray, freshly weathered, moderately hard, very widely jointed			NQ-3			REC=95%, RQD=73.3%

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-16
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	58+27.41	**Offset:**	3' RT	**Alignment:**	PROPOSED
Elev.:	399.6 ft	**Latitude:**	34.1596886	**Longitude:**	-81.2728565	**Date Started:**	8/30/2017
Total Depth:	91.2 ft	**Soil Depth:**	71 ft	**Core Depth:**	20.2 ft	**Date Completed:**	9/22/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	19.5 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	81.2			81.2				
		QUARTZITE, gray, freshly weathered, moderately hard, very widely jointed			NQ-4			REC=100%, RQD=90%, UCS=4125.2 psi
314.6	86.2			86.2				
		QUARTZITE, gray, freshly weathered, moderately hard, slightly jointed			NQ-5			REC=41.7%, RQD=13.1%, UCS=2973.6 psi
309.6	93.2							
		Boring terminated at 93.2 feet						
304.6								
299.6								
294.6								
289.6								
284.6								

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-17
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	57+93.03	**Offset:**	1' RT	**Alignment:**	PROPOSED
Elev.:	399.6 ft	**Latitude:**	34.1596039	**Longitude:**	-81.2729042	**Date Started:**	8/15/2017
Total Depth:	73.5 ft	**Soil Depth:**	53.5 ft	**Core Depth:**	20 ft	**Date Completed:**	8/15/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.3	4.00" Topsoil Depth	0.0	SS-1	3	5	8	13
	2.0	**FILL** Medium dense, moist, tan to dark brown, Silty Fine to Coarse SAND (SM) (A-4) with slight roots	2.0	SS-2	10	15	21	36
	4.0		4.0	SS-3	7	7	10	17
394.6	6.0	**RESIDUAL** Hard, moist, tannish brown, Sandy SILT (ML) (A-4)	6.0	SS-4	12	15	29	44
		Very stiff, moist, orangish tan, Sandy SILT (ML) (A-5)	8.0	SS-5	16	49	50	99
389.6		Hard to very hard, moist, tannish brown, Sandy SILT (ML) (A-4)						
	12.0	LL=40, PL=28, PI=12, NMC=15.5, %200=79	13.5	SS-6	25	50/2		50/2
384.6		**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)	18.5	SS-7	50/3			50/3
379.6			23.5	SS-8	50/5			50/5
374.6								
	27.0	Very hard, moist, tan to dark brown, Sandy SILT (ML) (A-4) with slight gravel-sized rock fragments	28.5	SS-9	49	43	24	67
369.6								
			33.5	SS-10	18	30	39	69
364.6								
	37.0	**PARTIALLY WEATHERED ROCK** Very hard, wet, tan to dark brown, sampled as Sandy SILT (A-4)	38.5	SS-11	50/2			50/2

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-17
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	57+93.03	**Offset:**	1' RT	**Alignment:**	PROPOSED
Elev.:	399.6 ft	**Latitude:**	34.1596039	**Longitude:**	-81.2729042	**Date Started:**	8/15/2017
Total Depth:	73.5 ft	**Soil Depth:**	53.5 ft	**Core Depth:**	20 ft	**Date Completed:**	8/15/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	42.0	**PARTIALLY WEATHERED ROCK**					
354.6		Extremely dense, moist to wet, tannish brown to grayish brown, sampled as Silty SAND (A-4)	43.5	SS-12	50/2	50/2	>>
349.6			48.5	SS-13	50/2	50/2	>>
	53.5	Auger Refusal at 53.5 feet. Started rock coring.	53.5	SS-14	50/0	50/0	>>
344.6		SLATE, gray, closely fractured, slight weathering, hard	53.5	NQ-1			REC=94%, RQD=68%, UCS=6469.2 psi
	58.5		58.5				
339.6		SLATE, gray, moderately closely fractured, moderately severe weathering, hard		NQ-2			REC=90%, RQD=40%, UCS=4322.9 psi
	63.5		63.5				
334.6		SLATE, gray, closely fractured, very slight weathering, hard		NQ-3			REC=100%, RQD=84%, UCS=2176.3 psi
	68.5		68.5				
329.6		SLATE, gray, closely fractured, slight weathering, hard		NQ-4			REC=100%, RQD=56%
	73.5						
324.6		Boring Terminated at 73.5 feet					

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-18
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	57+02.10	**Offset:**	26' LT	**Alignment:**	PROPOSED
Elev.:	402.5 ft	**Latitude:**	34.1593988	**Longitude:**	-81.2731002	**Date Started:**	9/19/2017
Total Depth:	79.8 ft	**Soil Depth:**	58.5 ft	**Core Depth:**	21.3 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	16 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.3	4.00" Asphalt Depth	0.5					
	0.5	2.00" Stone Base		SS-1	3	6	14	20
	2.5	**FILL** Very stiff, moist, orangish brown, Sandy SILT (ML) (A-5)	2.5	SS-2	8	11	13	24
397.5	4.5		4.5	SS-3	4	7	11	18
	6.5	**RESIDUAL** Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-5)	6.5	SS-4	9	19	26	45
			8.5	SS-5	9	15	27	42
392.5		Medium dense, moist, orangish tan, Clayey SAND (SC) (A-2-6)						
		Hard, moist, tannish brown to orangish tan, Sandy SILT (ML) (A-4)	13.5	SS-6	14	14	23	37
387.5								
	17.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan, sampled as Sandy SILT (A-6) LL=40, PL=26, PI=14, NMC=18.5, %200=86	18.5	SS-7	24	39	61/4	61/4
382.5								
	22.0	Hard, moist, orangish tan, Sandy SILT (ML) (A-4)	23.5	SS-8	10	36	47	83
377.5								
	27.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan to grayish tan, sampled as Sandy SILT (A-4)	28.5	SS-9	46	50/3		50/3
372.5								
			33.5	SS-10	46	50/4		50/4
367.5								
			38.5	SS-11	50/2			50/2

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-18
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	S-234
Eng./Geo.:	M. Bailey	**Boring Location:**	57+02.10	**Offset:**	26' LT	**Alignment:**	PROPOSED
Elev.:	402.5 ft	**Latitude:**	34.1593988	**Longitude:**	-81.2731002	**Date Started:**	9/19/2017
Total Depth:	79.8 ft	**Soil Depth:**	58.5 ft	**Core Depth:**	21.3 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	16 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
357.5			43.5	SS-12	50/1	50/1	>>
352.5			48.5	SS-13	50/0	50/0	>>
347.5			53.5	SS-14	50/1	50/1	>>
	58.5	Auger Refusal at 58.5 feet. Started rock coring.	58.5				
	59.5	SLATE, gray, moderately jointed, slight weathering, moderately hard	58.5	SS-15	50/0	50/0	REC=88%, RQD=0% >>
342.5			59.5	NQ-1			
		SLATE, gray, slightly jointed, slight weathering, moderately hard		NQ-2			REC=70%, RQD=54.2%, UCS=4857.0 psi
	64.5		64.5				
337.5		SLATE, gray, very widely jointed, very slight weathering, moderately hard		NQ-3			REC=100%, RQD=82%
	69.8		69.8				
332.5		GRANITE, red-gray, highly jointed, slightly weathering, very hard		NQ-4			REC=6.7%, RQD=0%, UCS=7220.3 psi
	74.8		74.8				
327.5		SLATE, gray, moderately jointed, slight weathering, moderately hard		NQ-5			REC=80%, RQD=32.5%, UCS=5697.7 psi
	79.8						

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	B-18	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	S-234	
Eng./Geo.:	M. Bailey	**Boring Location:**	57+02.10	**Offset:**	26' LT	**Alignment:**	PROPOSED
Elev.:	402.5 ft	**Latitude:**	34.1593988	**Longitude:**	-81.2731002	**Date Started:**	9/19/2017
Total Depth:	79.8 ft	**Soil Depth:**	58.5 ft	**Core Depth:**	21.3 ft	**Date Completed:**	9/20/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	16 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 79.8 feet								
317.5										
312.5										
307.5										
302.5										
297.5										
292.5										
287.5										

LEGEND

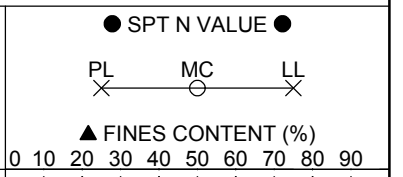
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	B-19
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	34+38.41	**Offset:**	4' RT	**Alignment:**	PROPOSED
Elev.:	383.0 ft	**Latitude:**	34.1463265	**Longitude:**	-81.2378848	**Date Started:**	8/28/2017
Total Depth:	57.4 ft	**Soil Depth:**	37.4 ft	**Core Depth:**	20 ft	**Date Completed:**	8/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, orangish brown, Silty SAND (SM) (A-4) with trace gravel		1.0	SS-1	8	7	8	15
	3.0	**RESIDUAL** Very dense, moist, orangish tan to brown, Silty CLAY (CL-ML) (A-4) with trace mica and gravel-sized rock fragments LL=30, PL=23, PI=7, NMC=13, %200=54		3.5	SS-2	31	36	40	76
378.0				6.0	SS-3	12	15	75	90
	8.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Silty SAND (A-2-4)		8.5	SS-4	50/5			50/5
373.0	12.0	Very dense, moist, grayish brown, Silty SAND (SM) (A-2-4) with trace mica and gravel-sized rock fragments		13.5	SS-5	25	26	28	54
368.0	17.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Silty SAND (A-2-4)		18.5	SS-6	50/1			50/1
363.0				23.5	SS-7	50/1			50/1
358.0				28.5	SS-8	50/1			50/1
353.0				33.5	SS-9	50/2			50/2
348.0									
	37.4	Auger Refusal at 37.4 feet. Started rock coring.		37.4	SS-10	50/0			50/0



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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-19
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	34+38.41	**Offset:**	4' RT	**Alignment:**	PROPOSED
Elev.:	383.0 ft	**Latitude:**	34.1463265	**Longitude:**	-81.2378848	**Date Started:**	8/28/2017
Total Depth:	57.4 ft	**Soil Depth:**	37.4 ft	**Core Depth:**	20 ft	**Date Completed:**	8/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D50	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	84%
Core Size:	NQ	**Driller:**	Patriot	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				41.4				
	42.4	SLATE, gray-white, open joint fractured, moderate weathering, hard		42.4	NQ-1			REC=36%, RQD=10%
338.0		SLATE, gray-white, closely fractured, fresh weathering, hard			NQ-2			~~REC=97%, RQD=80%, UCS=2243.0~~ psi
	47.4			47.4				
333.0		SLATE, gray-white, closely fractured, fresh to moderate weathering, hard			NQ-3			~~REC=97%, RQD=83%, UCS=1006.4~~ psi
	52.4			52.4				
328.0		SLATE, gray-white, very closely fractured, fresh weathering, hard			NQ-4			~~REC=100%, RQD=94%, UCS=2235.6~~ psi
	57.4	Boring terminated at 57.4 feet						
323.0								
318.0								
313.0								
308.0								

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-20
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	32+71.13	**Offset:**	9' RT	**Alignment:**	PROPOSED
Elev.:	371.8 ft	**Latitude:**	34.1458866	**Longitude:**	-81.2377208	**Date Started:**	8/14/2017
Total Depth:	61 ft	**Soil Depth:**	38.5 ft	**Core Depth:**	22.5 ft	**Date Completed:**	8/15/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Topsoil Depth		0.0	SS-1	2	7	9	16
	2.0	**FILL** Medium dense, moist, tan to dark brown, Silty SAND (SM) (A-4) with slight roots and gravel		2.0	SS-2	5	16	17	33
	4.0			4.0	SS-3	16	35	100/6	100/6
366.8		**RESIDUAL** Hard, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel-sized rock fragments LL=31, PL=26, PI=5, NMC=14, %200=60		6.0	SS-4	49	50/1		50/1
				8.0	SS-5	50/4			50/4
361.8		**PARTIALLY WEATHERED ROCK**							
	12.0	Very hard, moist, tannish brown to dark brown, sampled as Sandy SILT (A-4)		13.5	SS-6	50/2			50/2
		PARTIALLY WEATHERED ROCK							
356.8		Extremely dense, moist, tan to dark brown, sampled as Silty SAND (A-4)		18.5	SS-7	50/5			50/5
351.8				23.5	SS-8	50/5			50/5
346.8									
	27.0	Dense, wet, dark brown, Silty SAND (SM) (A-4) with slight gravel-sized rock fragments		28.5	SS-9	22	15	20	35
341.8									
	32.0	**PARTIALLY WEATHERED ROCK**		33.5	SS-10	50	50/4		50/4
		Extremely dense, wet, dark brown, sampled as Silty SAND (A-4)							
336.8		Auger Refusal at 38.5 feet. Started rock coring.							
	38.5	PHYLLITE, gray-white, moderately closely fractured, slight to moderate weathering.		38.5					

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-20
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	32+71.13	**Offset:**	9' RT	**Alignment:**	PROPOSED
Elev.:	371.8 ft	**Latitude:**	34.1458866	**Longitude:**	-81.2377208	**Date Started:**	8/14/2017
Total Depth:	61 ft	**Soil Depth:**	38.5 ft	**Core Depth:**	22.5 ft	**Date Completed:**	8/15/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA / RC	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		hard			NQ-1			REC=43%, RQD=46%
	41.5	PHYLLITE, gray-white, closely fractured, slight to moderate weathering, hard		41.5	NQ-2			REC=100%, RQD=38%, UCS=1624.3 psi
326.8	46.5	PHYLLITE, gray-white, very closely fractured, very slightly weathered, hard		46.5	NQ-3			REC=100%, RQD=100%, UCS=1375.5 psi
	48.5	PHYLLITE, gray-white, closely fractured, slight to moderate weathering, hard		48.5	NQ-4			REC=100%, RQD=30%
321.8	53.5	PHYLLITE, gray-white, closely fractured, very slight to slight weathering, hard		53.5	NQ-5			REC=100%, RQD=70%, UCS=2658.0 psi
316.8	58.5	PHYLLITE, gray-white, moderately closely fractured, slight to moderate weathering, hard		58.5	NQ-6			REC=68%, RQD=53%
311.8	61.0	Boring Terminated at 61.0 feet						
306.8								
301.8								
296.8								

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-21
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	31+53.84	**Offset:**	12' RT	**Alignment:**	PROPOSED
Elev.:	370.6 ft	**Latitude:**	34.1455792	**Longitude:**	-81.2376028	**Date Started:**	9/22/2017
Total Depth:	41 ft	**Soil Depth:**	35 ft	**Core Depth:**	6 ft	**Date Completed:**	9/23/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / NQ	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0	**FILL** Stiff to very stiff, moist, orangish tan to brown, Elastic SILT (MH) (A-5) with trace gravel		0.0	SS-1	2	4	5	9	
				2.5	SS-2	7	7	10	17	
365.6	5.5	**RESIDUAL** Hard, moist, tannish brown, Sandy CLAY (CL) (A-6)		4.5	SS-3	2	7	14	21	
	8.0	LL=30, PL=17, PI=13, NMC=12.4, %200=62		6.5	SS-4	13	25	41	66	
360.6		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish brown, sampled as Silty SAND (A-4)		8.5	SS-5	14	45	50/4	50/4	>>
	12.0	Extremely dense, moist, orangish brown, Silty SAND (SM) (A-4) with trace mica		13.5	SS-6	16	29	35	64	
355.6	17.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan to dark brown, sampled as Silty SAND (A-2-4)		18.5	SS-7	31	42	50/4	50/4	>>
350.6	22.0	**PARTIALLY WEATHERED ROCK** Very hard, wet, tan to dark brown, sampled as Plastic CLAY (A-7-5)		23.5	SS-8	50/4			50/4	>>
345.6	27.0	**PARTIALLY WEATHERED ROCK** Very dense, wet to moist, tannish gray, sampled as Silty SAND (A-4)		28.5	SS-9	50/3			50/3	>>
340.6				33.5	SS-10	50/0			50/0	>>
335.6	35.0	Auger Refusal at 35.0 feet. Started rock coring.		35.0						
				35.1	SS-11	50/0			50/0	>>
	38.0	METAGRAYWACKE, white to dark gray, closely fractured, moderate weathering, moderately hard			NQ-1					REC=67%, RQD=33%
		METAGRAYWACKE, white to dark gray,		38.0	NQ-2					REC=72%, RQD=56%

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	B-21
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	US 176
Eng./Geo.:	M. Bailey	**Boring Location:**	31+53.84	**Offset:**	12' RT	**Alignment:**	PROPOSED
Elev.:	370.6 ft	**Latitude:**	34.1455792	**Longitude:**	-81.2376028	**Date Started:**	9/22/2017
Total Depth:	41 ft	**Soil Depth:**	35 ft	**Core Depth:**	6 ft	**Date Completed:**	9/23/2017
Bore Hole Diameter (in):	4	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	4" Mud Rotary / R	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:	NQ	**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	41.0	closely fractured, moderate weathering, moderately hard		41.0				
		METAGRAYWACKE, white to dark gray, closely fractured, moderate weathering, moderately hard			NQ-3			REC=88%, RQD=48%, UCS=2886.6 psi
325.6	46.0			46.0				
		METAGRAYWACKE, white to dark gray, closely fractured, moderate weathering, moderately hard			NQ-4			REC=83%, RQD=4%, UCS=10440.2 psi
320.6	51.0			51.0				
		METAGRAYWACKE, white to dark gray, closely fractured, moderate weathering, moderately hard			NQ-5			REC=78%, RQD=45%, UCS=1698.2 psi
315.6	56.0			56.0				
		METAGRAYWACKE, white to dark gray, closely fractured, moderate weathering, moderately hard			NQ-6			REC=100%, RQD=35%
	59.0	Boring terminated at 59.0 feet						
310.6								
305.6								
300.6								
295.6								

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	

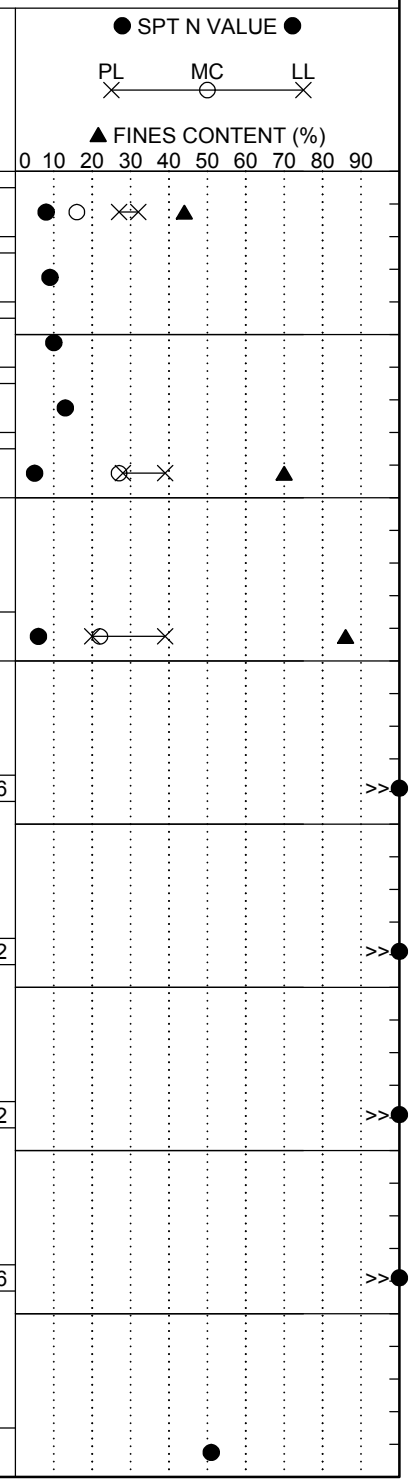
SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/30/18

SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	C-1		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	I-26		
Eng./Geo.:	M. Bailey	**Boring Location:**	1073+42.09	**Offset:**	147' LT	**Alignment:**	PROP_I26_CL
Elev.:	305.3 ft	**Latitude:**	34.1727326	**Longitude:**	-81.3107519	**Date Started:**	9/27/2017
Total Depth:	47.1 ft	**Soil Depth:**	47.1 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** 37 ft	**24HR**	37 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION
	0.0	**FILL** Loose, moist, reddish brown to tan, Silty Fine to Medium SAND (SM) (A-4) LL=32, PL=27, PI=5, NMC=15.6, %200=44.0
300.3	4.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with slight gravel
295.3	8.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-6) with slight gravel LL=39, PL=28, PI=11, NMC=26.8, %200=70.1
290.3	12.0	**FILL** Medium stiff, moist, reddish tan to gray, Sandy CLAY (CL) (A-6) LL=39, PL=20, PI=19, NMC=21.9, %200=86.0
285.3	17.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, reddish brown, sampled as Sandy CLAY (A-6) with slight gravel-sized rock fragmments
280.3	22.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tan, sampled as Sandy SILT (A-4)
275.3		
270.3		
	37.0	Very hard, moist, tan, Sandy SILT (ML) (A-4)

Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
0.5	SS-1	3	4	4	8
2.5	SS-2	5	4	5	9
4.5	SS-3	2	4	6	10
6.5	SS-4	6	5	8	13
8.5	SS-5	2	3	2	5
13.5	SS-6	3	3	3	6
18.5	SS-7	50/6			50/6
23.5	SS-8	15	50/2		50/2
28.5	SS-9	36	50/2		50/2
33.5	SS-10	50/6			50/6
38.5	SS-11	10	26	25	51



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-1
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1073+42.09	**Offset:**	147' LT	**Alignment:**	PROP_I26_CL
Elev.:	305.3 ft	**Latitude:**	34.1727326	**Longitude:**	-81.3107519	**Date Started:**	9/27/2017
Total Depth:	47.1 ft	**Soil Depth:**	47.1 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** 37 ft	**24HR**	37 ft

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	42.0	**PARTIALLY WEATHERED ROCK**							
		Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)		43.5	SS-12	37	50/4		50/4
260.3	47.1			47.0	SS-13	50/1			50/1
		Auger refusal at 47.1 feet							
255.3									
250.3									
245.3									
240.3									
235.3									
230.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-2
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1072+81.88	**Offset:**	114' LT	**Alignment:**	PROP_I26_CL
Elev.:	304.4 ft	**Latitude:**	34.1727667	**Longitude:**	-81.3105272	**Date Started:**	10/16/2017
Total Depth:	58.6 ft	**Soil Depth:**	58.6 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, moist, dark brown to brown, Sandy SILT (ML) (A-4) with trace gravel		0.0 2.0	SS-1	2	4	4	8
					SS-2	10	5	7	12
	4.0	**RESIDUAL** Medium dense, moist, brown to grayish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel-sized rock fragments		4.0	SS-3	9	12	1	13
299.4				6.0	SS-4	3	4	6	10
	8.0	LL=37, PL=33, PI=4, NMC=17.3, %200=42.8		8.0	SS-5	2	3	6	9
294.4		Stiff, moist, grayish brown, Sandy SILT (ML) (A-5) with trace rocks							
	12.0	Medium stiff, moist, brown, Sandy SILT (ML) (A-6)		13.5	SS-6	2	3	4	7
289.4		LL=40, PL=28, PI=12, NMC=25.3, %200=74.9							
	17.0	Very hard, moist, grayish brown, Sandy SILT (ML) (A-5)		18.5	SS-7	15	30	48	78
284.4									
	22.0	**PARTIALLY WEATHERED ROCK** Extremeley hard, moist, tannish brown, sampled as Sandy SILT (A-5)		23.5	SS-8	50/5			50/5
279.4									
	27.0	**RESIDUAL** Very hard, moist, tannish gray, Sandy SILT (ML) (A-5)		28.5	SS-9	14	30	50	80
274.4									
	32.0	**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, Sandy SILT (ML) (A-5)		33.5	SS-10	50/4			50/4
269.4				38.5	SS-11	50/5			50/5

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-2
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1072+81.88	**Offset:**	114' LT	**Alignment:**	PROP_I26_CL
Elev.:	304.4 ft	**Latitude:**	34.1727667	**Longitude:**	-81.3105272	**Date Started:**	10/16/2017
Total Depth:	58.6 ft	**Soil Depth:**	58.6 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
259.4				43.5	SS-12	50/3			50/3
254.4				48.5	SS-13	50/2			50/2
	52.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, Silty SAND (SM) (A-2-4)		53.5	SS-14	50/1			50/1
249.4									
	58.6	Auger refusal at 58.6 feet		58.5	SS-15	50/1			50/1
244.4									
239.4									
234.4									
229.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-3
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1071+74.36	**Offset:**	40' LT	**Alignment:**	PROP_I26_CL
Elev.:	295.3 ft	**Latitude:**	34.1728626	**Longitude:**	-81.3101111	**Date Started:**	8/17/2017
Total Depth:	52 ft	**Soil Depth:**	52 ft	**Core Depth:**	ft	**Date Completed:**	8/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		1.0					
	3.0	LL=36, PL=30, PI=6, NMC=11.0, %200=59.9			SS-1	6	6	7	13
290.3	5.5	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with slight gravel		3.5	SS-2	3	5	5	10
	8.0	**RESIDUAL** Very soft, wet, grayish brown, Sandy CLAY (CL) (A-6)		6.0	SS-3	1	1	1	2
285.3	12.0	Stiff, moist, grayish-brown, Sandy Silty CLAY (CL-ML) (A-4) LL=26, PL=20, PI=6, NMC=20.0, %200=66.0		8.5	SS-4	2	4	6	10
				13.5	SS-5	17	50/3		50/3
280.3		**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan to brown, sampled as Sandy SILT (A-4)		18.5	SS-6	50/3			50/3
275.3				23.5	SS-7	50/2			50/2
270.3				28.5	SS-8	50/2			50/2
265.3				33.5	SS-9	50/2			50/2
260.3				38.5	SS-10	50/2			50/2

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-3
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1071+74.36	**Offset:**	40' LT	**Alignment:**	PROP_I26_CL
Elev.:	295.3 ft	**Latitude:**	34.1728626	**Longitude:**	-81.3101111	**Date Started:**	8/17/2017
Total Depth:	52 ft	**Soil Depth:**	52 ft	**Core Depth:**	ft	**Date Completed:**	8/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				43.5	SS-11	40	50/2		50/2	>>
250.3										
				48.5	SS-12	50/2			50/2	>>
245.3										
	52.0	Auger refusal at 52.0 feet		52.0	SS-13	50/0			50/0	>>
240.3										
235.3										
230.3										
225.3										
220.3										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-4
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1071+50.04	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	303.9 ft	**Latitude:**	34.1730616	**Longitude:**	-81.3099456	**Date Started:**	10/5/2017
Total Depth:	55 ft	**Soil Depth:**	55 ft	**Core Depth:**	ft	**Date Completed:**	10/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.7	8.00" Asphalt Depth						
	1.0	4.00" Stone Base	1.0					
	3.0	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel	3.0	SS-1	10	10	12	22
298.9			5.0	SS-2	2	4	7	11
	7.0	**FILL** Stiff to very stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-4) with trace gravel	7.0	SS-3	6	9	8	17
	9.0	LL=32, PL=27, PI=5, NMC=15.1, %200=60.3	9.0	SS-4	3	4	4	8
293.9				SS-5	3	4	7	11
	12.0	**FILL** Medium stiff, moist, reddish brown to gray, Elastic SILT (MH) (A-7-5) with trace gravel	13.5	SS-6	14	10	7	17
288.9		**FILL** Medium dense, wet, reddish brown, Silty Fine to Medium SAND (SM) (A-2-4)						
	17.0	**FILL** Very stiff, wet, reddish brown, Sandy SILT (ML) (A-4)	18.5	SS-7	10	20	18	38
283.9		LL=32, PL=28, PI=4, NMC=27.6, %200=54.3						
	22.0	**FILL** Dense, wet, reddish brown, Silty Fine to Medium SAND (SM) (A-2-4)	23.5	SS-8	4	23	50/2	50/2
278.9								
	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, brown, sampled as Sandy SILT (A-5)	28.5	SS-9	50/1			50/1
273.9		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Sandy SILT (A-4)						
	32.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, grayish brown, sampled as Silty SAND (A-4)	33.5	SS-10	50/.25			50/.25
268.9								
	37.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Sandy SILT (A-5)	38.5	SS-11	50/1			50/1

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-4
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1071+50.04	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	303.9 ft	**Latitude:**	34.1730616	**Longitude:**	-81.3099456	**Date Started:**	10/5/2017
Total Depth:	55 ft	**Soil Depth:**	55 ft	**Core Depth:**	ft	**Date Completed:**	10/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
				43.5	SS-12	50/1			50/1
258.9	47.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, brown, sampled as Sandy SILT (A-5)		48.5	SS-13	50/1			50/1
253.9	52.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, gray, sampled as Sandy SILT (A-4)		53.5	SS-14	50/.5			50/5
248.9	55.0	Auger refusal at 55.0 feet		55.0	SS-15	50/0			50/0
243.9									
238.9									
233.9									
228.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-5
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1079+50.45	**Offset:**	10' RT	**Alignment:**	PROP_I26_CL
Elev.:	312.1 ft	**Latitude:**	34.1736917	**Longitude:**	-81.3124829	**Date Started:**	8/22/2017
Total Depth:	28.6 ft	**Soil Depth:**	28.6 ft	**Core Depth:**	ft	**Date Completed:**	8/22/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		1.0					
					SS-1	10	8	9	17
	3.0	**FILL** Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel LL=31, PL=26, PI=5, NMC=18.9, %200=66.0		3.5					
307.1					SS-2	5	8	11	19
				6.0					
					SS-3	4	9	8	17
				8.5					
					SS-4	1	6	12	18
302.1									
				13.5					
					SS-5	1	6	11	17
297.1									
	17.0	**PARTIALLY WEATHERED ROCK** Very hard, moist to wet, grayish brown to gray, sampled as Sandy SILT (A-5)		18.5					
					SS-6	50/2			50/2
292.1									
				23.5					
					SS-7	50/1			50/1
287.1									
	27.0	**PARTIALLY WEATHERED ROCK**							
	28.6	Very hard, moist, gray, sampled as Sandy SILT (A-4)		28.5					
					SS-8	50/1			50/1
282.1		Auger refusal at 28.6 feet							
277.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-6
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1078+46.18	**Offset:**	79' RT	**Alignment:**	PROP_I26_CL
Elev.:	309.4 ft	**Latitude:**	34.1737732	**Longitude:**	-81.3120816	**Date Started:**	10/5/2017
Total Depth:	48.5 ft	**Soil Depth:**	48.5 ft	**Core Depth:**	ft	**Date Completed:**	10/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	2.00" Topsoil Depth		0.0	SS-1	5	12	13	25
		RESIDUAL Very stiff to hard, dry to moist, reddish brown to tannish brown, Sandy SILT (ML) (A-4)		2.0	SS-2	8	12	16	28
304.4		LL=37, PL=32, PI=5, NMC=14.8, %200=62.8		4.0	SS-3	4	9	14	23
				6.0	SS-4	10	18	19	37
	8.0			8.0					
		Very hard, moist, tannish brown, Sandy SILT (ML) (A-4)			SS-5	18	37	50	87
299.4									
	12.0	**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, sampled as Sandy SILT (A-5)		13.5	SS-6	50	50/1		50/1
294.4									
	17.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, grayish brown, sampled as Silty SAND (A-4)		18.5	SS-7	50/4			50/4
289.4									
	22.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, tannish brown, sampled as gravel-sized rock fragments		23.5	SS-8	50/1			50/1
284.4									
	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, grayish tan, sampled as Clayey SAND (A-2-6)		28.5	SS-9	50/1.5			50/1.5
279.4									
	32.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, grayish tan, Silty SAND (A-4)		33.5	SS-10	50/1			50/1
274.4									
	37.0	**PARTIALLY WEATHERED ROCK** No recovery		38.5	SS-11	50/1			50/1

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	C-6
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1078+46.18	**Offset:**	79' RT	**Alignment:**	PROP_I26_CL
Elev.:	309.4 ft	**Latitude:**	34.1737732	**Longitude:**	-81.3120816	**Date Started:**	10/5/2017
Total Depth:	48.5 ft	**Soil Depth:**	48.5 ft	**Core Depth:**	ft	**Date Completed:**	10/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
				43.5	SS-12	50/1			50/1
264.4									
	48.5			48.5					
		Auger refusal at 48.5 feet			SS-13	50/0			50/0
259.4									
254.4									
249.4									
244.4									
239.4									
234.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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LEGEND

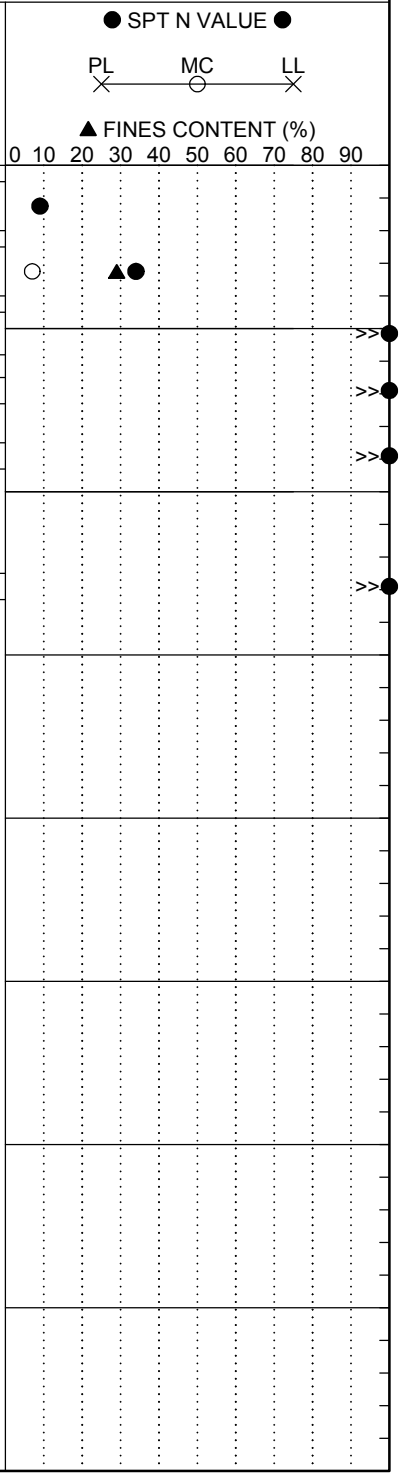
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-01
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1433+41.78	**Offset:**	2' RT	**Alignment:**	PROPOSED
Elev.:	435.0 ft	**Latitude:**	34.2212376	**Longitude:**	-81.4140163	**Date Started:**	9/5/2017
Total Depth:	12.5 ft	**Soil Depth:**	12.5 ft	**Core Depth:**	ft	**Date Completed:**	9/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		2.5	SS-1	3	4	5	9
	4.0	**RESIDUAL**		4.5	SS-2	8	12	22	34
430.0		Dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4) LL=NP, PL=NP, PI=NP, NMC=6.6, %200=29		6.5	SS-3	13	50	50/3	50/3
				8.5	SS-4	50/4			50/4
425.0		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, orangish tan to tan, sampled as Silty Sand (A-2-4)			SS-5	50/4			50/4
	12.5	Auger refusal at 12.5 feet		12.5	SS-6	50/0			50/0
420.0									
415.0									
410.0									
405.0									
400.0									



LEGEND

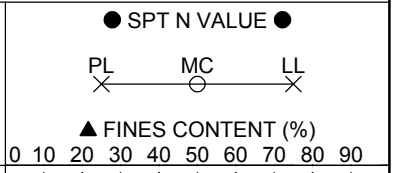
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-02
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1428+98.84	**Offset:**	32' LT	**Alignment:**	PROPOSED
Elev.:	449.9 ft	**Latitude:**	34.220366	**Longitude:**	-81.4130038	**Date Started:**	9/5/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4) with slight roots		0.5	SS-1	5	5	6	11
	2.0			2.5	SS-2	4	5	6	11
444.9		**RESIDUAL** Stiff to very stiff, moist, tannish brown to grayish brown, Sandy SILT (ML) (A-7-5) with trace mica LL=43, PL=32, PI=11, NMC=15.0, %200=54		4.5	SS-3	4	4	5	9
				6.5	SS-4	7	6	6	12
				8.5	SS-5	3	5	9	14
439.9									
				13.5	SS-6	14	11	7	18
434.9									
				18.5	SS-7	4	5	6	11
429.9	20.0	Boring terminated at 20.0 feet							
424.9									
419.9									
414.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-03	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1423+13.69	**Offset:**	147' LT	**Alignment:**	PROPOSED
Elev.:	447.7 ft	**Latitude:**	34.2189864	**Longitude:**	-81.411692	**Date Started:**	9/6/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**	0.5					
	2.0	Loose, moist, orangish tan, Silty Fine to Coarse SAND (SM) (A-4) with slight rocks		SS-1	3	4	4	8
			2.5	SS-2	3	4	4	8
		RESIDUAL	4.5					
442.7		Medium stiff to stiff, moist, orangish tan, Plastic CLAY (CH) (A-7-6)		SS-3	3	4	6	10
	6.5	LL=51, PL=28, PI=23, NMC=32.5, %200=83	6.5	SS-4	3	3	6	9
			8.5	SS-5	3	6	8	14
437.7		Stiff to medium stiff, moist, Sandy SILT (ML) (A-4) with slight mica						
			13.5	SS-6	4	5	6	11
432.7								
			18.5	SS-7	2	3	5	8
427.7	20.0	Boring terminated at 20.0 feet						
422.7								
417.7								
412.7								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-04	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	90+18.78	**Offset:**	2' LT	**Alignment:**	PROPOSED
Elev.:	446.4 ft	**Latitude:**	34.2194798	**Longitude:**	-81.4108641	**Date Started:**	9/6/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6)			SS-1	6	7	7	14
	4.0	**RESIDUAL**		2.5					
441.4		Very stiff, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)			SS-2	8	9	13	22
	6.0	LL=28, PL=23, PI=5, NMC=8.4, %200=38		4.5					
	8.0	Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4)			SS-3	18	31	43	74
436.4		Very hard, moist, tannish brown, Sandy SILT (ML) (A-5)		6.5					
		Hard to very hard, moist, tan to brown, Sandy SILT (ML) (A-4) with mica			SS-4	17	27	34	61
				8.5					
					SS-5	17	23	21	44
				13.5					
431.4					SS-6	17	27	47	74
	17.0	Very stiff, moist, tan to brown, Sandy SILT (ML) (A-4) with mica		18.5					
					SS-7	6	10	14	24
426.4	20.0	Boring terminated at 20.0 feet							
421.4									
416.4									
411.4									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-05	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1425+83.95	**Offset:**	9' LT	**Alignment:**	PROPOSED
Elev.:	444.4 ft	**Latitude:**	34.2197691	**Longitude:**	-81.4122506	**Date Started:**	9/6/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5	SS-1	3	3	6	9
	2.0	Stiff, moist, reddish brown, Clayey SAND (SC) (A-2-6)		2.5	SS-2	4	4	5	9
		RESIDUAL		4.5	SS-3	3	4	5	9
439.4		Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-4) with trace mica		6.5	SS-4	5	6	9	15
		LL=41, PL=37, PI=4, NMC=18.7, %200=64		8.5	SS-5	3	6	10	16
434.4	12.0	Medium dense, moist, tanish brown, Silty Fine to Medium SAND (SM) (A-4)		13.5	SS-6	8	9	12	21
429.4	17.0	Dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4)		18.1	SS-7	15	21	28	49
424.4	20.0	Boring terminated at 20.0 feet							
419.4									
414.4									
409.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208		**County:**	Lexington	**Boring No.:**	R-06	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1426+22.07	**Offset:**	220' RT	**Alignment:**	PROPOSED
Elev.:	431.9 ft	**Latitude:**	34.220266	**Longitude:**	-81.4117643	**Date Started:**	9/6/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4) with gravel	0.5	SS-1	8	9	12	21
	2.0		2.5	SS-2	4	6	8	14
	4.0	**FILL** Stiff, moist, reddish brown to orangish brown, Sandy CLAY (CL) (A-7-6) LL=44, PL=24, PI=20, NMC=10.6, %200=72	4.5	SS-3	5	10	12	22
426.9	6.0		6.5	SS-4	6	11	7	18
			8.5	SS-5	4	4	3	7
421.9		**RESIDUAL** Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)						
		Medium dense to loose, moist, orangish tan to brown, Silty Fine to Medium SAND (SM) (A-4) NMC=10.1	13.5	SS-6	4	5	6	11
416.9	17.0							
		Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4)	18.5	SS-7	10	13	12	25
411.9	20.0	Auger refusal at 20.0 feet						
406.9								
401.9								
396.9								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-07	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1431+97.93	**Offset:**	204' LT	**Alignment:**	PROPOSED
Elev.:	439.6 ft	**Latitude:**	34.2216219	**Longitude:**	-81.413114	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** 12 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Dense, moist, reddish brown, Silty Fine to Coarse SAND (SM) (A-2-4) with trace roots and gravel			SS-1	4	14	17	31
	4.0			2.5	SS-2	8	9	14	23
434.6				4.5	SS-3	10	12	13	25
	6.0	**FILL** Medium dense, moist, reddish-tan, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel		6.5	SS-4	9	13	16	29
		RESIDUAL Medium dense, moist, tan, Silty Fine to Medium SAND (SM) (A-2-4)		8.5	SS-5	6	13	13	26
429.6		Medium dense to dense, moist, tan to grayish brown, Silty Fine to Medium SAND (SM) (A-4) LL=33, PL=27, PI=6, NMC=8.1, %200=39		13.5	SS-6	10	18	24	42
424.6									
				18.5	SS-7	10	13	25	38
419.6	20.0	Boring terminated at 20.0 feet							
414.6									
409.6									
404.6									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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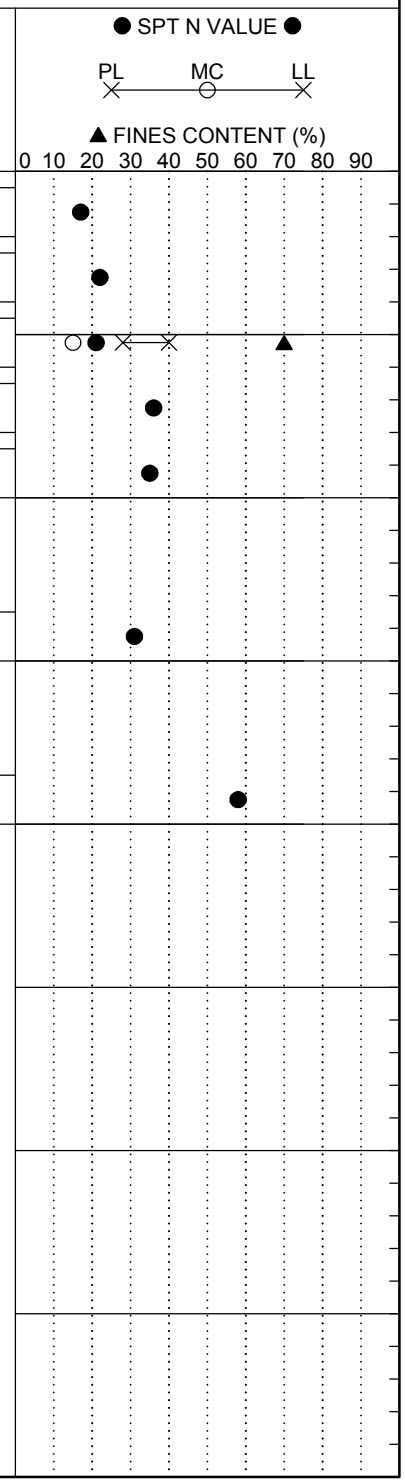
SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	R-08		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	I-26		
Eng./Geo.:	M. Bailey	**Boring Location:**	1431+40.35	**Offset:**	50' RT	**Alignment:**	PROPOSED
Elev.:	434.2 ft	**Latitude:**	34.2219522	**Longitude:**	-81.41174	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** 15 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.1	1.00" Topsoil Depth	0.5					
		RESIDUAL Medium dense to dense, moist, tan, Sandy SILT (ML) (A-6) with slight roots LL=40, PL=28, PI=12, NMC=14.7, %200=70		SS-1	7	9	8	17
			2.5	SS-2	8	10	12	22
429.2			4.5	SS-3	8	8	13	21
			6.5	SS-4	10	15	21	36
	8.0	Dense to very dense, moist, tannish brown to orangish brown, Silty Fine to Medium SAND (SM) (A-4)	8.5	SS-5	13	16	19	35
424.2								
			13.5	SS-6	10	14	17	31
419.2								
			18.5	SS-7	12	22	36	58
414.2	20.0	Boring terminated at 20.0 feet						
409.2								
404.2								
399.2								



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	

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SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-09
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	99+62.37	**Offset:**	33' LT	**Alignment:**	PROPOSED
Elev.:	413.3 ft	**Latitude:**	34.2220406	**Longitude:**	-81.4103805	**Date Started:**	9/9/2017
Total Depth:	13.2 ft	**Soil Depth:**	13.2 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** 10 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.6	7.00" Asphalt Depth		0.5					
	2.0	**FILL** Medium dense, moist, reddish brown, Silty Fine to Medium SAND (SM) (A-4) with slight roots			SS-1	12	8	6	14
	4.0			2.5	SS-2	26	50/6		50/6
408.3				4.5	SS-3	10	16	20	36
	6.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, gray, sampled as Silty Fine to Medium SAND (A-2-4)		6.5	SS-4	6	36	51	87
	8.0	**RESIDUAL** Dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with slight mica		8.5	SS-5	42	50/6		50/6
403.3									
	13.2	Very dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4) with slight mica		13.0	SS-6	50/2			50/2
398.3		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan to white, sampled as Silty SAND (A-2-4)							
		Auger Refusal at 13.2 feet							
393.3									
388.3									
383.3									
378.3									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

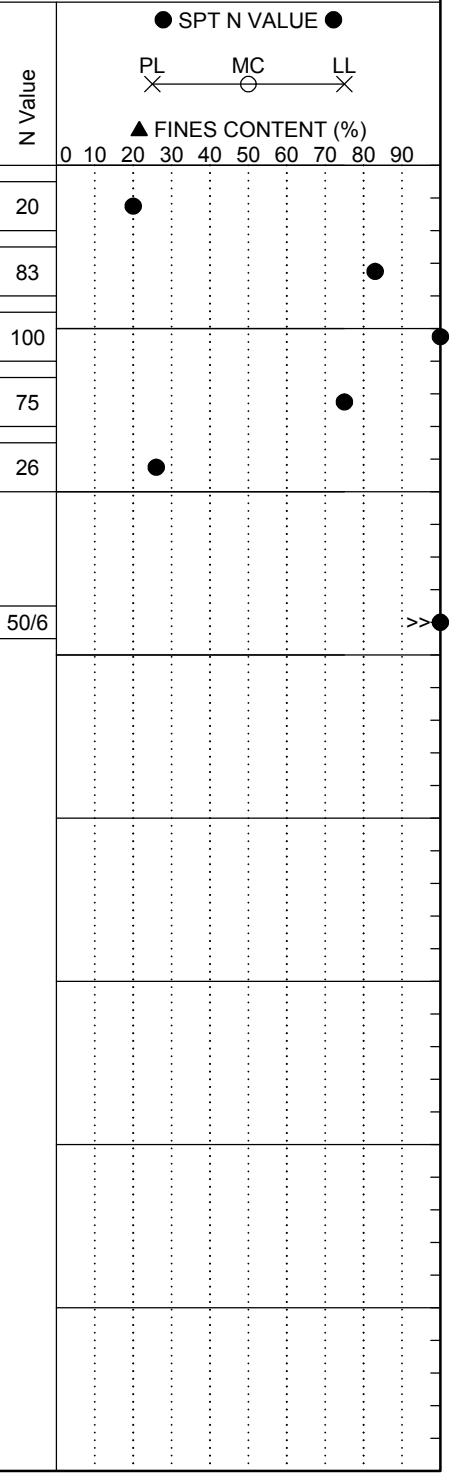
LEGEND

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:	029208			**County:**	Lexington	**Boring No.:**	R-10
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	97+45.34	**Offset:**	13' RT	**Alignment:**	PROPOSED
Elev.:	422.3 ft	**Latitude:**	34.2214325	**Longitude:**	-81.4103612	**Date Started:**	9/9/2017
Total Depth:	16 ft	**Soil Depth:**	16 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Medium dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)		2.5	SS-1	8	8	12	20
	4.0			4.5	SS-2	12	35	48	83
417.3	6.0	Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4)		6.5	SS-3	26	69	31	100
	8.0	Very dense, moist, tan, sampled as Silty Fine to Medium SAND (A-2-4)		8.5	SS-4	12	31	44	75
412.3		Very dense, moist, tan, Silty Fine to Medium SAND (SM) (A-2-4)			SS-5	8	10	16	26
	12.0	Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with slight mica		13.5	SS-6	21	50/6		50/6
407.3	16.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan to light brown, sampled as Silty Fine to Coarse SAND (A-2-4)							
		Auger Refusal at 16.0 feet							
402.3									
397.3									
392.3									
387.3									



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	

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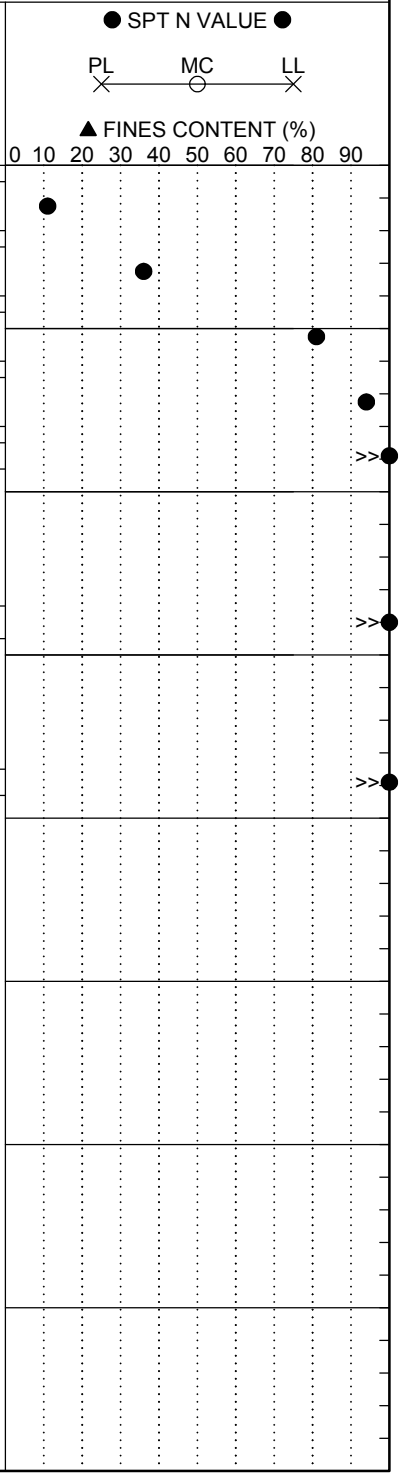
SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-11
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1433+83.44	**Offset:**	107' RT	**Alignment:**	PROPOSED
Elev.:	422.6 ft	**Latitude:**	34.2219511	**Longitude:**	-81.4110491	**Date Started:**	9/9/2017
Total Depth:	19.1 ft	**Soil Depth:**	19.1 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, brown, Silty Fine to Medium SAND (SM) (A-4)			SS-1	2	2	9	11
		RESIDUAL		2.5					
					SS-2	6	15	21	36
417.6		Dense to very dense, moist, brown, Silty Fine to Medium SAND (SM) (A-4) with slight roost and mica		4.5					
	6.0				SS-3	26	37	44	81
				6.5					
	8.0	Very dense, moist, grayish brown, Silty Fine to Medium SAND (SM) (A-2-4)			SS-4	15	35	59	94
				8.5					
					SS-5	45	50/2		50/2
412.6		**PARTIALLY WEATHERED ROCK**							
		Extremely dense, moist, grayish brown, sampled as Silty SAND (A-2-4)							
				13.5					
					SS-6	22	50/6		50/6
407.6									
				18.5					
	19.1				SS-7	70	50/2		50/2
402.6		Auger Refusal at 19.1 feet							
397.6									
392.6									
387.6									



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	

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SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	R-12
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1426+43.83	**Offset:**	108' RT	**Alignment:**	PROPOSED
Elev.:	428.0 ft	**Latitude:**	34.2211806	**Longitude:**	-81.4115285	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5	SS-1	9	5	6	11
	2.0	Medium dense, moist, tan, Silty Fine to Coarse SAND (SM) (A-4) with slight gravel-sized rock fragments		2.5	SS-2	4	5	7	12
423.0	4.0	LL=NP, PL=NP, PI=NP, NMC=2.5, %200=23		4.5	SS-3	4	4	7	11
		Medium dense, moist, tan, Silty Fine to Coarse SAND (SM) (A-2-4) with slight gravel-sized rock fragments		6.5	SS-4	5	5	6	11
418.0		Stiff to very stiff, moist, tannish brown to orangish brown, Sandy SILT (ML) (A-7-6) with slight mica		8.5	SS-5	7	7	9	16
		LL=43, PL=30, PI=13, NMC=20.3, %200=61		13.5	SS-6	4	4	7	11
413.0				18.5	SS-7	6	12	18	30
408.0	20.0	Boring terminated at 20.0 feet							
403.0									
398.0									
393.0									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208			**County:**	Lexington	**Boring No.:**	R-13
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1120+84.70	**Offset:**	6' LT	**Alignment:**	PROPOSED
Elev.:	377.6 ft	**Latitude:**	34.1782756	**Longitude:**	-81.3249586	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)			SS-1	7	7	6	13
		RESIDUAL		2.5					
					SS-2	5	6	6	12
		Stiff to very stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-6)		4.5					
372.6					SS-3	5	5	6	11
		LL=54, PL=39, PI=15, NMC=5.3, %200=94		6.5					
					SS-4	5	3	6	9
				8.5					
367.6					SS-5	7	9	9	18
	12.0	Hard, moist, reddish tan to gray, Sandy SILT (ML) (A-4)		13.5					
					SS-6	10	17	20	37
362.6									
				18.5					
					SS-7	11	22	26	48
357.6	20.0	Boring terminated at 20.0 feet							
352.6									
347.6									
342.6									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-14	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1117+63.98	**Offset:**	2' LT	**Alignment:**	PROPOSED
Elev.:	394.7 ft	**Latitude:**	34.1775892	**Longitude:**	-81.3242981	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with gravel		0.5	SS-1	6	8	6	14
	2.0	**FILL** Stiff to medium stiff, reddish brown to black, Sandy CLAY (CL) (A-7-6) LL=49, PL=27, PI=22, NMC=14.8, %200=85, OC=3.9		2.5	SS-2	3	5	8	13
389.7				4.5	SS-3	2	3	6	9
	8.0	**FILL** Stiff, moist, reddish brown to black, Sandy CLAY (CL) (A-7-6) with slight gravel and wood LL=42, PL=23, PI=19, NMC=21.9, %200=65		6.5	SS-4	3	3	5	8
384.7				8.5	SS-5	3	5	5	10
				13.5	SS-6	4	4	7	11
379.7				18.5	SS-7	7	6	9	15
374.7	20.0	Boring terminated at 20.0 feet							
369.7									
364.7									
359.7									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-15
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1113+84.84	**Offset:**	210' LT	**Alignment:**	PROPOSED
Elev.:	409.8 ft	**Latitude:**	34.1769497	**Longitude:**	-81.3237191	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7) LL=47, PL=30, PI=17, NMC=27.8, %200=86, OC=4.4		0.5	SS-1	4	4	3	7
				2.5	SS-2	3	3	4	7
404.8	4.0	**FILL** Stiff, moist, reddish brown to black, Plastic CLAY (CH) (A-7-6) with slight wood fragments LL=63, PL=31, PI=32, NMC=24.2, %200=92		4.5	SS-3	3	2	3	5
				6.5	SS-4	3	4	7	11
				8.5	SS-5	3	4	5	9
399.8									
				13.5	SS-6	3	6	6	12
394.8									
	17.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		18.5	SS-7	5	4	5	9
389.8	20.0	Boring terminated at 20.0 feet							
384.8									
379.8									
374.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-16	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1113+33.63	**Offset:**	69' LT	**Alignment:**	PROPOSED
Elev.:	414.2 ft	**Latitude:**	34.1765758	**Longitude:**	-81.3232839	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, reddish brown, Silty Fine to Medium SAND (SM) (A-4)	0.5	SS-1	5	5	4	9
	2.0		2.5	SS-2	8	3	6	9
409.2		**FILL** Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-4)	4.5	SS-3	4	3	4	7
	6.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with slight gravel	6.5	SS-4	7	12	16	28
	8.0		8.5	SS-5	3	6	11	17
404.2		**FILL** Very stiff, moist, reddish brown, Elastic Silt (MH) (A-7-6) with slight wood fragments LL=67, PL=36, PI=31, NMC=28.2, %200=93	13.5	SS-6	7	9	11	20
399.2	17.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	18.5	SS-7	5	8	7	15
394.2	20.0	Boring Terminated at 20.0 feet						
389.2								
384.2								
379.2								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

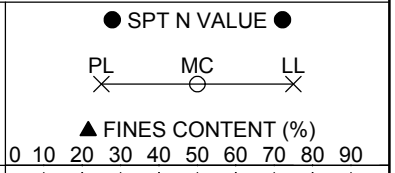
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-17
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1110+58.60	**Offset:**	9' RT	**Alignment:**	PROPOSED
Elev.:	410.9 ft	**Latitude:**	34.1763356	**Longitude:**	-81.3222663	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5	SS-1	5	4	5	9
	2.0	Loose, moist, reddish brown, Silty Fine to Coarse SAND (SM) (A-4) with slight gravel		2.5	SS-2	7	5	6	11
	4.0	**NO RECOVERY**		4.5	SS-3	4	9	11	20
405.9		**RESIDUAL** Very stiff to stiff, moist, reddish brown to black, Sandy SILT (ML) (A-5) LL=45, PL=39, PI=6, NMC=15.8, %200=85		6.5	SS-4	7	12	15	27
				8.5	SS-5	4	7	7	14
400.9	12.0	Very stiff to hard, moist, reddish brown to black, Sandy SILT (ML) (A-4)		13.5	SS-6	7	9	15	24
395.9				18.5	SS-7	9	16	23	39
390.9	20.0	Boring terminated at 20.0 feet							
385.9									
380.9									
375.9									



LEGEND

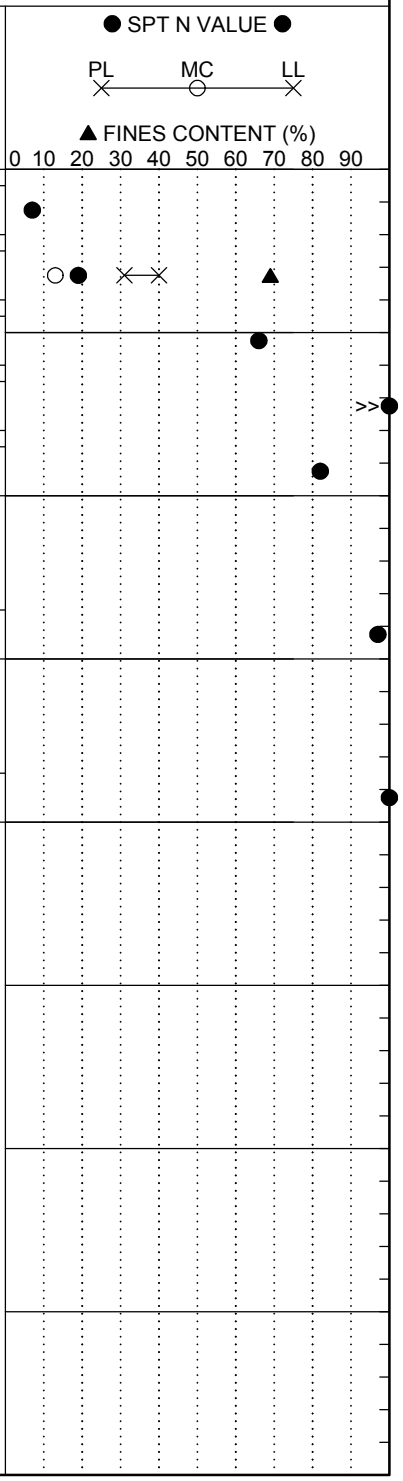
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-18	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1107+35.71	**Offset:**	26' RT	**Alignment:**	PROPOSED
Elev.:	393.8 ft	**Latitude:**	34.1760963	**Longitude:**	-81.3212357	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5	SS-1	3	3	4	7
	2.0	Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with gravel		2.5	SS-2	7	9	10	19
388.8		**RESIDUAL**		4.5	SS-3	10	26	40	66
	6.0	Very stiff to very hard, moist, tannish brown, Sandy SILT (ML) (A-5) with gravel-sized rock fragments		6.5	SS-4	16	53	50	103
	8.0	LL=40, PL=31, PI=9, NMC=12.6, %200=69		8.5	SS-5	12	42	40	82
383.8		**PARTIALLY WEATHERED ROCK**							
		Very hard, moist, tannish brown, sampled as Sandy SILT (A-4)		13.5	SS-6	10	42	55	97
		Very hard, moist, tannish brown, Sandy SILT (ML) (A-4)							
378.8				18.5	SS-7	15	34	66	100
373.8	20.0	Boring terminated at 20.0 feet							
368.8									
363.8									
358.8									



LEGEND

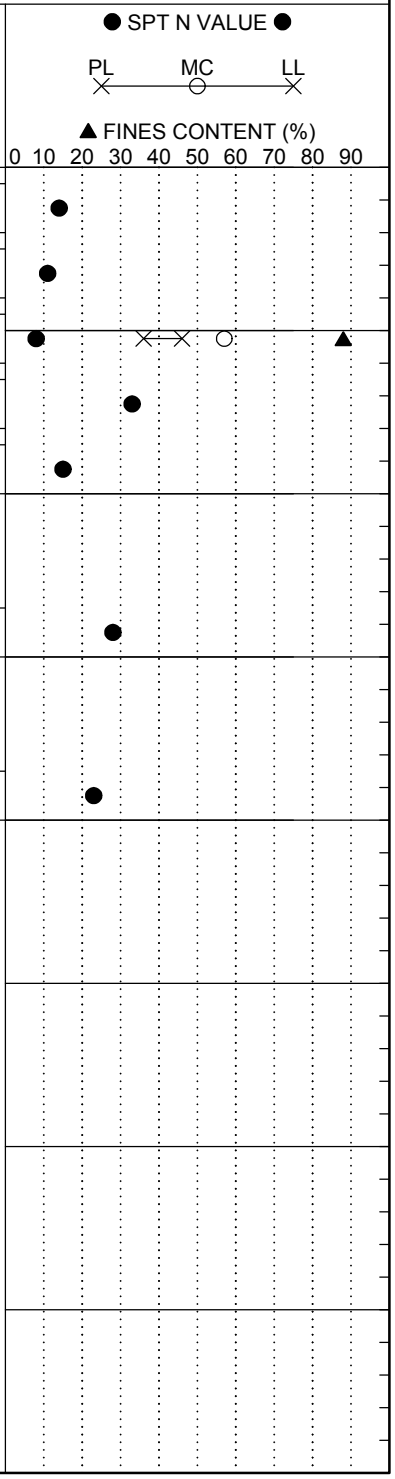
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-19
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1118+86.70	**Offset:**	15' LT	**Alignment:**	PROPOSED
Elev.:	380.6 ft	**Latitude:**	34.178407	**Longitude:**	-81.3240352	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		0.5	SS-1	5	11	3	14
	2.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		2.5	SS-2	6	6	5	11
375.6	4.0	**RESIDUAL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) LL=46, PL=36, PI=10, NMC=26.2, %200=88		4.5	SS-3	3	3	5	8
	6.0	Hard, moist, reddish brown, Sandy SILT (ML) (A-4)		6.5	SS-4	11	17	16	33
370.6	8.0	Stiff to very stiff, moist, reddish brown to black, Sandy SILT (ML) (A-4)		8.5	SS-5	4	6	9	15
				13.5	SS-6	11	13	15	28
365.6				18.5	SS-7	5	9	14	23
360.6	20.0	Boring terminated at 20.0 feet							
355.6									
350.6									
345.6									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	R-20
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1116+31.26	**Offset:**	69' LT	**Alignment:**	PROPOSED
Elev.:	389.3 ft	**Latitude:**	34.1780512	**Longitude:**	-81.3232822	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL** Stiff to very stiff, moist, orangish tan to black, Sandy SILT (ML) (A-5) LL=46, PL=37, PI=9, NMC=17.2, %200=79		0.5	SS-1	3	4	5	9
				2.5	SS-2	4	6	7	13
384.3				4.5	SS-3	15	16	12	28
				6.5	SS-4	4	8	7	15
				8.5	SS-5	11	12	14	26
379.3	12.0	Medium stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		13.5	SS-6	4	3	5	8
374.3	17.0	Very stiff, wet, tannish brown, Sandy SILT (ML) (A-4)		18.5	SS-7	13	14	9	23
369.3	20.0	Boring terminated at 20.0 feet							
364.3									
359.3									
354.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

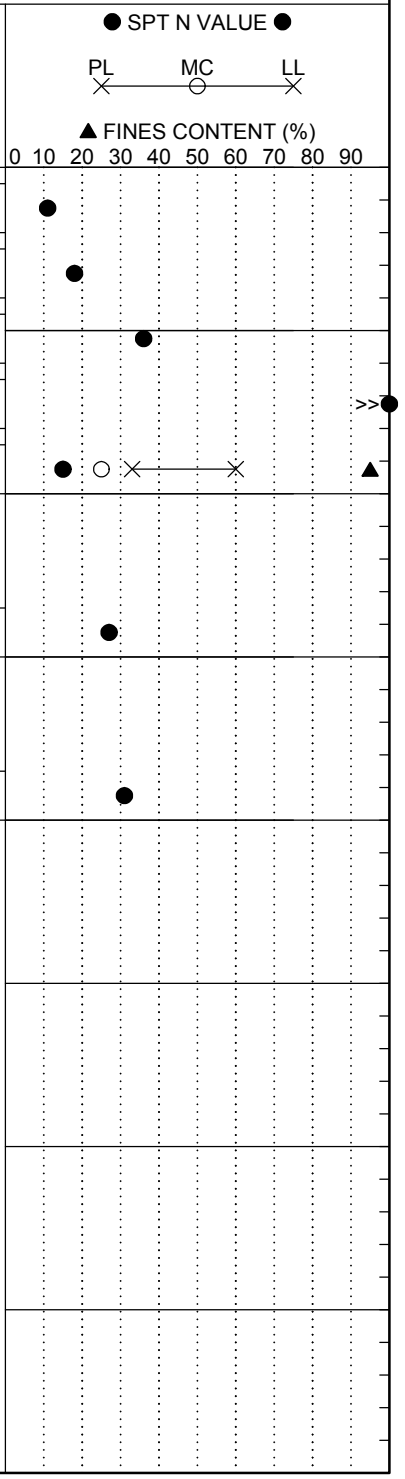
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-21
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1113+63.54	**Offset:**	251' RT	**Alignment:**	PROPOSED
Elev.:	403.5 ft	**Latitude:**	34.1778821	**Longitude:**	-81.3223562	**Date Started:**	9/9/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/9/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish tan, Sandy SILT (ML) (A-4)		0.5	SS-1	7	6	5	11
	2.0	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		2.5	SS-2	10	9	9	18
398.5	4.0	**FILL** Hard, moist, reddish brown, Sandy SILT (ML) (A-5)		4.5	SS-3	22	17	19	36
	6.0	**FILL** Very hard, moist, reddish brown to black, Sandy SILT (ML) (A-5) with gravel and construction debris		6.5	SS-4	21	69	39	108
393.5	8.0	**FILL** Stiff, moist, reddish brown to black, Elastic SILT (MH) (A-7-5) LL=60, PL=33, PI=27, NMC=25.2, %200=95		8.5	SS-5	7	7	8	15
	12.0	**RESIDUAL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		13.5	SS-6	9	14	13	27
388.5	17.0	Hard, moist, reddish brown, Sandy SILT (ML) (A-4)		18.5	SS-7	16	14	17	31
383.5	20.0	Boring terminated at 20.0 feet							
378.5									
373.5									
368.5									



LEGEND

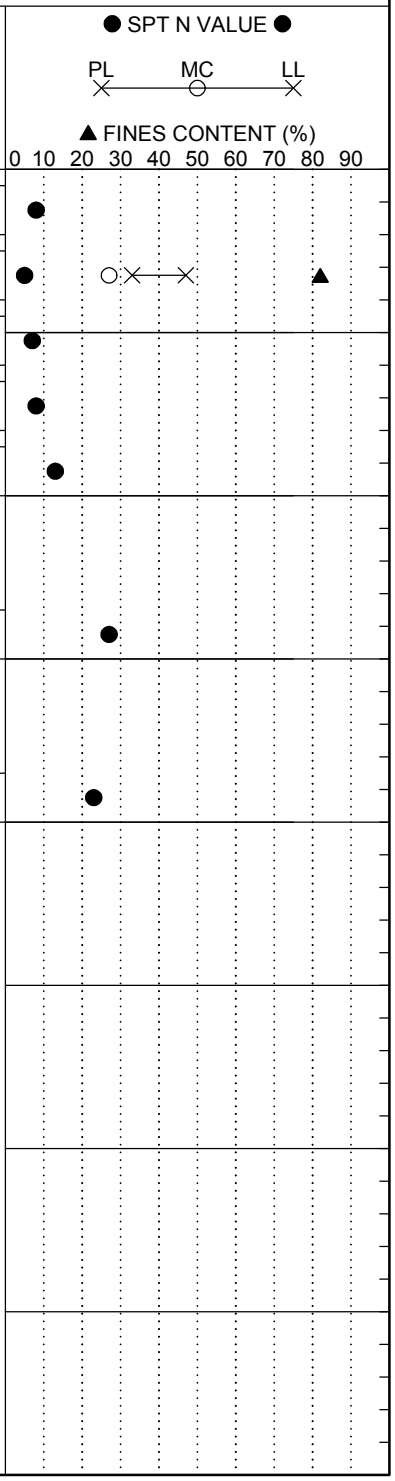
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-22	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1111+29.71	**Offset:**	79' RT	**Alignment:**	PROPOSED
Elev.:	406.0 ft	**Latitude:**	34.1776627	**Longitude:**	-81.3217558	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) with gravel LL=47, PL=33, PI=14, NMC=26.8, %200=82		0.5	SS-1	3	4	4	8
				2.5	SS-2	2	3	2	5
401.0	6.0	**FILL** Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		4.5	SS-3	2	3	4	7
				6.5	SS-4	2	4	4	8
396.0	12.0	**RESIDUAL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		8.5	SS-5	5	6	7	13
				13.5	SS-6	5	11	16	27
391.0	17.0	Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		18.5	SS-7	9	10	13	23
386.0	20.0	Boring terminated at 20.0 feet							
381.0									
376.0									
371.0									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	R-23	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1109+79.77	**Offset:**	34' LT	**Alignment:**	PROPOSED
Elev.:	400.8 ft	**Latitude:**	34.1772182	**Longitude:**	-81.3214024	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to soft, moist, reddish-brown, Elastic SILT (MH) (A-7-5) with slight roots and gravel LL=51, PL=33, PI=18, NMC=23.1, %200=85		0.5	SS-1	4	3	4	7
				2.5	SS-2	1	2	2	4
395.8				4.5	SS-3	3	2	4	6
	6.0	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-6) with gravel LL=51, PL=29, PI=22, NMC=25.5, %200=78		6.5	SS-4	6	7	9	16
				8.5	SS-5	8	10	14	24
390.8									
				13.5	SS-6	8	9	12	21
385.8									
	17.0	**RESIDUAL** Stiff, moist, reddish brown to black, Sandy SILT (ML) (A-4)		18.5	SS-7	4	6	7	13
380.8	20.0	Boring terminated at 20.0 feet							
375.8									
370.8									
365.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

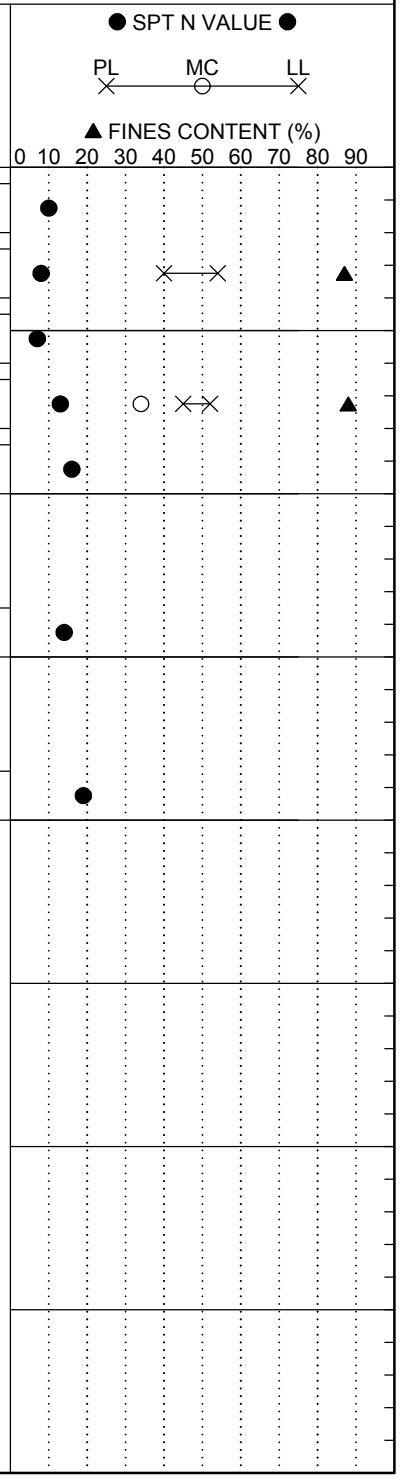
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-24
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1107+19.69	**Offset:**	55' LT	**Alignment:**	PROPOSED
Elev.:	388.7 ft	**Latitude:**	34.1766712	**Longitude:**	-81.320869	**Date Started:**	9/8/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL** Medium stiff to very stiff, moist, reddish tan to brown, Elastic SILT (MH) (A-7-5) with slight gravel-sized rock fragments LL=54, PL=40, PI=14, NMC=NP, %200=87		0.5	SS-1	10	6	4	10
				2.5	SS-2	3	3	5	8
383.7				4.5	SS-3	3	3	4	7
				6.5	SS-4	5	7	6	13
	8.0	Stiff to very stiff, moist, reddish brown to black, Elastic SILT (MH) (A-5) with slight mica LL=52, PL=45, PI=7, NMC=33.9, %200=88		8.5	SS-5	7	7	9	16
378.7				13.5	SS-6	3	6	8	14
373.7				18.5	SS-7	7	8	11	19
368.7	20.0	Boring terminated at 20.0 feet							
363.7									
358.7									
353.7									



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	

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SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	R-25
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1415+44.09	**Offset:**	67' RT	**Alignment:**	PROPOSED
Elev.:	402.0 ft	**Latitude:**	34.2193911	**Longitude:**	-81.4085586	**Date Started:**	10/26/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	10/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	MOROOKA	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, dark brown, Sandy CLAY (CL) (A-6) with trace roots and gravel LL=36, PL=21, PI=15, NMC=17.1, %200=72, OC=5.8		0.0 2.0	SS-1	2	3	3	6
					SS-2	4	6	9	15
397.0	4.0	**FILL** Dense to medium dense, dark brown, Silty Fine to Coarse SAND (SM) (A-2-4) with trace gravel		4.0 6.0	SS-3	18	16	15	31
					SS-4	5	6	11	17
392.0				8.0	SS-5	5	20	41	61
	12.0	**PARTIALLY WEATHERED ROCK** Extremely dense, brown to black, sampled as Clayey SAND (A-2-6)		13.5	SS-6	6	50/4		50/4
387.0				18.5	SS-7	50/1.5			50/1.5
382.0	21.0	Auger refusal at 21.0 feet		21.0	SS-8				50/0
377.0									
372.0									
367.0									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208			**County:**	Lexington	**Boring No.:**	P-001
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1467+69.61	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	427.3 ft	**Latitude:**	34.2247931	**Longitude:**	-81.4245183	**Date Started:**	7/10/2017
Total Depth:	15 ft	**Soil Depth:**	15 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		0.5					
	2.0			2.0	SS-1	2	3	2	5
				3.5	SS-2	1	3	4	7
422.3		**FILL** Medium stiff to soft, moist, orangish brown to reddish brown, Sandy CLAY (CL) (A-7-6) LL=41, PL=25, PI=16, NMC=21.9, %200=51.0		5.0	SS-3	3	2	5	7
				6.5	SS-4	2	2	2	4
	8.0			8.0	SS-5	2	3	3	6
417.3		**FILL** Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-5)			SS-6	1	2	3	5
	12.0	**RESIDUAL** Very stiff, moist, tannish gray, Sandy SILT (ML) (A-4)		13.5					
412.3	15.0				SS-7	4	7	15	22
		Boring terminated at 15.0 feet							
407.3									
402.3									
397.3									
392.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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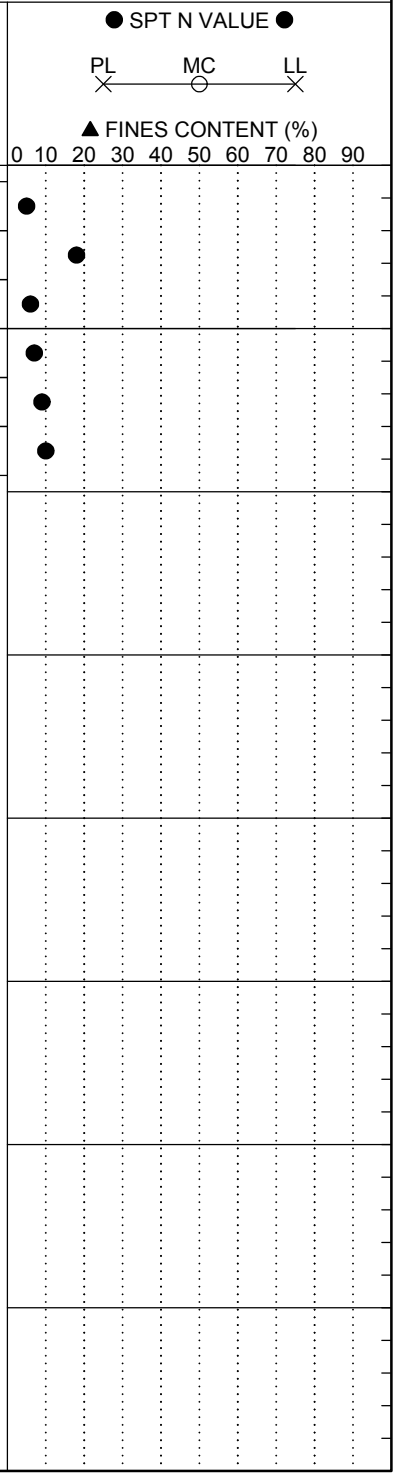
SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-002
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1462+71.25	**Offset:**	10' RT	**Alignment:**	PROP_I26_CL
Elev.:	416.1 ft	**Latitude:**	34.22434	**Longitude:**	-81.4229605	**Date Started:**	7/10/2017
Total Depth:	9.5 ft	**Soil Depth:**	9.5 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		0.5					
	2.0			2.0	SS-1	1	2	3	5
	3.5	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		3.5	SS-2	4	11	7	18
411.1				5.0	SS-3	2	3	3	6
				6.5	SS-4	2	3	4	7
	8.0	**FILL** Medium stiff to stiff, moist, orangish brown to gray, Plastic CLAY (CH) (A-7-6) with trace roots		8.0	SS-5	2	4	5	9
	9.5	LL=54, PL=27, PI=27, NMC=29.2, %200=75.3			SS-6	2	4	6	10
406.1		**RESIDUAL** Stiff, moist, grayish brown, Plastic CLAY (CH) (A-7-6)							
401.1		Boring terminated at 9.5 feet							
396.1									
391.1									
386.1									
381.1									



LEGEND

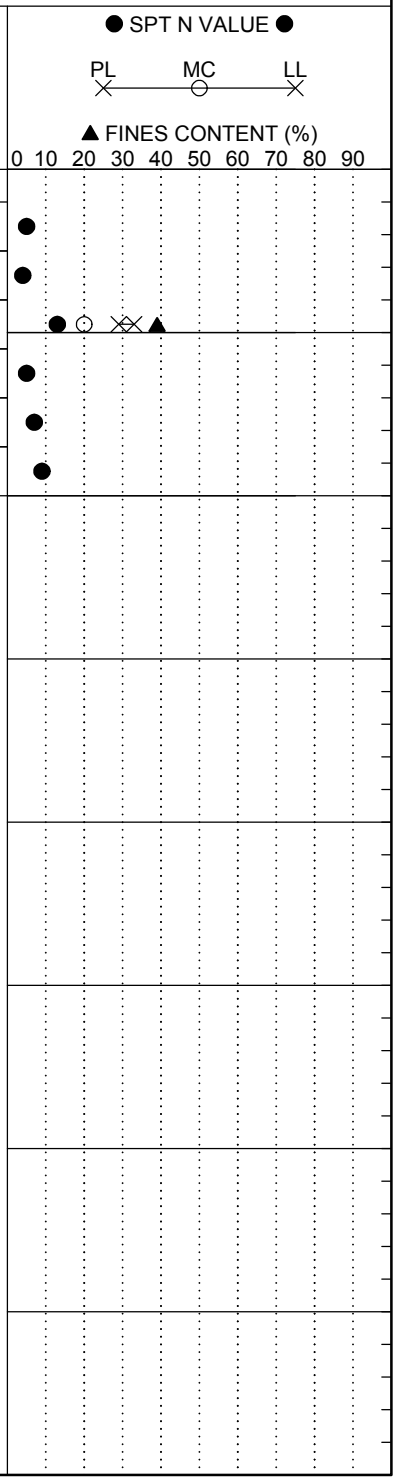
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-003
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1457+65.57	**Offset:**	6' LT	**Alignment:**	PROP_I26_CL
Elev.:	409.6 ft	**Latitude:**	34.2238031	**Longitude:**	-81.421414	**Date Started:**	7/10/2017
Total Depth:	10 ft	**Soil Depth:**	10 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		1.0					
	2.5	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		2.5	SS-1	2	2	3	5
	4.0			4.0	SS-2	1	2	2	4
404.6		**FILL** Soft, moist, reddish brown, Elastic SILT (MH) (A-5) with trace roots		5.5	SS-3	2	6	7	13
	8.5	**FILL** Medium dense to loose, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel LL=33, PL=29, PI=4, NMC=20.0, %200=39.3		7.0	SS-4	2	2	3	5
				8.5	SS-5	5	4	3	7
399.6	10.0				SS-6	3	5	4	9
394.6		**FILL** Stiff, moist, grayish brown, Sandy CLAY (CL) (A-7-5)							
		Boring terminated at 10 feet							
389.6									
384.6									
379.6									
374.6									



LEGEND

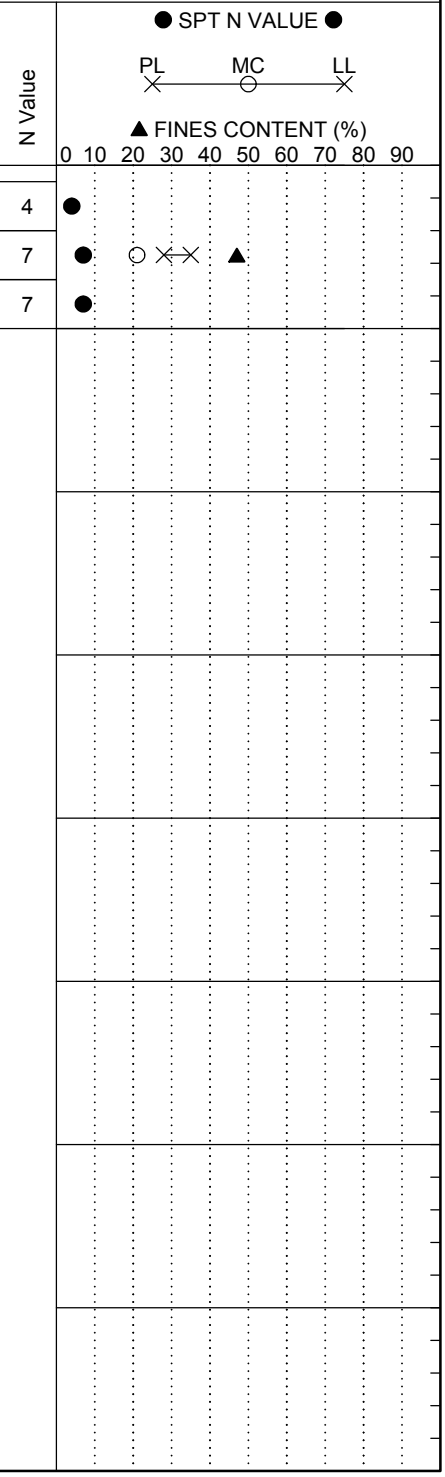
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-004
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1452+75.78	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	403.6 ft	**Latitude:**	34.2233368	**Longitude:**	-81.4198951	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	1	1	3	4
		Very loose to loose, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and gravel		2.0	SS-2	2	3	4	7
				3.5	SS-3	2	3	4	7
398.6	5.0	LL=35, PL=28, PI=7, NMC=20.5, %200=47.0							
		Boring terminated at 5.0 feet							
393.6									
388.6									
383.6									
378.6									
373.6									
368.6									



LEGEND

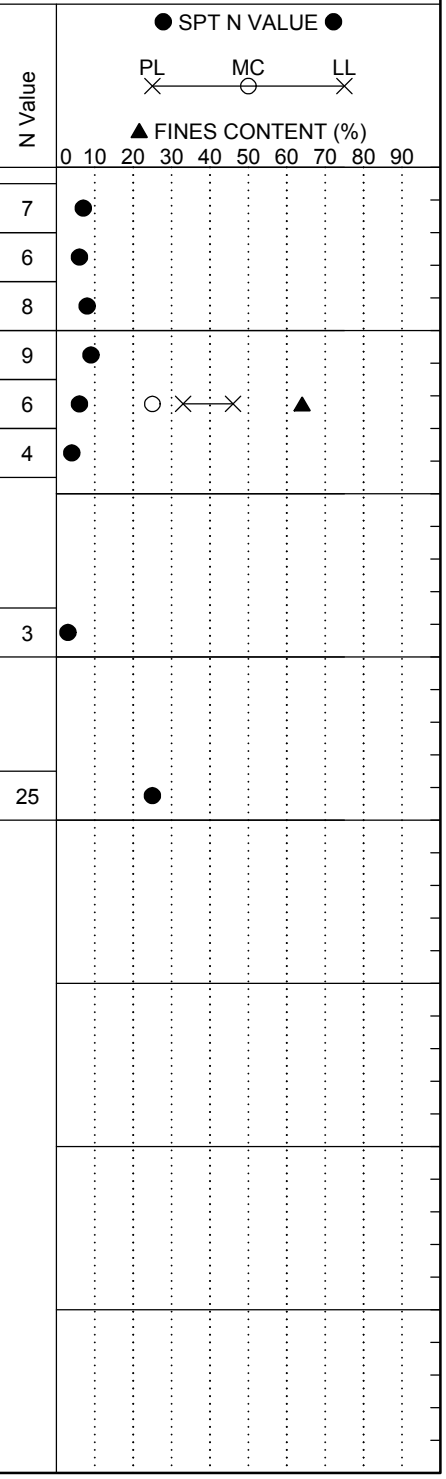
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-005
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1447+60.92	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	399.9 ft	**Latitude:**	34.2228113	**Longitude:**	-81.4183151	**Date Started:**	7/10/2017
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
	2.0	**FILL** Loose, moist, reddish brown, Silty Fine to Medium SAND (SM) (A-4)		2.0	SS-1	2	3	4	7
				3.5	SS-2	2	2	4	6
394.9	3.5	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		5.0	SS-3	3	3	5	8
	6.0			6.5	SS-4	2	4	5	9
		FILL Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)		8.0	SS-5	2	2	4	6
389.9					SS-6	2	2	2	4
		FILL Medium stiff to soft, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace gravel LL=46, PL=33, PI=13, NMC=24.5, %200=64		13.5	SS-7	1	1	2	3
384.9									
	17.0	**RESIDUAL** Very stiff, moist, grayish brown, Sandy SILT (ML) (A-4)		18.5	SS-8	4	9	16	25
379.9	20.0	Boring terminated at 20.0 feet							
374.9									
369.9									
364.9									



LEGEND

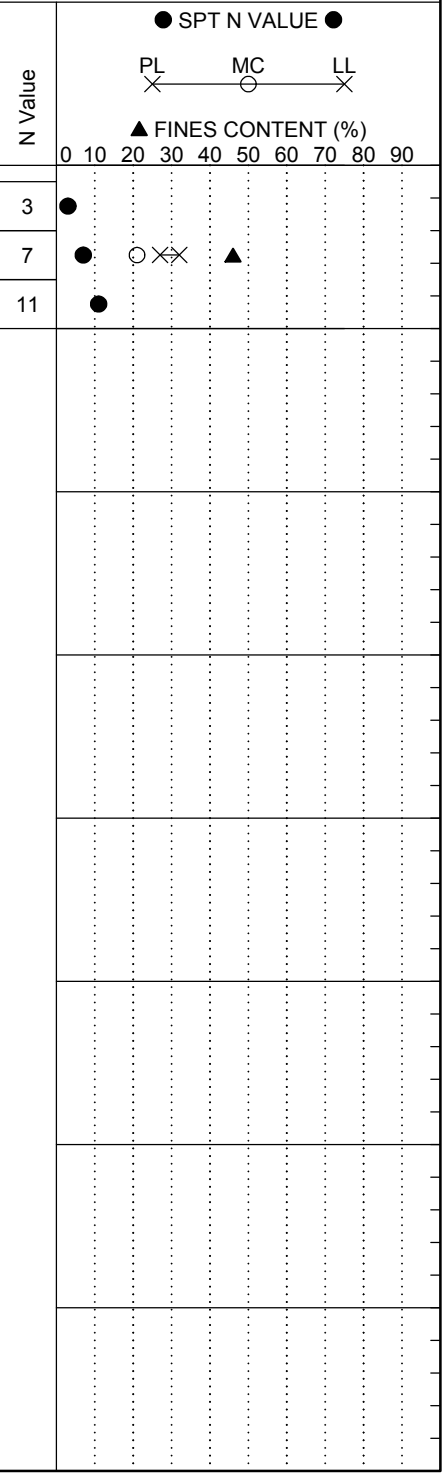
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-006
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1442+62.89	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	404.1 ft	**Latitude:**	34.222353	**Longitude:**	-81.4167607	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	1	1	2	3
		Very loose to loose, moist, tannish brown to orange, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and gravel		2.0	SS-2	1	3	4	7
	3.5			3.5	SS-3	2	5	6	11
399.1	5.0	LL=32, PL=27, PI=5, NMC=20.9, %200=46							
		FILL							
		Siff, moist, tannish orange to brown, Elastic SILT (MH) (A-5)							
394.1		Boring terminated at 5.0 feet							
389.1									
384.1									
379.1									
374.1									
369.1									



LEGEND

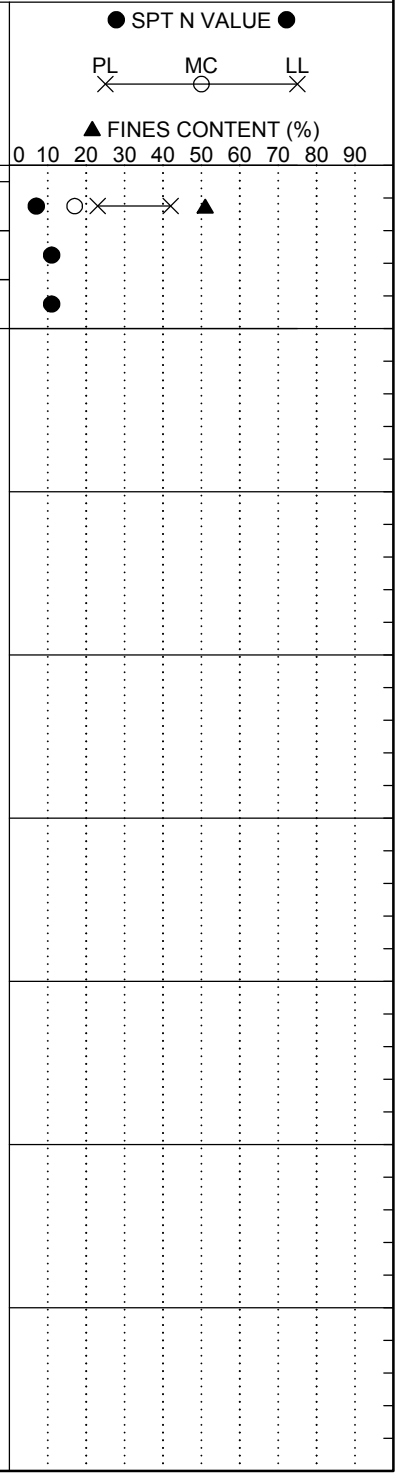
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-007
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1437+64.97	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	423.0 ft	**Latitude:**	34.2218338	**Longitude:**	-81.415236	**Date Started:**	7/10/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, moist, grayish brown to reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots and gravel		0.5					
				2.0	SS-1	3	3	4	7
	3.5	LL=42, PL=23, PI=19, NMC=17.4, %200=51		3.5	SS-2	3	5	6	11
418.0	5.0				SS-3	3	5	6	11
		RESIDUAL Medium stiff to stiff, moist, grayish brown to reddish brown, Elastic SILT (MH) (A-5) with trace roots							
413.0		Boring terminated at 5.0 feet							
408.0									
403.0									
398.0									
393.0									
388.0									



LEGEND

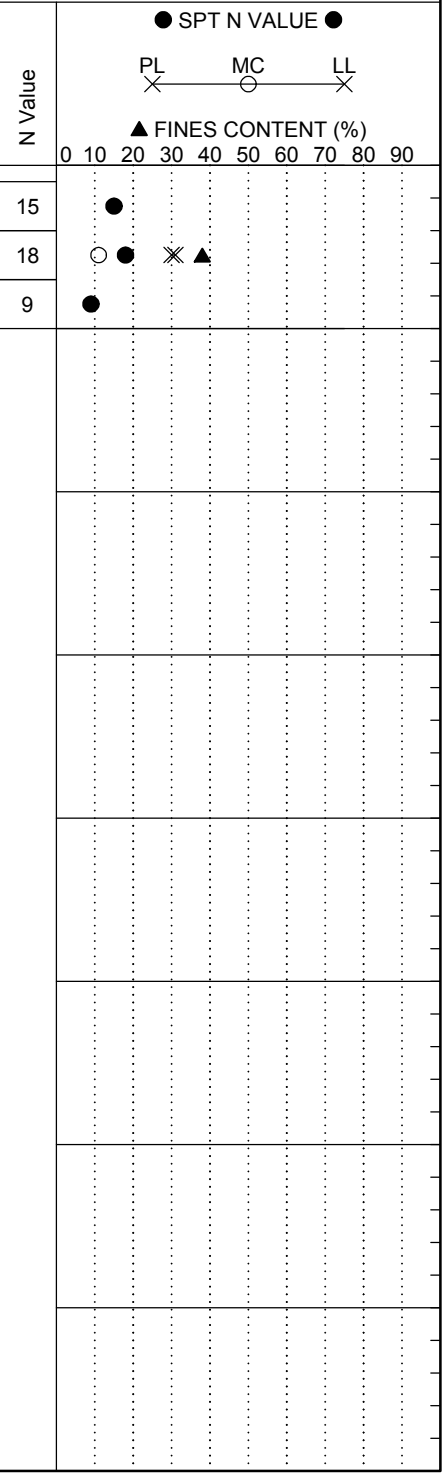
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-008
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1432+66.22	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	436.1 ft	**Latitude:**	34.2213713	**Longitude:**	-81.4136825	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.7	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, orangish brown, Sandy SILT (ML) (A-5)		2.0	SS-1	2	6	9	15
	3.5			3.5	SS-2	7	9	9	18
	5.0	**RESIDUAL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) LL=31, PL=30, PI=1, NMC=10.7, %200=38			SS-3	1	4	5	9
431.1		Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
426.1		Boring terminated at 5.0 feet							
421.1									
416.1									
411.1									
406.1									
401.1									



LEGEND

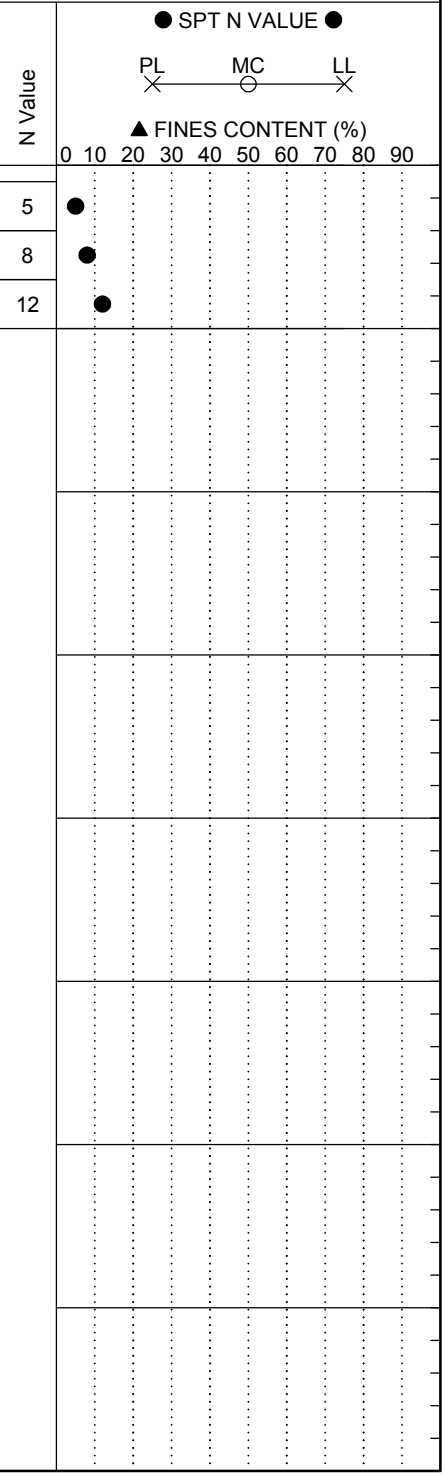
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-009
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1427+63.14	**Offset:**	1' LT	**Alignment:**	PROP_I26_CL
Elev.:	433.8 ft	**Latitude:**	34.2208764	**Longitude:**	-81.4121285	**Date Started:**	7/10/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)		0.5					
				2.0	SS-1	2	2	3	5
	3.5	LL=53, PL=26, PI=27, NMC=23.6, %200=68		3.5	SS-2	1	3	5	8
					SS-3	3	6	6	12
428.8	5.0	**RESIDUAL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel-sized rock fragments							
		Boring terminated at 5.0 feet							
423.8									
418.8									
413.8									
408.8									
403.8									
398.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-010
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1422+63.82	**Offset:**	11' RT	**Alignment:**	PROP_I26_CL
Elev.:	417.6 ft	**Latitude:**	34.220418	**Longitude:**	-81.4105701	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL			SS-1	2	1	2	3
		Soft, moist, dark brown to red, Sandy CLAY (CL) (A-7-6) with trace roots		2.0	SS-2	1	2	2	4
	3.5	LL=45, PL=25, PI=20, NMC=22.5, %200=69		3.5	SS-3	2	1	1	2
412.6	5.0	**RESIDUAL**							
		Soft, moist, dark brown to red, Sandy SILT (ML) (A-4)							
407.6		Boring terminated at 5.0 feet							
402.6									
397.6									
392.6									
387.6									
382.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

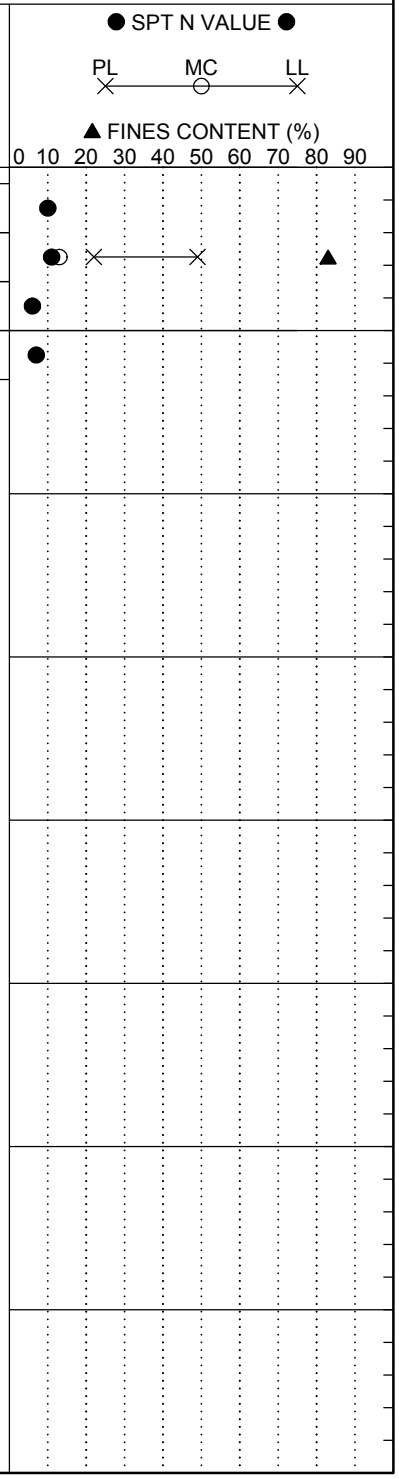
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-011
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1417+63.08	**Offset:**	14' LT	**Alignment:**	PROP_I26_CL
Elev.:	411.4 ft	**Latitude:**	34.2198625	**Longitude:**	-81.4090543	**Date Started:**	7/10/2017
Total Depth:	6.5 ft	**Soil Depth:**	6.5 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" ABC Stone Depth		0.5					
	2.0	**FILL** Medium dense, moist, grayish brown to orange, Silty Fine to Medium SAND (SM) (A-2-4) with trace gravel and clay inclusions		2.0	SS-1	11	7	3	10
	3.5			3.5	SS-2	4	4	7	11
406.4	5.0			5.0	SS-3	2	2	4	6
	6.5	**FILL** Stiff, moist, orangish brown, Sandy CLAY (CL) (A-7-6) with trace roots LL=49, PL=22, PI=27, NMC=12.5, %200=83			SS-4	3	4	3	7
401.4		**FILL** Medium stiff, moist, orangish brown, Sandy CLAY (CL) (A-7-6) LL=49, PL=24, PI=25, NMC=21.2, %200=54							
396.4		**RESIDUAL** Medium stiff, moist, orangish brown to tan, Sandy SILT (ML) (A-4)							
		Boring terminated at 6.5 feet							
391.4									
386.4									
381.4									
376.4									



LEGEND

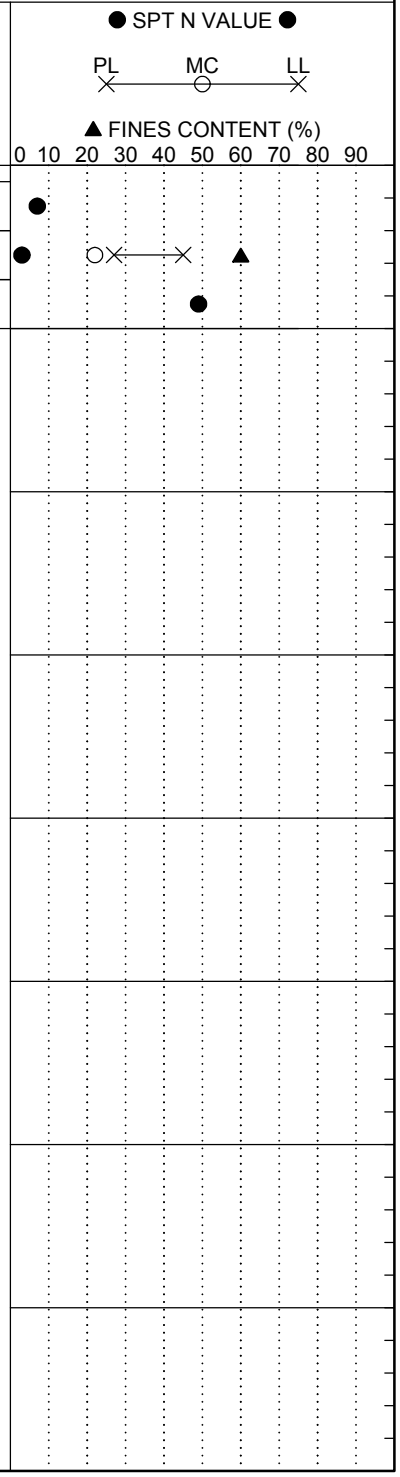
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-012
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1412+62.15	**Offset:**	14' RT	**Alignment:**	PROP_I26_CL
Elev.:	424.6 ft	**Latitude:**	34.2194394	**Longitude:**	-81.4074711	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, red to brown, Silty Fine to Medium SAND (SM) (A-2-4) with trace gravel		0.5					
	2.0			2.0	SS-1	5	5	2	7
	3.5	**FILL** Soft, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel LL=45, PL=27, PI=18, NMC=21.8, %200=60		3.5	SS-2	1	1	2	3
419.6	5.0	**RESIDUAL** Dense, moist, grayish brown, Silty Fine to Medium SAND (SM) (A-4)			SS-3	8	24	25	49
414.6		Boring terminated at 5 feet							
409.6									
404.6									
399.6									
394.6									
389.6									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-013
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1407+57.51	**Offset:**	14' LT	**Alignment:**	PROP_I26_CL
Elev.:	444.7 ft	**Latitude:**	34.2188228	**Longitude:**	-81.4059745	**Date Started:**	7/10/2017
Total Depth:	6.5 ft	**Soil Depth:**	6.5 ft	**Core Depth:**	ft	**Date Completed:**	7/10/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel		0.5					
	2.0			2.0	SS-1	3	5	2	7
	3.5	**FILL** Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-6) LL=28, PL=23, PI=15, NMC=18.9, %200=58		3.5	SS-2	2	2	3	5
439.7	5.0			5.0	SS-3	2	2	2	4
	6.5	**FILL** Soft, moist, reddish brown, Sandy SILT (ML) (A-4)			SS-4	3	4	6	10
434.7		**RESIDUAL** Medium stiff, moist, orangish brown to tan, Sandy SILT (ML) (A-5)							
429.7		Boring terminated at 6.5 feet							
424.7									
419.7									
414.7									
409.7									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

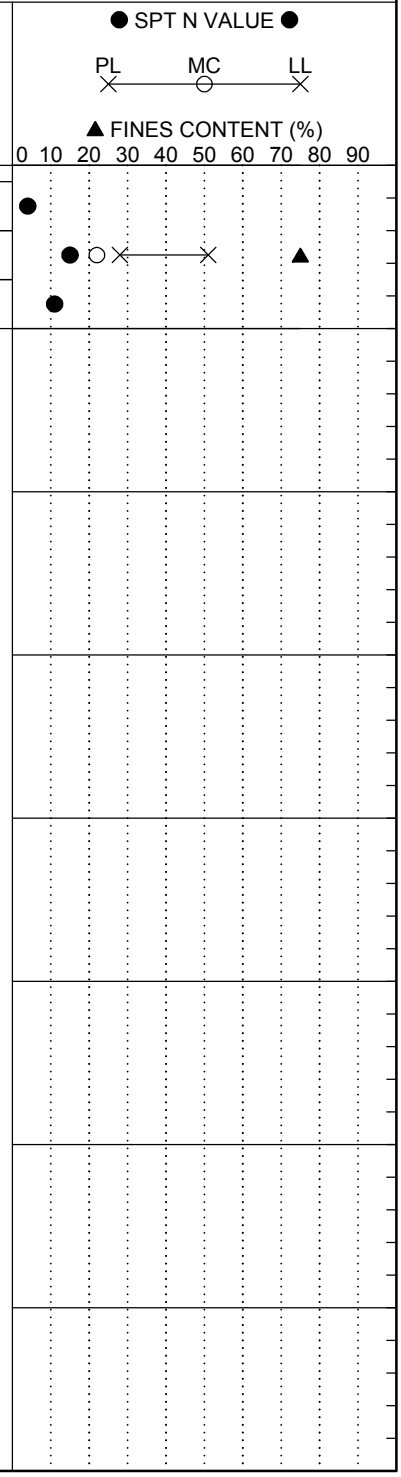
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-014
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1402+63.64	**Offset:**	15' RT	**Alignment:**	PROP_I26_CL
Elev.:	462.2 ft	**Latitude:**	34.2183081	**Longitude:**	-81.4044612	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" of sandy topsoil		0.5					
	2.0	**FILL** Soft, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	1	2	2	4
				3.5	SS-2	3	7	8	15
					SS-3	3	4	7	11
457.2	5.0	**FILL** Stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace roots LL=51, PL=28, PI=23, NMC=22.0, %200=75							
452.2		Boring terminated at 5 feet							
447.2									
442.2									
437.2									
432.2									
427.2									



LEGEND

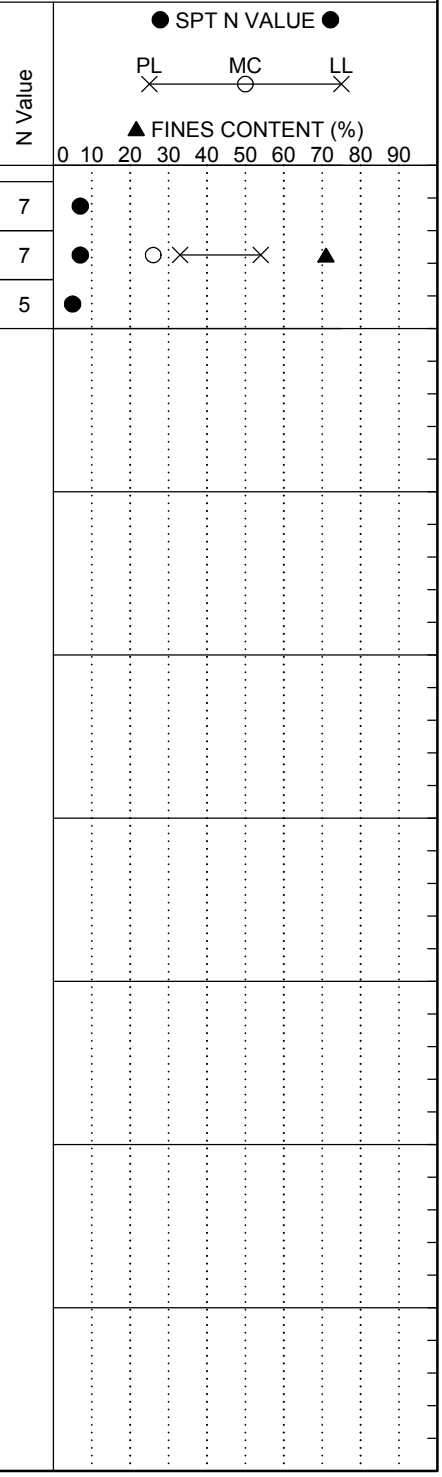
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-015
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1397+52.59	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	479.7 ft	**Latitude:**	34.2176339	**Longitude:**	-81.4029738	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" of sandy topsoil		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	3	4	7
				3.5	SS-2	2	2	5	7
					SS-3	3	2	3	5
474.7	5.0	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=54, PL=33, PI=21, NMC=26.0, %200=71							
469.7		Boring terminated at 5 feet							
464.7									
459.7									
454.7									
449.7									
444.7									



LEGEND

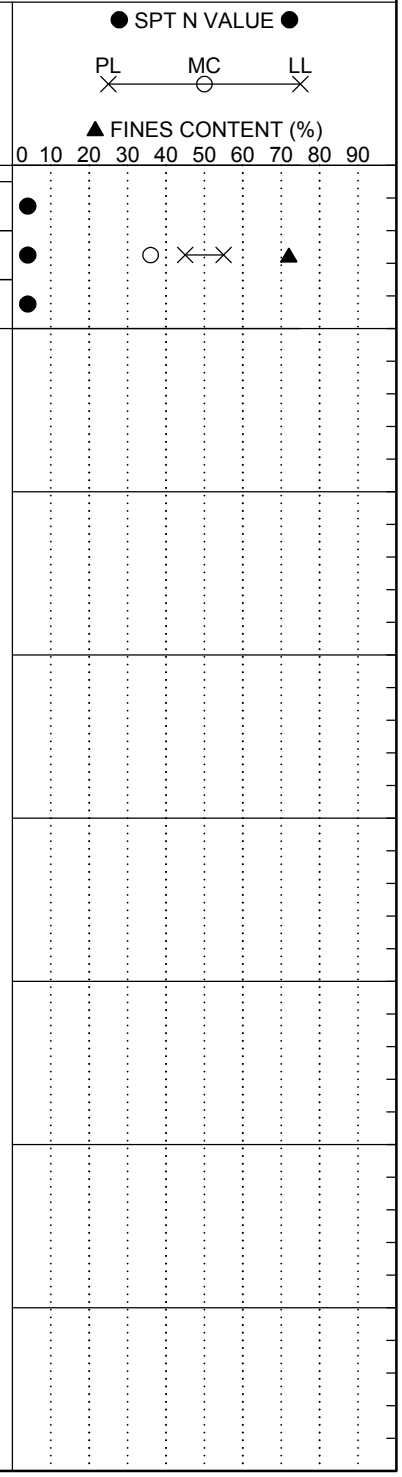
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-016
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1392+52.09	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	496.3 ft	**Latitude:**	34.2170599	**Longitude:**	-81.4014708	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" of asphalt		0.5					
	2.0	**FILL** Soft, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	1	2	2	4
				3.5	SS-2	1	2	2	4
					SS-3	1	2	2	4
491.3	5.0	**RESIDUAL** Soft, moist, reddish brown, Elastic SILT (MH) (A-7-6) LL=54, PL=33, PI=21, NMC=26.0, %200=71							
486.3		Boring terminated at 5 feet							
481.3									
476.3									
471.3									
466.3									
461.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-017
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1387+50.82	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	504.8 ft	**Latitude:**	34.2164231	**Longitude:**	-81.3999992	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" of sandy topsoil		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	3	3	4	7
				3.5	SS-2	2	2	3	5
					SS-3	3	3	7	10
499.8	5.0	**RESIDUAL** Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=49, PL=38, PI=11, NMC=26.0, %200=79							
494.8		Boring terminated at 5 feet							
489.8									
484.8									
479.8									
474.8									
469.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

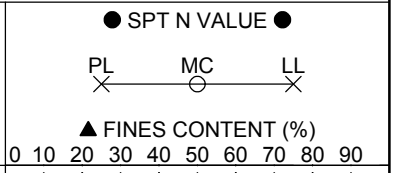
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-018
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1382+40.89	**Offset:**	11' RT	**Alignment:**	PROP_I26_CL
Elev.:	501.5 ft	**Latitude:**	34.215857	**Longitude:**	-81.3984538	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	4	5	7	12
		Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		3.5	SS-2	2	8	10	18
		LL=58, PL=36, PI=22, NMC=26.0, %200=91			SS-3	4	5	10	15
496.5	5.0	Boring terminated at 5.0 feet							
491.5									
486.5									
481.5									
476.5									
471.5									
466.5									



LEGEND

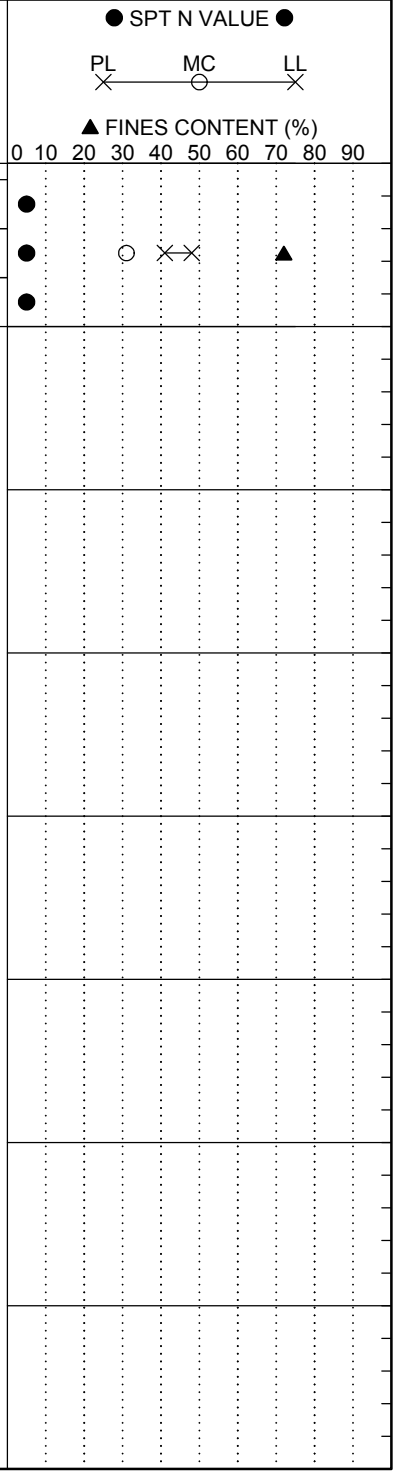
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-019
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1377+49.49	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	503.7 ft	**Latitude:**	34.2152152	**Longitude:**	-81.3970208	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		2.0	SS-1	3	2	3	5
		LL=48, PL=41, PI=7, NMC=31.2, %200=72		3.5	SS-2	1	2	3	5
					SS-3	2	2	3	5
498.7	5.0	Boring terminated at 5.0 feet							
493.7									
488.7									
483.7									
478.7									
473.7									
468.7									



LEGEND

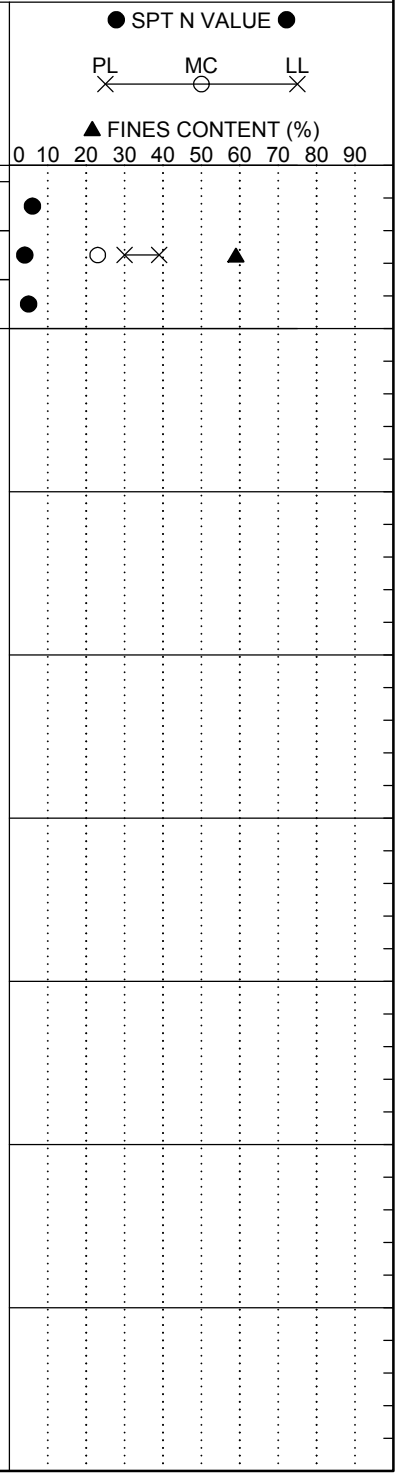
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-020
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1372+45.44	**Offset:**	2' LT	**Alignment:**	PROP_I26_CL
Elev.:	506.4 ft	**Latitude:**	34.2146242	**Longitude:**	-81.3955133	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL			SS-1	2	3	3	6
		Medium stiff to soft, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-2	1	2	2	4
	3.5	LL=39, PL=30, PI=9, NMC=22.7, %200=59		3.5	SS-3	1	2	3	5
501.4	5.0	**RESIDUAL**							
		Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
496.4									
491.4									
486.4									
481.4									
476.4									
471.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-021
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1367+38.34	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	502.1 ft	**Latitude:**	34.2139921	**Longitude:**	-81.3940196	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		0.5					
				2.0	SS-1	3	3	5	8
	3.5			3.5	SS-2	3	2	3	5
		RESIDUAL			SS-3	1	2	4	6
497.1	5.0	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) LL=48, PL=31, PI=17, NMC=26.3, %200=68							
		Boring terminated at 5.0 feet							
492.1									
487.1									
482.1									
477.1									
472.1									
467.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

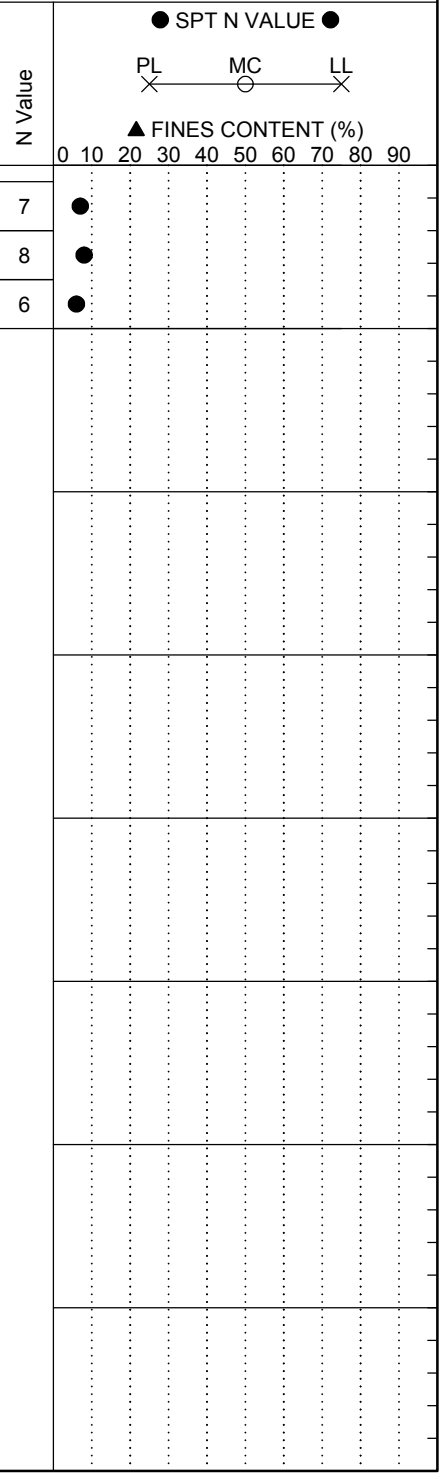
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-022
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1362+41.42	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	491.8 ft	**Latitude:**	34.213422	**Longitude:**	-81.3925235	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace roots and gravel		2.0	SS-1	4	5	2	7
				3.5	SS-2	2	3	5	8
					SS-3	2	3	3	6
486.8	5.0	**RESIDUAL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments LL=33, PL=28, PI=5, NMC=15.1, %200=51							
481.8		Boring terminated at 5.0 feet							
476.8									
471.8									
466.8									
461.8									
456.8									



LEGEND

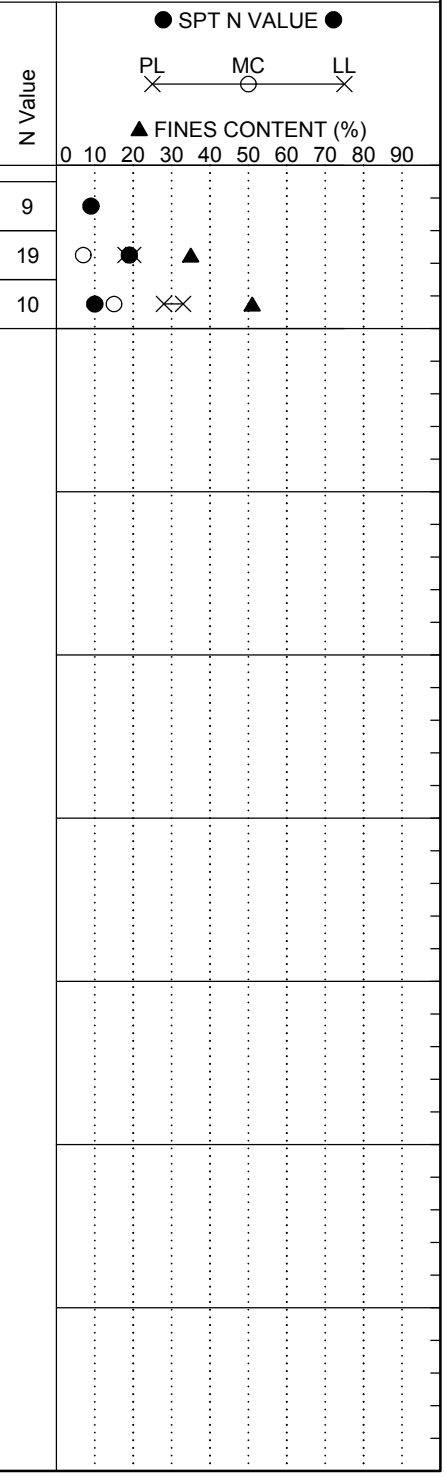
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-023
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1357+39.24	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	473.5 ft	**Latitude:**	34.2127897	**Longitude:**	-81.3910455	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	4	5	9
	3.5	Loose to medium dense, brown to orangish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel		3.5	SS-2	5	7	12	19
468.5	5.0	LL=20, PL=18, PI=2, NMC=7.0, %200=35			SS-3	1	1	9	10
		RESIDUAL							
		Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
463.5		Boring terminated at 5.0 feet							
458.5									
453.5									
448.5									
443.5									
438.5									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-024
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1352+34.73	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	457.6 ft	**Latitude:**	34.2122032	**Longitude:**	-81.3895348	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, orangish brown to reddish brown, Silty Fine to Coarse SAND (SM) (A-6) with trace roots and gravel		0.5					
				2.0	SS-1	2	3	2	5
	3.5	LL=38, PL=27, PI=11, NMC=22.4, %200=47		3.5	SS-2	1	1	3	4
452.6	5.0				SS-3	1	2	7	9
		FILL Stiff, moist, orangish tan to brown, Elastic SILT (MH) (A-5)							
447.6		Boring terminated at 5.0 feet							
442.6									
437.6									
432.6									
427.6									
422.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

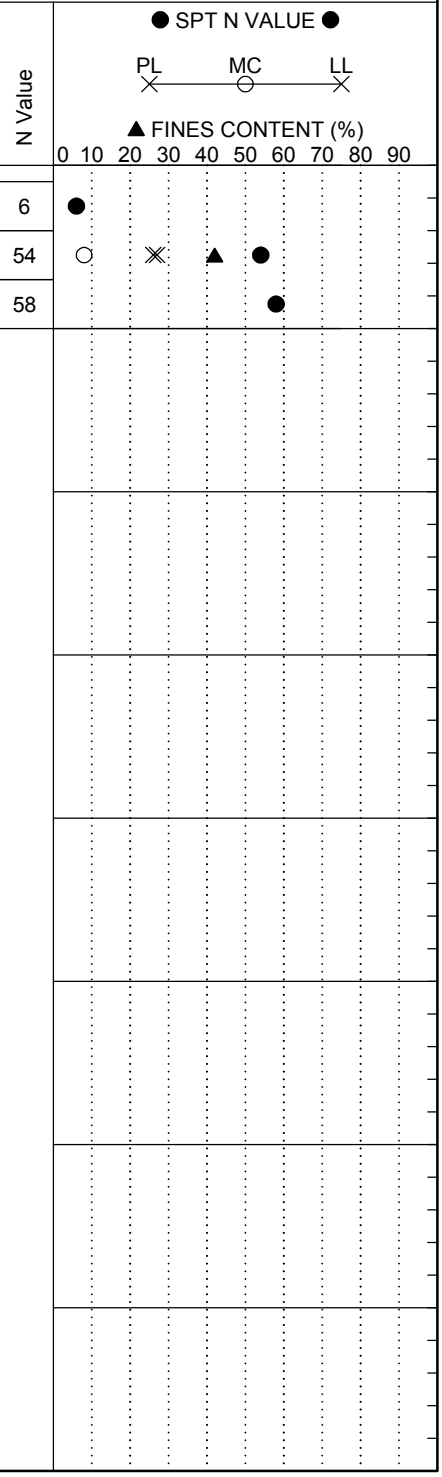
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-025
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1347+35.25	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	464.5 ft	**Latitude:**	34.2115728	**Longitude:**	-81.3880677	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
	2.0	**FILL**		2.0	SS-1	3	2	4	6
	3.5	Medium stiff, moist, tannish red to brown, Sandy SILT (ML) (A-4)		3.5	SS-2	12	24	30	54
	5.0	**RESIDUAL**			SS-3	2	9	49	58
459.5		Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4) LL=27, PL=26, PI=1, NMC=7.5, %200=42							
454.5		Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4)							
		Boring terminated at 5.0 feet							
449.5									
444.5									
439.5									
434.5									
429.5									



LEGEND

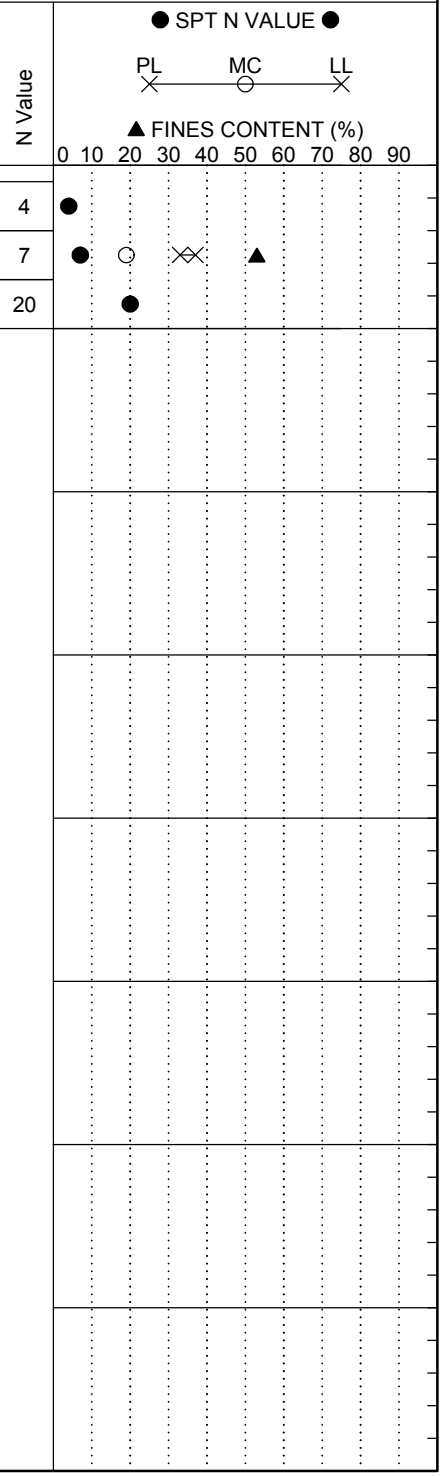
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-026
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1342+28.04	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	478.8 ft	**Latitude:**	34.2109885	**Longitude:**	-81.3865417	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	1	2	2	4
	3.5	Soft to medium stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace roots		3.5	SS-2	2	3	4	7
473.8	5.0	LL=37, PL=33, PI=4, NMC=18.9, %200=53			SS-3	1	8	12	20
		Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
468.8									
463.8									
458.8									
453.8									
448.8									
443.8									



LEGEND

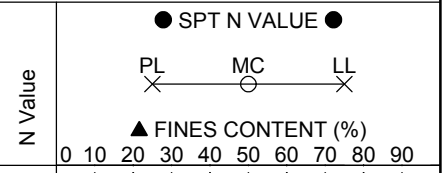
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-027
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1337+26.31	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	481.7 ft	**Latitude:**	34.2103549	**Longitude:**	-81.385069	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL			SS-1	3	4	4	8
		Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel		2.0					
					SS-2	1	4	4	8
		LL=41, PL=40, PI=1, NMC=25.9, %200=59		3.5					
476.7	5.0				SS-3	2	2	3	5
		Boring terminated at 5.0 feet							
471.7									
466.7									
461.7									
456.7									
451.7									
446.7									



LEGEND

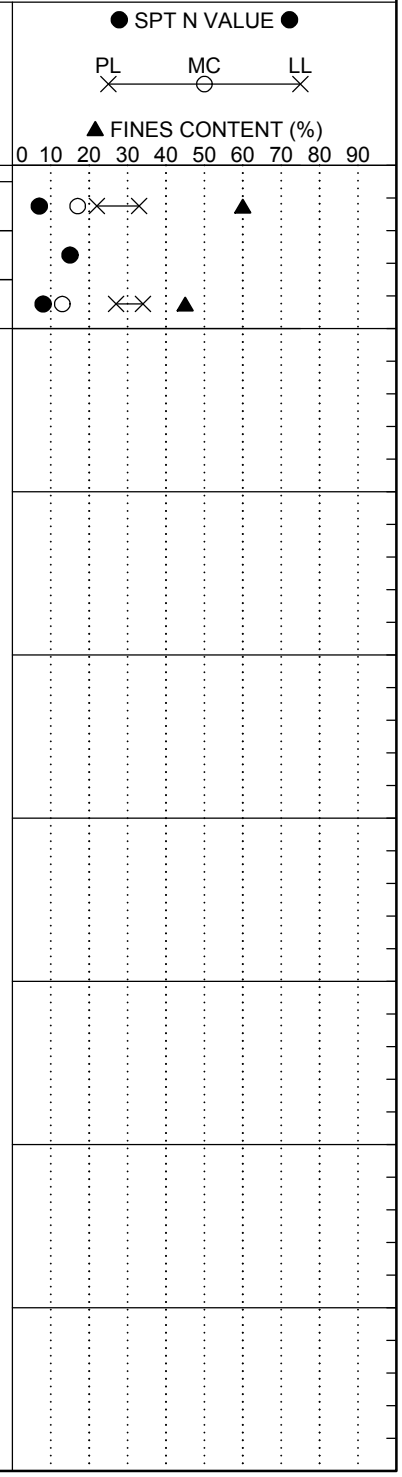
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-028
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1332+33.86	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	474.4 ft	**Latitude:**	34.2097911	**Longitude:**	-81.3835862	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	3	4	7
	3.5	Medium stiff to stiff, moist, orangish brown to brown, Sandy CLAY (CL) (A-6) with trace roots and gravel		3.5	SS-2	1	5	10	15
469.4	5.0	LL=33, PL=22, PI=11, NMC=17.4, %200=60			SS-3	2	2	6	8
		RESIDUAL							
464.4		Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)							
		LL=34, PL=27, PI=7, NMC=13.0, %200=45							
		Boring terminated at 5.0 feet							
459.4									
454.4									
449.4									
444.4									
439.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-029
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1327+31.24	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	480.1 ft	**Latitude:**	34.2091574	**Longitude:**	-81.3821092	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL			SS-1	2	4	5	9
		Stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6)		2.0	SS-2	3	3	12	15
	3.5			3.5					
	4.9	LL=48, PL=26, PI=22, NMC=22.2, %200=66			SS-3	9	17	50/5	50/5
475.1		**PARTIALLY WEATHERED ROCK**							
		Extremely hard, moist, grayish brown, sampled as Sandy SILT (A-4)							
470.1		Boring terminated at 4.9 feet							
465.1									
460.1									
455.1									
450.1									
445.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

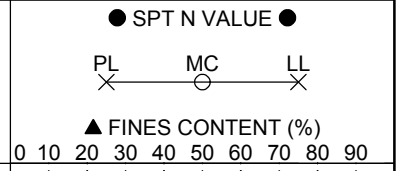
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-030
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1322+22.70	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	487.1 ft	**Latitude:**	34.2085728	**Longitude:**	-81.3805798	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Medium stiff, moist, orangish brown to reddish brown, Sandy SILT (ML) (A-7-6) with trace gravel and roots		2.0	SS-1	2	3	5	8
		LL=43, PL=27, PI=16, NMC=21.2, %200=65		3.5	SS-2	1	3	4	7
482.1	5.0				SS-3	1	2	4	6
		Boring terminated at 5.0 feet							
477.1									
472.1									
467.1									
462.1									
457.1									
452.1									



LEGEND

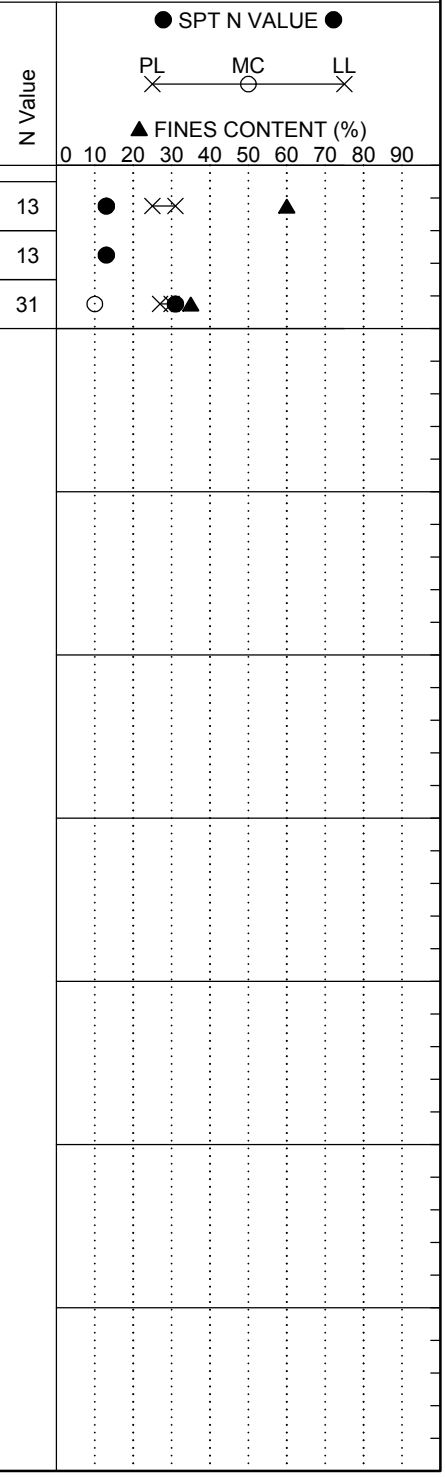
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-031
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1317+24.99	**Offset:**	6' LT	**Alignment:**	PROP_I26_CL
Elev.:	494.8 ft	**Latitude:**	34.2079469	**Longitude:**	-81.3791161	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace rocks LL=31, PL=25, PI=6, NMC=12.8, %200=60		0.5	SS-1	3	6	7	13
				2.0	SS-2	4	6	7	13
	3.5			3.5	SS-3	6	11	20	31
489.8	5.0	**RESIDUAL** Hard, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4) LL=30, PL=27, PI=3, NMC=9.5, %200=34.8							
		Boring terminated at 5.0 feet							
484.8									
479.8									
474.8									
469.8									
464.8									
459.8									



LEGEND

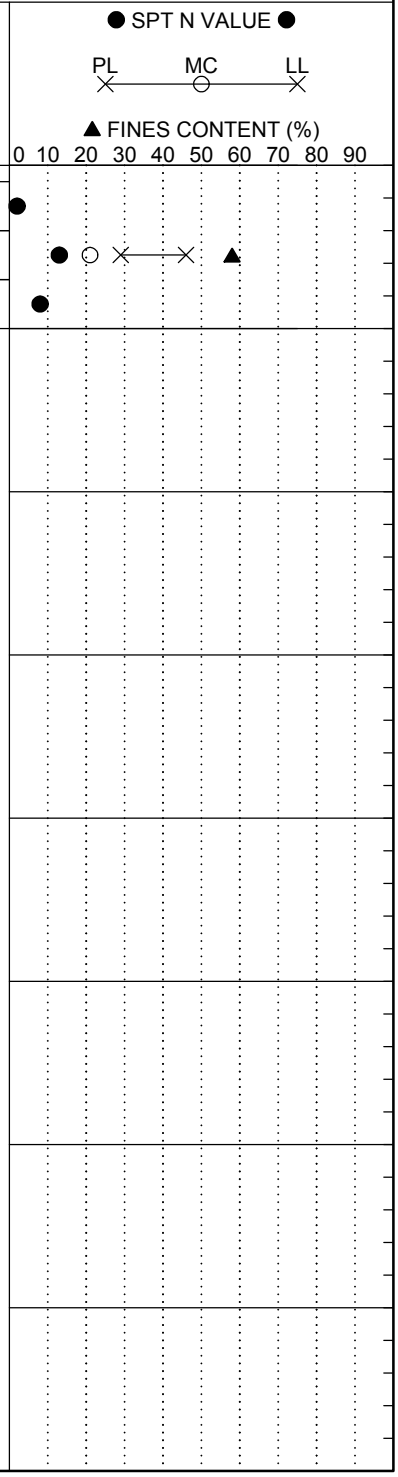
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-032
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1312+15.57	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	501.6 ft	**Latitude:**	34.2073508	**Longitude:**	-81.3775931	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very soft, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace roots		0.5	SS-1	1	1	1	2
	2.0	**FILL** Stiff to medium stiff, moist, reddish orange to brown, Sandy SILT (ML) (A-7-6) with trace gravel LL=46, PL=29, PI=17, NMC=20.9, %200=58		2.0	SS-2	4	7	6	13
496.6	5.0	Boring terminated at 5.0 feet		3.5	SS-3	2	3	5	8
491.6									
486.6									
481.6									
476.6									
471.6									
466.6									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-033
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1307+16.98	**Offset:**	11' LT	**Alignment:**	PROP_I26_CL
Elev.:	519.3 ft	**Latitude:**	34.2067202	**Longitude:**	-81.3761252	**Date Started:**	7/11/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/11/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		0.5					
	2.0			2.0	SS-1	3	2	4	6
				3.5	SS-2	2	3	5	8
		FILL Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7-6) LL=45, PL=28, PI=17, NMC=21.8, %200=69			SS-3	1	2	6	8
514.3	5.0	Boring terminated at 5.0 feet							
509.3									
504.3									
499.3									
494.3									
489.3									
484.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

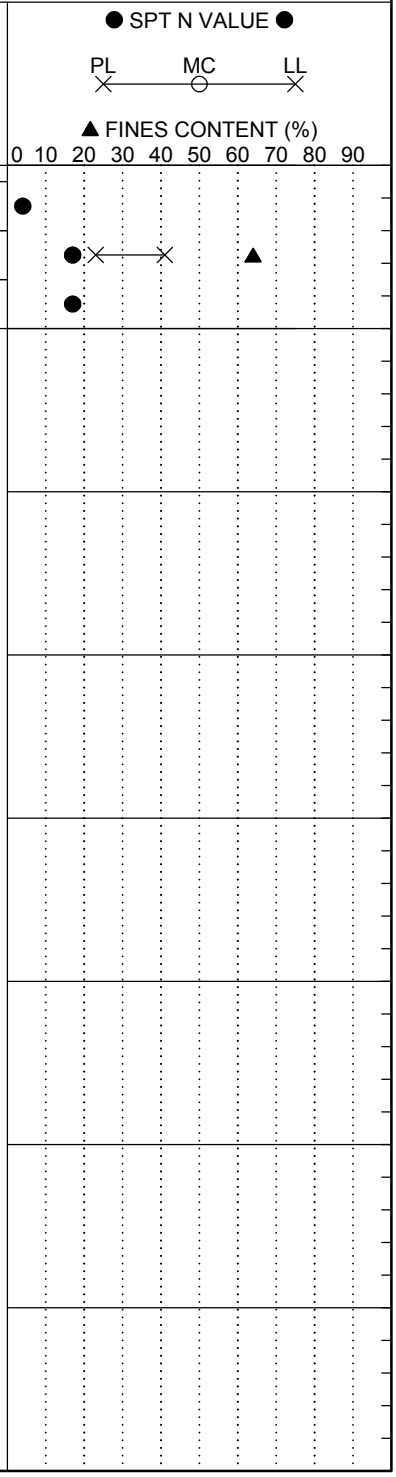
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-034
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1302+12.91	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	538.1 ft	**Latitude:**	34.2061399	**Longitude:**	-81.3746119	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Soft, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		2.0	SS-1	1	1	3	4
		RESIDUAL		3.5	SS-2	3	7	10	17
533.1	5.0	Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots LL=41, PL=23, PI=18, NMC=17.3, %200=64			SS-3	3	6	11	17
		Boring terminated at 5.0 feet							
528.1									
523.1									
518.1									
513.1									
508.1									
503.1									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-035
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1297+11.79	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	556.4 ft	**Latitude:**	34.2054756	**Longitude:**	-81.3731606	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	6	8	6	14
				3.5	SS-2	7	8	11	19
					SS-3	8	10	5	15
551.4	5.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4)							
		Boring terminated at 5.0 feet							
546.4									
541.4									
536.4									
531.4									
526.4									
521.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-036
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1292+01.16	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	560.8 ft	**Latitude:**	34.2047734	**Longitude:**	-81.3716996	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist to dry, orangish tan to orangish brown, Sandy SILT (ML) (A-5)		0.5					
				2.0	SS-1	2	7	8	15
	3.5			3.5	SS-2	4	4	6	10
		FILL Dense, dry, orangish tan to brown, Silty Fine to Coarse SAND (SM) (A-2-4) with some gravel			SS-3	2	3	7	10
555.8	5.0	Boring terminated at 5.0 feet							
550.8									
545.8									
540.8									
535.8									
530.8									
525.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-037
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1287+26.35	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	564.4 ft	**Latitude:**	34.2040236	**Longitude:**	-81.3704109	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		RESIDUAL			SS-1	1	3	4	7
		Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-2	2	3	4	7
				3.5	SS-3	2	4	4	8
559.4	5.0	Boring terminated at 5.0 feet							
554.4									
549.4									
544.4									
539.4									
534.4									
529.4									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

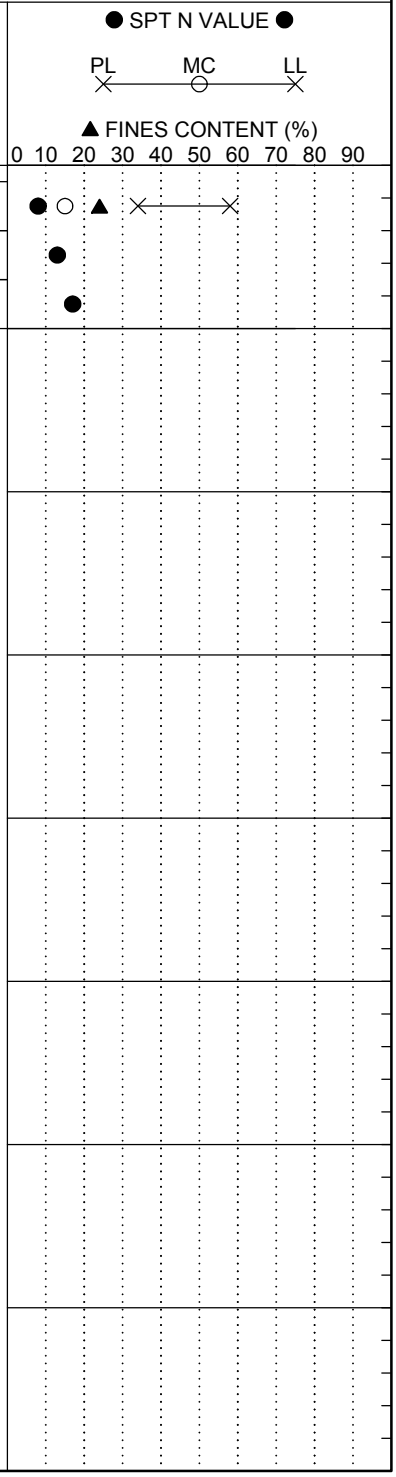
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-038
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1281+95.50	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	566.6 ft	**Latitude:**	34.203261	**Longitude:**	-81.3689151	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist to dry, orangish brown to reddish brown, Elastic SILT (MH) (A-7-5) with trace roots		0.5					
				2.0	SS-1	1	3	5	8
	3.5	LL=57, PL=37, PI=20, NMC=14.7, %200=57		3.5	SS-2	3	6	7	13
561.6	5.0	**RESIDUAL** Stiff, dry, reddish brown, Elastic SILT (MH) (A-5)			SS-3	4	6	11	17
		Boring terminated at 5.0 feet							
556.6									
551.6									
546.6									
541.6									
536.6									
531.6									



LEGEND

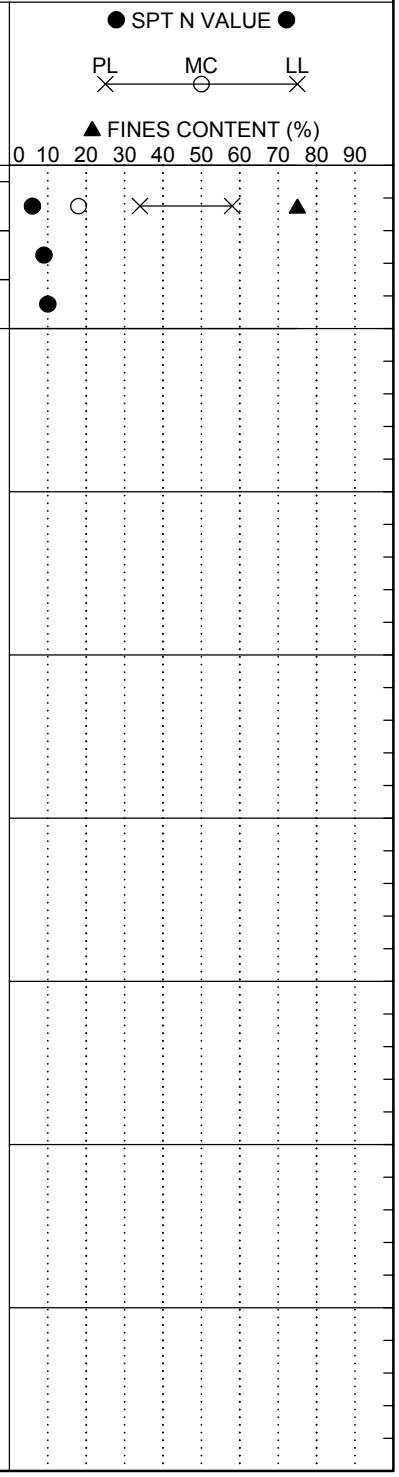
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-039
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1276+96.28	**Offset:**	18' LT	**Alignment:**	PROP_I26_CL
Elev.:	567.8 ft	**Latitude:**	34.2024482	**Longitude:**	-81.3675808	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil depth		0.5					
		FILL		2.0	SS-1	2	2	4	6
		Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		3.5	SS-2	6	4	5	9
		LL=58, PL=34, PI=24, NMC=18.3, %200=75			SS-3	5	5	5	10
562.8	5.0	Boring terminated at 5.0 feet							
557.8									
552.8									
547.8									
542.8									
537.8									
532.8									



LEGEND

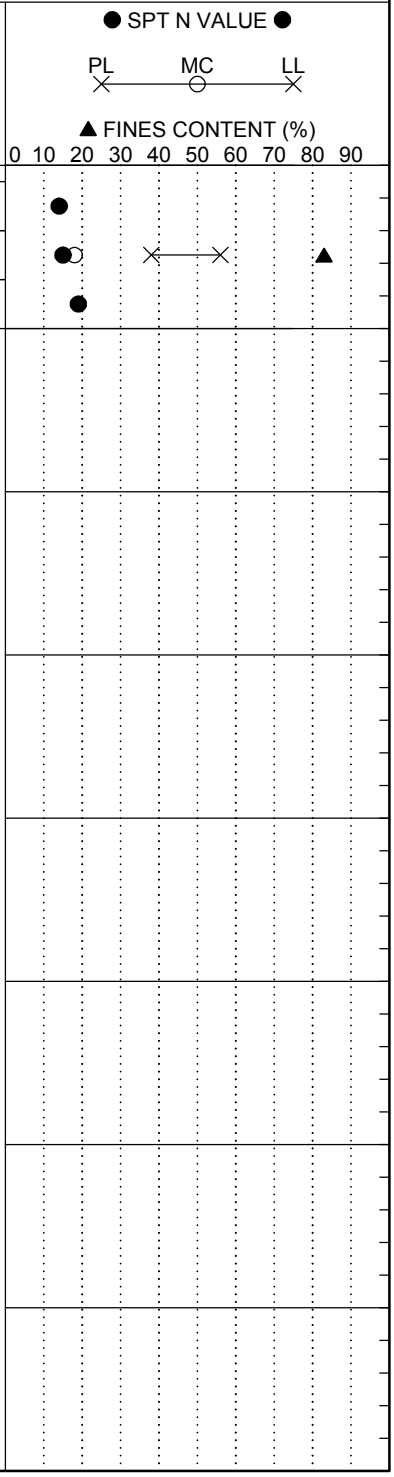
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-040
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1271+94.82	**Offset:**	23' RT	**Alignment:**	PROP_I26_CL
Elev.:	554.9 ft	**Latitude:**	34.2017838	**Longitude:**	-81.366121	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Stiff to very stiff, dry, orangish brown, Elastic SILT (MH) (A-7-5) with trace gravel		2.0	SS-1	4	6	8	14
		LL=56, PL=38, PI=18, NMC=17.5, %200=83		3.5	SS-2	3	6	9	15
					SS-3	4	8	11	19
549.9	5.0	Boring terminated at 5.0 feet							
544.9									
539.9									
534.9									
529.9									
524.9									
519.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-041
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1267+00.59	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	536.3 ft	**Latitude:**	34.2009626	**Longitude:**	-81.3648164	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		0.5					
	2.0			2.0	SS-1	3	5	6	11
	3.5	**FILL** Medium dense, dry, reddish brown, Silty Fine to Medium SAND (SM) (A-2-4)		3.5	SS-2	3	4	6	10
531.3	5.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)			SS-3	2	3	6	9
526.3		Boring terminated at 5.0 feet							
521.3									
516.3									
511.3									
506.3									
501.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

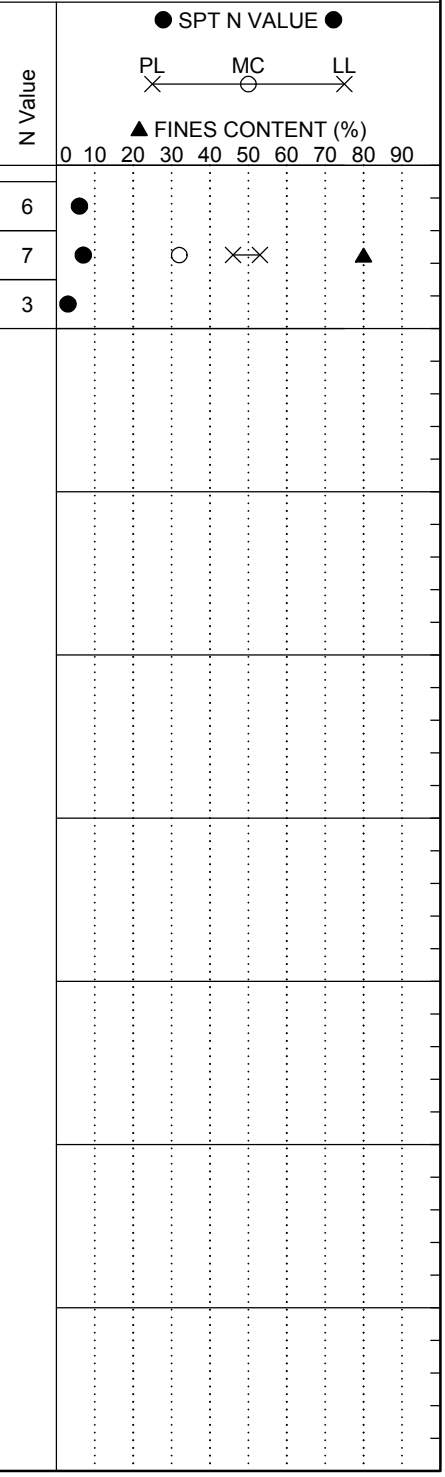
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-042
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1261+98.58	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	515.2 ft	**Latitude:**	34.200228	**Longitude:**	-81.3634105	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	2	2	4	6
		RESIDUAL		3.5	SS-2	1	3	4	7
510.2	5.0	Medium stiff to soft, moist, reddish brown, Elastic SILT (MH) (A-7-5)			SS-3	2	1	2	3
		LL=53, PL=46, PI=7, NMC=32, %200=80							
		Boring terminated at 5.0 feet							
505.2									
500.2									
495.2									
490.2									
485.2									
480.2									



LEGEND

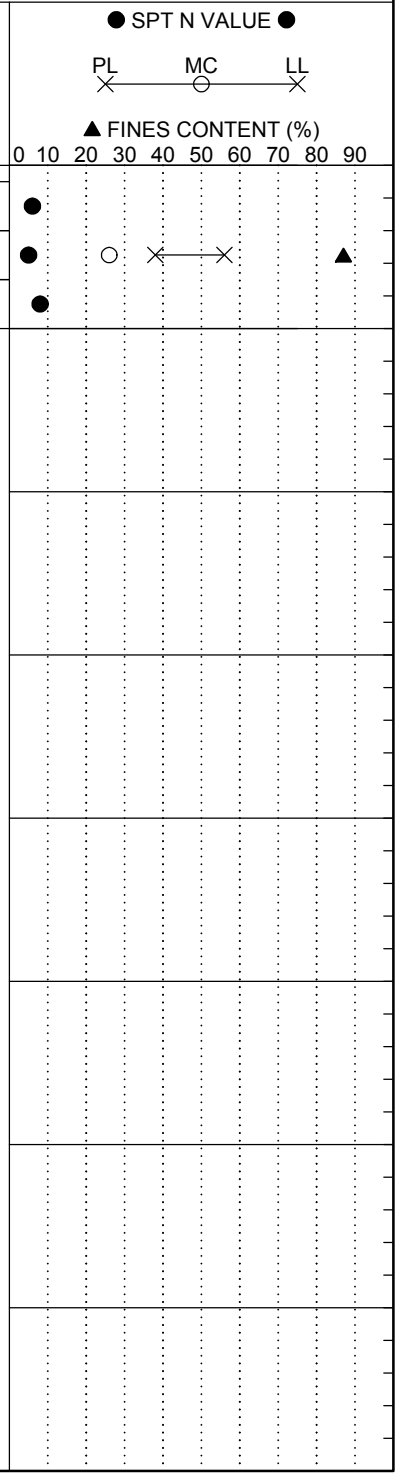
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-043
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1256+94.36	**Offset:**	4' LT	**Alignment:**	PROP_I26_CL
Elev.:	495.4 ft	**Latitude:**	34.1994479	**Longitude:**	-81.3620315	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace roots LL=56, PL=38, PI=18, NMC=25.9, %200=87		0.5					
				2.0	SS-1	1	3	3	6
				3.5	SS-2	1	2	3	5
					SS-3	1	3	5	8
490.4	5.0	Boring terminated at 5.0 feet							
485.4									
480.4									
475.4									
470.4									
465.4									
460.4									



LEGEND

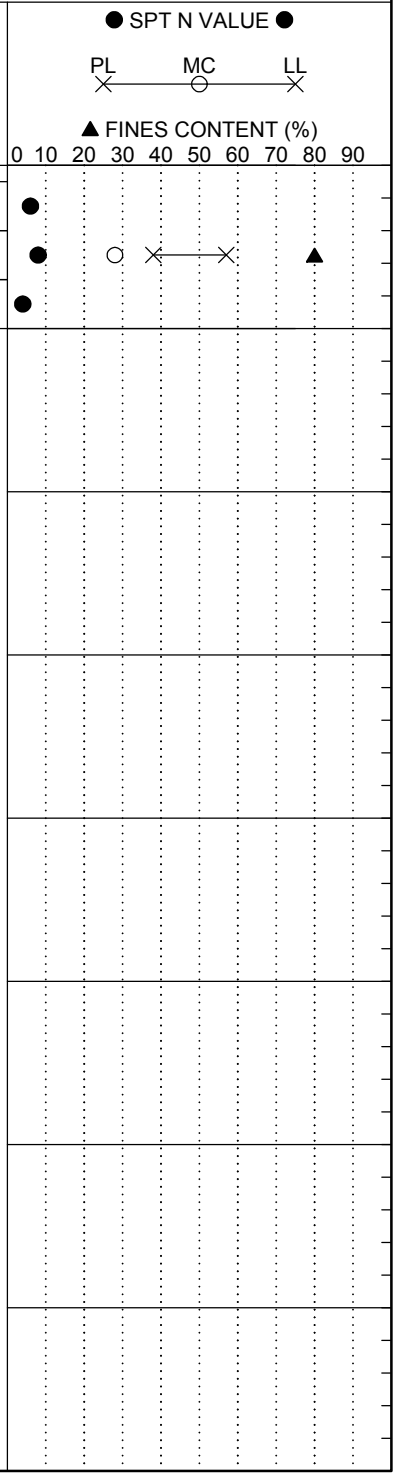
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	P-044
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1251+85.42	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	484.2 ft	**Latitude:**	34.1986984	**Longitude:**	-81.3606096	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Medium stiff to soft, reddish tan to reddish brown, Elastic SILT (MH) (A-7-5) LL=57, PL=38, PI=19, NMC=28, %200=80		0.5					
				2.0	SS-1	2	2	4	6
				3.5	SS-2	1	2	6	8
					SS-3	1	1	3	4
479.2	5.0	Boring terminated at 5.0 feet							
474.2									
469.2									
464.2									
459.2									
454.2									
449.2									



LEGEND

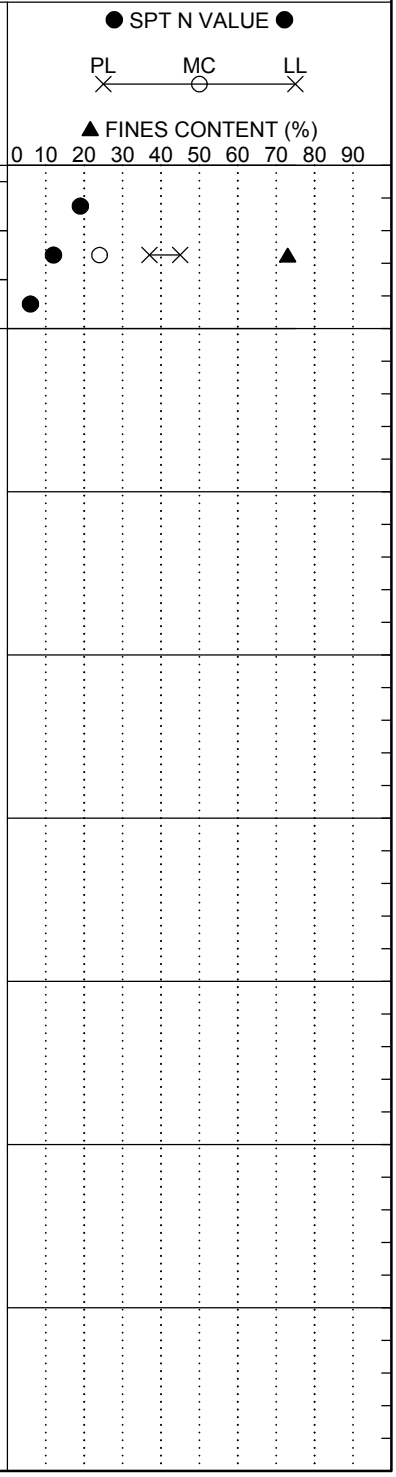
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-045
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1246+85.64	**Offset:**	22' LT	**Alignment:**	PROP_I26_CL
Elev.:	486.8 ft	**Latitude:**	34.1978748	**Longitude:**	-81.3592841	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Very stiff, tannish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	3	9	10	19
				3.5	SS-2	4	5	7	12
					SS-3	2	2	4	6
481.8	5.0	**RESIDUAL** Stiff to medium stiff, moist, tan to light brown, Sandy SILT (ML) (A-5) LL=45, PL=37, PI=8, NMC=23.5, %200=73							
		Boring terminated at 5.0 feet							
476.8									
471.8									
466.8									
461.8									
456.8									
451.8									



LEGEND

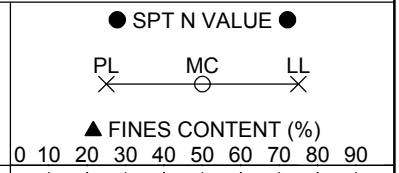
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-046
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1241+89.46	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	478.9 ft	**Latitude:**	34.1971826	**Longitude:**	-81.3578675	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel		2.0	SS-1	2	3	5	8
		RESIDUAL		3.5	SS-2	1	3	4	7
473.9	5.0	Medium stiff, moist, reddish brown, ELASTIC SILT (MH) (A-7-5) with trace roots LL=55, PL=42, PI=13, NMC=22.8, %200=84			SS-3	1	2	3	5
468.9		Boring terminated at 5.0 feet							
463.9									
458.9									
453.9									
448.9									
443.9									



LEGEND

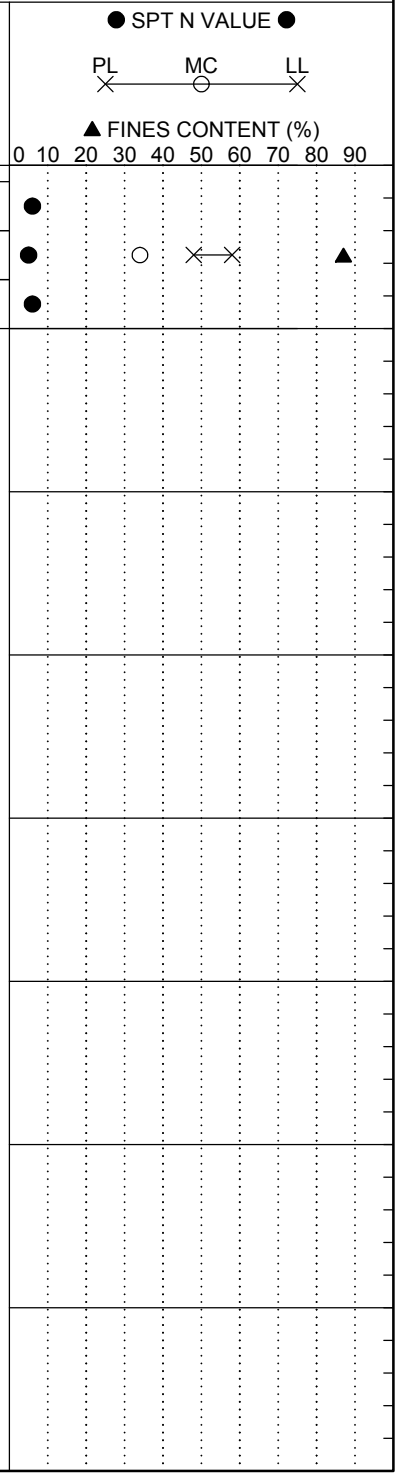
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-047
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1236+93.28	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	473.0 ft	**Latitude:**	34.1964063	**Longitude:**	-81.3565182	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	2	2	4	6
				3.5	SS-2	1	2	3	5
					SS-3	1	2	4	6
468.0	5.0	**RESIDUAL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5) LL=58, PL=48, PI=10, NMC=33.6, %200=87							
463.0		Boring terminated at 5.0 feet							
458.0									
453.0									
448.0									
443.0									
438.0									



LEGEND

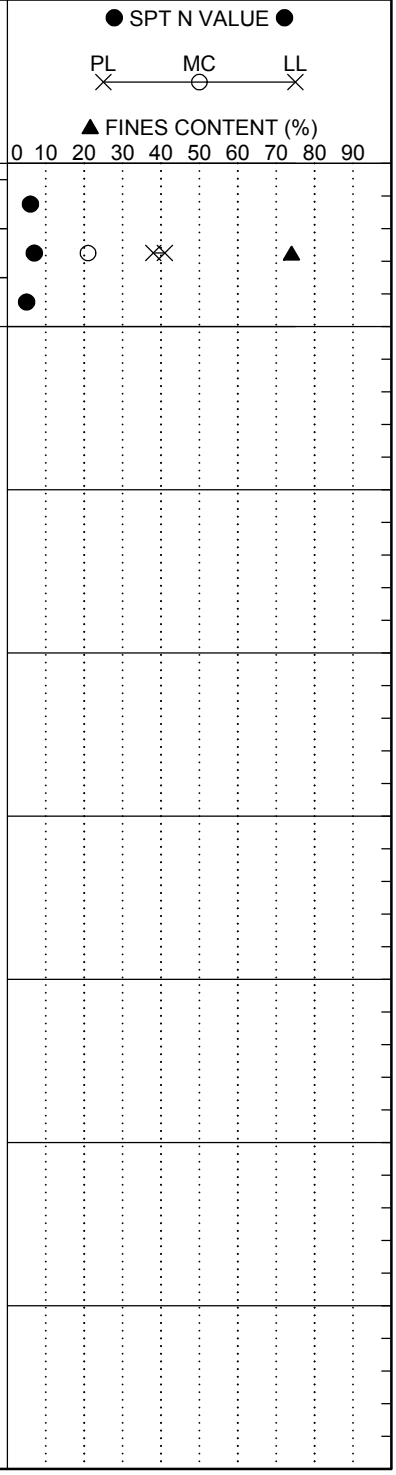
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-048
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1231+92.66	**Offset:**	18' RT	**Alignment:**	PROP_I26_CL
Elev.:	452.3 ft	**Latitude:**	34.1957047	**Longitude:**	-81.35509	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	1	3	3	6
		RESIDUAL		3.5	SS-2	3	3	4	7
447.3	5.0	Medium stiff, moist, tannish brown, Silty SAND (SM) (A-5) LL=41, PL=38, PI=3, NMC=21.4, %200=47			SS-3	1	2	3	5
		Boring terminated at 5.0 feet							
442.3									
437.3									
432.3									
427.3									
422.3									
417.3									



LEGEND

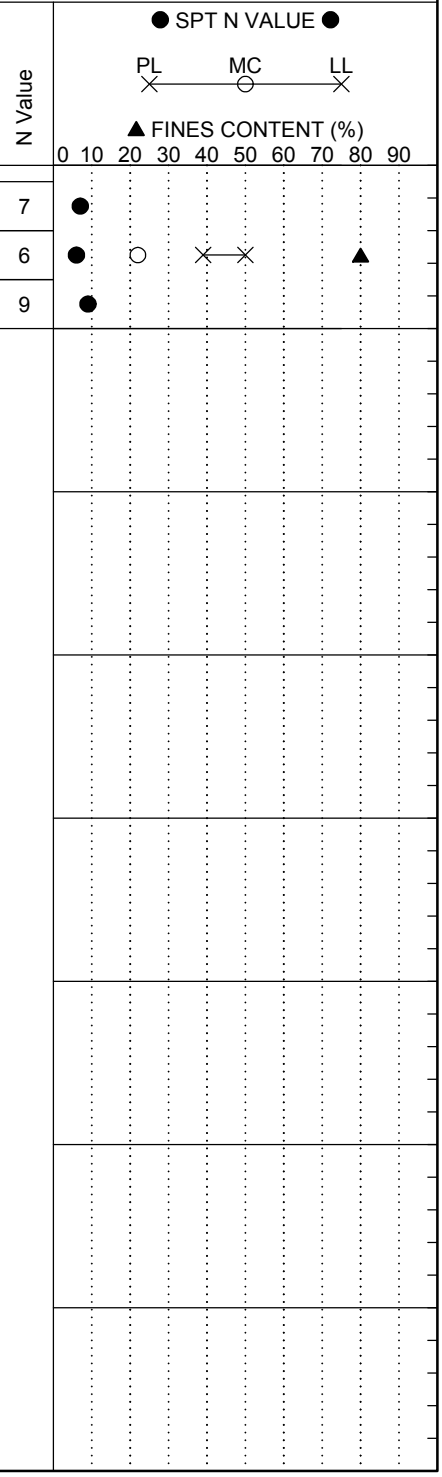
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-049
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1226+81.53	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	432.3 ft	**Latitude:**	34.1948628	**Longitude:**	-81.3537318	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	4	3	4	7
		Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		3.5	SS-2	2	3	3	6
		LL=50, PL=39, PI=11, NMC=22.1, %200=80			SS-3	2	4	5	9
427.3	5.0	Boring terminated at 5.0 feet							
422.3									
417.3									
412.3									
407.3									
402.3									
397.3									



LEGEND

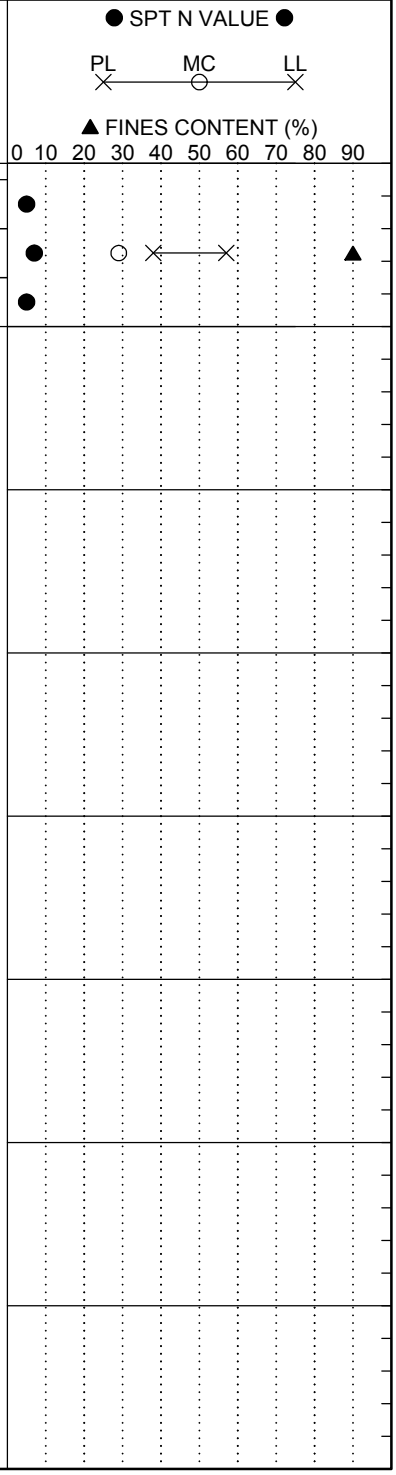
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-050
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1221+79.76	**Offset:**	8' RT	**Alignment:**	PROP_I26_CL
Elev.:	425.6 ft	**Latitude:**	34.1941486	**Longitude:**	-81.3523119	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	1	2	3	5
		RESIDUAL		3.5	SS-2	2	3	4	7
420.6	5.0	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=57, PL=38, PI=19, NMC=28.9, %200=90			SS-3	2	2	3	5
		Boring terminated at 5.0 feet							
415.6									
410.6									
405.6									
400.6									
395.6									
390.6									



LEGEND

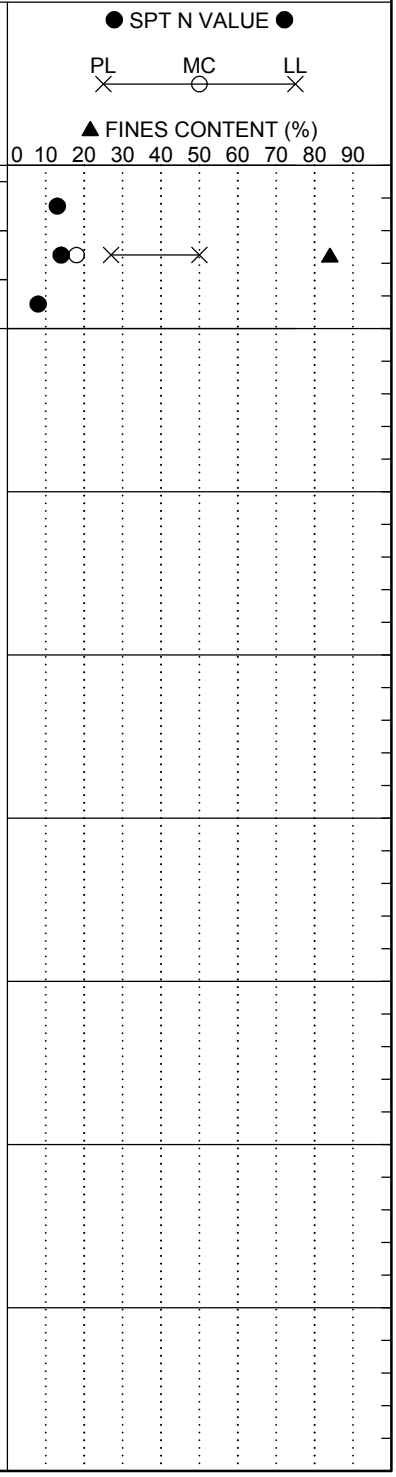
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-051
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1216+86.39	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	434.8 ft	**Latitude:**	34.1933629	**Longitude:**	-81.3509816	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, grayish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	5	7	6	13
		FILL		3.5	SS-2	9	7	7	14
429.8	5.0	Stiff to medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace gravel			SS-3	2	4	4	8
		LL=50, PL=27, PI=23, NMC=18.4, %200=84							
		Boring terminated at 5.0 feet							
424.8									
419.8									
414.8									
409.8									
404.8									
399.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-052
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1211+72.14	**Offset:**	11' RT	**Alignment:**	PROP_I26_CL
Elev.:	441.9 ft	**Latitude:**	34.192632	**Longitude:**	-81.3495233	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, reddish brown, Silty Fine SAND (SM) (A-2-4)		0.5					
	2.0			2.0	SS-1	5	4	5	9
	3.5	**FILL** Stiff, moist, orangish tan, Sandy SILT (ML) (A-4)		3.5	SS-2	3	4	5	9
436.9	5.0				SS-3	18	5	7	12
		RESIDUAL Stiff, moist, orangish tan, Sandy SILT (ML) (A-4)							
431.9		Boring terminated at 5.0 feet							
426.9									
421.9									
416.9									
411.9									
406.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

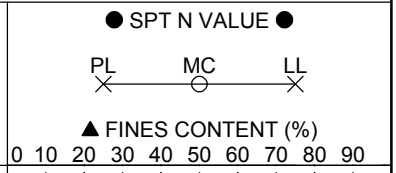
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-053
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1206+75.44	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	432.8 ft	**Latitude:**	34.1918377	**Longitude:**	-81.3481889	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	3	4	4	8
		Medium stiff to soft, moist, tannish brown to brown, Plastic CLAY (CH) (A-7-6) with trace roots and gravel		2.0	SS-2	1	2	5	7
				3.5	SS-3	1	1	2	3
427.8	5.0	LL=56, PL=29, PI=27, NMC=20.5, %200=88							
		Boring terminated at 5.0 feet							
422.8									
417.8									
412.8									
407.8									
402.8									
397.8									



LEGEND

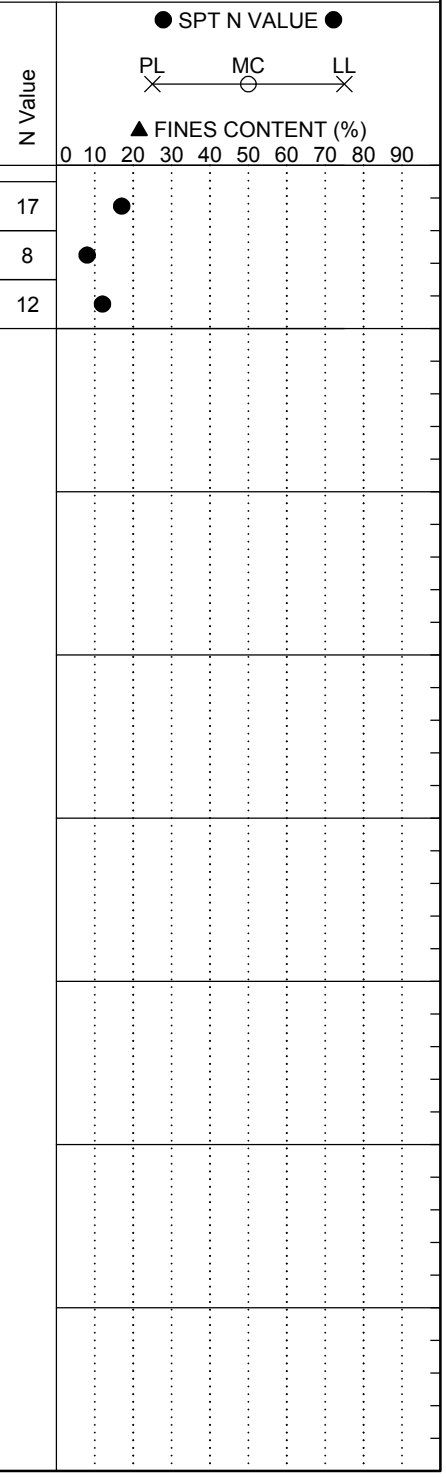
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-054
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1201+66.75	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	413.0 ft	**Latitude:**	34.1910998	**Longitude:**	-81.346756	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots		2.0	SS-1	6	9	8	17
				3.5	SS-2	2	3	5	8
					SS-3	8	5	7	12
408.0	5.0	**RESIDUAL** Medium stiff to stiff, moist, orangish tan to tan, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
403.0									
398.0									
393.0									
388.0									
383.0									
378.0									



LEGEND

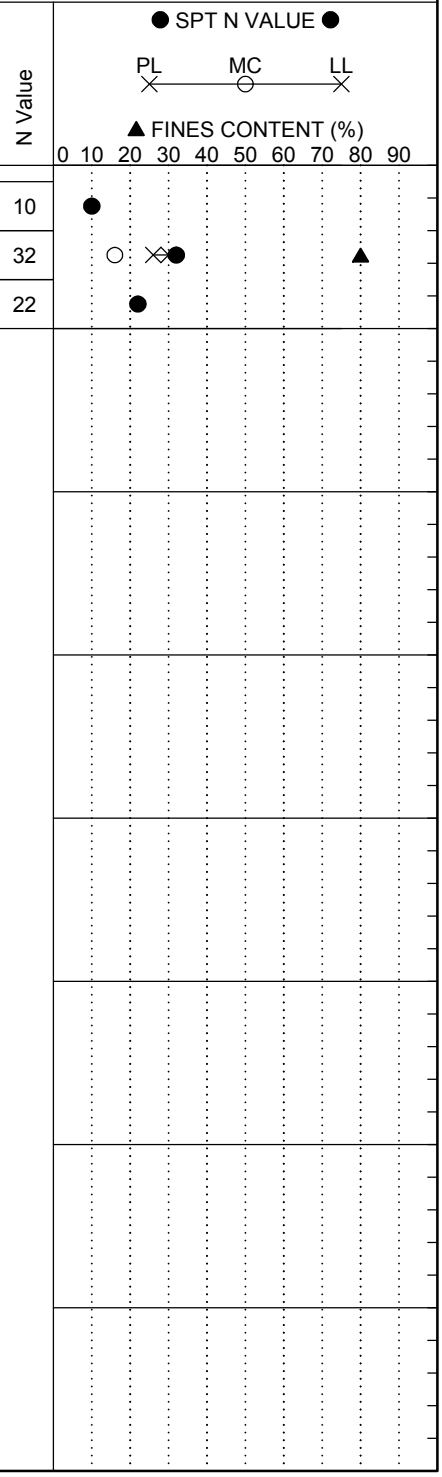
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-055
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1196+67.28	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	392.9 ft	**Latitude:**	34.1903079	**Longitude:**	-81.3454067	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, brownish tan, Sandy SILT (ML) (A-4)		2.0	SS-1	2	3	7	10
				3.5	SS-2	13	14	18	32
					SS-3	2	7	15	22
387.9	5.0	**RESIDUAL** Hard to very stiff, moist, tan, Sandy SILT (ML) (A-4) LL=30, PL=26, PI=4, NMC=16.4, %200=80							
		Boring terminated at 5.0 feet							
382.9									
377.9									
372.9									
367.9									
362.9									
357.9									



LEGEND

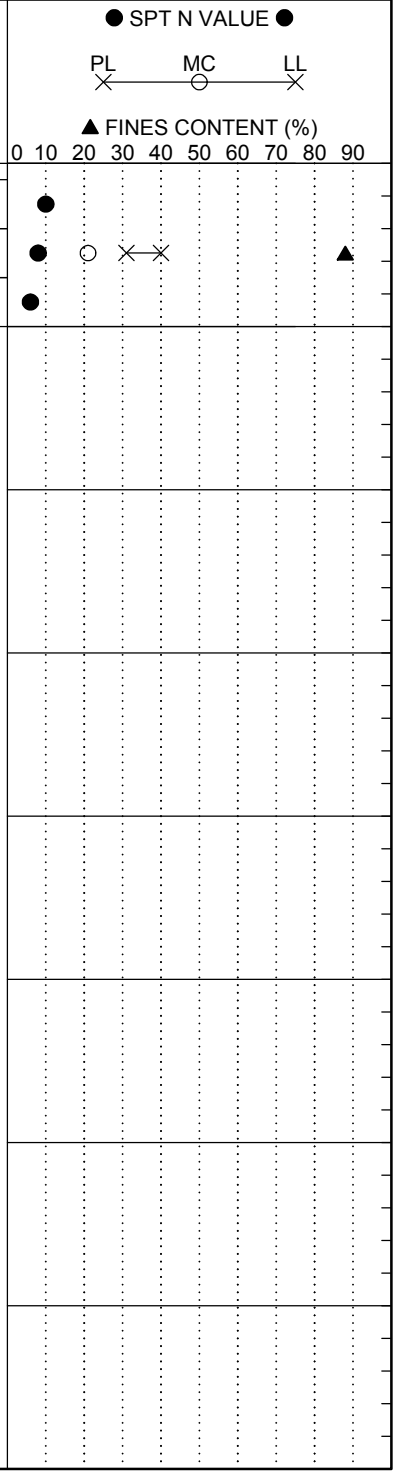
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	P-056
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1191+61.63	**Offset:**	8' RT	**Alignment:**	PROP_I26_CL
Elev.:	372.9 ft	**Latitude:**	34.189583	**Longitude:**	-81.3439791	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Stiff to medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	3	5	5	10
		LL=40, PL=31, PI=9, NMC=20.6, %200=88, OC=3.7		3.5	SS-2	1	3	5	8
367.9	5.0				SS-3	3	2	4	6
		Boring terminated at 5.0 feet							
362.9									
357.9									
352.9									
347.9									
342.9									
337.9									



LEGEND

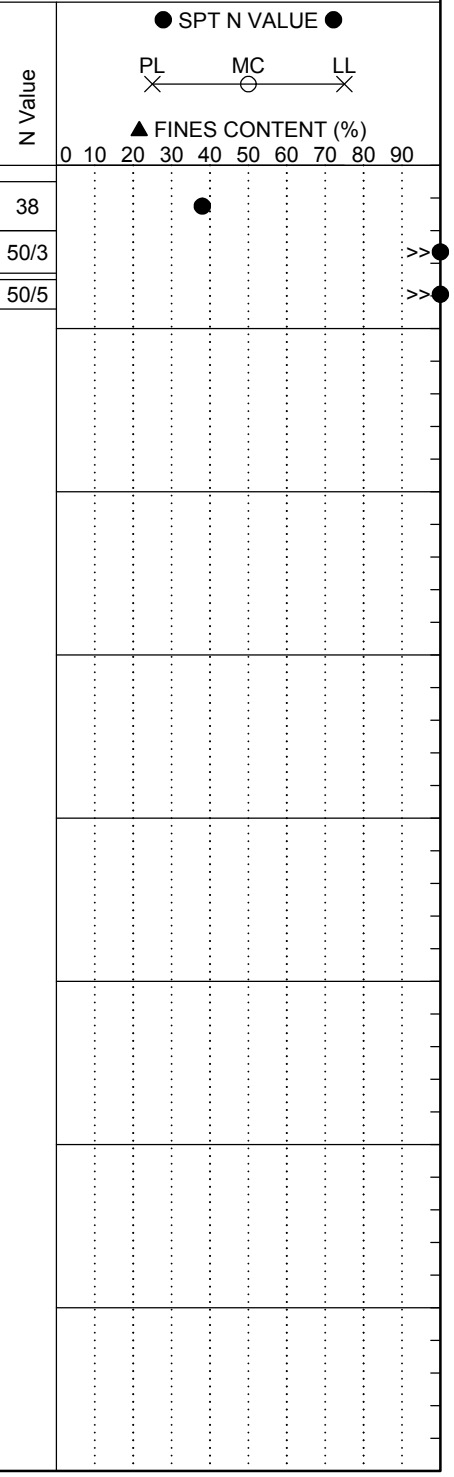
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-057
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1186+65.21	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	357.3 ft	**Latitude:**	34.1887929	**Longitude:**	-81.3426397	**Date Started:**	7/12/2017
Total Depth:	4.5 ft	**Soil Depth:**	4.5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Hard, moist, orangish brown, Sandy SILT (ML) (A-5)		2.0	SS-1	2	12	26	38
				3.5	SS-2	5	39	50/3	50/3
	4.5				SS-3	26	50/5		50/5
352.3		**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, sampled as Silty SAND (A-2-4)							
		Boring terminated at 4.5 feet							
347.3									
342.3									
337.3									
332.3									
327.3									
322.3									



LEGEND

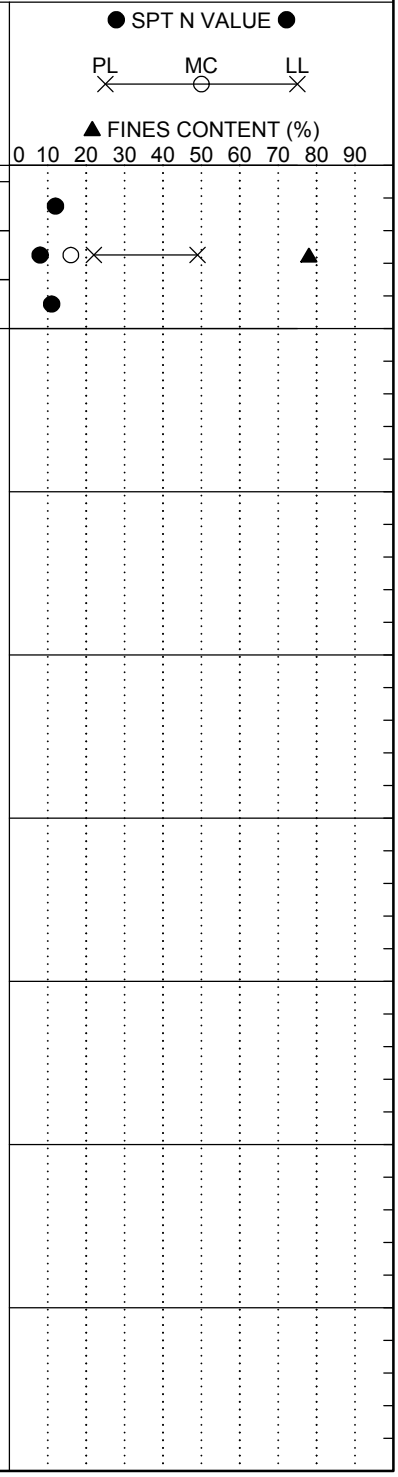
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-058
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1181+54.86	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	345.0 ft	**Latitude:**	34.1880502	**Longitude:**	-81.3412087	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	6	6	12
				3.5	SS-2	2	3	5	8
					SS-3	3	3	8	11
340.0	5.0	**RESIDUAL** Medium stiff to stiff, moist, orangish tan, Sandy CLAY (CL) (A-7-6) LL=49, PL=22, PI=27, NMC=15.9, %200=78							
335.0		Boring terminated at 5.0 feet							
330.0									
325.0									
320.0									
315.0									
310.0									



LEGEND

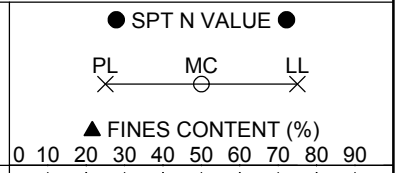
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-059
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1176+57.59	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	339.7 ft	**Latitude:**	34.1872674	**Longitude:**	-81.3398577	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	2	3	5
		Medium stiff to stiff, moist, orangish brown to grayish brown, Plastic CLAY (CH) (A-7-6) with trace gravel		3.5	SS-2	6	3	8	11
334.7	5.0	LL=51, PL=28, PI=23, NMC=28.0, %200=75			SS-3	1	3	4	7
		Boring terminated at 5.0 feet							
329.7									
324.7									
319.7									
314.7									
309.7									
304.7									



LEGEND

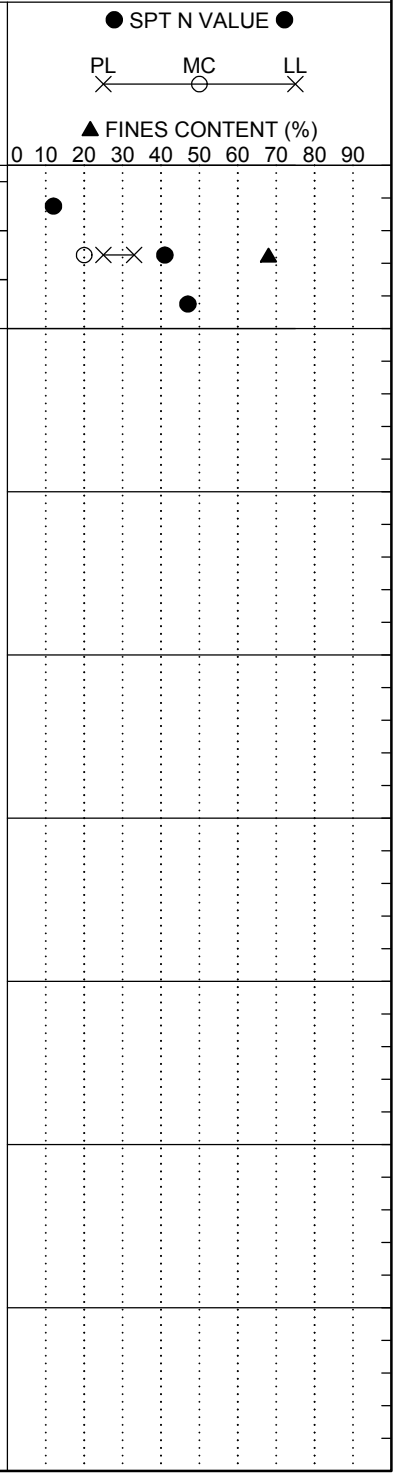
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-060
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1171+49.73	**Offset:**	8' RT	**Alignment:**	PROP_I26_CL
Elev.:	337.3 ft	**Latitude:**	34.1865406	**Longitude:**	-81.3384241	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, brown to tan, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	2	4	8	12
		Hard, moist, brown to tan, Sandy SILT (ML) (A-4)		3.5	SS-2	5	19	22	41
332.3	5.0	LL=33, PL=25, PI=8, NMC=19.5, %200=68			SS-3	5	13	34	47
		Boring terminated at 5.0 feet							
327.3									
322.3									
317.3									
312.3									
307.3									
302.3									



LEGEND

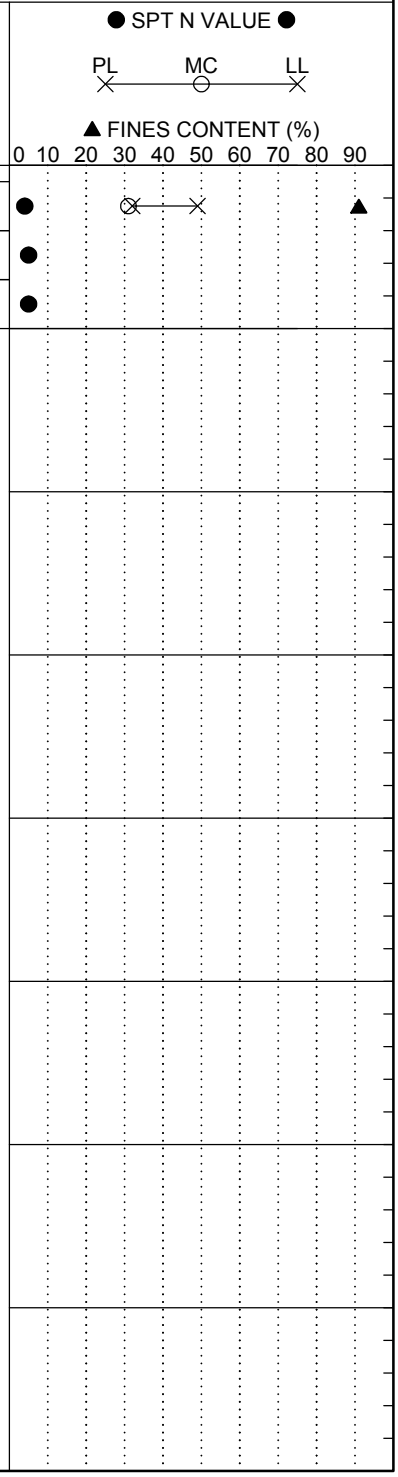
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-061
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1166+27.79	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	343.5 ft	**Latitude:**	34.1857064	**Longitude:**	-81.3370198	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Soft, moist, orangish brown, Sandy SILT (ML) (A-7-5)		0.5					
				2.0	SS-1	2	2	2	4
	3.5	LL=49, PL=32, PI=17, NMC=30.7, %200=91		3.5	SS-2	1	2	3	5
					SS-3	1	2	3	5
338.5	5.0	**FILL** Soft, moist, reddish brown, Sandy SILT (ML) (A-5)							
		Boring terminated at 5.0 feet							
333.5									
328.5									
323.5									
318.5									
313.5									
308.5									



LEGEND

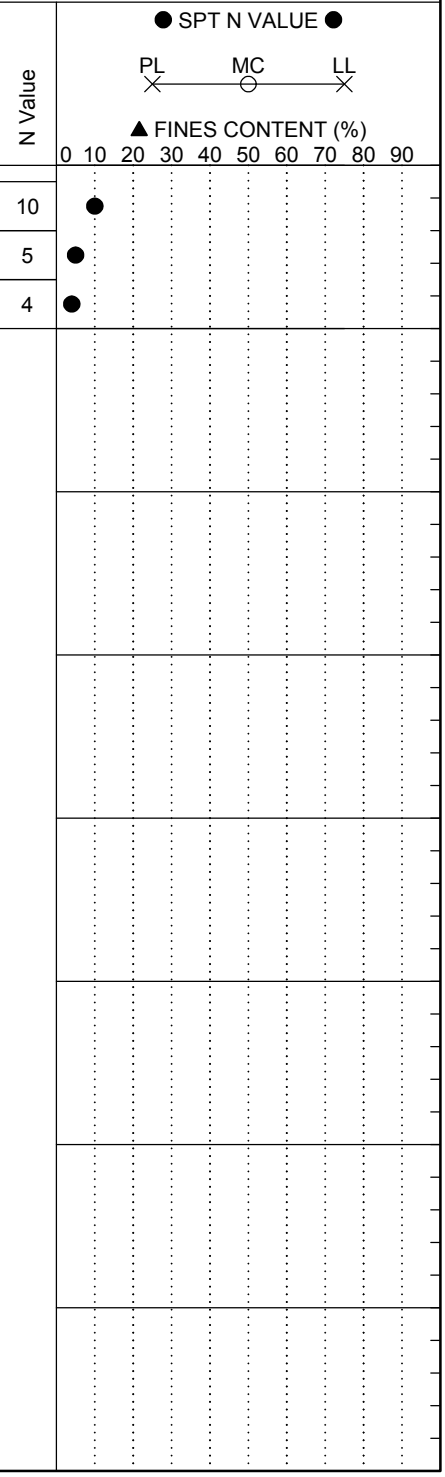
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-062
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1201+70.29	**Offset:**	42' RT	**Alignment:**	PROP_I26_CL
Elev.:	342.4 ft	**Latitude:**	34.1911881	**Longitude:**	-81.3467004	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	3	6	4	10
				3.5	SS-2	3	2	3	5
					SS-3	1	2	2	4
337.4	5.0	**RESIDUAL** Medium stiff to soft, moist, pinkish tan, Sandy SILT (ML) (A-4) LL=40, PL=31, PI=9, NMC=25.3, %200=86							
		Boring terminated at 5.0 feet							
332.4									
327.4									
322.4									
317.4									
312.4									
307.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-063
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1156+37.56	**Offset:**	15' LT	**Alignment:**	PROP_I26_CL
Elev.:	372.6 ft	**Latitude:**	34.1841747	**Longitude:**	-81.3343151	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	2	3	3	6
				3.5	SS-2	7	3	4	7
					SS-3	2	5	7	12
367.6	5.0	**RESIDUAL** Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-5) LL=42, PL=35, PI=7, NMC=21.3, %200=89							
		Boring terminated at 5.0 feet							
362.6									
357.6									
352.6									
347.6									
342.6									
337.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

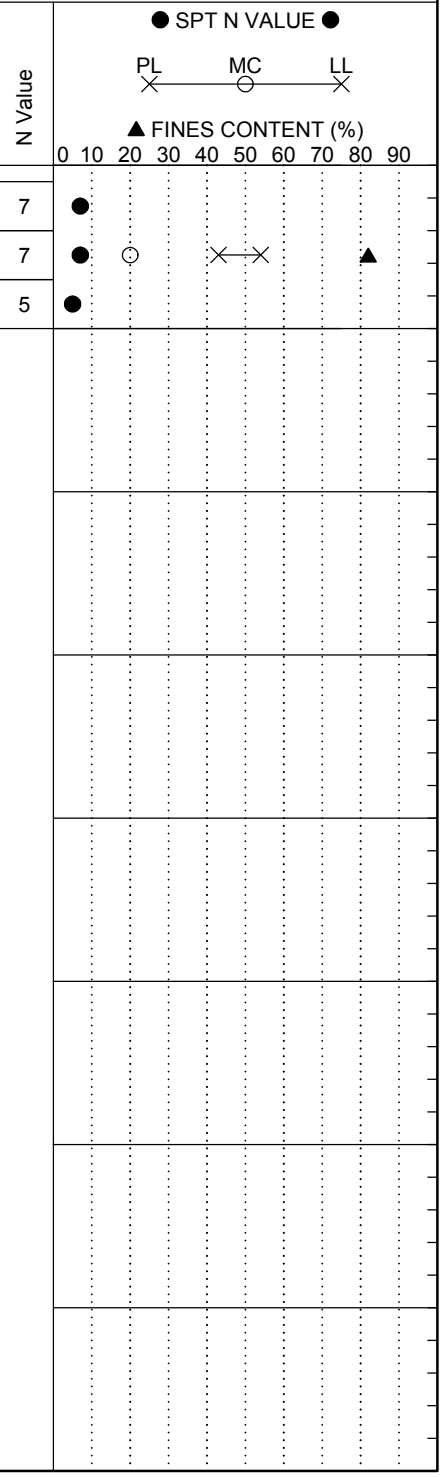
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-064
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1151+46.12	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	378.4 ft	**Latitude:**	34.1834273	**Longitude:**	-81.3329571	**Date Started:**	7/17/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, orangish tan, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	3	3	4	7
				3.5	SS-2	2	3	4	7
					SS-3	2	2	3	5
373.4	5.0	**FILL** Medium stiff, moist, orangish tan to reddish tan, Elastic SILT (MH) (A-7-5) LL=54, PL=43, PI=11, NMC=19.9, %200=82							
368.4		Boring terminated at 5.0 feet							
363.4									
358.4									
353.4									
348.4									
343.4									



LEGEND

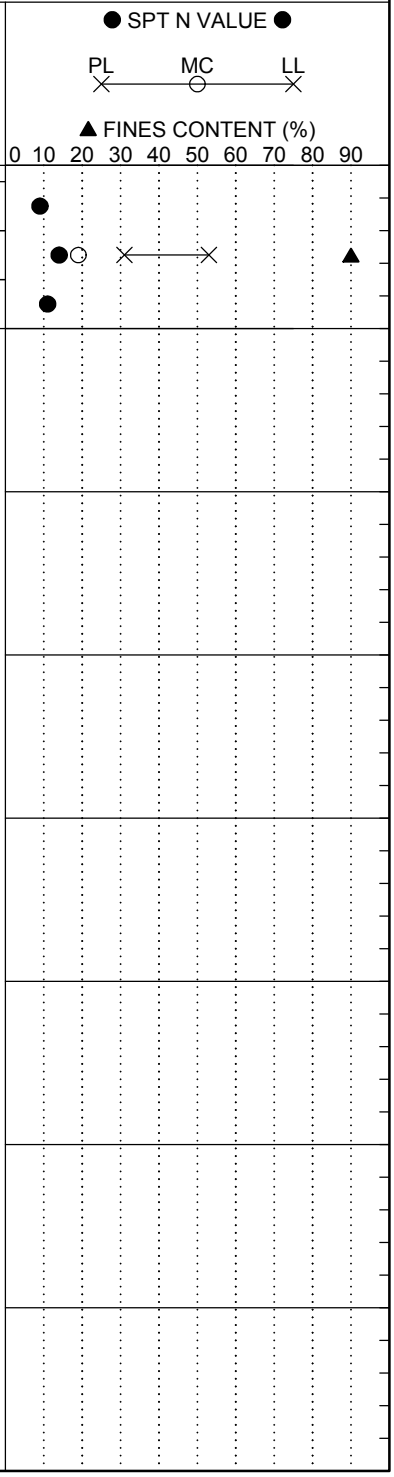
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-065
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1146+43.29	**Offset:**	11' LT	**Alignment:**	PROP_I26_CL
Elev.:	382.8 ft	**Latitude:**	34.1825827	**Longitude:**	-81.3316416	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace roots and gravel-sized rock fragments		2.0	SS-1	4	4	5	9
	3.5			3.5	SS-2	1	5	9	14
377.8	5.0	Stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-5) LL=53, PL=31, PI=22, NMC=19.2, %200=90			SS-3	5	5	6	11
372.8		Stiff, moist, orangish brown, Sandy SILT (ML) (A-5)							
		Boring terminated at 5.0 feet							
367.8									
362.8									
357.8									
352.8									
347.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-066
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1141+39.03	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	380.1 ft	**Latitude:**	34.1818058	**Longitude:**	-81.3302606	**Date Started:**	7/17/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	4	6	10	16
		Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)		3.5	SS-2	5	8	8	16
					SS-3	5	4	12	16
375.1	5.0	Boring terminated at 5.0 feet							
370.1									
365.1									
360.1									
355.1									
350.1									
345.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

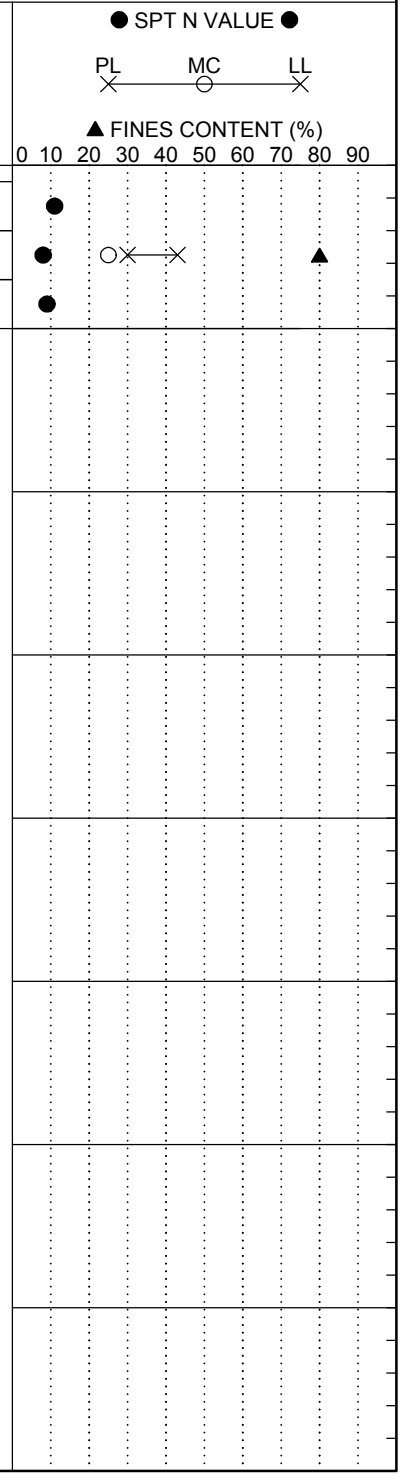
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-067
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1136+43.99	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	366.5 ft	**Latitude:**	34.1809721	**Longitude:**	-81.3289655	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	6	5	11
				3.5	SS-2	5	4	4	8
					SS-3	1	2	7	9
361.5	5.0	**RESIDUAL** Medium stiff to stiff, moist, orangish brown to tannish brown, Sandy SILT (ML) (A-7) LL=43, PL=30, PI=13, NMC=24.7, %200=80							
356.5		Boring terminated at 5.0 feet							
351.5									
346.5									
341.5									
336.5									
331.5									



LEGEND

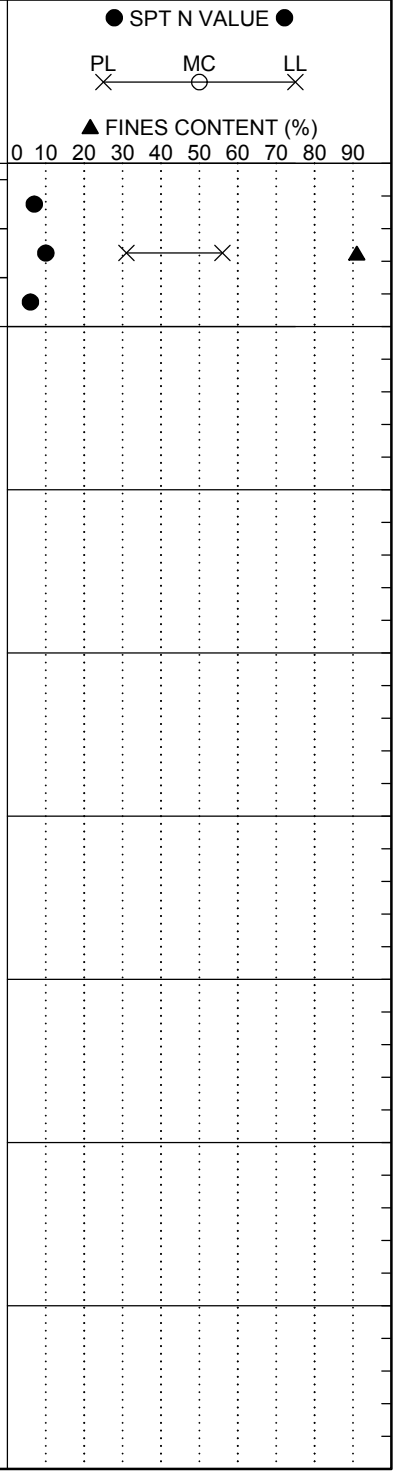
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-068
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1131+29.35	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	359.5 ft	**Latitude:**	34.1801745	**Longitude:**	-81.3275574	**Date Started:**	7/17/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace roots and gravel		0.5					
	2.0			2.0	SS-1	3	3	4	7
		FILL Stiff to medium stiff, moist, orangish brown, Elastic SILT (MH) (A-7-5) with trace roots LL=56, PL=31, PI=25, NMC=27.4, %200=91		3.5	SS-2	1	4	6	10
354.5	5.0				SS-3	2	2	4	6
		Boring terminated at 5.0 feet							
349.5									
344.5									
339.5									
334.5									
329.5									
324.5									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-069
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1126+34.10	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	367.9 ft	**Latitude:**	34.1793457	**Longitude:**	-81.3262587	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		2.0	SS-1	2	6	8	14
				3.5	SS-2	5	16	20	36
362.9	5.0	Hard to very stiff, moist, tannish brown, Sandy SILT (ML) (A-4) LL=34, PL=31, PI=3, NMC=22.6, %200=71			SS-3	11	13	13	26
		Boring terminated at 5.0 feet							
357.9									
352.9									
347.9									
342.9									
337.9									
332.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-070
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1121+33.06	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	375.6 ft	**Latitude:**	34.1785673	**Longitude:**	-81.3248918	**Date Started:**	7/17/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots LL=43, PL=34, PI=9, NMC=22.9, %200=85		0.5	SS-1	3	3	3	6
				2.0	SS-2	1	2	3	5
				3.5	SS-3	1	2	5	7
370.6	5.0	Boring terminated at 5.0 feet							
365.6									
360.6									
355.6									
350.6									
345.6									
340.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

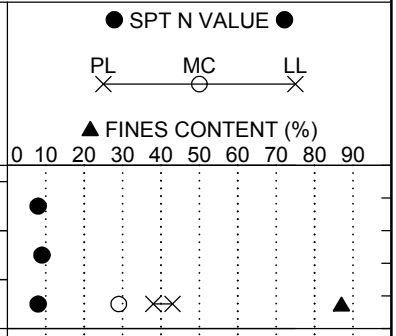
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-071
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1116+35.01	**Offset:**	11' LT	**Alignment:**	PROP_I26_CL
Elev.:	385.2 ft	**Latitude:**	34.1777335	**Longitude:**	-81.323585	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL** Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML) (A-5) LL=43, PL=38, PI=5, NMC=29.4, %200=87		0.5					
				2.0	SS-1	2	3	5	8
				3.5	SS-2	2	4	5	9
					SS-3	1	4	4	8
380.2	5.0	Boring terminated at 5.0 feet							
375.2									
370.2									
365.2									
360.2									
355.2									
350.2									



LEGEND

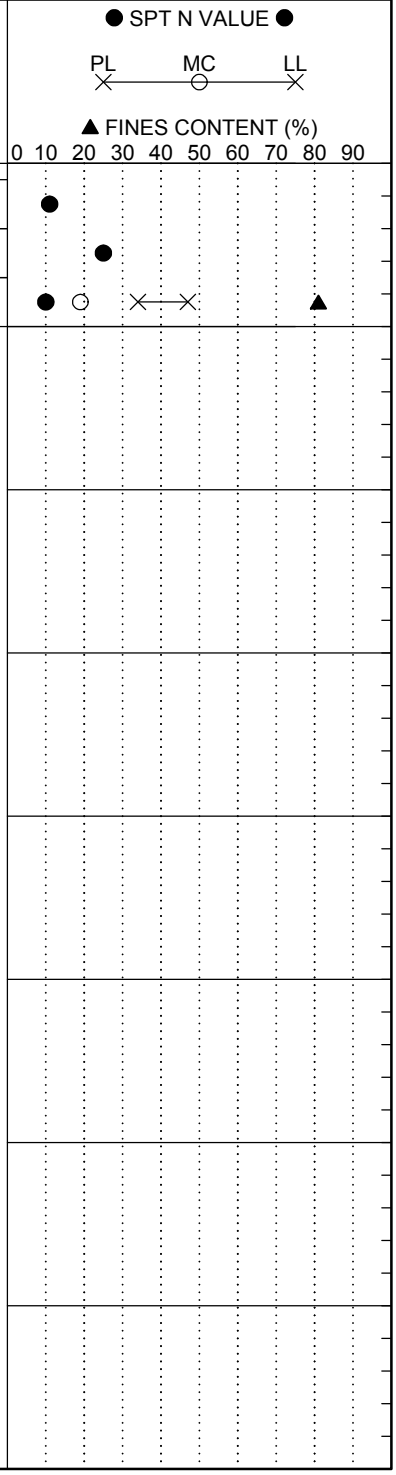
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-072
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1111+19.59	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	392.4 ft	**Latitude:**	34.1769424	**Longitude:**	-81.3221713	**Date Started:**	7/12/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/12/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Medium dense, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-2-4) with trace gravel-sized rock fragments		2.0	SS-1	2	5	6	11
				3.5	SS-2	4	8	17	25
	5.0	Very stiff to stiff, moist, tannish brown, Sandy SILT (ML) (A-7-5)			SS-3	2	4	6	10
387.4		LL=47, PL=34, PI=13, NMC=19.2, %200=81							
		Boring terminated at 5.0 feet							
382.4									
377.4									
372.4									
367.4									
362.4									
357.4									



LEGEND

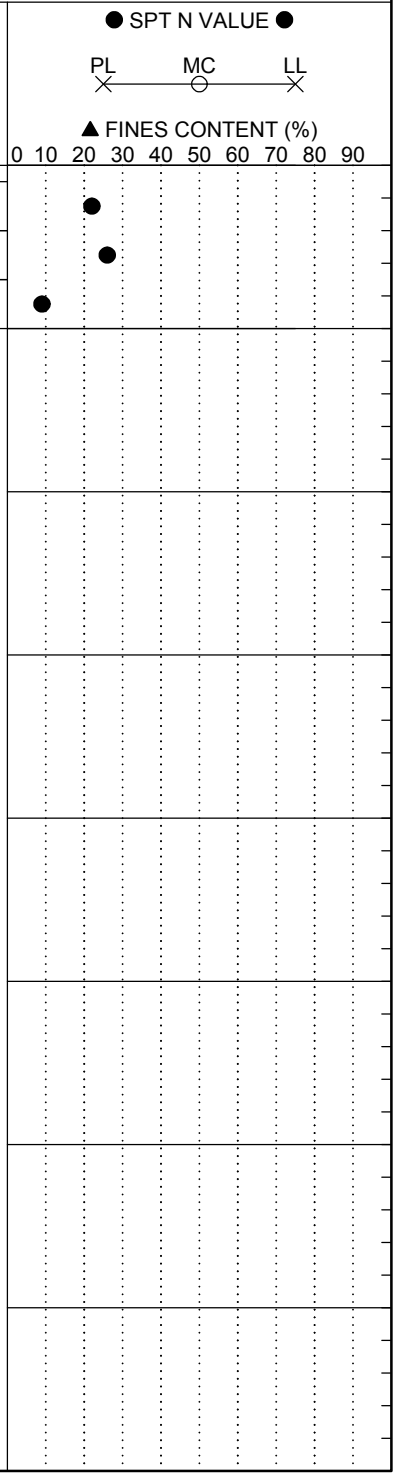
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-073
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1106+19.72	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	384.3 ft	**Latitude:**	34.1762263	**Longitude:**	-81.320757	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Deoth		0.5					
		RESIDUAL		2.0	SS-1	9	11	11	22
		Very stiff to stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		3.5	SS-2	19	14	12	26
					SS-3	3	4	5	9
379.3	5.0	Boring terminated at 5.0 feet							
374.3									
369.3									
364.3									
359.3									
354.3									
349.3									



LEGEND

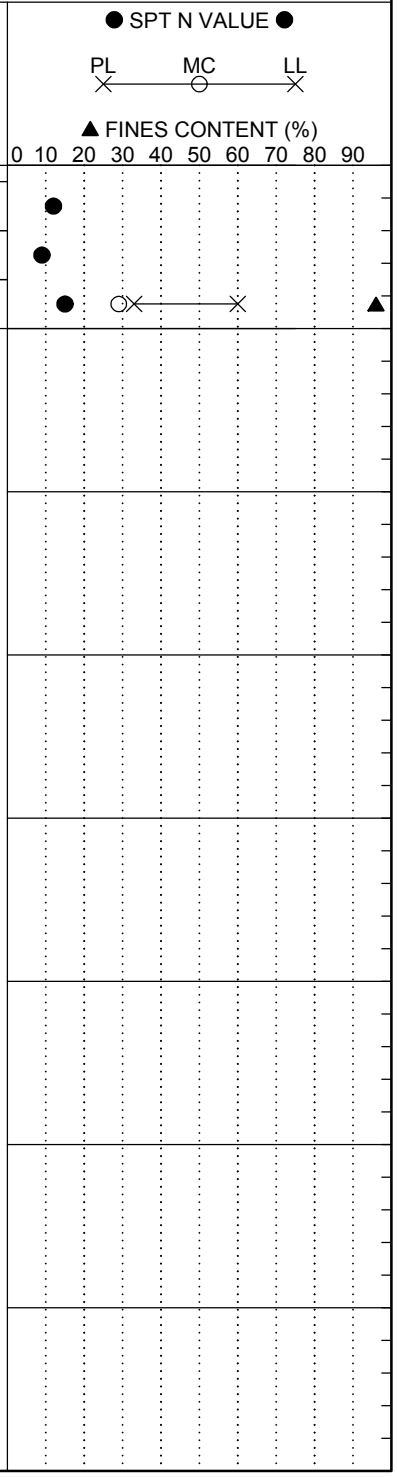
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-074
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1101+19.87	**Offset:**	2' LT	**Alignment:**	PROP_I26_CL
Elev.:	365.3 ft	**Latitude:**	34.1756476	**Longitude:**	-81.3192574	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	2	6	6	12
		FILL		3.5	SS-2	2	3	6	9
360.3	5.0	Stiff, moist, orangish brown to reddish brown, Elastic SILT (MH) (A-7-5) LL=60, PL=33, PI=27, NMC=28.6, %200=96			SS-3	6	7	8	15
		Boring terminated at 5.0 feet							
355.3									
350.3									
345.3									
340.3									
335.3									
330.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-075
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1095+97.38	**Offset:**	43' LT	**Alignment:**	PROP_I26_CL
Elev.:	345.1 ft	**Latitude:**	34.1750358	**Longitude:**	-81.3176843	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Soft to medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		0.5					
				2.0	SS-1	1	2	2	4
	3.5			3.5	SS-2	2	3	4	7
		RESIDUAL Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) LL=48, PL=41, PI=7, NMC=29.1, %200=77			SS-3	1	2	3	5
340.1	5.0	Boring terminated at 5.0 feet							
335.1									
330.1									
325.1									
320.1									
315.1									
310.1									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-076
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1091+12.25	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	333.5 ft	**Latitude:**	34.1747109	**Longitude:**	-81.3161238	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	10.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	2	1	5	6
				3.5	SS-2	2	4	5	9
					SS-3	3	3	5	8
328.5	5.0	**RESIDUAL** Medium stiff to stiff, moist, tannish gray to gray, Sandy CLAY (CL) (A-6) LL=35, PL=24, PI=11, NMC=13.9, %200=67							
323.5		Boring terminated at 5.0 feet							
318.5									
313.5									
308.5									
303.5									
298.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-077
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1086+19.48	**Offset:**	85' LT	**Alignment:**	PROP_I26_CL
Elev.:	324.8 ft	**Latitude:**	34.1740445	**Longitude:**	-81.3146756	**Date Started:**	7/13/2017
Total Depth:	3.7 ft	**Soil Depth:**	3.7 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	5	10	10	20
					SS-2	5	50/5		50/5
	3.7	**PARTIALLY WEATHERED ROCK**		3.5					
319.8		Extremely hard, moist, tannish brown, Sandy SILT (ML) (A-4)			SS-3	50/2			50/2
		Boring terminated at 3.7 feet							
314.8									
309.8									
304.8									
299.8									
294.8									
289.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208			**County:**	Lexington	**Boring No.:**	P-078
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1081+14.92	**Offset:**	11' RT	**Alignment:**	PROP_I26_CL
Elev.:	315.4 ft	**Latitude:**	34.1738417	**Longitude:**	-81.3129946	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL			SS-1	3	3	5	8
		Medium stiff, moist, brown to reddish brown, Sandy SILT (ML) (A-4) with trace roots and gravel		2.0	SS-2	2	3	3	6
	3.5			3.5	SS-3	10	3	2	5
310.4	5.0	**RESIDUAL**							
		Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)							
		LL=45, PL=39, PI=6, NMC=27.9, %200=79							
305.4		Boring terminated at 5.0 feet							
300.4									
295.4									
290.4									
285.4									
280.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

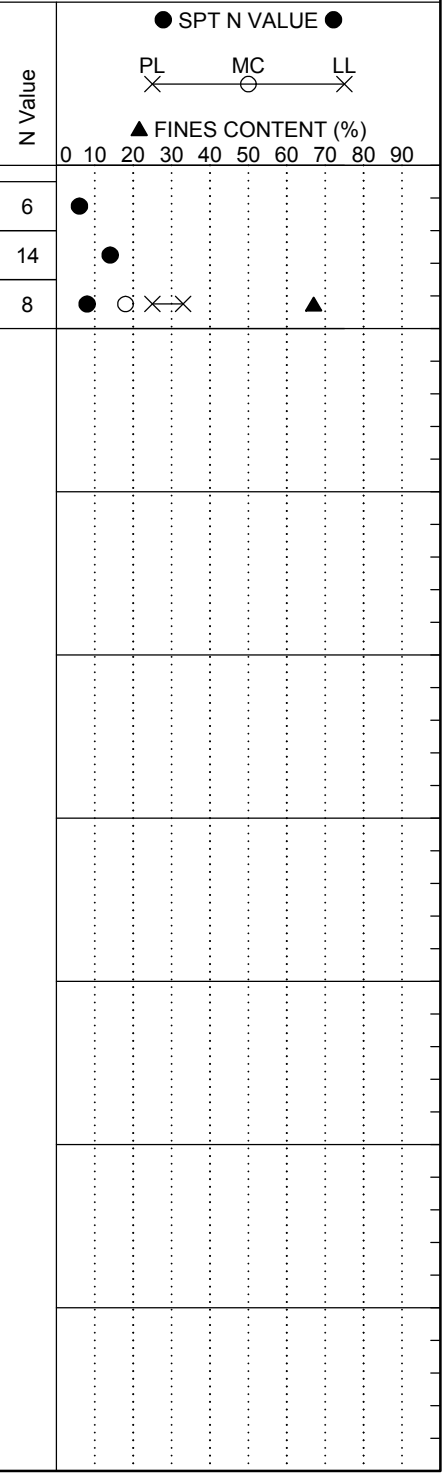
LEGEND

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:	029208			**County:**	Lexington	**Boring No.:**	P-079
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1076+06.00	**Offset:**	117' LT	**Alignment:**	PROP_I26_CL
Elev.:	305.8 ft	**Latitude:**	34.1730512	**Longitude:**	-81.3115453	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium stiff, moist, dark brown to red, Sandy SILT (ML) (A-5) with trace roots		2.0	SS-1	2	2	4	6
				3.5	SS-2	3	6	8	14
		RESIDUAL			SS-3	2	3	5	8
300.8	5.0	Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments							
		LL=33, PL=25, PI=8, NMC=18.2, %200=67							
		Boring terminated at 5.0 feet							
295.8									
290.8									
285.8									
280.8									
275.8									
270.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-080
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1071+50.04	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	303.9 ft	**Latitude:**	34.1730612	**Longitude:**	-81.3099455	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	5	5	10
		Stiff, moist, brownish red, Sandy SILT (ML) (A-4) with trace roots and gravel		3.5	SS-2	2	4	7	11
	3.5	LL=33, PL=29, PI=4, NMC=16.3, %200=69			SS-3	2	5	6	11
298.9	5.0	**RESIDUAL**							
		Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments							
293.9		Boring terminated at 5.0 feet							
288.9									
283.9									
278.9									
273.9									
268.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-081
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1066+04.94	**Offset:**	83' LT	**Alignment:**	PROP_I26_CL
Elev.:	310.9 ft	**Latitude:**	34.1722409	**Longitude:**	-81.3083765	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL Stiff, moist, reddish brown, Sandy SILT (ML) (A-6) with trace roots and gravel		2.0	SS-1	2	3	7	10
	3.5			3.5	SS-2	3	5	5	10
	5.0	LL=38, PL=27, PI=11, NMC=20.5, %200=65, OC=3.6			SS-3	2	2	2	4
305.9		**RESIDUAL** Soft, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments							
300.9		Boring terminated at 5.0 feet							
295.9									
290.9									
285.9									
280.9									
275.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

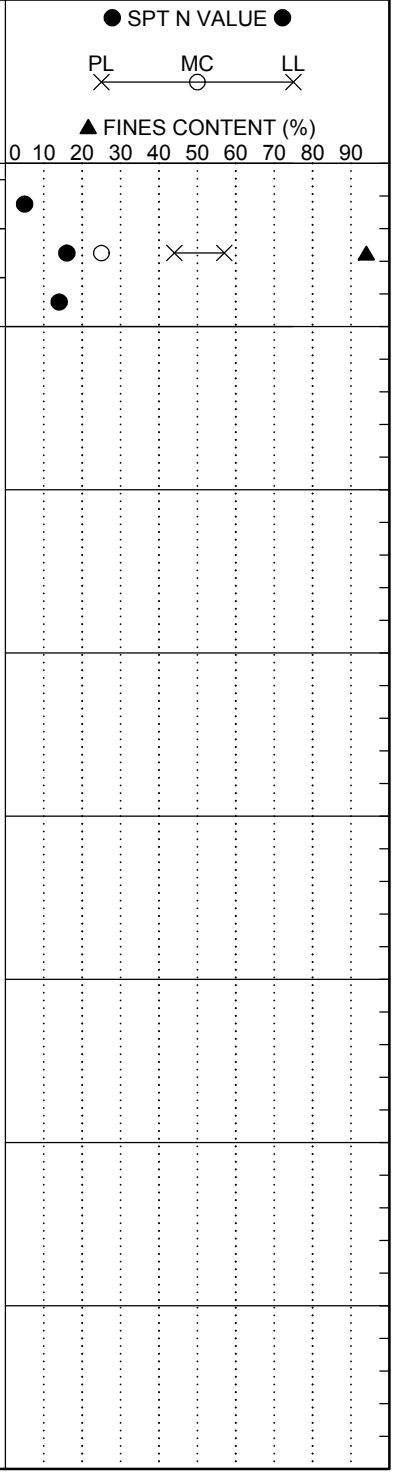
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-082
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1061+14.26	**Offset:**	12' RT	**Alignment:**	PROP_I26_CL
Elev.:	329.6 ft	**Latitude:**	34.1720538	**Longitude:**	-81.3067392	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	2	2	3	5
				3.5	SS-2	2	7	9	16
					SS-3	2	6	8	14
324.6	5.0	Very stiff to stiff, moist, reddish brown to tannish red, Elastic SILT (MH) (A-7-5) LL=57, PL=44, PI=13, NMC=24.9, %200=94							
		Boring terminated at 5.0 feet							
319.6									
314.6									
309.6									
304.6									
299.6									
294.6									



LEGEND

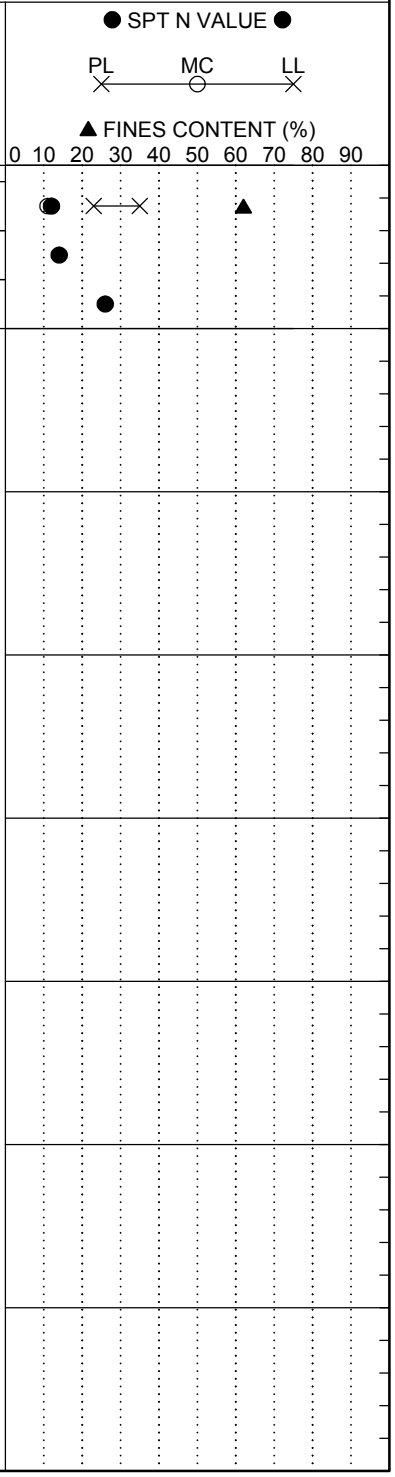
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-083
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1055+88.78	**Offset:**	40' LT	**Alignment:**	PROP_I26_CL
Elev.:	341.5 ft	**Latitude:**	34.1714398	**Longitude:**	-81.3051616	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, orangish brown, Sandy CLAY (CL) (A-6) with trace gravel LL=35, PL=23, PI=12, NMC=10.9, %200=62		2.0	SS-1	6	6	6	12
				3.5	SS-2	4	6	8	14
336.5	5.0	**RESIDUAL** Stiff to very stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments			SS-3	7	11	15	26
331.5		Boring terminated at 5.0 feet							
326.5									
321.5									
316.5									
311.5									
306.5									



LEGEND

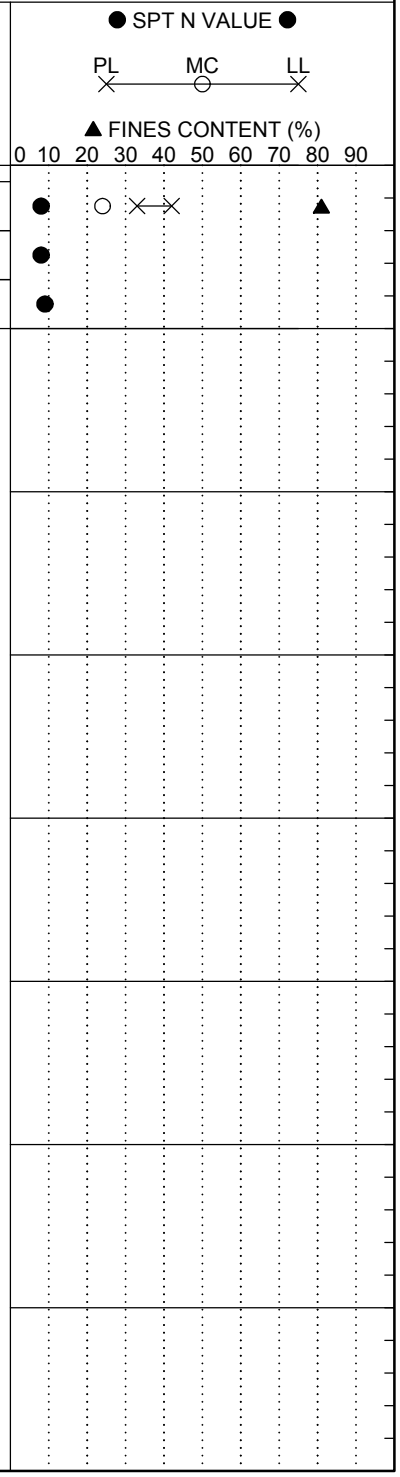
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-084
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1050+90.88	**Offset:**	10' RT	**Alignment:**	PROP_I26_CL
Elev.:	336.1 ft	**Latitude:**	34.1710597	**Longitude:**	-81.3035725	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots LL=42, PL=33, PI=9, NMC=23.5, %200=81		2.0	SS-1	3	4	4	8
				3.5	SS-2	2	3	5	8
					SS-3	2	3	6	9
331.1	5.0	**RESIDUAL** Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
326.1									
321.1									
316.1									
311.1									
306.1									
301.1									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-085
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1045+85.10	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	316.8 ft	**Latitude:**	34.1704479	**Longitude:**	-81.3020699	**Date Started:**	7/13/2017
Total Depth:	4.5 ft	**Soil Depth:**	3.5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4) with trace gravel		0.5					
	2.0			2.0	SS-1	4	9	11	20
	3.5			3.5	SS-2	3	4	3	7
	4.5	**FILL** Medium dense, moist, tan, Poorly-Graded SAND (SP) (A-3) with trace mica LL=NP, PL=NP, PI=NP, NMC=8.6, %200=4.3			SS-3	33	50/5		50/5
311.8		**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tan, sampled as Sandy SILT (A-4)							
306.8		Boring terminated at 4.5 feet							
301.8									
296.8									
291.8									
286.8									
281.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>

LEGEND

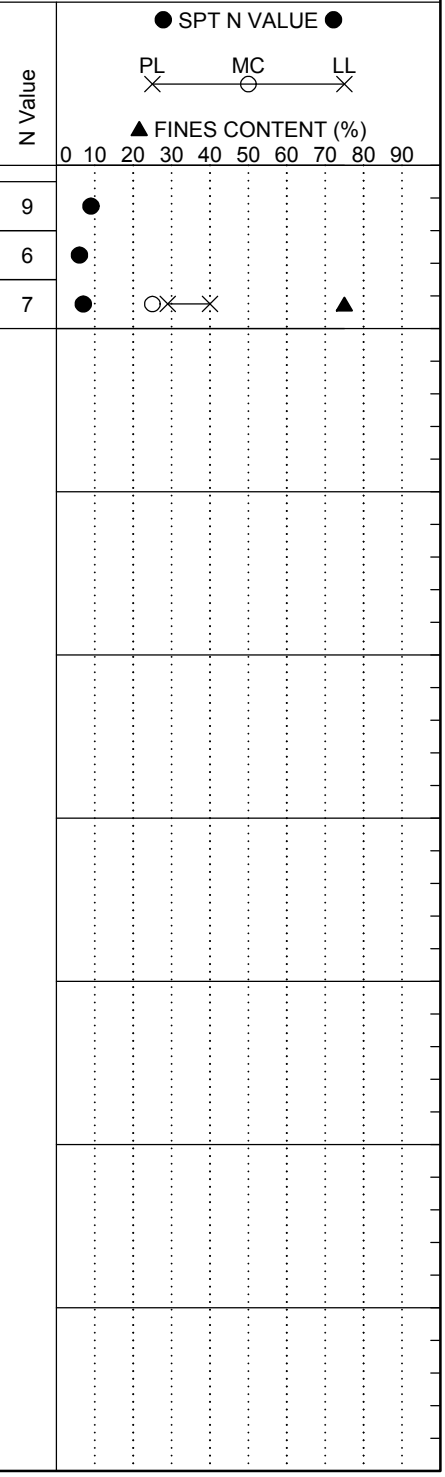
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-086
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1040+91.92	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	296.8 ft	**Latitude:**	34.1699236	**Longitude:**	-81.3005674	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	4	5	9
		Stiff to medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		3.5	SS-2	2	3	3	6
	3.5				SS-3	1	3	4	7
291.8	5.0	**RESIDUAL**							
		Medium stiff, moist, tannish red, Sandy SILT (ML) (A-6) with trace gravel-sized rock fragments							
		LL=40, PL=29, PI=11, NMC=25.1, %200=75							
286.8		Boring terminated at 5.0 feet							
281.8									
276.8									
271.8									
266.8									
261.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-087
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1035+86.18	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	292.9 ft	**Latitude:**	34.1693244	**Longitude:**	-81.2990565	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, tan, Silty Fine to Coarse SAND (SM) (A-2-4) with trace gravel		0.5					
	2.0			2.0	SS-1	10	5	4	9
	3.5	**FILL** Medium stiff, moist, dark red to brown, Sandy SILT (ML) (A-5) with trace roots		3.5	SS-2	4	3	4	7
287.9	5.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) LL=44, PL=36, PI=8, NMC=31.5, %200=80			SS-3	2	3	3	6
282.9		Boring terminated at 5.0 feet							
277.9									
272.9									
267.9									
262.9									
257.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-088
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1030+87.12	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	295.1 ft	**Latitude:**	34.1687934	**Longitude:**	-81.2975348	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	6	10	12	22
		Medium dense, moist, tan, Silty Fine to Medium SAND (SM) (A-4)		3.5	SS-2	2	6	8	14
					SS-3	11	15	11	26
290.1	5.0	Boring terminated at 5.0 feet							
285.1									
280.1									
275.1									
270.1									
265.1									
260.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

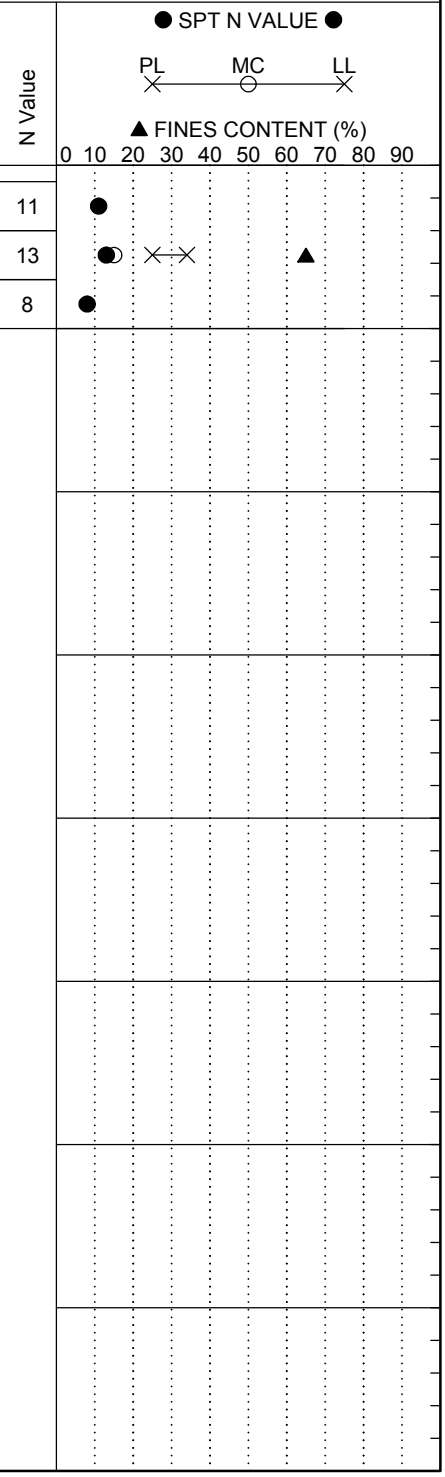
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-089
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1025+82.38	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	300.7 ft	**Latitude:**	34.1681917	**Longitude:**	-81.2960317	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-2-4)		2.0	SS-1	3	5	6	11
		FILL		3.5	SS-2	3	6	7	13
295.7	5.0	Stiff to medium stiff, moist, reddish brown to grayish brown, Sandy SILT (ML) (A-4) LL=34, PL=25, PI=9, NMC=14.6, %200=65, OC=4.0			SS-3	2	4	4	8
		Boring terminated at 5.0 feet							
290.7									
285.7									
280.7									
275.7									
270.7									
265.7									



LEGEND

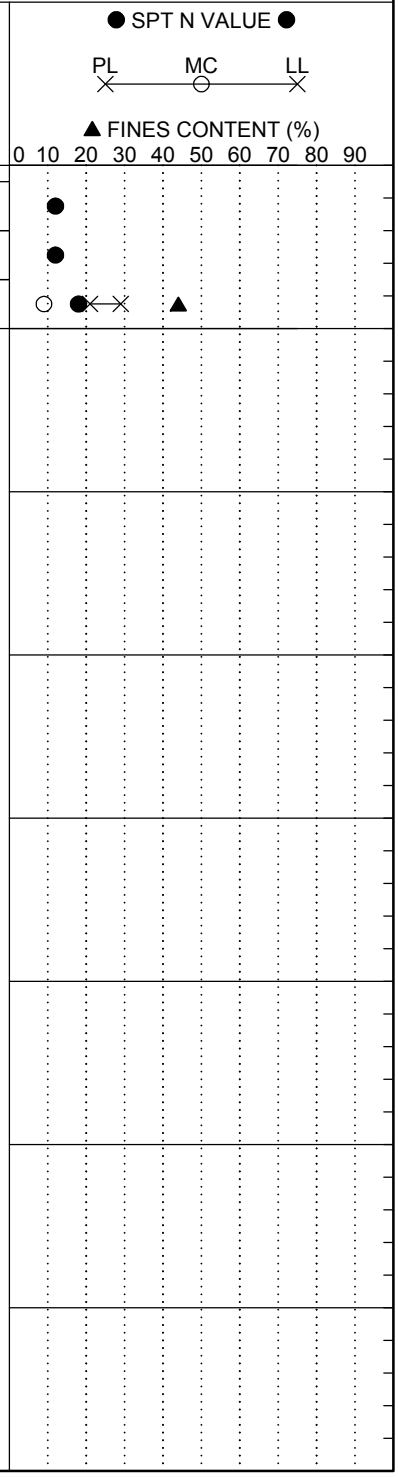
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-090
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1020+67.68	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	304.4 ft	**Latitude:**	34.1676411	**Longitude:**	-81.2944624	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		0.5					
	2.0			2.0	SS-1	5	6	6	12
	3.5	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)		3.5	SS-2	3	5	7	12
299.4	5.0	**RESIDUAL** Medium dense, moist, tannish brown, Clayey SAND (SC) (A-4) LL=29, PL=21, PI=8, NMC=8.9, %200=44			SS-3	3	7	11	18
294.4		Boring terminated at 5.0 feet							
289.4									
284.4									
279.4									
274.4									
269.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-091
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1015+71.37	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	311.2 ft	**Latitude:**	34.1670507	**Longitude:**	-81.2929814	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) with trace gravel		0.5					
				2.0	SS-1	2	5	9	14
	3.5	LL=35, PL=23, PI=12, NMC=11.2, %200=58		3.5	SS-2	5	7	8	15
					SS-3	10	22	50/5	50/5
306.2	5.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish tan, sampled as Silty SAND (SM) (A-2-4)							
		Boring terminated at 5.0 feet.							
301.2									
296.2									
291.2									
286.2									
281.2									
276.2									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

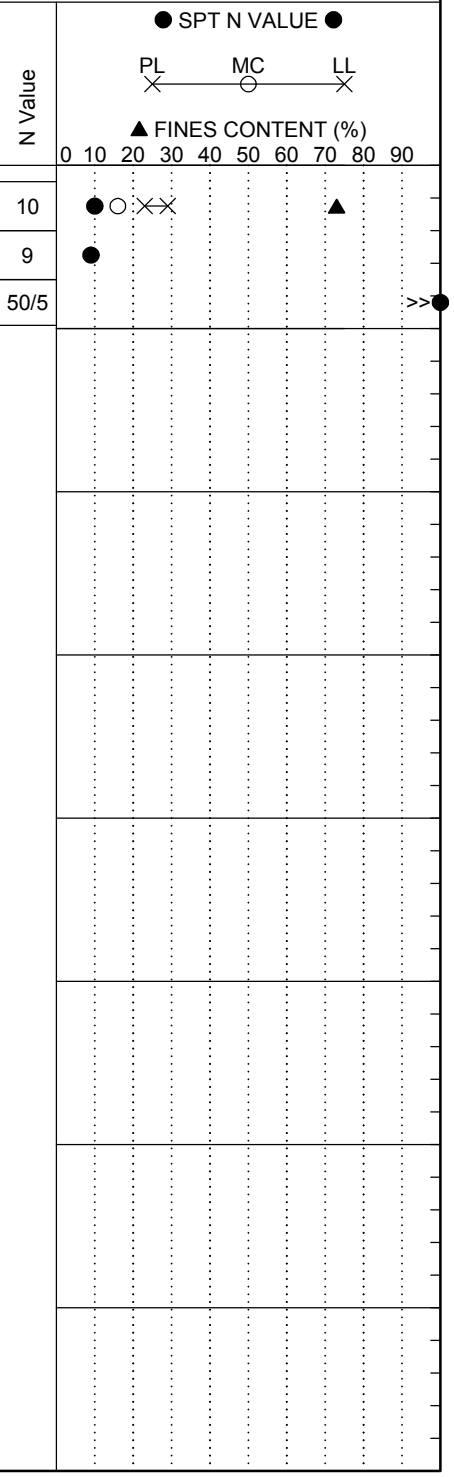
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-092
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1010+00.38	**Offset:**	12' RT	**Alignment:**	PROP_I26_CL
Elev.:	329.8 ft	**Latitude:**	34.1664632	**Longitude:**	-81.2912317	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00 Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel LL=29, PL=23, PI=6, NMC=15.8, %200=73		2.0	SS-1	3	4	6	10
	3.5			3.5	SS-2	2	3	6	9
324.8	5.0	**FILL** Loose, moist, tannish brown, Clayey SAND (SC) (A-2-6) with trace gravel			SS-3	2	12	50/5	50/5
319.8		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)							
314.8		Boring terminated at 5.0 feet							
309.8									
304.8									
299.8									
294.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-093
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1005+61.69	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	345.7 ft	**Latitude:**	34.1659153	**Longitude:**	-81.2899358	**Date Started:**	7/13/2017
Total Depth:	4.25 ft	**Soil Depth:**	4.25 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	3	8	7	15
	3.5			3.5	SS-2	3	5	6	11
	4.3	**RESIDUAL**			SS-3	5	50/3		50/3
340.7		Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments							
		PARTIALLY WEATHERED ROCK							
335.7		Extremeley hard, moist, orangish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 4.25 feet							
330.7									
325.7									
320.7									
315.7									
310.7									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>

LEGEND

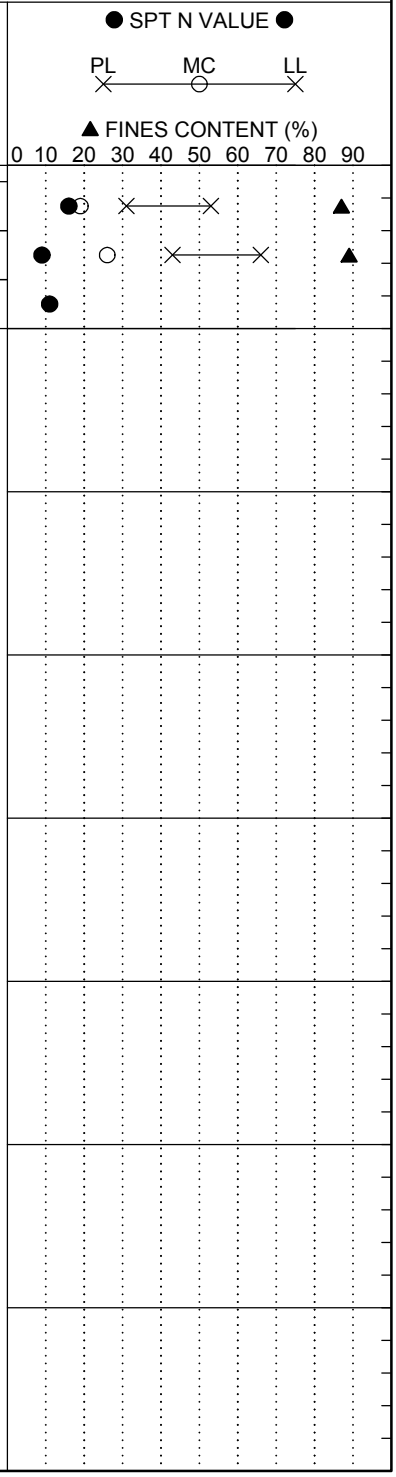
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-094
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1000+63.96	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	362.4 ft	**Latitude:**	34.165389	**Longitude:**	-81.2884166	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		2.0	SS-1	4	7	9	16
	3.5	LL=53, PL=31, PI=22, NMC=18.5, %200=87		3.5	SS-2	3	3	6	9
357.4	5.0	Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)			SS-3	3	4	7	11
		LL=66, PL=43, PI=23, NMC=25.6, %200=89							
352.4		Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
347.4									
342.4									
337.4									
332.4									
327.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-095
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	995+61.03	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	368.4 ft	**Latitude:**	34.1647847	**Longitude:**	-81.2869184	**Date Started:**	7/13/2017
Total Depth:	4.25 ft	**Soil Depth:**	4.25 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, grayish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		2.0	SS-1	4	5	24	29
				3.5	SS-2	5	42	50/5	50/5
	4.3	**PARTIALLY WEATHERED ROCK**			SS-3	28	50/2		50/2
363.4		Extremely hard, tannish brown, sampled as Sandy SILT (ML) (A-4)							
		Boring terminated at 4.25 feet							
358.4									
353.4									
348.4									
343.4									
338.4									
333.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

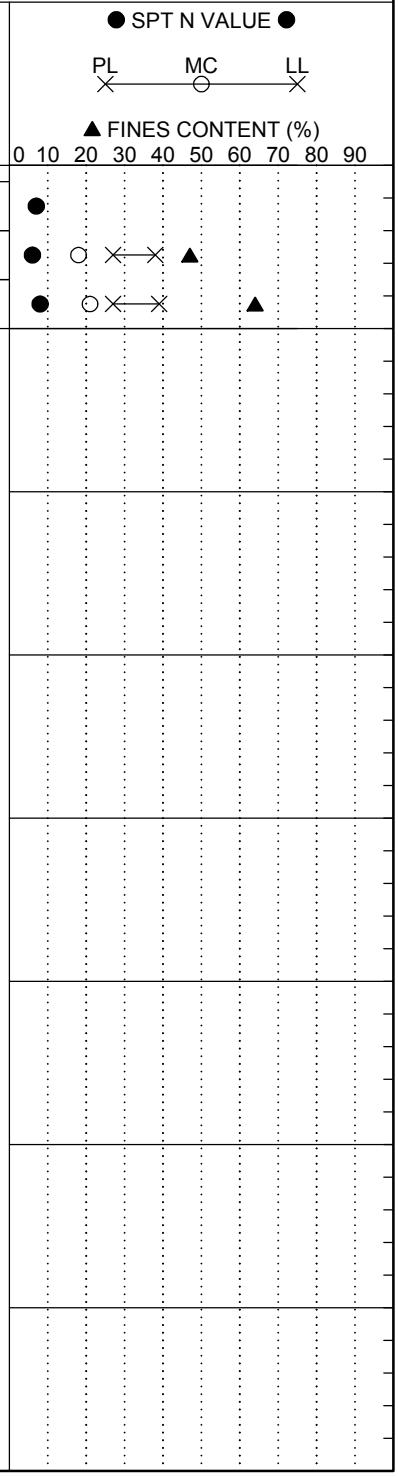
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-096
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	990+59.07	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	370.9 ft	**Latitude:**	34.1642662	**Longitude:**	-81.2853816	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		2.0	SS-1	3	3	4	7
	3.5			3.5	SS-2	2	2	4	6
	5.0				SS-3	1	3	5	8
365.9		**FILL** Loose, moist, grayish brown, Silty Fine to Coarse SAND (SM) (A-6) with trace gravel LL=38, PL=27, PI=11, NMC=18.4, %200=47							
360.9		**RESIDUAL** Firm, moist, grayish tan to brown, Sandy SILT (ML) (A-6) LL=39, PL=27, PI=12, NMC=20.6, %200=64							
355.9		Boring terminated at 5.0 feet							
350.9									
345.9									
340.9									
335.9									



LEGEND

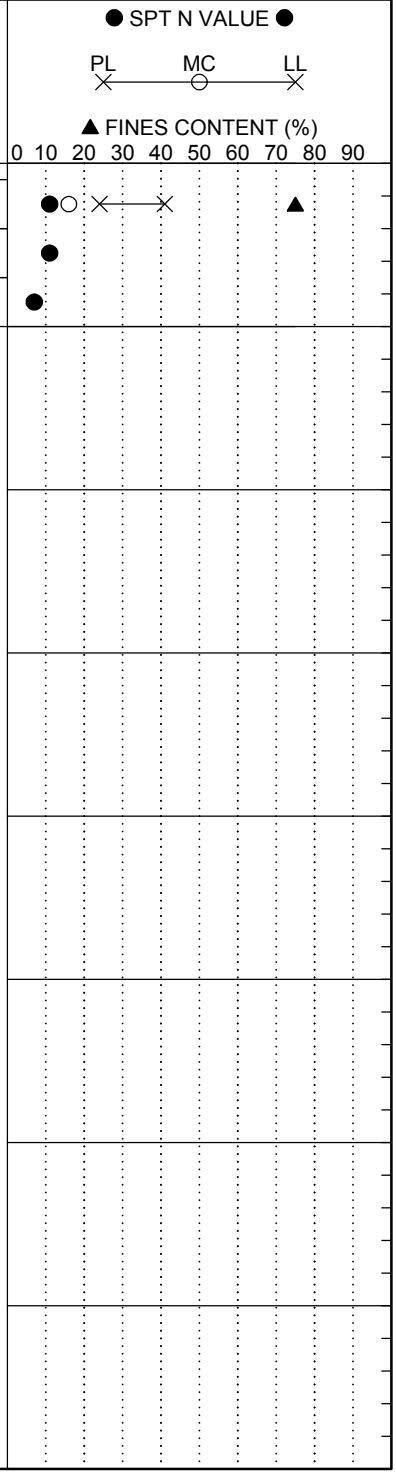
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-097
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	985+48.71	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	373.2 ft	**Latitude:**	34.1636423	**Longitude:**	-81.2838676	**Date Started:**	7/13/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/13/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Stiff to medium stiff, moist, grayish brown to orangish brown, Sandy CLAY (CL) (A-7-6)		2.0	SS-1	3	4	7	11
		LL=41, PL=24, PI=17, NMC=15.6, %200=75		3.5	SS-2	4	5	6	11
					SS-3	2	3	4	7
368.2	5.0	Boring terminated at 5.0 feet							
363.2									
358.2									
353.2									
348.2									
343.2									
338.2									



LEGEND

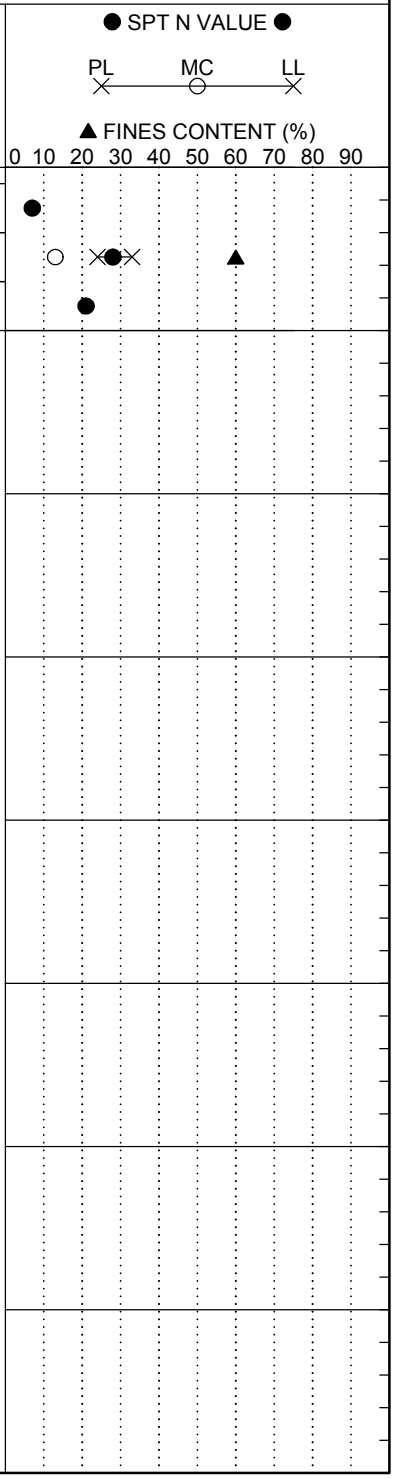
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-098
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	980+32.01	**Offset:**	8' RT	**Alignment:**	PROP_I26_CL
Elev.:	376.0 ft	**Latitude:**	34.1631051	**Longitude:**	-81.2822848	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace roots		2.0	SS-1	2	3	4	7
	3.5			3.5	SS-2	4	13	15	28
	5.0				SS-3	3	9	12	21
371.0		**RESIDUAL** Very stiff, moist, tannish brown, Sandy CLAY (CL) (A-4) LL=33, PL=24, PI=9, NMC=12.6, %200=60							
366.0		Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
361.0									
356.0									
351.0									
346.0									
341.0									



LEGEND

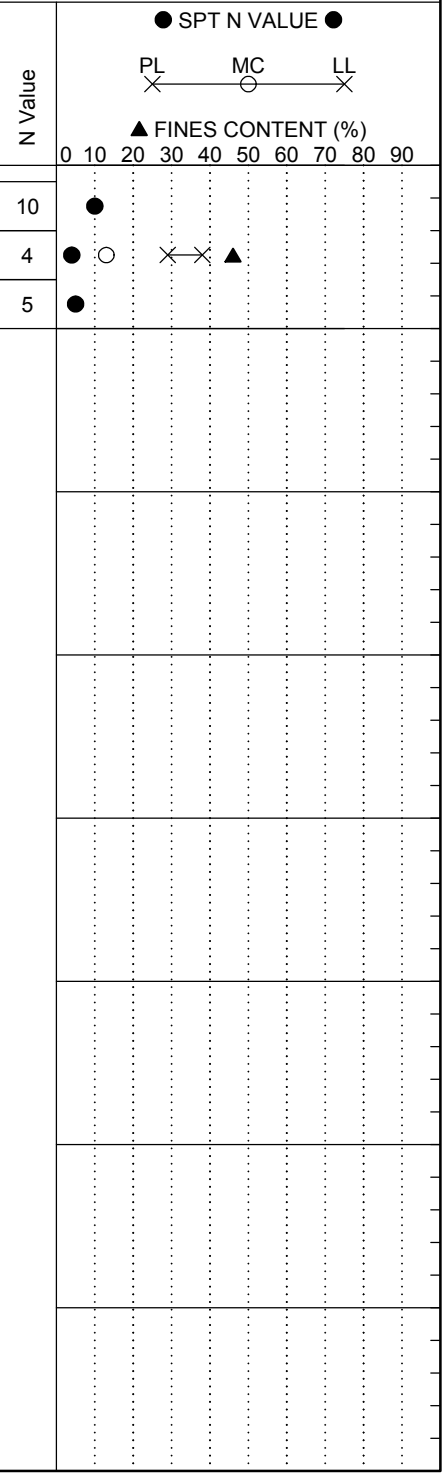
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-099
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	975+44.99	**Offset:**	13' LT	**Alignment:**	PROP_I26_CL
Elev.:	378.7 ft	**Latitude:**	34.1625054	**Longitude:**	-81.2808467	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		0.5					
	2.0			2.0	SS-1	5	5	5	10
	3.5	**FILL** Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel LL=38, PL=29, PI=9, NMC=13.2, %200=46		3.5	SS-2	1	2	2	4
373.7	5.0				SS-3	3	3	2	5
368.7		**RESIDUAL** Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)							
		Boring terminated at 5.0 feet							
363.7									
358.7									
353.7									
348.7									
343.7									



LEGEND

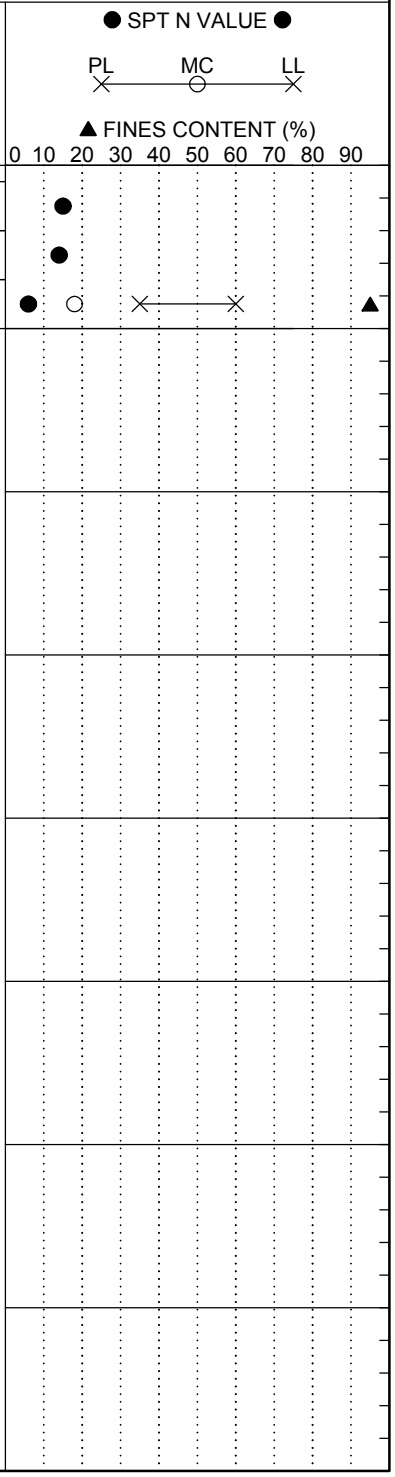
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-100
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	970+49.64	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	391.5 ft	**Latitude:**	34.1619978	**Longitude:**	-81.2793226	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	5	7	8	15
					SS-2	2	7	7	14
	3.5			3.5	SS-3	3	2	4	6
386.5	5.0	**FILL** Medium stiff, moist, orangish brown, Elastic SILT (MH) (A-7-5) LL=60, PL=35, PI=25, NMC=18.1, %200=95							
381.5		Boring terminated at 5.0 feet							
376.5									
371.5									
366.5									
361.5									
356.5									



LEGEND

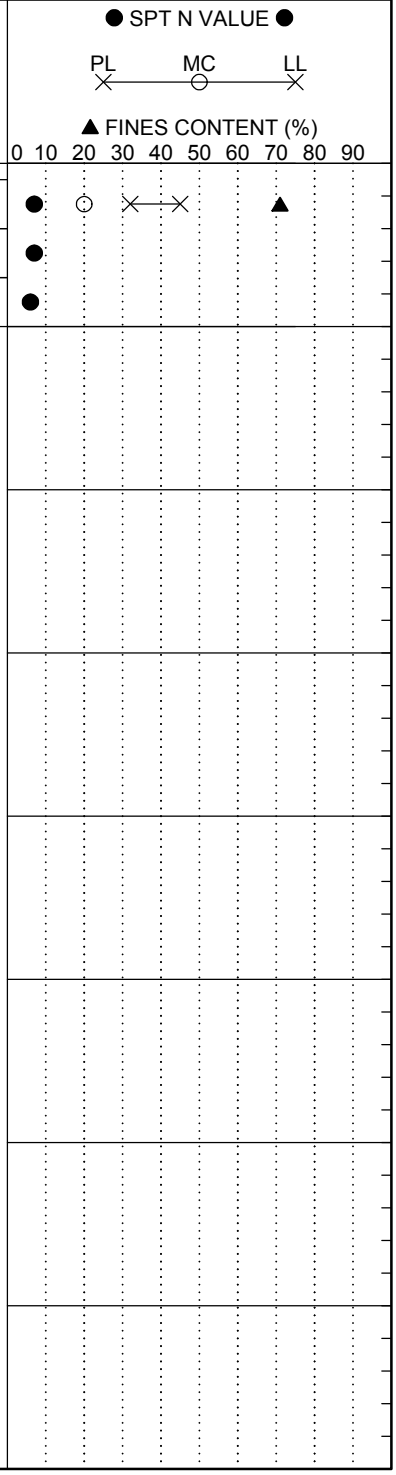
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-101
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	965+38.37	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	407.1 ft	**Latitude:**	34.1613768	**Longitude:**	-81.2778062	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Stiff to very stiff, moist, reddish tan, Sandy SILT (ML) (A-7-5)		2.0	SS-1	4	3	4	7
		LL=45, PL=32, PI=13, NMC=19.7, %200=71		3.5	SS-2	1	3	4	7
					SS-3	4	4	2	6
402.1	5.0	Boring terminated at 5.0 feet							
397.1									
392.1									
387.1									
382.1									
377.1									
372.1									



LEGEND

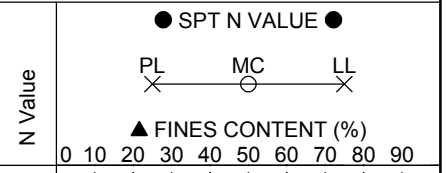
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-102
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	960+43.78	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	413.3 ft	**Latitude:**	34.1608515	**Longitude:**	-81.2762972	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	2	4	6	10
		Stiff to medium stiff, moist, reddish brown to black, Elastic SILT (MH) (A-7-5)		3.5	SS-2	2	3	5	8
		LL=53, PL=38, PI=15, NMC=32.4, %200=96			SS-3	2	3	6	9
408.3	5.0								
		Boring terminated at 5.0 feet							
403.3									
398.3									
393.3									
388.3									
383.3									
378.3									



LEGEND

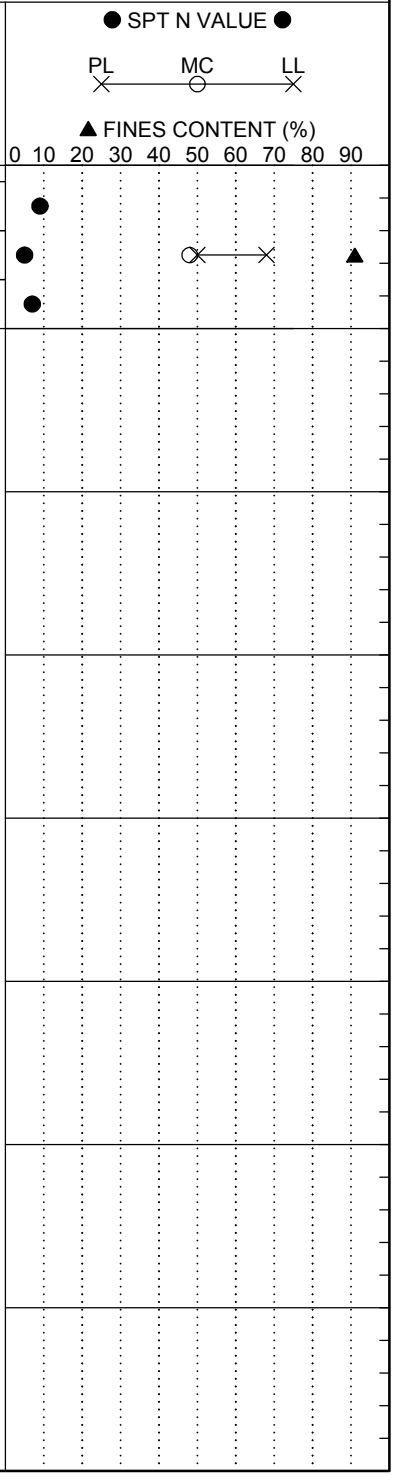
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-103
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	955+48.38	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	408.7 ft	**Latitude:**	34.16026	**Longitude:**	-81.2748198	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		2.0	SS-1	2	3	6	9
				3.5	SS-2	2	2	3	5
					SS-3	2	2	5	7
403.7	5.0	**RESIDUAL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=68, PL=50, PI=18, NMC=47.9, %200=91							
398.7		Boring terminated at 5.0 feet							
393.7									
388.7									
383.7									
378.7									
373.7									



LEGEND

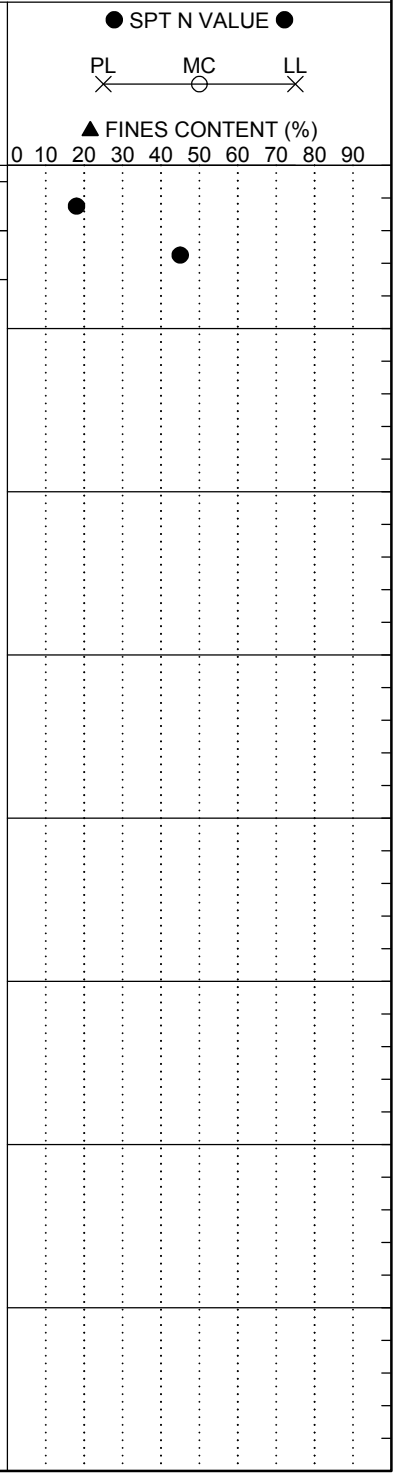
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-104
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	950+64.79	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	401.8 ft	**Latitude:**	34.1597612	**Longitude:**	-81.2733372	**Date Started:**	7/24/2017
Total Depth:	3.5 ft	**Soil Depth:**	3.5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	5	5	13	18
	3.5	Very stiff to hard, moist, tannish brown, Sandy SILT (ML) (A-4) with trace rock fragments			SS-2	3	10	35	45
396.8		Auger refusal at 3.5 feet							
391.8									
386.8									
381.8									
376.8									
371.8									
366.8									



LEGEND

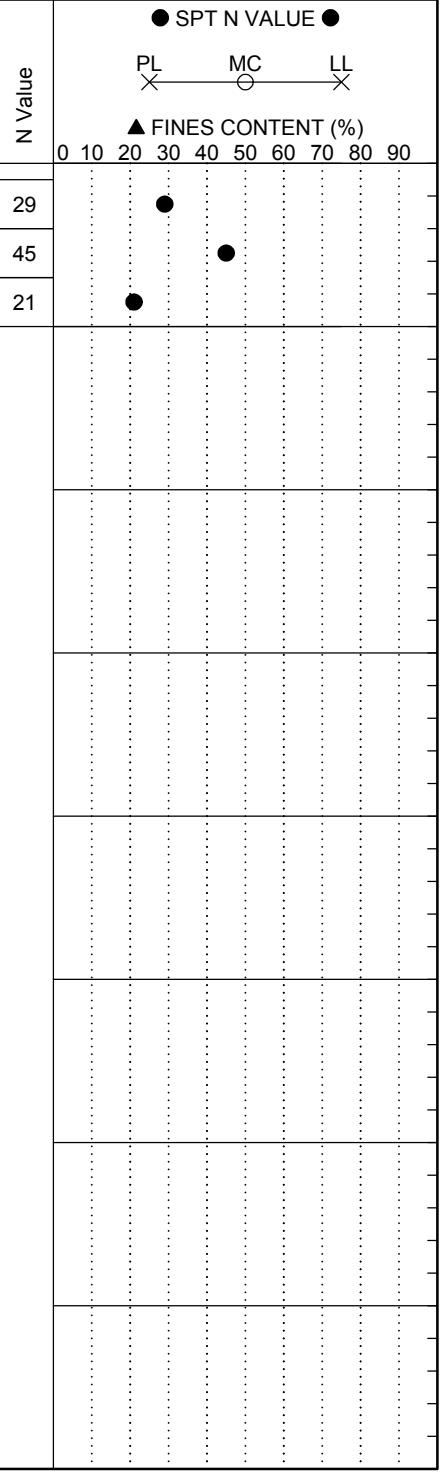
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-105
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	945+45.90	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	394.2 ft	**Latitude:**	34.1591289	**Longitude:**	-81.2717978	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Medium dense, moist, tan, Silty Medium to Coarse SAND (SM) (A-2-4) with trace gravel-sized rock fragments		2.0	SS-1	12	13	16	29
				3.5	SS-2	10	19	26	45
389.2	5.0	Dense to medium dense, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel-sized rock fragments			SS-3	2	8	13	21
		Boring terminated at 5.0 feet							
384.2									
379.2									
374.2									
369.2									
364.2									
359.2									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-106
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	940+44.69	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	390.0 ft	**Latitude:**	34.1585913	**Longitude:**	-81.2702738	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace roots and gravel		0.5					
	2.0			2.0	SS-1	3	4	5	9
				3.5	SS-2	2	3	5	8
					SS-3	3	3	3	6
385.0	5.0	**FILL** Medium stiff, moist, tannish brown to gray, Plastic Clay (CH) (A-7) with trace gravel LL=64, PL=30, PI=34, NMC=20.4, %200=92							
		Boring terminated at 5.0 feet							
380.0									
375.0									
370.0									
365.0									
360.0									
355.0									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-107
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	935+48.31	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	386.6 ft	**Latitude:**	34.158006	**Longitude:**	-81.2687915	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		0.5					
	2.0			2.0	SS-1	3	4	4	8
				3.5	SS-2	3	5	8	13
	5.0	**FILL** Stiff to medium stiff, moist, tannish brown, Sandy CLAY (CL) (A-7-6) LL=48, PL=25, PI=23, NMC=21.4, %200=82			SS-3	3	3	3	6
381.6		Boring terminated at 5.0 feet							
376.6									
371.6									
366.6									
361.6									
356.6									
351.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

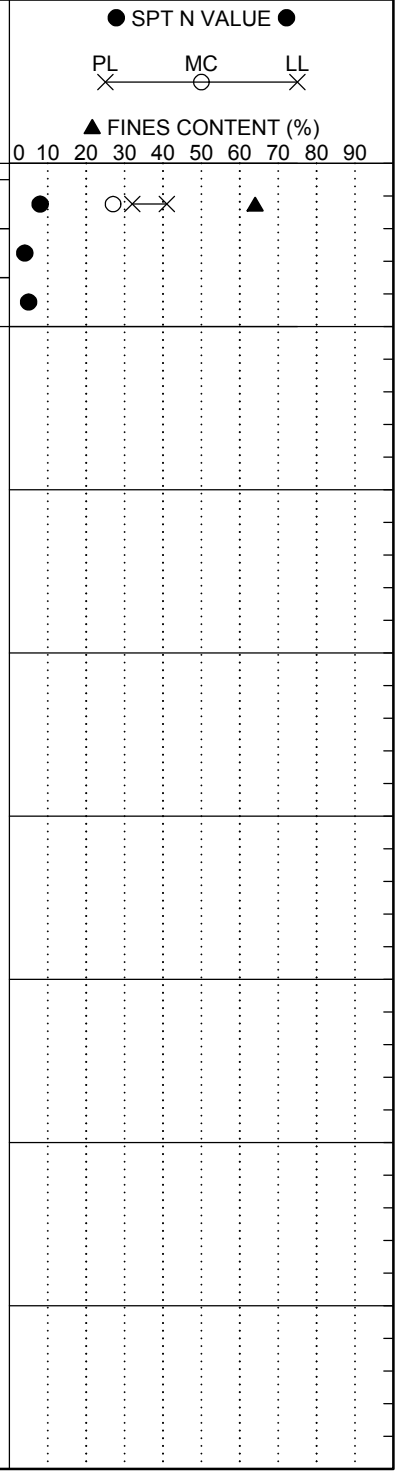
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-108
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	930+50.24	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	386.0 ft	**Latitude:**	34.1574705	**Longitude:**	-81.2672733	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to soft, moist, reddish brown, Sandy SILT (ML) (A-5) LL=41, PL=32, PI=9, NMC=26.7, %200=64		0.5	SS-1	4	4	4	8
				2.0	SS-2	2	2	2	4
	3.5			3.5	SS-3	1	2	3	5
381.0	5.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)							
		Boring terminated at 5.0 feet							
376.0									
371.0									
366.0									
361.0									
356.0									
351.0									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-109
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	925+52.12	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	396.1 ft	**Latitude:**	34.1568814	**Longitude:**	-81.2657881	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL Stiff, moist, reddish tan to reddish brown, Sandy SILT (MH) (A-7-6) with trace roots and gravel		2.0	SS-1	3	6	6	12
					SS-2	2	4	7	11
	3.5			3.5	SS-3	7	6	8	14
391.1	5.0	LL=66, PL=37, PI=29, NMC=26.8, %200=64							
		FILL Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots and gravel							
386.1		Boring terminated at 5.0 feet							
381.1									
376.1									
371.1									
366.1									
361.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

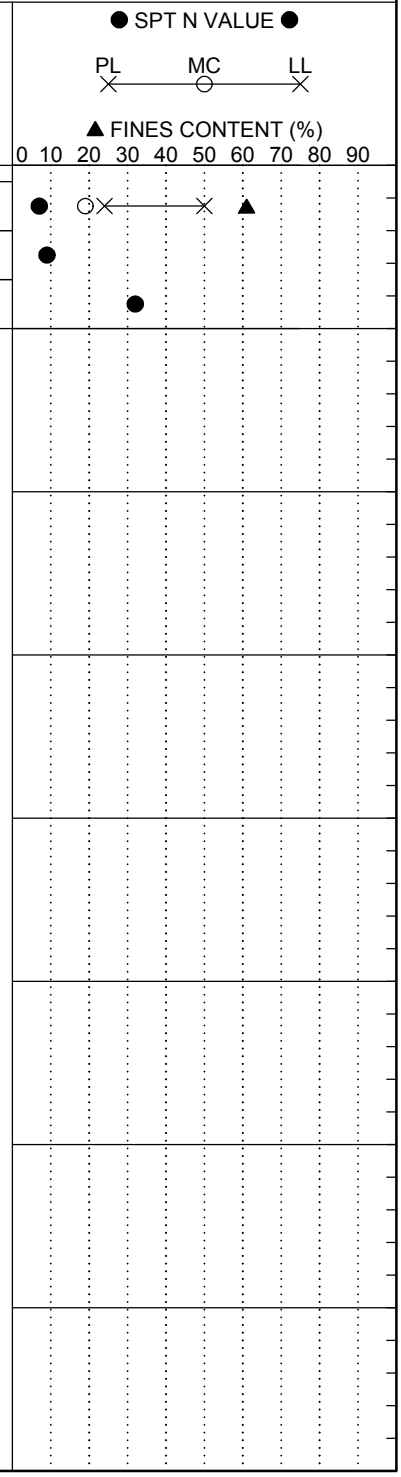
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-110
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	920+58.27	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	406.6 ft	**Latitude:**	34.1563686	**Longitude:**	-81.2642753	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	4	3	4	7
		Medium stiff, moist, reddish orange to brown, Plastic CLAY (CH) (A-7-6) with trace gravel		3.5	SS-2	2	3	6	9
	3.5				SS-3	2	10	22	32
401.6	5.0	LL=50, PL=24, PI=26, NMC=19.1, %200=61							
		RESIDUAL							
		Dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)							
396.6		Boring terminated at 5.0 feet							
391.6									
386.6									
381.6									
376.6									
371.6									



LEGEND

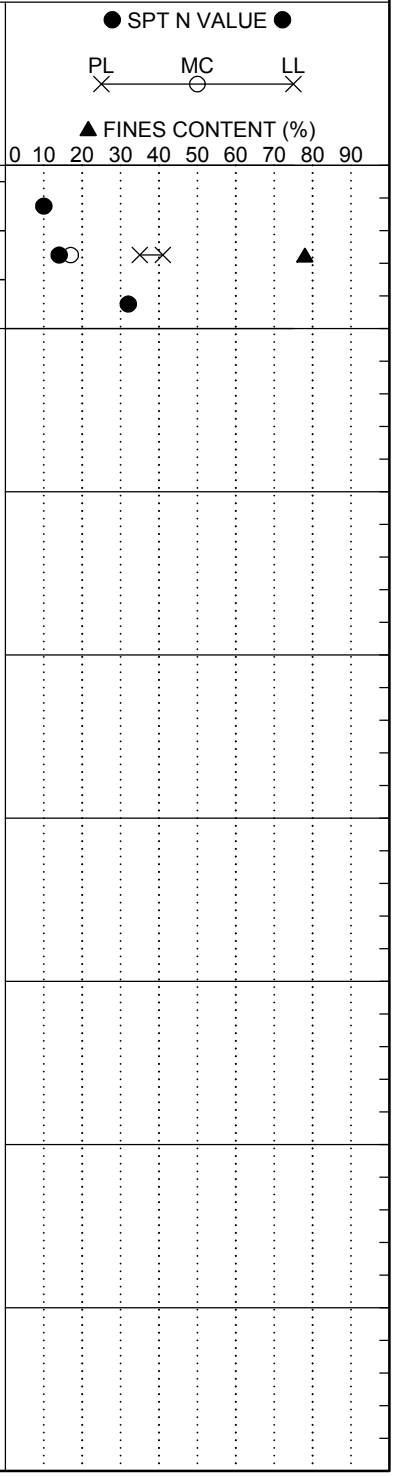
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-111
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	915+51.46	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	412.9 ft	**Latitude:**	34.1557491	**Longitude:**	-81.262774	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	4	6	10
				3.5	SS-2	2	4	10	14
					SS-3	5	18	14	32
407.9	5.0	**RESIDUAL** Stiff to hard, moist, tannish brown, Sandy SILT (ML) (A-5) LL=41, PL=35, PI=6, NMC=17.1, %200=78							
		Boring terminated at 5.0 feet							
402.9									
397.9									
392.9									
387.9									
382.9									
377.9									



LEGEND

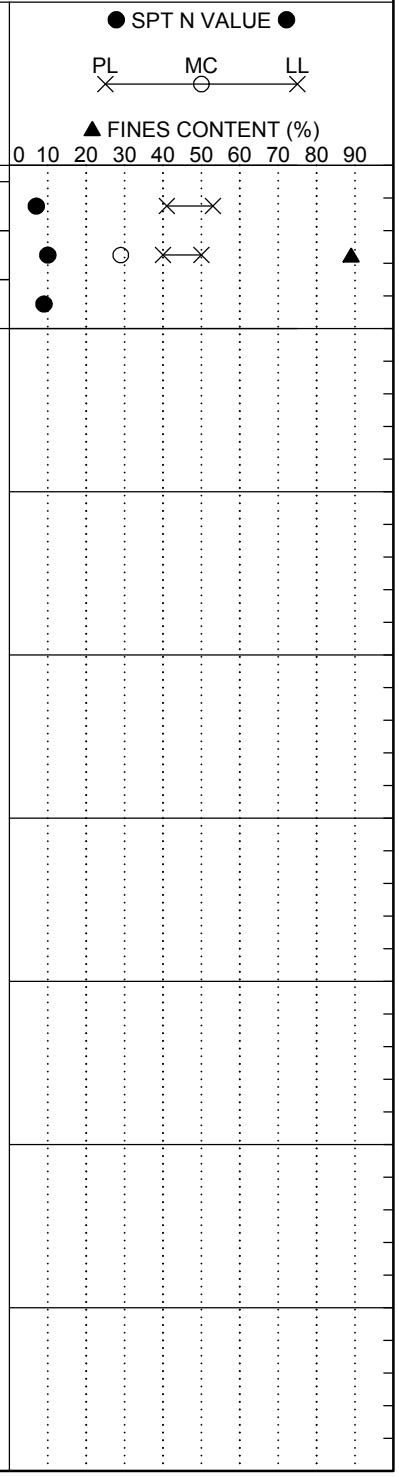
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-112
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	910+57.86	**Offset:**	1' RT	**Alignment:**	PROP_I26_CL
Elev.:	403.4 ft	**Latitude:**	34.1552191	**Longitude:**	-81.2612694	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	2.00" Asphalt Depth		0.5					
	0.4	2.00" ABC Stone Depth		2.0	SS-1	3	4	3	7
		RESIDUAL		3.5	SS-2	1	4	6	10
		Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel-sized rock fragments			SS-3	1	3	6	9
398.4	5.0	LL=50, PL=40, PI=10, NMC=28.7, %200=89							
		Boring terminated at 5.0 feet							
393.4									
388.4									
383.4									
378.4									
373.4									
368.4									



LEGEND

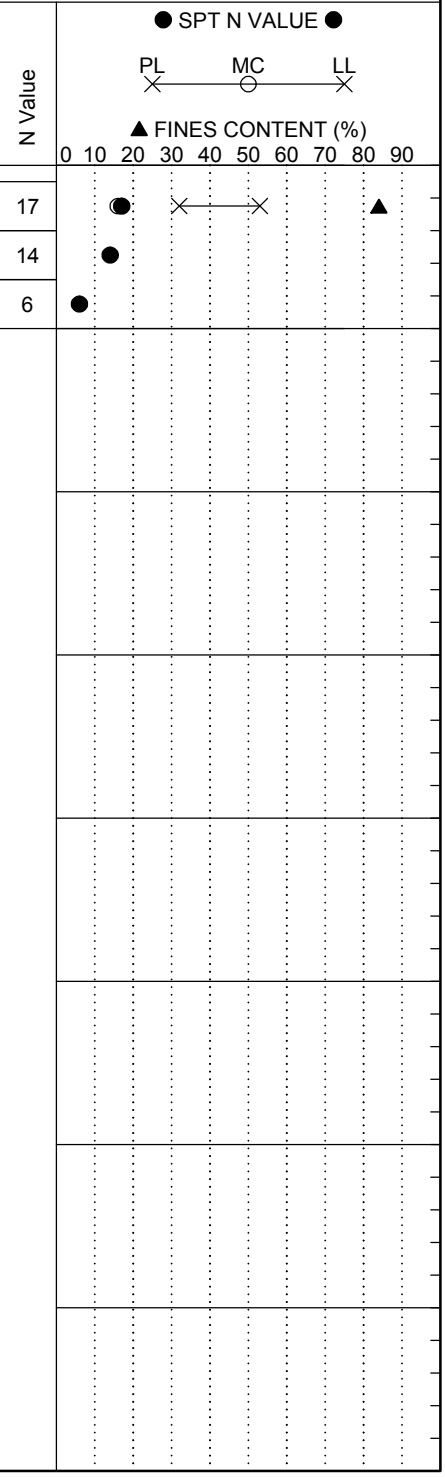
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-113
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	905+52.62	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	392.5 ft	**Latitude:**	34.1546183	**Longitude:**	-81.2597634	**Date Started:**	7/18/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/18/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, reddish tan, Elastic SILT (MH) (A-7-5)		2.0	SS-1	5	8	9	17
		LL=53, PL=32, PI=21, NMC=16.1, %200=84		3.5	SS-2	4	6	8	14
					SS-3	3	2	4	6
387.5	5.0	Stiff to medium stiff, moist, reddish tan, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
382.5									
377.5									
372.5									
367.5									
362.5									
357.5									



LEGEND

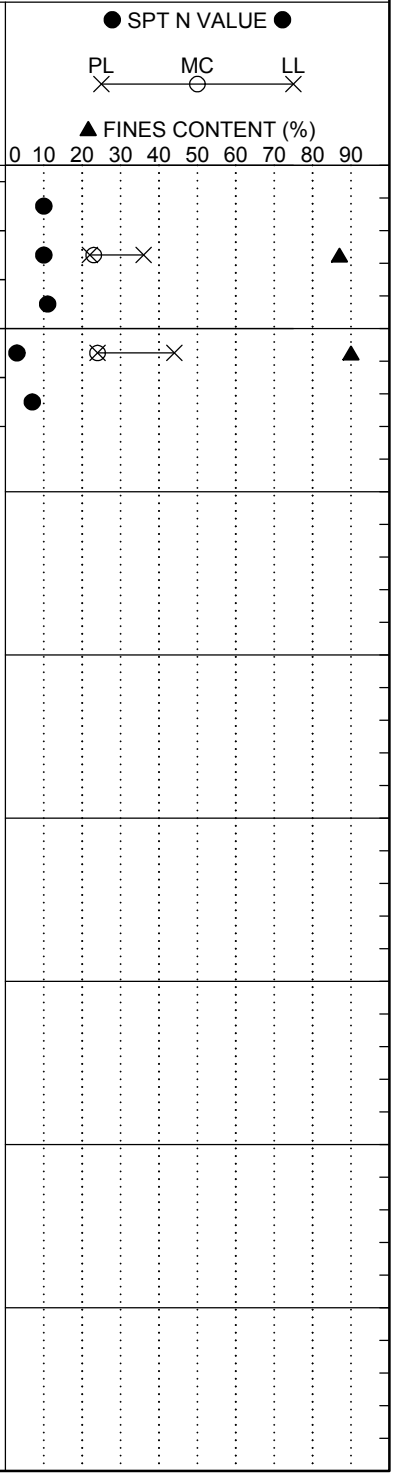
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-114
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	900+46.36	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	380.0 ft	**Latitude:**	34.1540832	**Longitude:**	-81.2582176	**Date Started:**	7/24/2017
Total Depth:	8 ft	**Soil Depth:**	8 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6)		0.5					
	2.0			2.0	SS-1	3	4	6	10
				3.5	SS-2	1	6	4	10
375.0	5.0	**FILL** Stiff, moist, reddish brown to black, Sandy CLAY (CL) (A-7-6) LL=36, PL=22, PI=14, NMC=23.3, %200=87		5.0	SS-3	3	5	6	11
				6.5	SS-4	WOH	2	1	3
	8.0				SS-5	2	3	4	7
370.0		**FILL** Soft, moist, tannish brown, Sandy CLAY (CL) (A-7-6) LL=44, PL=24, PI=20, NMC= 23.6, %200=90							
		Boring terminated at 8.0 feet							
365.0									
360.0									
355.0									
350.0									
345.0									



LEGEND

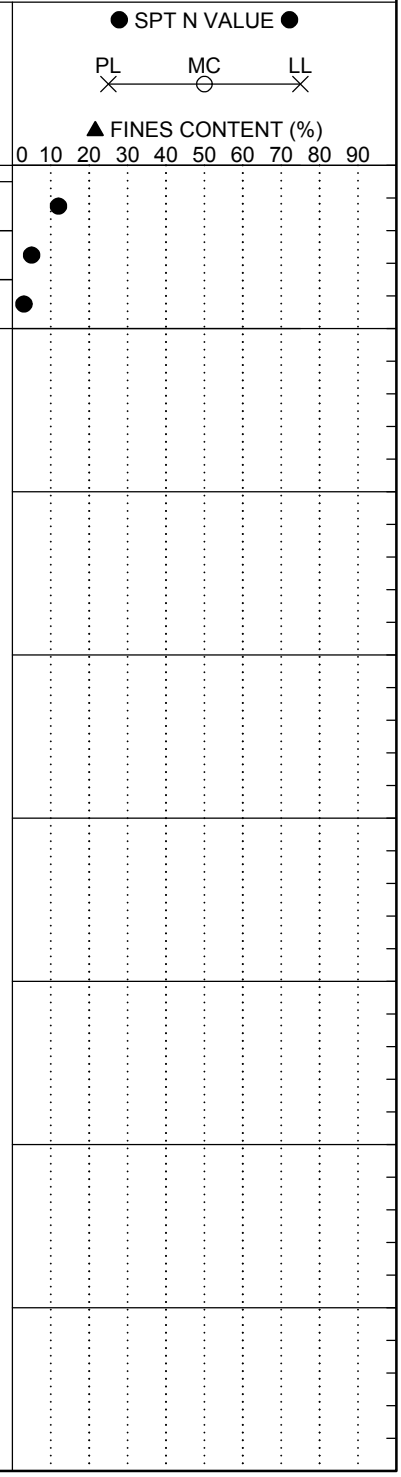
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-115
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	895+29.04	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	369.6 ft	**Latitude:**	34.1534679	**Longitude:**	-81.2566757	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff to medium stiff, moist, light brown, Sandy SILT (ML) (A-4)		0.5					
				2.0	SS-1	5	6	6	12
	3.5	**FILL**		3.5	SS-2	1	2	3	5
364.6	5.0	Soft, moist, reddish brown, Sandy SILT (ML) (A-4)			SS-3	2	2	1	3
		Boring terminated at 5.0 feet							
359.6									
354.6									
349.6									
344.6									
339.6									
334.6									



LEGEND

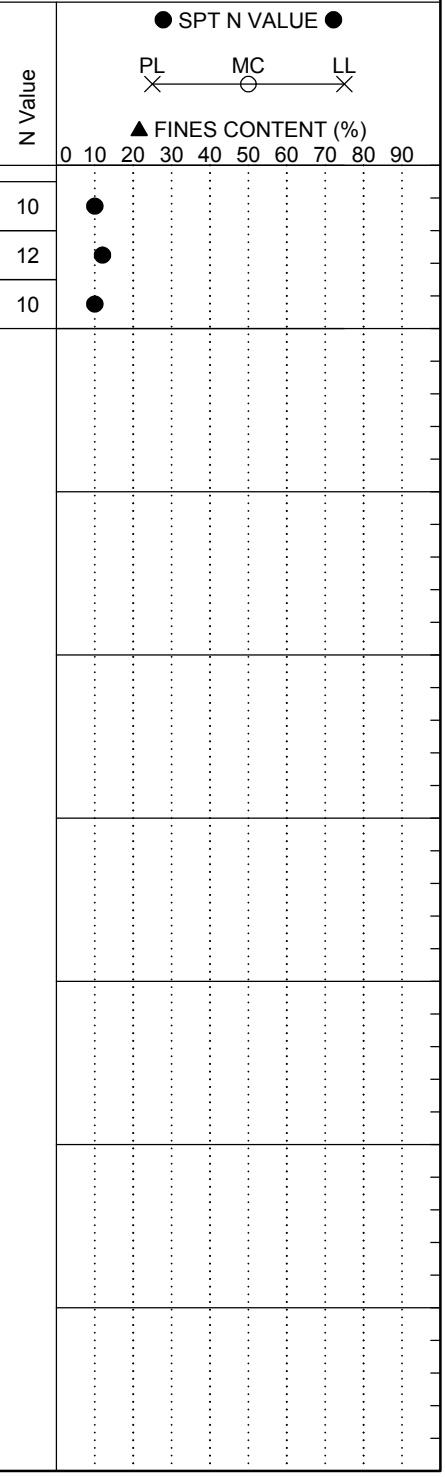
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-116
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	890+27.66	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	365.4 ft	**Latitude:**	34.1529411	**Longitude:**	-81.2551448	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	5	5	10
		Medium dense, moist, reddish brown to tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel		3.5	SS-2	3	9	3	12
					SS-3	1	2	8	10
360.4	5.0	Boring terminated at 5.0 feet							
355.4									
350.4									
345.4									
340.4									
335.4									
330.4									



LEGEND

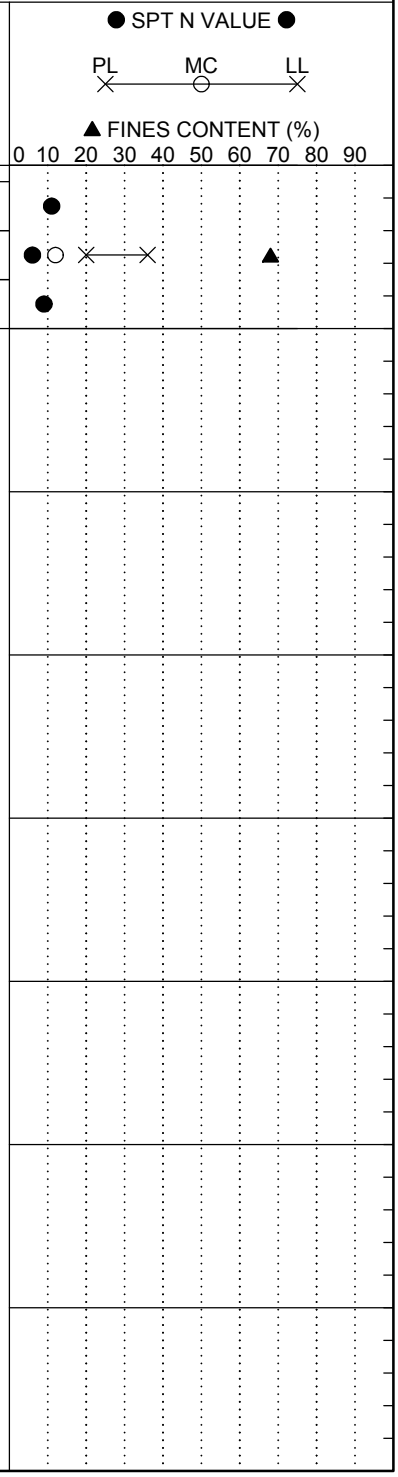
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-117
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	885+74.98	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	365.8 ft	**Latitude:**	34.1523844	**Longitude:**	-81.2538057	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel		0.5	SS-1	8	5	6	11
	2.0			2.0	SS-2	2	2	4	6
	3.5	**FILL** Medium stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) with trace gravel LL=36, PL=20, PI=16, NMC=12.1, %200=68		3.5	SS-3	2	3	6	9
360.8	5.0	**FILL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-7-6) with trace gravel							
355.8		Boring terminated at 5.0 feet							
350.8									
345.8									
340.8									
335.8									
330.8									



LEGEND

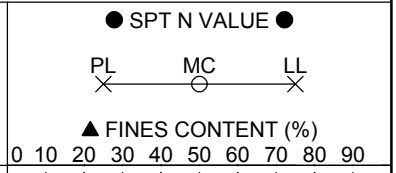
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-118
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	879+99.77	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	376.9 ft	**Latitude:**	34.151774	**Longitude:**	-81.2520516	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	2	5	10	15
		Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) with trace roots and gravel		3.5	SS-2	6	5	4	9
371.9	5.0	LL=33, PL=21, PI=12, NMC=15.2, %200=57			SS-3	2	3	13	16
		Boring terminated at 5.0 feet							
366.9									
361.9									
356.9									
351.9									
346.9									
341.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-119
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	874+75.25	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	386.3 ft	**Latitude:**	34.1511515	**Longitude:**	-81.2504848	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, gray, Sandy SILT (ML) (A-4)		2.0	SS-1	6	8	4	12
					SS-2	16	50/5		50/5
		PARTIALLY WEATHERED ROCK		3.5					
	5.0	Extremely hard, moist, light brown, sampled as Sandy SILT (ML) (A-4)			SS-3	23	36	50/5	50/5
381.3		Boring terminated at 5.0 feet							
376.3									
371.3									
366.3									
361.3									
356.3									
351.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

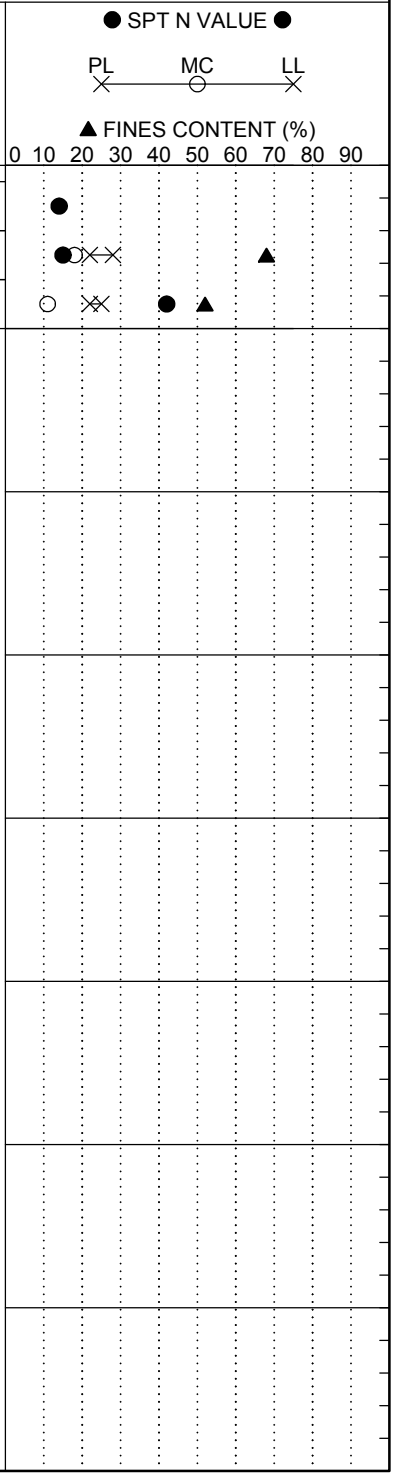
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-120
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	869+67.34	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	379.9 ft	**Latitude:**	34.1506056	**Longitude:**	-81.248941	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4)		2.0	SS-1	2	7	7	14
	3.5	**RESIDUAL**		3.5	SS-2	3	5	10	15
374.9	5.0	Stiff, moist, grayish brown, Sandy Silty CLAY (CL-ML) (A-4) LL=28, PL=22, PI=6, NMC=18.1, %200=68			SS-3	3	7	35	42
369.9		Hard, moist, grayish brown, Sandy SILT (ML) (A-4) LL=25, PL=22, PI=3, NMC=10.8, %200=52							
		Boring terminated at 5.0 feet							
364.9									
359.9									
354.9									
349.9									
344.9									



LEGEND

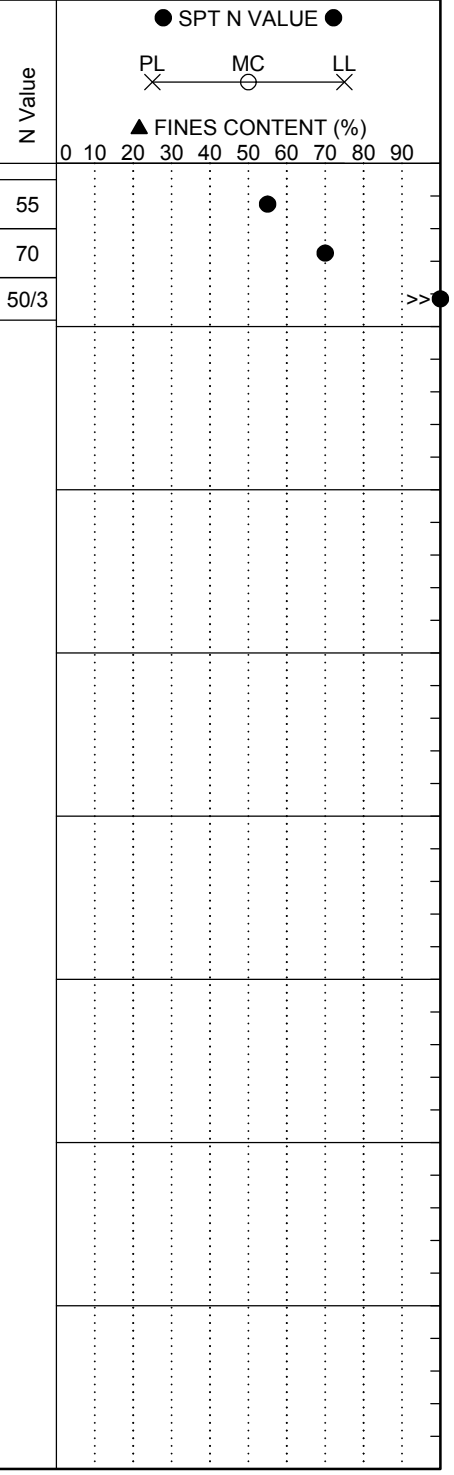
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-121
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	864+59.78	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	372.0 ft	**Latitude:**	34.1500069	**Longitude:**	-81.2474247	**Date Started:**	7/19/2017
Total Depth:	4.8 ft	**Soil Depth:**	4.8 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Very hard, moist, grayish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	18	22	33	55
	3.5			3.5	SS-2	23	39	31	70
	4.8	**PARTIALLY WEATHERED ROCK**			SS-3	9	17	50/3	50/3
367.0		Extremely dense, moist, grayish brown, Silty SAND (A-2-4)							
		Auger refusal at 4.8 feet							
362.0									
357.0									
352.0									
347.0									
342.0									
337.0									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-122
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	859+48.12	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	362.9 ft	**Latitude:**	34.1494723	**Longitude:**	-81.2458589	**Date Started:**	7/24/2017
Total Depth:	3 ft	**Soil Depth:**	3 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Dense, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel-sized rock fragments		2.0	SS-1	4	9	27	36
	3.0				SS-2	15	50/3		50/3
357.9		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (SM) (A-2-4)							
		Auger refusal at 3.0 feet							
352.9									
347.9									
342.9									
337.9									
332.9									
327.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

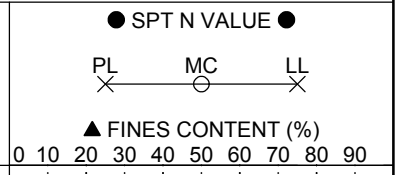
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-123
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	854+29.44	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	354.9 ft	**Latitude:**	34.1488036	**Longitude:**	-81.2443421	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Stiff, moist, tannish brown, to reddish brown, Sandy CLAY (CL) (A-6) with trace gravel		2.0	SS-1	5	6	7	13
				3.5	SS-2	2	8	9	17
		LL=34, PL=19, PI=15, NMC=11.7, %200=64			SS-3	12	5	6	11
349.9	5.0	Boring terminated at 5.0 feet							
344.9									
339.9									
334.9									
329.9									
324.9									
319.9									



LEGEND

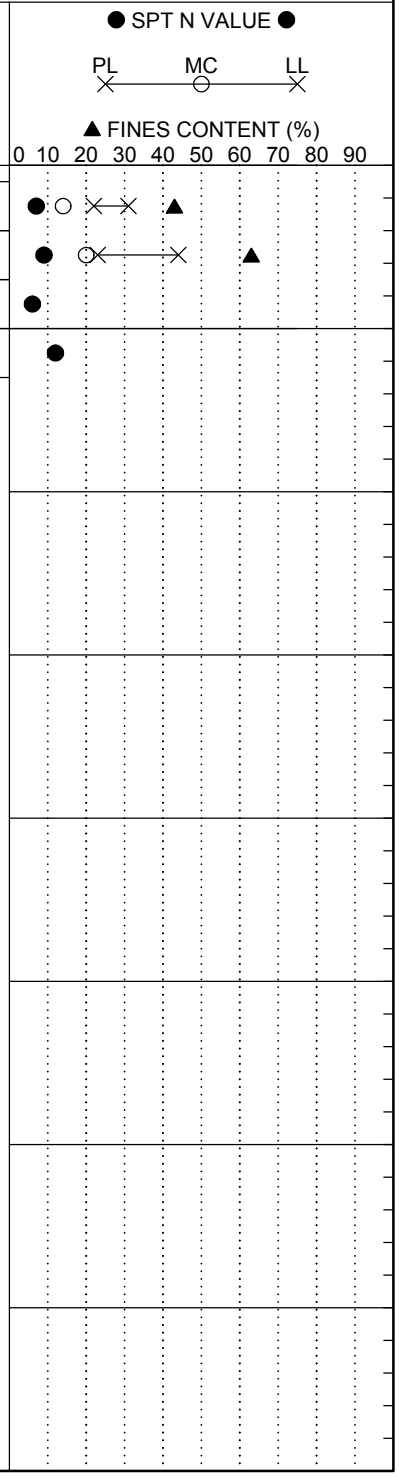
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-124
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	849+13.86	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	352.7 ft	**Latitude:**	34.1481713	**Longitude:**	-81.2428186	**Date Started:**	7/24/2017
Total Depth:	6.5 ft	**Soil Depth:**	6.5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Loose, moist, brown, Clayey SAND (SC) (A-4) LL=31, PL=22, PI=9, NMC=13.9, %200=43		2.0	SS-1	4	4	3	7
	3.5			3.5	SS-2	2	4	5	9
347.7	5.0			5.0	SS-3	2	2	4	6
	6.5	Stiff, moist, brown, Sandy CLAY (CL) (A-7-6) LL=44, PL=23, PI=21, NMC=20.3, %200=63			SS-4	2	5	7	12
342.7		**FILL** Loose, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel							
337.7		**FILL** Stiff, moist, orangish brown, Sandy CLAY (CL) (A-7-5)							
332.7		Boring terminated at 6.5 feet							
327.7									
322.7									
317.7									



LEGEND

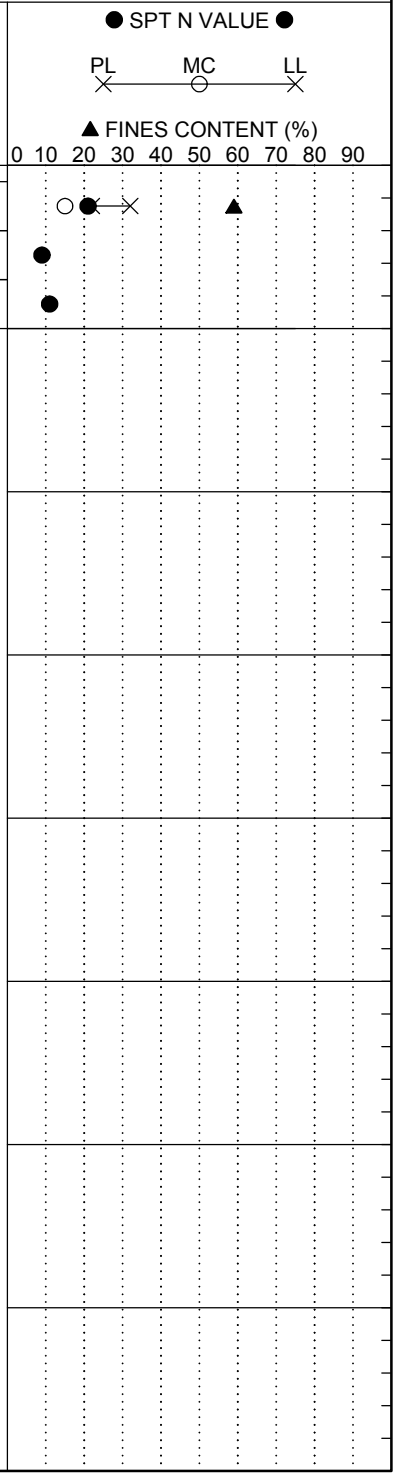
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-125
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	843+91.48	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	359.9 ft	**Latitude:**	34.1474486	**Longitude:**	-81.2413242	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Very stiff to stiff, moist, orangish brown, Sandy CLAY (CL) (A-4) with trace gravel		2.0	SS-1	8	9	12	21
		LL=32, PL=22, PI=10, NMC=15.1, %200=59		3.5	SS-2	1	3	6	9
					SS-3	2	4	7	11
354.9	5.0	Boring terminated at 5.0 feet							
349.9									
344.9									
339.9									
334.9									
329.9									
324.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-126
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	838+79.05	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	364.5 ft	**Latitude:**	34.1468049	**Longitude:**	-81.2398195	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	3	4	3	7
		Medium stiff to soft, moist, orangish brown, Sandy CLAY (CL) (A-6) with trace gravel		2.0	SS-2	2	1	2	3
		LL=40, PL=23, PI=17, NMC=19.6, %200=66		3.5	SS-3	3	2	3	5
359.5	5.0								
		Boring terminated at 5.0 feet							
354.5									
349.5									
344.5									
339.5									
334.5									
329.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

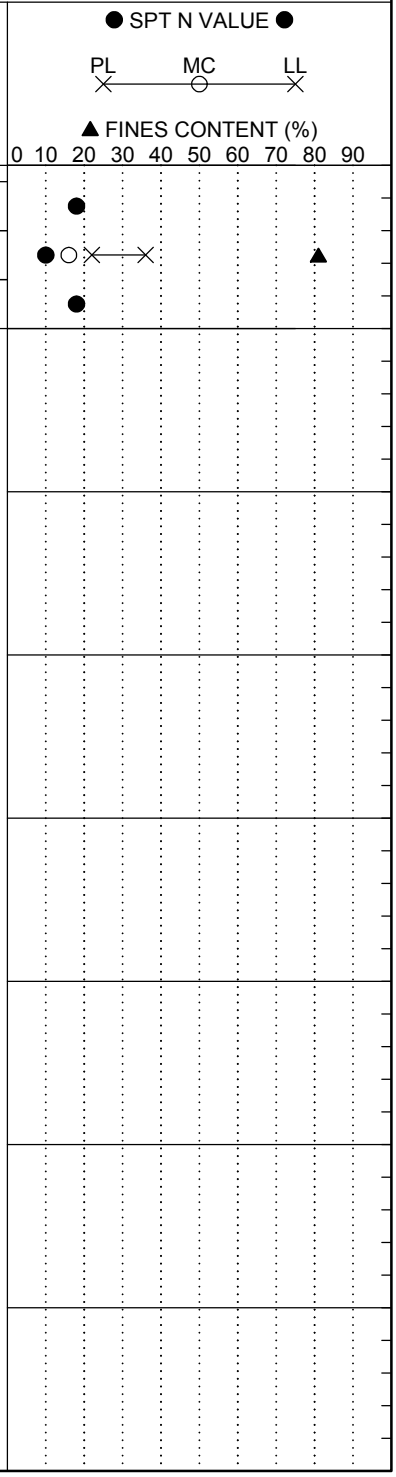
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-127
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	833+86.77	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	371.1 ft	**Latitude:**	34.1461287	**Longitude:**	-81.238407	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	7	11	18
	3.5			3.5	SS-2	3	5	5	10
					SS-3	8	8	10	18
	5.0	**RESIDUAL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) LL=36, PL=22, PI=14, NMC=16.1, %200=81							
366.1									
361.1		Very stiff, moist, orangish brown, Sandy SILT (ML) (A-5)							
		Boring terminated at 5.0 feet							
356.1									
351.1									
346.1									
341.1									
336.1									



LEGEND

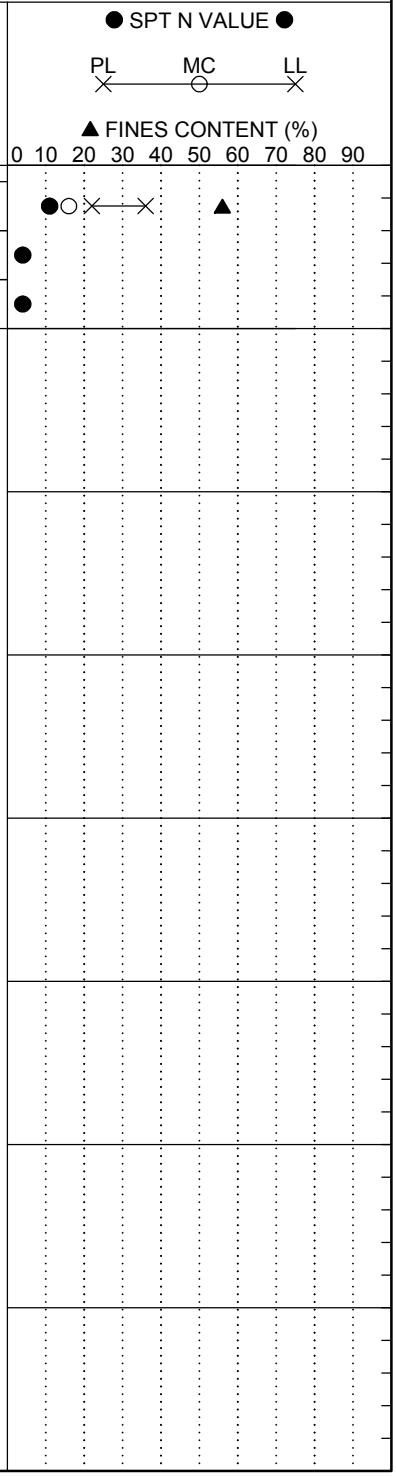
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-128
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	828+41.55	**Offset:**	10' RT	**Alignment:**	PROP_I26_CL
Elev.:	368.9 ft	**Latitude:**	34.1454598	**Longitude:**	-81.2367949	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, orangish brown, Sandy CLAY (CL) (A-6) with trace gravel		0.5					
	2.0			2.0	SS-1	7	5	6	11
	3.5	LL=36, PL=22, PI=14, NMC=16.3, %200=56		3.5	SS-2	2	2	2	4
	5.0				SS-3	3	2	2	4
363.9		**FILL** Soft, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel							
358.9		**FILL** Soft, moist, dark brown to orange, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
353.9									
348.9									
343.9									
338.9									
333.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-129
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	823+29.30	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	365.1 ft	**Latitude:**	34.1447414	**Longitude:**	-81.2353373	**Date Started:**	7/19/2017
Total Depth:	4.25 ft	**Soil Depth:**	4.25 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Very stiff, moist, orangish brown to tan, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	6	6	10	16
					SS-2	14	50/5		50/5
	3.5	**PARTIALLY WEATHRED ROCK**		3.5					
	4.3	Extremely hard, moist, orangish brown to tan, sampled as Sandy SILT (A-4)			SS-3	35	50/2		50/2
360.1		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, Silty SAND (A-4)							
355.1		Boring terminated at 4.25 feet							
350.1									
345.1									
340.1									
335.1									
330.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

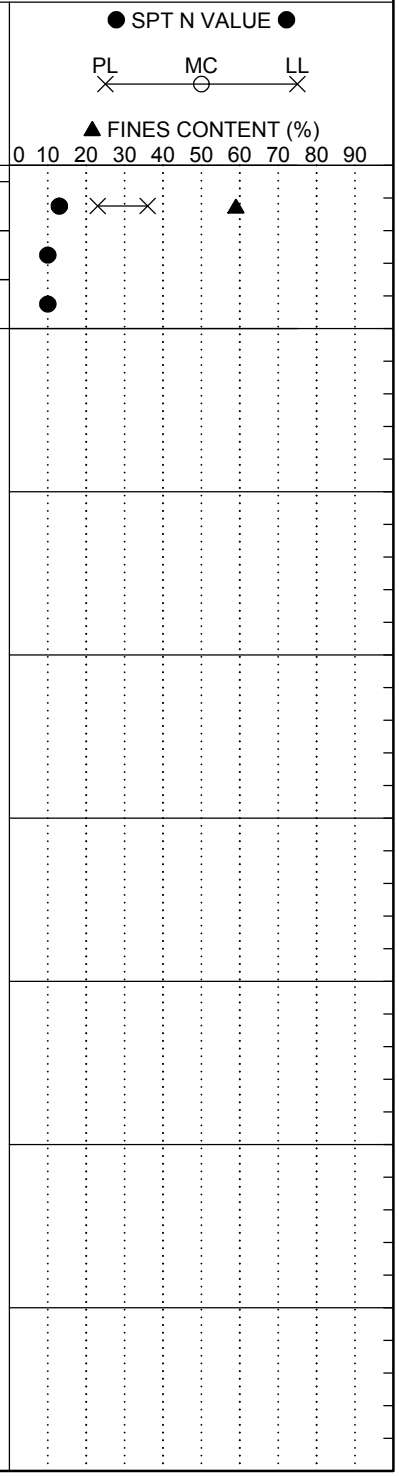
LEGEND

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:	029208			**County:**	Lexington	**Boring No.:**	P-130
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	818+19.98	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	360.3 ft	**Latitude:**	34.1440984	**Longitude:**	-81.2338426	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) with trace gravel-sized rock fragments		2.0	SS-1	4	5	8	13
				3.5	SS-2	3	5	5	10
					SS-3	5	3	7	10
355.3	5.0	LL=36, PL=23, PI=13, NMC=12.3, %200=59							
		Boring terminated at 5.0 feet							
350.3									
345.3									
340.3									
335.3									
330.3									
325.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-131
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	813+18.76	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	348.6 ft	**Latitude:**	34.1434113	**Longitude:**	-81.2324049	**Date Started:**	7/19/2017
Total Depth:	3.7 ft	**Soil Depth:**	3.7 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Stiff to very stiff, moist, orangish brown to grayish brown, Sandy CLAY (CL) (A-6) with trace gravel-sized rock fragments		2.0	SS-1	3	4	5	9
	3.7	LL=36, PL=24, PI=12, NMC=12.6, %200=67		3.5	SS-2	2	4	18	22
343.6		Auger refusal at 3.7 feet			SS-3	50/2			50/2
338.6									
333.6									
328.6									
323.6									
318.6									
313.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

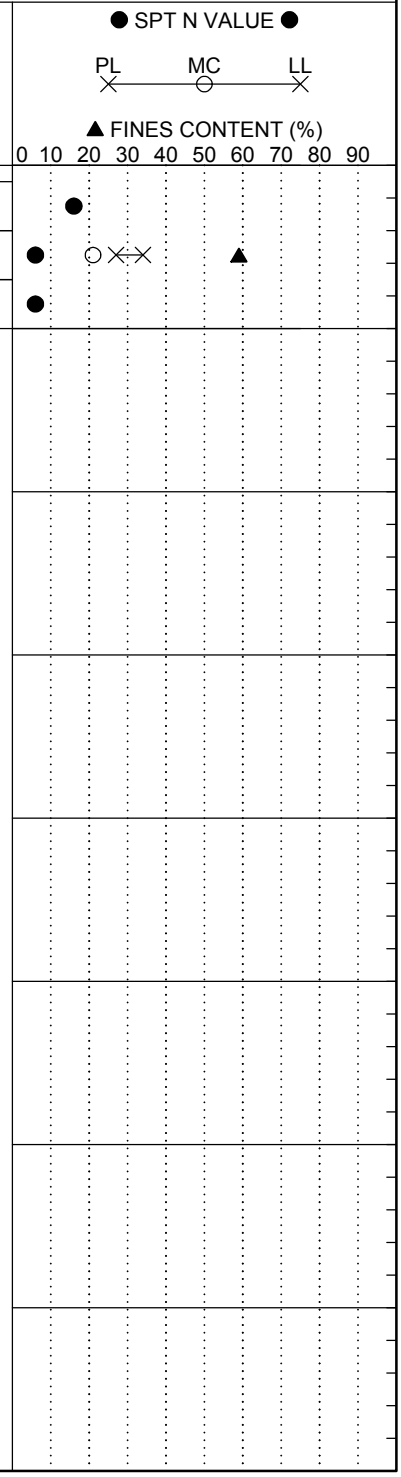
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-132
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	807+88.46	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	332.1 ft	**Latitude:**	34.1427423	**Longitude:**	-81.2308476	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4) with trace gravel		2.0	SS-1	5	11	5	16
				3.5	SS-2	2	3	3	6
					SS-3	1	3	3	6
327.1	5.0	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel LL=34, PL=27, PI=7, NMC=20.5, %200=59							
322.1		Boring terminated at 5.0 feet							
317.1									
312.1									
307.1									
302.1									
297.1									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-133
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	802+74.23	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	325.3 ft	**Latitude:**	34.1420358	**Longitude:**	-81.2293749	**Date Started:**	7/19/2017
Total Depth:	4 ft	**Soil Depth:**	4 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	5	5	7	12
	3.5			3.5	SS-2	16	19	25	44
	4.0	Dense, moist, grayish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel			SS-3	50/4			50/4
320.3		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, grayish brown, sampled as Silty SAND (SM) (A-4)							
		Boring terminated at 4.0 feet							
315.3									
310.3									
305.3									
300.3									
295.3									
290.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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LEGEND

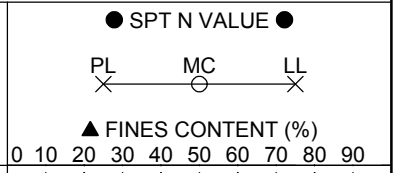
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-134
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	797+59.56	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	323.6 ft	**Latitude:**	34.1413871	**Longitude:**	-81.2278615	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		0.5					
	2.0			2.0	SS-1	4	5	6	11
		FILL Soft, moist, orangish brown, Sandy CLAY (CL) (A-7-6) LL=47, PL=25, PI=22, NMC=24.1, %200=80		3.5	SS-2	2	2	1	3
318.6	5.0				SS-3	1	2	1	3
		Boring terminated at 5.0 feet							
313.6									
308.6									
303.6									
298.6									
293.6									
288.6									



LEGEND

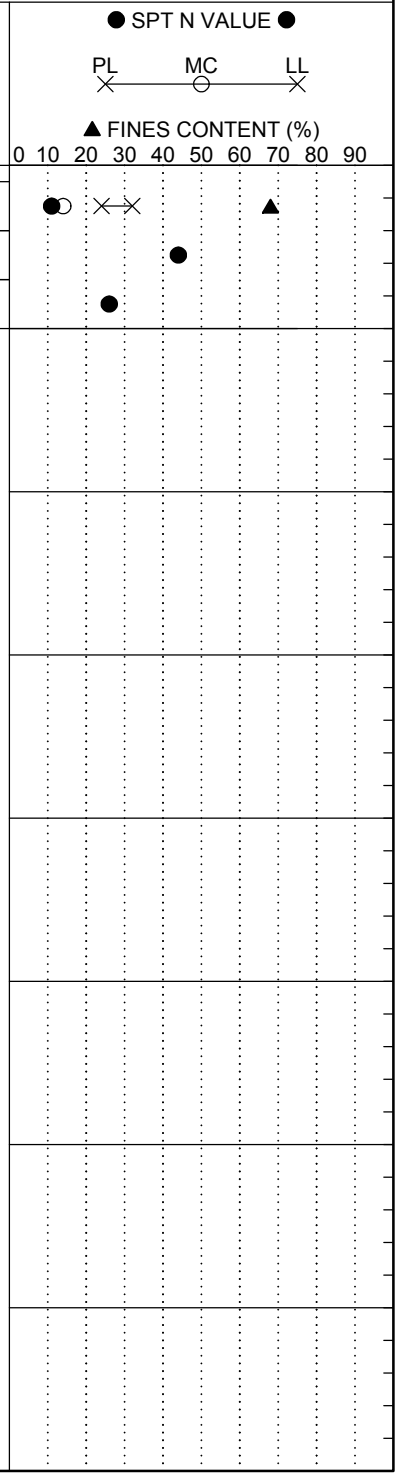
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-135
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	792+48.04	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	336.3 ft	**Latitude:**	34.1406856	**Longitude:**	-81.2263965	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	3	5	6	11
		LL=32, PL=24, PI=8, NMC=13.9, %200=68		3.5	SS-2	5	15	29	44
331.3	5.0	Hard to very stiff, moist, orangish brown, Sandy SILT (ML) (A-4)			SS-3	2	7	19	26
		Boring terminated at 5.0 feet							
326.3									
321.3									
316.3									
311.3									
306.3									
301.3									



LEGEND

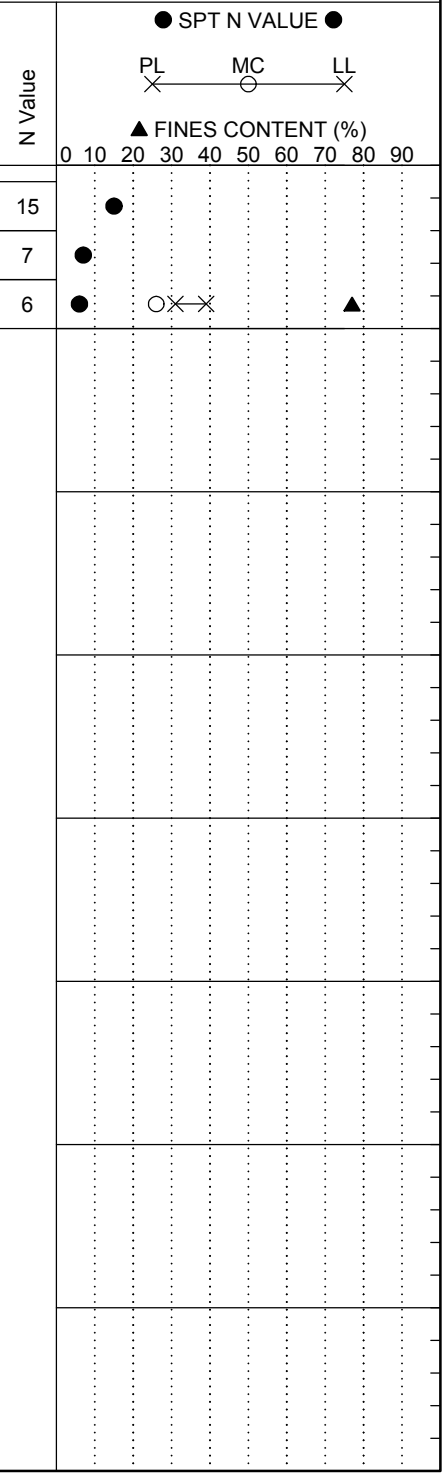
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-136
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	787+33.86	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	349.2 ft	**Latitude:**	34.1400421	**Longitude:**	-81.2248825	**Date Started:**	7/24/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots		0.5					
	2.0			2.0	SS-1	7	9	6	15
	3.5	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5)		3.5	SS-2	1	2	5	7
344.2	5.0	**RESIDUAL** Medium stiff, moist, orangish tan, Sandy SILT (ML) (A-4) LL=39, PL=31, PI=8, NMC=26.0, %200=77			SS-3	2	3	3	6
339.2		Boring terminated at 5.0 feet							
334.2									
329.2									
324.2									
319.2									
314.2									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-137
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	782+15.07	**Offset:**	12' LT	**Alignment:**	PROP_I26_CL
Elev.:	361.6 ft	**Latitude:**	34.1393242	**Longitude:**	-81.2234008	**Date Started:**	7/19/2017
Total Depth:	4.75 ft	**Soil Depth:**	4.75 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Stiff, moist, orangish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	5	6	7	13
	3.5	LL=37, PL=27, PI=10, NMC=14.2, %200=66		3.5	SS-2	2	6	8	14
	4.8				SS-3	6	41	50/2	50/2
356.6		**PARTIALLY WEATHERED ROCK**							
		Extremely hard, moist, orangish brown, Sandy SILT (A-4)							
		Boring terminated at 4.75 feet							
351.6									
346.6									
341.6									
336.6									
331.6									
326.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-138
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	776+87.17	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	365.4 ft	**Latitude:**	34.1386704	**Longitude:**	-81.2218421	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	5	6	9	15
		Stiff to very stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace roots		2.0	SS-2	5	7	9	16
		LL=29, PL=23, PI=8, NMC=9.6, %200=56		3.5	SS-3	4	3	7	10
360.4	5.0								
		Boring terminated at 5.0 feet							
355.4									
350.4									
345.4									
340.4									
335.4									
330.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

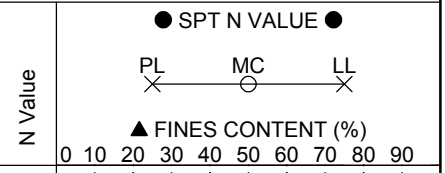
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-139
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	771+90.73	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	370.1 ft	**Latitude:**	34.1379783	**Longitude:**	-81.220425	**Date Started:**	7/19/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		0.5					
				2.0	SS-1	6	4	4	8
				3.5	SS-2	4	4	7	11
	3.5	**FILL** Medium stiff, moist, tannish brown, Plastic CLAY (CH) (A-7-6) with trace gravel LL=52, PL=21, PI=31, NMC=17.5, %200=70			SS-3	1	2	4	6
365.1	5.0	Boring terminated at 5.0 feet							
360.1									
355.1									
350.1									
345.1									
340.1									
335.1									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-140
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	766+74.31	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	372.9 ft	**Latitude:**	34.1373305	**Longitude:**	-81.2189079	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL) (A-7-6) with trace gravel		2.0	SS-1	2	7	7	14
	3.5	LL=48, PL=22, PI=26, NMC=14.1, %200=63		3.5	SS-2	7	8	9	17
367.9	5.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace gravel			SS-3	1	3	8	11
362.9		Boring terminated at 5.0 feet							
357.9									
352.9									
347.9									
342.9									
337.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

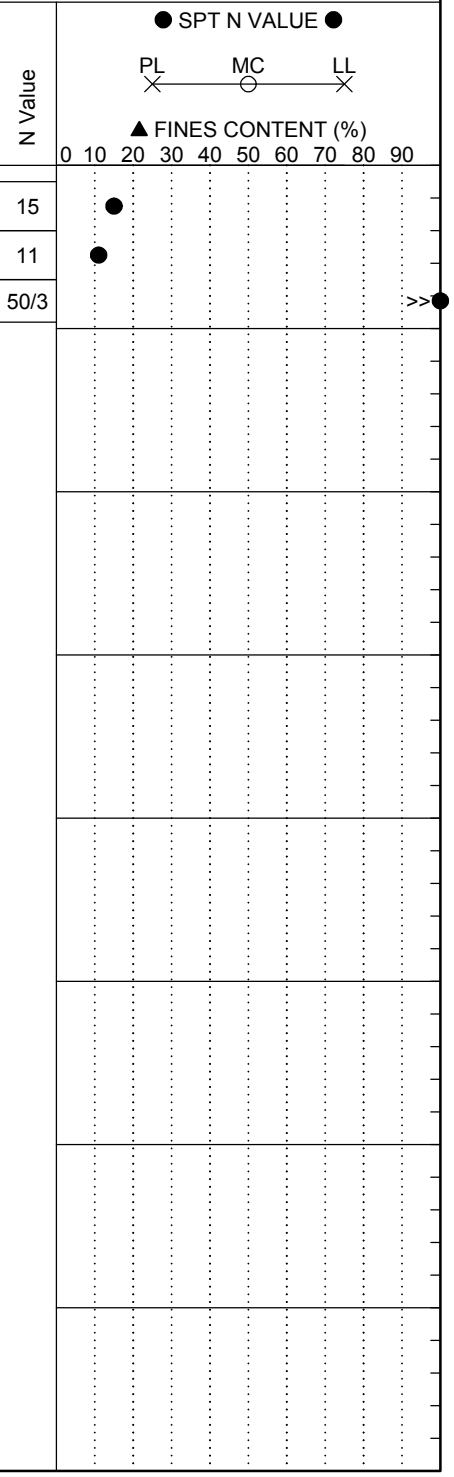
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	P-141
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	761+49.30	**Offset:**	11' LT	**Alignment:**	PROP_I26_CL
Elev.:	378.4 ft	**Latitude:**	34.1366091	**Longitude:**	-81.2174052	**Date Started:**	7/19/2017
Total Depth:	4.75 ft	**Soil Depth:**	4.75 ft	**Core Depth:**	ft	**Date Completed:**	7/19/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		2.0	SS-1	6	7	8	15
	3.5			3.5	SS-2	4	7	4	11
	4.8	Medium dense, moist, grayish brown, Silty Fine to Medium SAND (SM) (A-2-4)			SS-3	1	40	50/3	50/3
373.4		**PARTIALLY WEATHERED ROCK**							
		Extremely dense, moist, grayish brown, sampled as Silty SAND (A-2-4)							
		Boring terminated at 4.75 feet							
368.4									
363.4									
358.4									
353.4									
348.4									
343.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-142
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	756+30.25	**Offset:**	3' RT	**Alignment:**	PROP_I26_CL
Elev.:	375.3 ft	**Latitude:**	34.1359586	**Longitude:**	-81.2158758	**Date Started:**	7/21/2017
Total Depth:	2 ft	**Soil Depth:**	2 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.5	6.00" Topsoil Depth		0.5						
	2.0	**PARTIALLY WEATHERED ROCK** Extremely dense, dry, brown, sampled as Silty SAND (A-2-4)			SS-1	10	41	50/5	50/5	>>
370.3		Auger Refusal at 2.0 feet								
365.3										
360.3										
355.3										
350.3										
345.3										
340.3										

LEGEND

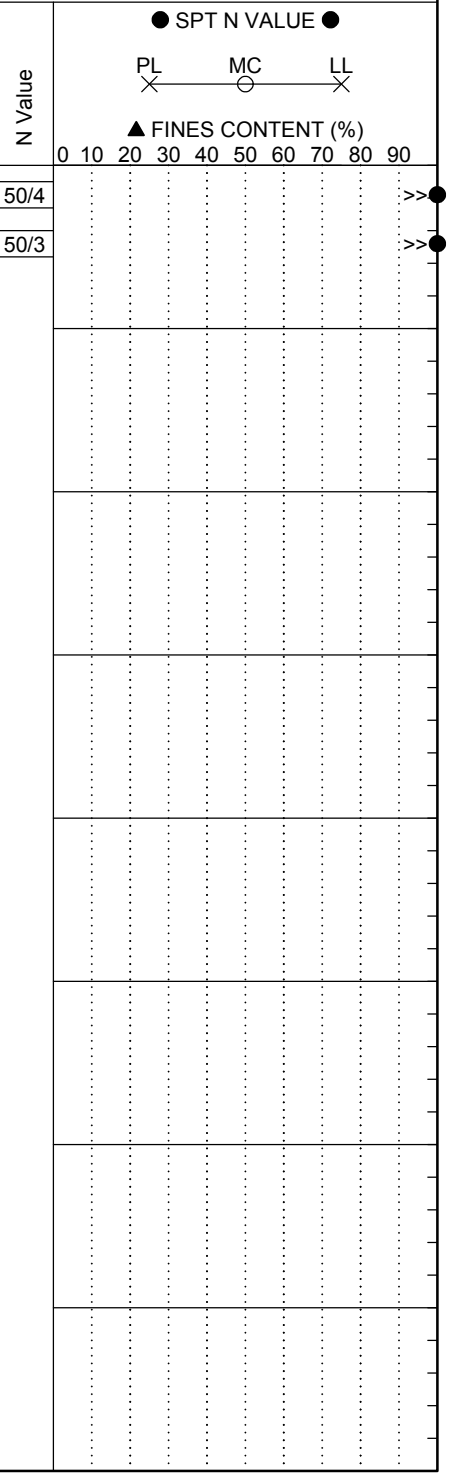
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-143
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	751+27.19	**Offset:**	10' LT	**Alignment:**	PROP_I26_CL
Elev.:	373.4 ft	**Latitude:**	34.1352668	**Longitude:**	-81.2144369	**Date Started:**	7/20/2017
Total Depth:	2.5 ft	**Soil Depth:**	2.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5	SS-1	5	50/4		50/4
		PARTIALLY WEATHERED ROCK		2.0					
	2.5	Extremely dense, moist, reddish brown to tannish brown, sampled as Silty SAND (A-4)			SS-2	50/3			50/3
368.4		Auger refusal at 2.5 feet							
363.4									
358.4									
353.4									
348.4									
343.4									
338.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-144
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	746+12.01	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	369.9 ft	**Latitude:**	34.1346096	**Longitude:**	-81.2129263	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
		FILL Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) trace roots and gravel		2.0	SS-1	5	5	5	10
	3.5	LL=33, PL=25, PI=8, NMC=9.4, %200=51		3.5	SS-2	4	5	7	12
364.9	5.0	**FILL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace gravel			SS-3	3	2	3	5
359.9		Boring terminated at 5.0 feet							
354.9									
349.9									
344.9									
339.9									
334.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

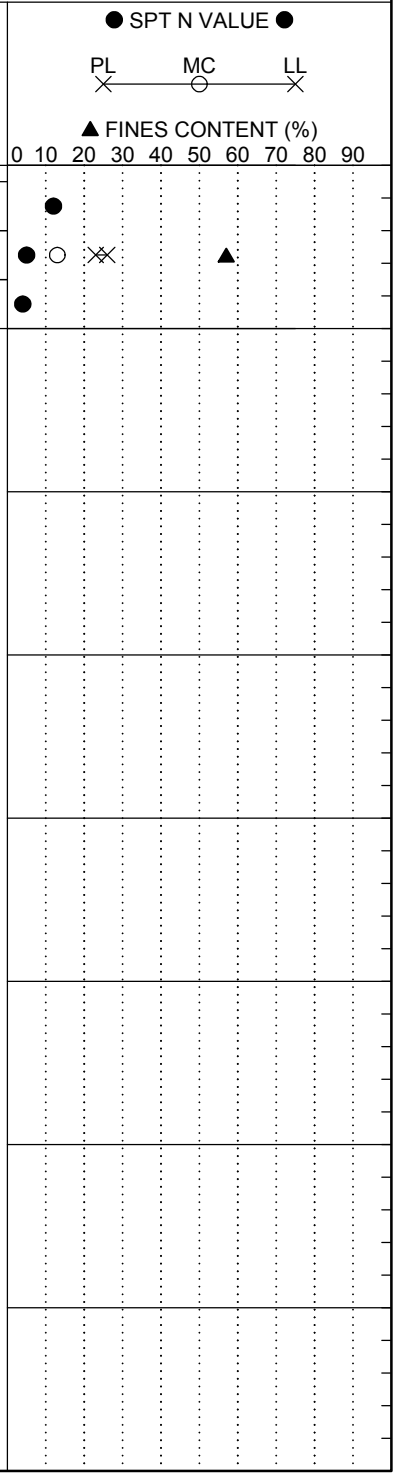
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-145
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	740+96.96	**Offset:**	6' LT	**Alignment:**	PROP_I26_CL
Elev.:	369.1 ft	**Latitude:**	34.1338174	**Longitude:**	-81.2115179	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	No Recovery		0.5					
	2.0	**FILL**		2.0	SS-1	12	7	5	12
		Loose, moist, brown, Sandy SILT (ML) (A-4) with trace roots and gravel		3.5	SS-2	2	2	3	5
364.1	5.0	LL=26, PL=23, PI=3, NMC=12.5, %200=57			SS-3	2	2	2	4
		Boring terminated at 5.0 feet							
359.1									
354.1									
349.1									
344.1									
339.1									
334.1									



LEGEND

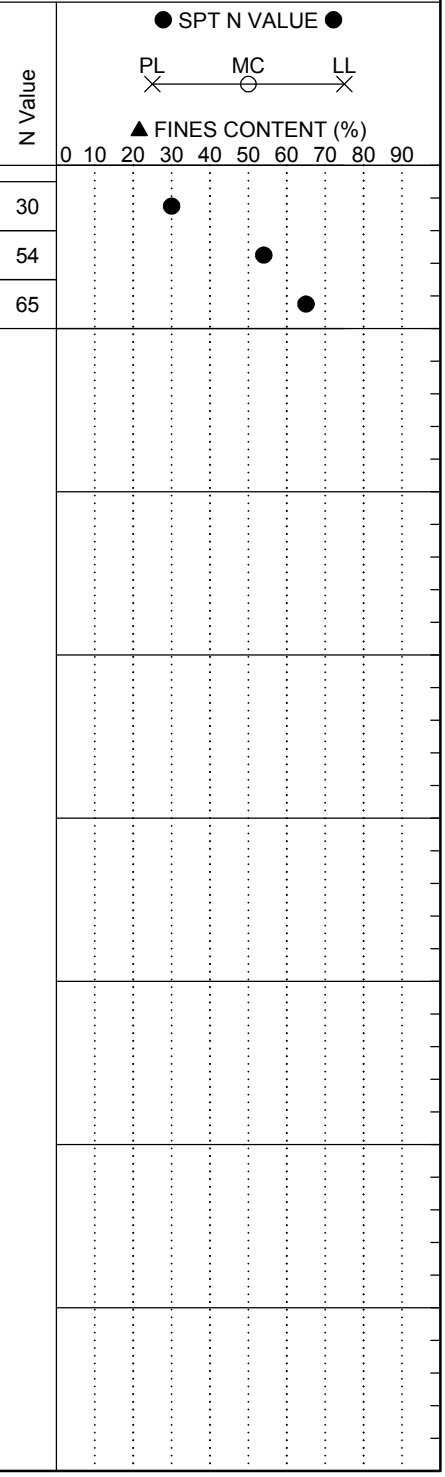
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-146
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	735+96.22	**Offset:**	2' LT	**Alignment:**	PROP_I26_CL
Elev.:	370.5 ft	**Latitude:**	34.1329756	**Longitude:**	-81.2102109	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	5	13	17	30
				3.5	SS-2	4	20	34	54
					SS-3	10	29	36	65
365.5	5.0	Very dense, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4)							
		Boring terminated at 5.0 feet							
360.5									
355.5									
350.5									
345.5									
340.5									
335.5									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-147
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	730+75.10	**Offset:**	11' LT	**Alignment:**	PROP_I26_CL
Elev.:	374.7 ft	**Latitude:**	34.1319787	**Longitude:**	-81.2089798	**Date Started:**	7/20/2017
Total Depth:	4.5 ft	**Soil Depth:**	4.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, tan, Sandy SILT (ML) (A-4)		2.0	SS-1	5	4	3	7
	3.5			3.5	SS-2	4	6	8	14
	4.5	**RESIDUAL** Stiff, moist, reddish tan, Sandy SILT (ML) (A-4)			SS-3	5	50/5		50/5
369.7		**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, Silty SAND (A-4)							
364.7		Boring terminated at 4.5 feet							
359.7									
354.7									
349.7									
344.7									
339.7									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-148
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	725+59.50	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	375.9 ft	**Latitude:**	34.1309417	**Longitude:**	-81.2078189	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Medium stiff to stiff, moist, grayish brown to tannish brown, Sandy CLAY (CL) (A-7-6) with trace gravel		2.0	SS-1	2	4	5	9
		LL=49, PL=25, PI=24, NMC=19.8, %200=67		3.5	SS-2	11	5	7	12
370.9	5.0				SS-3	3	3	3	6
		Boring terminated at 5.0 feet							
365.9									
360.9									
355.9									
350.9									
345.9									
340.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

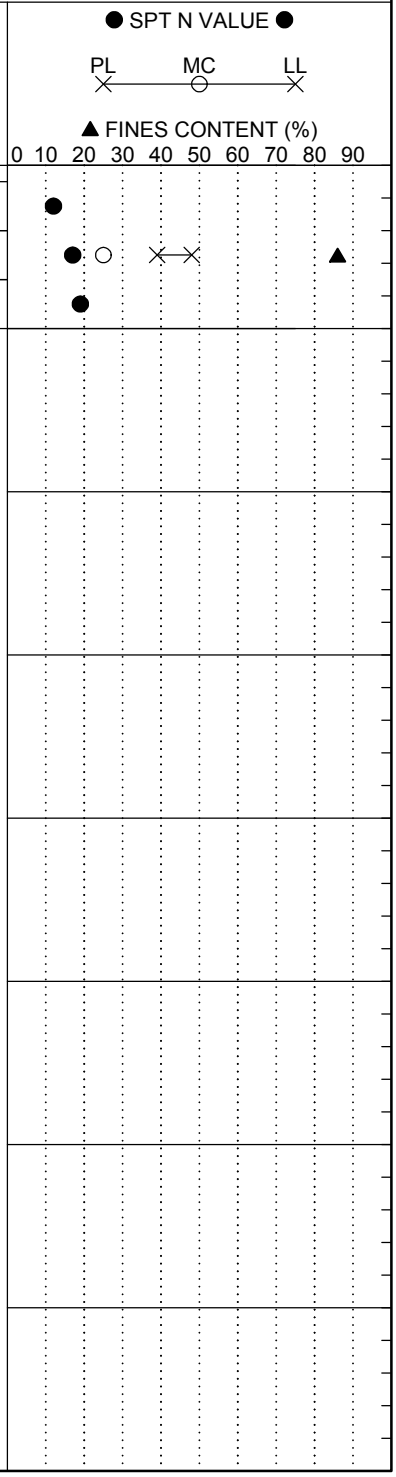
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-149
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	720+60.66	**Offset:**	3' LT	**Alignment:**	PROP_I26_CL
Elev.:	378.5 ft	**Latitude:**	34.1298967	**Longitude:**	-81.2067537	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	3	5	7	12
		Stiff to very stiff, moist, tannish brown to reddish tan, Sandy SILT (ML) (A-5)		3.5	SS-2	5	7	10	17
		LL=48, PL=39, PI=9, NMC=24.8, %200=86			SS-3	3	8	11	19
373.5	5.0	Boring terminated at 5.0 feet							
368.5									
363.5									
358.5									
353.5									
348.5									
343.5									



LEGEND

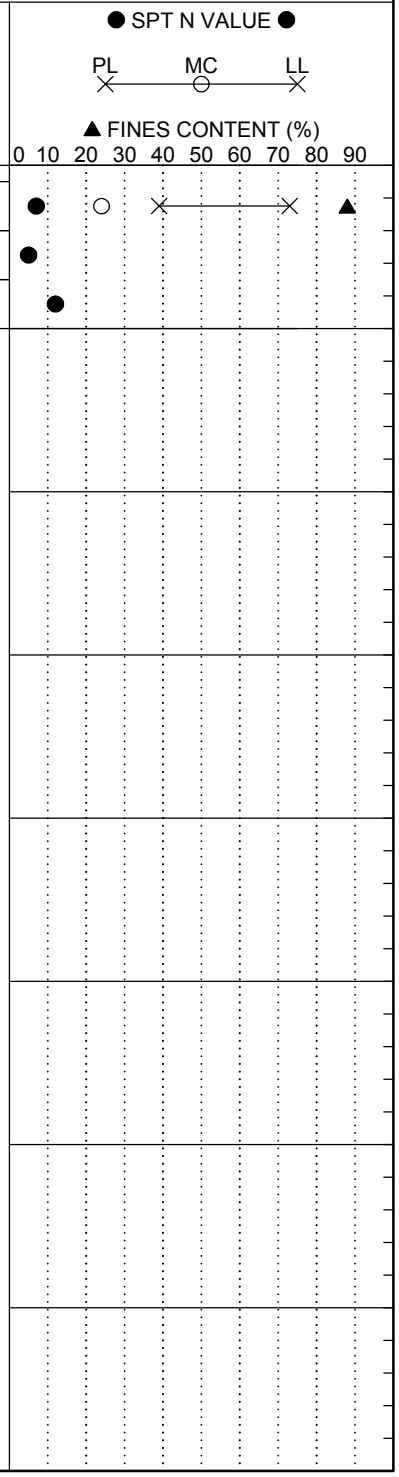
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	P-150
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	715+64.35	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	382.0 ft	**Latitude:**	34.1288812	**Longitude:**	-81.2056567	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		2.0	SS-1	3	3	4	7
		LL=72, PL=39, PI=33, NMC=23.5, %200=88		3.5	SS-2	2	2	3	5
					SS-3	3	6	6	12
377.0	5.0	Boring terminated at 5.0 feet							
372.0									
367.0									
362.0									
357.0									
352.0									
347.0									



LEGEND

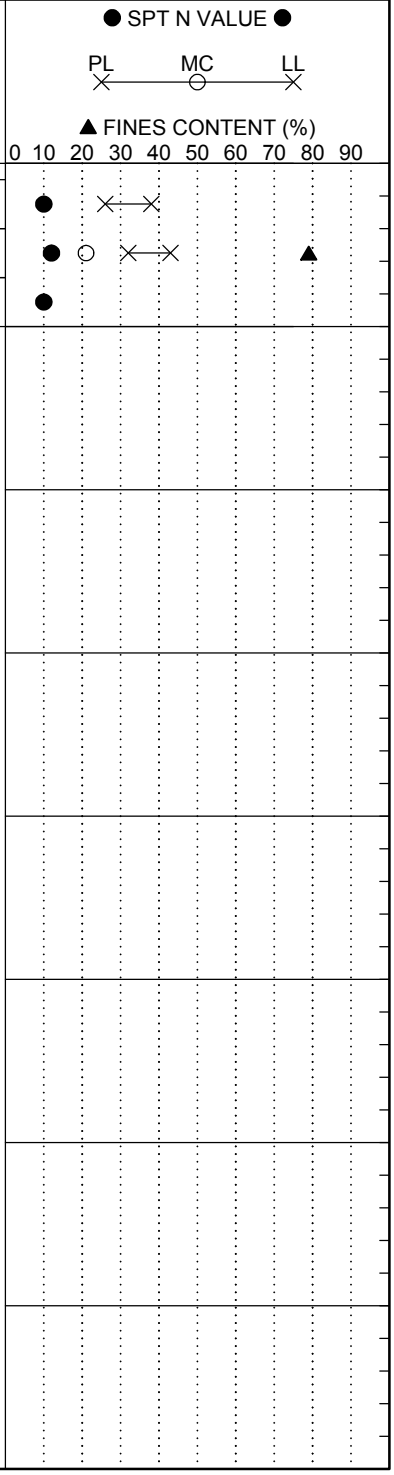
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-151
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	710+40.54	**Offset:**	4' LT	**Alignment:**	PROP_I26_CL
Elev.:	382.5 ft	**Latitude:**	34.1277624	**Longitude:**	-81.2045616	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Stiff, moist, tannish brown, Sandy SILT (ML) (A-7-6) LL=38, PL=26, PI=12, NMC=20.2, %200=NP		2.0	SS-1	4	4	6	10
				3.5	SS-2	3	5	7	12
377.5	5.0	Stiff, moist, tannish brown, Sandy SILT (ML) (A-7-5) LL=43, PL=32, PI=11, NMC=21.3, %200=79			SS-3	4	5	5	10
372.5		Boring terminated at 5.0 feet							
367.5									
362.5									
357.5									
352.5									
347.5									



LEGEND

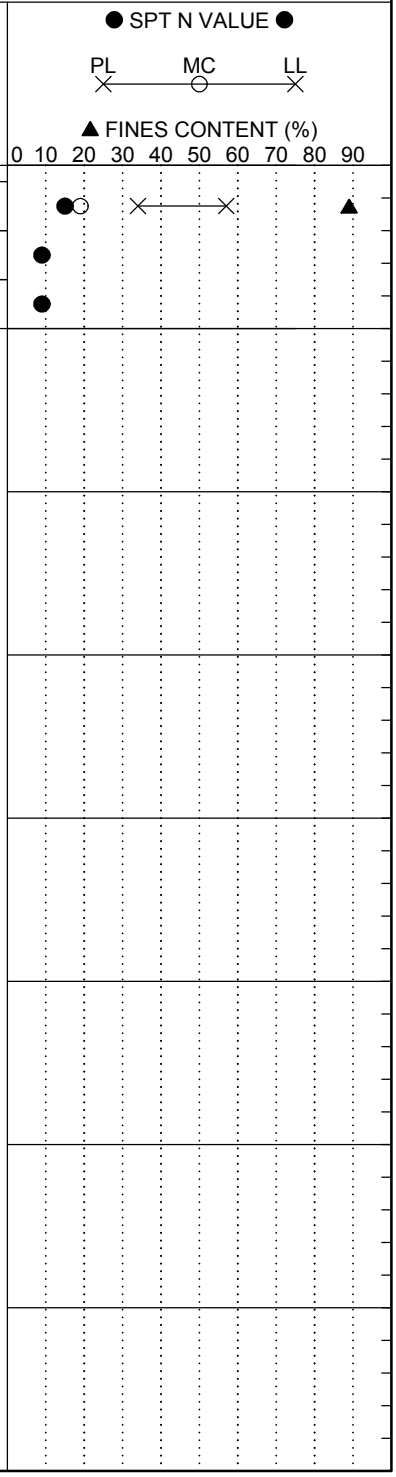
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-152
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	705+32.62	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	377.8 ft	**Latitude:**	34.1267175	**Longitude:**	-81.2034503	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish tan to reddish brown, Elastic SILT (MH) (A-7-5) with trace roots and gravel		0.5					
				2.0	SS-1	3	7	8	15
	3.5	LL=57, PL=34, PI=23, NMC=18.7, %200=89		3.5	SS-2	4	4	5	9
372.8	5.0				SS-3	2	3	6	9
		FILL Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots							
367.8		Boring terminated at 5.0 feet							
362.8									
357.8									
352.8									
347.8									
342.8									



LEGEND

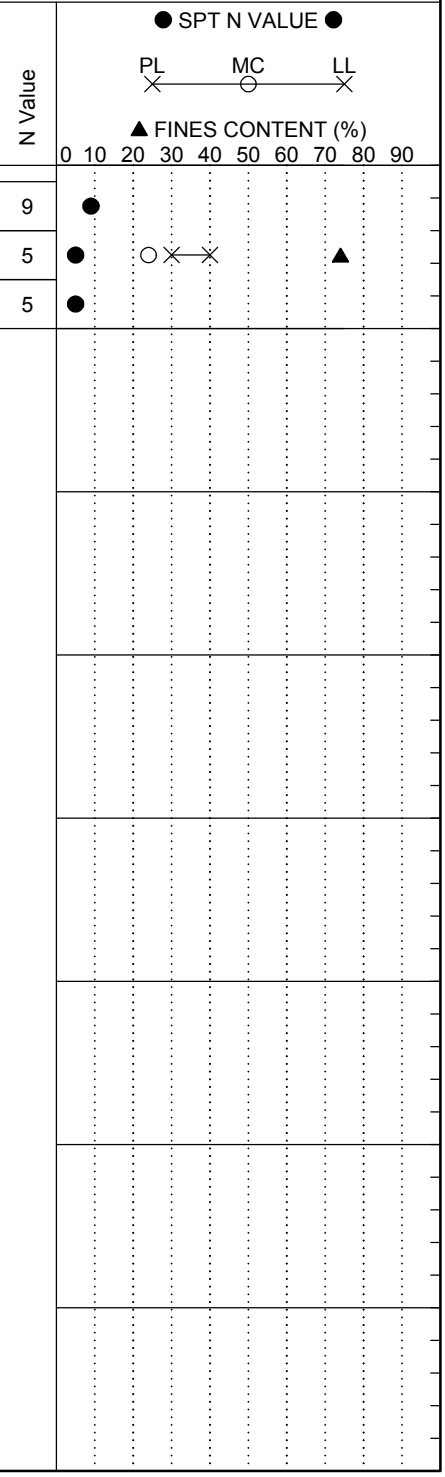
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-153
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	700+35.70	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	375.0 ft	**Latitude:**	34.1256561	**Longitude:**	-81.2024149	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	5	4	5	9
		Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML) (A-7) with trace roots and gravel		2.0	SS-2	2	2	3	5
				3.5	SS-3	1	2	3	5
370.0	5.0	LL=40, PL=30, PI=10, NMC=24.4, %200=74							
		Boring terminated at 5.0 feet							
365.0									
360.0									
355.0									
350.0									
345.0									
340.0									



LEGEND

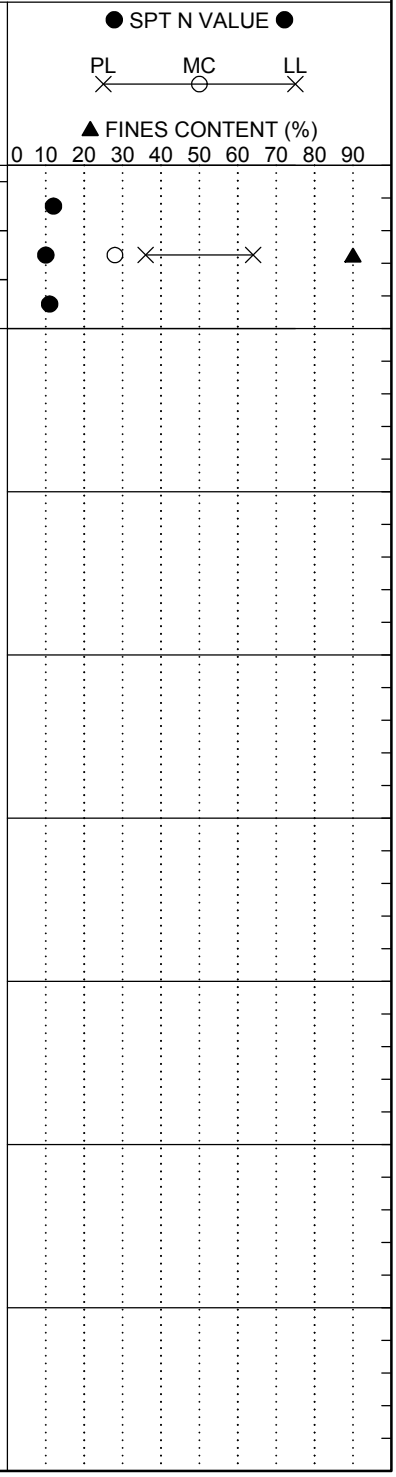
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-154
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	695+46.78	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	381.5 ft	**Latitude:**	34.1246644	**Longitude:**	-81.2013261	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, reddish brown, Silty SAND (SM) (A-4) with trace roots		2.0	SS-1	4	6	6	12
		RESIDUAL		3.5	SS-2	2	4	6	10
376.5	5.0	Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=64, PL=36, PI=28, NMC=28.3, %200=90			SS-3	2	4	7	11
		Boring terminated at 5.0 feet							
371.5									
366.5									
361.5									
356.5									
351.5									
346.5									



LEGEND

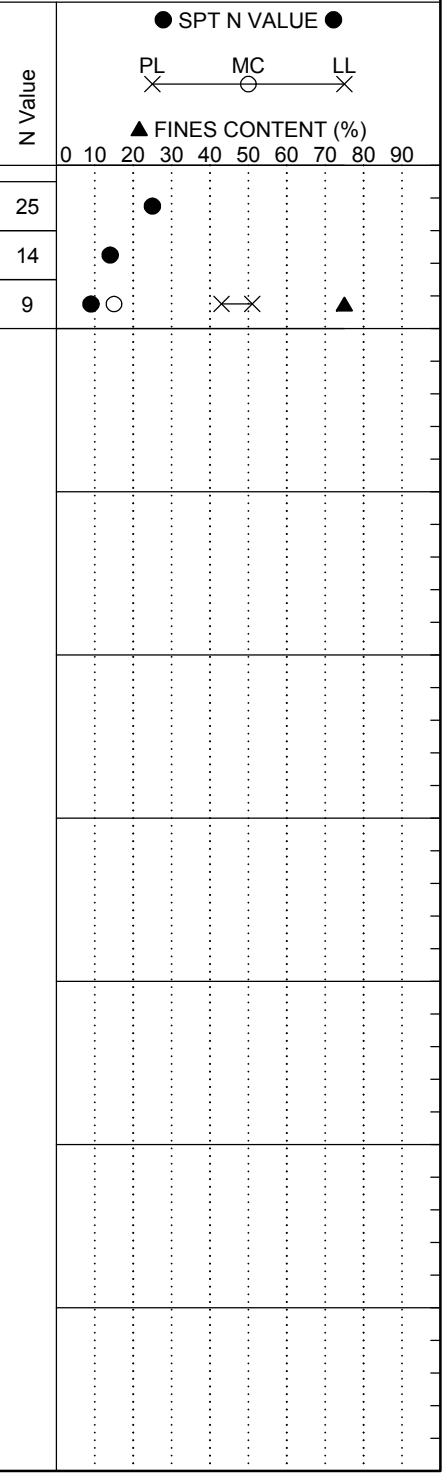
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-155
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	690+28.49	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	391.0 ft	**Latitude:**	34.1235555	**Longitude:**	-81.2002584	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-2-4) with trace rocks		0.5					
	2.0			2.0	SS-1	5	10	15	25
	3.5			3.5	SS-2	2	8	6	14
386.0	5.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots			SS-3	1	3	6	9
381.0		**FILL** Stiff, moist, tan, Elastic SILT (MH) (A-5) LL=51, PL=43, PI=8, NMC=15.3, %200=75							
376.0		Boring terminated at 5.0 feet							
371.0									
366.0									
361.0									
356.0									



LEGEND

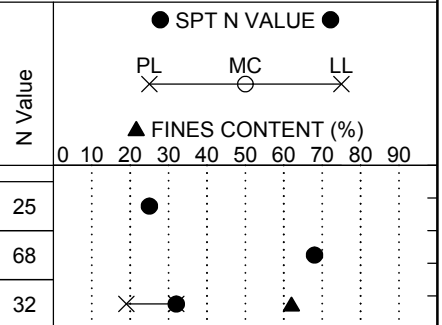
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	P-156
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	685+37.61	**Offset:**	8' RT	**Alignment:**	PROP_I26_CL
Elev.:	400.3 ft	**Latitude:**	34.1225609	**Longitude:**	-81.1991515	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL		2.0	SS-1	8	11	14	25
		Very stiff to hard, moist, tannish brown, Sandy CLAY (CL) (A-6)		3.5	SS-2	4	23	45	68
					SS-3	7	11	21	32
395.3	5.0	Boring terminated at 5.0 feet							
390.3									
385.3									
380.3									
375.3									
370.3									
365.3									



LEGEND

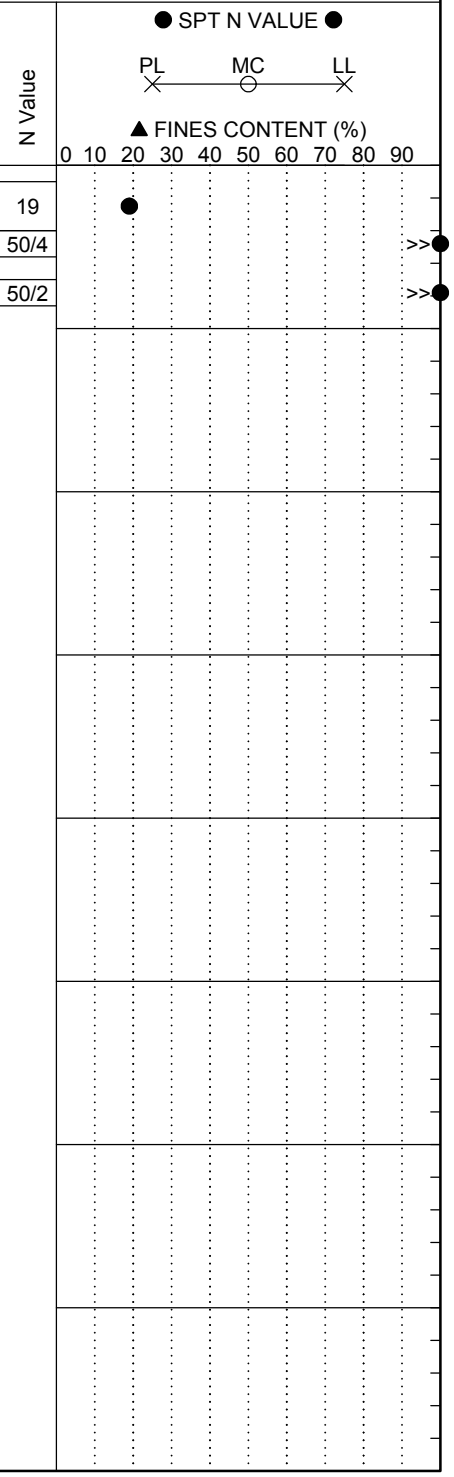
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-157
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	680+18.47	**Offset:**	9' LT	**Alignment:**	PROP_I26_CL
Elev.:	400.3 ft	**Latitude:**	34.1214474	**Longitude:**	-81.198079	**Date Started:**	7/20/2017
Total Depth:	4.2 ft	**Soil Depth:**	4.2 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, tannish brown, Silty SAND (SM) (A-4)		2.0	SS-1	7	10	9	19
					SS-2	12	50/4		50/4
				3.5					
	4.2				SS-3	9	50/2		50/2
395.3		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)							
		Boring terminated at 4.2 feet							
390.3									
385.3									
380.3									
375.3									
370.3									
365.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-158
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	675+20.64	**Offset:**	9' RT	**Alignment:**	PROP_I26_CL
Elev.:	396.1 ft	**Latitude:**	34.1204431	**Longitude:**	-81.1969597	**Date Started:**	7/21/2017
Total Depth:	1.5 ft	**Soil Depth:**	1.5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.8	9.00" Topsoil Depth		0.5	SS-1	39	50/4		50/4	>>
	1.5	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-2-4)								
391.1		Auger refusal at 1.5 feet								
386.1										
381.1										
376.1										
371.1										
366.1										
361.1										

LEGEND

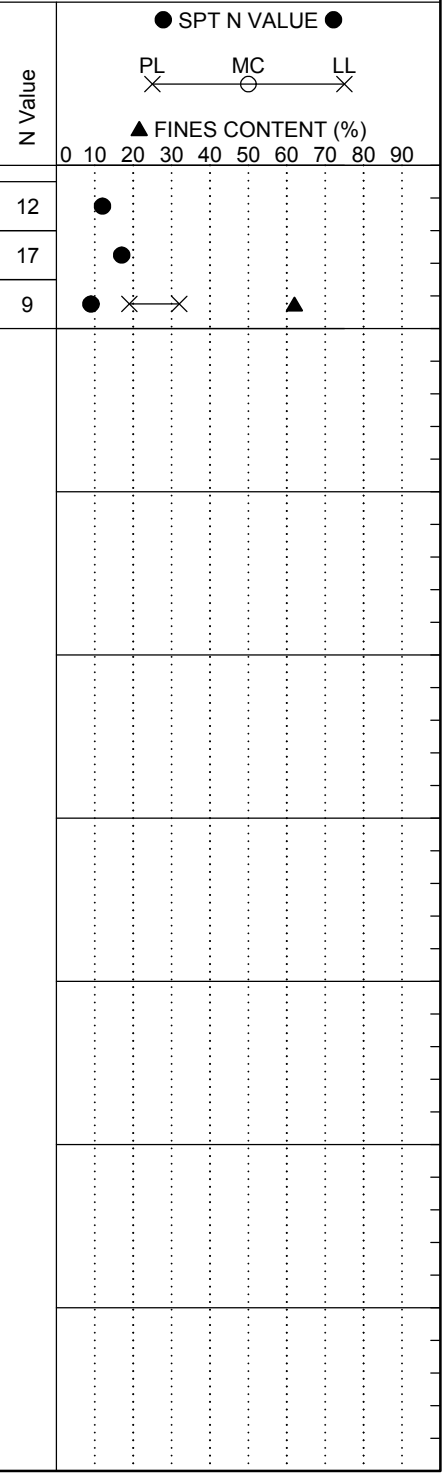
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-159
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	670+15.61	**Offset:**	0' RT	**Alignment:**	PROP_I26_CL
Elev.:	391.3 ft	**Latitude:**	34.1193743	**Longitude:**	-81.1958945	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, reddish tan to brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots		2.0	SS-1	4	6	6	12
	3.5			3.5	SS-2	5	10	7	17
	5.0				SS-3	2	4	5	9
386.3		**FILL** Very stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-4)							
381.3		**RESIDUAL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) LL=32, PL=19, PI=13, NMC=9.3, %200=62							
		Boring terminated at 5.0 feet							
376.3									
371.3									
366.3									
361.3									
356.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-160
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	665+10.39	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	389.1 ft	**Latitude:**	34.1183302	**Longitude:**	-81.1947909	**Date Started:**	7/21/2017
Total Depth:	1.5 ft	**Soil Depth:**	1.5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	1.5	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-4)	△ △ △ △	0.5	SS-1	34	50/3		50/3	>>
		Auger refusal at 1.5 feet								
384.1										
379.1										
374.1										
369.1										
364.1										
359.1										
354.1										

LEGEND

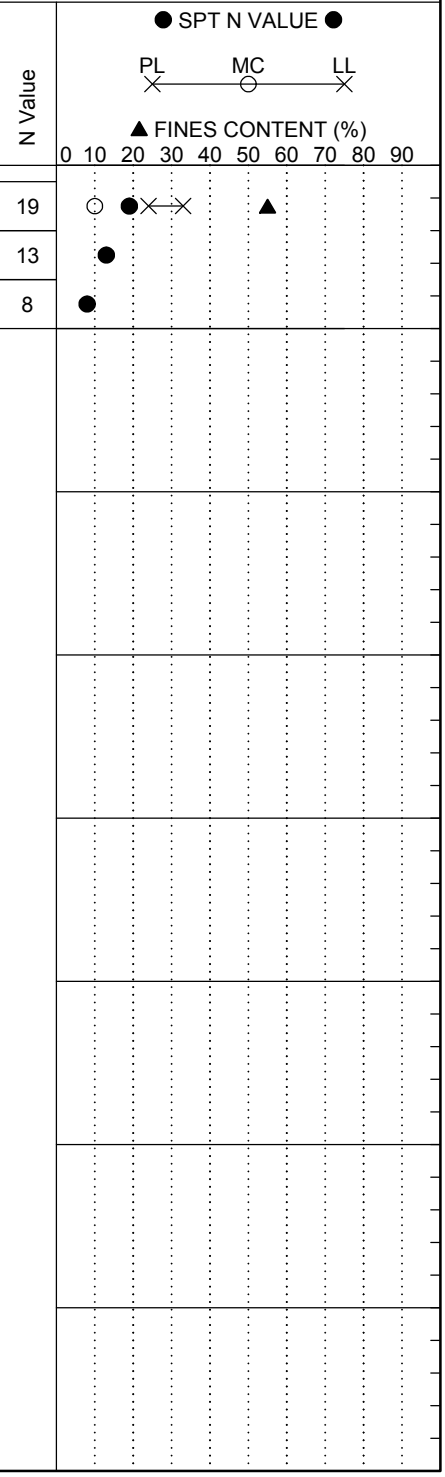
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-161
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	659+87.02	**Offset:**	21' LT	**Alignment:**	PROP_I26_CL
Elev.:	390.4 ft	**Latitude:**	34.1171927	**Longitude:**	-81.1937339	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff to stiff, moist, tannish brown, Sandy CLAY (CL) (A-4)		0.5					
				2.0	SS-1	10	13	6	19
	3.5	LL=33, PL=24, PI=9, NMC=9.9, %200=55		3.5	SS-2	4	4	9	13
385.4	5.0	**FILL** Medium stiff, moist, tannish brown, Silty SAND (SM) (A-4) with trace gravel			SS-3	8	5	3	8
		Boring terminated at 5.0 feet							
380.4									
375.4									
370.4									
365.4									
360.4									
355.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-162
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	654+84.52	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	383.5 ft	**Latitude:**	34.1161841	**Longitude:**	-81.1925919	**Date Started:**	7/21/2017
Total Depth:	2 ft	**Soil Depth:**	2 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Dense, moist, tan, Silty Fine to Medium SAND (SM) (A-4)			SS-1	8	17	30	47
378.5		Auger refusal at 2.0 feet							
373.5									
368.5									
363.5									
358.5									
353.5									
348.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-163
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	649+89.69	**Offset:**	13' LT	**Alignment:**	PROP_I26_CL
Elev.:	377.3 ft	**Latitude:**	34.1151263	**Longitude:**	-81.1915655	**Date Started:**	7/20/2017
Total Depth:	1.5 ft	**Soil Depth:**	1.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5	SS-1	50/4			50/4
	1.5	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-2-4)							
372.3		Auger refusal at 1.5 feet							
367.3									
362.3									
357.3									
352.3									
347.3									
342.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>●

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-164
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	644+95.10	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	364.7 ft	**Latitude:**	34.1141216	**Longitude:**	-81.1904642	**Date Started:**	7/21/2017
Total Depth:	1.5 ft	**Soil Depth:**	1.5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5	SS-1	10	50/3		50/3
	1.5	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-4)							
359.7		Auger refusal at 1.5 feet							
354.7									
349.7									
344.7									
339.7									
334.7									
329.7									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>●

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-165
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	639+44.09	**Offset:**	15' LT	**Alignment:**	PROP_I26_CL
Elev.:	350.4 ft	**Latitude:**	34.1129402	**Longitude:**	-81.1893206	**Date Started:**	7/20/2017
Total Depth:	6.5 ft	**Soil Depth:**	6.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-2-4) with trace gravel		0.5					
	2.0			2.0	SS-1	6	7	8	15
	3.5	**FILL** Soft, moist, tannish brown, Sandy SILT (ML) (A-5) with trace gravel		3.5	SS-2	2	1	2	3
345.4				5.0	SS-3	1	2	2	4
	6.5	**FILL** Soft, wet, brownish gray, Plastic CLAY (CH) (A-7-6) with trace gravel LL=56, PL=26, PI=30, NMC=20.0, %200=77			SS-4	3	1	2	3
340.4		Boring terminated at 6.5 feet							
335.4									
330.4									
325.4									
320.4									
315.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

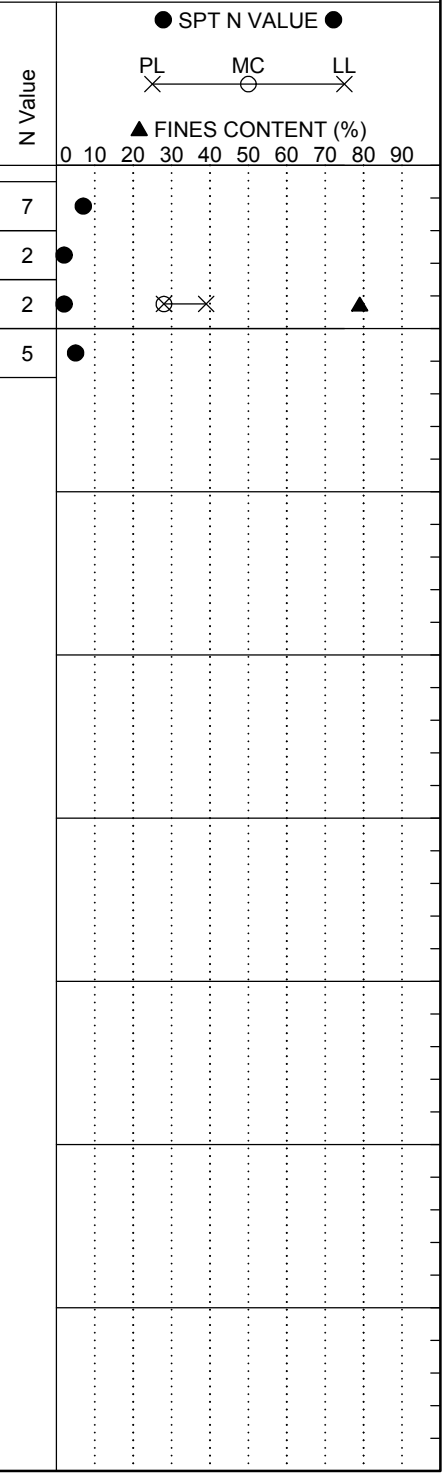
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-166
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	634+62.62	**Offset:**	4' RT	**Alignment:**	PROP_I26_CL
Elev.:	337.9 ft	**Latitude:**	34.1119716	**Longitude:**	-81.1882371	**Date Started:**	7/20/2017
Total Depth:	6.5 ft	**Soil Depth:**	6.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-5)		0.5					
	2.0			2.0	SS-1	2	4	3	7
				3.5	SS-2	1	1	1	2
		FILL Soft to medium stiff, wet, reddish brown to grayish brown, Sandy SILT (ML) (A-6) with trace roots and gravel			SS-3	2	1	1	2
332.9				5.0	SS-4	1	2	3	5
	6.5	LL=39, PL=28, PI=11, NMC=27.8, %200=79							
327.9		Boring terminated at 6.5 feet							
322.9									
317.9									
312.9									
307.9									
302.9									



LEGEND

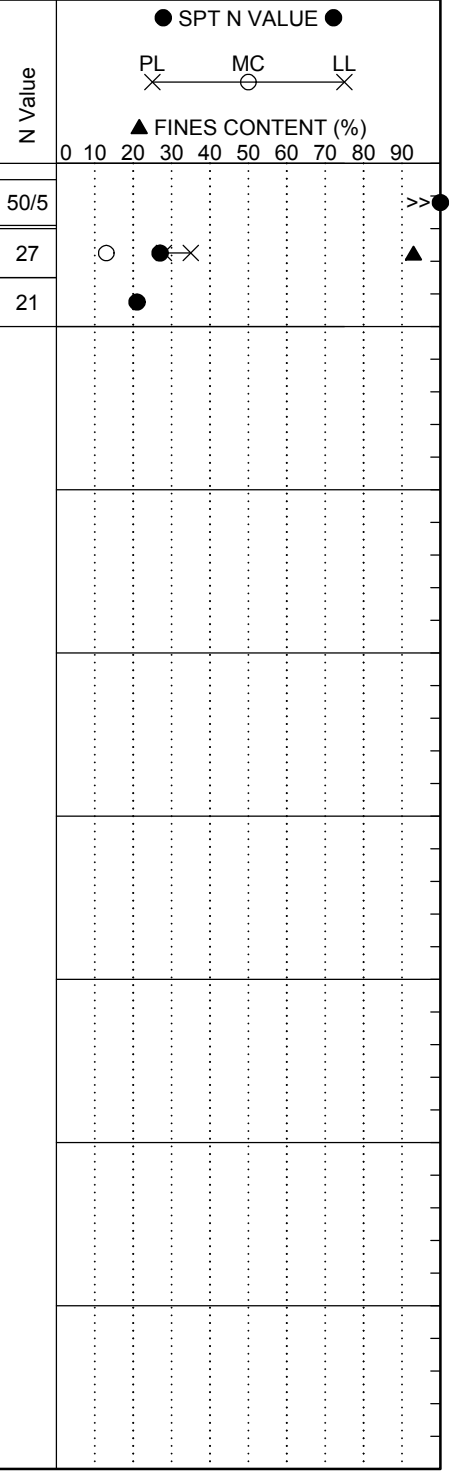
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-167
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	629+89.38	**Offset:**	2' RT	**Alignment:**	PROP_I26_CL
Elev.:	339.3 ft	**Latitude:**	34.1109836	**Longitude:**	-81.187223	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Extremely hard, moist, tan, Sandy SILT (ML) (A-4)		2.0	SS-1	12	30	50/5	50/5
				3.5	SS-2	8	12	15	27
					SS-3	4	9	12	21
334.3	5.0	Very stiff, moist, tan, Sandy SILT (ML) (A-4) LL=35, PL=28, PI=7, NMC=13.0, %200=93							
		Boring terminated at 5.0 feet							
329.3									
324.3									
319.3									
314.3									
309.3									
304.3									



LEGEND

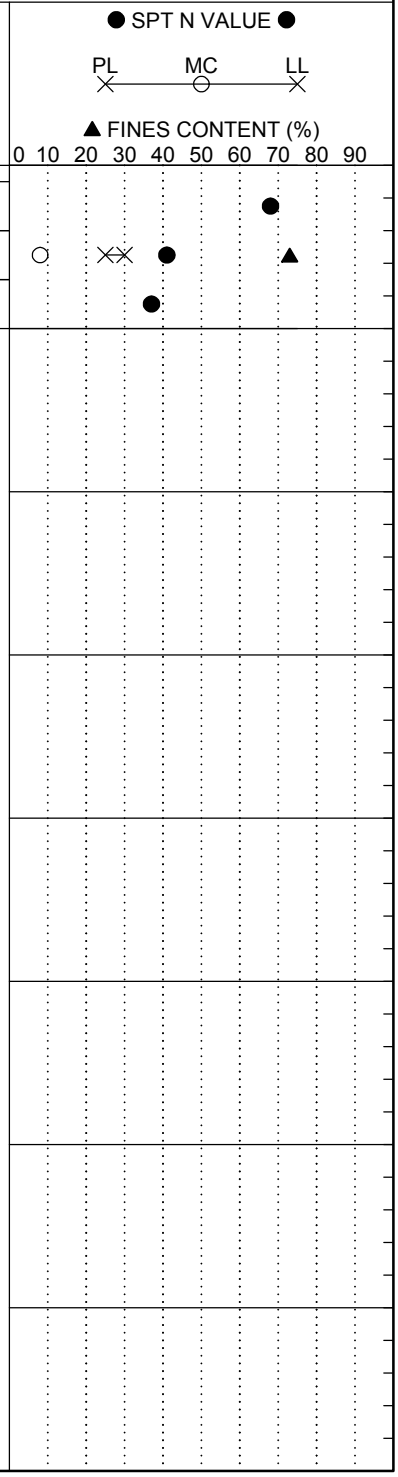
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-168
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	624+98.59	**Offset:**	11' RT	**Alignment:**	PROP_I26_CL
Elev.:	345.3 ft	**Latitude:**	34.1109836	**Longitude:**	-81.187223	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**Residual** Very dense, moist, tan, Silty Fine to Medium SAND (SM) (A-4)		2.0	SS-1	8	33	35	68
				3.5	SS-2	14	20	21	41
					SS-3	8	17	20	37
340.3	5.0	Hard, moist, tan, Sandy SILT (ML) (A-4) LL=30, PL=25, PI=5, NMC=8.1, %200=73							
		Boring terminated at 5.0 feet							
335.3									
330.3									
325.3									
320.3									
315.3									
310.3									



LEGEND

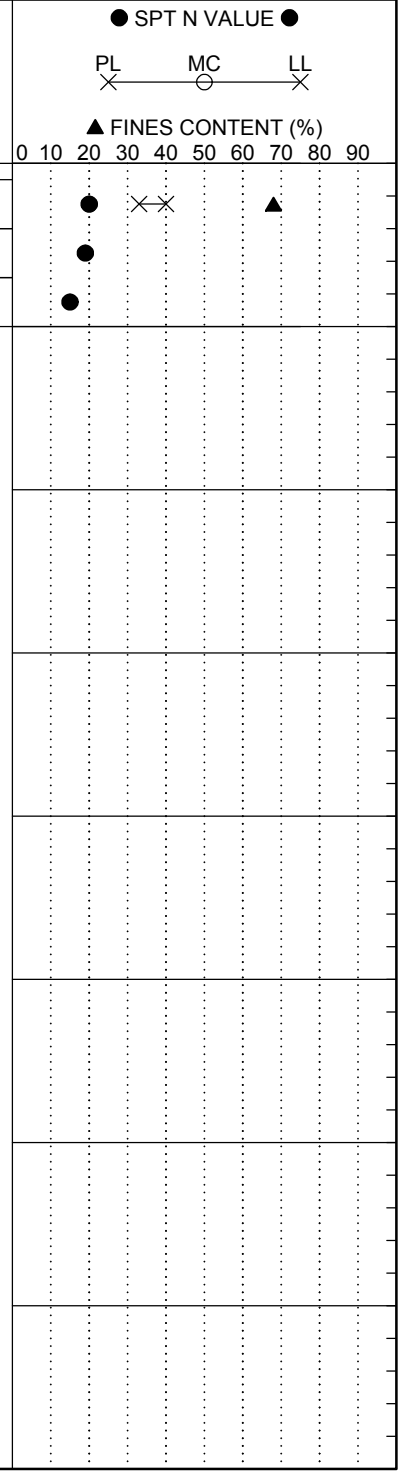
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-169
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	619+84.02	**Offset:**	3' LT	**Alignment:**	PROP_I26_CL
Elev.:	349.9 ft	**Latitude:**	34.1088777	**Longitude:**	-81.1850712	**Date Started:**	7/20/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Very stiff to stiff, moist, brown, Sandy SILT (ML) (A-4)		2.0	SS-1	7	9	11	20
		LL=40, PL=33, PI=7, NMC=20.3, %200=68		3.5	SS-2	6	8	11	19
					SS-3	2	7	8	15
344.9	5.0	Boring terminated at 5.0 feet							
339.9									
334.9									
329.9									
324.9									
319.9									
314.9									



LEGEND

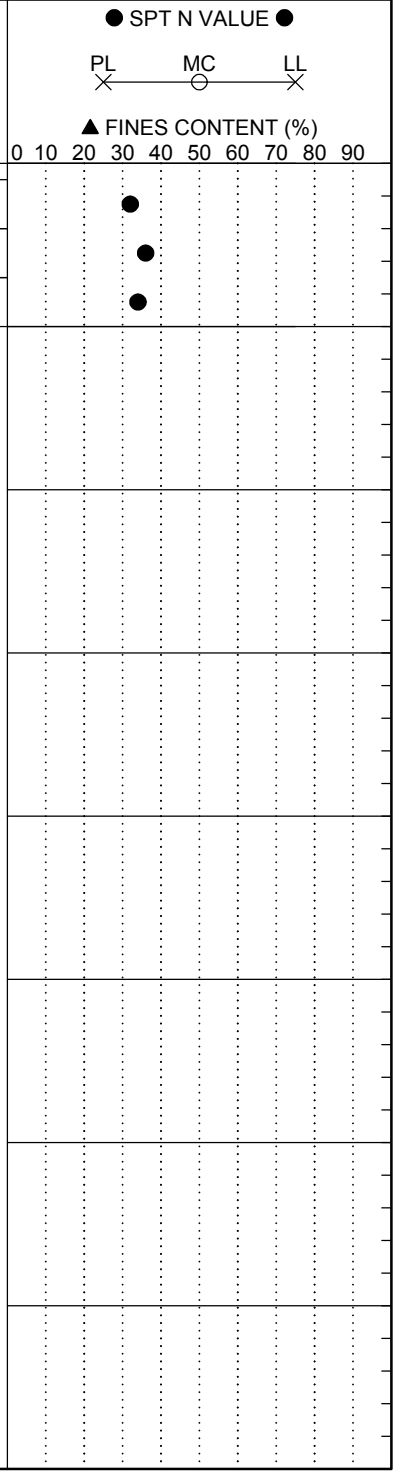
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-170
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	614+86.06	**Offset:**	5' RT	**Alignment:**	PROP_I26_CL
Elev.:	343.9 ft	**Latitude:**	34.1078528	**Longitude:**	-81.1839764	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
		Hard, moist, tannish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	10	17	15	32
				3.5	SS-2	8	14	22	36
					SS-3	6	14	20	34
338.9	5.0	Boring terminated at 5.0 feet							
333.9									
328.9									
323.9									
318.9									
313.9									
308.9									



LEGEND

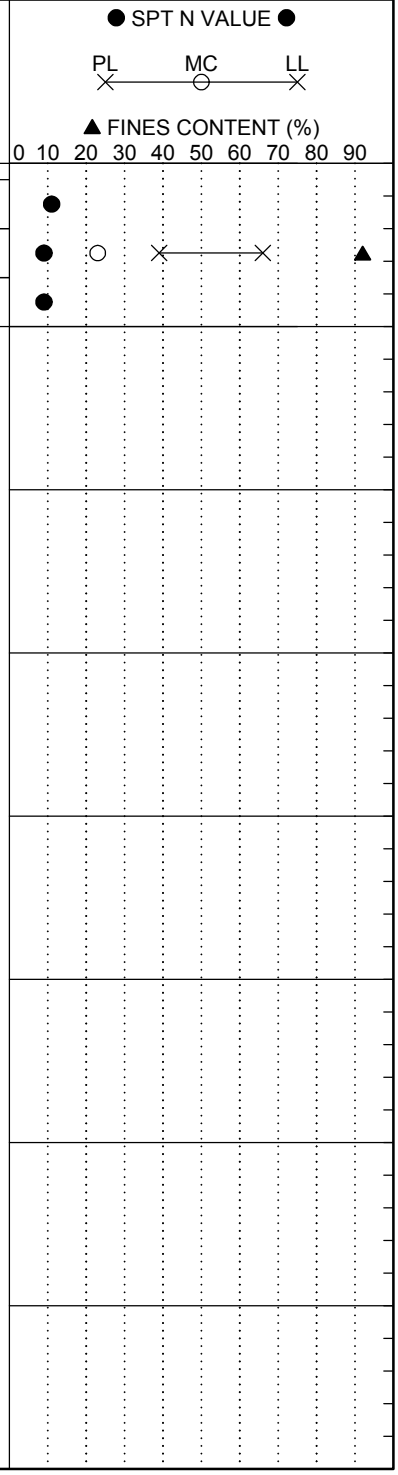
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-171
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	609+88.96	**Offset:**	3' LT	**Alignment:**	PROP_I26_CL
Elev.:	329.2 ft	**Latitude:**	34.1068043	**Longitude:**	-81.1829292	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL		2.0	SS-1	3	4	7	11
		Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace rocks		3.5	SS-2	5	3	6	9
		LL=66, PL=39, PI=27, NMC=23.3, %200=92			SS-3	4	4	5	9
324.2	5.0								
		Boring terminated at 5.0 feet							
319.2									
314.2									
309.2									
304.2									
299.2									
294.2									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-172
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	605+03.15	**Offset:**	6' RT	**Alignment:**	PROP_I26_CL
Elev.:	323.1 ft	**Latitude:**	34.1058067	**Longitude:**	-81.1818583	**Date Started:**	7/21/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Topsoil Depth		0.5	SS-1	50/4			50/4
	0.5	3.00" Stone Base							
	0.9			2.0					
	2.0	4.00" Asphalt		3.5	SS-2	3	9	9	18
		FILL			SS-3	1	3	6	9
318.1	5.0	Extremely dense, moist, tannish gray, Silty SAND (SM) (A-2-4) with some gravel							
		RESIDUAL							
313.1		Very stiff to stiff, moist, tannish brown to tan, Sandy CLAY (CL) (A-6) with trace gravel							
		LL=34, PL=23, PI=11, NMC=8.3, %200=57							
		Boring terminated at 5.0 feet							
308.1									
303.1									
298.1									
293.1									
288.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>●

LEGEND

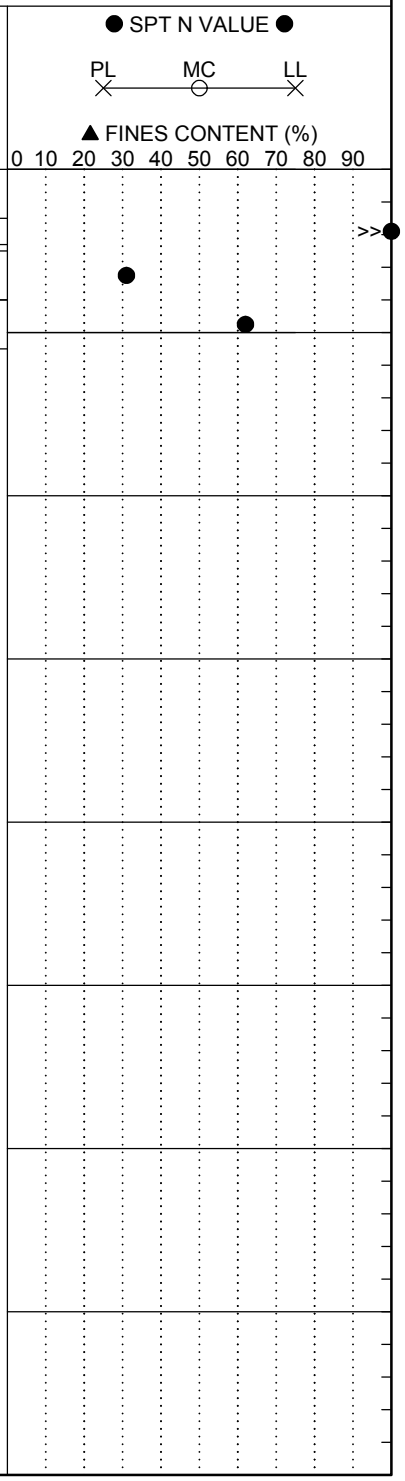
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-173
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	599+75.13	**Offset:**	8' LT	**Alignment:**	PROP_I26_CL
Elev.:	319.2 ft	**Latitude:**	34.1046821	**Longitude:**	-81.1807573	**Date Started:**	7/20/2017
Total Depth:	5.5 ft	**Soil Depth:**	5.5 ft	**Core Depth:**	ft	**Date Completed:**	7/20/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	18.00" Asphalt Depth		1.5					
	1.5	**RESIDUAL**		2.5	SS-1	50/5			50/5
		Hard to very hard, moist, tan, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		4.0	SS-2	8	13	18	31
314.2	5.5				SS-3	5	24	38	62
		Boring terminated at 5.5 feet							
309.2									
304.2									
299.2									
294.2									
289.2									
284.2									



LEGEND

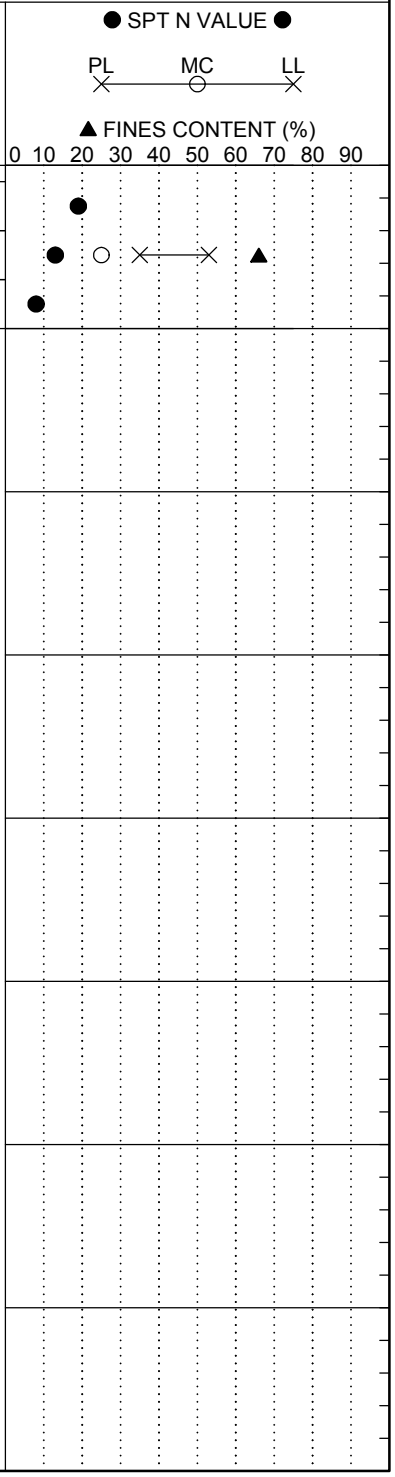
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-174
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1461+69.15	**Offset:**	55' LT	**Alignment:**	PROP_I26_CL
Elev.:	414.4 ft	**Latitude:**	34.2240744	**Longitude:**	-81.422719	**Date Started:**	8/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	8/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, dark brown, Silty Fine to Medium SAND (SM) (A-2-4)		2.0	SS-1	16	10	9	19
				3.5	SS-2	3	5	8	13
					SS-3	1	4	4	8
409.4	5.0	**FILL** Stiff to medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=53, PL=35, PI=18, NMC=24.5, %200=66							
404.4		Boring terminated at 5.0 feet							
399.4									
394.4									
389.4									
384.4									
379.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-175
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1446+58.11	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	400.0 ft	**Latitude:**	34.2228517	**Longitude:**	-81.4179316	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	5.00" Asphalt Depth		0.5					
	0.8	5.00" ABC Stone			SS-1	2	2	5	7
	2.0	**FILL**		2.0					
	3.5	Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace gravel		3.5	SS-2	2	4	5	9
395.0	5.0	LL=50, PL=25, PI=25, NMC=20, %200=60			SS-3	1	3	4	7
		FILL Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)							
390.0		**FILL** Loose, moist, reddish brown to tan, Silty Fine to Medium SAND (SM) (A-4)							
		Boring terminated at 5.0 feet							
385.0									
380.0									
375.0									
370.0									
365.0									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

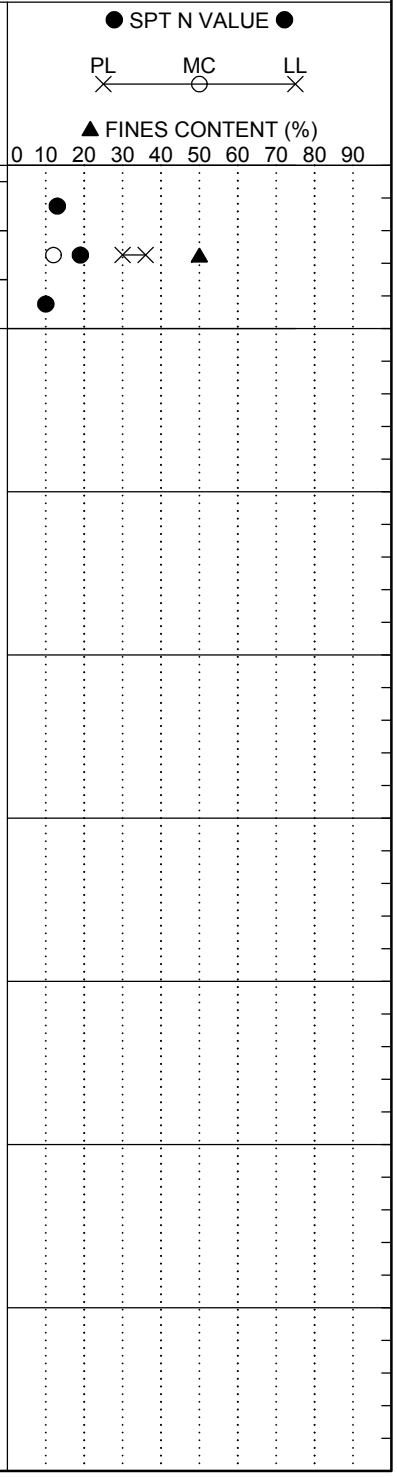
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-176
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1431+71.09	**Offset:**	57' LT	**Alignment:**	PROP_I26_CL
Elev.:	438.0 ft	**Latitude:**	34.2211313	**Longitude:**	-81.4134551	**Date Started:**	9/6/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots		2.0	SS-1	6	7	6	13
	3.5			3.5	SS-2	7	9	10	19
	5.0	**FILL**			SS-3	4	4	6	10
433.0		Very stiff, moist, brown, Sandy SILT (ML) (A-4) with trace gravel							
		LL=36, PL=30, PI=6, NMC=12.3, %200=50							
		RESIDUAL							
428.0		Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
423.0									
418.0									
413.0									
408.0									
403.0									



LEGEND

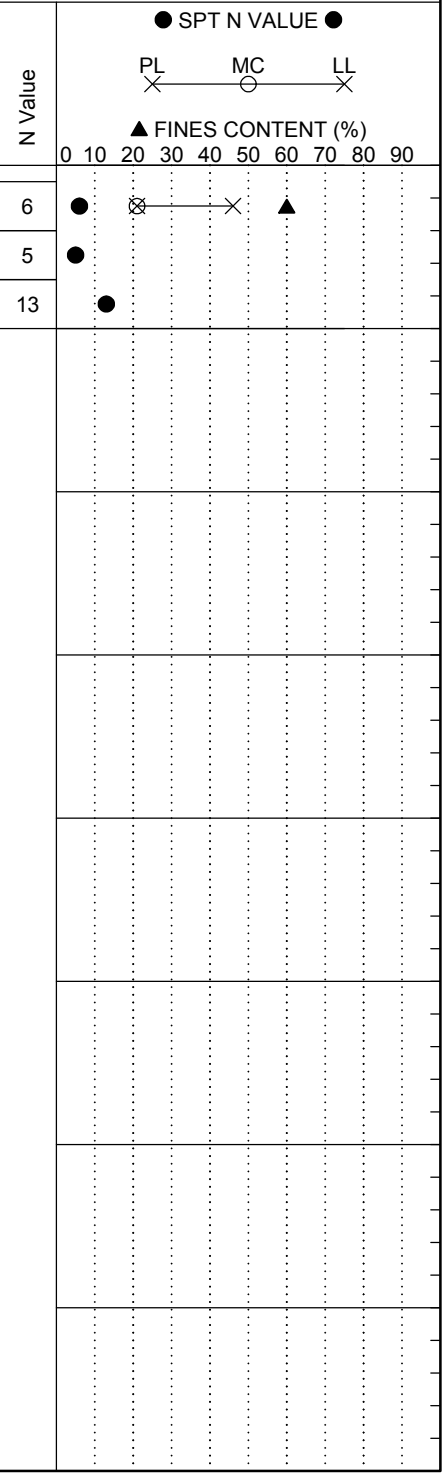
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-177
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1416+62.43	**Offset:**	47' RT	**Alignment:**	PROP_I26_CL
Elev.:	412.2 ft	**Latitude:**	34.2199212	**Longitude:**	-81.4086706	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	0.8	4.00" ABC Stone		2.0	SS-1	4	2	4	6
		FILL			SS-2	1	2	3	5
	3.5	Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel		3.5	SS-3	1	4	9	13
407.2	5.0	LL=46, PL=21, PI=25, NMC=12.2, %200=60							
		FILL							
402.2		Dense, moist, red to gray, Silty Fine to Medium SAND (SM) (A-4)							
		Boring terminated at 5.0 feet							
397.2									
392.2									
387.2									
382.2									
377.2									



LEGEND

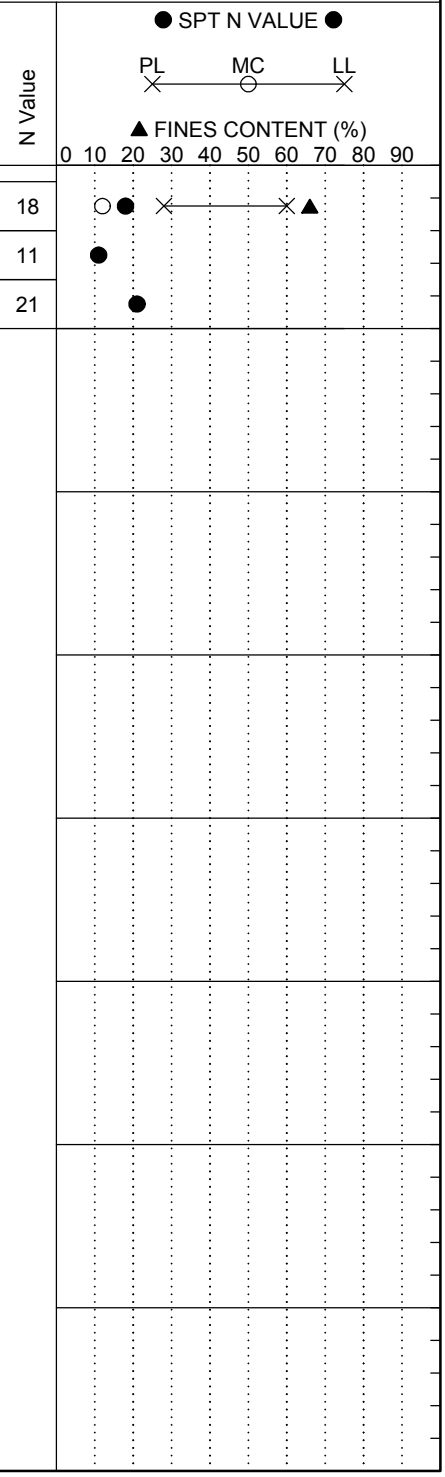
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-178
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1401+55.79	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	464.2 ft	**Latitude:**	34.2179962	**Longitude:**	-81.4042463	**Date Started:**	9/6/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Stiff to very stiff, dry to moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace gravel		2.0	SS-1	8	9	9	18
		LL=60, PL=28, PI=32, NMC=11.8, %200=66		3.5	SS-2	5	5	6	11
459.2	5.0				SS-3	4	9	12	21
		Boring terminated at 5.0 feet							
454.2									
449.2									
444.2									
439.2									
434.2									
429.2									



LEGEND

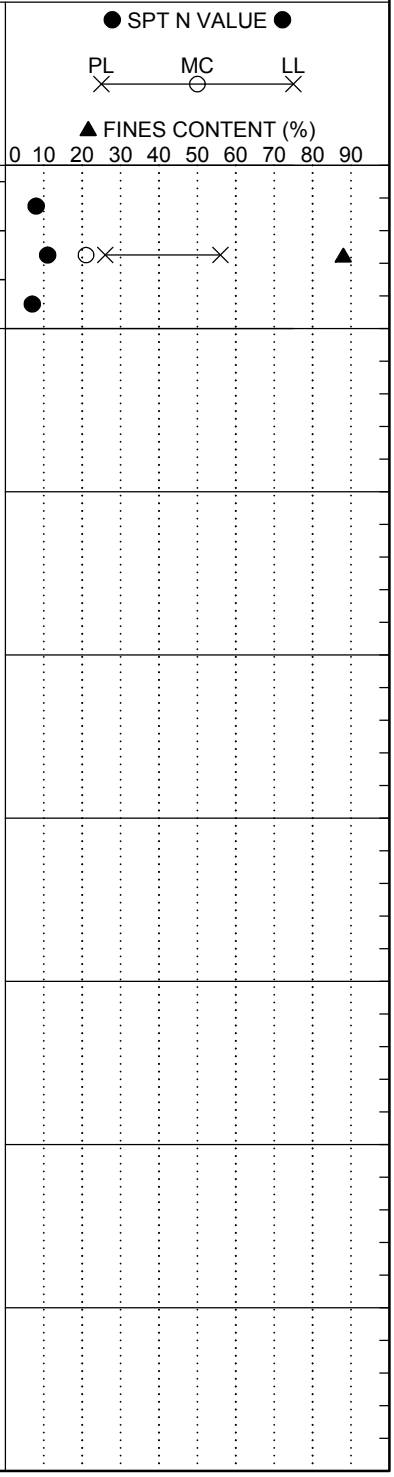
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-179
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1386+43.62	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	504.9 ft	**Latitude:**	34.2164482	**Longitude:**	-81.3995893	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace roots		2.0	SS-1	6	5	3	8
				3.5	SS-2	3	5	6	11
					SS-3	2	3	4	7
499.9	5.0	**RESIDUAL** Stiff to medium stiff, moist, orangish brown, Plastic CLAY (CH) (A-7-6) with trace roots LL=56, PL=26, PI=30, NMC=21.4, %200=88, OC=4.8							
494.9		Boring terminated at 5.0 feet							
489.9									
484.9									
479.9									
474.9									
469.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-180
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1371+44.60	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	507.9 ft	**Latitude:**	34.2143887	**Longitude:**	-81.3952811	**Date Started:**	9/6/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Very stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)		2.0	SS-1	9	8	10	18
		LL=59, PL=29, PI=30, NMC=13.0, %200=68		3.5	SS-2	5	8	10	18
					SS-3	9	10	11	21
502.9	5.0	Boring terminated at 5.0 feet							
497.9									
492.9									
487.9									
482.9									
477.9									
472.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

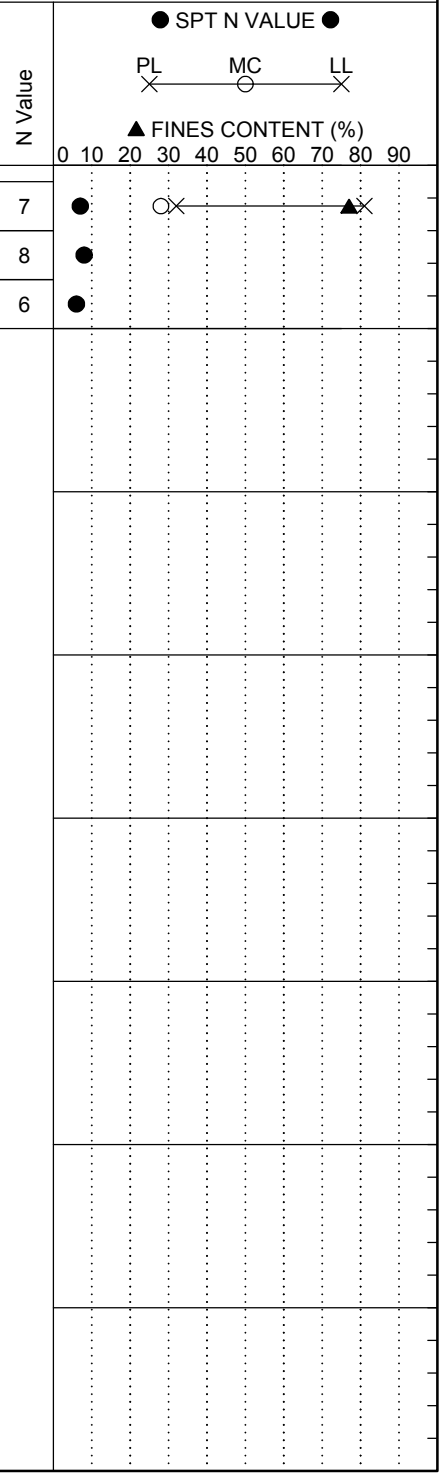
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-181
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1356+37.86	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	469.9 ft	**Latitude:**	34.2128185	**Longitude:**	-81.3906548	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Topsoil Depth		0.5					
		FILL			SS-1	4	3	4	7
		Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-5)		2.0	SS-2	1	3	5	8
	3.5	LL=81, PL=32, PI=49, NMC=27.8, %200=77		3.5	SS-3	4	4	2	6
464.9	5.0	**FILL**							
		Loose, moist, grayish brown, Silty Fine to Medium SAND (SM) (A-4)							
459.9		Boring terminated at 5.0 feet							
454.9									
449.9									
444.9									
439.9									
434.9									



LEGEND

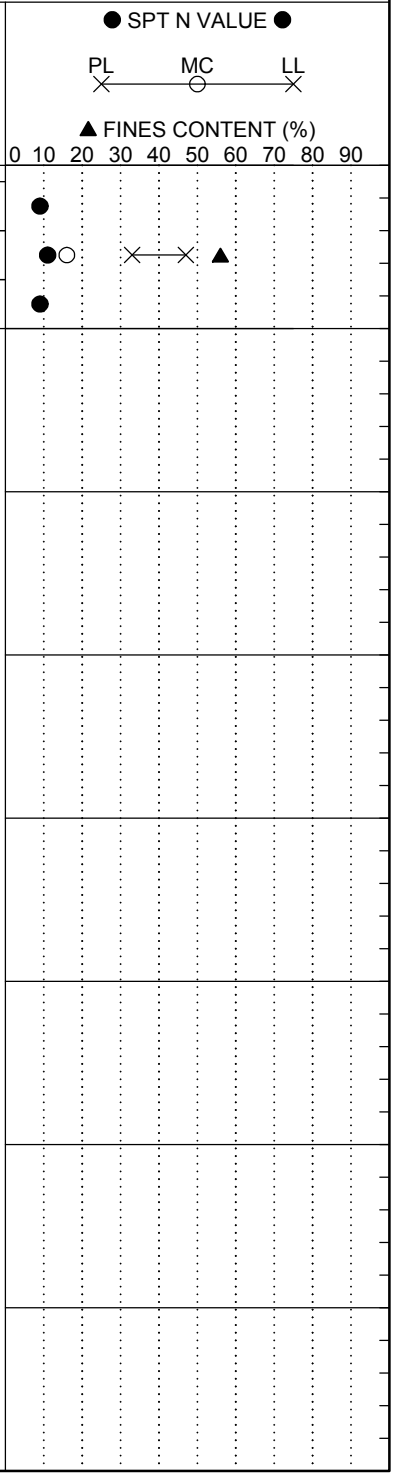
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-182
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1341+31.75	**Offset:**	60' LT	**Alignment:**	PROP_I26_CL
Elev.:	480.4 ft	**Latitude:**	34.2107208	**Longitude:**	-81.3863457	**Date Started:**	9/6/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.5					
	2.0	Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)		2.0	SS-1	6	4	5	9
	3.5	Stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)		3.5	SS-2	6	5	6	11
475.4	5.0	LL=47, PL=33, PI=14, NMC=15.7, %200=56			SS-3	5	5	4	9
		Stiff, moist, reddish tan, Sandy SILT (ML) (A-4)							
470.4		Boring terminated at 5.0 feet							
465.4									
460.4									
455.4									
450.4									
445.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-183
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1326+16.46	**Offset:**	51' RT	**Alignment:**	PROP_I26_CL
Elev.:	482.1 ft	**Latitude:**	34.2091661	**Longitude:**	-81.3816798	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace mica		2.0	SS-1	2	3	3	6
				3.5	SS-2	5	14	50/4	50/4
					SS-3	50/4			50/4
477.1	5.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4) with trace mica							
		Boring terminated at 5.0 feet							
472.1									
467.1									
462.1									
457.1									
452.1									
447.1									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SS-2 >>

SS-3 >>

LEGEND

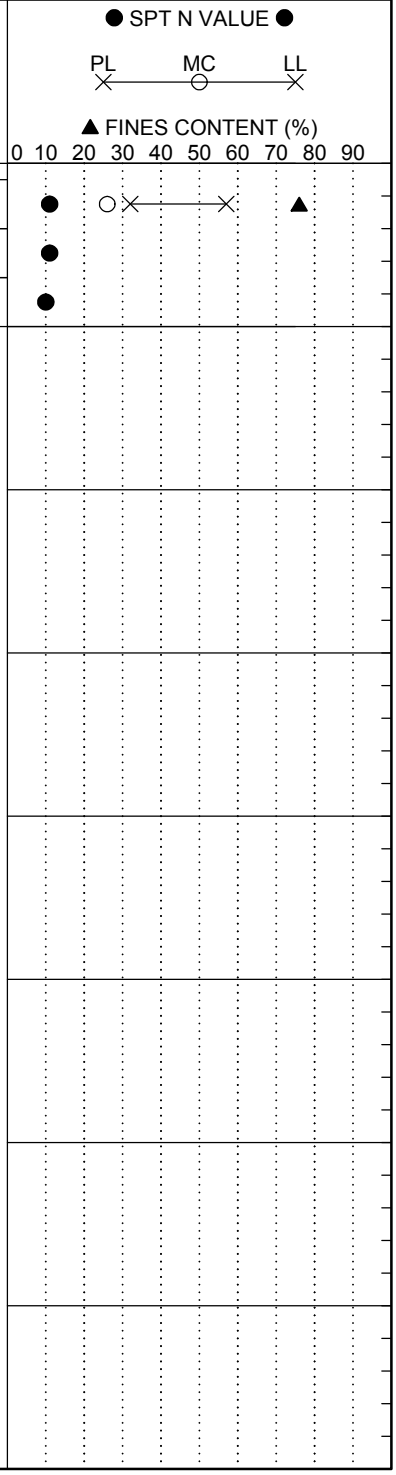
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-184
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1312+12.24	**Offset:**	49' LT	**Alignment:**	PROP_I26_CL
Elev.:	503.4 ft	**Latitude:**	34.2072219	**Longitude:**	-81.3776539	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
		Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace gravel		2.0	SS-1	5	7	4	11
		LL=57, PL=32, PI=25, NMC=26.2, %200=76		3.5	SS-2	3	5	6	11
					SS-3	1	4	6	10
498.4	5.0	Boring terminated at 5.0 feet							
493.4									
488.4									
483.4									
478.4									
473.4									
468.4									



LEGEND

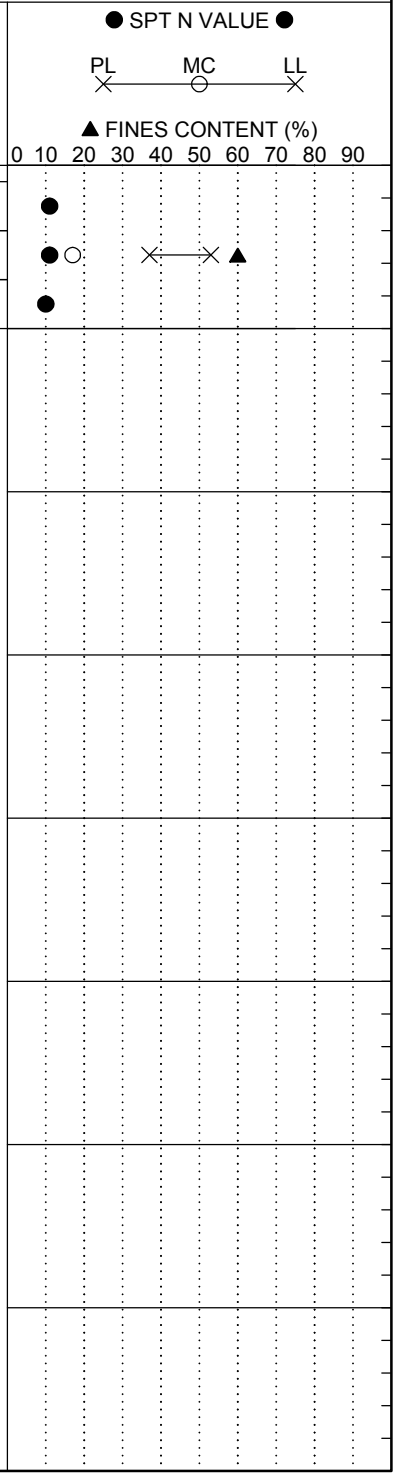
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-185
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1296+16.40	**Offset:**	56' RT	**Alignment:**	PROP_I26_CL
Elev.:	559.4 ft	**Latitude:**	34.205498	**Longitude:**	-81.3727816	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, reddish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and gravel		2.0	SS-1	5	7	4	11
				3.5	SS-2	3	5	6	11
	5.0	**RESIDUAL**			SS-3	1	4	6	10
554.4		Stiff, moist, reddish brown to tannish brown, Elastic SILT (MH) (A-7-5) LL=53, PL=37, PI=16, NMC=16.9, %200=60							
		Boring terminated at 5.0 feet							
549.4									
544.4									
539.4									
534.4									
529.4									
524.4									



LEGEND

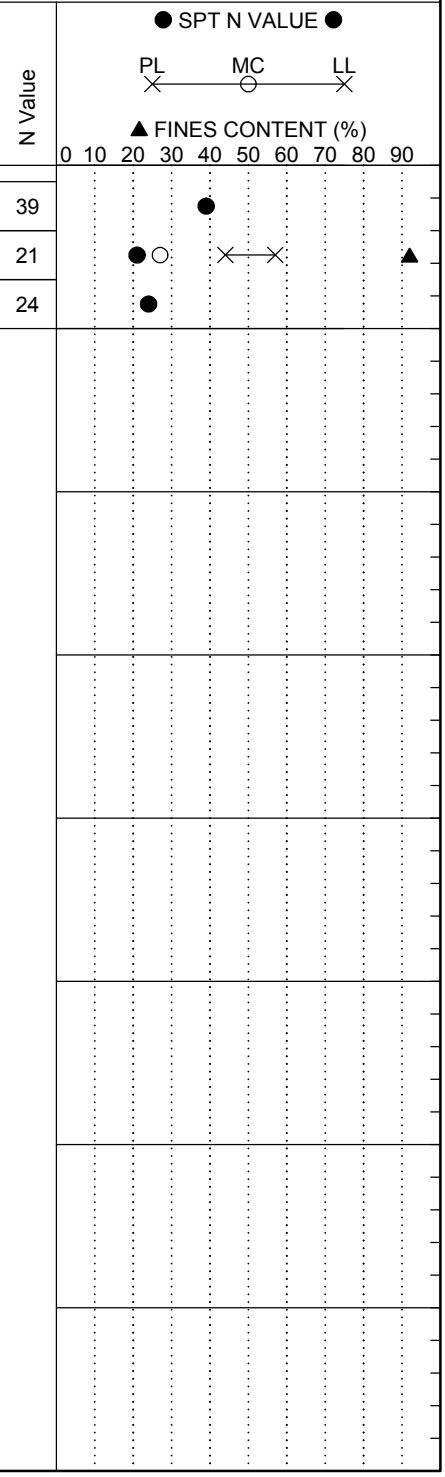
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-186
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1281+05.93	**Offset:**	58' LT	**Alignment:**	PROP_I26_CL
Elev.:	567.5 ft	**Latitude:**	34.2029779	**Longitude:**	-81.3687823	**Date Started:**	9/8/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Dense, moist, tan, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel		2.0	SS-1	15	22	17	39
		FILL		3.5	SS-2	7	9	12	21
562.5	5.0	Very stiff, moist, orangish brown, Elastic SILT (MH) (A-7-5) with trace gravel LL=57, PL=44, PI=13, NMC=27.4, %200=92			SS-3	6	10	14	24
		Boring terminated at 5.0 feet							
557.5									
552.5									
547.5									
542.5									
537.5									
532.5									



LEGEND

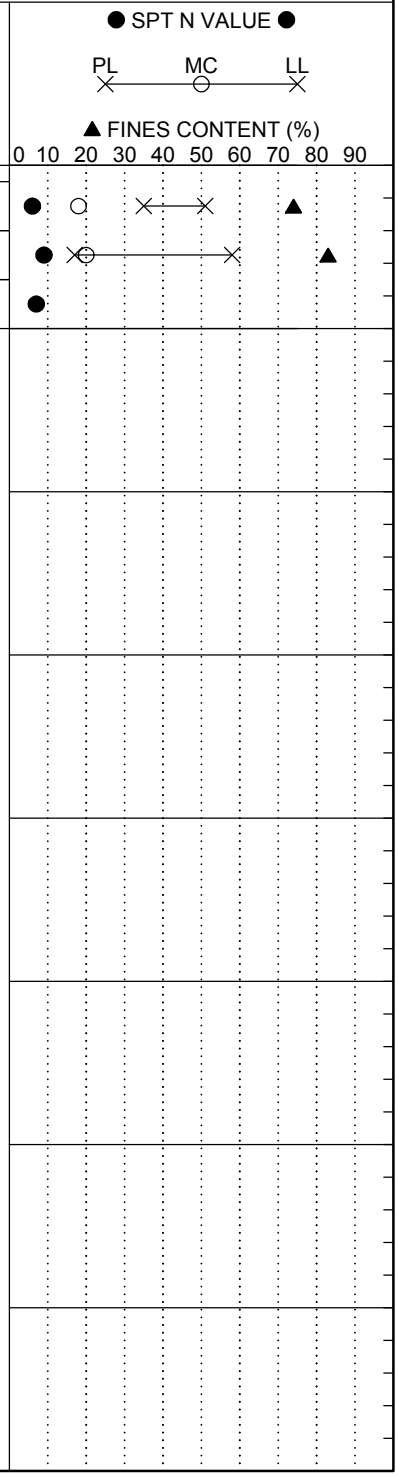
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-187
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1265+94.07	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	531.3 ft	**Latitude:**	34.2009548	**Longitude:**	-81.3643995	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	0.8	4.00" ABC Stone			SS-1	3	3	3	6
	2.0	**FILL**		2.0	SS-2	10	4	5	9
	3.5	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace gravel		3.5	SS-3	3	2	5	7
526.3	5.0	LL=51, PL=35, PI=16, NMC=18.4, %200=74							
		FILL							
521.3		Stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace gravel							
		LL=58, PL=17, PI=41, NMC=19.7, %200=83							
		FILL							
516.3		Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)							
		Boring terminated at 5.0 feet							
511.3									
506.3									
501.3									
496.3									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-188
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1250+91.97	**Offset:**	60' LT	**Alignment:**	PROP_I26_CL
Elev.:	489.4 ft	**Latitude:**	34.1984058	**Longitude:**	-81.3604706	**Date Started:**	9/8/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, orangish tan, Sandy SILT (ML) (A-5)		2.0	SS-1	12	8	7	15
		FILL		3.5	SS-2	8	8	9	17
484.4	5.0	Very stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-5) LL=46, PL=38, PI=8, NMC=20.7, %200=69			SS-3	4	7	8	15
		Boring terminated at 5.0 feet							
479.4									
474.4									
469.4									
464.4									
459.4									
454.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

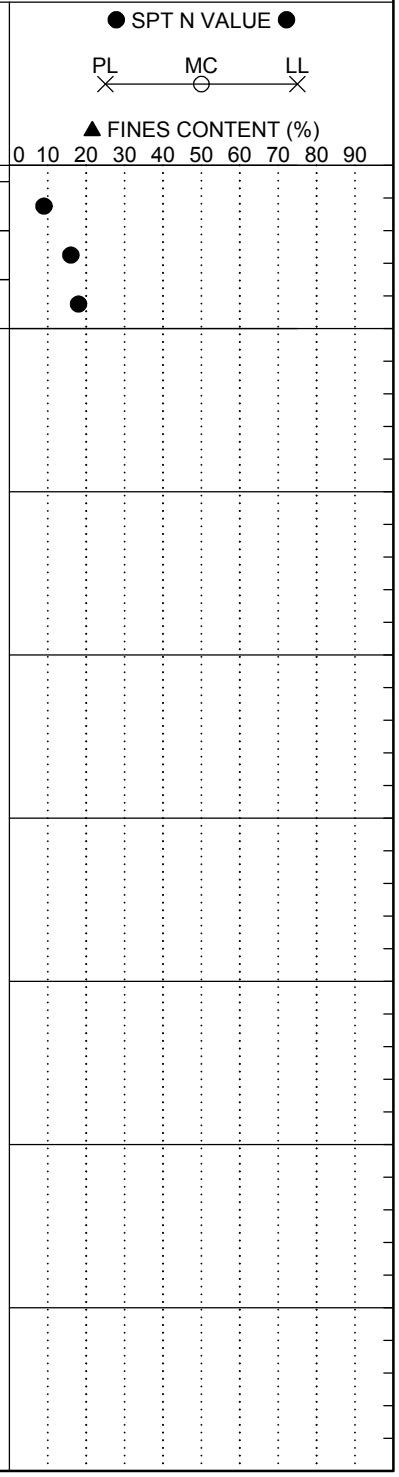
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-189
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1235+95.08	**Offset:**	58' RT	**Alignment:**	PROP_I26_CL
Elev.:	468.7 ft	**Latitude:**	34.196405	**Longitude:**	-81.3561264	**Date Started:**	10/16/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Asphalt Depth		0.5					
	0.8	6.00" Stone Base		2.0	SS-1	4	4	5	9
		FILL			SS-2	3	6	10	16
		Stiff to very stiff, grayish brown, Sandy CLAY (CL) (A-6)		3.5	SS-3	5	8	10	18
463.7	5.0								
		Boring terminated at 5.0 feet							
458.7									
453.7									
448.7									
443.7									
438.7									
433.7									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-190
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1220+75.58	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	427.5 ft	**Latitude:**	34.1938647	**Longitude:**	-81.3521253	**Date Started:**	9/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, reddish brown, Silty Fine to Medium SAND (SM) (A-5) with trace clay inclusions		0.5					
	2.0			2.0	SS-1	6	7	4	11
				3.5	SS-2	4	4	6	10
	5.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=57, PL=41, PI=16, NMC=24.6, %200=92			SS-3	5	7	8	15
422.5		Boring terminated at 5.0 feet							
417.5									
412.5									
407.5									
402.5									
397.5									
392.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

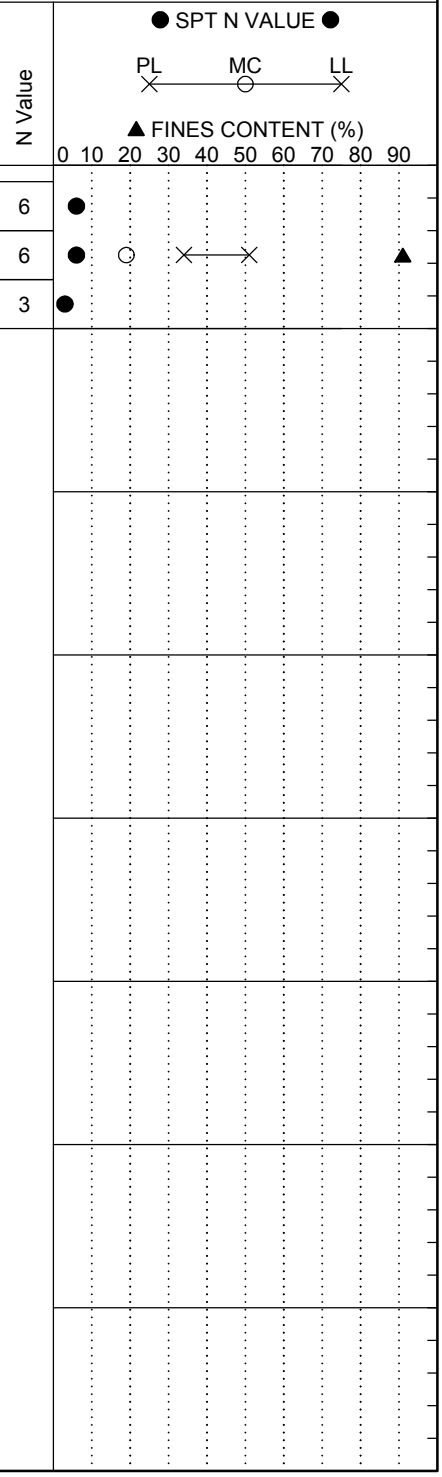
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-191
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1205+71.06	**Offset:**	48' RT	**Alignment:**	PROP_I26_CL
Elev.:	429.7 ft	**Latitude:**	34.1918071	**Longitude:**	-81.3477973	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Topsoil Depth		0.5					
	0.8	5.00" ABC Stone		2.0	SS-1	3	3	3	6
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		3.5	SS-2	2	2	4	6
424.7	5.0	**FILL** Medium stiff to soft, moist, reddish brown, Elastic SILT (MH) (A-7-5) LL=51, PL=34, PI=17, NMC=18.9, %200=91			SS-3	1	1	2	3
419.7		Boring terminated at 5.0 feet							
414.7									
409.7									
404.7									
399.7									
394.7									



LEGEND

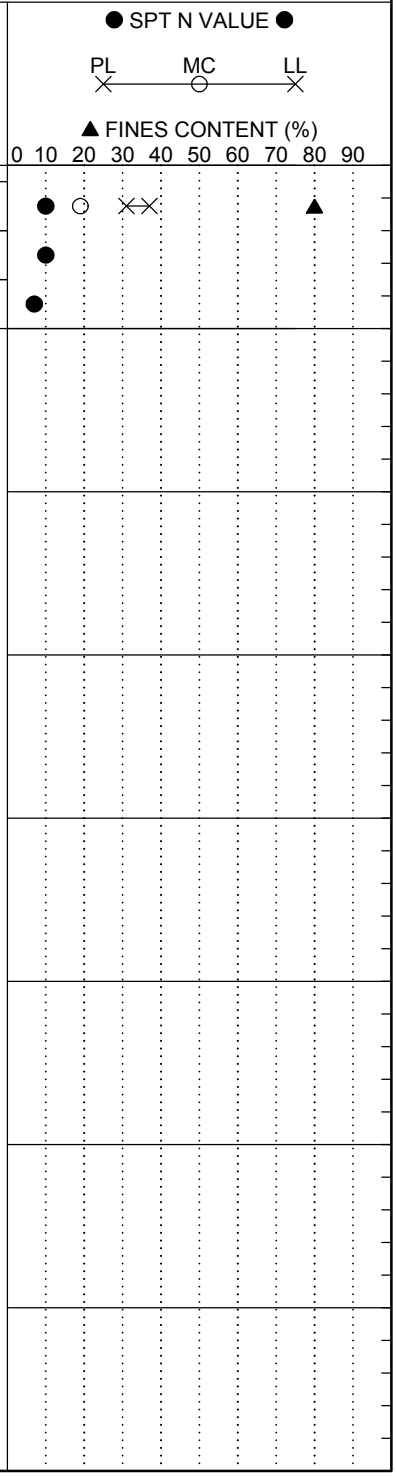
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-192
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1357+44.27	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	429.9 ft	**Latitude:**	34.2129602	**Longitude:**	-81.3909645	**Date Started:**	9/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	5.00" Asphalt Depth		0.5					
	0.7	3.00" ABC Stone		2.0	SS-1	8	4	6	10
		FILL			SS-2	5	4	6	10
	3.5	Stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel		3.5	SS-3	3	3	4	7
424.9	5.0	LL=37, PL=31, PI=6, NMC=19.2, %200=80							
		FILL							
		Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
419.9		Boring terminated at 5.0 feet							
414.9									
409.9									
404.9									
399.9									
394.9									



LEGEND

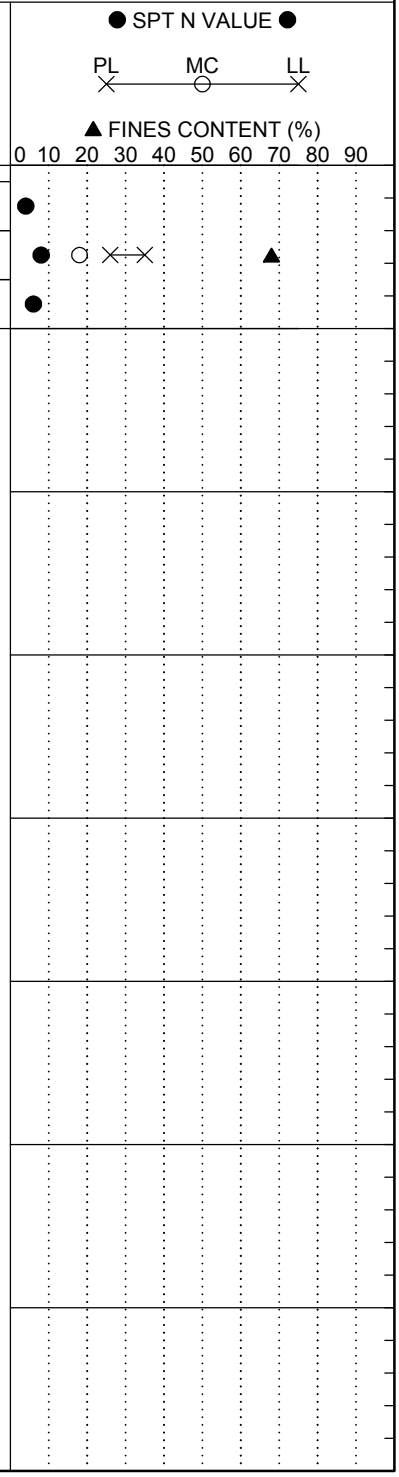
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-193
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1175+50.42	**Offset:**	52' RT	**Alignment:**	PROP_I26_CL
Elev.:	339.3 ft	**Latitude:**	34.1872501	**Longitude:**	-81.3394472	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Soft, moist, tannish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	3	2	2	4
				3.5	SS-2	2	3	5	8
					SS-3	2	2	4	6
334.3	5.0	**FILL** Medium stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-4) with trace roots and gravel LL=18, PL=26, PI=9, NMC=17.7, %200=68							
329.3		Boring terminated at 5.0 feet							
324.3									
319.3									
314.3									
309.3									
304.3									



LEGEND

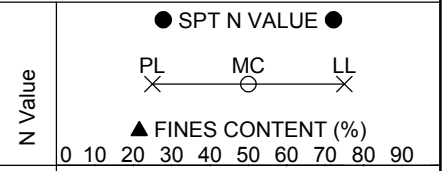
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-194
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1160+43.87	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	362.2 ft	**Latitude:**	34.1847372	**Longitude:**	-81.3354775	**Date Started:**	9/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	0.8	4.00" ABC Stone		2.0	SS-1	6	6	7	13
		RESIDUAL			SS-2	6	5	6	11
		Stiff to very stiff, moist, tannish brown to orangish tan, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments		3.5	SS-3	6	8	10	18
357.2	5.0	LL=36, PL=30, PI=6, NMC=10.8, %200=85							
		Boring terminated at 5.0 feet							
352.2									
347.2									
342.2									
337.2									
332.2									
327.2									



LEGEND

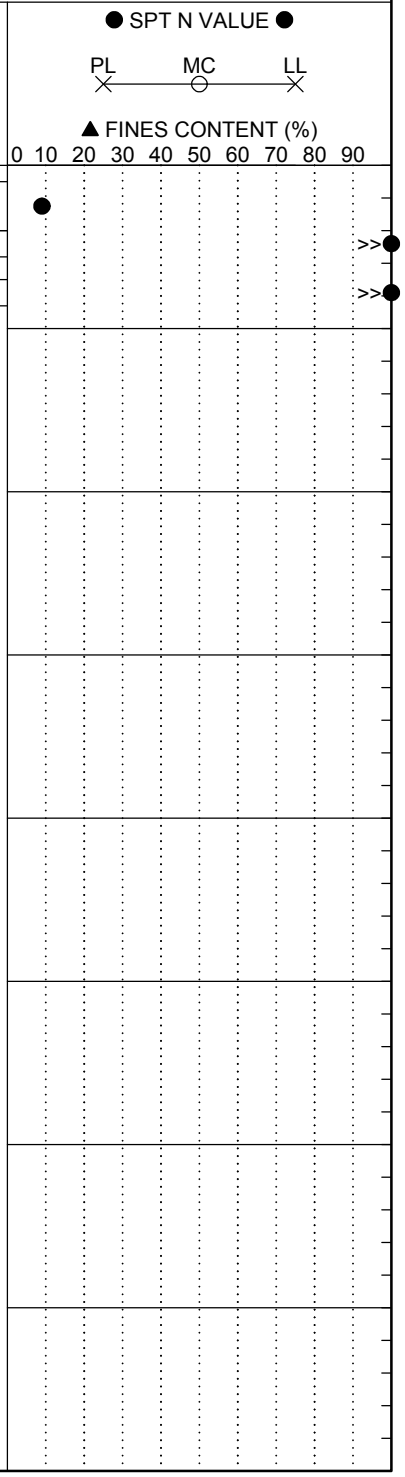
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-195
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1145+42.35	**Offset:**	58' RT	**Alignment:**	PROP_I26_CL
Elev.:	383.1 ft	**Latitude:**	34.1825718	**Longitude:**	-81.3312401	**Date Started:**	7/25/2017
Total Depth:	3.75 ft	**Soil Depth:**	3.75 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	3	5	4	9
					SS-2	9	50/3		50/3
	3.8	**PARTIALLY WEATHERED ROCK**		3.5					
378.1		Extremeley dense, moist, tannish brown to tan, Silty SAND (A-4)			SS-3	50/2			50/2
		Boring terminated at 3.75 feet							
373.1									
368.1									
363.1									
358.1									
353.1									
348.1									



LEGEND

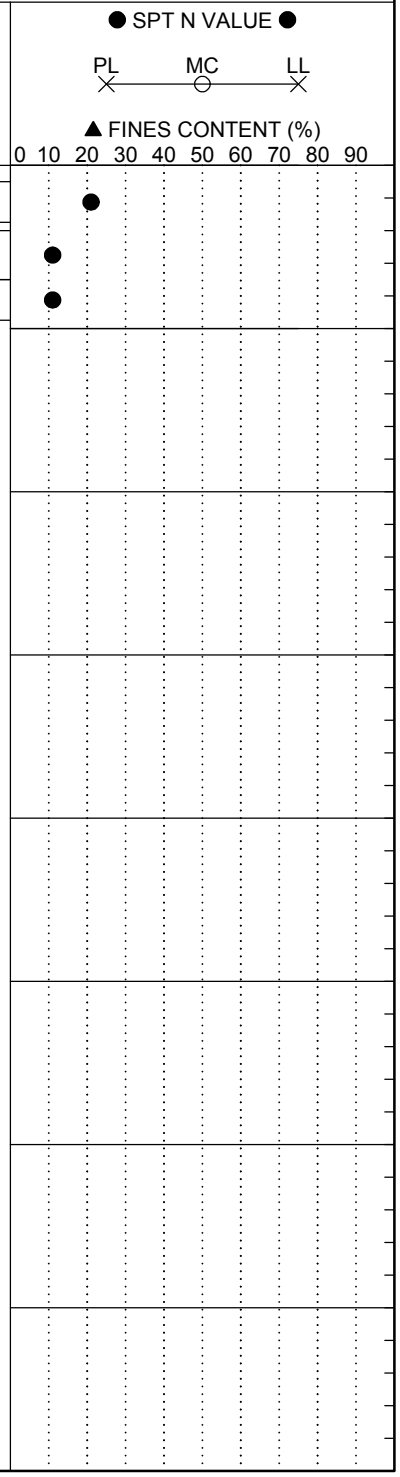
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-196
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1130+37.67	**Offset:**	64' LT	**Alignment:**	PROP_I26_CL
Elev.:	360.9 ft	**Latitude:**	34.1798734	**Longitude:**	-81.3274437	**Date Started:**	
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Very stiff, dry, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	9	13	8	21
		RESIDUAL		3.5	SS-2	4	5	6	11
355.9	5.0	Stiff to very stiff, moist, tan, Sandy SILT (ML) (A-4)			SS-3	6	7	4	11
		Boring terminated at 5.0 feet							
350.9									
345.9									
340.9									
335.9									
330.9									
325.9									



LEGEND

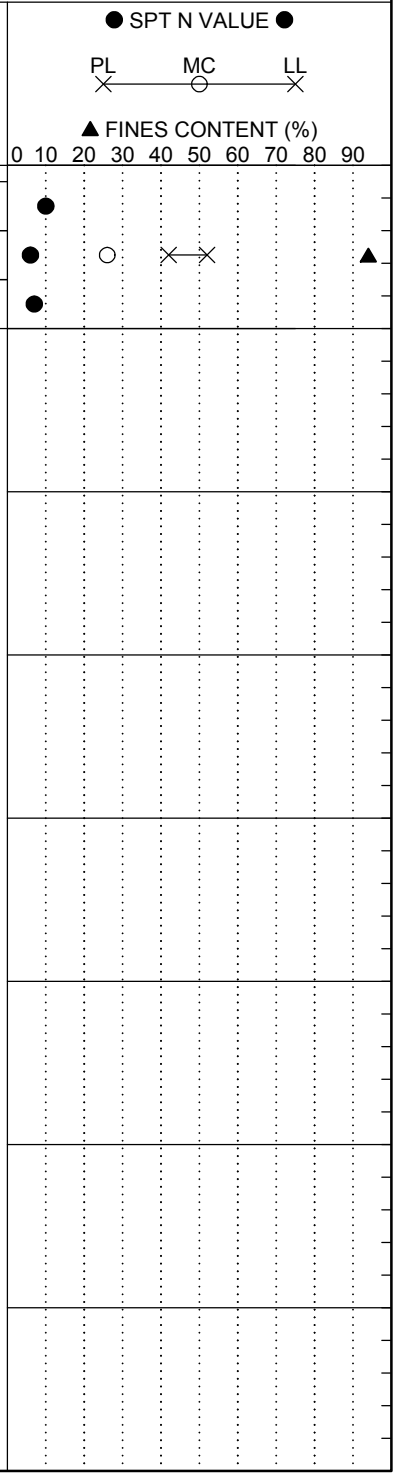
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-197
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1115+35.10	**Offset:**	56' RT	**Alignment:**	PROP_I26_CL
Elev.:	386.4 ft	**Latitude:**	34.1777188	**Longitude:**	-81.3231881	**Date Started:**	7/25/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/25/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	3	4	6	10
		RESIDUAL		3.5	SS-2	2	2	4	6
381.4	5.0	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5) LL=52, PL=42, PI=10, NMC=25.7, %200=94			SS-3	2	2	5	7
		Boring terminated at 5.0 feet							
376.4									
371.4									
366.4									
361.4									
356.4									
351.4									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-198
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1100+26.91	**Offset:**	83' LT	**Alignment:**	PROP_I26_CL
Elev.:	365.2 ft	**Latitude:**	34.1753412	**Longitude:**	-81.319075	**Date Started:**	9/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	1.0	12.00" Asphalt Depth		1.2					
	1.2	2.00" ABC Stone		2.0	SS-1	20	18	13	31
		FILL			SS-2	7	4	5	9
		Hard to stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		3.5					
360.2	5.0	LL=36, PL=29, PI=7, NMC=22.4, %200=64			SS-3	4	6	6	12
		Boring terminated at 5.0 feet							
355.2									
350.2									
345.2									
340.2									
335.2									
330.2									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

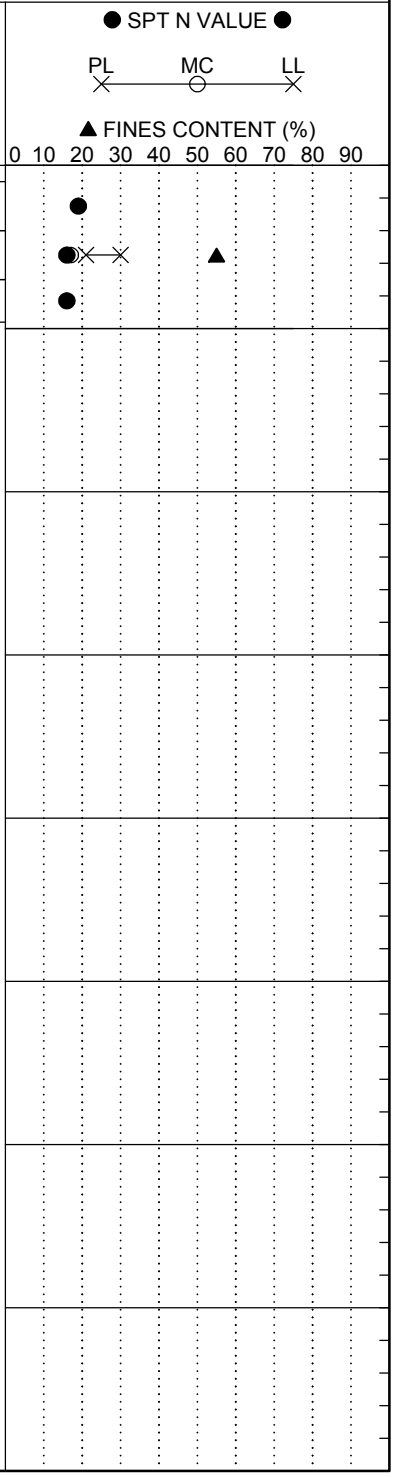
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-199
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1084+90.07	**Offset:**	57' RT	**Alignment:**	PROP_I26_CL
Elev.:	321.7 ft	**Latitude:**	34.1742982	**Longitude:**	-81.3141199	**Date Started:**	10/16/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		RESIDUAL Very stiff, brown to tannish brown, Sandy CLAY (CL) (A-4) with trace roots		2.0	SS-1	5	7	12	19
				3.5	SS-2	6	6	10	16
		LL=30, PL=21, PI=9, NMC=17.3, %200=55			SS-3	6	9	7	16
316.7	5.0	Boring terminated at 5.0 feet							
311.7									
306.7									
301.7									
296.7									
291.7									
286.7									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-200
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1070+58.43	**Offset:**	140' LT	**Alignment:**	PROP_I26_CL
Elev.:	304.4 ft	**Latitude:**	34.1724992	**Longitude:**	-81.3098558	**Date Started:**	9/27/2017
Total Depth:	4.8 ft	**Soil Depth:**	4.8 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	0.8								
	2.0	4.00" ABC Stone		2.0	SS-1	2	4	6	10
	3.5	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		3.5	SS-2	7	9	15	24
	4.8				SS-3	13	43	50/3	50/3
299.4		**RESIDUAL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
294.4		**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, sampled as Sandy SILT (A-4)							
		Boring terminated at 4.8 feet							
289.4									
284.4									
279.4									
274.4									
269.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>●

LEGEND

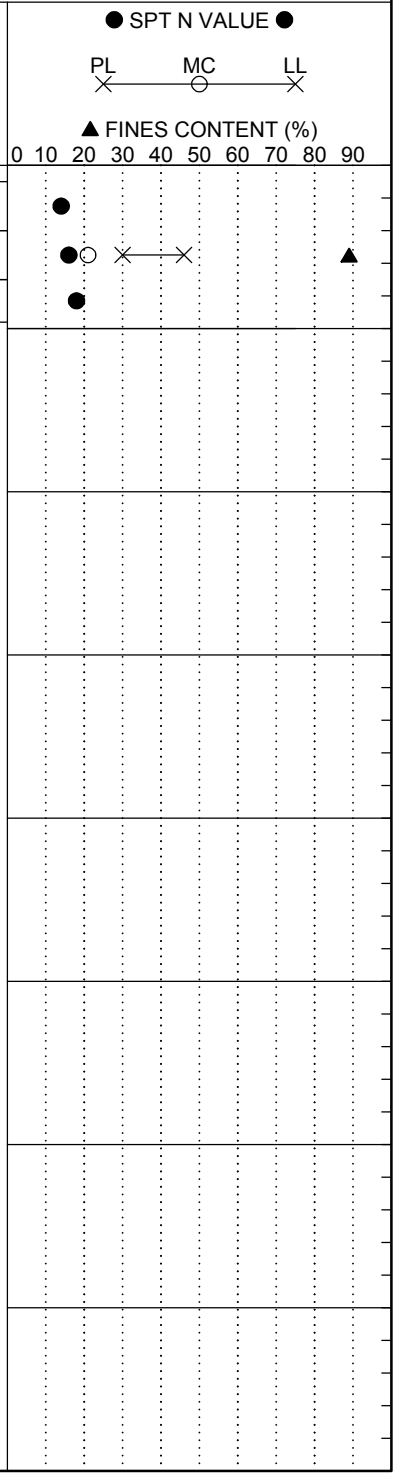
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-201
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1054+86.18	**Offset:**	53' RT	**Alignment:**	PROP_I26_CL
Elev.:	343.1 ft	**Latitude:**	34.1715779	**Longitude:**	-81.3047341	**Date Started:**	9/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	5	7	7	14
	3.5	**FILL**		3.5	SS-2	8	8	8	16
338.1	5.0	Very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) LL=46, PL=30, PI=16, NMC=21.3, %200=89			SS-3	6	7	11	18
		RESIDUAL							
333.1		Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
328.1									
323.1									
318.1									
313.1									
308.1									



LEGEND

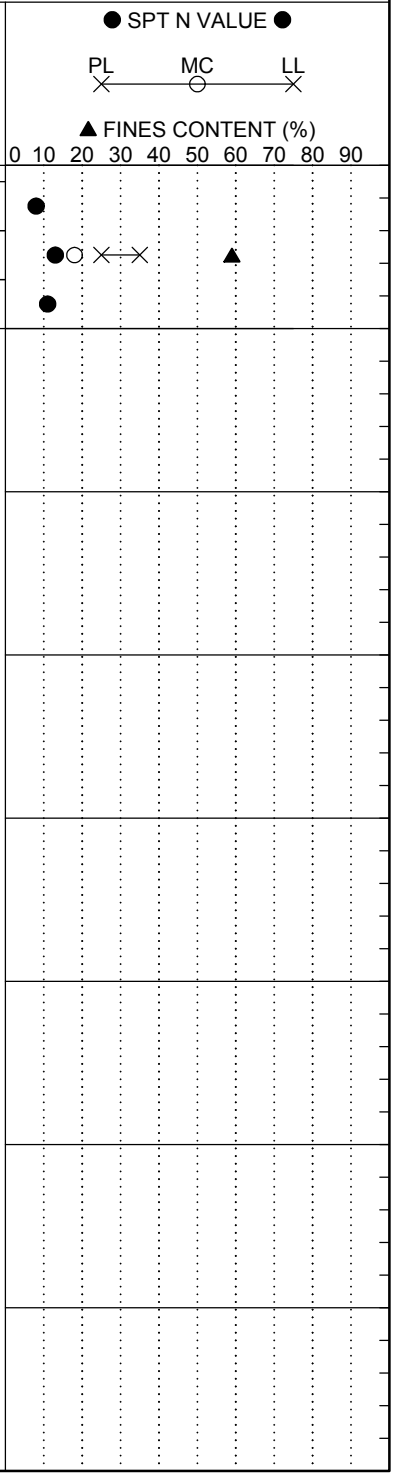
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-202
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1039+95.80	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	296.0 ft	**Latitude:**	34.1696893	**Longitude:**	-81.3003446	**Date Started:**	9/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		0.5					
	2.0			2.0	SS-1	6	3	5	8
	3.5	**FILL** Stiff, moist, reddish tan, Sandy SILT (ML) (A-4) LL=35, PL=25, PI=10, NMC=18.2, %200=59		3.5	SS-2	9	7	6	13
291.0	5.0				SS-3	4	4	7	11
		FILL Stiff, moist, reddish tan, Sandy SILT (ML) (A-5)							
286.0		Boring terminated at 5.0 feet							
281.0									
276.0									
271.0									
266.0									
261.0									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-203
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1024+89.45	**Offset:**	56' RT	**Alignment:**	PROP_I26_CL
Elev.:	301.6 ft	**Latitude:**	34.1682533	**Longitude:**	-81.295659	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
		FILL			SS-1	2	2	4	6
		Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML) (A-4) with trace roots and gravel		2.0	SS-2	1	4	5	9
				3.5	SS-3	1	3	4	7
296.6	5.0	LL=48, PL=36, PI=12, NMC=18.6, %200=59							
		Boring terminated at 5.0 feet							
291.6									
286.6									
281.6									
276.6									
271.6									
266.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-204
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1009+60.81	**Offset:**	53' LT	**Alignment:**	PROP_I26_CL
Elev.:	331.0 ft	**Latitude:**	34.1662547	**Longitude:**	-81.2911987	**Date Started:**	10/17/2017
Total Depth:	3.7 ft	**Soil Depth:**	3.7 ft	**Core Depth:**	ft	**Date Completed:**	10/17/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Very stiff, brown, Sandy SILT (ML) (A-5)		2.0	SS-1	5	7	12	19
					SS-2	50/3			50/3
	3.7	**PARTIALLY WEATHERED ROCK** Extremely hard, grayish brown, Silty Fine to Coarse SAND (SM) (A-2-4)		3.5	SS-3	50/2			50/2
326.0		Boring terminated at 3.7 feet							
321.0									
316.0									
311.0									
306.0									
301.0									
296.0									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208			**County:**	Lexington	**Boring No.:**	P-205
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	994+64.29	**Offset:**	63' RT	**Alignment:**	PROP_I26_CL
Elev.:	369.3 ft	**Latitude:**	34.1648586	**Longitude:**	-81.286531	**Date Started:**	7/27/2017
Total Depth:	2 ft	**Soil Depth:**	2 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.5	2.00" ABC Stone			SS-1	9	14	38	52
	2.0	**RESIDUAL**							
		Hard, moist, tan, Sandy SILT (ML) (A-4)							
364.3		Auger refusal at 2.0 feet							
359.3									
354.3									
349.3									
344.3									
339.3									
334.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

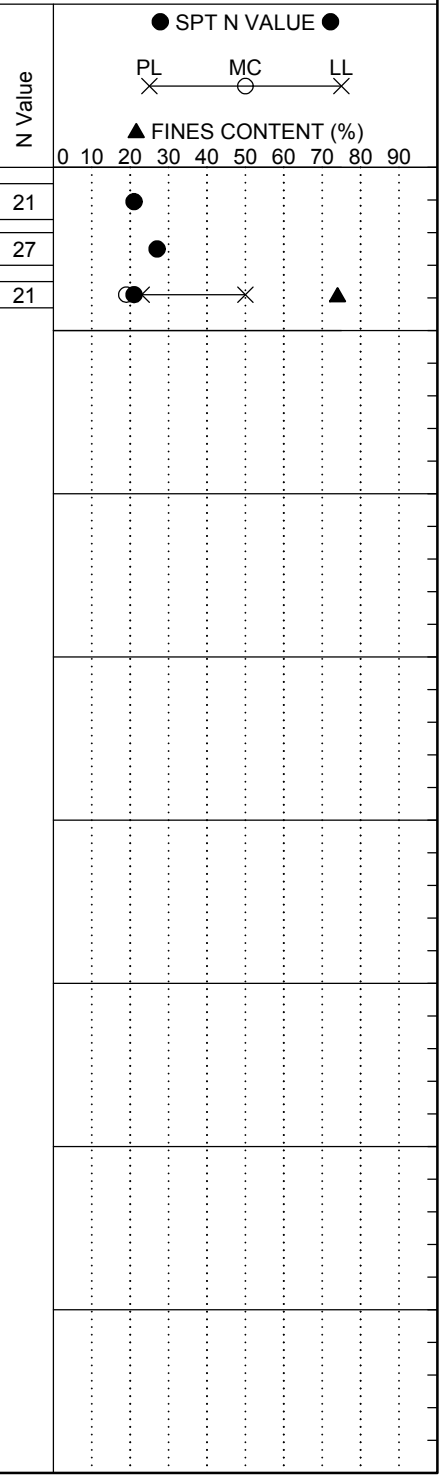
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-206
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	979+50.40	**Offset:**	58' LT	**Alignment:**	PROP_I26_CL
Elev.:	375.9 ft	**Latitude:**	34.1628467	**Longitude:**	-81.2821289	**Date Started:**	9/30/2017
Total Depth:	5 ft	**Soil Depth:**	2 ft	**Core Depth:**	ft	**Date Completed:**	9/30/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
		FILL		0.5					
	1.5	Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)			SS-1	4	6	15	21
				2.0	SS-2	15	15	12	27
	3.5	**RESIDUAL**		3.5					
		Very stiff, moist, tannish brown, Sandy SILT (ML) (A-5)			SS-3	6	9	12	21
370.9	5.0								
		Very stiff, moist, tannish brown, Plastic CLAY (CH) (A-7-6)							
		LL=50, PL=23, PI=27, NMC=19.2, %200=74							
365.9		Boring terminated at 5.0 feet							
360.9									
355.9									
350.9									
345.9									
340.9									



LEGEND

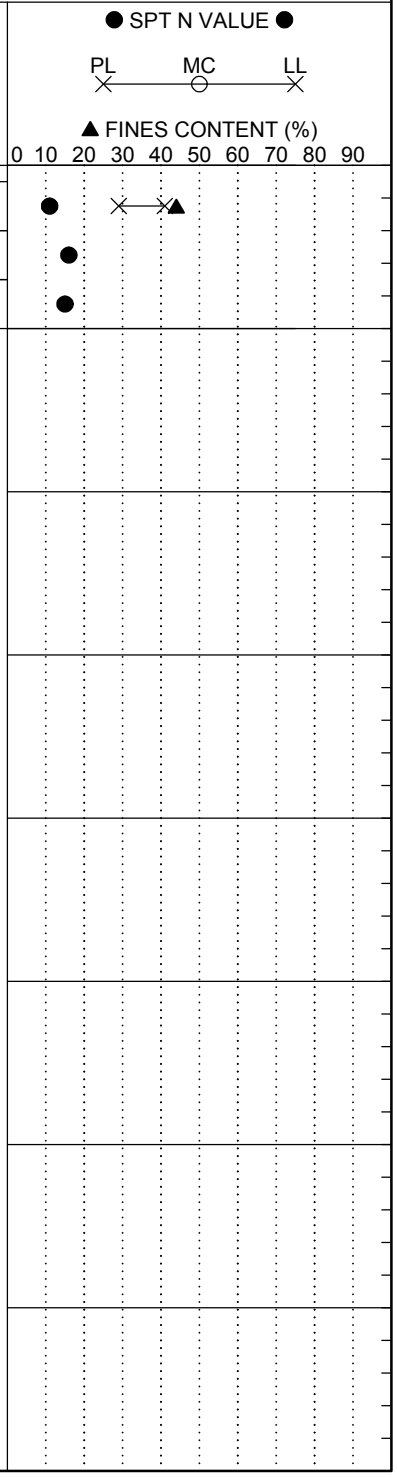
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-207
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	964+46.44	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	409.6 ft	**Latitude:**	34.1614315	**Longitude:**	-81.2774437	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Stone Base		0.5					
		RESIDUAL			SS-1	11	5	6	11
		Medium dense, moist, reddish tan, Silty Fine to Medium SAND (SM) (A-4) with trace gravel-sized rock fragments		2.0	SS-2	3	6	10	16
				3.5	SS-3	2	4	11	15
404.6	5.0	LL=41, PL=29, PI=12, NMC=11.4, %200=44							
		Boring terminated at 5.0 feet							
399.6									
394.6									
389.6									
384.6									
379.6									
374.6									



LEGEND

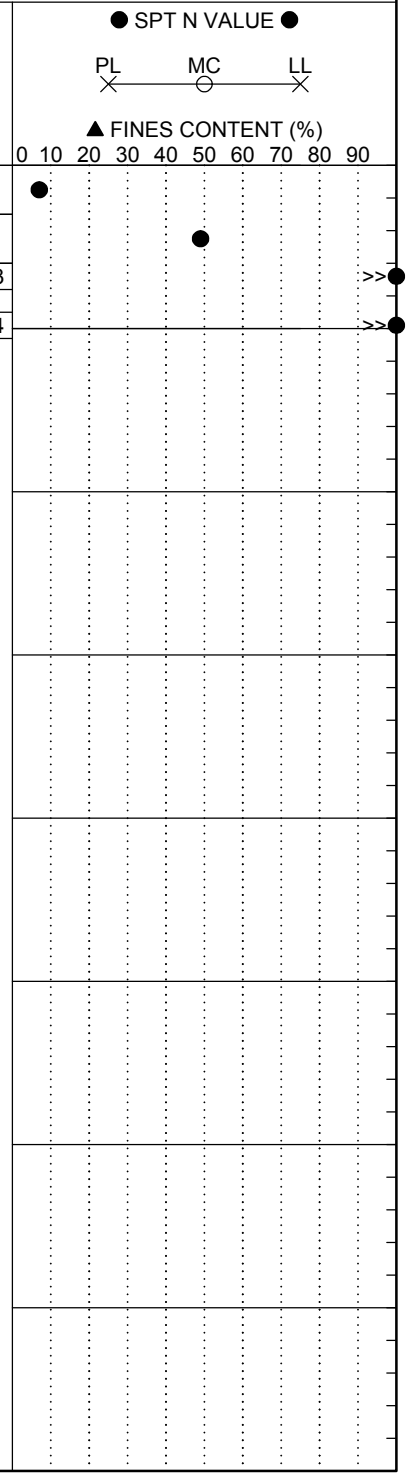
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-208
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	949+30.04	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	399.5 ft	**Latitude:**	34.1594659	**Longitude:**	-81.2730091	**Date Started:**	9/21/2017
Total Depth:	5.4 ft	**Soil Depth:**	5.4 ft	**Core Depth:**	ft	**Date Completed:**	9/21/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.0					
		Hard, dry, orangish tan, Sandy SILT (ML) (A-4)		1.5	SS-1	2	3	4	7
	2.0				SS-2	14	19	30	49
		PARTIALLY WEATHERED ROCK		3.0	SS-3	19	50/3		50/3
		Extremely hard, moist, orangish tan, sampled as Sandy SILT (A-4)		4.5					
394.5	5.4				SS-4	44	50/4		50/4
		Boring terminated at 5.4 feet							
389.5									
384.5									
379.5									
374.5									
369.5									
364.5									



LEGEND

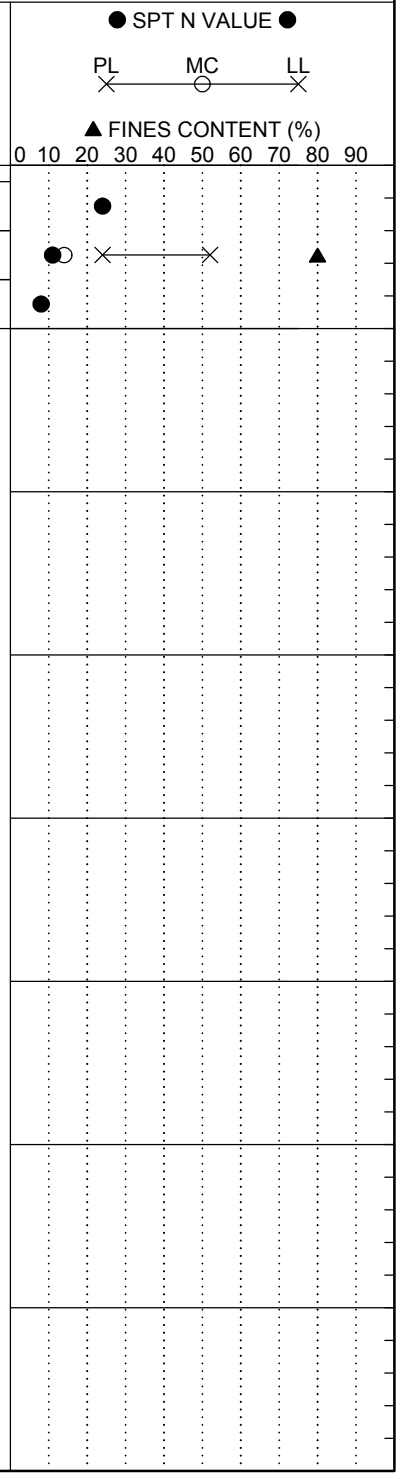
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-209
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	934+48.35	**Offset:**	55' RT	**Alignment:**	PROP_I26_CL
Elev.:	386.2 ft	**Latitude:**	34.158052	**Longitude:**	-81.2684042	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	2.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, reddish tan, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel		2.0	SS-1	9	12	12	24
				3.5	SS-2	3	5	6	11
					SS-3	2	2	6	8
381.2	5.0	**FILL** Stiff to medium stiff, moist, tan, Plastic CLAY (CH) (A-7-6) LL=52, PL=24, PI=28, NMC=13.6, %200=80							
376.2		Boring terminated at 5.0 feet							
371.2									
366.2									
361.2									
356.2									
351.2									



LEGEND

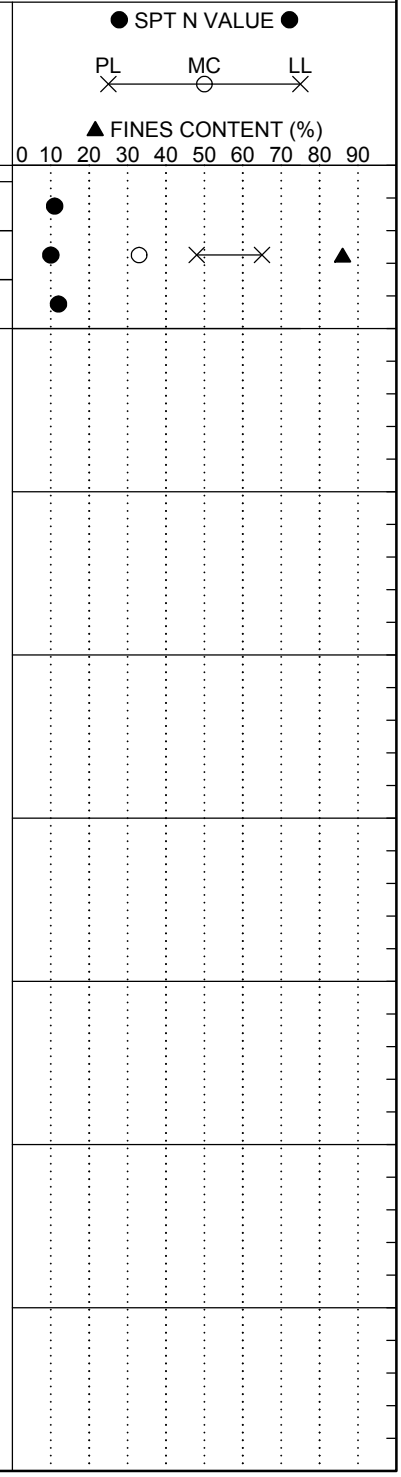
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-210
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	919+62.82	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	408.8 ft	**Latitude:**	34.1561201	**Longitude:**	-81.2640649	**Date Started:**	9/28/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	5.00" Asphalt Depth		0.5					
	0.6	2.00" ABC Stone			SS-1	6	5	6	11
	2.0	**FILL**		2.0					
	3.5	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel		3.5	SS-2	4	4	6	10
403.8	5.0	**RESIDUAL**			SS-3	3	5	7	12
		Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)							
		LL=65, PL=48, PI=17, NMC=32.8, %200=86							
398.8		Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)							
		Boring terminated at 5.0 feet							
393.8									
388.8									
383.8									
378.8									
373.8									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-211
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	904+49.93	**Offset:**	52' RT	**Alignment:**	PROP_I26_CL
Elev.:	390.4 ft	**Latitude:**	34.1546644	**Longitude:**	-81.2593693	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.7	8.00" Topsoil Depth		0.5					
		RESIDUAL Stiff to medium stiff, moist, reddish tan to brownish tan, Plastic CLAY (CH) (A-7-6) LL=51, PL=25, PI=26, NMC=20.9, %200=92		2.0	SS-1	3	8	7	15
				3.5	SS-2	3	7	8	15
385.4	5.0				SS-3	1	2	6	8
		Boring terminated at 5.0 feet							
380.4									
375.4									
370.4									
365.4									
360.4									
355.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

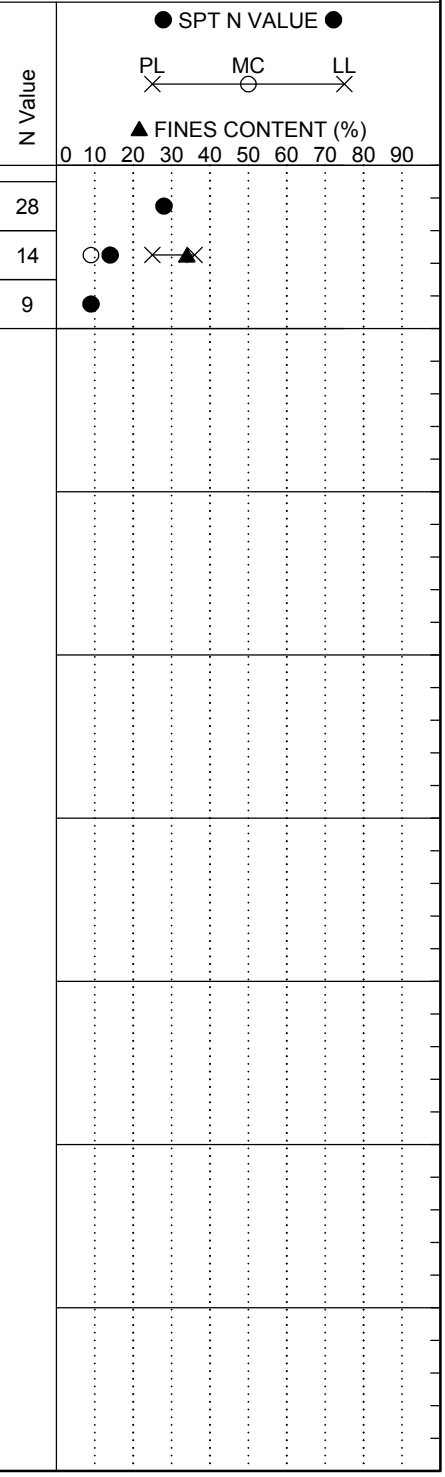
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-212
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	889+19.13	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	366.0 ft	**Latitude:**	34.1526868	**Longitude:**	-81.2548907	**Date Started:**	9/28/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Topsoil Depth		0.5					
	0.6	3.00" ABC Stone			SS-1	4	8	20	28
	2.0	**FILL** Very stiff, moist, grayish brown, Sandy SILT (ML) (A-5) with trace gravel		2.0	SS-2	7	7	7	14
				3.5	SS-3	5	4	5	9
361.0	5.0	**FILL** Stiff, moist, tannish gray to brown, Silty Fine to Coarse Sand (SM) (A-2-6) with trace gravel LL=36, PL=25, PI=11, NMC=9.4, %200=34							
356.0		Boring terminated at 5.0 feet							
351.0									
346.0									
341.0									
336.0									
331.0									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-213
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	874+74.19	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	386.5 ft	**Latitude:**	34.1513108	**Longitude:**	-81.2503962	**Date Started:**	9/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Very stiff, dry, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-1	6	12	15	27
	3.5			3.5	SS-2	19	49	50/5	50/5
					SS-3	23	35	37	72
381.5	5.0	**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, sampled as Sandy SILT (A-4)							
		RESIDUAL Very hard, moist, tannish brown, Sandy SILT (ML) (A-4) slight roots and gravel-sized rock fragments							
376.5		Boring terminated at 5.0 feet							
371.5									
366.5									
361.5									
356.5									
351.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

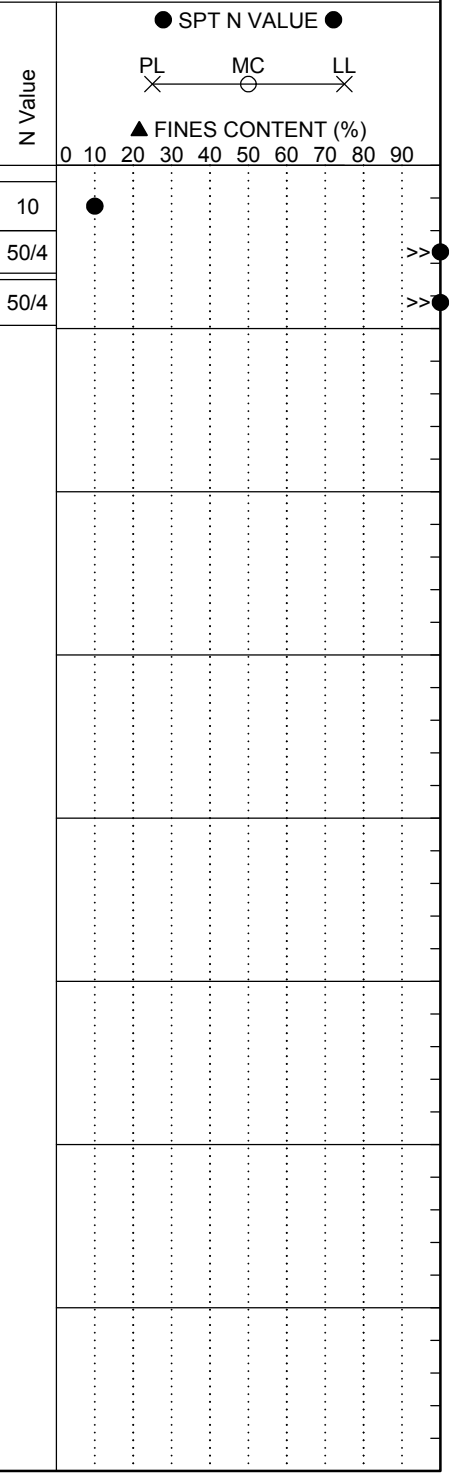
LEGEND

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:	029208			**County:**	Lexington	**Boring No.:**	P-214
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	858+44.69	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	361.2 ft	**Latitude:**	34.1492124	**Longitude:**	-81.245628	**Date Started:**	9/28/2017
Total Depth:	4.9 ft	**Soil Depth:**	4.9 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Topsoil Depth		0.5					
	0.5	2.00" ABC Stone			SS-1	9	6	4	10
	2.0	**FILL**		2.0	SS-2	6	32	50/4	50/4
	3.5	Stiff, moist, orangish brown to gray, Elastic SILT (MH) (A-5) with trace gravel		3.5	SS-3	37	50	50/4	50/4
356.2	4.9	**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tannish brown, sampled as Sandy SILT (A-4)							
351.2		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled at Silty SAND (A-4)							
		Boring terminated at 4.9 feet							
346.2									
341.2									
336.2									
331.2									
326.2									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-215
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	842+85.30	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	361.4 ft	**Latitude:**	34.1474764	**Longitude:**	-81.2409089	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Asphalt Depth		0.5					
	0.9	2.00" ABC Stone			SS-1	2	2	3	5
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-2	3	3	4	7
356.4	5.0	**FILL** Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) LL=32, PL=25, PI=7, NMC=14.2, %200=47		3.5	SS-3	2	3	5	8
351.4		Boring terminated at 5.0 feet							
346.4									
341.4									
336.4									
331.4									
326.4									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-216
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	827+32.40	**Offset:**	60' LT	**Alignment:**	PROP_I26_CL
Elev.:	368.5 ft	**Latitude:**	34.1451461	**Longitude:**	-81.236587	**Date Started:**	9/28/2017
Total Depth:	3.2 ft	**Soil Depth:**	3.2 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**PARTIALLY WEATHERED ROCK**		0.5					
	2.0	Extremely hard, dry, reddish brown to gray, sampled as Elastic SILT (A-5) with trace gravel		2.0	SS-1	5	13	50/4	50/4
	3.2			3.2	SS-2	5	50/6		50/6
363.5		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, gray, sampled as Silty SAND (A-4)			SS-3	50/0			50/0
		Auger refusal at 3.2 feet							
358.5									
353.5									
348.5									
343.5									
338.5									
333.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

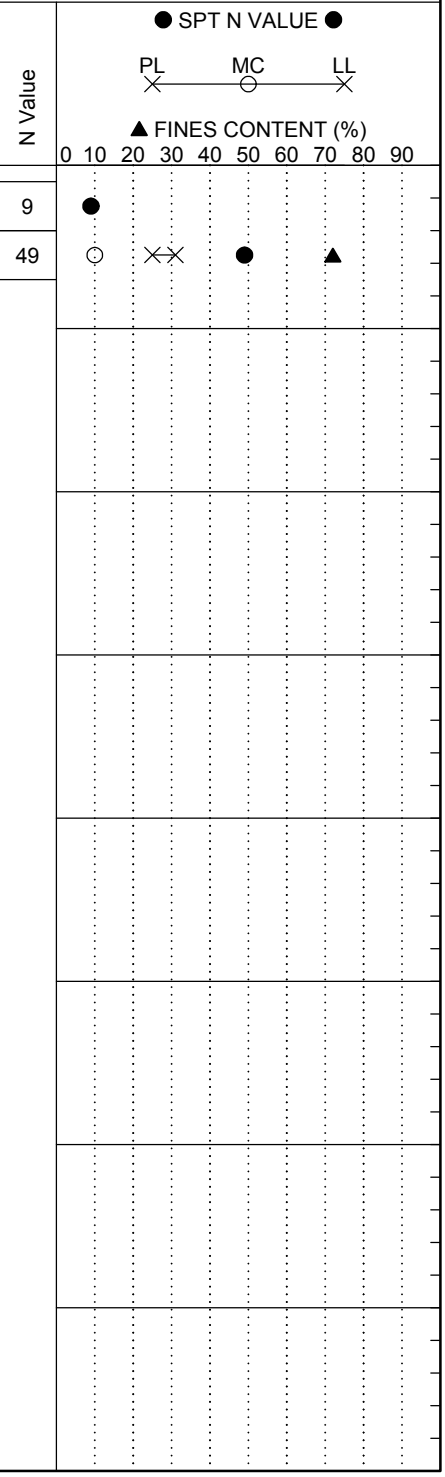
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-217
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	812+04.67	**Offset:**	51' RT	**Alignment:**	PROP_I26_CL
Elev.:	346.5 ft	**Latitude:**	34.1434063	**Longitude:**	-81.2319772	**Date Started:**	7/27/2017
Total Depth:	3.5 ft	**Soil Depth:**	3.5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	1.2	7.00" ABC Stone		2.0	SS-1	5	4	5	9
	2.0	**FILL**			SS-2	3	12	37	49
	3.5	Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)							
341.5		**RESIDUAL**							
		Hard, moist, grayish brown, Sandy SILT (ML) (A-4)							
		LL=31, PL=25, PI=6, NMC=10.3, %200=72							
336.5		Auger refusal at 3.5 feet							
331.5									
326.5									
321.5									
316.5									
311.5									



LEGEND

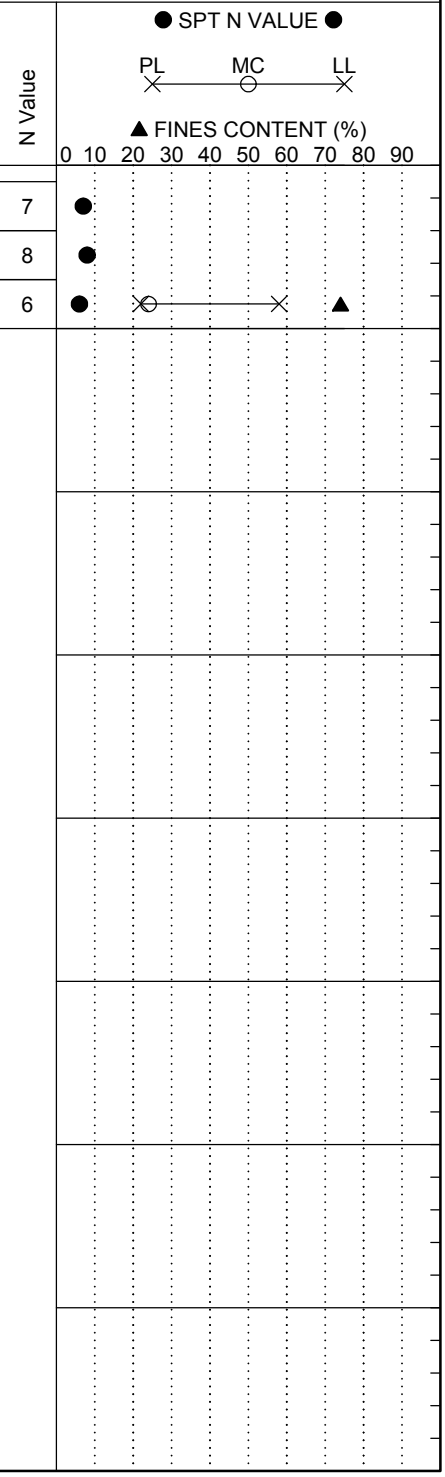
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-218
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	796+88.76	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	325.6 ft	**Latitude:**	34.1411737	**Longitude:**	-81.227735	**Date Started:**	9/28/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.5	2.00" ABC Stone			SS-1	6	3	4	7
	2.0	**FILL**		2.0					
	3.5	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel			SS-2	4	3	5	8
320.6	5.0	**FILL**		3.5					
		Medium stiff, moist, orangish brown to gray, Sandy CLAY (CL) (A-6)			SS-3	2	2	4	6
315.6		**FILL**							
		Medium stiff, moist, reddish tan to gray, Plastic CLAY (CH) (A-7-6)							
		LL=58, PL=22, PI=36, NMC=24.1, %200=74							
310.6		Boring terminated at 5.0 feet							
305.6									
300.6									
295.6									
290.6									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-219
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	781+21.51	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	362.3 ft	**Latitude:**	34.1393711	**Longitude:**	-81.2230163	**Date Started:**	7/27/2017
Total Depth:	2 ft	**Soil Depth:**	2 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**RESIDUAL** Very dense, moist, tan, Silty Fine to Medium SAND (SM) (A-4)			SS-1	2	16	40	56
357.3		Auger refusal at 2.0 feet							
352.3									
347.3									
342.3									
337.3									
332.3									
327.3									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

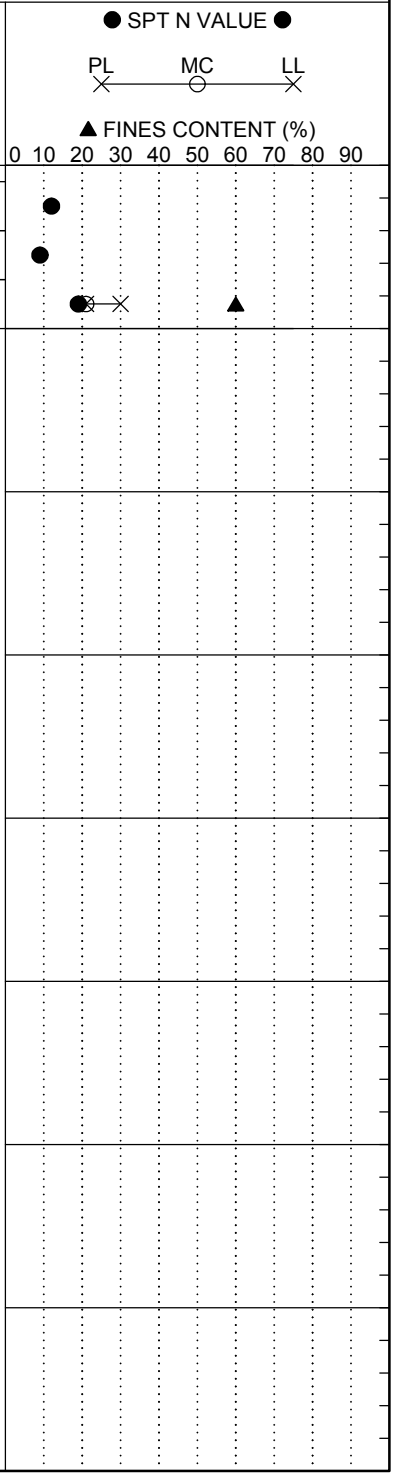
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-220
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	765+56.50	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	375.6 ft	**Latitude:**	34.1370526	**Longitude:**	-81.2186444	**Date Started:**	9/28/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.6	3.00" ABC Stone		2.0	SS-1	6	5	7	12
		FILL			SS-2	5	5	4	9
	3.5	Stiff, moist, grayish tan to brown, Sandy SILT (ML) (A-5) with trace gravel		3.5	SS-3	5	4	15	19
370.6	5.0	**RESIDUAL**							
		Very stiff, moist, orangish brown to gray, Sandy CLAY (CL) (A-4)							
		LL=30, PL=21, PI=9, NMC=20.8, %200=60							
365.6		Boring terminated at 5.0 feet							
360.6									
355.6									
350.6									
345.6									
340.6									



LEGEND

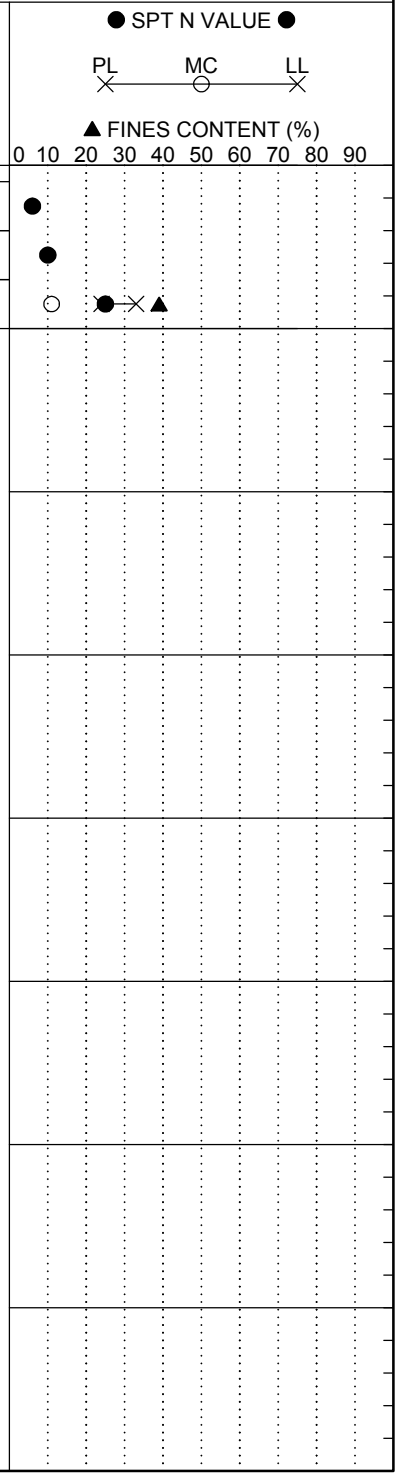
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-221
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	750+25.96	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	372.9 ft	**Latitude:**	34.1352988	**Longitude:**	-81.2140323	**Date Started:**	7/27/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/27/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	10.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-4)		2.0	SS-1	2	3	3	6
	3.5			3.5	SS-2	2	3	7	10
	5.0	**FILL** Loose, moist, brown, Silty Fine to Medium SAND (SM) (A-4)			SS-3	7	9	16	25
367.9		**RESIDUAL** Medium dense, moist, tannish brown, Clayey Fine to Medium SAND (SC) (A-4) LL=33, PL=24, PI=9, NMC=10.7, %200=39							
362.9		Boring terminated at 5.0 feet							
357.9									
352.9									
347.9									
342.9									
337.9									



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-222
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	734+88.19	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	371.5 ft	**Latitude:**	34.1326848	**Longitude:**	-81.2100454	**Date Started:**	9/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Asphalt Depth		0.5					
	0.5	3.00" ABC Stone		2.0	SS-1	8	8	7	15
	2.0	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-6) with trace gravel		3.5	SS-2	6	9	14	23
366.5	5.0	**RESIDUAL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace gravel-sized rock fragments LL=37, PL=26, PI=11, NMC=9.7, %200=64			SS-3	9	10	10	20
361.5		Boring terminated at 5.0 feet							
356.5									
351.5									
346.5									
341.5									
336.5									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-223
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	719+30.65	**Offset:**	57' RT	**Alignment:**	PROP_I26_CL
Elev.:	379.9 ft	**Latitude:**	34.1297315	**Longitude:**	-81.2063212	**Date Started:**	7/22/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/22/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Medium dense, moist, reddish tan, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and gravel		2.0	SS-1	4	4	20	24
				3.5	SS-2	3	5	4	9
	3.5				SS-3	3	3	3	6
374.9	5.0	**RESIDUAL** Loose, moist, reddish tan, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel-sized rock fragments							
369.9		Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5) LL=56, PL=39, PI=9, NMC=14.6, %200=93							
364.9		Boring terminated at 5.0 feet							
359.9									
354.9									
349.9									
344.9									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

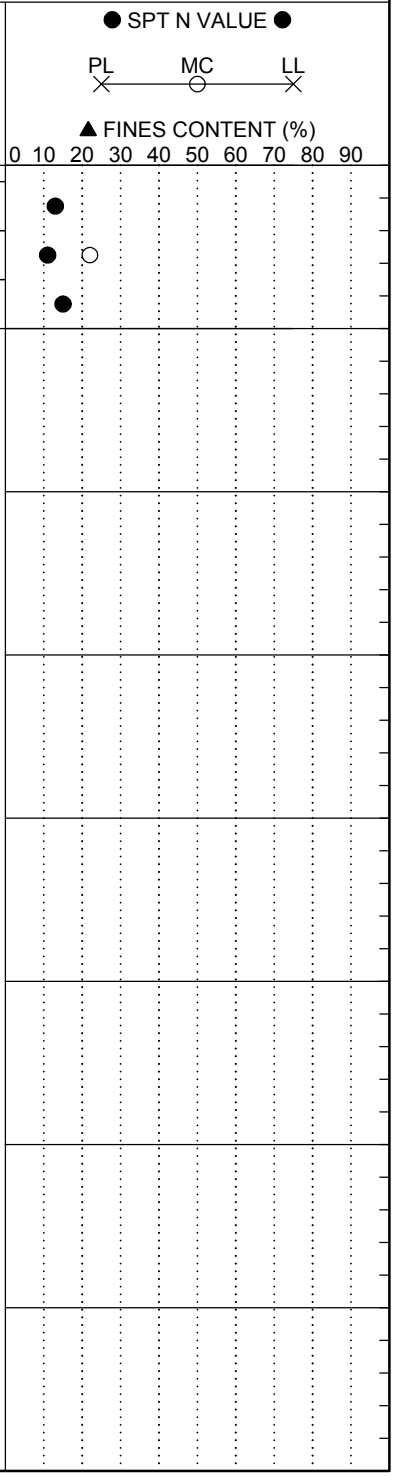
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-224
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	705+34.23	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	379.0 ft	**Latitude:**	34.1266313	**Longitude:**	-81.203582	**Date Started:**	9/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.6	3.00" ABC Stone		2.0	SS-1	7	7	6	13
	3.5	**FILL** Stiff, moist, tannish brown to orangish tan, Sany SILT (ML) (A-4) with trace gravel		3.5	SS-2	4	5	6	11
374.0	5.0	LL=36, PL=27, PI=9, NMC=14.4, %200=67			SS-3	4	6	9	15
		FILL Stiff, moist, orangish tan to brown, Elastic SILT (MH) (A-5)							
369.0		Boring terminated at 5.0 feet							
364.0									
359.0									
354.0									
349.0									
344.0									



LEGEND

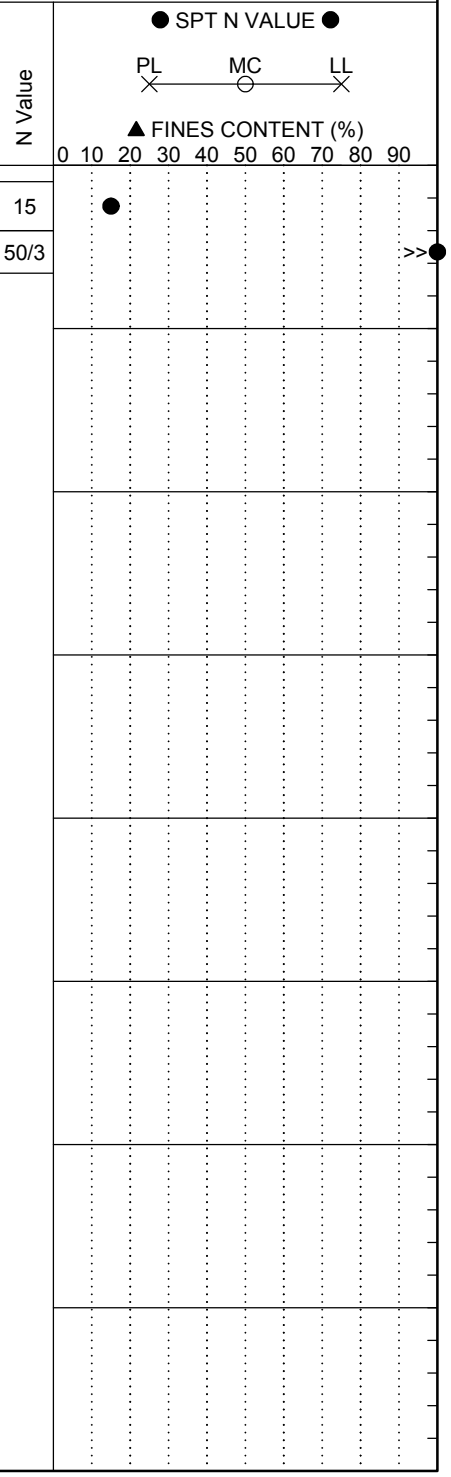
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-225
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	689+23.54	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	394.2 ft	**Latitude:**	34.123448	**Longitude:**	-81.1998677	**Date Started:**	7/26/2017
Total Depth:	3.25 ft	**Soil Depth:**	3.25 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.8	9.00" Topsoil Depth		0.5					
	2.0	**FILL**		2.0	SS-1	7	7	8	15
	3.3	Stiff, moist, brown, Sandy SILT (ML) (A-4) with trace gravel			SS-2	8	35	50/3	50/3
389.2		**PARTIALLY WEATHERED ROCK** Extremely hard, moist, tan, sampled as Sandy SILT (ML) (A-4)							
		Boring terminated at 3.25 feet							
384.2									
379.2									
374.2									
369.2									
364.2									
359.2									



LEGEND

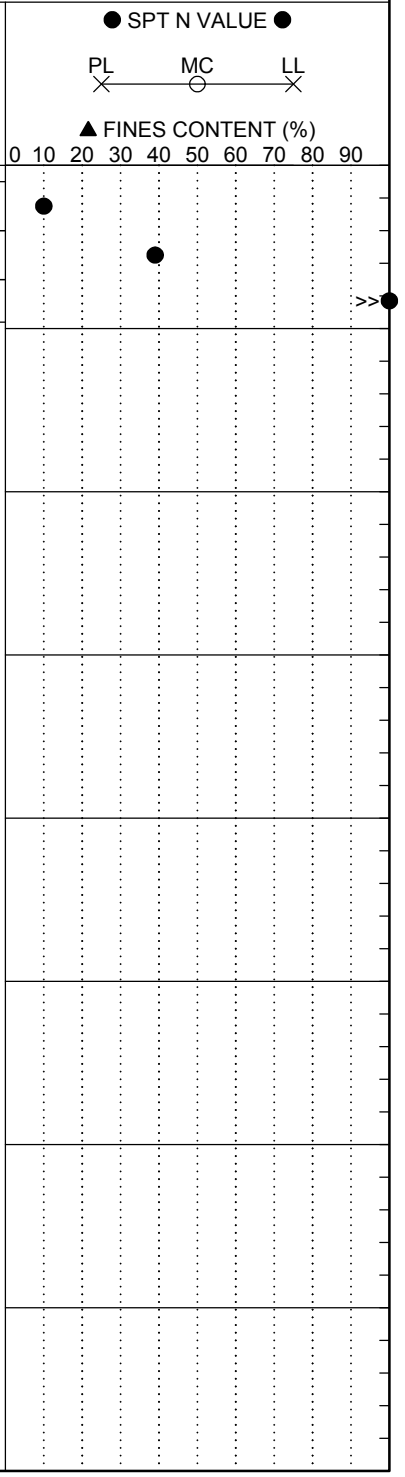
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-226
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	673+98.77	**Offset:**	53' LT	**Alignment:**	PROP_I26_CL
Elev.:	398.0 ft	**Latitude:**	34.1200786	**Longitude:**	-81.1968526	**Date Started:**	9/29/2017
Total Depth:	4.8 ft	**Soil Depth:**	4.8 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.6	3.00" ABC Stone			SS-1	4	4	6	10
	2.0	**FILL**		2.0					
	3.5	Stiff, moist, grayish brown, Sandy SILT (ML) (A-5) with trace mica and gravel			SS-2	6	5	34	39
	4.8			3.5					
393.0		**FILL**			SS-3	17	38	50/3	50/3
		Hard, moist, orangish tan, Sandy SILT (ML) (A-5) with trace gravel							
388.0		**PARTIALLY WEATHERED ROCK**							
		Extremely hard, moist, orangish tan, sampled as Sandy SILT (ML) (A-4)							
		Boring terminated at 4.8 feet							
383.0									
378.0									
373.0									
368.0									
363.0									



LEGEND

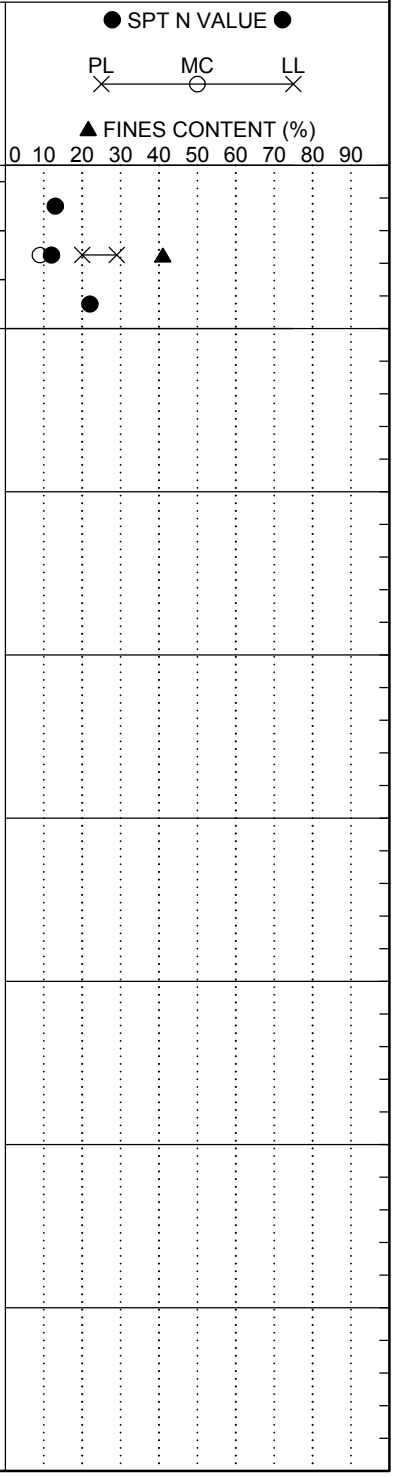
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-227
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	658+87.97	**Offset:**	64' RT	**Alignment:**	PROP_I26_CL
Elev.:	387.6 ft	**Latitude:**	34.1171362	**Longitude:**	-81.1933075	**Date Started:**	7/26/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	5.00" Asphalt Depth		0.5					
	0.9	6.00" ABC Stone			SS-1	5	6	7	13
	2.0	**FILL**		2.0					
	3.5	Stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel		3.5	SS-2	6	7	5	12
382.6	5.0	**FILL**			SS-3	3	1	21	22
		Medium dense, moist, tannish brown, Clayey Gravel (GC) (A-4)							
		LL=29, PL=20, PI=9, NMC=9.4, %200=41							
377.6		**RESIDUAL**							
		Medium dense, moist, tan, Silty Fine to Medium SAND (SM) (A-4)							
		Boring terminated at 5.0 feet							
372.6									
367.6									
362.6									
357.6									
352.6									



LEGEND

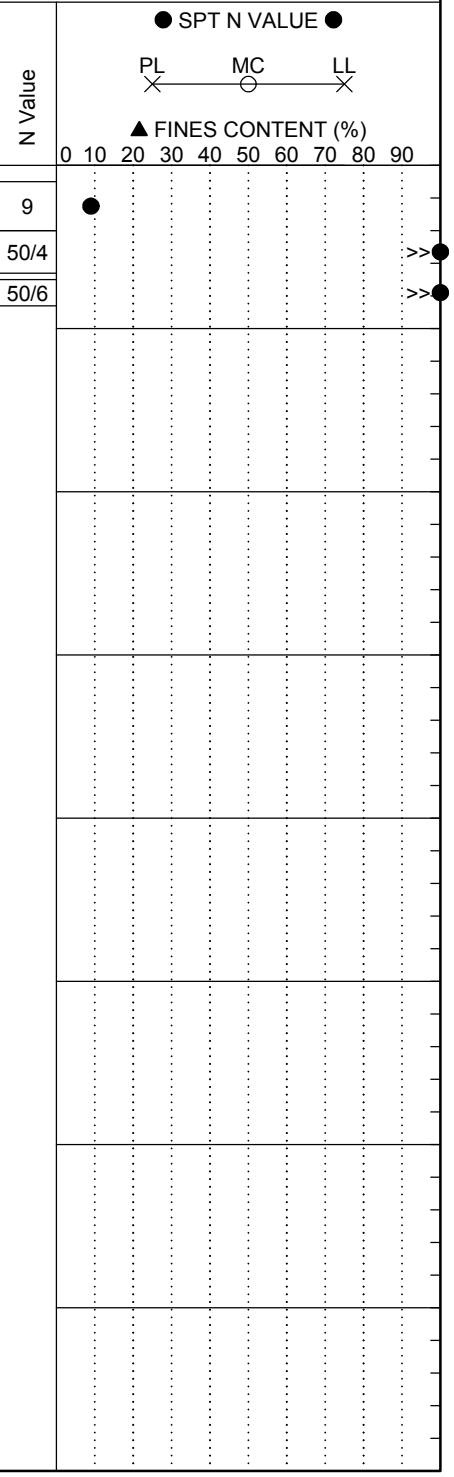
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-228
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	643+79.65	**Offset:**	60' LT	**Alignment:**	PROP_I26_CL
Elev.:	363.0 ft	**Latitude:**	34.1137706	**Longitude:**	-81.1903725	**Date Started:**	9/29/2017
Total Depth:	4 ft	**Soil Depth:**	4 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	3.00" Asphalt Depth		0.5					
	0.4	2.00" ABC Stone			SS-1	7	4	5	9
	2.0	**FILL**		2.0	SS-2	12	43	50/4	50/4
		Stiff, moist, reddish gray, Sandy SILT (ML) (A-5) with trace mica		3.5	SS-3	50/6			50/6
	4.0	**PARTIALLY WEATHERED ROCK**							
358.0		Extremely hard, moist, tannish brown, sampled as Sandy SILT (ML) (A-4)							
		Auger refusal at 4.0 feet							
353.0									
348.0									
343.0									
338.0									
333.0									
328.0									



LEGEND

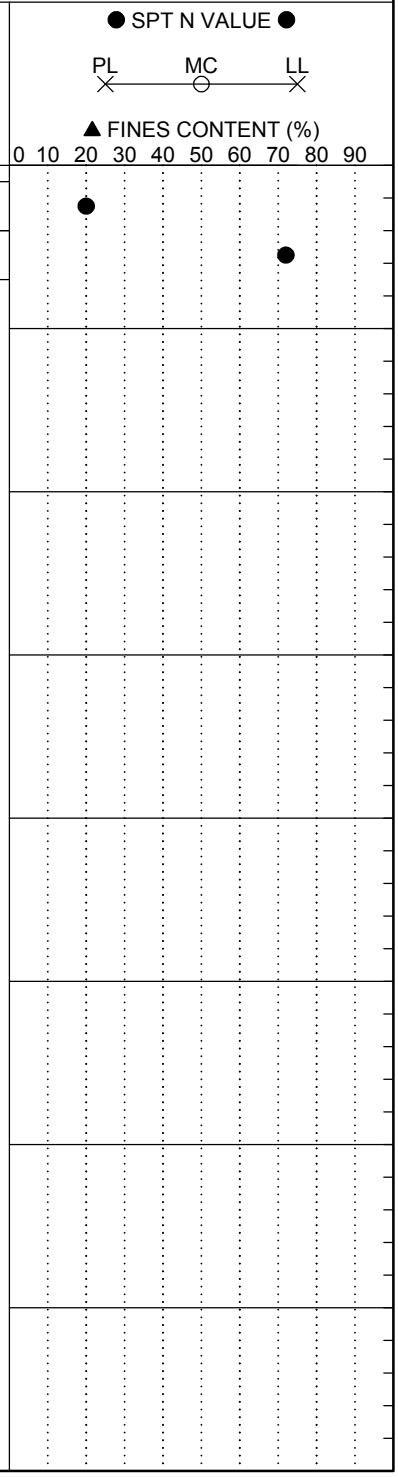
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-229
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	628+90.18	**Offset:**	67' RT	**Alignment:**	PROP_I26_CL
Elev.:	341.9 ft	**Latitude:**	34.1108915	**Longitude:**	-81.1868462	**Date Started:**	7/26/2017
Total Depth:	3.5 ft	**Soil Depth:**	3.5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Topsoil Depth		0.5					
	2.0	**FILL** Very stiff, moist, tannish brown, Sandy SILT (ML) (A-4) with trace gravel		2.0	SS-1	5	6	14	20
	3.5				SS-2	12	33	39	72
336.9		**RESIDUAL** Very hard, moist, tan, Sandy SILT (ML) (A-4)							
		Boring terminated at 3.5 feet							
331.9									
326.9									
321.9									
316.9									
311.9									
306.9									



LEGEND

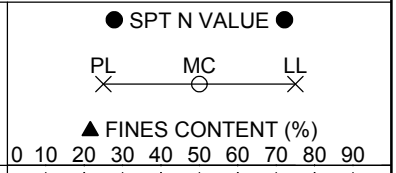
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-230
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	613+91.76	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	342.9 ft	**Latitude:**	34.1075442	**Longitude:**	-81.1839329	**Date Started:**	9/29/2017
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Asphalt Depth		0.5					
	0.6	3.00" ABC Stone		2.0	SS-1	5	7	9	16
		RESIDUAL		3.5	SS-2	6	8	8	16
		Very stiff, moist, reddish tan, Elastic SILT (MH) (A-7-5) with trace gravel-sized rock fragments			SS-3	5	6	10	16
337.9	5.0	LL=52, PL=36, PI=16, NMC=23.5, %200=82							
		Boring terminated at 5.0 feet							
332.9									
327.9									
322.9									
317.9									
312.9									
307.9									



LEGEND

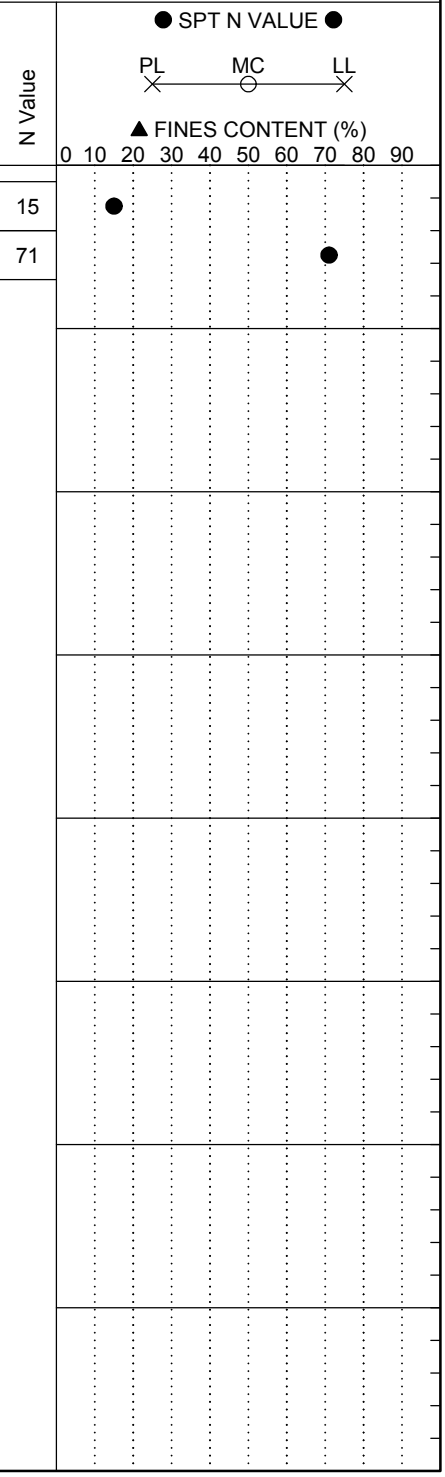
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-231
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	598+74.19	**Offset:**	53' RT	**Alignment:**	PROP_I26_CL
Elev.:	317.6 ft	**Latitude:**	34.1045817	**Longitude:**	-81.1803863	**Date Started:**	7/26/2017
Total Depth:	3.5 ft	**Soil Depth:**	3.5 ft	**Core Depth:**	ft	**Date Completed:**	7/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	Capital	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		0.5					
	2.0	Medium dense, moist, brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel		2.0	SS-1	3	6	9	15
	3.0				SS-2	6	26	45	71
312.6		**RESIDUAL** Very hard, moist, tan, Sandy SILT (ML) (A-4)							
		Auger refusal at 3.0 feet							
307.6									
302.6									
297.6									
292.6									
287.6									
282.6									



LEGEND

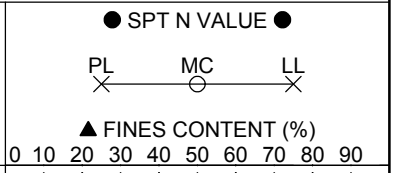
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-243
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1370+09.99	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	506.0 ft	**Latitude:**	34.2142262	**Longitude:**	-81.3948792	**Date Started:**	9/6/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-5)		0.5	SS-1	8	9	10	19
	2.0			2.5	SS-2	9	6	8	14
	4.0	**FILL** Stiff, moist, orangish tan, Sandy SILT (ML) (A-5)		4.5	SS-3	5	7	9	16
501.0				6.5	SS-4	5	7	8	15
		FILL Very stiff to stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace gravel LL=63, PL=32, PI=31, NMC=22.7, %200=75		8.5	SS-5	5	5	8	13
496.0	12.0	**RESIDUAL** Medium dense, moist, gray, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel-sized rock fragments		13.5	SS-6	5	6	5	11
491.0	17.0	Very stiff, moist, light tan, Sandy CLAY (CL) (A-7-5)		18.5	SS-7	7	9	12	21
486.0	22.0	Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with trace mica LL=40, PL=31, PI=9, NMC=28.6, %200=64		23.5	SS-8	4	4	7	11
481.0				28.5	SS-9	WOH	4	5	9
476.0				33.5	SS-10	4	6	7	13
471.0	37.0	Dense, moist, orangish tan to brown, Silty Fine to Coarse SAND (SM) (A-2-4) with trace mica and gravel-sized rock fragments		38.5	SS-11	9	11	27	38
	40.0								



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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-243
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1370+09.99	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	506.0 ft	**Latitude:**	34.2142262	**Longitude:**	-81.3948792	**Date Started:**	9/6/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 40.0 feet								
461.0										
456.0										
451.0										
446.0										
441.0										
436.0										
431.0										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	P-244	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1365+01.53	**Offset:**	54' LT	**Alignment:**	PROP_I26_CL
Elev.:	498.7 ft	**Latitude:**	34.2135961	**Longitude:**	-81.3933779	**Date Started:**	9/7/2017
Total Depth:	39.6 ft	**Soil Depth:**	39.6 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-6)	0.5	SS-1	10	10	16	26
			2.5	SS-2	6	7	11	18
	4.0	**FILL**	4.5	SS-3	4	11	10	21
493.7	6.0	Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel	6.5	SS-4	4	5	6	11
		RESIDUAL Medium stiff to stiff, reddish to orangish brown, Elastic SILT (MH) (A-5) with trace mica LL=52, PL=42, PI=10, NMC=33.5, %200=89	8.5	SS-5	4	5	6	11
488.7			13.5	SS-6	4	5	4	9
483.7			18.5	SS-7	2	2	3	5
478.7			23.5	SS-8	3	2	4	6
473.7			28.5	SS-9	3	5	10	15
468.7	32.0	Very stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4)	33.5	SS-10	10	11	19	30
463.7	37.0	**PARTIALLY WEATHERED ROCK**	38.5	SS-11	16	78	50/1	50/1
	39.6	Extremely dense, moist, tannish orange to brown, sampled as Silty SAND (A-4)						

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-244
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1365+01.53	**Offset:**	54' LT	**Alignment:**	PROP_I26_CL
Elev.:	498.7 ft	**Latitude:**	34.2135961	**Longitude:**	-81.3933779	**Date Started:**	9/7/2017
Total Depth:	39.6 ft	**Soil Depth:**	39.6 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Auger refusal at 39.6 feet								
453.7										
448.7										
443.7										
438.7										
433.7										
428.7										
423.7										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	P-245	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1331+62.12	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	475.9 ft	**Latitude:**	34.2095808	**Longitude:**	-81.3834456	**Date Started:**	9/7/2017
Total Depth:	38.8 ft	**Soil Depth:**	38.8 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	**FILL** Loose, moist, reddish brown, Clayey SAND (SC) (A-2-6) with trace gravel		0.5	SS-1	6	4	3	7	
	2.0			2.5	SS-2	16	6	4	10	
	4.0	**FILL** Loose, moist, gray, Silty Fine to Coarse SAND (SM) (A-2-4) with trace gravel		4.5	SS-3	2	4	8	12	
470.9		**FILL** Stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-5) with trace mica and gravel		6.5	SS-4	4	7	7	14	
				8.5	SS-5	4	6	7	13	
465.9				13.5	SS-6	3	6	7	13	
460.9	17.0	**FILL** Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with trace mica		18.5	SS-7	5	7	8	15	
455.9	22.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace mica		23.5	SS-8	6	7	8	15	
450.9	27.0	**FILL** Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-6)		28.5	SS-9	6	8	10	18	
445.9	32.0	**RESIDUAL** Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4)		33.5	SS-10	8	6	5	11	
440.9	38.5	Auger refusal at 38.8 feet		38.5						
				38.8	~~SS-11~~	~~50/1~~			~~50/1~~	
					~~SS-12~~	~~50/0~~			~~50/0~~	

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	P-246	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1331+25.44	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	475.8 ft	**Latitude:**	34.209537	**Longitude:**	-81.3833379	**Date Started:**	9/7/2017
Total Depth:	43.9 ft	**Soil Depth:**	43.9 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-6) with trace gravel		0.5	SS-1	3	2	4	6
	2.0	**FILL** Stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-5)		2.5	SS-2	3	4	5	9
470.8	4.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		4.5	SS-3	2	5	8	13
	8.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica LL=41, PL=31, PI=10, NMC=31.9, %200=68		6.5	SS-4	5	6	6	12
465.8	12.0			8.5	SS-5	3	5	8	13
		FILL Stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-5) with trace mica		13.5	SS-6	4	5	6	11
460.8				18.5	SS-7	6	6	8	14
455.8	22.0	**RESIDUAL** Stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-4)		23.5	SS-8	7	6	6	12
450.8	27.0	Medium dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4) with trace mica		28.5	SS-9	6	6	9	15
445.8	32.0	Medium stiff, moist, reddish tan to brown, Sandy CLAY (CL) (A-7-5)		33.5	SS-10	3	4	4	8
440.8	37.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan to brown, sampled as Sandy SILT (ML) (A-4)		38.5	SS-11	12	14	50/4	50/4

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-246
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1331+25.44	**Offset:**	48' LT	**Alignment:**	PROP_I26_CL
Elev.:	475.8 ft	**Latitude:**	34.209537	**Longitude:**	-81.3833379	**Date Started:**	9/7/2017
Total Depth:	43.9 ft	**Soil Depth:**	43.9 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	43.9	Auger refusal at 43.9 feet		43.5					
430.8				43.9	SS-12	50/1			50/1
					SS-13	50/0			50/0
425.8									
420.8									
415.8									
410.8									
405.8									
400.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-247
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1311+28.16	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	505.1 ft	**Latitude:**	34.2071246	**Longitude:**	-81.3774036	**Date Started:**	9/7/2017
Total Depth:	36.7 ft	**Soil Depth:**	36.7 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff to stiff, moist, reddish brown to brown, Sandy SILT (ML) (A-5) with trace gravel		0.5	SS-1	4	4	4	8
				2.5	SS-2	7	6	8	14
	4.0	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace mica LL=59, PL=35, PI=24, NMC=27.4, %200=86		4.5	SS-3	3	3	5	8
500.1				6.5	SS-4	3	4	5	9
				8.5	SS-5	4	4	6	10
495.1									
				13.5	SS-6	3	3	4	7
490.1									
	17.0	**RESIDUAL** Very loose, wet, grayish brown, Silty Fine to Medium SAND (SM) (A-2-4)		18.5	SS-7	WOH	WOH	2	2
485.1									
	22.0	Very dense, moist, gray, Silty Fine to Medium SAND (SM) (A-2-4)		23.5	SS-8	30	43	45	88
480.1									
	27.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, grayish tan, sampled as Sandy SILT (A-4)		28.5	SS-9	14	86/3		86/3 >>
475.1									
				33.5	SS-10	11	23	77/4	77/4 >>
470.1									
	36.7	Auger refusal at 36.7 feet		36.7	SS-11	60/0			60/0 >>

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-248
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1310+90.59	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	506.2 ft	**Latitude:**	34.2070809	**Longitude:**	-81.3772894	**Date Started:**	9/7/2017
Total Depth:	35.6 ft	**Soil Depth:**	35.6 ft	**Core Depth:**	ft	**Date Completed:**	9/7/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with little gravel		0.5	SS-1	4	4	4	8
	2.0			2.5	SS-2	5	6	6	12
501.2		**FILL** Stiff to medium stiff, moist, reddish tan to brown, Sandy SILT (ML) (A-5) with trace mica		4.5	SS-3	2	4	4	8
				6.5	SS-4	3	3	5	8
	8.0	**FILL** Stiff, moist, reddish tan to brown, Elastic SILT (MH) (A-7-5) with trace mica LL=53, PL=33, PI=20, NMC=24.1, %200=77		8.5	SS-5	4	4	5	9
496.2									
				13.5	SS-6	5	6	6	12
491.2									
	17.0	**RESIDUAL** Medium dense, moist, gray, Silty Fine to Medium SAND (SM) (A-4)		18.5	SS-7	3	10	11	21
486.2									
	22.0	Hard, moist, tannish brown, Sandy SILT (ML) (A-4)		23.5	SS-8	9	12	20	32
481.2									
	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-4)		28.5	SS-9	72	50/3		50/3
476.2									
	32.0	**PARTIALLY WEATHERED ROCK** Extremely dense, wet, reddish brown, sampled at Sandy SILT (A-4)		33.5	SS-10	50/4			50/4
471.2	35.6	Auger refusal at 35.6 feet		35.5	SS-11	50/1			50/1

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-249
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1242+45.77	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	484.4 ft	**Latitude:**	34.1971268	**Longitude:**	-81.3581348	**Date Started:**	9/8/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff to very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		0.5	SS-1	11	8	6	14
				2.5	SS-2	7	12	14	26
479.4				4.5	SS-3	14	5	9	14
				6.5	SS-4	4	6	7	13
				8.5	SS-5	4	4	6	10
474.4									
	12.0	**RESIDUAL** Stiff to very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-5) with trace mica LL=49, PL=46, PI=3, NMC=26.9, %200=76		13.5	SS-6	4	4	6	10
469.4									
				18.5	SS-7	4	4	6	10
464.4									
				23.5	SS-8	4	7	8	15
459.4									
				28.5	SS-9	3	7	9	16
454.4									
				33.5	SS-10	3	4	5	9
449.4									
				38.5	SS-11	3	4	8	12
	40.0								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-249
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1242+45.77	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	484.4 ft	**Latitude:**	34.1971268	**Longitude:**	-81.3581348	**Date Started:**	9/8/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/8/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 40.0 feet								
439.4										
434.4										
429.4										
424.4										
419.4										
414.4										
409.4										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	P-250	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1242+11.94	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	484.2 ft	**Latitude:**	34.1970751	**Longitude:**	-81.3580412	**Date Started:**	9/26/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.5	SS-1	12	5	6	11
	0.3	4.00" Asphalt Depth	2.5	SS-2	7	5	10	15
	0.6	3.00" Stone Base	4.5	SS-3	5	6	8	14
		FILL	6.5	SS-4	4	4	6	10
479.2	4.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel	8.5	SS-5	3	4	8	12
	6.0	**FILL**	13.5	SS-6	3	4	4	8
		Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)	18.5	SS-7	4	4	6	10
474.2		**FILL**	23.5	SS-8	3	3	4	7
		Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	28.5	SS-9	3	2	5	7
	12.0	**RESIDUAL**	33.5	SS-10	3	4	4	8
469.2		Medium stiff to stiff, moist, reddish brown to tannish brown, Sandy SILT (ML) (A-5) with trace mica	38.5	SS-11	5	5	6	11
		LL=42, PL=36, PI=6, NMC=25.4, %200=85						
464.2								
459.2								
454.2								
449.2								
	40.0							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-250
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1242+11.94	**Offset:**	59' LT	**Alignment:**	PROP_I26_CL
Elev.:	484.2 ft	**Latitude:**	34.1970751	**Longitude:**	-81.3580412	**Date Started:**	9/26/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	9/26/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 40.0 feet								
439.2										
434.2										
429.2										
424.2										
419.2										
414.2										
409.2										

LEGEND

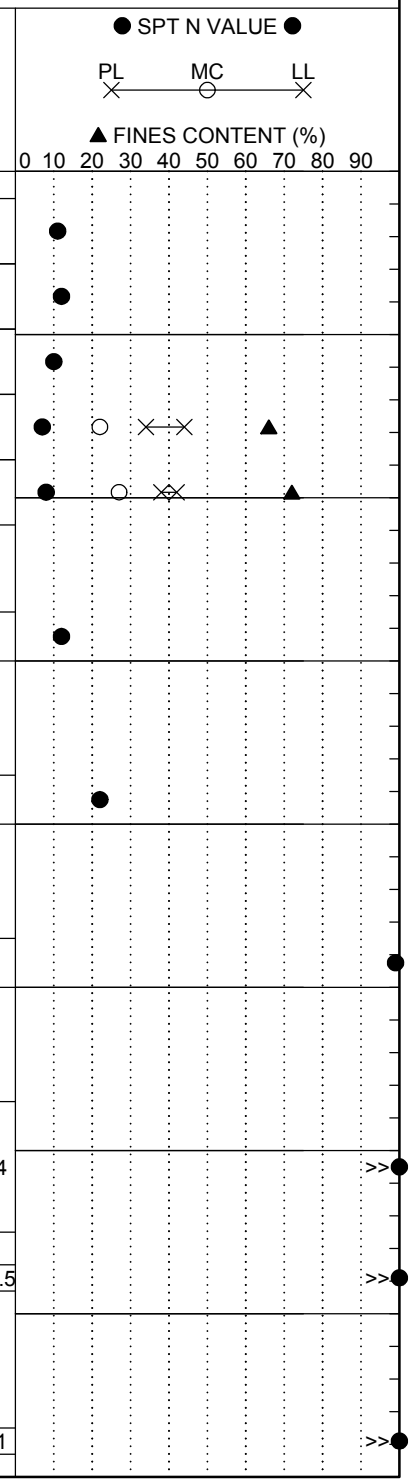
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	P-251		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	I-26		
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+68.74	**Offset:**	52' RT	**Alignment:**	PROP_I26_CL
Elev.:	443.7 ft	**Latitude:**	34.1954434	**Longitude:**	-81.3544109	**Date Started:**	10/16/2017
Total Depth:	58.6 ft	**Soil Depth:**	58.6 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	0.8	SS-1	4	5	6	11
	2.8	**FILL** Stiff, moist, tannish brown, Sandy SILT (ML) (A-4)	2.8	SS-2	4	5	7	12
438.7	4.8	**RESIDUAL** Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-5) LL=44, PL=34, PI=10, NMC=21.6, %200=66	4.8	SS-3	3	4	6	10
			6.8	SS-4	2	3	4	7
433.7	8.8	Stiff to very stiff, moist, tannish brown, Sandy SILT (ML) (A-5) LL=42, PL=38, PI=4, NMC=26.5, %200=72	8.8	SS-5	2	3	5	8
			13.5	SS-6	4	5	7	12
428.7								
			18.5	SS-7	8	9	13	22
423.7	22.0	Very dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)	23.5	SS-8	18	33	43	99
418.7	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (SM) (A-4)	28.5	SS-9	50/4			50/4
413.7			33.5	SS-10	50/2.5			50/2.5
408.7	37.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (SM) (A-2-4)	38.5	SS-11	50/1			50/1



LEGEND

Continued Next Page

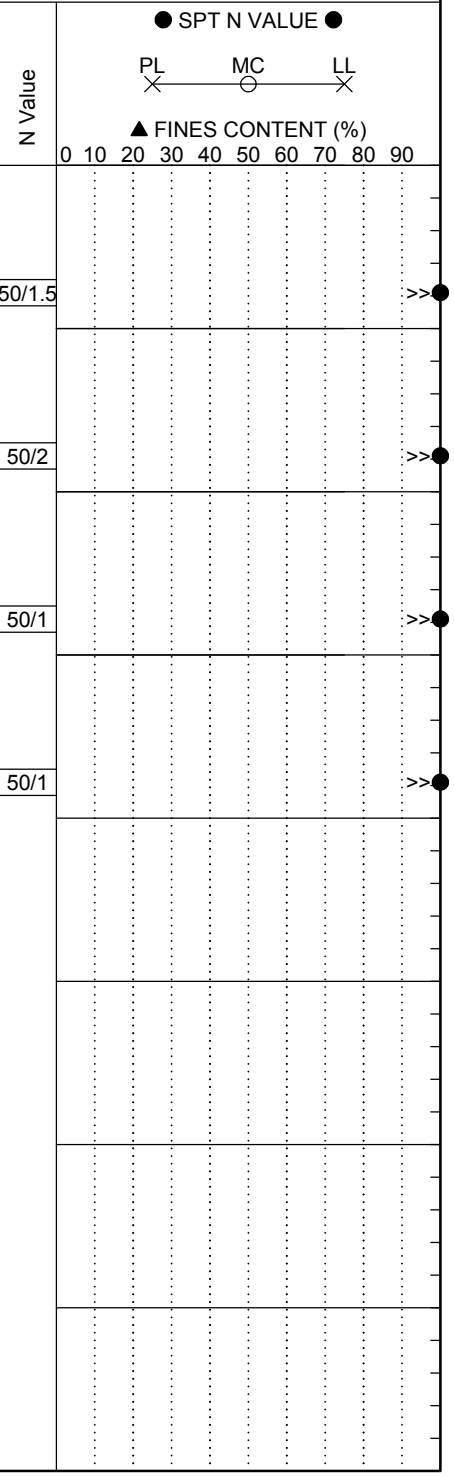
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-251
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+68.74	**Offset:**	52' RT	**Alignment:**	PROP_I26_CL
Elev.:	443.7 ft	**Latitude:**	34.1954434	**Longitude:**	-81.3544109	**Date Started:**	10/16/2017
Total Depth:	58.6 ft	**Soil Depth:**	58.6 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	42.0	**PARTIALLY WEATHERED ROCK** Extremeley dense, moist, tannish brown, sampled as Sandy SILT (A-4)		43.5	SS-12	50/1.5			50/1.5
398.7				48.5	SS-13	50/2			50/2
393.7				53.5	SS-14	50/1			50/1
388.7	57.0	**PARTIALLY WEATHERED ROCK**		58.5	SS-15	50/1			50/1
	58.6	Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)							
383.7		Auger refusal at 58.6 feet							
378.7									
373.7									
368.7									



LEGEND

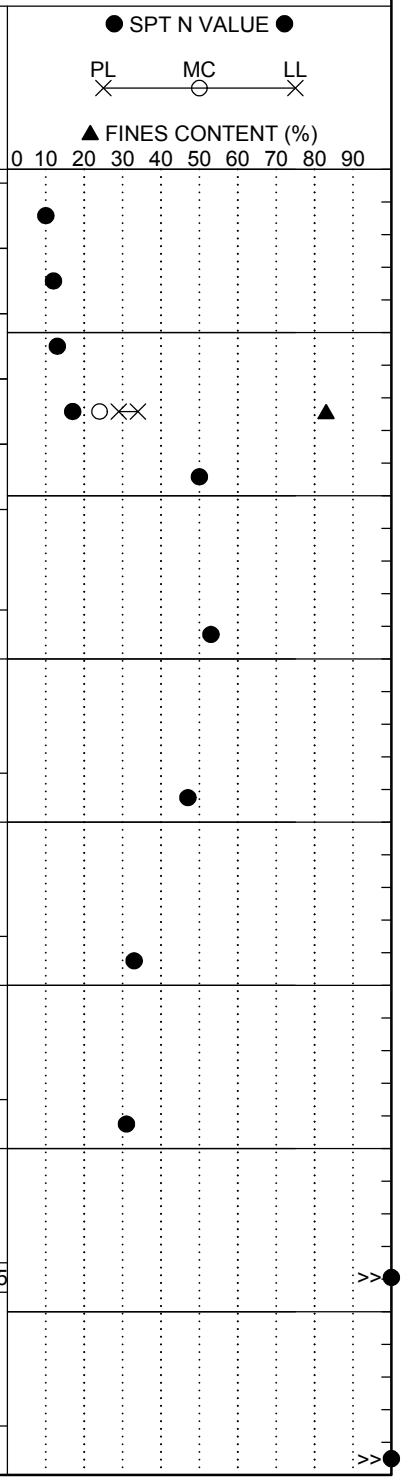
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-252
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+29.92	**Offset:**	51' RT	**Alignment:**	PROP_I26_CL
Elev.:	442.1 ft	**Latitude:**	34.1953845	**Longitude:**	-81.3543051	**Date Started:**	10/16/2017
Total Depth:	53.5 ft	**Soil Depth:**	53.5 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.4					
	0.4	5.00" Asphalt Depth						
	0.7	3.00" Stone Base	2.4	SS-1	7	5	5	10
		FILL						
		Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel	4.4	SS-2	4	5	7	12
437.1	4.4			SS-3	4	3	7	13
	6.4	**RESIDUAL**	6.4					
		Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)		SS-4	6	7	10	17
			8.4					
		Very stiff to hard, moist, brown to grayish brown, Sandy SILT (ML) (A-4)		SS-5	12	22	28	50
432.1		LL=34, PL=29, PI=5, NMC=24.4, %200=83						
			13.5					
				SS-6	17	24	29	53
427.1								
	17.0		18.5					
		Dense, moist, grayish brown, Silty Fine to Medium SAND (SM) (A-4)		SS-7	18	21	26	47
422.1								
	22.0		23.5					
		Hard, moist, tannish brown, Sandy SILT (ML) (A-4)		SS-8	14	14	19	33
417.1								
	27.0		28.5					
		Hard, moist, tannish brown, Sandy SILT (ML) (A-5)		SS-9	17	15	16	31
412.1								
	32.0		33.5					
		PARTIALLY WEATHERED ROCK		SS-10	55	50/3.5		50/3.5
		Extremely dense, moist tannish brown to grayish brown, sampled as Sandy SILT (A-5)						
407.1			38.5					
				SS-11	50/2			50/2



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-252
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+29.92	**Offset:**	51' RT	**Alignment:**	PROP_I26_CL
Elev.:	442.1 ft	**Latitude:**	34.1953845	**Longitude:**	-81.3543051	**Date Started:**	10/16/2017
Total Depth:	53.5 ft	**Soil Depth:**	53.5 ft	**Core Depth:**	ft	**Date Completed:**	10/16/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	42.0	**PARTIALLY WEATHERED ROCK**							
		Extremely dense, moist, grayish brown, sampled as Clayey SAND (SC) (A-2-6)		43.5	SS-12	50/.5			50/.5
397.1				48.5	SS-13	50/.25			50/.25
392.1									
	53.5	Auger refusal at 53.5 feet		53.5	SS-14	50/0			50/0
387.1									
382.1									
377.1									
372.1									
367.1									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

>>

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	P-253	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	1058+38.22	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	338.2 ft	**Latitude:**	34.1718935	**Longitude:**	-81.305839	**Date Started:**	10/3/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	10/3/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff to very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace roots and gravel LL=46, PL=31, PI=15, NMC=23.9, %200=85		0.5					
				2.5	SS-1	35	18	8	17
				4.5	SS-2	6	7	8	16
333.2				6.5	SS-3	3	6	5	11
	6.5	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		8.5	SS-4	4	5	7	14
328.2					SS-5	5	6	5	12
	12.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)		13.5	SS-6	4	5	6	11
323.2									
	17.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		18.5	SS-7	5	6	9	15
318.2									
	22.0	**RESIDUAL** Hard to very hard, moist, light red to brown, Sandy SILT (ML) (A-4)		23.5	SS-8	7	15	18	33
313.2									
				28.5	SS-9	13	23	39	62
308.2									
	32.0	Very hard, moist, light red to brown, Sandy SILT (ML) (A-5)		33.5	SS-10	19	30	45	75
303.2									
	37.0	Very hard, moist, light red to brown, Sandy SILT (ML) (A-5)		38.5	SS-11	18	19	45	64
	40.0								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-253
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1058+38.22	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	338.2 ft	**Latitude:**	34.1718935	**Longitude:**	-81.305839	**Date Started:**	10/3/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	10/3/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 40.0 feet								
293.2										
288.2										
283.2										
278.2										
273.2										
268.2										
263.2										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-254
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1058+05.45	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	339.4 ft	**Latitude:**	34.1718637	**Longitude:**	-81.3057367	**Date Started:**	10/3/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	10/3/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.5	6.00" Asphalt Depth	0.5					
	2.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel	2.5	SS-1	18	8	6	12
	4.0		4.5	SS-2	4	6	7	14
334.4	6.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel	6.5	SS-3	4	6	6	13
	8.0	**FILL** Medium dense, wet, reddish brown, Poorly Graded GRAVEL (GP) (A-1-6)	8.5	SS-4	4	5	6	14
329.4	12.0	**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	13.5	SS-5	6	6	6	12
		FILL Stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		SS-6	6	10	12	22
324.4	17.0	**RESIDUAL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) contains gravel-sized rock fragments	18.5	SS-7	19	29	26	55
319.4		Very hard to hard, moist, Sandy SILT (ML) (A-6) LL=43, PL=36, PI=7, NMC=21.6, %200=71	23.5	SS-8	8	13	17	30
314.4	27.0	Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4)	28.5	SS-9	5	8	13	21
309.4								
304.4	32.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, reddish brown, sampled as Sandy SILT (A-5)	33.5	SS-10	23	50	50/2	100
			38.5	SS-11	24	50/5		100
	40.0							

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-254
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1058+05.45	**Offset:**	46' RT	**Alignment:**	PROP_I26_CL
Elev.:	339.4 ft	**Latitude:**	34.1718637	**Longitude:**	-81.3057367	**Date Started:**	10/3/2017
Total Depth:	40 ft	**Soil Depth:**	40 ft	**Core Depth:**	ft	**Date Completed:**	10/3/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Boring terminated at 40.0 feet								
294.4										
289.4										
284.4										
279.4										
274.4										
269.4										
264.4										

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-255
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1044+26.46	**Offset:**	54' RT	**Alignment:**	PROP_I26_CL
Elev.:	311.6 ft	**Latitude:**	34.1704317	**Longitude:**	-81.3015043	**Date Started:**	10/3/2017
Total Depth:	38.6 ft	**Soil Depth:**	38.6 ft	**Core Depth:**	ft	**Date Completed:**	10/3/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0			0.0						
	0.4	5.00" Topsoil Depth								
	2.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots		2.0	SS-1	5	6	7	17	●
					SS-2	9	11	23	24	●
	4.0			4.0						
306.6		**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5)			SS-3	5	18	40	58	●
	6.0			6.0	SS-4	50/4	27	41	50/6	>>
		RESIDUAL Very hard, moist, reddish tan to brown, Sandy SILT (ML) (A-4)		8.0	SS-5	14	31	50	50/5	>>
301.6		**PARTIALLY WEATHERED ROCK** Very hard, moist to wet, tannish brown, sampled as Sandy SILT (A-4)		13.5	SS-6	50/4			50/4	>>
296.6				18.5	SS-7	18	50/6		50/6	>>
291.6				23.5	SS-8	50/1			50/1	>>
286.6				28.5	SS-9	50/1			50/1	>>
281.6				33.5	SS-10	50/1			50/1	>>
276.6										
	38.6	Auger refusal at 38.6 feet		38.5	SS-11	50/0			50/0	>>

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-256
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1043+88.48	**Offset:**	53' RT	**Alignment:**	PROP_I26_CL
Elev.:	310.0 ft	**Latitude:**	34.1703843	**Longitude:**	-81.3013899	**Date Started:**	10/4/2017
Total Depth:	33.5 ft	**Soil Depth:**	33.5 ft	**Core Depth:**	ft	**Date Completed:**	10/4/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	4.00" Topsoil Depth		0.0	SS-1	7	10	7	17
	2.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		2.0	SS-2	12	11	13	24
305.0	4.0	**FILL** Very stiff, moist, reddish brown, Elastic SILT (MH) (A-5)		4.0	SS-3	1	11	18	29
	6.0	**FILL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace gravel		6.0	SS-4	24	32	50/4	50/4
300.0	8.0	**PARTIALLY WEATHERED ROCK** Vary hard, moist, tannish brown, sampled as Sandy CLAY (CL) (A-6)		8.0	SS-5	50/5			50/5
				13.5	SS-6	50/3			50/3
295.0		**PARTIALLY WEATHERED ROCK** Vary hard, moist, tannish brown, sampled as Sandy SILT (ML) (A-4)		18.5	SS-7	50/4			50/4
290.0				23.5	SS-8	50/1			50/1
285.0				28.5	SS-9	30	50/2		50/2
280.0	33.5	Auger refusal at 33.5 feet		33.5	SS-10	50/0			50/0
275.0									

SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-257
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	873+73.30	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	386.0 ft	**Latitude:**	34.1512072	**Longitude:**	-81.2500866	**Date Started:**	10/2/2017
Total Depth:	25.3 ft	**Soil Depth:**	25.3 ft	**Core Depth:**	ft	**Date Completed:**	10/2/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**RESIDUAL**		0.0					
	2.0	Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with slight roots		2.0	SS-1	4	6	11	17
		Very hard, moist, gray, Sandy SILT (ML) (A-6)		4.0	SS-2	33	32	31	63
381.0	6.0	LL=37, PL=26, PI=11, NMC=15.5, %200=56		6.0	SS-3	16	17	22	29
		Very stiff to hard, moist, brown to grayish brown, Sandy CLAY (CL) (A-4) with slight gravel sized rock fragments		8.0	SS-4	4	12	15	27
376.0					SS-5	8	14	21	35
	12.0	**PARTIALLY WEATHERED ROCK**		13.5					
		Very hard, moist, grayish brown, sampled as Sandy SILT (ML) (A-4)			SS-6	50	50/4		50/4
371.0				18.5					
					SS-7	50/2			50/2
366.0	22.0	**PARTIALLY WEATHERED ROCK**		23.5					
		Very dense, moist, grayish brown, sampled at Silty SAND (SM) (A-4)			SS-8	50/3			50/3
361.0	25.3	Auger refusal at 25.3 feet							
356.0									
351.0									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-258
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	873+24.97	**Offset:**	59' RT	**Alignment:**	PROP_I26_CL
Elev.:	385.8 ft	**Latitude:**	34.1511528	**Longitude:**	-81.2499388	**Date Started:**	10/2/2017
Total Depth:	20 ft	**Soil Depth:**	20.0 ft	**Core Depth:**	ft	**Date Completed:**	10/2/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	2.00" Topsoil Depth		0.0	SS-1	5	6	11	17
	2.0	**RESIDUAL** Very stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace roots		2.0	SS-2	30	42	55	97
	4.0			4.0	SS-3	50/3			50/3
380.8		Very hard, moist, tannish brown, Sandy SILT (ML) (A-4)		6.0	SS-4	50/2			50/2
		PARTIALLY WEATHERED ROCK Moist, tannish brown, sampled as Sandy SILT (ML) (A-4)		8.0	SS-5	50/2			50/2
375.8	12.0								
		PARTIALLY WEATHERED ROCK Extremely dense, moist, tannish brown to grayish brown, sampled as Silty SAND (A-4)		13.5	SS-6	50/2			50/2
370.8				18.5	SS-7	50/1			50/1
365.8	20.0	Auger refusal at 20.0 feet		20.0	SS-8	50/0			50/0
360.8									
355.8									
350.8									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-259
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	807+53.01	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	332.0 ft	**Latitude:**	34.1425749	**Longitude:**	-81.230823	**Date Started:**	9/28/2017
Total Depth:	20.1 ft	**Soil Depth:**	20.1 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, reddish to orangish brown, Clayey SAND (SC) (A-6) with trace gravel LL=31, PL=19, PI=12, NMC=17.7, %200=40		0.5	SS-1	5	2	5	7
				2.5	SS-2	4	4	5	9
327.0				4.5	SS-3	5	3	3	6
	6.0	**FILL** Very stiff, moist, orangish tan, Sandy SILT (ML) (A-4) with trace gravel		6.5	SS-4	3	4	15	19
	8.0			8.5	SS-5	2	3	4	7
322.0		**FILL** Medium stiff, moist, orangish tan, Sandy SILT (ML) (A-5) with trace gravel							
	12.0	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel and roots		13.5	SS-6	2	2	4	6
317.0									
	17.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, grayish brown to gray, sampled as Sandy SILT (ML) (A-5)		18.5	SS-7	8	50/1		50/1
312.0	20.1	Auger refusal at 20.1 feet		20.1	SS-8	50/0			50/0
307.0									
302.0									
297.0									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

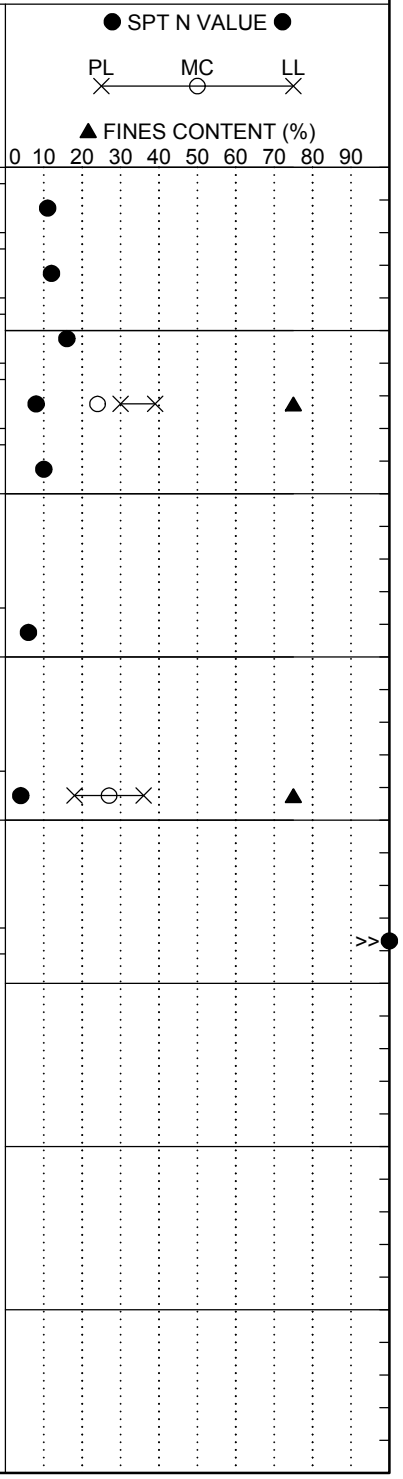
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-260
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	807+15.90	**Offset:**	46' LT	**Alignment:**	PROP_I26_CL
Elev.:	331.0 ft	**Latitude:**	34.1425271	**Longitude:**	-81.2307125	**Date Started:**	9/28/2017
Total Depth:	23.3 ft	**Soil Depth:**	23.3 ft	**Core Depth:**	ft	**Date Completed:**	9/28/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6.00" Asphalt Depth		0.5					
	2.0	**FILL** Stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-5) with trace gravel		2.5	SS-1	6	6	5	11
	4.0			4.5	SS-2	4	6	6	12
326.0	6.0	**FILL** Stiff, moist, orangish brown, Sandy CLAY (CL) (A-6) with trace gravel		6.5	SS-3	6	9	7	16
		FILL Very stiff, moist, tannish brown, Sandy SILT (ML) (A-5) with trace gravel		8.5	SS-4	2	3	5	8
321.0	12.0	**FILL** Medium stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-4) LL=39, PL=30, PI=9, NMC=24.2, %200=75		13.5	SS-5	3	5	5	10
316.0	17.0	**RESIDUAL** Medium stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-5) with trace gravel-sized rock fragments		18.5	SS-6	3	3	3	6
311.0	23.3	Soft, moist, orangish tan to brown, Sandy CLAY (CL) (A-7-6) LL=36, PL=18, PI=18, NMC=26.9, %200=74		23.3	SS-7	3	2	2	4
306.0		Auger refusal at 23.3 feet			SS-8	50/0			50/0
301.0									
296.0									



LEGEND

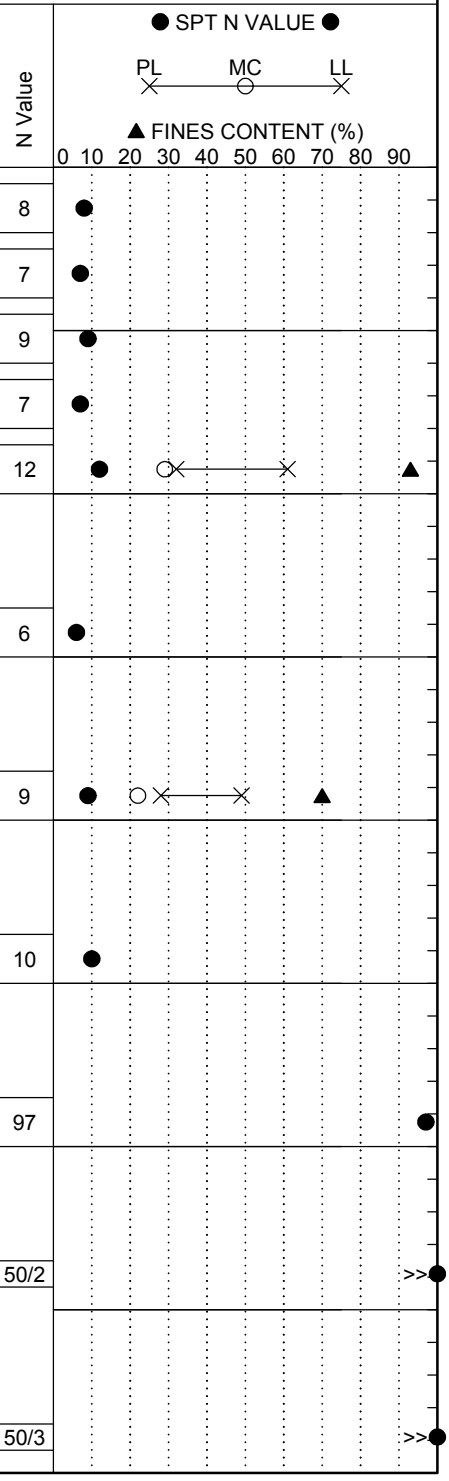
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-261
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	704+31.40	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	378.1 ft	**Latitude:**	34.1264165	**Longitude:**	-81.2033615	**Date Started:**	9/29/2017
Total Depth:	39.3 ft	**Soil Depth:**	39.3 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.5	SS-1	4	4	4	8
	0.3	3.50" Asphalt Depth	2.5	SS-2	4	3	4	7
	0.6	3.00" Stone Base	4.5	SS-3	3	4	5	9
373.1	2.0	**FILL** Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel and mica	6.5	SS-4	3	3	4	7
	6.0	**FILL** Medium stiff to stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with trace gravel	8.5	SS-5	4	5	7	12
368.1	8.0	**FILL** Medium stiff, moist, orangish tan, Sandy SILT (ML) (A-5)	13.5	SS-6	4	3	3	6
363.1	17.0	**FILL** Stiff to medium stiff, moist, orangish tan, Elastic SILT (MH) (A-7-5) LL=61, PL=32, PI=29, NMC=29.1, %200=93	18.5	SS-7	4	4	5	9
358.1		**FILL** Stiff, moist, orangish tan, Sandy CLAY (CL) (A-7-6) with trace gravel LL=49, PL=28, PI=21, NMC=22.2, %200=70	23.5	SS-8	5	4	6	10
353.1	27.0	**RESIDUAL** Very hard, moist, tan, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments	28.5	SS-9	29	48	49	97
348.1	32.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, tan to tannish gray, sampled as Sandy SILT (ML) (A-4)	33.5	SS-10	22	50/2		50/2
343.1			38.5	SS-11	27	50/3		50/3
	39.3	Auger refusal at 39.3 feet						



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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-262
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	704+13.84	**Offset:**	44' LT	**Alignment:**	PROP_I26_CL
Elev.:	378.1 ft	**Latitude:**	34.1263824	**Longitude:**	-81.2033187	**Date Started:**	9/29/2017
Total Depth:	28.9 ft	**Soil Depth:**	28.9 ft	**Core Depth:**	ft	**Date Completed:**	9/29/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.5	SS-1	4	2	4	6
	0.3	4.00" Asphalt Depth	2.5	SS-2	3	5	7	12
	0.6	3.00" Stone Base	4.5	SS-3	5	7	4	11
373.1	6.0	**FILL** Medium stiff to stiff, moist, orangish brown to tan, Elastic SILT (MH) (A-7-5) with trace gravel. LL=59, PL=42, PI=17, NMC=30.1, %200=85	6.5	SS-4	4	5	7	12
368.1		**FILL** Stiff, moist, orangish tan, Elasic SILT (MH) (A-7). LL=53, PL=30, PI=23, NMC=30.2, %200=87	8.5	SS-5	3	4	5	9
363.1	17.0	**RESIDUAL** Medium stiff to stiff, moist, gray to orangish brown, Plastic CLAY (CH) (A-7). LL=56, PL=30, PI=26, NMC=30, %200=91	13.5	SS-6	4	6	6	12
358.1			18.5	SS-7	4	3	5	8
353.1			23.5	SS-8	4	4	5	9
348.1	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tan, sampled as Silty SAND (A-4)	28.5					
	28.9	Auger refusal at 28.9 feet	28.9	~~SS-9~~	~~50/2~~			~~50/2~~
				~~SS-10~~	~~50/0~~			~~50/0~~
343.1								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-263
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1435+73.79	**Offset:**	64' LT	**Alignment:**	PROP_I26_CL
Elev.:	429.7 ft	**Latitude:**	34.2215097	**Longitude:**	-81.4147084	**Date Started:**	9/5/2017
Total Depth:	36.5 ft	**Soil Depth:**	36.5 ft	**Core Depth:**	ft	**Date Completed:**	9/5/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	DIEDRICH D120	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	96%
Core Size:		**Driller:**	M&W	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Loose, moist, tannish brown, Clayey SAND (SC) (A-2-6) with trace gravel	0.5	SS-1	4	4	5	9
	2.0	**FILL** Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-6)	2.5	SS-2	2	4	4	8
424.7	6.0	**RESIDUAL** Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4) with trace mica	4.5	SS-3	3	4	4	8
	8.0		6.5	SS-4	3	4	6	10
419.7		Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7) LL=48, PL=30, PI=18, NMC=24.5, %200=72	8.5	SS-5	4	6	7	13
			13.5	SS-6	2	3	4	7
414.7	17.0	**PARTIALLY WEATHERED ROCK** Very hard, moist, orangish tan to brown, sampled as Sandy SILT (A-5)	18.5	SS-7	10	50/4		50/4
409.7	22.0	Medium dense, moist, tannish brown to gray, Clayey SAND (SC) (A-2-6)	23.5	SS-8	4	12	11	23
404.7	27.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-2-4)	28.5	SS-9	50/1			50/1
399.7	32.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown, sampled as Silty SAND (A-4)	33.5	SS-10	50/3			50/3
394.7	36.5	Auger refusal at 36.5 feet	36.5	SS-11	50/0			50/0

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-264
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+67.72	**Offset:**	7' RT	**Alignment:**	PROP_I26_CL
Elev.:	442.2 ft	**Latitude:**	34.1953383	**Longitude:**	-81.3544908	**Date Started:**	8/24/2017
Total Depth:	38.5 ft	**Soil Depth:**	38.5 ft	**Core Depth:**	ft	**Date Completed:**	8/24/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL**		1.0					
	2.0	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)			SS-1	5	5	9	14
		RESIDUAL		3.5					
437.2		Very stiff to hard, moist, tannish brown, Sandy SILT (ML) (A-5)			SS-2	7	11	13	24
		LL=37, PL=35, PI=2, NMC=24.0, %200=85		6.0					
					SS-3	10	9	10	19
				8.5					
432.2					SS-4	6	8	12	20
				13.5					
					SS-5	15	14	18	32
427.2									
	17.0	Very hard, moist, tannish brown, Sandy SILT (ML) (A-4)		18.5					
					SS-6	21	27	36	83
422.2									
				23.5					
					SS-7	24	28	35	63
417.2									
	27.0	**PARTIALLY WEATHERED ROCK**		28.5					
		Very hard, moist, grayish brown to gray, sampled as Sandy SILT (ML) (A-4)			SS-8	42	50/4		50/4
412.2									
				33.5					
					SS-9	50/.5			50/.5
407.2									
	38.5	Auger refusal at 38.5		38.5	SS-10	50/0			50/0

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

SC_DOT ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

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:	029208			**County:**	Lexington	**Boring No.:**	P-265
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+30.81	**Offset:**	15' RT	**Alignment:**	PROP_I26_CL
Elev.:	442.0 ft	**Latitude:**	34.1953003	**Longitude:**	-81.3543728	**Date Started:**	8/23/2017
Total Depth:	58.5 ft	**Soil Depth:**	58.5 ft	**Core Depth:**	ft	**Date Completed:**	8/23/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Medium dense, moist, reddish brown, Silty SAND (SM) (A-4)		1.0	SS-1	10	8	9	17
	3.0	**RESIDUAL**		3.5	SS-2	3	6	7	13
437.0		Stiff to very stiff, moist, orangish tan to dark brown, Sandy SILT (ML) (A-4)		6.0	SS-3	9	11	14	25
	8.0			8.5	SS-4	9	13	20	33
432.0		Hard to very hard, moist, tannish brown to gray, Sandy SILT (ML) (A-4)		13.5	SS-5	18	23	33	56
427.0				18.5	SS-6	25	34	46	80
422.0	22.0	**PARTIALLY WEATHERED ROCK**		23.5	SS-7	50/5			50/5
417.0		Very hard, moist to wet, orangish tan to grayish brown, sampled as Sandy SILT (A-4)		28.5	SS-8	50/2			50/2
412.0				33.5	SS-9	50/3			50/3
407.0				38.5	SS-10	50/3			50/3

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-265
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1229+30.81	**Offset:**	15' RT	**Alignment:**	PROP_I26_CL
Elev.:	442.0 ft	**Latitude:**	34.1953003	**Longitude:**	-81.3543728	**Date Started:**	8/23/2017
Total Depth:	58.5 ft	**Soil Depth:**	58.5 ft	**Core Depth:**	ft	**Date Completed:**	8/23/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
397.0				43.5	SS-11	50/2			50/2
392.0				48.5	SS-12	50/1			50/1
387.0				53.5	SS-13	50/2			50/2
	58.5	Auger refusal at 58.5 feet		58.5	SS-14	50/0			50/0
382.0									
377.0									
372.0									
367.0									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	P-266
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	1133+29.86	**Offset:**	47' LT	**Alignment:**	PROP_I26_CL
Elev.:	360.1 ft	**Latitude:**	34.1803849	**Longitude:**	-81.3281957	**Date Started:**	10/6/2017
Total Depth:	38.6 ft	**Soil Depth:**	38.6 ft	**Core Depth:**	ft	**Date Completed:**	10/6/2017
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	80%
Core Size:		**Driller:**	Soil Consultants, Inc	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	**FILL** Stiff, moist, reddish brown, Elastic SILT (MH) (A-5) with trace gravel		0.3	SS-1	7	7	6	13
	2.0			2.3	SS-2	6	7	7	14
355.1		**FILL** Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots and gravel		4.3	SS-3	3	5	6	11
				6.3	SS-4	3	5	5	10
	8.0	**FILL** Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)		8.3	SS-5	2	4	4	8
350.1	12.0	**FILL** Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-5)		13.5	SS-6	1	4	4	8
345.1	17.0	**RESIDUAL** Stiff, moist, reddish brown to gray, Plastic CLAY (CH) (A-7-6) LL=51, PL=26, PI=25, NMC=32, %200=80		18.5	SS-7	3	5	4	9
340.1	22.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, reddish brown to grayish brown, sampled as Silty SAND (A-4)		23.5	SS-8	36	50/4		50/4
335.1				28.5	SS-9	50/2			50/2
330.1				33.5	SS-10	50/2			50/2
325.1									
	38.6	Auger refusal at 38.6 feet		38.5	SS-11	50/1			50/1

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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 ECS-DATA_SCDOT-TRAPPHARRISFORMAT(10-9-17).GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 1/12/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington	**Boring No.:**	SW-1	
Site Description:	I-26 WIDENING PROJECT MM85-MM101				**Route:**	I-26	
Eng./Geo.:	M. Bailey	**Boring Location:**	925+29.48	**Offset:**	126' RT	**Alignment:**	PROPOSED
Elev.:	386.2 ft	**Latitude:**	34.1571924	**Longitude:**	-81.2655341	**Date Started:**	5/2/2018
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	5/2/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** GNE	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.1	1.00" Topsoil Depth	0.1	SS-1	2	4	10	14
	1.8	**RESIDUAL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-7-6) with trace gravel	2.0	SS-2	20	38	50/6	50/6
381.2		LL=42, PL=19, PI=23, NMC=19.6, %200=50	4.0	SS-3	41	50/2		50/2
			6.0	SS-4	50/5			50/5
	7.8	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish brown to redish brown, sampled as Silty, Clayey SAND (SC-SM) (A-2-4) with trace gravel	8.0	SS-5	12	26	47	73
376.2	10.8	LL=24, PL=19, PI=5, NMC=7.9 %200=33	13.5	SS-6	11	18	24	42
371.2		**RESIDUAL** Very dense, moist, reddish brown, Silty SAND (SM) (A-2-4)	18.5	SS-7	50/4			50/4
366.2	20.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, reddish brown, sampled as Silty SAND (SM) (A-4)						
		Boring Terminated at 20 feet						
361.2								
356.2								
351.2								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

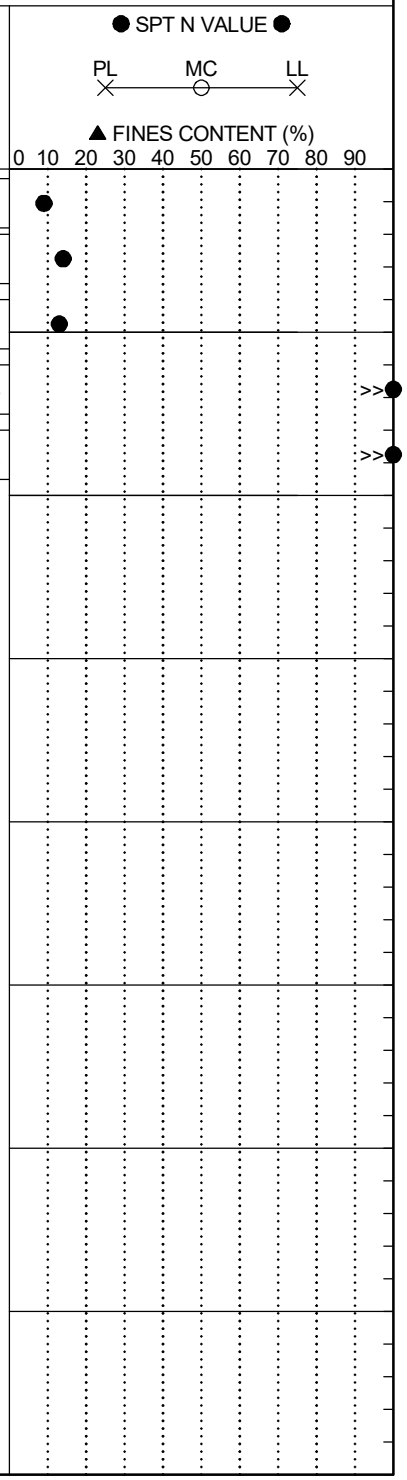
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	SW-2
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	899+62.49	**Offset:**	82' RT	**Alignment:**	PROPOSED
Elev.:	375.7 ft	**Latitude:**	34.1541878	**Longitude:**	-81.2578584	**Date Started:**	5/1/2018
Total Depth:	10 ft	**Soil Depth:**	10 ft	**Core Depth:**	ft	**Date Completed:**	5/1/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 1.0 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.3	3.00" Topsoil Depth	0.3					
	1.8	**FILL** Stiff, moist, reddish brown, Sandy CLAY (CL) (A-6) with trace organics	2.0	SS-1	2	5	4	9
			4.0	SS-2	4	7	7	14
370.7	5.8	**RESIDUAL** Stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6)		SS-3	2	5	8	13
		LL=42, PL=24, PI=18, NMC=20.3	6.0	SS-4	19	48	50/3	50/3
		%200=74	8.0	SS-5	50/2			50/2
365.7	10.0	**PARTIALLY WEATHERED ROCK** Extremely dense, moist, reddish brown, sampled as Silty SAND (SM) (A-2-4)						
360.7		Boring Terminated at 10 feet due to equipment loss in hole. Boring SW-2A was offset 7 feet from SW-2.						
355.7								
350.7								
345.7								
340.7								



LEGEND

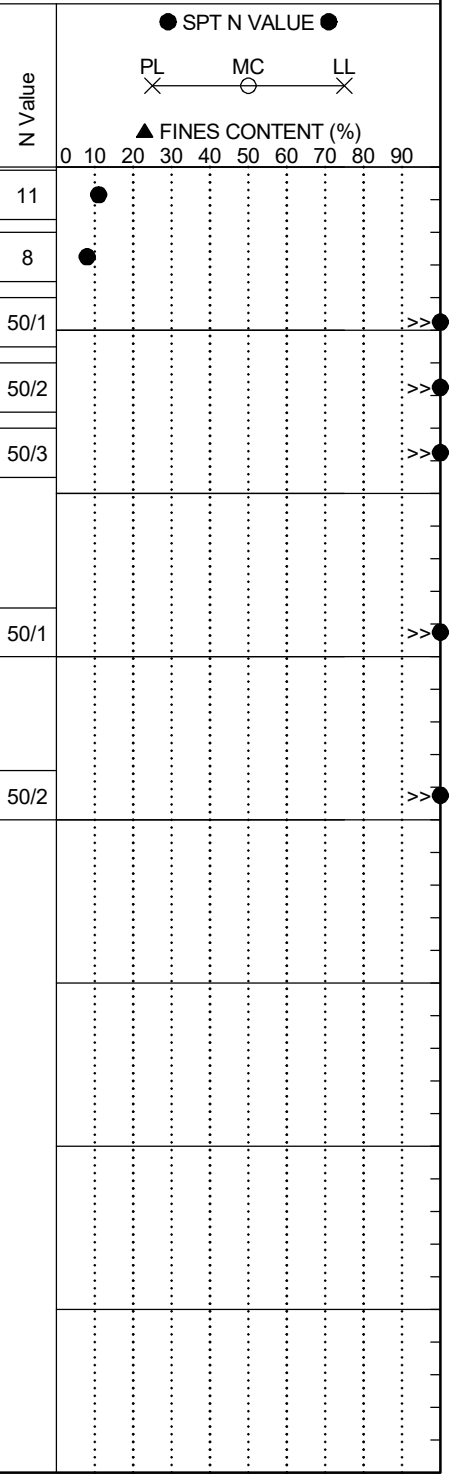
SAMPLER TYPE		DRILLING METHOD	
SS - Split Spoon	NQ - Rock Core, 1-7/8"	HSA - Hollow Stem Auger	RW - Rotary Wash
UD - Undisturbed Sample	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SC_DOT I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

SCDOT Soil Test Log

Project ID:	029208		**County:**	Lexington		**Boring No.:**	SW-2A
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	899+57.53	**Offset:**	82' RT	**Alignment:**	PROPOSED
Elev.:	375.5 ft	**Latitude:**	34.1541806	**Longitude:**	-81.2578443	**Date Started:**	5/1/2018
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	5/1/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 1.0 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.1	1.00" Topsoil Depth		0.1	SS-1	4	5	6	11
	1.8	**FILL** Stiff, moist, tannish brown, Sandy CLAY (CL) (A-6) with trace organics		2.0	SS-2	4	4	4	8
	3.8			4.0	SS-3	10	42	50/1	50/1
370.5	5.8	**RESIDUAL** Firm, moist, grayish brown, Sandy CLAY (CL) (A-6) with trace rock LL=35, PL=18, PI=17, NMC=19.8 %200=73		6.0	SS-4	50/2			50/2
				8.0	SS-5	50/3			50/3
365.5		**PARTIALLY WEATHERED ROCK** Very hard, moist, tannish gray, sampled as Sandy SILT (ML) (A-4)		13.5	SS-6	50/1			50/1
360.5		**PARTIALLY WEATHERED ROCK** Extremely dense, moist, tannish gray, sampled as Silty SAND (SM) (A-2-4)		18.5	SS-7	50/2			50/2
355.5	20.0	Boring Terminated at 20 feet							
350.5									
345.5									
340.5									



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 I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	SW-3
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	786+71.90	**Offset:**	117' LT	**Alignment:**	PROPOSED
Elev.:	353.5 ft	**Latitude:**	34.1396687	**Longitude:**	-81.2248938	**Date Started:**	5/2/2018
Total Depth:	25 ft	**Soil Depth:**	25 ft	**Core Depth:**	ft	**Date Completed:**	5/2/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 2.5 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.8	10.00" Topsoil Depth	0.8					
	1.8	**FILL** Stiff, moist, grayish black, Sandy SILT (ML) (A-4) with trace organics	2.0	SS-1	3	3	6	9
				SS-2	3	4	6	10
			4.0					
348.5		**RESIDUAL**		SS-3	3	6	8	14
	5.8	Loose to medium dense, moist, orangeish yellow, Clayey GRAVEL with Sand (GC) (A-7-6)	6.0					
				SS-4	4	9	12	21
			8.0					
		LL=59, PL=29, PI=30, NMC=23.5 %200=47		SS-5	6	10	12	22
343.5								
		Very stiff, moist, orangeish yellow, Sandy SILT (ML) (A-4)	13.5					
				SS-6	6	10	13	23
338.5		LL=37, PL=33, PI=4, NMC=12.8 %200=72						
	17.8		18.5					
		Very hard, moist, orangeish tan, Clayey SILT (ML) (A-5) with trace gravel		SS-7	6	14	49	63
333.5								
	21.8	**PARTIALLY WEATHERED ROCK**						
		Extremely dense, moist, orangeish tan, Silty Sand (SM) (A-2-4)	23.5					
				SS-8	19	50/5		50/5
328.5	25.0	Boring Terminated at 25 feet						
323.5								
318.5								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

SCDOT Soil Test Log

Project ID:	029208	**County:**	Lexington	**Boring No.:**	SW-4		
Site Description:	I-26 WIDENING PROJECT MM85-MM101			**Route:**	I-26		
Eng./Geo.:	M. Bailey	**Boring Location:**	778+29.65	**Offset:**	110' LT	**Alignment:**	PROPOSED
Elev.:	370.5 ft	**Latitude:**	34.1385789	**Longitude:**	-81.2224377	**Date Started:**	5/2/2018
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	5/2/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 3.0 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.2	2.00" Topsoil Depth	0.2	SS-1	3	3	3	6
	1.8	**RESIDUAL** Firm, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace organics	2.0	SS-2	6	22	38	60
365.5		LL=63, PL=26, PI=37, NMC=23.0 %200=54	4.0	SS-3	13	37	37	74
			6.0	SS-4	11	23	36	59
	7.8	Very hard, moist, orangeish tan to grayish tan, Sandy SILT (ML) (A-4)	8.0	SS-5	26	49	50/3	50/3
360.5		LL=32, PL=26, PI=6, NMC=6.8 %200=79						
		PARTIALLY WEATHERED ROCK Very hard, moist, grayish tan, sampled as Sandy SILT (ML) (A-4)	13.5	SS-6	19	50/4		50/4
355.5			18.5	SS-7	50/3			50/3
350.5	20.0	Boring Terminated at 20 feet						
345.5								
340.5								
335.5								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

SCDOT Soil Test Log

Project ID:	029208			**County:**	Lexington	**Boring No.:**	SW-5
Site Description:	I-26 WIDENING PROJECT MM85-MM101					**Route:**	I-26
Eng./Geo.:	M. Bailey	**Boring Location:**	769+10.36	**Offset:**	88' LT	**Alignment:**	PROPOSED
Elev.:	371.6 ft	**Latitude:**	34.1374231	**Longitude:**	-81.2197349	**Date Started:**	5/2/2018
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	ft	**Date Completed:**	5/2/2018
Bore Hole Diameter (in):	2.25	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	2.25 HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	90%
Core Size:		**Driller:**	Soil Consultants	**Groundwater:**	**TOB** 2.5 ft	**24HR**	GNE

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.2	2.00" Topsoil Depth	0.2	SS-1	3	5	8	13
	1.8	**RESIDUAL** Stiff, moist, grayish yellow, Sandy SILT (ML) (A-4) with trace organics	2.0	SS-2	5	9	12	21
	3.8		4.0	SS-3	8	16	50/5	50/5
366.6		Very stiff, moist, orangeish yellow, Plastic CLAY (CH) (A-7-6) with trace gravel	6.0	SS-4	19	32	50/2	50/2
	7.8	LL=52, PL=27, PI=25, NMC=24.2 %200=81	8.0	SS-5	50/1			50/1
361.6		**PARTIALLY WEATHERED ROCK** Very hard, moist, tanish brown, Sandy SILT (ML) (A-4)	13.5	SS-6	50/5			50/5
		PARTIALLY WEATHERED ROCK Very hard, moist, tannish brown, sampled as Silty SAND (SM) (A-4)	18.5	SS-7	50/1			50/1
356.6		LL=28, PL=24, PI=4, NMC=11.0 %200=43						
351.6	20.0	Boring Terminated at 20 feet						
346.6								
341.6								
336.6								

SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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 I-26WIDENING_029208_ECS_08-11888.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/15/18

Appendix IV - Rock Classification and Photo Logs

Compressive Strength of Rock Cores

Rock Core Photos

Shelby Tube Photos

I-26 WIDENING PROJECT MM85-MM101
Lexington County, South Carolina
SCDOT Project ID: 029208, ECS Project No. 11888

TABLE 2.1 - Compressive Strength of Rock Cores

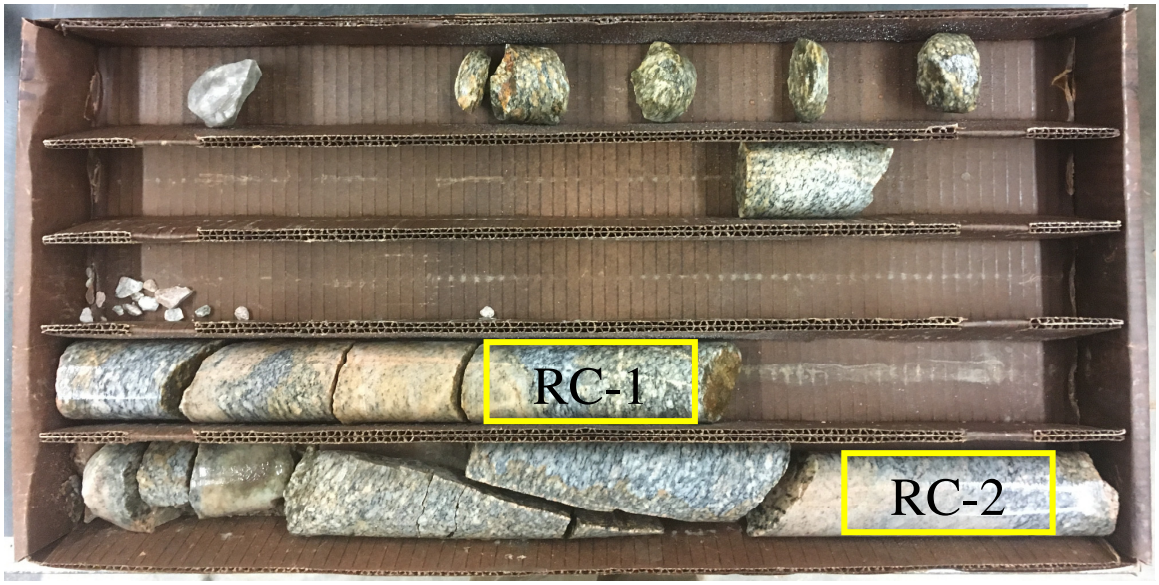
Rock Core Designation	Boring Number	Depth of Sample (ft)	Length After Cutting (in)	Diameter (in)	Load (lbs)	Adjusted Area[1] (in^2)	L/D Ratio	Compressive Strength (psi)
RC-1	B-1	85.8	4.380	1.972	29371	3.057	2.22	9513.0
RC-2	B-1	88.1	4.411	1.975	30673	3.086	2.23	9939.6
RC-3	B-2	91.5	4.400	1.994	34246	3.151	2.21	10866.8
RC-4	B-2	99.8	4.247	1.984	39666	3.115	2.14	12733.9
RC-5	B-2	101.6	4.457	1.986	44911	3.144	2.24	14283.2
RC-6	B-5	93.2	3.980	1.977	41135	3.104	2.01	13252.0
RC-7	B-5	101.2	4.072	1.989	28356	3.173	2.05	8935.6
RC-8	B-5	106.3	4.277	1.973	54249	3.092	2.17	17544.7
RC-9	B-10	73.1	4.298	1.972	17736	3.089	2.18	5740.8
RC-10	B-10	74.3	4.364	1.974	8518	3.079	2.21	2766.0
RC-11	B-11	71.1	4.343	1.979	15506	3.096	2.19	5008.5
RC-12	B-11	82.1	4.346	1.977	17742	3.095	2.20	5731.7
RC-13	B-12	52.8	4.578	1.921	26023	2.937	2.36	8859.7
RC-14	B-12	63.1	4.394	1.928	34715	2.947	2.28	11779.9
RC-15	B-12	67.1	4.339	1.931	42647	2.968	2.25	14371.1
RC-16	B-13	8.2	4.224	1.873	16291	2.772	2.26	5877.7
RC-17	B-13	17.4	4.225	1.871	18333	2.768	2.26	6623.8
RC-18	B-13	19.3	4.451	1.871	17854	2.765	2.38	6457.3
RC-19	B-14	10.7	4.336	1.985	25974	3.116	2.18	8335.1
RC-20	B-14	16.0	4.373	1.980	22772	3.114	2.21	7312.9
RC-21	B-14	25.9	4.505	1.981	16285	3.101	2.27	5251.9
RC-22	B-15	15.2	4.153	1.982	9614	3.107	2.10	3094.3
RC-23	B-15	18.3	4.447	1.979	12489	3.086	2.25	4047.4
RC-24	B-15	20.2	4.232	1.984	9171	3.108	2.13	2951.1
RC-25	B-16	73.3	4.063	1.939	12240	2.982	2.10	4104.3
RC-26	B-16	83.5	4.331	1.938	12225	2.964	2.23	4125.2
RC-27	B-16	86.0	4.311	1.939	8894	2.991	2.22	2973.6
RC-28	B-17	57.3	4.032	1.978	20023	3.095	2.04	6469.2
RC-29	B-17	62.5	4.034	1.986	13458	3.113	2.03	4322.9
RC-30	B-17	67.9	4.324	1.985	6760	3.106	2.18	2176.3
RC-31	B-18	59.7	4.428	1.916	14077	2.898	2.31	4857.0
RC-32	B-18	69.9	4.388	1.963	21987	3.045	2.24	7220.3
RC-33	B-18	78.0	4.318	1.950	17163	3.012	2.21	5697.7
RC-34	B-19	46.2	4.371	1.972	6906	3.079	2.22	2243.0
RC-35	B-19	48.1	4.251	1.974	3104	3.084	2.15	1006.4
RC-36	B-19	55.3	4.372	1.976	6881	3.028	2.21	2235.6
RC-37	B-20	41.5	4.336	1.969	4984	3.068	2.20	1624.3
RC-38	B-20	47.5	4.298	1.972	4216	3.065	2.18	1375.5
RC-39	B-20	54.7	4.343	1.971	8193	3.082	2.20	2658.0
RC-40	B-21	43.2	4.139	1.962	8776	3.040	2.11	2886.6
RC-41	B-21	47.4	4.164	1.978	32479	3.111	2.11	10440.2
RC-42	B-21	55.6	3.824	1.966	5166	3.042	1.94	1698.2

(1) Adjusted area calculated based on strain during compressive strength testing

BEGIN CORING 66.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



END CORING 88.7’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-1

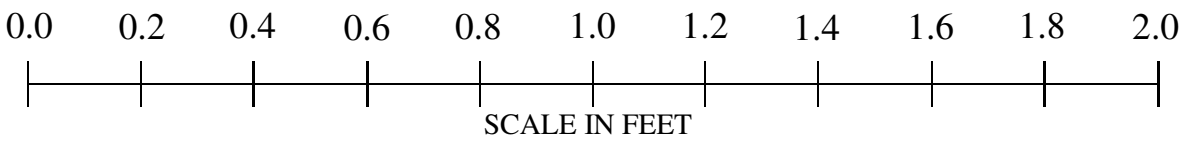
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

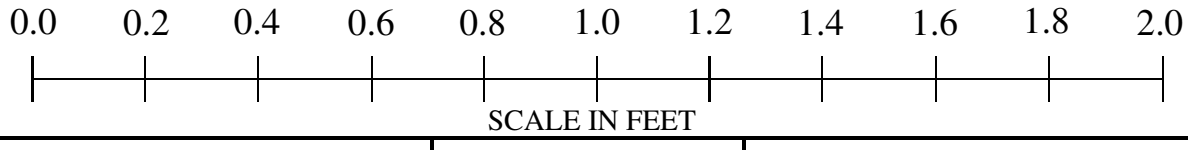
Bridge 10

Rock Core Photographs
Pomaria Street Overpass Over I-26
Route SC-202

ECS Project No: 08-11888

BEGIN CORING 84.7’





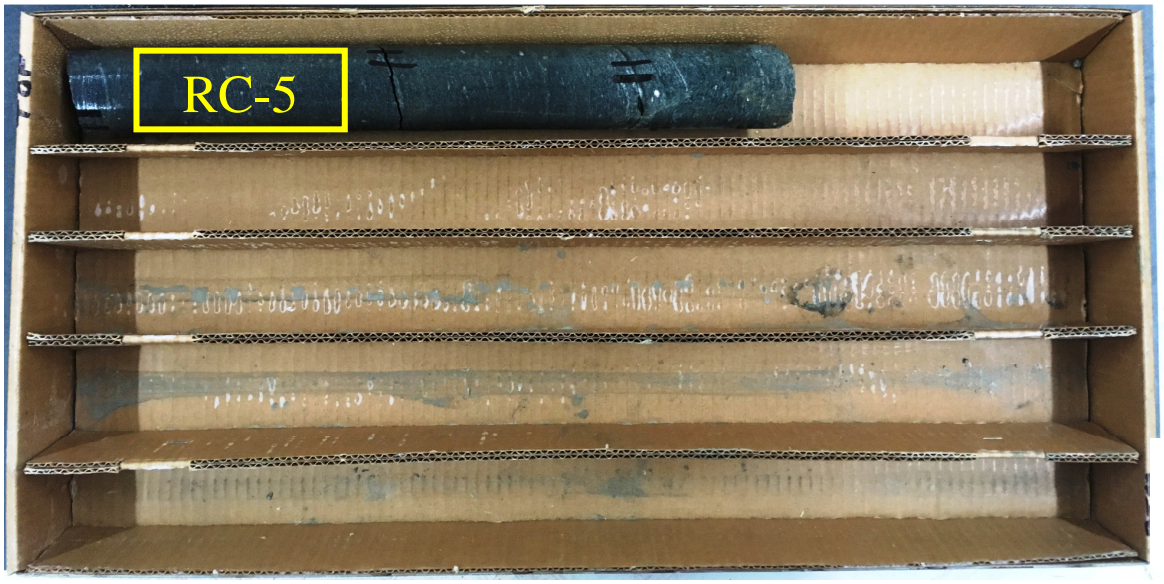
B-2

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 10

Rock Core Photographs
Pomaria Street Overpass Over I-26
Route SC-202

ECS Project No: 08-11888



END
CORING
103.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-2

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry
Counties, South Carolina

Bridge 10

Rock Core Photographs
Pomaria Street Overpass Over I-26
Route SC-202

ECS Project No: 08-11888

BEGIN CORING 92.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

END CORING 112.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-5

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 9

Rock Core Photographs
Parr Road Overpass Over I-26
Route S-167

ECS Project No: 08-11888

BEGIN CORING 71.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

END CORING 83.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-10

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 7

Rock Core Photographs
Peak Street Overpass Over I-26
Route S-49

ECS Project No: 08-11888

BEGIN CORING 63.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

END CORING 83.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-11

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 7

Rock Core Photographs
Peak Street Overpass Over I-26
Route S-49

ECS Project No: 08-11888

BEGIN CORING 50.5’

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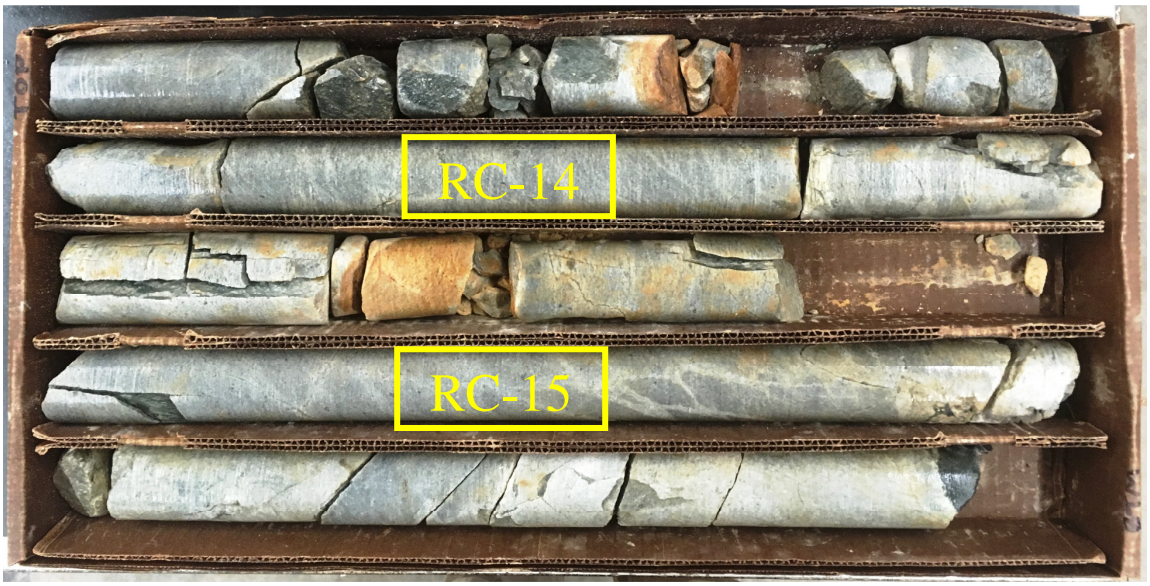
SCALE IN FEET



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SCALE IN FEET

B-12

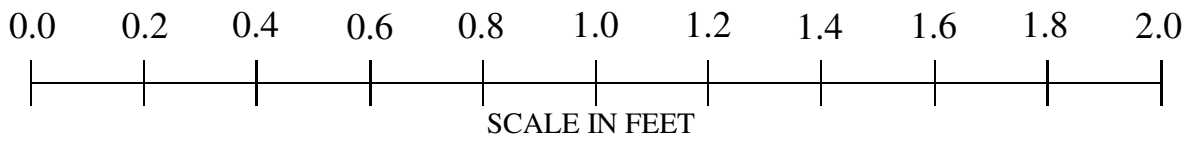
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 7

Rock Core Photographs
Peak Street Overpass Over I-26
Route S-49

ECS Project No: 08-11888

END
CORING
72.0’



B-12

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 7

Rock Core Photographs
Peak Street Overpass Over I-26
Route S-49

ECS Project No: 08-11888

BEGIN CORING 6.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-13

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

END
CORING
26.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-13

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry
Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

BEGIN CORING 7.9’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-14

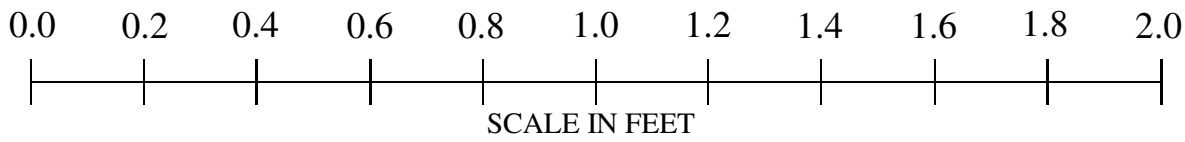
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

END
CORING
28.0’



SCALE IN FEET

B-14

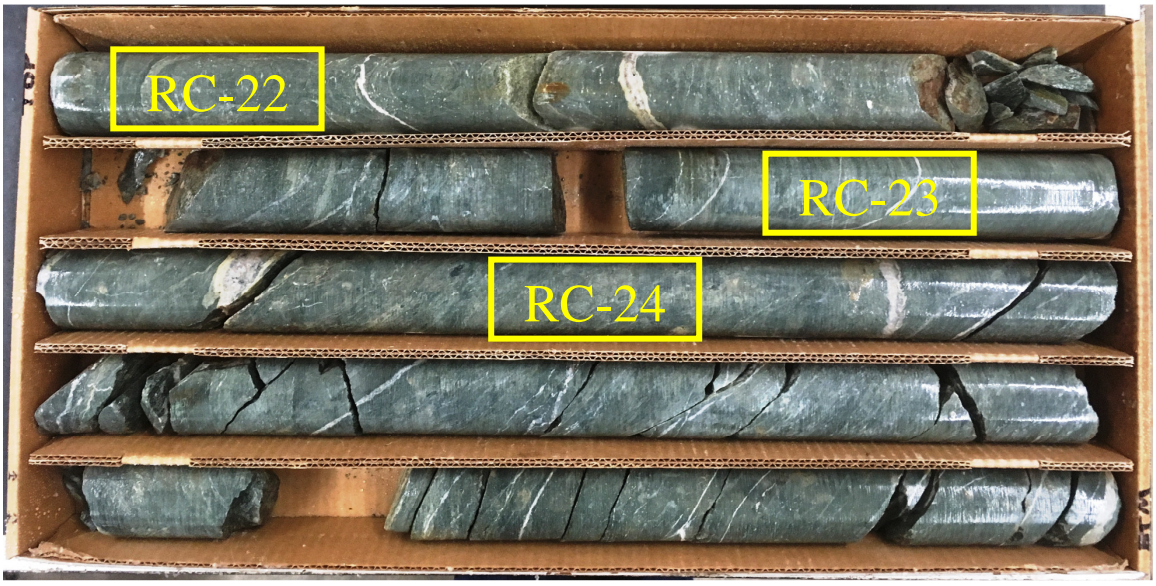
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

BEGIN CORING 15.0’



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-15

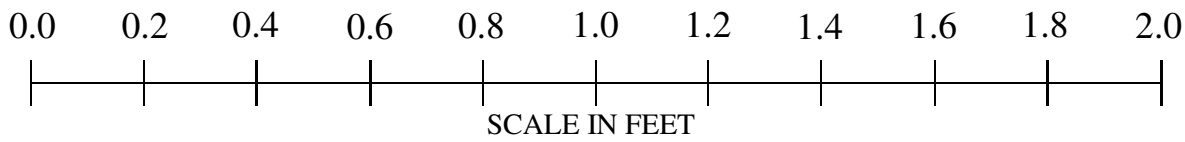
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

END
CORING
37.0’



B-15

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 5

Rock Core Photographs
Old Hilton Road Overpass Over I-26
Route S-405

ECS Project No: 08-11888

BEGIN CORING 72.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

END CORING 93.2’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-16

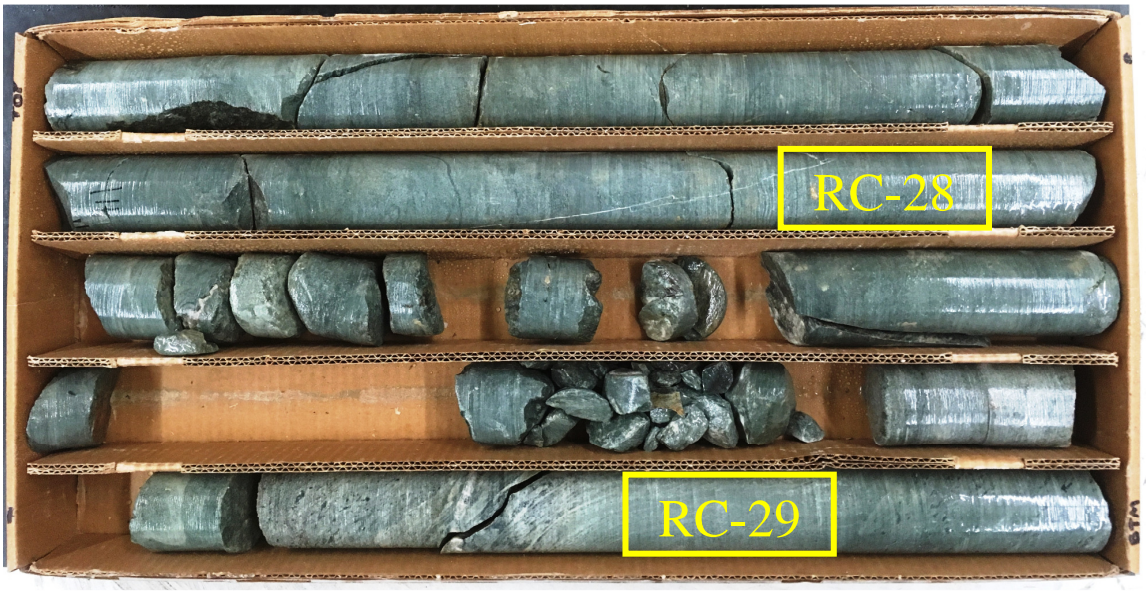
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 4

Rock Core Photographs
Mt. Vernon Church Road
Overpass Over I-26
Route S-234

ECS Project No: 08-11888

BEGIN CORING 53.5’



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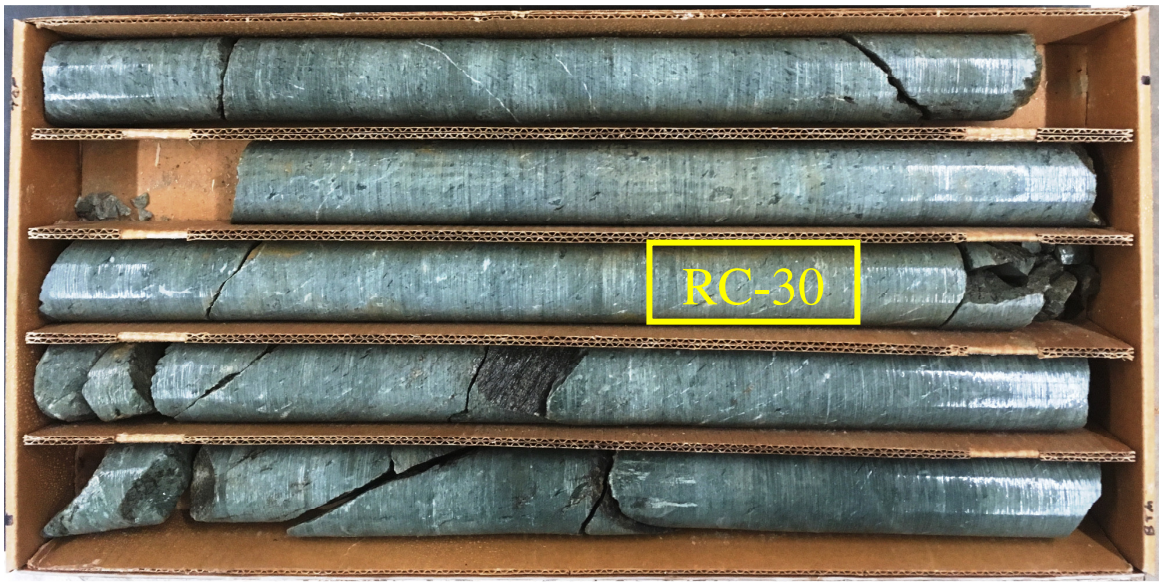
SCALE IN FEET



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SCALE IN FEET

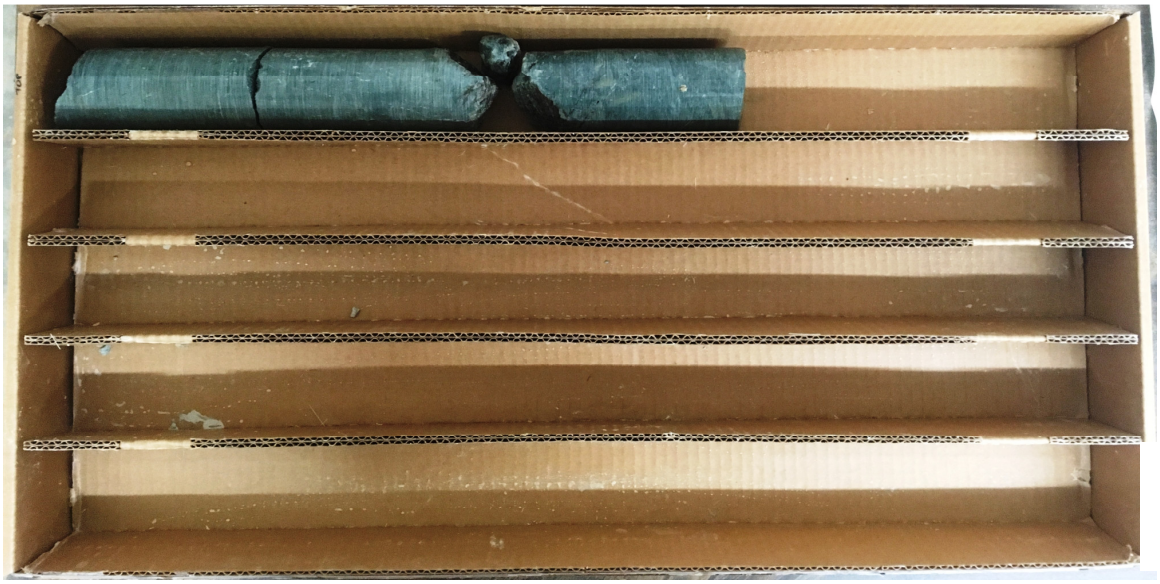
B-17

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

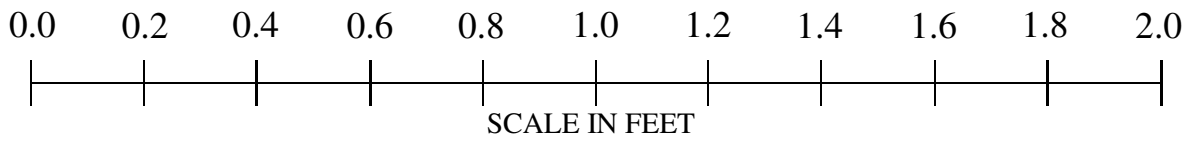
Bridge 4

Rock Core Photographs
Mt. Vernon Church Road
Overpass Over I-26
Route S-234

ECS Project No: 08-11888



END
CORING
73.5’



B-17

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 4

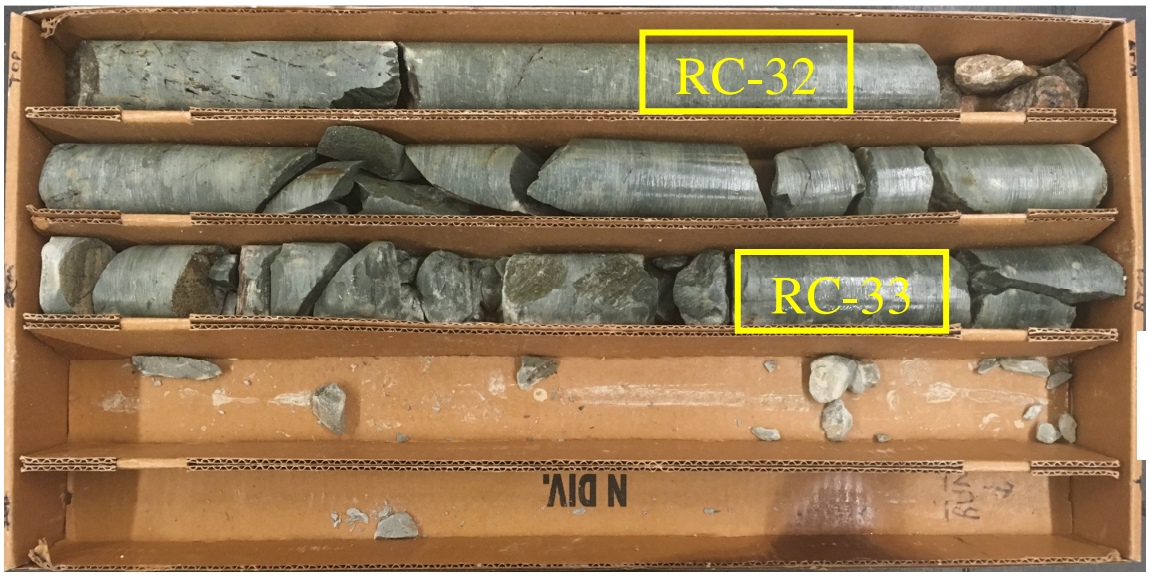
Rock Core Photographs
Mt. Vernon Church Road
Overpass Over I-26
Route S-234

ECS Project No: 08-11888

BEGIN CORING 58.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



END CORING 79.8’

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SCALE IN FEET

B-18

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 4

Rock Core Photographs
Mt. Vernon Church Road
Overpass Over I-26
Route S-234

ECS Project No: 08-11888

BEGIN CORING 37.4’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

END CORING 57.4’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

B-19

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 3

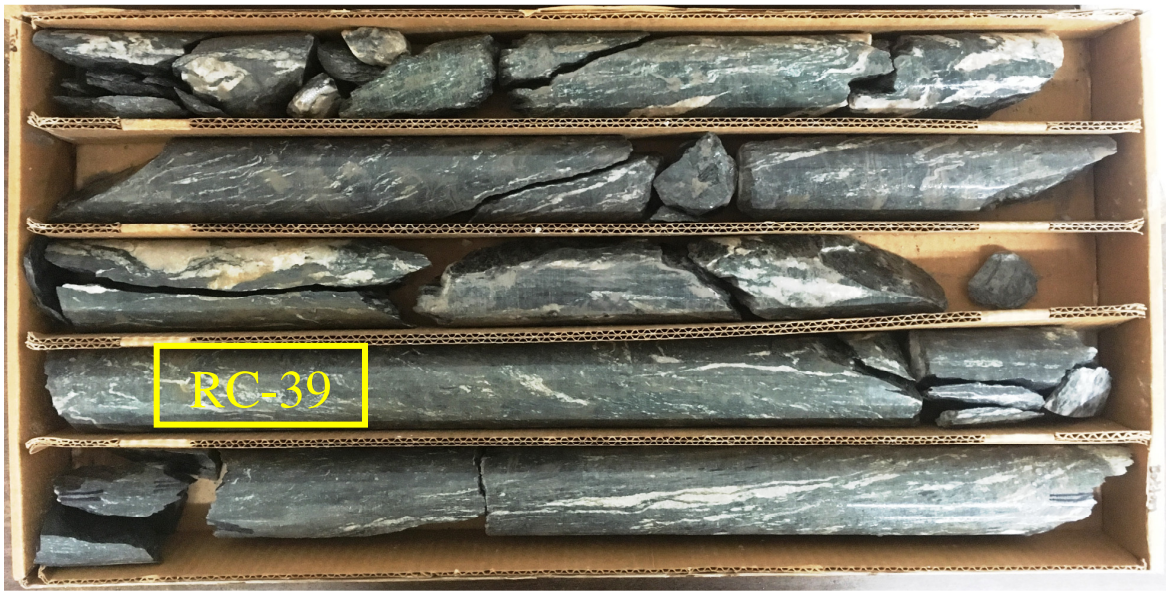
Rock Core Photographs
Broad River Road
Overpass Over I-26
Route US-176

ECS Project No: 08-11888

BEGIN CORING 38.5’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET

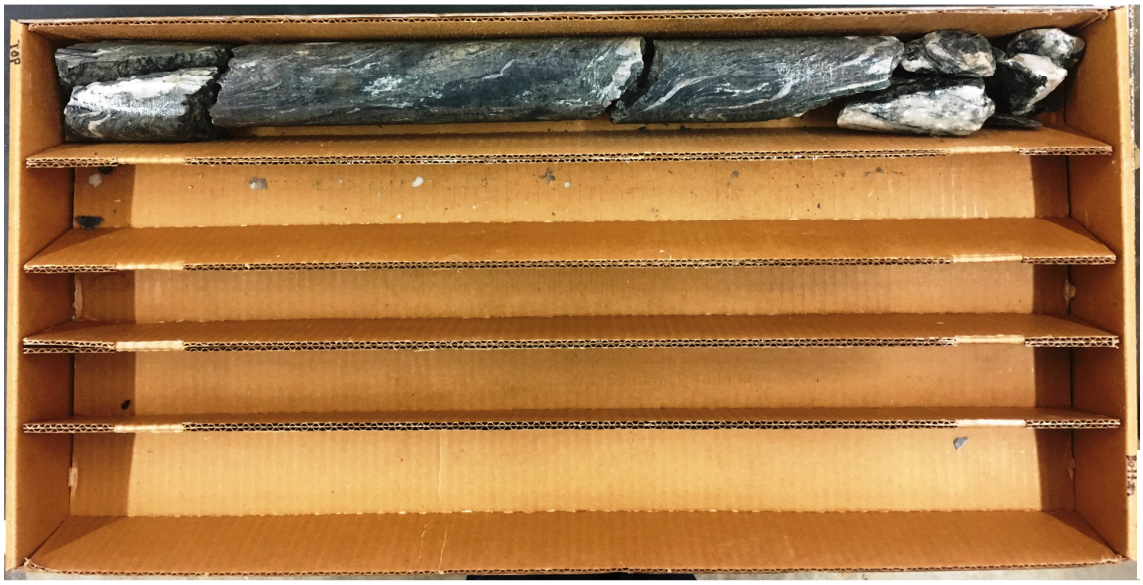
B-20

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

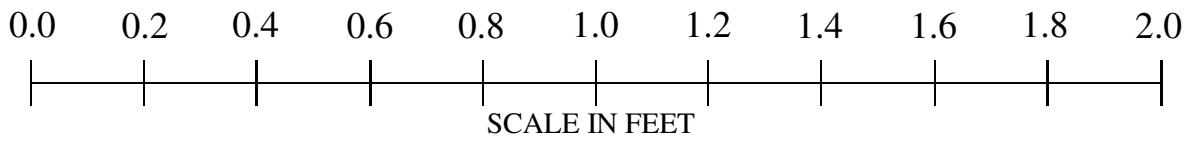
Bridge 3

Rock Core Photographs
Broad River Road
Overpass Over I-26
Route US-176

ECS Project No: 08-11888



END
CORING
58.5’



B-20

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry
Counties, South Carolina

Bridge 3

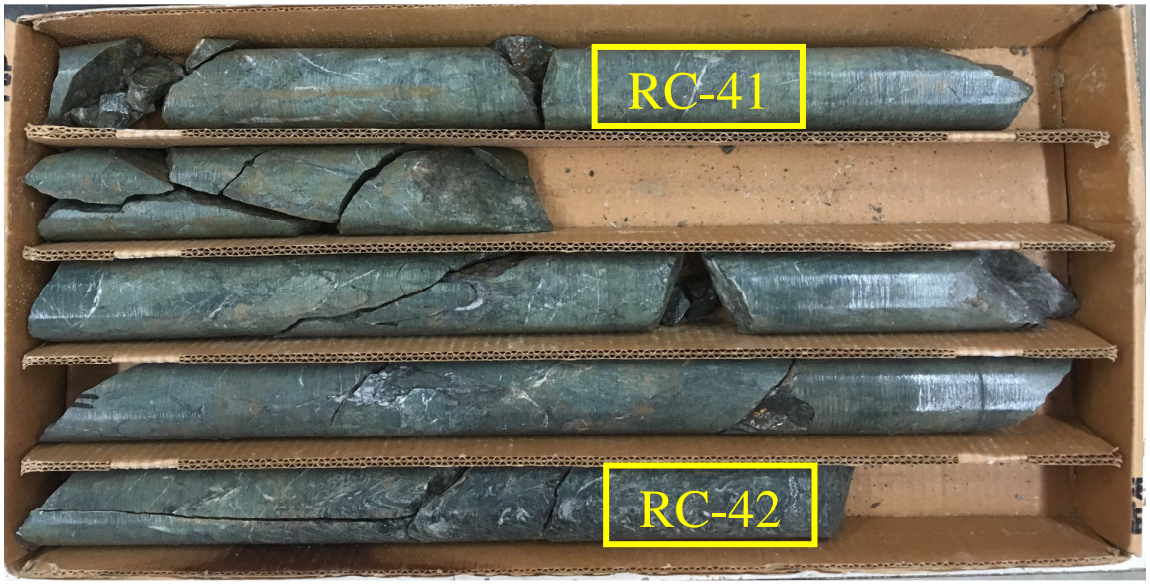
Rock Core Photographs
Broad River Road
Overpass Over I-26
Route US-176

ECS Project No: 08-11888

BEGIN CORING 35.0’

0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0

SCALE IN FEET



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SCALE IN FEET

B-21

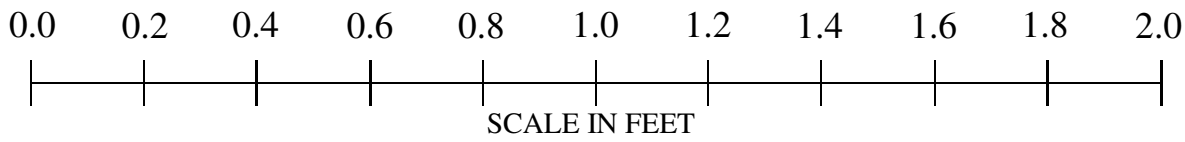
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 3

Rock Core Photographs
Broad River Road
Overpass Over I-26
Route US-176

ECS Project No: 08-11888

END
CORING
37.0’



SCALE IN FEET

B-21

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry
Counties, South Carolina

Bridge 3

Rock Core Photographs
Broad River Road
Overpass Over I-26
Route US-176

ECS Project No: 08-11888

ST-1

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Boring P-266 at 18'
Page **1** of **6**

Shelby Tube Photographs

ECS Project No: 08-11888

ST-1 **I-26 Widening MM85-MM101** **SCDOT Project ID: 029208** **Lexington, Richland, and Newberry Counties, South Carolina**		**Boring P-266 at 18'** Page **2** of **6** **Shelby Tube Photographs** ECS Project No: 08-11888

ST-2 **I-26 Widening MM85-MM101** **SCDOT Project ID: 029208** **Lexington, Richland, and Newberry Counties, South Carolina**		**Boiring C-1 at 15'** Page **3** of **6** **Shelby Tube Photographs** ECS Project No: 08-11888

ST-3

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Boring P-260 at 18'
Page **4** of **6**

Shelby Tube Photographs

ECS Project No: 08-11888

ST-4

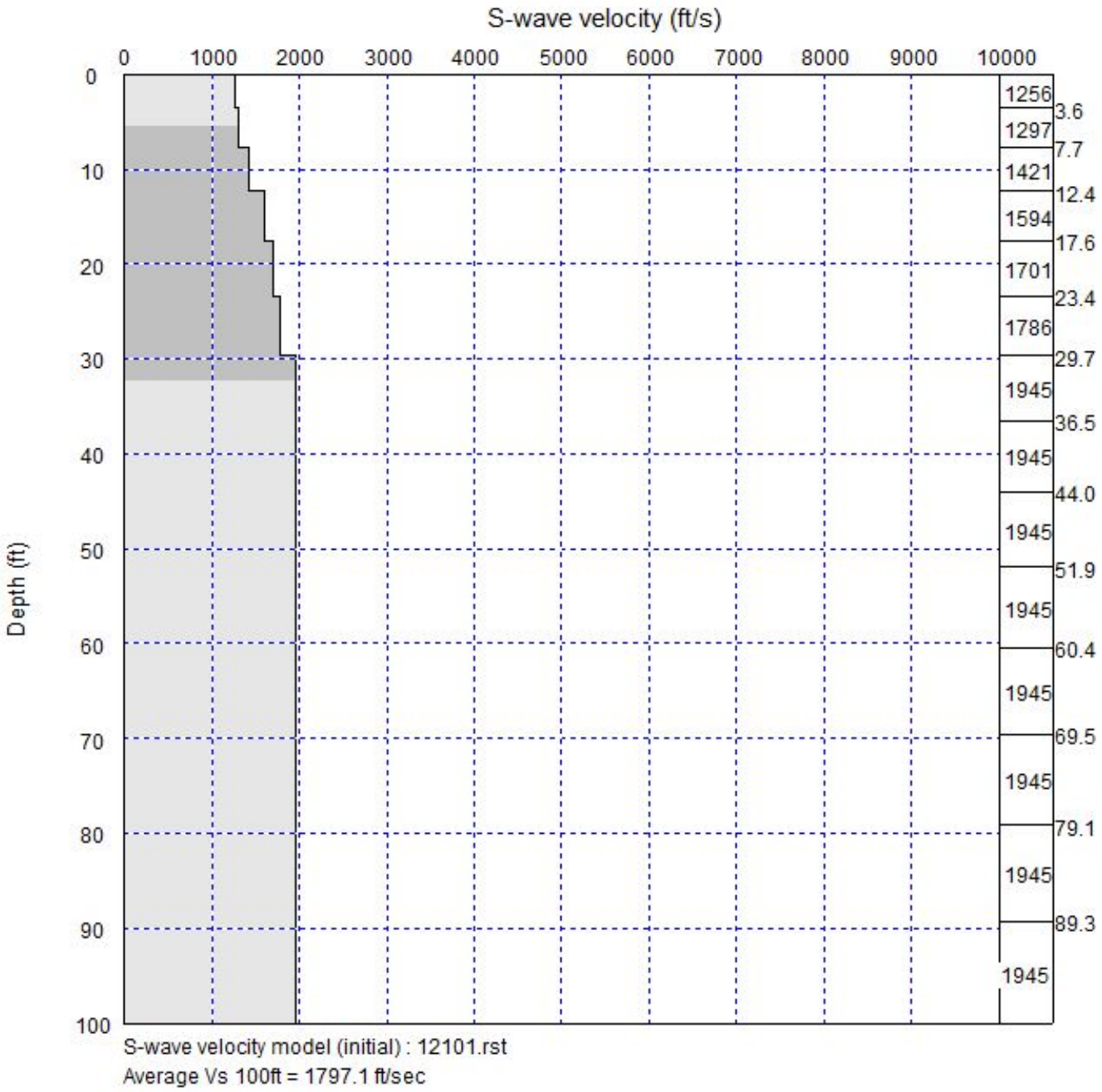
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Boring P-262 at 20'
Page **5** of **6**

Shelby Tube Photographs

ECS Project No: 08-11888

Appendix V - Shear Wave Velocity Profiles



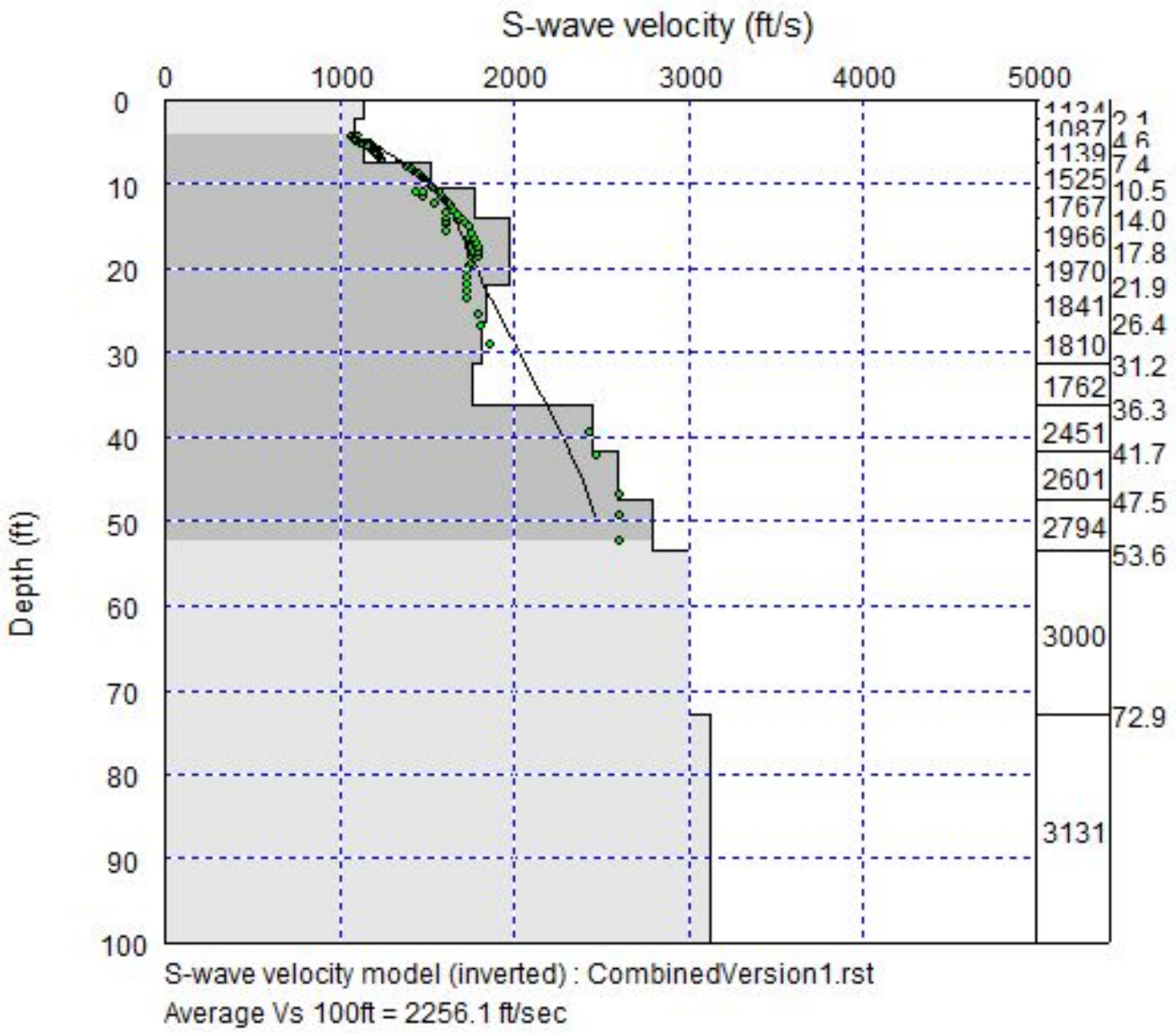
MASW-1

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

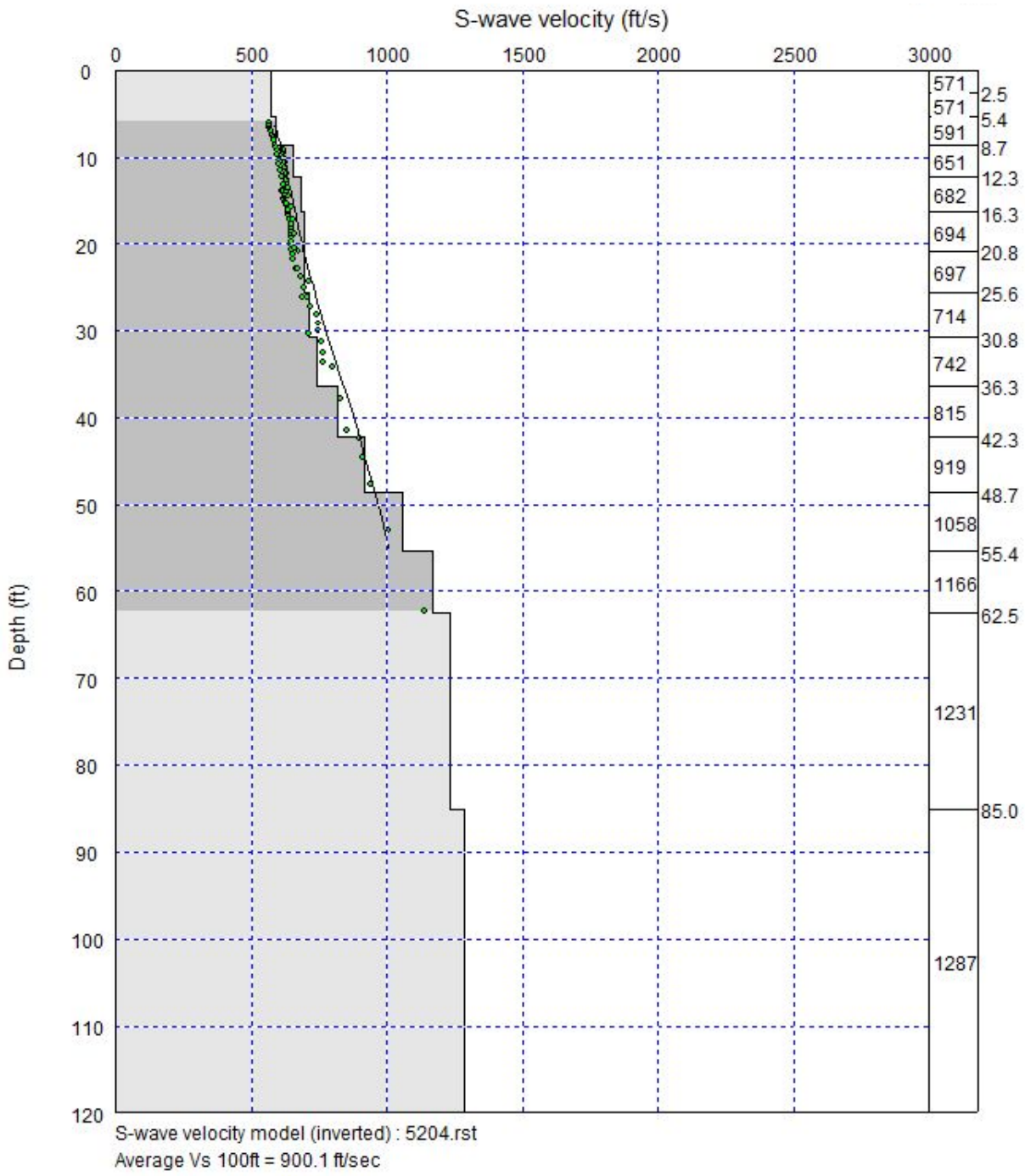
Bridge 4 – West Bound Array

SHEAR WAVE VELOCITY PROFILE
Mount Vernon Church Road
Overpass Over I-26
Route S-234

ECS Project No: 08-11888



MASW-2 **I-26 Widening MM85-MM101** **SCDOT Project ID: 029208** **Lexington, Richland, and Newberry Counties, South Carolina**		**Bridge 4 – East Bound Array** **SHEAR WAVE VELOCITY PROFILE** **Mount Vernon Church Road** **Overpass Over I-26** **Route S-234**
		ECS Project No: 08-11888



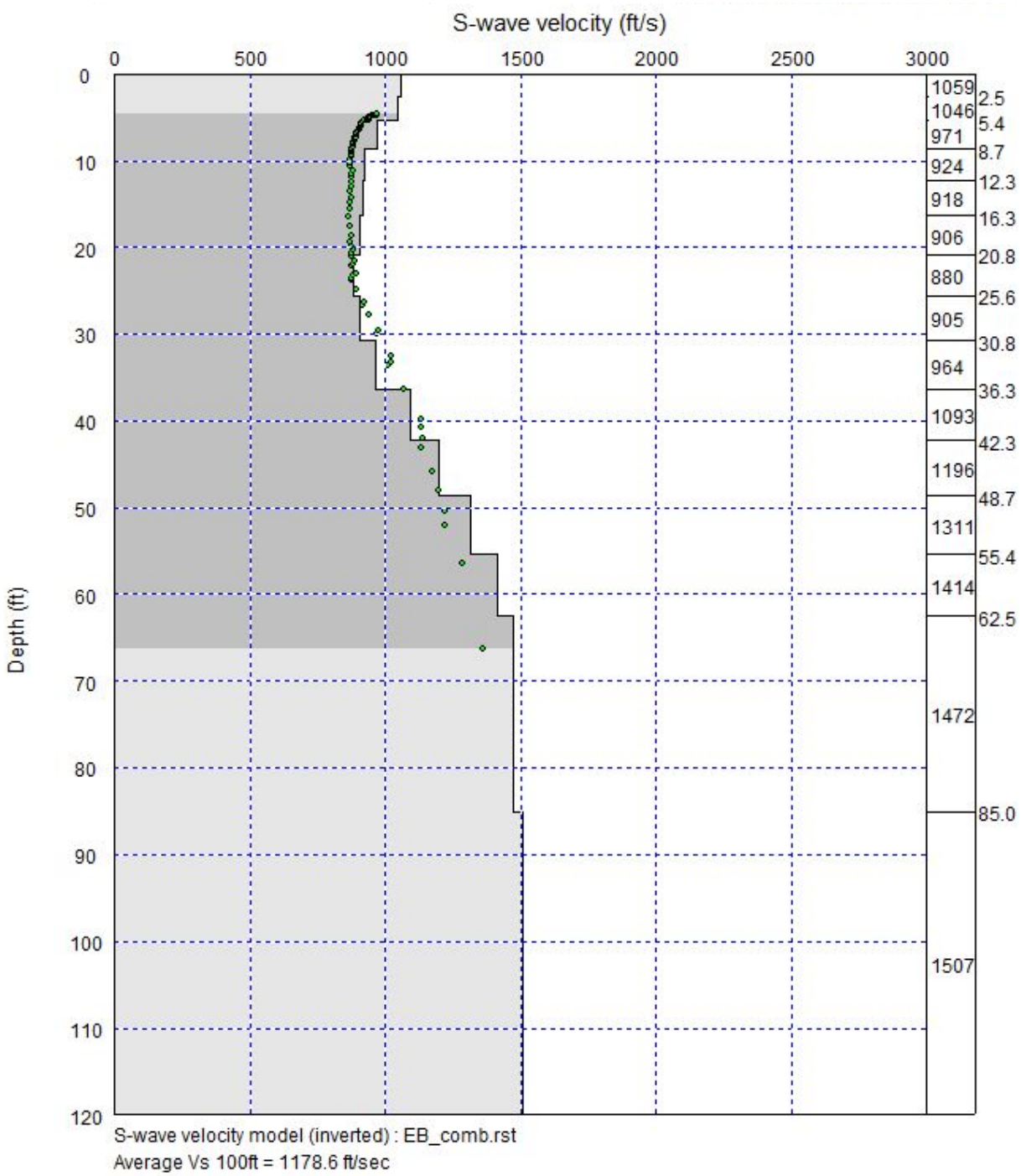
MASW-3

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 7 – West Bound Array

SHEAR WAVE VELOCITY PROFILE
Peak Street Overpass Over I-26
Route S-49

ECS Project No: 08-11888



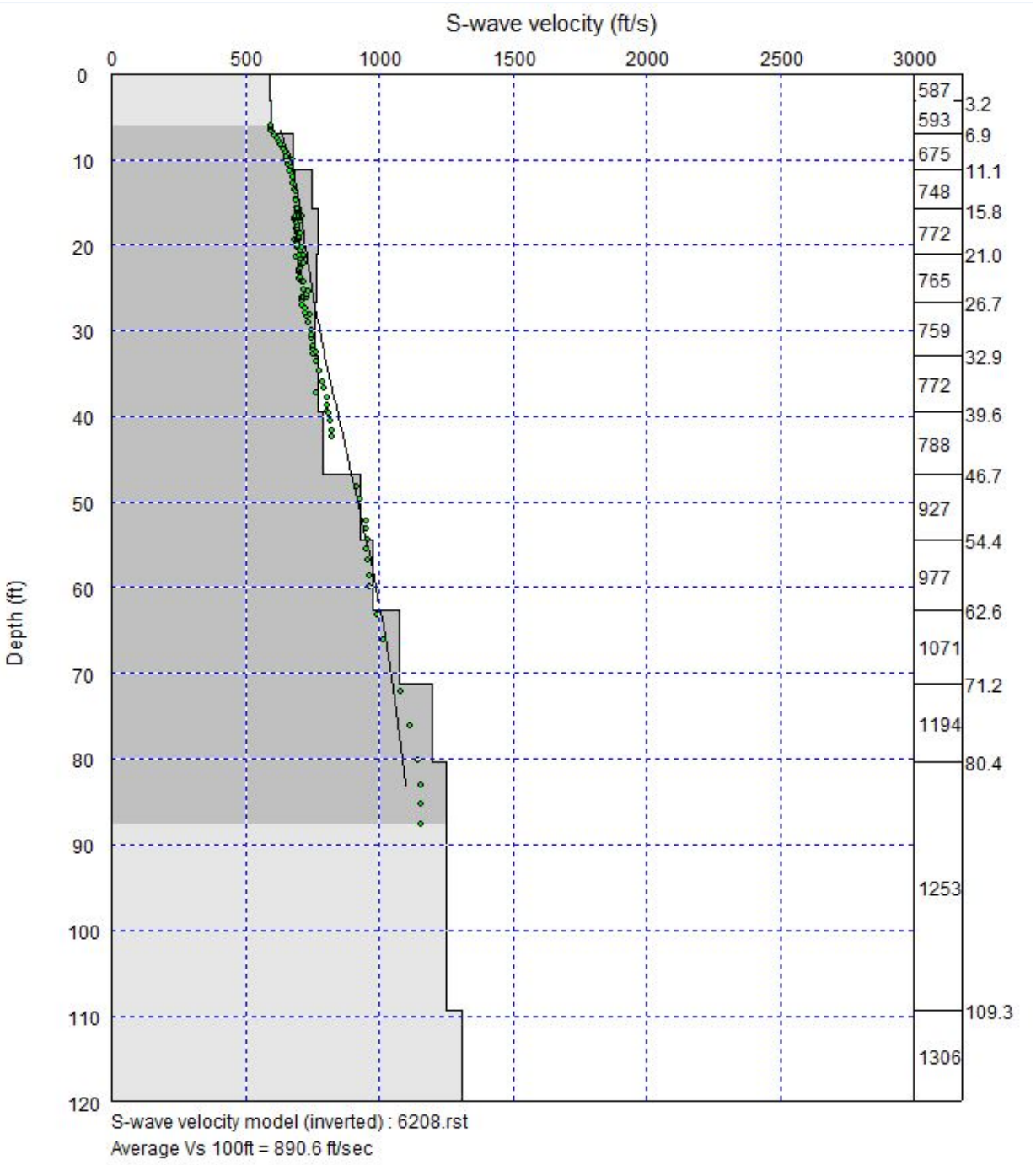
MASW-4

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

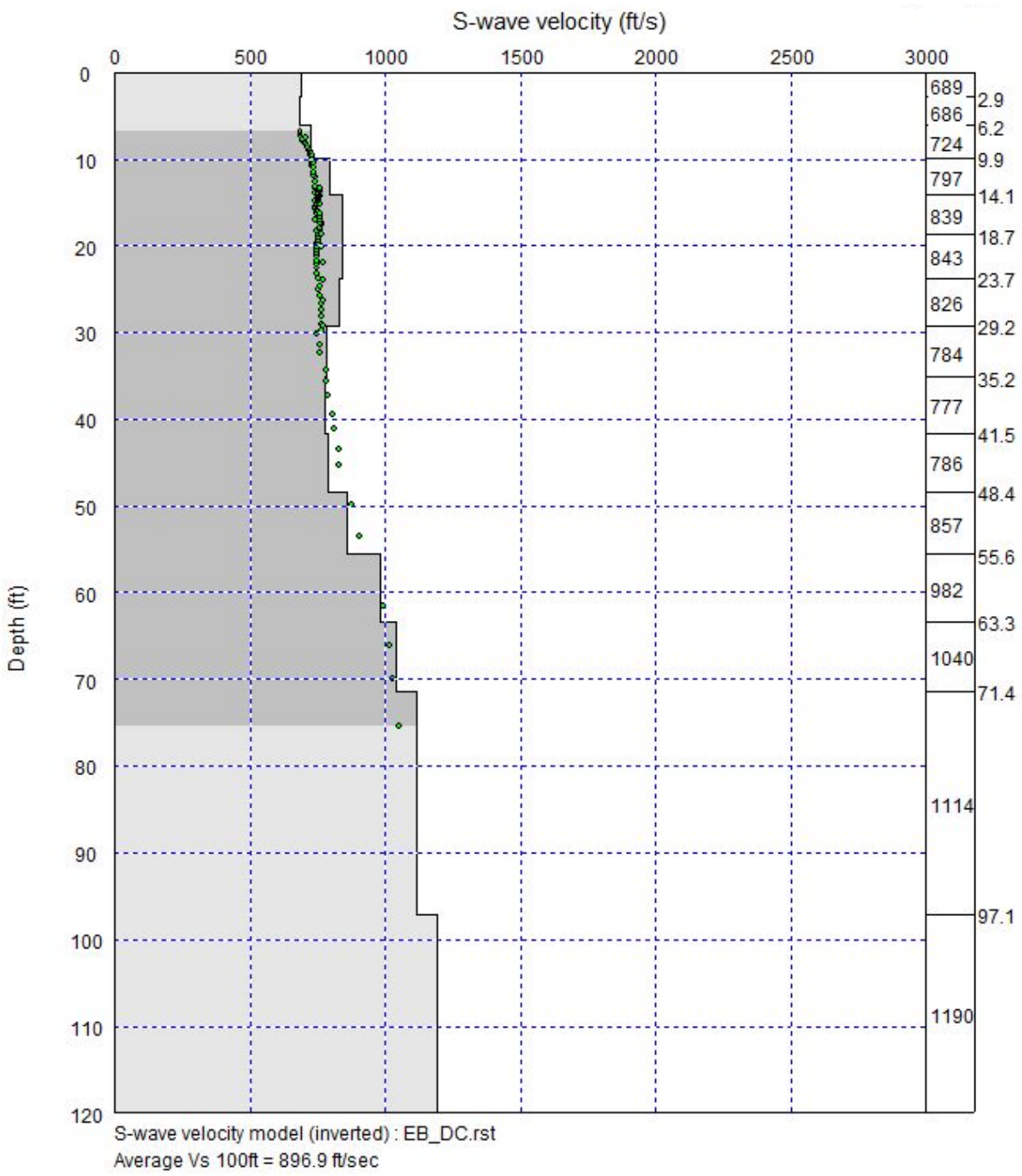
Bridge 7 – East Bound Array

SHEAR WAVE VELOCITY PROFILE
Peak Street Overpass Over I-26
Route S-49

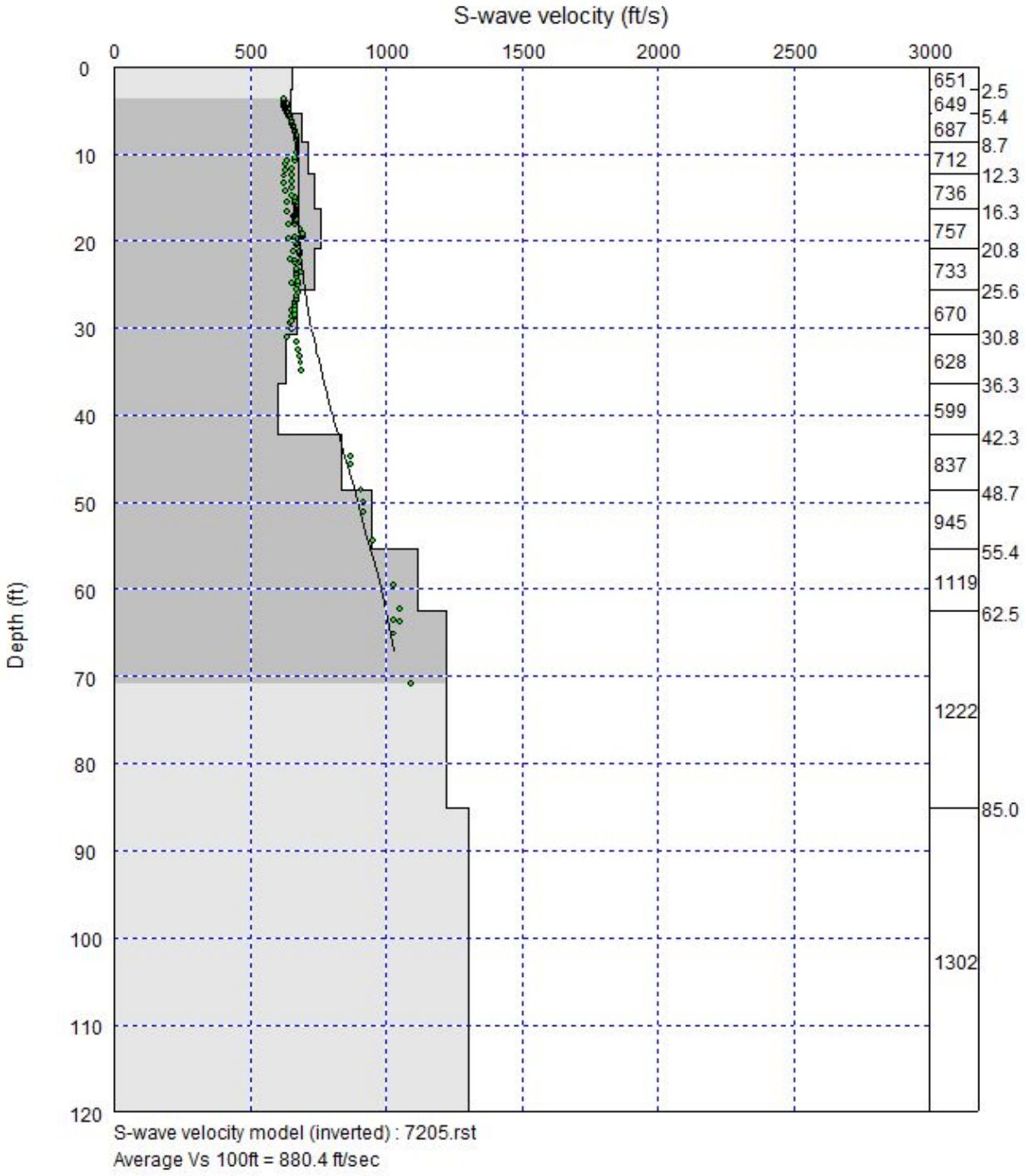
ECS Project No: 08-11888



MASW-5 **I-26 Widening MM85-MM101** **SCDOT Project ID: 029208** **Lexington, Richland, and Newberry Counties, South Carolina**		**Bridge 8 – West Bound Array** **SHEAR WAVE VELOCITY PROFILE** **Holy Trinity Church Road** **Overpass Over I-26** **Route S-39**
		ECS Project No: 08-11888



MASW-6 **I-26 Widening MM85-MM101** **SCDOT Project ID: 029208** **Lexington, Richland, and Newberry Counties, South Carolina**		**Bridge 8 – East Bound Array** **SHEAR WAVE VELOCITY PROFILE** **Holy Trinity Church Road** **Overpass Over I-26** **Route S-39**
		ECS Project No: 08-11888



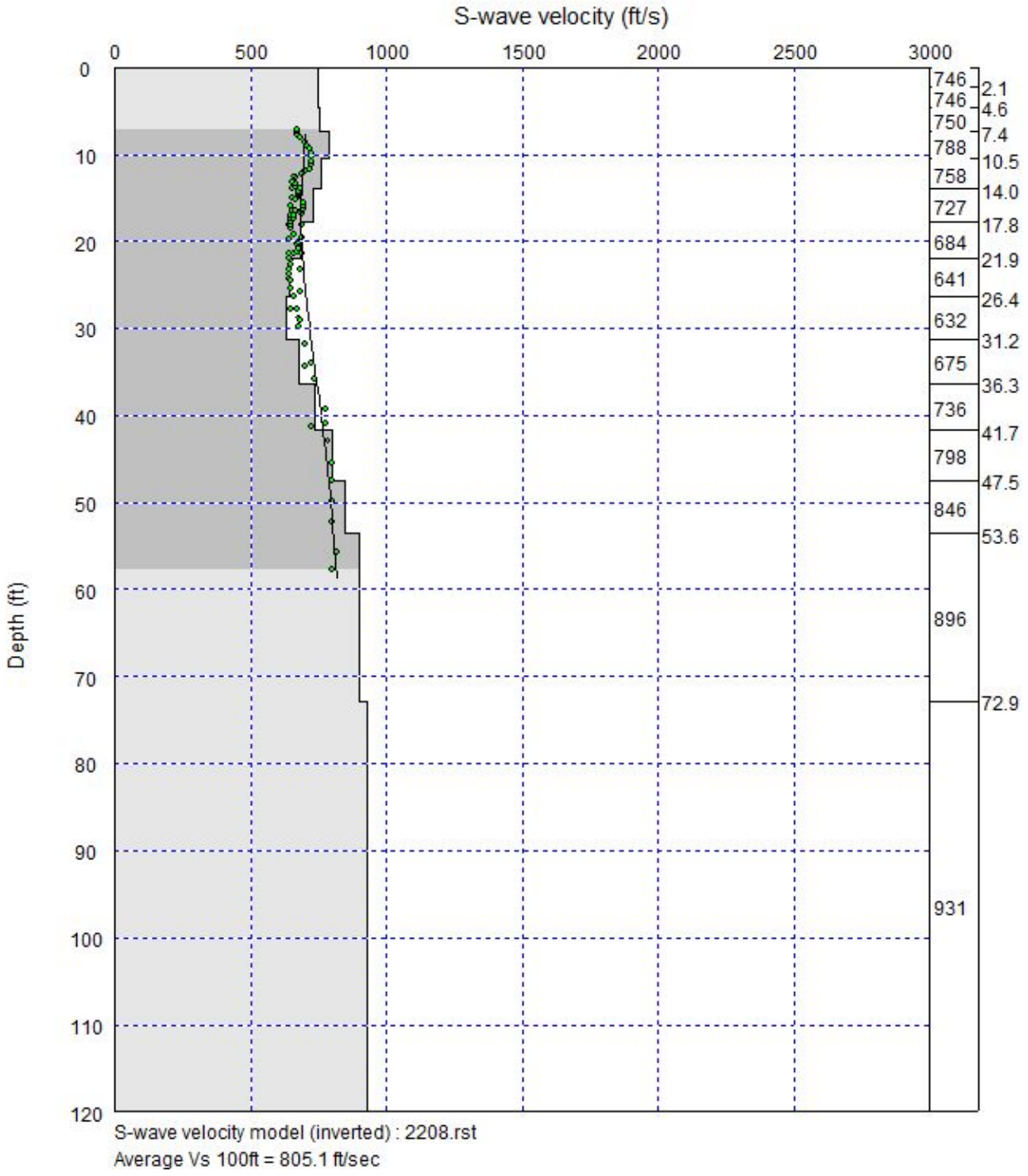
MASW-7

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 9 – West Bound Array

SHEAR WAVE VELOCITY PROFILE
Parr Road Overpass Over I-26
Route S-167

ECS Project No: 08-11888



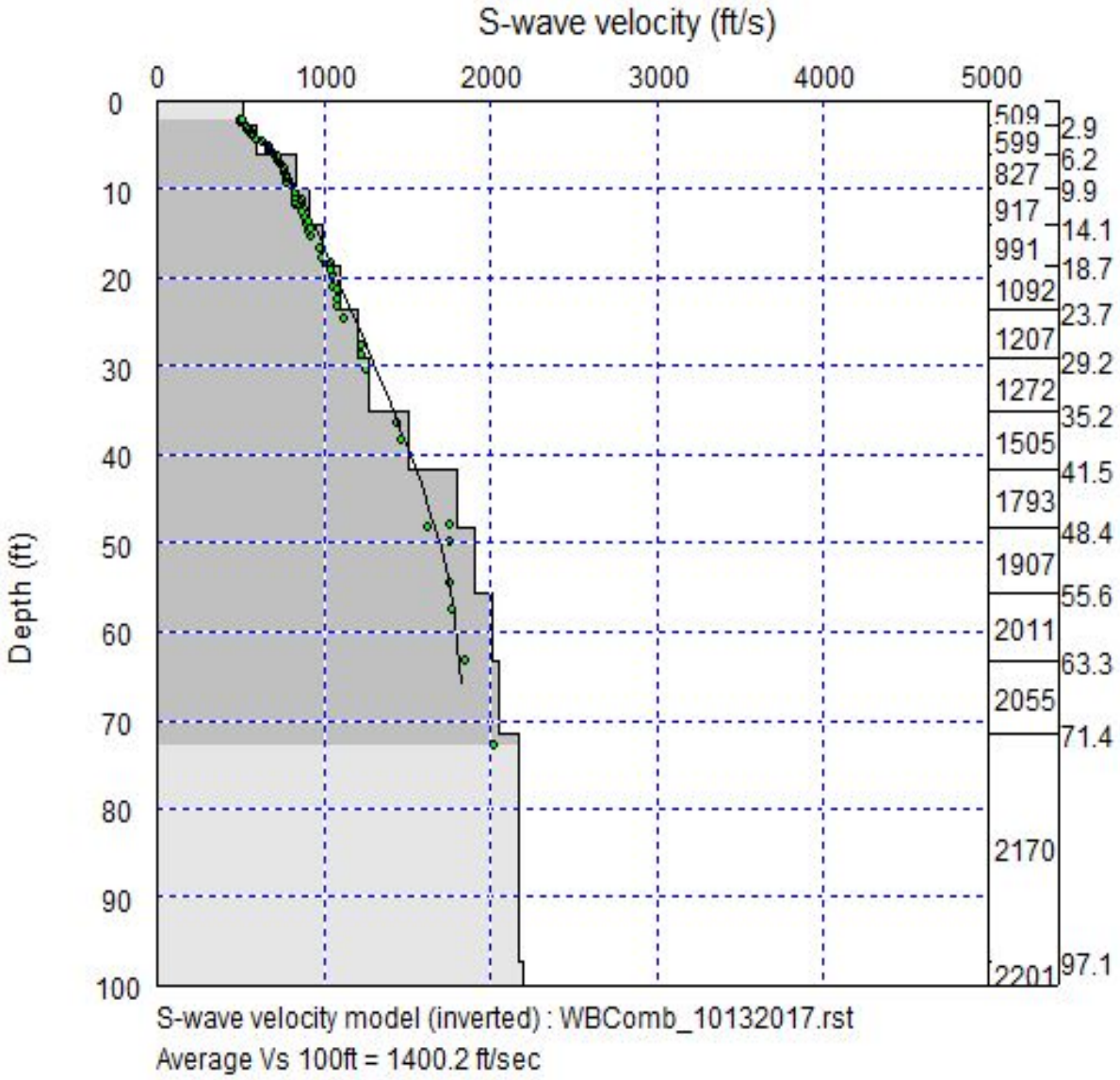
MASW-8

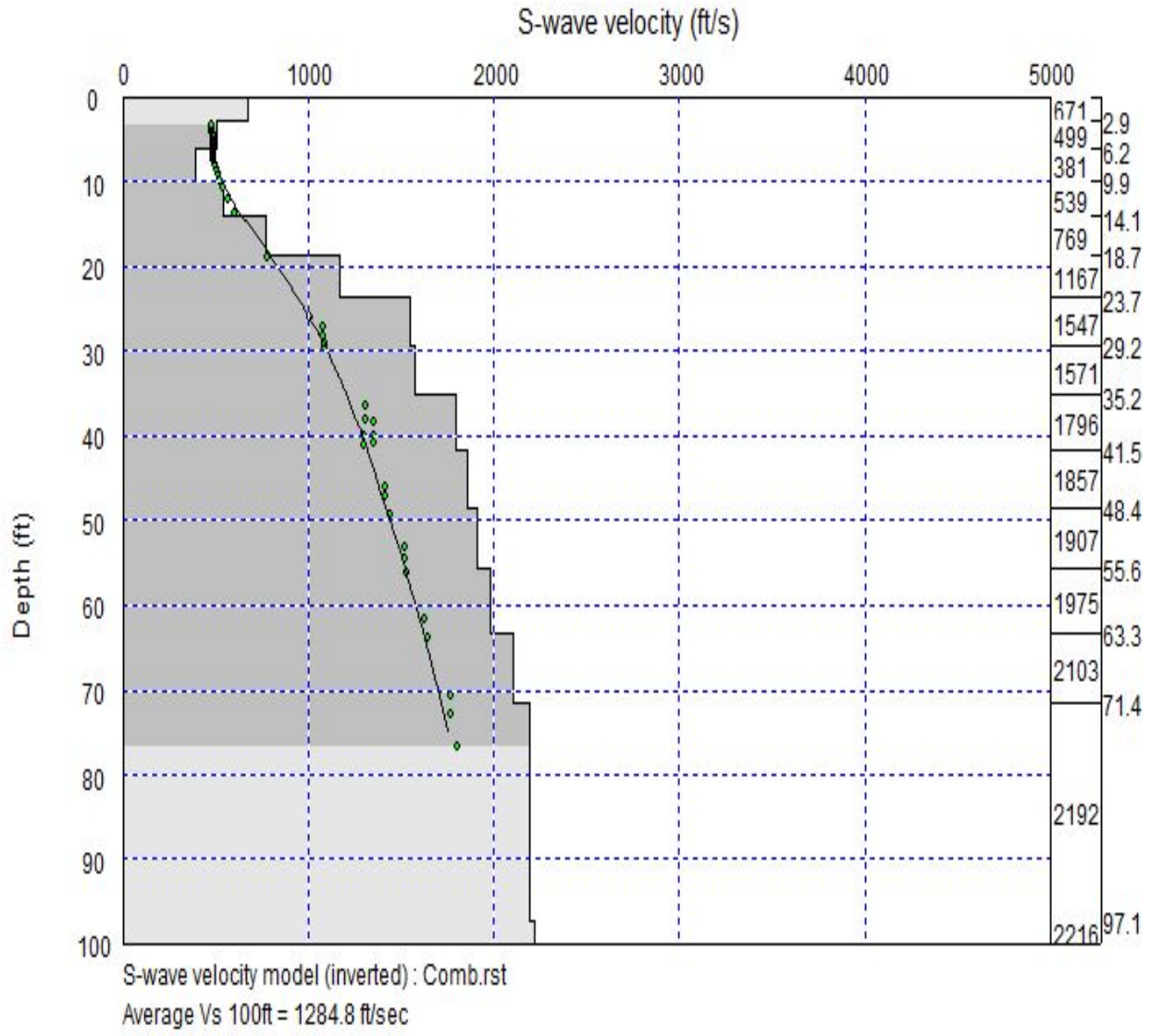
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 9 – East Bound Array

SHEAR WAVE VELOCITY PROFILE
Parr Road Overpass Over I-26
Route S-167

ECS Project No: 08-11888


S-wave velocity (ft/s)
0
1000
2000
3000
4000
5000
Depth (ft)
0
10
20
30
40
50
60
70
80
90
100
509
599
827
917
991
1092
1207
1272
1505
1793
1907
2011
2055
2170
2201
2.9
6.2
9.9
14.1
18.7
23.7
29.2
35.2
41.5
48.4
55.6
63.3
71.4
97.1
S-wave velocity model (inverted) : WBComb_10132017.rst
Average Vs 100ft = 1400.2 ft/sec



MASW-10

I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Bridge 10 – East Bound Array

SHEAR WAVE VELOCITY PROFILE
Pomaria Street Overpass Over I-26
Route SC-202

ECS Project No: 08-11888

Appendix VI - Visual Inspection of Outside Should Embankment Photo Logs

Slope Sloughing between mile 84 + ~70 and + ~200

Drainage over Pipe at mile 84 + ~4620

I-26 East Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 83-84
(from power line crossing to mile 84)

Walking Photos

ECS Project No: 08-11888

Drainage over Pipe at mile 84 + ~4620

Pavement cracking at mile 85 + ~560

Pavement cracking at mile 85 + ~560

Drainage channels at mile 85 + ~2090

Drainage channels at mile 85 + ~2090

Surface sloughing at mile 86 + ~1650 ft – IMG 59

Pavement cracking at mile 86 + ~1900 ft to ~2000 ft – IMG 60-66
(Slope steeper at crest than at toe, no apparent signs of movement)

Pavement cracking at mile 86 + ~1900 ft to ~2000 ft – IMG 60-66
(Slope steeper at crest than at toe, no apparent signs of movement)

Pavement cracking at mile 86 + ~1900 ft to ~2000 ft – IMG 60-66
(Slope steeper at crest than at toe, no apparent signs of movement)

Pavement cracking at mile 86 + ~1900 ft to ~2000 ft – IMG 60-66
(Slope steeper at crest than at toe, no apparent signs of movement)

Uphill sloughing at mile 86 + ~2740 ft to 2450 ft – IMG 67

Pavement cracking at mile 86 + ~3300 ft to 3400 ft – IMG 68-69

Drainage into culvert pipe at mile 87 + ~550 – IMG 71-75

Drainage into culvert pipe at mile 87 + ~550 – IMG 71-75

Drainage into culvert pipe at mile 87 + ~550 – IMG 71-75

Pavement cracking at mile 87 + ~2500 to ~2600 ft – IMG 76-80

Pavement cracking at mile 87 + ~2500 to ~2600 ft – IMG 76-80

Pavement cracking at mile 87 + ~2500 to ~2600 ft – IMG 76-80

Pavement missing for culvert at mile 87 + ~3640 – IMG 81-82

Drainage erosion at mile 88 + ~4060 ft – IMG 83-85
(Approximately 5 ft deep)

Drainage erosion at mile 88 + ~4060 ft – IMG 83-85
(Approximately 5 ft deep)

Uphill sloughing at mile 88 + ~5000 ft – IMG 86

Slope erosion at mile 89 + ~660 – IMG 89-91

Slope erosion at mile 89 + ~660 – IMG 89-91

Slope erosion at mile 89 + ~2100 – IMG 92-93

Soil loss at culvert mile 89 + ~2370 – IMG 94-96

Soil loss at culvert mile 89 + ~2370 – IMG 94-96

Pavement cracking at mile 89 + ~3500 – IMG 97-99

Pavement cracking at mile 89 + ~3500 – IMG 97-99

Slope erosion at mile 89 + ~3660 – IMG 100-102

Slope erosion at mile 89 + ~3660 – IMG 100-102

Soil loss at culvert mile 90 + ~230 – IMG 104-105

Slope sloughing at mile 90 + ~4400 – IMG 106-111

Slope sloughing at mile 90 + ~4400 – IMG 106-111

Slope sloughing at mile 90 + ~4400 – IMG 106-111

Slope sloughing at mile 91 + ~ 3700 – IMG 113-114

Slope sloughing at mile 92 + ~420 – IMG 116

Erosion at culvert mile 92 + ~5260 – IMG 117-120

Erosion at culvert mile 92 + ~5260 – IMG 117-120

Hole at drainage ditch at mile 93 + ~700 – IMG 122-125

Hole at drainage ditch at mile 93 + ~700 – IMG 122-125

Subsidence at culvert mile 93 + ~2360 – IMG 126

Hole at culvert mile 94 + ~ 1380 – IMG 128-129

Erosion mile 94 + ~1680 – IMG 130

Drainage ditch holes at mile 94 + ~ 2320 – IMG 131-133

Drainage ditch holes at mile 94 + ~ 2320 – IMG 131-133

Erosion at mile 95 + ~2270 – IMG 137-139

Erosion at mile 95 + ~2270 – IMG 137-139

Drainage ditch at mile 96 + ~1640 – IMG 141-145

Drainage ditch at mile 96 + ~1640 – IMG 141-145

Drainage ditch at mile 96 + ~1640 – IMG 141-145

Subsidence at culvert mile 96+ + ~3340 – IMG 146

Slope at mile 96 + ~3630

Slope at mile 96 + ~3630

Dip in pavement at mile 97 + ~160

Dip in pavement at mile 97 + ~160

I-26 East Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 97

Walking Photos

ECS Project No: 08-11888

Slope face near dip in pavement at mile 97 + ~160

Slope face near dip in pavement at mile 97 + ~160

Slope face near dip in pavement at mile 97 + ~160

Soil loss at culvert mile 97 + ~4230

Soil loss at culvert mile 97 + ~4230

Soil loss at culvert mile 98 + ~700

Slope at mile 98 + ~2810

Pavement cracking at mile 99 + ~320

Pavement cracking near slope at mile 99 + ~320

I-26 East Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 99

Walking Photos

ECS Project No: 08-11888

Pavement cracking and slope near pavement cracking at mile 99 + ~320

Slope near pavement cracking at mile 99 + ~320

Slope near pavement cracking at mile 99 + ~320

Soil loss at culvert mile 99 + ~ 1760

Slope at mile 99 + ~ 2160

Soil loss at culvert mile 99 + ~2970

Slope at mile 100 + ~530

Slope at mile 100 + ~530

Soil loss at guardrail posts at mile 99 + ~280

Soil loss at culvert mile 99 + ~1870

Hole at end of guardrail mile 98 + ~3980

Slope at mile 98 + ~ 5200

Hole at mile 97 + ~1930

Slope at bridge mile 97 + ~ 4700

Soil loss along pipe at mile 94 + ~2470

Soil loss along pipe at mile 94 + ~2470

Soil loss along pipe at culvert mile 94 + ~2780

Soil loss along pipe at culvert mile 94 + ~2780

Pavement cracking and guardrail bowing out at mile 92 + ~1320

Slope erosion near pipe outlet at mile 92 + ~2780

I-26 West Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 92

Walking Photos

ECS Project No: 08-11888

Slope erosion near pipe outlet at mile 92 + ~2780

Cracking in pavement along pipe at mile 91 + ~2070

Erosion at mile 89 + 0

Erosion at mile 89 + 0

Pavement cracking at mile 89 + ~3800

Soil loss at culvert mile 89 + ~4440

Soil loss at culvert mile 88 + ~2240

Pavement cracking at mile 88 + ~2530

I-26 West Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 88

Walking Photos

ECS Project No: 08-11888

Soil loss behind guardrail at mile 88 + ~2920

Pavement cracking at mile 88 + ~4580

Erosion at mile 87 + ~280

Slope face at mile 87 + ~1000

I-26 West Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 87

Walking Photos

ECS Project No: 08-11888

Erosion at mile 87 + ~1580

Erosion at mile 87 + ~1880

Erosion at mile 87 + ~1880

Ground loss/depression at mile 86 + ~1280

Erosion at mile 85 + 2390

Ground loss at end of guardrail at mile 85 + ~870

Slope at mile 84 + ~60

Ground loss at culvert mile 84 + ~2380

I-26 West Bound
I-26 Widening MM85-MM101
SCDOT Project ID: 029208
Lexington, Richland, and Newberry Counties, South Carolina

Mile 84

Walking Photos

ECS Project No: 08-11888

Pavement cracking at mile 84 + ~ 4720

Pavement cracking at mile 84 + ~ 4720

Appendix VII - Existing Geotechnical Data

Bridge 1 - S-58 Bridge Replacement Final

Bridge 2 - S-80_Bridge_at_Shady_Grove_Road

Bridge 2 - S-80 Bridge Replacement Final

Bridge 6 - S-48 Columbia Avenue - GDR

F&ME CONSULTANTS

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MYRTLE BEACH OFFICE
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Myrtle Beach, SC 29577
ph (843) 626-9253
fx (843) 448-0681

June 24, 2010

Mrs. Sara Stone
SCDOT
955 Park Street
Columbia, South Carolina 29203

Re.: S-58 Bridge Replacement Over I-26
Richland County, South Carolina
F&ME Project No.: G4800.27

Dear Mrs. Stone:

Submitted herein are the results of the field testing requested for the referenced project. There were no lab requests for this project. Enclosures consist of the following:

1. Soil Test Boring Logs;
2. Test Locations (Latitude/Longitude); and,
3. Spectral Analysis of Surface Waves (SASW).

It has been a pleasure working for you on this project and we appreciate the opportunity to be of service. Please notify us if there are any questions or if we may be of further assistance.

Sincerely,

F&ME CONSULTANTS

James R. Nehez, III, P.E.
Vice President

Jason Stewart, E.I.T.
Engineering Associate

AASHTO R18

AASHTO ACCREDITED LABORATORY

www.fmecol.com

SCDOT Soil Test Boring Log

File No.:	40.038744	**Project No. (PIN):**	38744 RD01	**County:**	Richland County	**Eng./Geo.:**	Wade Myers
Site Description:	S-58 Bridge Replacement over I-26					**Route:**	S-58
Boring No.:	B-1	**Boring Location:**	10'-SW	**Offset:**	8'-L	**Alignment:**	S-58
Elev.:	423.3 ft	**Latitude:**	34.122094	**Longitude:**	81.199649	**Date Started:**	5/7/2010
Total Depth:	56.2 ft	**Soil Depth:**	19.1 ft	**Core Depth:**	37.1 ft	**Date Completed:**	5/10/2010
Bore Hole Diameter (in):	6.5	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME 45B	**Drill Method:**	RW/RC	**Hammer Type:**	Gravity	**Energy Ratio:**	73%
Core Size:	NQ	**Driller:**	Mark Brown	**Groundwater:**	TOB		24HR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / FINES CONTENT (%)
	0.0	Roadway								
	0.6	ASPHALT, 7 inches		0.6						
	1.1	STONE BASE, 6 inches								
418.3		Stiff to Very Stiff, Moist, Red/Brown/Gray, SILT (ML), with Fine to Medium Sand and quartz fragments		2.6	SS-1	7	6	5	11	4th 6" = 3 Blows
	6.6			4.6	SS-2	6	6	5	11	4th 6" = 8 Blows
				6.6	SS-3	4	9	11	20	4th 6" = 13 Blows
				8.6	SS-4	12	20	20	40	4th 6" = 23 Blows
413.3		Very Stiff to Hard, Dry, Red/Brown/Gray, SILT (ML), with Fine to Medium Sand and quartz fragments		10.3	SS-5	5	9	13	22	4th 6" = 12 Blows
					SS-6	9	12	14	26	4th 6" = 21 Blows
408.3				15.5	SS-7	15	38	50/5.5"	88+	
	19.1	=>Tricone Refusal		19.1						
403.3		Start of Rock Coring; SLATE, Very Weak to Weak, highly weathered, very close joints, with black staining and quartz infilling, Tan/Orange/Black, (Richtex Formation)		21.2	NQ-1					REC = 16.0%, RQD = 0%
					NQ-2					REC = 95.0%, RQD = 45.0%
398.3				26.2	NQ-3					REC = 95.8%, RQD = 13.9%
393.3				31.2	NQ-4					REC = 9.2%, RQD = 0%
388.3				36.2	NQ-5					REC = 93.3%, RQD = 35.7%
383.3				41.2	NQ-6					REC = 98.3%, RQD = 46.6%
378.3		SLATE, Weak to Medium Strong, moderately to slightly weathered, very close joints, with black staining and quartz infilling, Gray/Blue/Green		46.2	NQ-7					REC = 100%, RQD = 35.8%
373.3				51.2	NQ-8					REC = 100%, RQD = 35.0%
368.3	56.2	Boring Terminated at 56.2 feet								

LEGEND

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

SC_DOT_G4800.27-BORINGS.GPJ SC_DOT.GDT 5/14/10

SCDOT Soil Test Boring Log

File No.:	40.038744	**Project No. (PIN):**	38744 RD01	**County:**	Richland County	**Eng./Geo.:**	Wade Myers
Site Description:	S-58 Bridge Replacement over I-26					**Route:**	S-58
Boring No.:	B-2	**Boring Location:**	10'-NE	**Offset:**	7.25-R	**Alignment:**	S-58
Elev.:	419.8 ft	**Latitude:**	33.289682	**Longitude:**	81.199062	**Date Started:**	5/11/2010
Total Depth:	41.7 ft	**Soil Depth:**	19.7 ft	**Core Depth:**	22 ft	**Date Completed:**	5/11/2010
Bore Hole Diameter (in):	6.5	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME 45B	**Drill Method:**	RW/RC	**Hammer Type:**	Gravity	**Energy Ratio:**	73%
Core Size:	NQ	**Driller:**	Mark Brown	**Groundwater:**	TOB		24HR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / FINES CONTENT (%)
	0.0	Roadway								
	0.5	ASPHALT, 5.5 inches		0.5						
	1.0	STONE BASE, 7 inches								
414.8		Firm to Stiff, Dry to Wet, Red/Brown/Gray, Fine to Coarse Sandy SILT (ML), with quartz fragments		2.5	SS-1	7	9	6	15	4th 6" = 5 Blows
				4.5	SS-2	3	3	3	6	4th 6" = 5 Blows
				6.5	SS-3	2	4	3	7	4th 6" = 7 Blows
				8.5	SS-4	3	4	5	9	4th 6" = 10 Blows
409.8				10.5	SS-5	9	6	5	11	4th 6" = 7 Blows
				12.5	SS-6	3	3	10	13	4th 6" = 35 Blows
	14.5	=>Wet		14.5	SS-7	2	3	10	13	4th 6" = 35 Blows
404.8					SS-8	3	20	50/3.5"	70+	
	17.0	Hard, Dry, Gray/Brown/Black, SILT (ML), with Fine to Coarse Sand and quartz fragments		16.5	SS-9	45	50/3.5"		100+	>>
	19.7			19.7						
399.8		Partially Weathered Rock (PWR), sampled as: Dry, Black/Gray/Brown, Fine Sandy SILT (ML)		21.7	NQ-1					REC = 100%, RQD = 20.8%
		=>Tricone Refusal			NQ-2					REC = 96.7%, RQD = 50.4%
394.8		Start of Rock Coring; SLATE, Very Weak to Weak, highly weathered, very close joints, with black staining and quartz infilling, Tan/Orange/Black, (Richtex Formation)		26.7	NQ-3					REC = 100%, RQD = 52.5%
389.8				31.7	NQ-4					REC = 100%, RQD = 56.7%
384.8				36.7	NQ-5					REC = 100%, RQD = 62.9%
379.8	41.7	Boring Terminated at 41.7 feet								
374.8										
369.8										
364.8										

SPT N VALUE: PL, MC, LL

▲ FINES CONTENT (%): 0 10 20 30 40 50 60 70 80 90

LEGEND

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

SC_DOT G4800.27-BORINGS.GPJ SC_DOT.GDT 5/14/10

F&ME
CONSULTANTS

S-58 Bridge Replacement over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-1

Station: 50'-NE of Beginning of Existing Bridge
Offset: 10'-L

Date Performed: 4/30/2010
Supervisor: Brad Jolley
Ground Elevation (ft):
Water Level: None at T.O.B.

Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Loose to Medium Dense, Moist, Brown/Tan, Silty Fine to Medium SAND (SM)		0.0	DS-1	7	
				0.5	DS-2	18	
	1.0	=> with gravel					
		Boring Terminated at 1.0 feet Due to Auger Refusal					

LEGEND

SAMPLER TYPE

DS	- Disturbed Sample	DT	- Drive Tube
ST	- Shelby Tube	CU	- Cuttings
VS	- Vane Shear	CT	- Continuous Tube

ABBREVIATIONS

WOH	- Weight Of Hammer	T.O.B.	- Time Of Boring
MC	- Moisture Content	LL	- Liquid Limit
Fines	- Percent Passing #200 Sieve	PI	- Plasticity Index

HAND AUGER LOG G4800.27.GPJ SC_DOT.GDT 5/14/10

F&ME
CONSULTANTS

S-58 Bridge Replacement over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-2

Station:105'-NE of Beginning of Existing Bridge
Offset: 10'-R

Date Performed: 4/30/2010

Supervisor: Brad Jolley

Ground Elevation (ft):

Water Level: None at T.O.B.

Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Soft to Firm, Moist, Brown/Tan/Red, Fine to Medium Sandy SILT (ML), with gravel		0.0	DS-1	3	
				0.5	DS-2	5	
				1.5		8	
				2.0	DS-3		
					DS-4		
	2.5			2.5	DS-5	18	
	3.0	Very Stiff, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML), with gravel					
		Boring Terminated at 3.0 feet Due to Auger Refusal					

LEGEND

SAMPLER TYPE

DS	- Disturbed Sample	DT - Drive Tube	
ST	- Shelby Tube	CU - Cuttings	
VS	- Vane Shear	CT - Continuous Tube	

ABBREVIATIONS

WOH	- Weight Of Hammer	T.O.B.	- Time Of Boring
MC	- Moisture Content	LL	- Liquid Limit
Fines	- Percent Passing #200 Sieve	PI	- Plasticity Index

HAND AUGER LOG G4800.27.GPJ SC_DOT.GDT 5/14/10

F&ME
CONSULTANTS

S-58 Bridge Replacement over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-3

Station: 50'-SW of End of Existing Bridge
Offset: 10'-L

Date Performed: 4/30/2010
Supervisor: Brad Jolley
Ground Elevation (ft):
Water Level: None at T.O.B.

Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Loose, Moist, Brown, Silty Fine to Medium SAND (SM), with gravel		0.0	DS-1	5	
				0.5		8	
	1.0			1.0	DS-2		
	1.5	Firm, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML), with gravel		1.5	DS-3	18	
	2.0	Very Stiff, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML), with gravel and organics			DS-4		
		Boring Terminated at 2.0 feet Due to Auger Refusal					

LEGEND

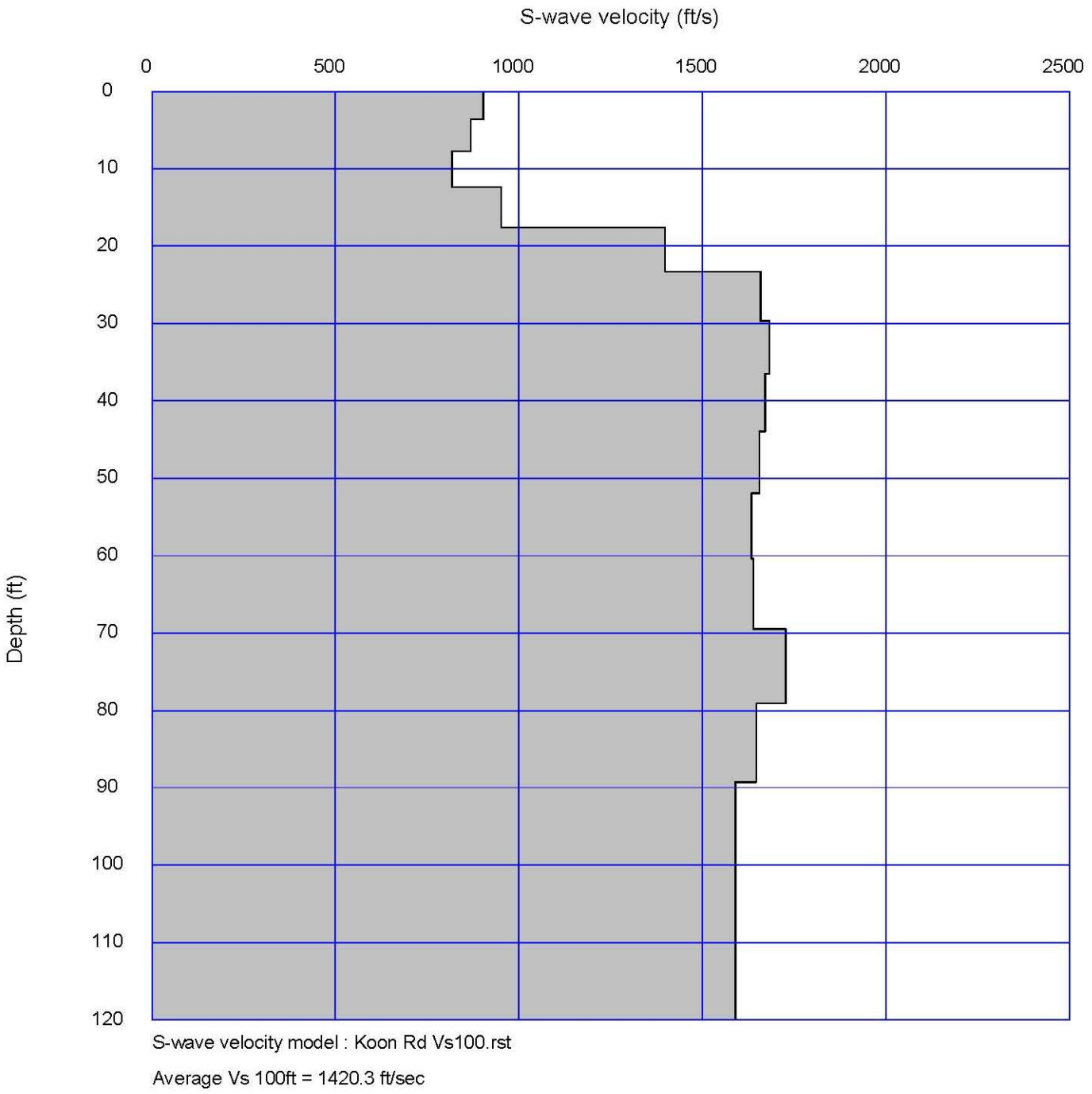
SAMPLER TYPE

DS	- Disturbed Sample	DT	- Drive Tube
ST	- Shelby Tube	CU	- Cuttings
VS	- Vane Shear	CT	- Continuous Tube

ABBREVIATIONS

WOH	- Weight Of Hammer	T.O.B.	- Time Of Boring
MC	- Moisture Content	LL	- Liquid Limit
Fines	- Percent Passing #200 Sieve	PI	- Plasticity Index

HAND AUGER LOG G4800.27.GPJ SC_DOT.GDT 5/14/10



F&ME CONSULTANTS	VS 100 FOR SEISMIC SITE CLASSIFICATION S-58 REPLACE BRIDGE OVER I-26 RICHLAND COUNTY, SOUTH CAROLINA			
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION	DWN BY	N/A		SCALE: N.T.S.
	CKD.BY	N/A		F&ME PROJECT: G4800.27
	APPR'D.	N/A		SCDOT FILE: 40.038744

F&ME
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Myrtle Beach, SC 29577
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fx (843) 448-0681

June 24, 2010

Mrs. Sara Stone
SCDOT
955 Park Street
Columbia, South Carolina 29203

Re.: S-80 Bridge Replacement Over I-26
Richland County, South Carolina
F&ME Project No.: G4800.26

Dear Mrs. Stone:

Submitted herein are the results of the field testing requested for the referenced project. There were no lab requests for this project. Enclosures consist of the following:

1. Soil Test Boring Logs;
2. Test Locations (Latitude/Longitude);
3. Spectral Analysis of Surface Waves (SASW); and,
4. Downhole Shear-Wave Investigation.

It has been a pleasure working for you on this project and we appreciate the opportunity to be of service. Please notify us if there are any questions or if we may be of further assistance.

Sincerely,

F&ME CONSULTANTS

James R. Nehez, III, P.E.
Vice President

Jason Stewart, E.I.T.
Engineering Associate

AASHTO R18

AASHTO ACCREDITED LABORATORY

www.fmecol.com

SCDOT Soil Test Boring Log

File No.:	40.038744	**Project No. (PIN):**	38744 RD01	**County:**	Richland County	**Eng./Geo.:**	Wade Myers
Site Description:	S-80 Bridge Replacement Over I-26					**Route:**	S-80
Boring No.:	B-1	**Boring Location:**	10'-S of Bridge	**Offset:**	7'-L	**Alignment:**	S-80
Elev.:	399.3 ft	**Latitude:**	34.136118	**Longitude:**	81.217611	**Date Started:**	5/5/2010
Total Depth:	76.8 ft	**Soil Depth:**	41.8 ft	**Core Depth:**	35 ft	**Date Completed:**	5/5/2010
Bore Hole Diameter (in):	6.5	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME 45B	**Drill Method:**	RW/RC	**Hammer Type:**	Gravity	**Energy Ratio:**	73%
Core Size:	NQ	**Driller:**	Mark Brown	**Groundwater:**	TOB		24HR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / FINES CONTENT (%)
	0.0	Roadway								
	0.5	ASPHALT, 5.75 inches		0.5						
	1.2	STONE BASE, 8 inches			SS-1	16	11	6	17	4th 6" = 6 Blows
		Stiff to Very Stiff, Dry/Moist, Brown/Gray/Red, Fine to Medium Sandy SILT (ML), with quartz fragments		2.5	SS-2	6	6	6	12	4th 6" = 7 Blows
394.3				4.5	SS-3	3	3	6	9	4th 6" = 7 Blows
				6.5	SS-4	5	12	13	25	4th 6" = 28 Blows
	8.5			8.5	SS-5	11	3050/5.25"		80+	
389.3		Hard, Dry, Black/Gray/Brown, SILT (ML), with Fine Sand and Weathered Rock		10.5	SS-6	21	34	50/1"	84+	
	12.5			12.5	SS-7	50/3.75"			100+	>>
384.3		Partially Weathered Rock (PWR), sampled as: Dry, Black/Gray/Brown, Fine Sandy SILT (ML)		17.9	SS-8	50/2"			100+	>>
379.3				22.9	SS-9	50/1.5"			100+	>>
		No Recovery								
374.3				27.9	SS-10	20/0"			100+	>>
		No Recovery								
369.3				32.9	SS-11	50/5"			100+	>>
364.3				37.9	SS-12	50/3.75"			100+	>>
359.3										
	41.8	=>Tricone Refusal		41.8						
354.3		Start of Rock Coring; SLATE, Weak to Moderately Strong, slightly to moderately weathered, schistose, very close joints with occasional pyrite in healed joints, Blue/Gray, (Richtex Formation)		44.8	NQ-1					REC = 93.1%, RQD = 0%
				46.8	NQ-2					REC = 100%, RQD = 21.9%

Continued Next Page

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.038744	**Project No. (PIN):**	38744 RD01	**County:**	Richland County	**Eng./Geo.:**	Wade Myers
Site Description:	S-80 Bridge Replacement Over I-26					**Route:**	S-80
Boring No.:	B-1	**Boring Location:**	10'-S of Bridge	**Offset:**	7'-L	**Alignment:**	S-80
Elev.:	399.3 ft	**Latitude:**	34.136118	**Longitude:**	81.217611	**Date Started:**	5/5/2010
Total Depth:	76.8 ft	**Soil Depth:**	41.8 ft	**Core Depth:**	35 ft	**Date Completed:**	5/5/2010
Bore Hole Diameter (in):	6.5	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME 45B	**Drill Method:**	RW/RC	**Hammer Type:**	Gravity	**Energy Ratio:**	73%
Core Size:	NQ	**Driller:**	Mark Brown	**Groundwater:**	**TOB**		**24HR**

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
349.3		SLATE, Weak to Moderately Strong, slightly to moderately weathered, schistose, very close joints with occasional pyrite in healed joints, Blue/Gray, (Richtex Formation)		51.8	NQ-3			REC = 95.0%, RQD = 38.6%
344.3				56.8	NQ-4			REC = 91.3%, RQD = 90.0%
339.3				61.8	NQ-5			REC = 100%, RQD = 34.2%
334.3				66.8	NQ-6			REC = 100%, RQD = 78.3%
329.3				71.8	NQ-7			REC = 100%, RQD = 98.8%
324.3	76.8	Boring Terminated at 76.8 feet			NQ-8			REC = 98.3%, RQD = 91.5%
319.3								
314.3								
309.3								

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.038744	**Project No. (PIN):**	38744 RD01	**County:**	Richland County	**Eng./Geo.:**	Wade Myers
Site Description:	S-80 Bridge Replacement Over I-26					**Route:**	S-80
Boring No.:	B-2	**Boring Location:**	10'-N of Bridge	**Offset:**	7'-R	**Alignment:**	S-80
Elev.:	398.7 ft	**Latitude:**	34.136766	**Longitude:**	81.217478	**Date Started:**	5/6/2010
Total Depth:	41.5 ft	**Soil Depth:**	10.8 ft	**Core Depth:**	30.8 ft	**Date Completed:**	5/6/2010
Bore Hole Diameter (in):	6.5	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME 45B	**Drill Method:**	RW/RC	**Hammer Type:**	Gravity	**Energy Ratio:**	73%
Core Size:	NQ	**Driller:**	Mark Brown	**Groundwater:**	TOB		24HR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Roadway								
	0.6	ASPHALT, 7 inches		0.6						
	1.3	STONE BASE, 8 inches								
		Firm to Stiff, Moist, Gray/Brown/Black, Fine to Medium Sandy SILT (ML)		2.6	SS-1	17	7	6	13	4th 6" = 5 Blows
				4.6	SS-2	2	4	3	7	4th 6" = 7 Blows
393.7					SS-3	4	4	5	9	4th 6" = 20 Blows
	7.0	Partially Weathered Rock (PWR), sampled as: Dry, Dlack/Gray/Brown, Fine Sandy SILT (ML)		6.6	SS-4	8.50/3.75"			100+	>>
				8.6	SS-5	50/1.5"			100+	>>
388.7	10.8	Tricone Refusal		10.6	SS-6	50/2"			100+	>>
		Start of Rock Coring; SLATE, Very Weak to Weak, highly weathered, very close joints, with black staining and quartz infilling, Tan/Orange/Black, (Richtex Formation)		10.8	NQ-1					REC = 89.5%, RQD = 76.5%
				11.5	NQ-2					REC = 92.1%, RQD = 89.1%
383.7				16.5	NQ-3					REC = 82.5%, RQD = 70.7%
378.7				21.5	NQ-4					REC = 95.8%, RQD = 88.3%
373.7				26.5	NQ-5					REC = 100%, RQD = 77.5%
368.7				31.5	NQ-6					REC = 95.0%, RQD = 67.1%
363.7				36.5	NQ-7					REC = 100%, RQD = 85.0%
358.7	41.5	Boring Terminated at 41.5 feet								
353.7										

LEGEND

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

SC_DOT G4800.26-BORINGS.GPJ SC_DOT.GDT 5/14/10

F&ME
CONSULTANTS

S-80 Bridge Replacement over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-1

Station: 53'-N of Beginning of Existing Bridge
Offset: 10'-L

Date Performed: 4/30/2010
Supervisor: Brad Jolley
Ground Elevation (ft):
Water Level: None at T.O.B.

Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Very Loose to Loose, Moist, Brown/Tan, Silty Fine to Medium SAND (SM)		0.0	DS-1	4	
				0.5	DS-2	9	
	1.5			1.5		8	
	2.0	Firm, Moist, Brown, Fine to Medium Sandy SILT (ML), with gravel			DS-3		
		Boring Terminated at 2.0 feet Due to Auger Refusal					

LEGEND

SAMPLER TYPE		ABBREVIATIONS	
DS - Disturbed Sample	DT - Drive Tube	WOH - Weight Of Hammer	T.O.B. - Time Of Boring
ST - Shelby Tube	CU - Cuttings	MC - Moisture Content	LL - Liquid Limit
VS - Vane Shear	CT - Continuous Tube	Fines - Percent Passing #200 Sieve	PI - Plasticity Index

HAND AUGER LOG G4800.26.GPJ SC_DOT.GDT 5/14/10

F&ME
CONSULTANTS

S-80 Bridge Replacement Over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-2

Station: 113'-N of Beginning of Existing Bridge
Offset: 10'-R

Date Performed: 4/30/2010
Supervisor: Brad Jolley
Ground Elevation (ft):
Water Level: None at T.O.B.

Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Firm to Stiff, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML)		0.0	DS-1	6	
				0.5	DS-2	10	
				1.5	DS-3	7	
		=> with gravel		2.5	DS-4	13	
	3.0	Boring Terminated at 3.0 feet Due to Auger Refusal					

LEGEND

SAMPLER TYPE

DS	- Disturbed Sample	DT	- Drive Tube
ST	- Shelby Tube	CU	- Cuttings
VS	- Vane Shear	CT	- Continuous Tube

ABBREVIATIONS

WOH	- Weight Of Hammer	T.O.B.	- Time Of Boring
MC	- Moisture Content	LL	- Liquid Limit
Fines	- Percent Passing #200 Sieve	PI	- Plasticity Index

HAND AUGER LOG G4800.26.GPJ SC_DOT.GDT 6/24/10

F&ME
CONSULTANTS

S-80 Bridge Replacement over I-26
Richland County, South Carolina
40.038744

LOG OF BORING No. HA-3

Station: 53'-S of End of Existing Bridge
Offset: 10'-L

Date Performed: 4/30/2010

Supervisor: Brad Jolley

Ground Elevation (ft):

Water Level: None at T.O.B.

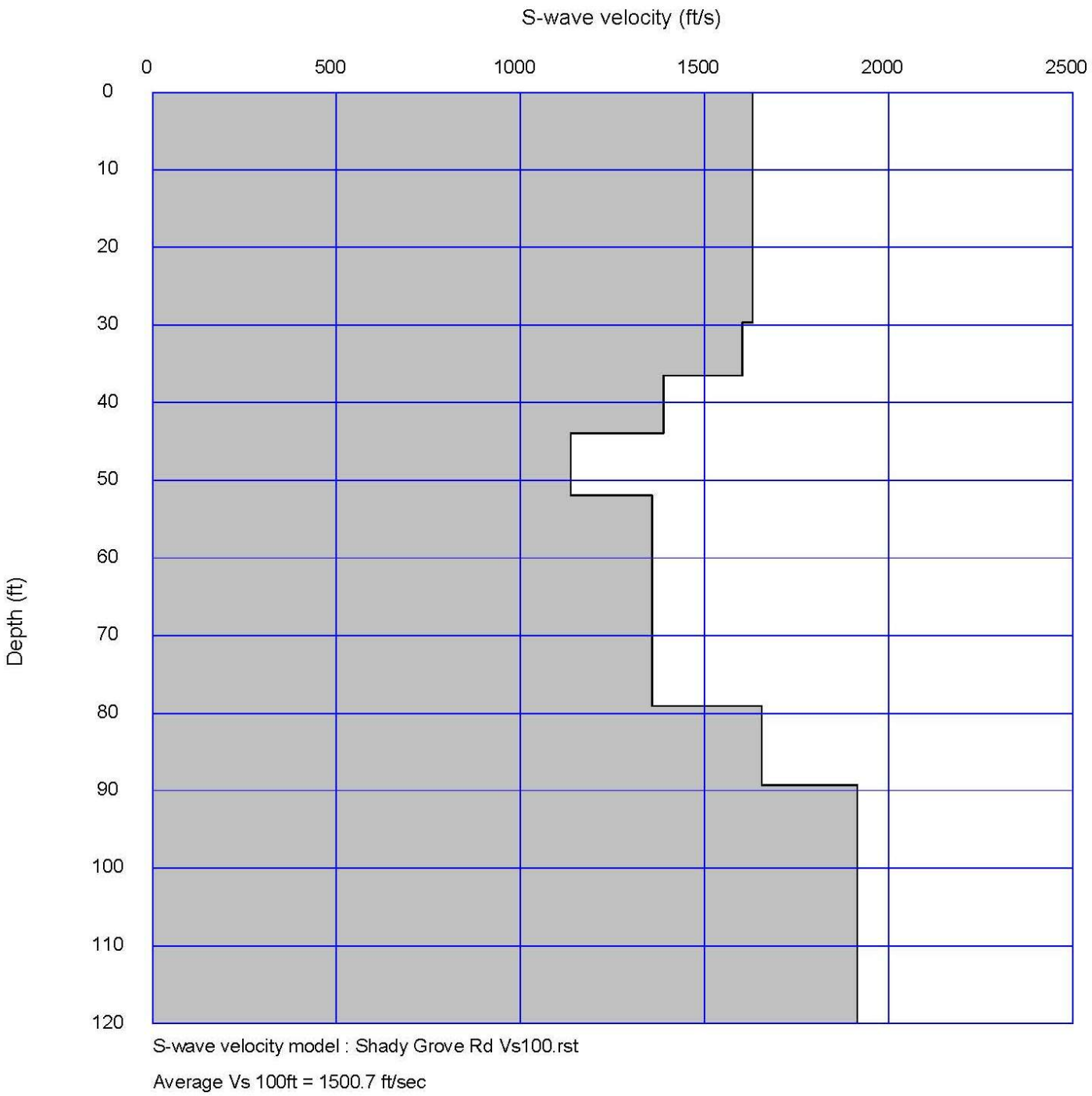
Notes:
REF: Dynamic Cone for Shallow In-Situ Penetration Testing; Sowers & Hedges

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample Type-No.	N Value	COMMENTS
		Loose, Moist, Brown, Silty Fine to Medium SAND (SM), with gravel		0.0	DS-1	8	
				0.5	DS-2	7	
	1.5	Soft, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML), with gravel		1.5	DS-3	4	
	2.5	Stiff, Moist, Brown/Tan, Fine to Medium Sandy SILT (ML), with gravel		2.5	DS-4	14	
	3.0	Boring Terminated at 3.0 feet Due to Auger Refusal					

LEGEND

SAMPLER TYPE		ABBREVIATIONS	
DS - Disturbed Sample	DT - Drive Tube	WOH - Weight Of Hammer	T.O.B. - Time Of Boring
ST - Shelby Tube	CU - Cuttings	MC - Moisture Content	LL - Liquid Limit
VS - Vane Shear	CT - Continuous Tube	Fines - Percent Passing #200 Sieve	PI - Plasticity Index

HAND AUGER LOG G4800.26.GPJ SC_DOT.GDT 5/14/10



S-wave velocity model : Shady Grove Rd Vs100.rst

Average Vs 100ft = 1500.7 ft/sec

F&ME
CONSULTANTS

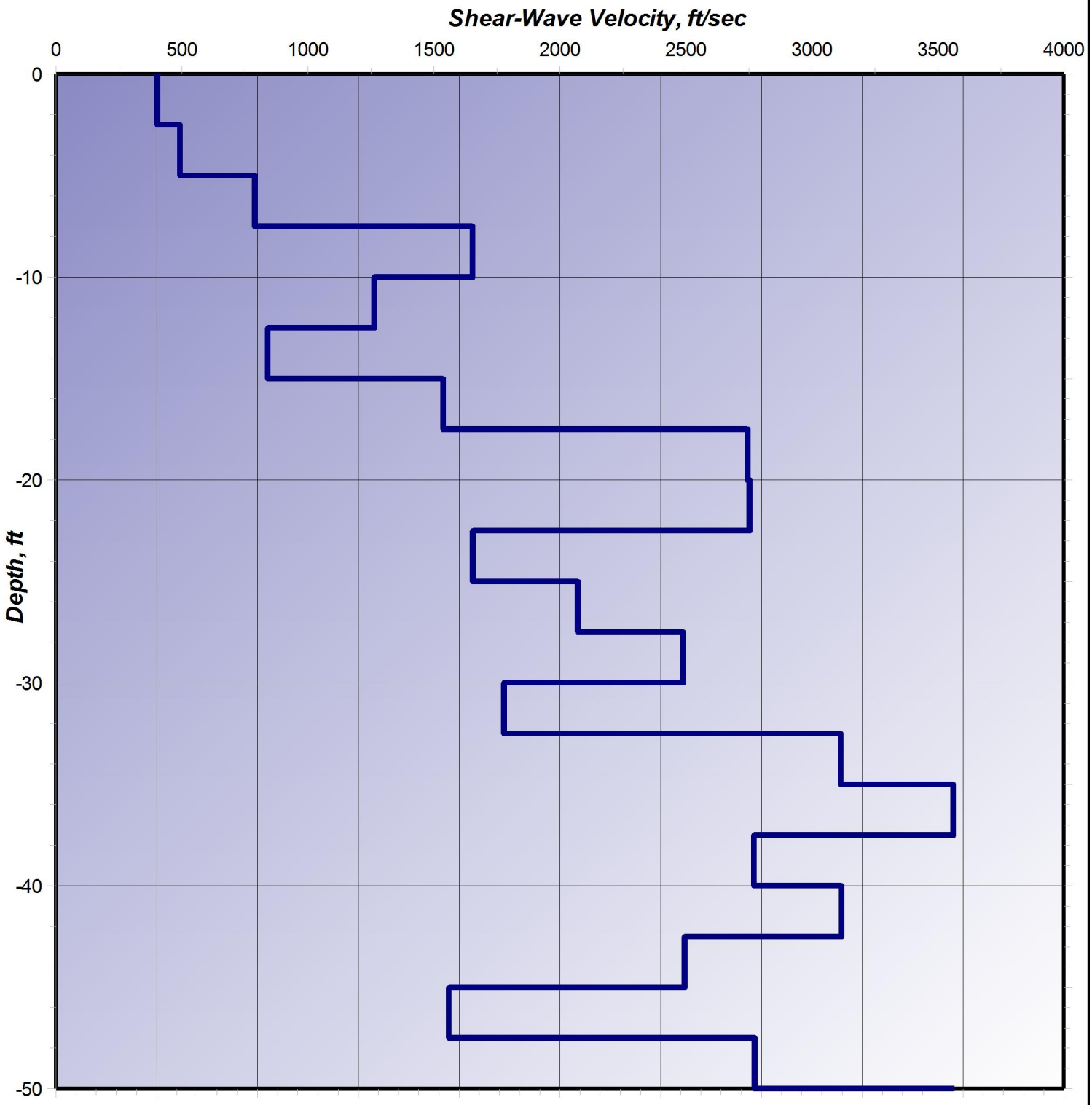
VS 100 FOR SEISMIC SITE CLASSIFICATION
S-80 REPLACE BRIDGE OVER I-26
RICHLAND COUNTY, SOUTH CAROLINA

SOUTH CAROLINA DEPARTMENT
OF TRANSPORTATION

DWN BY	N/A		SCALE: N.T.S.
CKD.BY	N/A		F&ME PROJECT: G4800.26
APPR'D.	N/A		SCDOT FILE: 40.038744

Downhole Shear-Wave Investigation

34 08' 09.9"N 81 13' 02.7"W



GeoWave Solutions, Inc.
4575 Ansley Lane
Cumming, Georgia 30040
Tel: 770-886-3776
Fax: 770-886-7212
www.geowavesolutions.com

I–26 Bridge Site – Columbia, SC

F&ME Consultants

Downhole Shear-Wave Investigation

Project Manager: M. Stone

June 16, 2010

SINCE 1881

FROEHLING & ROBERTSON, INC.
Engineering • Environmental • Geotechnical

18 Woods Lake Road
Greenville, South Carolina 29607 I USA
T 864.271.2840 I F 864.271.8124

August 22, 2012

Ms. Sara Stone, P.E.
South Carolina Department of Transportation
P.O. Box 191
Columbia, South Carolina 29202-0191

Reference: Geotechnical Subsurface Data Report
S-80 Bridge Replacement over I-26
Shady Grove Road
Richland County, South Carolina
SCDOT File No.: 40.040649.1
F&R Project Number: 65N-0302

Dear Ms. Stone:

Froehling & Robertson, Inc. (F&R) has performed the drilling services and completed the requested laboratory testing for the above referenced project. Our services were performed in accordance with the Final Boring Request dated February 3, 2012 the Laboratory Testing Request dated June 4, 2012 and the addendum for laboratory testing dated June 7, 2012.

The scope of services for the drilling consisted of a total of twenty-nine (29) borings and one hand auger boring for the project. Six borings (B-1A, B-2A and B-3 thru B-6) were performed along the bridge alignment, two borings (RD-1 and RD-2) were performed along the road alignment for the relocated Oscar Amick Road, four (4) borings and one (1) hand auger boring (RD-4 thru RD-7 and HA-4) were performed along the road alignment for Shady Grove Road, and seventeen retaining wall borings (RW-1 thru RW-10, RW-12, RW-14 thru RW-18 and RW-20) were performed for the proposed retaining walls on the north and south approaches of the bridge. The bridge borings were drilled to tricone refusal and then rock coring was performed with a minimum of 20 feet of competent rock with substantial RQD and REC values. Boring B-2A was extended to a depth of 100 feet for downhole shear wave velocity testing. The roadway borings were drilled to depths ranging from 20 to 40 feet, and the retaining wall borings were drilled to depths of 40 feet each. The boring logs and a CADD drawing with the boring locations are included in Appendix I of the report.

In addition, a Spectral Analysis of Shear Wave (SASW) test was performed in boring B-2A to a depth of 100 feet. The results of the downhole shear wave velocity test are included in Appendix III.

Laboratory testing consisted of three consolidated-undrained (CU) triaxial shear tests, standard Proctor and index testing on three bulk samples of material, and the following index testing on the soil samples and rock cores from the borings:

Wash #200 with Sieve Analysis – 76 Tests
Atterberg Limits – 75 Tests
Natural Moisture Content – 75 Tests
Unconfined Compressive Strength Tests of Rock Cores – 12 Tests
Consolidated-Undrained (CU) Triaxial Shear Tests – 3 Tests
Corrosion Series Tests – 4 Tests

The laboratory testing results are presented in Appendix II.

F&R greatly appreciates the opportunity to work with you on this project. If there are any questions concerning this report or if any additional information is required, please do not hesitate to contact us.

Sincerely,
FROEHLING & ROBERTSON, INC.

Ross Deaver, PE
Regional Vice President

APPENDIX "I"

Site Photographs

F&R Project No. 65N-0302 – S-80 Bridge Replacement over I-26
SITE PHOTOS

1. View of existing Shady Grove Road looking north across I-26

2. View of new alignment for Shady Grove Road looking north across I-26

3. View of existing Shady Grove Road looking south across I-26

4. View of new alignment of Shady Grove Road looking south across I-26

5. View of new location of Oscar Amick Road from Shady Grove Road

6. View of drilling on southern side of I-26 west of Shady Grove Road.

7. Drilling on Shady Grove Road.

8. Downhole Shear Wave Velocity Testing on boring B-2A.

APPENDIX "II"

Drilling Procedures
Key to Soil Classification
Unified Soil Classification Chart

DRILLING PROCEDURES

The soil test borings were performed in accordance with generally accepted practice using an all-terrain CME 55 rotary drill rig and mud rotary drilling techniques. Representative soil samples were recovered with a standard split-spoon sampler without the inner liner in general accordance with ASTM Standards. Utilizing an automatic hammer with the CME 55 rotary drill rig, the split-spoon sampler was driven into the soil by freely dropping a weight of 140 pounds from a height of 30 inches.

The number of blows required to drive the split-spoon sampler three consecutive 6-inch increments is recorded, and the blows of the last two increments are summed to obtain the Standard Penetration Resistance (N-value). The N-value provides a general indication of in-situ soil conditions and has been correlated with certain engineering properties of soils.

Representative portions of the split-spoon soil samples obtained throughout the exploration program were placed in glass jars. Each sample was transported to our laboratory and evaluated by a member of our professional staff. In the laboratory, the soil samples were evaluated in general accordance with techniques outlined in the visual-manual identification procedure (ASTM D 2488) and the Unified Soil Classification System. Copies of the Boring Logs are provided in the attached Appendix II.

KEY TO SOIL CLASSIFICATION

Correlation of Penetration Resistance with Relative Density and Consistency

Sands and Gravels

No. of Blows, N	Relative Density
0 - 4	Very loose
5 - 10	Loose
11 - 30	Medium dense
31 - 50	Dense
Over 50	Very dense

Silts and Clays

No. of Blows, N	Relative Density
0 - 2	Very soft
3 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very stiff
31 - 50	Hard
Over 50	Very hard

Particle Size Identification (Unified Classification System)

Boulders:	Diameter exceeds 8 inches
Cobbles:	3 to 8 inches diameter
Gravel:	**Coarse** - 3/4 to 3 inches diameter **Fine** - 4.76 mm to 3/4 inch diameter
Sand:	**Coarse** - 2.0 mm to 4.76 mm diameter **Medium** - 0.42 mm to 2.0 mm diameter **Fine** - 0.074 mm to 0.42 mm diameter
Silt and Clay:	Less than 0.07 mm (particles cannot be seen with naked eye)

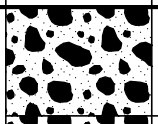
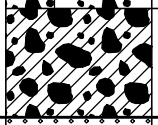
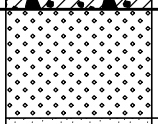
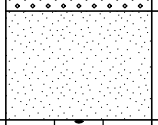
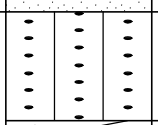
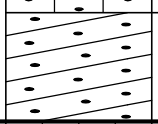
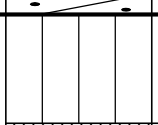
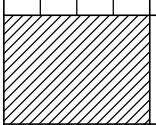
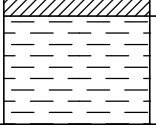
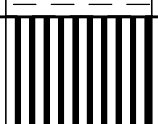
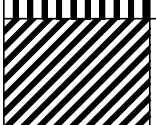
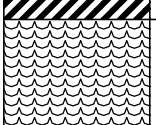
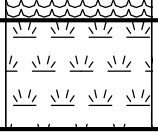
Modifiers

The modifiers provide our estimate of the amount of silt, clay or sand size particles in the soil sample.

Approximate Content	Modifiers
≤ 5%:	Trace
5% to 12%:	Slightly silty, slightly clayey, slightly sandy
12% to 30%:	Silty, clayey, sandy
30% to 50%:	Very silty, very clayey, very sandy

Field Moisture Description	
Saturated:	Usually liquid; very wet, usually from below the groundwater table
Wet:	Semisolid; requires drying to attain optimum moisture
Moist:	Solid; at or near optimum moisture
Dry:	Requires additional water to attain optimum moisture

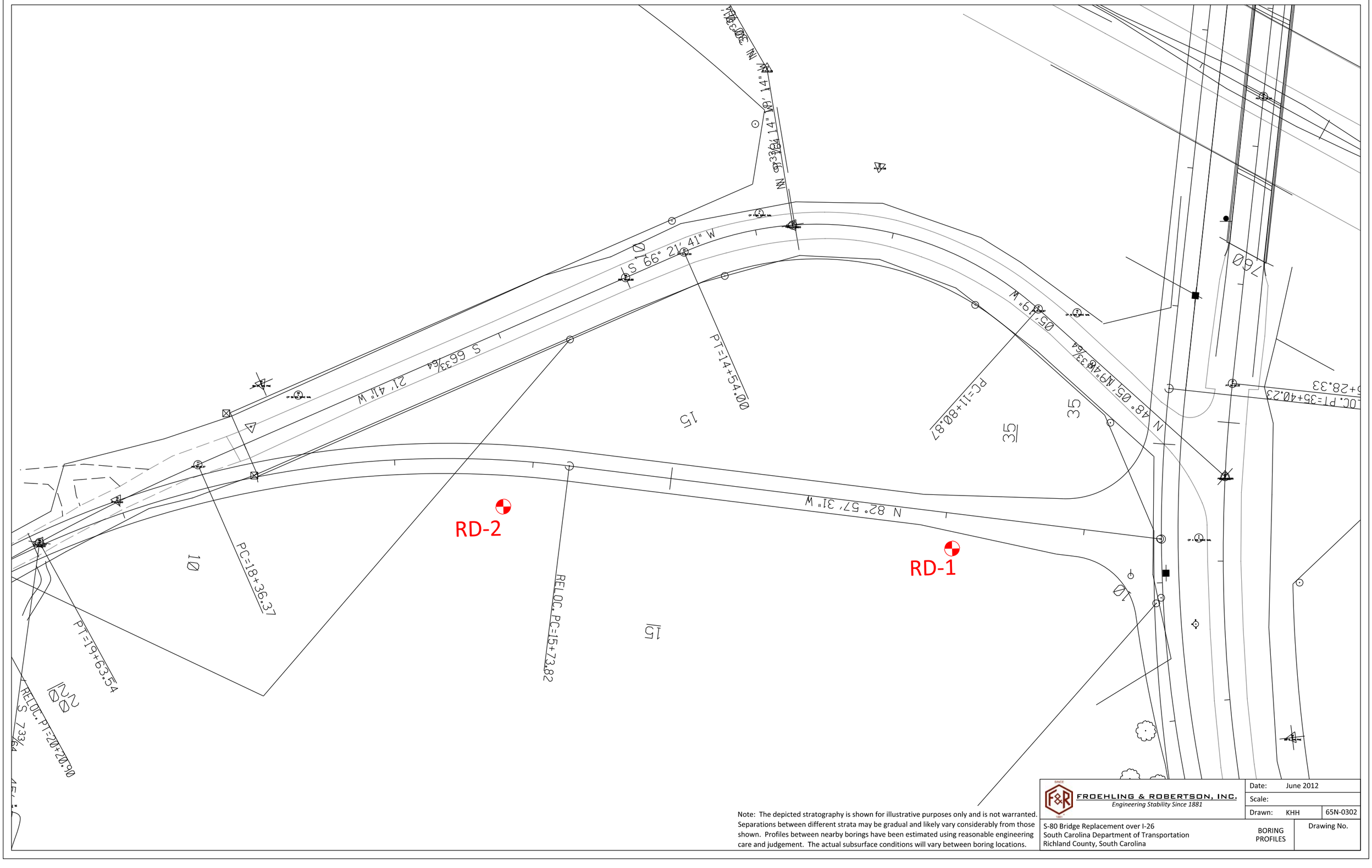
SOIL CLASSIFICATION CHART

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

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

APPENDIX "III"

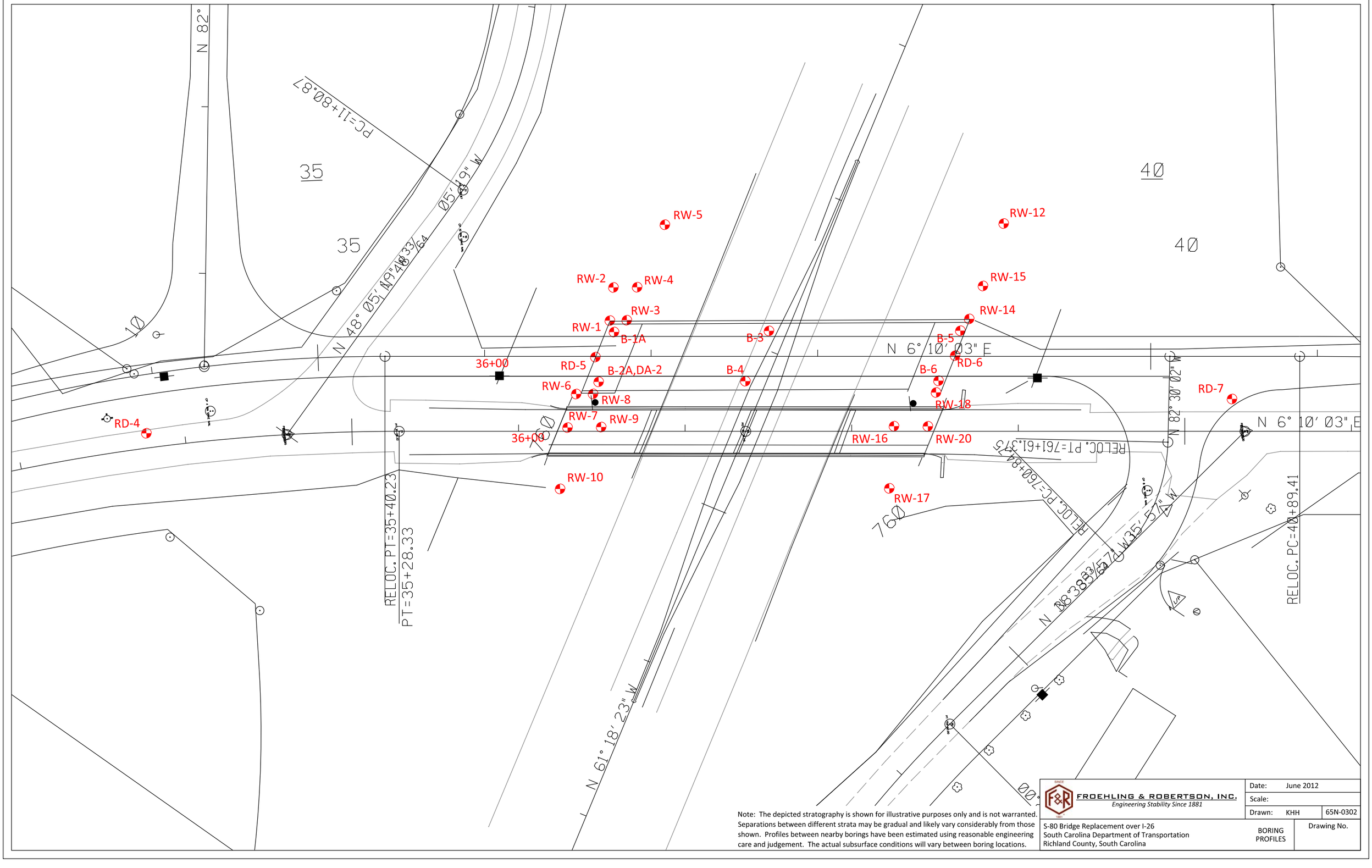
Boring Location Plan
Boring Logs
Explanation of Boring Offsets



Note: The depicted stratography is shown for illustrative purposes only and is not warranted. Separations between different strata may be gradual and likely vary considerably from those shown. Profiles between nearby borings have been estimated using reasonable engineering care and judgement. The actual subsurface conditions will vary between boring locations.

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Date: June 2012		
Scale:		
Drawn: KHH		65N-0302
S-80 Bridge Replacement over I-26 South Carolina Department of Transportation Richland County, South Carolina	BORING PROFILES	Drawing No.



Note: The depicted stratography is shown for illustrative purposes only and is not warranted. Separations between different strata may be gradual and likely vary considerably from those shown. Profiles between nearby borings have been estimated using reasonable engineering care and judgement. The actual subsurface conditions will vary between boring locations.

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Date:	June 2012	
Scale:		
Drawn:	KHH	65N-0302

S-80 Bridge Replacement over I-26
South Carolina Department of Transportation
Richland County, South Carolina

BORING PROFILES

Drawing No.

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-1A	**Boring Location:**	36+81	**Offset:**	12' LT	**Alignment:**	
Elev.:	394.2 ft	**Latitude:**	837988	**Longitude:**	1934210	**Date Started:**	03/14/12
Total Depth:	60.5 ft	**Soil Depth:**	38.5' ft	**Core Depth:**	22' ft	**Date Completed:**	3/15/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	24.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5					
		SANDY SILT (ML) stiff to very hard, fine grained, reddish-brown to light brown, dry - **RESIDUAL**.			SS-1	2	4	11	15
				2.5					
					SS-2	38	42	37	79
				4.5					
389.2					SS-3	44	50/3"		100
	6.0	Partially weathered rock at 4.5 feet.		6.5					
		SILTY SAND (SM) with some clay, very dense, fine to medium grained, yellowish-brown to brown, moist.			SS-4	50/5"			100
		Partially weathered rock from 6.0 feet to 18.5 feet.		8.5					
					SS-5	50/4"			100
384.2									
				13.5					
					SS-6	33	50/4"		100
379.2									
	18.5			18.5					
		SANDY SILT (ML) with some clay, very hard, fine to medium grained, yellowish-brown to brown, moist. Partially weathered rock from 18.5 feet to 25.0 feet.			SS-7	16	50/4"		100
374.2									
				23.5					
					SS-8	50/3"			100
369.2	25.0								
		SILTY SAND (SM) with weathered rock fragments, very dense, fine to coarse grained, brown to dark brown, moist.							
		Partially Weathered Rock From 25.0 feet to 38.5 feet.		28.5					
					SS-9	50/4"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-1A	**Boring Location:**	36+81	**Offset:**	12' LT	**Alignment:**	
Elev.:	394.2 ft	**Latitude:**	837988	**Longitude:**	1934210	**Date Started:**	03/14/12
Total Depth:	60.5 ft	**Soil Depth:**	38.5' ft	**Core Depth:**	22' ft	**Date Completed:**	3/15/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	24.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/1"	100	
359.2		Soon refusal at 38.5 feet. Tri-cone refusal at 38.5 feet. Set casing at 38.5 feet and started rock coring.						
	38.5			38.5				
		Metamorphic schist; gray to greenish-gray; fine grained, subangular; thinly laminated; quartz, chlorite, biotite; slightly to moderately weathered; weak rock; no discontinuities; closely fractured; Carolina Terrane.		39.0	SS-11	50/0"	100	
354.2					NX-12			REC = 92%, RQD = 54%
				40.5				
					NX-13			REC = 97%, RQD = 80%
349.2				45.5				
					NX-14			REC = 100%, RQD = 100%
344.2				50.5				
					NX-15			REC = 95%, RQD = 80%
339.2				55.5				
					NX-16			REC = 100%, RQD = 97%

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-1A	**Boring Location:**	36+81	**Offset:**	12' LT	**Alignment:**	
Elev.:	394.2 ft	**Latitude:**	837988	**Longitude:**	1934210	**Date Started:**	03/14/12
Total Depth:	60.5 ft	**Soil Depth:**	38.5' ft	**Core Depth:**	22' ft	**Date Completed:**	3/15/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	24.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	60.5	Bottom of borehole at 60.5 feet.								
329.2										
324.2										
319.2										
314.2										
309.2										

LEGEND

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

SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-2A	**Boring Location:**	36+70	**Offset:**	18' RT	**Alignment:**	
Elev.:	393.7 ft	**Latitude:**	837975	**Longitude:**	1934238	**Date Started:**	03/20/12
Total Depth:	100 ft	**Soil Depth:**	48' ft	**Core Depth:**	52' ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	25.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0		0.5	SS-1	1	2	14	16
	0.2	GRASS WITH SURFICIAL ORGANIC SOIL.	2.5	SS-2	32	20	42	62
	2.0	SANDY CLAY (CL) very stiff, fine grained, orange to light gray, moist - **POSSIBLE FILL**.	4.5	SS-3	12	40	50/5"	100
388.7		SANDY SILT (ML) very hard, fine to medium grained, yellowish-brown to gray, dry - **RESIDUAL**. Partially weathered rock from 3.5 feet to 11.0 feet.	6.5	SS-4	41	50/5"		100
			8.5	SS-5	17	29	44	73
383.7	11.0	SANDY SILT (ML) with some clay, very hard to very stiff, fine to medium grained, yellowish-brown, dry. Partially weathered rock from 11.0 feet to 20.0 feet.	13.5	SS-6	30	47	50/5"	100
378.7			18.5	SS-7	11	12	50/3"	100
373.7			23.5	SS-8	5	9	11	20
368.7	25.0	SILTY SAND (SM) with weathered rock fragments, very dense, fine to coarse grained, dark gray to brown, moist. Partially weathered rock from 25.0 feet to 48.0 feet.	28.5	SS-9	50/3"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-2A	**Boring Location:**	36+70	**Offset:**	18' RT	**Alignment:**	
Elev.:	393.7 ft	**Latitude:**	837975	**Longitude:**	1934238	**Date Started:**	03/20/12
Total Depth:	100 ft	**Soil Depth:**	48' ft	**Core Depth:**	52' ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**		**24HR** 25.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SILTY SAND (SM) with weathered rock fragments, very dense, fine to coarse grained, dark gray to brown, moist.						
		Partially weathered rock from 25.0 feet to 48.0 feet.		33.5	SS-10	50/5"	100	
358.7								
				38.5	SS-11	50/2"	100	
353.7								
				43.5	SS-12	50/1"	100	
348.7		Spoon refusal at 48.0 feet. Tri-cone refusal at 48.0 feet. Set casing at 48.0 feet and started rock coring.						
	48.0			48.0				
		Metamorphic Phyllite; green to greenish-gray; very fine grained, subangular; thinly laminated; quartz, chlorite, biotite; slightly weathered; medium strong rock; no discontinuities; closely fractured; Carolina Terrane.		49.0	SS-13	50/0"	100	
343.7				50.0	NX-14			REC = 100%, RQD = 17%
					NX-15			REC = 100%, RQD = 77%
338.7				55.0				
					NX-16			REC = 100%, RQD = 82%
				60.0				

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-2A	**Boring Location:**	36+70	**Offset:**	18' RT	**Alignment:**	
Elev.:	393.7 ft	**Latitude:**	837975	**Longitude:**	1934238	**Date Started:**	03/20/12
Total Depth:	100 ft	**Soil Depth:**	48' ft	**Core Depth:**	52' ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**		**24HR** 25.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				65.0	NX-17			REC = 93%, RQD = 93%
328.7								
				70.0	NX-18			REC = 100%, RQD = 83%
323.7								
				75.0	NX-19			REC = 93%, RQD = 87%
318.7								
				80.0	NX-20			REC = 97%, RQD = 92%
313.7								
				85.0	NX-21			REC = 100%, RQD = 100%
308.7								
				90.0	NX-22			REC = 83%, RQD = 83%

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-2A	**Boring Location:**	36+70	**Offset:**	18' RT	**Alignment:**	
Elev.:	393.7 ft	**Latitude:**	837975	**Longitude:**	1934238	**Date Started:**	03/20/12
Total Depth:	100 ft	**Soil Depth:**	48' ft	**Core Depth:**	52' ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	25.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				95.0	NX-23			REC = 100%, RQD = 100%
298.7					NX-24			REC = 100%, RQD = 82%
293.7	100.0	Bottom of borehole at 100.0 feet.						
288.7								
283.7								
278.7								

LEGEND

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

SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-3	**Boring Location:**	37+70	**Offset:**	14' LT	**Alignment:**	
Elev.:	378.5 ft	**Latitude:**	838078	**Longitude:**	1934217	**Date Started:**	03/29/12
Total Depth:	40.5 ft	**Soil Depth:**	19.5' ft	**Core Depth:**	20' ft	**Date Completed:**	3/29/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5						
		CLAYEY SAND (SC) medium dense, fine grained, brown to light brown, moist - **FILL**.			SS-1	7	8	11	19	
	3.5			2.5						
		SILTY SAND (SM) with weathered rock fragments, dense to very dense, fine to coarse grained, brown to gray, dry to moist - **RESIDUAL**.			SS-2	5	5	20	25	
373.5				4.5						
					SS-3	16	50/3"		100	
		Partially weathered rock from 3.5 feet to 18.7 feet.		6.5						
					SS-4	45	20	14	34	
				8.5						
					SS-5	50/4"			100	
368.5										
				13.5						
					SS-6	46	50/2"		100	
363.5										
		Spoon refusal at 18.7 feet. Tri-cone refusal at 19.5 feet. Set casing at 19.5 feet and started rock coring.		18.5						
	19.5			19.5	SS-7	50/2"			100	
358.5		Metamorphic Phyllite; gray to bluish-gray; very fine grained, subangular; thinly laminated; quartz, biotite, chlorite; moderately weathered from 19.5 feet to 31.5 feet; slightly weathered from 31.5 feet to 40.5 feet; medium strong to strong rock; no discontinuities; closely fractured; Carolina Terrane.			NX-8					REC = 100%, RQD = 67%
				21.5						
					NX-9					REC = 93%, RQD = 84%
353.5				26.5						
					NX-10					REC = 100%, RQD = 90%

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-3	**Boring Location:**	37+70	**Offset:**	14' LT	**Alignment:**	
Elev.:	378.5 ft	**Latitude:**	838078	**Longitude:**	1934217	**Date Started:**	03/29/12
Total Depth:	40.5 ft	**Soil Depth:**	19.5' ft	**Core Depth:**	20' ft	**Date Completed:**	3/29/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				31.5				
					NX-11			REC = 95%, RQD = 84%
343.5				36.5				
					NX-12			REC = 100%, RQD = 95%
338.5	40.5	Bottom of borehole at 40.5 feet.						
333.5								
328.5								
323.5								

LEGEND

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

SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-4	**Boring Location:**	37+57	**Offset:**	13' RT	**Alignment:**	
Elev.:	378.8 ft	**Latitude:**	838062	**Longitude:**	1934242	**Date Started:**	03/28/12
Total Depth:	40 ft	**Soil Depth:**	19' ft	**Core Depth:**	20' ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5						
		SANDY CLAY (CL) stiff, fine grained, reddish-brown, moist - **FILL**.			SS-1	7	7	8	15	
	3.0			2.5						
		SILTY CLAYEY SAND (SC-SM) with weathered rock fragments from 5.5 feet to 6.0 feet, very dense, fine to coarse grained, brown to white, moist - **RESIDUAL**.			SS-2	5	30	50/5"	100	
373.8				4.5						
					SS-3	38	44	50/2"	100	
	6.0			6.5						
		SILTY SAND (SM) very dense, fine to coarse grained, brown to white - moist.			SS-4	50/4"			100	
		Partially weathered rock from 3.0 feet to 19.0 feet.		8.5						
		Soft layer from 7.0 feet to 7.5 feet.			SS-5	50/1"			100	
368.8										
				13.5						
					SS-6	50/2"			100	
363.8										
		Spoon refusal at 18.8 feet. Tri-cone refusal at 19.0 feet. Set casing at 19.0 feet and started rock coring.		18.5						
	19.0			19.0	SS-7	50/2"			100	
358.8		Metamorphic Phyllite; gray to bluish-gray; very fine grained, subangular; thinly laminated; quartz, biotite, chlorite; slightly weathered; weak to medium strong rock; no discontinuities; moderately fractured from 19.0 feet to 31.0 feet, closely fractured from 31.0 feet to 40.0 feet; Carolina Terrane.			NX-8					REC = 83%, RQD = 83%
				21.0						
					NX-9					REC = 93%, RQD = 87%
353.8				26.0						
					NX-10					REC = 100%, RQD = 75%

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-4	**Boring Location:**	37+57	**Offset:**	13' RT	**Alignment:**	
Elev.:	378.8 ft	**Latitude:**	838062	**Longitude:**	1934242	**Date Started:**	03/28/12
Total Depth:	40 ft	**Soil Depth:**	19' ft	**Core Depth:**	20' ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				31.0				
					NX-11			REC = 100%, RQD = 80%
343.8				35.0				
					NX-12			REC = 100%, RQD = 100%
338.8	40.0	Bottom of borehole at 40.0 feet.						
333.8								
328.8								
323.8								

LEGEND

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

SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-5	**Boring Location:**	38+87	**Offset:**	16' LT	**Alignment:**	
Elev.:	395.2 ft	**Latitude:**	838194	**Longitude:**	1934228	**Date Started:**	04/02/12
Total Depth:	82 ft	**Soil Depth:**	44' ft	**Core Depth:**	38' ft	**Date Completed:**	4/3/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	25.3'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.2	GRASS WITH SURFICIAL ORGANIC SOIL.	0.5	SS-1	3	4	16	20
	2.0	SILTY SAND (SM) with some clay, medium dense, fine grained, tan to orange, dry - **POSSIBLE FILL**.	2.5	SS-2	41	50/5"		100
390.2		SANDY SILT (ML) with trace clay, very hard, fine to medium grained, tan to gray, dry to moist - **RESIDUAL**.	4.5	SS-3	37	47	50/4"	100
			6.5	SS-4	50/5"			100
		Partially weathered rock from 3.5 feet to 13.5 feet.	8.5	SS-5	50/4"			100
385.2								
	13.5		13.5	SS-6	50/3"			100
380.2		SANDY SILT (ML) with weathered rock fragments, very hard, fine to coarse grained, gray to white, moist.						
		Partially weathered rock from 13.5 feet to 23.5 feet.	18.5	SS-7	50/1"			100
375.2								
	23.5		23.5	SS-8	11	12	50/5"	100
370.2		SILTY SAND (SM) with weathered rock fragments, very hard, fine to coarse grained, gray to brown, moist.						
		Partially weathered rock from 23.5 feet to 43.5 feet.	28.5	SS-9	50/3"			100

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-5	**Boring Location:**	38+87	**Offset:**	16' LT	**Alignment:**	
Elev.:	395.2 ft	**Latitude:**	838194	**Longitude:**	1934228	**Date Started:**	04/02/12
Total Depth:	82 ft	**Soil Depth:**	44' ft	**Core Depth:**	38' ft	**Date Completed:**	4/3/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	25.3'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/4"	100	
360.2								
				38.5	SS-11	50/2"	100	
355.2		Spool Refusal at 43.5 feet. Tri-cone refusal at 44.0 feet. Set casing at 44.0 feet and started rock coring.						
				43.5				
	44.0			44.0	SS-12	50/0"	100	
350.2		Metamorphic Phyllite; green to brown from 44.0 feet to 52.0 feet, green to bluish-gray from 52.0 feet to 82.0 feet; very fine grained, subangular, thinly laminated; quartz, biotite, chlorite; moderately weathered; weak to medium strong rock; mud seam from 48.0 feet to 48.5 feet, weathered rock seam from 52.0 feet to 62.0 feet, sand seam from 62.0 feet to 62.5 feet, sand seam from 73.5 feet to 75.0 feet; moderately fractured from 44.0 feet to 52.0 feet, highly fractured from 52.0 feet to 62.0 feet, moderately fractured from 62.0 feet to 82.0 feet; Carolina Terrane.			NX-13			REC = 100%, RQD = 64%
				47.0				
					NX-14			REC = 100%, RQD = 33%
345.2								
				52.0				
					NX-15	50/0"	100	REC = 90%, RQD = 0%
340.2								
				57.0				
					NX-16			REC = 80%, RQD = 0%

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-5	**Boring Location:**	38+87	**Offset:**	16' LT	**Alignment:**	
Elev.:	395.2 ft	**Latitude:**	838194	**Longitude:**	1934228	**Date Started:**	04/02/12
Total Depth:	82 ft	**Soil Depth:**	44' ft	**Core Depth:**	38' ft	**Date Completed:**	4/3/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	25.3'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				62.0				
330.2					NX-17			REC = 100%, RQD = 53%
				67.0				
325.2					NX-18			REC = 90%, RQD = 60%
				72.0				
320.2					NX-19			REC = 95%, RQD = 55%
				77.0				
315.2					NX-20			REC = 100%, RQD = 100%
	82.0	Bottom of borehole at 82.0 feet.						
310.2								

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-6	**Boring Location:**	38+72	**Offset:**	15' RT	**Alignment:**	
Elev.:	394.2 ft	**Latitude:**	838176	**Longitude:**	1934257	**Date Started:**	03/27/12
Total Depth:	59 ft	**Soil Depth:**	39' ft	**Core Depth:**	20' ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	23.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5					
		SANDY SILT (ML) with some clay, hard to very hard, fine to medium grained, light gray and orange, dry - **RESIDUAL**.			SS-1	3	9	24	33
				2.5					
					SS-2	27	27	34	61
				4.5					
389.2					SS-3	28	14	19	33
				6.5					
		Partially weathered rock from 6.0 feet to 12.0 feet.			SS-4	6	40	50/6"	100
				8.5					
					SS-5	28	50/3"		100
384.2									
	12.0	SANDY SILT (ML) very hard, fine to medium grained, tan to gray, dry to moist.							
		Partially weathered rock from 12.0 feet to 20.0 feet.		13.5					
					SS-6	20	39	50/5"	100
379.2									
				18.5					
					SS-7	34	50/6"		100
374.2	20.0	SANDY SILT (ML) very hard, fine to coarse grained, brown to black, dry to moist.							
		Partially weathered rock from 20.0 feet to 39.0 feet.		23.5					
					SS-8	50/3"			100
369.2									
				28.5					
					SS-9	50/2"			100

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	B-6	**Boring Location:**	38+72	**Offset:**	15' RT	**Alignment:**	
Elev.:	394.2 ft	**Latitude:**	838176	**Longitude:**	1934257	**Date Started:**	03/27/12
Total Depth:	59 ft	**Soil Depth:**	39' ft	**Core Depth:**	20' ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:	NQ Wireline	**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	23.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/0"	100	
359.2								
		Tri-cone refusal at 39.0 feet. Set casing at 39.0 feet and started rock coring.						
	39.0			39.0				
354.2		Metamorphic schist; green to bluish-gray; fine grained, subangular; thinly laminated; quartz, biotite, chlorite; slightly weathered; weak rock; no discontinuities; closely fractured from 39.0 feet to 46.0 feet, very fractured from 46.0 feet to 51.0 feet, moderately fractured from 51.0 feet to 59.0 feet; Carolina Terrane.			NX-11			REC = 100%, RQD = 67%
				41.0				
					NX-12			REC = 100%, RQD = 62%
349.2				46.0				
					NX-13			REC = 88%, RQD = 33%
344.2				51.0				
					NX-14			REC = 93%, RQD = 82%
339.2				56.0				
					NX-15			REC = 100%, RQD = 60%
	59.0	Bottom of borehole at 59.0 feet.						

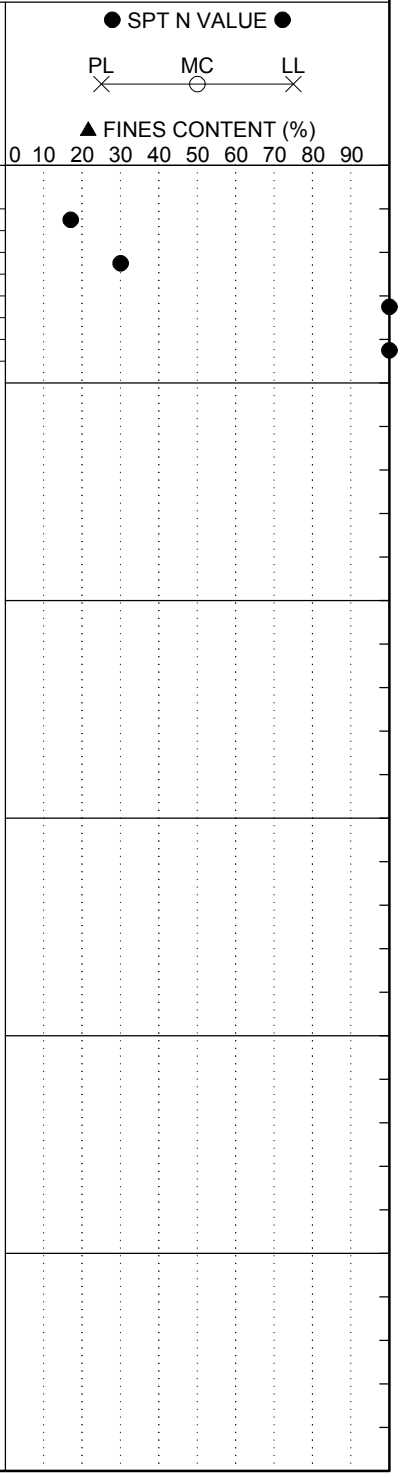
LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Deaver
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	HA-4	**Boring Location:**	33+46	**Offset:**	5' RT	**Alignment:**	
Elev.:	396.9 ft	**Latitude:**	837654	**Longitude:**	1934209	**Date Started:**	04/05/12
Total Depth:	4.3 ft	**Soil Depth:**	4.3' ft	**Core Depth:**	ft	**Date Completed:**	4/5/2012
Bore Hole Diameter (in):	3"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:		**Drill Method:**	Hand Auger	**Hammer Type:**	DCP	**Energy Ratio:**	
Core Size:		**Driller:**	Deaver	**Groundwater:**	**TOB** NR	**24HR**	

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	SURFICIAL ORGANIC SOIL.							
		SANDY SILT (ML) very stiff to very hard, fine to medium grained, tan to brown, dry to moist - **RESIDUAL**.		1.0	DCP-1	7	8	9	17
				2.0	DCP-2	10	12	18	30
				3.0	DCP-3	50/1"			100
	4.3			4.0	DCP-4	50/1"			100
391.9		Auger refusal at 4.3 feet. Boring offset 3.0 feet South with auger refusal at 3.5 feet. Boring offset 3.0 feet North with auger refusal at 4.0 feet.							
386.9									
381.9									
376.9									
371.9									



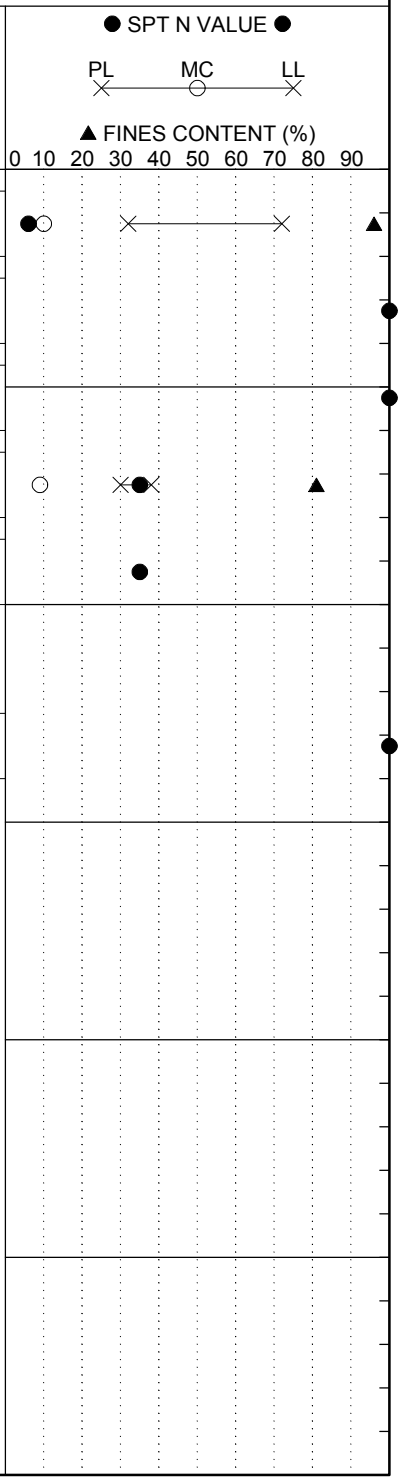
LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-1	**Boring Location:**	12+92	**Offset:**	10' S	**Alignment:**	
Elev.:	392.5 ft	**Latitude:**	837742	**Longitude:**	1934052	**Date Started:**	04/05/12
Total Depth:	14.5 ft	**Soil Depth:**	14.5' ft	**Core Depth:**	ft	**Date Completed:**	4/5/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	SURFICIAL ORGANIC SOIL.		0.5					
		FAT CLAY (CH) firm, orange - dry - RESIDUAL.			SS-1	3	2	4	6
	2.5	SANDY SILT (ML) firm to very hard, fine to medium grained, orange to black, dry.		2.5	SS-2	17	30	50/5"	100
		Partially weathered rock from 3.5 feet to 5.0 feet.		4.5					
387.5					SS-3	50/5"			100
				6.5					
					SS-4	11	16	19	35
	9.0			8.5					
		SANDY SILT (ML) hard, fine to coarse grained, white to tan, moist.			SS-5	13	14	21	35
382.5		Partially weathered rock from 10.0 feet to 12.5 feet.							
	12.5	SILTY SAND (SM) with weathered rock fragments, very dense, fine to coarse grained, tan to gray, moist.		12.5	SS-6	50/0"			100
	14.5	Partially weathered rock from 12.5 feet to 14.5 feet.							
377.5		Spoon refusal at 12.5 feet.							
		Tri-cone refusal at 14.5 feet.							
372.5									
367.5									



LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-2	**Boring Location:**	16+30	**Offset:**	30' S	**Alignment:**	
Elev.:	395.3 ft	**Latitude:**	837765	**Longitude:**	1933714	**Date Started:**	04/05/12
Total Depth:	30 ft	**Soil Depth:**	30' ft	**Core Depth:**	ft	**Date Completed:**	4/5/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	SURFICIAL ORGANIC SOIL.		0.5					
	2.0	FAT CLAY (CH) with sand, firm, fine grained, red to tan, moist - **RESIDUAL**.			SS-1	2	3	3	6
		SILTY SAND (SM) with weathered rock fragments, very dense, fine grained, tan to orange, dry.		2.5	SS-2	7	18	50/4"	100
390.3		Partially weathered rock from 5.0 feet to 8.0 feet.		4.5	SS-3	50/2"			100
				6.5	SS-4	50/3"			100
	8.0	SILTY SAND (SM) with weathered rock fragments, very dense, fine to medium grained, tan to brown, dry.		8.5	SS-5	50/4"			100
385.3		Partially weathered rock from 8.0 feet to 13.0 feet.							
	13.0	SANDY SILT (ML) very hard, fine grained, orange-brown to black, moist.		13.5	SS-6	23	40	46	86
380.3		Partially weathered rock from 13.0 feet to 30.0 feet.							
				18.5	SS-7	50/5"			100
375.3									
				23.5	SS-8	50/3"			100
370.3									
		Spoon refusal at 28.6 feet.		28.5	SS-9	50/2"			100
	30.0								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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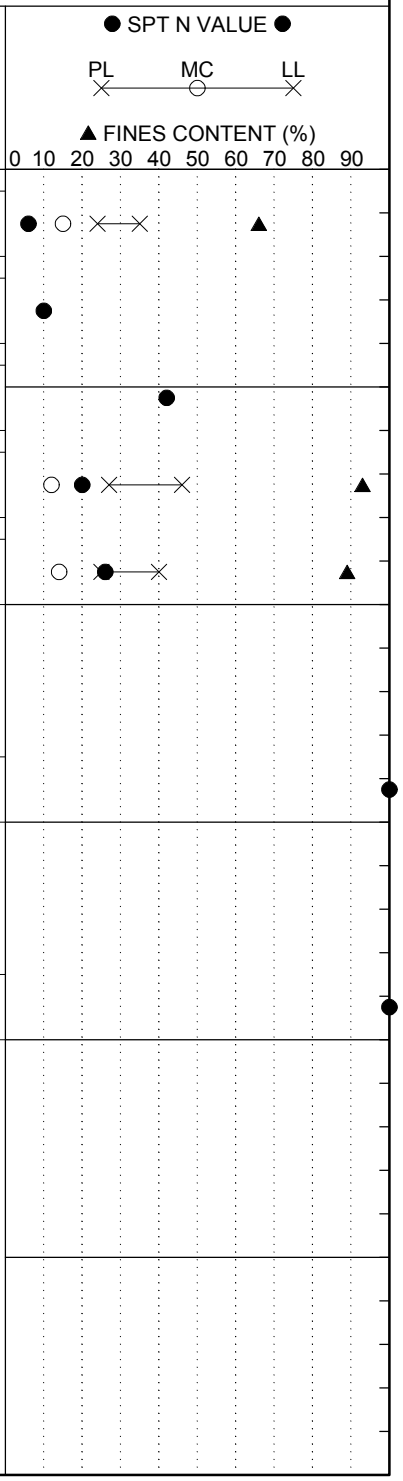
SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-4	**Boring Location:**	33+80	**Offset:**	25' RT	**Alignment:**	
Elev.:	400.6 ft	**Latitude:**	837689	**Longitude:**	1934227	**Date Started:**	04/06/12
Total Depth:	20 ft	**Soil Depth:**	20' ft	**Core Depth:**	ft	**Date Completed:**	4/6/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	Dry

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5					
		SANDY SILTY CLAY (CL) with gravel, firm to hard, fine to medium grained, brown to tan, dry - **FILL**.			SS-1	5	3	3	6
				2.5					
					SS-2	5	5	5	10
				4.5					
395.6					SS-3	8	19	23	42
	6.0								
		SILTY CLAY (CL) with slight sand, very stiff, fine grained, orange to brown, dry - **RESIDUAL**.		6.5					
	8.0				SS-4	8	8	12	20
		SILTY CLAY (CL) very stiff, fine grained, light brown to tan, moist.		8.5					
					SS-5	10	12	14	26
390.6									
	12.0								
		SANDY SILT (ML) very hard, fine to medium grained, light brown to black, moist.		13.5					
					SS-6	27	50/3"		100
385.6		Partially weathered rock from 14.5 feet to 18.7 feet.							
		Spoon refusal at 18.7 feet.		18.5					
					SS-7	50/2"			100
	20.0								
380.6									
375.6									



LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-5	**Boring Location:**	36+65	**Offset:**	1' LT	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	837972	**Longitude:**	1934218	**Date Started:**	03/21/12
Total Depth:	30 ft	**Soil Depth:**	30' ft	**Core Depth:**	ft	**Date Completed:**	3/21/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	18.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.2	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	3	4	5	9
	2.5	SANDY SILTY CLAY (CL) firm, fine grained, orange, moist - **RESIDUAL**.		2.5	SS-2	15	50/5"		100
		SANDY SILT (ML) with some clay, very hard, fine grained, orange to brown - moist.		4.5	SS-3	15	45	50/3"	100
390.0		Partially weathered rock from 6.0 feet to 8.5 feet.		6.5	SS-4	50/4"			100
	8.5	SANDY SILT (ML) with rock fragments, very hard to hard, fine to coarse grained, brown and light brown, moist.		8.5	SS-5	30	33	28	61
385.0		Partially weathered rock from 8.5 feet to 15.0 feet.		13.5	SS-6	13	23	24	47
380.0	15.0	SANDY SILT (ML) with rock fragments, very hard, fine to coarse, orange-brown to brown, moist.		18.5	SS-7	50/2"			100
		Partially weathered rock from 15.0 feet to 28.7 feet.							
375.0				23.5	SS-8	50/3"			100
370.0				28.5	SS-9	50/1"			100
	30.0	Spoon refusal at 28.7 feet.							

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-6	**Boring Location:**	38+83	**Offset:**	CL	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	838189	**Longitude:**	1934243	**Date Started:**	03/23/12
Total Depth:	30 ft	**Soil Depth:**	30' ft	**Core Depth:**	ft	**Date Completed:**	3/23/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	17.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	2	3	5	8
	2.5	SANDY CLAY (CL) firm, fine grained, orange, moist - **POSSIBLE FILL**.		2.5	SS-2	5	40	50'3"	100
		SANDY SILT (ML) with some clay, very hard, fine to medium grained, orange to light brown, dry to moist - **RESIDUAL**.		4.5	SS-3	50/4"			100
390.0		Partially weathered rock from 5.0 feet to 6.0 feet.							
	6.0			6.5	SS-4	50/5"			100
		SILTY SAND (SM) with rock fragments, medium dense to very dense, fine to coarse, light brown to brown, moist.		8.5	SS-5	7	7	17	24
		Partially weathered rock from 6.0 feet to 10.0 feet.							
385.0	10.0								
		SANDY SILT (ML) very hard, fine to medium grained, yellowish-brown to brown, moist.		13.5	SS-6	50/3"			100
		Partially weathered rock from 10.0 feet to 22.0 feet.							
380.0									
				18.5	SS-7	50/2"			100
375.0									
	22.0								
		CLAYEY SAND (SC) with rock fragments, very dense, medium to coarse, brown to tan, dry.		23.5	SS-8	50/2"			100
		Partially weathered rock from 22.0 feet to 28.7 feet.							
370.0									
				28.5	SS-9	50/3"			100
		Spoon refusal at 28.7 feet.							
	30.0								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RD-7	**Boring Location:**	40+48	**Offset:**	25' RT	**Alignment:**	
Elev.:	395.6 ft	**Latitude:**	838350	**Longitude:**	1934286	**Date Started:**	04/04/12
Total Depth:	20 ft	**Soil Depth:**	20' ft	**Core Depth:**	ft	**Date Completed:**	4/4/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	Dry

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	5	7	6	13
		SANDY SILT (ML) with some clay, stiff, fine grained, tan to orange, moist - **RESIDUAL**.		2.5	SS-2	3	5	7	12
	4.0	SANDY SILT (ML) with weathered rock fragments, hard to very hard, fine to medium grained, tan to orange, dry to moist.		4.5	SS-3	12	16	23	39
390.6		Partially weathered rock from 7.5 feet to 10.0 feet.		6.5	SS-4	24	40	50/3"	100
				8.5	SS-5	15	43	50/5"	100
385.6	10.0	SANDY SILT (ML) very hard, fine grained, orange to black, moist. Partially weathered rock from 10.0 feet to 18.9 feet.		13.5	SS-6	36	50/4"		100
380.6				18.5	SS-7	50/5"			100
375.6	20.0	Spoon refusal at 18.9 feet.							
370.6									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-1	**Boring Location:**	36+74	**Offset:**	21' LT	**Alignment:**	
Elev.:	395.5 ft	**Latitude:**	837983	**Longitude:**	1934199	**Date Started:**	03/21/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/21/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	SURFICIAL ORGANIC SOIL.		0.5					
	1.0	SANDY CLAY (CL) firm, fine grained, brown to red, dry - **FILL**.			SS-1	6	10	10	20
	2.5	CLAYEY SILT (ML) very stiff, fine grained, tan to red, dry - **RESIDUAL**.		2.5	SS-2	19	50/5"		100
390.5		SANDY SILT (ML) very hard, fine grained, tan to brown, dry to moist. Some clay from 6.0 feet to 8.0 feet.		4.5	SS-3	33	46	44	90
				6.5	SS-4	22	25	30	55
	8.0			8.5					
385.5		SANDY SILT (ML) with weathered rock fragments, very hard, fine to medium grained, brown to dark brown, dry. Partially weathered rock from 8.0 feet to 15.0 feet.			SS-5	23	50/5"		100
				13.5	SS-6	50/4"			100
380.5	15.0								
		SANDY SILT (ML) very hard, fine grained, brown to black, moist. Partially weathered rock from 15.0 feet to 25.0 feet.		18.5	SS-7	50/4"			100
375.5									
				23.5	SS-8	50/3"			100
370.5	25.0								
		SANDY SILT (ML) with weathered rock fragments, very hard, fine to medium grained, brown, moist. Partially weathered rock from 25.0 feet to 38.0 feet.		28.5	SS-9	50/4"			100

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-1	**Boring Location:**	36+74	**Offset:**	21' LT	**Alignment:**	
Elev.:	395.5 ft	**Latitude:**	837983	**Longitude:**	1934199	**Date Started:**	03/21/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/21/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5						
		Moist to wet from 33.5 feet to 38.0 feet.			SS-10	50/2"			100	
360.5										
		Spoon refusal at 38.8 feet.		38.5						
					SS-11	50/4"			100	
355.5	40.0									
350.5										
345.5										
340.5										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-2	**Boring Location:**	36+79	**Offset:**	45' LT	**Alignment:**	
Elev.:	395.2 ft	**Latitude:**	837991	**Longitude:**	1934176	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	18.4'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	SURFICIAL ORGANIC SOIL.		0.5					
		SANDY SILT (ML) firm to very hard, fine to medium grained, orange-brown to brown, dry - **RESIDUAL**.			SS-1	4	5	4	9
				2.5					
					SS-2	14	20	35	55
	4.0			4.5					
390.2		SANDY CLAY (CL) with weathered rock fragments, very hard, fine to coarse grained, orange-brown to brown, dry.			SS-3	14	50/5"		100
				6.5					
		Partially weathered rock from 6.0 feet to 8.0 feet.			SS-4	50/4"			100
	8.0			8.5					
		SILTY SAND (SM) with some clay, very dense, fine to medium grained, yellowish-brown, dry to moist.			SS-5	50/3"			100
385.2		Partially weathered rock from 8.0 feet to 15.0 feet.							
				13.5					
					SS-6	50/2"			100
380.2	15.0								
		SANDY SILT (ML) very hard, fine to medium grained, brown to tan, moist. Weathered rock fragments from 15.0 feet to 25.0 feet.							
		Partially weathered rock from 15.0 feet to 35.0 feet.		18.5					
					SS-7	50/1"			100
375.2									
				23.5					
					SS-8	50/2"			100
370.2									
				28.5					
					SS-9	50/1"			100

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-2	**Boring Location:**	36+79	**Offset:**	45' LT	**Alignment:**	
Elev.:	395.2 ft	**Latitude:**	837991	**Longitude:**	1934176	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	18.4'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	18	50/2"		100	
360.2	35.0	SILTY SAND (SM) with weathered rock fragments, very dense, fine, brown, moist.								
		Spoon refusal at 38.7 feet.		38.5	SS-11	50/2"			100	
355.2	40.0									
350.2										
345.2										
340.2										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-3	**Boring Location:**	36+84	**Offset:**	21.5' LT	**Alignment:**	
Elev.:	395.4 ft	**Latitude:**	837993	**Longitude:**	1934200	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	SURFICIAL ORGANIC SOIL.		0.5					
		SANDY SILTY CLAY (CL) firm, fine grained, red to orange-brown, dry - **POSSIBLE FILL**.			SS-1	4	4	4	8
	2.5			2.5					
		SANDY SILT (ML) with some clay, very stiff to very hard, fine grained, orange-brown, dry - **RESIDUAL**.			SS-2	10	10	15	25
				4.5					
390.4					SS-3	11	20	50/4"	100
	6.0			6.5					
		CLAYEY SAND (SC) with weathered rock fragments, very dense, fine to medium grained, brown to orange-brown, moist.			SS-4	9	50/5"		100
		Partially weathered rock from 6.0 feet to 12.0 feet.		8.5					
					SS-5	50/2"			100
385.4									
	12.0								
		SILTY SAND (SM) very dense, fine to medium grained, brown, moist.		13.5					
		Partially weathered rock from 12.0 feet to 18.5 feet.			SS-6	50/5"			100
380.4									
	18.5			18.5					
		SANDY SILT (ML) with weathered rock fragments, very hard, fine grained, orange-brown to tan, moist.			SS-7	50/2"			100
375.4		Partially weathered rock from 18.5 feet to 30.0 feet.							
		Some clay from 18.5 feet to 23.5 feet.		23.5					
					SS-8	50/3"			100
370.4									
				28.5					
	30.0				SS-9	50/2"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-3	**Boring Location:**	36+84	**Offset:**	21.5' LT	**Alignment:**	
Elev.:	395.4 ft	**Latitude:**	837993	**Longitude:**	1934200	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SILTY SAND (SM) with weathered rock fragments, very dense, fine to medium grained, light brown to dark brown, moist.								
		Partially weathered rock from 30.0 feet to 40.0 feet.		33.5	SS-10	30	50/4"		100	
360.4										
				38.5						
		Spoon refusal at 38.6 feet.			SS-11	50/1"			100	
355.4	40.0									
350.4										
345.4										
340.4										

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-4	**Boring Location:**	36+92	**Offset:**	47' LT	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	838003	**Longitude:**	1934176	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.3'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.3	SURFICIAL ORGANIC SOIL.	0.5	SS-1	2	5	8	13
		SANDY SILT (ML) with some clay, stiff to very hard, fine grained, red to brown, dry - **RESIDUAL**.	2.5	SS-2	35	50/5"		100
		Partially weathered rock from 2.5 feet to 4.0 feet.	4.5	SS-3	50/6"			100
	4.0							
390.0		SANDY SILT (ML) very hard, fine grained, tan to brown, dry to moist.	6.5	SS-4	16	50/5"		100
		Partially weathered rock from 4.0 feet to 10.0 feet.	8.5	SS-5	50/3"			100
		Weathered rock fragments from 8.0 feet to 10.0 feet.						
385.0	10.0	SILTY SAND (SM) very dense, fine to medium grained, brown, moist.	13.5	SS-6	50/2"			100
		Partially weathered rock from 10.0 feet to 18.5 feet.						
380.0								
	18.5	SANDY SILT (ML) with some clay, hard to very hard, fine to medium grained, orange-brown to brown, moist.	18.5	SS-7	50/3"			100
375.0		Partially weathered rock from 18.5 feet to 28.5 feet.						
			23.5	SS-8	14	18	25	43
370.0								
	28.5		28.5	SS-9	50/1"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-4	**Boring Location:**	36+92	**Offset:**	47' LT	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	838003	**Longitude:**	1934176	**Date Started:**	03/20/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/20/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.3'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SILTY SAND (SM) with weathered rock fragments, very dense, fine to medium grained, brown to tan, moist.						
		Partially weathered rock from 28.5 feet to 33.5 feet.						
	33.5			33.5				
		No Recovery. Partially weathered rock from 33.5 feet to 38.5 feet.			SS-10	50/0"	100	●
360.0								
		Spoon refusal at 38.5 feet.		38.5				
					SS-11	50/0"	100	●
355.0	40.0							
350.0								
345.0								
340.0								

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-5	**Boring Location:**	37+10	**Offset:**	84' LT	**Alignment:**	
Elev.:	394.0 ft	**Latitude:**	838026	**Longitude:**	1934141	**Date Started:**	03/19/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.9'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	SURFICIAL ORGANIC SOIL.		0.5					
	1.5	SANDY SILT (ML) stiff, fine grained, red to brown, moist - **POSSIBLE FILL**.			SS-1	3	8	13	21
		SANDY SILT (ML) with some clay, very hard, fine grained, tan to brown, dry - **RESIDUAL**.		2.5	SS-2	30	50/5"		100
	4.0	Partially weathered rock from 2.5 feet to 4.0 feet.		4.5					
389.0					SS-3	24	48	50/5"	100
		SANDY SILT (ML) very hard, fine to medium grained, orangish-brown to tan, dry.		6.5	SS-4	50/5"			100
	8.0	Partially weathered rock from 4.0 feet to 8.0 feet.		8.5					
		SILTY SAND (SM) very dense, fine to medium grained, light brown to tan, dry.			SS-5	50/4"			100
384.0		Partially weathered rock from 8.0 feet to 18.5 feet.							
				13.5	SS-6	50/4"			100
379.0									
	18.5			18.5					
		SANDY SILT (ML) with some clay, very hard, fine grained, light brown to dark brown, dry to moist.			SS-7	50/3"			100
374.0		Partially weathered rock from 18.5 feet to 28.5 feet.							
				23.5	SS-8	50/2"			100
369.0									
	28.5			28.5	SS-9	50/1"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-5	**Boring Location:**	37+10	**Offset:**	84' LT	**Alignment:**	
Elev.:	394.0 ft	**Latitude:**	838026	**Longitude:**	1934141	**Date Started:**	03/19/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/19/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.9'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SANDY SILT (ML) with weathered rock fragments, very hard, fine to medium grained, brown to black, moist.						
		Partially weathered rock from 28.5 feet to 38.7 feet.		33.5	SS-10	50/2"	100	
359.0								
		Spoon refusal at 38.7 feet.		38.5	SS-11	50/2"	100	
354.0	40.0							
349.0								
344.0								
339.0								

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-6	**Boring Location:**	36+56	**Offset:**	22' RT	**Alignment:**	
Elev.:	396.4 ft	**Latitude:**	837961	**Longitude:**	1934240	**Date Started:**	03/26/12
Total Depth:	35 ft	**Soil Depth:**	35' ft	**Core Depth:**	ft	**Date Completed:**	3/26/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	22.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	WOH	2	3	5
		SILTY CLAY (CL) firm, fine grained, yellow to reddish-brown, moist - **POSSIBLE FILL**.		2.5	SS-2	4	6	9	15
	3.0	SANDY SILT (ML) stiff to very hard, fine to medium grained, reddish-brown to orange-brown, dry to moist.		4.5	SS-3	12	50/5"		100
391.4		Partially weathered rock from 5.0 feet to 10.0 feet.		6.5	SS-4	50/1"			100
				8.5	SS-5	50/3"			100
386.4	10.0	SANDY SILT (ML) very hard, fine to medium grained, brown to orange-brown, moist.							
		Partially weathered rock from 10.0 feet to 30.0 feet.		13.5	SS-6	38	50/4"		100
381.4									
				18.5	SS-7	24	50/5"		100
376.4		Weathered rock fragments from 20.0 feet to 25.0 feet.							
				23.5	SS-8	50/2"			100
371.4									
				28.5	SS-9	50/4"			100
	30.0								

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-6	**Boring Location:**	36+56	**Offset:**	22' RT	**Alignment:**	
Elev.:	396.4 ft	**Latitude:**	837961	**Longitude:**	1934240	**Date Started:**	03/26/12
Total Depth:	35 ft	**Soil Depth:**	35' ft	**Core Depth:**	ft	**Date Completed:**	3/26/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	22.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SILTY SAND (SM) with weathered rock fragments, very hard, fine to coarse grained, brown, moist.								
		Partially weathered rock from 30.0 feet to 33.6 feet.								
		Spoon refusal at 33.6 feet.		33.5						
		Tri-cone refusal at 35.0 feet.			SS-10	50/1"			100	
361.4	35.0									
356.4										
351.4										
346.4										
341.4										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-7	**Boring Location:**	36+52	**Offset:**	39' RT	**Alignment:**	
Elev.:	399.4 ft	**Latitude:**	837955	**Longitude:**	1934257	**Date Started:**	03/27/12
Total Depth:	35 ft	**Soil Depth:**	29' ft	**Core Depth:**	ft	**Date Completed:**	3/27/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0									0 10 20 30 40 50 60 70 80 90
	0.5	6" CONCRETE.								
		Boring performed through bridge deck. Ground surface 6.0 feet below top of bridge deck.								
394.4	6.0	SANDY SILTY CLAY (CL) hard to very hard, fine grained, orange to light brown, moist - **RESIDUAL**.		6.5	SS-1	6	11	20	31	
				8.5	SS-2	36	45	40	85	
389.4	10.0	SANDY SILT (ML) with some weathered rock fragments, very hard, fine to medium, brown, dry.		10.5	SS-3	50/4"			100	
		Partially weathered rock from 12.0 feet to 13.0 feet.		12.5	SS-4	30	50/5"		100	
	13.0	SANDY SILT (ML) with some clay, very hard, fine to medium grained, orange and brown, moist.		14.5	SS-5	50/4"			100	
384.4		Partially weathered rock from 13.0 feet to 28.0 feet.								
				19.5	SS-6	50/3"			100	
379.4										
				24.5	SS-7	31	37	50/4"	100	
374.4										
	28.0	SILTY SAND (SM) very dense, fine to coarse, light brown and brown, moist.		29.5						

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LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-7	**Boring Location:**	36+52	**Offset:**	39' RT	**Alignment:**	
Elev.:	399.4 ft	**Latitude:**	837955	**Longitude:**	1934257	**Date Started:**	03/27/12
Total Depth:	35 ft	**Soil Depth:**	29' ft	**Core Depth:**	ft	**Date Completed:**	3/27/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Partially weathered rock from 28.0 feet to 34.5 feet.			SS-8	21	50/4"		100	
		Spoon refusal at 34.5 feet.		34.5						
		Tri-cone refusal at 35.0 feet.								
364.4	35.0				SS-9	50/0"			100	
359.4										
354.4										
349.4										
344.4										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-8	**Boring Location:**	36+67	**Offset:**	23' RT	**Alignment:**	
Elev.:	394.0 ft	**Latitude:**	837971	**Longitude:**	1934243	**Date Started:**	03/15/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/15/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	21.9'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.4	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	2	4	14	18
	2.0	SANDY SILT (ML) very stiff, fine to medium grained, red-brown to yellow-brown, dry to moist - **POSSIBLE FILL**.		2.5	SS-2	37	47	50/5"	100
389.0		SILTY SAND (SM) very dense, fine to medium grained, yellowish-brown, dry to moist - **RESIDUAL**.		4.5	SS-3	50/3"			100
		Partially weathered rock from 4.0 feet to 10.0 feet.		6.5	SS-4	50/4"			100
				8.5	SS-5	11	26	50/4"	100
384.0	10.0	SANDY SILT (ML) with some clay and weathered rock fragments, very dense, fine to coarse grained, yellowish-brown, moist.							
		Partially weathered rock from 10.0 feet to 18.5 feet.		13.5	SS-6	50/4"			48
379.0									
	18.5			18.5					
		SANDY SILT (ML) with some clay, very stiff, fine grained, reddish-brown, moist.			SS-7	7	11	16	27
374.0									
	23.5			23.5					
		SANDY SILT (ML) with some clay, hard to very hard, fine grained, reddish-brown to brown, dry to moist.			SS-8	21	22	17	39
369.0									
		Partially weathered rock from 27.0 feet to 33.5 feet.		28.5	SS-9	15	27	46	73

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-8	**Boring Location:**	36+67	**Offset:**	23' RT	**Alignment:**	
Elev.:	394.0 ft	**Latitude:**	837971	**Longitude:**	1934243	**Date Started:**	03/15/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/15/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	21.9'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	33.5	SANDY SILT (ML) with weathered rock fragments, very hard, fine to medium grained, dark brown to brown, moist.		33.5	SS-10	45	50/4"		100	
359.0		Partially weathered rock from 33.5 feet to 40.0 feet.								
				38.5						
		Spoon refusal at 39.8 feet.			SS-11	23	37	50/4"	100	
354.0	40.0									
349.0										
344.0										
339.0										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-9	**Boring Location:**	36+70	**Offset:**	39'RT	**Alignment:**	
Elev.:	400.0 ft	**Latitude:**	837973	**Longitude:**	1934259	**Date Started:**	03/27/12
Total Depth:	50 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/27/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.5	6" CONCRETE.								
		Boring performed through bridge deck. Ground surface 10.0 feet below top of bridge deck.								
395.0										
390.0	10.0	SANDY SILT (ML) with weathered rock fragments, very stiff, fine to medium, brown, dry - **RESIDUAL**.		10.5	SS-1	2	9	19	28	
	12.5	SANDY SILT (ML) with some clay, very hard, fine grained, yellowish-brown, dry.		12.5	SS-2	40	50/5"		100	
		Partially weathered rock at 14.5 feet.		14.5						
385.0	15.0	SANDY SILT (ML) with weathered rock fragments, very hard, fine to coarse, brown, dry.			SS-3	50/4"			100	
		Partially weathered rock from 15.0 feet to 18.0 feet.		16.5	SS-4	50/5"			100	
	18.0	SANDY SILT (ML) with trace clay from 25.0 feet to 35.0 feet, hard to very hard, fine to medium grained, brown, moist.		18.5	SS-5	50/3"			100	
380.0		Partially weathered rock from 18.0 feet to 40.0 feet.								
				23.5	SS-6	26	28	20	48	
375.0										
				28.5	SS-7	24	41	26	67	

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LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-9	**Boring Location:**	36+70	**Offset:**	39'RT	**Alignment:**	
Elev.:	400.0 ft	**Latitude:**	837973	**Longitude:**	1934259	**Date Started:**	03/27/12
Total Depth:	50 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/27/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-8	44	28	35	63	
365.0										
				38.5	SS-9	45	50/3"		100	
360.0	40.0	SILTY SAND (SM) with weathered rock fragments from 42.0 feet to 46.0 feet, very dense, fine to coarse, brown to gray, moist. Partially weathered rock from 40.0 feet to 48.8 feet.								
				43.5	SS-10	50/2"			100	
355.0										
		Spoon refusal at 48.8 feet.		48.5	SS-11	50/2"			100	
350.0	50.0									
345.0										

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-10	**Boring Location:**	36+42	**Offset:**	83' RT	**Alignment:**	
Elev.:	393.5 ft	**Latitude:**	837940	**Longitude:**	1934299	**Date Started:**	04/06/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	4/6/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	18.7'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	3	3	6	9
	2.0	SILTY CLAY (CL) stiff, fine grained, red to tan, dry - **FILL**.		2.5	SS-2	7	9	13	22
388.5		SANDY SILT (ML) very stiff to very hard, fine grained, tan to black, dry - **RESIDUAL**.		4.5	SS-3	27	36	40	76
		Partially weathered rock from 6.5 feet to 8.0 feet.		6.5	SS-4	50/3"			100
	8.0	LEAN CLAY (CL) with sand, very hard, fine to medium grained, white to tan, dry.		8.5	SS-5	20	37	42	79
383.5		Partially weathered rock from 8.0 feet to 13.0 feet.							
	13.0	SANDY SILT (ML) very hard, fine grained, orange to tan to black, moist.		13.5	SS-6	20	28	33	61
378.5		Partially weathered rock from 13.0 feet to 20.0 feet.							
				18.5	SS-7	43	50/5"		100
373.5	20.0	SANDY SILT (ML) with weathered rock fragments, very hard, fine to medium grained, tan to black, moist.							
		Partially weathered rock from 20.0 feet to 28.5 feet.		23.5	SS-8	50/3"			100
368.5									
	28.5			28.5	SS-9	50/5"			100

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-10	**Boring Location:**	36+42	**Offset:**	83' RT	**Alignment:**	
Elev.:	393.5 ft	**Latitude:**	837940	**Longitude:**	1934299	**Date Started:**	04/06/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	4/6/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	18.7'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		SILTY SAND (SM) with weathered rock fragments, very dense, fine to coarse grained, brown to black, moist.								
		Partially weathered rock from 28.5 feet to 38.7 feet.		33.5	SS-10	50/4"			100	
358.5										
		Spoon refusal at 38.7 feet.		38.5	SS-11	50/2"			100	
353.5	40.0									
348.5										
343.5										
338.5										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-12	**Boring Location:**	39+16	**Offset:**	80' LT	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	838230	**Longitude:**	1934167	**Date Started:**	03/23/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/23/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.7'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.3	SURFICIAL ORGANIC SOIL.		0.5						
		SANDY SILTY CLAY (CL) firm, fine grained, yellowish-brown to reddish-brown, dry - **POSSIBLE FILL**.			SS-1	2	3	5	8	
	2.5			2.5						
		SANDY SILT (ML) with some clay, hard to very hard, fine grained, yellowish-brown to reddish-brown, dry to moist - **RESIDUAL**.			SS-2	5	12	22	34	
				4.5						
390.0					SS-3	50/2"			100	
	6.0	Partially weathered rock at 4.0 feet.		6.5						
		CLAYEY SAND (SC) very dense, fine to medium grained, brown to brownish-white, moist.			SS-4	50/3"			100	
		Partially weathered rock from 4.0 feet to 10.0 feet.		8.5						
					SS-5	50/4"			100	
385.0	10.0									
		SANDY SILT (ML) very hard, fine to medium grained, brown to brownish-white, dry to moist.								
		Partially weathered rock from 10.0 feet to 25.0 feet.		13.5						
					SS-6	50/5"			100	
380.0										
				18.5						
					SS-7	29	30	40	70	
375.0										
				23.5						
					SS-8	45	50/3"		100	
370.0	25.0									
		SILTY SAND (SM) with rock fragments and gravel, very dense, medium to coarse grained, yellowish-brown to brown, moist.								
		Partially weathered rock from 25.0 feet to 38.8 feet.		28.5						
					SS-9	50/3"			100	

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-12	**Boring Location:**	39+16	**Offset:**	80' LT	**Alignment:**	
Elev.:	395.0 ft	**Latitude:**	838230	**Longitude:**	1934167	**Date Started:**	03/23/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/23/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	20.7'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
				33.5	SS-10	50/2"			100
360.0									
				38.5	SS-11	50/2"			100
		Spoon refusal at 38.8 feet.							
355.0	40.0								
350.0									
345.0									
340.0									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-14	**Boring Location:**	38+92	**Offset:**	23' LT	**Alignment:**	
Elev.:	395.6 ft	**Latitude:**	838200	**Longitude:**	1934221	**Date Started:**	03/22/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/22/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	21.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5	SS-1	8	24	50/5"	100
		SANDY SILT (ML) very hard, fine grained, light brown to reddish-brown, dry to moist - **RESIDUAL**.		2.5	SS-2	50/4"			100
		Some clay from 0.0 feet to 2.0 feet. Partially weathered rock at 2.0 feet.		4.5	SS-3	50/4"			100
390.6	6.5			6.5	SS-4	50/5"			100
		SILTY SAND (SM) with rock fragments, very dense, fine to coarse, light brown and brown, dry.		8.5	SS-5	50/1"			100
		Partially weathered rock from 6.5 feet to 13.5 feet.							
385.6	13.5			13.5	SS-6	50/2"			100
		SANDY SILT (ML) very hard, fine to medium grained, brown to yellow-brown, moist.							
		Partially weathered rock from 13.5 feet to 39.8 feet.		18.5	SS-7	10	50/5"		100
380.6									
375.6				23.5	SS-8	50/4"			100
370.6				28.5	SS-9	26	40	50/5"	100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-14	**Boring Location:**	38+92	**Offset:**	23' LT	**Alignment:**	
Elev.:	395.6 ft	**Latitude:**	838200	**Longitude:**	1934221	**Date Started:**	03/22/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/22/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	21.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/3"			100	
360.6										
				38.5	SS-11	22	40	50/3"	100	
355.6	40.0	Spoon refusal at 39.8 feet.								
350.6										
345.6										
340.6										

LEGEND

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

SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-15	**Boring Location:**	39+02	**Offset:**	42' LT	**Alignment:**	
Elev.:	395.7 ft	**Latitude:**	838212	**Longitude:**	1934203	**Date Started:**	03/22/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/22/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	22.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.2	SURFICIAL ORGANIC SOIL.	0.5	SS-1	5	9	10	19
	2.0	CLAYEY SANDY SILT (ML) very stiff, fine grained, light brown to red-brown, moist - **POSSIBLE FILL**.	2.5	SS-2	50/5"			100
		SILTY SAND (SM) with rock fragments, very dense, fine to coarse, light brown to brown, dry - **RESIDUAL**.	4.5	SS-3	50/4"			100
390.7		Partially weathered rock from 4.0 feet to 13.5 feet.	6.5	SS-4	50/2"			100
			8.5	SS-5	50/2"			100
385.7								
	13.5		13.5	SS-6	50/1"			100
		SANDY SILT (ML) very hard, fine to medium grained, yellowish-brown to brown to white, moist.						
380.7		Partially weathered rock from 13.5 feet to 38.7 feet.						
			18.5	SS-7	50/2"			100
375.7								
			23.5	SS-8	48	50/3"		100
370.7								
			28.5	SS-9	50/3"			100

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

Continued Next Page

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-15	**Boring Location:**	39+02	**Offset:**	42' LT	**Alignment:**	
Elev.:	395.7 ft	**Latitude:**	838212	**Longitude:**	1934203	**Date Started:**	03/22/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/22/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	22.1'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/2"	100	
360.7								
				38.5	SS-11	50/1"	100	
		Spoon refusal at 38.7 feet.						
355.7	40.0							
350.7								
345.7								
340.7								

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-16	**Boring Location:**	38+44	**Offset:**	40' RT	**Alignment:**	
Elev.:	399.0 ft	**Latitude:**	838145	**Longitude:**	1934278	**Date Started:**	03/28/12
Total Depth:	51 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0								
	0.5	6" CONCRETE.							
		Boring performed through bridge deck. Ground surface 11.0 feet below top of bridge deck.							
394.0									
389.0									
	11.0	SANDY CLAY (CL) firm, fine, brown, moist - **POSSIBLE FILL**.		11.5					
	12.5	SILTY SAND (SM) with some clay, very dense, fine, brown, moist - **RESIDUAL**.			SS-1	2	3	4	7
				13.5					
384.0	15.0	No Recovery. Partially weathered rock at 15.0 feet.			SS-2	35	20	50/4"	100
				15.5					
	17.0				SS-3	50/0"			100
		SANDY SILT (ML) with some rock fragments, very hard, fine to medium grained, yellowish-brown to orange-brown, moist.		17.5					
					SS-4	50/2"			100
		Partially weathered rock from 17.0 feet to 36.0 feet.		19.5					
379.0					SS-5	50/1"			100
				24.5					
374.0					SS-6	50/1"			100
				29.5					

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

Continued Next Page

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-16	**Boring Location:**	38+44	**Offset:**	40' RT	**Alignment:**	
Elev.:	399.0 ft	**Latitude:**	838145	**Longitude:**	1934278	**Date Started:**	03/28/12
Total Depth:	51 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				34.5	SS-7	50/2"	100	
364.0	36.0	SILTY SAND (SM) with rock fragments, very dense, fine to coarse grained, brown, moist. Partially weathered rock from 36.0 feet to 49.5 feet.			SS-8	50/1"	100	
				39.5	SS-9	50/1"	100	
359.0								
				44.5	SS-10	50/1"	100	
354.0								
		Spoon refusal at 49.5 feet.		49.5	SS-11	50/0"	100	
349.0	51.0							
344.0								

LEGEND

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

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SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-17	**Boring Location:**	38+42	**Offset:**	79' RT	**Alignment:**	
Elev.:	393.2 ft	**Latitude:**	838140	**Longitude:**	1934318	**Date Started:**	03/26/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/26/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	19.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0									
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.		0.5						
	1.5	SANDY CLAY (CL) very stiff, fine, orange, moist - **POSSIBLE FILL**.			SS-1	23	5	14	19	
		SANDY SILT (ML) very hard, fine to medium grained, yellowish-brown to brown, dry - **RESIDUAL**.		2.5	SS-2	26	50/4"		100	
388.2		Partially weathered rock from 4.5 feet to 12.0 feet.		4.5	SS-3	50/2"			100	
				6.5	SS-4	50/3"			100	
				8.5	SS-5	50/4"			100	
383.2										
	12.0	SANDY SILT (ML) very hard, fine to coarse, orangish-brown, moist.		13.5	SS-6	50/5"			100	
378.2		Partially weathered rock from 12.0 feet to 38.8 feet.								
				18.5	SS-7	50/2"			100	
373.2										
				23.5	SS-8	50/1"			100	
368.2										
				28.5	SS-9	50/2"			100	

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LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-17	**Boring Location:**	38+42	**Offset:**	79' RT	**Alignment:**	
Elev.:	393.2 ft	**Latitude:**	838140	**Longitude:**	1934318	**Date Started:**	03/26/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	3/26/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-850	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	74%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	19.8'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/5"			100	
358.2										
		Spoon refusal at 38.8 feet.		38.5	SS-11	50/2"			100	
353.2	40.0									
348.2										
343.2										
338.2										

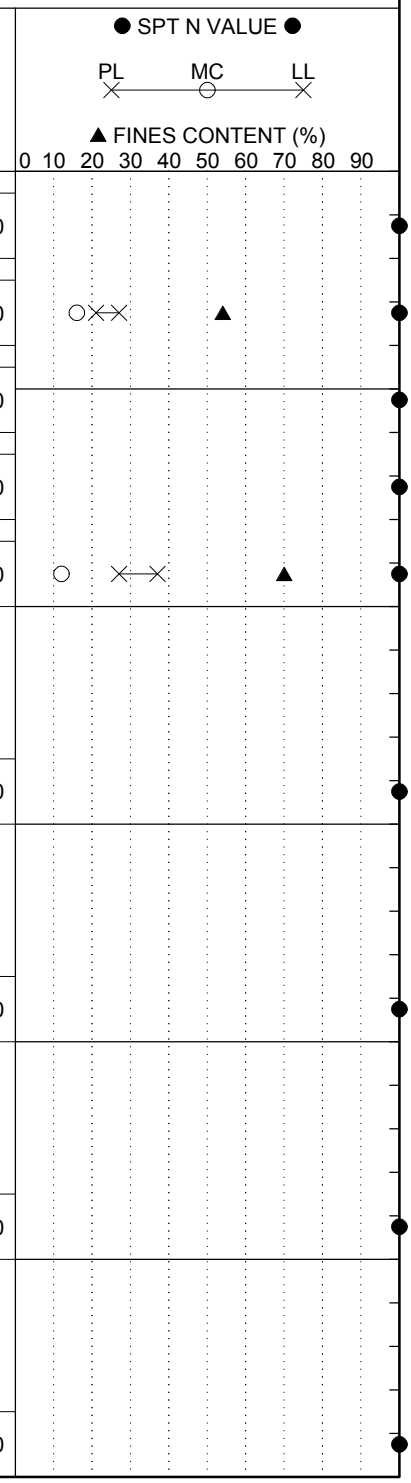
LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-18	**Boring Location:**	38+67	**Offset:**	21' RT	**Alignment:**	
Elev.:	393.9 ft	**Latitude:**	838171	**Longitude:**	1934262	**Date Started:**	04/09/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	4/9/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	22.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0							
	0.3	GRASS WITH SURFICIAL ORGANIC SOIL.	0.5	SS-1	3	21	50/5"	100
		SANDY SILTY CLAY (CL-ML) with weathered rock fragments, very hard, fine to medium grained, tan, dry - **RESIDUAL**. Partially weathered rock from 1.0 feet to 6.0 feet.	2.5	SS-2	45	50/6"		100
388.9			4.5	SS-3	50/4"			100
	6.0	SANDY SILT (ML) very hard, fine grained, orange to black, dry. Partially weathered rock from 6.0 feet to 15.0 feet.	6.5	SS-4	42	50/5"		100
			8.5	SS-5	50/5"			100
383.9								
			13.5	SS-6	50/4"			100
378.9	15.0	SILTY SAND (SM) with weathered rock fragments, very dense, fine to medium, tan to gray, dry. Partially weathered rock from 15.0 feet to 23.5 feet.						
			18.5	SS-7	50/3"			100
373.9								
	23.5	SANDY SILT (ML) with weathered rock fragments, very hard, fine grained, orange to black, moist. Partially weathered rock from 23.5 feet to 38.7 feet.	23.5	SS-8	50/2"			100
368.9								
			28.5	SS-9	50/2"			100



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
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	Boyce/Fowler
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-18	**Boring Location:**	38+67	**Offset:**	21' RT	**Alignment:**	
Elev.:	393.9 ft	**Latitude:**	838171	**Longitude:**	1934262	**Date Started:**	04/09/12
Total Depth:	40 ft	**Soil Depth:**	40' ft	**Core Depth:**	ft	**Date Completed:**	4/9/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	80.6%
Core Size:		**Driller:**	Boyce/Fowler	**Groundwater:**	**TOB**	**24HR**	22.5'

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				33.5	SS-10	50/1"			100	
358.9										
		Spoon refusal at 38.7 feet.		38.5	SS-11	50/1"			100	
353.9	40.0									
348.9										
343.9										
338.9										

LEGEND

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

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-20	**Boring Location:**	38+64	**Offset:**	40' RT	**Alignment:**	
Elev.:	399.0 ft	**Latitude:**	838165	**Longitude:**	1934280	**Date Started:**	03/28/12
Total Depth:	41 ft	**Soil Depth:**	35' ft	**Core Depth:**	ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" 2nd 6" 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0							
	0.5	6" CONCRETE.						
		Boring performed through bridge deck. Ground surface 6.0 feet below top of bridge deck.						
394.0	6.0	SANDY SILTY CLAY (CL) very hard, fine to medium grained, light brown to black, dry to moist - **RESIDUAL**.		6.5	SS-1	47 50/3"	100	
		Partially weathered rock from 9.0 feet to 10.0 feet.		8.5	SS-2	50/3"	100	
389.0	10.0	SANDY SILT (ML) very hard, fine to medium grained, light brown to black, dry.		10.5	SS-3	46 50/3"	100	
		Partially weathered rock from 10.0 feet to 14.0 feet.		12.5	SS-4	50/2"	100	
	14.0	No Recovery. Partially weathered rock.		14.5	SS-5	50/0"	100	
384.0	16.0	SILTY SAND (SM) with weathered rock fragments from 21.0 feet to 28.0 feet, very dense, fine to coarse grained, brown to light brown, dry.		19.5	SS-6	50/1"	100	
		Partially weathered rock from 16.0 feet to 39.5 feet.						
379.0				24.5	SS-7	50/2"	100	
374.0				29.5				

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
ST - Shelby Tube	CU - Cuttings	CFA - Continuous Flight Augers	RC - Rock Core
AWG - Rock Core, 1-1/8"	CT - Continuous Tube	DC - Driving Casing	

SCDOT Soil Test Boring Log

File No.:	40.040649.1	**Project No. (PIN):**	40649 RD01	**County:**	Richland	**Eng./Geo.:**	SCI
Site Description:	S-80 Bridge Replacement over I-26					**Route:**	S-80
Boring No.:	RW-20	**Boring Location:**	38+64	**Offset:**	40' RT	**Alignment:**	
Elev.:	399.0 ft	**Latitude:**	838165	**Longitude:**	1934280	**Date Started:**	03/28/12
Total Depth:	41 ft	**Soil Depth:**	35' ft	**Core Depth:**	ft	**Date Completed:**	3/28/2012
Bore Hole Diameter (in):	6"	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	Mud Rotary	**Hammer Type:**	Automatic	**Energy Ratio:**	73%
Core Size:		**Driller:**	SCI	**Groundwater:**	**TOB**	**24HR**	NR

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
					SS-8	50/1"			100
				34.5					
364.0					SS-9	50/1"			100
				39.5					
359.0		Spoon refusal at 39.5 feet.			SS-10	50/0"			100
	41.0	Tri-cone refusal at 41.0 feet.							
354.0									
349.0									
344.0									

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

LEGEND

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

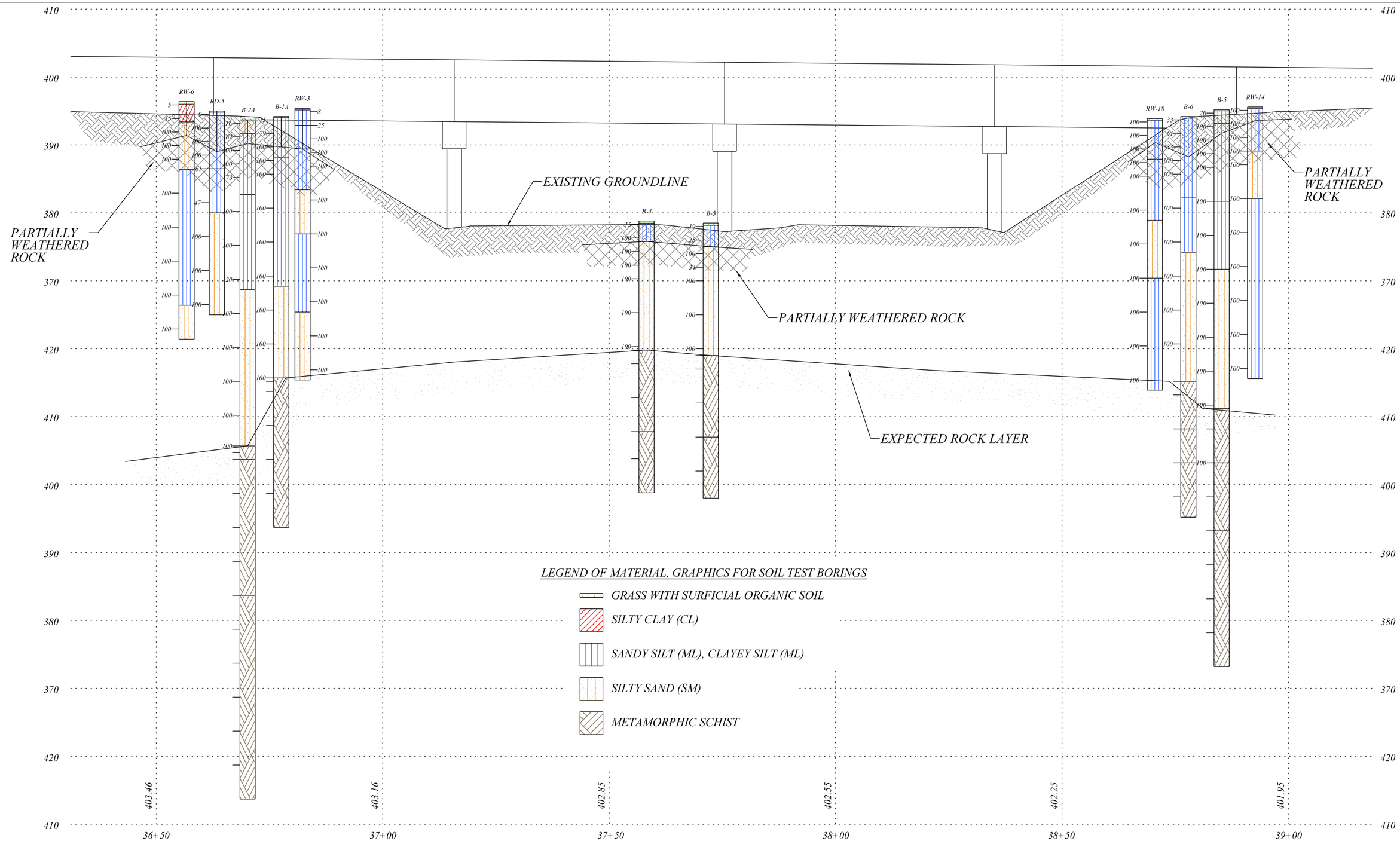
SC_DOT 65N-0302.GPJ SC_DOT.GDT 8/29/12

Boring Offsets for S-80 Shady Grove Road

RW-1 – Did not move
RW-2 – Moved appx. 6’ south. This boring was moved since RW-4 had to be moved up the slope.
RW-3 – Did not move
RW-4 – Moved appx. 12’ up the slope (south) due to the boring being located on the slope.
RW-5 – Moved appx. 10’ up the slope (south) due to the boring being located on the slope.
RW-6 – Moved appx. 3’ south due to conflict with underground fiber optic line and overhead power lines.
RW-7 – Performed on the bridge.
RW-8 – Moved appx. 3’ south due to conflict with underground fiber optic line and overhead power lines.
RW-9 – Performed on the bridge.
RW-10 – Moved appx. 12’ up the slope (south) due to the boring being located on the slope.
RW-11 – Eliminated due to close proximity to RW-15 after it was moved up the slope.
RW-12 – Moved appx. 18’ up the slope (north) due to the boring being located on the slope.
RW-13 – Eliminated due to close proximity to RW-14 after it was moved up the slope.
RW-14 – Did not move.
RW-15 – Did not move.
RW-16 – Performed on the bridge.
RW-17 – Moved appx. 12’ up the slope (north) due to the boring being located on the slope.
RW-18 – Moved appx. 7’ north due to conflict with underground fiber optic line and overhead power lines.
RW-19 – Eliminated due to underground fiber optic line and overhead power lines. Boring could only be drilled beside RW-18, so the boring was not performed.
RW-20 – Performed on the bridge.
B-1 – Moved appx. 16’ up the slope (south) due to the boring being located on the slope.
B-2 – Moved appx. 13’ up the slope (south) due to the boring being located on the slope.
B-3 – Performed in median of I-26. Moved appx. 10’ south to relocate the boring outside the guardrail.
B-4 - Performed in median of I-26. Moved appx. 12’ south to relocate the boring outside the guardrail.
B-5 – Moved appx. 18’ up the slope (north) due to the boring being located on the slope.
B-6 – Moved appx. 17’ up the slope (north) due to the boring being located on the slope.
RD-1 – Moved the boring appx. 20’ to 30’ south due to the trees on the property. The actual boring location would have required significant clearing to access and Mr. Amick wanted to minimize the clearing.
RD-2 – Moved the boring appx. 30’ to 35’ south and 25’ west to avoid any clearing or movement on adjacent property that we did not have authorization to access. Boring was also performed at this location to minimize clearing of trees on Mr. Amick’s property.
RD-4 – Moved appx. 35’ north to avoid conflicts with underground fiber optic line and underground water line and also due to conflict with overhead power lines.
RD-5 – Did not move.
RD-6 – Did not move.
RD-7 – Did not move.
HA-4 – Did not move.

APPENDIX “IV”

Subsurface Profiles



Note: The depicted stratography is shown for illustrative purposes only and is not warranted. Separations between different strata may be gradual and likely vary considerably from those shown. Profiles between nearby borings have been estimated using reasonable engineering care and judgement. The actual subsurface conditions will vary between boring locations.

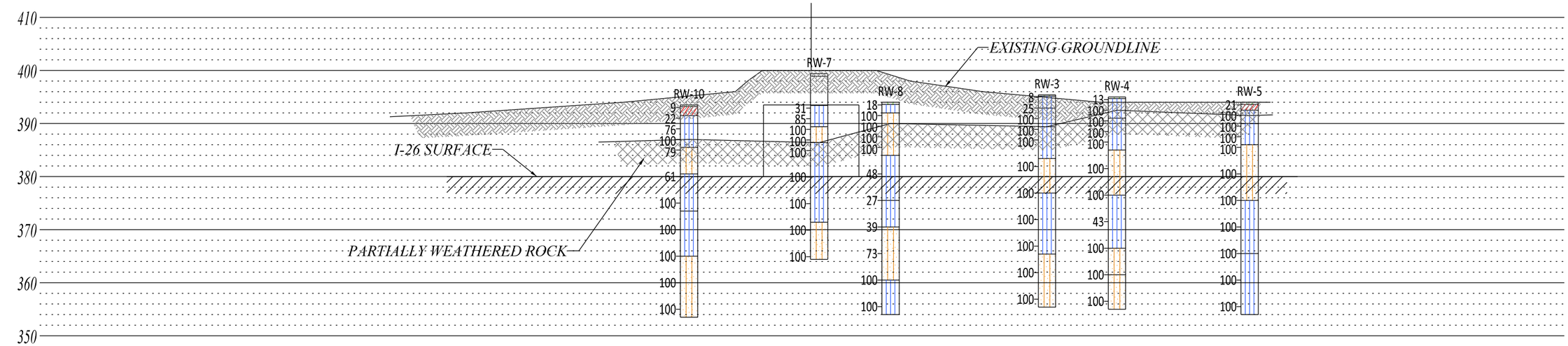
FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Date: June 2012
Scale:
Drawn: KHH
65N-0302

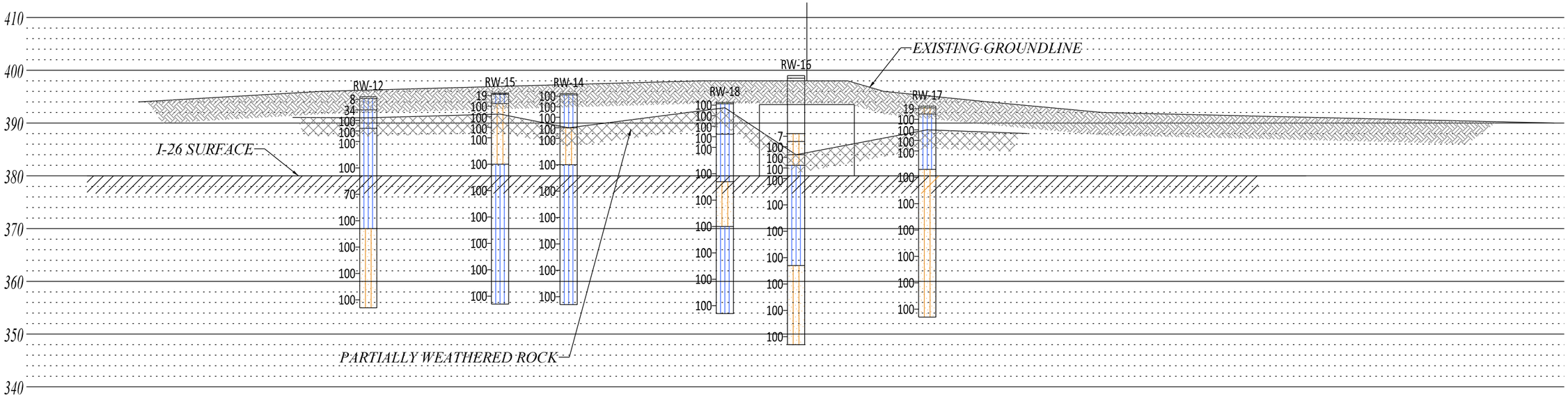
S-80 Bridge Replacement over I-26
South Carolina Department of Transportation
Richland County, South Carolina

BORING PROFILES

Drawing No.



EB1



EB2

LEGEND OF MATERIAL, GRAPHICS FOR SOIL TEST BORINGS

- *GRASS WITH SURFICIAL ORGANIC SOIL*
- *SILTY CLAY (CL)*
- *SANDY SILT (ML), CLAYEY SILT (ML)*
- *SILTY SAND (SM)*
- *METAMORPHIC SCHIST*

Note: The depicted stratography is shown for illustrative purposes only and is not warranted. Separations between different strata may be gradual and likely vary considerably from those shown. Profiles between nearby borings have been estimated using reasonable engineering care and judgement. The actual subsurface conditions will vary between boring locations.

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Date: June 2012
Scale:
Drawn: KHH
65N-0302

S-80 Bridge Replacement over I-26
South Carolina Department of Transportation
Richland County, South Carolina

BORING PROFILES

Drawing No.

APPENDIX "V"

Results of Laboratory Testing

Laboratory Test Summary Sheet

Boring/ Sample No.	Depth (feet)	Sample Number	LL	PL	PI	% Natural Moisture	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS Classification	Maximum Dry Density	Optimum Moisture
Bulk	1'-5'	Sta. 13+00	56	24	32	18.5	2.6	22.4	75			CH	103.8	18.4
Bulk	1'-5'	Sta. 36+00	41	20	21	14.7	0	18.5	81.5			CL	107.4	17.3
Bulk	1'-5'	Sta. 39+00	34	22	12	9.7	10.5	25.3	64.2			CL	120.3	12.9
B-1A	2.5'-4.0'	SS-2	29	23	6	12.5	2.3	41.2	56.5			ML		
B-1A	6.5'-8.0'	SS-4	35	25	10	15.1	5.4	44.7	49.9			SM		
B-1A	18.5'-20.0'	SS-7	32	26	6	15.8	6	36.6	57.4			ML		
B-2A	0.5'-2.0'	SS-1	47	24	23	14.6	0.8	19.9	79.3			CL		
B-2A	8.5'-10.0'	SS-5	32	25	7	8.5	1.9	42.9	55.2			ML		
B-2A	13.5'-15.0'	SS-6	33	27	6	7.6	0	26.3	73.7			ML		
B-2A	18.5'-20.0'	SS-7	33	27	6	9.8	0	9.9	90.1			ML		
B-3	0.5'-2.0'	SS-1	30	22	8	16.5	14.8	40.7	44.5			SC		
B-4	0.5'-2.0'	SS-1	34	22	12	15.6	9.5	19.8	70.7			CL		
B-4	4.5'-6.0'	SS-3	25	18	7	13.8	31.8	40.5	27.7			SC-SM		
B-5	0.5'-2.0'	SS-1	37	28	9	11.5	7.1	51.9	41			SM		
B-6	4.5'-6.0'	SS-3	37	26	11	9.8	0.1	21.7	78.2			ML		
B-6	18.5'-20.0'	SS-7	42	30	12	11.6	0.9	22.6	76.5			ML		
B-6	23.5'-25.0'	SS-8	38	26	12	13.2	0	19.4	80.6			ML		

FROEHLING & ROBERTSON, INC.
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Laboratory Test Summary	
Report No.:	65N-0302
Client:	SCDOT
Project:	S-80 Bridge Repl. over I-26
Location:	Richland County, SC
Date:	6-Jul-12

18 Woods Lake Road Greenville, South Carolina 29607 864.271.2840

Laboratory Test Summary Sheet

Boring/ Sample No.	Depth (feet)	Sample Number	LL	PL	PI	% Natural Moisture	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS Classification	Maximum Dry Density	Optimum Moisture
RD-1	0.5'-2.0'	SS-1	72	32	40	10.2	0.8	2.7	96.5			CH		
RD-1	6.5'-8.0'	SS-4	38	30	8	8.6	0.4	18.4	81.2			ML		
RD-2	0.5'-2.0'	SS-1	50	24	26	22.6	0	15.1	84.9			CH		
RD-2	4.5'-6.0'	SS-3	32	26	6	8.8	3.7	50.5	45.7			SM		
RD-2	8.5'-10.0'	SS-5					26	47.8	26.2			SM		
RD-4	0.5'-2.0'	SS-1	35	24	11	14.8	4.8	29.6	65.6			CL		
RD-4	6.5'-8.0'	SS-4	46	27	19	12.5	0	6.5	93.5			CL		
RD-4	8.5'-10.0'	SS-5	40	25	15	13.8	0	11.1	88.9			CL		
RD-5	0.5'-2.0'	SS-1	42	21	21	21.2	5.9	22.9	71.2			CL		
RD-5	18.5'-20.0'	SS-7	34	26	8	12.9	2.2	44.3	53.5			ML		
RD-6	0.5'-2.0'	SS-1	42	20	22	18.5	3.4	18.3	77.1			CL		
RD-6	8.5'-10.0'	SS-5	40	29	11	16	6.4	30.4	62.3			ML		
RD-6	23.5'-25.0'	SS-8	30	22	8	9.5	15.9	42.7	41.4			SC		
RD-7	2.5'-4.0'	SS-2	38	26	12	16.2	0.3	19.8	79.9			ML		
RD-7	8.5'-10.0'	SS-5	37	28	9	9.5	0	25.5	74.5			ML		
RW-1	0.5'-2.0'	SS-1	42	20	22	14.4	6	24.4	69.6			CL		
RW-1	8.5'-10.0'	SS-5	38	28	10	14.9	0.9	30.9	68.2			ML		
RW-1	18.5'-20.0'	SS-7	42	29	13	17.9	0	26.4	73.6			ML		

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Laboratory Test Summary

Report No.:	65N-0302
Client:	SCDOT
Project:	S-80 Bridge Repl. over I-26
Location:	Richland County, SC
Date:	6-Jul-12

18 Woods Lake Road Greenville, South Carolina 29607 864.271.2840

Laboratory Test Summary Sheet

Boring/ Sample No.	Depth (feet)	Sample Number	LL	PL	PI	% Natural Moisture	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS Classification	Maximum Dry Density	Optimum Moisture
RW-2	4.5'-6.0'	SS-3	38	20	18	11.5	3.5	38.2	58.3			CL		
RW-2	8.5'-10.0'	SS-5	NP	NP	NP	7	17.1	41.9	41			SM		
RW-3	0.5'-2.0'	SS-1	39	18	21	16.1	5	26.2	68.8			CL		
RW-3	6.5'-8.0'	SS-4	44	20	24	18.9	24.7	26.1	49.2			SC		
RW-4	2.5'-4.0'	SS-2	30	24	6	9.3	4.3	21.8	73.9			ML		
RW-4	13.5'-15.0'	SS-6	28	24	4	10	30.9	37.4	31.6			SM		
RW-4	18.5'-20.0'	SS-7	30	24	6	9.9	0.8	25.1	74.1			ML		
RW-5	0.5'-2.0'	SS-1	44	36	8	15.7	1.5	23.5	75			ML		
RW-5	8.5'-10.0'	SS-5	30	25	5	5.8	14	43.1	42.9			SM		
RW-5	18.5'-20.0'	SS-7	29	23	6	9.2	1	38.4	60.5			ML		
RW-5	23.5'-25.0'	SS-8												
RW-6	0.5'-2.0'	SS-1	33	20	13	15.2	2.2	13.4	84.4			CL		
RW-6	4.5'-6.0'	SS-3	34	29	5	9.5	0.7	47.7	51.6			ML		
RW-7	6.5'-8.0'	SS-1	39	22	17	17.1	0.2	28	71.8			CL		
RW-7	10.5'-12.0'	SS-3	31	24	7	8.7	8.3	38.5	53.2			ML		
RW-7	24.5'-26.0'	SS-7	28	24	4	15.5	0.1	24	75.9			ML		
RW-8	0.5'-2.0'	SS-1	34	28	6	19.2	0.1	20.4	79.5			ML		
RW-8	13.5'-15.0'	SS-6	35	28	7	16.8	0	35.3	64.7			ML		
RW-8	23.5'-25.0'	SS-8	36	29	7	12.6	0.5	30	69.5			ML		

FROEHLING & ROBERTSON, INC.
Engineering Stability Since 1881

Laboratory Test Summary

Report No.:	65N-0302
Client:	SCDOT
Project:	S-80 Bridge Repl. over I-26
Location:	Richland County, SC
Date:	6-Jul-12

18 Woods Lake Road Greenville, South Carolina 29607 864.271.2840

Laboratory Test Summary Sheet

Boring/ Sample No.	Depth (feet)	Sample Number	LL	PL	PI	% Natural Moisture	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS Classification	Maximum Dry Density	Optimum Moisture
RW-9	10.5'-12.0'	SS-1	35	27	8	5.4	13.2	30.9	55.9			ML		
RW-9	12.5'-14.0'	SS-2	33	24	9	12.1	0.3	38.6	61.1			ML		
RW-9	16.5'-18.0'	SS-4	37	27	10	10.8	0	33.5	66.5			ML		
RW-9	23.5'-25.0'	SS-6	32	24	8	19	0	14.7	85.3			ML		
RW-10	0.5'-2.0'	SS-1	46	24	22	15.2	0.4	10.8	88.8			CL		
RW-10	8.5'-10.0'	SS-5	36	24	12	10.5	0	22.3	77.7			CL		
RW-10	13.5'-15.0'	SS-6	34	26	8	8.4	0	25	75			ML		
RW-12	0.5'-2.0'	SS-1	38	23	15	19.2	4.4	24.1	71.5			CL		
RW-12	8.5'-10.0'	SS-5	36	23	13	13	20.4	34.6	45			SC		
RW-12	18.5'-20.0'	SS-7	36	27	9	13.5	0.9	34.4	64.7			ML		
RW-14	6.5'-8.0'	SS-4	NP	NP	NP	7	20.8	30.8	48.4			SM		
RW-14	18.5'-20.0'	SS-7	34	26	8	15.9	0.1	19.3	80.6			ML		
RW-15	0.5'-2.0'	SS-1	33	26	7	13.8	12.5	23.8	63.7			ML		
RW-15	6.5'-8.0'	SS-4	33	25	8	5.8	26.7	33.1	40.3			SM		
RW-15	23.5'-25.0'	SS-8	37	31	6	15.9	4.1	44	51.9			ML		
RW-16	11.5'-13.0'	SS-1	34	19	15	11.9	8.6	23.5	67.9			CL		

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Laboratory Test Summary	
Report No.:	65N-0302
Client:	SCDOT
Project:	S-80 Bridge Repl. over I-26
Location:	Richland County, SC
Date:	6-Jul-12

18 Woods Lake Road Greenville, South Carolina 29607 864.271.2840

Laboratory Test Summary Sheet

Boring/ Sample No.	Depth (feet)	Sample Number	LL	PL	PI	% Natural Moisture	% Gravel	% Sand	% Fines	% Silt	% Clay	USCS Classification	Maximum Dry Density	Optimum Moisture
RW-17	0.5'-2.0'	SS-1	39	23	16	18.7	1.9	19.7	78.4			CL		
RW-17	6.5'-8.0'	SS-4	32	25	7	8.1	7.4	40.3	52.3			ML		
RW-17	18.5'-20.0'	SS-7	43	32	11	13.8	3.7	35	61.3			ML		
RW-18	2.5'-4.0'	SS-2	27	21	6	16.5	2.4	43.4	54.2			CL-ML		
RW-18	8.5'-10.0'	SS-5	37	27	10	12.3	0	30.4	69.6			ML		
RW-20	8.5'-10.0'	SS-2	31	21	10	10.7	2.1	42.3	55.6			CL		
RW-20	24.5'-26.0'	SS-7	25	23	2	6	8.4	49.4	42.2			SM		

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Laboratory Test Summary	
Report No.:	65N-0302
Client:	SCDOT
Project:	S-80 Bridge Repl. over I-26
Location:	Richland County, SC
Date:	6-Jul-12

18 Woods Lake Road Greenville, South Carolina 29607 864.271.2840

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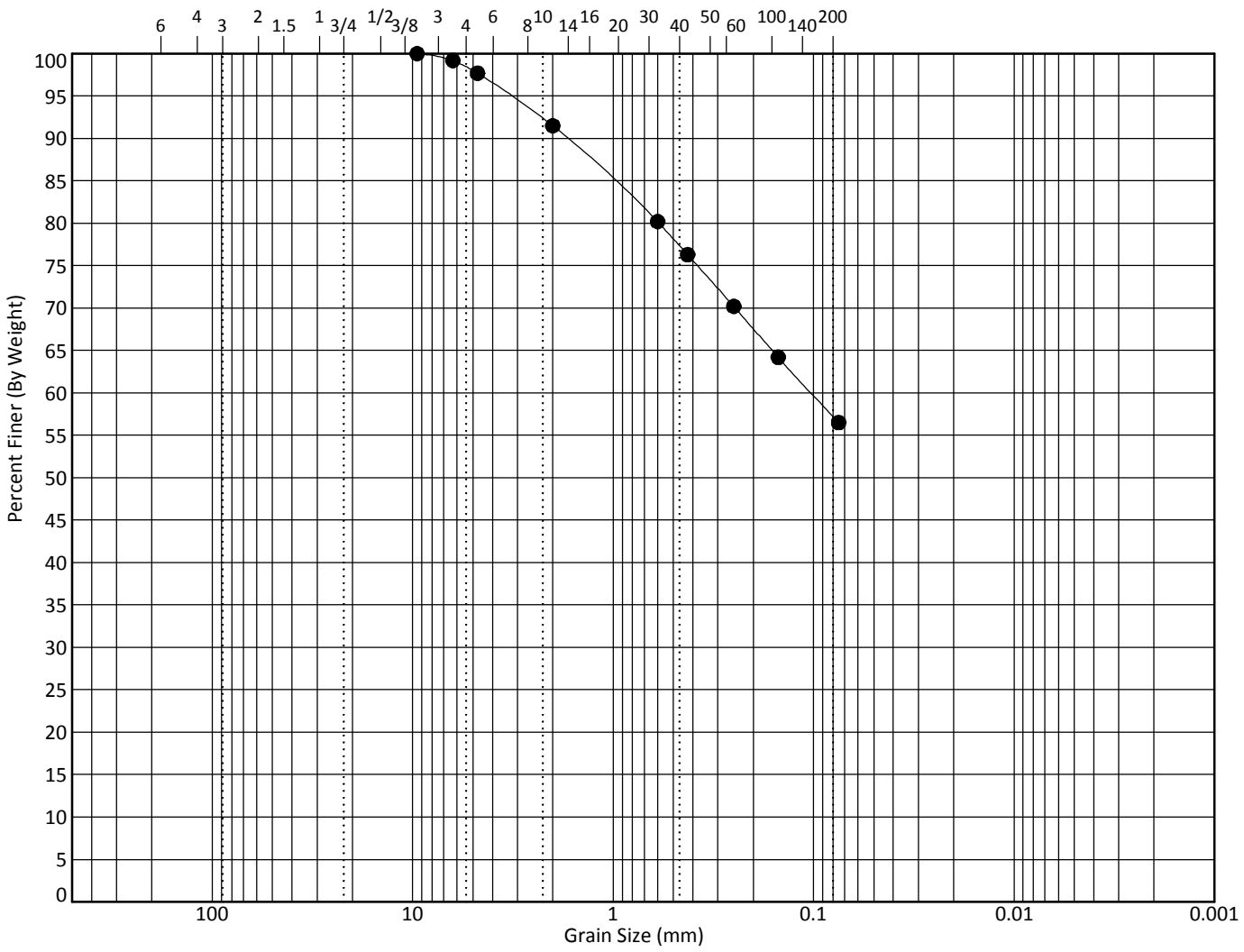
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-1A (SS-2) at	2.5	SANDY SILT (ML)	29	23	6		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1A (SS-2) at	2.5	9.5	0.103			2.3	41.2	56.5	
	at									
	at									
	at									
	at									

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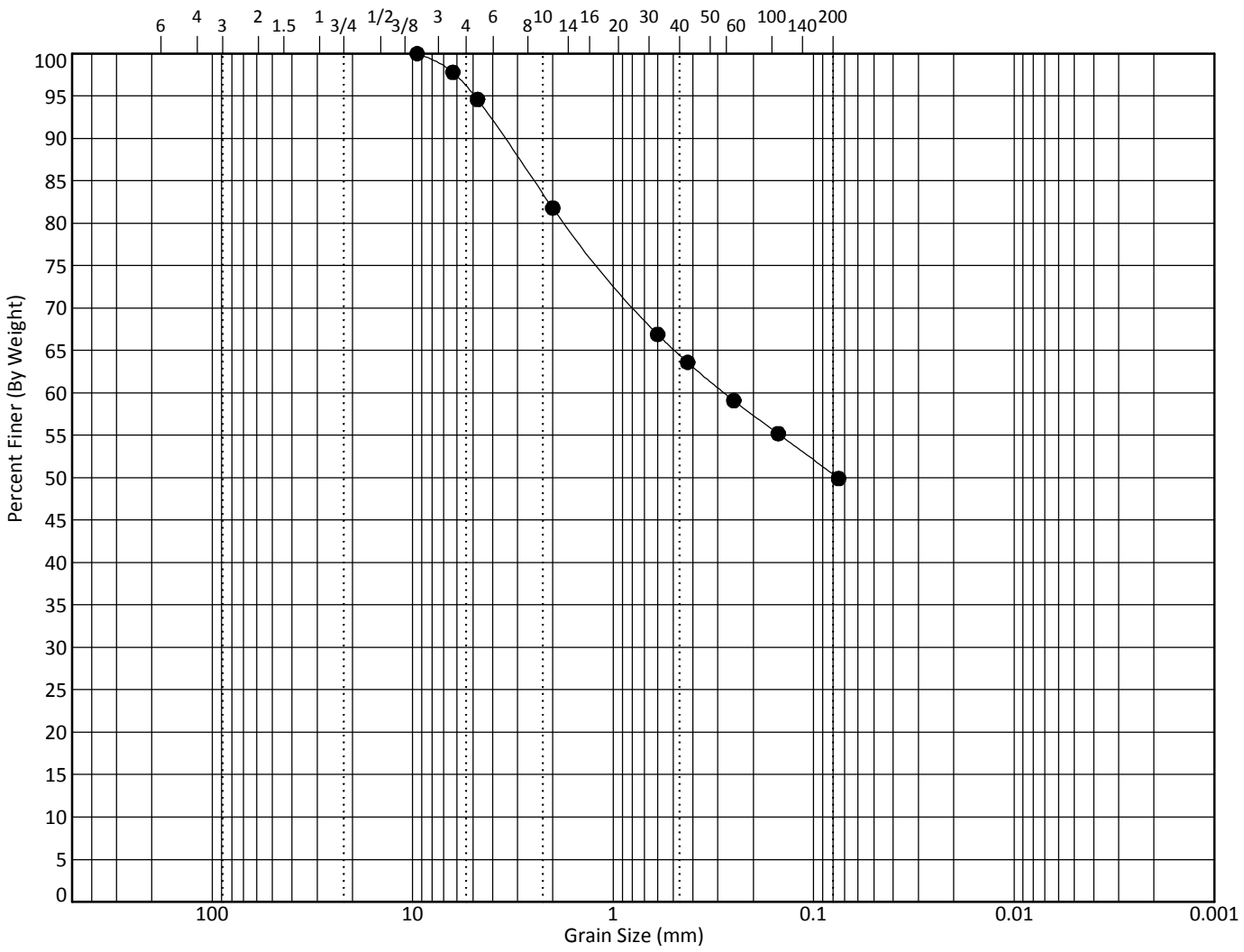
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-1A (SS-4) at	6.5	SILTY SAND (SM)	35	25	10		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1A (SS-4) at	6.5	9.5	0.278			5.4	44.7	49.9	
	at									
	at									
	at									
	at									

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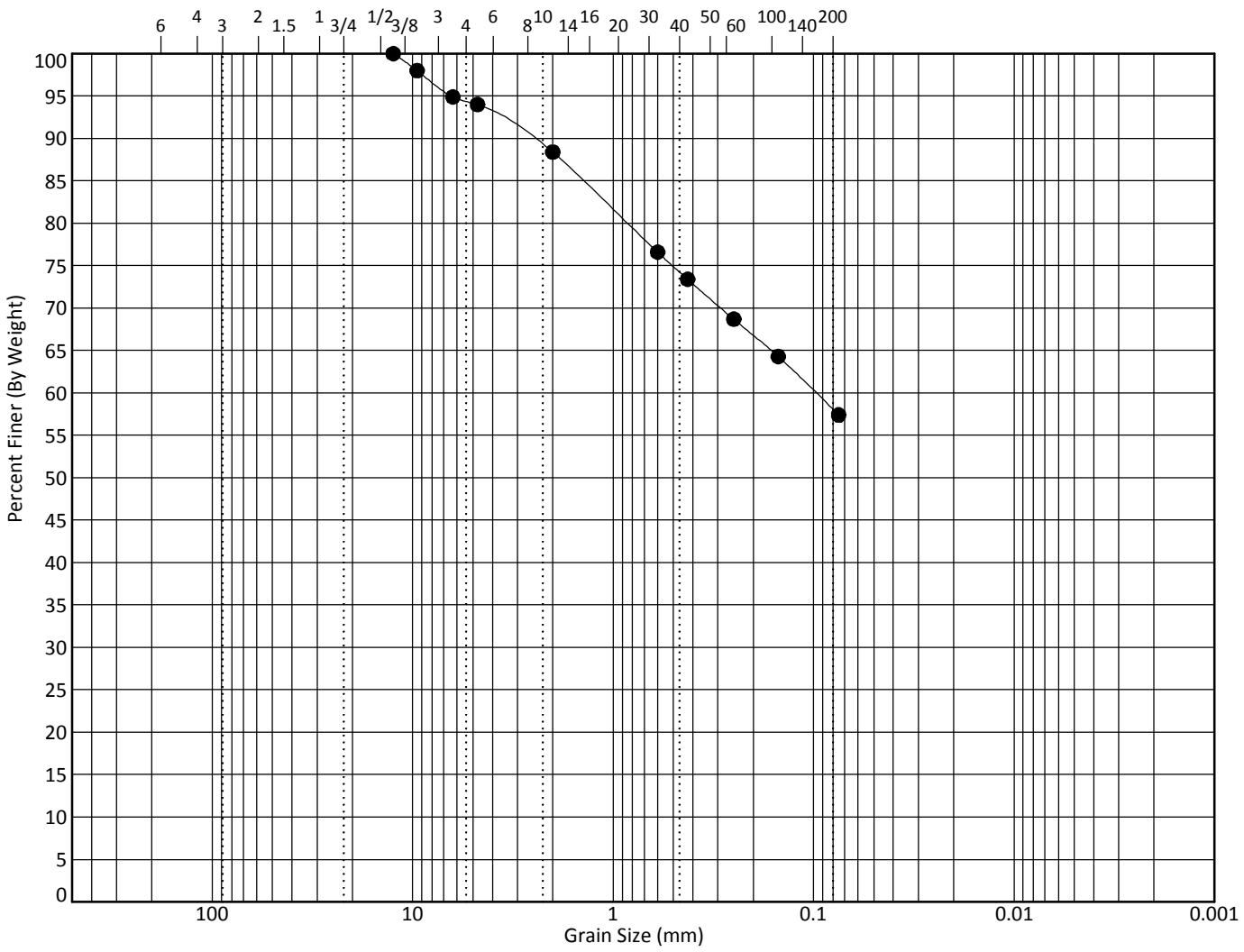
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-1A (SS-7) at	18.5	SANDY SILT (ML)	32	26	6		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-1A (SS-7) at	18.5	12.5	0.097			6.0	36.6	57.4	
	at									
	at									
	at									
	at									

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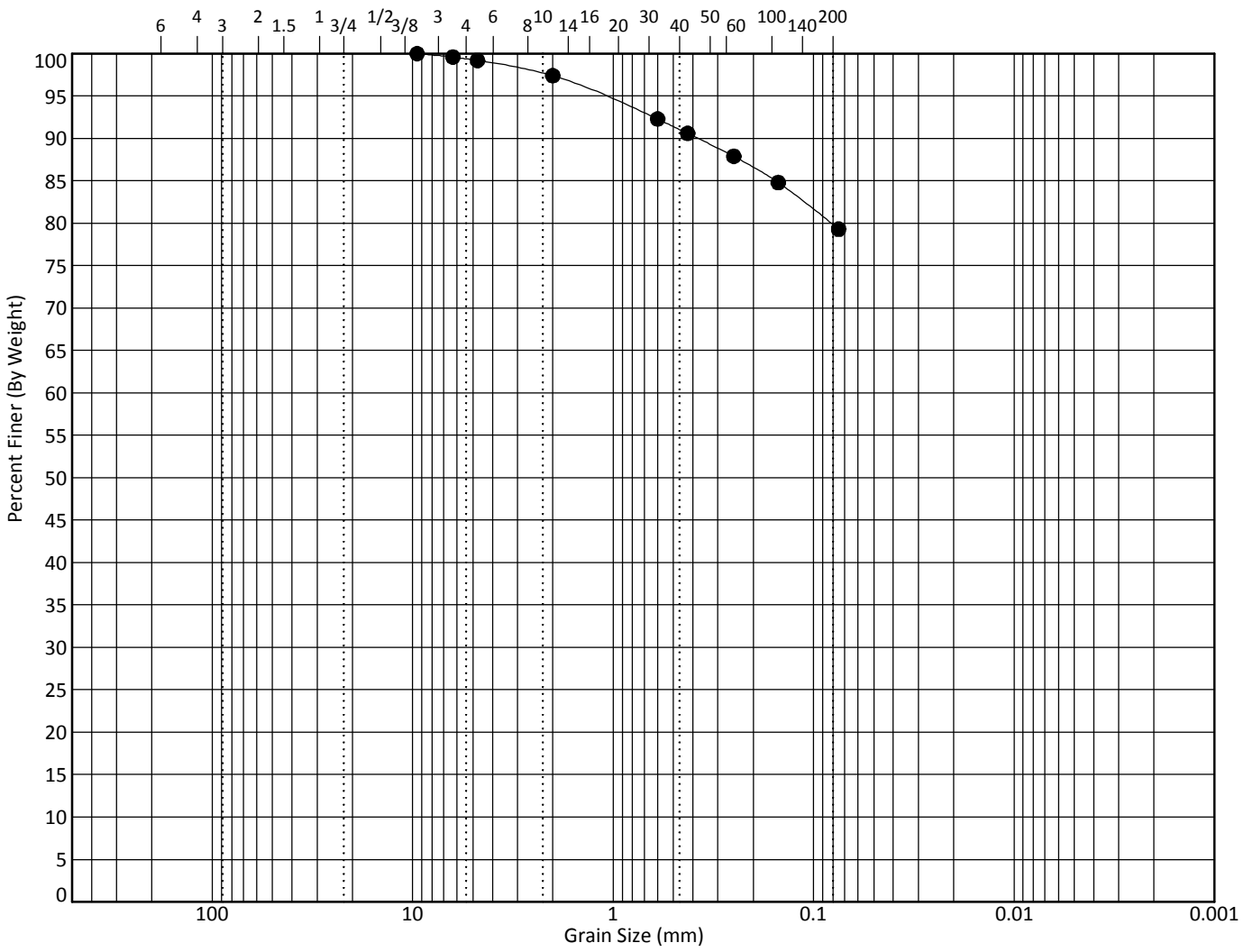
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● B-2A (SS-1)	0.5	LEAN CLAY with SAND (CL)	47	24	23		
at							
at							
at							
at							

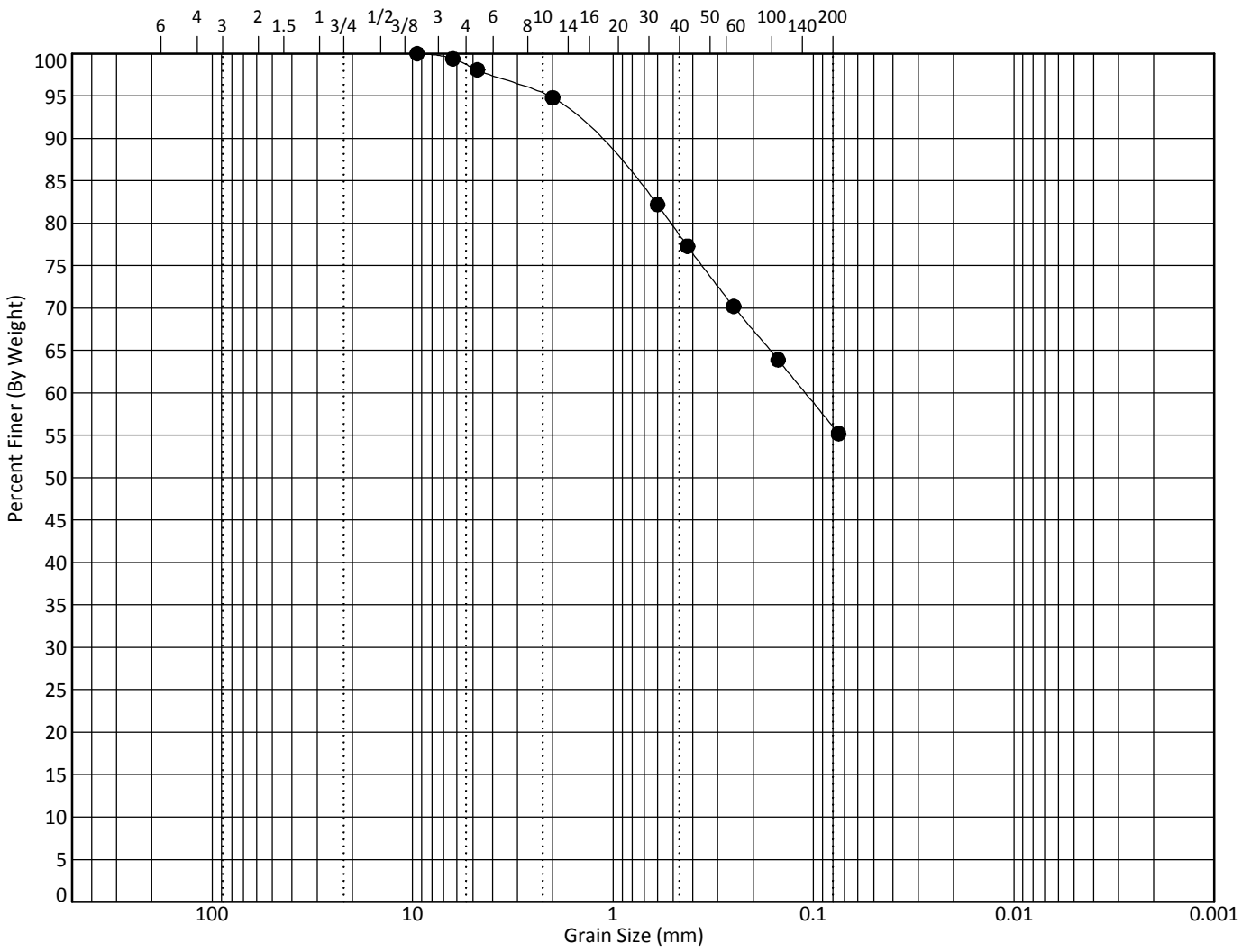
Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● B-2A (SS-1)	0.5	9.5				0.8	19.9	79.3	
at									
at									
at									
at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-2A (SS-5) at	8.5	SANDY SILT (ML)	32	25	7		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-2A (SS-5) at	8.5	9.5	0.11			1.9	42.9	55.2	
	at									
	at									
	at									
	at									

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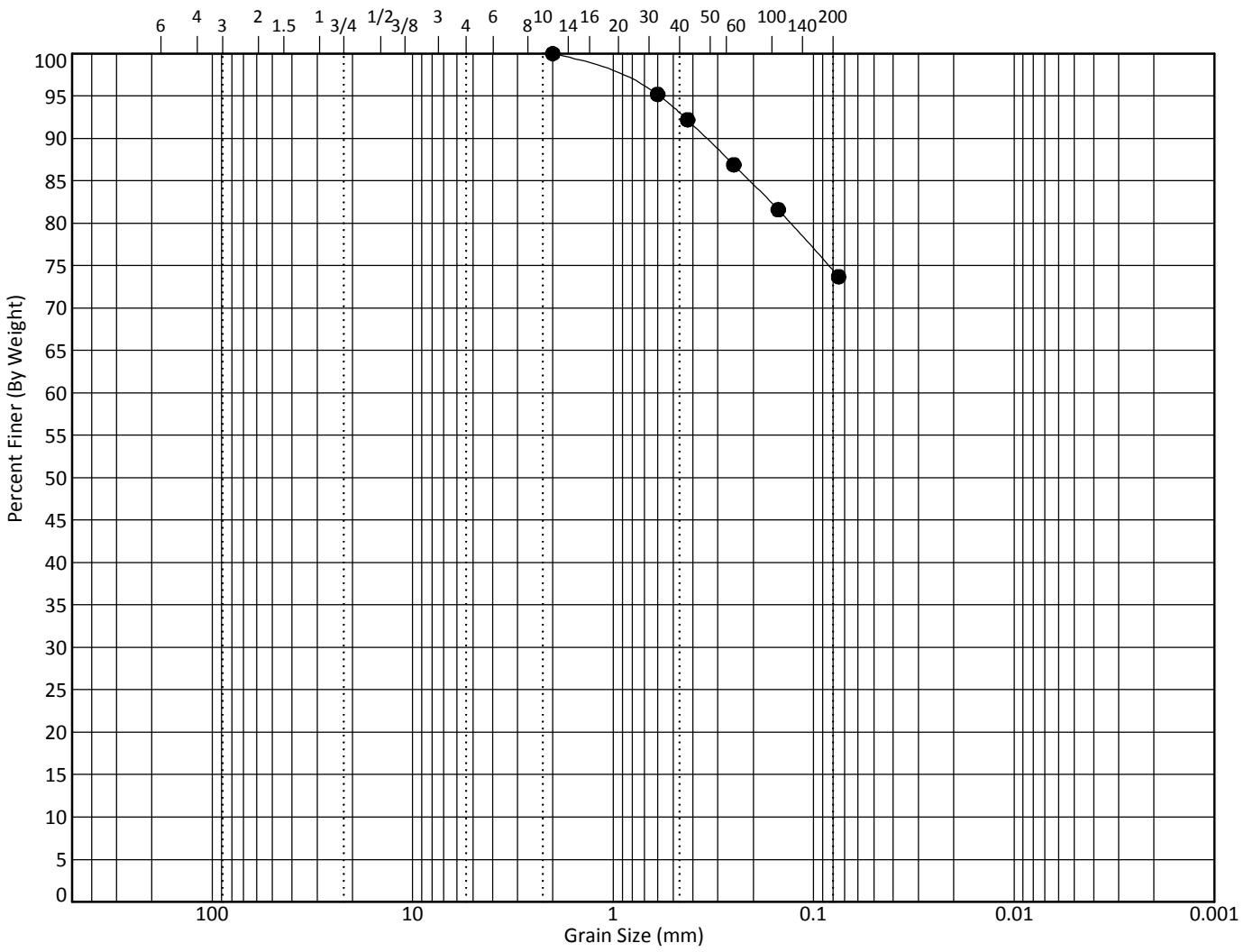
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-2A (SS-6) at	13.5	SILT with SAND (ML)	33	27	6		
	at							
	at							
	at							
	at							

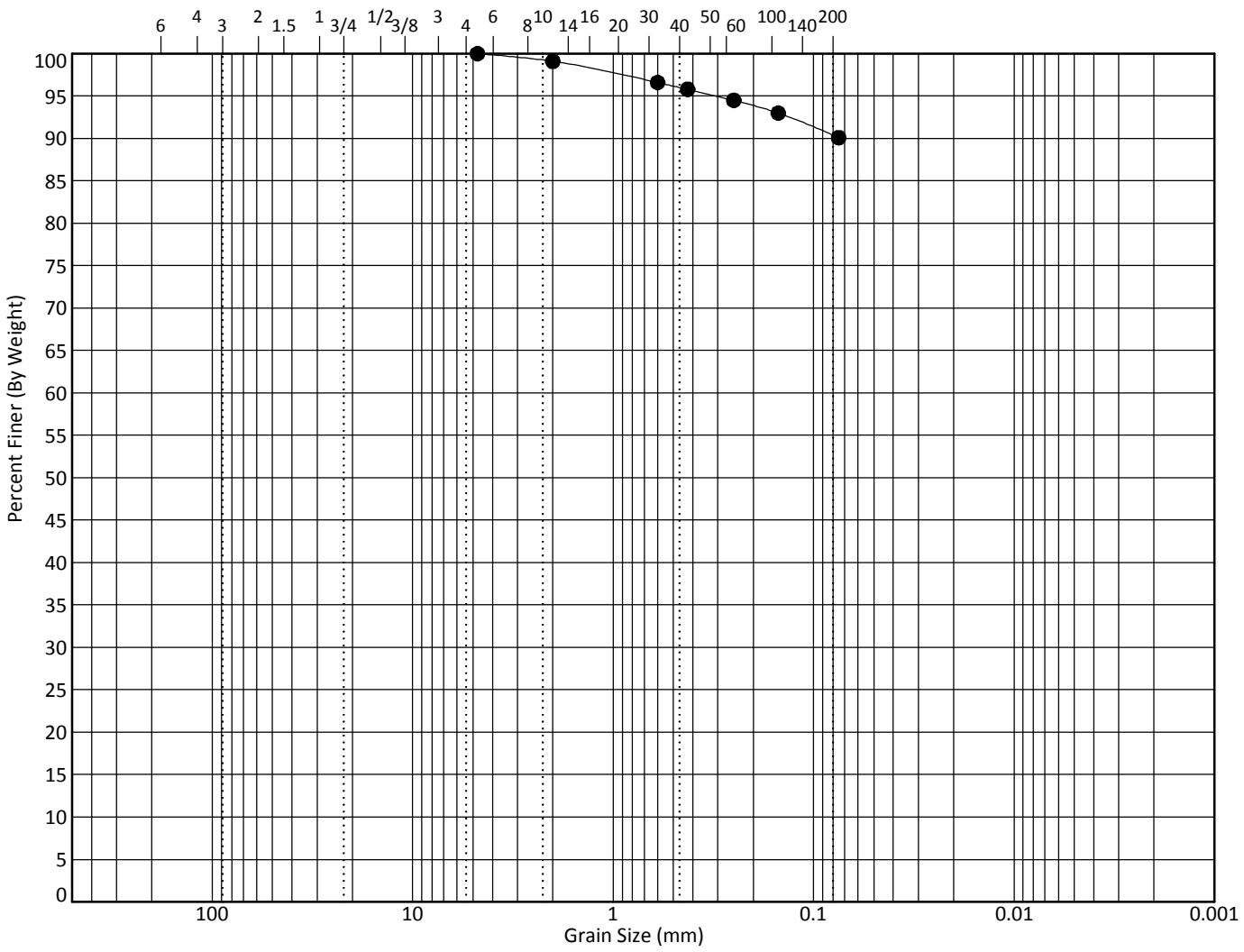
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-2A (SS-6) at	13.5	2				0.0	26.3	73.7	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-2A (SS-7) at	18.5	SILT (ML)	33	27	6		
	at							
	at							
	at							
	at							

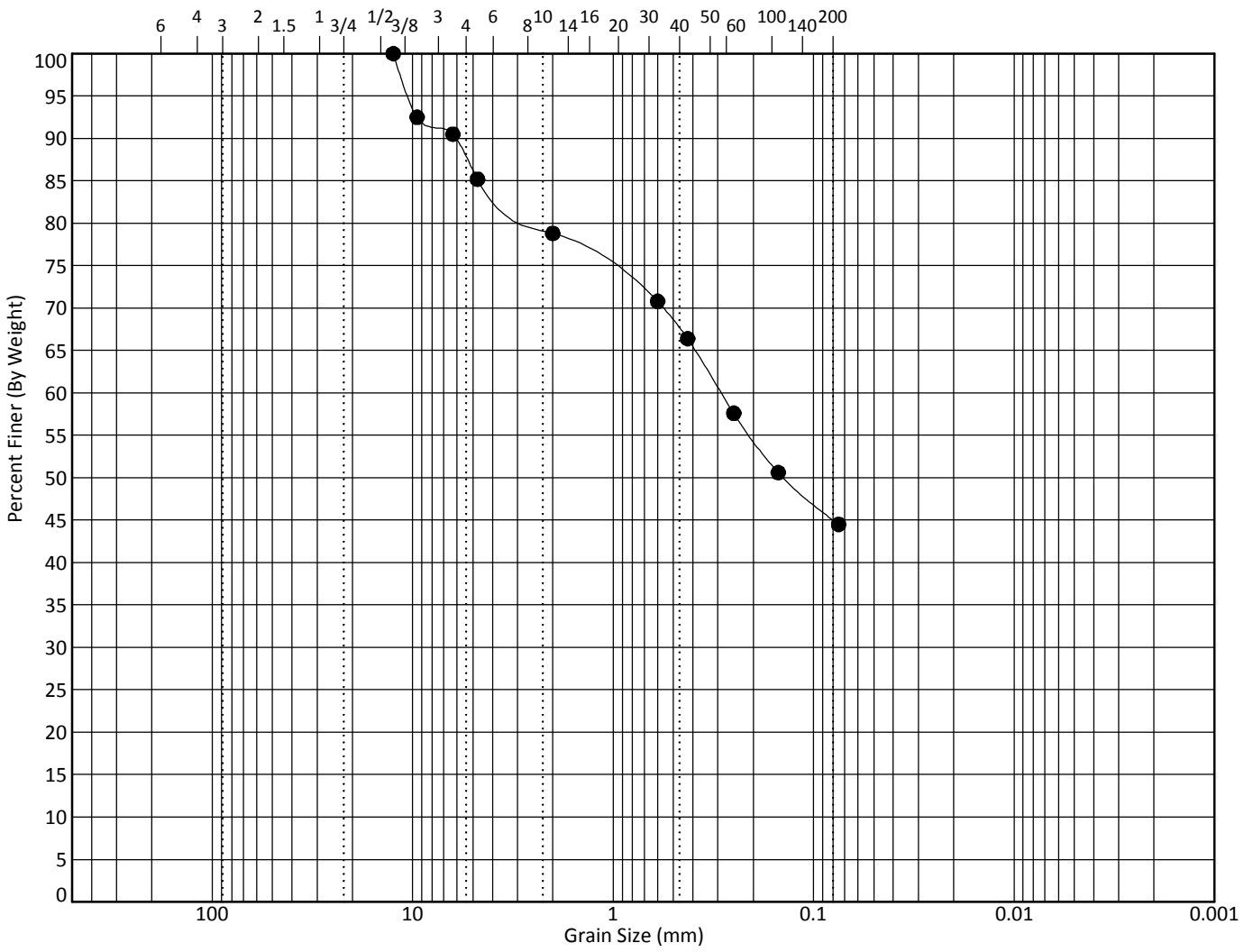
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-2A (SS-7) at	18.5	4.75				0.0	9.9	90.1	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-3 (SS-1)at	0.5	CLAYEY SAND (SC)	30	22	8		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-3 (SS-1)at	0.5	12.5	0.289			14.8	40.7	44.5	
	at									
	at									
	at									
	at									

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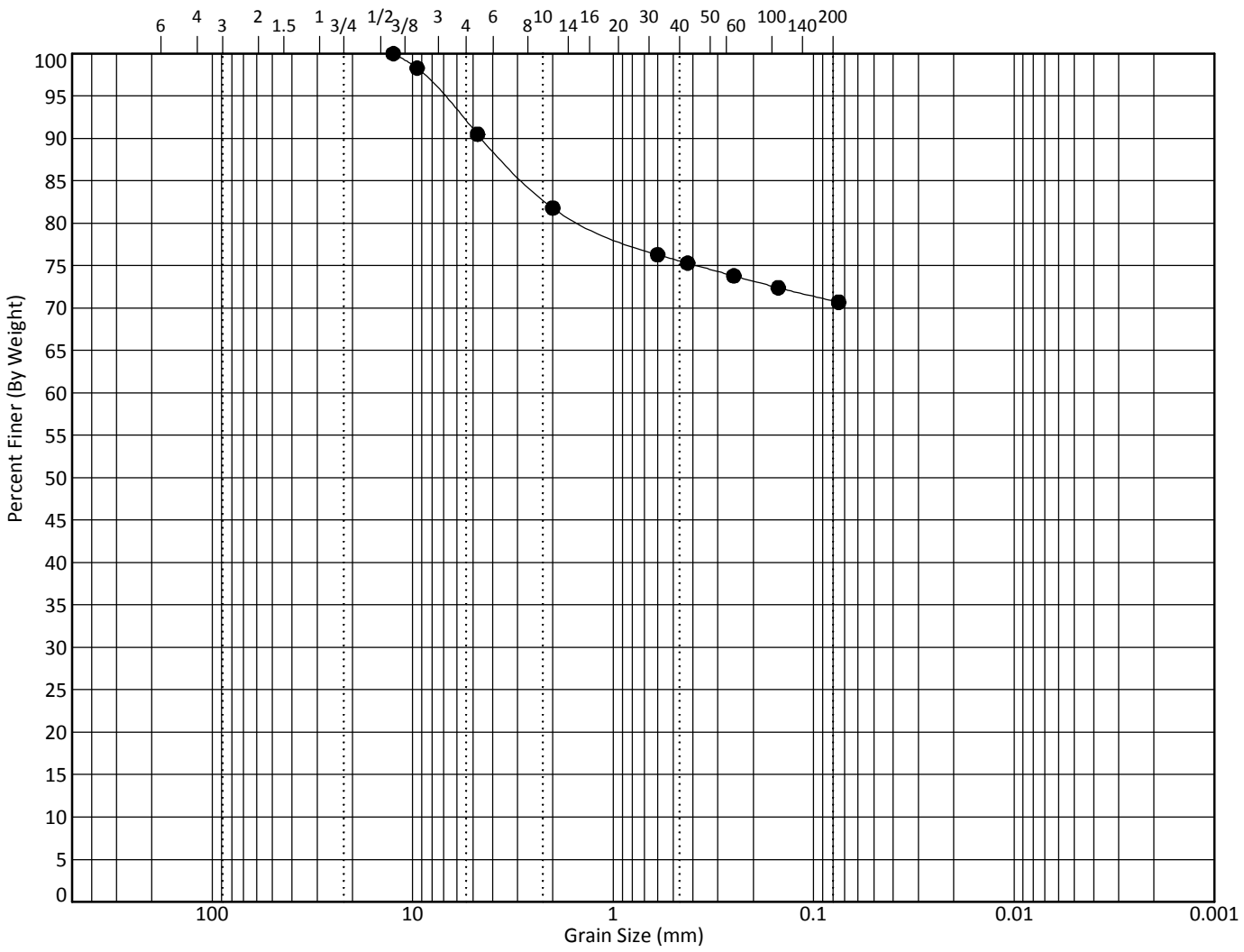
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-4 (SS-1)at	0.5	LEAN CLAY with SAND (CL)	34	22	12		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-4 (SS-1)at	0.5	12.5				9.5	19.8	70.7	
	at									
	at									
	at									
	at									

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GRAIN SIZE DISTRIBUTION

Project No: 65N0302
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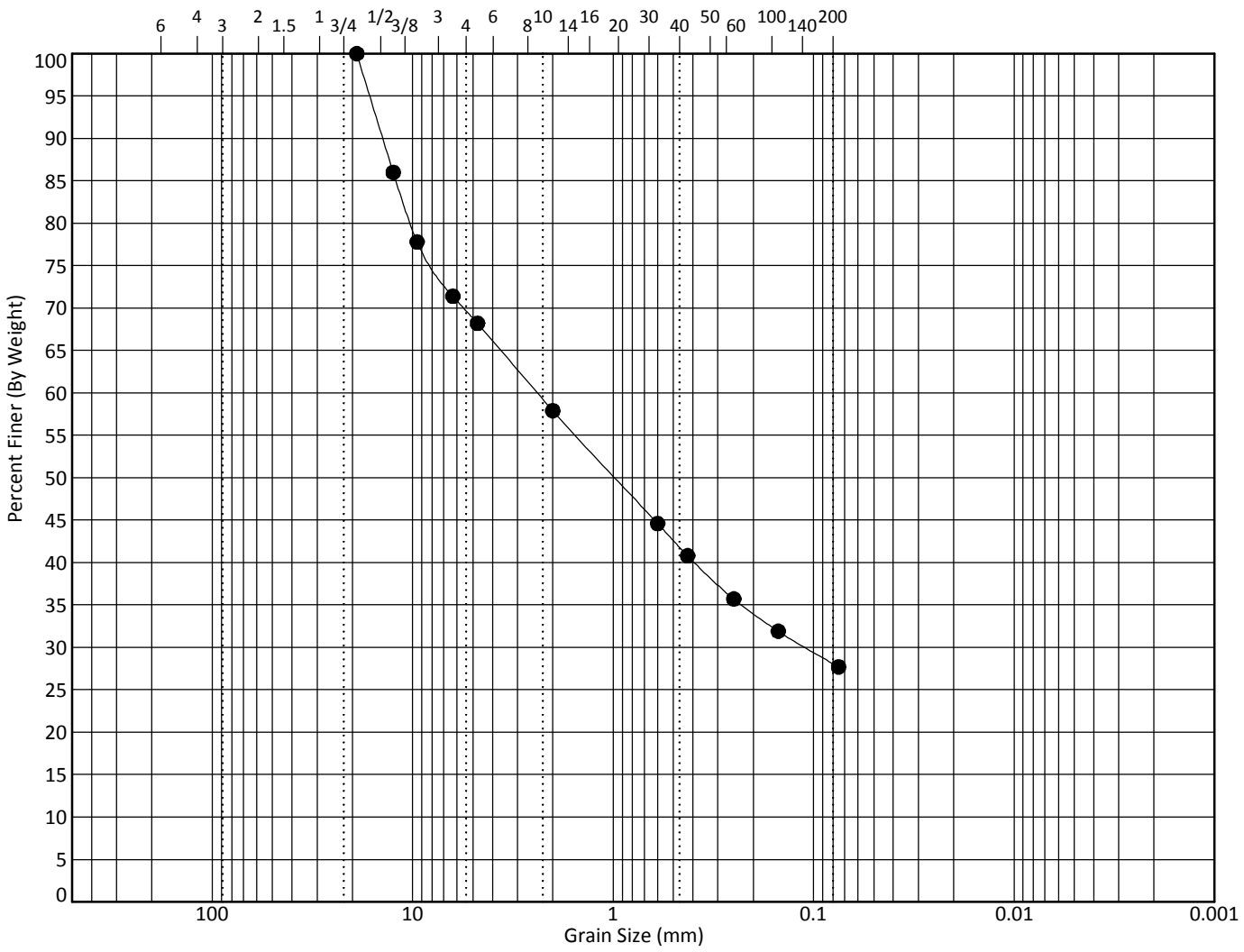
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-4 (SS-3)at	4.5	SILTY, CLAYEY SAND with GRAVEL (SC-SM)	25	18	7		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-4 (SS-3)at	4.5	19	2.386	0.11		31.8	40.5	27.7	
	at									
	at									
	at									
	at									

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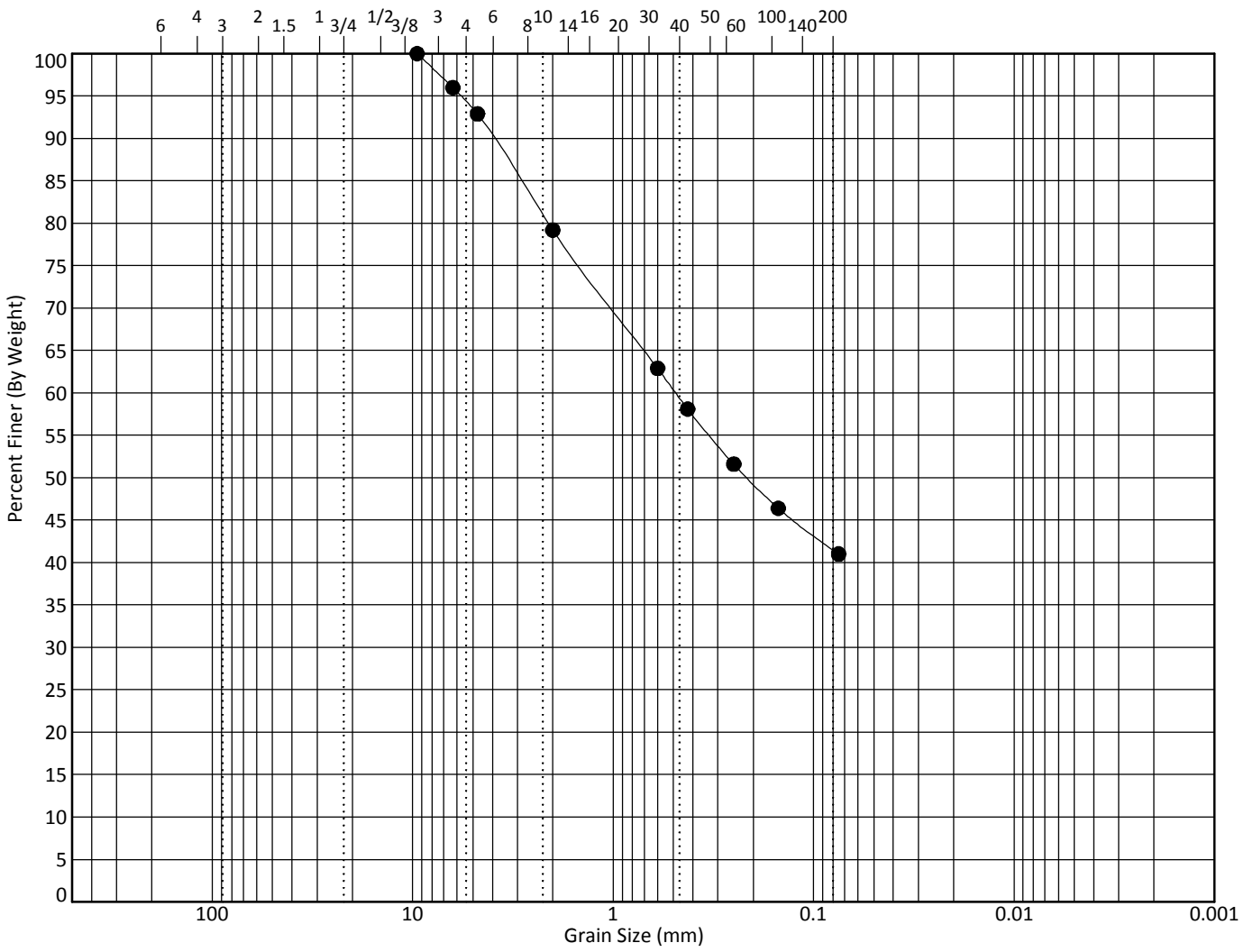
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-5 (SS-1)at	0.5	SILTY SAND (SM)	37	28	9		
	at							
	at							
	at							
	at							

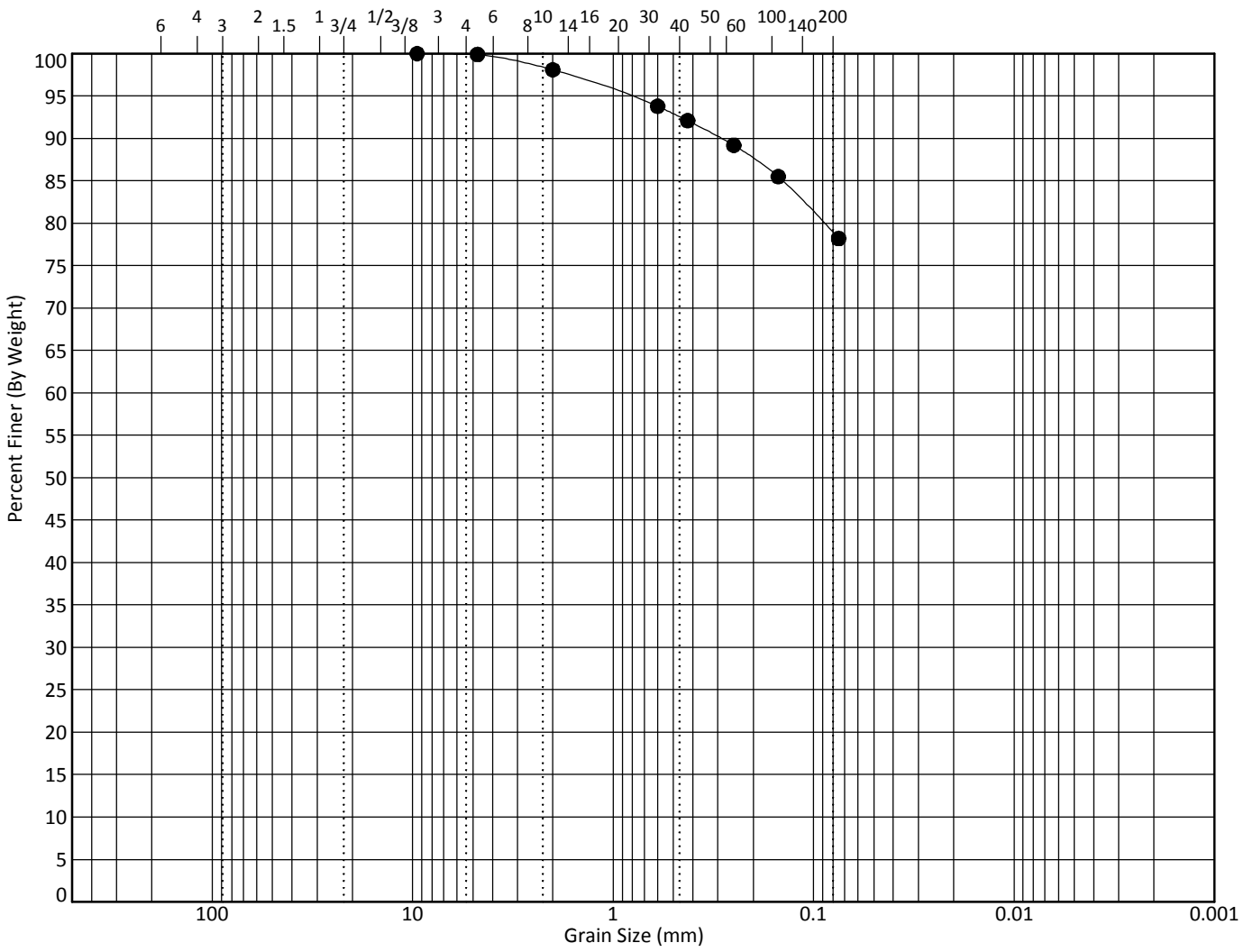
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-5 (SS-1)at	0.5	9.5	0.487			7.1	51.9	41.0	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-6 (SS-3)at	4.5	SILT with SAND (ML)	37	26	11		
	at							
	at							
	at							
	at							

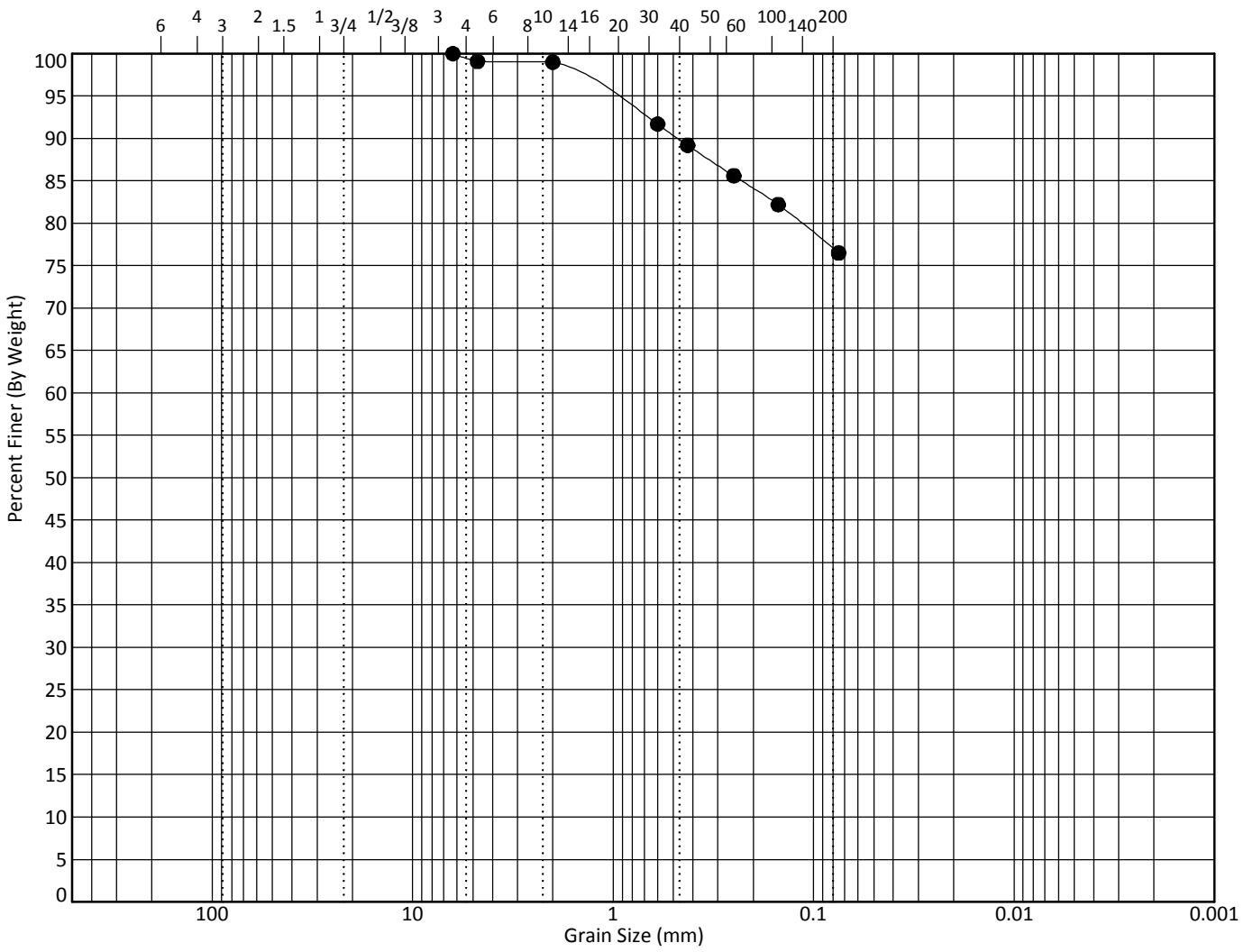
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-6 (SS-3)at	4.5	9.5				0.1	21.7	78.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-6 (SS-7)at	18.5	SILT with SAND (ML)	42	30	12		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-6 (SS-7)at	18.5	6.3				0.9	22.6	76.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

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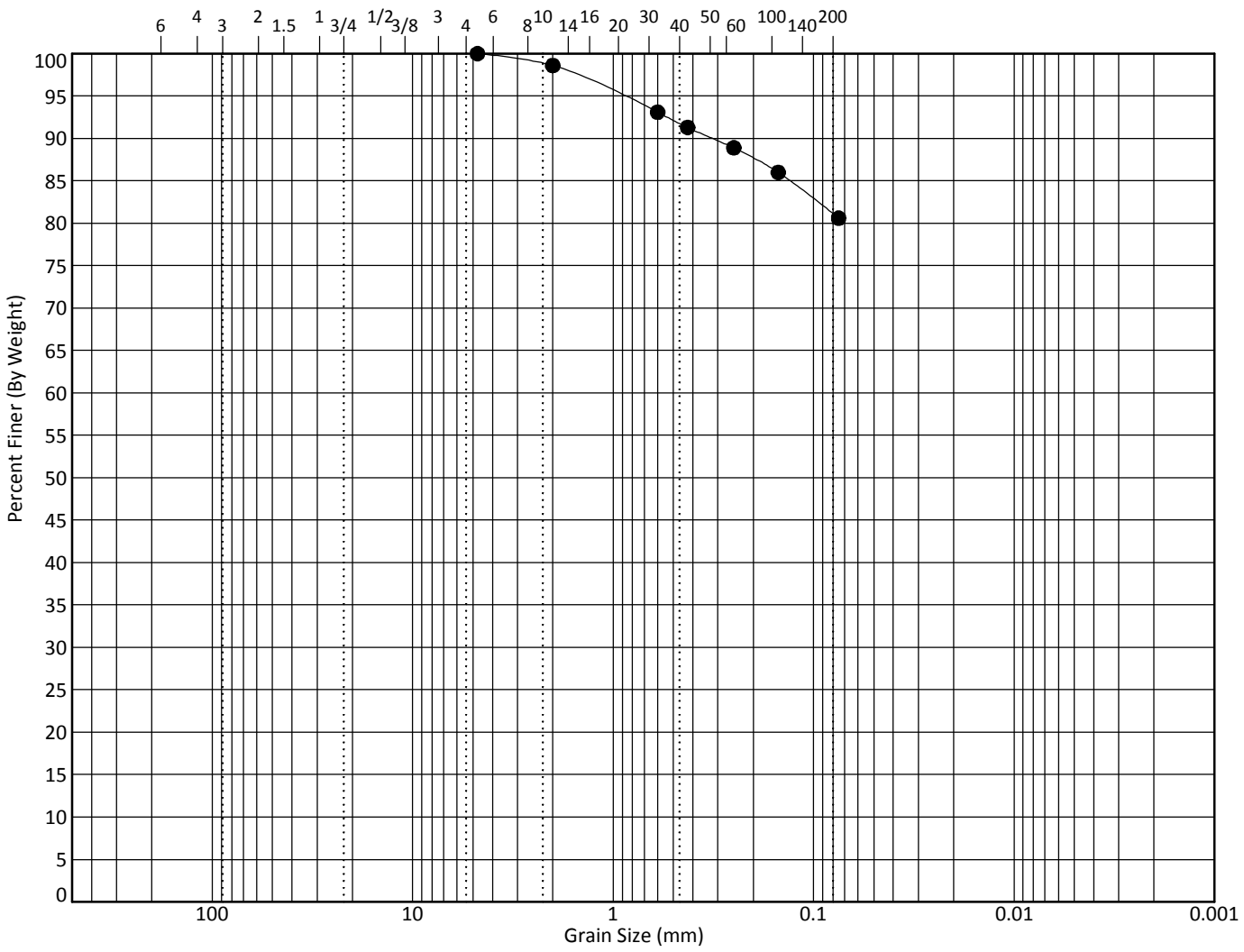
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	B-6 (SS-8)at	23.5	SILT with SAND (ML)	38	26	12		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	B-6 (SS-8)at	23.5	4.75				0.0	19.4	80.6	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

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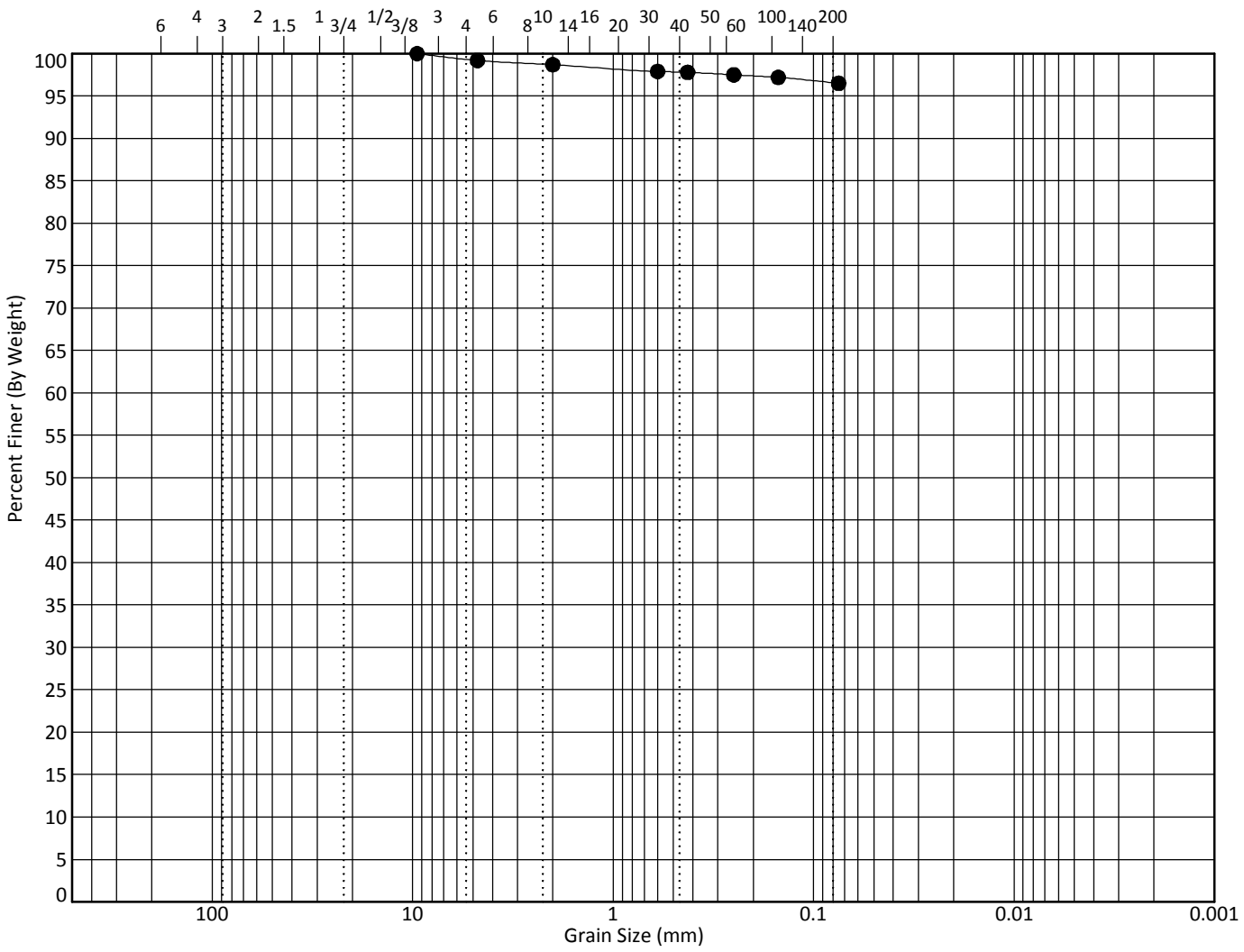
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-1 (SS-1) at	0.5	FAT CLAY (CH)	72	32	40		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-1 (SS-1) at	0.5	9.5				0.8	2.7	96.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

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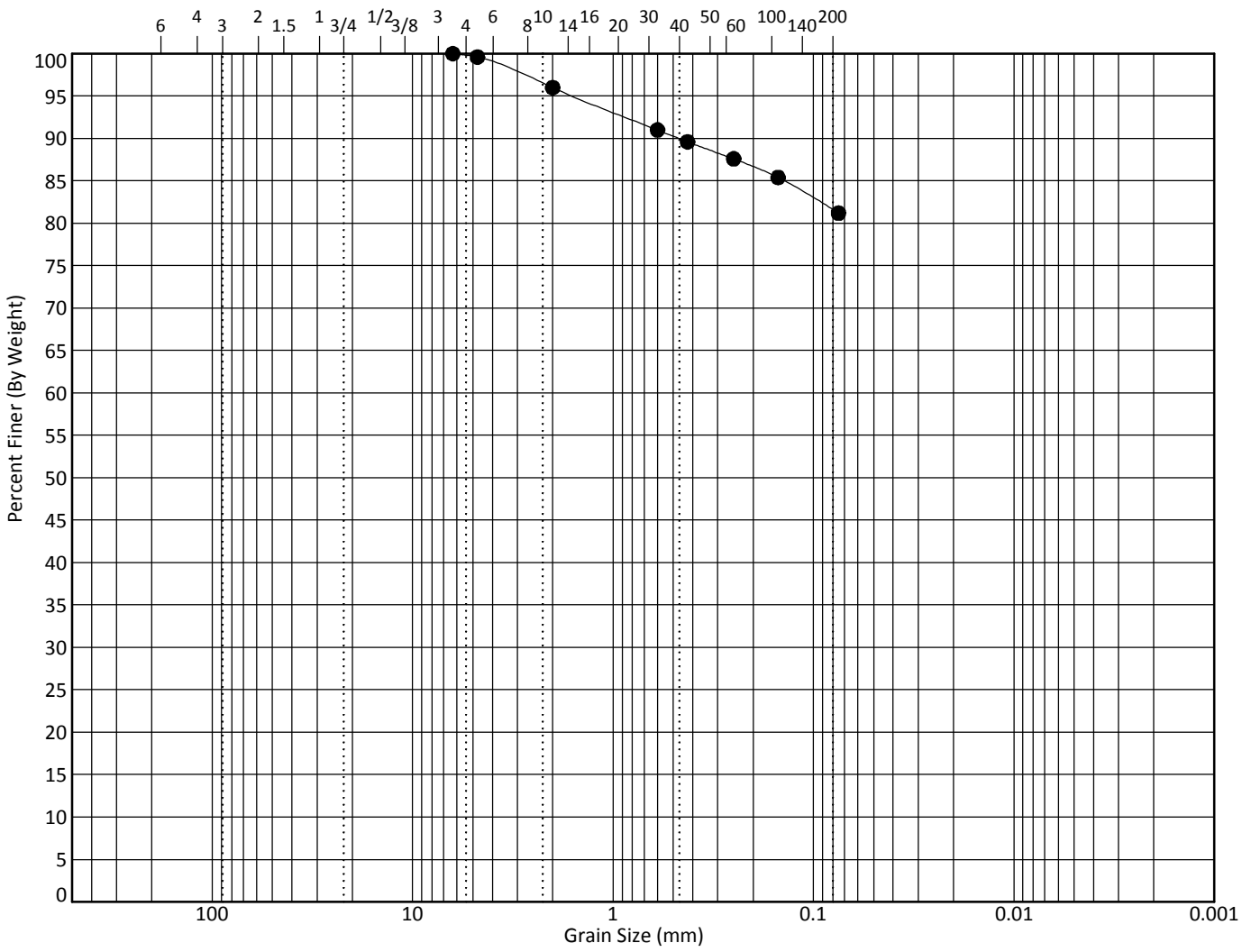
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-1 (SS-4) at	6.5	SILT with SAND (ML)	38	30	8		
	at							
	at							
	at							
	at							

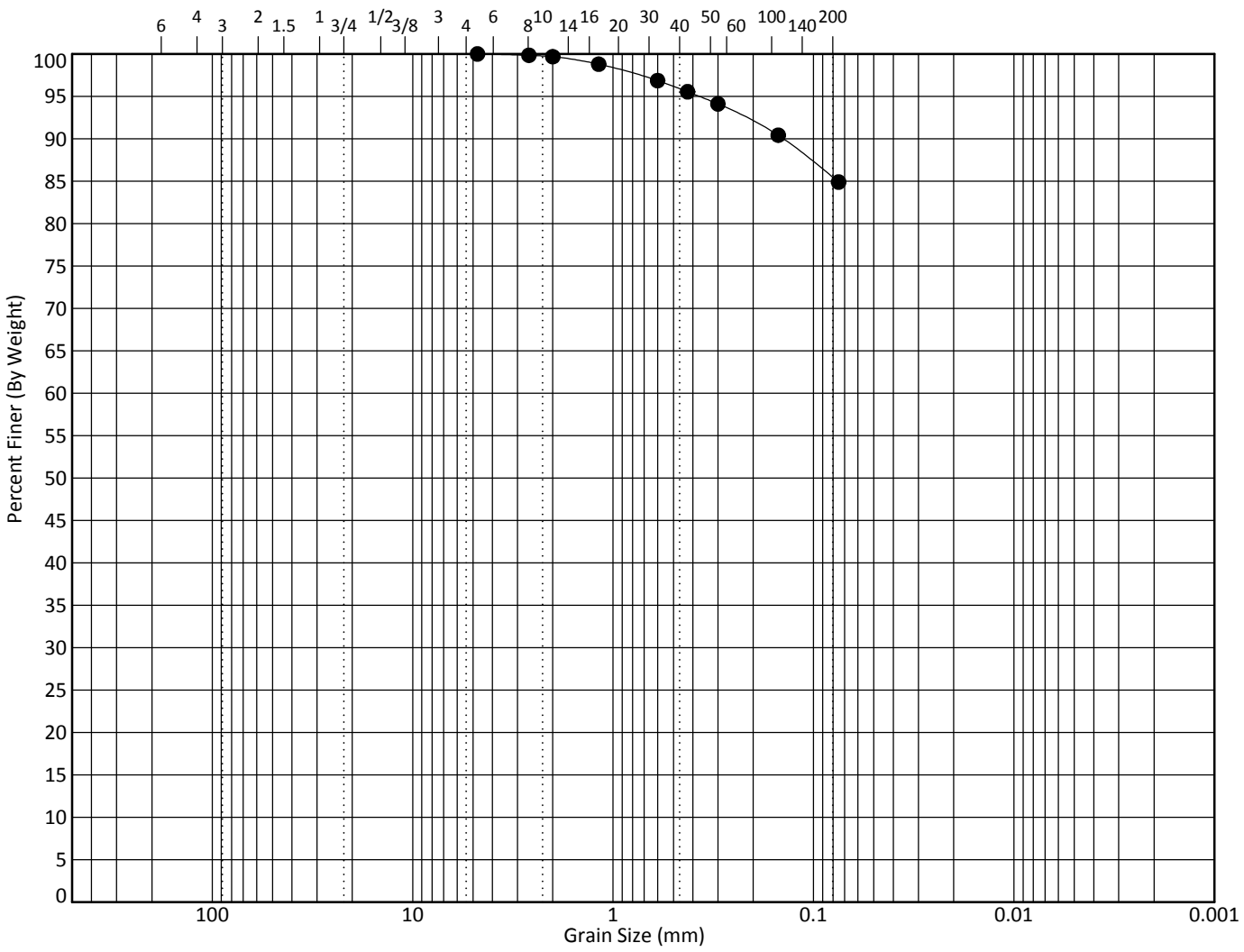
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-1 (SS-4) at	6.5	6.3				0.4	18.4	81.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-2 SS-1at	0.5	FAT CLAY with SAND (CH)	50	24	26		
	at							
	at							
	at							
	at							

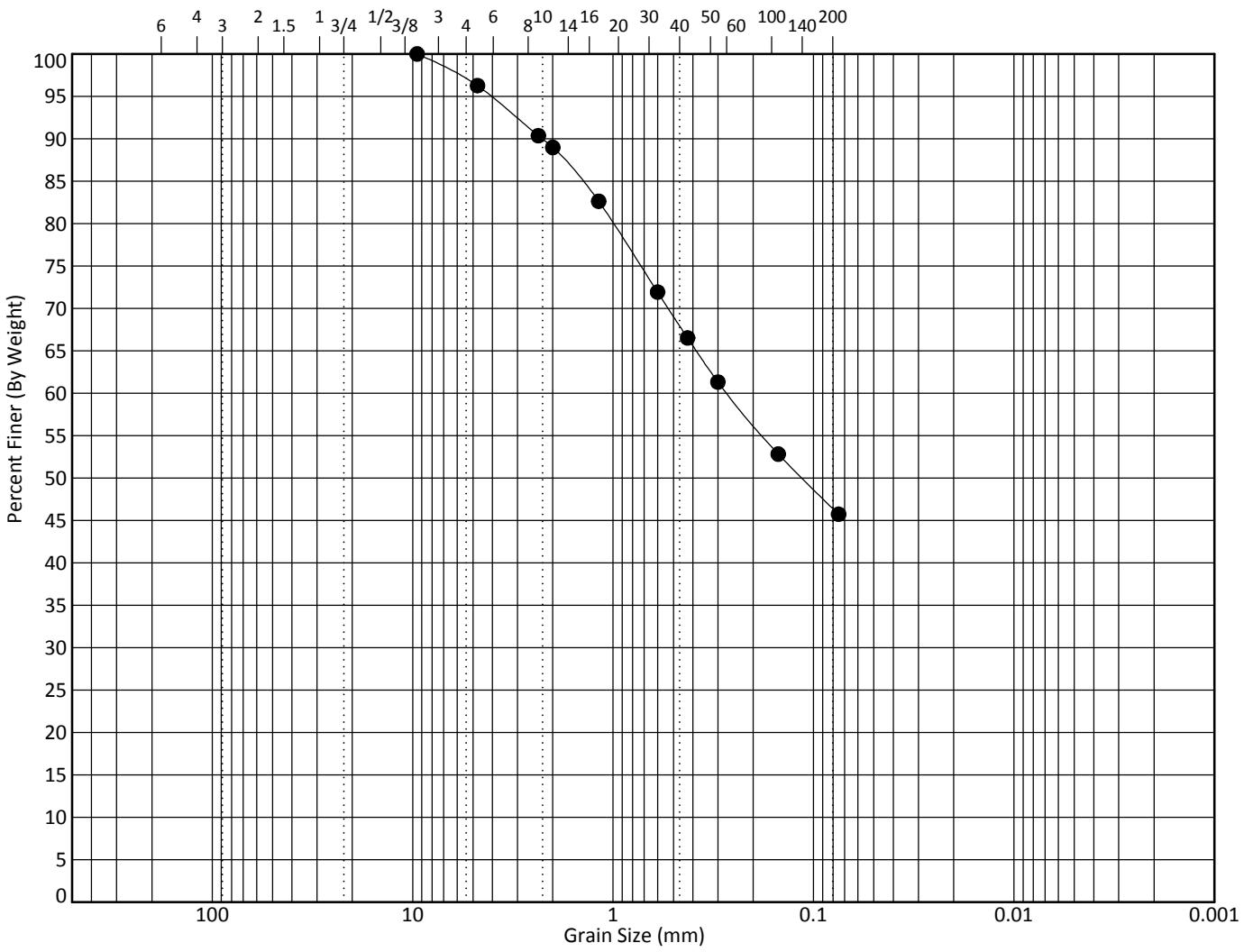
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-2 SS-1at	0.5	4.75				0.0	15.1	84.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-2 SS-3at	4.5	SILTY SAND (SM)	32	26	6		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-2 SS-3at	4.5	9.5	0.269			3.7	50.5	45.7	
	at									
	at									
	at									
	at									

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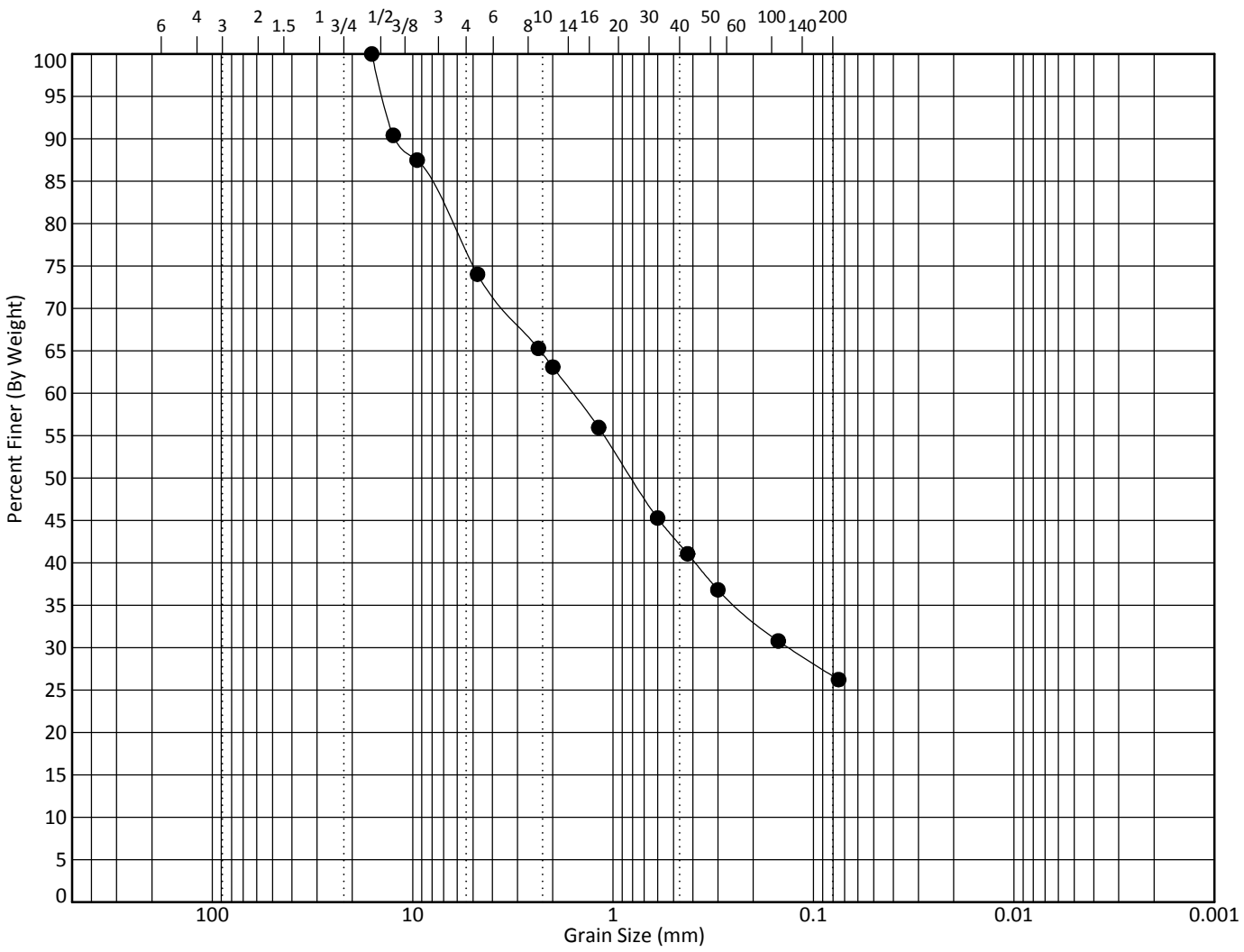
FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-2 SS-5at	8.5	()					
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-2 SS-5at	8.5	16	1.592	0.133		26.0	47.8	26.2	
	at									
	at									
	at									
	at									

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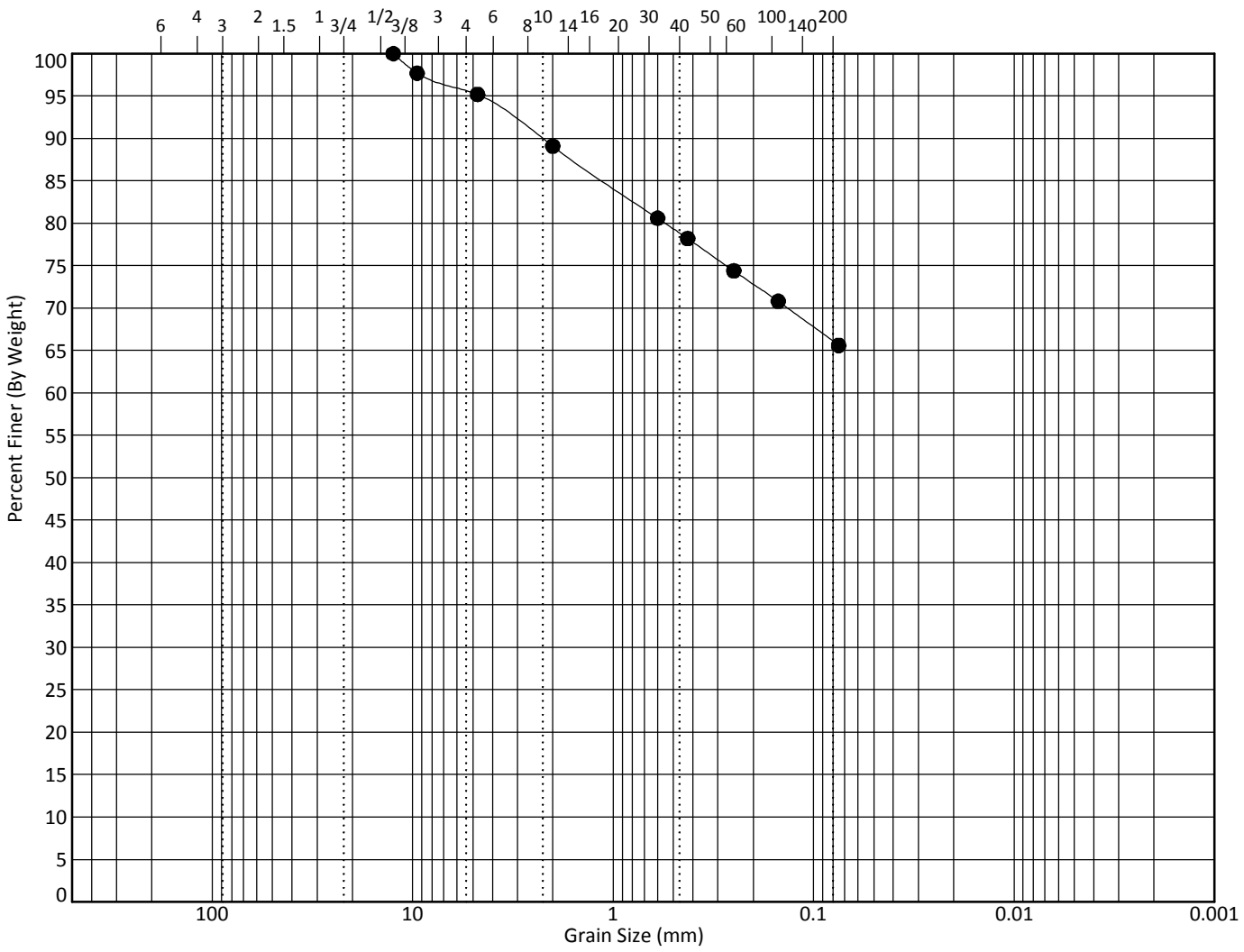
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-4 (SS-1) at	0.5	SANDY LEAN CLAY (CL)	35	24	11		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-4 (SS-1) at	0.5	12.5				4.8	29.6	65.6	
	at									
	at									
	at									
	at									

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GRAIN SIZE DISTRIBUTION

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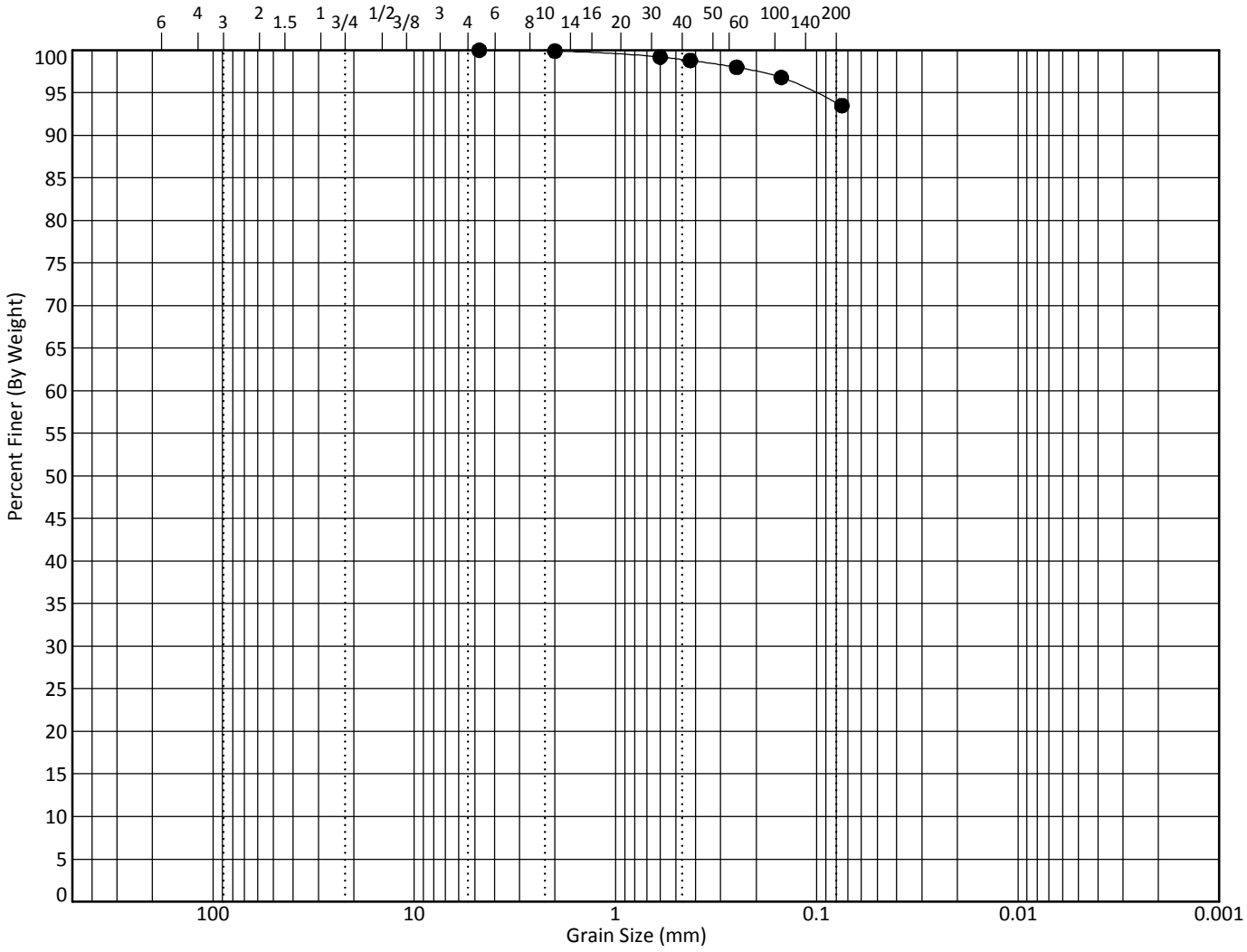
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-4 (SS-4) at	6.5	LEAN CLAY (CL)	46	27	19		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-4 (SS-4) at	6.5	4.75				0.0	6.5	93.5	
	at									
	at									
	at									
	at									

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GRAIN SIZE DISTRIBUTION

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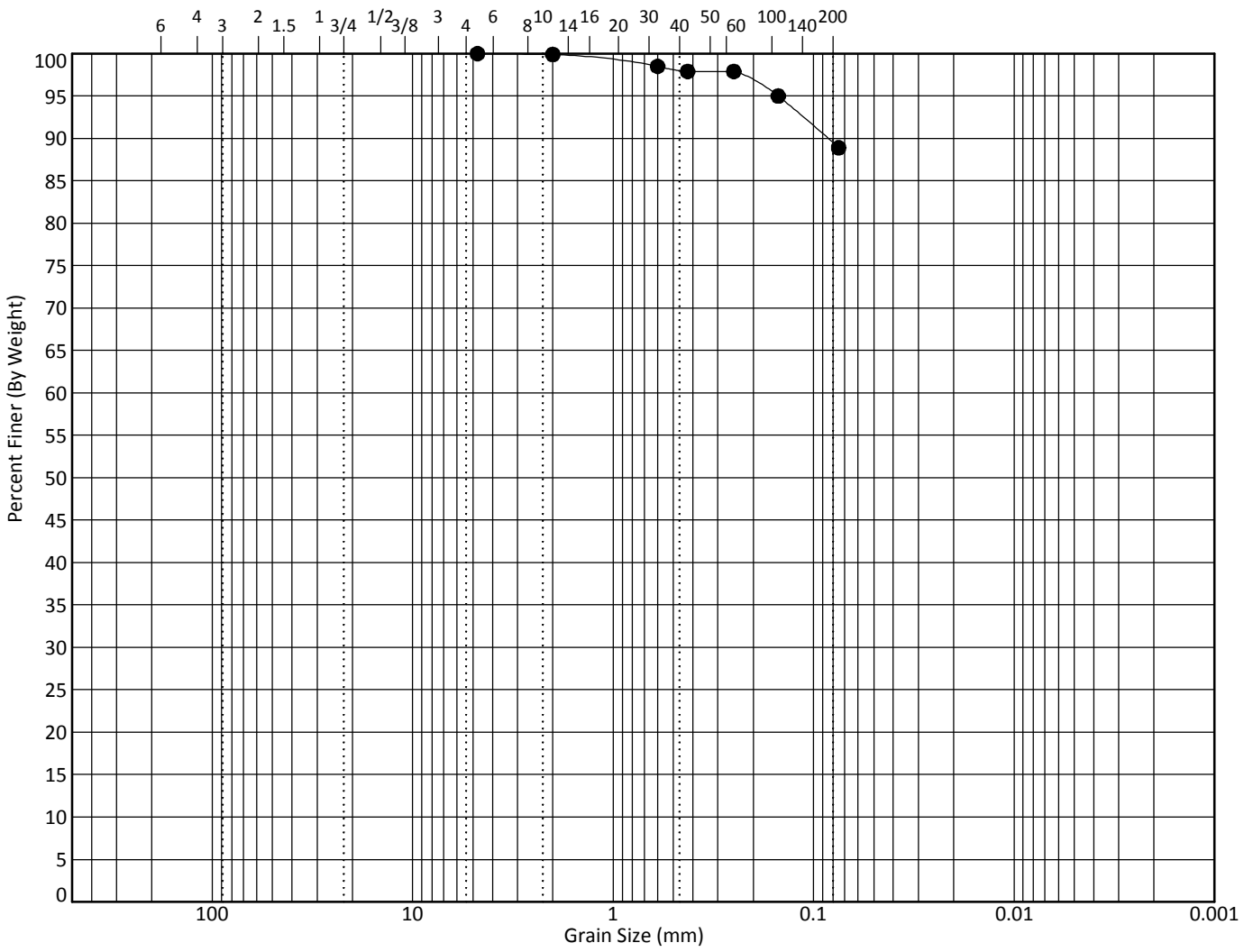
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-4 (SS-5) at	8.5	LEAN CLAY (CL)	40	25	15		
	at							
	at							
	at							
	at							

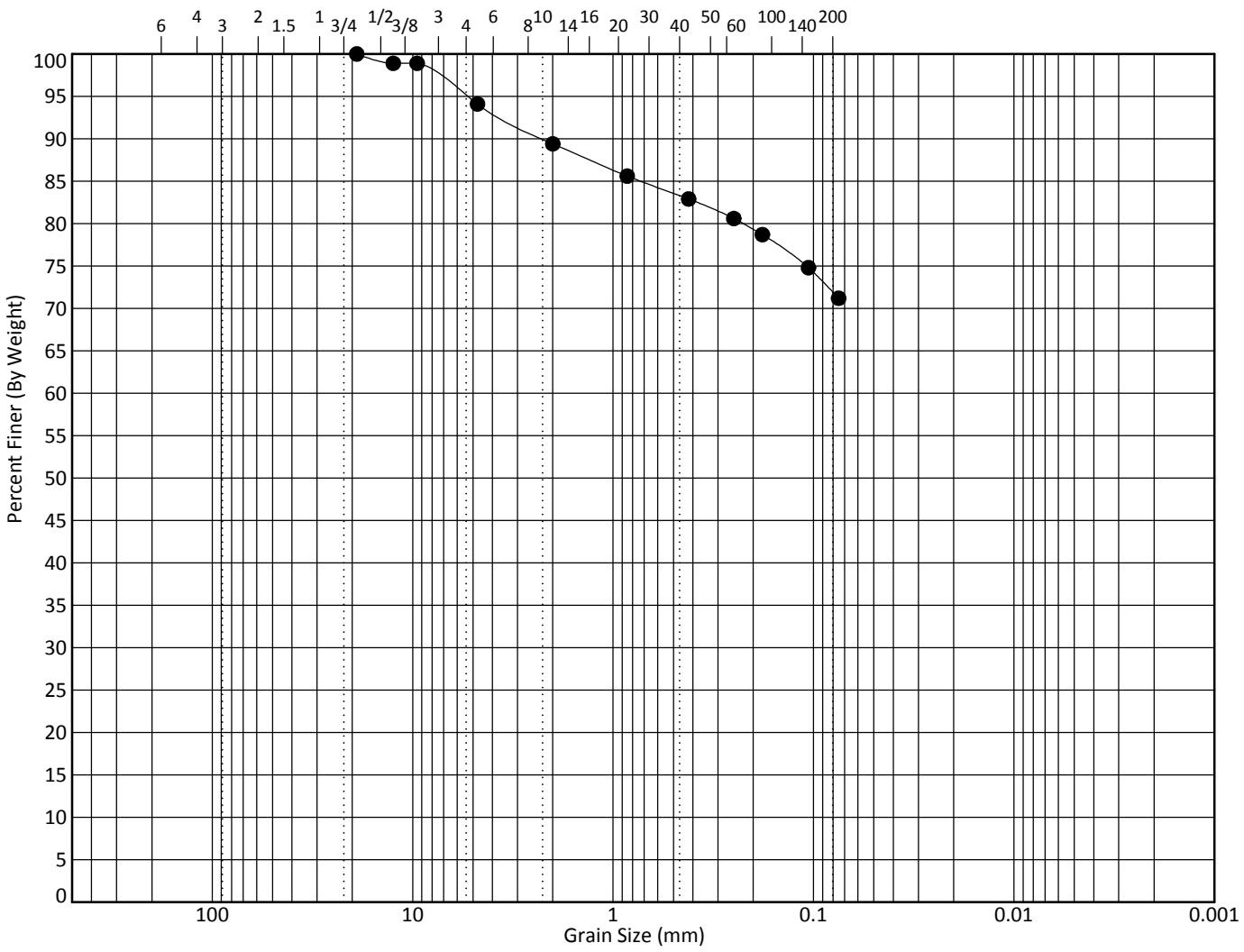
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-4 (SS-5) at	8.5	4.75				0.0	11.1	88.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-5 SS-1at	0.5	LEAN CLAY with SAND (CL)	42	21	21		
	at							
	at							
	at							
	at							

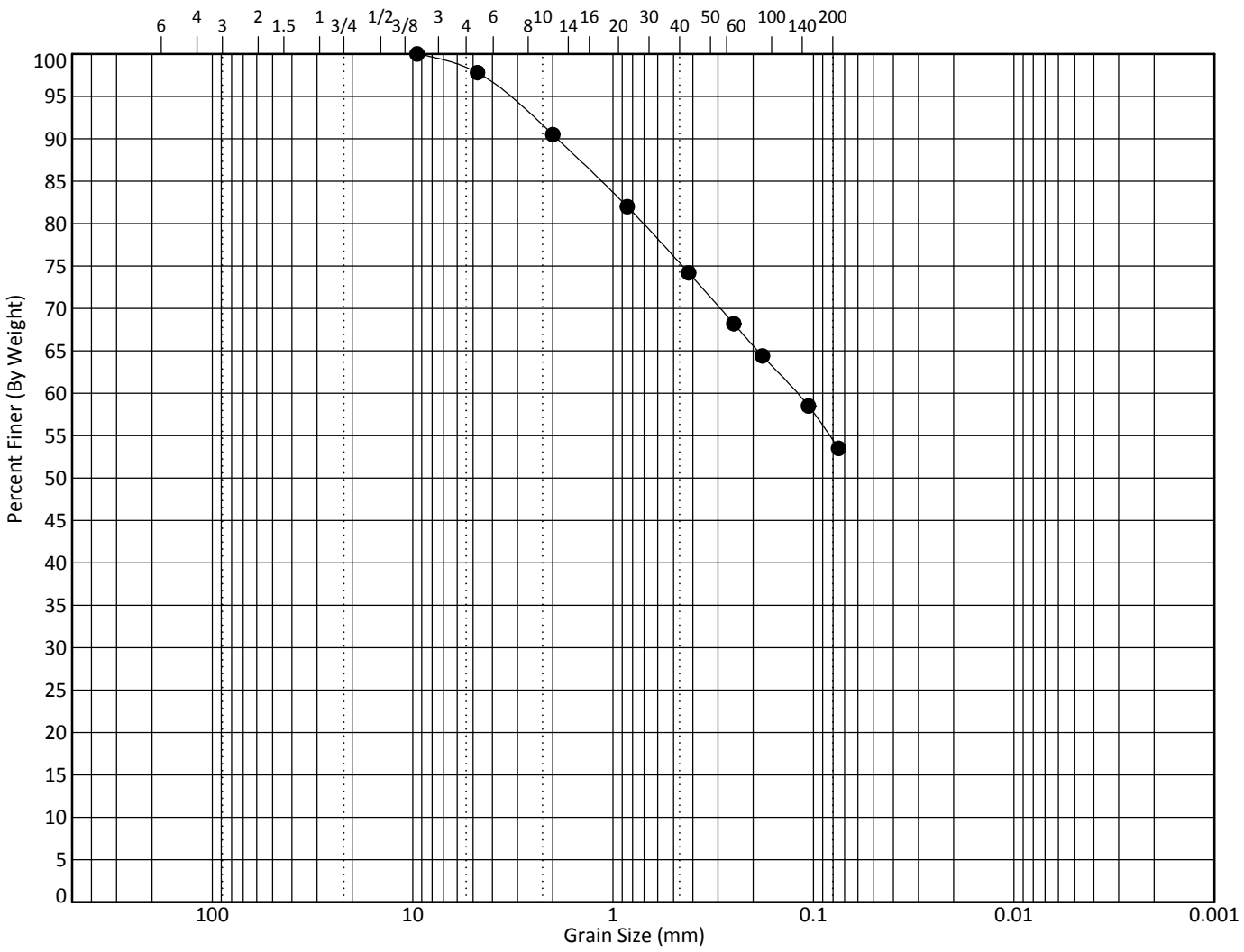
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-5 SS-1at	0.5	19				5.9	22.9	71.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-5 SS-7at	18.5	SANDY SILT (ML)	34	26	8		
	at							
	at							
	at							
	at							

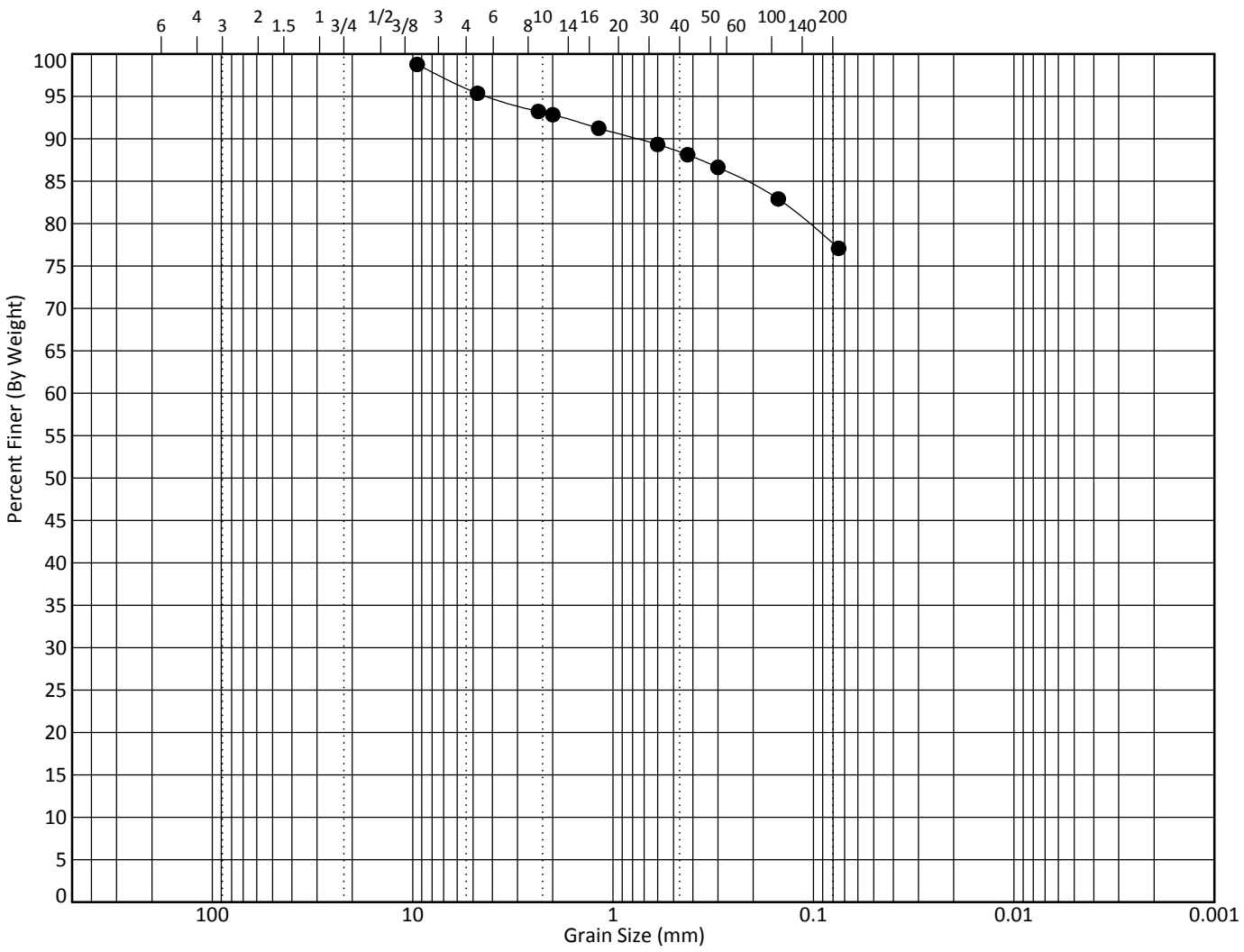
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-5 SS-7at	18.5	9.5	0.121			2.2	44.3	53.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-6 SS-1at	0.5	LEAN CLAY with SAND (CL)	42	20	22		
	at							
	at							
	at							
	at							

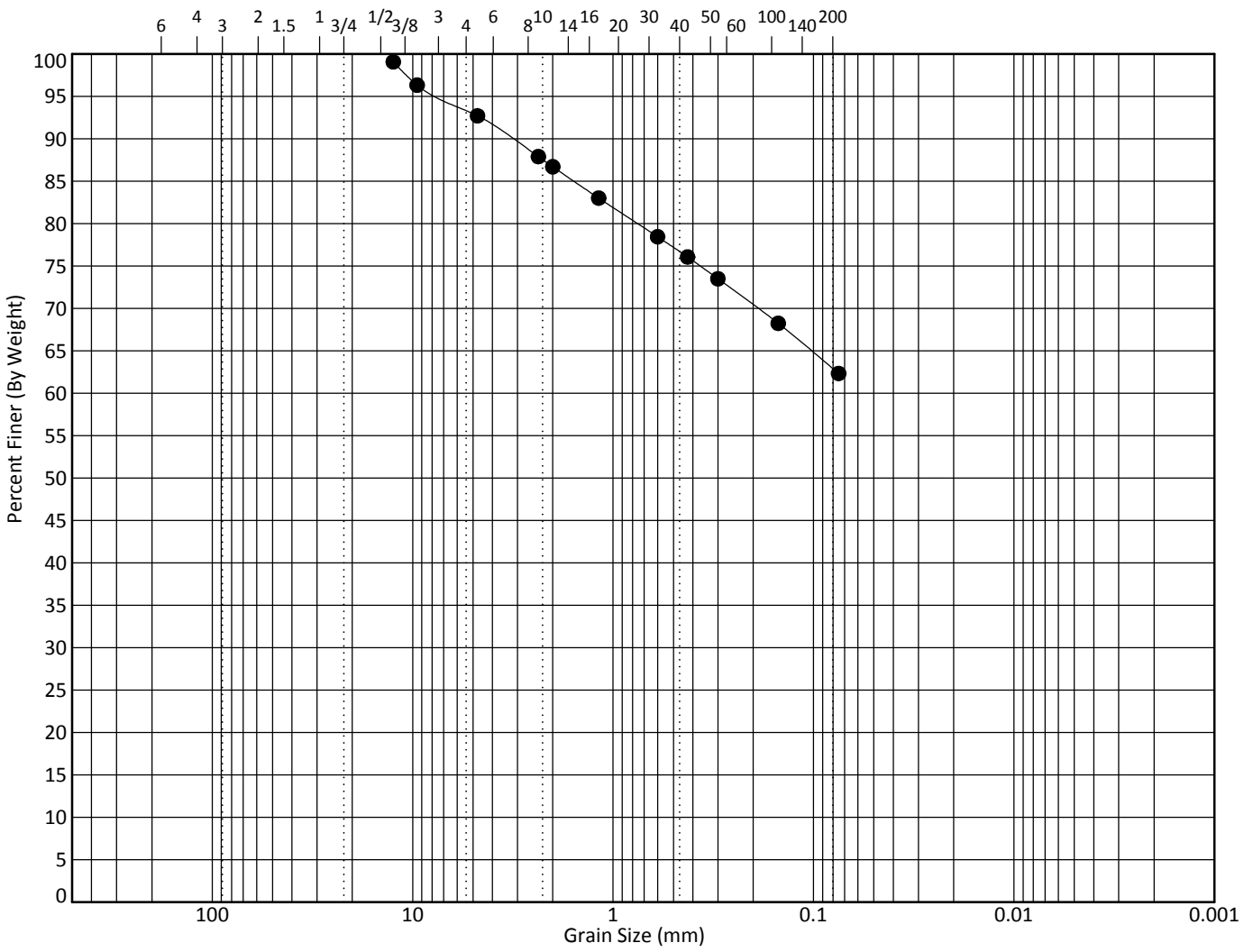
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-6 SS-1at	0.5	9.5				3.4	18.3	77.1	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-6 SS-5at	8.5	SANDY SILT (ML)	40	29	11		
	at							
	at							
	at							
	at							

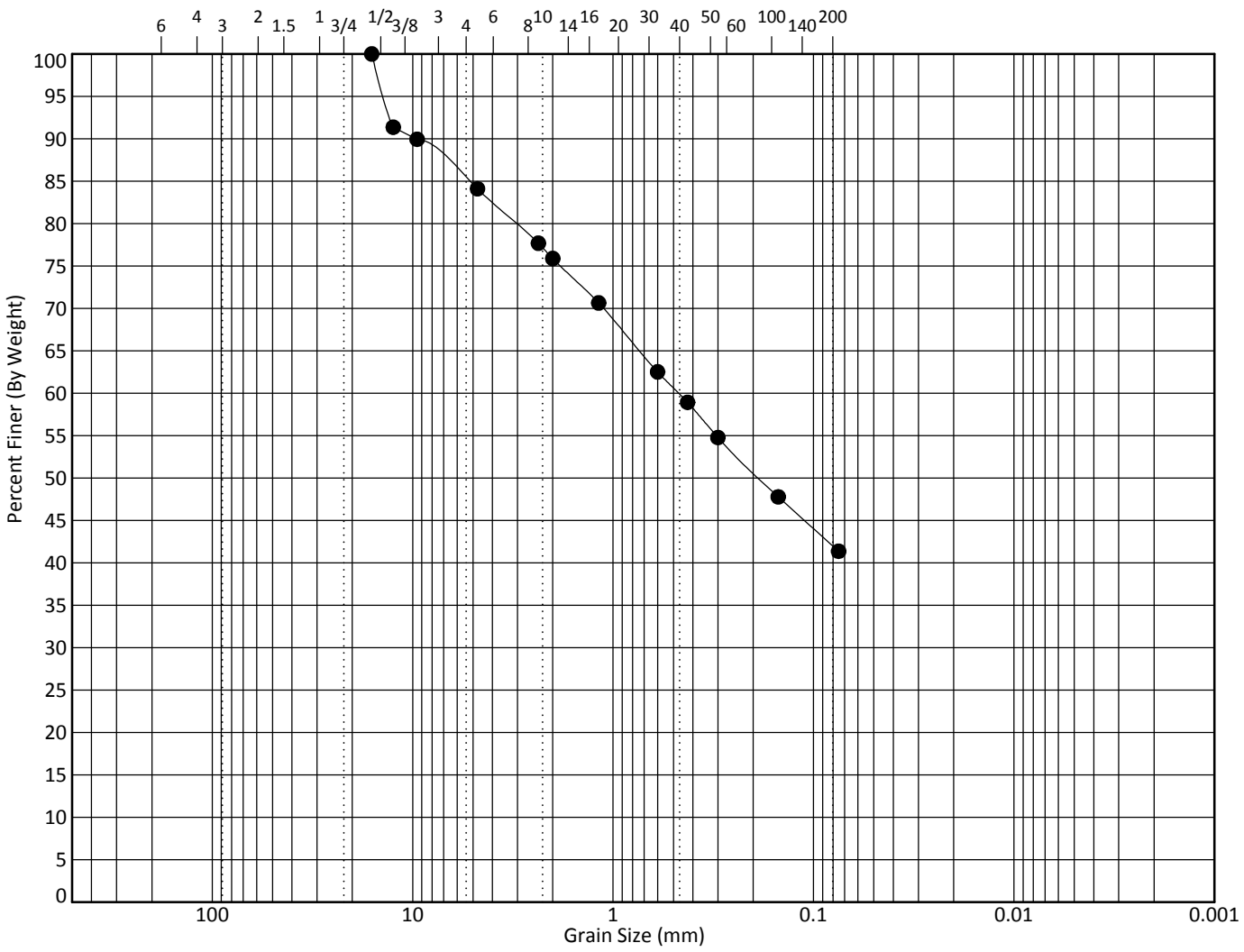
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-6 SS-5at	8.5	12.5				6.4	30.4	62.3	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-6 SS-8at	23.5	CLAYEY SAND with GRAVEL (SC)	30	22	8		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-6 SS-8at	23.5	16	0.471			15.9	42.7	41.4	
	at									
	at									
	at									
	at									

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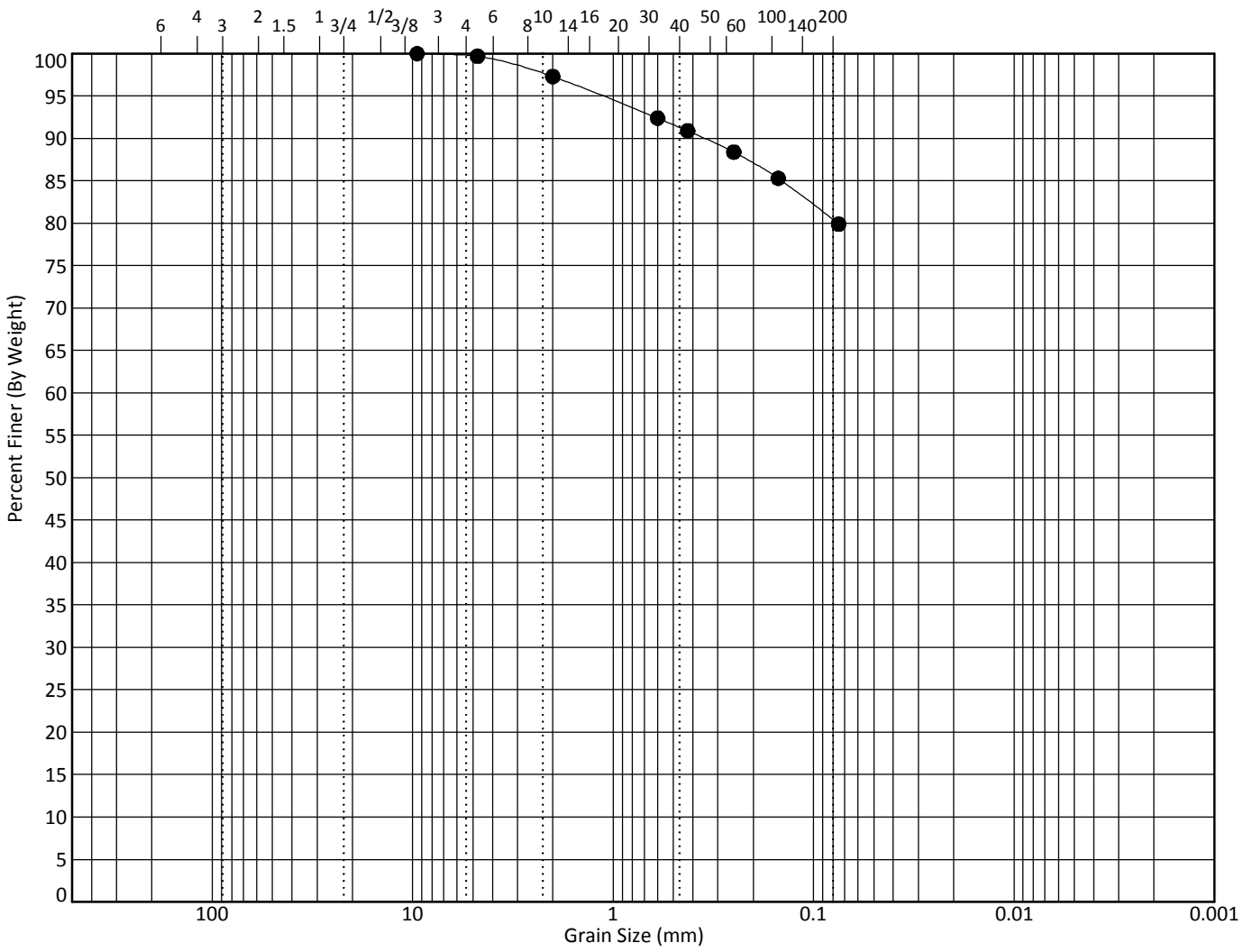
FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-7 (SS-2) at	2.5	SILT with SAND (ML)	38	26	12		
	at							
	at							
	at							
	at							

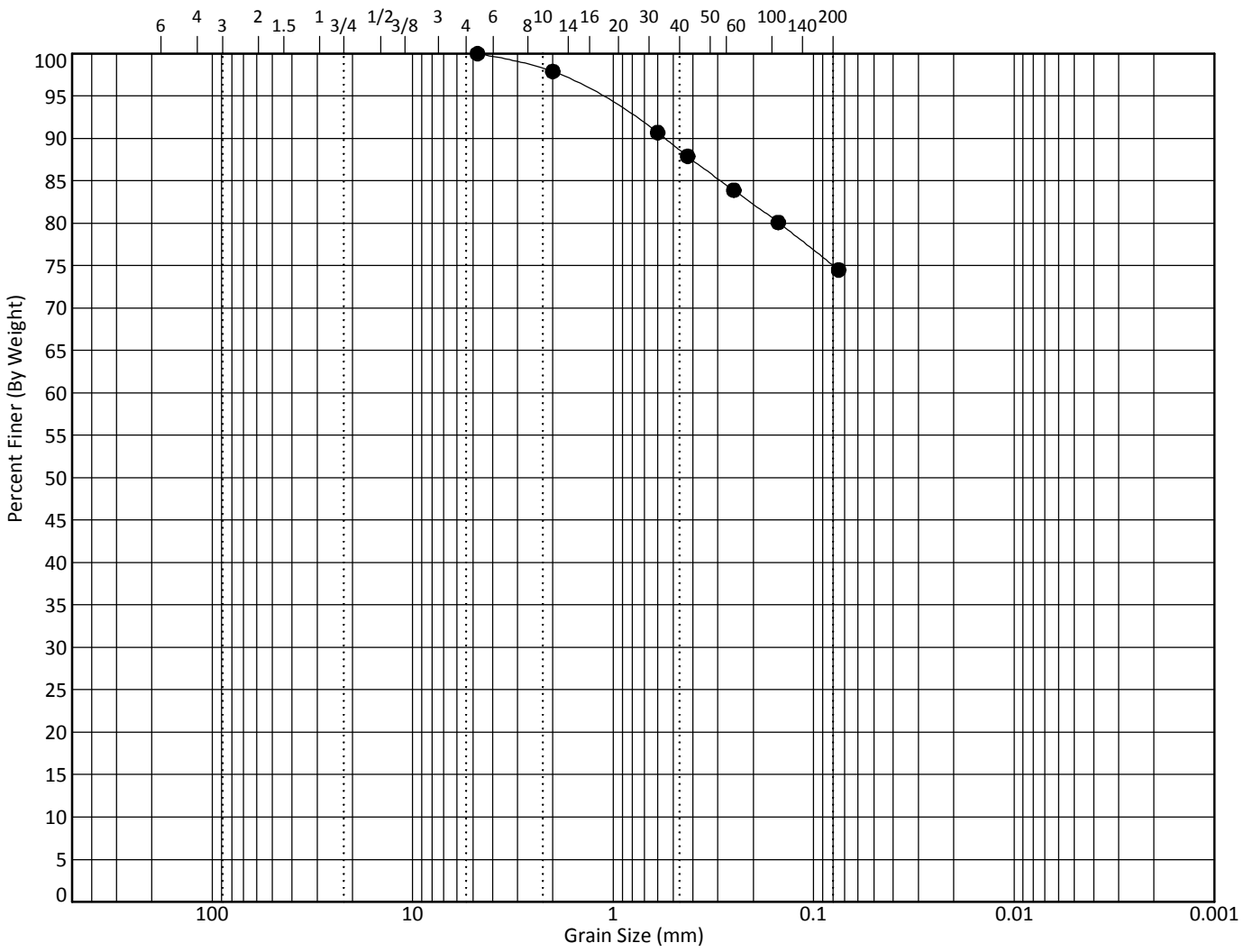
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-7 (SS-2) at	2.5	9.5				0.3	19.8	79.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-7 (SS-5) at	8.5	SILT with SAND (ML)	37	28	9		
	at							
	at							
	at							
	at							

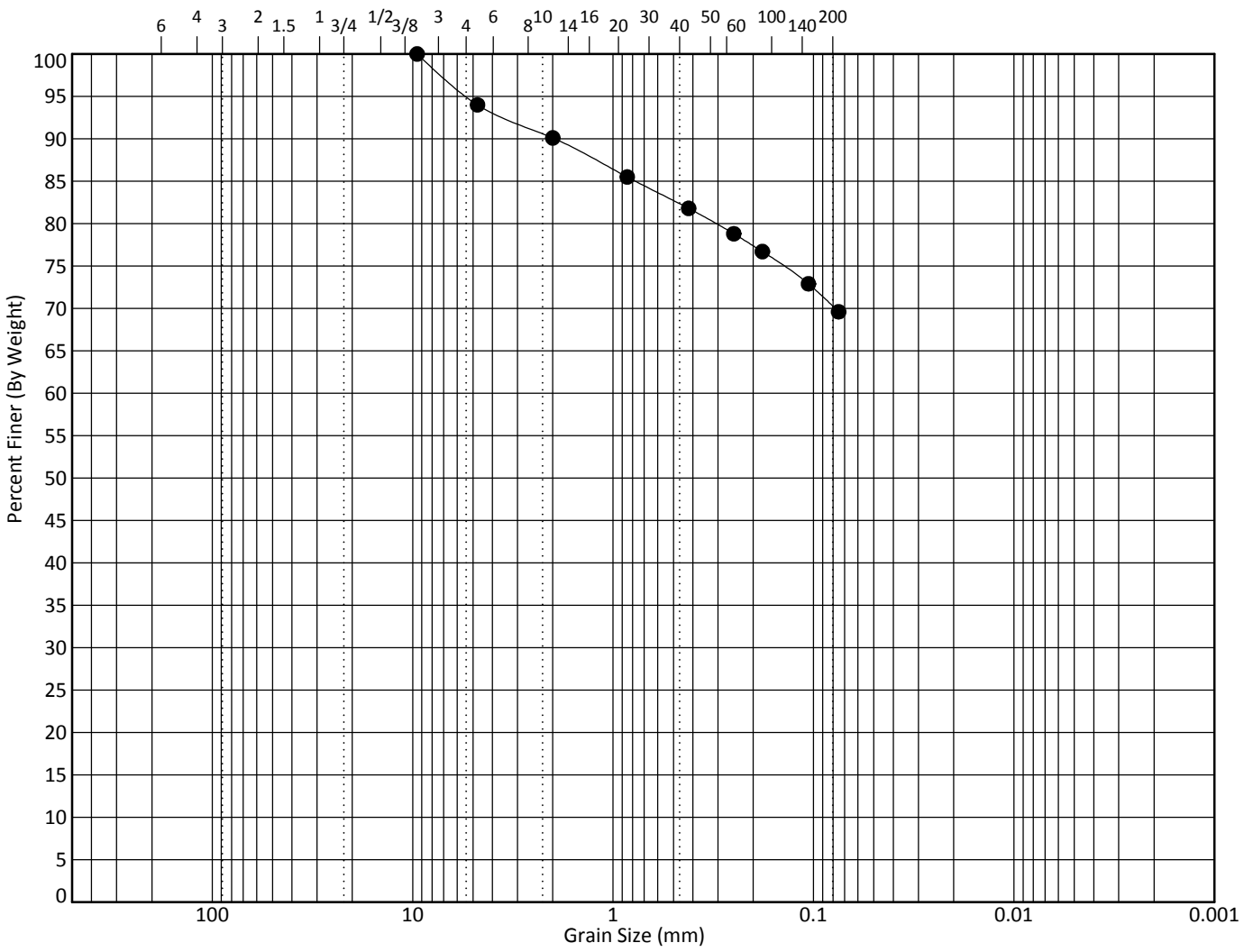
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-7 (SS-5) at	8.5	4.75				0.0	25.5	74.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-1 SS-1 at	0.5	SANDY LEAN CLAY (CL)	42	20	22		
	at							
	at							
	at							
	at							

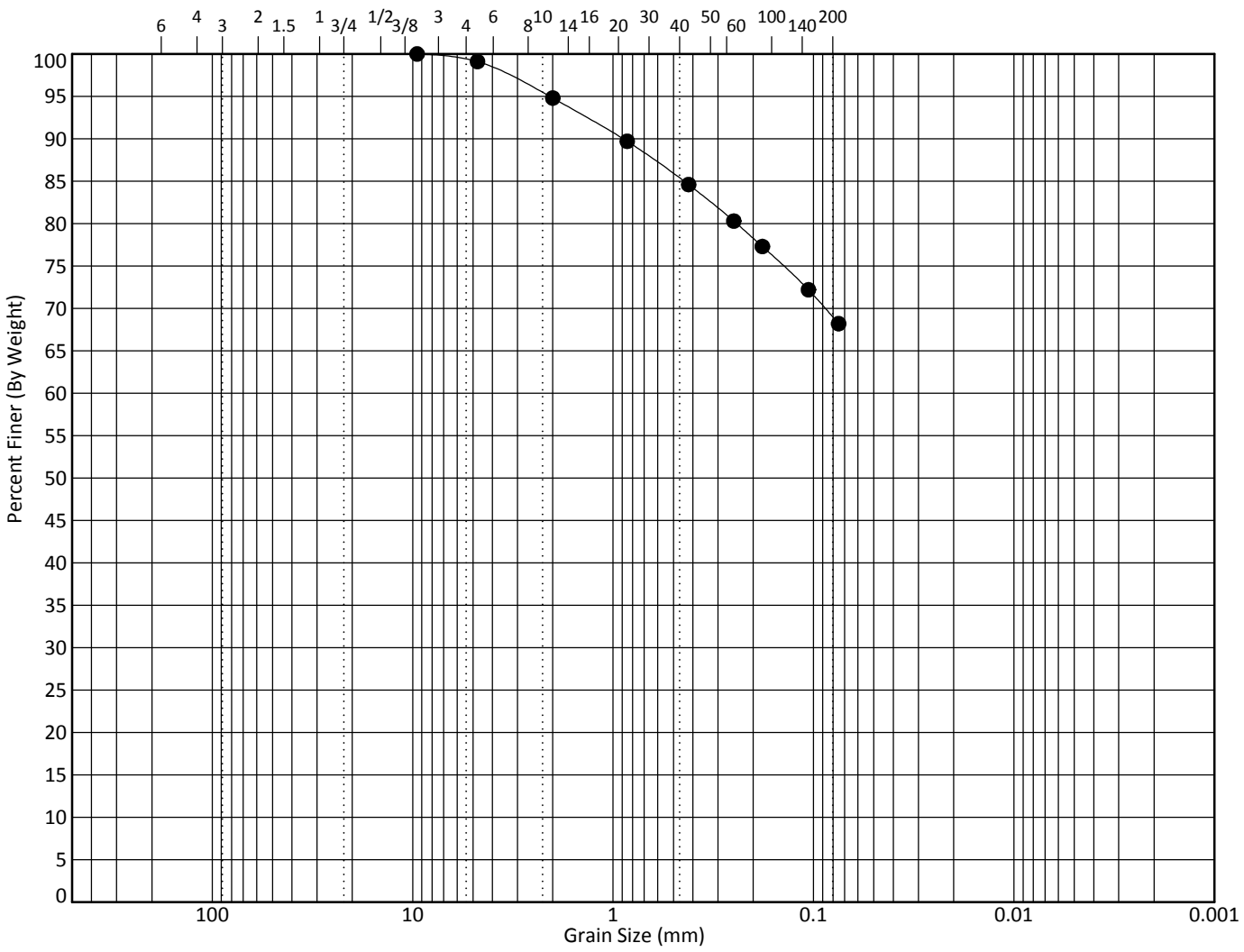
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-1 SS-1 at	0.5	9.5				6.0	24.4	69.6	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-1 SS-5 at	8.5	SANDY SILT (ML)	38	28	10		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-1 SS-5 at	8.5	9.5				0.9	30.9	68.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

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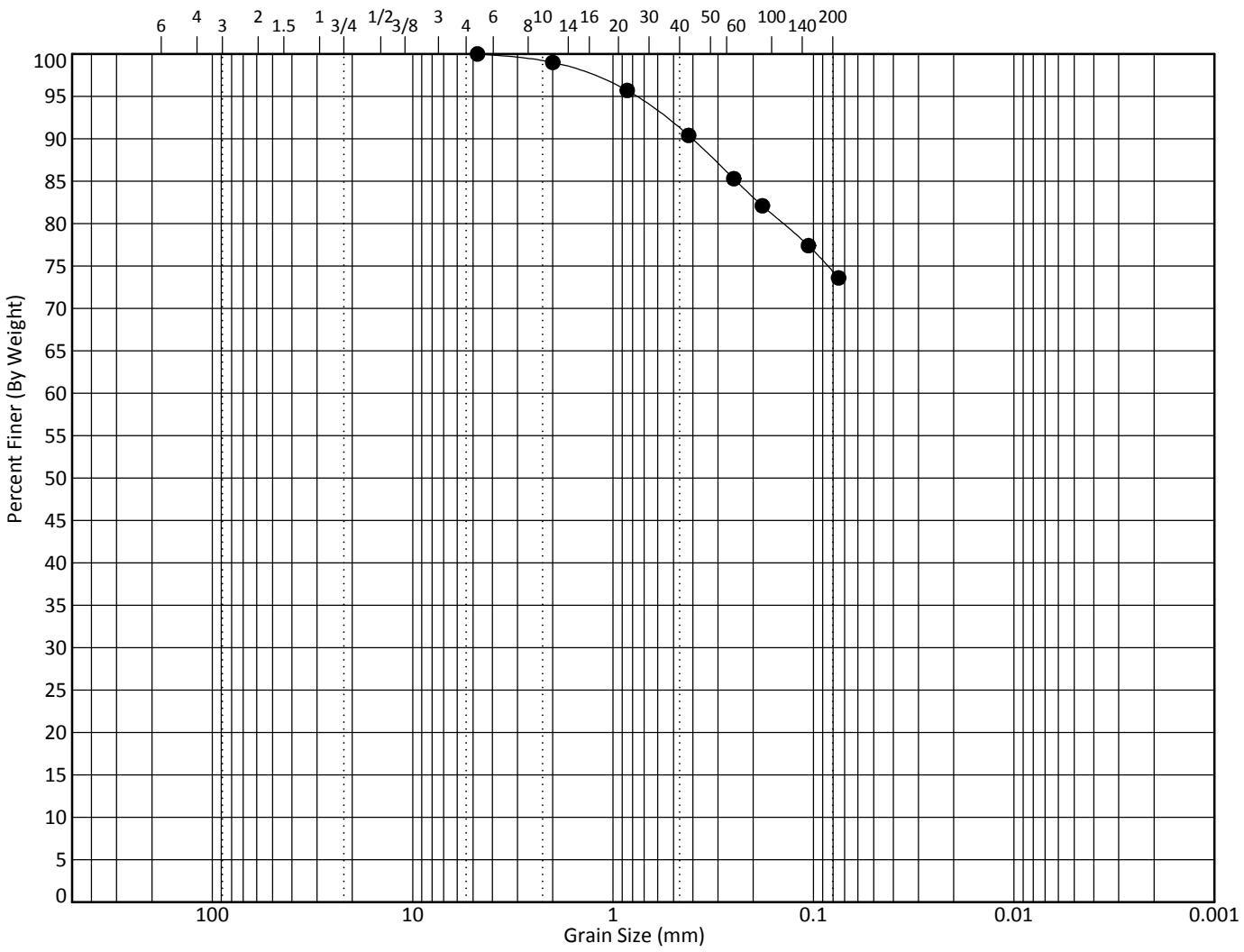
Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-1 SS-7 at	18.5	SILT with SAND (ML)	42	29	13		
at							
at							
at							
at							

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-1 SS-7 at	18.5	4.75				0.0	26.4	73.6	
at									
at									
at									
at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

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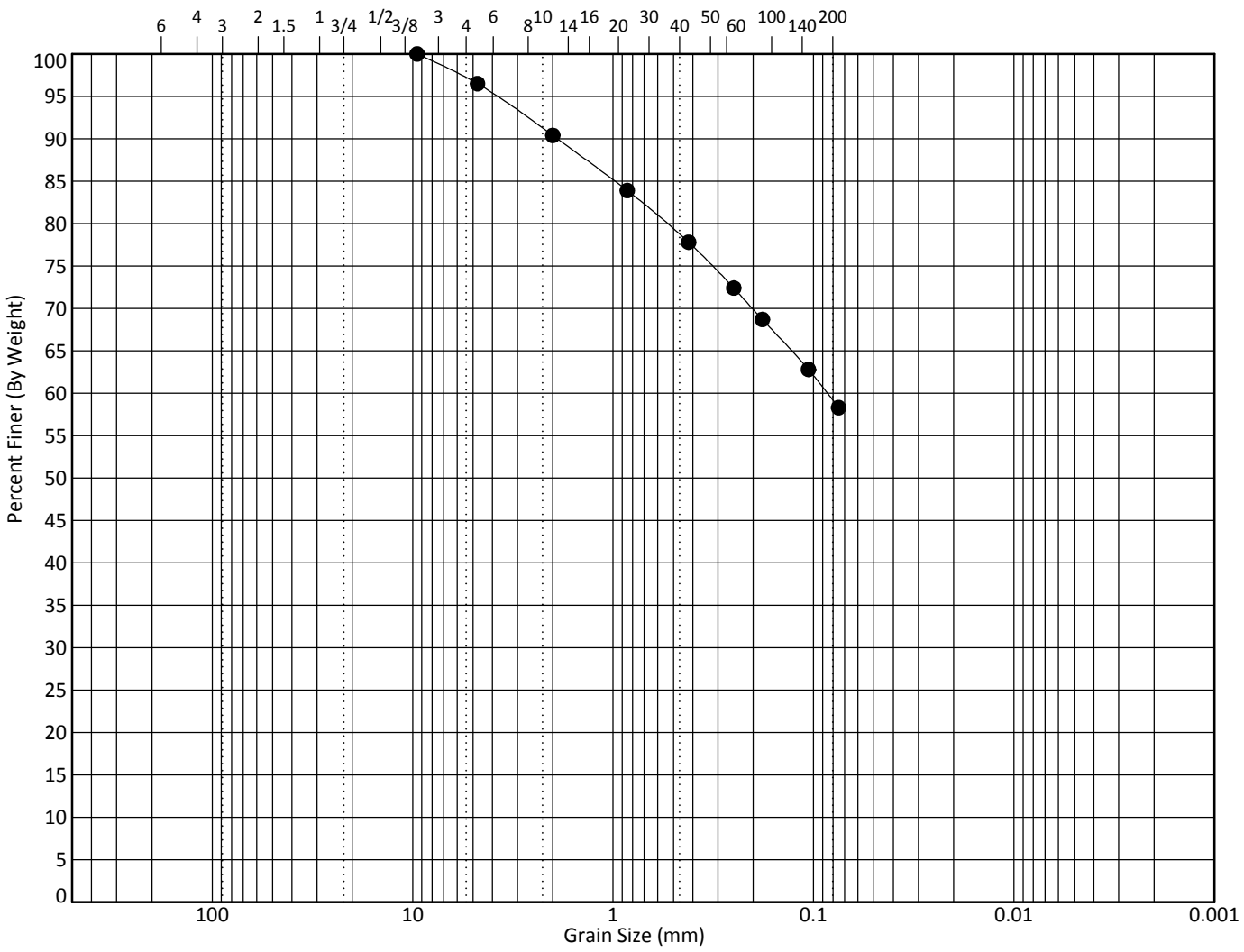
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-2 SS-3 at	4.5	SANDY LEAN CLAY (CL)	38	20	18		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-2 SS-3 at	4.5	9.5	0.085			3.5	38.2	58.3	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

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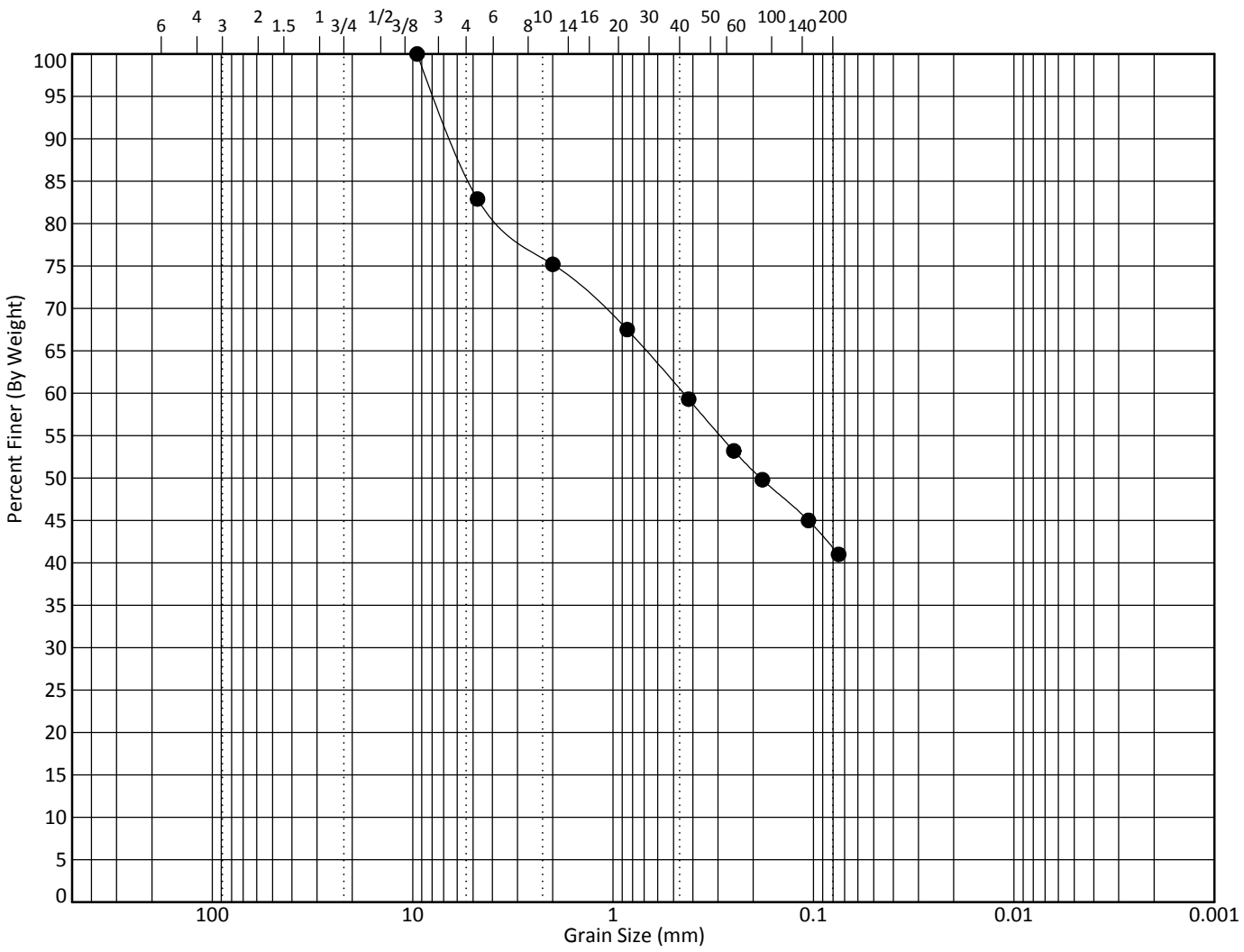
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-2 SS-5 at	8.5	SILTY SAND with GRAVEL (SM)	NP	NP	NP		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-2 SS-5 at	8.5	9.5	0.446			17.1	41.9	41.0	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

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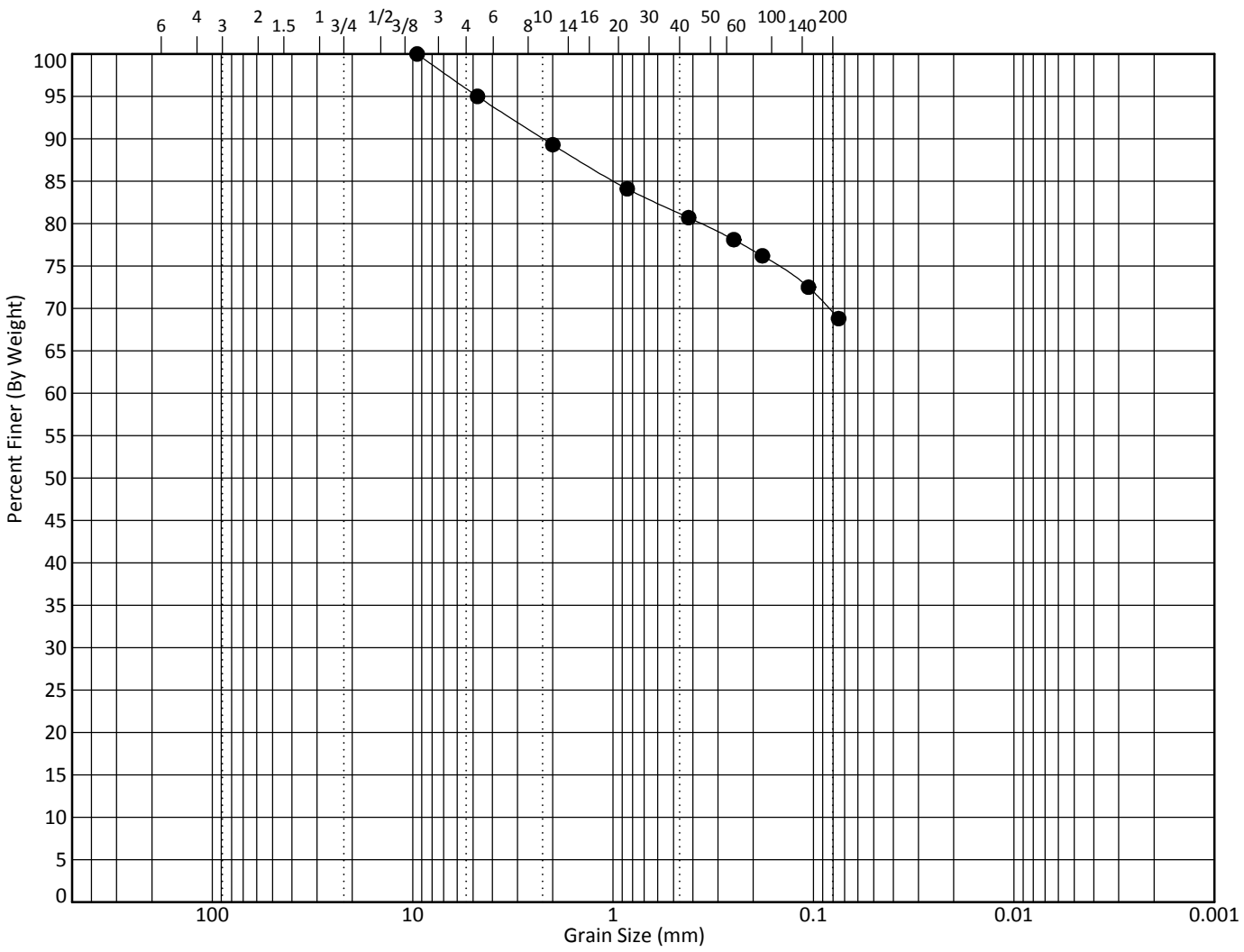
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-3 SS-1 at	0.5	SANDY LEAN CLAY (CL)	39	18	21		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-3 SS-1 at	0.5	9.5				5.0	26.2	68.8	
	at									
	at									
	at									
	at									

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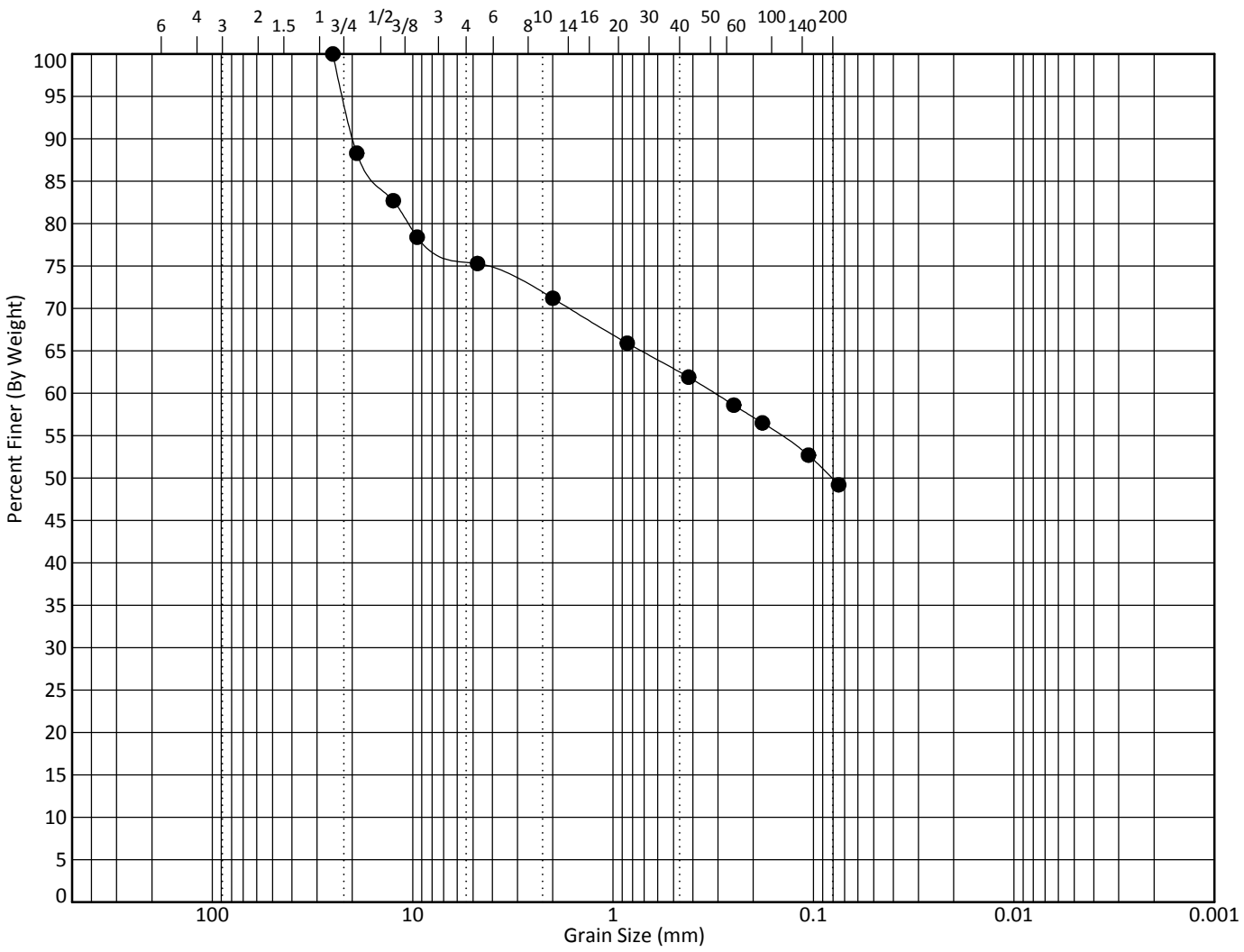
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-3 SS-4 at	6.5	CLAYEY SAND with GRAVEL (SC)	44	20	24		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-3 SS-4 at	6.5	25	0.312			24.7	26.1	49.2	
	at									
	at									
	at									
	at									

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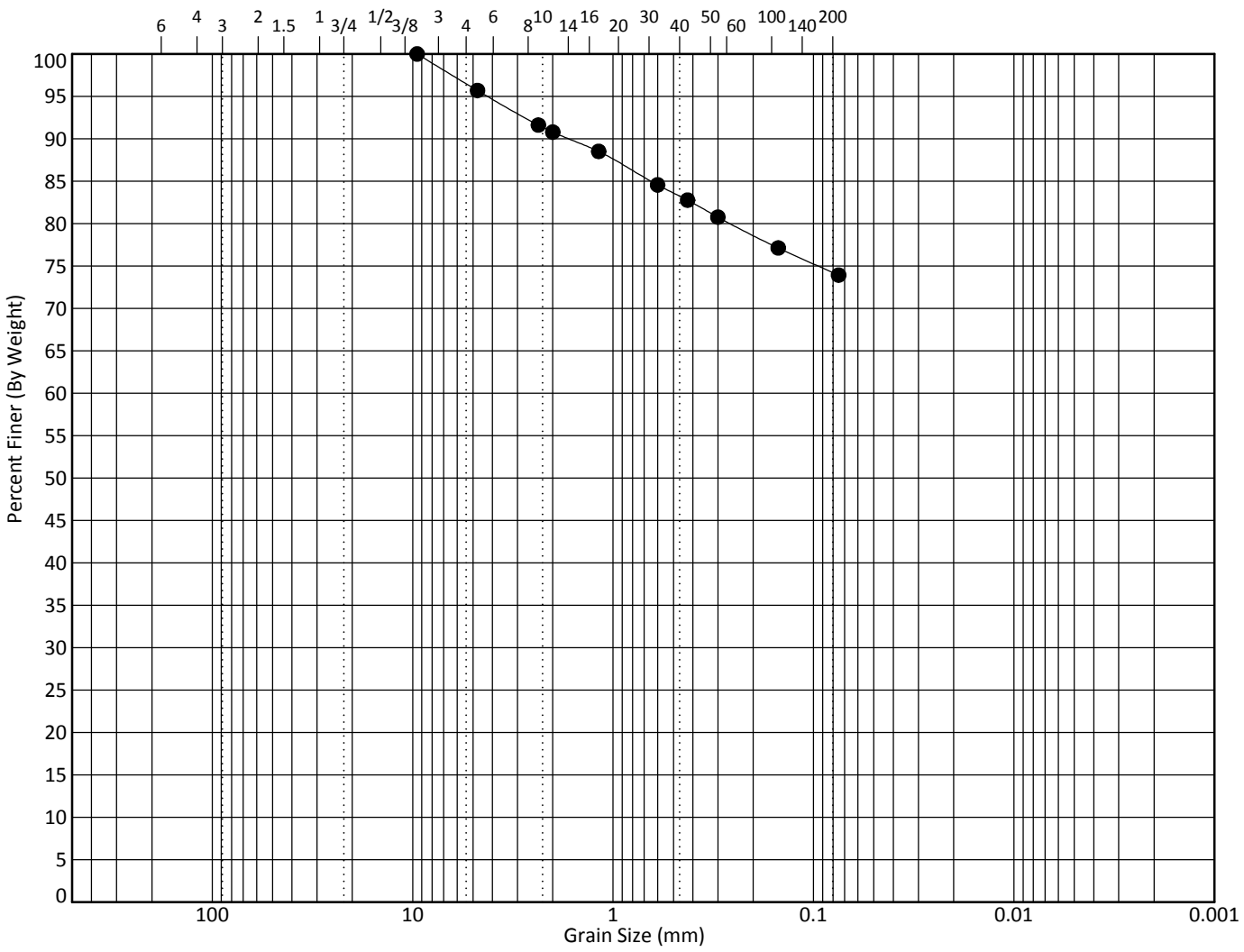
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-4 SS-2 at	2.5	SILT with SAND (ML)	30	24	6		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-4 SS-2 at	2.5	9.5				4.3	21.8	73.9	
	at									
	at									
	at									
	at									

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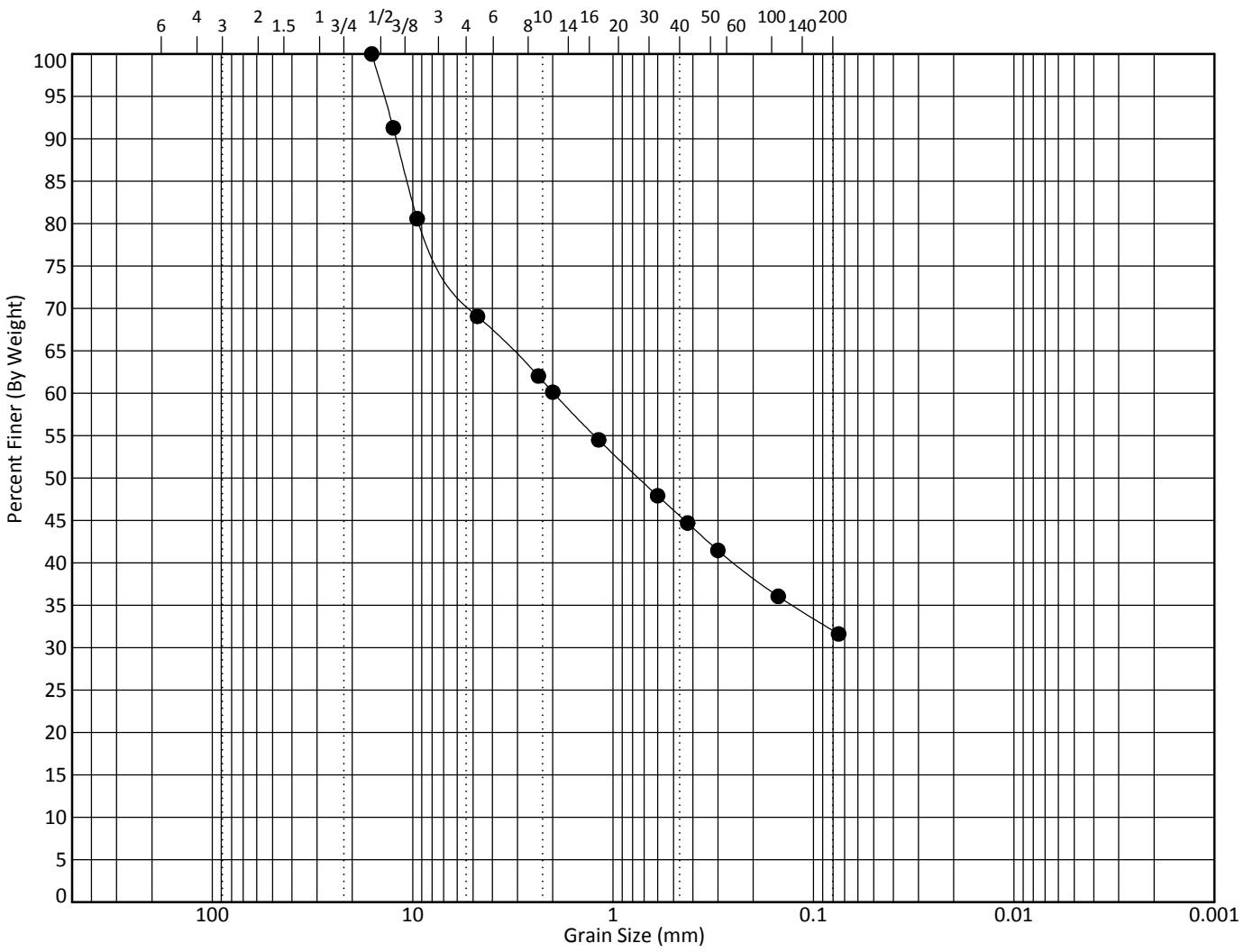
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-4 SS-6 at	13.5	SILTY SAND with GRAVEL (SM)	28	24	4		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-4 SS-6 at	13.5	16	1.977			30.9	37.4	31.6	
	at									
	at									
	at									
	at									

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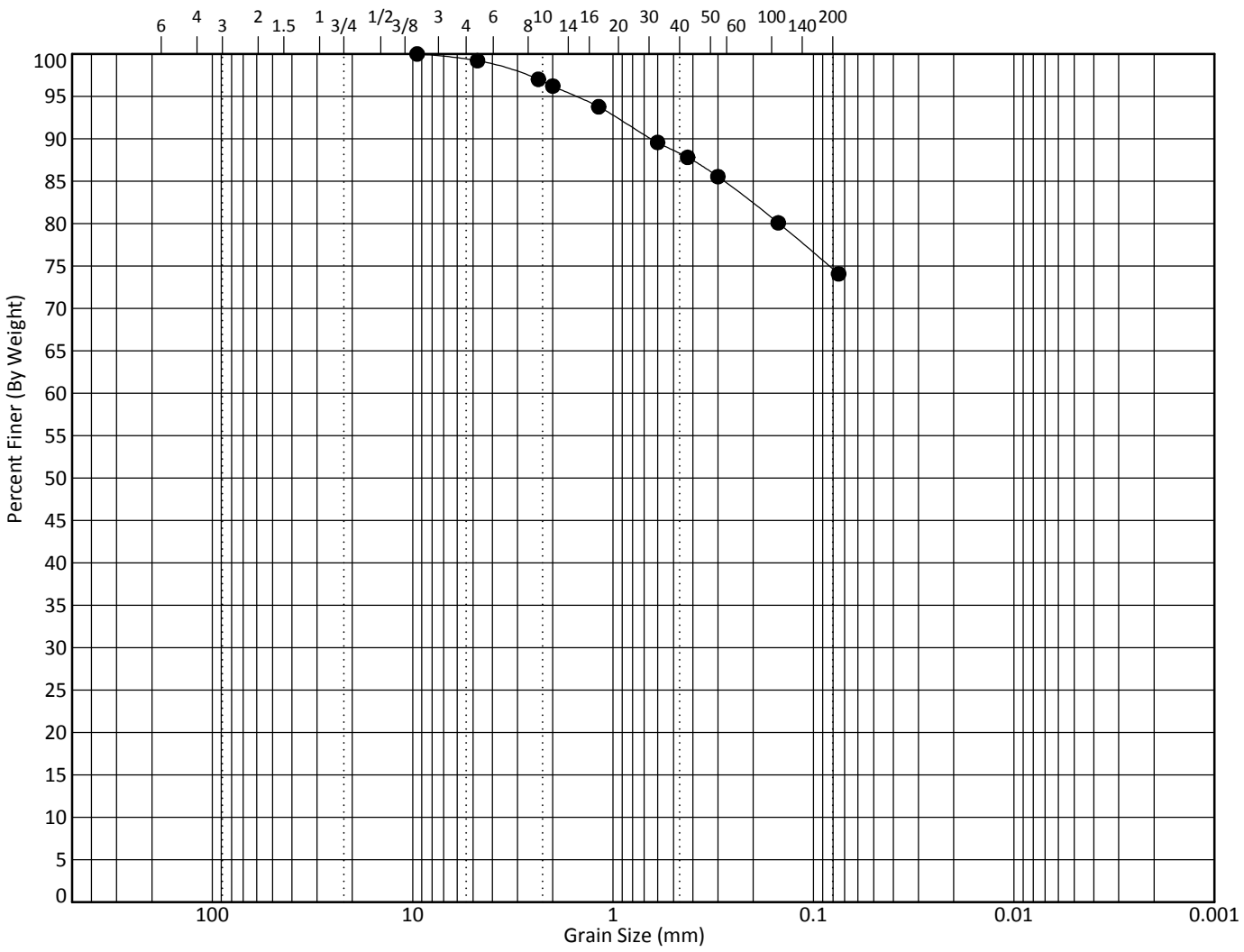
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-4 SS-7 at	18.5	SILT with SAND (ML)	30	24	6		
	at							
	at							
	at							
	at							

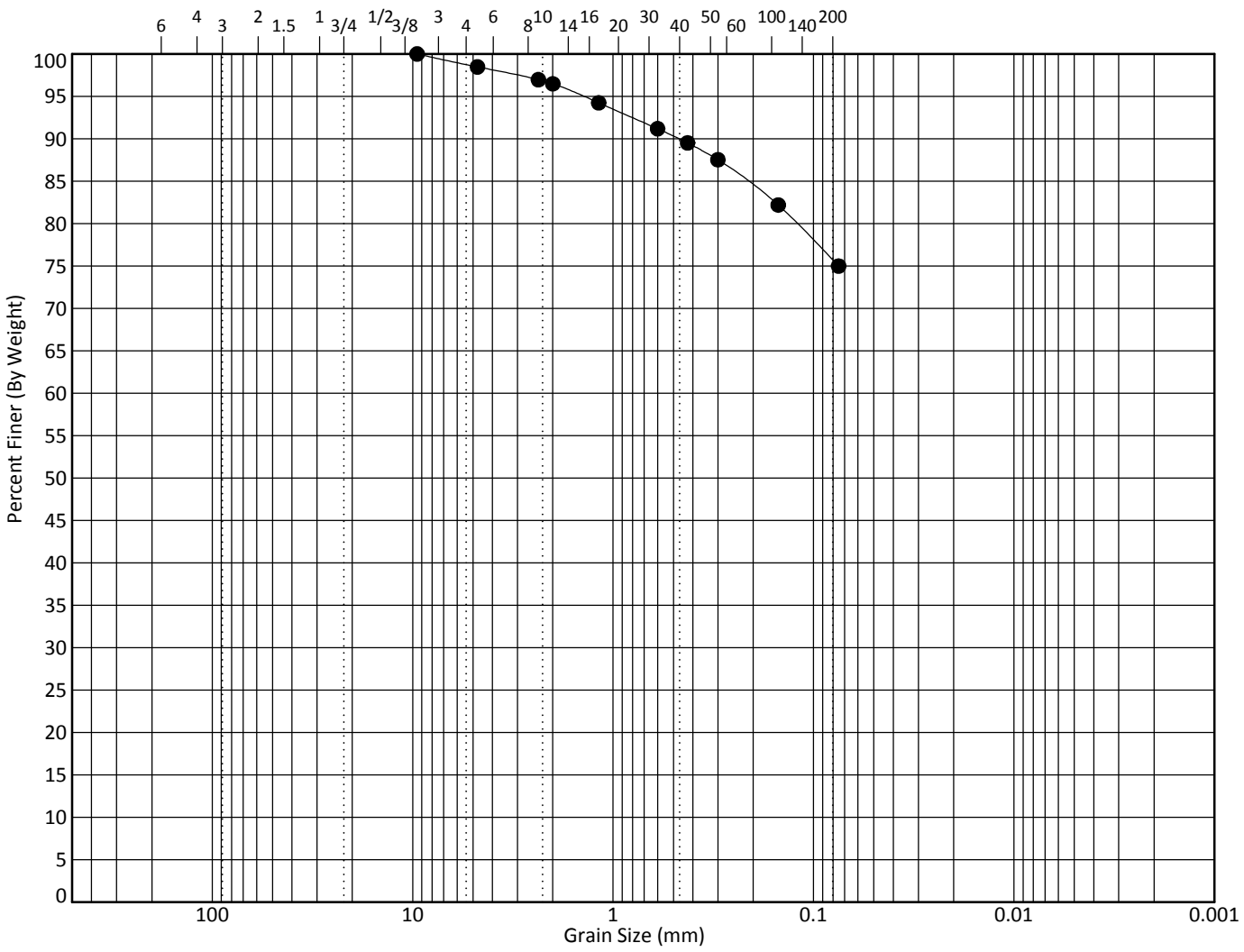
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-4 SS-7 at	18.5	9.5				0.8	25.1	74.1	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-5 SS-1 at	0.5	SILT with SAND (ML)	44	36	8		
	at							
	at							
	at							
	at							

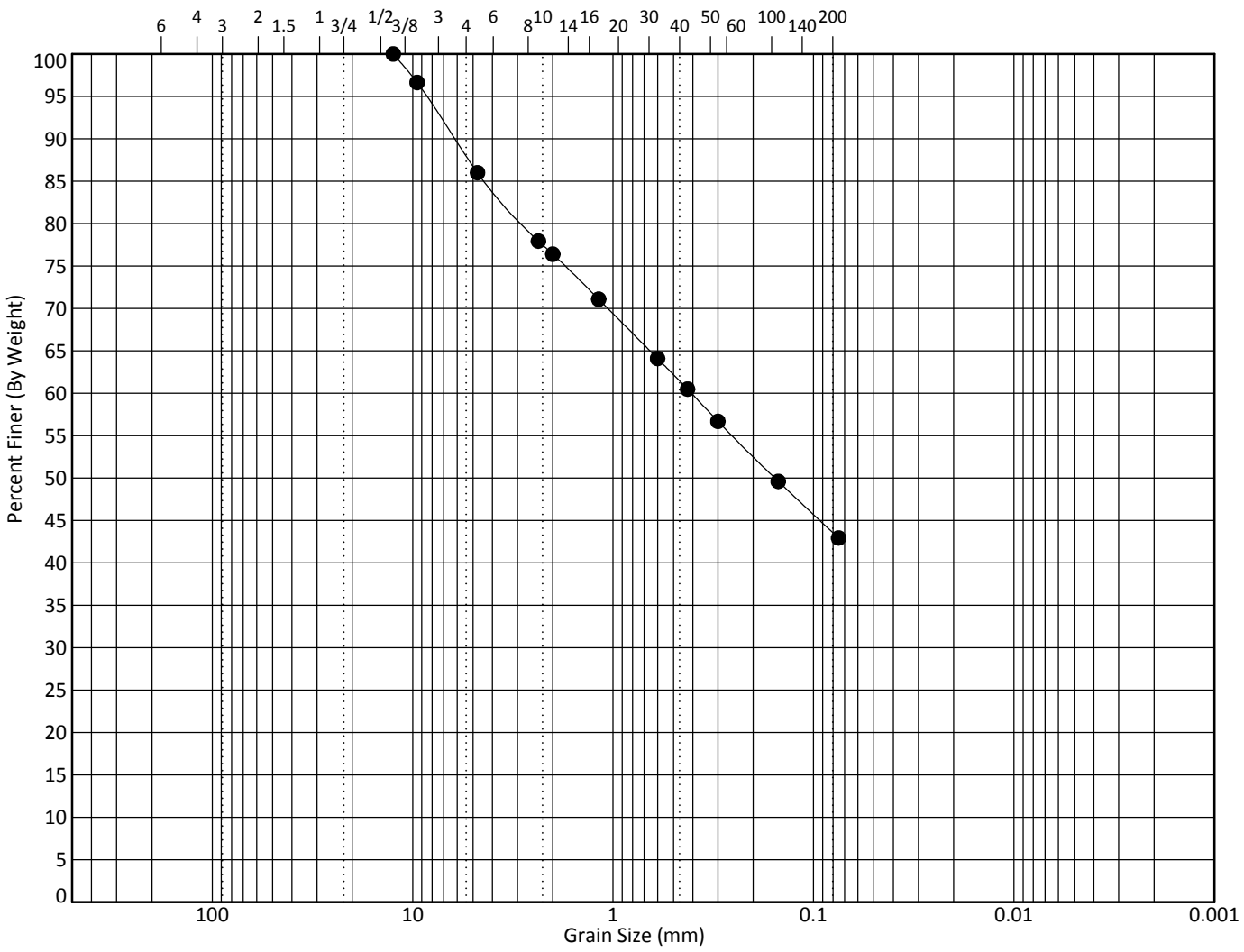
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-5 SS-1 at	0.5	9.5				1.5	23.5	75.0	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-5 SS-5 at	8.5	SILTY SAND (SM)	30	25	5		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-5 SS-5 at	8.5	12.5	0.407			14.0	43.1	42.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

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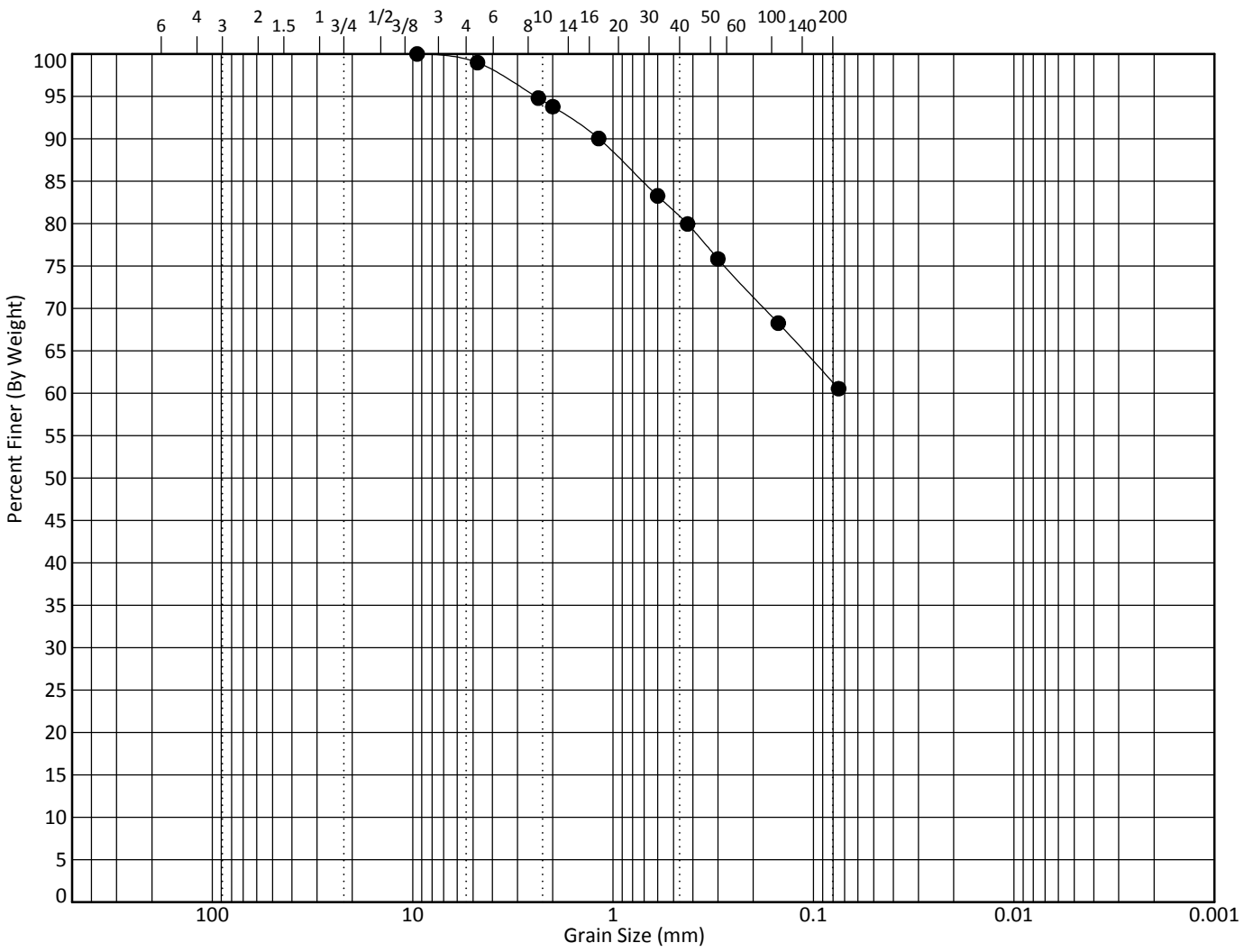
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-5 SS-7 & 8	18.5	SANDY SILT (ML)	29	23	6		
	at							
	at							
	at							
	at							

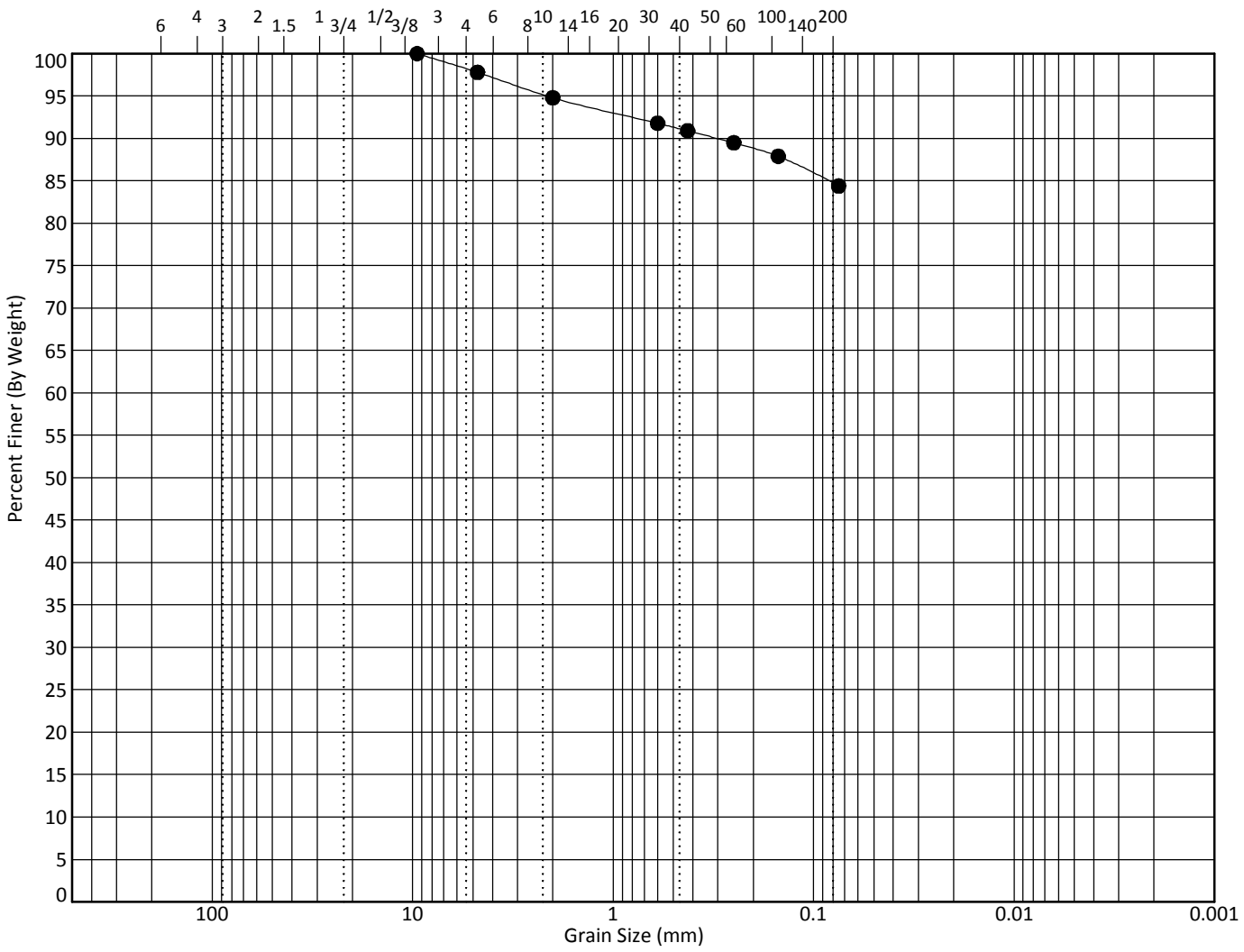
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-5 SS-7 & 8	18.5	9.5				1.0	38.4	60.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-6 (SS-11)	0.5	LEAN CLAY with SAND (CL)	33	20	13		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-6 (SS-11)	0.5	9.5				2.2	13.4	84.4	
	at									
	at									
	at									
	at									

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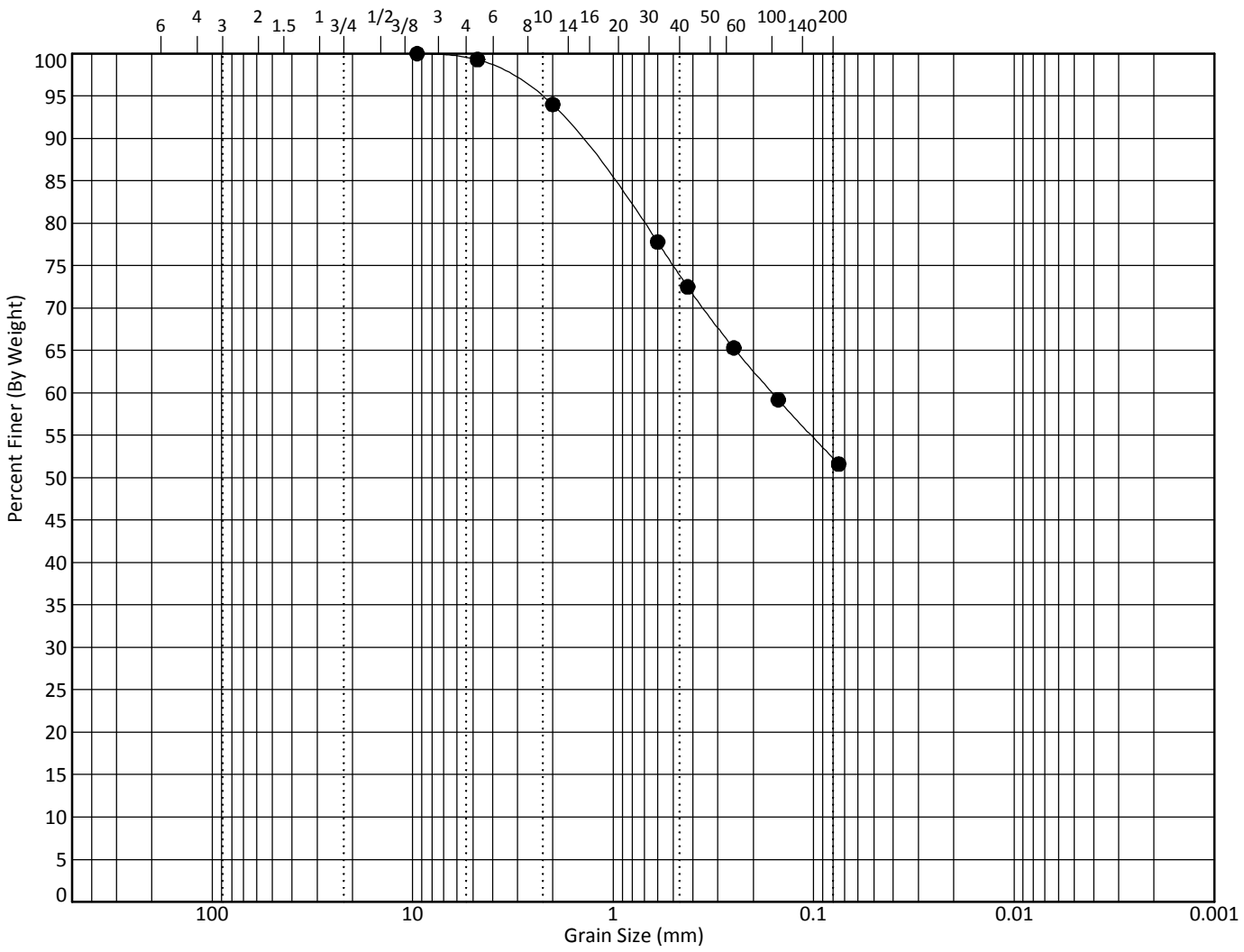
FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-6 (SS-3)	4.5	SANDY SILT (ML)	34	29	5		
at							
at							
at							
at							

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-6 (SS-3)	4.5	9.5	0.16			0.7	47.7	51.6	
at									
at									
at									
at									

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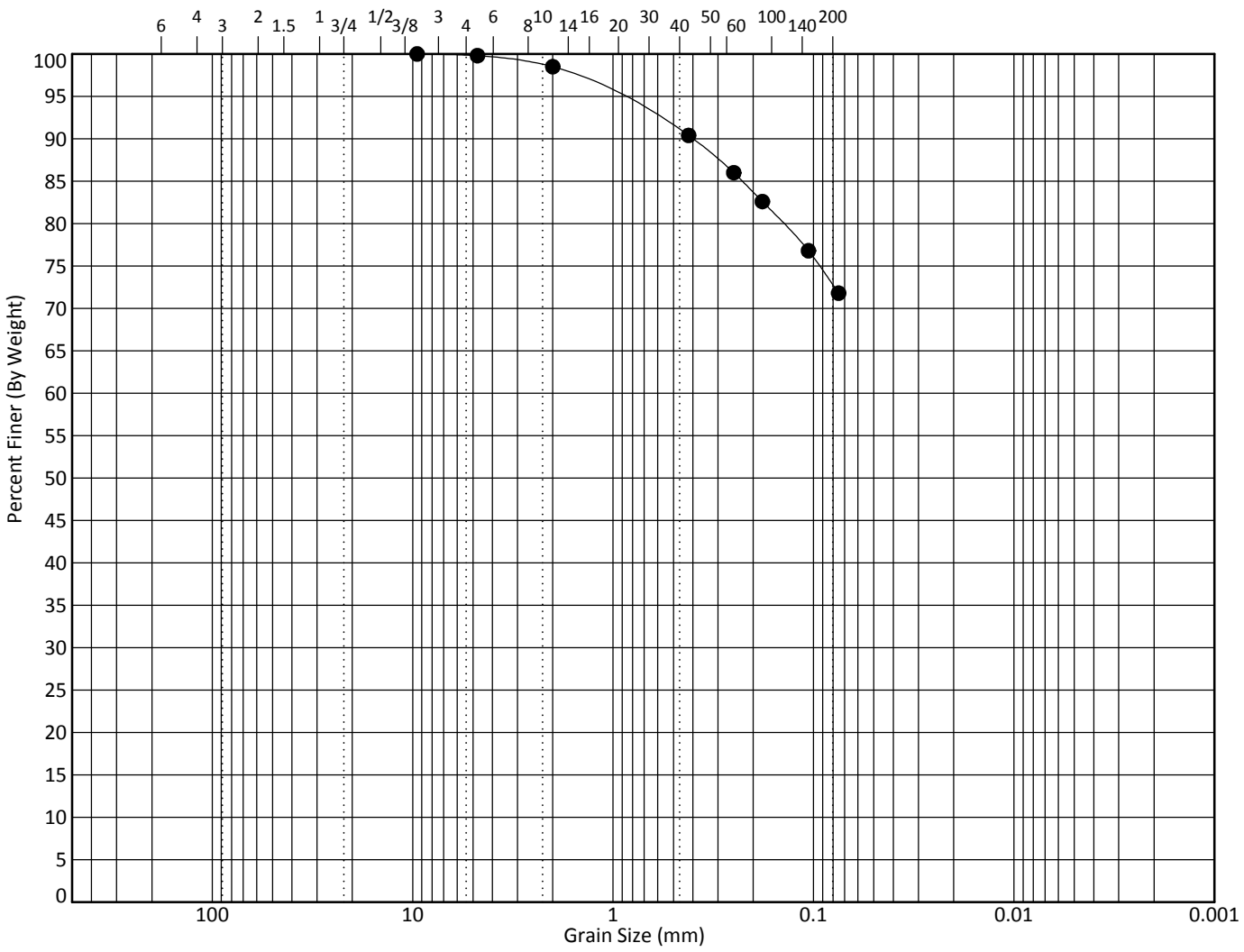
FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-7 SS-1 at	6.5	LEAN CLAY with SAND (CL)	39	22	17		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-7 SS-1 at	6.5	9.5				0.2	28.0	71.8	
	at									
	at									
	at									
	at									

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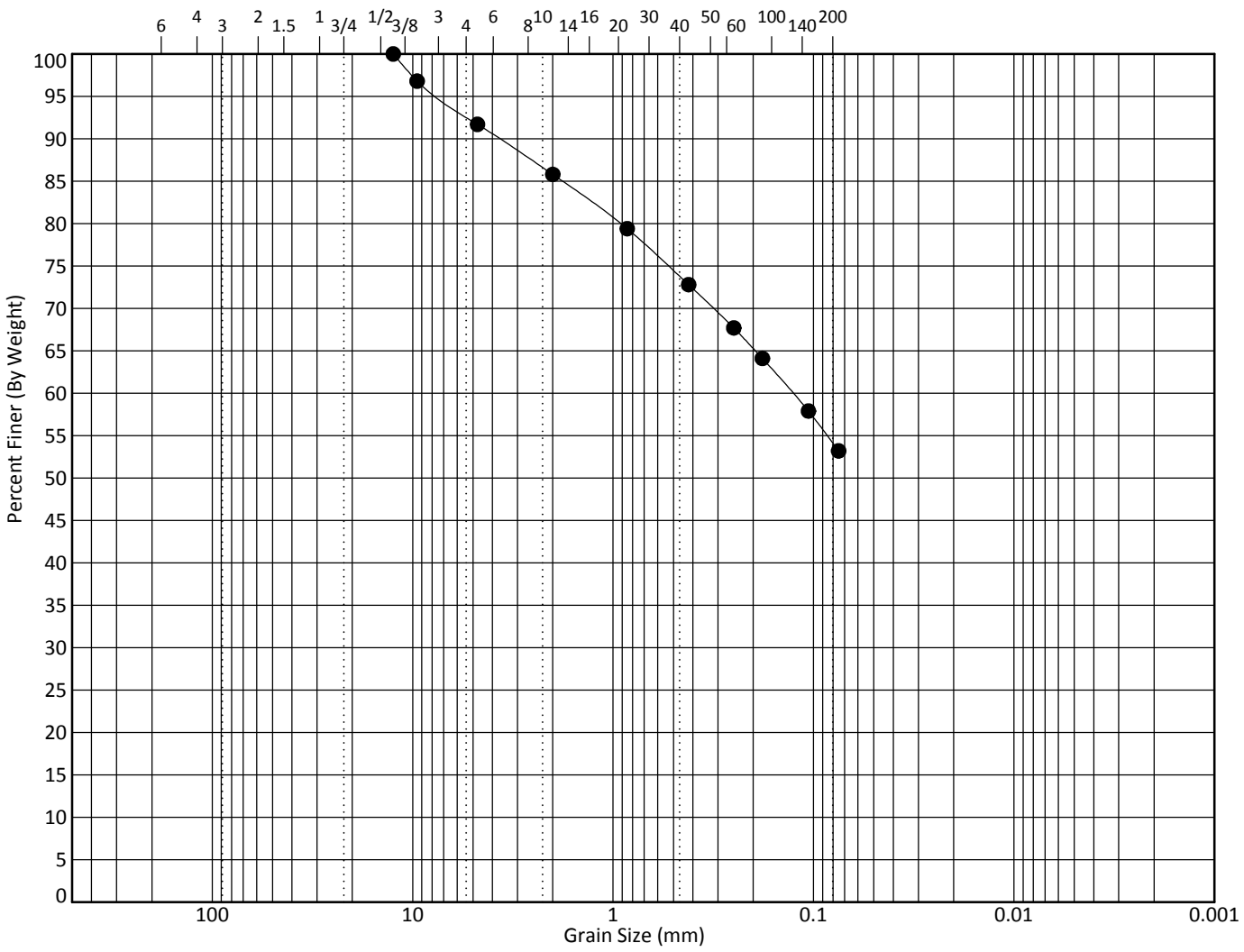
FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-7 SS-3 at	10.5	SANDY SILT (ML)	31	24	7		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-7 SS-3 at	10.5	12.5	0.127			8.3	38.5	53.2	
	at									
	at									
	at									
	at									

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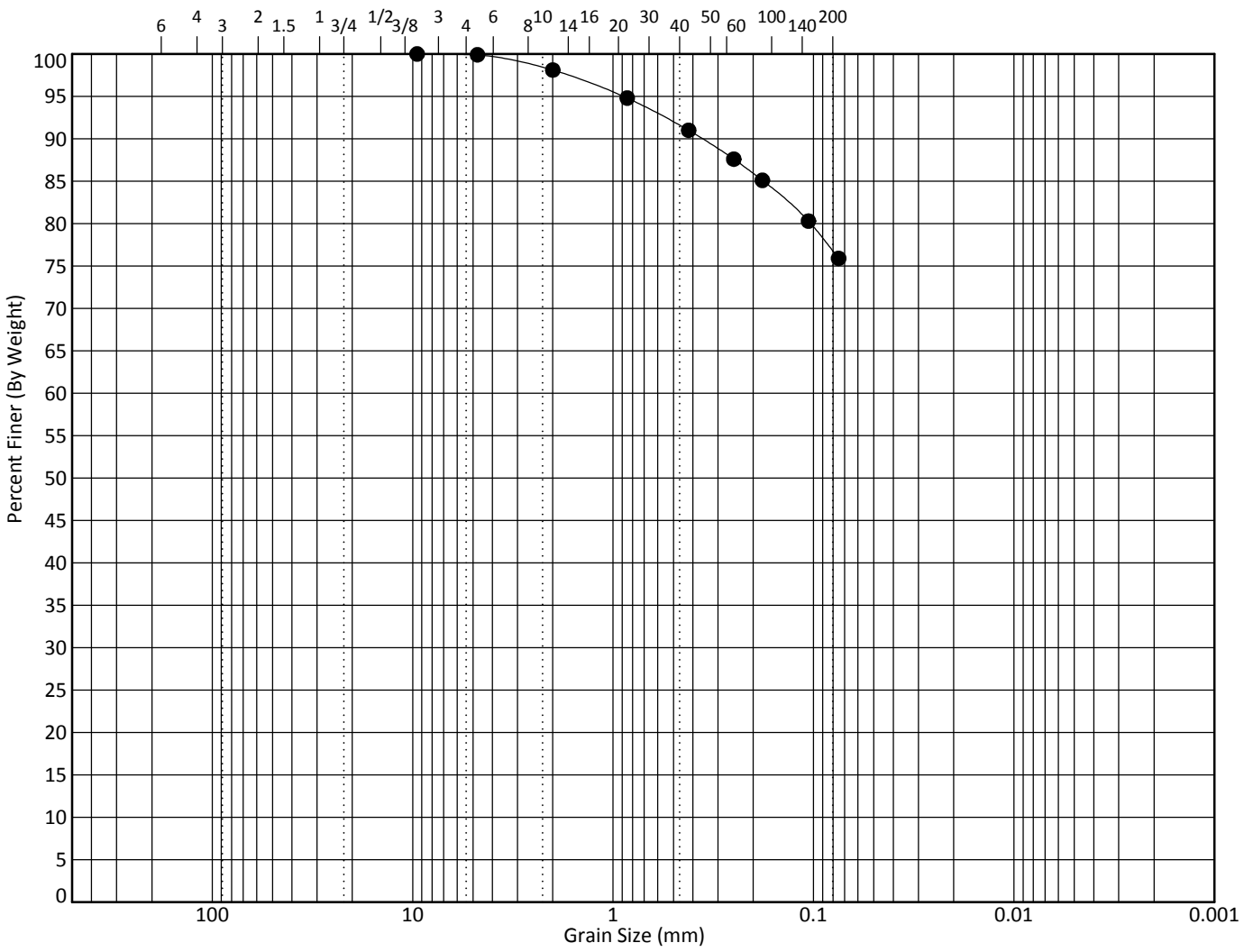
Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-7 SS-7 at	24.5	SILT with SAND (ML)	28	24	4		
at							
at							
at							
at							

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-7 SS-7 at	24.5	9.5				0.1	24.0	75.9	
at									
at									
at									
at									

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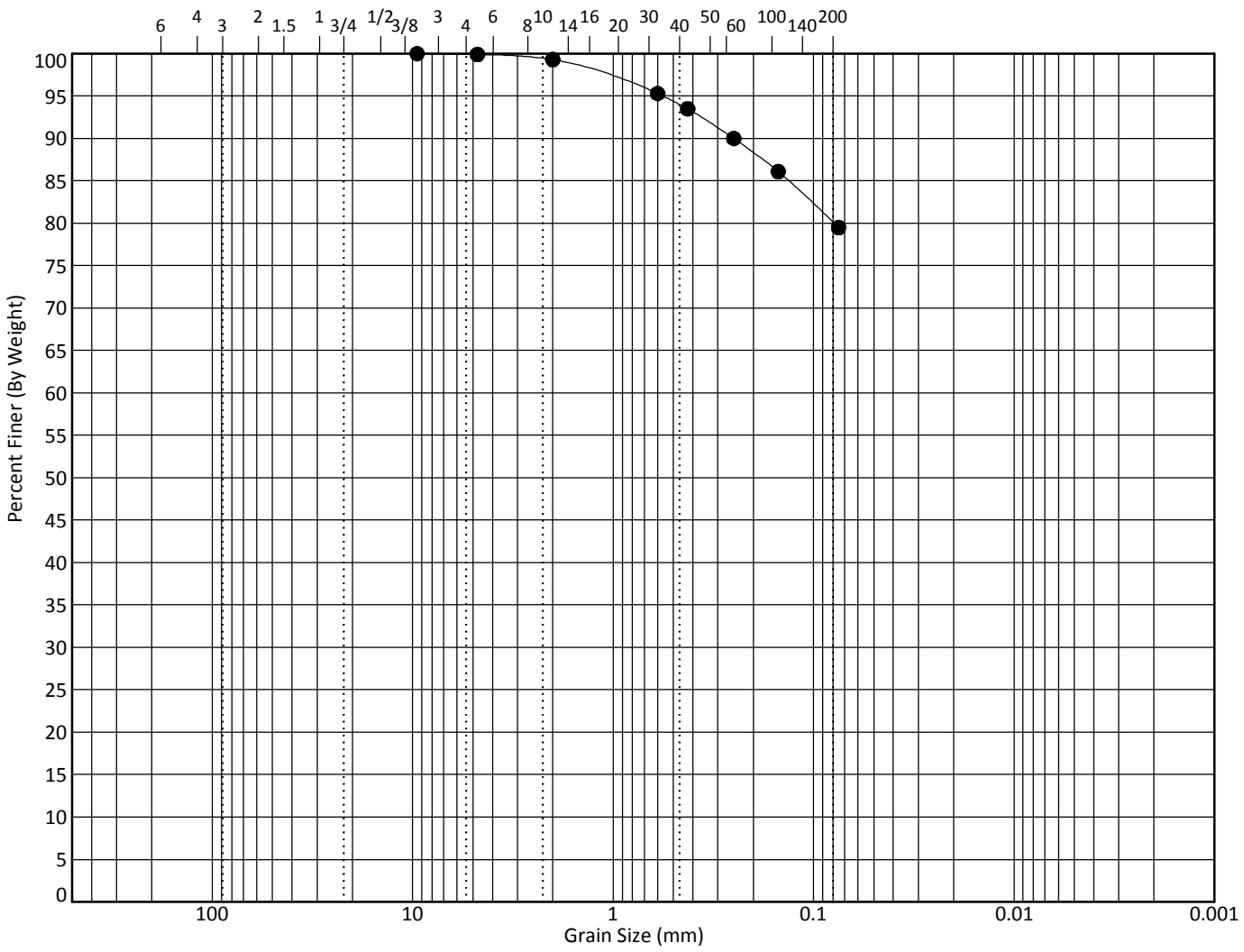
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-8 (SS-11)	0.5	SILT with SAND (ML)	34	28	6		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-8 (SS-11)	0.5	9.5				0.1	20.4	79.5	
	at									
	at									
	at									
	at									

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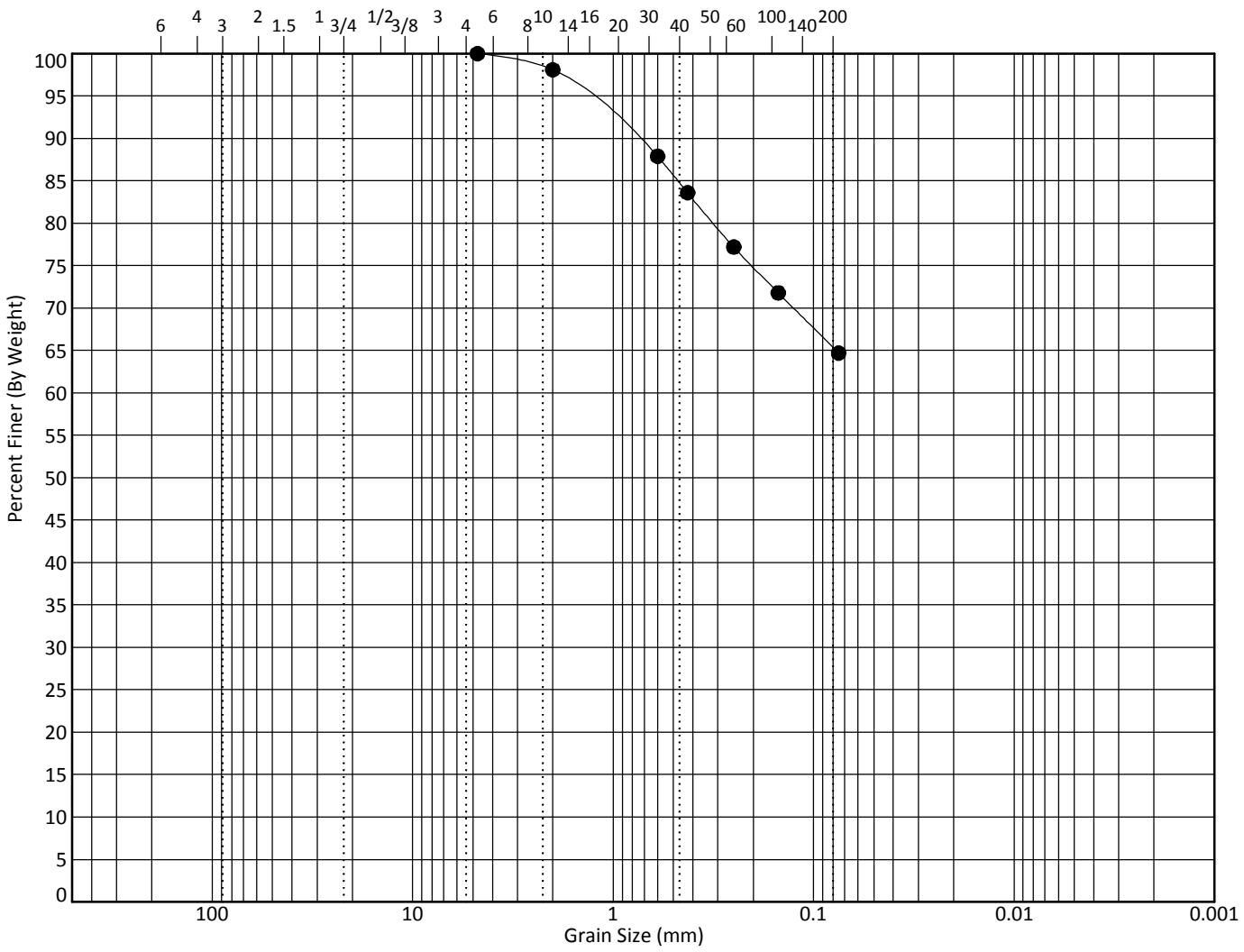
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-8 (SS-6)	13.5	SANDY SILT (ML)	35	28	7		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-8 (SS-6)	13.5	4.75				0.0	35.3	64.7	
	at									
	at									
	at									
	at									

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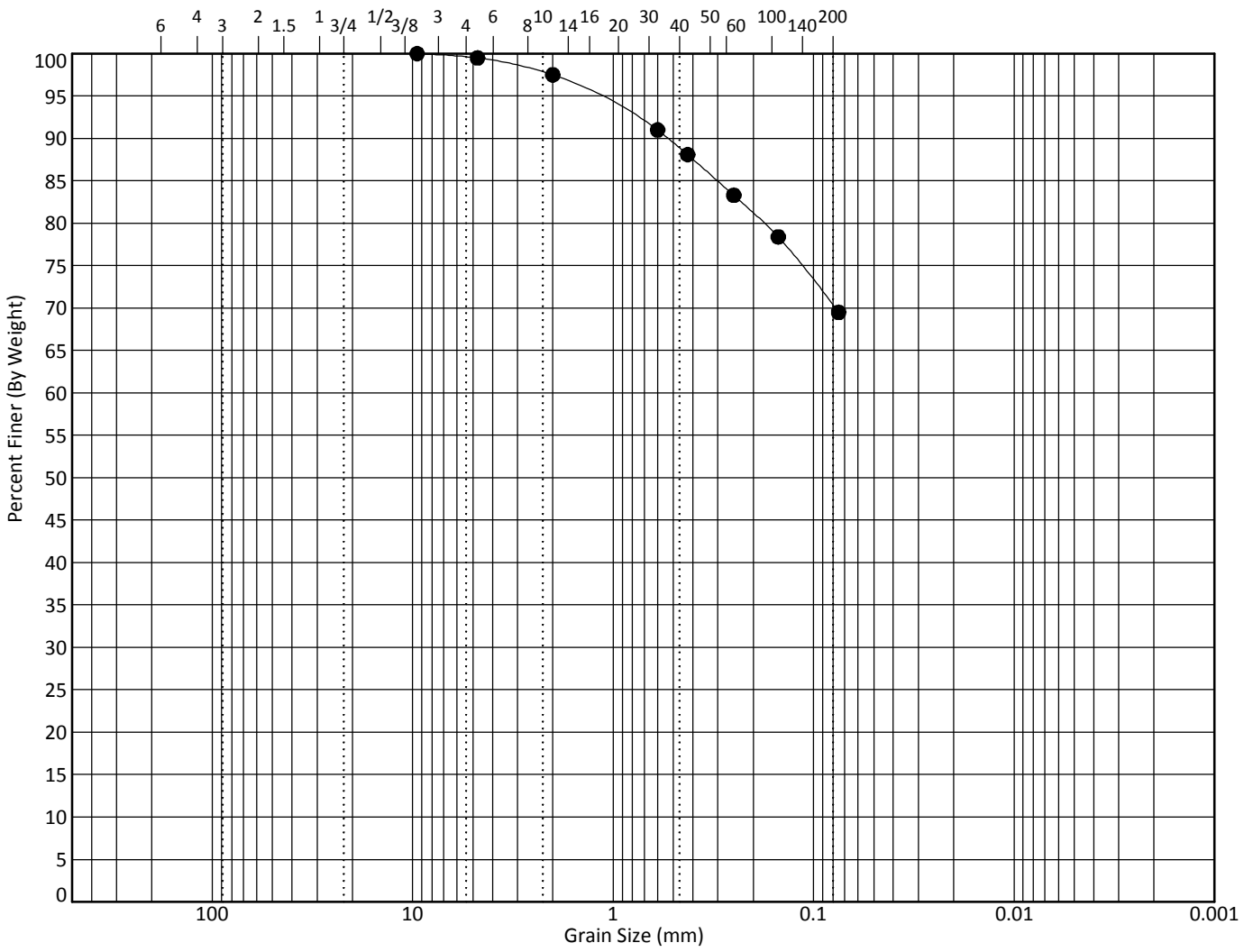
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-8 (SS-8)	23.5	SANDY SILT (ML)	36	29	7		
at							
at							
at							
at							

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-8 (SS-8)	23.5	9.5				0.5	30.0	69.5	
at									
at									
at									
at									

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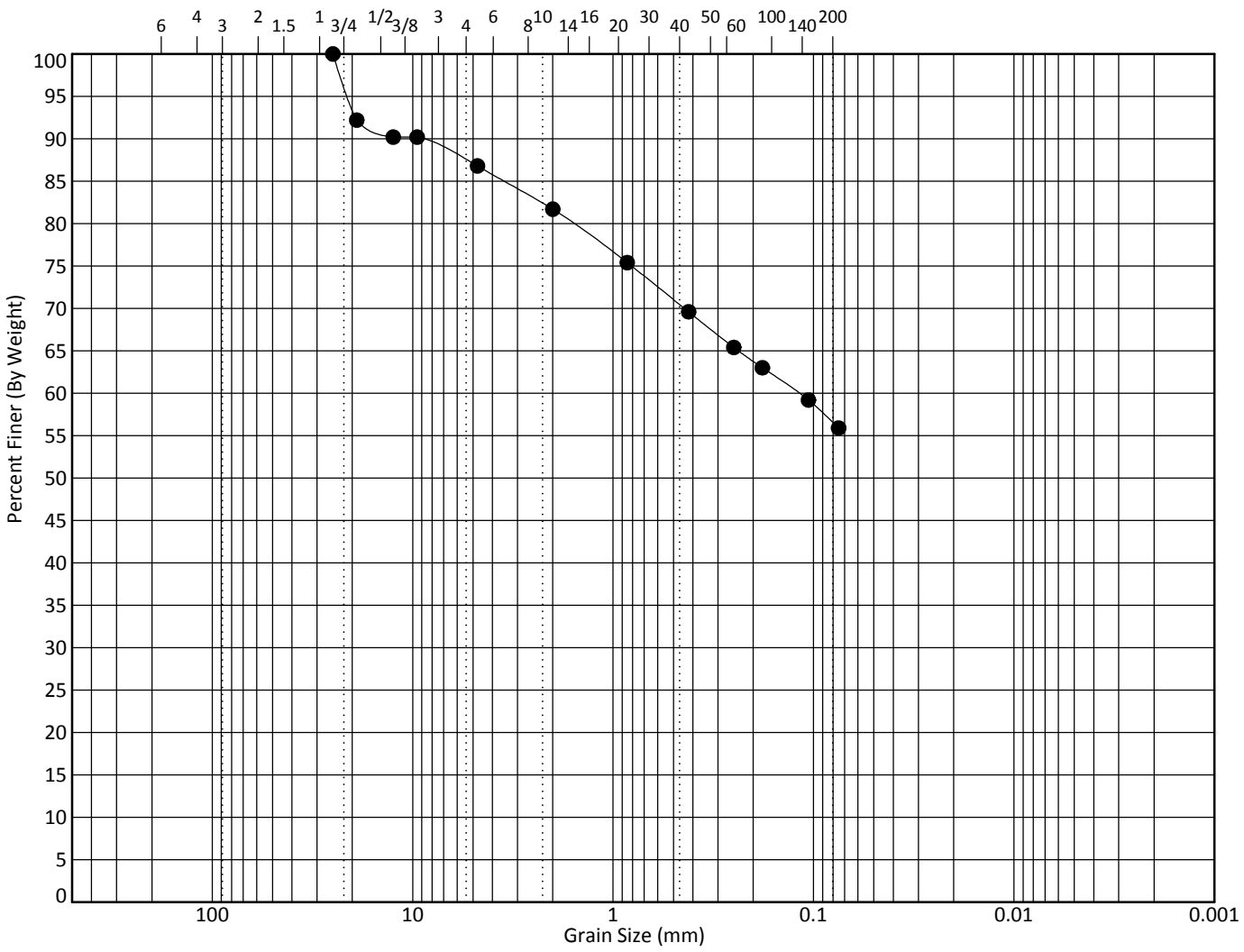
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-9 SS-1 at	10.5	SANDY SILT (ML)	35	27	8		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-9 SS-1 at	10.5	25	0.119			13.2	30.9	55.9	
	at									
	at									
	at									
	at									

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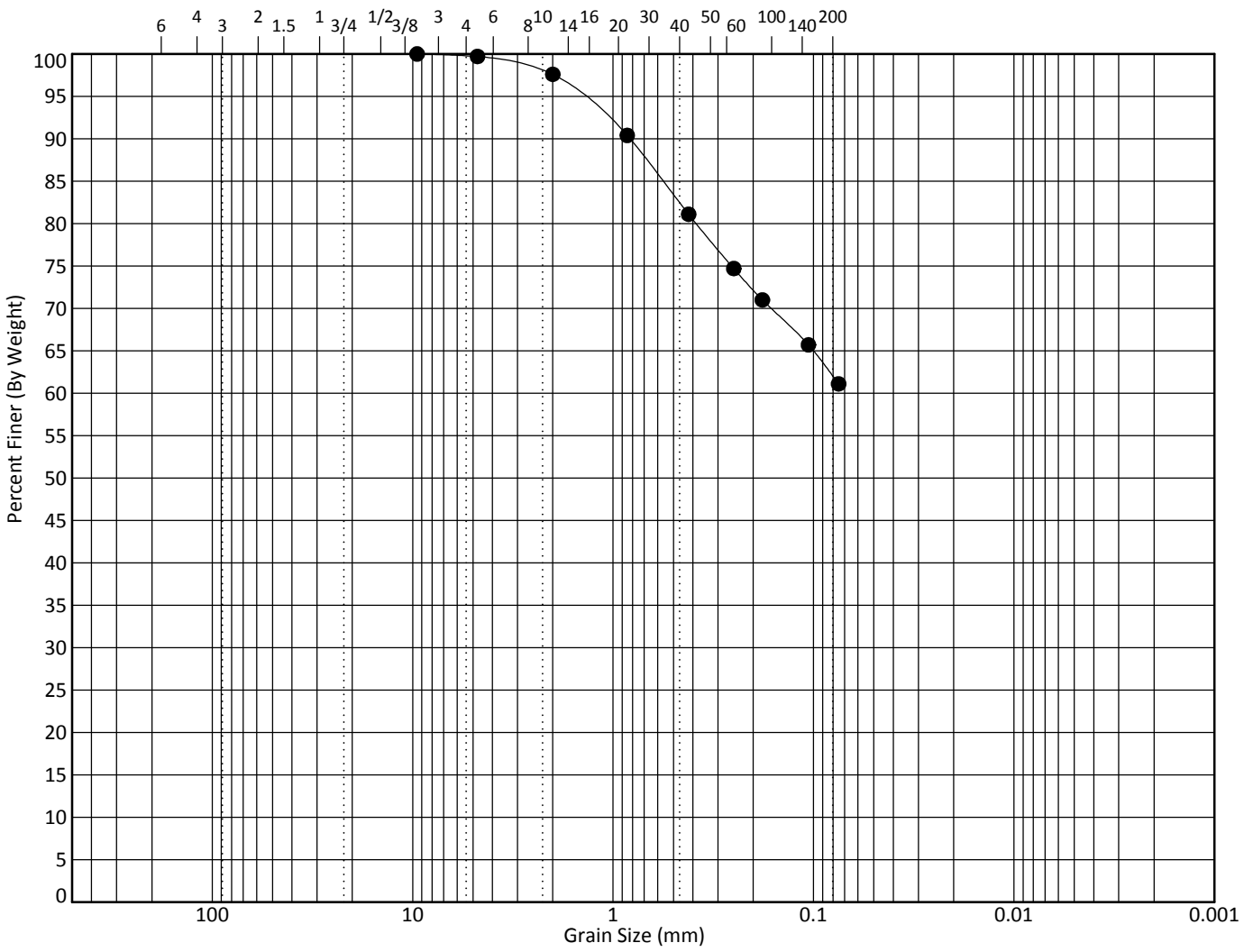
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-9 SS-2 at	12.5	SANDY SILT (ML)	33	24	9		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-9 SS-2 at	12.5	9.5				0.3	38.6	61.1	
	at									
	at									
	at									
	at									

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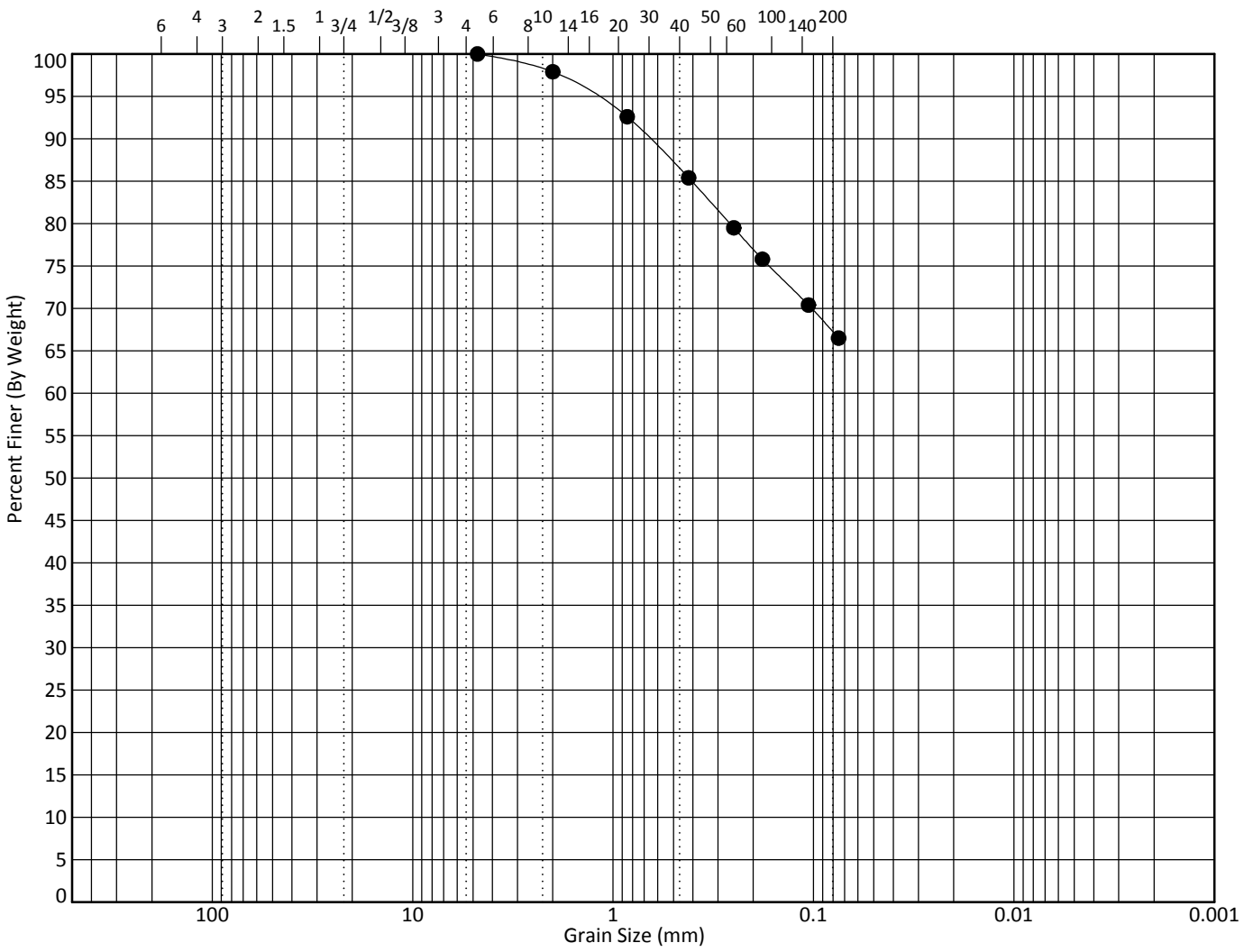
Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-9 SS-4 at	16.0	SANDY SILT (ML)	37	27	10		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-9 SS-4 at	16.0	4.75				0.0	33.5	66.5	
	at									
	at									
	at									
	at									

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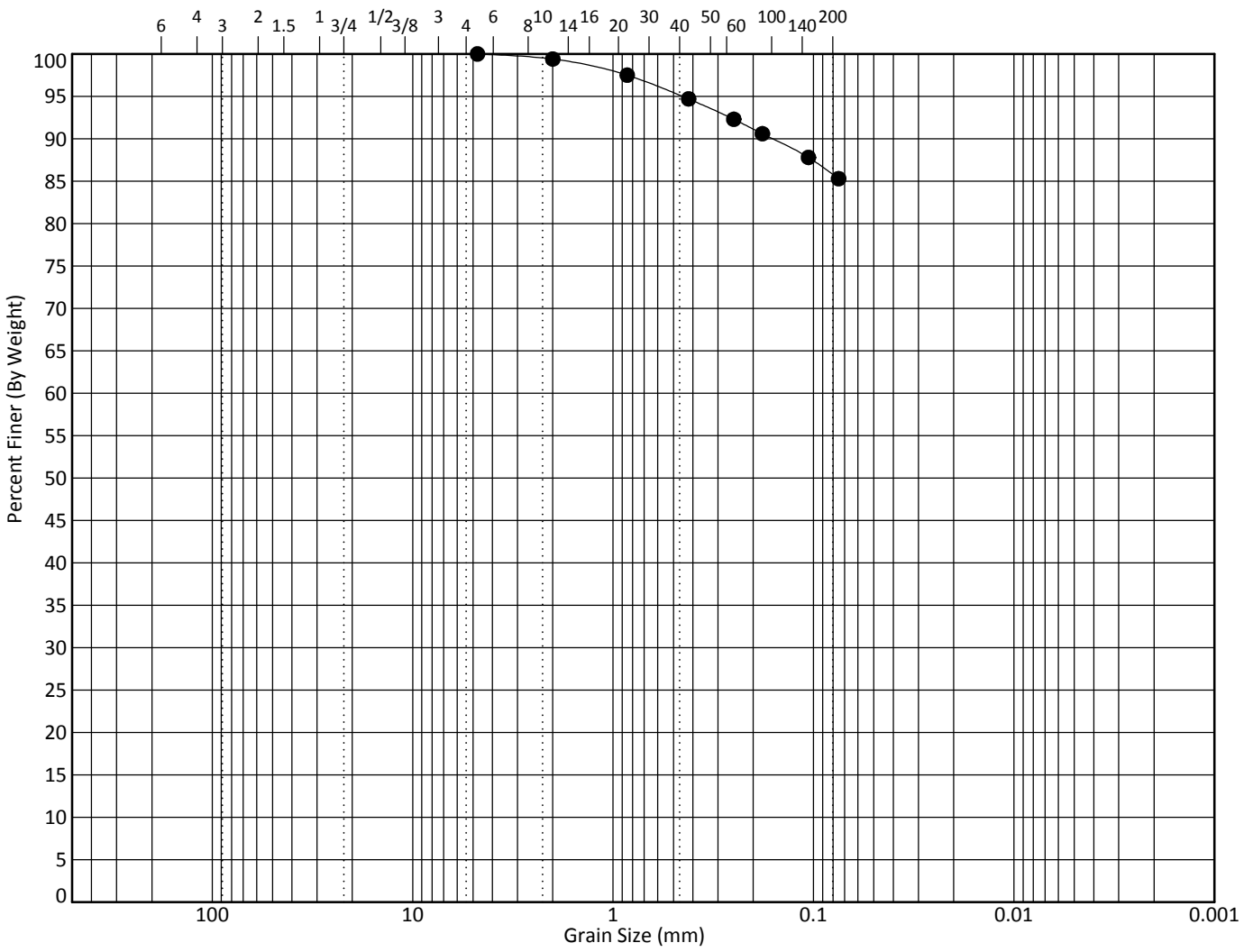
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-9 SS-6 at	23.5	SILT (ML)	32	24	8		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-9 SS-6 at	23.5	4.75				0.0	14.7	85.3	
	at									
	at									
	at									
	at									

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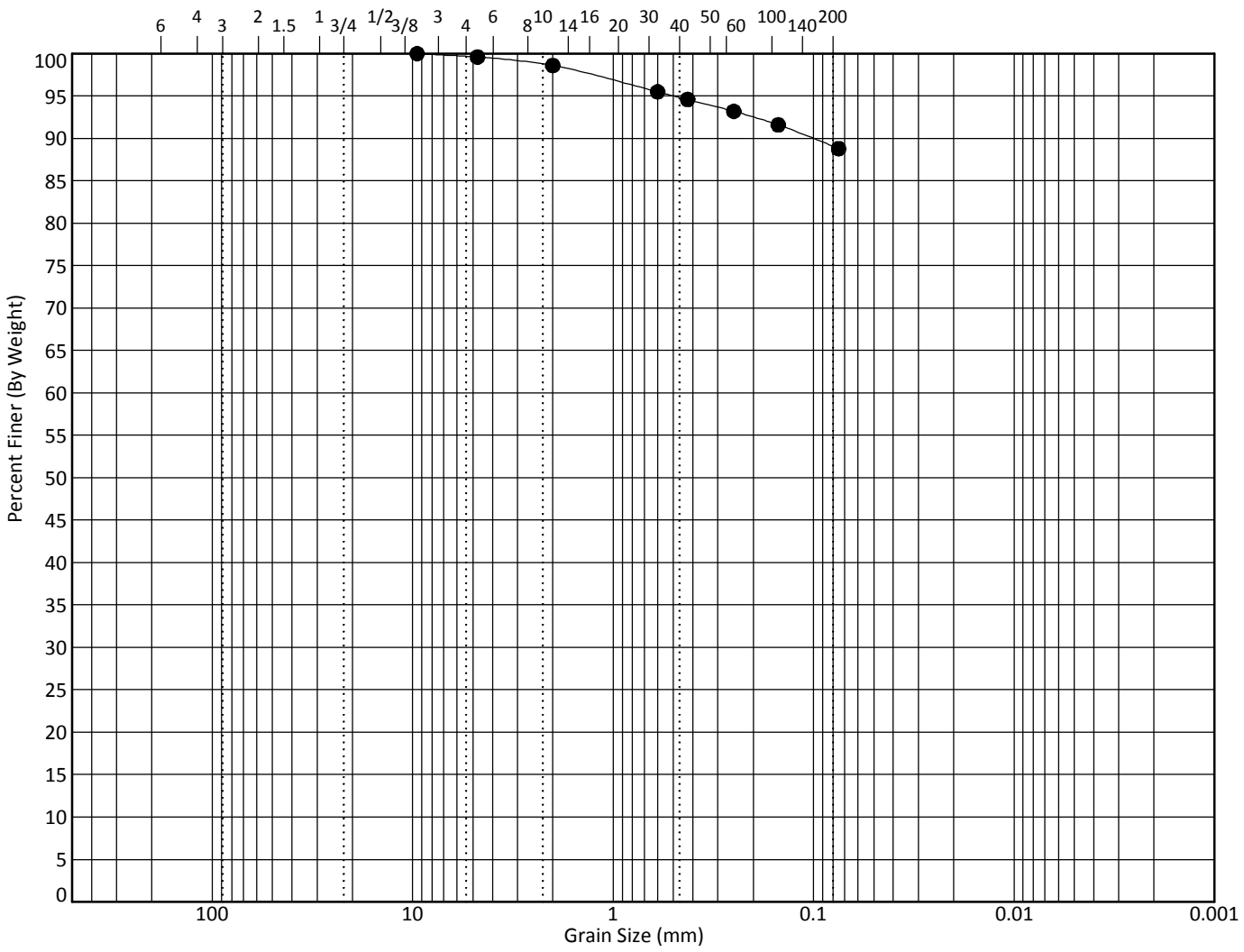
Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-10(SSa1)	0.5	LEAN CLAY (CL)	46	24	22		
at							
at							
at							
at							

Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-10(SSa1)	0.5	9.5				0.4	10.8	88.8	
at									
at									
at									
at									

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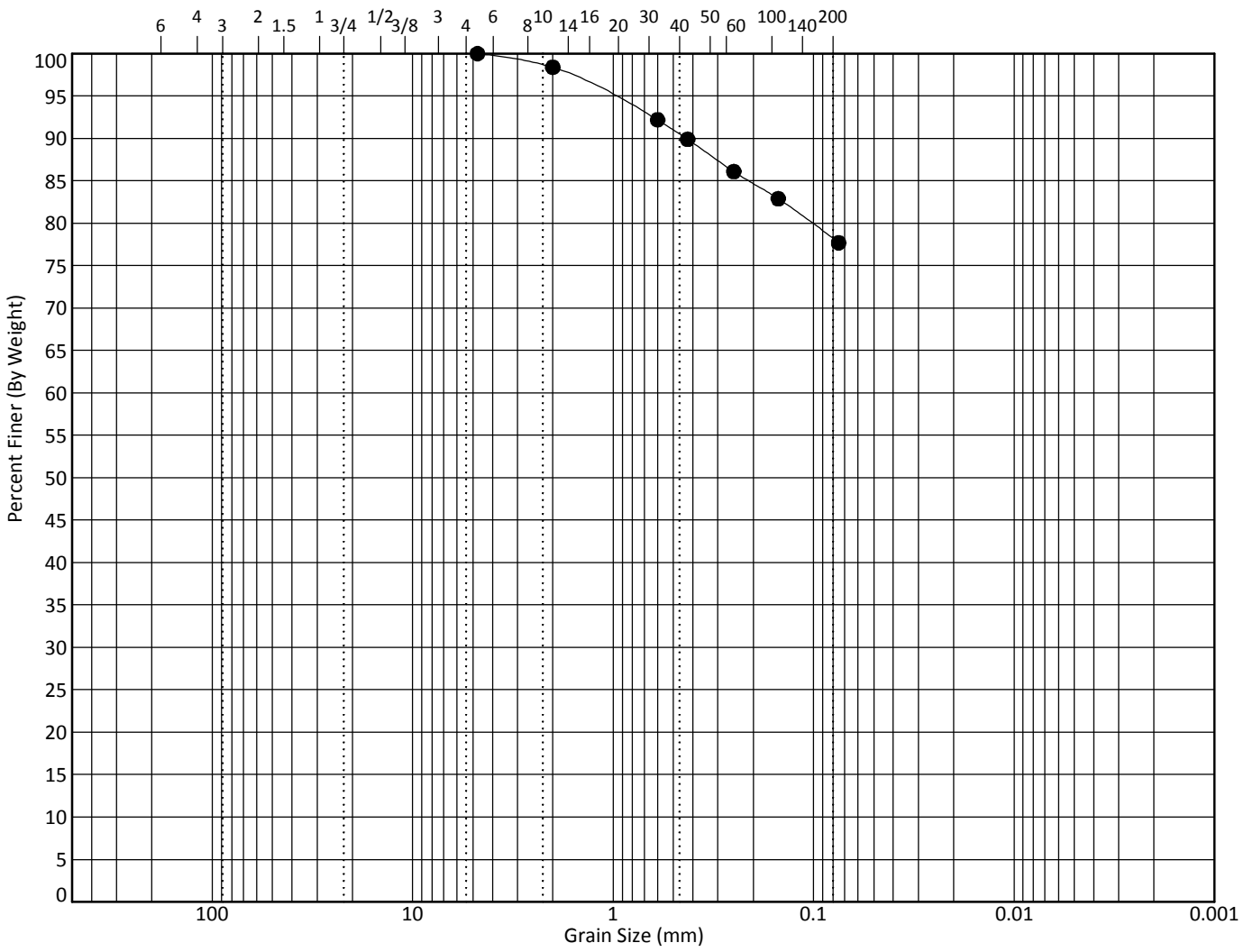
GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-10(SS-5)	8.5	LEAN CLAY with SAND (CL)	36	24	12		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-10(SS-5)	8.5	4.75				0.0	22.3	77.7	
	at									
	at									
	at									
	at									

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Project No: 65N0302
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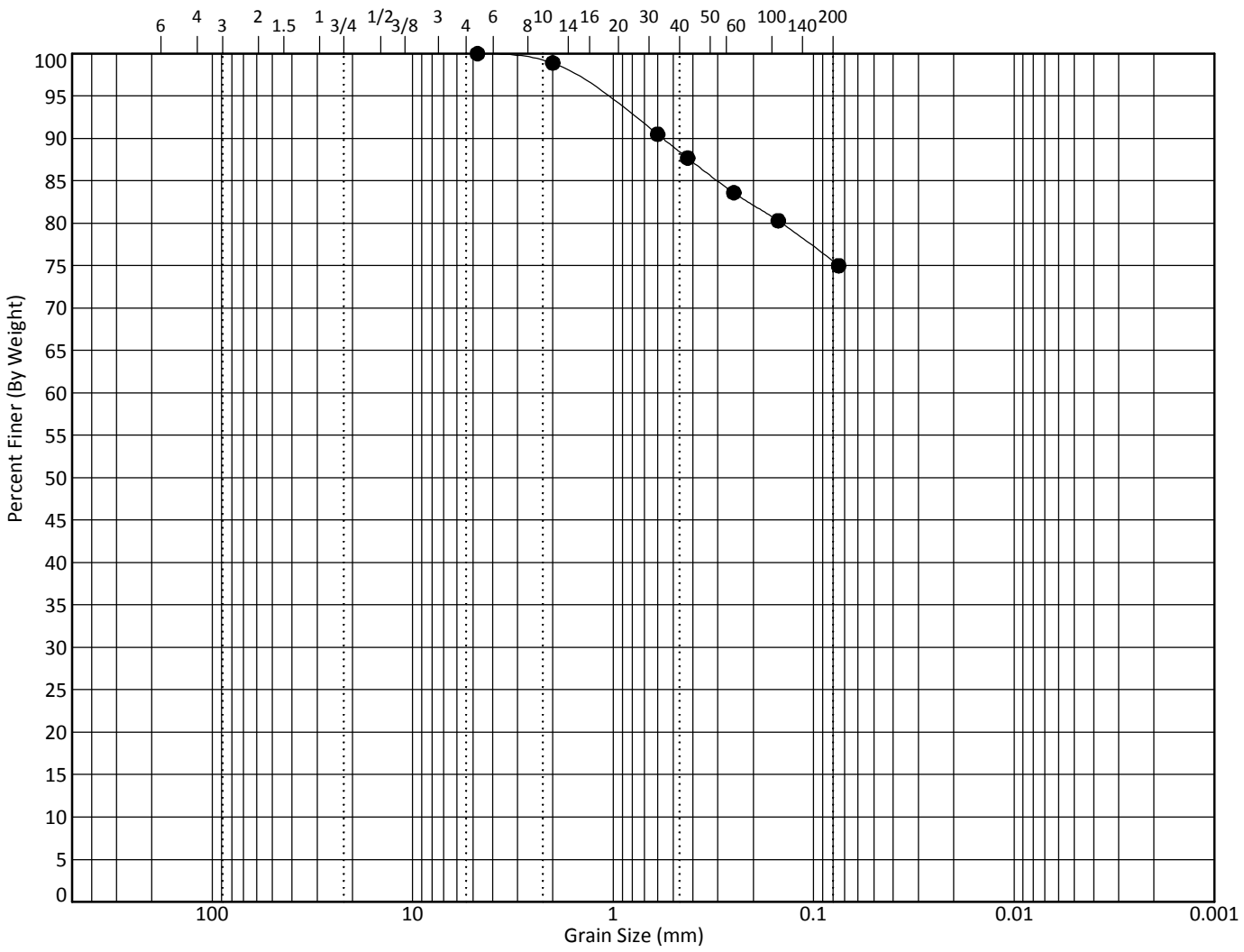
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-10(SS at 6)	13.5	SILT with SAND (ML)	34	26	8		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-10(SS at 6)	13.5	4.75				0.0	25.0	75.0	
	at									
	at									
	at									
	at									

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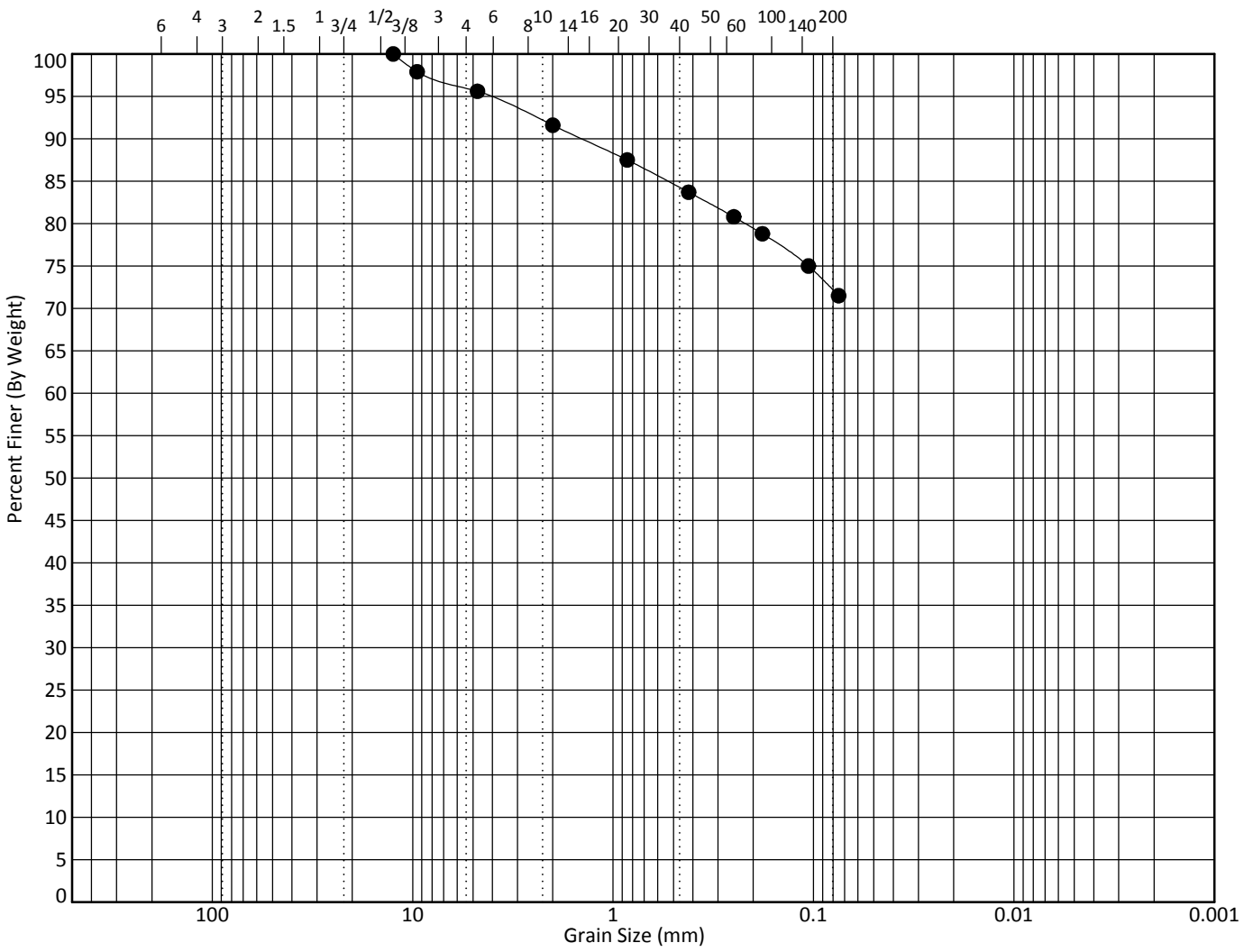
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-12 SSa1	0.5	LEAN CLAY with SAND (CL)	38	23	15		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-12 SSa1	0.5	12.5				4.4	24.1	71.5	
	at									
	at									
	at									
	at									

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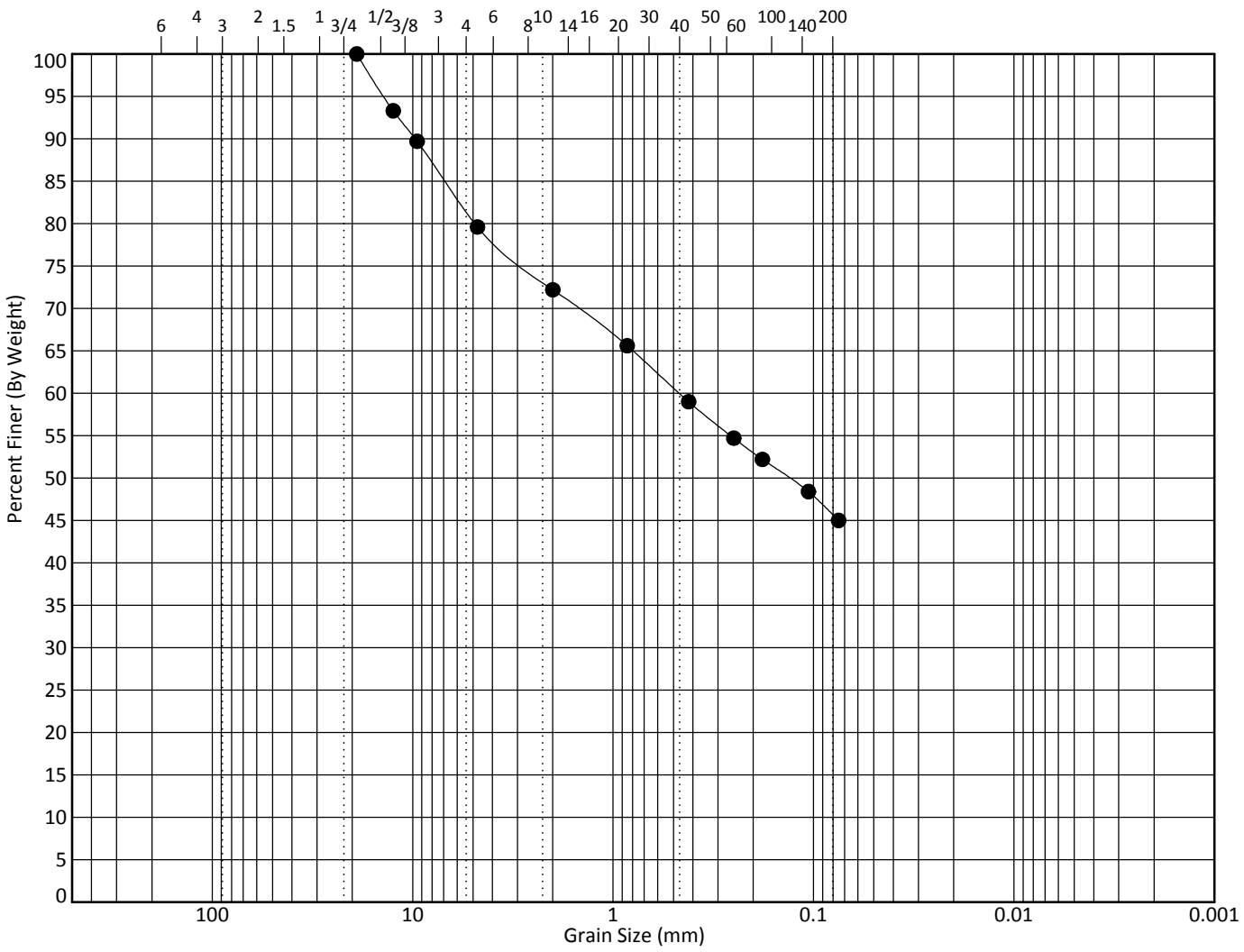
GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-12 SS-5	8.5	CLAYEY SAND with GRAVEL (SC)	36	23	13		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-12 SS-5	8.5	19	0.467			20.4	34.6	45.0	
	at									
	at									
	at									
	at									

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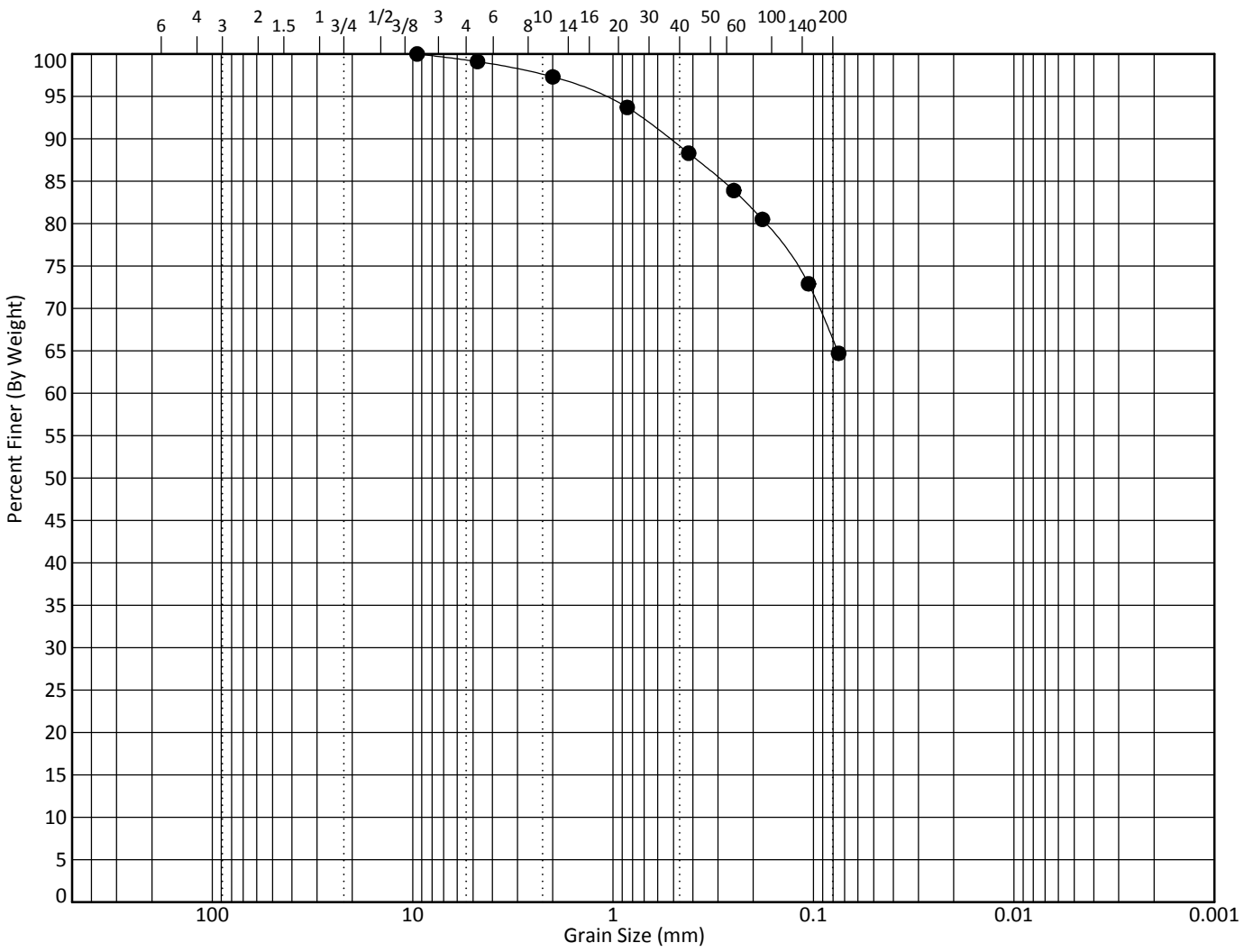
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-12 SSat 7	18.5	SANDY SILT (ML)	36	27	9		
	at							
	at							
	at							
	at							

	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-12 SSat 7	18.5	9.5				0.9	34.4	64.7	
	at									
	at									
	at									
	at									

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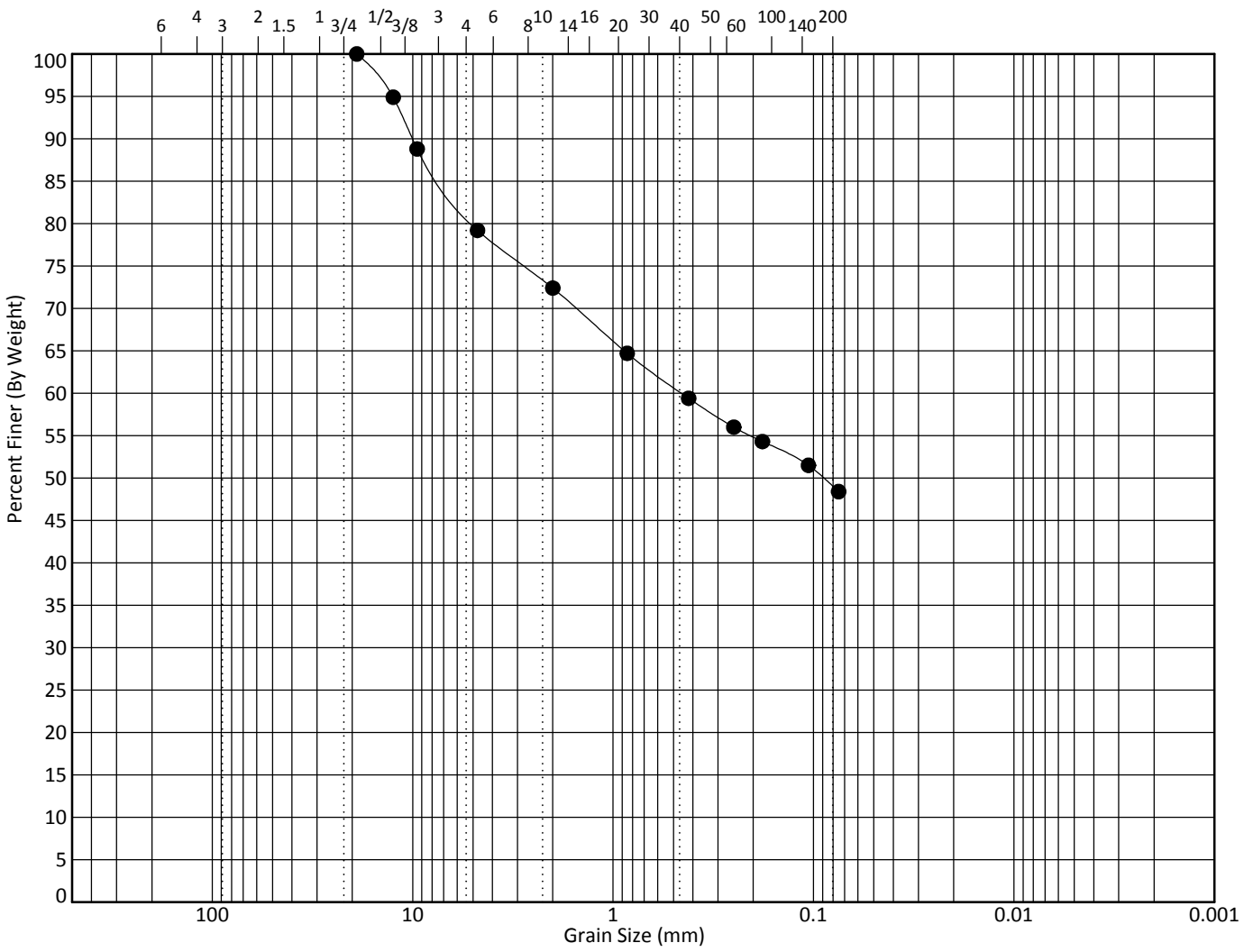
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-14 SSa-1	6.5	SILTY SAND with GRAVEL (SM)	NP	NP	NP		
	at							
	at							
	at							
	at							

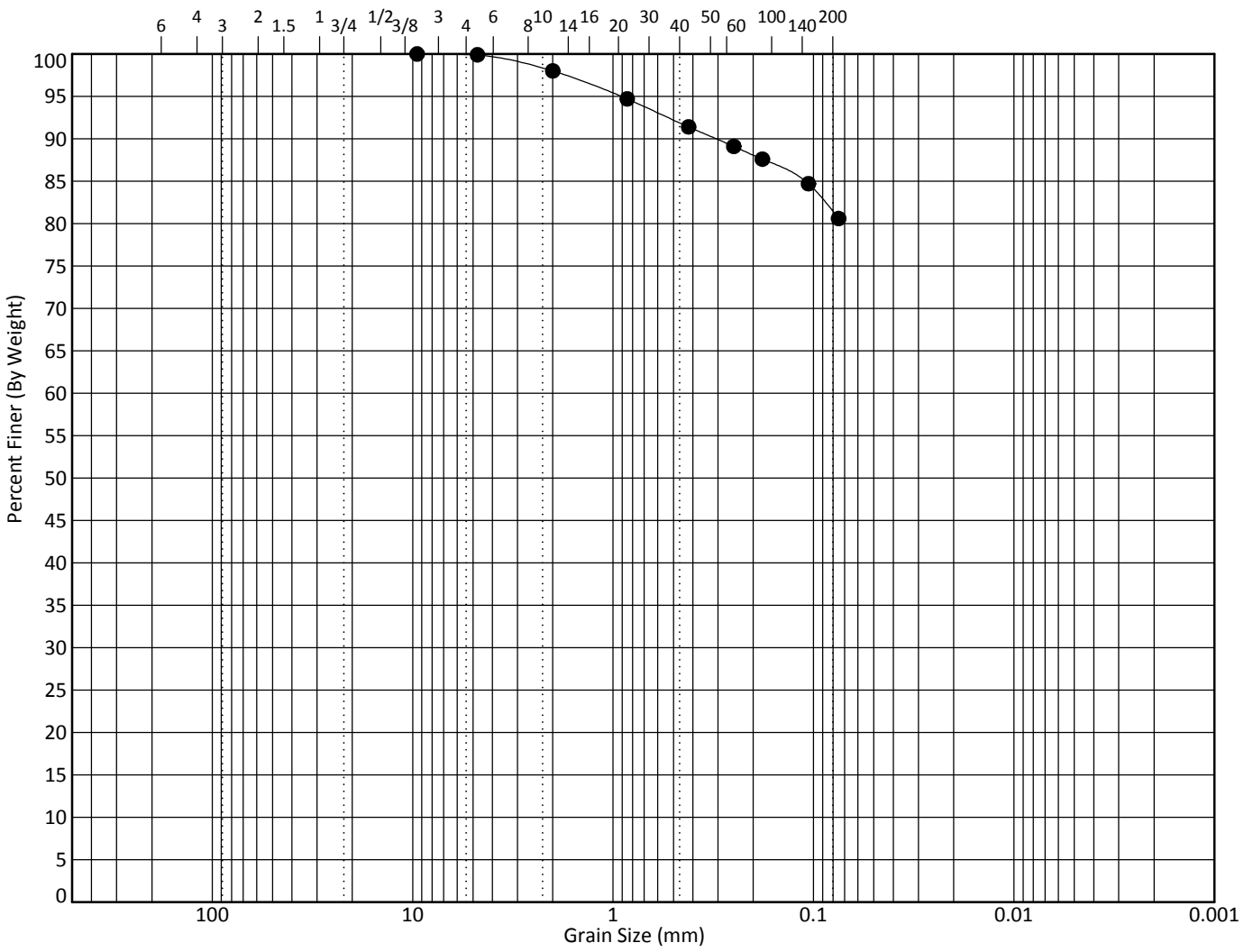
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-14 SSa-1	6.5	19	0.455			20.8	30.8	48.4	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
● RW-14 SSa7	18.5	SILT with SAND (ML)	34	26	8		
at							
at							
at							
at							

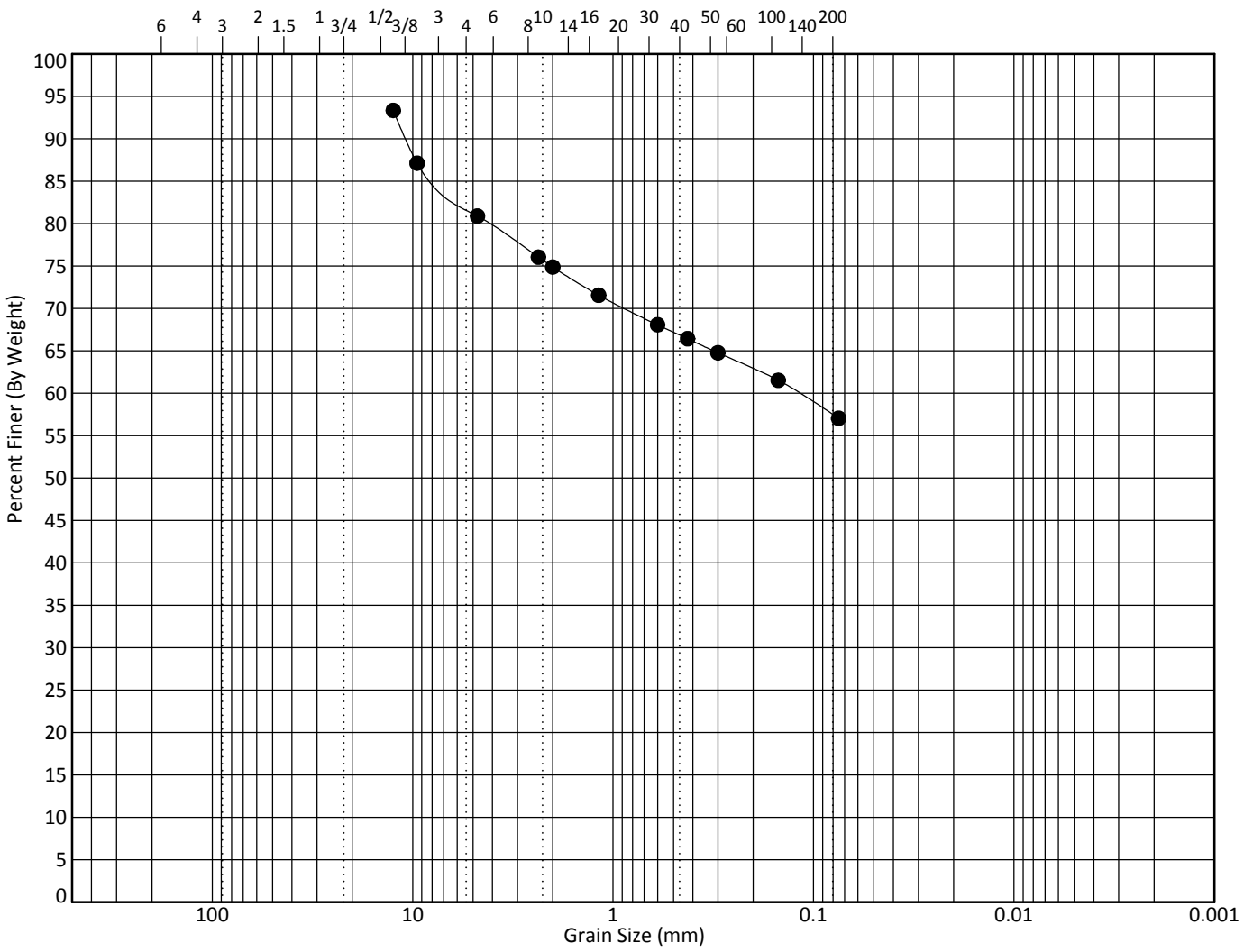
Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● RW-14 SSa7	18.5	9.5				0.1	19.3	80.6	
at									
at									
at									
at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-15 SSa1	0.5	SANDY SILT with GRAVEL (ML)	33	26	7		
	at							
	at							
	at							
	at							

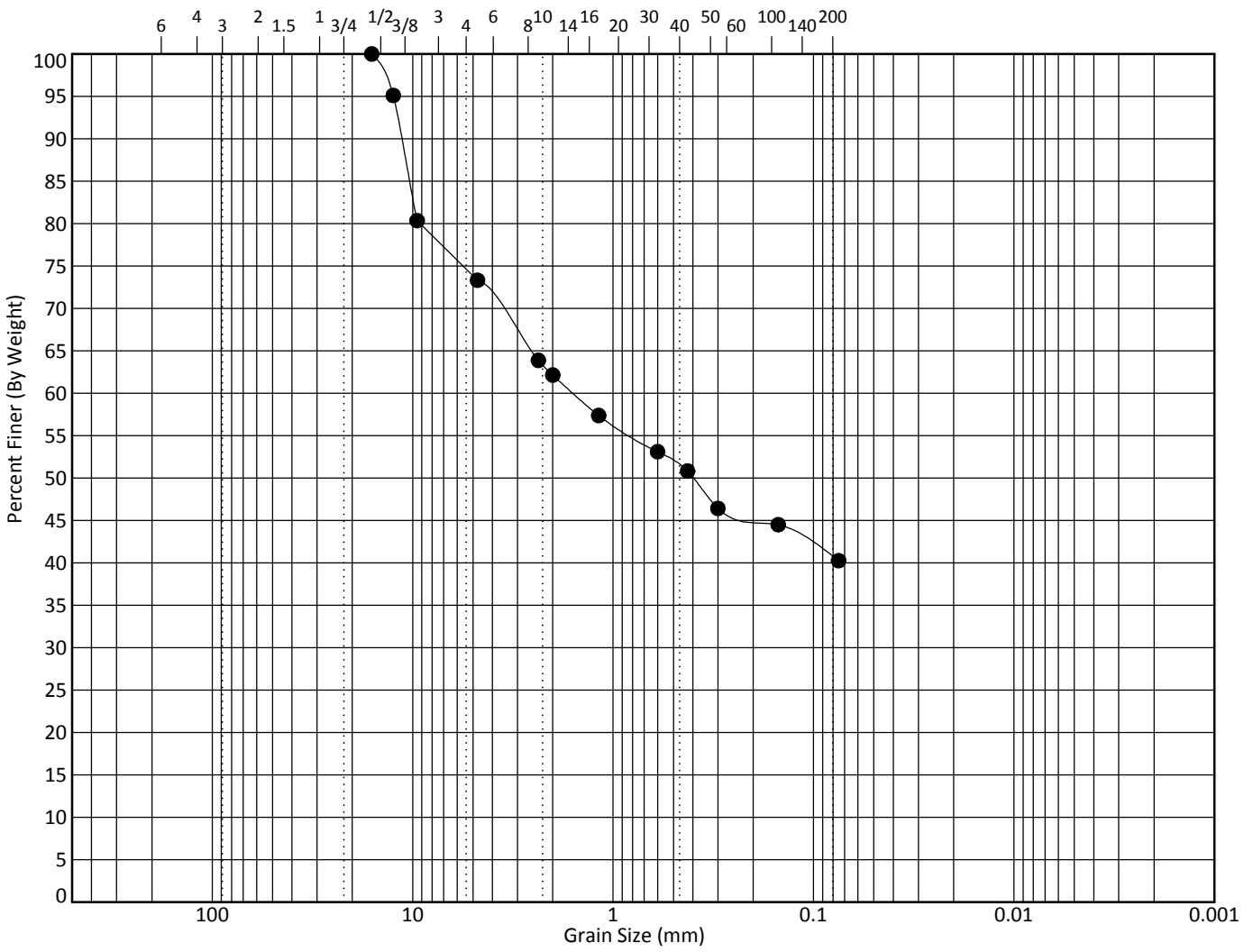
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-15 SSa1	0.5	12.5	0.118			12.5	23.8	57.0	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-15 SSat	6.5	SILTY SAND with GRAVEL (SM)	33	25	8		
	at							
	at							
	at							
	at							

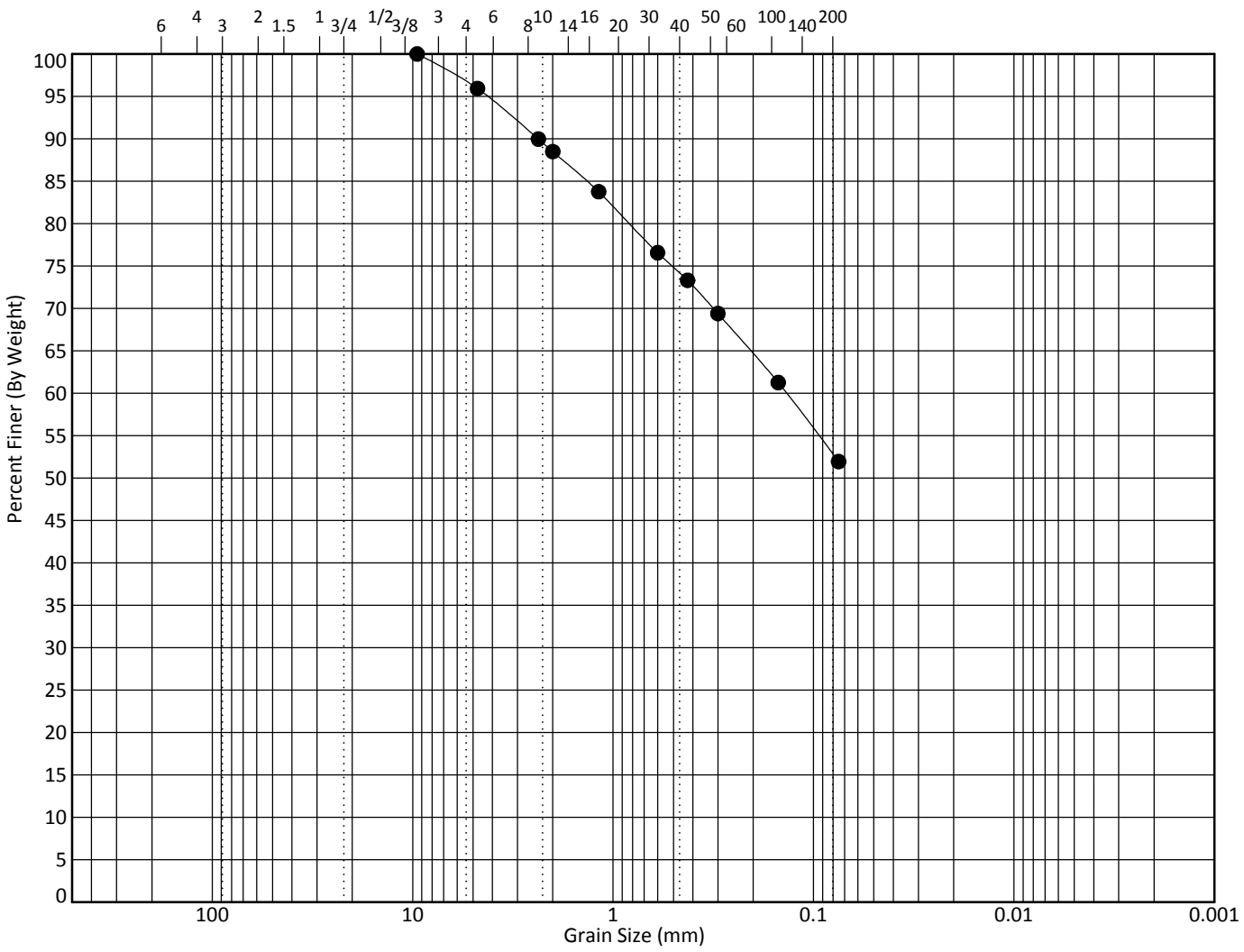
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-15 SSat	6.5	16	1.578			26.7	33.1	40.3	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-15 SS#8	23.5	SANDY SILT (ML)	37	31	6		
	at							
	at							
	at							
	at							

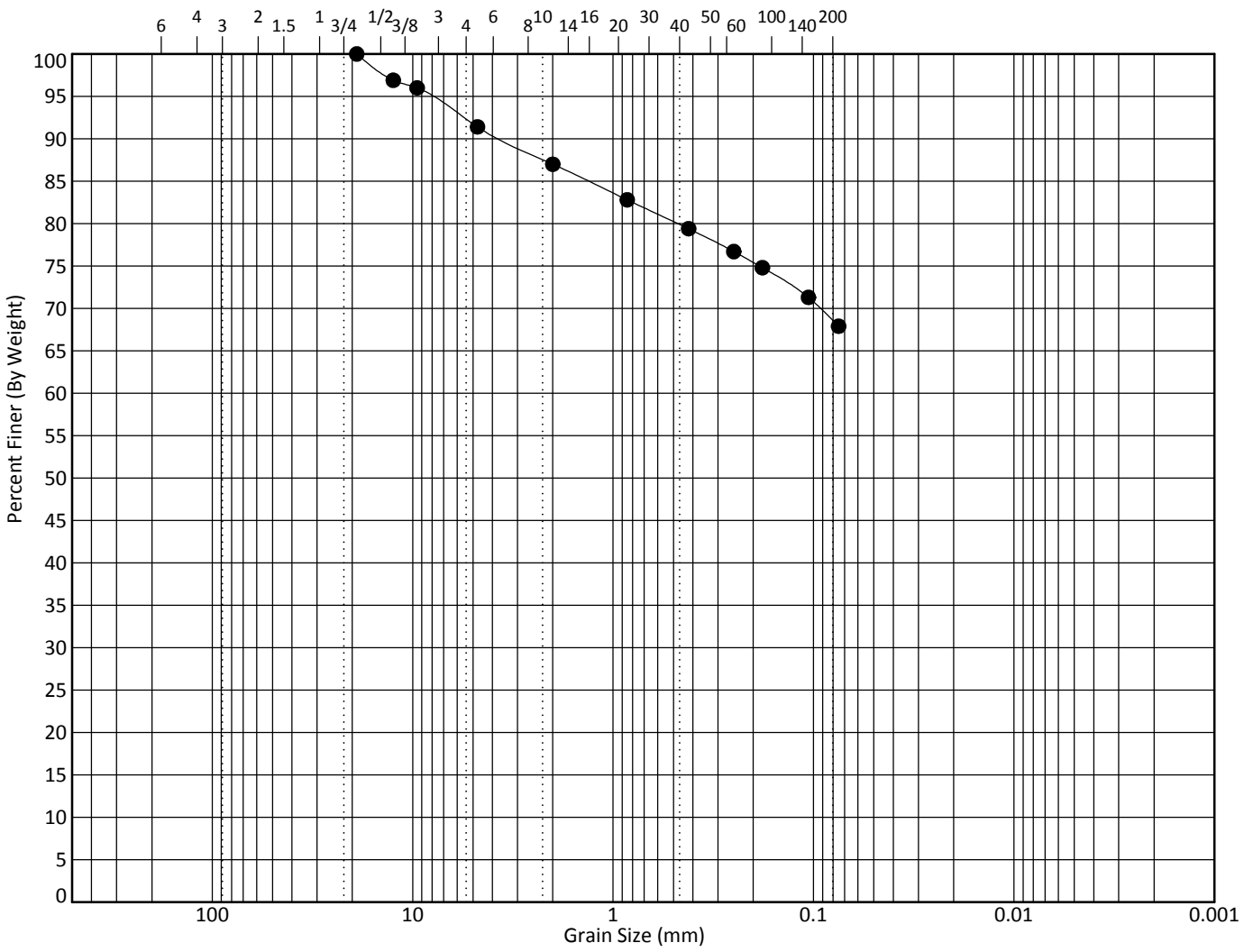
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-15 SS#8	23.5	9.5	0.137			4.1	44.0	51.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-16 SSa1	11.5	SANDY LEAN CLAY (CL)	34	19	15		
	at							
	at							
	at							
	at							

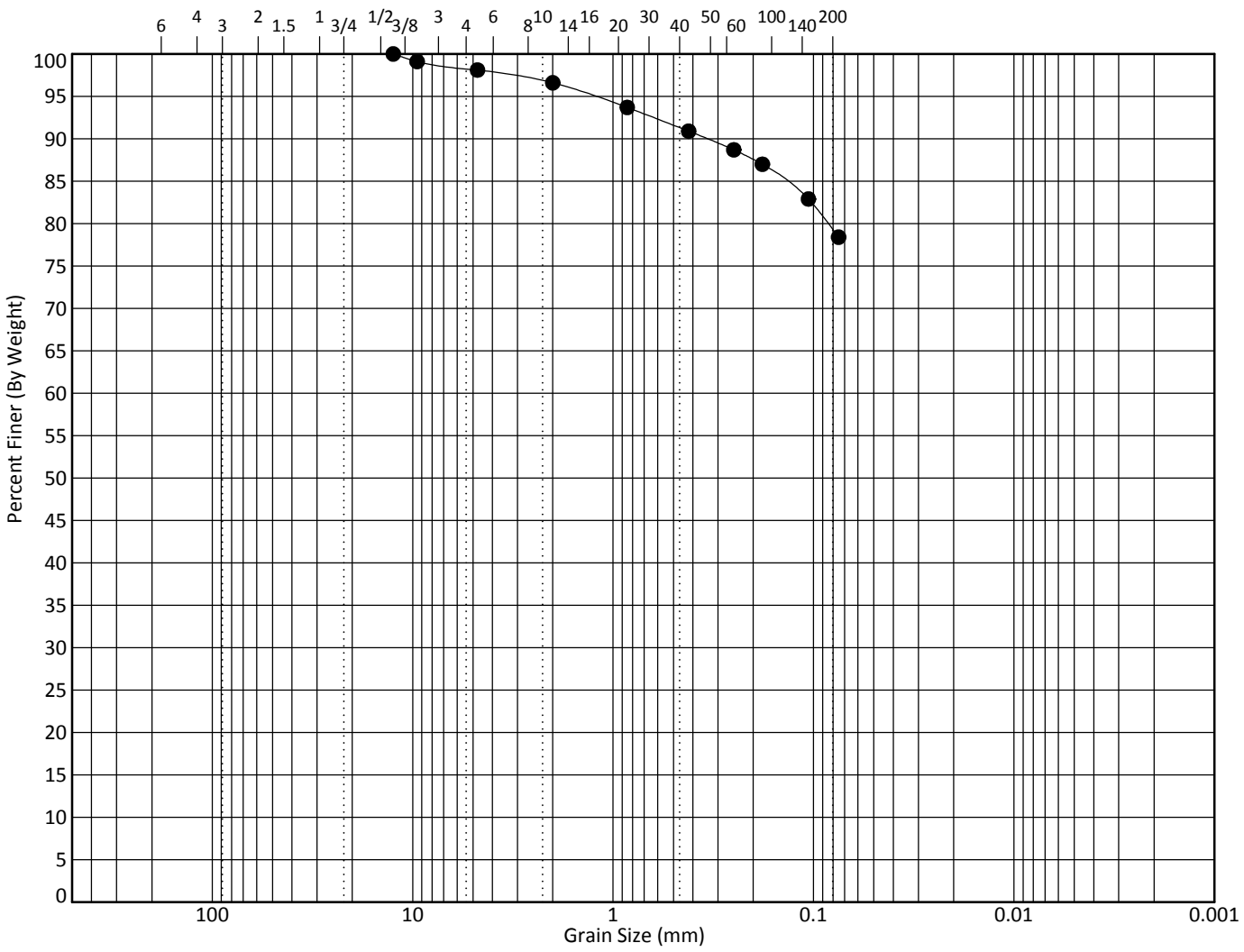
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-16 SSa1	11.5	19				8.6	23.5	67.9	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-17 SSa1	0.5	LEAN CLAY with SAND (CL)	39	23	16		
	at							
	at							
	at							
	at							

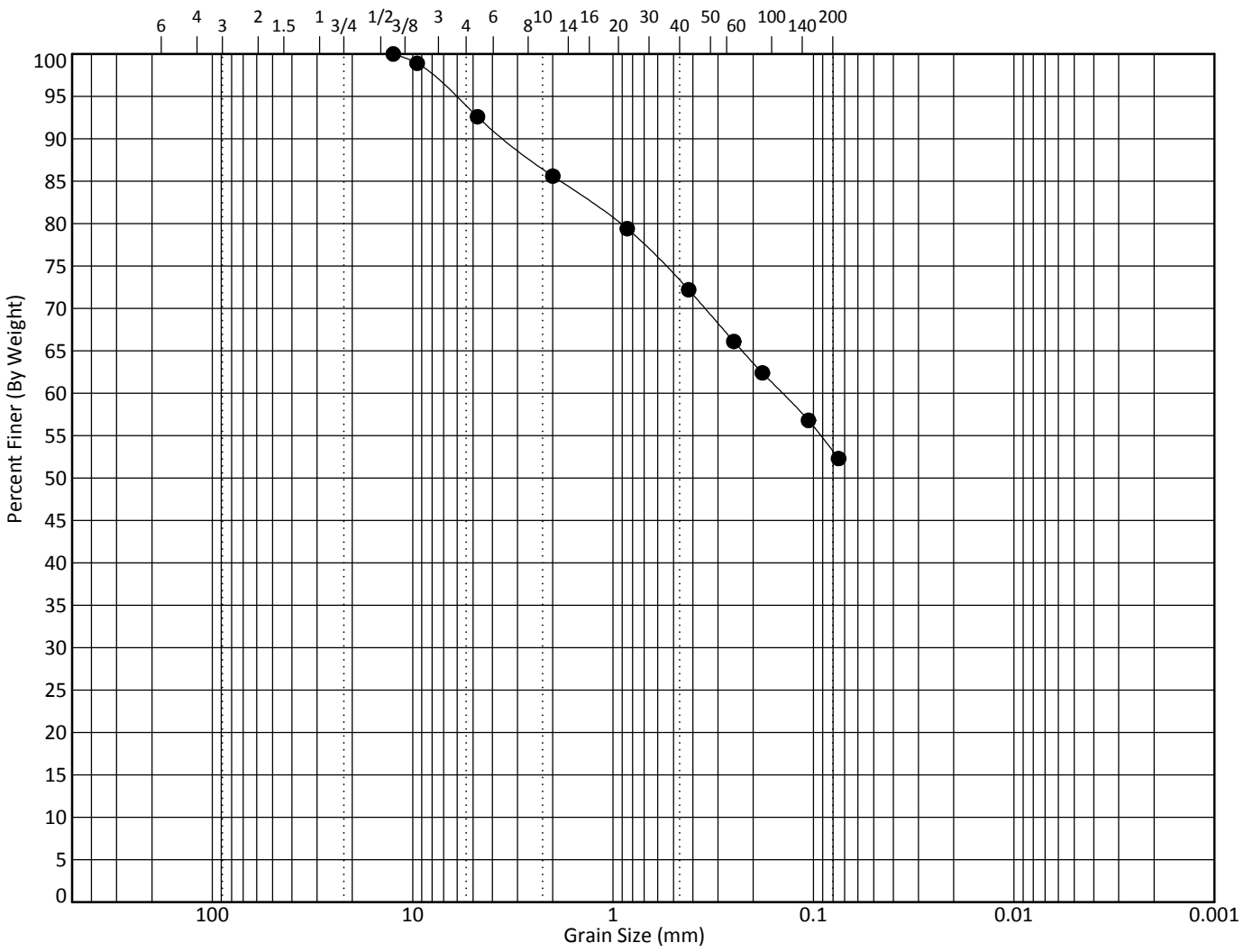
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-17 SSa1	0.5	12.5				1.9	19.7	78.4	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-17 SSat	6.5	SANDY SILT (ML)	32	25	7		
	at							
	at							
	at							
	at							

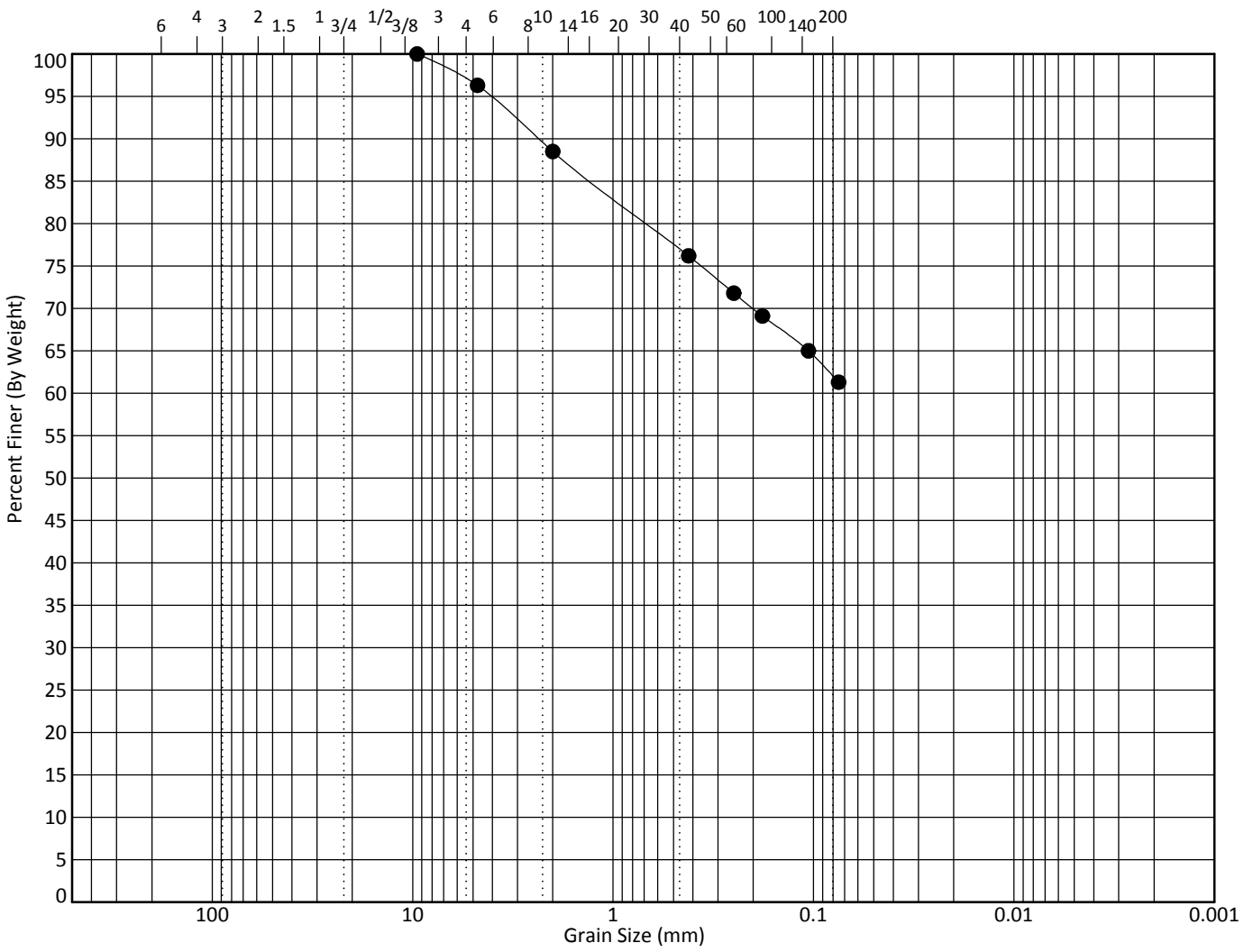
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-17 SSat	6.5	12.5	0.143			7.4	40.3	52.3	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-17 SSat	18.5	SANDY SILT (ML)	43	32	11		
	at							
	at							
	at							
	at							

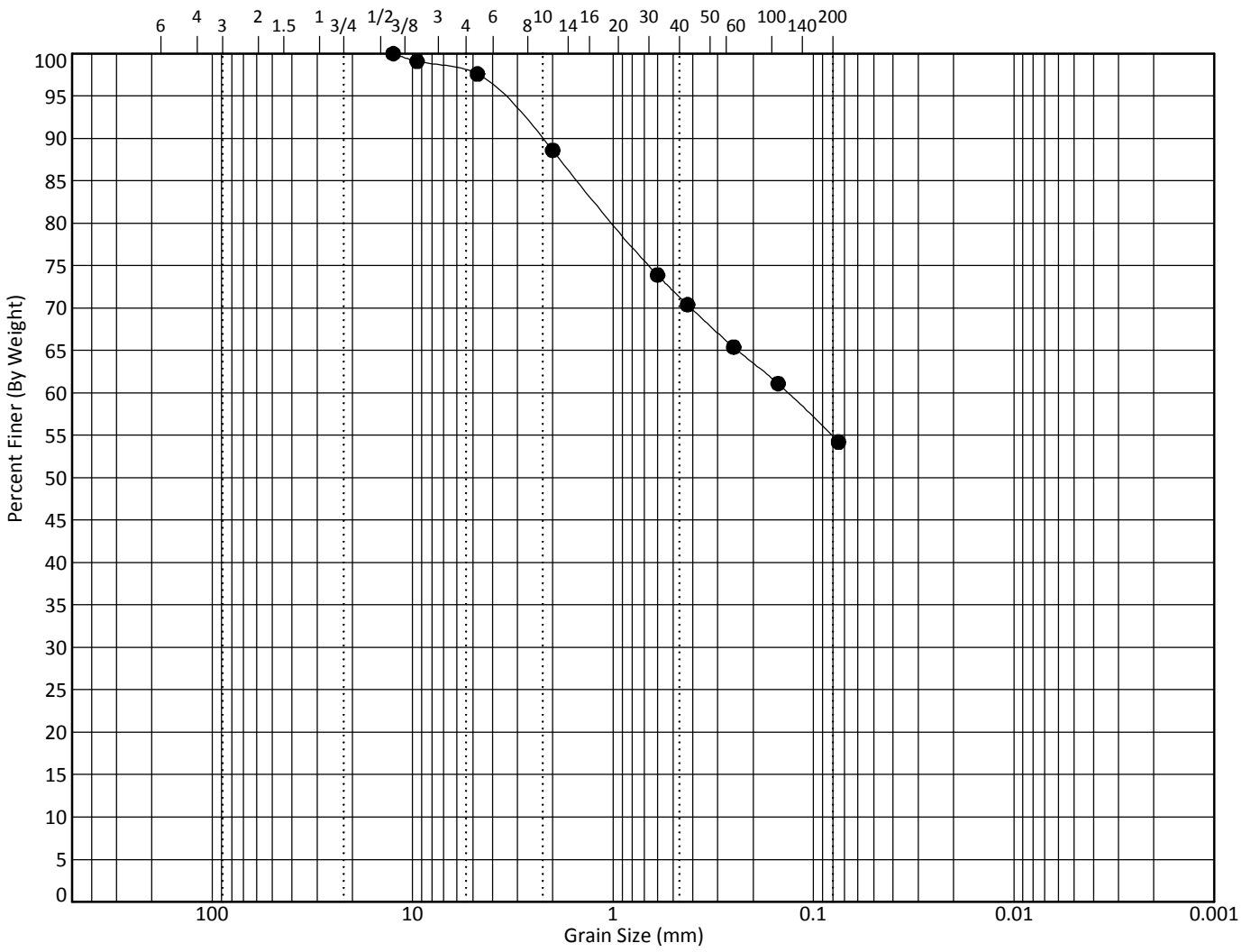
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-17 SSat	18.5	9.5				3.7	35.0	61.3	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-18(SS2)	2.5	SANDY SILTY CLAY (CL-ML)	27	21	6		
	at							
	at							
	at							
	at							

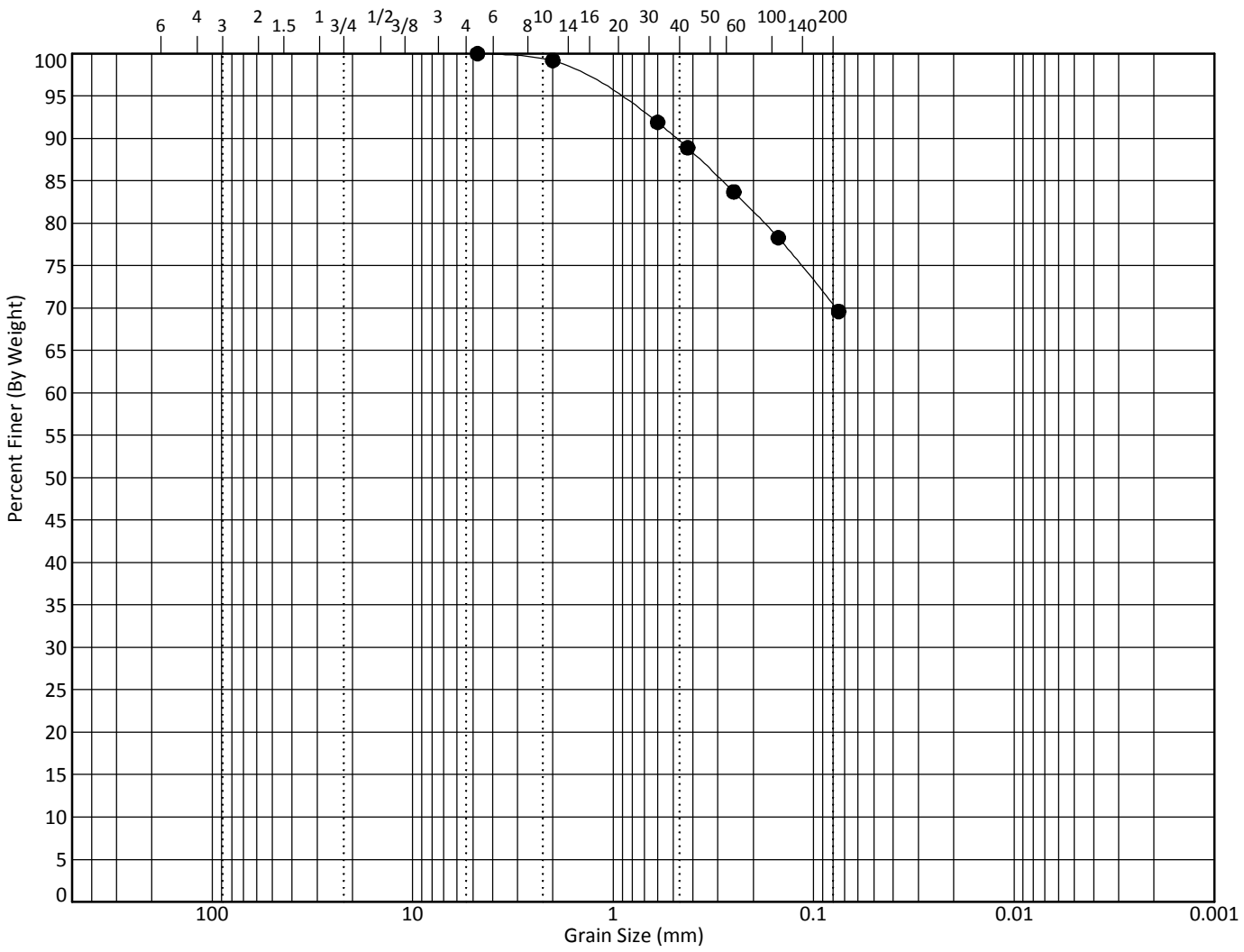
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-18(SS2)	2.5	12.5	0.134			2.4	43.4	54.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N0302
Client: SCDOT
Project: S-80 Bridge Replacement Over I-26
City/State: Greenville, SC



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-18(SS-5)	8.0	SANDY SILT (ML)	37	27	10		
	at							
	at							
	at							
	at							

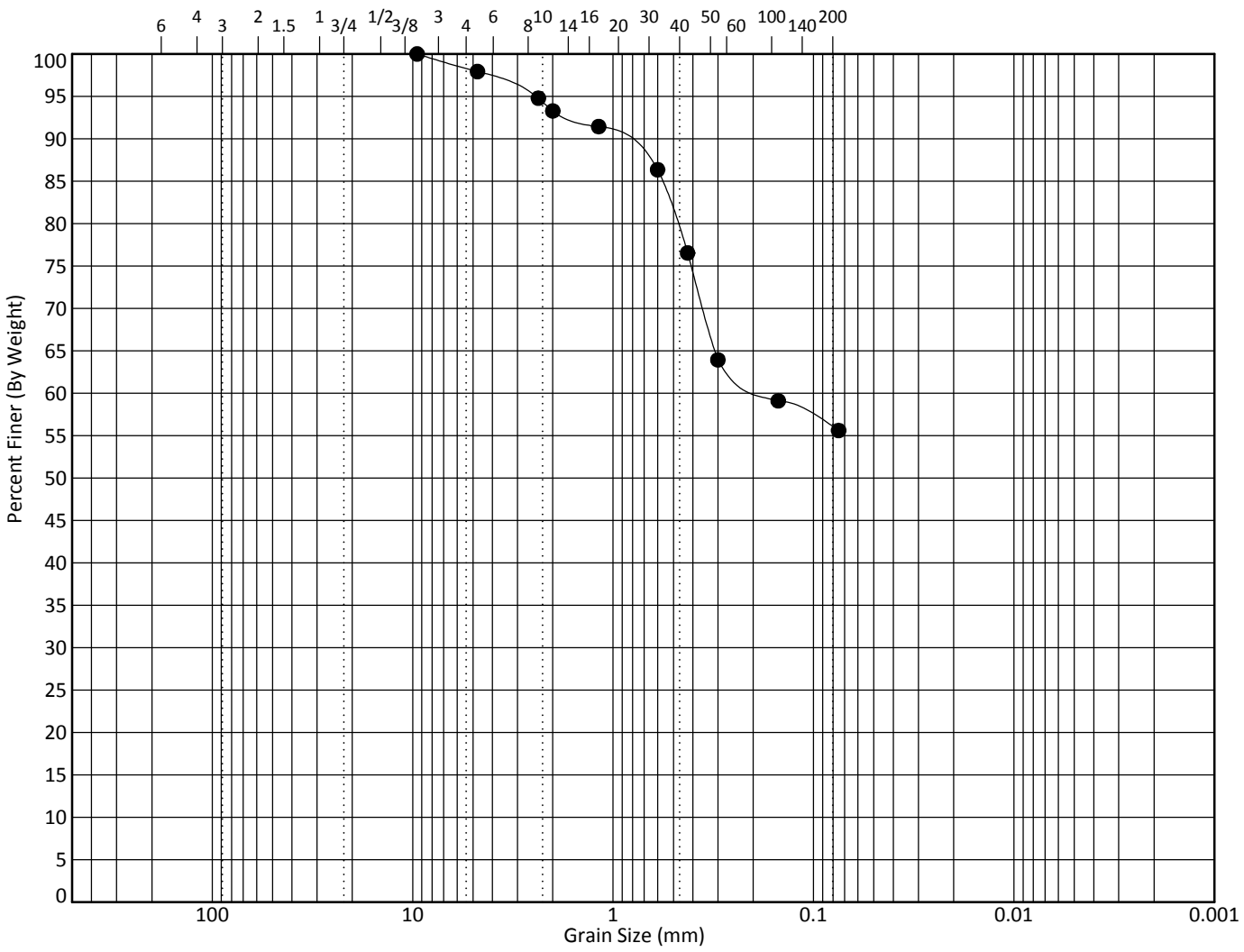
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-18(SS-5)	8.0	4.75				0.0	30.4	69.6	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE LAB TEST.GPJ F&R.GDT 6/27/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-20 SSa2	8.5	SANDY LEAN CLAY (CL)	31	21	10		
	at							
	at							
	at							
	at							

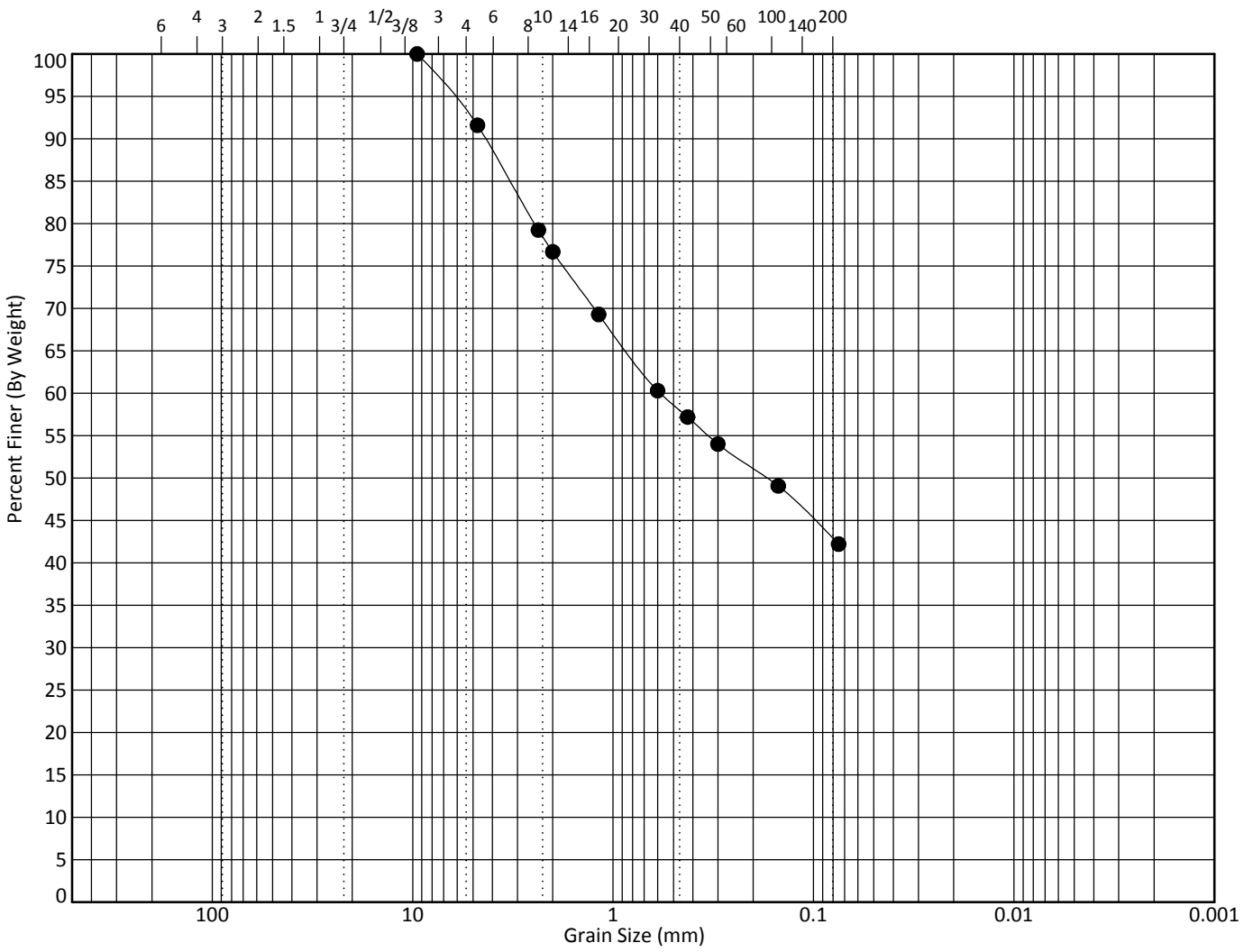
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-20 SSa2	8.5	9.5	0.171			2.1	42.3	55.6	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-20 SSat 7	18.5	SILTY SAND (SM)	25	23	2		
	at							
	at							
	at							
	at							

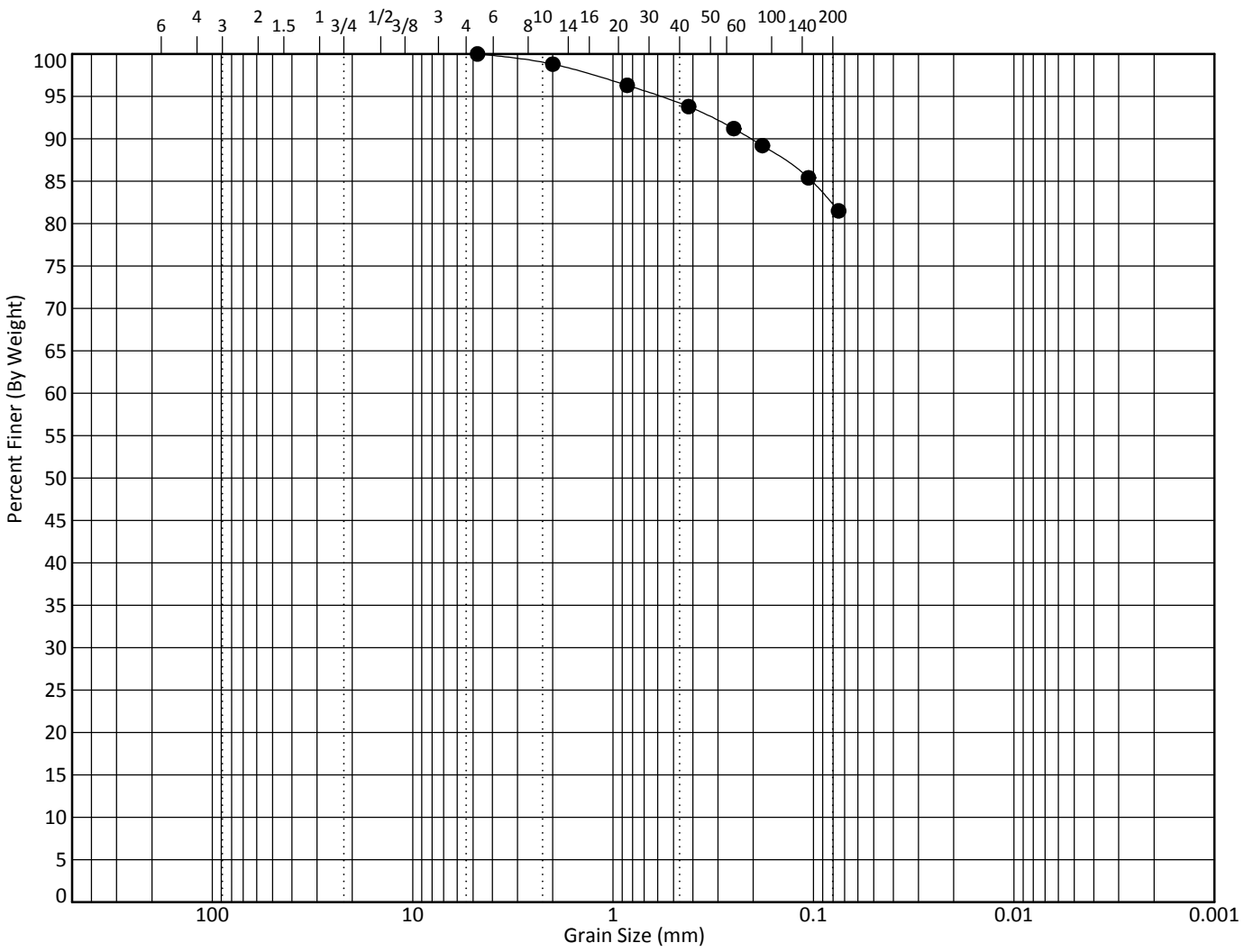
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-20 SSat 7	18.5	9.5	0.58			8.4	49.4	42.2	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-302
Client: SCDOT
Project: S-80 Bridge Over I-26
City/State: South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring No.	Depth	Classification	LL	PL	PI	Cc	Cu
●	RW-7 Bulk at	5.0	LEAN CLAY with SAND (CL)	41	20	21		
	at							
	at							
	at							
	at							

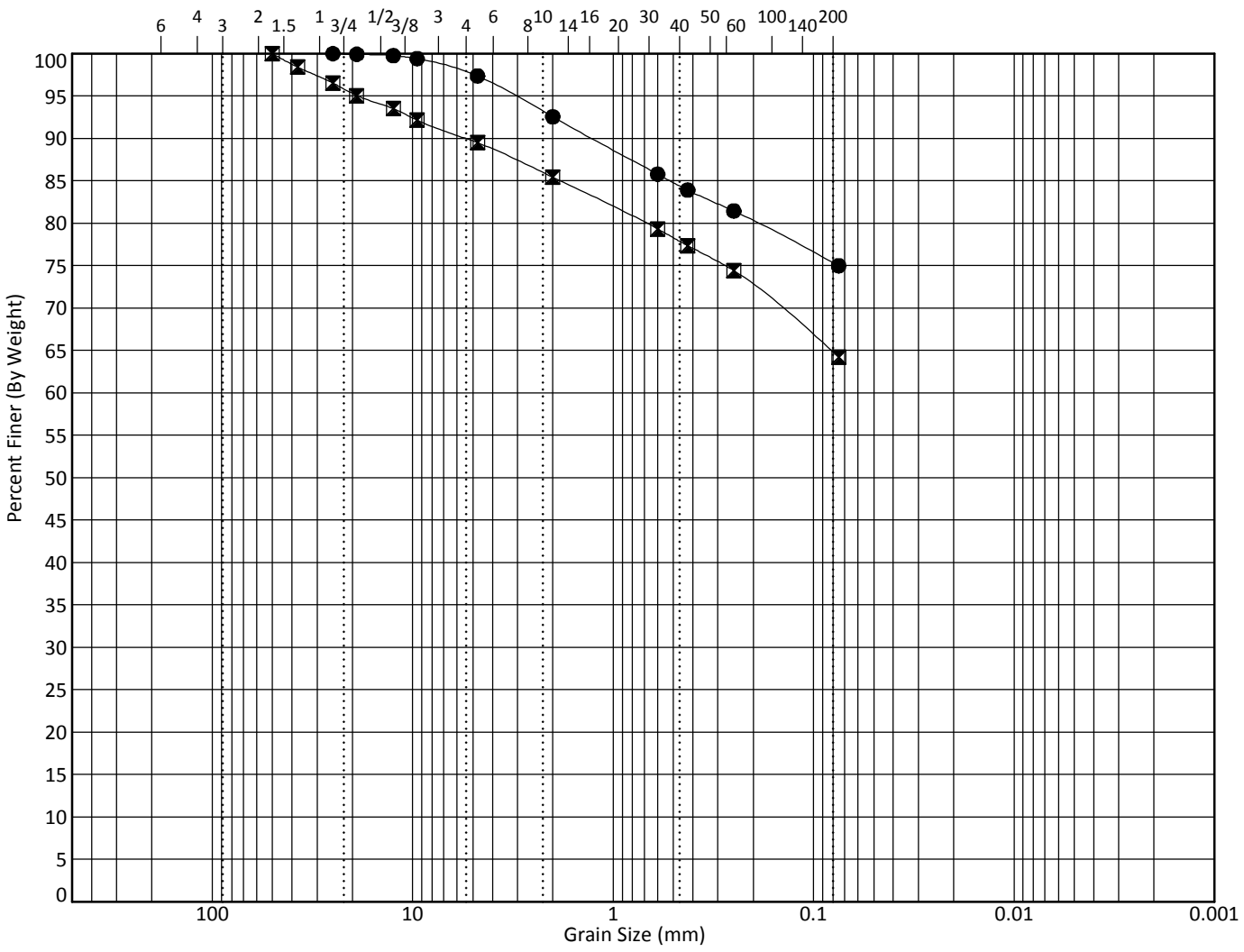
	Boring No.	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RW-7 Bulk at	5.0	4.75				0.0	18.5	81.5	
	at									
	at									
	at									
	at									

US_GRAIN_SIZE 65N-302-RT.GPJ F&R.GDT 7/6/12

FROEHLING & ROBERTSON, INC.

GRAIN SIZE DISTRIBUTION

Project No: 65N-0302
Client: SCDOT
Project: Shady Grove Rd. S-80 Bridge Replacement
City/State: Columbia, South Carolina



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Sample No.		Depth	Classification	LL	PL	PI	Cc	Cu
●	RD-1	at	0.0	Light Brown, FAT CLAY with SAND (CH)	56	24	32		
⊠	RD-20	at	0.0	Brown, SANDY LEAN CLAY (CL)	34	22	12		

	Sample No.		Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	RD-1	at	0.0	25				2.6	22.4	75.0	
⊠	RD-20	at	0.0	50				10.5	25.3	64.2	

US_GRAIN_SIZE 65N-0302.GPJ F&R.GDT 6/18/12

FROEHLING & ROBERTSON, INC.
MOISTURE CONTENT (ASTM D2216)

Client:	**SCDOT**	**Date:**	**2-Jul-12**
Project:	**Shady Grove Road**	**Location:**	**S-80 Bridge Repl. over I-26**
Project No:	**65N-0302**	**Page:**	**1 of 2**

Sample Location	Depth	Moisture Content
B-1A SS-2	2.5'-4.0'	12.5%
B-1A SS-4	6.5'-8.0'	15.1%
B-1A SS-7	18.5'-20.0'	15.8%
B-2A SS-1	0.5'-2.0'	14.6%
B-2A SS-5	8.5'-10.0'	8.5%
B-2A SS-6	13.5'-15.0'	7.6%
B-2A SS-7	18.5'-20.0'	9.8%
B-3 SS-1	0.5'-2.0'	16.5%
B-4 SS-1	0.5'-2.0'	15.6%
B-4 SS-3	4.5'-6.0'	13.8%
B-5 SS-1	0.5'-2.0'	11.5%
B-6 SS-3	4.5'-6.0'	9.8%
B-6 SS-7	18.5'-20.0'	11.6%
B-6 SS-8	23.5'-25.0'	13.2%
RD-1 SS-1	0.5'-2.0'	10.2%
RD-1 SS-4	6.5'-8.0'	8.6%
RD-2 SS-1	0.5'-2.0'	22.6%
RD-2 SS-3	4.5'-6.0'	8.8%
RD-4 SS-1	0.5'-2.0'	14.8%
RD-4 SS-4	6.5'-8.0'	12.5%
RD-4 SS-5	8.5'-10.0'	13.8%
RD-5 SS-1	0.5'-2.0'	21.2%
RD-5 SS-7	18.5'-20.0'	12.9%
RD-6 SS-1	0.5'-2.0'	18.5%
RD-6 SS-5	8.5'-10.0'	16.0%
RD-6 SS-8	23.5'-25.0'	9.5%
RD-7 SS-2	2.5'-4.0'	16.2%
RD-7 SS-5	8.5'-10.0'	9.5%

Sample Location	Depth	Moisture Content
RW-1 SS-1	0.5'-2.0'	14.4%
RW-1 SS-5	8.5'-10.0'	14.9%
RW-1 SS-7	18.5'-20.0'	17.9%
RW-2 SS-3	4.5'-6.0'	11.5%
RW-2 SS-5	8.5'-10.0'	7.0%
RW-3 SS-1	0.5'-2.0'	16.1%
RW-3 SS-4	6.5'-8.0'	18.9%
RW-4 SS-2	2.5'-4.0'	9.3%
RW-4 SS-6	13.5'-15.0'	10.0%
RW-4 SS-7	18.5'-20.0'	9.9%
RW-5 SS-1	0.5'-2.0'	15.7%
RW-5 SS-5	8.5'-10.0'	5.8%
RW-5 SS-7	18.5'-20.0'	9.2%
RW-6 SS-1	0.5'-2.0'	15.2%
RW-6 SS-3	4.5'-6.0'	9.5%
RW-7 SS-1	6.5'-8.0'	17.1%
RW-7 SS-3	10.5'-12.0'	8.7%
RW-7 SS-7	24.5'-26.0'	15.5%
RW-8 SS-1	0.5'-2.0'	19.2%
RW-8 SS-6	13.5'-15.0'	16.8%
RW-8 SS-8	23.5'-25.0'	12.6%
RW-9 SS-1	10.5'-12.0'	5.4%
RW-9 SS-2	12.5'-14.0'	12.1%
RW-9 SS-4	16.5'-18.0'	10.8%
RW-9 SS-6	23.5'-25.0'	19.0%
RW-10 SS-1	0.5'-2.0'	15.2%
RW-10 SS-5	8.5'-10.0'	10.5%
RW-10 SS-6	13.5'-15.0'	8.4%

FROEHLING & ROBERTSON, INC.
MOISTURE CONTENT (ASTM D2216)

Client:	**SCDOT**	**Date:**	**2-Jul-12**
Project:	**Shady Grove Road**	**Location:**	**S-80 Bridge Repl. over I-26**
Project No:	**65N-0302**	**Page:**	**2 of 2**

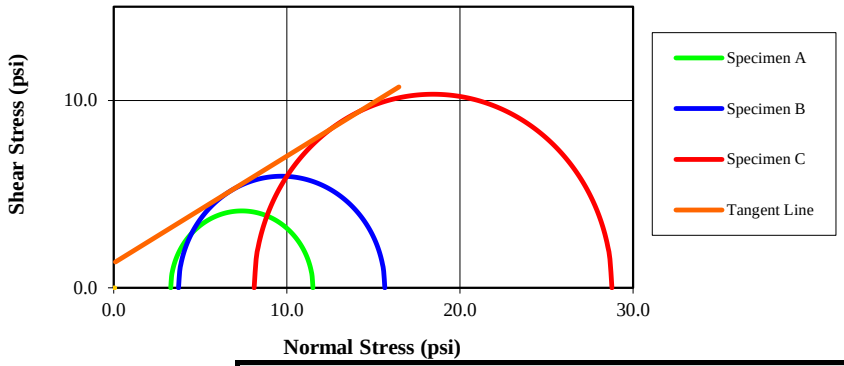
Sample Location	Depth	Moisture Content
RW-12 SS-1	0.5'-2.0'	19.2%
RW-12 SS-5	8.5'-10.0'	13.0%
RW-12 SS-7	18.5'-20.0'	13.5%
RW-14 SS-4	6.5'-8.0'	7.0%
RW-14 SS-7	18.5'-20.0'	15.9%
RW-15 SS-1	0.5'-2.0'	13.8%
RW-15 SS-4	6.5'-8.0'	5.8%
RW-15 SS-8	23.5'-25.0'	15.9%
RD-1 Bulk	0'-5.0'	18.5%
RW-7 Bulk	0'-5.0'	14.7%

Sample Location	Depth	Moisture Content
RW-16 SS-1	11.5'-13.0'	11.9%
RW-17 SS-1	0.5'-2.0'	18.7%
RW-17 SS-4	6.5'-8.0'	8.1%
RW-17 SS-7	18.5'-20.0'	13.8%
RW-18 SS-2	2.5'-4.0'	16.5%
RW-18 SS-5	13.5'-15.0'	12.3%
RW-20 SS-2	8.5'-10.0'	10.7%
RW-20 SS-7	24.5'-26.0'	6.0%
RW-20 Bulk	0'-5.0'	9.7%

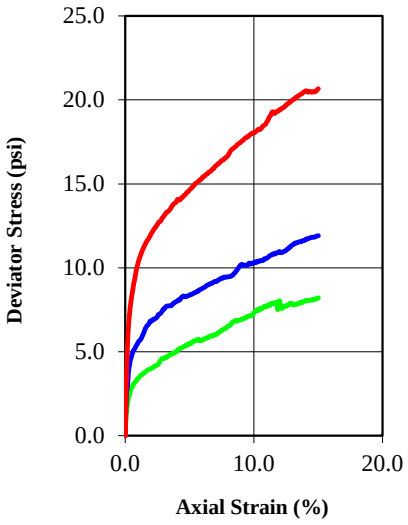
FROEHLING & ROBERTSON

Consolidated Undrained Triaxial Test (ASTM D4767)

Effective Stress at Maximum Deviator Stress Criterion



Deviator Stress Vs. Axial Strain



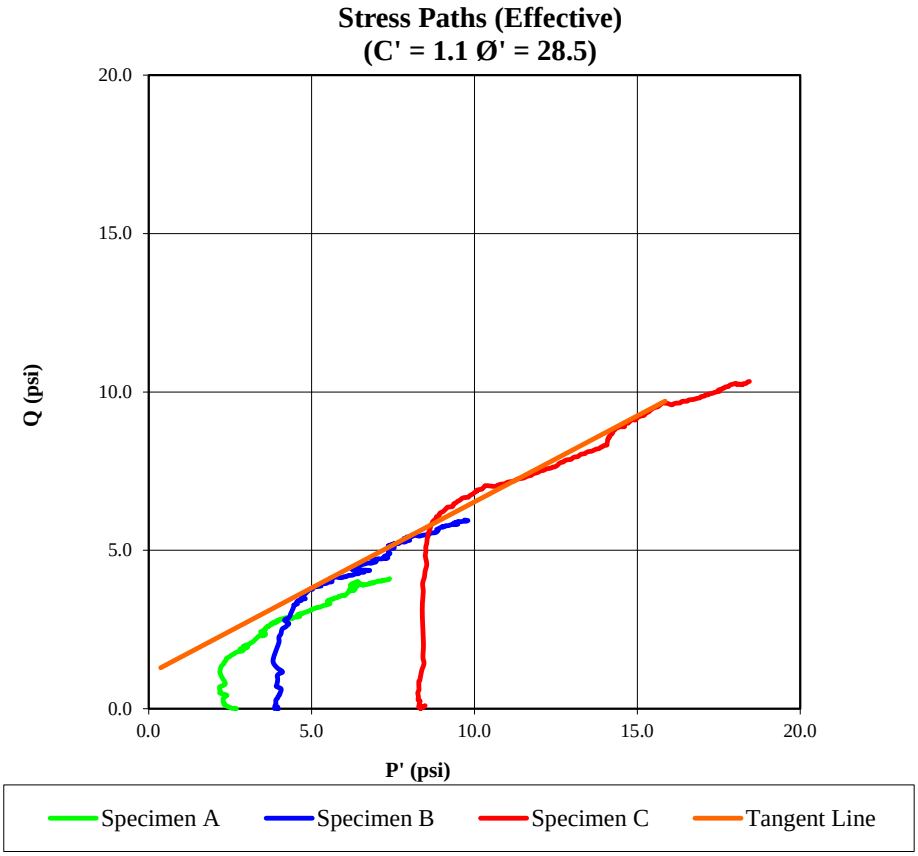
Initial	Specimen A	B	C	
Water Content (%)	21.9	21.9	21.9	
Dry Density (pcf)	98.7	99.3	100.3	
Saturation (%)	85.84	87.17	89.47	
Void Ratio	0.673	0.663	0.646	
Diameter (in)	2.864	2.859	2.861	
Height (in)	5.752	5.764	5.741	
Specific Gravity *(Assumed)*	2.65	2.65	2.65	
Liquid Limit	56	56	56	
Plastic Limit	24	24	25	
After Consolidation	**A**	**B**	**C**	
B-Value	97	98	98	
Water Content (%)	21.3	21.3	21.0	
Dry Density (pcf)	98.90	108.45	102.54	
Saturation (%)	100	100	100	
Void Ratio	0.673	0.525	0.613	
Effective Stress (psi)	2.7	4.0	8.3	
Back Press. (psi)	60.4	60.1	75.8	
Rate of Strain	0.00029	0.00029	0.00029	

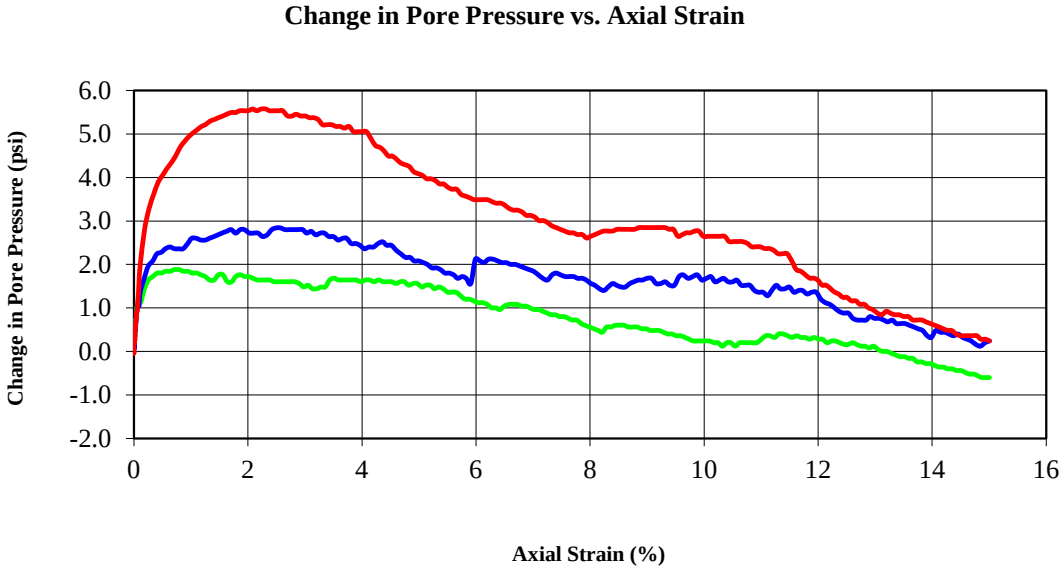
Maximium Deviator Stress Criterion		After Shear	A	B	C	
C (psi)	1.5	σ'1 at Failure (psi)	11.50	15.65	28.77	
C' (psi)	1.3	σ'3 at Failure (psi)	3.29	3.74	8.11	
Ø (deg)	28.6					
Ø' (deg)	29.7					

Project:	Shady Grove Rd. I-80 Bridge Replacement	N/A	N/A	N/A	N/A
Location:	Columbia, South Carolina				
Project Number:	65N-0302				
Boring Number:	0				
Sample Number:	RD-1				
Depth:	N.A.				
Sample Type:	Remolded	Failure Photographs			
Description:	Light Brown, Fat Clay with Sand				
Test Type	Consolidated Undrained				
USCS:	CH				

FROEHLING & ROBERTSON

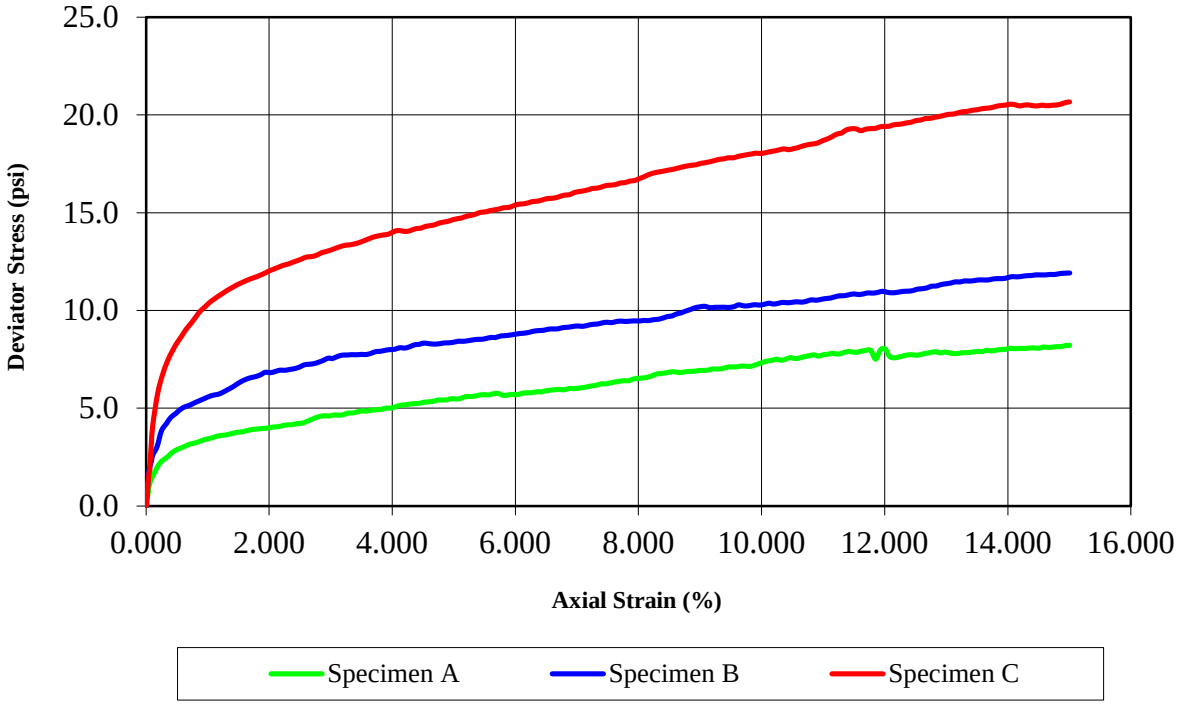
Consolidated Undrained Triaxial Test (ASTM D4767)



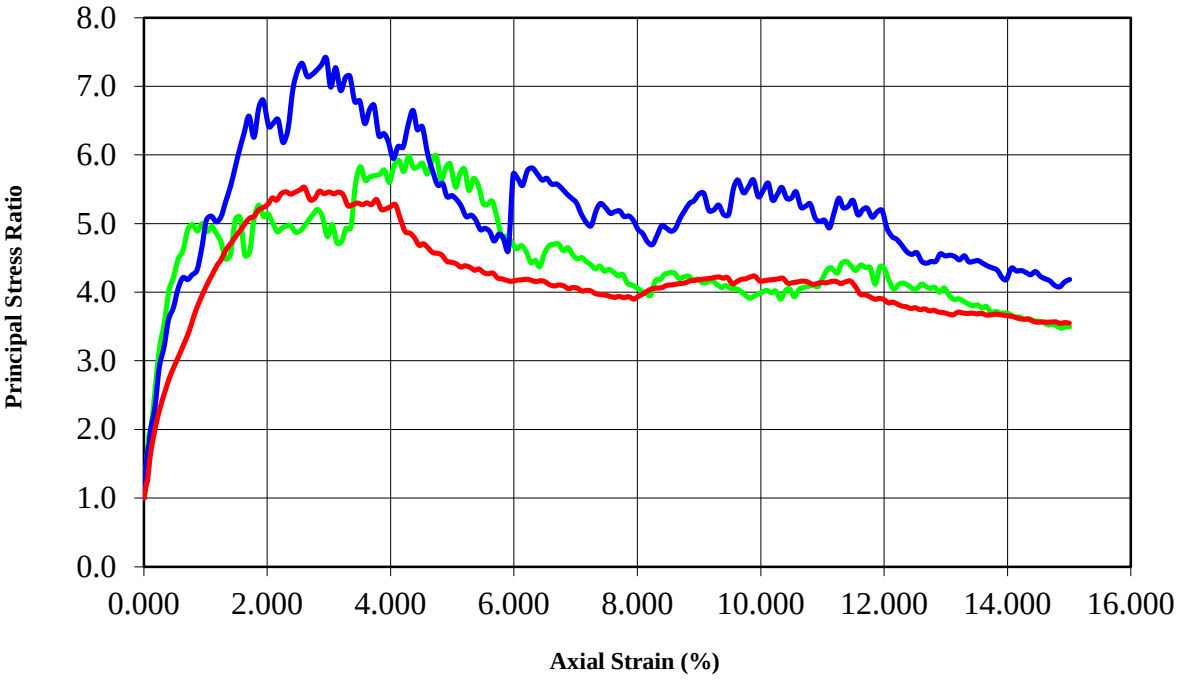


65N-0302 (RD-1).HSD

Deviator Stress vs. Axial Strain

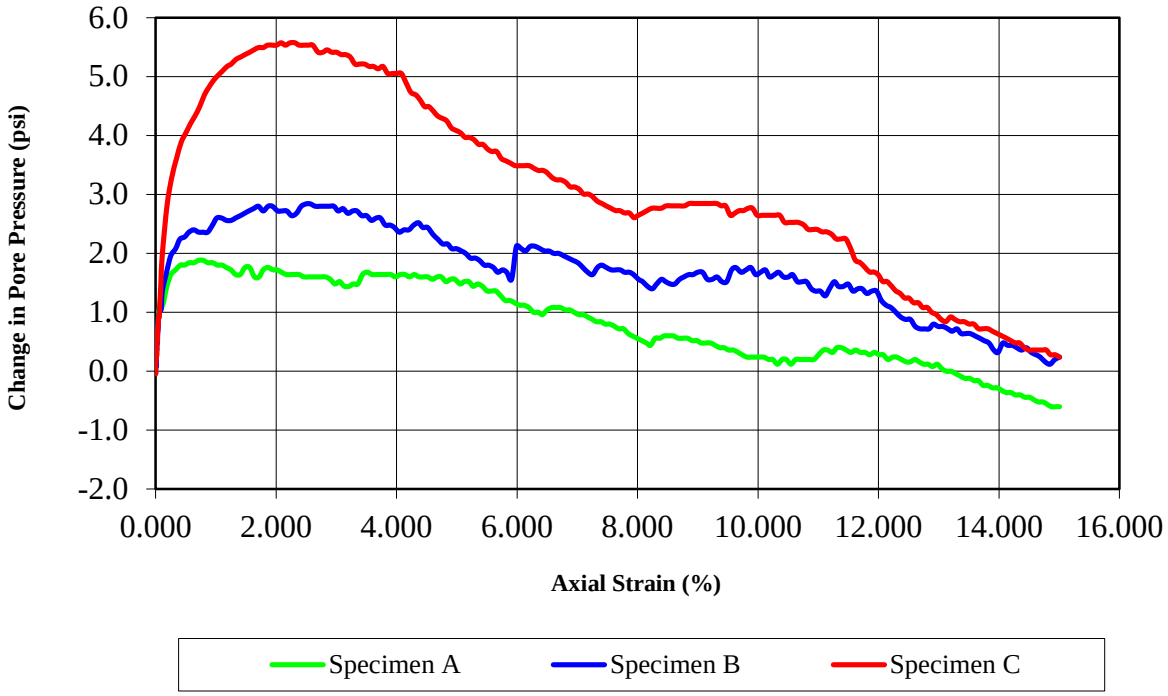


Principal Stress Ratio vs. Axial Strain



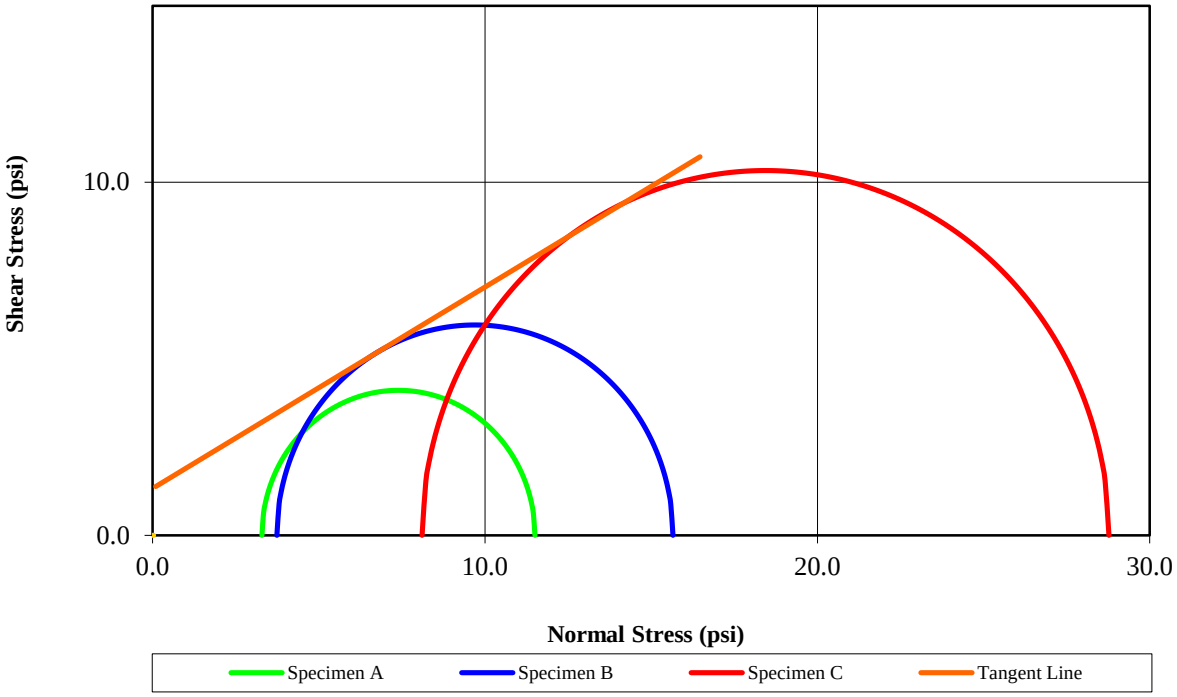
65N-0302 (RD-1).HSD

Change in Pore Pressure vs. Axial Strain

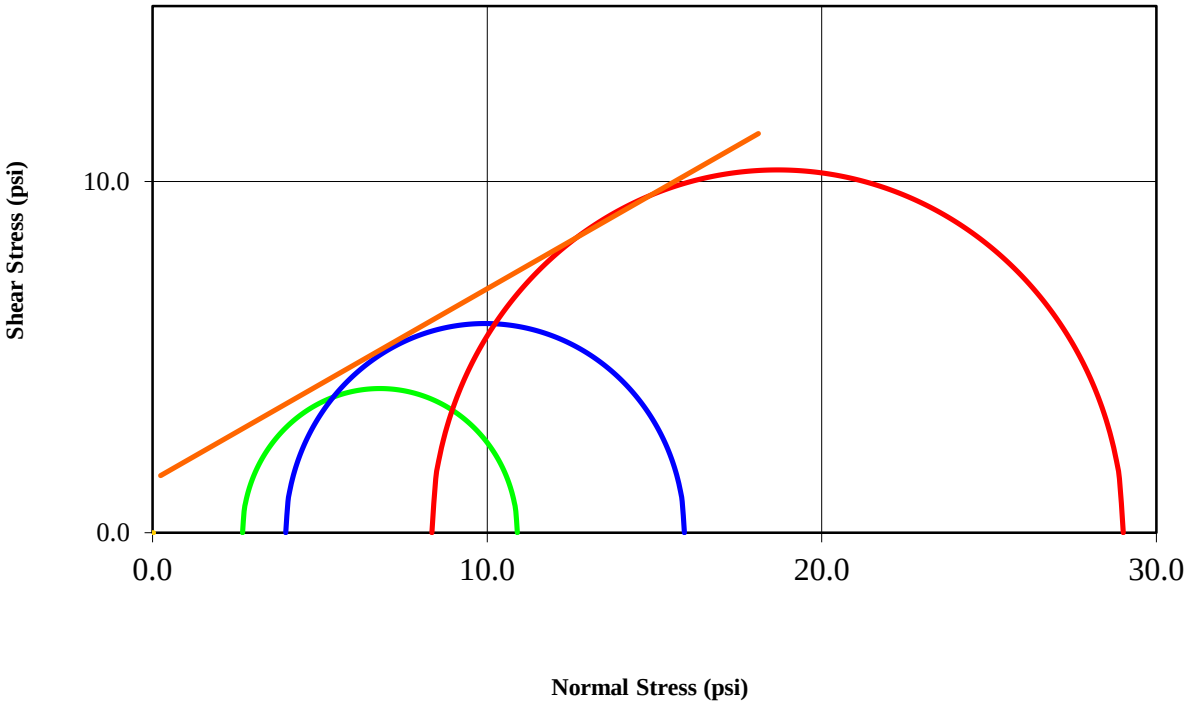


Mohr Stress Circles at Maximum Deviator Stress Criterion

Effective Stress
(C' = 1.3 Ø' = 29.7)



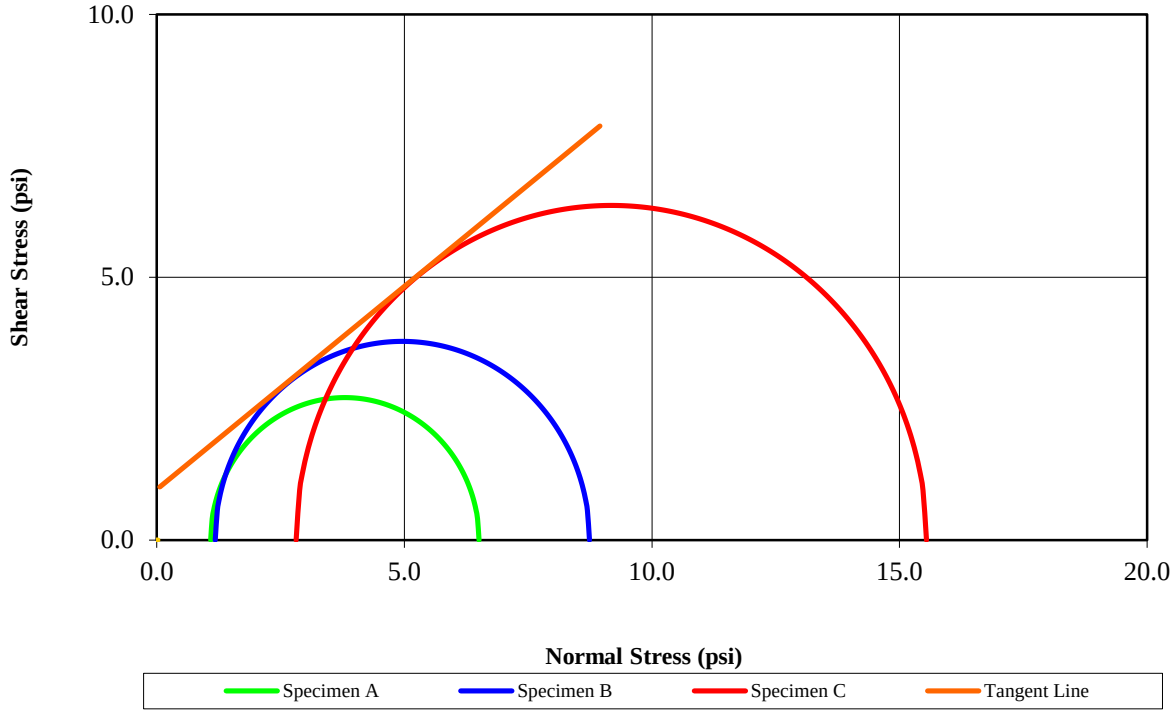
Total Stress
(C = 1.5 Ø = 28.6)



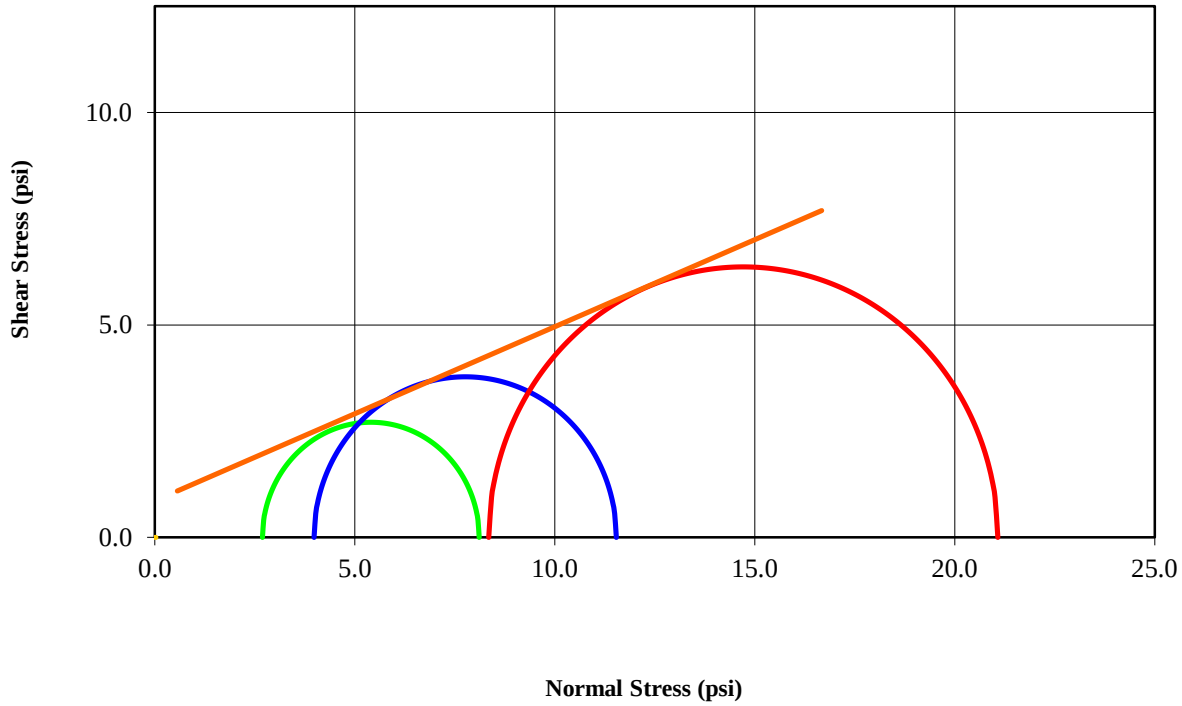
65N-0302 (RD-1).HSD

Mohr Stress Circles at Maximum Principal Stress Ratio Criterion

Effective Stress
(C' = 1.0 Ø' = 37.7)



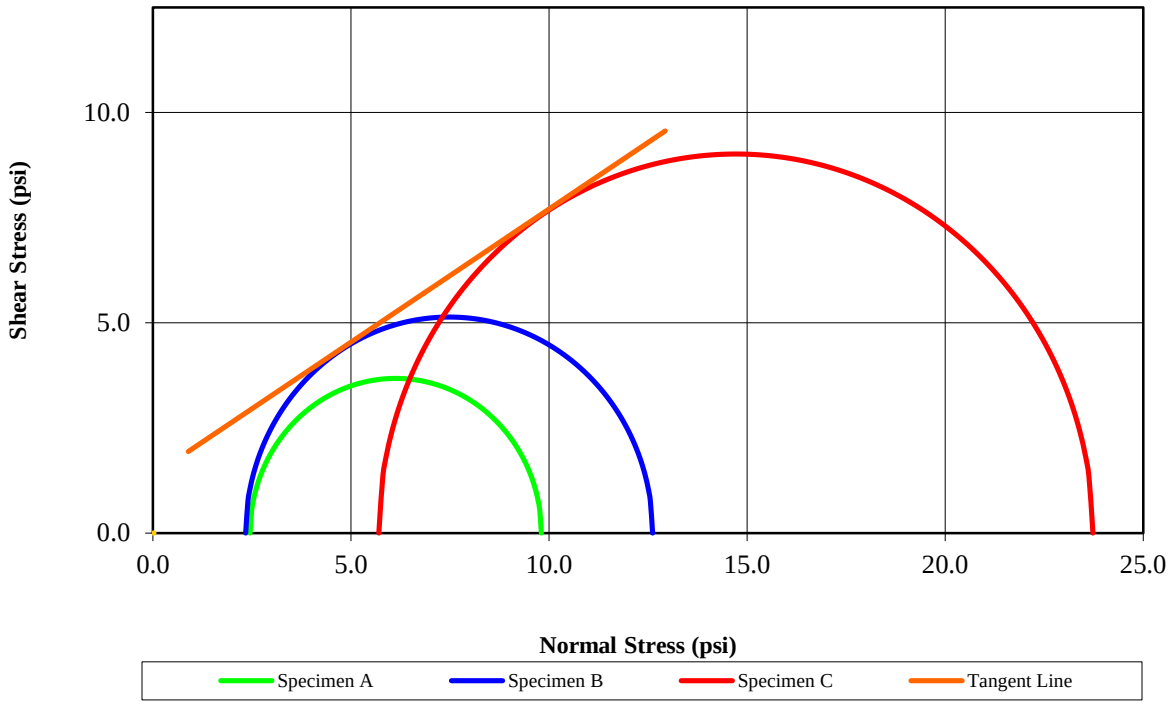
Total Stress
(C = 0.9 Ø = 22.3)



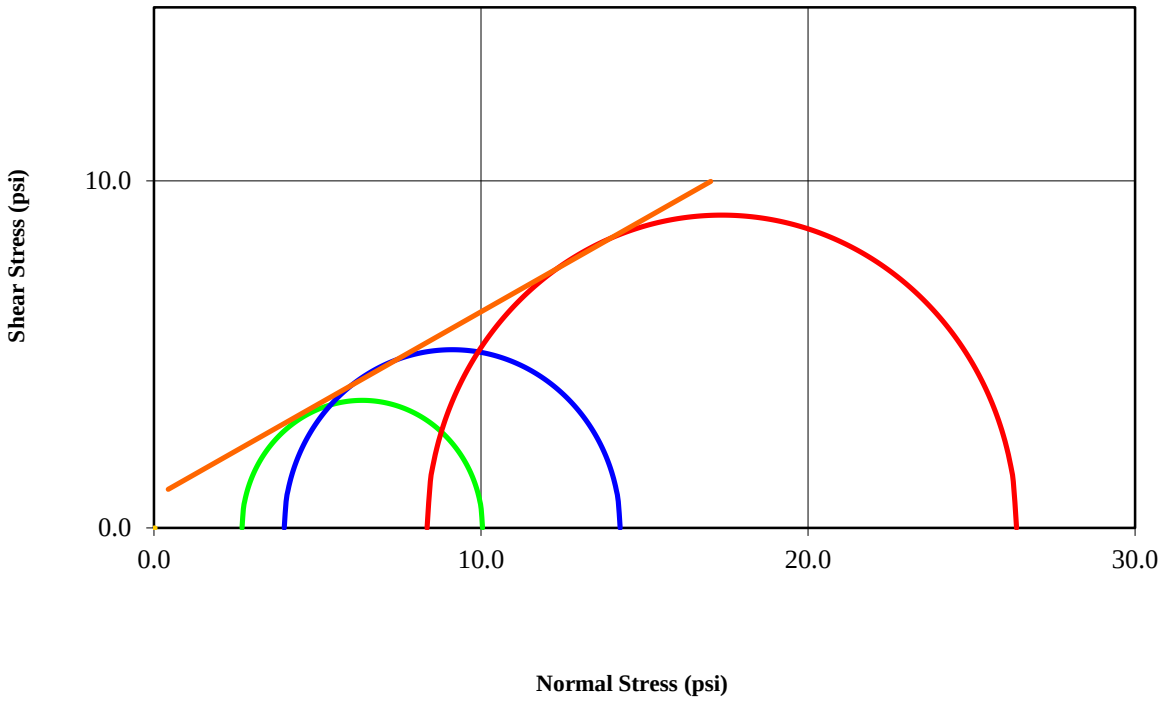
65N-0302 (RD-1).HSD

Mohr Stress Circles at 10% Axial Strain Criterion

Effective Stress
(C' = 1.4 Ø' = 32.3)

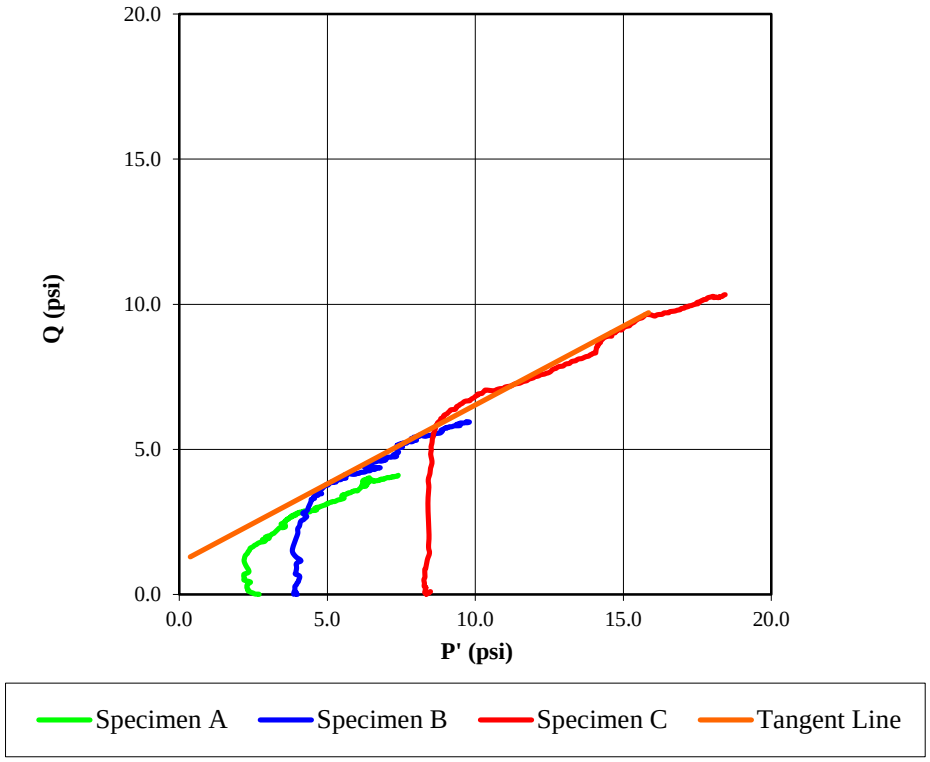


Total Stress
(C = 0.9 Ø = 28.1)

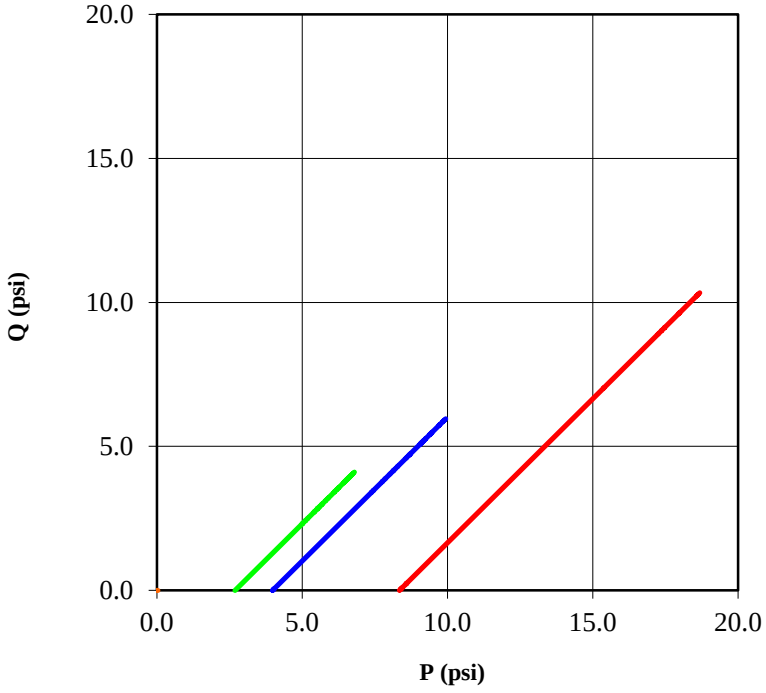


65N-0302 (RD-1).HSD

Stress Paths (Effective)
(C' = 1.1 Ø' = 28.5)



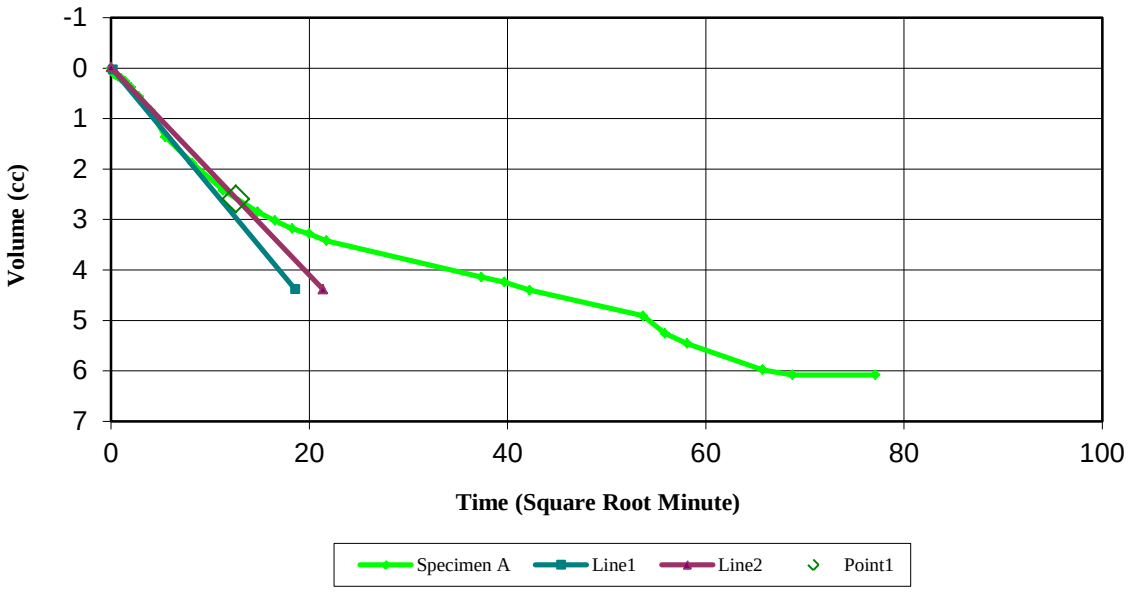
Stress Paths (Total)



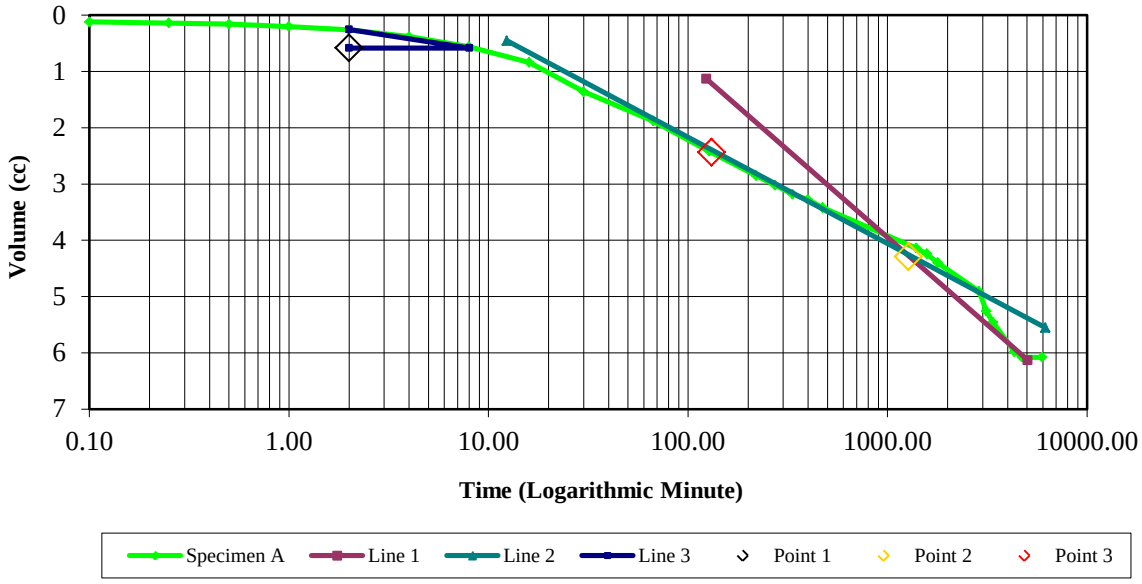
65N-0302 (RD-1).HSD

Specimen A Consolidation Graphs

Consolidation Graph (Square Root Time)

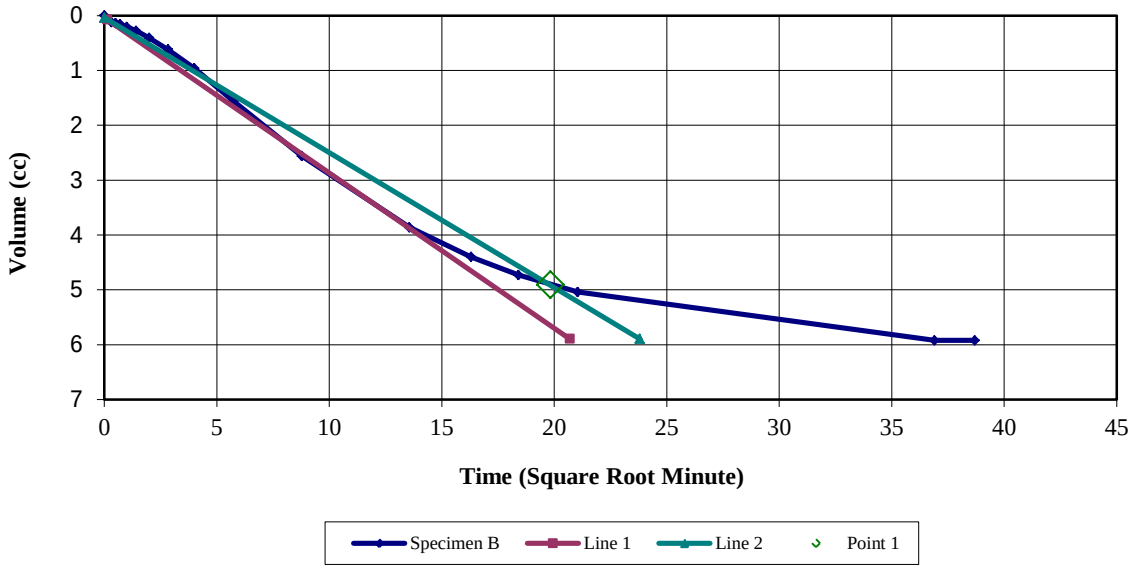


Consolidation Graph (Logarithmic Time)

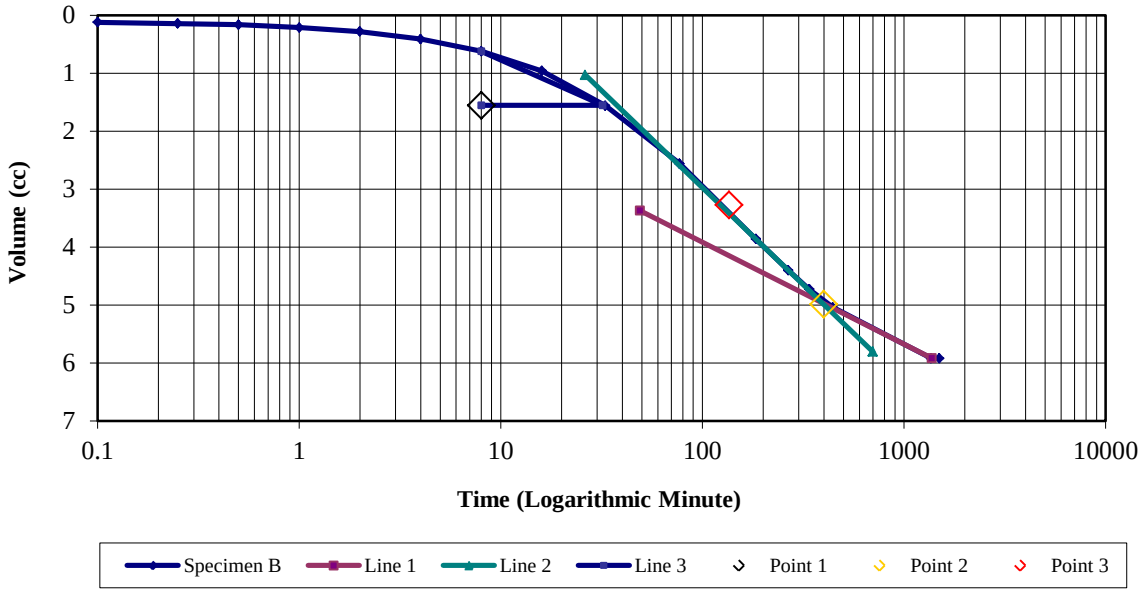


Specimen B Consolidation Graphs

Consolidation Graph (Square Root Time)

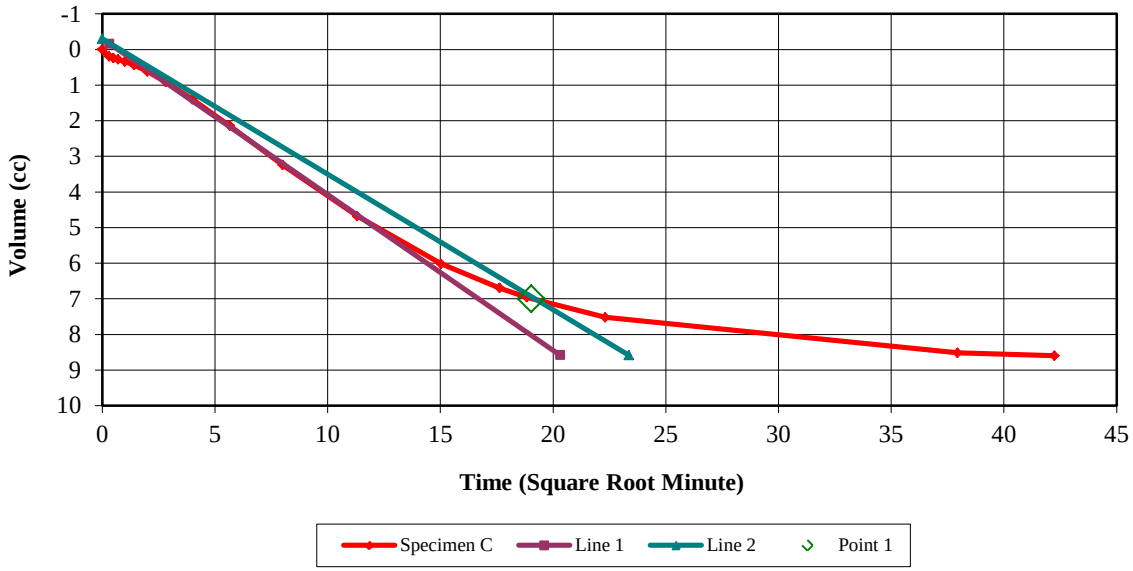


Consolidation Graph (Logarithmic Time)

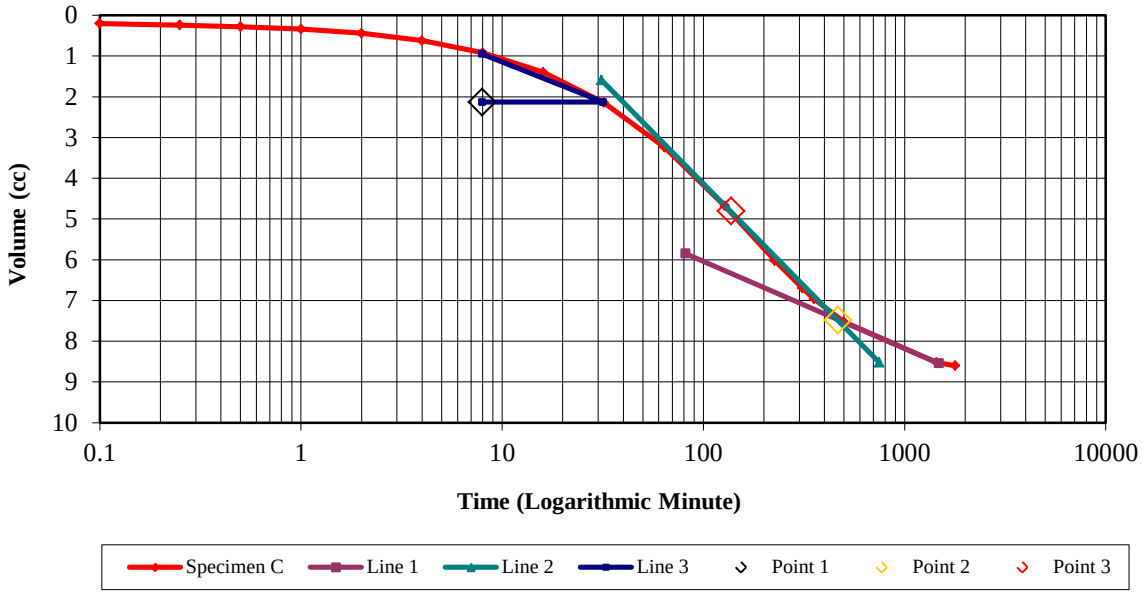


Specimen C Consolidation Graphs

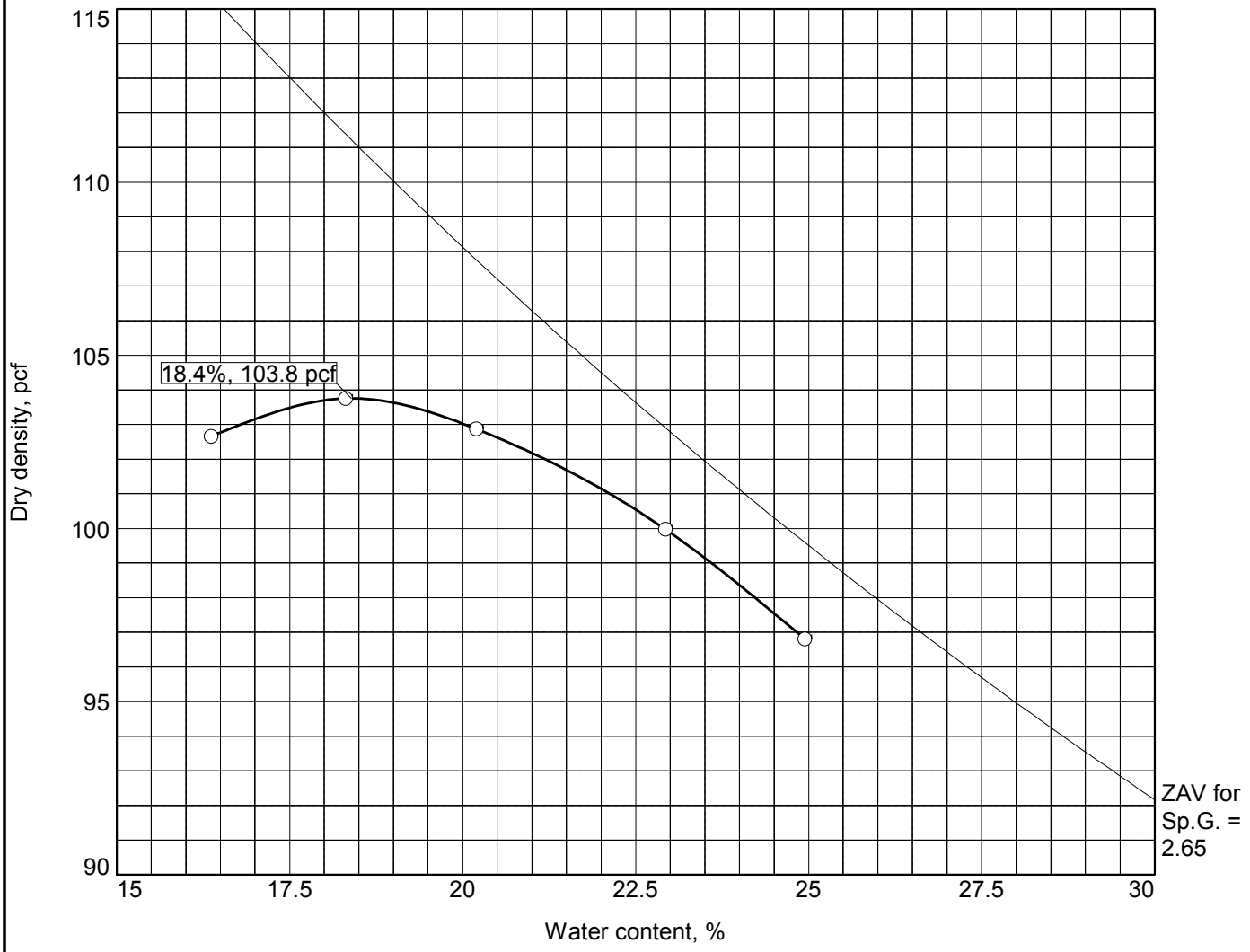
Consolidation Graph (Square Root Time)



Consolidation Graph (Logarithmic Time)



COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
N.A.	CH		18.5	2.65	56	32	2.6	75.0

TEST RESULTS

Maximum dry density = 103.8 pcf

Optimum moisture = 18.4 %

MATERIAL DESCRIPTION

Light Brown, Fat Clay with Sand.

Project No. 65N-0302 **Client:** SCDOT

Project: Shady Grove Rd. S-80 Bridge Replacement

○ **Loc.:** Borrow Material **Depth:** N.A. **Sample No.:** RD-1

Remarks:

Sample Received on 06/07/2012

FROEHLING & ROBERTSON, INC.

Figure 01

Tested By: E.Hofmann **Checked By:** D.Jenks

Soil Consultants, Inc.

Consolidated Undrained Triaxial Test (ASTM D4767)

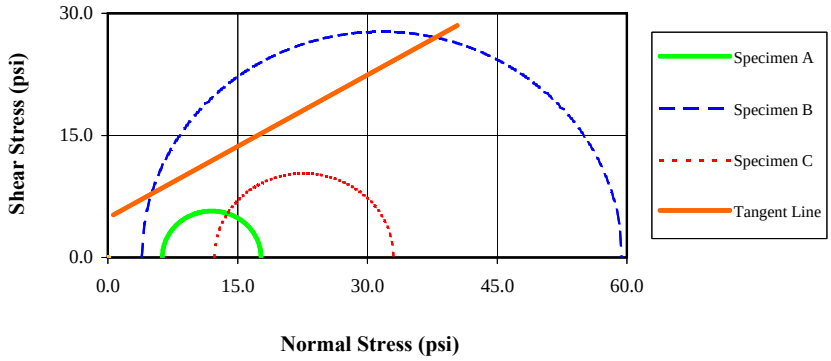
Date:

Checked By:

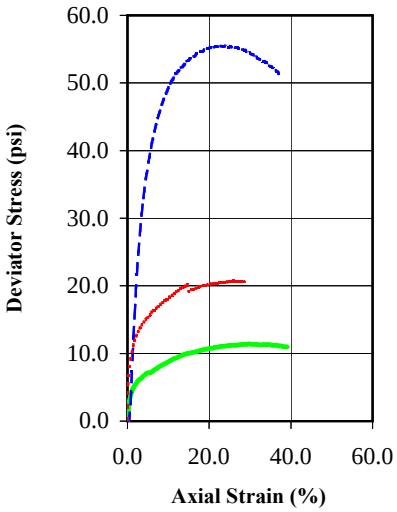
Date ..

Tested By:

Effective Stress at Maximum Deviator Stress Criterion



Deviator Stress Vs. Axial Strain



Initial	Specimen A	B	C	D
Water Content (%)	11.7	12.2	13.2	
Dry Density (pcf)	110.7	109.0	107.6	
Saturation (%)	62.48	62.59	65.14	
Void Ratio	0.492	0.515	0.535	
Diameter (in)	1.406	1.406	1.406	
Height (in)	3.469	3.469	3.469	
Specific Gravity	2.65	2.65	2.65	
Liquid Limit	0	0	0	
Plastic Limit	0	0	0	
After Consolidation	**A**	**B**	**C**	**D**
B-Value	98.00	98.00	98.00	
Water Content (%)	11.5	11.7	12.3	
Dry Density (pcf)	106.09	106.17	106.50	
Saturation (%)	100.00	100.00	100.00	
Void Ratio	0.559	0.558	0.553	
Effective Stress (psi)	1.0	3.4	7.4	
Back Press. (psi)	31.0	30.6	30.6	
Rate of Strain	0.00387	0.00359	0.00198	

Maximium Deviator Stress Criterion	
C (psi)	6.3
C' (psi)	4.9
Ø (deg)	31.8
Ø' (deg)	30.3

After Shear	A	B	C	D
σ'1 at Failure (psi)	17.70	59.41	33.00	
σ'3 at Failure (psi)	6.30	3.89	12.30	

Project:	SC-80 Shady Grove Road
Location:	RW-7
Project Number:	120028
Boring Number:	RW-7
Sample Number:	RW-7
Depth:	NA
Sample Type:	Remolded
Description:	Red clay with sand
Test Type	Consolidated Undrained
Remarks	

Failure Photographs

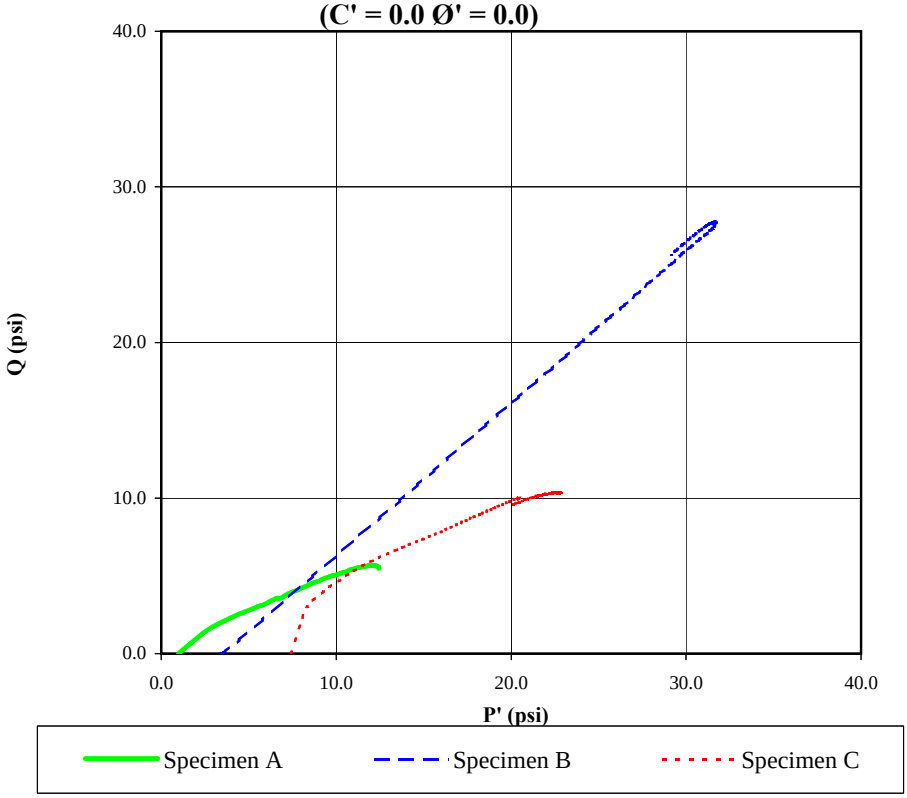
Soil Consultants, Inc.

Consolidated Undrained Triaxial Test (ASTM D4767)

Date:

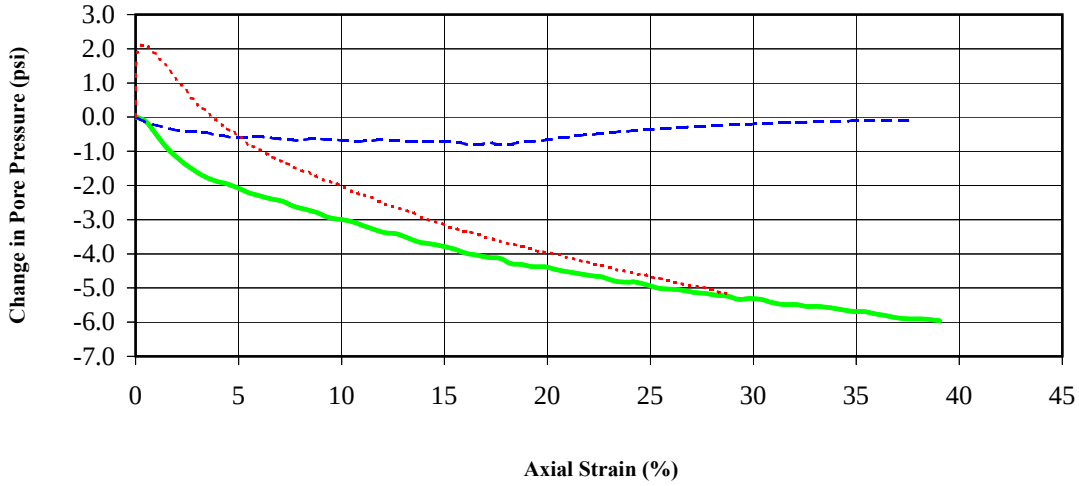
Checked By:

Stress Paths (Effective)
(C' = 0.0 Ø' = 0.0)



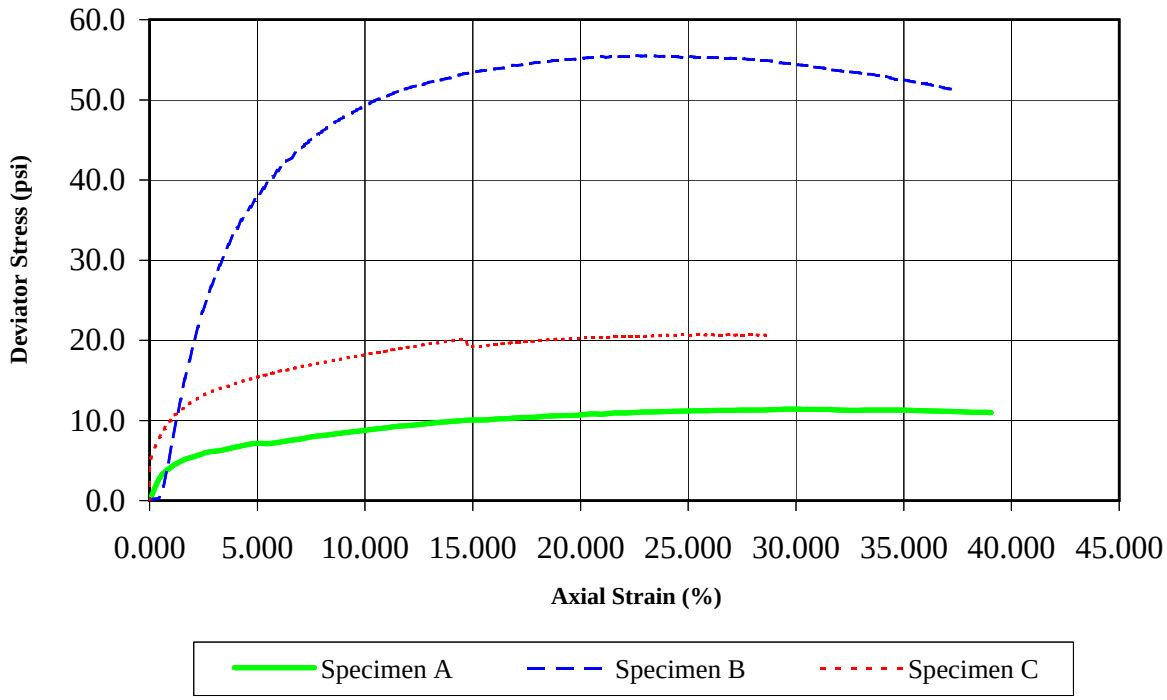
Change in Pore Pressure vs. Axial Strain

Date:

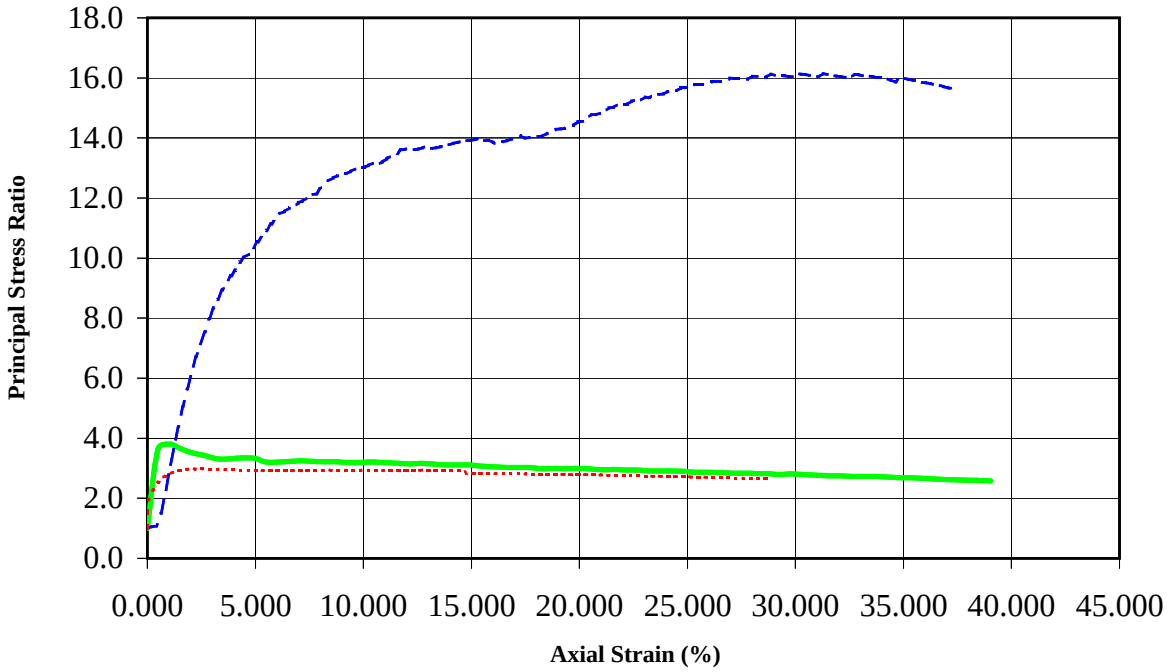


Tested By:

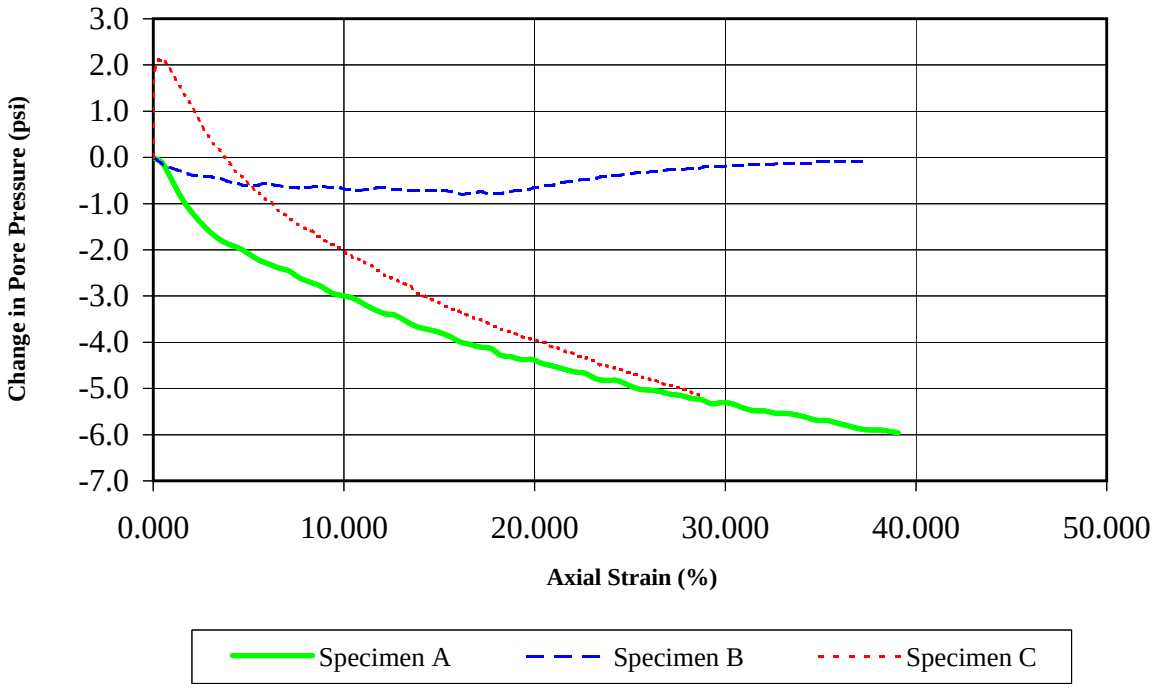
Deviator Stress vs. Axial Strain



Principal Stress Ratio vs. Axial Strain



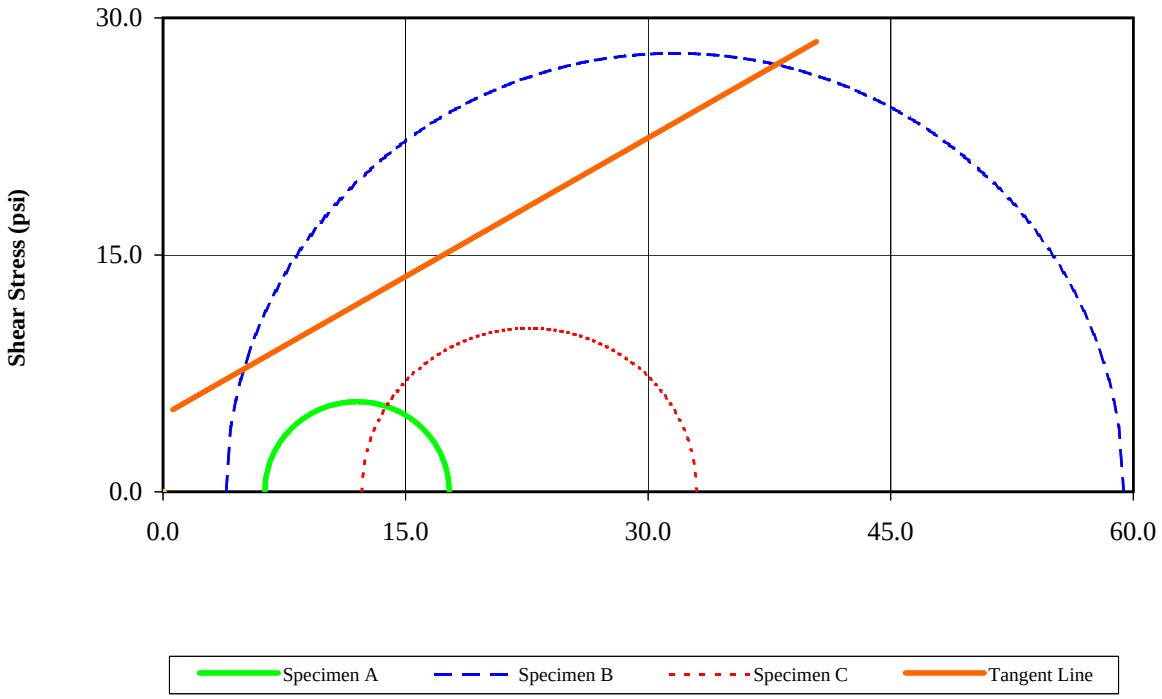
Change in Pore Pressure vs. Axial Strain



Mohr Stress Circles at Maximum Deviator Stress Criterion

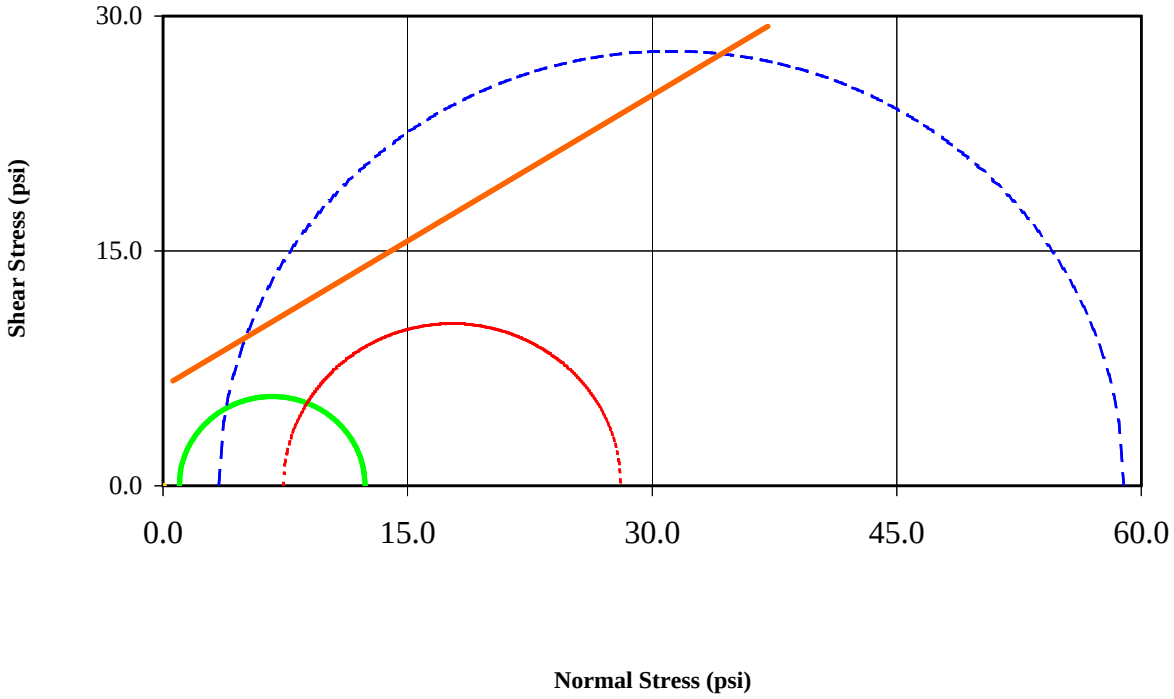
Effective Stress

(C' = 4.9 Ø' = 30.3)



Total Stress

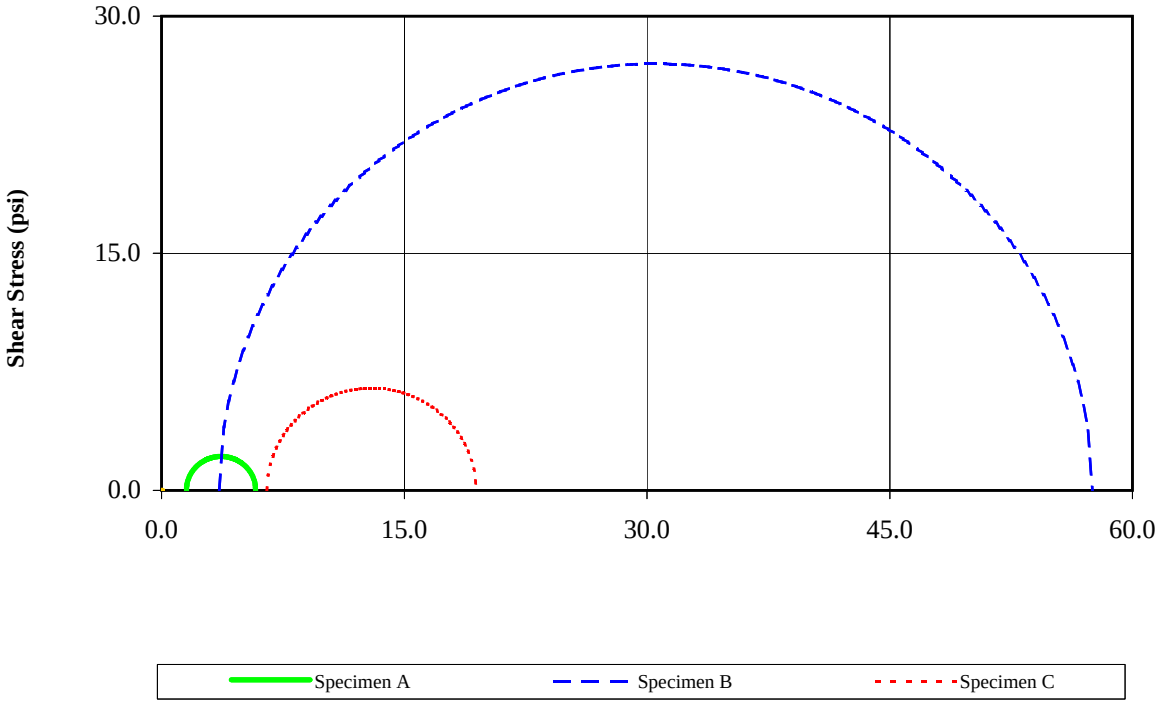
(C = 6.3 Ø = 31.8)



Mohr Stress Circles at Maximum Principal Stress Ratio Criterion

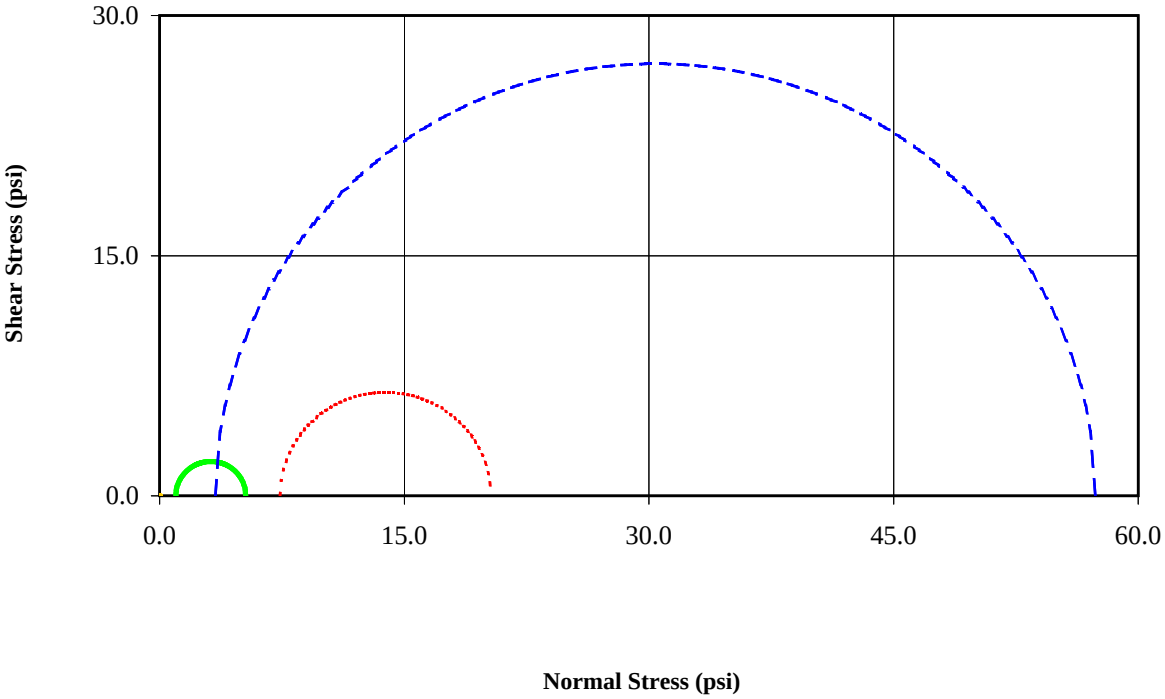
Effective Stress

(C' = 0.0 Ø' = 0.0)



Total Stress

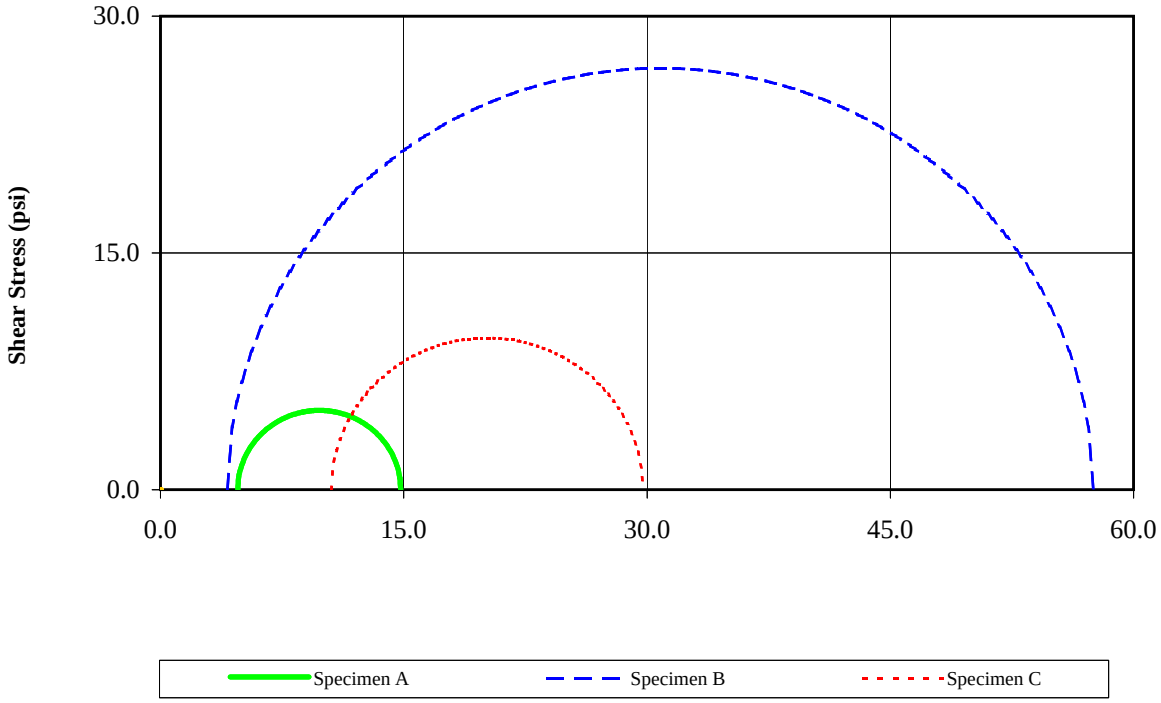
(C = 0.0 Ø = 0.0)



Mohr Stress Circles at 15% Axial Strain Criterion

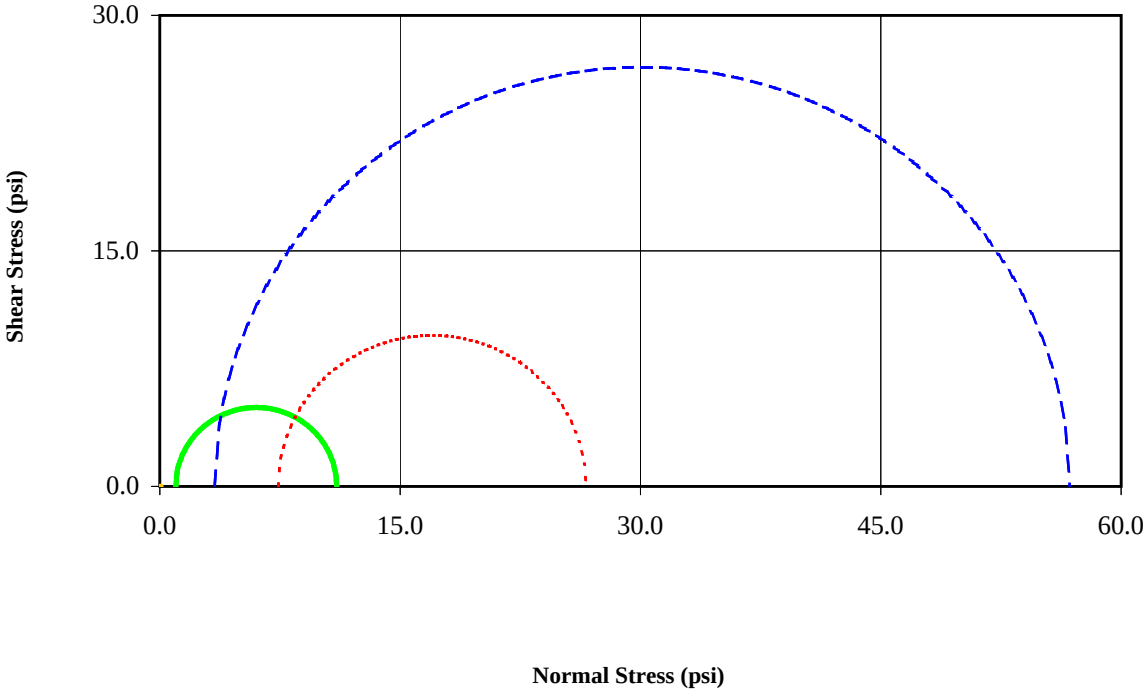
Effective Stress

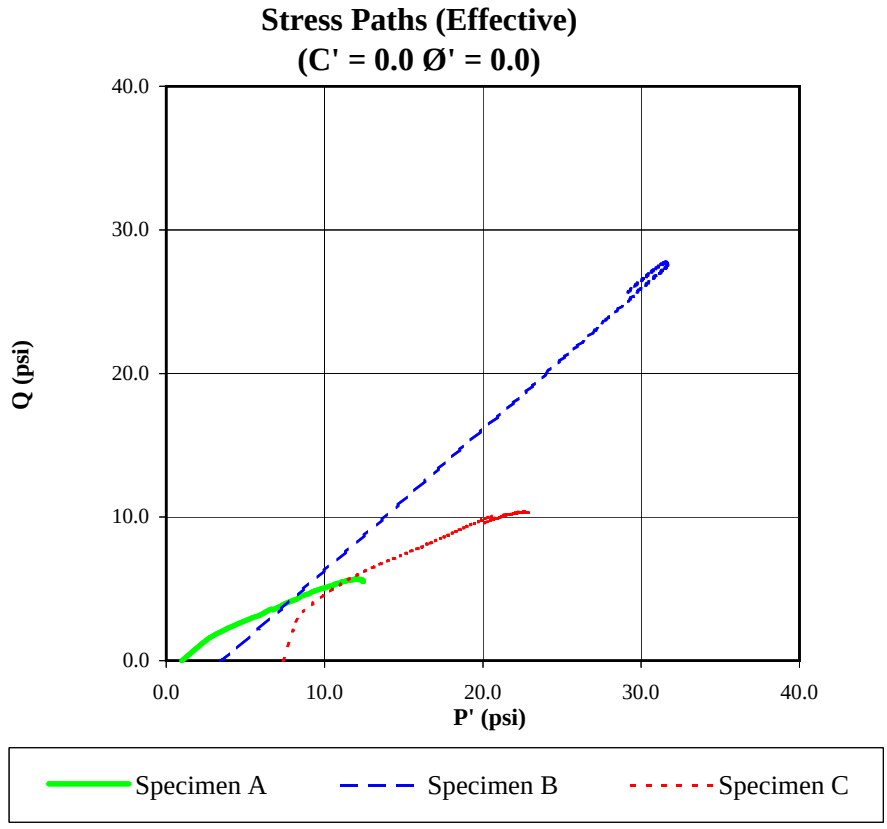
(C' = 0.0 Ø' = 0.0)

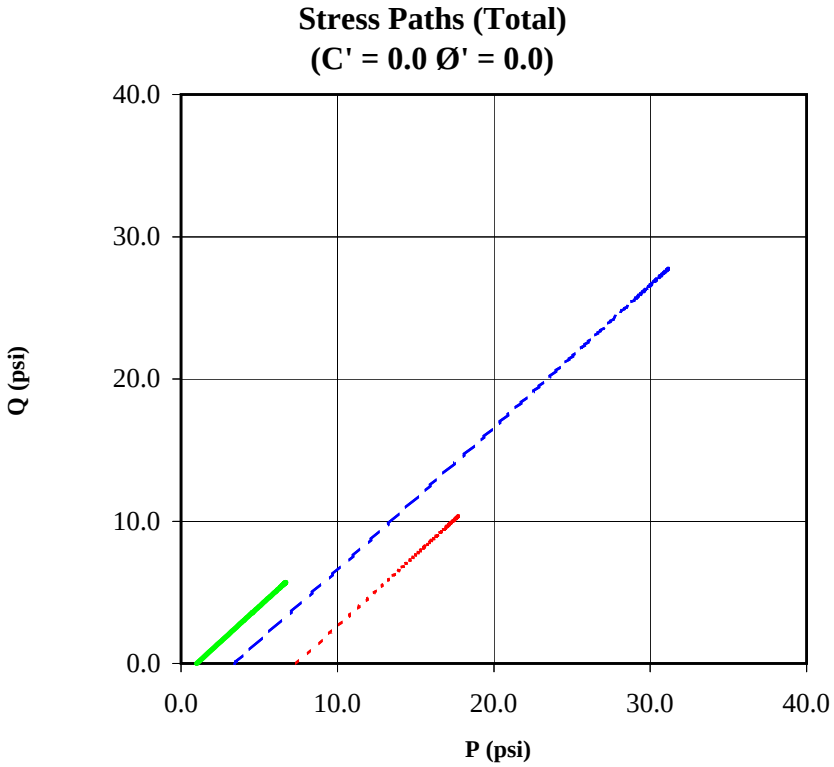


Total Stress

(C = 0.0 Ø = 0.0)




Stress Paths (Effective)
(C' = 0.0 Ø' = 0.0)
40.0
30.0
20.0
10.0
0.0
Q (psi)
0.0
10.0
20.0
30.0
40.0
P' (psi)
Specimen A
Specimen B
Specimen C


Stress Paths (Total)
(C' = 0.0 Ø' = 0.0)
40.0
30.0
20.0
10.0
0.0
Q (psi)
0.0
10.0
20.0
30.0
40.0
P (psi)

SOIL CONSULTANTS, INC.

ENGINEERS AND GEOLOGISTS

SINCE 1951

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www.soilconsultantsinc.com

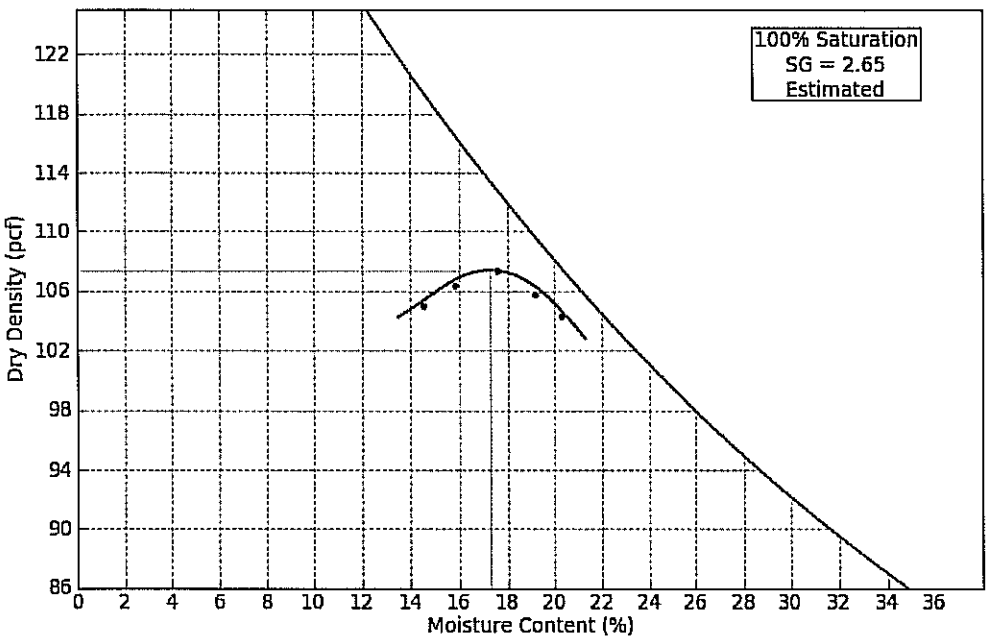
Acct. No:	**FR012**	**Project No: 120028**	**Date Sampled: 06/05/2012**
Report Date:	**07/02/2012**		**Sampled By: Client**
Project:	**SC-80 (Shady Grove Road Project) - Richland County, SC**		**By Order Of: Client**
Location:	**RW-7**		**Order Number:**
Client:	**FROEHLING & ROBERTSON, INC.**		
REPORT:	**Proctor**		**LAB NO: 24333-1**
			Test Method: See Below

TEST RESULTS

Report No: 24333-1
Page 1 of 1

Visual Classification: Red clay with sand content.
Supplier: On site Material
Material Application:

Rammer Type: Mechanical
Prep. Method: Dry



Test Results:
Maximum Dry Unit Weight: 107.4 pcf
Optimum Water Content: 17.3 %

Properties:
Liquid Limit
Plastic Limit
Plasticity Index

Test Methods: ASTM D-698 Method-A

Orig: FROEHLING & ROBERTSON, INC. (Greenville, SC)
Attn: Mr. Ross R. Deaver P.E.
(1-cc copy)

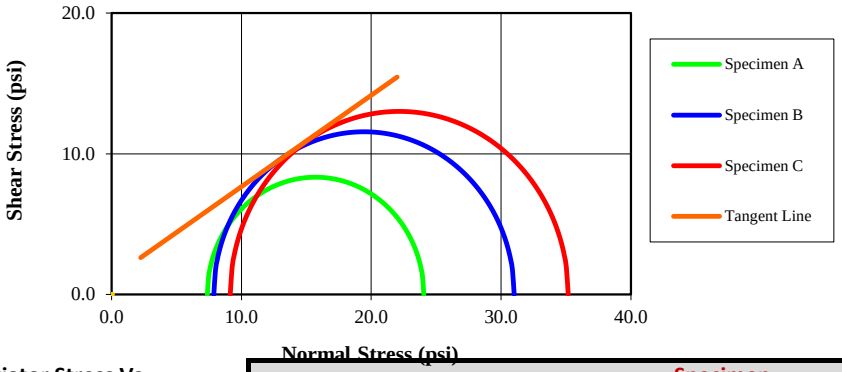
Respectfully Submitted,
SOIL CONSULTANTS, INC.

THIS REPORT APPLIES ONLY TO THE STANDARDS OR PROCEDURES INDICATED AND TO THE SAMPLE(S) TESTED AND/OR OBSERVED AND ARE NOT NECESSARILY INDICATIVE OF THE QUALITIES OF APPARENTLY IDENTICAL OR SIMILAR PRODUCTS OR PROCEDURES, NOR DO THEY REPRESENT AN ONGOING QUALITY ASSURANCE PROGRAM UNLESS SO NOTED. THESE REPORTS ARE FOR THE EXCLUSIVE USE OF THE ADDRESSED CLIENT AND ARE NOT TO BE REPRODUCED WITHOUT WRITTEN PERMISSION.

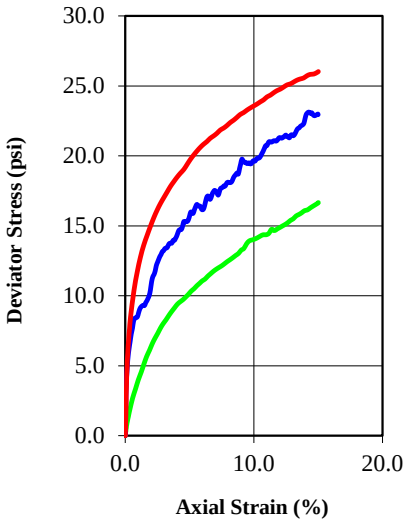
FROEHLING & ROBERTSON

Consolidated Undrained Triaxial Test (ASTM D4767)

Effective Stress at Maximum Deviator Stress Criterion



Deviator Stress Vs. Axial Strain



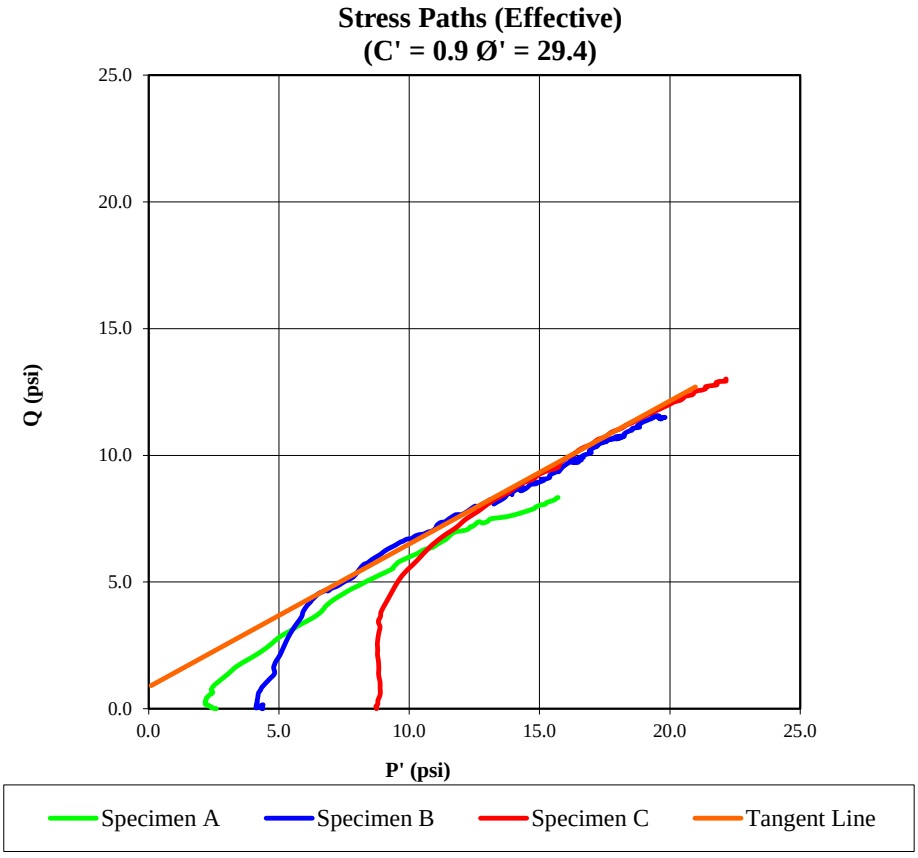
Initial	Specimen A	B	C	
Water Content (%)	13.2	13.2	13.5	
Dry Density (pcf)	115.0	114.4	112.8	
Saturation (%)	79.8	78.3	76.9	
Void Ratio	0.436	0.443	0.464	
Diameter (in)	2.862	2.864	2.863	
Height (in)	5.848	5.861	5.846	
Specific Gravity *(Assumed)*	2.65	2.65	2.65	
Liquid Limit	34	34	34	
Plastic Limit	22	22	22	
After Consolidation	**A**	**B**	**C**	
B-Value	95	96	95	
Water Content (%)	12.9	12.6	13.0	
Dry Density (pcf)	113.3	113.2	114.4	
Saturation (%)	100	100	100	
Void Ratio	0.460	0.462	0.446	
Effective Stress (psi)	2.6	4.4	8.7	
Back Press. (psi)	55.7	72.5	93.3	
Rate of Strain	0.00084	0.00036	0.001	

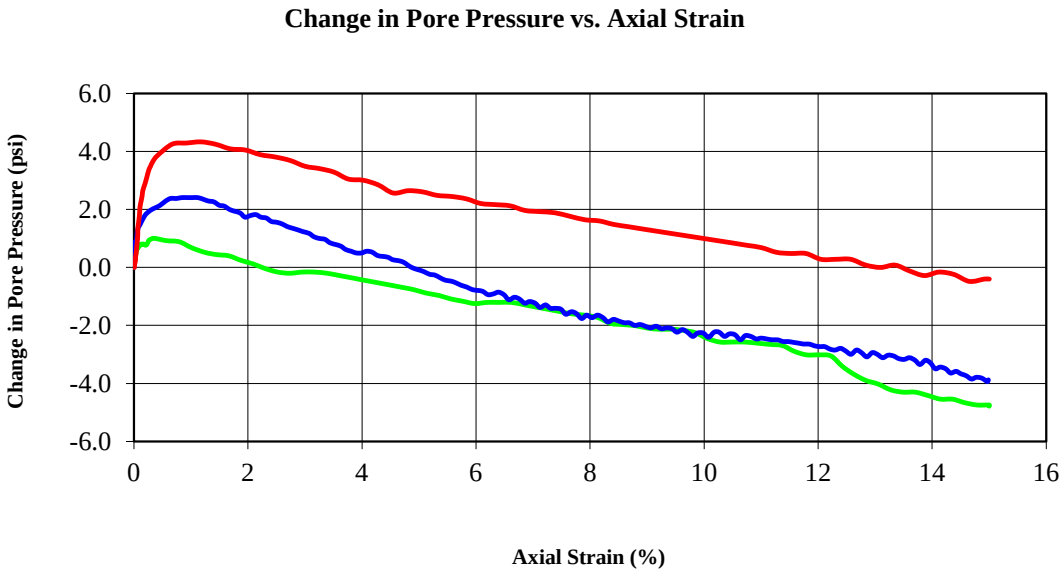
Maximium Deviator Stress Criterion		After Shear	A	B	C	
C (psi)	8.5	σ'1 at Failure (psi)	24.05	31.01	35.17	
C' (psi)	1.2	σ'3 at Failure (psi)	7.38	7.88	9.14	
Ø (deg)	12.4					
Ø' (deg)	33.0					

Project:	Shelby Grove Rd. (I-80) Bridge Replacement	N/A	N/A	N/A	N/A
Location:	Columbia, South Carolina				
Project Number:	65N-0302				
Boring Number:	N.A.				
Sample Number:	RW-20				
Depth:	N.A.				
Sample Type:	Remolded	Failure Photographs			
Description:	Brown, Sandy Lean Clay				
Test Type	Consolidated Undrained				
USCS:	CL				

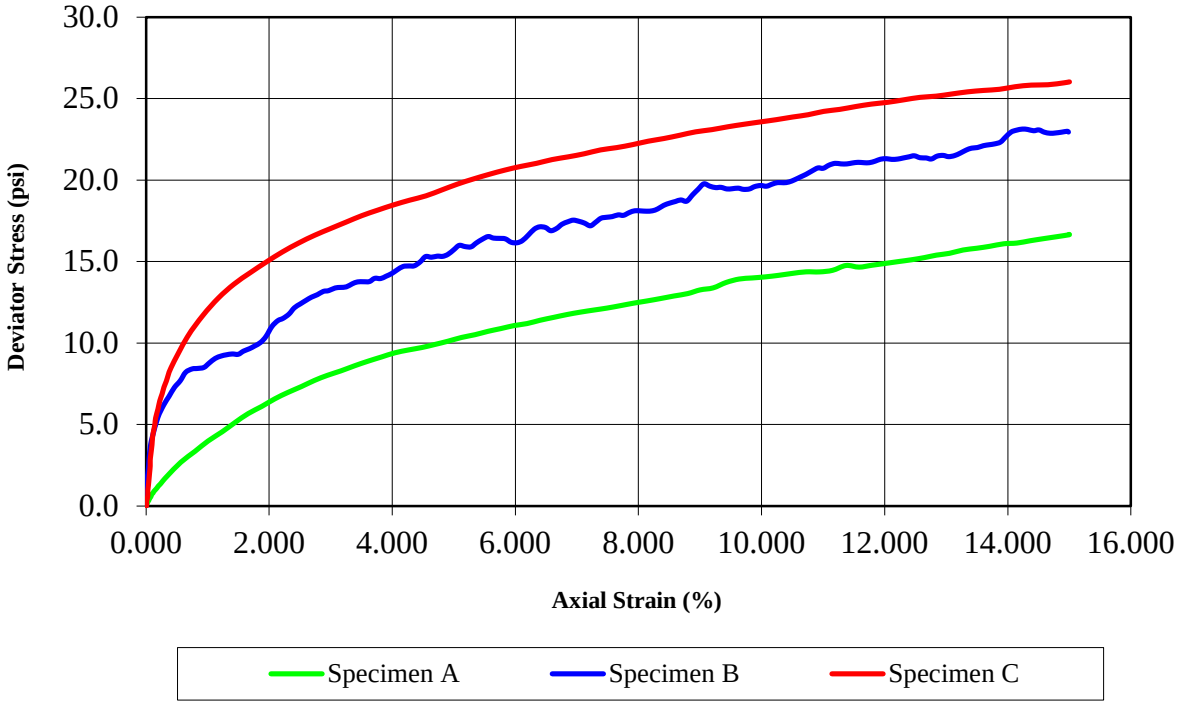
FROEHLING & ROBERTSON

Consolidated Undrained Triaxial Test (ASTM D4767)

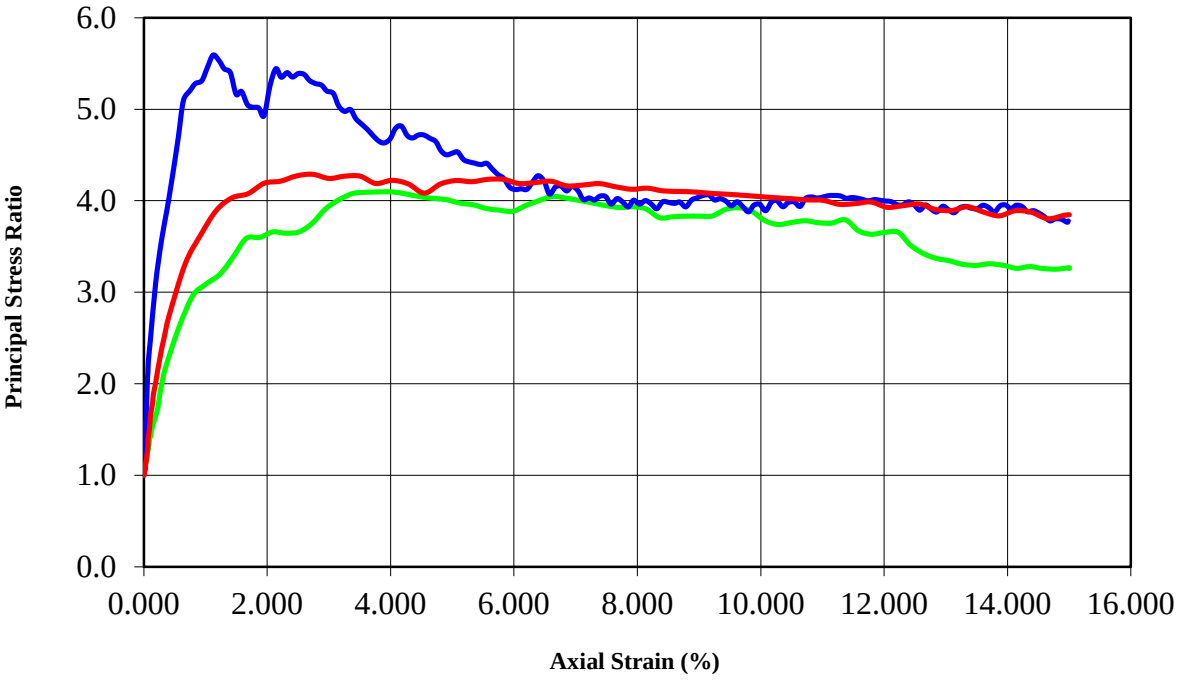




Deviator Stress vs. Axial Strain

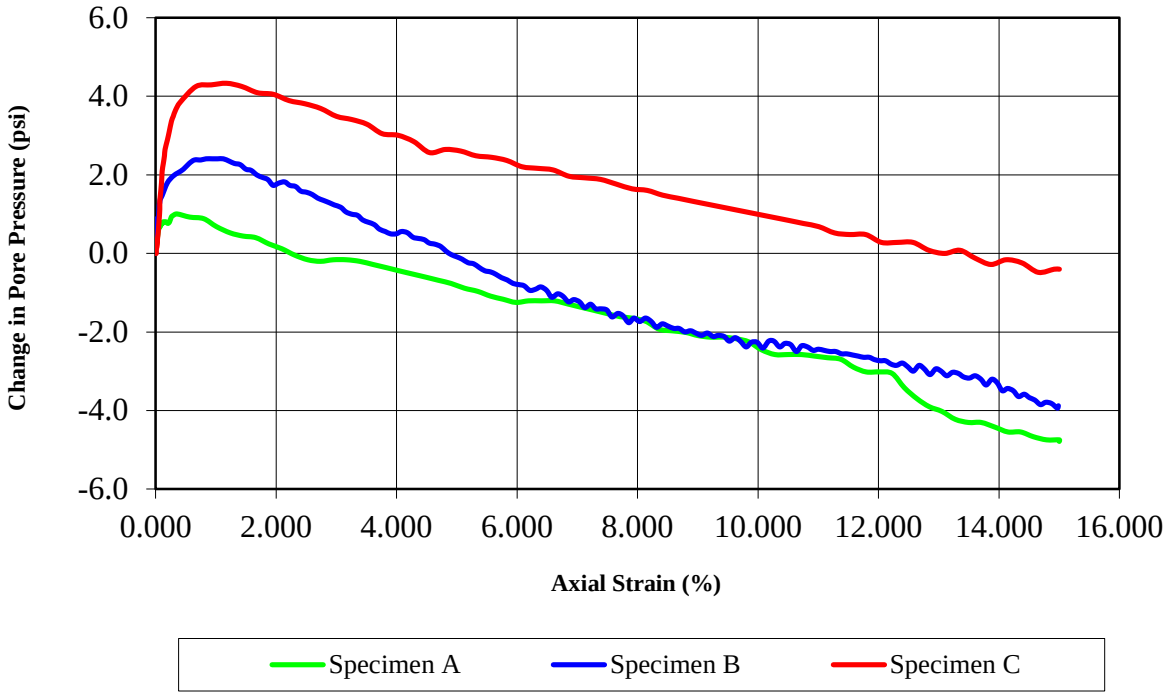


Principal Stress Ratio vs. Axial Strain



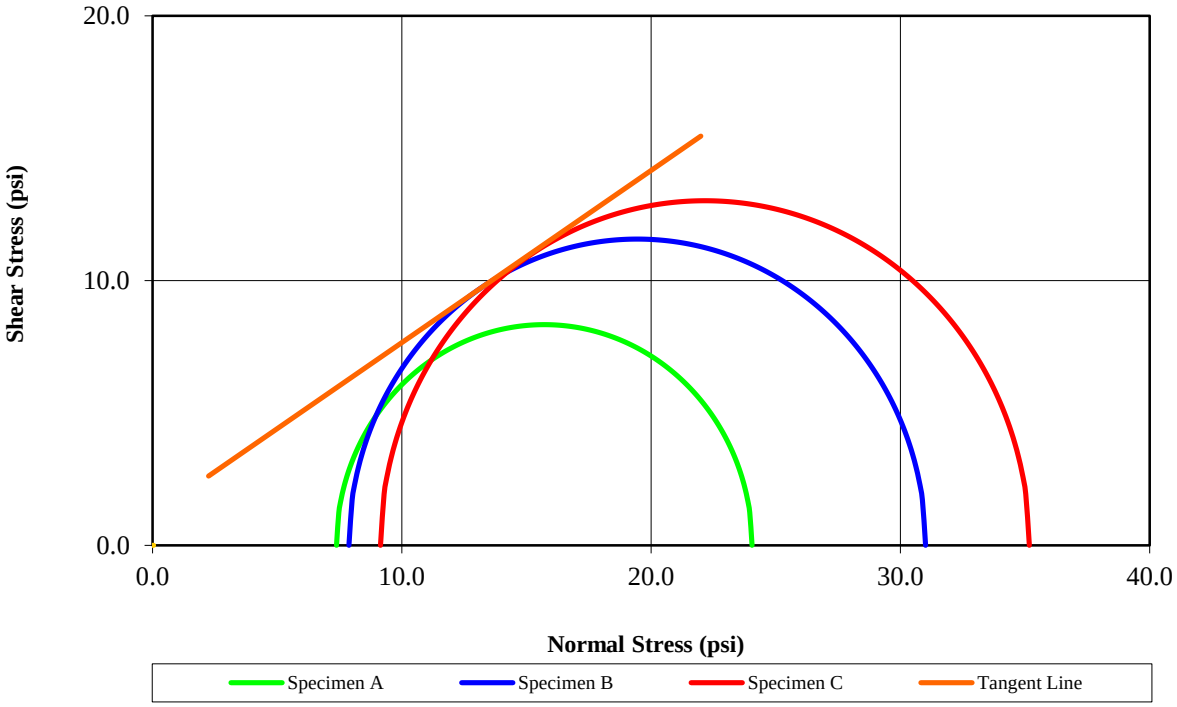
65N-0302 (RW-20).HSD

Change in Pore Pressure vs. Axial Strain

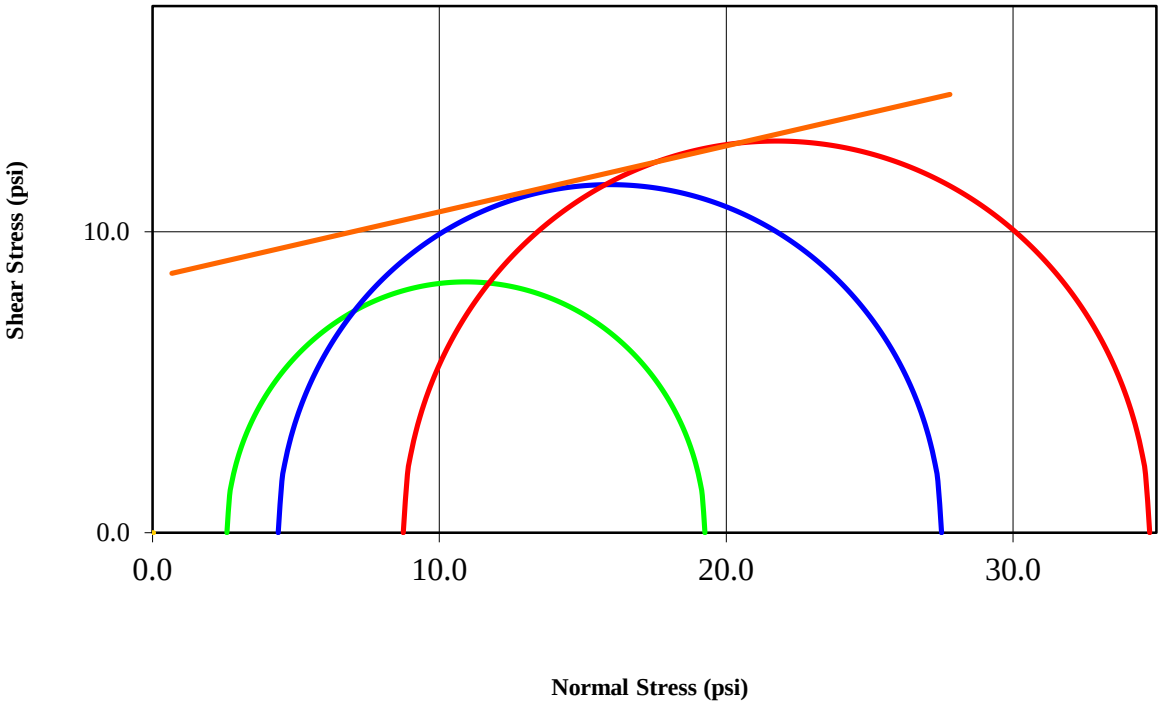


Mohr Stress Circles at Maximum Deviator Stress Criterion

Effective Stress
(C' = 1.2 Ø' = 33.0)



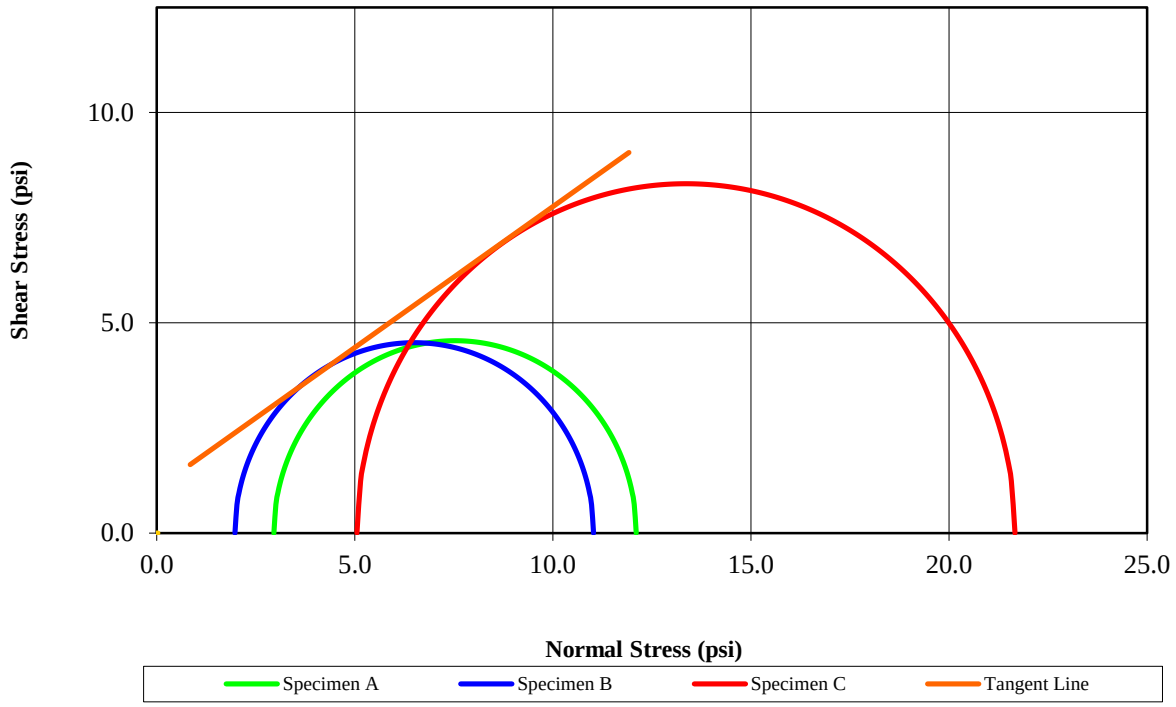
Total Stress
(C = 8.5 Ø = 12.4)



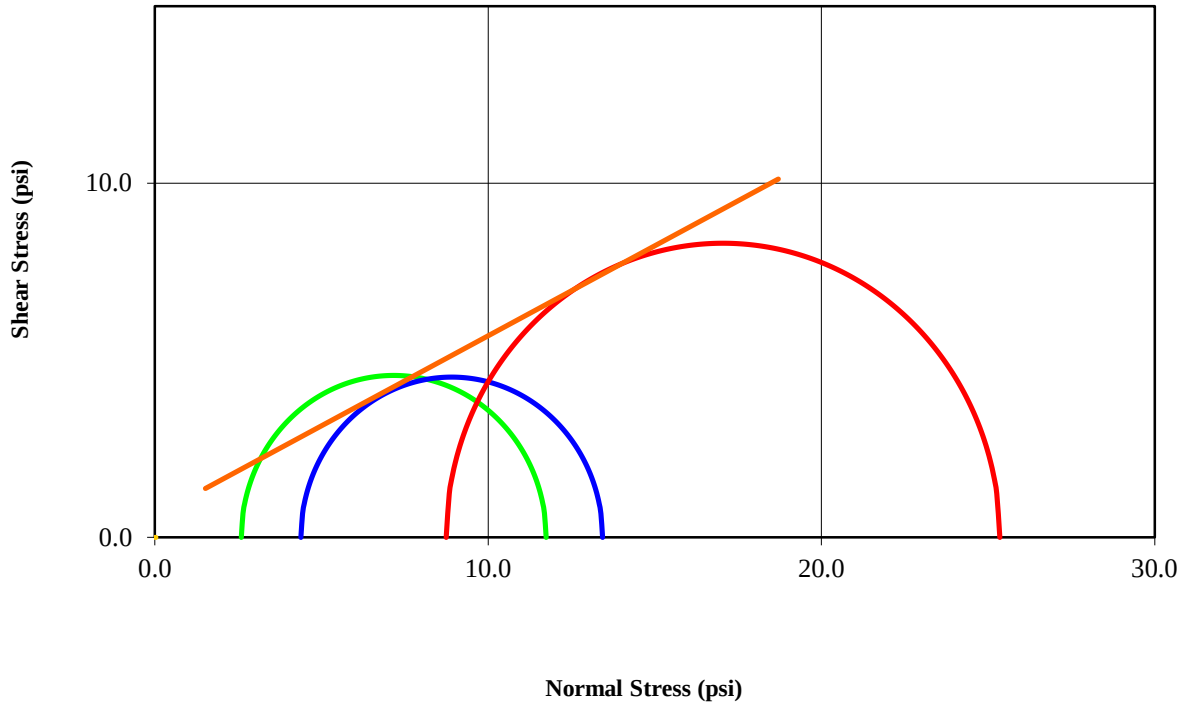
65N-0302 (RW-20).HSD

Mohr Stress Circles at Maximum Principal Stress Ratio Criterion

Effective Stress
(C' = 1.1 Ø' = 33.8)



Total Stress
(C = 0.6 Ø = 26.9)

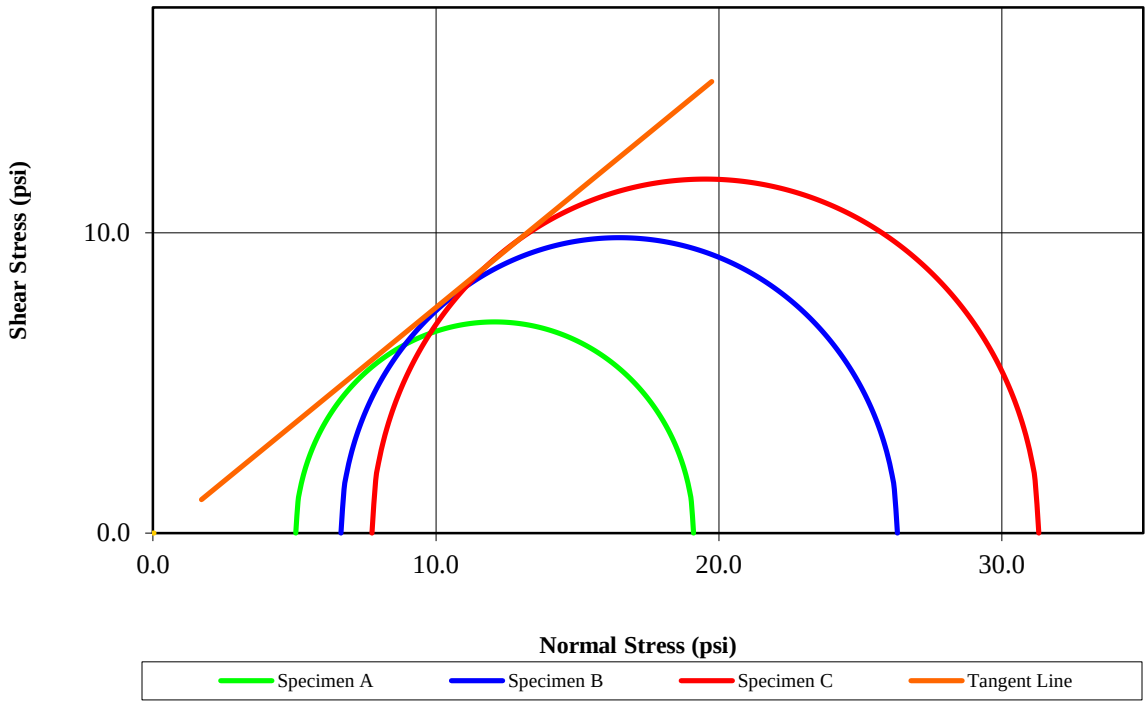


65N-0302 (RW-20).HSD

Mohr Stress Circles at 10% Axial Strain Criterion

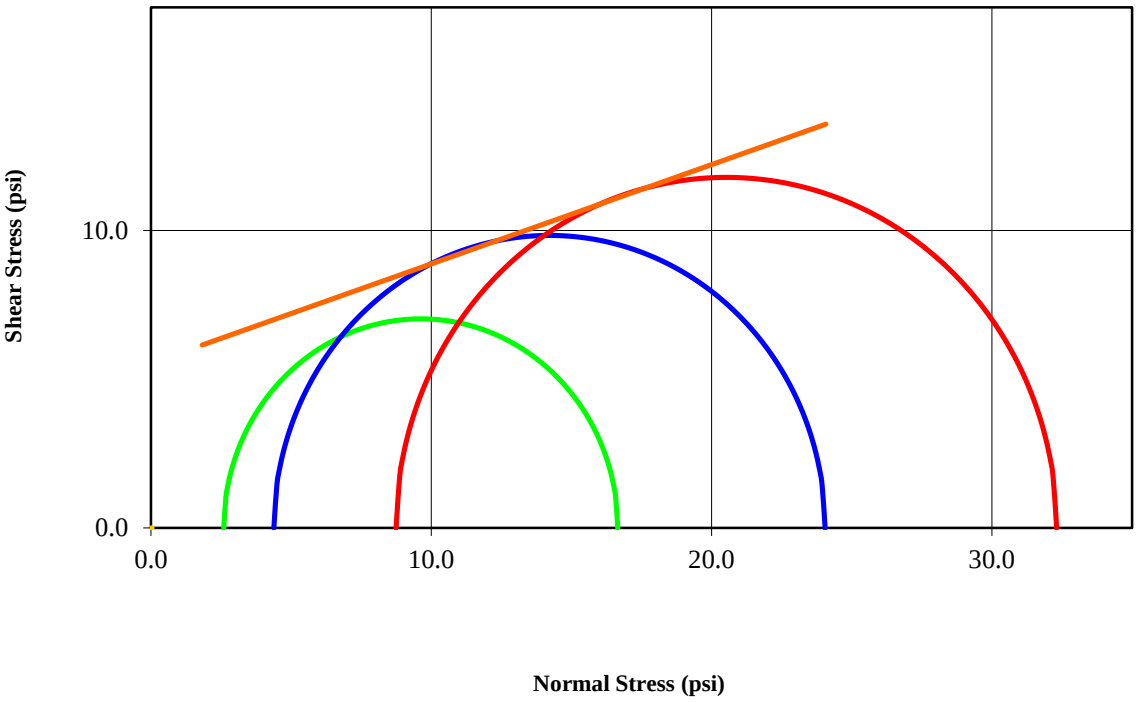
Effective Stress

(C' = -0.2 Ø' = 37.7)



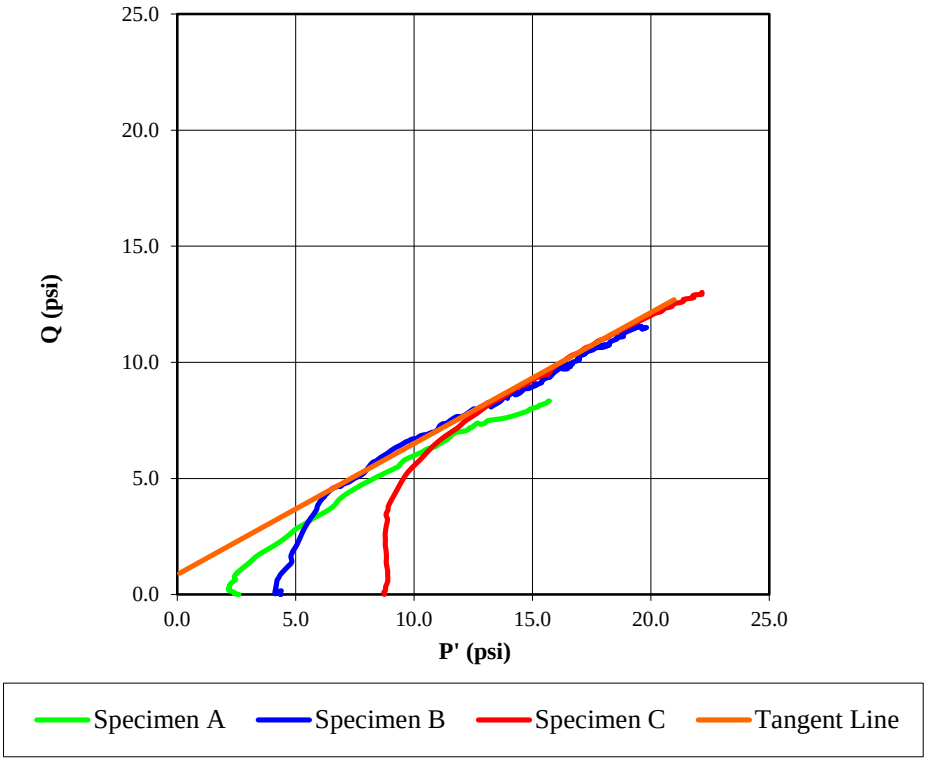
Total Stress

(C = 5.5 Ø = 18.5)

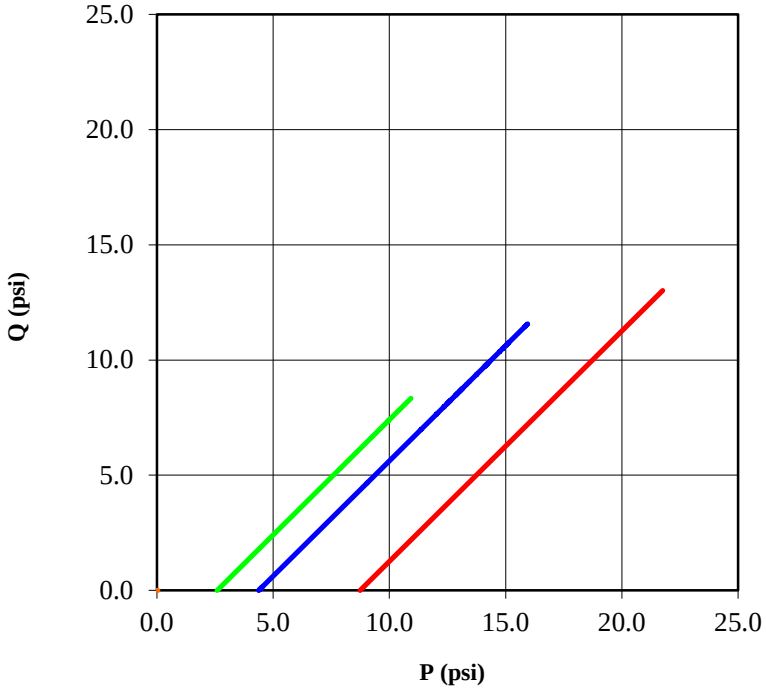


65N-0302 (RW-20).HSD

Stress Paths (Effective)
(C' = 0.9 Ø' = 29.4)

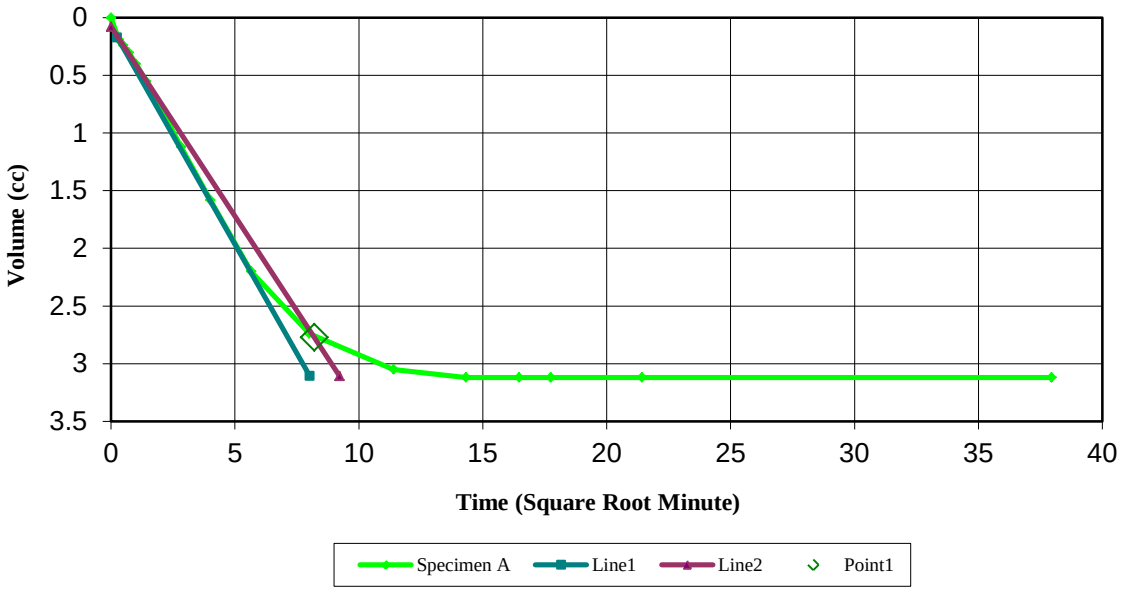


Stress Paths (Total)

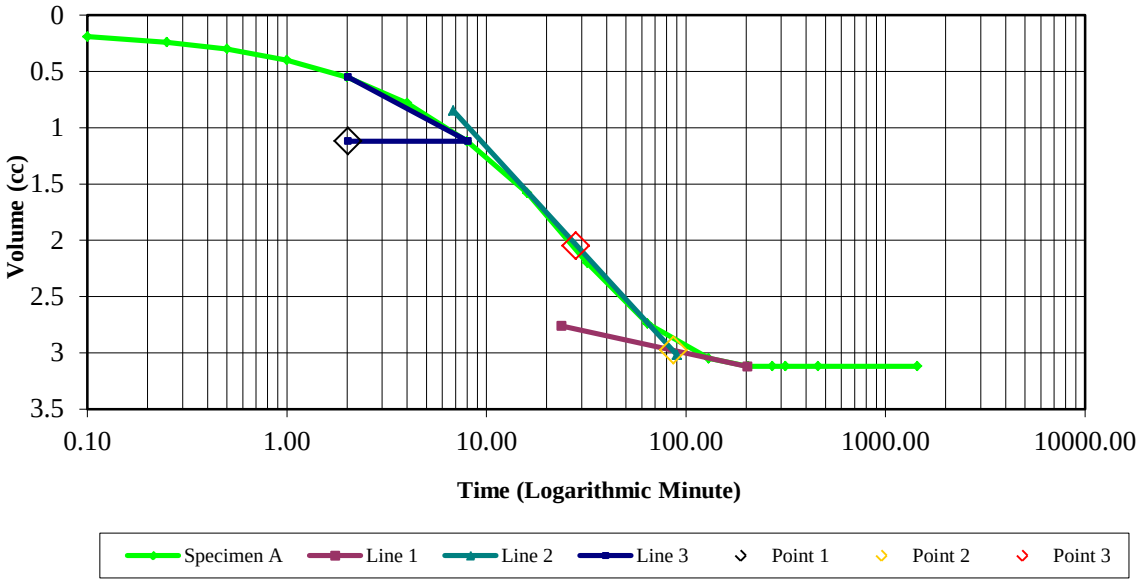


Specimen A Consolidation Graphs

Consolidation Graph (Square Root Time)

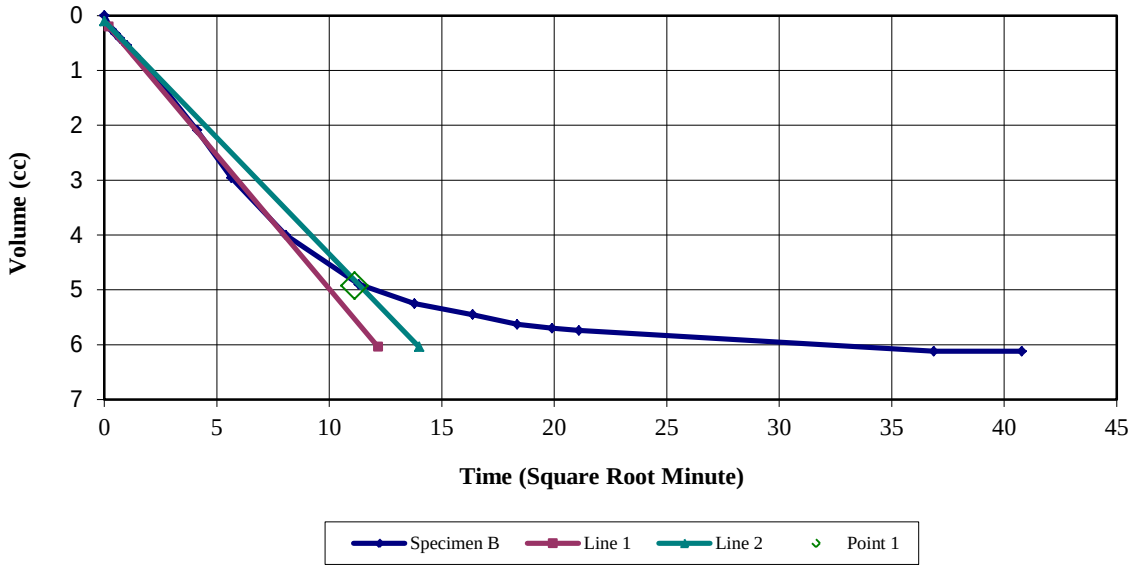


Consolidation Graph (Logarithmic Time)

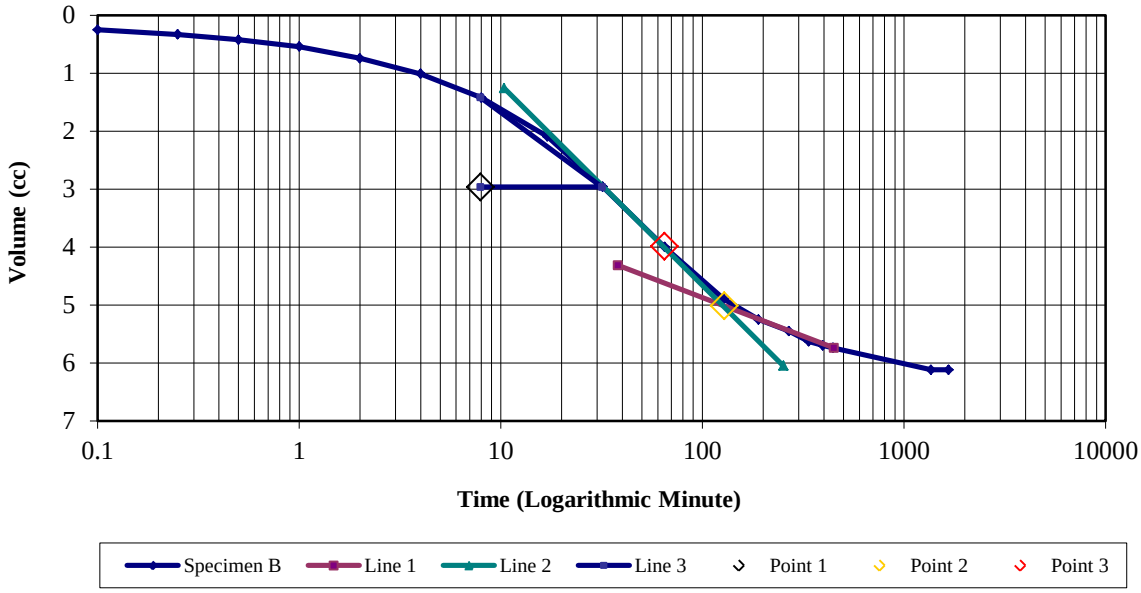


Specimen B Consolidation Graphs

Consolidation Graph (Square Root Time)

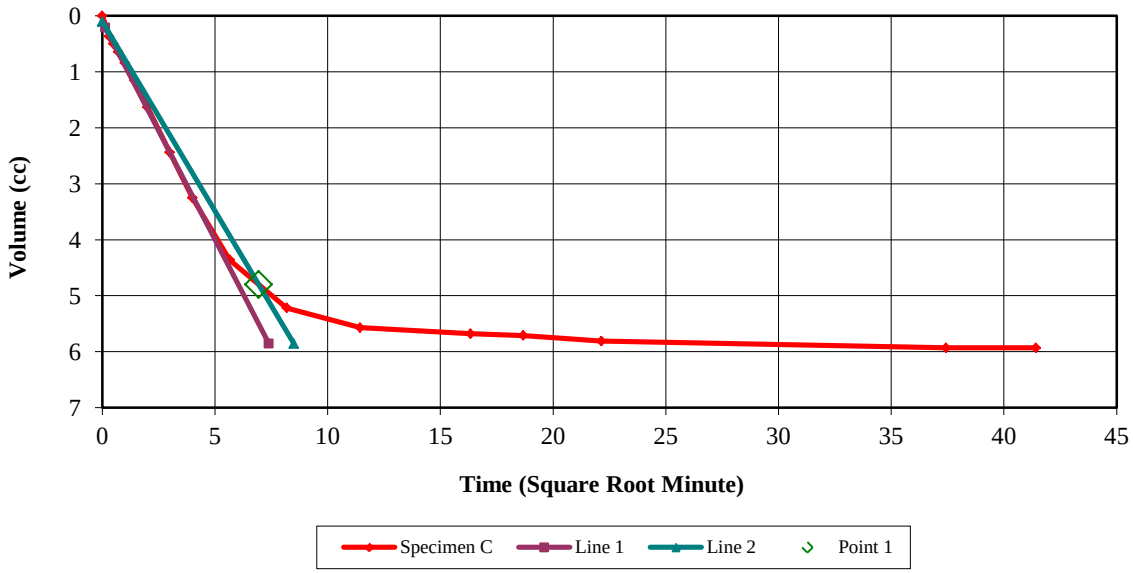


Consolidation Graph (Logarithmic Time)

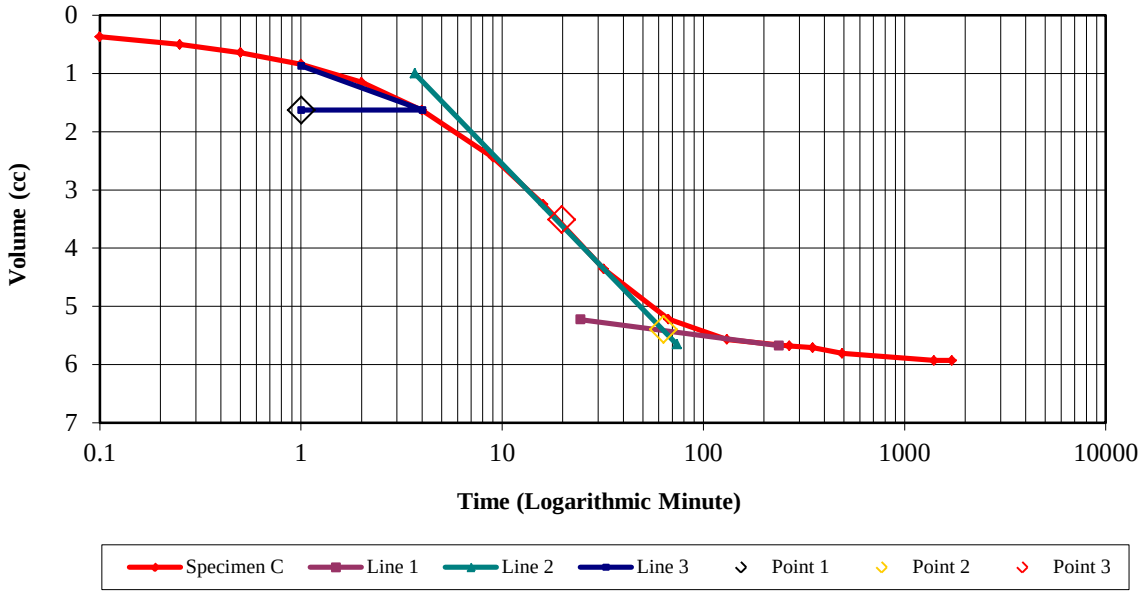


Specimen C Consolidation Graphs

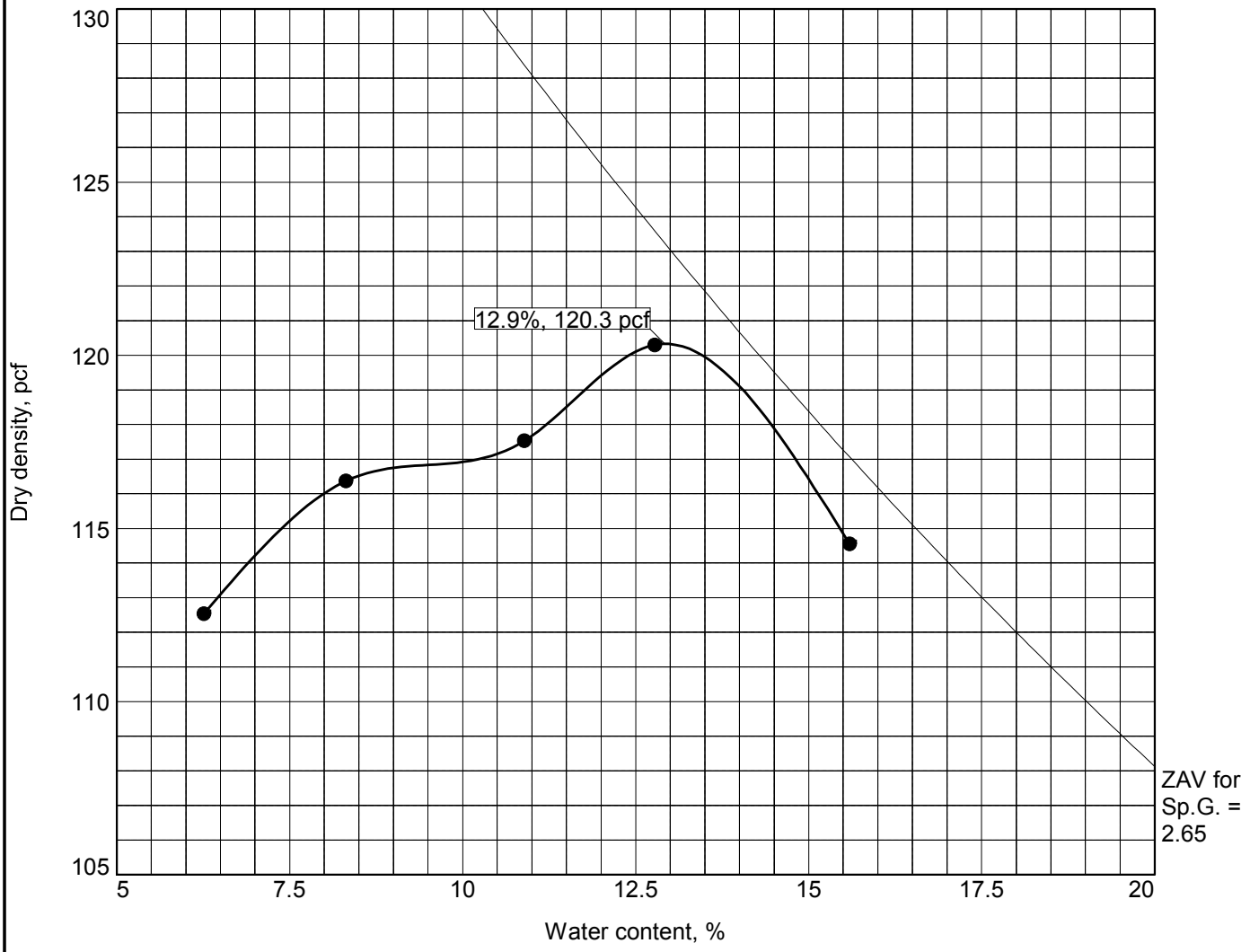
Consolidation Graph (Square Root Time)



Consolidation Graph (Logarithmic Time)



COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method B Standard
ASTM D 4718-87 Oversize Corr. Applied to Each Test Point

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > 3/8 in.	% < No.200
	USCS	AASHTO						
N.A.	CL		9.7	2.65	34	12	7.8	64.2

ROCK CORRECTED TEST RESULTS	UNCORRECTED	MATERIAL DESCRIPTION
Maximum dry density = 120.3 pcf	117.6 pcf	Brown, Sandy Lean Clay
Optimum moisture = 12.9 %	14.0 %	

Project No. 65N-0302 **Client:** SCDOT
Project: Shady Grove Rd. S-80 Bridge Replacement

○ **Loc.:** Borrow Material **Depth:** N.A. **Sample No.:** RW-20

Remarks:
Sample Received on 06/07/2012

FROEHLING & ROBERTSON, INC.

Figure

Tested By: D. Council **Checked By:** D.Jenks

FROEHLING & ROBERTSON, INC.
CORROSION SERIES TESTING

Client:	**SCDOT**	**Date:**	**2-Jul-12**
Project:	**Shady Grove Road**	**Location:**	**S-80 Bridge Repl. over I-26**
Project No:	**65N-0302**	**Page:**	**1 of 2**

Boring Number	Sample Number	pH	Resistivity (ohms-cm)	Chloride (mg/kg)	Sulfate (mg/kg)
B-1A and B-2A	SS-5, SS-6, SS-3, SS-4	8.149	74357.5	26	31
B-5	SS-2, SS-3, SS-4, SS-5	5.896	69781.6	19	27
Station 36+00 (RW-7)	Bulk Sample	4.06	74738.8	270	142
Station 39+00 (RW-20)	Bulk Sample	5.093	77217.4	126	32

LABORATORY SUMMARY SHEET FOR ROCK CORE SAMPLES

PROJECT NO.: 65N-0302
PROJECT NAME: Shady Grove Road
SITE DESCRIPTION: S-80 Bridge Replacement over I-26

Boring No.	Sample Number	Depth (feet)	Rock Type	Run RQD (%)	Length (inches)	Diameter (inches)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)
B-1A	NX-13	40.5-45.5	Metamorphic Schist	80	5.13	1.995	155.4	1,460
B-2A	NX-15	50.0-55.0	Metamorphic Schist	77	5.01	1.995	171.0	4,290
B-3	NX-8	19.5-21.5	Metamorphic Schist	67	5.10	1.995	162.0	3,885
B-3	NX-9	21.5-26.5	Metamorphic Schist	84	5.07	1.995	171.7	8,375
B-3	NX-10	26.5-31.5	Metamorphic Schist	90	3.75	2.05	154.8	6,445
B-4	NX-8	19.0-21.0	Metamorphic Schist	83	4.38	2.05	155.9	1,260
B-4	NX-9	21.0-26.0	Metamorphic Schist	87	4.58	1.995	163.8	4,125
B-4	NX-10	26.0-31.0	Metamorphic Schist	75	5.05	1.995	168.8	5,925
B-5	NX-13	44.0-47.0	Metamorphic Schist	64	3.91	2.00	153.9	4,085

Boring No.	Sample Number	Depth (feet)	Rock Type	Run RQD (%)	Length (inches)	Diameter (inches)	Unit Weight (pcf)	Unconfined Compressive Strength (psi)
B-5	NX-17	62.0-67.0	Schist	53	3.41	2.00	171.9	2,970
B-5	NX-18	67.0-72.0	Schist	60	4.42	1.995	169.7	3,160
B-6	NX-12	41.0-46.0	Metamorphic Schist	62	4.95	2.00	154.0	2,645

APPENDIX "VI"

Results of SASW Downhole Shear Wave Velocity Test

April 10, 2012

Mr. Ross R. Deaver, P.E.
Froehling & Robertson, Inc.
18 Woods Lake Road
Greenville, SC 29607

Subject: Results of Downhole Seismic Shear-Wave Investigation
Shady Grove Road at Interstate 26
Irmo, South Carolina

Dear Mr. Deaver:

As requested, GeoWave Solutions, Inc. has completed a downhole seismic shear-wave investigation at the Shady Grove Road bridge over Interstate 26 in Irmo, South Carolina. The study was conducted to determine the IBC seismic shear-wave soil classification for the site. This report summarizes our downhole testing method and presents the shear-wave velocity results.

Site Description

The area of investigation is in the southwest quadrant of the Shady Grove Road (SR 80) bridge-crossing over Interstate 26 in Irmo, South Carolina. For the downhole test, a 100-foot borehole was drilled and grouted using 2-inch diameter PVC casing a few days prior to our testing to allow the grout adequate time to cure. Of the 100-foot borehole, only 93.5 feet were available for testing due to a 4-foot borehole wall collapse in the bottom and the size of the downhole geophone. Refer to the site plan for an approximate location of the test area.

Downhole Shear-Wave Testing Method

Seismic shear-wave data for the downhole testing were collected by recording shear-wave arrival times with a multi-channel seismograph and a downhole geophone receiver. A 24-channel Geometrics Geode seismograph along with a three-component GeoStuff BHG-3 borehole geophone and control box were used to record S and P waveforms generated from a sixteen-pound sledgehammer horizontally striking an 8.5-foot long, 7x7-inch wooden beam. The geophone was lowered at 2.5-foot intervals to a maximum depth of 93.5 feet in the borehole so that shear-waves being generated at the surface would be recorded at distinctive depth intervals. Each interval included three separate recordings from energy sources designed to enhance specific properties of the wave: 1)positive shear, 2)negative shear, and 3)compression.

Analysis and Results

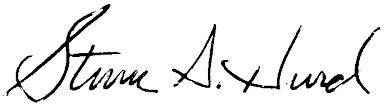
Data collected from the downhole testing were plotted with a positive-negative shear overlay to aid in identifying shear-wave arrivals within the waveform. These arrival times were then correlated to determine interval velocities between adjacent waveforms. The results from these data are in the attached seismic velocity profile and table displaying the interval shear-wave velocities and depths.

Typically, the calculation of Vs100 shear-wave velocities using geophysical methods (including single-hole downhole, crosshole, SASW and MASW) requires data collection that extend a full 100 feet below the surface. Since data for this testing were only obtainable to a depth of 93.5 feet, we have extrapolated the final 6.5 feet using the velocity measured at 93.5 feet (10,241.30 ft/sec). The resulting shear-wave data from this testing produced a Vs100 value of 2347.3 ft/sec. This value falls within the 'C' range of the shear-wave site classification table of the IBC code.

This study reports one-dimensional, subsurface shear-wave results at the testing location. Because abrupt changes in the subsurface are common in this geologic province, the attached seismic velocity profile may not be representative of subsurface conditions across the entire area. Additional testing may be desired at areas not covered by this report.

If you have any questions about the findings of this study or the data contained in this report, or if you require any further services, please feel free to call us. We appreciate the opportunity to offer these consulting services and look forward to working with you again on future projects.

Sincerely,



Steven A. Hurd, P.G.
GeoWave Solutions, Inc.

GeoWave Solutions, Inc.
4575 Ansley Lane
Cumming, Georgia 30040
770-886-3776
www.geowavesolutions.com

Shady Grove Road at Interstate 26

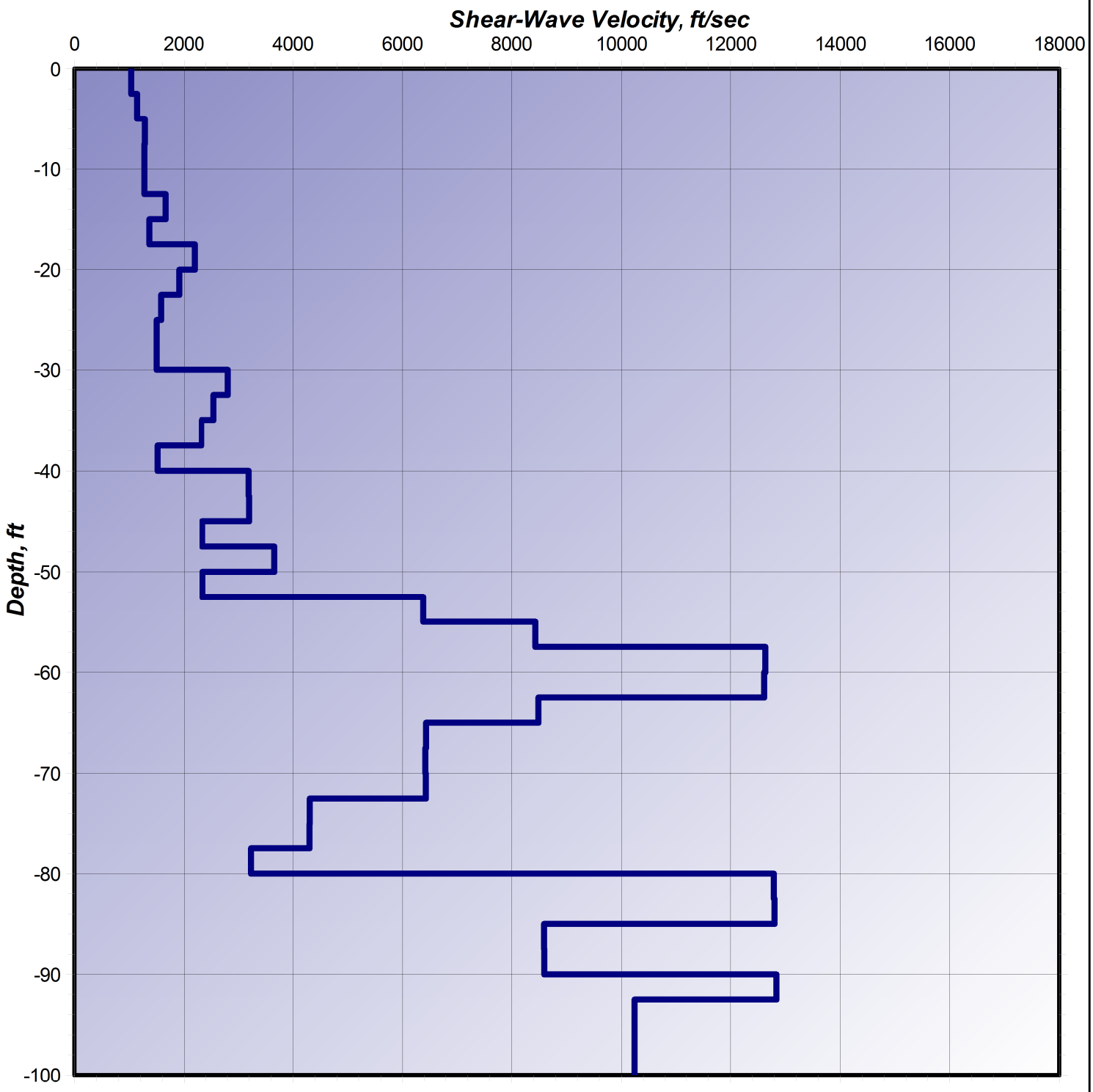
Froehling & Robertson, Inc.

Downhole Shear-Wave Investigation

Project Manager: S. Hurd

April 10, 2012

Downhole Shear-Wave Investigation



Average Vs (100 feet) = 2347.3 ft/sec

GeoWave Solutions, Inc.
4575 Ansley Lane
Cumming, Georgia 30040
Tel: 770-886-3776
Fax: 770-886-7212
www.geowavesolutions.com

Shady Grove Road at Interstate 26

Froehling & Robertson, Inc.

Downhole Shear-Wave Investigation

Project Manager: S. Hurd

April 12, 2012

Downhole Shear-Wave Investigation

Depth (ft)	Vs (ft/sec)
0.0	1034.80
-2.5	1034.80
-5.0	1141.90
-7.5	1283.00
-12.5	1276.70
-15.0	1662.00
-17.5	1367.10
-20.0	2193.30
-22.5	1910.20
-25.0	1581.50
-27.5	1498.90
-30.0	1498.90
-32.5	2808.00
-35.0	2546.80
-37.5	2325.40
-40.0	1516.90
-42.5	3189.60
-45.0	3200.60
-47.5	2339.30
-50.0	3660.40
-52.5	2343.30
-55.0	6377.60
-57.5	8434.80
-60.0	12636.10
-62.5	12614.70
-65.0	8490.90
-67.5	6430.10
-70.0	6419.70
-72.5	6425.20
-75.0	4306.30
-77.5	4300.50
-80.0	3234.60
-82.5	12792.40
-85.0	12805.30
-87.5	8592.60
-90.0	8597.10
-92.5	12837.20
-93.5	10241.30
-100.0	10241.30

Average Vs (100 feet) = 2347.3 ft/sec

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4575 Ansley Lane
Cumming, Georgia 30040
Tel: 770-886-3776
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www.geowavesolutions.com

Shady Grove Road at Interstate 26

Froehling & Robertson, Inc.

Downhole Shear-Wave Investigation

PI Project Manager: S. Hurd

April 12, 2012

Geotechnical Data Report

S-48 (Columbia Avenue) Corridor Improvements
Lexington County, South Carolina

May 20, 2016
SCDOT Project Pin: 42383
Terracon Project No. 73155095

Prepared for:
Mead & Hunt
Lexington, South Carolina

Prepared by:
Terracon Consultants, Inc.
Columbia, South Carolina

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

May 20, 2016

Mead & Hunt, Inc.
307 West Main Street
Lexington, South Carolina 29072

Attn: Mr. Zack Haney, P.E.
Transportation Project Manager

Re: Geotechnical Data Report
S-48 (Columbia Avenue) Roadway Improvements
Lexington County, South Carolina
SCDOT Project Pin: 42383
Terracon Project Number: 73155095

Dear Mr. Haney:

Terracon Consultants Inc. (Terracon) has completed the geotechnical exploration and testing services for the above referenced project. These services were conducted in general accordance with the Mead & Hunt, Inc. Scope of Services, dated May 1, 2014. This geotechnical data report presents the findings of the subsurface exploration and laboratory testing along with an overview of testing activities.

1.0 INTRODUCTION

Mead & Hunt, Inc. has contracted Terracon to perform subsurface exploration and laboratory testing for the S-48 (Columbia Avenue) Corridor Improvements in Lexington County, South Carolina. The corridor runs from Amicks Ferry Road to east of the intersection of Columbia Avenue and Comalander Drive along the proposed and existing right of way.

The purpose this work is to develop information relative to subsurface soil and groundwater conditions along the proposed and existing roadway alignment and at the bent locations for the S-48/I-26 interchange. This report presents the results of that work. No geotechnical recommendations are associated with the requested scope of study.

The following sections of this report contain a summary of the activities our field exploration and laboratory testing. The logs of the soil test borings, ReMi array, the Site Location Map and the Boring Location Plans are included in Appendix A of this report. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included in Appendix B of this report. Descriptions of the field exploration and laboratory testing are included in their respective appendices.

2.0 PROJECT DESCRIPTION

The project sites is located along the proposed and existing S-48 (Columbia Avenue) alignment near Chapin in Lexington County, SC as shown in Exhibits A-1 to A-7 in Appendix A. It is our understanding that the project will include the widening of S-48, improvement of the intersections and the removal/replacement of the existing bridge and will be replaced with a new wider structure on the existing or similar horizontal alignment. The existing bridge is a 4-span structure that is supported on a deep foundation system.

3.0 GEOTECHNICAL TESTING

The geotechnical exploration for this project, including field and laboratory testing, was performed between December 3, 2015 and March 15, 2016. The results of our field work and our associated laboratory testing are included in Appendices A and B of this report.

3.1 Field Exploration

Our field exploration at the site consisted of the following:

- Thirty Eight (38) Standard Penetration Test (SPT) Borings (B-1 through B-38)
- Geophysical testing consisting of three (1) Refraction Microtremor (ReMi) arrays (ReMi-1)

The shear wave velocity profile is provided in Appendix A. The 100-foot average shear wave velocity value shown on each profile is based on the data obtained below the fill embankment.

The tests were performed at the locations requested by Mead & Hunt. A description of our testing methods and graphical logs outlining the soil conditions at each test location are presented in Appendix A. Test locations were established in the field by Terracon and surveyed by Mead & Hunt after completion.

3.2 Laboratory Testing

As directed in the Summary of Laboratory Assignment, dated February 24, 2016 by Mead & Hunt, the following laboratory tests were performed on the soil samples collected at the site:

- One-hundred twenty-four (124) Natural Moisture Content Tests (ASTM D2216)
- Seventy-nine (79) Atterberg Limits Tests (ASTM D4318)
- Seventeen (17) Sieve Analysis with Hydrometer (ASTM D422-63)
- Five (5) Standard Proctor Test (ASTM D698)
- Five (5) California Bearing Ratio Tests (ASTM D1883)
- Two (2) Tri-axial tests with Pore Pressure Tests (ASTM D4767)
- Eight (8) pH of Soils (ASTM D4972)

- Eight (8) Water-Soluble Sulfate in Soils (ASTM C1580)
- Eight (8) Water-Soluble Chlorides in Soils (ASTM D1411)
- Eight (8) Measurement of Soil Resistivity Tests (ASTM G187)
- Six (6) Moisture, Ash, and Organic Matter Tests (ASTM D2974)
- Sixty-six (66) Sieve Analysis with #200 Wash Tests (ASTM D422-63)

The laboratory procedures and results of the laboratory tests are presented in Appendix B.

4.0 CLOSURE

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Joseph D.M. Fredendall, E.I.T.
Field Engineer

Phillip A. Morrison, P.E.
Geotechnical Department Manager
SC Registration No. 17275

Attachments

Copies: Addressee (1 via email)
File (1)

APPENDIX A
FIELD EXPLORATION

Exhibit A-1 – Site Location Map
Exhibits A-2 – A-7 – Boring Location Plans
Exhibit A-8 – Field Testing Summary
Exhibits A-9 – ReMi Results
Exhibit A-10 – Field Testing Description
Exhibit A-11 – Soil Description Terms
Exhibit A-12 to A-64 – Boring Logs

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-1
Date:	May, 2016

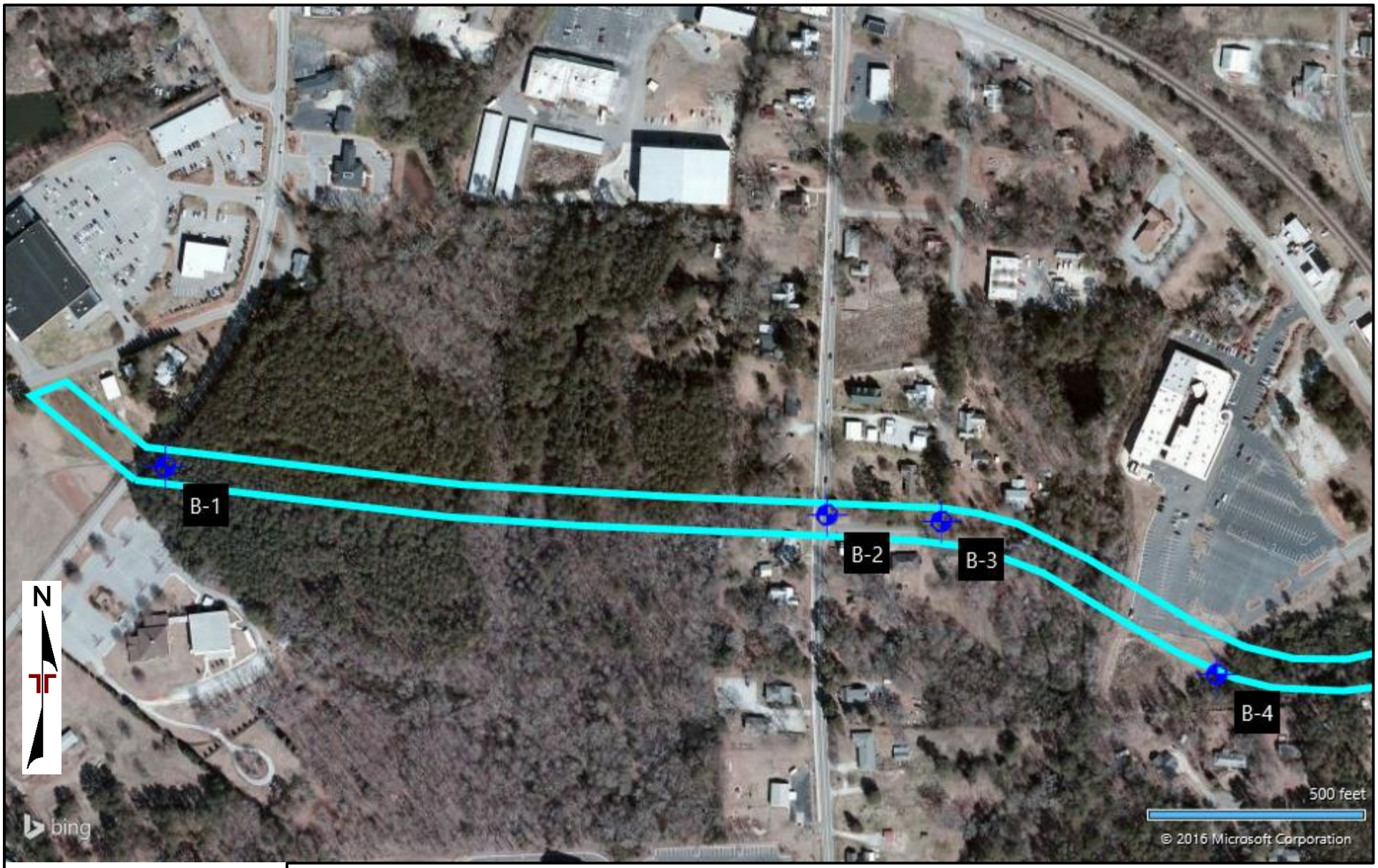
Terracon
521 Clemson Rd
Columbia, SC 29229-4307

SITE LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements
Lexington County, South Carolina

Exhibit

A-1



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-2
Date:	May, 2016

Terracon
521 Clemson Rd
Columbia, SC 29229-4307

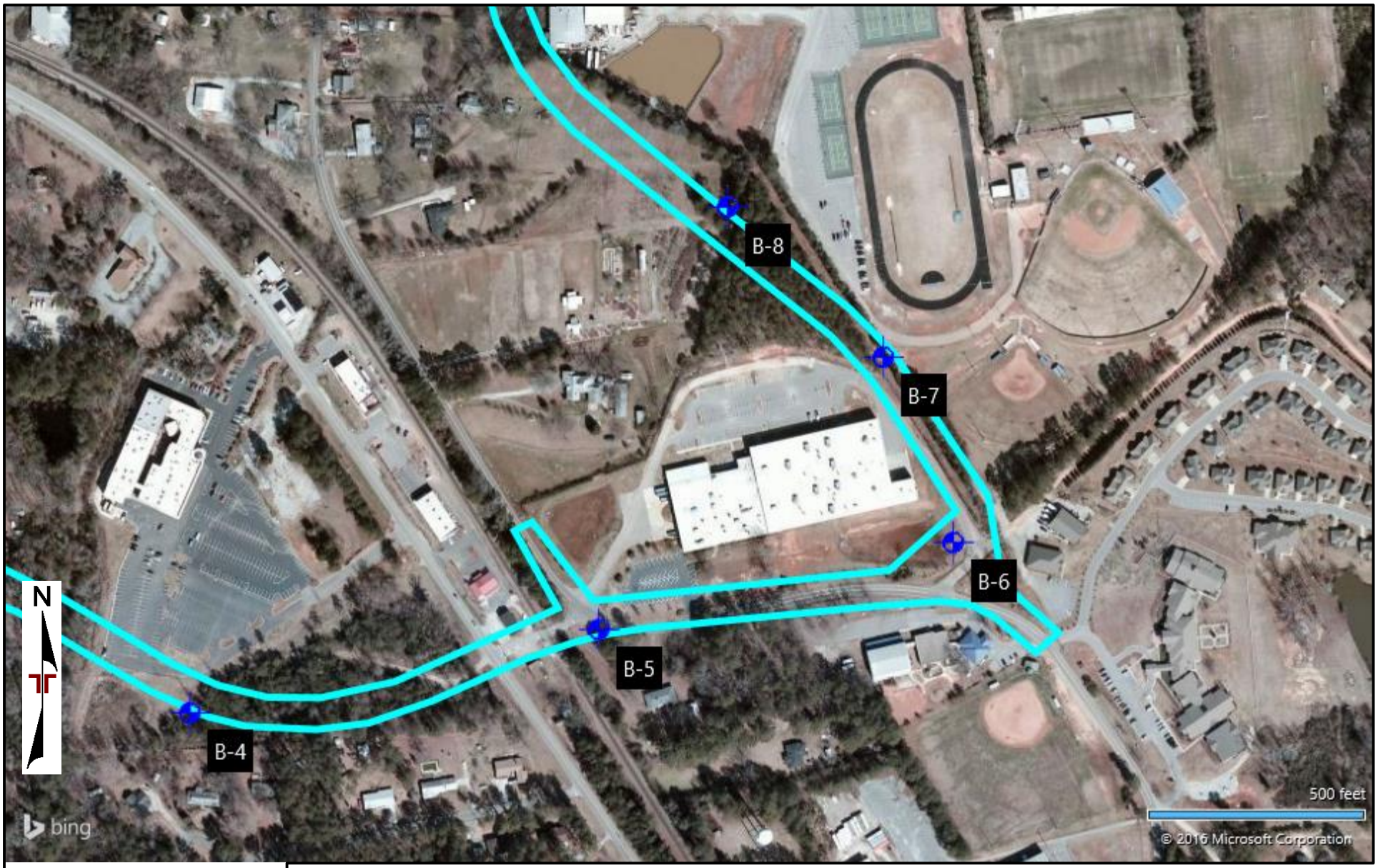
BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements

Lexington County, South Carolina

Exhibit

A-2



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-3
Date:	May, 2016

Terracon
521 Clemson Rd
Columbia, SC 29229-4307

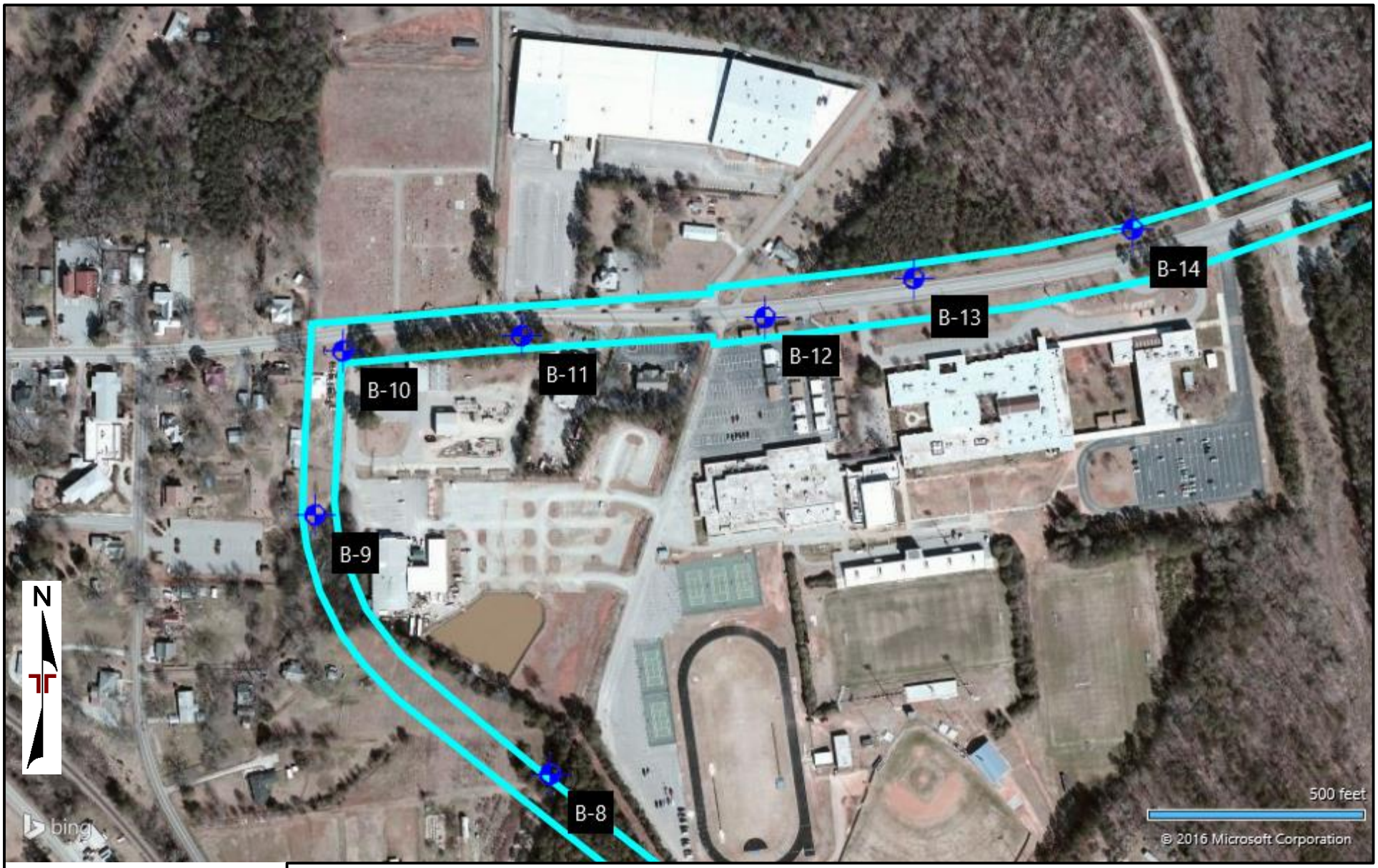
BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements

Lexington County, South Carolina

Exhibit

A-3



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	JDF

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-4
Date:	May, 2016

Terracon
521 Clemson Rd
Columbia, SC 29229-4307

BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements

Lexington County, South Carolina

Exhibit

A-4

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-5
Date:	May, 2016

Terracon
521 Clemson Rd
Columbia, SC 29229-4307

BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements

Lexington County, South Carolina

Exhibit

A-5

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-6
Date:	May, 2016

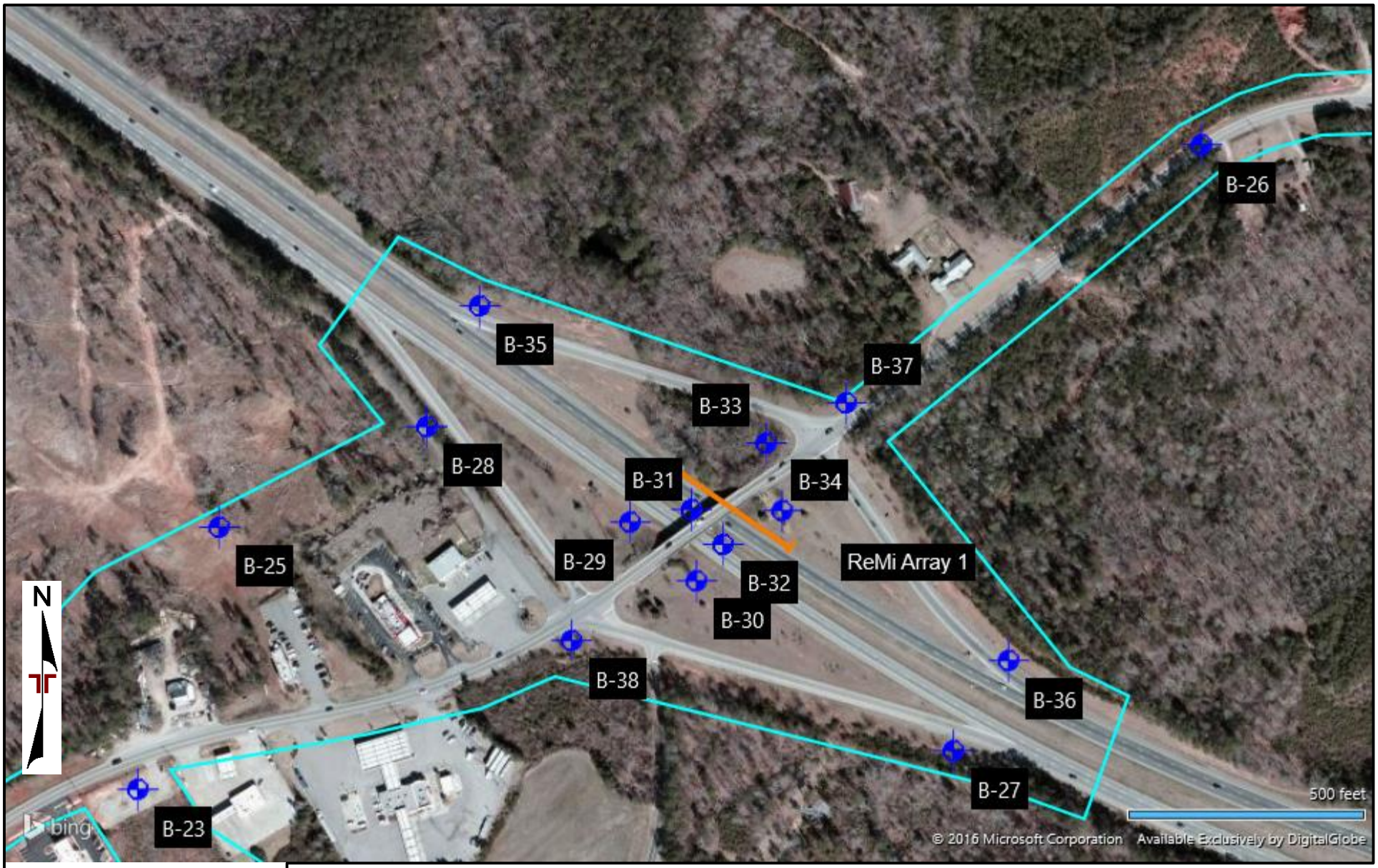
Terracon
521 Clemson Rd
Columbia, SC 29229-4307

BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements
Lexington County, South Carolina

Exhibit

A-6



AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

Project Manager:	PAM
Drawn by:	JDF
Checked by:	PAM
Approved by:	PAM

Project No.	73155095
Scale:	AS SHOWN
File Name:	A-7
Date:	May, 2016

Terracon
521 Clemson Rd
Columbia, SC 29229-4307

BORING LOCATION PLAN

Columbia Avenue (S-48) Roadway Improvements

Lexington County, South Carolina

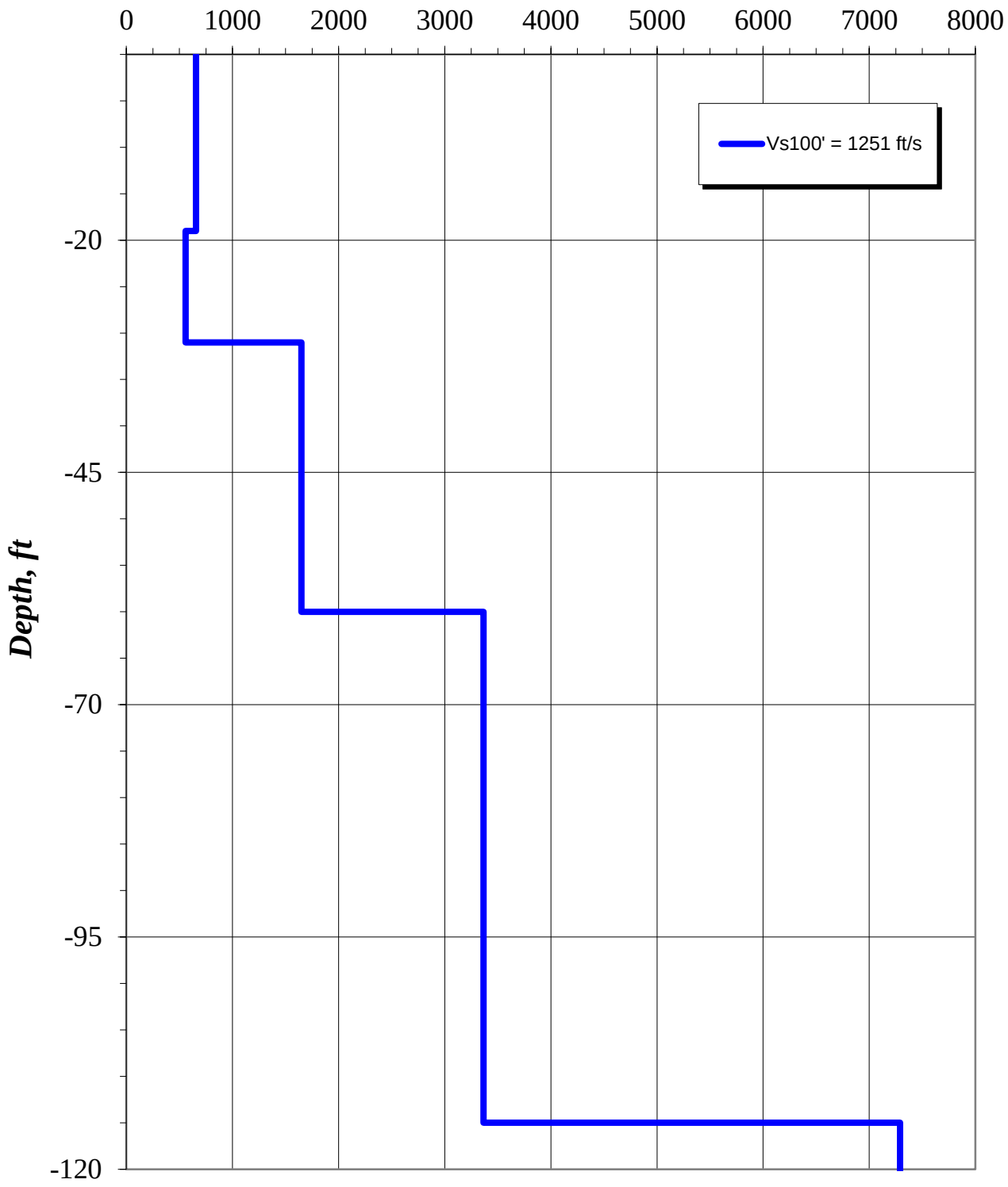
Exhibit

A-7

Field Testing Summary

Boring No.	Ground Elevation (ft)	Test Depth (ft)	Northing	Easting	Latitude	Longitude
B-01	445.2	20	847763.7	1892581.6	34.16290765	-81.35513975
B-02	458.6	20	847648.2	1894109.7	34.16260462	-81.35008638
B-02 BULK	458.6	5	847649.2	1894110.7	34.16260462	-81.35008702
B-03	461.6	20	847632.3	1894373.7	34.16256333	-81.34921337
B-04	440.7	20	847278.7	1895009.0	34.16159761	-81.34710920
B-05	464.8	20	847467.0	1895953.8	34.16212374	-81.34398747
B-05 BULK	464.8	5	847467.0	1895954.8	34.16212256	-81.34398747
B-06	458.7	20	847664.9	1896773.4	34.16267513	-81.34127990
B-07	472.7	20	848091.8	1896613.1	34.16384685	-81.34181472
B-08	466.9	20	848438.3	1896254.7	34.16479581	-81.34300346
B-09	472.8	20	849036.8	1895713.6	34.16643581	-81.34479901
B-10	474.3	20	849414.4	1895779.1	34.16747400	-81.34458671
B-11	475.7	20	849447.4	1896191.8	34.16756856	-81.34322259
B-12	478.5	20	849488.3	1896753.8	34.16768591	-81.34136484
B-12 BULK	478.5	5	849488.3	1896755.8	34.16768591	-81.34136394
B-13	470.0	20	849576.7	1897098.0	34.16793200	-81.34022765
B-14	456.2	20	849688.4	1897603.7	34.16824360	-81.33855704
B-15	457.0	20	849782.6	1898197.6	34.16850779	-81.33659435
B-16	470.8	20	849995.0	1898586.4	34.16909514	-81.33531114
B-17	456.2	20	850207.5	1899027.2	34.16968294	-81.33385583
B-18	440.7	20	850486.5	1899371.2	34.17045271	-81.33272162
B-19	439.6	20	850911.0	1899750.7	34.17162268	-81.33147126
B-20	433.5	20	851284.4	1900075.3	34.17265171	-81.33040187
B-20 BULK	433.5	5	851285.4	1900076.3	34.17265205	-81.33040296
B-21	421.0	20	851710.7	1900310.7	34.17382553	-81.32962803
B-22	416.3	20	852193.5	1900673.1	34.17515553	-81.32843476
B-23	422.1	20	852387.9	1901206.3	34.17569435	-81.32667372

Boring No.	Ground Elevation (ft)	Test Depth (ft)	Northing	Easting	Latitude	Longitude
B-24	390.4	20	851667.6	1902132.5	34.17372281	-81.32360384
B-25	406.9	20	852939.8	1901380.1	34.17721259	-81.32610491
B-26	392.9	20	853740.0	1903461.0	34.17942959	-81.31923207
B-26 BULK	392.9	5	853740.0	1903462.0	34.17942865	-81.31923108
B-27	390.1	30	852463.8	1902932.3	34.17591777	-81.32096728
B-28	387.8	30	853150.5	1901820.4	34.17779560	-81.32465110
B-29	392.8	103.5	852947.9	1902249.8	34.17724242	-81.32322918
B-30	399.4	120	852823.8	1902389.8	34.17690257	-81.32276508
B-31	390.2	105	852974.2	1902379.7	34.17731581	-81.32280001
B-32	391.9	98.5	852900.4	1902446.6	34.17711363	-81.32257805
B-33	397.8	107.5	853113.7	1902538.5	34.17770061	-81.32227634
B-34	396.2	120	852971.2	1902571.7	34.17730917	-81.32216508
B-35	377.7	30	853404.6	1901932.6	34.17849480	-81.32428267
B-36	383.2	30	852653.6	1903049.7	34.17644057	-81.32058116
B-37	402.6	50	853198.1	1902707.9	34.17793384	-81.32171697
B-38	410.8	50	852698.6	1902125.1	34.17655625	-81.32363898



Project Mngr. JDF	Project No. 73155095	Terracon Consulting Engineers & Scientists	SHEAR WAVE VELOCITY PROFILE	Exhibit
Drawn By: PTK	Scale: As Shown	521 CLEMSON ROAD COLUMBIA, SC 29229	Columbia Avenue(S-48) Roadway Improvements	A-9
Checked By: JDF	File Name: A-9	PH. (803) 741-9000 FAX. (803) 741-9900	**Lexington County, South Carolina**	
Approved By: PAM	Date: May, 2016			

FIELD EXPLORATION DESCRIPTION

Overview

The testing locations were provided by Mead & Hunt and located in the field by Terracon by taking measurements from existing structures shown on the provided drawings. The borings were surveyed by Mead & Hunt after testing and drilling was complete. The locations as shown in the Exploration Location Plan are shown to the scale indicated.

A field log of each test location was prepared by our engineer. The final boring logs included with this report represent the engineer's description of the encountered conditions modified as necessary based on laboratory test results of the individual samples.

Soil Test Borings (STB)

All boring and sampling operations were conducted in general accordance with the following procedures:

- SCDOT Geotechnical Design Manual 2010
- ASTM D5783, “Standard Guide for Use of Direct Rotary Drilling with Water-Based Drilling Fluid for Geo-environmental Exploration”
- ASTM D1586 “Test Method for Penetration Test and Split-Barrel Sampling of Soils”
- ASTM D4220 “Standard Practices for Preserving and Transporting Soil”

Each soil test boring was advanced using rotary wash drilling techniques. Five samples were collected in the upper 10 feet. Below that depth, samples were obtained at 5 foot intervals. Soil samples were obtained with a standard 1.4-inch I.D., 2-inch O.D., split-barrel sampler, also known as a standard split-spoon. The sampler is advanced into the soil a total of 18 inches by striking the drill rod using a 140-pound automatic hammer falling 30 inches. The number of blows required to advance the sampler for each of three, 6-inch increments is recorded. The sum of the number of blows for the second and third increments is called the “Standard Penetration Value”, or N-value (N_{meas}, blows per foot). The N-value, when properly evaluated, is an index to the soil strength.

Soil Classification provides a general guide to the engineering properties of various soil types and enables the engineer to apply his experience to current situations. In our exploration, samples obtained during drilling operations are examined and visually classified by a geotechnical engineer using the procedures outlined in ASTM D2487 - Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System). Laboratory testing was also performed on select split-spoon samples to evaluate index properties for further classification. The soils are described according to color, texture, and relative density or consistency (based on standard penetration resistance). The designations shown on the logs are described on Exhibit A-11 and Exhibit C-2.

Due to the drilling method (i.e. rotary wash), time-of-drilling water levels were not be recorded. The 24-hour groundwater readings were collected from those borings that could be maintained open overnight (those not in the existing roadways) and are indicated on the boring logs. At the conclusion of the work, the boreholes were backfilled with drill cuttings and capped with cold-patch asphalt. Those in the interstate right-of-way were backfilled with a cement-bentonite grout.

Seismic Surface Wave Testing

Terracon utilized the SeisOpt® ReMi™ method to develop the full depth shear wave velocity profile at the site for use in determining the seismic site class. This method employs non-linear optimization technology to derive one-dimensional S-wave velocities from refraction microtremor (ambient noise) recordings using a typical seismograph and standard, low frequency, refraction geophones. We utilized 12 receivers (geophones) set along a straight-line array with a 27±-foot receiver spacing for a total length of about 345 feet along Array 1 shown on the attached Boring Location Plans (Exhibits A-2 and A-3). Unfiltered, 30-second records were recorded using the background 'noise' created by the moving traffic and other ambient vibrations. The collected data, the response spectrum in the 5 to 40 Hz range, was processed using the computer software SeisOpt® ReMi™ by Optim, LLC with the results plotted as a conventional shear wave velocity vs. depth profile. The shear wave velocity profile obtained using the SeisOpt® ReMi™ data reduction method is shown on Exhibit A-9.

SOIL DESCRIPTION TERMS

Relative Density/Consistency Terms

Relative Density[1]			Consistency[2]		
Descriptive Term	Relative Density	SPT Blow Count	Descriptive Term	Unconfined Compression Strength (q_u) (tsf)	SPT Blow Count
Very Loose	0 to 15%	4 and less	Very Soft	0.25 and less	2 and less
Loose	16 to 35%	5 to 10	Soft	0.26 to 0.50	3 to 4
Medium Dense	36 to 65%	11 to 30	Firm	0.51 to 1.00	5 to 8
Dense	66 to 85%	31 to 50	Stiff	1.01 to 2.00	9 to 15
Very Dense	86 to 100%	51 and more	Very Stiff	2.01 to 4.00	16 to 30
			Hard	4.01 and more	31 and more

Moisture Condition

Descriptive Term	Criteria
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, usually in coarse-grained soils below the water table

Color

Describe the sample color while sample is still moist.

Angularity[1]

Descriptive Term	Criteria
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[3]

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

Cementation[3]

Descriptive Term	Criteria
Weakly Cemented	Crumbles or breaks with handling or little finger pressure
Moderately Cemented	Crumbles or breaks with considerable finger pressure
Strongly Cemented	Will not crumble or break with finger pressure

Particle-Size Range[1]

Gravel	Diameter, mm	Sieve Size	Sand	Diameter, mm	Sieve Size
Fine	4.76 to 19.1	#4 to ¾ inch	Fine	0.074 to 0.42	#200 to #40
Coarse	19.1 to 76.2	¾ inch to 3 inch	Medium	0.42 to 2.00	#40 to #10
			Coarse	4.00 to 4.76	#10 to #4

Primary Soil Type[1, 2]

The primary soil type will be shown in all capital letters.

USCS Soil Designation

Indicate USCS soil designation as defined in ASTM D-2487 and D-2488

AASHTO Soil Designation

Indicate AASHTO soil designation as defined in AASHTO M-145 and ASTM D-3282

[1] Applies to coarse-grained soils (major portion retained on No. 200 sieve)
[2] Applies to fine-grained soils (major portion passing No. 200 sieve)
[3] Use as required

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-01
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	445.2 ft	**Latitude:**	34.16290765	**Longitude:**	-81.35513975	**Date Started:**	12/21/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/22/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	2 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	2	3	3	6
		RESIDUUM - Firm, moist, brown, lean CLAY (CL) (A-4) 7.5YR 4/4							
	2.0	@SS-1 LL=32, PL=23, PI=9, NMC=27.5, %#200=91.6		2.0	SS-2	2	3	3	6
		Firm, moist, reddish yellow, Sandy fat CLAY (CH) (A-7-6) 7.5YR 6/8							
	4.0	@SS-2 LL=59, PL=29, PI=30, NMC=26.7, %#200=53.9		4.0	SS-3	1	6	8	14
440.2		Stiff, dry, brown, SILT (ML) (A-4) 7.5YR 5/1 to 7.5 YR 5/2							
	6.0	Stiff to very stiff, dry, light brown, Sandy SILT (ML) (A-6) 7.5YR 6/1		6.0	SS-4	WOH	4	6	10
				8.0					
		@SS-5 LL=40, PL=27, PI=13, NMC=24.3, %#200=60.2			SS-5	4	6	9	15
435.2									
				13.5					
					SS-6	9	13	17	30
430.2									
				18.5					
					SS-7	6	7	10	17
425.2	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-02
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	458.6 ft	**Latitude:**	34.16260462	**Longitude:**	-81.35008638	**Date Started:**	1/11/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.2	Asphalt (2 inches)		0.5					
	0.6	Stone base (5 inches)			SS-1	5	7	6	13
		RESIDUUM - Stiff to very stiff, dry, pale red, fat CLAY (CH) (A-7-6) 10R 6/4		2.0	SS-2	5	7	11	18
		@SS-1 LL=50, PL=27, PI=23, NMC=22.6, %#200=88.5							
	4.0			4.0					
453.6		Hard to very stiff, dry, weak red, elastic SILT (MH) (A-7-5) 10R 4/4			SS-3	9	12	19	31
		@SS-3 LL=60, PL=33, PI=27, NMC=23.6		6.0					
					SS-4	5	7	9	16
	8.0			8.0					
		PARTIALLY WEATHERED ROCK - Classified as hard, moist, weak red to dark bluish gray, fine to medium SILT with rock fragments (quartz) (ML) (A-4) 10R 4/4 to GLEY2 4/5B			SS-5	50/5"			50/5"
448.6									
				13.5					
					SS-6	13	49	50/4"	50/4"
443.6									
	17.0	**RESIDUUM** - Very stiff, dry, weak red, SILT with coarse sand (ML) (A-4) 10R 4/4		18.5					
					SS-7	5	7	10	17
438.6	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-02 BULK
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	458.6 ft	**Latitude:**	34.16260462	**Longitude:**	-81.35008702	**Date Started:**	1/11/2016
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	6-1/2	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.E.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Roadway						
	0.2	Asphalt (2 inches)		0.0				
	0.6	Stone base (5 inches)						
		RESIDUUM - Dry, pale red, sandy silty CLAY with gravel (CL-ML) (A-4) 10R 6/4 LL=25, PL=18, PI=7, NMC=16, %#200=56						
453.6	5.0	***Boring Terminated at 5 feet***						
448.6								
443.6								
438.6								

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-03
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	461.6 ft	**Latitude:**	34.16256333	**Longitude:**	-81.34921337	**Date Started:**	1/11/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.1	Asphalt (1 inch)		0.5					
	0.5	Stone base (4 inches)			SS-1	7	7	6	13
	2.0	**RESIDUUM** - Stiff, dry, weak red, lean CLAY with sand (CL) (A-7-6) 10YR 4/4		2.0	SS-2	5	6	5	11
		@SS-1 LL=44, PL=21, PI=23, NMC=13, %#200=80.9							
	4.0	Stiff, moist, weak red, lean CLAY (CL) (A-7-6) 10R 4/4		4.0					
456.6		@SS-2 LL=47, PL=26, PI=21, NMC=23, %#200=88.2			SS-3	5	9	13	22
		Very stiff, moist, red, SILT with sand (ML) (A-4) 10YR 4/6		6.0					
		@SS-4 LL=NP, PL=NP, PI=NP, NMC=23.4, %#200=81.6			SS-4	8	10	14	24
				8.0					
					SS-5	6	8	12	20
451.6									
	12.0	Hard, moist, weak red, SILT (ML) (A-4) 10R 4/4		13.5					
					SS-6	12	21	23	44
446.6									
				18.5					
					SS-7	13	24	33	57
441.6	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-04
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	440.7 ft	**Latitude:**	34.16159761	**Longitude:**	-81.3471092	**Date Started:**	1/12/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/13/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	5 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Lawn							
	0.3	Topsoil (4 inches)		0.0	SS-1	2	4	4	8
	2.0	**RESIDUUM** - Firm, moist, light red, lean CLAY (CL) (A-7-6) 10R 6/8 @SS-1 LL=46, PL=22, PI=24, NMC=25.6, %#200=88.1		2.0	SS-2	2	4	6	10
		Stiff to very stiff, moist, red, lean CLAY (CL) (A-7-6) 10R 5/8 @SS-2 LL=43, PL=26, PI=17, NMC=23.7, %#200=89.7		4.0	SS-3	4	8	11	19
435.7		▼							
	6.0	Stiff, moist, reddish yellow, fat CLAY (CH) (A-7-6) 5YR 7/8 @SS-4 LL=54, PL=23, PI=31, NMC=23.2		6.0	SS-4	3	6	7	13
				8.0	SS-5	3	5	9	14
430.7									
	12.0	Very stiff, moist, reddish yellow, Sandy SILT (ML) (A-4) 5YR 6/6		13.5	SS-6	6	12	16	28
425.7									
				18.5	SS-7	7	9	11	20
420.7	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-05
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	464.8 ft	**Latitude:**	34.16212374	**Longitude:**	-81.34398747	**Date Started:**	1/15/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0	Unimproved Shoulder								
		RESIDUUM - Stiff, dry, weak red, elastic SILT (MH) (A-7-5) 10R 4/4		0.0	SS-1	5	6	8	14	
		@SS-1 LL=66, PL=37, PI=29, NMC=26.6, %#200=93.1								
	2.0			2.0						
		Hard, dry, weak red, elastic SILT (MH) (A-7-5) 10R 4/4			SS-2	10	17	19	36	
		@SS-2 LL=72, PL=39, PI=33, NMC=25.3, %#200=94.9								
	4.0			4.0						
459.8		Very stiff to stiff, dry, weak red, elastic SILT (MH) (A-7-5) 10R 4/4			SS-3	6	8	9	17	
				6.0						
					SS-4	4	6	9	15	
				8.0						
					SS-5	2	4	5	9	
454.8										
	12.0									
		Stiff to very stiff, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/6		13.5						
					SS-6	4	6	7	13	
449.8										
				18.5						
					SS-7	3	6	10	16	
444.8	20.0	***Boring Terminated at 20 feet***								

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-05 BULK
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	464.8 ft	**Latitude:**	34.16212256	**Longitude:**	-81.34398747	**Date Started:**	1/15/2016
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	6-1/2	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.E.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Unimproved Shoulder						
		RESIDUUM - Dry, weak red, SILT (ML) (A-5) 10R 4/4 LL=43, PL=35, PI=8, NMC=25.9, %#200=90.7		0.0				
459.8	5.0	***Boring Terminated at 5 feet***						
454.8								
449.8								
444.8								

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-06
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	458.7 ft	**Latitude:**	34.16267513	**Longitude:**	-81.3412799	**Date Started:**	1/15/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.1	Topsoil (1 inch)		0.0	SS-1	3	1	2	3
		FILL - Soft, dry, dark yellowish brown, lean CLAY (CL) (A-6) 10YR 4/6							
	2.0	@SS-1 LL=37, PL=21, PI=16, NMC=22.5, %#200=85.8		2.0	SS-2	2	2	4	6
		FILL - Firm, dry, dark yellowish brown, lean CLAY (CL) (A-6) 10YR 4/6							
		@SS-2 LL=41, PL=22, PI=19, NMC=25.6, %#200=91.5		4.0	SS-3	3	3	3	6
453.7		@SS-3 NMC=27							
	6.0	**RESIDUUM** - Very stiff, dry, dark yellowish brown, elastic SILT with sand (MH) (A-7-5) 10YR 4/4		6.0	SS-4	5	8	9	17
		@SS-4 LL=57, PL=32, PI=25, NMC=26.4, %#200=79.6		8.0	SS-5	4	6	8	14
	8.0	Stiff, dry, reddish brown, SILT (ML) (A-4) 5YR 4/4							
448.7									
	12.0	Very stiff, dry, brown, SILT (ML) (A-4) 10YR 4/3		13.5	SS-6	4	8	12	20
443.7									
				18.5	SS-7	8	10	11	21
438.7	20.0	**Boring Terminated at 20 feet**							

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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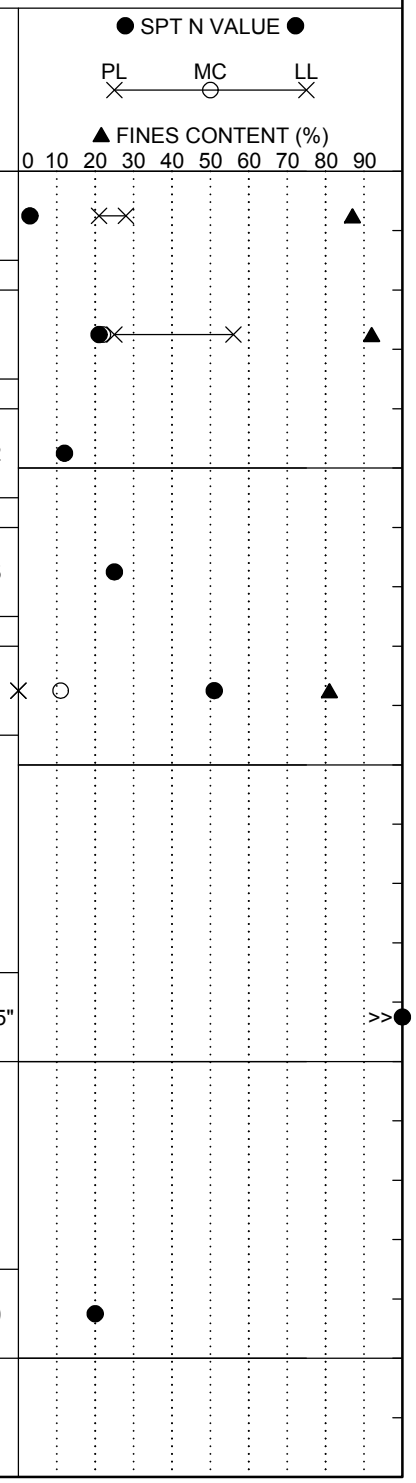
LEGEND

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:	42383	**County:**	Lexington	**Boring No.:**	B-07		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	472.7 ft	**Latitude:**	34.16384685	**Longitude:**	-81.34181472	**Date Started:**	2/4/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	2/5/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder						
	0.1	Topsoil (2 inches)	0.0					
		RESIDUUM - Soft, dry, dark yellowish brown, Silty CLAY (CL-ML) 10YR 4/6		SS-1	WOH	1	2	3
	2.0	@SS-1 LL=28, PL=21, PI=7, NMC=23.8, %#200=86.8	2.0					
		Very stiff to stiff, dry, dark yellowish brown, fat CLAY (CH) (A-7-6) 10YR 4/4		SS-2	6	8	13	21
		@SS-2 LL=56, PL=25, PI=31, NMC=22.4, %#200=91.7	4.0					
467.7				SS-3	3	4	8	12
	6.0	Very stiff to hard, dry, dark yellowish brown to very dark brown, SILT with sand (ML) (A-4) 10YR 4/4 to 10YR 2/4	6.0	SS-4	8	10	15	25
		@SS-5 LL=NP, PL=NP, PI=NP, NMC=10.6, %#200=81	8.0	SS-5	9	19	32	51
462.7								
	12.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, very yellowish brown, SILT (ML) (A-4) 10R 4/6	13.5	SS-6	27	50/5"		50/5"
457.7								
	17.0	**RESIDUUM** - Stiff, dry, very yellowish brown, SILT (ML) (A-4) 10R 4/6	18.5	SS-7	2	7	13	20
452.7	20.0	**Boring Terminated ta 20 feet**						



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	

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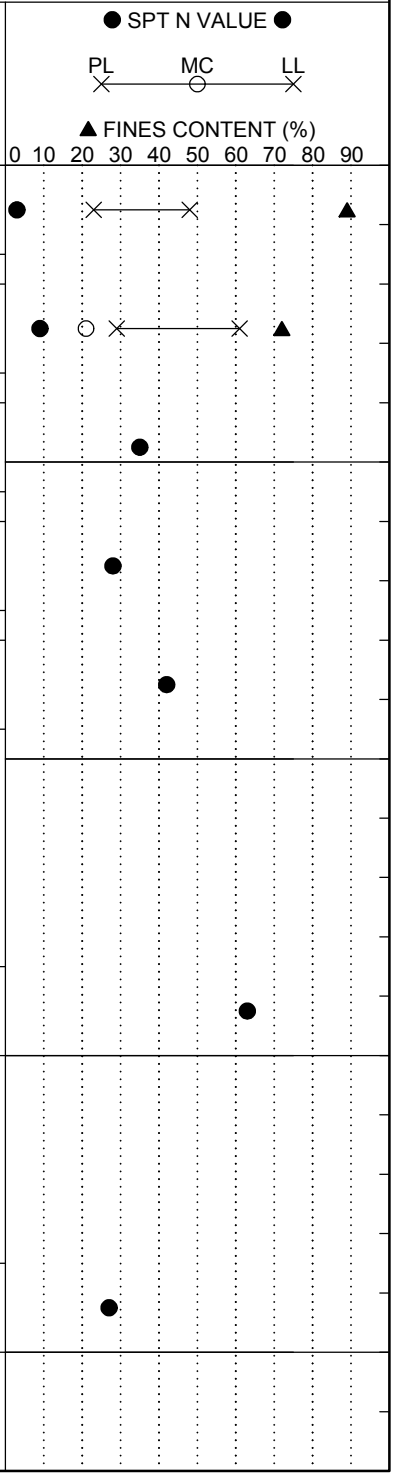
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-08
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	466.9 ft	**Latitude:**	34.16479581	**Longitude:**	-81.34300346	**Date Started:**	2/4/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	2/5/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Lawn							
	0.2	Topsoil (3 inches)		0.0	SS-1	WOH	1	2	3
		RESIDUUM - Soft, dry, dark yellowish brown, lean CLAY (CL) (A-7-6) 10YR 4/4							
	2.0	@SS-1 LL=48, PL=23, PI=25, NMC=26.6, %#200=89		2.0	SS-2	3	4	5	9
		Stiff, dry, very dark brown, fat CLAY with sand (CH) (A-7-6) 10YR 4/4							
	4.0	@SS-2 LL=61, PL=29, PI=32, NMC=21.3, %#200=71.7		4.0	SS-3	9	19	16	35
461.9		Hard to very stiff, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/4		6.0	SS-4	8	10	18	28
	8.0			8.0	SS-5	8	18	24	42
456.9		Hard to very stiff, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/4		13.5	SS-6	10	21	42	63
451.9				18.5	SS-7	9	10	17	27
446.9	20.0	**Boring Terminated at 20 feet**							



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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-09
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	472.8 ft	**Latitude:**	34.16643581	**Longitude:**	-81.34479901	**Date Started:**	1/12/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/13/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	6 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Lawn							
	0.3	Topsoil (3 inches)		0.0	SS-1	3	7	7	14
		FILL - Stiff, dry, red, lean CLAY with crushed aggregate (CL) (A-6) 5R 5/8							
	2.0	@SS-1 NMC=20.1, %#200=73.0		2.0	SS-2	9	11	11	22
		RESIDUUM - Very stiff, dry, light red, SILT with sand (ML) (A-4) 10R 6/8							
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=23.8, %#200=82.9		4.0	SS-3	6	9	8	17
467.8									
	6.0	▼		6.0	SS-4	4	5	6	11
		Stiff, dry, pale red, SILT with sand (ML) (A-4) 10R 6/4		8.0	SS-5	4	5	7	12
		@SS-5 NMC=38.9, %#200=82.4							
462.8									
				13.5	SS-6	4	6	9	15
457.8									
				18.5	SS-7	4	6	9	15
452.8	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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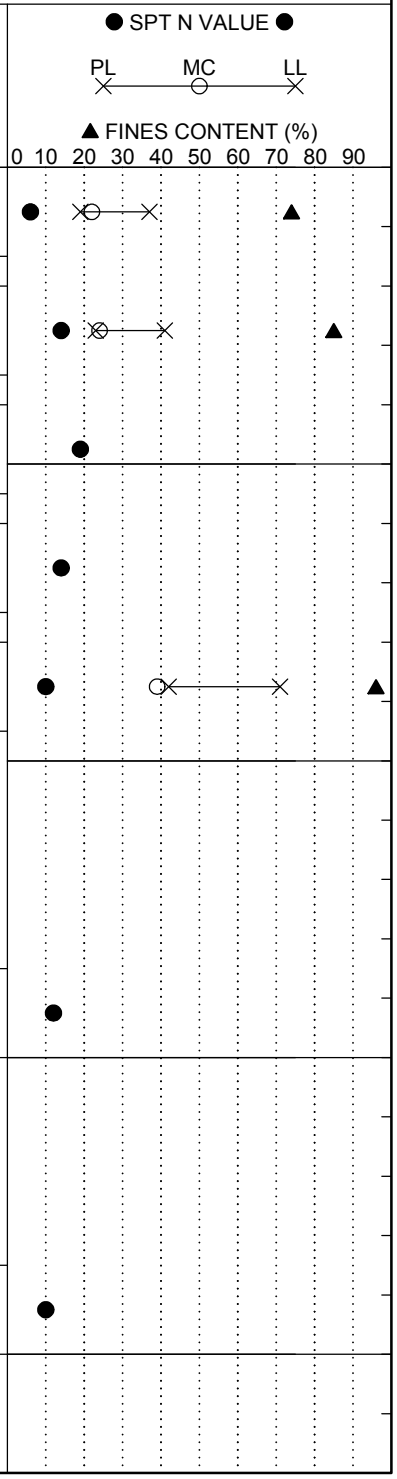
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-10
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	474.3 ft	**Latitude:**	34.167474	**Longitude:**	-81.34458671	**Date Started:**	12/21/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/22/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	3 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	2	3	3	6
		RESIDUUM - Firm, dry, red, lean CLAY with sand (CL) (A-6) 10R 4/8							
	2.0	@SS-1 LL=37, PL=19, PI=18, NMC=22.5, %#200=74.0		2.0	SS-2	3	5	9	14
		Stiff to very stiff, dry, red, lean CLAY with sand (CL) (A-7-6) 10R 4/8							
		@SS-2 LL=41, PL=23, PI=18, NMC=24.2, %#200=84.8		4.0	SS-3	3	6	13	19
469.3									
	6.0	Stiff, dry, red, elastic SILT (MH) (A-7-5) 10R 6/6		6.0	SS-4	2	5	9	14
				8.0	SS-5	2	4	6	10
		@SS-5 LL=71, PL=42, PI=29, NMC=19.7, %#200=95.7							
464.3									
				13.5	SS-6	3	5	7	12
459.3									
				18.5	SS-7	2	5	5	10
454.3	20.0	***Boring Terminated at 20 feet***							



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	

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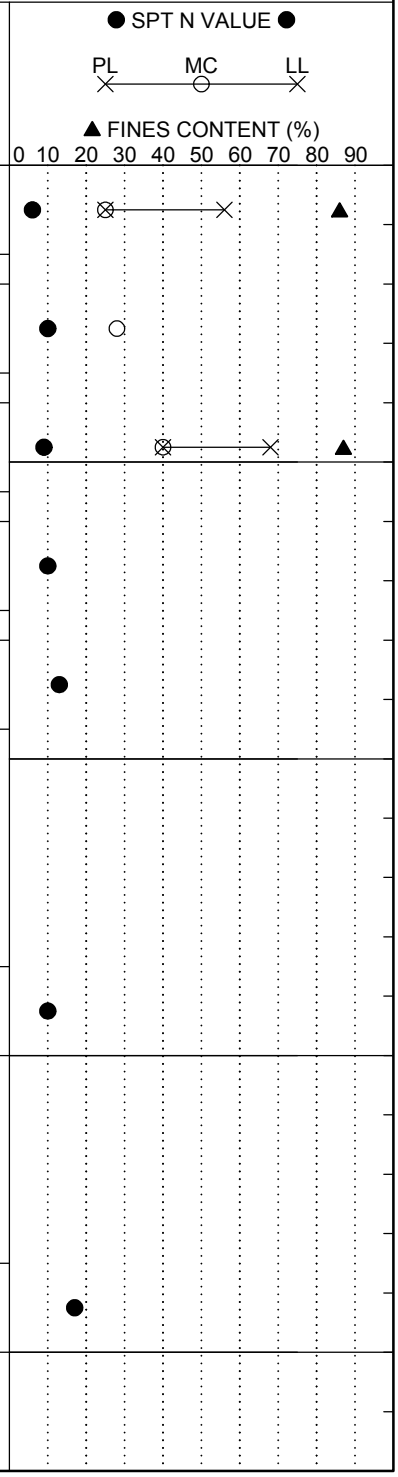
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-11
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	475.7 ft	**Latitude:**	34.16756856	**Longitude:**	-81.34322259	**Date Started:**	12/21/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/22/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	1	2	4	6
		RESIDUUM - Firm, moist, red, fat CLAY (CH) (A-7-6) 10R 4/8							
		@SS-1 LL=56, PL=25, PI=31, NMC=24.9, %#200=86.4		2.0	SS-2	1	4	6	10
		@SS-2 NMC=27.7							
	4.0			4.0	SS-3	3	4	5	9
470.7		Stiff to very stiff, moist, red, elastic SILT (MH) (A-7-5) 10R 4/8							
		@SS-3 LL=68, PL=40, PI=28, NMC=40.1, %#200=87.1		6.0	SS-4	1	3	7	10
				8.0	SS-5	1	5	8	13
465.7									
	12.0								
		Stiff, dry, pale red, SILT (ML) (A-4) 10R 7/4		13.5	SS-6	2	5	5	10
460.7									
				18.5	SS-7	2	7	10	17
455.7	20.0	***Boring Terminated at 20 feet***							



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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-12
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	478.5 ft	**Latitude:**	34.16768591	**Longitude:**	-81.34136484	**Date Started:**	1/11/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.2	Asphalt (2.5 inches)		0.5					
	0.7	Stone base (6 inches)			SS-1	3	3	3	6
	2.0	**FILL** - Firm, dry, red, lean CLAY with sand (CL) (A-7-6) 10R 4/6		2.0					
		@SS-1 LL=46, PL=23, PI=23, NMC=16.9, %#200=75.2			SS-2	3	6	18	24
	4.0	Very stiff, dry, light red, fat CLAY with sand (CH) (A-7-5) 10R 6/6		4.0					
473.5		@SS-2 LL=72, PL=34, PI=38, NMC=24.7, %#200=90.1			SS-3	3	50/5"		50/5"
	6.0	Hard, dry, light red, SILT with concrete fragments (ML) (A-4) 10R 6/6		6.0					
		RESIDUUM - Firm, dry, weak red, SILT (ML) (A-4) 10R 4/4			SS-4	3	4	3	7
	8.0	Stiff to very stiff, dry, red, SILT with sand (ML) (A-4) 10YR 4/6		8.0					
					SS-5	3	5	6	11
468.5									
				13.5					
		@SS-6 LL=NP, PL=NP, PI=NP, NMC=44.1, %#200=82.8			SS-6	4	5	8	13
463.5									
				18.5					
					SS-7	5	7	9	16
458.5	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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:	42383			**County:**	Lexington	**Boring No.:**	B-12 BULK
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	478.5 ft	**Latitude:**	34.16768591	**Longitude:**	-81.34136394	**Date Started:**	1/11/2016
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	6-1/2	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.E.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Roadway						
	0.2	Asphalt (2.5 inches)		0.0				
	0.7	Stone base (6 inches)						
		FILL - Dry, red, clayey SAND with gravel (SC) (A-2-4) 10R 4/6 LL=28, PL=18, PI=10, NMC=13.9, %#200=31.0						
473.5	5.0	***Boring Terminated at 5 feet***						
468.5								
463.5								
458.5								

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-13
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	470.0 ft	**Latitude:**	34.167932	**Longitude:**	-81.34022765	**Date Started:**	12/24/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/29/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	11 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.1	Topsoil (2 inches)		0.0	SS-1	1	1	2	3
	2.0	**RESIDUUM** - Soft, moist, red, lean CLAY with sand (CL) (A-6) 10R 4/8 @SS-1 LL=35, PL=21, PI=14, NMC=25.2, %#200=84.9		2.0	SS-2	5	5	8	13
		Stiff to very stiff, dry, red, fat CLAY (CH) (A-7-6) 10R 4/8 @SS-2 LL=52, PL=24, PI=28, NMC=24.7, %#200=87.7		4.0	SS-3	10	13	14	27
465.0	6.0	Very stiff, dry, light red, elastic SILT (MH) (A-7-5) 10R 6/6 @SS-4 LL=62, PL=32, PI=30, NMC=27.9, %#200=94.9		6.0	SS-4	6	9	14	23
				8.0	SS-5	3	10	12	22
460.0	12.0	Stiff to very stiff, dry, light red, Sandy SILT (ML) (A-4) 10R 6/6		13.5	SS-6	3	5	8	13
455.0				18.5	SS-7	4	8	8	16
450.0	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-14
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	456.2 ft	**Latitude:**	34.1682436	**Longitude:**	-81.33855704	**Date Started:**	12/24/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/29/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	1	1	1	2
		RESIDUUM - Soft, moist, red, fat CLAY (CH) (A-7-6) 10R 4/8							
	2.0	@SS-1 LL=63, PL=26, PI=37, NMC=25.8, %#200=92.4		2.0	SS-2	5	9	9	18
		Very stiff to hard, dry, red, fat CLAY (CH) (A-7-6) 10R 4/8							
		@SS-2 LL=59, PL=25, PI=34, NMC=24.9, %#200=86.6		4.0	SS-3	13	15	16	31
451.2									
	6.0	Very stiff to stiff, moist, light red, elastic SILT (MH) (A-7-5) 10R 6/8		6.0	SS-4	7	13	16	29
				8.0					
		@SS-5 LL=69, PL=40, PI=29, NMC=31.0, %#200=87.5			SS-5	2	9	17	26
446.2									
				13.5	SS-6	4	5	6	11
441.2									
	17.0	Stiff, moist, reddish yellow, Sandy SILT (ML) (A-4) 5YR 7/6		18.5	SS-7	3	5	7	12
436.2	20.0	***Boring Terminated at 20 feet***							

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-15
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	457.0 ft	**Latitude:**	34.16850779	**Longitude:**	-81.33659435	**Date Started:**	12/24/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/29/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	1	1	2	3
		RESIDUUM - Soft, moist, red, fat CLAY (CH) (A-7-6) 10R 4/8							
	2.0	@SS-1 NMC=27.1, %#200=91		2.0	SS-2	6	10	11	21
		Very stiff, moist, red, fat CLAY (CH) (A-7-6) 10R 4/8							
	4.0	@SS-2 LL=59, PL=27, PI=32, NMC=27.1, %#200=89.3		4.0	SS-3	4	9	9	18
452.0		Very stiff, dry, red, elastic SILT (MH) (A-7-5) 10R 4/8		6.0	SS-4	8	13	16	29
	8.0	Very stiff to stiff, dry, light red, SILT (ML) (A-4) 10R 6/6		8.0	SS-5	7	8	11	19
447.0				13.5	SS-6	3	4	6	10
442.0	17.0	Firm, dry, light red, SILT (ML) (A-4) 10R 7/6		18.5	SS-7	2	4	4	8
437.0	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-16
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	470.8 ft	**Latitude:**	34.16909514	**Longitude:**	-81.33531114	**Date Started:**	12/3/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/7/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.3	Asphalt (3 inches)		0.5					
	0.6	Stone Base (4 inches)			SS-1	23	15	17	32
	2.0	**FILL** - Hard, dry, gray, elastic SILT with crushed aggregate (MH) (A-7-5) 5YR 6/1		2.0	SS-2	17	21	25	46
		@SS-1 NMC=25.3, %#200=89.2							
		RESIDUUM - Hard to very stiff, dry, red, micaceous elastic SILT (MH) (A-7-5) 10R 4/6		4.0	SS-3	9	1	17	18
465.8		@SS-2 LL=51, PL=31, PI=20, NMC=25.7, %#200=88.8							
	6.0			6.0					
		Hard, dry, red, micaceous SILT (ML) (A-4) 10R 5/6			SS-4	10	25	27	52
				8.0	SS-5	6	12	18	30
460.8									
				13.5	SS-6	28	40	50	90
455.8									
				18.5	SS-7	6	15	19	34
450.8	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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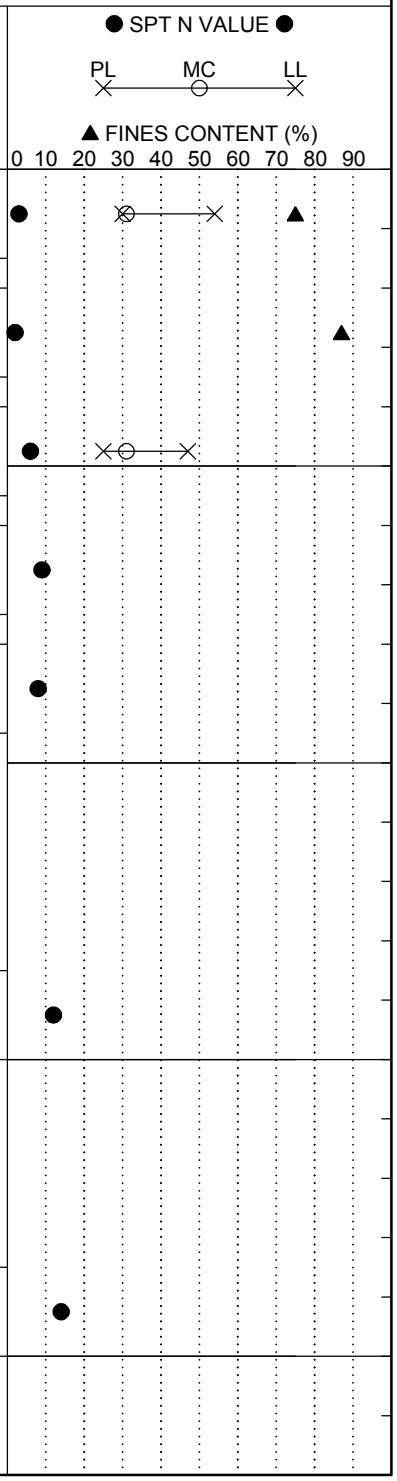
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-17
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	456.2 ft	**Latitude:**	34.16968294	**Longitude:**	-81.33385583	**Date Started:**	12/29/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/30/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	1	2	1	3
		RESIDUUM - Soft, dry, red, elastic SILT with sand (MH) (A-7-5) 10R 5/8							
	2.0	@SS-1 LL=54, PL=30, PI=24, NMC=31.5, %#200=75.3		2.0	SS-2	1	1	1	2
		Soft to firm, dry, red, lean CLAY with sand (CL) (A-7-6) 10R 4/8		4.0	SS-3	3	3	3	6
		@SS-2 NMC=38.3, %#200=86.8							
451.2		@SS-3 LL=47, PL=25, PI=22, NMC=31.4							
	6.0	Stiff to firm, dry, red, SILT (ML) (A-4) 10R 4/8		6.0	SS-4	2	3	6	9
				8.0	SS-5	1	3	5	8
446.2									
	12.0	Stiff, dry, light red, SILT (ML) (A-4) 10R 6/8		13.5	SS-6	3	5	7	12
441.2									
	17.0	Stiff, dry, reddish yellow, Sandy SILT (ML) (A-4) 5YR 6/8		18.5	SS-7	4	5	9	14
436.2	20.0	***Boring Terminated at 20 feet***							



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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-18
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	440.7 ft	**Latitude:**	34.17045271	**Longitude:**	-81.33272162	**Date Started:**	12/29/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/30/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	2 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	1	1	2	3
		RESIDUUM - Soft to firm, moist, red, lean CLAY with sand (CL) (A-7-6) 10R 4/8							
		▼@SS-1 NMC=33.8		2.0	SS-2	1	1	2	3
		@SS-2 LL=41, PL=23, PI=18, NMC=30.5, %#200=82							
				4.0	SS-3	1	2	3	5
435.7	6.0								
		Stiff, dry, light red, SILT (ML) (A-4) 10R 6/8		6.0	SS-4	4	5	8	13
	8.0			8.0	SS-5	3	9	13	22
		Very stiff to stiff, dry, reddish yellow, Sandy SILT (ML) (A-4) 5YR 6/8							
430.7									
				13.5	SS-6	6	9	15	24
425.7									
				18.5	SS-7	2	5	9	14
420.7	20.0	***Boring Terminated at 20 feet***							

● SPT N VALUE ●

PL MC LL

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-19
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	439.6 ft	**Latitude:**	34.17162268	**Longitude:**	-81.33147126	**Date Started:**	12/29/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/30/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	1	2	3	5
		RESIDUUM - Firm, dry, red, fat CLAY with sand (CH) (A-7-6) 10R 4/8							
	2.0	@SS-1 LL=50, PL=24, PI=26, NMC=24, %#200=83.9		2.0	SS-2	5	10	12	22
		Very stiff, dry, red, elastic SILT (MH) (A-7-5) 10R 4/8							
		@SS-2 LL=63, PL=32, PI=31, NMC=26.6, %#200=88.7		4.0	SS-3	2	7	17	24
434.6									
	6.0	Very stiff, dry, light red, SILT (ML) (A-4) 10R 6/8		6.0	SS-4	5	9	12	21
	8.0	Very stiff to stiff, dry, pale red, SILT (ML) (A-4) 10R 7/4		8.0	SS-5	2	7	9	16
429.6									
				13.5	SS-6	5	10	12	22
424.6									
				18.5	SS-7	3	6	9	15
419.6	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-20
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	433.5 ft	**Latitude:**	34.17265171	**Longitude:**	-81.33040187	**Date Started:**	1/12/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2015
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.2	Asphalt (2 inches)		0.5					
	0.6	Stone base (5 inches)			SS-1	9	11	16	27
	2.0	**RESIDUUM** - Very stiff, dry, weak red, elastic SILT (MH) (A-7-5) 10R 4/4		2.0	SS-2	7	9	12	21
		@SS-1 LL=64, PL=34, PI=30, NMC=22, %#200=96.6							
		Very stiff, dry, red, elastic SILT with sand (MH) (A-7-5) 10R 5/8		4.0					
428.5		@SS-2 LL=56, PL=33, PI=23, NMC=20.2, %#200=84.3			SS-3	7	11	12	23
	6.0	Stiff to firm, dry, red, SILT (ML) (A-4) 7.5R 5/8		6.0	SS-4	5	5	7	12
				8.0					
		@SS-5 LL=NP, PL=NP, PI=NP, NMC=33, %#200=95.7			SS-5	4	4	4	8
423.5									
	12.0	Very stiff to hard, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/6		13.5	SS-6	5	7	12	19
418.5									
				18.5					
					SS-7	8	12	21	33
413.5	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-20 BULK
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	433.5 ft	**Latitude:**	34.17265205	**Longitude:**	-81.33040296	**Date Started:**	1/12/2016
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	6-1/2	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.E.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Roadway								
	0.2	Asphalt (2 inches)		0.0						
	0.6	Stone base (5 inches)								
		Dry, red, SILT with sand (ML) (A-7-6) 10R 5/8 LL=46, PL=28, PI=18, NMC=21.6, %#200=76.6								
428.5	5.0	***Boring Terminated at 5 feet***								
423.5										
418.5										
413.5										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-21
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	421.0 ft	**Latitude:**	34.17382553	**Longitude:**	-81.32962803	**Date Started:**	12/29/2015
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	12/30/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	4 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	2	2	3	5
		RESIDUUM - Firm to stiff, dry, reddish yellow, SILT with sand (ML) (A-4) 5YR 7/8							
		@SS-1 NMC=25		2.0	SS-2	2	2	8	10
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=18.4, %#200=74.9							
	4.0	▼		4.0					
416.0		Hard, dry, reddish yellow, SILT (ML) (A-4) 7.5YR 7/8			SS-3	3	14	21	35
	6.0			6.0					
		PARTIALLY WEATHERED ROCK - Classified as hard, dry, yellow, SILT (ML) (A-4) 10YR 7/8			SS-4	13	36	50/3"	50/3"
				8.0	SS-5	21	50/2"		50/2"
411.0									
				13.5	SS-6	13	19	50/2"	50/2"
406.0									
				18.5	SS-7	50/2"			50/2"
401.0	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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:	42383			**County:**	Lexington	**Boring No.:**	B-22
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	416.3 ft	**Latitude:**	34.17515553	**Longitude:**	-81.32843476	**Date Started:**	01/04/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.1	Topsoil (1 inch)		0.0	SS-1	1	3	5	8
		RESIDUUM - Firm to very stiff, dry, red, fat CLAY (CH) (A-7-6) 10R 5/6		2.0					
		@SS-1 LL=70, PL=29, PI=41, NMC=24.3, %#200=88.4			SS-2	1	12	14	26
		@SS-2 NMC=35.9		4.0					
	4.0	Very stiff to stiff, dry, yellowish brown, SILT with sand (ML) (A-4) 10YR 5/4			SS-3	3	8	13	21
411.3				6.0					
		@SS-4 LL=34, PL=31, PI=3, NMC=39.6, %#200=76.1			SS-4	4	7	9	16
				8.0					
					SS-5	5	6	6	12
406.3									
	12.0	Hard, dry, yellowish brown, SILT (ML) (A-4) 10YR 5/4		13.5					
					SS-6	11	19	23	42
401.3									
	17.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, yellowish brown, SILT (ML) (A-4) 10YR 5/4		18.5					
					SS-7	29	50/5"		50/5"
396.3	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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	

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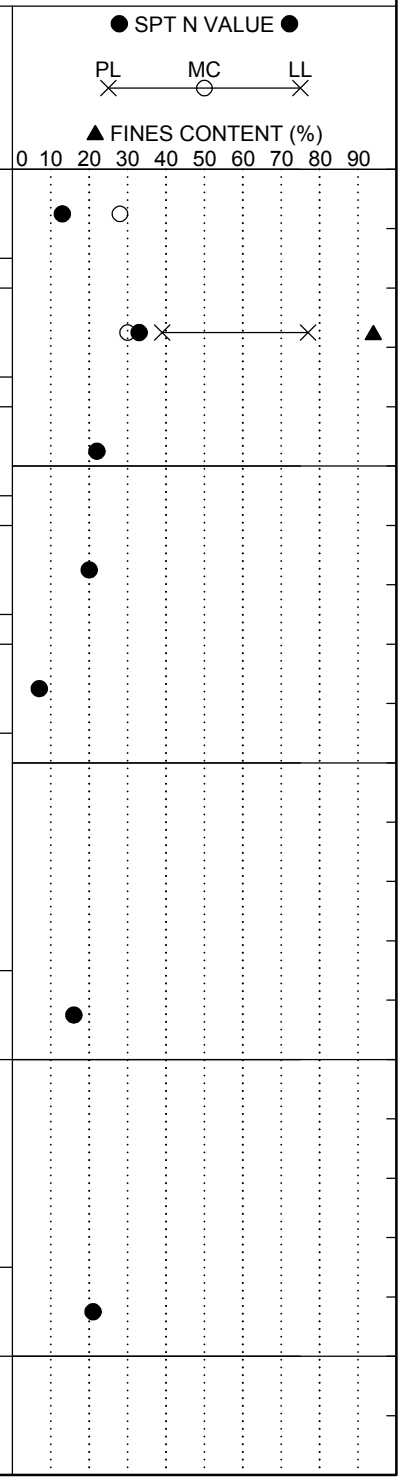
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-23
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	422.1 ft	**Latitude:**	34.17569435	**Longitude:**	-81.32667372	**Date Started:**	01/04/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Gravel Shoulder							
	0.3	Crushed aggregate (3 inches)		0.0	SS-1	7	5	8	13
		RESIDUUM - Very stiff to hard, dry, red, elastic SILT (MH) (A-7-5) 10R 4/6		2.0					
		@SS-1 NMC=28.2			SS-2	7	12	21	33
		@SS-2 LL=77, PL=39, PI=38, NMC=29.9, %#200=93.8		4.0					
	4.0	Very stiff, dry, red, SILT (ML) (A-4) 10R 4/6			SS-3	13	10	12	22
417.1				6.0					
					SS-4	7	9	11	20
	8.0	Firm, dry, dusky red, SILT (ML) (A-4) 10R 3/4		8.0	SS-5	1	2	5	7
412.1									
	12.0	Very stiff, dry, pale red, SILT (ML) (A-4) 10R 7/3		13.5	SS-6	5	7	9	16
407.1									
				18.5	SS-7	4	8	13	21
402.1	20.0	***Boring Terminated at 20 feet***							



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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-24		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	390.4 ft	**Latitude:**	34.17372281	**Longitude:**	-81.32360384	**Date Started:**	1/11/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/11/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0	Roadway								
	0.1	Asphalt (1.5 inches)		0.0						
	0.5	Stone base (5 inches)			SS-1	5	5	8	13	
	2.0	**RESIDUUM** - Stiff, dry, very dark brown, lean CLAY (CL) (A-6) 10YR 2/2		2.0						
		@SS-1 LL=40, PL=22, PI=18, NMC=18.9, %#200=90.6			SS-2	5	5	8	13	
	4.0	Stiff, dry, very dark brown to dark yellowish brown, fat CLAY with sand (CH) (A-7-6) 10YR 2/2 to 10R 4/4		4.0						
385.4		@SS-2 LL=59, PL=23, PI=36, NMC=23.2, %#200=82.8			SS-3	3	4	34	38	
	6.0	Hard, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/4		6.0						
		PARTIALLY WEATHERED ROCK - Classified as hard, dry, dark grayish brown, SILT (ML) (A-4) 10YR 4/2			SS-4	38	32	50/2"	50/2"	>>
				8.0						
					SS-5	50/5"			50/5"	>>
380.4										
	12.0	**RESIDUUM** - Hard, dry, dark grayish brown, SILT (ML) (A-4) 10YR 4/2								
				13.5						
					SS-6	18	28	44	72	
375.4										
	17.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, dark grayish brown, SILT (ML) (A-4) 10YR 4/2								
				18.5						
					SS-7	34	50/4"		50/4"	>>
370.4	20.0	***Boring Terminated at 20 feet***								

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-25
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Proposed
Elev.:	406.9 ft	**Latitude:**	34.17721259	**Longitude:**	-81.32610491	**Date Started:**	1/15/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/16/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	N.E.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grass Right of Way							
	0.3	Topsoil (3 inches)		0.0	SS-1	2	2	3	5
		RESIDUUM - Firm to stiff, dry, weak red, Sandy elastic SILT (MH) (A-7-5) 10R 4/4							
		@SS-1 NMC=23.1		2.0	SS-2	5	5	7	12
		@SS-2 LL=52, PL=32, PI=20, NMC=28.1, %#200=66.6							
	4.0	Stiff to very stiff, dry, pale red, micaceous, SILT (ML) (A-4) 10R 6/4		4.0	SS-3	5	7	8	15
401.9				6.0	SS-4	5	7	12	19
	8.0	Hard, dry, reddish brown, micaceous, SILT (ML) (A-4) 5YR 4/4		8.0	SS-5	5	24	27	51
396.9									
	12.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, reddish brown, micaceous, SILT (ML) (A-4) 5YR 4/4		13.5	SS-6	19	36	50/5"	50/5"
391.9									
	17.0	**RESIDUUM** - Hard, dry, reddish brown, micaceous, SILT (ML) (A-4) 5YR 4/4		18.5	SS-7	13	19	27	46
386.9	20.0	***Boring Terminated at 20 feet***							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-26
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.9 ft	**Latitude:**	34.17942959	**Longitude:**	-81.31923207	**Date Started:**	1/12/2016
Total Depth:	20 ft	**Soil Depth:**	20 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.A.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Roadway							
	0.2	Asphalt (2 inches)		0.5					
	0.7	Stone base (6 inches)			SS-1	13	14	16	30
		RESIDUUM - Very stiff to stiff, dry, light red, elastic SILT (MH) (A-7-5) 10R 6/8		2.0					
		@SS-1 LL=54, PL=33, PI=21, NMC=17.5, %#200=85.1			SS-2	4	5	8	13
		@SS-2 NMC=16.9							
	4.0			4.0					
		Hard to very stiff, dry, light red to pale red, SILT (ML) (A-4) 10R 6/8 to 10R 6/4			SS-3	19	20	25	45
387.9									
		@SS-4 NMC=26.5		6.0					
					SS-4	8	9	11	20
	8.0			8.0					
		Stiff, dry, weak red, SILT (ML) (A-4) 10R 4/4			SS-5	5	6	8	14
382.9									
	12.0								
		Very stiff, dry, very dusky red, SILT (ML) (A-4) 10R 2.5/2		13.5					
					SS-6	9	11	14	25
377.9									
	17.0								
		Very stiff, dry, light red, SILT (ML) (A-4) 10R 6/6		18.5					
					SS-7	12	7	10	17
372.9	20.0								
		Boring Terminated at 20 feet							

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-26 BULK
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.9 ft	**Latitude:**	34.17942865	**Longitude:**	-81.31923108	**Date Started:**	1/12/2016
Total Depth:	5 ft	**Soil Depth:**	5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	6-1/2	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-45C	**Drill Method:**	HSA	**Hammer Type:**	Automatic	**Energy Ratio:**	71.8%
Core Size:	N.A.	**Driller:**	JP	**Groundwater:**	**TOB** N.E.	**24HR**	N.A.

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0	Roadway						
	0.2	Asphalt (2 inches)		0.0				
	0.7	Stone base (6 inches)						
		RESIDUUM - Dry, light red, sandy SILT (ML) (A-6) 10R 6/8 LL=36, PL=25, PI=11, NMC=18.9, %#200=67.1						
387.9	5.0	***Boring Terminated at 5 feet***						
382.9								
377.9								
372.9								

FINES CONTENT (%): 0 10 20 30 40 50 60 70 80 90

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	

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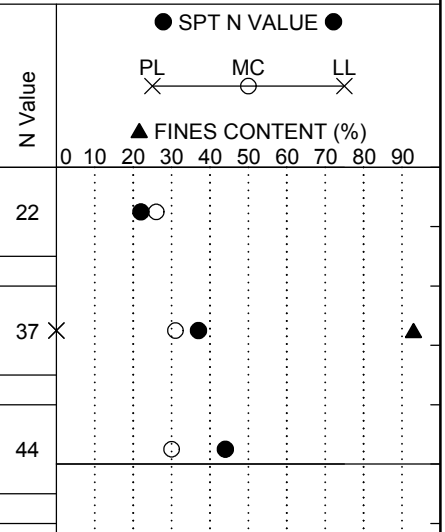
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-27
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.1 ft	**Latitude:**	34.17591777	**Longitude:**	-81.32096728	**Date Started:**	1/4/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grass Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	6	9	13	22
		RESIDUUM - Very stiff, dry, red, elastic SILT (MH) (A-7-5) 10R 4/6							
	2.0	@SS-1 NMC=26.1		2.0	SS-2	18	21	16	37
		Hard, dry, red, SILT (ML) (A-4) 10R 4/6							
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=30.6, %#200=93.4		4.0	SS-3	12	15	29	44
385.1		@SS-3 NMC=30							
	6.0	Stiff to very stiff, dry, red, SILT (ML) (A-4) 10R 4/6		6.0	SS-4	3	7	7	14
				8.0	SS-5	2	5	7	12
380.1									
				13.5	SS-6	5	9	14	23
375.1									
				18.5	SS-7	3	5	12	17
370.1									
	22.0								



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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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-27
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.1 ft	**Latitude:**	34.17591777	**Longitude:**	-81.32096728	**Date Started:**	1/4/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Very stiff, dry, red, SILT (ML) (A-4) 10R 4/6		23.5						
					SS-8	3	8	10	18	●
365.1										
	27.0	Very stiff, moist, red, SILT (ML) (A-4) 10YR 5/6		28.5						
					SS-9	3	7	11	18	●
360.1	30.0	***Boring Terminated at 30 feet***								
355.1										
350.1										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-28
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	387.8 ft	**Latitude:**	34.1777956	**Longitude:**	-81.3246511	**Date Started:**	1/4/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	12 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	0.0	Grassed Shoulder								
	0.2	Topsoil (2 inches)		0.0	SS-1	2	3	4	7	
		RESIDUUM - Firm to stiff, dry, red, SILT with sand (ML) (A-4) 10R 4/6								
		@SS-1 NMC=26.6		2.0	SS-2	3	3	3	6	
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=33.7, %#200=73.1								
				4.0						
		@SS-3 NMC=41.8			SS-3	3	4	7	11	
382.8	6.0									
		Soft, dry, yellowish brown, SILT (ML) (A-4) 10YR 5/4		6.0	SS-4	1	1	2	3	
		@SS-4 NMC=30.6								
	8.0			8.0						
		Firm, dry, brownish yellow, SILT with sand (ML) (A-4) 10YR 6/8			SS-5	1	3	4	7	
377.8										
	12.0	▼								
		Soft, moist, dark brown, SILT with sand (ML) (A-4) 10YR 3/3								
		@SS-6 NMC=28		13.5	SS-6	1	1	2	3	
372.8										
	17.0									
		Stiff, dry, light gray, lean CLAY (CL) (A-6) 10YR 7/1								
				18.5						
					SS-7	2	4	8	12	
367.8										
	22.0									

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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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-28
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	387.8 ft	**Latitude:**	34.1777956	**Longitude:**	-81.3246511	**Date Started:**	1/4/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	12 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Very stiff, dry, white, SILT (ML) (A-4) 10YR 8/1		23.5						
					SS-8	4	8	18	26	●
362.8										
	27.0	Very stiff, dry, yellow, SILT (ML) (A-4) 10YR 7/8								
				28.5						
					SS-9	5	9	14	23	●
357.8	30.0	***Boring Terminated at 30 feet***								
352.8										
347.8										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-29
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.8 ft	**Latitude:**	34.17724242	**Longitude:**	-81.32322918	**Date Started:**	1/14/2016
Total Depth:	103.5 ft	**Soil Depth:**	103.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Toe of Slope							
	0.1	Topsoil (1 inch)		0.0	SS-1	2	3	5	8
		RESIDUUM - Firm, moist, light red, SILT (ML) (A-4) 10R 6/8							
	2.0	@SS-1 NMC=32.2		2.0					
		Stiff to very stiff, moist, red, SILT (ML) (A-4) 10R 5/8			SS-2	3	7	7	14
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=30.4, %#200=90.7		4.0					
387.8		@SS-3 NMC=28.8			SS-3	6	7	9	16
	6.0			6.0					
		Very stiff, dry, light red, SILT (ML) (A-4) 10R 7/8			SS-4	4	11	12	23
		@SS-4 NMC=25.9		8.0					
					SS-5	2	7	13	20
382.8									
				13.5					
		@SS-6 NMC=24.3			SS-6	6	10	13	23
377.8									
	17.0								
		Very stiff, dry, yellow to brownish yellow, SILT (ML) (A-4) 10YR 8/6 to 10YR6/6		18.5					
					SS-7	8	10	16	26
372.8									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-29
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.8 ft	**Latitude:**	34.17724242	**Longitude:**	-81.32322918	**Date Started:**	1/14/2016
Total Depth:	103.5 ft	**Soil Depth:**	103.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				23.5	SS-8	6	9	14	23	●
367.8										
	27.0	Hard, dry, very pale brown, SILT (ML) (A-4) 10YR 8/2		28.5	SS-9	13	25	40	65	●
362.8										
	32.0	**PARTIALLY WEATHERED ROCK**- Classified as hard, dry, very pale brown, SILT (ML) (A-4) 10YR 8/2		33.5	SS-10	50/5"			50/5"	>>●
357.8										
	37.0	**RESIDUUM** - Hard, dry, yellow, SILT (ML) (A-4) 10YR 7/6		38.5	SS-11	21	35	44	79	●
352.8										
	42.0	**PARTIALLY WEATHERED ROCK**- Classified as hard, dry, very pale brown, SILT (ML) (A-4) 10YR 7/4		43.5						

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-29
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.8 ft	**Latitude:**	34.17724242	**Longitude:**	-81.32322918	**Date Started:**	1/14/2016
Total Depth:	103.5 ft	**Soil Depth:**	103.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
347.8					SS-12	23	48	50/5"	50/5"
	47.0	**RESIDUUM** - Very stiff to hard, dry, very pale brown to brownish yellow, SILT with sand (ML) (A-4) 10YR 7/4 to 10YR6/8		48.5	SS-13	7	10	14	24
342.8									
		@SS-14 LL=NP, PL=NP, PI=NP, NMC=30.3, %#200=77.9		53.5	SS-14	8	11	10	21
337.8									
				58.5	SS-15	13	14	17	31
332.8									
	62.0	**PARTIALLY WEATHERED ROCK**- Classified as hard, dry, brownish yellow, Sandy SILT (ML) (A-4) 10YR 6/6		63.5	SS-16	50/4"			50/4"
327.8									

SPT N VALUE ● PL × MC ○ LL × ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-29		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.8 ft	**Latitude:**	34.17724242	**Longitude:**	-81.32322918	**Date Started:**	1/14/2016
Total Depth:	103.5 ft	**Soil Depth:**	103.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				68.5	SS-17	17	34	50/4"	50/4"	>>
322.8				73.5	SS-18	50/2"			50/2"	>>
317.8				78.5	SS-19	32	50/4"		50/4"	>>
312.8				83.5	SS-20	50/5"			50/5"	>>
307.8	87.0	**PARTIALLY WEATHERED ROCK**- Classified as hard, dry, olive, Sandy SILT								

Continued Next Page

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-29
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	392.8 ft	**Latitude:**	34.17724242	**Longitude:**	-81.32322918	**Date Started:**	1/14/2016
Total Depth:	103.5 ft	**Soil Depth:**	103.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/15/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		(ML) (A-4) 5Y 4/4		88.5				
		@SS-21 NMC=12.7			SS-21	50/3"	50/3"	>>
302.8								
				93.5				
					SS-22	50/1"	50/1"	>>
297.8								
	97.0	**PARTIALLY WEATHERED ROCK**- No sample recovered						
				98.5				
					SS-23	50/1"	50/1"	>>
292.8								
	103.5	**Boring Terminated at 103.5 feet**		103.5				
					SS-24	50/0"	50/0"	>>
287.8								

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	

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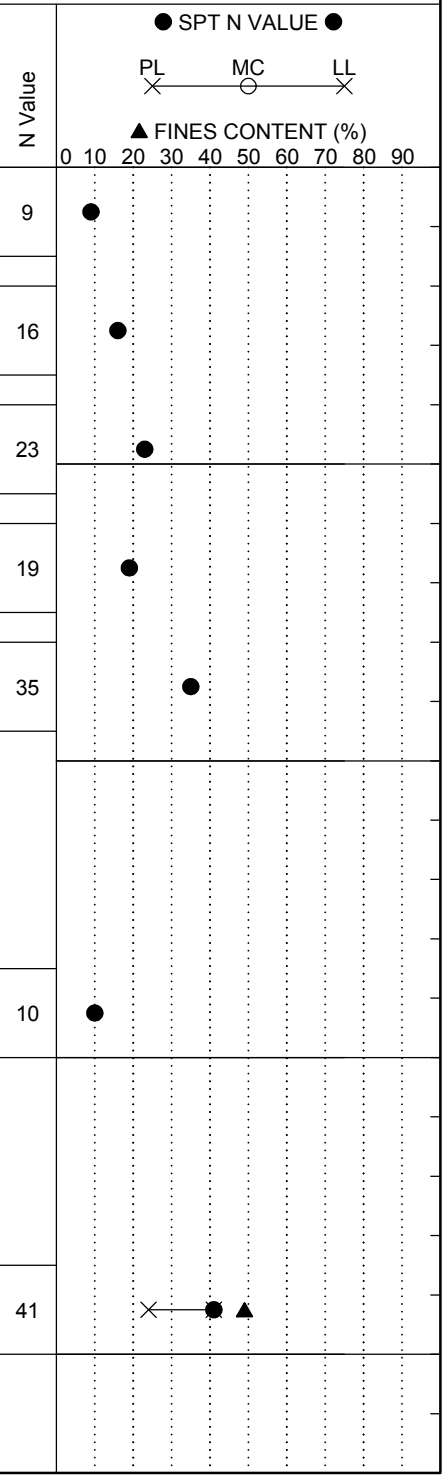
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-30
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Toe of Slope							
	0.2	Topsoil (2 inches)		0.0	SS-1	2	4	5	9
		RESIDUUM - Stiff to very stiff, moist, light red, elastic SILT with sand (MH) (A-7-5) 10R 6/8		2.0					
		@SS-1 NMC=36.4			SS-2	6	6	10	16
		@SS-2 LL=53, PL=43, PI=10, NMC=11.2, %#200=70.2							
	4.0			4.0					
394.4		Very stiff, moist, red, Sandy SILT (ML) (A-4) 10R 5/8			SS-3	11	10	13	23
	6.0			6.0					
		Very stiff to hard, dry, reddish yellow, Sandy SILT (ML) (A-4) 5YR 7/8			SS-4	2	5	14	19
				8.0					
					SS-5	7	14	21	35
389.4									
	12.0								
		Stiff, dry, reddish yellow, Sandy SILT (ML) (A-4) 5YR 7/8		13.5					
					SS-6	2	3	7	10
384.4									
	17.0								
		Dense, dry, reddish yellow, subrounded Clayey SAND (SC) (A-7-6) 5YR 6/8		18.5					
		@SS-7 LL=41, PL=24, PI=17, NMC=24.9, %#200=49.4			SS-7	7	16	25	41
379.4									
	22.0								



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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-30
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		PARTIALLY WEATHERED ROCK - Classified as hard, dry, yellowish red, Sandy SILT (ML) (A-4) 5YR 5/8		23.5						
					SS-8	14	34	50/4"	50/4"	>>
374.4										
	27.0	**RESIDUUM** - Hard, dry, yellow, Sandy SILT (ML) (A-4) 10YR 7/8		28.5						
					SS-9	9	22	28	50	
369.4										
	32.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, yellowish brown, Sandy SILT (ML) (A-4) 10YR 6/8		33.5						
					SS-10	20	47	50/3"	50/3"	>>
364.4										
				38.5						
					SS-11	16	32	50/4"	50/4"	>>
359.4										
	42.0	**RESIDUUM** - Hard, dry, brownish yellow, Sandy SILT (ML) (A-4) 10YR 6/8		43.5						

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-30		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
354.4					SS-12	11	22	30	52	●
	47.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, olive brown, Sandy SILT (ML) (A-4) 2.5Y 5/6		48.5						
					SS-13	50/4"			50/4"	>>
349.4				53.5						
					SS-14	50/2"			50/2"	>>
344.4				58.5						
					SS-15	50/1"			50/1"	>>
339.4				63.5						
	62.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, brownish yellow, Sandy SILT (ML) (A-4) 10YR 6/8			SS-16	46	50/2"		50/2"	>>
334.4										

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-30
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				68.5	SS-17	50/4"			50/4"	>>
329.4	72.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, light olive brown, Sandy SILT (ML) (A-4) 2.5Y 5/6		73.5	SS-18	50/5"			50/5"	>>
324.4	77.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, yellowish brown to brownish yellow, Sandy SILT (ML) (A-4) 10YR 5/8 to 10YR6/6		78.5	SS-19	50/5"			50/5"	>>
319.4				83.5	SS-20	50/5"			50/5"	>>
314.4										

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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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-30		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" 2nd 6" 3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		@SS-21 NMC=22.6		88.5				
309.4					SS-21	50/5"	50/5"	>>
				93.5				
					SS-22	50/3"	50/3"	>>
304.4								
	97.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, olive gray, Sandy SILT (ML) (A-4) 5Y 5/2		98.5				
					SS-23	50/4"	50/4"	>>
299.4								
	102.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, grayish green to pale green, Sandy SILT (ML) (A-4) GLEY1 5/2 to GLEY1 6/2		103.5				
					SS-24	50/5"	50/5"	>>
294.4								
				108.5				
					SS-25	35 50/5"	50/5"	>>

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-30
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	399.4 ft	**Latitude:**	34.17690257	**Longitude:**	-81.32276508	**Date Started:**	1/13/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/14/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	19 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				113.5						
					SS-26	48	50/3"		50/3"	>>
284.4										
				118.5						
					SS-27	50/3"			50/3"	>>
279.4	120.0	**Boring Terminated at 120 feet.**								
274.4										
269.4										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-31
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.2 ft	**Latitude:**	34.17731581	**Longitude:**	-81.32280001	**Date Started:**	1/17/2016
Total Depth:	105 ft	**Soil Depth:**	105 ft	**Core Depth:**	0 ft	**Date Completed:**	1/18/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Median							
	0.3	Topsoil (3 inches)		0.0	SS-1	1	2	3	5
		RESIDUUM - Firm, moist, red, elastic SILT trace organics (MH) (A-7-5) 10R 4/6							
	2.0	@SS-1 NMC=18.6		2.0					
		Firm, moist, red, elastic SILT with sand (MH) (A-7-5) 10R 4/6			SS-2	2	3	5	8
	4.0	@SS-2 LL=56, PL=38, PI=18, NMC=35.7, %#200=79.4		4.0					
385.2		Stiff to firm, moist, dark red, SILT with sand (ML) (A-4) 2.5YR 3/6			SS-3	4	6	7	13
		@SS-3 NMC=41.2		6.0	SS-4	2	2	3	5
	8.0 ▼			8.0	SS-5	1	1	2	3
380.2		Soft, moist, dark red, SILT (ML) (A-4) 2.5YR 3/6							
	12.0								
		Stiff, moist, strong brown to light gray, SILT with sand, (ML) (A-4) 7.5YR 5/8 to 5YR 7/1		13.5	10	10	7	8	15
375.2									
				18.5	SS-7	4	4	7	11
370.2									
	22.0								

SPT N VALUE ●

PL ⨯ MC ○ LL ⨯

▲ FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-31
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.2 ft	**Latitude:**	34.17731581	**Longitude:**	-81.32280001	**Date Started:**	1/17/2016
Total Depth:	105 ft	**Soil Depth:**	105 ft	**Core Depth:**	0 ft	**Date Completed:**	1/18/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Very stiff, moist, very pale brown, SILT with sand (ML) (A-4) 10YR 8/4		23.5						
					SS-8	10	9	12	21	●
365.2										
	27.0	Hard, moist, yellowish brown to light gray, SILT with sand (ML) (A-4) 10YR 5/6 and 10YR 7/7		28.5						
					SS-9	13	23	22	45	●
360.2										
		@SS-10 NMC=25.7		33.5						
					SS-10	28	29	31	60	○ ●
355.2										
				38.5						
					SS-11	6	14	18	32	●
350.2										
	42.0	Stiff, moist, pale yellow, SILT (ML) (A-4) 5Y 7/4		43.5						

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-31		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.2 ft	**Latitude:**	34.17731581	**Longitude:**	-81.32280001	**Date Started:**	1/17/2016
Total Depth:	105 ft	**Soil Depth:**	105 ft	**Core Depth:**	0 ft	**Date Completed:**	1/18/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
345.2					SS-12	3	5	8	13	●
	47.0	Hard, moist, strong brown, SILT with quartz fragments, (ML) (A-4) 7.5YR 4/6		48.5						
					SS-13	13	15	33	48	●
340.2										
	52.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, yellowish brown, SILT (ML) (A-4) 7.5YR 4/6		53.5						
					SS-14	13	28	50/5"	50/5"	>>●
335.2										
				58.5						
					SS-15	18	36	50/5"	50/5"	>>●
330.2										
	62.0	**PARTIALLY WEATHERED ROCK** - Classified as very dense, wet, light brown, angular, strongly cemented, fine to coarse SAND with quartz rock fragments (SP) (A-3) 7.5YR 6/3		63.5						
					SS-16	50/5"			50/5"	>>●
325.2										

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-31
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.2 ft	**Latitude:**	34.17731581	**Longitude:**	-81.32280001	**Date Started:**	1/17/2016
Total Depth:	105 ft	**Soil Depth:**	105 ft	**Core Depth:**	0 ft	**Date Completed:**	1/18/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
	67.0									
		PARTIALLY WEATHERED ROCK - Classified as hard, moist, strong brown, SILT with quartz fragments (ML) (A-4) 7.5YR 4/6		68.5	SS-17	39	47	50/5"	50/5"	>>
320.2										
				73.5	SS-18	22	45	50/5"	50/5"	>>
315.2										
		@SS-19 NMC=18.9		78.5	SS-19	24	39	50/5"	50/5"	>>
310.2										
	82.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, dark brown, lean CLAY trace sand (CL) (A-6) 7.5YR 3/3		83.5	SS-20	30	50/3"		50/3"	>>
305.2										
	87.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, dark brown, SILT								

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-31
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	390.2 ft	**Latitude:**	34.17731581	**Longitude:**	-81.32280001	**Date Started:**	1/17/2016
Total Depth:	105 ft	**Soil Depth:**	105 ft	**Core Depth:**	0 ft	**Date Completed:**	1/18/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	8 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		(ML) (A-4) 7.5YR 3/3		88.5				
					SS-21	50/3"	50/3"	>>
300.2								
	92.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, dark greenish gray, lean CLAY with rock fragments (CL) (A-6) 5GY 4/2		93.5				
					SS-22	50/2"	50/2"	>>
295.2								
				98.5				
					SS-23	50/1"	50/1"	>>
290.2								
				103.5				
		@ SS-24: No Recovery			SS-24	50/0"	50/0"	>>
285.2	105.0	**Boring Terminated at 105 feet**						

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-32
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	391.9 ft	**Latitude:**	34.17711363	**Longitude:**	-81.32257805	**Date Started:**	1/18/2016
Total Depth:	98.5 ft	**Soil Depth:**	98.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%)
	0.0	Grassed Median								
	0.3	Topsoil (3 inches)		0.0	SS-1	2	2	2	4	
		FILL - Soft, moist, reddish brown, elastic SILT (MH) (A-7-5) 5YR 4/4								
	2.0	@SS-1 NMC=12.3		2.0	SS-2	4	4	6	10	
		RESIDUUM - Stiff, moist, red, elastic SILT with sand (MH) (A-7-5) 5R 4/6								
	4.0	@SS-2 NMC=35.5		4.0	SS-3	4	4	5	9	
386.9		Stiff to firm, moist, yellowish red, SILT with sand (ML) (A-4) 5YR 4/6		6.0	SS-4	2	3	7	10	
				8.0	SS-5	2	3	7	10	
381.9		▼								
				13.5	SS-6	3	3	4	7	
		@SS-6 LL=NP, PL=NP, PI=NP, NMC=45.7, %#200=75.2								
376.9				18.5	SS-7	2	3	4	7	
371.9										
	22.0									

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-32		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	391.9 ft	**Latitude:**	34.17711363	**Longitude:**	-81.32257805	**Date Started:**	1/18/2016
Total Depth:	98.5 ft	**Soil Depth:**	98.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Stiff, moist, yellow, SILT with sand (ML) (A-4) 10YR 7/6		23.5	SS-8	4	6	7	13	●
366.9										
	27.0	Hard, moist, very pale brown, SILT with sand (ML) (A-4) 10YR 8/2		28.5	SS-9	8	13	19	32	●
361.9										
				33.5	SS-10	8	12	18	30	●
356.9										
				38.5	SS-11	10	18	26	44	●
351.9										
				43.5						

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-32
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	391.9 ft	**Latitude:**	34.17711363	**Longitude:**	-81.32257805	**Date Started:**	1/18/2016
Total Depth:	98.5 ft	**Soil Depth:**	98.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
346.9					SS-12	8	13	22	35	
				48.5						
		@SS-13 LL=NP, PL=NP, PI=NP, NMC=26.5, %#200=79.4			SS-13	7	11	22	33	
341.9										
				53.5						
					SS-14	10	20	38	58	
336.9										
	57.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, very pale brown, SILT (ML) (A-4) 10YR 5/6		58.5	SS-15	35	50/3"		50/3"	>>
331.9										
				63.5						
					SS-16	50/4"			50/4"	>>
326.9										

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-32		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	391.9 ft	**Latitude:**	34.17711363	**Longitude:**	-81.32257805	**Date Started:**	1/18/2016
Total Depth:	98.5 ft	**Soil Depth:**	98.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				68.5	SS-17	50/4"			50/4"	>>
321.9										
				73.5	SS-18	23	40	50/5"	50/5"	>>
316.9										
	77.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, very pale brown, Sandy SILT (ML) (A-4) 10YR 5/6 @SS-19 NMC=16.7, %#200=54.9		78.5	SS-19	50/5"			50/5"	○ ▲ >>
311.9										
	82.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, moist, grayish green, SILT with rock fragments (ML) (A-4) GLEY1 5/2		83.5	SS-20	50/1"			50/1"	>>
306.9										

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-32
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	391.9 ft	**Latitude:**	34.17711363	**Longitude:**	-81.32257805	**Date Started:**	1/18/2016
Total Depth:	98.5 ft	**Soil Depth:**	98.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/19/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	10 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				88.5						
					SS-21	50/3"			50/3"	>>
301.9										
				93.5						
					SS-22	50/1"			50/1"	>>
296.9										
	98.5	**RW Bit Refusal at 98.5 feet**								
291.9										
286.9										

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-33		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	397.8 ft	**Latitude:**	34.17770061	**Longitude:**	-81.32227634	**Date Started:**	1/11/2016
Total Depth:	107.5 ft	**Soil Depth:**	107.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Toe of Slope							
	0.2	Topsoil (2 inches)		0.0	SS-1	1	3	3	6
		FILL - Firm, moist, red, sandy elastic SILT with sand trace organics, (MH) (A-7-5) 5R 4/8							
	2.0	@SS-1 NMC=11.9, %#200=68		2.0	SS-2	2	4	5	9
		RESIDUUM - Stiff to firm, moist, red, elastic SILT with gravel (MH) (A-7-5) 7.5R 4/8		4.0	SS-3	2	3	3	6
392.8		@SS-2 LL=54, PL=30, PI=24, NMC=28, %#200=83.1							
	6.0	Hard to very stiff, moist, red to yellow, SILT trace organics (ML) (A-4) 7.5R 4/8 to 10YR 7/6		6.0	SS-4	3	12	18	30
				8.0	SS-5	3	18	27	45
387.8									
				13.5	SS-6	10	15	14	29
382.8									
				18.5	SS-7	4	9	12	21
377.8									
	22.0								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-33
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	397.8 ft	**Latitude:**	34.17770061	**Longitude:**	-81.32227634	**Date Started:**	1/11/2016
Total Depth:	107.5 ft	**Soil Depth:**	107.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Firm to stiff, moist to wet, brownish yellow to dark brown, SILT (ML) (A-4) 10YR 6/8 to 10YR 3/3		23.5						
		@SS-8 LL=NP, PL=NP, PI=NP, NMC=51.5, %#200=91.1			SS-8	2	2	5	7	
372.8										
				28.5						
					SS-9	2	3	7	10	
367.8										
	32.0	Hard, moist, olive gray, SILT (ML) (A-4) 5Y 5/2		33.5						
					SS-10	6	16	49	65	
362.8										
				38.5						
					SS-11	32	34	39	73	
357.8										
	42.0	**PARTIALLY WEATHERED ROCK**- Classified as hard, moist, strong brown, SILT (ML) (A-4) 7.5YR 4/6		43.5						

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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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-33
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	397.8 ft	**Latitude:**	34.17770061	**Longitude:**	-81.32227634	**Date Started:**	1/11/2016
Total Depth:	107.5 ft	**Soil Depth:**	107.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
352.8		To 10YR 7/6			SS-12	16	33	50/5"	50/5"	>>
				48.5	SS-13	18	87	50/4"	50/4"	>>
347.8		To 10YR 6/6								
				53.5	SS-14	30	36	50/4"	50/4"	>>
342.8		To 4YR 3/3								
				58.5	SS-15	50/4"			50/4"	>>
337.8		To 5YR 4/6								
				63.5	SS-16	50/4"			50/4"	>>
332.8										

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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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-33		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	397.8 ft	**Latitude:**	34.17770061	**Longitude:**	-81.32227634	**Date Started:**	1/11/2016
Total Depth:	107.5 ft	**Soil Depth:**	107.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" 2nd 6" 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				68.5	SS-17	22 50/4"	50/4"	>>
327.8		To 7.5YR 4/6		73.5	SS-18	22 50/5"	50/5"	>>
322.8		To 5YR 3/3		78.5	SS-19	25 50/5"	50/5"	>>
317.8	82.0	**PARTIALLY WEATHERED ROCK** - Classified as very dense, dry, brown, subrounded, Silty SAND (SM) (A-2-4) 7.5YR 4/6 @SS-20 NMC=18.9, %#200=41.5		83.5	SS-20	50/5"	50/5"	>>
312.8		To 7.5YR 2.5/2						

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 Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-33		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	397.8 ft	**Latitude:**	34.17770061	**Longitude:**	-81.32227634	**Date Started:**	1/11/2016
Total Depth:	107.5 ft	**Soil Depth:**	107.5 ft	**Core Depth:**	0 ft	**Date Completed:**	1/12/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	CF	**Groundwater:**	**TOB** N.A.	**24HR**	13 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6" / 2nd 6" / 3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				88.5				
					SS-21	50/4"	50/4"	>>
307.8								
		To 10YR 8/6		93.5				
					SS-22	50/2"	50/2"	>>
302.8								
		To 5Y 8/4		98.5				
					SS-23	50/1"	50/1"	>>
297.8								
				103.5				
					SS-24	50/1"	50/1"	>>
292.8								
	107.5	***RW Bit Refusal at 107.5 feet***						

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	

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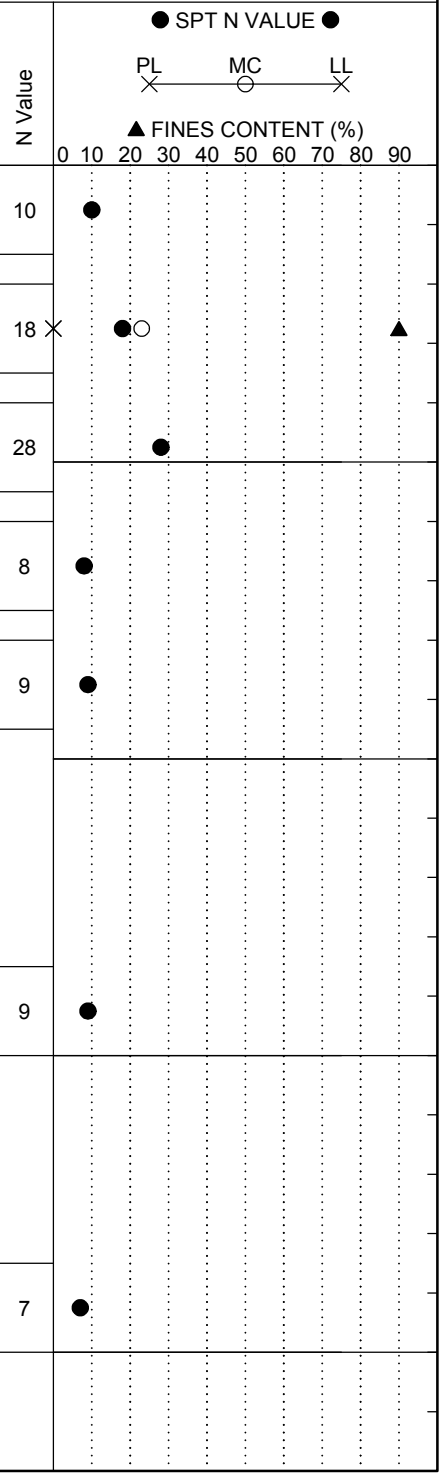
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-34
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Toe of Slope							
	0.2	Topsoil (2 inches)		0.0	SS-1	2	3	7	10
		FILL - Stiff, moist, red, elastic silt (MH) (A-7-5) 7.5R 4/8							
	2.0	@SS-1 NMC=11.1		2.0	SS-2	6	8	10	18
		RESIDUUM - Very stiff, moist, red, SILT with clay seams (ML) (A-4) 7.5R 4/8							
	4.0	@SS-2 LL=NP, PL=NP, PI=NP, NMC=23.3, %#200=89.6		4.0	SS-3	4	9	19	28
391.2		Very stiff, moist, dark red, SILT (ML) (A-4) 7.5R 3/8							
	6.0	Firm to stiff, moist, red to strong brown, SILT (ML) (A-4) 7.5r 4/8 to 7.5R 4/6		6.0	SS-4	2	3	5	8
				8.0	SS-5	2	4	5	9
386.2									
				13.5	SS-6	2	3	6	9
381.2									
	17.0	Firm to stiff, moist, red to strong brown, SILT (ML) (A-4) 7.5r 4/8 to 7.5R 4/6		18.5	SS-7	2	2	5	7
376.2									



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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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-34		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
		@SS-8 LL=NP, PL=NP, PI=NP, NMC=48.6, %#200=90.2		23.5	SS-8	2	3	5	8
371.2									
				28.5	SS-9	2	3	5	8
366.2									
	32.0	Hard, moist, yellowish red and black, SILT (ML) (A-4) 5YR 4/6 and 5YR 2.5/1		33.5	SS-10	7	13	19	32
361.2									
				38.5	SS-11	13	19	28	47
356.2									
				43.5					

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-34		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
351.2					SS-12	13	17	14	31	
				48.5						
		@SS-13 NMC=23.5			SS-13	15	23	37	60	
346.2										
	52.0									
		PARTIALLY WEATHERED ROCK - Classified as hard, moist, very dark gray to strong brown, SILT (ML) (A-4) 7.4YR 3/1 to 7.5YR 4/6		53.5	SS-14	16	43	50/4"	50/4"	>>
341.2										
		To 10YR 7/8								
		@SS-15 NMC=22.7		58.5	SS-15	10	17	50/4"	50/4"	>>
336.2										
		To 10YR 4/4		63.5	SS-16	19	50/4"	50/4"	50/4"	>>
331.2										

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-34
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		To 5Y 5/2		68.5						
					SS-17	43	50/1"	50/1"	50/1"	>>
326.2		To 5Y 5/2		73.5						
					SS-18	50/3"			50/3"	>>
321.2		To 10YR 8/4 to 10YR 3/3		78.5						
					SS-19	50/4"			50/4"	>>
316.2		To 10YR 8/4 to 10YR 3/3		83.5						
					SS-20	38	50/4"		50/4"	>>
311.2		To 10YR 8/4								

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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-34		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				88.5						
					SS-21	50/2"			50/2"	>>
306.2		To 7.5YR 3/3 to 7.5YR 8/1								
				93.5						
					SS-22	50/2"			50/2"	>>
301.2		To 7.5YR 3/3 to 7.5YR 8/1								
				98.5						
					SS-23	50/3"			50/3"	>>
296.2		To 7.5YR 5/6								
				103.5						
					SS-24	50/1"			50/1"	>>
291.2		To 2.5YR 3/3								
				108.5						
					SS-25	50/5"			50/5"	>>

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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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-34
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	KZ	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	396.2 ft	**Latitude:**	34.17730917	**Longitude:**	-81.32216508	**Date Started:**	1/7/2016
Total Depth:	120 ft	**Soil Depth:**	120 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	16 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		To 5YR 7/1 to 7.5YR 3/3		113.5						
					SS-26	50/4"			50/4"	>>
281.2		To 7.5YR 3/1		118.5						
					SS-27	50/3"			50/3"	>>
276.2	120.0	***Boring Terminated at 120 feet***								
271.2										
266.2										

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	

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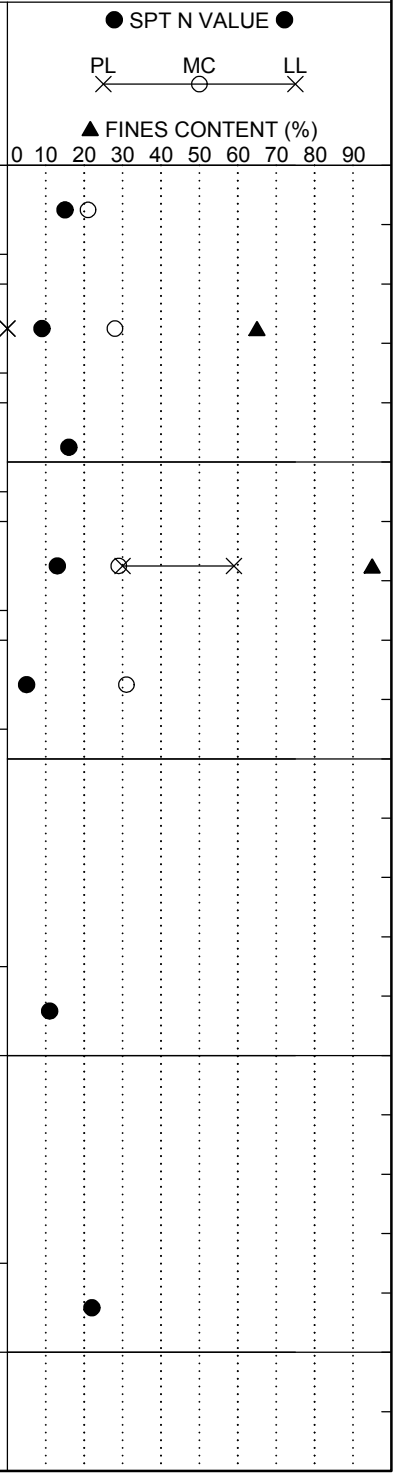
SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-35
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	377.7 ft	**Latitude:**	34.1784948	**Longitude:**	-81.32428267	**Date Started:**	1/6/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	7 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.1	Topsoil (1 inch)		0.0	SS-1	3	8	7	15
		RESIDUUM - Stiff, dry, red, Sandy SILT (ML) (A-4) 10R 5/8							
		@SS-1 NMC=20.6		2.0	SS-2	5	5	4	9
		@SS-2 LL=NP, PL=NP, PI=NP, NMC=27.8, %#200=65.4							
	4.0	Very stiff, dry, light red, SILT (ML) (A-4) 10R 6/8		4.0	SS-3	2	8	8	16
372.7									
	6.0	Stiff to firm, dry, light red, fat CLAY with sand (CH) (A-7-5) 10R 7/8		6.0	SS-4	5	5	8	13
		@SS-4 LL=59, PL=30, PI=29, NMC=29.4, %#200=94.9		8.0	SS-5	1	2	3	5
		@SS-5 NMC=30.9							
367.7									
	12.0	Stiff, dry, light red, SILT (ML) (A-4) 10R 6/8		13.5	SS-6	4	5	6	11
362.7									
	17.0	Very stiff to hard, dry, reddish yellow, SILT (ML) (A-4) 5YR 7/8		18.5	SS-7	5	10	12	22
357.7									



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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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-35
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	377.7 ft	**Latitude:**	34.1784948	**Longitude:**	-81.32428267	**Date Started:**	1/6/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	7 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● PL MC LL ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
				23.5						
					SS-8	6	10	16	26	●
352.7										
				28.5						
					SS-9	5	11	29	40	●
347.7	30.0	***Boring Terminated at 30 feet***								
342.7										
337.7										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-36
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	383.2 ft	**Latitude:**	34.17644057	**Longitude:**	-81.32058116	**Date Started:**	1/6/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	7 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	3	4	4	8
		RESIDUUM - Medium stiff, dry, light red, SILT (ML) (A-4) 5R 6/8							
	2.0	@SS-1 NMC=27.7		2.0	SS-2	18	40	21	61
		Hard, dry, light red, Sandy SILT (ML) (A-4) 5R 6/8							
	4.0	@SS-2 LL=NP, PL=NP, PI=NP, NMC=13.4, %#200=50.1		4.0	SS-3	50/2"			50/2"
378.2		**PARTIALLY WEATHERED ROCK** - Classified as hard, dry reddish gray, SILT with quartz (ML) (A-4) 10R 6/1		6.0	SS-4	6	46	50/4"	50/4"
		@SS-4 NMC=27.4		8.0	SS-5	50/4"			50/4"
373.2									
	12.0	**RESIDUUM** - Very stiff, dry, reddish gray, SILT with quartz (ML) (A-4) 10R 6/1		13.5	SS-6	7	9	7	16
368.2									
	17.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, reddish gray to pale red, SILT (ML) (A-4) 10R 6/1 to 10YR 6/2		18.5	SS-7	18	35	50/3"	50/3"
363.2									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-36
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	383.2 ft	**Latitude:**	34.17644057	**Longitude:**	-81.32058116	**Date Started:**	1/6/2016
Total Depth:	30 ft	**Soil Depth:**	30 ft	**Core Depth:**	0 ft	**Date Completed:**	1/8/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	7 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		@ SS-8: No Sample Recovered		23.5	SS-8	50/3"			50/3"	>>
358.2										
				28.5	SS-9	50/4"			50/4"	>>
353.2	30.0	***Boring Terminated at 30 feet***								
348.2										
343.2										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-37
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	402.6 ft	**Latitude:**	34.17793384	**Longitude:**	-81.32171697	**Date Started:**	1/6/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/7/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	22 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.2	Topsoil (2 inches)		0.0	SS-1	3	4	6	10
		RESIDUUM - Stiff to very stiff, dry, red, fat CLAY with sand (CH) (A-7-5) 10R 5/8							
		@SS-1 LL=65, PL=31, PI=34, NMC=24.5, %#200=70.4		2.0	SS-2	8	14	16	30
		@SS-2 NMC=22.2							
	4.0			4.0					
397.6		Very stiff, dry, red, fat CLAY (CH) (A-7-5) 10R 4/8			SS-3	7	12	18	30
		@SS-3 NMC=24.3							
	6.0			6.0					
		Very stiff, dry, light red, SILT (ML) (A-4) 10R 7/8			SS-4	4	8	12	20
	8.0			8.0					
		Stiff to very stiff, dry, light red, SILT (ML) (A-4) 5R 6/8			SS-5	2	4	6	10
392.6									
				13.5	SS-6	4	7	10	17
387.6									
				18.5	SS-7	4	7	12	19
382.6									
	22.0								

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-37
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	402.6 ft	**Latitude:**	34.17793384	**Longitude:**	-81.32171697	**Date Started:**	1/6/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/7/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	22 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	● SPT N VALUE ● / PL MC LL / ▲ FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
		Very stiff, dry, light red, SILT (ML) (A-4) 5R 7/8		23.5						
					SS-8	6	12	15	27	●
377.6										
	27.0	Hard to very stiff, dry, light red, SILT (ML) (A-4) 5R 7/8								
				28.5						
					SS-9	10	14	29	43	●
372.6										
				33.5						
		@SS-10 LL=NP, PL=NP, PI=NP, NMC=24.7, %#200=85.9			SS-10	14	27	48	75	× ○ ● ▲
367.6										
				38.5						
					SS-11	6	9	16	25	●
362.6										
	42.0	Hard, dry, light red, SILT (ML) (A-4) 5R 7/8								
				43.5						

Continued Next Page

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-37		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	RS	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	402.6 ft	**Latitude:**	34.17793384	**Longitude:**	-81.32171697	**Date Started:**	1/6/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/7/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-550X	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	74.2%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	22 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
357.6					SS-12	21	40	33	73	●
	47.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, light red, SILT (ML) (A-4) 5R 7/8		48.5						
					SS-13	33	50/4"		50/4"	>>●
352.6	50.0	***Boring Terminated at 50 feet***								
347.6										
342.6										
337.6										

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	

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SCDOT Soil Test Log

Project ID:	42383			**County:**	Lexington	**Boring No.:**	B-38
Site Description:	Columbia Avenue (S-48) Roadway Improvements					**Route:**	S-48
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	410.8 ft	**Latitude:**	34.17655625	**Longitude:**	-81.32363898	**Date Started:**	1/4/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	14 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value
	0.0	Grassed Shoulder							
	0.3	Topsoil (3 inches)		0.0	SS-1	3	3	4	7
		FILL - Firm, moist, yellowish brown, fat CLAY with sand (CH) (A-7-5) 10YR 5/6							
		@SS-1 LL=70, PL=30, PI=40, NMC=26.5, %#200=79.6		2.0	SS-2	4	3	2	5
		@SS-2 NMC=25							
	4.0	Very stiff, dry, dark yellowish brown, SILT (ML) (A-4) 10YR 4/4 (Abandoned Conduit)		4.0	SS-3	4	5	13	18
405.8		@SS-3 NMC=26.3							
	6.0	**RESIDUUM** - Firm, moist, dark gray, SILT (ML) (A-4) 10YR 4/1		6.0	SS-4	1	3	3	6
	8.0	Loose, wet, black, subangular, fine to medium grained, Silty SAND (SM) (A-2-4) 10YR 2/1		8.0	SS-5	3	4	6	10
400.8									
	12.0	Dense, dry, light brownish gray, subangular, Clayey SAND (SC) (A-2-6) 10YR 6/2		13.5	SS-6	15	25	50	75
395.8									
	17.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, yellowish brown, SILT with rock fragments (ML) (A-4) 10YR 5/8		18.5	SS-7	15	36	50/5"	50/5"
390.8									

SPT N VALUE

PL MC LL

FINES CONTENT (%)

0 10 20 30 40 50 60 70 80 90

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	

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SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-38		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	410.8 ft	**Latitude:**	34.17655625	**Longitude:**	-81.32363898	**Date Started:**	1/4/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	14 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / FINES CONTENT (%)
				23.5						
					SS-8	15	24	50/5"	50/5"	>>
385.8										
				28.5						
					SS-9	34	50/5"		50/5"	>>
380.8										
	32.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, brownish yellow, SILT with rock fragments (ML) (A-4) 10YR 6/8		33.5						
					SS-10	50/5"			50/5"	>>
375.8										
	37.0	**PARTIALLY WEATHERED ROCK** - Classified as hard, dry, yellowish brown, SILT with rock fragments (ML) (A-4) 10YR 5/6		38.5						
					SS-11	50/5"			50/5"	>>
370.8										
				43.5						

PL MC LL

FINES CONTENT (%): 0 10 20 30 40 50 60 70 80 90

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 73155095.GPJ SCDOT DATA TEMPLATE_12_30_2014.GDT 5/20/16

SCDOT Soil Test Log

Project ID:	42383	**County:**	Lexington	**Boring No.:**	B-38		
Site Description:	Columbia Avenue (S-48) Roadway Improvements			**Route:**	S-48		
Eng./Geo.:	JF	**Boring Location:**	-	**Offset:**	-	**Alignment:**	Existing
Elev.:	410.8 ft	**Latitude:**	34.17655625	**Longitude:**	-81.32363898	**Date Started:**	1/4/2016
Total Depth:	50 ft	**Soil Depth:**	50 ft	**Core Depth:**	0 ft	**Date Completed:**	1/6/2016
Bore Hole Diameter (in):	2.94	**Sampler Configuration**		**Liner Required:**	Y (N)	**Liner Used:**	Y (N)
Drill Machine:	CME-55	**Drill Method:**	RW	**Hammer Type:**	Automatic	**Energy Ratio:**	81.9%
Core Size:	N.A.	**Driller:**	AL	**Groundwater:**	**TOB** N.A.	**24HR**	14 feet

Elevation (ft)	Depth (ft)	MATERIAL DESCRIPTION	Graphic Log	Sample Depth (ft)	Sample No./Type	1st 6"	2nd 6"	3rd 6"	N Value	SPT N VALUE / PL MC LL / FINES CONTENT (%) 0 10 20 30 40 50 60 70 80 90
365.8					SS-12	50/4"			50/4"	>>
				48.5						
					SS-13	28	50/3"		50/3"	>>
360.8	50.0	***Boring Terminated at 50 feet***								
355.8										
350.8										
345.8										

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	

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APPENDIX B
LABORATORY TESTING

Exhibit B-1 – Laboratory Testing Description
Exhibit B-2 – Summary of Laboratory Data
Exhibit B-3 - Laboratory Data Sheets

LABORATORY TESTING DESCRIPTION

The samples collected during the field exploration were taken to our laboratory for additional testing. The laboratory testing program was developed by Terracon at the request of the SCDOT. Using the determined testing program, the laboratory tests were conducted on selected soil samples to determine lithological information. The test results are presented in this appendix

The laboratory test results were used to confirm the soil descriptions presented on the boring logs in Appendix A. Laboratory tests were performed in general accordance with the applicable ASTM, AASHTO, SCDOT or other accepted standards.

Selected soil samples obtained from the site were tested for the following engineering properties:

■ Sieve Analysis with Wash	AASHTO T88/(ASTM 422-63)
■ Sieve Analysis with Hydrometer	AASHTO T88/(ASTM 422-63)
■ Atterberg Limits	AASHTO T89/T90(ASTM D4318)
■ Moisture Content Determination	AASHTO T265/(ASTM D2216)
■ Standard Proctor	AASHTO T99/ (ASTM D698)
■ California Bearing Ratio	AASHTO T193/(ASTM D1883)
■ Tri-axial Testing	AASHTO T296/(ASTM D4767)
■ pH of Soils	AASHTO T289/(ASTM D4972)
■ Water Soluble Sulfate Content	AASHTO T290/(ASTM C1580)
■ Water-Soluble Chloride Content	AASHTO T291/(ASTM D1411)
■ Laboratory Soil Resistivity	AASHTO T288/(ASTM G187)
■ Loss on ignition	AASHTO T267/(ASTM D2974)

SUMMARY OF LABORATORY RESULTS

BORING ID	Depth	USCS Classification and Soil Description	Liquid Limit	Plastic Limit	Plasticity Index	% <#200 Sieve	% Gravel	% Sand	% Silt	% Clay	Water Content (%)	Organic Content (%)
B-01	0 - 1.5	LEAN CLAY(CL)	32	23	9	91.6	0.0	8.4	66.5	25.0	27.5	
B-01	2 - 3.5	SANDY FAT CLAY(CH)	59	29	30	53.9	0.8	45.4			26.7	
B-01	8 - 9.5	SANDY SILT(ML)	40	27	13	60.2	1.6	38.2			24.3	
B-02	0.5 - 2	ELASTIC SILT (MH)	50	27	23	88.5	1.4	10.0			22.6	
B-02	4 - 5.5	ELASTIC SILT (MH)	60	33	27						23.6	
B-02 BULK	0 - 5	SANDY SILTY CLAY with	25	18	7	56.0	17.0	27.0			16.0	4.8
		GRAVEL(CL-ML)										
B-03	0.5 - 2	LEAN CLAY with SAND(CL)	44	21	23	80.9	2.7	16.4			13.0	
B-03	2 - 3.5	LEAN CLAY(CL)	47	26	21	88.2	2.0	9.7			23.0	
B-03	6 - 7.5	SILT with SAND(ML)	NP	NP	NP	81.6	0.4	18.0			23.4	
B-04	0 - 1.5	LEAN CLAY(CL)	46	22	24	88.1	0.3	11.6			25.6	
B-04	2 - 3.5	LEAN CLAY(CL)	43	26	17	89.7	0.3	10.0			23.7	
B-04	6 - 7.5	FAT CLAY (CH)	54	23	31						23.2	
B-05	0 - 1.5	ELASTIC SILT(MH)	66	37	29	93.1	1.1	5.8			26.6	
B-05	2 - 3.5	ELASTIC SILT(MH)	72	39	33	94.9	0.0	5.1			25.3	
B-05 BULK	0 - 5	SILT(ML)	43	35	8	90.7	0.5	8.8			25.9	4.7
B-06	0 - 1.5	LEAN CLAY(CL)	37	21	16	85.8	1.4	12.8			22.5	
B-06	2 - 3.5	LEAN CLAY(CL)	41	22	19	91.5	0.2	8.3			25.6	
B-06	4 - 5.5	LEAN CLAY (CL)									27.0	
B-06	6 - 7.5	ELASTIC SILT with SAND(MH)	57	32	25	79.6	3.3	17.1	31.7	48.0	26.4	
B-07	0 - 1.5	SILTY CLAY(CL-ML)	28	21	7	86.8	1.4	11.8			23.8	
B-07	2 - 3.5	FAT CLAY(CH)	56	25	31	91.7	2.6	5.7			22.4	
B-07	8 - 9.5	SILT with SAND(ML)	NP	NP	NP	81.0	0.3	18.7			10.6	
B-08	0 - 1.5	LEAN CLAY(CL)	48	23	25	89.0	3.1	7.9	40.2	48.8	26.6	
B-08	2 - 3.5	FAT CLAY with SAND(CH)	61	29	32	71.7	6.2	22.1			21.3	

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC
PH. 803-741-9000 FAX. 803-741-9900

PROJECT NUMBER: 73155095

CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

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SUMMARY OF LABORATORY RESULTS

BORING ID	Depth	USCS Classification and Soil Description	Liquid Limit	Plastic Limit	Plasticity Index	% <#200 Sieve	% Gravel	% Sand	% Silt	% Clay	Water Content (%)	Organic Content (%)
B-09	0 - 1.5	LEAN CLAY (CL)				73.0	12.1	14.9			20.1	
B-09	2 - 3.5	SILT with SAND(ML)	NP	NP	NP	82.9	0.0	17.1			23.8	
B-09	8 - 9.5	SILT with SAND (ML)				82.4	0.1	17.5			38.9	
B-10	0 - 1.5	LEAN CLAY with SAND(CL)	37	19	18	74.0	5.9	20.1			22.5	
B-10	2 - 3.5	LEAN CLAY with SAND(CL)	41	23	18	84.8	1.0	14.2			24.2	
B-10	8 - 9.5	ELASTIC SILT(MH)	71	42	29	95.7	0.0	4.3			39.2	
B-11	0 - 1.5	FAT CLAY(CH)	56	25	31	86.4	2.5	11.1			24.9	
B-11	2 - 3.5	FAT CLAY (CH)									27.7	
B-11	4 - 5.5	ELASTIC SILT(MH)	68	40	28	87.1	0.0	12.9			40.1	
B-12	0.5 - 2	LEAN CLAY with SAND(CL)	46	23	23	75.2	5.0	19.7			16.9	
B-12	2 - 3.5	FAT CLAY(CH)	72	34	38	90.1	0.0	9.9			24.7	
B-12	13.5 - 15	SILT with SAND(ML)	NP	NP	NP	82.8	0.2	17.0			44.1	
B-12 BULK	0 - 5	CLAYEY SAND with GRAVEL(SC)	28	18	10	31.0	19.1	49.9			13.9	5.6
B-13	0 - 1.5	LEAN CLAY with SAND(CL)	35	21	14	84.9	0.0	15.1			25.2	
B-13	2 - 3.5	FAT CLAY(CH)	52	24	28	87.7	0.2	12.2			24.7	
B-13	6 - 7.5	ELASTIC SILT(MH)	62	32	30	94.9	0.0	5.1	29.6	65.4	27.9	
B-14	0 - 1.5	FAT CLAY(CH)	63	26	37	92.4	0.0	7.6			25.8	
B-14	2 - 3.5	FAT CLAY(CH)	59	25	34	86.6	1.3	12.1	28.0	58.7	24.9	
B-14	8 - 9.5	ELASTIC SILT(MH)	69	40	29	87.5	0.6	12.0	30.7	56.8	31.0	
B-15	0 - 1.5	FAT CLAY (CH)				91.0	0.5	8.5			27.1	
B-15	2 - 3.5	FAT CLAY(CH)	59	27	32	89.3	0.0	10.7	40.1	49.1	27.1	
B-16	0.5 - 2	SILT (ML)				89.2	0.3	10.5			25.3	
B-16	2 - 3.5	ELASTIC SILT(MH)	51	31	20	88.8	0.6	10.6			25.7	
B-17	0 - 1.5	ELASTIC SILT with SAND(MH)	54	30	24	75.3	3.5	21.2			31.5	
B-17	2 - 3.5	LEAN CLAY with SAND (CL)				86.8	0.0	13.1	29.4	57.4	38.3	

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SUMMARY OF LABORATORY RESULTS

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B-17	4 - 5.5	LEAN CLAY with SAND (CL)	47	25	22						31.4	
B-18	0 - 1.5	LEAN CLAY with SAND (CL)									33.8	
B-18	2 - 3.5	LEAN CLAY with SAND(CL)	41	23	18	82.0	0.0	18.0			30.5	
B-19	0 - 1.5	FAT CLAY with SAND(CH)	50	24	26	83.9	6.0	10.1	53.5	30.4	24.0	
B-19	2 - 3.5	ELASTIC SILT(MH)	63	32	31	88.7	3.1	8.2	28.5	60.2	26.6	
B-20	0.5 - 2	ELASTIC SILT(MH)	64	34	30	96.6	0.0	3.4			22.0	
B-20	2 - 3.5	ELASTIC SILT with SAND(MH)	56	33	23	84.3	3.0	12.7			20.2	
B-20	8 - 9.5	SILT(ML)	NP	NP	NP	95.7	0.0	4.3			33.0	
B-20 BULK	0 - 5	SILT with SAND(ML)	46	28	18	76.6	6.8	16.6			21.6	4.8
B-21	0 - 1.5	SILT with SAND (ML)									25.0	
B-21	2 - 3.5	SILT with SAND(ML)	NP	NP	NP	74.9	1.0	24.1			18.4	
B-22	0 - 1.5	FAT CLAY(CH)	70	29	41	88.4	0.3	11.4			24.3	
B-22	2 - 3.5	FAT CLAY with SAND (CH)									35.9	
B-22	6 - 7.5	SILT with SAND(ML)	34	31	3	76.1	0.0	23.9			39.6	
B-23	0 - 1.5	ELASTIC SILT (MH)									28.2	
B-23	2 - 3.5	ELASTIC SILT(MH)	77	39	38	93.8	0.0	6.2	31.2	62.6	29.9	
B-24	0 - 1.5	LEAN CLAY(CL)	40	22	18	90.6	0.6	8.8			18.9	
B-24	2 - 3.5	FAT CLAY with SAND(CH)	59	23	36	82.8	1.0	16.2			23.2	
B-25	0 - 1.5	SANDY ELASTIC SILT (MH)									23.1	
B-25	2 - 3.5	SANDY ELASTIC SILT(MH)	52	32	20	66.6	0.3	33.1			28.1	
B-26	0.5 - 2	ELASTIC SILT(MH)	54	33	21	85.1	1.9	13.0			17.5	
B-26	2 - 3.5	ELASTIC SILT (MH)									16.9	
B-26	6 - 7.5	SILT (ML)									26.5	
B-26 BULK	0 - 5	SANDY SILT(ML)	36	25	11	67.1	8.7	24.2			18.9	4.4
B-27	0 - 1.5	ELASTIC SILT (MH)									26.1	

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B-27	2 - 3.5	SILT(ML)	NP	NP	NP	93.4	0.0	6.6			30.6	
B-27	4 - 5.5	SILT (ML)									30.0	
B-28	0 - 1.5	SILT with SAND (ML)									26.6	
B-28	2 - 3.5	SILT with SAND(ML)	NP	NP	NP	73.1	1.0	25.9			33.7	
B-28	4 - 5.5	SILT with SAND (ML)									41.8	
B-28	6 - 7.5	SILT (ML)									30.6	
B-28	13.5 - 15	SILT with SAND (ML)									28.0	
B-29	0 - 1.5	SILT (ML)									32.2	
B-29	2 - 3.5	SILT(ML)	NP	NP	NP	90.7	0.1	9.2			30.4	
B-29	4 - 5.5	SILT (ML)									28.8	
B-29	6 - 7.5	SILT (ML)									25.9	
B-29	13.5 - 15	SILT with SAND (ML)									24.3	
B-29	53.5 - 55	SILT with SAND(ML)	NP	NP	NP	77.9	0.7	21.4			30.3	
B-29	88.5 - 90	SANDY SILT (ML)									12.7	
B-30	0 - 1.5	SILT with SAND (ML)									36.4	
B-30	2 - 3.5	ELASTIC SILT with SAND(MH)	53	43	10	70.2	0.0	29.8			11.2	
B-30	18.5 - 20	CLAYEY SAND(SC)	41	24	17	49.4	6.9	43.7			24.9	
B-30	88.5 - 90	SANDY SILT (ML)									22.6	
B-31	0 - 1.5	ELASTIC SILT (MH)									18.6	
B-31	2 - 3.5	ELASTIC SILT with SAND(MH)	56	38	18	79.4	0.0	20.6			35.7	
B-31	4 - 5.5	SILT with SAND (ML)									41.2	
B-31	33.5 - 35	SILT with SAND (ML)									25.7	
B-31	78.5 - 80	SILT (ML)									18.9	
B-32	0 - 1.5	ELASTIC SILT (MH)									12.3	
B-32	2 - 3.5	ELASTIC SILT with SAND (MH)									35.5	

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SUMMARY OF LABORATORY RESULTS

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B-32	13.5 - 15	SILT with SAND(ML)	NP	NP	NP	75.2	0.0	24.8			45.7	
B-32	48.5 - 50	SILT with SAND(ML)	NP	NP	NP	79.4	0.1	20.5			26.5	
B-32	78.5 - 80	SANDY SILT (ML)				54.9	3.4	41.8			16.7	
B-33	0 - 1.5	ELASTIC SILT with SAND (MH)				68.0	0.0	32.0	40.3	27.7	11.9	4.7
B-33	2 - 3.5	ELASTIC SILT with GRAVEL(MH)	54	30	24	83.1	10.8	6.0			28.0	
B-33	23.5 - 25	SILT(ML)	NP	NP	NP	91.1	0.0	8.9	58.9	32.1	51.5	
B-33	83.5 - 85	SILTY SAND (SM)				41.5	4.2	54.3			18.9	
B-34	0 - 1.5	ELASTIC SILT (MH)									11.1	
B-34	2 - 3.5	SILT(ML)	NP	NP	NP	89.6	0.2	10.2			23.3	
B-34	23.5 - 25	SILT(ML)	NP	NP	NP	90.2	0.0	9.8			48.6	
B-34	48.5 - 50	SILT (ML)									23.5	
B-34	58.5 - 60	SILT (ML)									22.7	
B-35	0 - 1.5	SANDY SILT (ML)									20.6	
B-35	2 - 3.5	SANDY SILT(ML)	NP	NP	NP	65.4	4.1	30.5			27.8	
B-35	6 - 7.5	FAT CLAY(CH)	59	30	29	94.9	0.3	4.8	43.7	51.1	29.4	
B-35	8 - 9.5	FAT CLAY with SAND (CH)									30.9	
B-36	0 - 1.5	SILT (ML)									27.7	
B-36	2 - 3.5	SANDY SILT(ML)	NP	NP	NP	50.1	14.0	35.9			13.4	
B-36	6 - 7.5	SILT (ML)									27.4	
B-37	0 - 1.5	FAT CLAY with SAND(CH)	65	31	34	70.4	11.8	17.8			24.5	
B-37	2 - 3.5	FAY CLAY with SAND (CH)									22.2	
B-37	4 - 5.5	FAY CLAY (CH)									24.3	
B-37	33.5 - 35	SILT(ML)	NP	NP	NP	85.9	0.0	14.1			24.7	
B-38	0 - 1.5	FAT CLAY with SAND(CH)	70	30	40	79.6	6.6	13.8			26.5	
B-38	2 - 3.5	FAT CLAY with SAND (CH)									25.0	

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SUMMARY OF LABORATORY RESULTS

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B-38	4 - 5.5	SILT (ML)									26.3	

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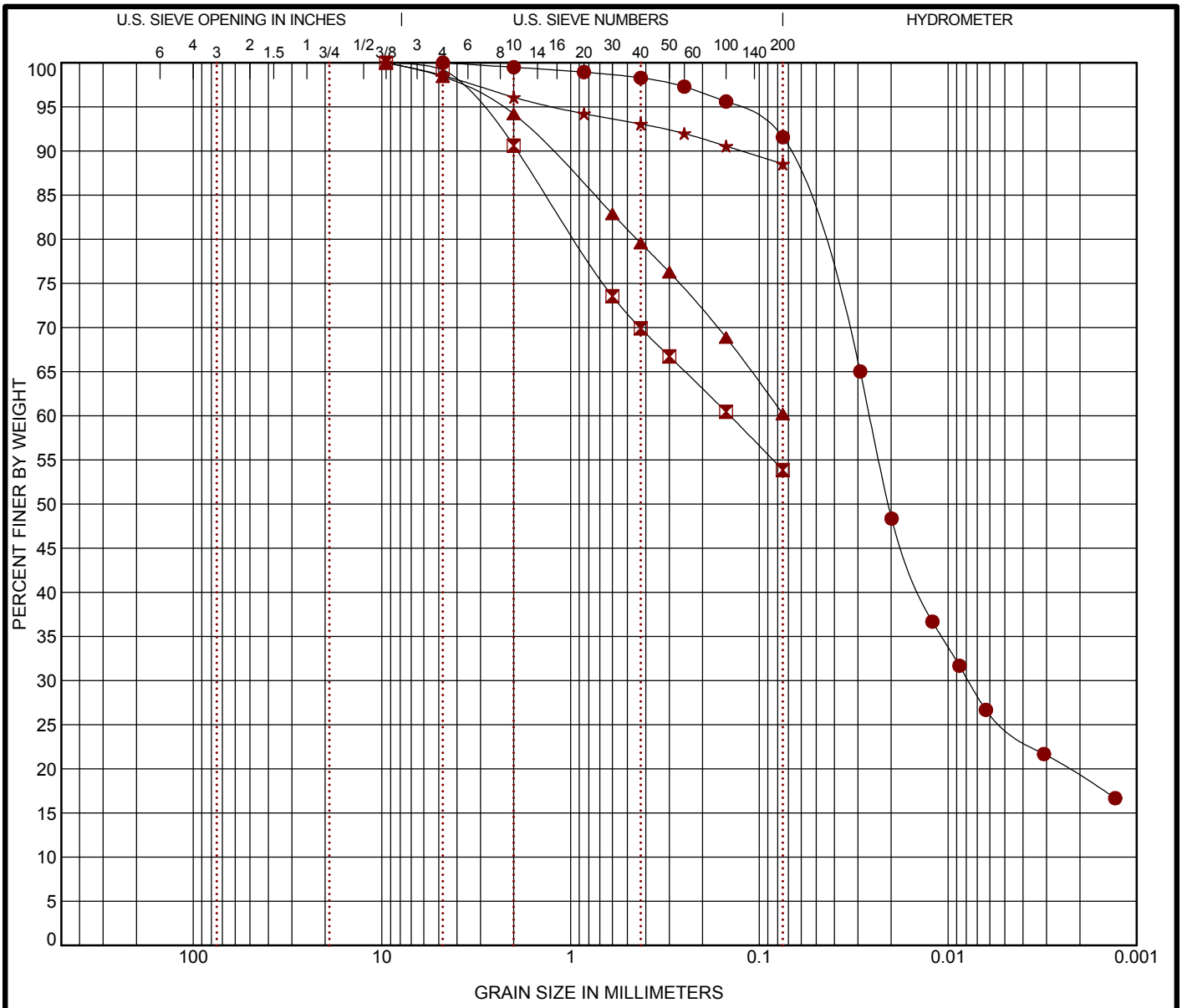
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-01	0 - 1.5	LEAN CLAY (CL)	A-4 (8)	32	23	9		
⊠	B-01	2 - 3.5	SANDY FAT CLAY (CH)	A-7-6 (13)	59	29	30		
▲	B-01	8 - 9.5	SANDY SILT (ML)	A-6 (6)	40	27	13		
★	B-02	0.5 - 2	ELASTIC SILT (MH) (CH)	ELASTIC SILT (MH) (23)	50	27	23		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-01	0 - 1.5	4.75	0.026	0.008		0.0	8.4	66.5	25.0
⊠	B-01	2 - 3.5	9.5	0.143			0.8	45.4	53.9	
▲	B-01	8 - 9.5	9.5				1.6	38.2	60.2	
★	B-02	0.5 - 2	9.5				1.4	10.0	88.5	

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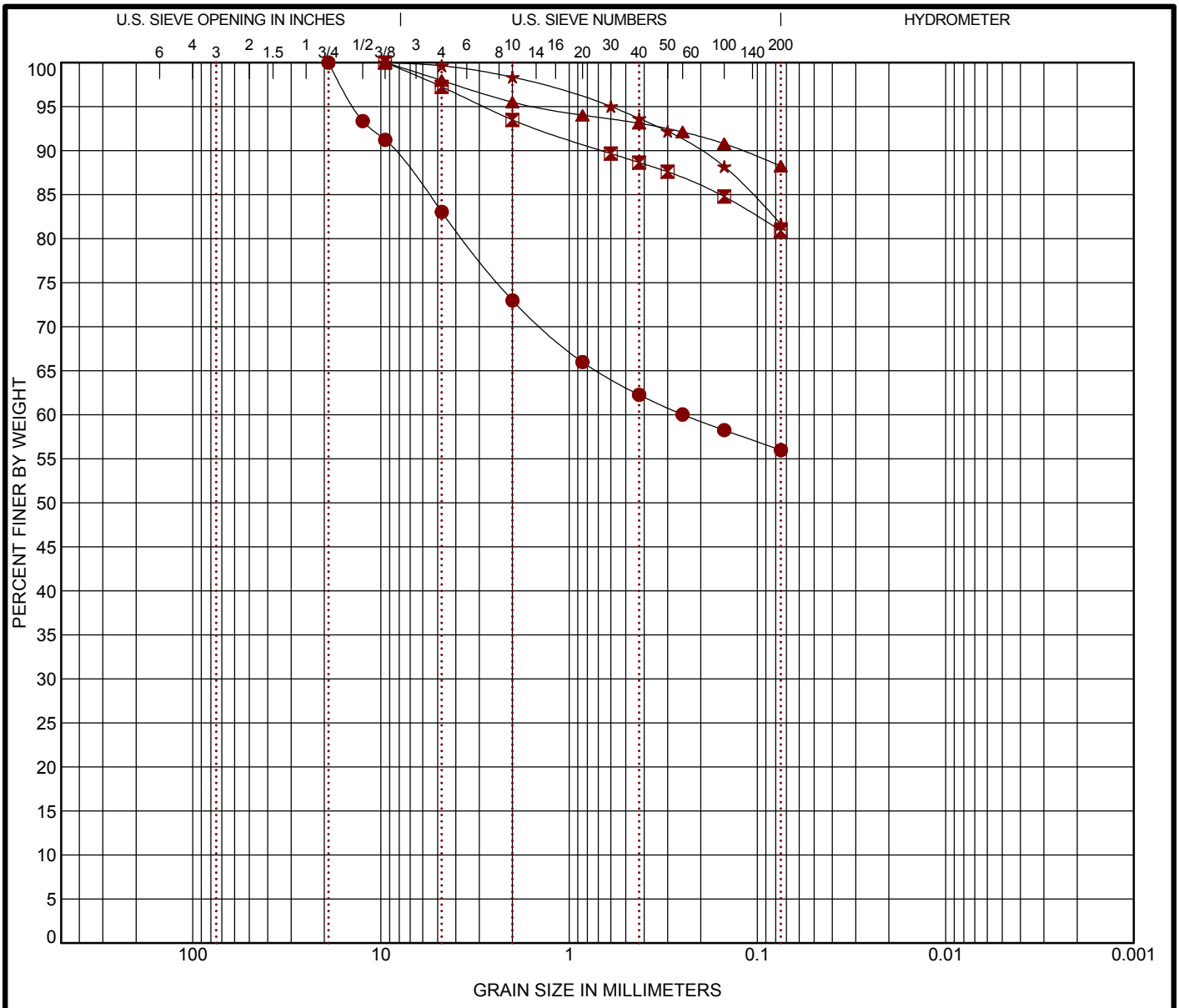
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-02 BULK	0 - 5	SANDY SILTY CLAY with GRAVEL (CL-ML)	A-4 (1)	25	18	7		
⊠	B-03	0.5 - 2	LEAN CLAY with SAND (CL)	A-7-6 (19)	44	21	23		
▲	B-03	2 - 3.5	LEAN CLAY (CL)	A-7-6 (20)	47	26	21		
★	B-03	6 - 7.5	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-02 BULK	0 - 5	19	0.248			17.0	27.0	56.0	
⊠	B-03	0.5 - 2	9.5				2.7	16.4	80.9	
▲	B-03	2 - 3.5	9.5				2.0	9.7	88.2	
★	B-03	6 - 7.5	9.5				0.4	18.0	81.6	

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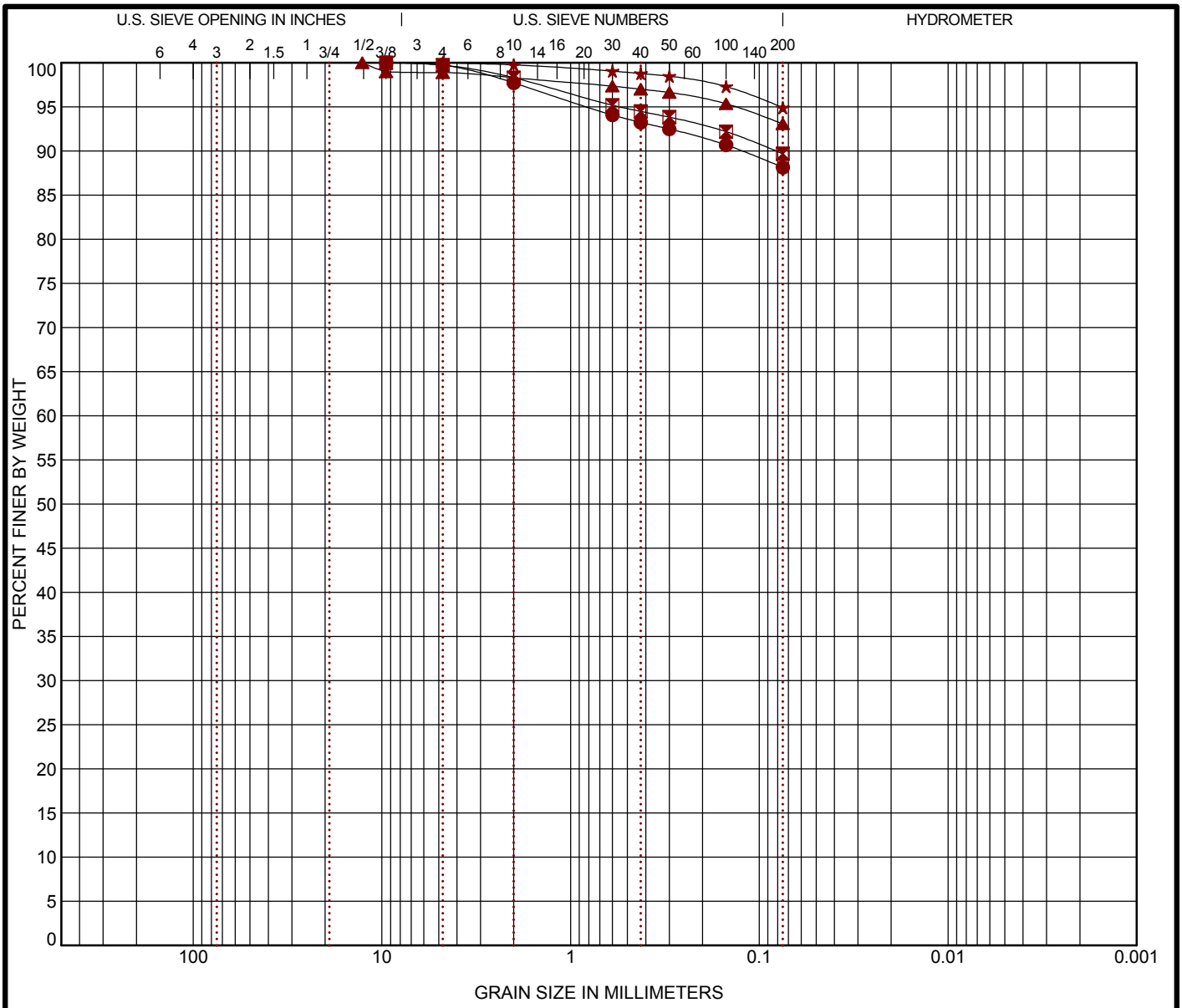

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-04	0 - 1.5	LEAN CLAY (CL)	A-7-6 (22)	46	22	24		
⊠	B-04	2 - 3.5	LEAN CLAY (CL)	A-7-6 (17)	43	26	17		
▲	B-05	0 - 1.5	ELASTIC SILT (MH)	A-7-5 (34)	66	37	29		
★	B-05	2 - 3.5	ELASTIC SILT (MH)	A-7-5 (40)	72	39	33		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-04	0 - 1.5	9.5				0.3	11.6	88.1	
⊠	B-04	2 - 3.5	9.5				0.3	10.0	89.7	
▲	B-05	0 - 1.5	12.7				1.1	5.8	93.1	
★	B-05	2 - 3.5	4.75				0.0	5.1	94.9	

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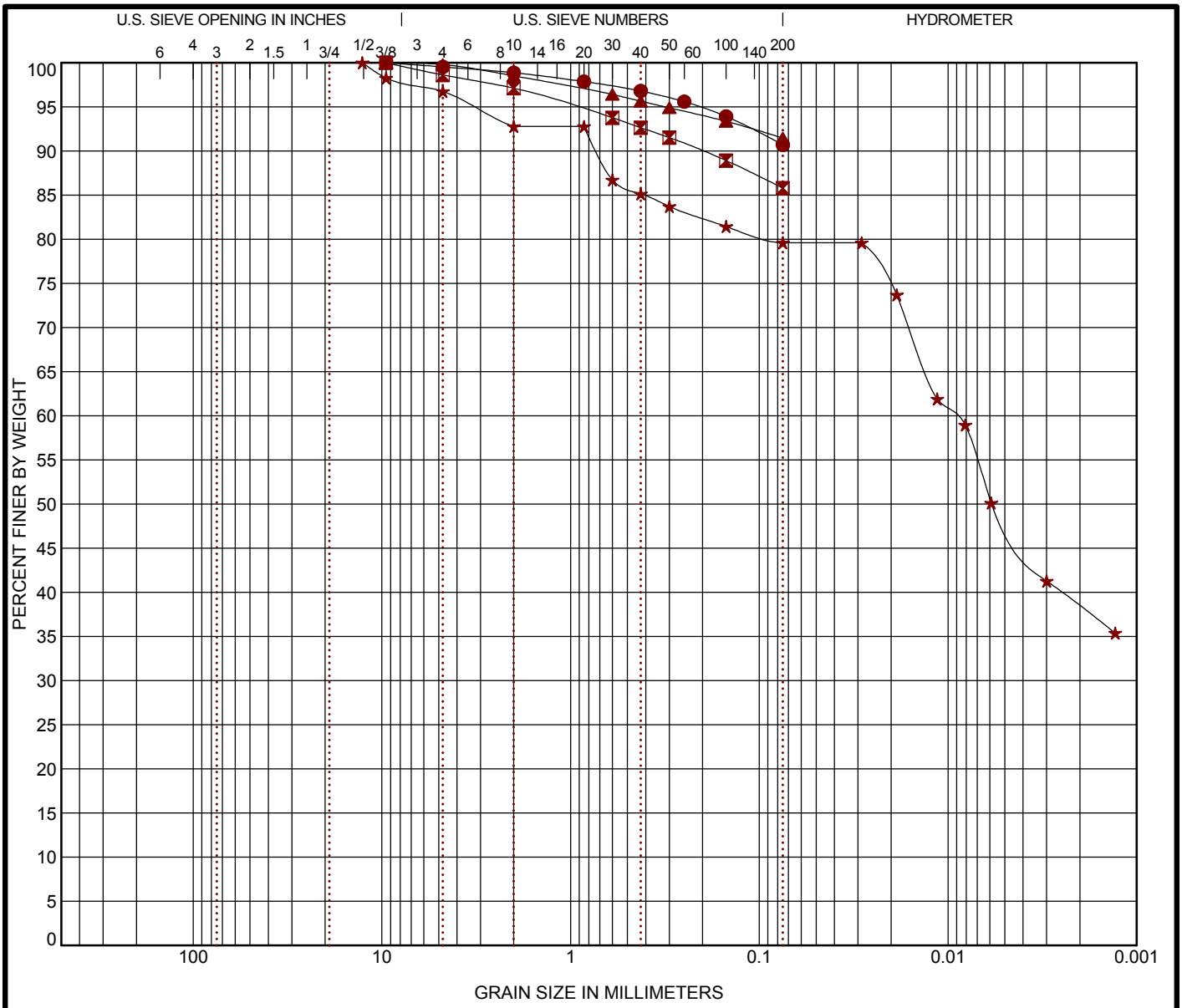
GRAIN SIZE DISTRIBUTION

ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-05 BULK	0 - 5	SILT (ML)	A-5 (11)	43	35	8		
⊠	B-06	0 - 1.5	LEAN CLAY (CL)	A-6 (14)	37	21	16		
▲	B-06	2 - 3.5	LEAN CLAY (CL)	A-7-6 (18)	41	22	19		
★	B-06	6 - 7.5	ELASTIC SILT with SAND (MH)	A-7-5 (23)	57	32	25		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-05 BULK	0 - 5	9.5				0.5	8.8	90.7	
⊠	B-06	0 - 1.5	9.5				1.4	12.8	85.8	
▲	B-06	2 - 3.5	9.5				0.2	8.3	91.5	
★	B-06	6 - 7.5	12.7	0.009			3.3	17.1	31.7	48.0

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC

PROJECT NUMBER: 73155095

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Lexington, South Carolina

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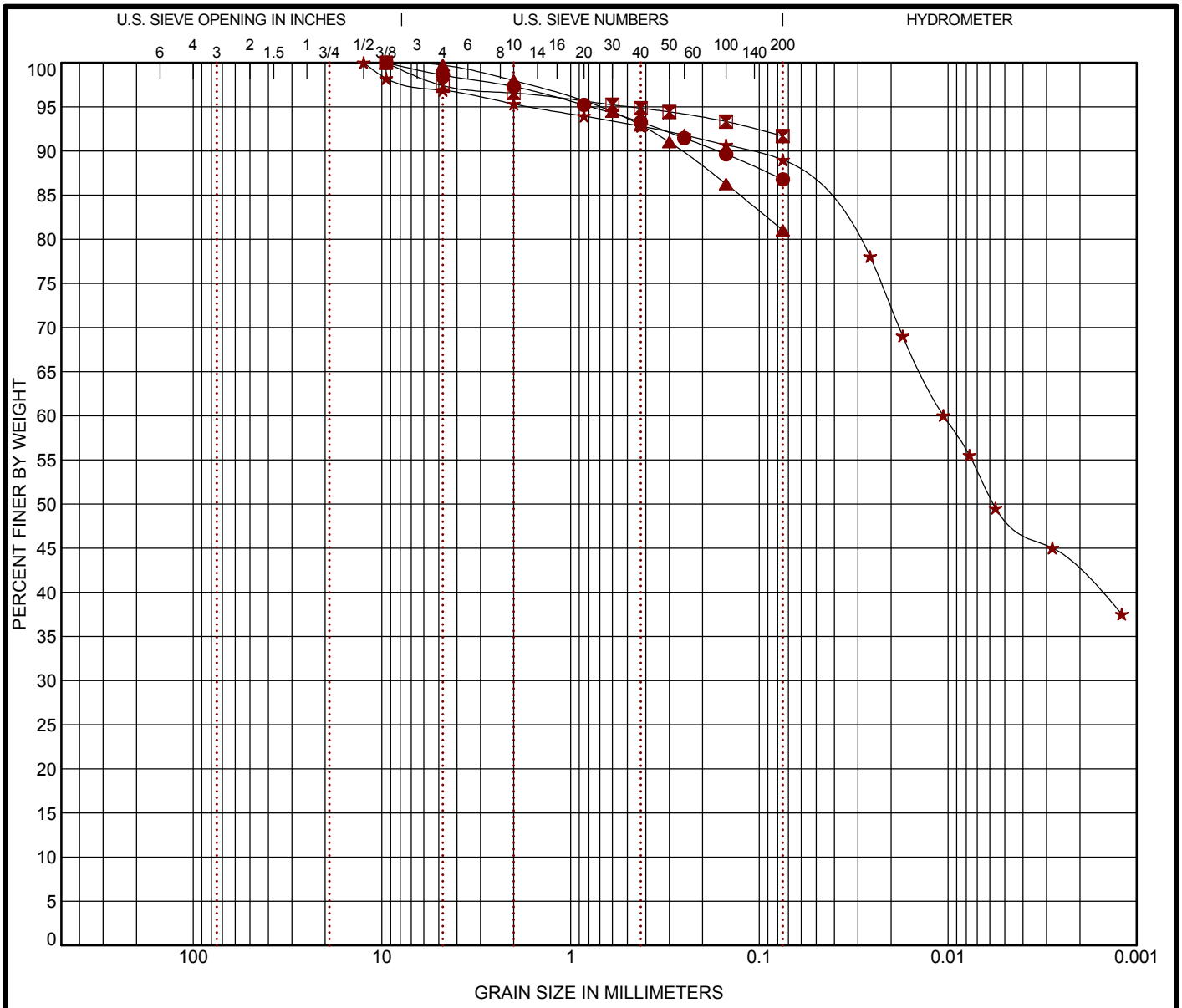

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-07	0 - 1.5	SILTY CLAY (CL-ML)	A-4 (5)	28	21	7		
⊠	B-07	2 - 3.5	FAT CLAY (CH)	A-7-6 (32)	56	25	31		
▲	B-07	8 - 9.5	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
★	B-08	0 - 1.5	LEAN CLAY (CL)	A-7-6 (24)	48	23	25		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-07	0 - 1.5	9.5				1.4	11.8	86.8	
⊠	B-07	2 - 3.5	9.5				2.6	5.7	91.7	
▲	B-07	8 - 9.5	9.5				0.3	18.7	81.0	
★	B-08	0 - 1.5	12.5	0.011			3.1	7.9	40.2	48.8

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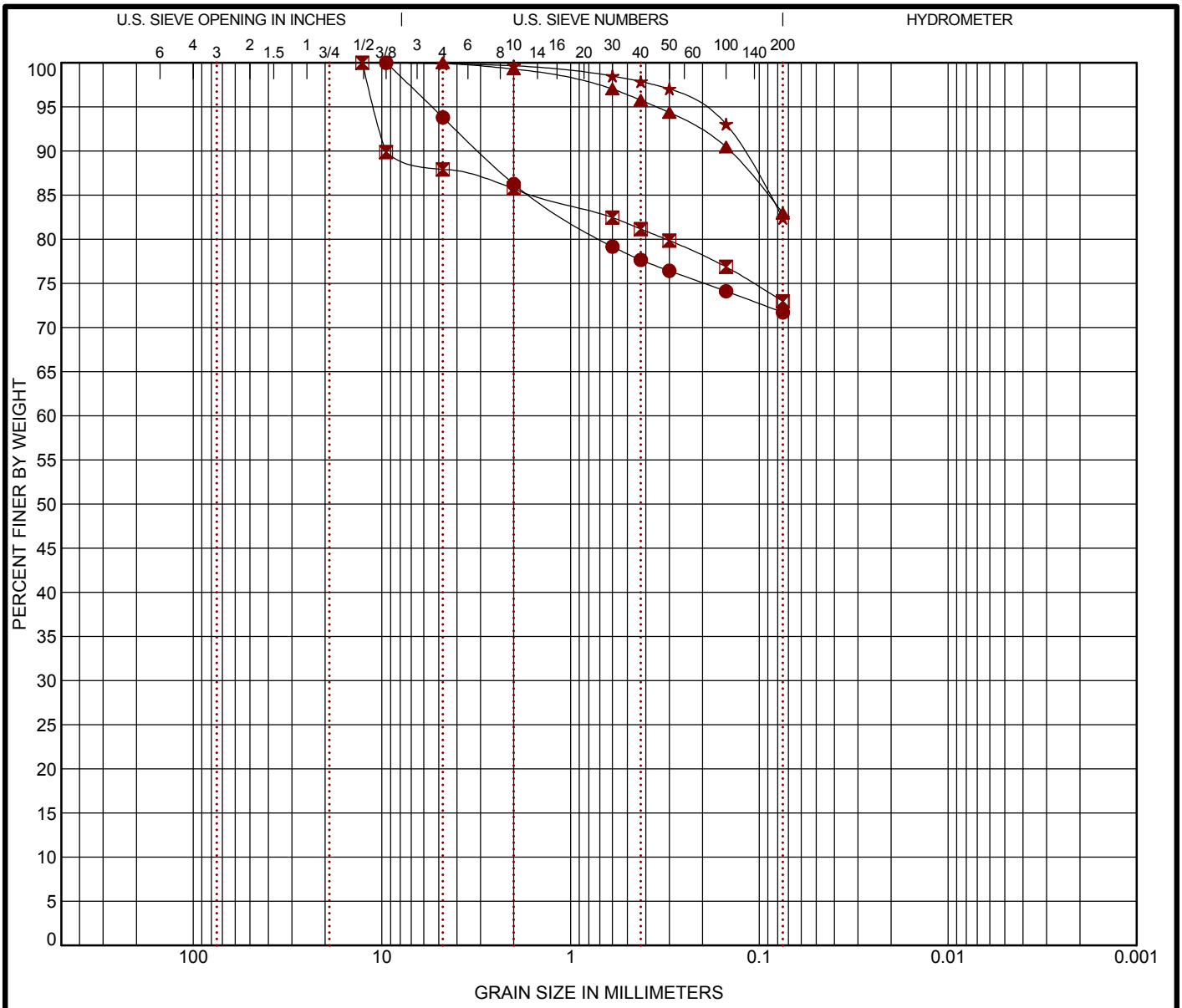

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-08	2 - 3.5	FAT CLAY with SAND (CH)	A-7-6 (24)	61	29	32		
⊠	B-09	0 - 1.5	LEAN CLAY (CL)	LEAN CLAY (CL)					
▲	B-09	2 - 3.5	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
★	B-09	8 - 9.5	SILT with SAND (ML)	SILT with SAND (ML)					

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-08	2 - 3.5	9.5				6.2	22.1	71.7	
⊠	B-09	0 - 1.5	12.7				12.1	14.9	73.0	
▲	B-09	2 - 3.5	4.75				0.0	17.1	82.9	
★	B-09	8 - 9.5	9.5				0.1	17.5	82.4	

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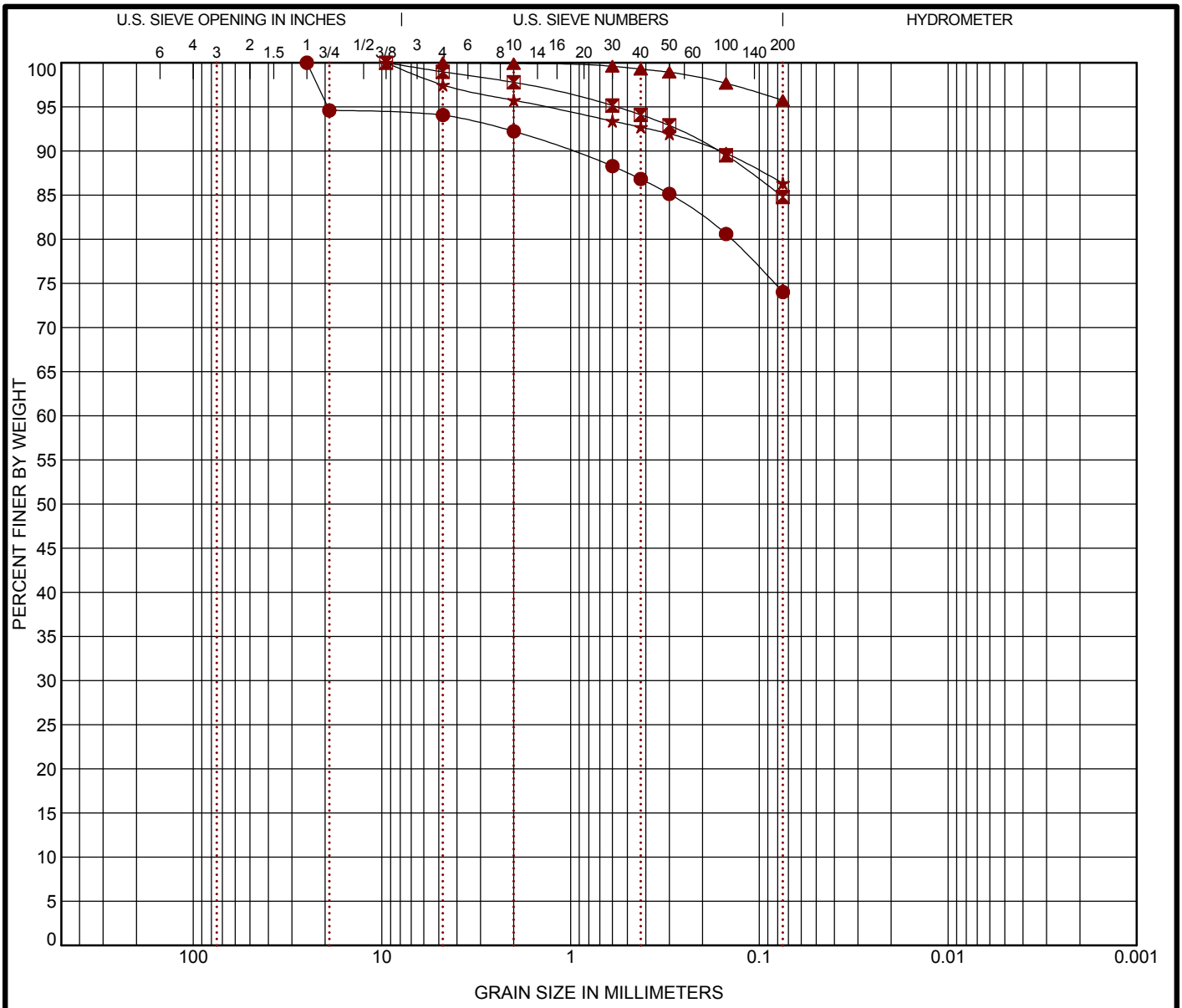

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-10	0 - 1.5	LEAN CLAY with SAND (CL)	A-6 (12)	37	19	18		
⊠	B-10	2 - 3.5	LEAN CLAY with SAND (CL)	A-7-6 (16)	41	23	18		
▲	B-10	8 - 9.5	ELASTIC SILT (MH)	A-7-5 (37)	71	42	29		
★	B-11	0 - 1.5	FAT CLAY (CH)	A-7-6 (29)	56	25	31		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-10	0 - 1.5	25				5.9	20.1	74.0	
⊠	B-10	2 - 3.5	9.5				1.0	14.2	84.8	
▲	B-10	8 - 9.5	4.75				0.0	4.3	95.7	
★	B-11	0 - 1.5	9.5				2.5	11.1	86.4	

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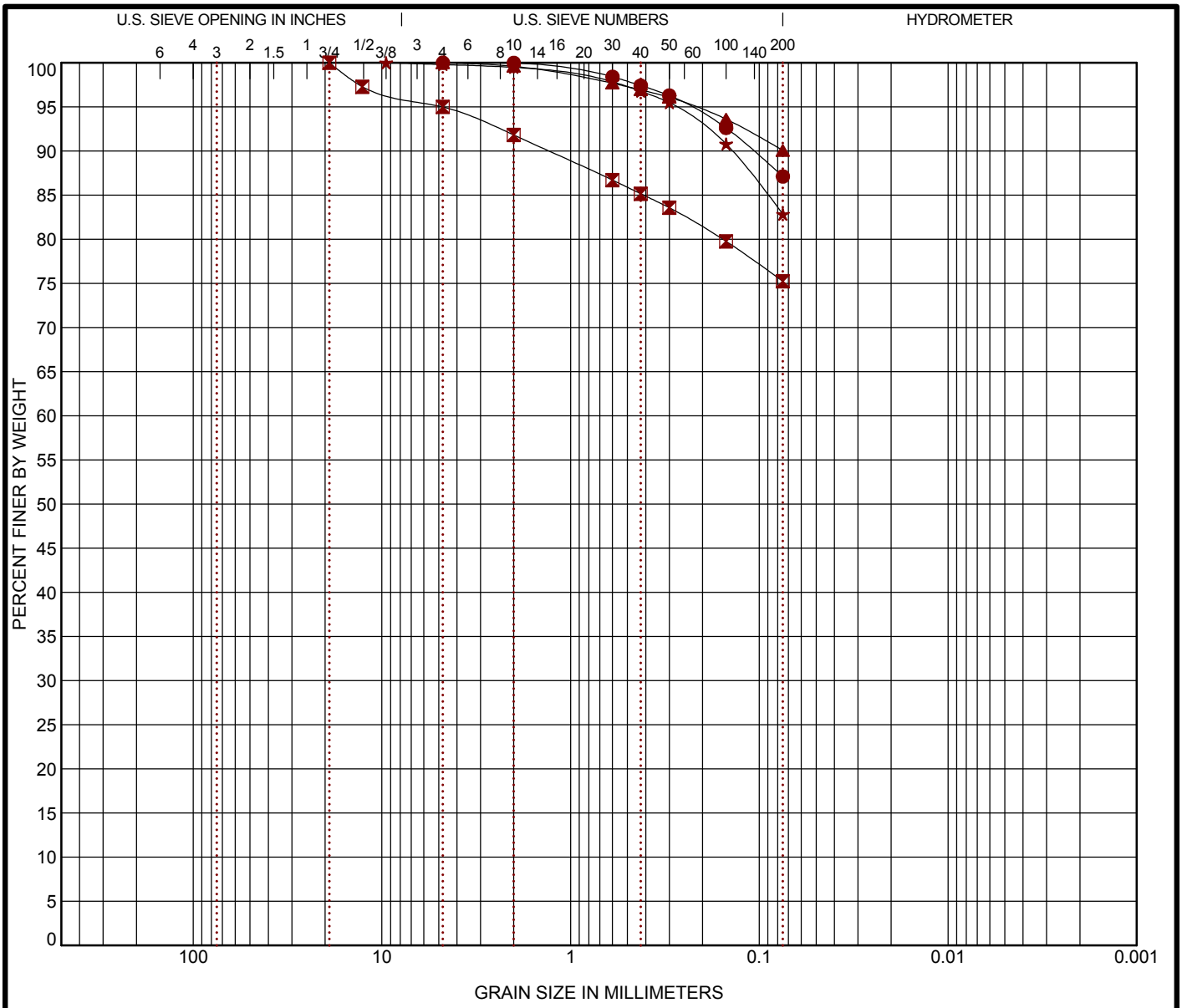

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-11	4 - 5.5	ELASTIC SILT (MH)	A-7-5 (31)	68	40	28		
⊠	B-12	0.5 - 2	LEAN CLAY with SAND (CL)	A-7-6 (17)	46	23	23		
▲	B-12	2 - 3.5	FAT CLAY (CH)	A-7-5 (41)	72	34	38		
★	B-12	13.5 - 15	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-11	4 - 5.5	4.75				0.0	12.9	87.1	
⊠	B-12	0.5 - 2	19				5.0	19.7	75.2	
▲	B-12	2 - 3.5	4.75				0.0	9.9	90.1	
★	B-12	13.5 - 15	9.5				0.2	17.0	82.8	

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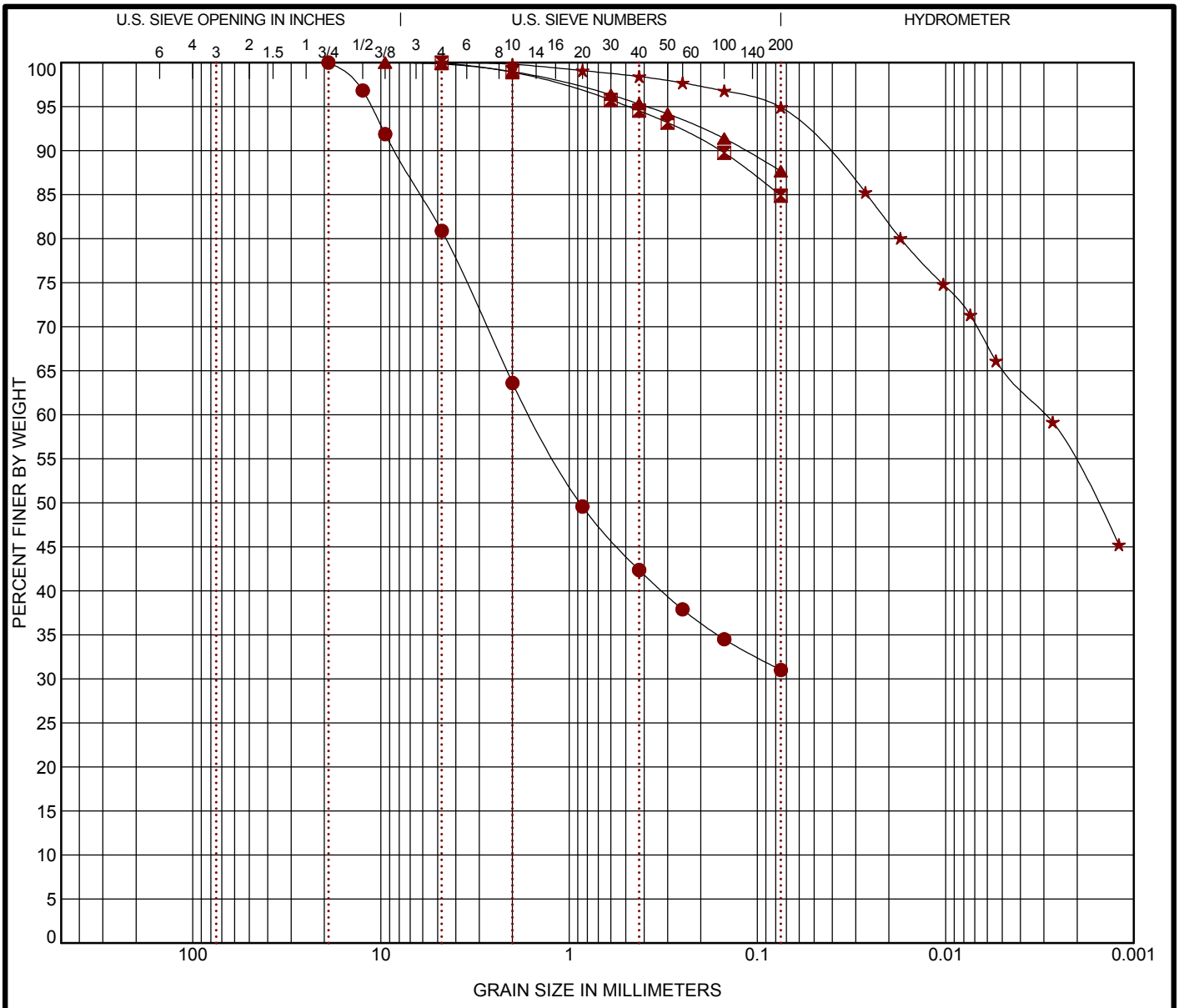

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-12 BULK	0 - 5	CLAYEY SAND with GRAVEL (SC)	A-2-4 (0)	28	18	10		
⊠	B-13	0 - 1.5	LEAN CLAY with SAND (CL)	A-6 (12)	35	21	14		
▲	B-13	2 - 3.5	FAT CLAY (CH)	A-7-6 (27)	52	24	28		
★	B-13	6 - 7.5	ELASTIC SILT (MH)	A-7-5 (35)	62	32	30		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-12 BULK	0 - 5	19	1.605			19.1	49.9	31.0	
⊠	B-13	0 - 1.5	4.75				0.0	15.1	84.9	
▲	B-13	2 - 3.5	9.5				0.2	12.2	87.7	
★	B-13	6 - 7.5	4.75	0.003			0.0	5.1	29.6	65.4

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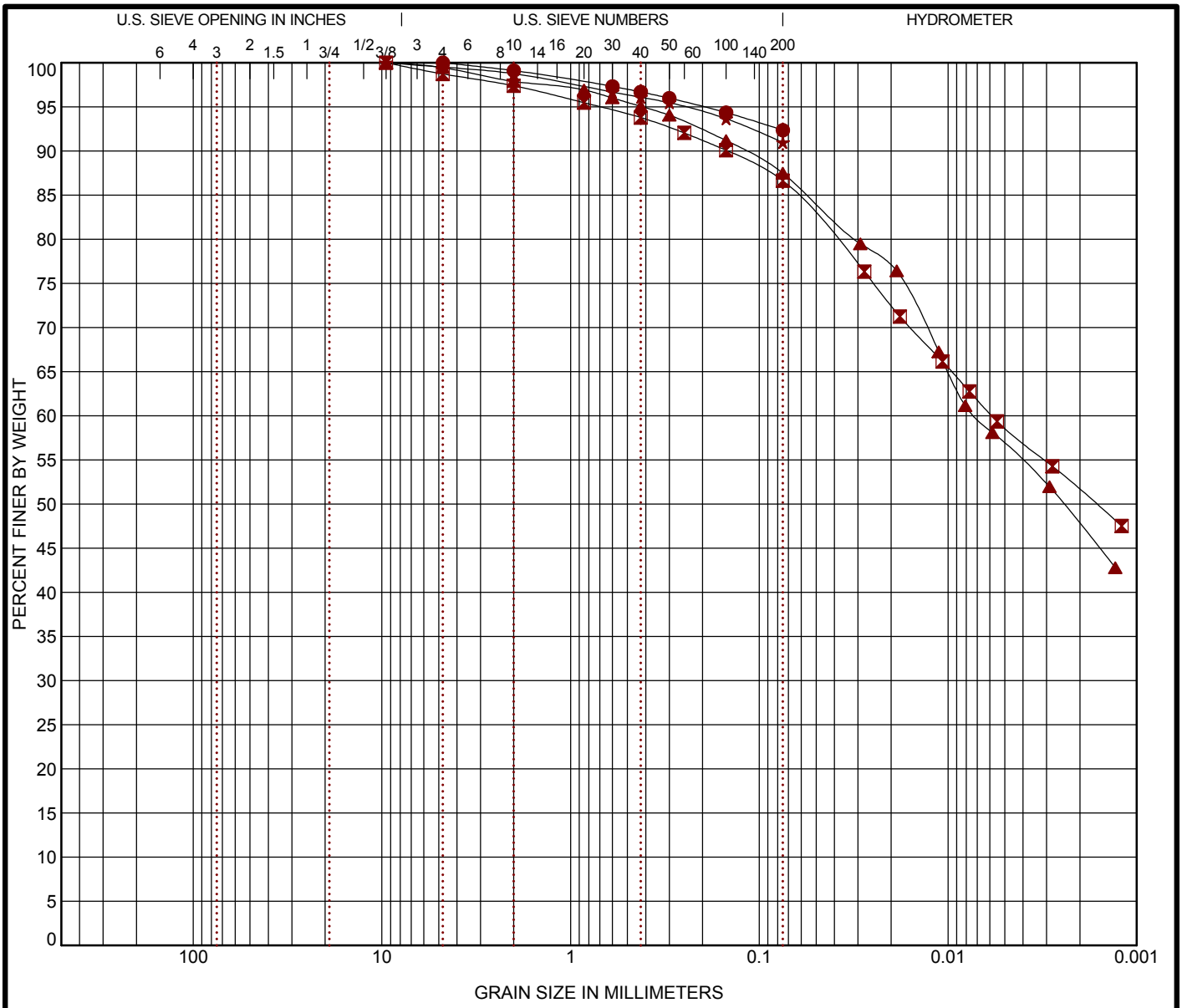

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-14	0 - 1.5	FAT CLAY (CH)	A-7-6 (39)	63	26	37		
⊠	B-14	2 - 3.5	FAT CLAY (CH)	A-7-6 (33)	59	25	34		
▲	B-14	8 - 9.5	ELASTIC SILT (MH)	A-7-5 (32)	69	40	29		
★	B-15	0 - 1.5	FAT CLAY (CH)	FAT CLAY (CH)					

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-14	0 - 1.5	4.75				0.0	7.6	92.4	
⊠	B-14	2 - 3.5	9.5	0.006			1.3	12.1	28.0	58.7
▲	B-14	8 - 9.5	9.5	0.007			0.6	12.0	30.7	56.8
★	B-15	0 - 1.5	9.5				0.5	8.5	91.0	

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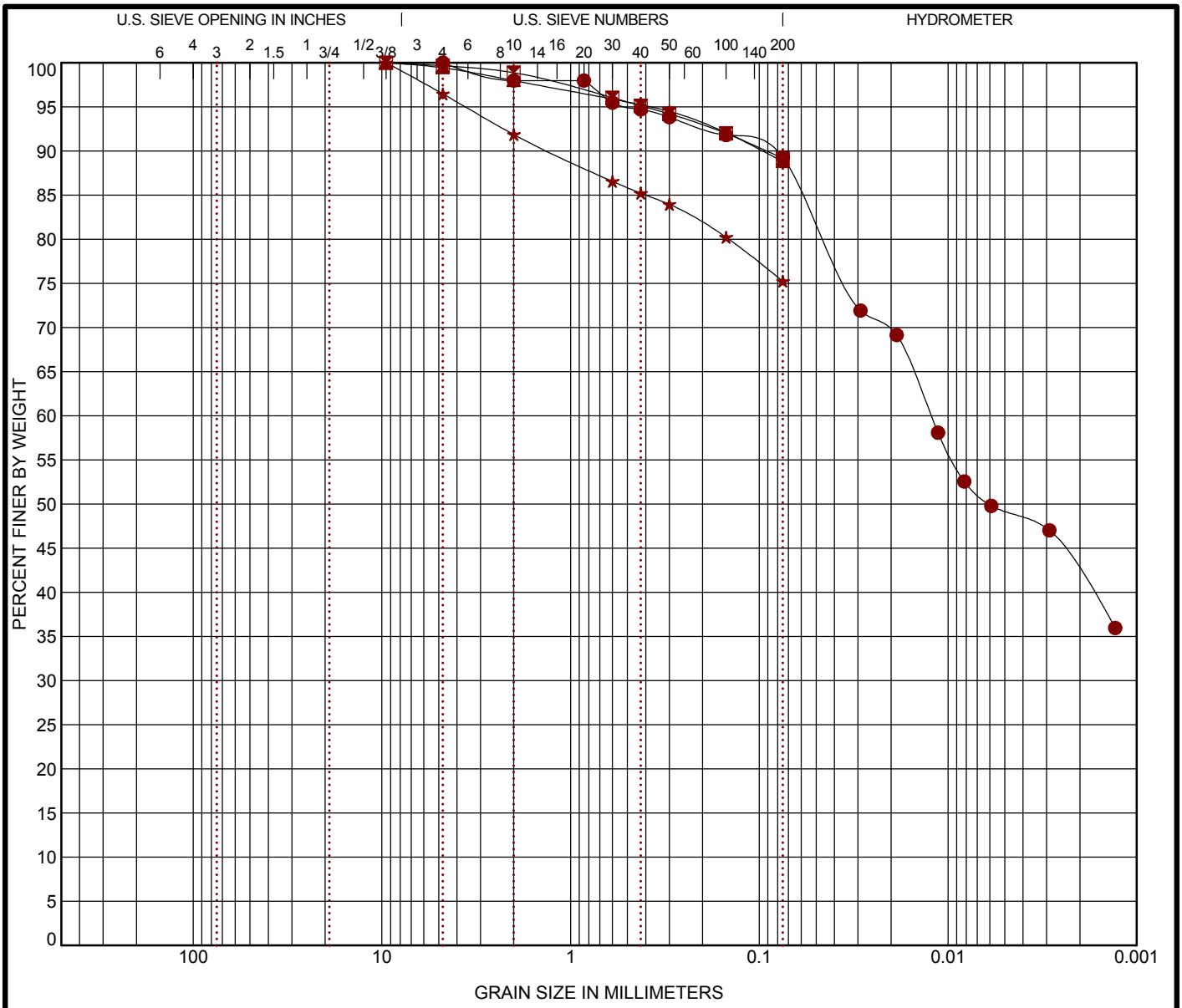

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
B-15	2 - 3.5	FAT CLAY (CH)	A-7-6 (32)	59	27	32		
B-16	0.5 - 2	SILT (ML)	SILT (ML)					
B-16	2 - 3.5	ELASTIC SILT (MH)	A-7-5 (21)	51	31	20		
B-17	0 - 1.5	ELASTIC SILT with SAND (MH)	A-7-5 (19)	54	30	24		

Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
B-15	2 - 3.5	4.75	0.012			0.0	10.7	40.1	49.1
B-16	0.5 - 2	9.5				0.3	10.5	89.2	
B-16	2 - 3.5	9.5				0.6	10.6	88.8	
B-17	0 - 1.5	9.5				3.5	21.2	75.3	

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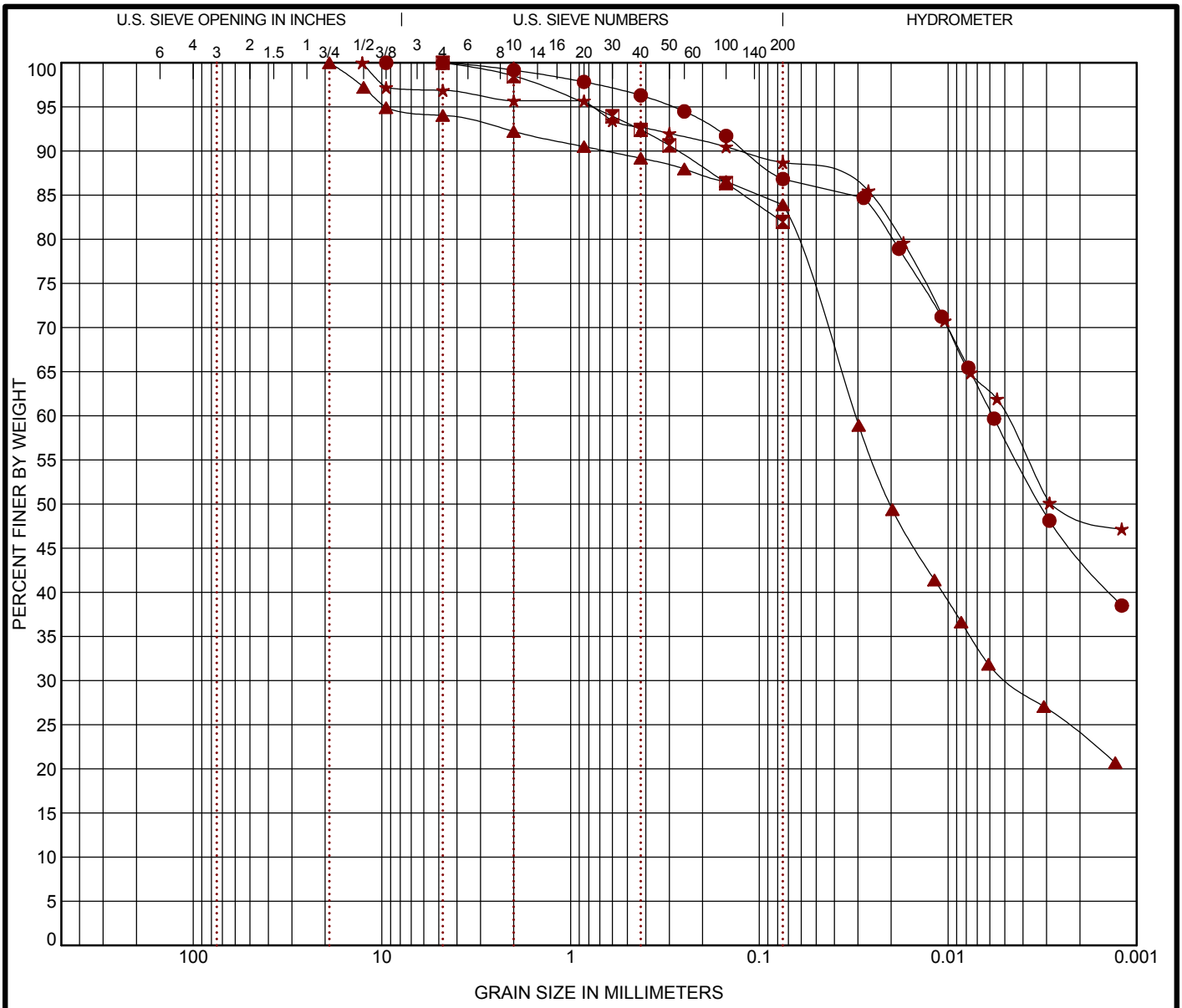

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-17	2 - 3.5	LEAN CLAY with SAND (CL)	LEAN CLAY with SAND (CL)					
⊠	B-18	2 - 3.5	LEAN CLAY with SAND (CL)	A-7-6 (15)	41	23	18		
▲	B-19	0 - 1.5	FAT CLAY with SAND (CH)	A-7-6 (23)	50	24	26		
★	B-19	2 - 3.5	ELASTIC SILT (MH)	A-7-5 (33)	63	32	31		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-17	2 - 3.5	9.5	0.006			0.0	13.1	29.4	57.4
⊠	B-18	2 - 3.5	4.75				0.0	18.0	82.0	
▲	B-19	0 - 1.5	19	0.031	0.005		6.0	10.1	53.5	30.4
★	B-19	2 - 3.5	12.7	0.005			3.1	8.2	28.5	60.2

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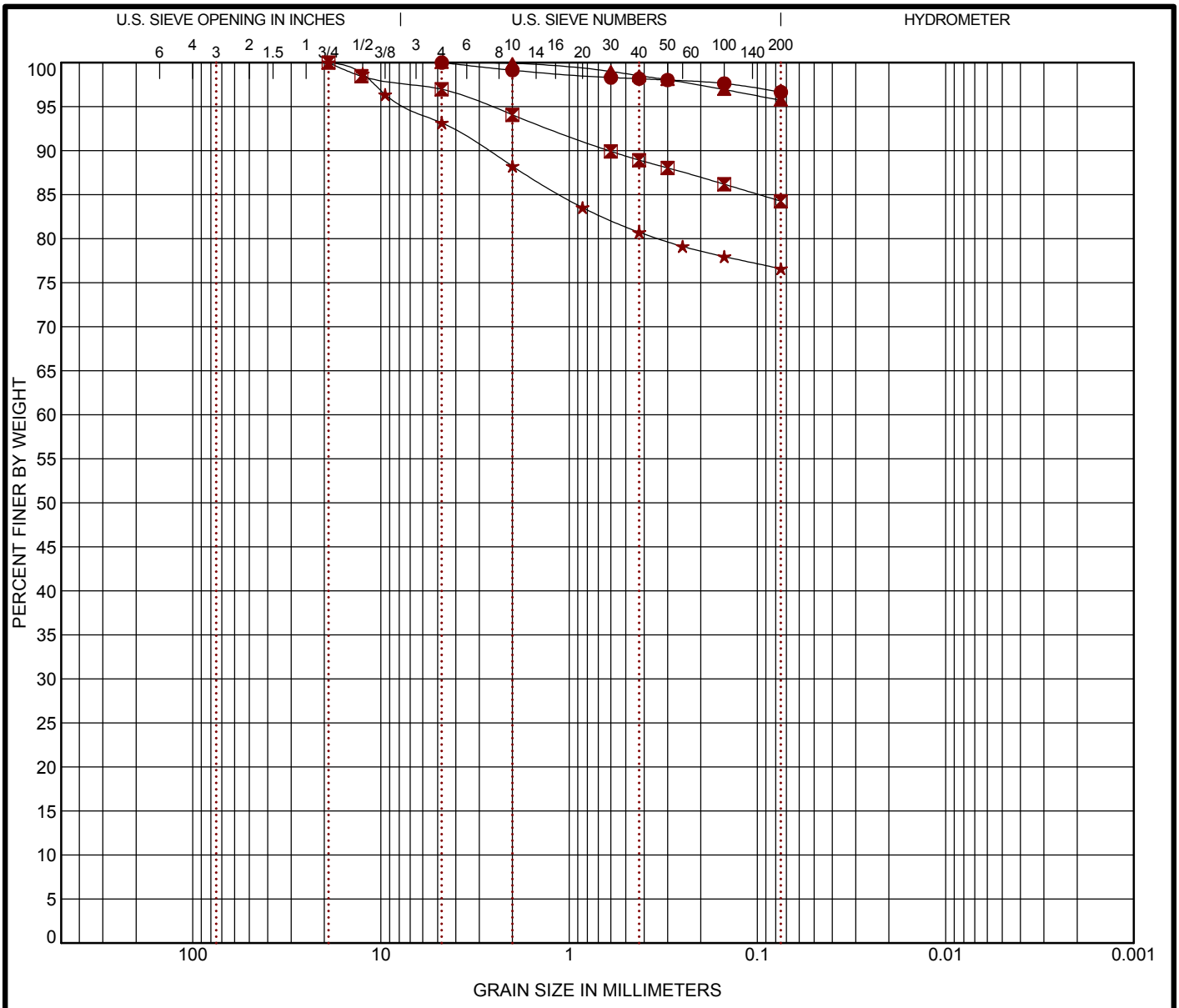

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-20	0.5 - 2	ELASTIC SILT (MH)	A-7-5 (36)	64	34	30		
⊠	B-20	2 - 3.5	ELASTIC SILT with SAND (MH)	A-7-5 (23)	56	33	23		
▲	B-20	8 - 9.5	SILT (ML)	A-4 (0)	NP	NP	NP		
★	B-20 BULK	0 - 5	SILT with SAND (ML)	A-7-6 (15)	46	28	18		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-20	0.5 - 2	4.75				0.0	3.4	96.6	
⊠	B-20	2 - 3.5	19				3.0	12.7	84.3	
▲	B-20	8 - 9.5	4.75				0.0	4.3	95.7	
★	B-20 BULK	0 - 5	19				6.8	16.6	76.6	

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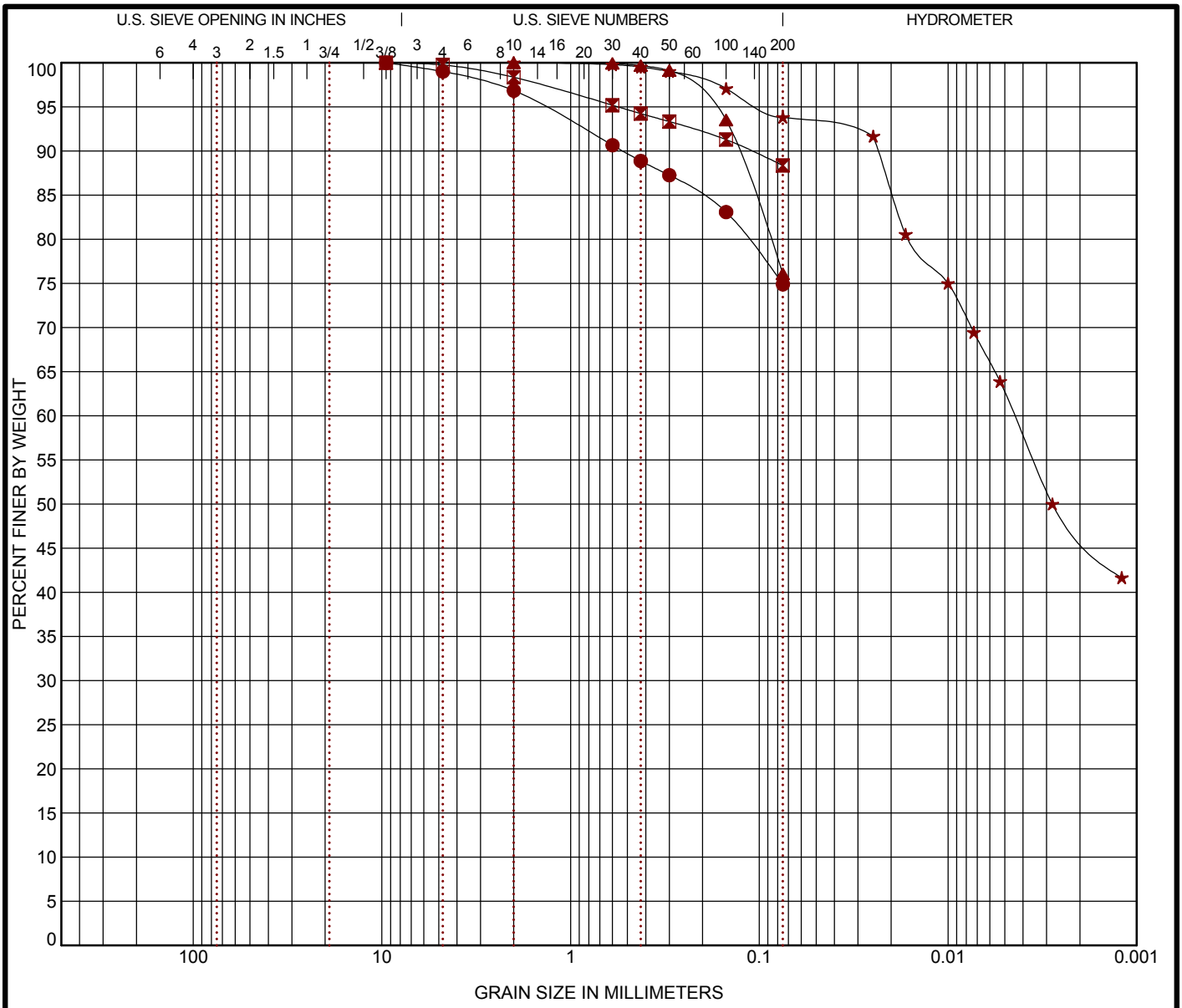

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-21	2 - 3.5	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
⊠	B-22	0 - 1.5	FAT CLAY (CH)	A-7-6 (41)	70	29	41		
▲	B-22	6 - 7.5	SILT with SAND (ML)	A-4 (3)	34	31	3		
★	B-23	2 - 3.5	ELASTIC SILT (MH)	A-7-5 (45)	77	39	38		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-21	2 - 3.5	9.5				1.0	24.1	74.9	
⊠	B-22	0 - 1.5	9.5				0.3	11.4	88.4	
▲	B-22	6 - 7.5	2				0.0	23.9	76.1	
★	B-23	2 - 3.5	2	0.004			0.0	6.2	31.2	62.6

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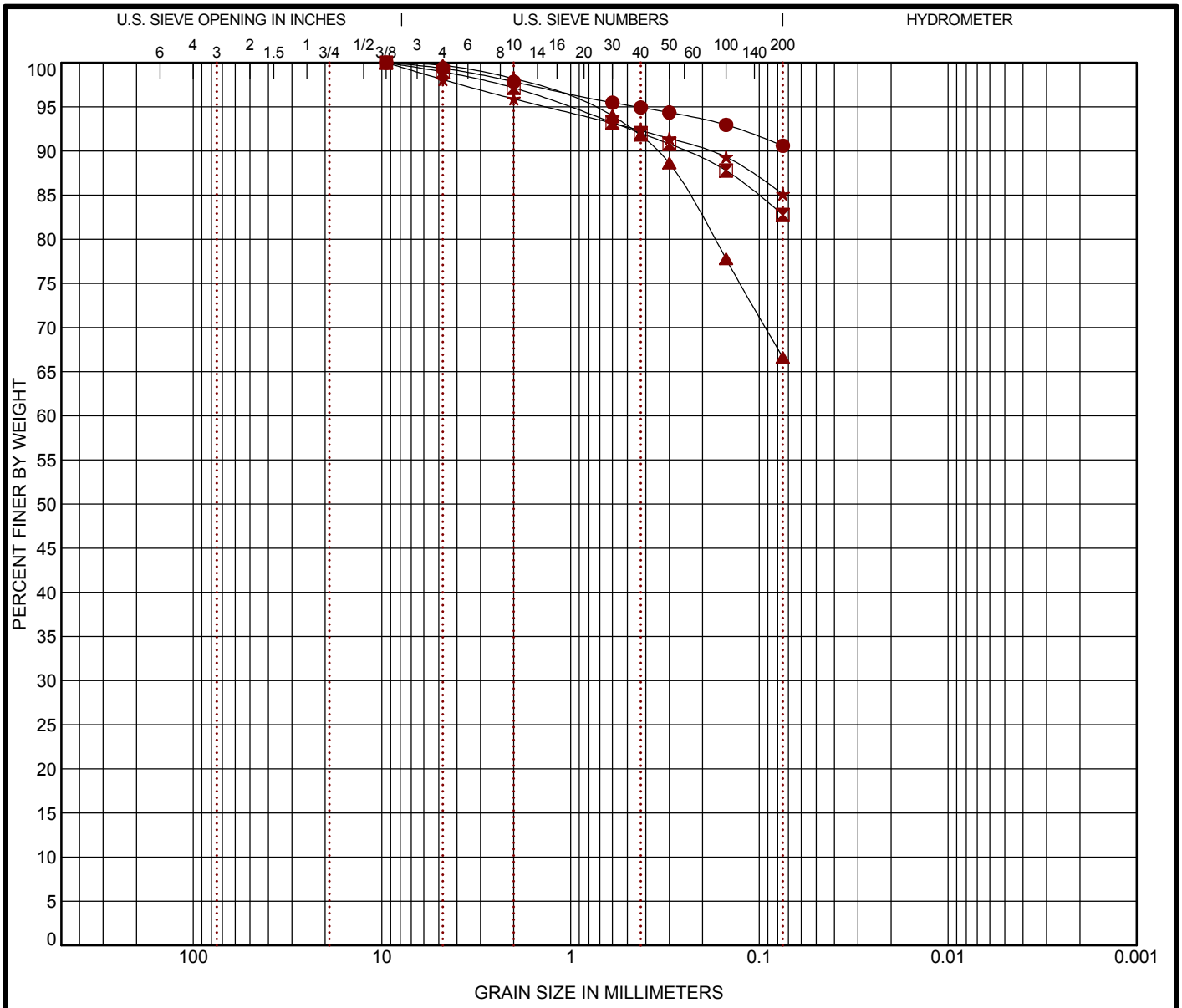

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-24	0 - 1.5	LEAN CLAY (CL)	A-6 (17)	40	22	18		
⊠	B-24	2 - 3.5	FAT CLAY with SAND (CH)	A-7-6 (32)	59	23	36		
▲	B-25	2 - 3.5	SANDY ELASTIC SILT (MH)	A-7-5 (14)	52	32	20		
★	B-26	0.5 - 2	ELASTIC SILT (MH)	A-7-5 (21)	54	33	21		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-24	0 - 1.5	9.5				0.6	8.8	90.6	
⊠	B-24	2 - 3.5	9.5				1.0	16.2	82.8	
▲	B-25	2 - 3.5	9.5				0.3	33.1	66.6	
★	B-26	0.5 - 2	9.5				1.9	13.0	85.1	

PROJECT: Columbia Avenue (S-48) Roadway Improvements

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Lexington County, South Carolina

Terracon
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Columbia, SC

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CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

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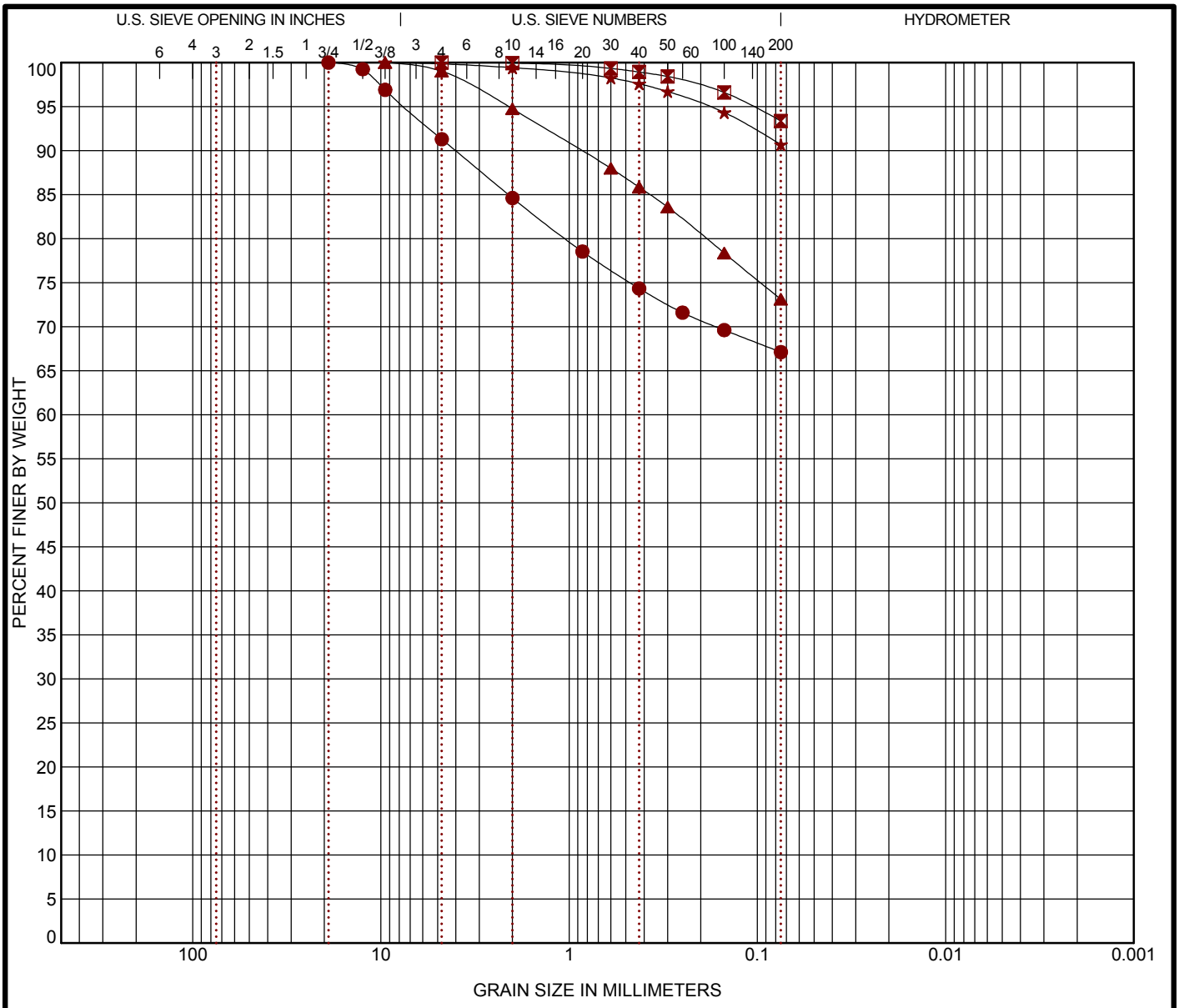
ASTM D422 / ASTM C136



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-26 BULK	0 - 5	SANDY SILT (ML)	A-6 (6)	36	25	11		
⊠	B-27	2 - 3.5	SILT (ML)	A-4 (0)	NP	NP	NP		
▲	B-28	2 - 3.5	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
★	B-29	2 - 3.5	SILT (ML)	A-4 (0)	NP	NP	NP		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-26 BULK	0 - 5	19				8.7	24.2	67.1	
⊠	B-27	2 - 3.5	4.75				0.0	6.6	93.4	
▲	B-28	2 - 3.5	9.5				1.0	25.9	73.1	
★	B-29	2 - 3.5	9.5				0.1	9.2	90.7	

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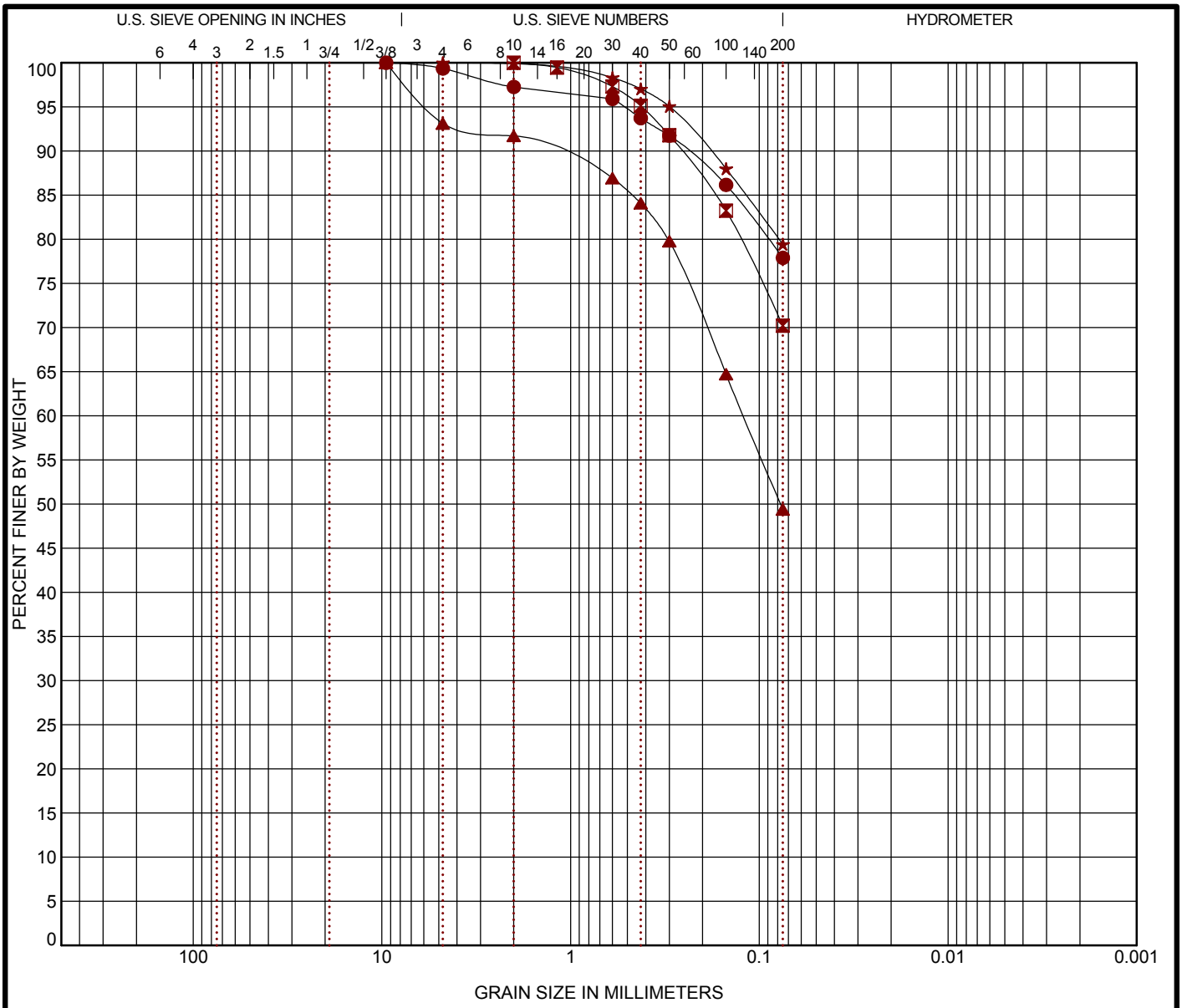

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-29	53.5 - 55	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
⊠	B-30	2 - 3.5	ELASTIC SILT with SAND (MH)	A-5 (9)	53	43	10		
▲	B-30	18.5 - 20	CLAYEY SAND (SC)	A-7-6 (5)	41	24	17		
★	B-31	2 - 3.5	ELASTIC SILT with SAND (MH)	A-7-5 (17)	56	38	18		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-29	53.5 - 55	9.5				0.7	21.4	77.9	
⊠	B-30	2 - 3.5	2				0.0	29.8	70.2	
▲	B-30	18.5 - 20	9.5	0.121			6.9	43.7	49.4	
★	B-31	2 - 3.5	4.75				0.0	20.6	79.4	

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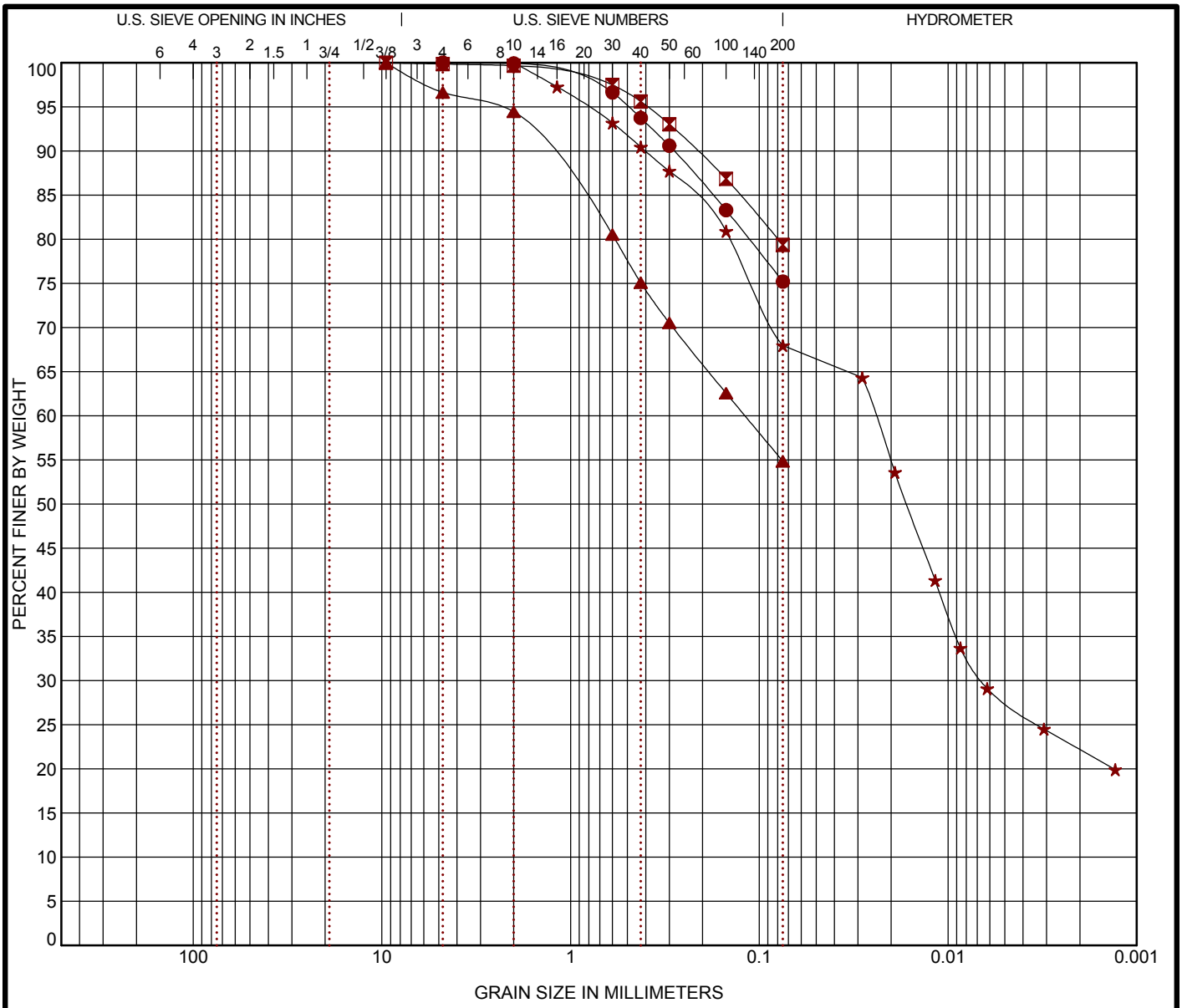

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-32	13.5 - 15	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
⊠	B-32	48.5 - 50	SILT with SAND (ML)	A-4 (0)	NP	NP	NP		
▲	B-32	78.5 - 80	SANDY SILT (ML)	SANDY SILT (ML)					
★	B-33	0 - 1.5	ELASTIC SILT with SAND (MH)	ELASTIC SILT with SAND (MH)					

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-32	13.5 - 15	4.75				0.0	24.8	75.2	
⊠	B-32	48.5 - 50	9.5				0.1	20.5	79.4	
▲	B-32	78.5 - 80	9.5	0.119			3.4	41.8	54.9	
★	B-33	0 - 1.5	2	0.024	0.007		0.0	32.0	40.3	27.7

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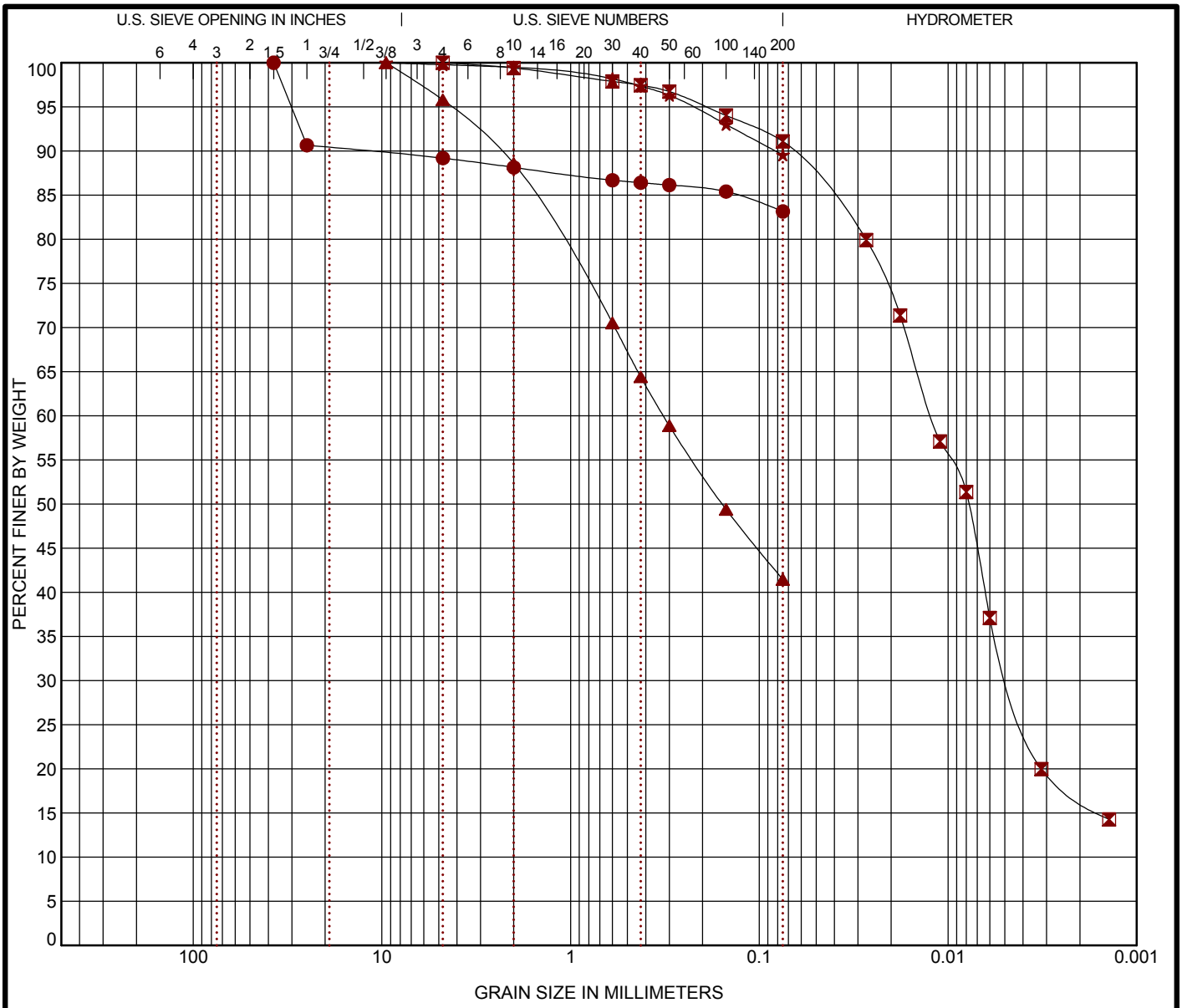

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-33	2 - 3.5	ELASTIC SILT with GRAVEL (MH)	A-7-5 (22)	54	30	24		
⊠	B-33	23.5 - 25	SILT (ML)	A-4 (0)	NP	NP	NP		
▲	B-33	83.5 - 85	SILTY SAND (SM)	SILTY SAND (SM)					
★	B-34	2 - 3.5	SILT (ML)	A-4 (0)	NP	NP	NP		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-33	2 - 3.5	37.5				10.8	6.0	83.1	
⊠	B-33	23.5 - 25	4.75	0.012	0.005		0.0	8.9	58.9	32.1
▲	B-33	83.5 - 85	9.5	0.322			4.2	54.3	41.5	
★	B-34	2 - 3.5	9.5				0.2	10.2	89.6	

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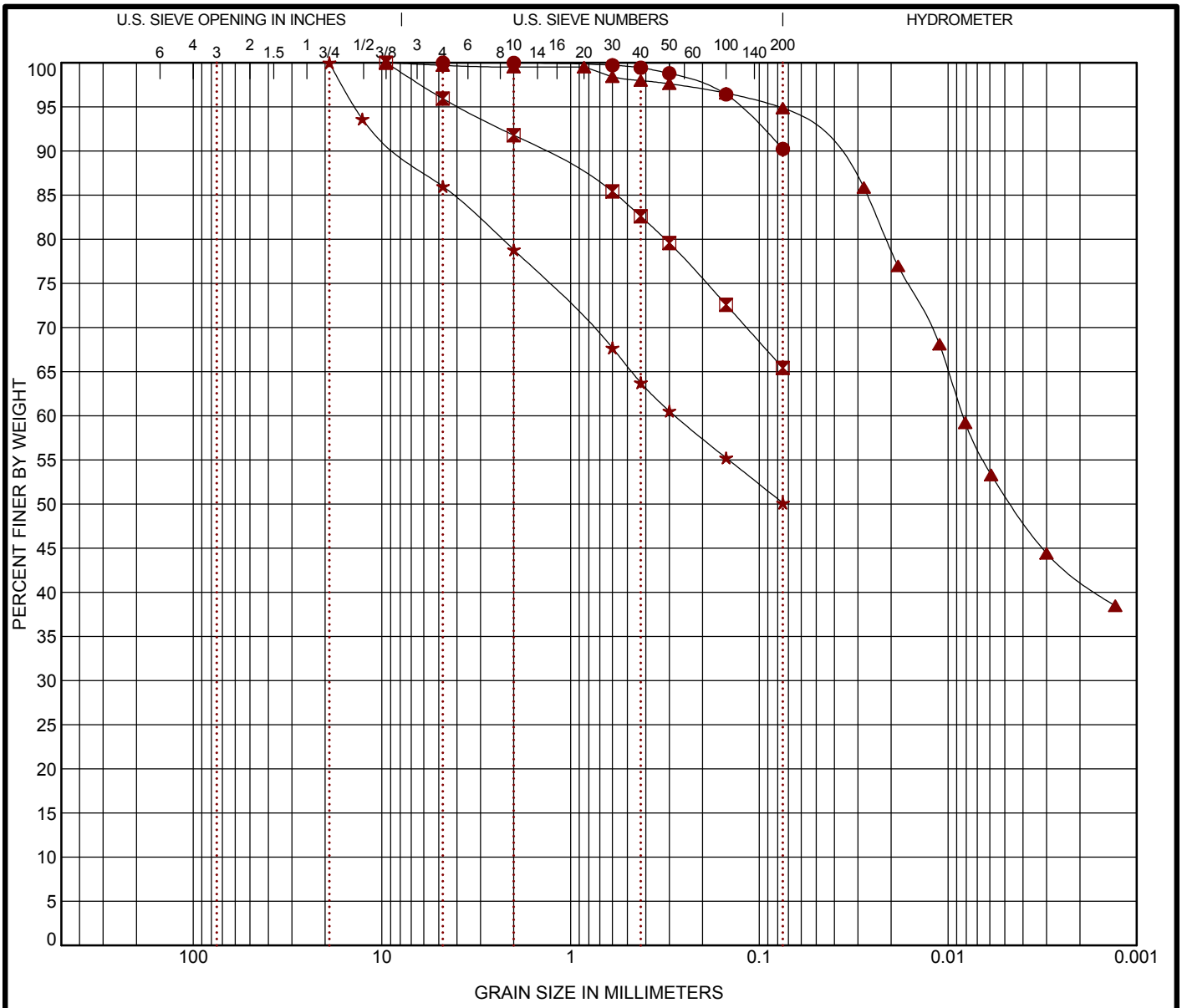

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
●	B-34	23.5 - 25	SILT (ML)	A-4 (0)	NP	NP	NP		
⊠	B-35	2 - 3.5	SANDY SILT (ML)	A-4 (0)	NP	NP	NP		
▲	B-35	6 - 7.5	FAT CLAY (CH)	A-7-5 (33)	59	30	29		
★	B-36	2 - 3.5	SANDY SILT (ML)	A-4 (0)	NP	NP	NP		

	Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
●	B-34	23.5 - 25	4.75				0.0	9.8	90.2	
⊠	B-35	2 - 3.5	9.5				4.1	30.5	65.4	
▲	B-35	6 - 7.5	9.5	0.008			0.3	4.8	43.7	51.1
★	B-36	2 - 3.5	19	0.28			14.0	35.9	50.1	

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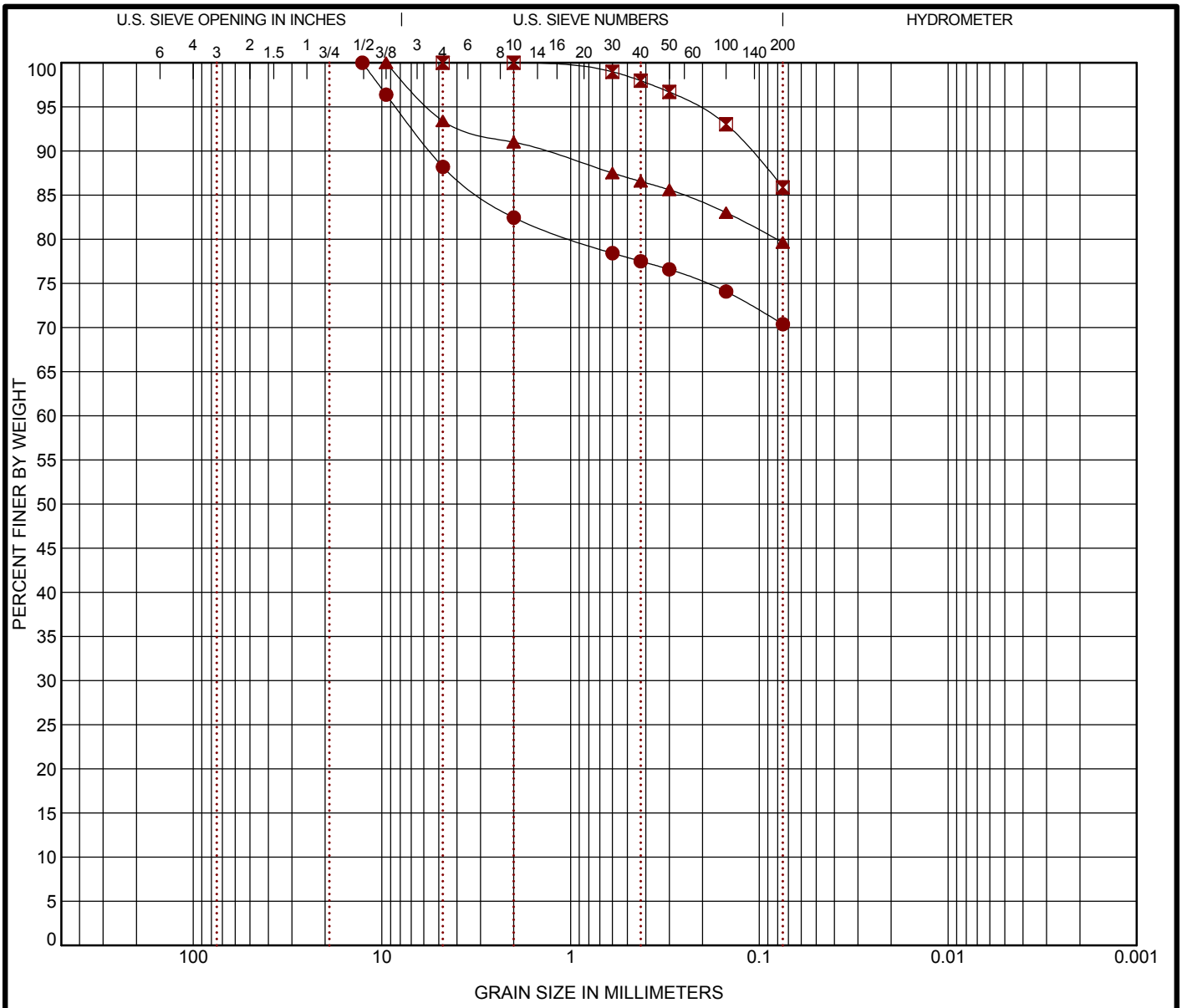

Boring ID	Depth	USCS Classification	AASHTO Classification	LL	PL	PI	Cc	Cu
B-37	0 - 1.5	FAT CLAY with SAND (CH)	A-7-5 (25)	65	31	34		
B-37	33.5 - 35	SILT (ML)	A-4 (0)	NP	NP	NP		
B-38	0 - 1.5	FAT CLAY with SAND (CH)	A-7-5 (35)	70	30	40		

Boring ID	Depth	D_{100}	D_{60}	D_{30}	D_{10}	%Gravel	%Sand	%Silt	%Clay
B-37	0 - 1.5	12.7				11.8	17.8	70.4	
B-37	33.5 - 35	4.75				0.0	14.1	85.9	
B-38	0 - 1.5	9.5				6.6	13.8	79.6	

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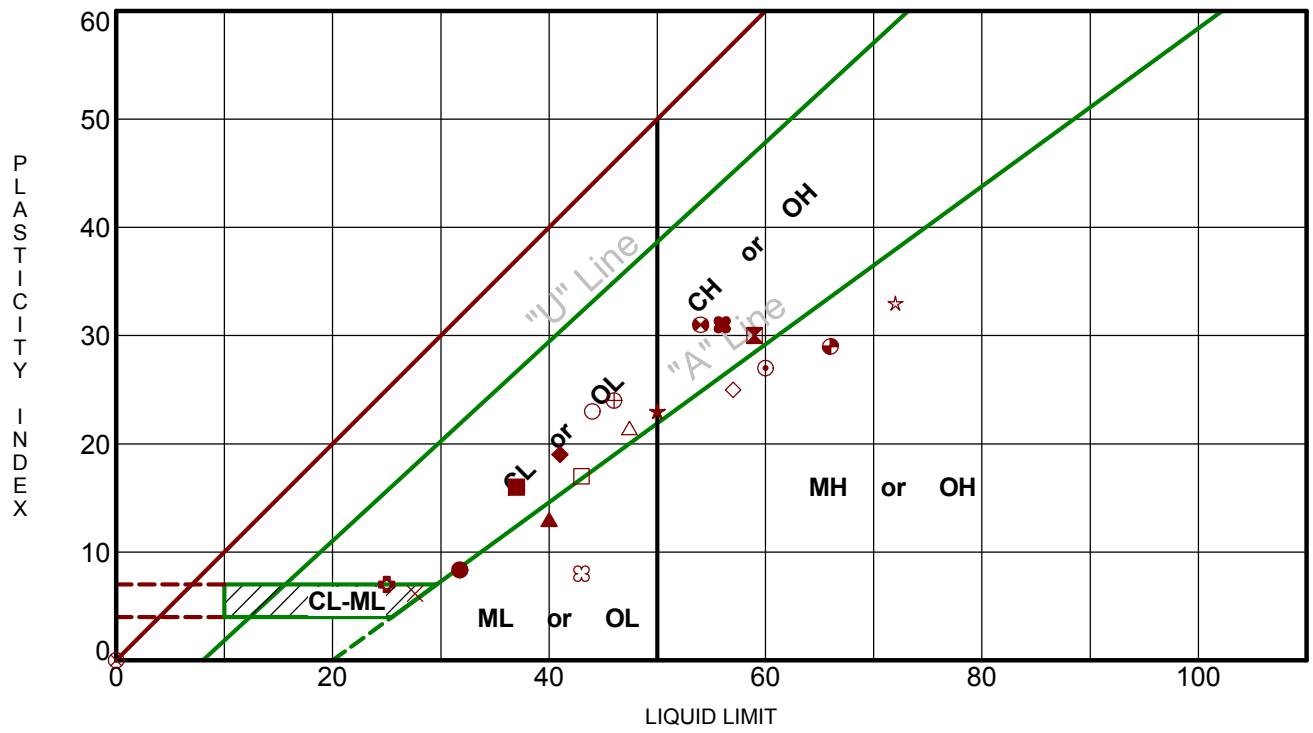
ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
B-01	0 - 1.5	32	23	9	92	CL	LEAN CLAY
B-01	2 - 3.5	59	29	30	54	CH	SANDY FAT CLAY
B-01	8 - 9.5	40	27	13	60	ML	SANDY SILT
B-02	0.5 - 2	50	27	23	89	CH	ELASTIC SILT (MH)
B-02	4 - 5.5	60	33	27			ELASTIC SILT (MH)
B-02 BULK	0 - 5	25	18	7	56	CL-ML	SANDY SILTY CLAY with GRAVEL
B-03	0.5 - 2	44	21	23	81	CL	LEAN CLAY with SAND
B-03	2 - 3.5	47	26	21	88	CL	LEAN CLAY
B-03	6 - 7.5	NP	NP	NP	82	ML	SILT with SAND
B-04	0 - 1.5	46	22	24	88	CL	LEAN CLAY
B-04	2 - 3.5	43	26	17	90	CL	LEAN CLAY
B-04	6 - 7.5	54	23	31			FAT CLAY (CH)
B-05	0 - 1.5	66	37	29	93	MH	ELASTIC SILT
B-05	2 - 3.5	72	39	33	95	MH	ELASTIC SILT
B-05 BULK	0 - 5	43	35	8	91	ML	SILT
B-06	0 - 1.5	37	21	16	86	CL	LEAN CLAY
B-06	2 - 3.5	41	22	19	91	CL	LEAN CLAY
B-06	6 - 7.5	57	32	25	80	MH	ELASTIC SILT with SAND
B-07	0 - 1.5	28	21	7	87	CL-ML	SILTY CLAY
B-07	2 - 3.5	56	25	31	92	CH	FAT CLAY

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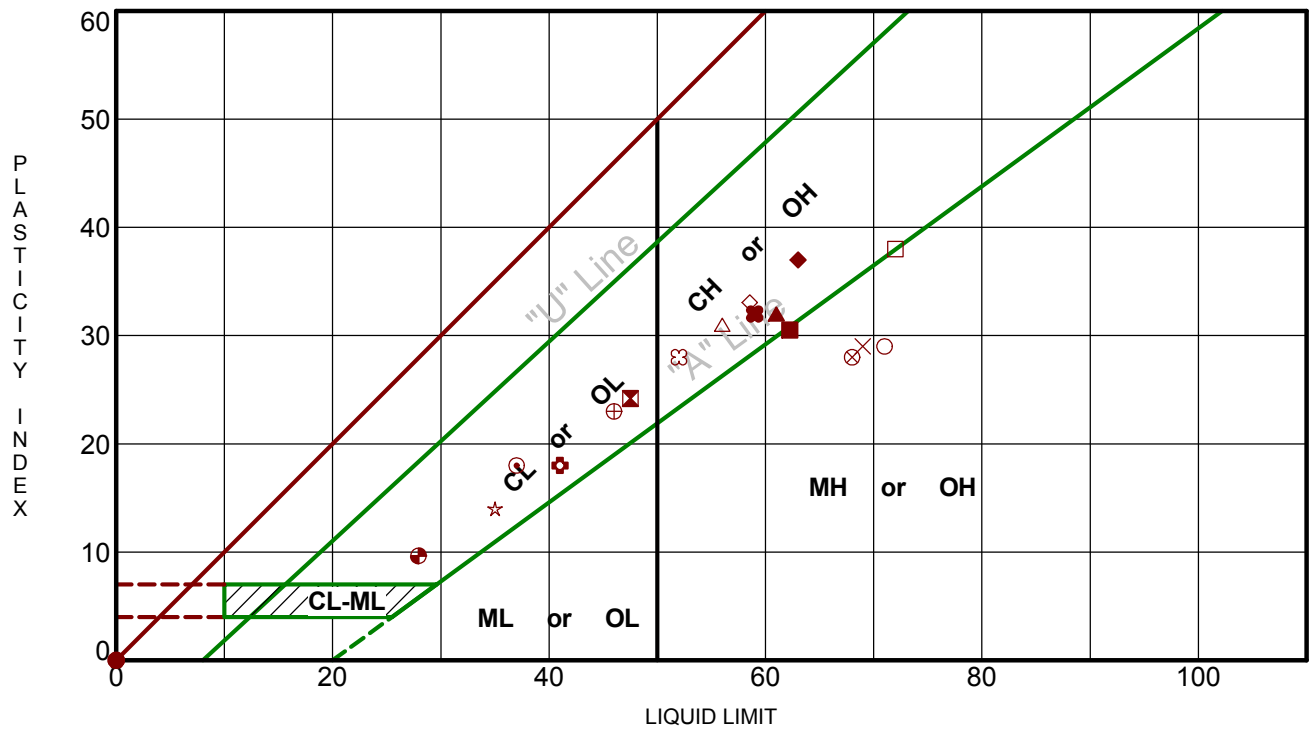

Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
B-07	8 - 9.5	NP	NP	NP	81	ML	SILT with SAND
B-08	0 - 1.5	48	23	25	89	CL	LEAN CLAY
B-08	2 - 3.5	61	29	32	72	CH	FAT CLAY with SAND
B-09	2 - 3.5	NP	NP	NP	83	ML	SILT with SAND
B-10	0 - 1.5	37	19	18	74	CL	LEAN CLAY with SAND
B-10	2 - 3.5	41	23	18	85	CL	LEAN CLAY with SAND
B-10	8 - 9.5	71	42	29	96	MH	ELASTIC SILT
B-11	0 - 1.5	56	25	31	86	CH	FAT CLAY
B-11	4 - 5.5	68	40	28	87	MH	ELASTIC SILT
B-12	0.5 - 2	46	23	23	75	CL	LEAN CLAY with SAND
B-12	2 - 3.5	72	34	38	90	CH	FAT CLAY
B-12	13.5 - 15	NP	NP	NP	83	ML	SILT with SAND
B-12 BULK	0 - 5	28	18	10	31	SC	CLAYEY SAND with GRAVEL
B-13	0 - 1.5	35	21	14	85	CL	LEAN CLAY with SAND
B-13	2 - 3.5	52	24	28	88	CH	FAT CLAY
B-13	6 - 7.5	62	32	30	95	MH	ELASTIC SILT
B-14	0 - 1.5	63	26	37	92	CH	FAT CLAY
B-14	2 - 3.5	59	25	34	87	CH	FAT CLAY
B-14	8 - 9.5	69	40	29	87	MH	ELASTIC SILT
B-15	2 - 3.5	59	27	32	89	CH	FAT CLAY

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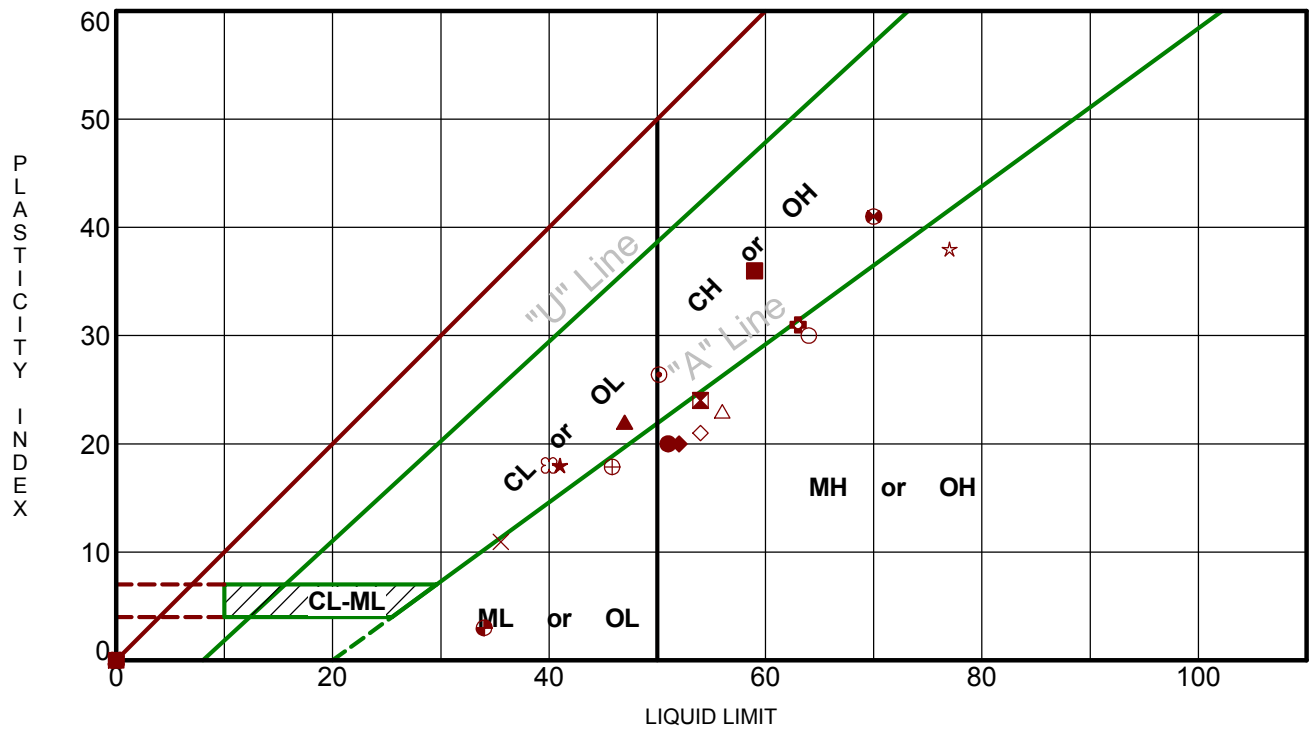

Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
B-16	2 - 3.5	51	31	20	89	MH	ELASTIC SILT
B-17	0 - 1.5	54	30	24	75	MH	ELASTIC SILT with SAND
B-17	4 - 5.5	47	25	22			LEAN CLAY with SAND (CL)
B-18	2 - 3.5	41	23	18	82	CL	LEAN CLAY with SAND
B-19	0 - 1.5	50	24	26	84	CH	FAT CLAY with SAND
B-19	2 - 3.5	63	32	31	89	MH	ELASTIC SILT
B-20	0.5 - 2	64	34	30	97	MH	ELASTIC SILT
B-20	2 - 3.5	56	33	23	84	MH	ELASTIC SILT with SAND
B-20	8 - 9.5	NP	NP	NP	96	ML	SILT
B-20 BULK	0 - 5	46	28	18	77	ML	SILT with SAND
B-21	2 - 3.5	NP	NP	NP	75	ML	SILT with SAND
B-22	0 - 1.5	70	29	41	88	CH	FAT CLAY
B-22	6 - 7.5	34	31	3	76	ML	SILT with SAND
B-23	2 - 3.5	77	39	38	94	MH	ELASTIC SILT
B-24	0 - 1.5	40	22	18	91	CL	LEAN CLAY
B-24	2 - 3.5	59	23	36	83	CH	FAT CLAY with SAND
B-25	2 - 3.5	52	32	20	67	MH	SANDY ELASTIC SILT
B-26	0.5 - 2	54	33	21	85	MH	ELASTIC SILT
B-26 BULK	0 - 5	36	25	11	67	ML	SANDY SILT
B-27	2 - 3.5	NP	NP	NP	93	ML	SILT

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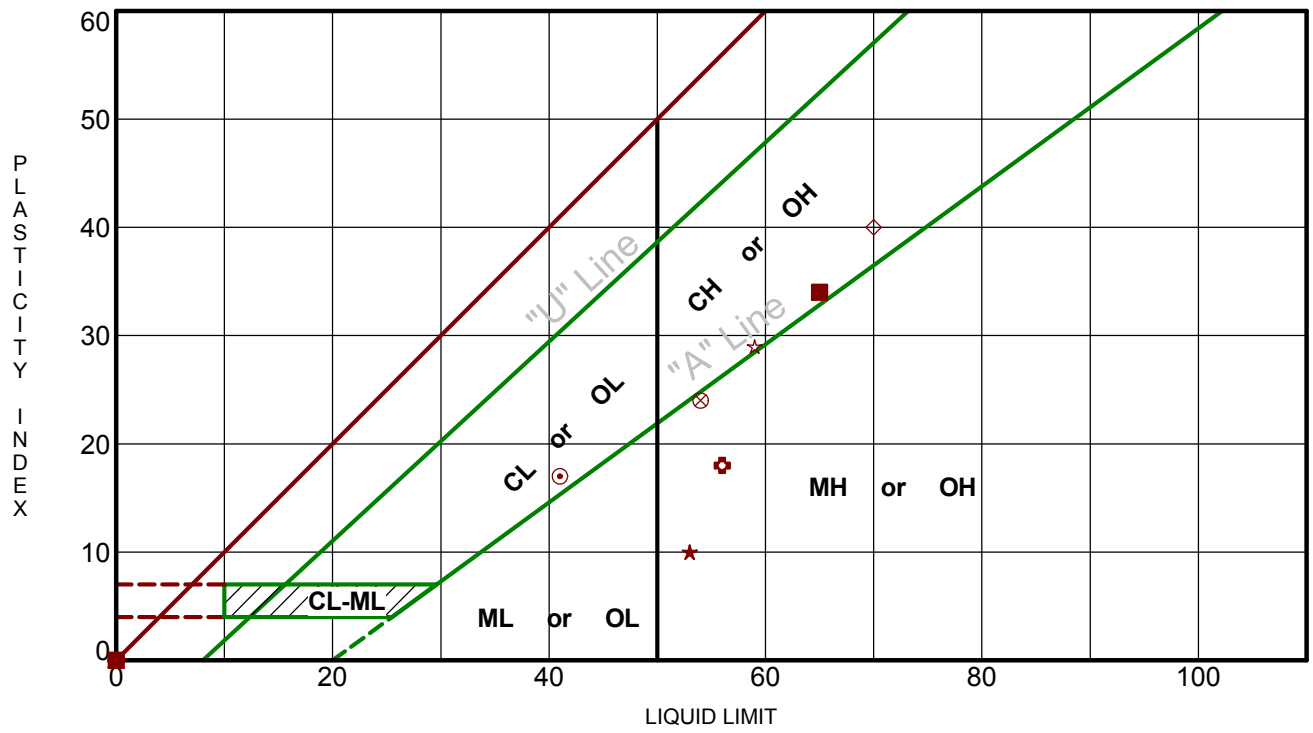

Boring ID	Depth	LL	PL	PI	Fines	USCS	Description
B-28	2 - 3.5	NP	NP	NP	73	ML	SILT with SAND
B-29	2 - 3.5	NP	NP	NP	91	ML	SILT
B-29	53.5 - 55	NP	NP	NP	78	ML	SILT with SAND
B-30	2 - 3.5	53	43	10	70	MH	ELASTIC SILT with SAND
B-30	18.5 - 20	41	24	17	49	SC	CLAYEY SAND
B-31	2 - 3.5	56	38	18	79	MH	ELASTIC SILT with SAND
B-32	13.5 - 15	NP	NP	NP	75	ML	SILT with SAND
B-32	48.5 - 50	NP	NP	NP	79	ML	SILT with SAND
B-33	2 - 3.5	54	30	24	83	MH	ELASTIC SILT with GRAVEL
B-33	23.5 - 25	NP	NP	NP	91	ML	SILT
B-34	2 - 3.5	NP	NP	NP	90	ML	SILT
B-34	23.5 - 25	NP	NP	NP	90	ML	SILT
B-35	2 - 3.5	NP	NP	NP	65	ML	SANDY SILT
B-35	6 - 7.5	59	30	29	95	CH	FAT CLAY
B-36	2 - 3.5	NP	NP	NP	50	ML	SANDY SILT
B-37	0 - 1.5	65	31	34	70	CH	FAT CLAY with SAND
B-37	33.5 - 35	NP	NP	NP	86	ML	SILT
B-38	0 - 1.5	70	30	40	80	CH	FAT CLAY with SAND

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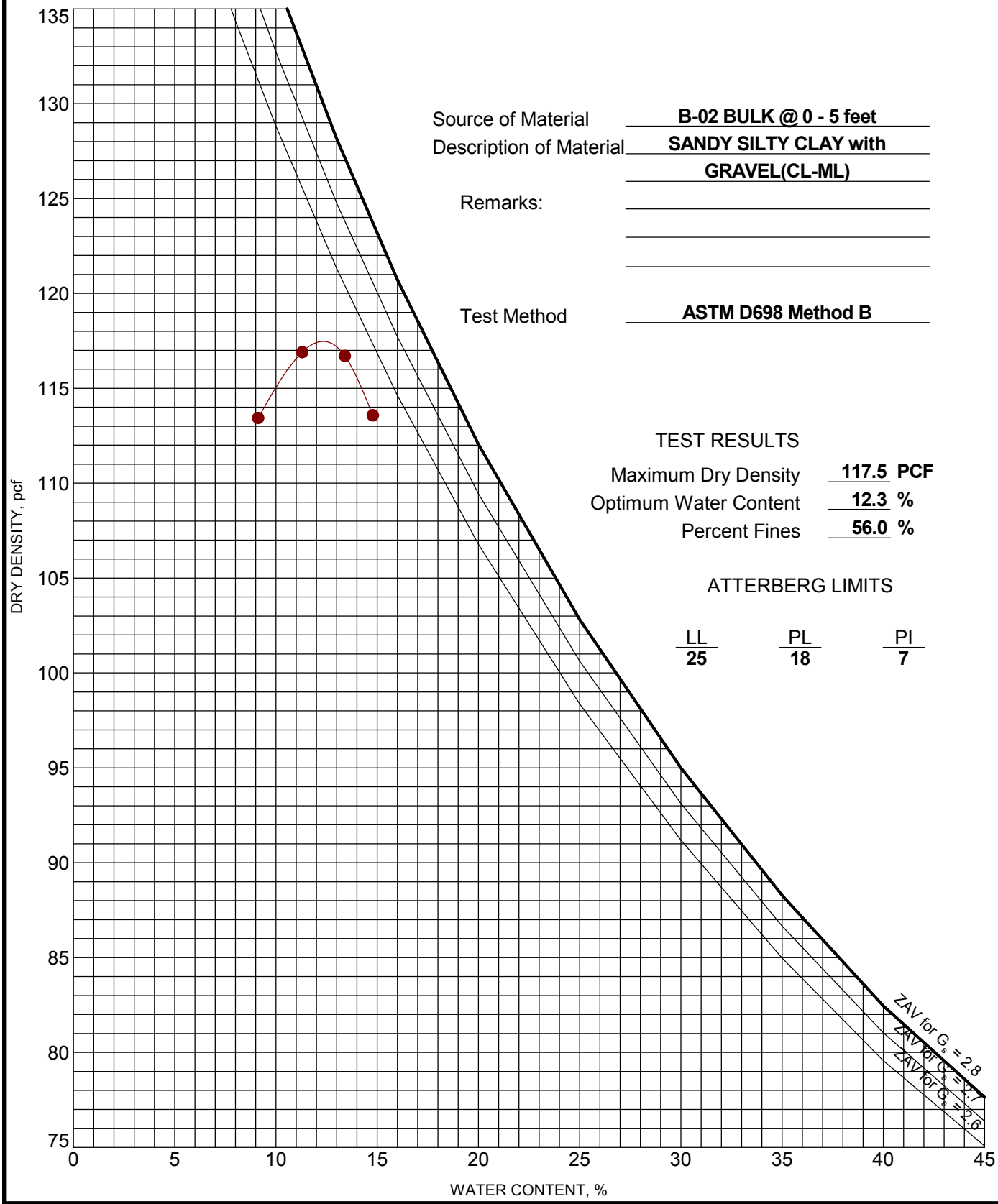
MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-02 BULK @ 0 - 5 feet**

Description of Material: **SANDY SILTY CLAY with GRAVEL(CL-ML)**

Remarks:

Test Method: **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**117.5** PCF
Optimum Water Content	**12.3** %
Percent Fines	**56.0** %

ATTERBERG LIMITS

LL	PL	PI
25	**18**	**7**

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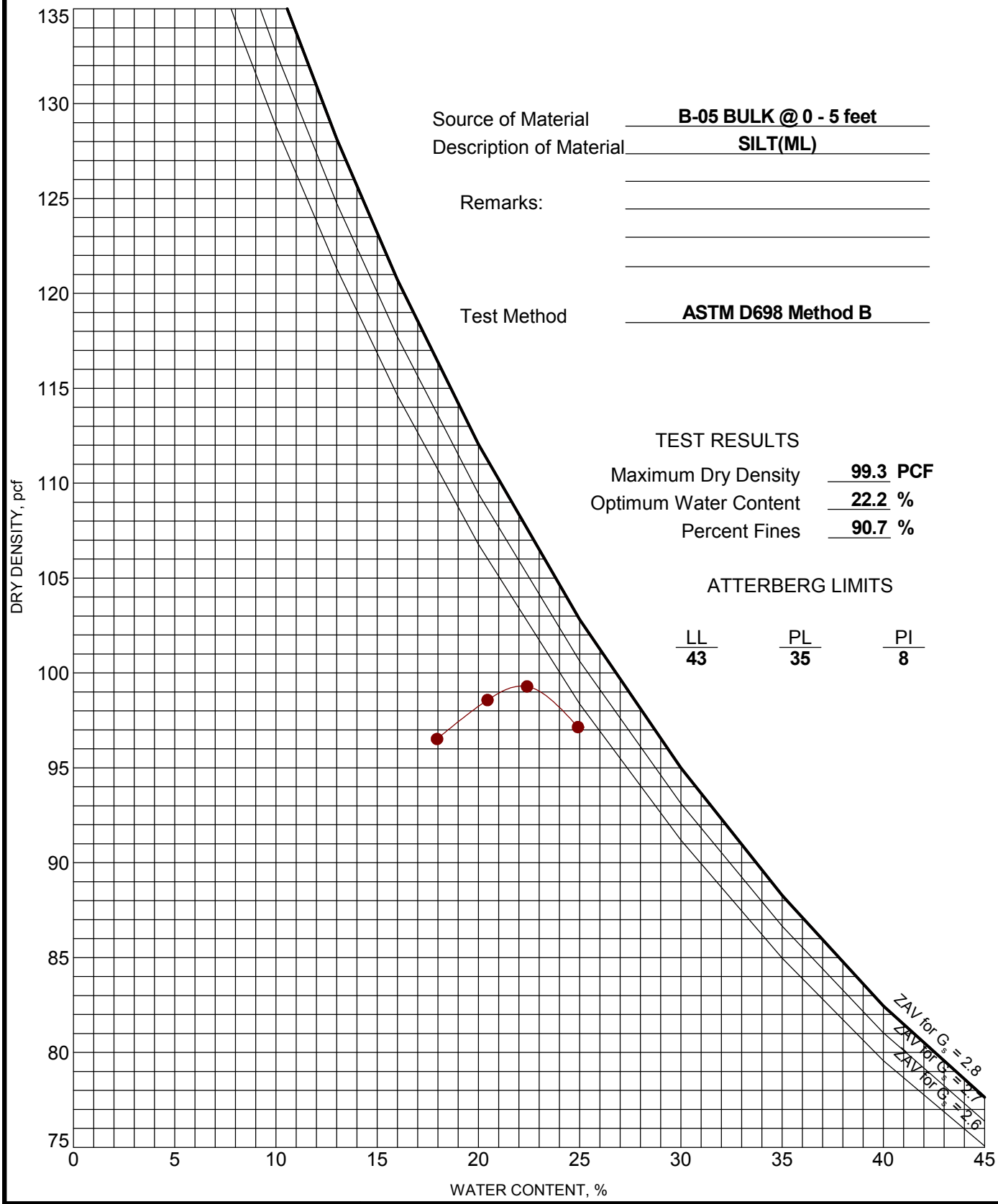
Lexington, South Carolina

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 73155095 LAB TESTING.GPJ TERRACON2012.GDT 5/20/16

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-05 BULK @ 0 - 5 feet**

Description of Material: **SILT(ML)**

Remarks:

Test Method: **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**99.3**	**PCF**
Optimum Water Content	**22.2**	**%**
Percent Fines	**90.7**	**%**

ATTERBERG LIMITS

LL	PL	PI
43	**35**	**8**

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC

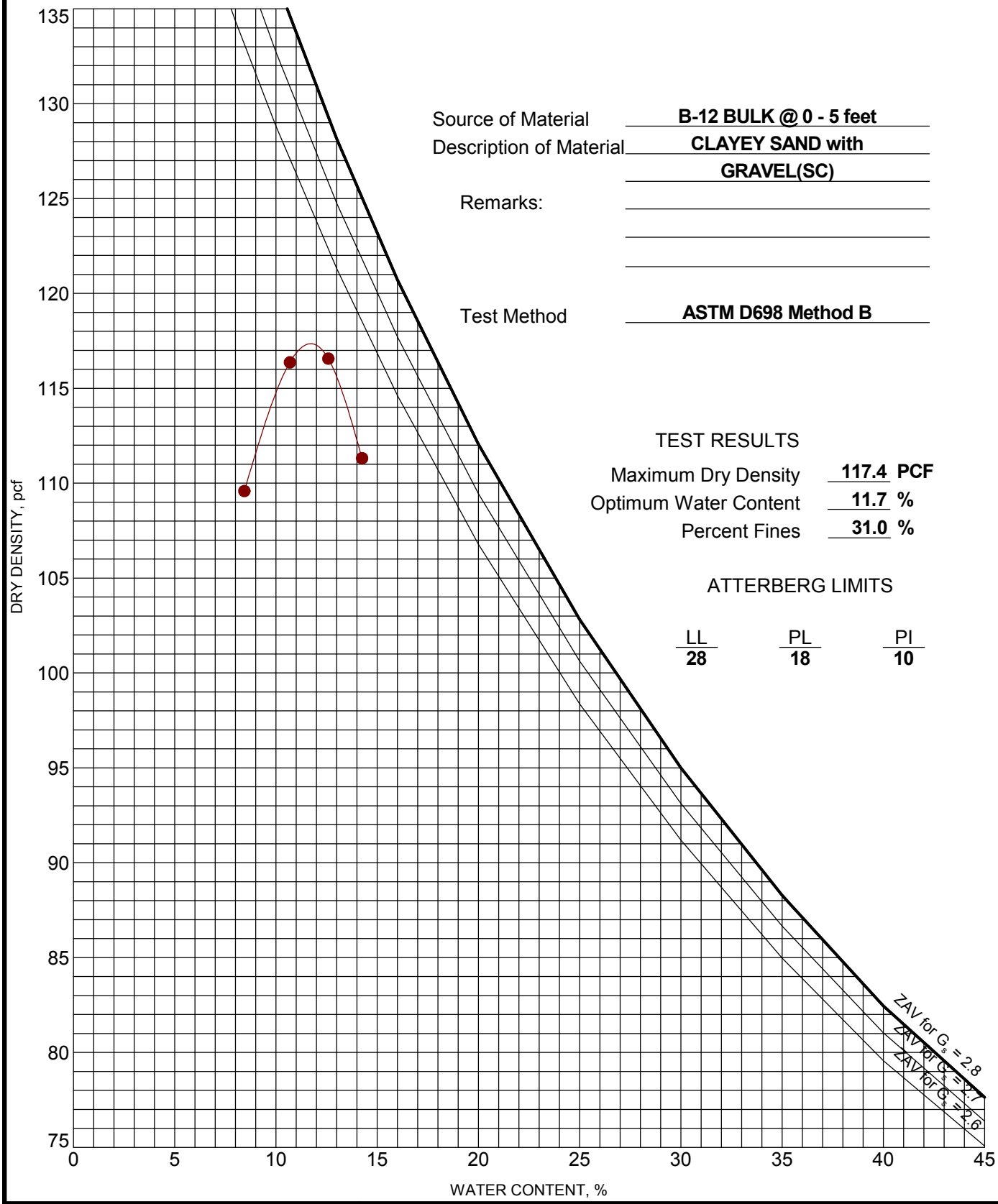
PROJECT NUMBER: 73155095

CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 73155095 LAB TESTING.GPJ TERRACON2012.GDT 5/20/16

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-12 BULK @ 0 - 5 feet**

Description of Material: **CLAYEY SAND with GRAVEL(SC)**

Remarks:

Test Method: **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**117.4 PCF**
Optimum Water Content	**11.7 %**
Percent Fines	**31.0 %**

ATTERBERG LIMITS

LL	PL	PI
28	**18**	**10**

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC

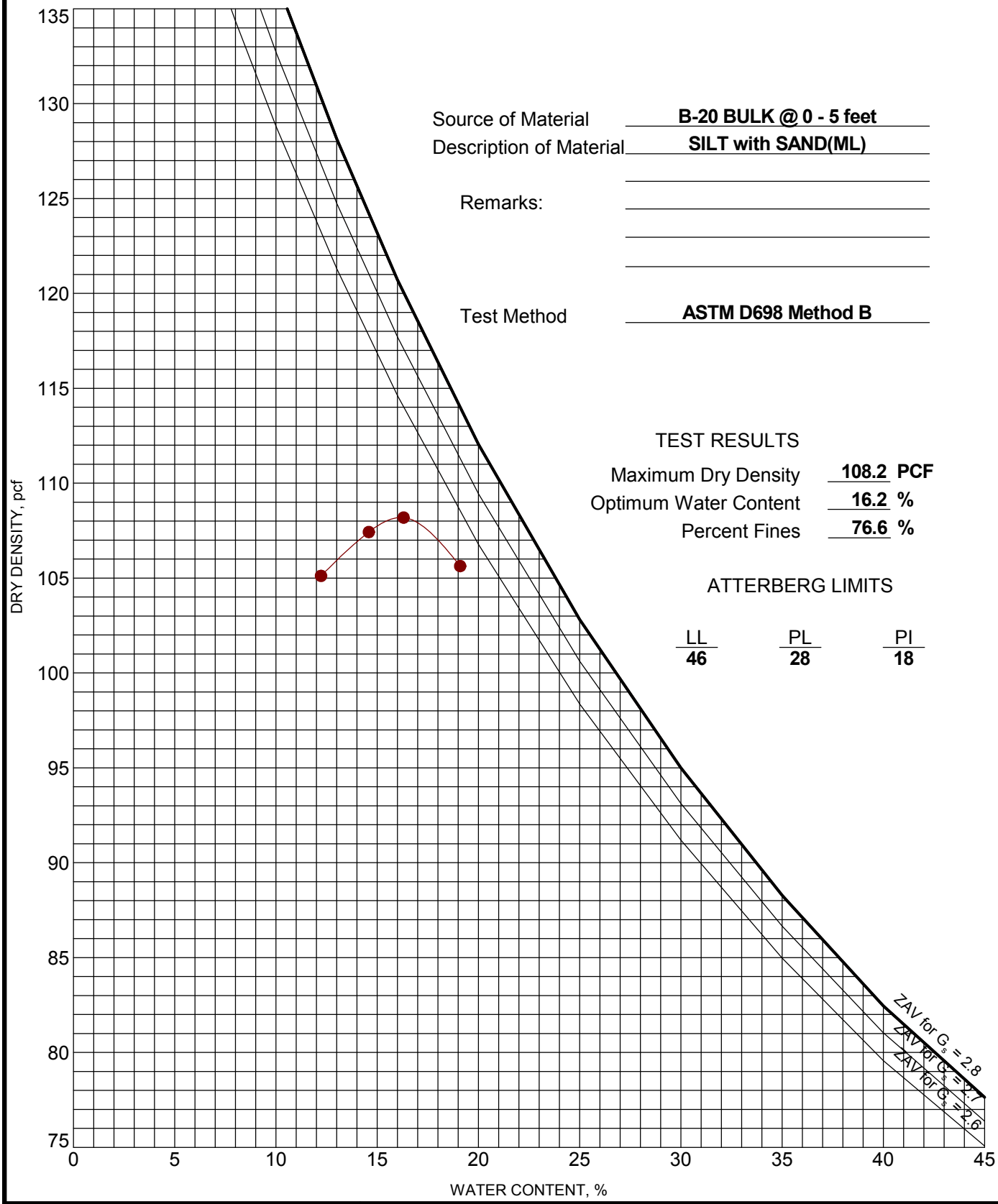
PROJECT NUMBER: 73155095

CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 73155095 LAB TESTING.GPJ TERRACON2012.GDT 5/20/16

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-20 BULK @ 0 - 5 feet**

Description of Material: **SILT with SAND(ML)**

Remarks:

Test Method: **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**108.2**	**PCF**
Optimum Water Content	**16.2**	**%**
Percent Fines	**76.6**	**%**

ATTERBERG LIMITS

LL	PL	PI
46	**28**	**18**

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC

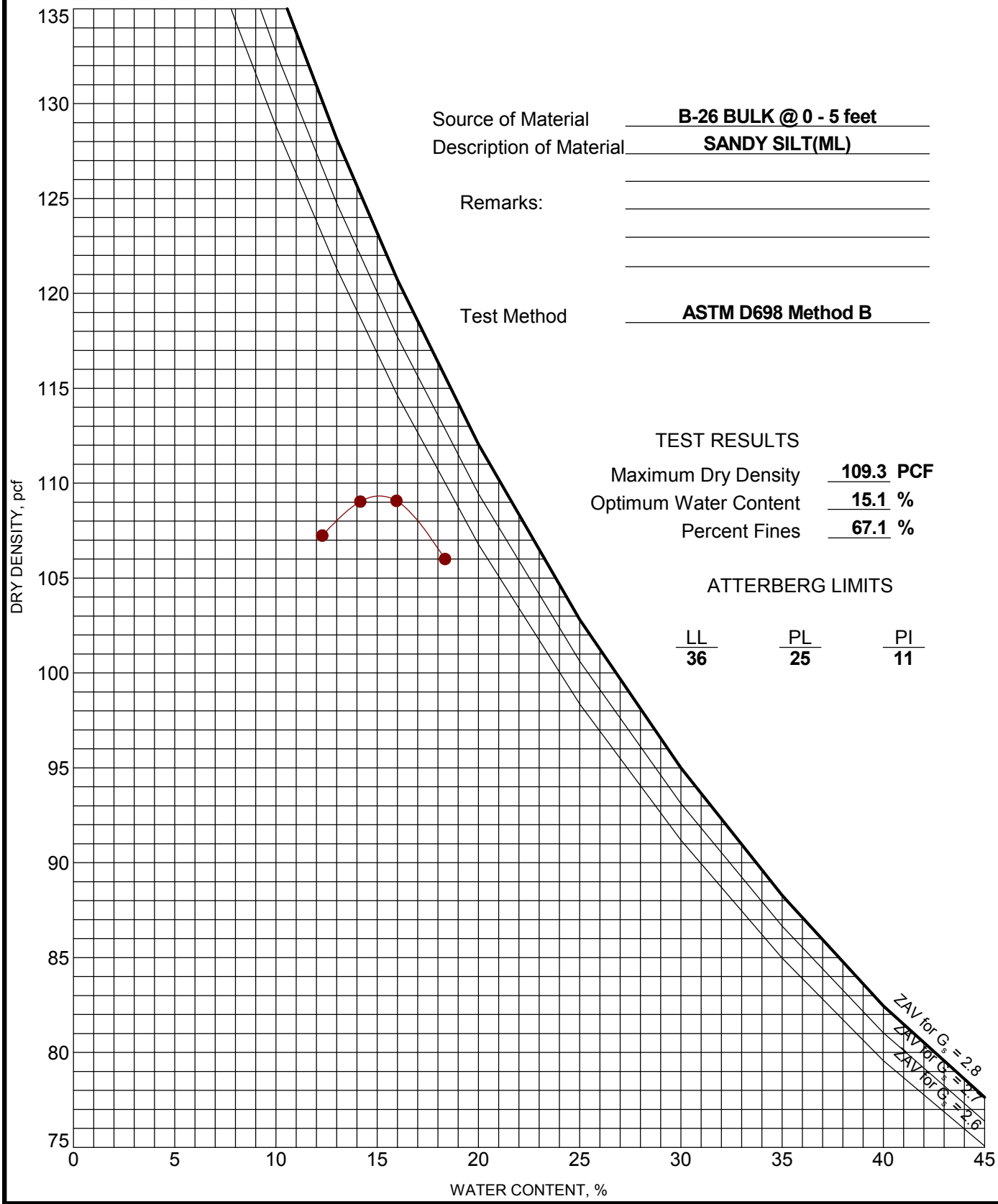
PROJECT NUMBER: 73155095

CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 73155095 LAB TESTING.GPJ TERRACON2012.GDT 5/20/16

MOISTURE-DENSITY RELATIONSHIP

ASTM D698/D1557



Source of Material: **B-26 BULK @ 0 - 5 feet**

Description of Material: **SANDY SILT(ML)**

Remarks:

Test Method: **ASTM D698 Method B**

TEST RESULTS

Maximum Dry Density	**109.3** PCF
Optimum Water Content	**15.1** %
Percent Fines	**67.1** %

ATTERBERG LIMITS

LL	PL	PI
36	**25**	**11**

PROJECT: Columbia Avenue (S-48) Roadway Improvements

SITE: Columbia Avenue (S-48)
Lexington County, South Carolina

Terracon
521 Clemson Rd
Columbia, SC

PROJECT NUMBER: 73155095

CLIENT: Mead & Hunt, Inc.
Lexington, South Carolina

LABORATORY TESTS ARE NOT VALID IF SEPARATED FROM ORIGINAL REPORT. COMPACTION - V2 73155095 LAB TESTING.GPJ TERRACON2012.GDT 5/20/16

CHEMICAL LABORATORY TEST REPORT

Project Number: 73155095
Service Date: 04/14/16
Report Date: 04/15/16
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Mead & Hunt, Inc.
Lexington, South Carolina

Project

Columbia Avenue (S-48) Roadway Improvements
Lexington County, SC

Sample Submitted By: Terracon (73) **Date Received:** 4/13/2016 **Lab No.: 16-0217**

Results of Resistivity Analysis

Sample Number	Bulk
Sample Location	B-2
Sample Depth (ft.)	0.0-5.0
pH Analysis, AWWA 4500 H	7.87
Water Soluble Sulfate (SO4), ASTM D 516, (mg/kg)	47
Chlorides, ASTM D 512, (mg/kg)	100
Resistivity, ASTM G-57, (ohm-cm)	4608
Organic Content by Loss on Ignition, ASTM D 2974 (percent, %)	4.8

Analyzed By: Kurt D. Ergun

Kurt D. Ergun
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CHEMICAL LABORATORY TEST REPORT

Project Number: 73155095
Service Date: 03/10/16
Report Date: 03/11/16
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Mead & Hunt, Inc.
Lexington, South Carolina

Project

Columbia Avenue (S-48) Roadway Improvements
Lexington County, SC

Sample Submitted By: Terracon (73) **Date Received:** 3/4/2016 **Lab No.: 16-0207**

Results of Resistivity Analysis

Sample Number	SS-2	SS-1	SS-1	SS-1
Sample Location	B-30	B-32	B-33	B-34
Sample Depth (ft.)	2.0-4.0	0.0-2.0	0.0-2.0	0.0-2.0
pH Analysis, AWWA 4500 H	7.55	5.97	6.29	5.87
Water Soluble Sulfate (SO4), ASTM D 516, (mg/kg)	11	41	25	28
Chlorides, ASTM D 512, (mg/kg)	12	25	12	12
Resistivity, ASTM G-57, (ohm-cm)	16102	7760	22310	22213
Organic Content by Loss on Ignition, ASTM D 2974 (percent, %)			4.7	
Moisture Content, ASTM D 2216 (percent, %)	11.2	12.3	11.9	11.1

Analyzed By: Kurt D. Ergun

Kurt D. Ergun
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CHEMICAL LABORATORY TEST REPORT

Project Number: 73155095
Service Date: 03/14/16
Report Date: 03/15/16
Task:

Terracon
750 Pilot Road, Suite F
Las Vegas, Nevada 89119
(702) 597-9393

Client

Mead & Hunt, Inc.
Lexington, South Carolina

Project

Columbia Avenue (S-48) Roadway Improvements
Lexington County, SC

Sample Submitted By: Terracon (73) **Date Received:** 3/4/2016 **Lab No.: 16-0217**

Results of Resistivity Analysis

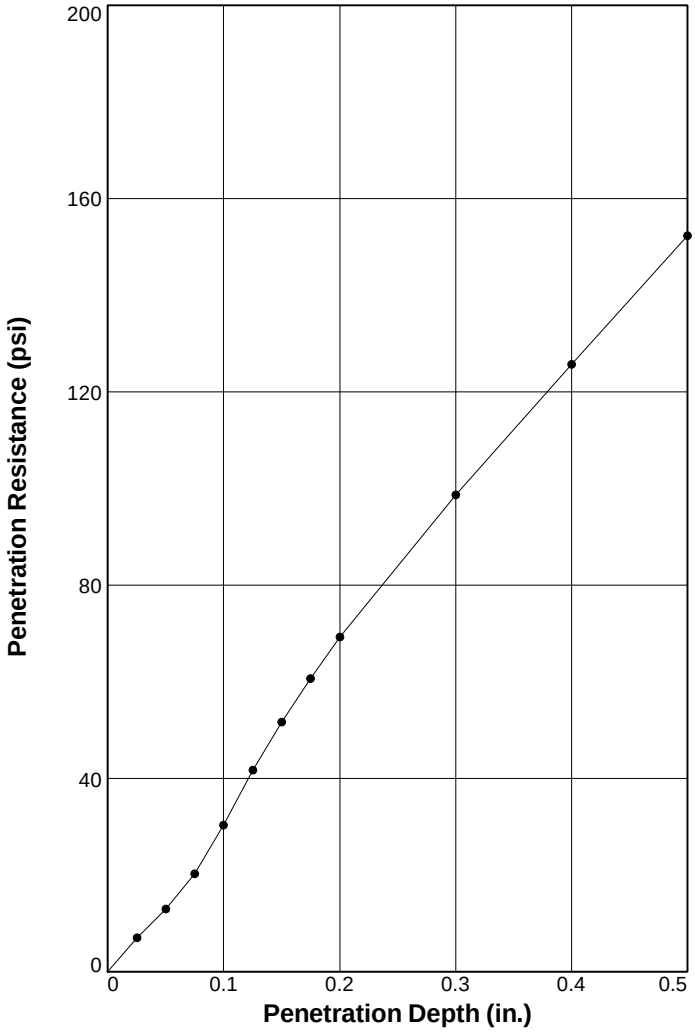
Sample Number	Bulk	Bulk	Bulk	Bulk
Sample Location	B-5	B-12	B-20	B-26
Sample Depth (ft.)	0.0-5.0	0.0-5.0	0.0-5.0	0.0-5.0
pH Analysis, AWWA 4500 H	7.48	6.70	7.61	6.50
Water Soluble Sulfate (SO4), ASTM D 516, (mg/kg)	25	116	25	105
Chlorides, ASTM D 512, (mg/kg)	12	45	12	38
Resistivity, ASTM G-57, (ohm-cm)	22504	2037	23280	2377
Organic Content by Loss on Ignition, ASTM D 2974 (percent, %)	4.7	5.6	4.8	4.4

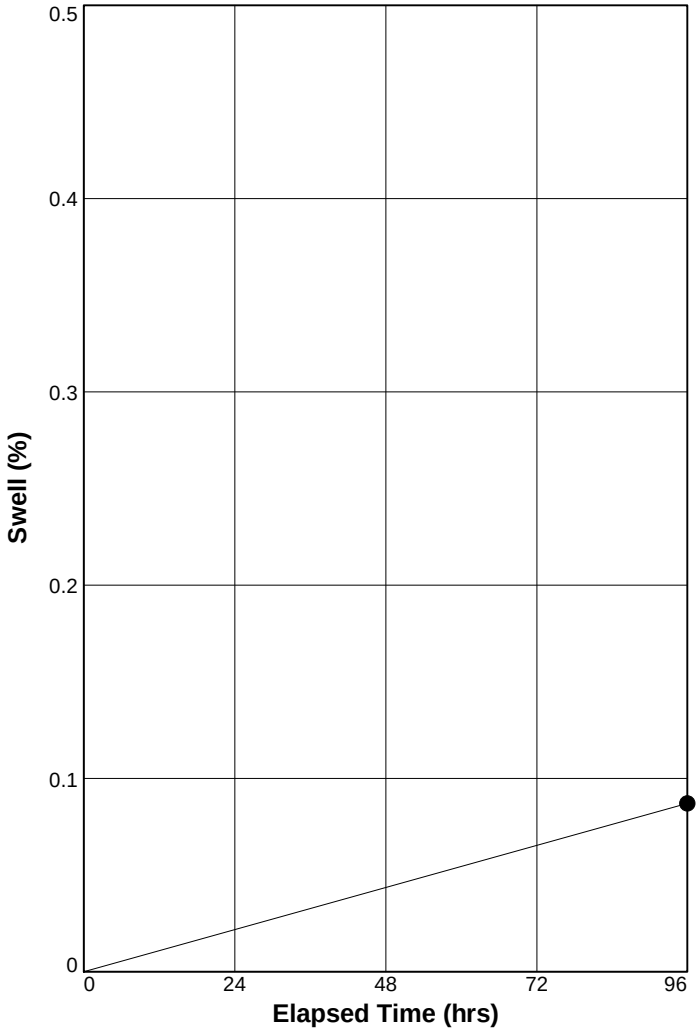
Analyzed By: Kurt D. Ergun

Kurt D. Ergun
Chemist

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	111.6	95	12.3	111.5	94.9	14.3	4.1	5.1	0.024	10	0.1
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Sandy Silty Clay with Gravel	CL-ML	117.5	12.3	25	7

Project No: 73155095

Project: S-48 (Columbia Avenue) Corridor Improvements

Source of Sample: B-2 Bulk **Depth:** 0.0-5.0 ft

Sample Number: 1

Date: 3/17/16

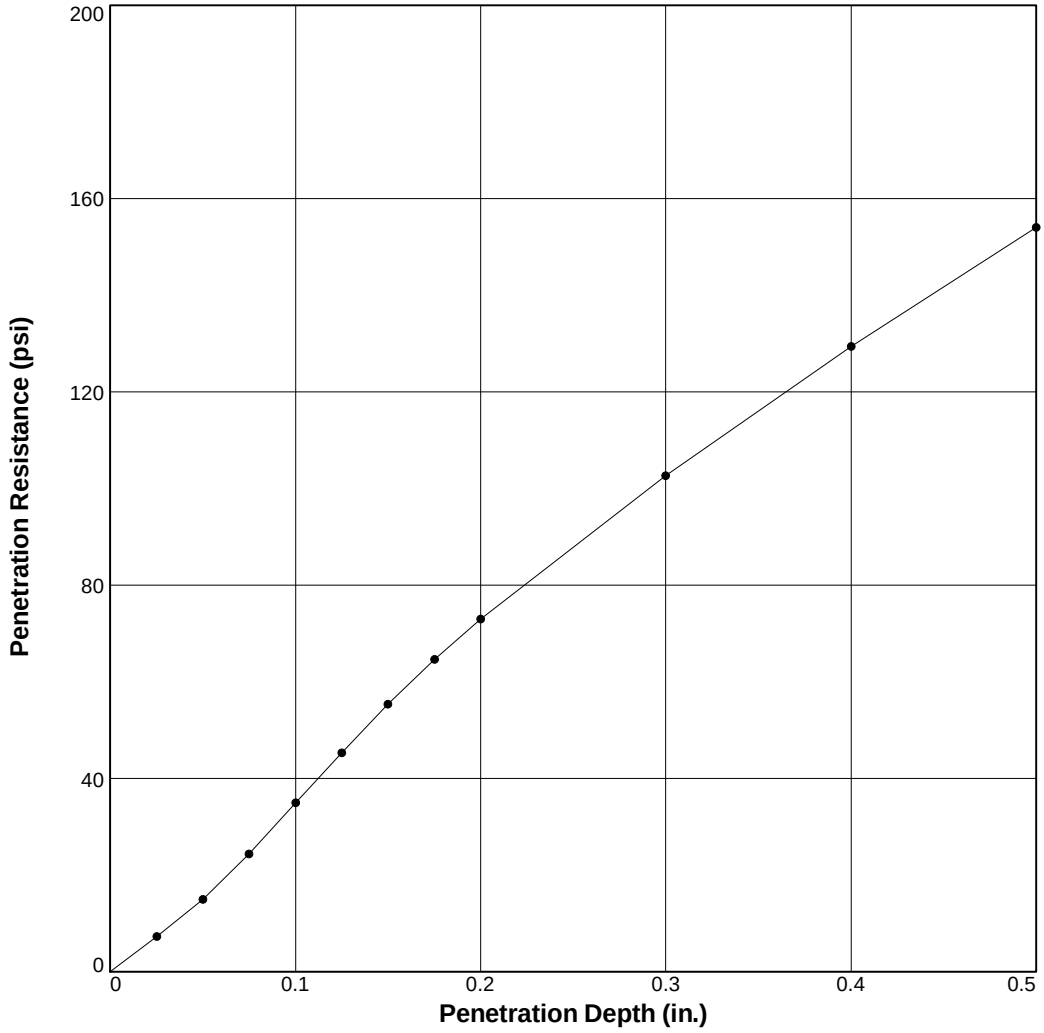
Test Description/Remarks:

Compaction based on D698 effort.

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

BEARING RATIO TEST REPORT
ASTM D 1883-07



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	94.3	95	22.2	94.3	95	27.7	4.1	5.1	0.014	10	0
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Silt	ML	99.3	22.2	43	8

Project No: 73155095

Project: S-48 (Columbia Avenue) Corridor Improvements

Source of Sample: B-5 Bulk **Depth:** 0.0-5.0 ft

Sample Number: 1

Date: 3/17/16

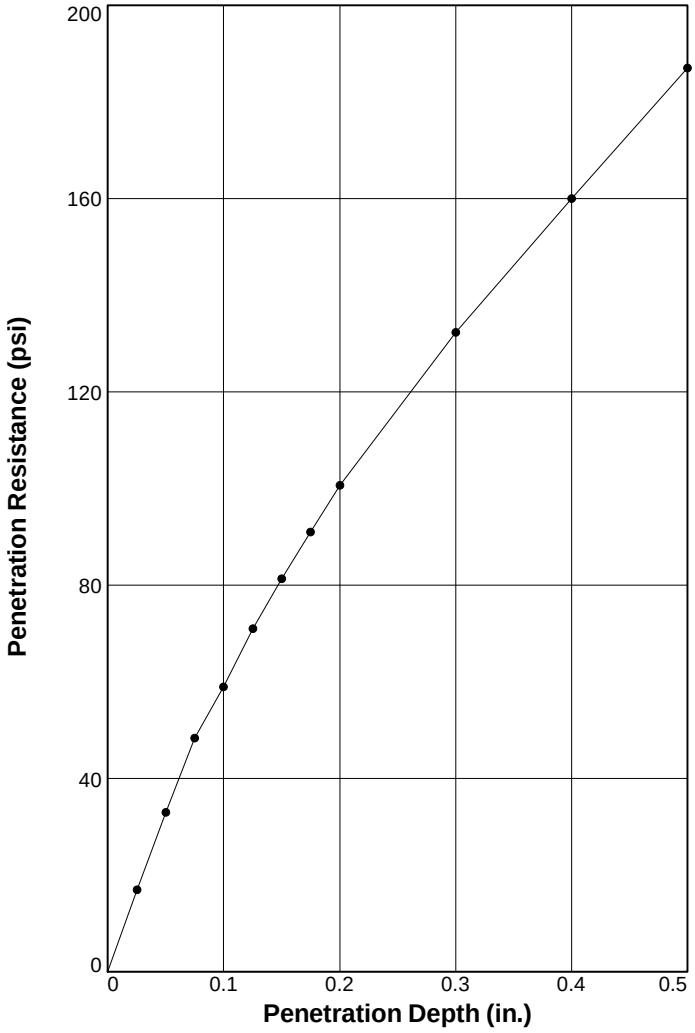
Test Description/Remarks:

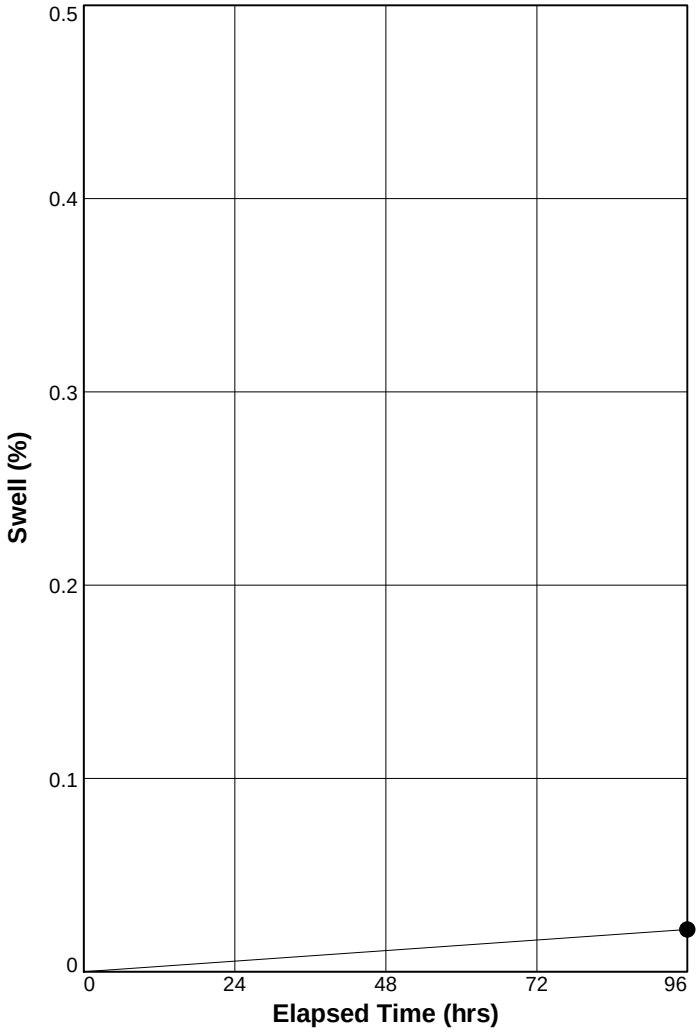
Compaction based on D698 effort.

BEARING RATIO TEST REPORT

Terracon Consultants, Inc.

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	111.5	95	11.7	111.5	95	13.4	5.9	6.7	0.000	10	0
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Clayey Sand with Gravel	SC	117.4	11.7	28	10

Project No: 73155095

Project: S-48 (Columbia Avenue) Corridor Improvements

Source of Sample: B-12 Bulk **Depth:** 0.0-5.0 ft

Sample Number: 1

Date: 3/17/16

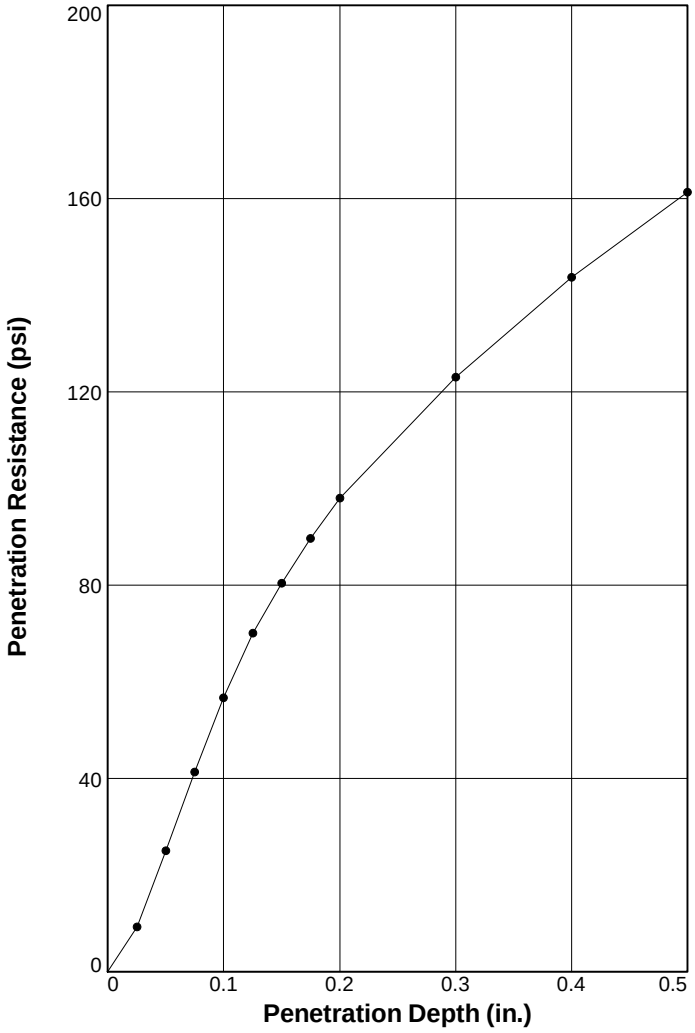
BEARING RATIO TEST REPORT

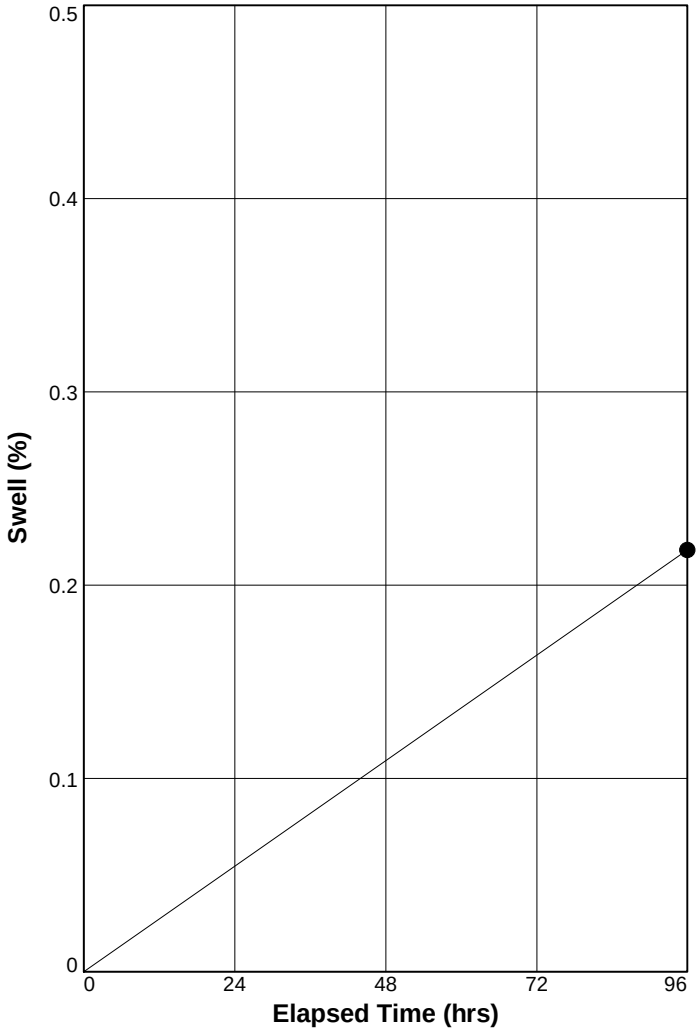
Terracon Consultants, Inc.

Test Description/Remarks:

Compaction based on D698 effort.

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	102.8	95	16.2	102.6	94.8	21.7	6.2	6.7	0.010	10	0.2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Silt with Sand	ML	108.2	16.2	46	18

Project No: 73155095

Project: S-48 (Columbia Avenue) Corridor Improvements

Source of Sample: B-20 Bulk **Depth:** 0.0-5.0 ft

Sample Number: 1

Date: 3/17/16

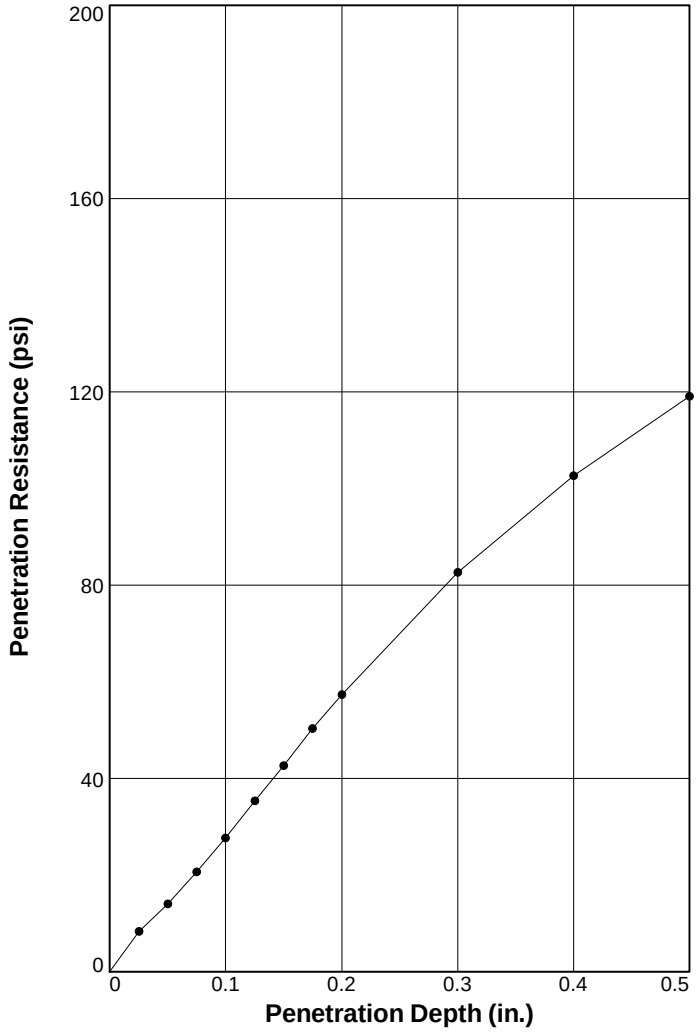
BEARING RATIO TEST REPORT

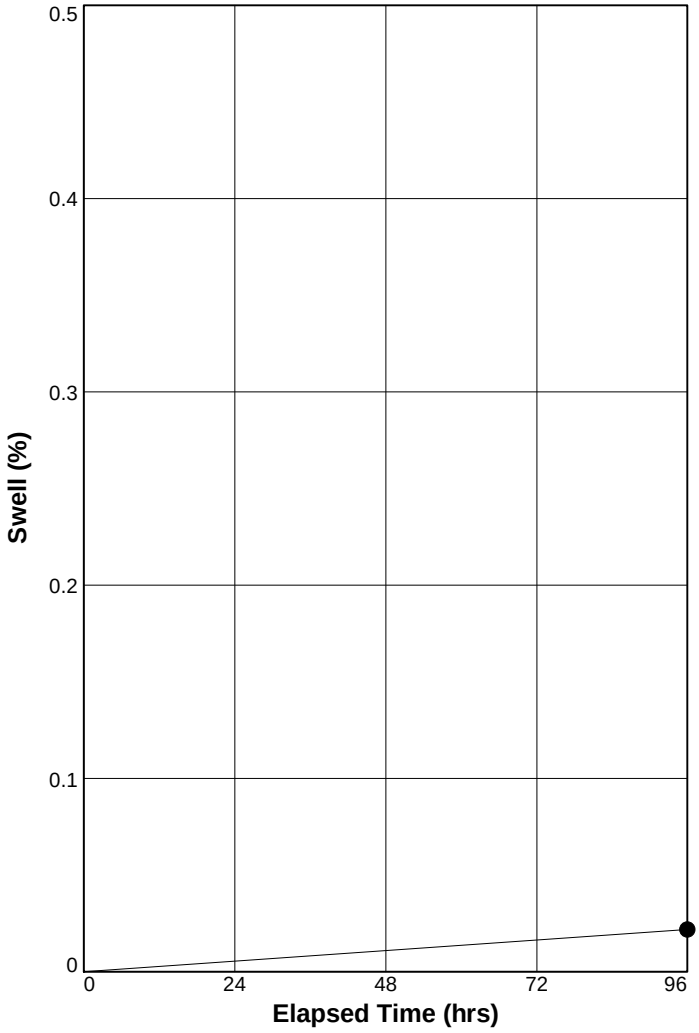
Terracon Consultants, Inc.

Test Description/Remarks:

Compaction based on D698 effort.

BEARING RATIO TEST REPORT
ASTM D 1883-07





	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.8	95	15.1	103.8	95	21.5	3.0	4.0	0.008	10	0
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Sandy Silt	ML	109.3	15.1	36	11

Project No: 73155095

Project: S-48 (Columbia Avenue) Corridor Improvements

Source of Sample: B-26 Bulk **Depth:** 0.0-5.0 ft

Sample Number: 1

Date: 3/17/16

Test Description/Remarks:

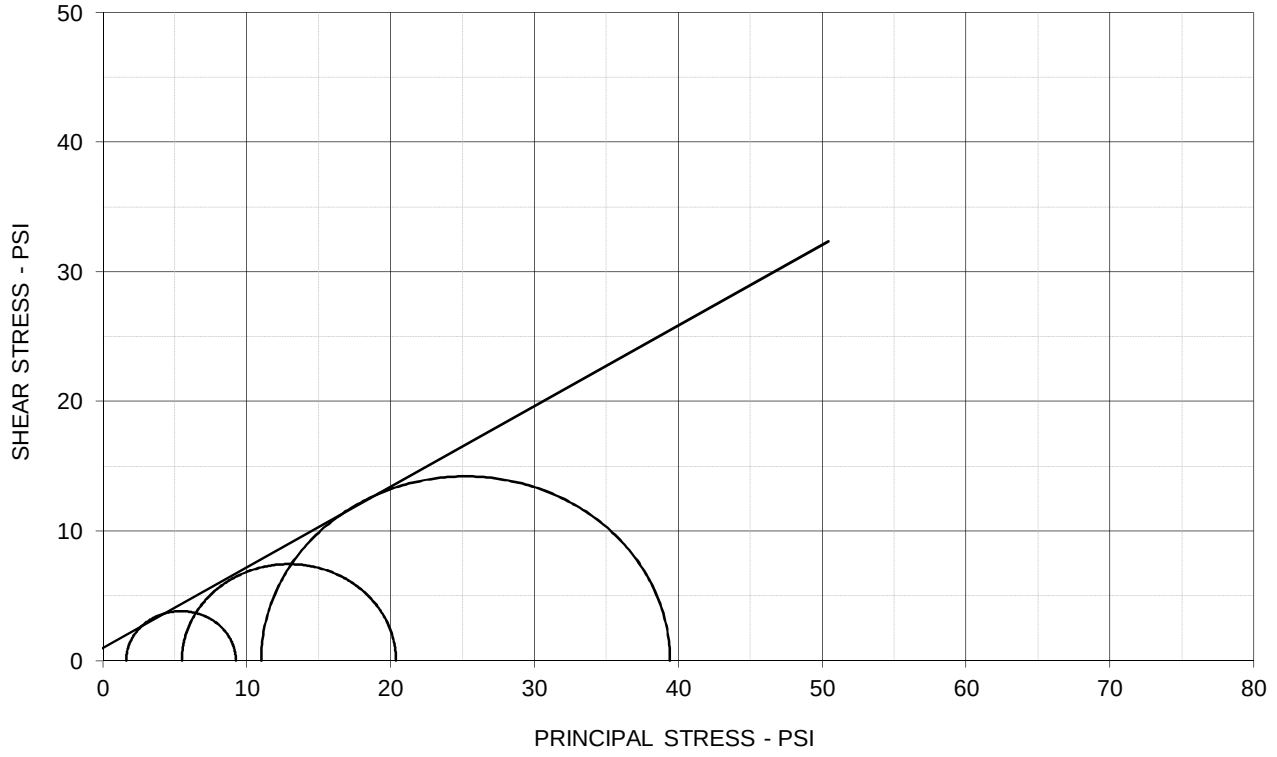
Compaction based on D698 effort.

BEARING RATIO TEST REPORT

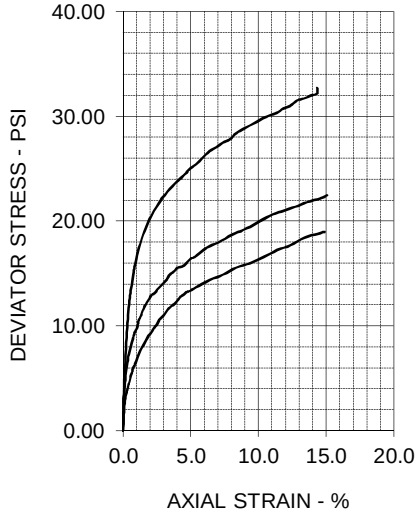
Terracon Consultants, Inc.

TRIAXIAL SHEAR TEST REPORT

Terracon
P.O. Box 5010, 51 Lost Mound Drive, Suite 135 Chattanooga, TN 37406



EFFECTIVE STRESS PARAMETERS	f ' = 31.9 deg	c' = 1.0 psi



SPECIMEN NO.	1	2	3	4
INITIAL				
Moisture Content - %	16.2	16.2	16.2	
Dry Density - pcf	102.8	102.8	102.8	
Diameter - inches	2.80	2.80	2.80	
Height - inches	5.60	5.60	5.60	
AT TEST				
Final Moisture - %	23.3	23.1	23.0	
Dry Density - pcf	102.9	103.4	103.6	
Calculated Diameter (in.)	2.81	2.80	2.79	
Height - inches	5.64	5.59	5.58	
Effect. Cell Pressure - psi	3.5	6.9	13.9	
Failure Stress - psi	7.62	14.88	28.42	
Total Pore Pressure - psi	51.9	51.4	52.9	
Strain Rate - inches/min.	0.00060	0.00060	0.00060	
Failure Strain - %	1.3	3.5	8.4	
S_1' Failure - psi	9.25	20.38	39.43	
S_3' Failure - psi	1.63	5.50	11.01	

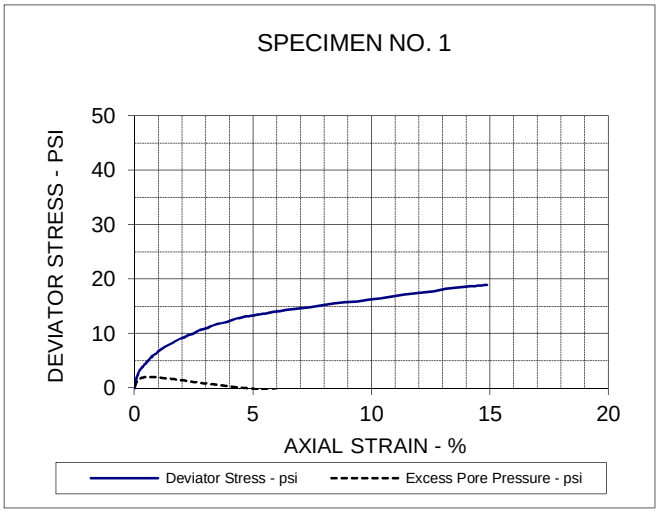
TEST DESCRIPTION

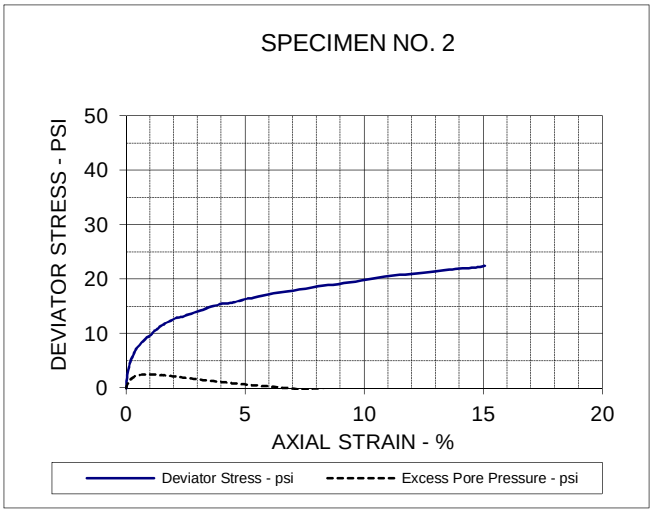
TYPE OF TEST & NO: CU with Pore Pressure
SAMPLE TYPE: Remolded
DESCRIPTION: Silt with Sand (ML)
SAMPLE LOCATION: B-20 Bulk, 0.0-5.0 ft
ASSUMED SPECIFIC GRAVITY: 2.75
LL: 46 PL: 28 PI: 18 Percent -200: 77
REMARKS: Specimens remolded to 95% at optimum.

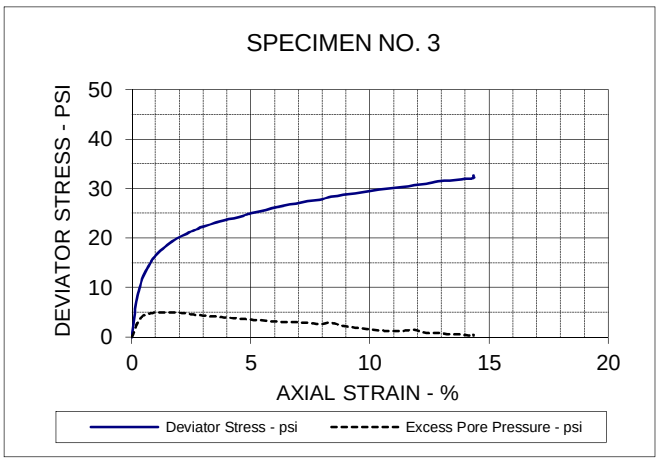
PROJECT INFORMATION

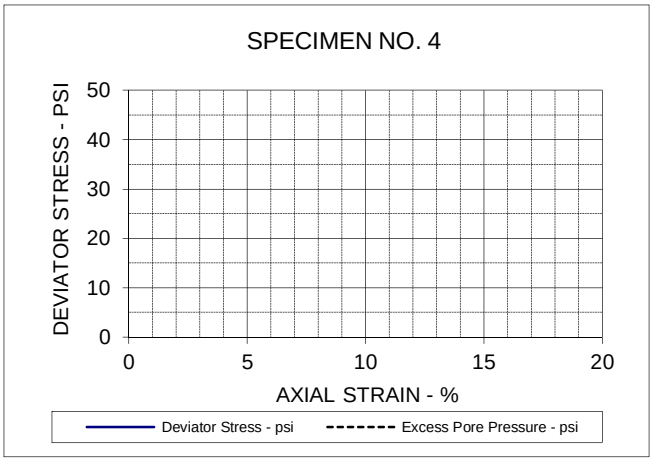
PROJECT: S-48 (Columbia Avenue) Corridor Improvements
LOCATION: Lexington County, SC
PROJECT NO: 73155095
CLIENT: Mead & Hunt
DATE: 3/17/16

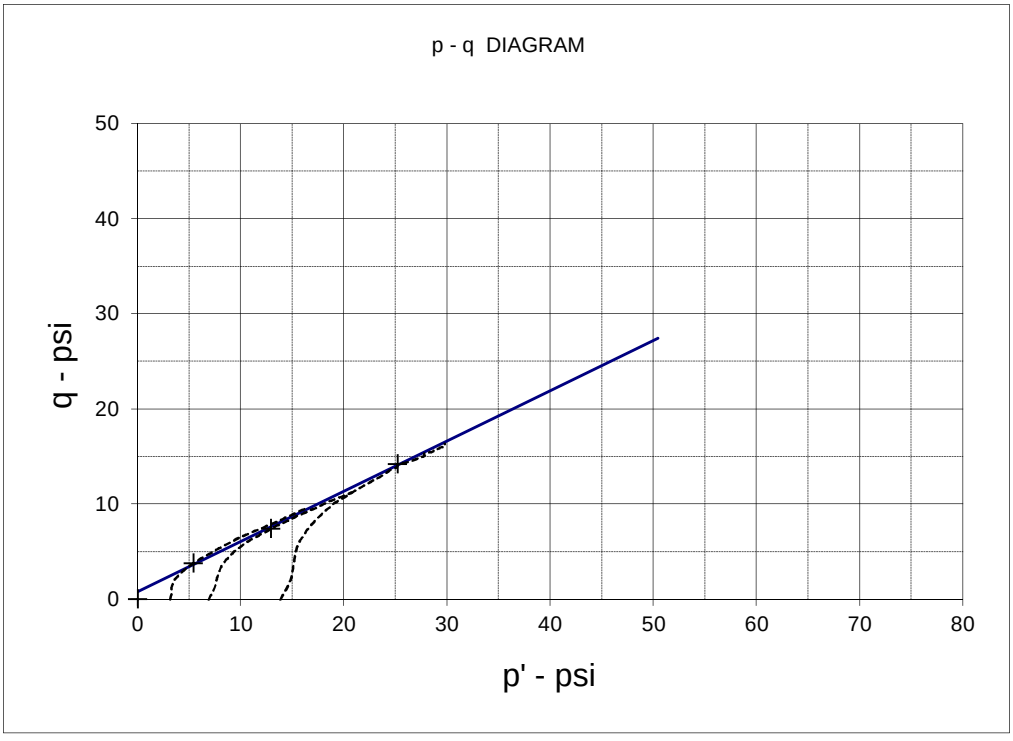
TERRACON









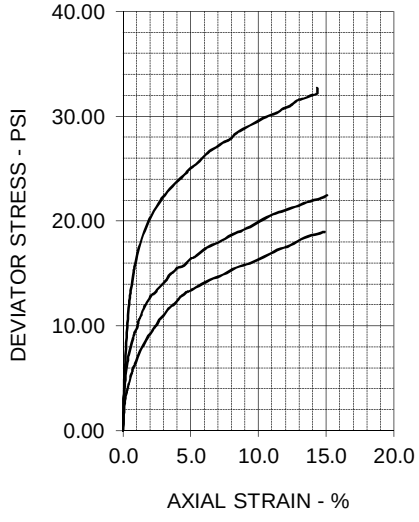


EFFECTIVE STRESS PARAMETERS	R^2 = 1.00	a (deg) = 27.8	a (psi) = 0.8
PROJECT: S-48 (Columbia Avenue) Corridor Improvements		TYPE OF TEST & NO: CU with Pore Pressure	
PROJECT NO: 73155095		**TERRACON**	
DESCRIPTION: Silt with Sand (ML)			

TRIAXIAL SHEAR TEST REPORT

Terracon
P.O. Box 5010, 51 Lost Mound Drive, Suite 135 Chattanooga, TN 37406

TOTAL STRESS PARAMETERS	f = 29.9 deg	c = 0.2 psi



SPECIMEN NO.	1	2	3	4
INITIAL				
Moisture Content - %	16.2	16.2	16.2	
Dry Density - pcf	102.8	102.8	102.8	
Diameter - inches	2.80	2.80	2.80	
Height - inches	5.60	5.60	5.60	
AT TEST				
Final Moisture - %	23.3	23.1	23.0	
Dry Density - pcf	102.9	103.4	103.6	
Calculated Diameter (in.)	2.81	2.80	2.79	
Height - inches	5.64	5.59	5.58	
Effect. Cell Pressure - psi	3.5	6.9	13.9	
Failure Stress - psi	7.62	14.88	28.42	
Total Pore Pressure - psi	51.9	51.4	52.9	
Strain Rate - inches/min.	0.00060	0.00060	0.00060	
Failure Strain - %	1.3	3.5	8.4	
S_1 Failure - psi	11.12	21.78	42.32	
S_3 Failure - psi	3.50	6.90	13.90	

TEST DESCRIPTION

TYPE OF TEST & NO: CU with Pore Pressure
SAMPLE TYPE: Remolded
DESCRIPTION: Silt with Sand (ML)
SAMPLE LOCATION: B-20 Bulk, 0.0-5.0 ft
ASSUMED SPECIFIC GRAVITY: 2.75
LL: 46 PL: 28 PI: 18 Percent -200: 77
REMARKS: Specimens remolded to 95% at optimum.

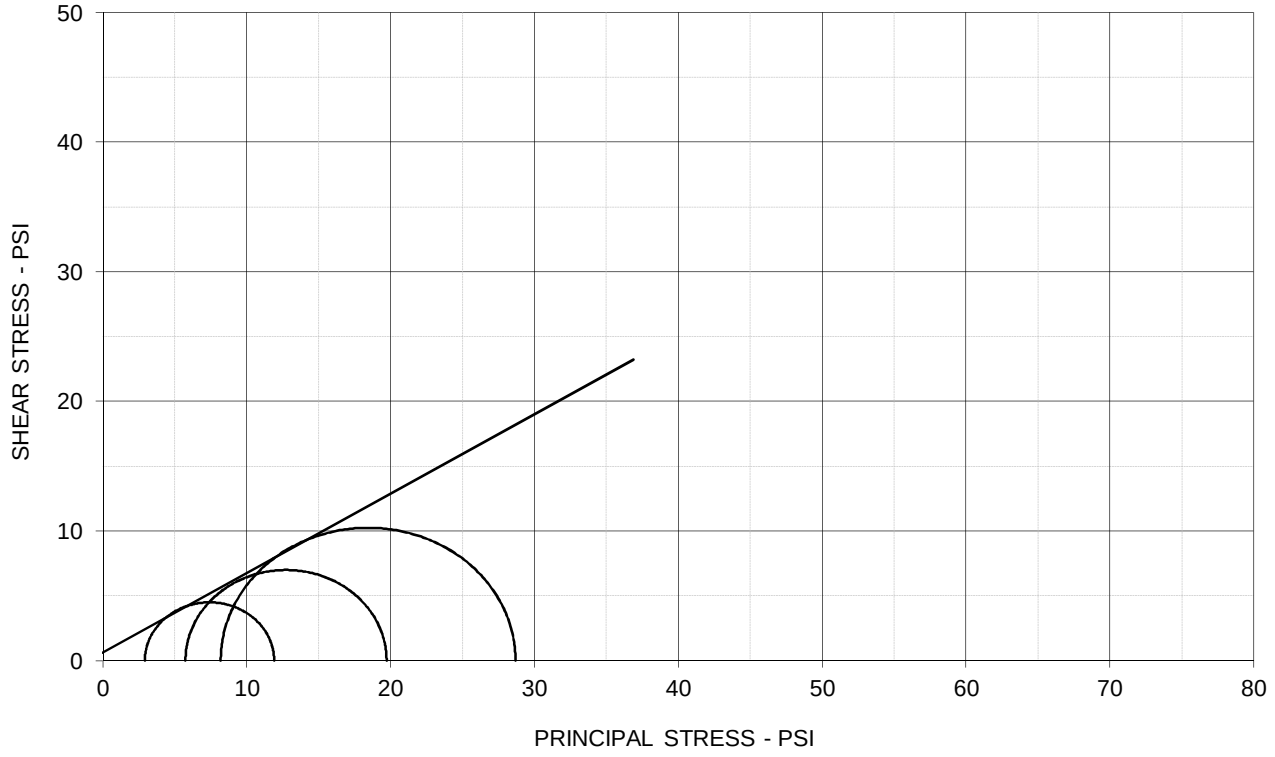
PROJECT INFORMATION

PROJECT: S-48 (Columbia Avenue) Corridor Improvements
LOCATION: Lexington County, SC
PROJECT NO: 73155095
CLIENT: Mead & Hunt
DATE: 3/17/16

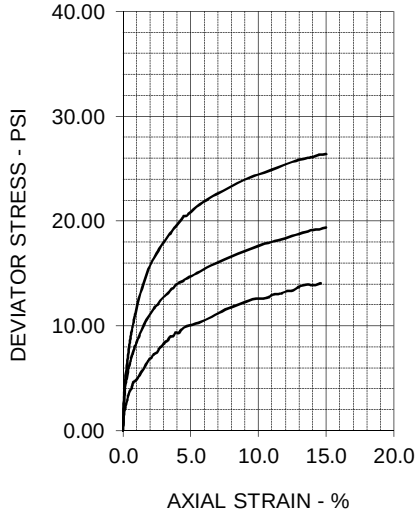
TERRACON

TRIAXIAL SHEAR TEST REPORT

Terracon
P.O. Box 5010, 51 Lost Mound Drive, Suite 135 Chattanooga, TN 37406



EFFECTIVE STRESS PARAMETERS	f ' = 31.5 deg	c' = 0.6 psi



SPECIMEN NO.	1	2	3	4
INITIAL				
Moisture Content - %	15.1	15.1	15.1	
Dry Density - pcf	102.8	102.8	102.8	
Diameter - inches	2.80	2.80	2.80	
Height - inches	5.60	5.60	5.60	
AT TEST				
Final Moisture - %	24.0	23.6	22.4	
Dry Density - pcf	103.0	103.8	105.7	
Calculated Diameter (in.)	2.82	2.80	2.80	
Height - inches	5.65	5.60	5.59	
Effect. Cell Pressure - psi	3.5	6.9	13.9	
Failure Stress - psi	8.98	13.98	20.49	
Total Pore Pressure - psi	50.6	51.2	55.7	
Strain Rate - inches/min.	0.00060	0.00060	0.00060	
Failure Strain - %	3.5	4.0	4.5	
S_1' Failure - psi	11.91	19.73	28.69	
S_3' Failure - psi	2.93	5.75	8.20	

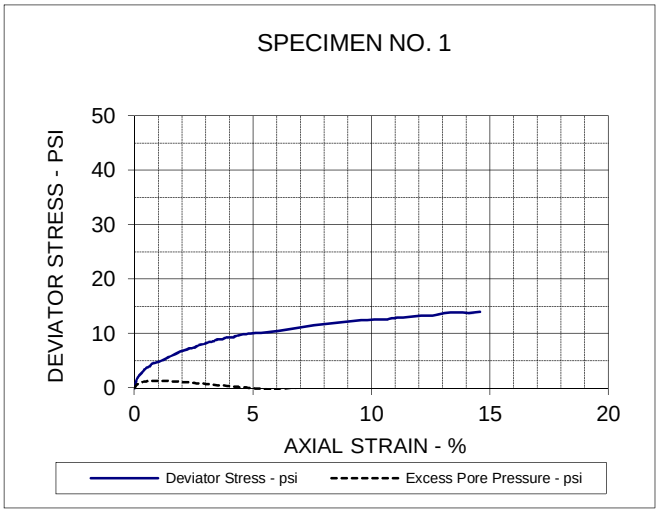
TEST DESCRIPTION

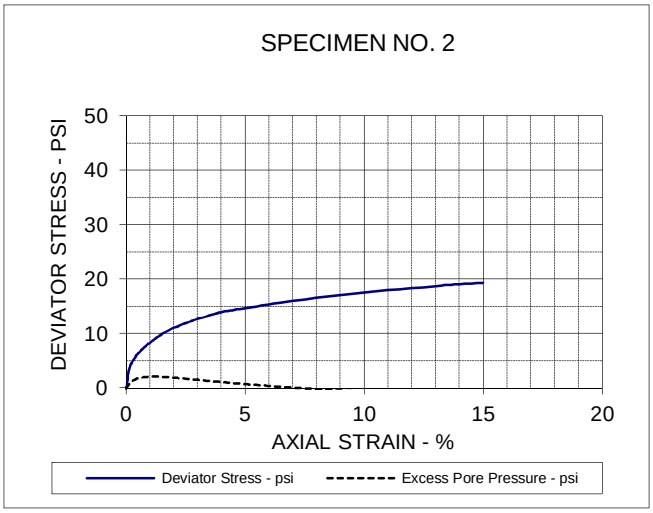
TYPE OF TEST & NO: CU with Pore Pressure
SAMPLE TYPE: Remolded
DESCRIPTION: Sandy Silt (ML)
SAMPLE LOCATION: B-26 Bulk, 0.0-5.0 ft
ASSUMED SPECIFIC GRAVITY: 2.75
LL: 36 PL: 25 PI: 11 Percent -200: 67
REMARKS: Specimens remolded to 95% at optimum.

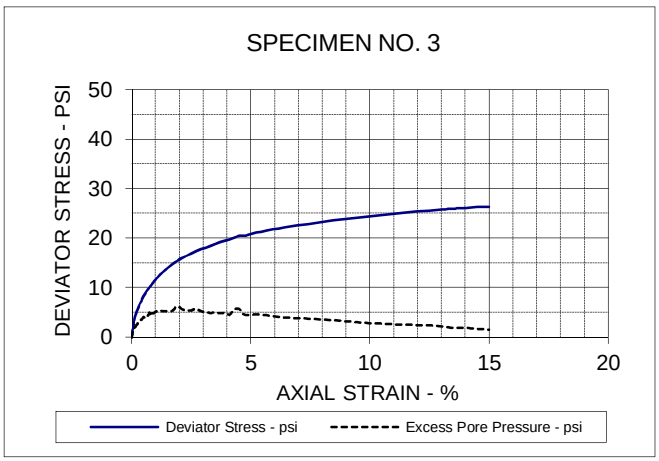
PROJECT INFORMATION

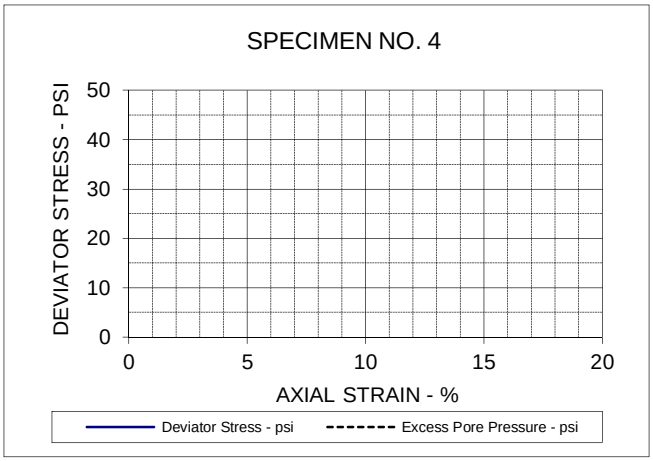
PROJECT: S-48 (Columbia Avenue) Corridor Improvements
LOCATION: Lexington County, SC
PROJECT NO: 73155095
CLIENT: Mead & Hunt
DATE: 3/17/16

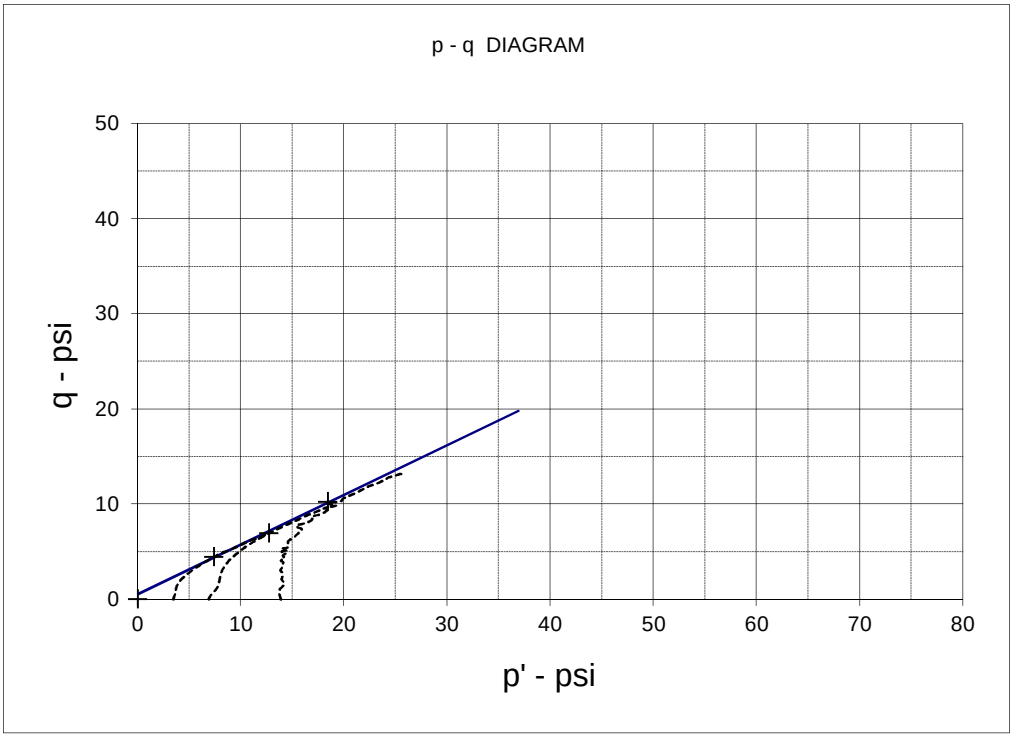
TERRACON







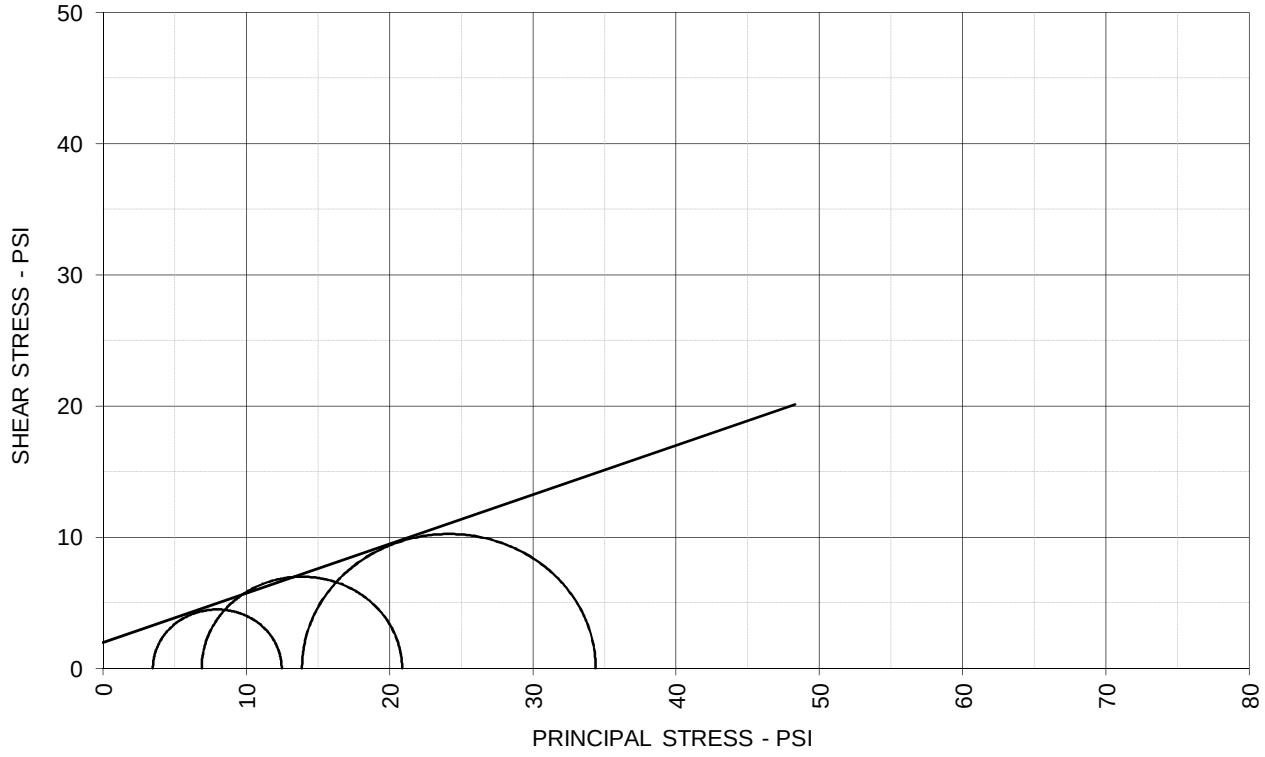




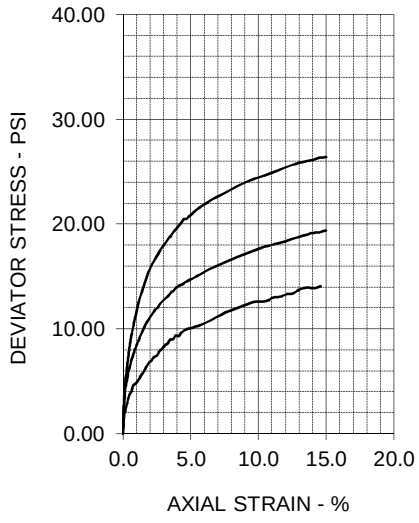
EFFECTIVE STRESS PARAMETERS	R^2 = 1.00	a (deg) = 27.6	a (psi) = 0.5
PROJECT: S-48 (Columbia Avenue) Corridor Improvements		TYPE OF TEST & NO: CU with Pore Pressure	
PROJECT NO: 73155095		**TERRACON**	
DESCRIPTION: Sandy Silt (ML)			

TRIAXIAL SHEAR TEST REPORT

Terracon
P.O. Box 5010, 51 Lost Mound Drive, Suite 135 Chattanooga, TN 37406



TOTAL STRESS PARAMETERS	f = 20.6 deg	c = 2.0 psi



SPECIMEN NO.	1	2	3	4
INITIAL				
Moisture Content - %	15.1	15.1	15.1	
Dry Density - pcf	102.8	102.8	102.8	
Diameter - inches	2.80	2.80	2.80	
Height - inches	5.60	5.60	5.60	
AT TEST				
Final Moisture - %	24.0	23.6	22.4	
Dry Density - pcf	103.0	103.8	105.7	
Calculated Diameter (in.)	2.82	2.80	2.80	
Height - inches	5.65	5.60	5.59	
Effect. Cell Pressure - psi	3.5	6.9	13.9	
Failure Stress - psi	8.98	13.98	20.49	
Total Pore Pressure - psi	50.6	51.2	55.7	
Strain Rate - inches/min.	0.00060	0.00060	0.00060	
Failure Strain - %	3.5	4.0	4.5	
S_1 Failure - psi	12.48	20.88	34.39	
S_3 Failure - psi	3.50	6.90	13.90	

TEST DESCRIPTION

TYPE OF TEST & NO: CU with Pore Pressure
SAMPLE TYPE: Remolded
DESCRIPTION: Sandy Silt (ML)
SAMPLE LOCATION: B-26 Bulk, 0.0-5.0 ft
ASSUMED SPECIFIC GRAVITY: 2.75
LL: 36 PL: 25 PI: 11 Percent -200: 67
REMARKS: Specimens remolded to 95% at optimum.

PROJECT INFORMATION

PROJECT: S-48 (Columbia Avenue) Corridor Improvements
LOCATION: Lexington County, SC
PROJECT NO: 73155095
CLIENT: Mead & Hunt
DATE: 3/17/16

TERRACON

APPENDIX C
SUPPORTING DOCUMENTS

Exhibit C-1 – Unified Soil Classification System
Exhibit C-2 – Rig Calibration Reports

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

SAMPLING

Auger

Split Spoon

Shelby Tube

Macro Core

Ring Sampler

Rock Core

Grab Sample

No Recovery

WATER LEVEL

Water Initially Encountered

Water Level After a Specified Period of Time

Water Level After a Specified Period of Time

Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.

FIELD TESTS

(HP)	Hand Penetrometer
(T)	Torvane
(b/f)	Standard Penetration Test (blows per foot)
(PID)	Photo-Ionization Detector
(OVA)	Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification is based on the Unified Soil Classification System. Coarse Grained Soils have more than 50% of their dry weight retained on a #200 sieve; their principal descriptors are: boulders, cobbles, gravel or sand. Fine Grained Soils have less than 50% of their dry weight retained on a #200 sieve; they are principally described as clays if they are plastic, and silts if they are slightly plastic or non-plastic. Major constituents may be added as modifiers and minor constituents may be added according to the relative proportions based on grain size. In addition to gradation, coarse-grained soils are defined on the basis of their in-place relative density and fine-grained soils on the basis of their consistency.

LOCATION AND ELEVATION NOTES

Unless otherwise noted, Latitude and Longitude are approximately determined using a hand-held GPS device. The accuracy of such devices is variable. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

STRENGTH TERMS

RELATIVE DENSITY OF COARSE-GRAINED SOILS (More than 50% retained on No. 200 sieve.) Density determined by Standard Penetration Resistance Includes gravels, sands and silts.			CONSISTENCY OF FINE-GRAINED SOILS (50% or more passing the No. 200 sieve.) Consistency determined by laboratory shear strength testing, field visual-manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength, Qu, psf**	**Standard Penetration or N-Value Blows/Ft.**	**Ring Sampler Blows/Ft.**
Very Loose	0 - 3	0 - 6	Very Soft	less than 500	0 - 1	< 3
Loose	4 - 9	7 - 18	Soft	500 to 1,000	2 - 4	3 - 4
Medium Dense	10 - 29	19 - 58	Medium-Stiff	1,000 to 2,000	4 - 8	5 - 9
Dense	30 - 50	59 - 98	Stiff	2,000 to 4,000	8 - 15	10 - 18
Very Dense	> 50	≥ 99	Very Stiff	4,000 to 8,000	15 - 30	19 - 42
			Hard	> 8,000	> 30	> 42

RELATIVE PROPORTIONS OF SAND AND GRAVEL

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 15
With	15 - 29
Modifier	> 30

GRAIN SIZE TERMINOLOGY

Major Component of Sample	Particle Size
Boulders	Over 12 in. (300 mm)
Cobbles	12 in. to 3 in. (300mm to 75mm)
Gravel	3 in. to #4 sieve (75mm to 4.75 mm)
Sand	#4 to #200 sieve (4.75mm to 0.075mm
Silt or Clay	Passing #200 sieve (0.075mm)

RELATIVE PROPORTIONS OF FINES

Descriptive Term(s) of other constituents	Percent of Dry Weight
Trace	< 5
With	5 - 12
Modifier	> 12

PLASTICITY DESCRIPTION

Term	Plasticity Index
Non-plastic	0
Low	1 - 10
Medium	11 - 30
High	> 30

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or $1 > Cc > 3$ [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F,G,H]
			Fines classify as CL or CH		GC	Clayey gravel [F,G,H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or $1 > Cc > 3$ [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G,H,I]
			Fines classify as CL or CH		SC	Clayey sand [G,H,I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A" line [J]		CL	Lean clay [K,L,M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K,L,M,N]
			Liquid limit - not dried			Organic silt [K,L,M,O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K,L,M]
			PI plots below "A" line		MH	Elastic Silt [K,L,M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K,L,M,P]
			Liquid limit - not dried			Organic silt [K,L,M,Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

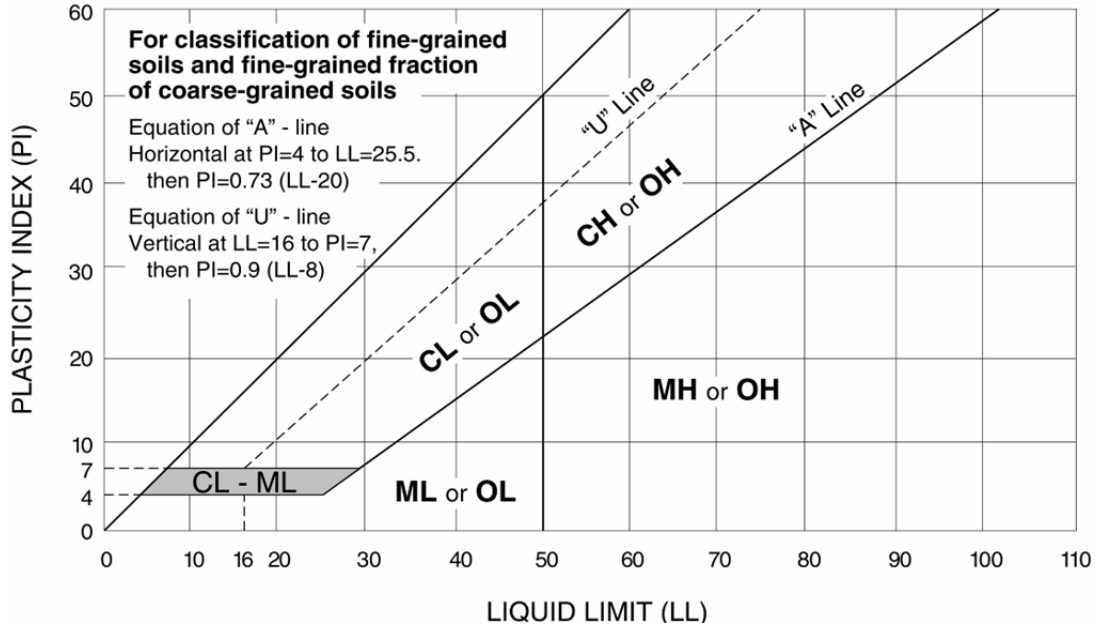
[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.



DRILL RIG SPT HAMMER ENERGY CALIBRATION REPORT

Drill Rig Model CME-55 SN 359485
Terracon Drill Rig No. 727
Columbia, SC
July 09, 2015

Project No. 73155070A

Prepared for:
Terracon Consultants, Inc.
Columbia, SC

Prepared by:
Terracon Consultants, Inc.
North Charleston, SC

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

July 09, 2015

Terracon

Terracon Consultants Inc.
521 Clemson Road
Columbia, SC 29229

Attn: Mr. Phillip Morris
P: (803) 212-0062
M: (803) 518-3788
E: Phillip.Morrison@terracon.com

Re: SPT Rig Calibration Report
Columbia, SC
Terracon Project Number: 73155070A

Mr. Morrison:

The Charleston office of Terracon Consultants, Inc. (Terracon) has completed the SPT rig calibration for the above referenced rig. This report provides Energy Transfer Ratio (ETR) for the SPT hammer found on CME-55 (Serial Number 359485).

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Yulian A. Kebede,
Project Manager
Geotechnical Services

Bryan T. Shiver, P.E.
Department Manager
Geotechnical Services
SC Registration No. 27816

1.0 PROJECT INFORMATION

ITEM	DESCRIPTION
Drill Rig Identification	CME-55, SN: 359485 (see photograph on cover page)
Drill Rig Owner	Terracon
Drill Rig Operator	Craig Fredrychowsky
Testing Date	July 2, 2015
Testing Location	Columbia, SC
Terracon Project Number	73155070A
Boring Identification	Test Hole (1)
Energy Measurement Depths	23.5 ft., 28.5 ft., 33.5 ft.
Hammer Type	Automatic
Boring Method	Mud Rotary
Drill Rods	■AWJ ■1¾" outside diameter ■3/16" wall thickness
SPT Calibration Testing Equipment	■2 foot AWJ rod instrumented w/ 2 strain gauges and 2 accelerometers ■Model PAX Pile Driving Analyzer™ (PDA)
SPT Calibration Personnel	Kenneth Zur

2.0 TEST RESULTS

Table 1:
SPT Hammer Energy Calibration Testing Summary.

Boring	Start Depth[1] (ft)	Rod Length[2] (ft)	Rod Sections[3]			Measured Blow Counts (blows/6 inches)				SPT N_m (bpf)	Soil Type[4]
			2 ft	5 ft	10 ft	1st Inc.	2nd Inc.	3rd Inc.	4th Inc.		
Test Hole (1)	23.5	28.63	0	5	0	14	17	21	-	38	Sand
	28.5	33.65	0	6	0	6	12	12	-	24	Sand
	33.5	38.63	0	7	0	6	10	12	-	22	Sand

1. Depth from existing ground surface to bottom of drill rods at the beginning of SPT
2. Total rod length measured from instrumentation to bottom of sampler
3. Two foot section is instrumented and is located at top of drill rods
4. Soil type provided by Terracon personnel.

Table 2:
Energy Measurement and Analysis Summary.

Boring	Start Depth[1] (ft)	SPT N_m (bpf)	No. of Blows[2]	EFV (kip-ft)[3]				ETR (%)[3]	
				Max.	Min.	Ave.	Std. Dev.	Ave.	Std. Dev.
Test Hole (1)	23.5	38	50	0.29	0.27	0.28	0.01	81.3	1.93
	28.5	24	20	0.30	0.27	0.30	0.01	84.6	2.35
	33.5	22	6	0.29	0.26	0.28	0.01	80.0	3.13
		Average:	25	0.29	0.27	0.29	0.01	81.9	2.47

1. Boring ID and depth from existing ground surface to bottom of drill rods at the beginning of SPT
2. Number of blows used in energy calibration analysis; limited to measurements recorded during the second and third 6-inch sampling intervals at each depth or during the first increment if refusal were encountered
3. EFV = Measured Transferred Energy, ETR = Energy Transfer Ratio.

Table 3:
Hammer Blow Rate Summary.

Boring	Start Depth[1] (ft)	SPT N_m (bpf)	No. of Blows[2]	BPM[3]			
				Max.	Min.	Ave.	Std. Dev.
Test Hole (1)	23.5	38	50	54.50	2.00	52.40	7.28
	28.5	24	20	54.50	1.90	51.46	11.67
	33.5	22	6	52.20	46.40	50.57	2.34
		Average:	25	53.73	16.77	51.48	7.10

1. Boring ID and depth from existing ground surface to bottom of drill rods at the beginning of SPT.
2. Number of blows used in energy calibration analysis. Limited to measurements recorded during the second and third 6-inch sampling intervals at each depth or during the 1st increment if refusal conditions were encountered.
3. BPM = Blows per minute

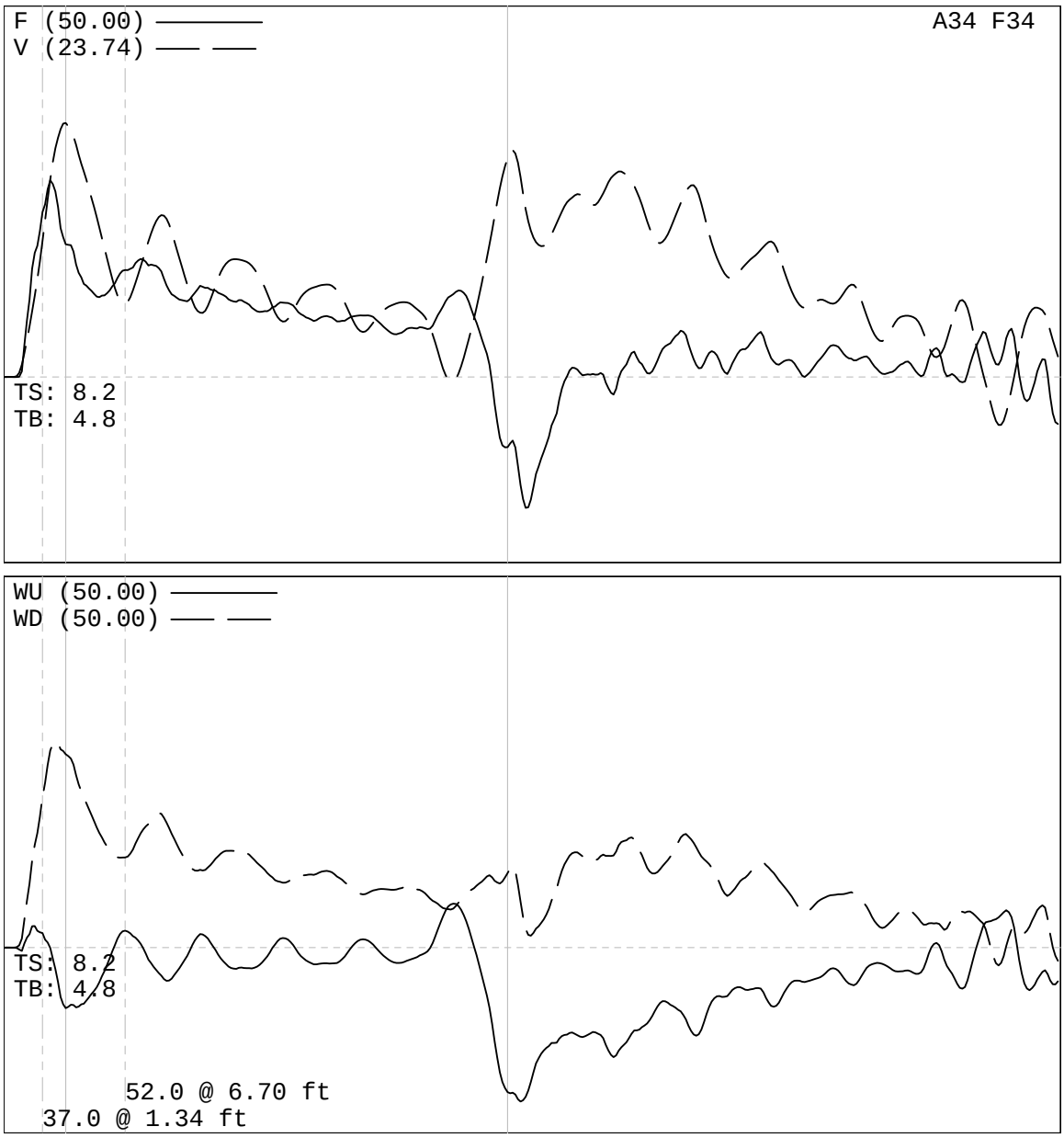
3.0 CONCLUSIONS

3.1 Energy Transfer Ratio (ETR) and Hammer Efficiency Correction (CE)

Based on our testing and subsequent analysis, CME-55 (Serial Number 359485) has an **ETR** of **81.9% ± 2.47%.** Based on this ETR, the hammer efficiency correction (C_E) is **1.37**.

Exhibit A-1 Representative Blow

CME55 727 B1 23.5 TO 25_2



Project Information

PROJECT: CME55 727
PILE NAME: B1 23.5 TO 25_2
DESCR: cme 55 auto
OPERATOR: KJZ
FILE: B1 23.5 TO 25_2.w01
7/2/2015 4:10:26 PM
Blow Number 2

Pile Properties

LE	28.63	ft
AR	1.18	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	3.42	ms
JC		[]

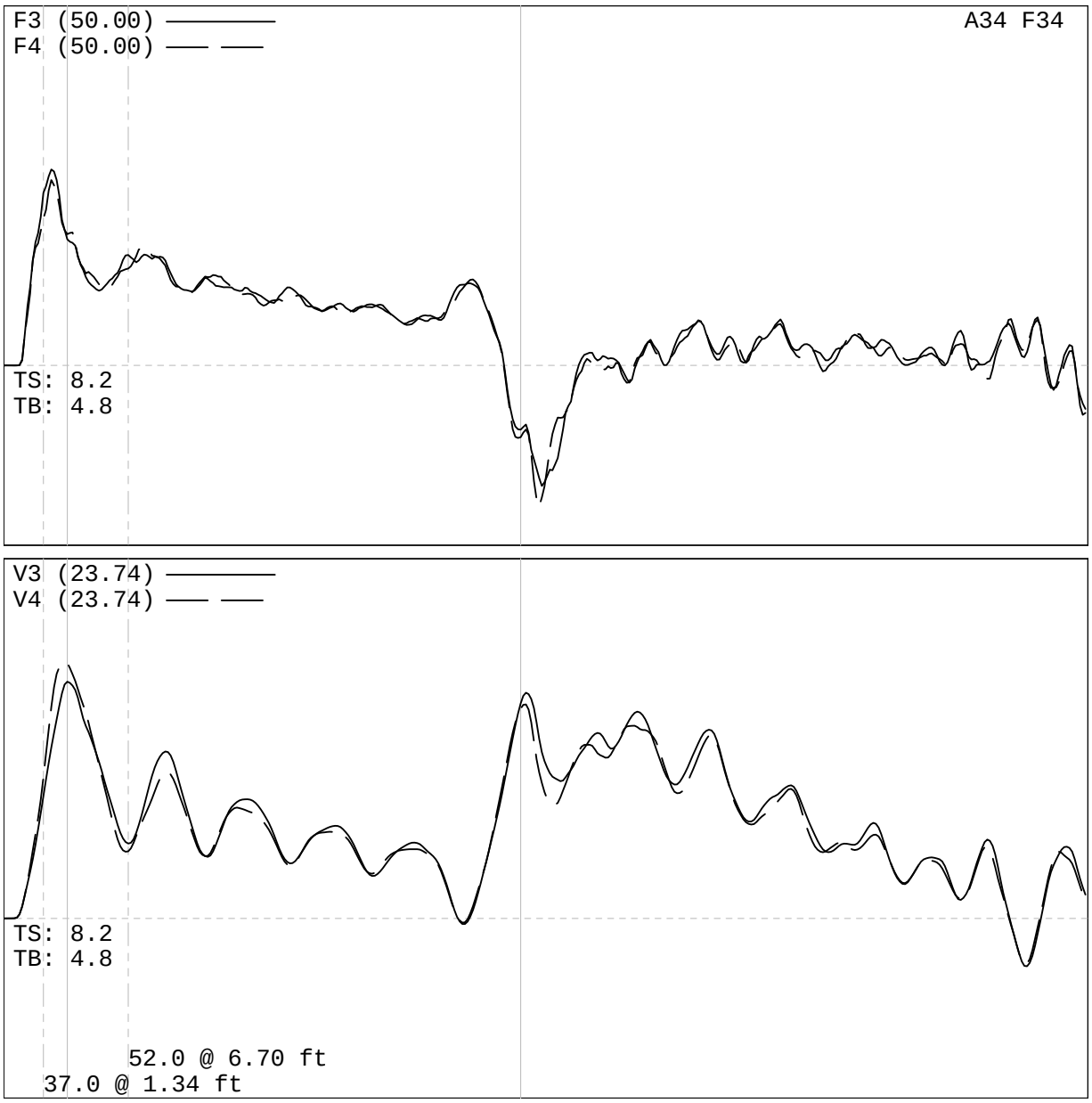
Quantity Results

EMX	0.28	k-ft
EF2	0.23	k-ft
FMX	26.49	kips
BPM	2.00	bpm
VMX	16.24	f/s
AMX	2108.49	g's
DMX	0.85	in
DFN	0.85	in
TSX	14.95	ksi

Sensors

F3: [AWJ 1] 211.53 (1)
F4: [AWJ 2] 211.77 (1)
A3: [K4170] 390 mv/5000g's (1)
A4: [K2578] 374 mv/5000g's (1)
CLIP: OK

CME55 727 B1 23.5 TO 25_2



Project Information

PROJECT: CME55 727
PILE NAME: B1 23.5 TO 25_2
DESCR: cme 55 auto
OPERATOR: KJZ
FILE: B1 23.5 TO 25_2.w01
7/2/2015 4:10:26 PM
Blow Number 2

Pile Properties

LE	28.63	ft
AR	1.18	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	3.42	ms
JC		[]

Quantity Results

EMX	0.28	k-ft
EF2	0.23	k-ft
FMX	26.49	kips
BPM	2.00	bpm
VMX	16.24	f/s
AMX	2108.49	g's
DMX	0.85	in
DFN	0.85	in
TSX	14.95	ksi

Sensors

F3: [AWJ 1] 211.53 (1)
F4: [AWJ 2] 211.77 (1)
A3: [K4170] 390 mv/5000g's (1)
A4: [K2578] 374 mv/5000g's (1)
CLIP: OK

Exhibit A-2 PDA Calibration Certification

Certificate of Calibration

Pile Dynamics, Inc. certifies that the

Pile Driving Analyzer®, Model PAX

Serial Number: 3766L

was calibrated on 28 March 2014
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

DRILL RIG SPT HAMMER ENERGY CALIBRATION REPORT

Drill Rig Model CME - 45C Rig (Serial Number 289849)
Terracon Drill Rig No. 778
Columbia, South Carolina

February 9, 2016
Project No. 73155095

Prepared for:
Terracon Consultants, Inc.
Columbia, South Carolina

Prepared by:
Terracon Consultants, Inc.
Ft. Lauderdale, Florida

February 9, 2016

Terracon Consultants Inc.
5371 NW 33rd Avenue Suite 201
Fort Lauderdale, FL 33309

Attention: Mr. Phillip A. Morrison, P.E.

Re: **SPT Rig Hammer Energy Calibration Report**
Drill Rig Model CME - 45C Drill Rig (Serial Number 289849)
Terracon Drill Rig No. 778
Columbia, South Carolina
Terracon Project Number: 73155095

Dear Mr. Morrison:

Terracon has completed the SPT Rig hammer energy calibration for the Terracon Rig Model CME - 45C drill rig (Serial Number 289849). This drill rig is equipped with an automatic hammer lifted by a hydraulic chain system and uses AWJ drill rods with a split-barrel sampler for the Standard Penetration Test (SPT). The dynamic testing was conducted using a Pile Driving Analyzer (PDA), Model SPT, manufactured by Pile Dynamics, Inc. (PDI). The SPT hammer energy calibration testing was carried out in general accordance with ASTM D4945 Standard Test Method for High Strain Dynamic Testing of Piles and ASTM D4633 Standard Test Method for Energy Measurement for Dynamic Penetrometers.

Based on our testing and subsequent analysis, the Terracon CME - 45C drill rig (Serial Number 289849) has an Energy Transfer Ratio (ETR) of 76.3% ± 3.1%. Based on this ETR, the hammer efficiency correction (C_E) is 1.27.

Sincerely,
Terracon Consultants, Inc.

Mingu Kim, Ph.D., P.E. (P.E. in Florida)
Senior Project Engineer
Florida P.E. No. 64456

Carlos A. Quintana
Project Geotechnical Engineer

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SPT HAMMER ENERGY CALIBRATION REPORT
Drill Rig Model CME - 45C Serial Number 289849
Terracon Drill Rig No. 778

1.0 PROJECT INFORMATION

1.1 Overview

Standard Penetration Test hammer energy calibration testing was carried out at various testing depths below the existing grades in general accordance with ASTM D4945 Standard Test Method for High Strain Dynamic Testing of Piles and ASTM D4633 Standard Test Method for Energy Measurement for Dynamic Penetrometers. Dynamic testing was conducted using a Pile Driving Analyzer (PDA), Model SPT, manufactured by Pile Dynamics, Inc. (PDI).

ITEM	DESCRIPTION
Drill Rig Identification	CME – 45C, SN: 289849 (See photograph on cover page)
Drill Rig Owner	Terracon Consultants, Columbia, South Carolina
Drill Rig Operator	Craig F.
Testing Date	January 20, 2016
Testing Location	Columbia, South Carolina
Terracon Project Number	73155095
Boring Identification	TB-1 (Calibration Only)
Energy Measurement Depths and Soil Type	23.5 ft to 25.0 ft (SP), 28.5 ft to 30.0 ft (SP), 33.5 ft to 35.0 ft (SP), and 38.5 to 40.0 ft (SP)
Hammer Type	Automatic
Boring Method	Hollow Stem Augers (HSA)
Drill Rods	■ AWJ ■ 1 ¾ -in outside diameter ■ 1.18-in^2 area
SPT Hammer Calibration Testing Equipment	■ 2-foot AWJ instrumented rod w/ 2 strain gauges and 2 accelerometers ■ SPT Analyzer, SN: 3766L
Tester	Kenneth J. Zur, P.E., Columbia Office, South Carolina

1.2 Drill Rig and Drilling Equipment

The tested drill rig is a CME - 45C (SN 289849) drill rig with an automatic hammer lifted by a hydraulic chain system. According to information provided, this drill rig was built in 1999. The automatic hammer, with a theoretical potential energy (PE) of 350 ft-lbs., weighs about 140-pounds and has a drop height of 30 inches (2.5 feet). Manufacturer specifications for this drill rig are provided in Appendix A.

The HSA technique using a drill bit was used to reach the depths at which the Standard Penetration testing was to be performed. AWJ drill rod sections have a nominal outside diameter of 1 ¾ inches and a cross sectional area of 1.18 square inches. The instrumented sub-assembly (i.e. where gages were attached) consisted of a two-foot long section of AWJ rod that was threaded into the top drill rod at each testing interval.

1.3 Energy Measurement Instrumentation

The SPT Energy measurement instrumentation consists of a 2-foot long AWJ instrumented drill rod with two strain gages and two accelerometer transducers attached at the center of the instrumented rod. The rod has a cross-sectional area of 1.18 square inches at the strain gauge locations. The strain gages and accelerometers are located on opposite sides of the AWJ drill rod to reduce the effects of uneven hammer impact and rod bending.

The strain gages and accelerometers are connected to a Pile Driving Analyzer (PDA), Model SPT, serial number 3766L, to collect the instrumentation data. The analyzer is a computer, fitted with a data acquisition and signal conditioning system. During driving, the strain and acceleration signals are recorded and processed for each hammer blow. The strain signal is converted to a force record and the acceleration signal is converted to a velocity record. The sampling frequency used during the SPT Energy Measurement Testing was 50,000 hertz (50 kHz). The PDA evaluates the energy at the point of measurement and saves all blows. Equipment calibrations for PAX, strain gauges, and accelerometers are provided in Appendix B.

2.0 TEST RESULTS

2.1 Testing Summary

Standard Penetration energy measurements were performed at four testing depths during SPT boring by Kenneth J. Zur (Terracon, Columbia office). A summary of the testing is provided in Table 1. No unusual operating conditions regarding drilling or hammer operations were observed during Standard Penetration energy measurements. However, due to the poor quality data collected along the first testing depth of 23.5 feet to 25 feet, the data at Test No. 1 was excluded in this report. In addition, two hammer blows (i.e. blow numbers 13 and 15) recorded during the second 6-inch sampling interval at Test No. 2 were excluded for our analyses.

Table 1: Standard Penetration Hammer Energy Calibration Testing Summary.

Boring	Start Depth[1] (ft)	Rod Length[2] (ft)	Rod Sections[3]			Measured Blow Counts (blows/6 inches)				SPT N_m (bpf)
			2 ft	5 ft	10 ft	1st Inc.	2nd Inc.	3rd Inc.	4th Inc.	
TB-1	28.5	30.0	0	6	0	7	7	12	NA	19
	33.5	35.0	0	7	0	7	8	10	NA	18
	38.5	40.0	0	8	0	7	11	12	NA	23

1. Depth from existing ground surface to start of Standard Penetration Testing
2. Total rod length from instrumentation to bottom of split-barrel sampler
3. Two foot instrumented rod section is included and is located at top of drill rods

A representative output from the analyzer showing Individual Force and Velocity measurements with time are presented in Appendix C.

2.2 Hammer Energy Calibration

The measured transferred energies (EFV) and Energy Transfer Ratios (ETR) estimated from the testing results are summarized in Table 2. Note that the EFV's and ETR's shown in Table 2 are estimated from measurements recorded during the second and third 6-inch sampling intervals at each depth or during the 1st increment if refusal conditions were encountered. The ETR is based on measured EFV divided by the 0.35 kip-ft. theoretical potential energy of the SPT hammer.

Table 2: Energy Measurement and Analysis Summary.

Boring	Start Depth[1] (ft)	SPT N_m (bpf)	No. of Blows[2]	EFV (kip-ft)[3]				ETR (%)[3]	
				Max.	Min.	Ave.	Std. Dev.	Ave.	Std. Dev.
TB-1	28.5	21	19	0.300	0.260	0.276	0.010	78.8	2.8
	33.5	18	18	0.290	0.240	0.262	0.012	74.8	3.4
	38.5	23	23	0.280	0.250	0.266	0.007	76.0	2.1
		TOTAL:	**60**	**0.300**	**0.240**	**0.267**	**0.011**	**76.3**	**3.1**

1. Depth from existing ground surface to start of Standard Penetration Testing
2. Number of blows used in energy calibration analysis; limited to measurements recorded during the second and third 6-inch sampling intervals at each depth or during the first increment if refusal conditions were encountered
3. EFV = Measured Transferred Energy, ETR = Energy Transfer Ratio.

3.0 ENERGY TRANSFER RATIO (ETR) AND HAMMER EFFICIENCY CORRECTION (C_E)

The automatic hammer mounted on the CME – 45C (Serial Number 289849) during Standard Penetration Testing has an estimated **ETR** of **76.3% ± 3.1%.** Therefore, the hammer efficiency correction (**C_E**) is **1.27**.

If a change or repair in the hammer driving system will void this calibration and require a new calibration to be performed.

4.0 GENERAL COMMENTS

We appreciate being of service to you in this phase of this project. For additional information regarding the interpretation of the test data and logs, or if you have any questions concerning this report, please do not hesitate to contact us.

Our professional services were performed using that degree of care and skill ordinarily exercised under similar circumstances, by reputable geotechnical engineers practicing in this or similar localities. No warranties, either expressed or implied, are intended or made.

APPENDIX A

PDATESTINGEQUIPMENTCERTIFICATION

Certificate of Calibration

Pile Dynamics, Inc. certifies that the

Pile Driving Analyzer®, Model PAX

Serial Number: 3766L

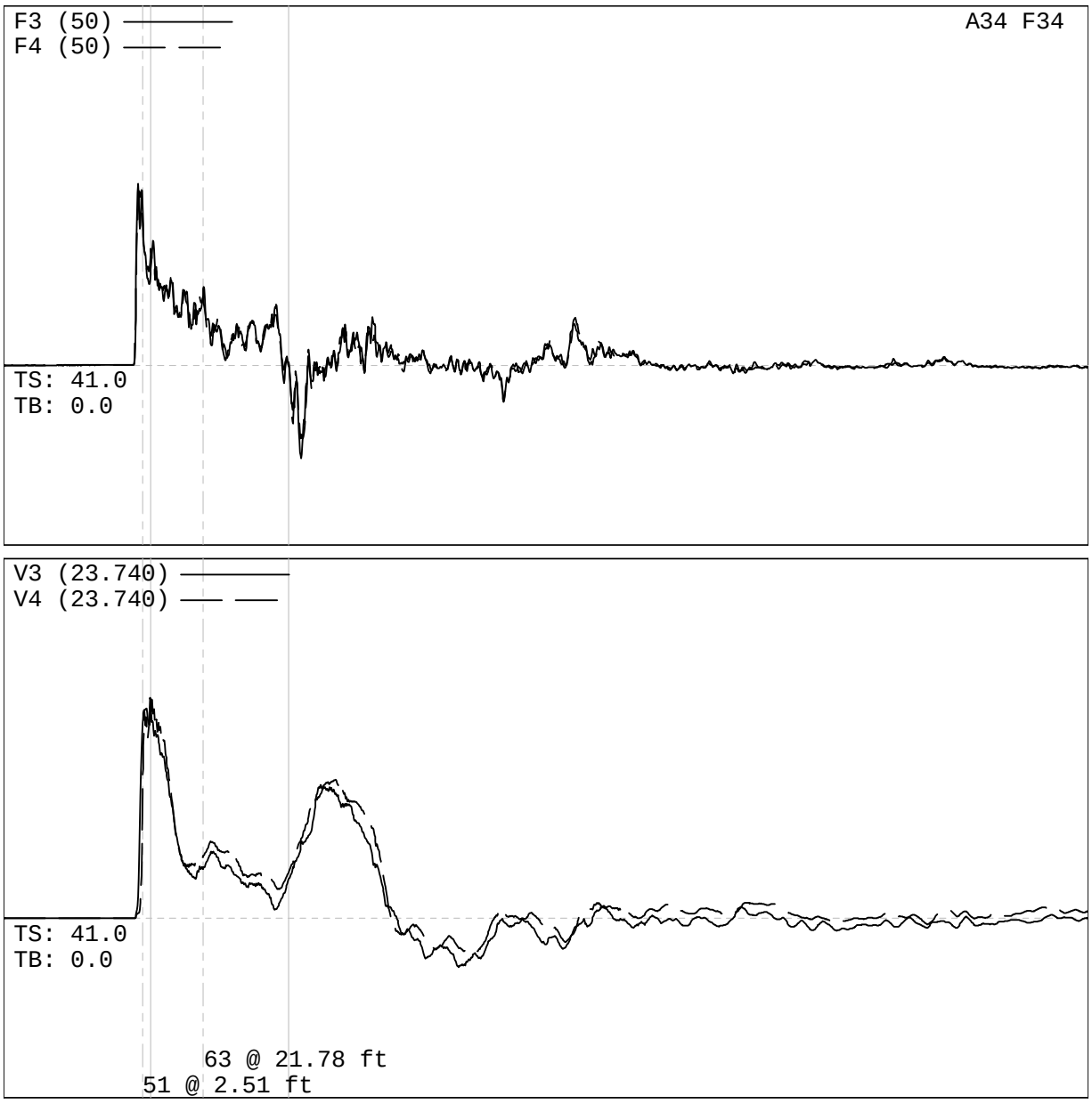
was calibrated on 28 March 2014
using a PDA Calibration Box whose output was calibrated with test equipment traceable to NIST.
This certificate is valid for 2 years from above date.

Tested by:

Pile Dynamics, Inc.
30725 Aurora Road
Cleveland, Ohio 44139 USA

APPENDIX B
REPRESENTATIVE BLOW

COLUMBIA CME-45 RIG CAL CME-45_3



Project Information

PROJECT: COLUMBIA CME-45 RIG CAL
PILE NAME: CME-45_3
DESCR: HOLE 1 38.5 TO 40
OPERATOR: KJZ
FILE: CME-45 3.W01
1/20/2016 1:35:26 PM
Blow Number 18

Pile Properties

LE	43.71	ft
AR	1.18	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	5.22	ms
JC	[]	
LP	39.24	ft

Quantity Results

EMX	0.3	k-ft
EF2	0.2	k-ft
BPM	58.10	bpm
FMX	24	kips
VMX	14.101	f/s
AMX	2924.752	g's
DMX	0.62	in
DFN	0.54	in
TSX	9.94	ksi

Sensors

F3: [AWJ 1] 211.53 (1)
F4: [AWJ 2] 211.77 (1)
A3: [K5168] 348 mv/5000g's (1)
A4: [K5170] 335 mv/5000g's (1)
CLIP: OK

DRILL RIG SPT HAMMER ENERGY CALIBRATION REPORT

Drill Rig Model CME-550X SN 347863
Terracon Drill Rig No. 975
Columbia, SC
October 5, 2015
Project No. 73150500

Prepared for:
Terracon Consultants, Inc.
Columbia, SC

Prepared by:
Terracon Consultants, Inc.
North Charleston, SC

Offices Nationwide Established in 1965
Employee-Owned terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

October 5, 2015

Terracon

Terracon Consultants Inc.
521 Clemson Road
Columbia, SC 29229

Attn: Mr. Phillip Morrison
P: (803) 212-0062
M: (803) 518-3788
E: Phillip.Morrison@terracon.com

Re: SPT Rig Calibration Report
Columbia, SC
Terracon Project Number: 73150500

Mr. Morrison:

The Charleston office of Terracon Consultants, Inc. (Terracon) has completed the SPT rig calibration for the above referenced rig. This report provides Energy Transfer Ratio (ETR) for the SPT hammer found on CME-550X (Serial Number 347863).

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Yulian A. Kebede,
Project Manager
Geotechnical Services

SOUTH CAROLINA
TERRACON
CONSULTANTS,
INC.
No. 2220
CERTIFICATE OF AUTHORIZATION

Bryan T. Shiver, P.E.
Department Manager
Geotechnical Services
SC Registration No. 27816

1.0 PROJECT INFORMATION

ITEM	DESCRIPTION
Drill Rig Identification	CME-550X, SN: 347863 (see photograph on cover page)
Drill Rig Owner	Terracon
Drill Rig Operator	Jared Pawless
Testing Date	September 25, 2015
Testing Location	Columbia, SC
Terracon Project Number	73150500
Boring Identification	Test Hole (1)
Energy Measurement Depths	23.5 feet, 28.5 feet, 33.5 feet, and 38.5 feet
Hammer Type	Automatic
Boring Method	Hollow Stem Augers
Drill Rods	■AWJ ■1¾" outside diameter ■3/16" wall thickness
SPT Calibration Testing Equipment	■2 foot AWJ rod instrumented w/ 2 strain gauges and 2 accelerometers ■Model PAX Pile Driving Analyzer™ (PDA)
SPT Calibration Personnel	Kenneth Zur

2.0 TEST RESULTS

Table 1:
SPT Hammer Energy Calibration Testing Summary.

Boring	Start Depth[1] (ft)	Rod Length[2] (ft)	Rod Sections[3]			Measured Blow Counts (blows/6 inches)				SPT N_m (bpf)	Soil Type[4]
			2 ft	5 ft	10 ft	1st Inc.	2nd Inc.	3rd Inc.	4th Inc.		
Test Hole (1)	23.5	28.8	0	1	2	18	10	11	-	21	Sand
	28.5	33.8	0	0	3	7	8	8	-	16	Sand
	33.5	38.8	0	1	3	5	7	9	-	16	Sand
	38.5	43.8	0	2	3	4	8	11	-	19	Sand

1. Depth from existing ground surface to bottom of drill rods at the beginning of SPT
2. Total rod length measured from instrumentation to bottom of sampler
3. Two foot section is instrumented and is located at top of drill rods
4. Soil type provided by Terracon personnel.

Table 2:
Energy Measurement and Analysis Summary.

Boring	Start Depth[1] (ft)	SPT N_m (bpf)	No. of Blows[2]	EFV (kip-ft)[3]				ETR (%)[3]	
				Max.	Min.	Ave.	Std. Dev.	Ave.	Std. Dev.
Test Hole (1)	23.5	21	38	0.280	0.250	0.262	0.008	74.8	2.29
	28.5	16	22	0.270	0.240	0.256	0.007	73.1	2.10
	33.5	16	19	0.270	0.250	0.254	0.006	72.5	1.71
	38.5	19	21	0.280	0.260	0.268	0.007	76.5	2.00
		Average:	25	0.275	0.250	0.260	0.007	74.2	2.02

1. Boring ID and depth from existing ground surface to bottom of drill rods at the beginning of SPT
2. Number of blows used in energy calibration analysis; limited to measurements recorded during the second and third 6-inch sampling intervals at each depth or during the first increment if refusal were encountered
3. EFV = Measured Transferred Energy, ETR = Energy Transfer Ratio.

Table 3:
Hammer Blow Rate Summary.

Boring	Start Depth[1] (ft)	SPT N_m (bpf)	No. of Blows[2]	BPM[3]			
				Max.	Min.	Ave.	Std. Dev.
Test Hole (1)	23.5	21	38	52.0	48.9	50.2	0.8
	28.5	16	22	54.0	51.0	52.4	0.7
	33.5	16	19	53.0	52.1	52.5	0.2
	38.5	19	21	55.1	52.1	54.1	0.5
		Average:	25	53.5	51.0	52.3	0.56

1. Boring ID and depth from existing ground surface to bottom of drill rods at the beginning of SPT.
2. Number of blows used in energy calibration analysis. Limited to measurements recorded during the second and third 6-inch sampling intervals at each depth or during the 1st increment if refusal conditions were encountered.
3. BPM = Blows per minute

3.0 CONCLUSIONS

3.1 Energy Transfer Ratio (ETR) and Hammer Efficiency Correction (CE)

Based on our testing and subsequent analysis, CME-55 (Serial Number 347863) has an **ETR** of **74.2% ± 2.02%.** Based on this ETR, the hammer efficiency correction (C_E) is **1.24**.

Appendix VIII - SPT Hammer Reports

Capital Drilling SPT Hammer Energy Report

Patriot Drilling Hammer Energy Report

MW Drilling Hammer Energy Report

Soil Consultants SPT Hammer Efficiency Sheets

July 10, 2017

Mr. Louis Everhart
Capital Drilling

Reference: Report of Energy Measurement for Dynamic Penetrometers
Capital Drilling
Rig 1 - Serial #166055
Charlotte, Mecklenburg County, North Carolina

ECS Project No.22-25539

Dear Mr. Everhart:

ECS Southeast, LLP (ECS) has completed an Energy Measurement for Dynamic Penetrometers for a drill rig owned and operated by Capital Drilling. The rig was tested at a project site located off of W. Tremont Avenue in Charlotte, Mecklenburg County, North Carolina on June 23, 2017 and was operated by driller Louis Everhart. The drill rig was tested by Annemarie Crumrine, E.I. of ECS Southeast, LLP. At the site, from depths of about 30 feet to 40 feet below the ground surface, the test boring typically encountered intermittent layers of very stiff red Silt and Clay (ML, CL).

Scope of Work

ECS was requested to perform energy measurement testing for the drill rig owned and operated by Capital Drilling. The tests were performed at a minimum of three interval depths ranging from about 30 to 40 feet. The purpose of the tests was to calibrate the drill rig hammer for geotechnical testing in accordance with ASTM D 1568 and ASTM D 4633.

Test Method, Standard and Equipment

Dynamic testing with a Pile Driving Analyzer (PDA) was conducted on the drill rig during the advancement of the split spoon by the automatic hammer on the drill rig. The dynamic testing was performed in general accordance with ASTM D 4633.

The SPT rods used during drilling were AWJ rods, typically 5 and 10 feet in length, with an outside diameter of 1.75 inches and an interior diameter of 1.37 inches. A specialized AWJ rod with two strain transducers welded to the rod were used in the testing procedure. The AWJ rod was 24 inches in length and had an outside diameter of 1.752 inches and an interior diameter of 0.625 inches. The rod was manufactured by PDI, and the unit owned by ECS has the serial number 289 AWJ. Two piezoresistance accelerometers were bolted on opposing sides of the test rod adjacent to the strain transducers. The transducers and accelerometers measured the dynamic strain and acceleration at that location of the rod during driving.

The strain and acceleration signals were processed through a portable computer, referred to as the PAX. The PAX is manufactured by PDI, Inc. and the unit owned by ECS has the serial number 3849. Signals were sent from the transducers and accelerometers to the PAX via cables. During Standard Penetration Test (SPT) sampling, strain and acceleration data were recorded by the PAX for every blow of the SPT hammer. The signals were converted to forces and velocities by the PAX computer. During SPT sampling, the following key aspects of the soil/hammer interaction were monitored: blow count per foot (BPF), blow count per minute (BPM), energy of FV (EFV), energy transfer ratio (ETR), maximum force (FMX), maximum velocity (VMX), maximum displacement (DMX), maximum compression stress (CSX), and final displacement (DFN).

During the driving sequence, the force and velocity measurements were observed on the PAX screen to evaluate the quality of data. During the testing procedures, the tested drill rig was operated by Louis Everhart of Capital Drilling, Inc. and tested by Annemarie Crumrine, E.I. of ECS.

Drill Rig and Hammer Information

The rig tested is owned and operated by Capital Drilling. The rig consisted of a CME 55 Trailer Rig (Serial #166055). The rig was equipped with an automatic hammer with a ram weight of 140 pounds and a drop height of 30 inches. SPT sampling was performed during the dynamic testing in general accordance with ASTM D1586.

Results of Tests

The data collected by the PAX was returned to the ECS office in Wilmington, North Carolina for reduction and analysis. The data was reduced to the provided results by using PDI programs PDA and PDIPlot2 by Winslow Goins, P.E. The results are presented in the following tables and in the appendix of this report.

CME 55 Trailer (Serial #160055)										
			Blows							
	LE	LP	Increment 1 (0-6")	Increment 2 (6-12")	Increment 3 (12-18")	N-Value	BPM	AET (k-ft)	ETR	Soil Classification
Test 1	34.67	30	2	12	6	18	28.7	0.237	67.7	ML
Test 2	36	35	8	13	17	30	28.6	0.268	76.4	CL
Test 3	44.4	40	5	11	10	21	38.2	0.270	77.2	CL

LE Length Below Gages
LP Length of Penetration
BPM Blows Per Minute
ETR Energy Transfer Ratio
AET Average Energy Transfer

Energy Measurement of Dynamic Penetrometer
I-26 Widening MM
ECS Project No. 22.25539
Charlotte, Mecklenburg County, North Carolina

Drill Rig SPT Hammer Energy Rating

The drill rig SPT hammer energy rating is determined by averaging the energy transfer ratio for the three increment depths below 30 feet that have an N-value above 8.

Rig	Rating (%)
CME 55 Trailer Rig (Serial #166055)	73.8

If you have any questions concerning the information and results presented in this report, please contact us at (910) 686-9114 for further assistance.

Respectfully submitted,

ECS SOUTHEAST, LLP

Annemarie Crumrine, E.I.
Assistant Project Manager

Winslow E. Goins, P.E.
Principal Engineer
South Carolina License No. 26758

Appendix-

Results for CME 55 Trailer
Certificates of Calibration

RESULTS FOR CME 55 TRAILER RIG (SERIAL #166055)

SPT ENERGY TESTING

ECS Carolinas, LLP
5714 Netherlands Drive
Wilmington, North Carolina 28405

Drill Company: Capital Drilling
Drill Rig: CME 55 Trailer (SN 166055)
Operator: Louis Everhart

Drill Method:
Rod Serial #: 289 AWJ
Test Date: 6/23/2017

Depth 30.0-31.5 ft
Blow Counts: 2-12-6

Blow No.	EFV (k-ft)	ETR ((%))
1	-	-
2	-	-
3	-	-
4	0.224	64.0
5	0.264	75.4
6	0.223	63.7
7	0.264	75.4
8	0.227	64.9
9	0.264	75.4
10	0.236	67.4
11	0.252	72.0
12	0.232	66.3
13	0.246	70.3
14	0.229	65.4
15	0.242	69.1
16	0.222	63.4
17	0.225	64.3
18	0.222	63.4
19	0.229	65.4
20	0.226	64.6

Average	0.237	67.7
Standard Deviation	0.016	4.4
Maximum	0.264	75.4

Depth 35.0-36.5 ft
Blow Counts: 8-13-17

Blow No.	EFV (k-ft)	ETR ((%))
1	0.263	75.1
2	0.255	72.9
3	0.259	74.0
4	0.267	76.3
5	0.267	76.3
6	0.262	74.9
7	0.265	75.7
8	0.265	75.7
9	0.264	75.4
10	0.267	76.3
11	0.278	79.4
12	0.261	74.6
13	0.264	75.4
14	0.264	75.4
15	0.265	75.7
16	0.266	76.0
17	0.268	76.6
18	0.265	75.7
19	0.261	74.6
20	0.262	74.9
21	0.26	74.3
22	0.262	74.9
23	0.259	74.0
24	0.256	73.1
25	0.255	72.9
26	0.257	73.4
27	0.259	74.0
28	0.257	73.4
29	0.254	72.6
30	0.252	72.0
31	0.253	72.3
32	0.289	82.6
33	0.281	80.3
34	0.263	75.1
35	0.309	88.3
36	0.306	87.4
37	0.304	86.9
38	0.301	86.0

Average	0.268	76.4
Standard Deviation	0.015	4.3
Maximum	0.309	88.3

Depth 40.0-41.5
Blow Counts: 5-11-10

Blow No.	EFV (k-ft)	ETR ((%))
1	0.293	83.7
2	0.284	81.1
3	0.28	80.0
4	0.274	78.3
5	0.272	77.7
6	0.274	78.3
7	0.269	76.9
8	0.269	76.9
9	0.27	77.1
10	0.267	76.3
11	0.271	77.4
12	0.273	78.0
13	0.267	76.3
14	0.271	77.4
15	0.252	72.0
16	0.276	78.9
17	0.256	73.1
18	0.281	80.3
19	0.247	70.6
20	0.287	82.0
21	0.267	76.3
22	0.258	73.7
23	0.247	70.6
24	0.276	78.9
25	0.263	75.1
26	0.282	80.6

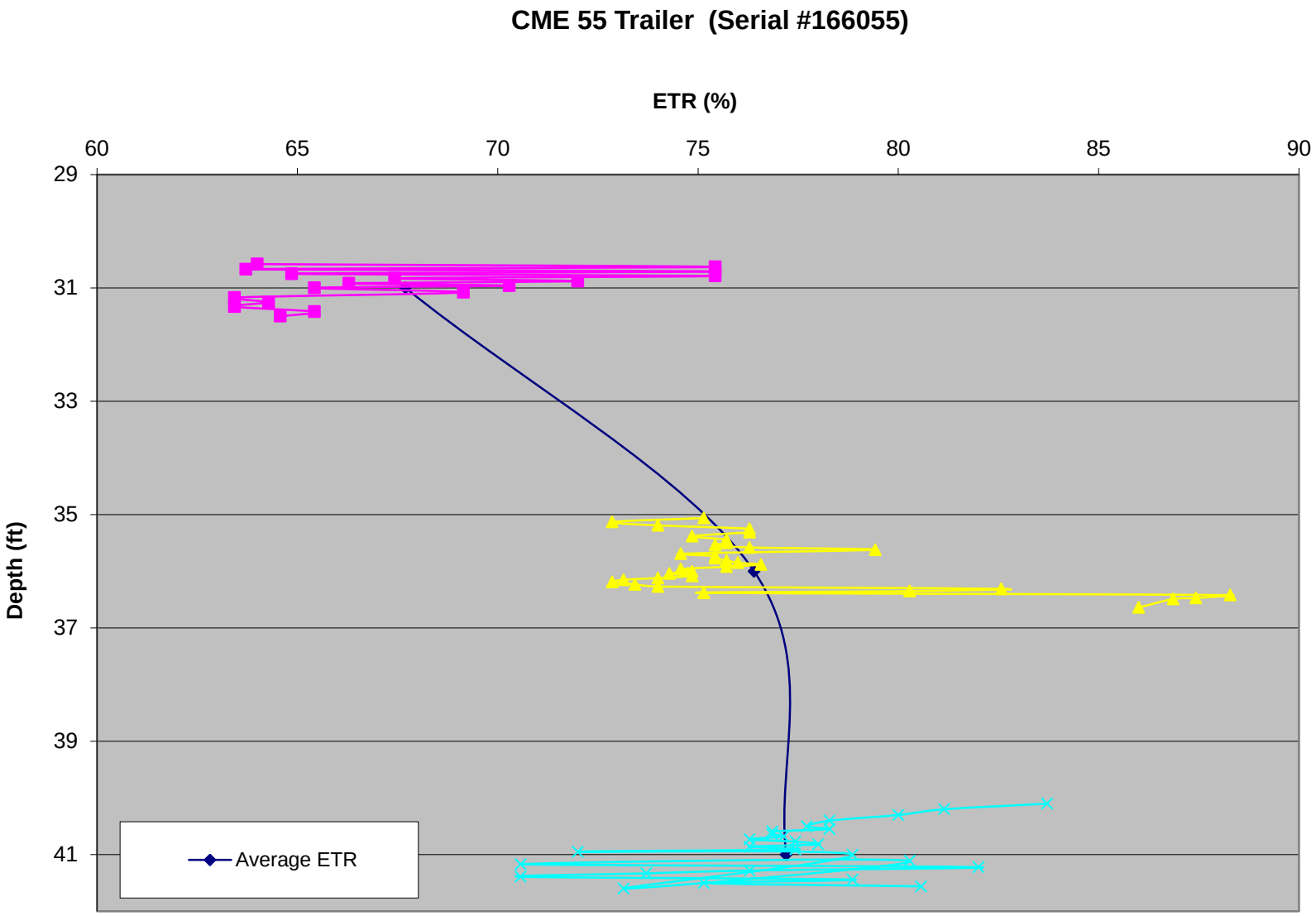
Average	0.270	77.2
Standard Deviation	0.011	3.3
Maximum	0.293	83.7

Average Transferred Energy= 73.8 %

EFV is method for determining energy

ETR is energy transfer ratio

The maximum rated energy of 0.350 k-ft is based on an assumed hammer weight of 0.14 kips and assumed drop height of 2.5 feet

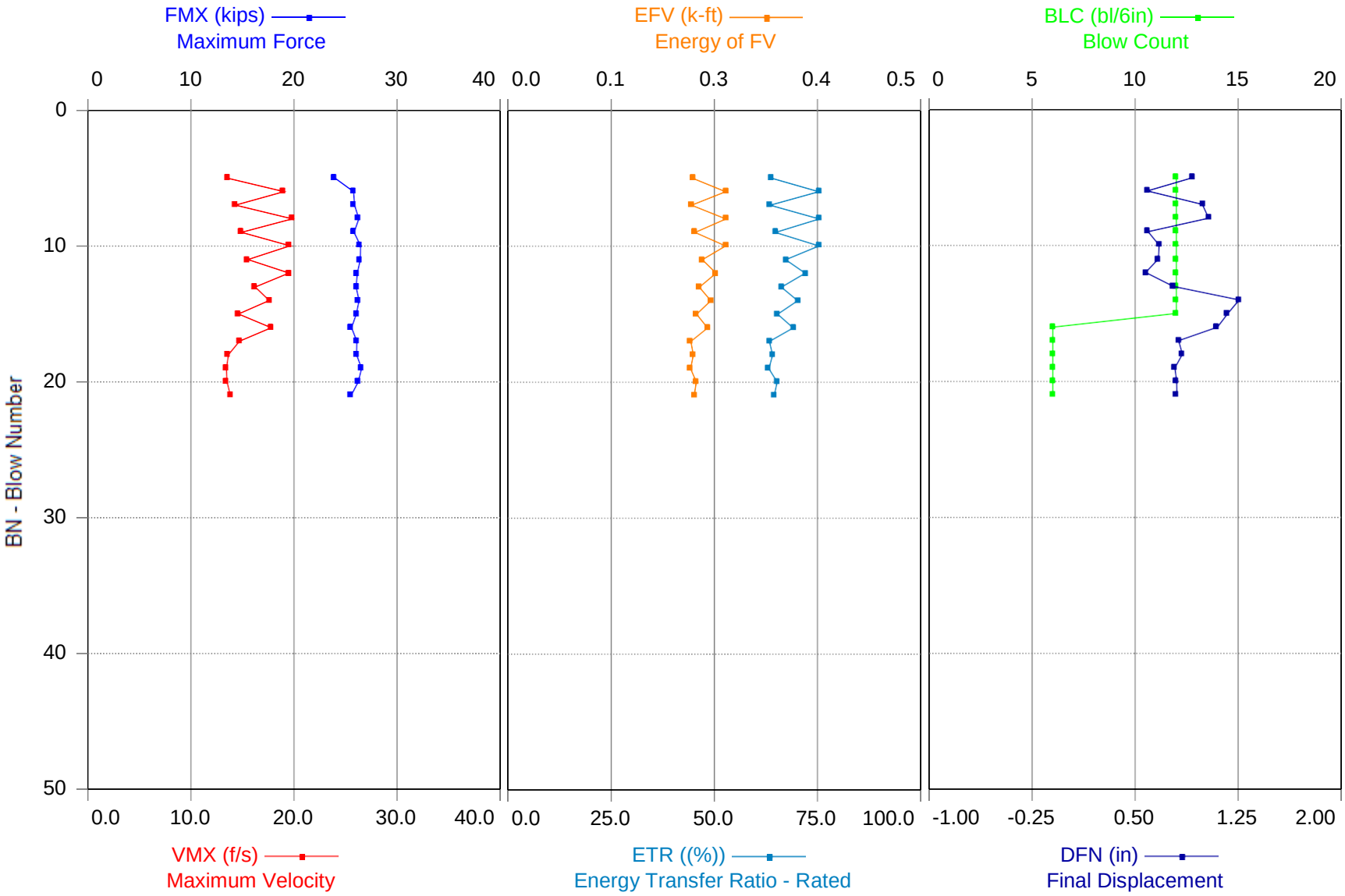

CME 55 Trailer (Serial #166055)
ETR (%)
60
65
70
75
80
85
90
Depth (ft)
29
31
33
35
37
39
41
Average ETR

ECS Southeast LLP - PDIPLOT2 Ver 2016.1.56.3 - Case Method & iCAP® Results

Printed: 27-June-2017

Test started: 23-June-2017

CAPITAL - T1-30.0



CAP1TAL-T1-30.0 CME 55 166055
OP: WEG Date: 23-June-2017

AR: 1.17 in2 SP: 0.492 k/ft3
LE: 34.67 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.00 []

FMX: Maximum Force ETR: Energy Transfer Ratio - Rated
VMX: Maximum Velocity DFN: Final Displacement
EFV: Energy of FV BPM: Blows per Minute

BL#	Depth ft	BLC bl/6in	FMX kips	VMX f/s	EFV k-ft	ETR {%}	DFN in	BPM bpm
5	30.58	12	24	13.5	0.2	64.0	0.92	43.8
6	30.63	12	26	19.0	0.3	75.4	0.59	29.8
7	30.67	12	26	14.3	0.2	63.6	0.99	29.2
8	30.71	12	26	19.8	0.3	75.5	1.03	29.2
9	30.75	12	26	14.9	0.2	64.9	0.59	28.7
10	30.79	12	26	19.6	0.3	75.4	0.67	28.7
11	30.83	12	26	15.5	0.2	67.4	0.67	28.4
12	30.88	12	26	19.5	0.3	72.1	0.58	28.3
13	30.92	12	26	16.2	0.2	66.4	0.78	28.1
14	30.96	12	26	17.6	0.2	70.3	1.26	28.0
15	31.00	12	26	14.6	0.2	65.4	1.17	27.5
16	31.08	6	26	17.8	0.2	69.2	1.10	26.6
17	31.17	6	26	14.7	0.2	63.4	0.82	26.9
18	31.25	6	26	13.6	0.2	64.2	0.84	26.2
19	31.33	6	27	13.4	0.2	63.3	0.79	26.2
20	31.42	6	26	13.5	0.2	65.3	0.80	26.7
21	31.50	6	26	13.8	0.2	64.6	0.80	26.2
		Average	26	16.0	0.2	67.7	0.85	28.7

Total number of blows analyzed: 17

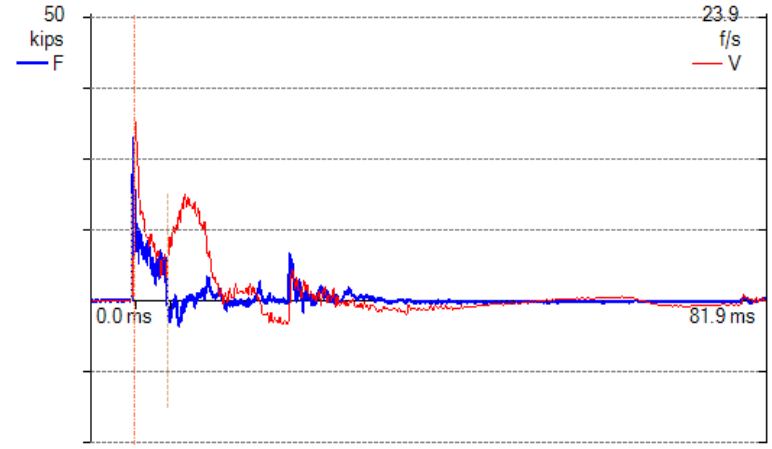
BL# Sensors

5-21 F3: [SPT-289 AWJ-1] 213.4 (1.00); F4: [SPT-289 AWJ-2] 214.4 (1.00);
A3: [K5216] 327.0 (1.00); A4: [K3534] 383.0 (1.00)

Time Summary

Drive 1 minute 32 seconds 10:20 AM - 10:22 AM BN 1 - 21

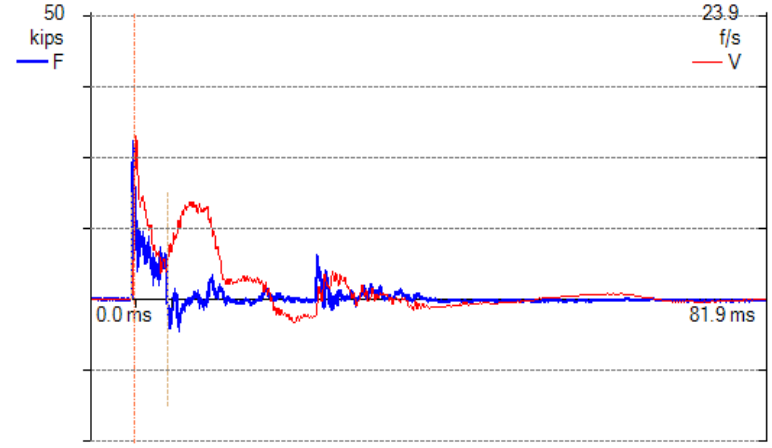
Project: CAPITAL
Pile: T1-30.0 - Description: CME 55 166055
Operator: WEG



BN 9
6/23/2017 10:21:49 AM

LP	30.50	ft	LE	34.67	ft
ETR	64.9	(%)	AR	1.17	in²
CSX	22.1	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	28.7	bpm	WS	16,807.9	f/s
EMX	0.2	k-ft	WC	16,277.0	f/s
DMX	0.76	in	JC	0.00	[]
SFR	0	kips	2L/c	4.26	ms
MEX	736	µE	EA/c	2.1	ksec/ft
VMX	14.9	f/s	FR	50.000	kHz

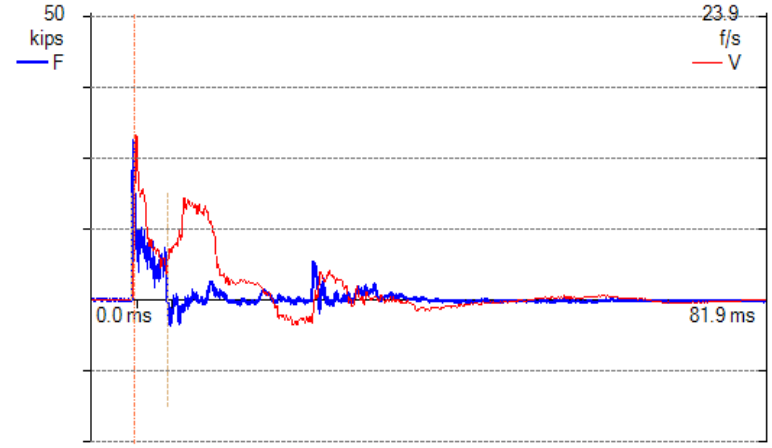
Project: CAPITAL
Pile: T1-30.0 - Description: CME 55 166055
Operator: WEG



BN 18
6/23/2017 10:22:09 AM

LP	31.00	ft	LE	34.67	ft
ETR	64.2	(%)	AR	1.17	in²
CSX	22.3	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	26.2	bpm	WS	16,807.9	f/s
EMX	0.2	k-ft	WC	16,277.0	f/s
DMX	0.90	in	JC	0.00	[]
SFR	0	kips	2L/c	4.26	ms
MEX	743	µE	EA/c	2.1	ksec/ft
VMX	13.6	f/s	FR	50.000	kHz

Project: CAPITAL
Pile: T1-30.0 - Description: CME 55 166055
Operator: WEG



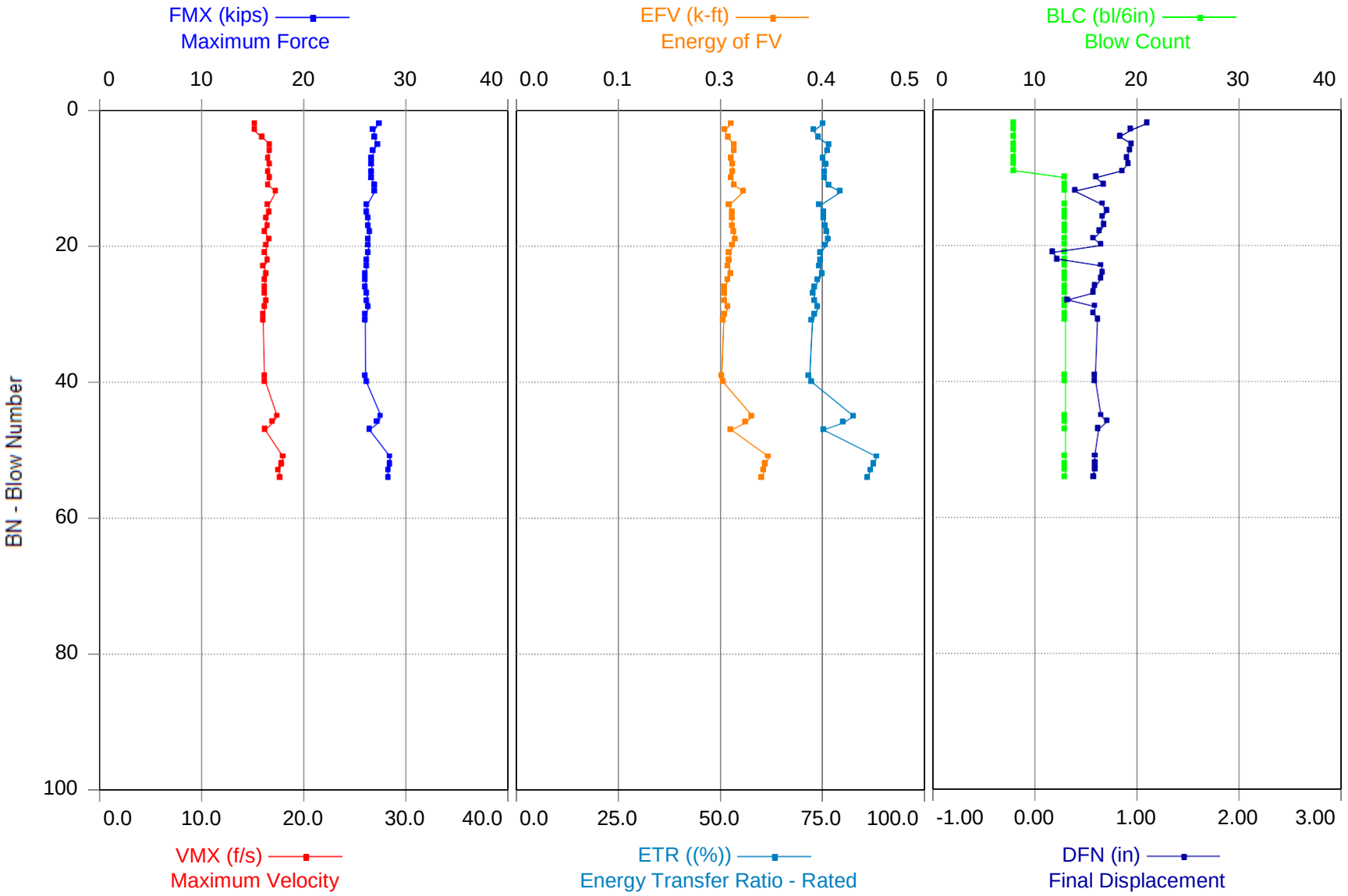
BN 21
6/23/2017 10:22:16 AM

LP	31.50	ft	LE	34.67	ft
ETR	64.6	(%)	AR	1.17	in²
CSX	21.8	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	26.2	bpm	WS	16,807.9	f/s
EMX	0.2	k-ft	WC	16,277.0	f/s
DMX	0.87	in	JC	0.00	[]
SFR	0	kips	2L/c	4.26	ms
MEX	727	µE	EA/c	2.1	ksec/ft
VMX	13.8	f/s	FR	50.000	kHz

ECS Southeast LLP - PDIPLOT2 Ver 2016.1.56.3 - Case Method & iCAP® Results

Printed: 27-June-2017 Test started: 23-June-2017

CAPITAL - T2-35.0



Case Method & iCAP® Results

CAPITAL - T2-35.0

OP: WEG

CME 55 166055

Date: 23-June-2017

AR: 1.17 in²

LE: 39.00 ft

WS: 16,807.9 f/s

SP: 0.492 k/ft³

EM: 30,000 ksi

JC: 0.00 []

FMX: Maximum Force

VMX: Maximum Velocity

EFV: Energy of FV

ETR: Energy Transfer Ratio - Rated

DFN: Final Displacement

BPM: Blows per Minute

BL#	Depth ft	BLC bl/6in	FMX kips	VMX f/s	EFV k-ft	ETR (%)	DFN in	BPM bpm
2	35.06	8	27	15.2	0.3	75.2	1.11	1.9
3	35.13	8	27	15.2	0.3	72.9	0.95	36.0
4	35.19	8	27	15.9	0.3	73.9	0.83	35.9
5	35.25	8	27	16.7	0.3	76.3	0.94	35.9
	35.31	8	27	16.6	0.3	76.3	0.93	35.8
7	35.38	8	27	16.5	0.3	75.0	0.89	33.2
8	35.44	8	27	16.6	0.3	75.7	0.91	32.3
9	35.50	8	27	16.5	0.3	75.6	0.86	32.8
10	35.54	13	27	16.7	0.3	75.4	0.60	33.1
11	35.58	13	27	16.6	0.3	76.4	0.67	30.9
12	35.62	13	27	17.3	0.3	79.5	0.39	34.9
14	35.69	13	26	16.6	0.3	74.5	0.66	23.4
15	35.73	13	26	16.7	0.3	75.5	0.70	24.3
16	35.77	13	26	16.3	0.3	75.5	0.66	26.6
17	35.81	13	26	16.5	0.3	75.7	0.68	27.1
18	35.85	13	26	16.3	0.3	76.1	0.64	27.7
19	35.88	13	26	16.6	0.3	76.7	0.58	27.8
20	35.92	13	26	16.4	0.3	75.8	0.65	27.8
21	35.96	13	26	16.3	0.3	74.7	0.17	27.7
22	36.00	13	26	16.6	0.3	74.8	0.23	27.2
23	36.04	13	26	16.1	0.3	74.3	0.65	26.7
24	36.08	13	26	16.3	0.3	75.0	0.66	24.5
25	36.12	13	26	16.3	0.3	74.1	0.65	23.5
26	36.15	13	26	16.2	0.3	73.1	0.60	23.2
27	36.19	13	26	16.2	0.3	72.9	0.57	23.5
28	36.23	13	26	16.4	0.3	73.3	0.32	23.8
29	36.27	13	26	16.2	0.3	74.0	0.59	23.4
30	36.31	13	26	16.1	0.3	73.3	0.58	22.2
31	36.35	13	26	16.0	0.3	72.6	0.61	19.3
39	36.65	13	26	16.1	0.3	71.9	0.59	9.4
40	36.69	13	26	16.3	0.3	72.4	0.60	17.2
45	36.88	13	28	17.4	0.3	82.6	0.65	11.0

CAPITAL- T2-35.0 CME 55 166055
OP: WEG Date: 23-June-2017

BL#	Depth ft	BLC bl/6in	FMX kips	VMX f/s	EFV k-ft	ETR (%)	DFN in	BPM bpm
46	36.92	13	27	17.0	0.3	80.2	0.70	46.7
47	36.96	13	26	16.2	0.3	75.3	0.62	37.0
51	37.12	13	28	18.0	0.3	88.4	0.59	7.4
52	37.15	13	28	17.9	0.3	87.4	0.59	55.5
53	37.19	13	28	17.6	0.3	86.9	0.59	54.9
54	37.23	13	28	17.7	0.3	86.0	0.57	54.9
		Average	27	16.5	0.3	76.5	0.65	28.6

Total number of blows analyzed: 38

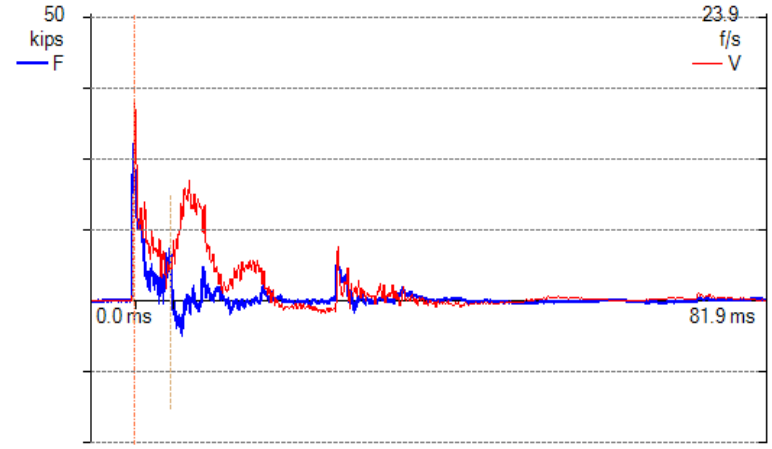
BL# Sensors

2-54 F3: [SPT-289 AWJ-1]213.4 (1.00); F4 [SPT-289 AWJ-2] 214.4 (1.00);
A3: [K5216] 327.0 (1.00); A4: [K3534] 383.0 (1.00)

Time Summary

Drive 3 minutes 24 seconds 10:44 AM - 10:47 AM BN 1 - 54

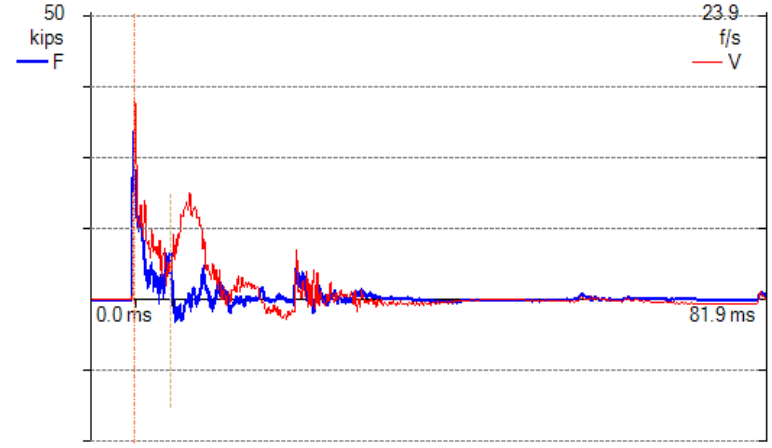
Project: CAPITAL
Pile: T2-35.0 - Description: CME 55 166055
Operator: WEG



BN 6
6/23/2017 10:44:32 AM

LP	35.00	ft	LE	39.00	ft
ETR	76.3	(%)	AR	1.17	in²
CSX	23.0	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	35.8	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,748.8	f/s
DMX	0.93	in	JC	0.00	[]
SFR	0	kips	2L/c	4.66	ms
MEX	766	µE	EA/c	2.1	ksec/ft
VMX	16.6	f/s	FR	50.000	kHz

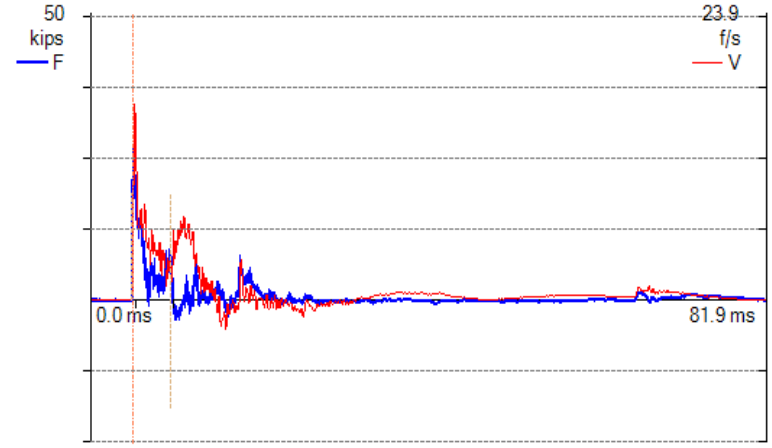
Project: CAPITAL
Pile: T2-35.0 - Description: CME 55 166055
Operator: WEG



BN 10
6/23/2017 10:44:39 AM

LP	35.50	ft	LE	39.00	ft
ETR	75.4	(%)	AR	1.17	in²
CSX	22.8	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	33.1	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,748.8	f/s
DMX	0.71	in	JC	0.00	[]
SFR	0	kips	2L/c	4.66	ms
MEX	759	µE	EA/c	2.1	ksec/ft
VMX	16.7	f/s	FR	50.000	kHz

Project: CAPITAL
Pile: T2-35.0 - Description: CME 55 166055
Operator: WEG



BN 24
6/23/2017 10:45:10 AM

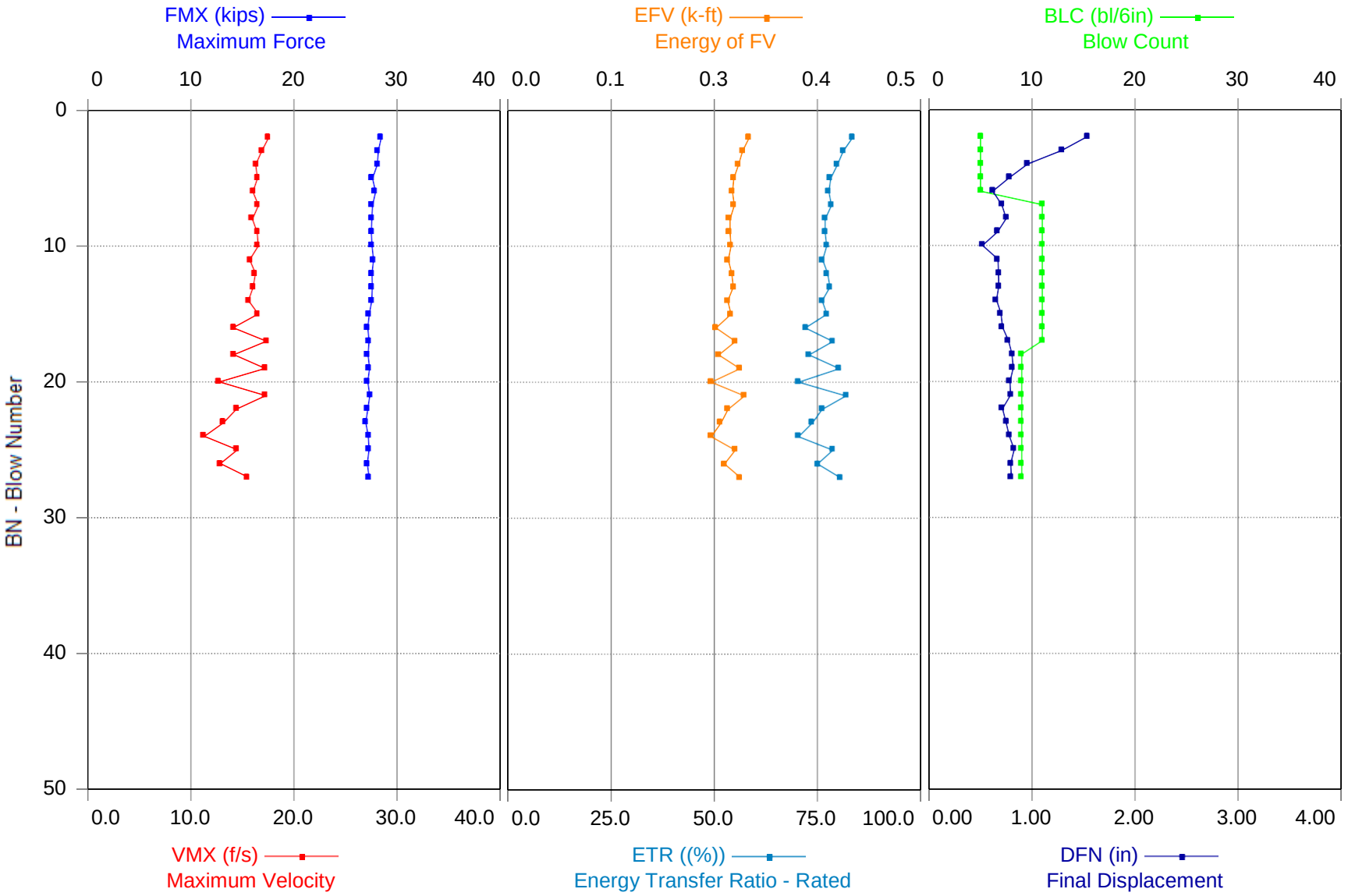
LP	36.00	ft	LE	39.00	ft
ETR	75.0	(%)	AR	1.17	in²
CSX	22.3	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	24.5	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,748.8	f/s
DMX	0.66	in	JC	0.00	[]
SFR	0	kips	2L/c	4.66	ms
MEX	742	µE	EA/c	2.1	ksec/ft
VMX	16.3	f/s	FR	50.000	kHz

ECS Southeast LLP - PDIPLOT2 Ver 2016.1.56.3 - Case Method & iCAP® Results

Printed: 27-June-2017

Test started: 23-June-2017

CAPITAL - T3-40.0



CAPITAL - T3-40.0
CME 55 166055
OP: WEG
Date: 23-June-2017

AR: 1.17 in²
SP: 0.492 k/ft³
LE: 44.40 ft
EM: 30,000 ksi
WS: 16,807.9 f/s
JC: 0.00 []

FMX: Maximum Force
ETR: Energy Transfer Ratio - Rated
VMX: Maximum Velocity
DFN: Final Displacement
EFV: Energy of FV
BPM: Blows per Minute

BL#	Depth	BLC	FMX	VMX	EFV	ETR	DFN	BPM
	ft	bl/6in	kips	f/s	k-ft	(%)	in	bpm
2	40.10	5	28	17.6	0.3	83.6	1.53	1.9
3	40.20	5	28	16.9	0.3	81.3	1.29	49.6
4	40.30	5	28	16.3	0.3	79.9	0.96	49.2
5	40.40	5	28	16.4	0.3	78.2	0.78	45.8
	40.50	5	28	16.0	0.3	77.8	0.62	42.4
7	40.55	11	28	16.5	0.3	78.4	0.71	41.6
8	40.59	11	28	16.0	0.3	76.9	0.75	40.7
9	40.64	11	27	16.4	0.3	76.9	0.67	40.3
10	40.68	11	28	16.5	0.3	77.3	0.52	40.4
11	40.73	11	28	15.7	0.3	76.3	0.67	40.2
12	40.77	11	28	16.3	0.3	77.5	0.68	40.3
13	40.82	11	28	16.0	0.3	78.0	0.68	40.4
14	40.86	11	28	15.6	0.3	76.2	0.66	39.9
15	40.91	11	27	16.5	0.3	77.3	0.70	38.4
16	40.95	11	27	14.1	0.3	72.1	0.71	36.9
17	41.00	11	27	17.3	0.3	78.8	0.77	36.8
18	41.06	9	27	14.2	0.3	73.0	0.80	35.8
19	41.11	9	27	17.2	0.3	80.4	0.82	36.5
20	41.17	9	27	12.8	0.2	70.4	0.79	37.2
21	41.22	9	27	17.3	0.3	81.9	0.79	36.5
22	41.28	9	27	14.4	0.3	76.2	0.71	37.3
23	41.33	9	27	13.2	0.3	73.8	0.75	37.5
24	41.39	9	27	11.3	0.2	70.4	0.78	37.0
25	41.44	9	27	14.5	0.3	78.8	0.83	37.3
26	41.50	9	27	12.9	0.3	75.0	0.79	36.8
27	41.56	9	27	15.5	0.3	80.5	0.80	37.0
		Average	27	15.5	0.3	77.2	0.79	38.2

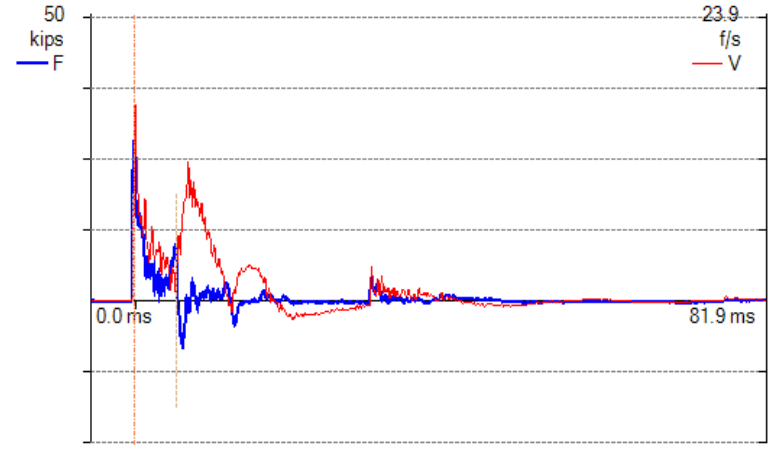
Total number of blows analyzed: 26

BL#	Sensors
2-27	F3: [SPT-289 AWJ-1] 213.4 (1.00); F4: [SPT-289 AWJ-2] 214.4 (1.00); A3: [K5216] 327.0 (1.00); A4: [K3534] 383.0 (1.00)

Time Summary

Drive 1 minute 7 seconds 11:13 AM - 11:14 AM BN 1 - 27

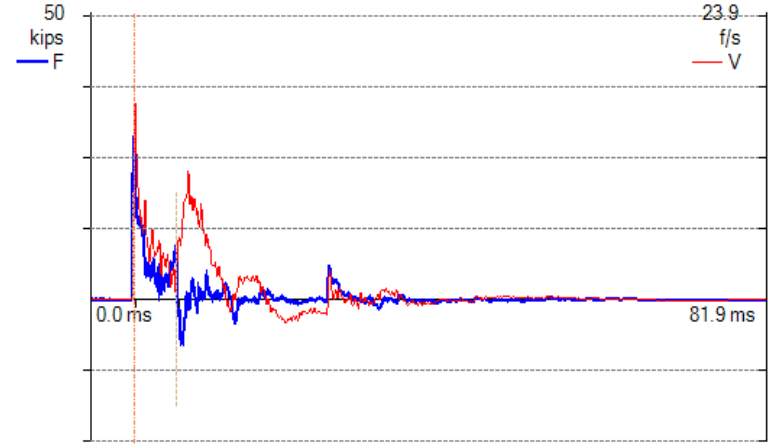
Project: CAPITAL
Pile: T3-40.0 - Description: CME 55 166055
Operator: WEG



BN 5
6/23/2017 11:14:04 AM

LP	40.00	ft	LE	44.40	ft
ETR	78.2	(%)	AR	1.17	in²
CSX	23.6	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	45.8	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,818.2	f/s
DMX	0.87	in	JC	0.00	[]
SFR	0	kips	2L/c	5.28	ms
MEX	787	µE	EA/c	2.1	ksec/ft
VMX	16.4	f/s	FR	50.000	kHz

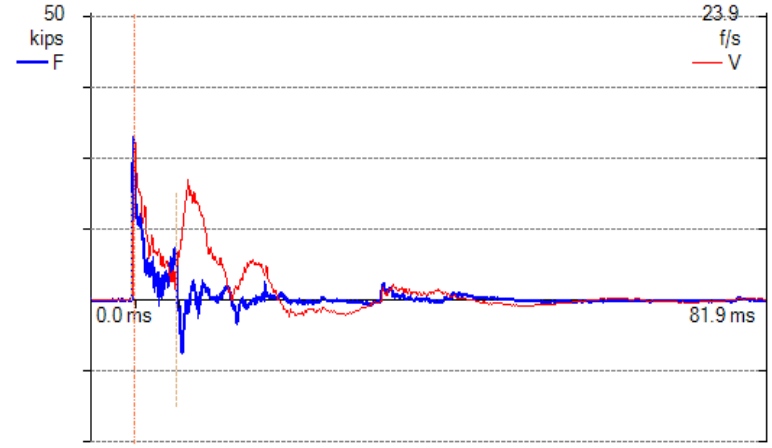
Project: CAPITAL
Pile: T3-40.0 - Description: CME 55 166055
Operator: WEG



BN 9
6/23/2017 11:14:10 AM

LP	40.50	ft	LE	44.40	ft
ETR	76.9	(%)	AR	1.17	in²
CSX	23.5	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	40.3	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,818.2	f/s
DMX	0.75	in	JC	0.00	[]
SFR	0	kips	2L/c	5.28	ms
MEX	783	µE	EA/c	2.1	ksec/ft
VMX	16.4	f/s	FR	50.000	kHz

Project: CAPITAL
Pile: T3-40.0 - Description: CME 55 166055
Operator: WEG



BN 23
6/23/2017 11:14:32 AM

LP	41.00	ft	LE	44.40	ft
ETR	73.8	(%)	AR	1.17	in²
CSX	23.0	ksi	EM	30,000	ksi
CSB	0.0	ksi	SP	0.492	k/ft³
BPM	37.5	bpm	WS	16,807.9	f/s
EMX	0.3	k-ft	WC	16,818.2	f/s
DMX	0.86	in	JC	0.00	[]
SFR	0	kips	2L/c	5.28	ms
MEX	768	µE	EA/c	2.1	ksec/ft
VMX	13.2	f/s	FR	50.000	kHz

CERTIFICATES OF CALIBRATION

Certificate of Calibration

Pile Dynamics, Inc. certifies that the

Pile Driving Analyzer®, Model PAX

Serial Number: 3849L

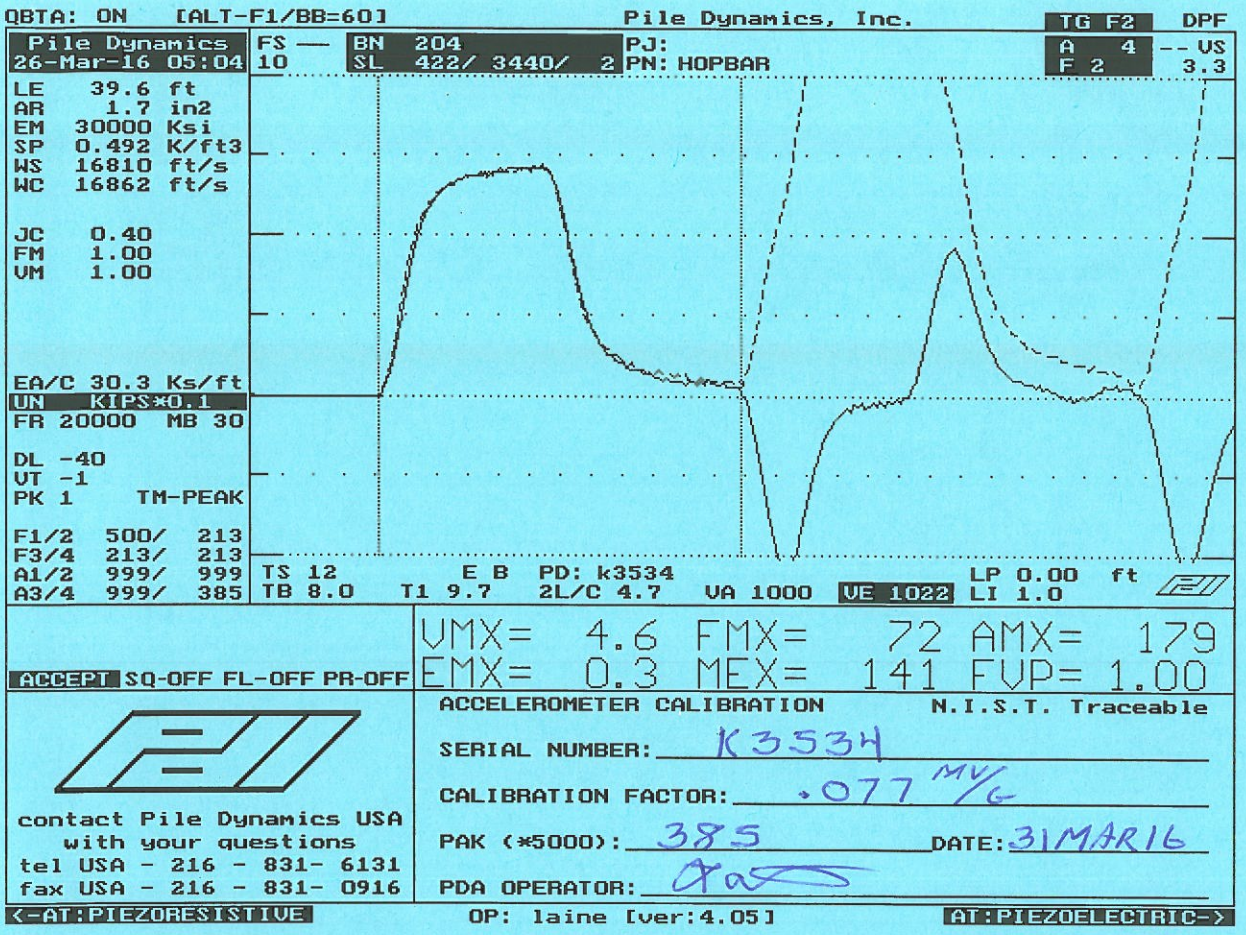
was calibrated on 30 MARCH 2016

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.

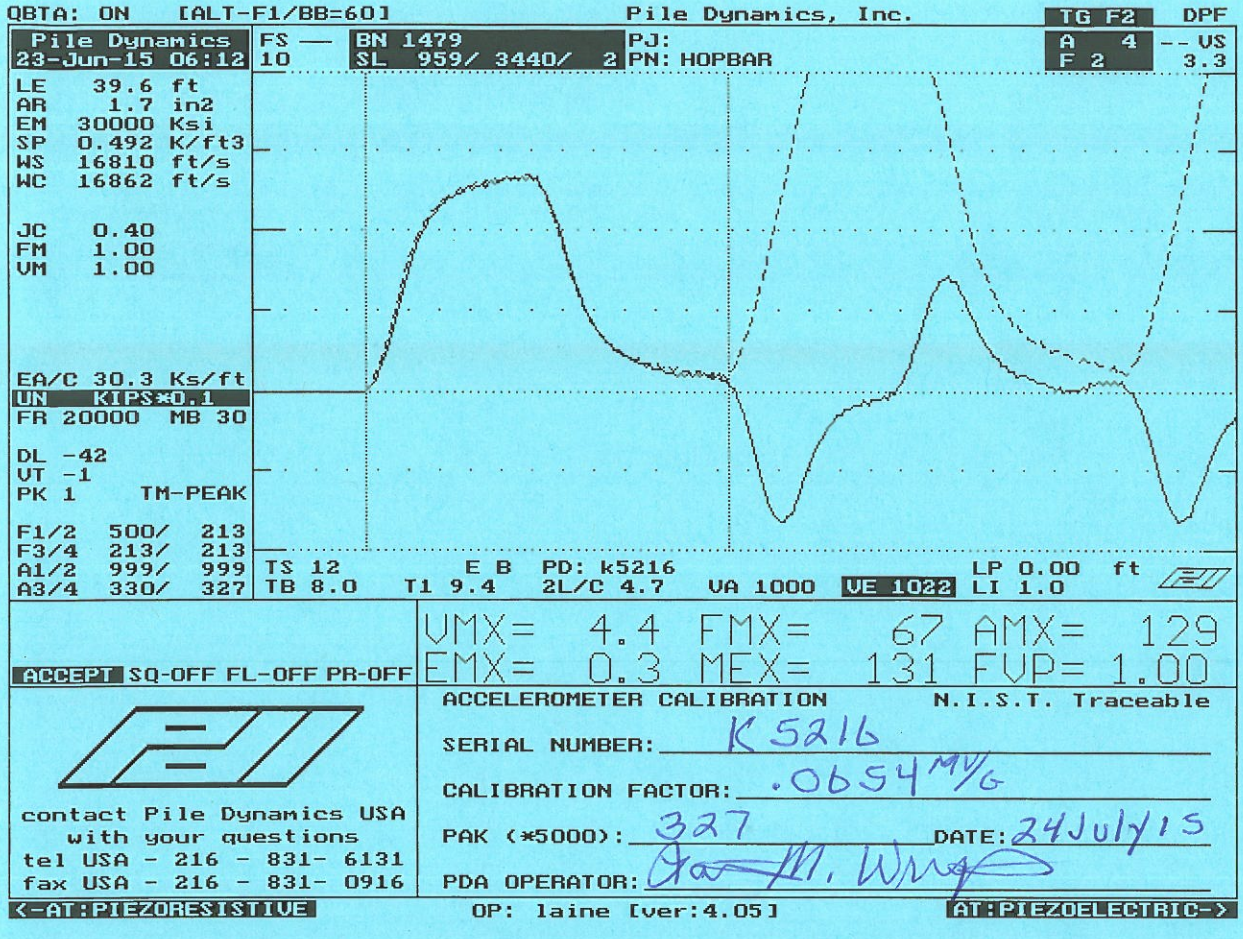
Tested by:

Pile Dynamics, Inc.
30725 Aurora Road
Cleveland, Ohio 44139 USA



Smart Sensor

Smart Chip Programmed By J.M.W. **on** 31MAR16 **CRC Value** 6BEE



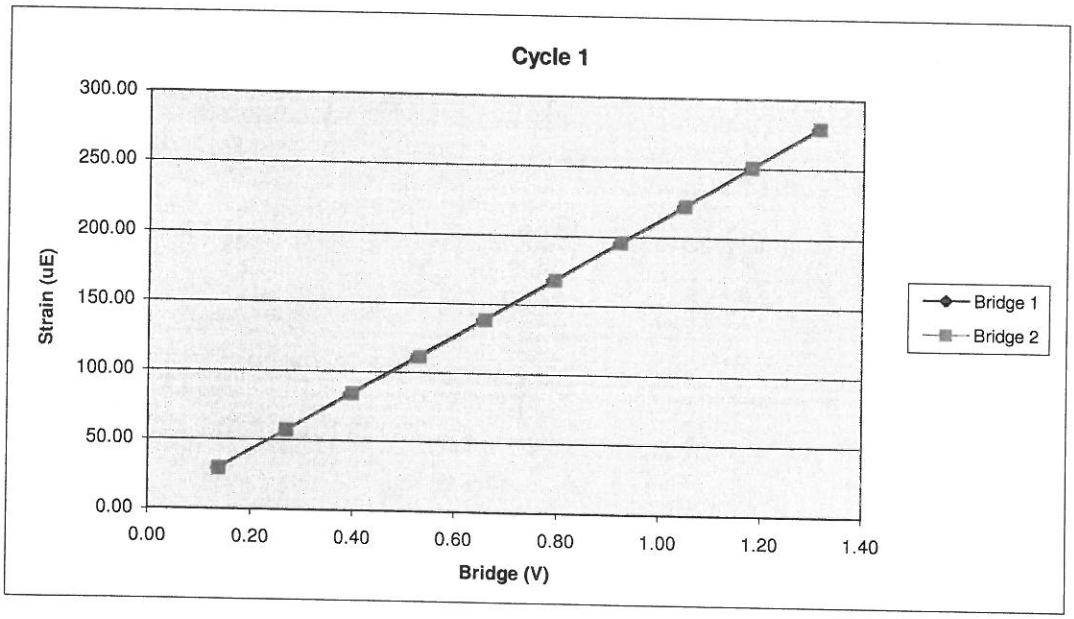
Smart Sensor

Smart Chip Programmed By D.M.W. **on** 24July15 **CRC Value** 901E

289AWJ		Cycle 1		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	1024.16	29.22	0.13	0.14
3	2028.79	56.97	0.27	0.27
4	2981.78	83.88	0.39	0.40
5	3984.84	111.33	0.53	0.53
6	4965.63	138.68	0.65	0.66
7	5989.59	167.79	0.79	0.80
8	6996.20	195.66	0.92	0.92
9	7938.73	222.12	1.04	1.05
10	8947.91	250.45	1.18	1.18
11	9967.92	279.01	1.31	1.31

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7618.09**	**Force Calibration (lb/V)**	**7610.71**
Offset	-13.14	Offset	-39.87
Correlation	0.999996	Correlation	0.999987
Strain Calibration (µE/V)	**212.85**	**Strain Calibration (µE/V)**	**212.64**
Offset	-0.04	Offset	-0.78
Correlation	0.999990	Correlation	0.999978

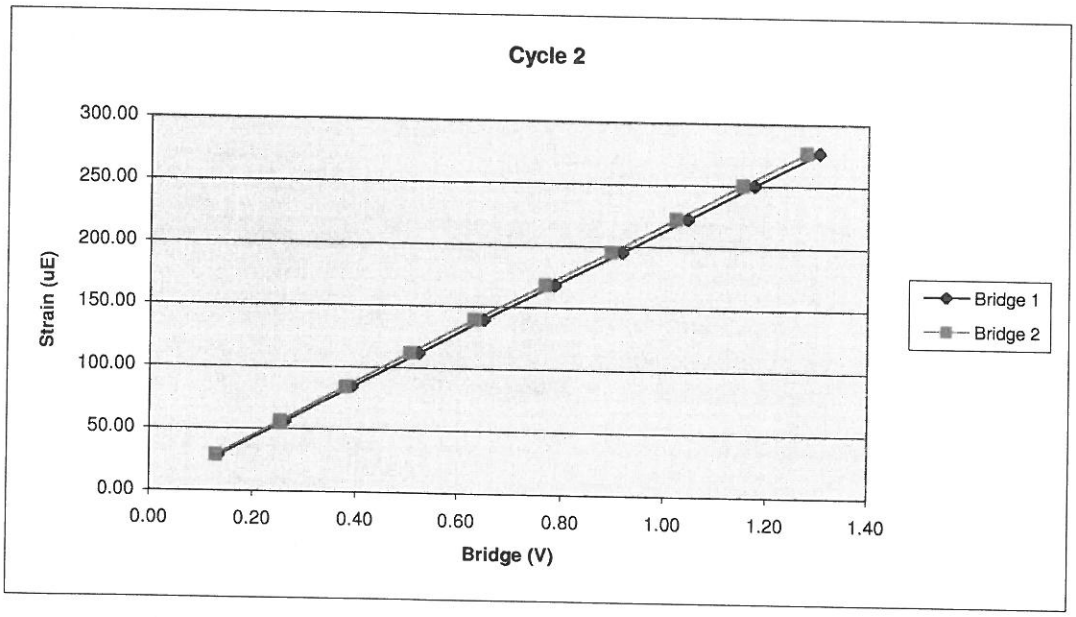
Force Strain Calibration	
EA (Kips)	**35790.91**
Offset	-11.71
Correlation	0.999996



289AWJ		Cycle 2		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	1018.44	28.54	0.13	0.13
3	1998.24	56.32	0.26	0.25
4	2985.13	84.33	0.39	0.38
5	3981.49	111.99	0.52	0.51
6	4951.83	139.32	0.65	0.63
7	5986.43	168.14	0.79	0.77
8	6977.07	195.49	0.92	0.90
9	7956.28	222.64	1.05	1.02
10	8952.84	250.23	1.18	1.15
11	9930.86	276.96	1.30	1.28

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7620.34**	**Force Calibration (lb/V)**	**7741.80**
Offset	**-6.73**	Offset	**42.71**
Correlation	**0.999998**	Correlation	**0.999993**
Strain Calibration (µE/V)	**212.37**	**Strain Calibration (µE/V)**	**215.75**
Offset	**0.66**	Offset	**2.04**
Correlation	**0.999991**	Correlation	**0.999970**

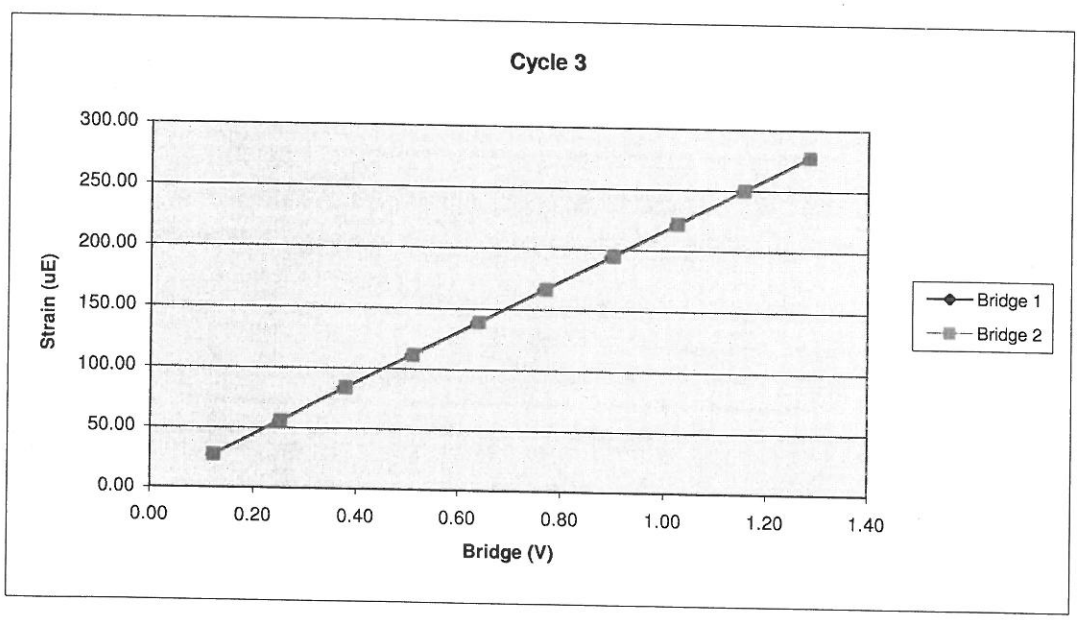
Force Strain Calibration	
EA (Kips)	**35882.26**
Offset	**-30.35**
Correlation	**0.999988**



289AWJ		Cycle 3		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	928.34	27.16	0.12	0.12
3	1925.49	55.52	0.25	0.25
4	2896.62	83.44	0.38	0.38
5	3913.08	111.22	0.51	0.51
6	4900.18	138.86	0.64	0.64
7	5884.71	166.57	0.77	0.77
8	6880.47	194.53	0.90	0.90
9	7857.91	221.37	1.02	1.03
10	8859.98	249.84	1.15	1.16
11	9849.64	277.43	1.28	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7674.57**	**Force Calibration (lb/V)**	**7668.48**
Offset	**8.78**	Offset	**-12.76**
Correlation	**0.999998**	Correlation	**0.999997**
Strain Calibration (µE/V)	**214.94**	**Strain Calibration (µE/V)**	**214.77**
Offset	**1.89**	Offset	**1.29**
Correlation	**0.999991**	Correlation	**0.999994**

Force Strain Calibration	
EA (Kips)	**35704.50**
Offset	**-58.67**
Correlation	**0.999993**



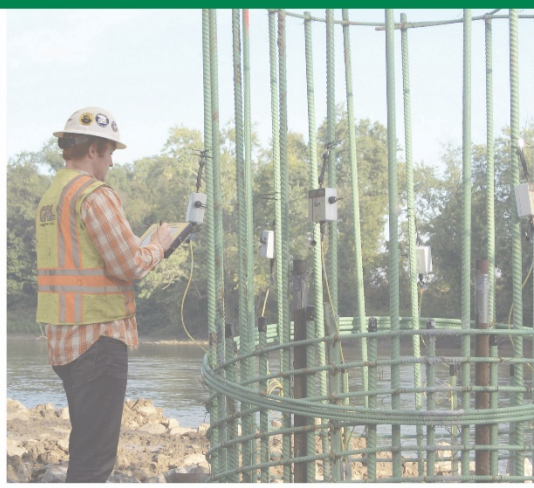
Bridge Excitation (V) 5
Shunt Resitor (ohm) 60.4k

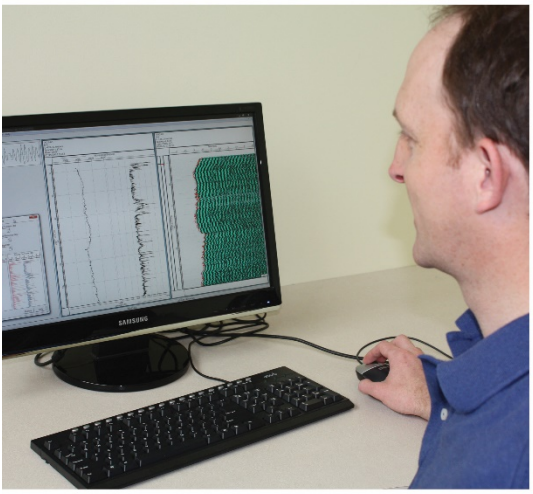
Calibration Factors	289AWJ		
Bridge 1 (µE/V)	213.39	Bridge 2 (µE/V)	214.39
EA Factor (Kips)	35792.56	Area (in^2)	1.19

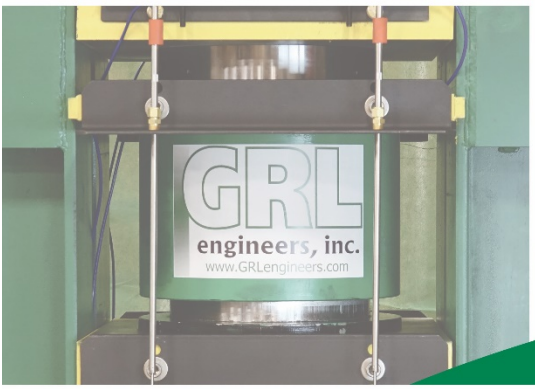
Calibrated by: David Smith
Calibrated Date: 6/26/2015

Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.







GRL engineers, inc.

Dynamic Measurements and Analyses

Job No. 179043-1

Report on: Standard Penetration Test Energy Measurements
Mecklenburg County, North Carolina

Prepared for ECS Southeast, LLC
By Scott D. Webster, P.E. and Mark A. Rawlings
August 25, 2017

August 25, 2017

Mr. Michael Bailey
ECS Southeast, LLC.
1812 Center Park Drive, Suite D
Charlotte, NC 28217

Re: Standard Penetration Test Energy Measurements
Mecklenburg County, North Carolina GRL Job No. 179043-1

Dear Mr. Bailey;

This report presents results of energy measurements obtained on August 17, 2017 during Standard Penetration Test (SPT) sampling. One automatic hammer mounted on a Diedrich D-50 drill rig owned by Patriot Drilling, LLC was tested. AW-J drill rod was used by the contractor to obtain soil samples. GRL Engineers, Inc. collected the dynamic measurements using a PAX 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 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, LLC, GRL Engineers conducted SPT energy measurements in accordance with ASTM D4633-10 during SPT sampling in a dummy borehole in Mecklenburg County, North Carolina. Specifically, we provided SPT energy measurements during three sampling events at five-foot intervals starting at a depth of 30 feet and ending at a depth of 41.5 feet below the existing ground surface. All of the SPT samples were driven for a total of three, 6 inch increments, or 1.5 feet. The soil retrieved was generally classified as brown and tan fine sandy silt.

EQUIPMENT

Drilling and SPT Hammer Equipment

Diedrich D-50 Track Mounted (Serial Number 256)

Energy measurements were made using a Diedrich automatic SPT hammer mounted on a Diedrich D-50 drill rig on a tracked chassis. Energy measurements were collected at a dummy boring location. Three samples were taken after blind drilling to the first sample depth of 30 to 31.5 feet and continuing to the final sample depth of 40 to 41.5 feet.

Instrumentation

A PAX Model Pile Driving Analyzer (PDA) 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 168 AWJ) was instrumented with two full bridge foil resistance strain gages and two piezoresistive accelerometers mounted in the midpoint location of the instrumented rod.

Analog signals from the strain gages and accelerometers were conditioned, digitized, processed and stored by the PDA. Output from the PDA for each recorded impact included the maximum calculated maximum energy transfer, (EFV); the energy transfer ratio, (ETR); the maximum calculated rod 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).

MEASUREMENTS AND CALCULATIONS

FV Energy Method (EFV)

Energy transfer to the PDA gage location was computed by the PDA using the EFV method and the force, F(t), and velocity, v(t), records as follows:

$$EFV = \int_a^b F(t) \cdot v(t) dt$$

The time "a" corresponds to the start of the record when the energy transfer begins, and "b" is the time at which energy transferred to the rod reaches a maximum value. The EFV Method is currently recognized in ASTM D4633-10, and is the theoretically correct result; therefore, no other energy calculation methods are reported.

Corrected SPT number (N_{60})

While the primary purpose of SPT energy testing is to calculate the maximum transferred energy of each hammer blow, the overall average energy transfer value can be used to calculate the corrected SPT number (N_{60}). To adjust the SPT N-values for hammer performance, the following correction as suggested by Seed for N-value adjustment to 60 percent transfer efficiency (e.g. 210 foot-pounds) was used:

$$N_{60} = \left(\frac{E_m}{210}\right) N_m$$

Where:

N_{60} = Corrected N-value
E_m = overall average measured energy transfer (EFV)
N_m =number of blows for last 12 inches of sampler penetration

A general introduction to dynamic SPT testing methods is included in Appendix A. References for more detailed descriptions of our testing and analysis methods are available upon request.

Any cross-sectional area difference between the GRL rod subsection and the drill rods, any loose connections or changes in area at section joints, or any cross-sectional area differences between the individual drill rod sections could result in stress wave reflections that could influence the energy transfer. The EFV transferred energy calculation method, utilizing both force and velocity records, is theoretically correct and gives energy transfer results that are not significantly affected by cross-sectional area changes or loose connectors. The EFV results are

included in Appendix C for all records collected and accepted after checking them for consistency.

RESULTS

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. Appendix C contains plots and tables of PDA results for all hammer blows at each dynamically monitored sampling depth, while Appendix D contains a representative plot of force and normalized velocity versus time. The PDA results include the transferred energy by the FV method, as recommended by ASTM D4633-10, EFV; the energy transfer ratio, ETR; the maximum rod top force, FMX; the maximum rod top velocity, VMX; and the hammer operating rate, BPM. The plots display PDA results versus split-spoon penetration, while the tables show the individual blow results for the N value blows and also statistical summaries for each 6 inch increment. At the end of each table is a statistical evaluation of the results which includes the average and standard deviation of the entire measurement sample.

The table below and Table 1 summarize the average transferred energy values calculated by the EFV method. The records consist of averaged hammer blows from the last 12 inches (i.e. N value) at each dynamically monitored sampling depth. 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). It should be noted that the values provided below and in Table 1 only include samples where the SPT N values were between 10 and 50 blows per foot and the rod length was greater than 30 feet.

Drill Rig	Avg. EFV (ft-lbs)	Avg. ETR (%)	Range of EFV (ft-lbs)	Range of ETR (%)
Diedrich D-50 S/N 256	294	84	289 – 297	82 – 85

CONCLUSIONS

Based upon the dynamic test data obtained, the following conclusions are presented:

1. The overall average transferred energy transfer for the Diedrich D-50 rig serial number 256 was 294 foot-pounds. The overall average energy transfer ratio was 84 percent.

2. Dynamic measurements of the transferred energy to the drill rod ranged from 289 to 297 foot-pounds. These values correspond to energy transfer ratios ranging from 82 to 85 percent of the SPT hammer energy of 350 foot-pounds.
3. Loose connections in the drill string were sometimes observed in the force and velocity records. However, energy transfer values calculated using the EFV equation are not adversely affected by the connectors and therefore are considered a valid indication of transferred energy.

Please review both ASTM D4633-10 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 A. Rawlings

Scott D. Webster, P.E.

SDW:MAR:dms

Summary of SPT Energy Measurements
ECS/Patriot Diedrich D-50 - S/N 256
Charlotte, NC - August 17, 2017

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
Boring EB1-E - Diedrich Auto Hammer - AW-J Rod								
1	30.0 - 31.5	34.0	7-5-6	11	289	82	45.7	15
2	35.0 - 36.5	39.0	2-4-6	10	292	83	44.1	14
3	40.0 - 41.5	44.0	12-13-13	26	297	85	44.1	37
				Average	**294**	**84**	**44.5**	
				Standard Deviation	**2**	**0.5**	**0.1**	

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.

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 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, EMX, 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:

$$E(t) = {}_0\int^t F(\tau)v(\tau)\, d\tau \qquad (2)$$

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.

$$e_T = EMX/E_R \qquad (3)$$

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):

$$v(t) = F(t) / Z \qquad (4)$$

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

$$EF(t) = {}_0\int^t F(\tau)^2 / Z\, d\tau \qquad (5)$$

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 if 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

$$F = v\,Z \qquad (5)$$

where Z is again the pile impedance, Z = EA/c. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v\,(E/c) \qquad (6)$$

or strain

$$\epsilon = \sigma/E = v / c \qquad (7)$$

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.

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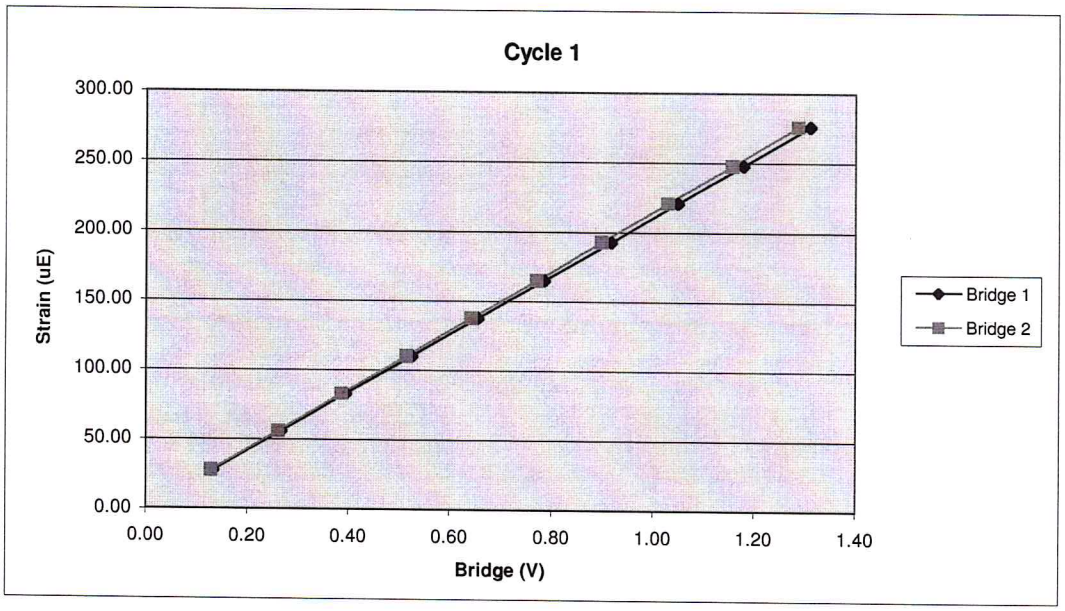
APPENDIX B

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	985.12	27.81	0.13	0.13
3	1999.42	55.96	0.27	0.26
4	2962.46	82.88	0.39	0.39
5	3948.57	110.23	0.52	0.51
6	4934.08	137.55	0.65	0.64
7	5929.06	165.07	0.79	0.77
8	6918.72	192.89	0.92	0.90
9	7919.02	220.92	1.05	1.03
10	8900.20	247.97	1.18	1.16
11	9910.36	276.00	1.31	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7574.02**	**Force Calibration (lb/V)**	**7709.66**
Offset	-21.90	Offset	-11.13
Correlation	0.999999	Correlation	0.999999
Strain Calibration (µE/V)	**210.70**	**Strain Calibration (µE/V)**	**214.48**
Offset	-0.24	Offset	0.06
Correlation	0.999999	Correlation	0.999998

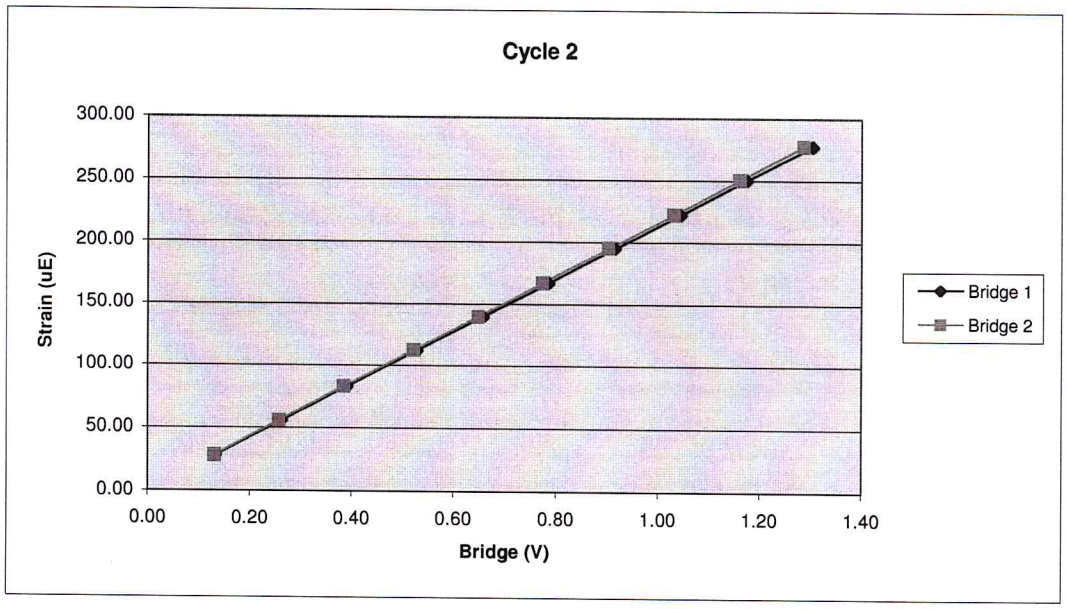
Force Strain Calibration	
EA (Kips)	**35946.33**
Offset	-13.36
Correlation	0.999999



168AWJ		Cycle 2		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	982.95	28.05	0.13	0.13
3	1974.19	55.76	0.26	0.26
4	2953.39	82.87	0.39	0.38
5	4000.42	112.22	0.53	0.52
6	4972.13	139.35	0.66	0.65
7	5950.75	167.00	0.79	0.77
8	6945.33	194.94	0.92	0.90
9	7917.84	222.00	1.04	1.03
10	8919.91	250.27	1.17	1.16
11	9896.36	277.50	1.30	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7606.16**	**Force Calibration (lb/V)**	**7700.14**
Offset	**-19.82**	Offset	**-11.88**
Correlation	**0.999999**	Correlation	**0.999998**
Strain Calibration (µE/V)	**213.01**	**Strain Calibration (µE/V)**	**215.64**
Offset	**-0.22**	Offset	**0.00**
Correlation	**0.999997**	Correlation	**0.999997**

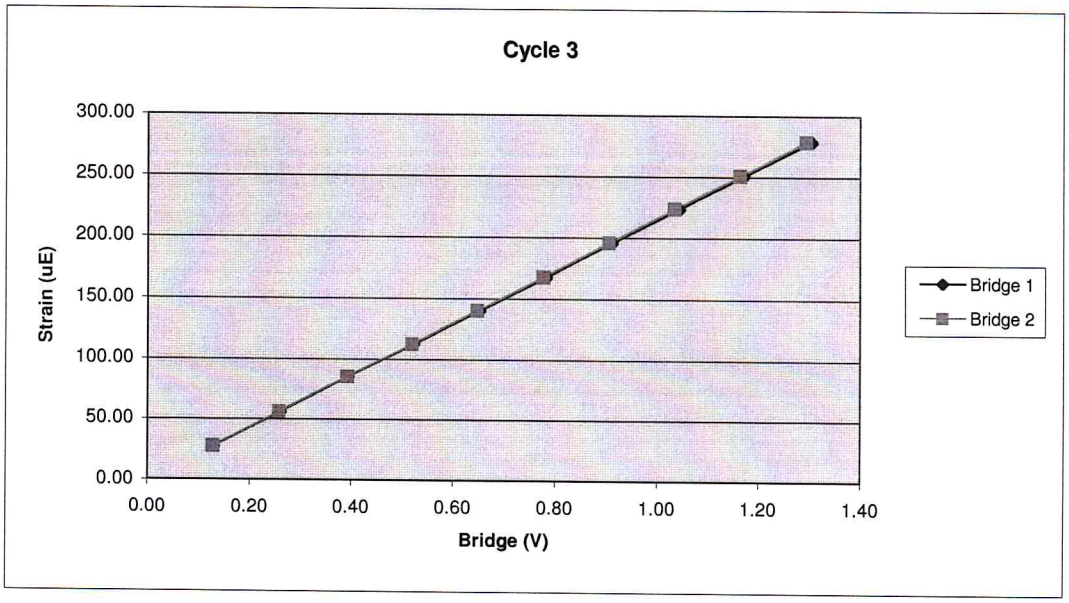
Force Strain Calibration	
EA (Kips)	**35708.56**
Offset	**-11.96**
Correlation	**0.999998**



168AWJ		Cycle 3		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	976.84	27.67	0.13	0.13
3	1972.21	55.77	0.26	0.26
4	3006.62	85.22	0.39	0.39
5	3988.79	112.54	0.52	0.52
6	4966.61	140.12	0.65	0.65
7	5959.03	167.81	0.78	0.78
8	6952.23	195.83	0.91	0.91
9	7951.15	223.79	1.04	1.03
10	8937.66	250.72	1.17	1.16
11	9937.17	278.64	1.30	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7629.36**	**Force Calibration (lb/V)**	**7688.81**
Offset	**-3.45**	Offset	**-7.58**
Correlation	**0.999997**	Correlation	**0.999999**
Strain Calibration (µE/V)	**213.70**	**Strain Calibration (µE/V)**	**215.36**
Offset	**0.65**	Offset	**0.53**
Correlation	**0.999990**	Correlation	**0.999994**

Force Strain Calibration	
EA (Kips)	**35701.55**
Offset	**-26.47**
Correlation	**0.999992**



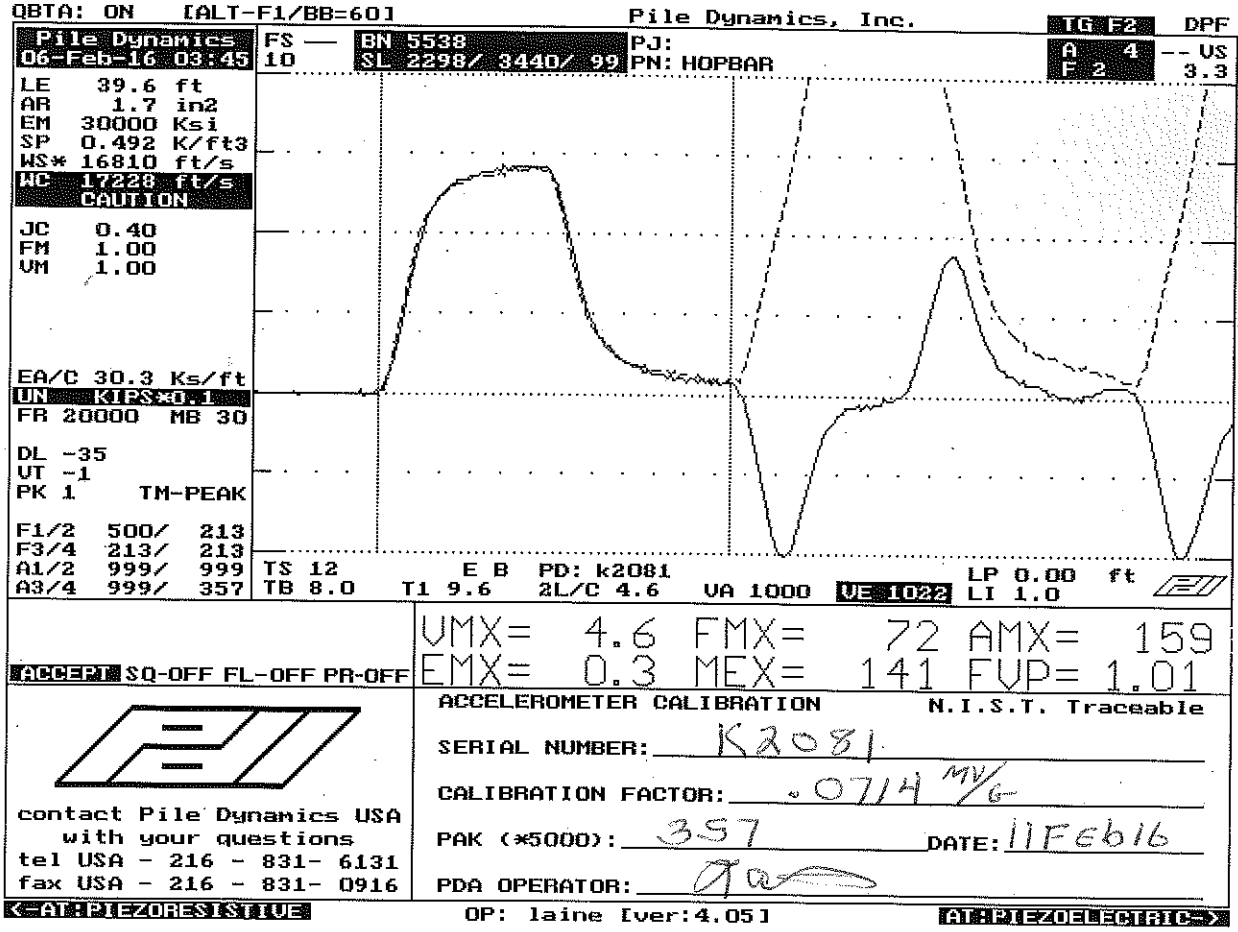
Bridge Excitation (V) 5
Shunt Resitor (ohm) 60.4k

Calibration Factors	168AWJ		
Bridge 1 (µE/V)	212.47	Bridge 2 (µE/V)	215.16
EA Factor (Kips)	35785.48	Area (in^2)	1.19

Calibrated by: David Bennett
Calibrated Date: 9/21/2015

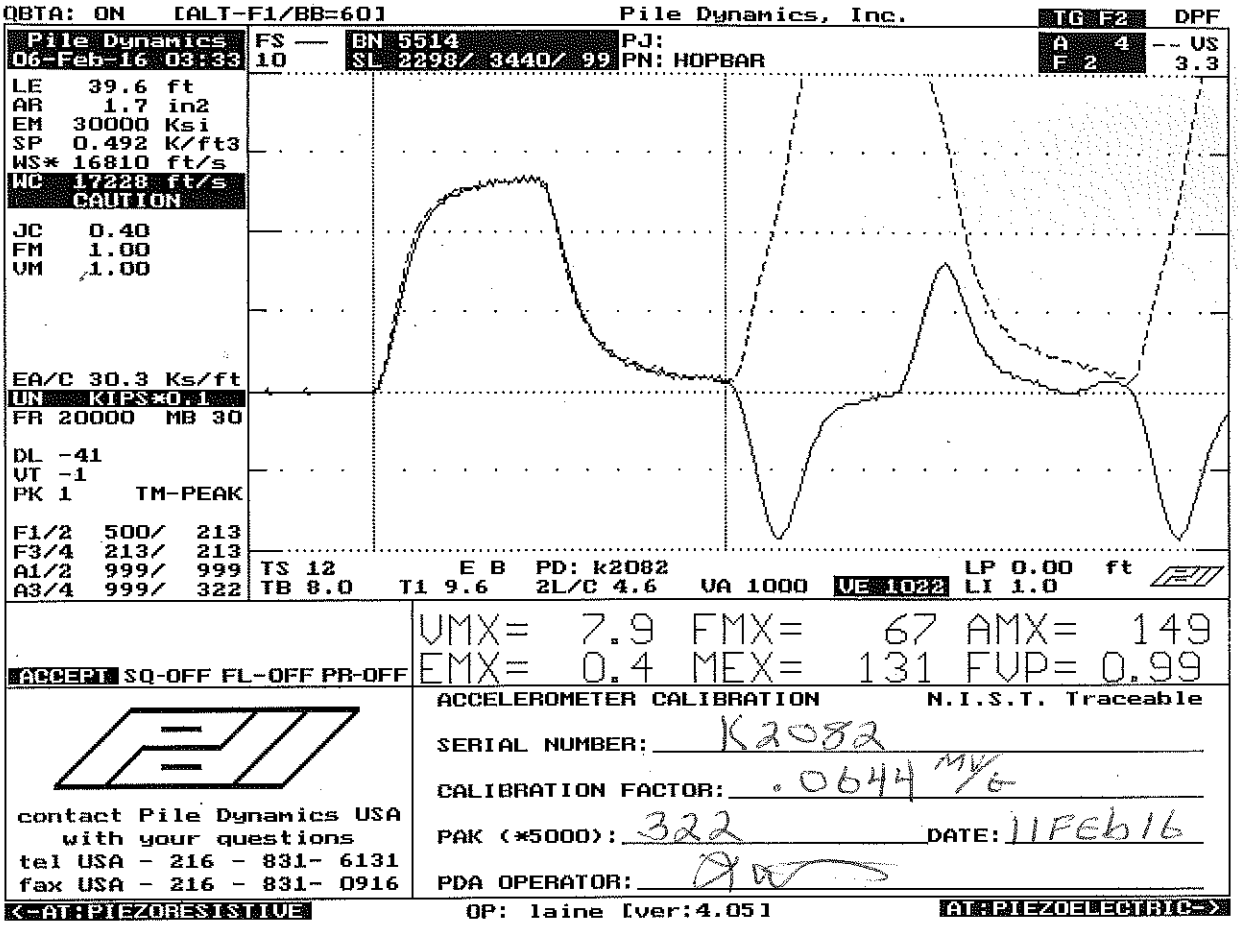
Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.



Smart Sensor

Smart Chip Programmed By J.M.W. **on** 11Feb16 **CRC Value** 5AC1


QBTA: ON [ALT-F1/BB=60] Pile Dynamics, Inc. TG F2 DPF
Pile Dynamics
06-Feb-16 03:33
FS ——
10
BN 5514
SL 2298/ 3440/ 99
PJ:
PN: HOPBAR
A 4
F 2
-- VS
3.3
LE 39.6 ft
AR 1.7 in2
EM 30000 Ksi
SP 0.492 K/ft3
WS* 16810 ft/s
WC 17228 ft/s
CAUTION
JC 0.40
FM 1.00
VM 1.00
EA/C 30.3 Ks/ft
UN KIPS*0.1
FR 20000 MB 30
DL -41
VT -1
PK 1 TM-PEAK
F1/2 500/ 213
F3/4 213/ 213
A1/2 999/ 999
A3/4 999/ 322
TS 12 E B PD: k2082 LP 0.00 ft
TB 8.0 T1 9.6 2L/C 4.6 VA 1000 VE 1022 LI 1.0
VMX= 7.9 FMX= 67 AMX= 149
EMX= 0.4 MEX= 131 FVP= 0.99
ACCEPT SQ-OFF FL-OFF PR-OFF
contact Pile Dynamics USA
with your questions
tel USA - 216 - 831- 6131
fax USA - 216 - 831- 0916
ACCELEROMETER CALIBRATION N.I.S.T. Traceable
SERIAL NUMBER: K2082
CALIBRATION FACTOR: .0644 MV/G
PAK (*5000): 322 DATE: 11Feb16
PDA OPERATOR:
<-AT:PIEZORESISTIVE OP: laine [ver:4.05] AT:PIEZOELECTRIC->
Smart Sensor
Smart Chip Programmed By R.M.N. on 11Feb16 CRC Value CBFD

PDCA
PILE DRIVING CONTRACTORS ASSOCIATION

This documents that

Pile Dynamics, Inc.

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

SEAL

Garland Likins, Senior Partner
Pile Dynamics, Inc.

No. 2181

APPENDIX C

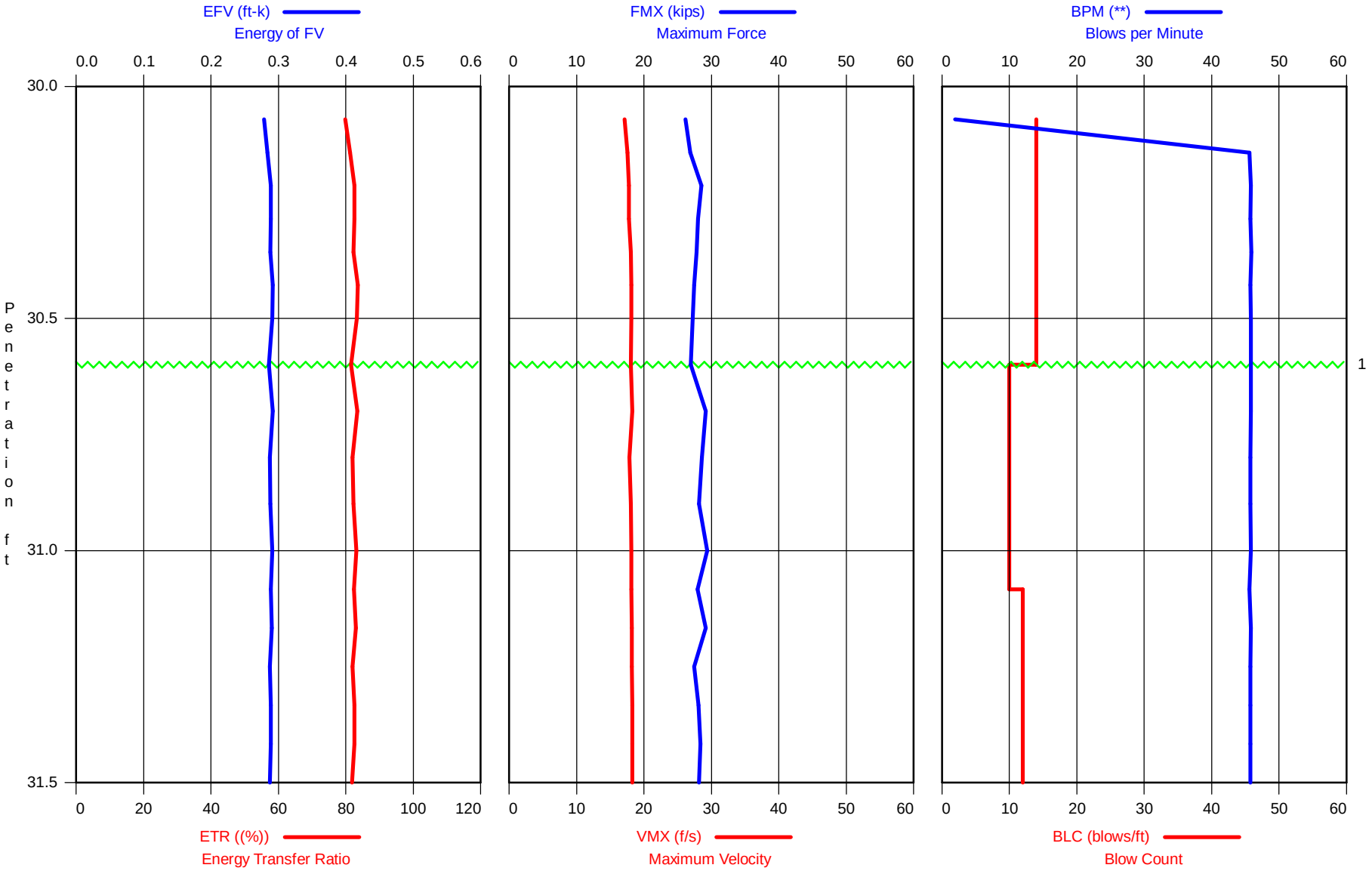
Dynamic Energy Measurement Results

GRL Engineers, Inc. - Case Method & iCAP® Results

PDIPLOT Ver. 2014.2 - Printed: 18-Aug-2017

Test date: 17-Aug-2017

ECS-Patriot SPT Calibration - Boring 1A, Sample 1
Diedrich D-50 S/N 265, AW-J Rod



1 - Start of N value blows

ECS-Patriot SPT Calibration - Boring 1A, Sample 1
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 34.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL#	BLC	EFV	ETR	FMX	VMX	BPM	DMX	DFN	CSX
	bl/ft	ft-k	(%)	kips	f/s	**	in	in	ksi
8	10	0.286	81.6	27.0	18.0	45.8	1.36	1.20	22.6
9	10	0.292	83.4	29.2	18.3	45.8	1.43	1.20	24.5
10	10	0.287	82.0	28.6	17.8	45.7	1.38	1.20	24.0
11	10	0.288	82.3	28.2	18.1	45.7	1.37	1.20	23.7
12	10	0.291	83.1	29.4	18.1	45.8	1.38	1.20	24.7
13	12	0.289	82.4	28.0	18.1	45.6	1.20	1.00	23.5
14	12	0.290	83.0	29.2	18.2	45.8	1.13	1.00	24.5
15	12	0.287	82.0	27.4	18.2	45.7	1.05	1.00	23.0
16	12	0.289	82.5	28.1	18.3	45.7	1.00	1.00	23.6
17	12	0.289	82.5	28.4	18.2	45.7	1.00	1.00	23.9
18	12	0.287	81.9	28.2	18.3	45.7	1.06	1.00	23.7
Average		0.289	82.4	28.3	18.2	45.7	1.21	1.09	23.8
Std. Dev.		0.002	0.5	0.7	0.1	0.1	0.16	0.10	0.6
Maximum		0.292	83.4	29.4	18.3	45.8	1.43	1.20	24.7
Minimum		0.286	81.6	27.0	17.8	45.6	1.00	1.00	22.6

Total number of blows analyzed: 11

BL#	Comments
8	Start of N value blows

Time Summary

Drive 22 seconds 9:34:21 AM - 9:34:43 AM (8/17/2017) BN 1 - 18

ECS-Patriot SPT Calibration - Boring 1A, Sample 1
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 34.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL# end	depth ft	BLC bl/ft	TYPE	EFV ft-k	ETR (%)	FMX kips	VMX f/s	BPM **	DMX in	DFN in	CSX ksi
7	30.50	14	AV7	0.287	82.2	27.4	17.8	39.5	1.18	0.86	23.1
			STD	0.004	1.2	0.7	0.3	15.3	0.20	0.00	0.6
			MAX	0.292	83.5	28.5	18.2	45.9	1.63	0.86	23.9
			MIN	0.279	79.8	26.1	17.1	1.9	1.01	0.86	22.0
12	31.00	10	AV5	0.289	82.5	28.5	18.1	45.8	1.38	1.20	23.9
			STD	0.002	0.7	0.9	0.1	0.0	0.02	0.00	0.7
			MAX	0.292	83.4	29.4	18.3	45.8	1.43	1.20	24.7
			MIN	0.286	81.6	27.0	17.8	45.7	1.36	1.20	22.6
18	31.50	12	AV6	0.288	82.4	28.2	18.2	45.7	1.07	1.00	23.7
			STD	0.001	0.4	0.5	0.1	0.1	0.07	0.00	0.4
			MAX	0.290	83.0	29.2	18.3	45.8	1.20	1.00	24.5
			MIN	0.287	81.9	27.4	18.1	45.6	1.00	1.00	23.0
			Average	0.288	82.3	28.0	18.0	43.3	1.20	1.00	23.5
			Std. Dev.	0.003	0.8	0.8	0.3	10.0	0.18	0.14	0.7
			Maximum	0.292	83.5	29.4	18.3	45.9	1.63	1.20	24.7
			Minimum	0.279	79.8	26.1	17.1	1.9	1.00	0.86	22.0

Total number of blows analyzed: 18

BL#	depth (ft)	Comments
8	30.60	Start of N value blows

Time Summary

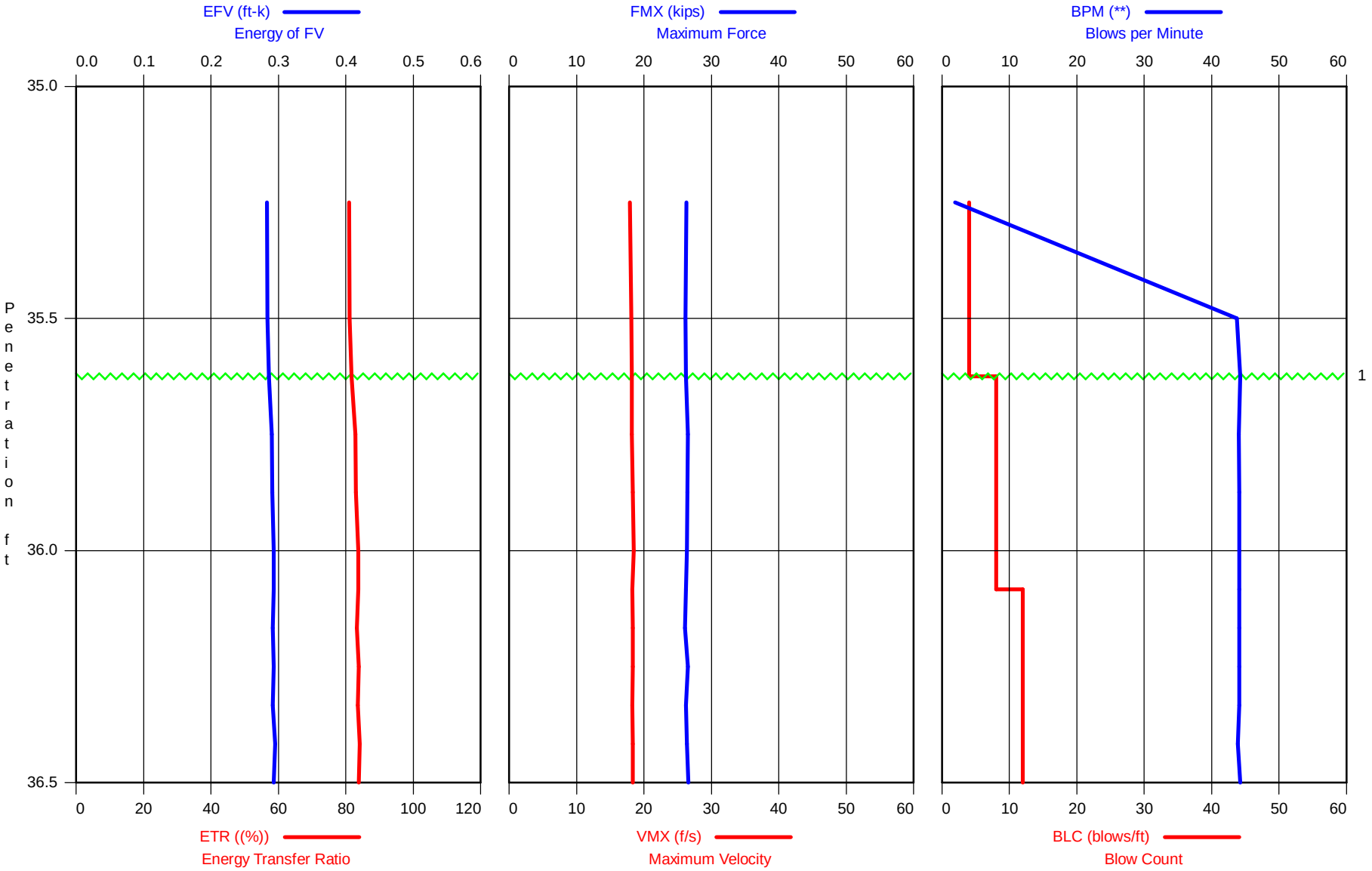
Drive 22 seconds 9:34:21 AM - 9:34:43 AM (8/17/2017) BN 1 - 18

GRL Engineers, Inc. - Case Method & iCAP® Results

PDIPLOT Ver. 2014.2 - Printed: 18-Aug-2017

Test date: 17-Aug-2017

ECS-Patriot SPT Calibration - Boring 1A, Sample 2
Diedrich D-50 S/N 265, AW-J Rod



1 - Start of N value blows

ECS-Patriot SPT Calibration - Boring 1A, Sample 2
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 39.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL#	BLC	EFV	ETR	FMX	VMX	BPM	DMX	DFN	CSX
	bl/ft	ft-k	(%)	kips	f/s	**	in	in	ksi
3	8	0.286	81.7	26.2	18.2	44.2	1.73	1.50	22.0
4	8	0.290	82.8	26.5	18.2	44.0	1.65	1.50	22.3
5	8	0.291	83.0	26.5	18.4	44.1	1.59	1.50	22.3
6	8	0.293	83.7	26.4	18.5	44.1	1.53	1.50	22.2
7	12	0.293	83.7	26.2	18.3	44.1	1.35	1.00	22.1
8	12	0.292	83.3	26.1	18.3	44.1	1.24	1.00	21.9
9	12	0.293	83.8	26.5	18.4	44.1	1.15	1.00	22.3
10	12	0.292	83.5	26.2	18.3	44.1	1.10	1.00	22.1
11	12	0.295	84.2	26.4	18.4	43.9	1.06	1.00	22.2
12	12	0.293	83.8	26.6	18.4	44.2	1.00	1.00	22.4
Average		0.292	83.4	26.4	18.3	44.1	1.34	1.20	22.2
Std. Dev.		0.002	0.7	0.2	0.1	0.1	0.25	0.24	0.1
Maximum		0.295	84.2	26.6	18.5	44.2	1.73	1.50	22.4
Minimum		0.286	81.7	26.1	18.2	43.9	1.00	1.00	21.9

Total number of blows analyzed: 10

BL#	Comments
3	Start of N value blows

Time Summary

Drive 15 seconds 9:41:34 AM - 9:41:49 AM (8/17/2017) BN 1 - 12

ECS-Patriot SPT Calibration - Boring 1A, Sample 2
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 39.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL# end	depth ft	BLC bl/ft	TYPE	EFV ft-k	ETR (%)	FMX kips	VMX f/s	BPM **	DMX in	DFN in	CSX ksi
2	35.50	4	AV2	0.284	81.0	26.2	18.0	22.8	3.00	3.00	22.0
			STD	0.000	0.1	0.1	0.1	20.9	0.00	0.00	0.1
			MAX	0.284	81.1	26.3	18.1	43.7	3.00	3.00	22.1
			MIN	0.283	80.9	26.2	17.9	1.9	3.00	3.00	22.0
6	36.00	8	AV4	0.290	82.8	26.4	18.3	44.1	1.62	1.50	22.2
			STD	0.003	0.7	0.1	0.1	0.1	0.07	0.00	0.1
			MAX	0.293	83.7	26.5	18.5	44.2	1.73	1.50	22.3
			MIN	0.286	81.7	26.2	18.2	44.0	1.53	1.50	22.0
12	36.50	12	AV6	0.293	83.7	26.4	18.3	44.1	1.15	1.00	22.1
			STD	0.001	0.3	0.2	0.0	0.1	0.11	0.00	0.1
			MAX	0.295	84.2	26.6	18.4	44.2	1.35	1.00	22.4
			MIN	0.292	83.3	26.1	18.3	43.9	1.00	1.00	21.9
			Average	0.290	83.0	26.4	18.3	40.5	1.61	1.50	22.1
			Std. Dev.	0.004	1.1	0.2	0.1	11.7	0.66	0.71	0.1
			Maximum	0.295	84.2	26.6	18.5	44.2	3.00	3.00	22.4
			Minimum	0.283	80.9	26.1	17.9	1.9	1.00	1.00	21.9

Total number of blows analyzed: 12

BL#	depth (ft)	Comments
3	35.63	Start of N value blows

Time Summary

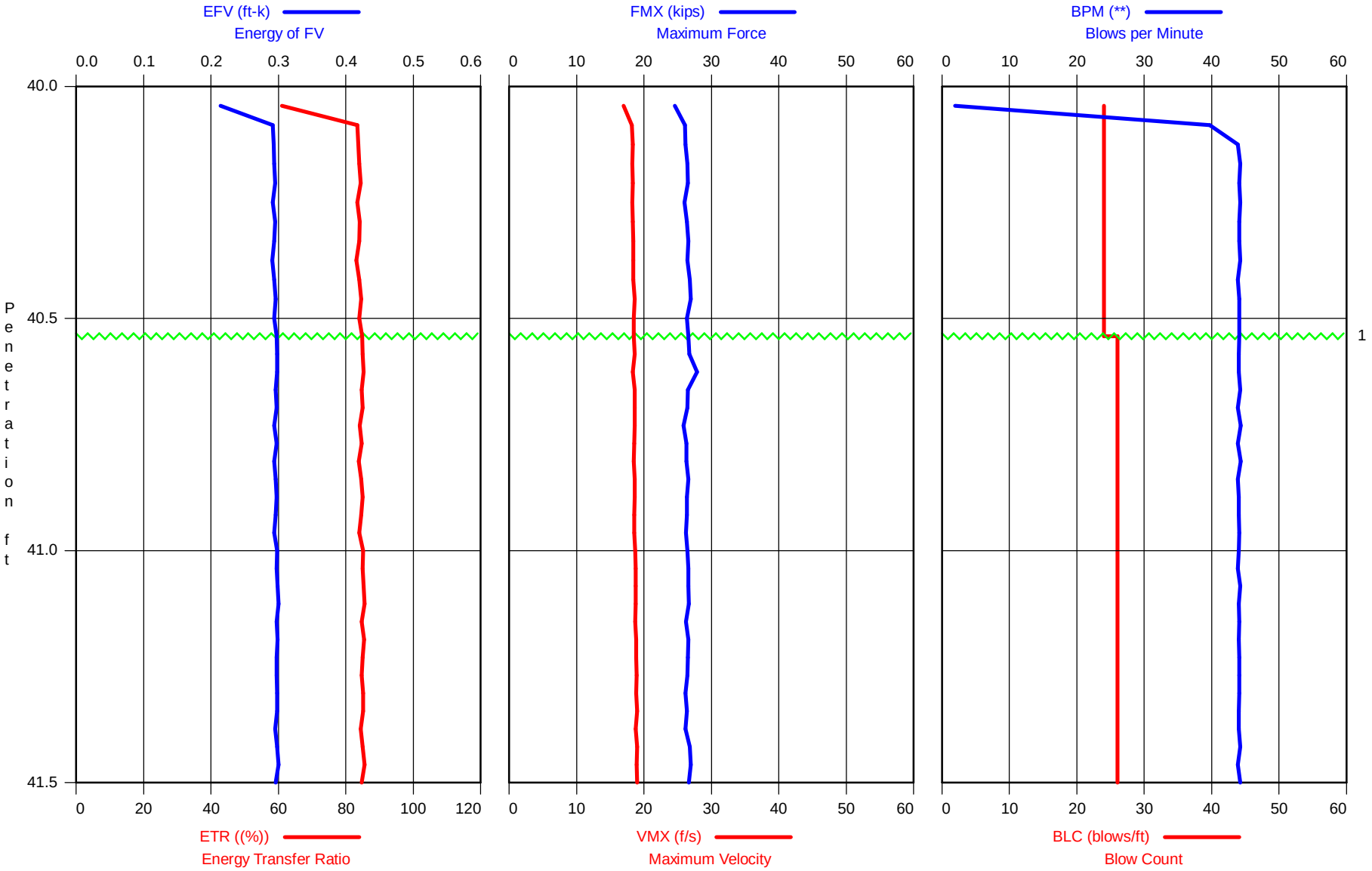
Drive 15 seconds 9:41:34 AM - 9:41:49 AM (8/17/2017) BN 1 - 12

GRL Engineers, Inc. - Case Method & iCAP® Results

PDIPLOT Ver. 2014.2 - Printed: 18-Aug-2017

Test date: 17-Aug-2017

ECS-Patriot SPT Calibration - Boring 1A, Sample 3
Diedrich D-50 S/N 265, AW-J Rod



1 - Start of N value blows

ECS-Patriot SPT Calibration - Boring 1A, Sample 3
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 44.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL#	BLC	EFV	ETR	FMX	VMX	BPM	DMX	DFN	CSX
	bl/ft	ft-k	(%)	kips	f/s	**	in	in	ksi
13	26	0.297	84.8	26.6	18.5	44.1	0.54	0.46	22.4
14	26	0.298	85.0	26.7	18.6	44.0	0.55	0.46	22.4
15	26	0.298	85.2	27.9	18.4	44.0	0.56	0.46	23.4
16	26	0.296	84.7	26.5	18.6	44.2	0.55	0.46	22.3
17	26	0.297	85.0	26.5	18.6	43.9	0.56	0.46	22.2
18	26	0.294	84.1	25.8	18.7	44.3	0.56	0.46	21.7
19	26	0.297	84.8	26.3	18.5	43.9	0.56	0.46	22.1
20	26	0.294	83.9	26.3	18.5	44.3	0.56	0.46	22.1
21	26	0.296	84.6	26.6	18.6	43.9	0.57	0.46	22.4
22	26	0.297	85.0	26.4	18.6	44.0	0.58	0.46	22.2
23	26	0.296	84.5	26.4	18.6	44.0	0.56	0.46	22.2
24	26	0.294	84.0	26.2	18.6	44.1	0.56	0.46	22.1
25	26	0.298	85.1	26.4	18.7	44.0	0.57	0.46	22.2
26	26	0.297	85.0	26.6	18.8	43.9	0.57	0.46	22.4
27	26	0.299	85.3	26.6	18.8	44.2	0.58	0.46	22.3
28	26	0.300	85.6	26.7	18.8	44.0	0.59	0.46	22.4
29	26	0.297	84.8	26.2	18.7	44.1	0.57	0.46	22.0
30	26	0.299	85.4	26.6	18.8	44.0	0.55	0.46	22.3
31	26	0.297	85.0	26.5	18.8	44.1	0.54	0.46	22.3
32	26	0.297	84.8	26.5	18.9	44.1	0.55	0.46	22.2
33	26	0.298	85.1	26.2	18.8	44.1	0.56	0.46	22.0
34	26	0.298	85.1	26.4	19.0	44.0	0.56	0.46	22.2
35	26	0.295	84.4	26.2	18.8	44.0	0.56	0.46	22.0
36	26	0.298	85.0	26.8	19.0	44.2	0.56	0.46	22.5
37	26	0.300	85.6	26.9	19.0	43.9	0.57	0.46	22.6
38	26	0.296	84.7	26.6	19.0	44.2	0.53	0.46	22.4
Average		0.297	84.9	26.5	18.7	44.1	0.56	0.46	22.3
Std. Dev.		0.002	0.4	0.4	0.2	0.1	0.01	0.00	0.3
Maximum		0.300	85.6	27.9	19.0	44.3	0.59	0.46	23.4
Minimum		0.294	83.9	25.8	18.4	43.9	0.53	0.46	21.7

Total number of blows analyzed: 26

BL#	Comments
13	Start of N value blows

Time Summary

Drive 51 seconds 9:49:24 AM - 9:50:15 AM (8/17/2017) BN 1 - 38

ECS-Patriot SPT Calibration - Boring 1A, Sample 3
OP: MR

Diedrich D-50 S/N 265, AW-J Rod
Test date: 17-Aug-2017

AR: 1.19 in^2
LE: 44.00 ft
WS: 16,807.9 f/s

SP: 0.492 k/ft3
EM: 30,000 ksi
JC: 0.00

EFV: Energy of FV
ETR: Energy Transfer Ratio
FMX: Maximum Force
VMX: Maximum Velocity

BPM: Blows per Minute
DMX: Maximum Displacement
DFN: Final Displacement
CSX: Max Measured Compr. Stress

BL# end	depth ft	BLC bl/ft	TYPE	EFV ft-k	ETR (%)	FMX kips	VMX f/s	BPM **	DMX in	DFN in	CSX ksi
12	40.50	24	AV12	0.287	82.0	26.3	18.3	40.2	0.67	0.50	22.1
			STD	0.022	6.3	0.6	0.4	11.6	0.18	0.00	0.5
			MAX	0.296	84.5	26.9	18.6	44.2	1.11	0.50	22.6
			MIN	0.214	61.0	24.5	17.0	1.9	0.52	0.49	20.6
25	41.00	26	AV13	0.296	84.7	26.5	18.6	44.1	0.56	0.46	22.3
			STD	0.001	0.4	0.4	0.1	0.1	0.01	0.00	0.4
			MAX	0.298	85.2	27.9	18.7	44.3	0.58	0.46	23.4
			MIN	0.294	83.9	25.8	18.4	43.9	0.54	0.46	21.7
38	41.50	26	AV13	0.298	85.1	26.5	18.8	44.1	0.56	0.46	22.3
			STD	0.001	0.3	0.2	0.1	0.1	0.02	0.00	0.2
			MAX	0.300	85.6	26.9	19.0	44.2	0.59	0.46	22.6
			MIN	0.295	84.4	26.2	18.7	43.9	0.53	0.46	22.0
			Average	0.294	84.0	26.4	18.6	42.8	0.60	0.47	22.2
			Std. Dev.	0.013	3.8	0.5	0.3	6.8	0.12	0.02	0.4
			Maximum	0.300	85.6	27.9	19.0	44.3	1.11	0.50	23.4
			Minimum	0.214	61.0	24.5	17.0	1.9	0.52	0.46	20.6

Total number of blows analyzed: 38

BL#	depth (ft)	Comments
13	40.54	Start of N value blows

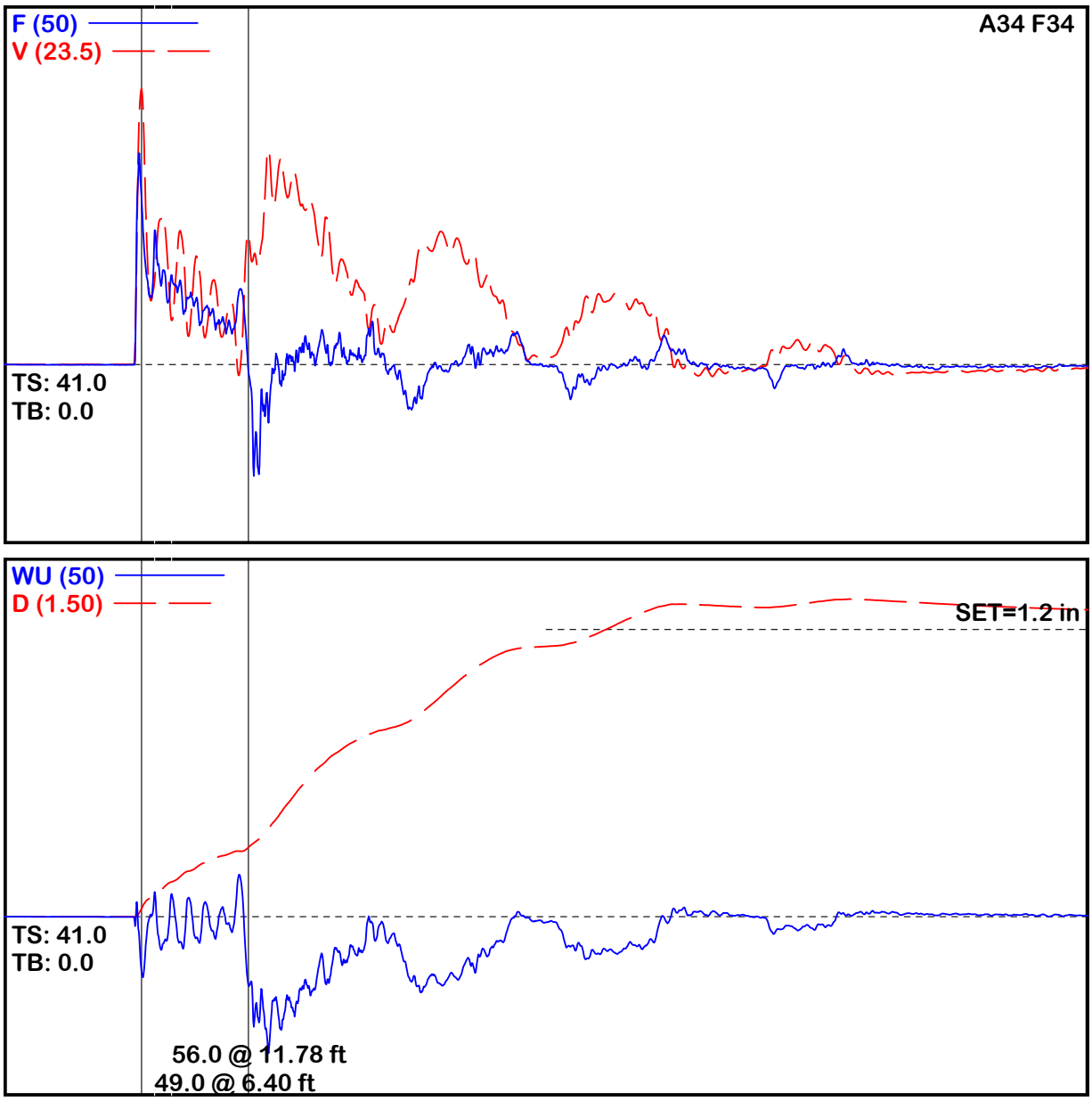
Time Summary

Drive 51 seconds 9:49:24 AM - 9:50:15 AM (8/17/2017) BN 1 - 38

APPENDIX D

Force and Velocity Plots

ECS-Patriot SPT Calibration Boring 1A, Sample 1



Project Information

PROJECT: ECS-Patriot SPT Calibration
PILE NAME: Boring 1A, Sample 1
DESCR: Diedrich D-50 S/N 265, AW-J Rod
OPERATOR: MR
FILE: Sample 1.W01
8/17/2017 9:34:35 AM
Blow Number 12

Pile Properties

LE	34.00	ft
AR	1.19	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	4.04	ms
JC		[]
LP	31.00	ft

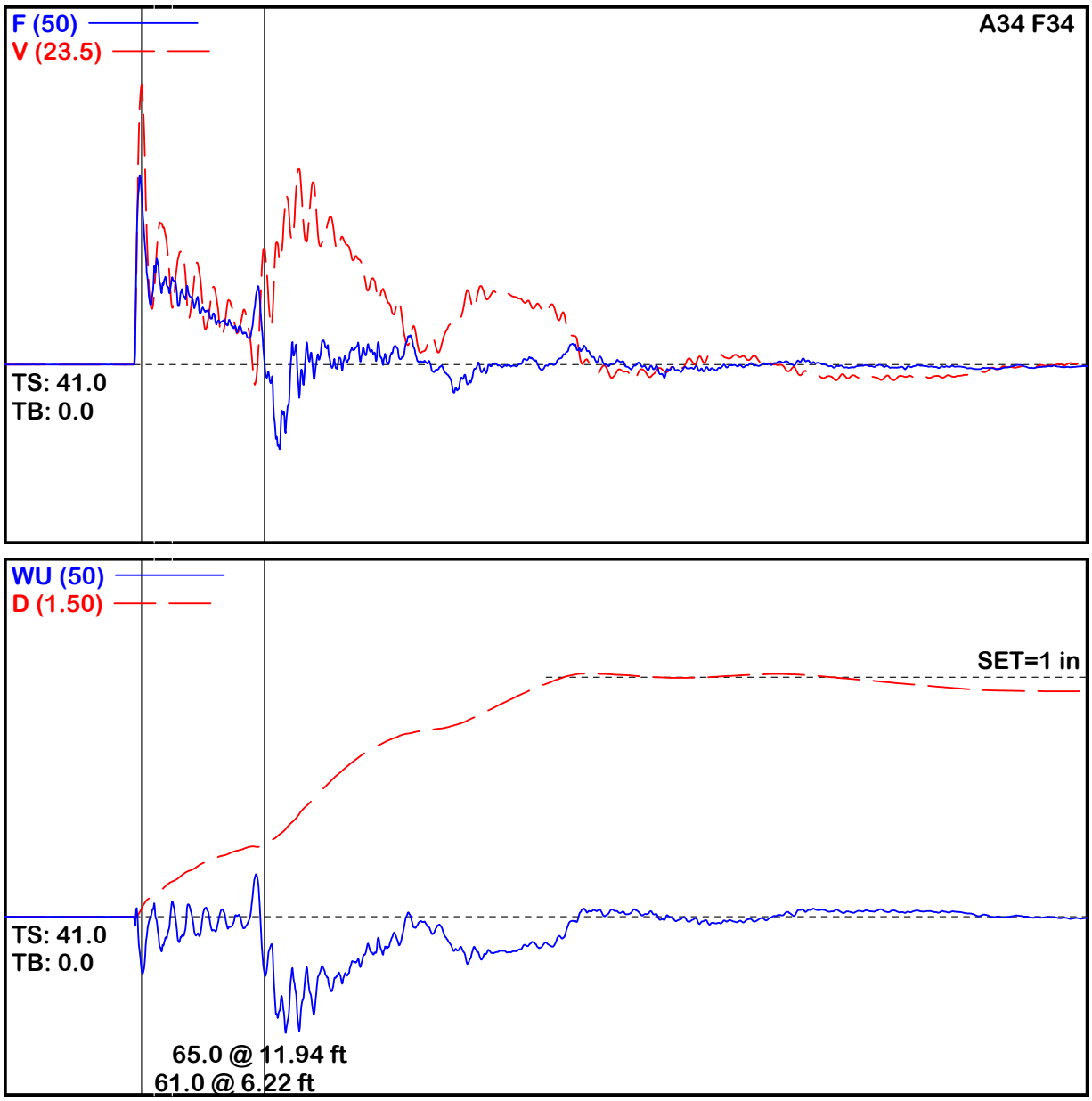
Quantity Results

EFV	0.291	ft-k
ETR	83.1	(%)
FMX	29	kips
VMX	18.1	f/s
BPM	45.8	bpm
DMX	1.38	in
DFN	1.20	in
CSX	24.7	ksi
FVP	0.61	[]

Sensors

F3: [168 AWJ-1] 212.47 (1)
F4: [168 AWJ-2] 215.16 (1)
A3: [K 2081] 357 mv/5000g's (1)
A4: [K 2082] 322 mv/5000g's (1)
CLIP: OK

ECS-Patriot SPT Calibration Boring 1A, Sample 2



Project Information

PROJECT: ECS-Patriot SPT Calibration
PILE NAME: Boring 1A, Sample 2
DESCR: Diedrich D-50 S/N 265, AW-J Rod
OPERATOR: MR
FILE: Sample 2.W01
8/17/2017 9:41:47 AM
Blow Number 11

Pile Properties

LE	39.00	ft
AR	1.19	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	4.64	ms
JC		[]
LP	36.42	ft

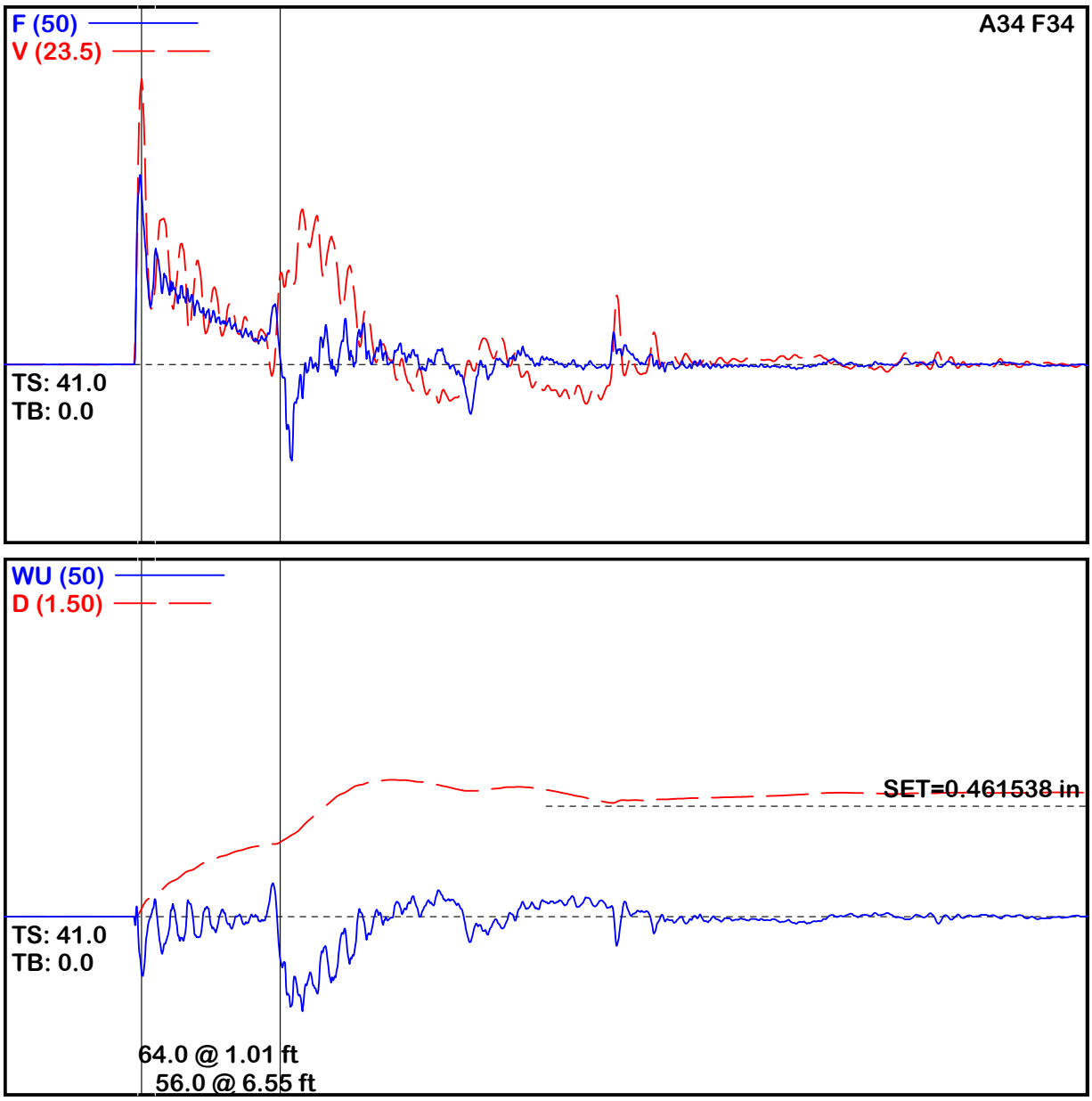
Quantity Results

EFV	0.295	ft-k
ETR	84.2	(%)
FMX	26	kips
VMX	18.4	f/s
BPM	43.9	bpm
DMX	1.06	in
DFN	1.00	in
CSX	22.2	ksi
FVP	0.62	[]

Sensors

F3: [168 AWJ-1] 212.47 (1)
F4: [168 AWJ-2] 215.16 (1)
A3: [K 2081] 357 mv/5000g's (1)
A4: [K 2082] 322 mv/5000g's (1)
CLIP: OK

ECS-Patriot SPT Calibration Boring 1A, Sample 3



Project Information

PROJECT: ECS-Patriot SPT Calibration
PILE NAME: Boring 1A, Sample 3
DESCR: Diedrich D-50 S/N 265, AW-J Rod
OPERATOR: MR
FILE: Sample 3.W01
8/17/2017 9:49:56 AM
Blow Number 25

Pile Properties

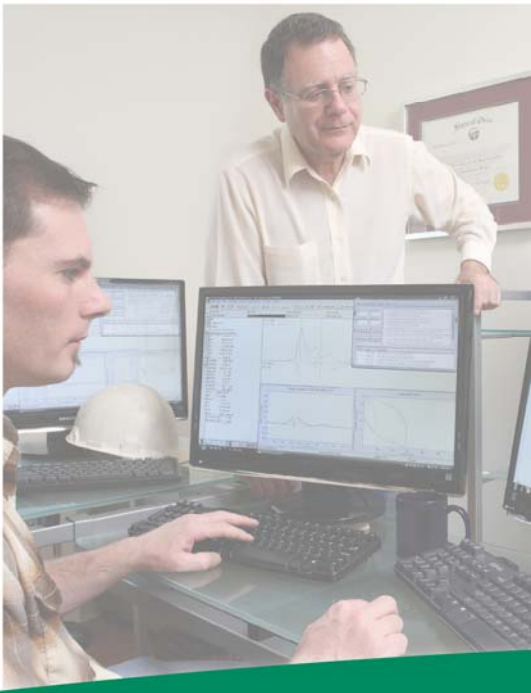
LE	44.00	ft
AR	1.19	in^2
EM	30000	ksi
SP	0.492	k/ft3
WS	16807.9	f/s
EA/C	2.1	ksec/ft
2L/C	5.24	ms
JC		[]
LP	41.00	ft

Quantity Results

EFV	0.298	ft-k
ETR	85.1	(%)
FMX	26	kips
VMX	18.7	f/s
BPM	44.0	bpm
DMX	0.57	in
DFN	0.46	in
CSX	22.2	ksi
FVP	0.61	[]

Sensors

F3: [168 AWJ-1] 212.47 (1)
F4: [168 AWJ-2] 215.16 (1)
A3: [K 2081] 357 mv/5000g's (1)
A4: [K 2082] 322 mv/5000g's (1)
CLIP: OK



GRL engineers, inc.

Dynamic Measurements and Analyses

Job No. 179028-1

Report on: Standard Penetration Test Energy Measurements
Knoxville, Tennessee

Prepared for M&W Drilling, Inc.

By Thomas G. Hyatt, P.E. and Mark A. Rawlings

June 6, 2017

June 6, 2017

Mr. Greg Sloan
M&W Drilling, LLC
8321 Oak Ridge Hwy
Knoxville, TN 37931

Re: Standard Penetration Test Energy Measurements
Knoxville, Tennessee GRL Job No. 179028-1

Dear Mr. Sloan;

This report presents results of energy measurements obtained on June 2, 2017 during Standard Penetration Test (SPT) sampling. Six automatic hammers mounted on six different drill rigs owned by M&W Drilling were tested. The six drill rigs included a track mounted CME 55, a track mounted GeoProbe 7822 DT, a track mounted GeoProbe 7730 DT, a truck mounted Mobile B-59 and two track mounted Diedrich D-120 rigs. All dynamic tests were performed on AWJ drill rods. 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 calibrations and certificates, and Appendix C contains a summary of the field data, and contains plots of the force and velocity measurements.

PURPOSE AND SCOPE OF WORK

At the request of M&W Drilling, LLC., GRL Engineers conducted SPT energy measurements in accordance to ASTM D4633-10 on a dummy bore hole at the M&W Drilling office and yard located at 8321 Oak Ridge Hwy, Knoxville, TN. Specifically, we provided SPT energy measurements for six drill rigs, at five-foot sample intervals starting at a minimum depth of 30 feet and ending at a maximum depth of 44.5 feet below the existing ground surface. All of the SPT samples were driven for a total of three 6 inch increments, or 1.5 feet. GRL performed energy measurements during three sampling events for each drill rig.

EQUIPMENT

Drilling and SPT Hammer Equipment

CME 55 Track Mounted (Serial Number 323735)

SPT energy measurements were made on a CME automatic hammer on a CME 55 track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 40 to 41.5 feet.

GeoProbe 7822 DT Track Mounted (Serial Number 10146)

SPT energy measurements were made on a GeoProbe automatic hammer on a GeoProbe 7822 DT track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 40 to 41.5 feet.

GeoProbe 7730 DT Track Mounted (Serial Number MWD-1 DH-100)

SPT energy measurements were made on a GeoProbe automatic hammer on a GeoProbe 7730 DT track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 40 to 41.5 feet.

Diedrich D-120-029 Track Mounted (Serial Number 61491)

SPT energy measurements were made on a Diedrich automatic hammer on a Diedrich D-120 track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 42 to 43.5 feet.

Diedrich D-120 Track Mounted (Serial Number 027)

SPT energy measurements were made on a Diedrich automatic hammer on a Diedrich D-120 track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 42 to 43.5 feet.

Mobile B-59 Truck Mounted (Serial Number 94010)

SPT energy measurements were made on a Mobile automatic hammer on a Mobile B-59 track mounted drill rig. Energy measurements were collected every five feet while taking three soil samples at a dummy boring location. Testing started with sample 1 from 30 to 31.5 feet and concluding with sample 3 from 43 to 44.5 feet.

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 AWJ rod was instrumented with two full bridge foil resistance strain gages and two piezoresistive accelerometers mounted in the midpoint location of the instrumented rod.

Analog signals from the strain gages and accelerometers were conditioned, digitized, processed and stored by the PDA. Selected output from the PDA for each recorded impact included the maximum calculated maximum energy transfer, (EFV); the energy transfer ratio, (ETR); the maximum calculated rod 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).

MEASUREMENTS AND CALCULATIONS

FV Method (EFV)

Energy transfer to the PDA gage location, EFV, was computed by the PDA using force, F(t), and velocity, v(t), records as follows:

$$EFV = \int_a^b F(t) \cdot v(t) dt$$

The time "a" corresponds to the start of the record when the energy transfer begins, and "b" is the time at which energy transferred to the rod reaches a maximum value. The FV Method is currently recognized in ASTM D4633-10, and is the theoretically correct result; therefore, no other energy calculation methods are reported.

Corrected SPT number (N_{60})

While the primary purpose of SPT energy testing is to calculate the maximum transferred energy of each hammer blow, the overall average energy transfer value can be used to calculate the corrected SPT number (N_{60}). To adjust the SPT N-values for hammer performance, the following correction as suggested by Seed for N-value adjustment to 60 percent transfer efficiency (e.g. 210 ft-pounds) was used:

$$N_{60} = \left(\frac{E_m}{210}\right) N_m$$

Where:

N_{60} = Corrected N-value
E_m = overall average measured energy transfer (EFV)
N_m =number of blows for last 12 inches of sampler penetration

A general introduction to dynamic SPT testing methods is included in Appendix A. References for more detailed descriptions of our testing and analysis methods are available upon request.

Any cross-sectional area difference between the GRL rod subsection and the drill rods, any loose connections or changes in area at section joints, or any cross-sectional area differences between the individual drill rod sections could result in stress wave reflections that could influence the energy transfer. The EFV transferred energy calculation method, utilizing both force and velocity records, is theoretically correct and gives energy transfer results that are not significantly affected by cross-sectional area changes or loose connectors. The EFV results are included in Appendix C for all records collected and accepted after checking them for consistency.

RESULTS

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. Appendix

C contains plots and tables of PDA results for all hammer blows at each dynamically monitored sampling depth, and contains a representative plot of force and normalized velocity versus time. The PDA results include the transferred energy by the FV method, as recommended by ASTM D4633-10, EFV; the energy transfer ratio for the EFV method, ETR; the maximum rod top force, FMX; the maximum rod top velocity, VMX; and the hammer operating rate, BPM. The plots display PDA results versus split-spoon penetration, while the tables show the individual blow results for the N value blows and also statistical summaries for each 6 inch increment. At the end of each table is a statistical evaluation of the results which includes the average and standard deviation of the entire measurement sample.

The table below and Tables 1 through 3 summarize the average transferred energy values calculated by the EFV method. The records consist of averaged hammer blows from the last 12 inches (i.e. N value) at each dynamically monitored sampling depth. The “energy transfer ratio” (ETR) is defined as the ratio of maximum transferred energy EFV divided by the theoretical hammer potential energy of 350 ft-lbs (i.e., computed from the 140 lb SPT hammer and the standard 30 inch drop as specified by ASTM D1586-99). A summary of the dynamic measurements of the energy transfer to the drill rods using the EFV equation for each drill rig is provided in the table below. It should be noted that the values provided below and in Tables 1 through 3 only include samples where the SPT N values were between 8 and 50 blows per foot and the rod length was greater than 30 ft. Summary tables included in Appendix C provide the results for all samples collected.

Drill Rig	Avg. EFV (ft-lbs)	Avg. ETR (%)	Range of EFV (ft-lbs)	Range of ETR (%)
CME 55 S/N 323735	269	77	256 – 278	73 - 80
Diedrich D-120 S/N 027	336	96	304 – 378	87 – 108
Diedrich D-120 S/N 61491	332	95	277 – 366	79 – 105
GeoProbe 7730 DT S/N MWD-1 DH-100	302	86	275 – 325	79 – 93
GeoProbe 7822 DT S/N 10146	325	93	304 – 354	87 – 101
Mobile B-59 S/N 94010	275	79	231 – 307	66 – 88

CONCLUSIONS

Based upon the dynamic test data obtained, the following conclusions are presented:

1. Loose connections in the drill string were sometimes observed in the force and velocity records. However, energy transfer values calculated using the EFV equation are not adversely affected by the connectors and therefore are considered a better indication of transferred energy.

2. Dynamic measurements of the transferred energy to the drill rods using the EFV equation ranged from 231 to 378 ft-lbs for all of the drill rigs. This corresponds to energy transfer ratios ranging from 66 to 108 percent of the SPT hammer energy of 350 ft-lbs.

3. The average transferred energy (EFV) and energy transfer ratio (ETR) for each drill rig tested was as follows:

CME 55 S/N 323735 : Average EFV = 269 ft-lbs, Average ETR = 77%

Diedrich D-120 S/N 027: Average EFV = 336 ft-lbs, Average ETR = 96%

Diedrich D-120 S/N 61491: Average EFV = 332 ft-lbs, Average ETR = 95%

GeoProbe 7730 S/N MWD-1 DH-100: Average EFV = 302 ft-lbs, Average ETR = 86%

GeoProbe 7822 S/N 10146: Average EFV = 325 ft-lbs, Average ETR = 93%

Mobile B-59 S/N 94010: Average EFV = 275 ft-lbs, Average ETR = 79%

Please review both ASTM D4633-10 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.

Thomas G. Hyatt, P.E.

Mark A. Rawlings

Appendix A

An Introduction into SPT Dynamic 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 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, EMX, 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:

$$E(t) = {}_0\int^t F(\tau)v(\tau)\, d\tau \qquad (2)$$

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.

$$e_T = EMX/E_R \qquad (3)$$

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):

$$v(t) = F(t) / Z \qquad (4)$$

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

$$EF(t) = {}_0\int^t F(\tau)^2 / Z\, d\tau \qquad (5)$$

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 if 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

$$F = v\,Z \qquad (5)$$

where Z is again the pile impedance, Z = EA/c. This relationship can also be expressed in terms of stress

$$\sigma = F/A = v\,(E/c) \qquad (6)$$

or strain

$$\epsilon = \sigma/E = v / c \qquad (7)$$

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.

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Appendix B

Calibrations

PDCA
PILE DRIVING CONTRACTORS ASSOCIATION

Pile Dynamics, Inc.

This documents that

Thomas Hyatt
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. 2182

SPT Rod Calibration		Pile Dynamics, Inc. Made in USA		
		English	SI	
EA Product		35,785.48 kips	159.25	MN
	E	30,000 ksi	207,000	MPa
	A	1.19 in^2	7.7	cm^2
Rod Serial #:			168 AWJ - 1	
Calibration Factor (me/V):			212.47	
Calibration Date:			21-Sep-15	
Calibration Due:			20-Sep-17	

168 AWJ - 1
168 AWJ - 2
35785.48
212.47
215.16
21-Sep-15

Print to fit and it looks okay!

SPT Rod Calibration		Pile Dynamics, Inc. Made in USA		
		English	SI	
EA Product		35,785.48 kips	159.25	MN
	E	30,000 ksi	207,000	MPa
	A	1.19 in^2	7.7	cm^2
Rod Serial #:			168 AWJ - 2	
Calibration Factor (me/V):			215.16	
Calibration Date:			21-Sep-15	
Calibration Due:			20-Sep-17	

168	Number
AWJ	Type

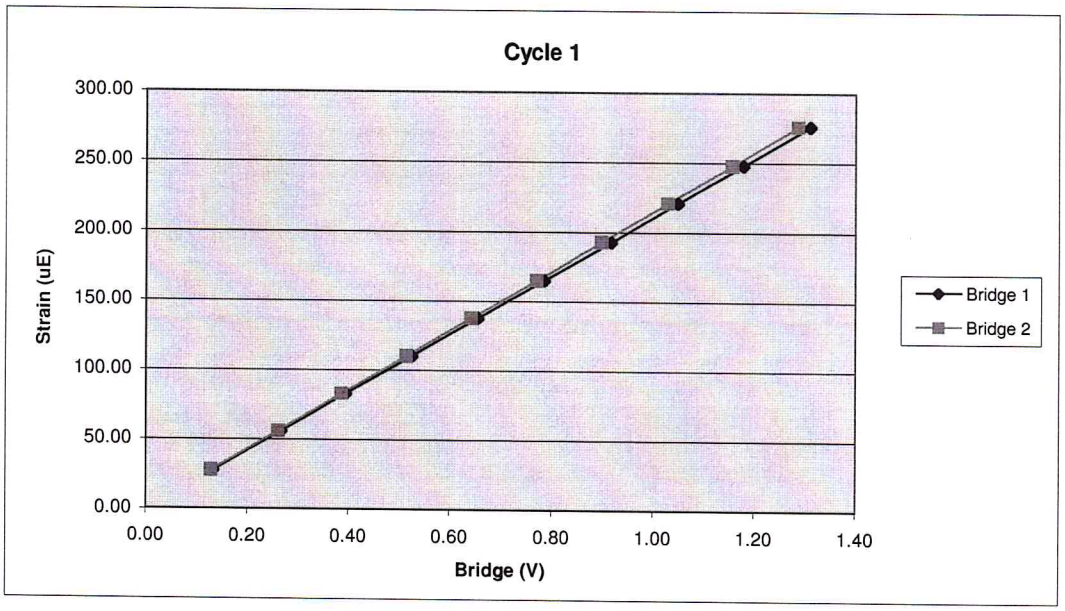
Bridge 1	168 AWJ - 1
Bridge 2	168 AWJ - 2
EA Factor	35785.48
Calibration 1	212.47
Calibration 2	215.16
Date Cal	21-Sep-15

<-- enter

168AWJ		Cycle 1		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	985.12	27.81	0.13	0.13
3	1999.42	55.96	0.27	0.26
4	2962.46	82.88	0.39	0.39
5	3948.57	110.23	0.52	0.51
6	4934.08	137.55	0.65	0.64
7	5929.06	165.07	0.79	0.77
8	6918.72	192.89	0.92	0.90
9	7919.02	220.92	1.05	1.03
10	8900.20	247.97	1.18	1.16
11	9910.36	276.00	1.31	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7574.02**	**Force Calibration (lb/V)**	**7709.66**
Offset	-21.90	Offset	-11.13
Correlation	0.999999	Correlation	0.999999
Strain Calibration (µE/V)	**210.70**	**Strain Calibration (µE/V)**	**214.48**
Offset	-0.24	Offset	0.06
Correlation	0.999999	Correlation	0.999998

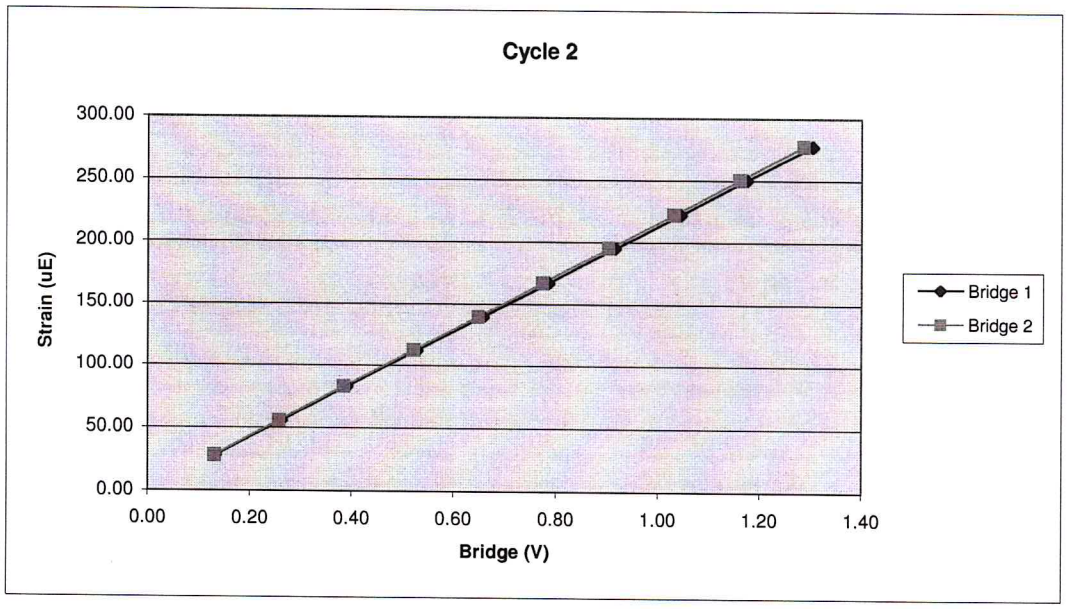
Force Strain Calibration	
EA (Kips)	**35946.33**
Offset	-13.36
Correlation	0.999999



168AWJ		Cycle 2		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	982.95	28.05	0.13	0.13
3	1974.19	55.76	0.26	0.26
4	2953.39	82.87	0.39	0.38
5	4000.42	112.22	0.53	0.52
6	4972.13	139.35	0.66	0.65
7	5950.75	167.00	0.79	0.77
8	6945.33	194.94	0.92	0.90
9	7917.84	222.00	1.04	1.03
10	8919.91	250.27	1.17	1.16
11	9896.36	277.50	1.30	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7606.16**	**Force Calibration (lb/V)**	**7700.14**
Offset	**-19.82**	Offset	**-11.88**
Correlation	**0.999999**	Correlation	**0.999998**
Strain Calibration (µE/V)	**213.01**	**Strain Calibration (µE/V)**	**215.64**
Offset	**-0.22**	Offset	**0.00**
Correlation	**0.999997**	Correlation	**0.999997**

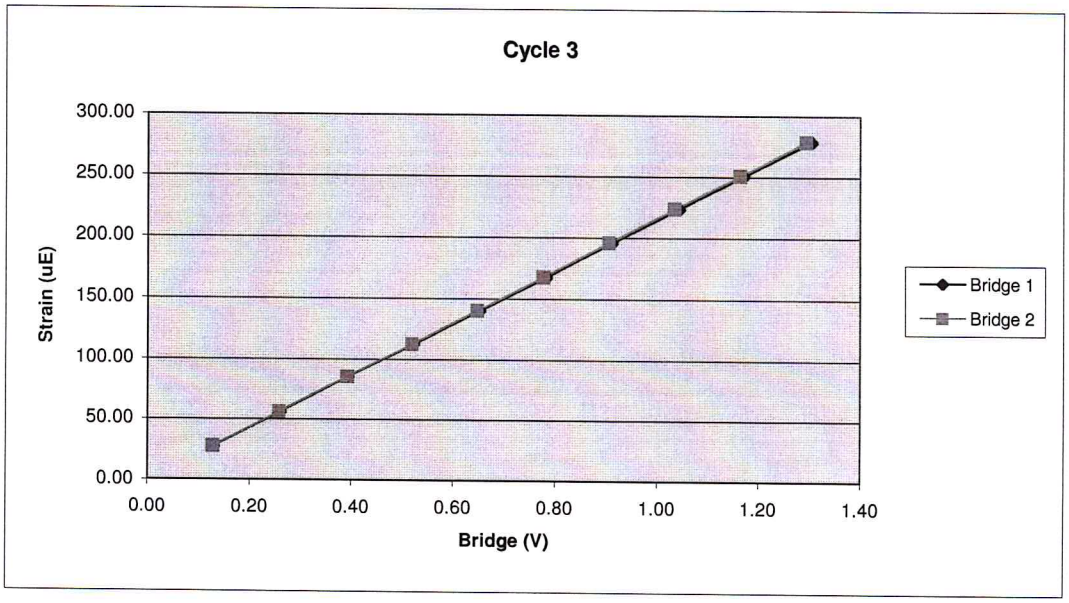
Force Strain Calibration	
EA (Kips)	**35708.56**
Offset	**-11.96**
Correlation	**0.999998**



168AWJ		Cycle 3		
Sample	**Force (lb)**	**Strain (µE)**	**Bridge 1 (V)**	**Bridge 2 (V)**
1	0.00	0.00	0.00	0.00
2	976.84	27.67	0.13	0.13
3	1972.21	55.77	0.26	0.26
4	3006.62	85.22	0.39	0.39
5	3988.79	112.54	0.52	0.52
6	4966.61	140.12	0.65	0.65
7	5959.03	167.81	0.78	0.78
8	6952.23	195.83	0.91	0.91
9	7951.15	223.79	1.04	1.03
10	8937.66	250.72	1.17	1.16
11	9937.17	278.64	1.30	1.29

Bridge 1		**Bridge 2**	
Force Calibration (lb/V)	**7629.36**	**Force Calibration (lb/V)**	**7688.81**
Offset	**-3.45**	Offset	**-7.58**
Correlation	**0.999997**	Correlation	**0.999999**
Strain Calibration (µE/V)	**213.70**	**Strain Calibration (µE/V)**	**215.36**
Offset	**0.65**	Offset	**0.53**
Correlation	**0.999990**	Correlation	**0.999994**

Force Strain Calibration	
EA (Kips)	**35701.55**
Offset	**-26.47**
Correlation	**0.999992**



Bridge Excitation (V) 5
Shunt Resitor (ohm) 60.4k

Calibration Factors	168AWJ		
Bridge 1 (µE/V)	212.47	Bridge 2 (µE/V)	215.16
EA Factor (Kips)	35785.48	Area (in^2)	1.19

Calibrated by: David Bennett
Calibrated Date: 9/21/2015

Pile Dynamics Inc
30725 Aurora Rd
Solon, OH 44139

Traceable to N.I.S.T.

Certificate of Calibration

Pile Dynamics, Inc. certifies that the

Pile Driving Analyzer®, Model 8G

Serial Number: 4763 LE

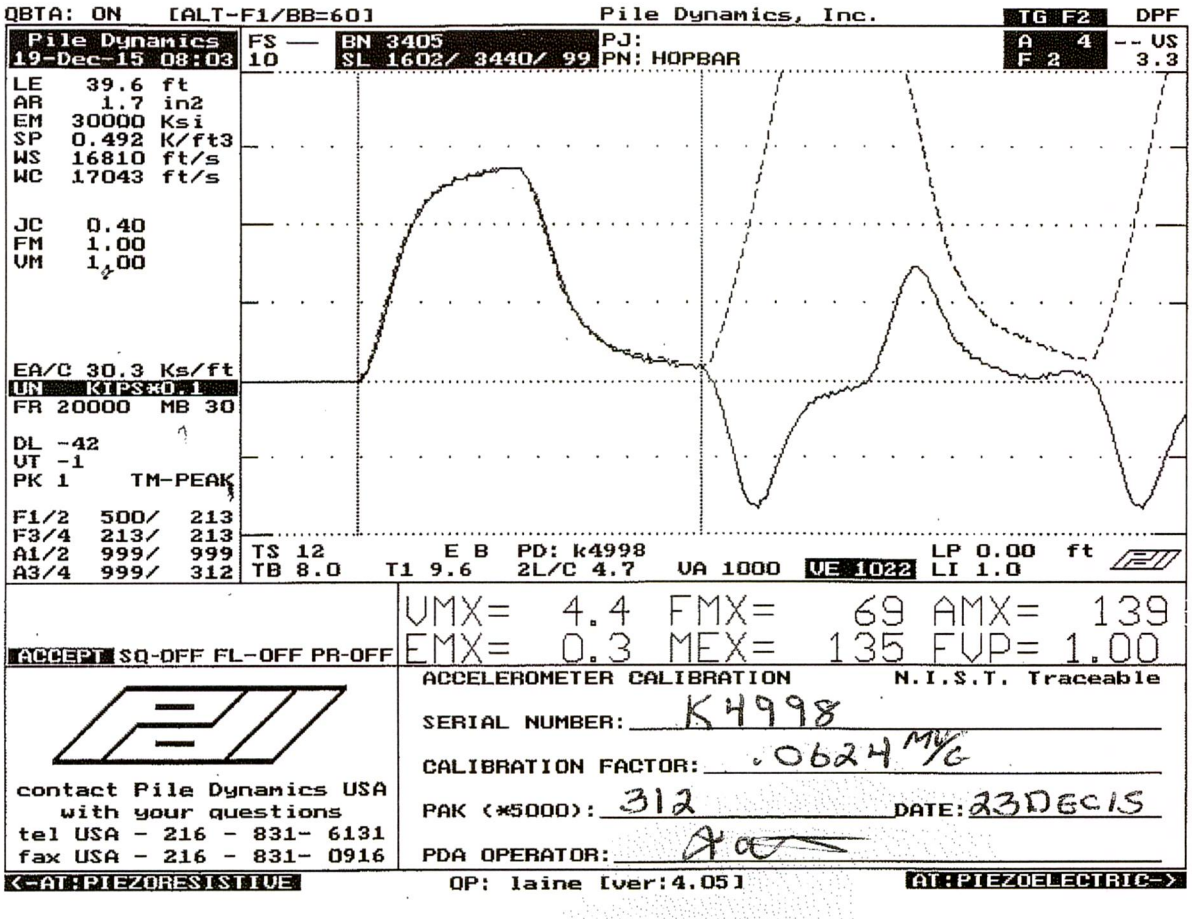
was calibrated on 27-JAN-2017

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.

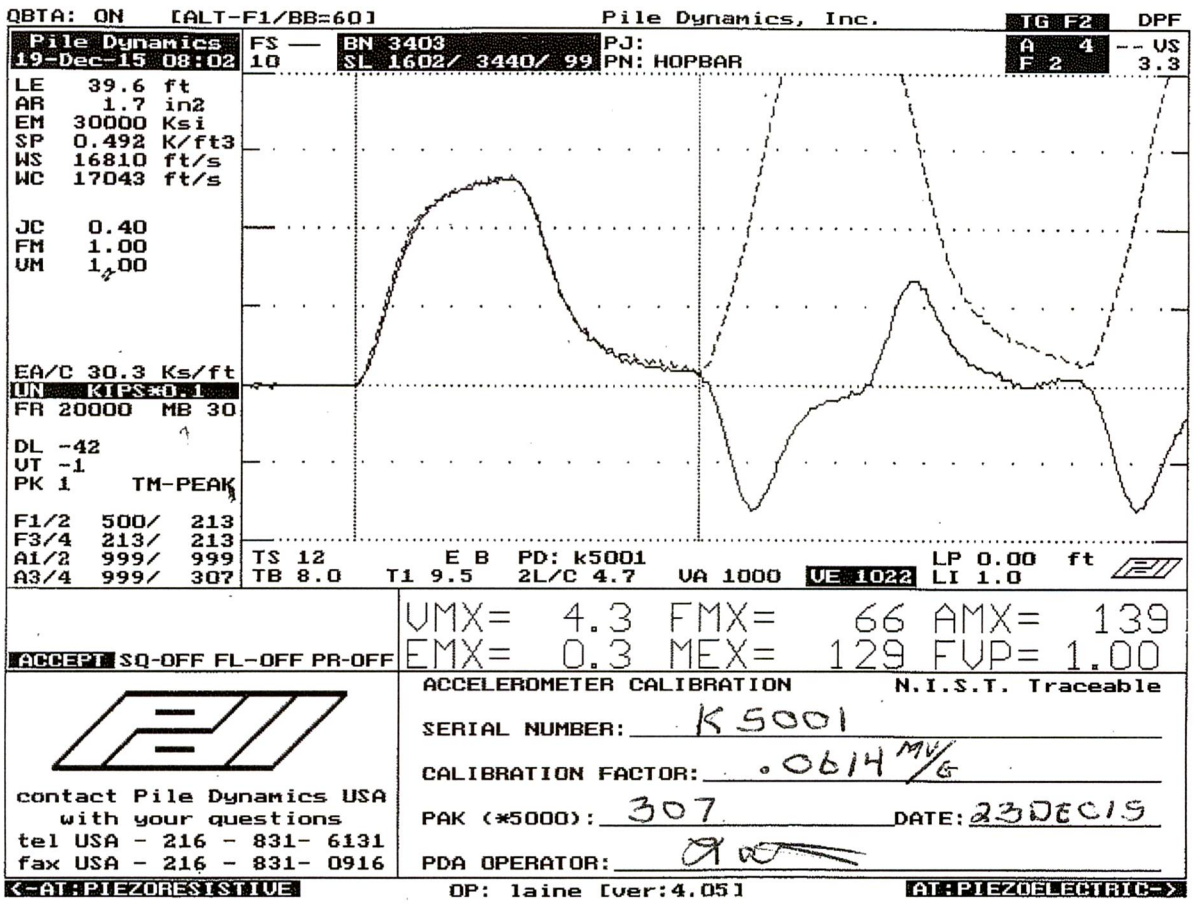
Tested by: MC

Pile Dynamics, Inc.
30725 Aurora Road
Cleveland, Ohio 44139 USA



Smart Sensor

Smart Chip Programmed By J.M.W. **on** 23 DEC 15 **CRC Value** 6009



Smart Sensor

Smart Chip Programmed By J.M.W. **on** 23 DEC 15 **CRC Value** FD3B

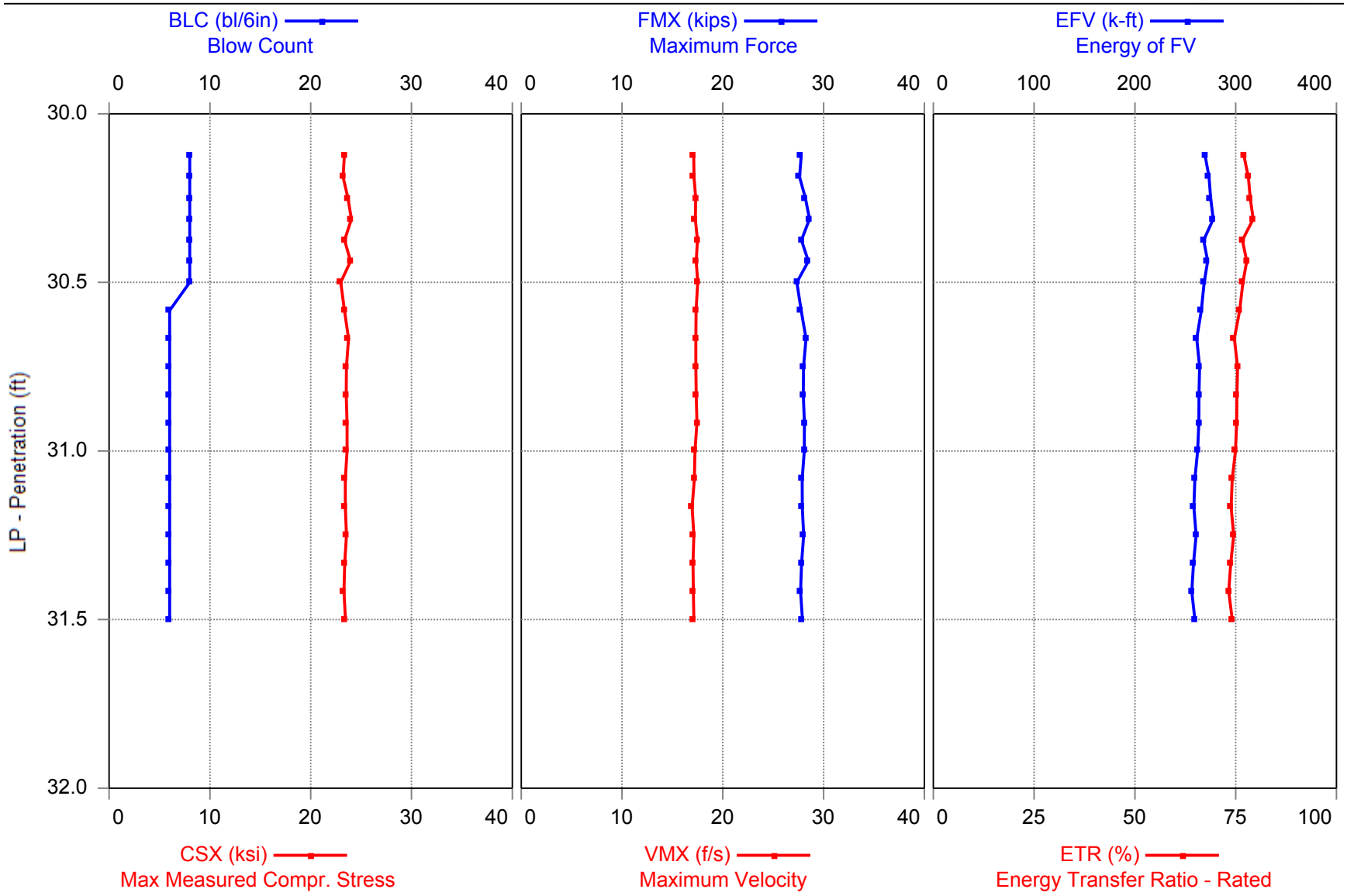
Appendix C

Summary of Results

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

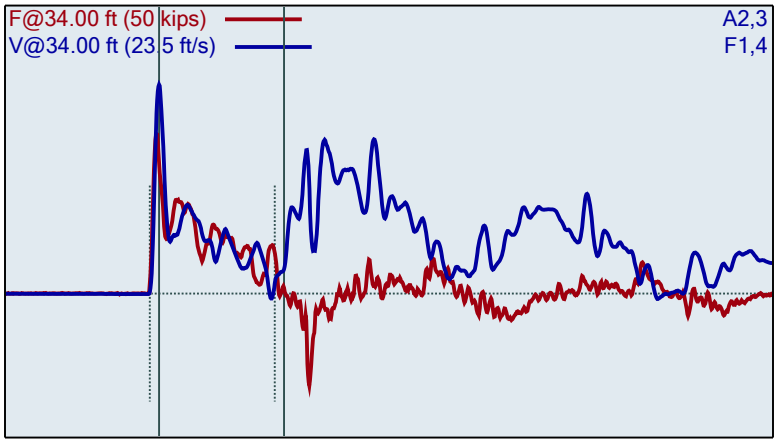
Printed: 06-June-2017 Test started: 02-June-2017

CME 55 SN 323735 - 30-31.5



GRL Engineers, Inc.
CME 55 SN 323735
30-31.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 19
02Jun2017 03:58:42 PM

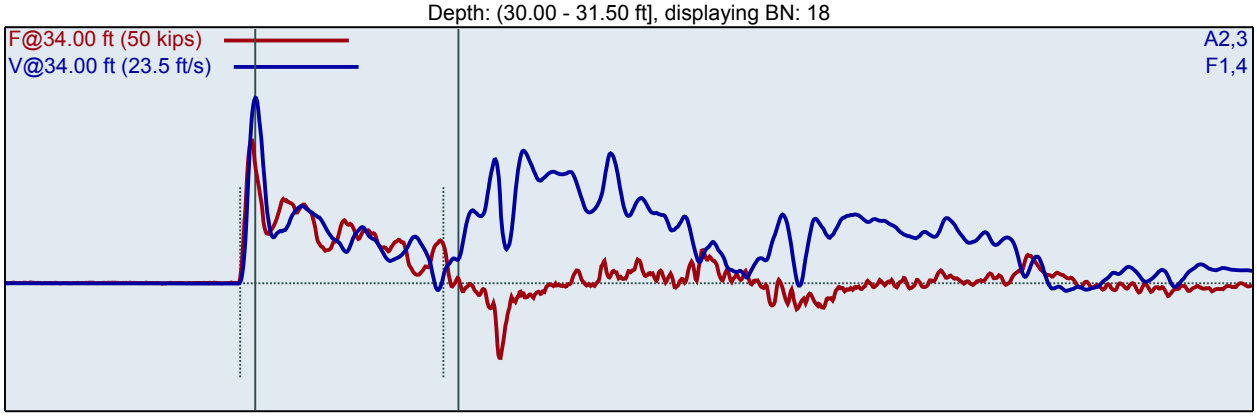
ETR	73.3 (%)
EFV	256 ft-lb
BPM	54.3 bpm
CSX	23.3 ksi
VMX	17.1 ft/s
DMX	1.28 in
FMX	28 kips
DFN	1.00 in
FVP	0.6 []
LE	34.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

CME 55 SN 323735
TH
AR: 1.19 in^2
LE: 34.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (30.00 - 31.50 ft], displaying BN: 18



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
2	8	30.13	23.3	28	17.1	54.3	270	77.1	1.04	0.75	0.7
3	8	30.19	23.2	28	17.1	54.7	274	78.1	0.75	0.75	0.7
4	8	30.25	23.7	28	17.3	54.3	275	78.6	0.78	0.75	0.7
5	8	30.31	24.0	29	17.3	54.4	278	79.3	0.76	0.75	0.7
6	8	30.38	23.4	28	17.5	54.2	268	76.6	1.34	0.75	0.6
7	8	30.44	23.9	28	17.4	54.6	272	77.7	0.95	0.75	0.6
8	8	30.50	23.0	27	17.5	54.2	269	76.8	0.90	0.75	0.6
9	6	30.58	23.3	28	17.3	54.2	266	76.0	1.00	1.00	0.6
10	6	30.67	23.7	28	17.3	54.4	261	74.7	1.00	1.00	0.6
11	6	30.75	23.5	28	17.3	54.5	264	75.5	1.00	1.00	0.6
12	6	30.83	23.5	28	17.4	54.1	264	75.3	1.00	1.00	0.6
13	6	30.92	23.6	28	17.4	54.5	263	75.3	1.00	1.00	0.6
14	6	31.00	23.6	28	17.2	54.4	262	74.9	1.06	1.00	0.6
15	6	31.08	23.4	28	17.2	54.3	259	74.1	1.03	1.00	0.6
16	6	31.17	23.4	28	17.0	54.3	259	73.9	1.11	1.00	0.6
17	6	31.25	23.5	28	17.1	54.3	261	74.5	1.01	1.00	0.6
18	6	31.33	23.4	28	17.0	54.3	258	73.8	1.21	1.00	0.6
19	6	31.42	23.3	28	17.1	54.3	256	73.3	1.28	1.00	0.6
20	6	31.50	23.4	28	17.1	54.2	259	74.1	1.60	1.00	0.6
		Average	23.5	28	17.2	54.3	261	74.6	1.11	1.00	0.6
		Std Dev	0.1	0	0.1	0.1	3	0.8	0.17	0.00	0.0
		Maximum	23.7	28	17.4	54.5	266	76.0	1.60	1.00	0.6
		Minimum	23.3	28	17.0	54.1	256	73.3	1.00	1.00	0.6

N-value: 12

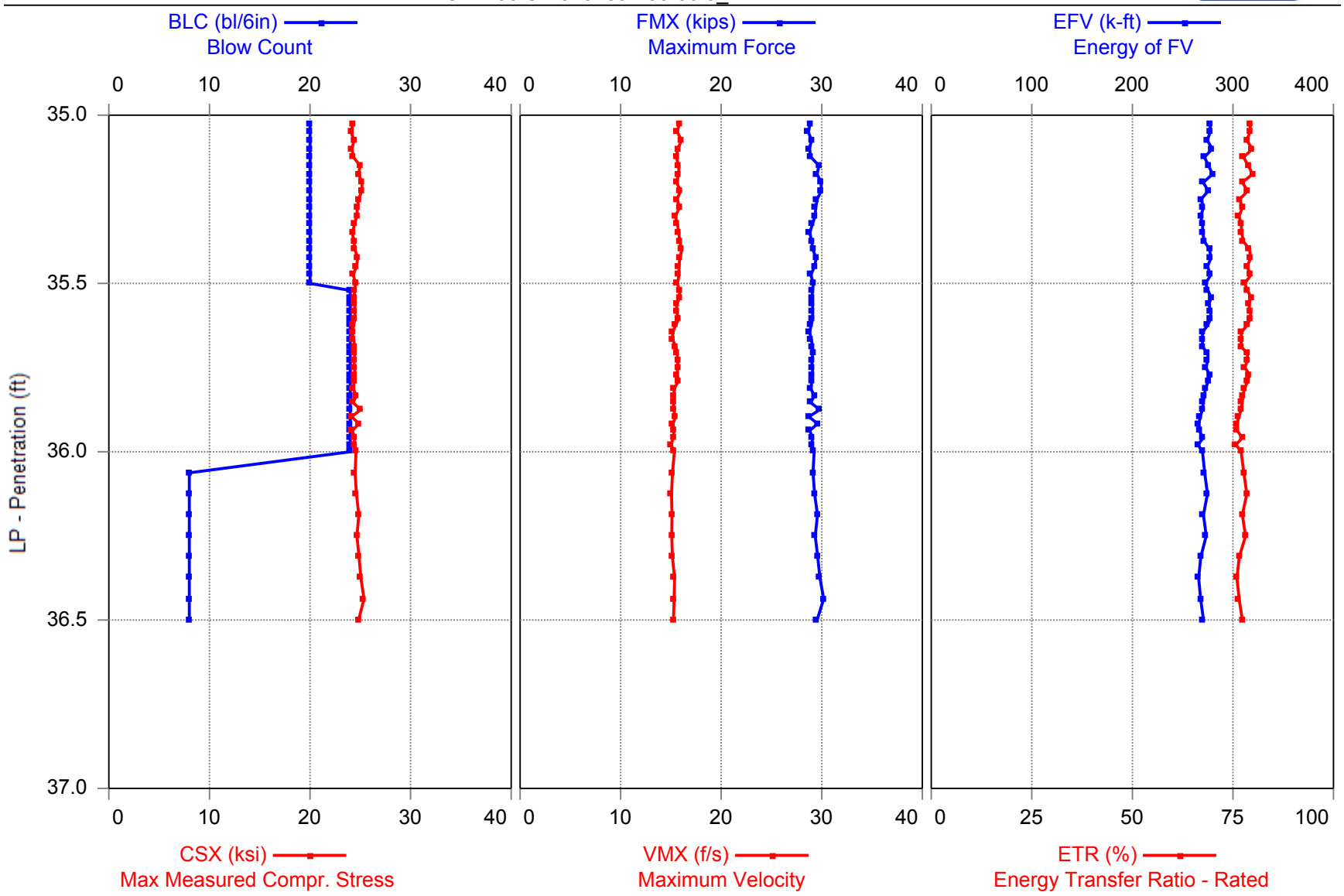
Sample Interval Time: 19.86 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

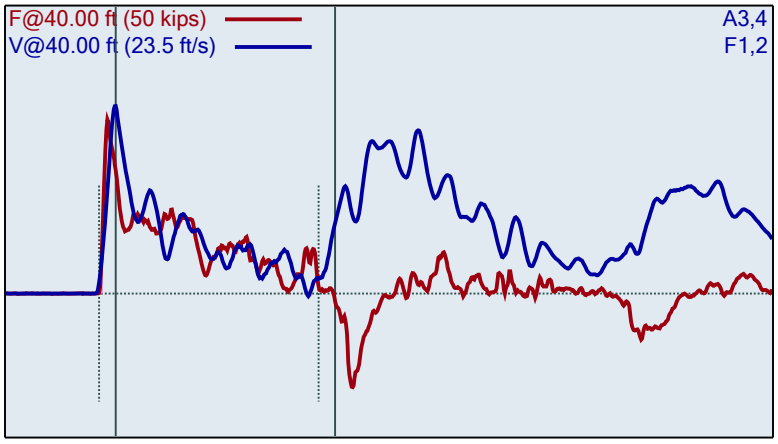
Test started: 02-June-2017

CME 55 SN 323735 - 35-36.5_2



GRL Engineers, Inc.
CME 55 SN 323735
35-36.5_2
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 51
02Jun2017 04:32:35 PM

ETR	76.5 (%)
EFV	268 ft-lb
BPM	53.1 bpm
CSX	25.4 ksi
VMX	15.3 ft/s
DMX	1.51 in
FMX	30 kips
DFN	0.75 in
FVP	0.7 []

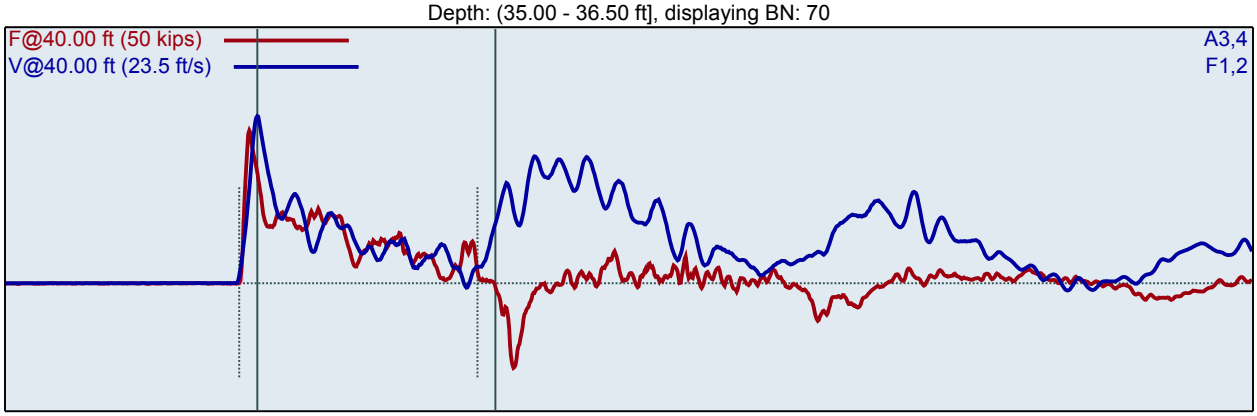
LE	40.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16806.7 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
F2: [168AWJ1]	212.47 PDICAL (1) FF1
A3 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A4 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1

CME 55 SN 323735
TH
AR: 1.19 in^2
LE: 40.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (35.00 - 36.50 ft], displaying BN: 70



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
21	20	35.03	24.3	29	15.8	1.9	278	79.3	1.21	0.30	0.7
22	20	35.05	24.1	29	15.6	53.5	277	79.2	0.92	0.30	0.7
23	20	35.08	24.4	29	16.1	53.1	274	78.4	0.67	0.30	0.7
24	20	35.10	24.2	29	15.7	53.3	279	79.8	0.57	0.30	0.7
25	20	35.13	24.3	29	15.5	53.2	272	77.6	0.49	0.30	0.7
26	20	35.15	25.0	30	15.8	53.2	276	78.8	0.44	0.30	0.7
27	20	35.18	24.8	30	15.8	53.2	280	79.9	0.44	0.30	0.7
28	20	35.20	25.2	30	15.6	52.9	271	77.3	0.38	0.30	0.7
29	20	35.23	25.2	30	16.0	53.2	275	78.7	0.36	0.30	0.6
30	20	35.25	24.8	30	15.6	52.9	268	76.7	0.35	0.30	0.7
31	20	35.28	24.7	29	15.9	53.0	271	77.3	0.33	0.30	0.7
32	20	35.30	24.7	29	15.4	53.3	268	76.5	0.34	0.30	0.7
33	20	35.33	24.4	29	15.7	53.1	270	77.0	0.33	0.30	0.7
34	20	35.35	24.2	29	15.8	53.1	270	77.1	0.32	0.30	0.7
35	20	35.38	24.4	29	15.9	53.1	272	77.6	0.33	0.30	0.7
36	20	35.40	24.5	29	16.1	53.2	277	79.1	0.33	0.30	0.7
37	20	35.43	24.7	29	15.9	52.9	278	79.4	0.34	0.30	0.7
38	20	35.45	24.6	29	15.8	53.1	275	78.5	0.33	0.30	0.7
39	20	35.48	24.3	29	15.8	53.1	278	79.4	0.33	0.30	0.7
40	20	35.50	24.5	29	15.7	53.0	273	77.9	0.33	0.30	0.7
41	24	35.52	24.4	29	15.8	53.2	275	78.6	0.33	0.25	0.7
42	24	35.54	24.4	29	15.9	53.2	278	79.5	0.33	0.25	0.7
43	24	35.56	24.4	29	15.6	53.1	276	78.9	0.33	0.25	0.7
44	24	35.58	24.4	29	15.5	53.0	278	79.4	0.34	0.25	0.7
45	24	35.60	24.5	29	15.8	53.1	278	79.4	0.34	0.25	0.7
46	24	35.63	24.3	29	15.5	53.1	275	78.5	0.33	0.25	0.7
47	24	35.65	24.2	29	15.2	53.1	270	77.0	0.34	0.25	0.7
48	24	35.67	24.3	29	15.2	53.0	270	77.1	0.34	0.25	0.7
49	24	35.69	24.4	29	15.5	53.0	269	77.0	0.34	0.25	0.7
50	24	35.71	24.5	29	15.6	53.1	275	78.6	0.35	0.25	0.7
51	24	35.73	24.4	29	15.7	53.0	275	78.6	0.35	0.25	0.7
52	24	35.75	24.4	29	15.7	53.0	273	78.0	0.35	0.25	0.7
53	24	35.77	24.5	29	15.6	53.1	277	79.1	0.36	0.25	0.7
54	24	35.79	24.4	29	15.7	53.0	275	78.7	0.35	0.25	0.7
55	24	35.81	24.3	29	15.3	52.9	273	77.9	0.36	0.25	0.7
56	24	35.83	24.6	29	15.3	53.1	271	77.5	0.37	0.25	0.7

57	24	35.85	24.3	29	15.3	52.9	270	77.3	0.37	0.25	0.7
58	24	35.88	25.1	30	15.3	52.9	270	77.0	0.38	0.25	0.7
59	24	35.90	24.1	29	15.5	53.0	267	76.4	0.39	0.25	0.7
60	24	35.92	24.9	30	15.2	53.0	266	76.0	0.40	0.25	0.7
61	24	35.94	24.2	29	15.3	52.9	266	76.1	0.41	0.25	0.7
62	24	35.96	24.5	29	15.2	53.0	271	77.3	0.42	0.25	0.7
63	24	35.98	24.4	29	15.0	53.1	265	75.8	0.43	0.25	0.7
64	24	36.00	24.6	29	15.3	53.0	270	77.0	0.44	0.25	0.7
65	8	36.06	24.5	29	15.2	53.2	272	77.7	0.75	0.75	0.7
66	8	36.13	24.6	29	15.1	53.2	275	78.5	0.75	0.75	0.7
67	8	36.19	24.9	30	15.1	53.0	271	77.3	0.75	0.75	0.7
68	8	36.25	24.7	29	15.1	53.1	273	78.1	0.80	0.75	0.7
69	8	36.31	24.9	30	15.1	53.1	268	76.6	0.93	0.75	0.7
70	8	36.38	25.1	30	15.4	53.0	266	76.0	1.19	0.75	0.7
71	8	36.44	25.4	30	15.3	53.1	268	76.5	1.51	0.75	0.7
72	8	36.50	24.8	30	15.3	53.0	271	77.3	2.57	0.75	0.7
		Average	24.5	29	15.4	53.0	272	77.6	0.56	0.37	0.7
		Std Dev	0.3	0	0.2	0.1	4	1.1	0.45	0.22	0.0
		Maximum	25.4	30	15.9	53.2	278	79.5	2.57	0.75	0.7
		Minimum	24.1	29	15.0	52.9	265	75.8	0.33	0.25	0.7

N-value: 32

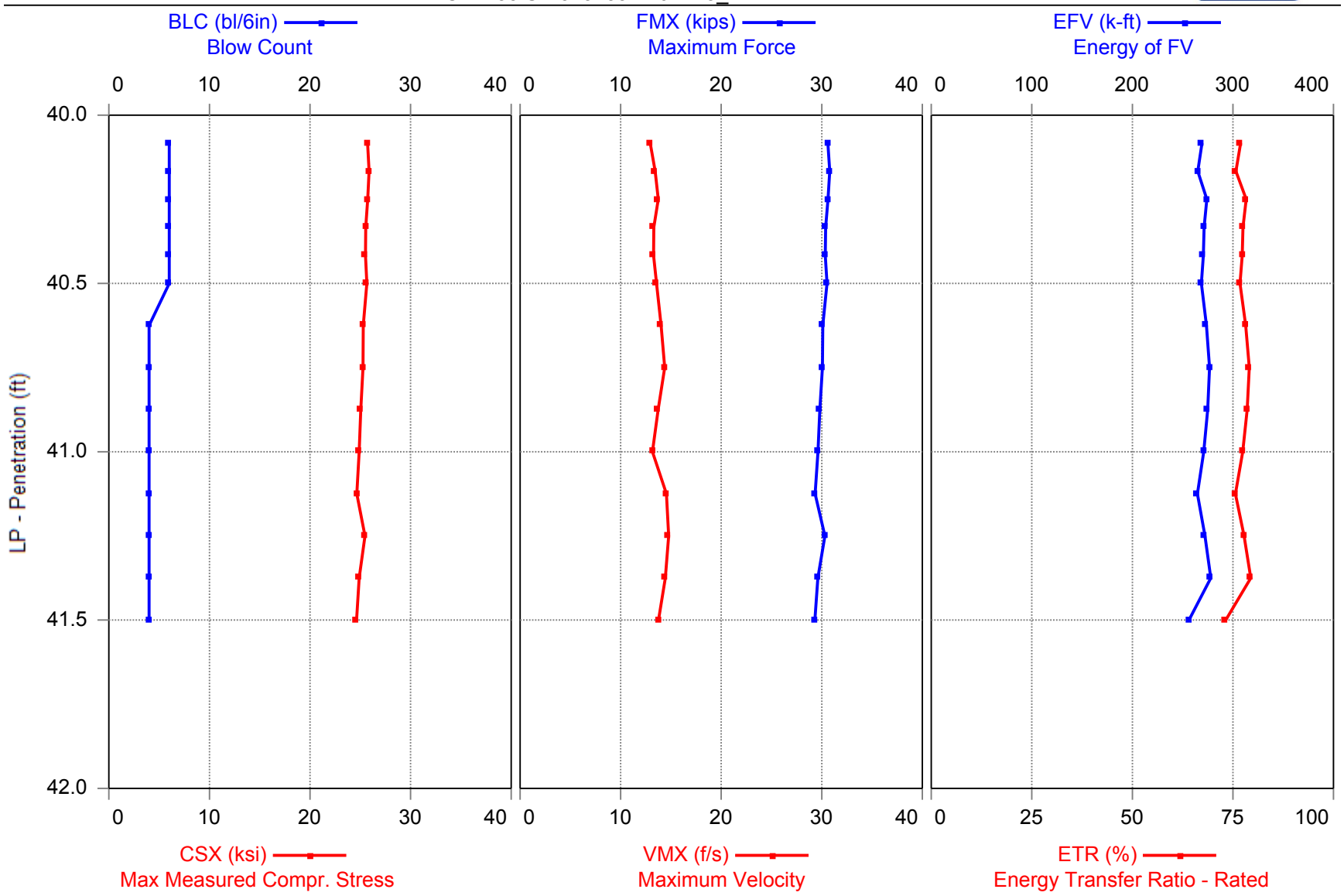
Sample Interval Time: 57.72 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

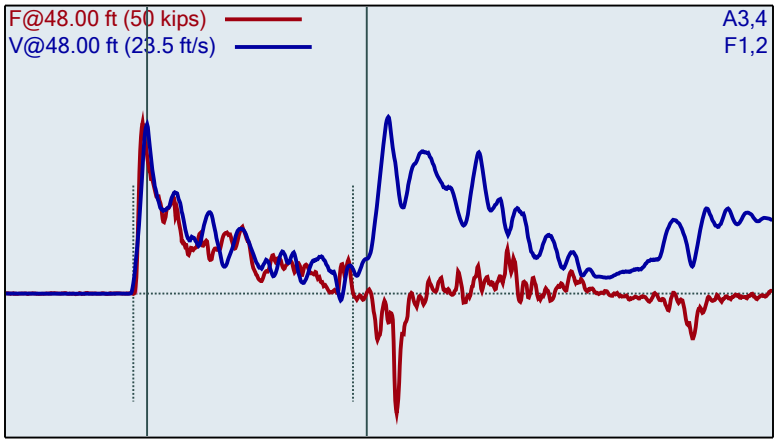
Test started: 02-June-2017

CME 55 SN 323735 - 40-41.5_2



GRL Engineers, Inc.
CME 55 SN 323735
40-41.5_2
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 13
02Jun2017 04:48:24 PM

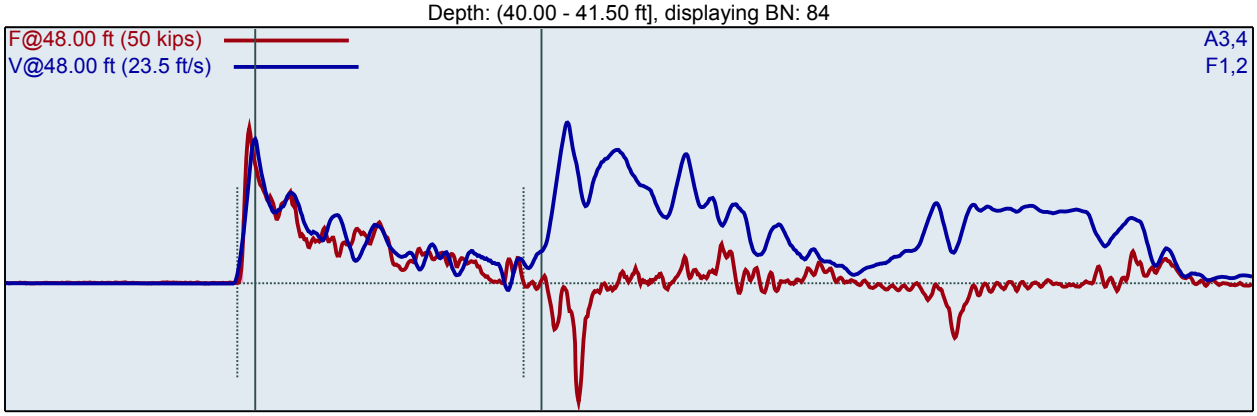
ETR	79.4 (%)
EFV	278 ft-lb
BPM	53.6 bpm
CSX	24.9 ksi
VMX	14.4 ft/s
DMX	1.56 in
FMX	30 kips
DFN	1.50 in
FVP	0.8 []
LE	48.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16783.2 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
F2: [168AWJ1]	212.47 PDICAL (1) FF1
A3 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A4 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1

CME 55 SN 323735
TH
AR: 1.19 in^2
LE: 48.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (40.00 - 41.50 ft], displaying BN: 84



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
73	6	40.08	25.7	31	12.9	1.9	269	76.9	1.09	1.00	0.8
74	6	40.17	25.9	31	13.4	54.2	265	75.7	1.11	1.00	0.8
75	6	40.25	25.7	31	13.7	53.8	274	78.3	1.15	1.00	0.8
76	6	40.33	25.5	30	13.3	53.7	271	77.5	1.06	1.00	0.8
77	6	40.42	25.5	30	13.3	53.6	271	77.3	1.07	1.00	0.8
78	6	40.50	25.6	31	13.6	54.0	269	76.7	1.09	1.00	0.8
79	4	40.63	25.3	30	14.0	53.8	274	78.2	1.54	1.50	0.8
80	4	40.75	25.3	30	14.4	53.8	277	79.0	1.50	1.50	0.8
81	4	40.88	25.0	30	13.7	53.7	275	78.5	1.50	1.50	0.8
82	4	41.00	24.9	30	13.2	53.9	271	77.4	1.50	1.50	0.8
83	4	41.13	24.7	29	14.5	53.6	265	75.6	1.64	1.50	0.9
84	4	41.25	25.5	30	14.8	54.0	272	77.8	1.60	1.50	0.8
85	4	41.38	24.9	30	14.4	53.6	278	79.4	1.56	1.50	0.8
86	4	41.50	24.6	29	13.8	53.7	256	73.2	1.49	1.49	0.8
		Average	25.0	30	14.1	53.8	271	77.4	1.54	1.50	0.8
		Std Dev	0.3	0	0.5	0.1	7	1.9	0.05	0.00	0.0
		Maximum	25.5	30	14.8	54.0	278	79.4	1.64	1.50	0.9
		Minimum	24.6	29	13.2	53.6	256	73.2	1.49	1.49	0.8
					N-value: 8						

BN: 86 6-4-4

Sample Interval Time: 14.52 seconds.

Summary of SPT Test Results

Project: CME 55 SN 323735, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

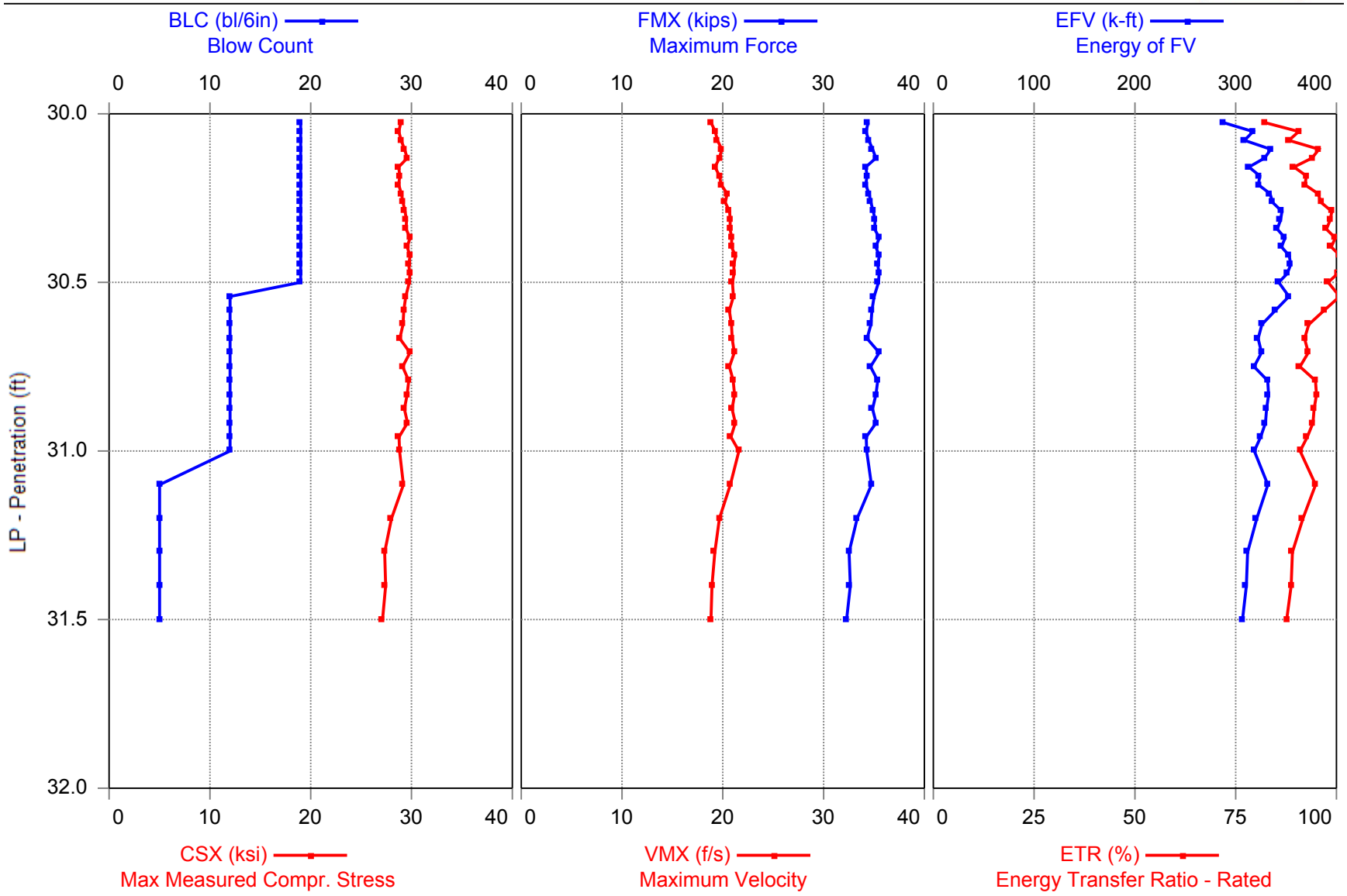
Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**8-6-6**	30.00	31.50	**12**	**15**	23.5	28	17.2	54.3	261	74.6	1.11	1.00	0.6
40.00	**20-24-8**	35.00	36.50	**32**	**41**	24.5	29	15.4	53.0	272	77.6	0.56	0.37	0.7
48.00	**6-4-4**	40.00	41.50	**8**	**10**	25.0	30	14.1	53.8	271	77.4	1.54	1.50	0.8
			Overall Average Values:			24.4	29	15.6	53.5	269	76.9	0.84	0.69	0.7
			Standard Deviation:			0.6	1	1.0	0.6	6	1.7	0.52	0.46	0.1
			Overall Maximum Value:			25.5	30	17.4	54.5	278	79.5	2.57	1.50	0.9
			Overall Minimum Value:			23.3	28	13.2	52.9	256	73.2	0.33	0.25	0.6

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

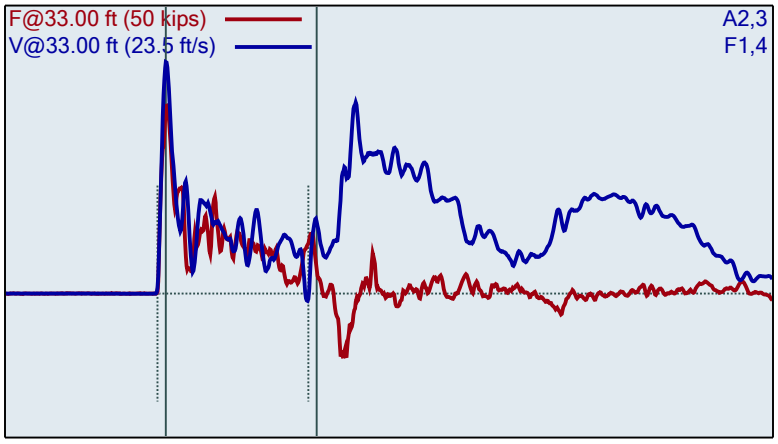
Test started: 02-June-2017

DIEDRICH D-120 SN 027 - 30-31.5



GRL Engineers, Inc.
DIEDRICH D-120 SN 027
30-31.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 35
02Jun2017 07:46:02 AM

ETR	88.7 (%)
EFV	311 ft-lb
BPM	44.2 bpm
CSX	27.4 ksi
VMX	18.9 ft/s
DMX	1.45 in
FMX	33 kips
DFN	1.20 in
FVP	0.8 []

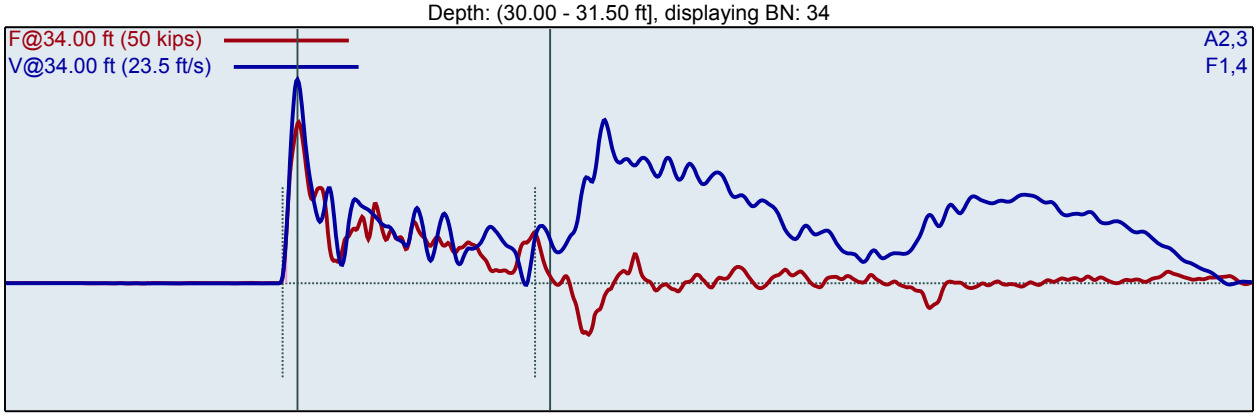
LE	33.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16751.3 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

DIEDRICH D-120 SN 027
TH
AR: 1.19 in^2
LE: 34.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (30.00 - 31.50 ft], displaying BN: 34



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
2	19	30.03	28.2	34	18.6	45.3	314	89.8	0.76	0.32	0.8
3	19	30.05	28.6	34	18.8	44.8	305	87.2	0.69	0.32	0.8
4	19	30.08	28.7	34	19.2	44.3	331	94.7	0.78	0.32	0.8
5	19	30.11	28.8	34	19.0	44.6	325	92.8	0.67	0.32	0.8
6	19	30.13	27.8	33	18.6	44.6	309	88.4	0.45	0.32	0.8
7	19	30.16	27.8	33	19.1	44.6	320	91.4	0.63	0.32	0.8
8	19	30.18	28.2	34	19.2	44.4	318	91.0	0.58	0.32	0.8
9	19	30.21	28.6	34	19.7	44.4	329	94.0	0.46	0.32	0.8
10	19	30.24	28.8	34	19.5	44.5	332	94.9	0.58	0.32	0.8
11	19	30.26	28.7	34	19.9	44.6	341	97.5	0.69	0.32	0.8
12	19	30.29	28.8	34	19.9	44.3	339	96.9	0.52	0.32	0.8
13	19	30.32	28.9	34	20.0	44.5	336	96.0	0.51	0.32	0.8
14	19	30.34	29.3	35	20.1	44.2	343	98.1	0.53	0.32	0.8
15	19	30.37	29.1	35	20.1	44.5	340	97.1	0.51	0.32	0.8
16	19	30.39	29.3	35	20.5	44.2	348	99.4	0.57	0.32	0.8
17	19	30.42	29.1	35	20.3	44.7	350	99.9	0.69	0.32	0.8
18	19	30.45	29.5	35	20.4	44.1	345	98.7	0.52	0.32	0.8
19	19	30.47	29.1	35	20.2	44.7	337	96.4	0.57	0.32	0.8
20	19	30.50	29.2	35	20.4	44.4	347	99.1	0.67	0.32	0.8
21	12	30.54	28.9	34	20.0	44.3	335	95.7	0.59	0.50	0.8
22	12	30.58	28.7	34	20.2	44.5	322	91.9	0.53	0.50	0.8
23	12	30.63	28.5	34	20.2	44.5	318	90.8	0.68	0.50	0.8
24	12	30.67	28.4	34	20.4	44.5	321	91.8	0.71	0.50	0.8
25	12	30.71	28.5	34	20.0	44.3	315	89.9	0.73	0.50	0.8
26	12	30.75	28.8	34	20.3	44.5	328	93.6	0.74	0.50	0.8
27	12	30.79	29.3	35	20.5	44.3	328	93.8	0.88	0.50	0.8
28	12	30.83	28.9	34	20.3	44.4	328	93.6	0.82	0.50	0.8
29	12	30.88	28.2	34	20.5	44.3	326	93.2	0.90	0.50	0.8
30	12	30.92	28.1	33	20.1	44.3	322	91.9	1.05	0.50	0.8
31	12	30.96	28.1	33	20.8	44.4	314	89.8	1.09	0.50	0.8
32	12	31.00	28.8	34	20.1	44.1	324	92.5	0.97	0.50	0.8

33	5	31.10	26.8	32	19.1	44.5	317	90.7	1.30	1.20	0.8
34	5	31.20	26.4	31	18.7	44.3	308	88.0	1.42	1.20	0.8
35	5	31.30	26.8	32	18.5	44.2	307	87.8	1.45	1.20	0.8
36	5	31.40	26.6	32	18.3	44.4	304	87.0	1.44	1.20	0.8
		Average	28.1	33	19.9	44.4	320	91.4	0.96	0.67	0.8
		Std Dev	0.9	1	0.8	0.1	8	2.4	0.30	0.30	0.0
		Maximum	29.3	35	20.8	44.5	335	95.7	1.45	1.20	0.8
		Minimum	26.4	31	18.3	44.1	304	87.0	0.53	0.50	0.8
					N-value: 16						

BN: 36 18-12-5

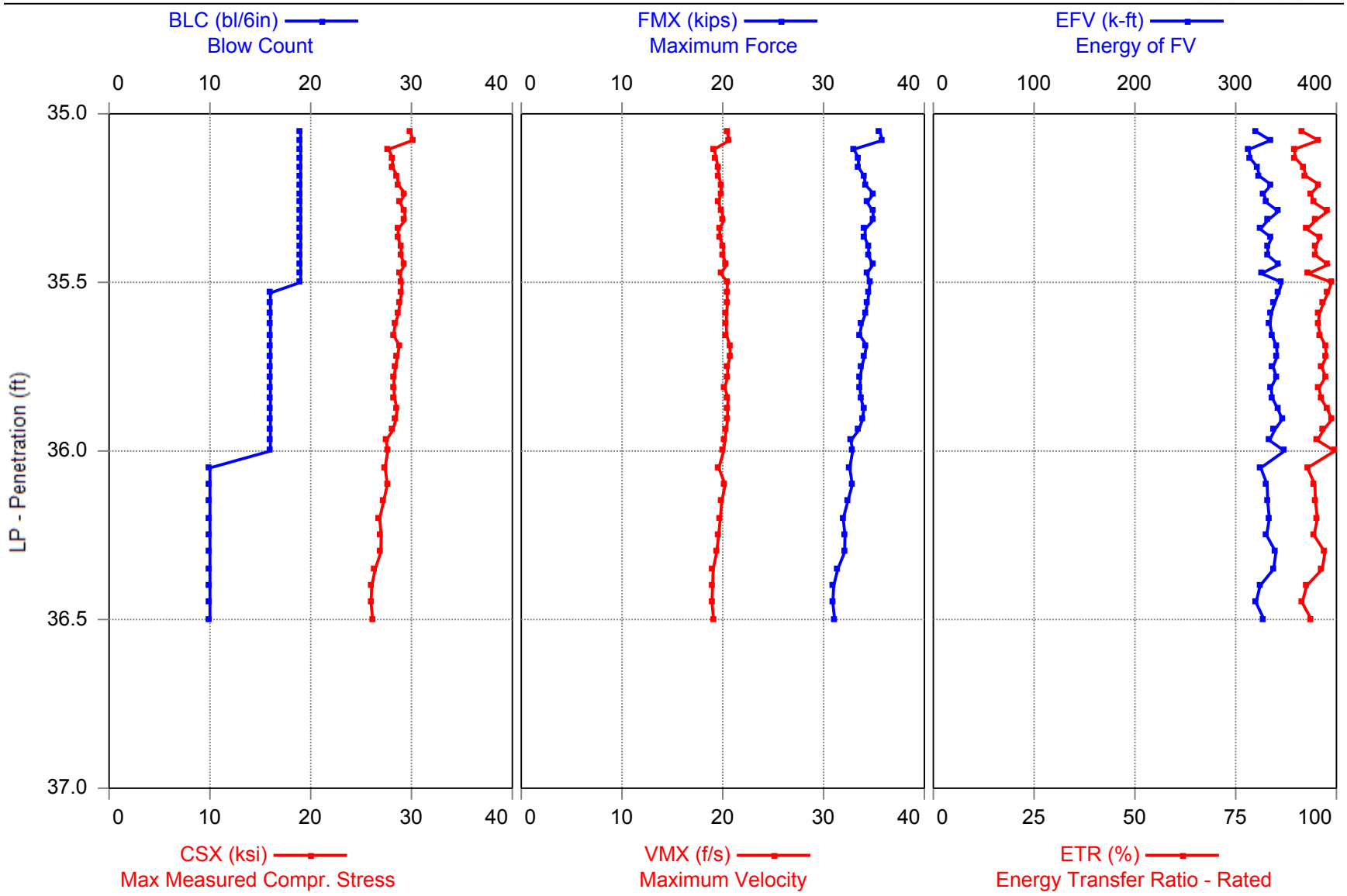
Sample Interval Time: 46.00 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

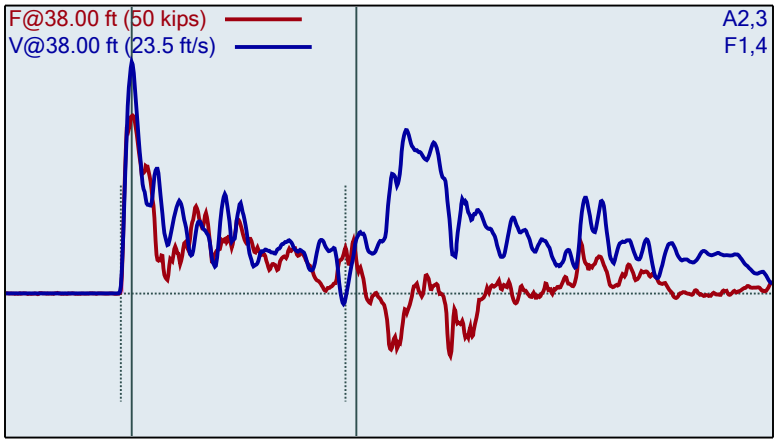
Test started: 02-June-2017

DIEDRICH D-120 SN 027 - 35-36.5



GRL Engineers, Inc.
DIEDRICH D-120 SN 027
35-36.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 44
02Jun2017 07:55:31 AM

ETR	91.5 (%)
EFV	320 ft-lb
BPM	45.0 bpm
CSX	26.0 ksi
VMX	18.9 ft/s
DMX	1.01 in
FMX	31 kips
DFN	0.60 in
FVP	0.8 []

LE	38.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16740.1 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

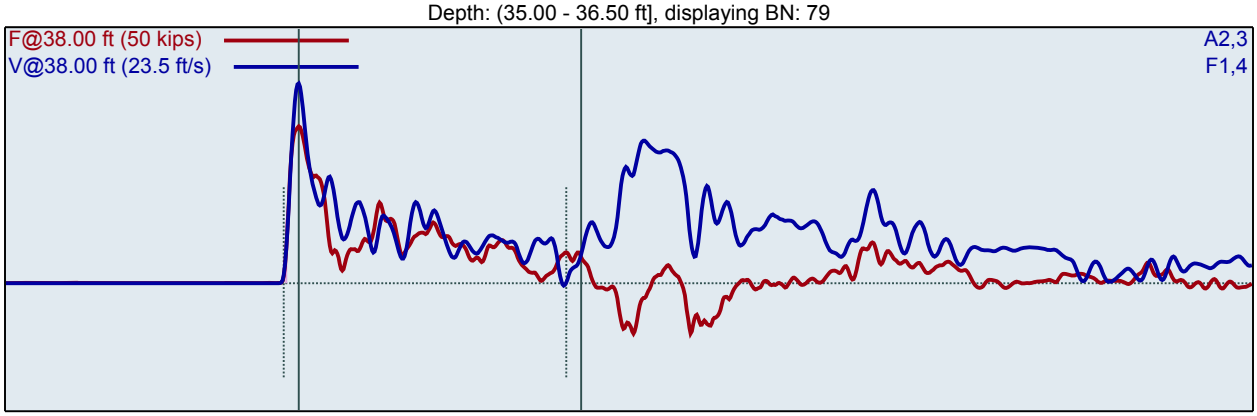
DIEDRICH D-120 SN 027
TH

30-31.5
Test date: 6/2/2017

AR: 1.19 in^2
LE: 38.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (35.00 - 36.50 ft], displaying BN: 79



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
38	18	35.03	29.6	35	19.9	58.1	316	90.2	1.49	0.33	0.8
39	18	35.06	29.6	35	20.1	44.8	330	94.2	0.80	0.33	0.8
40	18	35.08	27.1	32	18.5	45.5	310	88.5	0.60	0.33	0.8
41	18	35.11	27.7	33	18.8	45.4	311	88.9	0.69	0.33	0.8
42	18	35.14	27.8	33	19.0	45.2	317	90.5	0.55	0.33	0.8
43	18	35.17	28.2	34	19.1	45.6	319	91.2	0.61	0.33	0.8
44	18	35.19	28.4	34	19.2	45.0	331	94.5	0.55	0.33	0.8
45	18	35.22	28.7	34	19.2	45.5	324	92.5	0.45	0.33	0.8
46	18	35.25	28.5	34	19.0	45.4	326	93.1	0.50	0.33	0.8
47	18	35.28	28.8	34	19.4	45.2	337	96.4	0.51	0.33	0.8
48	18	35.31	28.7	34	19.5	45.6	328	93.6	0.44	0.33	0.8
49	18	35.33	28.2	34	19.2	45.1	320	91.5	0.48	0.33	0.8
50	18	35.36	28.5	34	19.2	45.1	331	94.7	0.43	0.33	0.8
51	18	35.39	28.7	34	19.5	45.8	327	93.4	0.45	0.33	0.8
52	18	35.42	28.7	34	19.4	45.0	328	93.8	0.42	0.33	0.8
53	18	35.44	29.0	35	19.8	45.3	339	96.8	0.49	0.33	0.8
54	18	35.47	28.5	34	19.3	45.3	322	91.9	0.45	0.33	0.8
55	18	35.50	28.8	34	19.8	45.1	341	97.4	0.47	0.33	0.8
56	16	35.53	28.8	34	19.8	45.1	338	96.7	0.57	0.38	0.8
57	16	35.56	28.6	34	19.8	45.4	334	95.5	0.51	0.37	0.8
58	16	35.59	28.4	34	19.8	45.4	331	94.5	0.51	0.37	0.8
59	16	35.63	28.1	33	19.7	44.9	330	94.2	0.61	0.37	0.8
60	16	35.66	27.9	33	19.7	45.3	332	94.8	0.62	0.38	0.8
61	16	35.69	28.4	34	20.1	45.1	337	96.2	0.76	0.37	0.8
62	16	35.72	28.0	33	20.0	45.3	337	96.3	0.82	0.37	0.8
63	16	35.75	28.2	34	19.8	45.2	333	95.1	0.68	0.37	0.8
64	16	35.78	27.8	33	19.7	45.4	337	96.2	0.73	0.38	0.8
65	16	35.81	27.7	33	19.6	45.3	331	94.6	0.78	0.37	0.8
66	16	35.84	28.1	33	19.8	45.0	332	94.8	0.76	0.38	0.8
67	16	35.88	28.4	34	19.9	44.9	337	96.3	0.74	0.38	0.8
68	16	35.91	28.2	34	19.8	45.4	342	97.7	0.89	0.37	0.8
69	16	35.94	27.3	33	19.7	45.2	335	95.7	0.77	0.37	0.8
70	16	35.97	27.1	32	19.6	45.1	330	94.2	0.82	0.38	0.8
71	16	36.00	27.4	33	19.4	45.3	345	98.5	1.15	0.38	0.8
72	10	36.05	27.0	32	19.0	45.2	322	91.9	0.88	0.60	0.8
73	10	36.10	27.0	32	19.5	45.2	327	93.6	0.89	0.60	0.8

74	10	36.15	26.8	32	19.3	45.3	328	93.7	1.01	0.60	0.8
75	10	36.20	26.3	31	19.2	45.0	330	94.2	1.02	0.60	0.8
76	10	36.25	26.4	31	19.0	45.2	327	93.5	0.97	0.60	0.8
77	10	36.30	26.4	31	18.7	45.4	336	96.1	1.18	0.60	0.8
78	10	36.35	25.9	31	18.5	44.8	333	95.1	1.08	0.60	0.8
79	10	36.40	25.8	31	18.4	45.3	320	91.5	1.10	0.60	0.8
80	10	36.45	25.7	31	18.3	45.0	317	90.5	1.01	0.60	0.8
81	10	36.50	25.9	31	18.6	45.1	325	92.9	1.03	0.60	0.8
		Average	27.4	33	19.4	45.2	332	94.8	0.84	0.46	0.8
		Std Dev	0.9	1	0.5	0.2	6	1.8	0.19	0.11	0.0
		Maximum	28.8	34	20.1	45.4	345	98.5	1.18	0.60	0.8
		Minimum	25.7	31	18.3	44.8	317	90.5	0.51	0.37	0.8

N-value: 26

BN: 81 18-16-10

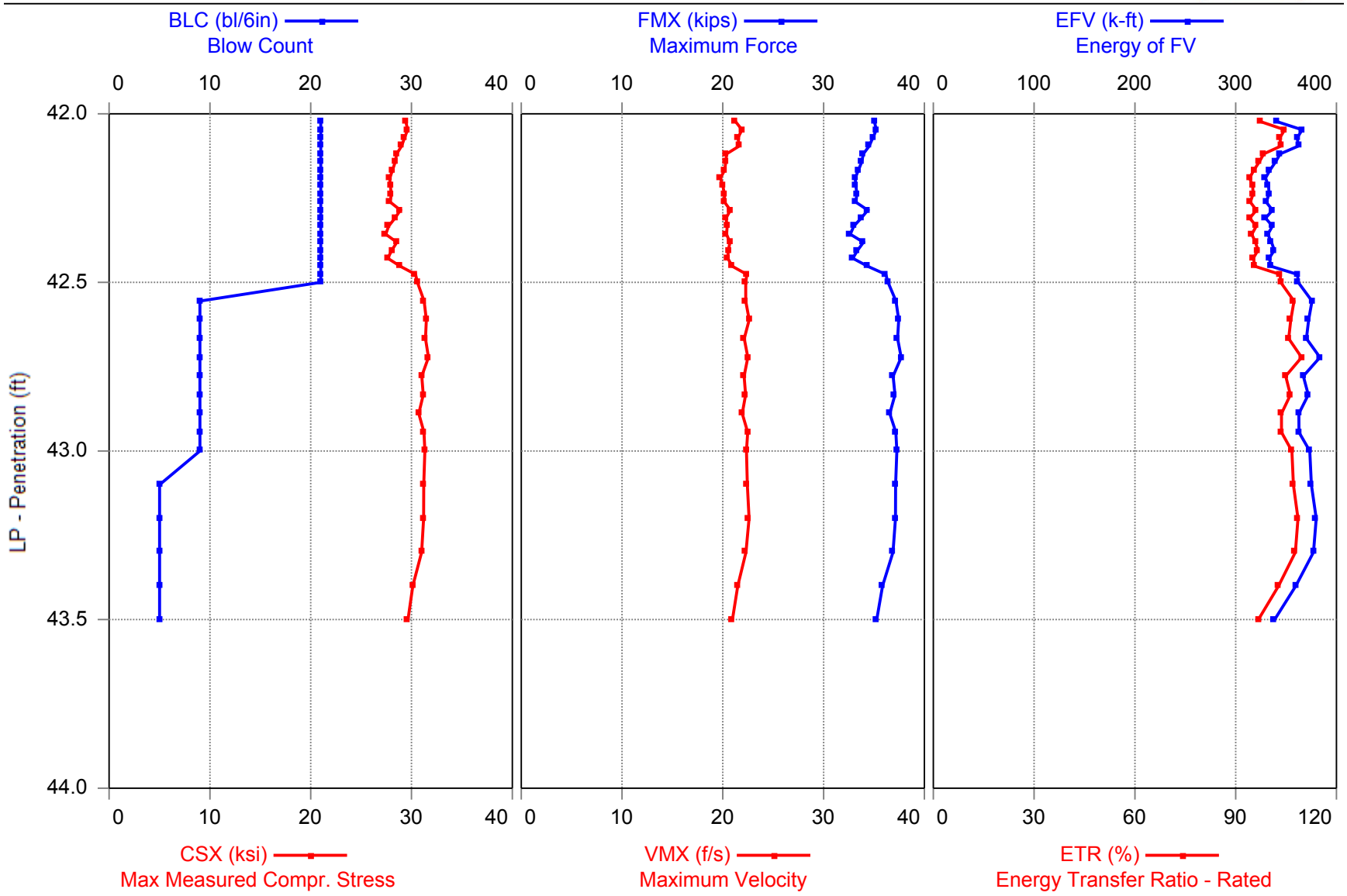
Sample Interval Time: 57.00 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

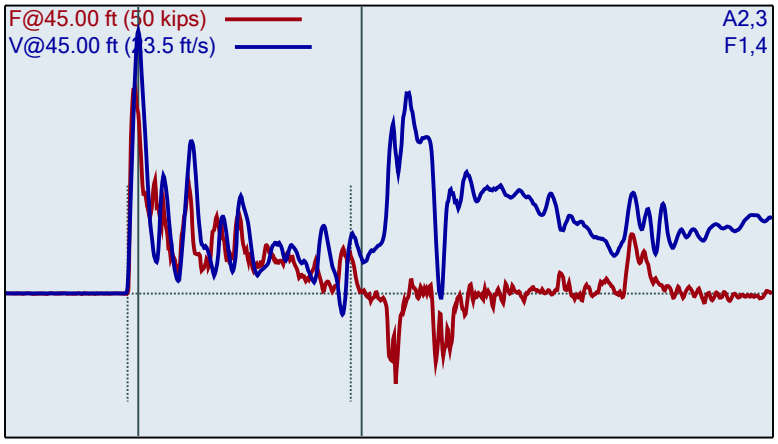
Test started: 02-June-2017

DIEDRICH D-120 SN 027 - 42-43.5



GRL Engineers, Inc.
DIEDRICH D-120 SN 027
42-43.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 34
02Jun2017 08:20:39 AM

ETR	102.8 (%)
EFV	360 ft-lb
BPM	44.8 bpm
CSX	30.1 ksi
VMX	21.5 ft/s
DMX	2.16 in
FMX	36 kips
DFN	1.20 in
FVP	0.7 []

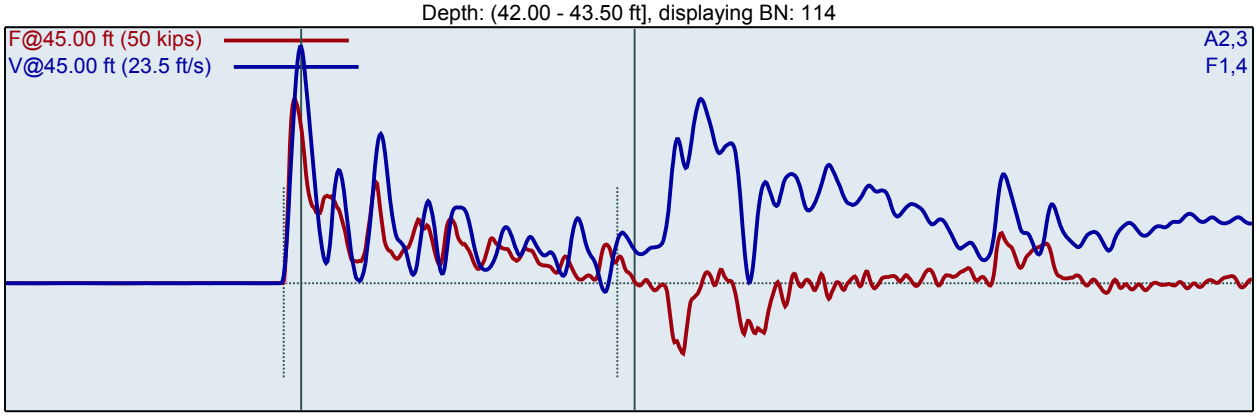
LE	45.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16791.0 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

DIEDRICH D-120 SN 027
TH
AR: 1.19 in^2
LE: 45.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (42.00 - 43.50 ft], displaying BN: 114



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
82	21	42.02	28.6	34	20.7	1.9	336	96.1	0.93	0.29	0.7
83	21	42.05	28.9	34	21.3	43.5	361	103.0	0.58	0.29	0.7
84	21	42.07	28.5	34	21.0	44.4	356	101.6	0.53	0.29	0.7
85	21	42.10	28.4	34	21.1	44.5	357	102.1	0.53	0.29	0.7
86	21	42.12	27.6	33	19.9	44.8	340	97.0	0.46	0.29	0.7
87	21	42.14	27.6	33	19.8	45.1	335	95.8	0.45	0.29	0.7
88	21	42.17	27.2	32	19.7	45.3	329	94.1	0.45	0.29	0.7
89	21	42.19	27.0	32	19.4	45.4	325	93.0	0.47	0.29	0.7
90	21	42.21	27.0	32	19.6	45.0	328	93.7	0.50	0.29	0.7
91	21	42.24	27.0	32	19.7	45.2	329	93.9	0.51	0.29	0.7
92	21	42.26	27.0	32	19.7	45.4	326	93.2	0.52	0.29	0.7
93	21	42.29	27.9	33	20.1	44.9	332	94.7	0.53	0.29	0.7
94	21	42.31	27.4	33	19.8	45.4	325	92.8	0.55	0.29	0.7
95	21	42.33	26.9	32	19.9	45.5	332	94.9	0.60	0.29	0.7
96	21	42.36	26.8	32	19.7	44.8	328	93.6	0.59	0.29	0.7
97	21	42.38	27.5	33	20.1	45.3	331	94.5	0.60	0.29	0.7
98	21	42.40	27.2	32	19.9	45.0	334	95.3	0.70	0.29	0.7
99	21	42.43	26.8	32	19.8	45.2	328	93.7	0.62	0.29	0.7
100	21	42.45	27.9	33	20.2	44.9	331	94.4	0.66	0.29	0.7
101	21	42.48	29.4	35	21.8	45.2	356	101.7	0.77	0.29	0.7
102	21	42.50	29.8	35	21.8	45.0	357	101.9	0.89	0.29	0.7
103	9	42.56	30.0	36	21.7	45.1	370	105.7	1.23	0.67	0.7
104	9	42.61	30.4	36	22.0	44.7	367	104.8	1.48	0.67	0.7
105	9	42.67	30.1	36	21.5	45.3	363	103.8	1.04	0.67	0.7
106	9	42.72	30.4	36	21.9	44.8	378	108.0	1.17	0.67	0.7
107	9	42.78	30.0	36	21.6	45.0	362	103.3	1.05	0.67	0.7
108	9	42.83	30.1	36	21.7	45.3	366	104.6	0.95	0.67	0.7
109	9	42.89	29.7	35	21.4	45.0	357	102.0	1.27	0.67	0.7
110	9	42.94	30.2	36	21.9	45.1	357	102.1	1.25	0.67	0.7
111	9	43.00	30.3	36	21.8	44.9	368	105.2	1.41	0.67	0.7
112	5	43.10	30.4	36	21.8	45.2	370	105.6	1.57	1.20	0.7
113	5	43.20	30.6	36	22.0	44.8	374	106.9	1.69	1.20	0.7
114	5	43.30	30.2	36	21.8	45.0	372	106.2	1.87	1.20	0.7
115	5	43.40	29.3	35	21.0	44.8	355	101.3	2.16	1.20	0.7
116	5	43.50	29.0	35	20.4	45.1	334	95.3	1.81	1.20	0.7

Average	30.0	36	21.6	45.0	364	103.9	1.42	0.86	0.7
Std Dev	0.4	0	0.4	0.2	11	3.0	0.34	0.26	0.0
Maximum	30.6	36	22.0	45.3	378	108.0	2.16	1.20	0.7
Minimum	29.0	35	20.4	44.7	334	95.3	0.95	0.67	0.7

N-value: 14

BN: 116 21-9-5

Sample Interval Time: 45.35 seconds.

Summary of SPT Test Results

Project: DIEDRICH D-120 SN 027, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

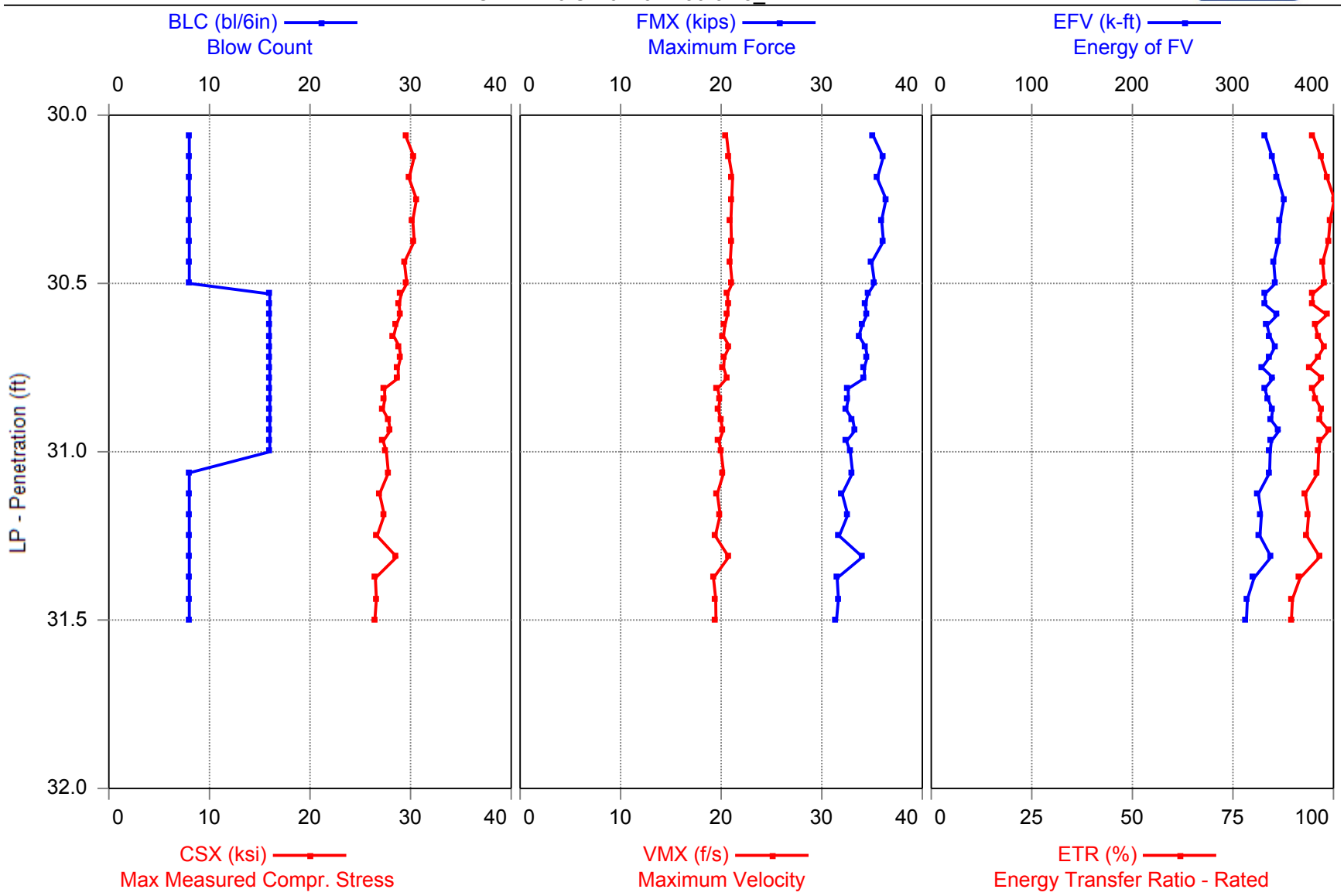
Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**19-12-5**	30.00	31.50	**17**	**27**	28.1	33	19.9	44.4	320	91.4	0.96	0.67	0.8
38.00	**18-16-10**	35.00	36.50	**26**	**41**	27.4	33	19.4	45.2	332	94.8	0.84	0.46	0.8
45.00	**21-9-5**	42.00	43.50	**14**	**22**	30.0	36	21.6	45.0	364	103.9	1.42	0.86	0.7
			Overall Average Values:			28.2	34	20.1	44.9	336	96.1	1.02	0.62	0.8
			Standard Deviation:			1.4	2	1.1	0.4	18	5.3	0.36	0.27	0.0
			Overall Maximum Value:			30.6	36	22.0	45.4	378	108.0	2.16	1.20	0.8
			Overall Minimum Value:			25.7	31	18.3	44.1	304	87.0	0.51	0.37	0.7

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

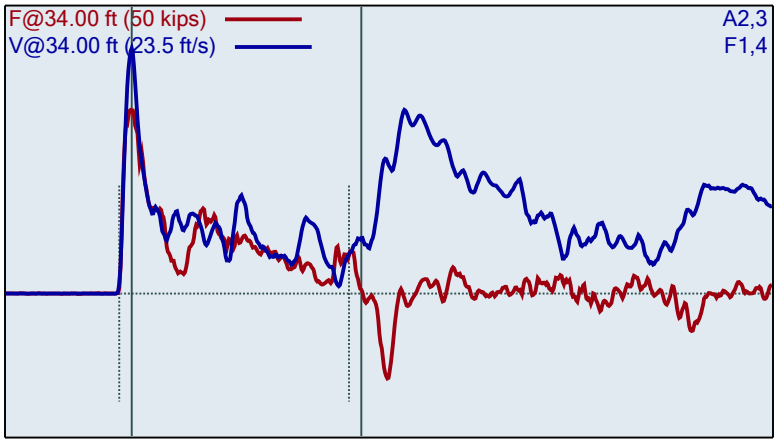
Test started: 02-June-2017

DIEDRICH D-120 SN 61491 - 30-31.5_2



GRL Engineers, Inc.
DIEDRICH D-120 SN 61491
30-31.5_2
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 31
02Jun2017 09:13:31 AM

ETR	90.8 (%)
EFV	318 ft-lb
BPM	47.7 bpm
CSX	26.8 ksi
VMX	20.0 ft/s
DMX	1.39 in
FMX	32 kips
DFN	0.75 in
FVP	0.7 []

LE	34.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

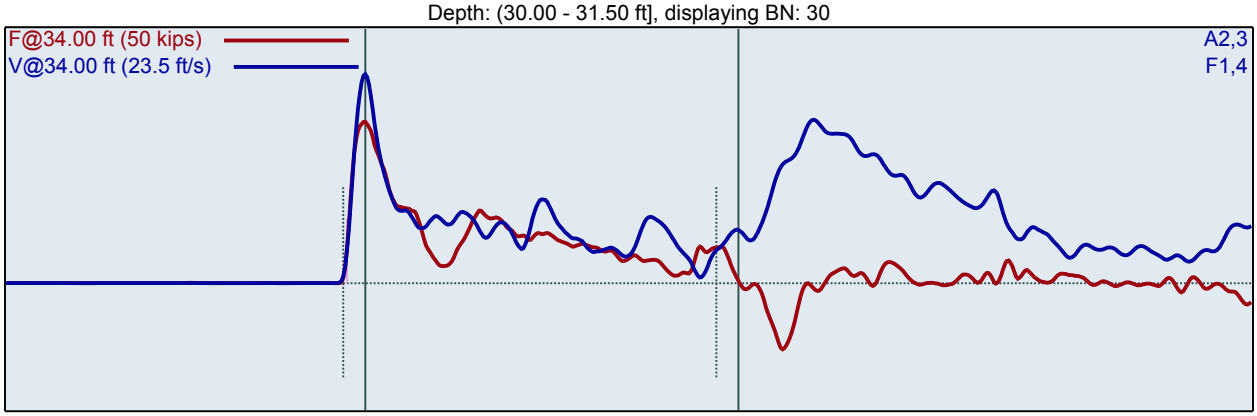
DIEDRICH D-120 SN 61491
TH

30-31.5_2
Test date: 6/2/2017

AR: 1.19 in^2
LE: 34.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (30.00 - 31.50 ft], displaying BN: 30



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
1	8	30.06	29.5	35	20.5	47.3	332	95.0	0.96	0.75	0.8
2	8	30.13	30.3	36	20.8	47.5	339	96.9	1.02	0.75	0.8
3	8	30.19	29.9	36	21.1	47.2	345	98.4	1.07	0.75	0.8
4	8	30.25	30.6	36	21.0	47.4	351	100.2	0.87	0.75	0.8
5	8	30.31	30.2	36	21.0	47.3	347	99.2	0.82	0.75	0.8
6	8	30.38	30.4	36	21.0	47.4	346	98.7	0.83	0.75	0.8
7	8	30.44	29.4	35	20.9	47.4	341	97.3	0.78	0.75	0.8
8	8	30.50	29.6	35	21.1	47.3	342	97.8	0.75	0.75	0.8
9	16	30.53	29.1	35	20.6	47.3	332	94.8	0.67	0.37	0.8
10	16	30.56	28.8	34	20.7	47.5	332	94.8	0.64	0.37	0.8
11	16	30.59	29.0	34	20.6	47.1	344	98.3	0.64	0.37	0.8
12	16	30.63	28.6	34	20.4	47.4	334	95.4	0.55	0.37	0.8
13	16	30.66	28.3	34	20.2	46.1	336	96.1	0.49	0.37	0.8
14	16	30.69	28.9	34	20.8	47.2	342	97.7	0.63	0.37	0.8
15	16	30.72	29.0	35	20.3	47.3	337	96.1	0.57	0.37	0.8
16	16	30.75	28.8	34	20.2	47.5	329	94.0	0.41	0.37	0.8
17	16	30.78	28.8	34	20.6	47.1	340	97.2	0.51	0.37	0.8
18	16	30.81	27.4	33	19.6	47.3	332	94.8	0.61	0.37	0.8
19	16	30.84	27.4	33	19.9	47.0	335	95.6	0.49	0.37	0.8
20	16	30.88	27.2	32	19.7	47.4	339	97.0	0.66	0.37	0.8
21	16	30.91	27.8	33	20.0	47.3	338	96.6	0.65	0.37	0.8
22	16	30.94	28.0	33	20.2	47.4	346	98.8	0.86	0.37	0.8
23	16	30.97	27.3	32	19.8	47.4	338	96.6	0.83	0.37	0.8
24	16	31.00	27.6	33	20.0	47.5	337	96.3	0.77	0.37	0.8
25	8	31.06	27.8	33	20.2	47.2	336	96.1	1.19	0.75	0.8
26	8	31.13	26.9	32	19.6	47.6	325	93.0	1.01	0.75	0.8
27	8	31.19	27.4	33	19.9	47.3	328	93.8	1.14	0.75	0.8
28	8	31.25	26.7	32	19.4	47.1	327	93.4	1.32	0.75	0.8
29	8	31.31	28.6	34	20.7	47.6	338	96.6	1.43	0.75	0.8
30	8	31.38	26.5	32	19.2	47.2	321	91.7	1.42	0.75	0.8
31	8	31.44	26.6	32	19.4	47.7	314	89.8	1.39	0.75	0.8

32	8	31.50	26.4	31	19.5	47.0	313	89.5	1.53	0.75	0.8
		Average	27.9	33	20.1	47.3	333	95.2	0.85	0.50	0.8
		Std Dev	0.9	1	0.5	0.3	8	2.3	0.35	0.18	0.0
		Maximum	29.1	35	20.8	47.7	346	98.8	1.53	0.75	0.8
		Minimum	26.4	31	19.2	46.1	313	89.5	0.41	0.37	0.8
					N-value: 24						

BN: 32 9-16-8

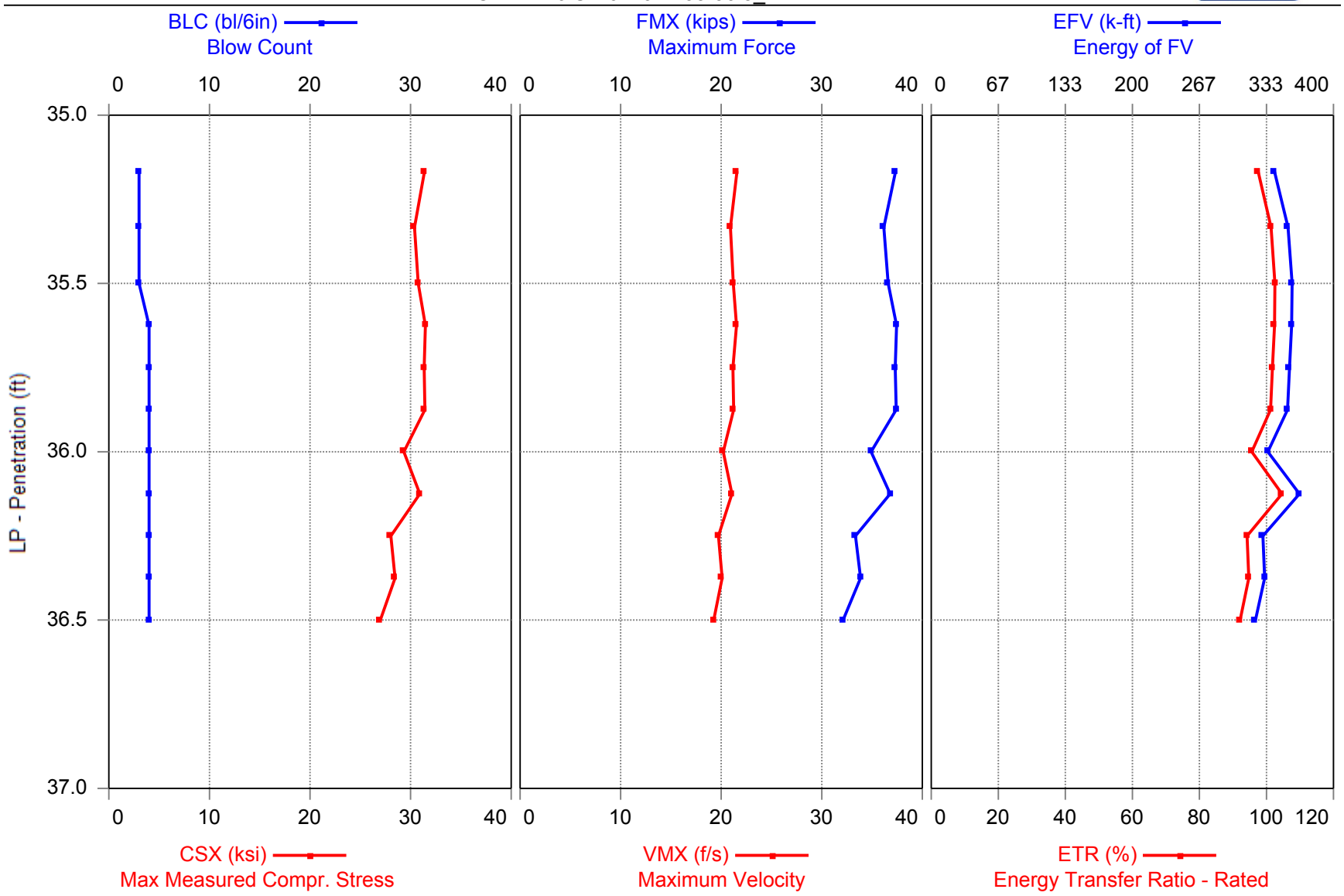
Sample Interval Time: 39.30 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

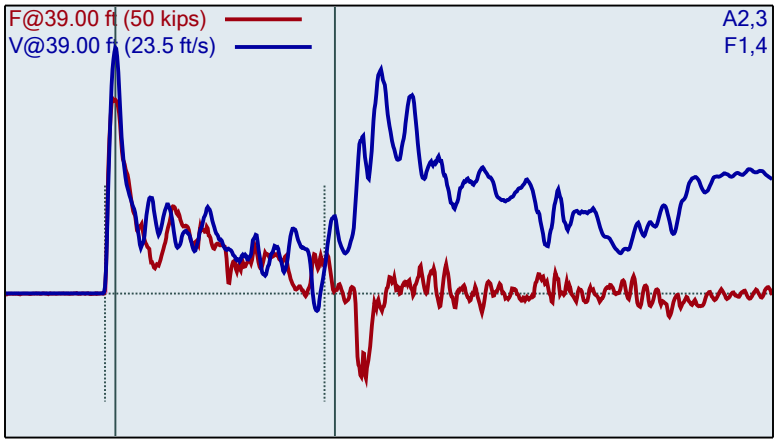
Test started: 02-June-2017

DIEDRICH D-120 SN 61491 - 35-36.5_1



GRL Engineers, Inc.
DIEDRICH D-120 SN 61491
35-36.5_1
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 10
02Jun2017 09:19:57 AM

ETR	94.7 (%)
EFV	332 ft-lb
BPM	47.2 bpm
CSX	28.5 ksi
VMX	20.1 ft/s
DMX	2.91 in
FMX	34 kips
DFN	1.50 in
FVP	0.8 []

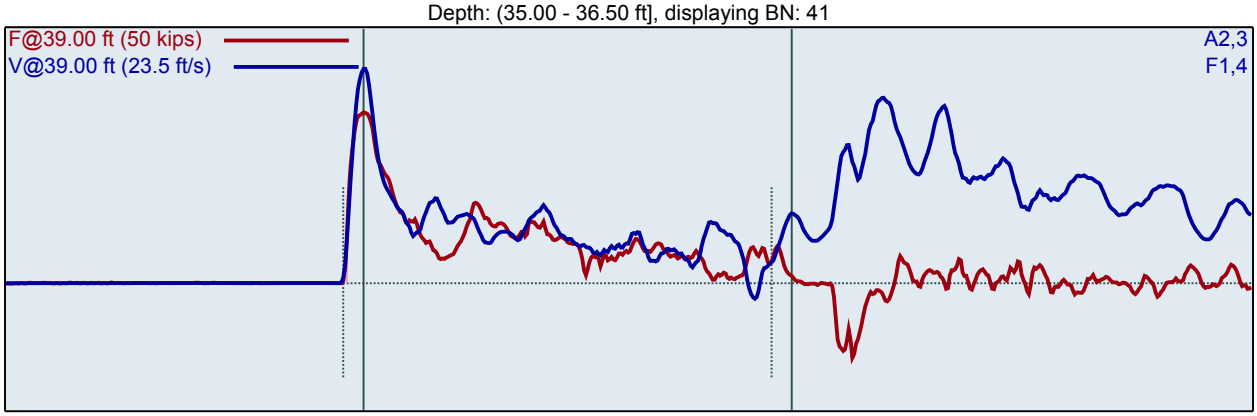
LE	39.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16738.2 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

DIEDRICH D-120 SN 61491
TH
AR: 1.19 in^2
LE: 39.00 ft
WS: 16807.9 ft/s

30-31.5_2
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (35.00 - 36.50 ft], displaying BN: 41



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
33	3	35.17	31.4	37	21.6	1.9	341	97.5	2.75	2.00	0.8
34	3	35.33	30.4	36	20.9	47.3	355	101.4	2.00	2.00	0.8
35	3	35.50	30.8	37	21.2	46.5	359	102.5	2.00	2.00	0.8
36	4	35.63	31.5	37	21.5	46.7	358	102.4	1.50	1.50	0.7
37	4	35.75	31.4	37	21.2	47.2	356	101.8	1.51	1.50	0.8
38	4	35.88	31.4	37	21.2	47.1	354	101.2	1.54	1.50	0.8
39	4	36.00	29.3	35	20.2	46.9	335	95.6	1.63	1.50	0.8
40	4	36.13	30.9	37	21.1	46.7	366	104.6	2.31	1.50	0.8
41	4	36.25	28.0	33	19.7	47.1	330	94.2	2.30	1.50	0.8
42	4	36.38	28.5	34	20.1	47.2	332	94.7	2.91	1.50	0.8
43	4	36.50	27.0	32	19.3	47.1	322	92.1	3.48	1.50	0.8
		Average	29.7	35	20.5	47.0	344	98.3	2.15	1.50	0.8
		Std Dev	1.7	2	0.8	0.2	15	4.4	0.70	0.00	0.0
		Maximum	31.5	37	21.5	47.2	366	104.6	3.48	1.50	0.8
		Minimum	27.0	32	19.3	46.7	322	92.1	1.50	1.50	0.7
					N-value: 8						

BN: 43 3-4-4

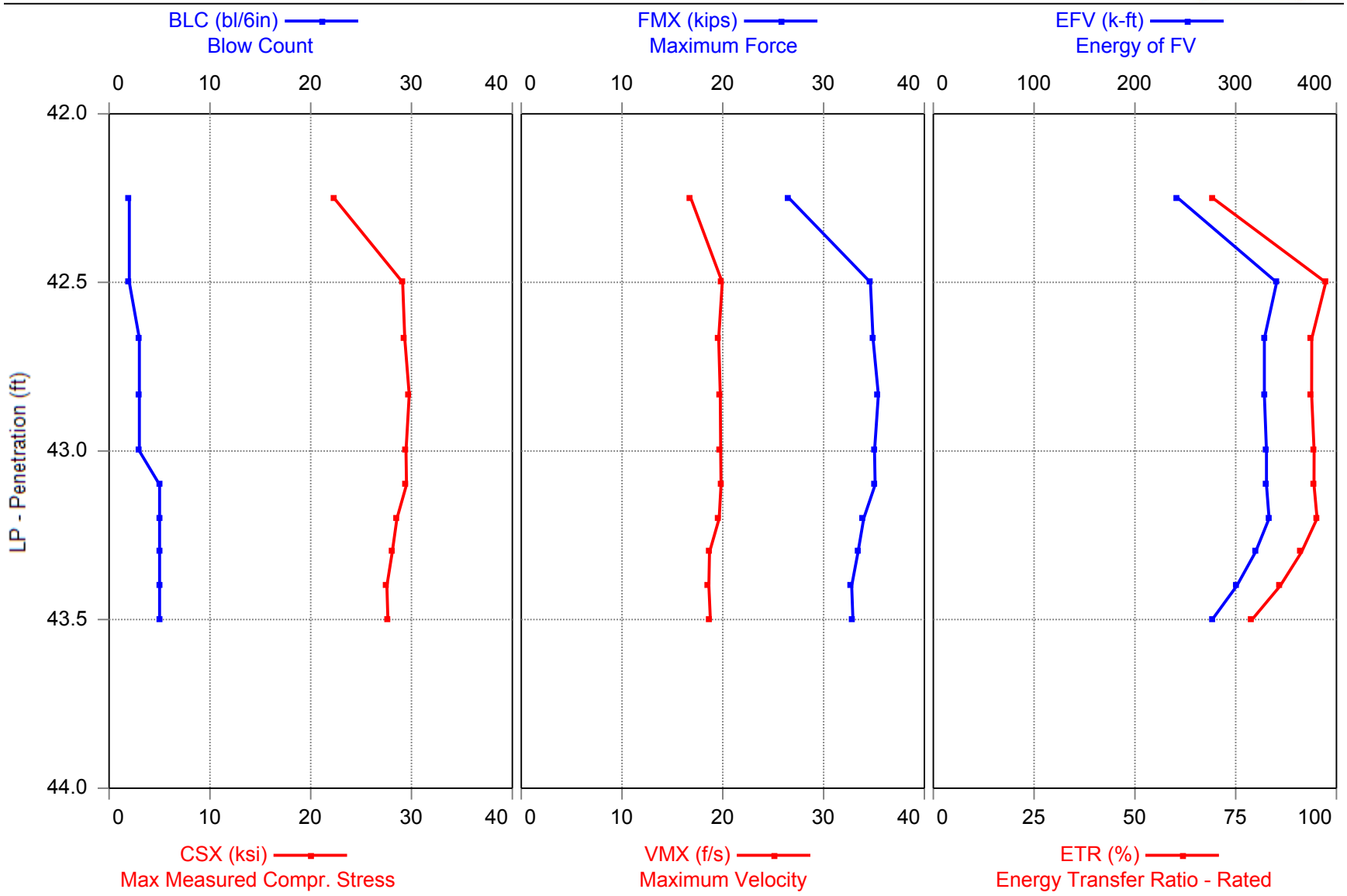
Sample Interval Time: 12.81 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

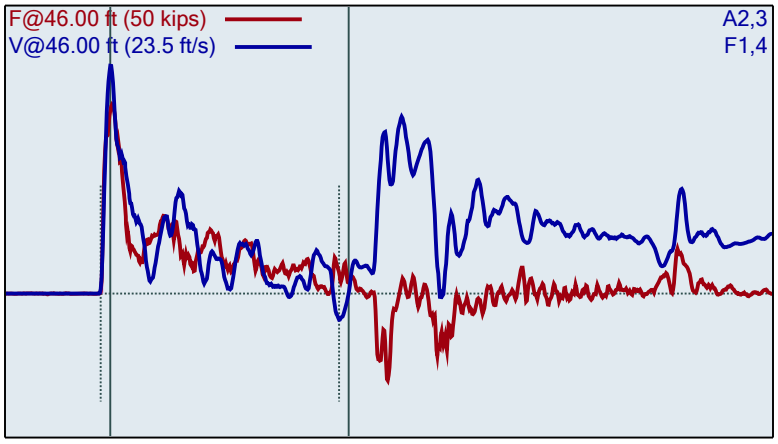
Test started: 02-June-2017

DIEDRICH D-120 SN 61491 - 42-43.5



GRL Engineers, Inc.
DIEDRICH D-120 SN 61491
42-43.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 9
02Jun2017 09:42:26 AM

ETR	86.0 (%)
EFV	301 ft-lb
BPM	41.3 bpm
CSX	27.6 ksi
VMX	18.6 ft/s
DMX	1.76 in
FMX	33 kips
DFN	1.19 in
FVP	0.8 []

LE	46.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16788.3 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

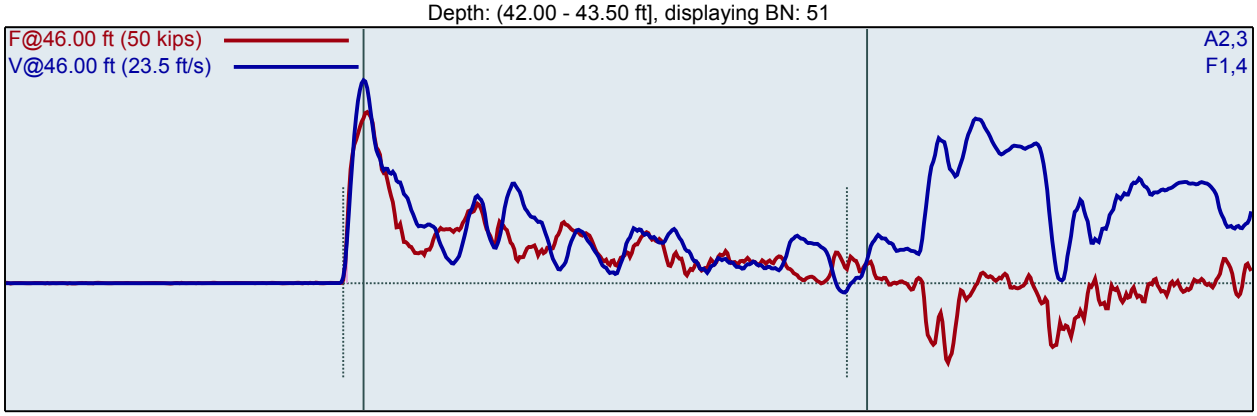
DIEDRICH D-120 SN 61491
TH

30-31.5_2
Test date: 6/2/2017

AR: 1.19 in^2
LE: 46.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (42.00 - 43.50 ft], displaying BN: 51



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
44	2	42.25	22.3	27	16.8	1.9	243	69.3	3.00	3.00	0.7
45	2	42.50	29.1	35	19.9	38.8	341	97.3	3.00	3.00	0.8
46	3	42.67	29.3	35	19.6	41.2	328	93.9	2.00	2.00	0.8
47	3	42.83	29.8	35	19.7	41.3	328	93.8	2.14	2.00	0.8
48	3	43.00	29.5	35	19.8	40.9	331	94.4	2.63	2.00	0.8
49	5	43.10	29.5	35	19.8	41.5	330	94.4	2.25	1.20	0.8
50	5	43.20	28.6	34	19.6	41.1	333	95.2	1.93	1.20	0.8
51	5	43.30	28.1	33	18.7	41.4	320	91.3	2.34	1.20	0.8
52	5	43.40	27.6	33	18.6	41.3	301	86.0	1.76	1.19	0.8
53	5	43.50	27.7	33	18.8	41.2	277	79.1	1.82	1.17	0.8
		Average	28.7	34	19.3	41.2	319	91.0	2.11	1.49	0.8
		Std Dev	0.8	1	0.5	0.2	19	5.3	0.27	0.39	0.0
		Maximum	29.8	35	19.8	41.5	333	95.2	2.63	2.00	0.8
		Minimum	27.6	33	18.6	40.9	277	79.1	1.76	1.17	0.8
					N-value: 8						

BN: 53 2-3-5

Sample Interval Time: 13.20 seconds.

Summary of SPT Test Results

Project: DIEDRICH D-120 SN 61491, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

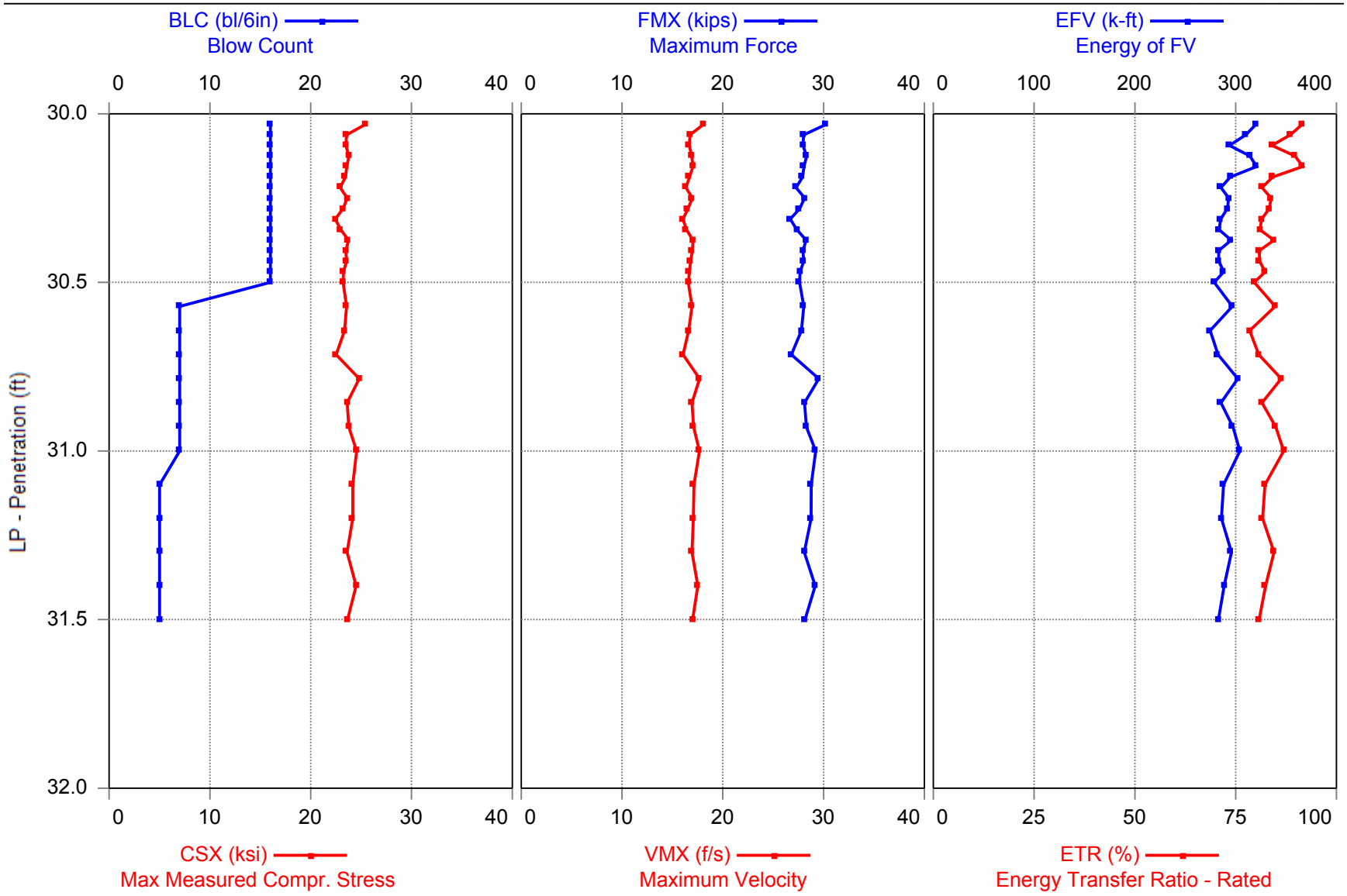
Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**8-16-8**	30.00	31.50	**24**	**37**	27.9	33	20.1	47.3	333	95.2	0.85	0.50	0.8
39.00	**3-4-4**	35.00	36.50	**8**	**12**	29.7	35	20.5	47.0	344	98.3	2.15	1.50	0.8
46.00	**2-3-5**	42.00	43.50	**8**	**12**	28.7	34	19.3	41.2	319	91.0	2.11	1.49	0.8
			Overall Average Values:			28.4	34	20.0	46.0	332	95.0	1.36	0.90	0.8
			Standard Deviation:			1.3	2	0.7	2.4	15	4.3	0.76	0.54	0.0
			Overall Maximum Value:			31.5	37	21.5	47.7	366	104.6	3.48	2.00	0.8
			Overall Minimum Value:			26.4	31	18.6	40.9	277	79.1	0.41	0.37	0.7

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

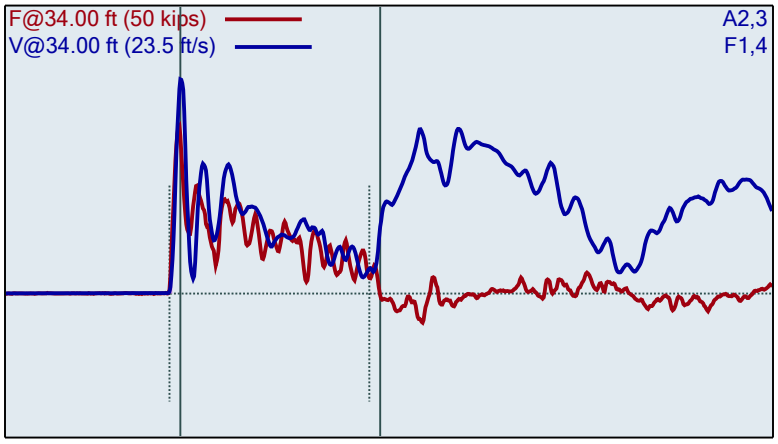
Test started: 02-June-2017

GEOPROBE 7730 DT - 30-31.5



GRL Engineers, Inc.
GEOPROBE 7730 DT
30-31.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 27
02Jun2017 10:25:11 AM

ETR	82.4 (%)
EFV	288 ft-lb
BPM	41.9 bpm
CSX	24.5 ksi
VMX	17.5 ft/s
DMX	1.58 in
FMX	29 kips
DFN	1.20 in
FVP	0.7 []

LE	34.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

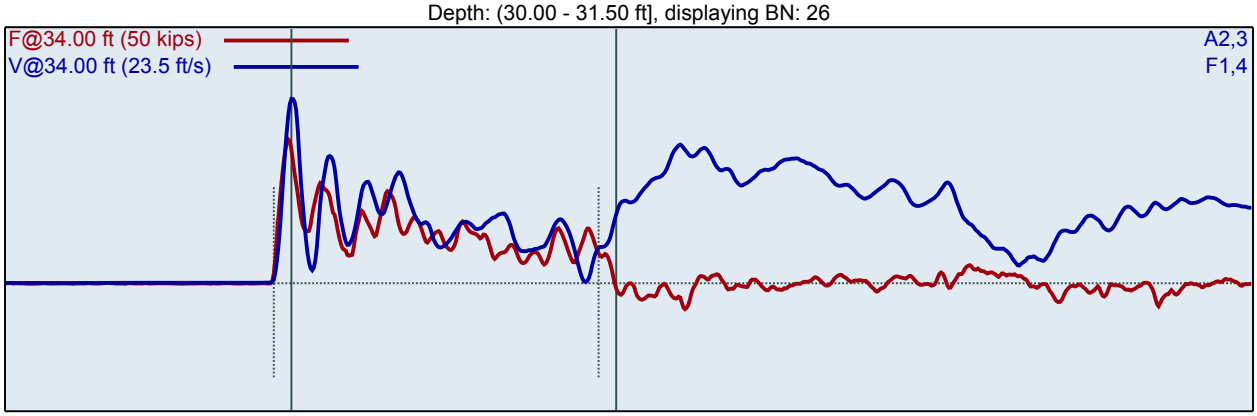
GEOPROBE 7730 DT
TH

30-31.5
Test date: 6/2/2017

AR: 1.19 in^2
LE: 34.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (30.00 - 31.50 ft], displaying BN: 26



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
1	16	30.03	25.4	30	18.1	1.9	320	91.5	2.04	0.37	0.7
2	16	30.06	23.6	28	16.7	40.4	310	88.5	1.15	0.37	0.7
3	16	30.09	23.5	28	16.7	41.2	294	84.0	0.98	0.37	0.7
4	16	30.13	23.8	28	16.9	41.5	314	89.7	1.04	0.37	0.7
5	16	30.16	23.6	28	17.0	41.6	321	91.7	0.86	0.37	0.7
6	16	30.19	23.5	28	16.7	41.6	295	84.2	0.74	0.37	0.7
7	16	30.22	22.9	27	16.3	41.7	285	81.5	0.63	0.37	0.7
8	16	30.25	23.6	28	17.0	41.7	293	83.8	0.67	0.37	0.7
9	16	30.28	23.2	28	16.6	41.7	292	83.4	0.73	0.37	0.7
10	16	30.31	22.4	27	16.0	41.9	285	81.4	0.68	0.37	0.7
11	16	30.34	23.0	27	16.4	41.9	283	81.0	0.61	0.37	0.7
12	16	30.38	23.8	28	17.0	41.8	296	84.5	0.47	0.37	0.7
13	16	30.41	23.5	28	17.0	41.9	283	80.8	0.55	0.37	0.7
14	16	30.44	23.6	28	16.8	41.8	283	80.9	0.56	0.37	0.7
15	16	30.47	23.3	28	16.7	41.9	288	82.3	0.54	0.37	0.7
16	16	30.50	23.2	28	16.6	41.5	279	79.6	0.70	0.37	0.7
17	7	30.57	23.6	28	16.9	41.8	297	84.8	1.16	0.86	0.7
18	7	30.64	23.4	28	16.6	41.9	275	78.5	0.90	0.86	0.7
19	7	30.71	22.5	27	16.1	41.9	283	80.7	0.99	0.86	0.7
20	7	30.79	24.8	30	17.7	41.9	302	86.3	0.98	0.86	0.7
21	7	30.86	23.6	28	16.9	41.9	285	81.5	1.19	0.86	0.7
22	7	30.93	23.8	28	17.1	41.8	297	84.9	1.32	0.86	0.7
23	7	31.00	24.5	29	17.7	41.9	304	86.9	1.36	0.86	0.7
24	5	31.10	24.2	29	17.1	41.7	288	82.3	1.34	1.20	0.7
25	5	31.20	24.2	29	17.1	41.9	286	81.7	1.52	1.20	0.7
26	5	31.30	23.6	28	16.9	41.9	296	84.5	1.48	1.20	0.7
27	5	31.40	24.5	29	17.5	41.9	288	82.4	1.58	1.20	0.7
28	5	31.50	23.7	28	17.0	41.8	283	80.8	1.93	1.20	0.7

Average	23.9	28	17.1	41.8	290	82.9	1.31	1.00	0.7
Std Dev	0.6	1	0.4	0.1	8	2.4	0.28	0.17	0.0
Maximum	24.8	30	17.7	41.9	304	86.9	1.93	1.20	0.7
Minimum	22.5	27	16.1	41.7	275	78.5	0.90	0.86	0.7

N-value: 12

BN: 28 14-7-5

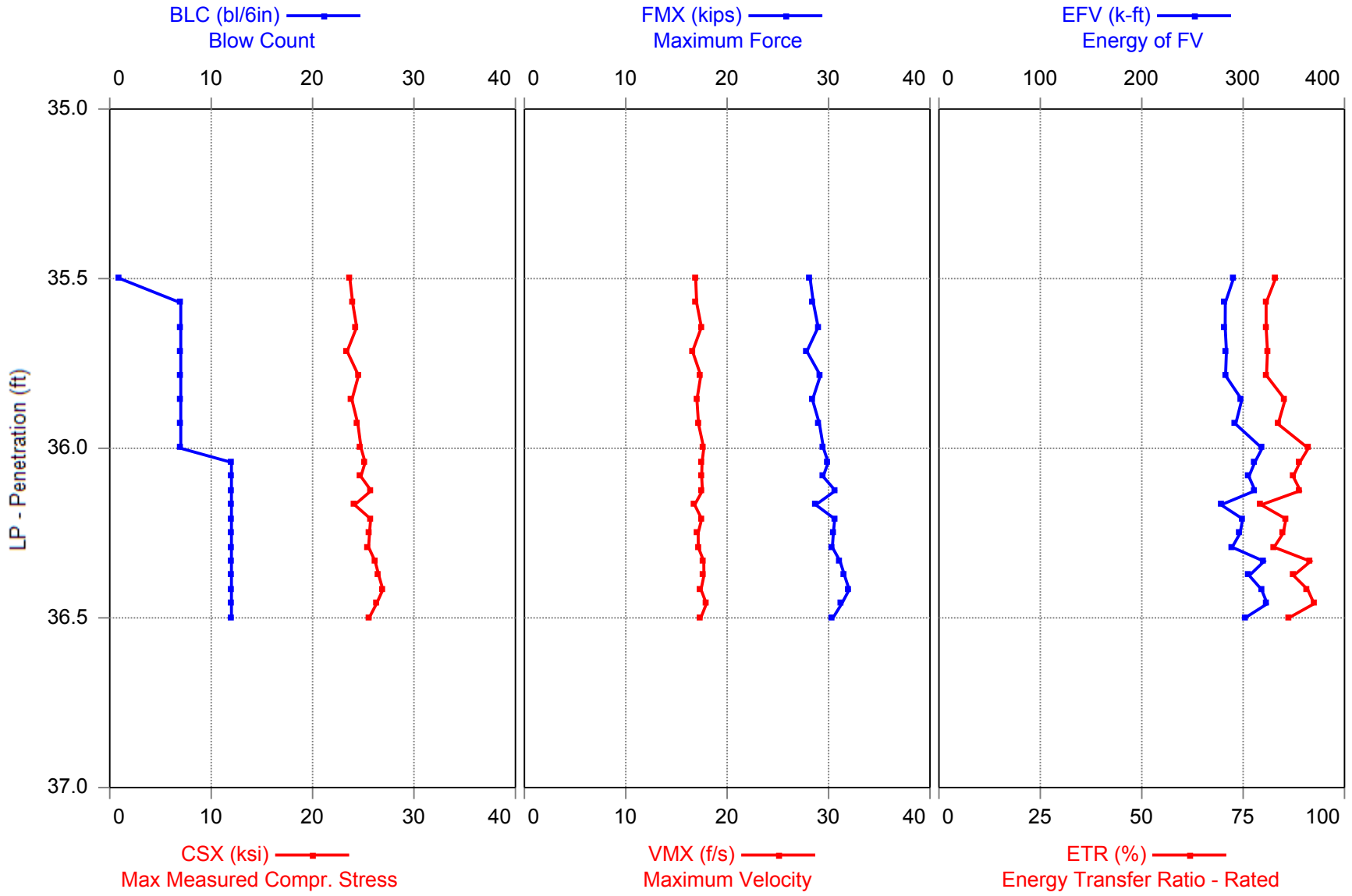
Sample Interval Time: 38.83 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

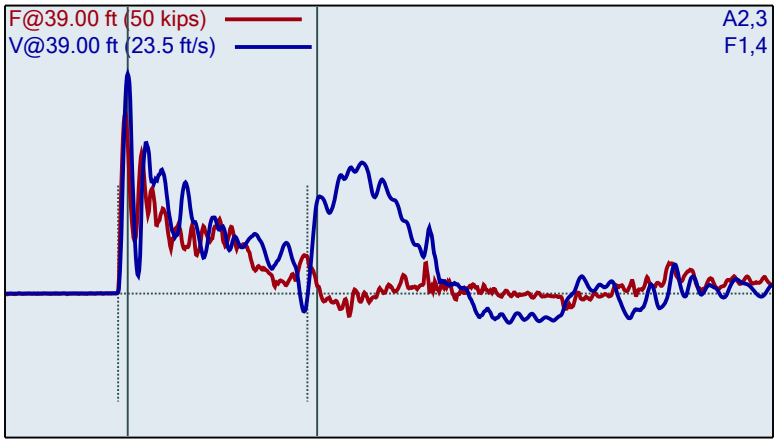
Test started: 02-June-2017

GEOPROBE 7730 DT - 35-36.5_1



GRL Engineers, Inc.
GEOPROBE 7730 DT
35-36.5_1
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 19
02Jun2017 10:41:40 AM

ETR	92.5 (%)
EFV	324 ft-lb
BPM	41.9 bpm
CSX	26.3 ksi
VMX	18.0 ft/s
DMX	0.86 in
FMX	31 kips
DFN	0.50 in
FVP	0.7 []

LE	39.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16738.2 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

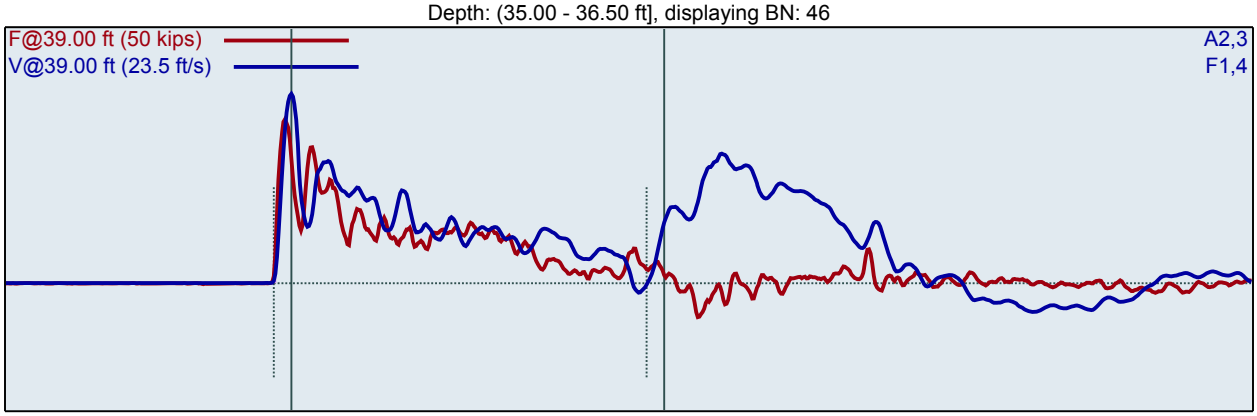
GEOPROBE 7730 DT
TH

30-31.5
Test date: 6/2/2017

AR: 1.19 in^2
LE: 39.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (35.00 - 36.50 ft], displaying BN: 46



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
29	1	35.50	23.7	28	16.9	1.9	290	83.0	6.11	6.00	0.7
30	7	35.57	24.0	28	17.0	42.2	282	80.7	2.25	0.86	0.7
31	7	35.64	24.3	29	17.5	42.4	282	80.7	1.27	0.86	0.7
32	7	35.71	23.4	28	16.6	42.3	284	81.0	0.91	0.86	0.7
33	7	35.79	24.5	29	17.4	42.2	283	80.8	0.85	0.85	0.7
34	7	35.86	23.9	28	17.0	42.2	299	85.3	0.92	0.86	0.7
35	7	35.93	24.5	29	17.2	42.3	293	83.6	0.94	0.86	0.7
36	7	36.00	24.8	30	17.7	42.3	319	91.1	0.94	0.86	0.7
37	12	36.04	25.2	30	17.5	42.2	311	89.0	0.88	0.50	0.7
38	12	36.08	24.8	29	17.5	42.3	306	87.3	0.90	0.50	0.7
39	12	36.13	25.8	31	17.6	42.3	312	89.1	0.85	0.50	0.7
40	12	36.17	24.1	29	16.8	42.2	278	79.5	0.80	0.50	0.7
41	12	36.21	25.7	31	17.5	42.2	299	85.6	0.80	0.50	0.7
42	12	36.25	25.6	30	17.1	42.3	297	84.9	0.72	0.50	0.7
43	12	36.29	25.5	30	17.1	42.2	289	82.6	0.86	0.50	0.7
44	12	36.33	26.2	31	17.7	42.3	321	91.6	0.84	0.50	0.7
45	12	36.38	26.5	32	17.7	42.2	306	87.4	0.77	0.50	0.7
46	12	36.42	26.9	32	17.4	42.2	318	90.9	0.75	0.50	0.7
47	12	36.46	26.3	31	18.0	41.9	324	92.5	0.86	0.50	0.7
48	12	36.50	25.6	30	17.4	42.2	302	86.3	0.67	0.50	0.7
		Average	25.1	30	17.3	42.2	300	85.8	0.94	0.63	0.7
		Std Dev	1.0	1	0.3	0.1	14	4.1	0.33	0.17	0.0
		Maximum	26.9	32	18.0	42.4	324	92.5	2.25	0.86	0.7
		Minimum	23.4	28	16.6	41.9	278	79.5	0.67	0.50	0.7

N-value: 19

BN: 48 1-8-12

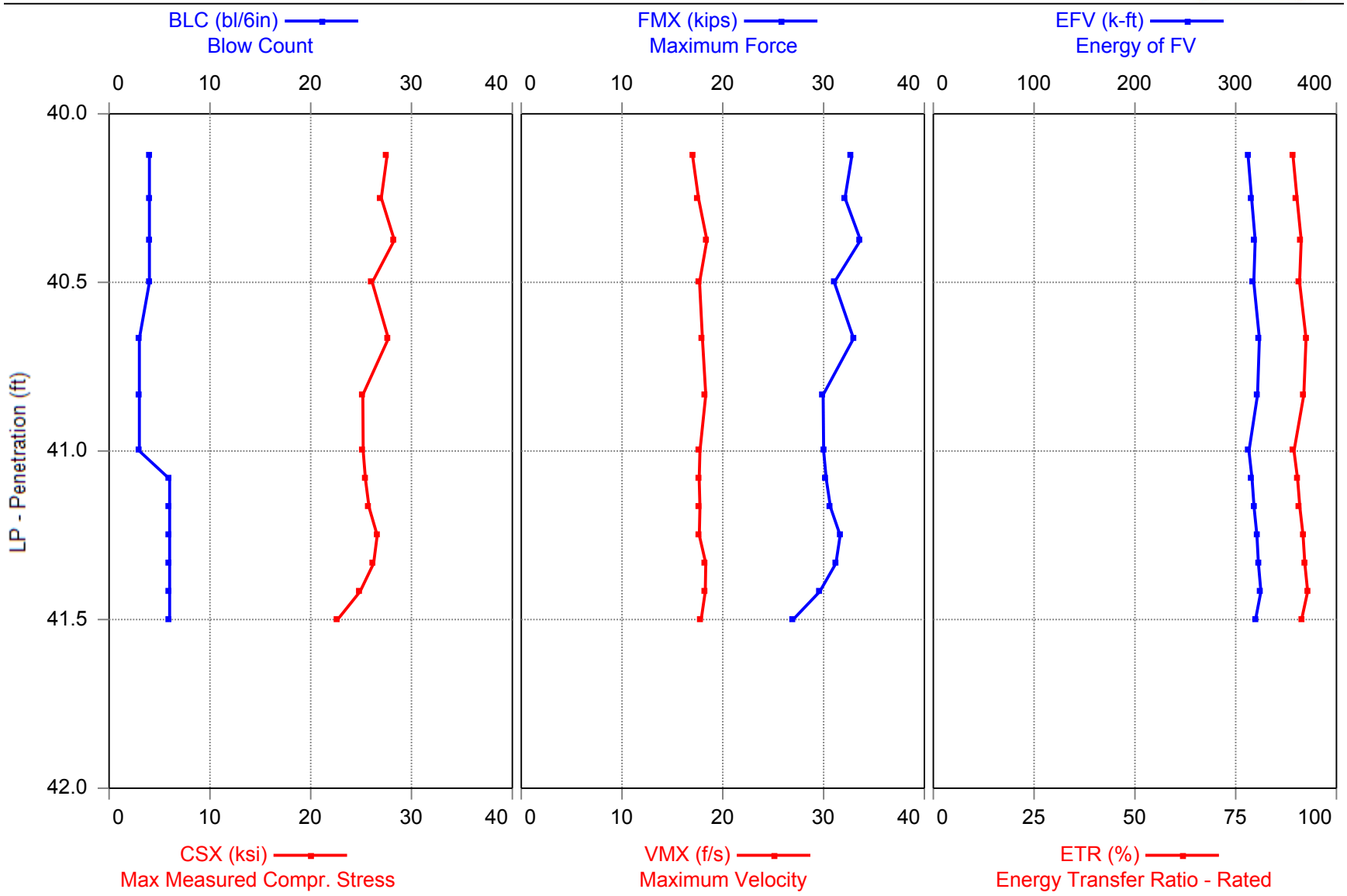
Sample Interval Time: 27.00 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 06-June-2017

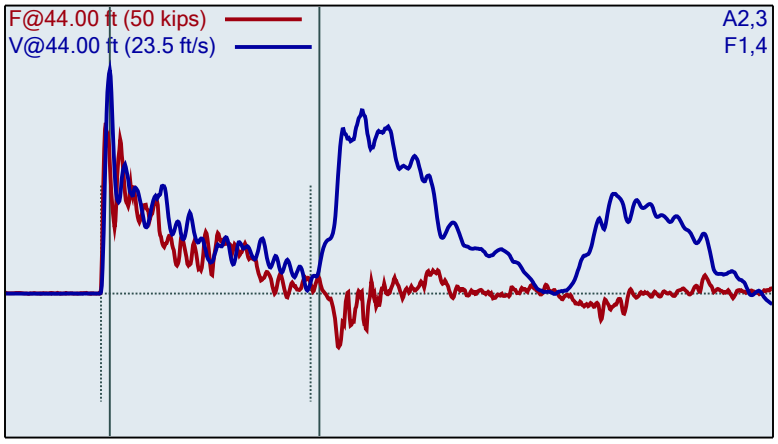
Test started: 02-June-2017

GEOPROBE 7730 DT - 40-41.5



GRL Engineers, Inc.
GEOPROBE 7730 DT
40-41.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 12
02Jun2017 10:53:05 AM

ETR	92.9 (%)
EFV	325 ft-lb
BPM	42.4 bpm
CSX	24.9 ksi
VMX	18.3 ft/s
DMX	1.33 in
FMX	30 kips
DFN	1.00 in
FVP	0.6 []

LE	44.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16793.9 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

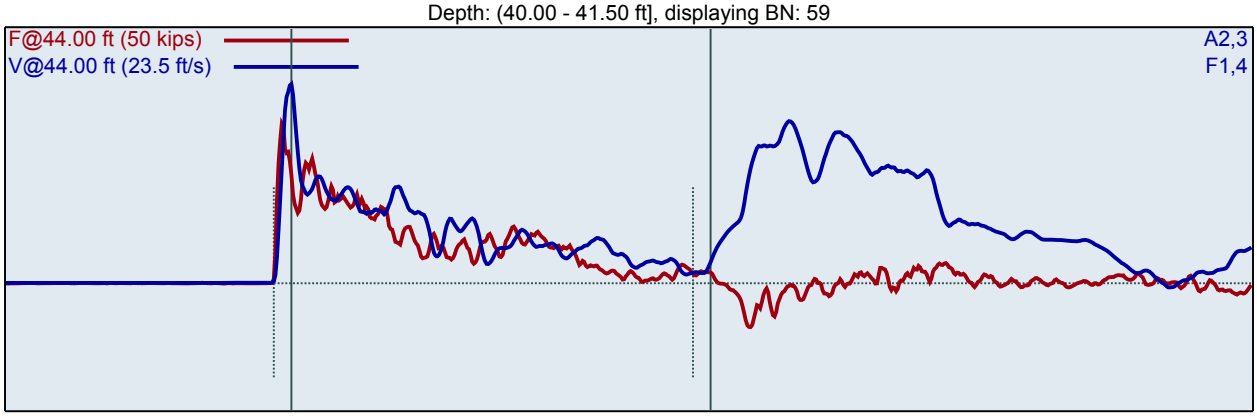
GEOPROBE 7730 DT
TH

30-31.5
Test date: 6/2/2017

AR: 1.19 in^2
LE: 44.00 ft
WS: 16807.9 ft/s

SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (40.00 - 41.50 ft], displaying BN: 59



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
49	4	40.13	27.6	33	17.0	1.9	312	89.2	1.98	1.50	0.6
50	4	40.25	27.0	32	17.6	42.1	316	90.2	1.74	1.50	0.6
51	4	40.38	28.3	34	18.4	42.3	319	91.2	1.50	1.50	0.6
52	4	40.50	26.1	31	17.7	42.2	318	90.9	1.60	1.50	0.6
53	3	40.67	27.7	33	18.0	42.3	324	92.4	2.00	2.00	0.5
54	3	40.83	25.2	30	18.3	42.3	322	91.9	2.12	2.00	0.6
55	3	41.00	25.2	30	17.7	42.4	313	89.5	2.55	2.00	0.6
56	6	41.08	25.4	30	17.7	42.6	316	90.4	2.25	1.00	0.6
57	6	41.17	25.8	31	17.7	42.3	318	90.9	1.88	1.00	0.6
58	6	41.25	26.6	32	17.7	42.4	321	91.7	1.61	1.00	0.5
59	6	41.33	26.2	31	18.3	42.4	322	92.1	1.31	1.00	0.5
60	6	41.42	24.9	30	18.3	42.4	325	92.9	1.33	1.00	0.6
61	6	41.50	22.7	27	17.9	42.4	320	91.4	1.22	1.00	0.6
		Average	25.5	30	17.9	42.4	320	91.5	1.81	1.33	0.6
		Std Dev	1.3	2	0.3	0.1	4	1.0	0.44	0.47	0.0
		Maximum	27.7	33	18.3	42.6	325	92.9	2.55	2.00	0.6
		Minimum	22.7	27	17.7	42.3	313	89.5	1.22	1.00	0.5
					N-value: 9						

BN: 61 5-3-6

Sample Interval Time: 17.07 seconds.

Summary of SPT Test Results

Project: GEOPROBE 7730 DT, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

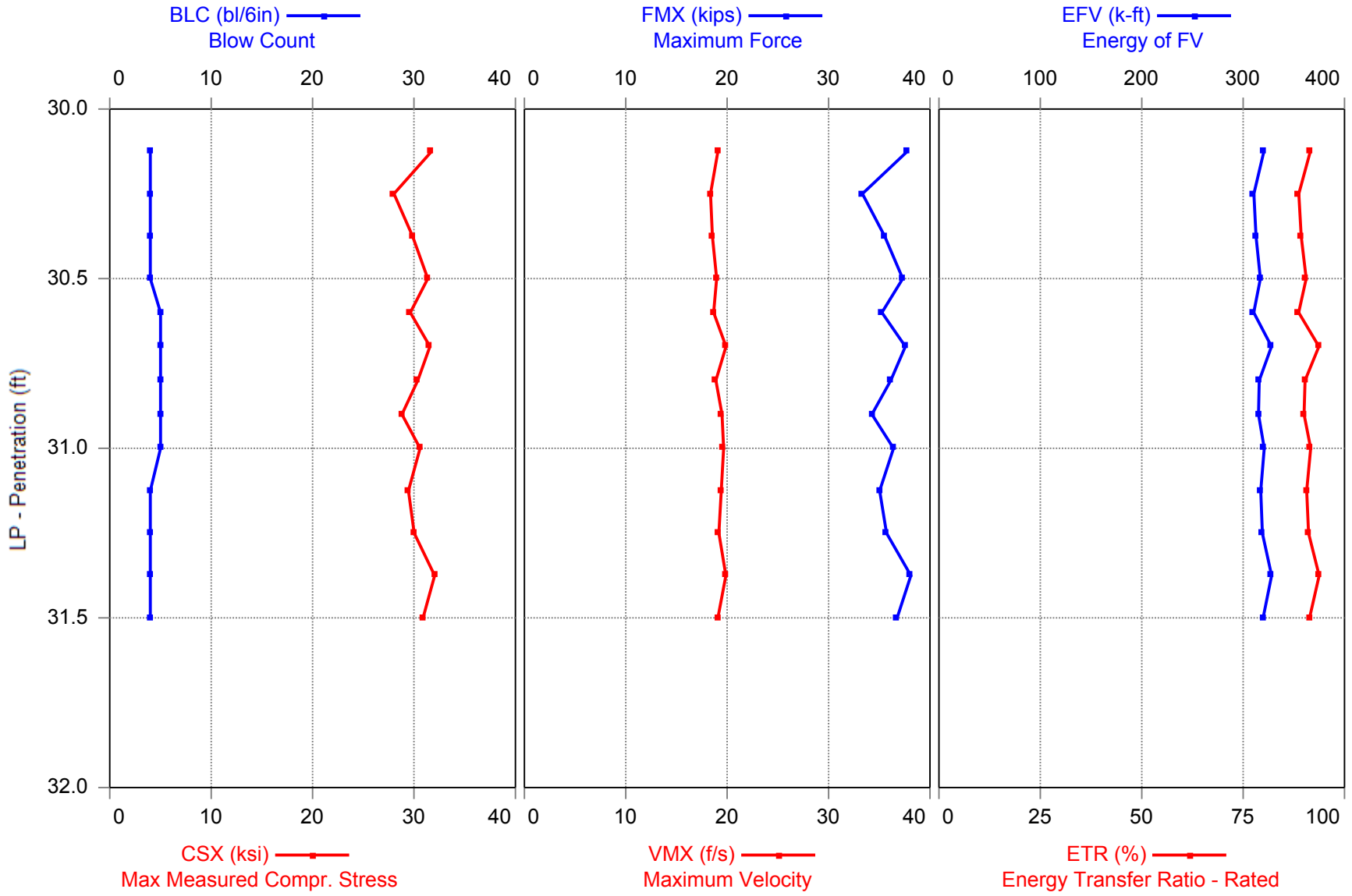
Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**16-7-5**	30.00	31.50	**12**	**17**	23.9	28	17.1	41.8	290	82.9	1.31	1.00	0.7
39.00	**1-7-12**	35.00	36.50	**19**	**27**	25.1	30	17.3	42.2	300	85.8	0.94	0.63	0.7
44.00	**4-3-6**	40.00	41.50	**9**	**12**	25.5	30	17.9	42.4	320	91.5	1.81	1.33	0.6
			Overall Average Values:			24.8	30	17.4	42.1	302	86.2	1.24	0.90	0.7
			Standard Deviation:			1.2	1	0.5	0.2	15	4.4	0.49	0.39	0.1
			Overall Maximum Value:			27.7	33	18.3	42.6	325	92.9	2.55	2.00	0.7
			Overall Minimum Value:			22.5	27	16.1	41.7	275	78.5	0.67	0.50	0.5

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 05-June-2017

Test started: 02-June-2017

GEOPROBE 7822 DT DH103H SN 10146 - 30-31.5



GRL Engineers, Inc.

GEOPROBE 7822 DT DH103H SN 10146

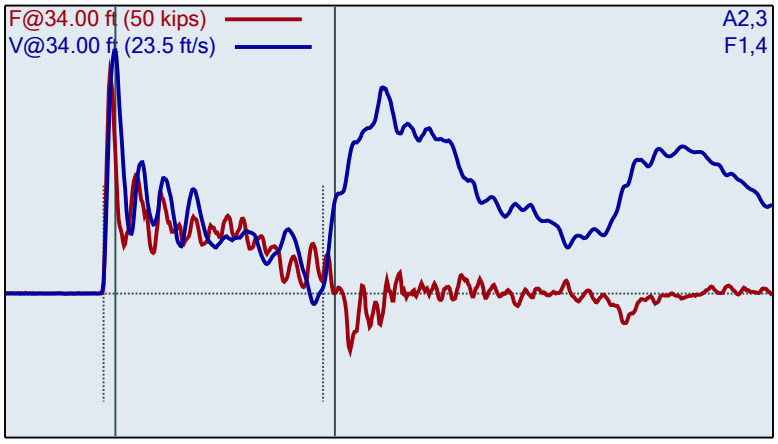
30-31.5

S1

PDA Operator: TH

Pile Driving Analyzer ® (PDA)

Version: 2017.18



BN 12

02Jun2017 12:38:03 PM

ETR	93.7 (%)
EFV	328 ft-lb
BPM	48.4 bpm
CSX	32.0 ksi
VMX	19.9 ft/s
DMX	2.76 in
FMX	38 kips
DFN	1.50 in
FVP	0.6 []

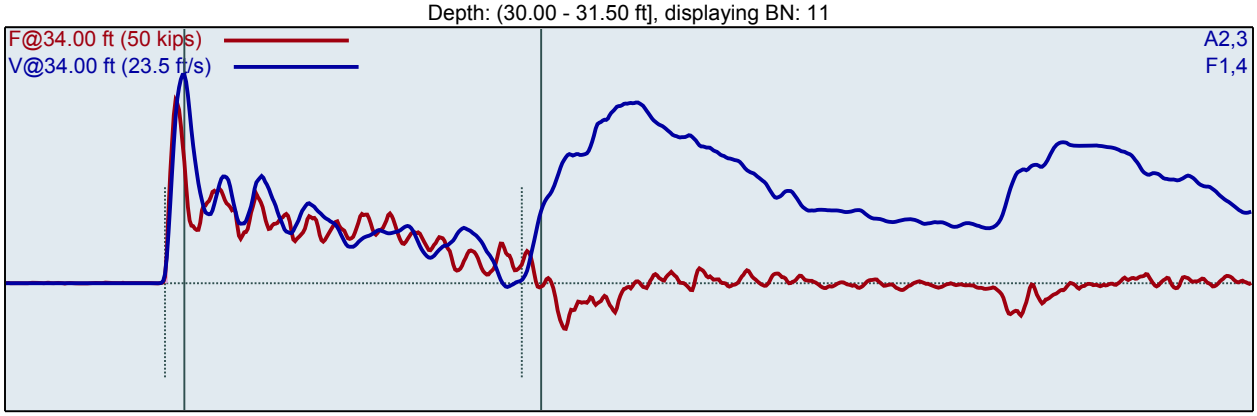
LE	34.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

GEOPROBE 7822 DT DH103H SN 10146 — 30-31.5
TH — Test date: 6/2/2017

AR: 1.19 in^2 — SP: 0.492 k/ft3
LE: 34.00 ft — EM: 30000 ksi
WS: 16807.9 ft/s

Depth: (30.00 - 31.50 ft], displaying BN: 11



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
1	4	30.13	31.7	38	19.1	48.1	320	91.6	1.50	1.50	0.7
2	4	30.25	28.0	33	18.4	48.8	311	88.7	1.50	1.50	0.6
3	4	30.38	29.9	36	18.5	48.5	313	89.3	1.50	1.50	0.6
4	4	30.50	31.4	37	19.0	48.5	317	90.5	1.50	1.50	0.6
5	5	30.60	29.6	35	18.7	48.2	310	88.7	1.48	1.20	0.6
6	5	30.70	31.6	38	19.9	48.6	328	93.7	1.44	1.20	0.6
7	5	30.80	30.4	36	18.9	48.5	316	90.2	1.26	1.20	0.6
8	5	30.90	28.8	34	19.5	48.7	315	90.0	1.50	1.20	0.6
9	5	31.00	30.6	36	19.7	48.6	321	91.7	1.59	1.20	0.7
10	4	31.13	29.4	35	19.4	48.6	317	90.7	2.01	1.50	0.6
11	4	31.25	30.0	36	19.2	48.5	319	91.1	2.42	1.50	0.6
12	4	31.38	32.0	38	19.9	48.4	328	93.7	2.76	1.50	0.6
13	4	31.50	30.9	37	19.1	48.6	320	91.4	2.68	1.50	0.6
		Average	30.4	36	19.3	48.5	319	91.2	1.90	1.33	0.6
		Std Dev	1.0	1	0.4	0.1	5	1.6	0.54	0.15	0.0
		Maximum	32.0	38	19.9	48.7	328	93.7	2.76	1.50	0.7
		Minimum	28.8	34	18.7	48.2	310	88.7	1.26	1.20	0.6

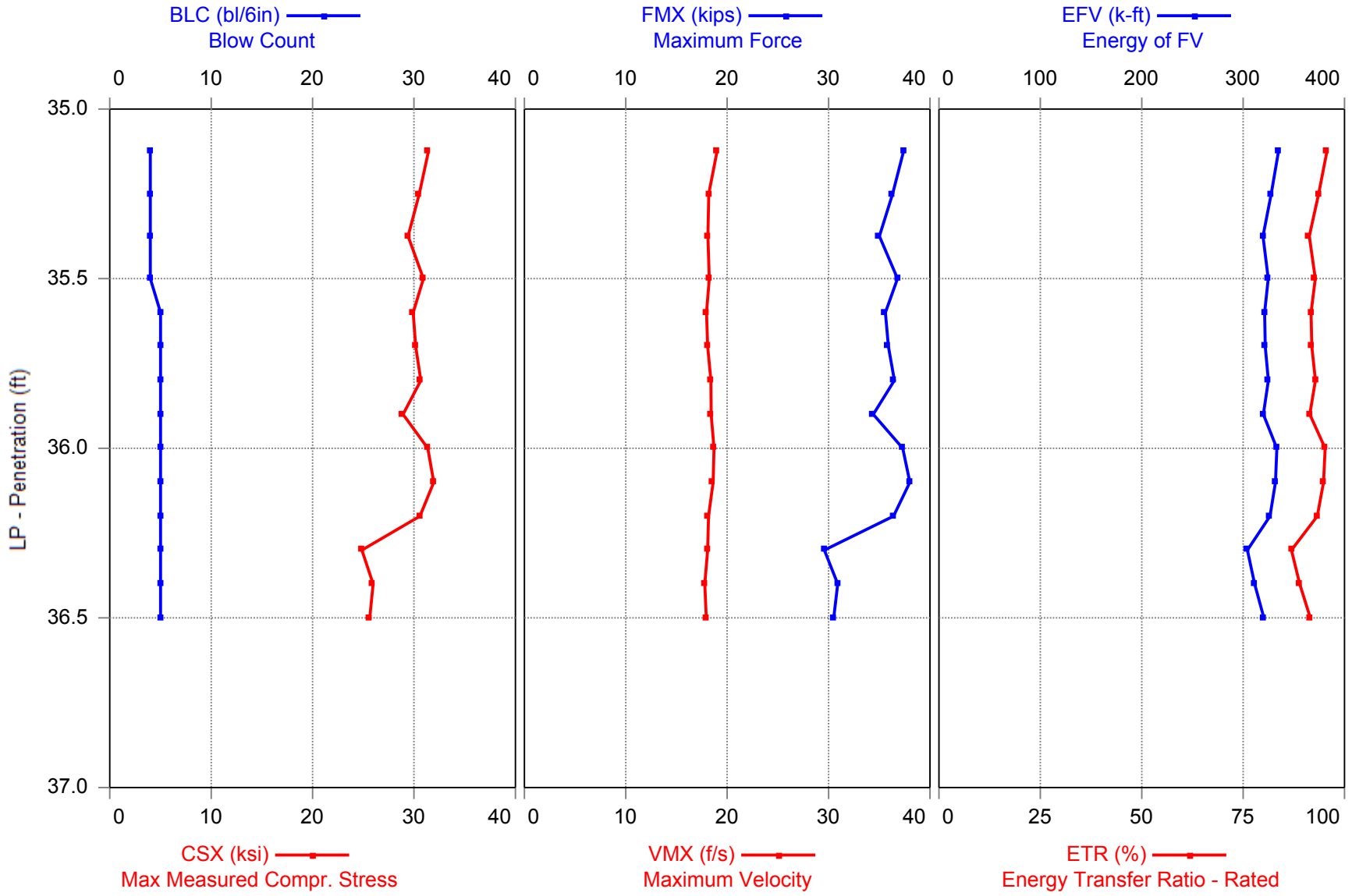
N-value: 9

Sample Interval Time: 13.77 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 05-June-2017 Test started: 02-June-2017

GEOPROBE 7822 DT DH103H SN 10146 - 35-36.5



GRL Engineers, Inc.

GEOPROBE 7822 DT DH103H SN 10146

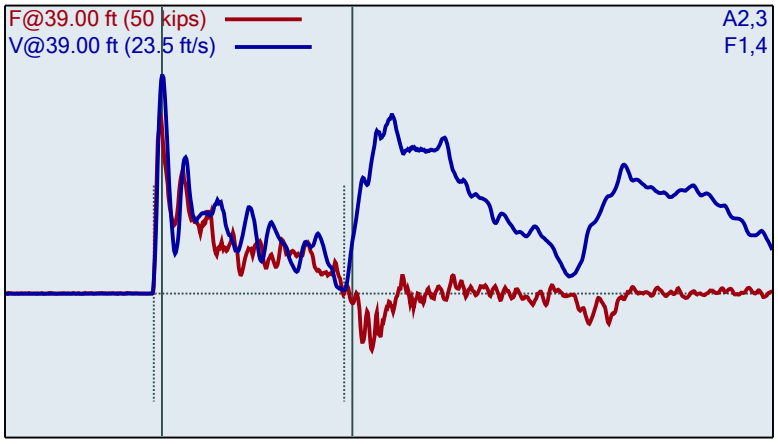
35-36.5

S1

PDA Operator: TH

Pile Driving Analyzer ® (PDA)

Version: 2017.18



BN 13

02Jun2017 12:47:17 PM

ETR	88.9 (%)
EFV	311 ft-lb
BPM	48.4 bpm
CSX	26.0 ksi
VMX	17.8 ft/s
DMX	2.01 in
FMX	31 kips
DFN	1.20 in
FVP	0.8 []

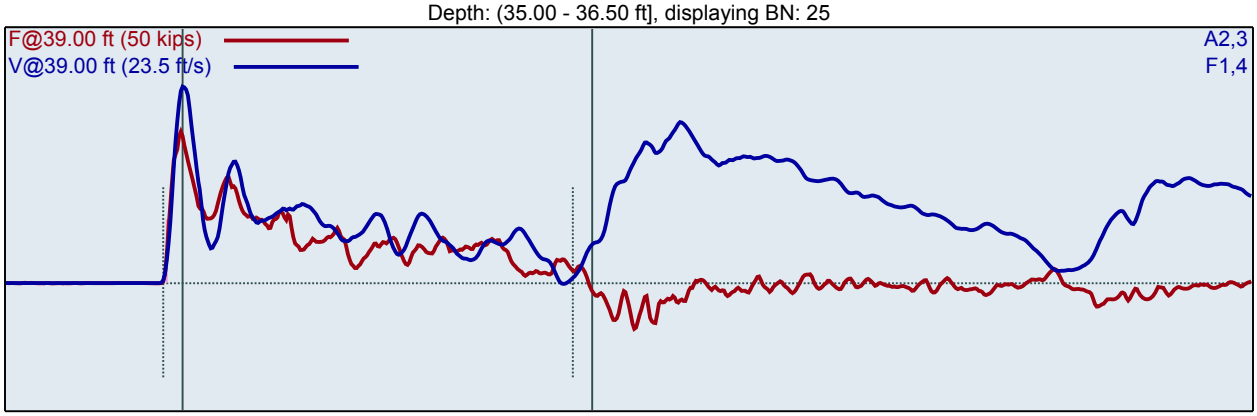
LE	39.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16738.2 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

GEOPROBE 7822 DT DH103H SN 10146 — 30-31.5
TH — Test date: 6/2/2017

AR: 1.19 in^2 — SP: 0.492 k/ft3
LE: 39.00 ft — EM: 30000 ksi
WS: 16807.9 ft/s

Depth: (35.00 - 36.50 ft], displaying BN: 25



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
14	4	35.13	31.4	37	19.0	3.8	335	95.7	1.85	1.50	0.7
15	4	35.25	30.5	36	18.2	48.3	328	93.6	1.50	1.50	0.7
16	4	35.38	29.4	35	18.1	48.9	320	91.3	1.50	1.50	0.7
17	4	35.50	30.9	37	18.2	48.3	325	92.8	1.50	1.50	0.7
18	5	35.60	29.9	36	18.0	48.7	321	91.7	1.28	1.20	0.7
19	5	35.70	30.2	36	18.1	48.5	322	91.9	1.24	1.20	0.7
20	5	35.80	30.7	36	18.4	48.4	325	92.8	1.25	1.20	0.7
21	5	35.90	28.9	34	18.4	48.6	320	91.4	1.34	1.20	0.7
22	5	36.00	31.4	37	18.7	48.5	333	95.2	1.50	1.20	0.7
23	5	36.10	32.0	38	18.6	48.6	332	94.8	1.55	1.20	0.7
24	5	36.20	30.6	36	18.2	48.8	326	93.3	1.75	1.20	0.7
25	5	36.30	24.9	30	18.1	48.3	304	86.9	1.71	1.20	0.7
26	5	36.40	26.0	31	17.8	48.4	311	88.9	2.01	1.20	0.8
27	5	36.50	25.6	31	17.9	47.8	320	91.5	2.45	1.20	0.8
		Average	29.0	35	18.2	48.5	322	91.9	1.61	1.20	0.7
		Std Dev	2.4	3	0.3	0.3	8	2.4	0.37	0.00	0.0
		Maximum	32.0	38	18.7	48.8	333	95.2	2.45	1.20	0.8
		Minimum	24.9	30	17.8	47.8	304	86.9	1.24	1.20	0.7

N-value: 10

BN: 16 4-5-4

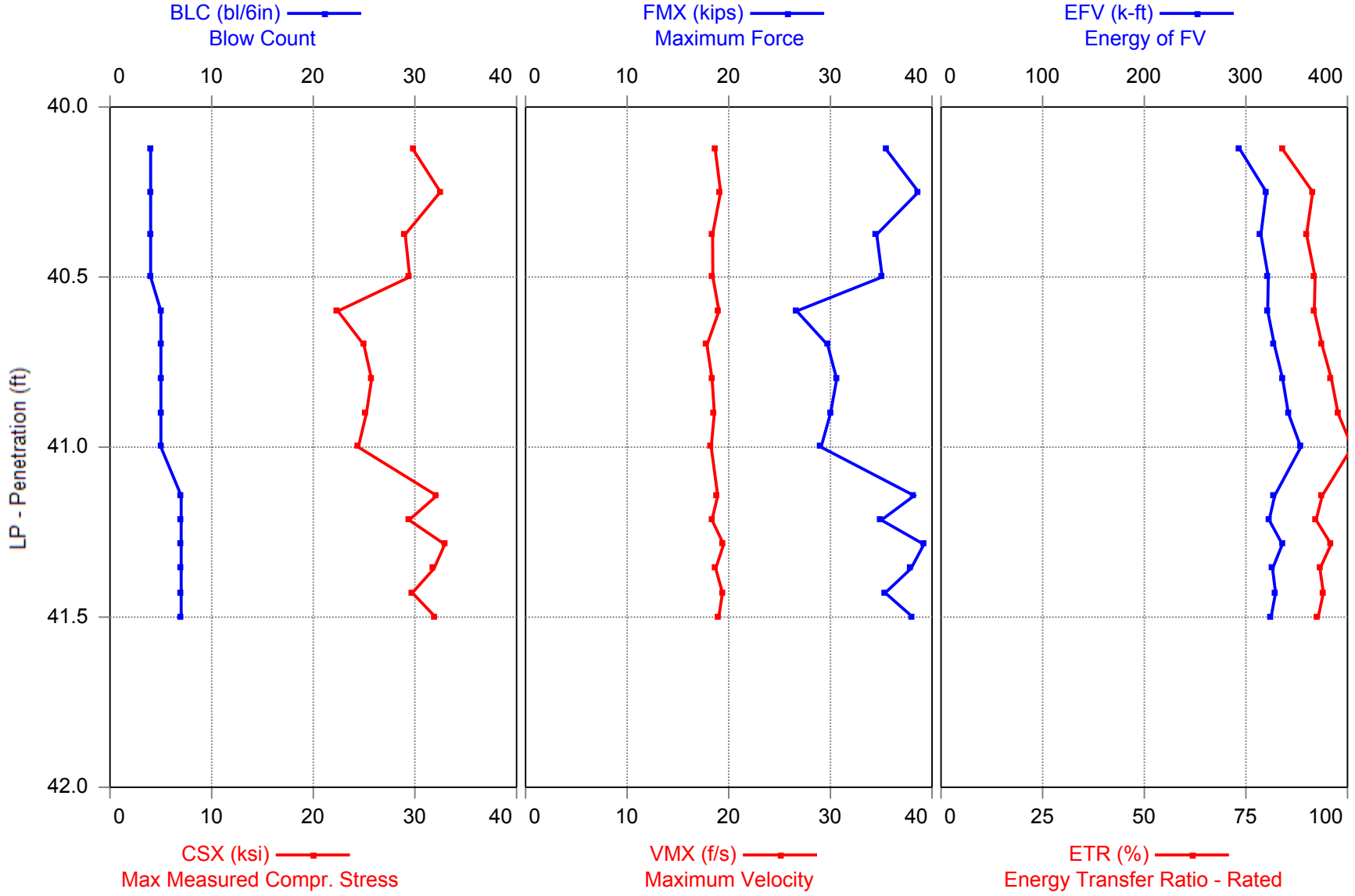
Sample Interval Time: 16.15 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 05-June-2017

Test started: 02-June-2017

GEOPROBE 7822 DT DH103H SN 10146 - 40-41.5



GRL Engineers, Inc.

GEOPROBE 7822 DT DH103H SN 10146

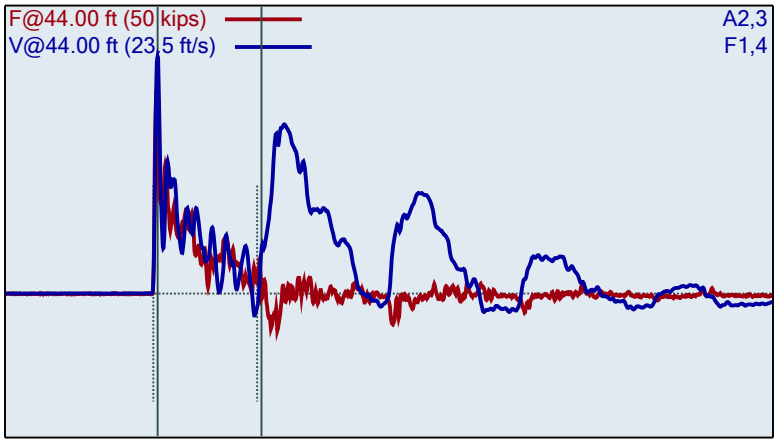
40-41.5

S1

PDA Operator: TH

Pile Driving Analyzer ® (PDA)

Version: 2017.18



BN 15

02Jun2017 12:57:59 PM

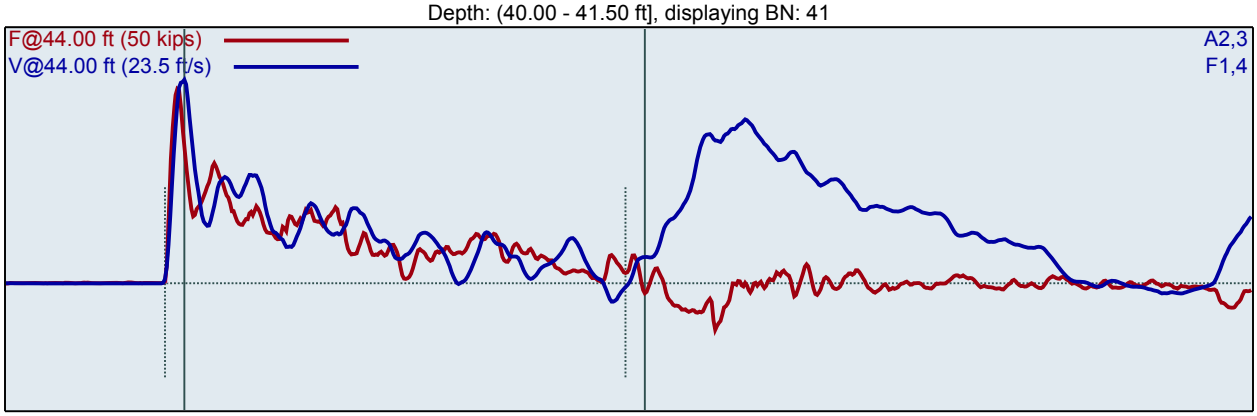
ETR	94.1 (%)
EFV	329 ft-lb
BPM	48.4 bpm
CSX	29.7 ksi
VMX	19.4 ft/s
DMX	1.04 in
FMX	35 kips
DFN	0.85 in
FVP	0.7 []

LE	44.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16793.9 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

GEOPROBE 7822 DT DH103H SN 10146 — 30-31.5
TH — Test date: 6/2/2017
AR: 1.19 in^2 — SP: 0.492 k/ft3
LE: 44.00 ft — EM: 30000 ksi
WS: 16807.9 ft/s

Depth: (40.00 - 41.50 ft], displaying BN: 41



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
28	4	40.13	29.8	35	18.7	1.9	294	84.1	1.65	1.48	0.8
29	4	40.25	32.5	39	19.2	48.0	320	91.4	1.50	1.49	0.7
30	4	40.38	29.0	35	18.4	48.6	315	89.9	1.50	1.49	0.7
31	4	40.50	29.5	35	18.4	48.5	322	92.0	1.49	1.49	0.6
32	5	40.60	22.4	27	19.0	48.7	321	91.8	1.24	1.19	0.6
33	5	40.70	25.0	30	17.9	48.3	328	93.7	1.25	1.19	0.7
34	5	40.80	25.7	31	18.4	48.0	336	96.1	1.19	1.19	0.7
35	5	40.90	25.2	30	18.6	48.2	342	97.6	1.20	1.20	0.7
36	5	41.00	24.4	29	18.3	46.3	354	101.1	1.20	1.20	0.7
38	7	41.14	32.1	38	18.9	58.2	328	93.8	0.86	0.85	0.7
39	7	41.21	29.4	35	18.3	48.5	323	92.3	0.95	0.85	0.6
40	7	41.29	32.9	39	19.5	48.7	336	95.9	0.90	0.85	0.7
41	7	41.36	31.9	38	18.7	48.8	326	93.2	1.03	0.85	0.7
42	7	41.43	29.7	35	19.4	48.4	329	94.1	1.04	0.85	0.7
43	7	41.50	32.0	38	19.0	48.9	325	92.8	1.16	0.85	0.7
		Average	28.3	34	18.7	49.2	332	94.8	1.09	1.01	0.7
		Std Dev	3.6	4	0.5	2.9	9	2.6	0.14	0.17	0.0
		Maximum	32.9	39	19.5	58.2	354	101.1	1.25	1.20	0.7
		Minimum	22.4	27	17.9	46.3	321	91.8	0.86	0.85	0.6
					N-value: 11						

BN: 28 7-5-5

Sample Interval Time: 26.72 seconds.

Summary of SPT Test Results

Project: GEOPROBE 7822 DT DH103H SN 10146, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

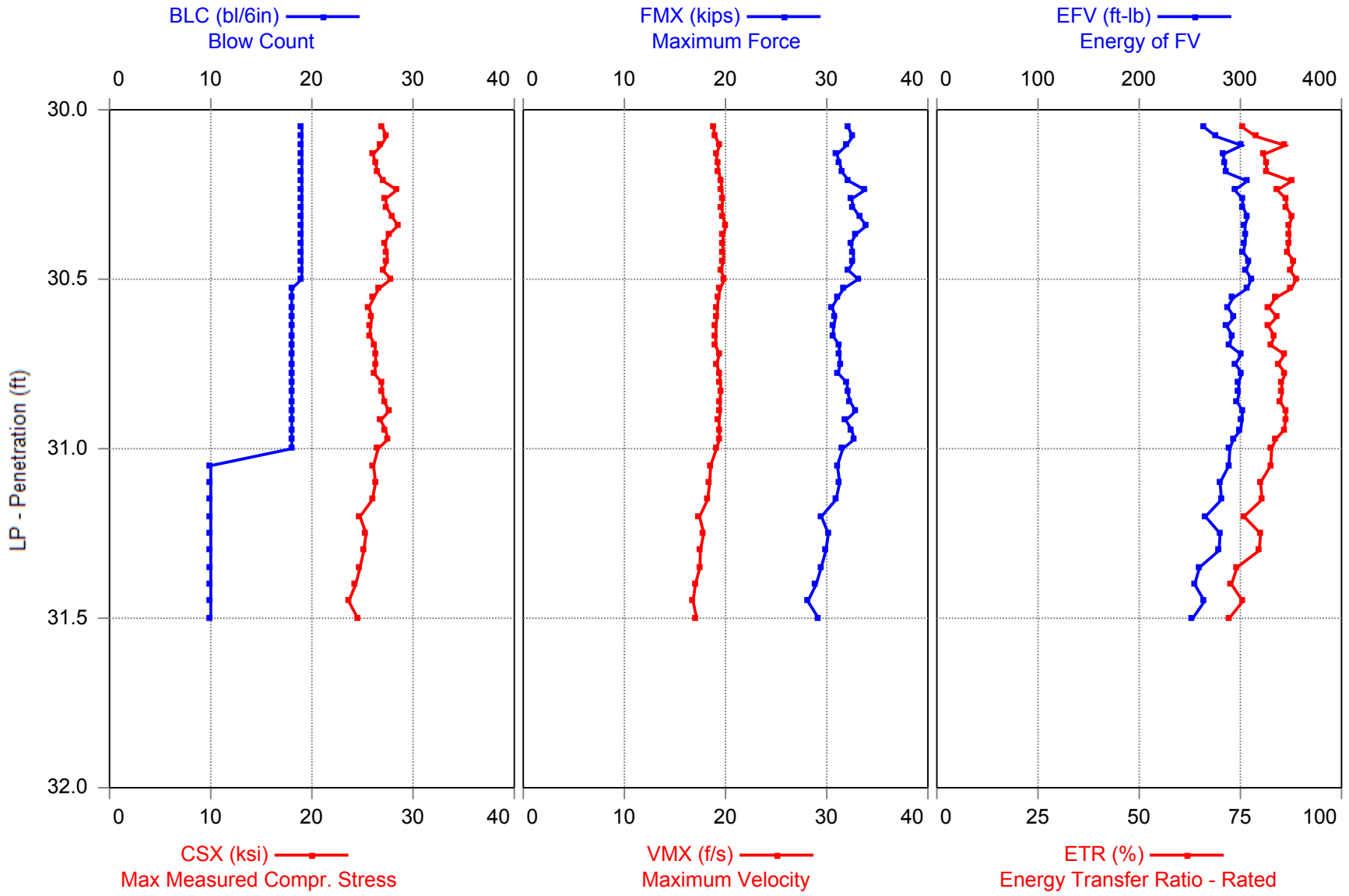
Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**4-5-4**	30.00	31.50	**9**	**13**	30.4	36	19.3	48.5	319	91.2	1.90	1.33	0.6
39.00	**4-5-5**	35.00	36.50	**10**	**15**	29.0	35	18.2	48.5	322	91.9	1.61	1.20	0.7
44.00	**4-5-7**	40.00	41.50	**12**	**18**	28.3	34	18.7	49.2	332	94.8	1.09	1.01	0.7
			Overall Average Values:			29.1	35	18.7	48.7	325	92.7	1.51	1.17	0.7
			Standard Deviation:			2.8	3	0.6	1.8	10	2.7	0.50	0.19	0.1
			Overall Maximum Value:			32.9	39	19.9	58.2	354	101.1	2.76	1.50	0.8
			Overall Minimum Value:			22.4	27	17.8	46.3	304	86.9	0.86	0.85	0.6

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 05-June-2017

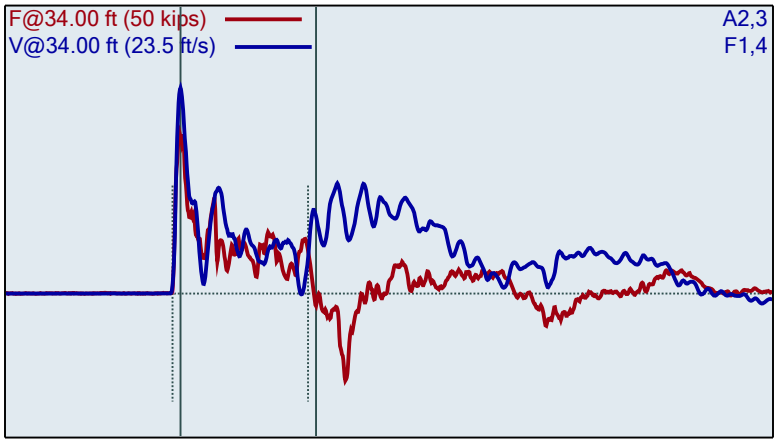
Test started: 02-June-2017

MOBILE B-59 SN94010 - 30-31.5



GRL Engineers, Inc.
MOBILE B-59 SN94010
30-31.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 46
02Jun2017 01:40:48 PM

ETR	75.6 (%)
EFV	264 ft-lb
BPM	43.1 bpm
CSX	23.6 ksi
VMX	16.8 ft/s
DMX	0.88 in
FMX	28 kips
DFN	0.60 in
FVP	0.8 []

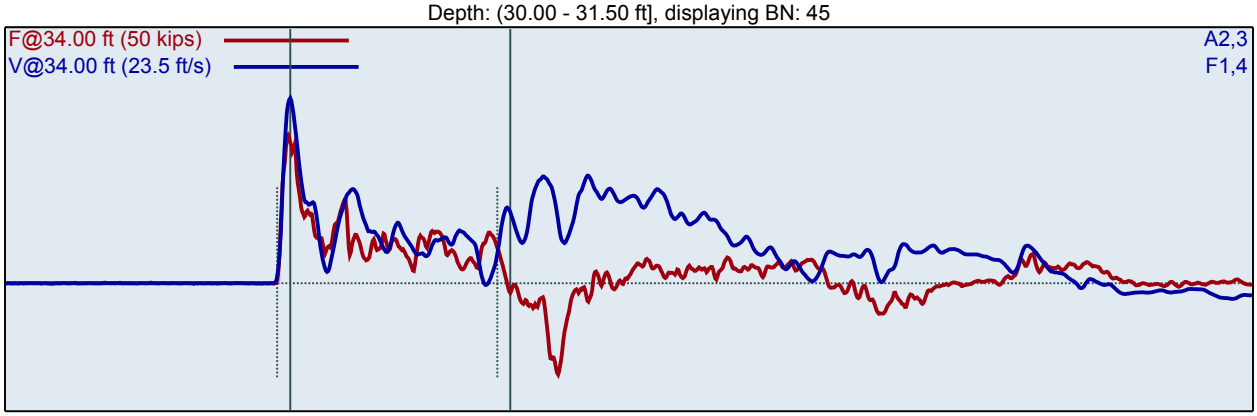
LE	34.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16748.8 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

MOBILE B-59 SN94010
TH
AR: 1.19 in^2
LE: 34.00 ft
WS: 16807.9 ft/s

30-31.5
Test date: 6/2/2017
SP: 0.492 k/ft3
EM: 30000 ksi

Depth: (30.00 - 31.50 ft], displaying BN: 45



CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
1	19	30.03	27.4	33	49.9	1.9	229	65.4	0.43	0.32	0.9
2	19	30.05	27.0	32	18.8	40.3	265	75.6	0.98	0.32	0.8
3	19	30.08	27.4	33	19.0	40.2	276	78.9	0.72	0.32	0.8
4	19	30.11	26.9	32	19.4	40.6	301	86.1	1.26	0.32	0.8
5	19	30.13	26.1	31	19.1	39.9	283	80.8	0.51	0.32	0.7
6	19	30.16	26.3	31	19.2	40.3	285	81.4	0.48	0.32	0.8
7	19	30.18	26.5	32	19.3	40.3	286	81.6	0.46	0.32	0.8
8	19	30.21	27.1	32	19.6	39.6	307	87.7	0.53	0.32	0.8
9	19	30.24	28.4	34	19.6	40.5	294	84.1	0.38	0.32	0.8
10	19	30.26	27.3	32	19.7	40.7	302	86.3	0.37	0.32	0.8
11	19	30.29	27.4	33	19.6	43.2	303	86.5	0.41	0.32	0.8
12	19	30.32	27.9	33	19.7	43.1	307	87.9	0.54	0.32	0.8
13	19	30.34	28.5	34	20.0	43.3	304	86.9	0.65	0.32	0.7
14	19	30.37	27.6	33	19.8	43.0	305	87.2	0.41	0.32	0.8
15	19	30.39	27.2	32	19.7	43.1	304	87.0	0.46	0.32	0.8
16	19	30.42	27.4	33	19.8	43.1	303	86.6	0.41	0.32	0.8
17	19	30.45	27.4	33	19.8	42.9	309	88.3	0.40	0.32	0.8
18	19	30.47	27.0	32	19.5	43.2	306	87.3	0.43	0.32	0.7
19	19	30.50	27.8	33	19.9	43.3	311	88.8	0.45	0.32	0.8
20	18	30.53	26.6	32	19.5	43.2	307	87.6	0.38	0.33	0.8
21	18	30.56	26.1	31	19.3	43.0	293	83.6	0.38	0.33	0.7
22	18	30.58	25.6	31	19.2	43.0	287	82.1	0.37	0.33	0.7
23	18	30.61	25.9	31	19.1	42.9	294	84.0	0.39	0.33	0.7
24	18	30.64	25.8	31	19.0	43.4	287	81.9	0.36	0.33	0.7
25	18	30.67	25.7	31	19.0	42.9	292	83.4	0.37	0.33	0.7
26	18	30.69	26.2	31	19.0	42.9	289	82.5	0.38	0.33	0.8
27	18	30.72	26.3	31	19.4	43.2	301	86.0	0.38	0.33	0.7
28	18	30.75	26.3	31	19.1	42.8	295	84.4	0.38	0.33	0.7
29	18	30.78	26.2	31	19.4	43.4	301	86.1	0.43	0.33	0.7
30	18	30.81	26.9	32	19.5	43.1	298	85.1	0.56	0.33	0.8
31	18	30.83	27.0	32	19.5	43.1	299	85.4	0.69	0.33	0.8

32	18	30.86	27.2	32	19.4	43.1	297	84.8	0.59	0.33	0.8
33	18	30.89	27.6	33	19.5	42.8	302	86.3	0.62	0.33	0.8
34	18	30.92	26.8	32	19.4	43.0	302	86.2	0.62	0.33	0.8
35	18	30.94	27.3	32	19.4	43.0	300	85.8	0.64	0.33	0.8
36	18	30.97	27.5	33	19.4	43.1	293	83.7	0.82	0.33	0.8
37	18	31.00	26.6	32	19.1	42.9	290	82.7	0.86	0.33	0.8
38	10	31.05	26.1	31	18.5	43.4	289	82.5	0.85	0.60	0.8
39	10	31.10	26.3	31	18.4	43.1	280	80.0	0.83	0.60	0.8
40	10	31.15	26.0	31	18.2	43.1	281	80.4	0.80	0.60	0.8
41	10	31.20	24.8	29	17.4	42.9	266	75.9	0.80	0.60	0.8
42	10	31.25	25.3	30	17.8	43.1	280	80.0	0.86	0.60	0.7
43	10	31.30	25.1	30	17.5	43.3	279	79.7	0.89	0.60	0.8
44	10	31.35	24.8	29	17.5	43.2	260	74.2	1.01	0.60	0.8
45	10	31.40	24.3	29	17.0	43.3	255	72.8	0.78	0.60	0.8
46	10	31.45	23.6	28	16.8	43.1	264	75.6	0.88	0.60	0.8
47	10	31.50	24.5	29	17.1	42.9	253	72.3	1.05	0.60	0.8
		Average	26.0	31	18.7	43.1	287	82.0	0.64	0.43	0.8
		Std Dev	1.0	1	0.9	0.2	15	4.2	0.22	0.13	0.0
		Maximum	27.6	33	19.5	43.4	307	87.6	1.05	0.60	0.8
		Minimum	23.6	28	16.8	42.8	253	72.3	0.36	0.33	0.7

N-value: 28

BN: 47 19-18-10

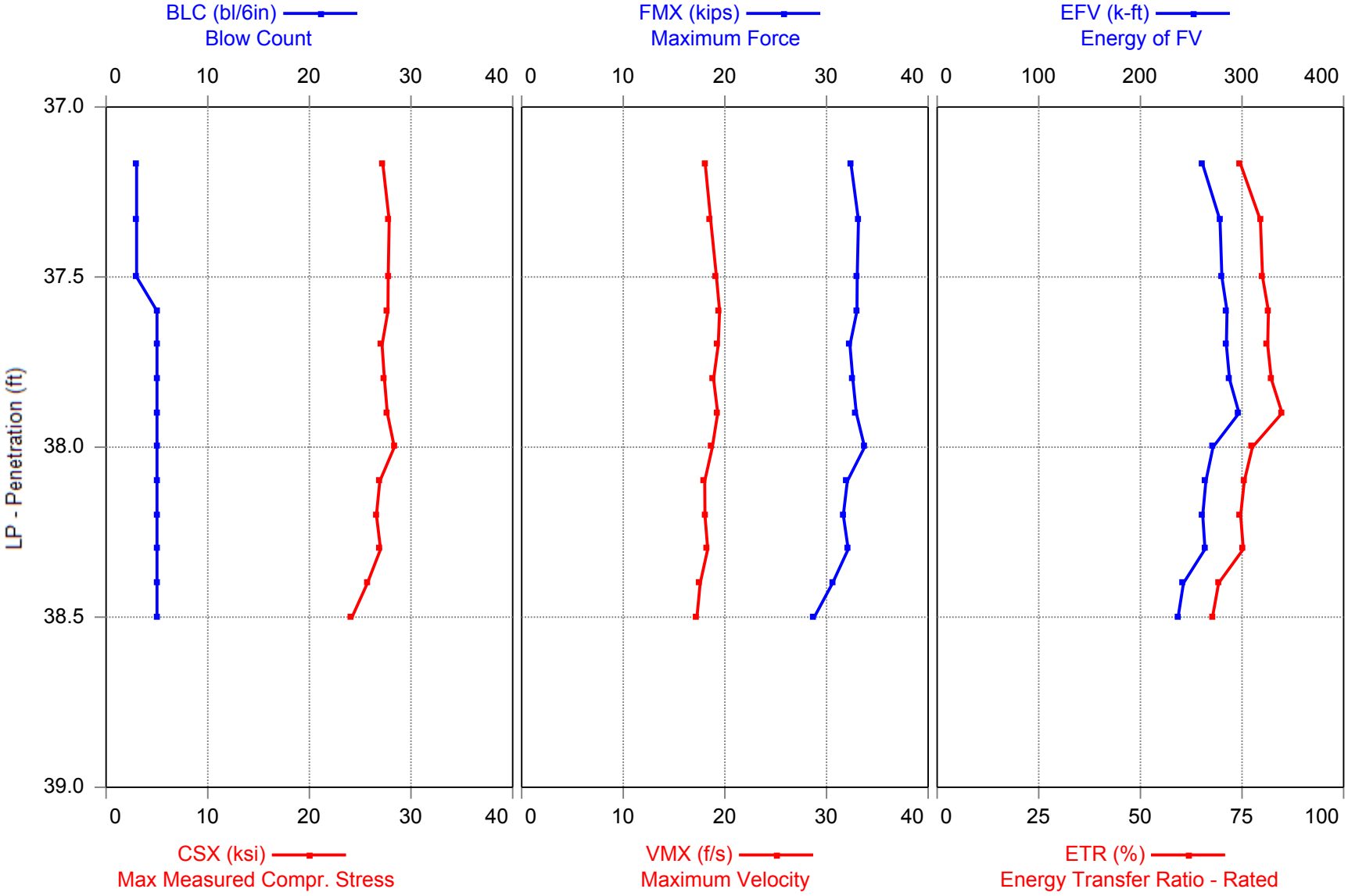
Sample Interval Time: 64.96 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

Printed: 05-June-2017

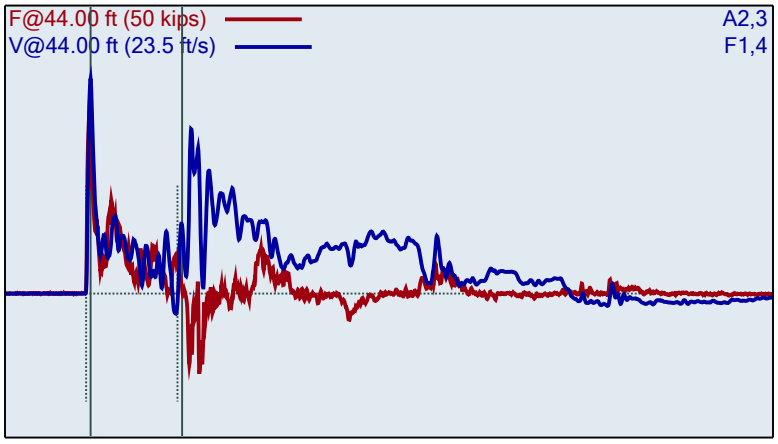
Test started: 02-June-2017

MOBILE B-59 SN94010 - 37-38.5



GRL Engineers, Inc.
MOBILE B-59 SN94010
37-38.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 12
02Jun2017 02:19:15 PM

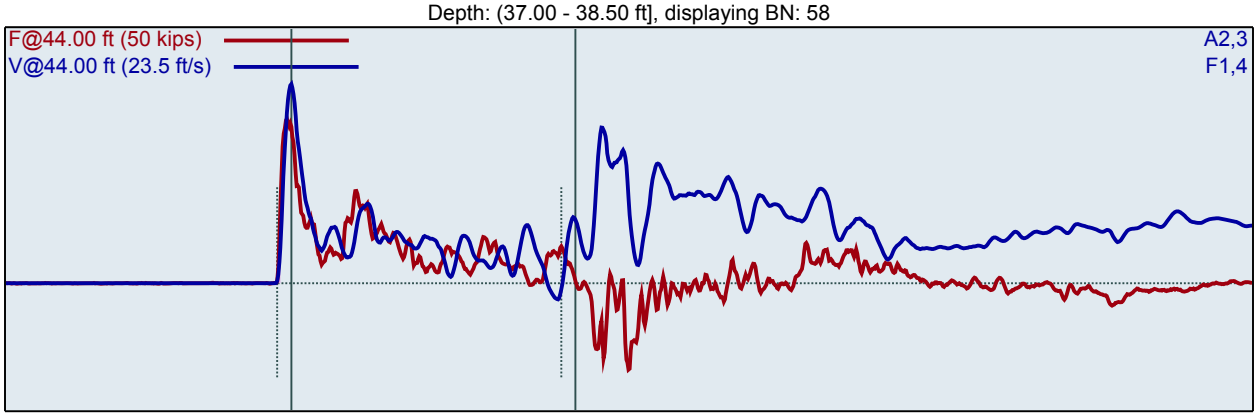
ETR	69.2 (%)
EFV	242 ft-lb
BPM	40.1 bpm
CSX	25.7 ksi
VMX	17.6 ft/s
DMX	1.20 in
FMX	31 kips
DFN	1.20 in
FVP	0.8 []

LE	44.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16793.9 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

MOBILE B-59 SN94010 — 30-31.5
TH — Test date: 6/2/2017
AR: 1.19 in^2 — SP: 0.492 k/ft3
LE: 44.00 ft — EM: 30000 ksi
WS: 16807.9 ft/s

Depth: (37.00 - 38.50 ft], displaying BN: 58



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
48	3	37.17	27.2	32	18.1	1.9	261	74.6	2.00	2.00	0.8
49	3	37.33	27.8	33	18.6	39.5	278	79.5	2.00	2.00	0.8
50	3	37.50	27.8	33	19.2	40.4	280	80.1	2.00	2.00	0.8
51	5	37.60	27.7	33	19.5	39.9	285	81.5	2.33	1.20	0.7
52	5	37.70	27.2	32	19.3	40.3	285	81.3	2.05	1.20	0.8
53	5	37.80	27.4	33	18.9	40.0	288	82.2	2.23	1.20	0.8
54	5	37.90	27.7	33	19.3	40.5	297	84.9	2.92	1.20	0.8
55	5	38.00	28.4	34	18.8	40.1	271	77.6	1.55	1.19	0.8
56	5	38.10	26.9	32	18.0	40.0	264	75.5	1.32	1.20	0.8
57	5	38.20	26.6	32	18.0	40.0	261	74.7	1.50	1.20	0.8
58	5	38.30	27.0	32	18.3	40.1	264	75.3	1.67	1.20	0.8
59	5	38.40	25.7	31	17.6	40.1	242	69.2	1.20	1.20	0.8
60	5	38.50	24.2	29	17.2	40.0	237	67.7	1.24	1.20	0.7
		Average	26.9	32	18.5	40.1	269	77.0	1.80	1.20	0.8
		Std Dev	1.1	1	0.7	0.2	19	5.3	0.53	0.00	0.0
		Maximum	28.4	34	19.5	40.5	297	84.9	2.92	1.20	0.8
		Minimum	24.2	29	17.2	39.9	237	67.7	1.20	1.19	0.7

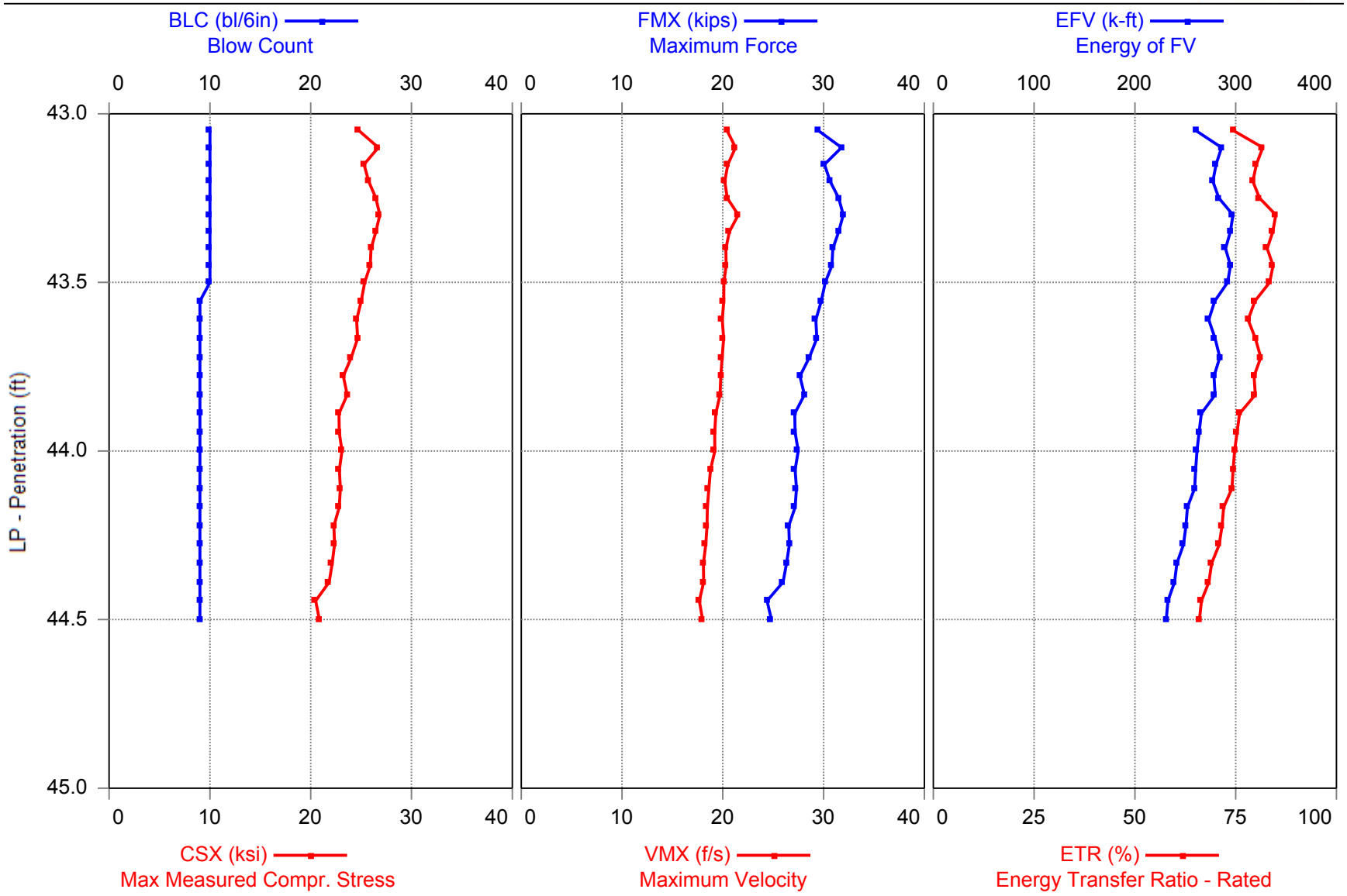
N-value: 10

Sample Interval Time: 17.94 seconds.

GRL Engineers, Inc. - PDIPLOT2 Ver 2016.2.57.6 - Case Method & iCAP® Results

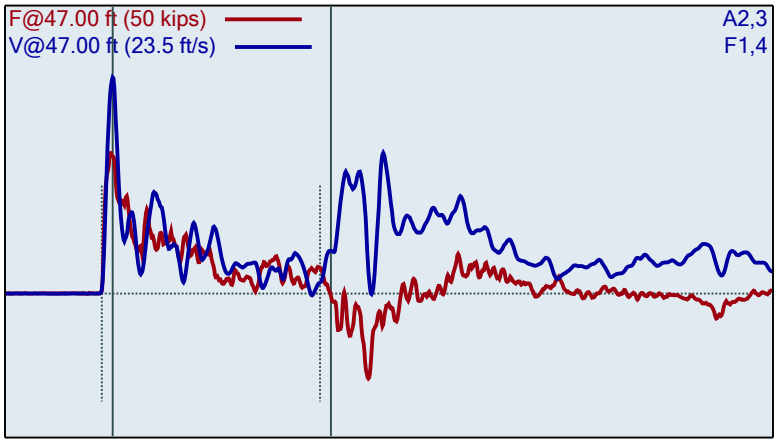
Printed: 05-June-2017 Test started: 02-June-2017

MOBILE B-59 SN94010 - 43-44.5



GRL Engineers, Inc.
MOBILE B-59 SN94010
43-44.5
S1
PDA Operator: TH

Pile Driving Analyzer ® (PDA)
Version: 2017.18



BN 27
02Jun2017 02:04:33 PM

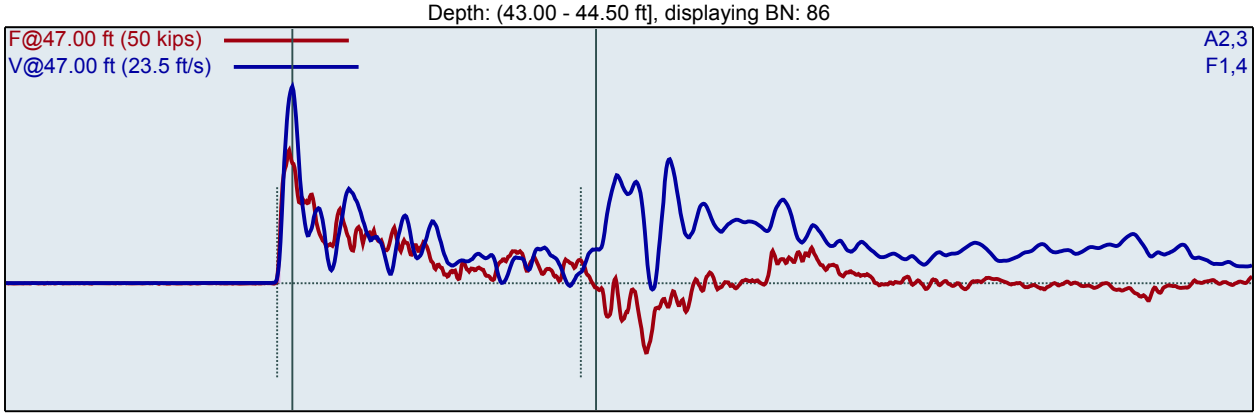
ETR	66.5 (%)
EFV	233 ft-lb
BPM	41.3 bpm
CSX	20.5 ksi
VMX	17.7 ft/s
DMX	0.88 in
FMX	24 kips
DFN	0.66 in
FVP	0.6 []

LE	47.00 ft
AR	1.19 in^2
EM	30000 ksi
SP	0.492 k/ft3
WS	16807.9 ft/s
WC	16785.7 ft/s
JC	0.90 []
JF	1.00 []

F1: [168AWJ2]	215.16 PDICAL (1) FF1
A2 (PR): [K5001]	307 mv/6.4v/5000g (1) VF1
A3 (PR): [K4998]	312 mv/6.4v/5000g (1) VF1
F4: [168AWJ1]	212.47 PDICAL (1) FF1

MOBILE B-59 SN94010 — 30-31.5
TH — Test date: 6/2/2017
AR: 1.19 in^2 — SP: 0.492 k/ft3
LE: 47.00 ft — EM: 30000 ksi
WS: 16807.9 ft/s

Depth: (43.00 - 44.50 ft], displaying BN: 86



BL#	BC /6"	LP ft	CSX ksi	FMX kips	VMX ft/s	BPM bpm	EFV ft-lb	ETR (%)	DMX in	DFN in	FVP []
61	10	43.05	24.8	29	20.4	36.2	261	74.5	0.97	0.60	0.6
62	10	43.10	26.7	32	21.3	40.4	286	81.7	1.00	0.60	0.6
63	10	43.15	25.3	30	20.5	41.6	281	80.1	1.08	0.60	0.6
64	10	43.20	25.8	31	20.2	40.9	277	79.2	0.95	0.60	0.7
65	10	43.25	26.5	31	20.4	41.3	283	80.9	0.85	0.60	0.6
66	10	43.30	26.8	32	21.5	41.4	297	84.9	0.76	0.60	0.6
67	10	43.35	26.5	31	20.6	41.2	295	84.2	0.84	0.60	0.7
68	10	43.40	26.0	31	20.3	41.4	290	82.8	0.82	0.60	0.7
69	10	43.45	25.9	31	20.3	41.3	295	84.2	0.87	0.60	0.7
70	10	43.50	25.3	30	20.1	41.1	292	83.4	1.00	0.60	0.7
71	9	43.56	25.0	30	20.1	41.4	279	79.8	0.77	0.66	0.7
72	9	43.61	24.6	29	19.9	41.1	273	78.1	0.84	0.66	0.6
73	9	43.67	24.6	29	20.1	41.3	280	79.9	0.85	0.67	0.7
74	9	43.72	24.0	29	19.9	41.1	284	81.2	0.97	0.67	0.6
75	9	43.78	23.2	28	19.8	41.0	278	79.6	0.88	0.67	0.6
76	9	43.83	23.6	28	19.7	41.4	280	79.9	0.95	0.67	0.6
77	9	43.89	22.8	27	19.3	41.4	266	76.0	0.79	0.66	0.6
78	9	43.94	22.8	27	19.2	40.7	264	75.3	0.82	0.66	0.6
79	9	44.00	23.1	27	19.2	41.3	262	74.7	0.79	0.66	0.6
80	9	44.06	22.8	27	18.8	40.8	260	74.3	0.68	0.66	0.6
81	9	44.11	22.9	27	18.6	41.2	259	74.1	0.73	0.66	0.6
82	9	44.17	22.8	27	18.5	41.3	252	72.0	0.67	0.66	0.6
83	9	44.22	22.3	27	18.4	41.3	251	71.6	0.66	0.66	0.6
84	9	44.28	22.4	27	18.3	40.8	248	70.9	0.80	0.66	0.6
85	9	44.33	22.1	26	18.1	41.4	242	69.0	0.76	0.66	0.6
86	9	44.39	21.8	26	18.1	41.2	239	68.4	0.90	0.66	0.6
87	9	44.44	20.5	24	17.7	41.3	233	66.5	0.88	0.66	0.6
88	9	44.50	20.9	25	18.0	41.4	231	66.0	0.99	0.66	0.6
		Average	22.9	27	19.0	41.2	260	74.3	0.82	0.66	0.6
		Std Dev	1.2	1	0.8	0.2	17	4.7	0.10	0.00	0.0
		Maximum	25.0	30	20.1	41.4	284	81.2	0.99	0.67	0.7
		Minimum	20.5	24	17.7	40.7	231	66.0	0.66	0.66	0.6

N-value: 18

Sample Interval Time: 39.31 seconds.

Summary of SPT Test Results

Project: MOBILE B-59 SN94010, Test Date: 6/2/2017

CSX: Compression Stress Maximum
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
EFV: Maximum Energy

ETR: Energy Transfer Ratio - Rated
DMX: Maximum Displacement
DFN: Final Displacement
FVP: Force/Velocity Proportionality

Instr. Length ft	Blows Applied /6"	Start Depth ft	Final Depth ft	**N Value**	**N60 Value**	Average CSX ksi	Average FMX kips	Average VMX ft/s	Average BPM bpm	Average EFV ft-lb	Average ETR (%)	Average DMX in	Average DFN in	Average FVP []
34.00	**19-18-10**	30.00	31.50	**28**	**36**	26.0	31	18.7	43.1	287	82.0	0.64	0.43	0.8
44.00	**3-5-5**	37.00	38.50	**10**	**13**	26.9	32	18.5	40.1	269	77.0	1.80	1.20	0.8
47.00	**10-9-9**	43.00	44.50	**18**	**23**	22.9	27	19.0	41.2	260	74.3	0.82	0.66	0.6
			Overall Average Values:			25.2	30	18.8	41.9	275	78.6	0.91	0.64	0.7
			Standard Deviation:			1.9	2	0.8	1.2	20	5.8	0.51	0.29	0.1
			Overall Maximum Value:			28.4	34	20.1	43.4	307	87.6	2.92	1.20	0.8
			Overall Minimum Value:			20.5	24	16.8	39.9	231	66.0	0.36	0.33	0.6

SPT HAMMER EFFICIENCY

SCI Construction Materials
Non Destructive
Geotechnical
Environmental

Drill Rig:	SCI CME 550X	Test Date:	7/31/17	Boring ID:	TB-1
Hammer:	Automatic	Project No. :		Rod Type:	BW
Rig Operator:	Grimball	Location:	SCI Yard	Analyzer ID:	216BW
Engineer:	Henderson	Drilling Method:	Mud Rotary	Rod Area:	1.81 in^2

Depth: 40 ft
LE: 43 ft
Blow Count: 1, 1, 2

Blow No.	Energy
1	0.268
2	0.279
3	0.265
4	0.303
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

Average Energy: 0.279 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 80%
Std. Deviation: 0.017 kip-ft

Depth: 45 ft
LE: 48 ft
Blow Count: 6, 17, 21

Blow No.	Energy	Blow No.	Energy
1	0.296	26	0.278
2	0.310	27	0.275
3	0.296	28	0.274
4	0.299	29	0.283
5	0.299	30	0.262
6	0.278	31	0.285
7	0.278	32	0.288
8	0.298	33	0.270
9	0.291	34	0.268
10	0.300	35	0.267
11	0.283	36	0.281
12	0.273	37	0.282
13	0.274	38	0.296
14	0.282	39	0.267
15	0.268	40	0.298
16	0.295	41	0.287
17	0.285	42	0.285
18	0.255	43	0.266
19	0.268	44	0.276
20	0.278	45	
21	0.287	46	
22	0.279	47	
23	0.265	48	
24	0.265	49	
25	0.287	50	

Average Energy: 0.281 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 80%
Std. Deviation: 0.012 kip-ft

Depth: 50 ft
LE: 53 ft
Blow Count: 23, 32, 24

Blow No.	Energy	Blow No.	Energy	Blow No.	Energy	Blow No.	Energy
1	0.287	26	0.268	51	0.289	76	0.286
2	0.290	27	0.267	52	0.286	77	0.278
3	0.276	28	0.273	53	0.277	78	0.309
4	0.293	29	0.272	54	0.282	79	0.276
5	0.280	30	0.271	55	0.270	80	
6	0.278	31	0.264	56	0.289	81	
7	0.294	32	0.283	57	0.282	82	
8	0.287	33	0.294	58	0.292	83	
9	0.293	34	0.266	59	0.285	84	
10	0.273	35	0.261	60	0.281	85	
11	0.285	36	0.300	61	0.277	86	
12	0.316	37	0.258	62	0.285	87	
13	0.273	38	0.274	63	0.284	88	
14	0.302	39	0.269	64	0.283	89	
15	0.267	40	0.278	65	0.273	90	
16	0.278	41	0.279	66	0.287	91	
17	0.259	42	0.281	67	0.271	92	
18	0.297	43	0.290	68	0.288	93	
19	0.266	44	0.273	69	0.261	94	
20	0.267	45	0.277	70	0.283	95	
21	0.292	46	0.275	71	0.293	96	
22	0.270	47	0.272	72	0.263	97	
23	0.291	48	0.269	73	0.284	98	
24	0.286	49	0.282	74	0.272	99	
25	0.276	50	0.288	75	0.291	100	

Average Energy: 0.280 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 80%
Std. Deviation: 0.011 kip-ft

Average efficiency from all tests: 80%

Comments: LE = length of rod from below gages to bottom of sampler.
Maximum rated energy based on a hammer weight of 0.14 kips and a drop height of 2.5 feet.

SCI
Construction Materials
Non Destructive
Geotechnical
Environmental

SPT HAMMER EFFICIENCY

Drill Rig:	CME 55	Test Date:	11/1/2017	Boring ID:	TB-1
Hammer:	Automatic	Project No. :		Rod Type:	BW
Rig Operator:	Benbow	Location:	SCI Yard	Analyzer ID:	216BW
Engineer:	Henderson	Drilling Method:	Mud Rotary	Rod Area:	1.82 in^2

Depth: 40 ft
LE: 43 ft
Blow Count: 4, 5, 7

Blow No.	Energy	Blow No.	Energy
1	0.327	26	
2	0.327	27	
3	0.323	28	
4	0.312	29	
5	0.316	30	
6	0.324	31	
7	0.319	32	
8	0.323	33	
9	0.310	34	
10	0.320	35	
11	0.319	36	
12	0.311	37	
13	0.325	38	
14	0.320	39	
15	0.312	40	
16	0.320	41	
17		42	
18		43	
19		44	
20		45	
21		46	
22		47	
23		48	
24		49	
25		50	

Average Energy: 0.319 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 91%
Std. Deviation: 0.006 kip-ft

Depth: 45 ft
LE: 48 ft
Blow Count: 8, 12, 15

Blow No.	Energy	Blow No.	Energy
1	0.319	26	0.310
2	0.329	27	0.314
3	0.315	28	0.304
4	0.329	29	0.310
5	0.306	30	0.313
6	0.300	31	0.323
7	0.307	32	0.321
8	0.318	33	0.307
9	0.313	34	0.306
10	0.311	35	0.302
11	0.311	36	
12	0.313	37	
13	0.302	38	
14	0.308	39	
15	0.307	40	
16	0.305	41	
17	0.305	42	
18	0.308	43	
19	0.307	44	
20	0.313	45	
21	0.305	46	
22	0.302	47	
23	0.317	48	
24	0.318	49	
25	0.313	50	

Average Energy: 0.311 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 89%
Std. Deviation: 0.007 kip-ft

Depth: 50 ft
LE: 53 ft
Blow Count: 8, 13, 17

Blow No.	Energy	Blow No.	Energy
1	0.294	26	0.319
2	0.316	27	0.321
3	0.326	28	0.322
4	0.320	29	0.323
5	0.316	30	0.323
6	0.317	31	0.319
7	0.316	32	0.322
8	0.316	33	0.327
9	0.312	34	0.321
10	0.310	35	0.325
11	0.321	36	0.321
12	0.318	37	0.318
13	0.321	38	0.335
14	0.325	39	
15	0.334	40	
16	0.306	41	
17	0.320	42	
18	0.330	43	
19	0.324	44	
20	0.325	45	
21	0.317	46	
22	0.310	47	
23	0.312	48	
24	0.333	49	
25	0.333	50	

Average Energy: 0.320 kip-ft
Max. Rated Energy: 0.350 kip-ft
Efficiency: 91%
Std. Deviation: 0.008 kip-ft

Average efficiency from all tests: 90%

Comments: LE = length of rod from below gages to bottom of sampler.
Maximum rated energy based on a hammer weight of 0.14 kips and a drop height of 2.5 feet.

Appendix IX - Laboratory Test Results

Consolidated Undrained Triaxial Compression Test Results

One – Dimensional Consolidation Test Results

California Bearing Ratio (CBR) Test Results

Proctor Test Results

Corrosion Series Test Results

Plasticity Index Charts

Hydrometer Test Results

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	AV
Date	11/02/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.951	5.958
Diameter, in	2.843	2.861
Height-to-Diameter Ratio	2.1	2.1
Area, in^2	6.35	6.43
Volume, cm^3	619.06	627.88
Mass of Wet Sample, g	1279.50	1288.30
Mass of Dry Sample, g	1048.91	1048.91
Wet Density, pcf	129.0	128.1
Dry Density, pcf	105.8	104.3
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm^3	388.48	388.48
Volume of Voids, cm^3	230.58	239.39
Void Ratio	0.59	0.62
% Saturation	100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	351.10	1288.30
Mass of Dry Sample and Tare, g	303.90	1048.91
Mass of Tare, g	89.20	0.00
Moisture, %	21.98	22.82

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	8.8
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, σ_3),psi	5.0
Change in Height, in	-0.007
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Eff.Stress Ratio	P' $(\sigma'_1+\sigma'_3)/2$ (psi)	Q $(\sigma_1-\sigma_3)/2$ (psi)	Eff. Minor Pr. Stress σ'_3 (psi)
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			
0.0	0.000	22.3	80.00	0.0	0.00	6.43	0.0	5.0	5.0	1.00	5.0	0.0	5.0
0.5	0.005	28.6	80.45	0.5	0.08	6.44	1.0	6.0	5.5	1.22	5.0	0.5	4.6
1.0	0.010	30.2	80.59	0.6	0.17	6.44	1.2	6.2	5.6	1.28	5.0	0.6	4.4
1.5	0.015	31.2	80.64	0.6	0.25	6.45	1.4	6.4	5.7	1.32	5.1	0.7	4.4
2.0	0.020	31.8	80.68	0.7	0.34	6.45	1.5	6.5	5.8	1.34	5.1	0.7	4.3
2.5	0.025	36.1	80.89	0.9	0.42	6.46	2.1	7.1	6.2	1.52	5.2	1.1	4.1
3.0	0.030	42.9	81.45	1.5	0.50	6.46	3.2	8.2	6.7	1.90	5.1	1.6	3.6
3.5	0.035	47.9	81.70	1.7	0.59	6.47	4.0	9.0	7.3	2.20	5.3	2.0	3.3
4.0	0.040	51.6	81.86	1.9	0.67	6.47	4.5	9.5	7.7	2.44	5.4	2.3	3.1
5.0	0.050	58.1	82.05	2.1	0.84	6.49	5.5	10.5	8.5	2.87	5.7	2.8	3.0
6.0	0.060	64.5	82.12	2.1	1.01	6.50	6.5	11.5	9.4	3.26	6.1	3.2	2.9
7.0	0.070	70.3	82.13	2.1	1.17	6.51	7.4	12.4	10.2	3.57	6.6	3.7	2.9
8.0	0.080	76.3	82.06	2.1	1.34	6.52	8.3	13.3	11.2	3.82	7.1	4.1	2.9
9.0	0.090	82.0	81.99	2.0	1.51	6.53	9.1	14.1	12.2	4.04	7.6	4.6	3.0
10.0	0.100	87.7	81.85	1.8	1.68	6.54	10.0	15.0	13.1	4.17	8.1	5.0	3.2
11.0	0.110	92.8	81.73	1.7	1.85	6.55	10.8	15.8	14.0	4.29	8.7	5.4	3.3
12.0	0.120	98.1	81.54	1.5	2.01	6.56	11.5	16.5	15.0	4.34	9.2	5.8	3.5
13.0	0.130	102.9	81.38	1.4	2.18	6.57	12.3	17.3	15.9	4.39	9.7	6.1	3.6
14.0	0.140	107.7	81.18	1.2	2.35	6.59	13.0	18.0	16.8	4.39	10.3	6.5	3.8
15.0	0.150	112.3	80.97	1.0	2.52	6.60	13.6	18.6	17.7	4.39	10.9	6.8	4.0
Values @ Failure			1.2	2.35	6.59	13.0	18.0	16.8	**4.39**	10.3	6.5	3.8	

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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Tested By	AV
Date	11/02/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.808	5.845
Diameter, in		2.898	2.871
Height-to-Diameter Ratio		2.0	2.0
Area, in^2		6.60	6.47
Volume, cm^3		627.88	619.88
Mass of Wet Sample, g		1288.30	1280.30
Mass of Dry Sample, g		1048.91	1048.91
Wet Density, pcf		128.1	128.9
Dry Density, pcf		104.3	105.6
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		388.48	388.48
Volume of Voids, cm^3		239.39	231.39
Void Ratio		0.62	0.60
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1288.30	1280.30
Mass of Dry Sample and Tare, g	1048.91	1048.91
Mass of Tare, g	0.00	0.00
Moisture, %	22.82	22.06

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-8.0
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, σ_3),psi	10.0
Change in Height, in	-0.037
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' ($\sigma'_1+\sigma'_3$)/2 (psi)	Q ($\sigma_1-\sigma_3$)/2 (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.113	23.0	80.00	0.0	0.00	6.47	0.0	10.0	10.0	1.00	10.0	0.0	10.0	1.90
0.005	0.118	54.8	82.42	2.4	0.09	6.48	4.9	14.9	12.5	1.65	10.0	2.5	7.6	1.98
0.010	0.123	70.8	83.31	3.3	0.17	6.48	7.4	17.4	14.1	2.10	10.4	3.7	6.7	2.06
0.015	0.128	82.8	83.75	3.8	0.26	6.49	9.2	19.2	15.5	2.47	10.9	4.6	6.3	2.15
0.020	0.133	92.7	83.97	4.0	0.34	6.49	10.7	20.7	16.8	2.78	11.4	5.4	6.0	2.23
0.025	0.138	102.2	84.13	4.1	0.43	6.50	12.2	22.2	18.1	3.08	12.0	6.1	5.9	2.32
0.030	0.143	110.9	84.23	4.2	0.51	6.51	13.5	23.5	19.3	3.34	12.5	6.8	5.8	2.40
0.035	0.148	118.6	84.27	4.3	0.60	6.51	14.7	24.7	20.4	3.56	13.1	7.3	5.7	2.48
0.040	0.153	125.5	84.29	4.3	0.68	6.52	15.7	25.7	21.4	3.75	13.6	7.9	5.7	2.57
0.050	0.163	136.7	84.21	4.2	0.86	6.53	17.4	27.4	23.2	4.01	14.5	8.7	5.8	2.74
0.060	0.173	145.5	84.01	4.0	1.03	6.54	18.7	28.7	24.7	4.13	15.4	9.4	6.0	2.90
0.070	0.183	152.4	83.81	3.8	1.20	6.55	19.8	29.8	25.9	4.19	16.1	9.9	6.2	3.07
0.080	0.193	158.7	83.55	3.6	1.37	6.56	20.7	30.7	27.1	4.21	16.8	10.3	6.5	3.24
0.090	0.203	163.9	83.31	3.3	1.54	6.57	21.4	31.4	28.1	4.20	17.4	10.7	6.7	3.41
0.100	0.213	169.1	83.06	3.1	1.71	6.58	22.2	32.2	29.1	4.20	18.0	11.1	6.9	3.58
Values @ Failure			3.6	1.37	6.56		20.7	30.7	27.1	**4.21**	16.8	10.3	6.5	3.24

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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Tested By	EB
Date	11/03/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.745	5.783
Diameter, in		2.895	2.849
Height-to-Diameter Ratio		2.0	2.0
Area, in^2		6.58	6.38
Volume, cm^3		619.88	604.33
Mass of Wet Sample, g		1280.30	1264.80
Mass of Dry Sample, g		1048.91	1048.99
Wet Density, pcf		128.9	130.7
Dry Density, pcf		105.6	108.4
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		388.48	388.51
Volume of Voids, cm^3		231.39	215.81
Void Ratio		0.60	0.56
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1280.30	1570.20
Mass of Dry Sample and Tare, g	1048.91	1354.41
Mass of Tare, g	0.00	305.50
Moisture, %	22.06	20.57

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	15.5
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.17
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress,(Minor pr. stress, σ_3),psi	20.0
Change in Height, in	-0.038
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' $(\sigma'_1+\sigma'_3)/2$ (psi)	Q $(\sigma_1-\sigma_3)/2$ (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.175	25.6	80.00	0.0	0.00	6.38	0.0	20.0	20.0	1.00	20.0	0.0	20.0	2.94
0.010	0.185	119.2	86.15	6.1	0.18	6.39	14.7	34.7	28.5	2.06	21.2	7.3	13.9	3.11
0.020	0.195	155.0	87.52	7.5	0.35	6.40	20.2	40.2	32.7	2.62	22.6	10.1	12.5	3.28
0.031	0.206	182.1	88.13	8.1	0.53	6.41	24.4	44.4	36.3	3.06	24.1	12.2	11.9	3.45
0.041	0.216	201.2	88.35	8.3	0.70	6.42	27.3	47.3	39.0	3.35	25.3	13.7	11.7	3.62
0.051	0.226	214.6	88.37	8.4	0.88	6.43	29.4	49.4	41.0	3.52	26.3	14.7	11.6	3.79
0.071	0.246	232.5	88.08	8.1	1.23	6.46	32.0	52.0	44.0	3.69	27.9	16.0	11.9	4.13
0.102	0.277	250.4	87.40	7.4	1.76	6.49	34.6	54.6	47.2	3.75	29.9	17.3	12.6	4.65
0.122	0.297	260.0	86.94	6.9	2.11	6.51	36.0	56.0	49.0	3.75	31.1	18.0	13.1	4.99
0.153	0.328	272.8	86.25	6.3	2.64	6.55	37.7	57.7	51.5	3.74	32.6	18.9	13.8	5.50
0.173	0.348	280.6	85.93	5.9	3.00	6.57	38.8	58.8	52.9	3.76	33.5	19.4	14.1	5.85
0.204	0.379	291.8	85.30	5.3	3.52	6.61	40.3	60.3	55.0	3.74	34.8	20.1	14.7	6.36
0.234	0.409	302.3	84.70	4.7	4.05	6.65	41.6	61.6	56.9	3.72	36.1	20.8	15.3	6.87
0.265	0.440	312.4	84.09	4.1	4.58	6.68	42.9	62.9	58.8	3.70	37.4	21.5	15.9	7.38
0.285	0.460	318.8	83.71	3.7	4.93	6.71	43.7	63.7	60.0	3.68	38.1	21.9	16.3	7.73
0.316	0.491	328.3	83.17	3.2	5.46	6.75	44.9	64.9	61.7	3.67	39.3	22.4	16.8	8.24
0.367	0.542	343.2	82.26	2.3	6.34	6.81	46.6	66.6	64.4	3.63	41.1	23.3	17.7	9.09
0.418	0.593	357.8	81.35	1.4	7.23	6.87	48.3	68.3	67.0	3.59	42.8	24.2	18.6	9.95
0.479	0.654	374.7	80.28	0.3	8.28	6.95	50.2	70.2	69.9	3.55	44.8	25.1	19.7	10.98
0.530	0.705	387.8	79.58	-0.4	9.16	7.02	51.6	71.6	72.0	3.53	46.2	25.8	20.4	11.83
0.622	0.797	409.0	78.21	-1.8	10.75	7.15	53.7	73.7	75.5	3.46	48.6	26.8	21.8	13.37
0.683	0.858	422.8	77.38	-2.6	11.81	7.23	54.9	74.9	77.6	3.43	50.1	27.5	22.6	14.40
0.725	0.900	431.0	76.83	-3.2	12.53	7.29	55.6	75.6	78.8	3.40	51.0	27.8	23.2	15.10
Values @ Failure				5.9	3.00	6.57	38.8	58.8	52.9	**3.76**	33.5	19.4	14.1	5.85

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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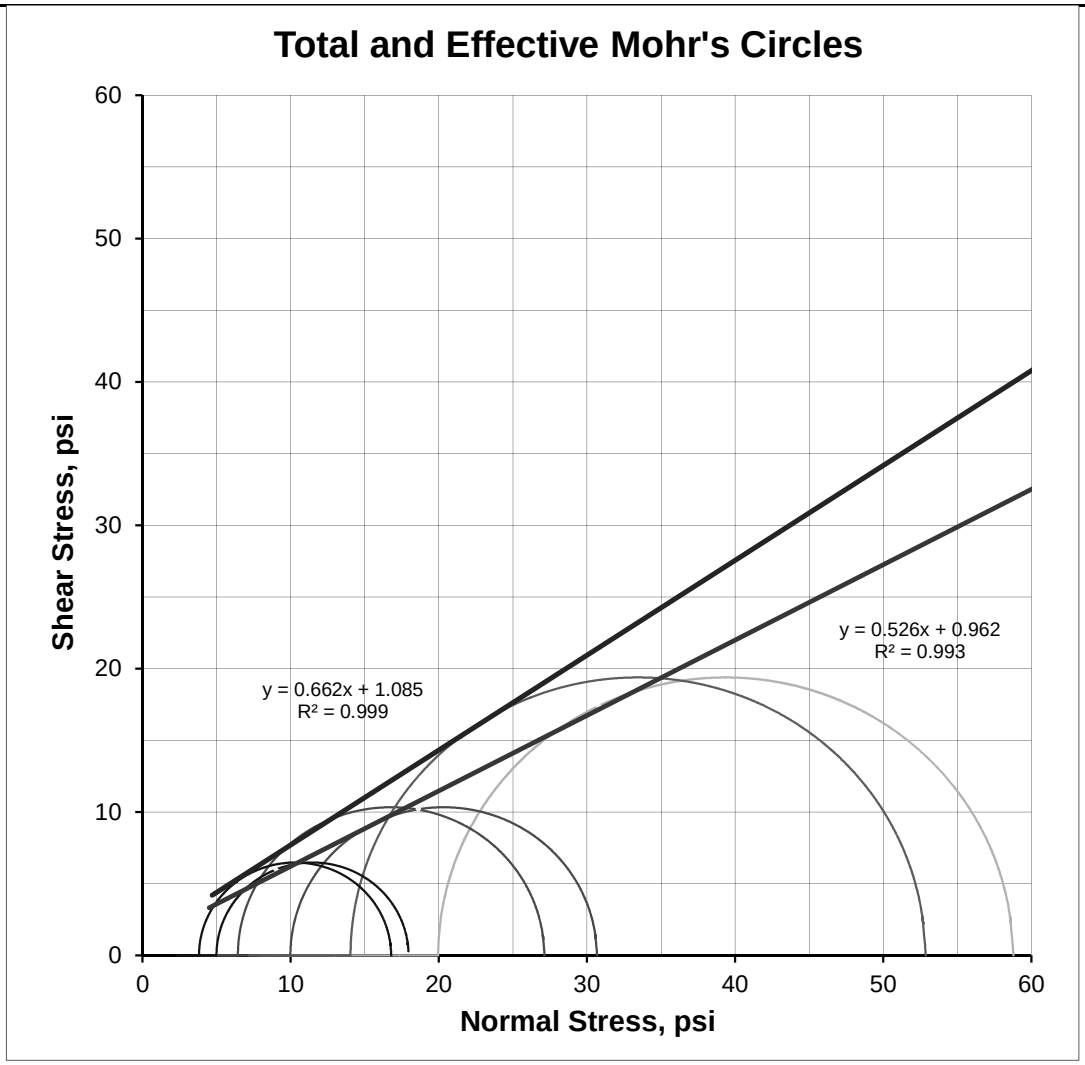
Standard Test Method for Multistage Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	13.0	20.7	38.8
Effective Minor Principal Stress at Failure, psi	3.8	6.5	14.1
Effective Major Principal Stress at Failure, psi	16.8	27.1	52.9
Axial Strain at Failure, %	2.35	1.37	3.00

STRENGTH PARAMETERS			
Total		Effective	
ϕ^{o}	27.7	ϕ'^{o}	33.5
C, psi	1.0	C', psi	1.1

Multistage Triaxial CU.xls [Mohr's Circles], REV. 1; 10-21-05

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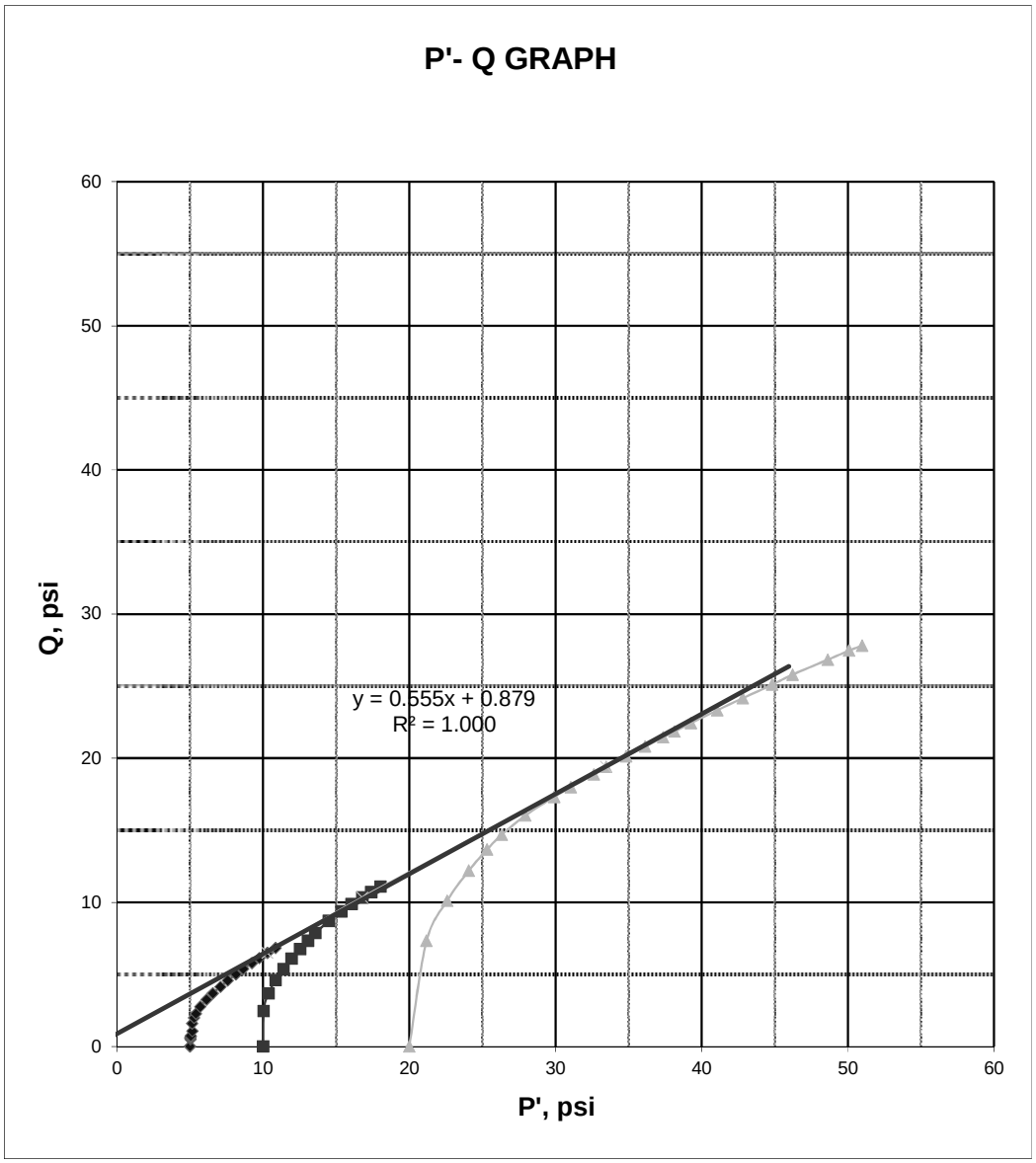
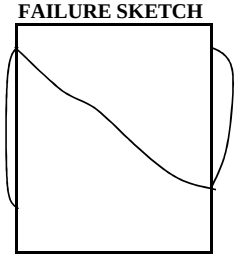
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-



FAILURE SKETCH



a, psi	0.9
α, degree	29.0

Multistage Triaxial CU.xls [P'-Q Graph], REV. 1; 10-21-05

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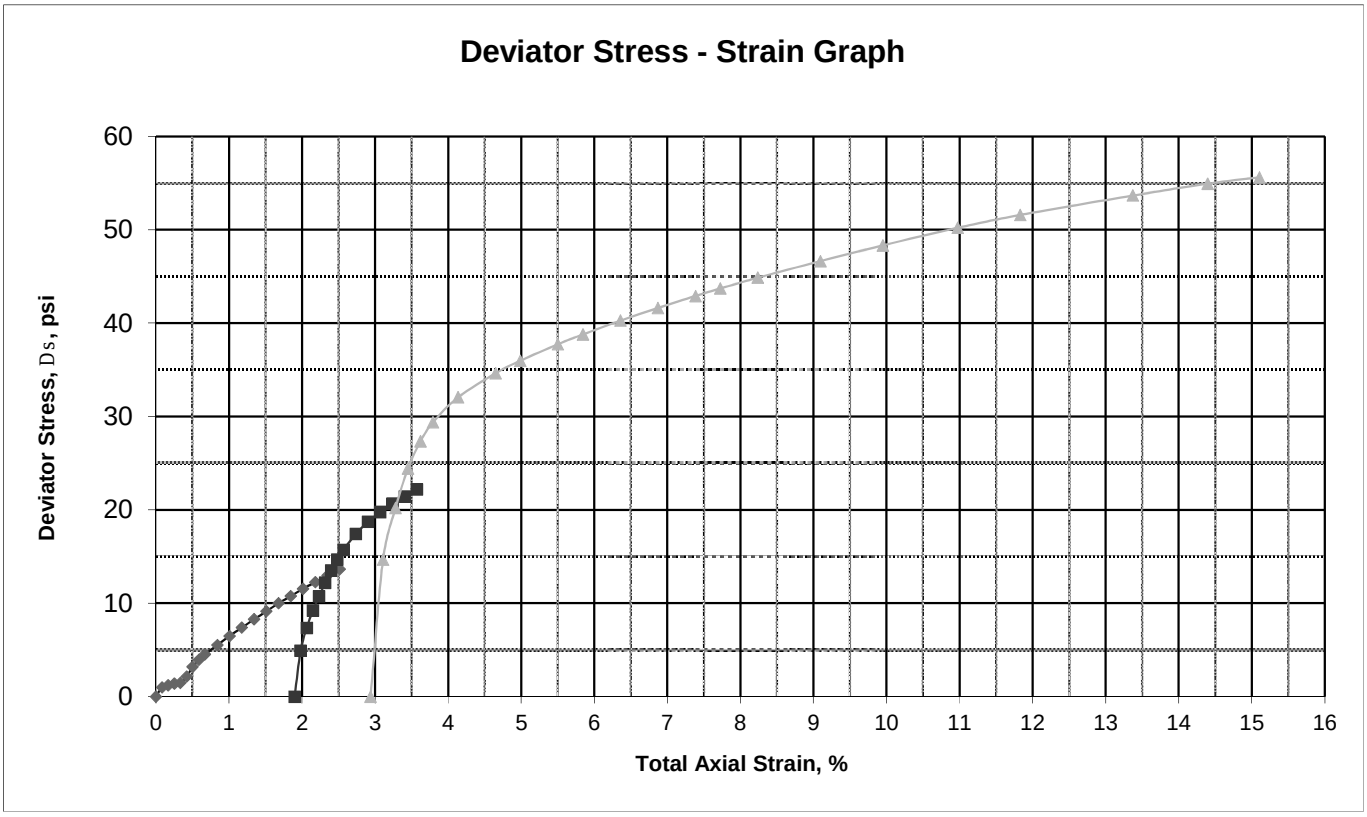
Standard Test Method for Multistage Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-



		REMARKS	DESCRIPTION
Balance ID Number	563/700	Portion of sample used for testing was located 5" above bottom of shelby tube.	Olive Brown Lean Clay
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:

1. Method for Saturation — WET
2. Method for determination of cross-sectional area after consol. — B
3. Final moisture content (Stage 3) obtained from entire sample

LL	-
PL	-
PI	-
Gs	-

USCS (ASTM D2487: D2488): CL

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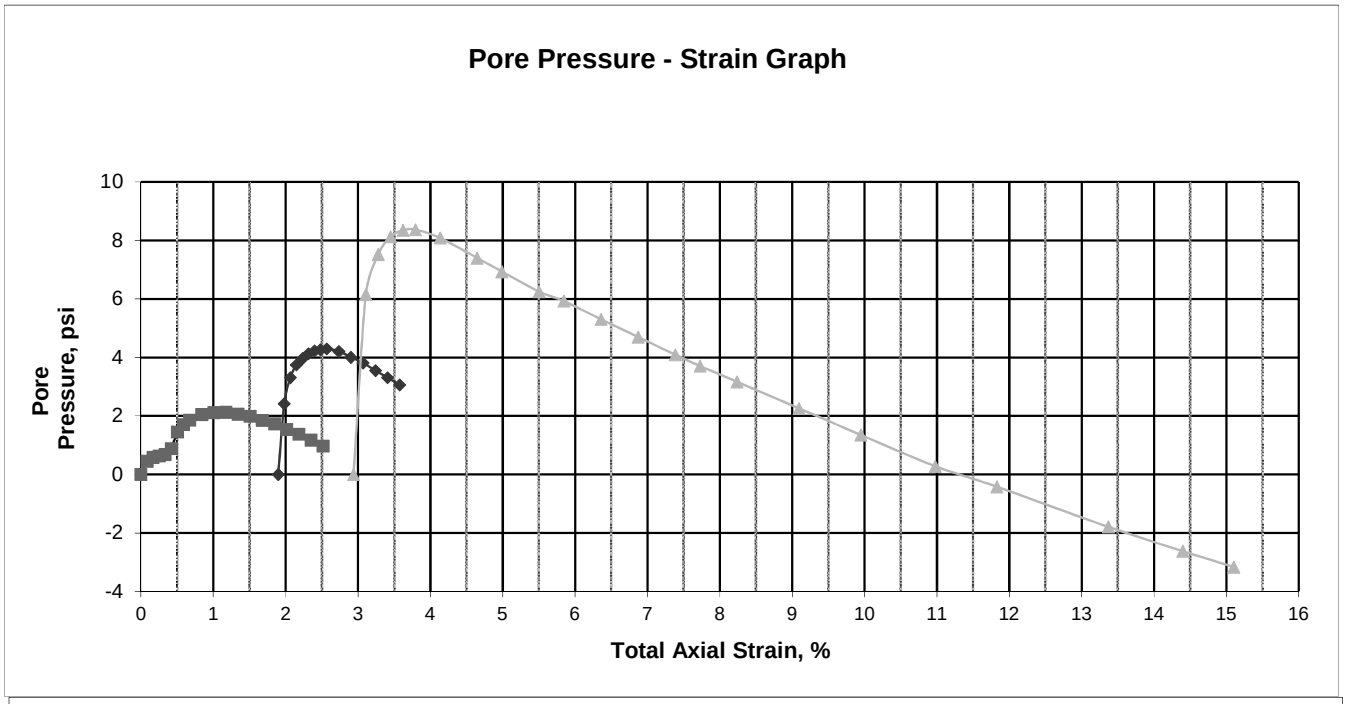
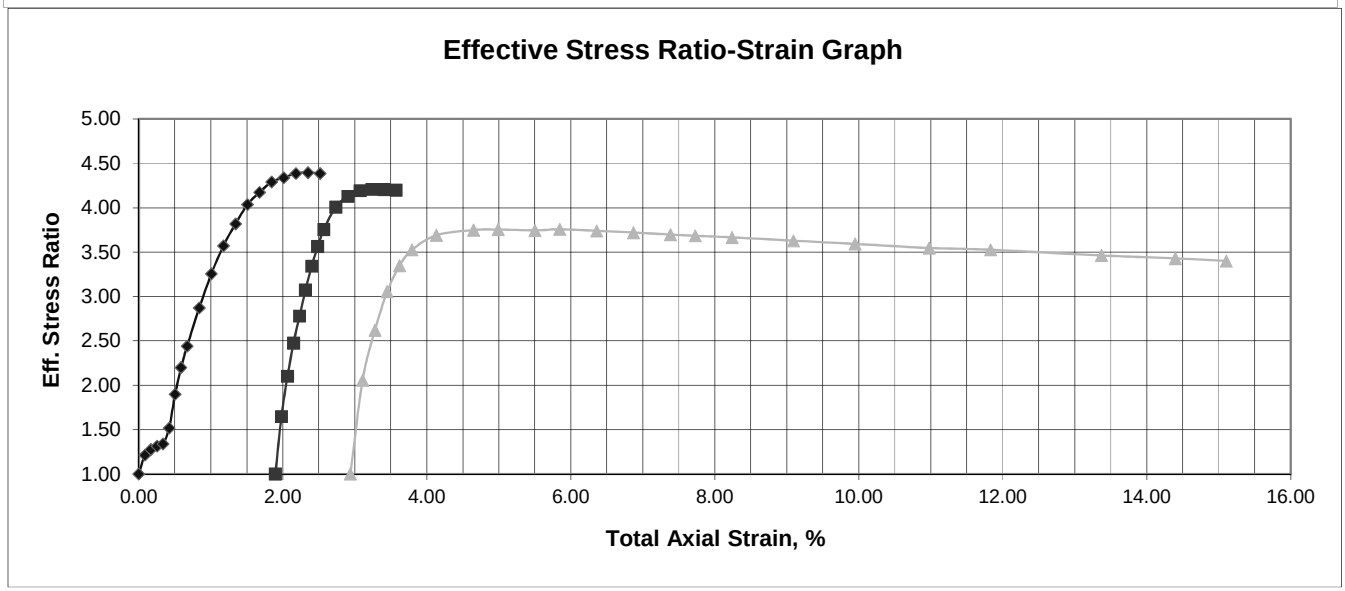
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-





Multistage Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain Graph], REV. 1; 10-21-05

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.892	5.843
Diameter, in	2.836	2.845
Height-to-Diameter Ratio	2.1	2.1
Area, in^2	6.32	6.36
Volume, cm^3	609.91	608.83
Mass of Wet Sample, g	1177.20	1177.60
Mass of Dry Sample, g	903.34	903.34
Wet Density, pcf	120.5	120.7
Dry Density, pcf	92.5	92.6
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm^3	334.57	334.57
Volume of Voids, cm^3	275.34	274.26
Void Ratio	0.82	0.82
% Saturation	99.5	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	345.20	1177.60
Mass of Dry Sample and Tare, g	297.30	903.34
Mass of Tare, g	139.30	0.00
Moisture, %	30.32	30.36

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	0.4
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, σ_3),psi	5.0
Change in Height, in	0.049
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Eff.Stress Ratio	P' ($\sigma'_1+\sigma'_3$)/2 (psi)	Q ($\sigma_1-\sigma_3$)/2 (psi)	Eff. Minor Pr. Stress σ'_3 (psi)
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			
0.0	0.000	16.0	80.00	0.0	0.00	6.36	0.0	5.0	5.0	1.00	5.0	0.0	5.0
0.5	0.005	33.1	81.10	1.1	0.09	6.36	2.7	7.7	6.6	1.69	5.2	1.3	3.9
1.0	0.010	36.4	81.41	1.4	0.17	6.37	3.2	8.2	6.8	1.89	5.2	1.6	3.6
1.5	0.015	38.1	81.66	1.7	0.26	6.37	3.5	8.5	6.8	2.04	5.1	1.7	3.3
2.0	0.020	39.3	81.84	1.8	0.34	6.38	3.7	8.7	6.8	2.16	5.0	1.8	3.2
2.5	0.025	40.1	82.00	2.0	0.43	6.39	3.8	8.8	6.8	2.26	4.9	1.9	3.0
3.0	0.030	41.0	82.17	2.2	0.51	6.39	3.9	8.9	6.7	2.38	4.8	2.0	2.8
3.5	0.035	41.8	82.30	2.3	0.60	6.40	4.0	9.0	6.7	2.49	4.7	2.0	2.7
4.0	0.040	42.5	82.42	2.4	0.68	6.40	4.1	9.1	6.7	2.60	4.6	2.1	2.6
5.0	0.050	43.7	82.62	2.6	0.86	6.41	4.3	9.3	6.7	2.81	4.5	2.2	2.4
6.0	0.060	44.9	82.80	2.8	1.03	6.42	4.5	9.5	6.7	3.04	4.4	2.2	2.2
7.0	0.070	45.8	82.92	2.9	1.20	6.44	4.6	9.6	6.7	3.23	4.4	2.3	2.1
8.0	0.080	46.8	83.01	3.0	1.37	6.45	4.8	9.8	6.8	3.40	4.4	2.4	2.0
9.0	0.090	47.7	83.11	3.1	1.54	6.46	4.9	9.9	6.8	3.60	4.3	2.5	1.9
10.0	0.100	48.6	83.16	3.2	1.71	6.47	5.0	10.0	6.9	3.74	4.4	2.5	1.8
14.0	0.140	51.8	83.26	3.3	2.40	6.51	5.5	10.5	7.2	4.16	4.5	2.7	1.7
18.0	0.180	54.6	83.31	3.3	3.08	6.56	5.9	10.9	7.6	4.48	4.6	2.9	1.7
22.0	0.220	56.8	83.26	3.3	3.77	6.61	6.2	11.2	7.9	4.55	4.8	3.1	1.7
25.0	0.250	58.3	83.24	3.2	4.28	6.64	6.4	11.4	8.1	4.62	4.9	3.2	1.8
28.0	0.280	59.7	83.23	3.2	4.79	6.68	6.5	11.5	8.3	4.70	5.0	3.3	1.8
29.0	0.290	60.2	83.23	3.2	4.96	6.69	6.6	11.6	8.4	4.73	5.1	3.3	1.8
30.0	0.300	60.7	83.22	3.2	5.13	6.70	6.7	11.7	8.4	4.75	5.1	3.3	1.8
31.0	0.310	61.1	83.20	3.2	5.31	6.71	6.7	11.7	8.5	4.73	5.2	3.4	1.8
Values @ Failure			3.2		5.13	6.70	6.7	11.7	8.4	**4.75**	5.1	3.3	1.8

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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Tested By	AV
Date	11/03/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.533	5.558
Diameter, in		2.924	2.882
Height-to-Diameter Ratio		1.9	1.9
Area, in^2		6.71	6.53
Volume, cm^3		608.83	594.31
Mass of Wet Sample, g		1177.60	1163.08
Mass of Dry Sample, g		903.34	903.34
Wet Density, pcf		120.7	122.2
Dry Density, pcf		92.6	94.9
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		334.57	334.57
Volume of Voids, cm^3		274.26	259.74
Void Ratio		0.82	0.78
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1177.60	1163.08
Mass of Dry Sample and Tare, g	903.34	903.34
Mass of Tare, g	0.00	0.00
Moisture, %	30.36	28.75

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-14.5
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.18
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress,(Minor pr. stress, σ_3),psi	10.0
Change in Height, in	-0.025
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' ($\sigma'_1+\sigma'_3$)/2 (psi)	Q ($\sigma_1-\sigma_3$)/2 (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.285	22.5	80.00	0.0	0.00	6.53	0.0	10.0	10.0	1.00	10.0	0.0	10.0	4.88
0.005	0.290	53.3	82.79	2.8	0.09	6.53	4.7	14.7	11.9	1.65	9.6	2.4	7.2	4.96
0.010	0.295	63.6	83.87	3.9	0.18	6.54	6.3	16.3	12.4	2.03	9.3	3.1	6.1	5.05
0.015	0.300	68.9	84.54	4.5	0.27	6.54	7.1	17.1	12.6	2.30	9.0	3.5	5.5	5.13
0.020	0.305	72.4	84.98	5.0	0.36	6.55	7.6	17.6	12.6	2.52	8.8	3.8	5.0	5.22
0.025	0.310	75.5	85.38	5.4	0.45	6.55	8.1	18.1	12.7	2.75	8.7	4.0	4.6	5.31
0.030	0.315	77.8	85.71	5.7	0.54	6.56	8.4	18.4	12.7	2.96	8.5	4.2	4.3	5.39
0.035	0.320	79.7	85.95	6.0	0.63	6.57	8.7	18.7	12.8	3.15	8.4	4.4	4.1	5.48
0.040	0.325	81.3	86.17	6.2	0.72	6.57	8.9	18.9	12.8	3.34	8.3	4.5	3.8	5.56
0.050	0.335	83.8	86.51	6.5	0.90	6.58	9.3	19.3	12.8	3.67	8.1	4.7	3.5	5.73
0.060	0.345	85.6	86.73	6.7	1.08	6.60	9.6	19.6	12.8	3.93	8.1	4.8	3.3	5.90
0.070	0.355	87.0	86.92	6.9	1.26	6.61	9.8	19.8	12.8	4.17	8.0	4.9	3.1	6.08
0.080	0.365	88.1	87.04	7.0	1.44	6.62	9.9	19.9	12.9	4.35	7.9	5.0	3.0	6.25
0.090	0.375	89.1	87.12	7.1	1.62	6.63	10.0	20.0	12.9	4.49	7.9	5.0	2.9	6.42
0.100	0.385	89.9	87.18	7.2	1.80	6.64	10.1	20.1	13.0	4.60	7.9	5.1	2.8	6.59
0.110	0.395	90.6	87.22	7.2	1.98	6.66	10.2	20.2	13.0	4.68	7.9	5.1	2.8	6.76
0.130	0.415	91.9	87.26	7.3	2.34	6.68	10.4	20.4	13.1	4.79	7.9	5.2	2.7	7.10
0.160	0.445	93.6	87.26	7.3	2.88	6.72	10.6	20.6	13.3	4.86	8.0	5.3	2.7	7.62
0.180	0.465	94.6	87.26	7.3	3.24	6.74	10.7	20.7	13.4	4.90	8.1	5.3	2.7	7.96
0.190	0.475	95.2	87.24	7.2	3.42	6.76	10.8	20.8	13.5	4.90	8.1	5.4	2.8	8.13
0.200	0.485	95.6	87.24	7.2	3.60	6.77	10.8	20.8	13.6	4.91	8.2	5.4	2.8	8.30
0.210	0.495	96.1	87.22	7.2	3.78	6.78	10.9	20.9	13.6	4.90	8.2	5.4	2.8	8.47
0.220	0.505	96.5	87.21	7.2	3.96	6.79	10.9	20.9	13.7	4.90	8.2	5.4	2.8	8.64
Values @ Failure				7.2	3.60	6.77	10.8	20.8	13.6	**4.91**	8.2	5.4	2.8	8.30

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.338	5.359
Diameter, in		2.941	2.879
Height-to-Diameter Ratio		1.8	1.9
Area, in^2		6.79	6.51
Volume, cm^3		594.31	571.80
Mass of Wet Sample, g		1163.08	1143.10
Mass of Dry Sample, g		903.34	907.36
Wet Density, pcf		122.2	124.8
Dry Density, pcf		94.9	99.1
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		334.57	336.06
Volume of Voids, cm^3		259.74	235.74
Void Ratio		0.78	0.70
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1163.08	1437.90
Mass of Dry Sample and Tare, g	903.34	1202.00
Mass of Tare, g	0.00	294.00
Moisture, %	28.75	25.98

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-20.0
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.19
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress,(Minor pr. stress, σ_3),psi	20.0
Change in Height, in	-0.021
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' $(\sigma'_1+\sigma'_3)/2$ (psi)	Q $(\sigma_1-\sigma_3)/2$ (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.484	25.5	80.00	0.0	0.00	6.51	0.0	20.0	20.0	1.00	20.0	0.0	20.0	8.28
0.010	0.494	98.5	85.99	6.0	0.19	6.52	11.2	31.2	25.2	1.80	19.6	5.6	14.0	8.46
0.020	0.504	115.6	88.25	8.2	0.38	6.54	13.8	33.8	25.5	2.17	18.6	6.9	11.8	8.63
0.031	0.515	125.9	89.76	9.8	0.57	6.55	15.3	35.3	25.6	2.50	17.9	7.7	10.2	8.81
0.041	0.525	132.6	90.81	10.8	0.76	6.56	16.3	36.3	25.5	2.78	17.4	8.2	9.2	8.98
0.051	0.535	137.9	91.59	11.6	0.95	6.57	17.1	37.1	25.5	3.03	17.0	8.6	8.4	9.16
0.071	0.555	144.1	92.56	12.6	1.33	6.60	18.0	38.0	25.4	3.42	16.4	9.0	7.4	9.50
0.082	0.566	146.3	92.86	12.9	1.52	6.61	18.3	38.3	25.4	3.56	16.3	9.1	7.1	9.68
0.102	0.586	149.5	93.25	13.2	1.90	6.64	18.7	38.7	25.4	3.77	16.1	9.3	6.8	10.03
0.122	0.606	151.6	93.47	13.5	2.28	6.66	18.9	38.9	25.5	3.90	16.0	9.5	6.5	10.38
0.132	0.616	152.6	93.55	13.5	2.47	6.68	19.0	39.0	25.5	3.95	16.0	9.5	6.5	10.55
0.153	0.637	154.0	93.65	13.6	2.85	6.70	19.2	39.2	25.5	4.02	15.9	9.6	6.4	10.90
0.173	0.657	155.4	93.69	13.7	3.23	6.73	19.3	39.3	25.6	4.06	16.0	9.7	6.3	11.25
0.194	0.678	156.6	93.73	13.7	3.61	6.76	19.4	39.4	25.7	4.09	16.0	9.7	6.3	11.60
0.194	0.678	156.6	93.73	13.7	3.61	6.76	19.4	39.4	25.7	4.09	16.0	9.7	6.3	11.60
0.214	0.698	157.9	93.75	13.8	3.99	6.78	19.5	39.5	25.8	4.12	16.0	9.8	6.3	11.95
0.234	0.718	159.0	93.83	13.8	4.37	6.81	19.6	39.6	25.8	4.18	16.0	9.8	6.2	12.29
0.265	0.749	160.7	93.89	13.9	4.94	6.85	19.7	39.7	25.8	4.23	16.0	9.9	6.1	12.82
0.285	0.769	161.9	93.85	13.9	5.32	6.88	19.8	39.8	26.0	4.23	16.1	9.9	6.2	13.17
0.326	0.810	164.2	93.80	13.8	6.09	6.93	20.0	40.0	26.2	4.23	16.2	10.0	6.2	13.86
0.357	0.841	166.2	93.75	13.8	6.66	6.98	20.2	40.2	26.4	4.23	16.3	10.1	6.3	14.39
0.377	0.861	167.3	93.70	13.7	7.04	7.00	20.2	40.2	26.5	4.21	16.4	10.1	6.3	14.74
0.400	0.884	168.9	93.68	13.7	7.46	7.04	20.4	40.4	26.7	4.22	16.5	10.2	6.3	15.13
Values @ Failure				13.9	4.94	6.85	19.7	39.7	25.8	**4.23**	16.0	9.9	6.1	12.82

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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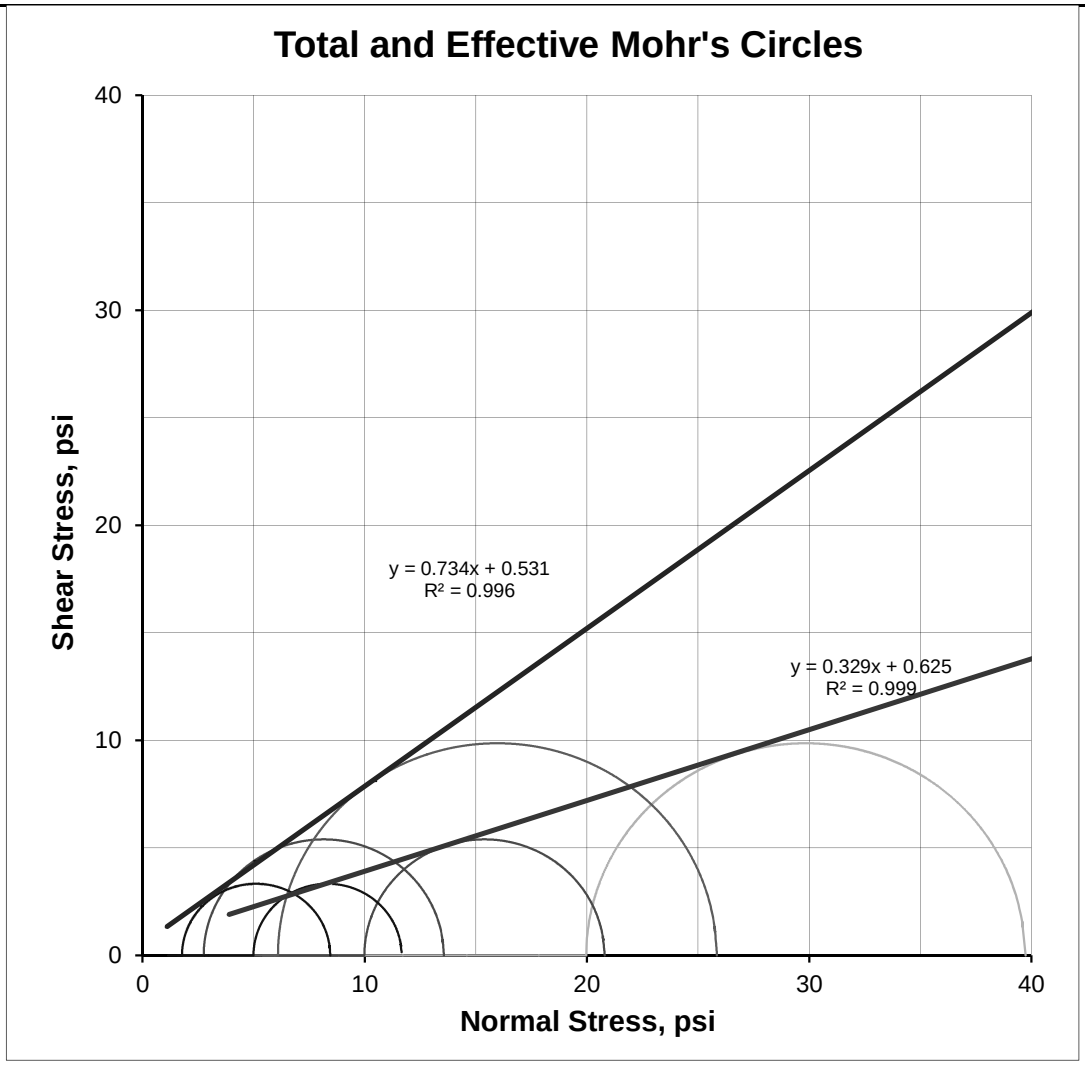
Standard Test Method for Multistage Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	6.7	10.8	19.7
Effective Minor Principal Stress at Failure, psi	1.8	2.8	6.1
Effective Major Principal Stress at Failure, psi	8.4	13.6	25.8
Axial Strain at Failure, %	5.13	3.60	4.94

STRENGTH PARAMETERS			
Total		Effective	
ϕ^{o}	18.2	ϕ'^{o}	36.3
C, psi	0.6	C', psi	0.5

Multistage Triaxial CU.xls [Mohr's Circles], REV. 1; 10-21-05

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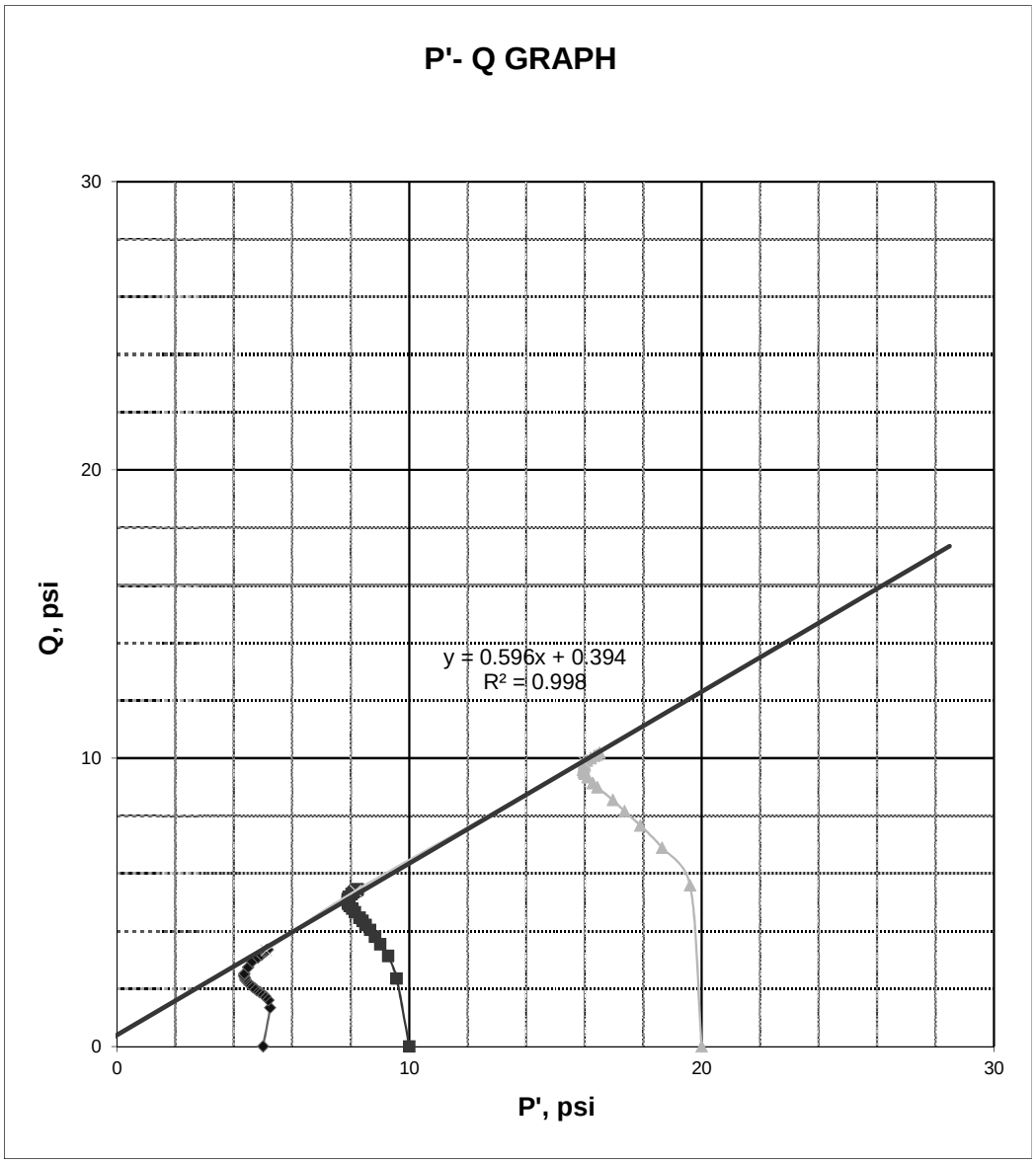
Date	11/04/17
Check	

ASTM D 4767M / AASHTO T 297M

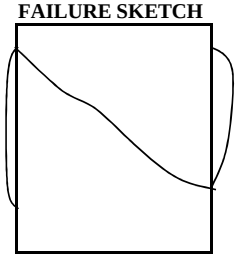
Standard Test Method for Multistage Consolidated Undrained Triaxial Compression Test for Cohesive Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

P'- Q GRAPH



FAILURE SKETCH



a, psi	0.4
α, degree	30.8

Multistage Triaxial CU.xls [P'-Q Graph], REV. 1; 10-21-05

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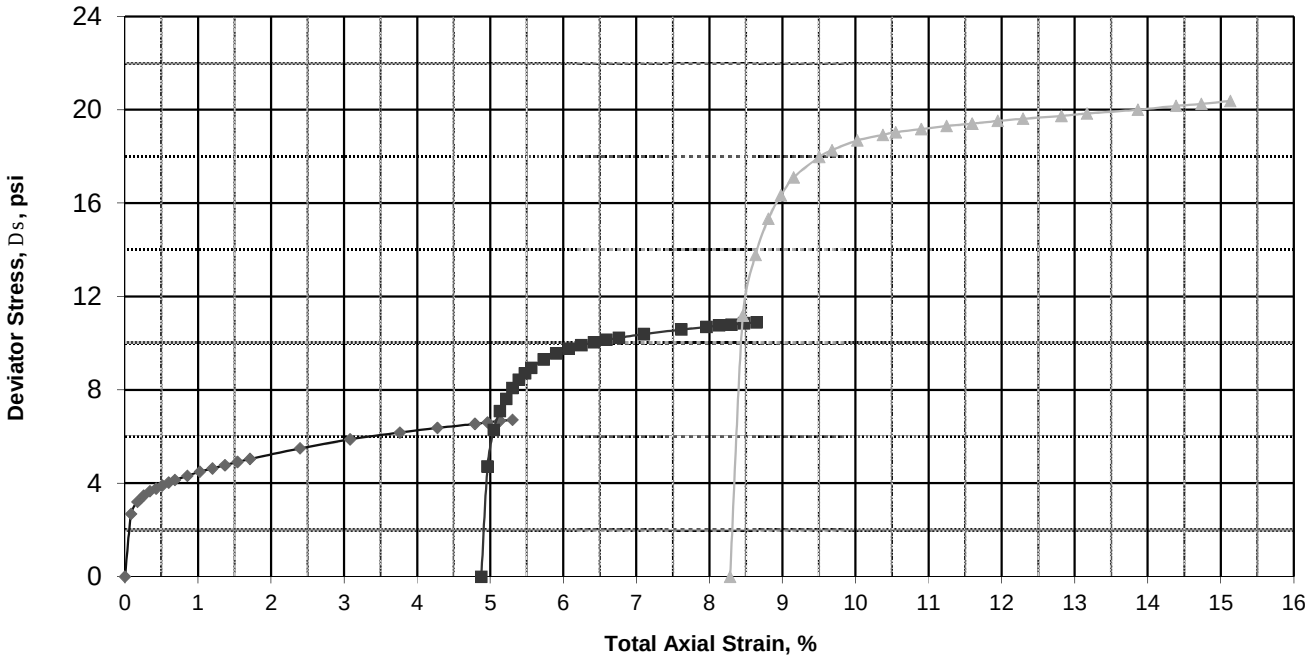
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

Deviator Stress - Strain Graph



		REMARKS	DESCRIPTION
Balance ID Number	563/700	Portion of sample used for testing was located 4" above bottom of shelby tube.	Red Fat Clay
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:
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	-

USCS (ASTM D2487: D2488)
CH

Multistage Triaxial CU.xls [Stress Strain Graph], REV. 1; 10-21-05

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Date	11/04/17
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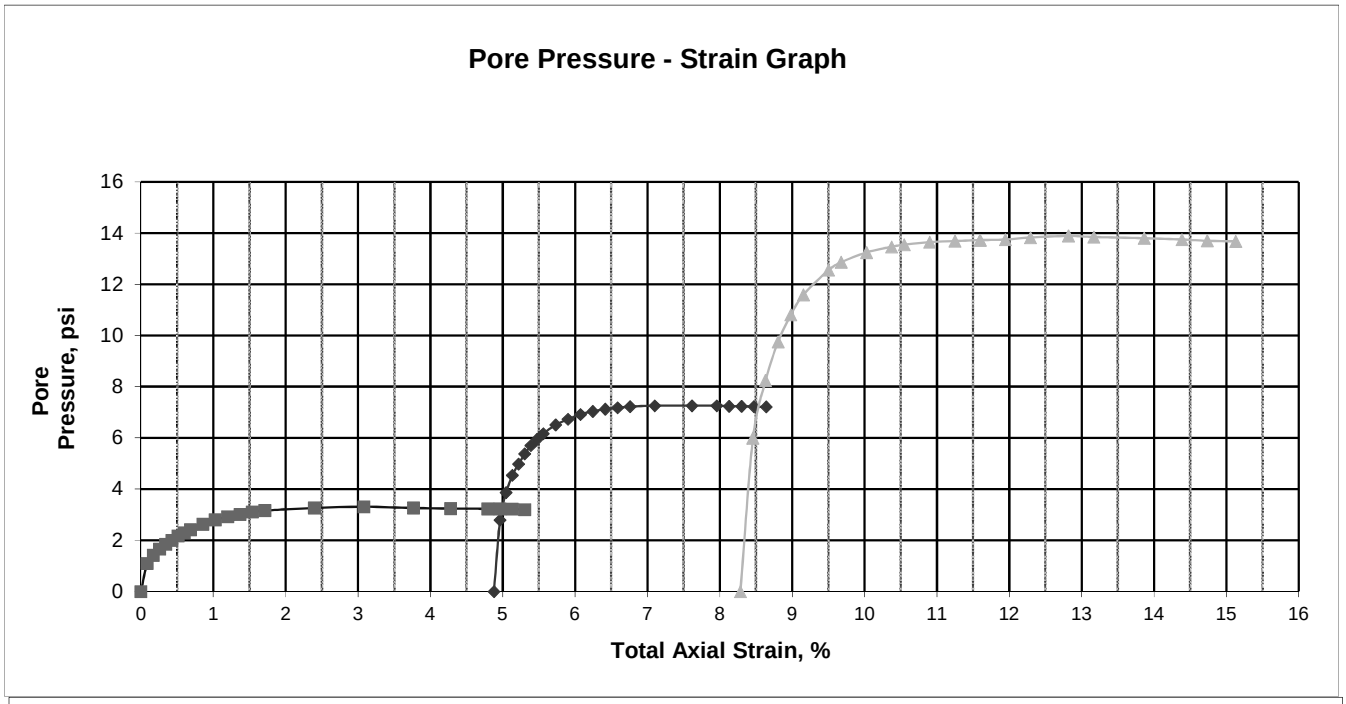
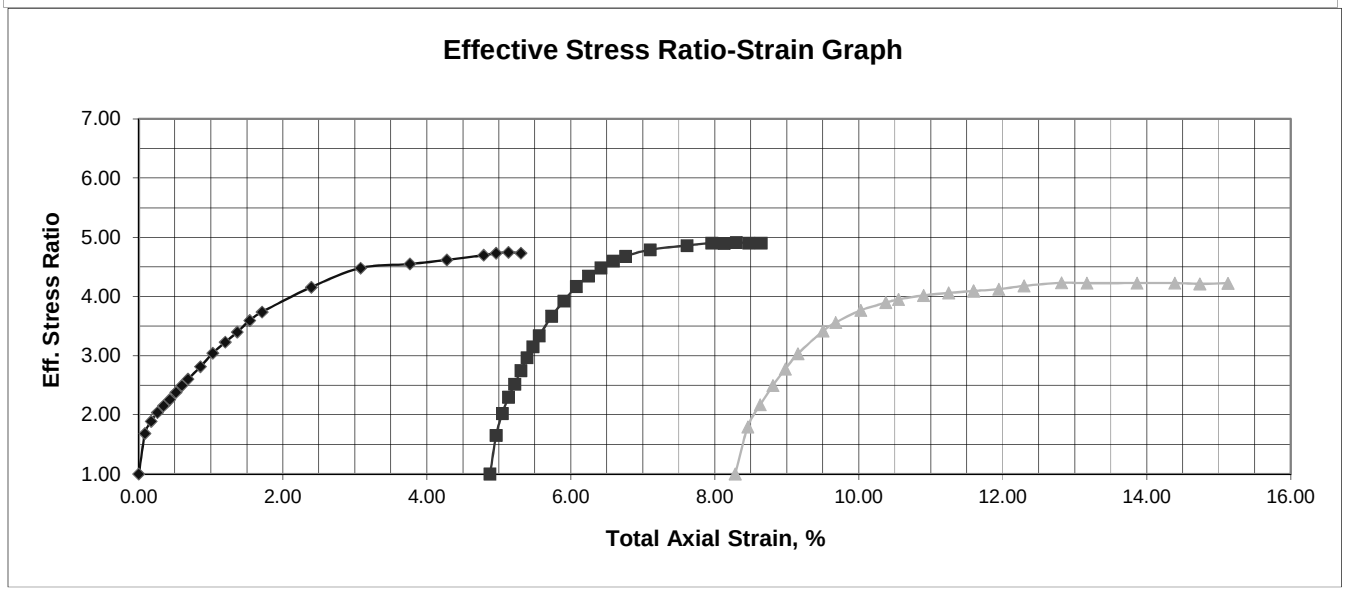
ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-





Multistage Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain Graph], REV. 1; 10-21-05

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Date	11/02/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

SPECIMEN PROPERTIES

	(initial)	(after consol.)
Height, in	5.822	5.764
Diameter, in	2.868	2.867
Height-to-Diameter Ratio	2.0	2.0
Area, in^2	6.46	6.46
Volume, cm^3	616.34	609.89
Mass of Wet Sample, g	1185.40	1175.40
Mass of Dry Sample, g	898.16	898.16
Wet Density, pcf	120.1	120.3
Dry Density, pcf	91.0	91.9
Specific Gravity (assumed)	2.700	2.700
Volume of Solids, cm^3	332.65	332.65
Volume of Voids, cm^3	283.69	277.24
Void Ratio	0.85	0.83
% Saturation	101.3	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1185.40	1175.40
Mass of Dry Sample and Tare, g	898.16	898.16
Mass of Tare, g	0.00	0.00
Moisture, %	31.98	30.87

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-10.0
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, σ_3),psi	5.0
Change in Height, in	0.058
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Eff.Stress Ratio	P' $(\sigma'_1+\sigma'_3)/2$ (psi)	Q $(\sigma_1-\sigma_3)/2$ (psi)	Eff. Minor Pr. Stress σ'_3 (psi)
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			
0.0	0.000	18.7	80.00	0.0	0.00	6.46	0.0	5.0	5.0	1.00	5.0	0.0	5.0
0.5	0.005	30.1	81.20	1.2	0.09	6.46	1.8	6.8	5.6	1.46	4.7	0.9	3.8
1.0	0.010	37.0	81.90	1.9	0.17	6.47	2.8	7.8	5.9	1.91	4.5	1.4	3.1
1.5	0.015	39.6	82.26	2.3	0.26	6.47	3.2	8.2	6.0	2.18	4.4	1.6	2.7
2.0	0.020	41.2	82.51	2.5	0.35	6.48	3.5	8.5	6.0	2.39	4.2	1.7	2.5
2.5	0.025	42.4	82.71	2.7	0.43	6.49	3.7	8.7	5.9	2.60	4.1	1.8	2.3
3.0	0.030	43.6	82.89	2.9	0.52	6.49	3.8	8.8	5.9	2.82	4.0	1.9	2.1
3.5	0.035	44.5	83.03	3.0	0.61	6.50	4.0	9.0	5.9	3.02	4.0	2.0	2.0
4.0	0.040	45.3	83.15	3.2	0.69	6.50	4.1	9.1	5.9	3.21	3.9	2.0	1.8
5.0	0.050	46.8	83.32	3.3	0.87	6.51	4.3	9.3	6.0	3.57	3.8	2.2	1.7
6.0	0.060	48.2	83.46	3.5	1.04	6.52	4.5	9.5	6.1	3.94	3.8	2.3	1.5
7.0	0.070	49.4	83.58	3.6	1.21	6.54	4.7	9.7	6.1	4.31	3.8	2.3	1.4
8.0	0.080	50.5	83.65	3.7	1.39	6.55	4.9	9.9	6.2	4.60	3.8	2.4	1.3
9.0	0.090	51.6	83.70	3.7	1.56	6.56	5.0	10.0	6.3	4.86	3.8	2.5	1.3
10.0	0.100	52.5	83.74	3.7	1.73	6.57	5.1	10.1	6.4	5.08	3.8	2.6	1.3
11.0	0.110	53.4	83.77	3.8	1.91	6.58	5.3	10.3	6.5	5.29	3.9	2.6	1.2
12.0	0.120	54.4	83.78	3.8	2.08	6.59	5.4	10.4	6.6	5.44	3.9	2.7	1.2
13.0	0.130	55.3	83.79	3.8	2.26	6.61	5.5	10.5	6.8	5.58	4.0	2.8	1.2
14.0	0.140	55.9	83.78	3.8	2.43	6.62	5.6	10.6	6.8	5.61	4.0	2.8	1.2
15.0	0.150	56.7	83.78	3.8	2.60	6.63	5.7	10.7	7.0	5.70	4.1	2.9	1.2
16.0	0.160	57.4	83.76	3.8	2.78	6.64	5.8	10.8	7.1	5.70	4.2	2.9	1.2
17.0	0.170	58.1	83.74	3.7	2.95	6.65	5.9	10.9	7.2	5.70	4.2	3.0	1.3
Values @ Failure			3.7	2.95	6.65	5.9	10.9	7.2	**5.70**	4.2	3.0	1.3	

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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Date	11/03/17
Checked By	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.594	5.615
Diameter, in		2.911	2.866
Height-to-Diameter Ratio		1.9	2.0
Area, in^2		6.65	6.45
Volume, cm^3		609.89	593.69
Mass of Wet Sample, g		1175.40	1159.20
Mass of Dry Sample, g		898.16	898.16
Wet Density, pcf		120.3	121.9
Dry Density, pcf		91.9	94.4
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		332.65	332.65
Volume of Voids, cm^3		277.24	261.04
Void Ratio		0.83	0.78
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1175.40	1159.20
Mass of Dry Sample and Tare, g	898.16	898.16
Mass of Tare, g	0.00	0.00
Moisture, %	30.87	29.06

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-16.2
Machine Speed, in / min	0.0100
Strain Rate, % / min	0.18
Chamber Pressure, psi	90.0
Back Pressure, psi	80.0
Eff. Consol. Stress,(Minor pr. stress, σ_3),psi	10.0
Change in Height, in	-0.021
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' ($\sigma'_1+\sigma'_3$)/2 (psi)	Q ($\sigma_1-\sigma_3$)/2 (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.149	23.5	80.00	0.0	0.00	6.45	0.0	10.0	10.0	1.00	10.0	0.0	10.0	2.59
0.005	0.154	49.5	83.27	3.3	0.09	6.46	4.0	14.0	10.8	1.60	8.7	2.0	6.7	2.67
0.010	0.159	60.4	84.44	4.4	0.18	6.46	5.7	15.7	11.3	2.03	8.4	2.9	5.6	2.76
0.015	0.164	65.7	85.08	5.1	0.27	6.47	6.5	16.5	11.4	2.33	8.2	3.3	4.9	2.85
0.020	0.169	69.0	85.48	5.5	0.36	6.48	7.0	17.0	11.5	2.55	8.0	3.5	4.5	2.93
0.025	0.174	71.7	85.85	5.8	0.45	6.48	7.4	17.4	11.6	2.79	7.9	3.7	4.2	3.02
0.030	0.179	73.8	86.11	6.1	0.53	6.49	7.8	17.8	11.6	2.99	7.8	3.9	3.9	3.11
0.035	0.184	75.6	86.35	6.3	0.62	6.49	8.0	18.0	11.7	3.20	7.7	4.0	3.7	3.19
0.040	0.189	77.0	86.53	6.5	0.71	6.50	8.2	18.2	11.7	3.37	7.6	4.1	3.5	3.28
0.050	0.199	79.4	86.85	6.8	0.89	6.51	8.6	18.6	11.7	3.73	7.4	4.3	3.2	3.45
0.060	0.209	81.3	87.06	7.1	1.07	6.52	8.9	18.9	11.8	4.01	7.4	4.4	2.9	3.63
0.070	0.219	82.7	87.22	7.2	1.25	6.53	9.1	19.1	11.8	4.26	7.3	4.5	2.8	3.80
0.080	0.229	83.9	87.36	7.4	1.42	6.55	9.2	19.2	11.9	4.50	7.3	4.6	2.6	3.97
0.090	0.239	85.0	87.46	7.5	1.60	6.56	9.4	19.4	11.9	4.69	7.2	4.7	2.5	4.15
0.100	0.249	86.1	87.52	7.5	1.78	6.57	9.5	19.5	12.0	4.84	7.2	4.8	2.5	4.32
0.110	0.259	86.7	87.58	7.6	1.96	6.58	9.6	19.6	12.0	4.97	7.2	4.8	2.4	4.49
0.120	0.269	87.5	87.62	7.6	2.14	6.59	9.7	19.7	12.1	5.08	7.2	4.9	2.4	4.67
0.130	0.279	88.2	87.64	7.6	2.32	6.61	9.8	19.8	12.2	5.15	7.3	4.9	2.4	4.84
0.140	0.289	89.0	87.66	7.7	2.49	6.62	9.9	19.9	12.2	5.23	7.3	4.9	2.3	5.01
0.160	0.309	90.4	87.66	7.7	2.85	6.64	10.1	20.1	12.4	5.30	7.4	5.0	2.3	5.36
0.180	0.329	91.9	87.64	7.6	3.21	6.67	10.3	20.3	12.6	5.35	7.5	5.1	2.4	5.71
0.190	0.339	92.5	87.62	7.6	3.38	6.68	10.3	20.3	12.7	5.34	7.5	5.2	2.4	5.88
0.200	0.349	93.3	87.60	7.6	3.56	6.69	10.4	20.4	12.8	5.35	7.6	5.2	2.4	6.05
Values @ Failure				7.6	3.21	6.67	10.3	20.3	12.6	**5.35**	7.5	5.1	2.4	5.71

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

SPECIMEN PROPERTIES

		(initial)	(after consol.)
Height, in		5.415	5.446
Diameter, in		2.919	2.858
Height-to-Diameter Ratio		1.9	1.9
Area, in^2		6.69	6.42
Volume, cm^3		593.69	572.59
Mass of Wet Sample, g		1159.20	1138.10
Mass of Dry Sample, g		898.16	898.16
Wet Density, pcf		121.9	124.1
Dry Density, pcf		94.4	97.9
Specific Gravity	(assumed)	2.700	2.700
Volume of Solids, cm^3		332.65	332.65
Volume of Voids, cm^3		261.04	239.94
Void Ratio		0.78	0.72
% Saturation		100.0	100.0

WATER CONTENT DETERMINATION

	(initial)	(final)
Mass of Wet Sample and Tare, g	1159.20	1347.30
Mass of Dry Sample and Tare, g	898.16	1107.40
Mass of Tare, g	0.00	209.40
Moisture, %	29.06	26.71

TEST DATA PRIOR TO LOADING

Volume change (Consolidation), ml	-21.1
Machine Speed, in / min	0.01000
Strain Rate, % / min	0.18
Chamber Pressure, psi	100.0
Back Pressure, psi	80.0
Eff. Consol. Stress,(Minor pr. stress, σ_3),psi	20.0
Change in Height, in	-0.031
"B" Value	0.95
t_{50}, min	-

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 ($\Delta\sigma=\sigma_1-\sigma_3$)	Major Principal Stress, psi		Effective Stress Ratio	P' $(\sigma'_1+\sigma'_3)/2$ (psi)	Q $(\sigma_1-\sigma_3)/2$ (psi)	Eff. Minor Pr. Stress	Total Strain ST.1 + ST.2 + ST.3, %
			Total, U	Change,ΔU			(psi)	Total σ_1	Eff. σ'_1	σ'_1/σ'_3			σ'_3 (psi)	
0.000	0.318	25.3	80.00	0.0	0.00	6.42	0.0	20.0	20.0	1.00	20.0	0.0	20.0	5.52
0.010	0.328	86.6	87.18	7.2	0.19	6.43	9.5	29.5	22.4	1.74	17.6	4.8	12.8	5.69
0.020	0.338	103.1	89.23	9.2	0.37	6.44	12.1	32.1	22.8	2.12	16.8	6.0	10.8	5.87
0.031	0.349	111.9	90.46	10.5	0.56	6.45	13.4	33.4	23.0	2.41	16.2	6.7	9.5	6.05
0.041	0.359	118.6	91.41	11.4	0.75	6.46	14.4	34.4	23.0	2.68	15.8	7.2	8.6	6.22
0.051	0.369	123.2	92.12	12.1	0.94	6.48	15.1	35.1	23.0	2.92	15.4	7.6	7.9	6.40
0.071	0.389	129.9	93.06	13.1	1.31	6.50	16.1	36.1	23.0	3.32	15.0	8.0	6.9	6.75
0.102	0.420	136.2	93.79	13.8	1.87	6.54	17.0	37.0	23.2	3.73	14.7	8.5	6.2	7.29
0.122	0.440	139.1	94.05	14.1	2.25	6.56	17.3	37.3	23.3	3.92	14.6	8.7	5.9	7.64
0.153	0.471	142.4	94.25	14.3	2.81	6.60	17.7	37.7	23.5	4.09	14.6	8.9	5.7	8.17
0.173	0.491	144.4	94.31	14.3	3.18	6.63	18.0	38.0	23.7	4.16	14.7	9.0	5.7	8.52
0.204	0.522	146.9	94.33	14.3	3.74	6.67	18.2	38.2	23.9	4.22	14.8	9.1	5.7	9.05
0.234	0.552	149.1	94.38	14.4	4.30	6.70	18.5	38.5	24.1	4.28	14.9	9.2	5.6	9.58
0.265	0.583	151.2	94.33	14.3	4.87	6.74	18.7	38.7	24.3	4.29	15.0	9.3	5.7	10.11
0.285	0.603	152.5	94.29	14.3	5.24	6.77	18.8	38.8	24.5	4.29	15.1	9.4	5.7	10.47
0.316	0.634	154.4	94.23	14.2	5.80	6.81	19.0	39.0	24.7	4.29	15.2	9.5	5.8	11.00
0.367	0.685	157.7	94.09	14.1	6.74	6.88	19.2	39.2	25.2	4.26	15.5	9.6	5.9	11.88
0.418	0.736	160.7	93.93	13.9	7.67	6.95	19.5	39.5	25.6	4.21	15.8	9.7	6.1	12.77
0.448	0.766	162.0	93.83	13.8	8.23	6.99	19.6	39.6	25.7	4.17	15.9	9.8	6.2	13.30
0.479	0.797	163.6	93.71	13.7	8.80	7.03	19.7	39.7	25.9	4.13	16.1	9.8	6.3	13.83
0.510	0.828	165.5	93.59	13.6	9.36	7.08	19.8	39.8	26.2	4.09	16.3	9.9	6.4	14.36
0.530	0.848	166.8	93.51	13.5	9.73	7.11	19.9	39.9	26.4	4.07	16.4	10.0	6.5	14.71
0.555	0.873	168.1	93.39	13.4	10.19	7.14	20.0	40.0	26.6	4.02	16.6	10.0	6.6	15.15
Values @ Failure				14.3	4.87	6.74	18.7	38.7	24.3	**4.29**	15.0	9.3	5.7	10.11

Failure criteria used* 3

*Note: "1" = Max Deviator Stress; "2" = Deviator Stress @ 15% Strain; "3" = Max Eff.Stress Ratio(σ'_1/σ'_3)

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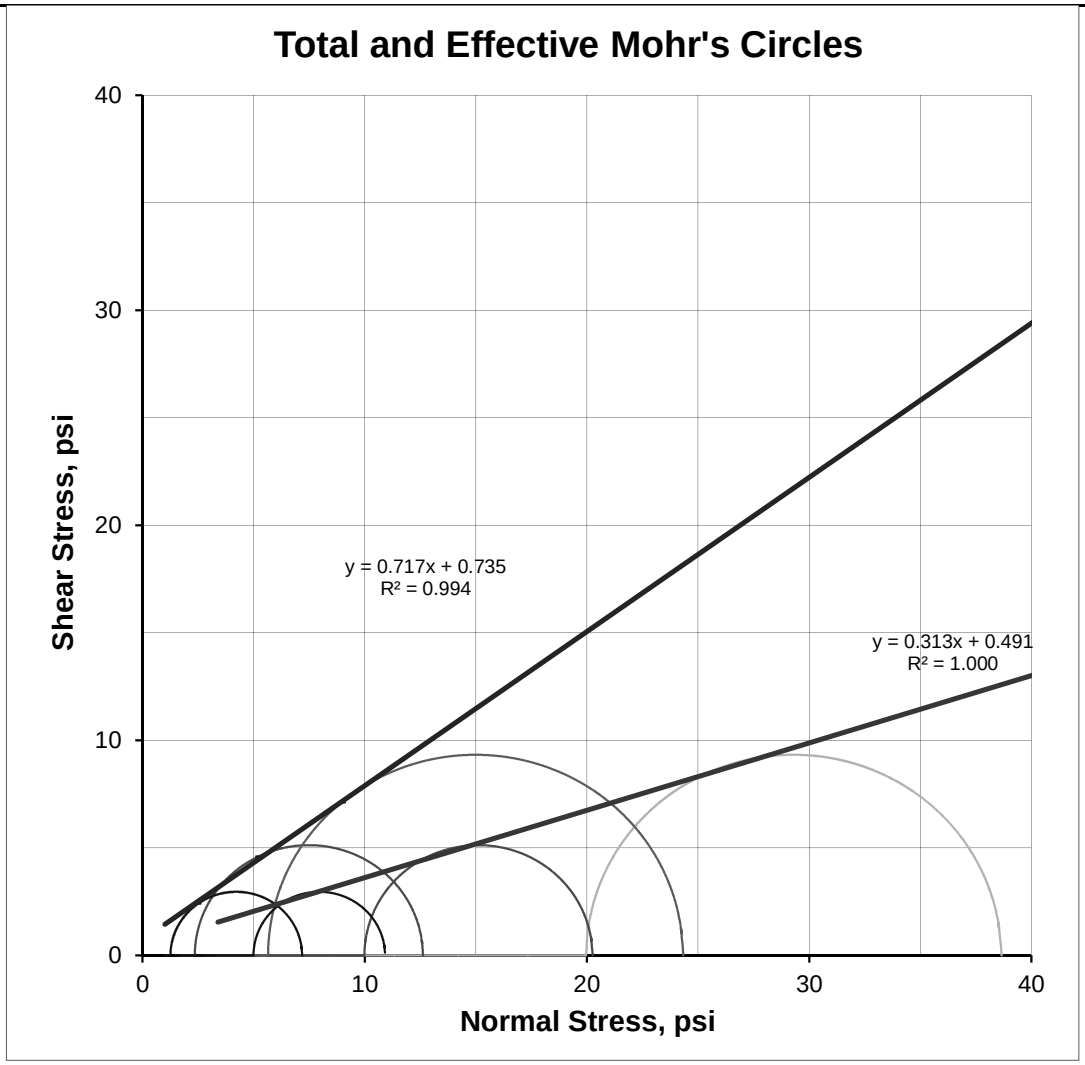
Date	11/04/17
Check	

ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-



	ST. 1	ST. 2	ST. 3
Effective Consolidation Stress, psi	5.0	10.0	20.0
Deviator Stress at Failure, psi	5.9	10.3	18.7
Effective Minor Principal Stress at Failure, psi	1.3	2.4	5.7
Effective Major Principal Stress at Failure, psi	7.2	12.6	24.3
Axial Strain at Failure, %	2.95	3.21	4.87

STRENGTH PARAMETERS			
Total		Effective	
ϕ^{o}	17.4	ϕ'^{o}	35.6
C, psi	0.5	C', psi	0.7

Multistage Triaxial CU.xls [Mohr's Circles], REV. 1; 10-21-05

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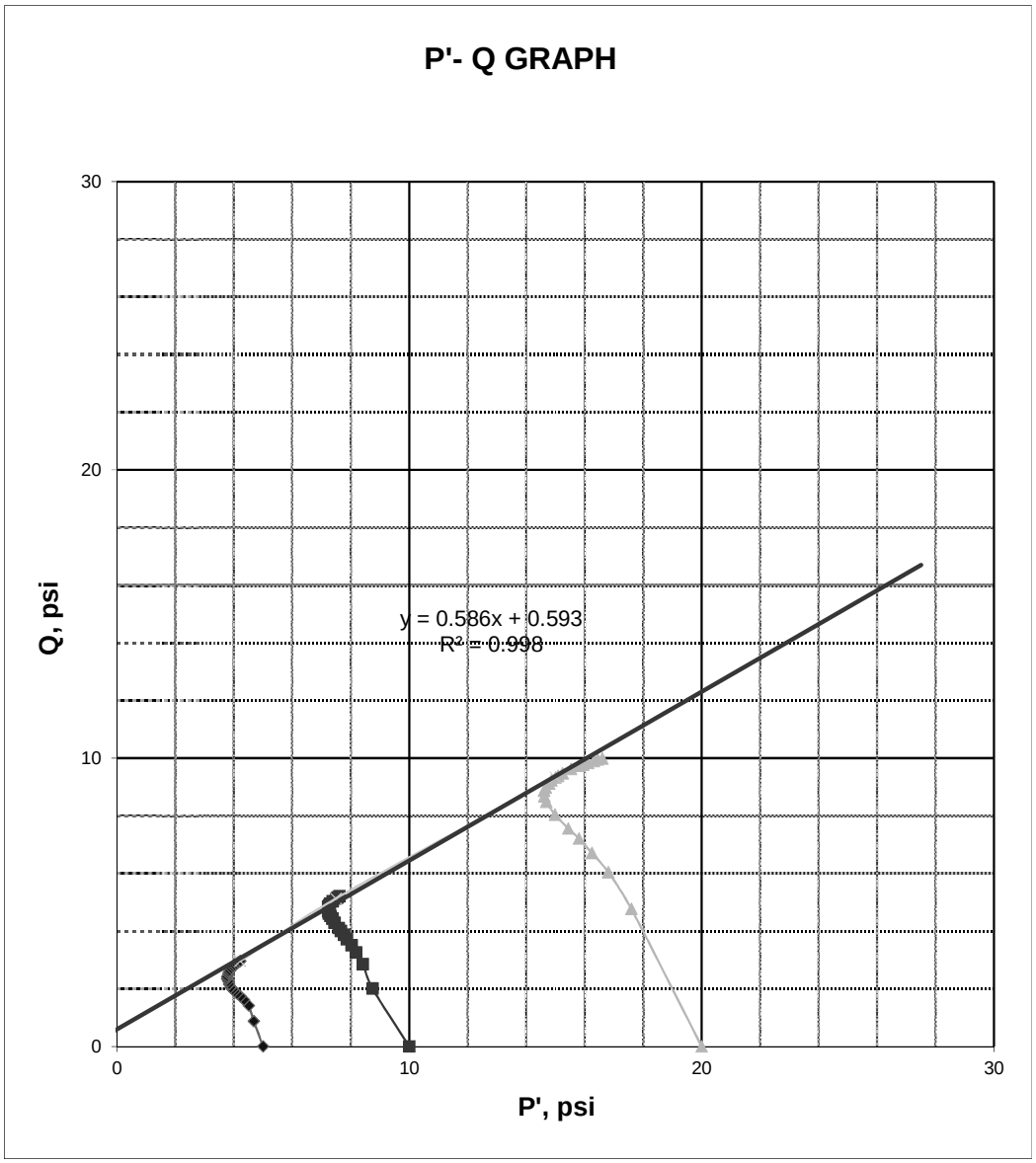
Tech	AV
Date	11/04/17
Check	

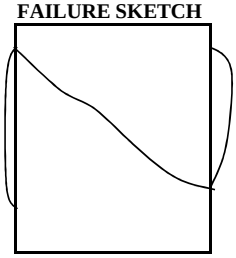
ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-



FAILURE SKETCH



a, psi	0.6
α, degree	30.4

Multistage Triaxial CU.xls [P'-Q Graph], REV. 1; 10-21-05

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Tested By	AV
Date	11/04/17
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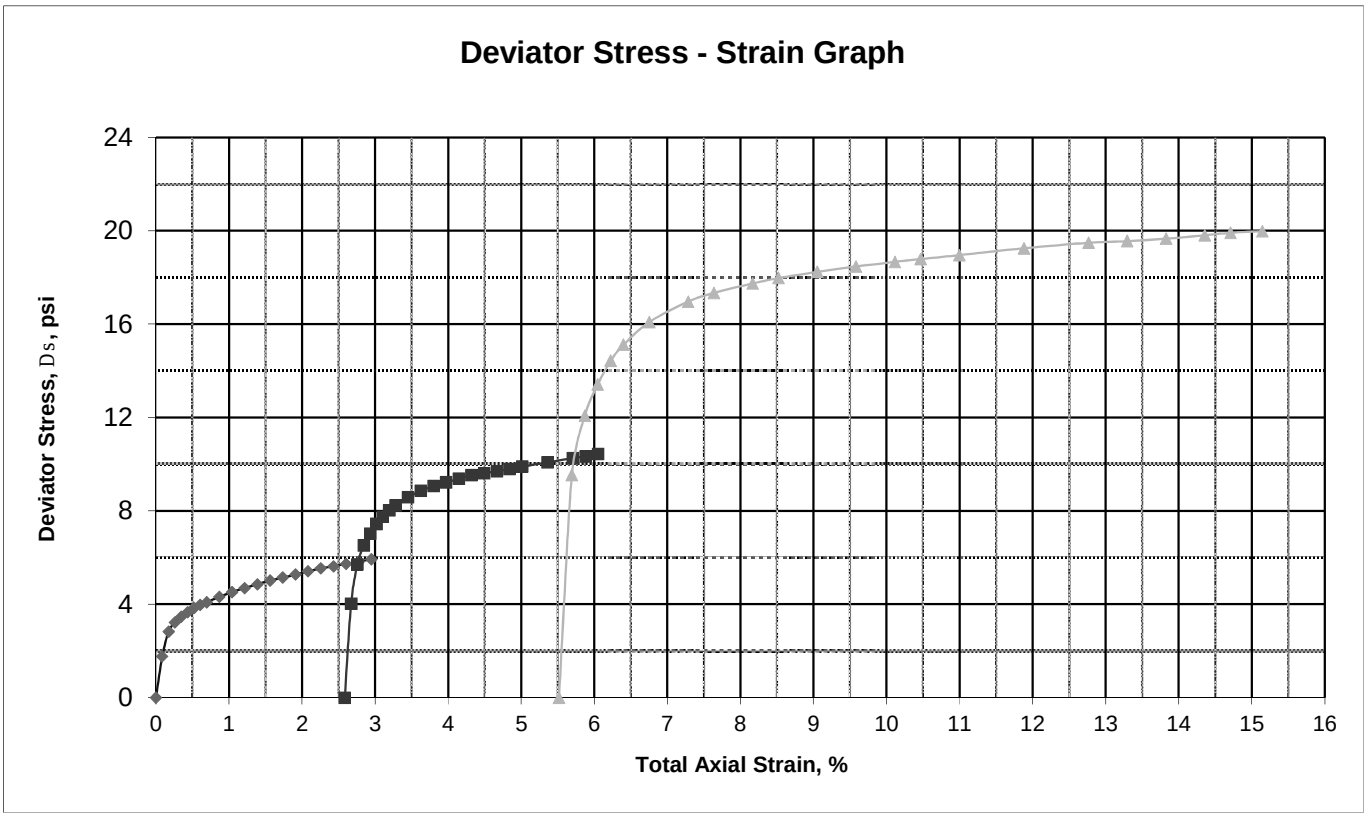
ASTM D 4767M/ AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

Deviator Stress - Strain Graph



		REMARKS	DESCRIPTION
Balance ID Number	563/700	Portion of sample used for testing was located 12" above bottom of shelby tube.	Red Fat Clay with Sand
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:
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	-

USCS (ASTM D2487: D2488)
CH

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Tested By	AV
Date	11/04/17
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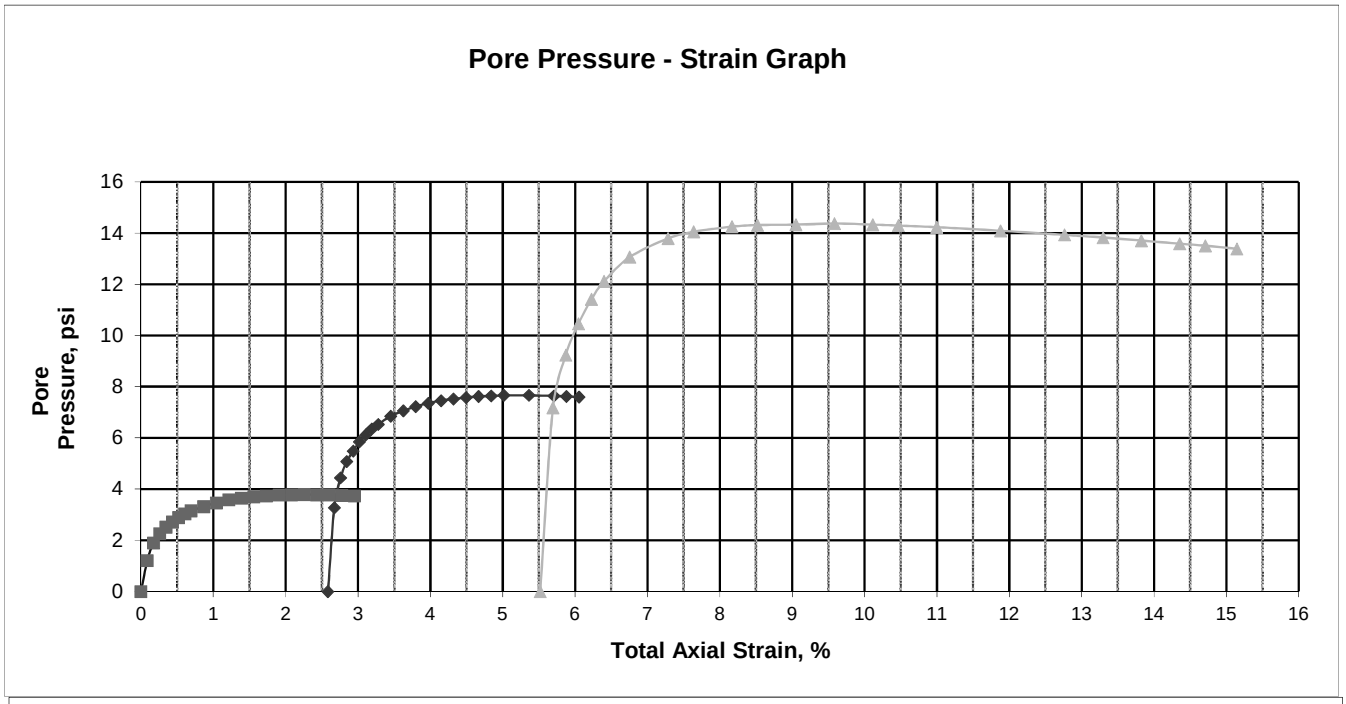
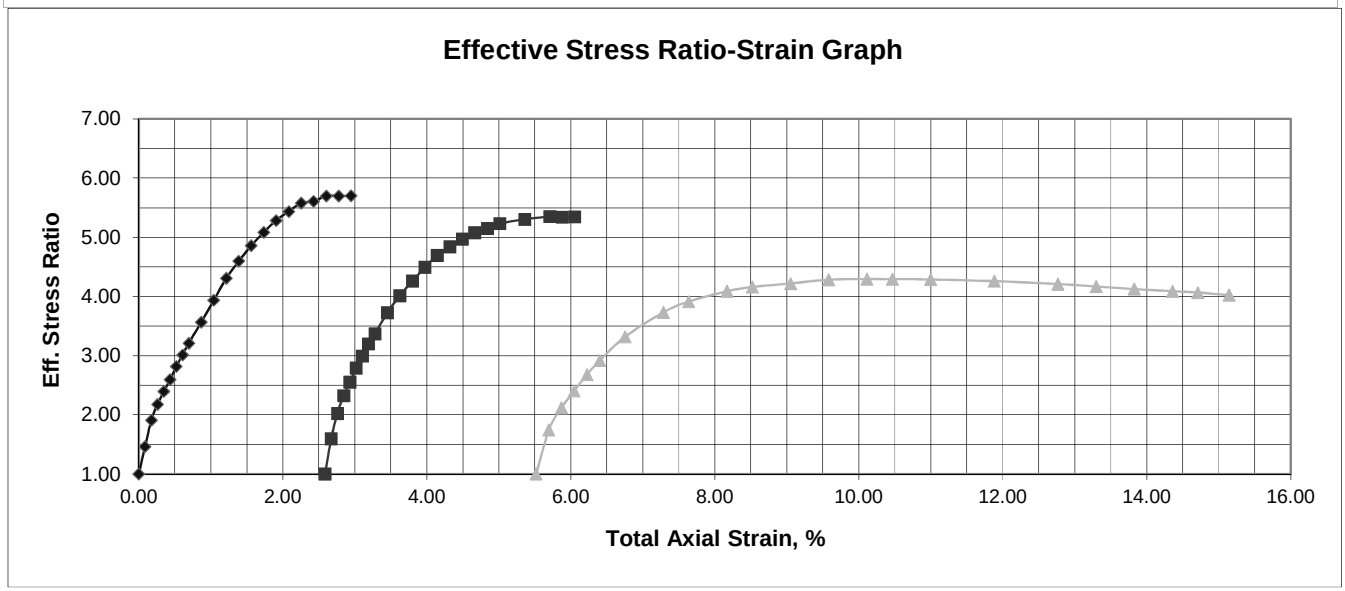
ASTM D 4767M / AASHTO T 297M

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

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-





Multistage Triaxial CU.xls [Stress Ratio & Pore Water Pr.-Strain Graph], REV. 1; 10-21-05

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Tested By	RI
Date	11/01/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Sample Data

	Initial	Final
Mass of Ring, g	194.73	194.73
Mass of Wet Sample and Ring, g	352.30	343.10
Mass of Wet Sample, g	157.57	148.37
Mass of Dry Sample, g	121.21	121.21
Height of Sample, in	0.9970	0.8739
Diameter of Sample, in	2.501	2.501
Area of Sample, in^2	4.91	4.91
Volume of Sample, in^3	4.90	4.29
Specific Gravity (Assumed)	2.750	2.750
Wet Unit Weight, pcf	122.6	131.7
Dry Unit Weight, pcf	94.3	107.6
Height of Solids, in	0.5475	0.5475
Height of Voids, in	0.4495	0.3264
Height of Water, in	0.4517	0.3374
Void Ratio	0.821	0.596
Degree of Saturation, %	100.5	103.4

Initial Seating Pressure, lbf/ft^2	100
Additional Vertical Pressure, lbf/ft^2	0
Total Seating Pressure, lbf/ft^2	100
STATION #	1
Consolidometer Ring ID Number	1
Consolidometer ID Number	1
Frame ID Number	103
Dial Gage ID Number	676
Initial Dial Gauge Reading, 10^{-4} in	0
Final Dial Gauge Reading, 10^{-4} in	1231

DESCRIPTION

Reddish Brown Lean Clay with Sand

Condition of Test:

1. Deionized water used for inundation of sample.
2. Saturated porous stones w/t filter paper used

USCS (ASTM D2487;2488)

CL

REMARKS

Portion of sample used for testing was located 6" above the bottom of the shelby tube.

Moisture Content

	Trimmings	Initial	Final
Mass of Wet Sample and Tare, g	322.50	352.30	403.08
Mass of Dry Sample and Tare, g	283.70	315.94	375.92
Mass of Tare, g	139.90	194.73	254.72
Moisture Content, %	27.0	30.0	22.4

LL	-
PL	-
PI	-

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Tested By	RI
Date	11/01/17
Checked By	

Client Pr. #	08-11888	Lab Pr. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Void Ratio, Strain Information and Coefficient of Consolidation Calculation

Pressure		Uncorrected Dial Reading, in		Apparatus Correction, in	Corrected Dial Reading, in		Change in specimen height, in		Sample Height, in		Height of Voids, in	Void Ratio		Strain, %		Fitting Time, min		Hd_{50}, in	Coefficient of Consolidation	
lbf/ft^2	Ksf	d_{100}	d_{50}		d_{100}	d_{50}	S D H_{100}	S D H_{50}	H_{100}	H_{50}	Hv^{100},in	e_{100}	e_{50}	e_{100}	e_{50}	t_{90}	t_{50}		in^2/min	ft^2/day
100	0.1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9970	0.9970	0.4495	0.821	0.821	0.00	0.00	-	-	0.4985	-	-
250	0.25	0.0199	0.0106	0.0000	0.0199	0.0106	0.0199	0.0106	0.9771	0.9864	0.4296	0.785	0.802	2.00	1.06	81.00	18.90	0.4932	0.00	0.03
500	0.5	0.0344	0.0275	0.0000	0.0344	0.0275	0.0344	0.0275	0.9626	0.9695	0.4151	0.758	0.771	3.45	2.76	86.49	20.18	0.4847	0.00	0.02
1000	1	0.0498	0.0431	0.0000	0.0498	0.0431	0.0498	0.0431	0.9472	0.9539	0.3997	0.730	0.742	4.99	4.32	59.29	13.84	0.4770	0.00	0.03
2000	2	0.0718	0.0628	0.0000	0.0718	0.0628	0.0718	0.0628	0.9252	0.9342	0.3777	0.690	0.706	7.21	6.30	26.01	6.07	0.4671	0.01	0.07
4000	4	0.1009	0.0911	0.0000	0.1009	0.0911	0.1009	0.0911	0.8961	0.9059	0.3486	0.637	0.655	10.12	9.13	42.25	9.86	0.4530	0.00	0.04
2000	2	0.1009	0.1012	0.0000	0.1009	0.1012	0.1009	0.1012	0.8961	0.8958	0.3486	0.637	0.636	10.13	10.15	2.56	0.60	0.4479	0.07	0.66
1000	1	0.0994	0.0999	0.0000	0.0994	0.0999	0.0994	0.0999	0.8976	0.8971	0.3501	0.639	0.638	9.97	10.02	5.76	1.34	0.4485	0.03	0.30
500	0.5	0.0976	0.0982	0.0000	0.0976	0.0982	0.0976	0.0982	0.8994	0.8988	0.3519	0.643	0.642	9.79	9.85	9.61	2.24	0.4494	0.02	0.18
1000	1	0.0978	0.0976	0.0000	0.0978	0.0976	0.0978	0.0976	0.8992	0.8994	0.3517	0.642	0.643	9.81	9.79	3.24	0.76	0.4497	0.05	0.53
2000	2	0.0993	0.0989	0.0000	0.0993	0.0989	0.0993	0.0989	0.8977	0.8981	0.3502	0.640	0.640	9.96	9.92	3.24	0.76	0.4491	0.05	0.53
4000	4	0.1027	0.1017	0.0000	0.1027	0.1017	0.1027	0.1017	0.8943	0.8953	0.3468	0.633	0.635	10.30	10.20	5.29	1.23	0.4477	0.03	0.32
8000	8	0.1279	0.1183	0.0000	0.1279	0.1183	0.1279	0.1183	0.8691	0.8787	0.3216	0.587	0.605	12.83	11.86	23.04	5.30	0.4394	0.01	0.07
2000	2	0.1275	0.1283	0.0000	0.1275	0.1283	0.1275	0.1283	0.8695	0.8687	0.3220	0.588	0.587	12.79	12.87	4.84	1.13	0.4343	0.03	0.33
500	0.5	0.1231	0.1248	0.0000	0.1231	0.1248	0.1231	0.1248	0.8739	0.8722	0.3264	0.596	0.593	12.34	12.51	12.25	2.86	0.4361	0.01	0.13

Note: d_{100} = Dial gauge reading at 100% primary consolidation, in

d_{50} = Dial gauge reading at 50% primary consolidation, in

H_{100} = Specimen height at 100% primary consolidation, in

H_{50} = Specimen height at 50% primary consolidation, in

Hd_{50} = Length of the drainage path at 50% consolidation, in

e_{100} = Void ratio at 100% primary consolidation

e_{50} = Void ratio at 50% primary consolidation

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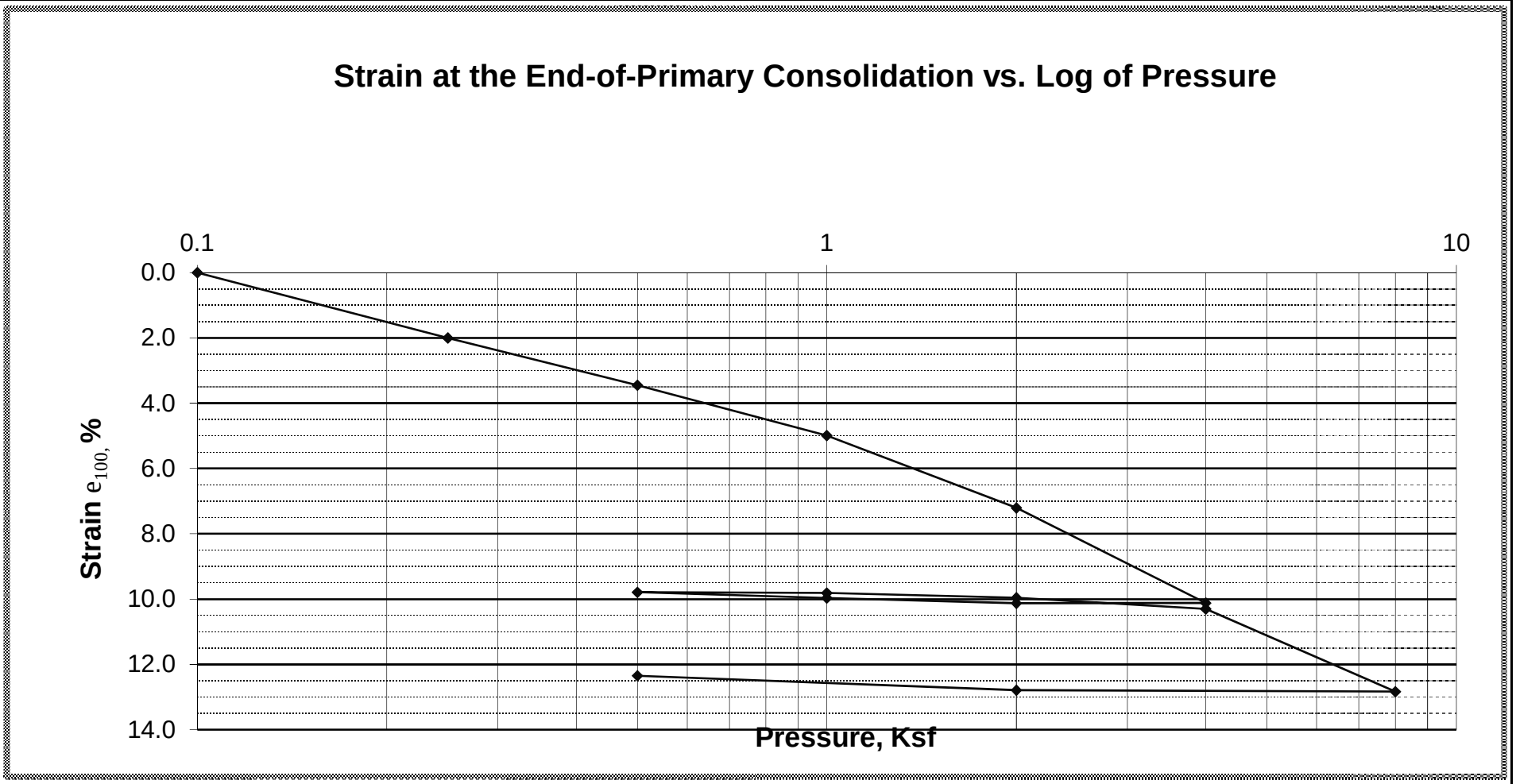
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)



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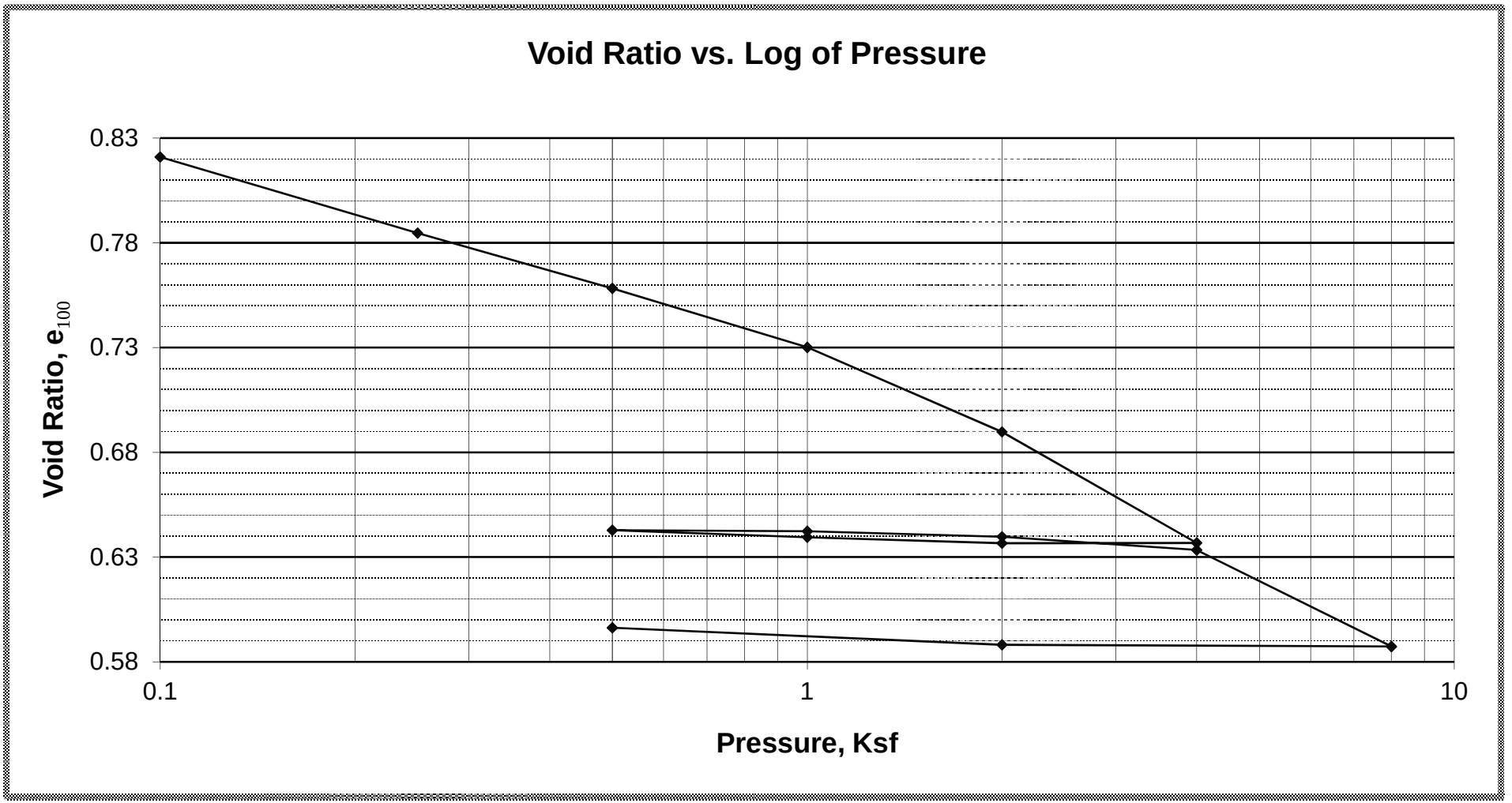
Location	P-260	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)



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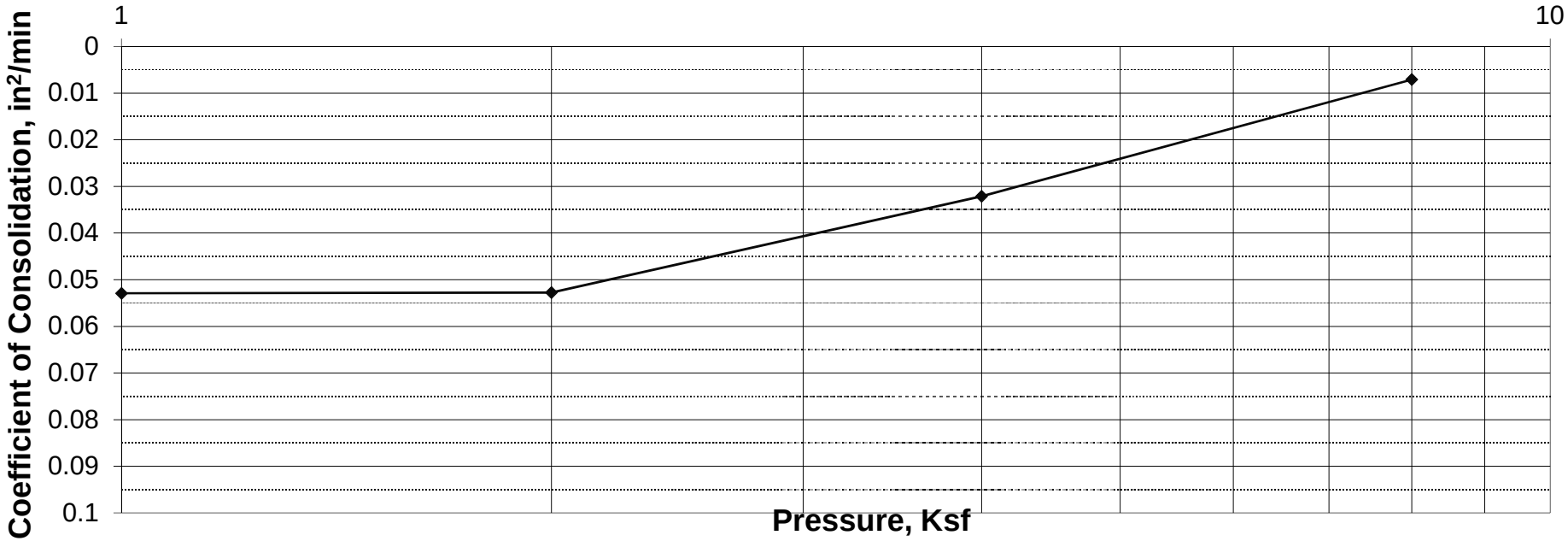
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Coefficient of Consolidation vs. Log of Pressure



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Tested By	RI
Date	11/01/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Sample Data

	Initial	Final
Mass of Ring, g	194.02	194.02
Mass of Wet Sample and Ring, g	335.88	327.41
Mass of Wet Sample, g	141.86	133.39
Mass of Dry Sample, g	98.69	98.69
Height of Sample, in	0.9980	0.8728
Diameter of Sample, in	2.515	2.515
Area of Sample, in^2	4.97	4.97
Volume of Sample, in^3	4.96	4.34
Specific Gravity (Assumed)	2.700	2.700
Wet Unit Weight, pcf	109.0	117.2
Dry Unit Weight, pcf	75.8	86.7
Height of Solids, in	0.4490	0.4490
Height of Voids, in	0.5490	0.4238
Height of Water, in	0.5303	0.4262
Void Ratio	1.223	0.944
Degree of Saturation, %	96.6	100.6

Initial Seating Pressure, lbf/ft^2	100
Additional Vertical Pressure, lbf/ft^2	0
Total Seating Pressure, lbf/ft^2	100
STATION #	2
Consolidometer Ring ID Number	2
Consolidometer ID Number	2
Frame ID Number	66
Dial Gage ID Number	677
Initial Dial Gauge Reading, 10^{-4} in	0
Final Dial Gauge Reading, 10^{-4} in	1252

DESCRIPTION

Red Fat Clay

Condition of Test:

1. Deionized water used for inundation of sample.
2. Saturated porous stones w/t filter paper used

USCS (ASTM D2487;2488)

CH

REMARKS

Portion of sample used for testing was located 11" above the bottom of the shelby tube.

Moisture Content

	Trimmings	Initial	Final
Mass of Wet Sample and Tare, g	350.50	335.88	389.85
Mass of Dry Sample and Tare, g	289.30	292.71	355.15
Mass of Tare, g	140.50	194.02	256.46
Moisture Content, %	41.1	43.7	35.2

LL	-
PL	-
PI	-

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Client Pr. #	08-11888	Lab Pr. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Void Ratio, Strain Information and Coefficient of Consolidation Calculation

Pressure		Uncorrected Dial Reading, in		Apparatus Correction, in	Corrected Dial Reading, in		Change in specimen height, in		Sample Height, in		Height of Voids, in	Void Ratio		Strain, %		Fitting Time, min		Hd_{50}, in	Coefficient of Consolidation	
lbf/ft^2	Ksf	d_{100}	d_{50}		d_{100}	d_{50}	S D H_{100}	S D H_{50}	H_{100}	H_{50}	Hv^{100},in	e_{100}	e_{50}	e_{100}	e_{50}	t_{90}	t_{50}		in^2/min	ft^2/day
100	0.1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9980	0.9980	0.5490	1.223	1.223	0.00	0.00	-	-	0.4990	-	-
250	0.25	0.0113	0.0073	0.0000	0.0113	0.0073	0.0113	0.0073	0.9867	0.9907	0.5377	1.198	1.207	1.13	0.73	11.56	2.70	0.4954	0.02	0.18
500	0.5	0.0212	0.0177	0.0000	0.0212	0.0177	0.0212	0.0177	0.9768	0.9803	0.5278	1.176	1.183	2.12	1.77	16.81	3.92	0.4902	0.01	0.12
1000	1	0.0355	0.0303	0.0000	0.0355	0.0303	0.0355	0.0303	0.9625	0.9677	0.5135	1.144	1.155	3.56	3.03	24.01	5.60	0.4839	0.01	0.08
2000	2	0.0579	0.0485	0.0000	0.0579	0.0485	0.0579	0.0485	0.9401	0.9495	0.4912	1.094	1.115	5.80	4.86	15.21	3.55	0.4747	0.01	0.13
4000	4	0.0954	0.0808	0.0000	0.0954	0.0808	0.0954	0.0808	0.9026	0.9172	0.4536	1.010	1.043	9.56	8.09	28.62	6.68	0.4586	0.01	0.06
2000	2	0.0938	0.0942	0.0000	0.0938	0.0942	0.0938	0.0942	0.9042	0.9038	0.4552	1.014	1.013	9.40	9.44	2.89	0.67	0.4519	0.06	0.60
1000	1	0.0909	0.0919	0.0000	0.0909	0.0919	0.0909	0.0919	0.9071	0.9061	0.4581	1.020	1.018	9.11	9.21	4.84	1.13	0.4530	0.04	0.36
500	0.5	0.0886	0.0894	0.0000	0.0886	0.0894	0.0886	0.0894	0.9094	0.9086	0.4604	1.025	1.024	8.88	8.96	5.52	1.29	0.4543	0.03	0.32
1000	1	0.0884	0.0883	0.0000	0.0884	0.0883	0.0884	0.0883	0.9096	0.9097	0.4606	1.026	1.026	8.86	8.84	2.56	0.60	0.4549	0.07	0.69
2000	2	0.0908	0.0901	0.0000	0.0908	0.0901	0.0908	0.0901	0.9072	0.9079	0.4582	1.021	1.022	9.10	9.03	3.61	0.84	0.4540	0.05	0.48
4000	4	0.0972	0.0950	0.0000	0.0972	0.0950	0.0972	0.0950	0.9008	0.9030	0.4518	1.006	1.011	9.74	9.52	5.76	1.34	0.4515	0.03	0.30
8000	8	0.1372	0.1194	0.0000	0.1372	0.1194	0.1372	0.1194	0.8608	0.8786	0.4118	0.917	0.957	13.75	11.96	18.49	4.32	0.4393	0.01	0.09
2000	2	0.1335	0.1355	0.0000	0.1335	0.1355	0.1335	0.1355	0.8645	0.8625	0.4155	0.925	0.921	13.38	13.58	4.00	0.93	0.4312	0.04	0.39
500	0.5	0.1252	0.1284	0.0000	0.1252	0.1284	0.1252	0.1284	0.8728	0.8696	0.4238	0.944	0.937	12.54	12.86	13.69	3.19	0.4348	0.01	0.12

Note: d_{100} = Dial gauge reading at 100% primary consolidation, in

d_{50} = Dial gauge reading at 50% primary consolidation, in

H_{100} = Specimen height at 100% primary consolidation, in

H_{50} = Specimen height at 50% primary consolidation, in

Hd_{50} = Length of the drainage path at 50% consolidation, in

e_{100} = Void ratio at 100% primary consolidation

e_{50} = Void ratio at 50% primary consolidation

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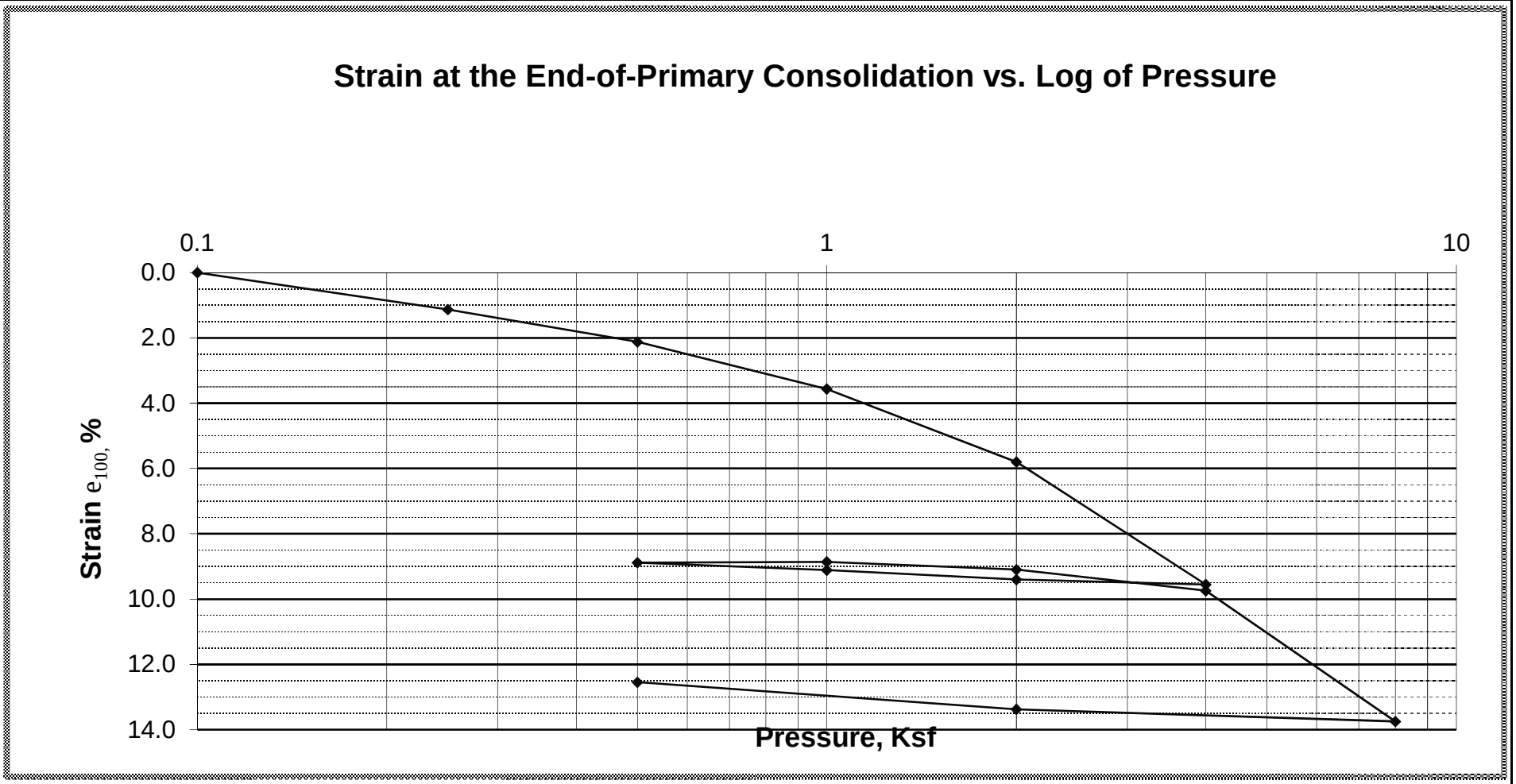
Ph: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	RI
Date	11/01/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)



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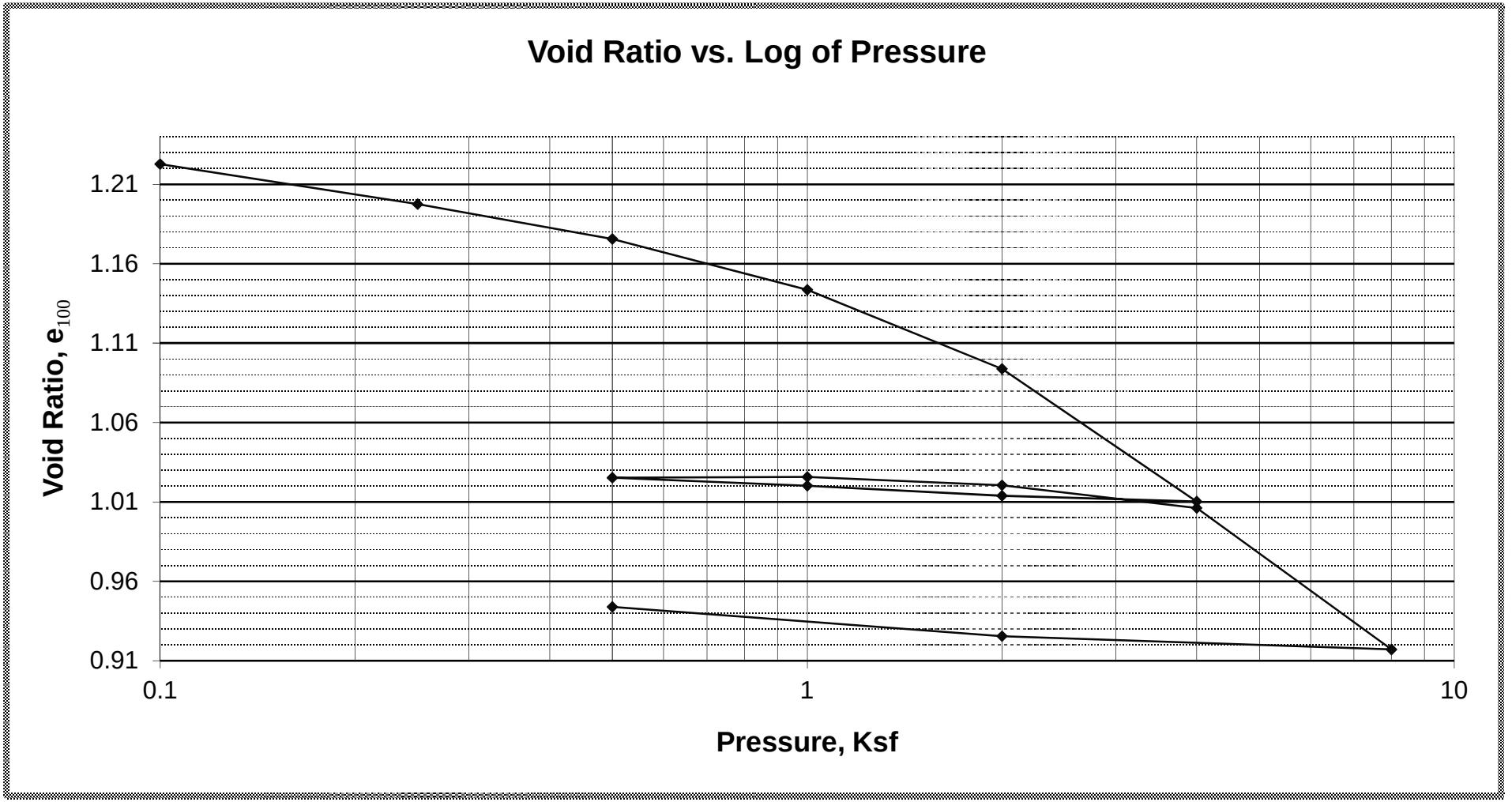
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)



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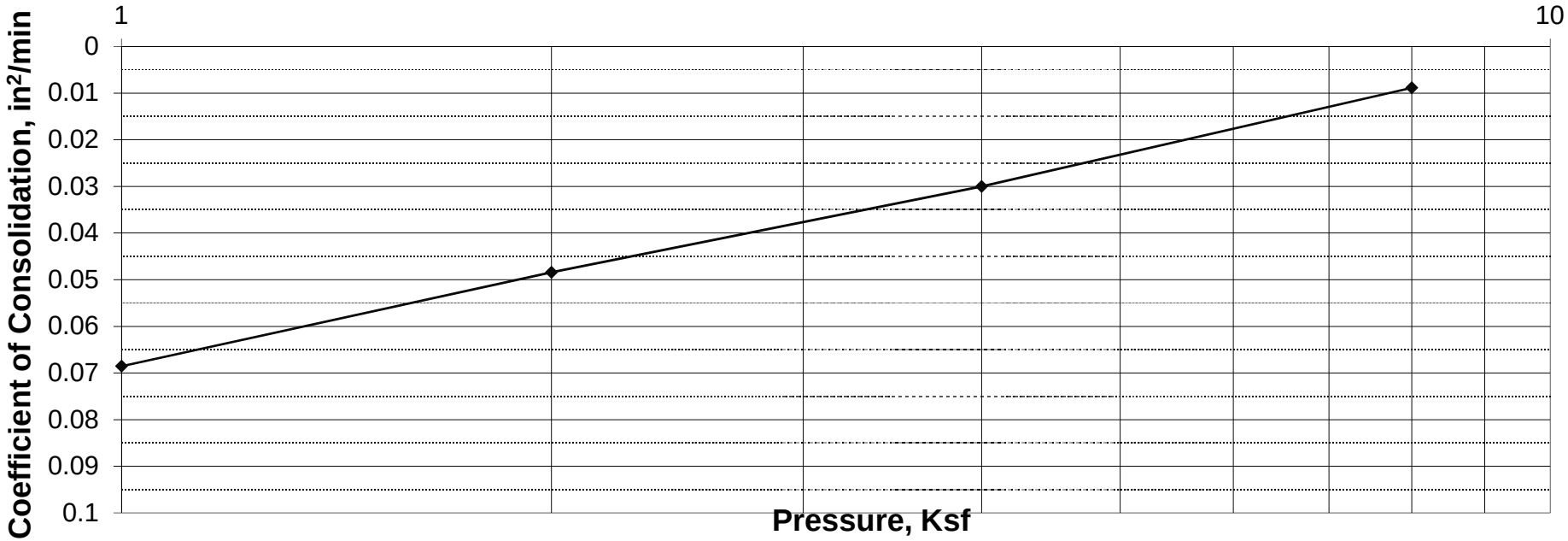
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Coefficient of Consolidation vs. Log of Pressure



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Tested By	RI
Date	11/01/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Sample Data

	Initial	Final
Mass of Ring, g	200.90	200.90
Mass of Wet Sample and Ring, g	352.20	345.19
Mass of Wet Sample, g	151.30	144.29
Mass of Dry Sample, g	113.13	113.13
Height of Sample, in	0.9970	0.8881
Diameter of Sample, in	2.502	2.502
Area of Sample, in^2	4.92	4.92
Volume of Sample, in^3	4.90	4.37
Specific Gravity (Assumed)	2.700	2.700
Wet Unit Weight, pcf	117.6	125.9
Dry Unit Weight, pcf	87.9	98.7
Height of Solids, in	0.5201	0.5201
Height of Voids, in	0.4769	0.3680
Height of Water, in	0.4738	0.3868
Void Ratio	0.917	0.708
Degree of Saturation, %	99.3	105.1

Initial Seating Pressure, lbf/ft^2	100
Additional Vertical Pressure, lbf/ft^2	0
Total Seating Pressure, lbf/ft^2	100
STATION #	3
Consolidometer Ring ID Number	3
Consolidometer ID Number	3
Frame ID Number	202
Dial Gage ID Number	678
Initial Dial Gauge Reading, 10^{-4} in	0
Final Dial Gauge Reading, 10^{-4} in	1089

DESCRIPTION

Red Fat Clay with Sand

Condition of Test:

1. Deionized water used for inundation of sample.
2. Saturated porous stones w/t filter paper used

USCS (ASTM D2487;2488)

CH

REMARKS

Portion of sample used for testing was located 18" above the bottom of the shelby tube.

Moisture Content

	Trimmings	Initial	Final
Mass of Wet Sample and Tare, g	1185.40	352.20	404.62
Mass of Dry Sample and Tare, g	898.16	314.03	373.46
Mass of Tare, g	0.00	200.90	260.33
Moisture Content, %	32.0	33.7	27.5

LL	-
PL	-
PI	-

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Tested By	RI
Date	11/01/17
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Client Pr. #	08-11888	Lab Pr. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D2435

Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Void Ratio, Strain Information and Coefficient of Consolidation Calculation

Pressure		Uncorrected Dial Reading, in		Apparatus Correction, in	Corrected Dial Reading, in		Change in specimen height, in		Sample Height, in		Height of Voids, in	Void Ratio		Strain, %		Fitting Time, min		Hd_{50}, in	Coefficient of Consolidation	
lbf/ft^2	Ksf	d_{100}	d_{50}		d_{100}	d_{50}	S D H_{100}	S D H_{50}	H_{100}	H_{50}	Hv^{100},in	e_{100}	e_{50}	e_{100}	e_{50}	t_{90}	t_{50}		in^2/min	ft^2/day
100	0.1	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.9970	0.9970	0.4769	0.917	0.917	0.00	0.00	-	-	0.4985	-	-
250	0.25	0.0092	0.0057	0.0000	0.0092	0.0057	0.0092	0.0057	0.9878	0.9913	0.4678	0.899	0.906	0.92	0.57	13.69	3.19	0.4957	0.02	0.15
500	0.5	0.0198	0.0162	0.0000	0.0198	0.0162	0.0198	0.0162	0.9772	0.9808	0.4572	0.879	0.886	1.98	1.62	19.36	4.52	0.4904	0.01	0.11
1000	1	0.0348	0.0300	0.0000	0.0348	0.0300	0.0348	0.0300	0.9622	0.9670	0.4421	0.850	0.859	3.49	3.01	14.44	3.37	0.4835	0.01	0.14
2000	2	0.0551	0.0476	0.0000	0.0551	0.0476	0.0551	0.0476	0.9419	0.9494	0.4218	0.811	0.826	5.53	4.77	17.64	4.12	0.4747	0.01	0.11
4000	4	0.0851	0.0738	0.0000	0.0851	0.0738	0.0851	0.0738	0.9119	0.9232	0.3919	0.754	0.775	8.53	7.41	29.16	6.81	0.4616	0.01	0.06
2000	2	0.0845	0.0848	0.0000	0.0845	0.0848	0.0845	0.0848	0.9125	0.9122	0.3925	0.755	0.754	8.47	8.51	3.24	0.76	0.4561	0.05	0.54
1000	1	0.0821	0.0829	0.0000	0.0821	0.0829	0.0821	0.0829	0.9149	0.9141	0.3948	0.759	0.758	8.24	8.31	5.29	1.23	0.4571	0.03	0.33
500	0.5	0.0794	0.0803	0.0000	0.0794	0.0803	0.0794	0.0803	0.9176	0.9167	0.3976	0.764	0.763	7.96	8.05	10.24	2.39	0.4584	0.02	0.17
1000	1	0.0797	0.0795	0.0000	0.0797	0.0795	0.0797	0.0795	0.9173	0.9175	0.3973	0.764	0.764	7.99	7.97	1.82	0.43	0.4588	0.10	0.98
2000	2	0.0816	0.0811	0.0000	0.0816	0.0811	0.0816	0.0811	0.9154	0.9159	0.3954	0.760	0.761	8.18	8.13	4.41	1.03	0.4580	0.04	0.40
4000	4	0.0867	0.0850	0.0000	0.0867	0.0850	0.0867	0.0850	0.9103	0.9120	0.3902	0.750	0.754	8.70	8.53	6.76	1.58	0.4560	0.03	0.26
8000	8	0.1185	0.1057	0.0000	0.1185	0.1057	0.1185	0.1057	0.8785	0.8913	0.3584	0.689	0.714	11.89	10.61	19.80	4.62	0.4456	0.01	0.09
2000	2	0.1158	0.1174	0.0000	0.1158	0.1174	0.1158	0.1174	0.8812	0.8796	0.3611	0.694	0.691	11.62	11.78	3.24	0.76	0.4398	0.05	0.51
500	0.5	0.1089	0.1113	0.0000	0.1089	0.1113	0.1089	0.1113	0.8881	0.8857	0.3681	0.708	0.703	10.92	11.17	12.25	2.86	0.4428	0.01	0.14

Note: d_{100} = Dial gauge reading at 100% primary consolidation, in

d_{50} = Dial gauge reading at 50% primary consolidation, in

H_{100} = Specimen height at 100% primary consolidation, in

H_{50} = Specimen height at 50% primary consolidation, in

Hd_{50} = Length of the drainage path at 50% consolidation, in

e_{100} = Void ratio at 100% primary consolidation

e_{50} = Void ratio at 50% primary consolidation

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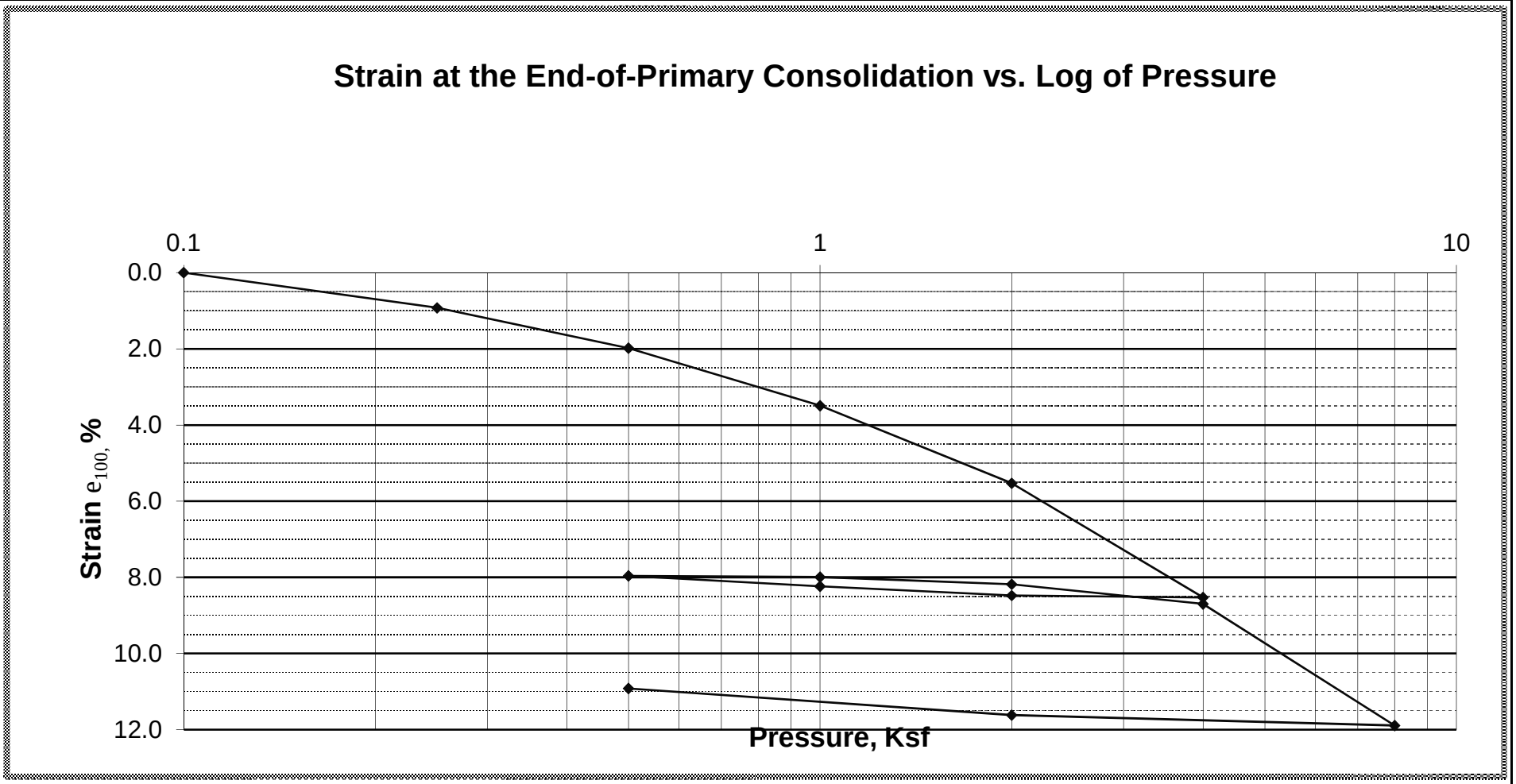
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Project Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)



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Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

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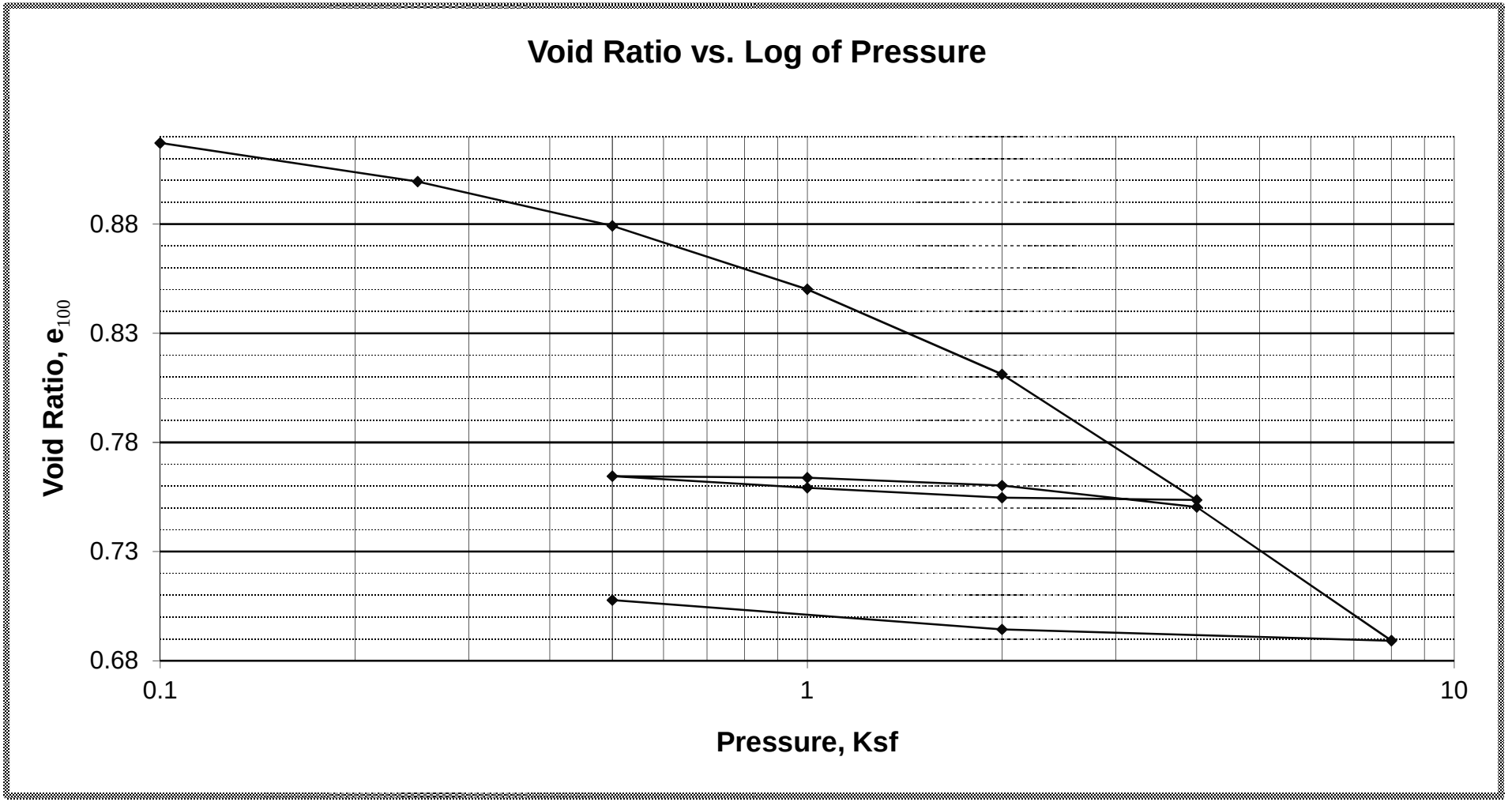

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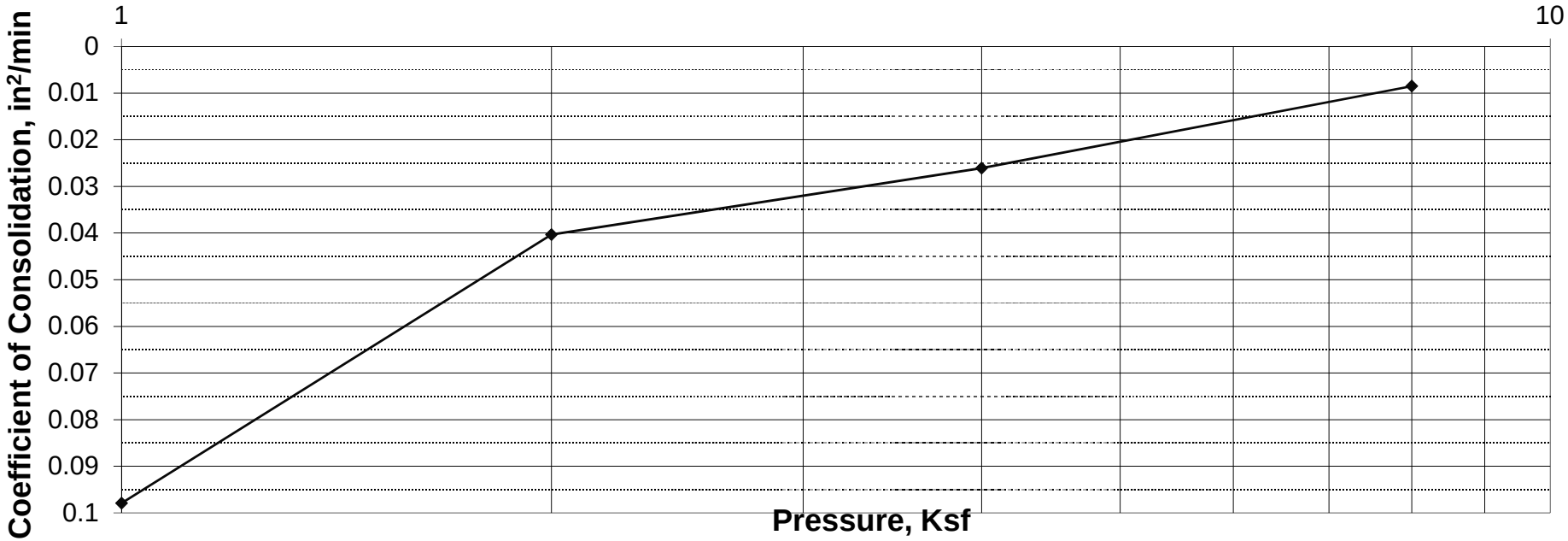
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

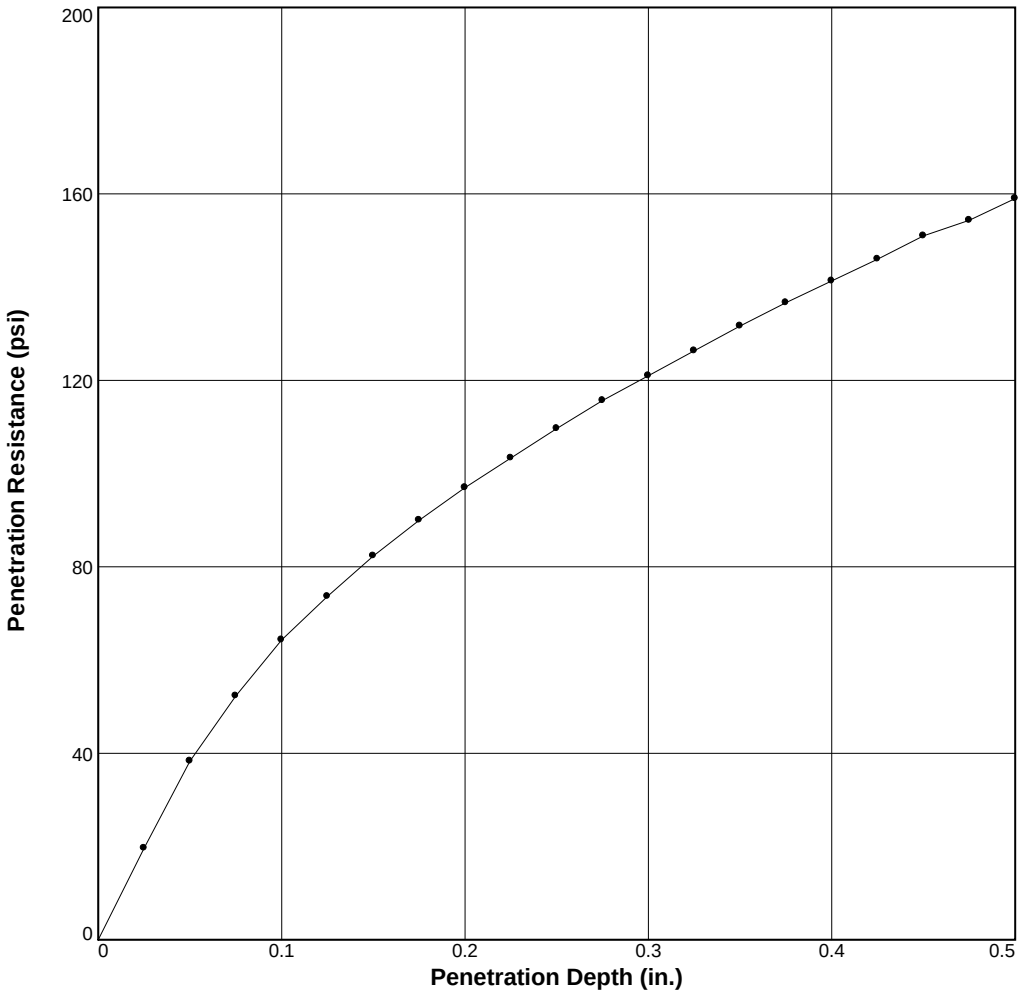
ASTM D 2435; Standard Test Method for One-Dimensional Consolidation Properties of Soils (Method B)

Coefficient of Consolidation vs. Log of Pressure



These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples

BEARING RATIO TEST REPORT
VTM-8 (2013)



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	102.6	100.2	20.5	101.4	99.1	23.2	6.4	6.5	-0.001	10	1.2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Very stiff, moist, reddish brown, Elastic CLAY (CH)(A-7-5)	CH	102.4	19.5	52	27

Project No: 11888

Project: I-26 Widening MM 85-101- GEO

Source of Sample: B-11 **Depth:** 1.00-4.00

Sample Number: D4S-1494

Date: 11/18/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Test Description/Remarks:

Figure _____

Tested By: AS

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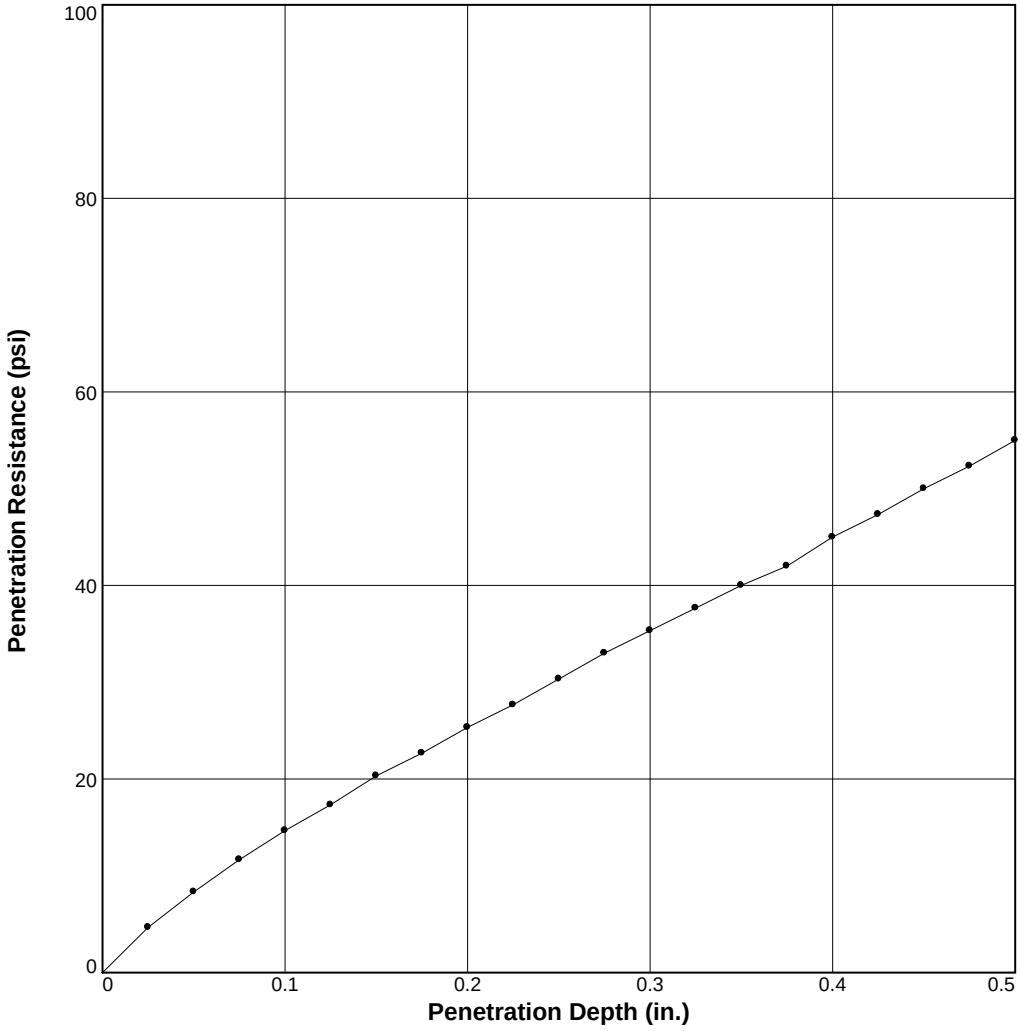
BEARING RATIO TEST REPORT
VTM-8 (2013)



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	116.2	100.1	13.9	113.3	97.6	17.3	1.4	1.7	-0.004	10	2.6
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Medium Dense, moist, tan to dark brown, Elastic SILT (MH)(A-7-5)	MH	116.1	13.8		

Project No: 11888

Project: I-26 Widening MM 85-101- GEO

Source of Sample: B-17 **Depth:** 1.00-4.00

Sample Number: D4S-1495

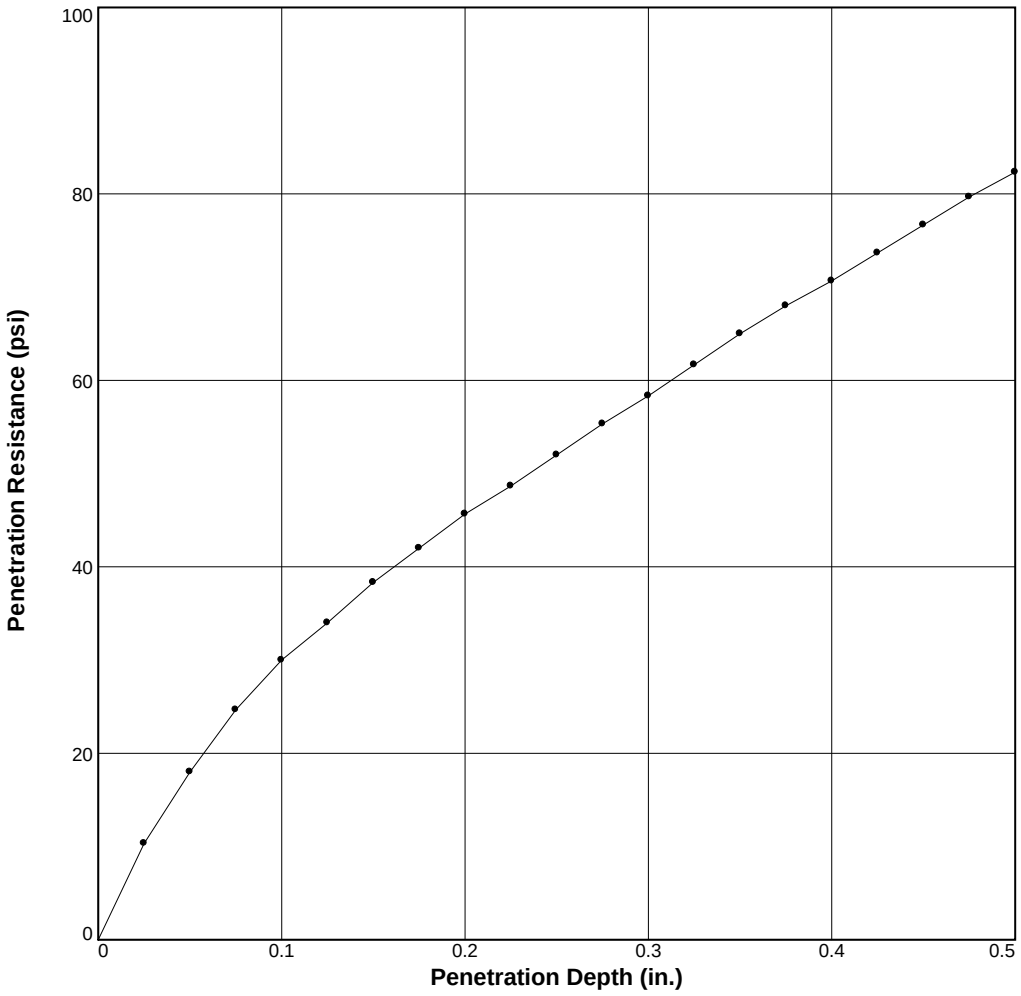
Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Test Description/Remarks:

Figure _____

BEARING RATIO TEST REPORT
VTM-8 (2013)



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	108.3	100	16.9	106.2	98.1	20.1	3.0	3.0	0.000	10	1.9
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Stiff, moist, orangish brown, Sandy CLAY (CL)(A-7-6) with trace roots	CL	108.3	16.7	49	27

Project No: 11888

Project: I-26 Widening MM 85-101- GEO

Source of Sample: P-11 **Depth:** 1.00-4.00

Sample Number: D4S-1497

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Test Description/Remarks:

Figure _____

Tested By: AS

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Tested By	RI
Date	11/05/17
Checked By	

ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	103.0
Optimum Moisture Content, %	18.2

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	18.2
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	505
Height of Sample before Soaking, in	4.584
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6955
Mass of Wet Soil & Mold, g	10891.0
Mass of Wet Soil, g	3936
Wet Density, pcf	115.7
Dry Density before Soaking, pcf	97.9
Dial Gage Reading before Soaking, in	0.238
Dial Gage Reading after Soaking, in	0.320
Swell of Sample, in	0.082
Swell of Sample, %	1.8
Height of Sample after Soaking, in	4.666
Dry Density after Soaking, pcf	96.1
Mass of Sample & Mold after Soaking, g	11106.0
% Compaction	95.0

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	455.0	568.3	920.0
Mass of Dry Sample and Tare, g	400.5	494.7	760.3
Mass of Tare, g	100.2	90.7	159.1
Moisture Content, %	18.1	18.2	26.6
Average Moisture Content, %	18.2		

* 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	6	0.0
0.0250	21	5.0
0.0500	38	10.7
0.0750	61	18.3
0.1000	82	25.3
0.1250	101	31.7
0.1500	117	37.0
0.1750	130	41.3
0.2000	142	45.3
0.3000	180	58.0
0.4000	215	69.7
0.5000	245	79.7

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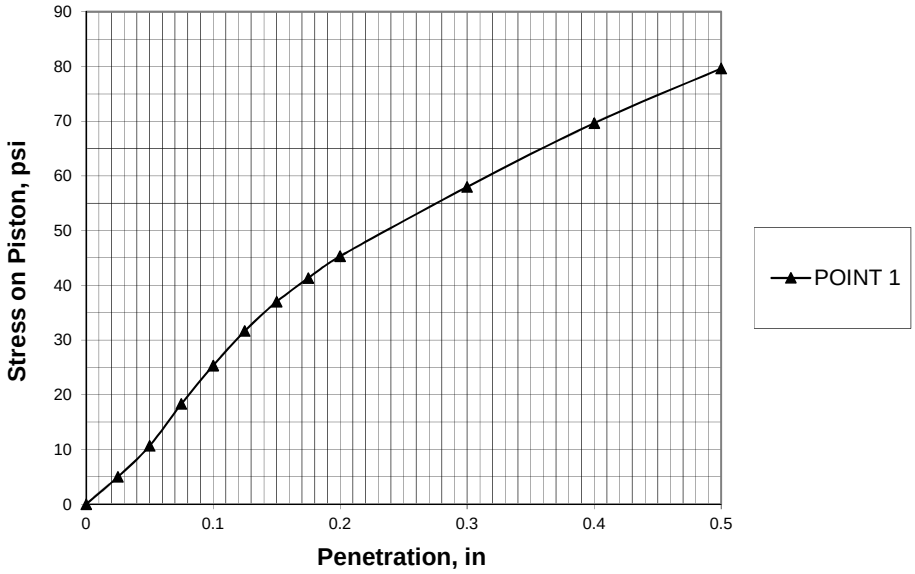
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	25.3	2.5
	0.2	45.3	3.0

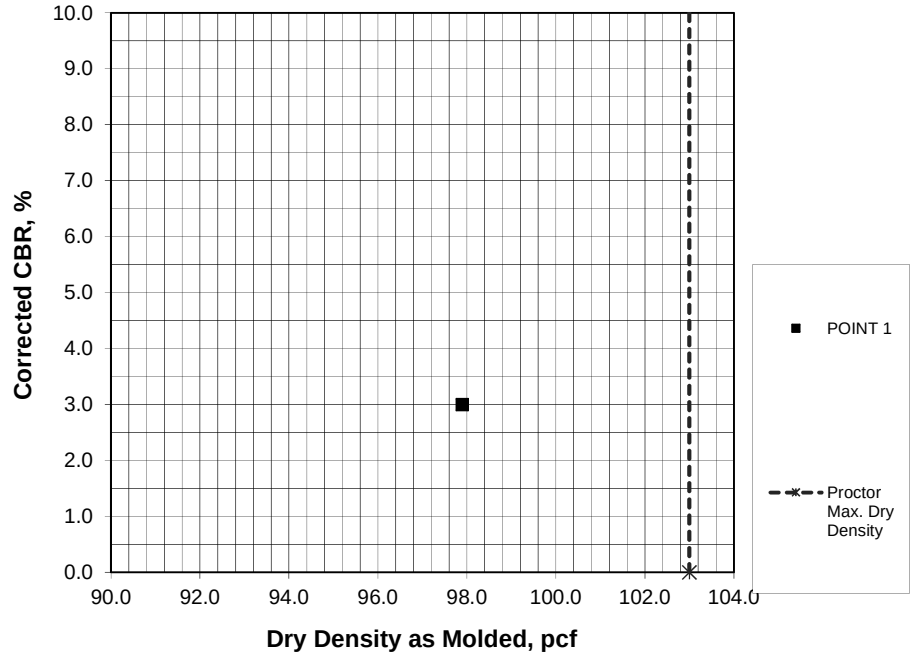
DESCRIPTION

Dark Brown Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	97.9	3.0	NA

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Tested By	RI
Date	11/05/17
Checked By	

ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	108.2
Optimum Moisture Content, %	15.7

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	15.7
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	506
Height of Sample before Soaking, in	4.584
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6964
Mass of Wet Soil & Mold, g	11010.0
Mass of Wet Soil, g	4046
Wet Density, pcf	118.9
Dry Density before Soaking, pcf	102.9
Dial Gage Reading before Soaking, in	0.217
Dial Gage Reading after Soaking, in	0.273
Swell of Sample, in	0.056
Swell of Sample, %	1.2
Height of Sample after Soaking, in	4.640
Dry Density after Soaking, pcf	101.7
Mass of Sample & Mold after Soaking, g	11195.0
% Compaction	95.1

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	652.4	526.9	911.6
Mass of Dry Sample and Tare, g	578.0	470.0	772.5
Mass of Tare, g	102.0	104.0	152.7
Moisture Content, %	15.6	15.5	22.4
Average Moisture Content, %	15.6		

* 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	6	0.0
0.0250	25	6.3
0.0500	61	18.3
0.0750	117	37.0
0.1000	170	54.7
0.1250	208	67.3
0.1500	235	76.3
0.1750	257	83.7
0.2000	275	89.7
0.3000	337	110.3
0.4000	391	128.3
0.5000	440	144.7

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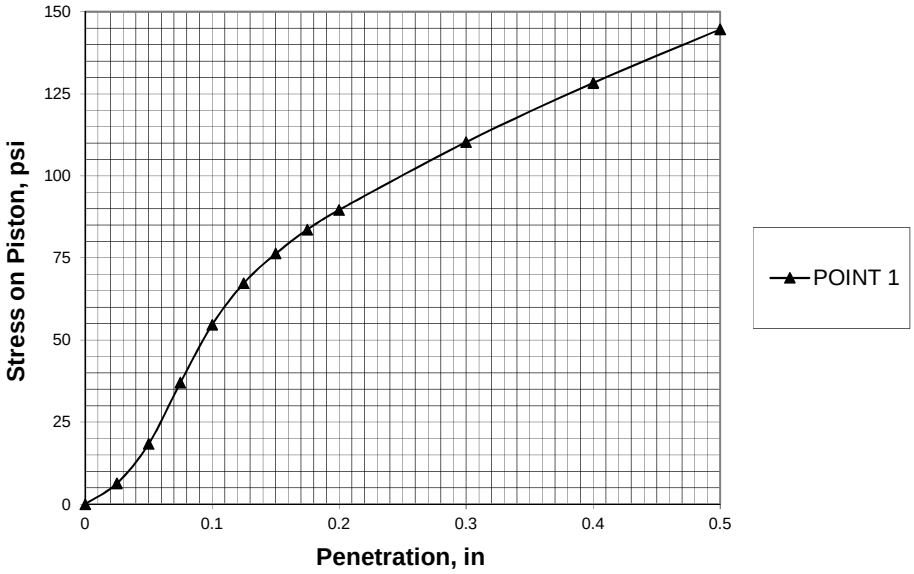
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	67.3	6.7
	0.2	95.7	6.4

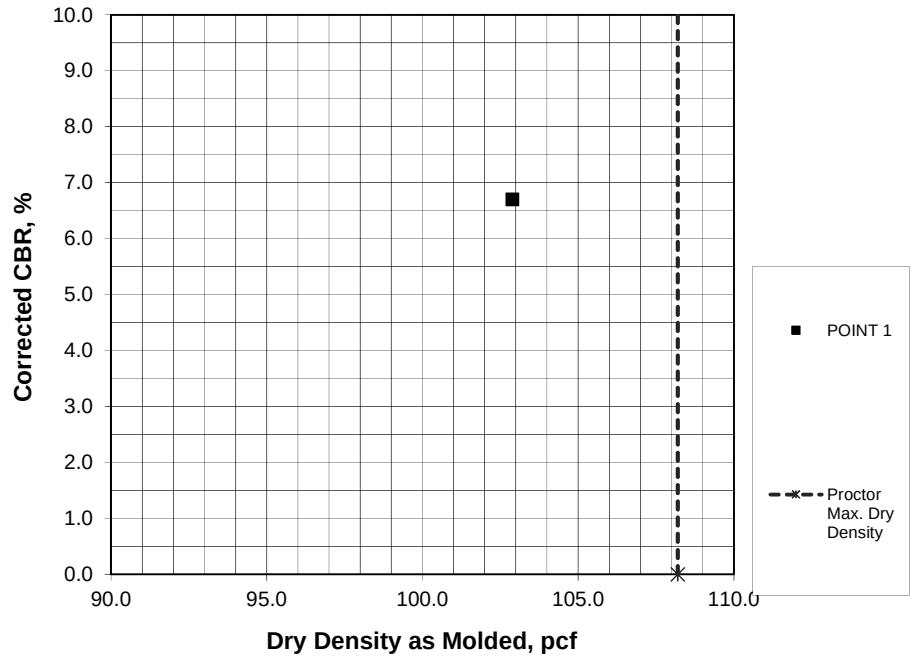
DESCRIPTION

Yellowish Red Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	102.9	6.7	NA

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Remold
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	111.7
Optimum Moisture Content, %	14.7

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	14.7
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	508
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6895
Mass of Wet Soil & Mold, g	11039.0
Mass of Wet Soil, g	4144
Wet Density, pcf	121.8
Dry Density before Soaking, pcf	106.2
Dial Gage Reading before Soaking, in	0.081
Dial Gage Reading after Soaking, in	0.105
Swell of Sample, in	0.024
Swell of Sample, %	0.5
Height of Sample after Soaking, in	4.606
Dry Density after Soaking, pcf	105.6
Mass of Sample & Mold after Soaking, g	11204.0
% Compaction	95.0

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	625.0	525.0	918.8
Mass of Dry Sample and Tare, g	556.2	469.0	789.1
Mass of Tare, g	88.5	90.0	156.2
Moisture Content, %	14.7	14.8	20.5
Average Moisture Content, %	14.7		

* 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	6	0.0
0.0250	35	9.7
0.0500	70	21.3
0.0750	114	36.0
0.1000	140	44.7
0.1250	157	50.3
0.1500	173	55.7
0.1750	185	59.7
0.2000	198	64.0
0.3000	240	78.0
0.4000	274	89.3
0.5000	306	100.0

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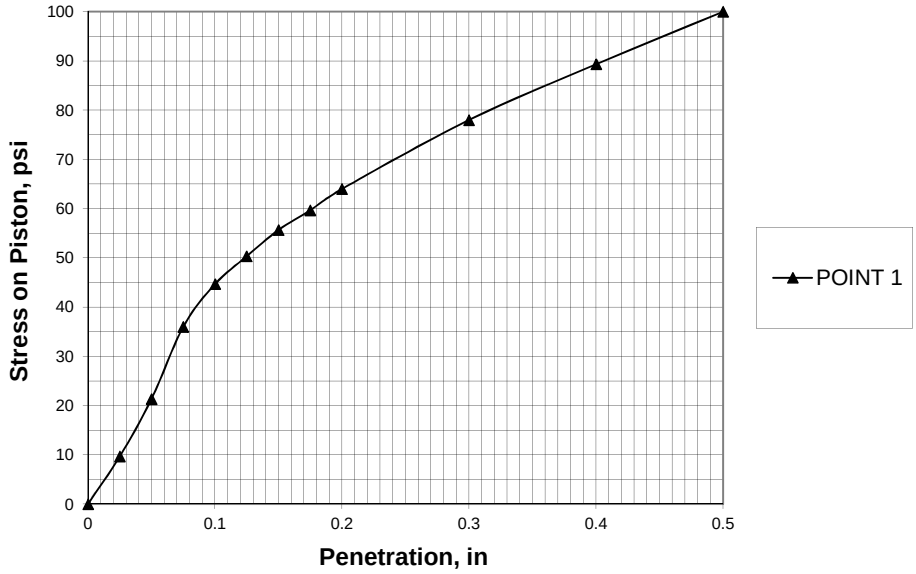
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Remold
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	44.7	4.5
	0.2	64.0	4.3

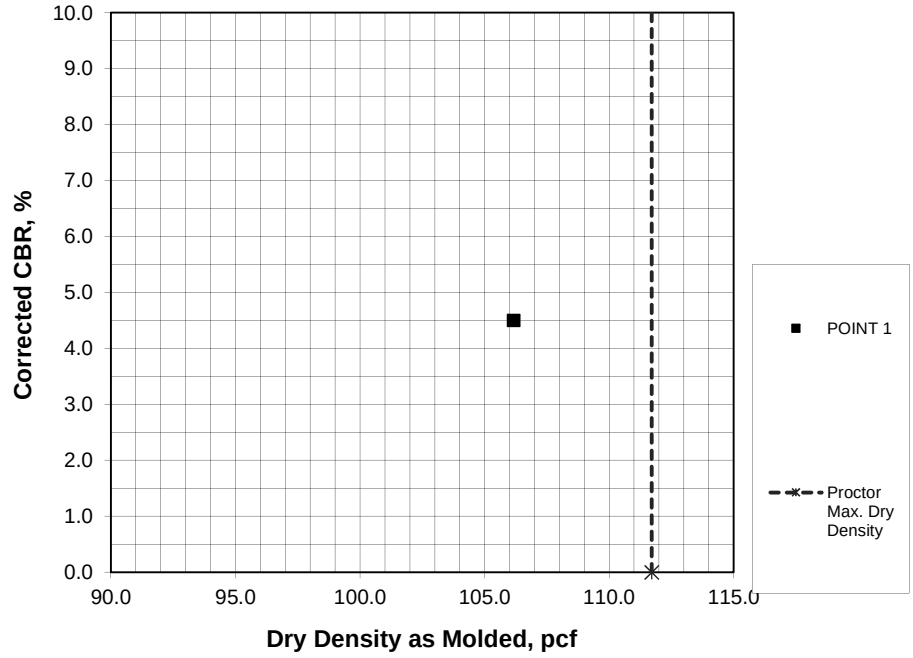
DESCRIPTION

Olive Brown Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	106.2	4.5	NA

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	107.1
Optimum Moisture Content, %	15.4

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	15.4
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	512
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6973
Mass of Wet Soil & Mold, g	10968.0
Mass of Wet Soil, g	3995
Wet Density, pcf	117.4
Dry Density before Soaking, pcf	101.8
Dial Gage Reading before Soaking, in	0.153
Dial Gage Reading after Soaking, in	0.210
Swell of Sample, in	0.057
Swell of Sample, %	1.2
Height of Sample after Soaking, in	4.639
Dry Density after Soaking, pcf	100.5
Mass of Sample & Mold after Soaking, g	11193.0
% Compaction	95.1

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	612.0	512.5	974.8
Mass of Dry Sample and Tare, g	544.0	457.8	819.5
Mass of Tare, g	99.8	101.6	159.5
Moisture Content, %	15.3	15.4	23.5
Average Moisture Content, %	15.3		

* 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	6	0.0
0.0250	31	8.3
0.0500	62	18.7
0.0750	100	31.3
0.1000	130	41.3
0.1250	150	48.0
0.1500	164	52.7
0.1750	180	58.0
0.2000	193	62.3
0.3000	243	79.0
0.4000	288	94.0
0.5000	330	108.0

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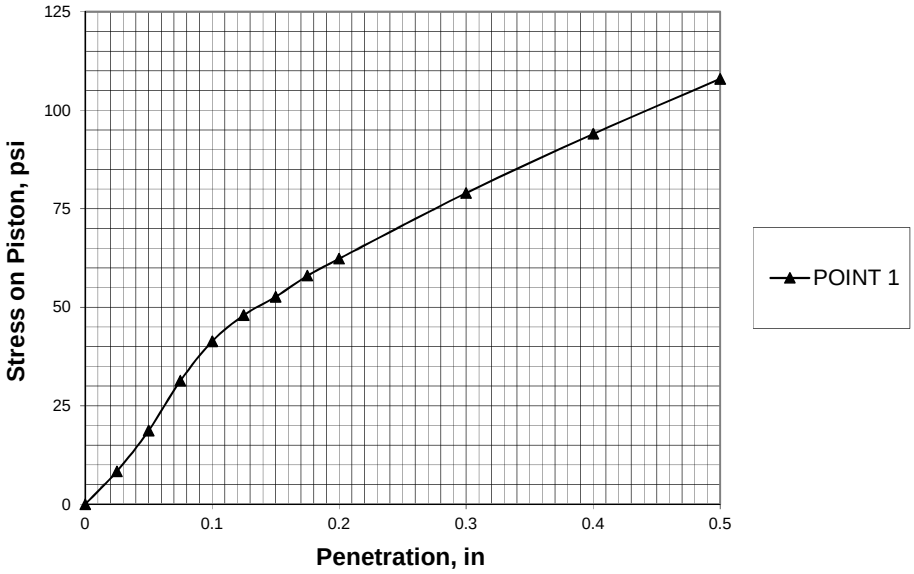
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	41.3	4.1
	0.2	62.3	4.2

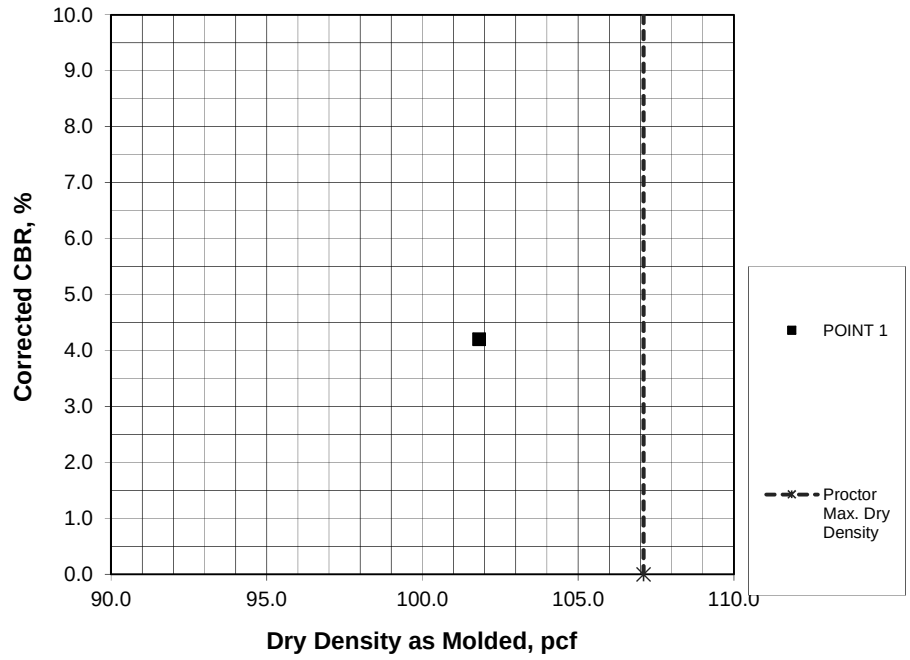
DESCRIPTION

Olive Yellow Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	101.8	4.2	NA

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	105.8
Optimum Moisture Content, %	15.7

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	15.7
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	509
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6953
Mass of Wet Soil & Mold, g	10910.0
Mass of Wet Soil, g	3957
Wet Density, pcf	116.3
Dry Density before Soaking, pcf	100.6
Dial Gage Reading before Soaking, in	0.231
Dial Gage Reading after Soaking, in	0.271
Swell of Sample, in	0.040
Swell of Sample, %	0.9
Height of Sample after Soaking, in	4.622
Dry Density after Soaking, pcf	99.6
Mass of Sample & Mold after Soaking, g	11127.0
% Compaction	95.1

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	624.0	525.5	1068.5
Mass of Dry Sample and Tare, g	553.0	467.0	895.5
Mass of Tare, g	98.0	94.7	150.0
Moisture Content, %	15.6	15.7	23.2
Average Moisture Content, %	15.7		

* 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	5	0.0
0.0250	30	8.3
0.0500	62	19.0
0.0750	108	34.3
0.1000	147	47.3
0.1250	172	55.7
0.1500	194	63.0
0.1750	213	69.3
0.2000	231	75.3
0.3000	298	97.7
0.4000	358	117.7
0.5000	417	137.3

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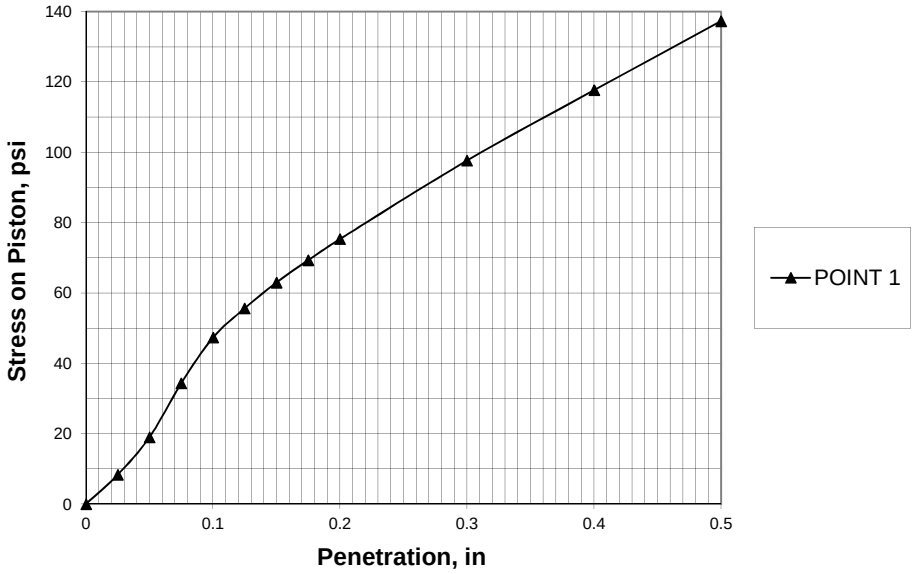
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	47.3	4.7
	0.2	75.3	5.0

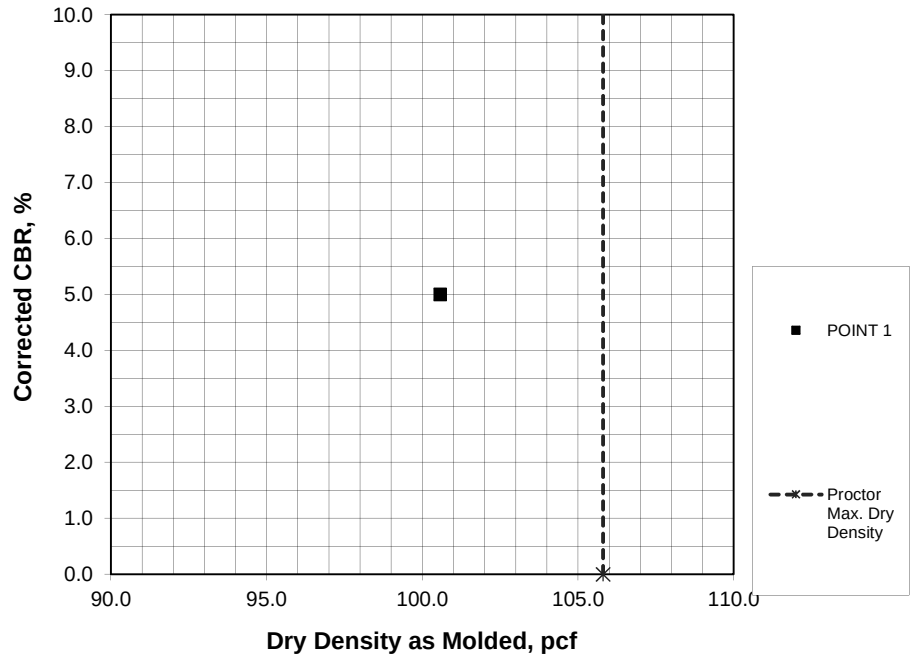
DESCRIPTION

Olive Yellow Silt with Sand

USCS (ASTM D2487;2488)

ML

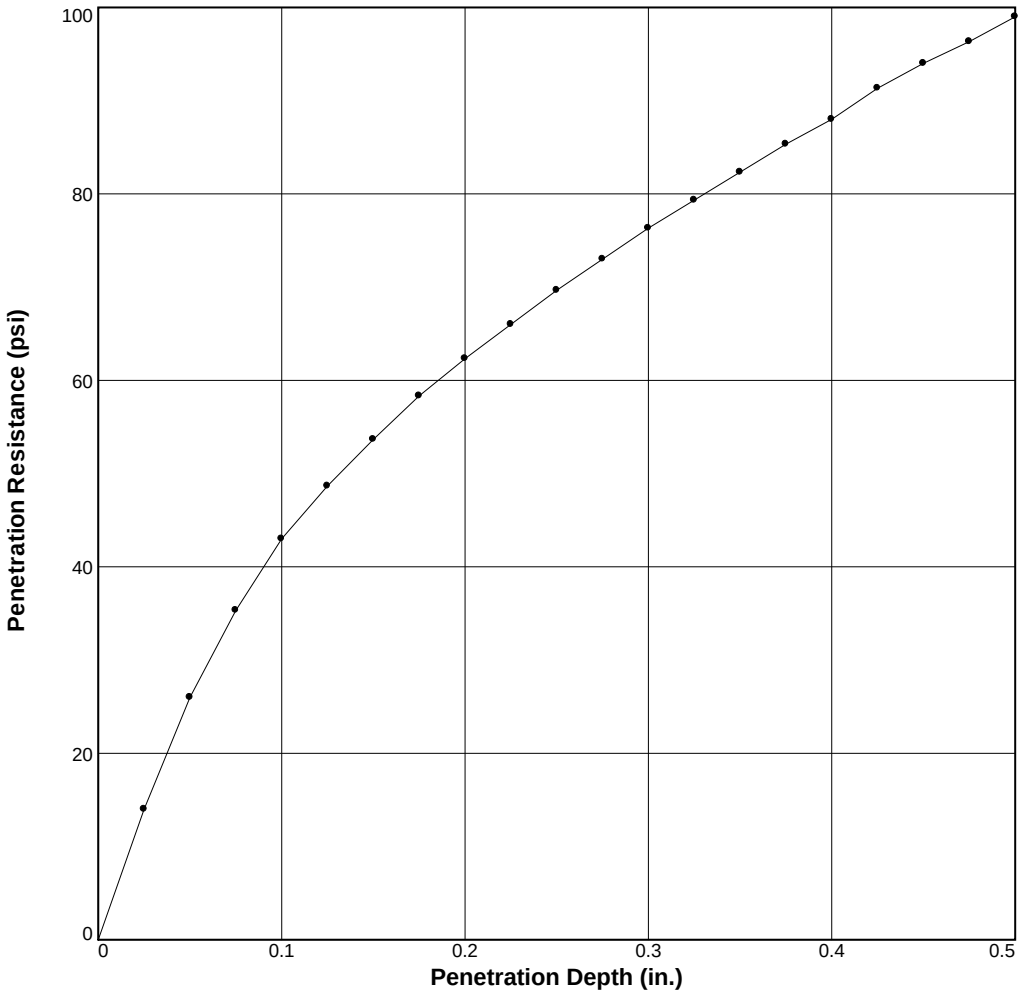
DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	100.6	5.0	NA

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samp

BEARING RATIO TEST REPORT
VTM-8 (2013)



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	103.8	100.8	19.7	101.8	98.8	22.5	4.3	4.2	0.000	10	2
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Stiff to very stiff, dry to moist, reddish brown, Elastic CLAY (CH)(A-7-6) with trace gravel	CH	103.0	19.8	60	32

Project No: 11888

Project: I-26 Widening MM 85-101- GEO

Source of Sample: P-178 **Depth:** 1.00-4.00

Sample Number: D4S-1498

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Test Description/Remarks:

Figure _____

Tested By: AS

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Tested By	RI
Date	11/05/17
Checked By	

ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	95.6
Optimum Moisture Content, %	23.1

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	23.1
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	507
Height of Sample before Soaking, in	4.583
Volume of Sample, ft^3	0.07500
Mass of Mold, g	7011
Mass of Wet Soil & Mold, g	10810.0
Mass of Wet Soil, g	3799
Wet Density, pcf	111.7
Dry Density before Soaking, pcf	90.8
Dial Gage Reading before Soaking, in	0.152
Dial Gage Reading after Soaking, in	0.268
Swell of Sample, in	0.116
Swell of Sample, %	2.5
Height of Sample after Soaking, in	4.699
Dry Density after Soaking, pcf	88.6
Mass of Sample & Mold after Soaking, g	11033.0
% Compaction	95.0

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	445.6	571.8	870.7
Mass of Dry Sample and Tare, g	378.2	483.9	687.3
Mass of Tare, g	85.1	99.6	159.1
Moisture Content, %	23.0	22.9	34.7
Average Moisture Content, %	22.9		

* 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	6	0.0
0.0250	27	7.0
0.0500	50	14.7
0.0750	76	23.3
0.1000	98	30.7
0.1250	117	37.0
0.1500	135	43.0
0.1750	149	47.7
0.2000	160	51.3
0.3000	201	65.0
0.4000	236	76.7
0.5000	270	88.0

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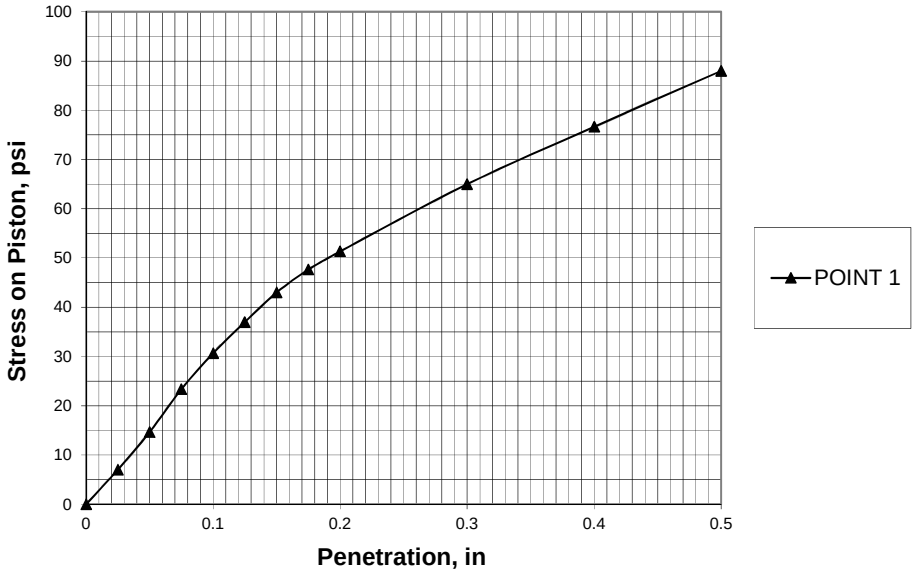
Tested By	RI
Date	11/05/17
Checked By	

ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	30.7	3.1
	0.2	51.3	3.4

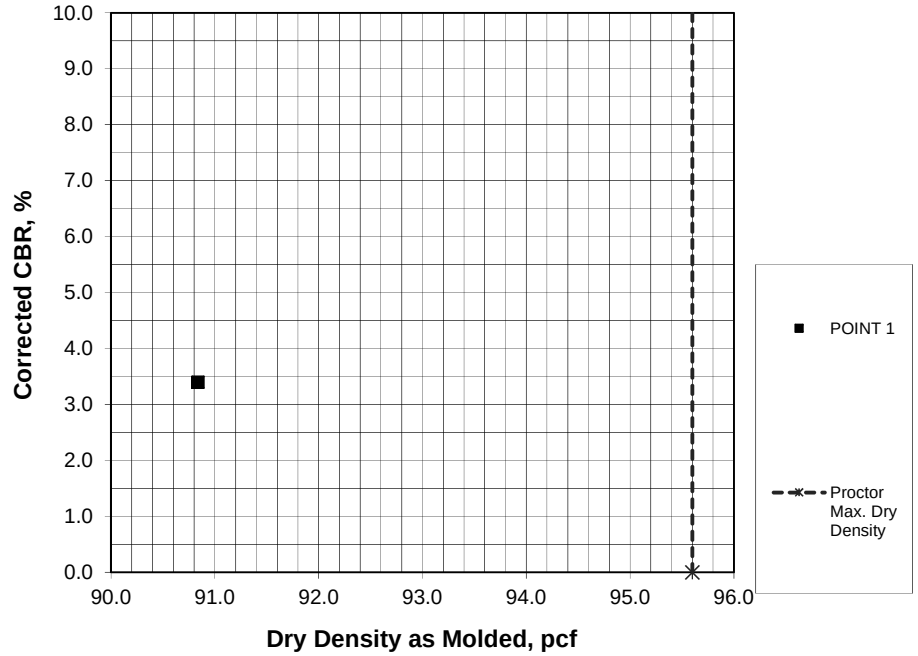
DESCRIPTION

Dark Brown Elastic Silt with Sand

USCS (ASTM D2487;2488)

MH

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	90.8	3.4	NA

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Remold
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	104.8
Optimum Moisture Content, %	18.2

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	18.2
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	284
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	7040
Mass of Wet Soil & Mold, g	11045.0
Mass of Wet Soil, g	4005
Wet Density, pcf	117.7
Dry Density before Soaking, pcf	99.7
Dial Gage Reading before Soaking, in	0.149
Dial Gage Reading after Soaking, in	0.274
Swell of Sample, in	0.125
Swell of Sample, %	2.7
Height of Sample after Soaking, in	4.707
Dry Density after Soaking, pcf	97.0
Mass of Sample & Mold after Soaking, g	11295.0
% Compaction	95.1

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	554.2	625.8	916.7
Mass of Dry Sample and Tare, g	485.0	546.5	747.0
Mass of Tare, g	102.0	108.2	157.5
Moisture Content, %	18.1	18.1	28.8
Average Moisture Content, %	18.1		

* 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	6	0.0
0.0250	27	7.0
0.0500	51	15.0
0.0750	74	22.7
0.1000	98	30.7
0.1250	112	35.3
0.1500	125	39.7
0.1750	137	43.7
0.2000	149	47.7
0.3000	186	60.0
0.4000	221	71.7
0.5000	254	82.7

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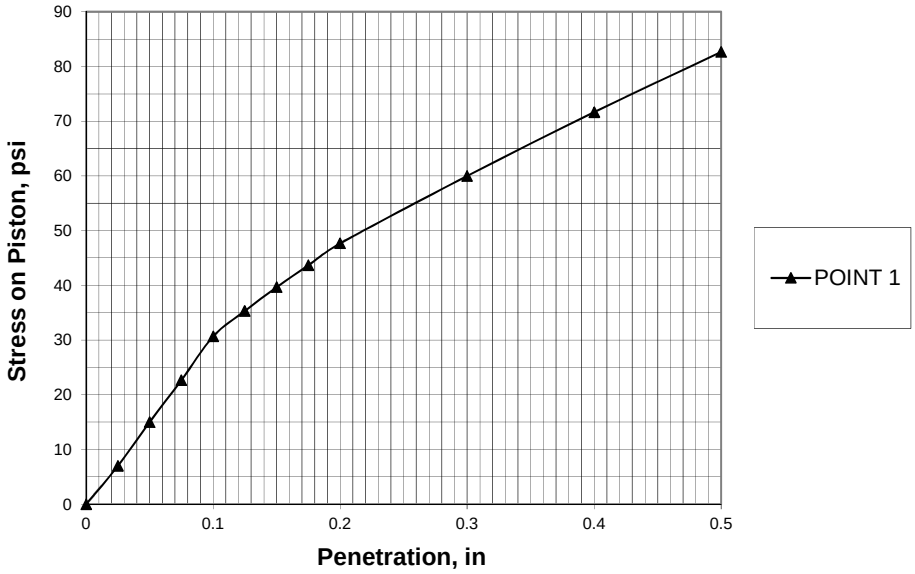
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Remold
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	30.7	3.1
	0.2	47.7	3.2

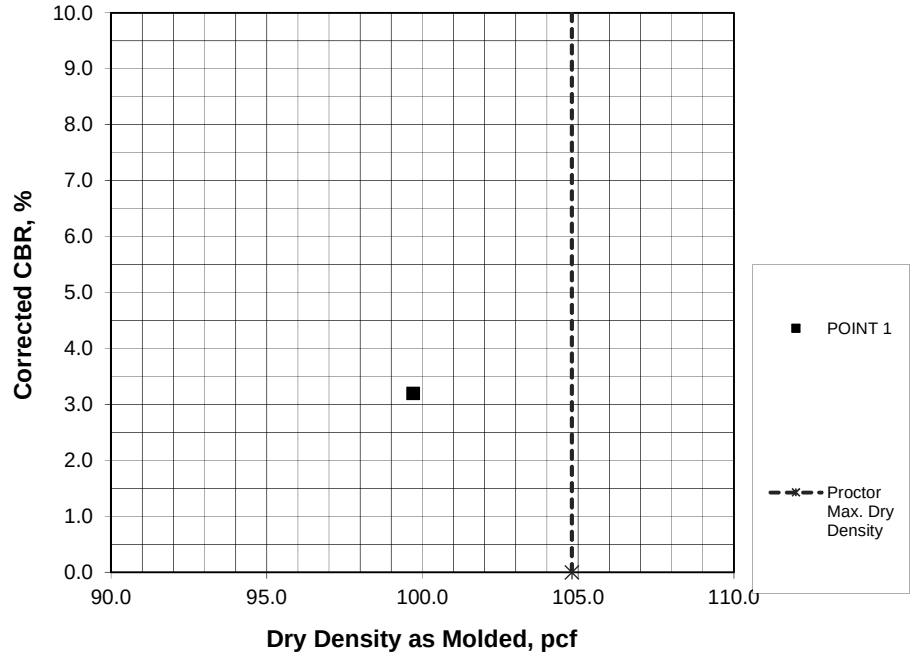
DESCRIPTION

Dark Brown Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

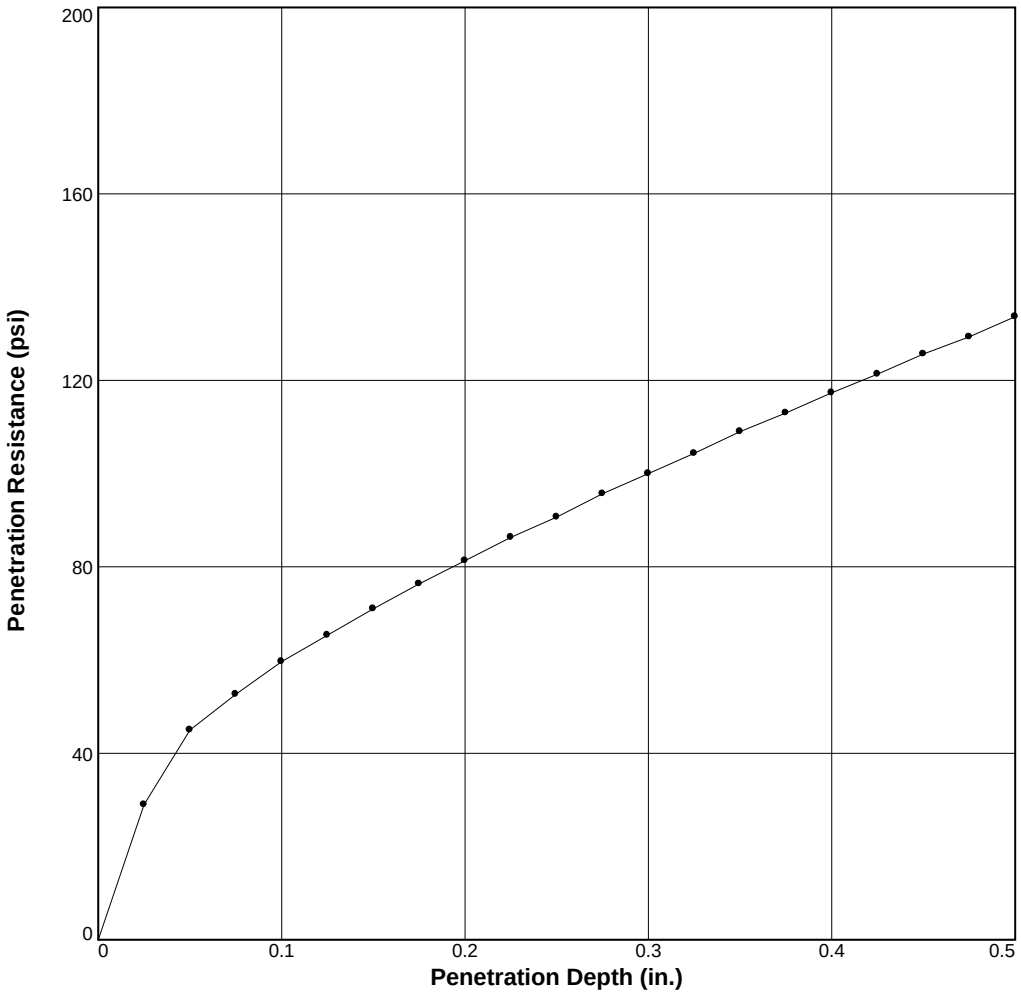
DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	99.7	3.2	NA

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samp

BEARING RATIO TEST REPORT
VTM-8 (2013)



	Molded			Soaked			CBR (%)		Linearity Correction (in.)	Surcharge (lbs.)	Max. Swell (%)
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.10 in.	0.20 in.			
1 ○	99.8	99.4	21.4	99.8	99.4	24.9	6.0	5.4	0.000	10	0
2 △											
3 □											

Material Description	USCS	Max. Dens. (pcf)	Optimum Moisture (%)	LL	PI
Medium stiff to stiff, moist, organish brown to tan, Elastic SILT (MH)(A-7-5) with trace gravel	MH	100.4	21.6	59	17

Project No: 11888

Project: I-26 Widening MM 85-101- GEO

Source of Sample: P-262 **Depth:** 1.00-4.00

Sample Number: D4S-1499

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Test Description/Remarks:

Figure _____

Tested By: AS

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	110.6
Optimum Moisture Content, %	14.3

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	14.3
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	232
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	7056
Mass of Wet Soil & Mold, g	11145.0
Mass of Wet Soil, g	4089
Wet Density, pcf	120.2
Dry Density before Soaking, pcf	105.2
Dial Gage Reading before Soaking, in	0.087
Dial Gage Reading after Soaking, in	0.123
Swell of Sample, in	0.036
Swell of Sample, %	0.8
Height of Sample after Soaking, in	4.618
Dry Density after Soaking, pcf	104.2
Mass of Sample & Mold after Soaking, g	11281.0
% Compaction	95.1

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	445.8	573.4	895.4
Mass of Dry Sample and Tare, g	403.5	513.5	775.5
Mass of Tare, g	102.0	98.4	208.1
Moisture Content, %	14.0	14.4	21.1
Average Moisture Content, %	14.2		

* 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	5	0.0
0.0250	29	8.0
0.0500	75	23.3
0.0750	134	43.0
0.1000	177	57.3
0.1250	202	65.7
0.1500	221	72.0
0.1750	238	77.7
0.2000	255	83.3
0.3000	310	101.7
0.4000	360	118.3
0.5000	407	134.0

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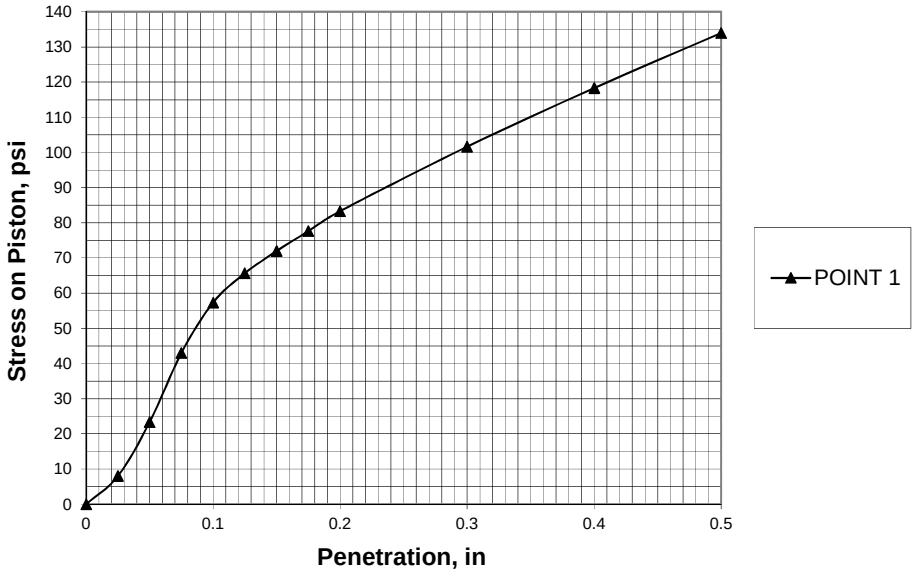
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	65.7	6.6
	0.2	88.3	5.9

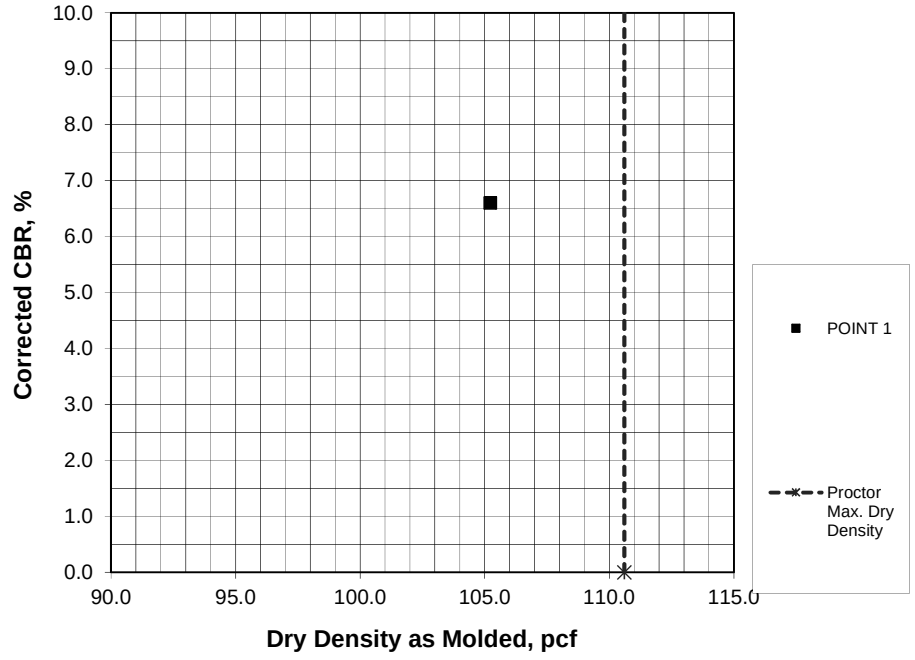
DESCRIPTION

Dark Brown Clayey Sand

USCS (ASTM D2487;2488)

SC

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	105.2	6.6	NA

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ASTM D 1883/AASHTO T193
Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	109.6
Optimum Moisture Content, %	13.7

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	13.7
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	282
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	7025
Mass of Wet Soil & Mold, g	11044.0
Mass of Wet Soil, g	4019
Wet Density, pcf	118.1
Dry Density before Soaking, pcf	104.0
Dial Gage Reading before Soaking, in	0.170
Dial Gage Reading after Soaking, in	0.197
Swell of Sample, in	0.027
Swell of Sample, %	0.6
Height of Sample after Soaking, in	4.609
Dry Density after Soaking, pcf	103.0
Mass of Sample & Mold after Soaking, g	11232.0
% Compaction	94.9

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	445.0	642.0	935.2
Mass of Dry Sample and Tare, g	405.0	575.3	808.4
Mass of Tare, g	100.5	99.6	203.5
Moisture Content, %	13.1	14.0	21.0
Average Moisture Content, %	13.6		

* 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	6	0.0
0.0250	37	10.3
0.0500	82	25.3
0.0750	133	42.3
0.1000	169	54.3
0.1250	196	63.3
0.1500	219	71.0
0.1750	240	78.0
0.2000	261	85.0
0.3000	336	110.0
0.4000	400	131.3
0.5000	457	150.3

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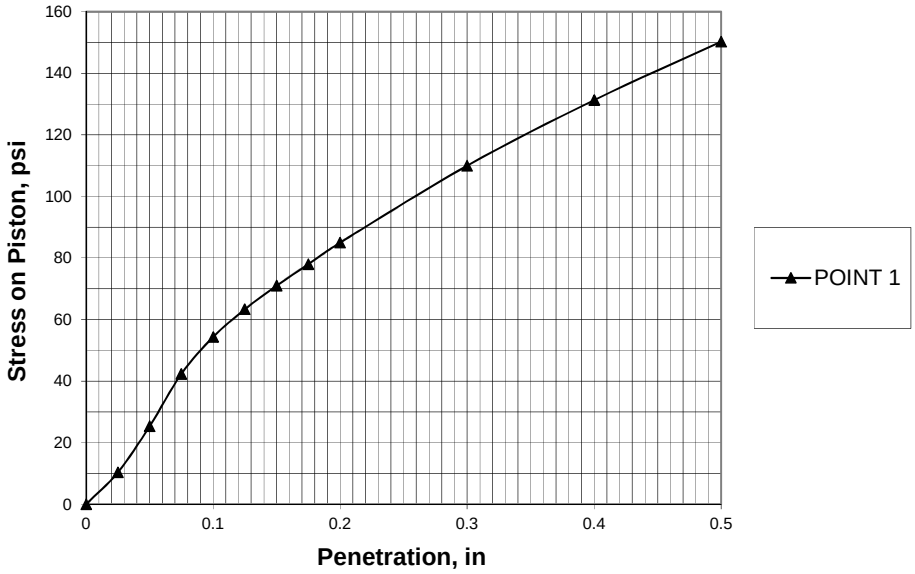
ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	54.3	5.4
	0.2	85.0	5.7

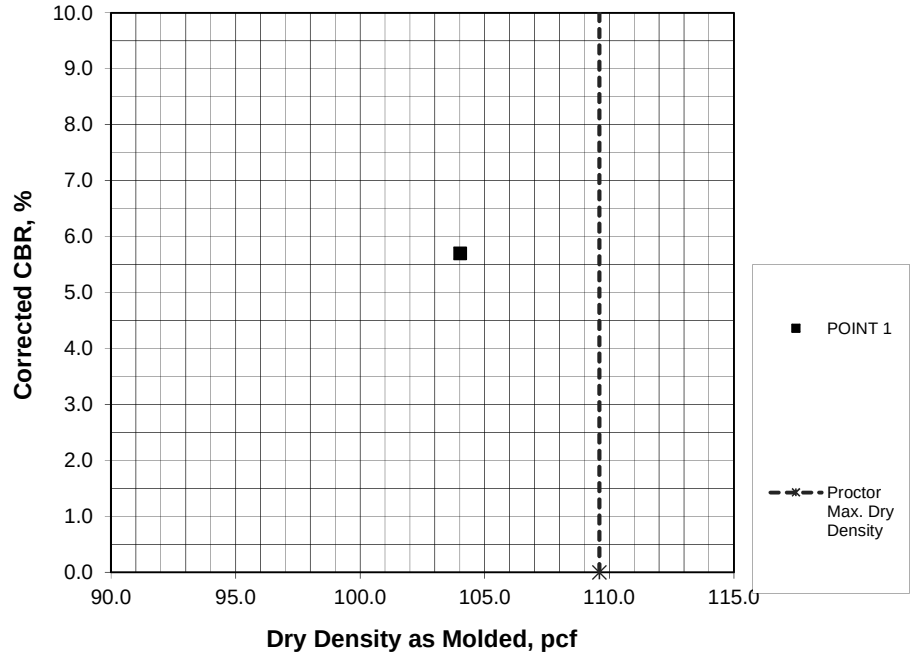
DESCRIPTION

Olive Yellow Sandy Lean Clay

USCS (ASTM D2487;2488)

CL

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	104.0	5.7	NA

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Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

Proctor Method Description

	D698	T99	Other
Compaction Procedure	x		

Max Dry Density, pcf	107.6
Optimum Moisture Content, %	16.6

CBR Method Description & Test Data

Point #	1
Specified Moisture Cont., %	16.6
Specified % Compaction	95.0
Number of Layers	3
Number of Blows per layer	NA
Mold ID	233
Height of Sample before Soaking, in	4.582
Volume of Sample, ft^3	0.07500
Mass of Mold, g	6984
Mass of Wet Soil & Mold, g	11042.0
Mass of Wet Soil, g	4058
Wet Density, pcf	119.3
Dry Density before Soaking, pcf	102.3
Dial Gage Reading before Soaking, in	0.153
Dial Gage Reading after Soaking, in	0.184
Swell of Sample, in	0.031
Swell of Sample, %	0.7
Height of Sample after Soaking, in	4.613
Dry Density after Soaking, pcf	101.4
Mass of Sample & Mold after Soaking, g	11195.0
% Compaction	95.0

Mass of material before separation on 3/4" sieve, g	NA
Mass of material retained on 3/4" sieve, g	NA
Mass of +3/4" material replaced by (+#4 to -3/4") portion, g	NA
Replaced Portion,%	NA

Penetration Piston ID	123	Dial Gage ID	178	
Rammer Type (Effort)	STD	Manual		
Height of Drop, in	12			
Mass of Rammer, kg	2.5			
Condition of Sample	Soaked			
Soaking Duration	96 hr			
Surcharge Load	10	lb	4.54	kg
Surcharge Press., psi	0.35			
Penetration Rate, in/min		0.05		
Balance ID	6/564/566	Load Cell ID	11	
Oven ID	496/610/758	Dial Gage ID	450	
Penetration Machine ID	10	Rammer ID	315	

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	455.0	593.4	1021.7
Mass of Dry Sample and Tare, g	405.0	521.6	871.2
Mass of Tare, g	99.5	96.8	203.5
Moisture Content, %	16.4	16.9	22.5
Average Moisture Content, %	16.6		

* 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	5	0.0
0.0250	24	6.3
0.0500	72	22.3
0.0750	141	45.3
0.1000	193	62.7
0.1250	235	76.7
0.1500	266	87.0
0.1750	290	95.0
0.2000	314	103.0
0.3000	387	127.3
0.4000	450	148.3
0.5000	510	168.3

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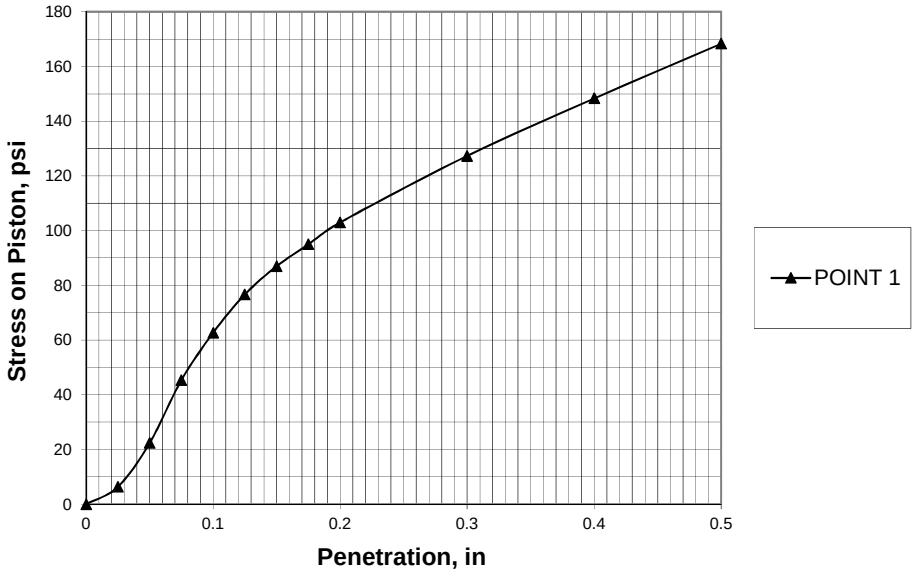
Date	11/05/17
Checked By	

ASTM D 1883/AASHTO T193

Standard Test Method for CBR (California Bearing Ratio) of Laboratory Compacted Soils

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Remold
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

LOAD-PENETRATION CURVE



	Corrected Penetration, in	Corrected Stress, psi	Bearing Ratio, %
Point 1	0.1	76.7	7.7
	0.2	109.7	7.3

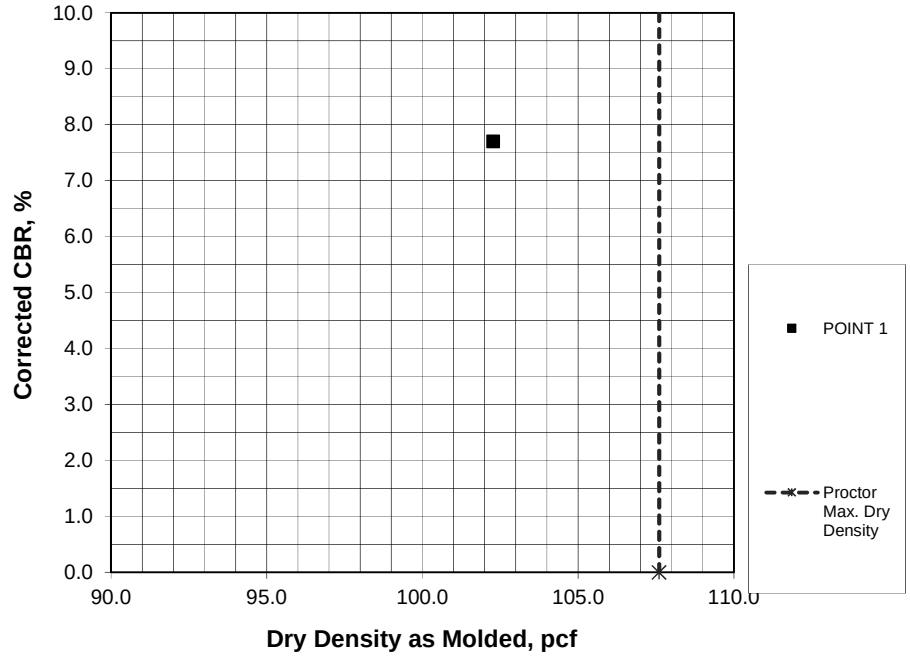
DESCRIPTION

Dark Brown Clayey Sand

USCS (ASTM D2487;2488)

SC

DRY DENSITY vs. CBR



Point #	Dry Density, pcf	Corrected CBR, %	Number of Blows per Layer
1	102.3	7.7	NA

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Tested By	NK
Date	11/02/17
Checked By	

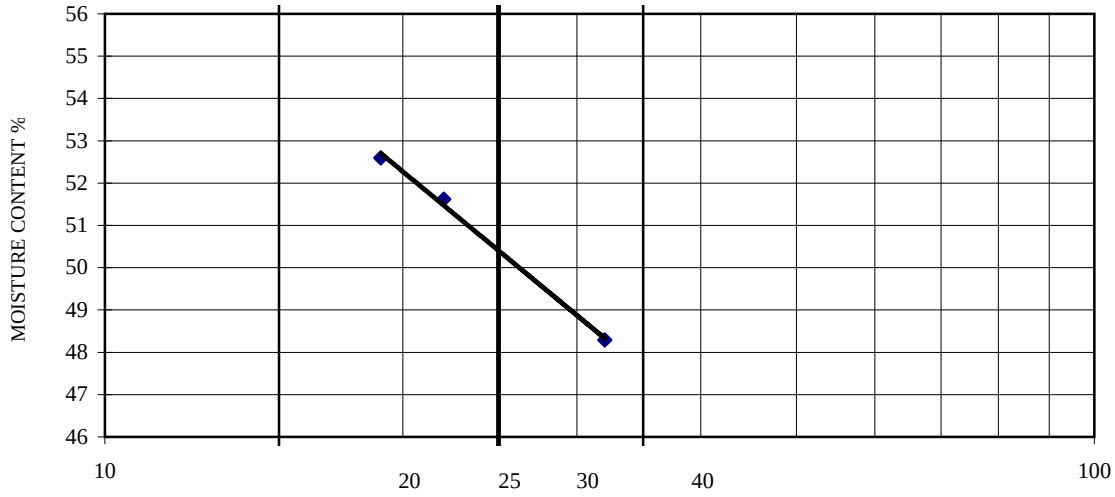
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	22	19
Mass of Wet Sample & Tare, g	37.31	35.77	37.54
Mass of Dry Sample & Tare, g	32.65	31.31	33.29
Mass of Tare, g	23.00	22.67	25.21
Moisture Content, %	48.29	51.62	52.60

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	38.97	34.54
Mass of Dry Sample & Tare, g	36.70	32.00
Mass of Tare, g	28.62	22.99
Moisture Content, %	28.09	28.19

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1221.20
Mass of Dry Sample & Tare, g	1046.50
Mass of Tare, g	360.30
Moisture Content, %	25.46

LIQUID LIMIT (LL)	50
PLASTIC LIMIT (PL)	28
PLASTICITY INDEX (PI)	22
LIQUIDITY INDEX (LI)	-0.12

DESCRIPTION: Dark Brown Sandy Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1221.2
Mass of Dry Sample & Tare, g	1046.5
Mass of Tare, g	360.3
Moisture Content, %	25.5

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	359.7	426.10
Mass of Dry Sample & Tare, g	311.8	376.30
Mass of Tare, g	102.7	90.00
Moisture Content, %	22.9	17.4

Mass of Total Sample before separation on 3/8" sieve & Tare, g	20220.0
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	16117

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1440.5	73.10
Mass of Tare	0.0	0.0
Dry Mass, g	1172.0	62.27
% of Total Sample passing Split Sieve	99.5	99.0

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"			0	100
1"		0.0	0	100
.75"		61.3	0	100
.5"	FINE GRAVEL	72.9	0	100
.375"		87.1	1	99
#4	COARSE SAND	5.5	0	99

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	0.90	98
#20	SAND	3.36	94
#40		6.02	89
#60	FINE SAND	10.85	82
#100		17.09	72
#200	FINES	24.19	61

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:32

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	8
% COARSE GRAVEL	0	% FINE SAND	29
% FINE GRAVEL	1	% FINES	61
% COARSE SAND	1	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	22	% CLAY(<0.002mm)	14

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:34	2	34.0	23.3	0.01317	6.5	27.5	11.8	1.00	0.0320	43.7
11/07/17	14:37	5	31.0	23.3	0.01317	6.5	24.5	12.3	1.00	0.0207	39.0
11/07/17	14:47	15	27.0	23.3	0.01317	6.5	20.5	13.0	1.00	0.0123	32.6
11/07/17	15:02	30	24.0	23.3	0.01317	6.5	17.5	13.5	1.00	0.0088	27.8
11/07/17	15:32	60	22.0	23.3	0.01317	6.5	15.5	13.8	1.00	0.0063	24.6
11/07/17	18:42	250	18.0	23.3	0.01317	6.5	11.5	14.5	1.00	0.0032	18.3
11/08/17	14:32	1440	14.0	23.3	0.01317	6.5	7.5	15.1	1.00	0.0014	11.9

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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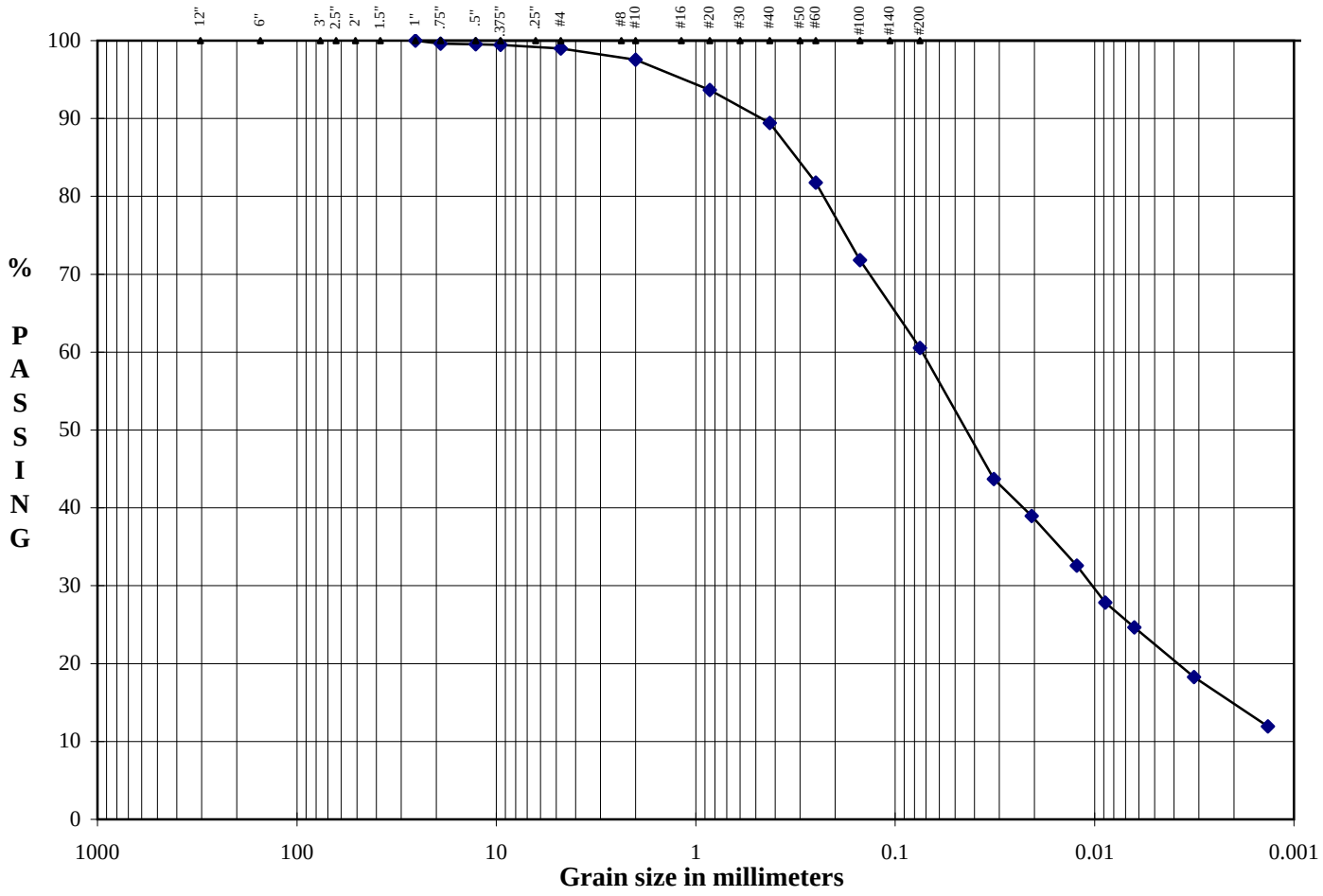
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Sandy Fat Clay

USCS (ASTM D2487; D2488): CH

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	20220.0	16116.8
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	87.1	87.1
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	0.5
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	0.5

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1221.2	87.1
Mass of Dry Sample & Tare, g	1046.5	87.1
Mass of Tare, g	360.3	0.0
Moisture Content, %	25.5	0.0

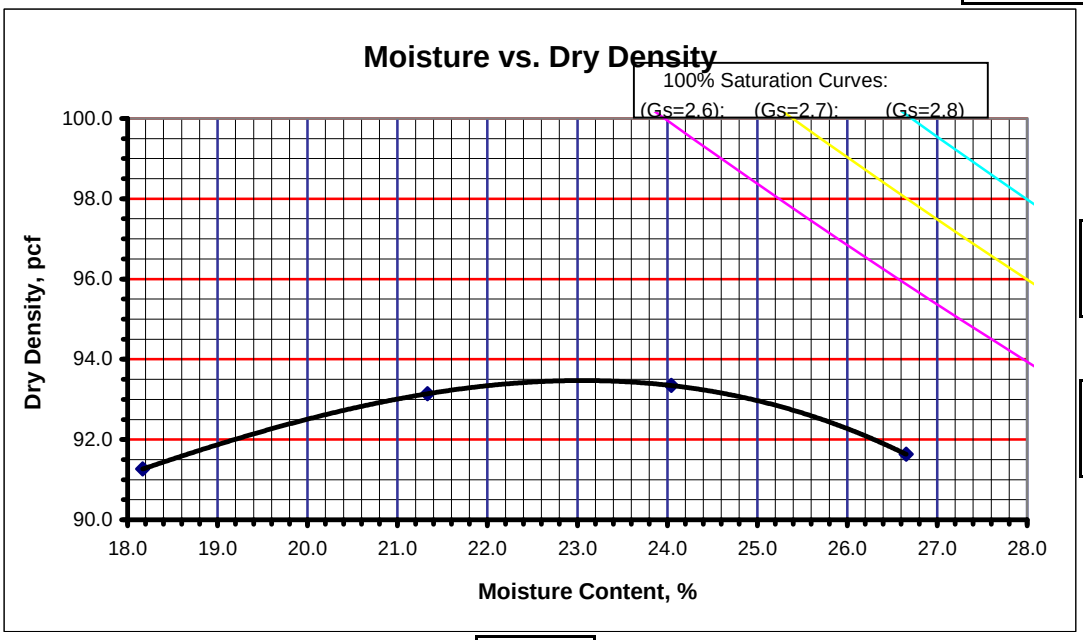
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5821.0	5899.0	5941.0	5945.0	
Mass of Wet Sample & Tare, g	516.1	486.8	536.1	478.8	
Mass of Dry Sample & Tare, g	456.0	423.1	467.5	405.1	
Mass of Tare, g	125.2	124.5	182.2	128.6	
Moisture Content, %	18.2	21.3	24.0	26.7	
Wet Density, pcf	107.8	113.0	115.8	116.1	
Dry Density, pcf	91.3	93.1	93.3	91.6	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%



REMARKS

DESCRIPTION
Dark Brown Sandy Fat Clay

CH

Maximum Dry Density, pcf	93.4	**Corrected Maximum Dry Density, pcf**	NA
Optimum Moisture Content, %	23.3	**Corrected Optimum Moisture Content, %**	NA

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Tested By	NK
Date	11/02/17
Checked By	

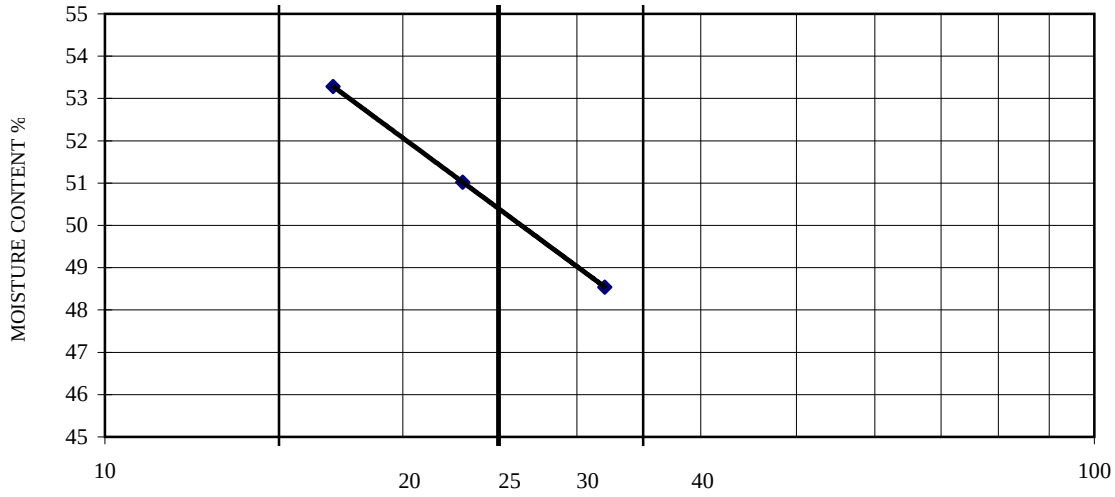
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	23	17
Mass of Wet Sample & Tare, g	42.34	41.75	39.45
Mass of Dry Sample & Tare, g	37.01	36.52	34.18
Mass of Tare, g	26.03	26.27	24.29
Moisture Content, %	48.54	51.02	53.29

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.59	37.08
Mass of Dry Sample & Tare, g	32.54	34.51
Mass of Tare, g	24.88	24.81
Moisture Content, %	26.76	26.49

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1313.60
Mass of Dry Sample & Tare, g	1149.60
Mass of Tare, g	590.00
Moisture Content, %	29.31

LIQUID LIMIT (LL)	50
PLASTIC LIMIT (PL)	27
PLASTICITY INDEX (PI)	23
LIQUIDITY INDEX (LI)	0.10

DESCRIPTION: Red Sandy Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1313.6
Mass of Dry Sample & Tare, g	1149.6
Mass of Tare, g	590.0
Moisture Content, %	29.3

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	335.9	470.10
Mass of Dry Sample & Tare, g	285.7	408.50
Mass of Tare, g	92.7	100.50
Moisture Content, %	26.0	20.0

Mass of Total Sample before separation on 3/8" sieve & Tare, g	21640
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	16735

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1727.1	73.90
Mass of Tare	0.0	0.0
Dry Mass, g	1370.6	61.58
% of Total Sample passing Split Sieve	97.2	95.1

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		157.5	1	99
.75"		278.0	2	98
.5"	FINE GRAVEL	423.2	3	97
.375"		463.7	3	97
#4	COARSE SAND	30.0	2	95

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	1.09	93
#20	SAND	2.24	92
#40		3.89	89
#60	FINE SAND	7.04	84
#100		11.56	77
#200	FINES	17.99	67

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:34

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	4
% COARSE GRAVEL	2	% FINE SAND	22
% FINE GRAVEL	3	% FINES	67
% COARSE SAND	2	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	32	% CLAY(<0.002mm)	24

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:36	2	44.0	23.3	0.01317	6.5	37.5	10.2	1.00	0.0297	57.9
11/07/17	14:39	5	40.0	23.3	0.01317	6.5	33.5	10.8	1.00	0.0194	51.7
11/07/17	14:49	15	36.0	23.3	0.01317	6.5	29.5	11.5	1.00	0.0115	45.6
11/07/17	15:04	30	32.0	23.3	0.01317	6.5	25.5	12.1	1.00	0.0084	39.4
11/07/17	15:34	60	29.0	23.3	0.01317	6.5	22.5	12.6	1.00	0.0060	34.7
11/07/17	18:44	250	24.0	23.3	0.01317	6.5	17.5	13.5	1.00	0.0031	27.0
11/08/17	14:34	1440	21.0	23.3	0.01317	6.5	14.5	14.0	1.00	0.0013	22.4

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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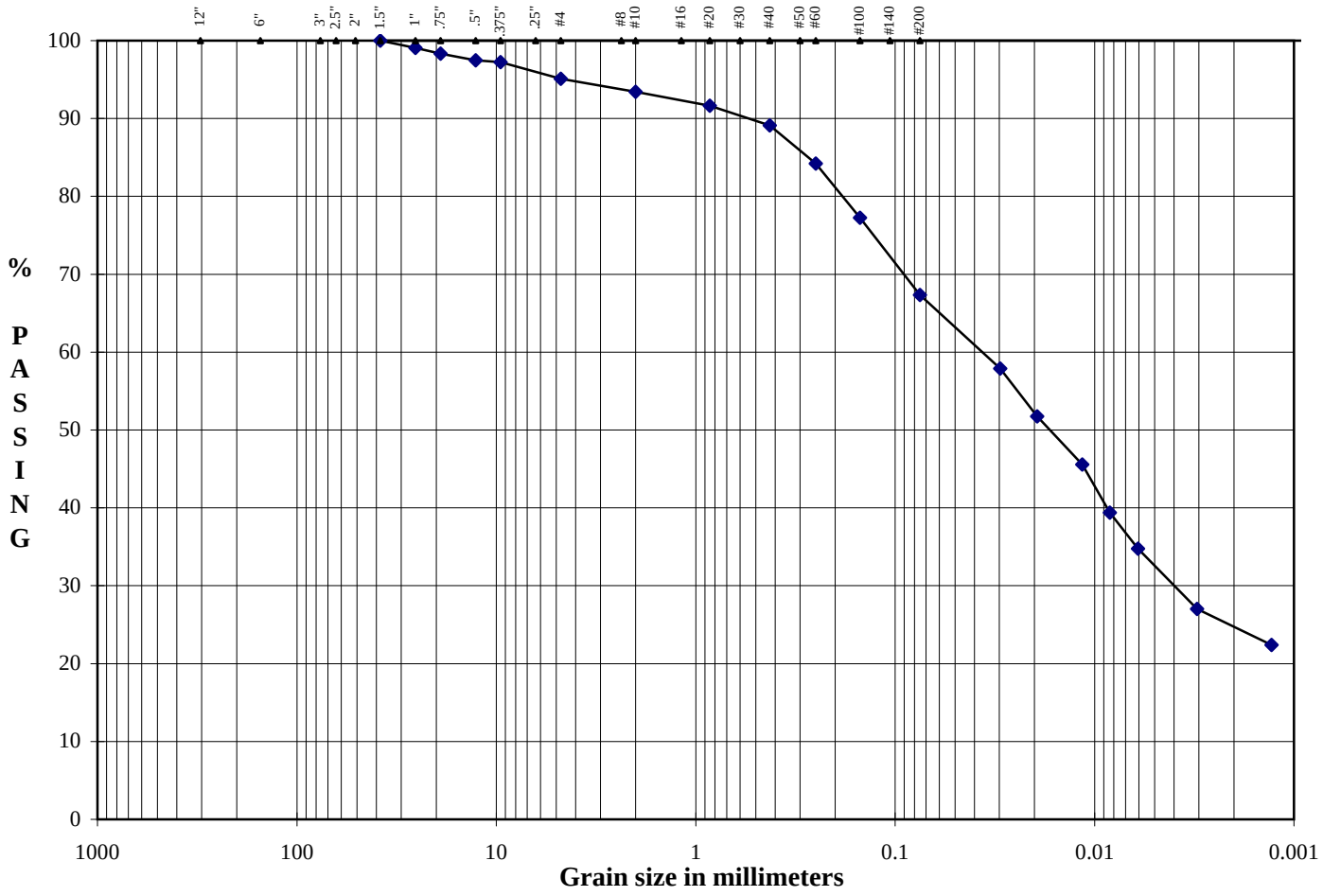
Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Red Sandy Fat Clay

USCS (ASTM D2487; D2488): CH

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/31/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	21640.0	16735.4
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	463.7	463.7
Mass of Mat. Retained on 3/4" sieve, g		

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1313.6	463.7
Mass of Dry Sample & Tare, g	1149.6	463.7
Mass of Tare, g	590.0	0.0
Moisture Content, %	29.3	0.0

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	2.8
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	2.8

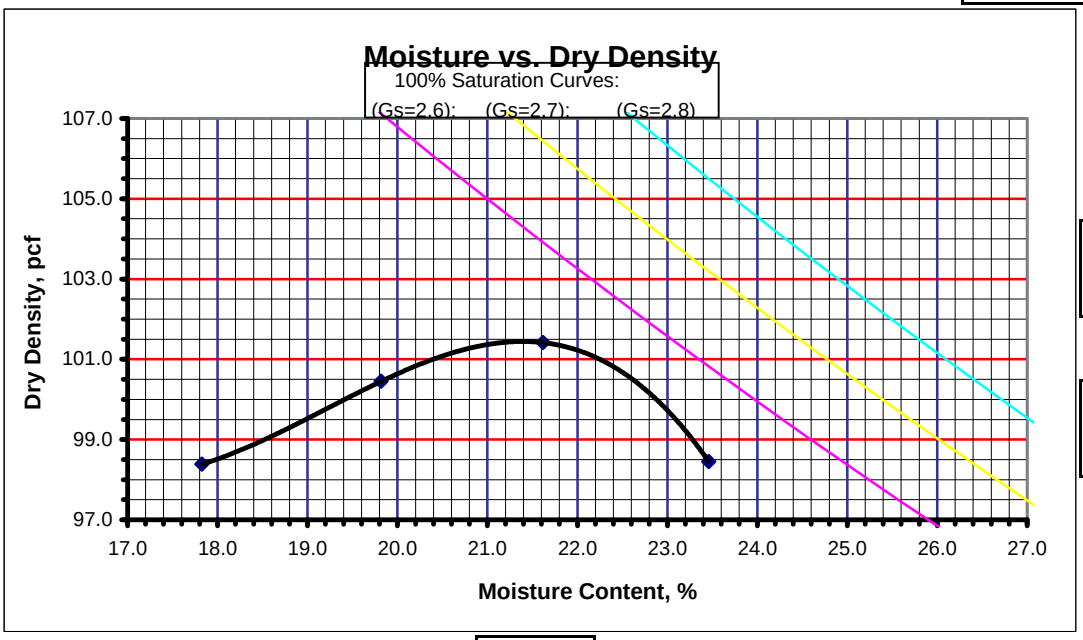
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5943.0	6010.0	6055.0	6028.0	
Mass of Wet Sample & Tare, g	542.5	547.0	584.2	562.3	
Mass of Dry Sample & Tare, g	487.4	476.9	512.8	480.1	
Mass of Tare, g	178.3	123.2	182.5	129.7	
Moisture Content, %	17.8	19.8	21.6	23.5	
Wet Density, pcf	115.9	120.4	123.3	121.6	
Dry Density, pcf	98.4	100.5	101.4	98.5	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Red Sandy Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO M145: NA

Maximum Dry Density, pcf	101.4	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	21.4	**Corrected Optimum Moisture Content, %**	**NA**

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Web: www.test-llc.com

Tested By	NK
Date	11/02/17
Checked By	

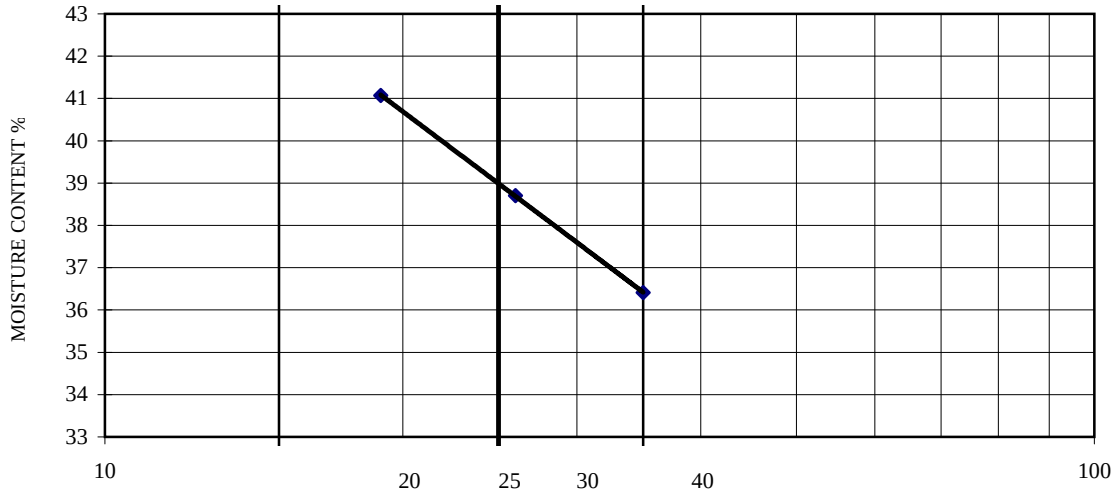
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	35	26	19
Mass of Wet Sample & Tare, g	44.90	39.59	41.88
Mass of Dry Sample & Tare, g	40.56	35.70	37.60
Mass of Tare, g	28.64	25.65	27.18
Moisture Content, %	36.41	38.71	41.07

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	38.17	30.78
Mass of Dry Sample & Tare, g	35.77	29.30
Mass of Tare, g	25.17	22.60
Moisture Content, %	22.64	22.09

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1148.50
Mass of Dry Sample & Tare, g	1020.60
Mass of Tare, g	303.90
Moisture Content, %	17.85

LIQUID LIMIT (LL)	39
PLASTIC LIMIT (PL)	22
PLASTICITY INDEX (PI)	17
LIQUIDITY INDEX (LI)	-0.24

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1148.5
Mass of Dry Sample & Tare, g	1020.6
Mass of Tare, g	303.9
Moisture Content, %	17.8

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	431.4	478.80
Mass of Dry Sample & Tare, g	387.6	431.90
Mass of Tare, g	140.4	94.20
Moisture Content, %	17.7	13.9

Mass of Total Sample before separation on 3/8" sieve & Tare, g	24520
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	20807

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	2197.4	76.00
Mass of Tare	0.0	0.0
Dry Mass, g	1866.7	66.73
% of Total Sample passing Split Sieve	95.5	93.7

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		157.8	1	99
.75"		460.2	2	98
.5"	FINE GRAVEL	797.6	4	96
.375"		933.5	4	96
#4	COARSE SAND	34.9	2	94

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	1.93	91
#20	SAND	4.79	87
#40		7.95	83
#60	FINE SAND	11.65	77
#100		15.19	72
#200	FINES	22.12	63

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:36

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	8
% COARSE GRAVEL	2	% FINE SAND	20
% FINE GRAVEL	4	% FINES	63
% COARSE SAND	3	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	28	% CLAY(<0.002mm)	20

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:38	2	41.0	23.3	0.01317	6.5	34.5	10.7	1.00	0.0304	48.5
11/07/17	14:41	5	37.0	23.3	0.01317	6.5	30.5	11.3	1.00	0.0198	42.8
11/07/17	14:51	15	33.0	23.3	0.01317	6.5	26.5	12.0	1.00	0.0118	37.2
11/07/17	15:06	30	31.0	23.3	0.01317	6.5	24.5	12.3	1.00	0.0084	34.4
11/07/17	15:36	60	28.0	23.3	0.01317	6.5	21.5	12.8	1.00	0.0061	30.2
11/07/17	18:46	250	23.5	23.3	0.01317	6.5	17.0	13.6	1.00	0.0031	23.9
11/08/17	14:36	1440	19.0	23.3	0.01317	6.5	12.5	14.3	1.00	0.0013	17.6

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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SOIL
TESTS, LLC

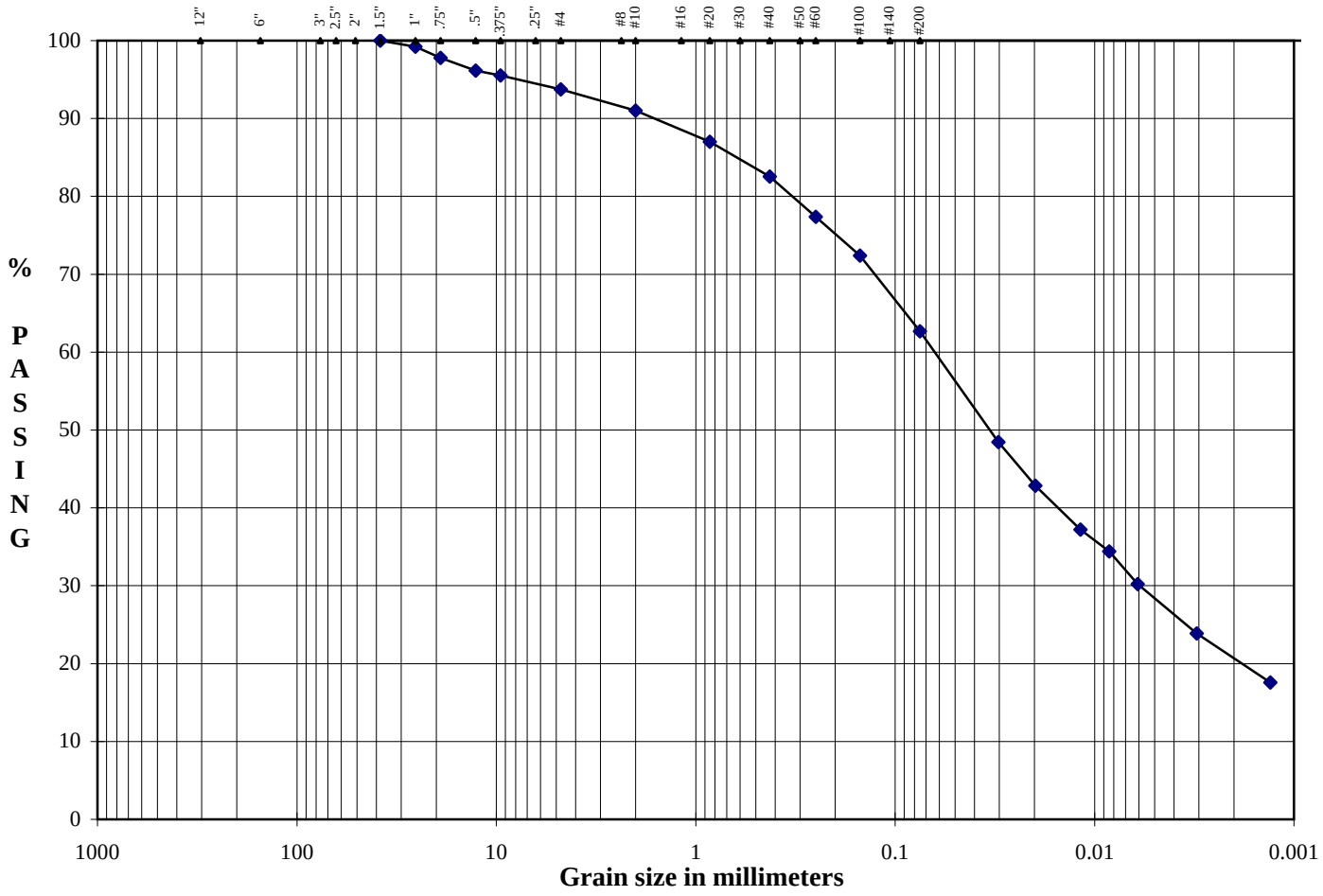
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/31/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	24520.0	20806.9
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	933.5	933.5
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	4.5
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	4.5

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1148.5	933.5
Mass of Dry Sample & Tare, g	1020.6	933.5
Mass of Tare, g	303.9	0.0
Moisture Content, %	17.8	0.0

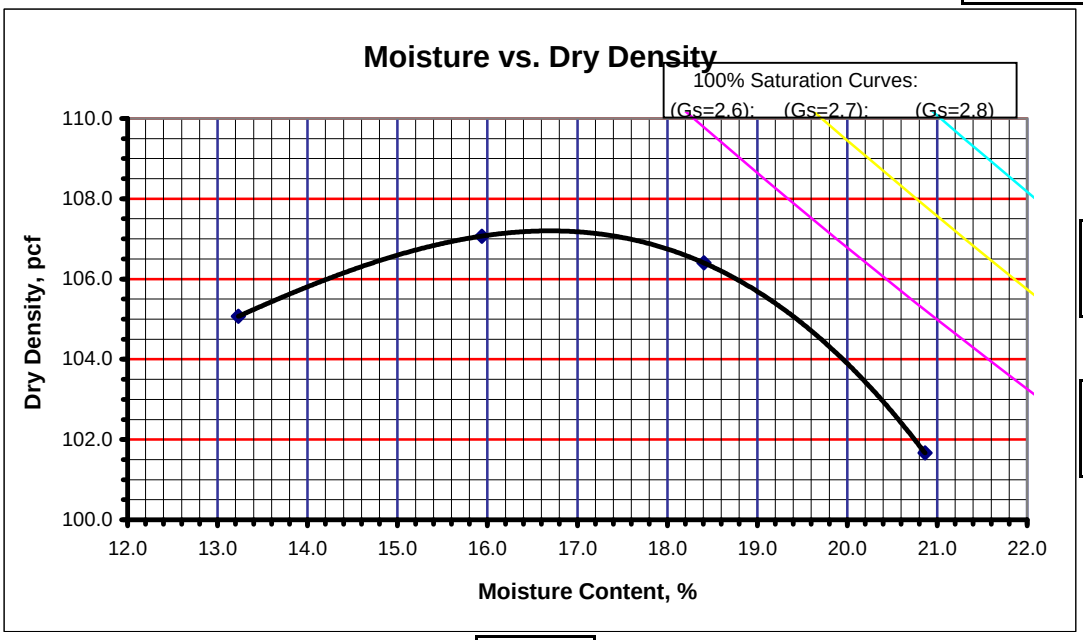
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5989.0	6067.0	6095.0	6048.0	
Mass of Wet Sample & Tare, g	466.7	470.5	466.8	530.5	
Mass of Dry Sample & Tare, g	426.8	423.2	414.1	470.6	
Mass of Tare, g	125.2	126.4	127.8	183.5	
Moisture Content, %	13.2	15.9	18.4	20.9	
Wet Density, pcf	119.0	124.1	126.0	122.9	
Dry Density, pcf	105.1	107.1	106.4	101.7	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

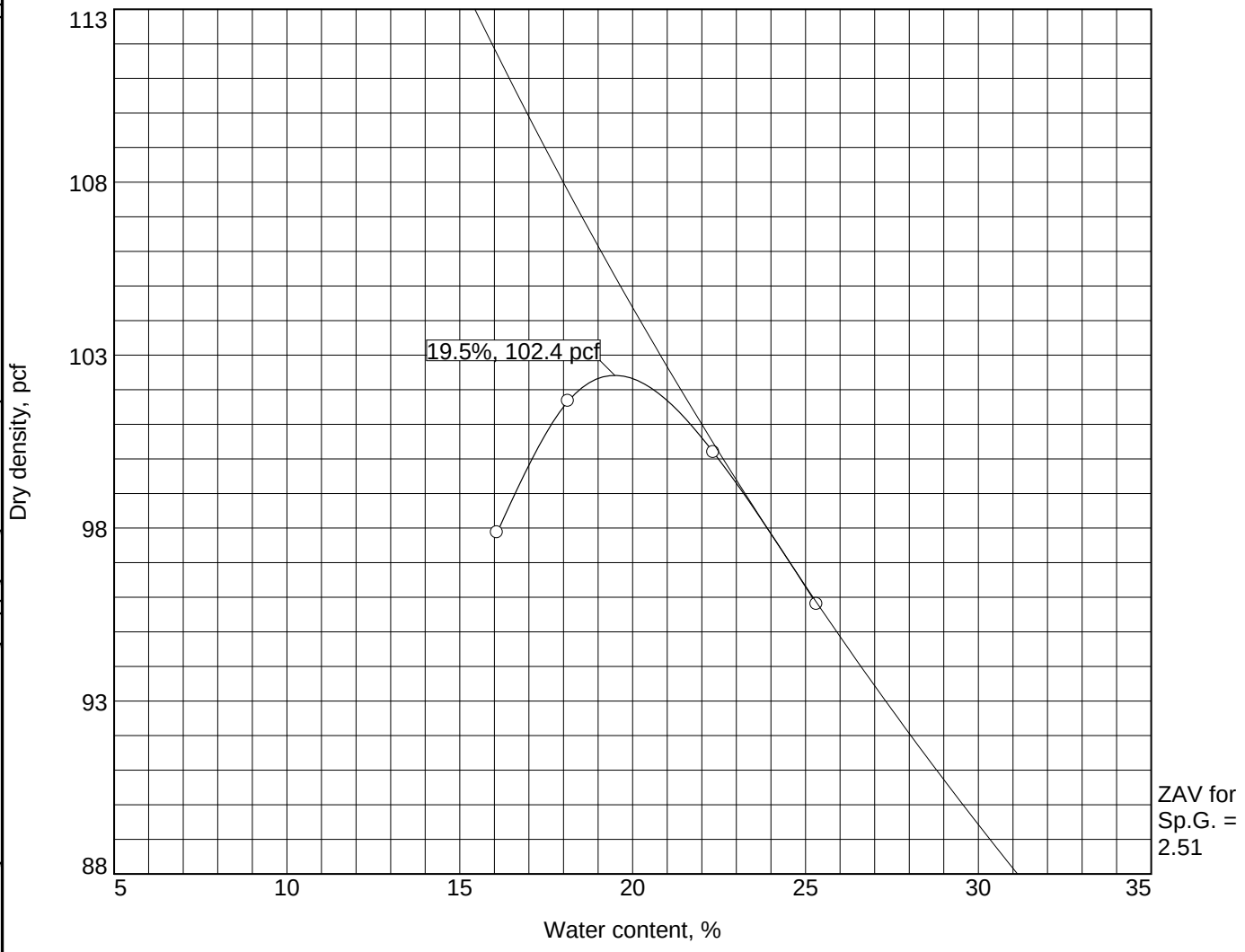
DESCRIPTION
Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488)
CL

AASHTO M145
NA

Maximum Dry Density, pcf	107.3	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	16.7	**Corrected Optimum Moisture Content, %**	**NA**

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	CH	A-7-6(23)	23.6	2.512	52	27	1	80

TEST RESULTS

Maximum dry density = 102.4 pcf

Optimum moisture = 19.5 %

MATERIAL DESCRIPTION

Very stiff, moist, reddish brown, Elastic CLAY (CH)(A-7 5)

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/15/17

○ **Source of Sample:** B-11 **Sample Number:** D4S-1494

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

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Web: www.test-llc.com

Tested By	NK
Date	11/02/17
Checked By	

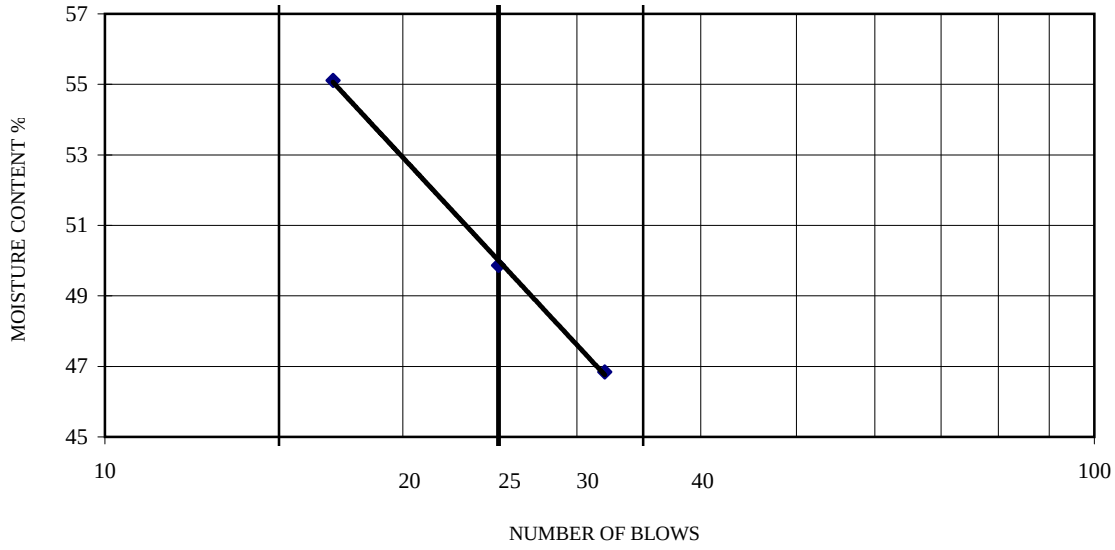
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	25	17
Mass of Wet Sample & Tare, g	37.97	40.81	39.76
Mass of Dry Sample & Tare, g	33.30	35.18	35.45
Mass of Tare, g	23.33	23.89	27.63
Moisture Content, %	46.84	49.87	55.12

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.81	39.53
Mass of Dry Sample & Tare, g	33.13	36.72
Mass of Tare, g	26.19	25.37
Moisture Content, %	24.21	24.76

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1216.50
Mass of Dry Sample & Tare, g	1080.90
Mass of Tare, g	298.80
Moisture Content, %	17.34

LIQUID LIMIT (LL)	50
PLASTIC LIMIT (PL)	24
PLASTICITY INDEX (PI)	26
LIQUIDITY INDEX (LI)	-0.26

DESCRIPTION: Dark Brown Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1216.5
Mass of Dry Sample & Tare, g	1080.9
Mass of Tare, g	298.8
Moisture Content, %	17.3

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	459.8	458.80
Mass of Dry Sample & Tare, g	410.9	422.80
Mass of Tare, g	90.8	107.30
Moisture Content, %	15.3	11.4

Mass of Total Sample before separation on 3/8" sieve & Tare, g	19780
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	16857

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1725.6	77.60
Mass of Tare	0.0	0.0
Dry Mass, g	1496.9	69.65
% of Total Sample passing Split Sieve	99.6	98.9

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"			0	100
1"		0.0	0	100
.75"		11.7	0	100
.5"	FINE GRAVEL	58.7	0	100
.375"		73.4	0	100
#4	COARSE SAND	10.6	1	99

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	0.52	98
#20	SAND	0.95	98
#40		1.42	97
#60	FINE SAND	2.09	96
#100		3.23	94
#200	FINES	7.29	89

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:38

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	1
% COARSE GRAVEL	0	% FINE SAND	8
% FINE GRAVEL	1	% FINES	89
% COARSE SAND	1	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	40	% CLAY(<0.002mm)	33

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:40	2	53.0	23.3	0.01317	6.5	46.5	8.7	1.00	0.0274	66.0
11/07/17	14:43	5	48.0	23.3	0.01317	6.5	41.5	9.5	1.00	0.0181	58.9
11/07/17	14:53	15	43.0	23.3	0.01317	6.5	36.5	10.3	1.00	0.0109	51.8
11/07/17	15:08	30	39.0	23.3	0.01317	6.5	32.5	11.0	1.00	0.0080	46.1
11/07/17	15:38	60	36.0	23.3	0.01317	6.5	29.5	11.5	1.00	0.0058	41.9
11/07/17	18:48	250	32.0	23.3	0.01317	6.5	25.5	12.1	1.00	0.0029	36.2
11/08/17	14:38	1440	28.0	23.3	0.01317	6.5	21.5	12.8	1.00	0.0012	30.5

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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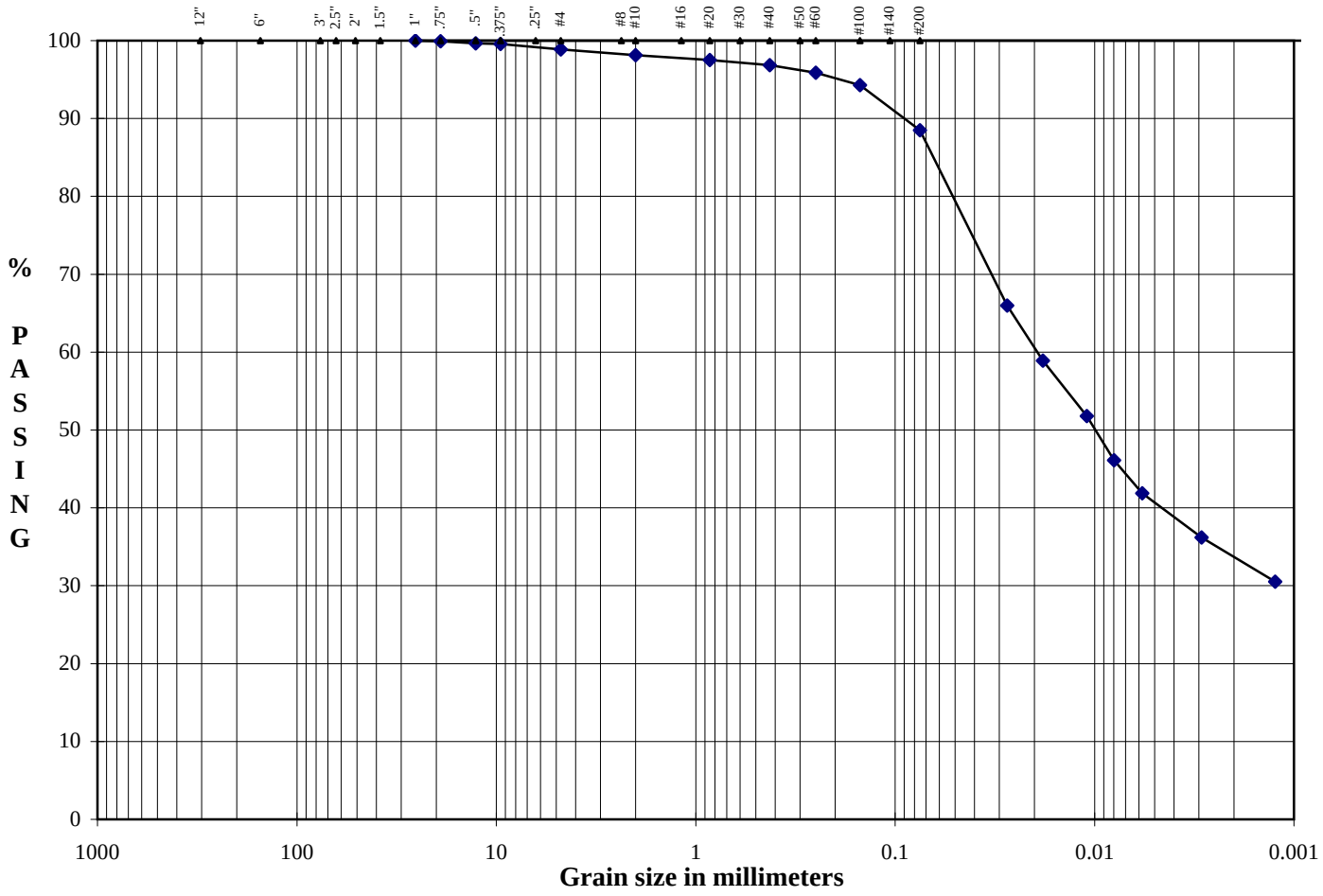
Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Fat Clay

USCS (ASTM D2487; D2488): CH

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/31/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	19780.0	16857.3
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	73.4	73.4
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	1216.5	73.4
Mass of Dry Sample & Tare, g	1080.9	73.4
Mass of Tare, g	298.8	0.0
Moisture Content, %	17.3	0.0

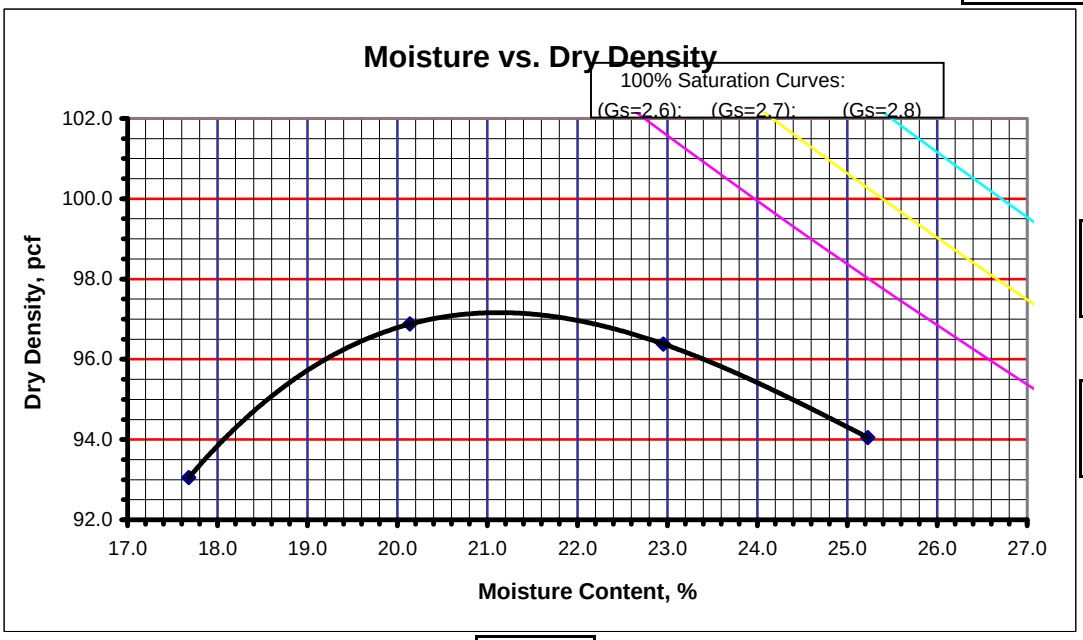
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5846.0	5950.0	5982.0	5971.0	
Mass of Wet Sample & Tare, g	461.0	472.3	476.0	471.1	
Mass of Dry Sample & Tare, g	410.7	414.1	411.2	402.5	
Mass of Tare, g	126.2	125.1	128.9	130.6	
Moisture Content, %	17.7	20.1	23.0	25.2	
Wet Density, pcf	109.5	116.4	118.5	117.8	
Dry Density, pcf	93.0	96.9	96.4	94.0	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO M145: NA

Maximum Dry Density, pcf	97.2	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	21.2	**Corrected Optimum Moisture Content, %**	**NA**

TIMELY ENGINEERING SOIL TESTS, LLC
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Fax: 770-923-8973
Web: www.test-llc.com

Tested By	NK
Date	11/05/17
Checked By	

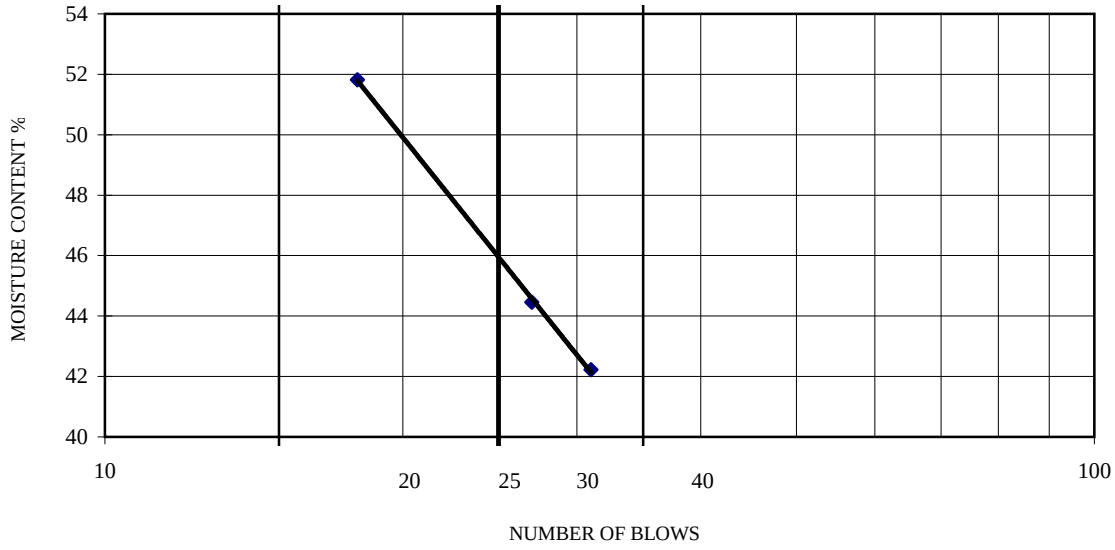
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	31	27	18
Mass of Wet Sample & Tare, g	41.78	39.93	38.45
Mass of Dry Sample & Tare, g	36.76	34.72	33.04
Mass of Tare, g	24.87	23.00	22.60
Moisture Content, %	42.22	44.45	51.82

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	28.72	29.37
Mass of Dry Sample & Tare, g	27.49	28.42
Mass of Tare, g	22.08	24.22
Moisture Content, %	22.74	22.62

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1147.30
Mass of Dry Sample & Tare, g	1088.90
Mass of Tare, g	194.80
Moisture Content, %	6.53

LIQUID LIMIT (LL)	46
PLASTIC LIMIT (PL)	23
PLASTICITY INDEX (PI)	23
LIQUIDITY INDEX (LI)	-0.72

DESCRIPTION: Olive Yellow Clayey Sand

USCS (ASTM D2487; D2488): SC

AASHTO (M 145): NA

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	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1147.3
Mass of Dry Sample & Tare, g	1088.9
Mass of Tare, g	194.8
Moisture Content, %	6.5

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	521.7	507.00
Mass of Dry Sample & Tare, g	491.2	483.40
Mass of Tare, g	95.5	94.70
Moisture Content, %	7.7	6.1

Mass of Total Sample before separation on 3/8" sieve & Tare, g	23980.0
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	22510

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	2234.4	79.80
Mass of Tare	0.0	0.0
Dry Mass, g	2074.5	75.23
% of Total Sample passing Split Sieve	93.2	89.4

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE	0.0	0	100
2"	GRAVEL	526.3	2	98
1.5"		1125.0	5	95
1"		1436.4	6	94
.75"		1537.3	7	93
.5"	FINE GRAVEL	1537.3	7	93
.375"		1538.6	7	93
#4	COARSE SAND	84.2	4	89

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	7.50	80
#20	SAND	14.94	72
#40		20.43	65
#60	FINE SAND	25.48	59
#100		29.40	54
#200	FINES	34.23	49

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:40

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	15
% COARSE GRAVEL	7	% FINE SAND	16
% FINE GRAVEL	4	% FINES	49
% COARSE SAND	9	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	15	% CLAY(<0.002mm)	8

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:42	2	41.0	23.3	0.01317	6.5	34.5	10.7	1.00	0.0304	41.0
11/07/17	14:45	5	38.0	23.3	0.01317	6.5	31.5	11.2	1.00	0.0197	37.4
11/07/17	14:55	15	32.0	23.3	0.01317	6.5	25.5	12.1	1.00	0.0119	30.3
11/07/17	15:10	30	26.0	23.3	0.01317	6.5	19.5	13.1	1.00	0.0087	23.2
11/07/17	15:40	60	22.0	23.3	0.01317	6.5	15.5	13.8	1.00	0.0063	18.4
11/07/17	18:50	250	15.5	23.3	0.01317	6.5	9.0	14.9	1.00	0.0032	10.7
11/08/17	14:40	1440	12.0	23.3	0.01317	6.5	5.5	15.5	1.00	0.0014	6.5

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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TESTS, LLC

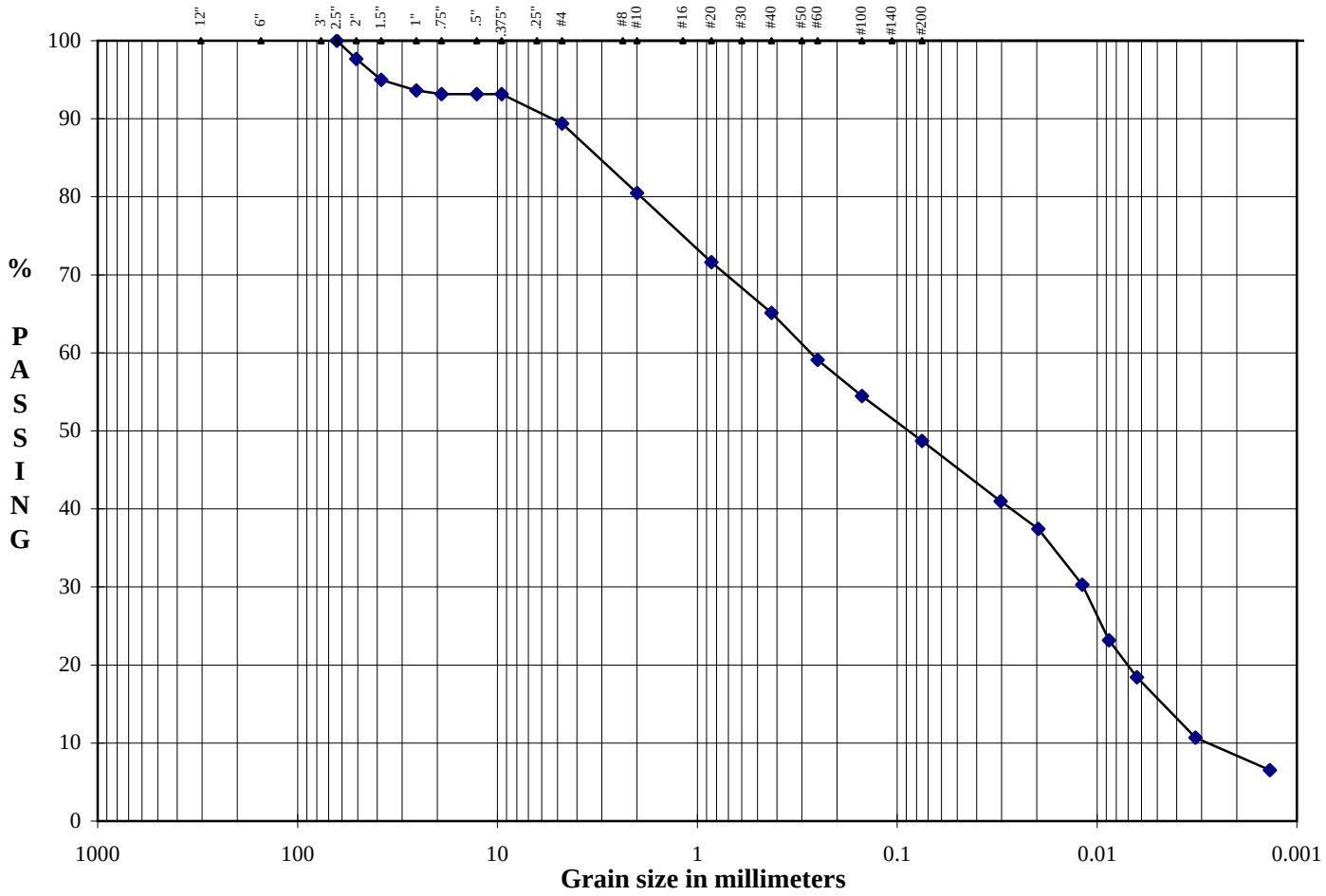
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Yellow Clayey Sand

USCS (ASTM D2487; D2488): SC

Project's Specific % Passing	NA
Project's Specific Particle Size, mm	NA

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Tested By	RI
Date	10/31/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	23980.0	22509.7
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1538.6	1538.6
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	6.8
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	6.8

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1147.3	1538.6
Mass of Dry Sample & Tare, g	1088.9	1538.6
Mass of Tare, g	194.8	0.0
Moisture Content, %	6.5	0.0

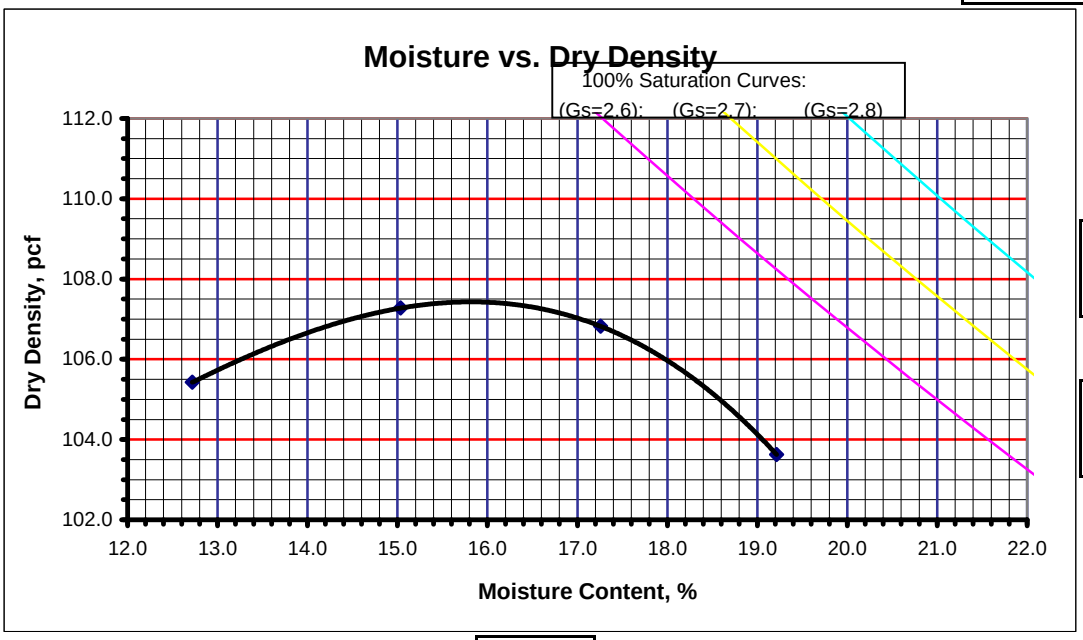
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5987.0	6056.0	6084.0	6058.0	
Mass of Wet Sample & Tare, g	480.3	524.3	475.1	457.9	
Mass of Dry Sample & Tare, g	440.5	478.7	424.1	404.1	
Mass of Tare, g	127.6	175.4	128.6	124.1	
Moisture Content, %	12.7	15.0	17.3	19.2	
Wet Density, pcf	118.8	123.4	125.3	123.5	
Dry Density, pcf	105.4	107.3	106.8	103.6	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

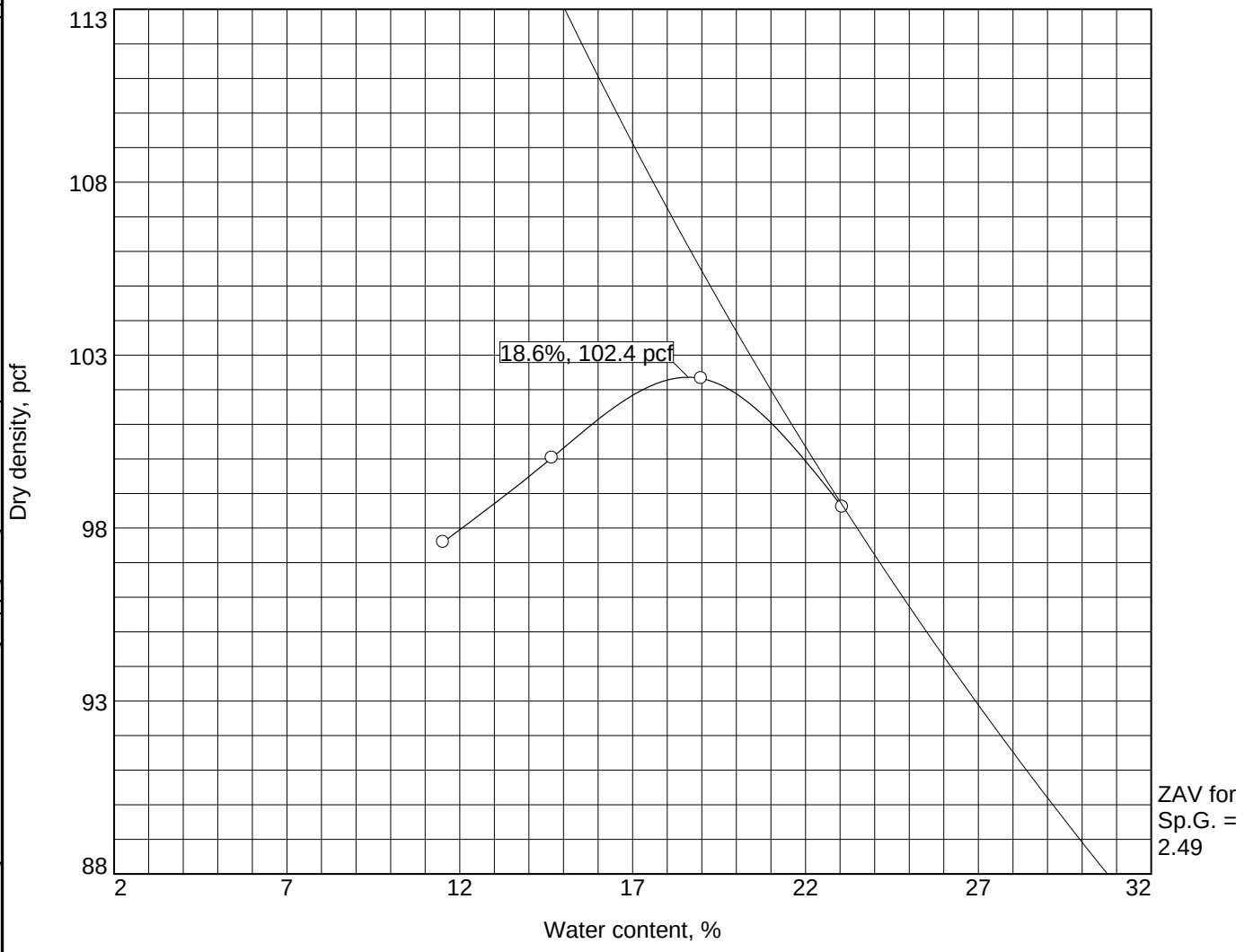
DESCRIPTION
Olive Yellow Clayey Sand

USCS (ASTM D2487; D2488): SC

AASHTO M145: NA

Maximum Dry Density, pcf	107.4	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	15.9	**Corrected Optimum Moisture Content, %**	**NA**

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	ML	A-4(3)	15.6	2.487	35	7	4	59

TEST RESULTS

Maximum dry density = 102.4 pcf

Optimum moisture = 18.6 %

MATERIAL DESCRIPTION

Stiff, moist, orangish gray to brown, Sandy SILT (ML) (A-4) with trace gravel

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/17/17

○ **Source of Sample:** B-16 **Sample Number:** D4S-1503

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AW

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

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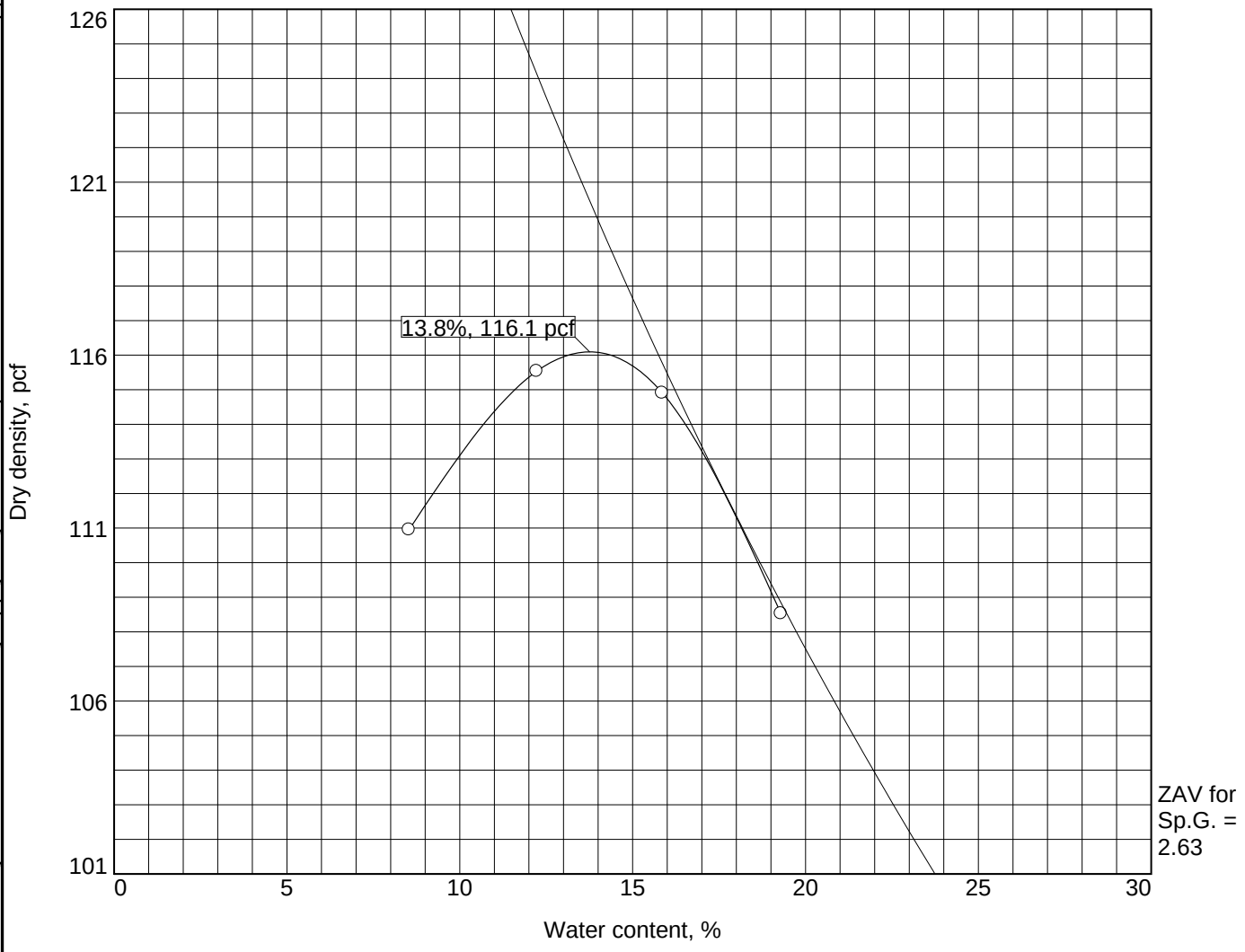
COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	MH		7.4	2.627				

TEST RESULTS

Maximum dry density = 116.1 pcf

Optimum moisture = 13.8 %

MATERIAL DESCRIPTION

Medium Dense, moist, tan to dark brown, Elastic SILT (MH)(A-7-5)

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/14/

○ **Source of Sample:** B-17 **Sample Number:** D4S-1495

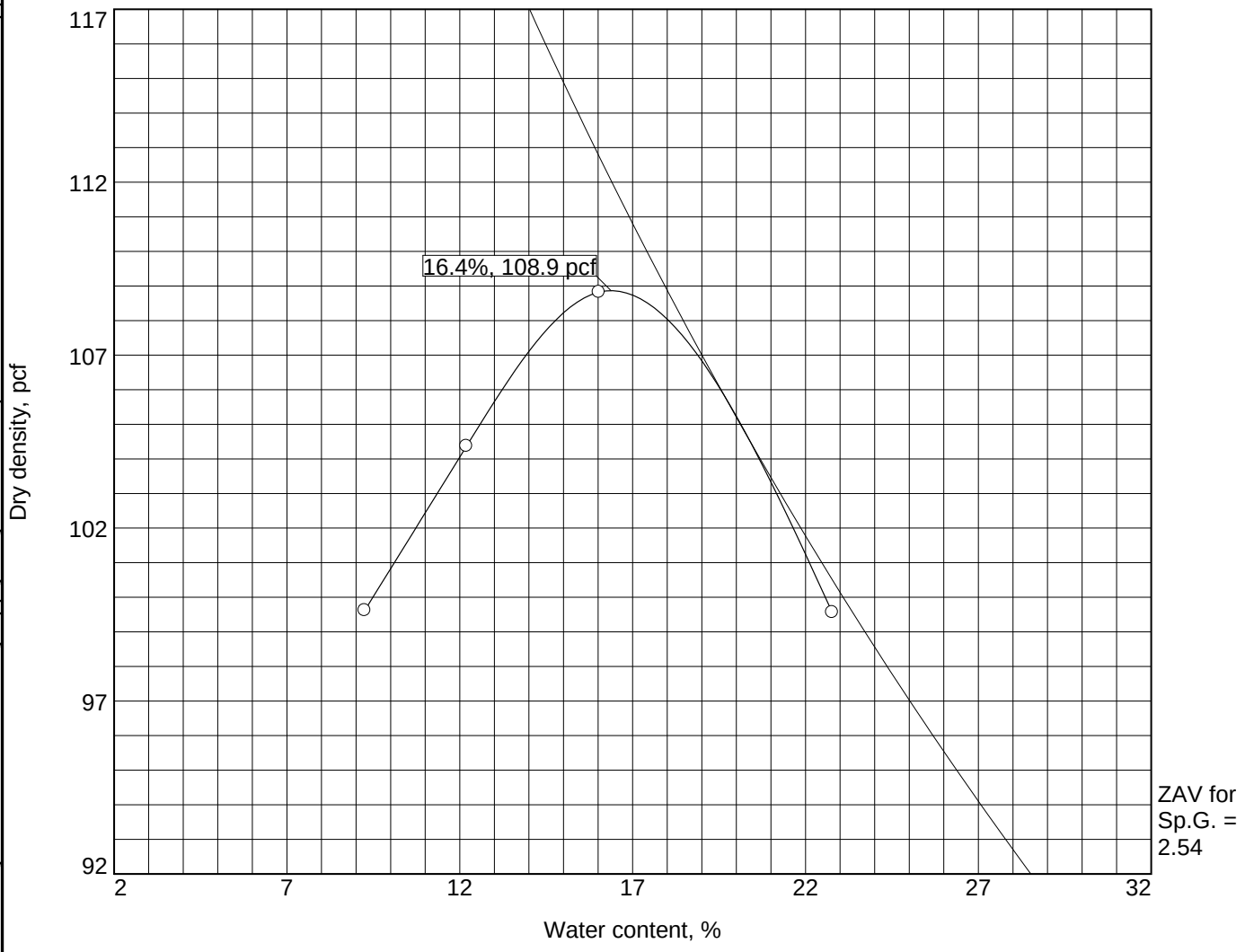
Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AS

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	CL	A-6(6)	12.4	2.542	36	15	6	56

TEST RESULTS

Maximum dry density = 108.9 pcf

Optimum moisture = 16.4 %

MATERIAL DESCRIPTION

Stiff to very stiff, moist, orangish tan to brown, Sandy CLAY (CL) (A-6) with trace gravel

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/16/17

○ **Source of Sample:** B-21 **Sample Number:** D4S-1496

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AW

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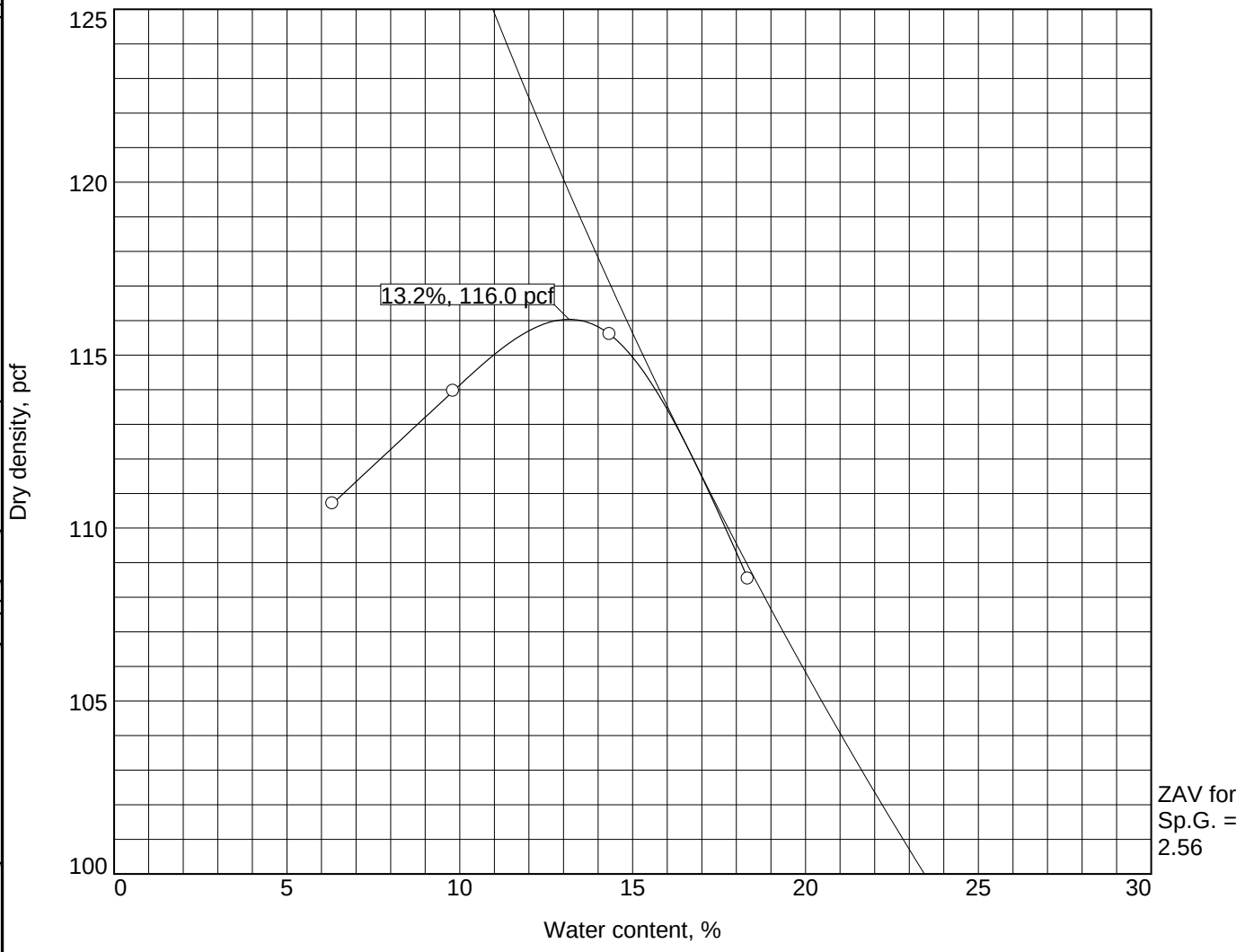
COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	ML	A-4(4)	14.6	2.565	31	7	0	74

TEST RESULTS

Maximum dry density = 116.0 pcf

Optimum moisture = 13.2 %

MATERIAL DESCRIPTION

Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML)(A-4)

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 10/26/17

○ **Source of Sample:** C-1 **Sample Number:** D4S-1500

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AW

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

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Web: www.test-llc.com

Tested By	NK
Date	11/05/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	33	24	18
Mass of Wet Sample & Tare, g	39.04	39.58	37.26
Mass of Dry Sample & Tare, g	35.06	35.43	32.86
Mass of Tare, g	24.54	24.81	21.97
Moisture Content, %	37.83	39.08	40.40

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569

PLASTIC LIMIT

Mass of Wet Sample & Tare, g	39.55	35.01
Mass of Dry Sample & Tare, g	37.77	33.57
Mass of Tare, g	28.67	26.28
Moisture Content, %	19.56	19.75

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	351.10
Mass of Dry Sample & Tare, g	303.90
Mass of Tare, g	89.20
Moisture Content, %	21.98

LIQUID LIMIT (LL)	39
PLASTIC LIMIT (PL)	20
PLASTICITY INDEX (PI)	19
LIQUIDITY INDEX (LI)	0.10

DESCRIPTION: Olive Brown Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	EB
Date	11/05/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

As-Received Moisture Content

Mass of Wet Sample & Tare, g	351.10
Mass of Dry Sample & Tare, g	303.90
Mass of Tare, g	89.20
Moisture Content, %	22.0

Moisture Content of Material Used for Hydrometer Analysis

Mass of Wet Sample & Tare, g	469.90
Mass of Dry Sample & Tare, g	468.00
Mass of Tare, g	128.60
Moisture Content, %	0.6

Mass of Total Sample before separation on #4 sieve & Tare, g	1004.50
Mass of Tare, g	0.00
Total Mass of Dry Sample, g	998.91

Mass of Sample used for hydrometer analysis, g	79.60
Dry Mass, g	79.16
% of Total Sample passing #4 sieve	99.3

SIEVE ANALYSIS

PORTION OF SAMPLE RETAINED ON #4 SIEVE

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	%PASSING
12"	COBBLES		0.0	100.0
3"			0.0	100.0
2.5"	COARSE		0.0	100.0
2"	GRAVEL		0.0	100.0
1.5"			0.0	100.0
1"			0.0	100.0
.75"			0.0	100.0
.5"	FINE GRAVEL		0.0	100.0
.375"		0.00	0.0	100.0
#4	COARSE SAND	7.35	0.7	99.3

PORTION OF SAMPLE PASSING #4 SIEVE (Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING
#10	MEDIUM	2.03	96.7
#20	SAND	3.40	95.0
#40		4.37	93.8
#60	FINE SAND	5.62	92.2
#100		6.89	90.6
#200	FINES	10.60	86.0

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.700
Specific Gravity (tested)	
Starting time	14:00

PARTICLE-SIZE ANALYSIS

% COBBLES	0.0	% MEDIUM SAND	2.9
% COARSE GRAVEL	0.0	% FINE SAND	7.8
% FINE GRAVEL	0.7	% FINES	86.0
% COARSE SAND	2.5	% TOTAL SAMPLE	100.0
% CLAY(<0.005mm)	25.6	% CLAY(<0.002mm)	19.4

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:02	2	58.0	22.0	0.01312	6.5	51.5	7.8	0.99	0.0260	63.9
11/06/17	14:05	5	48.0	22.0	0.01312	6.5	41.5	9.5	0.99	0.0181	51.5
11/06/17	14:15	15	38.0	22.0	0.01312	6.5	31.5	11.2	0.99	0.0113	39.1
11/06/17	14:30	30	33.0	22.0	0.01312	6.5	26.5	12.0	0.99	0.0083	32.9
11/06/17	15:00	60	28.5	22.0	0.01312	6.5	22.0	12.7	0.99	0.0060	27.3
11/06/17	18:10	250	24.5	22.0	0.01312	6.5	18.0	13.4	0.99	0.0030	22.3
11/07/17	14:00	1440	20.5	22.0	0.01312	6.5	14.0	14.1	0.99	0.0013	17.4

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY ENGINEERING SOIL TESTS, LLC

1874 Forge Street Tucker, GA 30084

Phone: 770-938-8233

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Web: www.test-llc.com

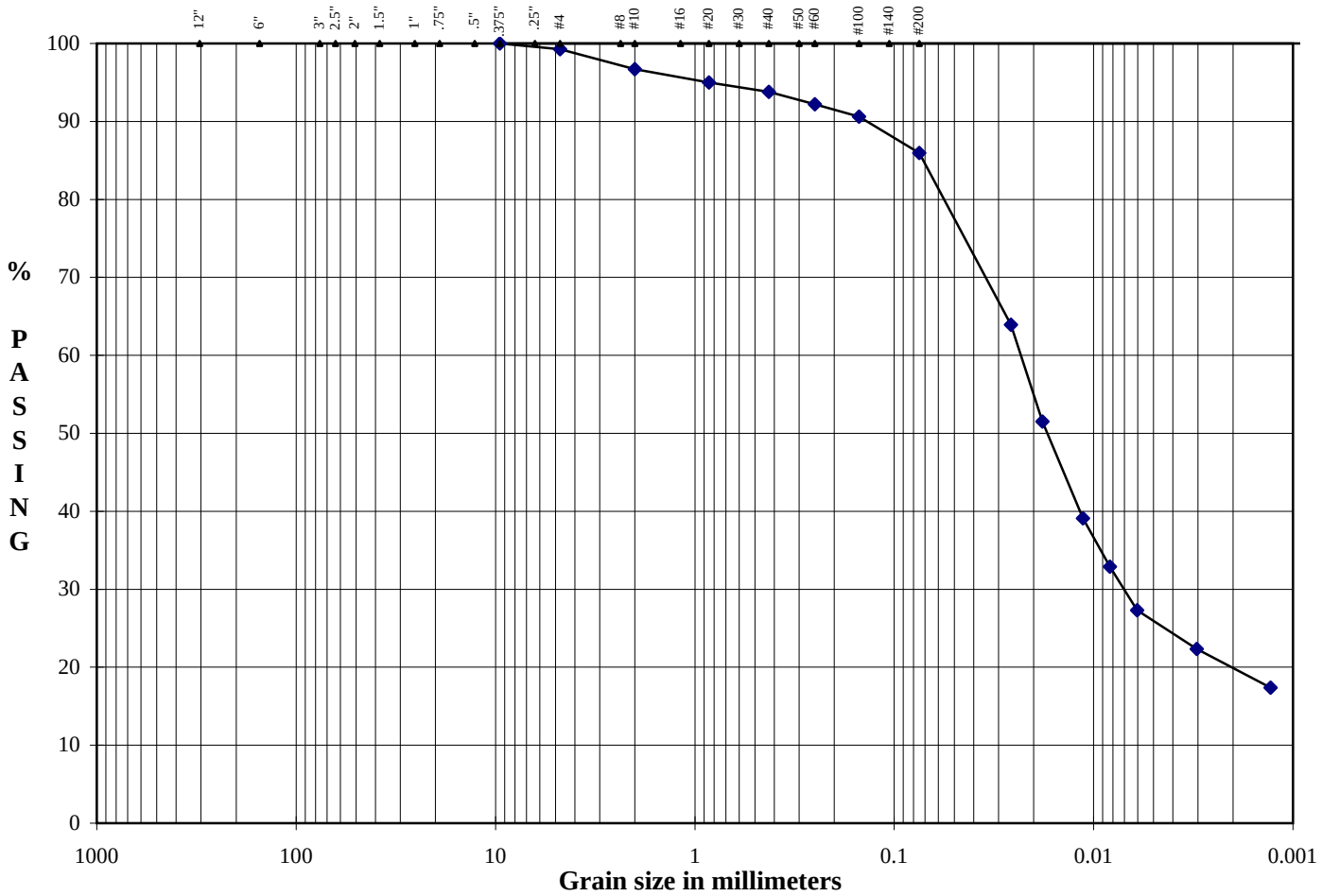
Tested By	EB
Date	11/05/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26132/ST-2	Depth/Elev.	15'
Location	C-1	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Brown Lean Clay

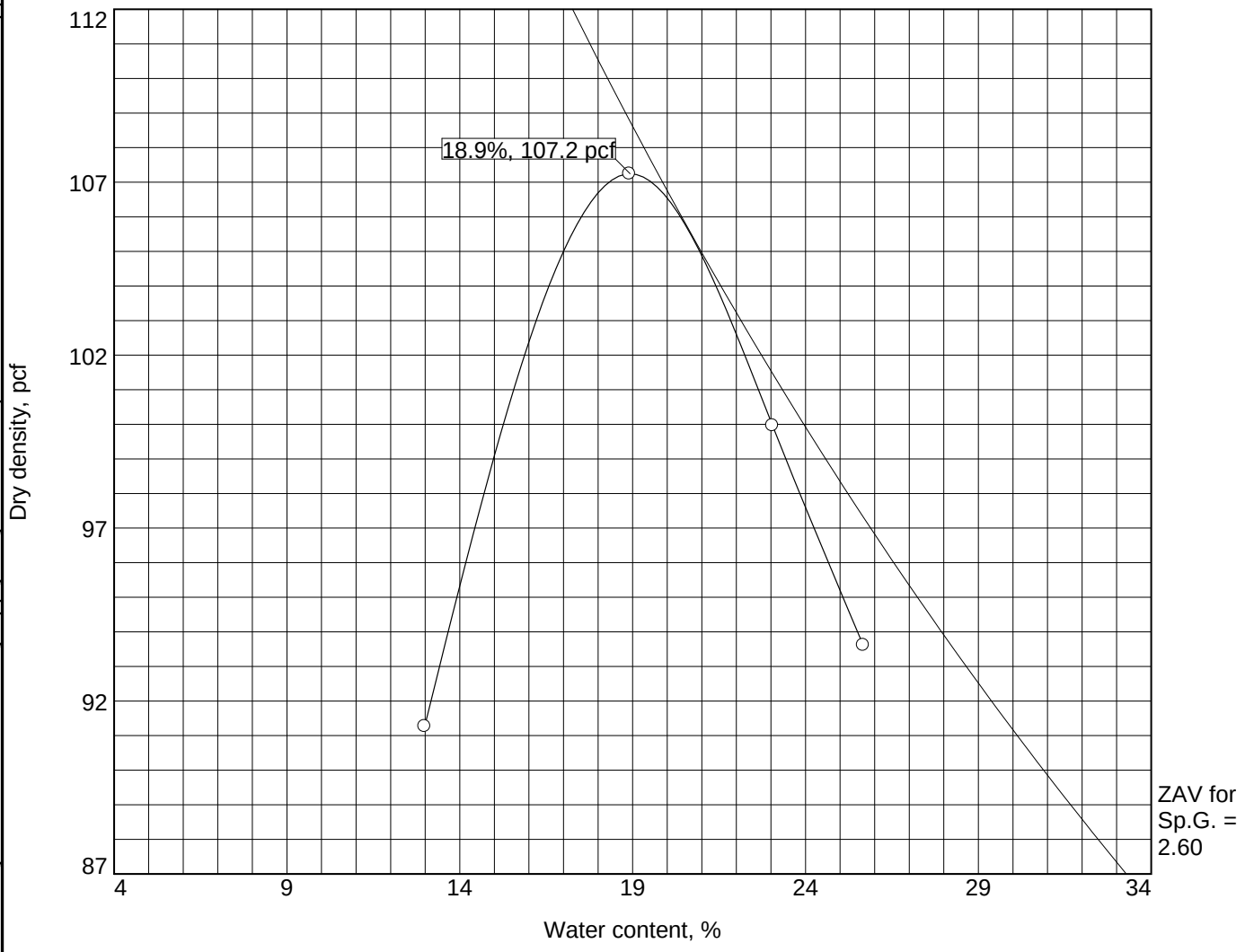
USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	ML	A-6(10)	15.4	2.599	40	14	11	73

TEST RESULTS

Maximum dry density = 107.2 pcf

Optimum moisture = 18.9 %

MATERIAL DESCRIPTION

Medium stiff to stiff, moist, dark brown to brown, Sandy SILT (ML)(A-6) with trace gravel

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/10/17

○ **Source of Sample:** C-2 **Sample Number:** D4S-1501

Remarks:

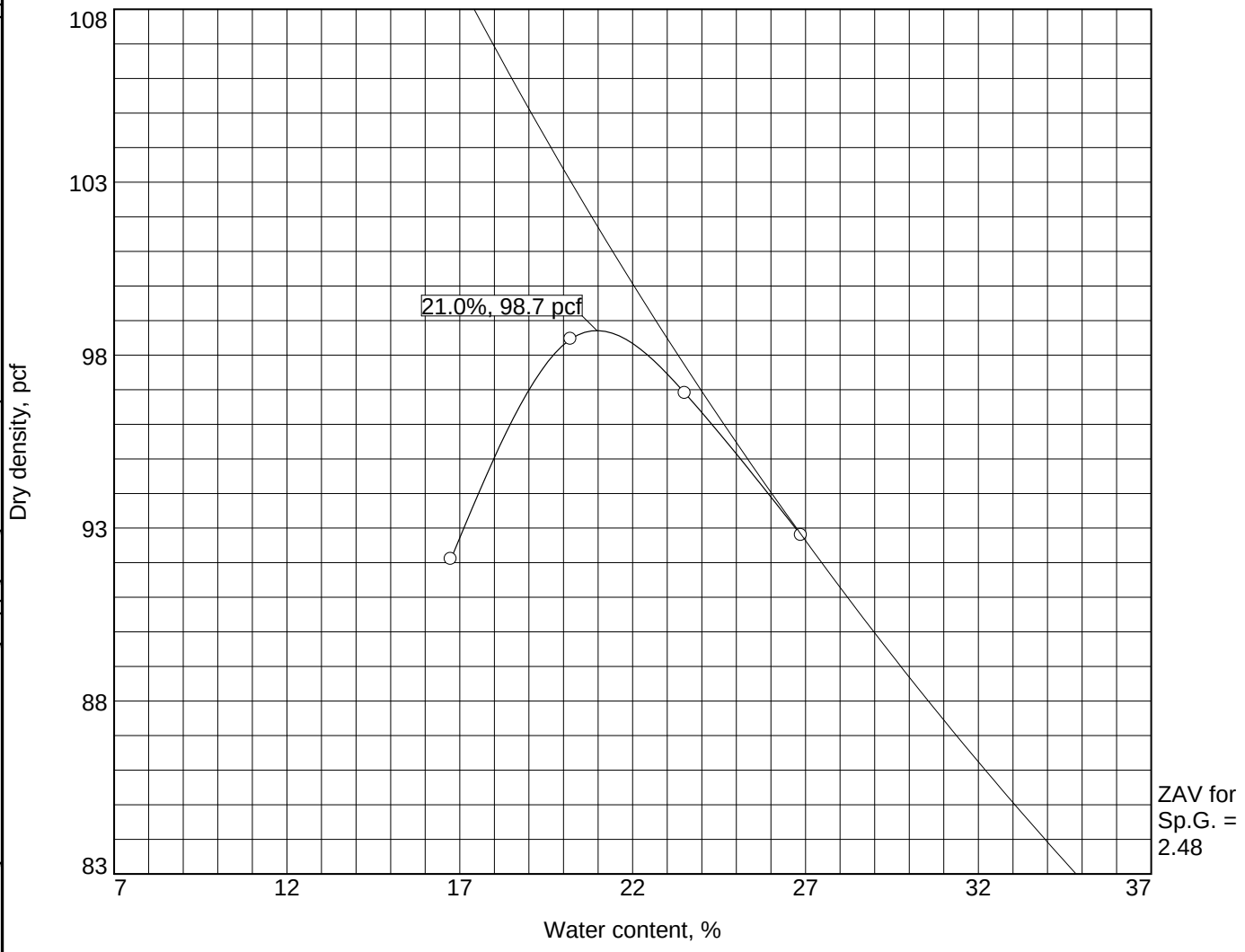
ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AW

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	CH	A-7-5(32)	14.1	2.476	62	31	3	88

TEST RESULTS

Maximum dry density = 98.7 pcf

Optimum moisture = 21.0 %

MATERIAL DESCRIPTION

Very stiff to hard, moist, reddish brown to tannish brown, Plastic CLAY (CH)(A-7-5)

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/7/2017

○ **Source of Sample:** C-6 **Sample Number:** D4S-1502

Remarks:

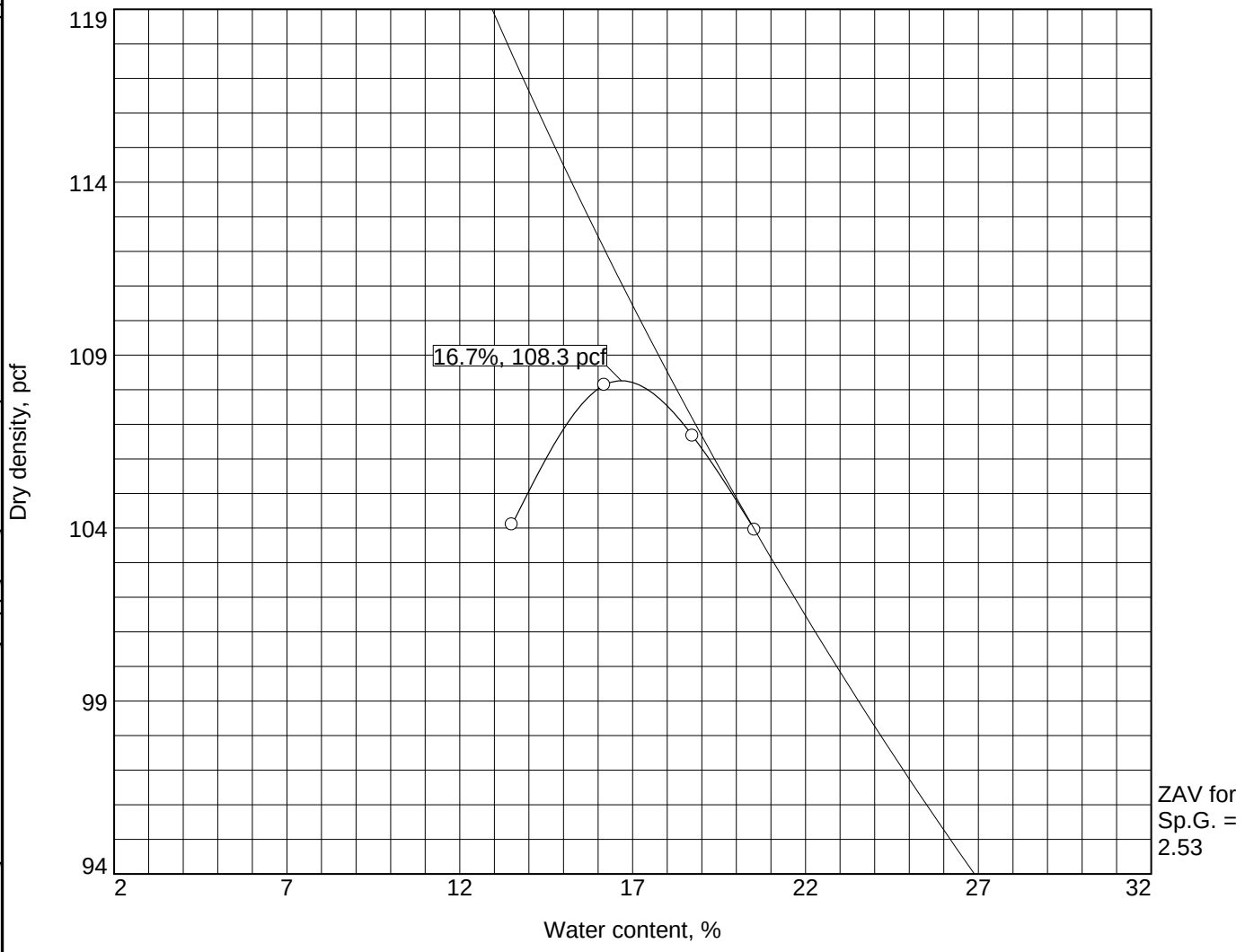
ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AW

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	CL	A-7-6(23)	12.5	2.530	49	27	1	83

TEST RESULTS

Maximum dry density = 108.3 pcf

Optimum moisture = 16.7 %

MATERIAL DESCRIPTION

Stiff, moist, orangish brown, Sandy CLAY (CL)(A-7-6) with trace roots

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/13/17

○ **Source of Sample:** P-11 **Sample Number:** D4S-1497

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AS

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	NK
Date	11/02/17
Checked By	

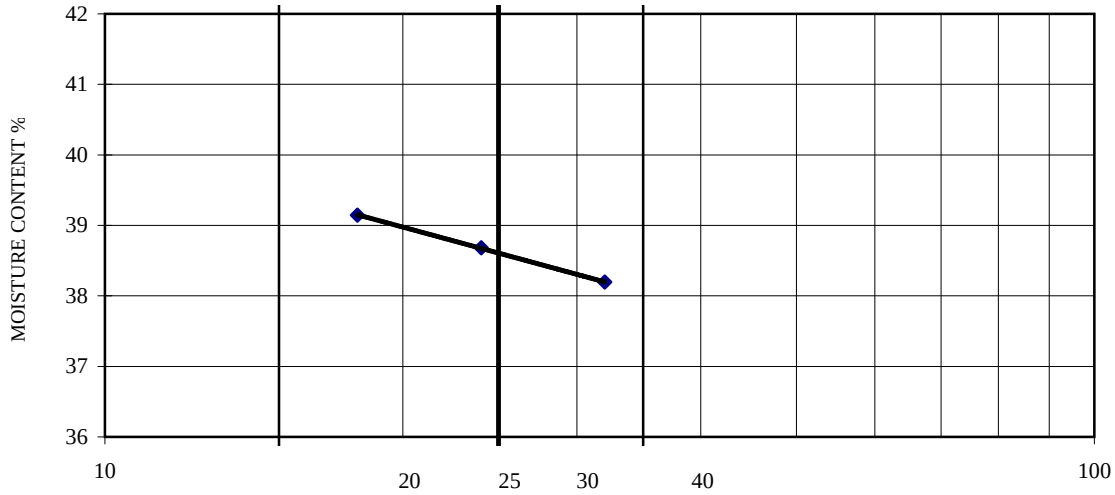
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	24	18
Mass of Wet Sample & Tare, g	34.68	41.50	37.02
Mass of Dry Sample & Tare, g	30.83	37.04	32.89
Mass of Tare, g	20.75	25.51	22.34
Moisture Content, %	38.19	38.68	39.15

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.23	36.64
Mass of Dry Sample & Tare, g	32.38	34.30
Mass of Tare, g	24.65	24.31
Moisture Content, %	23.93	23.42

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	892.60
Mass of Dry Sample & Tare, g	781.00
Mass of Tare, g	194.80
Moisture Content, %	19.04

LIQUID LIMIT (LL)	39
PLASTIC LIMIT (PL)	24
PLASTICITY INDEX (PI)	15
LIQUIDITY INDEX (LI)	-0.33

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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	EB
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	892.6
Mass of Dry Sample & Tare, g	781.0
Mass of Tare, g	194.8
Moisture Content, %	19.0

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	326.0	353.00
Mass of Dry Sample & Tare, g	305.9	336.30
Mass of Tare, g	84.6	86.70
Moisture Content, %	9.1	6.7

Mass of Total Sample before separation on 3/8" sieve & Tare, g	23100
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	19406

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1084.6	74.70
Mass of Tare	0.0	0.0
Dry Mass, g	994.3	70.02
% of Total Sample passing Split Sieve	89.9	87.7

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL	0.0	0	100
1.5"		312.6	2	98
1"		872.0	4	96
.75"		1288.4	7	93
.5"	FINE GRAVEL	1764.7	9	91
.375"		1960.4	10	90
#4	COARSE SAND	24.3	2	88

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.36	85
#20	SAND	4.27	82
#40		6.09	80
#60	FINE SAND	9.08	76
#100		13.20	71
#200	FINES	21.98	60

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:08

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	5
% COARSE GRAVEL	7	% FINE SAND	20
% FINE GRAVEL	6	% FINES	60
% COARSE SAND	3	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	21	% CLAY(<0.002mm)	14

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:10	2	40.0	22.5	0.01317	6.5	33.5	10.8	1.00	0.0306	42.0
11/06/17	14:13	5	37.0	22.5	0.01317	6.5	30.5	11.3	1.00	0.0198	38.2
11/06/17	14:23	15	31.0	22.5	0.01317	6.5	24.5	12.3	1.00	0.0119	30.7
11/06/17	14:38	30	27.0	22.5	0.01317	6.5	20.5	13.0	1.00	0.0087	25.7
11/06/17	15:08	60	25.0	22.5	0.01317	6.5	18.5	13.3	1.00	0.0062	23.2
11/06/17	18:18	250	21.0	22.5	0.01317	6.5	14.5	14.0	1.00	0.0031	18.2
11/07/17	14:08	1440	16.0	22.5	0.01317	6.5	9.5	14.8	1.00	0.0013	11.9

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY
ENGINEERING
SOIL
TESTS, LLC

1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

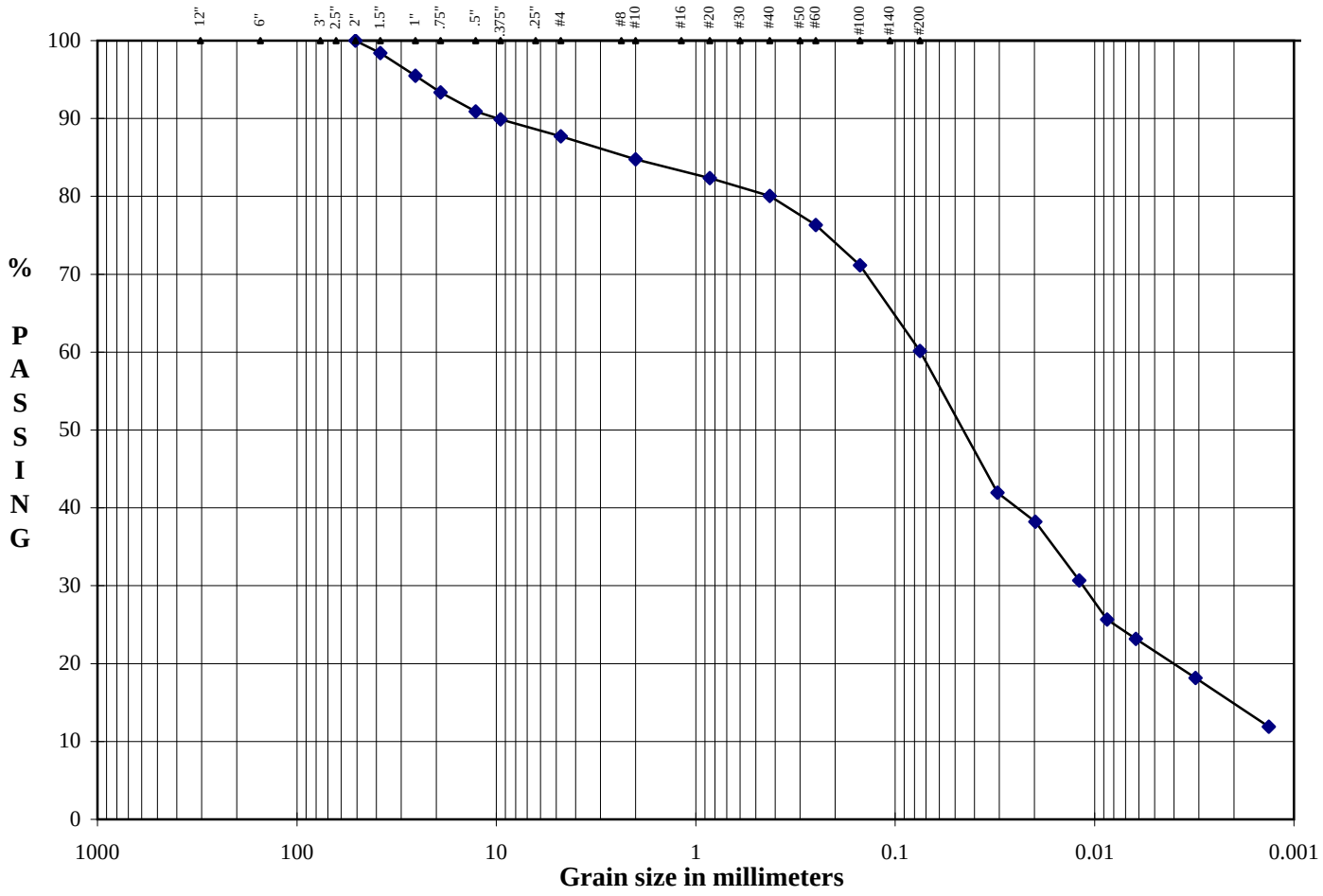
Tested By	EB
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing	NA
Project's Specific Particle Size, mm	NA

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	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26137/BS-1	Depth/Elev.	-
Location	P-43	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	23100.0	19405.6
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1960.4	1960.4
Mass of Mat. Retained on 3/4" sieve, g		

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	892.6	1960.4
Mass of Dry Sample & Tare, g	781.0	1960.4
Mass of Tare, g	194.8	0.0
Moisture Content, %	19.0	0.0

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	10.1
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	10.1

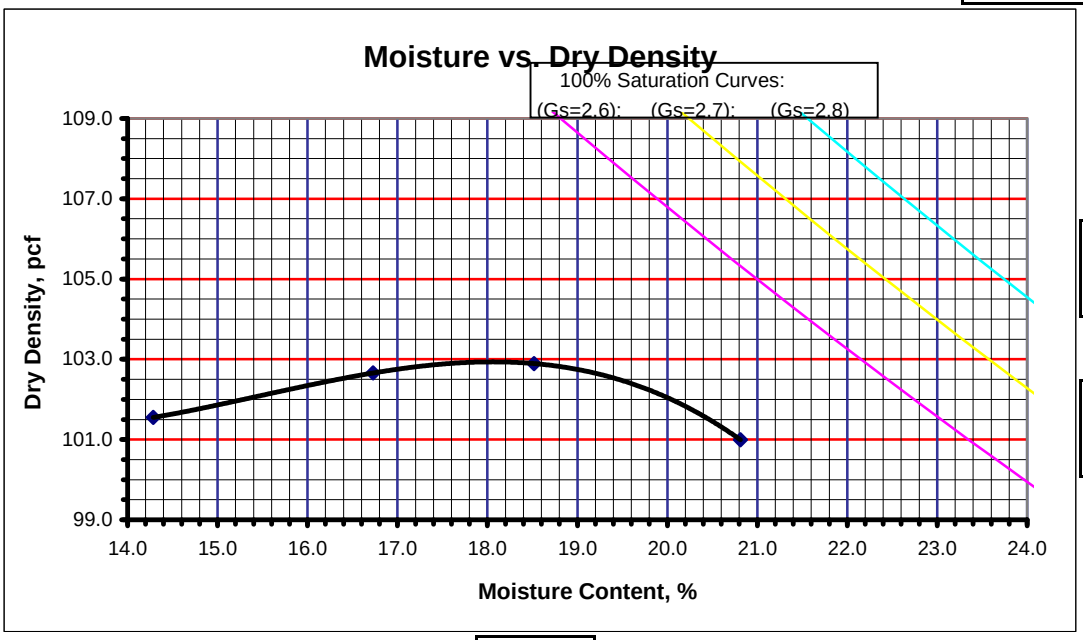
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5945.0	6002.0	6034.0	6035.0	
Mass of Wet Sample & Tare, g	544.0	570.5	593.0	567.8	
Mass of Dry Sample & Tare, g	493.3	515.0	529.0	500.1	
Mass of Tare, g	138.4	183.2	183.4	174.8	
Moisture Content, %	14.3	16.7	18.5	20.8	
Wet Density, pcf	116.1	119.8	121.9	122.0	
Dry Density, pcf	101.5	102.7	102.9	101.0	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488)
CL

AASHTO M145
NA

Maximum Dry Density, pcf	103.0	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	18.2	**Corrected Optimum Moisture Content, %**	**NA**

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	NK
Date	11/02/17
Checked By	

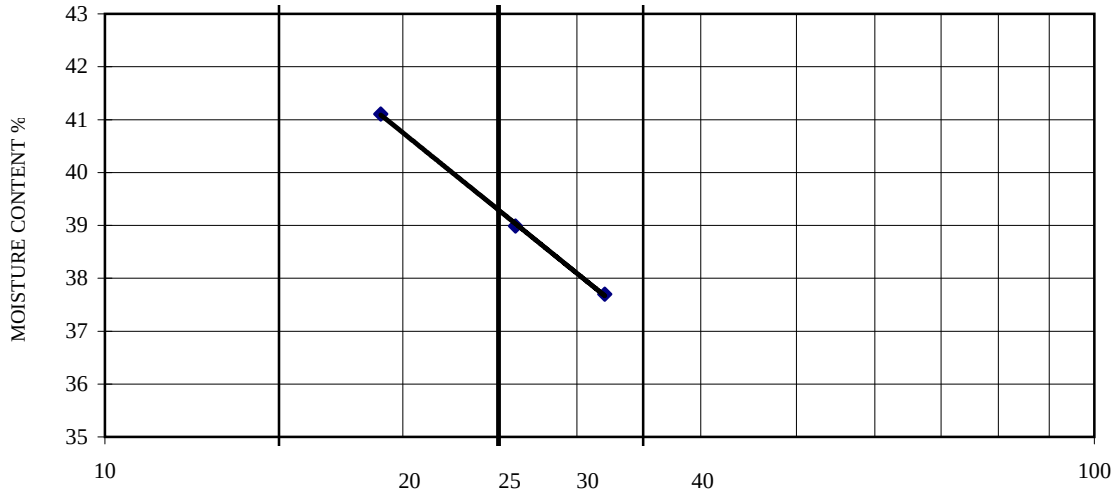
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	26	19
Mass of Wet Sample & Tare, g	42.47	47.33	39.57
Mass of Dry Sample & Tare, g	37.66	42.09	34.97
Mass of Tare, g	24.90	28.65	23.78
Moisture Content, %	37.70	38.99	41.11

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.64	36.83
Mass of Dry Sample & Tare, g	32.84	34.54
Mass of Tare, g	25.10	24.54
Moisture Content, %	23.26	22.90

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1312.90
Mass of Dry Sample & Tare, g	1190.40
Mass of Tare, g	419.40
Moisture Content, %	15.89

LIQUID LIMIT (LL)	39
PLASTIC LIMIT (PL)	23
PLASTICITY INDEX (PI)	16
LIQUIDITY INDEX (LI)	-0.44

DESCRIPTION: Yellowish Red Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1312.9
Mass of Dry Sample & Tare, g	1190.4
Mass of Tare, g	419.4
Moisture Content, %	15.9

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	310.6	445.10
Mass of Dry Sample & Tare, g	282.4	407.90
Mass of Tare, g	99.9	94.80
Moisture Content, %	15.5	11.9

Mass of Total Sample before separation on 3/8" sieve & Tare, g	23770
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	20511

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1985.1	72.60
Mass of Tare	0.0	0.0
Dry Mass, g	1719.4	64.89
% of Total Sample passing Split Sieve	93.1	90.7

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL	0.0	0	100
1.5"		139.1	1	99
1"		700.2	3	97
.75"		872.8	4	96
.5"	FINE GRAVEL	1226.0	6	94
.375"		1422.2	7	93
#4	COARSE SAND	43.7	3	91

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.68	87
#20	SAND	6.94	81
#40		9.99	77
#60	FINE SAND	15.30	69
#100		20.05	63
#200	FINES	25.92	54

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:14

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	10
% COARSE GRAVEL	4	% FINE SAND	22
% FINE GRAVEL	5	% FINES	54
% COARSE SAND	4	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	22	% CLAY(<0.002mm)	16

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:16	2	35.0	22.0	0.01332	6.5	28.5	11.6	1.00	0.0321	39.8
11/06/17	14:19	5	31.0	22.0	0.01332	6.5	24.5	12.3	1.00	0.0209	34.2
11/06/17	14:29	15	28.0	22.0	0.01332	6.5	21.5	12.8	1.00	0.0123	30.1
11/06/17	14:44	30	25.0	22.0	0.01332	6.5	18.5	13.3	1.00	0.0089	25.9
11/06/17	15:14	60	23.5	22.0	0.01332	6.5	17.0	13.6	1.00	0.0063	23.8
11/06/17	18:24	250	20.5	22.0	0.01332	6.5	14.0	14.1	1.00	0.0032	19.6
11/07/17	14:14	1440	17.0	22.0	0.01332	6.5	10.5	14.6	1.00	0.0013	14.7

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

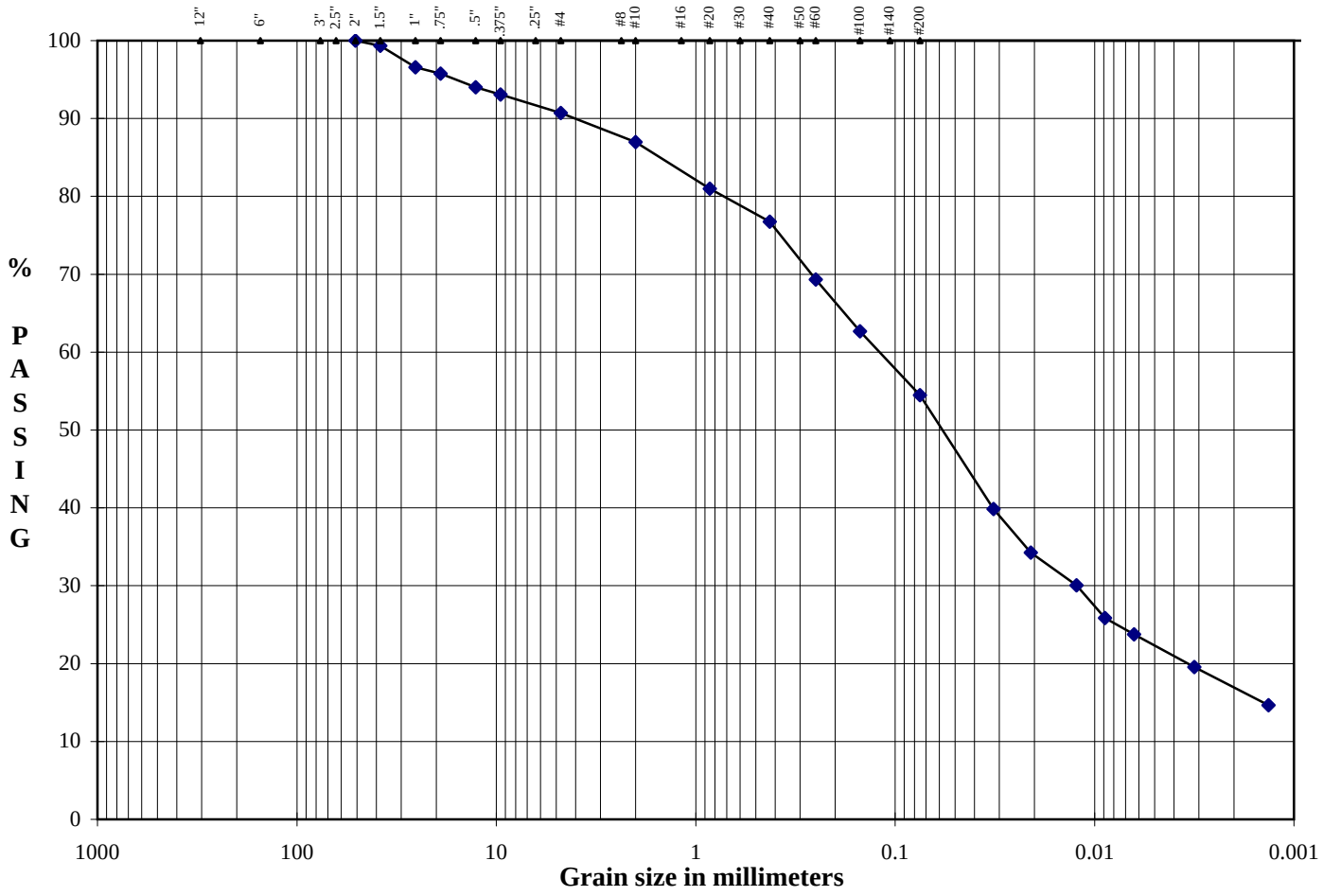
TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Yellowish Red Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26140/BS-4	Depth/Elev.	-
Location	P-50	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	23770.0	20511.1
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1422.7	1422.7
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	6.9
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	6.9

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1312.9	1422.7
Mass of Dry Sample & Tare, g	1190.4	1422.7
Mass of Tare, g	419.4	0.0
Moisture Content, %	15.9	0.0

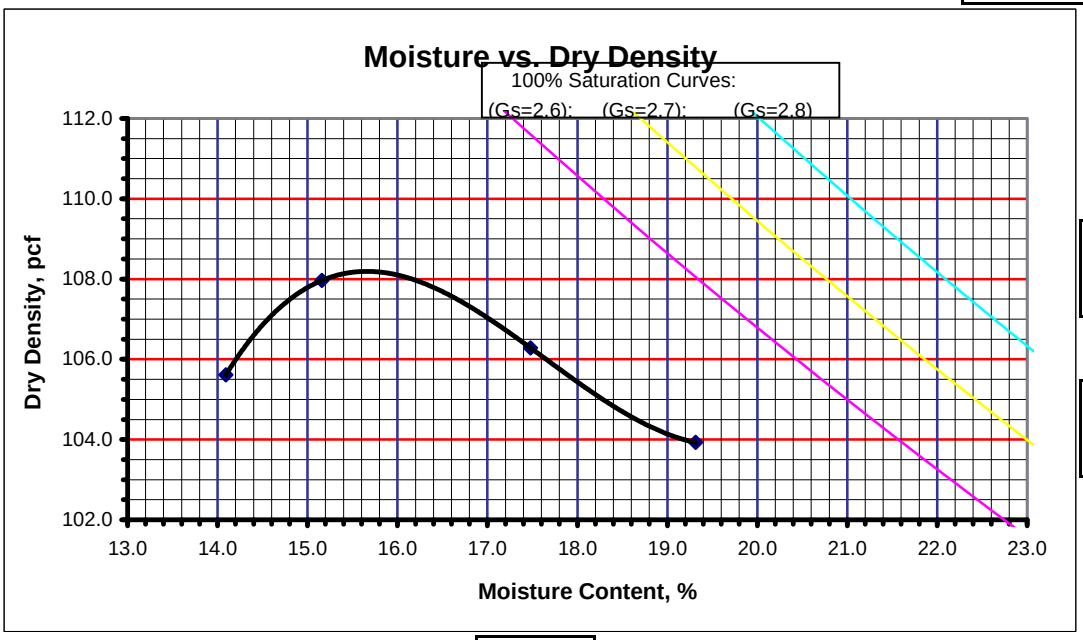
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6012.0	6070.0	6078.0	6065.0	
Mass of Wet Sample & Tare, g	568.5	618.6	573.5	608.2	
Mass of Dry Sample & Tare, g	513.6	561.3	506.9	539.4	
Mass of Tare, g	124.0	183.3	125.9	183.2	
Moisture Content, %	14.1	15.2	17.5	19.3	
Wet Density, pcf	120.5	124.3	124.9	124.0	
Dry Density, pcf	105.6	108.0	106.3	103.9	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Yellowish Red Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO M145: NA

Maximum Dry Density, pcf	108.2	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	15.7	**Corrected Optimum Moisture Content, %**	**NA**

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1874 Forge Street Tucker, GA 30084
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Fax: 770-923-8973
Web: www.test-llc.com

Tested By	NK
Date	11/02/17
Checked By	

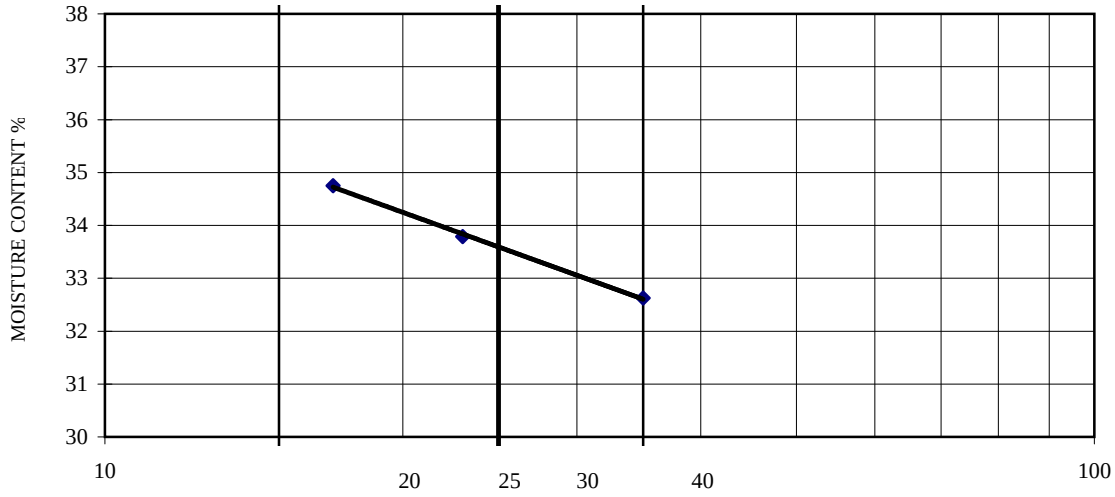
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	35	23	17
Mass of Wet Sample & Tare, g	38.33	40.33	40.61
Mass of Dry Sample & Tare, g	34.65	36.37	36.61
Mass of Tare, g	23.37	24.65	25.10
Moisture Content, %	32.62	33.79	34.75

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	39.27	39.44
Mass of Dry Sample & Tare, g	37.17	37.40
Mass of Tare, g	28.21	28.62
Moisture Content, %	23.44	23.23

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	941.20
Mass of Dry Sample & Tare, g	888.40
Mass of Tare, g	207.20
Moisture Content, %	7.75

LIQUID LIMIT (LL)	34
PLASTIC LIMIT (PL)	23
PLASTICITY INDEX (PI)	11
LIQUIDITY INDEX (LI)	-1.39

DESCRIPTION: Olive Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	941.2
Mass of Dry Sample & Tare, g	888.4
Mass of Tare, g	207.2
Moisture Content, %	7.8

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	358.1	257.30
Mass of Dry Sample & Tare, g	353.0	254.00
Mass of Tare, g	95.0	42.50
Moisture Content, %	2.0	1.6

Mass of Total Sample before separation on 3/8" sieve & Tare, g	23420
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	21735

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	779.0	73.40
Mass of Tare	0.0	0.0
Dry Mass, g	763.9	72.27
% of Total Sample passing Split Sieve	94.9	92.5

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		39.9	0	100
.75"		600.0	3	97
.5"	FINE GRAVEL	895.5	4	96
.375"		1113.4	5	95
#4	COARSE SAND	19.3	3	92

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	5.86	85
#20	SAND	18.45	69
#40		23.45	62
#60	FINE SAND	26.00	59
#100		28.02	57
#200	FINES	31.11	53

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:10

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	23
% COARSE GRAVEL	3	% FINE SAND	10
% FINE GRAVEL	5	% FINES	53
% COARSE SAND	7	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	13	% CLAY(<0.002mm)	9

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:12	2	40.0	22.0	0.01332	6.5	33.5	10.8	1.00	0.0310	42.9
11/06/17	14:15	5	35.0	22.0	0.01332	6.5	28.5	11.6	1.00	0.0203	36.5
11/06/17	14:25	15	25.0	22.0	0.01332	6.5	18.5	13.3	1.00	0.0125	23.7
11/06/17	14:40	30	21.0	22.0	0.01332	6.5	14.5	14.0	1.00	0.0091	18.6
11/06/17	15:10	60	18.0	22.0	0.01332	6.5	11.5	14.5	1.00	0.0065	14.7
11/06/17	18:20	250	15.0	22.0	0.01332	6.5	8.5	15.0	1.00	0.0033	10.9
11/07/17	14:10	1440	13.0	22.0	0.01332	6.5	6.5	15.3	1.00	0.0014	8.3

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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1874 Forge Street Tucker, GA 30084
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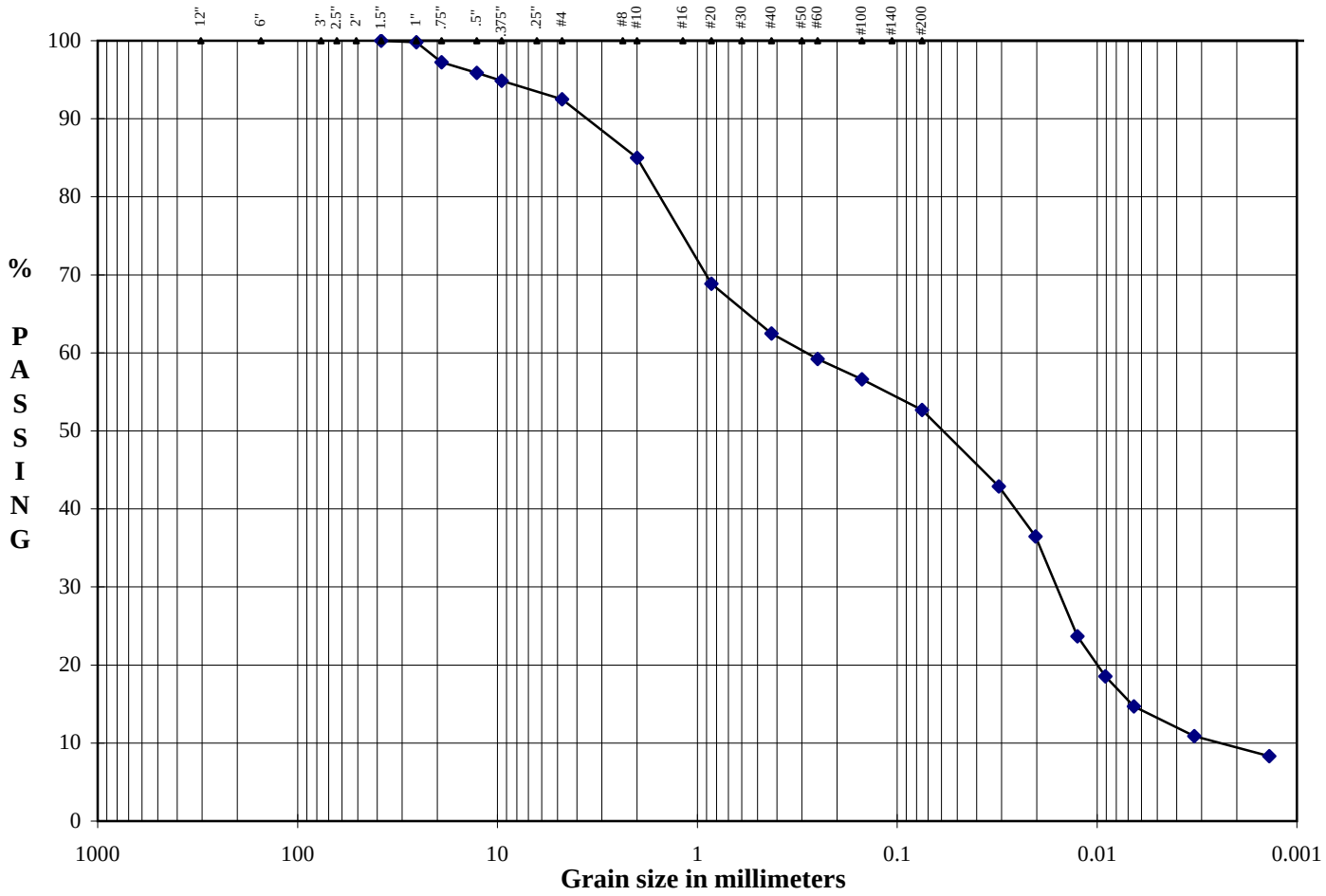
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26138/BS-2	Depth/Elev.	-
Location	P-113	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	23420.0	21735.3
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1113.4	1113.4
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	5.1
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	5.1

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	941.2	1113.4
Mass of Dry Sample & Tare, g	888.4	1113.4
Mass of Tare, g	207.2	0.0
Moisture Content, %	7.8	0.0

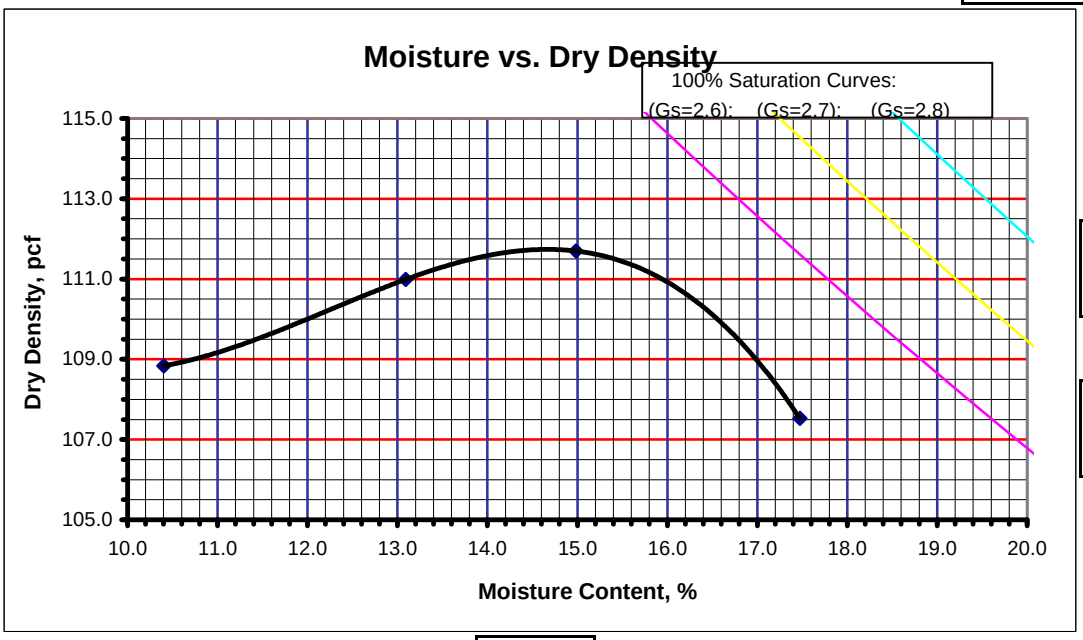
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6007.0	6088.0	6132.0	6100.0	
Mass of Wet Sample & Tare, g	603.7	527.8	604.5	564.8	
Mass of Dry Sample & Tare, g	563.4	481.1	548.2	499.4	
Mass of Tare, g	176.0	124.4	172.5	125.1	
Moisture Content, %	10.4	13.1	15.0	17.5	
Wet Density, pcf	120.2	125.5	128.4	126.3	
Dry Density, pcf	108.8	111.0	111.7	107.5	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Olive Brown Sandy Lean Clay

USCS (ASTM D2487; D2488)
CL

AASHTO M145
NA

Maximum Dry Density, pcf	111.7
Optimum Moisture Content, %	14.7
Corrected Maximum Dry Density, pcf	**NA**
Corrected Optimum Moisture Content, %	**NA**

TIMELY ENGINEERING SOIL TESTS, LLC
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Web: www.test-llc.com

Tested By	NK
Date	10/02/17
Checked By	KB

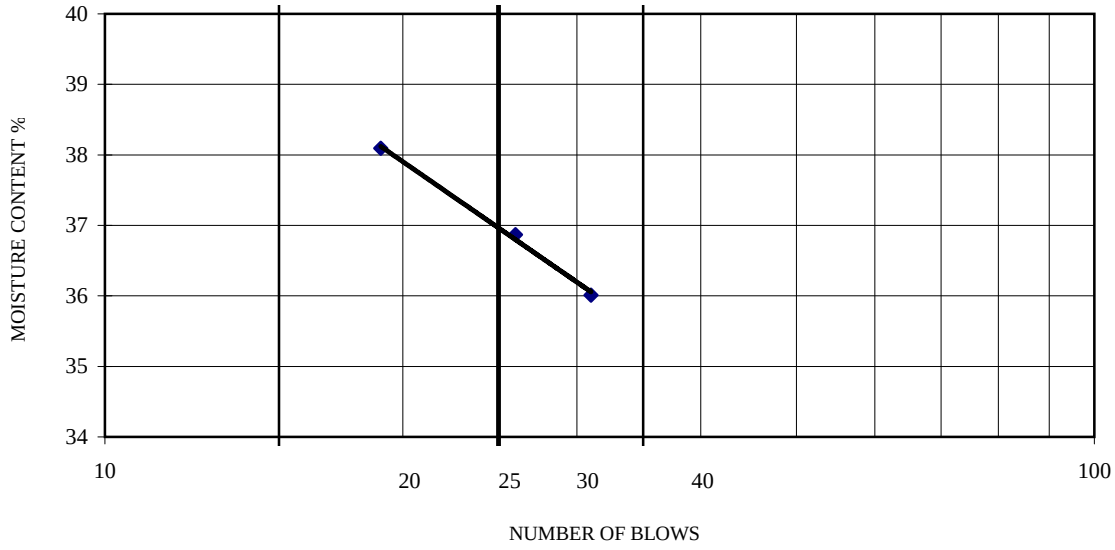
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	31	26	19
Mass of Wet Sample & Tare, g	42.24	38.02	39.89
Mass of Dry Sample & Tare, g	38.16	34.44	35.97
Mass of Tare, g	26.83	24.73	25.68
Moisture Content, %	36.01	36.87	38.10

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	30.75	38.14
Mass of Dry Sample & Tare, g	29.12	35.88
Mass of Tare, g	21.97	25.98
Moisture Content, %	22.80	22.83

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1195.30
Mass of Dry Sample & Tare, g	1104.40
Mass of Tare, g	296.60
Moisture Content, %	11.25

LIQUID LIMIT (LL)	37
PLASTIC LIMIT (PL)	23
PLASTICITY INDEX (PI)	14
LIQUIDITY INDEX (LI)	-0.84

DESCRIPTION: Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

TIMELY ENGINEERING SOIL TESTS, LLC
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Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1195.3
Mass of Dry Sample & Tare, g	1104.4
Mass of Tare, g	296.6
Moisture Content, %	11.3

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	383.6	375.60
Mass of Dry Sample & Tare, g	358.1	355.40
Mass of Tare, g	99.4	91.10
Moisture Content, %	9.9	7.6

Mass of Total Sample before separation on 3/8" sieve & Tare, g	21240
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	19092

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1908.4	71.20
Mass of Tare	0.0	0.0
Dry Mass, g	1737.2	66.14
% of Total Sample passing Split Sieve	95.8	92.2

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL	0.0	0	100
1.5"		99.9	1	99
1"		221.5	1	99
.75"		376.8	2	98
.5"	FINE GRAVEL	654.8	3	97
.375"		803.1	4	96
#4	COARSE SAND	65.6	4	92

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	8.47	80
#20	SAND	13.72	73
#40		15.80	70
#60	FINE SAND	17.40	68
#100		18.61	66
#200	FINES	20.28	64

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:16

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	10
% COARSE GRAVEL	2	% FINE SAND	6
% FINE GRAVEL	6	% FINES	64
% COARSE SAND	12	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	19	% CLAY(<0.002mm)	14

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:18	2	48.0	22.0	0.01332	6.5	41.5	9.5	1.00	0.0290	57.8
11/06/17	14:21	5	40.0	22.0	0.01332	6.5	33.5	10.8	1.00	0.0196	46.7
11/06/17	14:31	15	30.0	22.0	0.01332	6.5	23.5	12.5	1.00	0.0121	32.7
11/06/17	14:46	30	24.5	22.0	0.01332	6.5	18.0	13.4	1.00	0.0089	25.1
11/06/17	15:16	60	22.0	22.0	0.01332	6.5	15.5	13.8	1.00	0.0064	21.6
11/06/17	18:26	250	18.5	22.0	0.01332	6.5	12.0	14.4	1.00	0.0032	16.7
11/07/17	14:16	1440	15.5	22.0	0.01332	6.5	9.0	14.9	1.00	0.0014	12.5

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY
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SOIL
TESTS, LLC

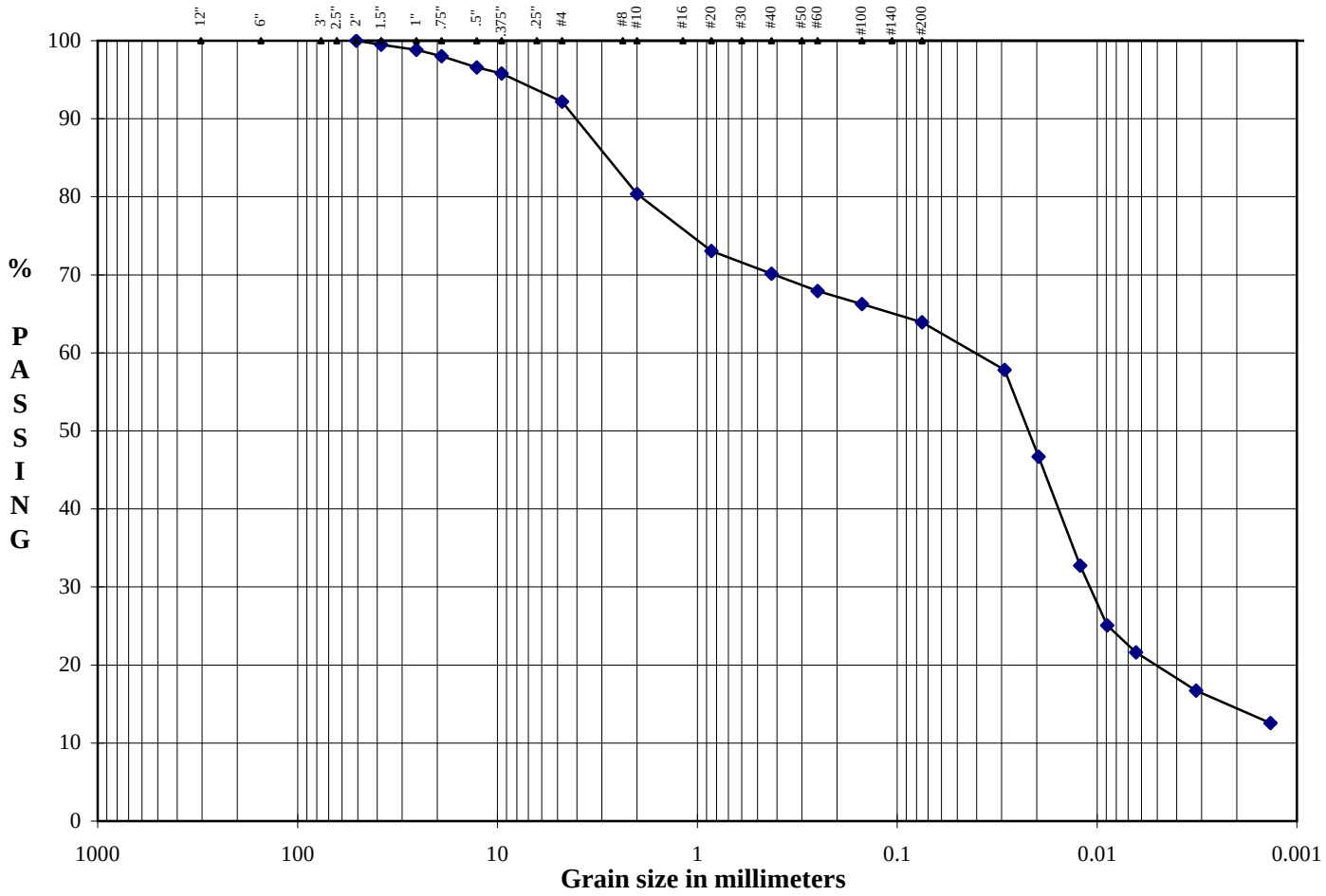
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing	NA
Project's Specific Particle Size, mm	NA

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	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26141/BS-5	Depth/Elev.	-
Location	P-140	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	21240.0	19091.7
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	803.1	803.1
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	4.2
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	4.2

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1195.3	803.1
Mass of Dry Sample & Tare, g	1104.4	803.1
Mass of Tare, g	296.6	0.0
Moisture Content, %	11.3	0.0

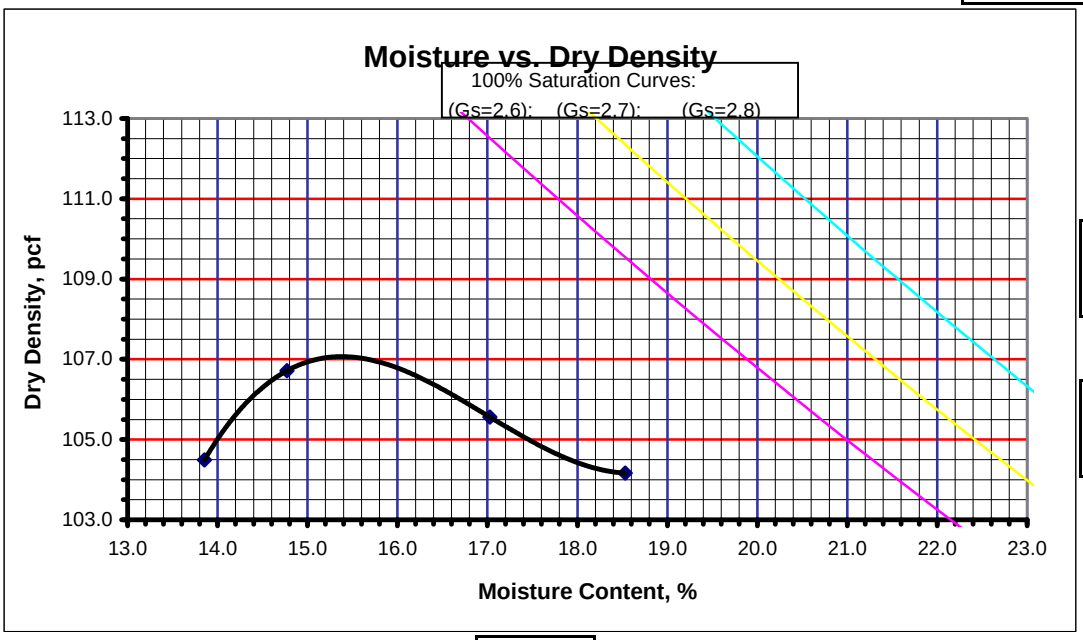
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5989.0	6042.0	6058.0	6057.0	
Mass of Wet Sample & Tare, g	493.1	492.0	518.0	491.9	
Mass of Dry Sample & Tare, g	450.0	446.7	462.8	436.8	
Mass of Tare, g	138.9	140.0	138.6	139.5	
Moisture Content, %	13.9	14.8	17.0	18.5	
Wet Density, pcf	119.0	122.5	123.5	123.5	
Dry Density, pcf	104.5	106.7	105.6	104.2	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488)
CL

AASHTO M145
NA

Maximum Dry Density, pcf	107.1	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	15.4	**Corrected Optimum Moisture Content, %**	**NA**

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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	NK
Date	11/02/17
Checked By	

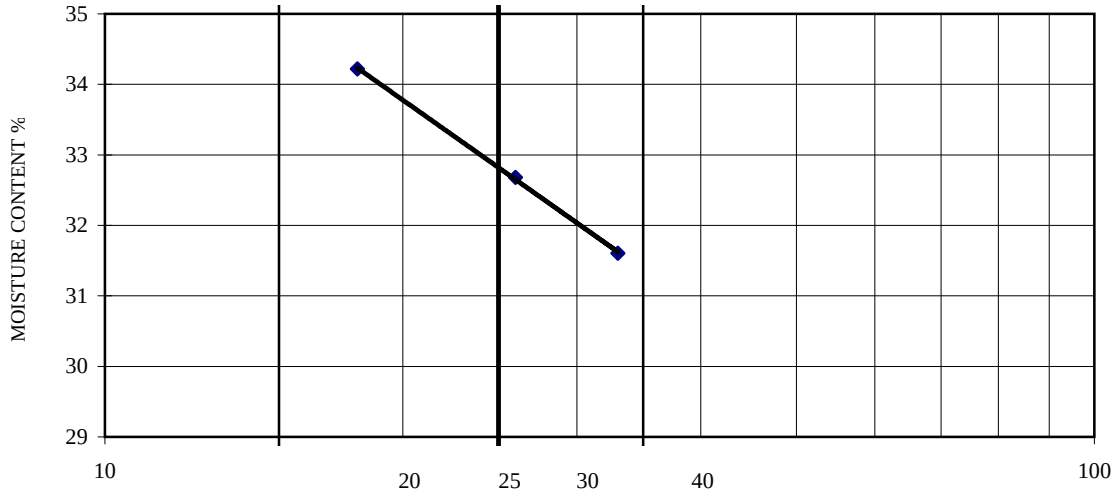
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Bulk
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	33	26	18
Mass of Wet Sample & Tare, g	40.46	41.76	38.51
Mass of Dry Sample & Tare, g	36.68	37.42	34.78
Mass of Tare, g	24.72	24.14	23.88
Moisture Content, %	31.61	32.68	34.22

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	36.12	37.50
Mass of Dry Sample & Tare, g	33.79	35.67
Mass of Tare, g	23.95	27.93
Moisture Content, %	23.68	23.64

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1304.90
Mass of Dry Sample & Tare, g	1167.50
Mass of Tare, g	334.20
Moisture Content, %	16.49

LIQUID LIMIT (LL)	33
PLASTIC LIMIT (PL)	24
PLASTICITY INDEX (PI)	9
LIQUIDITY INDEX (LI)	-0.83

DESCRIPTION: Olive Yellow Silt with Sand

USCS (ASTM D2487; D2488): ML

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Bulk
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1304.9
Mass of Dry Sample & Tare, g	1167.5
Mass of Tare, g	334.2
Moisture Content, %	16.5

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	409.3	454.20
Mass of Dry Sample & Tare, g	367.3	417.40
Mass of Tare, g	102.6	101.30
Moisture Content, %	15.9	11.6

Mass of Total Sample before separation on 3/8" sieve & Tare, g	20850
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	17899

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1957.0	76.90
Mass of Tare	0.0	0.0
Dry Mass, g	1689.0	68.88
% of Total Sample passing Split Sieve	97.7	95.7

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		29.3	0	100
.75"		136.6	1	99
.5"	FINE GRAVEL	330.1	2	98
.375"		415.9	2	98
#4	COARSE SAND	33.4	2	96

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	3.10	91
#20	SAND	6.49	87
#40		7.99	85
#60	FINE SAND	9.14	83
#100		10.19	82
#200	FINES	11.70	79

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:12

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	7
% COARSE GRAVEL	1	% FINE SAND	5
% FINE GRAVEL	3	% FINES	79
% COARSE SAND	4	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	20	% CLAY(<0.002mm)	14

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:14	2	53.0	22.0	0.01332	6.5	46.5	8.7	1.00	0.0277	64.6
11/06/17	14:17	5	46.0	22.0	0.01332	6.5	39.5	9.8	1.00	0.0187	54.9
11/06/17	14:27	15	32.0	22.0	0.01332	6.5	25.5	12.1	1.00	0.0120	35.4
11/06/17	14:42	30	26.5	22.0	0.01332	6.5	20.0	13.1	1.00	0.0088	27.8
11/06/17	15:12	60	23.0	22.0	0.01332	6.5	16.5	13.6	1.00	0.0064	22.9
11/06/17	18:22	250	18.0	22.0	0.01332	6.5	11.5	14.5	1.00	0.0032	16.0
11/07/17	14:12	1440	16.0	22.0	0.01332	6.5	9.5	14.8	1.00	0.0014	13.2

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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TESTS, LLC

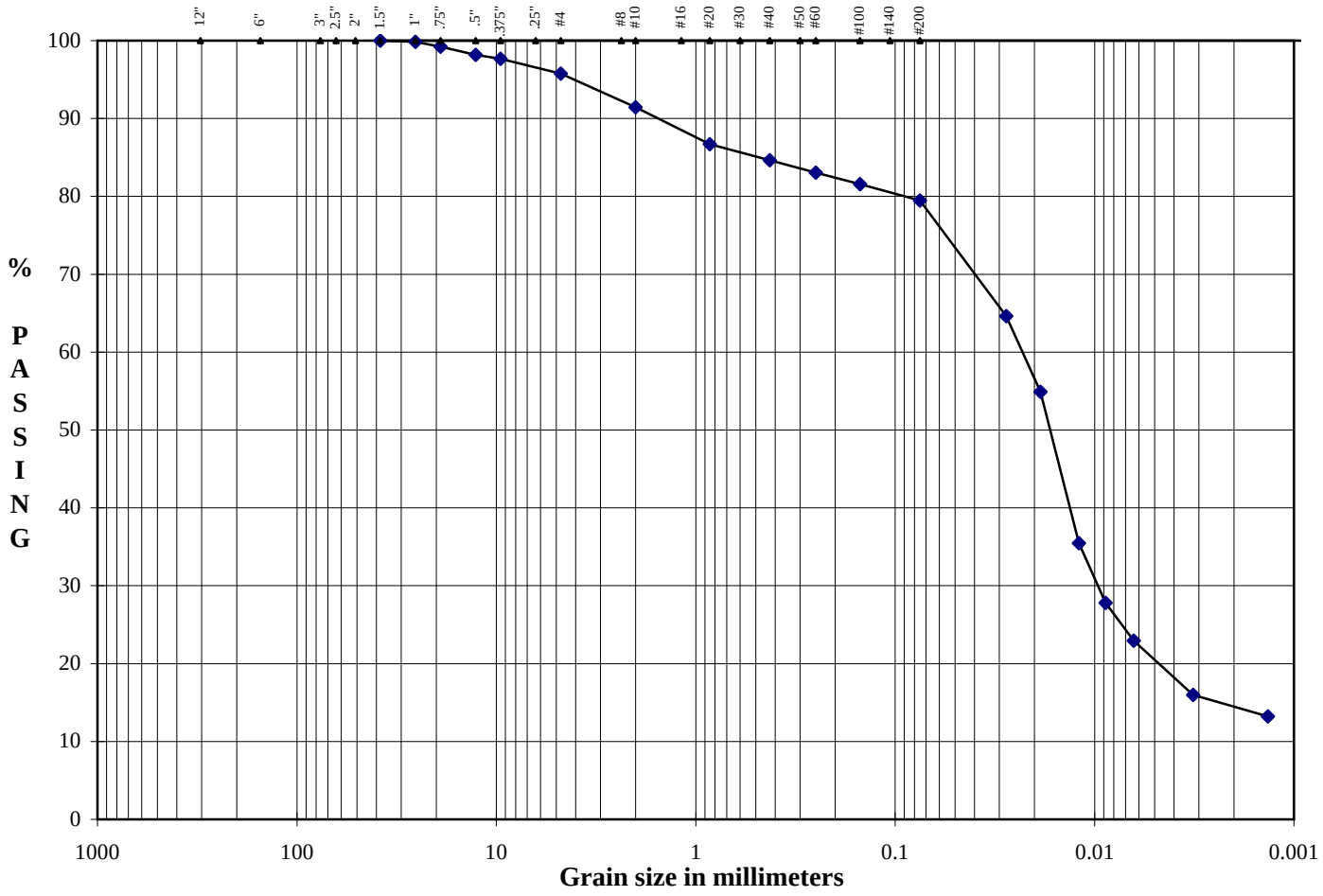
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Bulk
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Yellow Silt with Sand

USCS (ASTM D2487; D2488): ML

Project's Specific % Passing	NA
Project's Specific Particle Size, mm	NA

TIMELY ENGINEERING SOIL TESTS, LLC
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Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project & MM85-MM	S. Type	Bulk
Sample ID	26139/BS-3	Depth/Elev.	-
Location	P-145	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	20850.0	17898.7
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	415.9	415.9
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	2.3
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	2.3

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1304.9	415.9
Mass of Dry Sample & Tare, g	1167.5	415.9
Mass of Tare, g	334.2	0.0
Moisture Content, %	16.5	0.0

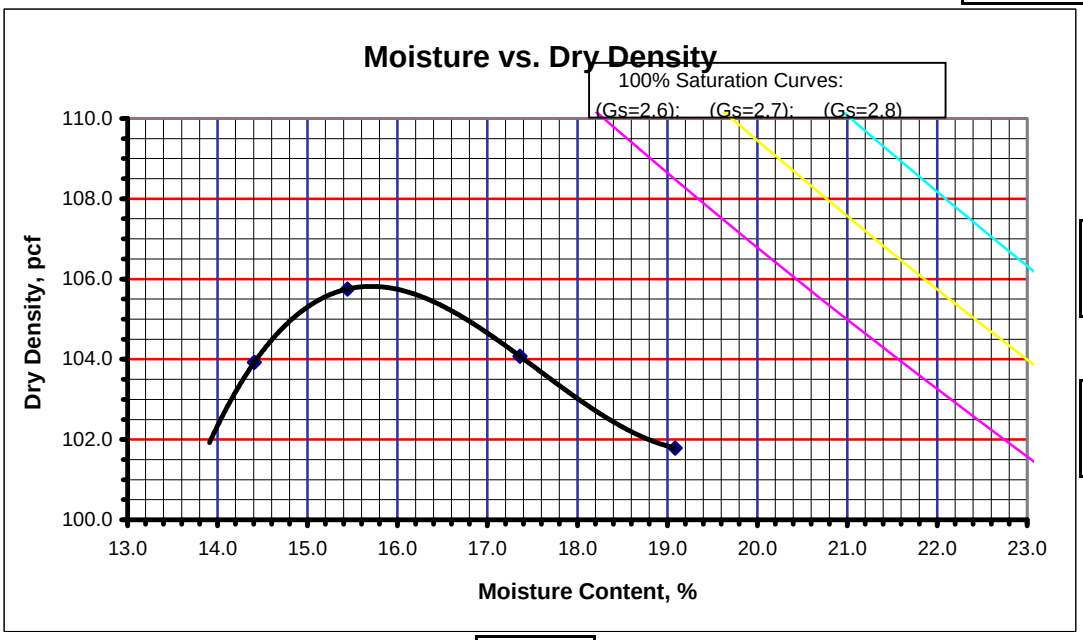
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5988.0	6036.0	6037.0	6023.0	
Mass of Wet Sample & Tare, g	538.1	600.4	634.7	577.0	
Mass of Dry Sample & Tare, g	486.7	544.7	567.9	504.6	
Mass of Tare, g	130.0	184.0	183.1	125.3	
Moisture Content, %	14.4	15.4	17.4	19.1	
Wet Density, pcf	118.9	122.1	122.1	121.2	
Dry Density, pcf	103.9	105.7	104.1	101.8	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Olive Yellow Silt with Sand

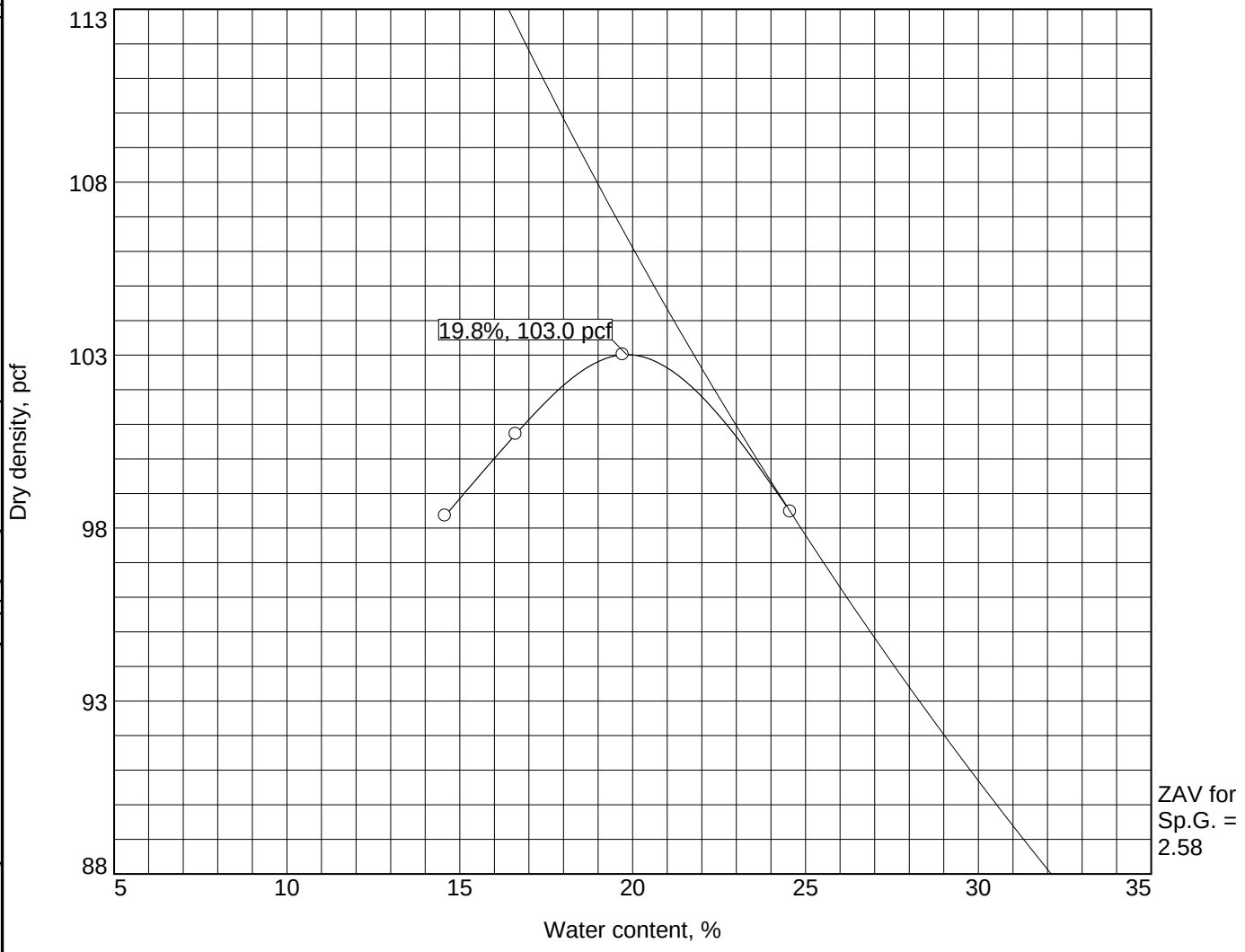
USCS (ASTM D2487; D2488)
ML

AASHTO M145
NA

Maximum Dry Density, pcf	105.8	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	15.7	**Corrected Optimum Moisture Content, %**	**NA**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	CH	A-7-6(21)	11.8	2.575	60	32	6	66

TEST RESULTS

Maximum dry density = 103.0 pcf

Optimum moisture = 19.8 %

MATERIAL DESCRIPTION

Stiff to very stiff, dry to moist, reddish brown, Plastic CLAY (CH)(A-7-6) with trace gravel

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/12/17

○ **Source of Sample:** P-178 **Sample Number:** D4S-1498

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AS

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	NK
Date	11/02/17
Checked By	

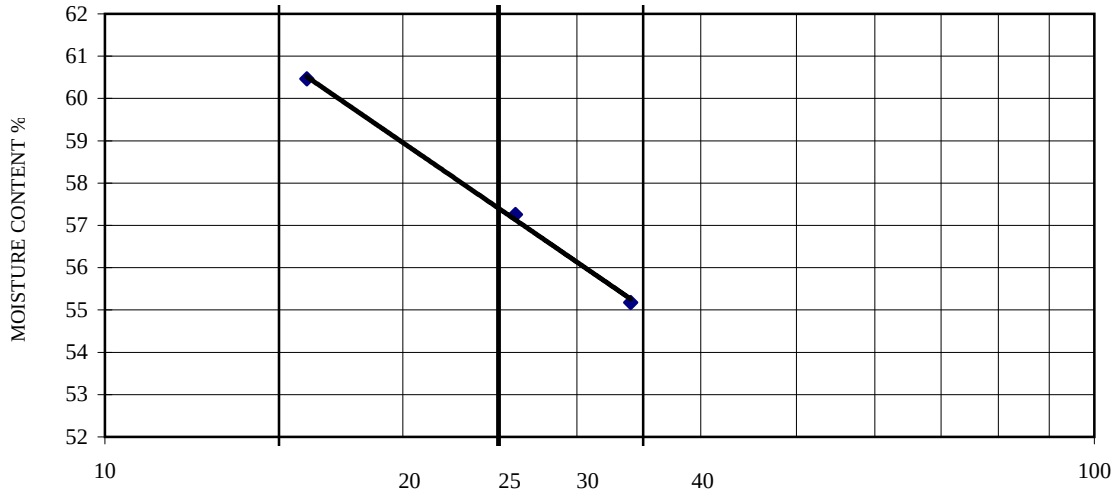
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	34	26	16
Mass of Wet Sample & Tare, g	37.21	36.04	37.26
Mass of Dry Sample & Tare, g	32.68	31.78	32.61
Mass of Tare, g	24.47	24.34	24.92
Moisture Content, %	55.18	57.26	60.47

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	33.28	38.12
Mass of Dry Sample & Tare, g	31.01	35.18
Mass of Tare, g	23.82	25.94
Moisture Content, %	31.57	31.82

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1290.90
Mass of Dry Sample & Tare, g	1159.50
Mass of Tare, g	298.80
Moisture Content, %	15.27

LIQUID LIMIT (LL)	57
PLASTIC LIMIT (PL)	32
PLASTICITY INDEX (PI)	25
LIQUIDITY INDEX (LI)	-0.67

DESCRIPTION: Dark Brown Elastic Silt with Sand

USCS (ASTM D2487; D2488): MH

AASHTO (M 145): NA

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	NK
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1290.9
Mass of Dry Sample & Tare, g	1159.5
Mass of Tare, g	298.8
Moisture Content, %	15.3

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	397.0	482.60
Mass of Dry Sample & Tare, g	358.0	450.80
Mass of Tare, g	85.3	94.80
Moisture Content, %	14.3	8.9

Mass of Total Sample before separation on 3/8" sieve & Tare, g	20460
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	17750

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1950.7	71.90
Mass of Tare	0.0	0.0
Dry Mass, g	1706.6	66.00
% of Total Sample passing Split Sieve	98.5	97.2

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		83.3	0	100
.75"		117.5	1	99
.5"	FINE GRAVEL	214.9	1	99
.375"		272.7	2	98
#4	COARSE SAND	21.4	1	97

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	1.55	95
#20	SAND	3.18	93
#40		4.54	91
#60	FINE SAND	6.16	88
#100		7.91	86
#200	FINES	10.74	81

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:18

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	4
% COARSE GRAVEL	1	% FINE SAND	9
% FINE GRAVEL	2	% FINES	81
% COARSE SAND	2	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	38	% CLAY(<0.002mm)	26

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:20	2	57.0	22.0	0.01332	6.5	50.5	8.0	1.00	0.0266	74.4
11/06/17	14:23	5	48.5	22.0	0.01332	6.5	42.0	9.4	1.00	0.0183	61.9
11/06/17	14:33	15	43.0	22.0	0.01332	6.5	36.5	10.3	1.00	0.0110	53.8
11/06/17	14:48	30	38.5	22.0	0.01332	6.5	32.0	11.1	1.00	0.0081	47.1
11/06/17	15:18	60	34.5	22.0	0.01332	6.5	28.0	11.7	1.00	0.0059	41.2
11/06/17	18:28	250	27.5	22.0	0.01332	6.5	21.0	12.9	1.00	0.0030	30.9
11/07/17	14:18	1440	21.5	22.0	0.01332	6.5	15.0	13.9	1.00	0.0013	22.1

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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SOIL
TESTS, LLC

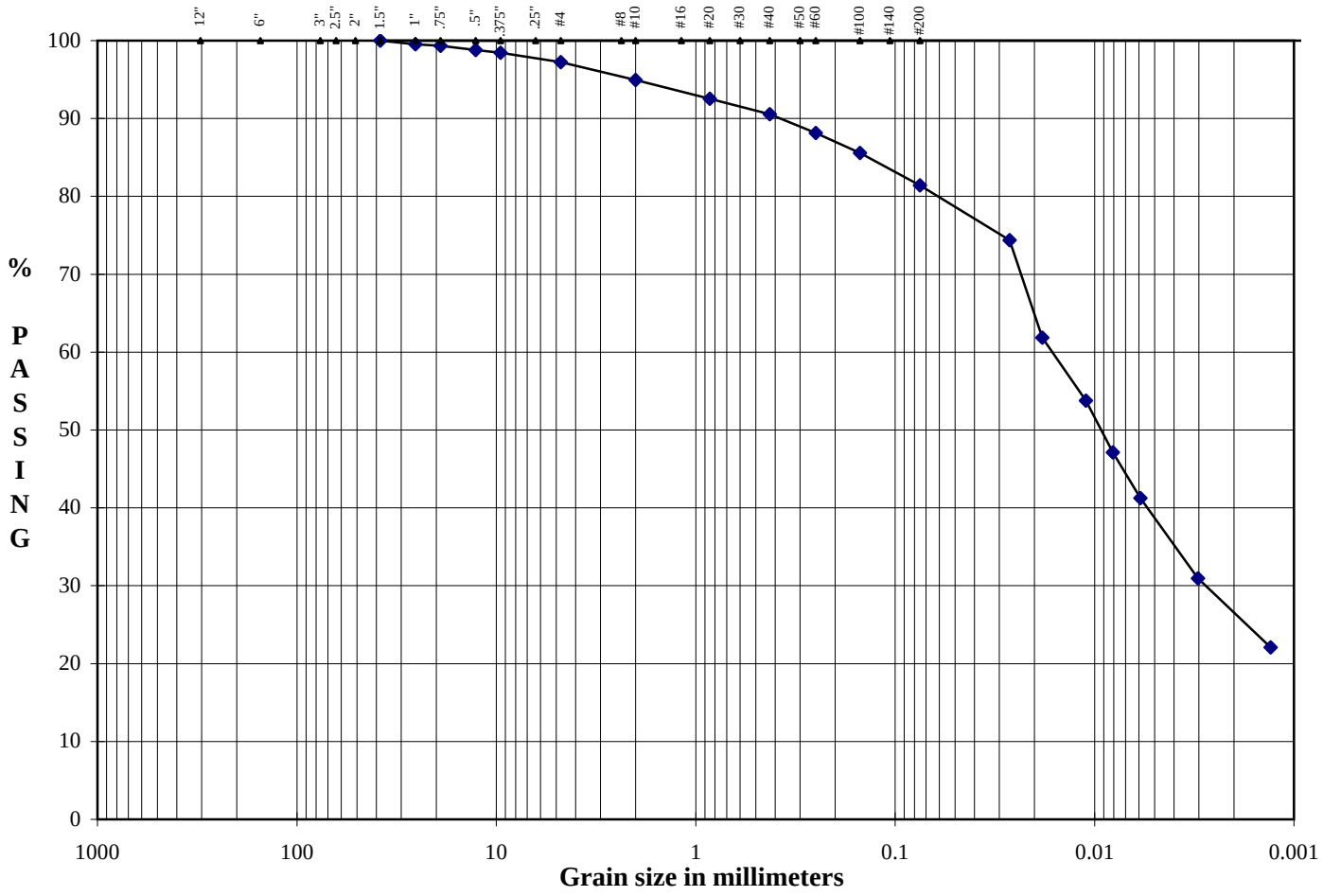
1874 Forge Street Tucker, GA 30084
Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	NK
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Elastic Silt with Sand

USCS (ASTM D2487; D2488): MH

Project's Specific % Passing	NA
Project's Specific Particle Size, mm	NA

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	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26142/BS-6	Depth/Elev.	-
Location	P-195	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	20460.0	17750.1
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	272.7	272.7
Mass of Mat. Retained on 3/4" sieve, g		

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1290.9	272.7
Mass of Dry Sample & Tare, g	1159.5	272.7
Mass of Tare, g	298.8	0.0
Moisture Content, %	15.3	0.0

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	1.5
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	1.5

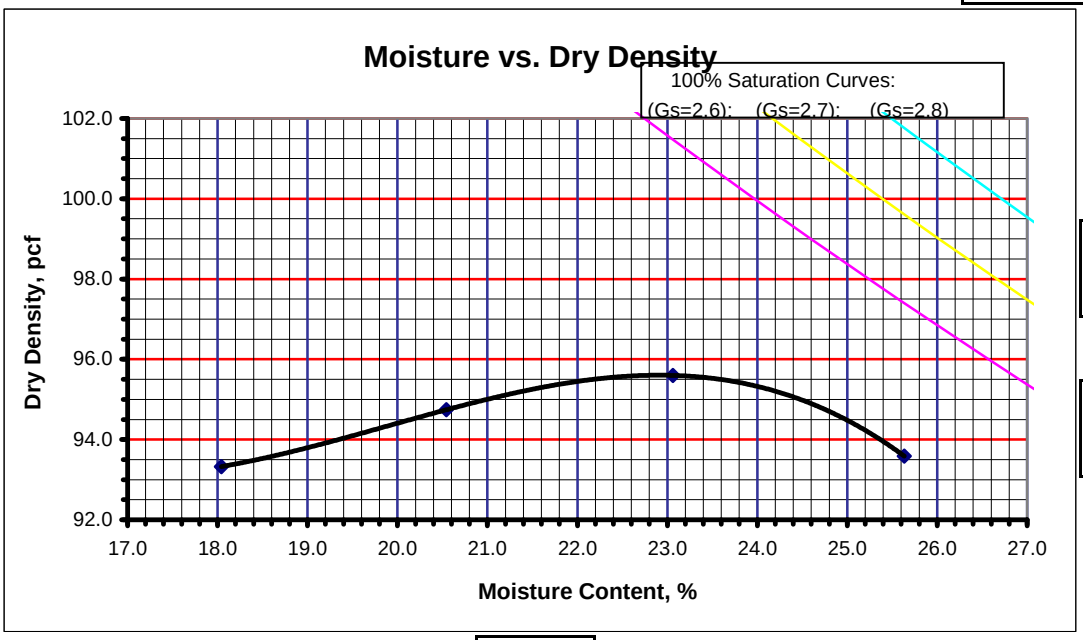
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5856.0	5917.0	5969.0	5968.0	
Mass of Wet Sample & Tare, g	490.1	497.3	492.3	495.2	
Mass of Dry Sample & Tare, g	436.5	436.6	426.0	422.4	
Mass of Tare, g	139.4	141.1	138.5	138.4	
Moisture Content, %	18.0	20.5	23.1	25.6	
Wet Density, pcf	110.2	114.2	117.6	117.6	
Dry Density, pcf	93.3	94.7	95.6	93.6	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Elastic Silt with Sand

USCS (ASTM D2487; D2488)
MH

AASHTO M145
NA

Maximum Dry Density, pcf	95.6	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	23.1	**Corrected Optimum Moisture Content, %**	**NA**

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Web: www.test-llc.com

Tested By	NK
Date	11/02/17
Checked By	

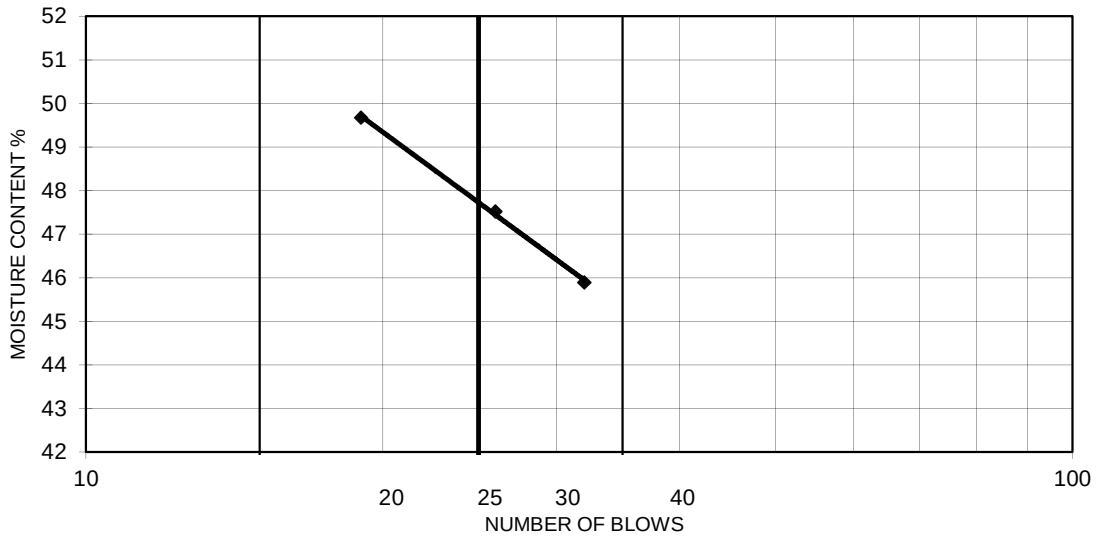
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	26	19
Mass of Wet Sample & Tare, g	40.28	39.71	39.95
Mass of Dry Sample & Tare, g	35.41	35.48	35.28
Mass of Tare, g	24.80	26.58	25.88
Moisture Content, %	45.90	47.53	49.68

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	32.29	33.82
Mass of Dry Sample & Tare, g	30.14	31.34
Mass of Tare, g	22.08	22.23
Moisture Content, %	26.67	27.22

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1246.00
Mass of Dry Sample & Tare, g	1086.80
Mass of Tare, g	360.00
Moisture Content, %	21.90

LIQUID LIMIT (LL)	48
PLASTIC LIMIT (PL)	27
PLASTICITY INDEX (PI)	21
LIQUIDITY INDEX (LI)	-0.24

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1246.0
Mass of Dry Sample & Tare, g	1086.8
Mass of Tare, g	360.0
Moisture Content, %	21.9

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	536.4	429.8
Mass of Dry Sample & Tare, g	476.8	391.7
Mass of Tare, g	95.2	108.2
Moisture Content, %	15.6	13.4

Mass of Total Sample before separation on 3/8" sieve & Tare, g	24020.0
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	19704

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1909.0	70.50
Mass of Tare	0.0	0.0
Dry Mass, g	1651.1	62.15
% of Total Sample passing Split Sieve	95.9	94.4

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"		0.0	0	100
1"		174.8	1	99
.75"		349.7	2	98
.5"	FINE GRAVEL	705.8	4	96
.375"		813.1	4	96
#4	COARSE SAND	25.0	2	94

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.05	91
#20	SAND	4.85	87
#40		9.28	80
#60	FINE SAND	13.50	74
#100		16.44	69
#200	FINES	19.30	65

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:30

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	11
% COARSE GRAVEL	2	% FINE SAND	15
% FINE GRAVEL	4	% FINES	65
% COARSE SAND	3	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	33	% CLAY(<0.002mm)	24

Date	Time	Testing time (min)	Reading	Temp (^{o}C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:32	2	44.0	23.3	0.01317	6.5	37.5	10.2	1.00	0.0297	57.0
11/07/17	14:35	5	41.0	23.3	0.01317	6.5	34.5	10.7	1.00	0.0192	52.4
11/07/17	14:45	15	36.0	23.3	0.01317	6.5	29.5	11.5	1.00	0.0115	44.8
11/07/17	15:00	30	33.0	23.3	0.01317	6.5	26.5	12.0	1.00	0.0083	40.3
11/07/17	15:30	60	30.0	23.3	0.01317	6.5	23.5	12.5	1.00	0.0060	35.7
11/07/17	18:40	250	25.0	23.3	0.01317	6.5	18.5	13.3	1.00	0.0030	28.1
11/08/17	14:30	1440	21.0	23.3	0.01317	6.5	14.5	14.0	1.00	0.0013	22.0

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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Web: www.test-llc.com

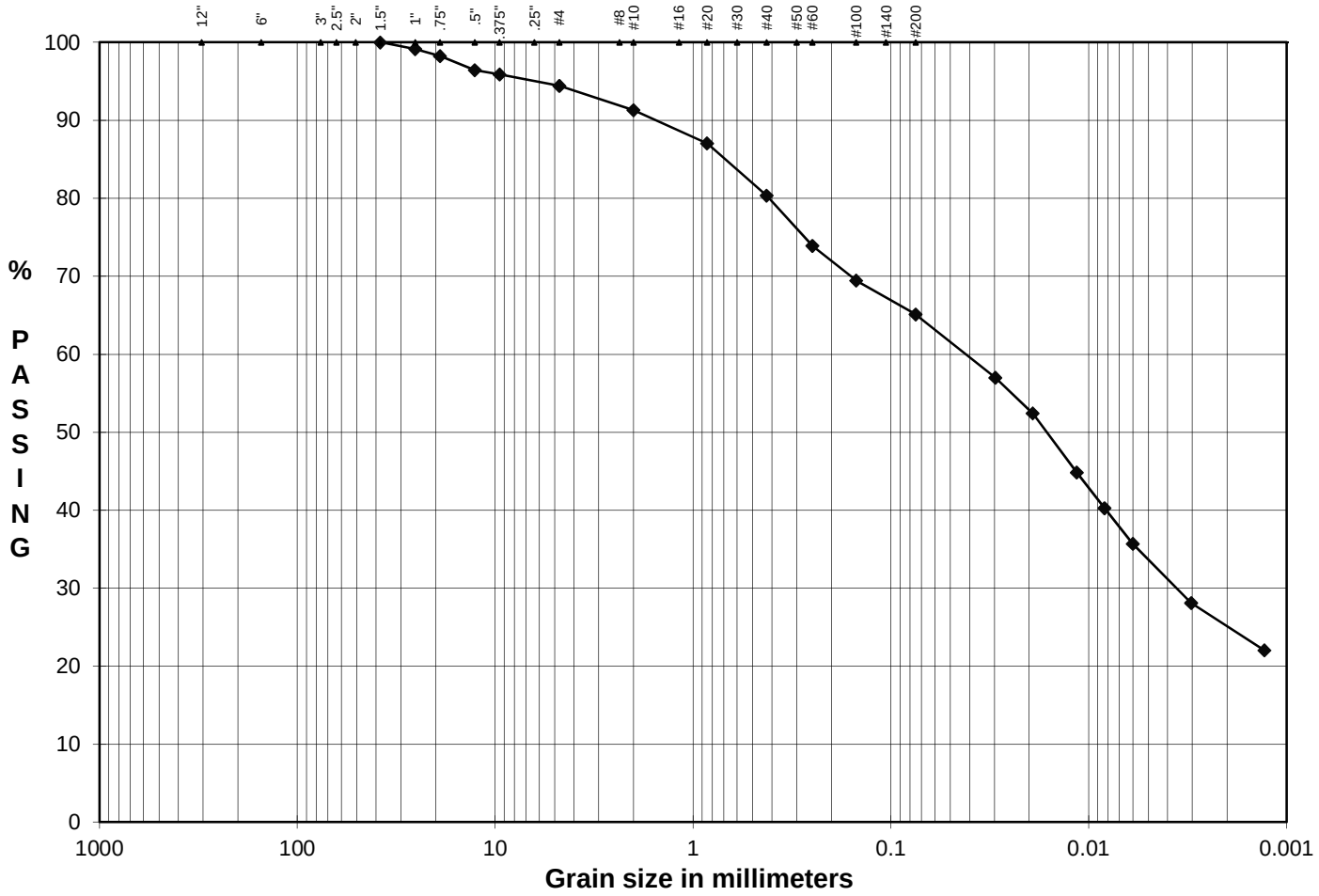
Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26143/BS-7	Depth/Elev.	-
Location	P-223	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	24020.0	19704.0
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	873.1	873.1
Mass of Mat. Retained on 3/4" sieve, g		

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1246.0	873.1
Mass of Dry Sample & Tare, g	1086.8	873.1
Mass of Tare, g	360.0	0.0
Moisture Content, %	21.9	0.0

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	4.4
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	4.4

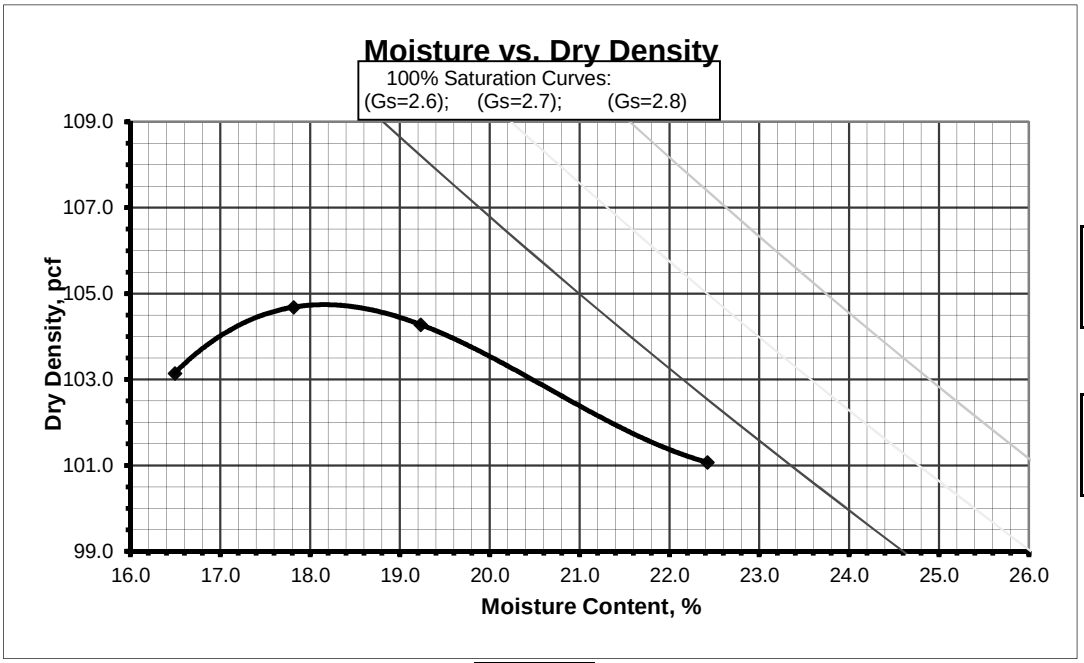
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6007.0	6055.0	6070.0	6061.0	
Mass of Wet Sample & Tare, g	510.6	542.7	542.0	537.7	
Mass of Dry Sample & Tare, g	458.2	481.8	477.2	464.8	
Mass of Tare, g	140.5	140.0	140.2	139.7	
Moisture Content, %	16.5	17.8	19.2	22.4	
Wet Density, pcf	120.2	123.3	124.3	123.7	
Dry Density, pcf	103.1	104.7	104.3	101.1	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO M145: NA

Maximum Dry Density, pcf	104.8	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	18.2	**Corrected Optimum Moisture Content, %**	**NA**

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Web: www.test-llc.com

Tested By	NK
Date	11/05/17
Checked By	

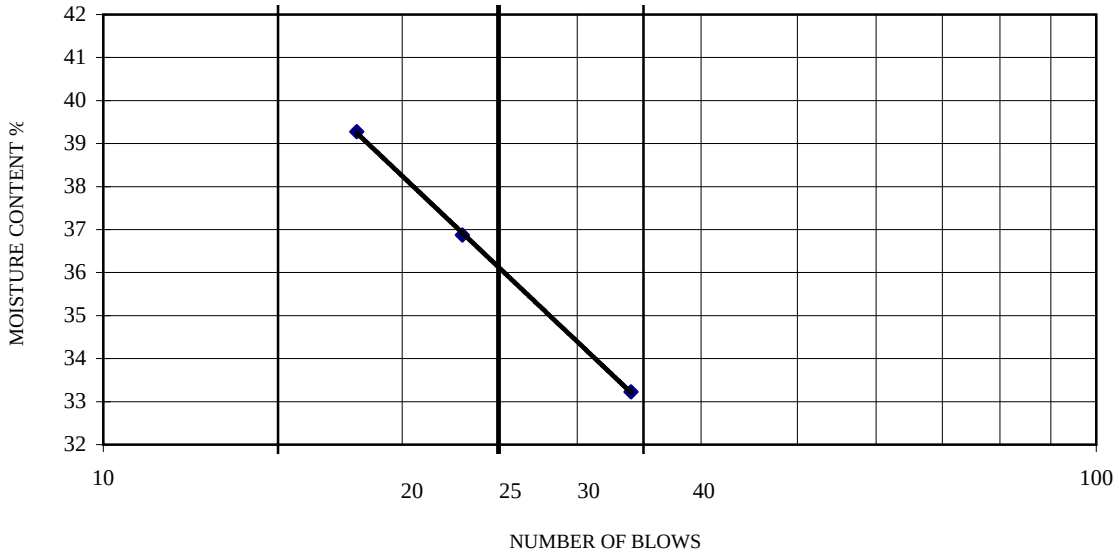
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	34	23	18
Mass of Wet Sample & Tare, g	41.49	44.01	38.17
Mass of Dry Sample & Tare, g	37.31	39.88	34.60
Mass of Tare, g	24.73	28.68	25.51
Moisture Content, %	33.23	36.88	39.27

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	27.62	28.04
Mass of Dry Sample & Tare, g	27.11	27.22
Mass of Tare, g	24.30	22.75
Moisture Content, %	18.15	18.34

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	322.50
Mass of Dry Sample & Tare, g	283.70
Mass of Tare, g	139.90
Moisture Content, %	26.98

LIQUID LIMIT (LL)	36
PLASTIC LIMIT (PL)	18
PLASTICITY INDEX (PI)	18
LIQUIDITY INDEX (LI)	0.50

DESCRIPTION: Reddish Brown Lean Clay with Sand

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

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Web: www.test-llc.com

Tested By	EB
Date	11/04/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

As-Received Moisture Content

Mass of Wet Sample & Tare, g	322.50
Mass of Dry Sample & Tare, g	283.70
Mass of Tare, g	139.90
Moisture Content, %	27.0

Moisture Content of Material Used for Hydrometer Analysis

Mass of Wet Sample & Tare, g	545.00
Mass of Dry Sample & Tare, g	498.90
Mass of Tare, g	182.30
Moisture Content, %	14.6

Mass of Total Sample before separation on #4 sieve & Tare, g	1065.00
Mass of Tare, g	0.00
Total Mass of Dry Sample, g	929.64

Mass of Sample used for hydrometer analysis, g	75.60
Dry Mass, g	65.99
% of Total Sample passing #4 sieve	98.1

SIEVE ANALYSIS

PORTION OF SAMPLE RETAINED ON #4 SIEVE

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	%PASSING
12"	COBBLES		0.0	100.0
3"			0.0	100.0
2.5"	COARSE		0.0	100.0
2"	GRAVEL		0.0	100.0
1.5"			0.0	100.0
1"			0.0	100.0
.75"		0.00	0.0	100.0
.5"	FINE GRAVEL	11.67	1.3	98.7
.375"		15.01	1.6	98.4
#4	COARSE SAND	18.12	1.9	98.1

PORTION OF SAMPLE PASSING #4 SIEVE (Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING
#10	MEDIUM	2.29	94.6
#20	SAND	4.66	91.1
#40		6.82	87.9
#60	FINE SAND	9.72	83.6
#100		12.36	79.7
#200	FINES	15.88	74.5

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.700
Specific Gravity (tested)	
Starting time	14:02

PARTICLE-SIZE ANALYSIS

% COBBLES	0.0	% MEDIUM SAND	6.7
% COARSE GRAVEL	0.0	% FINE SAND	13.5
% FINE GRAVEL	1.9	% FINES	74.5
% COARSE SAND	3.4	% TOTAL SAMPLE	100.0
% CLAY(<0.005mm)	29.6	% CLAY(<0.002mm)	22.2

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:04	2	48.0	22.0	0.01312	6.5	41.5	9.5	0.99	0.0286	61.0
11/06/17	14:07	5	44.0	22.0	0.01312	6.5	37.5	10.2	0.99	0.0187	55.2
11/06/17	14:17	15	36.0	22.0	0.01312	6.5	29.5	11.5	0.99	0.0115	43.4
11/06/17	14:32	30	31.0	22.0	0.01312	6.5	24.5	12.3	0.99	0.0084	36.0
11/06/17	15:02	60	28.0	22.0	0.01312	6.5	21.5	12.8	0.99	0.0061	31.6
11/06/17	18:12	250	24.0	22.0	0.01312	6.5	17.5	13.5	0.99	0.0030	25.7
11/07/17	14:02	1440	20.0	22.0	0.01312	6.5	13.5	14.1	0.99	0.0013	19.9

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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Web: www.test-llc.com

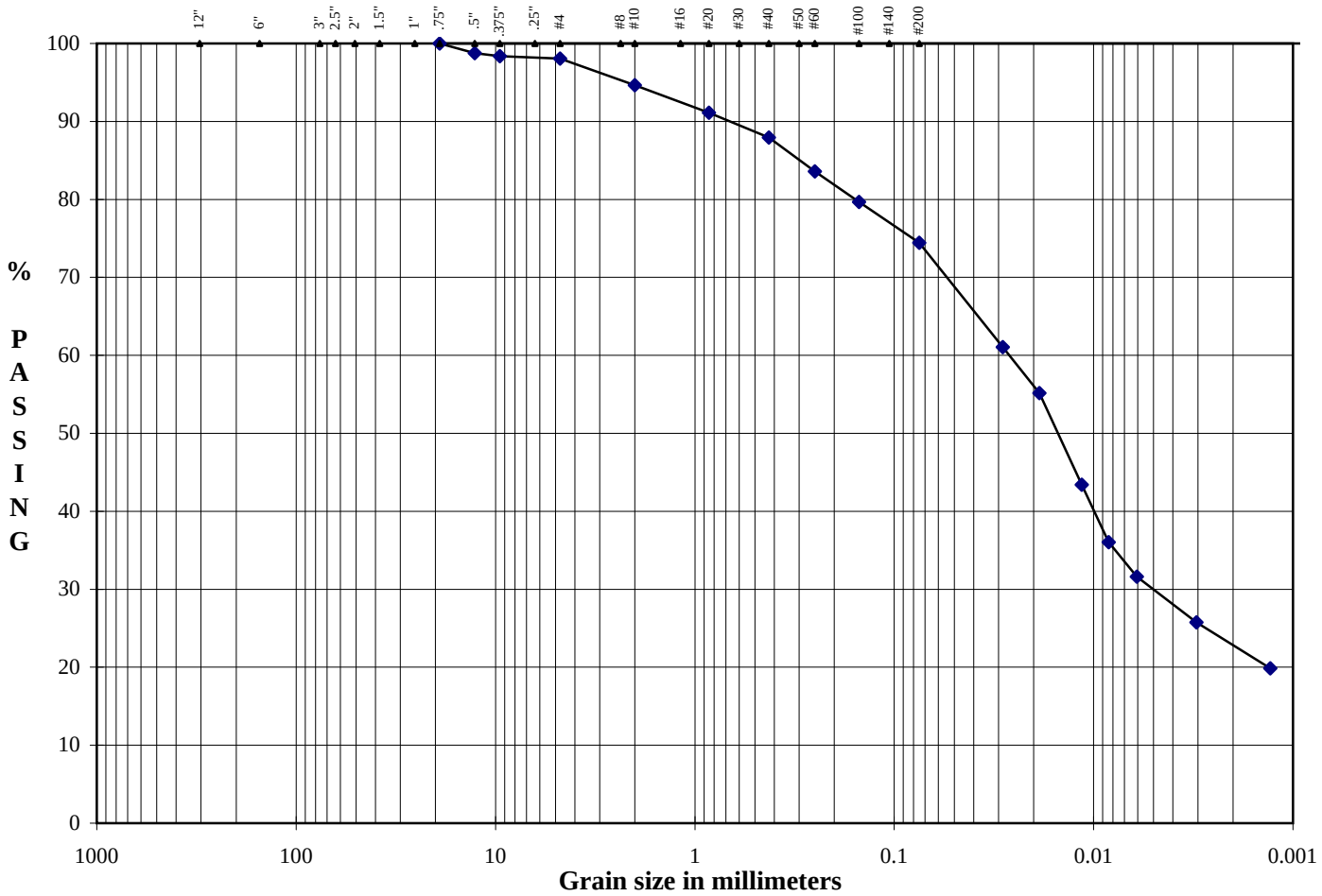
Tested By	EB
Date	11/04/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26133/ST-3	Depth/Elev.	18'
Location	P-260	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Reddish Brown Lean Clay with Sand

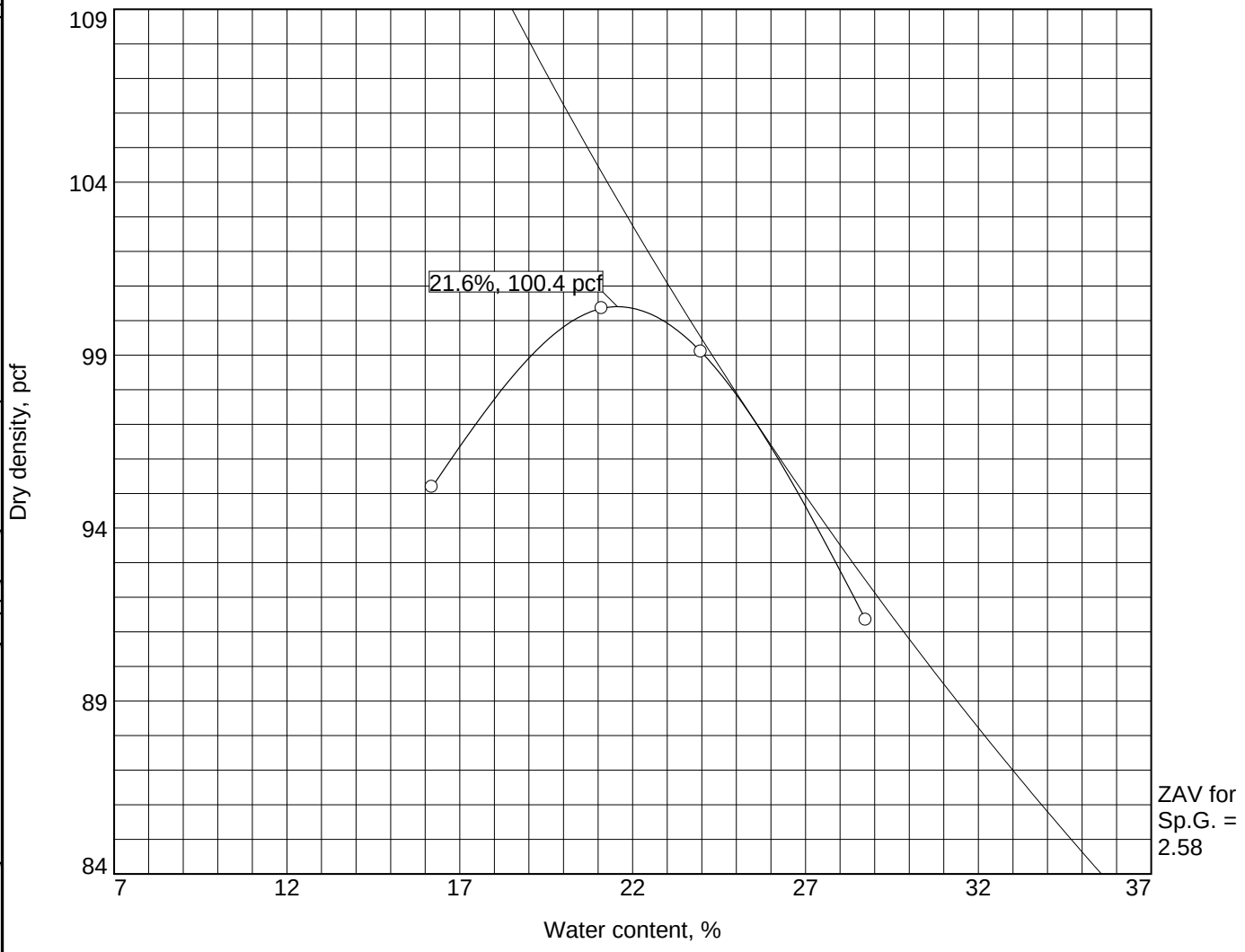
USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

COMPACTION TEST REPORT



Test specification: ASTM D 698-12 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
1.00-4.00	MH	A-7-5(20)	26.1	2.58	59	17	3	85

TEST RESULTS

Maximum dry density = 100.4 pcf

Optimum moisture = 21.6 %

MATERIAL DESCRIPTION

Medium stiff to stiff, moist, organish brown to tan, Elastic SILT (MH)(A-7-5) with trace gravel

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Date: 11/17/17

○ **Source of Sample:** P-262 **Sample Number:** D4S-1499

Remarks:

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Figure

Tested By: AS

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Phone: 770-938-8233
Fax: 770-923-8973
Web: www.test-llc.com

Tested By	NK+
Date	11/05/17
Checked By	VB

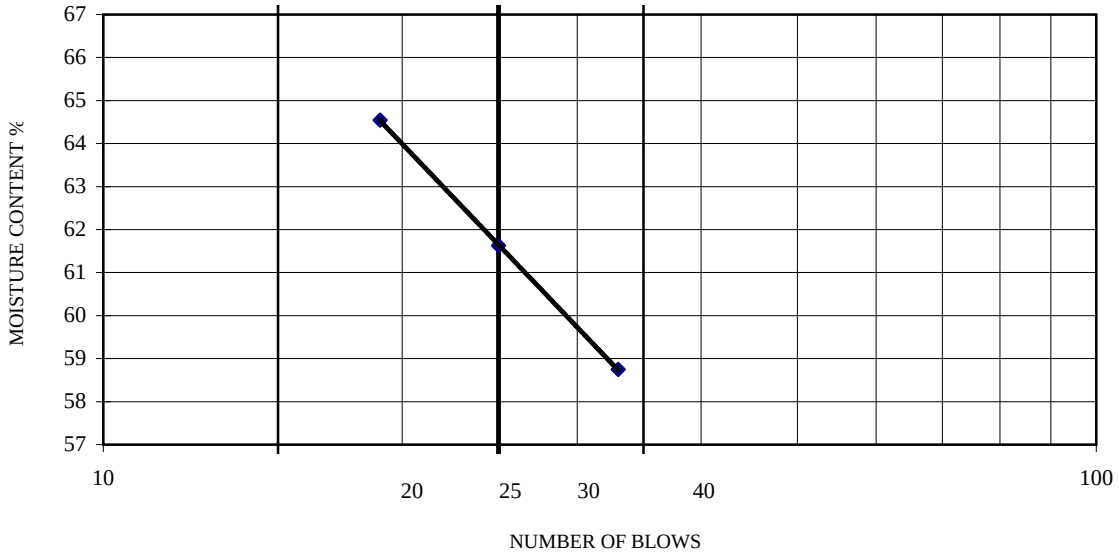
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	33	25	19
Mass of Wet Sample & Tare, g	39.80	43.48	37.38
Mass of Dry Sample & Tare, g	34.09	37.41	32.21
Mass of Tare, g	24.37	27.56	24.20
Moisture Content, %	58.74	61.62	64.54

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.05	37.03
Mass of Dry Sample & Tare, g	31.58	34.67
Mass of Tare, g	22.96	26.43
Moisture Content, %	28.65	28.64

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	345.20
Mass of Dry Sample & Tare, g	297.30
Mass of Tare, g	139.30
Moisture Content, %	30.32

LIQUID LIMIT (LL)	62
PLASTIC LIMIT (PL)	29
PLASTICITY INDEX (PI)	33
LIQUIDITY INDEX (LI)	0.04

DESCRIPTION: Red Fat Clay

USCS (ASTM D2487; D2488): CH

AASHTO (M 145): NA

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Web: www.test-llc.com

Tested By	EB
Date	11/05/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

As-Received Moisture Content

Mass of Wet Sample & Tare, g	345.20
Mass of Dry Sample & Tare, g	297.30
Mass of Tare, g	139.30
Moisture Content, %	30.3

Moisture Content of Material Used for Hydrometer Analysis

Mass of Wet Sample & Tare, g	488.20
Mass of Dry Sample & Tare, g	468.10
Mass of Tare, g	182.40
Moisture Content, %	7.0

Mass of Total Sample before separation on #4 sieve & Tare, g	934.00
Mass of Tare, g	0.00
Total Mass of Dry Sample, g	872.61

Mass of Sample used for hydrometer analysis, g	78.00
Dry Mass, g	72.87
% of Total Sample passing #4 sieve	99.3

SIEVE ANALYSIS

PORTION OF SAMPLE RETAINED ON #4 SIEVE

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	%PASSING
12"	COBBLES		0.0	100.0
3"			0.0	100.0
2.5"	COARSE		0.0	100.0
2"	GRAVEL		0.0	100.0
1.5"			0.0	100.0
1"			0.0	100.0
.75"			0.0	100.0
.5"	FINE GRAVEL		0.0	100.0
.375"		0.00	0.0	100.0
#4	COARSE SAND	6.28	0.7	99.3

PORTION OF SAMPLE PASSING #4 SIEVE (Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING
#10	MEDIUM	1.79	96.8
#20	SAND	2.94	95.3
#40		3.74	94.2
#60	FINE SAND	4.61	93.0
#100		5.51	91.8
#200	FINES	7.30	89.3

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.700
Specific Gravity (tested)	
Starting time	14:04

PARTICLE-SIZE ANALYSIS

% COBBLES	0.0	% MEDIUM SAND	2.7
% COARSE GRAVEL	0.0	% FINE SAND	4.9
% FINE GRAVEL	0.7	% FINES	89.3
% COARSE SAND	2.4	% TOTAL SAMPLE	100.0
% CLAY(<0.005mm)	46.9	% CLAY(<0.002mm)	39.9

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:06	2	63.0	22.0	0.01312	6.5	56.5	7.0	0.99	0.0245	76.2
11/06/17	14:09	5	58.0	22.0	0.01312	6.5	51.5	7.8	0.99	0.0164	69.5
11/06/17	14:19	15	51.0	22.0	0.01312	6.5	44.5	9.0	0.99	0.0102	60.0
11/06/17	14:34	30	46.5	22.0	0.01312	6.5	40.0	9.7	0.99	0.0075	53.9
11/06/17	15:04	60	42.0	22.0	0.01312	6.5	35.5	10.5	0.99	0.0055	47.9
11/06/17	18:14	250	38.0	22.0	0.01312	6.5	31.5	11.2	0.99	0.0028	42.5
11/07/17	14:04	1440	34.0	22.0	0.01312	6.5	27.5	11.8	0.99	0.0012	37.1

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY ENGINEERING SOIL TESTS, LLC

1874 Forge Street Tucker, GA 30084

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Fax: 770-923-8973

Web: www.test-llc.com

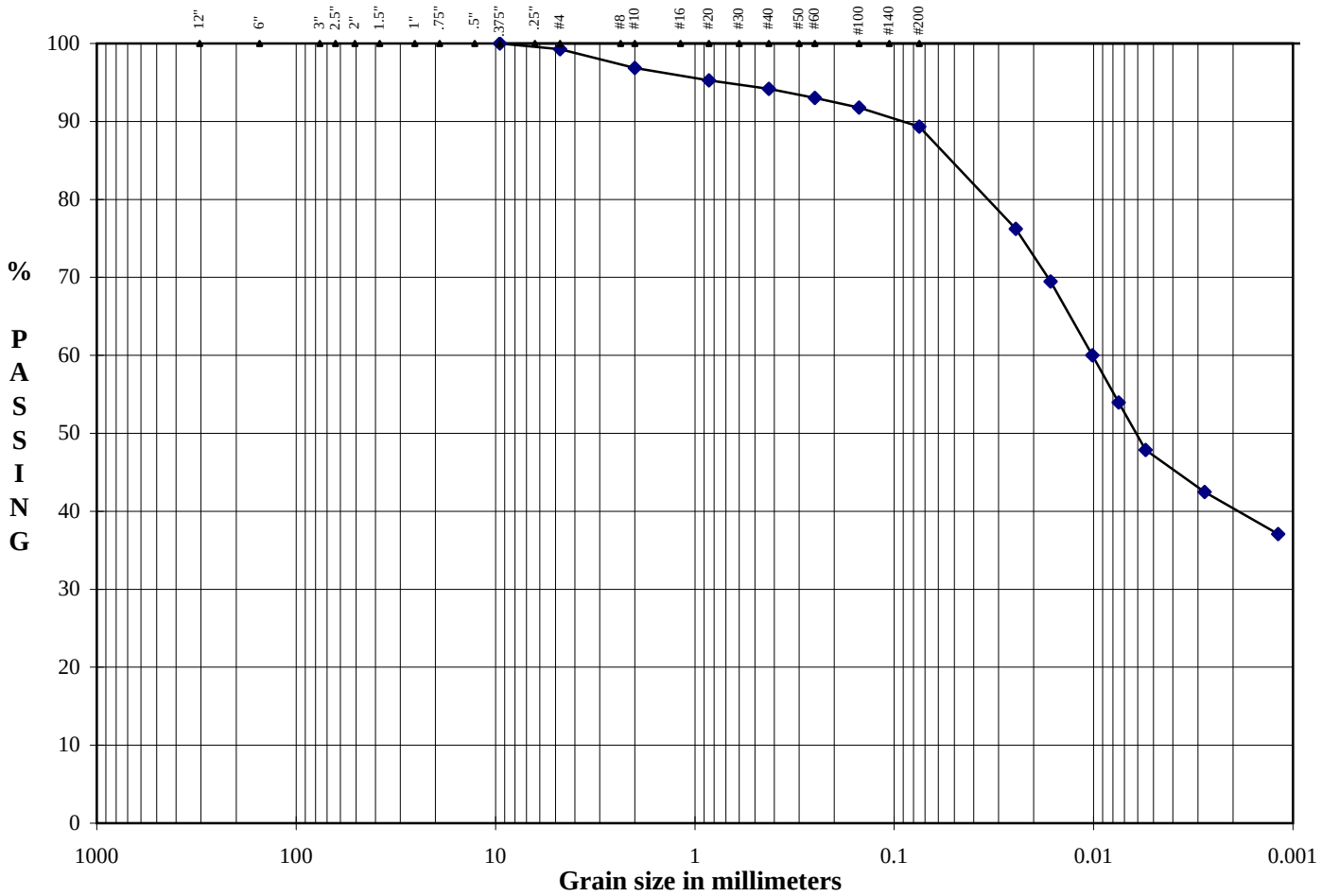
Tested By	EB
Date	11/05/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26134/ST-4	Depth/Elev.	20'
Location	P-262	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Red Fat Clay

USCS (ASTM D2487; D2488): CH

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	NK
Date	11/05/17
Checked By	

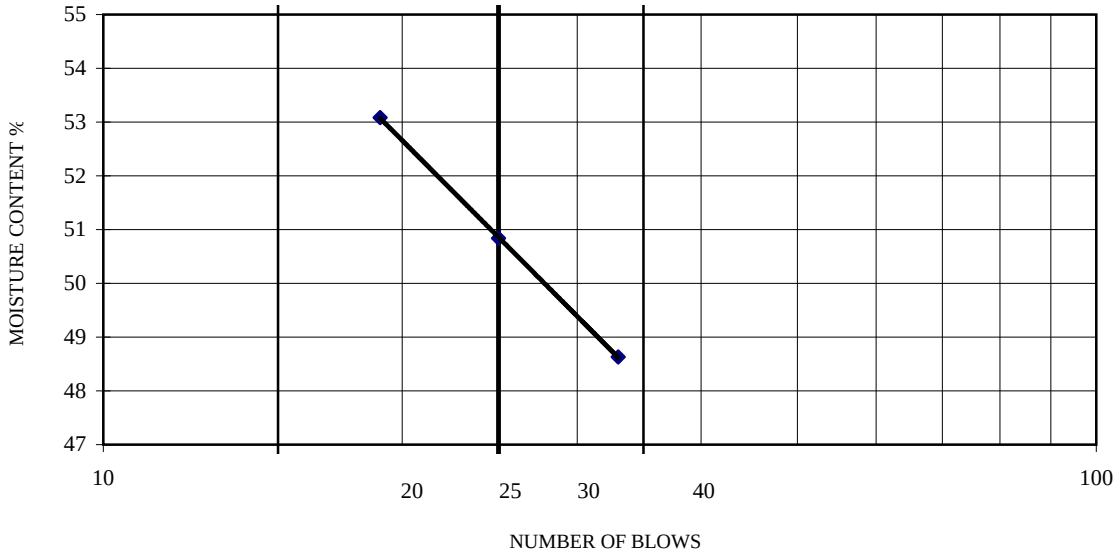
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	33	25	19
Mass of Wet Sample & Tare, g	35.85	38.65	38.09
Mass of Dry Sample & Tare, g	31.59	33.82	33.61
Mass of Tare, g	22.83	24.32	25.17
Moisture Content, %	48.63	50.84	53.08

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	37.09	33.29
Mass of Dry Sample & Tare, g	34.90	31.20
Mass of Tare, g	26.48	23.03
Moisture Content, %	26.01	25.58

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1185.40
Mass of Dry Sample & Tare, g	898.16
Mass of Tare, g	0.00
Moisture Content, %	31.98

LIQUID LIMIT (LL)	51
PLASTIC LIMIT (PL)	26
PLASTICITY INDEX (PI)	25
LIQUIDITY INDEX (LI)	0.24

DESCRIPTION: Red Fat Clay with Sand

USCS (ASTM D2487; D2488): CH

AASHTO (M 145): NA

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Web: www.test-llc.com

Tested By	EB
Date	11/05/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

As-Received Moisture Content

Mass of Wet Sample & Tare, g	1185.40
Mass of Dry Sample & Tare, g	898.16
Mass of Tare, g	0.00
Moisture Content, %	32.0

Moisture Content of Material Used for Hydrometer Analysis

Mass of Wet Sample & Tare, g	499.60
Mass of Dry Sample & Tare, g	478.60
Mass of Tare, g	126.40
Moisture Content, %	6.0

Mass of Total Sample before separation on #4 sieve & Tare, g	1228.00
Mass of Tare, g	0.00
Total Mass of Dry Sample, g	1158.90

Mass of Sample used for hydrometer analysis, g	75.30
Dry Mass, g	71.06
% of Total Sample passing #4 sieve	95.5

SIEVE ANALYSIS

PORTION OF SAMPLE RETAINED ON #4 SIEVE

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	%PASSING
12"	COBBLES		0.0	100.0
3"			0.0	100.0
2.5"	COARSE		0.0	100.0
2"	GRAVEL		0.0	100.0
1.5"			0.0	100.0
1"			0.0	100.0
.75"		0.00	0.0	100.0
.5"	FINE GRAVEL	25.62	2.2	97.8
.375"		33.64	2.9	97.1
#4	COARSE SAND	52.52	4.5	95.5

PORTION OF SAMPLE PASSING #4 SIEVE (Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING
#10	MEDIUM	2.15	92.6
#20	SAND	3.91	90.2
#40		5.16	88.5
#60	FINE SAND	6.70	86.5
#100		8.30	84.3
#200	FINES	11.63	79.8

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.700
Specific Gravity (tested)	
Starting time	14:06

PARTICLE-SIZE ANALYSIS

% COBBLES	0.0	% MEDIUM SAND	4.0
% COARSE GRAVEL	0.0	% FINE SAND	8.7
% FINE GRAVEL	4.5	% FINES	79.8
% COARSE SAND	2.9	% TOTAL SAMPLE	100.0
% CLAY(<0.005mm)	36.1	% CLAY(<0.002mm)	28.3

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/06/17	14:08	2	56.0	22.0	0.01312	6.5	49.5	8.2	0.99	0.0265	65.8
11/06/17	14:11	5	48.0	22.0	0.01312	6.5	41.5	9.5	0.99	0.0181	55.2
11/06/17	14:21	15	42.0	22.0	0.01312	6.5	35.5	10.5	0.99	0.0110	47.2
11/06/17	14:36	30	37.0	22.0	0.01312	6.5	30.5	11.3	0.99	0.0081	40.6
11/06/17	15:06	60	35.0	22.0	0.01312	6.5	28.5	11.6	0.99	0.0058	37.9
11/06/17	18:16	250	30.0	22.0	0.01312	6.5	23.5	12.5	0.99	0.0029	31.3
11/07/17	14:06	1440	26.0	22.0	0.01312	6.5	19.5	13.1	0.99	0.0013	25.9

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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Web: www.test-llc.com

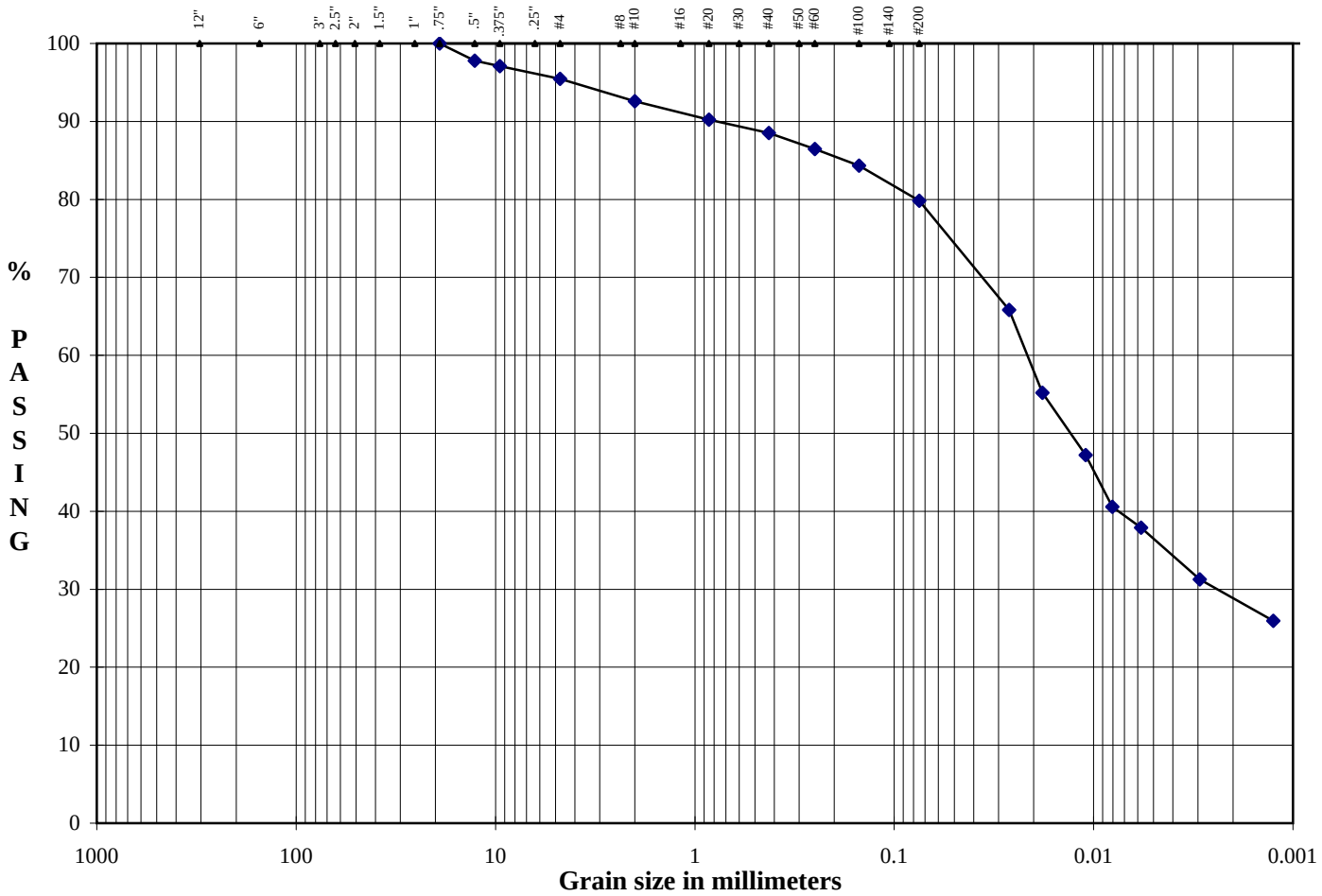
Tested By	EB
Date	11/05/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	UD
Sample ID	26135/ST-1	Depth/Elev.	18'
Location	P-266	Add. Info	-

ASTM D 422/AASHTO T 88

Standard Test Method for Particle-Size Analysis of Soils (with Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Red Fat Clay with Sand

USCS (ASTM D2487; D2488): CH

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	NK
Date	10/05/17
Checked By	

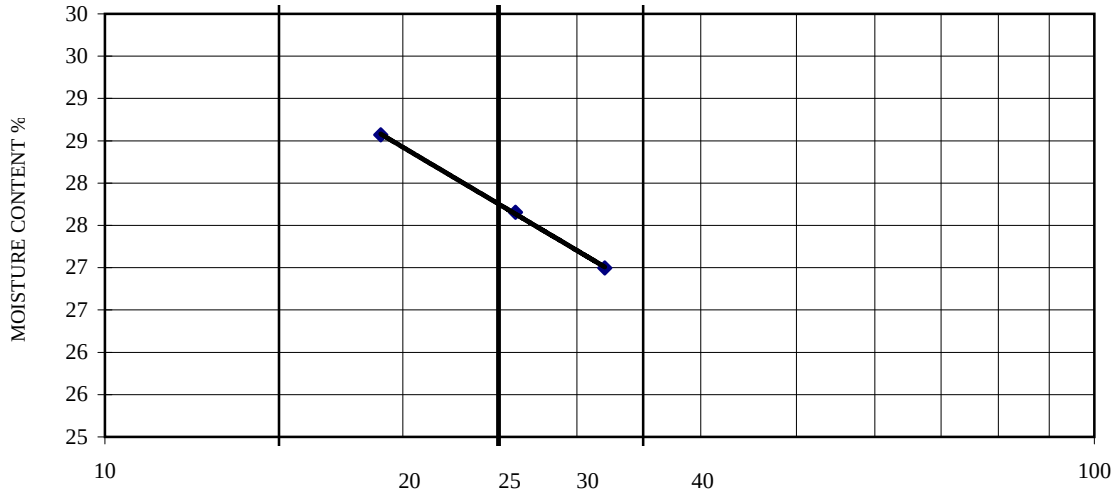
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	26	19
Mass of Wet Sample & Tare, g	35.79	40.10	39.30
Mass of Dry Sample & Tare, g	32.51	37.08	36.06
Mass of Tare, g	20.36	26.16	24.72
Moisture Content, %	27.00	27.66	28.57

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.45	36.20
Mass of Dry Sample & Tare, g	32.69	34.33
Mass of Tare, g	23.69	24.82
Moisture Content, %	19.56	19.66

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1172.20
Mass of Dry Sample & Tare, g	1060.50
Mass of Tare, g	336.20
Moisture Content, %	15.42

LIQUID LIMIT (LL)	28
PLASTIC LIMIT (PL)	20
PLASTICITY INDEX (PI)	8
LIQUIDITY INDEX (LI)	-0.57

DESCRIPTION: Dark Brown Clayey Sand

USCS (ASTM D2487; D2488): SC

AASHTO (M 145): NA

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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1172.2
Mass of Dry Sample & Tare, g	1060.5
Mass of Tare, g	336.2
Moisture Content, %	15.4

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	497.8	447.80
Mass of Dry Sample & Tare, g	455.4	411.60
Mass of Tare, g	112.5	85.30
Moisture Content, %	12.4	11.1

Mass of Total Sample before separation on 3/8" sieve & Tare, g	23600.0
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	20447

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1934.6	73.90
Mass of Tare	0.0	0.0
Dry Mass, g	1721.7	66.52
% of Total Sample passing Split Sieve	93.3	90.9

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL	0.0	0	100
1.5"		144.9	1	99
1"		504.1	2	98
.75"		810.4	4	96
.5"	FINE GRAVEL	1182.7	6	94
.375"		1372.8	7	93
#4	COARSE SAND	44.5	3	91

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.12	88
#20	SAND	5.72	83
#40		9.72	78
#60	FINE SAND	16.21	69
#100		23.64	59
#200	FINES	32.63	46

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:42

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	10
% COARSE GRAVEL	4	% FINE SAND	31
% FINE GRAVEL	5	% FINES	46
% COARSE SAND	3	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	15	% CLAY(<0.002mm)	10

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:44	2	30.0	23.3	0.01317	6.5	23.5	12.5	1.00	0.0329	32.1
11/07/17	14:47	5	26.0	23.3	0.01317	6.5	19.5	13.1	1.00	0.0214	26.6
11/07/17	14:57	15	23.0	23.3	0.01317	6.5	16.5	13.6	1.00	0.0126	22.5
11/07/17	15:12	30	20.0	23.3	0.01317	6.5	13.5	14.1	1.00	0.0090	18.4
11/07/17	15:42	60	19.0	23.3	0.01317	6.5	12.5	14.3	1.00	0.0064	17.1
11/07/17	18:52	250	16.0	23.3	0.01317	6.5	9.5	14.8	1.00	0.0032	13.0
11/08/17	14:42	1440	13.0	23.3	0.01317	6.5	6.5	15.3	1.00	0.0014	8.9

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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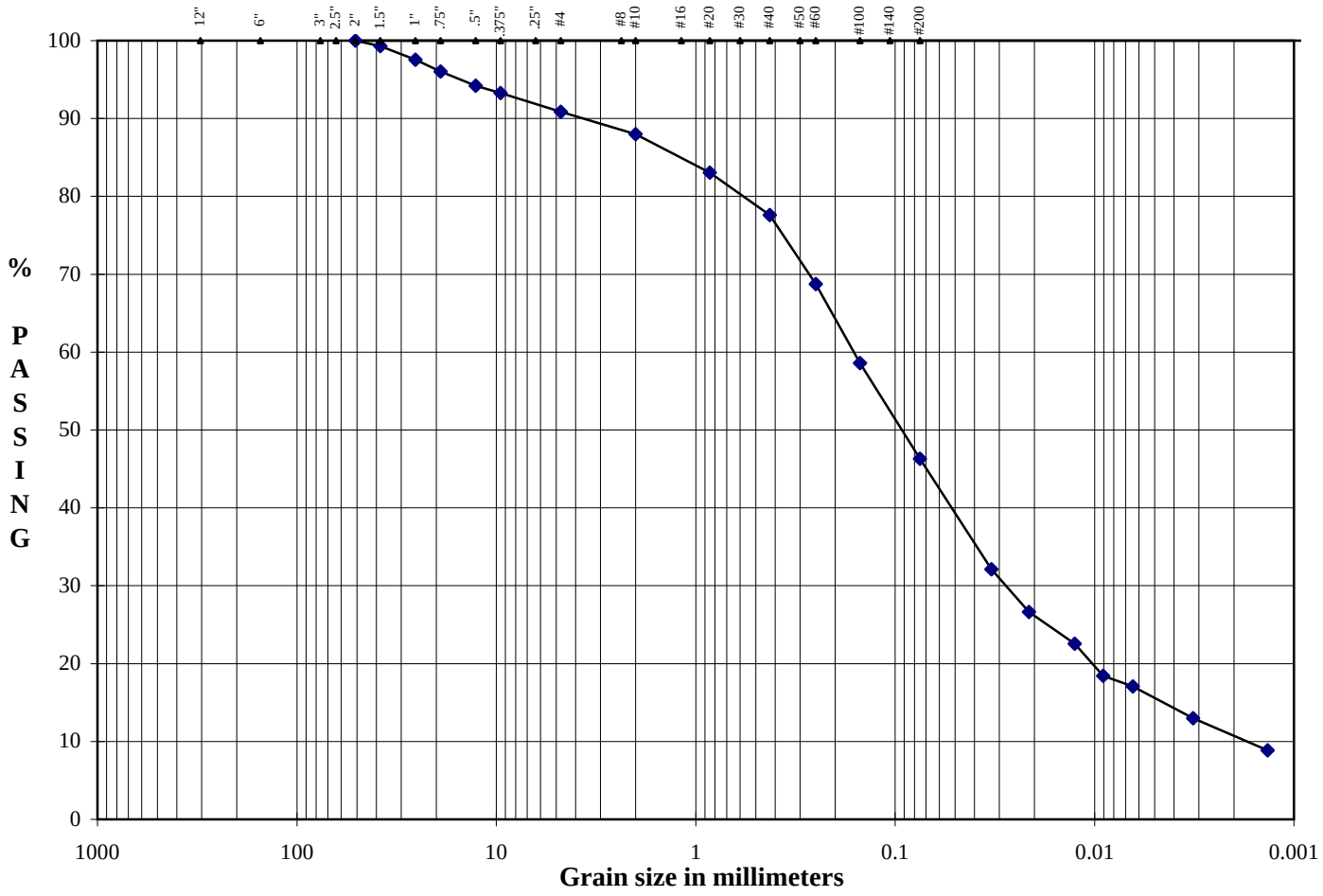
Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Clayey Sand

USCS (ASTM D2487; D2488): SC

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

TIMELY ENGINEERING SOIL TESTS, LLC
1874 Forge Street Tucker, GA 30084
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Fax: 770-923-8973
Web: www.test-llc.com

Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26149/BS-13	Depth/Elev.	-
Location	R-11	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	23600.0	20446.7
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1372.6	1372.6
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	6.7
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	6.7

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1172.2	1372.6
Mass of Dry Sample & Tare, g	1060.5	1372.6
Mass of Tare, g	336.2	0.0
Moisture Content, %	15.4	0.0

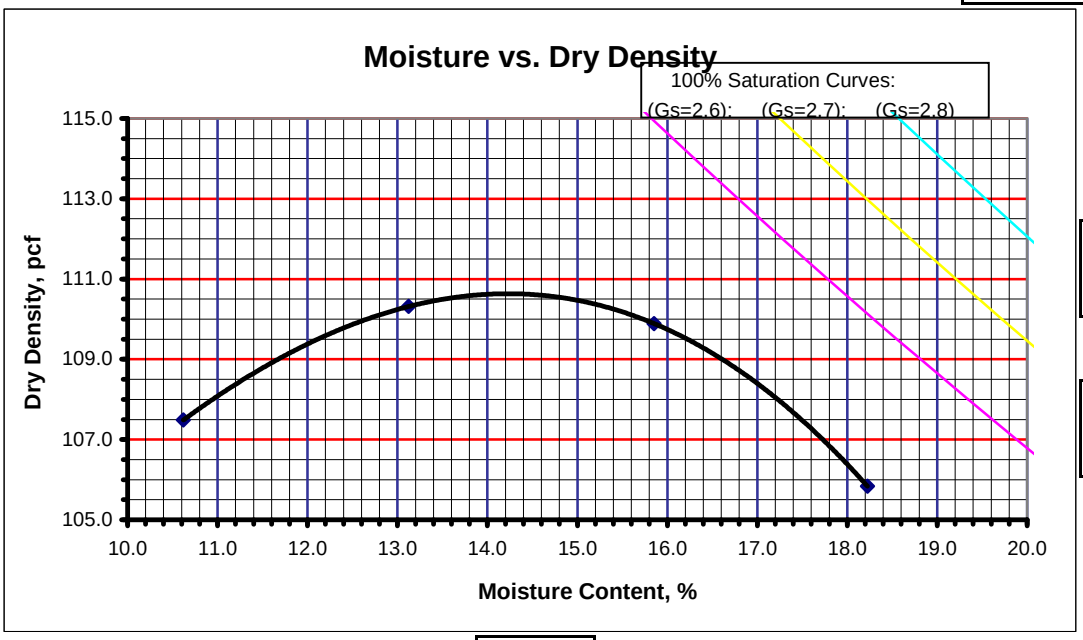
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	5988.0	6077.0	6115.0	6082.0	
Mass of Wet Sample & Tare, g	546.6	541.7	544.5	573.9	
Mass of Dry Sample & Tare, g	507.4	495.2	489.3	506.8	
Mass of Tare, g	138.3	140.9	141.1	138.6	
Moisture Content, %	10.6	13.1	15.9	18.2	
Wet Density, pcf	118.9	124.8	127.3	125.1	
Dry Density, pcf	107.5	110.3	109.9	105.8	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Clayey Sand

USCS (ASTM D2487; D2488)
SC

AASHTO M145
NA

Maximum Dry Density, pcf	110.6	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	14.3	**Corrected Optimum Moisture Content, %**	**NA**

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	NK
Date	11/05/17
Checked By	

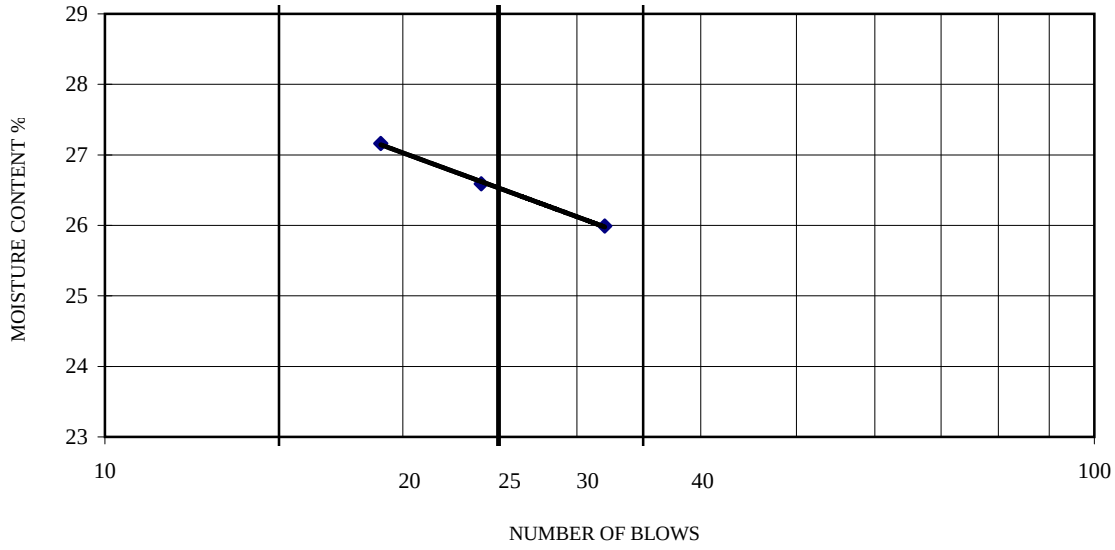
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	32	24	19
Mass of Wet Sample & Tare, g	39.53	40.36	41.64
Mass of Dry Sample & Tare, g	36.91	37.06	37.65
Mass of Tare, g	26.83	24.65	22.96
Moisture Content, %	25.99	26.59	27.16

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	34.71	35.35
Mass of Dry Sample & Tare, g	33.49	33.75
Mass of Tare, g	27.19	25.22
Moisture Content, %	19.37	18.76

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1319.80
Mass of Dry Sample & Tare, g	1270.60
Mass of Tare, g	607.20
Moisture Content, %	7.42

LIQUID LIMIT (LL)	27
PLASTIC LIMIT (PL)	19
PLASTICITY INDEX (PI)	8
LIQUIDITY INDEX (LI)	-1.45

DESCRIPTION: Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

AASHTO (M 145): NA

TIMELY ENGINEERING SOIL TESTS, LLC
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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1319.8
Mass of Dry Sample & Tare, g	1270.6
Mass of Tare, g	607.2
Moisture Content, %	7.4

Moisture Content of FINER PORTION

	1st Subsample	*2nd Subsample*
Mass of Wet Sample & Tare, g	520.8	464.50
Mass of Dry Sample & Tare, g	500.7	453.20
Mass of Tare, g	93.4	40.90
Moisture Content, %	4.9	2.7

Mass of Total Sample before separation on 3/8" sieve & Tare, g	24480
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	22790

	1st Subsample	*2nd Subsample*
Mass of Wet Finer Portion & Tare, g	1946.8	75.00
Mass of Tare	0.0	0.0
Dry Mass, g	1855.2	73.00
% of Total Sample passing Split Sieve	91.6	89.1

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL	0.0	0	100
1.5"		150.4	1	99
1"		441.8	2	98
.75"		741.8	3	97
.5"	FINE GRAVEL	1599.4	7	93
.375"		1919.0	8	92
#4	COARSE SAND	49.4	3	89

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	5.65	82
#20	SAND	10.50	76
#40		13.07	73
#60	FINE SAND	15.64	70
#100		17.91	67
#200	FINES	21.44	63

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:46

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	9
% COARSE GRAVEL	3	% FINE SAND	10
% FINE GRAVEL	8	% FINES	63
% COARSE SAND	7	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	14	% CLAY(<0.002mm)	10

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:48	2	42.0	23.3	0.01317	6.5	35.5	10.5	1.00	0.0302	43.3
11/07/17	14:51	5	36.0	23.3	0.01317	6.5	29.5	11.5	1.00	0.0200	36.0
11/07/17	15:01	15	28.0	23.3	0.01317	6.5	21.5	12.8	1.00	0.0122	26.3
11/07/17	15:16	30	23.0	23.3	0.01317	6.5	16.5	13.6	1.00	0.0089	20.1
11/07/17	15:46	60	20.0	23.3	0.01317	6.5	13.5	14.1	1.00	0.0064	16.5
11/07/17	18:56	250	16.0	23.3	0.01317	6.5	9.5	14.8	1.00	0.0032	11.6
11/08/17	14:46	1440	14.0	23.3	0.01317	6.5	7.5	15.1	1.00	0.0014	9.2

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

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SOIL
TESTS, LLC

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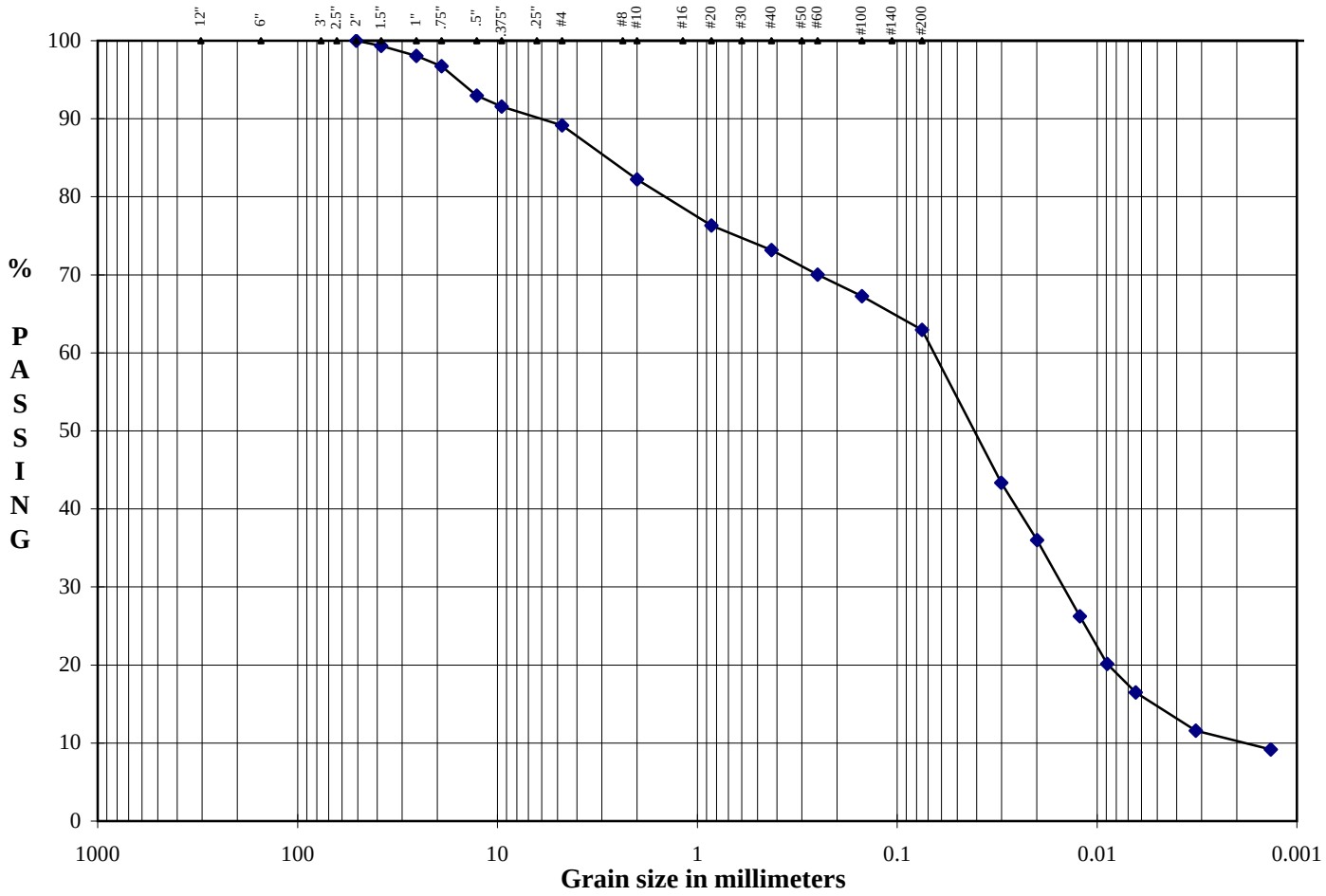
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488): CL

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

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Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26151/BS-15	Depth/Elev.	-
Location	R-21	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	24480.0	22789.8
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	1919.0	1919.0
Mass of Mat. Retained on 3/4" sieve, g		

Material Retained on No. 4 Sieve, %	
Material Retained on 3/8" Sieve, %	8.4
Material Retained on 3/4" Sieve, %	
Total, % (oversized)	8.4

MOISTURE CONTENT

	Coarse + Fine Fraction	Coarse Fraction
Mass of Wet Sample & Tare, g	1319.8	1919.0
Mass of Dry Sample & Tare, g	1270.6	1919.0
Mass of Tare, g	607.2	0.0
Moisture Content, %	7.4	0.0

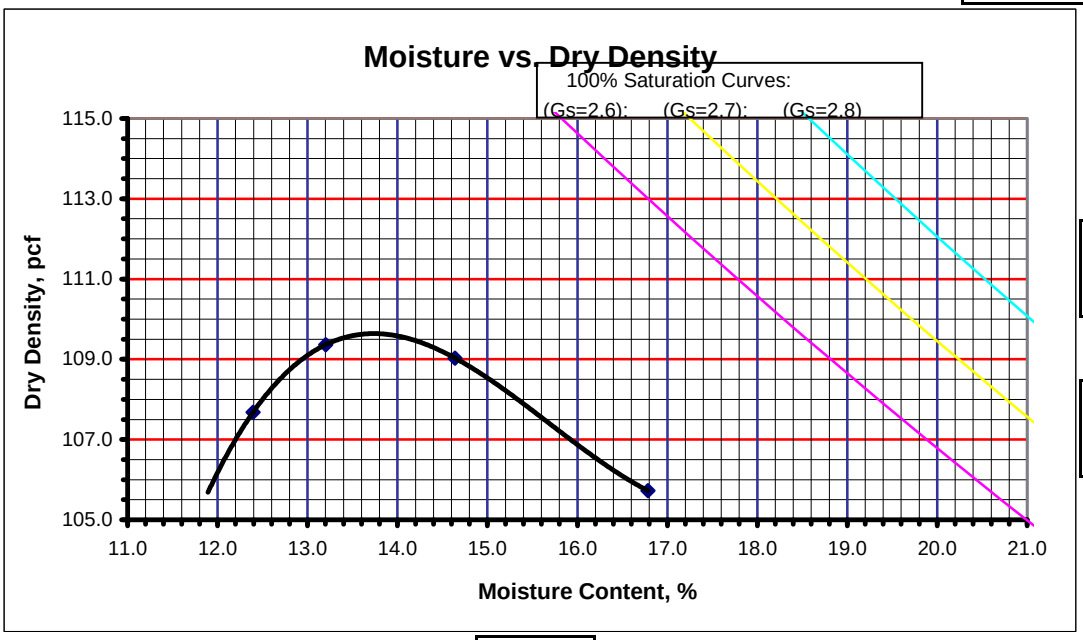
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6020.0	6062.0	6080.0	6057.0	
Mass of Wet Sample & Tare, g	560.2	534.5	537.3	517.0	
Mass of Dry Sample & Tare, g	513.8	488.4	486.5	462.6	
Mass of Tare, g	139.4	139.2	139.5	138.5	
Moisture Content, %	12.4	13.2	14.6	16.8	
Wet Density, pcf	121.0	123.8	125.0	123.5	
Dry Density, pcf	107.7	109.4	109.0	105.7	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Olive Yellow Sandy Lean Clay

USCS (ASTM D2487; D2488)
CL

AASHTO M145
NA

Maximum Dry Density, pcf	109.6	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	13.7	**Corrected Optimum Moisture Content, %**	**NA**

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Web: www.test-llc.com

Tested By	NK
Date	11/05/17
Checked By	

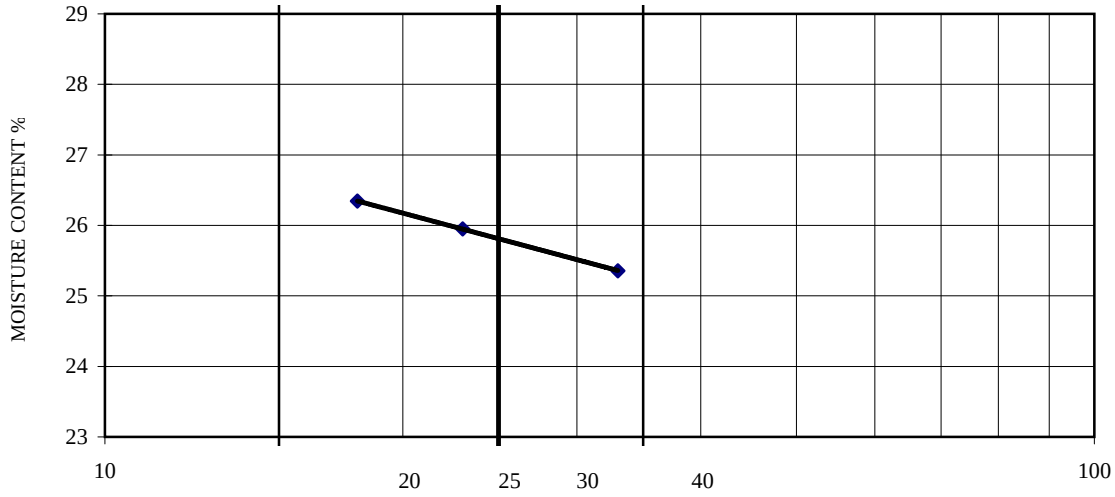
Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

ASTM D 4318/AASHTO T 88, T 89
Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils (Atterberg Limits)

LIQUID LIMIT

Number of Blows	33	23	18
Mass of Wet Sample & Tare, g	42.31	42.41	42.26
Mass of Dry Sample & Tare, g	38.41	38.86	38.78
Mass of Tare, g	23.03	25.18	25.57
Moisture Content, %	25.36	25.95	26.34

Oven ID #	15/496/610
Balance ID #	139/563
Liquid Limit Device ID #	451/569



PLASTIC LIMIT

Mass of Wet Sample & Tare, g	32.47	36.21
Mass of Dry Sample & Tare, g	31.84	34.70
Mass of Tare, g	27.59	24.82
Moisture Content, %	14.82	15.28

NOTE: MATERIAL PASSING NO. 40 SIEVE WAS USED FOR TEST

NATURAL MOISTURE

Mass of Wet Sample & Tare, g	1166.30
Mass of Dry Sample & Tare, g	1067.50
Mass of Tare, g	357.80
Moisture Content, %	13.92

LIQUID LIMIT (LL)	26
PLASTIC LIMIT (PL)	15
PLASTICITY INDEX (PI)	11
LIQUIDITY INDEX (LI)	-0.10

DESCRIPTION: Dark Brown Clayey Sand

USCS (ASTM D2487; D2488): SC

AASHTO (M 145): NA

TIMELY ENGINEERING SOIL TESTS, LLC
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Tested By	ED
Date	11/03/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

As-Received Moisture Content (Total Sample)

Mass of Wet Sample & Tare, g	1166.3
Mass of Dry Sample & Tare, g	1067.5
Mass of Tare, g	357.8
Moisture Content, %	13.9

Moisture Content of FINER PORTION

	1st Subsample	2nd Subsample
Mass of Wet Sample & Tare, g	438.1	519.70
Mass of Dry Sample & Tare, g	403.9	491.90
Mass of Tare, g	105.8	99.30
Moisture Content, %	11.5	7.1

Mass of Total Sample before separation on 3/8" sieve & Tare, g	21160
Mass of Tare, g	0.0
Total Mass of Dry Sample, g	18574

	1st Subsample	2nd Subsample
Mass of Wet Finer Portion & Tare, g	1927.4	73.60
Mass of Tare	0.0	0.0
Dry Mass, g	1729.0	68.73
% of Total Sample passing Split Sieve	99.9	99.4

SIEVE ANALYSIS

COARSER PORTION OF SAMPLE (RETAINED ON 3/8" SIEVE)

Mass of Tare, g: 0.00

Sieve Size		Sample & Tare, g	% RETAINED	% PASSING (of Total)
12"	COBBLES		0	100
3"			0	100
2.5"	COARSE		0	100
2"	GRAVEL		0	100
1.5"			0	100
1"			0	100
.75"		0.0	0	100
.5"	FINE GRAVEL	13.4	0	100
.375"		18.2	0	100
#4	COARSE SAND	9.5	1	99

#4 <First Subsample of Finer Portion<3/8"

2nd Subsample of FINER PORTION OF SAMPLE (PASSING #4 SIEVE:Hydrometer Backsieve)

Sieve Size		Cumulative Mass retained, g	% PASSING (of Total)
#10	MEDIUM	2.99	95
#20	SAND	6.90	89
#40		10.71	84
#60	FINE SAND	17.73	74
#100		27.76	59
#200	FINES	40.89	40

Remarks

HYDROMETER ANALYSIS

Length of Dispersion Period	1 Minute
Mechanical Dispersion Device ID #	61
Amount of Dispersing Agent (ml)	125.0
Specific Gravity (assumed)	2.650
Specific Gravity (tested)	
Starting time	14:44

PARTICLE-SIZE ANALYSIS

% COBBLES	0	% MEDIUM SAND	11
% COARSE GRAVEL	0	% FINE SAND	44
% FINE GRAVEL	1	% FINES	40
% COARSE SAND	4	% TOTAL SAMPLE	100
% CLAY(<0.005mm)	13	% CLAY(<0.002mm)	8

Date	Time	Testing time (min)	Reading	Temp (°C)	K	Composite Correction	Actual Reading	Effective Depth (cm)	a	Particle Diam. (mm)	Percent Passing
11/07/17	14:46	2	26.0	23.3	0.01317	6.5	19.5	13.1	1.00	0.0338	28.2
11/07/17	14:49	5	23.0	23.3	0.01317	6.5	16.5	13.6	1.00	0.0218	23.9
11/07/17	14:59	15	19.0	23.3	0.01317	6.5	12.5	14.3	1.00	0.0129	18.1
11/07/17	15:14	30	18.0	23.3	0.01317	6.5	11.5	14.5	1.00	0.0091	16.6
11/07/17	15:44	60	17.0	23.3	0.01317	6.5	10.5	14.6	1.00	0.0065	15.2
11/07/17	18:54	250	14.0	23.3	0.01317	6.5	7.5	15.1	1.00	0.0032	10.8
11/08/17	14:44	1440	11.0	23.3	0.01317	6.5	4.5	15.6	1.00	0.0014	6.5

Hydrometer 152H ID #	305527	Oven ID #	15/496/610
Sieve Shaker ID #	555	Balance ID#	139/142/700

TIMELY
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SOIL
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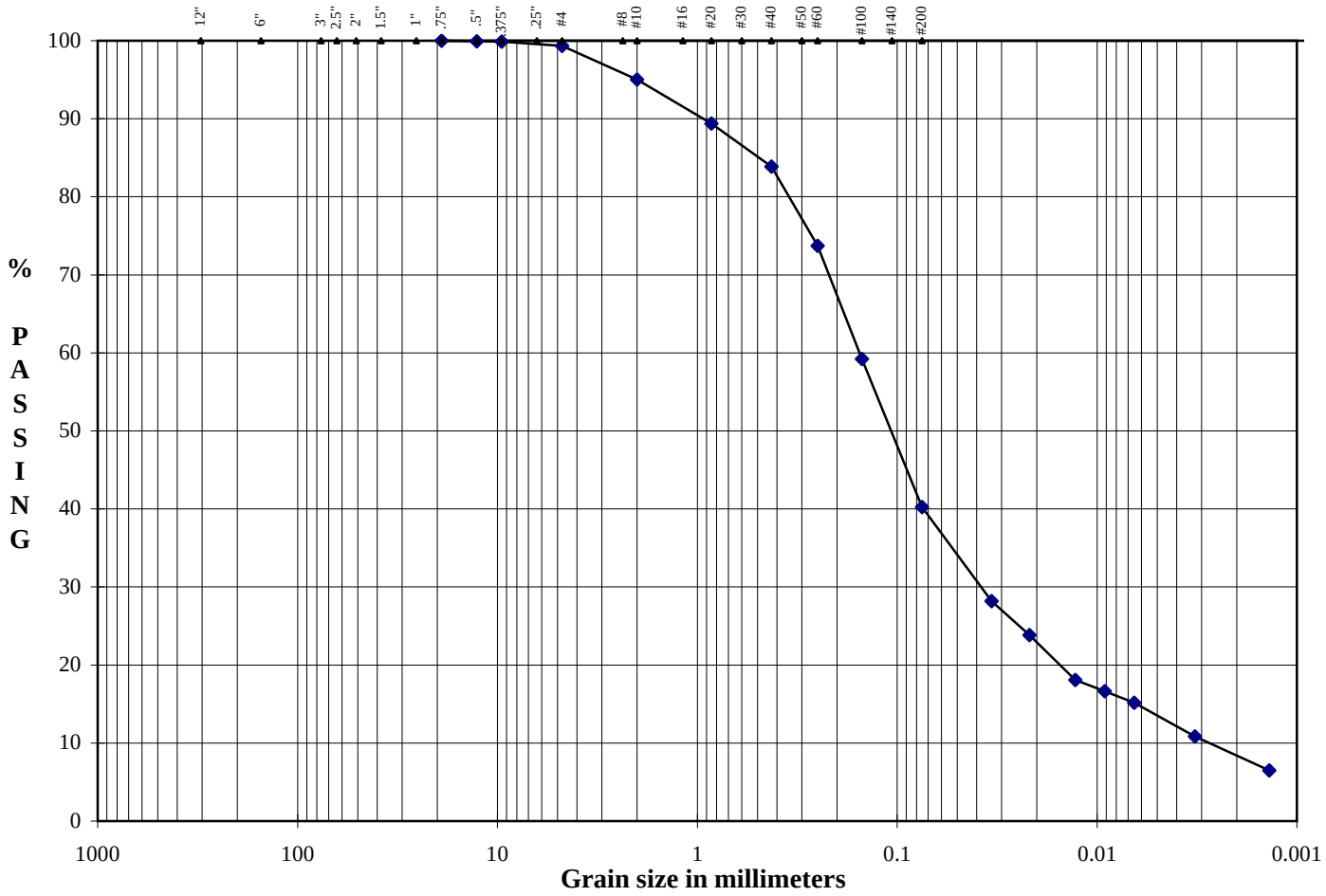
Web: www.test-llc.com

Tested By	ED
Date	11/03/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

ASTM D 422/AASHTO T 88
Standard Test Method for Particle-Size Analysis of Soils (with Double Separation per ASTM D6913 and Hydrometer Analysis)

Particle-Size Analysis



Boulders	Cobbles	Gravel: Coarse	Gravel: Fine	Sand: Coarse	Sand: Medium	Sand: Fine	Fines: Silt or Clay

D_{10}	NA	mm
D_{30}	NA	mm
D_{60}	NA	mm
Cu	NA	
Cc	NA	

DESCRIPTION: Dark Brown Clayey Sand

USCS (ASTM D2487; D2488): SC

Project's Specific % Passing: NA

Project's Specific Particle Size, mm: NA

TIMELY ENGINEERING SOIL TESTS, LLC
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Fax: 770-923-8973
Web: www.test-llc.com

Tested By	RI
Date	10/30/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26150/BS-14	Depth/Elev.	-
Location	R-25	Add. Info	-

ASTM D 698
Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600kN-m/m^3))

DETERMINATION OF TEST PROCEDURE

	wet	dry
Mass of Soil before sieving, g	21160.0	18574.2
Mass of Mat. Retained on No. 4 sieve, g		
Mass of Mat. Retained on 3/8" sieve, g	18.2	18.2
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	1166.3	18.2
Mass of Dry Sample & Tare, g	1067.5	18.2
Mass of Tare, g	357.8	0.0
Moisture Content, %	13.9	0.0

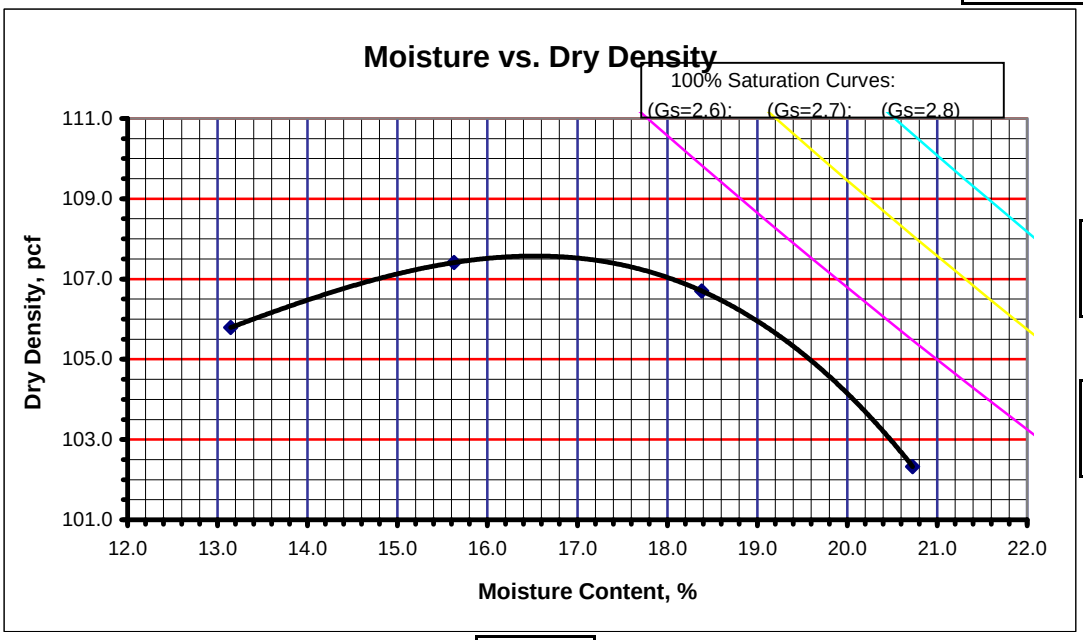
Procedure: B

TEST DATA

Points	1	2	3	4	5
Mass of Mold and Soil, g	6000.0	6068.0	6100.0	6058.0	
Mass of Wet Sample & Tare, g	542.6	567.0	581.0	532.0	
Mass of Dry Sample & Tare, g	495.7	509.2	512.4	464.8	
Mass of Tare, g	138.9	139.4	139.2	140.6	
Moisture Content, %	13.1	15.6	18.4	20.7	
Wet Density, pcf	119.7	124.2	126.3	123.5	
Dry Density, pcf	105.8	107.4	106.7	102.3	

Mold ID Number	314
Mass of Mold, g	4192.0
Volume of Mold, ft^3	0.0333
Hammer ID Number	318
Number of Blows per layer	25
Number of Layers	3

Method A: Material retained on No. 4 Sieve≤ 25%
Method B: Material retained on 3/8" Sieve ≤ 25%
Method C: Material retained on 3/4" Sieve ≤ 30%



REMARKS

DESCRIPTION
Dark Brown Clayey Sand

USCS (ASTM D2487; D2488)
SC

AASHTO M145
NA

Maximum Dry Density, pcf	107.6	**Corrected Maximum Dry Density, pcf**	**NA**
Optimum Moisture Content, %	16.6	**Corrected Optimum Moisture Content, %**	**NA**

T.E.S.T.

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	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

Analytical Testing Results for

Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26144	See Above		**2**	

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	CRW
		Date	11/06/17
		Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26144	See Above		**32**	

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Web: www.test-llc.com

Tested By	EB
Date	11/06/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	5.17	4.64	4.2	3.61	3.61				
Reading of Meter Range Multiplier	K	K	K	K	K				
Measured Resistance, ohms	5170	4640	4200	3610	3610				
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0				
Measured Resistivity, ohms-cm	5170	4640	4200	3610	3610				

Reported Soil Minimum Resistivity, ohms-cm **3610**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description: Dark Brown Sandy Fat Clay

USCS (D2487; D2488)	CH
AASHTO (M145)	NA

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Tested By	EB
Date	11/06/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26144/BS-8	Depth/Elev.	-
Location	B-1/Embark	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 25.3 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26144	See Above	6.01	5.97	5.98	**6.0**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Tested By	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26145	See Above		**18**	

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Tested By	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

Analytical Testing Results for

Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26145	See Above		**17**	

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Tested By	EB
Date	06/07/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	13.1	12.8	11.1	9	8.35	8.35			
Reading of Meter Range Multiplier	K	K	K	K	K	K			
Measured Resistance, ohms	13100	12800	11100	9000	8350	8350			
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0			
Measured Resistivity, ohms-cm	13100	12800	11100	9000	8350	8350			

Reported Soil Minimum Resistivity, ohms-cm **8350**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description

Red Sandy Fat Clay

USCS (D2487; D2488)	CH
AASHTO (M145)	NA

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Tested By	EB
Date	11/06/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26145/BS-9	Depth/Elev.	-
Location	B-6/Embark	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 25.3 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26145	See Above	6.37	6.39	6.41	**6.4**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Tested By	CRW
Date	11/06/17
Checked By	[illegible]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26146	See Above		**<1**	

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Tested By	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26146	See Above		**9**	

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Tested By	ED
Date	11/07/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	10.8	9.24	8.65	7.09	6.41	6.41			
Reading of Meter Range Multiplier	K	K	K	K	K	K			
Measured Resistance, ohms	10800	9240	8650	7090	6410	6410			
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0			
Measured Resistivity, ohms-cm	10800	9240	8650	7090	6410	6410			

Reported Soil Minimum Resistivity, ohms-cm **6410**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description: Dark Brown Sandy Lean Clay

USCS (D2487; D2488)	CL
AASHTO (M145)	NA

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Tested By	EB
Date	11/06/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26146/BS-10	Depth/Elev.	-
Location	B-7/Embark	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 25.3 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26146	See Above	6.22	6.23	6.25	**6.2**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Tested By	CRW
Date	11/06/17
Checked By	[illegible]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26147	See Above		**5**	

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		Date	11/06/17
		Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26147	See Above		**1**	

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Tested By	ED
Date	11/07/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	14.1	13.8	12.1	11.9	11.8	11.8			
Reading of Meter Range Multiplier	K	K	K	K	K	K			
Measured Resistance, ohms	14100	13800	12100	11900	11800	11800			
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0			
Measured Resistivity, ohms-cm	14100	13800	12100	11900	11800	11800			

Reported Soil Minimum Resistivity, ohms-cm **11800**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description

Dark Brown Fat Clay

USCS (D2487; D2488)	CH
AASHTO (M145)	NA

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Tested By	EB
Date	11/06/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26147/BS-11	Depth/Elev.	-
Location	B-12/Embark	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 25.3 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26147	See Above	5.13	5.08	5.07	**5.1**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Tested By	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26148	See Above		**3**	

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Tested By	CRW
Date	11/06/17
Checked By	[signature]

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26148	See Above		**2**	

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Tested By	ED
Date	06/07/17
Checked By	LB

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	7.8	6.6	5.85	5.2	4.78	4.38	4.38		
Reading of Meter Range Multiplier	K	K	K	K	K	K	K		
Measured Resistance, ohms	7800	6600	5850	5200	4780	4380	4380		
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
Measured Resistivity, ohms-cm	7800	6600	5850	5200	4780	4380	4380		

Reported Soil Minimum Resistivity, ohms-cm **4380**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description

Olive Yellow Clayey Sand

USCS (D2487; D2488)	SC
AASHTO (M145)	NA

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Tested By	EB
Date	11/06/17
Checked By	

Client Pr. #	08-11888	Lab. PR. #	1720K-14-1
Pr. Name	I-26 Widening Project MM85-MM101	S. Type	Bulk
Sample ID	26148/BS-12	Depth/Elev.	-
Location	B-13/Embark	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 25.3 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26148	See Above	6.49	6.51	6.52	**6.5**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Fax: 770-923-8973
Web: www.test-llc.com

Tested By	CRW
Date	11/15/17
Checked By	[signature]

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26225/B-16	Depth/Elev.	-
Location	-	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26225	See Above		**540**	

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Web: www.test-llc.com

Tested By	CRW
Date	11/15/17
Checked By	[signature]

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26225/B-16	Depth/Elev.	-
Location	-	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26225	See Above		**1010**	

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Web: www.test-llc.com

Tested By	EB
Date	11/13/17
Checked By	

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26225/B-16	Depth/Elev.	-
Location	-	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	545	520	486	465	433	433			
Reading of Meter Range Multiplier	1	1	1	1	1	1			
Measured Resistance, ohms	545	520	486	465	433	433			
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0			
Measured Resistivity, ohms-cm	545	520	486	465	433	433			

Reported Soil Minimum Resistivity, ohms-cm **433**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description

NA

USCS (D2487; D2488)	NA
AASHTO (M145)	NA

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Web: www.test-llc.com

Tested By	EB
Date	11/13/17
Checked By	

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26225/B-16	Depth/Elev.	-
Location	-	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 20.1 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26225	See Above	4.85	4.84	4.83	**4.8**

REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

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Tested By	CRW
Date	11/15/17
Checked By	[signature]

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26226/B-21	Depth/Elev.	-
Location	-	Add. Info	-

Analytical Testing Results for
Water Soluble Sulfate Ion Content in Soil (Method AASHTO T290)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26226	See Above		**279**	

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Tested By	CRW
Date	11/15/17
Checked By	[signature]

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26226/B-21	Depth/Elev.	-
Location	-	Add. Info	-

Analytical Testing Results for
Water Soluble Chloride Ion Content in Soil (Method AASHTO T291)

T.E.S.T. Sample ID	Client Sample ID	Sample Depth/Elevation, ft	Result, mg/kg-dry	Remarks
26226	See Above		**4990**	

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Tested By	EB
Date	11/13/17
Checked By	

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26226/B-21	Depth/Elev.	-
Location	-	Add. Info	-

ASTM G 57/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	
Mass of Wet Sample & Tare, g	
Mass of Dry Sample & Tare, g	
Mass of Tare, g	
Moisture Content, %	NA

Remarks

TEST DATA

Mass of Soil Box, g	-	Meter Dial Reading, ohms	-
Mass of Soil Box + Soil, g	-	Reading of Meter Range Multiplier	-
Mass of Soil, g	-	Measured Resistance, ohms	-
Calibrated Volume of Soil Box, ft^3	0.0027	Calibrated Soil Box Multiplier, cm	1.0
Wet Density of as-placed Soil, pcf	-		
Dry Density of as-placed Soil, pcf	-	**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	354	327	254	218	184	132	132		
Reading of Meter Range Multiplier	1	1	1	1	1	1	1		
Measured Resistance, ohms	354	327	254	218	184	132	132		
Calibrated Soil Box Multiplier, cm	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
Measured Resistivity, ohms-cm	354	327	254	218	184	132	132		

Reported Soil Minimum Resistivity, ohms-cm **132**

Note: Material passed # 10 sieve used for testing

Oven ID #	496/610
Balance ID #	563/700
Soil Box ID #	612/613/707
Resistivity Meter ID #	706

Description

NA

USCS (D2487; D2488)	NA
AASHTO (M145)	NA

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Tested By	EB
Date	11/13/17
Checked By	

Client Pr. #	11888	Lab. PR. #	1720B-14-1
Pr. Name	I-26 Widening	S. Type	Bag
Sample ID	26226/B-21	Depth/Elev.	-
Location	-	Add. Info	-

ASTM G51

Standard Test Method for Determining pH of Soil for Use in Corrosion Testing

SAMPLE PREPARATION

Roots, Stones, Gravel and other deleterious material was removed prior to testing

Measurements performed ar room temperature condition: 20.1 °C

TEST DATA

T.E.S.T. Sample ID	Client Sample ID	pH meter Reading #1	pH meter Reading #2	pH meter Reading #3	**Reported pH value**
26226	See Above	6.78	6.79	6.81	**6.8**

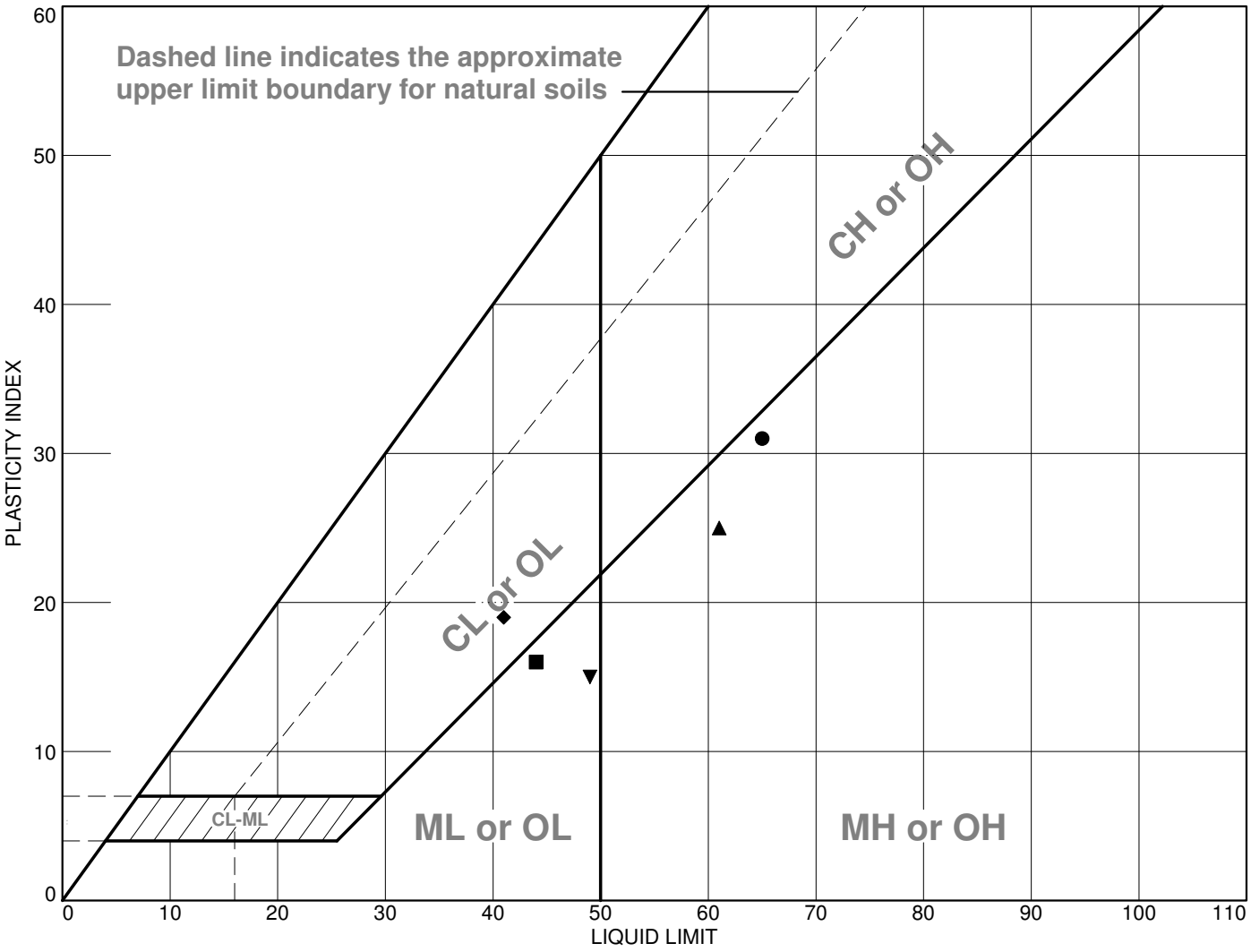
REMARKS

NIST TRACEABLE BUFFER SOLUTIONS (4.0; 7.0; 10.0 pH) were used for CALIBRATION of pH METER prior to testing.

pH Meter ID 375/732/733

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) {A-7-5) with slight roots	65	34	31	97	72	MH
■	Very stiff, moist, orangish brown, Sandy SILT (ML) (A-7-6)	44	28	16	92	57	ML
▲	Medium stiff, moist to wet, reddish brown to gray, Elastic SILT (MH) (A-7-5) with trace	61	36	25	95	68	MH
◆	Very stiff, moist, reddish brown to gray, High Plasticity CLAY (CH) (A-7-6)	41	22	19	89	52	CL
▼	Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)	49	34	15	92	68	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** B-1 **Depth:** 13.50-15.00 **Sample Number:** S-5

■ **Source of Sample:** B-1 **Depth:** 28.50-30.00 **Sample Number:** S-8

▲ **Source of Sample:** B-2 **Depth:** 13.50-15.00 **Sample Number:** S-6

◆ **Source of Sample:** B-2 **Depth:** 23.50-25.00 **Sample Number:** S-8

▼ **Source of Sample:** B-3 **Depth:** 6.00-7.50 **Sample Number:** S-3

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Figure 1.1

Tested By: ○ AS/SC □ DM △ DM ◇ DM ▽ DM

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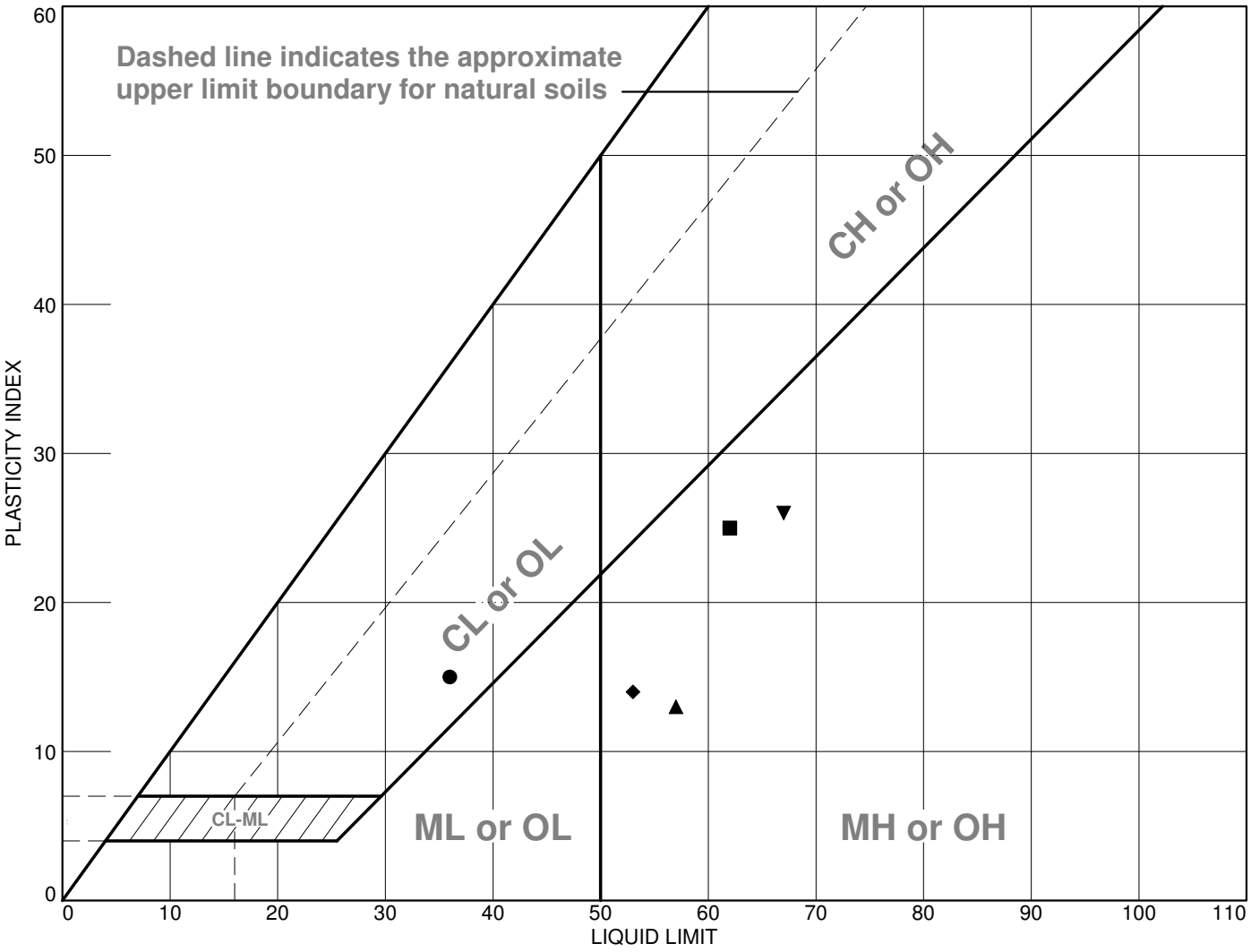
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, reddish brown to gray, Sandy CLAY (CL) (A-7-6)	36	21	15	87	54	CL
■	Stiff to very stiff, moist to dry, reddish brown, Elastic SILT (MH) (A-7-5) with trace	62	37	25	98	81	MH
▲	Stiff to medium stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-5)	57	44	13	98	73	MH
◆	Stiff, moist, reddish brown to tan, Elastic SILT (MH) (A-7-5) with trace mica	53	39	14	98	73	MH
▼	Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	67	41	26	98	86	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** B-3 **Depth:** 18.50-20.00 **Sample Number:** S-6

■ **Source of Sample:** B-4 **Depth:** 18.50-20.00 **Sample Number:** S-6

▲ **Source of Sample:** B-4 **Depth:** 33.50-35.00 **Sample Number:** S-9

◆ **Source of Sample:** B-5 **Depth:** 8.50-10.00 **Sample Number:** S-4

▼ **Source of Sample:** B-6 **Depth:** 13.50-15.00 **Sample Number:** S-5

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Figure 1.2

Tested By: DM

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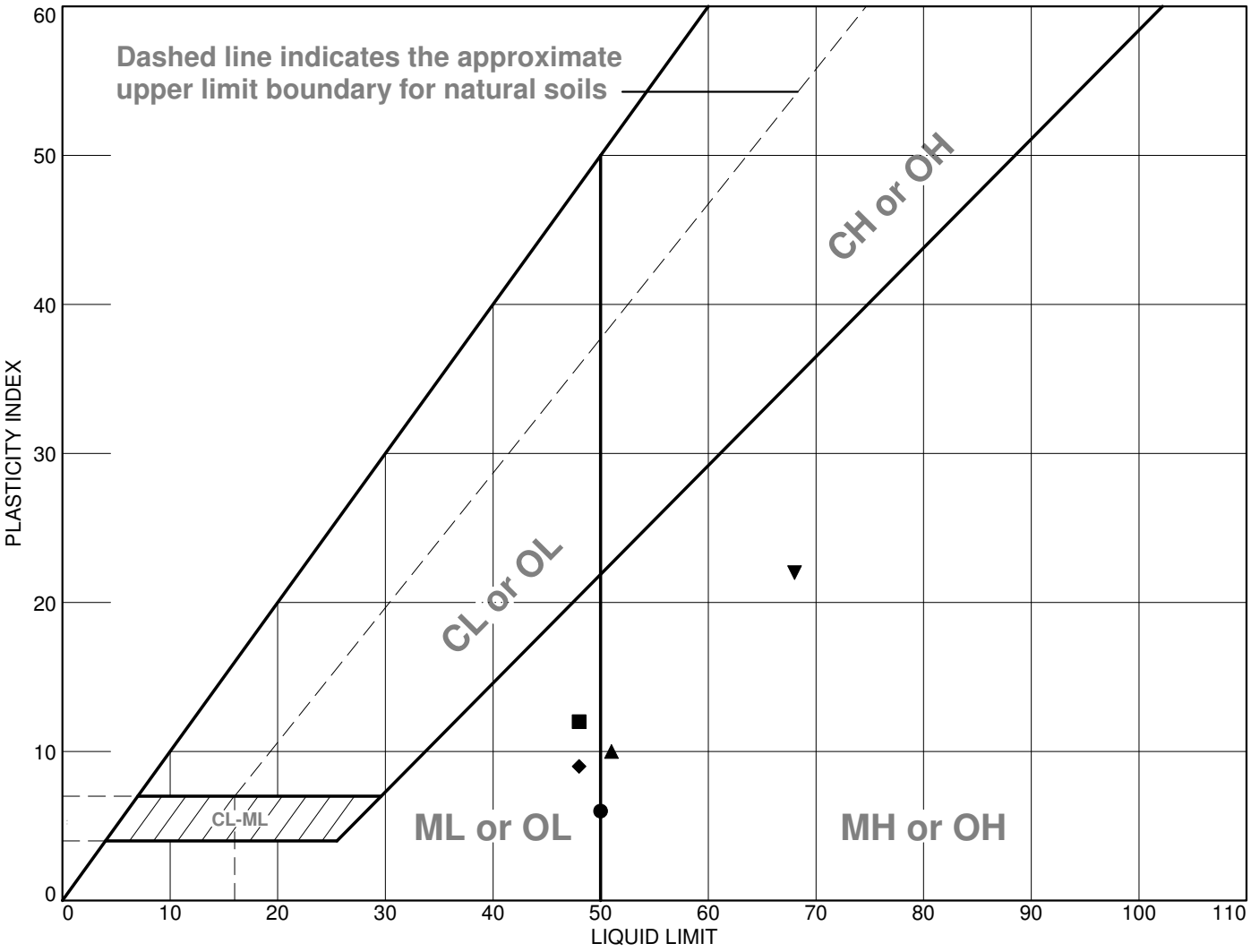
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, tannish brown, Elastic SILT (MH) (A-5)	50	44	6	99	78	MH
■	Stiff to medium stiff, moist, tan, Silty SAND (SM) (A-7-5) with trace mica	48	36	12	63	44	SM
▲	Stiff to very stiff, moist, reddish brown to orangish tan, Elastic SILT (MH) (A-5) with	51	41	10	82	55	MH
◆	Stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	48	39	9	79	64	ML
▼	Hard to very stiff, dry to moist, reddish brown, Elastic SILT (MH) (A-7-5)	68	46	22	100	95	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** B-6 **Depth:** 28.50-30.00 **Sample Number:** S-8

■ **Source of Sample:** B-7 **Depth:** 28.50-30.00 **Sample Number:** S-9

▲ **Source of Sample:** B-8 **Depth:** 18.50-20.00 **Sample Number:** S-6

◆ **Source of Sample:** B-9 **Depth:** 28.50-30.00 **Sample Number:** S-9

▼ **Source of Sample:** B-10 **Depth:** 8.50-10.00 **Sample Number:** S-4

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Figure 1.3

Tested By: DM

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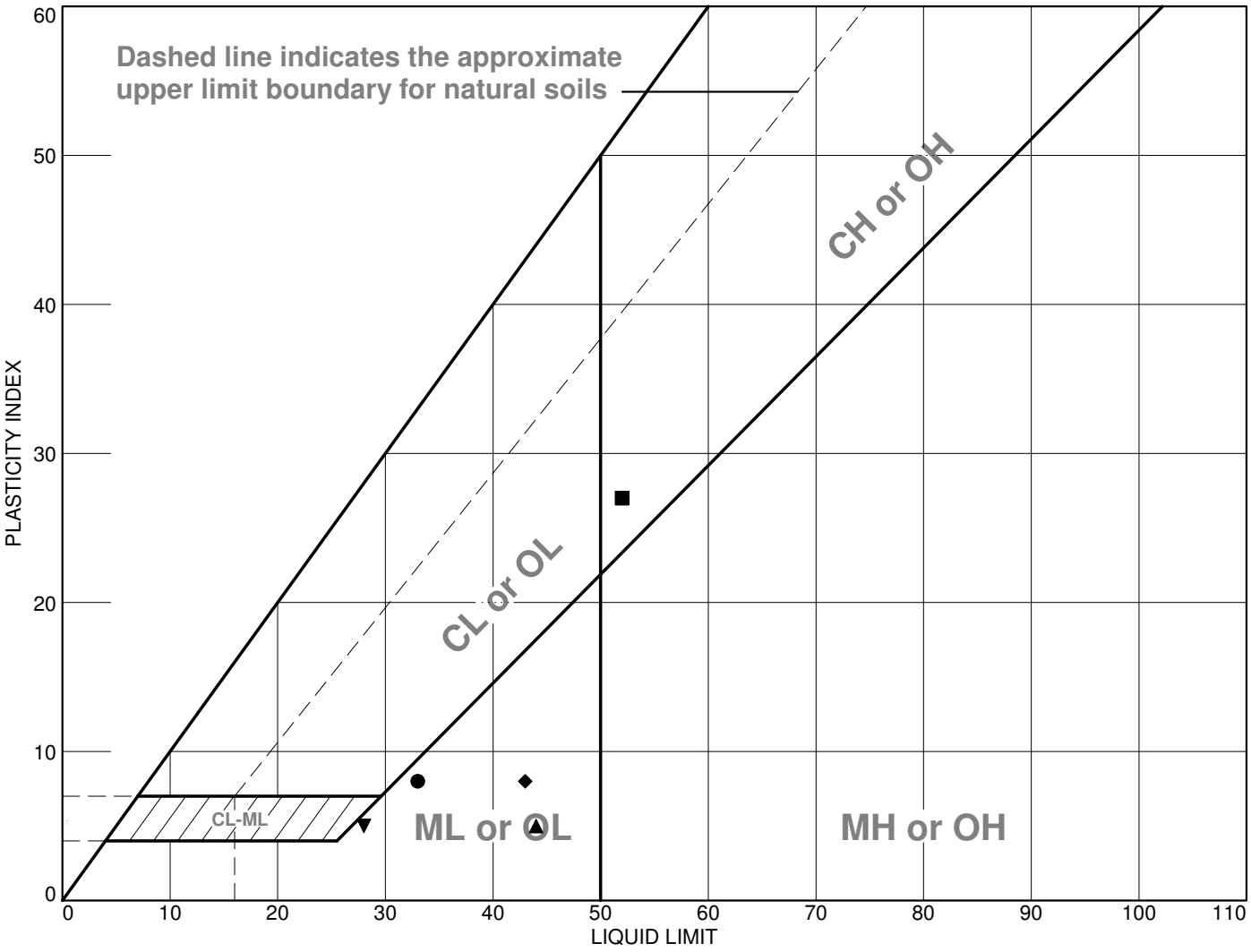
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very hard, moist, orangish tan to tannish brown, Sandy SILT (ML) (A-4) with	33	25	8	99	80	ML
■	Very stiff, moist, reddish brown, Elastic CLAY (CH)(A-7-5)	52	25	27	93	80	CH
▲	Very stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica	44	39	5	99	89	ML
◆	Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-5) with trace mica	43	35	8	98	83	ML
▼	Very hard, moist, tannish brown, sampled as Silty SAND (A-4)	28	23	5	67	47	SM

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** B-10 **Depth:** 33.50-35.00 **Sample Number:** S-9

■ **Source:** B-11 **Depth:** 1.00-4.00 **Sample No.:** D4S-1494

▲ **Source of Sample:** B-11 **Depth:** 23.50-25.00 **Sample Number:** S-7

◆ **Source of Sample:** B-12 **Depth:** 13.50-15.00 **Sample Number:** S-6

▼ **Source of Sample:** B-15 **Depth:** 6.00-7.42 **Sample Number:** S-4

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Figure 1.4

Tested By: DM

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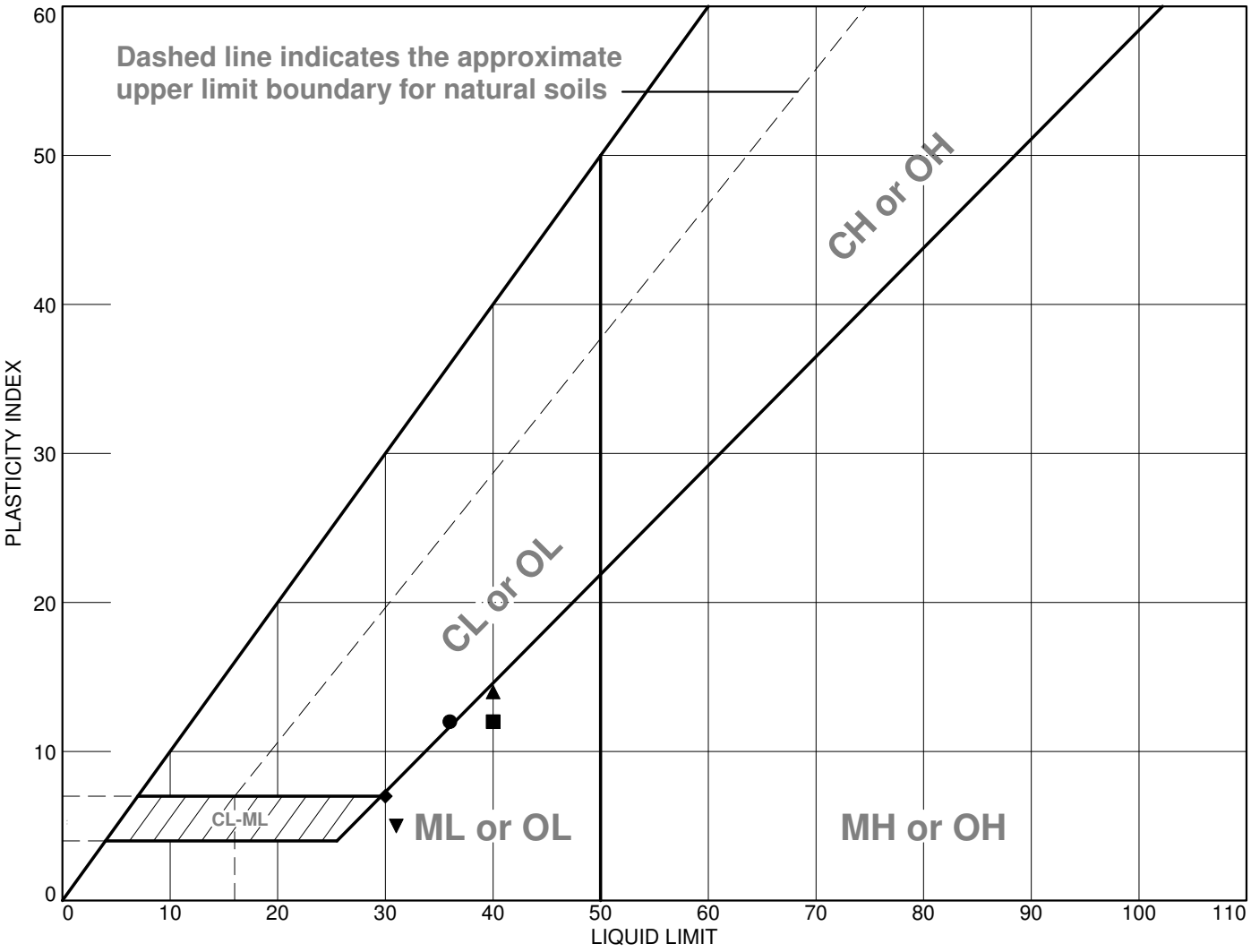
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff to hard, moist, orangish tan to brown, Sandy CLAY (CL) (A-6)	36	24	12	84	61	CL
■	Hard to very hard, moist, tannish brown, Sandy SILT (ML) (A-4)	40	28	12	96	79	ML
▲	Very hard, moist, orangish tan, sampled as Sandy SILT (A-6)	40	26	14	97	86	ML
◆	Very dense, moist, orangish tan to brown, Sandy Silty CLAY (CL-ML) (A-4) with trace mica and	30	23	7	80	54	CL-ML
▼	Hard, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel-sized	31	26	5	84	60	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** B-16 **Depth:** 8.50-9.25 **Sample Number:** S-4

■ **Source of Sample:** B-17 **Depth:** 8.00-9.67 **Sample Number:** S-5

▲ **Source of Sample:** B-18 **Depth:** 18.50-19.83 **Sample Number:** S-7

◆ **Source of Sample:** B-19 **Depth:** 6.00-7.50 **Sample Number:** S-3

▼ **Source of Sample:** B-20 **Depth:** 2.00-4.00 **Sample Number:** S-2

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Figure 1.5

Tested By: DM

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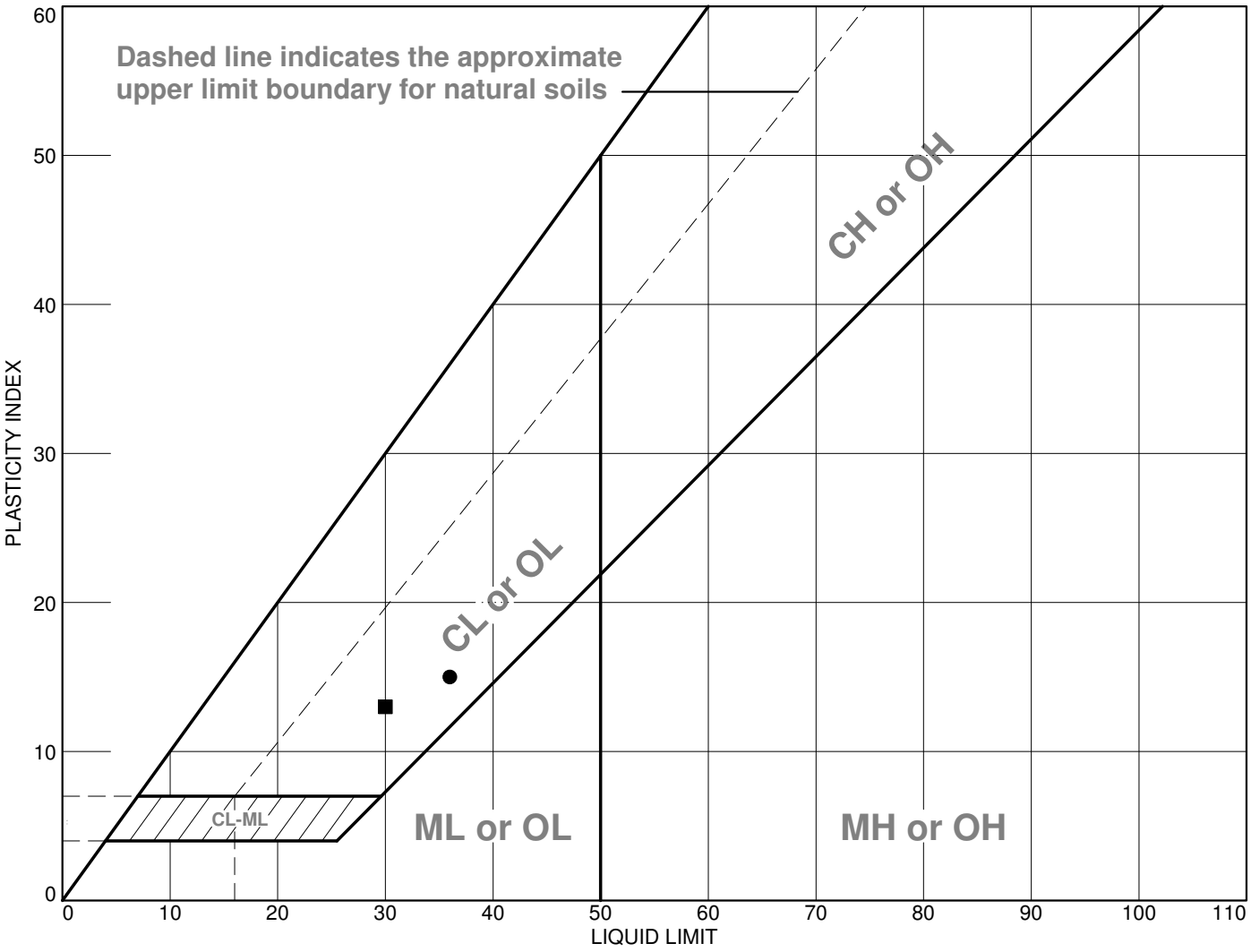
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, orangish tan to brown, Sandy CLAY (CL) (A-6) with trace gravel	36	21	15	71	56	CL
■	Hard, moist, tannish brown, Sandy CLAY (CL) (A-6)	30	17	13	92	62	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** B-21 **Depth:** 1.00-4.00 **Sample No.:** D4S-1496

■ **Source of Sample:** B-21 **Depth:** 6.50-8.00 **Sample Number:** S-4

Remarks:

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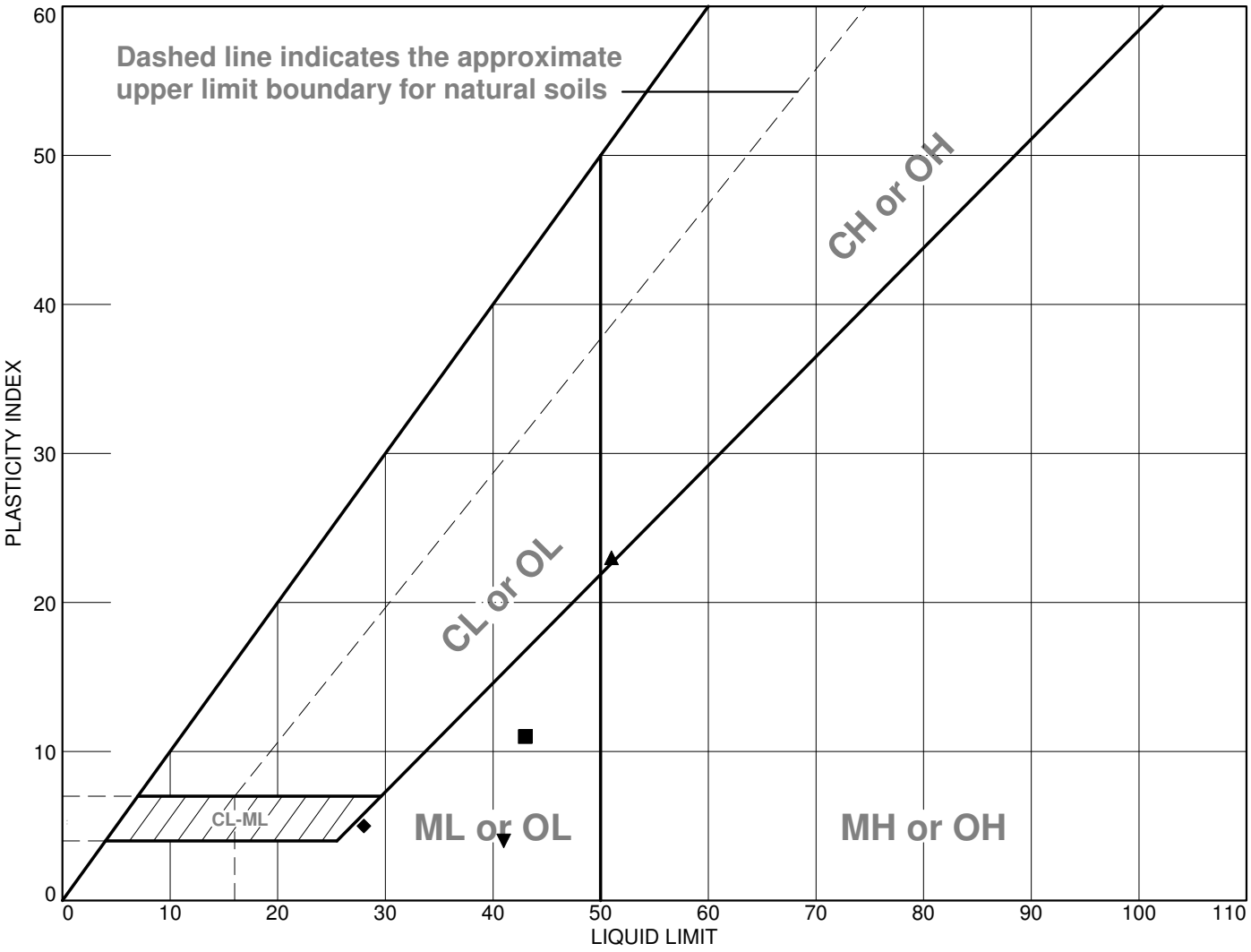
Figure 1.6

Tested By: DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4)	NP	NP	NP	72	29	SM
■	Stiff to very stiff, moist, tannish brown to grayish brown, Sandy SILT (ML) (A-7-5) with trace mica	43	32	11	94	54	ML
▲	Medium stiff to stiff, moist, orangish tan to brown, Plastic CLAY (CH) (A-7-6) with slight mica	51	28	23	99	83	CH
◆	Very stiff, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)	28	23	5	92	38	SM
▼	Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-4) with trace mica	41	37	4	95	64	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** R-1 **Depth:** 2.00-4.00 **Sample Number:** S-2

■ **Source of Sample:** R-2 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

▲ **Source of Sample:** R-3 **Depth:** 2.00-4.00 **Sample Number:** S-2

◆ **Source of Sample:** R-4 **Depth:** 2.00-4.00 **Sample Number:** S-2

▼ **Source of Sample:** R-5 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

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Figure 1.7

Tested By: WS **Checked By:** AP/WS

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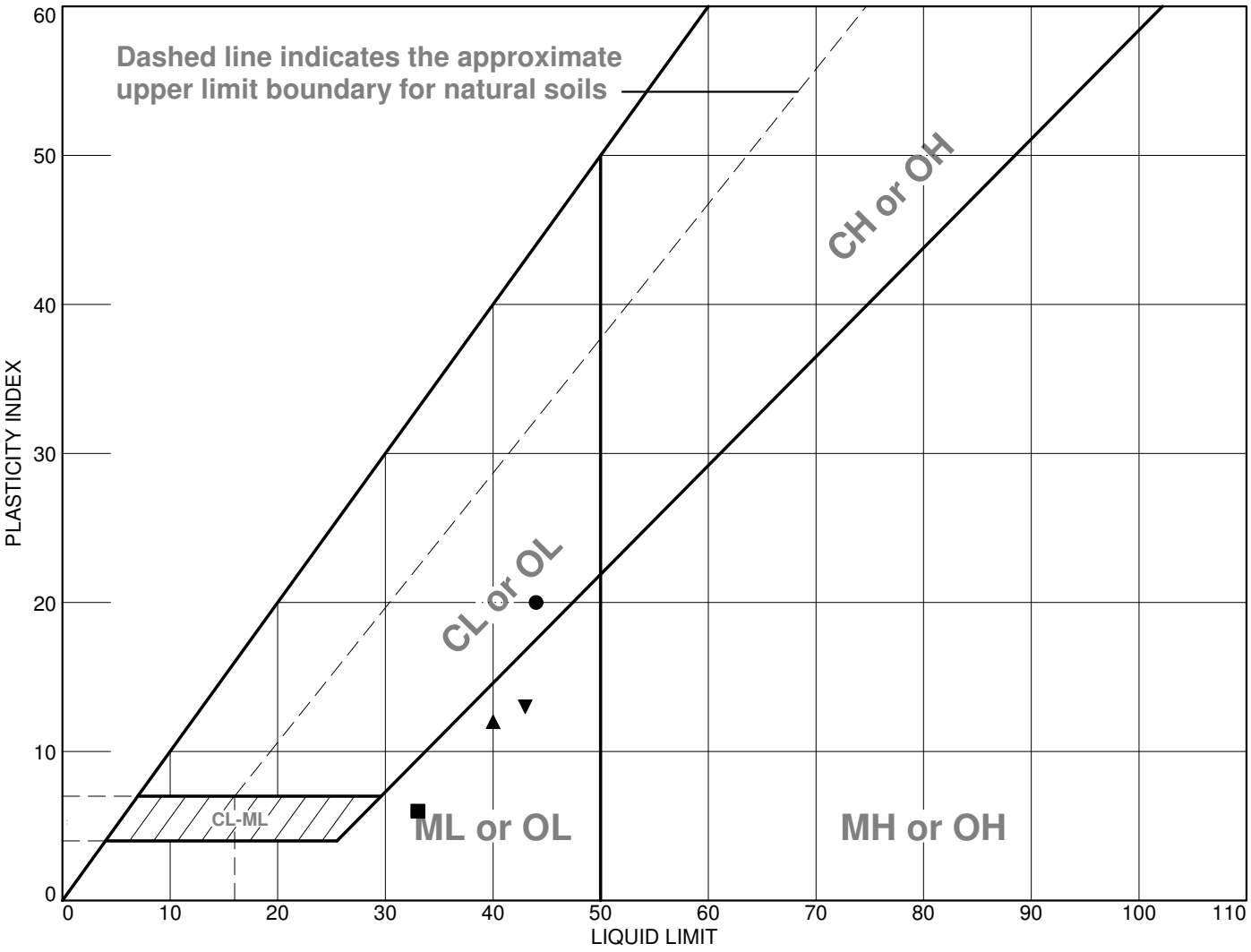
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, reddish brown to orangish brown, Sandy CLAY (CL) (A-7-6)	44	24	20	97	72	CL
■	Medium dense to dense, moist, tan to grayish brown, Silty Fine to Medium SAND (SM) (A-4)	33	27	6	82	39	SM
▲	Medium dense to dense, moist, tan, Sandy SILT (ML) (A-6) with slight roots	40	28	12	96	70	ML
◆	Medium dense, moist, tan, Silty Fine to Coarse SAND (SM) (A-4) with slight gravel-sized rock fragments	NP	NP	NP	58	23	SM
▼	Stiff to very stiff, moist, tannish brown to orangish brown, Sandy SILT (ML) (A-7) with slight mica	43	30	13	93	61	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** R-6 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

■ **Source of Sample:** R-7 **Depth:** 6.00-12.00 **Sample Number:** S-4/S-5

▲ **Source of Sample:** R-8 **Depth:** 4.00-8.00 **Sample Number:** S-3/S-4

◆ **Source of Sample:** R-12 **Depth:** 0.50-4.00 **Sample Number:** S-1/S-2

▼ **Source:** R-12 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

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Figure 1.8

Tested By: WS **Checked By:** AP/WS

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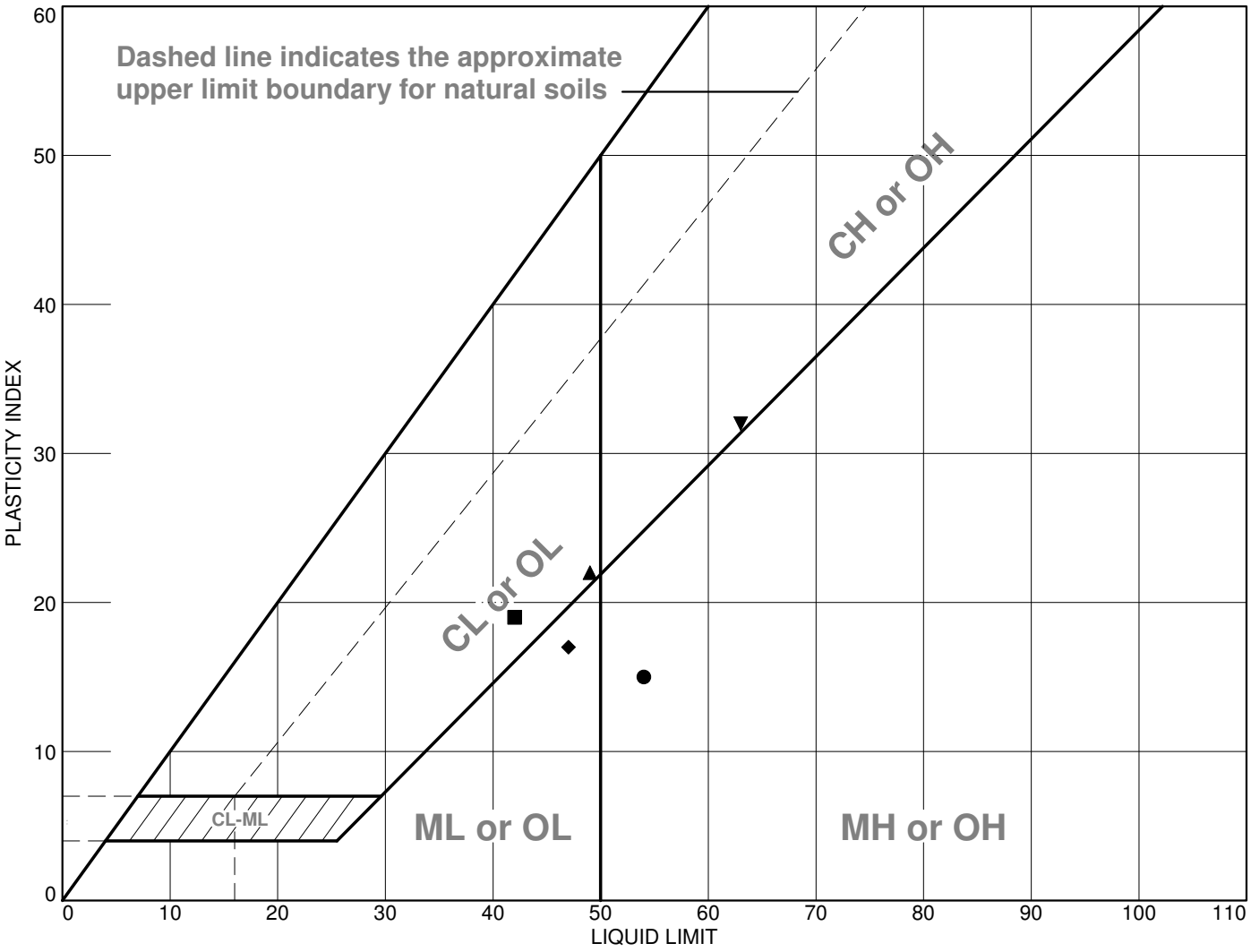
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-5)	54	39	15	99	94	MH
■	Stiff to medium stiff, reddish brown to black, Sandy CLAY (CL) (A-7-6)	42	23	19	70	65	CL
▲	Stiff, moist, reddish brown to black, Sandy CLAY (CL) (A-7-6) with slight gravel and wood	49	27	22	91	85	CL
◆	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7)	47	30	17	92	86	ML
▼	Stiff, moist, reddish brown to black, Plastic CLAY (CH) (A-7-5) with slight wood fragments	63	31	32	96	92	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** R-13 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

■ **Source of Sample:** R-14 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

▲ **Source:** R-14 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6

◆ **Source of Sample:** R-15 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

▼ **Source:** R-15 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

Remarks:

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1200 Woodruff Road, Suite H-12
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Phone: (864) 987-1610
Fax: (864) 987-1615

Figure 1.9

Tested By: WS **Checked By:** AP/WS

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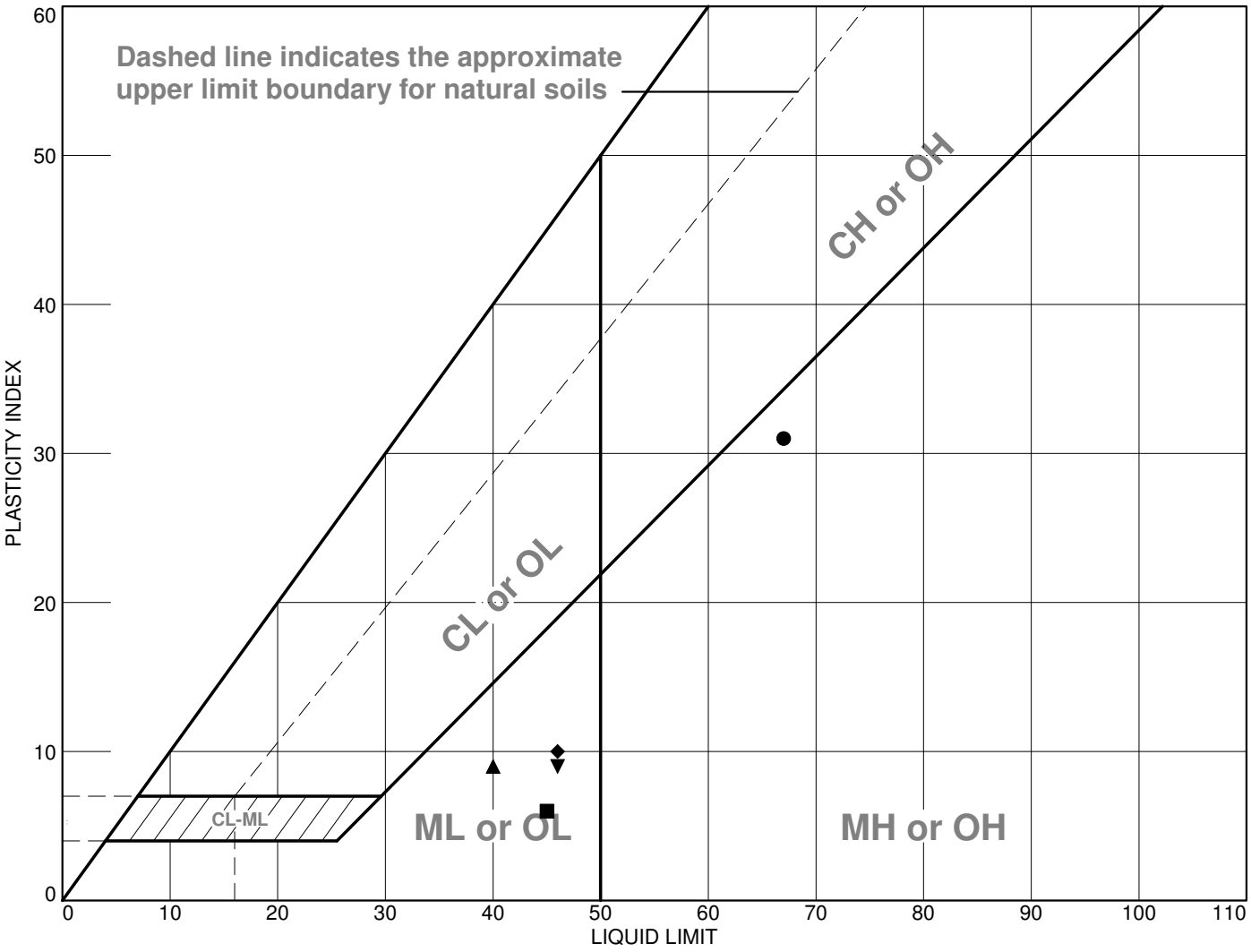
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff, moist, reddish brown, Elastic Silt (MH) (A-5) with slight wood fragments	67	36	31	98	93	MH
■	Very stiff to stiff, moist, reddish brown to black, Sandy SILT (ML) (A-5)	45	39	6	97	85	ML
▲	Very stiff to very hard, moist, tannish brown, Sandy SILT (ML) (A-5) with gravel-sized rock fragments	40	31	9	77	69	ML
◆	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)	46	36	10	97	88	ML
▼	Stiff to very stiff, moist, orangish tan to black, Sandy SILT (ML) (A-5)	46	37	9	91	79	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** R-16 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6

■ **Source of Sample:** R-17 **Depth:** 4.00-8.00 **Sample Number:** S-3/S-4

▲ **Source of Sample:** R-18 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

◆ **Source of Sample:** R-19 **Depth:** 4.00-6.00 **Sample Number:** S-3

▼ **Source of Sample:** R-20 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

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Remarks:

Figure 1.10

Tested By: WS **Checked By:** AP/WS

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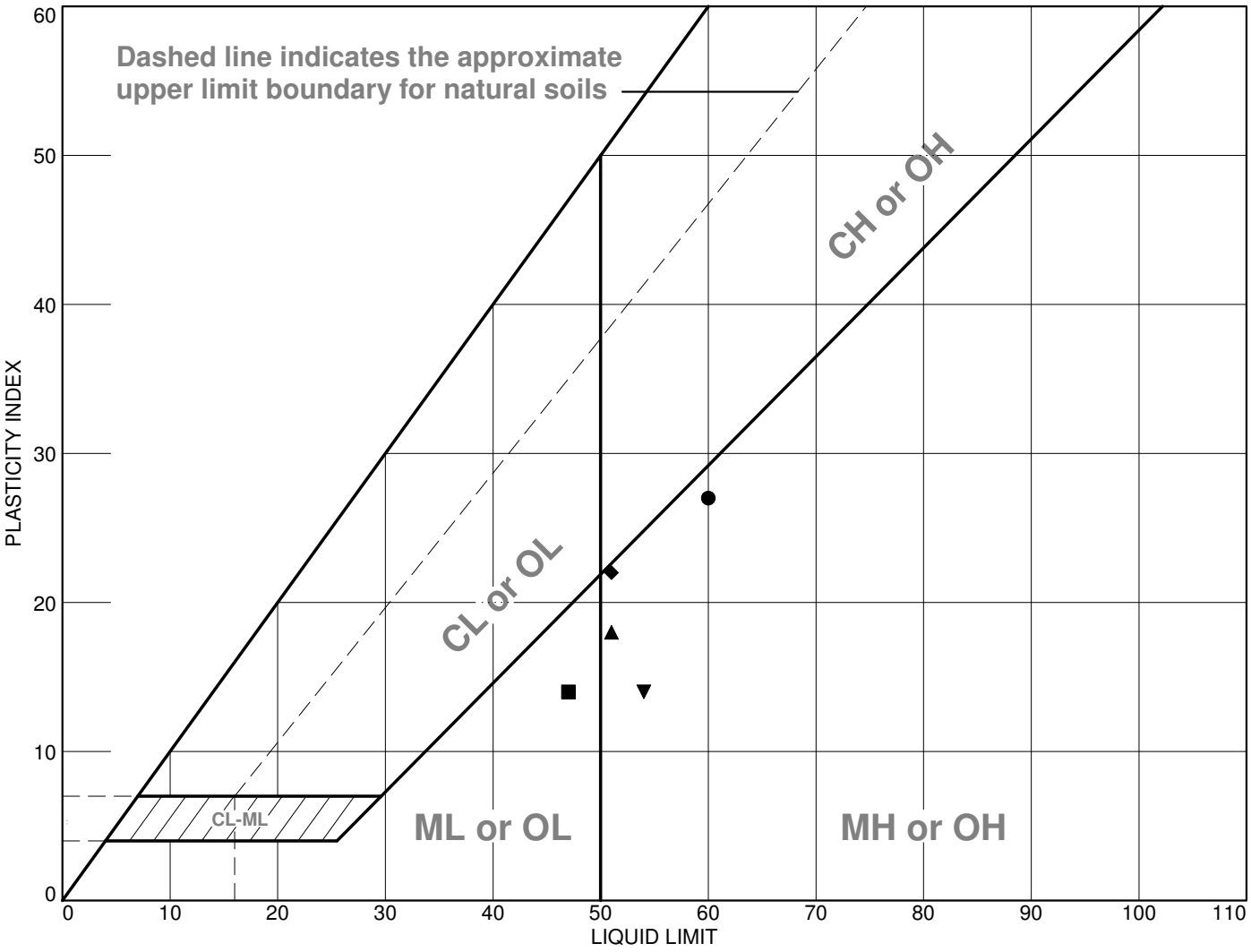
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, reddish brown to black, Elastic SILT (MH) (A-7-5)	60	33	27	97	95	MH
■	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7 5)) with gravel	47	33	14	91	82	ML
▲	Medium stiff to soft, moist, reddish-brown, Elastic SILT (MH) (A-7-5) with slight roots and gravel	51	33	18	91	85	MH
◆	Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7 6) with gravel	51	29	22	81	78	MH
▼	Medium stiff to very stiff, moist, reddish tan to brown, Elastic SILT (MH) (A-7-5) with slight gravel-sized rock	54	40	14	93	87	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** R-21 **Depth:** 12.00-17.00 **Sample Number:** S-6

■ **Source of Sample:** R-22 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

▲ **Source of Sample:** R-23 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

◆ **Source:** R-23 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

▼ **Source of Sample:** R-24 **Depth:** 2.00-6.00 **Sample Number:** S-2/S-3

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Remarks:

Figure 1.11

Tested By: WS **Checked By:** AP/WS

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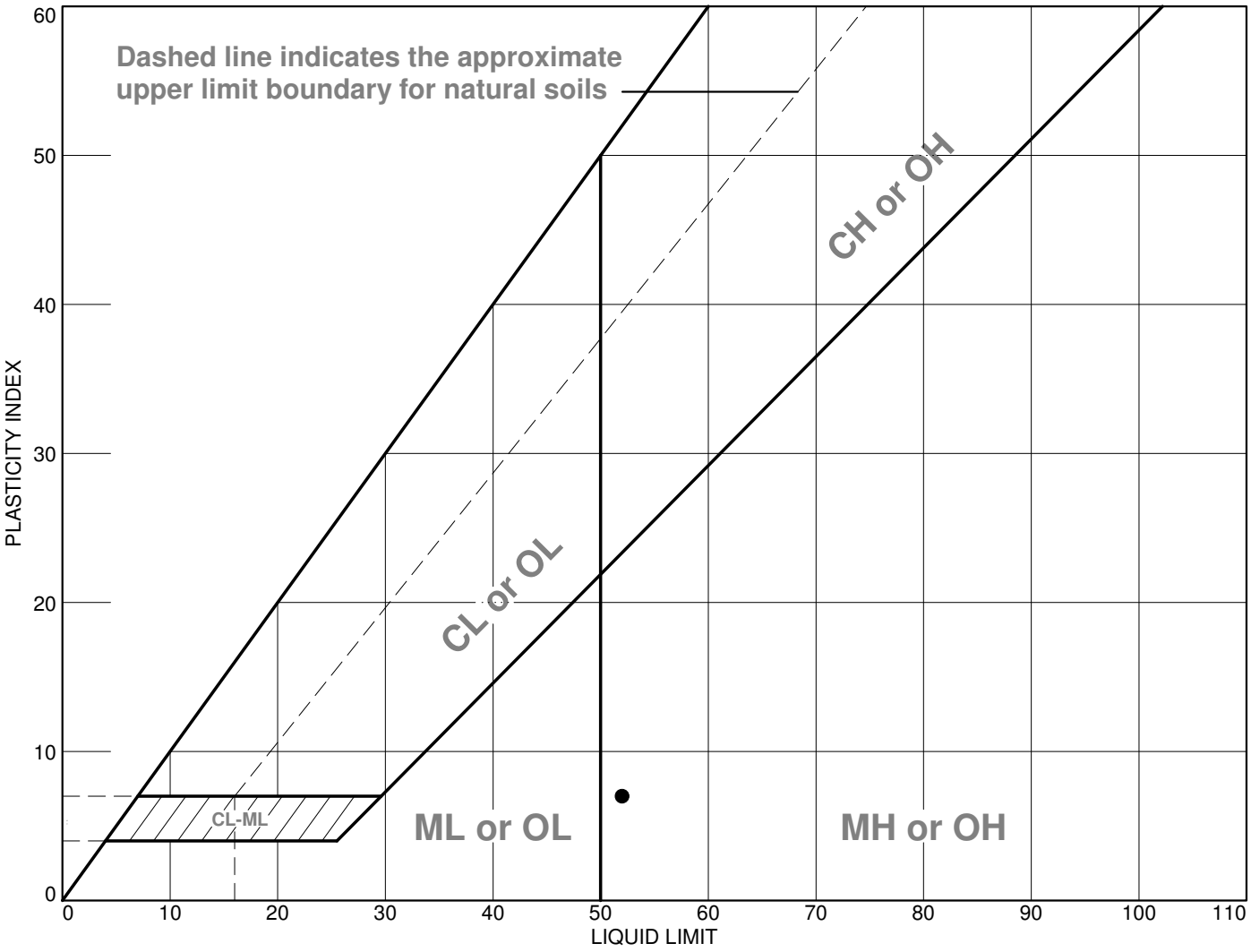
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, reddish brown to black, Elastic SILT (MH) (A-5) with slight mica	52	45	7	97	88	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** R-24 **Depth:** 6.00-12.00 **Sample No.:** S-3/S-4

Remarks:

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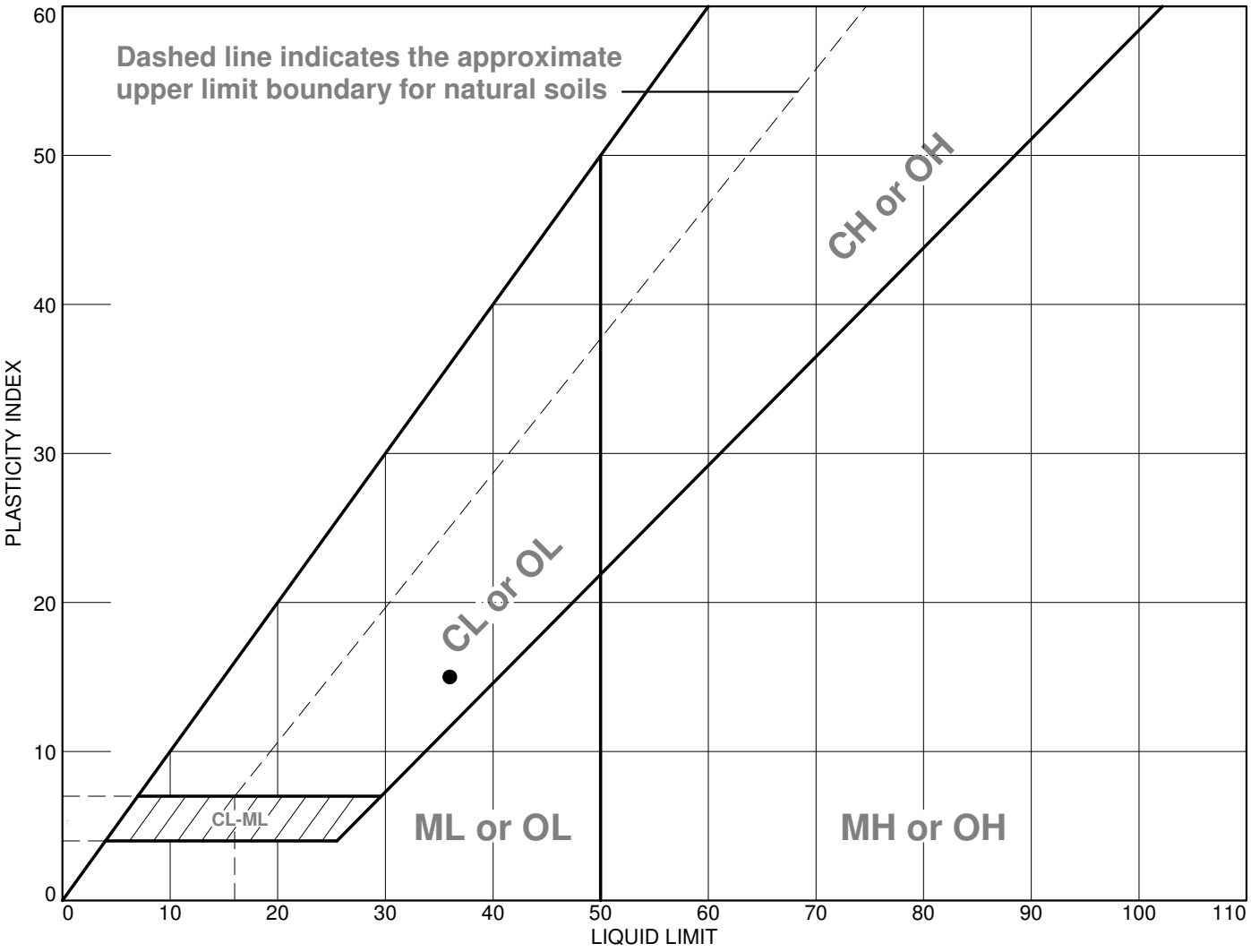
Figure 1.12

Tested By: WS **Checked By:** AP/WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, dark brown, Sandy CLAY (CL)(A-6) with trace roots and gravel	36	21	15	94	72	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** R-25 **Depth:** 0.00-1.50 **Sample Number:** S-1

Remarks:

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1812 Center Park Drive, Suite D
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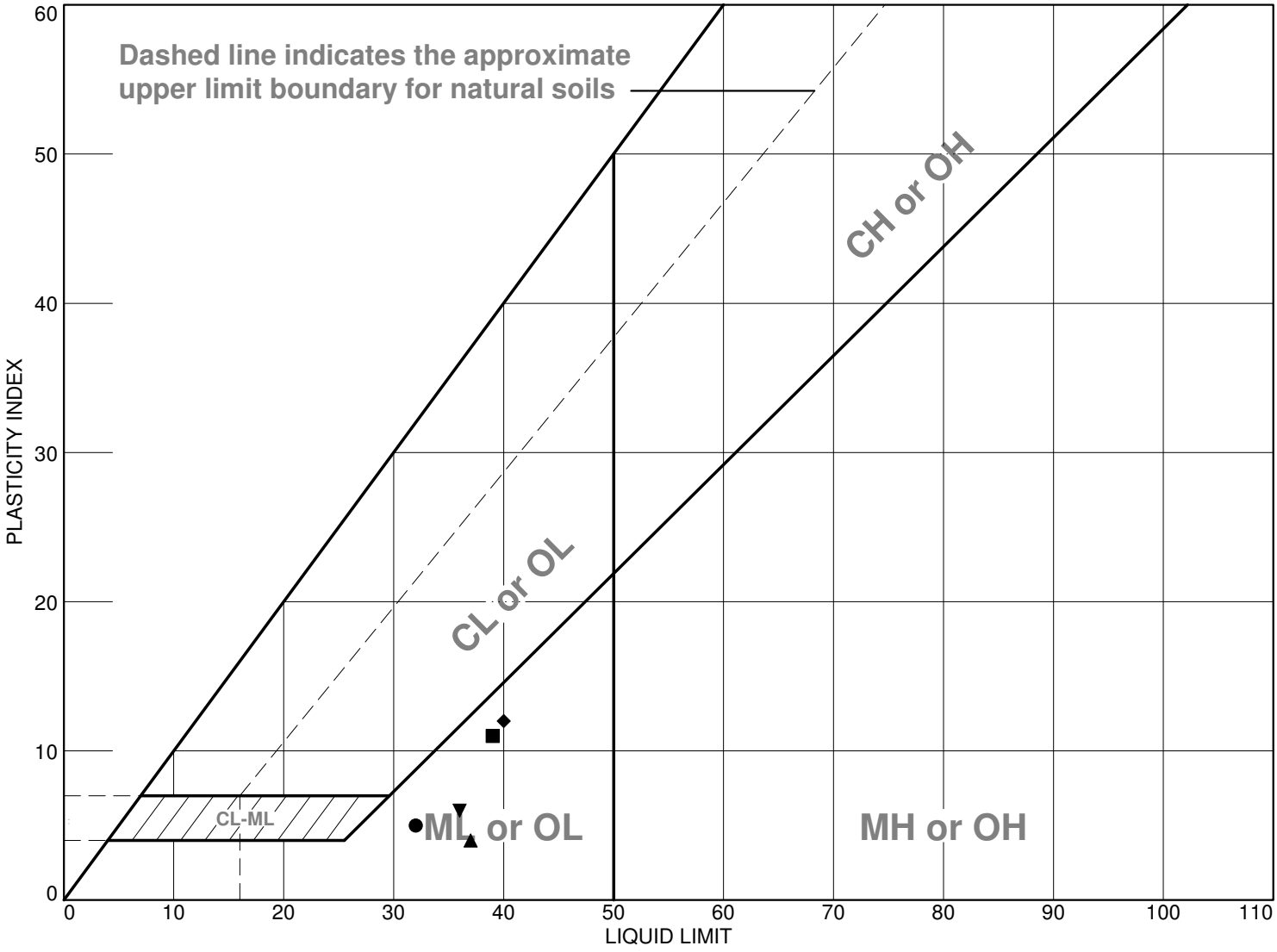
Figure 1.13

Tested By: DM

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Loose, moist, reddish brown to tan, Silty Fine to Medium SAND (SM) (A-4)	32	27	5	55.9	44.0	SM
■	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-6) with slight gravel	39	28	11	79.1	70.1	ML
▲	Medium dense, moist, brown to grayish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel-sized	37	33	4	53.8	42.8	SM
◆	Medium stiff, moist, brown, Sandy SILT (ML) (A-6)	40	28	12	80.7	74.9	ML
▼	Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)	36	30	6	71.8	59.9	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** C-1 **Depth:** 0.50-4.00 **Sample Number:** S-1/S-2

■ **Source of Sample:** C-1 **Depth:** 8.50-10.00 **Sample Number:** S-5

▲ **Source of Sample:** C-2 **Depth:** 4.00-8.00 **Sample Number:** S-3/S-4

◆ **Source of Sample:** C-2 **Depth:** 13.50-15.00 **Sample Number:** S-6

▼ **Source of Sample:** C-3 **Depth:** 1.00-2.50 **Sample Number:** S-1

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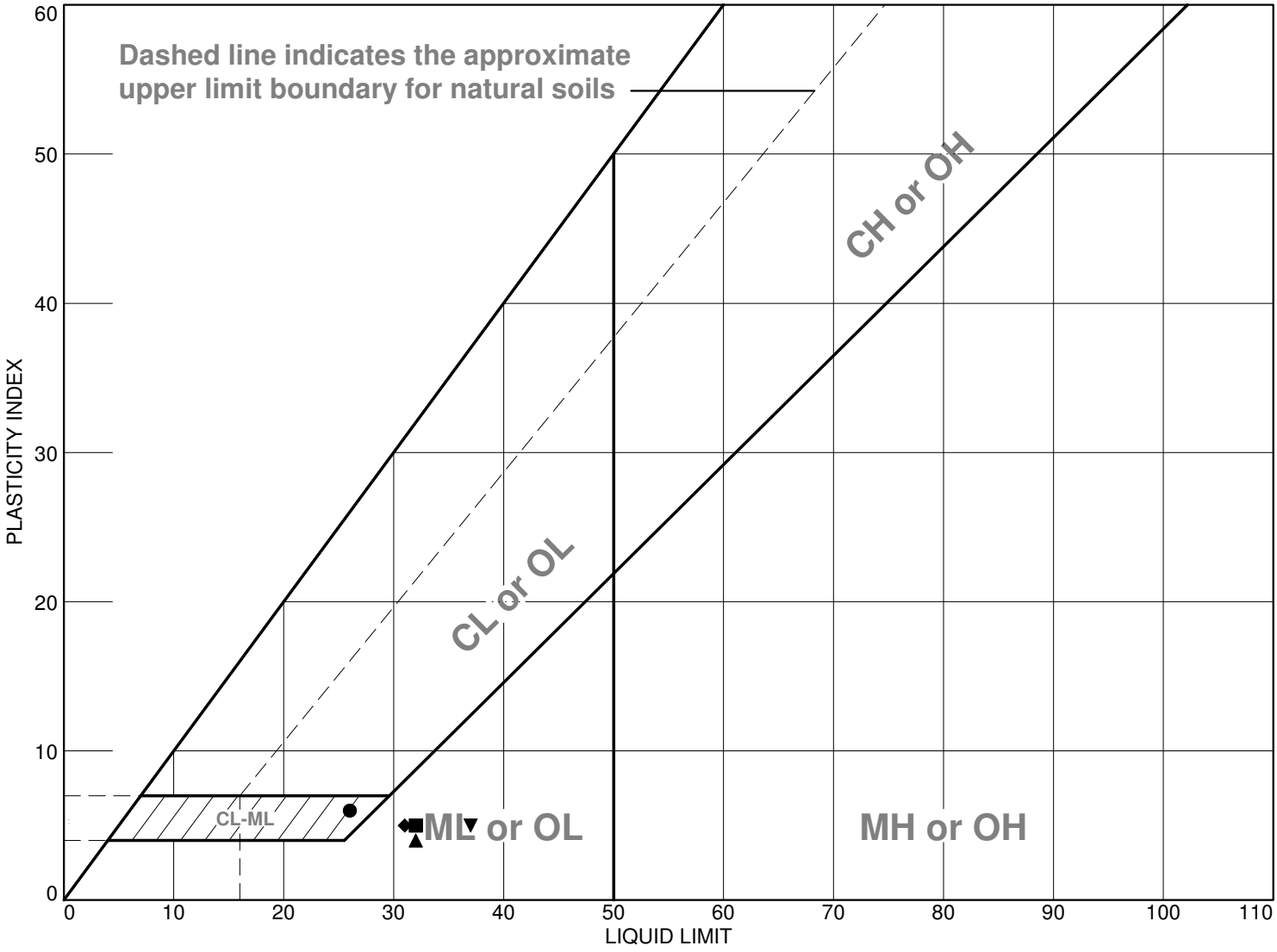
Figure 1.14

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, grayish-brown, Sandy Silty CLAY (CL-ML) (A 4)	26	20	6	90.9	66.0	CL-ML
■	Stiff to very stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-4) with trace gravel	32	27	5	74.9	60.3	ML
▲	Very stiff, wet, reddish brown, Sandy SILT (ML) (A-4)	32	28	4	62.0	54.3	ML
◆	Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel	31	26	5	78.4	66.0	ML
▼	Very stiff to hard, dry to moist, reddish brown to tannish brown, Sandy SILT (ML) (A-4)	37	32	5	82.2	62.8	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** C-3 **Depth:** 8.50-10.00 **Sample Number:** S-4

■ **Source of Sample:** C-4 **Depth:** 3.00-7.00 **Sample Number:** S-2/S-3

▲ **Source of Sample:** C-4 **Depth:** 13.50-15.00 **Sample Number:** S-6

◆ **Source of Sample:** C-5 **Depth:** 6.00-10.00 **Sample Number:** S-3/S-4

▼ **Source of Sample:** C-6 **Depth:** 6.00-10.00 **Sample Number:** S-4/S-5

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Figure 1.15

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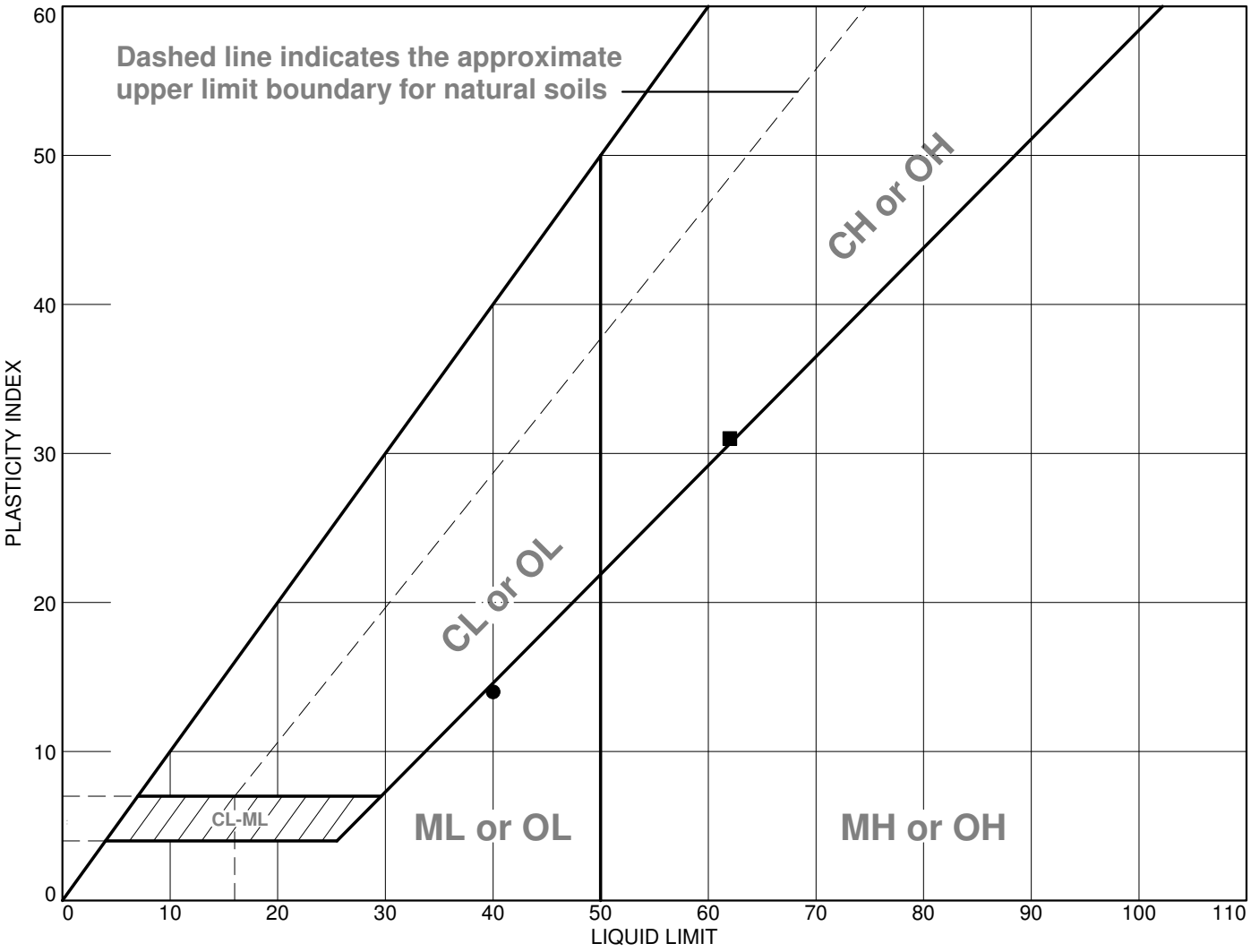
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, dark brown to brown, Sandy SILT (ML)(A-6) with trace gravel	40	26	14	80	73	ML
■	Very stiff to hard, moist, reddish brown to tannish brown, Plastic CLAY (CH)(A-7-5)	62	31	31	93	88	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** C-2 **Depth:** 1.00-4.00 **Sample No.:** D4S-1501

■ **Source:** C-6 **Depth:** 1.00-4.00 **Sample No.:** D4S-1502

Remarks:

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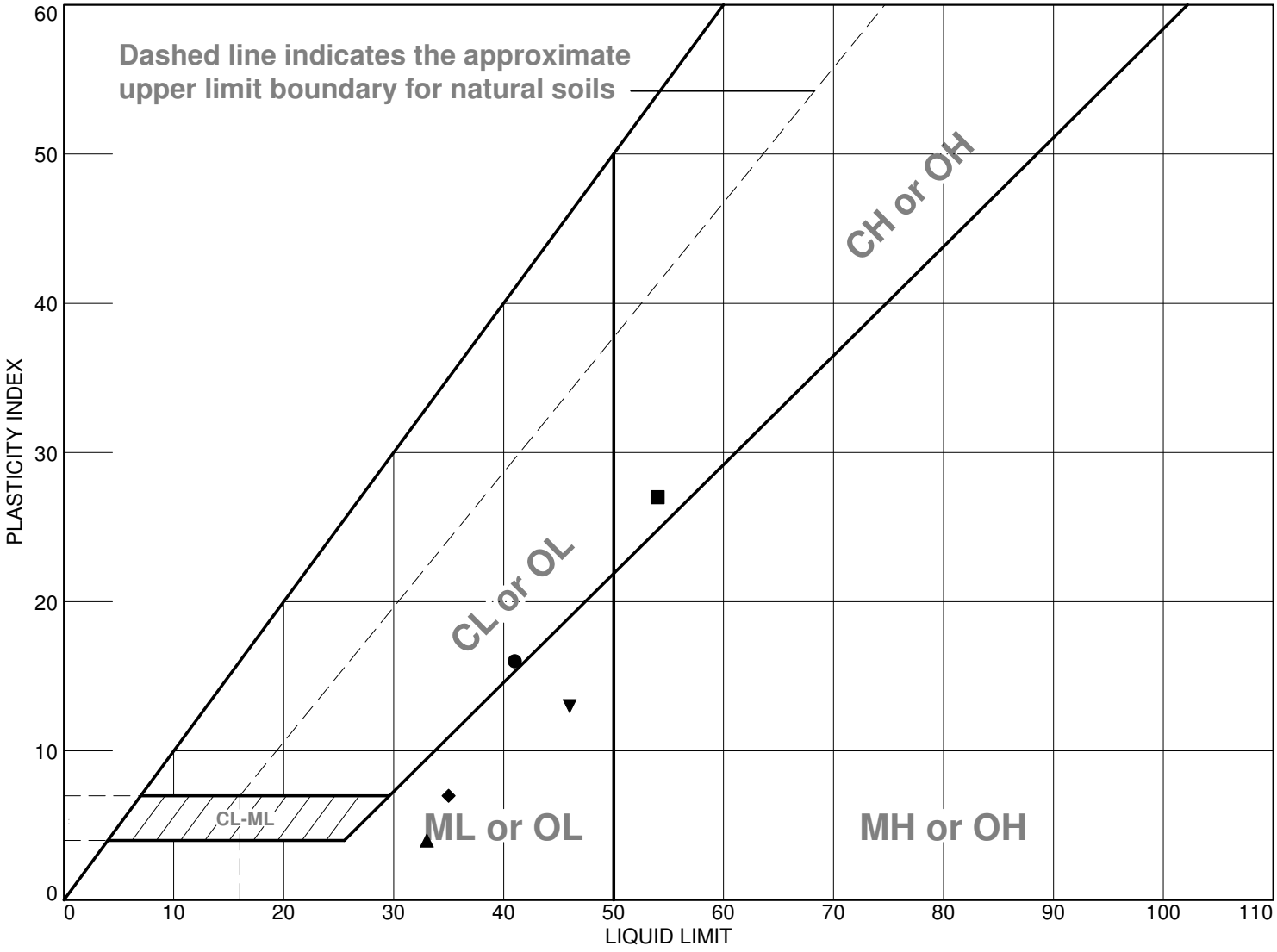
Figure 1.16

Tested By: ● DH ■ DM

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to soft, moist, orangish brown to reddish brown, Sandy CLAY (CL) (A-7-6)	41	25	16	77.4	51.0	CL
■	Medium stiff to stiff, moist, orangish brown to gray, Plastic CLAY (CH) (A-7-6) with trace roots	54	27	27	90.8	75.3	CH
▲	Medium dense to loose, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel	33	29	4	75.7	39.3	SM
◆	Soft to medium stiff, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and grave	35	28	7	80.7	47.0	SM
▼	Medium stiff to soft, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace gravel	46	33	13	90.9	63.6	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-001 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-002 **Depth:** 6.50-8.00 **Sample Number:** S-5

▲ **Source of Sample:** P-003 **Depth:** 4.00-5.50 **Sample Number:** S-3

◆ **Source of Sample:** P-004 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-005 **Depth:** 6.50-8.00 **Sample Number:** S-5

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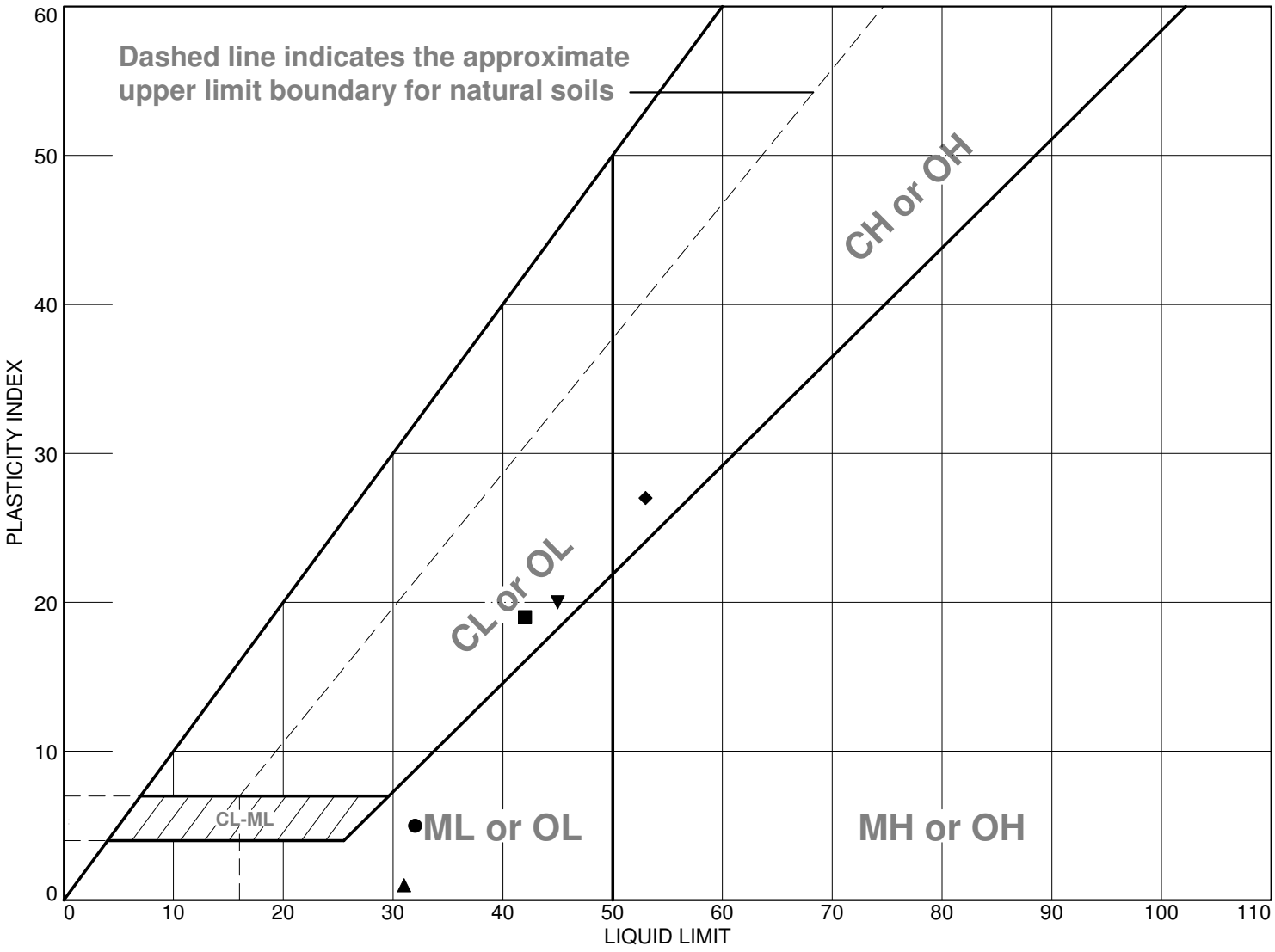
Figure 1.17

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very loose to loose, moist, tannish brown to orange, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and	32	27	5	85.4	45.5	SM
■	Medium stiff to stiff, moist, grayish brown to reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots and	42	23	19	74.0	50.8	CL
▲	Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)	31	30	1	92.7	37.5	SM
◆	Medium stiff to stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)	53	26	27	90.2	67.6	CH
▼	Soft, moist, dark brown to red, Sandy CLAY (CL) (A-7-6) with trace roots	45	25	20	80.9	58.7	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-006 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-007 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

▲ **Source of Sample:** P-008 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-009 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

▼ **Source of Sample:** P-010 **Depth:** 2.00-3.50 **Sample Number:** S-2

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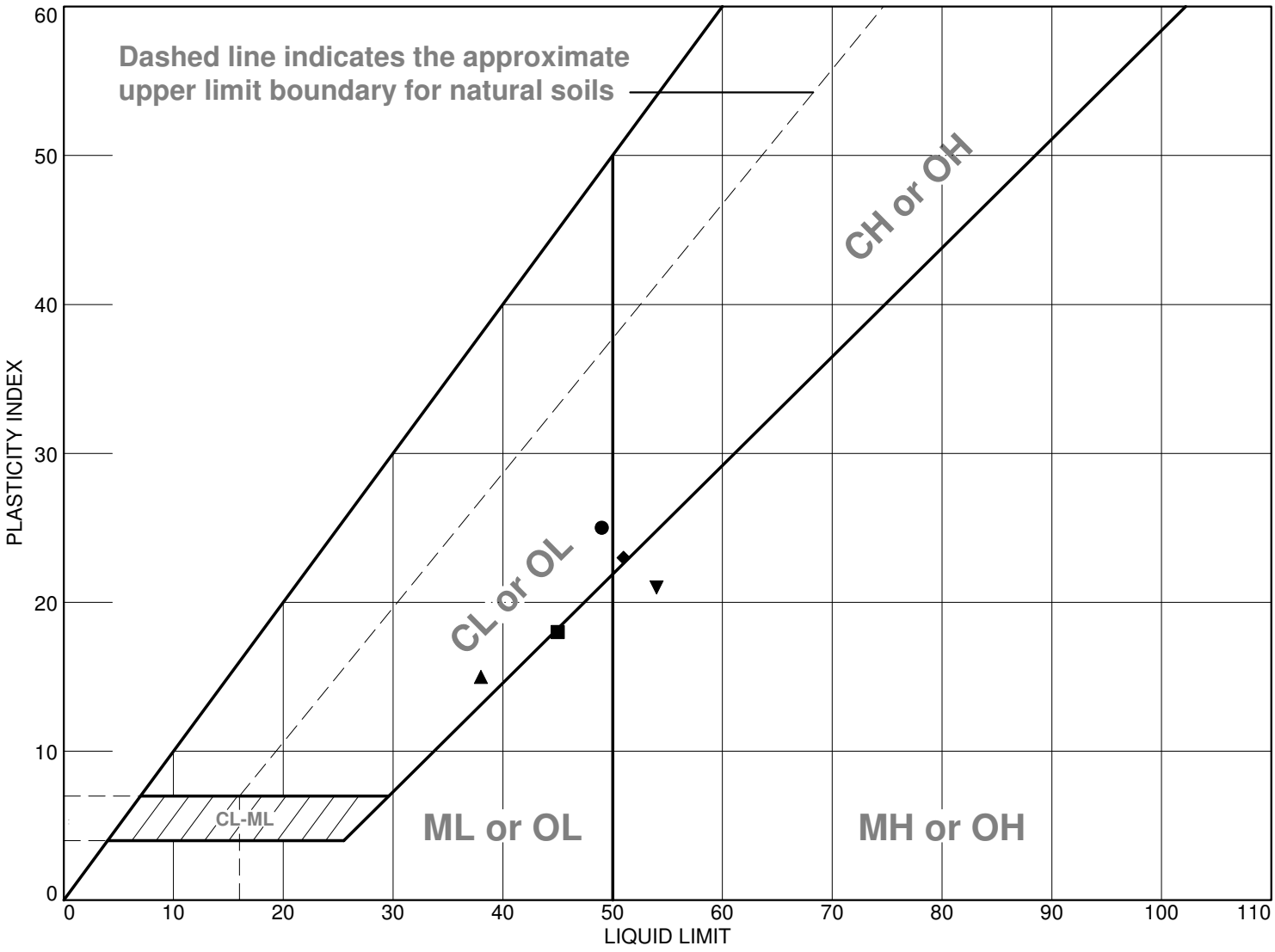
Figure 1.18

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, orangish brown, Sandy CLAY (CL) (A-7-6) with trace roots	49	24	25	76.8	54.0	CL
■	Soft, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel	45	27	18	78.7	59.8	CL
▲	Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-6)	38	23	15	79.3	57.5	CL
◆	Stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace roots	51	28	23	94.1	75.2	CH
▼	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A 7-5)	54	33	21	85.9	71.1	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-011 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-012 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-013 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

◆ **Source of Sample:** P-014 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

▼ **Source of Sample:** P-015 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

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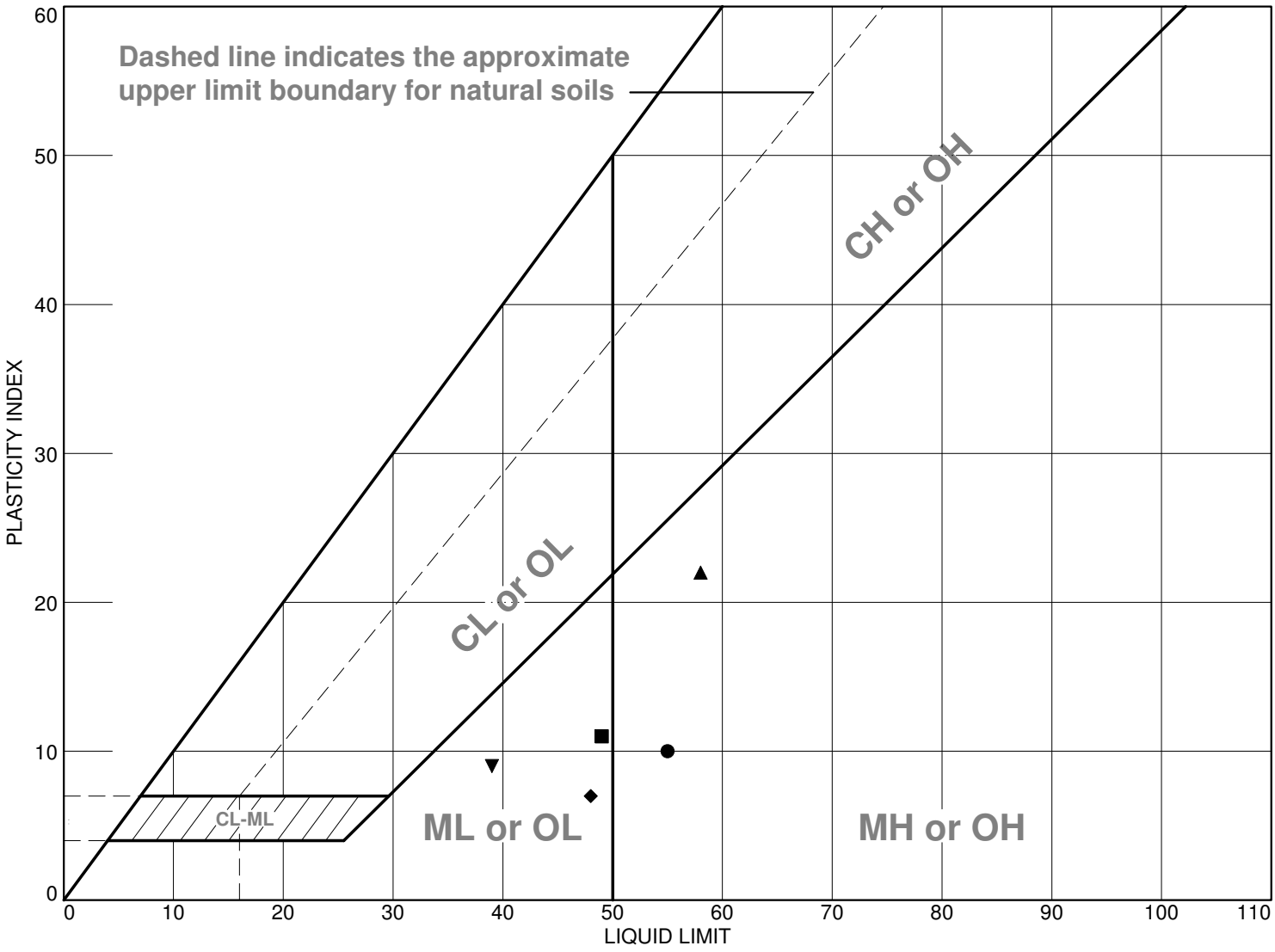
Figure 1.19

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Soft, moist, reddish brown, Elastic SILT (MH) (A-5)	55	45	10	90.4	71.8	MH
■	Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)	49	38	11	97.7	78.6	ML
▲	Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	58	36	22	97.9	90.6	MH
◆	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots	48	41	7	96.1	72.3	ML
▼	Medium stiff to soft, moist, orangish brown, Sandy SILT (ML) (A-4)	39	30	9	80.5	58.9	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-016 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

■ **Source of Sample:** P-017 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-018 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

◆ **Source of Sample:** P-019 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-020 **Depth:** 2.00-3.50 **Sample Number:** S-2

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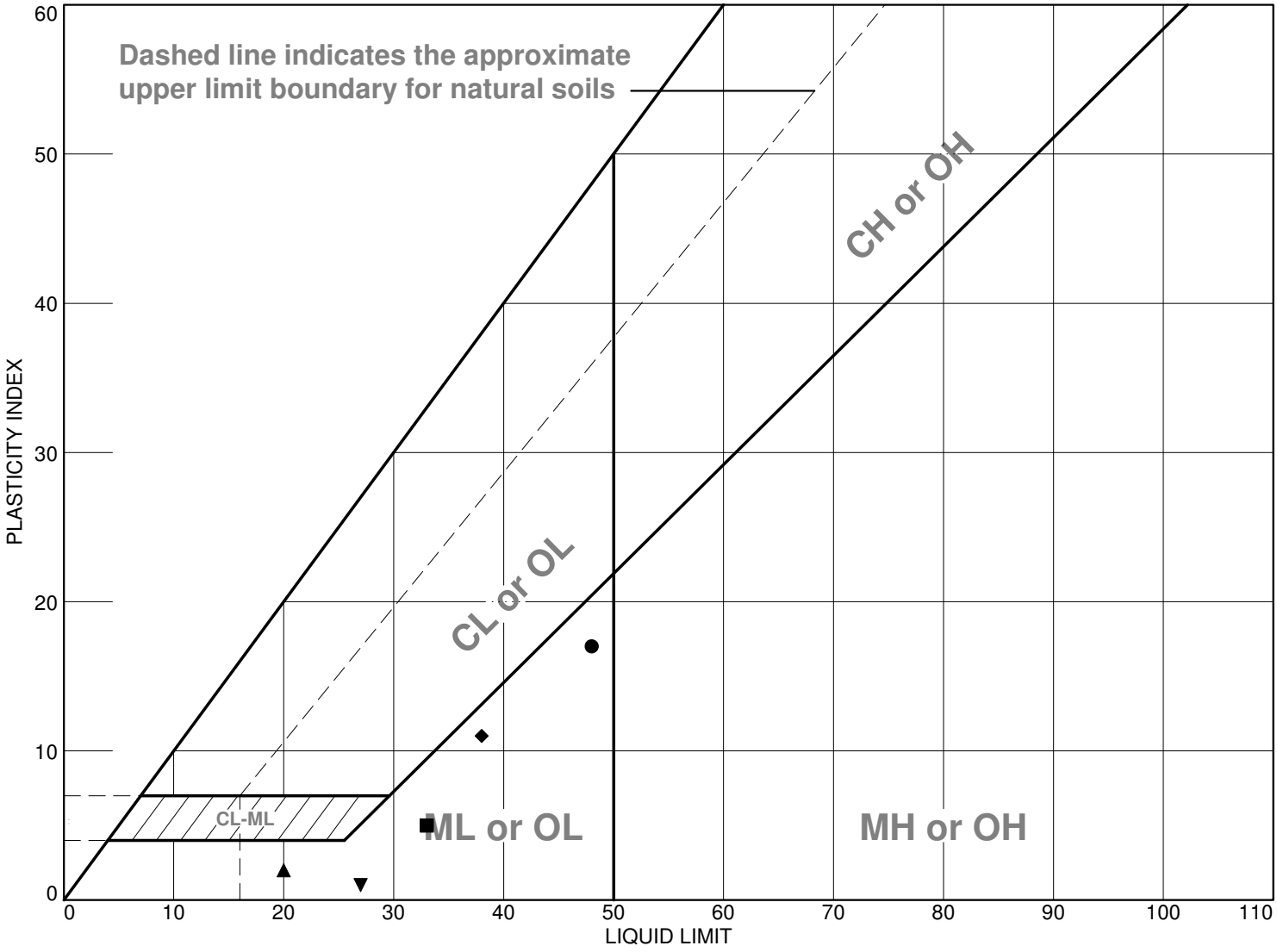
Figure 1.20

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to soft, moist, orangish brown, Sandy SILT (ML) (A-7-5)	48	31	17	86.9	68.4	ML
■	Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4)	33	28	5	83.8	51.0	ML
▲	Loose to medium dense, brown to orangish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel	20	18	2	66.9	35.0	SM
◆	Loose, moist, orangish brown to reddish brown, Silty Fine to Coarse SAND (SM) (A-6) with trace roots and gravel	38	27	11	68.4	46.8	SM
▼	Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)	27	26	1	76.6	41.6	SM

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-021 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-022 **Depth:** 3.50-5.00 **Sample Number:** S-3

▲ **Source of Sample:** P-023 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-024 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

▼ **Source of Sample:** P-025 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

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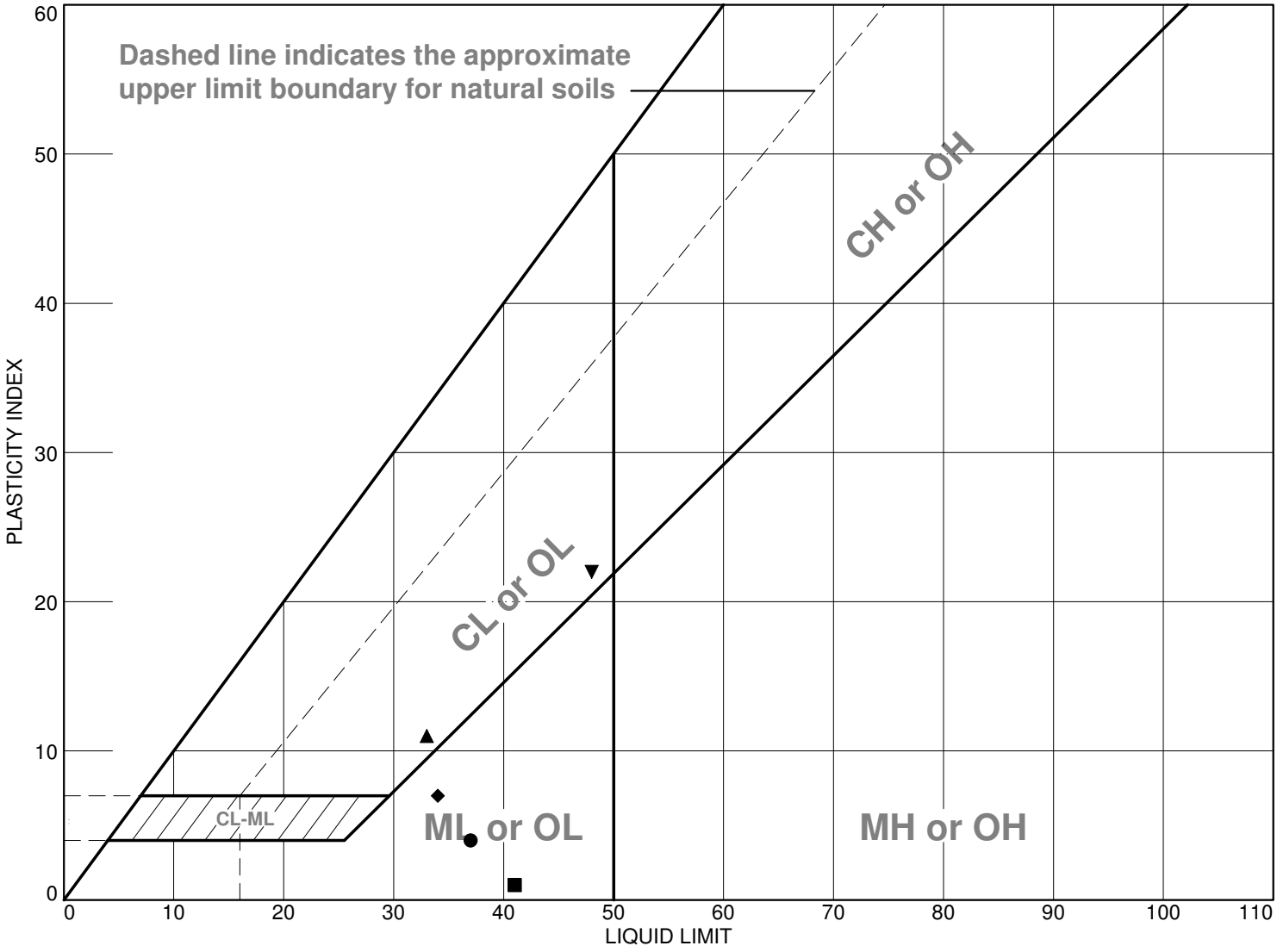
Figure 1.21

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Soft to medium stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace roots	37	33	4	84.0	52.9	ML
■	Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel	41	40	1	90.8	59.1	ML
▲	Medium stiff to stiff, moist, orangish brown to brown, Sandy CLAY (CL) (A-6) with trace roots and gravel	33	22	11	88.0	60.4	CL
◆	Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)	34	27	7	67.6	45.3	SM
▼	Stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6)	48	26	22	84.6	66.5	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-026 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

■ **Source of Sample:** P-027 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

▲ **Source of Sample:** P-028 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-028 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-029 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

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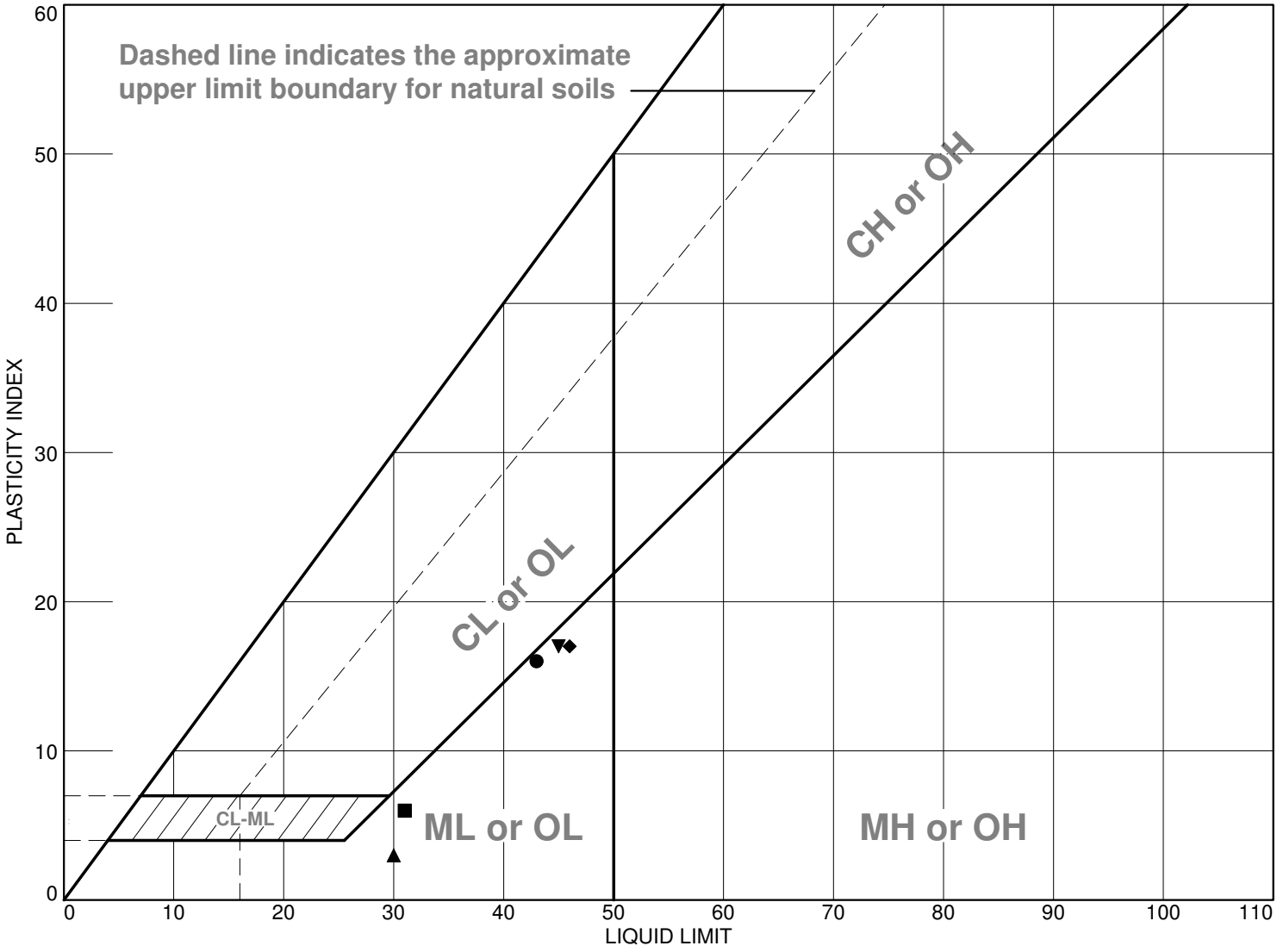
Figure 1.22

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, orangish brown to reddish brown, Sandy SILT (ML) (A-7-6) with trace gravel and roots	43	27	16	83.7	64.8	ML
■	Stiff, moist, tannish orange to brown, Sandy SILT (ML) (A- 4) with trace rocks	31	25	6	80.2	59.9	ML
▲	Hard, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4)	30	27	3	66.4	34.8	SM
◆	Stiff to medium stiff, moist, reddish orange to brown, Sandy SILT (ML) (A-7-6) with trace gravel	46	29	17	73.1	58.4	ML
▼	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7 6)	45	28	17	82.0	68.7	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-030 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

■ **Source of Sample:** P-031 **Depth:** 0.50-3.50 **Sample Number:** S-1/S-2

▲ **Source of Sample:** P-031 **Depth:** 3.50-5.00 **Sample Number:** S-3

◆ **Source of Sample:** P-032 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

▼ **Source of Sample:** P-033 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

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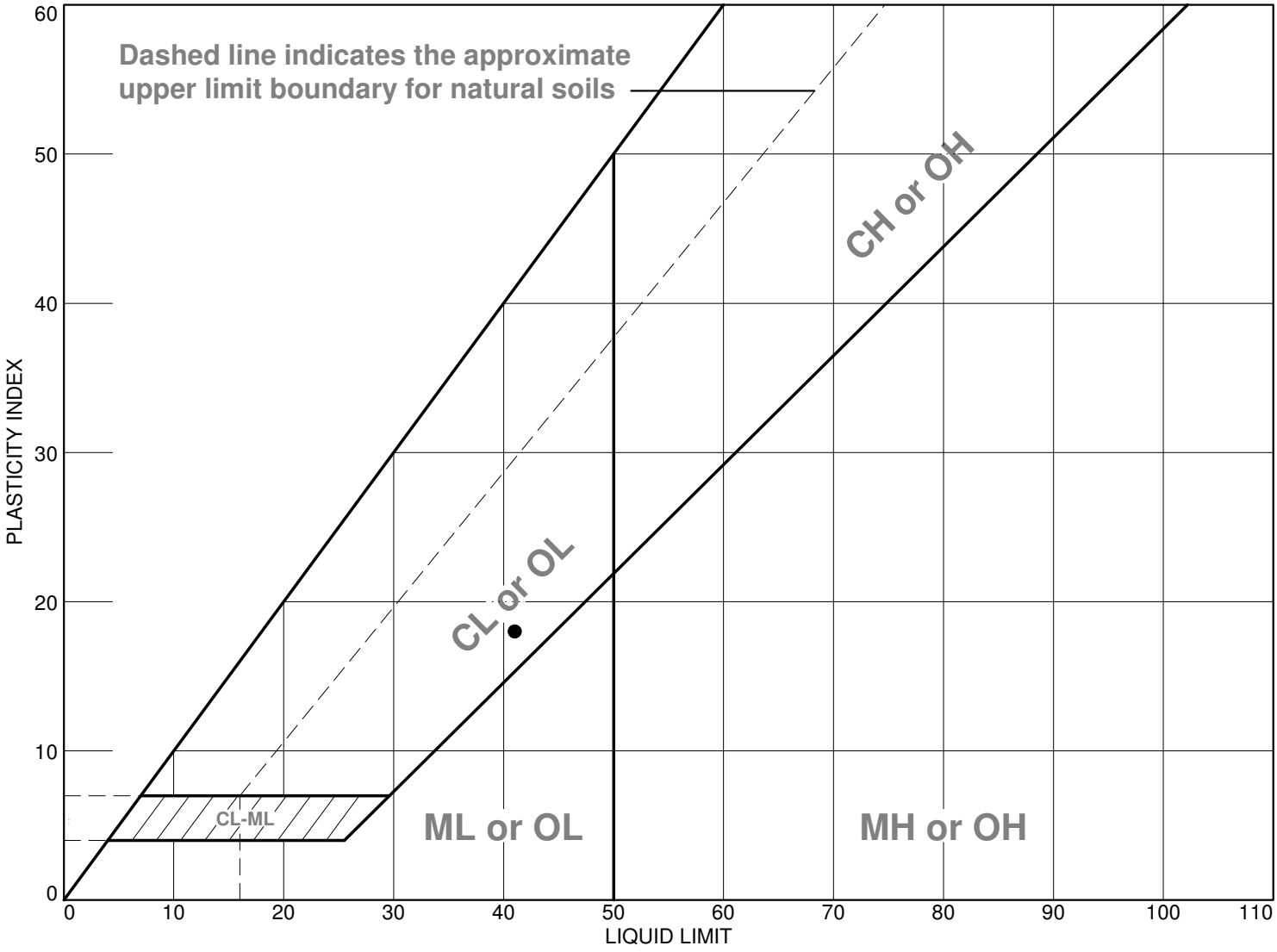
Figure 1.23

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots	41	23	18	79.2	64.0	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** P-034 **Depth:** 2.00-5.00 **Sample Number:** S-2/S-3

Remarks:

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Figure 1.24

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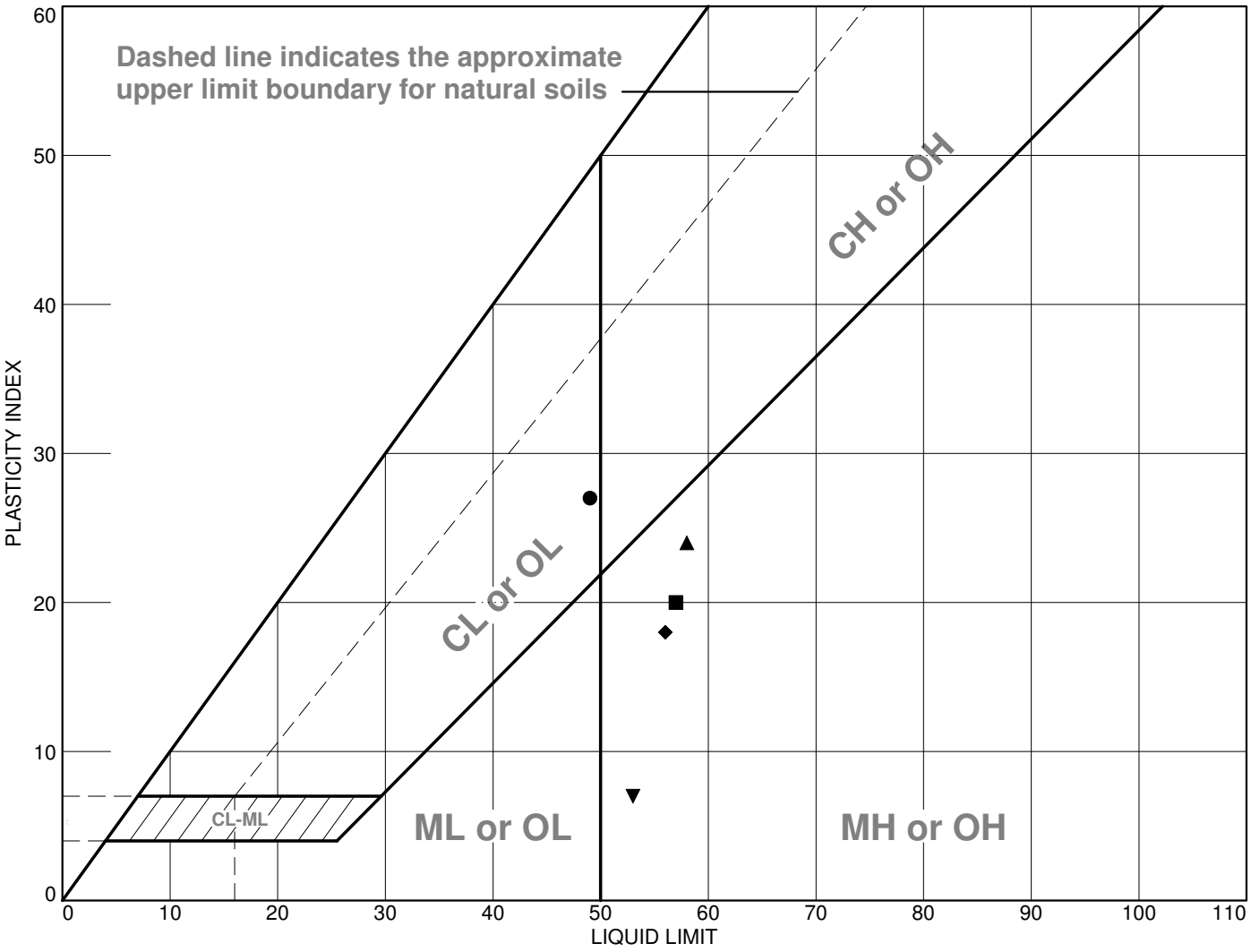
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, orangish brown, Sandy CLAY (CL)(A-7-6) with trace roots	49	22	27	95	83	CL
■	Stiff, moist to dry, orangish brown to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots	57	37	20	71	57	MH
▲	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	58	34	24	90	75	MH
◆	Stiff to very stiff, dry, orangish brown, Elastic SILT (MH)(A-7-5) with trace gravel	56	38	18	97	83	MH
▼	Medium stiff to soft, moist, reddish brown, Elastic SILT (MH)(A-5)	53	46	7	99	80	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-11 **Depth:** 1.00-4.00 **Sample No.:** D4S-1497

■ **Source of Sample:** P-38 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-39 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-40 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-42 **Depth:** 2.00-3.50 **Sample Number:** S-2

Remarks:

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Figure 1.25

Tested By: DM

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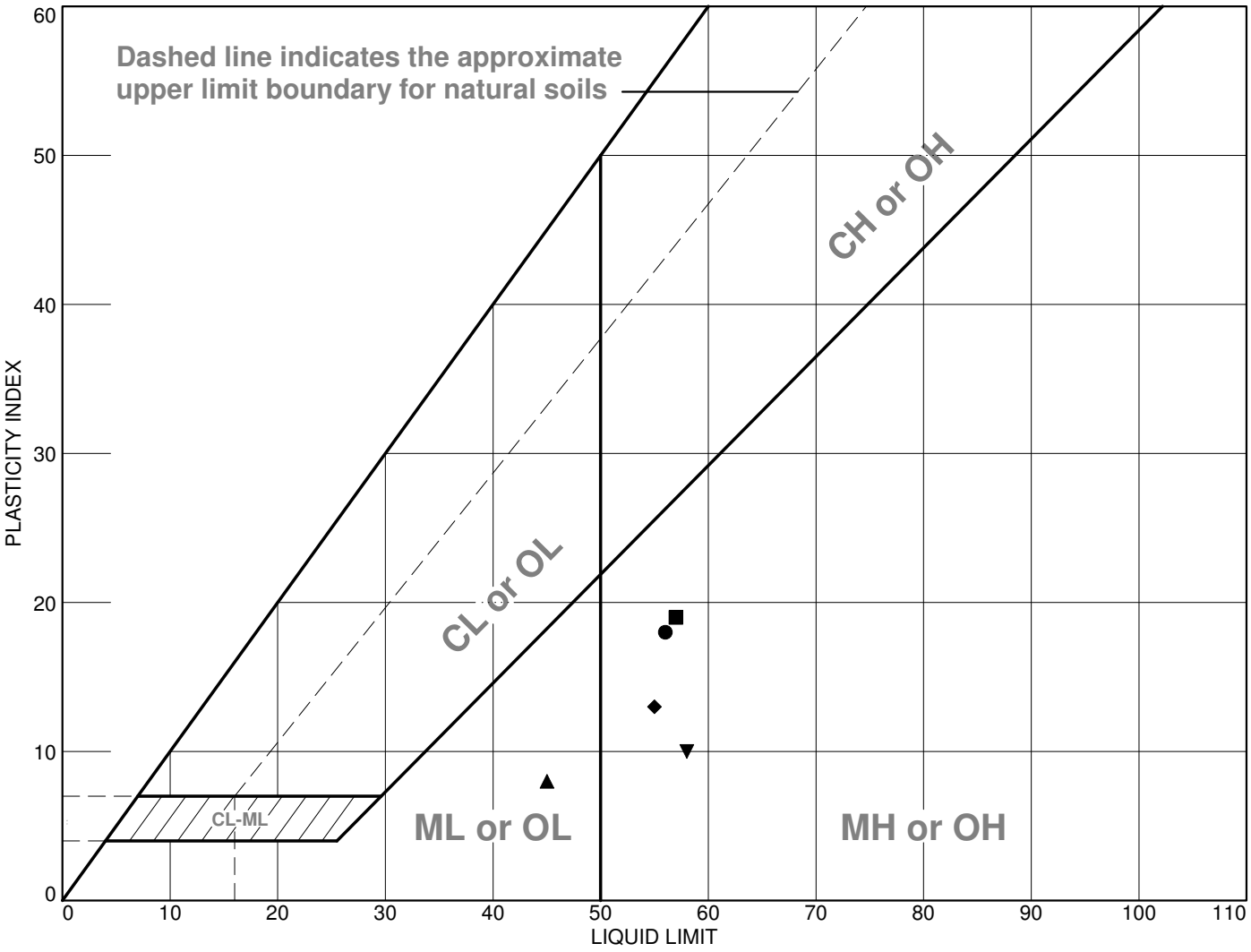
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace roots	56	38	18	99	87	MH
■	Medium stiff to soft, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5)	57	38	19	92	80	MH
▲	Stiff to medium stiff, moist, tan to light brown, Sandy SILT (ML)(A-5)	45	37	8	95	73	ML
◆	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace roots	55	42	13	99	84	MH
▼	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)	58	48	10	98	87	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-43 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-44 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-45 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-46 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-47 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.26

Tested By: DM

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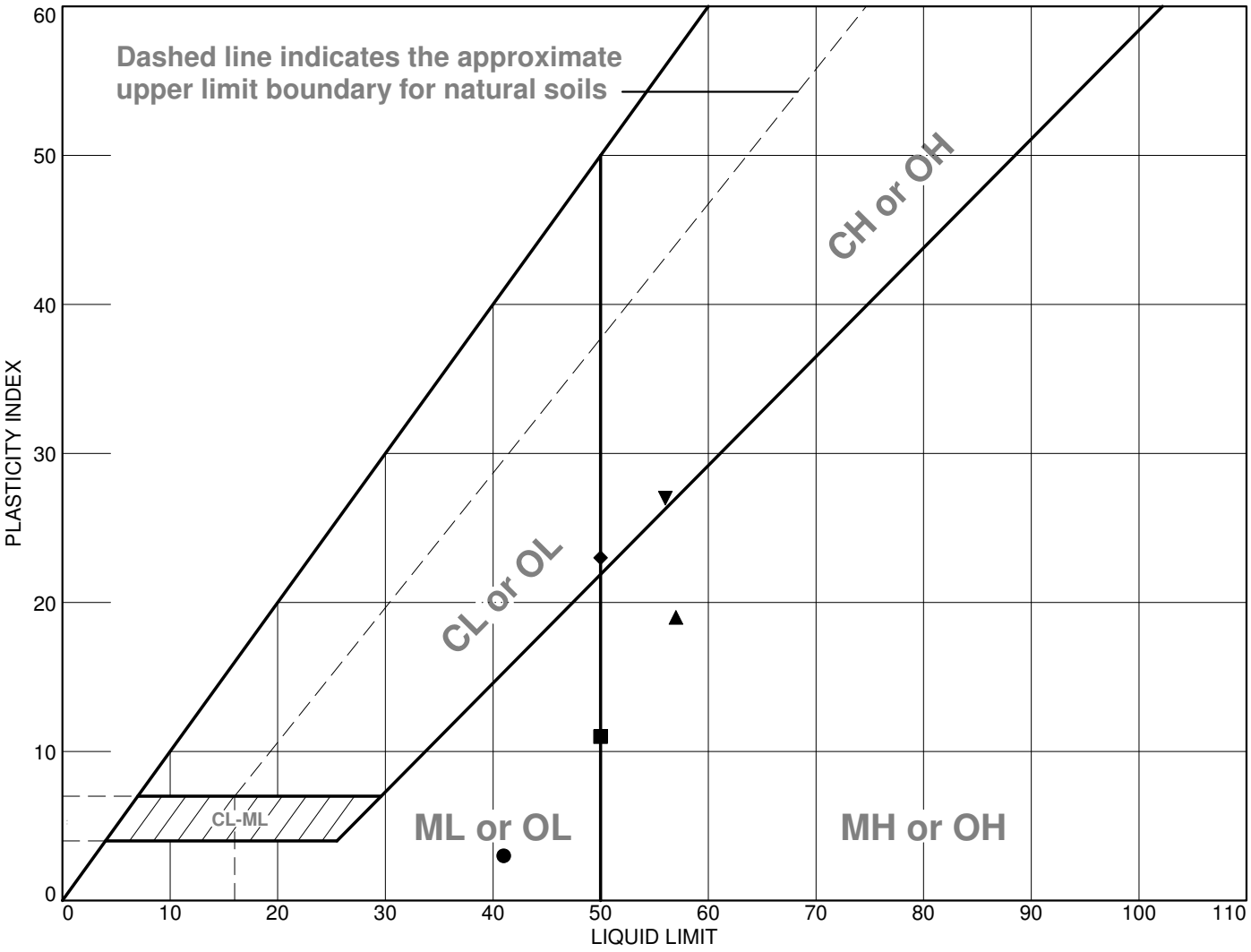
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium Stiff, moist, tannish brown, Sandy SILT (ML)(A-5)	41	38	3	98	74	ML
■	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	50	39	11	96	80	MH
▲	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	57	38	19	98	90	MH
◆	Stiff to medium stiff, moist, reddish brown, Plastic CLAY (CH)(A-7-6)	50	27	23	92	84	CH
▼	Medium stiff to soft, moist, tannish brown to brown, Plastic CLAY (CH)(A-7-6)	56	29	27	97	88	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-48 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-49 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-50 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-51 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-53 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.27

Tested By: DM

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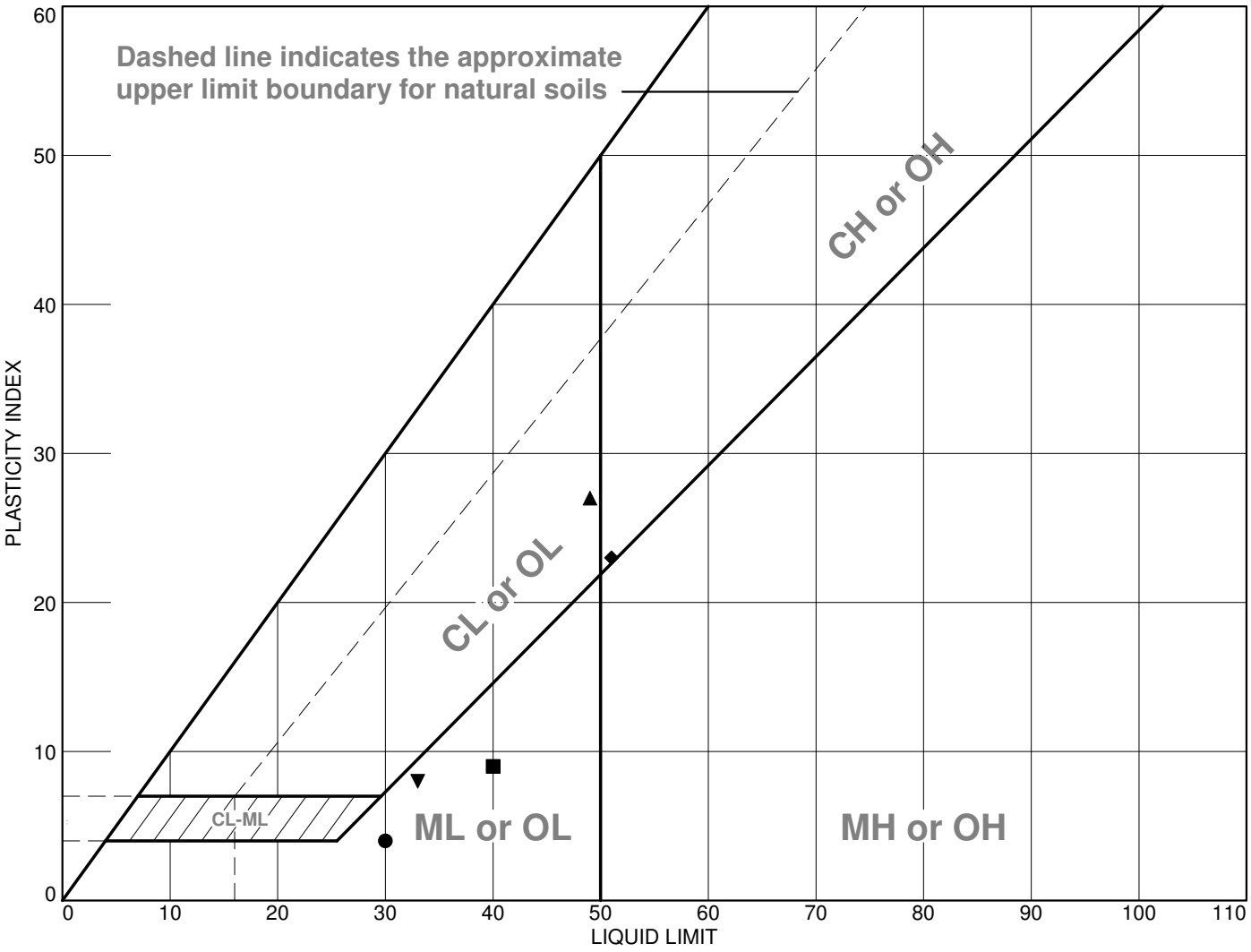
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Hard to very stiff, moist, tan, Sandy SILT (ML)(A-4)	30	26	4	98	80	ML
■	Stiff ot medium stiff, moist, orangish brown, Sandy SILT (ML)(A-5) with trace roots	40	31	9	99	88	ML
▲	Medium stiff to stiff, moist, orangish tan, Sandy Clay (CL)(A-7-6)	49	22	27	88	78	CL
◆	Medium stiff to stiff, moist, orangish brown to grayish brown, Plastic CLAY (CH)(A-7-6) with trace gravel	51	28	23	87	75	CH
▼	Hard, moist, brown to tan, Sandy SILT (ML)(A-4)	33	25	8	96	68	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-55 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-56 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-58 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-59 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-60 **Depth:** 0.50-2.00 **Sample Number:** S-1

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Figure 1.28

Tested By: ● DM ■ AS ▲ AS ◆ DM ▼ DHM

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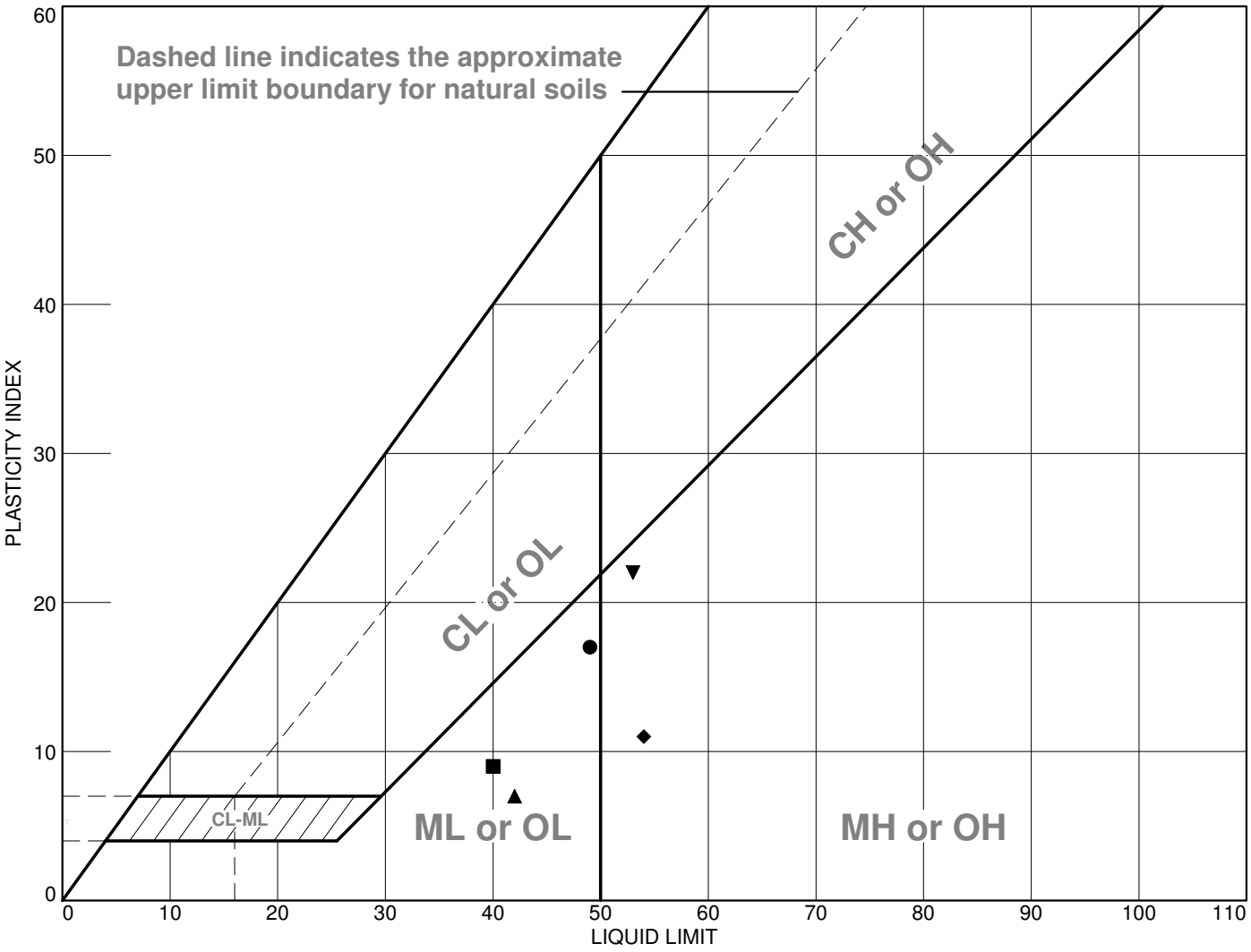
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Soft, moist, organish brown, Sandy SILT (ML)(A-7-5)	49	32	17	98	91	ML
■	Medium stiff to soft, moist, pinkish tan, Sandy SILT (ML)	40	31	9	94	86	ML
▲	Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML)(A-5)	42	35	7	99	89	ML
◆	Medium stiff, moist, orangish tan to reddish tan, Sandy SILT (MH)(A-7-5)	54	43	11	99	82	MH
▼	Stiff, moist, reddish brown to orangish brown, Elastic SILT (MH)(A-7-5)	53	31	22	94	90	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-61 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-62 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-63 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-64 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-65 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.29

Tested By: ● SC ■ AS/SC ▲ DM ◆ SC ▼ DM

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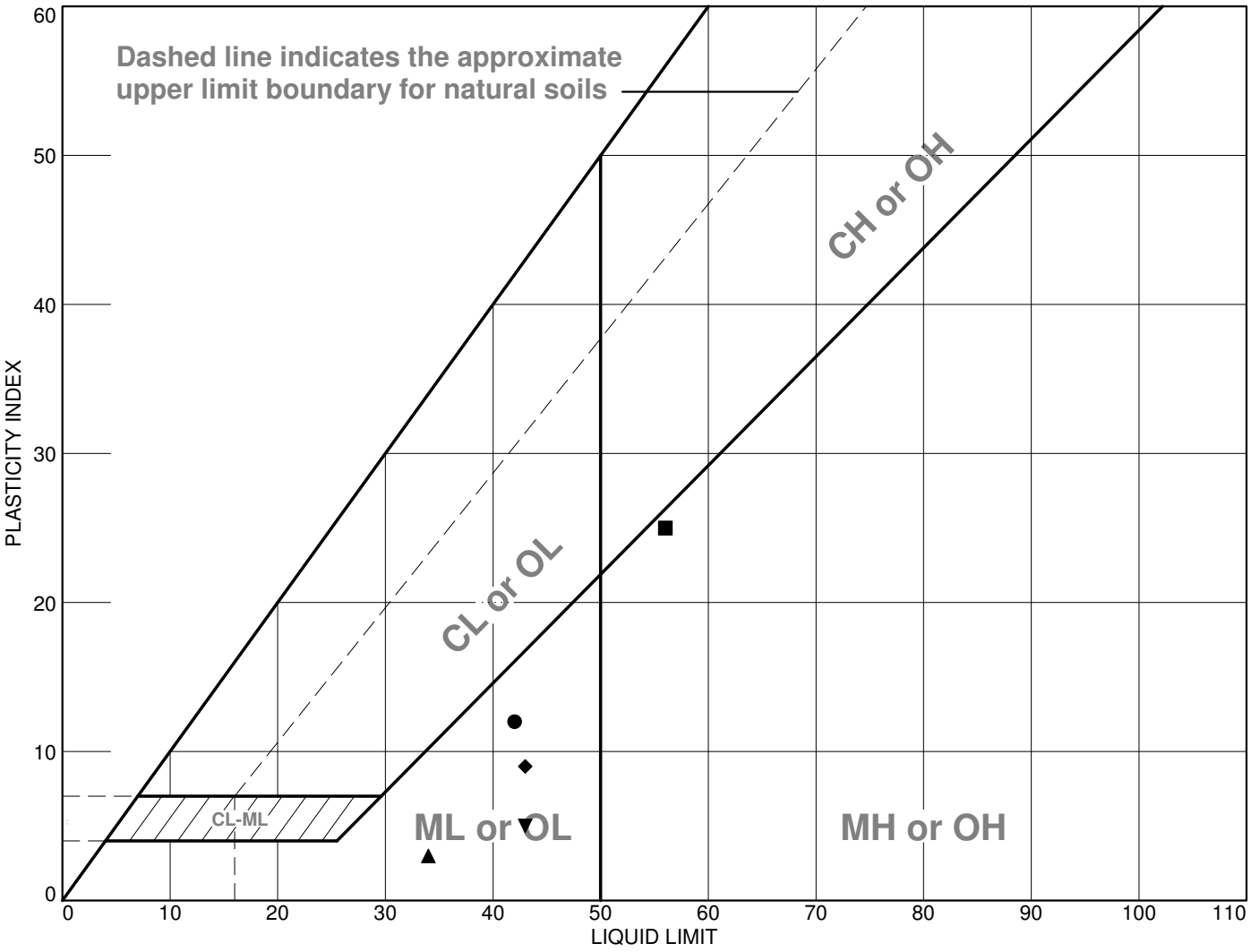
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, orangish brown to tannish brown, Sandy SILT (ML)(A-7-5)	42	30	12	97	80	ML
■	Stiff to medium stiff, moist, orangish brown, Elastic SILT (MH)(A-7-5) with trace roots	56	31	25	97	91	MH
▲	Hard to very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)	34	31	3	94	71	ML
◆	Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5) with trace roots	43	34	9	95	85	ML
▼	Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML)(A-5)	43	38	5	97	87	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-67 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-68 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-69 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-70 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-71 **Depth:** 3.50-5.00 **Sample Number:** S-3

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Figure 1.30

Tested By: ● DM ■ SC ▲ DM ◆ AS ▼ DM

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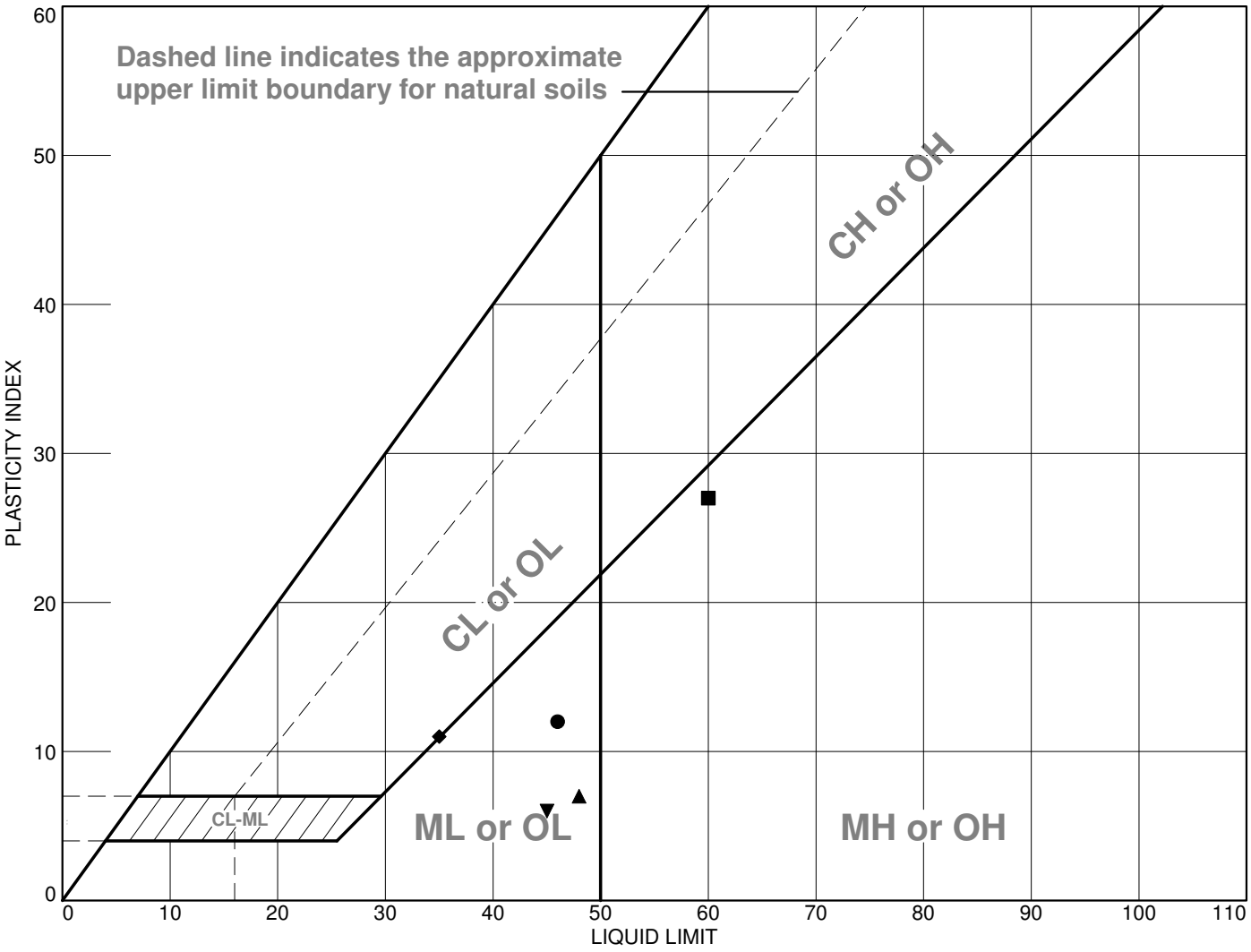
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, tannish brown, Sandy SILT (ML)(A-7-5)	46	34	12	95	81	ML
■	Stiff, moist, orangish brown to reddish brown, Elastic SILT (MH)(A-7-5)	60	33	27	98	96	MH
▲	Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)	48	41	7	88	77	ML
◆	Medium stiff to stiff, moist, tannish gray to gray, Sandy CLAY (CL)(A-6) with trace roots	35	24	11	80	67	CL
▼	Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)	45	39	6	93	79	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-72 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-74 **Depth:** 3.50-5.00 **Sample Number:** S-3

▲ **Source of Sample:** P-75 **Depth:** 3.50-5.00 **Sample Number:** S-3

◆ **Source of Sample:** P-76 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-78 **Depth:** 3.50-5.00 **Sample Number:** S-3

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Figure 1.31

Tested By: ● DM ■ DM ▲ DM ◆ DM ▼ AS

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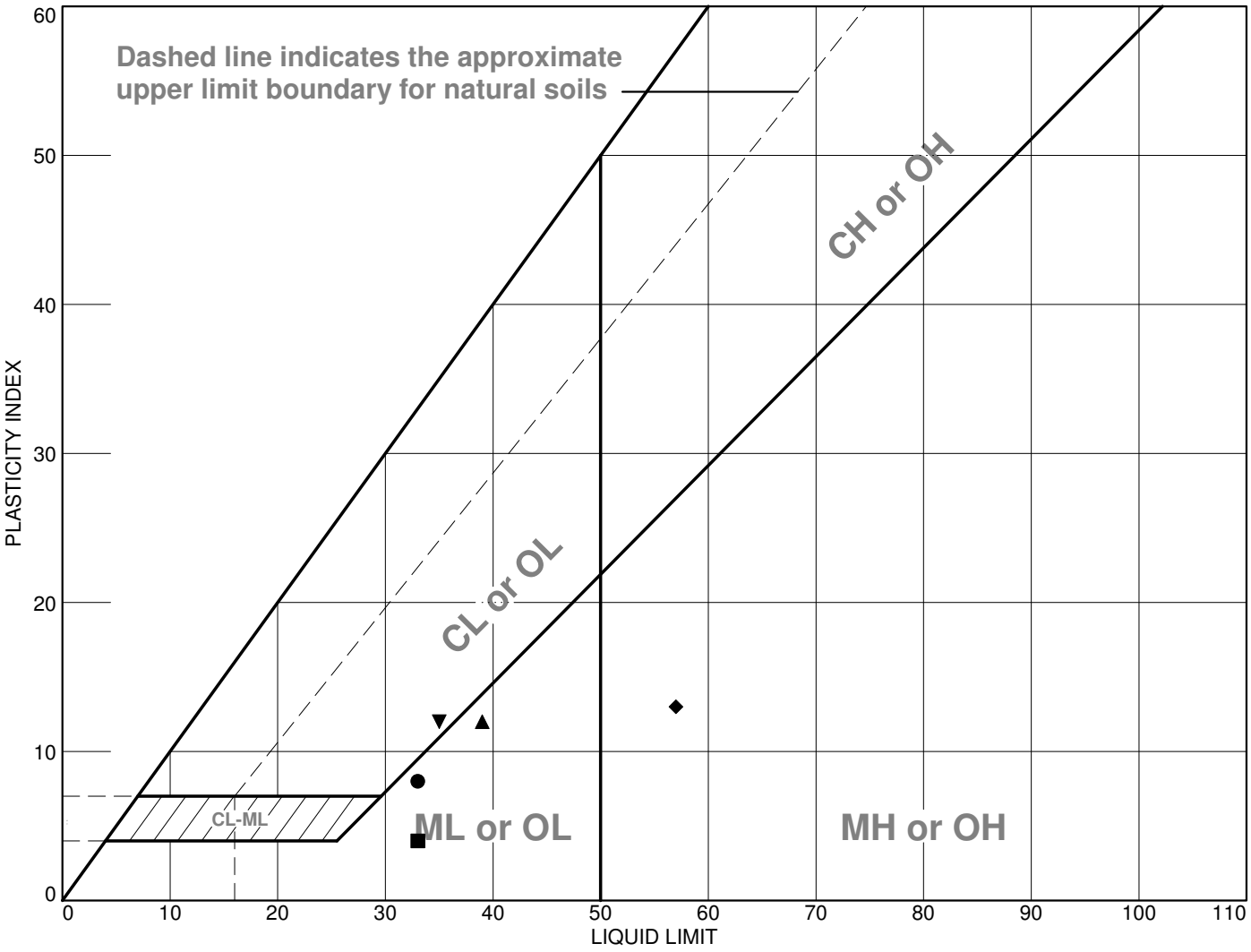
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel-sized rock fragments	33	25	8	76	67	ML
■	Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel-sized rock fragments	33	29	4	85	69	ML
▲	Stiff, moist, reddish brown, Sandy SILT (ML)(A-6) with trace roots and gravel	39	27	12	77	65	ML
◆	Very stiff to stiff, moist, reddish brown to tannish red, Elastic SILT (MH)(A-7-5)	57	44	13	99	94	MH
▼	Stiff, moist, orangish brown, Sandy CLAY (CL)(A-6) with trace gravel	35	23	12	71	62	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-79 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-80 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-81 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-82 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-83 **Depth:** 0.50-2.00 **Sample Number:** S-1

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Figure 1.32

Tested By: ● DM ■ AS ▲ DM ◆ DM ▼ DM

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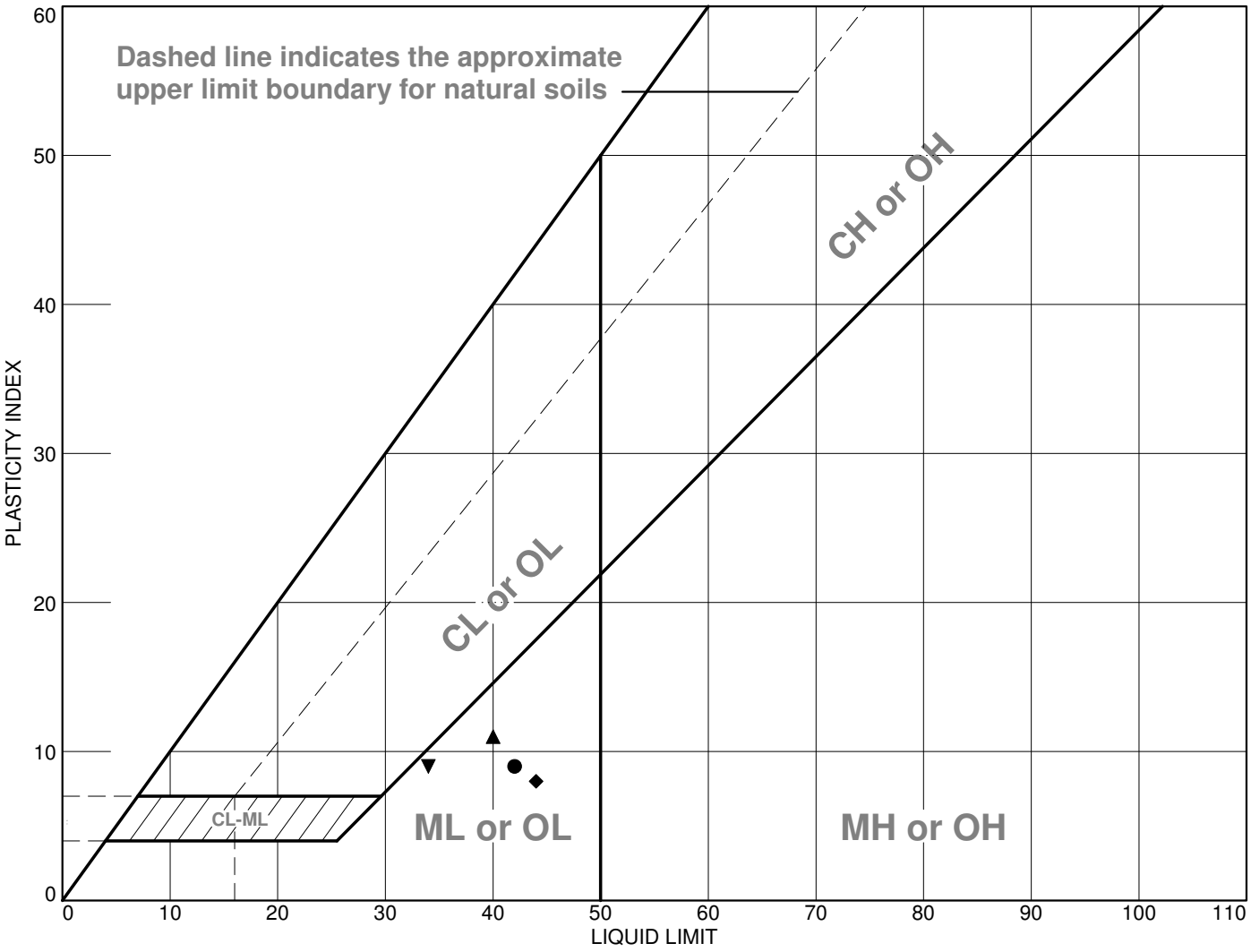
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots	42	33	9	96	81	ML
■	Medium dense, moist, tan, Poorly-Graded SAND (SP) (A-1-b) with trace mica	NP	NP	NP	48	4.3	SP
▲	Medium stiff, moist, tannish red, Sandy SILT (ML)(A-6) with trace gravel-sized rock fragments	40	29	11	92	75	ML
◆	Medium Stiff, moist, reddish brown, Sandy SILT (ML)(A-5)	44	36	8	98	80	ML
▼	Stiff to medium stiff, moist, reddish brown to grayish brown, Sandy SILT (ML)(A-4)	34	25	9	76	65	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-84 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-85 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-86 **Depth:** 3.50-5.00 **Sample Number:** S-3

◆ **Source of Sample:** P-87 **Depth:** 3.50-5.00 **Sample Number:** S-3

▼ **Source of Sample:** P-89 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.33

Tested By: ● AS ■ DM ▲ AS ◆ DM ▼ DM

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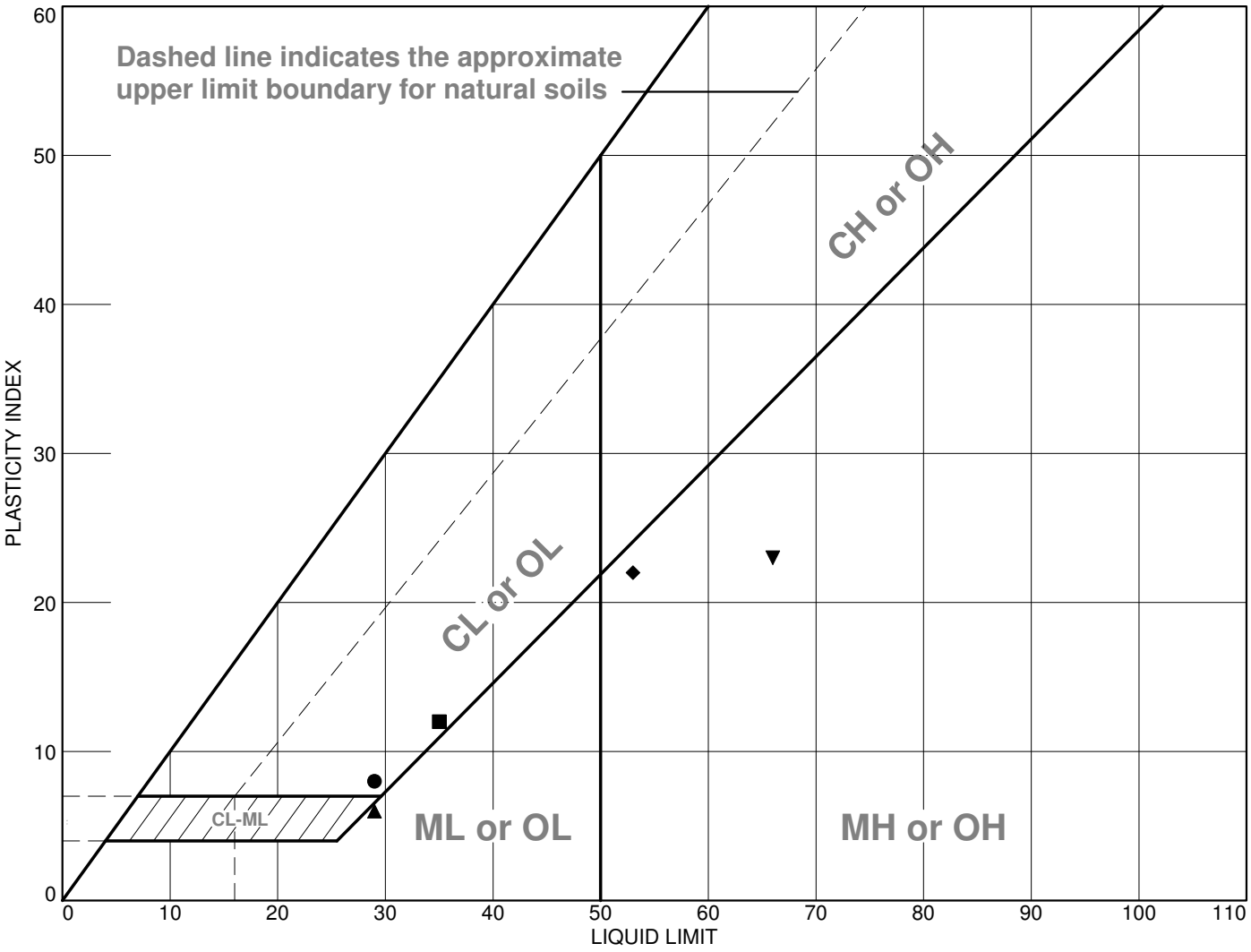
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium dense, moist, tannish brown, Clayey SAND (SC)	29	21	8	60	44	SC
■	Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with	35	23	12	69	58	CL
▲	Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel	29	23	6	81	73	ML
◆	Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	53	31	22	93	87	MH
▼	Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	66	43	23	98	89	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-90 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-91 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-92 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-94 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-94 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.34

Tested By: ● DM ■ DM ▲ AS ◆ AS ▼ AS

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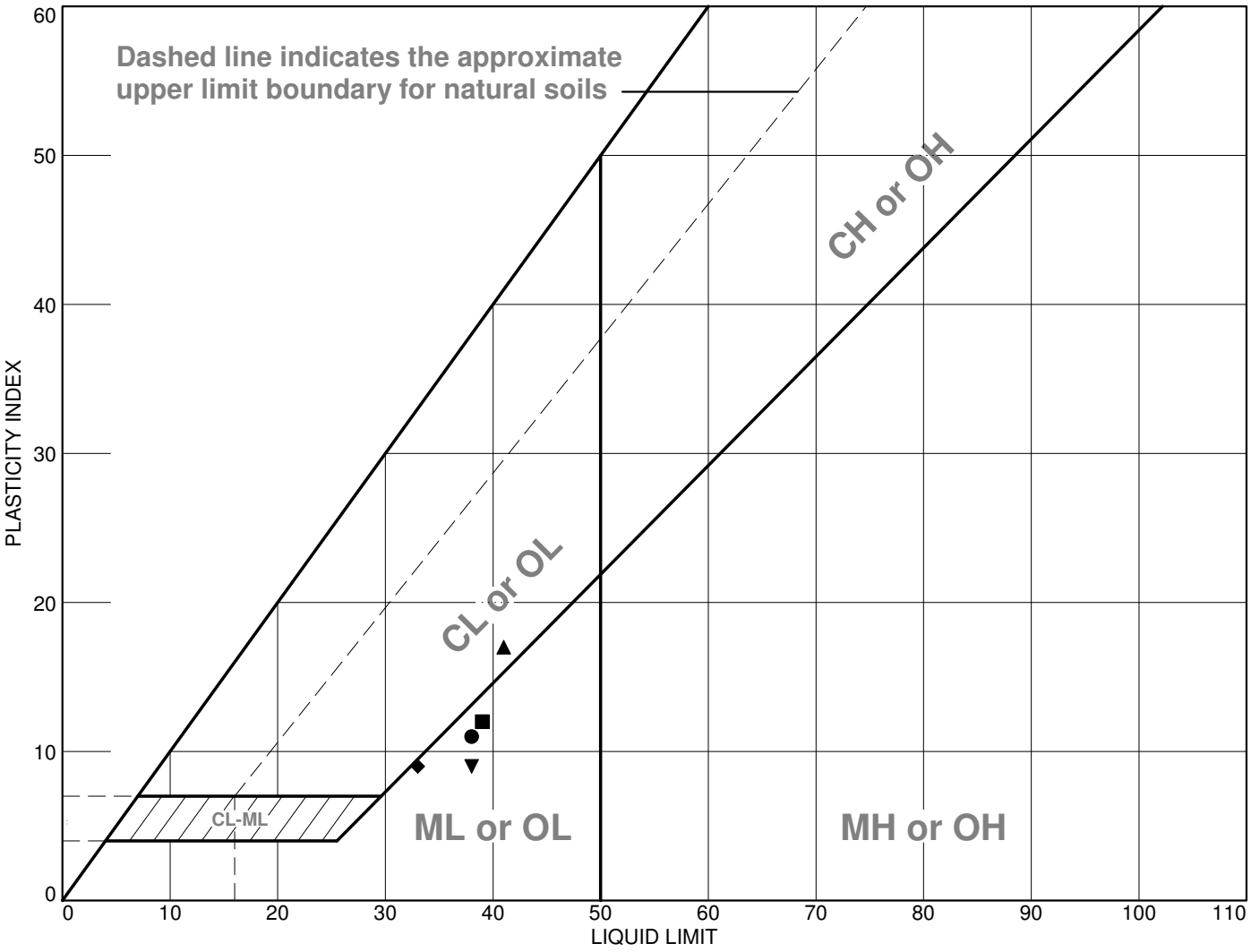
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Loose, moist, grayish brown, Silty Fine to Medium SAND (SM)(A-6) with trace gravel	38	27	11	65	47	SM
■	Medium stiff, moist, grayish tan to brown, Sandy SILT (ML)(A-6)	39	27	12	75	64	ML
▲	Stiff to medium stiff, moist, grayish brown to orangish brown, Sandy CLAY (CL)(A-7-6)	41	24	17	81	75	CL
◆	Very stiff, moist, tannish brown, Sandy CLAY (CL)(A-4)	33	24	9	77	60	CL
▼	Loose, moist, tannish brown, Silty Fine to Medium SAND (SM)(A-4) with trace gravel	38	29	9	59	46	SM

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-96 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-96 **Depth:** 3.50-5.00 **Sample Number:** S-3

▲ **Source of Sample:** P-97 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-98 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-99 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.35

Tested By: ● DM ■ DM ▲ DM ◆ SM ▼ AS

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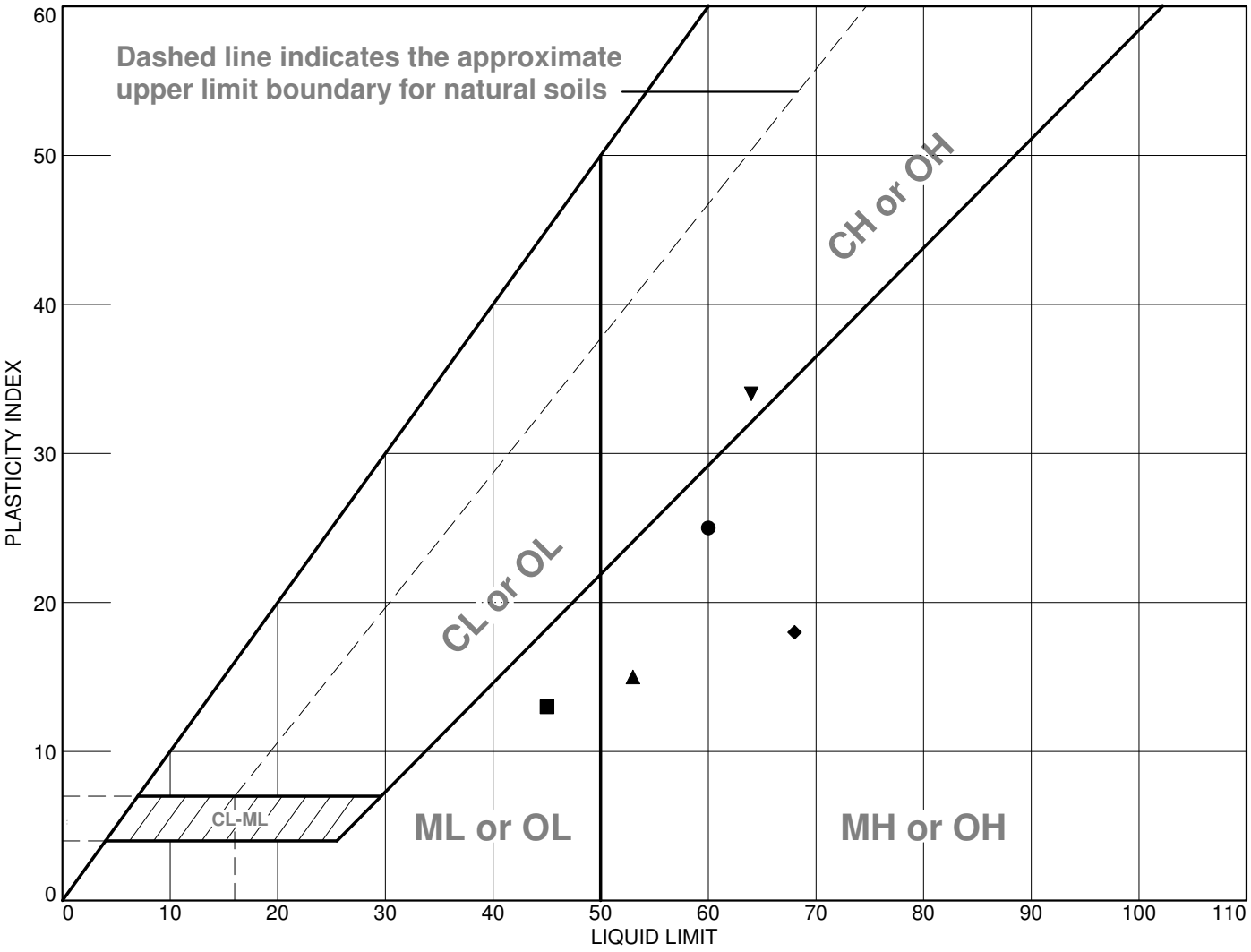
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, orangish brown, Elastic SILT (MH)(A- 7-5)	60	35	25	98	95	MH
■	Stiff to very stiff, moist, reddish tan, Sandy SILT (ML)(A-4)	45	32	13	88	71	ML
▲	Stiff to medium stiff, moist, reddish brown to black, Elastic SILT (MH)(A-7-5)	53	38	15	99	95	MH
◆	Medium stiff, moist, reddish brown, Sandy SILT (MH) (A-7-5)	68	50	18	99	91	MH
▼	Medium stiff, moist, tannish brown to gray, Plastic CLAY (CH) (A-7-5) with trace gravel	64	30	34	95	92	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-100 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-101 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-102 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-103 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-106 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.36

Tested By: ● DHM ■ AS ▲ DM ◆ SC ▼ SC **Checked By:** DM

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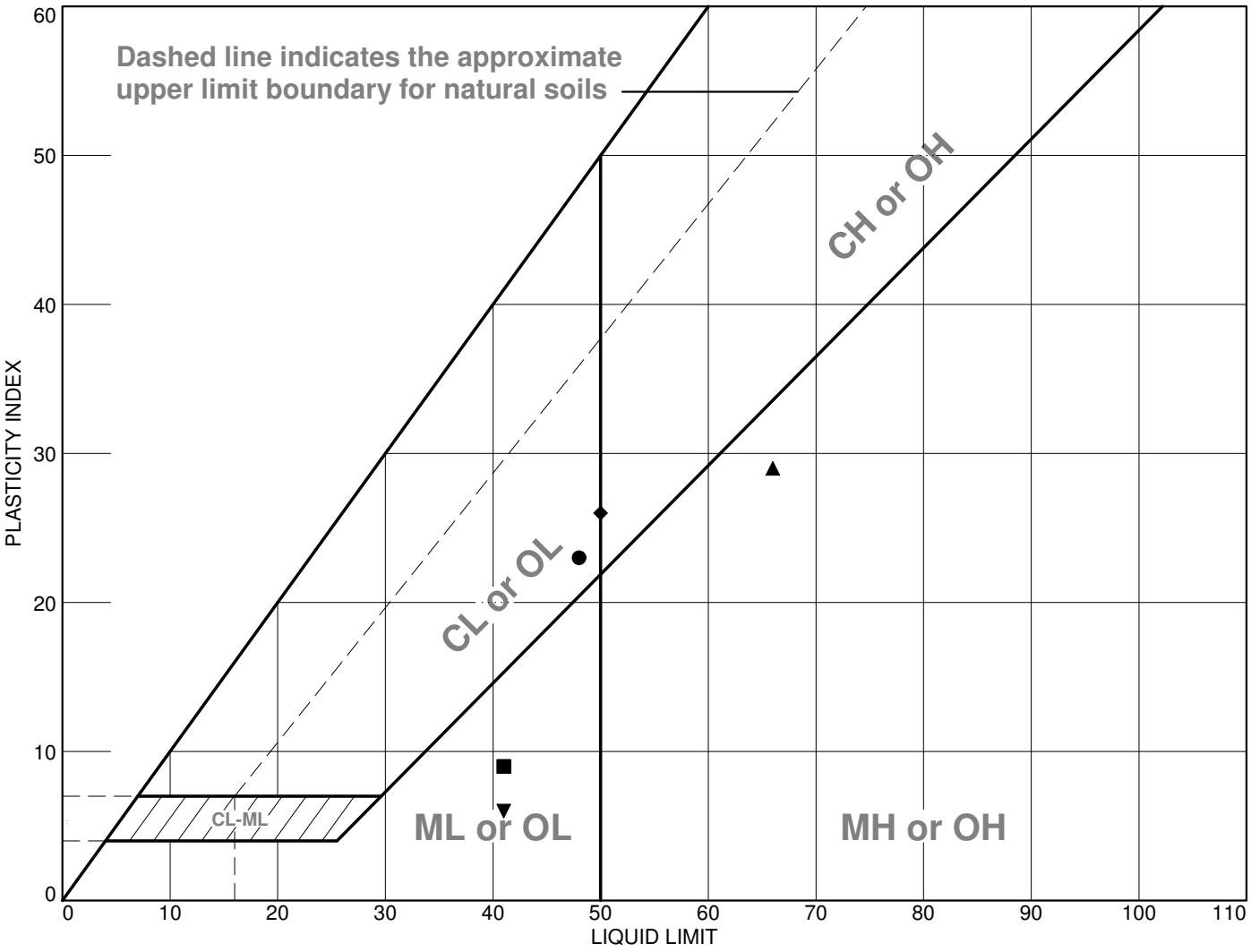
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to medium stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6)	48	25	23	89	82	CL
■	Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)	41	32	9	83	64	ML
▲	Stiff, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots and gravel	66	37	29	93	84	MH
◆	Loose, moist, reddish orange to brown, Plastic CLAY (CH)(A-4) with trace gravel	50	24	26	75	61	CH
▼	Stiff to hard, moist, tannish brown, Sandy SILT (ML)(A-4)	41	35	6	96	78	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-107 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-108 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-109 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-110 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-111 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.37

Tested By: ● SC ■ AS ▲ SC ◆ SC ▼ SC

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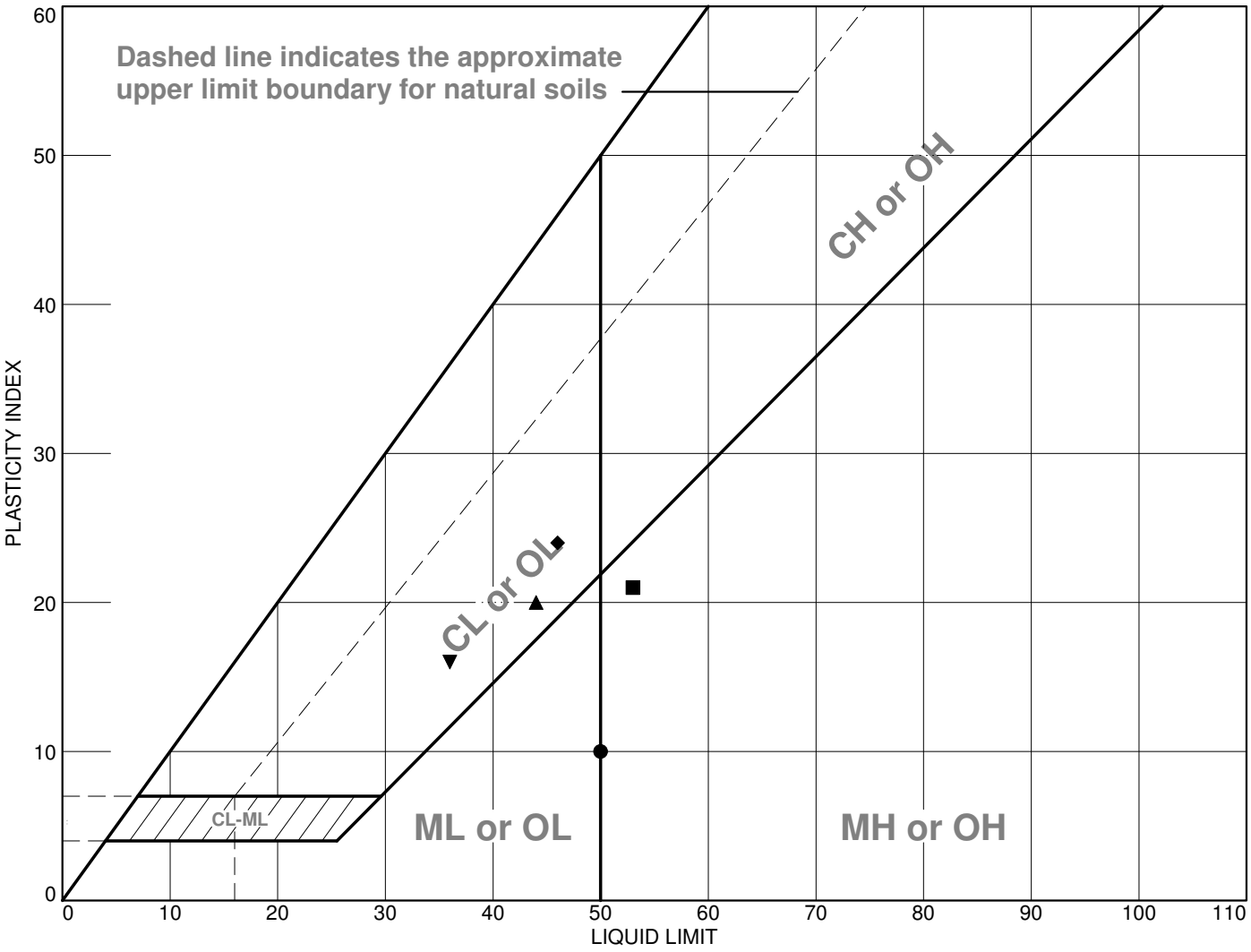
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-5) with trace gravel-sized rock fragments	50	40	10	96	89	MH
■	Very stiff, moist, reddish tan, Elastic SILT (MH)(A-7-5)	53	32	21	90	84	MH
▲	Stiff, moist, reddish brown to black, Sandy CLAY (CL)(A-7- 6)	44	24	20	93	87	CL
◆	Stiff, mist, reddish brown to black, Sandy CLAY (CL)(A-7 6)	46	22	24	94	90	CL
▼	Medium stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace gravel	36	20	16	79	68	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-112 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-113 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-114 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-114 **Depth:** 5.00-6.50 **Sample Number:** S-4

▼ **Source of Sample:** P-117 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.38

Tested By: ● SC ■ SC ▲ AS ◆ SC ▼ SC

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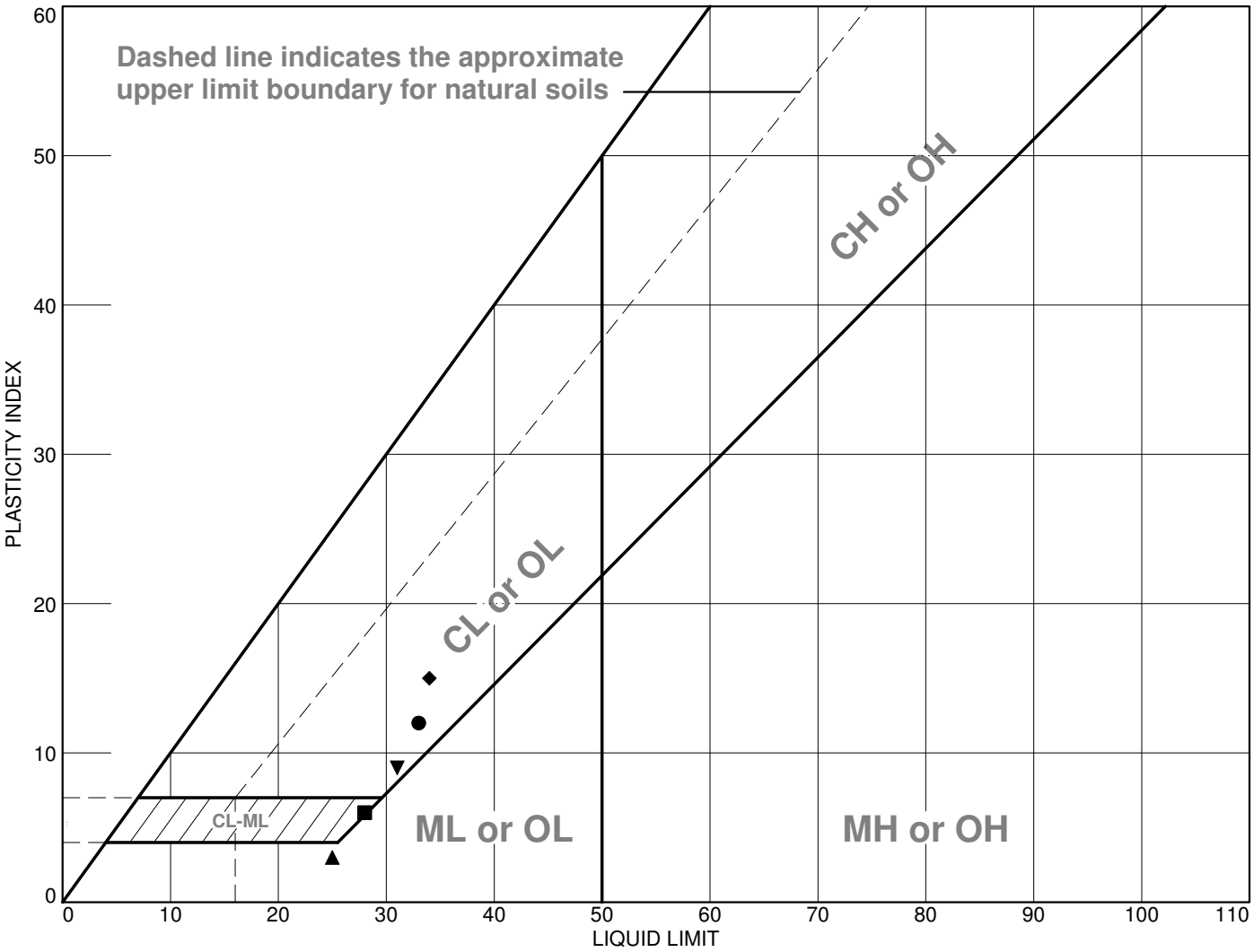
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace roots and gravel	33	21	12	71	57	CL
■	Stiff, moist, grayish brown, Sandy Silty CLAY (CL-ML)(A-4)	28	22	6	85	68	CL-ML
▲	Hard, moist, grayish brown, Sandy SILT (ML)(A-4)	25	22	3	70	52	ML
◆	Stiff, moist, tannish brown to reddish brown, Sandy CLAY (CL)(A-6) with trace gravel	34	19	15	79	64	CL
▼	Medium stiff, moist, brown, Silty Fine to Medium SAND (SM)(A-4)	31	22	9	59	43	SC

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-118 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-120 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-120 **Depth:** 3.50-5.00 **Sample Number:** S-3

◆ **Source of Sample:** P-123 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-124 **Depth:** 0.50-2.00 **Sample Number:** S-1

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Figure 1.39

Tested By: ● DM ■ AS ▲ AS ◆ DM ▼ AS

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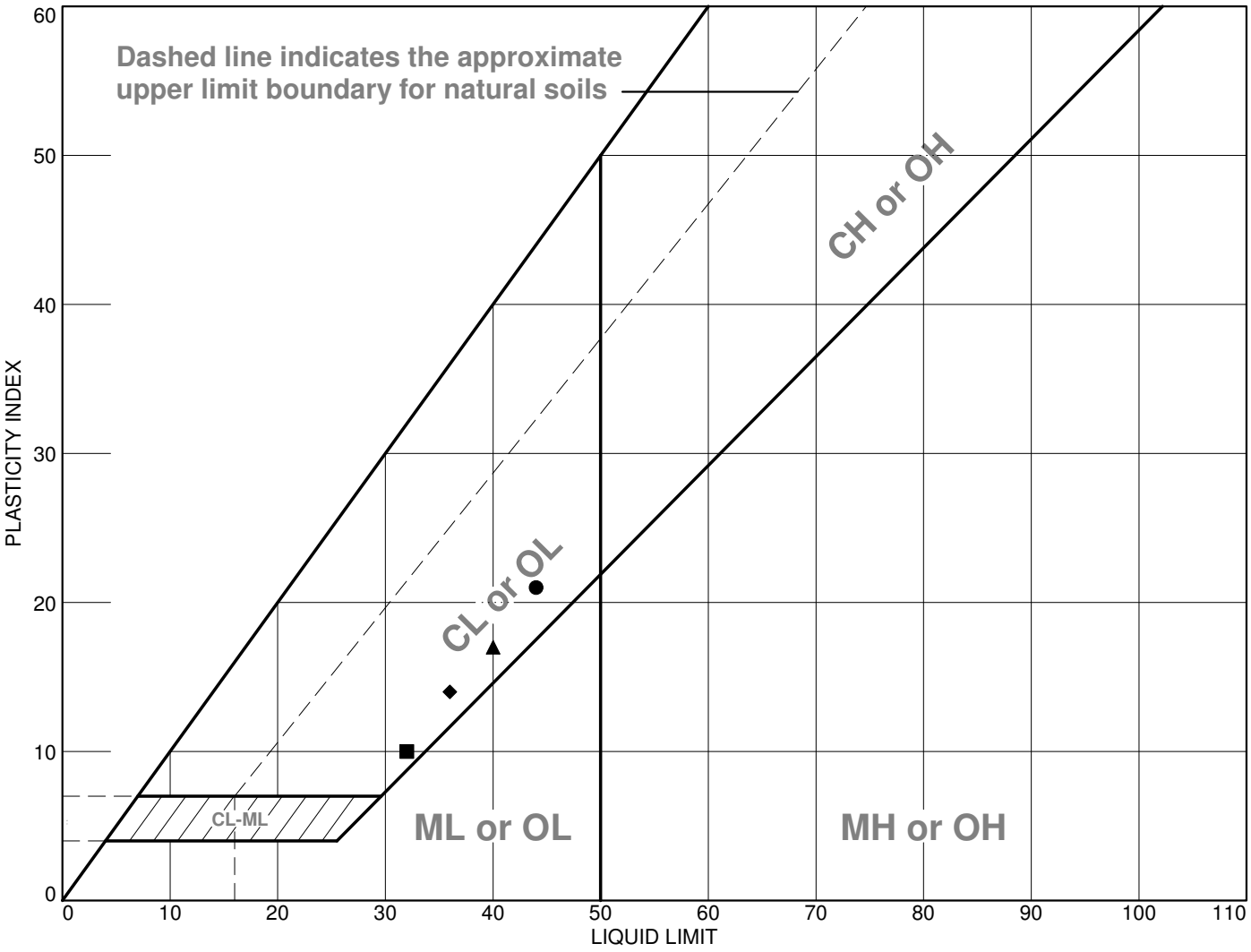
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, reddish brown, Sandy CLAY (CL)(A-7-6)	44	23	21	72	63	CL
■	Very stiff to stiff, moist, orangish brown, Sandy CLAY (CL)(A-4) with trace gravel	32	22	10	74	59	CL
▲	Medium stiff to soft, moist, orangish brown, Sandy CLAY	40	23	17	73	58	CL
◆	Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6)	36	22	14	93	81	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-124 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-125 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-126 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-127 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.40

Tested By: ● AS ■ DM ▲ AS ◆ DM

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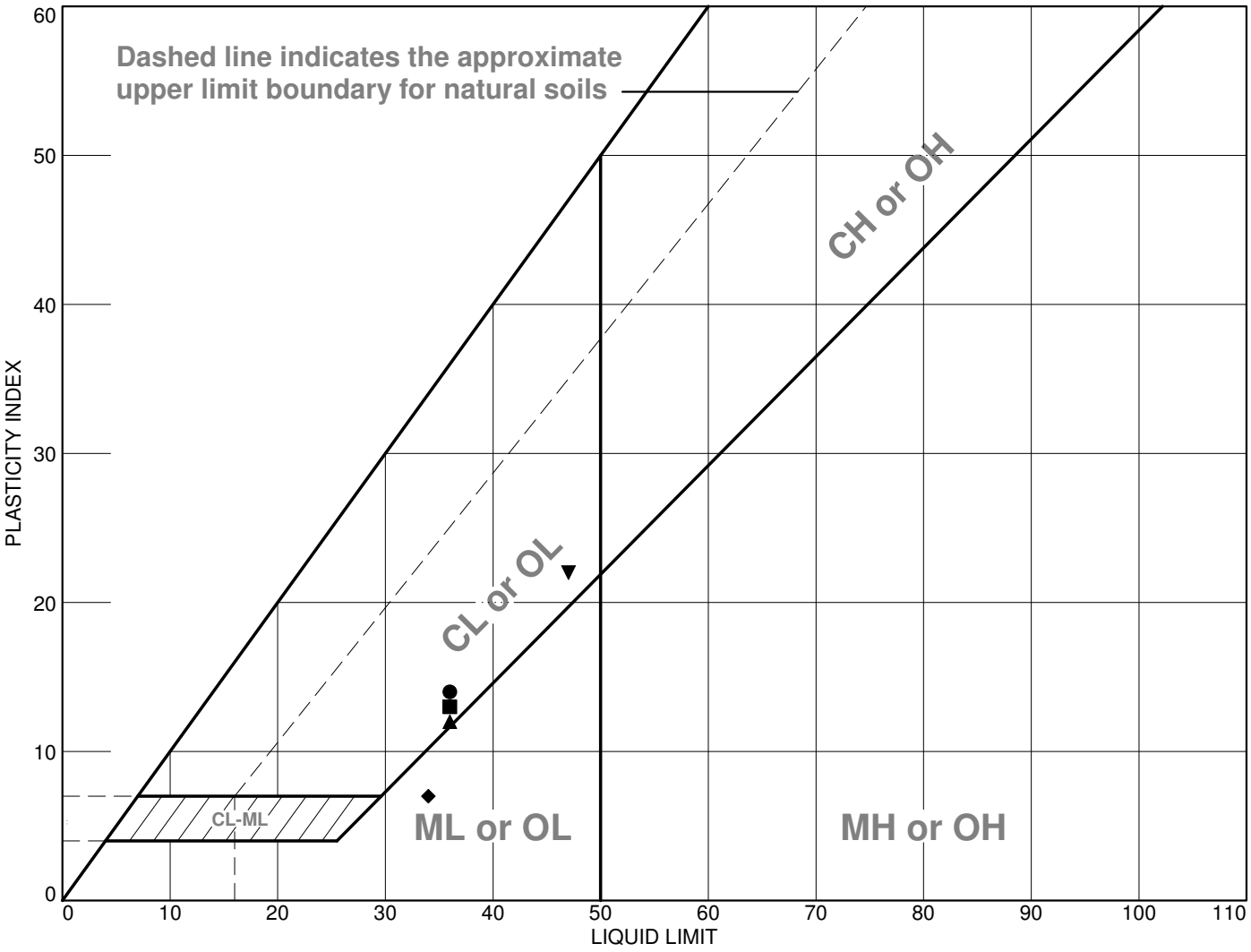
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, orangish brown, Sandy CLAY (CL)(A-6) with trace gravel	36	22	14	69	56	CL
■	Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with	36	23	13	79	59	CL
▲	Stiff to very stiff, moist, orangish brown to grayish brown, Sandy CLAY (CL)(A-6) with trace gravel-sized	36	24	12	81	67	CL
◆	Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel	34	27	7	75	59	ML
▼	Soft, moist, orangish brown, Sandy CLAY (CL)(A-7-6)	47	25	22	89	80	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-128 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-130 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-131 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-132 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-134 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.41

Tested By: ● AS ■ DM ▲ DM ◆ DM ▼ AS

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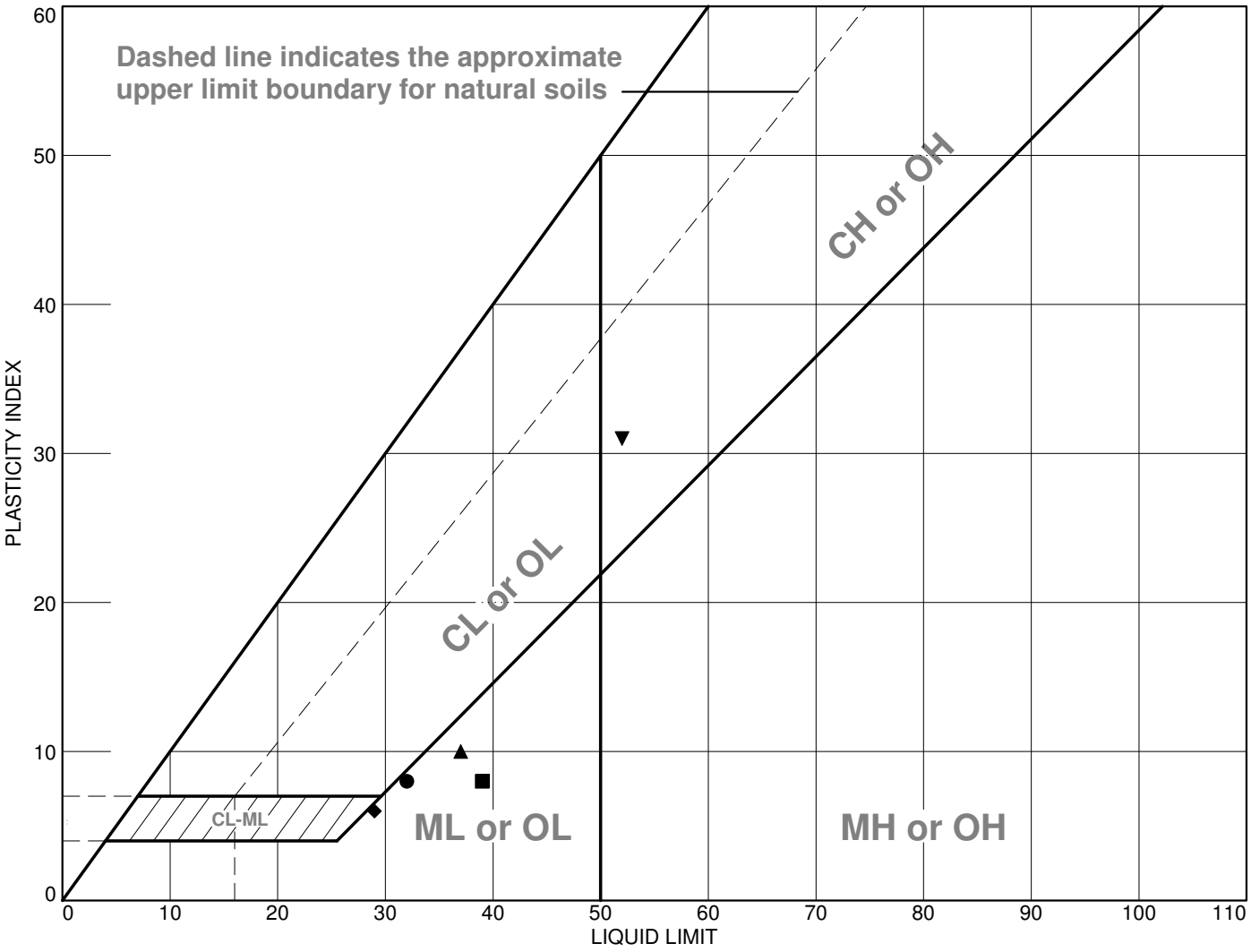
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, orangish brown, Sandy SILT (ML)(A-4)	32	24	8	87	68	ML
■	Medium stiff, moist, orangish tan, Sandy SILT (ML)(A-4)	39	31	8	89	77	ML
▲	Stiff, moist, orangish brown, Sandy SILT (ML)(A-4)	37	27	10	81	66	ML
◆	Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace roots	29	23	6	73	56	ML
▼	Medium stiff, moist, tannish brown, Plastic CLAY (CH) (A-7-6) with trace gravel	52	21	31	87	70	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-135 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-136 **Depth:** 3.50-5.00 **Sample Number:** S-3

▲ **Source of Sample:** P-137 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-138 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-139 **Depth:** 3.50-5.00 **Sample Number:** S-3

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Figure 1.42

Tested By: ● DM ■ DM ▲ DM ◆ AS ▼ DM

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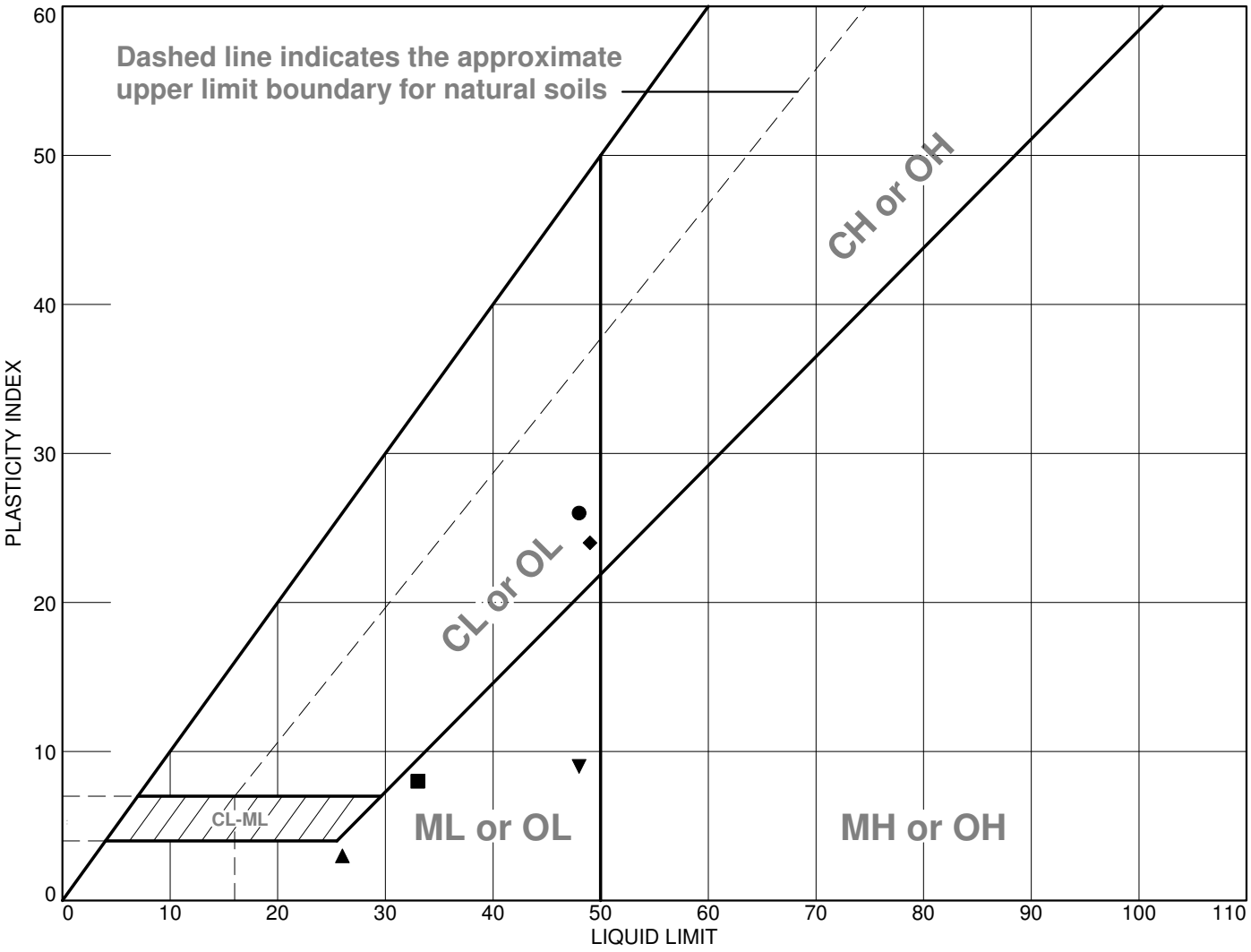
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel	48	22	26	71	63	CL
■	Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace roots and gravel	33	25	8	67	51	ML
▲	Loose, moist, brown, Silty fine to Sandy SILT (ML)(A-4) with trace roots and gravel	26	23	3	74	57	ML
◆	Medium stiff to stiff, moist, grayish brown to tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel	49	25	24	83	67	CL
▼	Stiff to very stiff, moist, tannish brown to reddish tan, Sandy SILT (ML)(A-5)	48	39	9	98	86	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-140 **Depth:** 0.50-3.50 **Sample No.:** S-1/S-2

■ **Source of Sample:** P-144 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-145 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-148 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-149 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Remarks:

Figure 1.43

Tested By: ● DM ■ DM ▲ SC ◆ DM ▼ SC

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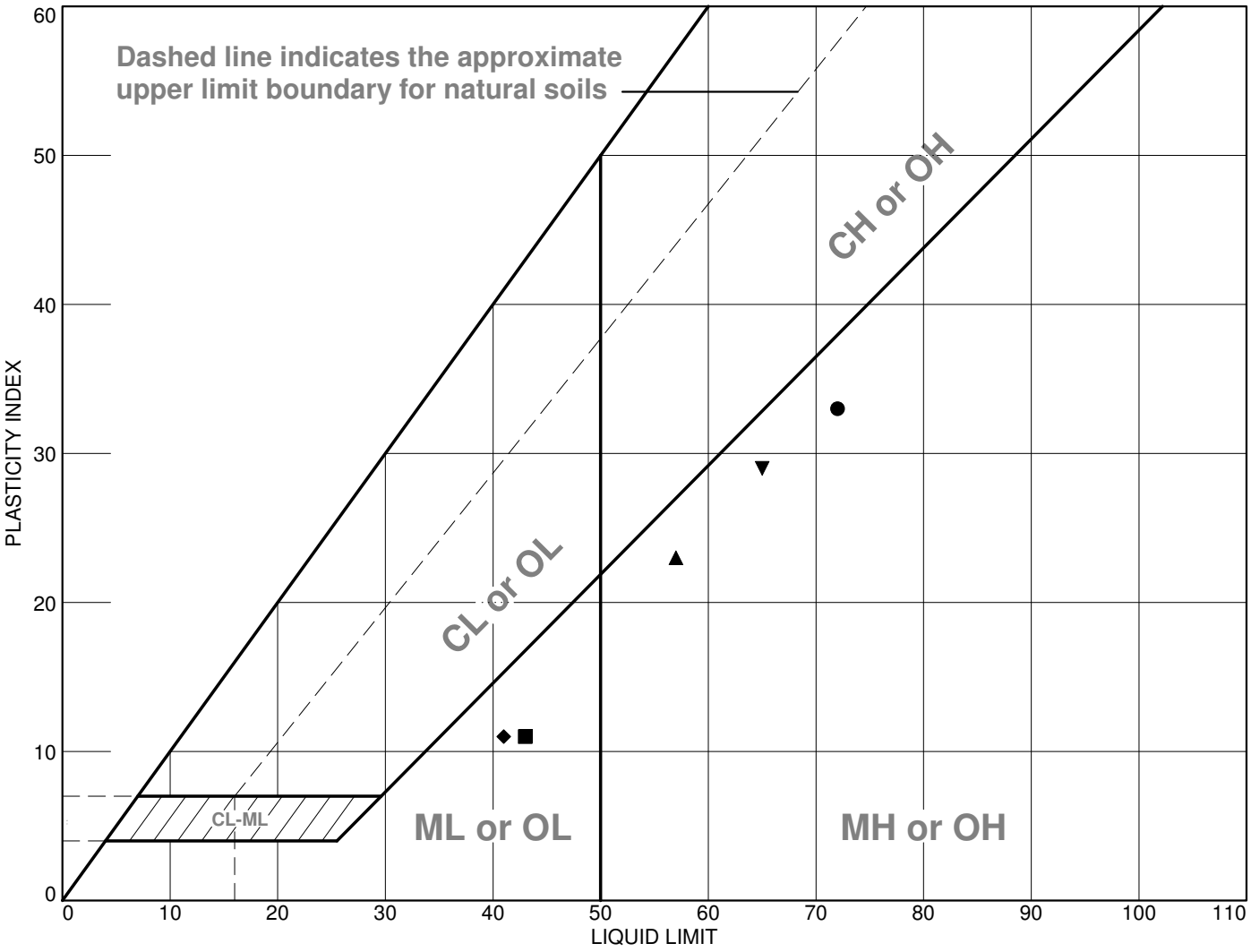
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	72	39	33	98	88	MH
■	Stiff, moist, tannish brown, Sandy SILT (ML)(A-7-5)	43	32	11	93	78	ML
▲	Stiff, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots and gravel	57	34	23	97	89	MH
◆	Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace roots and gravel	41	30	11	95	74	ML
▼	Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	65	36	29	99	90	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-150 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-151 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-152 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-153 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-154 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.44

Tested By: ● DM ■ SC ▲ SC ◆ SC ▼ SC

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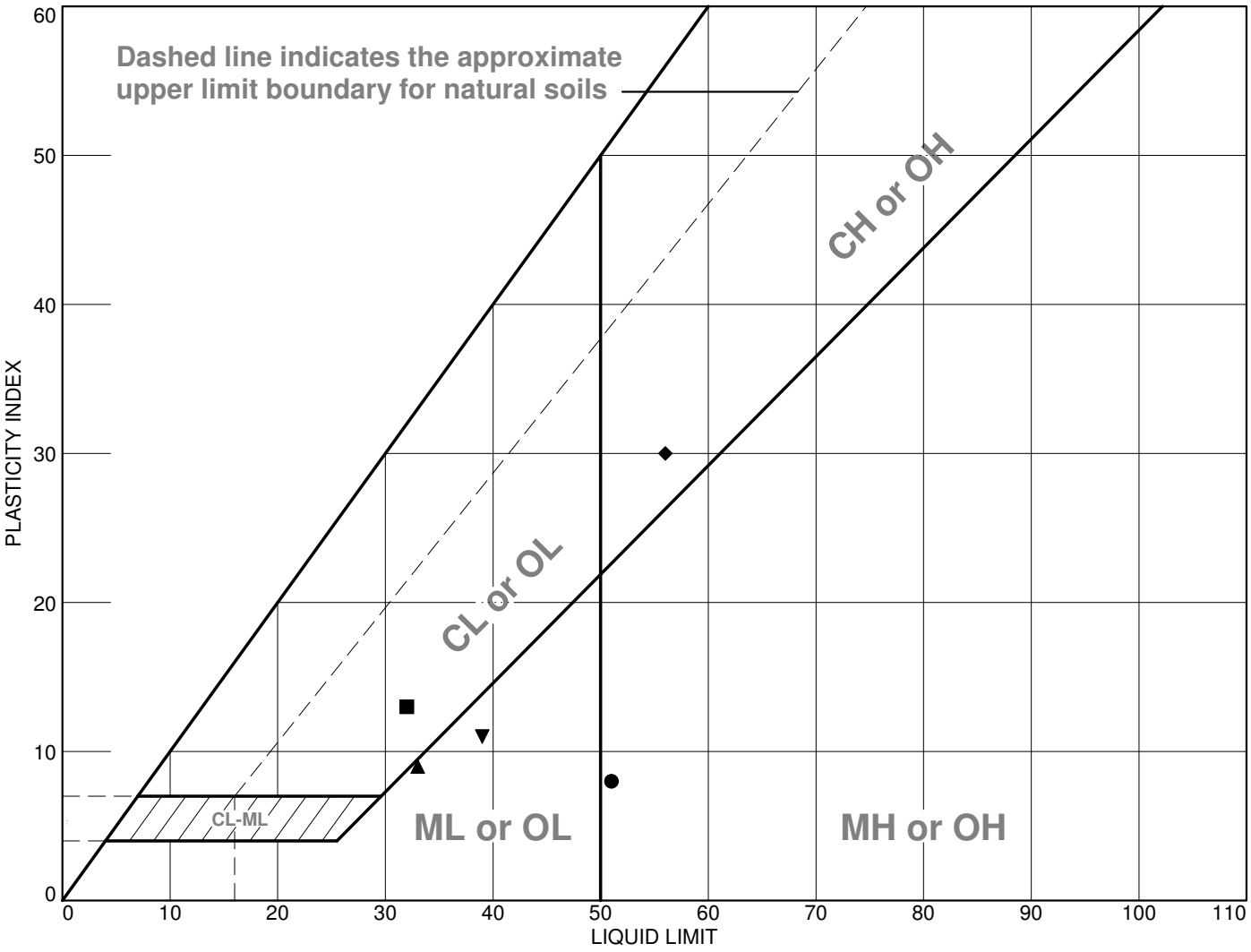
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, tan, Elastic SILT (MH)(A-5)	51	43	8	82	75	MH
■	Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6)	32	19	13	79	62	CL
▲	Very stiff to stiff, moist, tannish brown, Sandy CLAY (CL) (A-4)	33	24	9	70	55	CL
◆	Soft wet, brownish gray, Plastic CLAY (CH)(A-7-6) with	56	26	30	82	77	CH
▼	Soft to medium stiff, wet, reddish brown to grayish brown, Sandy SILT (ML)(A-6) with trace roots and	39	28	11	90	79	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** P-155 **Depth:** 3.50-5.00 **Sample Number:** S-3

■ **Source of Sample:** P-159 **Depth:** 3.50-5.00 **Sample Number:** S-3

▲ **Source of Sample:** P-161 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source:** P-165 **Depth:** 3.50-5.00 **Sample No.:** S-2/S-3

▼ **Source of Sample:** P-166 **Depth:** 3.50-5.00 **Sample Number:** S-3

Remarks:

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Figure 1.45

Tested By: ● SC ■ SC ▲ AS ◆ AS ▼ AS

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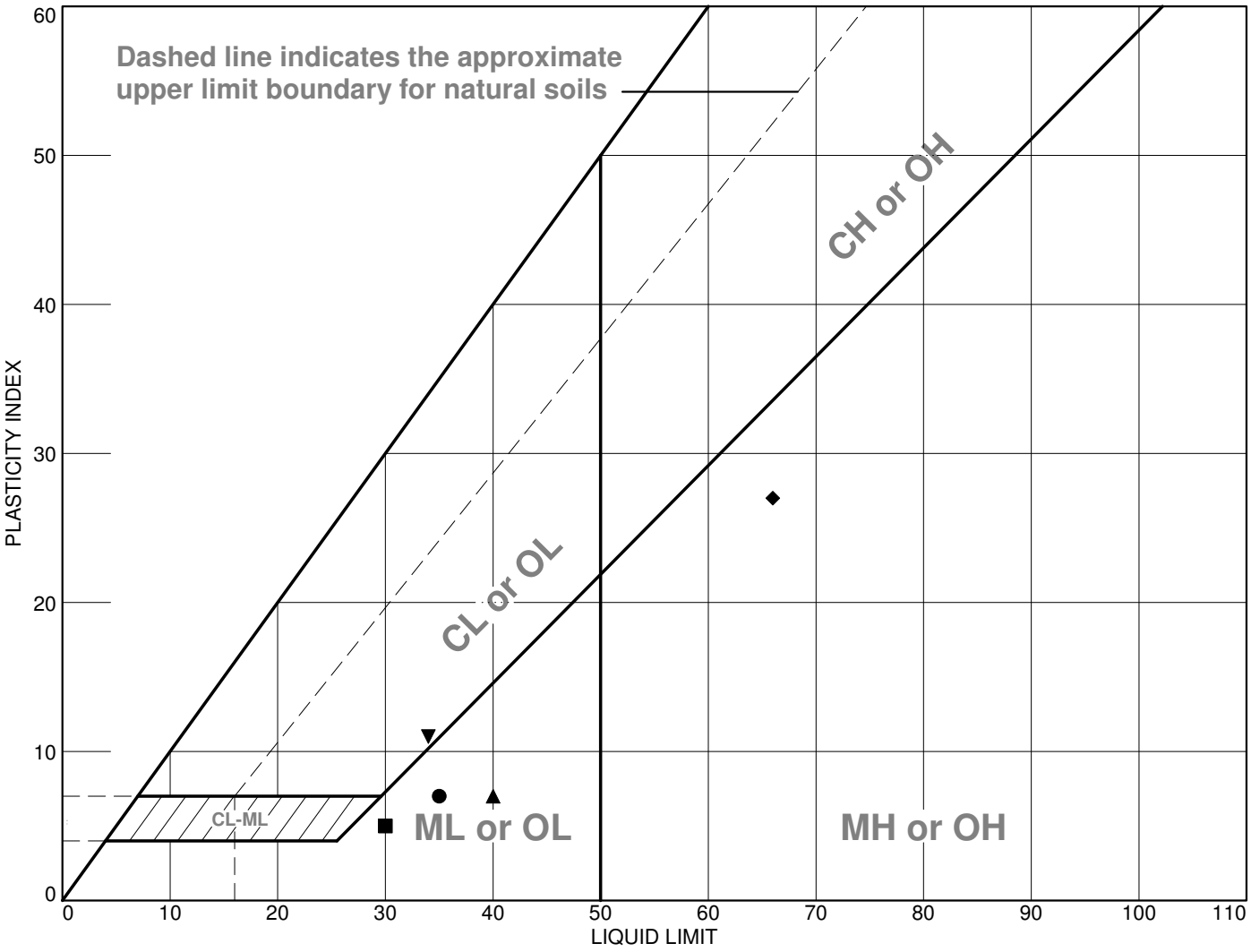
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff, moist, tan, Sandy SILT (ML)(A-4)	35	28	7	99	93	ML
■	Hard, moist, tan, Sandy SILT (ML)(A-4)	30	25	5	95	73	ML
▲	Very stiff to stiff, moist, brown, Sandy SILT (ML)(A-4)	40	33	7	81	68	ML
◆	Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with trace rocks	66	39	27	96	92	MH
▼	Stiff to very stiff, moist, tannish brown to tan, Sandy CLAY (CL)(A-6) with trace gravel	34	23	11	76	57	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-167 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-168 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-169 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-171 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-172 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.46

Tested By: ● DM ■ AS ▲ AS ◆ AS ▼ DM

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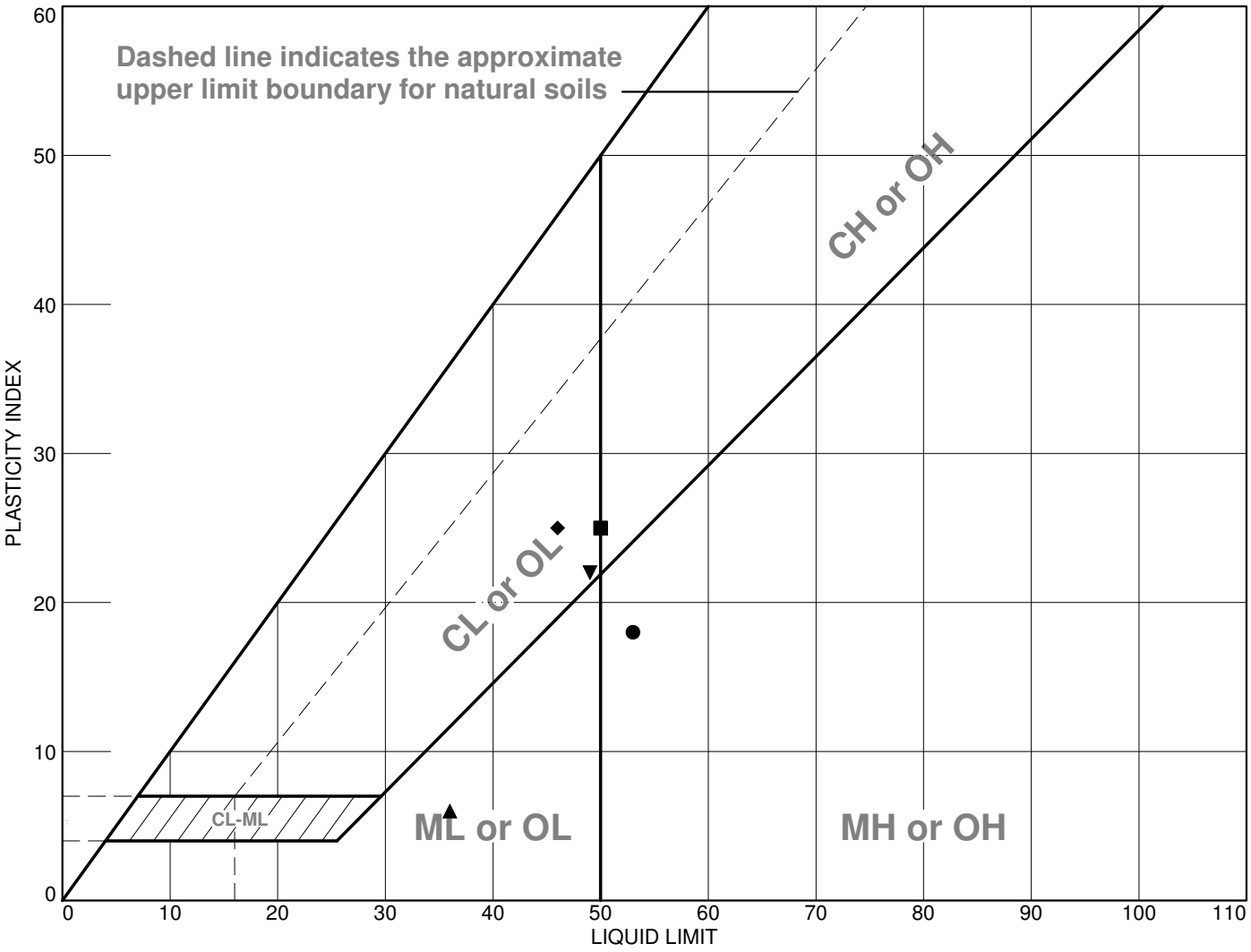
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to medium stiff, dry to moist, reddish brown, Elastic SILT (MH)(A-7-5)	53	35	18	90	66	MH
■	Medium stiff, moist, reddish brown, Elastic CLAY (CH) (A-7-6) with trace gravel	50	25	25	89	60	CH
▲	Stiff, moist, tannish brown, Sandy SILT (ML)(A-4)	36	30	6	98	50	ML
◆	Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel	46	21	25	90	60	CL
▼	Stiff to very stiff, dry to moist, reddish brown, Sandy CLAY (CL)(A-7-6) with trace gravel	49	27	22	95	76	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-174 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-175 **Depth:** 0.50-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-176 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-177 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-178 **Depth:** 0.50-2.00 **Sample Number:** S-1

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Figure 1.47

Tested By: ● AS ■ DM ▲ DM ◆ DHM ▼ AS

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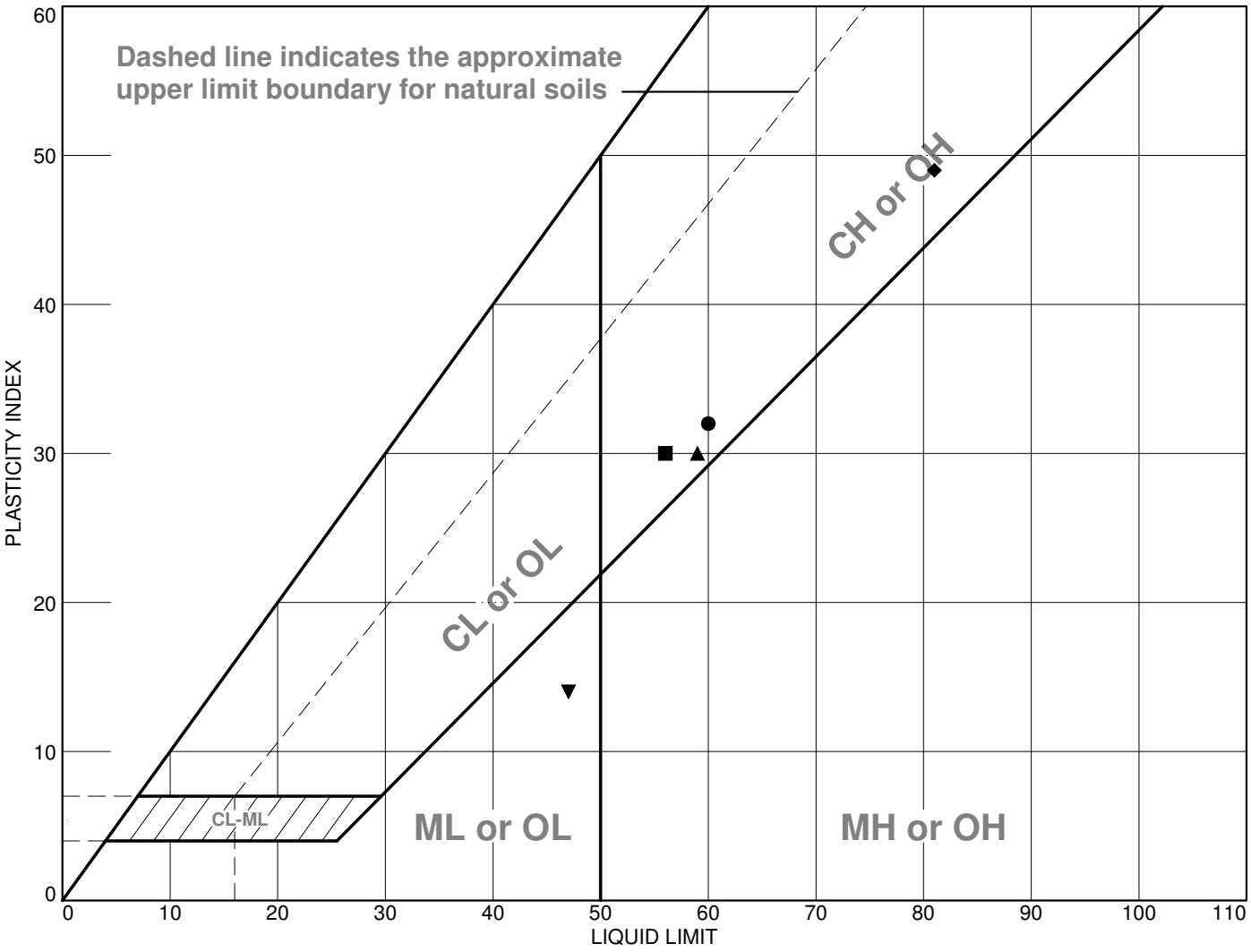
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, dry to moist, reddish brown, Plastic CLAY (CH)(A-7-6) with trace gravel	60	28	32	85	66	CH
■	Stiff to medium stiff, moist, orangish brown, Plastic CLAY (CH)(A-7-6) with trace roots	56	26	30	97	88	CH
▲	Very stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)	59	29	30	89	68	CH
◆	Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-5)	81	32	49	93	77	CH
▼	Stiff, moist, reddish brown, Sandy SILT (ML)(A-7-5)	47	33	14	76	56	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-178 **Depth:** 1.00-4.00 **Sample No.:** D4S-1498

■ **Source of Sample:** P-179 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-180 **Depth:** 0.50-2.00 **Sample Number:** S-1

◆ **Source of Sample:** P-181 **Depth:** 0.50-3.50 **Sample Number:** S-1

▼ **Source of Sample:** P-182 **Depth:** 2.00-3.50 **Sample Number:** S-2

Remarks:

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Figure 1.48

Tested By: ● DM ■ DM ▲ DM ◆ DHM ▼ DM

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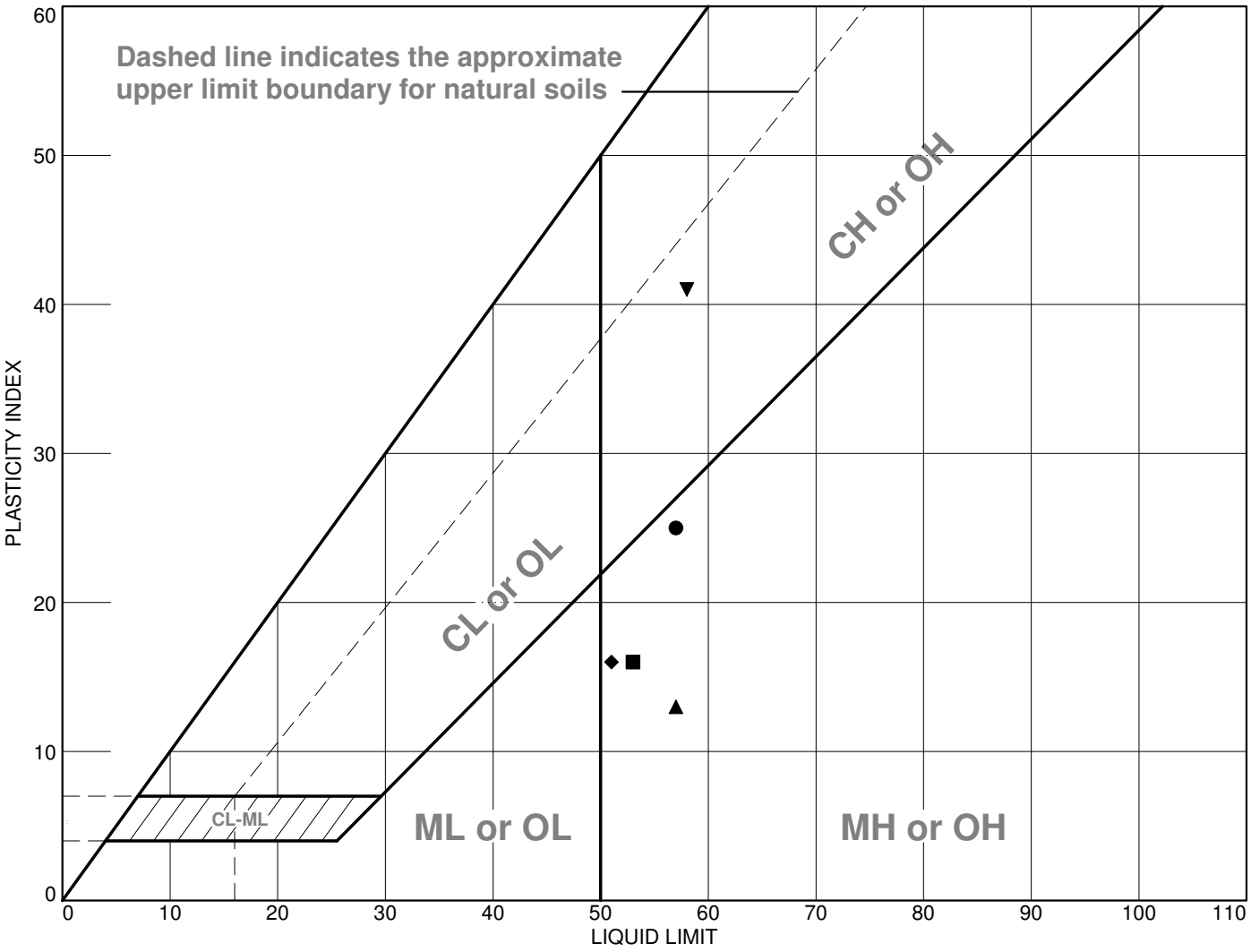
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-5) with trace gravel	57	32	25	90	76	MH
■	Stiff, moist, reddish brown to tannish brown, Elastic SILT (MH)(A-7-5)	53	37	16	96	88	MH
▲	Very stiff, moist, orangish brown, Elastic SILT (MH) (A-5) with trace gravel	57	44	13	97	92	MH
◆	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with trace gravel	51	35	16	86	74	MH
▼	Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)	58	17	41	93	83	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-184 **Depth:** 0.50-2.00 **Sample Number:** S-1

■ **Source of Sample:** P-185 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-186 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-187 **Depth:** 0.50-2.00 **Sample Number:** S-1

▼ **Source of Sample:** P-187 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.49

Tested By: ● AS ■ DHM ▲ AS ◆ DM ▼ DHM

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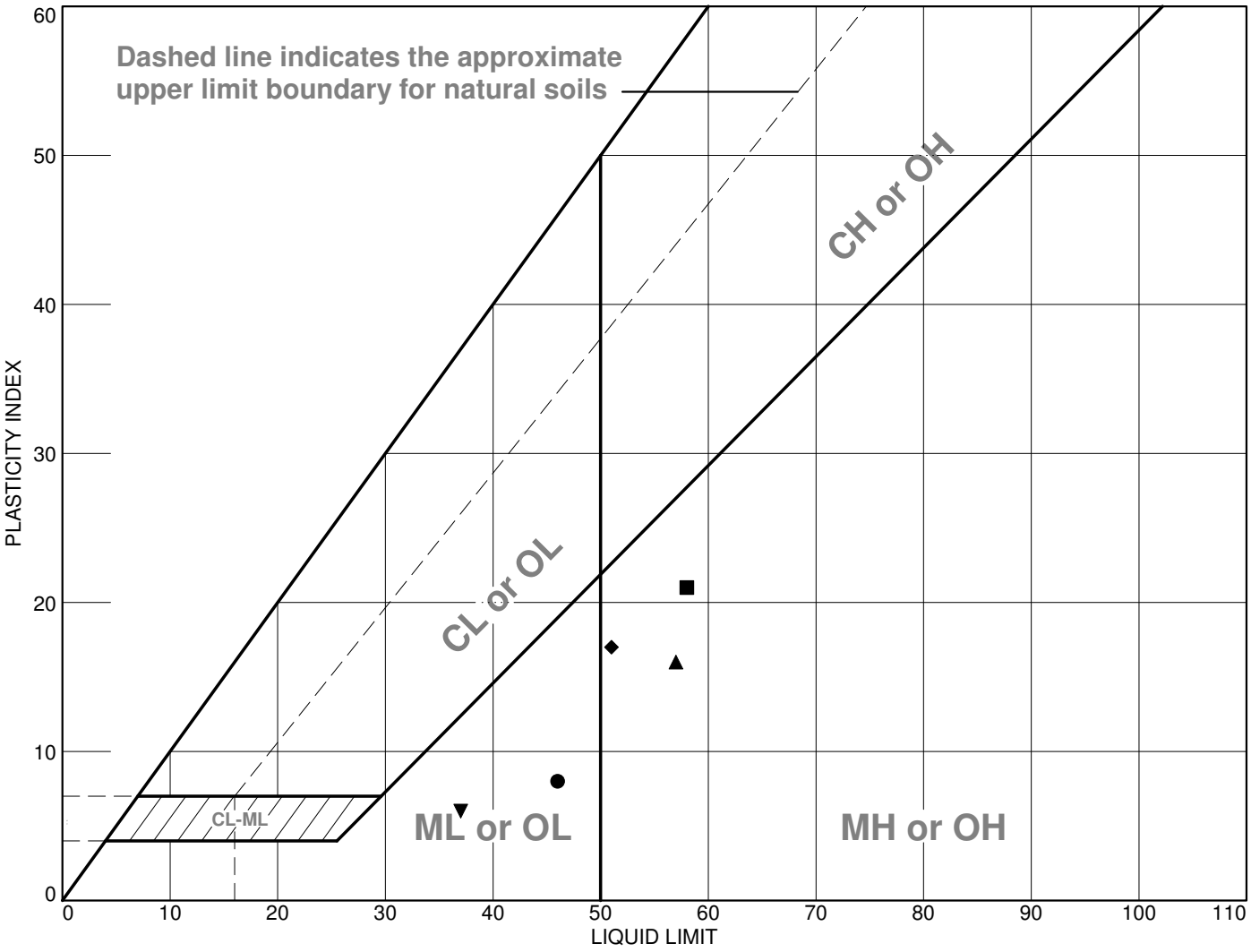
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-5)	46	38	8	86	69	ML
■	Stiff to very stiff, moist, grayish brown, Elastic SILT (MH)	58	37	21	84	76	MH
▲	Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	57	41	16	99	92	MH
◆	Medium stiff to soft, moist, reddish brown, Elastic SILT (MH)(A-7-5)	51	34	17	99	91	MH
▼	Stiff, moist, orangish brown, Sandy SILT (ML)(A-4) with trace gravel	37	31	6	96	80	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-188 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-189 **Depth:** 0.80-2.00 **Sample Number:** S-1

▲ **Source of Sample:** P-190 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-191 **Depth:** 2.00-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-192 **Depth:** 0.50-2.00 **Sample Number:** S-1

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Figure 1.50

Tested By: ● AS ■ AS ▲ AS ◆ DHM ▼ AS

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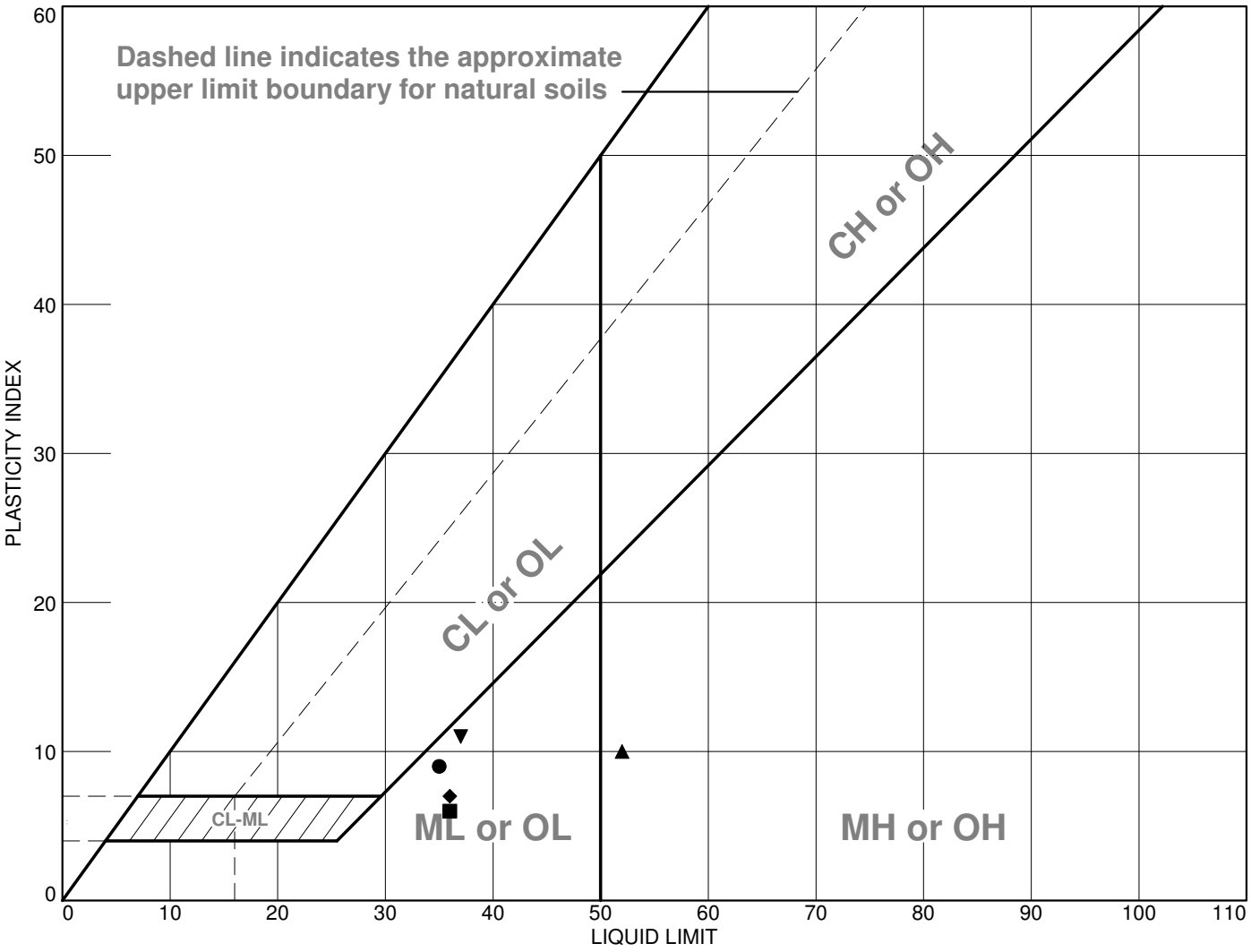
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, reddish tan to brown, Sandy SILT (ML)(A-4) with trace roots and gravel	35	26	9	82	68	ML
■	Stiff to very stiff, moist, tannish brown to orangish tan, Sandy SILT (ML) (A-4) with trace gravel-sized	36	30	6	94	85	ML
▲	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)	52	42	10	99	94	MH
◆	Hard to stiff, moist, reddish brown, Sandy SILT (ML) (A-4)	36	29	7	78	64	ML
▼	Very stiff, moist, tannish brown, Sandy SILT (ML)(A-6) with trace gravel-sized rock fragments	37	26	11	88	64	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** P-193 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source of Sample:** P-194 **Depth:** 2.00-3.50 **Sample Number:** S-2

▲ **Source of Sample:** P-197 **Depth:** 2.00-3.50 **Sample Number:** S-2

◆ **Source of Sample:** P-198 **Depth:** 0.50-3.50 **Sample Number:** S-2

▼ **Source of Sample:** P-222 **Depth:** 2.00-3.50 **Sample Number:** S-2

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Figure 1.51

Tested By: ● AS ■ DM ▲ DHM ◆ DM ▼ DM

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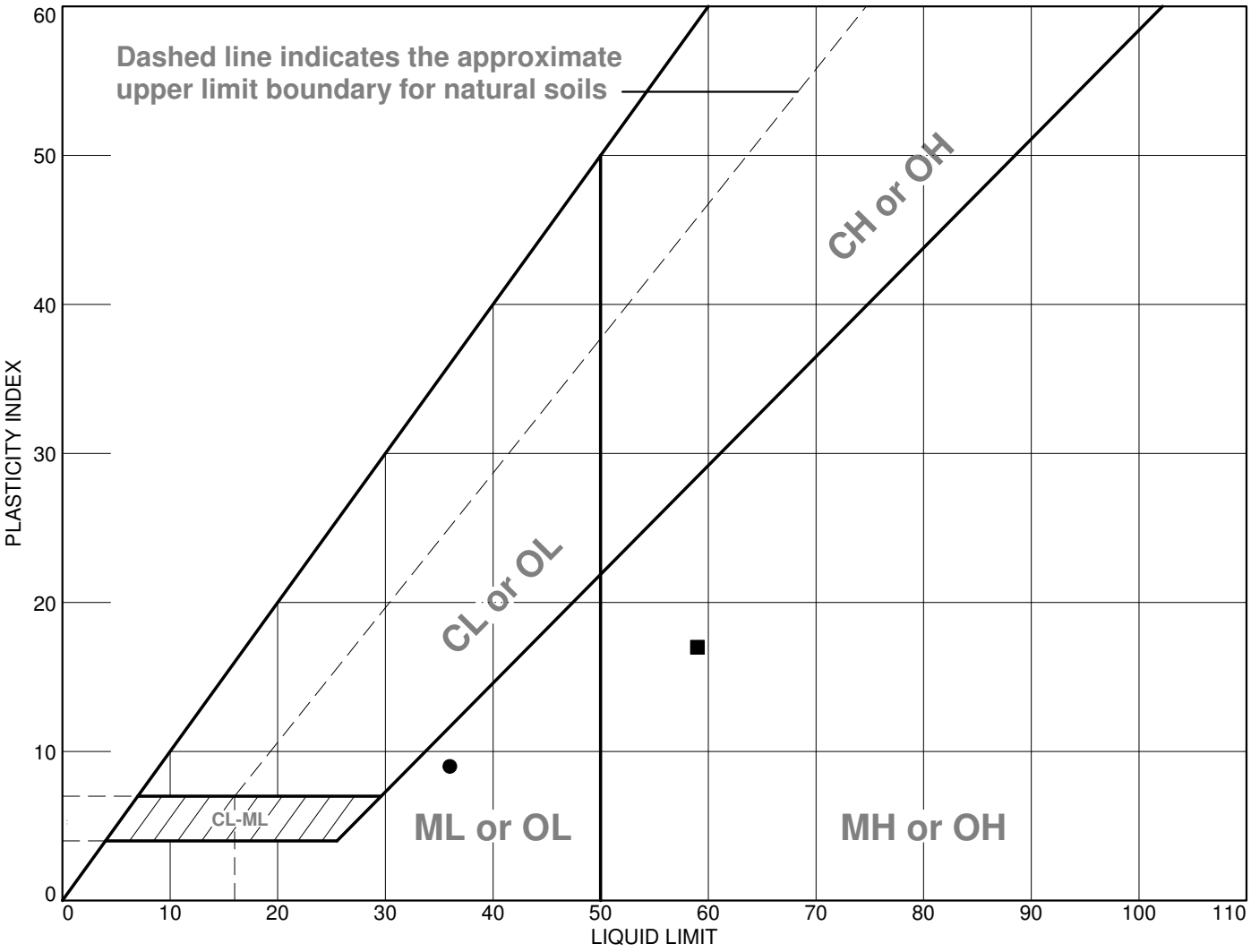
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, tannish brown to orangish tan, Sandy SILT (ML)(A-4) with trace gravel	36	27	9	82	67	ML
■	Medium stiff to stiff, moist, organish brown to tan, Elastic SILT (MH)(A-7-5) with trace gravel	59	42	17	94	85	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source of Sample:** P-224 **Depth:** 2.00-3.50 **Sample Number:** S-2

■ **Source:** P-262 **Depth:** 1.00-4.00 **Sample No.:** D4S-1499

Remarks:

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Figure 1.52

Tested By: ● DM ■ DHM

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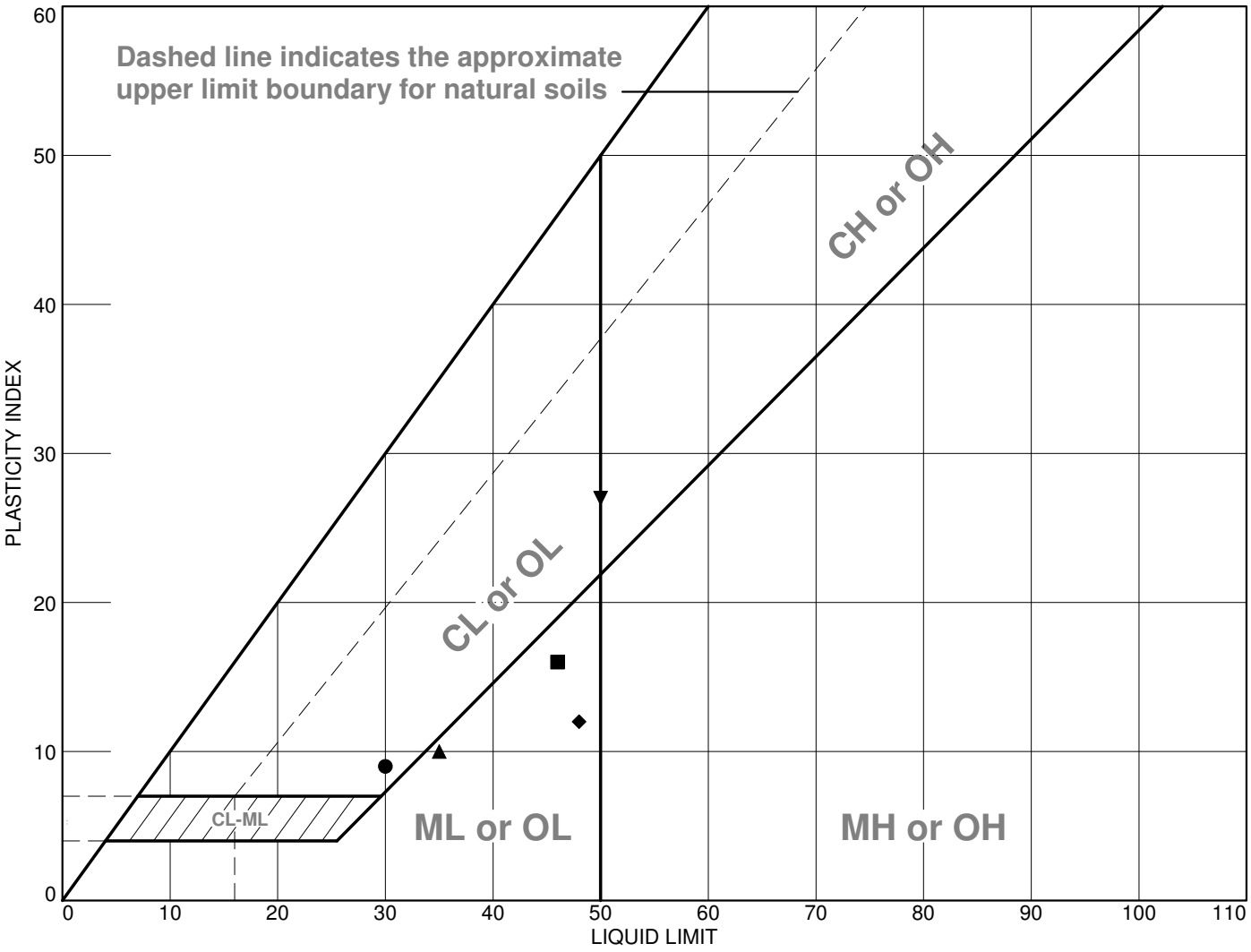
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff, brown to tannish brown, Sandy CLAY (CL) (A-4) with trace roots	30	21	9	64	55	CL
■	Very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)	46	30	16	95	89	ML
▲	Stiff, moist, reddish tan, Sandy SILT (ML) (A-4)	35	25	10	73	59	ML
◆	Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML) (A-7-5) with trace roots and gravel	48	36	12	67	59	ML
▼	Very stiff, moist, tannish brown, Plastic CLAY (CH) (A-7- 6)	50	23	27	77	74	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-199 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

■ **Source of Sample:** P-201 **Depth:** 2.00-4.00 **Sample Number:** S-2

▲ **Source of Sample:** P-202 **Depth:** 2.00-4.00 **Sample Number:** S-2

◆ **Source:** P-203 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

▼ **Source of Sample:** P-206 **Depth:** 4.00-6.00 **Sample Number:** S-3

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Figure 1.54

Tested By: ● WS ■ HE ◆ HE ▼ HE **Checked By:** WGS

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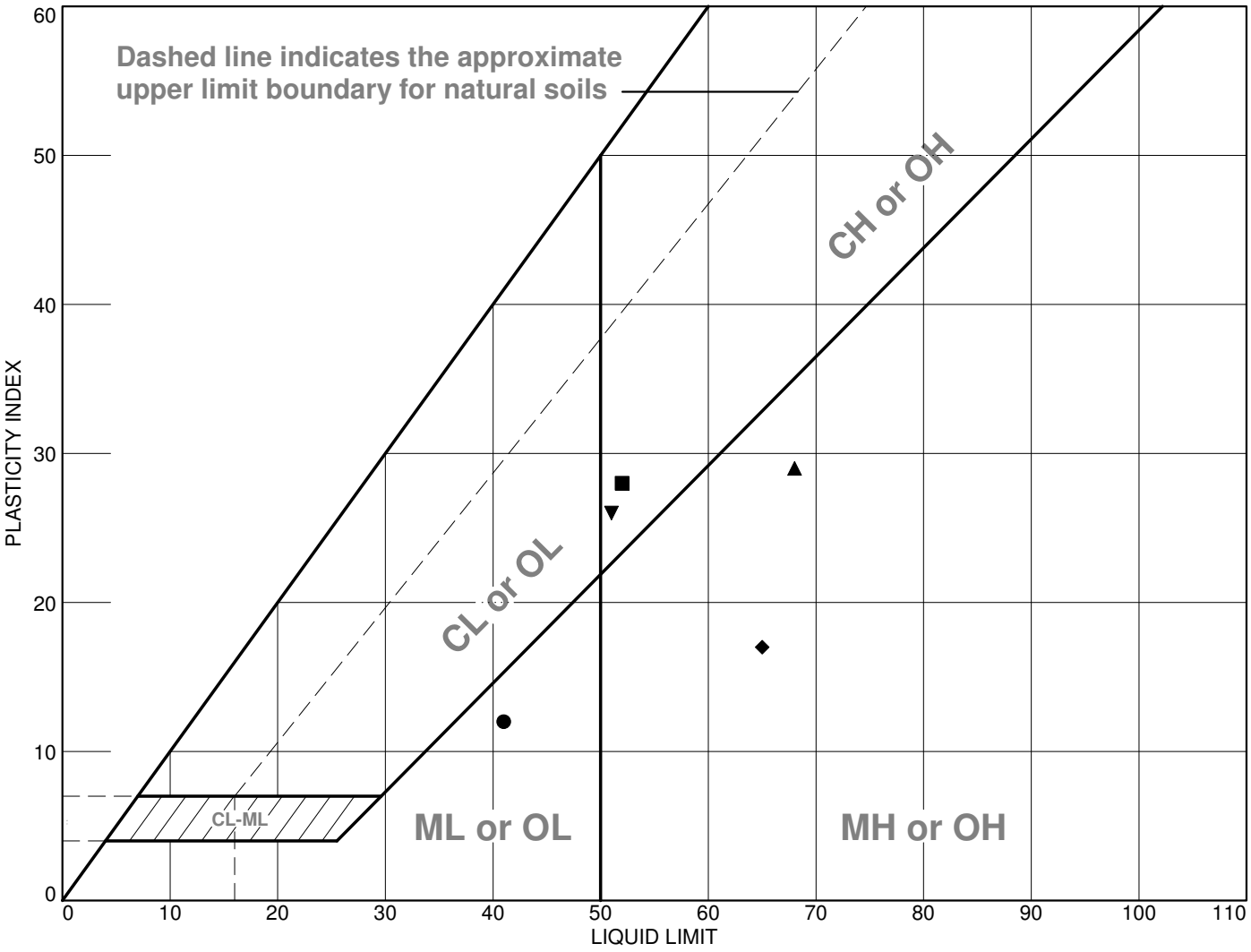
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff, moist, reddish tan, Silty Fine to Medium SAND (SM) (A-4) with trace gravel-sized rock	41	29	12	58	44	SM
■	Stiff to medium stiff, moist, tan, Plastic CLAY (CH) (A-7- 6)	52	24	28	86	80	CH
▲	Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)	68	39	29	99	94	MH
◆	Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)	65	48	17	93	86	MH
▼	Stiff to medium stiff, moist, reddish tan to brownish tan, Plastic CLAY (CH) (A-7-6)	51	25	26	97	92	CH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-207 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

■ **Source:** P-209 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

▲ **Source of Sample:** P-210 **Depth:** 2.00-4.00 **Sample Number:** S-2

◆ **Source of Sample:** P-210 **Depth:** 4.00-6.00 **Sample Number:** S-3

▼ **Source:** P-211 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

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Figure 1.55

Tested By: HE **Checked By:** WS

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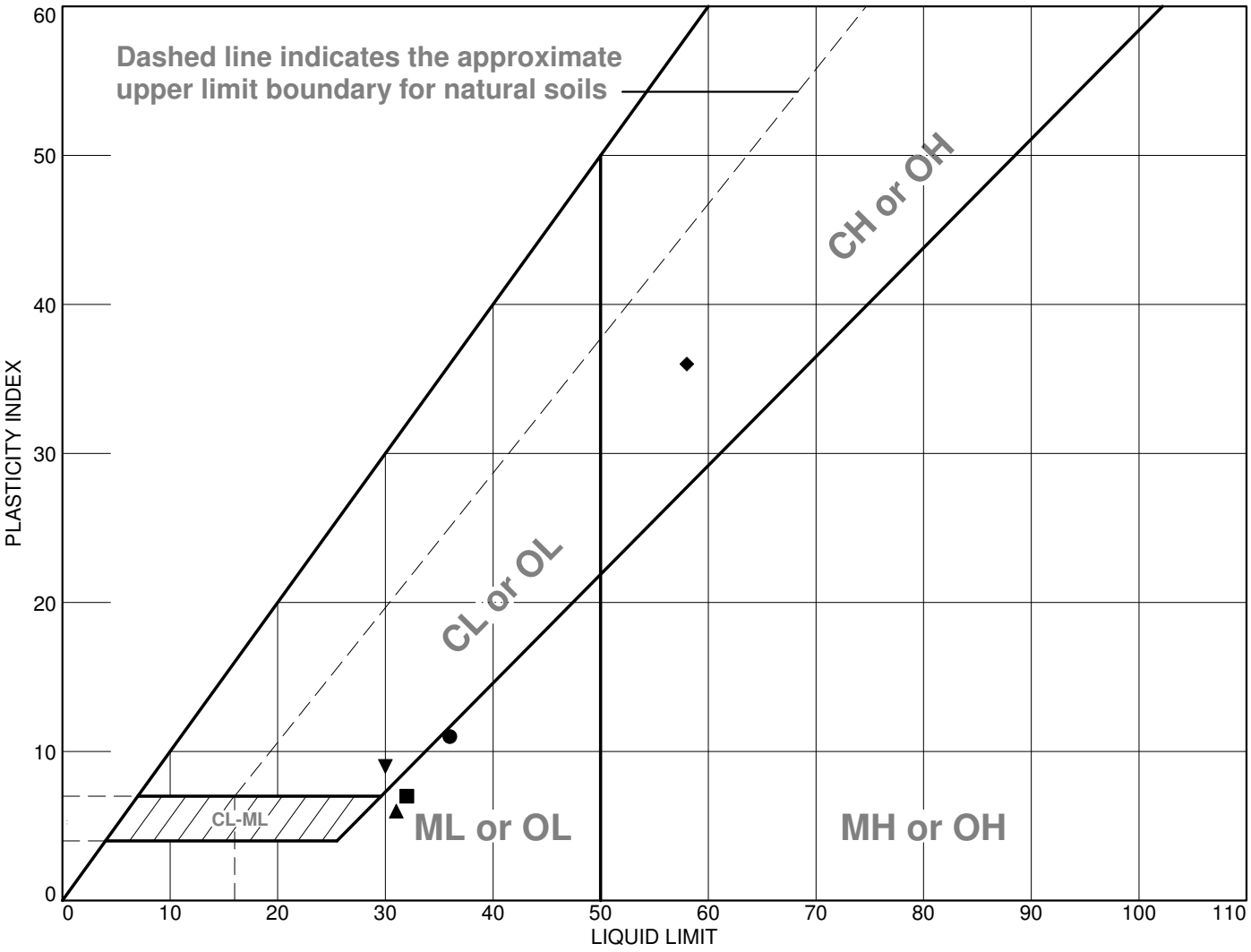
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium dense, moist, tannish gray to brown, Silty Fine to Coarse SAND (SM) (A-2-6) with trace gravel	36	25	11	45	34	SM
■	Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)	32	25	7	61	47	SM
▲	Hard, moist, grayish brown, Sandy SILT (ML) (A-4)	31	25	6	84	72	ML
◆	Medium stiff, moist, reddish tan to gray, Plastic CLAY (CH) (A-7-6)	58	22	36	84	74	CH
▼	Very stiff, moist, orangish brown to gray, Sandy CLAY (CL) (A-4)	30	21	9	70	60	CL

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-212 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

■ **Source:** P-215 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

▲ **Source:** P-217 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

◆ **Source of Sample:** P-218 **Depth:** 4.00-6.00 **Sample Number:** S-3

▼ **Source:** P-220 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

Remarks:

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Figure 1.56

Tested By: HE **Checked By:** WS

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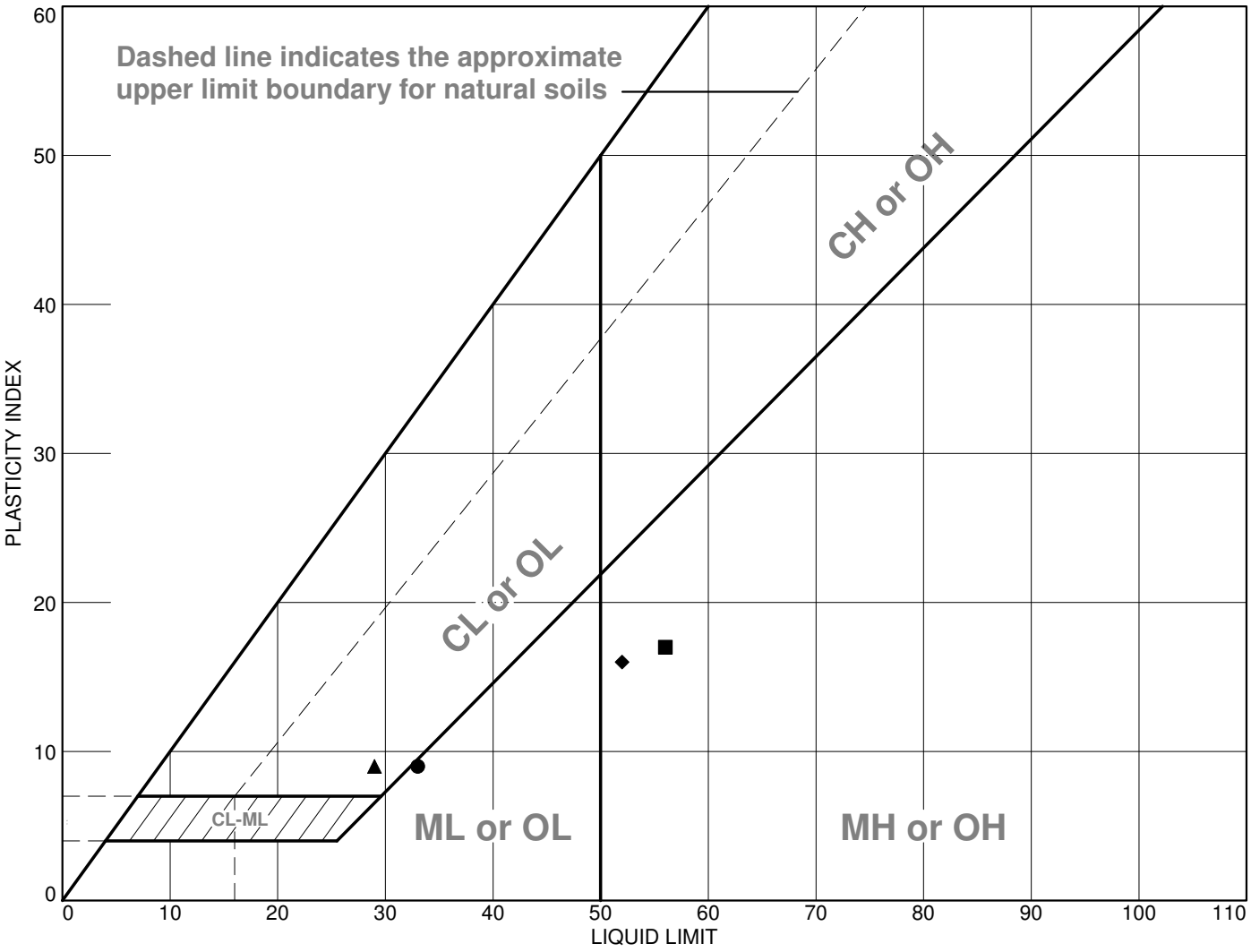
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium dense, moist, tannish brown, Clayey Fine to Medium SAND (SC) (A-4)	33	24	9	51	39	SC
■	Medium stiff, moist, reddish brown, Elastic SILT (MH) (A 7-5)	56	39	17	98	93	MH
▲	Medium dense, moist, tannish brown, Clayey GRAVEL (GC) (A-4)	29	20	9	49	41	GC
◆	Very stiff, moist, reddish tan, Elastic SILT (MH) (A-7-6) with trace gravel-sized rock fragments	52	36	16	90	82	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-221 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

■ **Source of Sample:** P-223 **Depth:** 4.00-6.00 **Sample Number:** S-3

▲ **Source of Sample:** P-227 **Depth:** 2.00-4.00 **Sample Number:** S-2

◆ **Source:** P-230 **Depth:** 1.00-4.00 **Sample No.:** S-1/S-2

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Figure 1.57

Tested By: HE **Checked By:** WS

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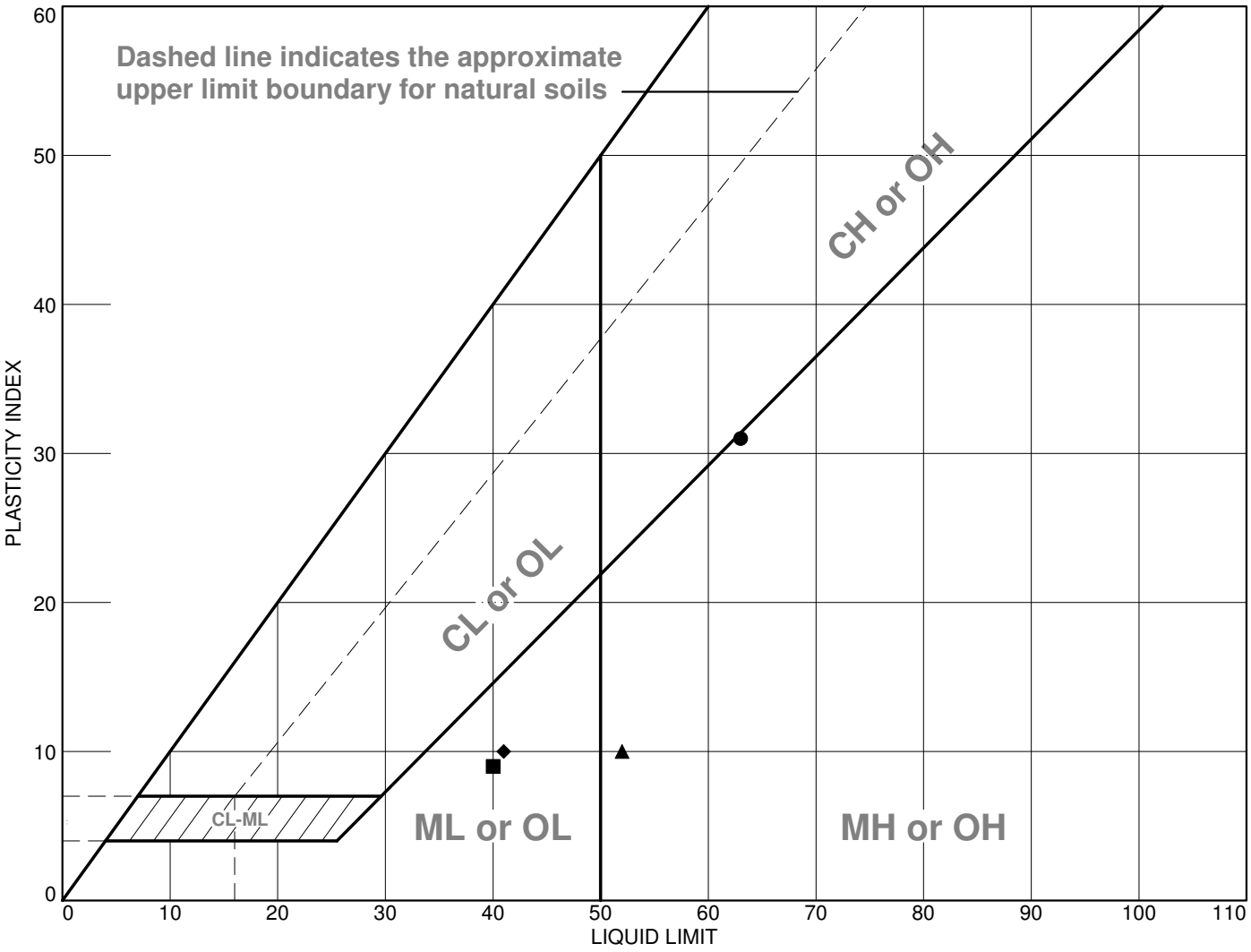
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff to stiff, moist, reddish brown, Plastic Clay (CH)(A-7-6) with trace gravel	63	32	31	91	75	CH
■	Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with trace mica	40	31	9	99	64	ML
▲	Medium stiff to stiff, red to orangish brown, Elastic SILT (MH) (A-5) with trace mica	52	42	10	94	89	MH
◆	Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica	41	31	10	90	68	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-243 **Depth:** 4.00-8.00 **Sample No.:** S-3/S-4

■ **Source:** P-243 **Depth:** 22.00-30.00 **Sample No.:** S-8/S-9

▲ **Source:** P-244 **Depth:** 8.00-15.00 **Sample No.:** S-5/S-6

◆ **Source of Sample:** P-246 **Depth:** 8.00-12.00 **Sample Number:** S-5

Remarks:

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Figure 1.58

Tested By: WS **Checked By:** AP/WS

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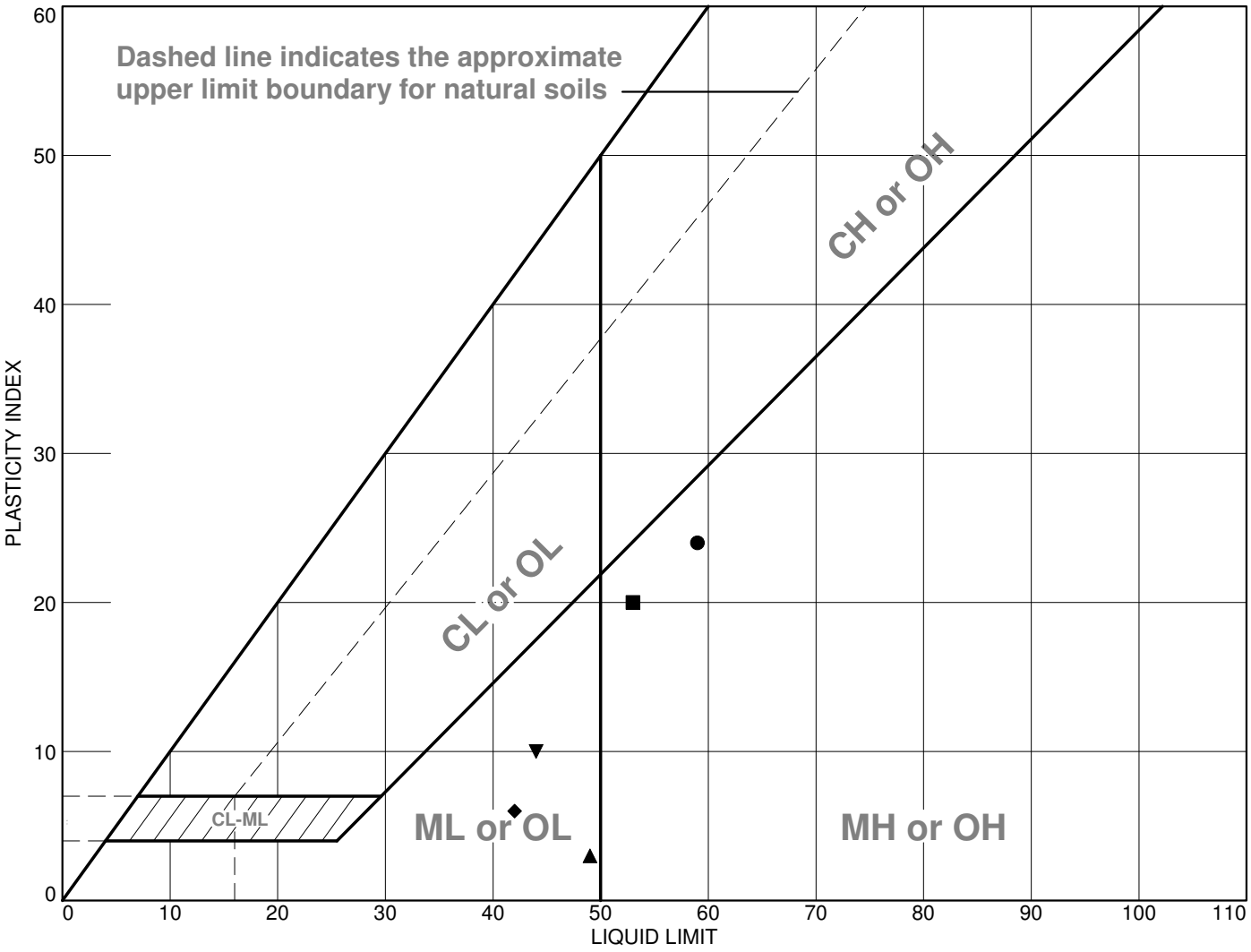
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace mica	59	35	24	88	86	MH
■	Stiff, moist, reddish tan to brown, Elastic SILT (MH) (A 7-5) with trace mica	53	33	20	86	77	MH
▲	Stiff to very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-5) with trace mica	49	46	3	96	76	ML
◆	Medium stiff to stiff, moist, reddish brown to tannish brown, Sandy SILT (ML) (A-5) with trace mica	42	36	6	99	85	ML
▼	Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-5)	44	34	10	83	66	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-247 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

■ **Source:** P-248 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6

▲ **Source of Sample:** P-249 **Depth:** 17.00-22.00 **Sample Number:** S-7

◆ **Source:** P-250 **Depth:** 12.00-22.00 **Sample No.:** S-6/S-7

▼ **Source:** P-251 **Depth:** 5.00-8.00 **Sample No.:** S-3/S-4

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Figure 1.59

Tested By: WS **Checked By:** AP/WS

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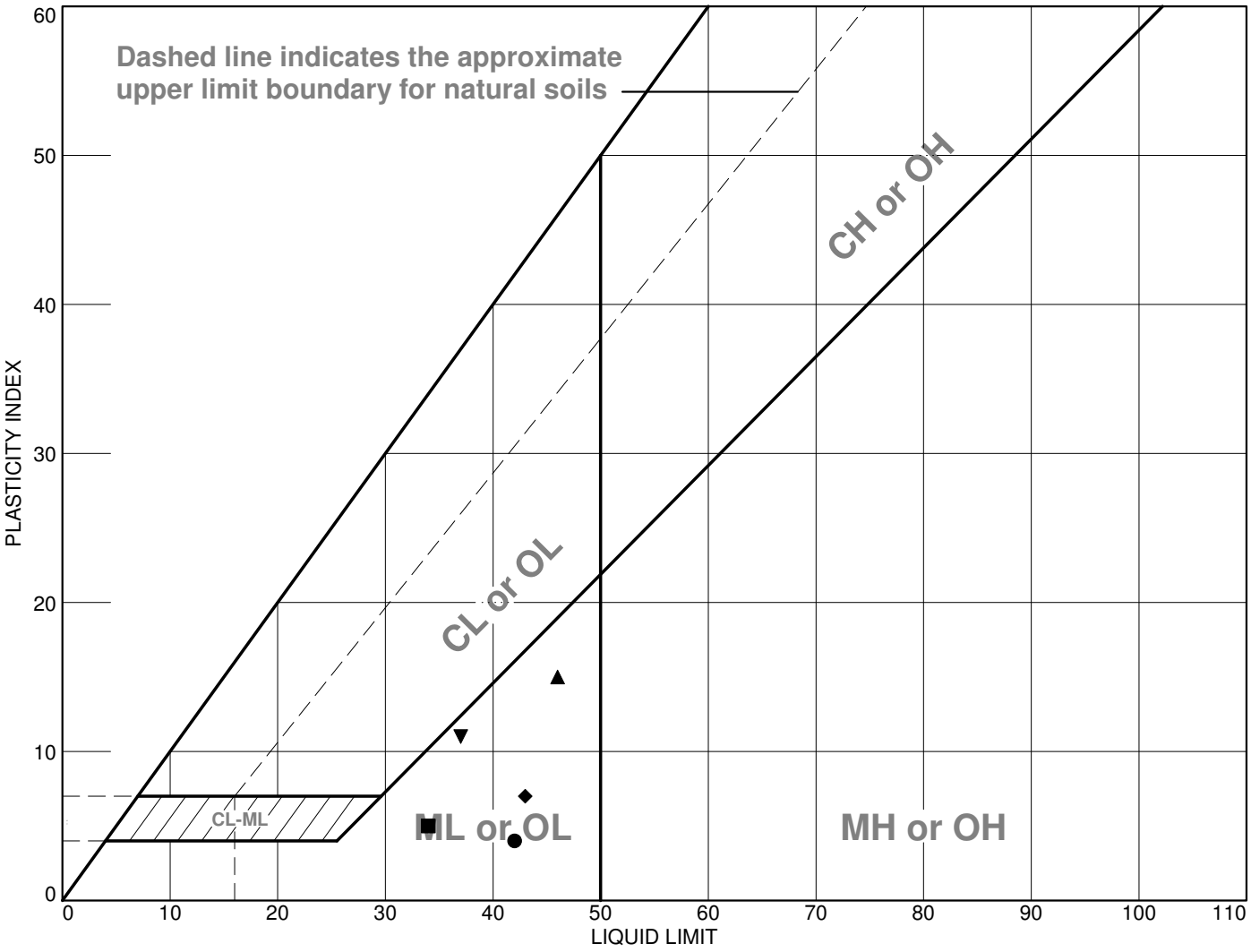

	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff to very stiff, moist, tannish brown, Sandy SILT (ML) (A-5)	42	38	4	98	72	ML
■	Very stiff to hard, moist, brown to grayish brown, Sandy SILT (ML) (A-4)	34	29	5	99	83	ML
▲	Stiff to very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace roots and gravel	46	31	15	92	85	ML
◆	Very hard to hard, moist, Sandy SILT (ML) (A-6)	43	36	7	88	71	ML
▼	Very stiff, dry, reddish brown, Sandy SILT (ML)(A-6)	37	26	11	67	56	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

● **Source:** P-251 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6

■ **Source:** P-252 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

▲ **Source:** P-253 **Depth:** 2.50-6.50 **Sample No.:** S-2/S-3

◆ **Source:** P-254 **Depth:** 17.00-27.00 **Sample No.:** S-7/S-8

▼ **Source of Sample:** P-257 **Depth:** 0.00-2.00 **Sample Number:** S-1

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Remarks:

Figure 1.60

Tested By: WS **Checked By:** AP/WS

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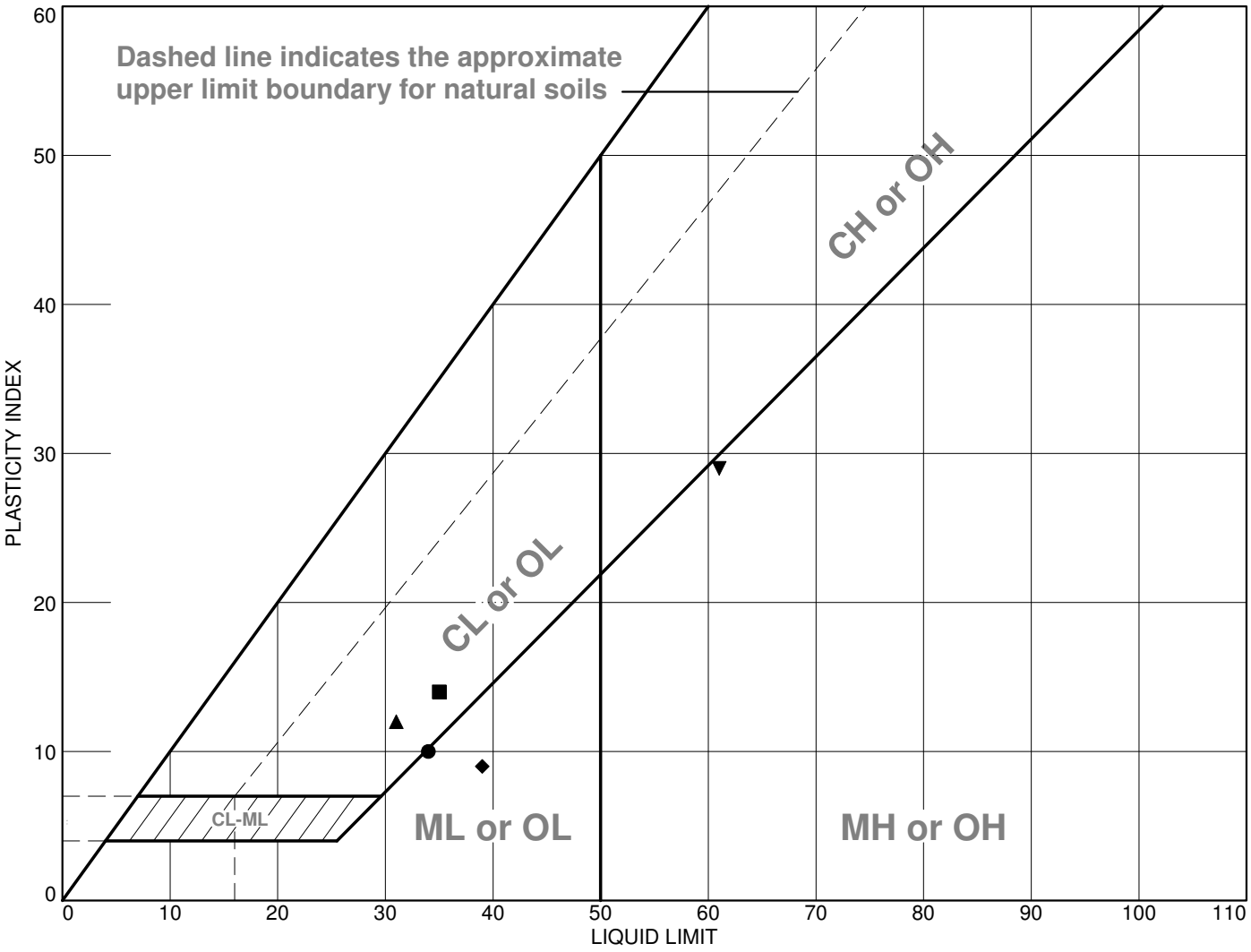
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very hard, dry, gray, Sandy CLAY (CL) (A-4)	34	24	10	80	67	CL
■	Very stiff to hard, moist, brown to grayish brown, Sandy CLAY (CL)(A-6)	35	21	14	65	53	CL
▲	Loose, moist, reddish brown to orangish brown, Clayey SAND (SC) (A-6) with trace gravel	31	19	12	49	40	SC
◆	Medium stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-4)	39	30	9	89	75	ML
▼	Stiff to medium stiff, moist, orangish tan, Elastic SILT (MH) (A-7-5)	61	32	29	97	93	MH

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-257 **Depth:** 2.00-6.00 **Sample No.:** S-2/S-3

■ **Source:** P-257 **Depth:** 6.00-12.00 **Sample No.:** S-4/S-5

▲ **Source:** P-259 **Depth:** 2.50-6.50 **Sample No.:** S-2/S-3

◆ **Source:** P-260 **Depth:** 6.50-12.00 **Sample No.:** S-4/S-5

▼ **Source:** P-261 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6

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Figure 1.61

Tested By: WS **Checked By:** AP/WS

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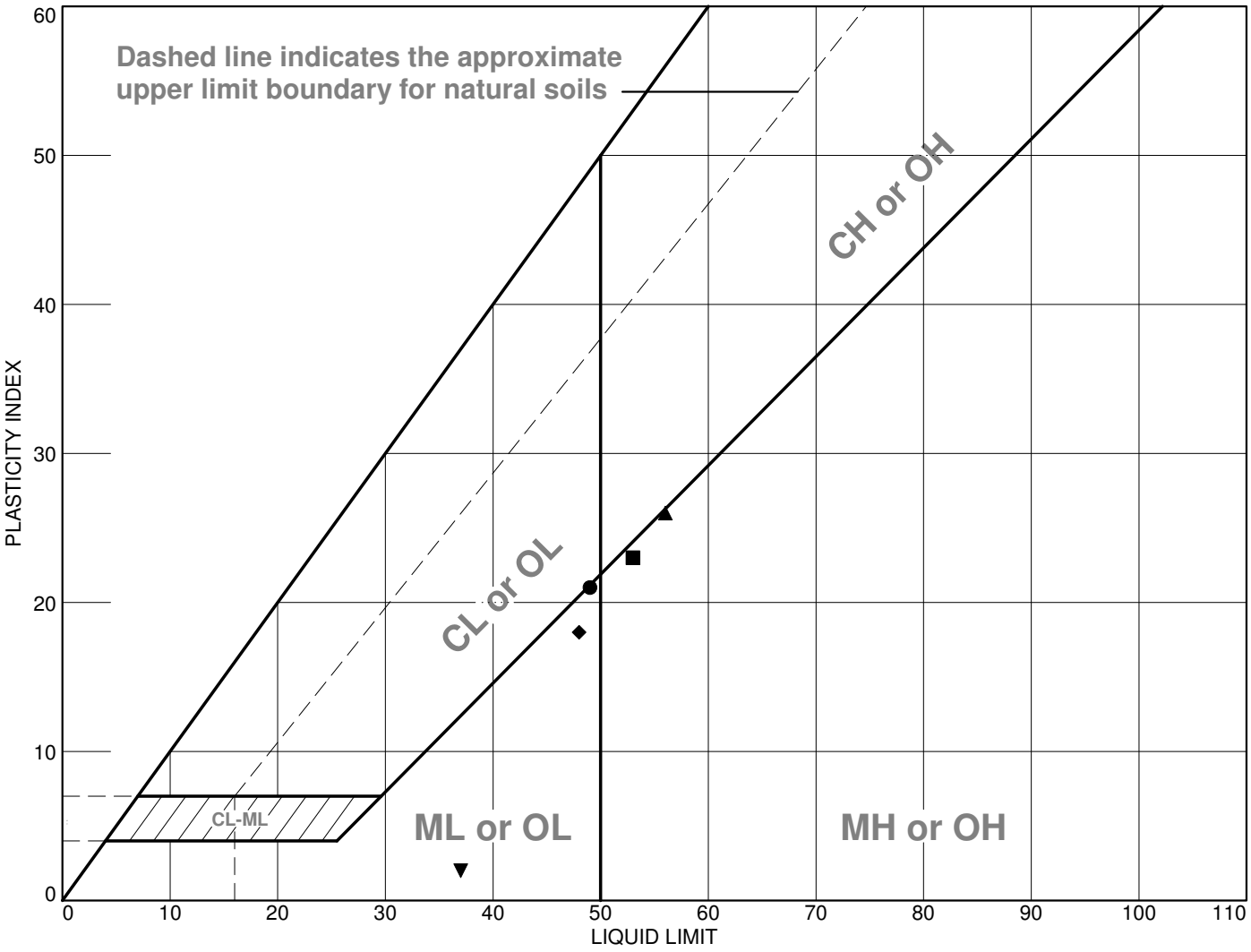
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, orangish tan, Sandy CLAY (CL) (A-7-6) with trace gravel	49	28	21	88	70	CL
■	Stiff, moist, orangish tan, Elasic SILT (MH) (A-7)	53	30	23	96	87	MH
▲	Medium stiff to stiff, moist, gray to orangish brown, Plastic CLAY (CH) (A-7-5)	56	30	26	95	91	CH
◆	Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7)	48	30	18	96	72	ML
▼	Very stiff to hard, moist, tannish brown, Sandy SILT (ML) (A-5)	37	35	2	99	85	ML

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source:** P-261 **Depth:** 17.00-27.00 **Sample No.:** S-7/S-8
■ **Source:** P-262 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6
▲ **Source:** P-262 **Depth:** 17.00-27.00 **Sample No.:** S-7/S-8
◆ **Source:** P-263 **Depth:** 8.00-17.00 **Sample No.:** S-5/S-6
▼ **Source:** P-264 **Depth:** 6.00-12.00 **Sample No.:** S-3/S-4

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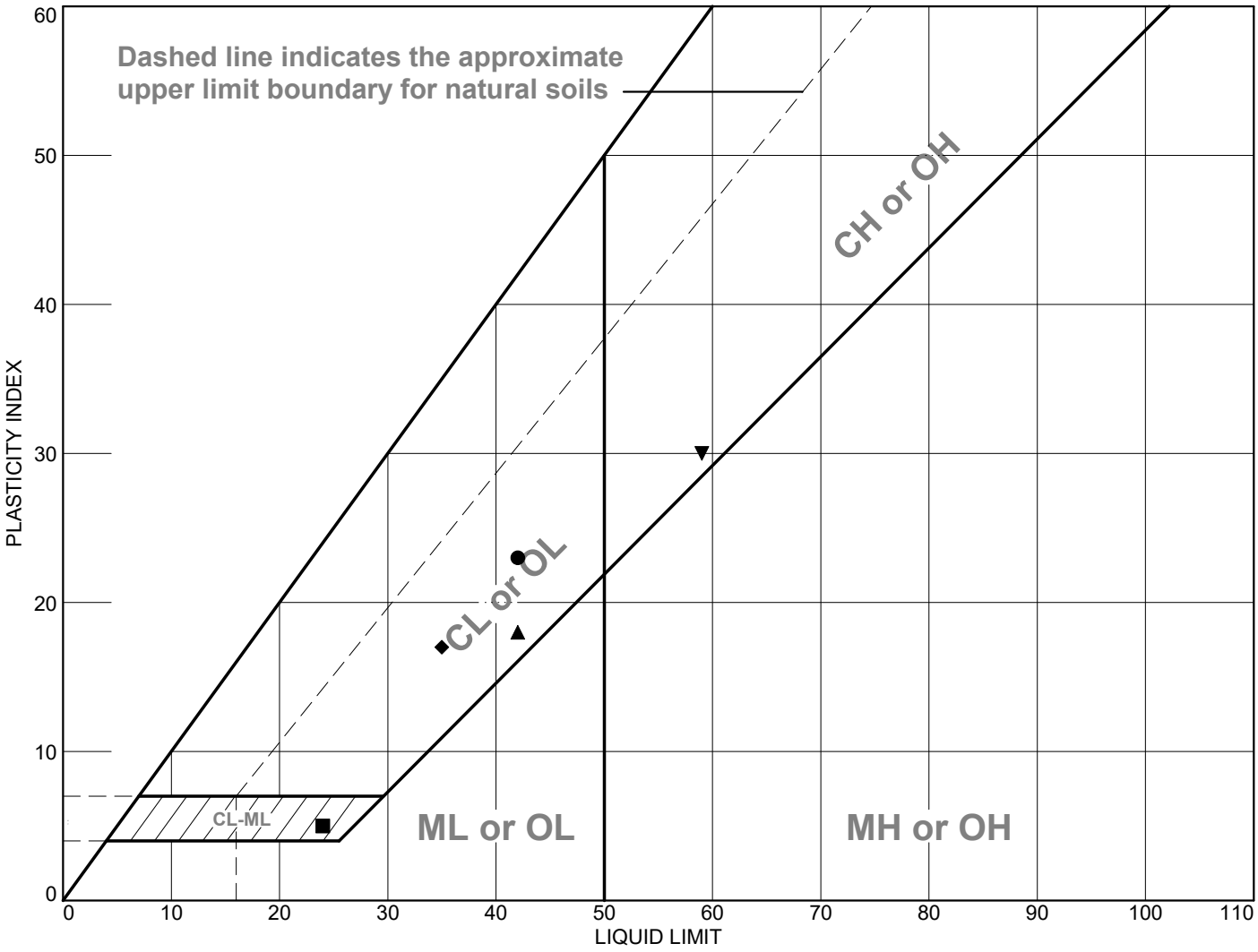
Figure 1.62

Tested By: WS **Checked By:** AP/WS

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel	42	19	23	66	50	CL
■	Extremely dense, moist, tannish brown to redish brown, sampled as Silty, Clayey SAND (SC-SM) (A-2-4)	24	19	5	53	33	SC-SM
▲	Stiff, moist, reddish brown, Sandy CLAY (CL)(A-7-6)	42	24	18	80	74	CL
◆	Firm, moist, grayish brown, Sandy CLAY (CL)(A-6) with trace rock	35	18	17	79	73	CL
▼	Loose to medium dense, moist, orangeish yellow, Clayey GRAVEL with Sand (GC)(A-7-6)	59	29	30	52	47	GC

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** SW-1 **Depth:** 0.00-2.00 **Sample Number:** S-1

■ **Source of Sample:** SW-1 **Depth:** 2.00-4.00 **Sample Number:** S-2

▲ **Source of Sample:** SW-2 **Depth:** 2.00-4.00 **Sample Number:** S-2

◆ **Source of Sample:** SW-2A **Depth:** 2.00-4.00 **Sample Number:** S-2

▼ **Source of Sample:** SW-3 **Depth:** 4.00-6.00 **Sample Number:** S-3

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Figure 1.63

Tested By: ○ AS □ AS △ SC ◇ AS ▽ AS

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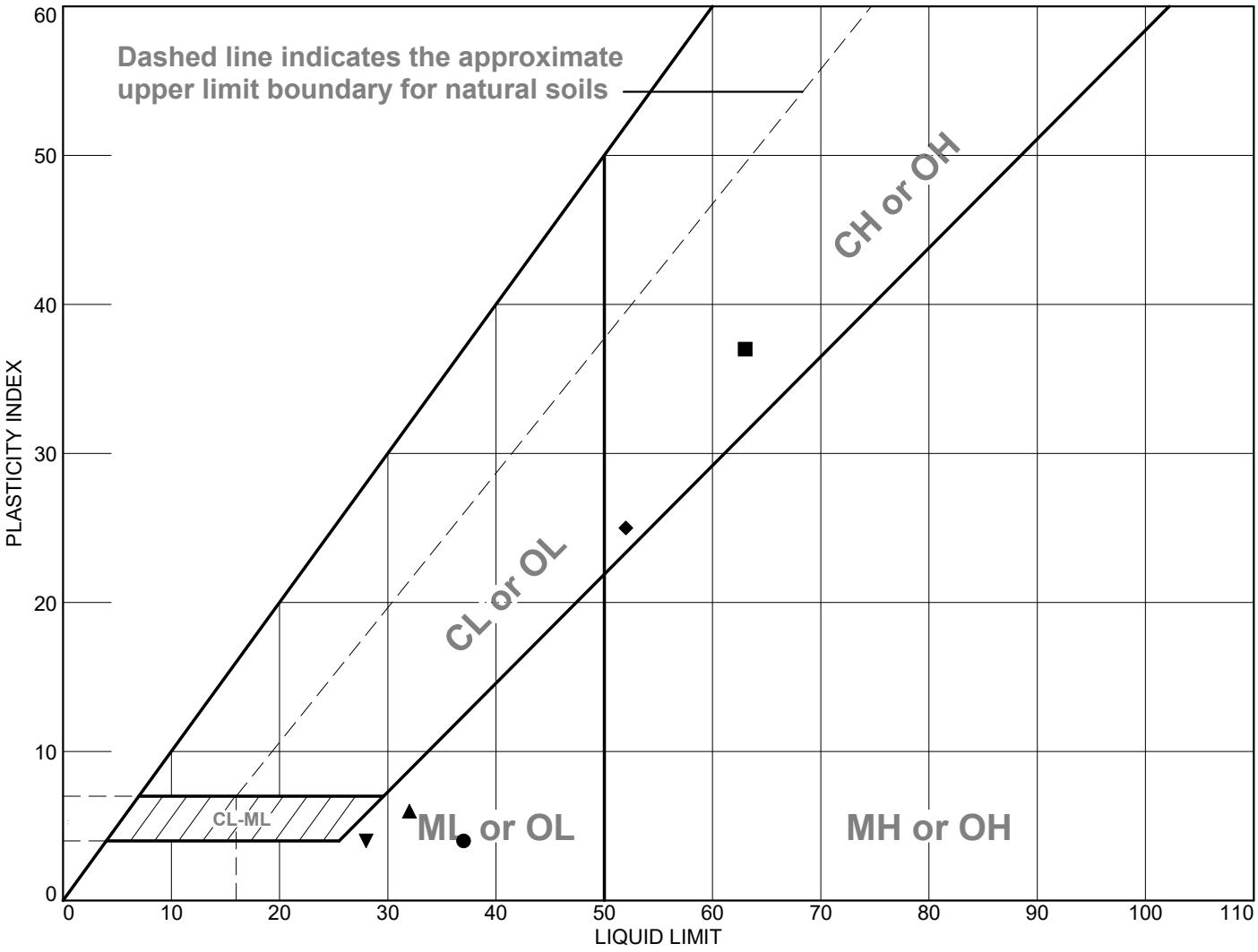
LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Very stiff, moist, orangeish yellow, Sandy SILT (ML)(A-4)	37	33	4	87	72	ML
■	Firm, moist, reddish brown, Plastic CLAY (CH)(A-7-6) with trace organics	63	26	37	89	79	CH
▲	Very hard, moist, orangeish tan to grayish tan, Sandy SILT (ML)(A-4)	32	26	6	74	54	ML
◆	Very stiff, moist, orangeish yellow, Plastic CLAY (CH) (A-7-6) with trace gravel	52	27	25	87	81	CH
▼	Very hard, moist, tannish brown, sampled as Silty SAND (SM)(A-4)	28	24	4	64	43	SM

Project No. 11888 **Client:** Civil Engineering Consulting Services

Project: I-26 Widening MM 85-101- GEO

Remarks:

● **Source of Sample:** SW-3 **Depth:** 6.00-8.00 **Sample Number:** S-4

■ **Source of Sample:** SW-4 **Depth:** 0.00-2.00 **Sample Number:** S-1

▲ **Source of Sample:** SW-4 **Depth:** 4.00-6.00 **Sample Number:** S-3

◆ **Source of Sample:** SW-5 **Depth:** 2.00-4.00 **Sample Number:** S-2

▼ **Source of Sample:** SW-5 **Depth:** 8.00-10.00 **Sample Number:** S-5

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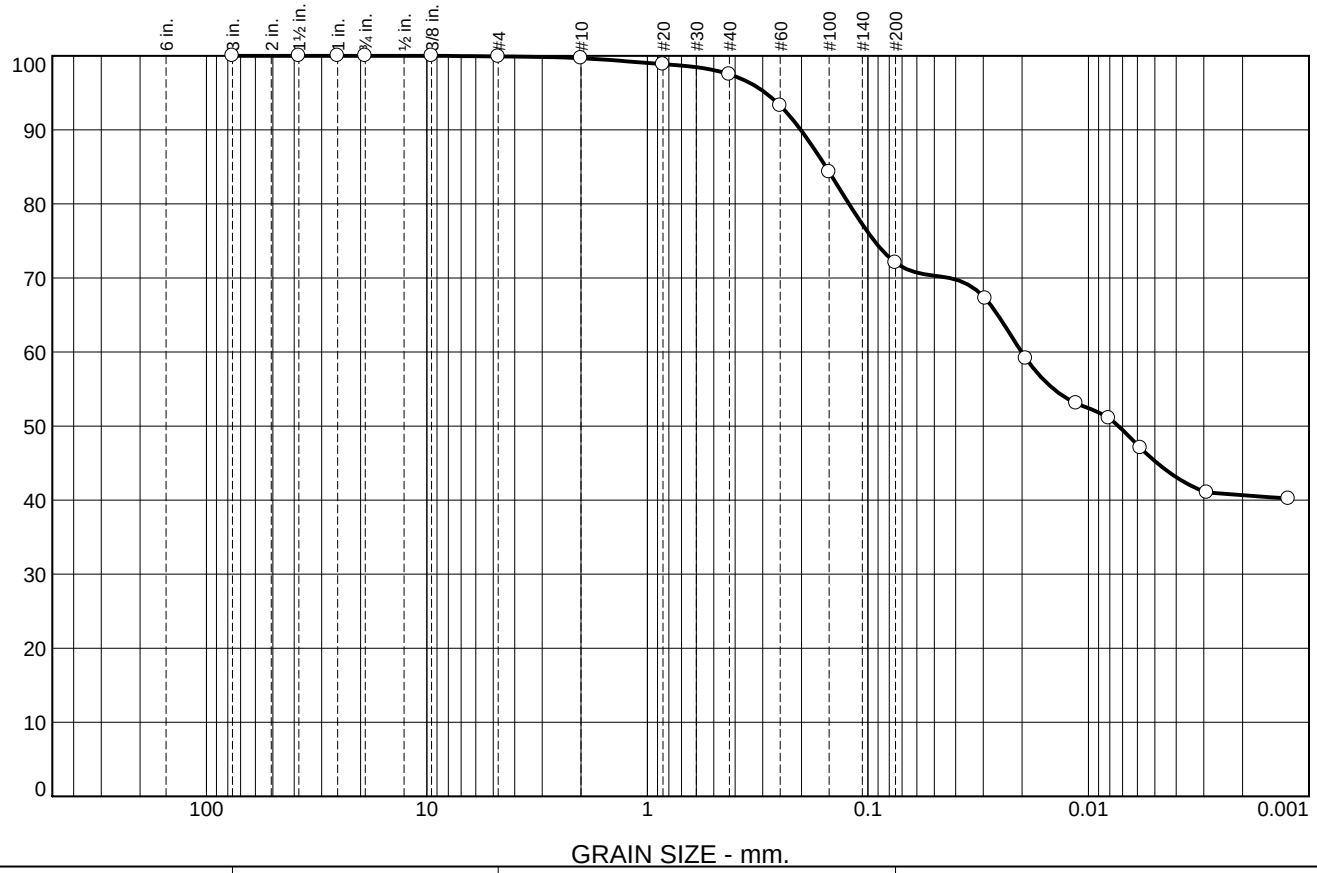
Figure 1.64

Tested By: ● AS ■ SC ▲ AS ◆ SC ▼ AS

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	25	27	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	97		
#60	93		
#100	84		
#200	72		
0.0294 mm.	67		
0.0192 mm.	59		
0.0114 mm.	53		
0.0081 mm.	51		
0.0058 mm.	47		
0.0029 mm.	41		
0.0012 mm.	40		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with slight roots

Atterberg Limits

PL= 34 LL= 65 PI= 31

Coefficients

D_{90}= 0.2017 D_{85}= 0.1550 D_{60}= 0.0201
D_{50}= 0.0073 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

Source of Sample: B-1 **Depth:** 13.50-15.00
Sample Number: S-5

Date: 10/24/2017

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Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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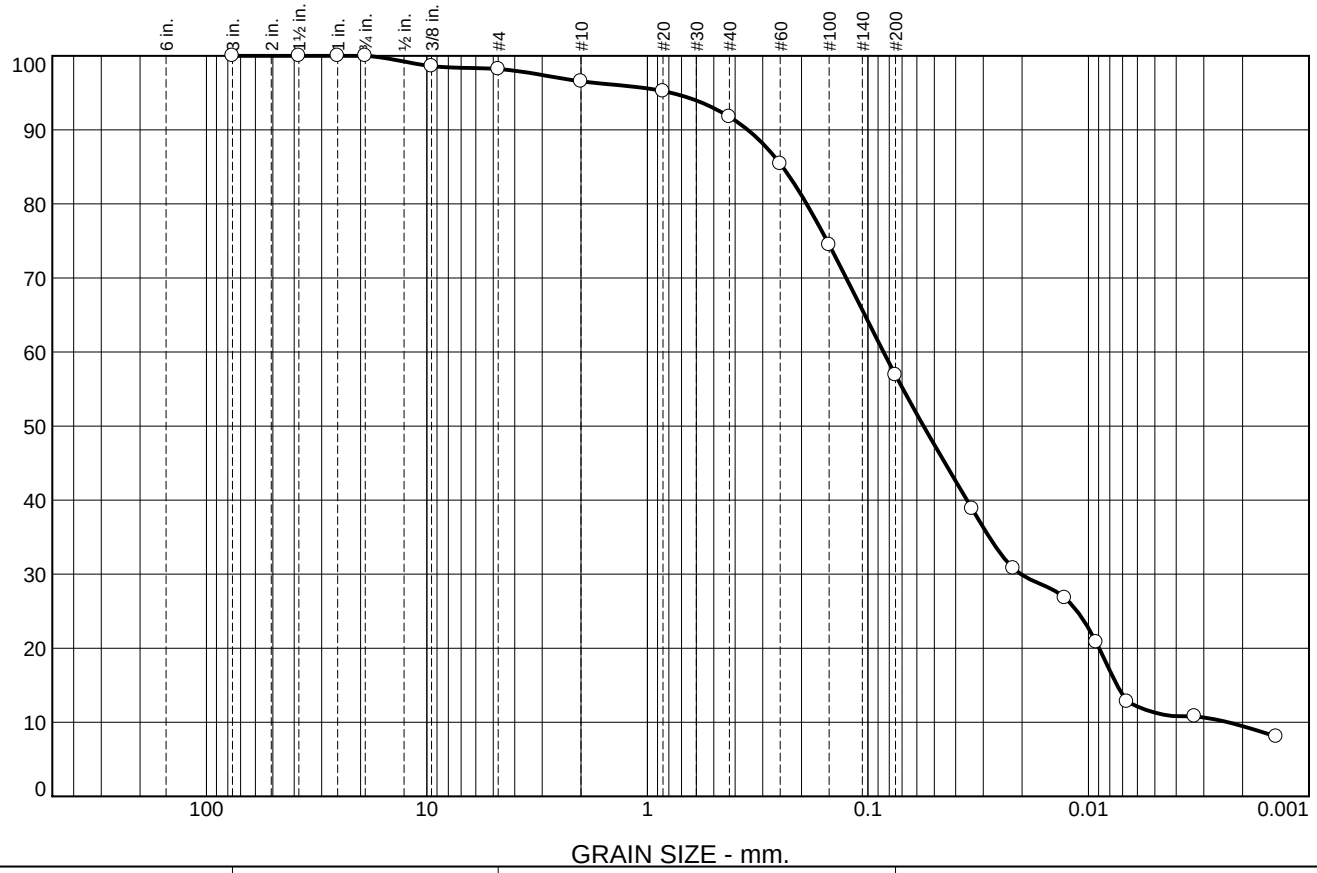
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	5	35	46	11

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	97		
#20	95		
#40	92		
#60	85		
#100	74		
#200	57		
0.0337 mm.	39		
0.0219 mm.	31		
0.0128 mm.	27		
0.0092 mm.	21		
0.0067 mm.	13		
0.0033 mm.	11		
0.0014 mm.	8.1		

* (no specification provided)

Soil Description

Very stiff, moist, orangish brown, Sandy SILT (ML)(A-7-6)

Atterberg Limits

PL= 28 LL= 44 PI= 16

Coefficients

D_{90}= 0.3508 D_{85}= 0.2437 D_{60}= 0.0850
D_{50}= 0.0559 D_{30}= 0.0203 D_{15}= 0.0074
D_{10}= 0.0023 C_u= 36.50 C_c= 2.07

Classification

USCS= ML AASHTO= A-7-6(7)

Remarks

Source of Sample: B-1 **Depth:** 28.50-30.00
Sample Number: S-8

Date: 10/24/2017

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Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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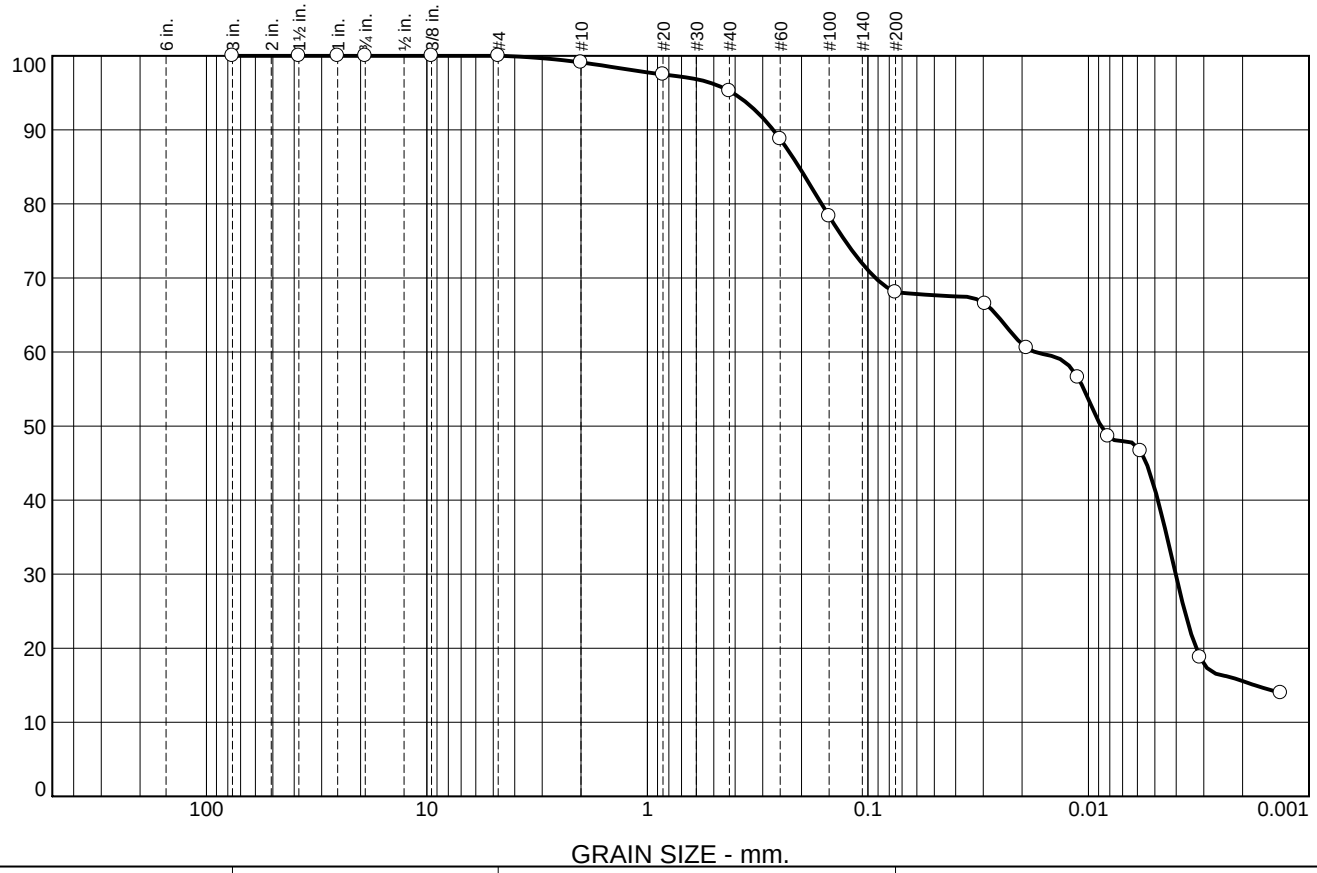
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	4	27	26	42

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	97		
#40	95		
#60	89		
#100	78		
#200	68		
0.0294 mm.	67		
0.0191 mm.	61		
0.0112 mm.	57		
0.0081 mm.	49		
0.0058 mm.	47		
0.0031 mm.	19		
0.0013 mm.	14		

* (no specification provided)

Soil Description

Medium stiff, moist to wet, reddish brown to gray, Elastic SILT (MH)(A-7-5) with trace roots

Atterberg Limits

PL= 36 LL= 61 PI= 25

Coefficients

D_{90}= 0.2691 D_{85}= 0.2055 D_{60}= 0.0175
D_{50}= 0.0088 D_{30}= 0.0040 D_{15}= 0.0018
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(18)

Remarks

Source of Sample: B-2 **Depth:** 13.50-15.00
Sample Number: S-6

Date: 10/24/2017

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Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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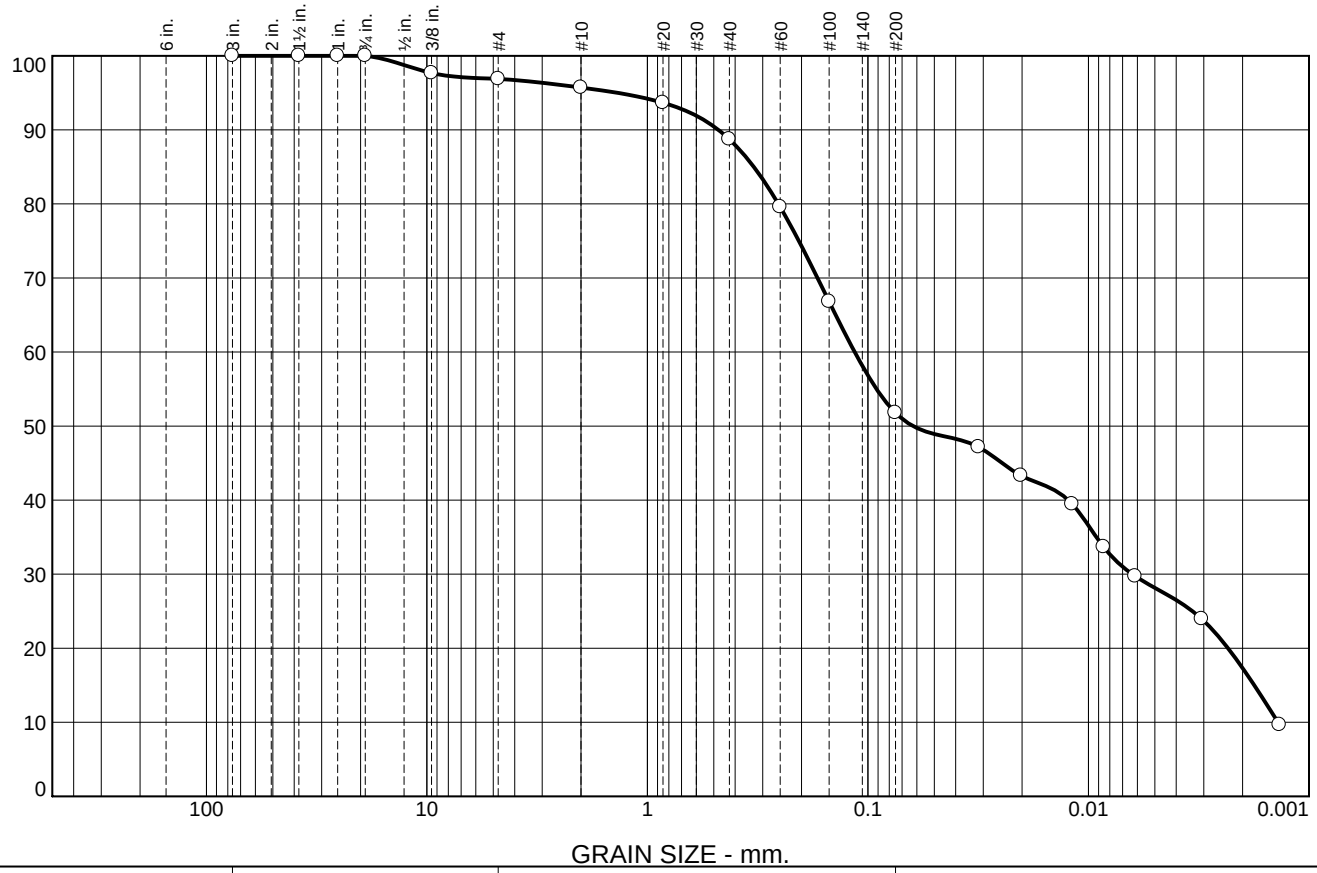
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	1	7	37	24	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	96		
#20	94		
#40	89		
#60	80		
#100	67		
#200	52		
0.0315 mm.	47		
0.0202 mm.	43		
0.0118 mm.	39		
0.0085 mm.	34		
0.0061 mm.	30		
0.0031 mm.	24		
0.0014 mm.	9.7		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown to gray, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 22 LL= 41 PI= 19

Coefficients

D_{90}= 0.4764 D_{85}= 0.3294 D_{60}= 0.1149
D_{50}= 0.0624 D_{30}= 0.0063 D_{15}= 0.0018
D_{10}= 0.0014 C_u= 83.16 C_c= 0.25

Classification

USCS= CL AASHTO= A-7-6(7)

Remarks

Source of Sample: B-2 **Depth:** 23.50-25.00
Sample Number: S-8

Date: 10/24/2017

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Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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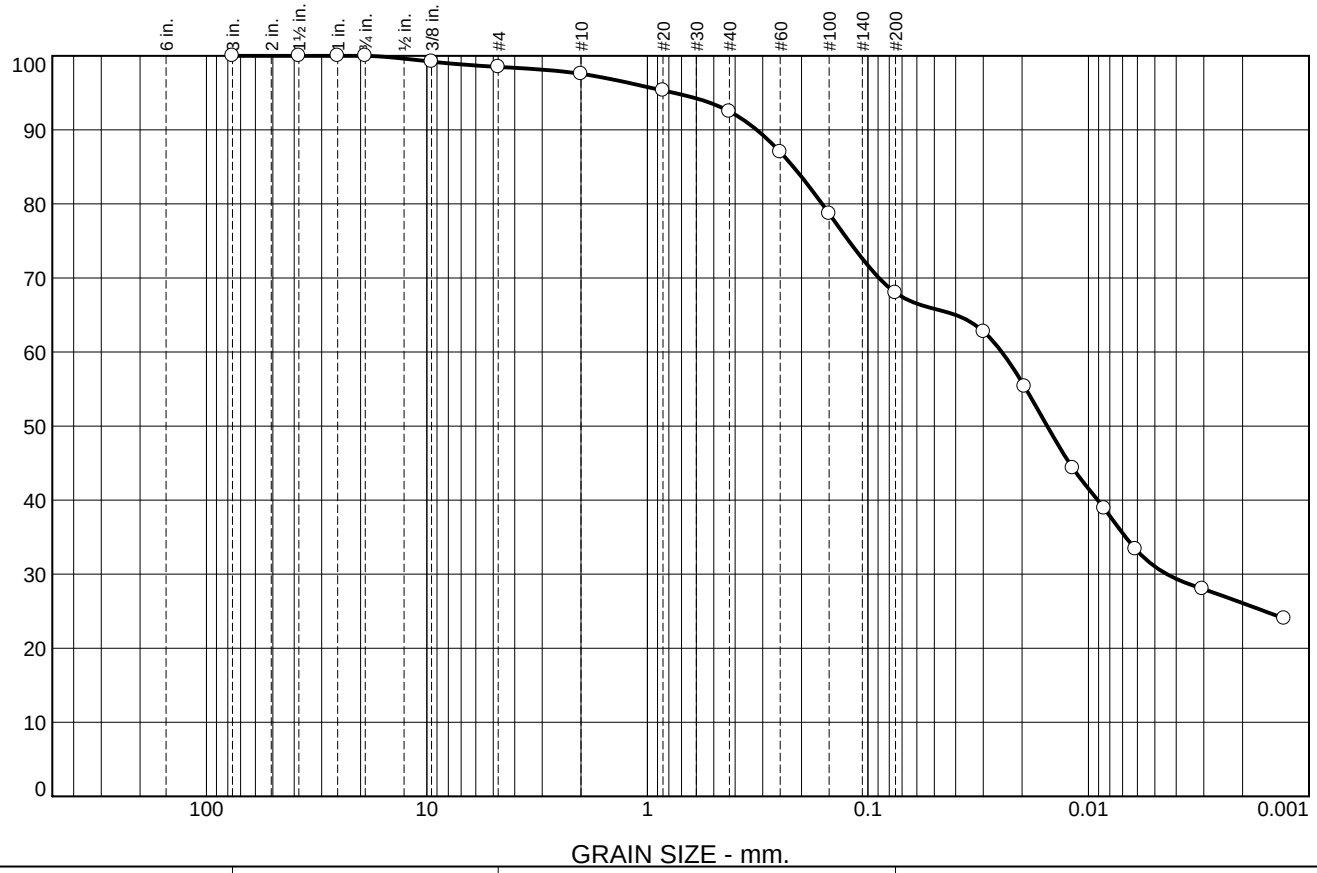
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	6	24	37	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	98		
#20	95		
#40	92		
#60	87		
#100	79		
#200	68		
0.0299 mm.	63		
0.0195 mm.	55		
0.0118 mm.	44		
0.0085 mm.	39		
0.0061 mm.	33		
0.0030 mm.	28		
0.0013 mm.	24		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML)(A-7-5)

Atterberg Limits

PL= 34 LL= 49 PI= 15

Coefficients

D_{90}= 0.3195 D_{85}= 0.2178 D_{60}= 0.0247
D_{50}= 0.0154 D_{30}= 0.0044 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(11)

Remarks

Source of Sample: B-3 **Depth:** 6.00-7.50
Sample Number: S-3

Date: 10/27/2017

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Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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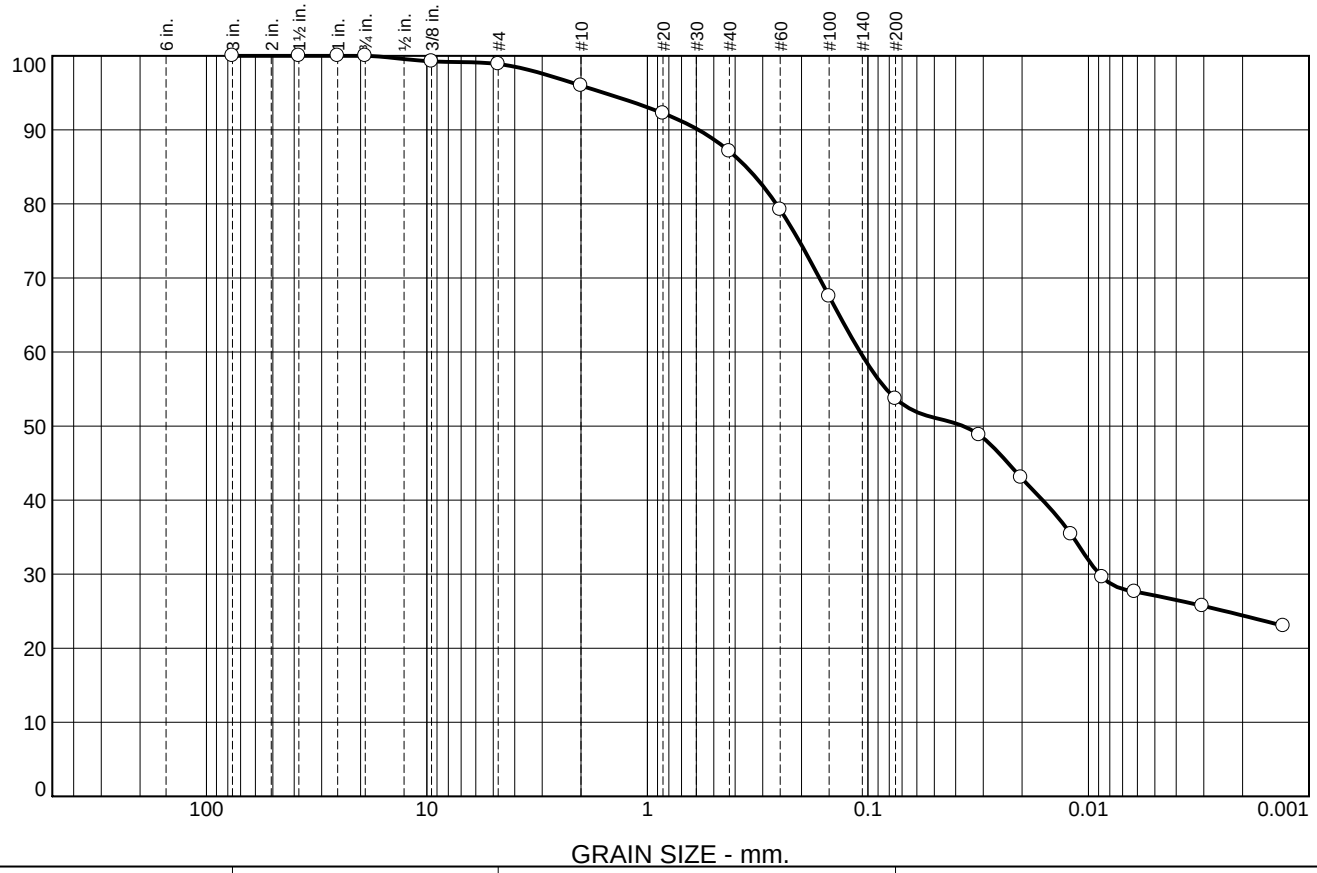
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	3	9	33	27	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	96		
#20	92		
#40	87		
#60	79		
#100	68		
#200	54		
0.0313 mm.	49		
0.0202 mm.	43		
0.0120 mm.	35		
0.0087 mm.	30		
0.0062 mm.	28		
0.0030 mm.	26		
0.0013 mm.	23		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown to gray, Sandy CLAY (CL)(A-6)

Atterberg Limits

PL= 21 LL= 36 PI= 15

Coefficients

D_{90}= 0.5869 D_{85}= 0.3564 D_{60}= 0.1085
D_{50}= 0.0370 D_{30}= 0.0089 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(5)

Remarks

Source of Sample: B-3 **Depth:** 18.50-20.00
Sample Number: S-6

Date: 10/24/2017

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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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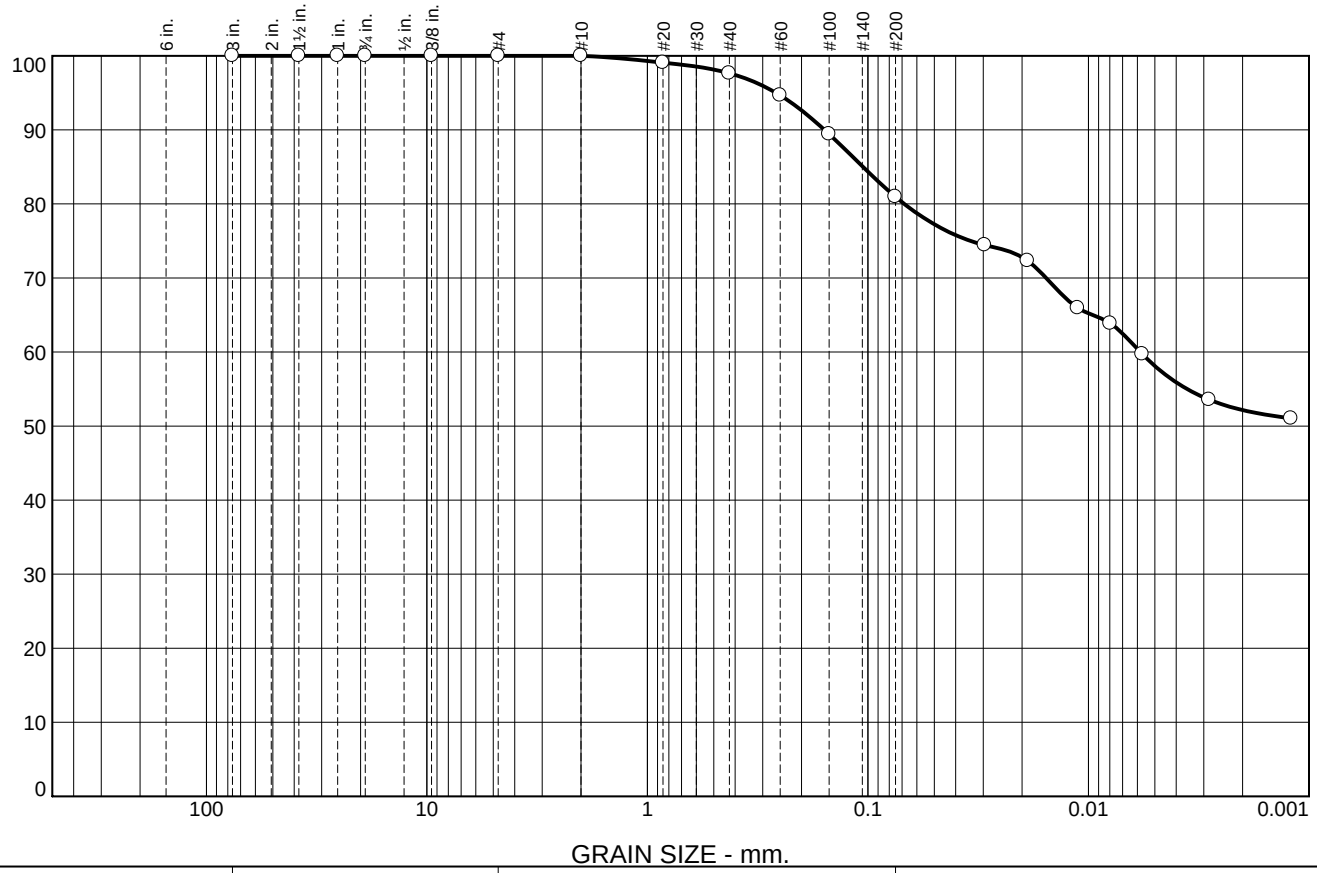
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	17	23	58

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	95		
#100	89		
#200	81		
0.0296 mm.	74		
0.0189 mm.	72		
0.0112 mm.	66		
0.0079 mm.	64		
0.0057 mm.	60		
0.0028 mm.	54		
0.0012 mm.	51		

* (no specification provided)

Soil Description

Stiff to very stiff, moist to dry, reddish brown, Elastic SILT (MH)(A-7-5) with trace gravel

Atterberg Limits

PL= 37 LL= 62 PI= 25

Coefficients

D_{90}= 0.1574 D_{85}= 0.1053 D_{60}= 0.0058
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

Source of Sample: B-4 **Depth:** 18.50-20.00
Sample Number: S-6

Date: 10/27/2017

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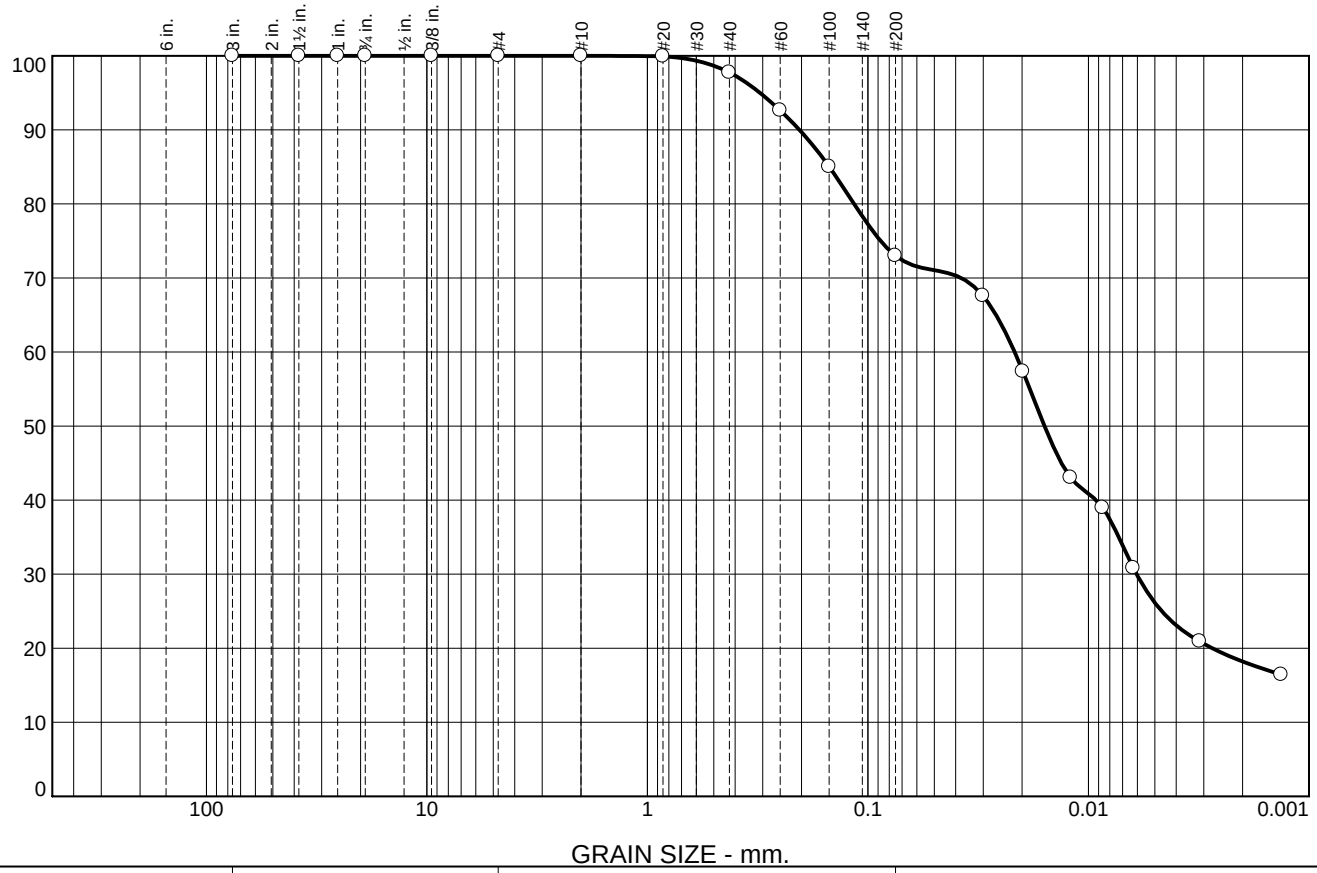
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	25	47	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	98		
#60	93		
#100	85		
#200	73		
0.0301 mm.	68		
0.0198 mm.	57		
0.0120 mm.	43		
0.0086 mm.	39		
0.0063 mm.	31		
0.0031 mm.	21		
0.0013 mm.	16		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish brown to orangish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 44 LL= 57 PI= 13

Coefficients

D_{90}= 0.2046 D_{85}= 0.1496 D_{60}= 0.0216
D_{50}= 0.0158 D_{30}= 0.0060 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(13)

Remarks

Source of Sample: B-4 **Depth:** 33.50-35.00
Sample Number: S-9

Date: 10/27/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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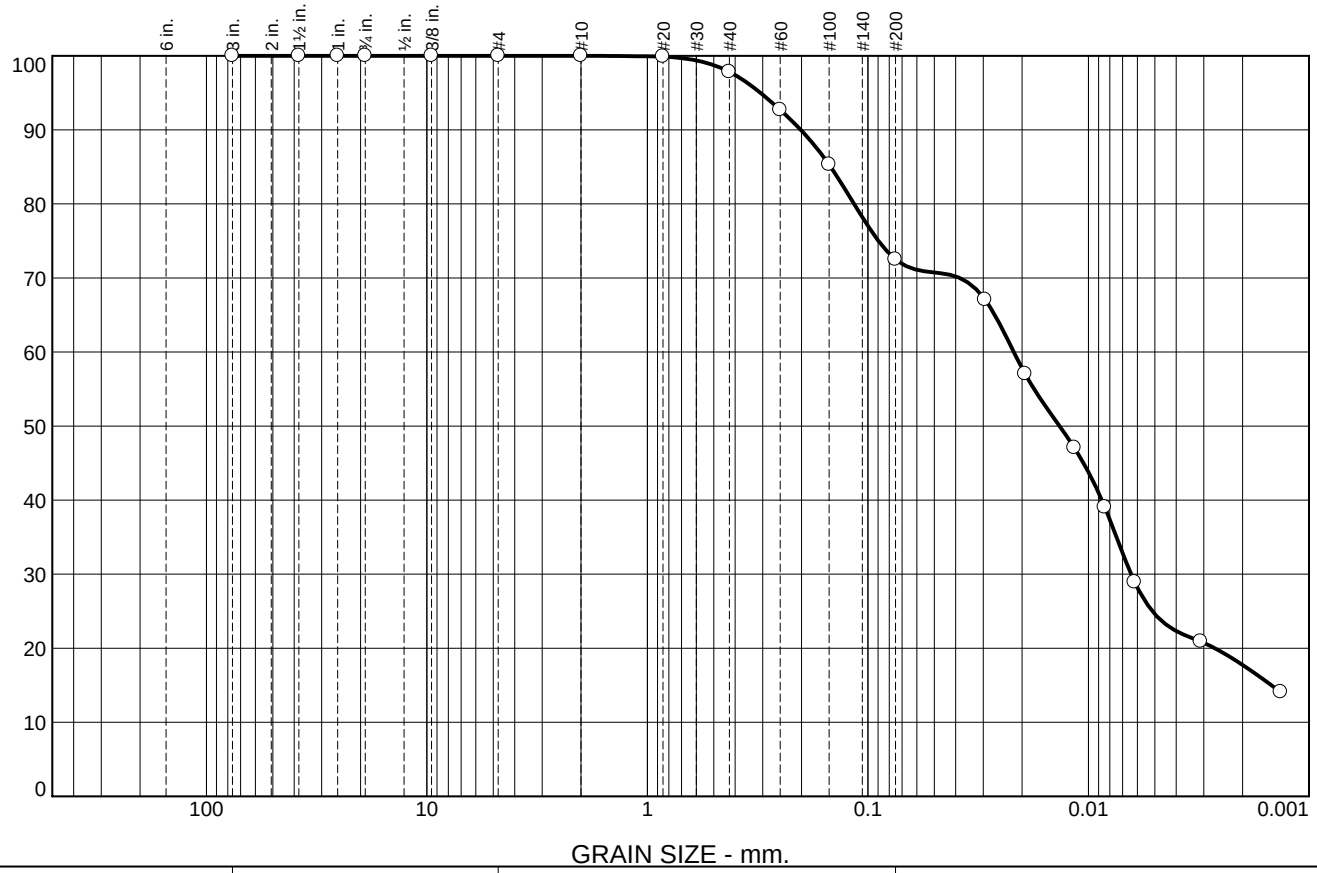
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	25	48	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	98		
#60	93		
#100	85		
#200	73		
0.0294 mm.	67		
0.0194 mm.	57		
0.0116 mm.	47		
0.0084 mm.	39		
0.0062 mm.	29		
0.0031 mm.	21		
0.0013 mm.	14		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to tan, Elastic SILT (MH)(A-7-5) with trace mica

Atterberg Limits

PL= 39 LL= 53 PI= 14

Coefficients

D_{90}= 0.2017 D_{85}= 0.1475 D_{60}= 0.0218
D_{50}= 0.0135 D_{30}= 0.0064 D_{15}= 0.0015
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(12)

Remarks

Source of Sample: B-5 **Depth:** 8.50-10.00
Sample Number: S-4

Date: 10/24/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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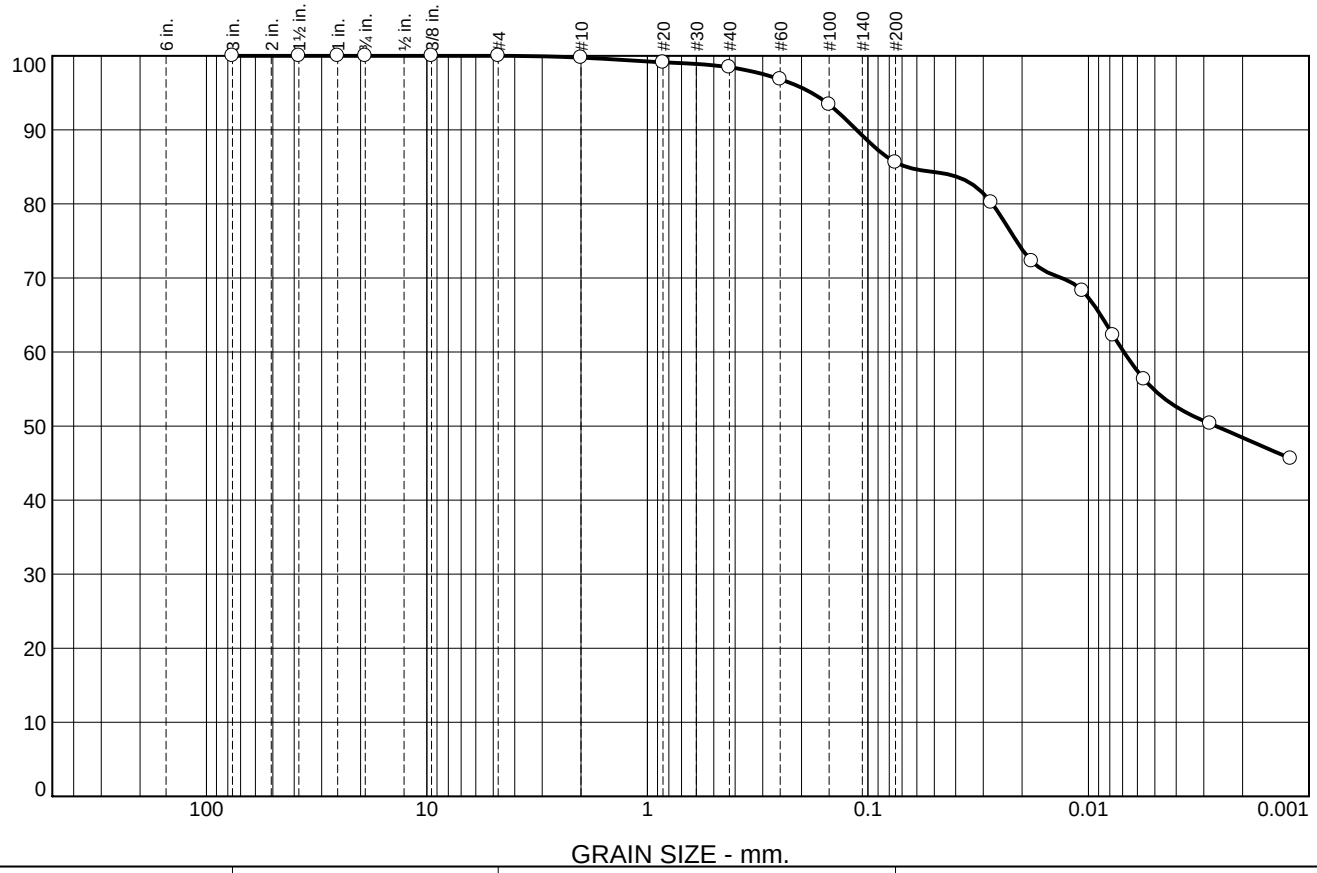
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	12	31	55

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	97		
#100	93		
#200	86		
0.0276 mm.	80		
0.0181 mm.	72		
0.0107 mm.	68		
0.0077 mm.	62		
0.0056 mm.	56		
0.0028 mm.	50		
0.0012 mm.	46		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 41 LL= 67 PI= 26

Coefficients

D_{90}= 0.1127 D_{85}= 0.0669 D_{60}= 0.0069
D_{50}= 0.0026 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(28)

Remarks

Source of Sample: B-6 **Depth:** 13.50-15.00
Sample Number: S-5

Date: 10/24/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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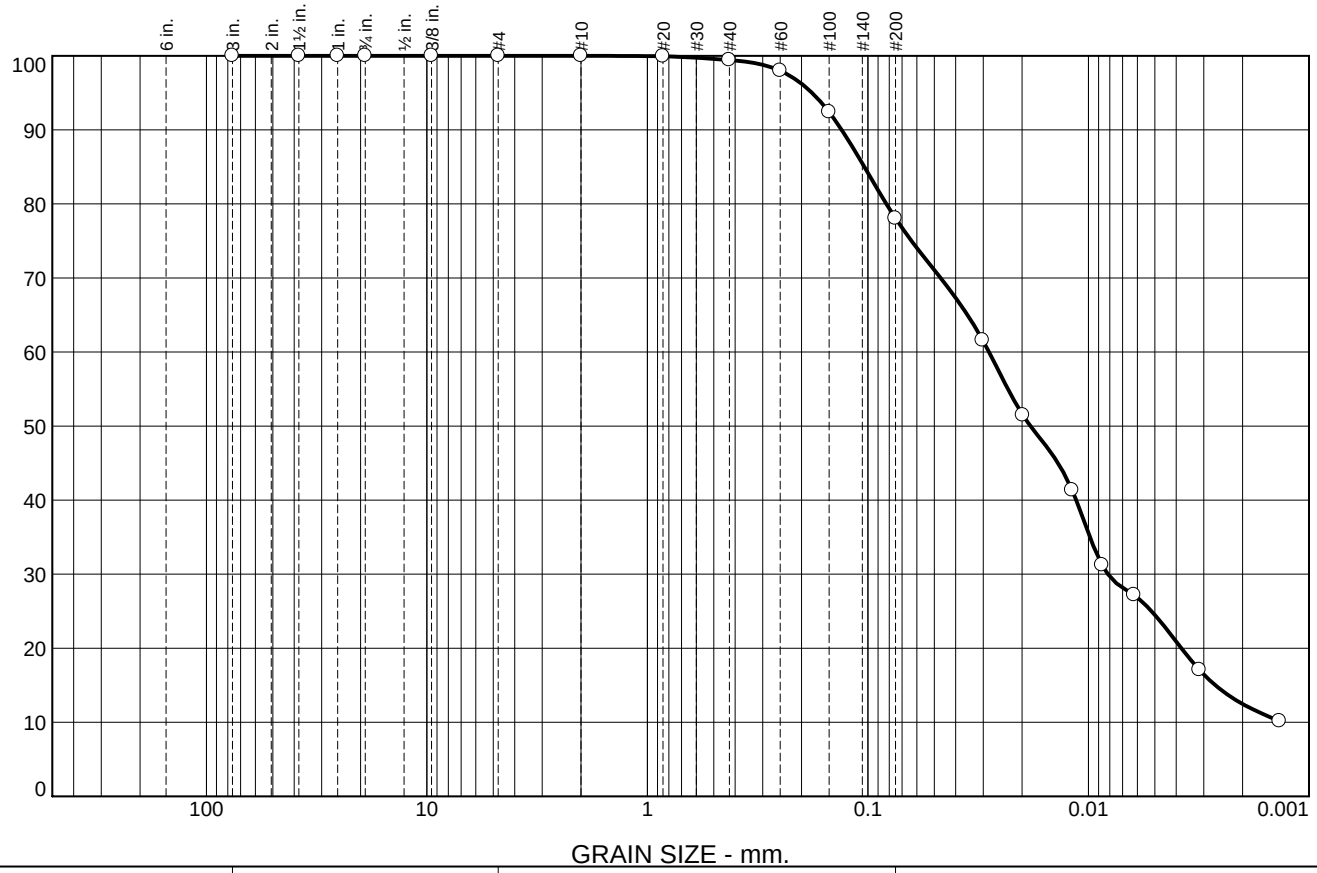
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	21	53	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	92		
#200	78		
0.0302 mm.	62		
0.0198 mm.	51		
0.0119 mm.	41		
0.0087 mm.	31		
0.0062 mm.	27		
0.0031 mm.	17		
0.0014 mm.	10		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Elastic SILT (MH)(A-5)

Atterberg Limits

PL= 44 LL= 50 PI= 6

Coefficients

D_{90}= 0.1315 D_{85}= 0.1038 D_{60}= 0.0283
D_{50}= 0.0183 D_{30}= 0.0082 D_{15}= 0.0027
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(8)

Remarks

Source of Sample: B-6 **Depth:** 28.50-30.00
Sample Number: S-8

Date: 10/24/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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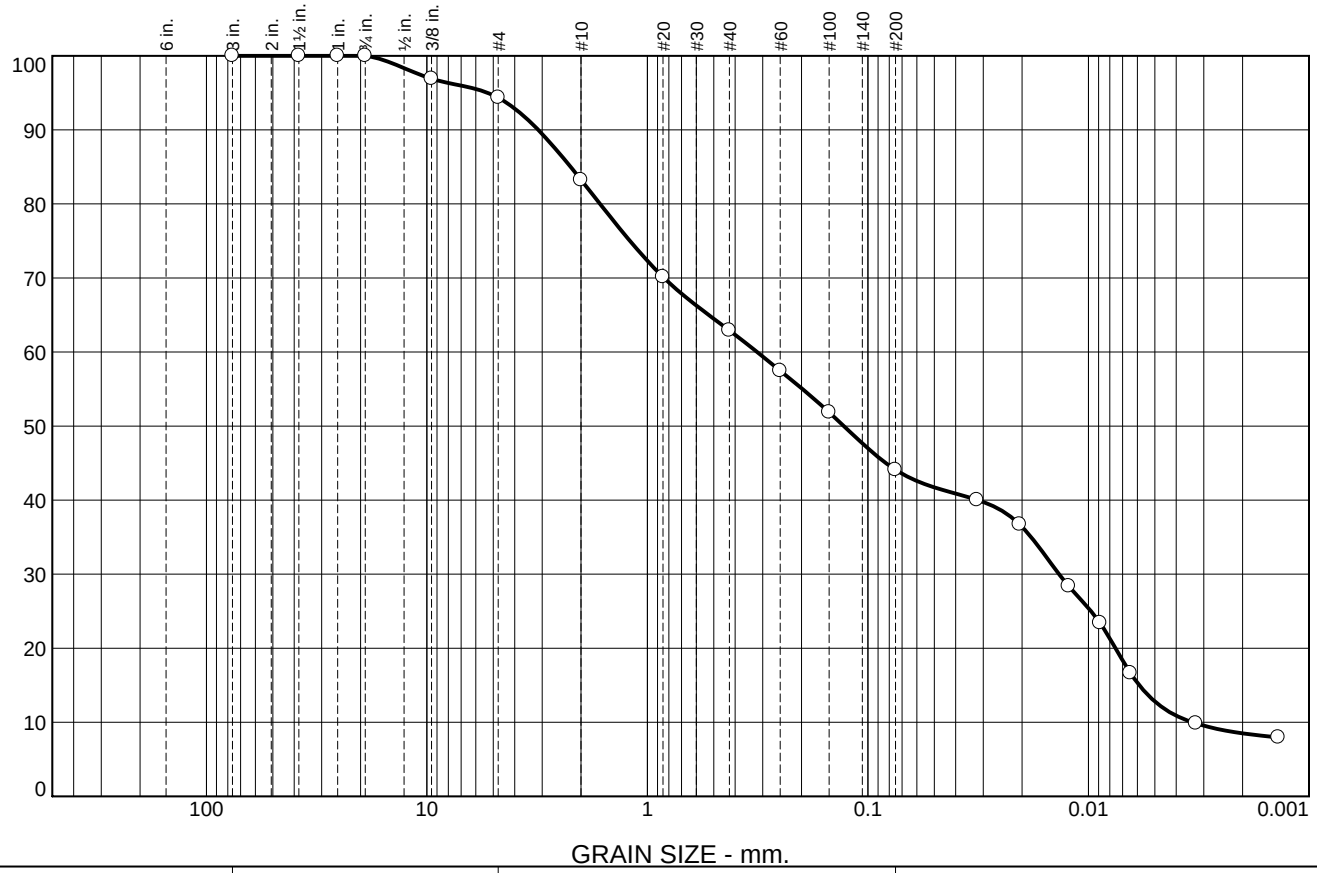
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	11	20	19	31	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	94		
#10	83		
#20	70		
#40	63		
#60	57		
#100	52		
#200	44		
0.0320 mm.	40		
0.0205 mm.	37		
0.0123 mm.	28		
0.0089 mm.	23		
0.0065 mm.	17		
0.0033 mm.	9.9		
0.0014 mm.	8.0		

* (no specification provided)

Soil Description

Loose, moist, tan, Silty Fine to Medium SAND (SM)(A-7-5) with trace mica

Atterberg Limits

PL= 36 LL= 48 PI= 12

Coefficients

D_{90}= 3.1277 D_{85}= 2.2310 D_{60}= 0.3184
D_{50}= 0.1286 D_{30}= 0.0136 D_{15}= 0.0059
D_{10}= 0.0034 C_u= 94.48 C_c= 0.17

Classification

USCS= SM AASHTO= A-7-5(3)

Remarks

Source of Sample: B-7 **Depth:** 28.50-30.00
Sample Number: S-9

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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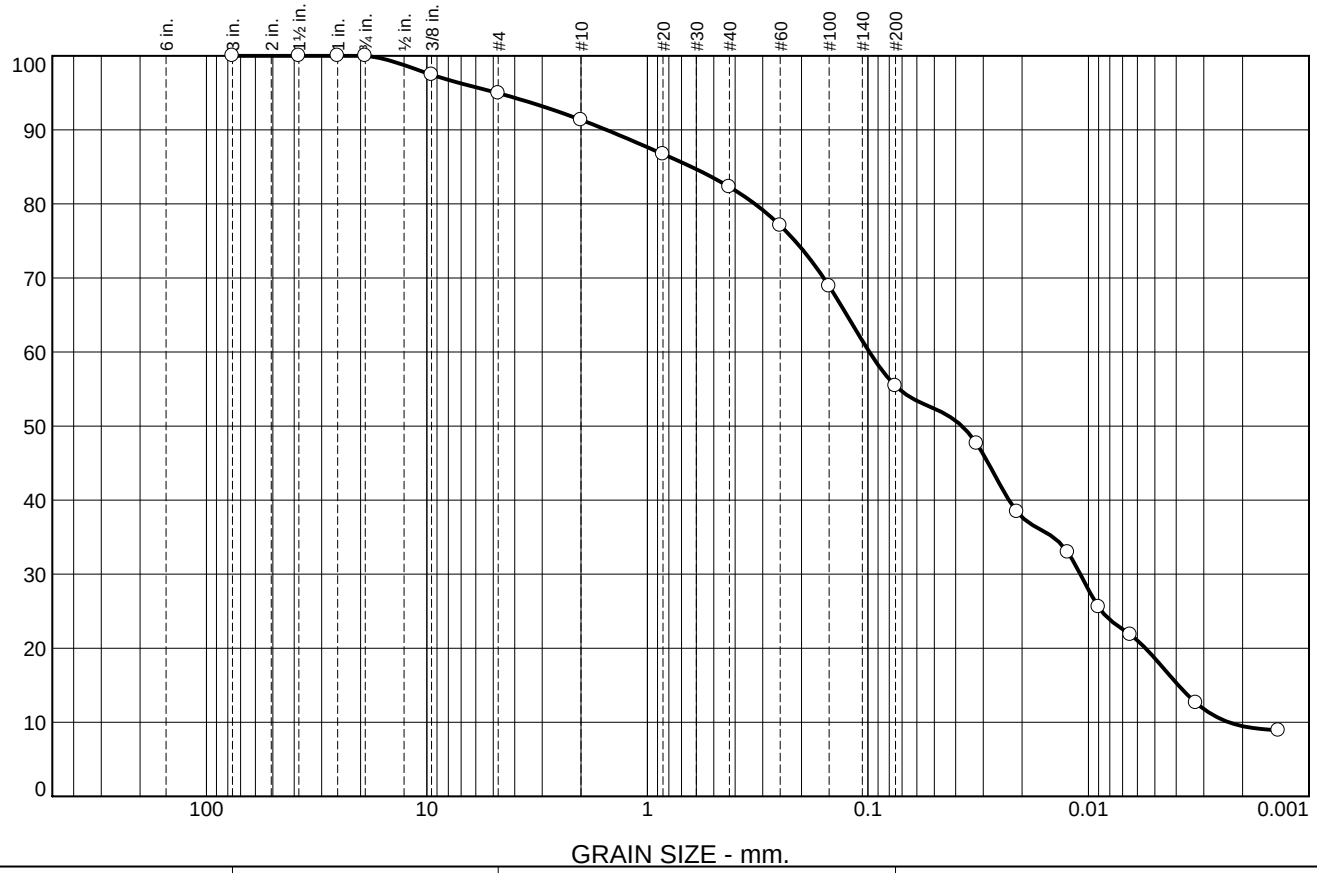
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	4	9	27	36	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	95		
#10	91		
#20	87		
#40	82		
#60	77		
#100	69		
#200	55		
0.0322 mm.	48		
0.0211 mm.	38		
0.0124 mm.	33		
0.0090 mm.	26		
0.0065 mm.	22		
0.0033 mm.	13		
0.0014 mm.	8.9		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown to orangish tan, Elastic SILT (MH)(A-5) with trace gravel-sized rock fragments and mica

Atterberg Limits

PL= 41 LL= 51 PI= 10

Coefficients

D_{90}= 1.5354 D_{85}= 0.6320 D_{60}= 0.0985
D_{50}= 0.0375 D_{30}= 0.0109 D_{15}= 0.0039
D_{10}= 0.0023 C_u= 42.70 C_c= 0.52

Classification

USCS= MH AASHTO= A-5(5)

Remarks

Source of Sample: B-8 **Depth:** 18.50-20.00
Sample Number: S-6

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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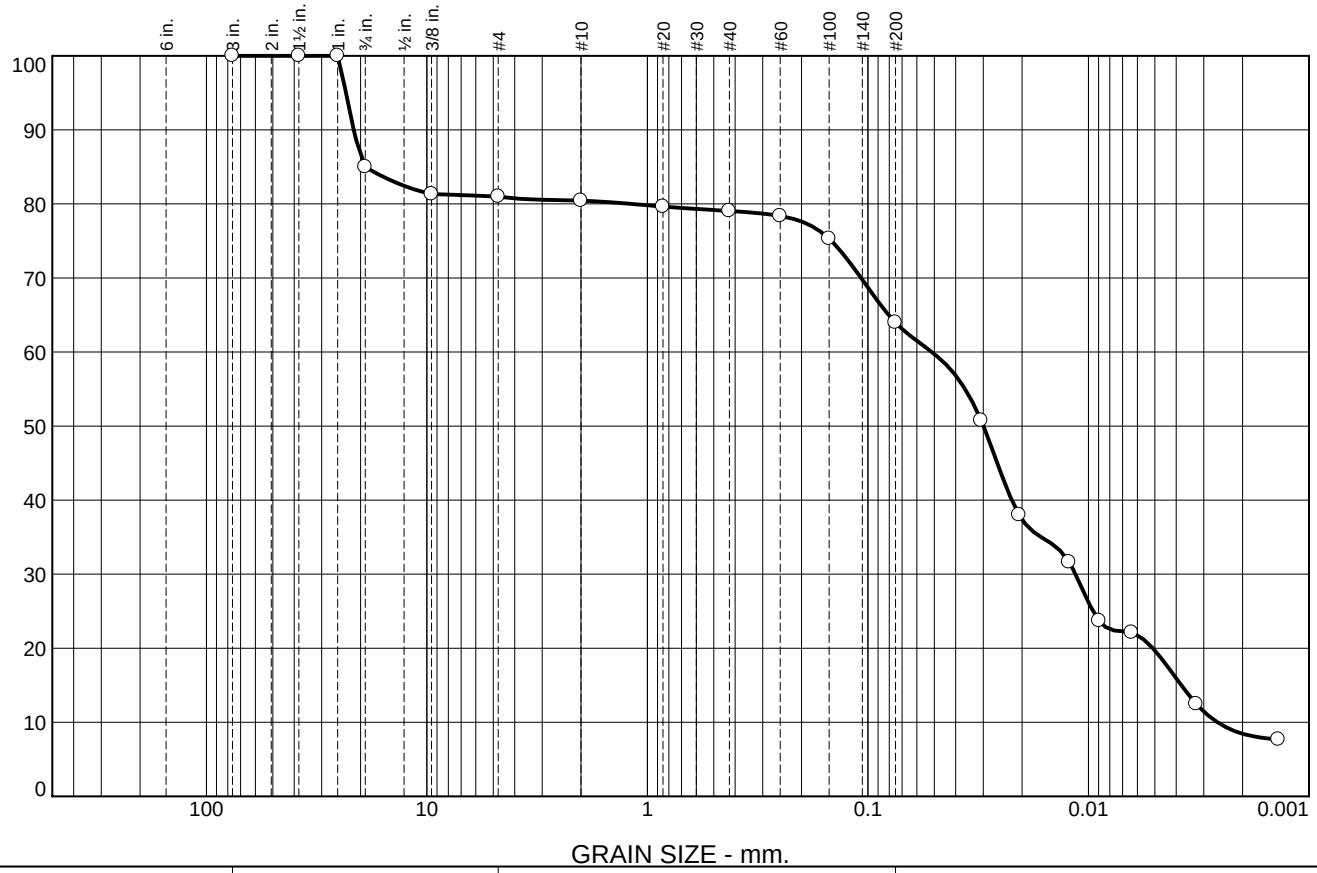
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	15	4	1	1	15	44	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	85		
.375	81		
#4	81		
#10	80		
#20	80		
#40	79		
#60	78		
#100	75		
#200	64		
0.0307 mm.	51		
0.0206 mm.	38		
0.0123 mm.	32		
0.0089 mm.	24		
0.0064 mm.	22		
0.0032 mm.	12		
0.0014 mm.	7.7		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 39 LL= 48 PI= 9

Coefficients

D_{90}= 21.4938 D_{85}= 19.0579 D_{60}= 0.0513
D_{50}= 0.0299 D_{30}= 0.0115 D_{15}= 0.0038
D_{10}= 0.0026 C_u= 19.74 C_c= 0.98

Classification

USCS= ML AASHTO= A-5(6)

Remarks

Source of Sample: B-9 **Depth:** 28.50-30.00
Sample Number: S-9

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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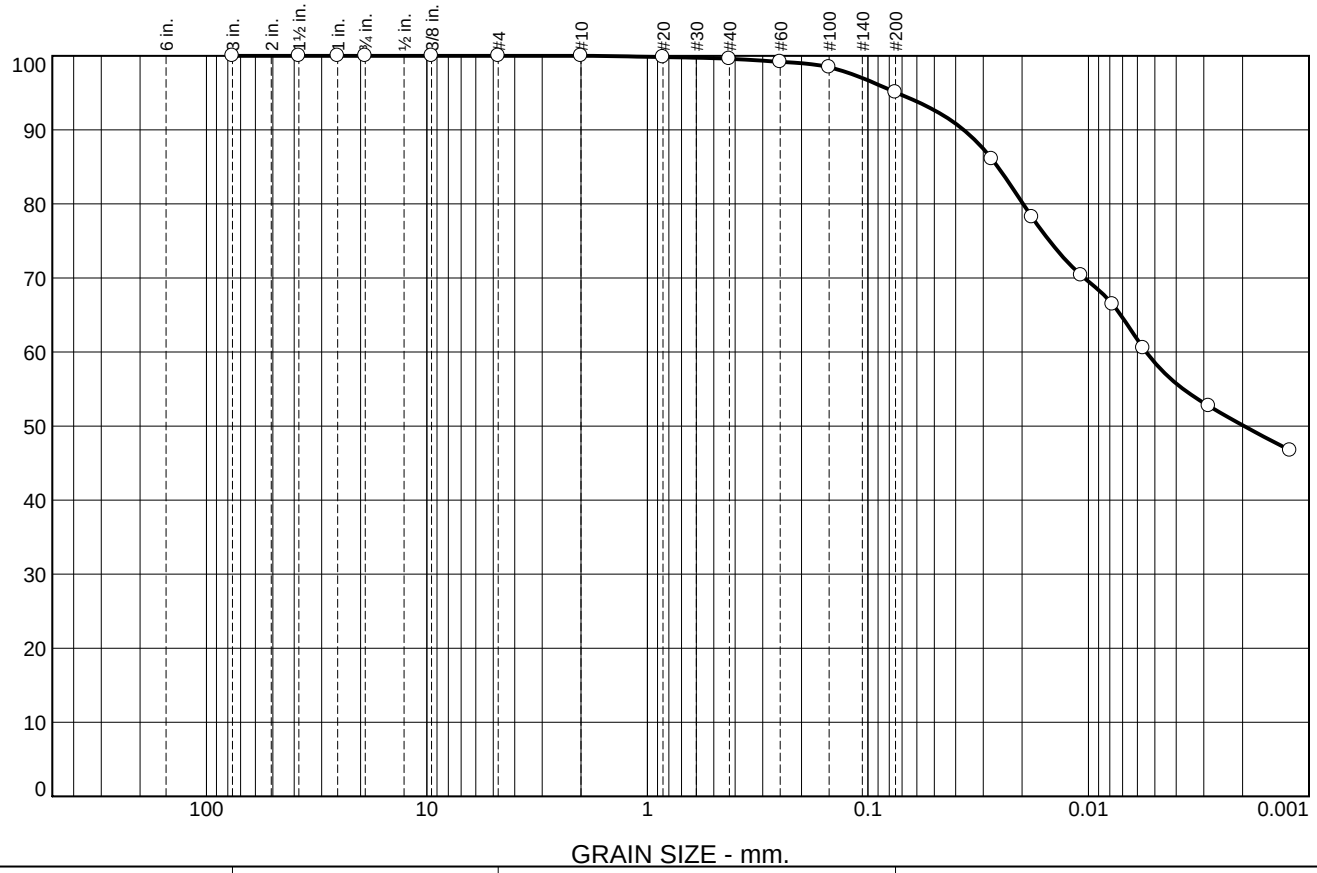
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	0	5	36	59

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	100		
#60	99		
#100	98		
#200	95		
0.0274 mm.	86		
0.0181 mm.	78		
0.0108 mm.	70		
0.0078 mm.	66		
0.0056 mm.	61		
0.0029 mm.	53		
0.0012 mm.	47		

* (no specification provided)

Soil Description

Hard to very stiff, dry to moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 46 LL= 68 PI= 22

Coefficients

D_{90}= 0.0368 D_{85}= 0.0258 D_{60}= 0.0055
D_{50}= 0.0020 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(30)

Remarks

Source of Sample: B-10 **Depth:** 8.50-10.00
Sample Number: S-4

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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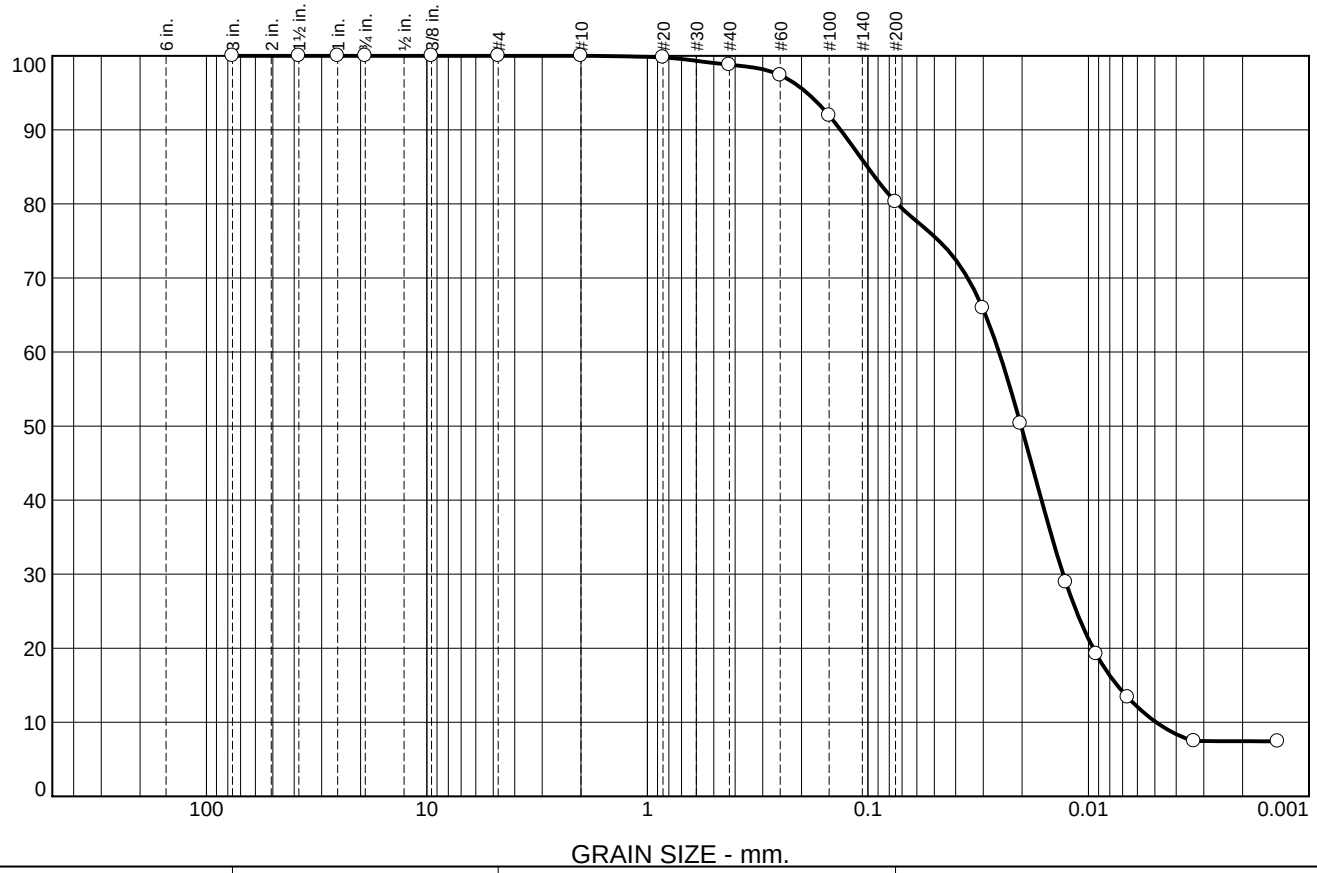
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	19	70	10

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	97		
#100	92		
#200	80		
0.0302 mm.	66		
0.0203 mm.	50		
0.0127 mm.	29		
0.0092 mm.	19		
0.0066 mm.	13		
0.0033 mm.	7.5		
0.0014 mm.	7.4		

* (no specification provided)

Soil Description

Stiff to very hard, moist, orangish tan to tannish brown, Sandy SILT (ML)(A-4) with trace mica

Atterberg Limits

PL= 25 LL= 33 PI= 8

Coefficients

D_{90}= 0.1331 D_{85}= 0.1005 D_{60}= 0.0254
D_{50}= 0.0202 D_{30}= 0.0130 D_{15}= 0.0074
D_{10}= 0.0049 C_u= 5.16 C_c= 1.35

Classification

USCS= ML AASHTO= A-4(6)

Remarks

Source of Sample: B-10 **Depth:** 33.50-35.00
Sample Number: S-9

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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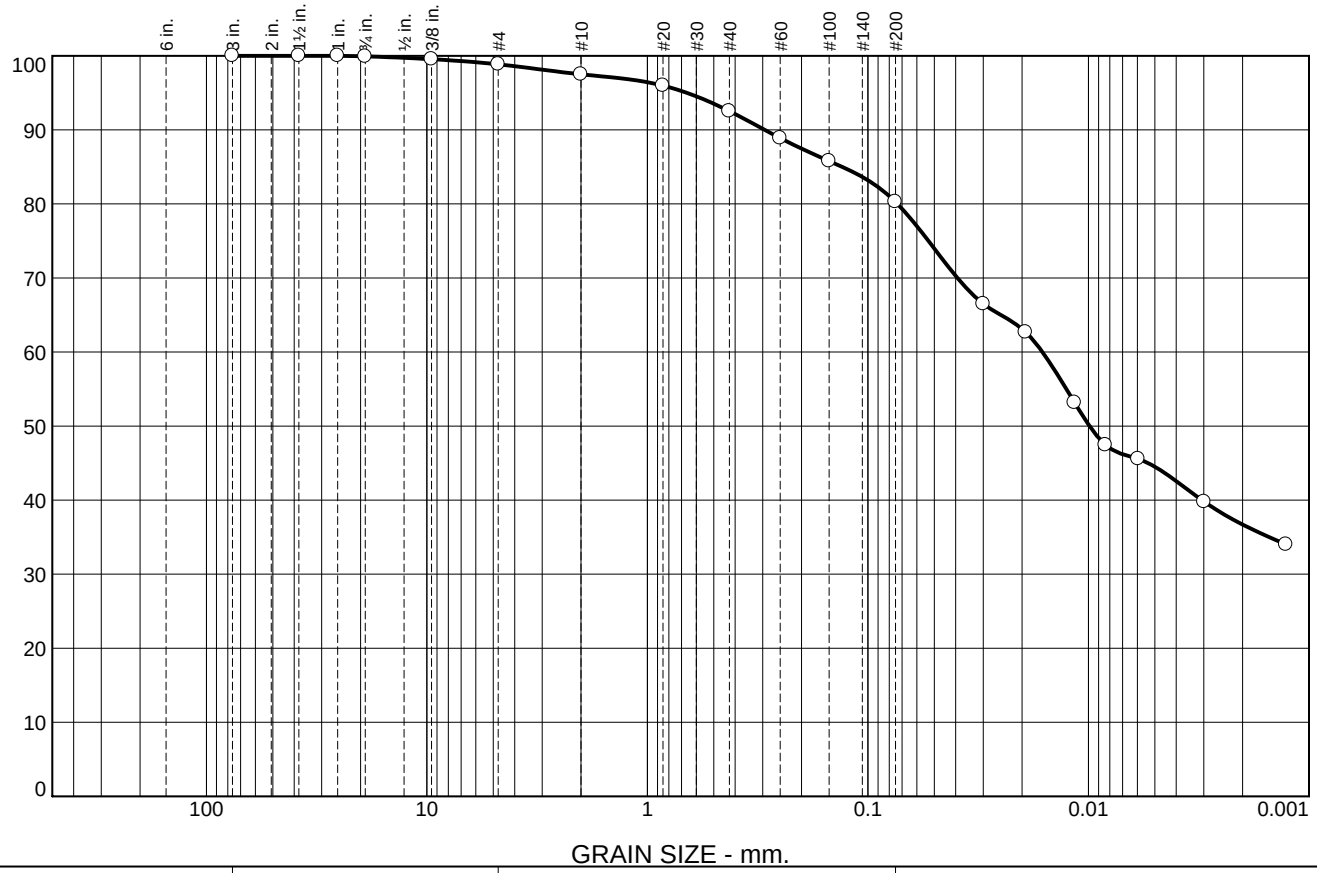
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	4	13	35	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	96		
#40	93		
#60	89		
#100	86		
#200	80		
0.0299 mm.	66		
0.0193 mm.	63		
0.0116 mm.	53		
0.0084 mm.	47		
0.0059 mm.	46		
0.0030 mm.	40		
0.0013 mm.	34		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Plastic CLAY (CH)(A-7-5)

Atterberg Limits

PL= 25 LL= 52 PI= 27

Coefficients

D_{90}= 0.2942 D_{85}= 0.1309 D_{60}= 0.0162
D_{50}= 0.0099 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(23)

Remarks

Source of Sample: B-11 **Depth:** 1.00-4.00
Sample Number: D4S-1494

Date: 11/18/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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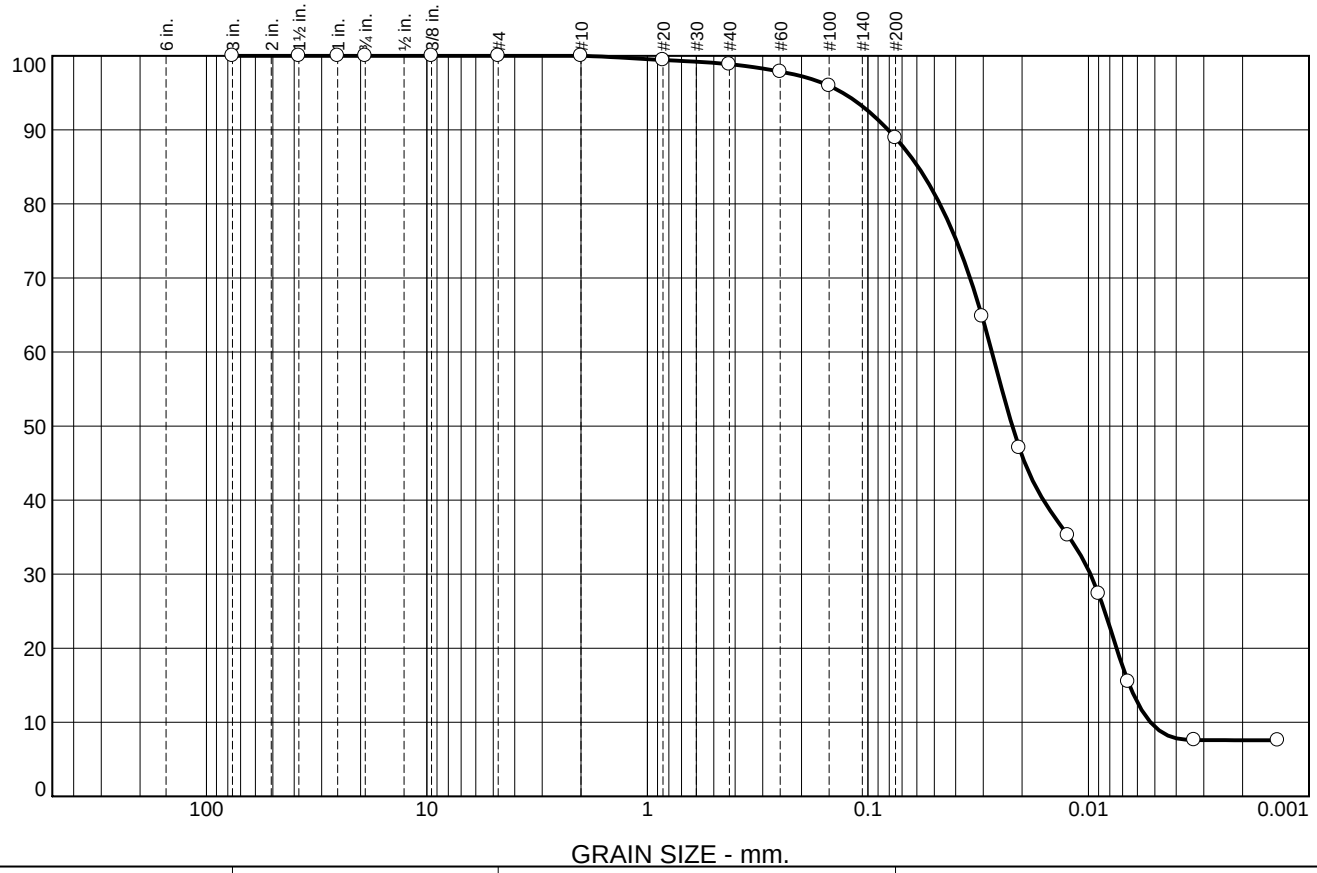
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	10	80	9

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	99		
#60	98		
#100	96		
#200	89		
0.0304 mm.	65		
0.0206 mm.	47		
0.0124 mm.	35		
0.0090 mm.	27		
0.0066 mm.	15		
0.0033 mm.	7.6		
0.0014 mm.	7.6		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica

Atterberg Limits

PL= 39 LL= 44 PI= 5

Coefficients

D_{90}= 0.0810 D_{85}= 0.0592 D_{60}= 0.0274
D_{50}= 0.0222 D_{30}= 0.0098 D_{15}= 0.0065
D_{10}= 0.0052 C_u= 5.24 C_c= 0.67

Classification

USCS= ML AASHTO= A-5(8)

Remarks

Source of Sample: B-11 **Depth:** 23.50-25.00
Sample Number: S-7

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

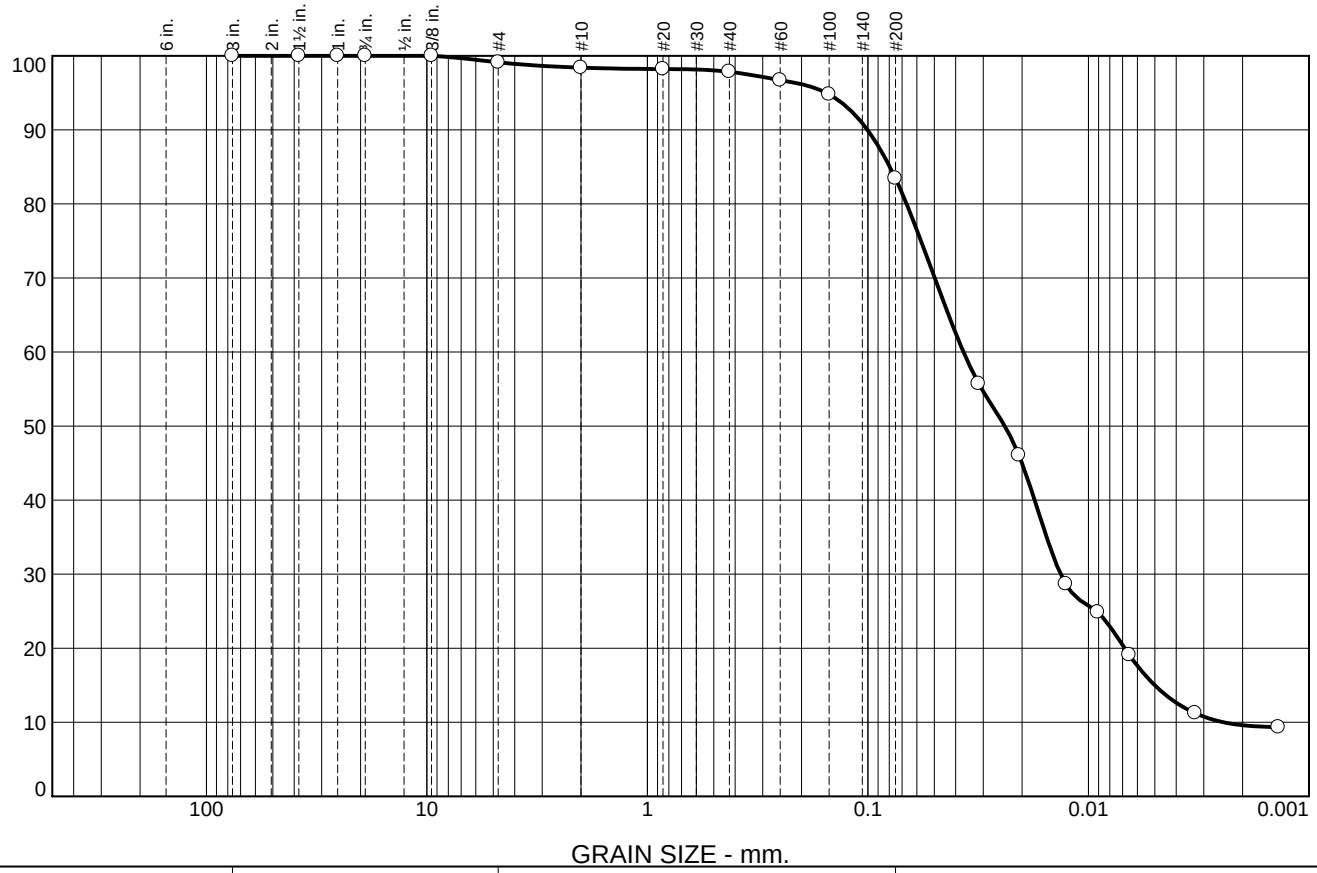
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	0	15	68	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	98		
#40	98		
#60	97		
#100	95		
#200	83		
0.0315 mm.	56		
0.0207 mm.	46		
0.0127 mm.	29		
0.0091 mm.	25		
0.0065 mm.	19		
0.0033 mm.	11		
0.0014 mm.	9.3		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-5) with trace mica

Atterberg Limits

PL= 35 LL= 43 PI= 8

Coefficients

D_{90}= 0.1005 D_{85}= 0.0795 D_{60}= 0.0369
D_{50}= 0.0240 D_{30}= 0.0134 D_{15}= 0.0050
D_{10}= 0.0024 C_u= 15.10 C_c= 1.99

Classification

USCS= ML AASHTO= A-5(9)

Remarks

Source of Sample: B-12 **Depth:** 13.50-15.00
Sample Number: S-6

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

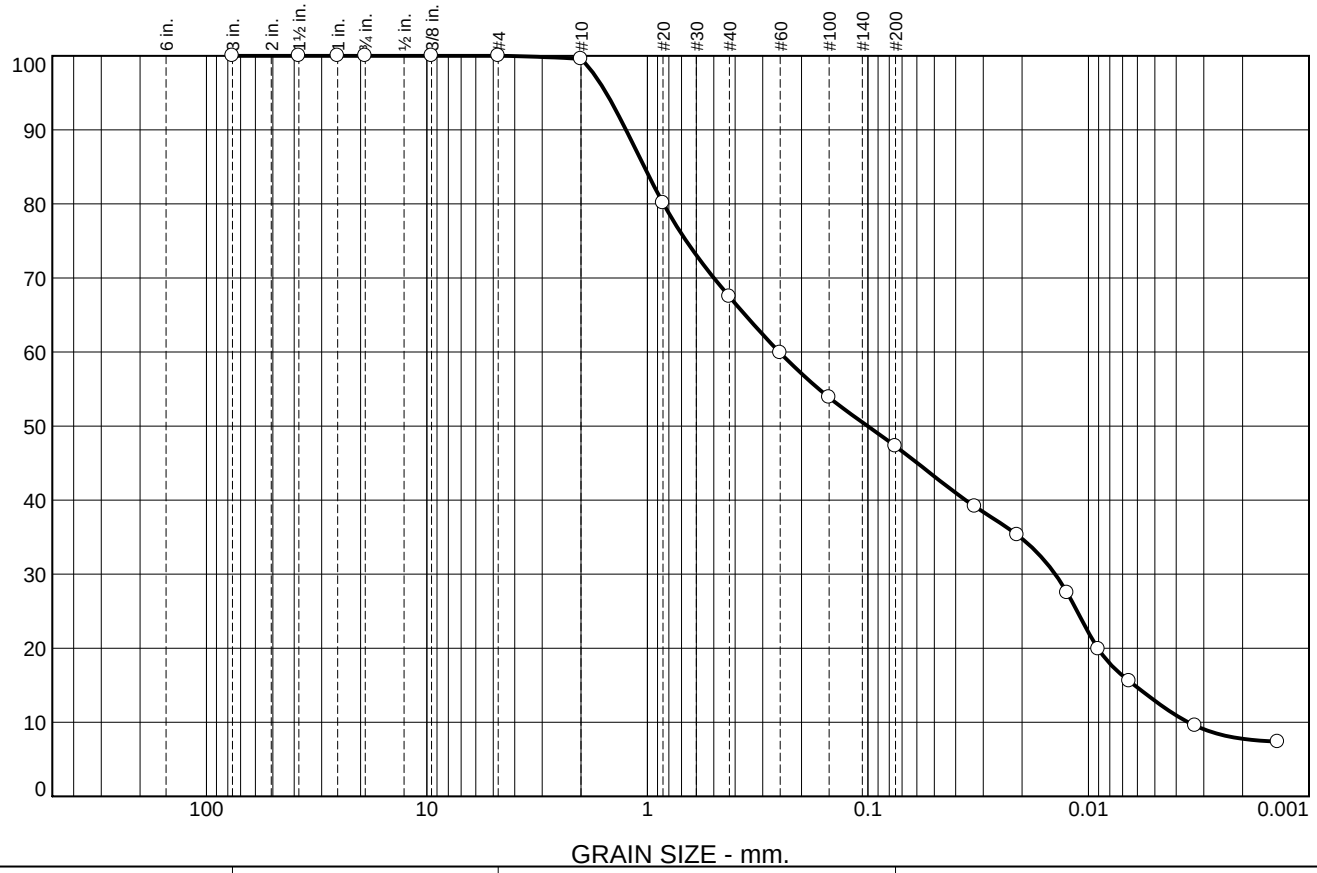
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	33	20	34	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	80		
#40	67		
#60	60		
#100	54		
#200	47		
0.0328 mm.	39		
0.0210 mm.	35		
0.0125 mm.	27		
0.0090 mm.	20		
0.0065 mm.	16		
0.0033 mm.	9.5		
0.0014 mm.	7.4		

* (no specification provided)

Soil Description

Very dense, moist, tannish brown, sampled as Silty Fine to Medium SAND (SM)(A-4)

Atterberg Limits

PL= 23 LL= 28 PI= 5

Coefficients

D_{90}= 1.2508 D_{85}= 1.0328 D_{60}= 0.2523
D_{50}= 0.1004 D_{30}= 0.0142 D_{15}= 0.0062
D_{10}= 0.0035 C_u= 71.54 C_c= 0.23

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Source of Sample: B-15 **Depth:** 6.00-7.42
Sample Number: S-4

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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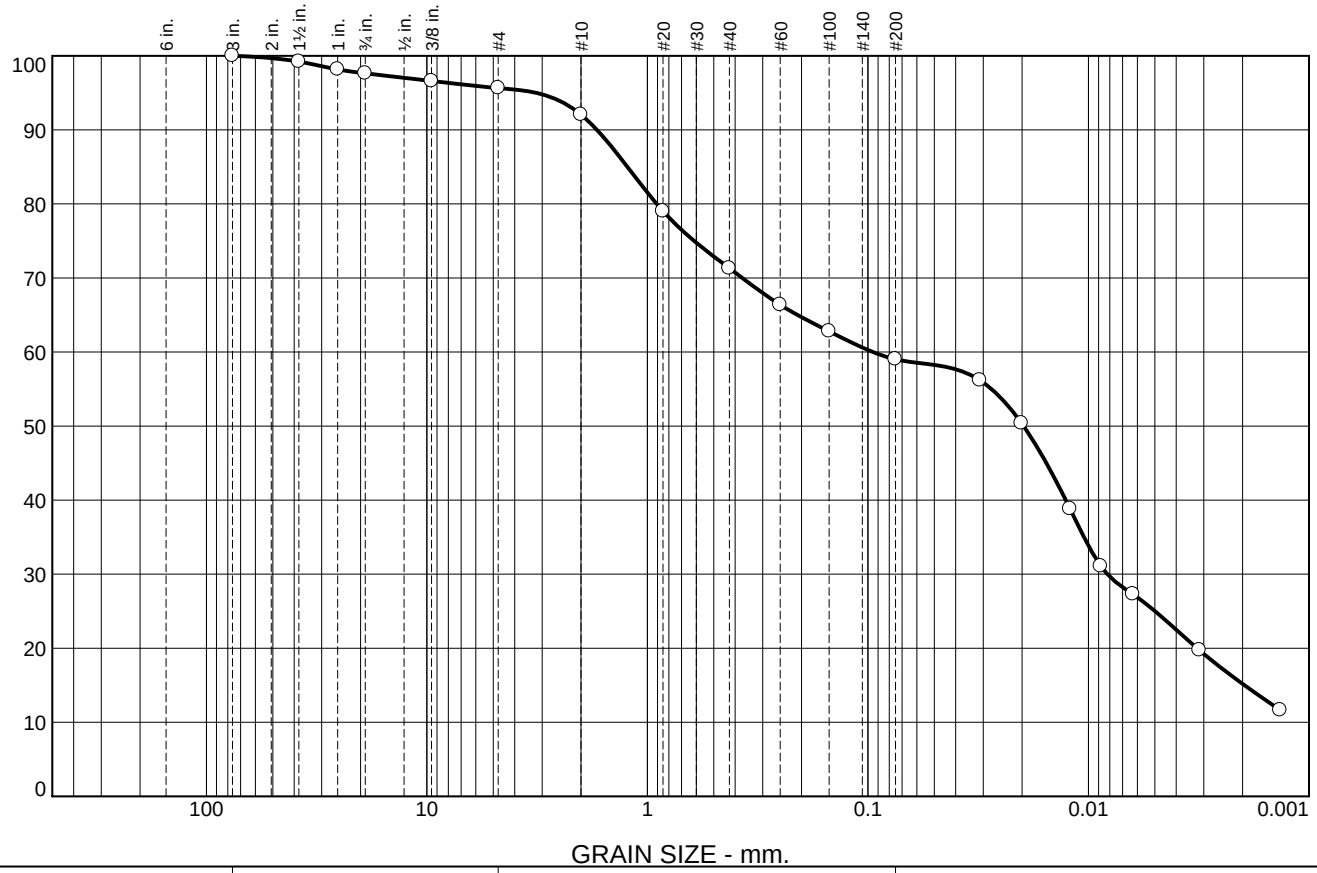
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	2	2	4	21	12	34	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	99		
1	98		
.75	98		
.375	97		
#4	96		
#10	92		
#20	79		
#40	71		
#60	66		
#100	63		
#200	59		
0.0311 mm.	56		
0.0201 mm.	50		
0.0121 mm.	39		
0.0088 mm.	31		
0.0063 mm.	27		
0.0031 mm.	20		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Stiff, moist, orangish gray to brown, Sandy SILT (ML) (A-4) with trace gravel

Atterberg Limits

PL= 28 LL= 35 PI= 7

Coefficients

D_{90}= 1.6944 D_{85}= 1.2327 D_{60}= 0.0949
D_{50}= 0.0197 D_{30}= 0.0082 D_{15}= 0.0020
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: B-16 **Depth:** 1.00-4.00
Sample Number: D4S-1503 **Date:** 10/27/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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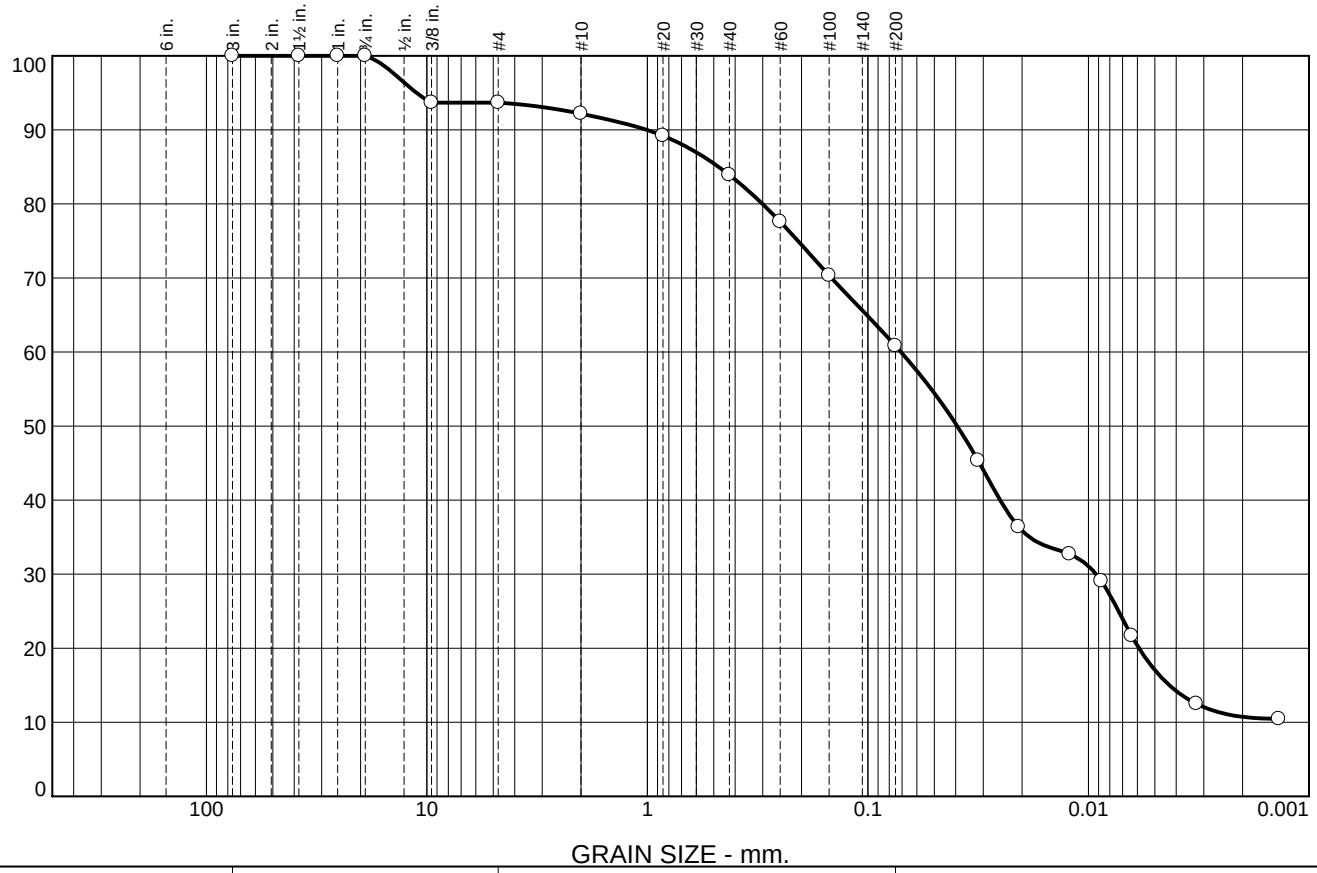
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	2	8	23	44	17

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	94		
#4	94		
#10	92		
#20	89		
#40	84		
#60	78		
#100	70		
#200	61		
0.0317 mm.	45		
0.0208 mm.	36		
0.0122 mm.	33		
0.0087 mm.	29		
0.0064 mm.	22		
0.0032 mm.	13		
0.0014 mm.	10		

* (no specification provided)

Soil Description

Very stiff to hard, moist, orangish tan to brown, Sandy CLAY (CL)(A-6)

Atterberg Limits

PL= 24 LL= 36 PI= 12

Coefficients

D_{90}= 1.0081 D_{85}= 0.4758 D_{60}= 0.0709
D_{50}= 0.0394 D_{30}= 0.0092 D_{15}= 0.0043
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: B-16 **Depth:** 8.50-9.25
Sample Number: S-4

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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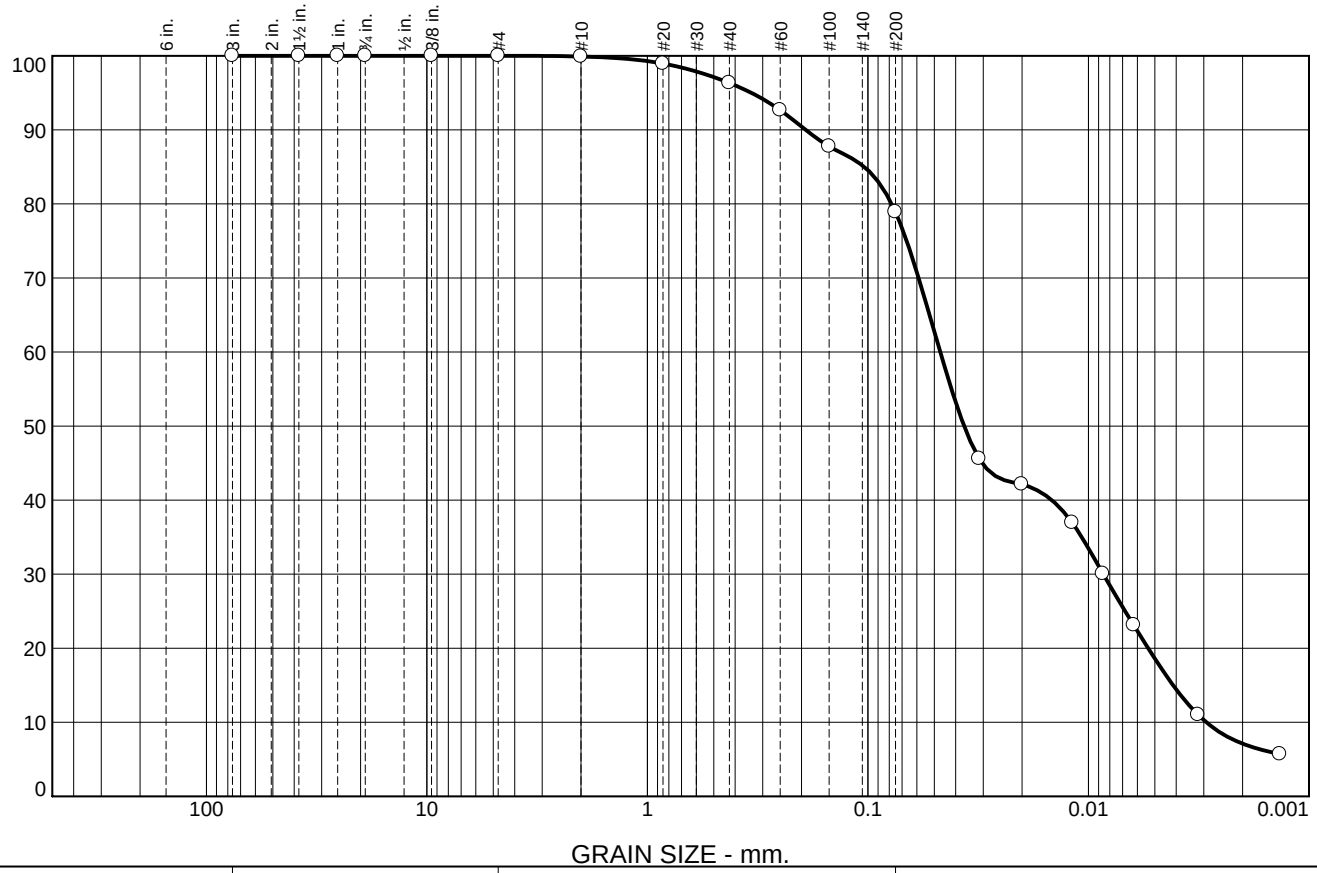
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	17	60	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	96		
#60	93		
#100	88		
#200	79		
0.0313 mm.	46		
0.0201 mm.	42		
0.0118 mm.	37		
0.0086 mm.	30		
0.0062 mm.	23		
0.0032 mm.	11		
0.0014 mm.	5.7		

* (no specification provided)

Soil Description

Hard to very hard, moist, tannish brown, Sandy SILT (ML) (A-6)

Atterberg Limits

PL= 28 LL= 40 PI= 12

Coefficients

D_{90}= 0.1916 D_{85}= 0.1040 D_{60}= 0.0470
D_{50}= 0.0366 D_{30}= 0.0086 D_{15}= 0.0041
D_{10}= 0.0029 C_u= 16.07 C_c= 0.53

Classification

USCS= ML AASHTO= A-6(10)

Remarks

Source of Sample: B-17 **Depth:** 8.00-9.67
Sample Number: S-5

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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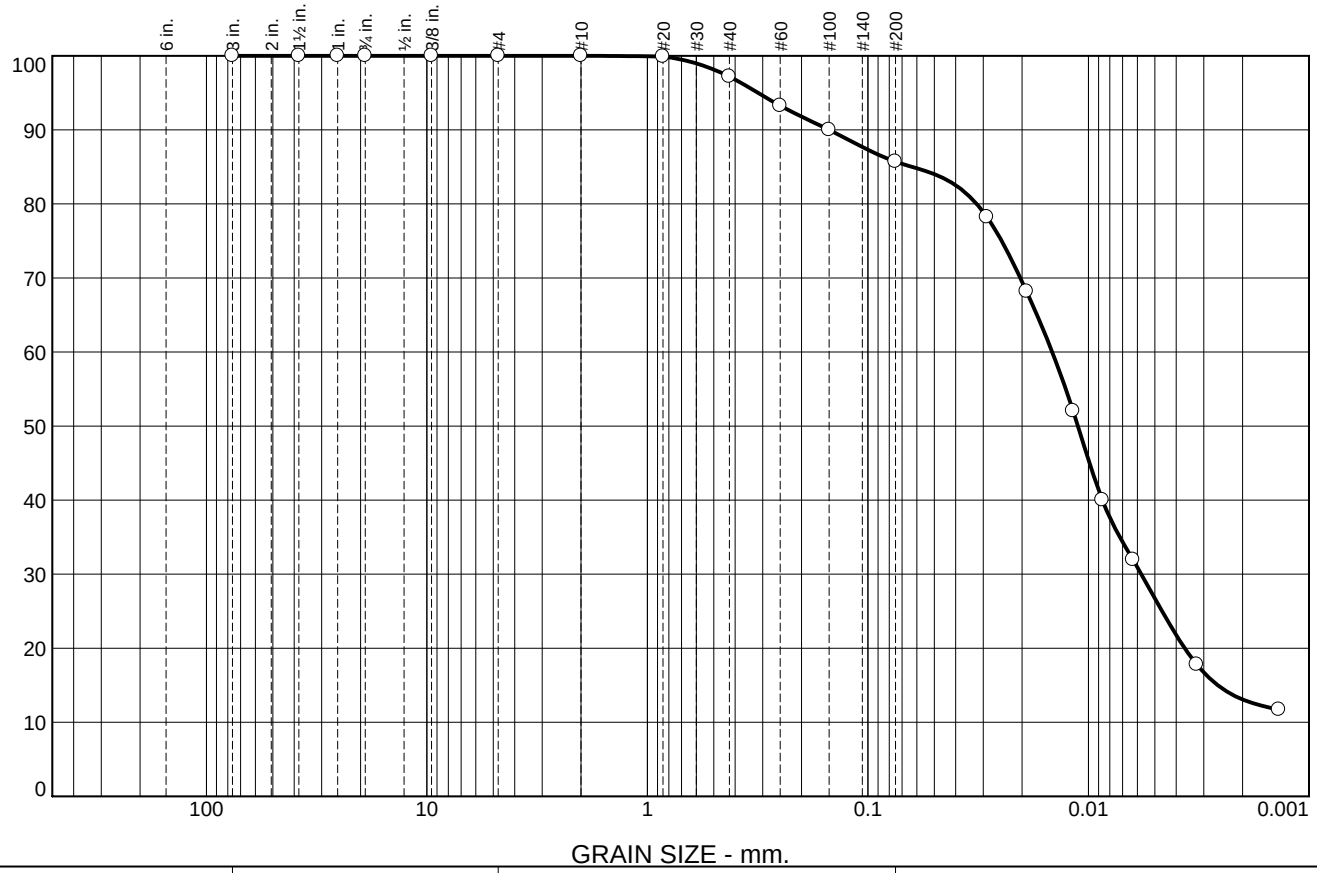
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	11	59	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	97		
#60	93		
#100	90		
#200	86		
0.0289 mm.	78		
0.0191 mm.	68		
0.0117 mm.	52		
0.0087 mm.	40		
0.0063 mm.	32		
0.0032 mm.	18		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Very hard, moist, orangish tan, sampled as Sandy SILT (ML)(A-6)

Atterberg Limits

PL= 26 LL= 40 PI= 14

Coefficients

D_{90}= 0.1500 D_{85}= 0.0630 D_{60}= 0.0146
D_{50}= 0.0112 D_{30}= 0.0058 D_{15}= 0.0026
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(13)

Remarks

Source of Sample: B-18 **Depth:** 18.50-19.83
Sample Number: S-7

Date: 10/29/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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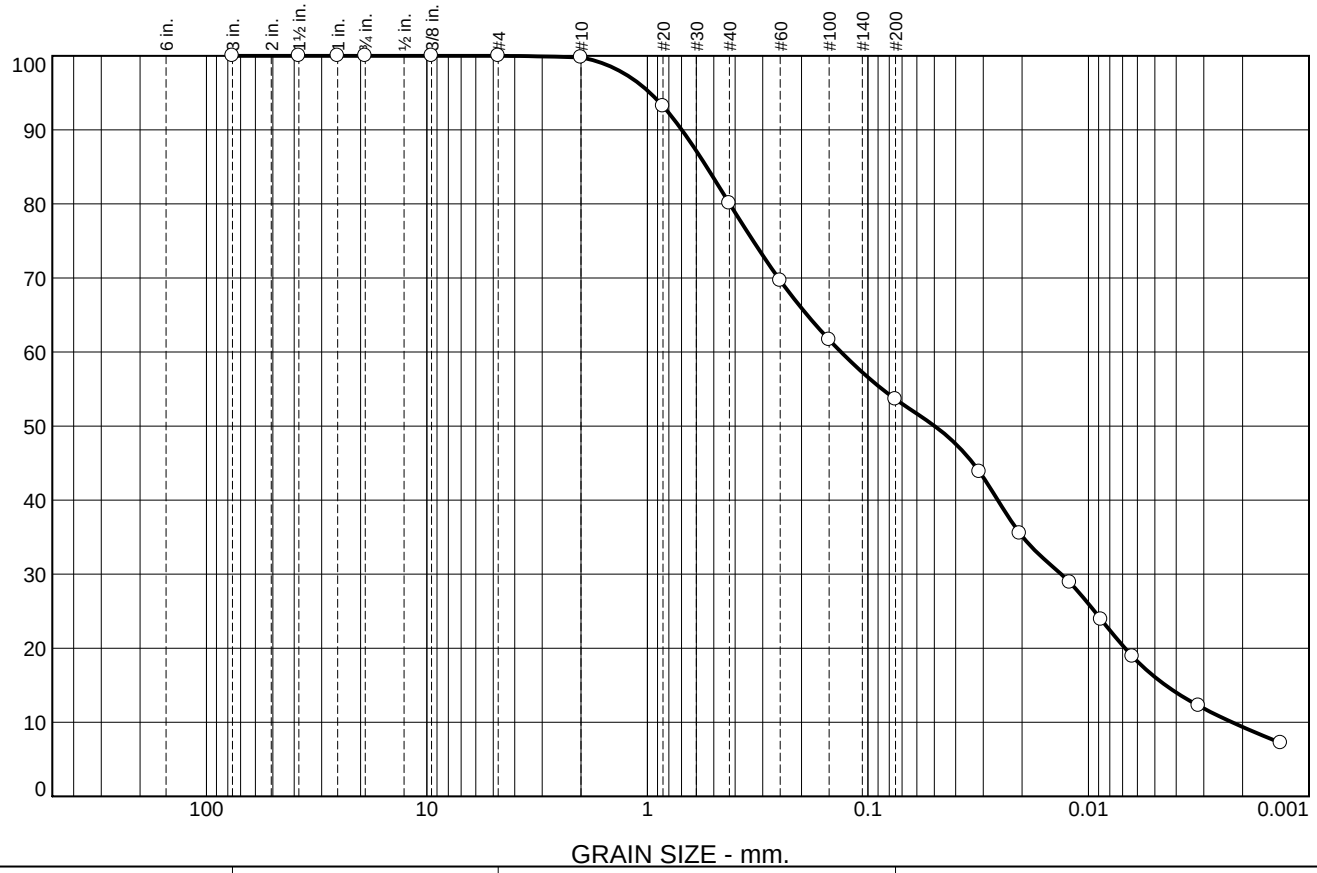
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	20	26	38	16

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	93		
#40	80		
#60	70		
#100	62		
#200	54		
0.0312 mm.	44		
0.0205 mm.	36		
0.0122 mm.	29		
0.0088 mm.	24		
0.0063 mm.	19		
0.0032 mm.	12		
0.0013 mm.	7.2		

* (no specification provided)

Soil Description

Very hard, moist, orangish tan to brown, Sandy Silty CLAY (CL-ML)(A-4) with trace mica and gravel-sized rock fragments

Atterberg Limits

PL= 23 LL= 30 PI= 7

Coefficients

D_{90}= 0.6985 D_{85}= 0.5388 D_{60}= 0.1324
D_{50}= 0.0499 D_{30}= 0.0133 D_{15}= 0.0045
D_{10}= 0.0022 C_u= 59.33 C_c= 0.60

Classification

USCS= CL-ML AASHTO= A-4(2)

Remarks

Source of Sample: B-19 **Depth:** 6.00-7.50
Sample Number: S-3 **Date:** 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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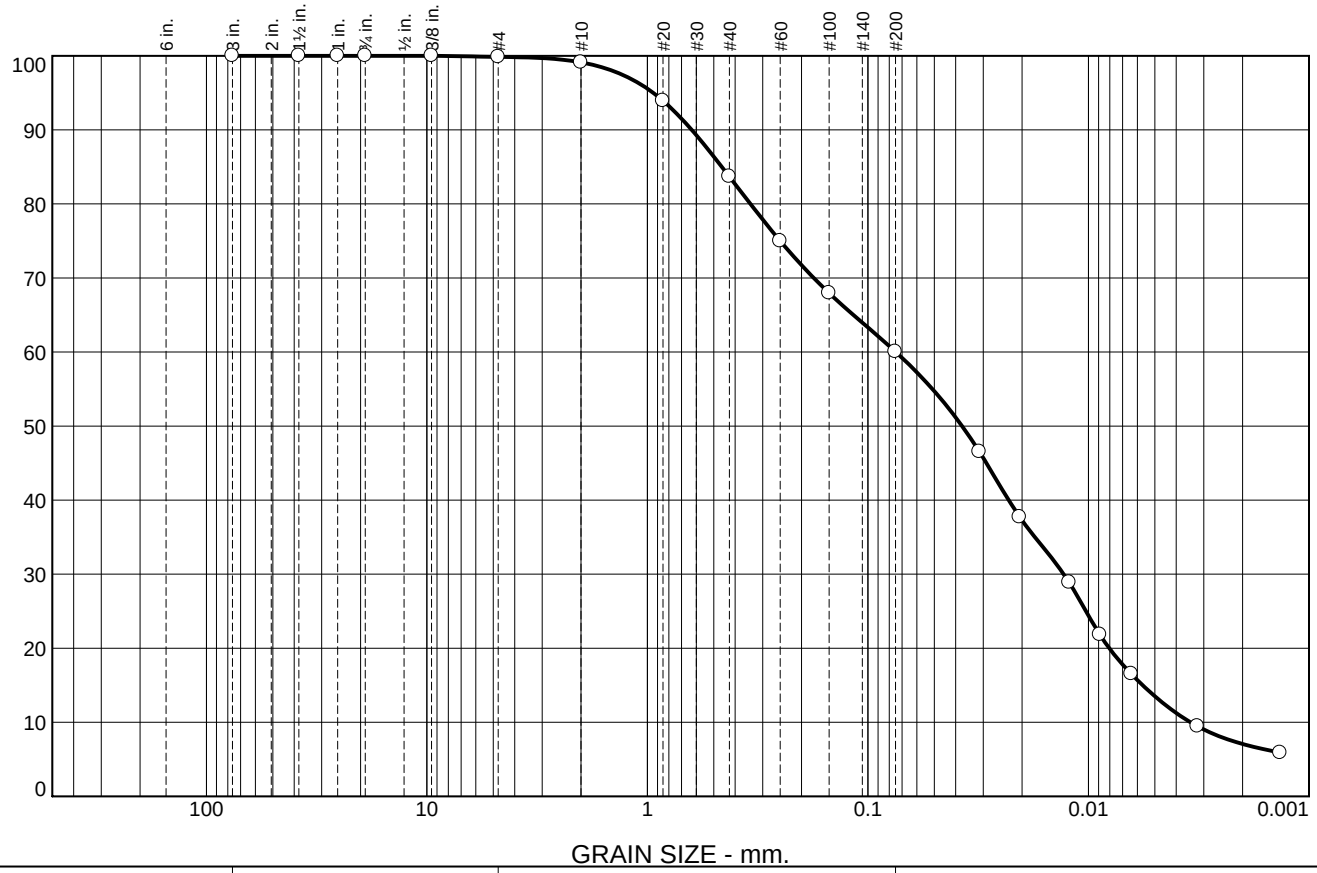
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	15	24	46	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	94		
#40	84		
#60	75		
#100	68		
#200	60		
0.0312 mm.	47		
0.0205 mm.	38		
0.0122 mm.	29		
0.0089 mm.	22		
0.0064 mm.	17		
0.0032 mm.	9.5		
0.0014 mm.	5.9		

* (no specification provided)

Soil Description

Hard, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel-sized rock fragments

Atterberg Limits

PL= 26 LL= 31 PI= 5

Coefficients

D_{90}= 0.6297 D_{85}= 0.4597 D_{60}= 0.0748
D_{50}= 0.0374 D_{30}= 0.0129 D_{15}= 0.0057
D_{10}= 0.0034 C_u= 21.70 C_c= 0.65

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: B-20 **Depth:** 2.00-4.00
Sample Number: S-2

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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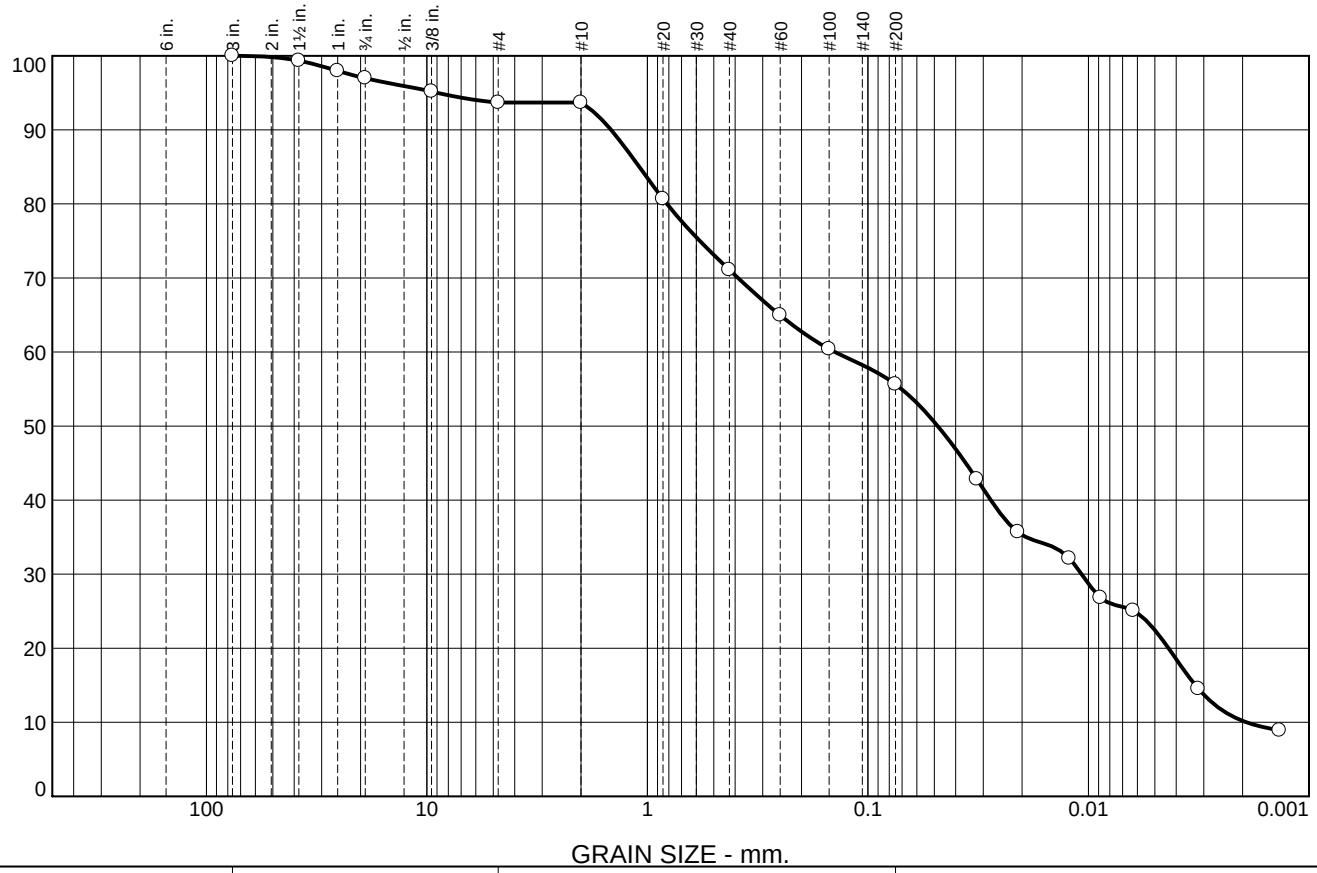
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	3	3	0	23	15	34	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	99		
1	98		
.75	97		
.375	95		
#4	94		
#10	94		
#20	81		
#40	71		
#60	65		
#100	60		
#200	56		
0.0321 mm.	43		
0.0209 mm.	36		
0.0122 mm.	32		
0.0088 mm.	27		
0.0063 mm.	25		
0.0032 mm.	15		
0.0014 mm.	8.9		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, orangish tan to brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 21 LL= 36 PI= 15

Coefficients

D_{90}= 1.4627 D_{85}= 1.0885 D_{60}= 0.1411
D_{50}= 0.0482 D_{30}= 0.0107 D_{15}= 0.0033
D_{10}= 0.0019 C_u= 73.39 C_c= 0.43

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: B-21 **Depth:** 1.00-4.00
Sample Number: D4S-1496 **Date:** 10/27/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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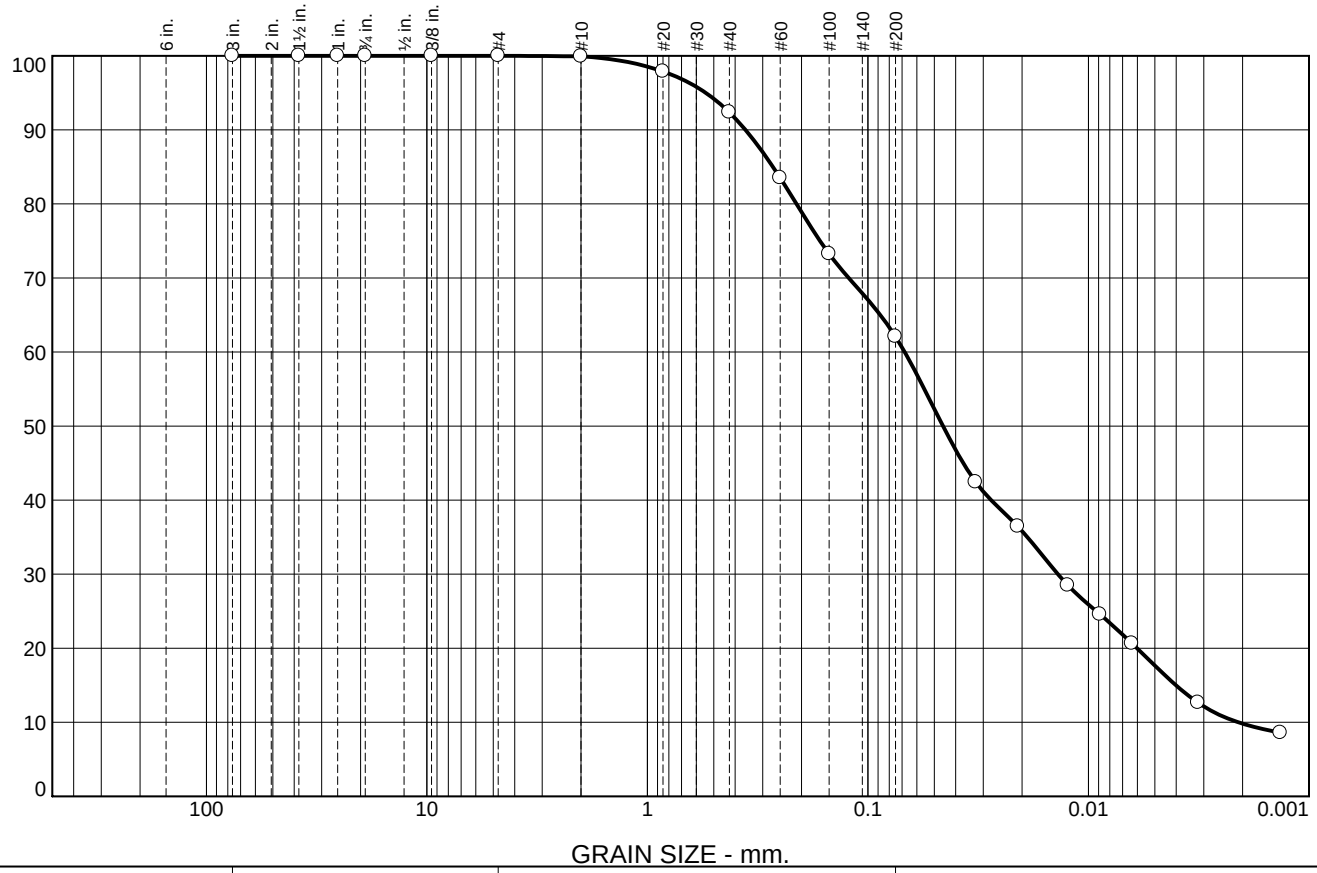
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	8	30	44	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	98		
#40	92		
#60	84		
#100	73		
#200	62		
0.0324 mm.	42		
0.0209 mm.	36		
0.0124 mm.	29		
0.0089 mm.	25		
0.0063 mm.	21		
0.0032 mm.	13		
0.0013 mm.	8.6		

* (no specification provided)

Soil Description

Hard, moist, tannish brown, Sandy CLAY (CL)(A-6)

Atterberg Limits

PL= 17 LL= 30 PI= 13

Coefficients

D_{90}= 0.3594 D_{85}= 0.2697 D_{60}= 0.0681
D_{50}= 0.0457 D_{30}= 0.0138 D_{15}= 0.0040
D_{10}= 0.0021 C_u= 32.54 C_c= 1.33

Classification

USCS= CL AASHTO= A-6(5)

Remarks

Source of Sample: B-21 **Depth:** 6.50-8.00
Sample Number: S-4

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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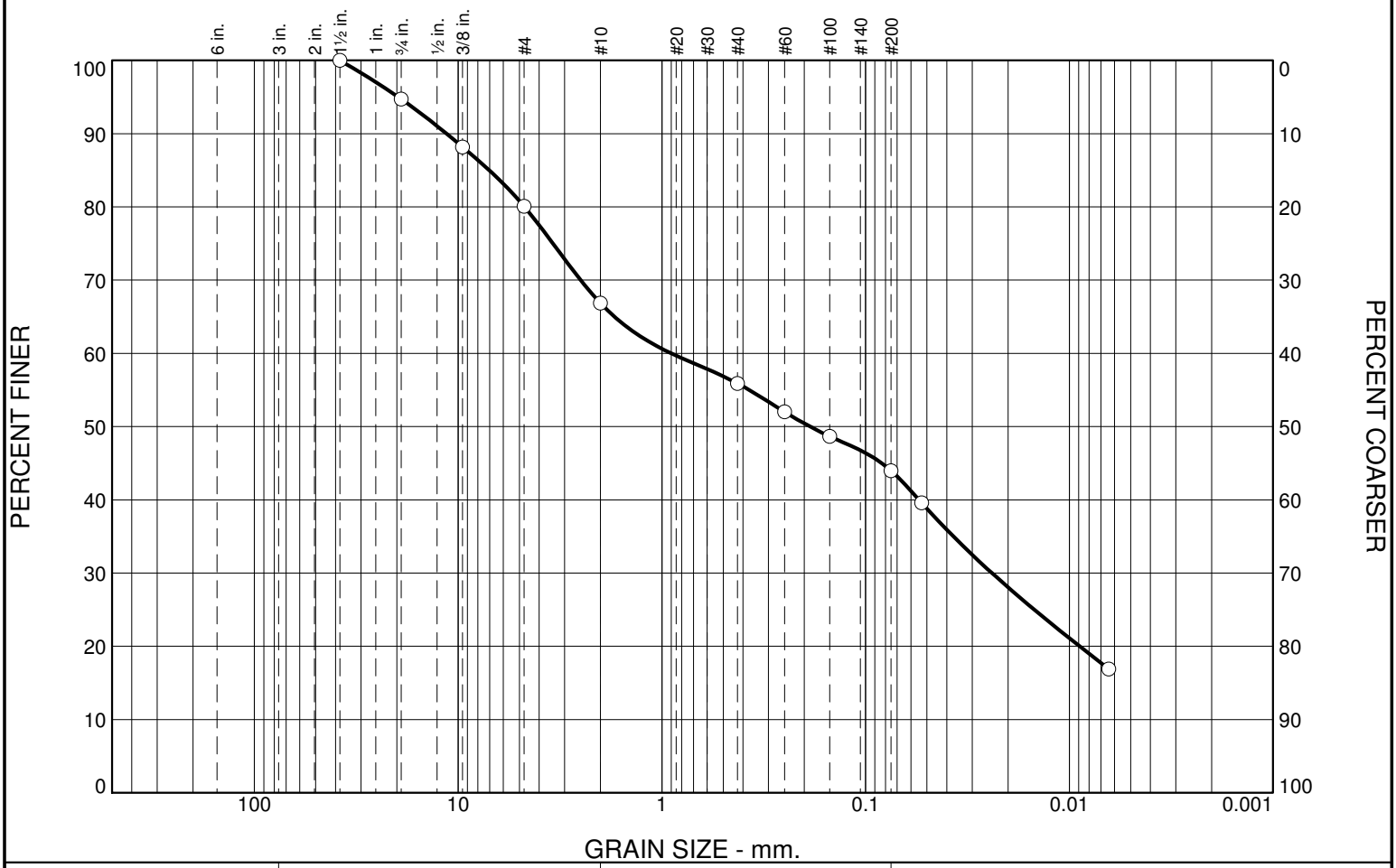
Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	33.1	11.0	11.9	44.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	94.7		
3/8	88.2		
#4	80.1		
#10	66.9		
#40	55.9		
#60	52.0		
#100	48.7		
#200	44.0		
#270	39.6		
0.0064 mm.	16.9		

* (no specification provided)

Soil Description

Loose, moist, reddish brown to tan, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 27 LL= 32 PI= 5

Coefficients

D_{90}= 11.4213 D_{85}= 7.0425 D_{60}= 0.8974
D_{50}= 0.1871 D_{30}= 0.0240 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

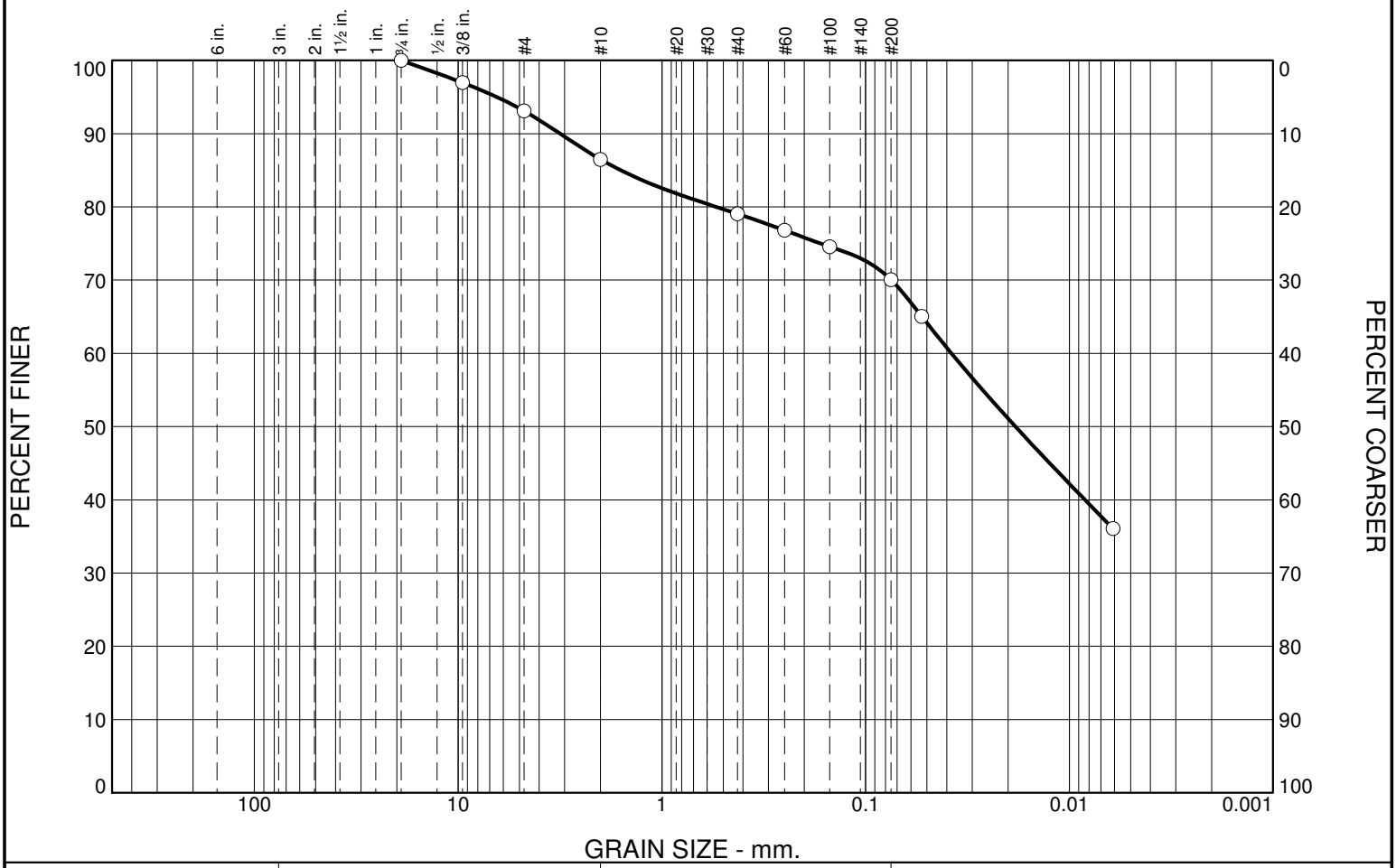
Source of Sample: C-1 **Depth:** 0.50-4.00
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	13.5	7.4	9.0	70.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	97.0		
#4	93.1		
#10	86.5		
#40	79.1		
#60	76.8		
#100	74.6		
#200	70.1		
#270	65.0		
0.0061 mm.	36.1		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-6) with slight gravel

Atterberg Limits

PL= 28 LL= 39 PI= 11

Coefficients

D_{90}= 3.1555 D_{85}= 1.5907 D_{60}= 0.0379
D_{50}= 0.0184 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(7)

Remarks

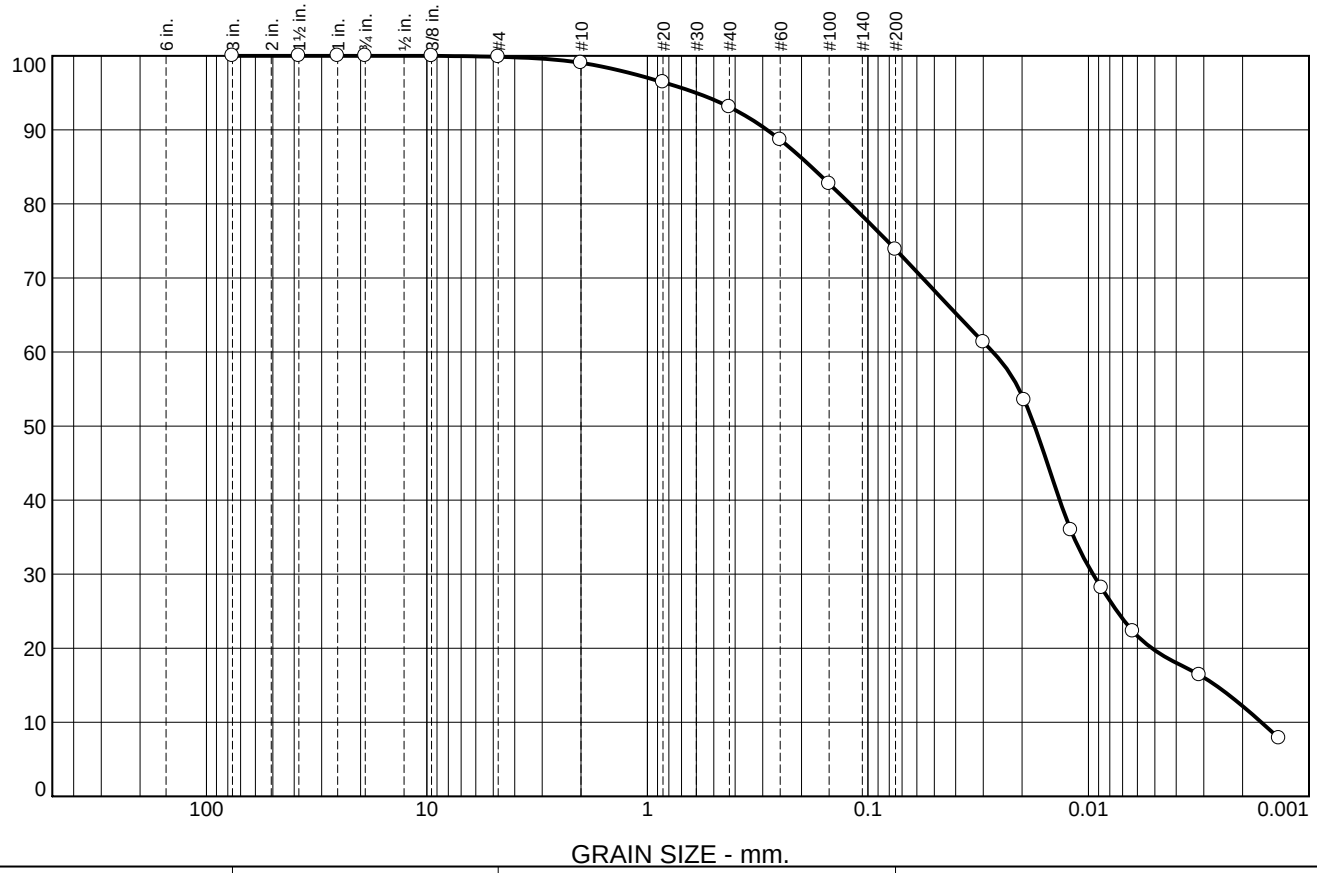
Source of Sample: C-1 **Depth:** 8.50-10.00
Sample Number: S-5 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	6	19	54	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	96		
#40	93		
#60	89		
#100	83		
#200	74		
0.0299 mm.	61		
0.0195 mm.	54		
0.0120 mm.	36		
0.0087 mm.	28		
0.0063 mm.	22		
0.0031 mm.	16		
0.0014 mm.	7.8		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 24 LL= 31 PI= 7

Coefficients

D_{90}= 0.2869 D_{85}= 0.1806 D_{60}= 0.0271
D_{50}= 0.0175 D_{30}= 0.0095 D_{15}= 0.0026
D_{10}= 0.0016 C_u= 16.48 C_c= 2.04

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: C-1 **Depth:** 1.00-4.00
Sample Number: D4S-1500 **Date:** 10/24/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

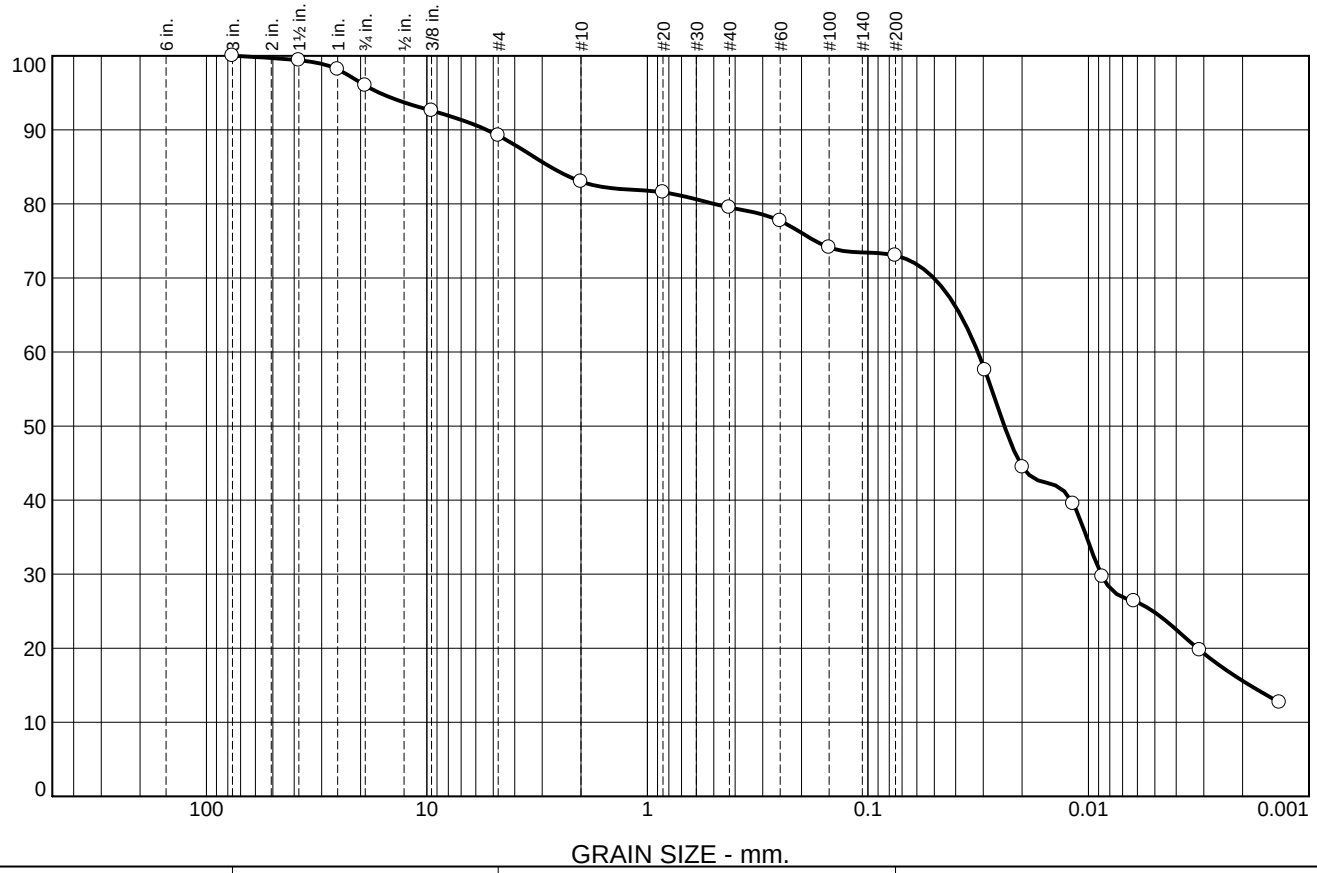
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	7	6	3	7	48	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	99		
1	98		
.75	96		
.375	93		
#4	89		
#10	83		
#20	82		
#40	80		
#60	78		
#100	74		
#200	73		
0.0295 mm.	58		
0.0199 mm.	44		
0.0117 mm.	40		
0.0087 mm.	30		
0.0062 mm.	26		
0.0031 mm.	20		
0.0014 mm.	13		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, dark brown to brown, Sandy SILT (ML)(A-6) with trace gravel

Atterberg Limits

PL= 26 LL= 40 PI= 14

Coefficients

D_{90}= 5.3580 D_{85}= 2.7530 D_{60}= 0.0317
D_{50}= 0.0241 D_{30}= 0.0088 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(10)

Remarks

Source of Sample: C-2 **Depth:** 1.00-4.00
Sample Number: D4S-1501 **Date:** 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

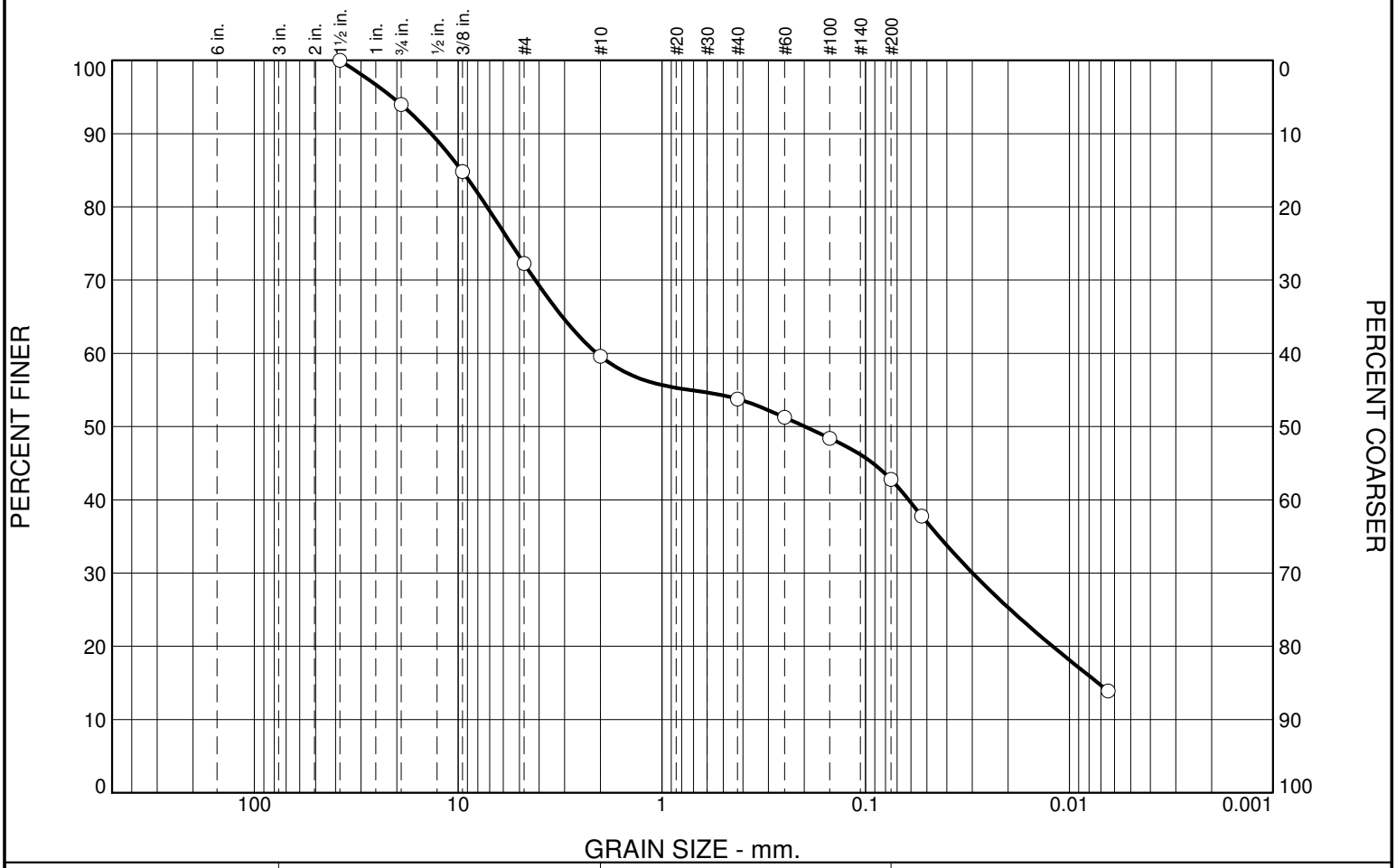
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	40.4	5.8	11.0	42.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	94.0		
3/8	84.8		
#4	72.3		
#10	59.6		
#40	53.8		
#60	51.3		
#100	48.4		
#200	42.8		
#270	37.8		
0.0065 mm.	13.9		

* (no specification provided)

Soil Description

Medium dense, moist, brown to grayish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel-sized rock fragments

Atterberg Limits

PL= 33 LL= 37 PI= 4

Coefficients

D_{90}= 13.5811 D_{85}= 9.6408 D_{60}= 2.0796
D_{50}= 0.1987 D_{30}= 0.0299 D_{15}= 0.0072
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

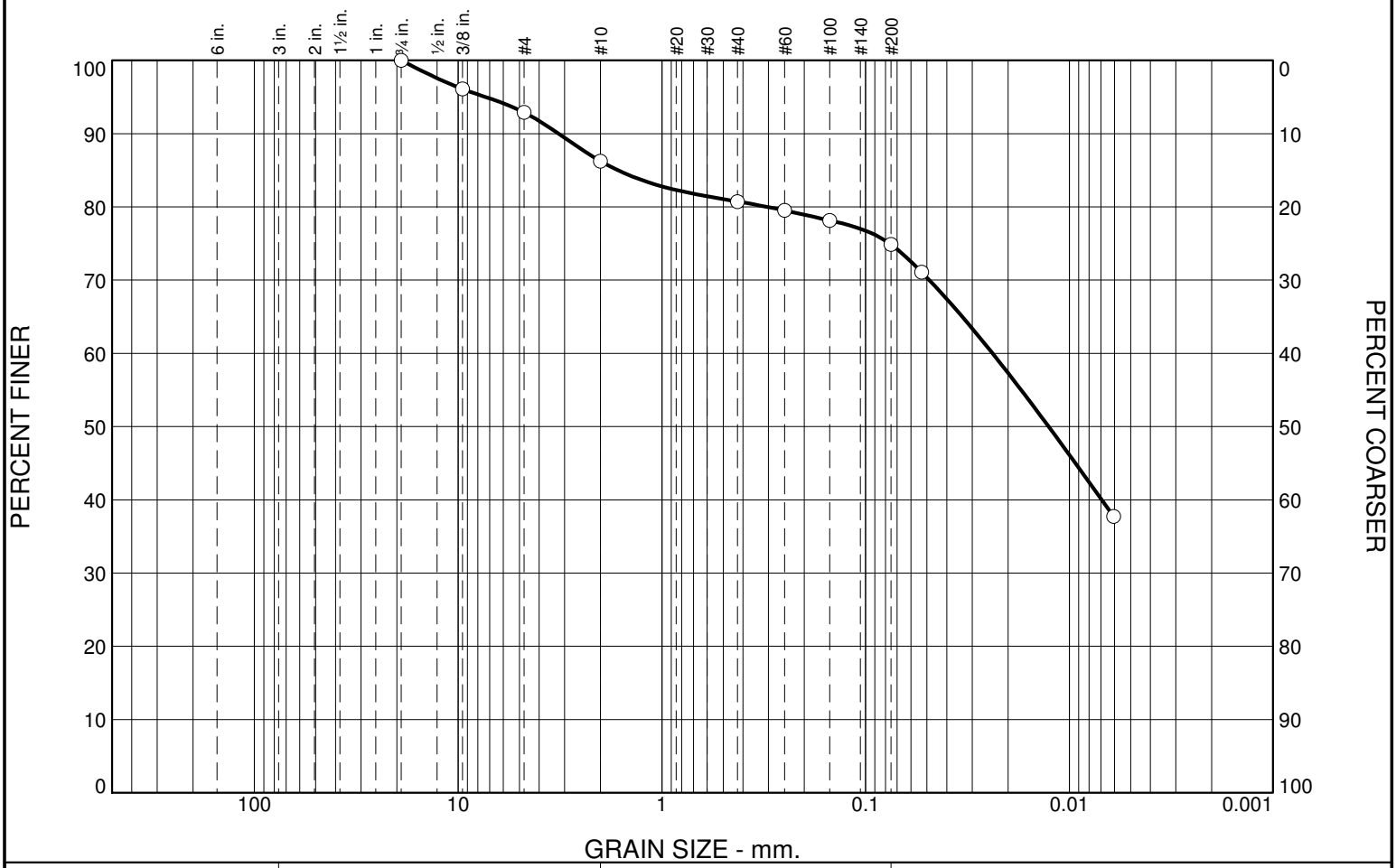
Source of Sample: C-2 **Depth:** 4.00-8.00
Sample Number: S-3/S-4 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	13.8	5.5	5.8	74.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	96.1		
#4	92.9		
#10	86.2		
#40	80.7		
#60	79.5		
#100	78.1		
#200	74.9		
#270	71.1		
0.0061 mm.	37.7		

* (no specification provided)

Soil Description

Medium stiff, moist, brown, Sandy SILT (ML) (A-6)

Atterberg Limits

PL= 28 LL= 40 PI= 12

Coefficients

D_{90}= 3.2078 D_{85}= 1.6421 D_{60}= 0.0238
D_{50}= 0.0126 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(9)

Remarks

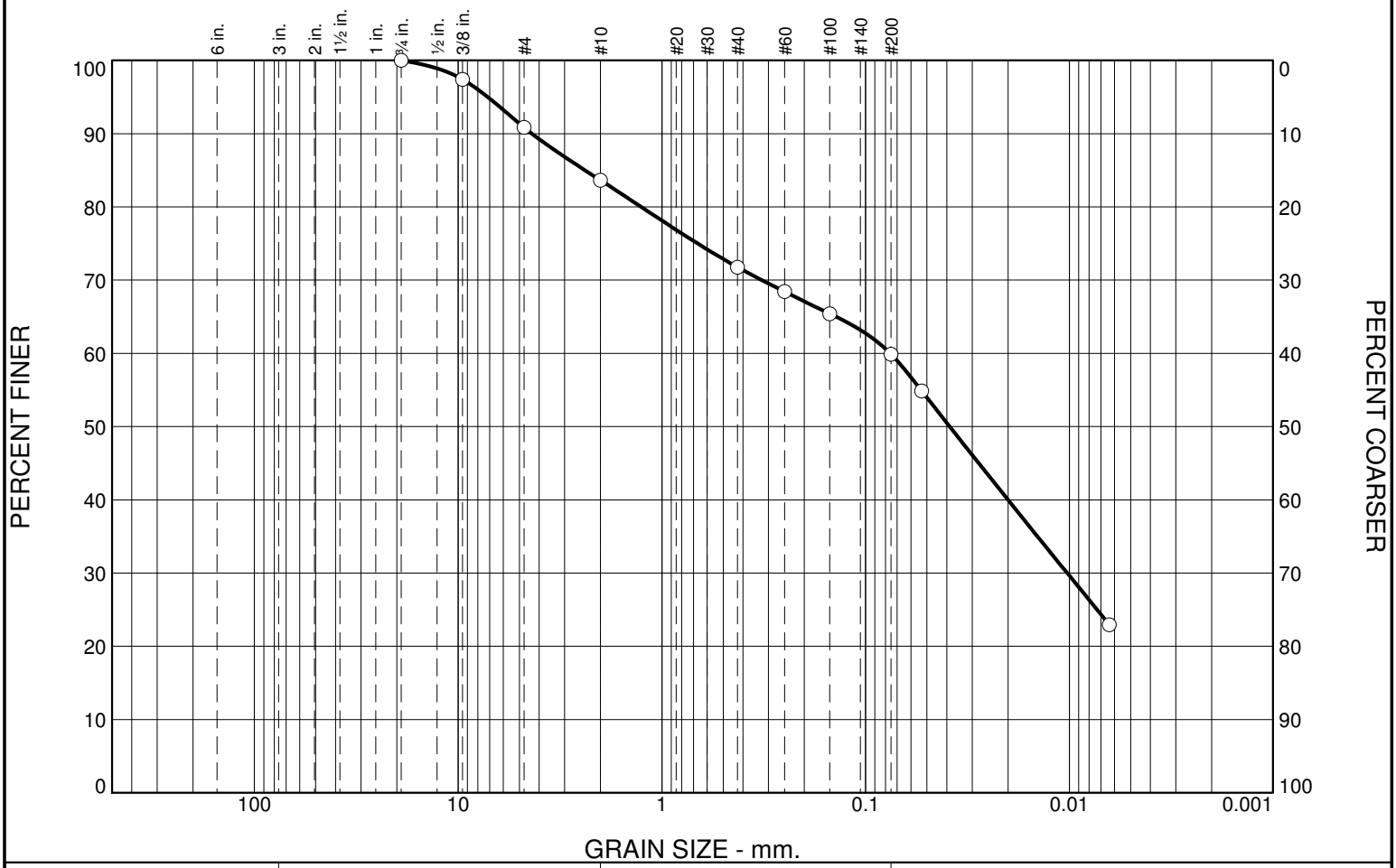
Source of Sample: C-2 **Depth:** 13.50-15.00
Sample Number: S-6 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	16.4	11.8	11.9	59.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	97.4		
#4	90.9		
#10	83.6		
#40	71.8		
#60	68.4		
#100	65.4		
#200	59.9		
#270	54.9		
0.0064 mm.	22.9		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 30 LL= 36 PI= 6

Coefficients

D_{90}= 4.3417 D_{85}= 2.3807 D_{60}= 0.0757
D_{50}= 0.0386 D_{30}= 0.0102 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

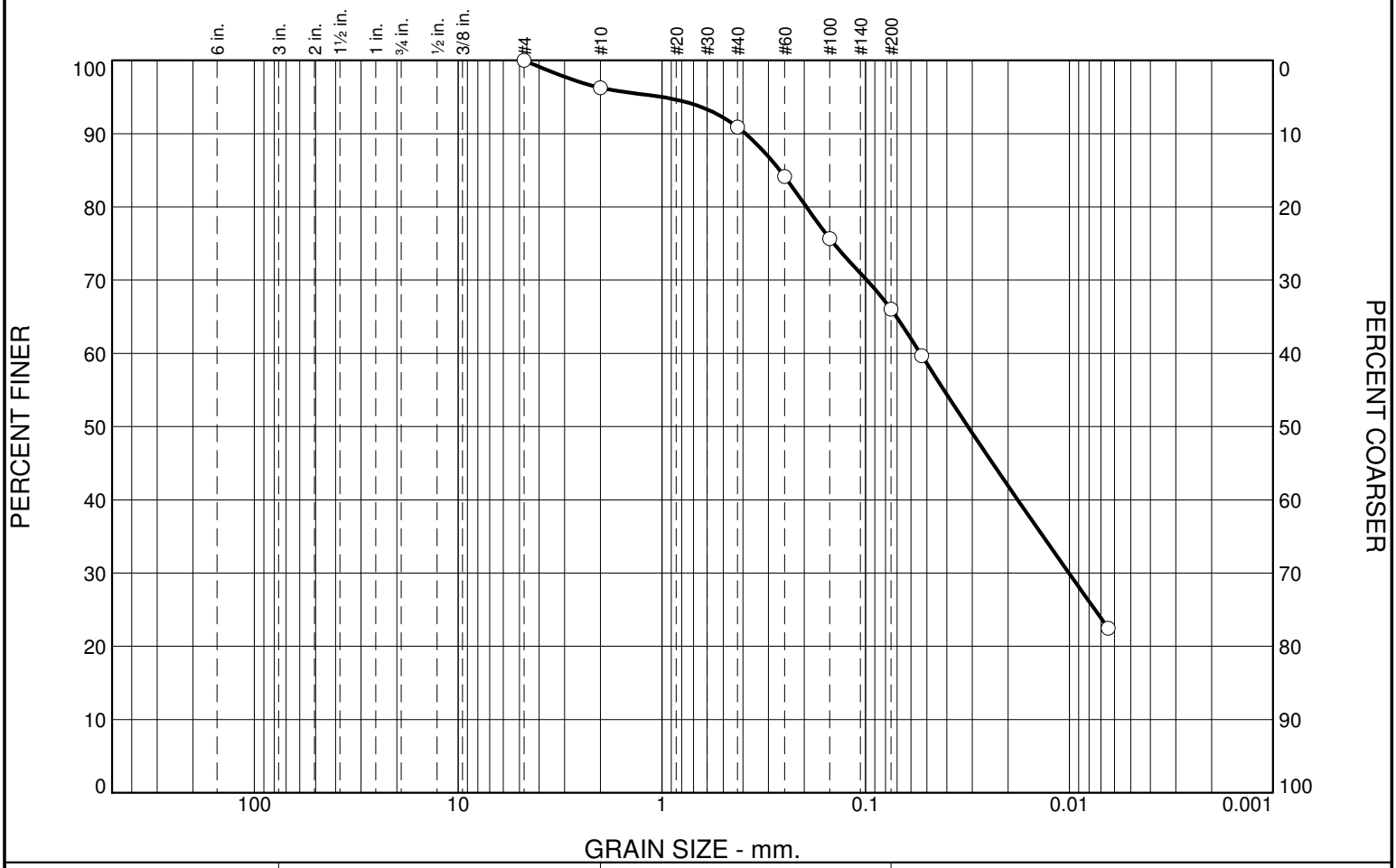
Source of Sample: C-3 **Depth:** 1.00-2.50
Sample Number: S-1 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	3.7	5.4	24.9	66.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	96.3		
#40	90.9		
#60	84.1		
#100	75.7		
#200	66.0		
#270	59.7		
0.0065 mm.	22.5		

* (no specification provided)

Soil Description

Stiff, moist, grayish-brown, Sandy Silty CLAY (CL-ML) (A 4)
-

Atterberg Limits

PL= 20 LL= 26 PI= 6

Coefficients

D_{90}= 0.3888 D_{85}= 0.2642 D_{60}= 0.0539
D_{50}= 0.0315 D_{30}= 0.0100 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL-ML AASHTO= A-4(2)

Remarks

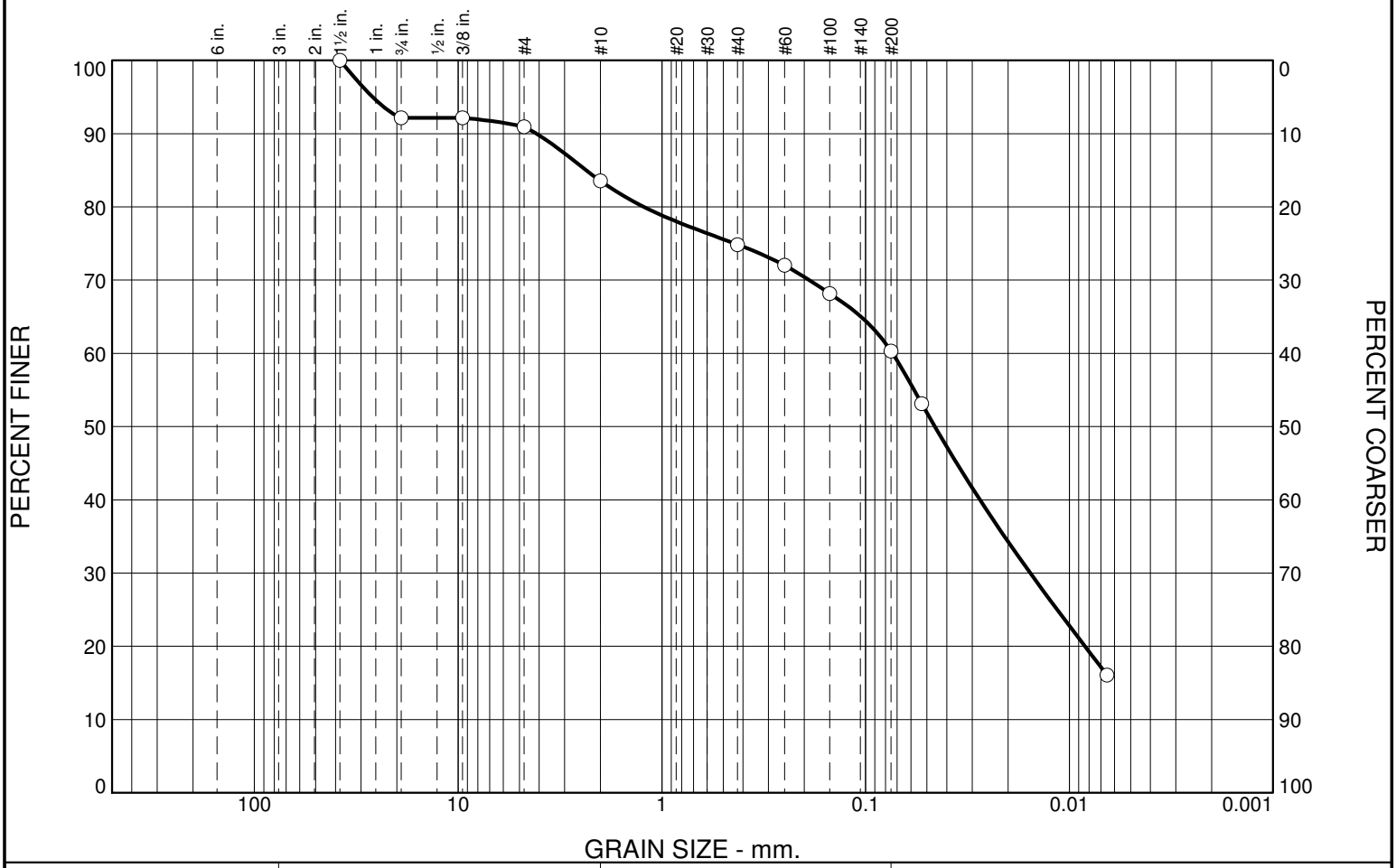
Source of Sample: C-3 **Depth:** 8.50-10.00
Sample Number: S-4 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	16.5	8.6	14.6	60.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	92.1		
3/8	92.1		
#4	90.9		
#10	83.5		
#40	74.9		
#60	72.0		
#100	68.2		
#200	60.3		
#270	53.1		
0.0065 mm.	16.1		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown to gray, Sandy SILT (ML) (A-4) with trace gravel

Atterberg Limits

PL= 27 LL= 32 PI= 5

Coefficients

D_{90}= 4.1227 D_{85}= 2.3520 D_{60}= 0.0737
D_{50}= 0.0457 D_{30}= 0.0155 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

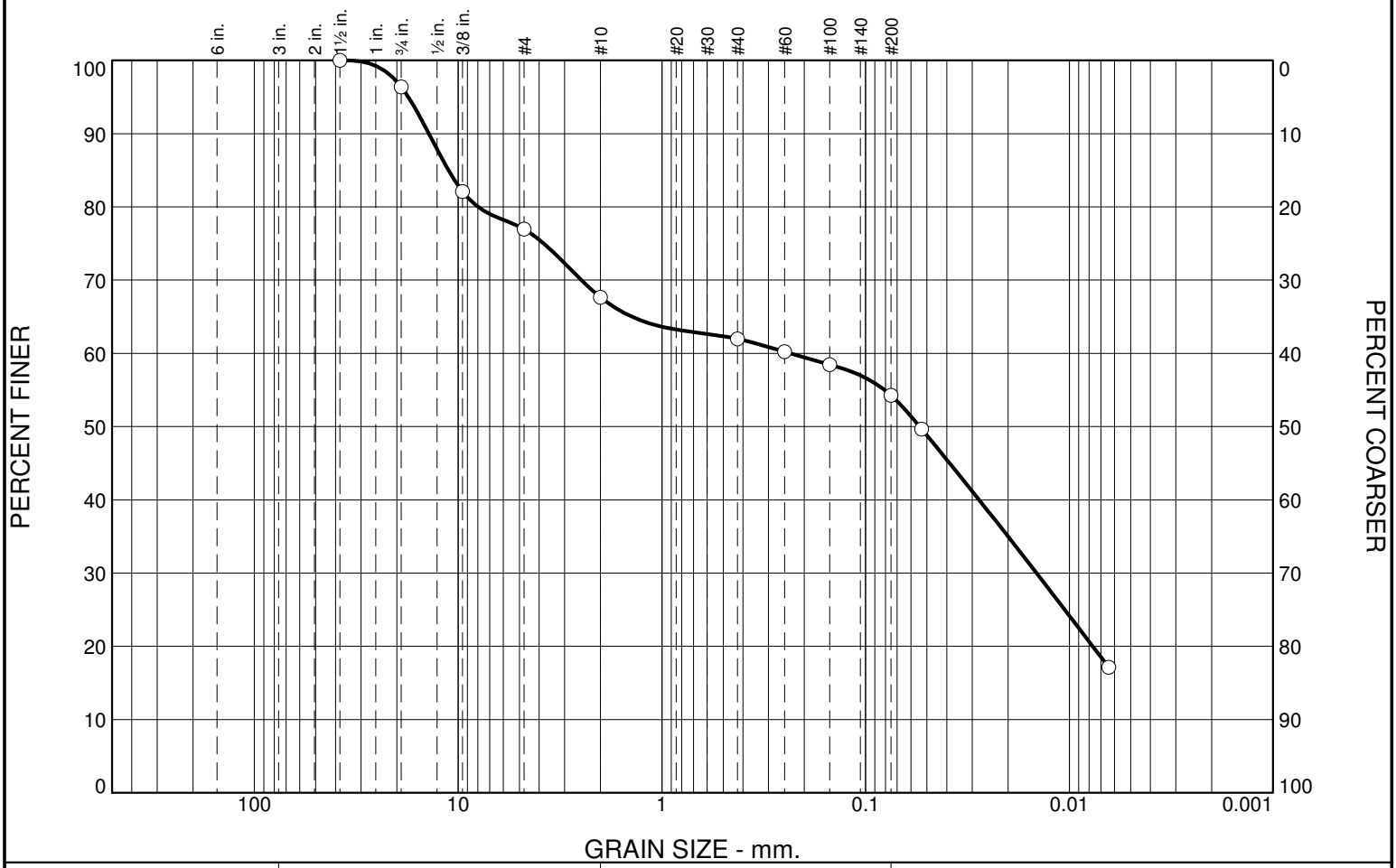
Source of Sample: C-4 **Depth:** 3.00-7.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	32.3	5.7	7.7	54.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	96.4		
3/8	82.1		
#4	77.0		
#10	67.7		
#40	62.0		
#60	60.2		
#100	58.5		
#200	54.3		
#270	49.7		
0.0064 mm.	17.1		

* (no specification provided)

Soil Description

Very stiff, wet, reddish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 28 LL= 32 PI= 4

Coefficients

D_{90}= 13.9275 D_{85}= 11.1605 D_{60}= 0.2351
D_{50}= 0.0542 D_{30}= 0.0145 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

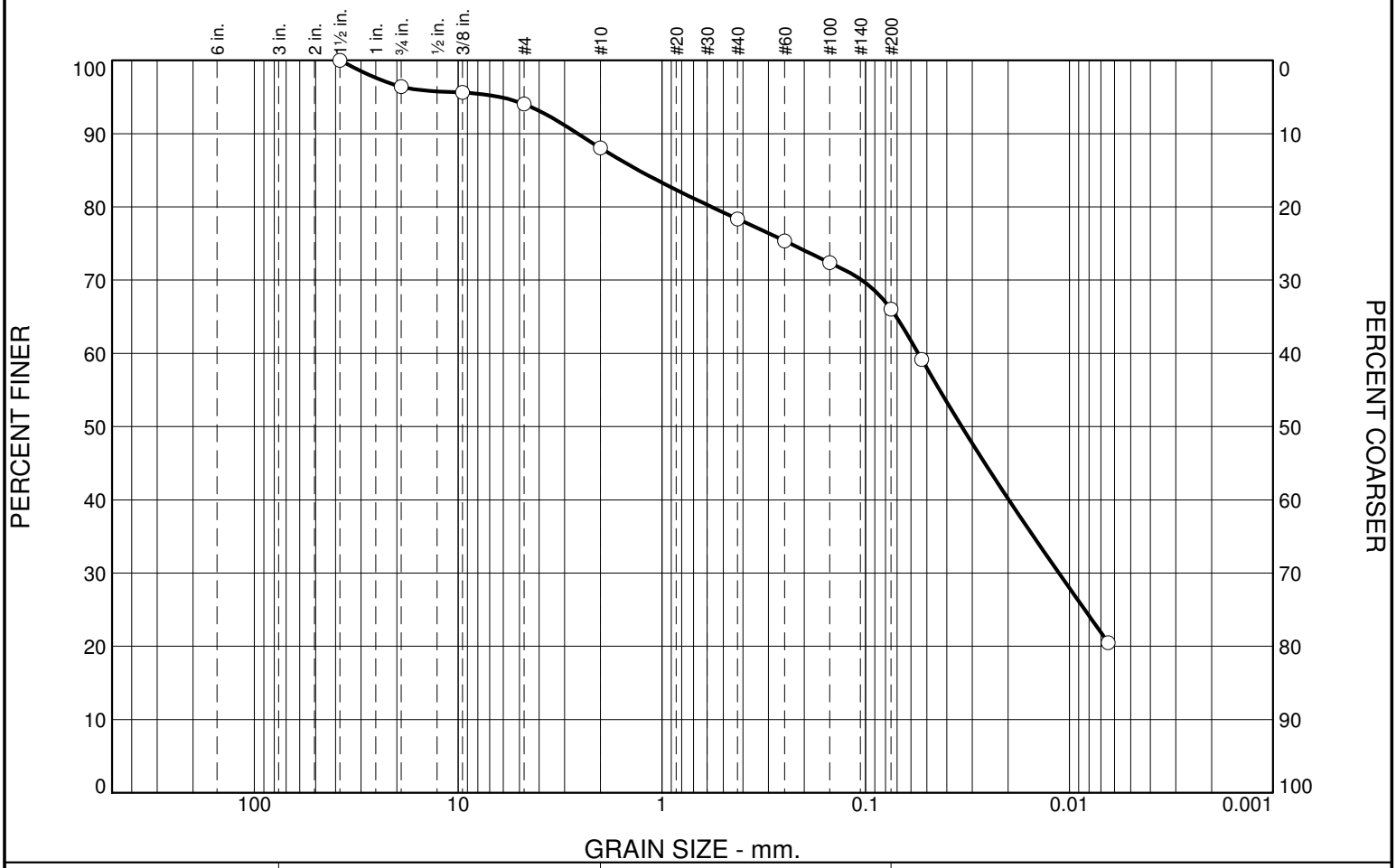
Source of Sample: C-4 **Depth:** 13.50-15.00
Sample Number: S-6 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	12.0	9.6	12.4	66.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	96.4		
3/8	95.6		
#4	94.0		
#10	88.0		
#40	78.4		
#60	75.4		
#100	72.4		
#200	66.0		
#270	59.2		
0.0065 mm.	20.5		

* (no specification provided)

Soil Description

Very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with slight gravel

Atterberg Limits

PL= 26 LL= 31 PI= 5

Coefficients

D_{90}= 2.5793 D_{85}= 1.3000 D_{60}= 0.0551
D_{50}= 0.0338 D_{30}= 0.0113 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

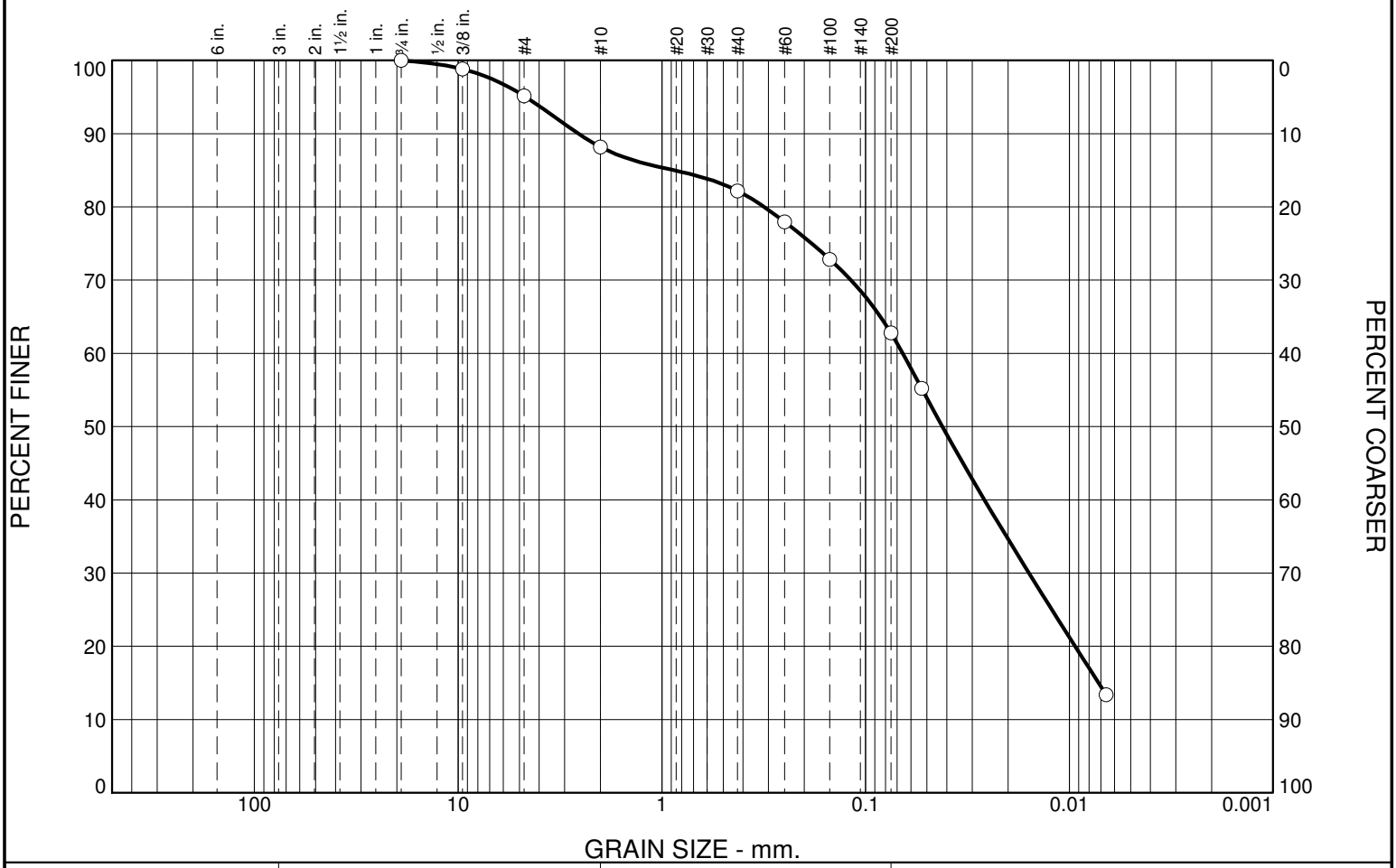
Source of Sample: C-5 **Depth:** 6.00-10.00
Sample Number: S-3/S-4 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	11.8	6.0	19.4	62.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	98.8		
#4	95.2		
#10	88.2		
#40	82.2		
#60	77.9		
#100	72.8		
#200	62.8		
#270	55.2		
0.0066 mm.	13.4		

* (no specification provided)

Soil Description

Very stiff to hard, dry to moist, reddish brown to tannish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 32 LL= 37 PI= 5

Coefficients

D_{90}= 2.5670 D_{85}= 0.8725 D_{60}= 0.0656
D_{50}= 0.0419 D_{30}= 0.0158 D_{15}= 0.0072
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

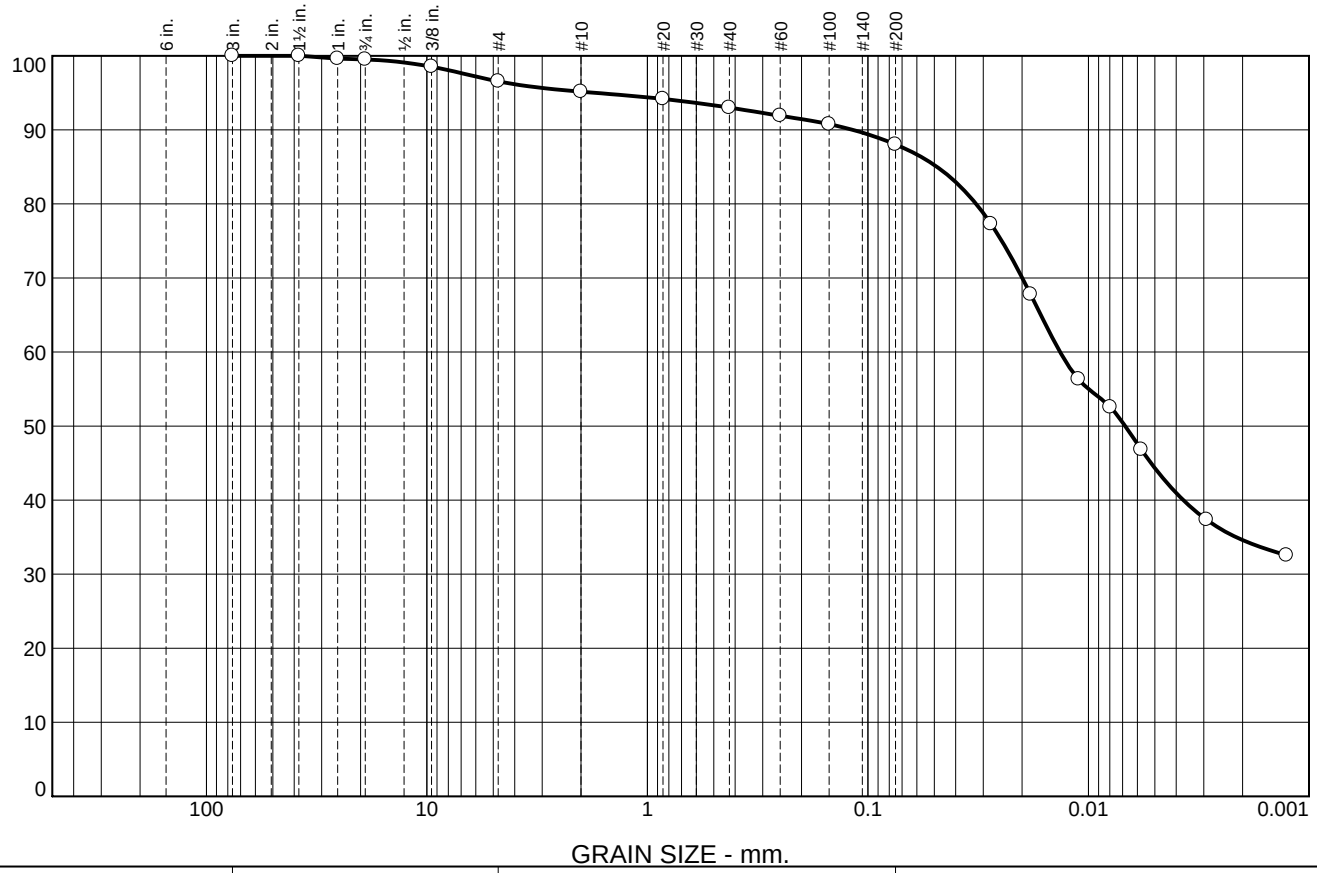
Source of Sample: C-6 **Depth:** 6.00-10.00
Sample Number: S-4/S-5 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	2	2	5	44	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	97		
#10	95		
#20	94		
#40	93		
#60	92		
#100	91		
#200	88		
0.0277 mm.	77		
0.0183 mm.	68		
0.0111 mm.	56		
0.0080 mm.	53		
0.0058 mm.	47		
0.0029 mm.	37		
0.0013 mm.	33		

* (no specification provided)

Soil Description

Very stiff to hard, moist, reddish brown to tannish brown, Plastic CLAY (CH)(A-7-5)

Atterberg Limits

PL= 31 LL= 62 PI= 31

Coefficients

D_{90}= 0.1171 D_{85}= 0.0486 D_{60}= 0.0134
D_{50}= 0.0068 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(32)

Remarks

Source of Sample: C-6 **Depth:** 1.00-4.00
Sample Number: D4S-1502

Date: 10/24/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

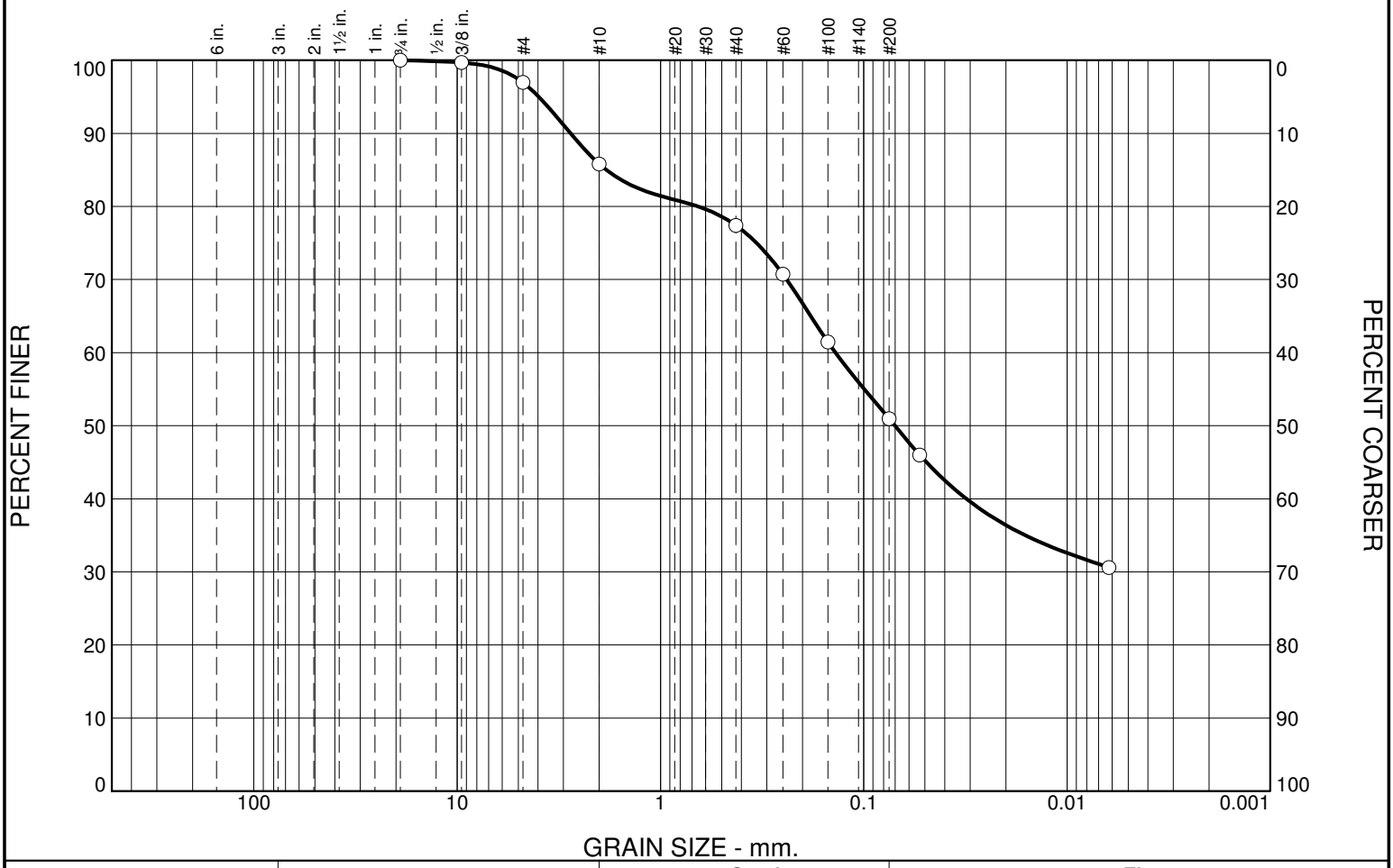
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	14.2	8.4	26.4	51.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	99.7		
#4	97.0		
#10	85.8		
#40	77.4		
#60	70.7		
#100	61.4		
#200	51.0		
#270	46.0		
0.0062 mm.	30.6		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, orangish brown to reddish brown, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 25 LL= 41 PI= 16

Coefficients

D_{90}= 2.7629 D_{85}= 1.8450 D_{60}= 0.1378
D_{50}= 0.0701 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(5)

Remarks

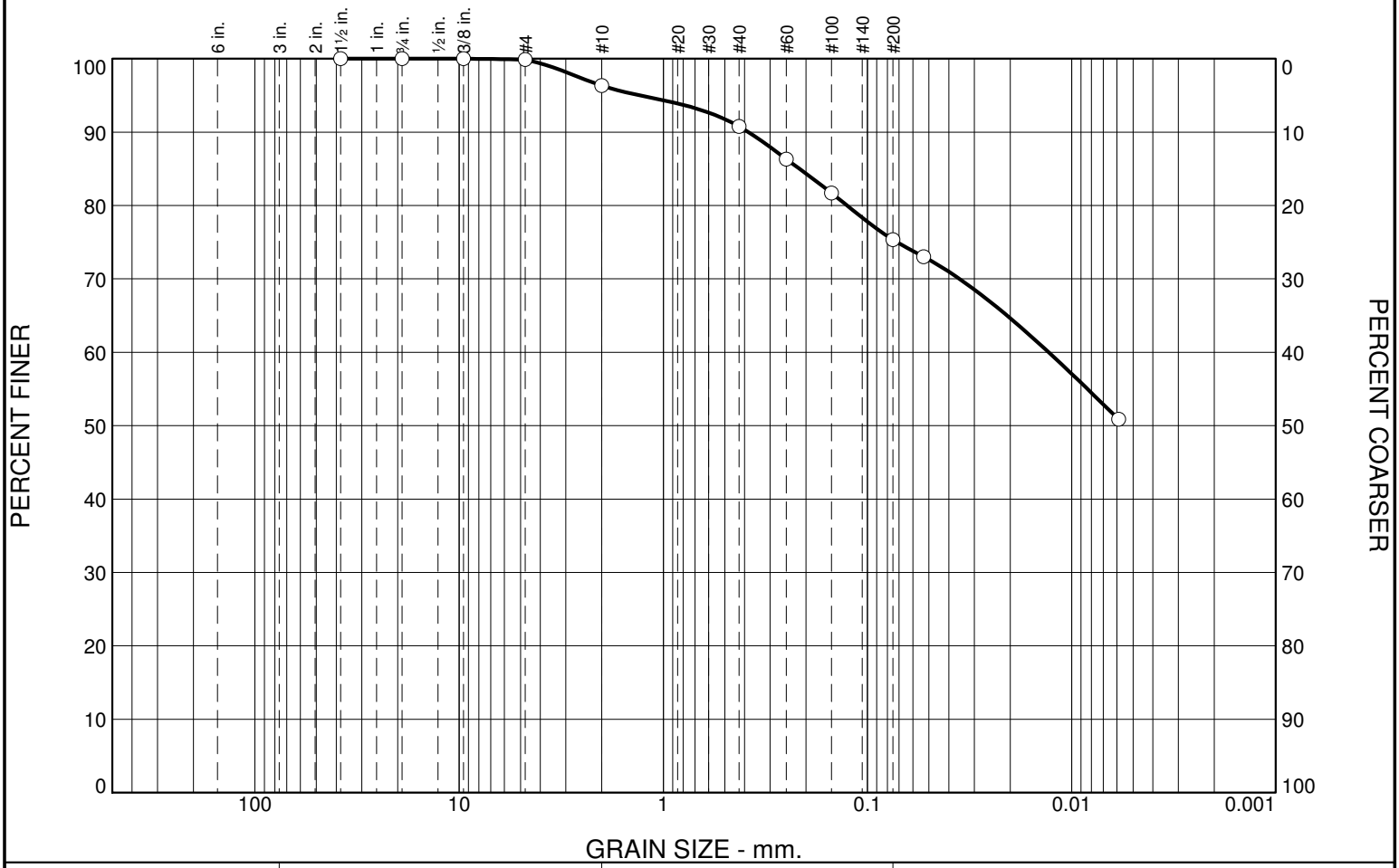
Source of Sample: P-001 **Depth:** 3.50-5.00
Sample Number: S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	3.7	5.5	15.5	75.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	100.0		
#4	99.9		
#10	96.3		
#40	90.8		
#60	86.3		
#100	81.7		
#200	75.3		
#270	73.0		
0.0059 mm.	50.9		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish brown to gray, Plastic CLAY (CH) (A-7-6) with trace roots

Atterberg Limits

PL= 27 LL= 54 PI= 27

Coefficients

D_{90}= 0.3831 D_{85}= 0.2155 D_{60}= 0.0130
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(21)

Remarks

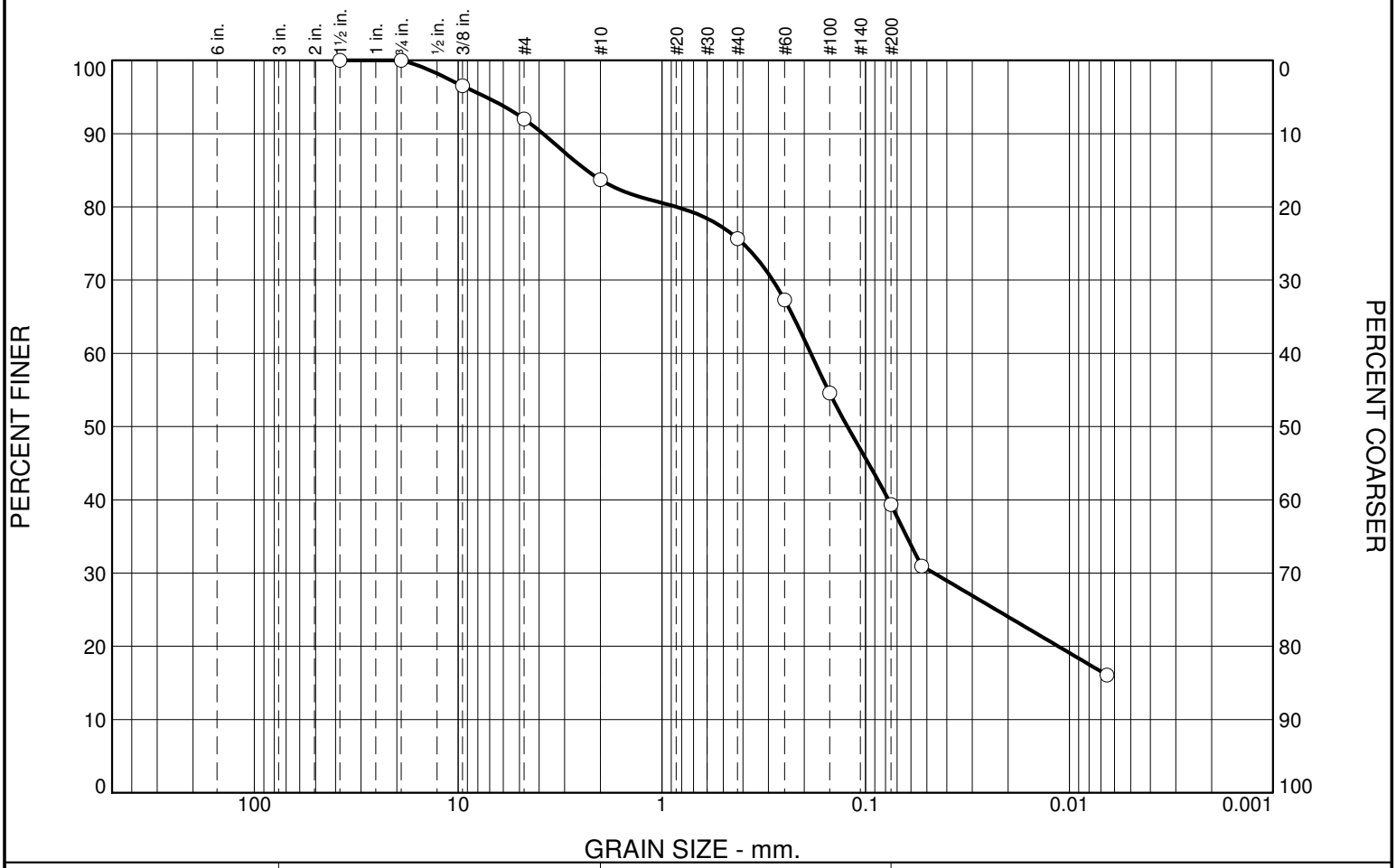
Source of Sample: P-002 **Depth:** 6.50-8.00
Sample Number: S-5 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	16.3	8.0	36.4	39.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	96.5		
#4	92.0		
#10	83.7		
#40	75.7		
#60	67.3		
#100	54.6		
#200	39.3		
#270	31.0		
0.0065 mm.	16.1		

* (no specification provided)

Soil Description

Medium dense to loose, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace gravel

Atterberg Limits

PL= 29 LL= 33 PI= 4

Coefficients

D_{90}= 3.8383 D_{85}= 2.3400 D_{60}= 0.1857
D_{50}= 0.1227 D_{30}= 0.0462 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

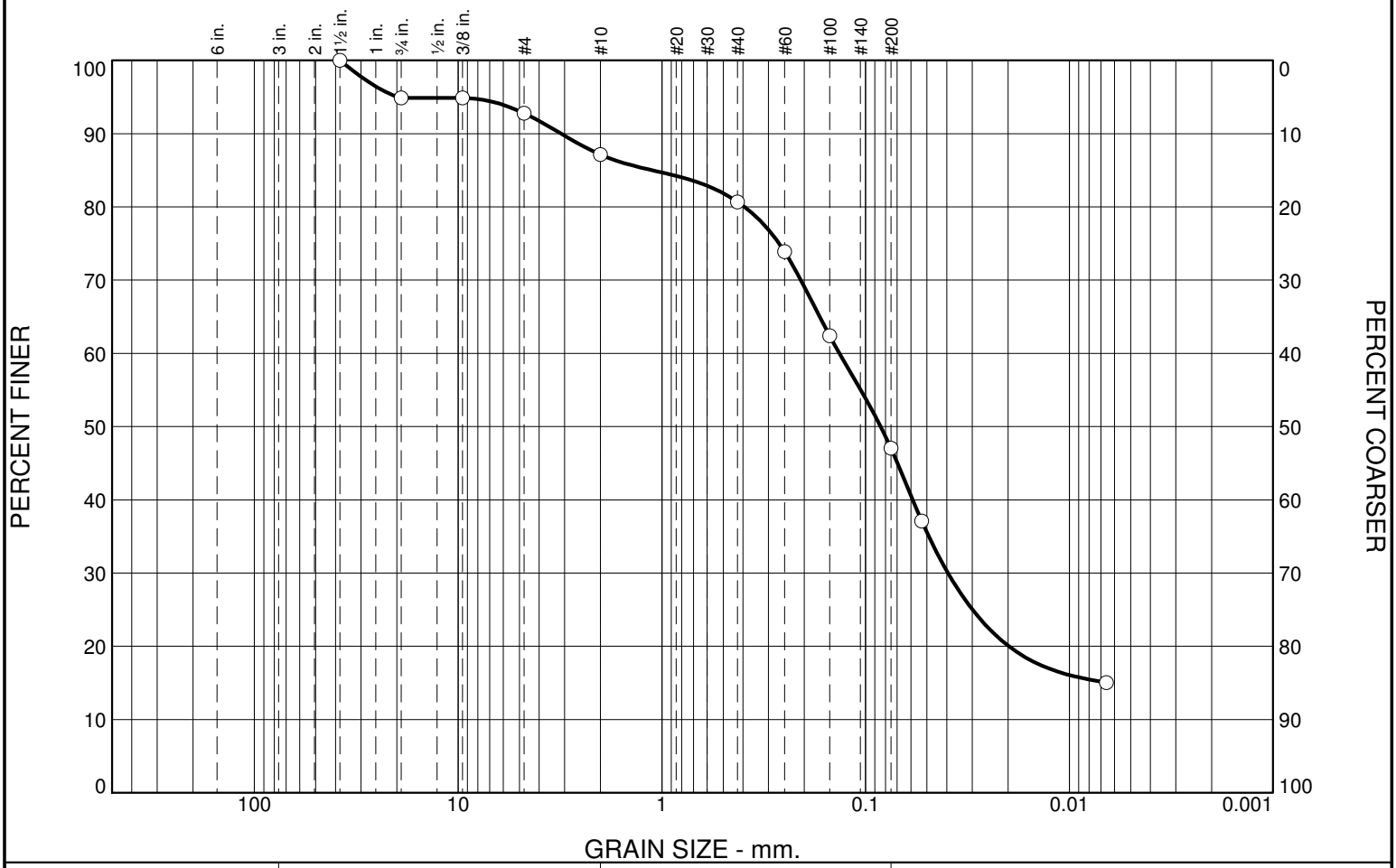
Source of Sample: P-003 **Depth:** 4.00-5.50
Sample Number: S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	12.9	6.4	33.7	47.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	94.9		
3/8	94.9		
#4	92.8		
#10	87.1		
#40	80.7		
#60	73.9		
#100	62.4		
#200	47.0		
#270	37.1		
0.0066 mm.	15.0		

* (no specification provided)

Soil Description

Soft to medium stiff, moist, tannish brown, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and grave

Atterberg Limits

PL= 28 LL= 35 PI= 7

Coefficients

D_{90}= 3.1216 D_{85}= 1.1131 D_{60}= 0.1344
D_{50}= 0.0843 D_{30}= 0.0394 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(1)

Remarks

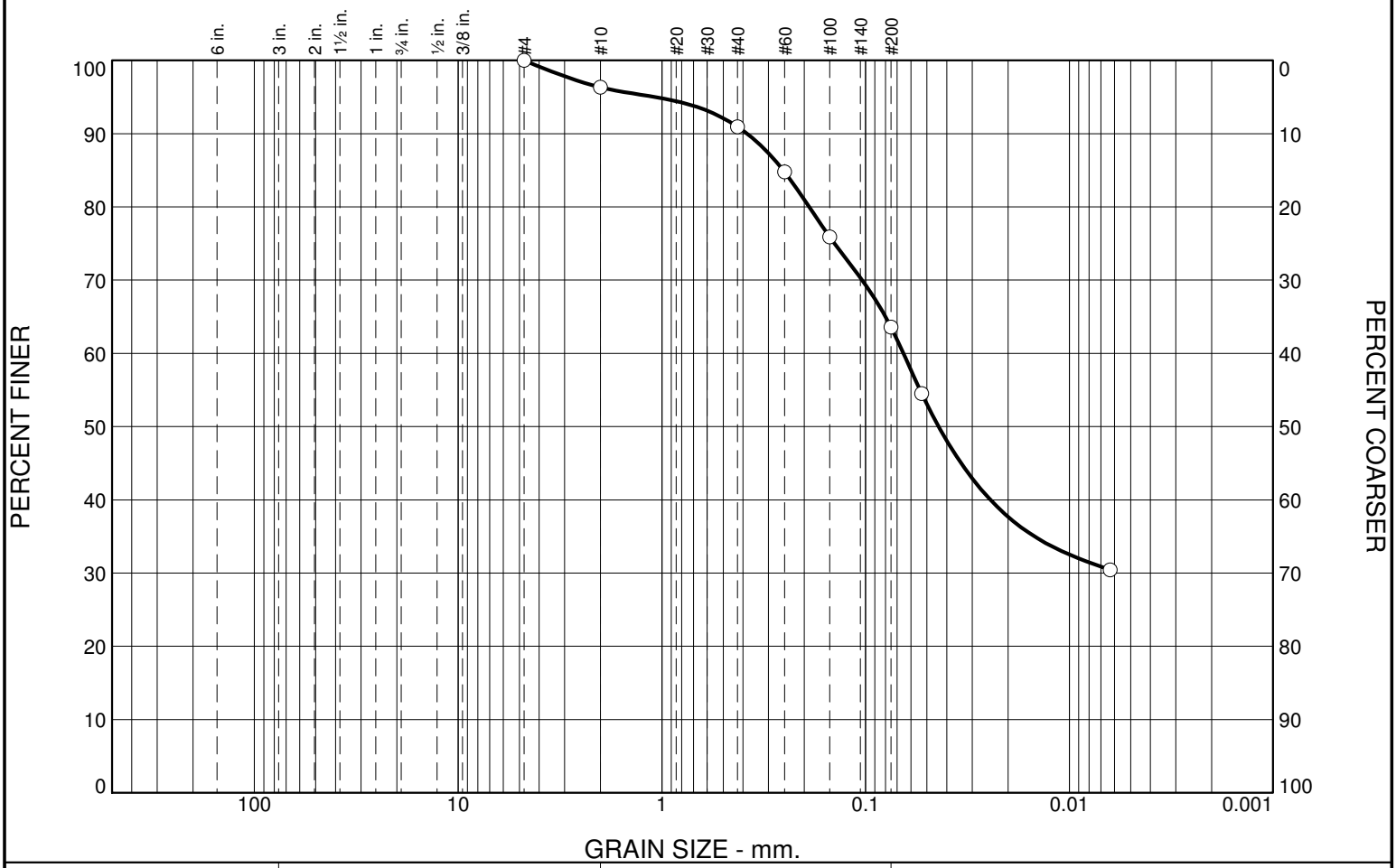
Source of Sample: P-004 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	3.7	5.4	27.3	63.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	96.3		
#40	90.9		
#60	84.8		
#100	75.9		
#200	63.6		
#270	54.5		
0.0063 mm.	30.4		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace gravel

Atterberg Limits

PL= 33 LL= 46 PI= 13

Coefficients

D_{90}= 0.3822 D_{85}= 0.2538 D_{60}= 0.0651
D_{50}= 0.0438 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(8)

Remarks

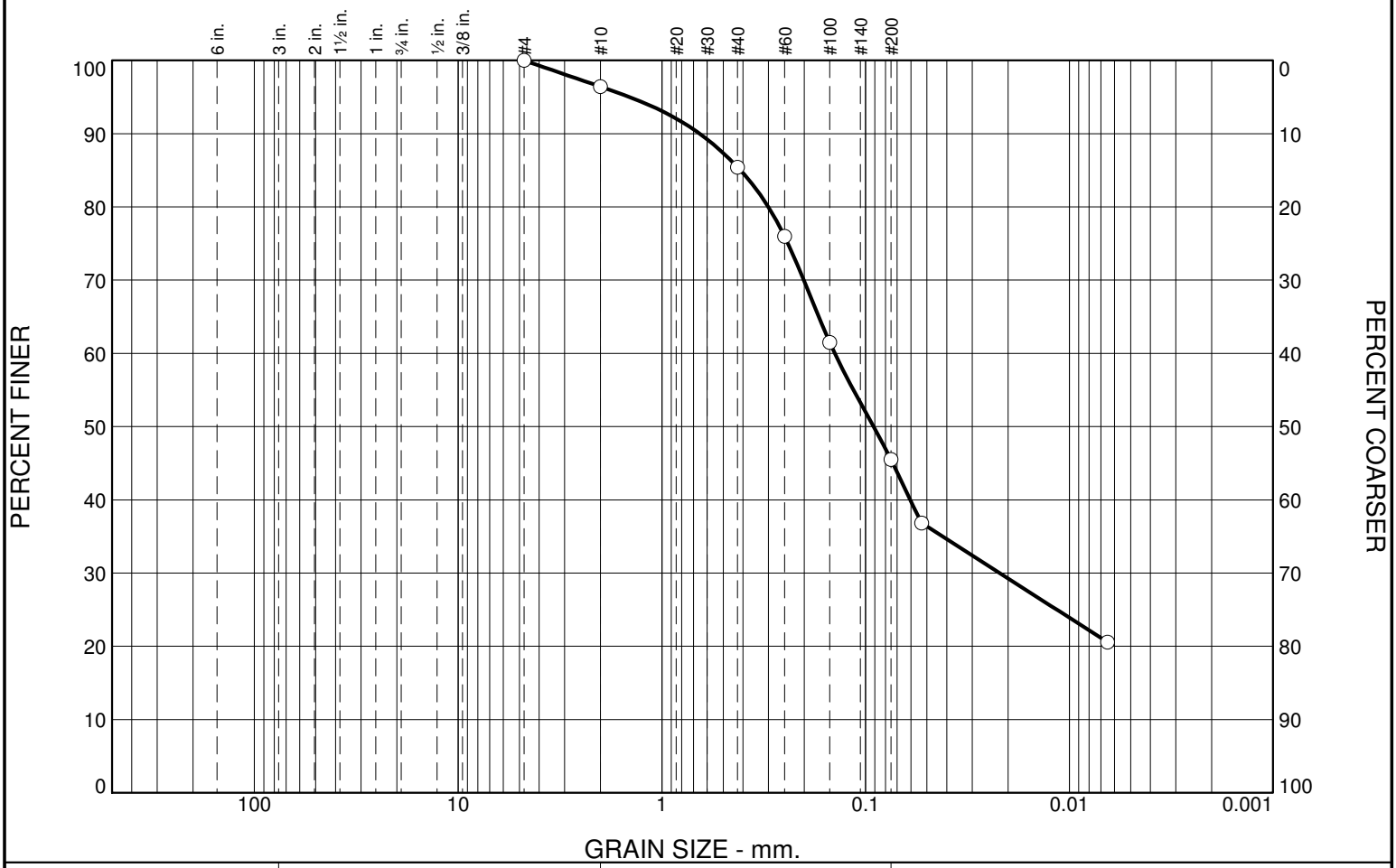
Source of Sample: P-005 **Depth:** 6.50-8.00
Sample Number: S-5 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	3.6	11.0	39.9	45.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	96.4		
#40	85.4		
#60	76.0		
#100	61.5		
#200	45.5		
#270	36.8		
0.0065 mm.	20.6		

* (no specification provided)

Soil Description

Very loose to loose, moist, tannish brown to orange, Silty Fine to Coarse SAND (SM) (A-4) with trace roots and gravel

Atterberg Limits

PL= 27 LL= 32 PI= 5

Coefficients

D_{90}= 0.6520 D_{85}= 0.4116 D_{60}= 0.1416
D_{50}= 0.0913 D_{30}= 0.0220 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

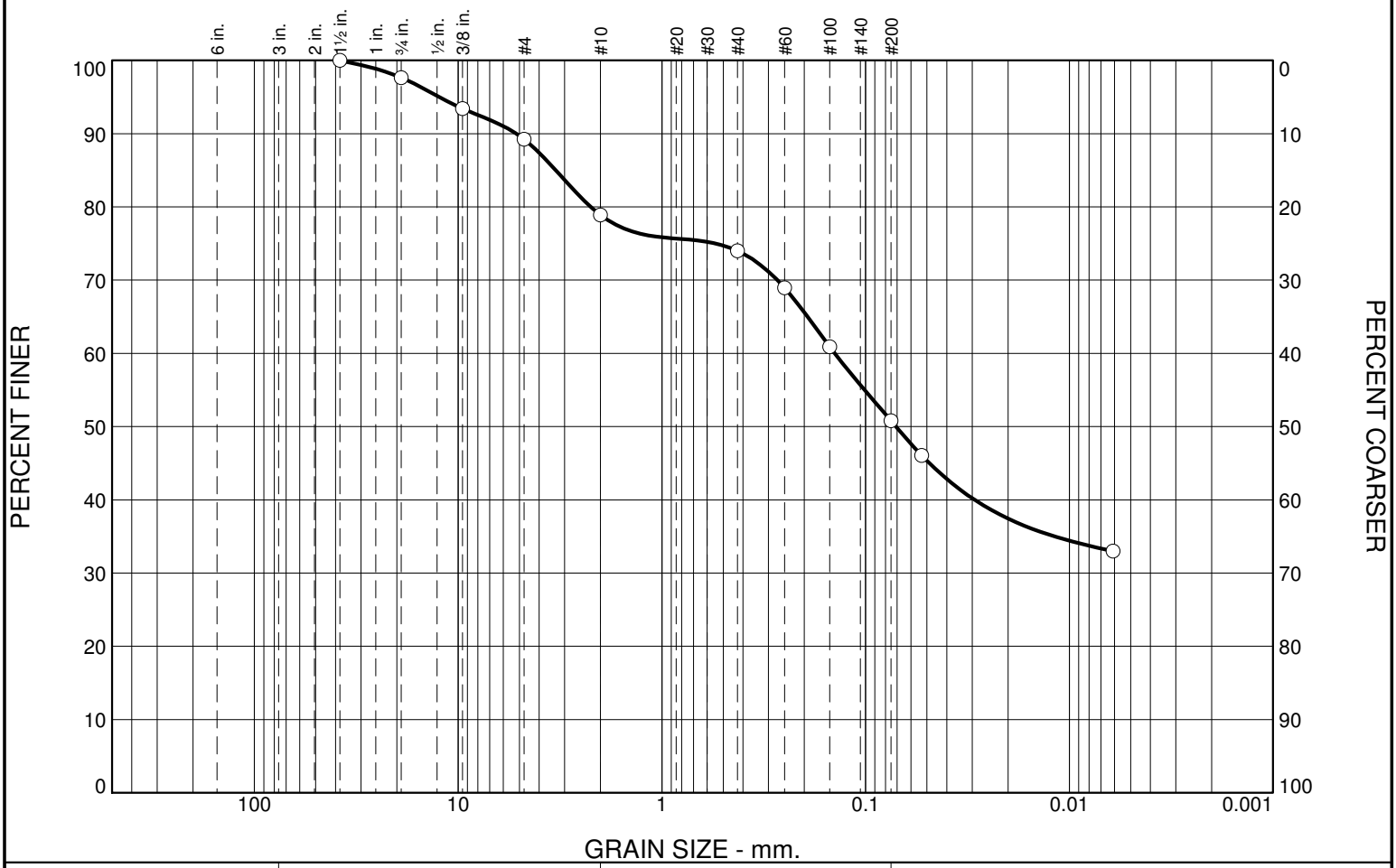
Source of Sample: P-006 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	21.1	4.9	23.2	50.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	97.6		
3/8	93.4		
#4	89.2		
#10	78.9		
#40	74.0		
#60	68.9		
#100	60.9		
#200	50.8		
#270	46.1		
0.0061 mm.	33.0		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, grayish brown to reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots and gravel

Atterberg Limits

PL= 23 LL= 42 PI= 19

Coefficients

D_{90}= 5.1865 D_{85}= 3.3151 D_{60}= 0.1417
D_{50}= 0.0708 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(7)

Remarks

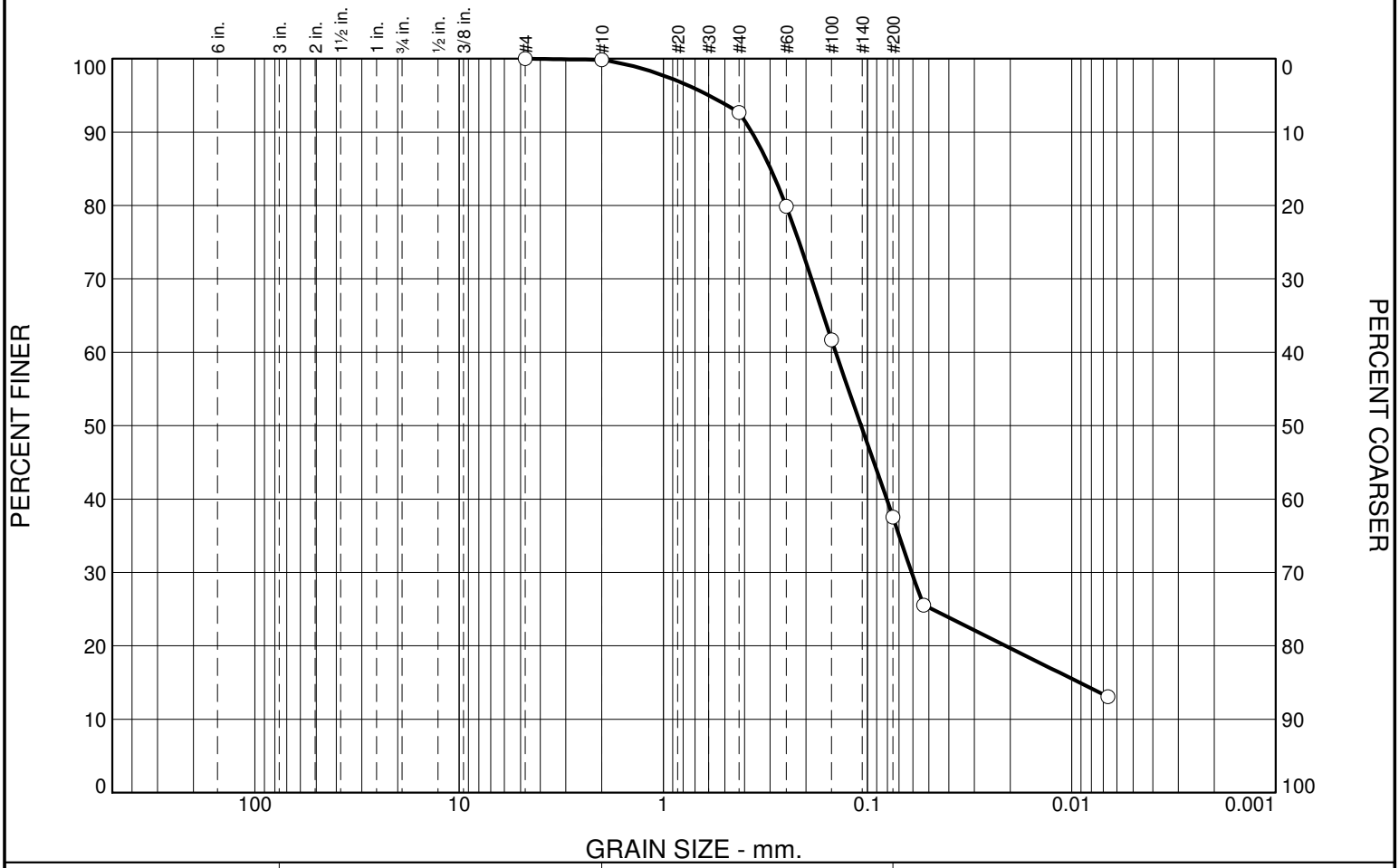
Source of Sample: P-007 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	0.2	7.1	55.2	37.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.8		
#40	92.7		
#60	79.9		
#100	61.7		
#200	37.5		
#270	25.6		
0.0066 mm.	13.1		

* (no specification provided)

Soil Description

Medium dense, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 30 LL= 31 PI= 1

Coefficients

D_{90}= 0.3692 D_{85}= 0.2985 D_{60}= 0.1431
D_{50}= 0.1074 D_{30}= 0.0607 D_{15}= 0.0092
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

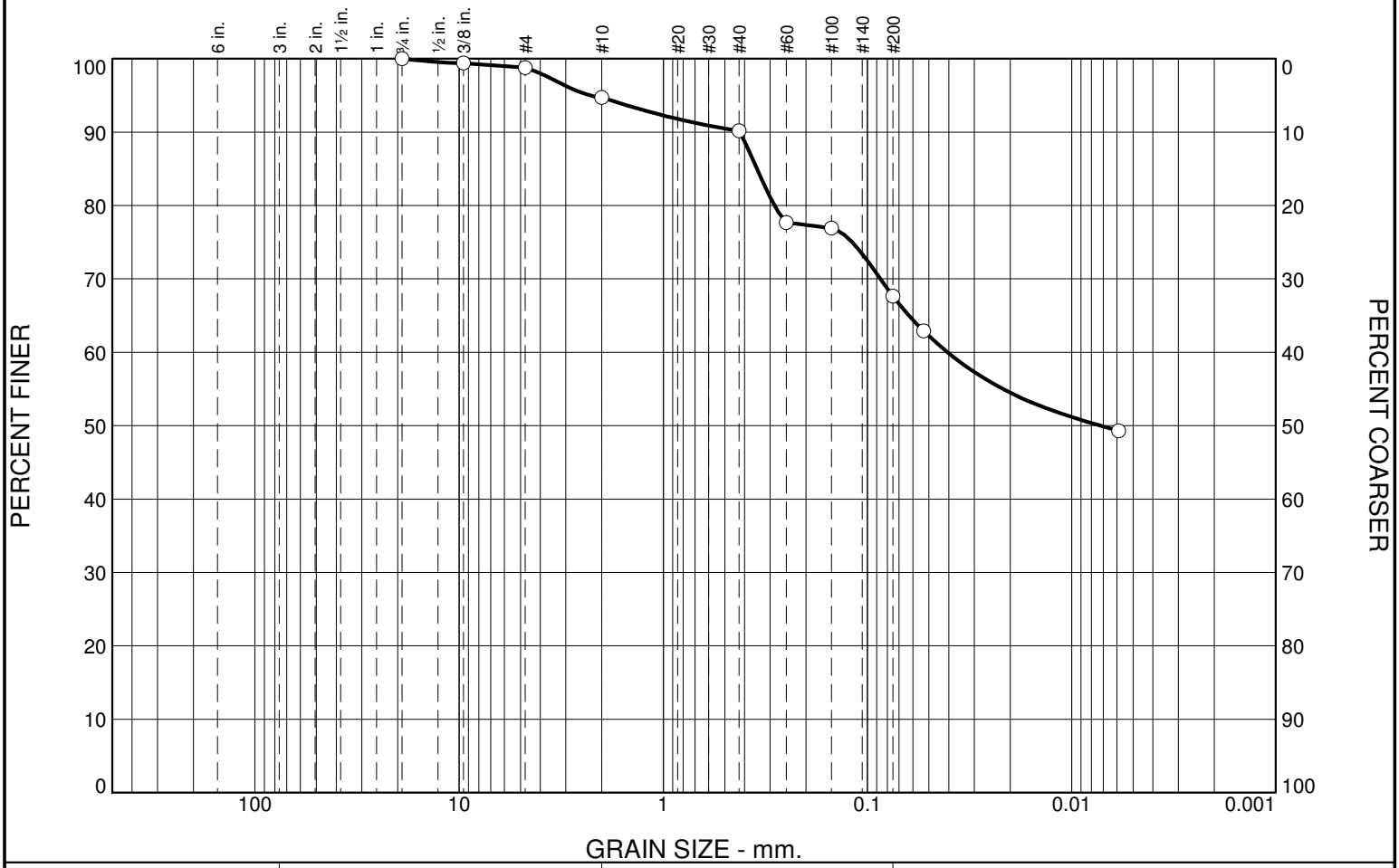
Source of Sample: P-008 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	5.3	4.5	22.6	67.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	99.4		
#4	98.8		
#10	94.7		
#40	90.2		
#60	77.7		
#100	76.9		
#200	67.6		
#270	62.9		
0.0059 mm.	49.3		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 26 LL= 53 PI= 27

Coefficients

D_{90}= 0.4216 D_{85}= 0.3480 D_{60}= 0.0406
D_{50}= 0.0072 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(18)

Remarks

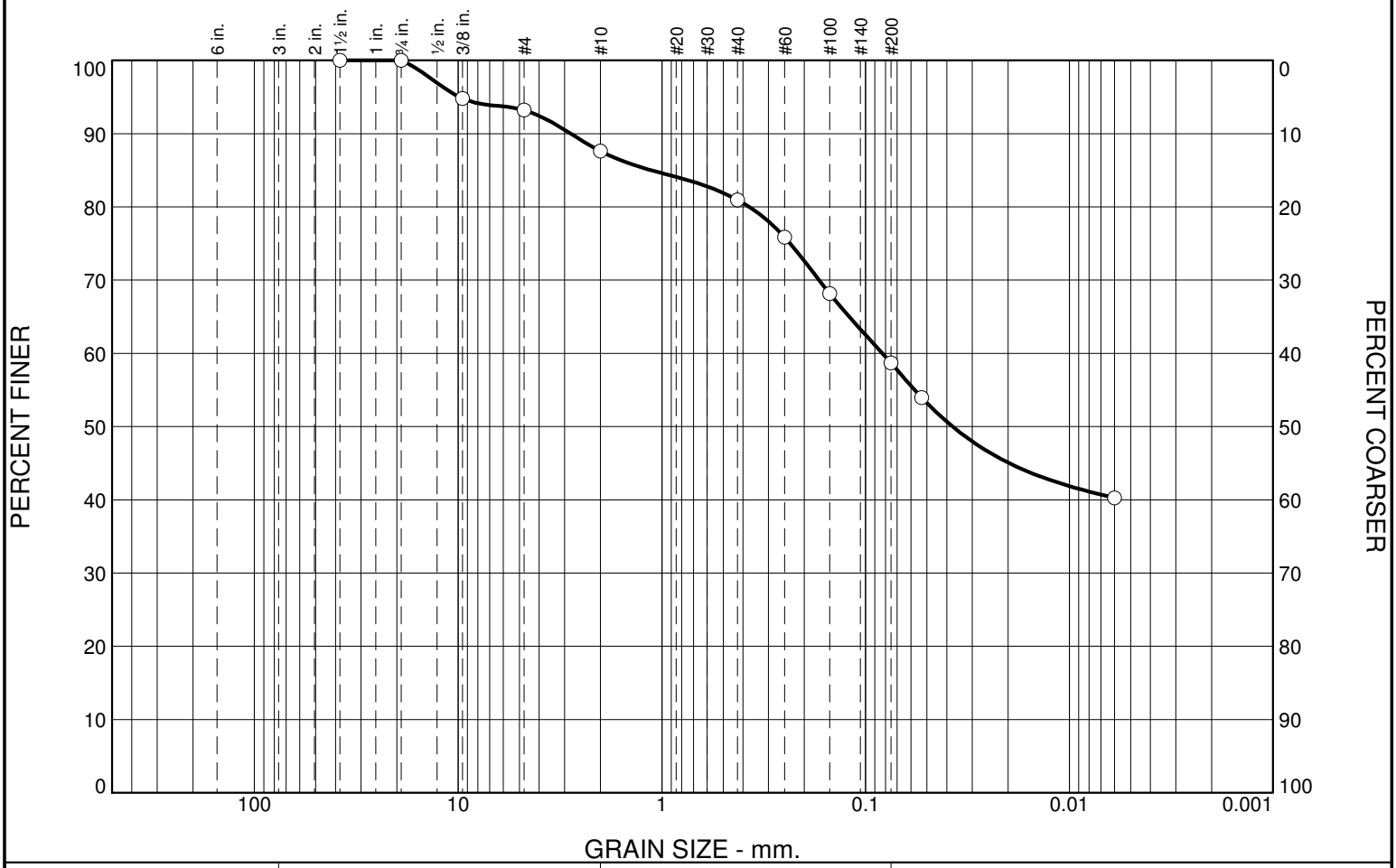
Source of Sample: P-009 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	12.4	6.7	22.2	58.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	94.8		
#4	93.2		
#10	87.6		
#40	80.9		
#60	75.9		
#100	68.2		
#200	58.7		
#270	54.0		
0.0060 mm.	40.2		

* (no specification provided)

Soil Description

Soft, moist, dark brown to red, Sandy CLAY (CL) (A-7-6) with trace roots

Atterberg Limits

PL= 25 LL= 45 PI= 20

Coefficients

D_{90}= 2.7975 D_{85}= 1.1273 D_{60}= 0.0826
D_{50}= 0.0374 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(10)

Remarks

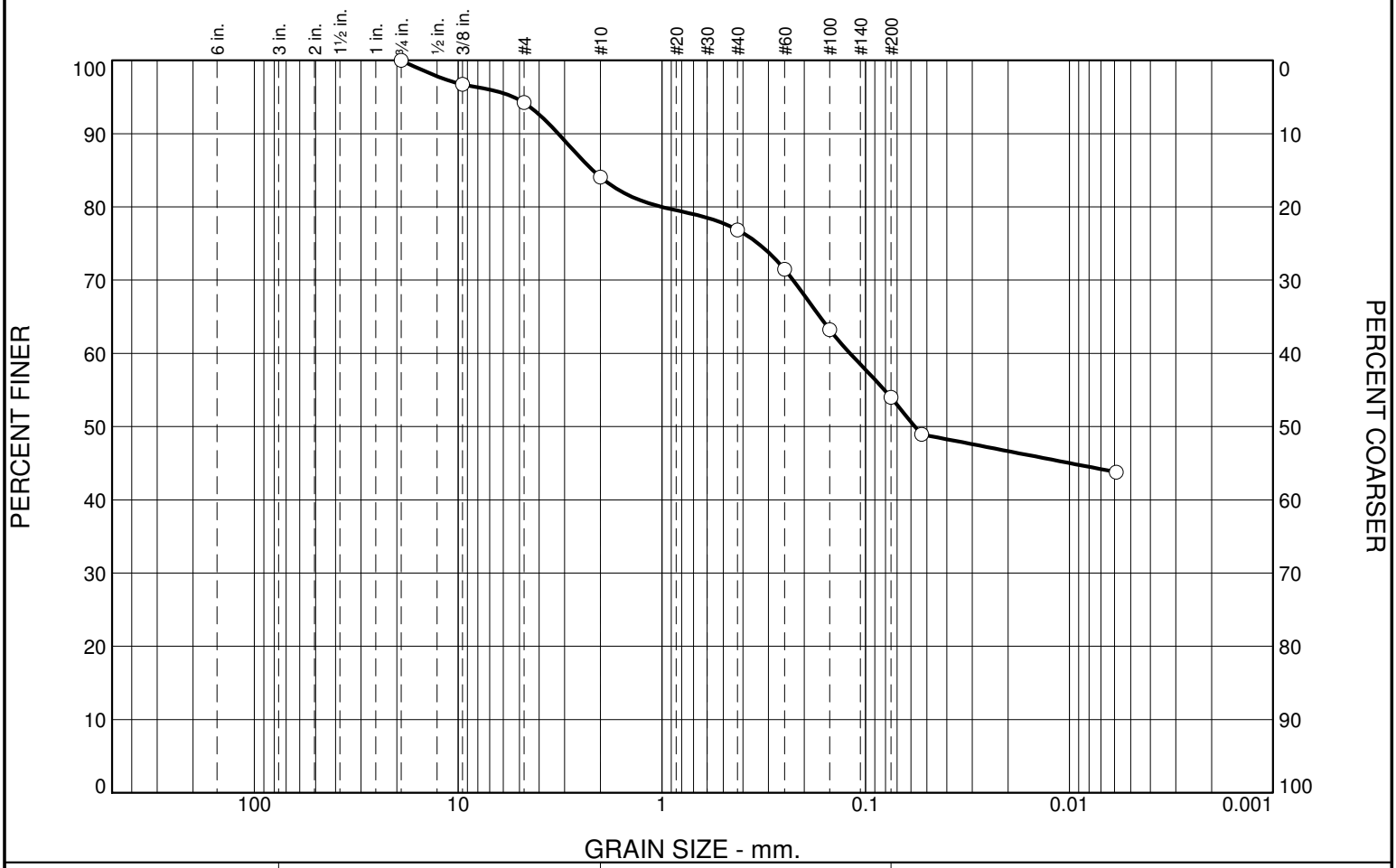
Source of Sample: P-010 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	15.9	7.3	22.8	54.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	96.7		
#4	94.2		
#10	84.1		
#40	76.8		
#60	71.5		
#100	63.2		
#200	54.0		
#270	48.9		
0.0059 mm.	43.8		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy CLAY (CL) (A-7-6) with trace roots

Atterberg Limits

PL= 24 LL= 49 PI= 25

Coefficients

D_{90}= 3.2240 D_{85}= 2.1781 D_{60}= 0.1192
D_{50}= 0.0572 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(11)

Remarks

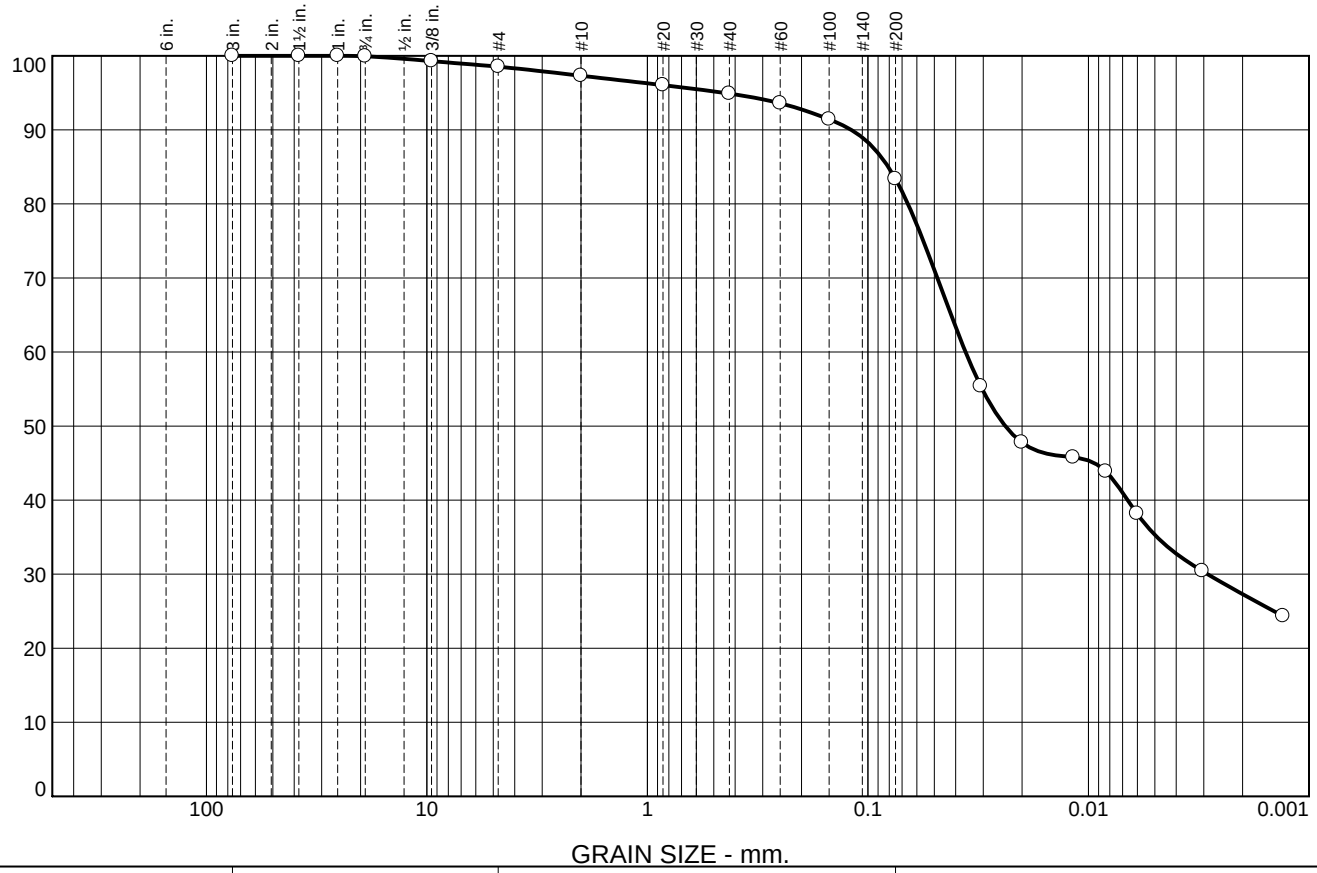
Source of Sample: P-011 **Depth:** 3.50-5.00
Sample Number: S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	2	12	48	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	97		
#20	96		
#40	95		
#60	94		
#100	91		
#200	83		
0.0308 mm.	55		
0.0201 mm.	48		
0.0117 mm.	46		
0.0083 mm.	44		
0.0060 mm.	38		
0.0030 mm.	30		
0.0013 mm.	24		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy CLAY (CL)(A-7-6) with trace roots

Atterberg Limits

PL= 22 LL= 49 PI= 27

Coefficients

D_{90}= 0.1191 D_{85}= 0.0809 D_{60}= 0.0361
D_{50}= 0.0238 D_{30}= 0.0029 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Source of Sample: P-11 **Depth:** 1.00-4.00
Sample Number: D4S-1497

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

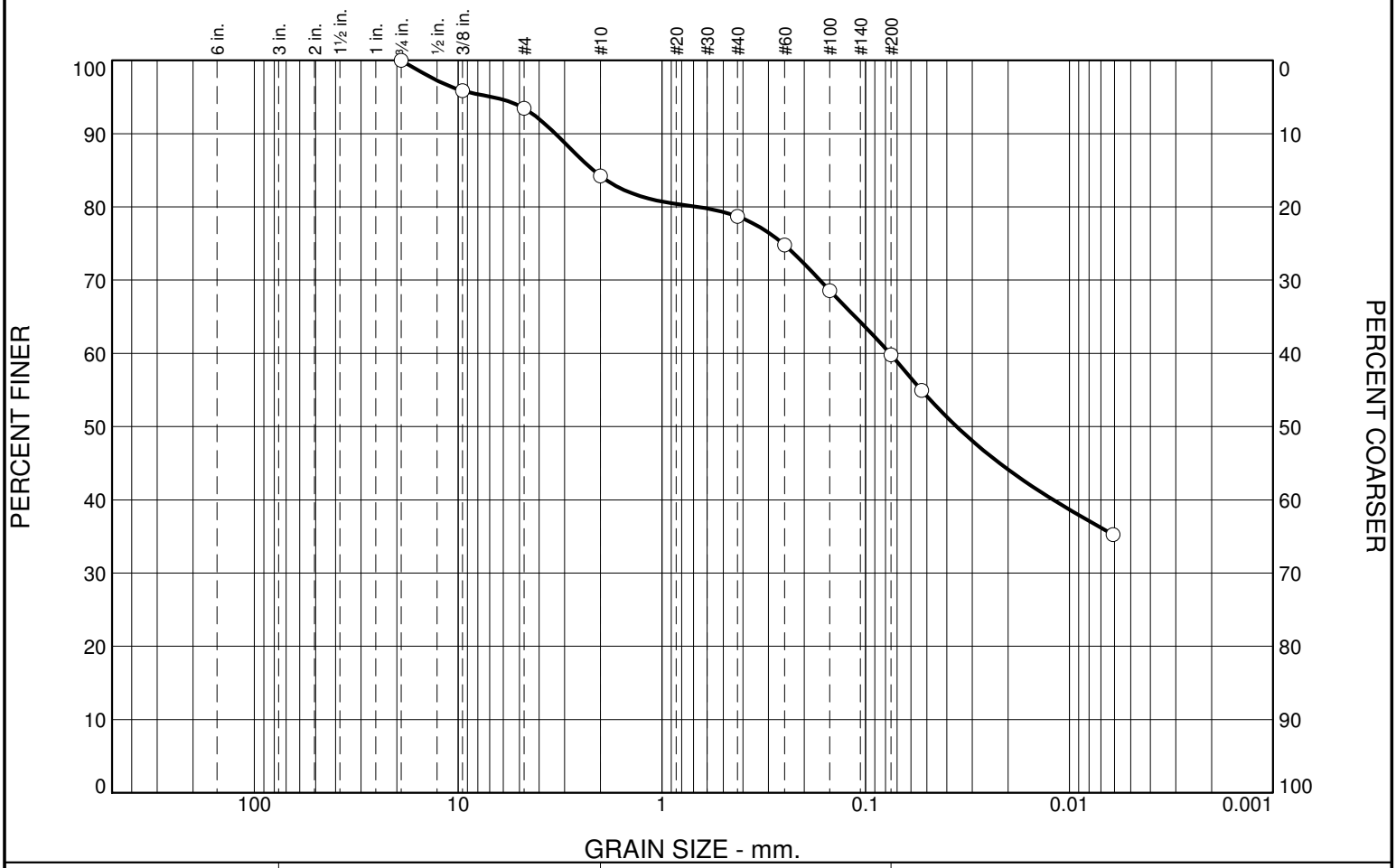
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	15.8	5.5	18.9	59.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	95.9		
#4	93.5		
#10	84.2		
#40	78.7		
#60	74.8		
#100	68.6		
#200	59.8		
#270	54.9		
0.0061 mm.	35.3		

* (no specification provided)

Soil Description

Soft, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel

Atterberg Limits

PL= 27 LL= 45 PI= 18

Coefficients

D_{90}= 3.3302 D_{85}= 2.1626 D_{60}= 0.0760
D_{50}= 0.0358 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(9)

Remarks

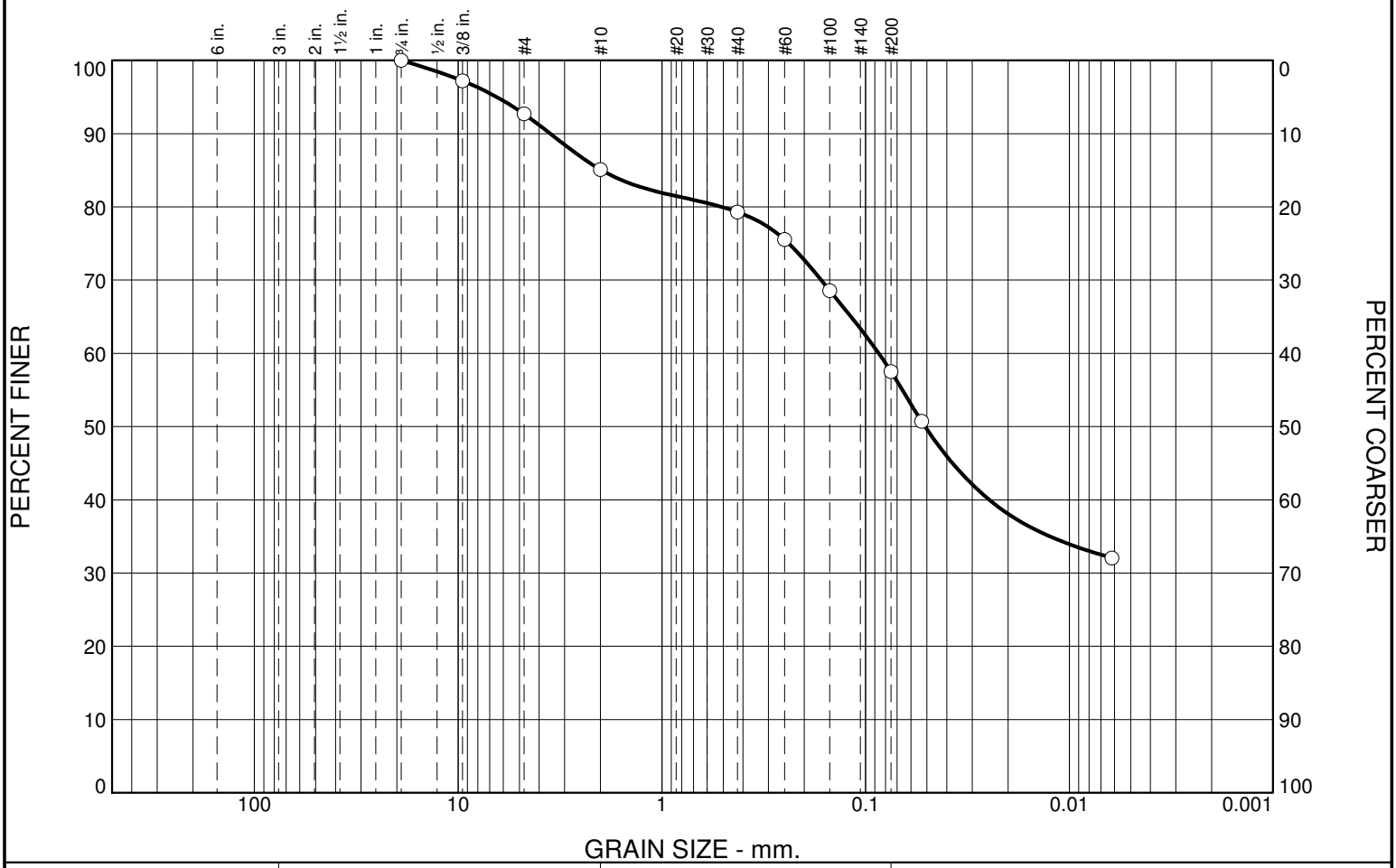
Source of Sample: P-012 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	14.9	5.8	21.8	57.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	97.2		
#4	92.7		
#10	85.1		
#40	79.3		
#60	75.5		
#100	68.6		
#200	57.5		
#270	50.7		
0.0062 mm.	32.1		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-6)

Atterberg Limits

PL= 23 LL= 38 PI= 15

Coefficients

D_{90}= 3.5249 D_{85}= 1.9776 D_{60}= 0.0861
D_{50}= 0.0510 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(7)

Remarks

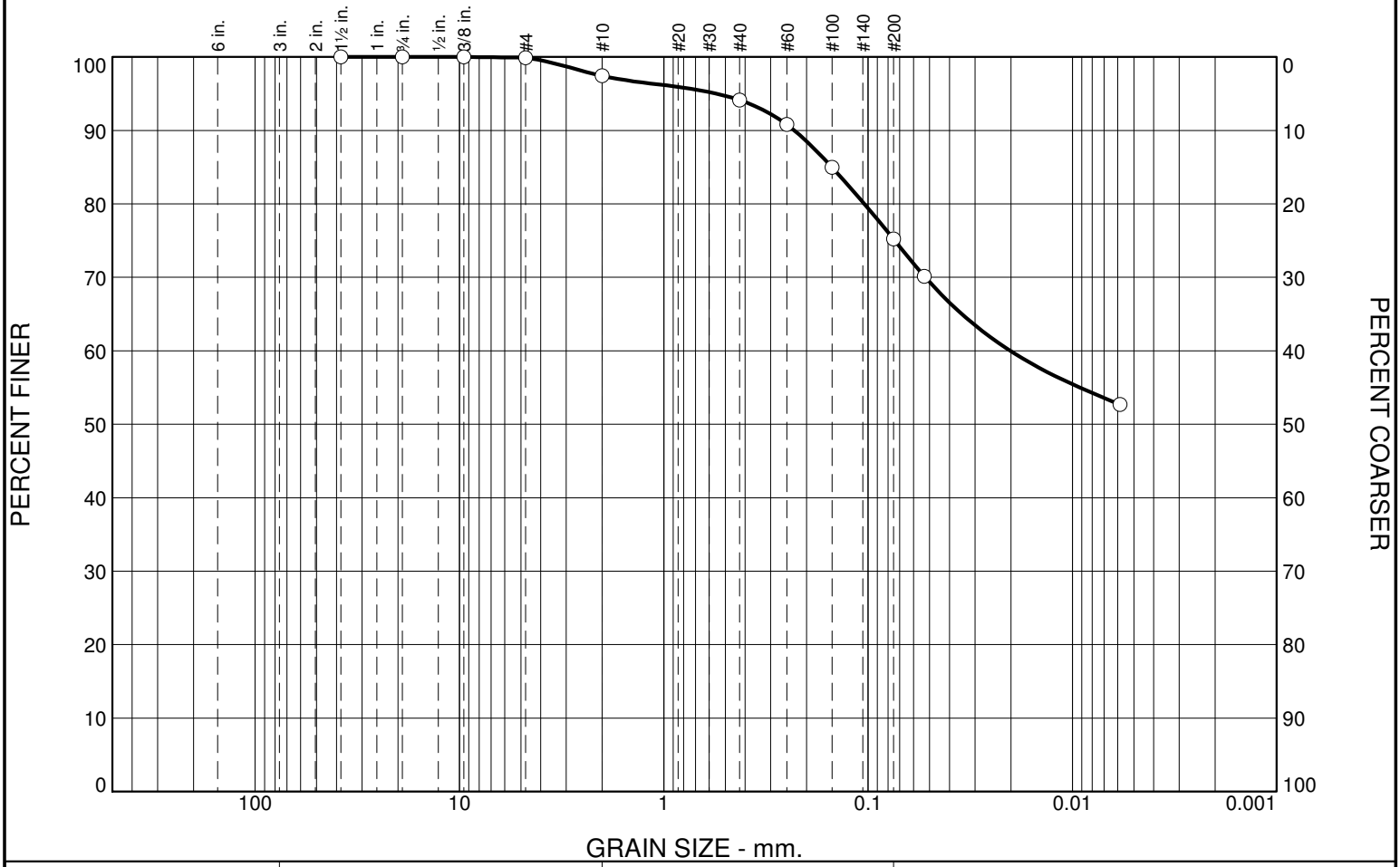
Source of Sample: P-013 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	2.6	3.3	18.9	75.2	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	100.0		
#4	99.9		
#10	97.4		
#40	94.1		
#60	90.8		
#100	85.0		
#200	75.2		
#270	70.1		
0.0058 mm.	52.7		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6) with trace roots

Atterberg Limits

PL= 28 LL= 51 PI= 23

Coefficients

D_{90}= 0.2298 D_{85}= 0.1505 D_{60}= 0.0201
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(18)

Remarks

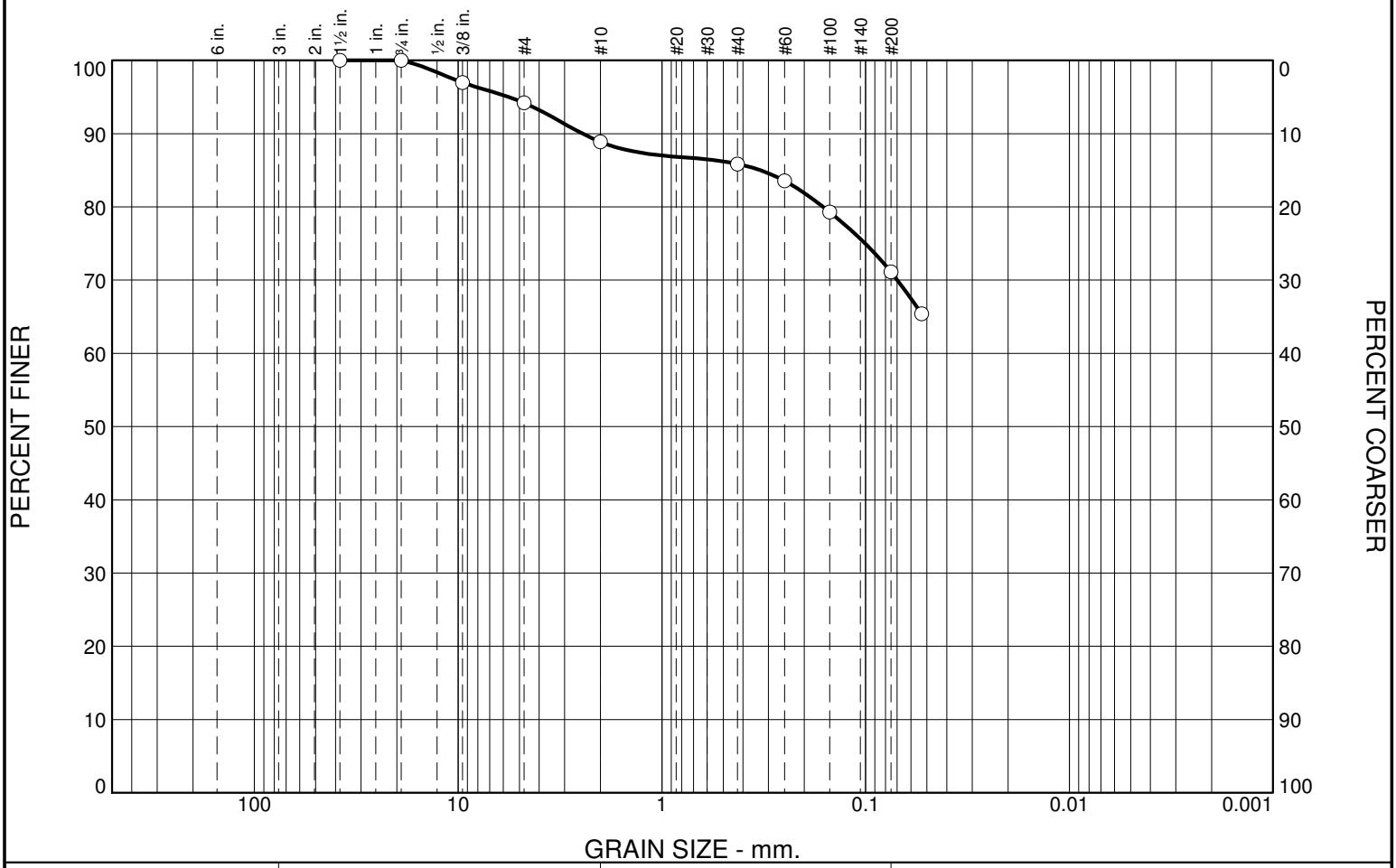
Source of Sample: P-014 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	11.1	3.0	14.8	71.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	97.0		
#4	94.2		
#10	88.9		
#40	85.9		
#60	83.5		
#100	79.3		
#200	71.1		
#270	65.4		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A 7-5)
-

Atterberg Limits

PL= 33 LL= 54 PI= 21

Coefficients

D_{90}= 2.4454 D_{85}= 0.3289 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(16)

Remarks

Source of Sample: P-015 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

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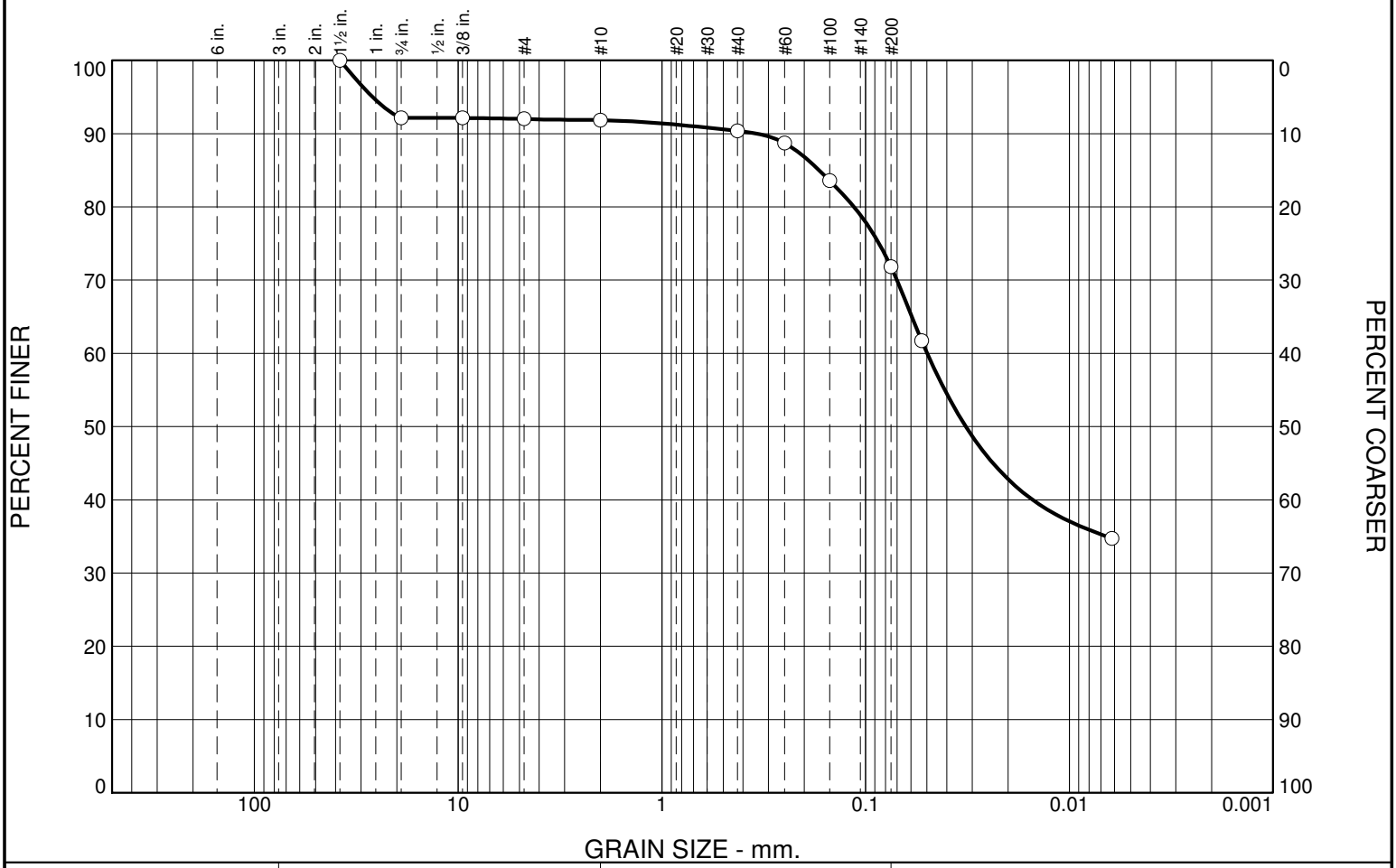
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	8.2	1.4	18.6	71.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	92.1		
3/8	92.1		
#4	92.0		
#10	91.8		
#40	90.4		
#60	88.7		
#100	83.6		
#200	71.8		
#270	61.7		
0.0062 mm.	34.7		

* (no specification provided)

Soil Description

Soft, moist, reddish brown, Elastic SILT (MH) (A-5)

Atterberg Limits

PL= 45 LL= 55 PI= 10

Coefficients

D_{90}= 0.3408 D_{85}= 0.1691 D_{60}= 0.0499
D_{50}= 0.0322 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(10)

Remarks

Source of Sample: P-016 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

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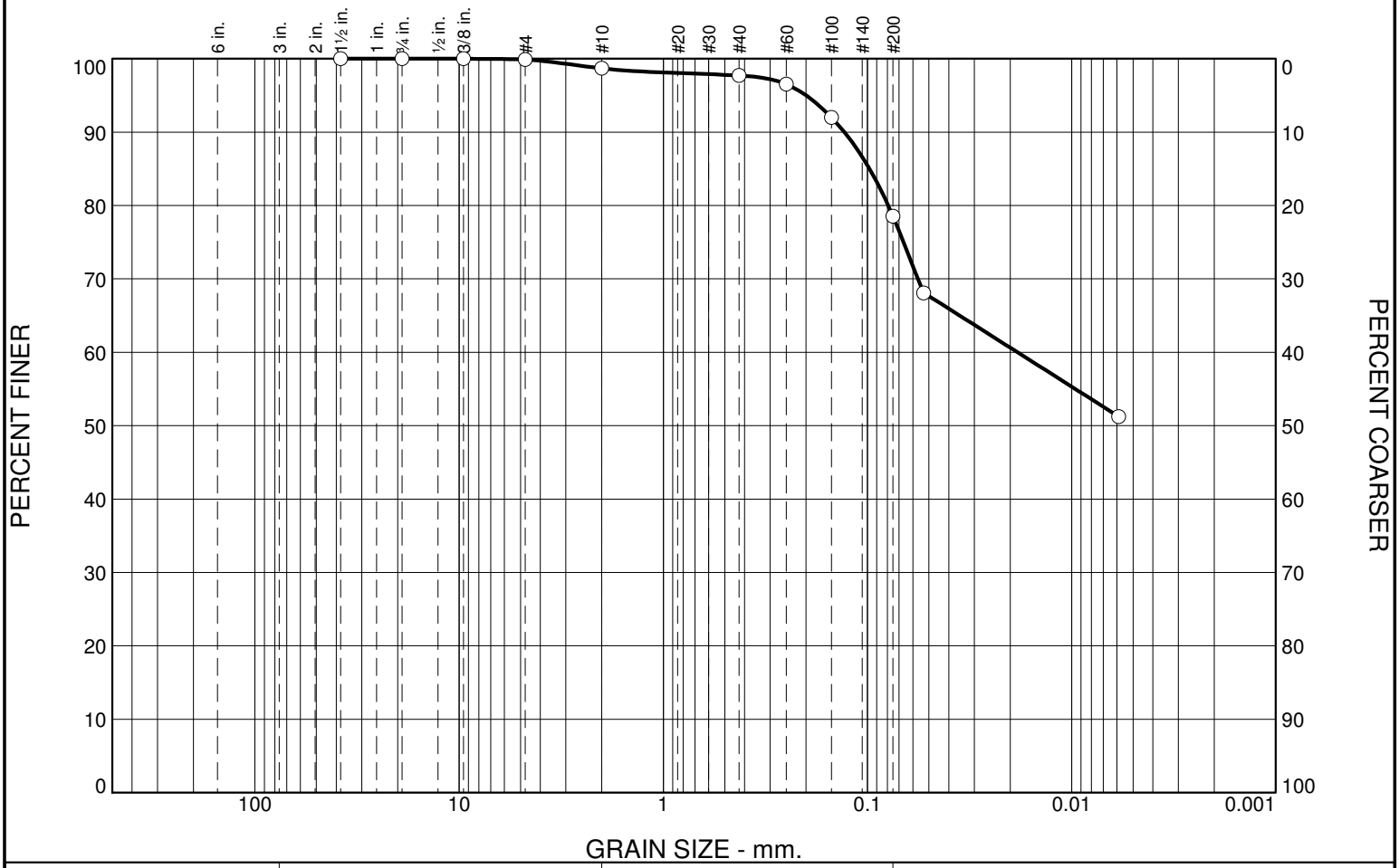
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	1.3	1.0	19.1	78.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	100.0		
#4	99.9		
#10	98.7		
#40	97.7		
#60	96.5		
#100	92.0		
#200	78.6		
#270	68.1		
0.0059 mm.	51.3		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)

Atterberg Limits

PL= 38 LL= 49 PI= 11

Coefficients

D_{90}= 0.1297 D_{85}= 0.0977 D_{60}= 0.0184
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(11)

Remarks

Source of Sample: P-017 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

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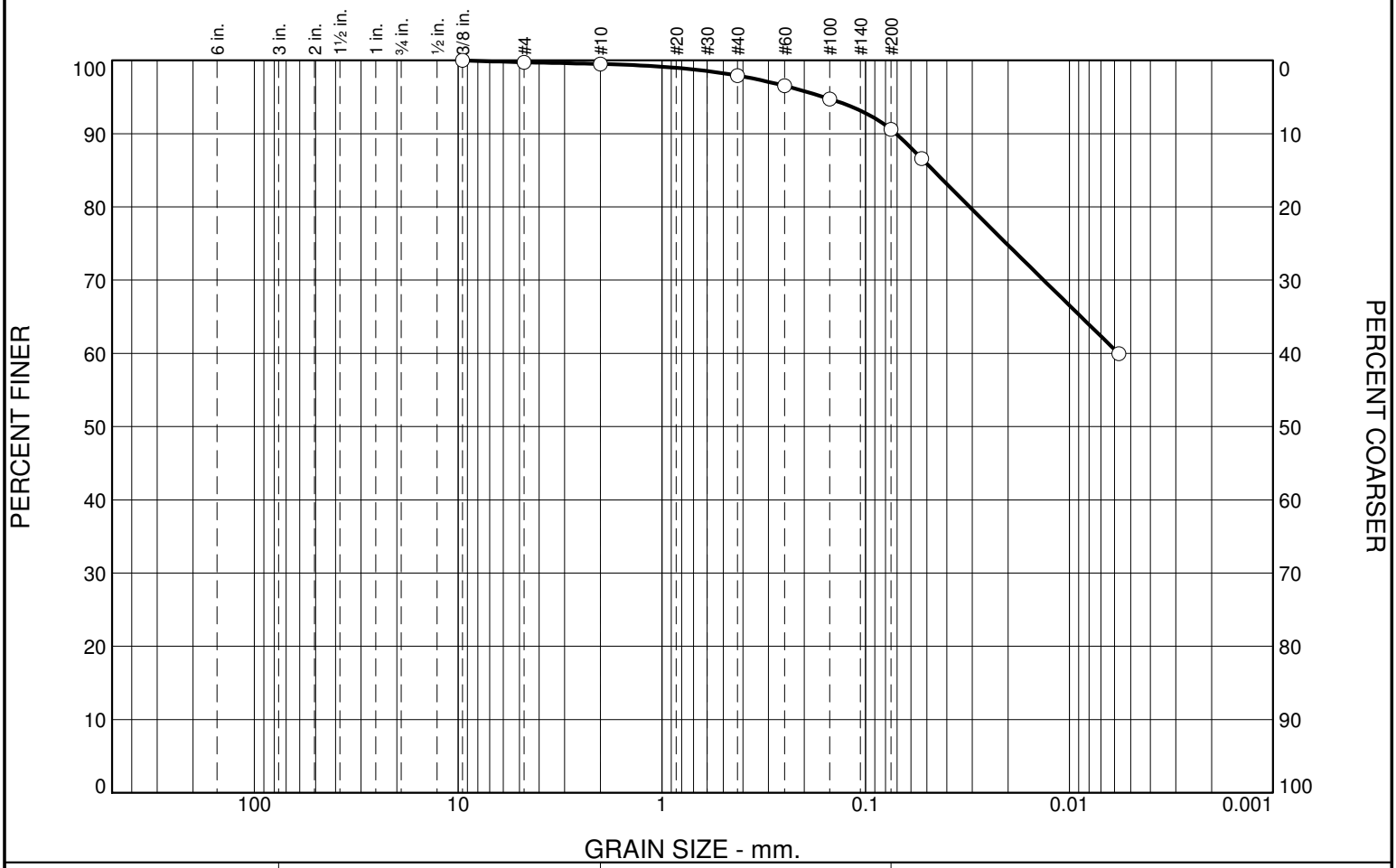
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	0.5	1.6	7.3	90.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.7		
#10	99.5		
#40	97.9		
#60	96.5		
#100	94.7		
#200	90.6		
#270	86.6		
0.0057 mm.	60.0		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 36 LL= 58 PI= 22

Coefficients

D_{90}= 0.0710 D_{85}= 0.0466 D_{60}= 0.0057
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(25)

Remarks

Source of Sample: P-018 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

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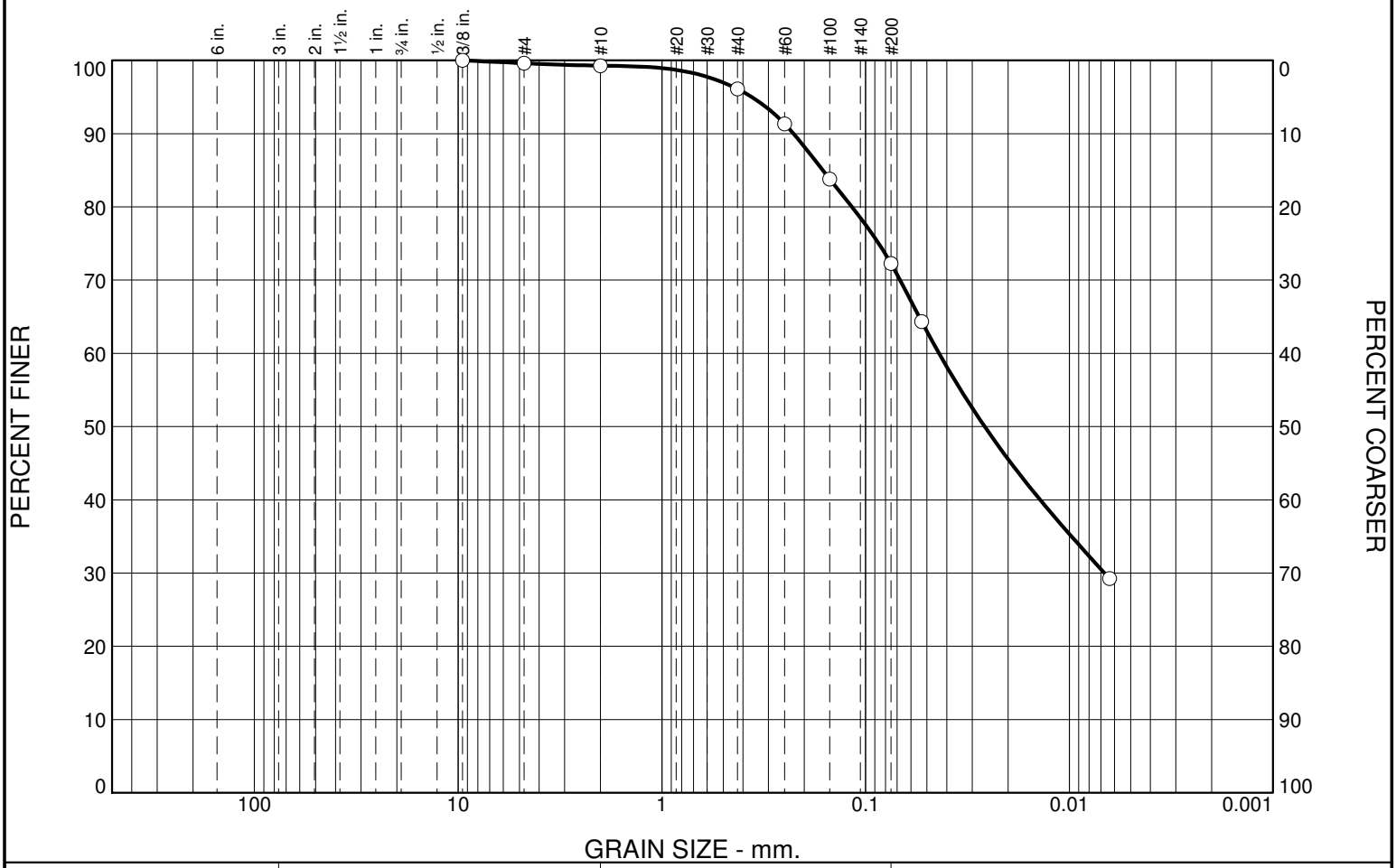
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	0.7	3.2	23.8	72.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.6		
#10	99.3		
#40	96.1		
#60	91.3		
#100	83.8		
#200	72.3		
#270	64.3		
0.0063 mm.	29.2		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots

Atterberg Limits

PL= 41 LL= 48 PI= 7

Coefficients

D_{90}= 0.2260 D_{85}= 0.1622 D_{60}= 0.0436
D_{50}= 0.0260 D_{30}= 0.0067 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-019 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

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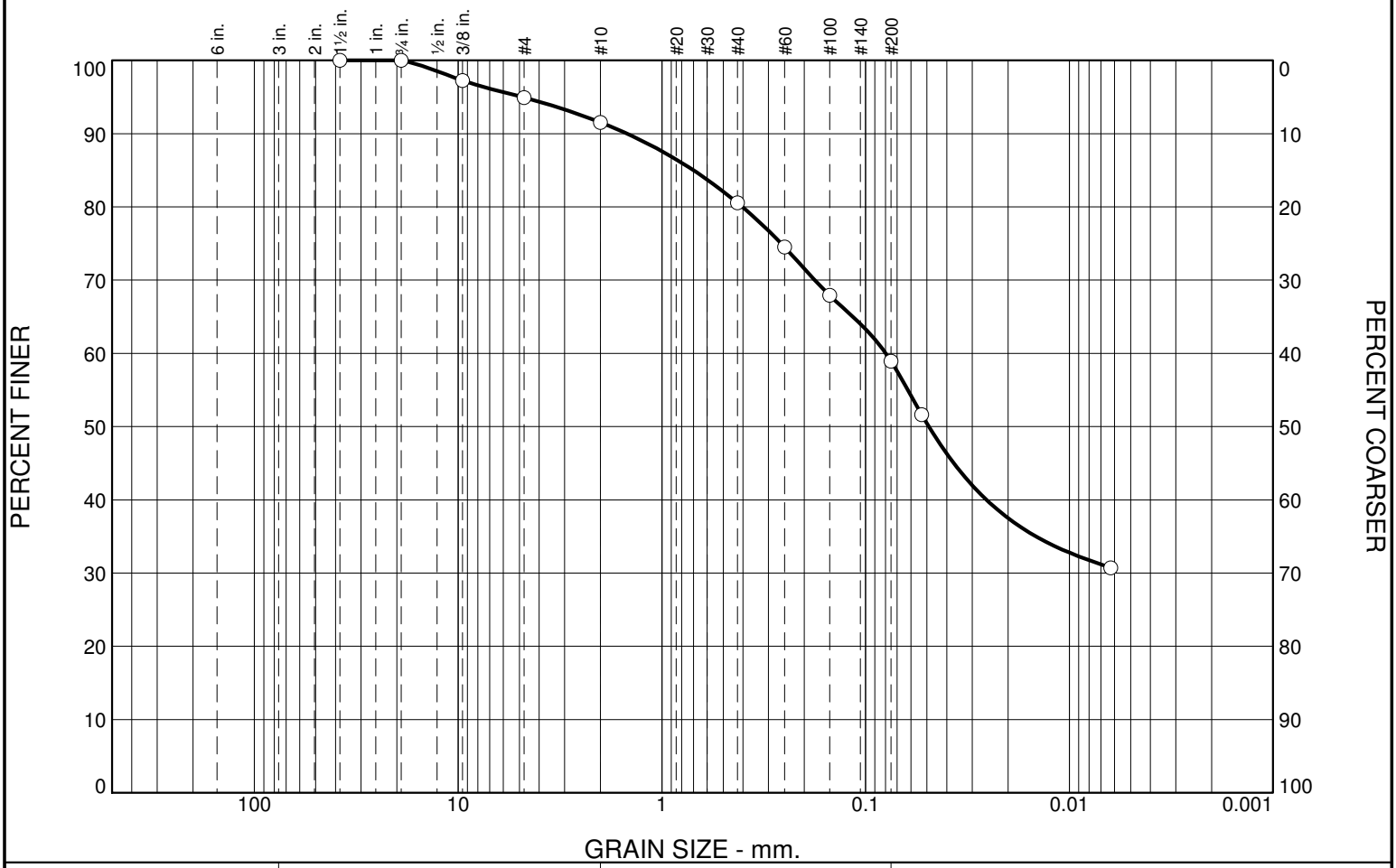
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	8.5	11.0	21.6	58.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	100.0		
3/8	97.3		
#4	94.9		
#10	91.5		
#40	80.5		
#60	74.5		
#100	67.9		
#200	58.9		
#270	51.6		
0.0063 mm.	30.7		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, orangish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 30 LL= 39 PI= 9

Coefficients

D_{90}= 1.4859 D_{85}= 0.6990 D_{60}= 0.0796
D_{50}= 0.0489 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-020 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

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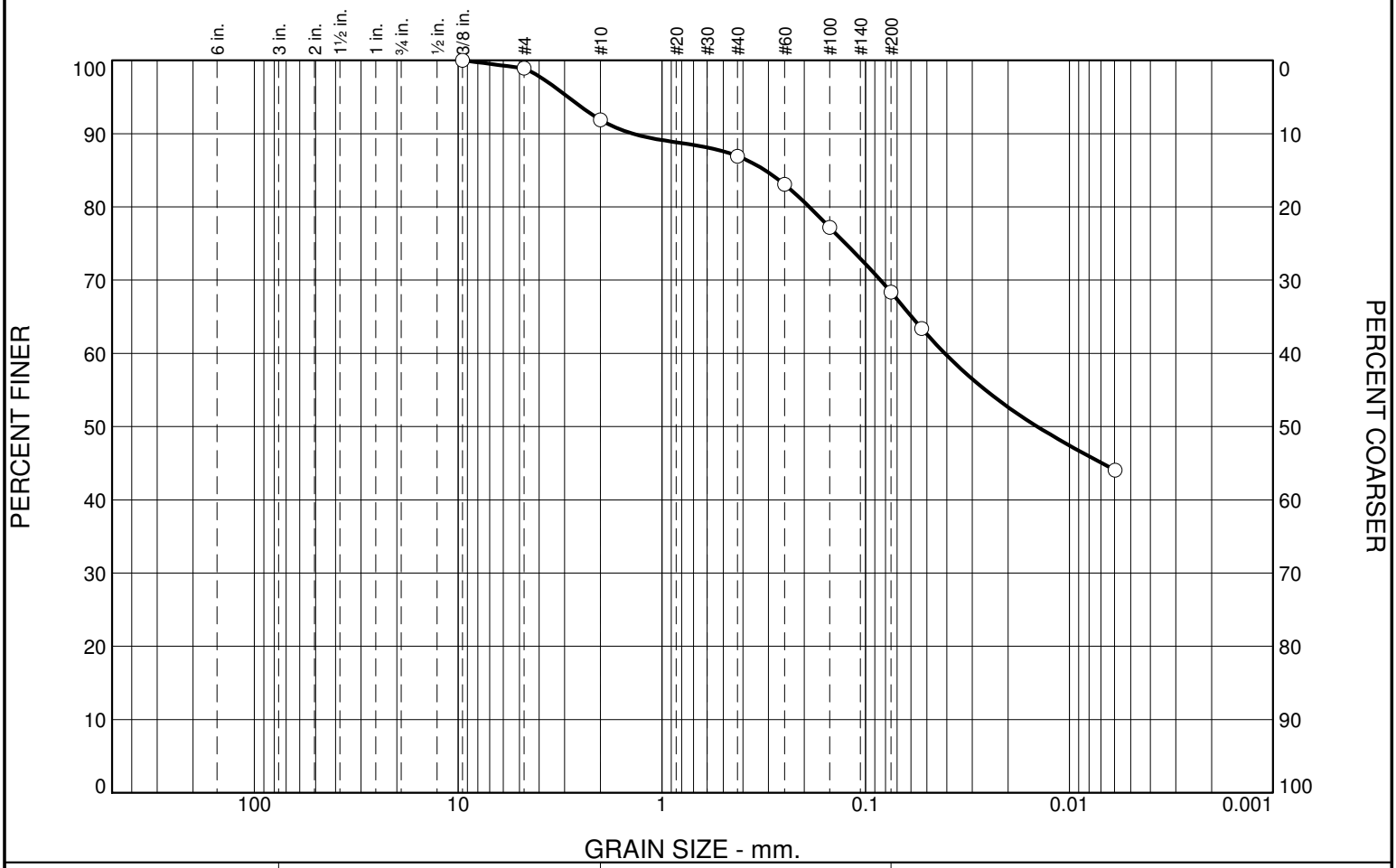
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	8.1	5.0	18.5	68.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	98.9		
#10	91.9		
#40	86.9		
#60	83.1		
#100	77.2		
#200	68.4		
#270	63.4		
0.0060 mm.	44.1		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, orangish brown, Sandy SILT (ML) (A-7-5)

Atterberg Limits

PL= 31 LL= 48 PI= 17

Coefficients

D_{90}= 1.3873 D_{85}= 0.3119 D_{60}= 0.0408
D_{50}= 0.0144 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(12)

Remarks

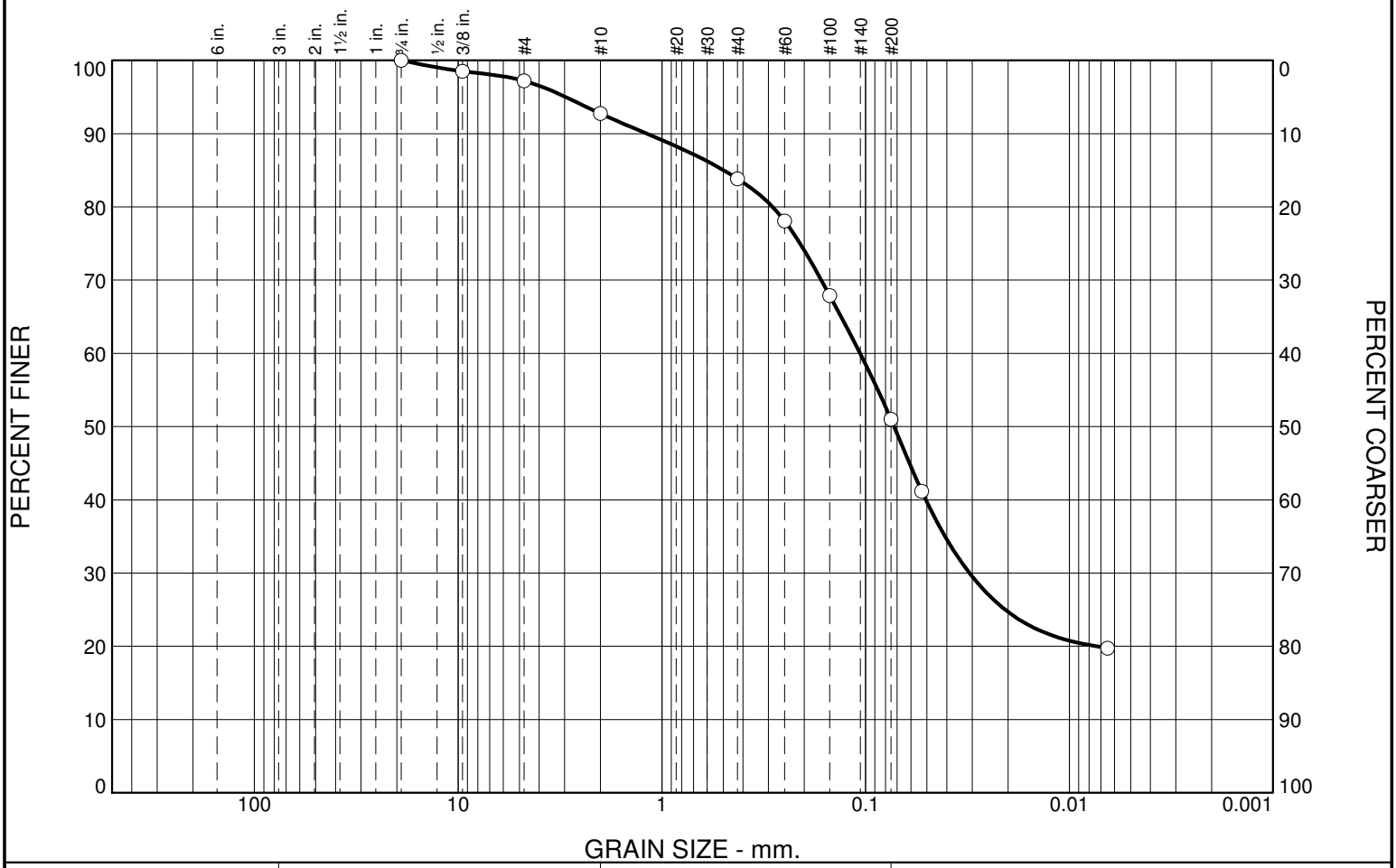
Source of Sample: P-021 **Depth:** 3.50-5.00
Sample Number: S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	7.3	8.9	32.8	51.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	98.5		
#4	97.2		
#10	92.7		
#40	83.8		
#60	78.1		
#100	67.9		
#200	51.0		
#270	41.2		
0.0065 mm.	19.7		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 28 LL= 33 PI= 5

Coefficients

D_{90}= 1.1858 D_{85}= 0.4976 D_{60}= 0.1064
D_{50}= 0.0724 D_{30}= 0.0309 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: P-022 **Depth:** 3.50-5.00
Sample Number: S-3 **Date:**

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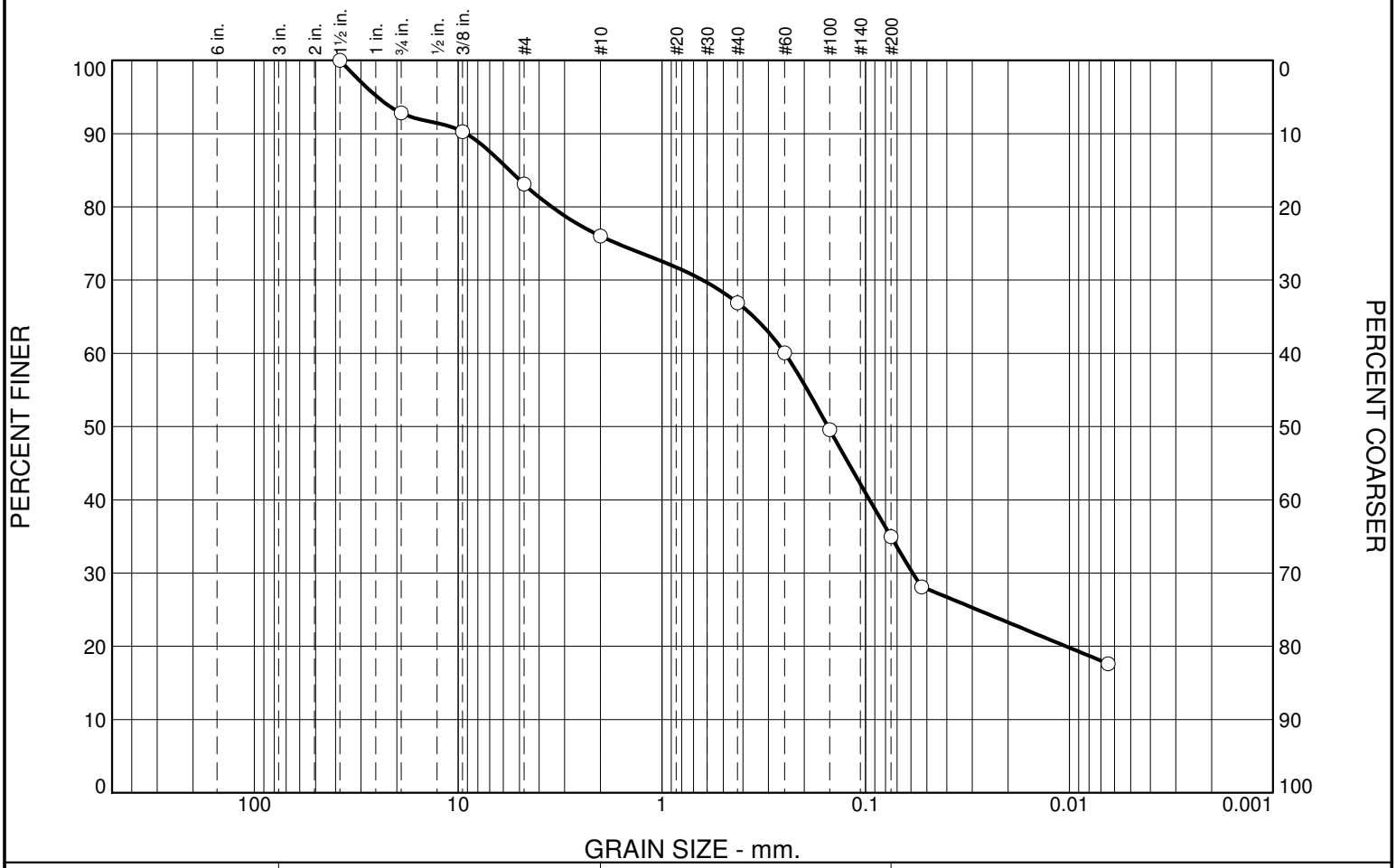
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	24.0	9.1	31.9	35.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	92.8		
3/8	90.3		
#4	83.1		
#10	76.0		
#40	66.9		
#60	60.1		
#100	49.6		
#200	35.0		
#270	28.1		
0.0065 mm.	17.6		

* (no specification provided)

Soil Description

Loose to medium dense, brown to orangish brown, Silty Fine to Medium SAND (SM) (A-4) with trace gravel

Atterberg Limits

PL= 18 LL= 20 PI= 2

Coefficients

D_{90}= 9.1403 D_{85}= 5.6076 D_{60}= 0.2492
D_{50}= 0.1530 D_{30}= 0.0587 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: P-023 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

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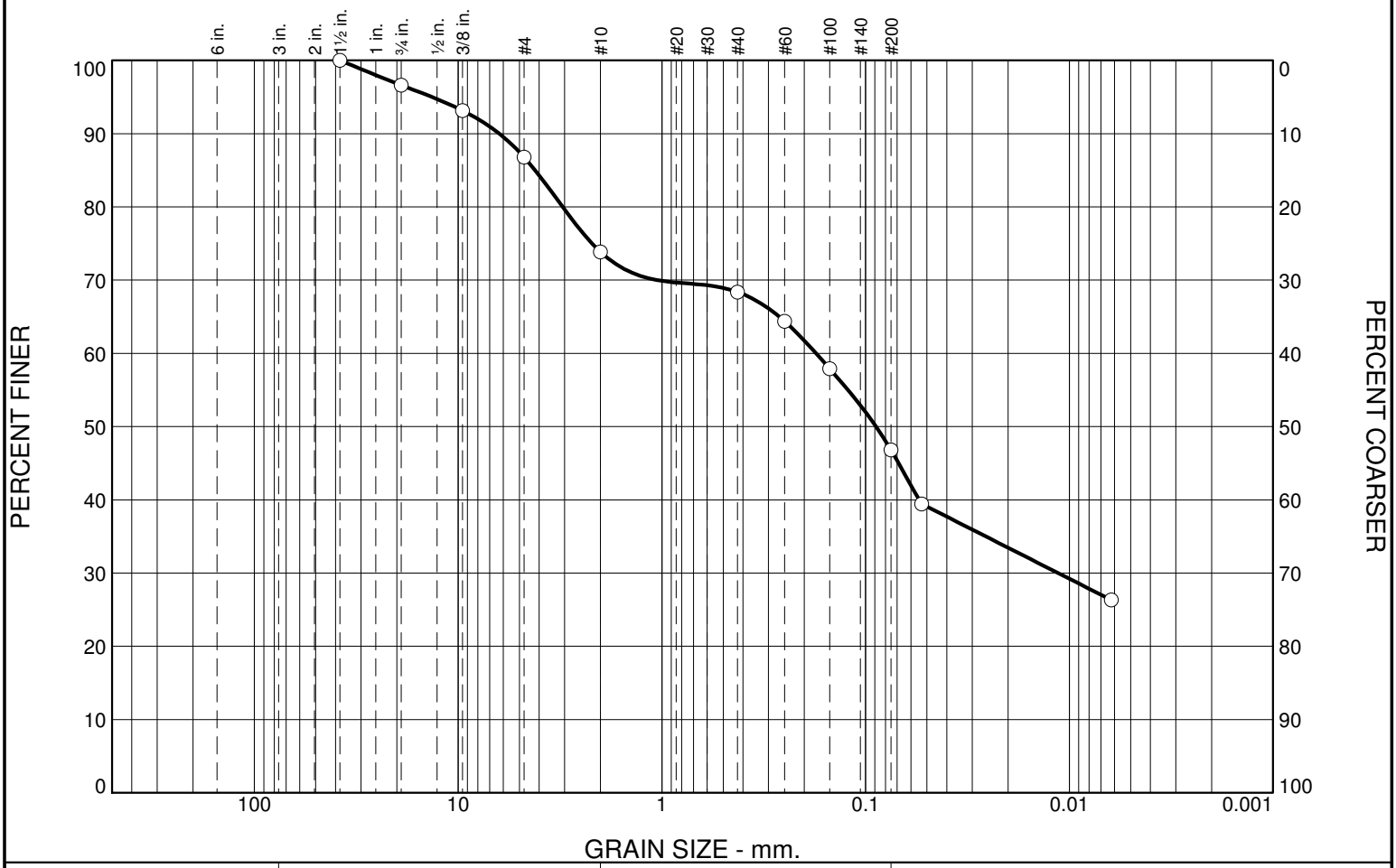
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	26.2	5.4	21.6	46.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	96.6		
3/8	93.1		
#4	86.8		
#10	73.8		
#40	68.4		
#60	64.4		
#100	57.9		
#200	46.8		
#270	39.4		
0.0062 mm.	26.3		

* (no specification provided)

Soil Description

Loose, moist, orangish brown to reddish brown, Silty Fine to Coarse SAND (SM) (A-6) with trace roots and gravel

Atterberg Limits

PL= 27 LL= 38 PI= 11

Coefficients

D_{90}= 6.2911 D_{85}= 4.1872 D_{60}= 0.1750
D_{50}= 0.0888 D_{30}= 0.0113 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-6(3)

Remarks

Source of Sample: P-024 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

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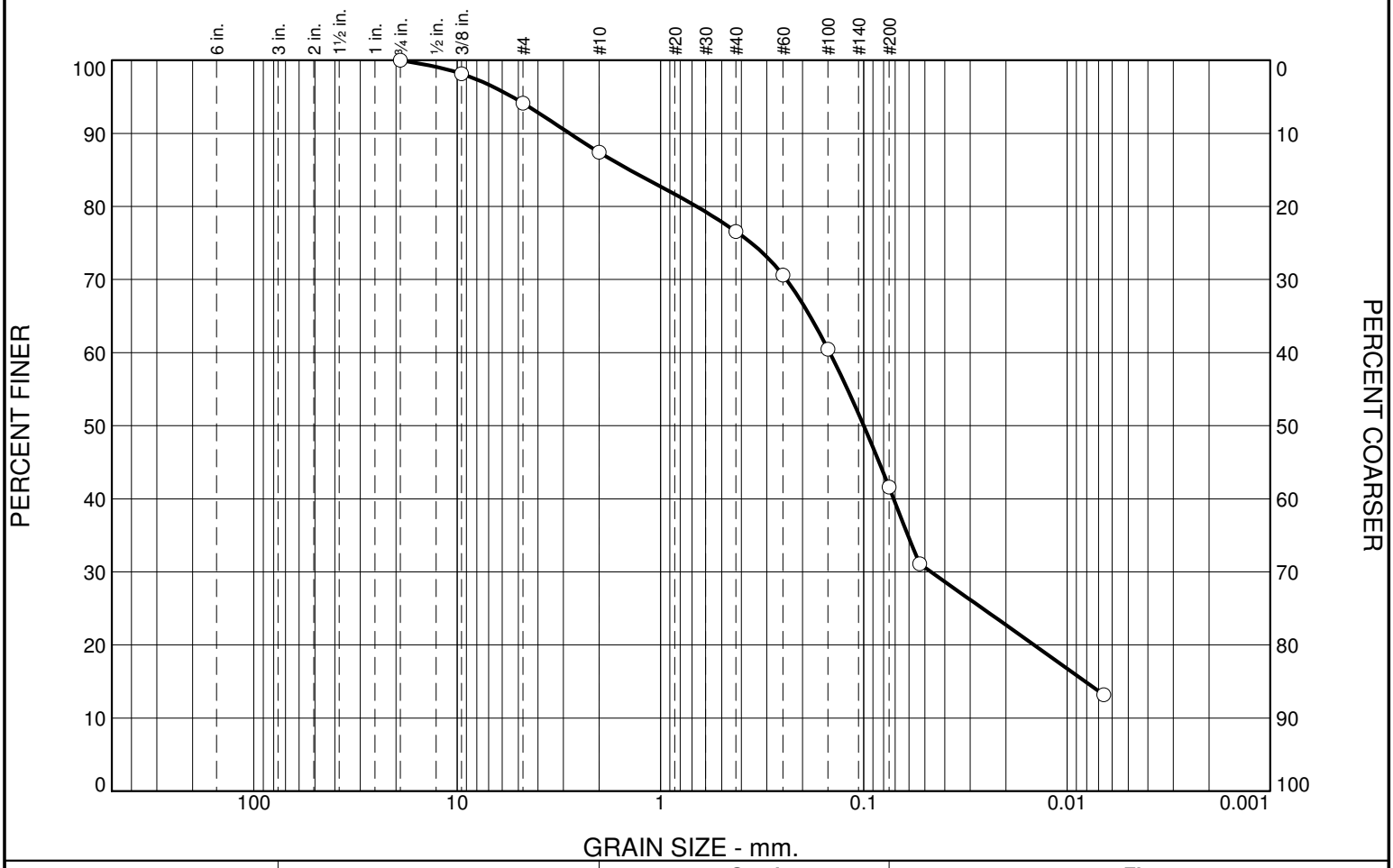
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	12.6	10.8	35.0	41.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	98.1		
#4	94.1		
#10	87.4		
#40	76.6		
#60	70.6		
#100	60.5		
#200	41.6		
#270	31.1		
0.0066 mm.	13.2		

* (no specification provided)

Soil Description

Very dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 26 LL= 27 PI= 1

Coefficients

D_{90}= 2.7943 D_{85}= 1.4174 D_{60}= 0.1470
D_{50}= 0.0999 D_{30}= 0.0466 D_{15}= 0.0081
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Source of Sample: P-025 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

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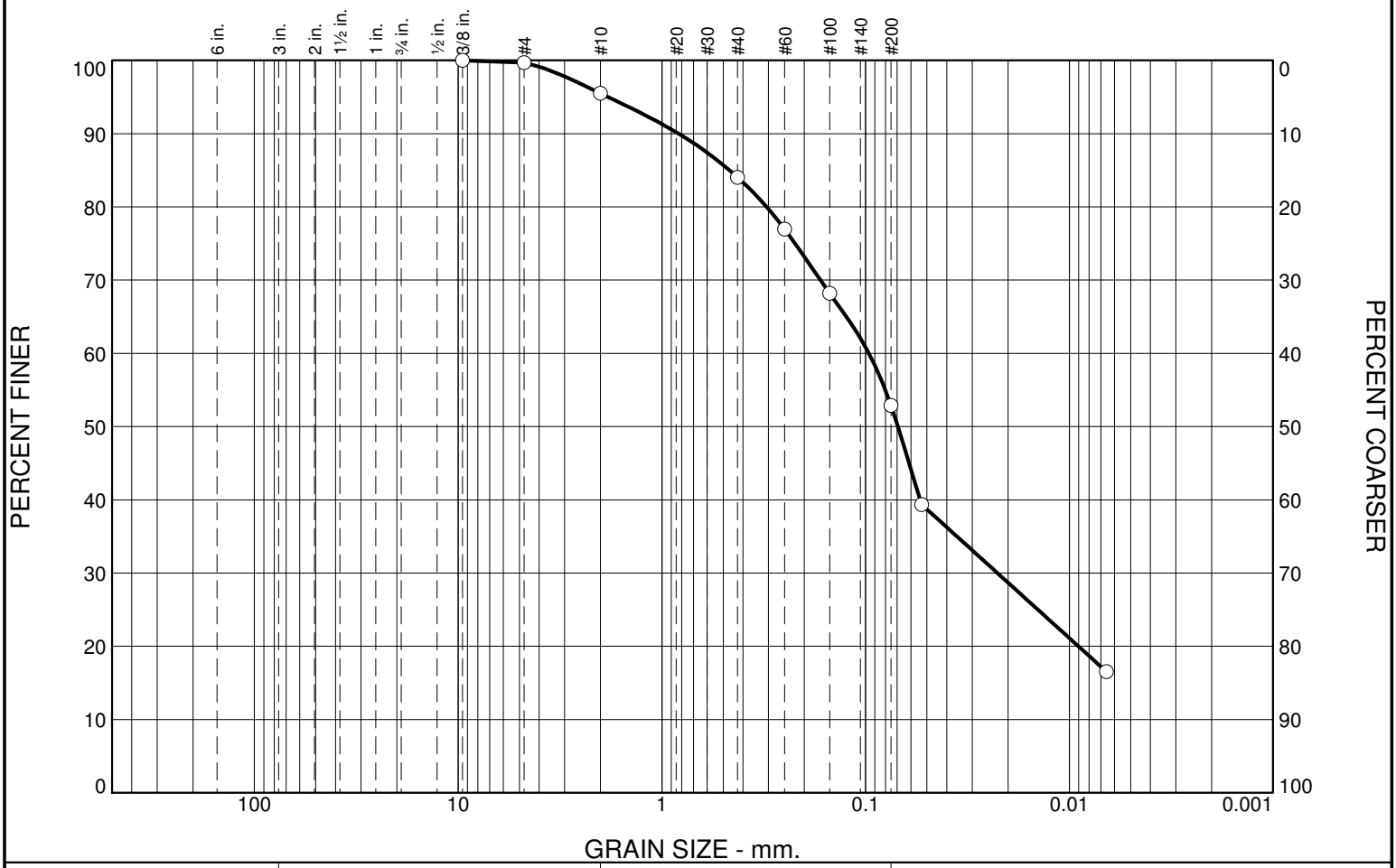
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	4.5	11.5	31.1	52.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.7		
#10	95.5		
#40	84.0		
#60	77.0		
#100	68.2		
#200	52.9		
#270	39.3		
0.0066 mm.	16.5		

* (no specification provided)

Soil Description

Soft to medium stiff, moist, tannish orange to brown, Sandy SILT (ML) (A-4) with trace roots

Atterberg Limits

PL= 33 LL= 37 PI= 4

Coefficients

D_{90}= 0.8270 D_{85}= 0.4650 D_{60}= 0.0963
D_{50}= 0.0693 D_{30}= 0.0225 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: P-026 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

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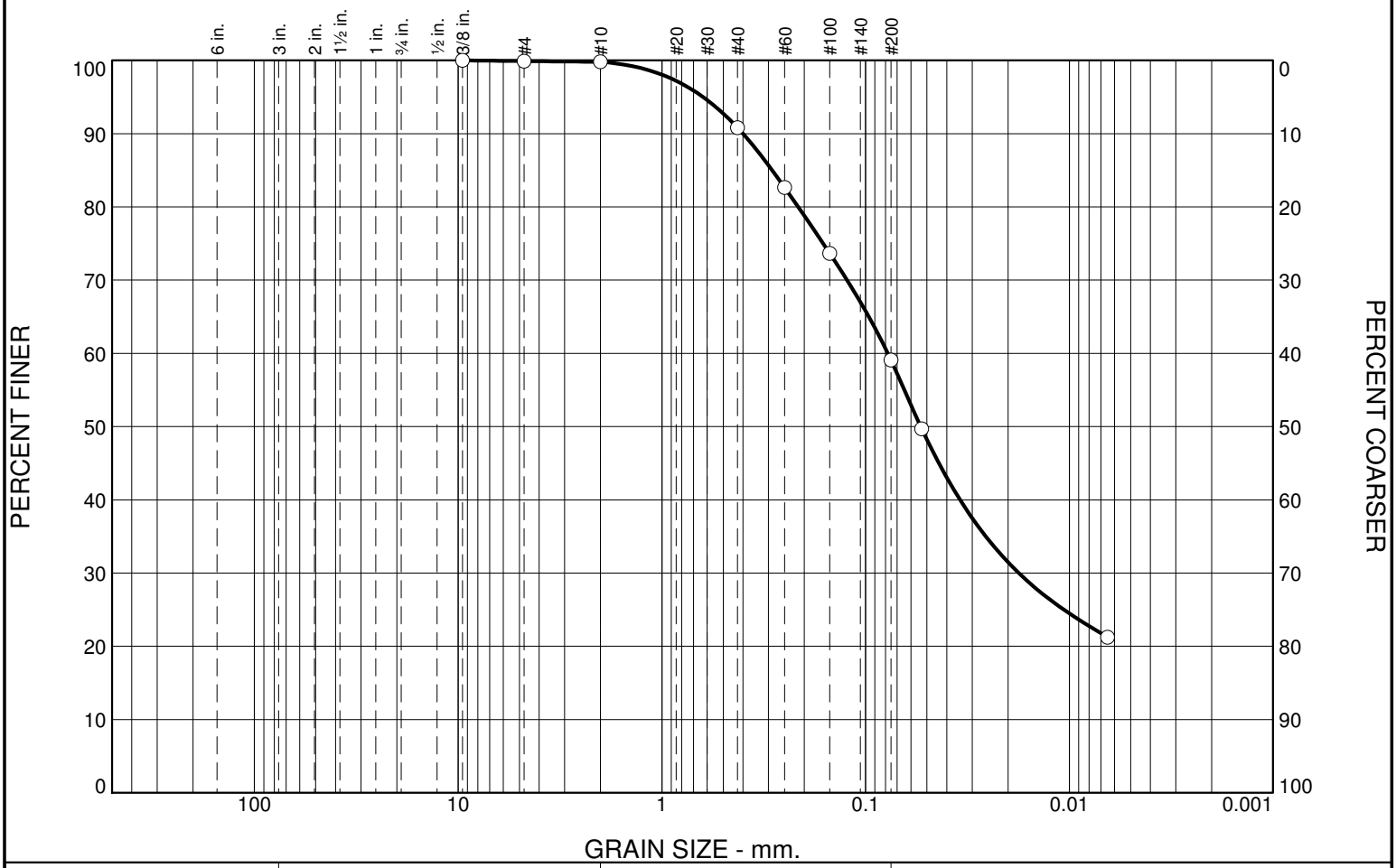
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	0.2	9.0	31.7	59.1	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.9		
#10	99.8		
#40	90.8		
#60	82.6		
#100	73.7		
#200	59.1		
#270	49.7		
0.0065 mm.	21.2		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-5) with trace gravel

Atterberg Limits

PL= 40 LL= 41 PI= 1

Coefficients

D_{90}= 0.3997 D_{85}= 0.2880 D_{60}= 0.0778
D_{50}= 0.0536 D_{30}= 0.0177 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(1)

Remarks

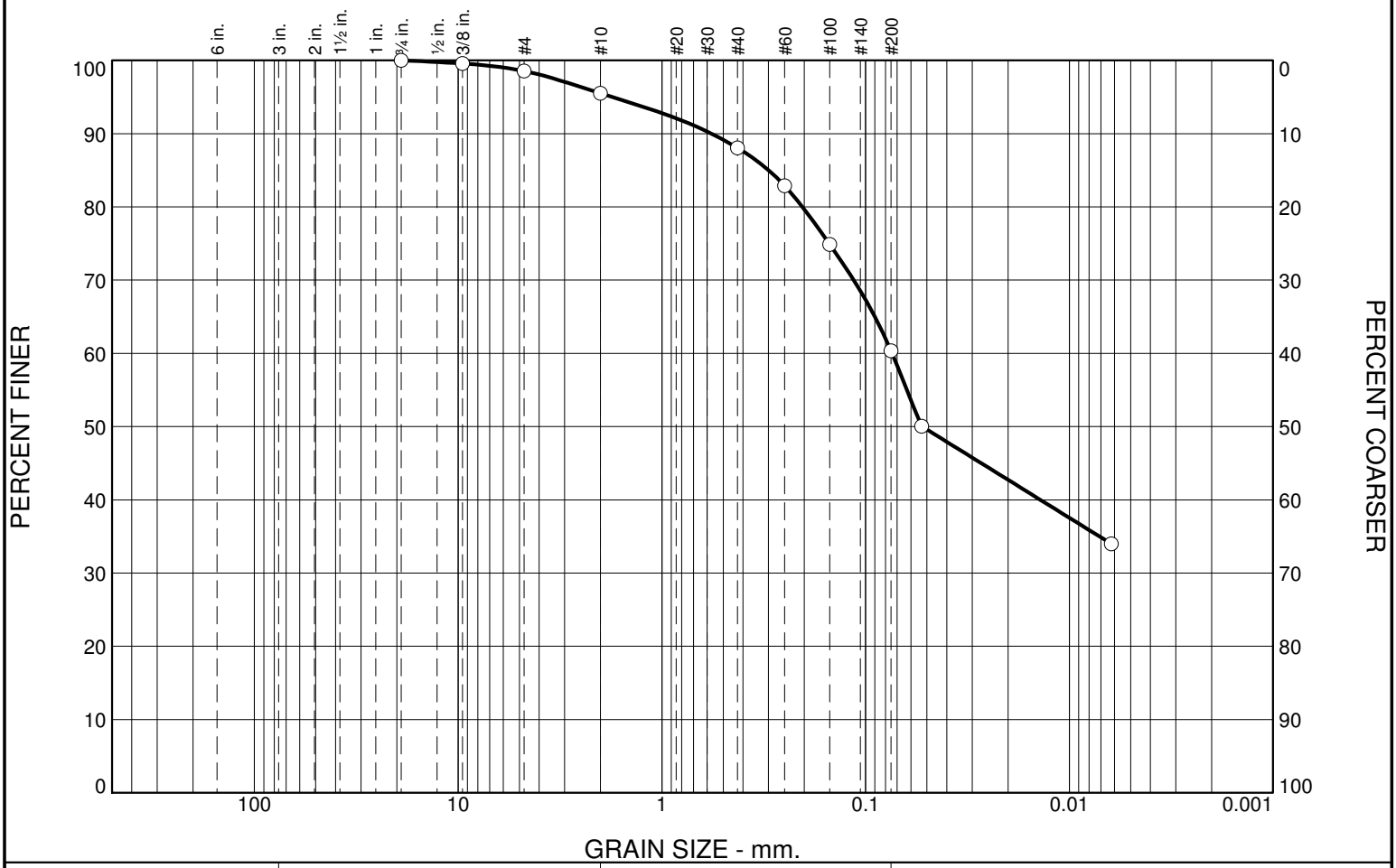
Source of Sample: P-027 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	4.5	7.5	27.6	60.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	99.6		
#4	98.5		
#10	95.5		
#40	88.0		
#60	82.9		
#100	74.9		
#200	60.4		
#270	50.0		
0.0062 mm.	34.0		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish brown to brown, Sandy CLAY (CL) (A-6) with trace roots and gravel

Atterberg Limits

PL= 22 LL= 33 PI= 11

Coefficients

D_{90}= 0.5701 D_{85}= 0.2996 D_{60}= 0.0741
D_{50}= 0.0527 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(5)

Remarks

Source of Sample: P-028 **Depth:** 0.50-2.00
Sample Number: S-1 **Date:**

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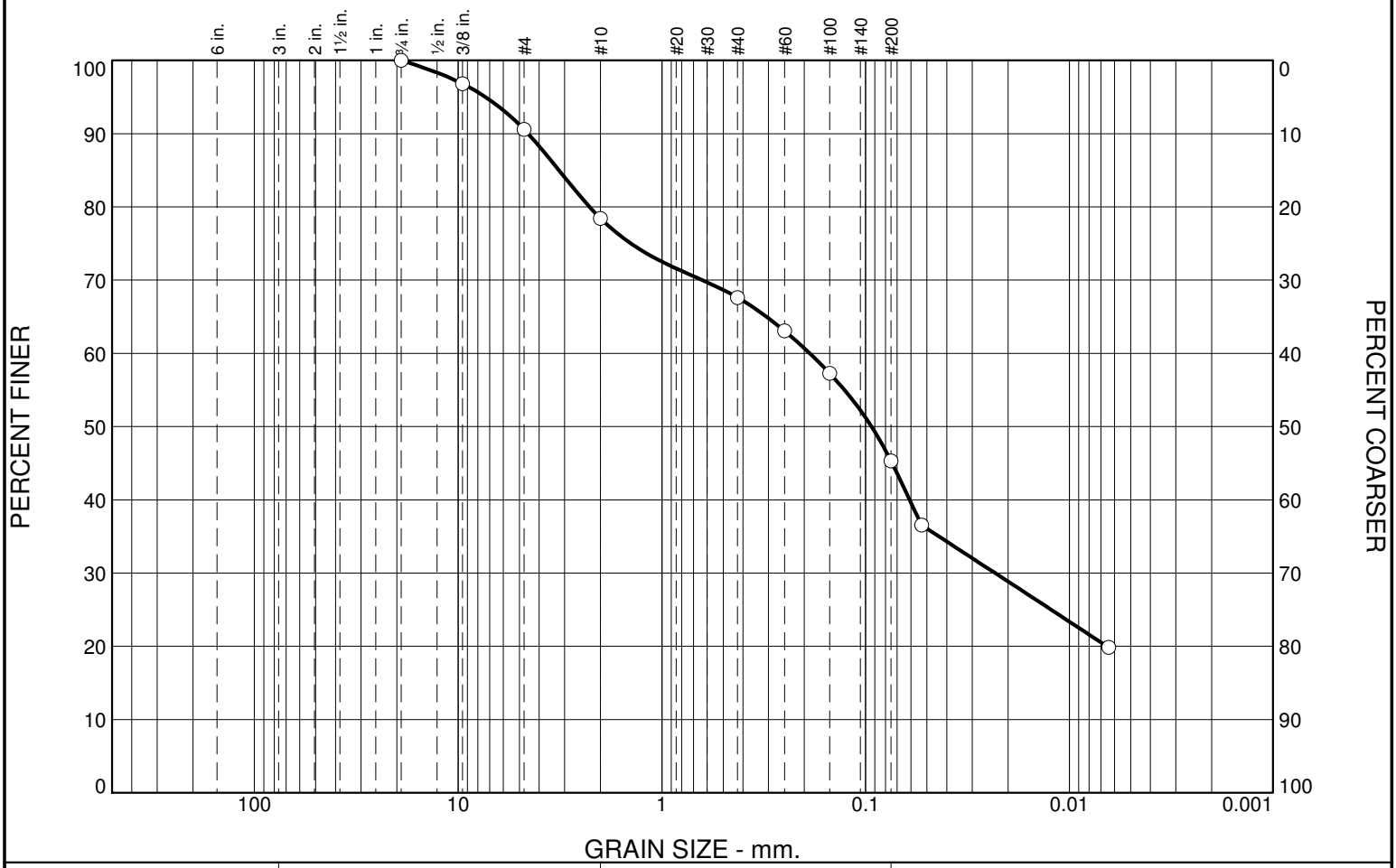
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	21.6	10.8	22.3	45.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	96.8		
#4	90.6		
#10	78.4		
#40	67.6		
#60	63.1		
#100	57.3		
#200	45.3		
#270	36.5		
0.0064 mm.	19.9		

* (no specification provided)

Soil Description

Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 27 LL= 34 PI= 7

Coefficients

D_{90}= 4.5391 D_{85}= 3.1965 D_{60}= 0.1880
D_{50}= 0.0935 D_{30}= 0.0231 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(1)

Remarks

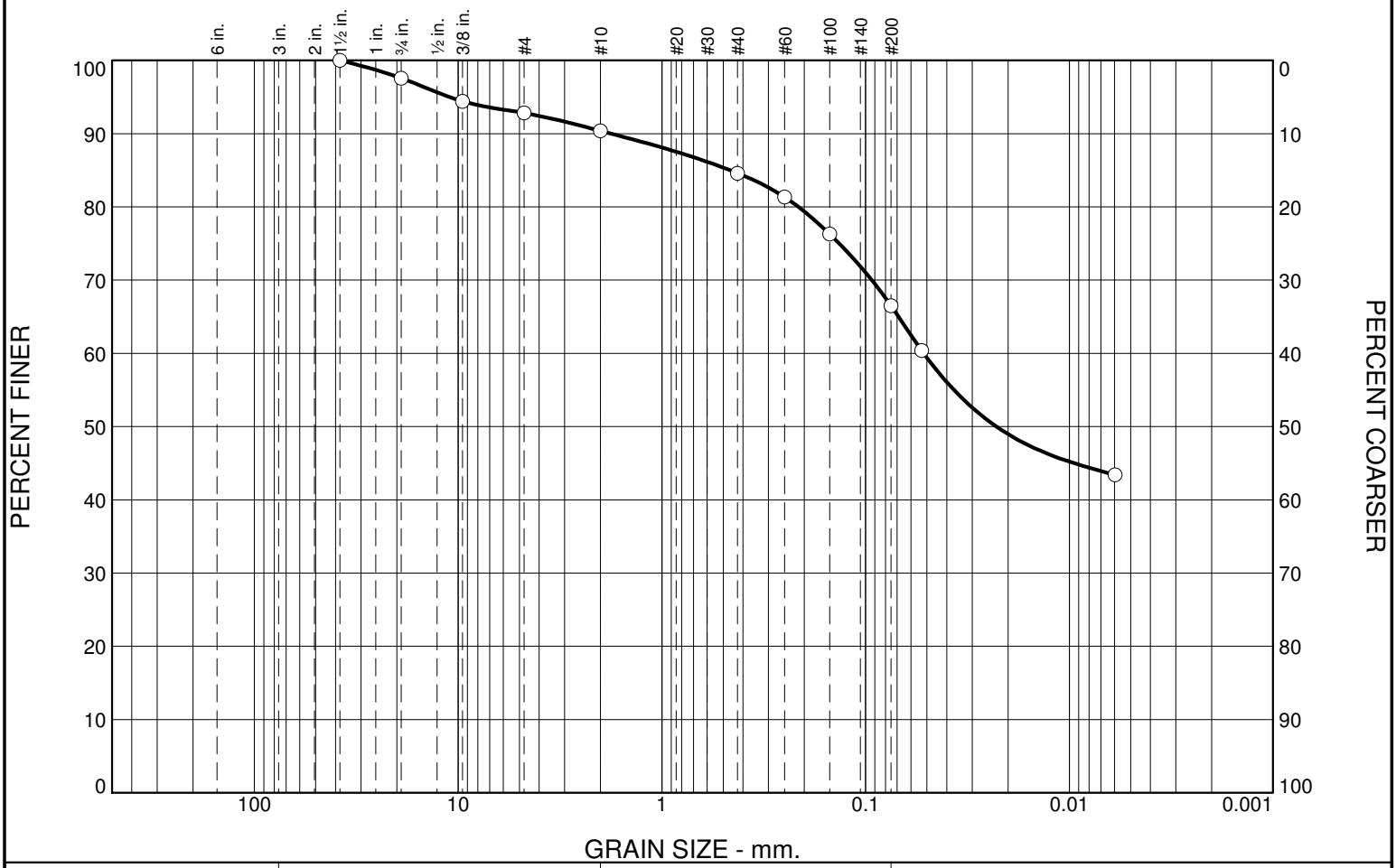
Source of Sample: P-028 **Depth:** 2.00-3.50
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	9.6	5.8	18.1	66.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	97.6		
3/8	94.4		
#4	92.8		
#10	90.4		
#40	84.6		
#60	81.3		
#100	76.3		
#200	66.5		
#270	60.4		
0.0060 mm.	43.4		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 26 LL= 48 PI= 22

Coefficients

D_{90}= 1.7746 D_{85}= 0.4623 D_{60}= 0.0518
D_{50}= 0.0227 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(14)

Remarks

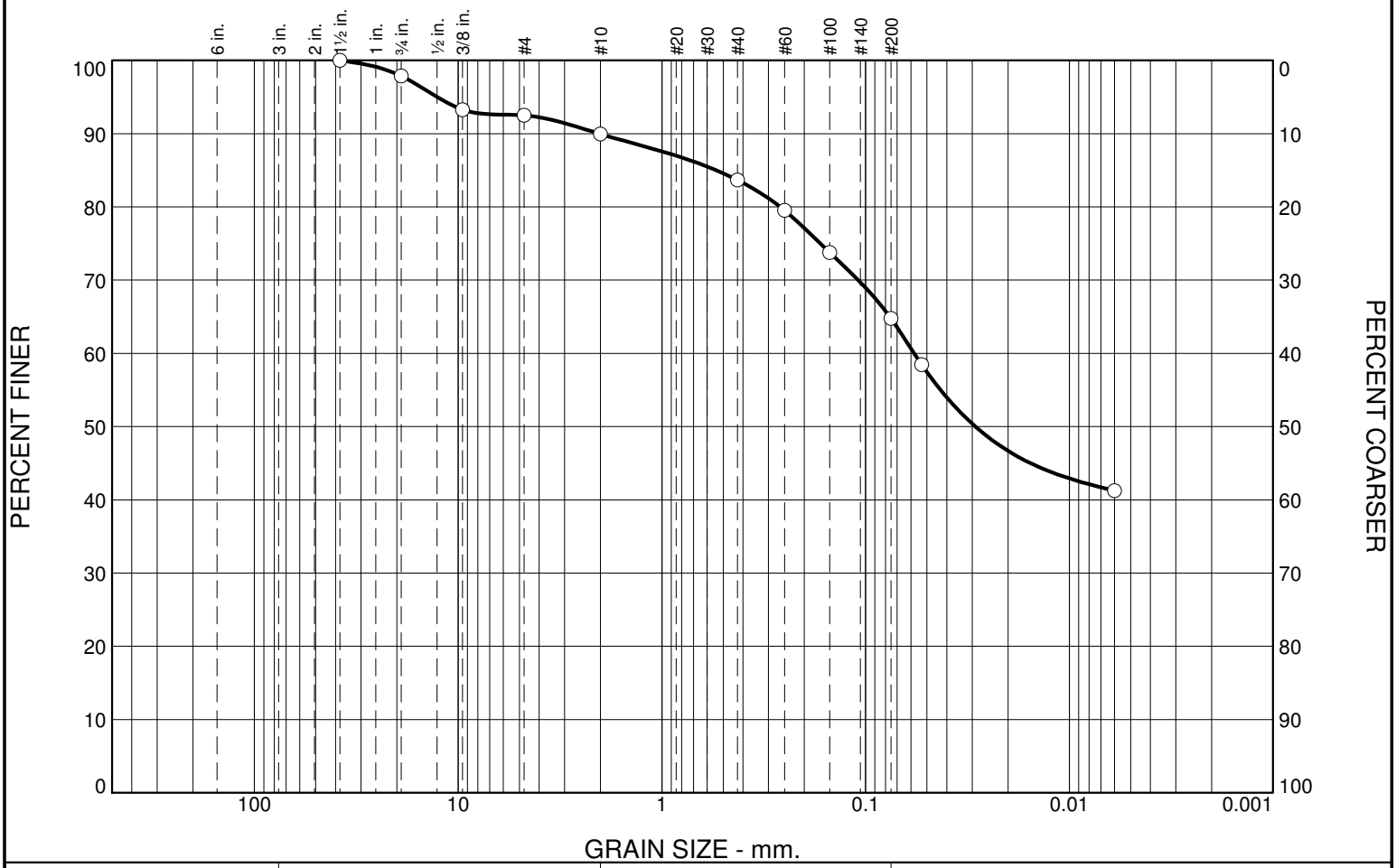
Source of Sample: P-029 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	10.1	6.2	18.9	64.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	97.9		
3/8	93.3		
#4	92.5		
#10	89.9		
#40	83.7		
#60	79.5		
#100	73.8		
#200	64.8		
#270	58.5		
0.0060 mm.	41.2		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish brown to reddish brown, Sandy SILT (ML) (A-7-6) with trace gravel and roots

Atterberg Limits

PL= 27 LL= 43 PI= 16

Coefficients

D_{90}= 2.0287 D_{85}= 0.5410 D_{60}= 0.0577
D_{50}= 0.0289 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-6(9)

Remarks

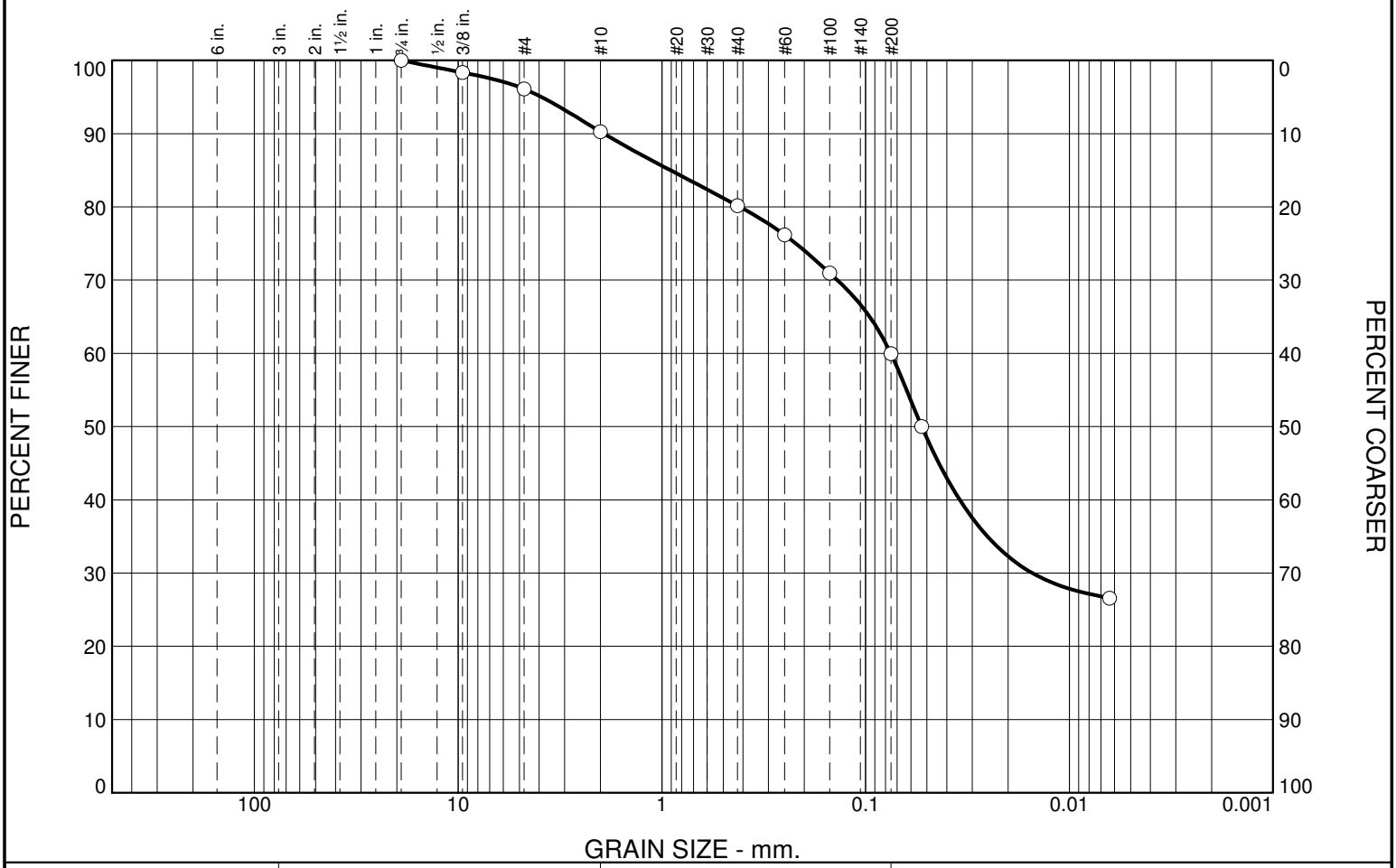
Source of Sample: P-030 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	9.7	10.1	20.3	59.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	98.3		
#4	96.1		
#10	90.3		
#40	80.2		
#60	76.2		
#100	71.0		
#200	59.9		
#270	50.0		
0.0063 mm.	26.6		

* (no specification provided)

Soil Description

Stiff, moist, tannish orange to brown, Sandy SILT (ML) (A- 4) with trace rocks

Atterberg Limits

PL= 25 LL= 31 PI= 6

Coefficients

D_{90}= 1.9249 D_{85}= 0.9071 D_{60}= 0.0752
D_{50}= 0.0530 D_{30}= 0.0152 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(2)

Remarks

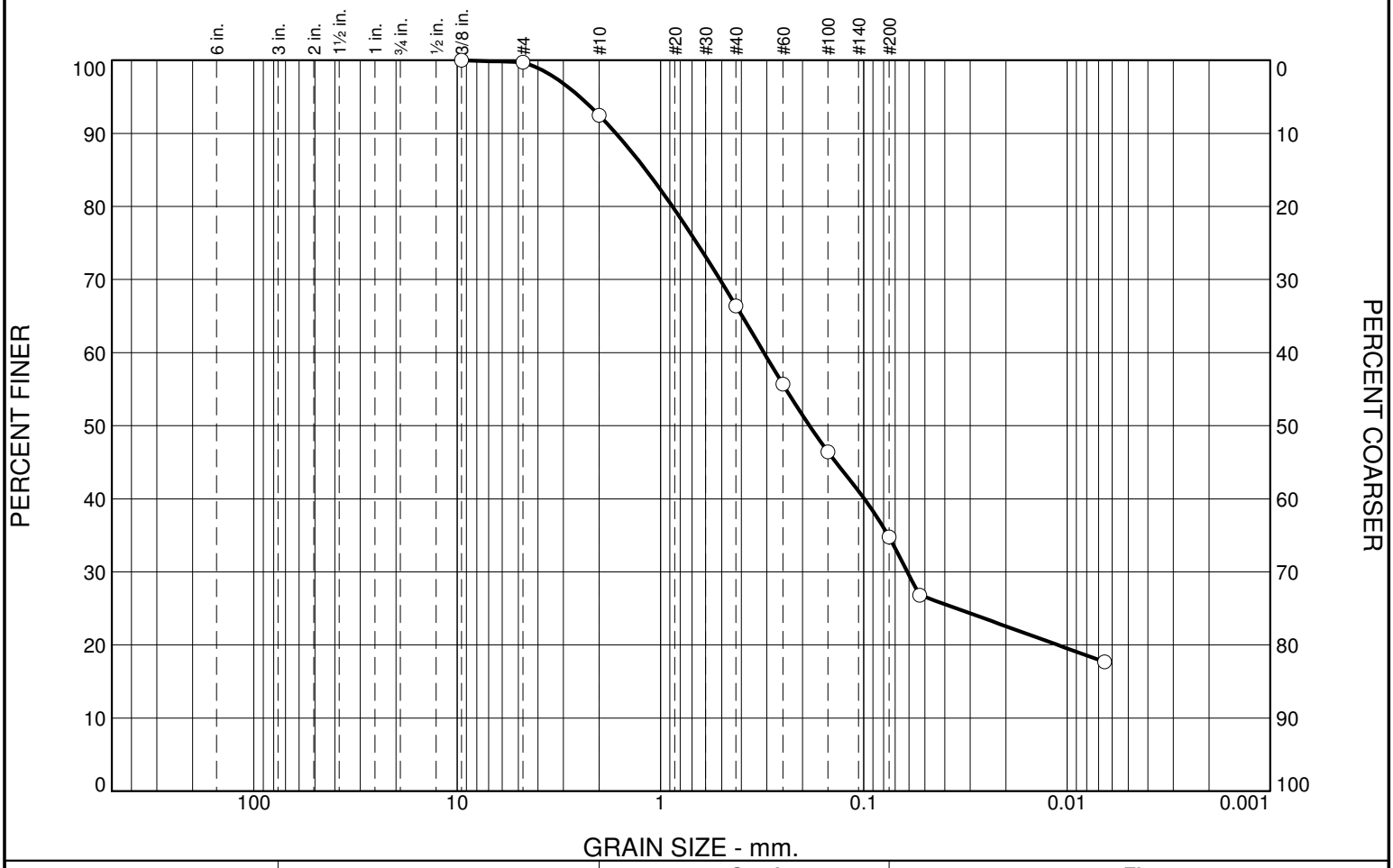
Source of Sample: P-031 **Depth:** 0.50-3.50
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	7.5	26.1	31.6	34.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100.0		
#4	99.7		
#10	92.5		
#40	66.4		
#60	55.7		
#100	46.4		
#200	34.8		
#270	26.8		
0.0065 mm.	17.7		

* (no specification provided)

Soil Description

Hard, moist, orangish brown, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 27 LL= 30 PI= 3

Coefficients

D_{90}= 1.6536 D_{85}= 1.1792 D_{60}= 0.3102
D_{50}= 0.1850 D_{30}= 0.0609 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

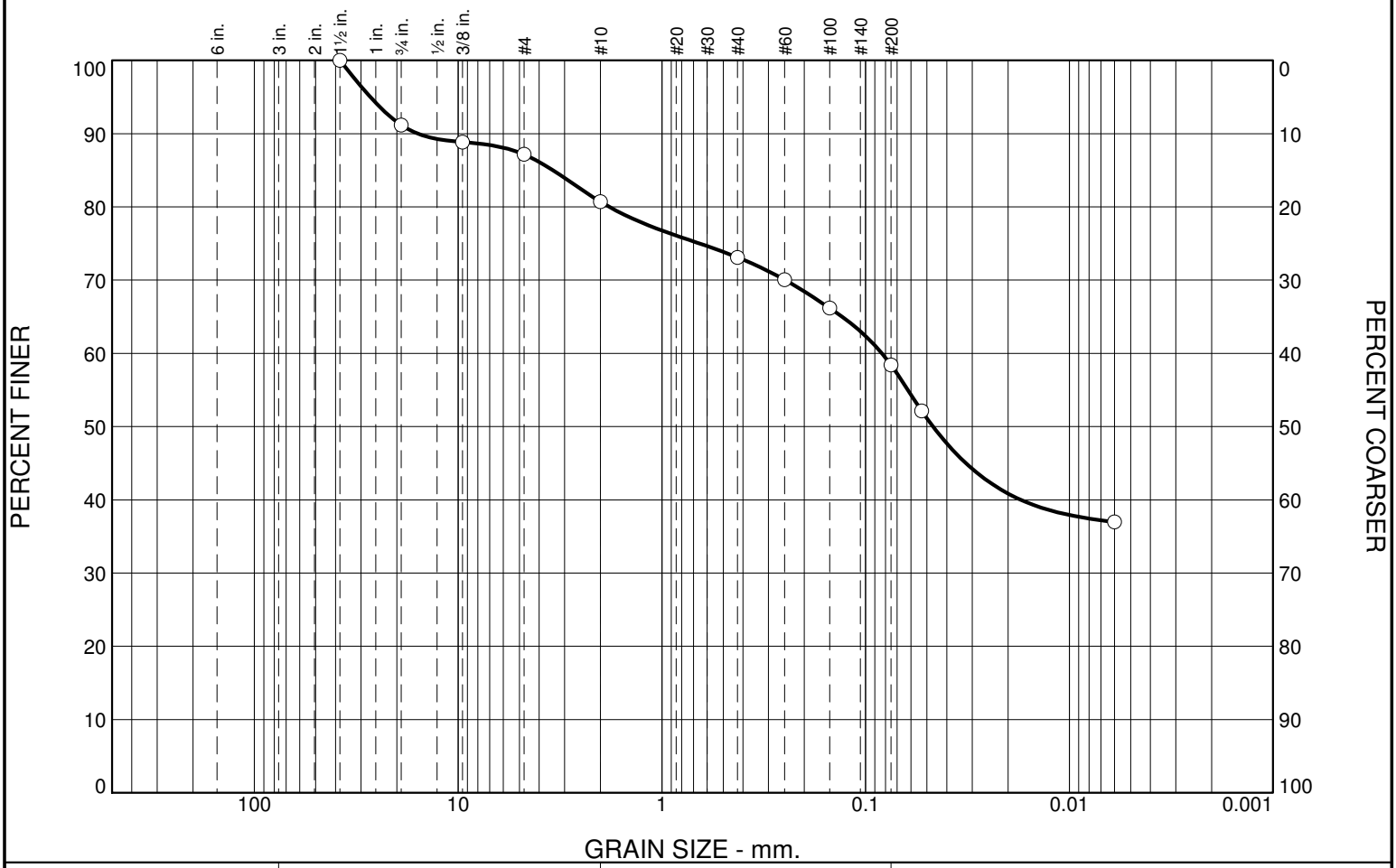
Source of Sample: P-031 **Depth:** 3.50-5.00
Sample Number: S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	19.3	7.6	14.7	58.4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2	100.0		
3/4	91.2		
3/8	88.8		
#4	87.2		
#10	80.7		
#40	73.1		
#60	70.0		
#100	66.2		
#200	58.4		
#270	52.1		
0.0060 mm.	37.0		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish orange to brown, Sandy SILT (ML) (A-7-6) with trace gravel

Atterberg Limits

PL= 29 LL= 46 PI= 17

Coefficients

D_{90}= 15.8476 D_{85}= 3.4202 D_{60}= 0.0831
D_{50}= 0.0467 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-6(8)

Remarks

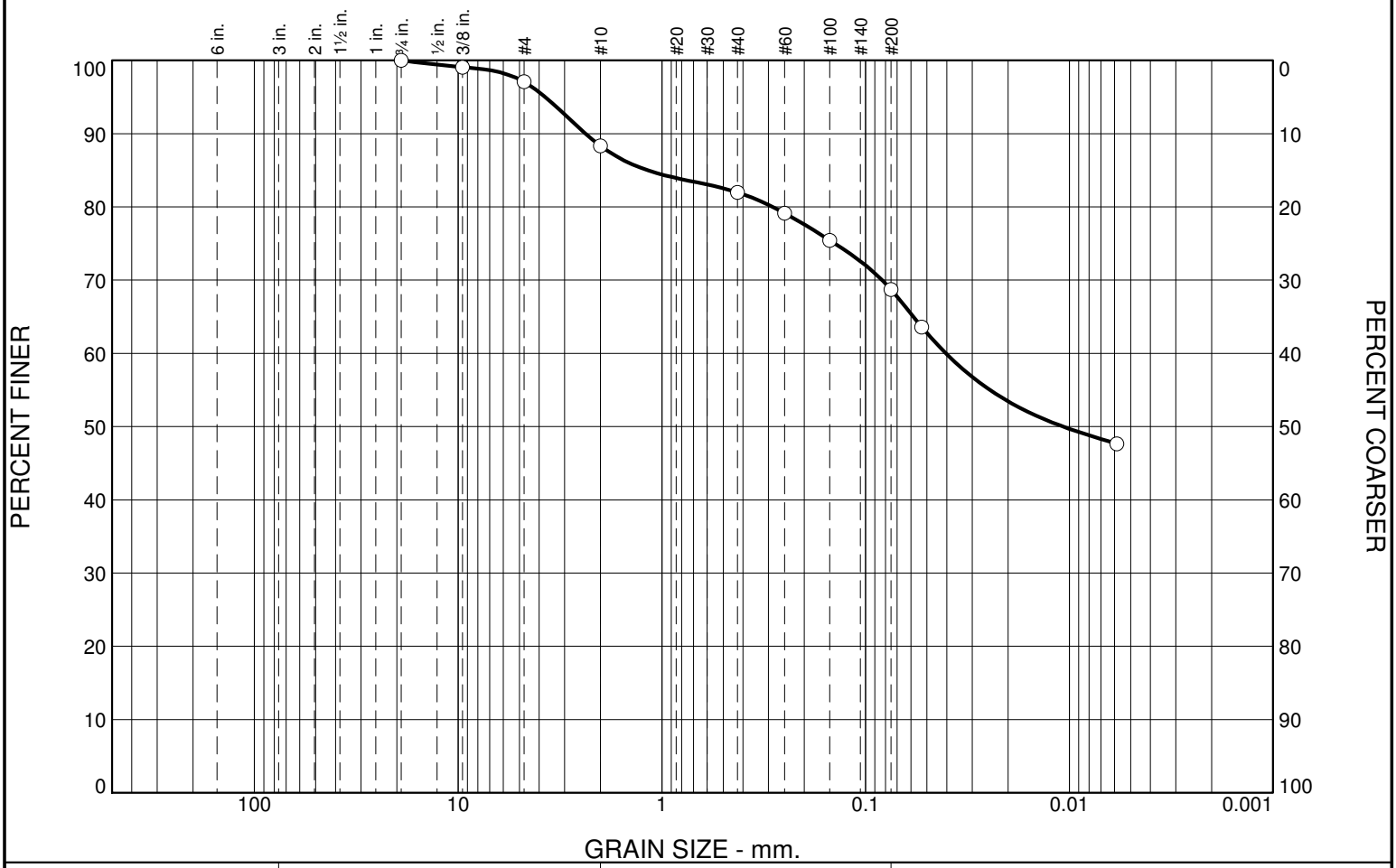
Source of Sample: P-032 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	11.7	6.3	13.3	68.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	99.1		
#4	97.1		
#10	88.3		
#40	82.0		
#60	79.1		
#100	75.4		
#200	68.7		
#270	63.6		
0.0058 mm.	47.7		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7 6)
-

Atterberg Limits

PL= 28 LL= 45 PI= 17

Coefficients

D_{90}= 2.3662 D_{85}= 1.1754 D_{60}= 0.0404
D_{50}= 0.0107 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-6(11)

Remarks

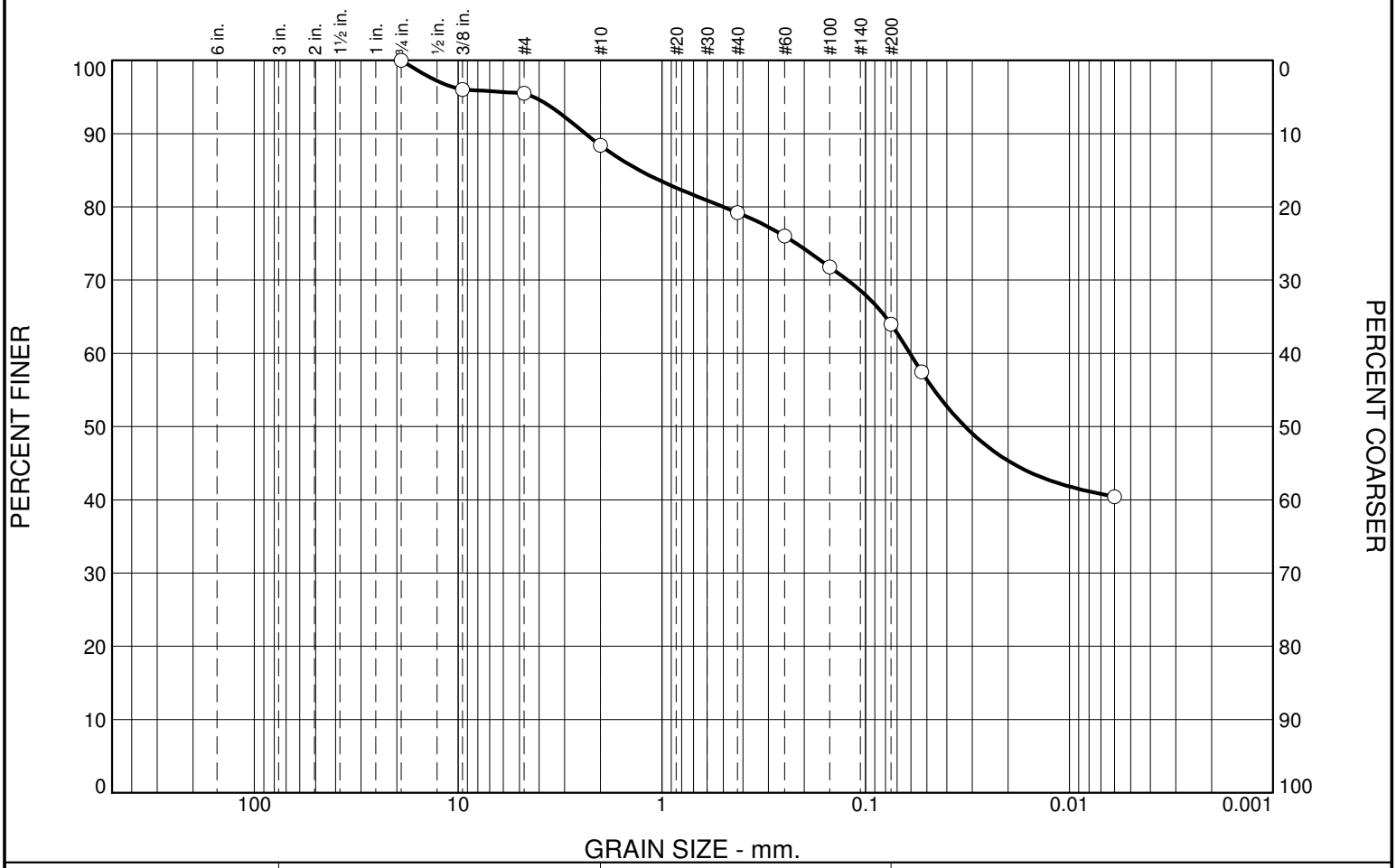
Source of Sample: P-033 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel	% Sand		% Fines	
		Coarse	Fine	Silt	Clay
0.0	11.6	9.2	15.2	64.0	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100.0		
3/8	96.0		
#4	95.5		
#10	88.4		
#40	79.2		
#60	76.0		
#100	71.8		
#200	64.0		
#270	57.5		
0.0060 mm.	40.4		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace roots

Atterberg Limits

PL= 23 LL= 41 PI= 18

Coefficients

D_{90}= 2.3677 D_{85}= 1.2877 D_{60}= 0.0605
D_{50}= 0.0325 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(10)

Remarks

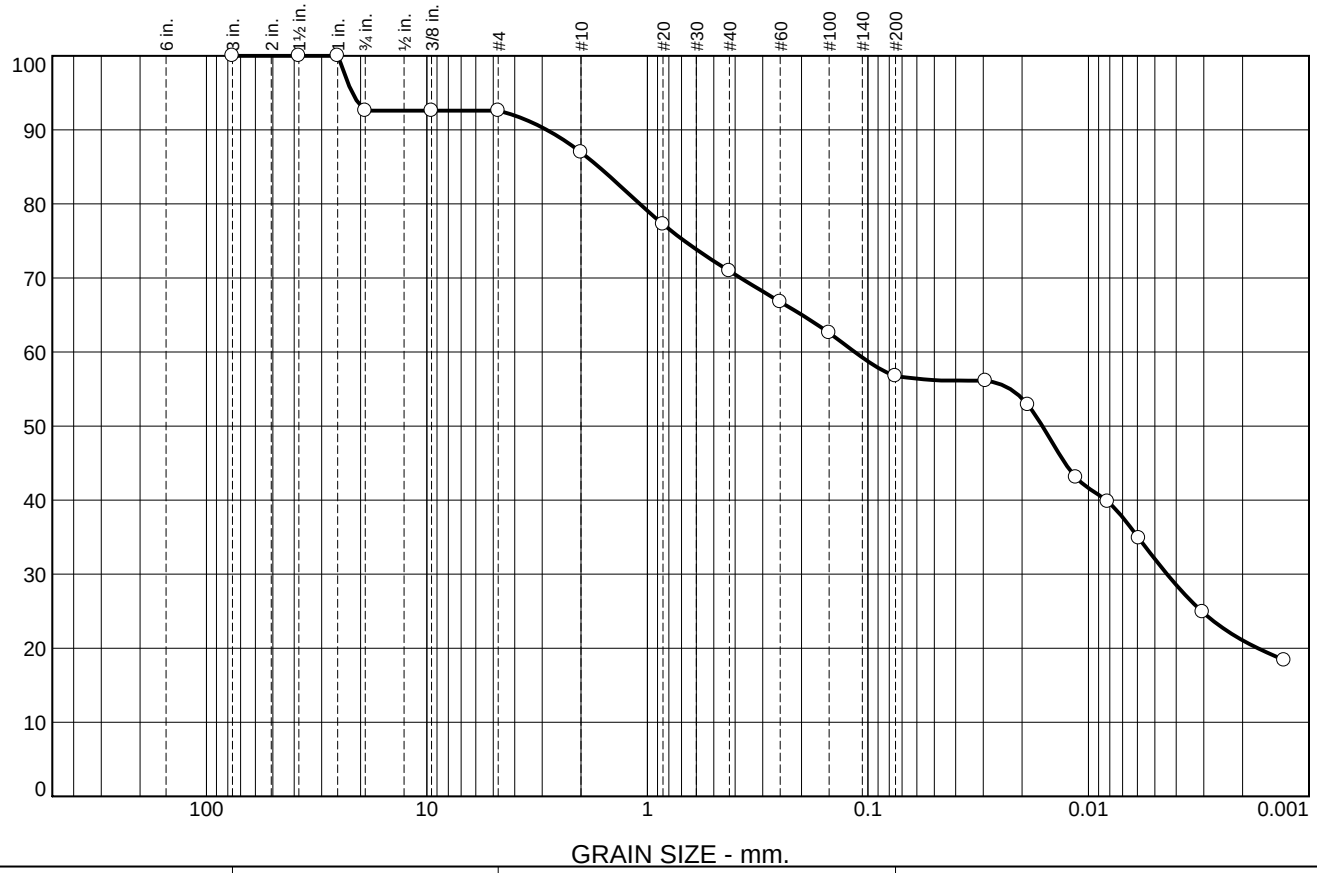
Source of Sample: P-034 **Depth:** 2.00-5.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
4811 Koger Boulevard
Greensboro, NC 27407
Phone: (336) 856-7150
Fax: (336) 856-7160

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	7	0	6	16	14	25	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	93		
.375	93		
#4	93		
#10	87		
#20	77		
#40	71		
#60	67		
#100	63		
#200	57		
0.0293 mm.	56		
0.0188 mm.	53		
0.0114 mm.	43		
0.0082 mm.	40		
0.0059 mm.	35		
0.0030 mm.	25		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Stiff, moist to dry, orangish brown to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots

Atterberg Limits

PL= 37 LL= 57 PI= 20

Coefficients

D_{90}= 2.8619 D_{85}= 1.6616 D_{60}= 0.1148
D_{50}= 0.0162 D_{30}= 0.0044 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(10)

Remarks

Source of Sample: P-38 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

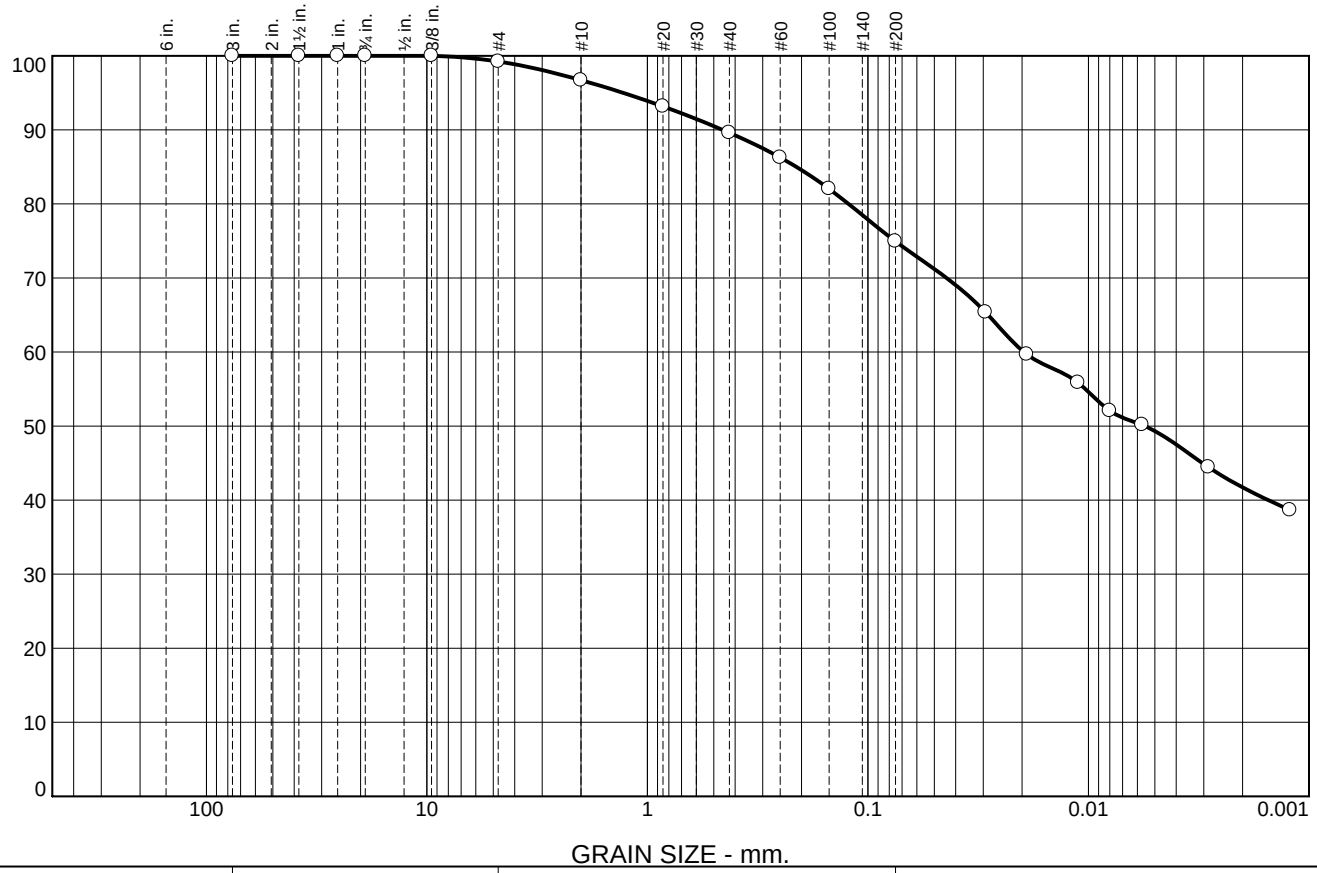
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	7	15	26	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	93		
#40	90		
#60	86		
#100	82		
#200	75		
0.0293 mm.	65		
0.0190 mm.	60		
0.0112 mm.	56		
0.0080 mm.	52		
0.0057 mm.	50		
0.0029 mm.	44		
0.0012 mm.	39		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 34 LL= 58 PI= 24

Coefficients

D_{90}= 0.4562 D_{85}= 0.2111 D_{60}= 0.0196
D_{50}= 0.0055 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: P-39 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 10/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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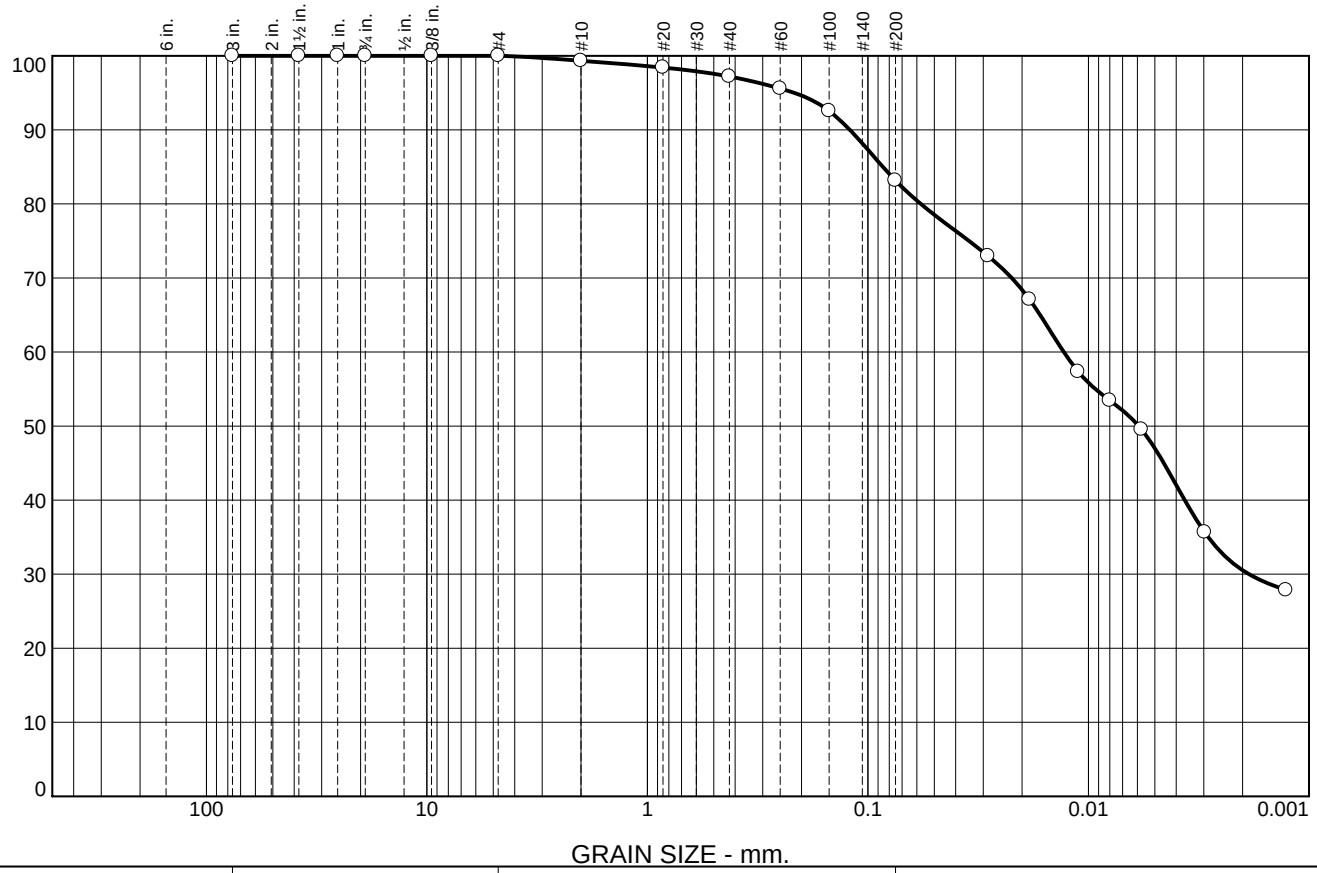
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	2	14	36	47

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	97		
#60	96		
#100	93		
#200	83		
0.0285 mm.	73		
0.0185 mm.	67		
0.0111 mm.	57		
0.0080 mm.	53		
0.0057 mm.	50		
0.0030 mm.	36		
0.0013 mm.	28		

* (no specification provided)

Soil Description

Stiff to very stiff, dry, orangish brown, Elastic SILT (MH)(A-7-5) with trace gravel

Atterberg Limits

PL= 38 LL= 56 PI= 18

Coefficients

D_{90}= 0.1208 D_{85}= 0.0855 D_{60}= 0.0129
D_{50}= 0.0059 D_{30}= 0.0019 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

Source of Sample: P-40 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3 **Date:** 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

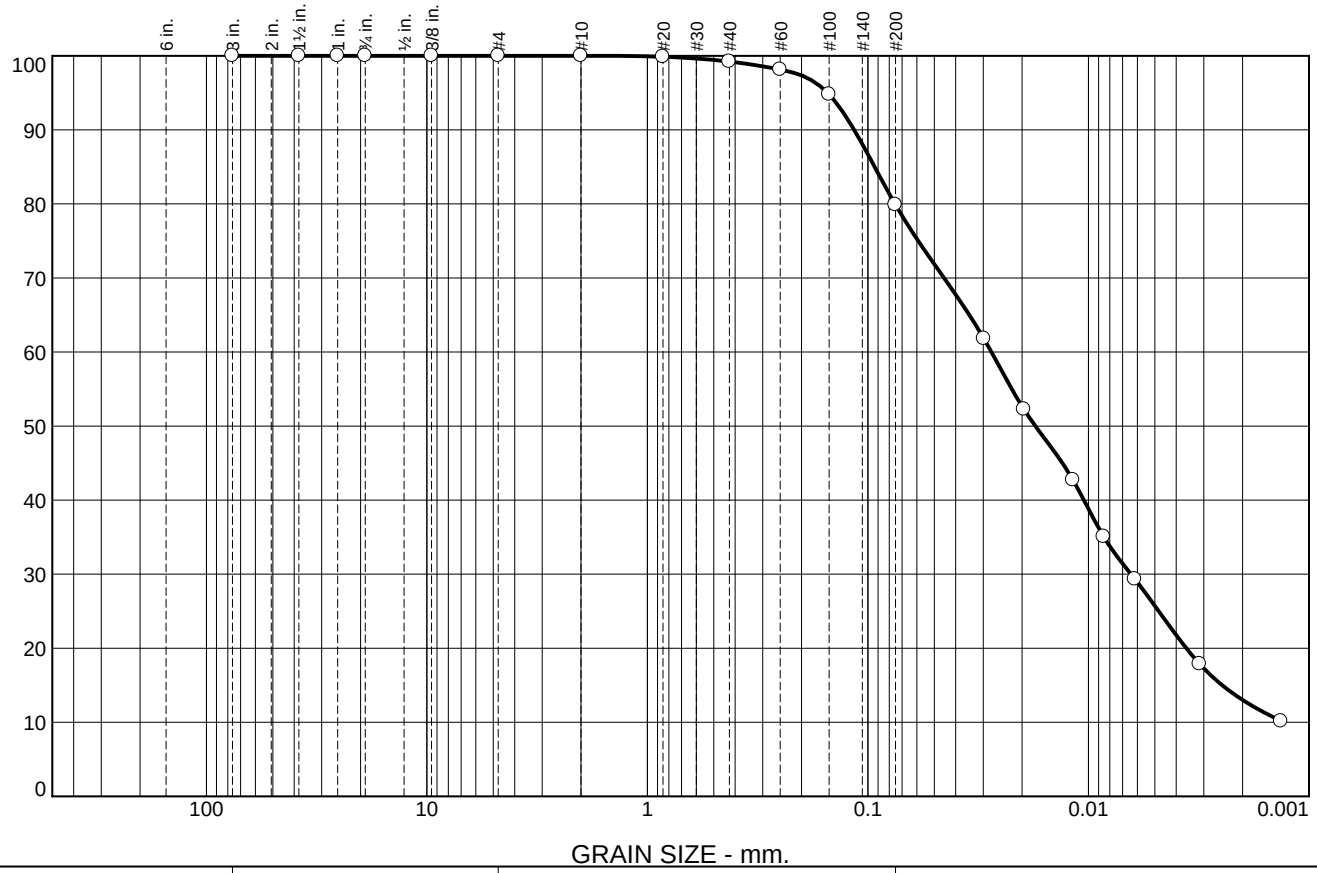
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	19	54	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	95		
#200	80		
0.0298 mm.	62		
0.0196 mm.	52		
0.0117 mm.	43		
0.0085 mm.	35		
0.0062 mm.	29		
0.0031 mm.	18		
0.0013 mm.	10		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, reddish brown, Elastic SILT (MH)(A-5)

Atterberg Limits

PL= 46 LL= 53 PI= 7

Coefficients

D_{90}= 0.1156 D_{85}= 0.0932 D_{60}= 0.0275
D_{50}= 0.0174 D_{30}= 0.0064 D_{15}= 0.0025
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(10)

Remarks

Source of Sample: P-42 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

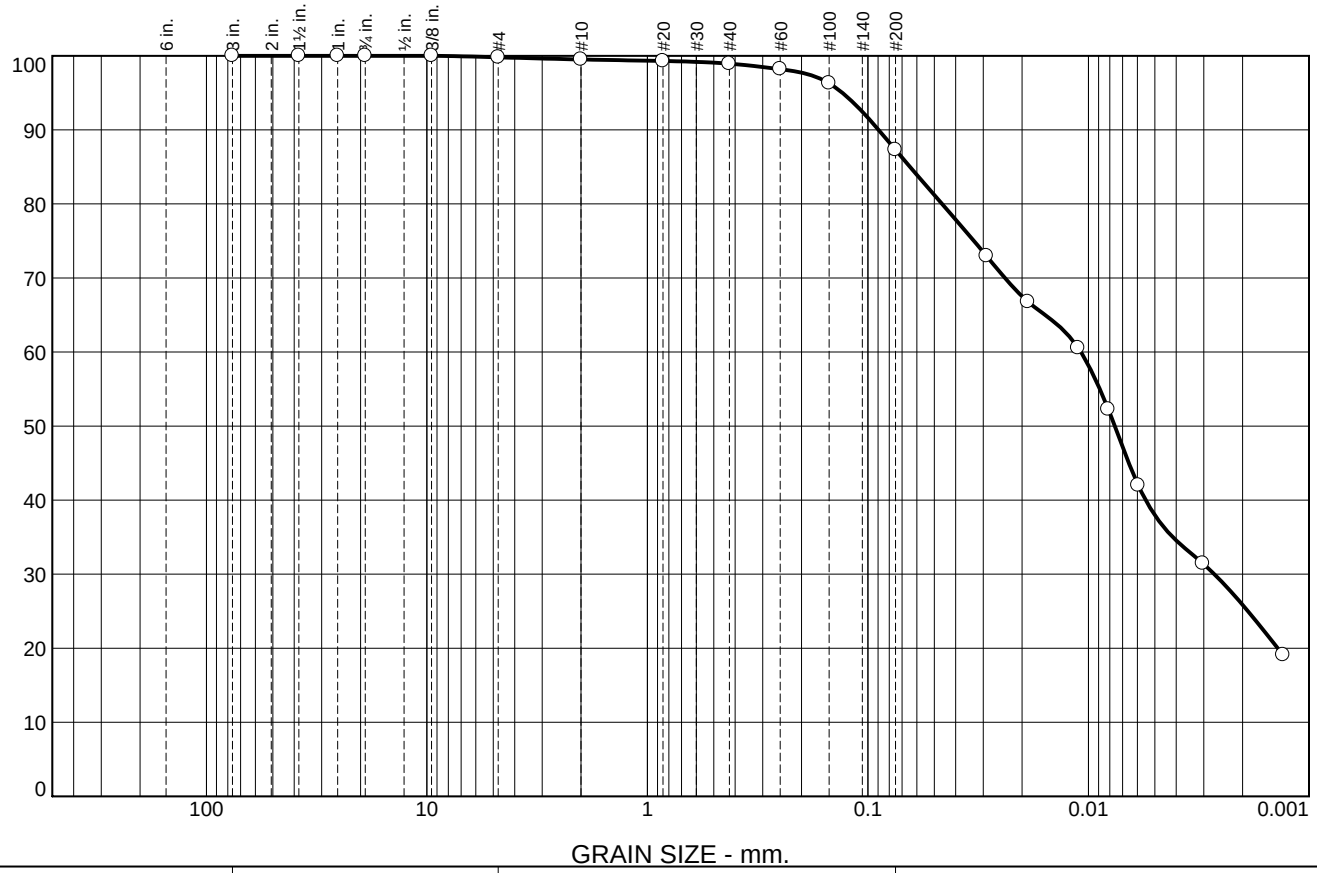
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC/AS/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	12	49	38

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	99		
#60	98		
#100	96		
#200	87		
0.0290 mm.	73		
0.0188 mm.	67		
0.0111 mm.	61		
0.0081 mm.	52		
0.0059 mm.	42		
0.0030 mm.	31		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace roots

Atterberg Limits

PL= 38 LL= 56 PI= 18

Coefficients

D_{90}= 0.0896 D_{85}= 0.0644 D_{60}= 0.0108
D_{50}= 0.0076 D_{30}= 0.0027 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: P-43 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

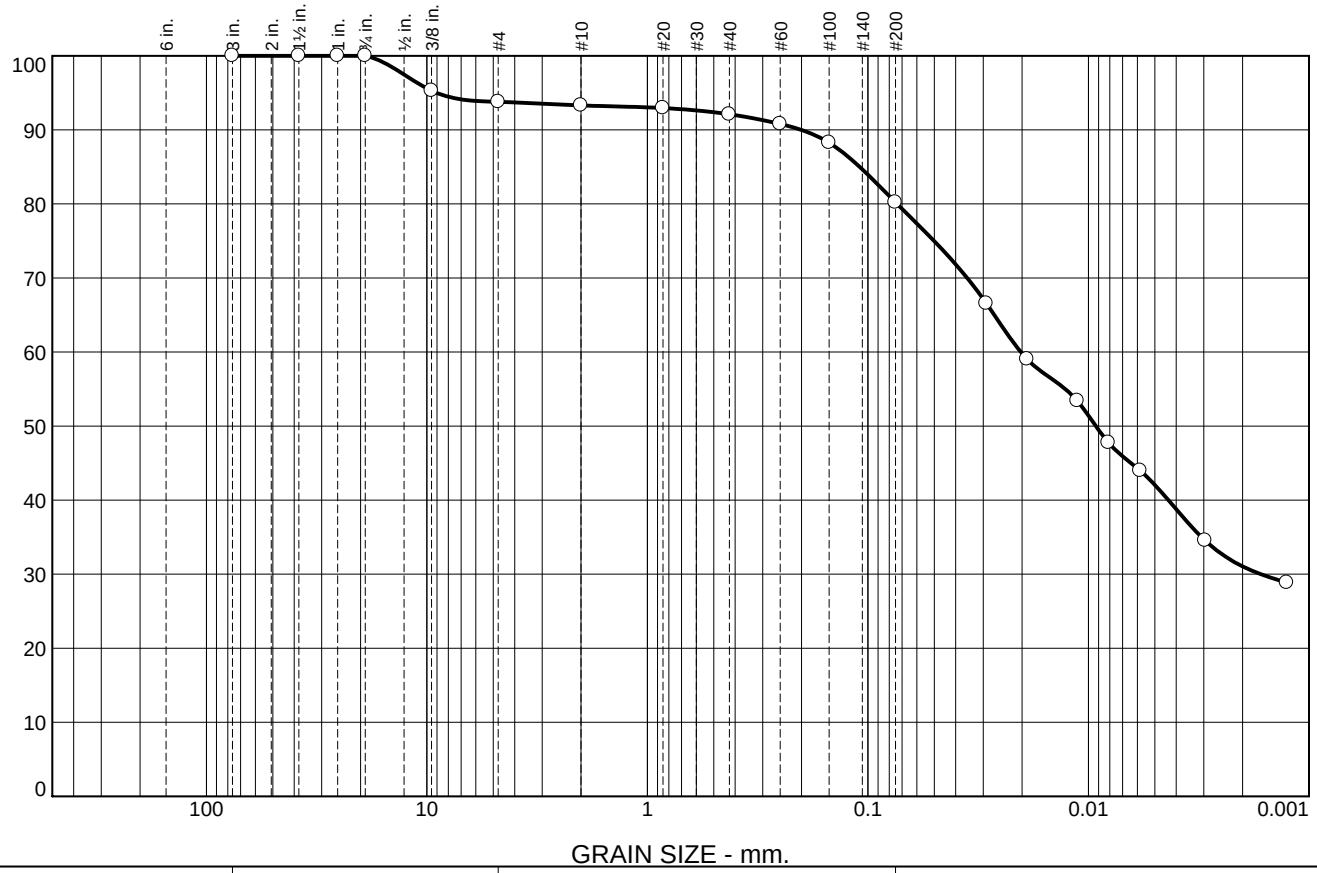
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	1	1	12	38	42

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	95		
#4	94		
#10	93		
#20	93		
#40	92		
#60	91		
#100	88		
#200	80		
0.0290 mm.	67		
0.0190 mm.	59		
0.0112 mm.	53		
0.0081 mm.	48		
0.0058 mm.	44		
0.0030 mm.	35		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 38 LL= 57 PI= 19

Coefficients

D_{90}= 0.2006 D_{85}= 0.1090 D_{60}= 0.0203
D_{50}= 0.0093 D_{30}= 0.0017 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

Source of Sample: P-44 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

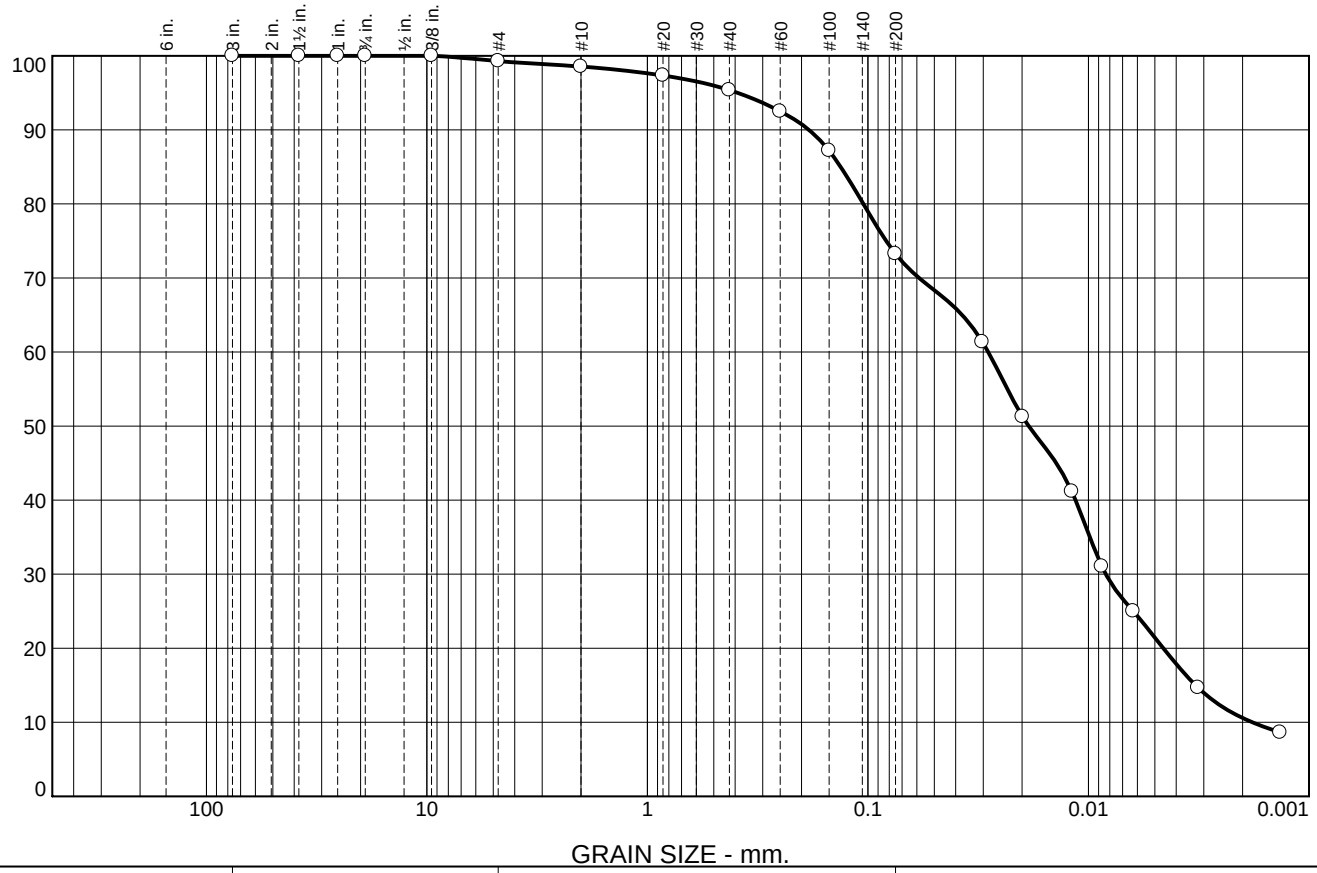
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC/AS/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	4	22	52	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	99		
#20	97		
#40	95		
#60	92		
#100	87		
#200	73		
0.0303 mm.	61		
0.0199 mm.	51		
0.0119 mm.	41		
0.0087 mm.	31		
0.0063 mm.	25		
0.0032 mm.	15		
0.0013 mm.	8.6		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, tan to light brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 37 LL= 45 PI= 8

Coefficients

D_{90}= 0.1852 D_{85}= 0.1329 D_{60}= 0.0285
D_{50}= 0.0186 D_{30}= 0.0083 D_{15}= 0.0033
D_{10}= 0.0018 C_u= 15.77 C_c= 1.35

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-45 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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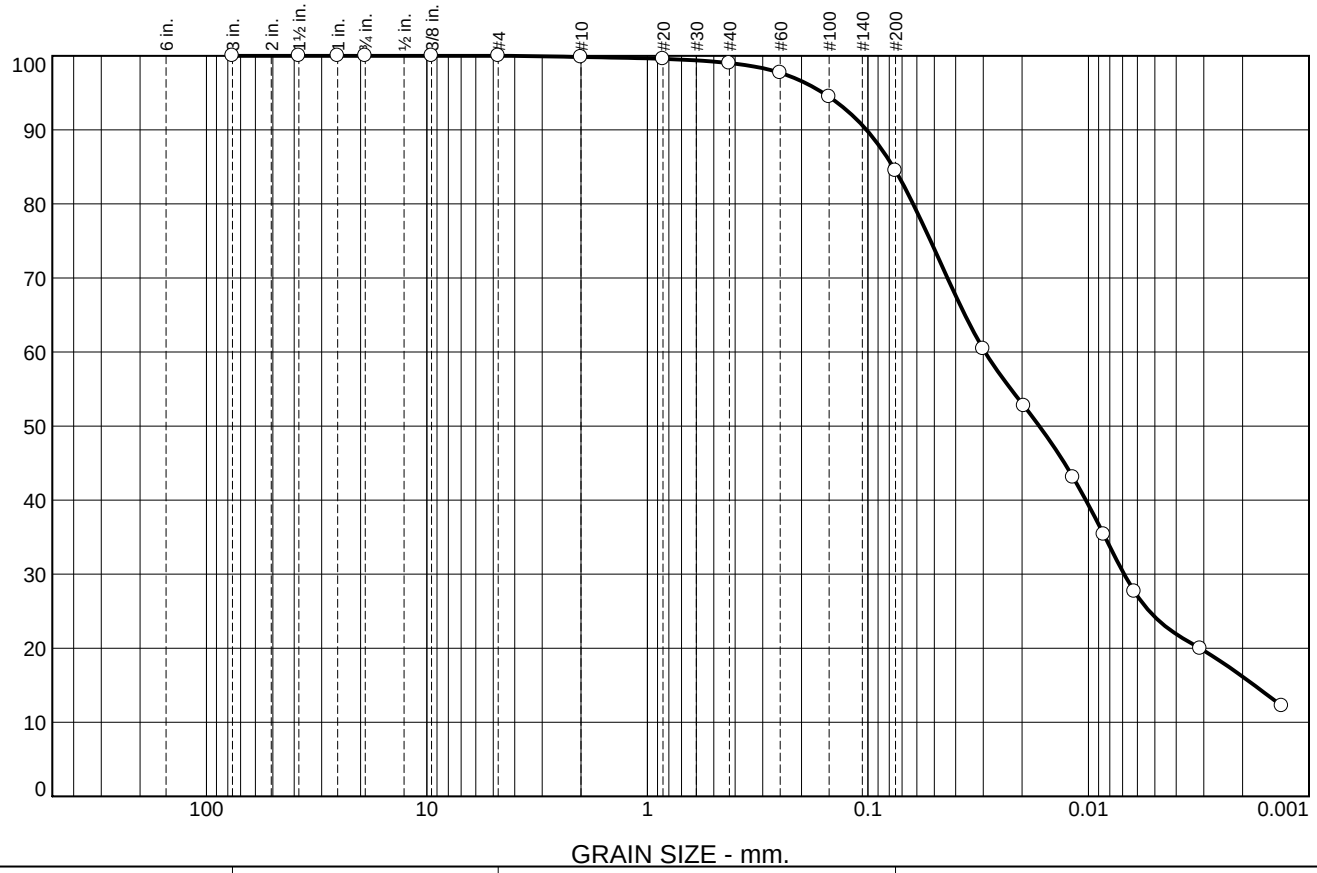
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	15	60	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	94		
#200	84		
0.0301 mm.	60		
0.0196 mm.	53		
0.0117 mm.	43		
0.0085 mm.	35		
0.0062 mm.	28		
0.0031 mm.	20		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace roots

Atterberg Limits

PL= 42 LL= 55 PI= 13

Coefficients

D_{90}= 0.1015 D_{85}= 0.0768 D_{60}= 0.0295
D_{50}= 0.0167 D_{30}= 0.0069 D_{15}= 0.0018
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(16)

Remarks

Source of Sample: P-46 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC/AS/DM

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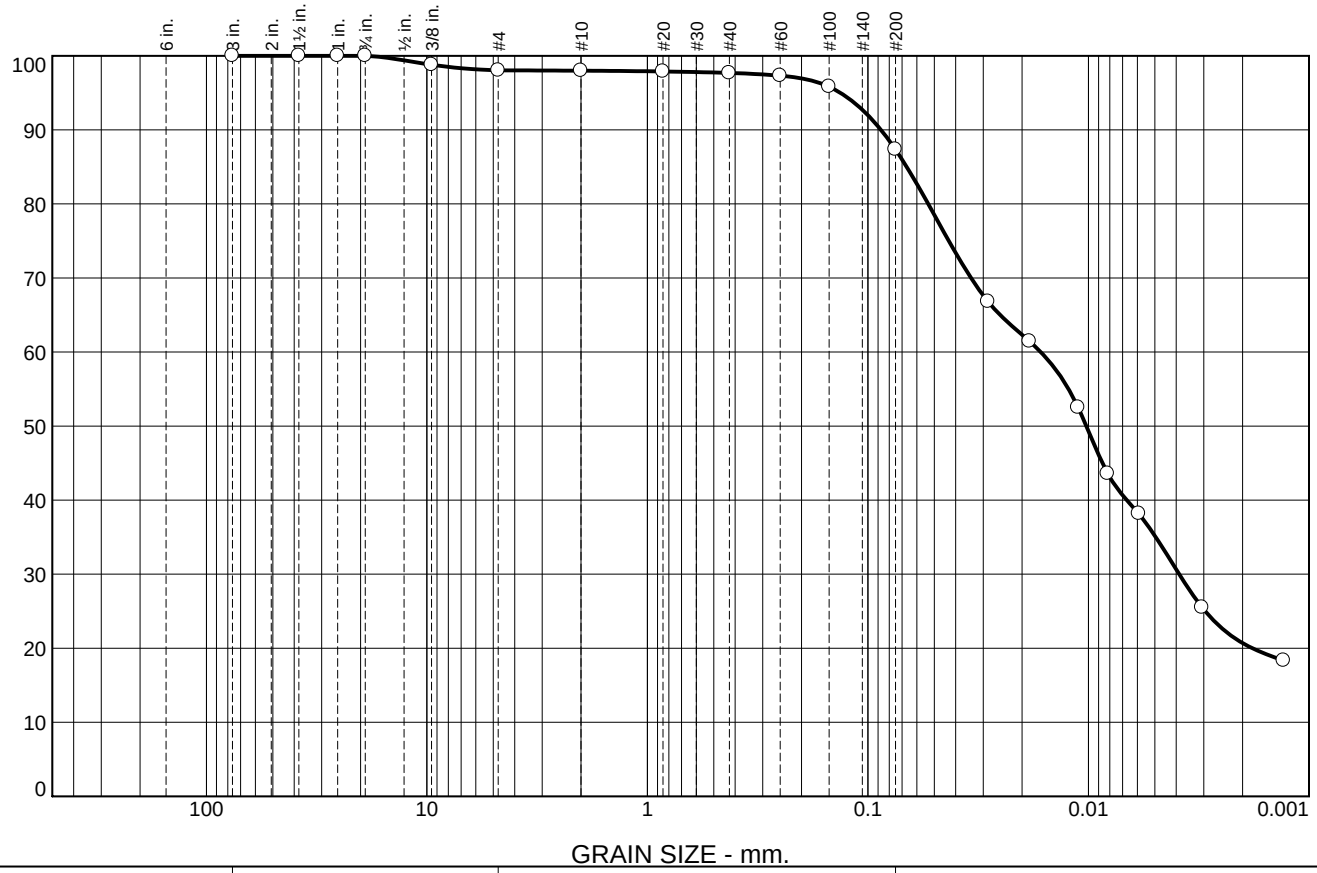
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	0	0	11	52	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	98		
#20	98		
#40	98		
#60	97		
#100	96		
#200	87		
0.0285 mm.	67		
0.0185 mm.	61		
0.0111 mm.	53		
0.0082 mm.	44		
0.0059 mm.	38		
0.0031 mm.	25		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)

Atterberg Limits

PL= 48 LL= 58 PI= 10

Coefficients

D_{90}= 0.0873 D_{85}= 0.0667 D_{60}= 0.0165
D_{50}= 0.0102 D_{30}= 0.0039 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(15)

Remarks

Source of Sample: P-47 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC/AS/DM

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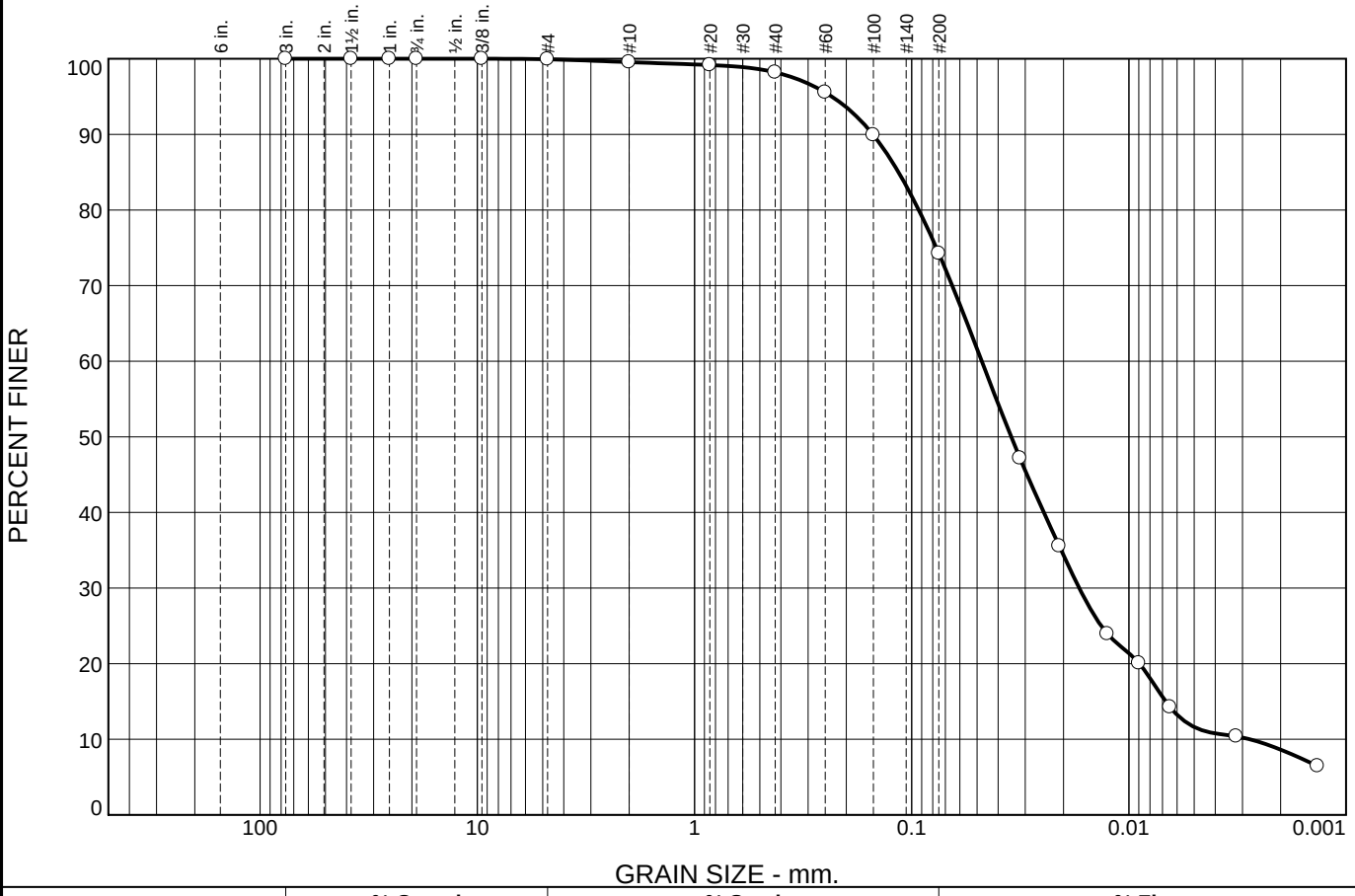
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	24	62	12

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	96		
#100	90		
#200	74		
0.0317 mm.	47		
0.0209 mm.	36		
0.0125 mm.	24		
0.0090 mm.	20		
0.0065 mm.	14		
0.0032 mm.	10		
0.0014 mm.	6.5		

* (no specification provided)

Soil Description

Medium Stiff, moist, tannish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 38 LL= 41 PI= 3

Coefficients

D_{90}= 0.1510 D_{85}= 0.1150 D_{60}= 0.0476
D_{50}= 0.0348 D_{30}= 0.0169 D_{15}= 0.0068
D_{10}= 0.0028 C_u= 17.13 C_c= 2.17

Classification

USCS= ML AASHTO= A-5(4)

Remarks

Source of Sample: P-48 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 10/31/2017

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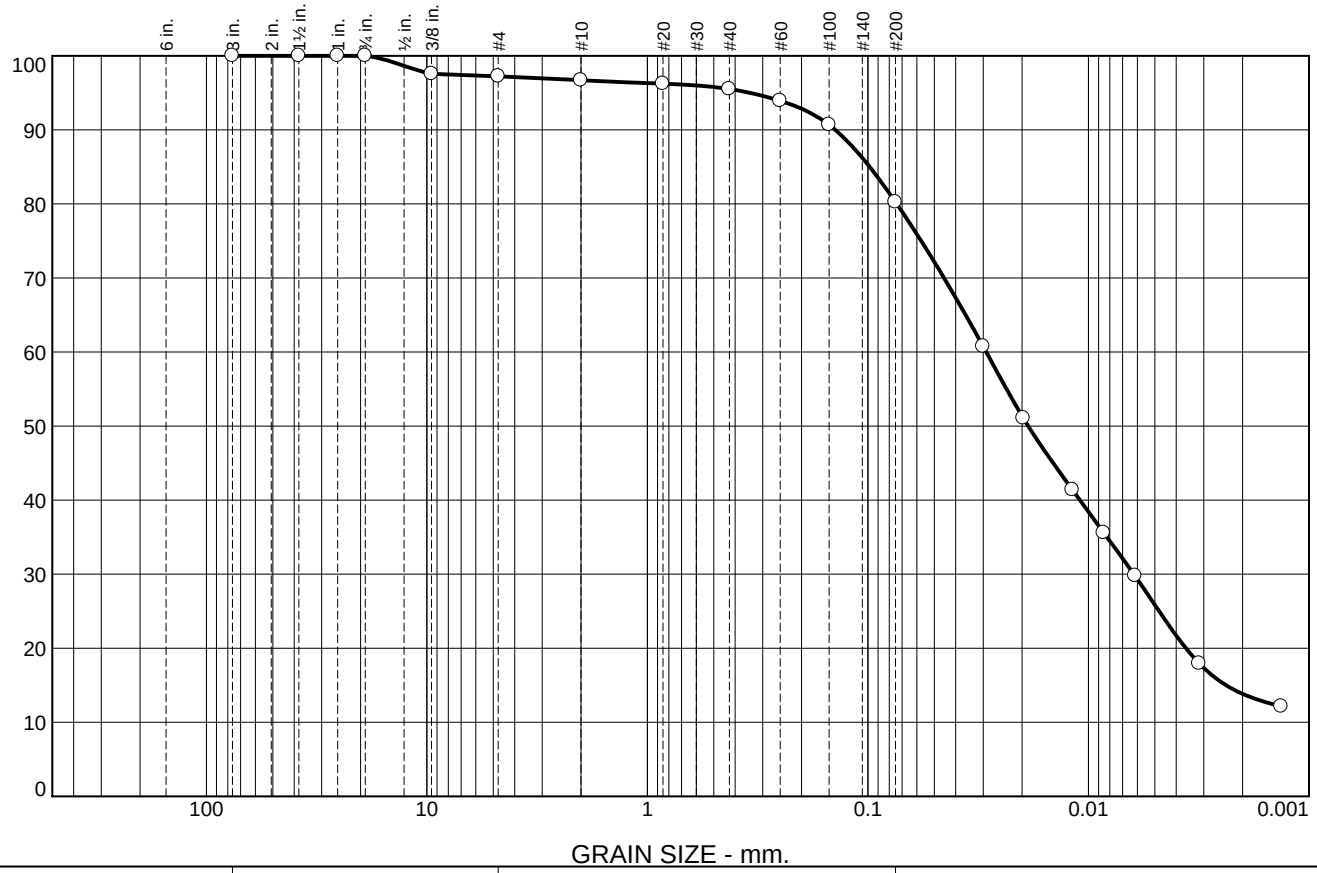
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical samples

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	0	1	16	54	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	97		
#20	96		
#40	96		
#60	94		
#100	91		
#200	80		
0.0300 mm.	61		
0.0197 mm.	51		
0.0118 mm.	41		
0.0085 mm.	36		
0.0061 mm.	30		
0.0031 mm.	18		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 39 LL= 50 PI= 11

Coefficients

D_{90}= 0.1406 D_{85}= 0.0982 D_{60}= 0.0291
D_{50}= 0.0188 D_{30}= 0.0062 D_{15}= 0.0024
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(12)

Remarks

Source of Sample: P-49 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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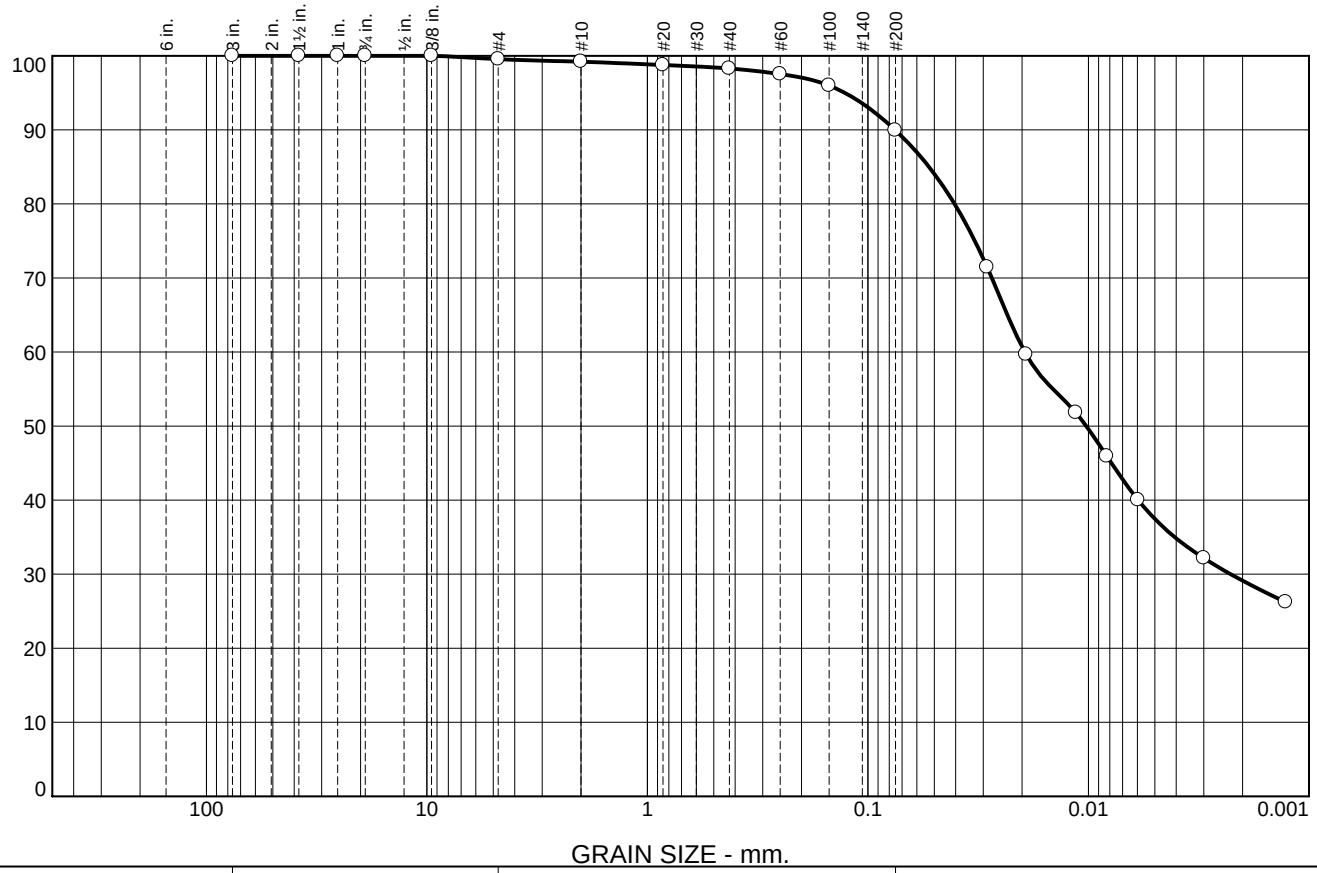
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	8	53	37

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	99		
#40	98		
#60	98		
#100	96		
#200	90		
0.0288 mm.	71		
0.0192 mm.	60		
0.0114 mm.	52		
0.0082 mm.	46		
0.0060 mm.	40		
0.0030 mm.	32		
0.0013 mm.	26		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 38 LL= 57 PI= 19

Coefficients

D_{90}= 0.0754 D_{85}= 0.0529 D_{60}= 0.0194
D_{50}= 0.0102 D_{30}= 0.0023 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

Source of Sample: P-50 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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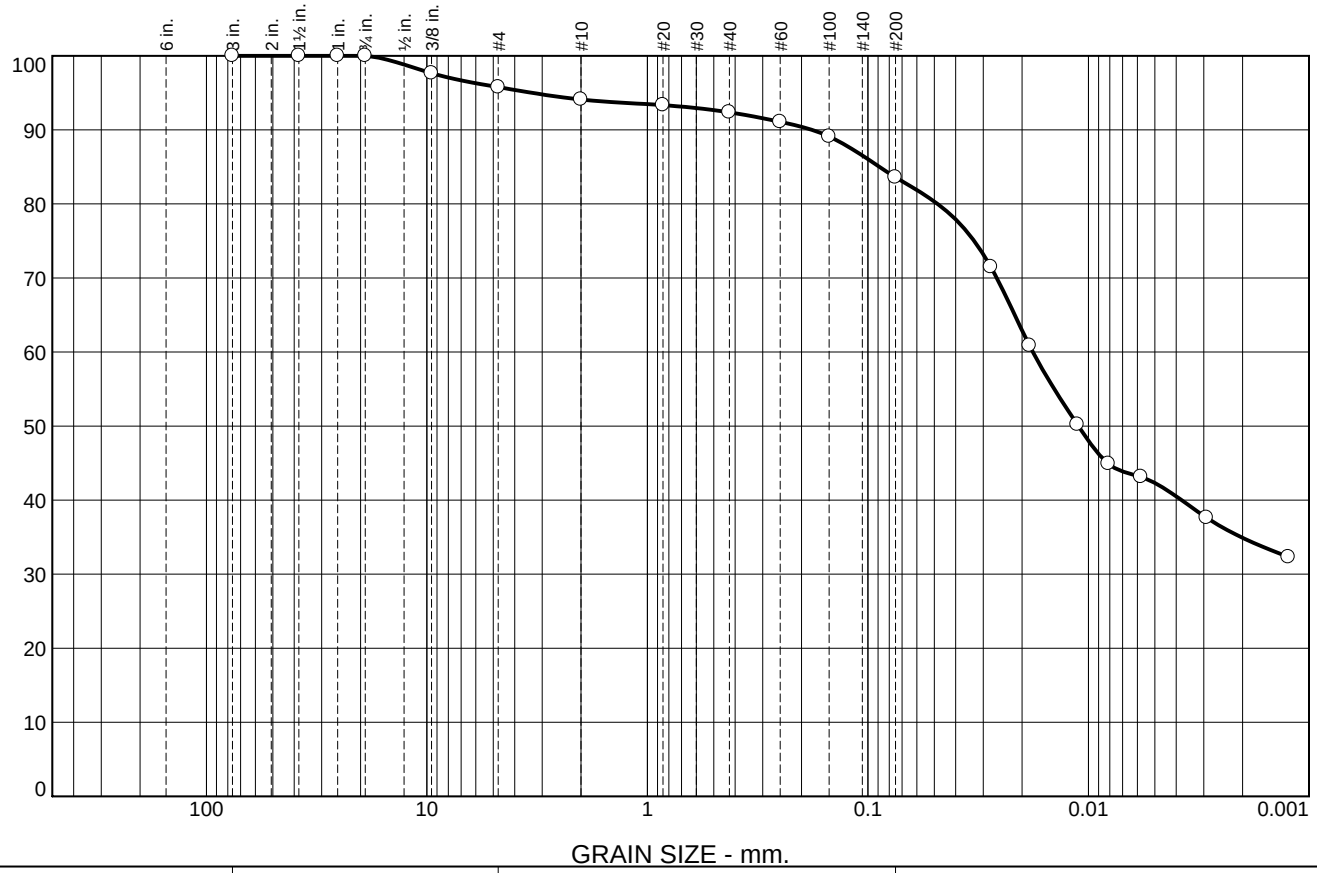
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	2	2	8	42	42

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	96		
#10	94		
#20	93		
#40	92		
#60	91		
#100	89		
#200	84		
0.0277 mm.	71		
0.0185 mm.	61		
0.0112 mm.	50		
0.0081 mm.	45		
0.0058 mm.	43		
0.0029 mm.	38		
0.0012 mm.	32		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish brown, Plastic CLAY (CH)(A-7-6)

Atterberg Limits

PL= 27 LL= 50 PI= 23

Coefficients

D_{90}= 0.1796 D_{85}= 0.0887 D_{60}= 0.0179
D_{50}= 0.0111 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(21)

Remarks

Source of Sample: P-51 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/2/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

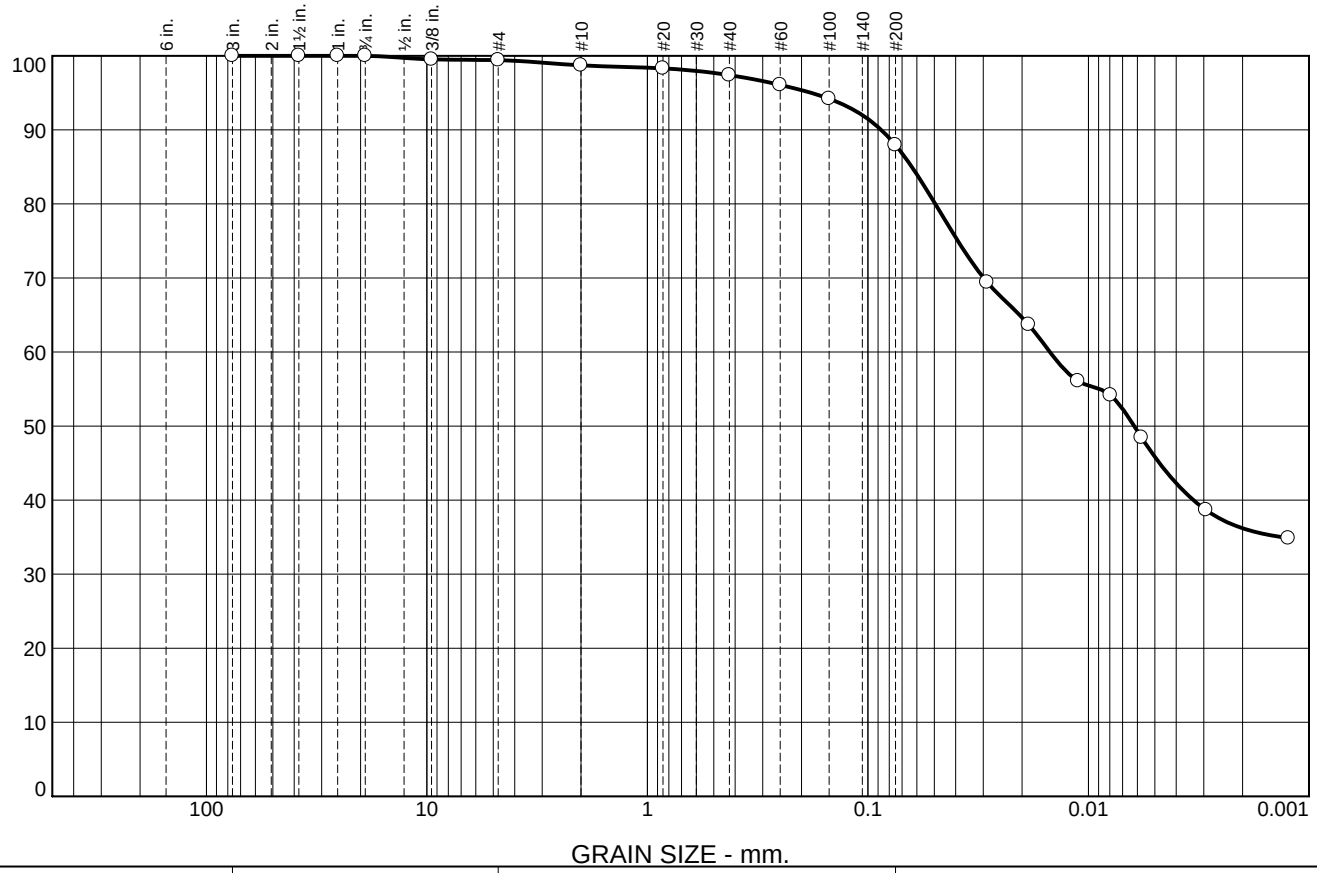
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	2	9	42	46

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	99		
#20	98		
#40	97		
#60	96		
#100	94		
#200	88		
0.0288 mm.	69		
0.0187 mm.	64		
0.0111 mm.	56		
0.0079 mm.	54		
0.0057 mm.	48		
0.0029 mm.	39		
0.0012 mm.	35		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, tannish brown to brown, Plastic CLAY (CH)(A-7-6)

Atterberg Limits

PL= 29 LL= 56 PI= 27

Coefficients

D_{90}= 0.0871 D_{85}= 0.0633 D_{60}= 0.0150
D_{50}= 0.0062 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(27)

Remarks

Source of Sample: P-53 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

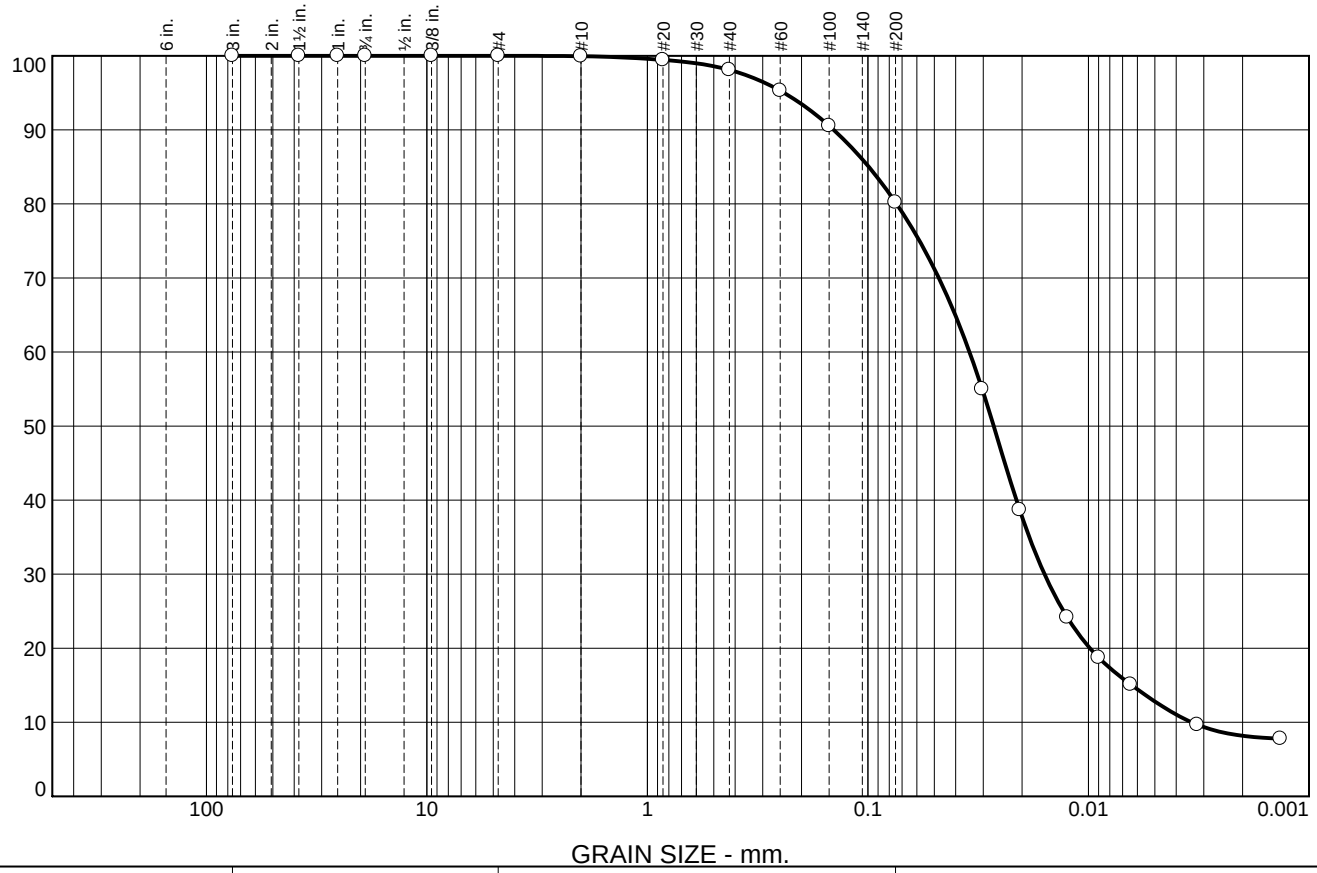
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	18	67	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	95		
#100	91		
#200	80		
0.0303 mm.	55		
0.0205 mm.	39		
0.0125 mm.	24		
0.0090 mm.	19		
0.0064 mm.	15		
0.0032 mm.	9.7		
0.0013 mm.	7.8		

* (no specification provided)

Soil Description

Hard to very stiff, moist, tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 26 LL= 30 PI= 4

Coefficients

D_{90}= 0.1431 D_{85}= 0.0991 D_{60}= 0.0346
D_{50}= 0.0269 D_{30}= 0.0158 D_{15}= 0.0064
D_{10}= 0.0034 C_u= 10.17 C_c= 2.12

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: P-55 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

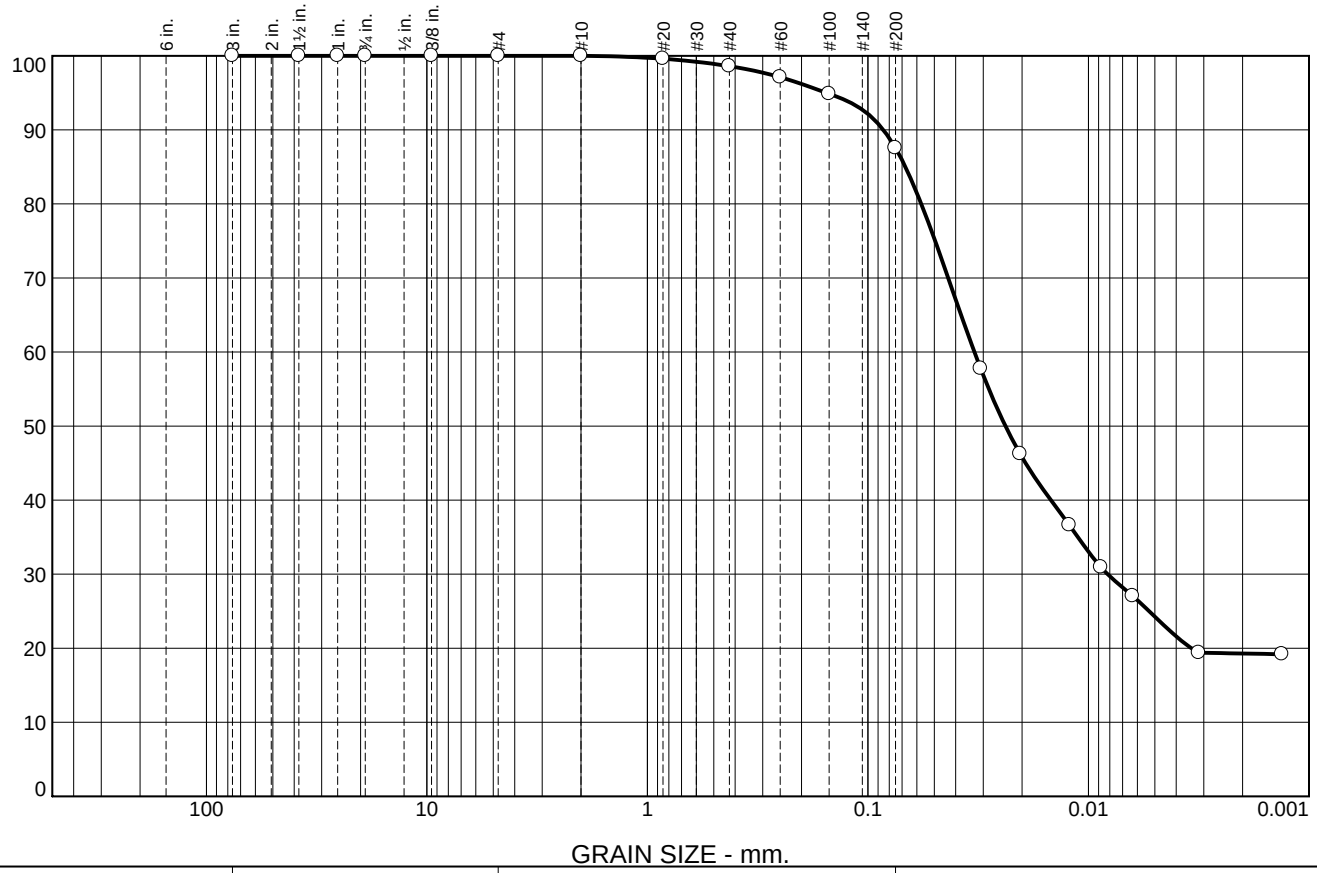
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	11	64	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	97		
#100	95		
#200	88		
0.0308 mm.	58		
0.0204 mm.	46		
0.0122 mm.	37		
0.0088 mm.	31		
0.0063 mm.	27		
0.0032 mm.	19		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Stiff ot medium stiff, moist, orangish brown, Sandy SILT (ML)(A-4) with trace roots

Atterberg Limits

PL= 31 LL= 40 PI= 9

Coefficients

D_{90}= 0.0852 D_{85}= 0.0676 D_{60}= 0.0329
D_{50}= 0.0238 D_{30}= 0.0082 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(10)

Remarks

Source of Sample: P-56 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

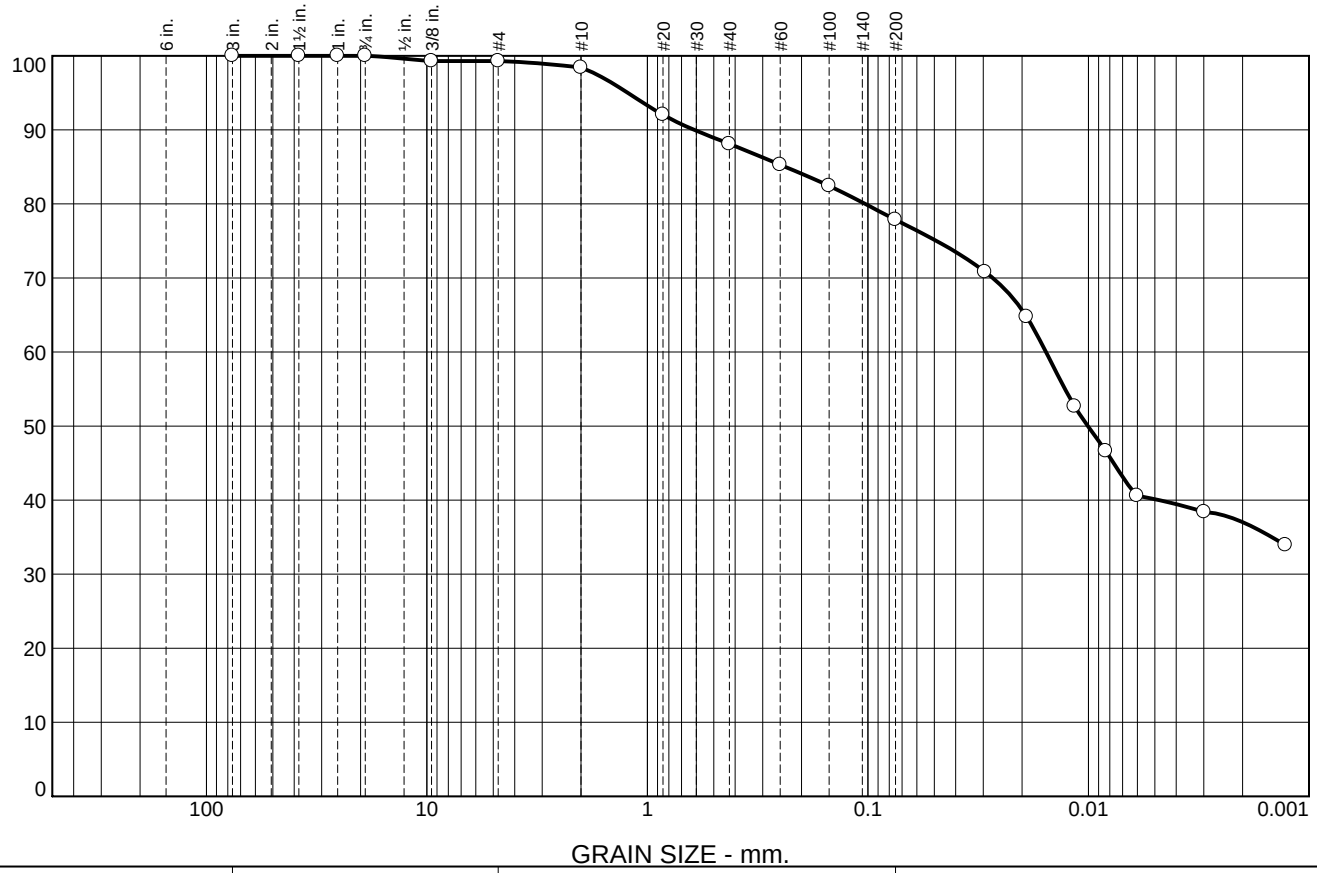
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	10	10	38	40

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	98		
#20	92		
#40	88		
#60	85		
#100	82		
#200	78		
0.0294 mm.	71		
0.0191 mm.	65		
0.0116 mm.	53		
0.0083 mm.	47		
0.0060 mm.	41		
0.0030 mm.	38		
0.0013 mm.	34		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish tan, Sandy Clay (CL)(A-7-6)

Atterberg Limits

PL= 22 LL= 49 PI= 27

Coefficients

D_{90}= 0.6136 D_{85}= 0.2370 D_{60}= 0.0156
D_{50}= 0.0101 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Source of Sample: P-58 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

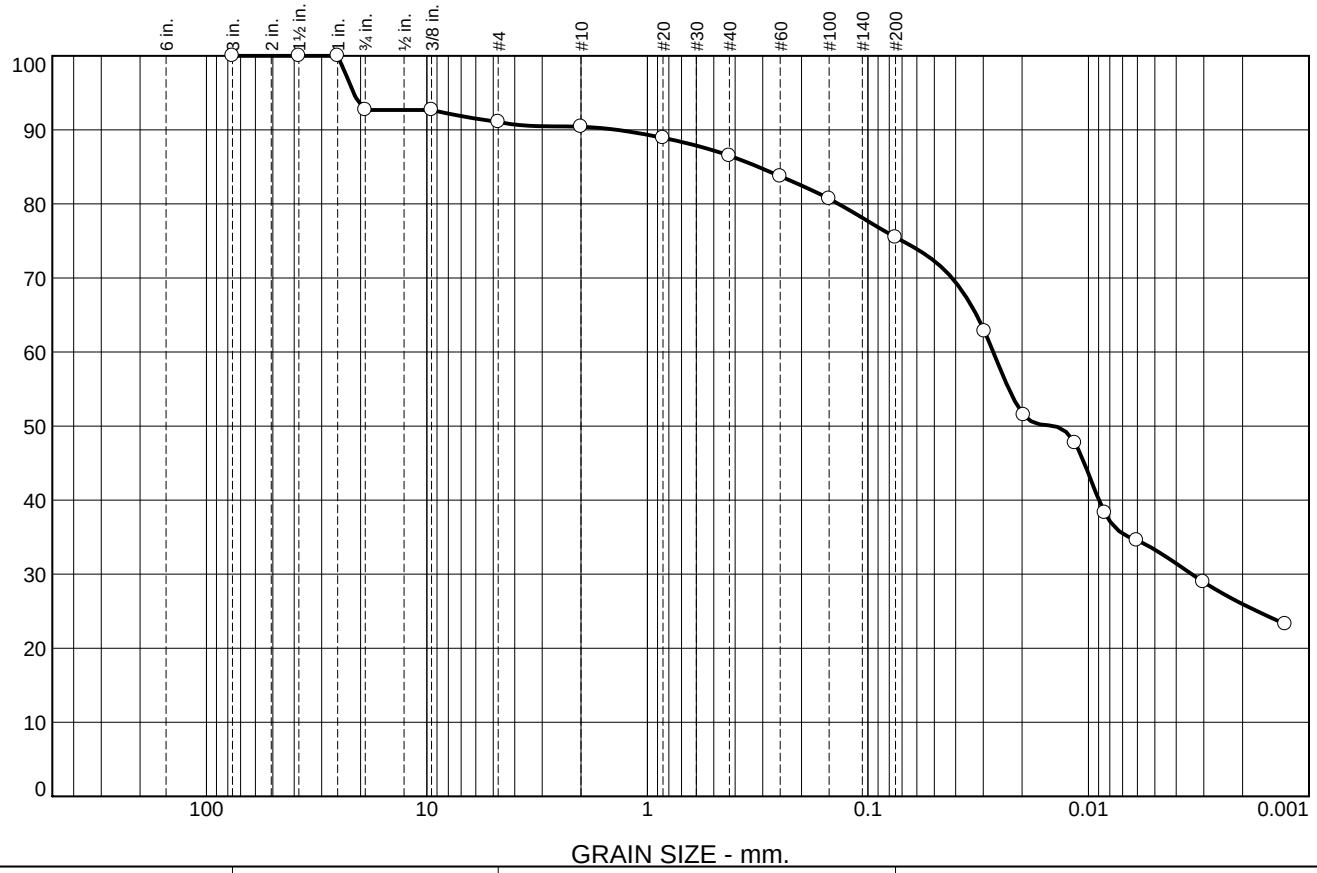
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	7	2	1	3	12	42	33

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	93		
.375	93		
#4	91		
#10	90		
#20	89		
#40	87		
#60	84		
#100	81		
#200	75		
0.0296 mm.	63		
0.0197 mm.	52		
0.0115 mm.	48		
0.0084 mm.	38		
0.0060 mm.	35		
0.0030 mm.	29		
0.0013 mm.	23		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish brown to grayish brown, Plastic CLAY (CH)(A-7-6) with trace gravel

Atterberg Limits

PL= 28 LL= 51 PI= 23

Coefficients

D_{90}= 1.3774 D_{85}= 0.3146 D_{60}= 0.0270
D_{50}= 0.0143 D_{30}= 0.0034 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(18)

Remarks

Source of Sample: P-59 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

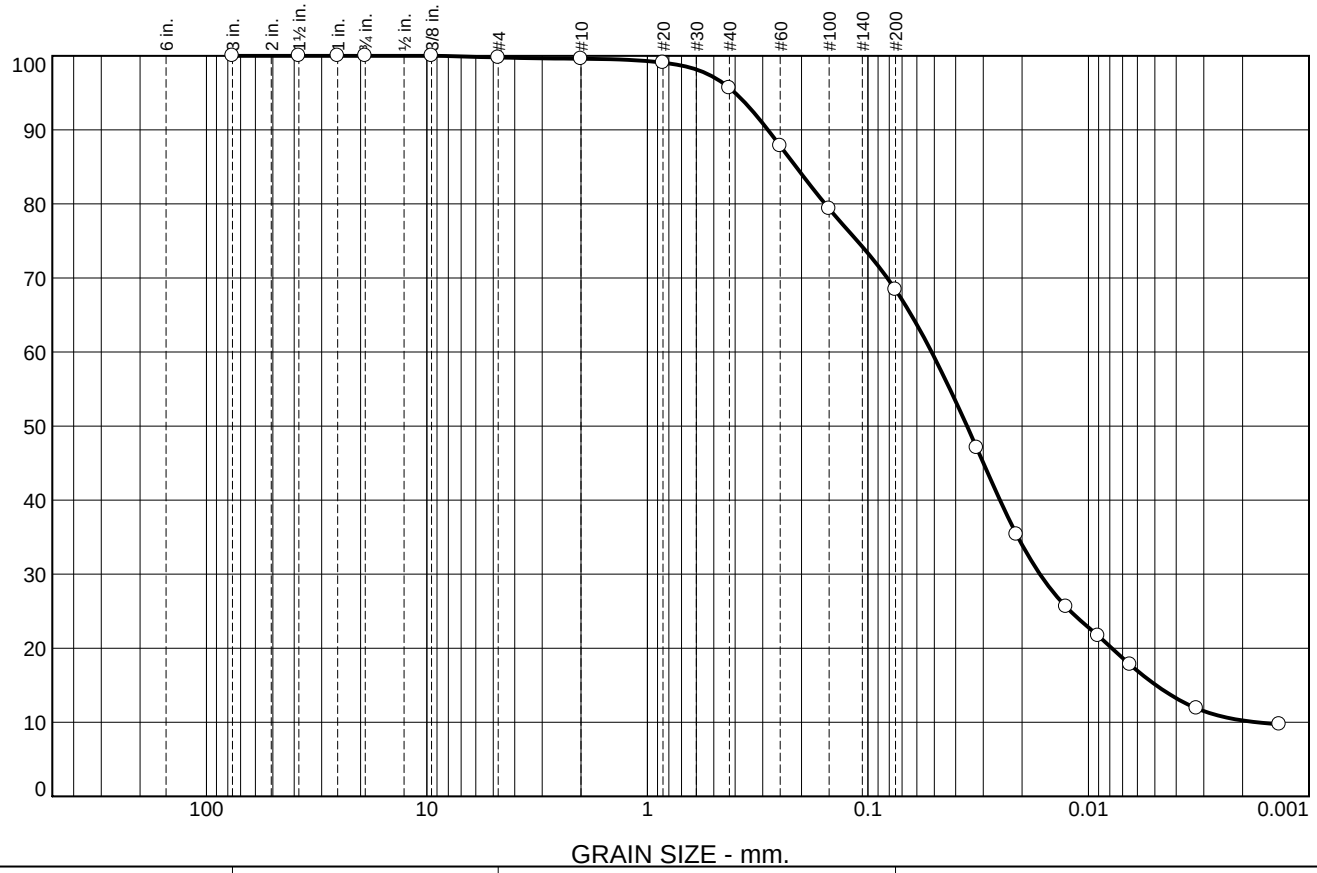
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	28	53	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	96		
#60	88		
#100	79		
#200	68		
0.0321 mm.	47		
0.0212 mm.	35		
0.0126 mm.	26		
0.0090 mm.	22		
0.0065 mm.	18		
0.0032 mm.	12		
0.0014 mm.	9.7		

* (no specification provided)

Soil Description

Hard, moist, brown to tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 25 LL= 33 PI= 8

Coefficients

D_{90}= 0.2844 D_{85}= 0.2118 D_{60}= 0.0514
D_{50}= 0.0355 D_{30}= 0.0166 D_{15}= 0.0049
D_{10}= 0.0017 C_u= 29.89 C_c= 3.11

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-60 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

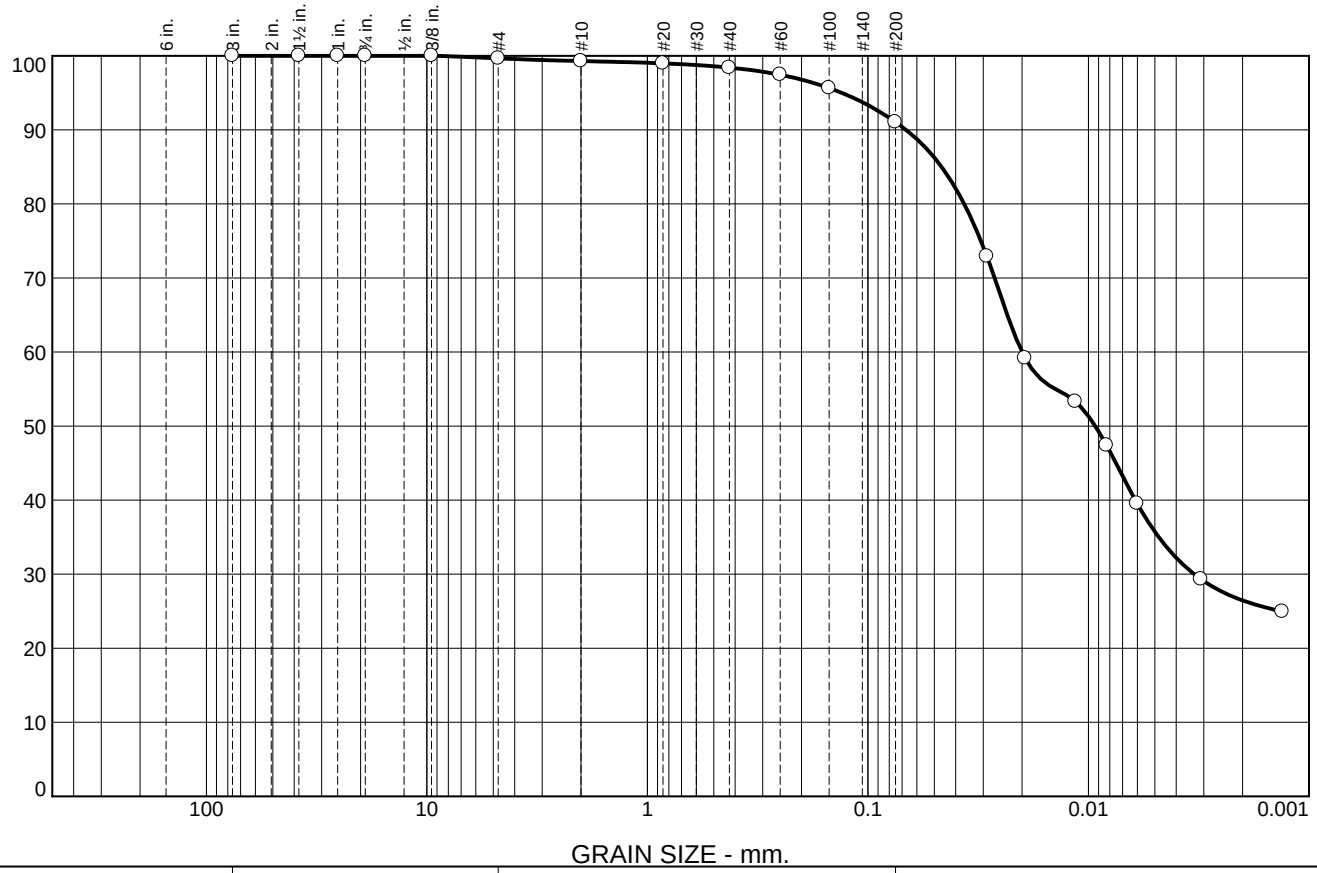
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	7	55	36

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	99		
#40	98		
#60	97		
#100	96		
#200	91		
0.0289 mm.	73		
0.0194 mm.	59		
0.0115 mm.	53		
0.0083 mm.	47		
0.0060 mm.	40		
0.0031 mm.	29		
0.0013 mm.	25		

* (no specification provided)

Soil Description

Soft, moist, organish brown, Sandy SILT (ML)(A-7-5)

Atterberg Limits

PL= 32 LL= 49 PI= 17

Coefficients

D_{90}= 0.0672 D_{85}= 0.0463 D_{60}= 0.0200
D_{50}= 0.0093 D_{30}= 0.0033 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(19)

Remarks

Source of Sample: P-61 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

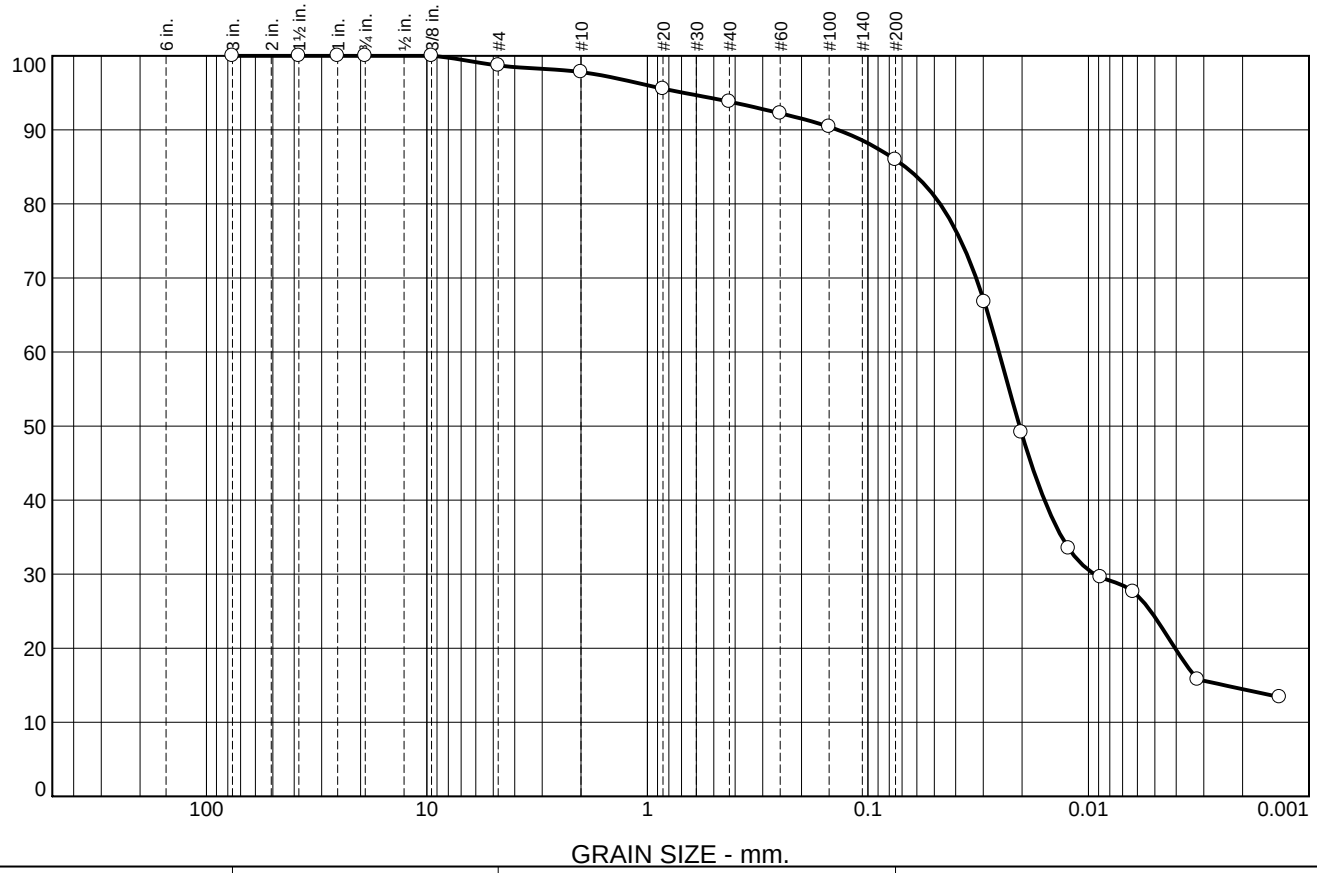
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	4	8	62	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	96		
#40	94		
#60	92		
#100	90		
#200	86		
0.0297 mm.	67		
0.0202 mm.	49		
0.0123 mm.	34		
0.0088 mm.	30		
0.0063 mm.	28		
0.0032 mm.	16		
0.0014 mm.	13		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, pinkish tan, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 31 LL= 40 PI= 9

Coefficients

D_{90}= 0.1370 D_{85}= 0.0677 D_{60}= 0.0255
D_{50}= 0.0205 D_{30}= 0.0094 D_{15}= 0.0024
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(9)

Remarks

Source of Sample: P-62 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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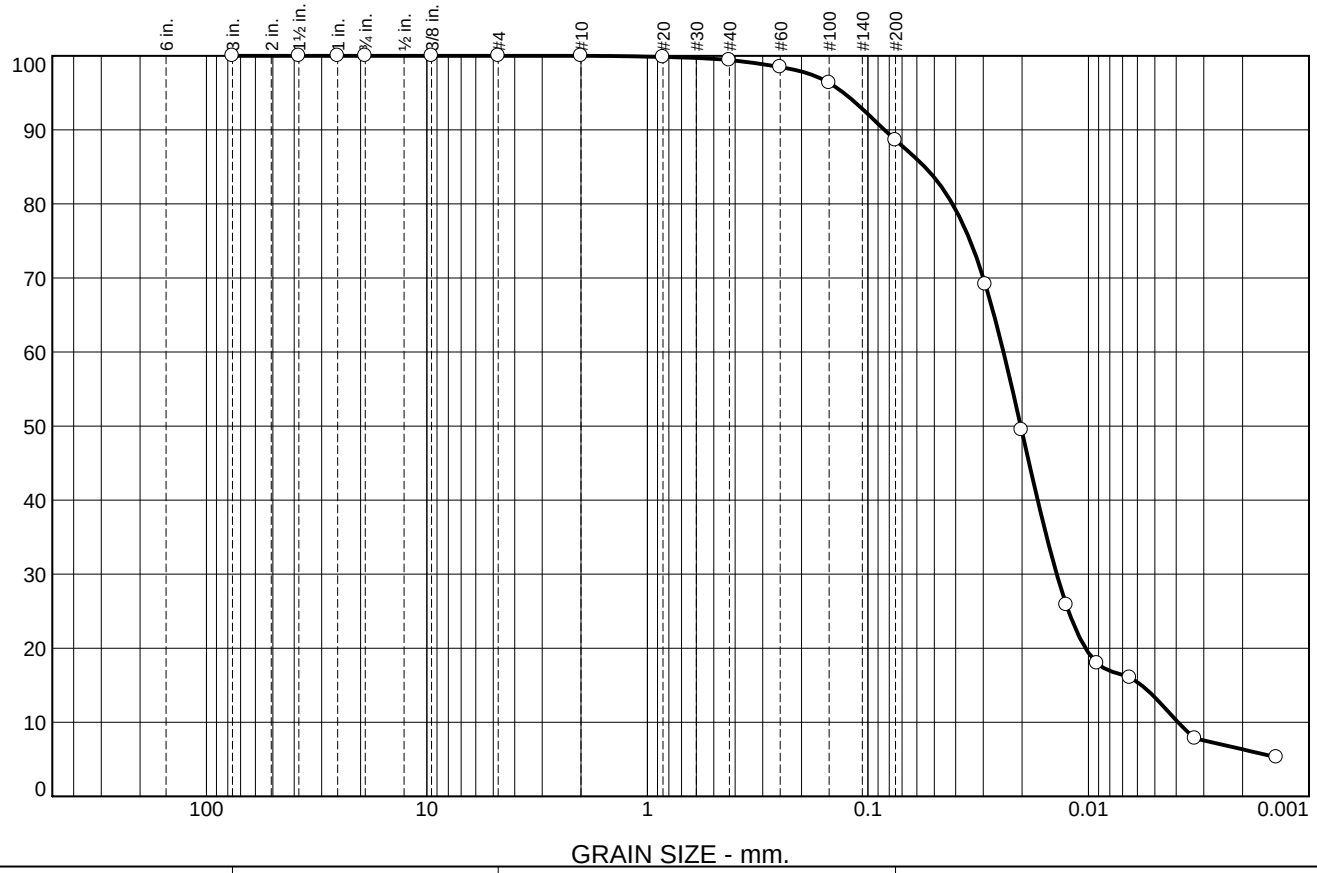
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	10	76	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	96		
#200	89		
0.0294 mm.	69		
0.0201 mm.	49		
0.0126 mm.	26		
0.0091 mm.	18		
0.0065 mm.	16		
0.0033 mm.	7.8		
0.0014 mm.	5.3		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 35 LL= 42 PI= 7

Coefficients

D_{90}= 0.0842 D_{85}= 0.0552 D_{60}= 0.0243
D_{50}= 0.0203 D_{30}= 0.0139 D_{15}= 0.0057
D_{10}= 0.0039 C_u= 6.19 C_c= 2.04

Classification

USCS= ML AASHTO= A-5(9)

Remarks

Source of Sample: P-63 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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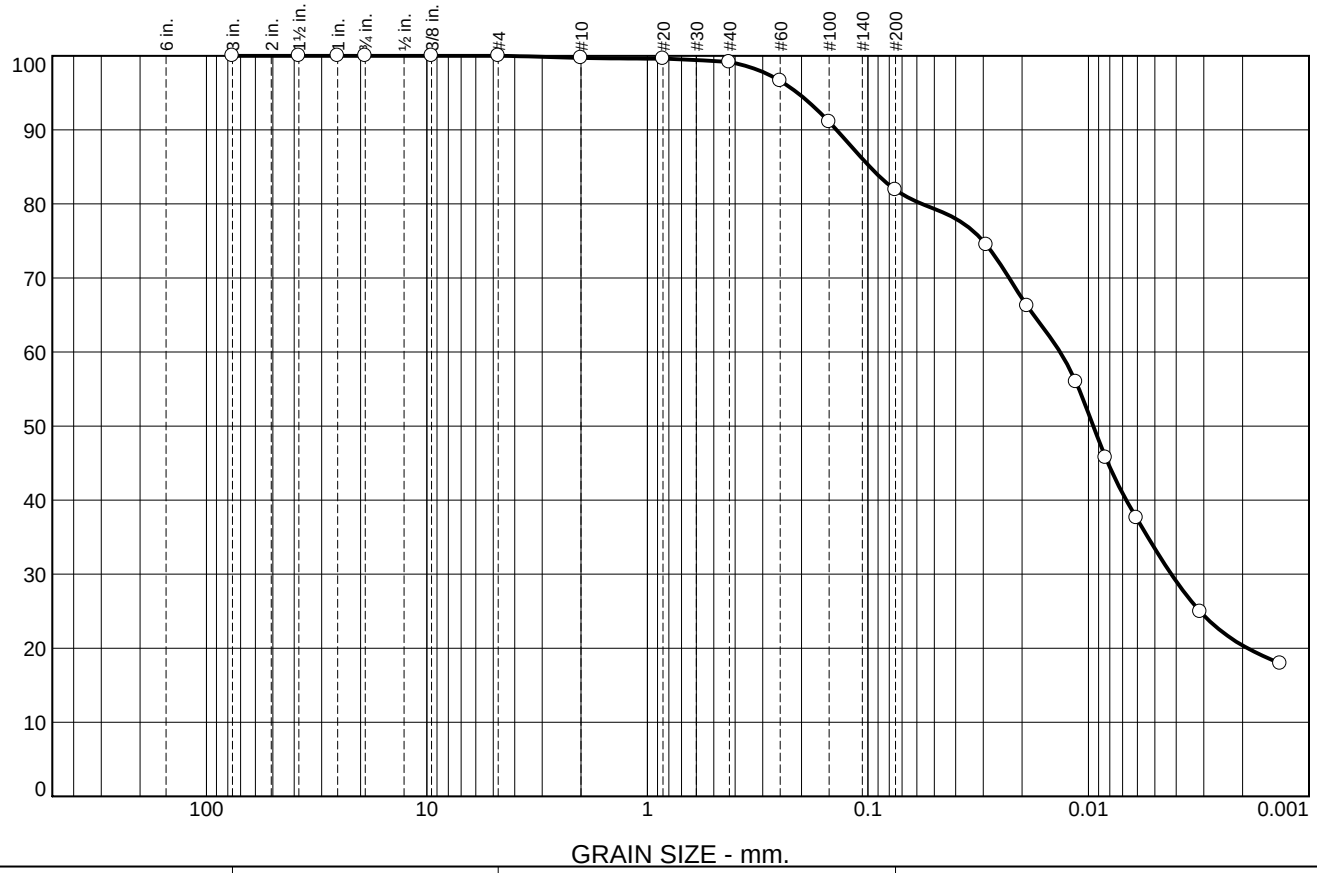
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	17	49	33

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	97		
#100	91		
#200	82		
0.0290 mm.	74		
0.0190 mm.	66		
0.0114 mm.	56		
0.0084 mm.	46		
0.0061 mm.	38		
0.0031 mm.	25		
0.0014 mm.	18		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish tan to reddish tan, Sandy SILT (MH)(A-7-5)

Atterberg Limits

PL= 43 LL= 54 PI= 11

Coefficients

D_{90}= 0.1388 D_{85}= 0.0980 D_{60}= 0.0134
D_{50}= 0.0095 D_{30}= 0.0042 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(13)

Remarks

Source of Sample: P-64 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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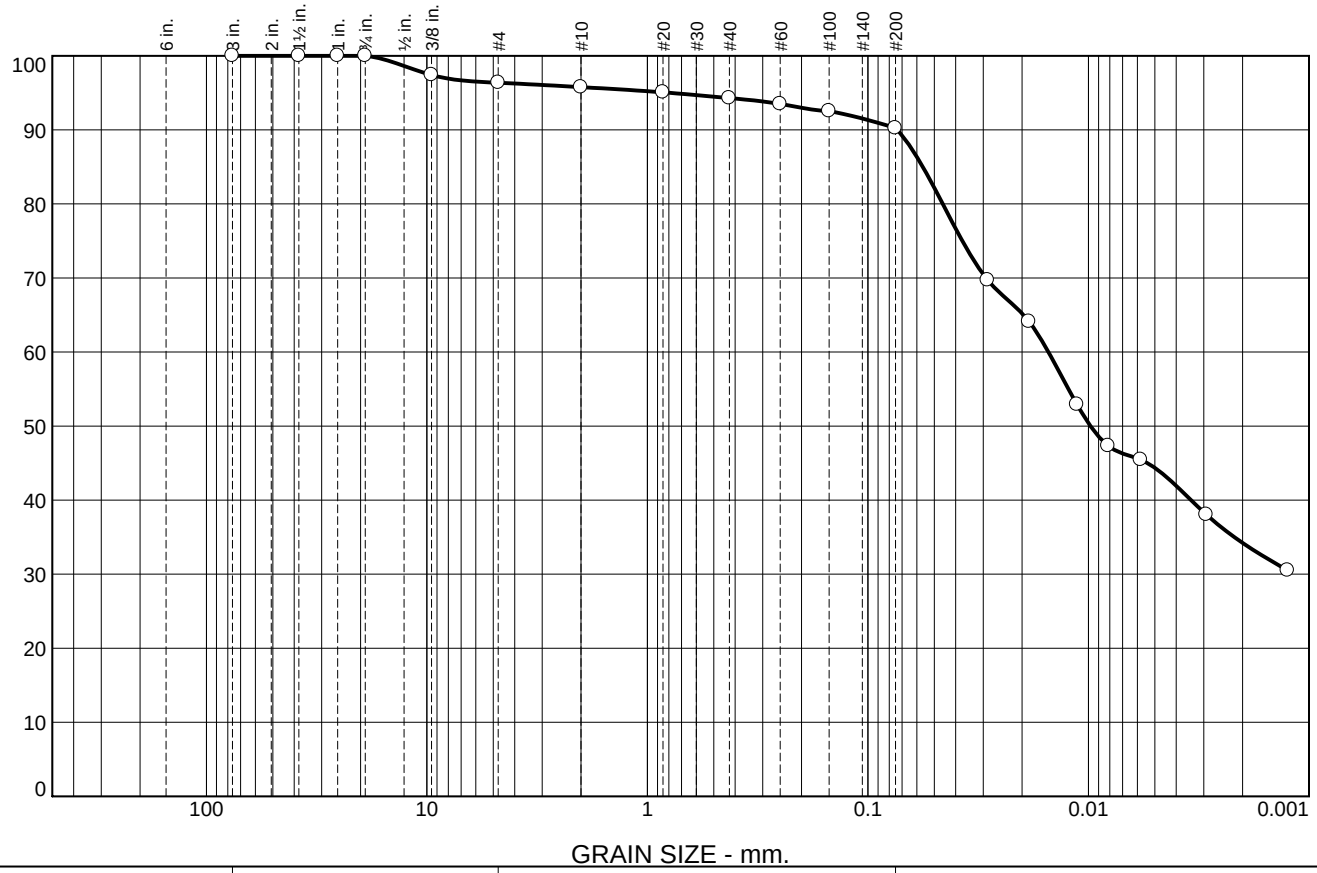
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	0	2	4	46	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	96		
#10	96		
#20	95		
#40	94		
#60	93		
#100	93		
#200	90		
0.0286 mm.	70		
0.0186 mm.	64		
0.0113 mm.	53		
0.0081 mm.	47		
0.0058 mm.	45		
0.0029 mm.	38		
0.0013 mm.	31		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to orangish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 31 LL= 53 PI= 22

Coefficients

D_{90}= 0.0737 D_{85}= 0.0564 D_{60}= 0.0152
D_{50}= 0.0098 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(24)

Remarks

Source of Sample: P-65 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

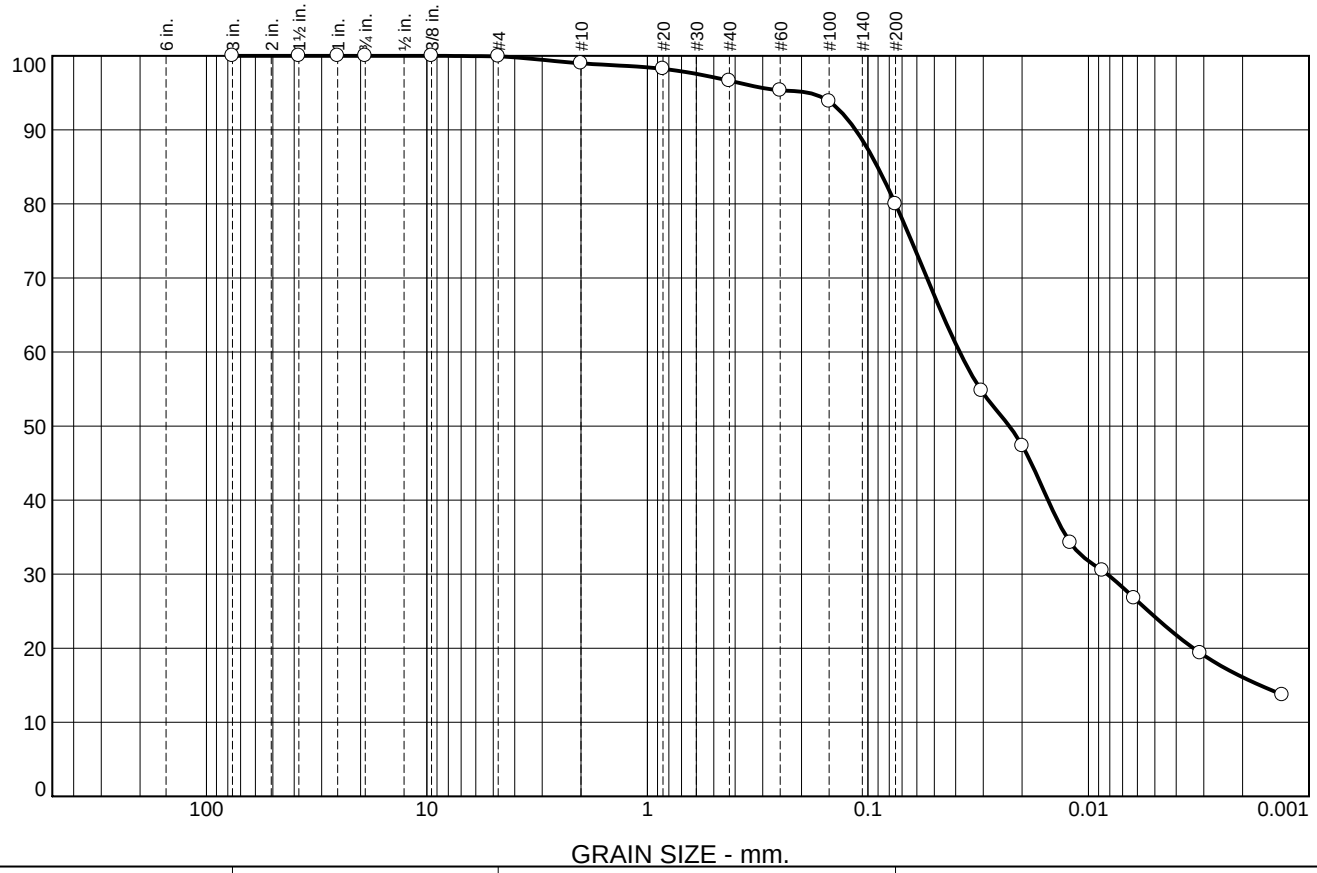
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	2	17	56	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	97		
#60	95		
#100	94		
#200	80		
0.0306 mm.	55		
0.0199 mm.	47		
0.0121 mm.	34		
0.0087 mm.	31		
0.0062 mm.	27		
0.0031 mm.	19		
0.0013 mm.	14		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish brown to tannish brown, Sandy SILT (ML)(A-7-5)

Atterberg Limits

PL= 30 LL= 42 PI= 12

Coefficients

D_{90}= 0.1138 D_{85}= 0.0904 D_{60}= 0.0384
D_{50}= 0.0228 D_{30}= 0.0082 D_{15}= 0.0017
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(11)

Remarks

Source of Sample: P-67 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

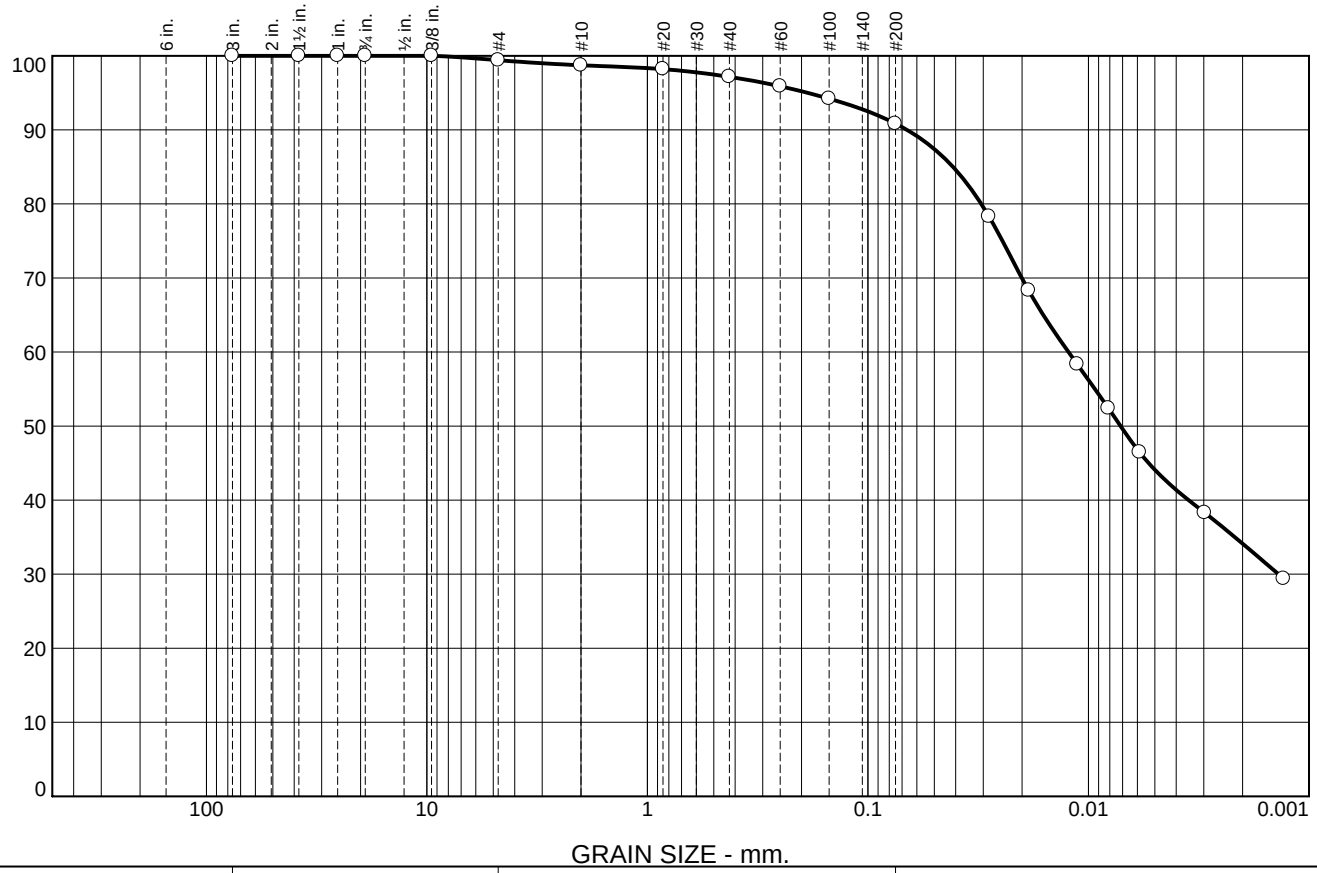
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	2	6	47	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	99		
#20	98		
#40	97		
#60	96		
#100	94		
#200	91		
0.0283 mm.	78		
0.0187 mm.	68		
0.0112 mm.	58		
0.0081 mm.	52		
0.0059 mm.	46		
0.0030 mm.	38		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, orangish brown, Elastic SILT (MH)(A-7-5) with trace roots

Atterberg Limits

PL= 31 LL= 56 PI= 25

Coefficients

D_{90}= 0.0666 D_{85}= 0.0411 D_{60}= 0.0123
D_{50}= 0.0072 D_{30}= 0.0014 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(27)

Remarks

Source of Sample: P-68 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

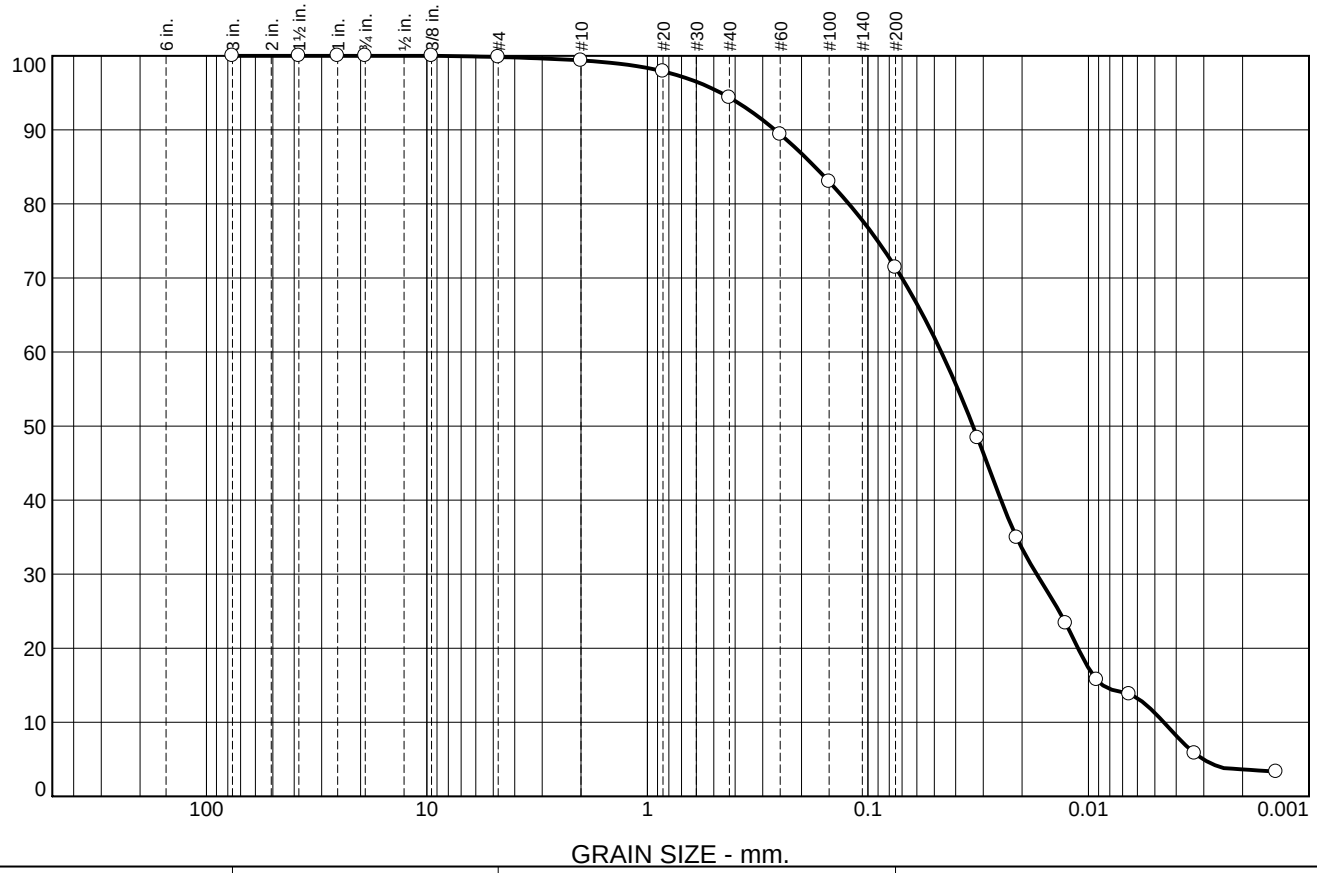
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	5	23	60	11

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	94		
#60	89		
#100	83		
#200	71		
0.0318 mm.	48		
0.0211 mm.	35		
0.0127 mm.	23		
0.0092 mm.	16		
0.0065 mm.	14		
0.0033 mm.	5.8		
0.0014 mm.	3.3		

* (no specification provided)

Soil Description

Hard to very stiff, moist, tannish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 31 LL= 34 PI= 3

Coefficients

D_{90}= 0.2640 D_{85}= 0.1738 D_{60}= 0.0465
D_{50}= 0.0334 D_{30}= 0.0172 D_{15}= 0.0086
D_{10}= 0.0046 C_u= 10.21 C_c= 1.39

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: P-69 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

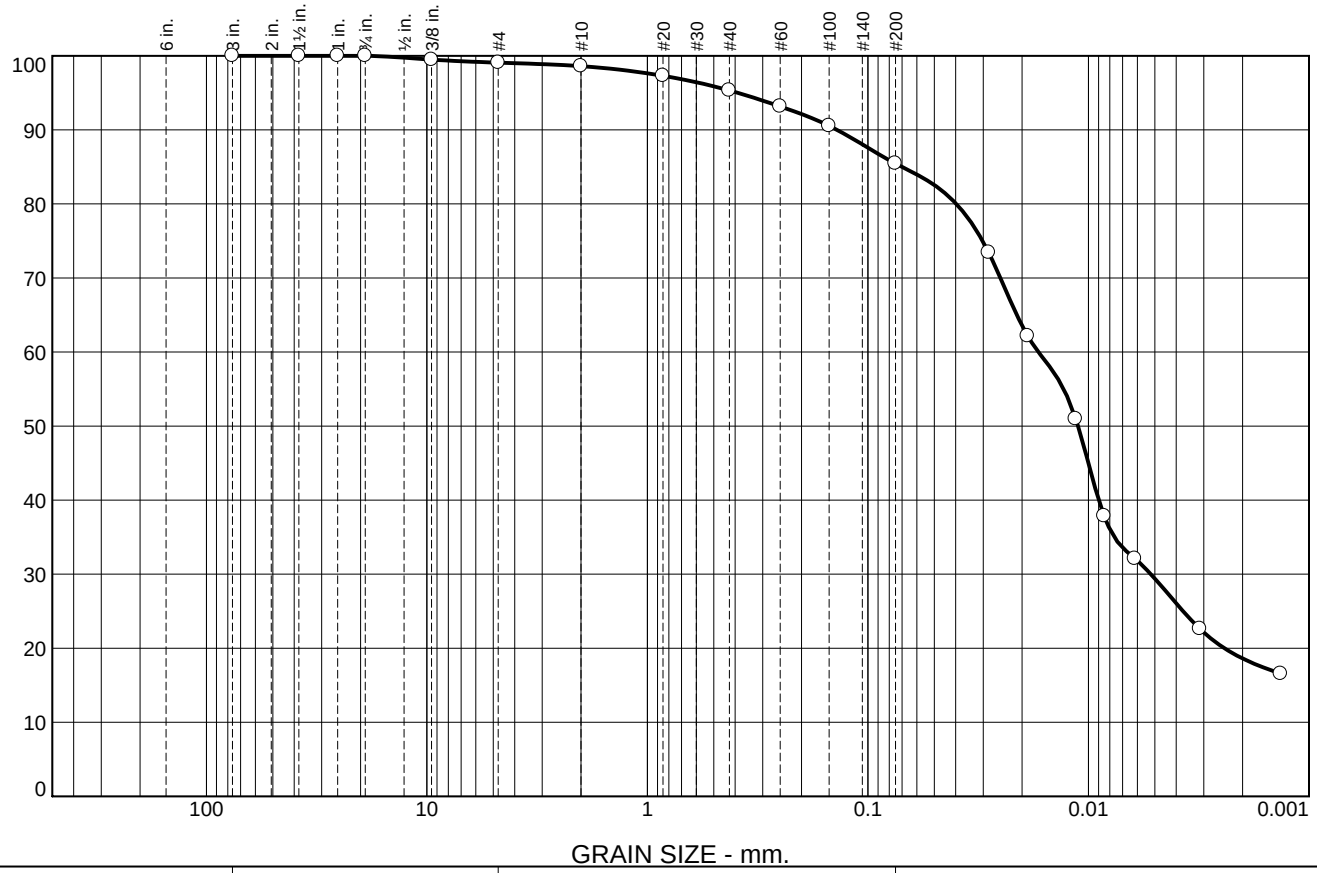
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	4	10	56	29

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	99		
#20	97		
#40	95		
#60	93		
#100	91		
#200	85		
0.0283 mm.	73		
0.0189 mm.	62		
0.0114 mm.	51		
0.0085 mm.	38		
0.0062 mm.	32		
0.0031 mm.	23		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5) with trace roots

Atterberg Limits

PL= 34 LL= 43 PI= 9

Coefficients

D_{90}= 0.1382 D_{85}= 0.0701 D_{60}= 0.0169
D_{50}= 0.0112 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(10)

Remarks

Source of Sample: P-70 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

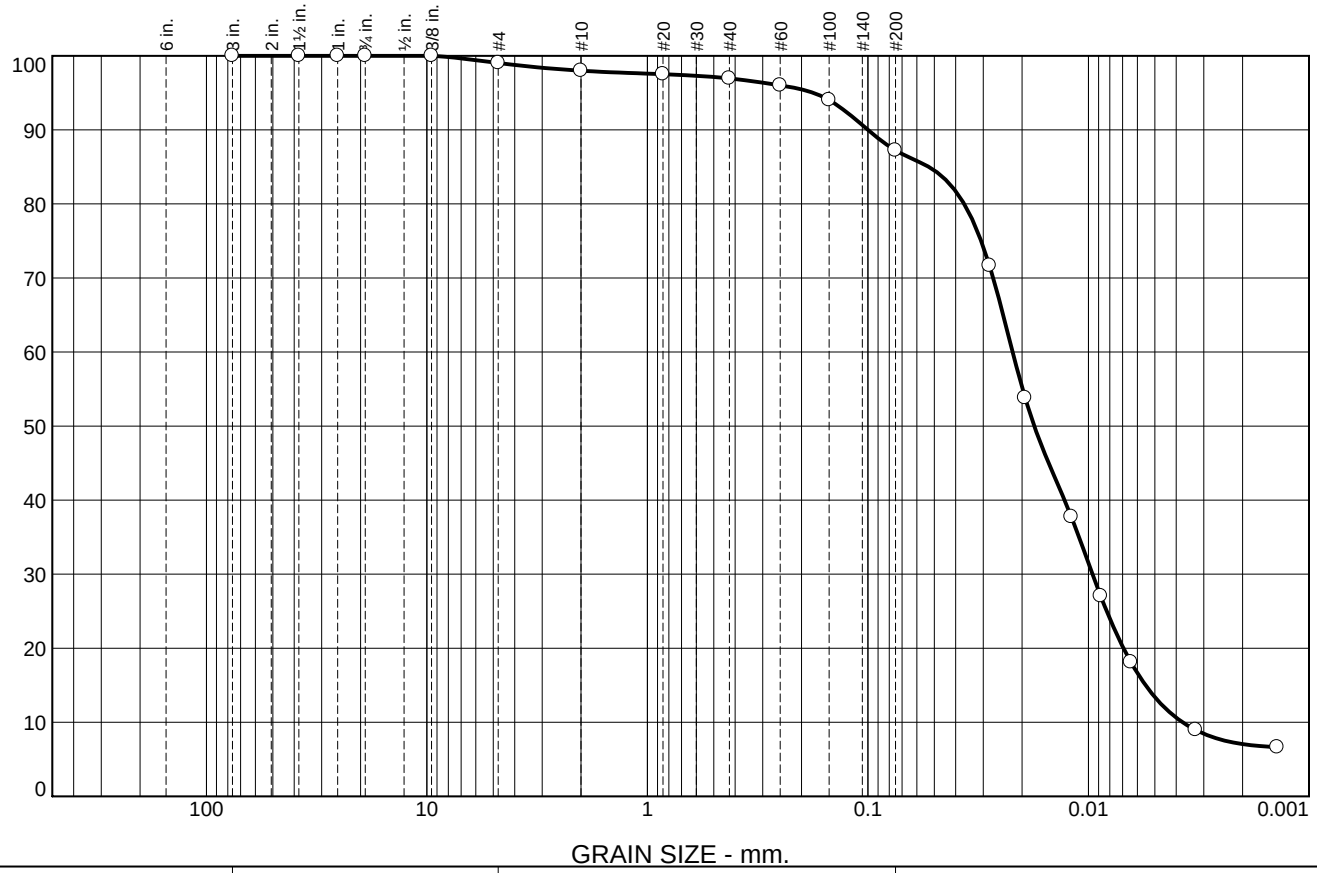
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	1	10	74	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	98		
#40	97		
#60	96		
#100	94		
#200	87		
0.0281 mm.	72		
0.0194 mm.	54		
0.0120 mm.	38		
0.0088 mm.	27		
0.0064 mm.	18		
0.0033 mm.	9.0		
0.0014 mm.	6.6		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 38 LL= 43 PI= 5

Coefficients

D_{90}= 0.1000 D_{85}= 0.0530 D_{60}= 0.0221
D_{50}= 0.0176 D_{30}= 0.0096 D_{15}= 0.0055
D_{10}= 0.0037 C_u= 5.90 C_c= 1.11

Classification

USCS= ML AASHTO= A-5(8)

Remarks

Source of Sample: P-71 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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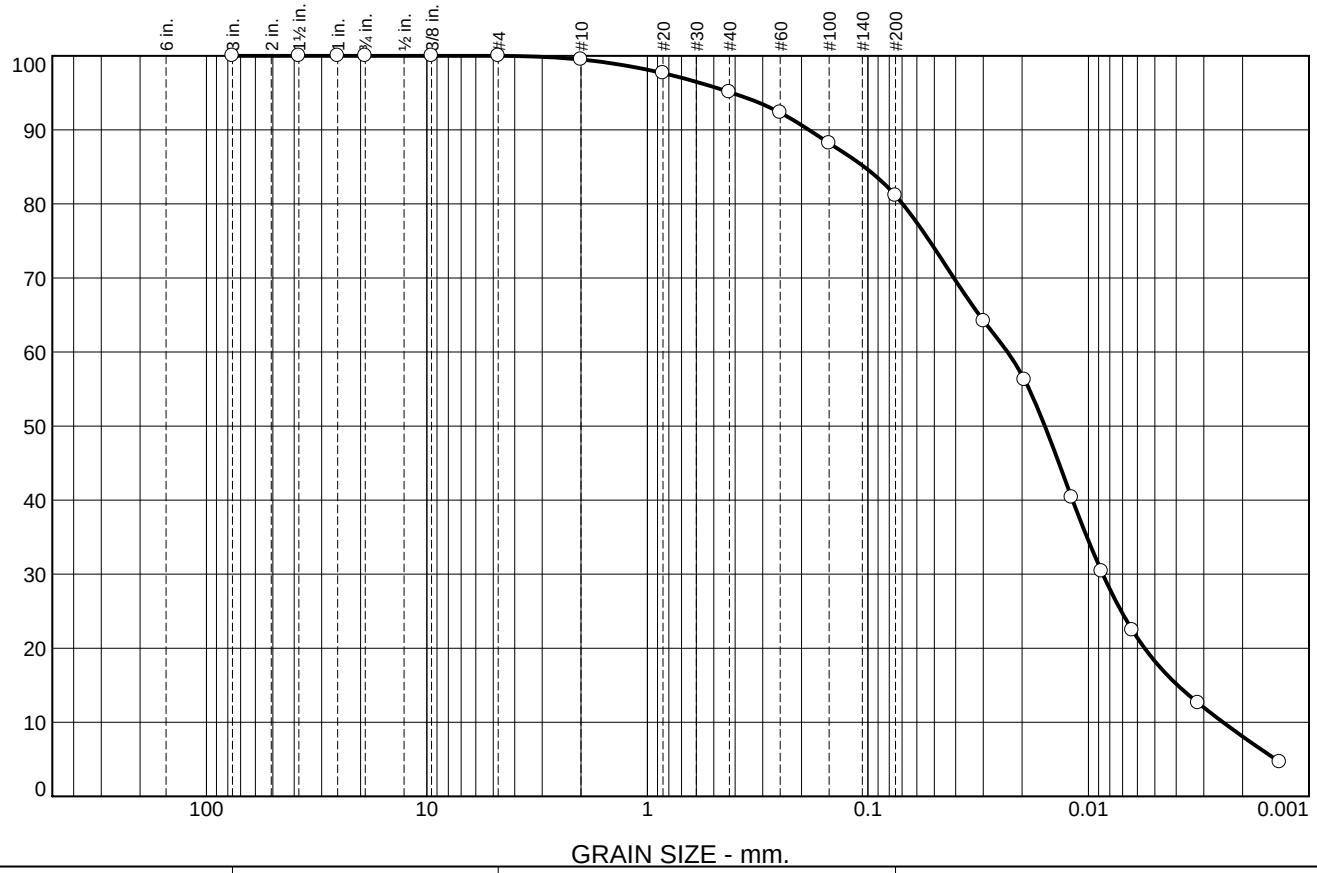
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	4	14	63	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	95		
#60	92		
#100	88		
#200	81		
0.0299 mm.	64		
0.0195 mm.	56		
0.0119 mm.	40		
0.0087 mm.	30		
0.0063 mm.	22		
0.0032 mm.	13		
0.0014 mm.	4.6		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown, Sandy SILT (ML) (A-7-5)

Atterberg Limits

PL= 34 LL= 46 PI= 12

Coefficients

D_{90}= 0.1852 D_{85}= 0.1038 D_{60}= 0.0233
D_{50}= 0.0158 D_{30}= 0.0086 D_{15}= 0.0039
D_{10}= 0.0025 C_u= 9.49 C_c= 1.30

Classification

USCS= ML AASHTO= A-7-5(12)

Remarks

Source of Sample: P-72 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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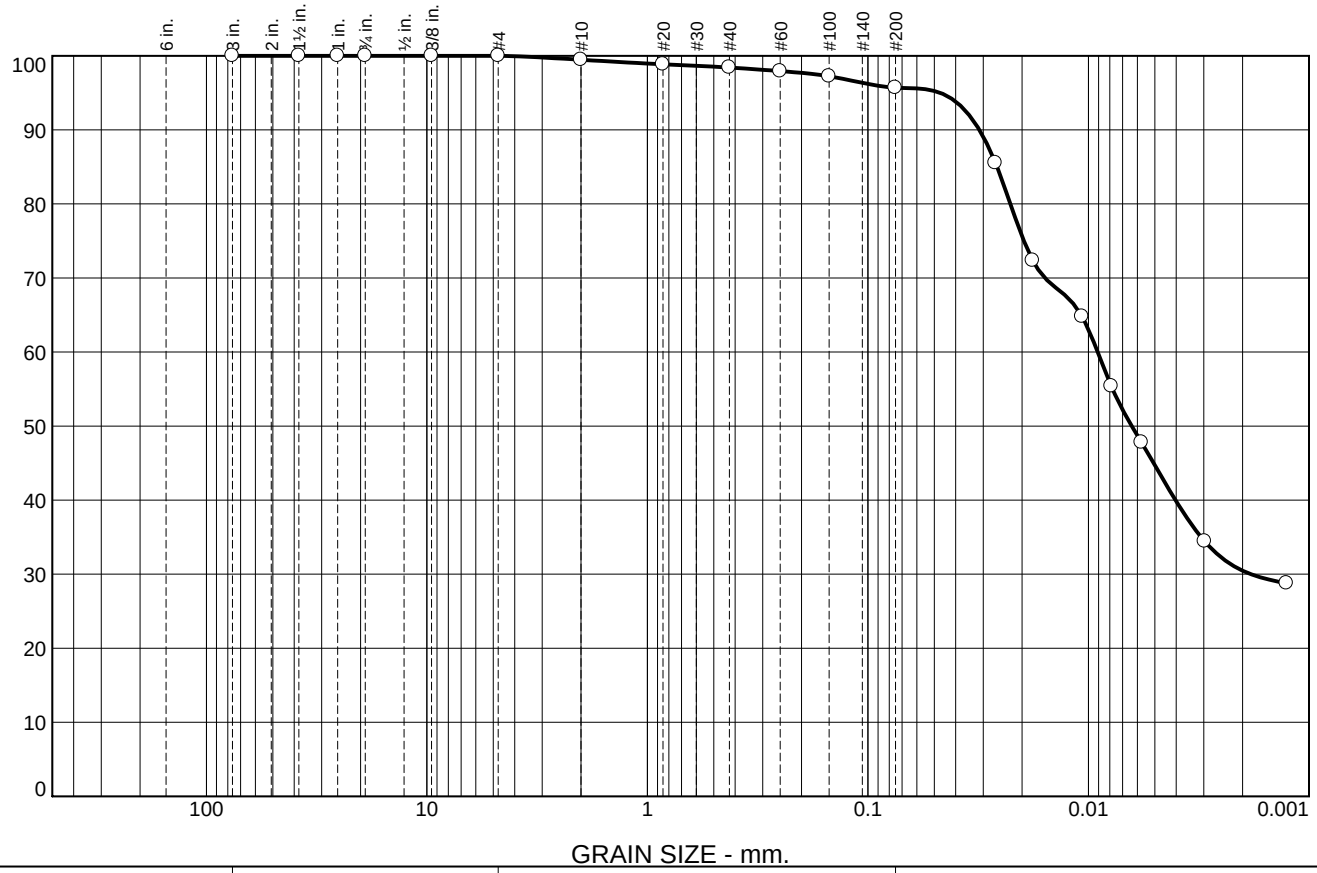
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	2	51	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	99		
#40	98		
#60	98		
#100	97		
#200	96		
0.0264 mm.	86		
0.0179 mm.	72		
0.0107 mm.	65		
0.0079 mm.	55		
0.0057 mm.	48		
0.0030 mm.	34		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown to reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 33 LL= 60 PI= 27

Coefficients

D_{90}= 0.0312 D_{85}= 0.0260 D_{60}= 0.0091
D_{50}= 0.0064 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(32)

Remarks

Source of Sample: P-74 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/2/2017

ECS SOUTHEAST, LLP
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Charlotte, NC 28217
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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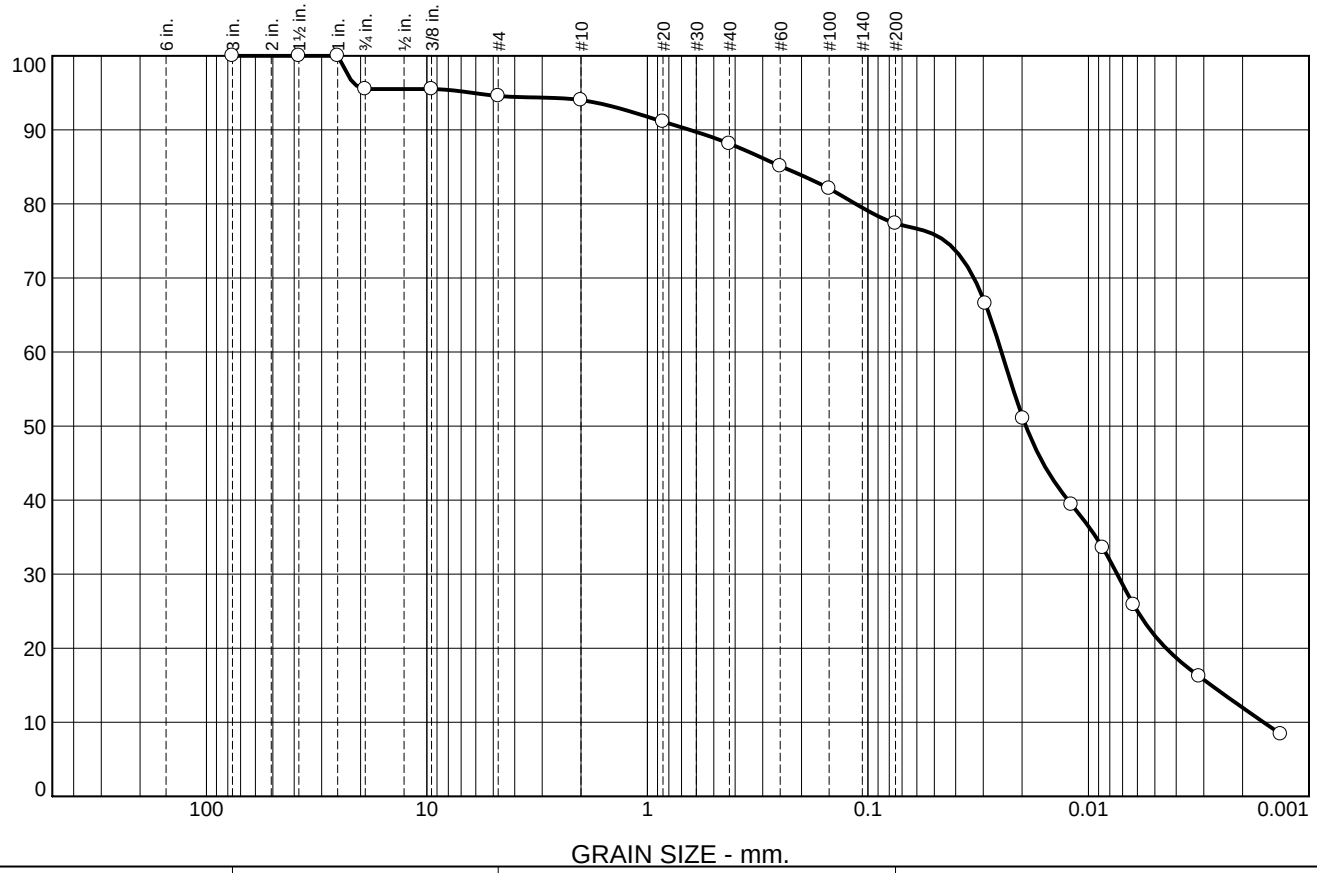
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	1	1	6	11	55	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	96		
.375	96		
#4	95		
#10	94		
#20	91		
#40	88		
#60	85		
#100	82		
#200	77		
0.0294 mm.	67		
0.0198 mm.	51		
0.0119 mm.	39		
0.0086 mm.	34		
0.0062 mm.	26		
0.0031 mm.	16		
0.0013 mm.	8.4		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 41 LL= 48 PI= 7

Coefficients

D_{90}= 0.6436 D_{85}= 0.2449 D_{60}= 0.0248
D_{50}= 0.0192 D_{30}= 0.0074 D_{15}= 0.0028
D_{10}= 0.0016 C_u= 15.43 C_c= 1.38

Classification

USCS= ML AASHTO= A-5(8)

Remarks

Source of Sample: P-75 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
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Charlotte, NC 28217
Phone: (704) 525-5152
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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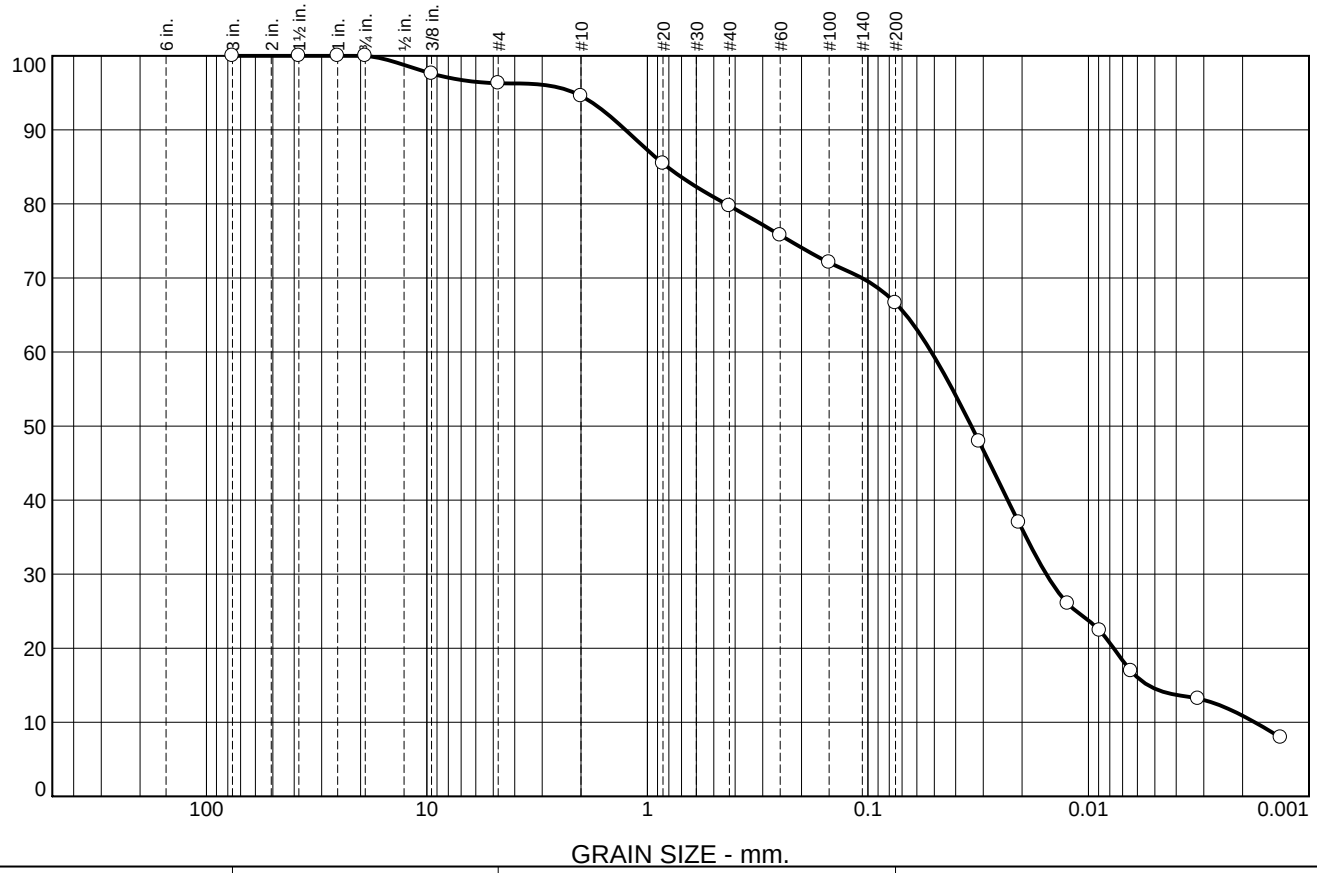
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	1	15	13	52	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	96		
#10	95		
#20	85		
#40	80		
#60	76		
#100	72		
#200	67		
0.0314 mm.	48		
0.0207 mm.	37		
0.0124 mm.	26		
0.0089 mm.	22		
0.0064 mm.	17		
0.0032 mm.	13		
0.0013 mm.	7.9		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, tannish gray to gray, Sandy CLAY (CL)(A-6) with trace roots

Atterberg Limits

PL= 24 LL= 35 PI= 11

Coefficients

D_{90}= 1.2582 D_{85}= 0.8123 D_{60}= 0.0515
D_{50}= 0.0340 D_{30}= 0.0155 D_{15}= 0.0054
D_{10}= 0.0018 C_u= 29.27 C_c= 2.66

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: P-76 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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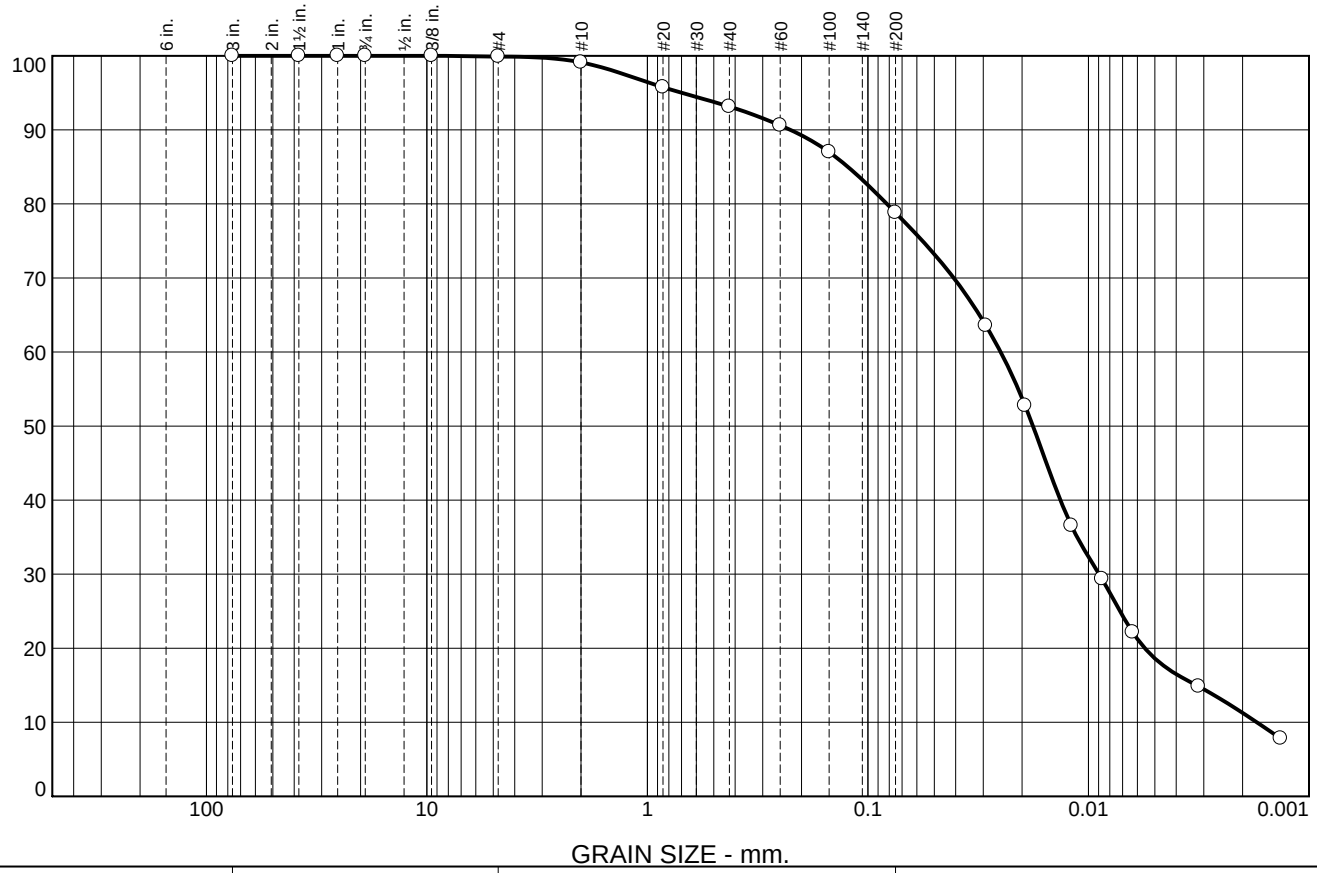
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	6	14	60	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	96		
#40	93		
#60	91		
#100	87		
#200	79		
0.0292 mm.	64		
0.0194 mm.	53		
0.0120 mm.	37		
0.0087 mm.	29		
0.0063 mm.	22		
0.0032 mm.	15		
0.0013 mm.	7.8		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 39 LL= 45 PI= 6

Coefficients

D_{90}= 0.2250 D_{85}= 0.1232 D_{60}= 0.0250
D_{50}= 0.0179 D_{30}= 0.0089 D_{15}= 0.0032
D_{10}= 0.0017 C_u= 14.50 C_c= 1.86

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-78 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/21/2017

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Charlotte, NC 28217
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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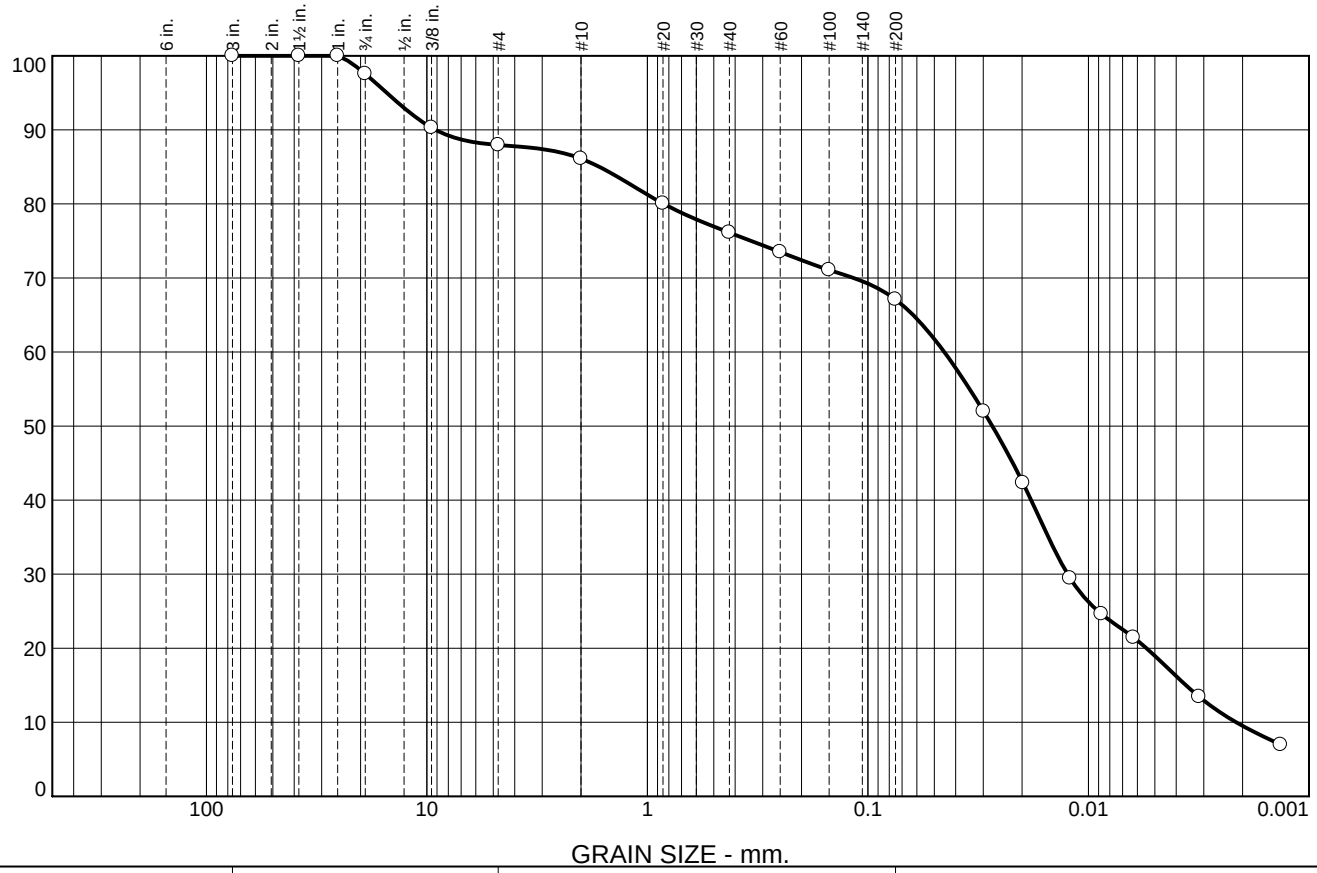
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	2	10	2	10	9	48	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	98		
.375	90		
#4	88		
#10	86		
#20	80		
#40	76		
#60	73		
#100	71		
#200	67		
0.0299 mm.	52		
0.0198 mm.	42		
0.0121 mm.	29		
0.0087 mm.	25		
0.0062 mm.	21		
0.0031 mm.	13		
0.0013 mm.	7.0		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel-sized rock fragments

Atterberg Limits

PL= 25 LL= 33 PI= 8

Coefficients

D_{90}= 9.1467 D_{85}= 1.6512 D_{60}= 0.0450
D_{50}= 0.0273 D_{30}= 0.0124 D_{15}= 0.0036
D_{10}= 0.0021 C_u= 21.07 C_c= 1.60

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-79 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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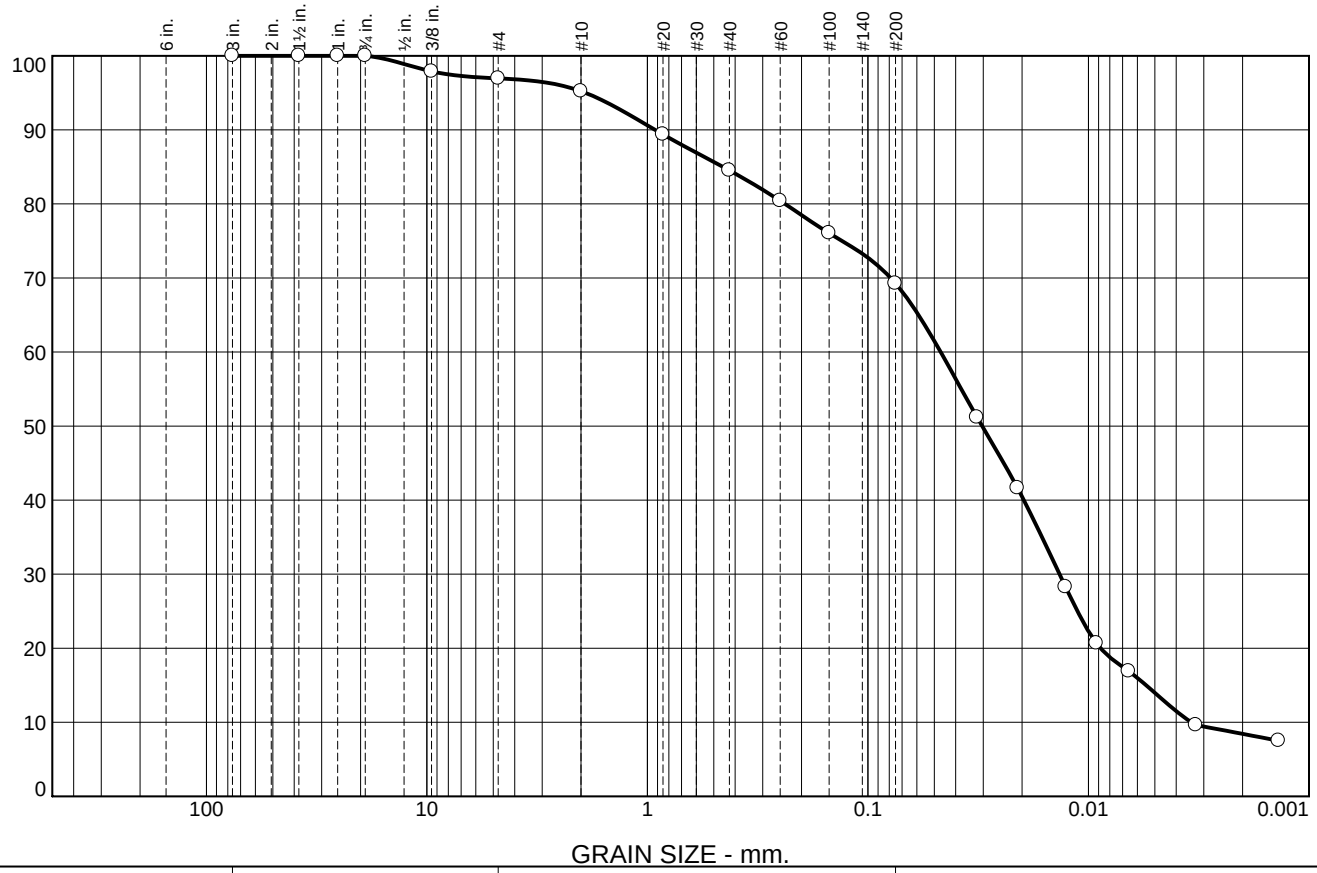
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	2	10	16	55	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	95		
#20	89		
#40	85		
#60	80		
#100	76		
#200	69		
0.0320 mm.	51		
0.0210 mm.	42		
0.0127 mm.	28		
0.0092 mm.	21		
0.0066 mm.	17		
0.0033 mm.	9.6		
0.0014 mm.	7.5		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel-sized rock fragments

Atterberg Limits

PL= 29 LL= 33 PI= 4

Coefficients

D_{90}= 0.9237 D_{85}= 0.4547 D_{60}= 0.0468
D_{50}= 0.0303 D_{30}= 0.0135 D_{15}= 0.0055
D_{10}= 0.0034 C_u= 13.71 C_c= 1.15

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: P-80 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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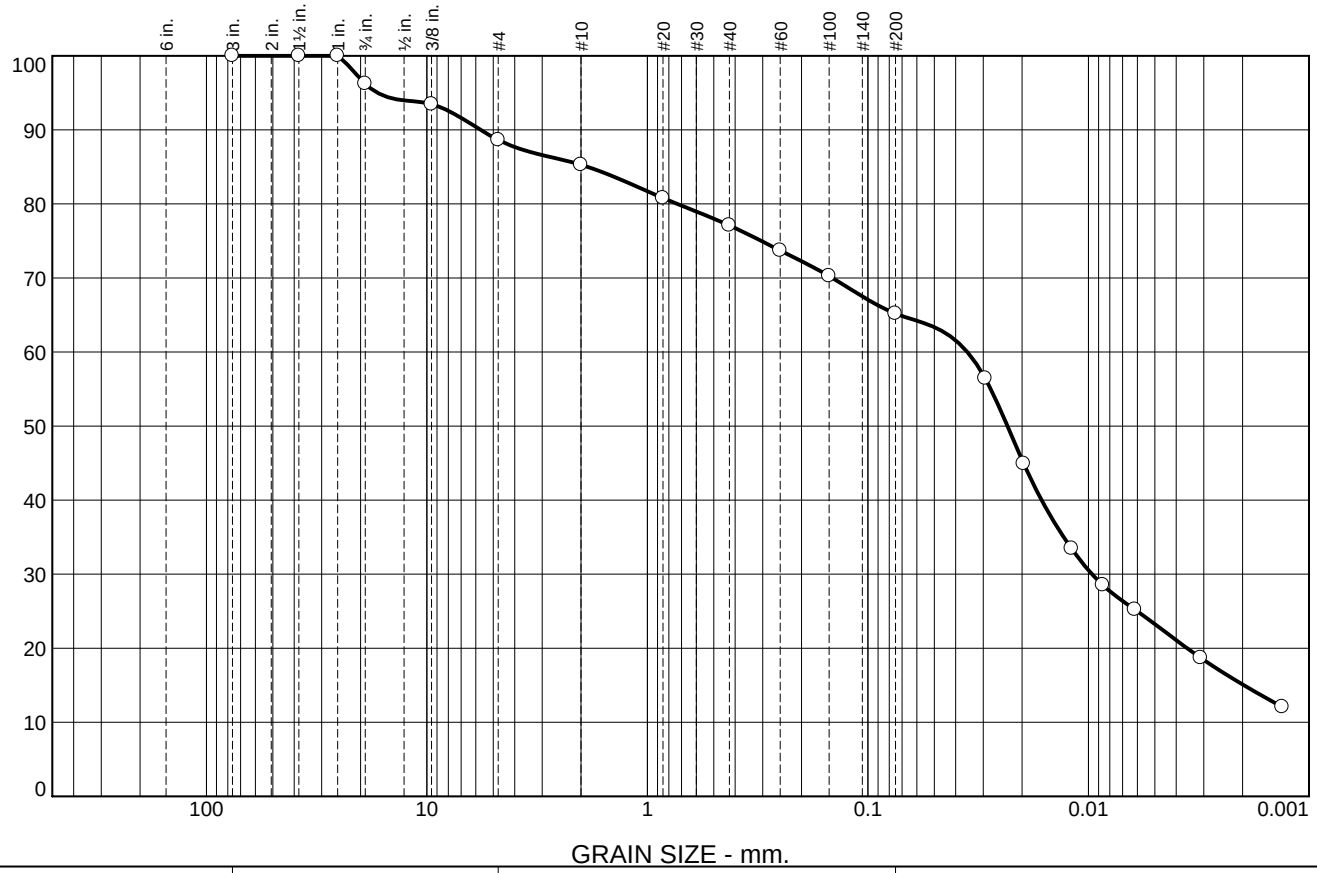
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	7	4	8	12	42	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	96		
.375	93		
#4	89		
#10	85		
#20	81		
#40	77		
#60	74		
#100	70		
#200	65		
0.0294 mm.	56		
0.0197 mm.	45		
0.0119 mm.	33		
0.0086 mm.	29		
0.0062 mm.	25		
0.0031 mm.	19		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy SILT (ML)(A-6) with trace roots and gravel

Atterberg Limits

PL= 27 LL= 39 PI= 12

Coefficients

D_{90}= 5.7085 D_{85}= 1.8645 D_{60}= 0.0354
D_{50}= 0.0233 D_{30}= 0.0096 D_{15}= 0.0020
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(7)

Remarks

Source of Sample: P-81 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/5/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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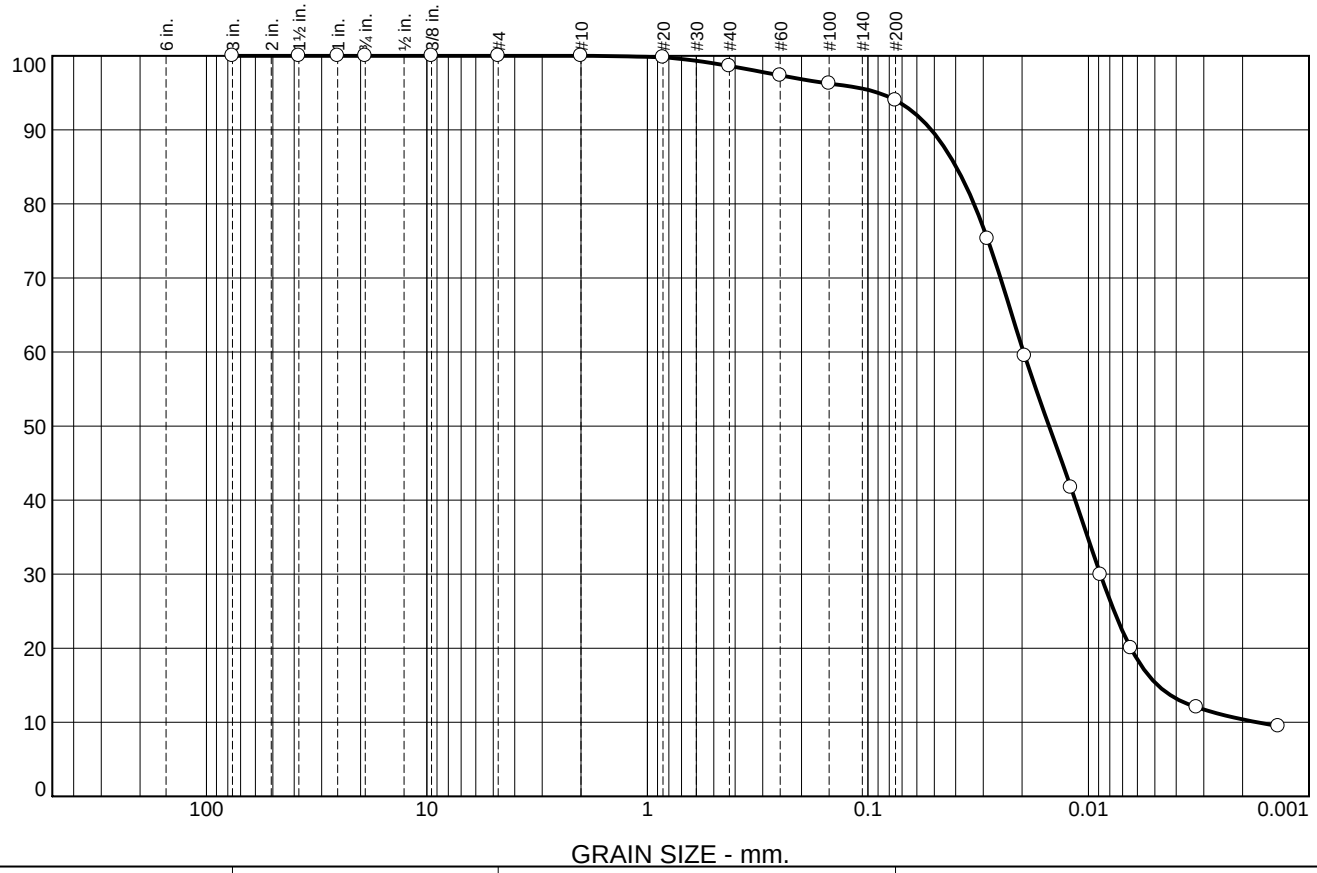
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	5	79	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	97		
#100	96		
#200	94		
0.0287 mm.	75		
0.0194 mm.	59		
0.0120 mm.	42		
0.0088 mm.	30		
0.0064 mm.	20		
0.0032 mm.	12		
0.0014 mm.	9.5		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, reddish brown to tannish red, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 44 LL= 57 PI= 13

Coefficients

D_{90}= 0.0516 D_{85}= 0.0398 D_{60}= 0.0197
D_{50}= 0.0151 D_{30}= 0.0088 D_{15}= 0.0048
D_{10}= 0.0017 C_u= 11.45 C_c= 2.30

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

Source of Sample: P-82 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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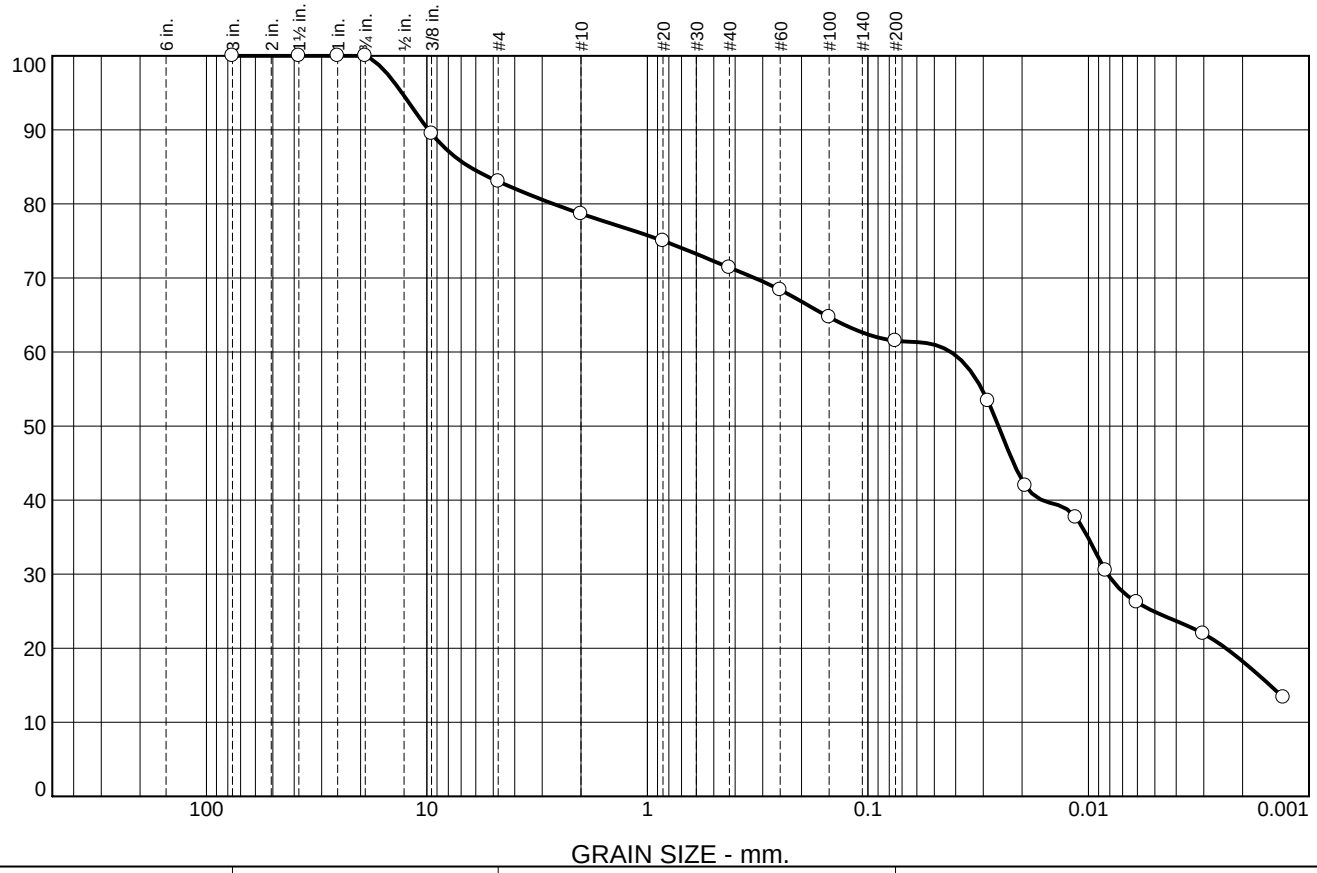
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	17	4	8	9	37	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	89		
#4	83		
#10	79		
#20	75		
#40	71		
#60	68		
#100	65		
#200	62		
0.0286 mm.	53		
0.0193 mm.	42		
0.0114 mm.	38		
0.0084 mm.	31		
0.0060 mm.	26		
0.0030 mm.	22		
0.0013 mm.	13		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 23 LL= 35 PI= 12

Coefficients

D_{90}= 9.8344 D_{85}= 6.4058 D_{60}= 0.0420
D_{50}= 0.0256 D_{30}= 0.0082 D_{15}= 0.0015
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: P-83 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

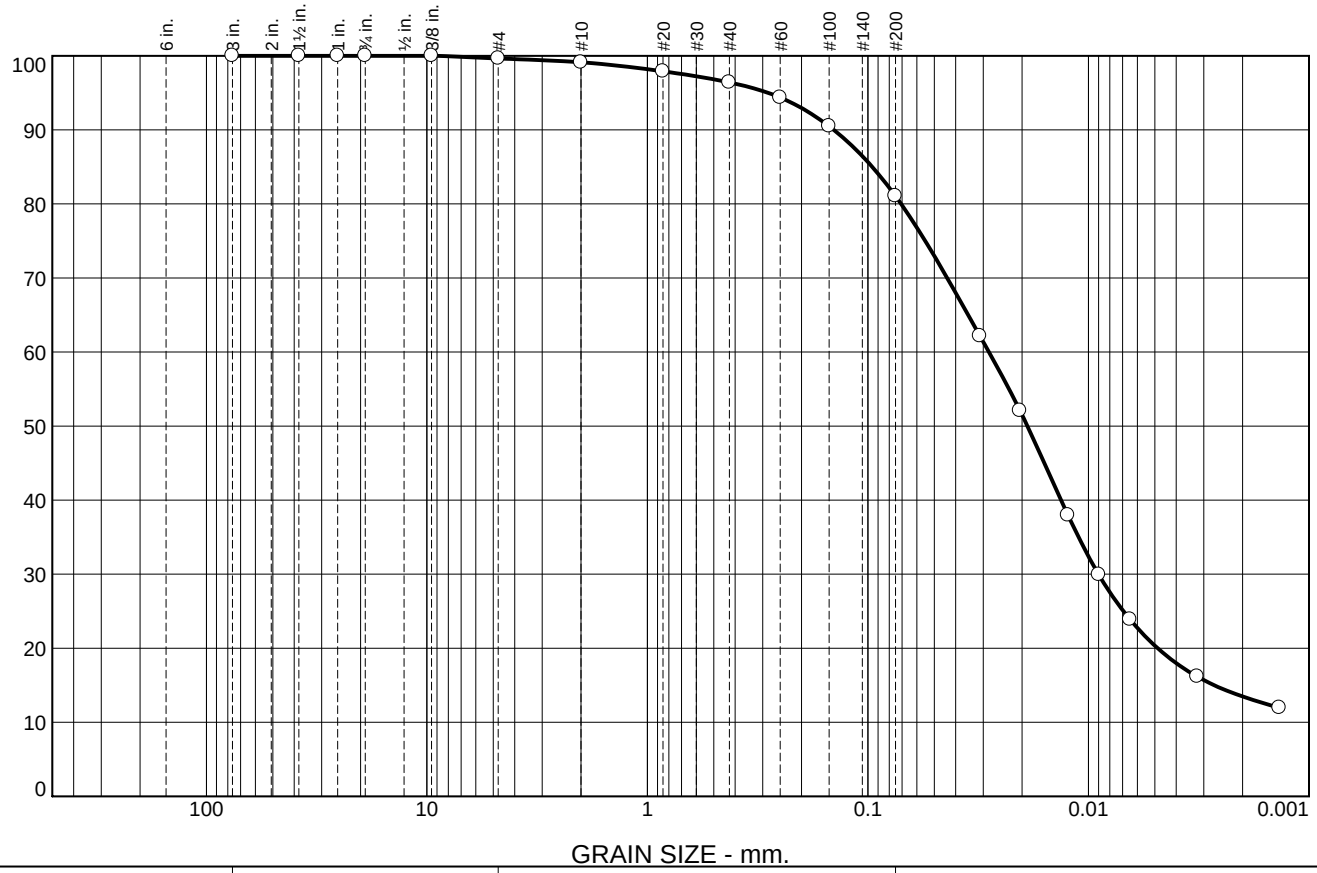
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	15	61	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	96		
#60	94		
#100	90		
#200	81		
0.0311 mm.	62		
0.0204 mm.	52		
0.0124 mm.	38		
0.0090 mm.	30		
0.0065 mm.	24		
0.0032 mm.	16		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace roots

Atterberg Limits

PL= 33 LL= 42 PI= 9

Coefficients

D_{90}= 0.1429 D_{85}= 0.0956 D_{60}= 0.0283
D_{50}= 0.0189 D_{30}= 0.0090 D_{15}= 0.0027
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(9)

Remarks

Source of Sample: P-84 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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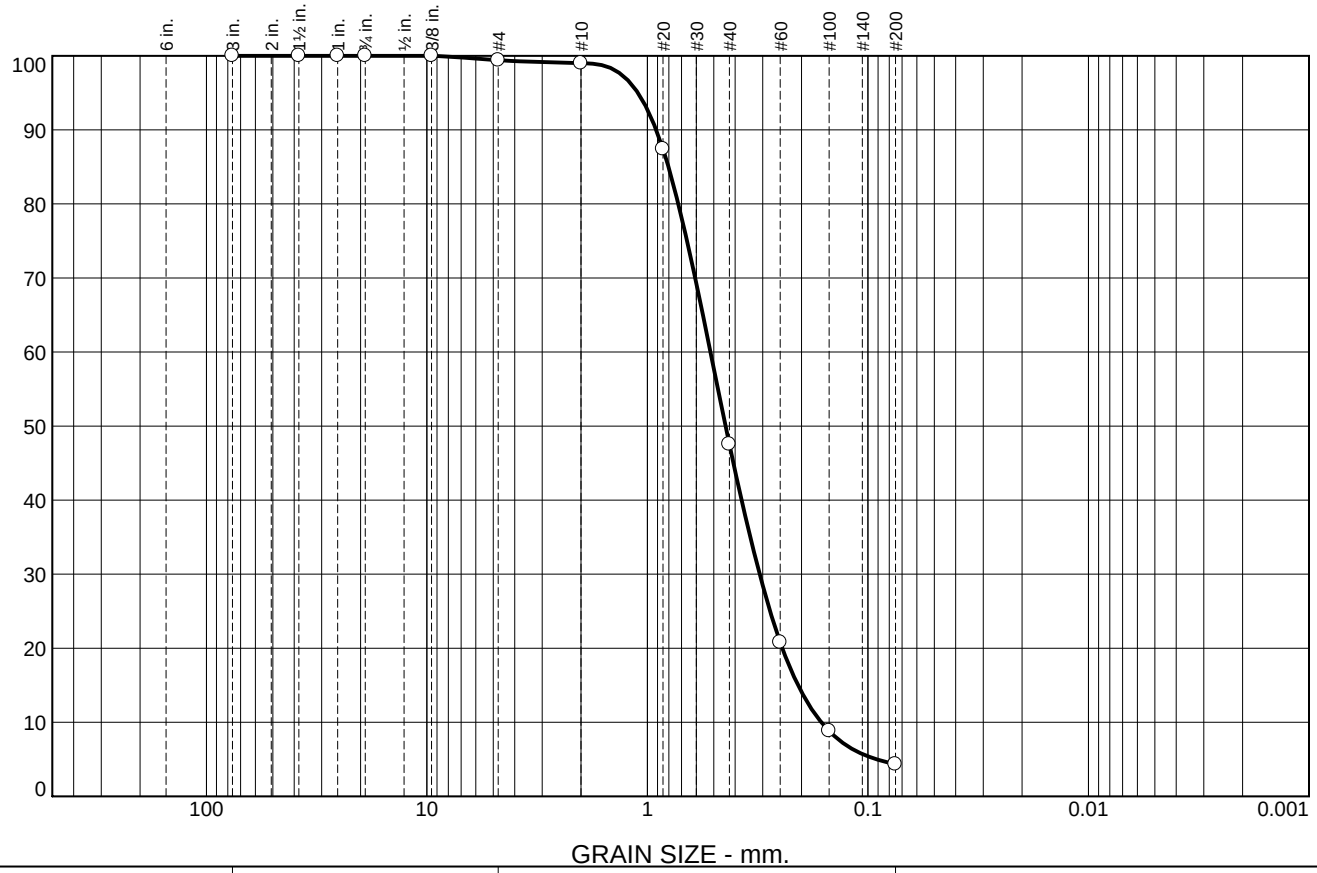
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	51	44	4	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	99		
#20	87		
#40	48		
#60	21		
#100	9		
#200	4.3		

* (no specification provided)

Soil Description

Medium dense, moist, tan, Poorly-Graded SAND (SP) (A-1-b) with trace mica

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 0.9123 D_{85}= 0.8028 D_{60}= 0.5178
D_{50}= 0.4422 D_{30}= 0.3098 D_{15}= 0.2075
D_{10}= 0.1627 C_u= 3.18 C_c= 1.14

Classification

USCS= SP AASHTO= A-1-b

Remarks

Source of Sample: P-85 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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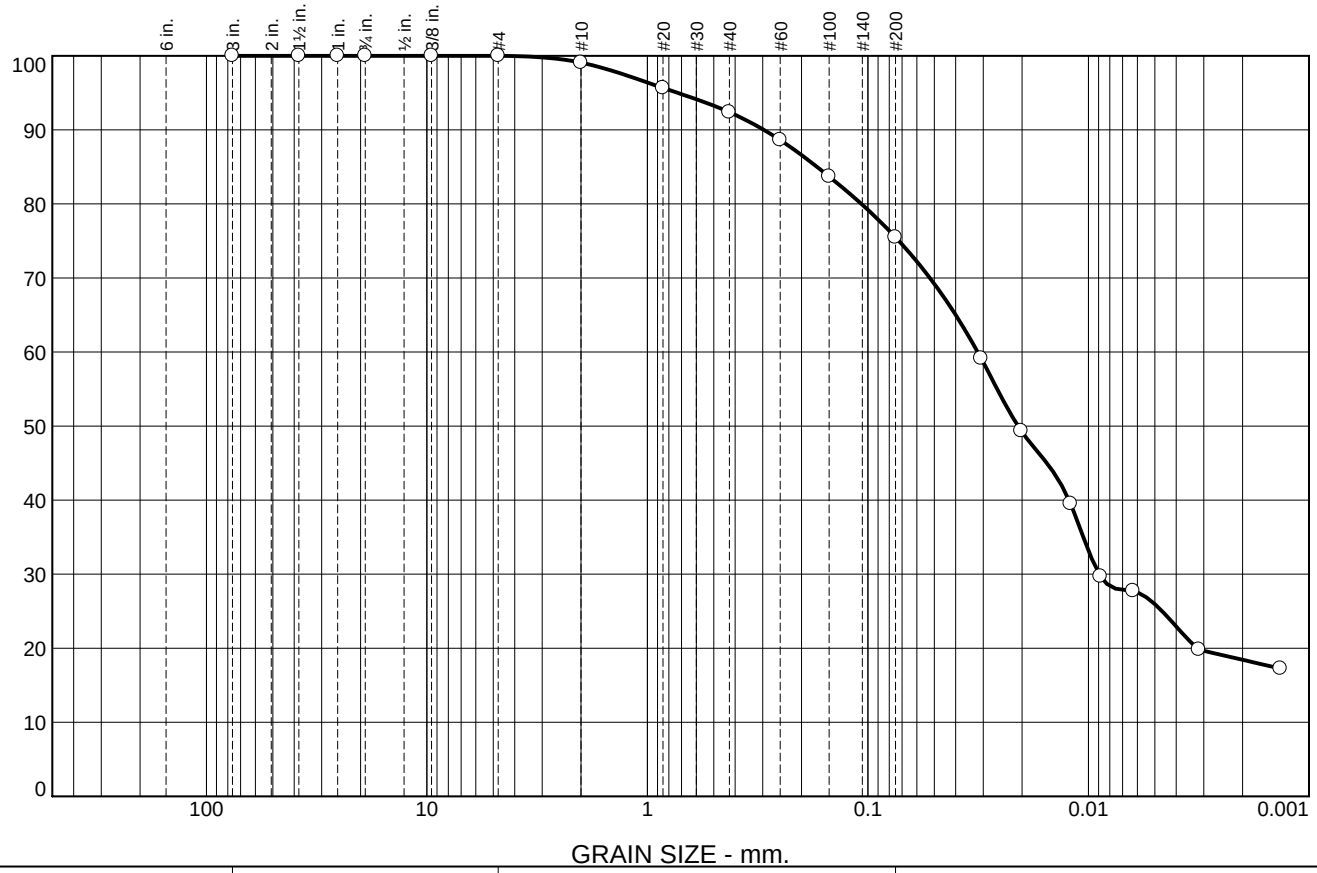
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	7	17	49	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	96		
#40	92		
#60	89		
#100	84		
#200	75		
0.0307 mm.	59		
0.0202 mm.	49		
0.0121 mm.	40		
0.0088 mm.	30		
0.0063 mm.	28		
0.0032 mm.	20		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Medium stiff, moist, tannish red, Sandy SILT (ML)(A-6) with trace gravel-sized rock fragments

Atterberg Limits

PL= 29 LL= 40 PI= 11

Coefficients

D_{90}= 0.2967 D_{85}= 0.1701 D_{60}= 0.0318
D_{50}= 0.0209 D_{30}= 0.0089 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(9)

Remarks

Source of Sample: P-86 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/15/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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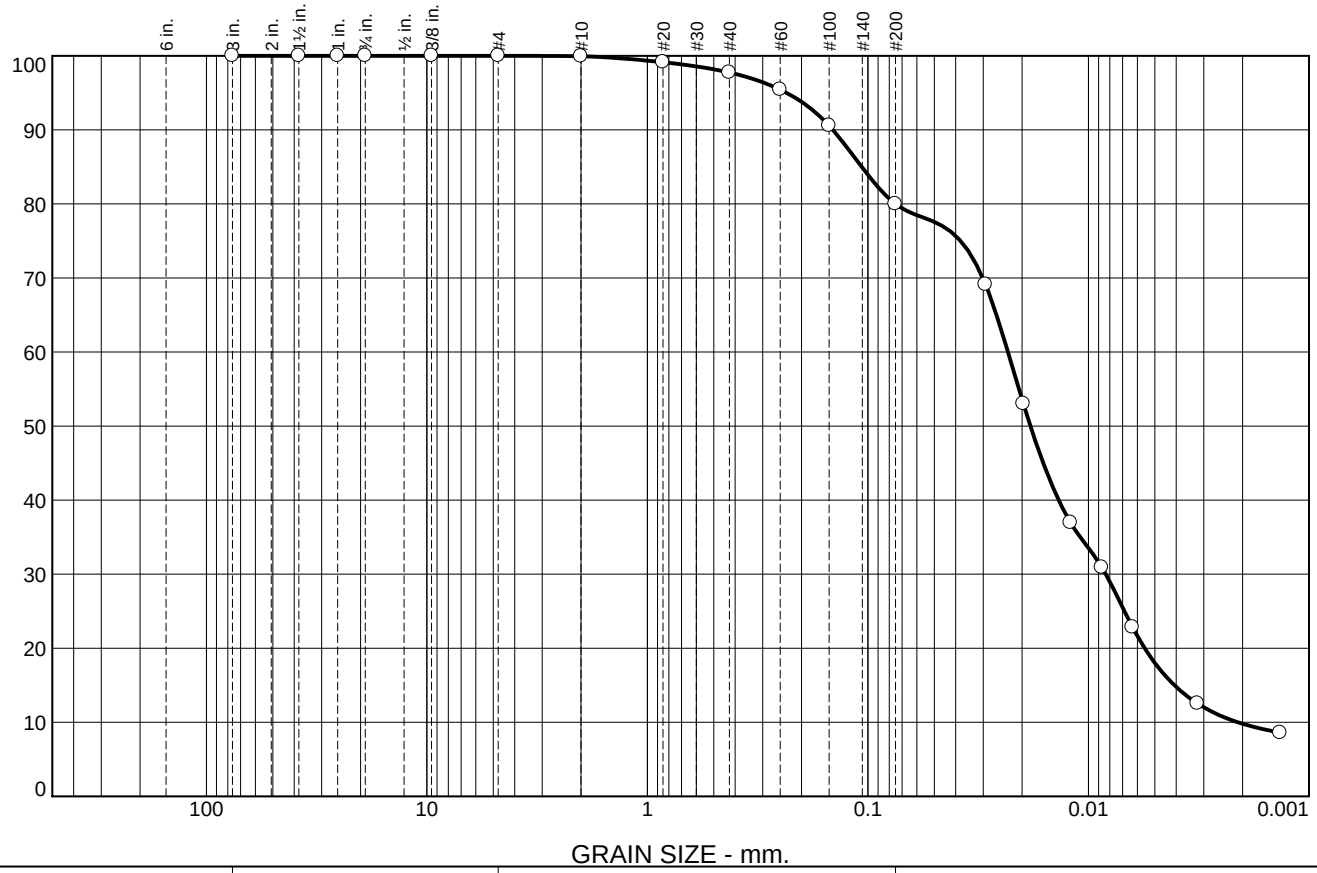
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	18	62	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	95		
#100	91		
#200	80		
0.0293 mm.	69		
0.0197 mm.	53		
0.0121 mm.	37		
0.0087 mm.	31		
0.0063 mm.	23		
0.0032 mm.	13		
0.0013 mm.	8.6		

* (no specification provided)

Soil Description

Medium Stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 36 LL= 44 PI= 8

Coefficients

D_{90}= 0.1443 D_{85}= 0.1067 D_{60}= 0.0232
D_{50}= 0.0183 D_{30}= 0.0083 D_{15}= 0.0041
D_{10}= 0.0021 C_u= 11.03 C_c= 1.43

Classification

USCS= ML AASHTO= A-5(9)

Remarks

Source of Sample: P-87 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/2/2017

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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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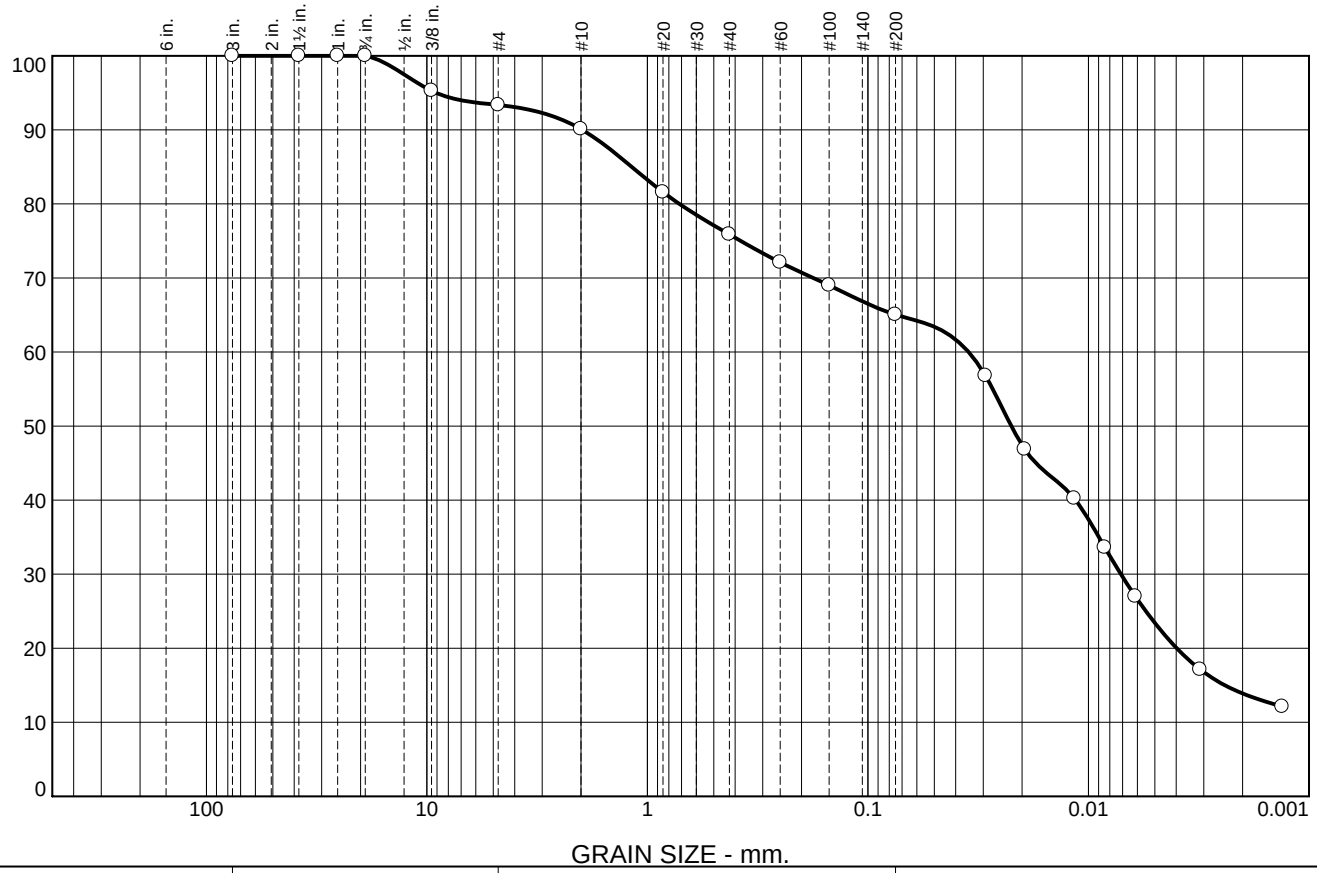
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	3	14	11	42	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	95		
#4	93		
#10	90		
#20	82		
#40	76		
#60	72		
#100	69		
#200	65		
0.0293 mm.	57		
0.0195 mm.	47		
0.0116 mm.	40		
0.0084 mm.	34		
0.0061 mm.	27		
0.0031 mm.	17		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish brown to grayish brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 25 LL= 34 PI= 9

Coefficients

D_{90}= 1.9748 D_{85}= 1.1783 D_{60}= 0.0350
D_{50}= 0.0224 D_{30}= 0.0071 D_{15}= 0.0024
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-89 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/5/2017

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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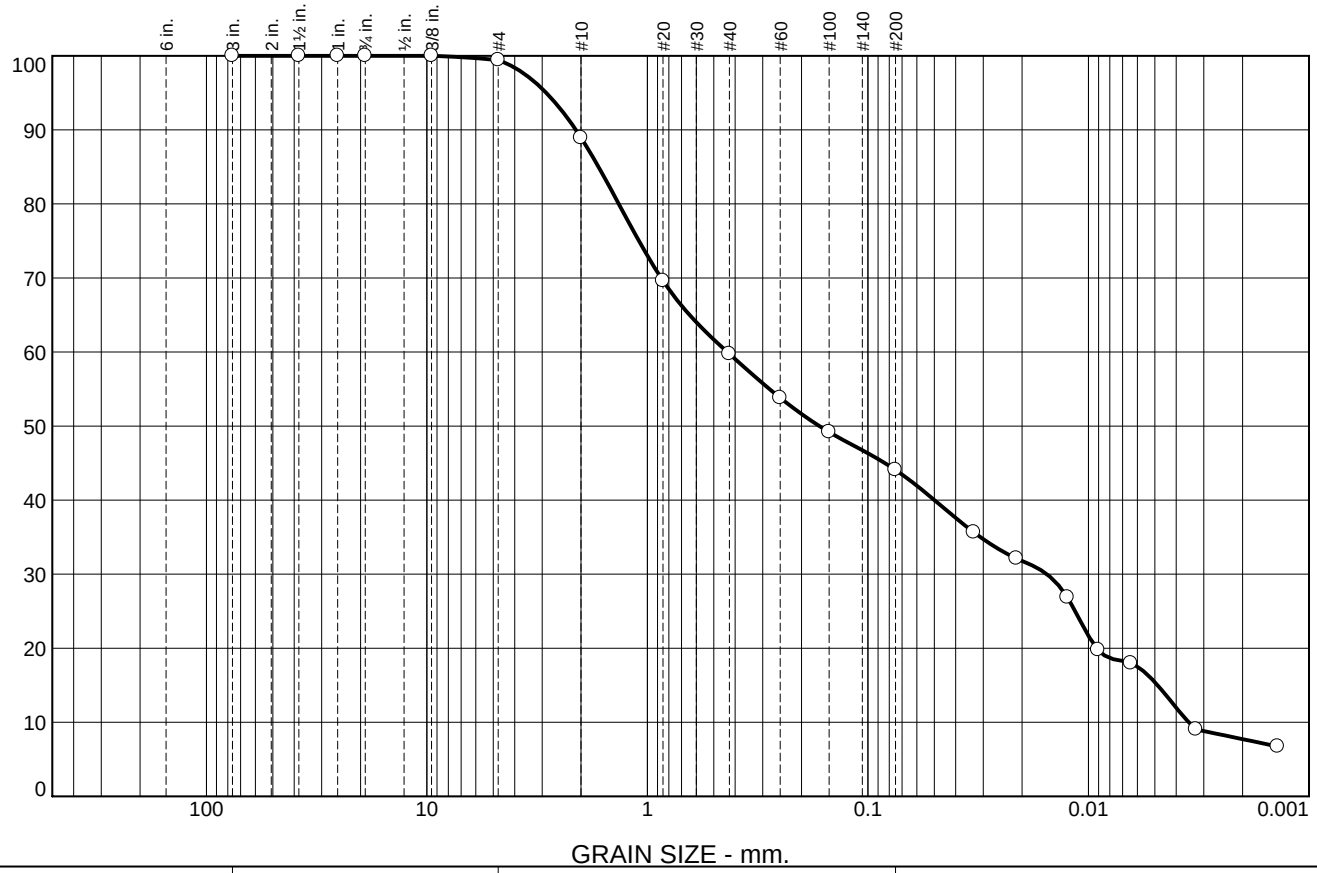
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	10	29	16	29	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	89		
#20	70		
#40	60		
#60	54		
#100	49		
#200	44		
0.0331 mm.	36		
0.0212 mm.	32		
0.0125 mm.	27		
0.0090 mm.	20		
0.0064 mm.	18		
0.0033 mm.	9.0		
0.0014 mm.	6.7		

* (no specification provided)

Soil Description

Medium dense, moist, tannish brown, Clayey SAND (SC) (A-4)

Atterberg Limits

PL= 21 LL= 29 PI= 8

Coefficients

D_{90}= 2.1118 D_{85}= 1.6671 D_{60}= 0.4342
D_{50}= 0.1658 D_{30}= 0.0154 D_{15}= 0.0049
D_{10}= 0.0035 C_u= 123.86 C_c= 0.16

Classification

USCS= SC AASHTO= A-4(1)

Remarks

Source of Sample: P-90 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/15/2017

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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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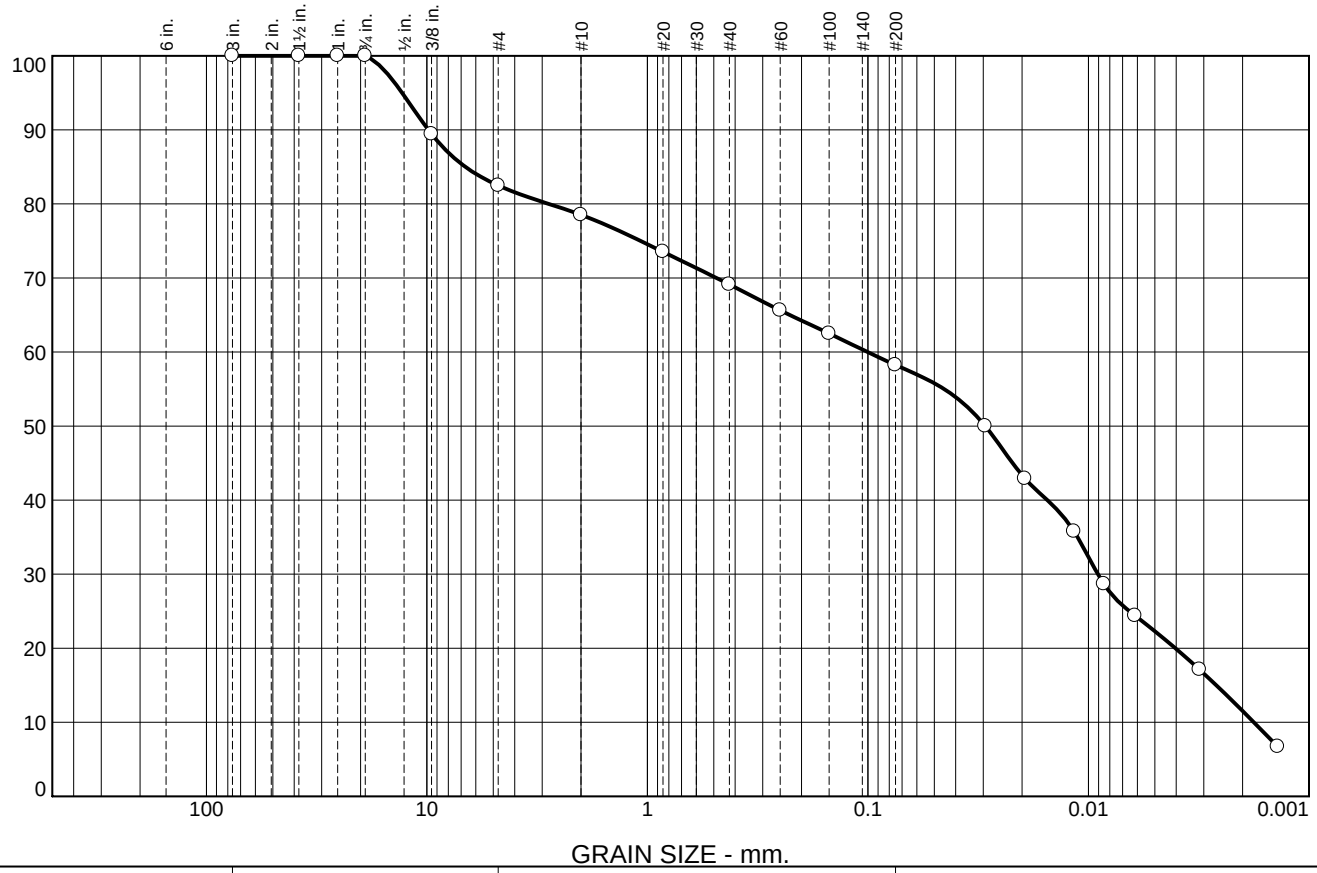
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	18	3	10	11	36	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	89		
#4	82		
#10	79		
#20	74		
#40	69		
#60	66		
#100	63		
#200	58		
0.0294 mm.	50		
0.0194 mm.	43		
0.0116 mm.	36		
0.0085 mm.	29		
0.0061 mm.	24		
0.0031 mm.	17		
0.0014 mm.	6.7		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 23 LL= 35 PI= 12

Coefficients

D_{90}= 9.8583 D_{85}= 6.6949 D_{60}= 0.1004
D_{50}= 0.0294 D_{30}= 0.0091 D_{15}= 0.0026
D_{10}= 0.0018 C_u= 56.42 C_c= 0.46

Classification

USCS= CL AASHTO= A-6(5)

Remarks

Source of Sample: P-91 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/6/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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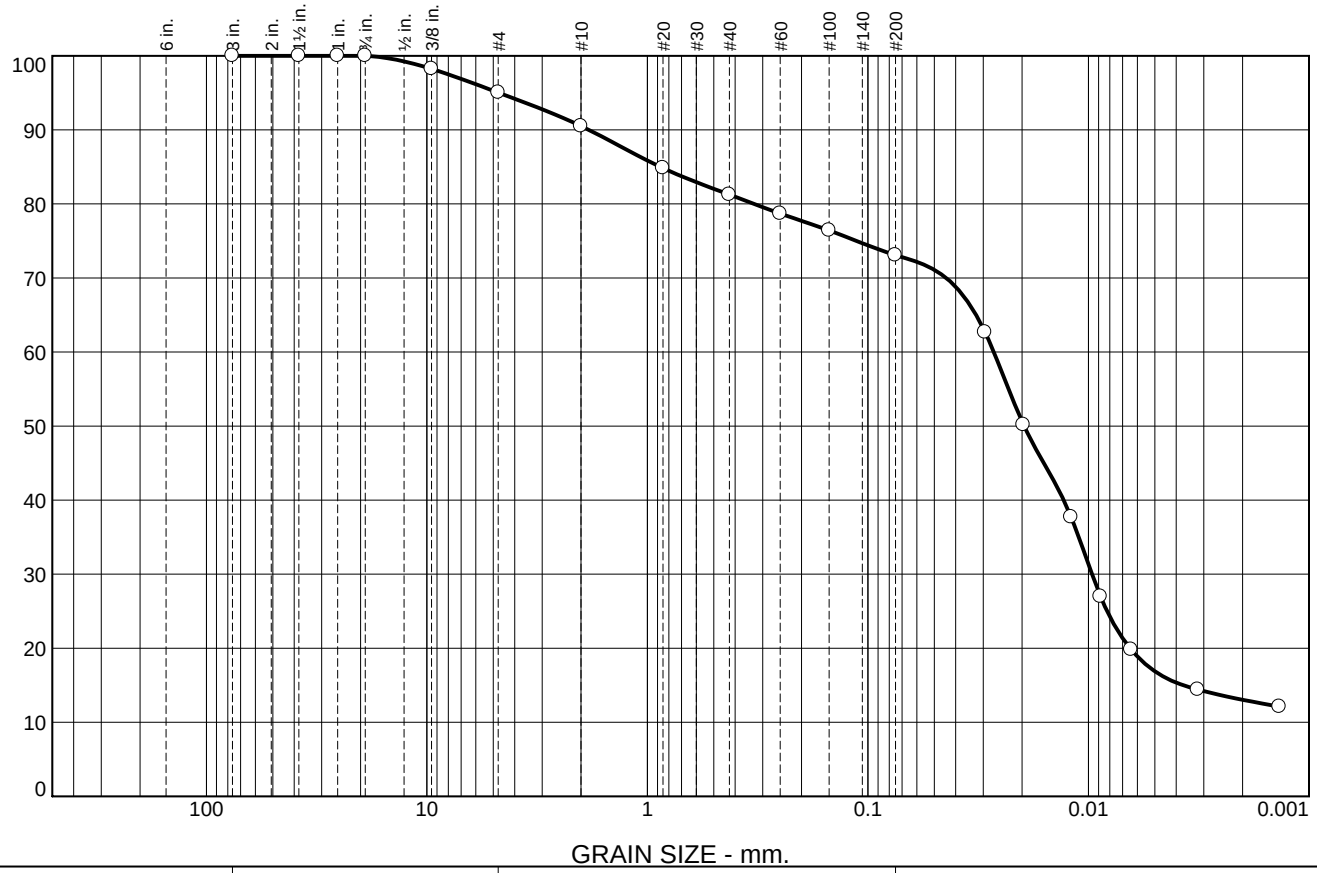
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	4	10	8	56	17

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	95		
#10	91		
#20	85		
#40	81		
#60	79		
#100	76		
#200	73		
0.0294 mm.	63		
0.0197 mm.	50		
0.0120 mm.	38		
0.0088 mm.	27		
0.0064 mm.	20		
0.0032 mm.	14		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace gravel

Atterberg Limits

PL= 23 LL= 29 PI= 6

Coefficients

D_{90}= 1.8460 D_{85}= 0.8734 D_{60}= 0.0269
D_{50}= 0.0196 D_{30}= 0.0096 D_{15}= 0.0037
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: P-92 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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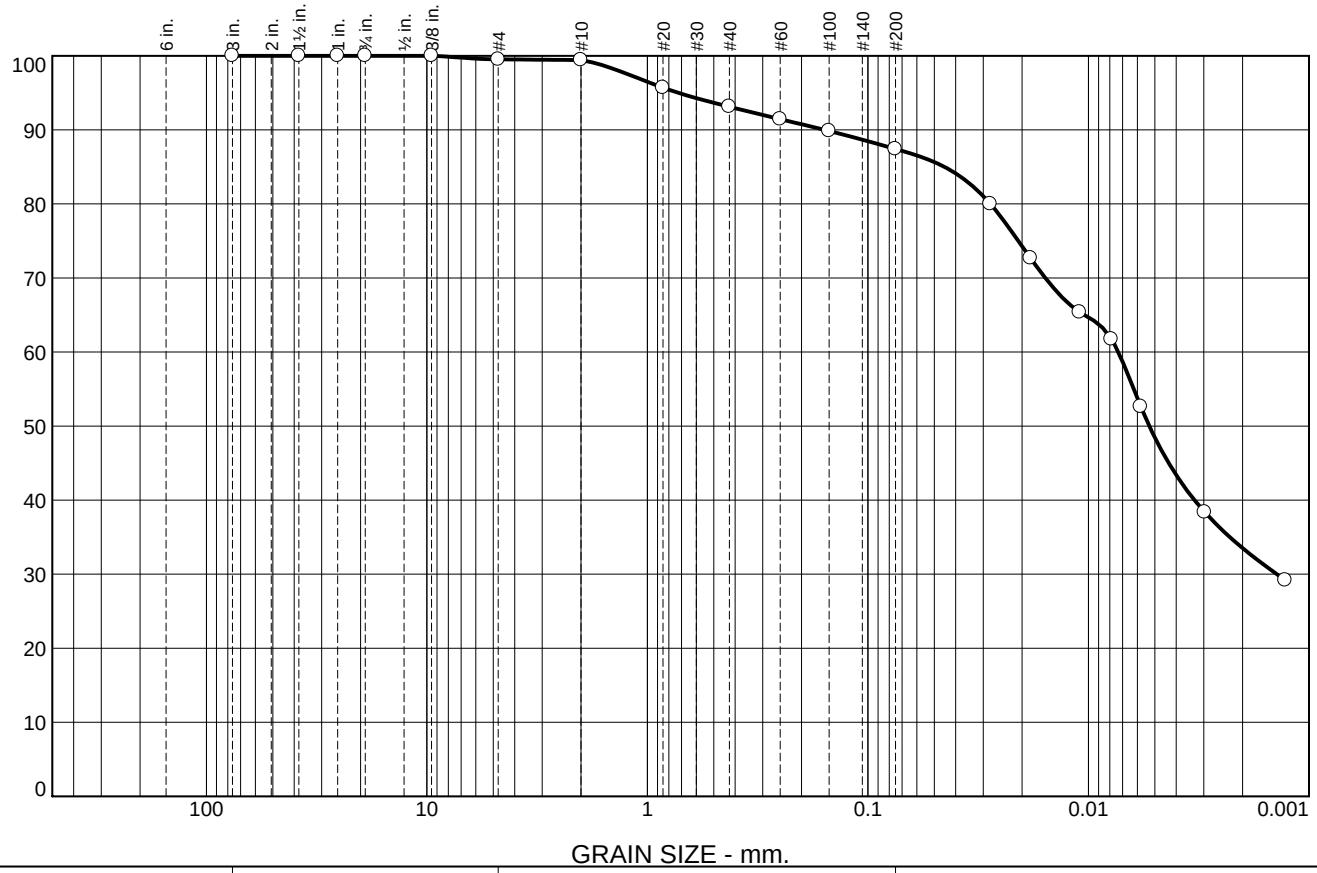
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	6	6	39	48

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	96		
#40	93		
#60	91		
#100	90		
#200	87		
0.0278 mm.	80		
0.0183 mm.	73		
0.0109 mm.	65		
0.0079 mm.	62		
0.0058 mm.	53		
0.0030 mm.	38		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 31 LL= 53 PI= 22

Coefficients

D_{90}= 0.1573 D_{85}= 0.0450 D_{60}= 0.0073
D_{50}= 0.0053 D_{30}= 0.0014 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

Source of Sample: P-94 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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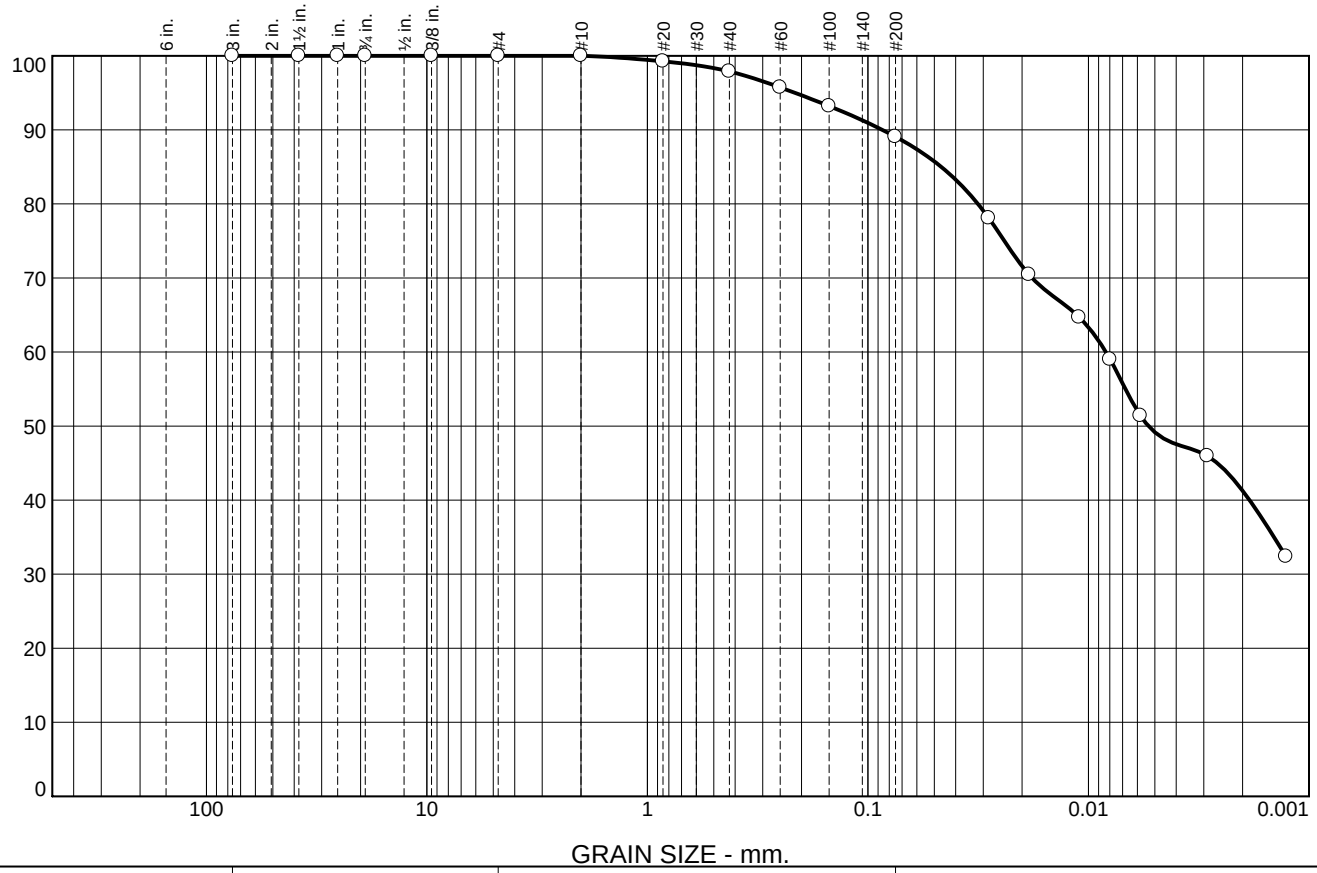
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	9	40	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	98		
#60	96		
#100	93		
#200	89		
0.0283 mm.	78		
0.0186 mm.	70		
0.0110 mm.	65		
0.0080 mm.	59		
0.0058 mm.	51		
0.0029 mm.	46		
0.0013 mm.	32		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 43 LL= 66 PI= 23

Coefficients

D_{90}= 0.0861 D_{85}= 0.0465 D_{60}= 0.0083
D_{50}= 0.0053 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(27)

Remarks

Source of Sample: P-94 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/17/2017

ECS SOUTHEAST, LLP
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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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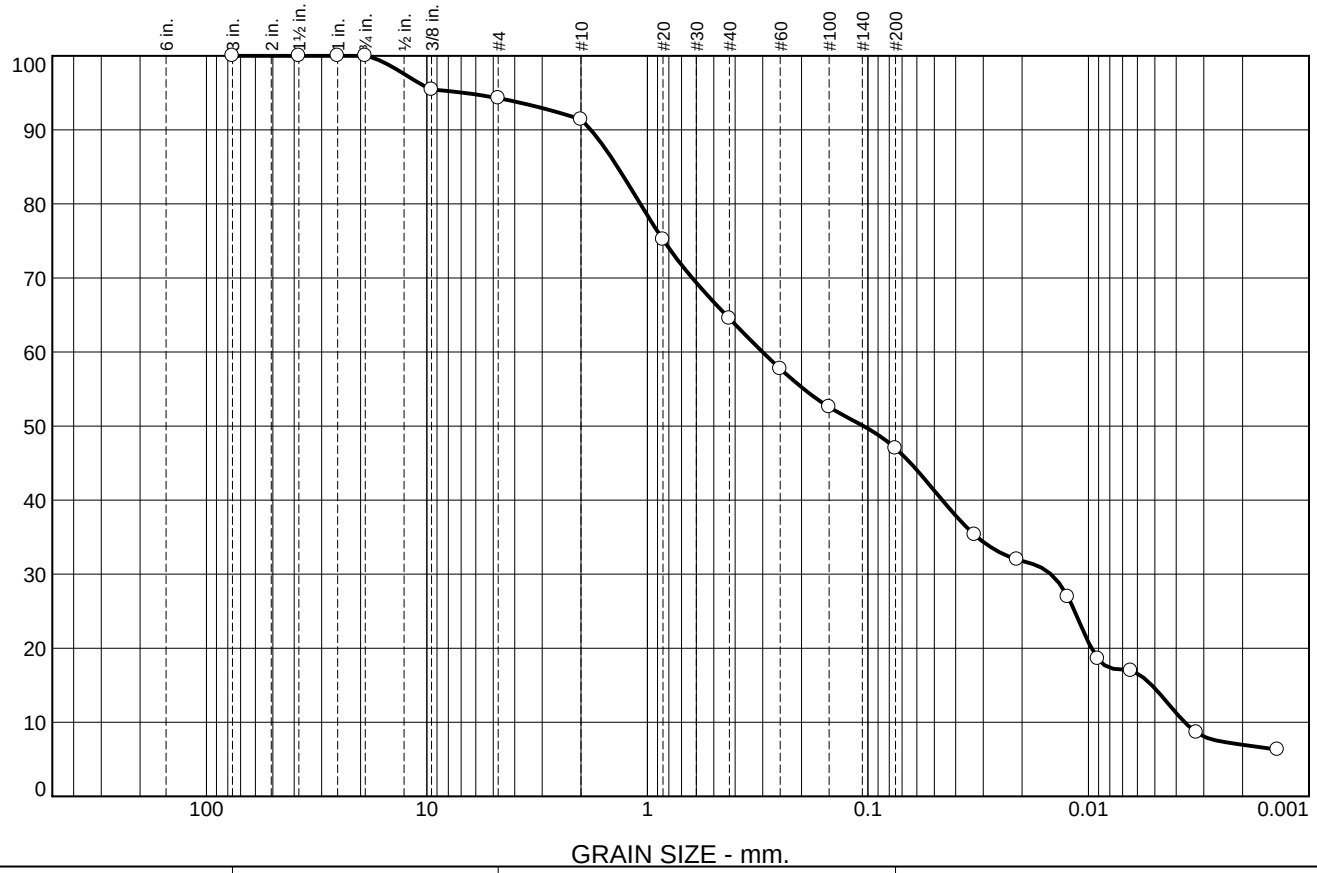
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	3	26	18	32	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	95		
#4	94		
#10	91		
#20	75		
#40	65		
#60	58		
#100	53		
#200	47		
0.0329 mm.	35		
0.0211 mm.	32		
0.0124 mm.	27		
0.0091 mm.	19		
0.0064 mm.	17		
0.0032 mm.	8.6		
0.0014 mm.	6.3		

* (no specification provided)

Soil Description

Loose, moist, grayish brown, Silty Fine to Medium SAND (SM)(A-6) with trace gravel

Atterberg Limits

PL= 27 LL= 38 PI= 11

Coefficients

D_{90}= 1.8053 D_{85}= 1.3674 D_{60}= 0.3006
D_{50}= 0.1048 D_{30}= 0.0148 D_{15}= 0.0052
D_{10}= 0.0037 C_u= 82.13 C_c= 0.20

Classification

USCS= SM AASHTO= A-6(3)

Remarks

Source of Sample: P-96 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/16/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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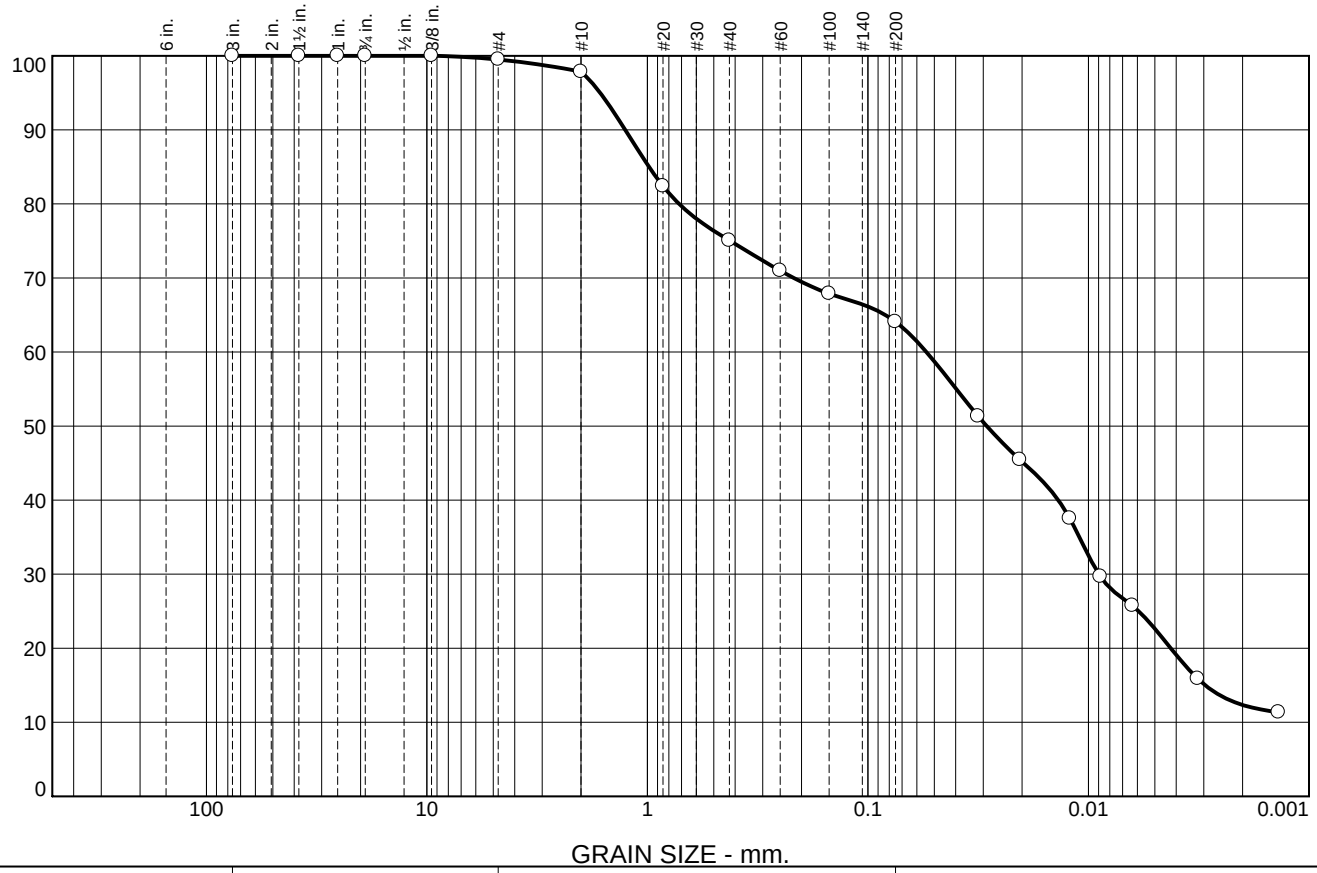
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	23	11	41	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	82		
#40	75		
#60	71		
#100	68		
#200	64		
0.0316 mm.	51		
0.0205 mm.	45		
0.0122 mm.	38		
0.0088 mm.	30		
0.0063 mm.	26		
0.0032 mm.	16		
0.0014 mm.	11		

* (no specification provided)

Soil Description

Medium stiff, moist, grayish tan to brown, Sandy SILT (ML)(A-6)

Atterberg Limits

PL= 27 LL= 39 PI= 12

Coefficients

D_{90}= 1.2613 D_{85}= 0.9834 D_{60}= 0.0543
D_{50}= 0.0289 D_{30}= 0.0090 D_{15}= 0.0030
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(7)

Remarks

Source of Sample: P-96 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

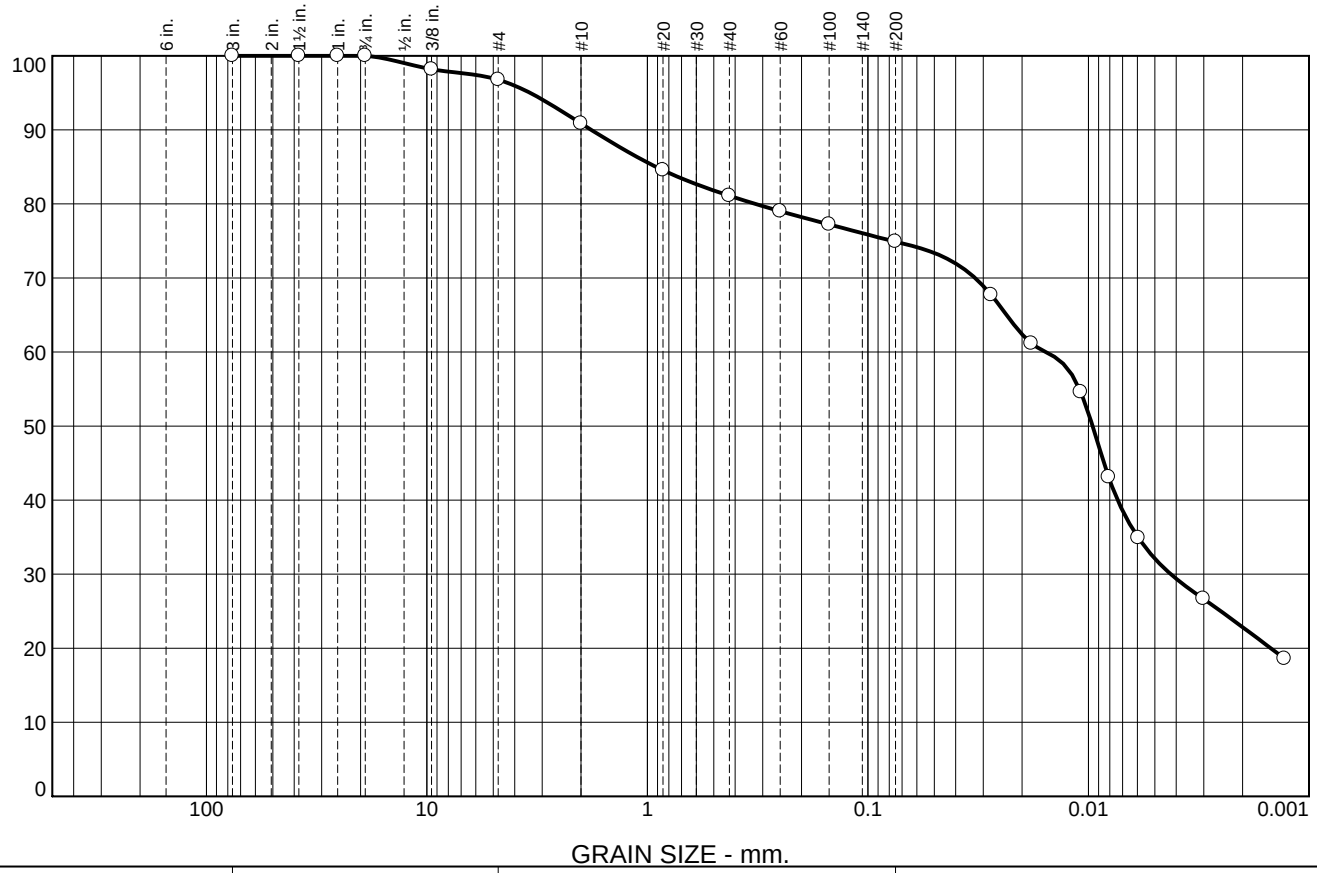
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	6	10	6	43	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	91		
#20	85		
#40	81		
#60	79		
#100	77		
#200	75		
0.0276 mm.	68		
0.0181 mm.	61		
0.0108 mm.	55		
0.0081 mm.	43		
0.0059 mm.	35		
0.0030 mm.	27		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, grayish brown to orangish brown, Sandy CLAY (CL)(A-7-6)

Atterberg Limits

PL= 24 LL= 41 PI= 17

Coefficients

D_{90}= 1.7981 D_{85}= 0.9140 D_{60}= 0.0156
D_{50}= 0.0096 D_{30}= 0.0042 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(12)

Remarks

Source of Sample: P-97 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

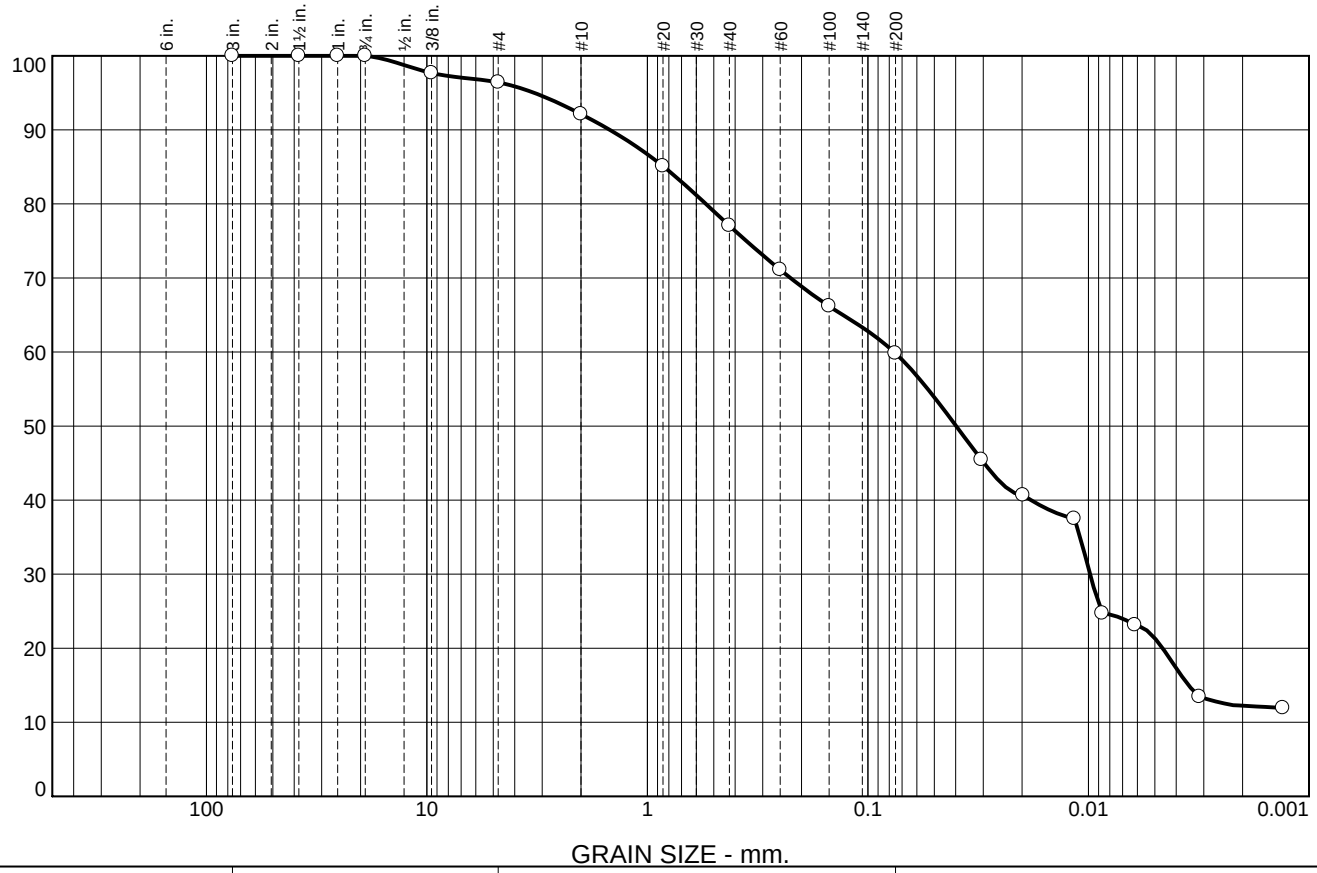
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	4	15	17	39	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	96		
#10	92		
#20	85		
#40	77		
#60	71		
#100	66		
#200	60		
0.0306 mm.	45		
0.0198 mm.	41		
0.0116 mm.	37		
0.0086 mm.	25		
0.0062 mm.	23		
0.0031 mm.	13		
0.0013 mm.	12		

* (no specification provided)

Soil Description

Very stiff, moist, tannish brown, Sandy CLAY (CL)(A-4)

Atterberg Limits

PL= 24 LL= 33 PI= 9

Coefficients

D_{90}= 1.4813 D_{85}= 0.8425 D_{60}= 0.0761
D_{50}= 0.0398 D_{30}= 0.0098 D_{15}= 0.0035
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-4(4)

Remarks

Source of Sample: P-98 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

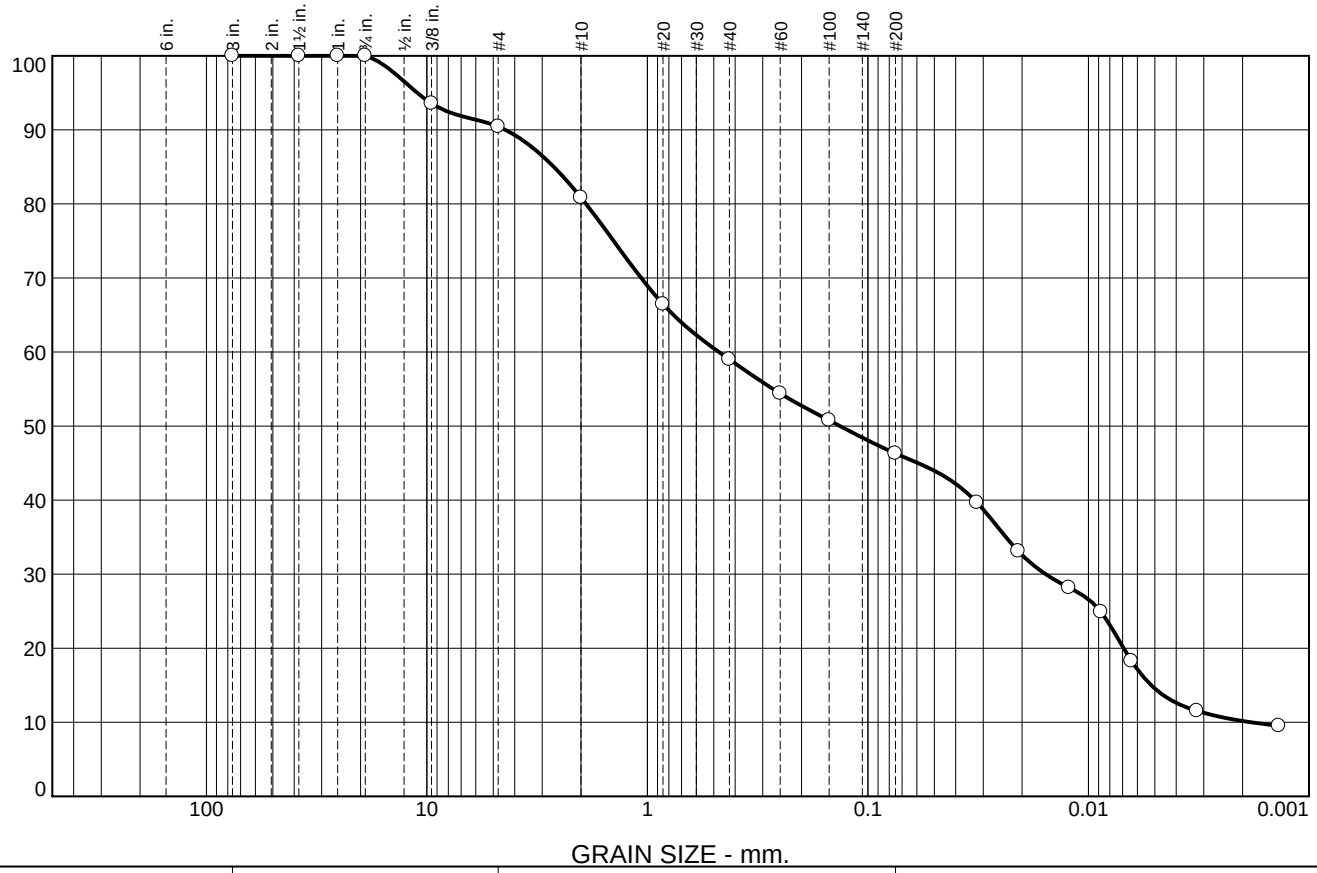
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	9	22	13	31	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	94		
#4	90		
#10	81		
#20	66		
#40	59		
#60	54		
#100	51		
#200	46		
0.0320 mm.	40		
0.0208 mm.	33		
0.0123 mm.	28		
0.0088 mm.	25		
0.0064 mm.	18		
0.0032 mm.	12		
0.0014 mm.	9.5		

* (no specification provided)

Soil Description

Loose, moist, tannish brown, Silty Fine to Medium SAND (SM)(A-4) with trace gravel

Atterberg Limits

PL= 29 LL= 38 PI= 9

Coefficients

D_{90}= 4.4135 D_{85}= 2.6569 D_{60}= 0.4736
D_{50}= 0.1338 D_{30}= 0.0156 D_{15}= 0.0052
D_{10}= 0.0018 C_u= 259.48 C_c= 0.28

Classification

USCS= SM AASHTO= A-4(2)

Remarks

Source of Sample: P-99 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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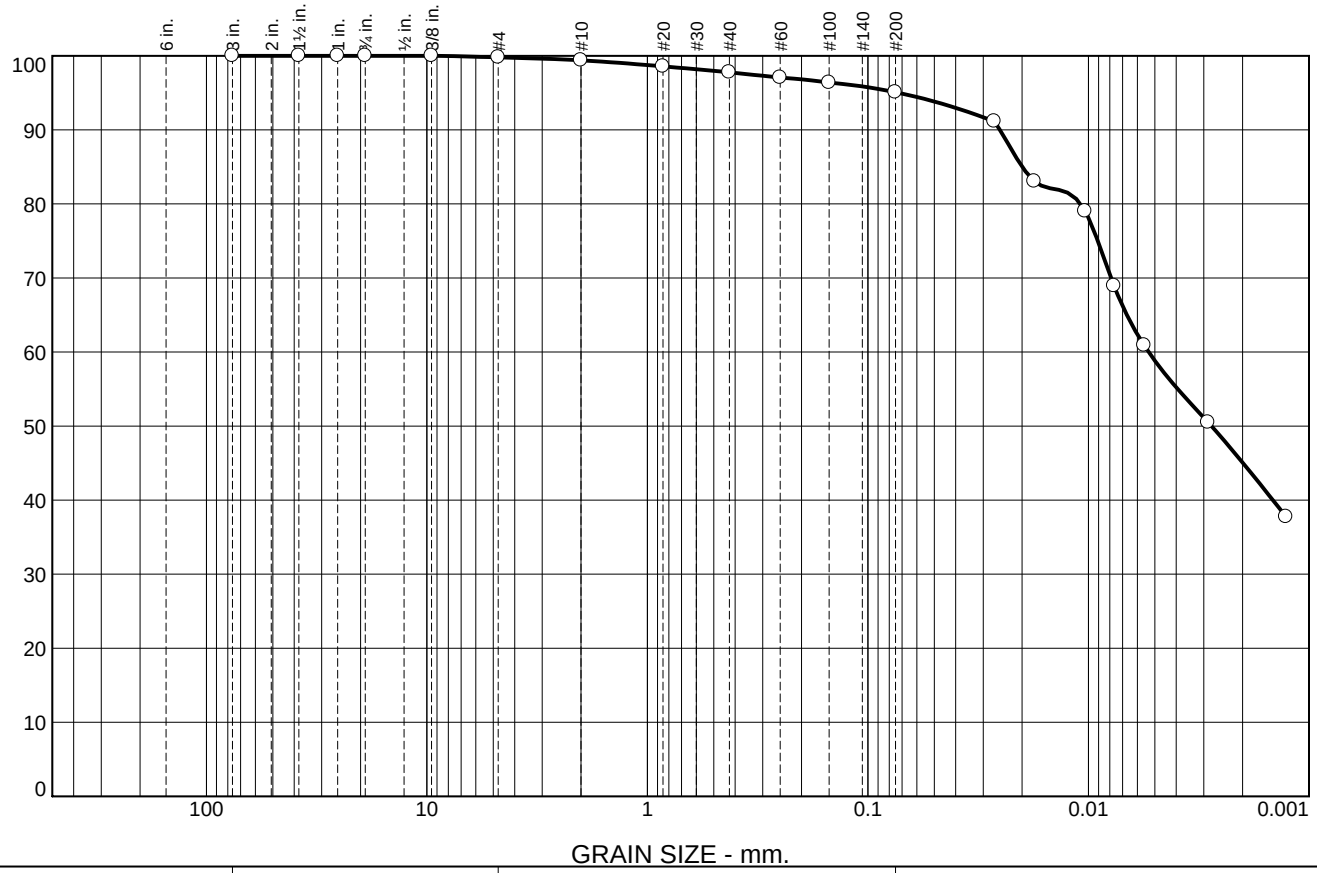
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	3	36	59

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	99		
#40	98		
#60	97		
#100	96		
#200	95		
0.0267 mm.	91		
0.0176 mm.	83		
0.0104 mm.	79		
0.0077 mm.	69		
0.0056 mm.	61		
0.0029 mm.	51		
0.0013 mm.	38		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 35 LL= 60 PI= 25

Coefficients

D_{90}= 0.0252 D_{85}= 0.0200 D_{60}= 0.0053
D_{50}= 0.0028 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(30)

Remarks

Source of Sample: P-100 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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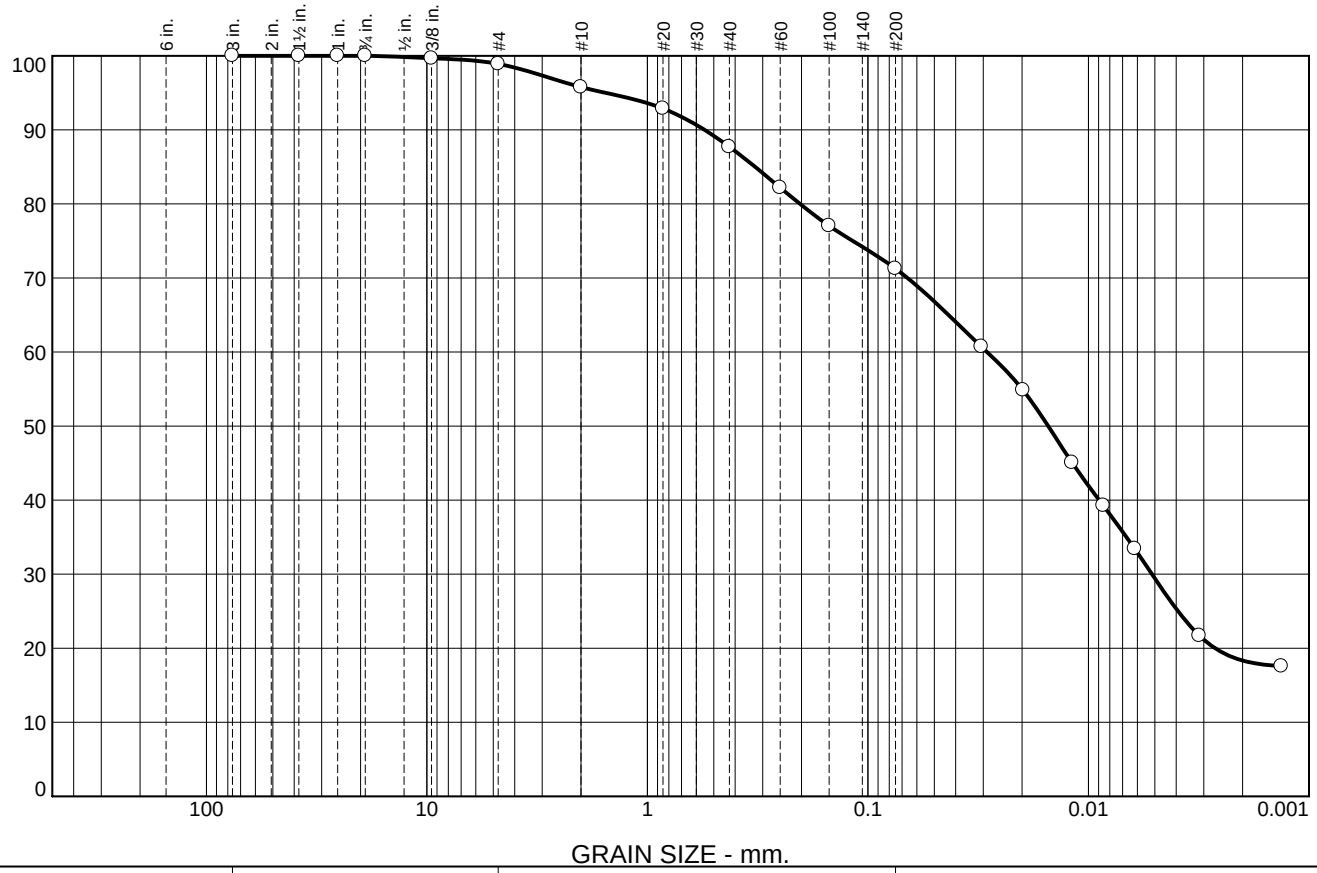
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	3	8	17	42	29

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	96		
#20	93		
#40	88		
#60	82		
#100	77		
#200	71		
0.0306 mm.	61		
0.0198 mm.	55		
0.0119 mm.	45		
0.0086 mm.	39		
0.0062 mm.	33		
0.0031 mm.	22		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish tan, Sandy SILT (ML) (A-7-5)

Atterberg Limits

PL= 32 LL= 45 PI= 13

Coefficients

D_{90}= 0.5507 D_{85}= 0.3250 D_{60}= 0.0288
D_{50}= 0.0152 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(10)

Remarks

Source of Sample: P-101 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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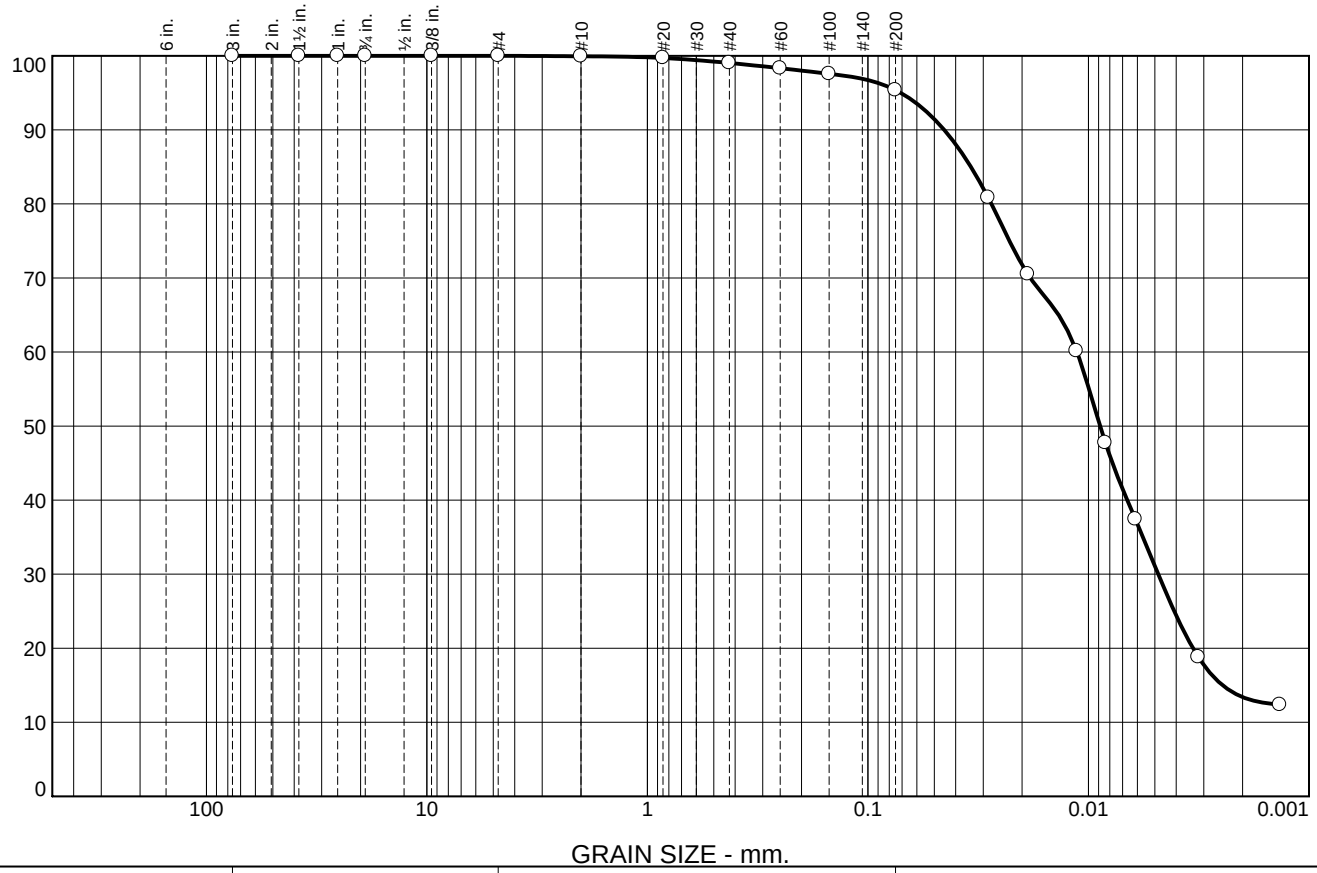
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	4	64	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	98		
#200	95		
0.0285 mm.	81		
0.0188 mm.	71		
0.0113 mm.	60		
0.0084 mm.	48		
0.0061 mm.	37		
0.0032 mm.	19		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish brown to black, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 38 LL= 53 PI= 15

Coefficients

D_{90}= 0.0451 D_{85}= 0.0341 D_{60}= 0.0113
D_{50}= 0.0089 D_{30}= 0.0048 D_{15}= 0.0025
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: P-102 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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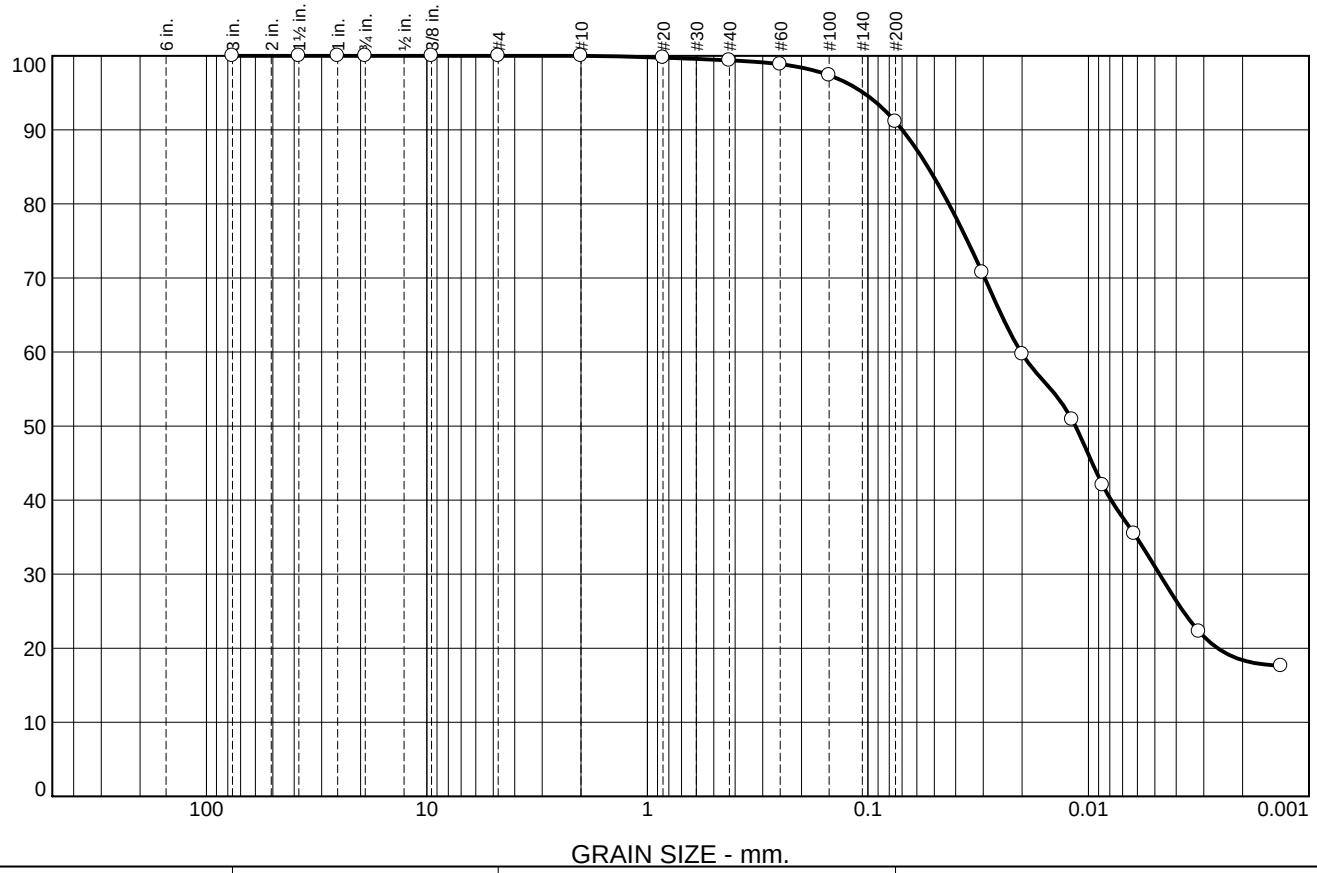
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	8	60	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	99		
#100	97		
#200	91		
0.0303 mm.	71		
0.0200 mm.	60		
0.0119 mm.	51		
0.0086 mm.	42		
0.0062 mm.	35		
0.0032 mm.	22		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (MH) (A-7-5)

Atterberg Limits

PL= 50 LL= 68 PI= 18

Coefficients

D_{90}= 0.0699 D_{85}= 0.0535 D_{60}= 0.0202
D_{50}= 0.0115 D_{30}= 0.0048 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(25)

Remarks

Source of Sample: P-103 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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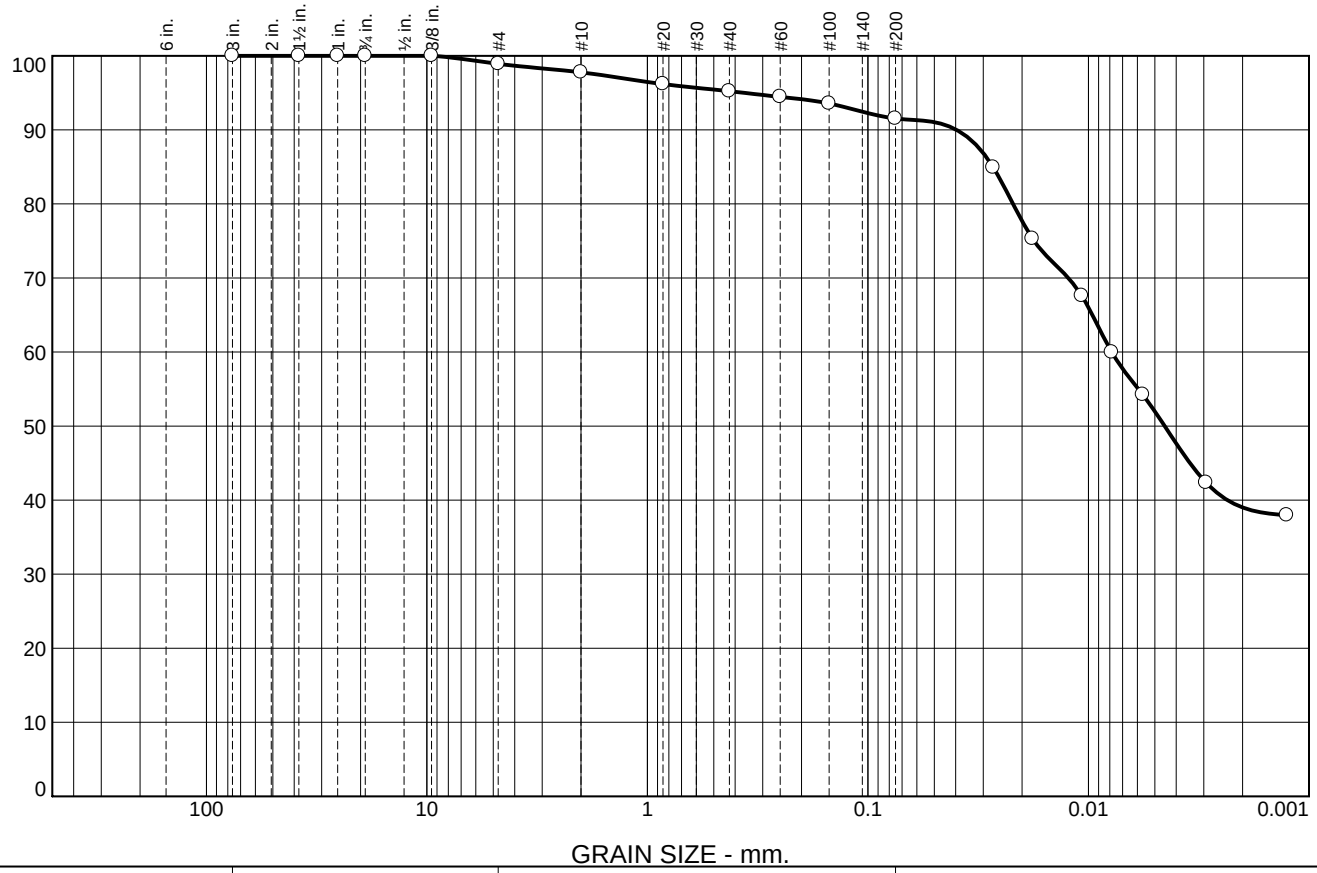
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	3	3	40	52

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	96		
#40	95		
#60	94		
#100	94		
#200	92		
0.0270 mm.	85		
0.0179 mm.	75		
0.0107 mm.	68		
0.0078 mm.	60		
0.0057 mm.	54		
0.0029 mm.	42		
0.0013 mm.	38		

* (no specification provided)

Soil Description

Medium stiff, moist, tannish brown to gray, Plastic CLAY (CH)(A-7-5) with trace gravel

Atterberg Limits

PL= 30 LL= 64 PI= 34

Coefficients

D_{90}= 0.0396 D_{85}= 0.0271 D_{60}= 0.0078
D_{50}= 0.0045 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(37)

Remarks

Source of Sample: P-106 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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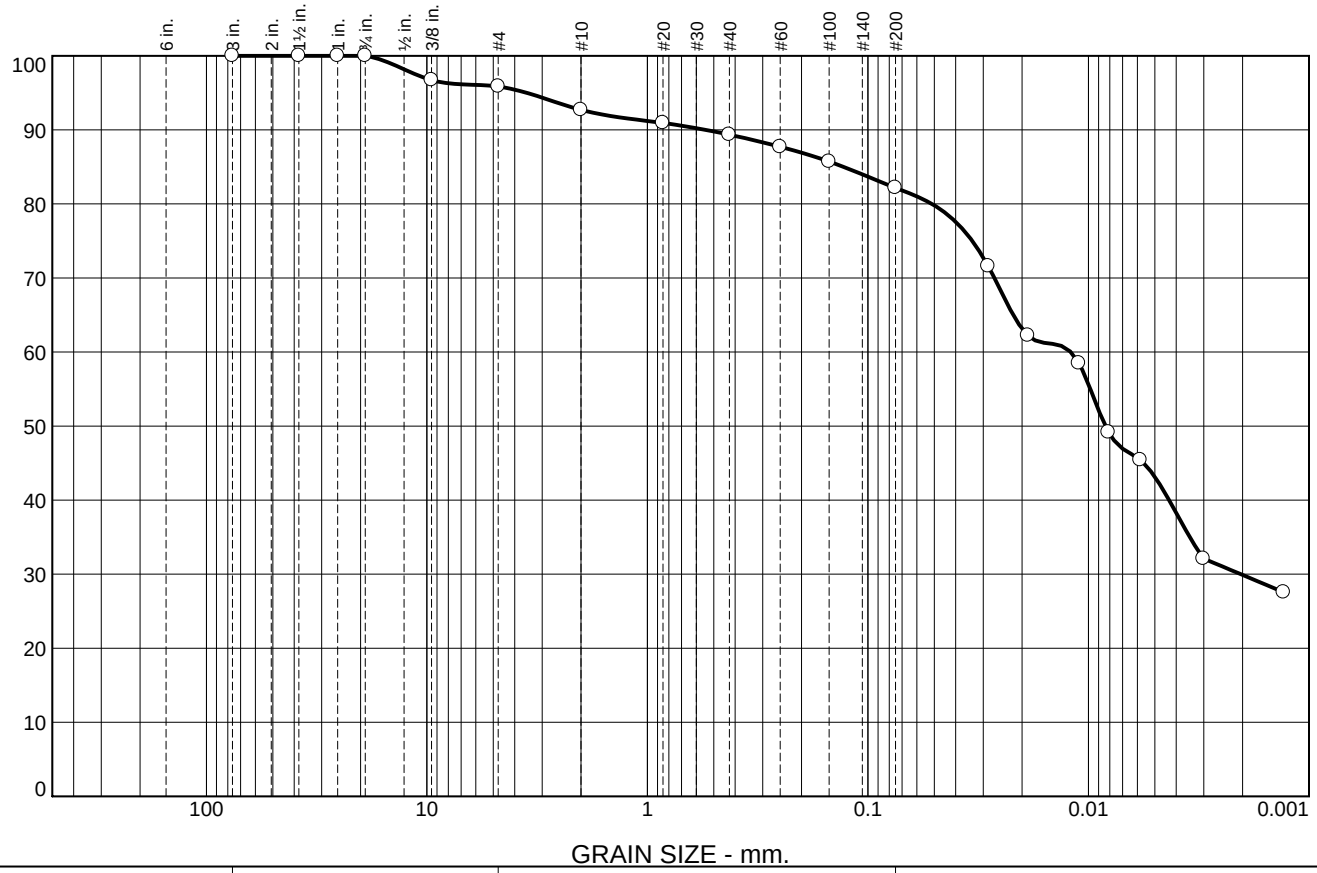
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	3	4	7	39	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	96		
#10	93		
#20	91		
#40	89		
#60	88		
#100	86		
#200	82		
0.0285 mm.	72		
0.0188 mm.	62		
0.0110 mm.	58		
0.0081 mm.	49		
0.0058 mm.	45		
0.0030 mm.	32		
0.0013 mm.	28		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6)

Atterberg Limits

PL= 25 LL= 48 PI= 23

Coefficients

D_{90}= 0.5459 D_{85}= 0.1291 D_{60}= 0.0120
D_{50}= 0.0084 D_{30}= 0.0020 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(20)

Remarks

Source of Sample: P-107 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

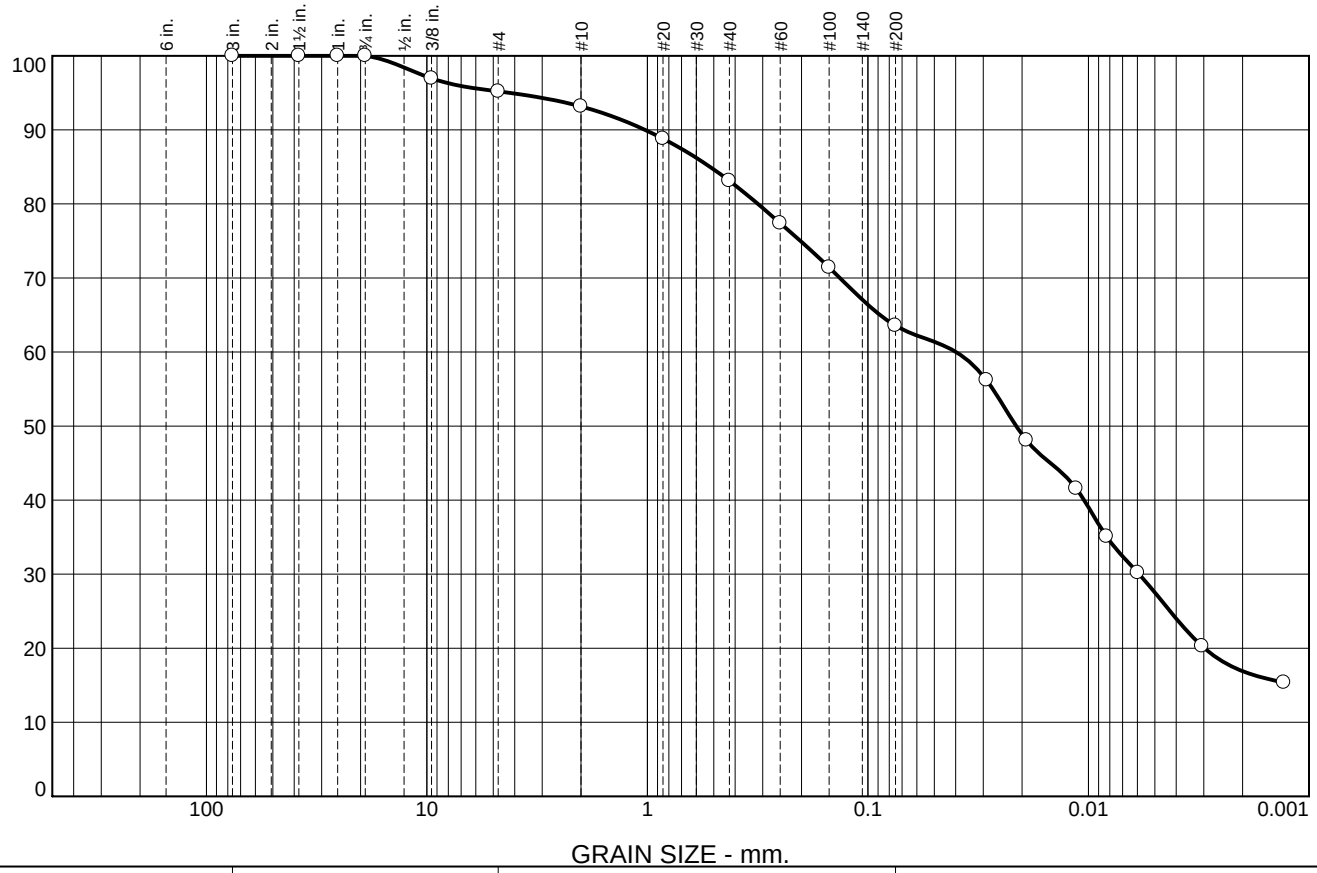
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	2	10	19	36	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	95		
#10	93		
#20	89		
#40	83		
#60	77		
#100	71		
#200	64		
0.0290 mm.	56		
0.0191 mm.	48		
0.0114 mm.	42		
0.0083 mm.	35		
0.0060 mm.	30		
0.0031 mm.	20		
0.0013 mm.	15		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 32 LL= 41 PI= 9

Coefficients

D_{90}= 1.0261 D_{85}= 0.5200 D_{60}= 0.0398
D_{50}= 0.0213 D_{30}= 0.0059 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(5)

Remarks

Source of Sample: P-108 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

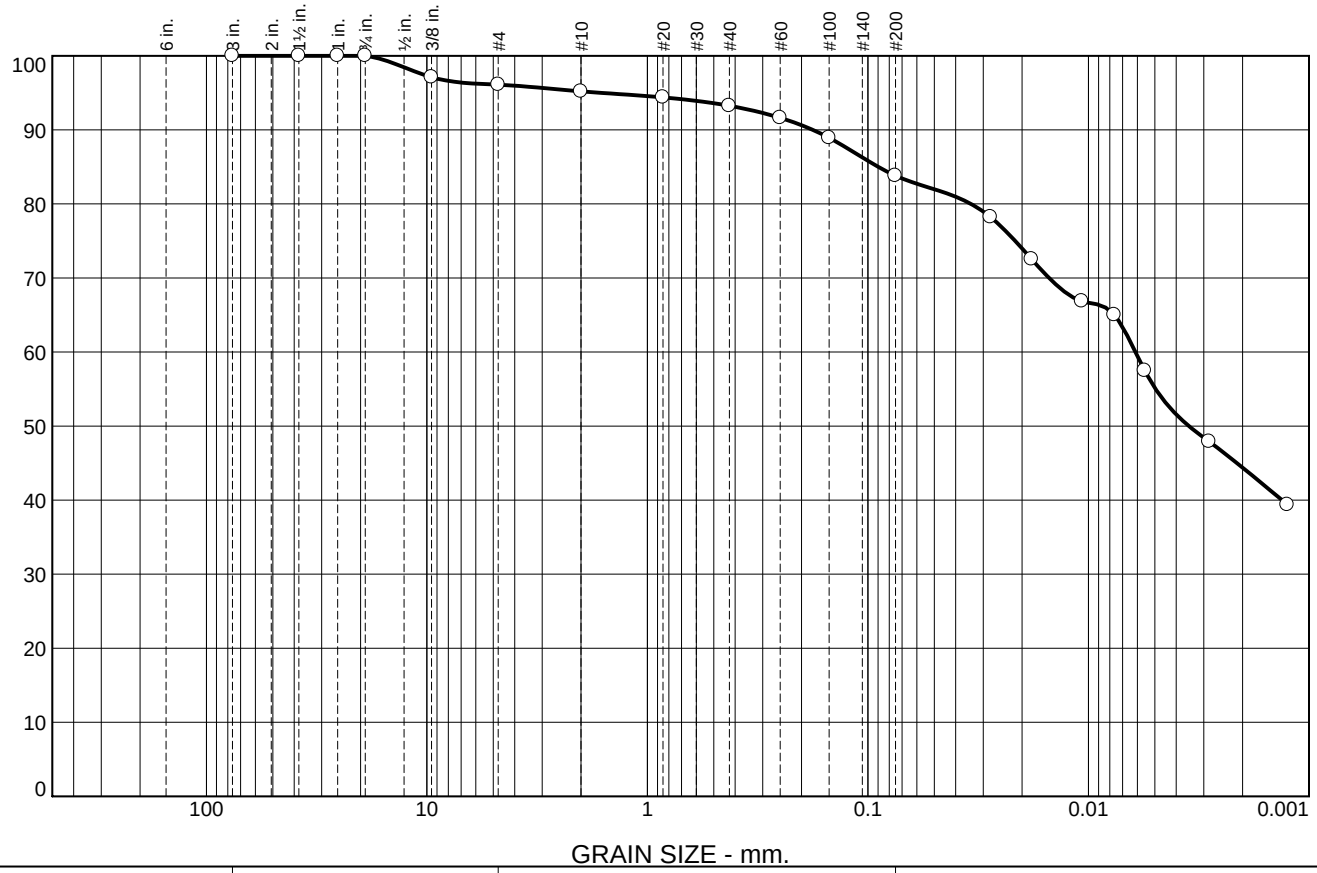
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	1	2	9	29	55

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	96		
#10	95		
#20	94		
#40	93		
#60	92		
#100	89		
#200	84		
0.0278 mm.	78		
0.0181 mm.	73		
0.0107 mm.	67		
0.0076 mm.	65		
0.0056 mm.	57		
0.0028 mm.	48		
0.0013 mm.	39		

* (no specification provided)

Soil Description

Stiff, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots and gravel

Atterberg Limits

PL= 37 LL= 66 PI= 29

Coefficients

D_{90}= 0.1780 D_{85}= 0.0898 D_{60}= 0.0061
D_{50}= 0.0035 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(29)

Remarks

Source of Sample: P-109 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

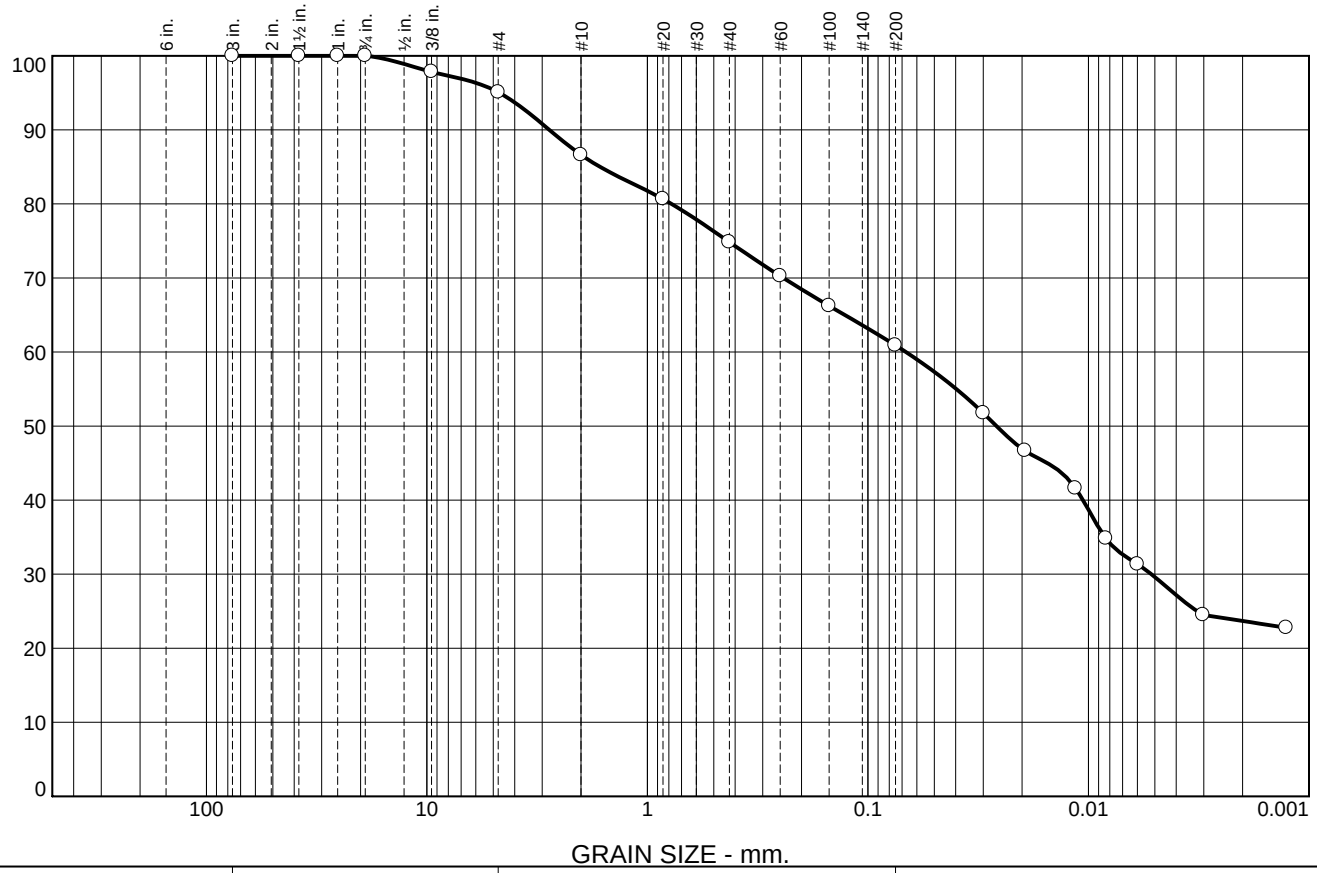
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	8	12	14	31	30

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	95		
#10	87		
#20	81		
#40	75		
#60	70		
#100	66		
#200	61		
0.0300 mm.	52		
0.0194 mm.	47		
0.0115 mm.	42		
0.0083 mm.	35		
0.0060 mm.	31		
0.0030 mm.	25		
0.0013 mm.	23		

* (no specification provided)

Soil Description

Loose, moist, reddish orange to brown, Plastic CLAY (CH) (A-7-6) with trace gravel

Atterberg Limits

PL= 24 LL= 50 PI= 26

Coefficients

D_{90}= 2.7854 D_{85}= 1.6396 D_{60}= 0.0673
D_{50}= 0.0261 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(14)

Remarks

Source of Sample: P-110 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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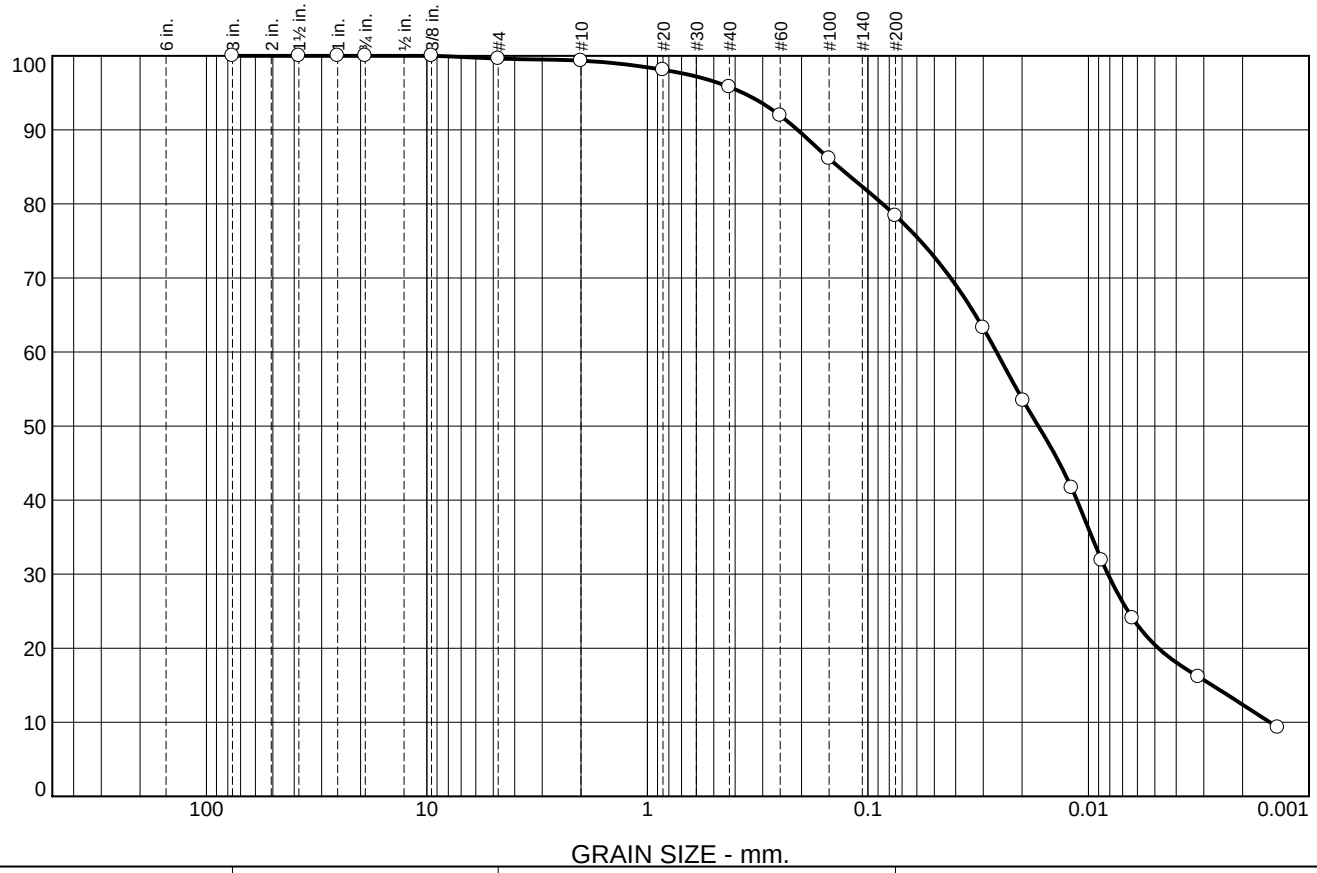
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	18	58	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	96		
#60	92		
#100	86		
#200	78		
0.0301 mm.	63		
0.0198 mm.	53		
0.0119 mm.	42		
0.0087 mm.	32		
0.0063 mm.	24		
0.0032 mm.	16		
0.0014 mm.	9.3		

* (no specification provided)

Soil Description

Stiff to hard, moist, tannish brown, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 35 LL= 41 PI= 6

Coefficients

D_{90}= 0.2086 D_{85}= 0.1357 D_{60}= 0.0261
D_{50}= 0.0169 D_{30}= 0.0082 D_{15}= 0.0027
D_{10}= 0.0015 C_u= 17.35 C_c= 1.70

Classification

USCS= ML AASHTO= A-5(6)

Remarks

Source of Sample: P-111 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

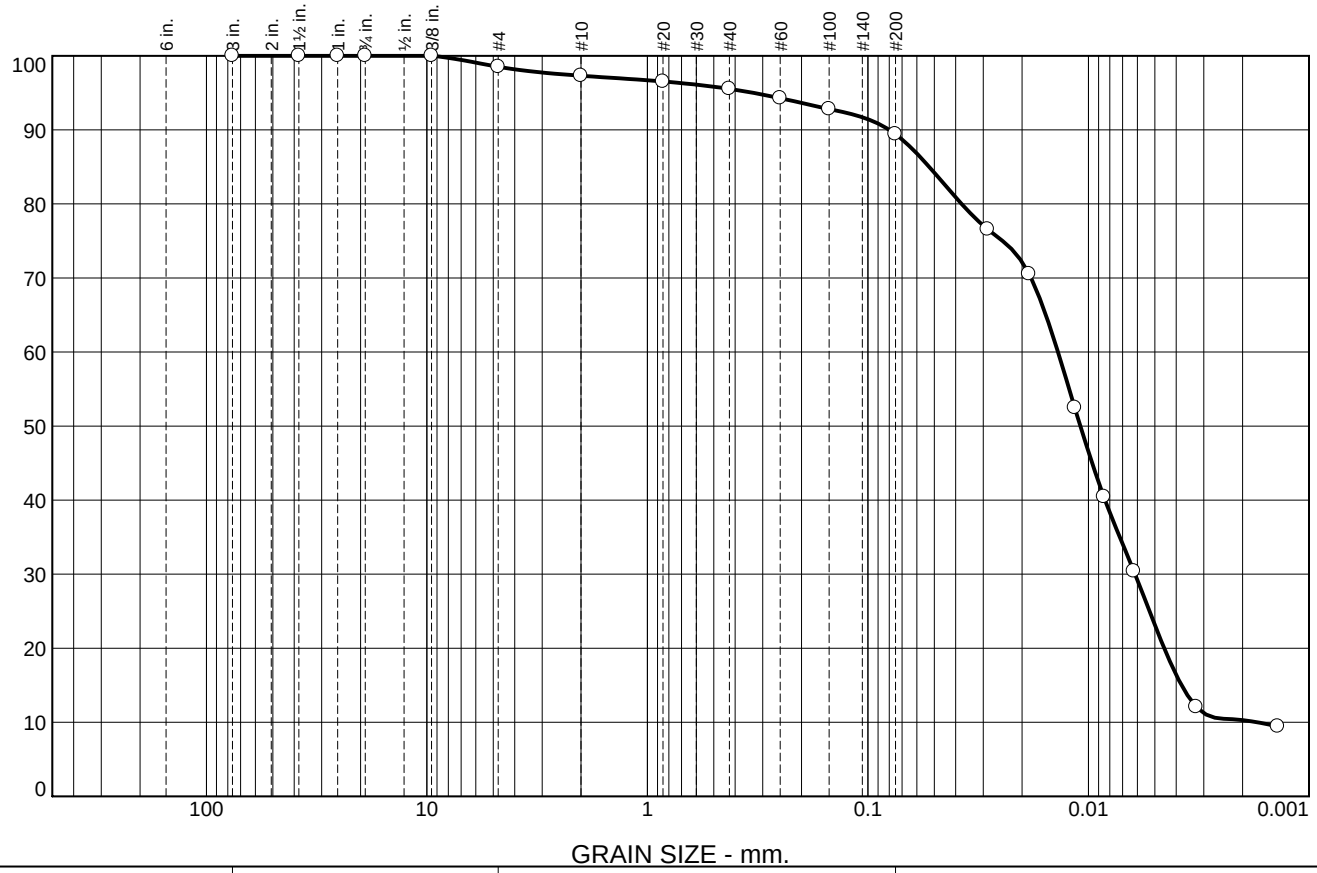
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	1	7	66	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	97		
#40	96		
#60	94		
#100	93		
#200	89		
0.0286 mm.	77		
0.0186 mm.	71		
0.0115 mm.	52		
0.0085 mm.	40		
0.0062 mm.	30		
0.0032 mm.	12		
0.0014 mm.	9.5		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-5) with trace gravel-sized rock fragments

Atterberg Limits

PL= 40 LL= 50 PI= 10

Coefficients

D_{90}= 0.0801 D_{85}= 0.0527 D_{60}= 0.0138
D_{50}= 0.0109 D_{30}= 0.0061 D_{15}= 0.0038
D_{10}= 0.0017 C_u= 8.01 C_c= 1.60

Classification

USCS= MH AASHTO= A-5(14)

Remarks

Source of Sample: P-112 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

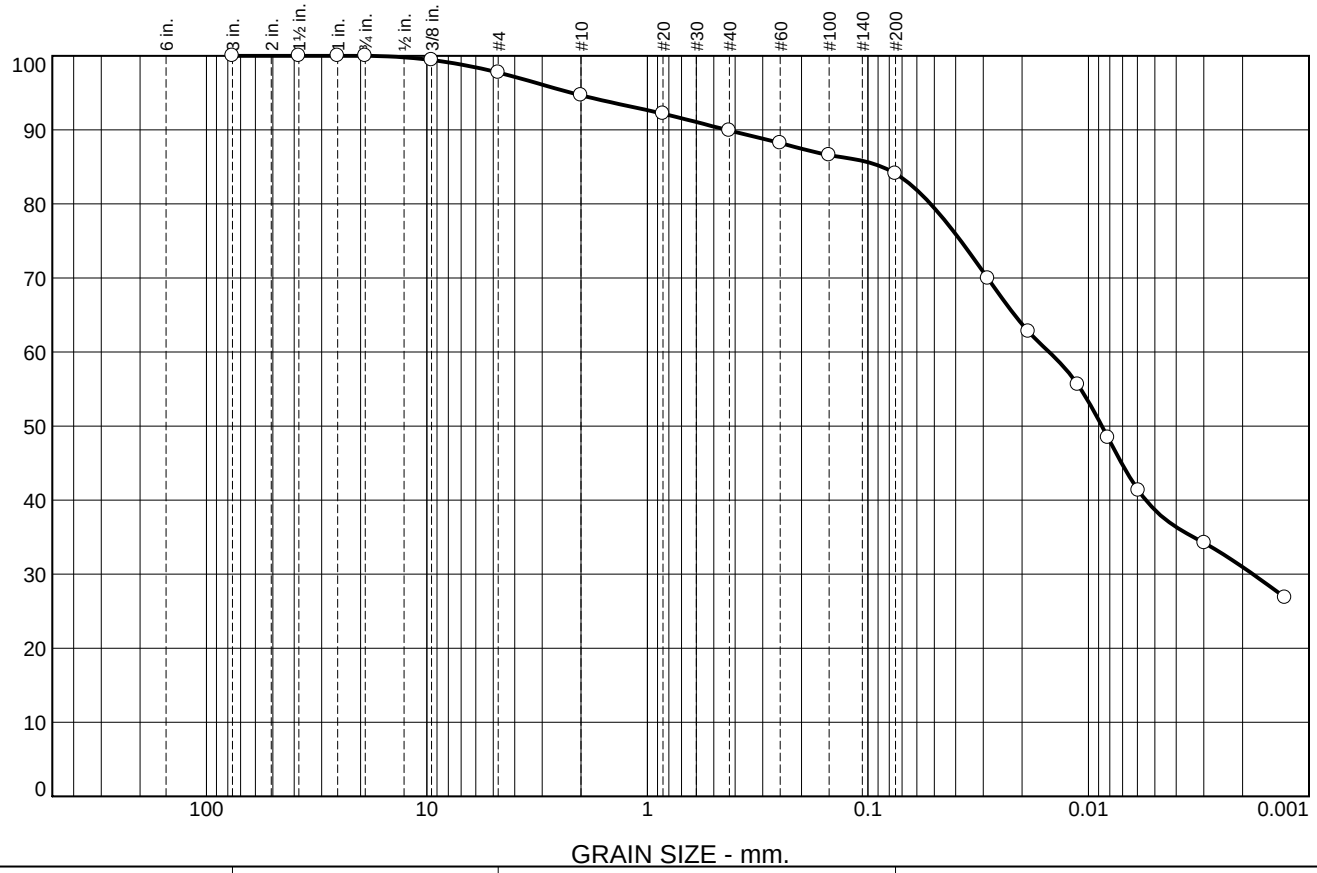
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	3	5	6	45	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	95		
#20	92		
#40	90		
#60	88		
#100	87		
#200	84		
0.0286 mm.	70		
0.0187 mm.	63		
0.0112 mm.	56		
0.0082 mm.	48		
0.0059 mm.	41		
0.0030 mm.	34		
0.0013 mm.	27		

* (no specification provided)

Soil Description

Very stiff, moist, reddish tan, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 32 LL= 53 PI= 21

Coefficients

D_{90}= 0.4372 D_{85}= 0.0862 D_{60}= 0.0151
D_{50}= 0.0087 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(21)

Remarks

Source of Sample: P-113 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

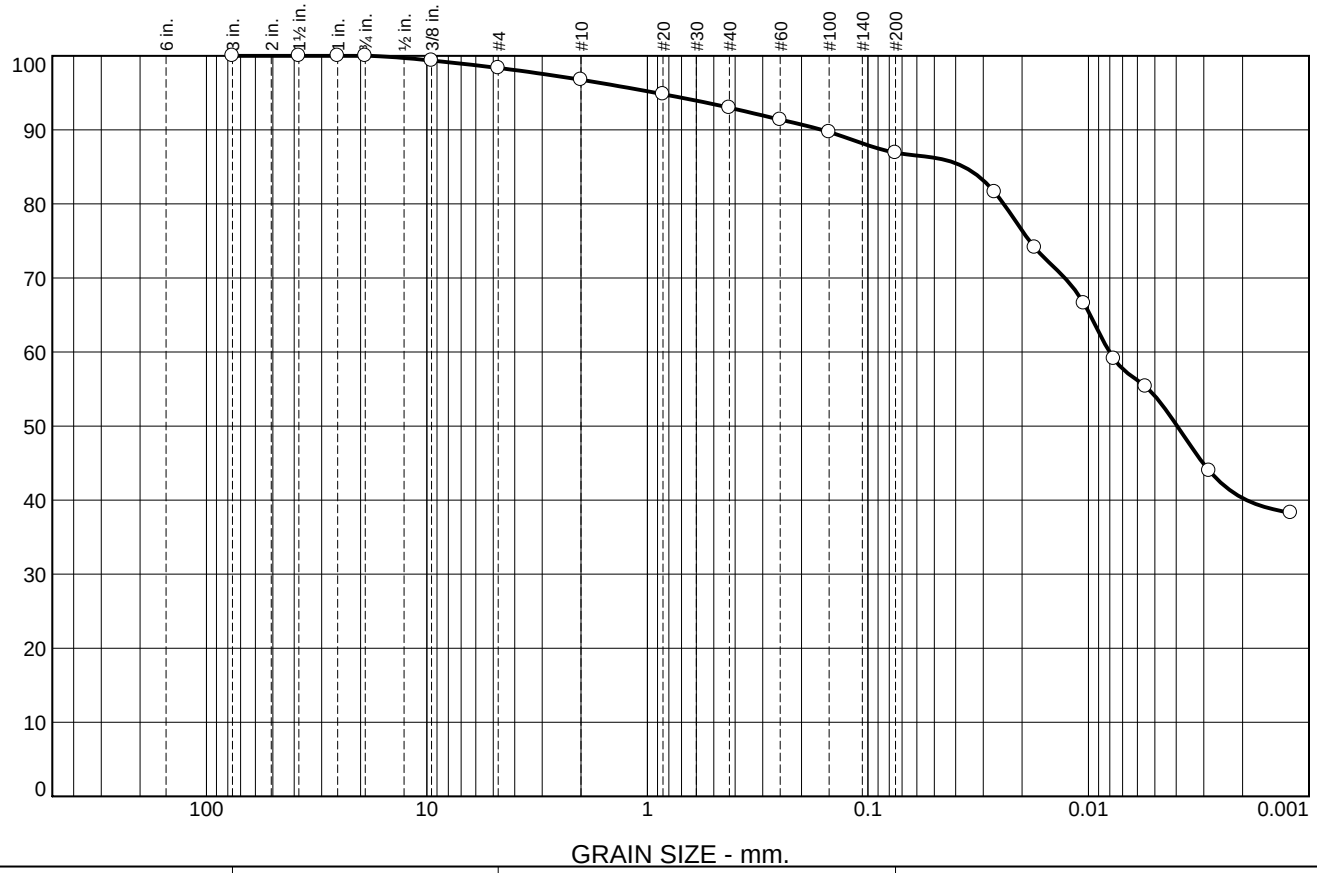
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	4	6	33	54

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	97		
#20	95		
#40	93		
#60	91		
#100	90		
#200	87		
0.0267 mm.	82		
0.0175 mm.	74		
0.0105 mm.	67		
0.0077 mm.	59		
0.0055 mm.	55		
0.0028 mm.	44		
0.0012 mm.	38		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to black, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 24 LL= 44 PI= 20

Coefficients

D_{90}= 0.1618 D_{85}= 0.0367 D_{60}= 0.0080
D_{50}= 0.0040 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(19)

Remarks

Source of Sample: P-114 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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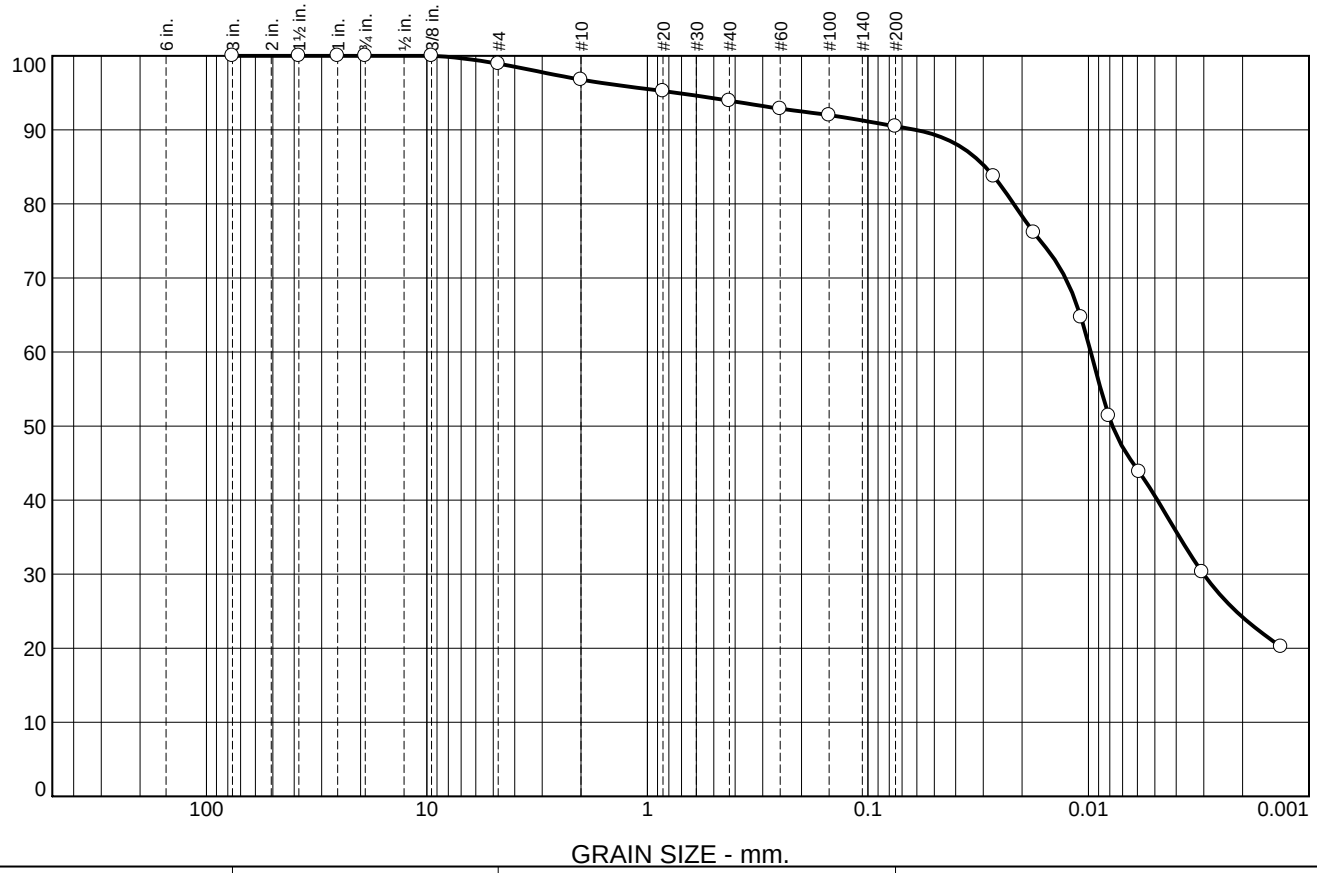
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	3	4	49	41

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	95		
#40	94		
#60	93		
#100	92		
#200	90		
0.0269 mm.	84		
0.0177 mm.	76		
0.0108 mm.	65		
0.0081 mm.	51		
0.0059 mm.	44		
0.0031 mm.	30		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Stiff, mist, reddish brown to black, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 22 LL= 46 PI= 24

Coefficients

D_{90}= 0.0609 D_{85}= 0.0294 D_{60}= 0.0098
D_{50}= 0.0078 D_{30}= 0.0030 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(23)

Remarks

Source of Sample: P-114 **Depth:** 5.00-6.50
Sample Number: S-4

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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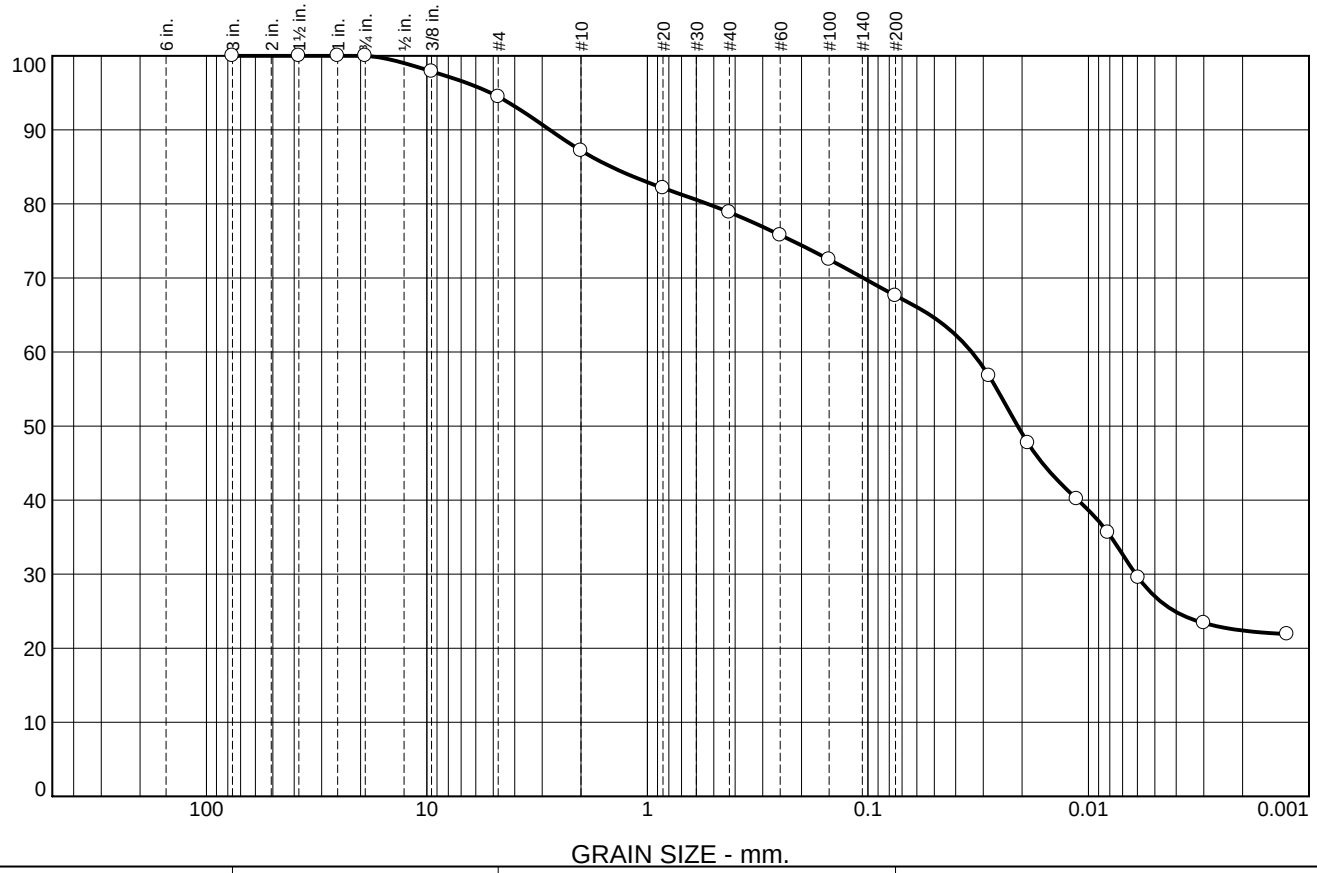
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	7	8	11	41	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	94		
#10	87		
#20	82		
#40	79		
#60	76		
#100	73		
#200	68		
0.0283 mm.	57		
0.0188 mm.	48		
0.0113 mm.	40		
0.0082 mm.	36		
0.0059 mm.	30		
0.0030 mm.	23		
0.0013 mm.	22		

* (no specification provided)

Soil Description

Medium stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 20 LL= 36 PI= 16

Coefficients

D_{90}= 2.7739 D_{85}= 1.4586 D_{60}= 0.0338
D_{50}= 0.0209 D_{30}= 0.0061 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(9)

Remarks

Source of Sample: P-117 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/10/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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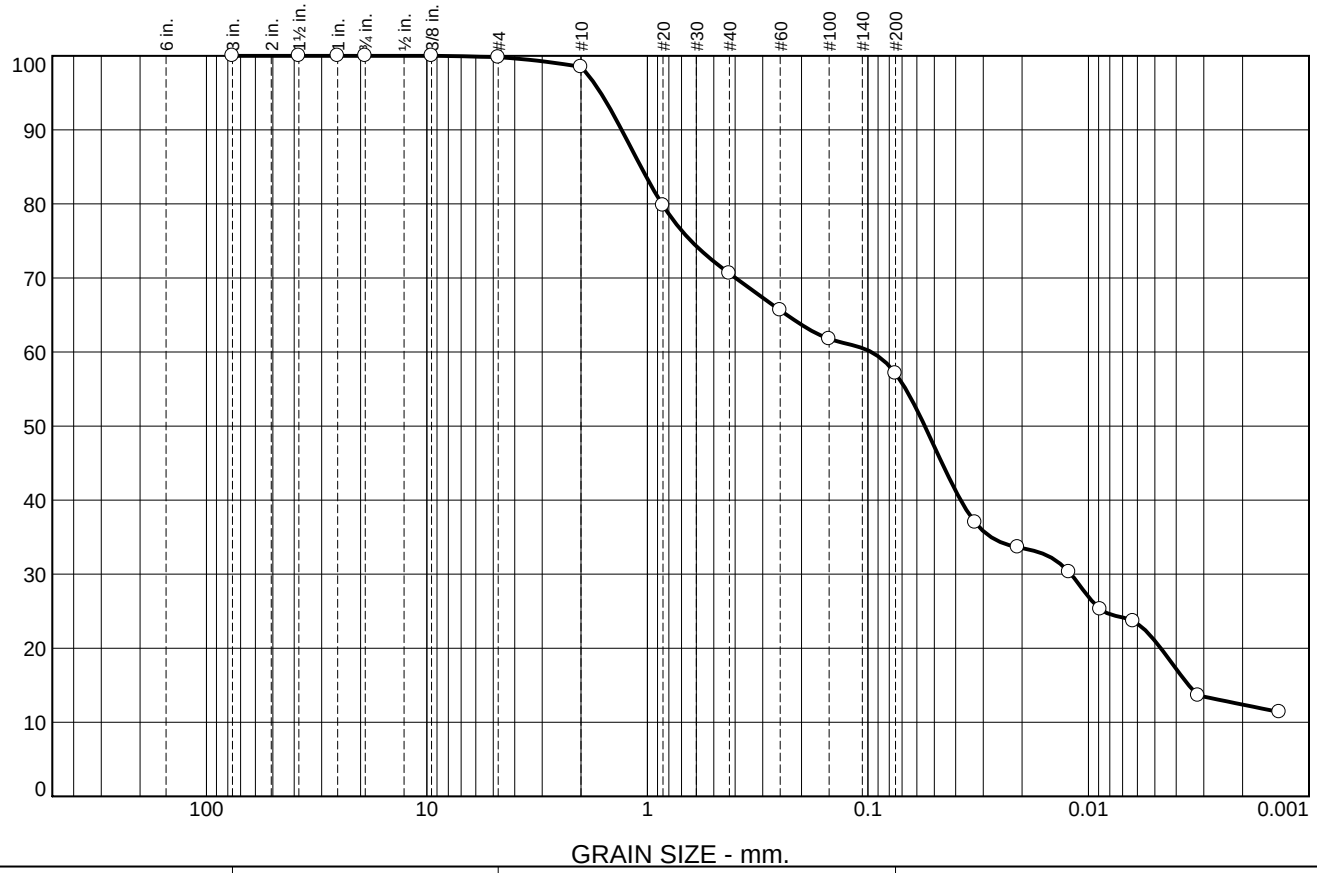
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	27	14	36	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	98		
#20	80		
#40	71		
#60	66		
#100	62		
#200	57		
0.0326 mm.	37		
0.0209 mm.	34		
0.0123 mm.	30		
0.0088 mm.	25		
0.0063 mm.	24		
0.0032 mm.	14		
0.0014 mm.	11		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace roots and gravel

Atterberg Limits

PL= 21 LL= 33 PI= 12

Coefficients

D_{90}= 1.3092 D_{85}= 1.0697 D_{60}= 0.0966
D_{50}= 0.0552 D_{30}= 0.0120 D_{15}= 0.0035
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(4)

Remarks

Source of Sample: P-118 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/16/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

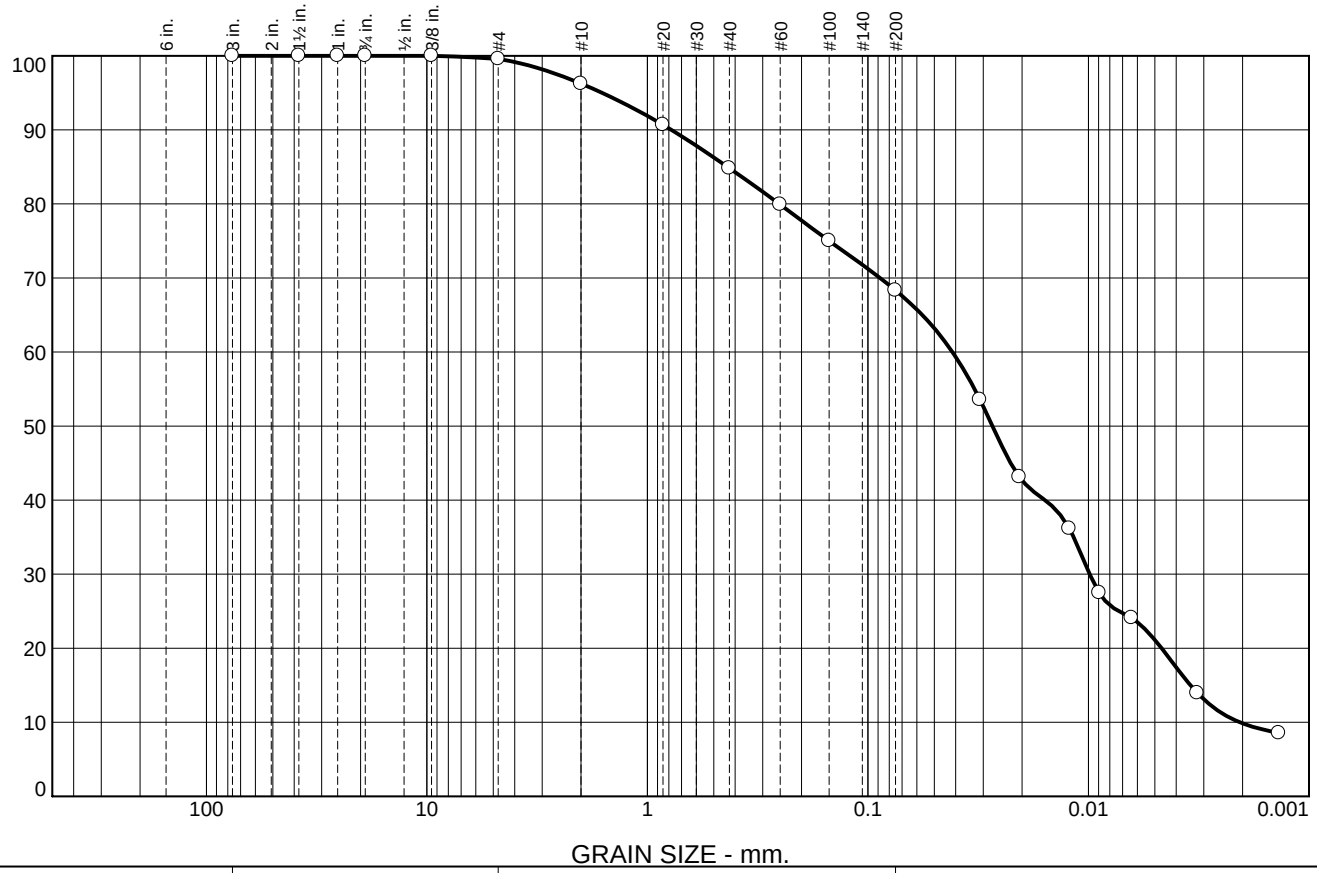
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	4	11	17	47	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	96		
#20	91		
#40	85		
#60	80		
#100	75		
#200	68		
0.0310 mm.	54		
0.0206 mm.	43		
0.0122 mm.	36		
0.0089 mm.	27		
0.0064 mm.	24		
0.0032 mm.	14		
0.0014 mm.	8.6		

* (no specification provided)

Soil Description

Stiff, moist, grayish brown, Sandy Silty CLAY (CL-ML)(A-4)

Atterberg Limits

PL= 22 LL= 28 PI= 6

Coefficients

D_{90}= 0.7796 D_{85}= 0.4331 D_{60}= 0.0414
D_{50}= 0.0273 D_{30}= 0.0099 D_{15}= 0.0034
D_{10}= 0.0021 C_u= 20.09 C_c= 1.14

Classification

USCS= CL-ML AASHTO= A-4(2)

Remarks

Source of Sample: P-120 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

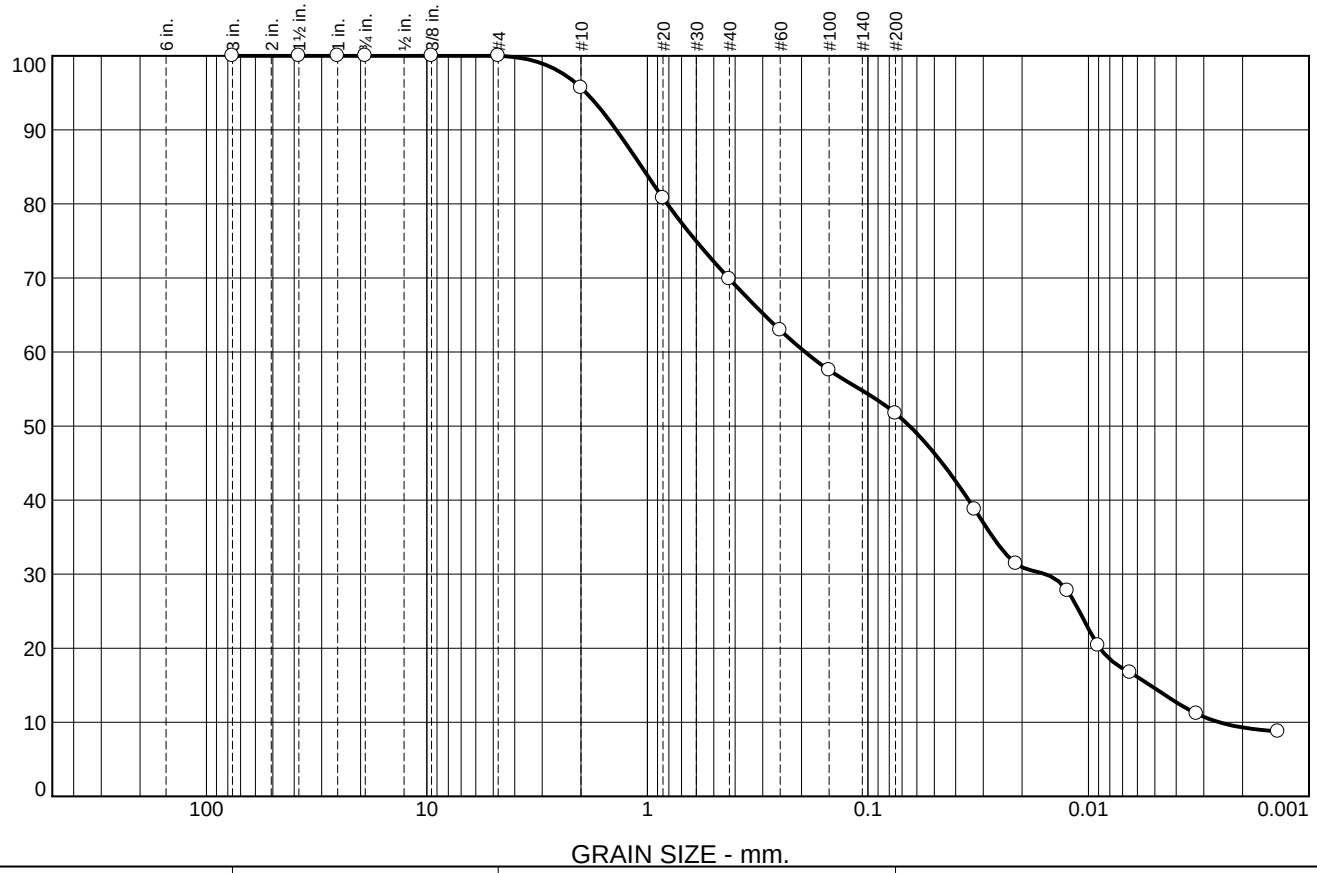
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	4	26	18	37	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	96		
#20	81		
#40	70		
#60	63		
#100	58		
#200	52		
0.0328 mm.	39		
0.0213 mm.	31		
0.0125 mm.	28		
0.0090 mm.	20		
0.0065 mm.	17		
0.0032 mm.	11		
0.0014 mm.	8.8		

* (no specification provided)

Soil Description

Hard, moist, grayish brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 22 LL= 25 PI= 3

Coefficients

D_{90}= 1.3849 D_{85}= 1.0623 D_{60}= 0.1928
D_{50}= 0.0647 D_{30}= 0.0157 D_{15}= 0.0052
D_{10}= 0.0025 C_u= 75.64 C_c= 0.50

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Source of Sample: P-120 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/15/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

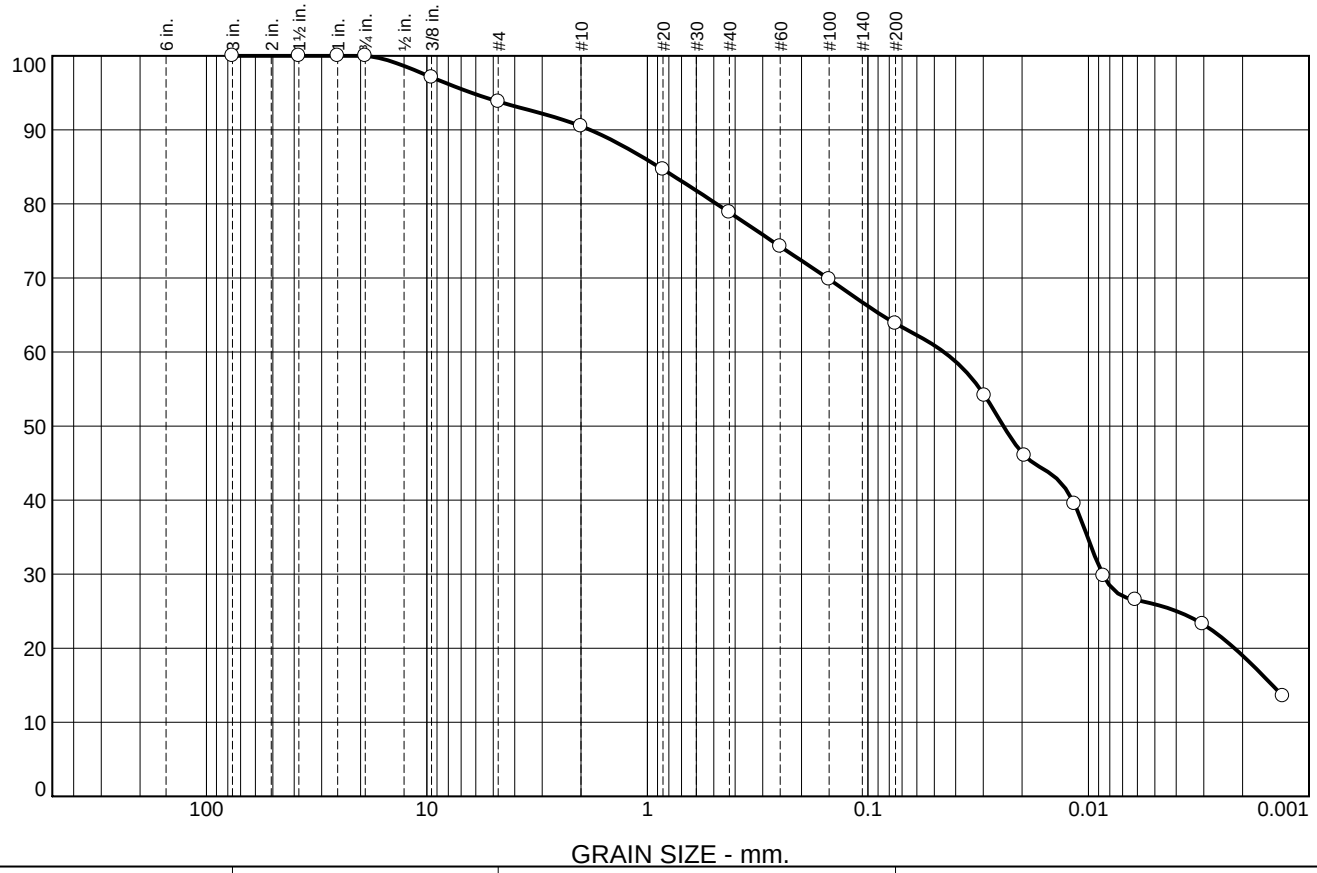
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	4	11	15	38	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	94		
#10	90		
#20	85		
#40	79		
#60	74		
#100	70		
#200	64		
0.0296 mm.	54		
0.0195 mm.	46		
0.0116 mm.	40		
0.0085 mm.	30		
0.0061 mm.	27		
0.0030 mm.	23		
0.0013 mm.	14		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown to reddish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 19 LL= 34 PI= 15

Coefficients

D_{90}= 1.8206 D_{85}= 0.8877 D_{60}= 0.0452
D_{50}= 0.0243 D_{30}= 0.0086 D_{15}= 0.0015
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(7)

Remarks

Source of Sample: P-123 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

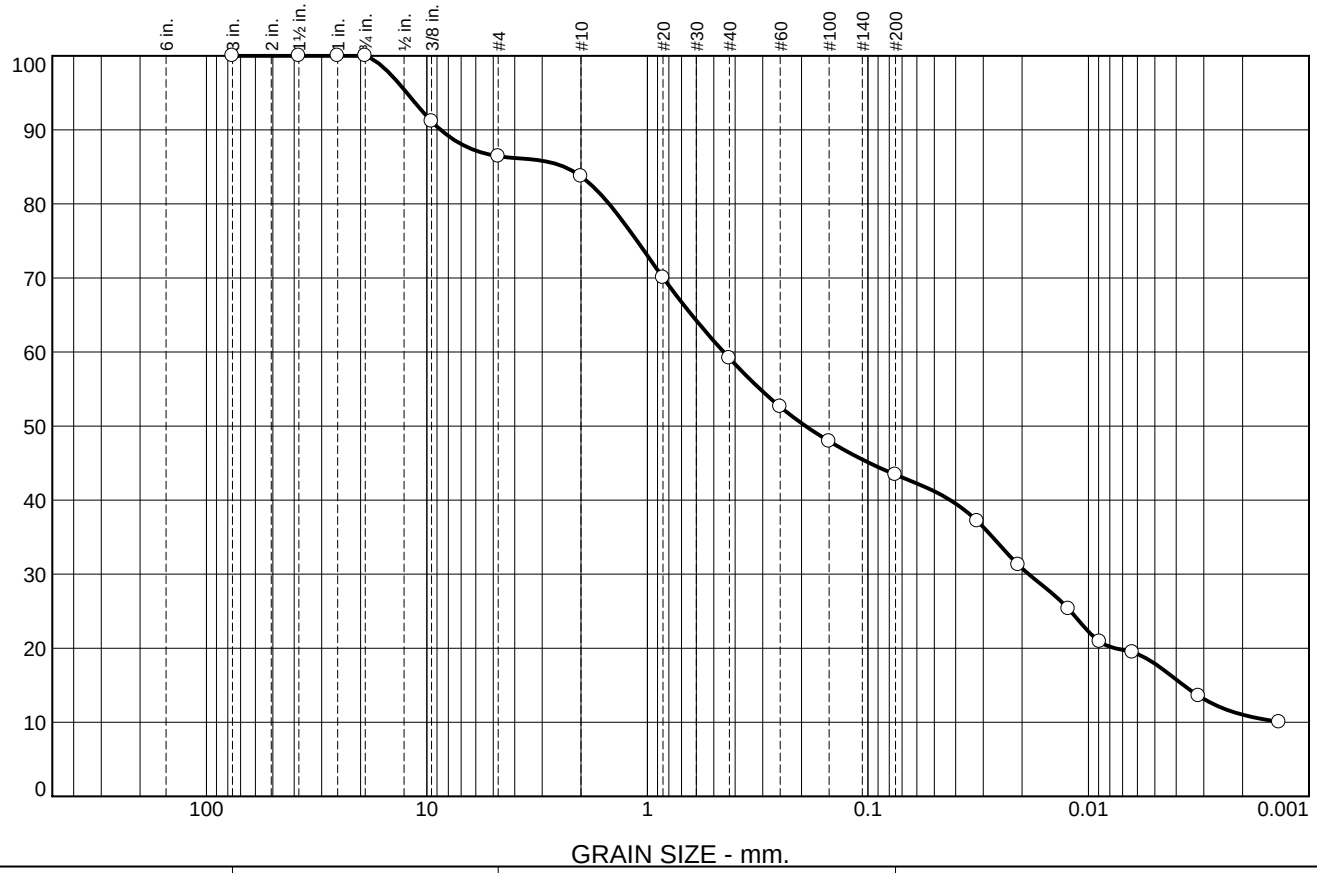
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	14	2	25	16	25	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	91		
#4	86		
#10	84		
#20	70		
#40	59		
#60	53		
#100	48		
#200	43		
0.0319 mm.	37		
0.0208 mm.	31		
0.0123 mm.	25		
0.0089 mm.	21		
0.0063 mm.	19		
0.0032 mm.	14		
0.0014 mm.	10		

* (no specification provided)

Soil Description

Medium stiff, moist, brown, Silty Fine to Medium SAND (SM)(A-4)

Atterberg Limits

PL= 22 LL= 31 PI= 9

Coefficients

D_{90}= 8.6674 D_{85}= 2.3819 D_{60}= 0.4508
D_{50}= 0.1916 D_{30}= 0.0187 D_{15}= 0.0037
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-4(1)

Remarks

Source of Sample: P-124 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/16/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

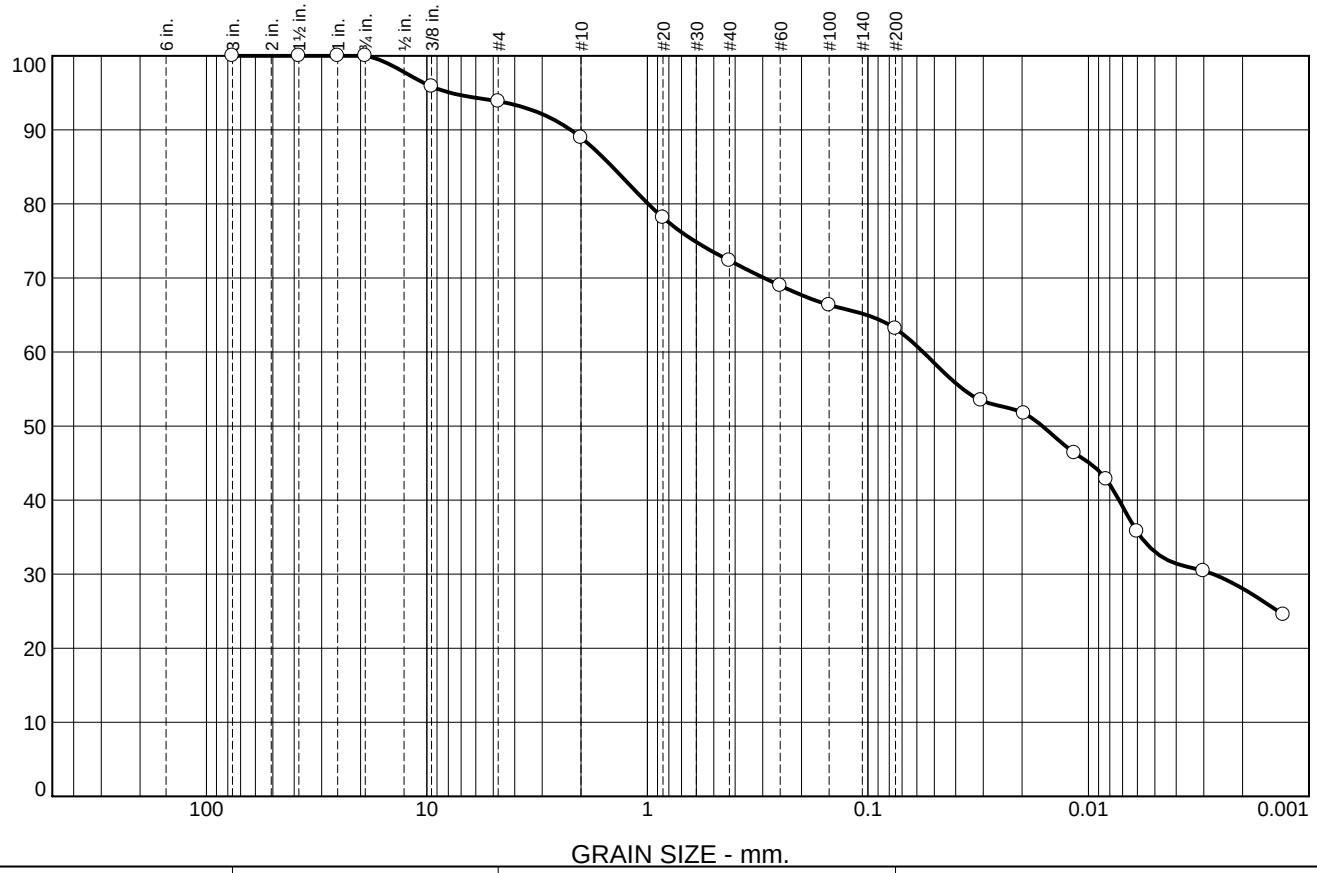
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	5	17	9	30	33

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	94		
#10	89		
#20	78		
#40	72		
#60	69		
#100	66		
#200	63		
0.0307 mm.	53		
0.0196 mm.	52		
0.0116 mm.	46		
0.0083 mm.	43		
0.0060 mm.	36		
0.0030 mm.	30		
0.0013 mm.	25		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy CLAY (CL)(A-7-6)

Atterberg Limits

PL= 23 LL= 44 PI= 21

Coefficients

D_{90}= 2.2291 D_{85}= 1.4420 D_{60}= 0.0562
D_{50}= 0.0162 D_{30}= 0.0027 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(11)

Remarks

Source of Sample: P-124 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/16/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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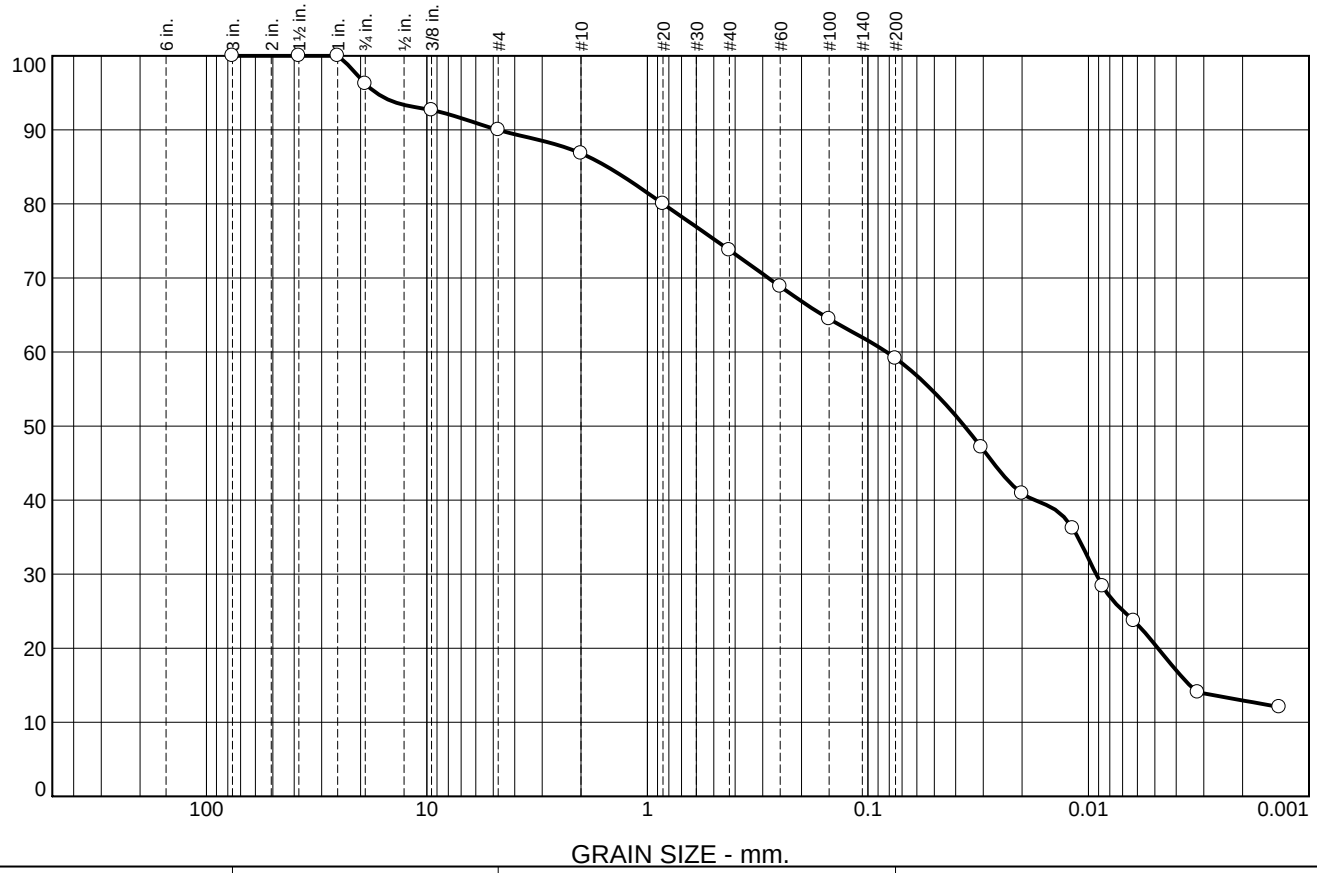
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	6	3	13	15	38	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	96		
.375	93		
#4	90		
#10	87		
#20	80		
#40	74		
#60	69		
#100	64		
#200	59		
0.0306 mm.	47		
0.0200 mm.	41		
0.0118 mm.	36		
0.0086 mm.	28		
0.0062 mm.	24		
0.0032 mm.	14		
0.0014 mm.	12		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, orangish brown, Sandy CLAY (CL)(A-4) with trace gravel

Atterberg Limits

PL= 22 LL= 32 PI= 10

Coefficients

D_{90}= 4.7636 D_{85}= 1.5179 D_{60}= 0.0824
D_{50}= 0.0365 D_{30}= 0.0092 D_{15}= 0.0035
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-4(4)

Remarks

Source of Sample: P-125 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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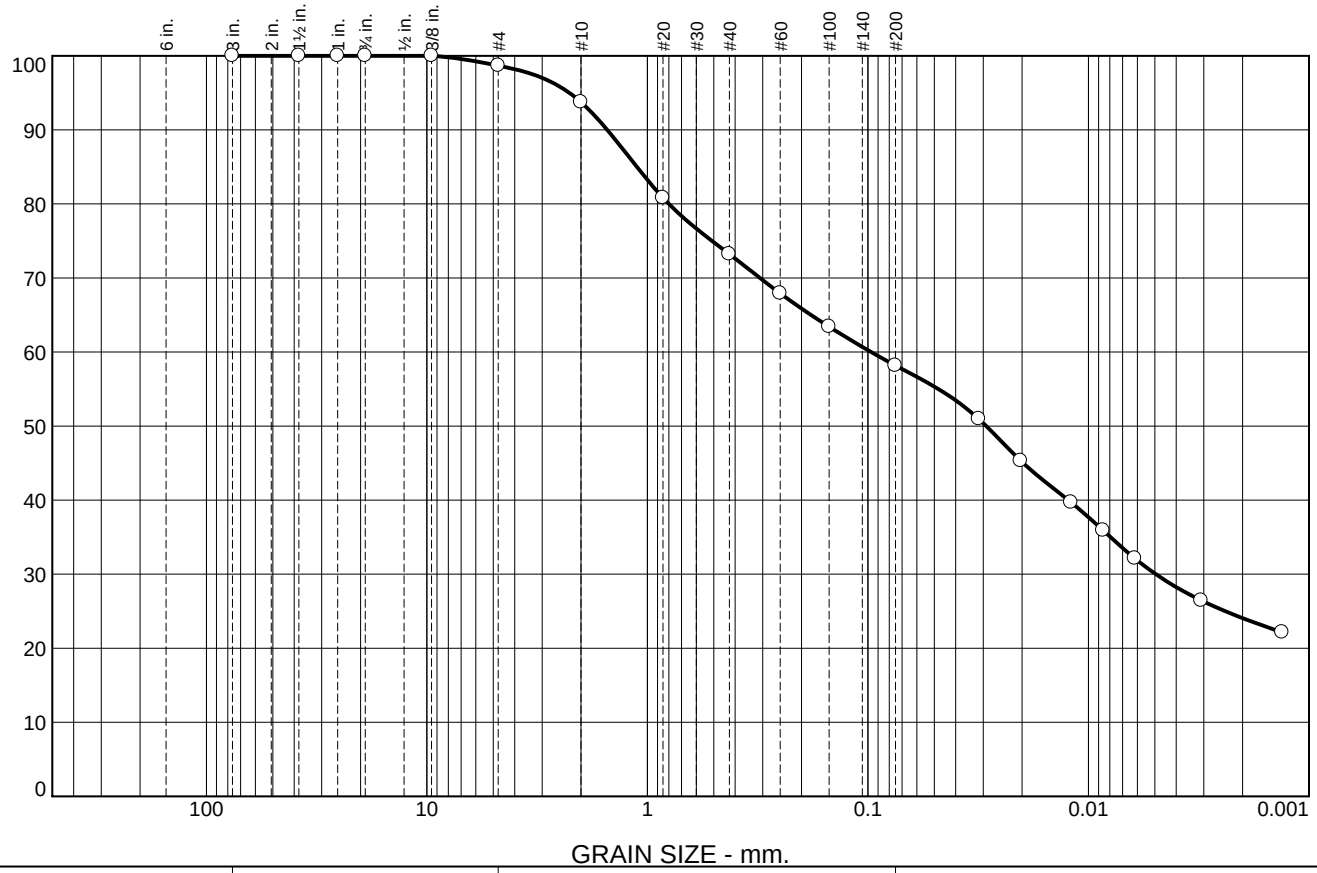
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	5	21	15	28	30

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	94		
#20	81		
#40	73		
#60	68		
#100	63		
#200	58		
0.0314 mm.	51		
0.0203 mm.	45		
0.0120 mm.	40		
0.0086 mm.	36		
0.0062 mm.	32		
0.0031 mm.	26		
0.0013 mm.	22		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, orangish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 23 LL= 40 PI= 17

Coefficients

D_{90}= 1.5218 D_{85}= 1.1161 D_{60}= 0.0967
D_{50}= 0.0291 D_{30}= 0.0049 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(8)

Remarks

Source of Sample: P-126 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/15/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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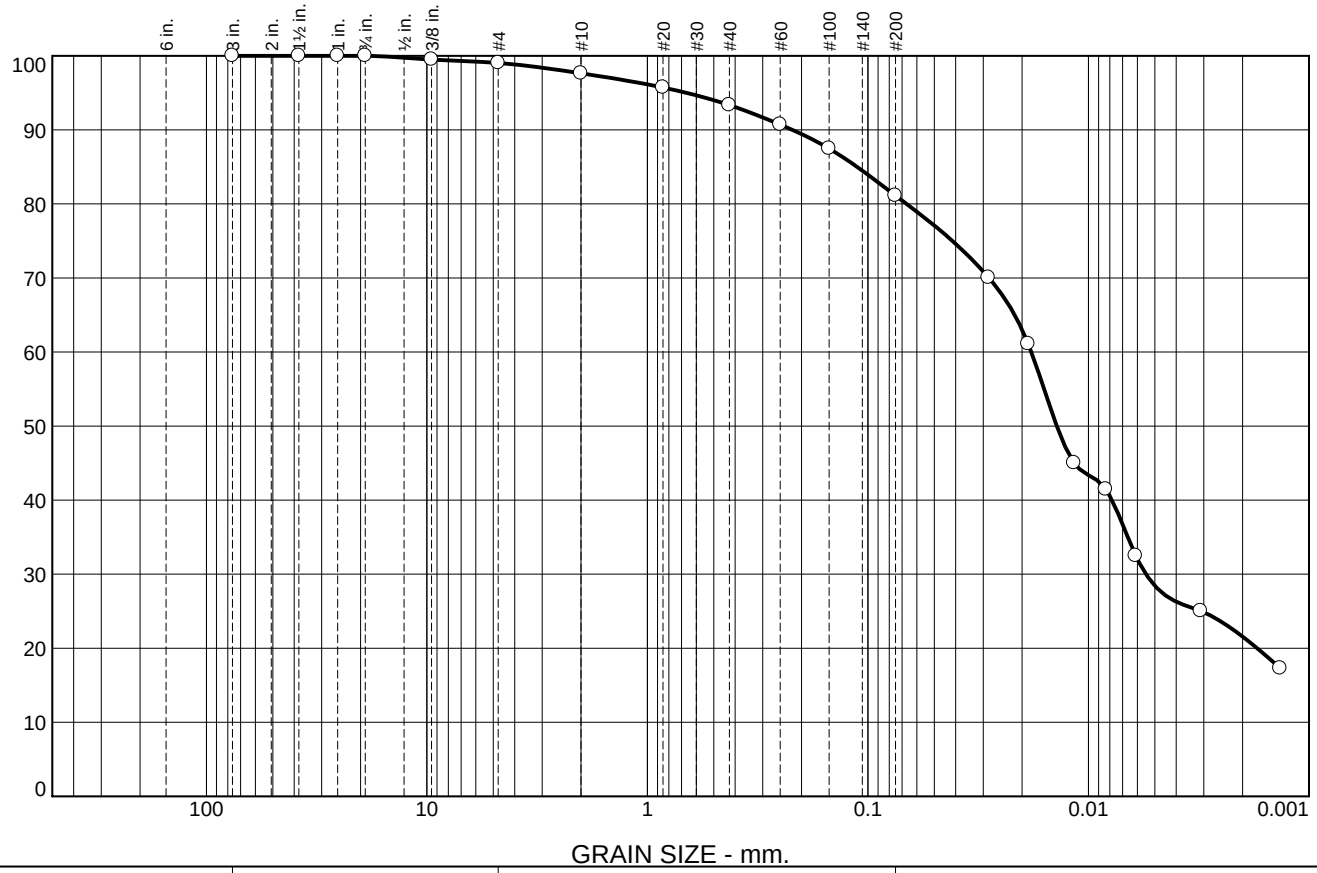
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	5	12	53	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	98		
#20	96		
#40	93		
#60	91		
#100	87		
#200	81		
0.0284 mm.	70		
0.0188 mm.	61		
0.0116 mm.	45		
0.0083 mm.	41		
0.0061 mm.	32		
0.0031 mm.	25		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6)

Atterberg Limits

PL= 22 LL= 36 PI= 14

Coefficients

D_{90}= 0.2205 D_{85}= 0.1121 D_{60}= 0.0182
D_{50}= 0.0139 D_{30}= 0.0055 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(11)

Remarks

Source of Sample: P-127 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/6/2017

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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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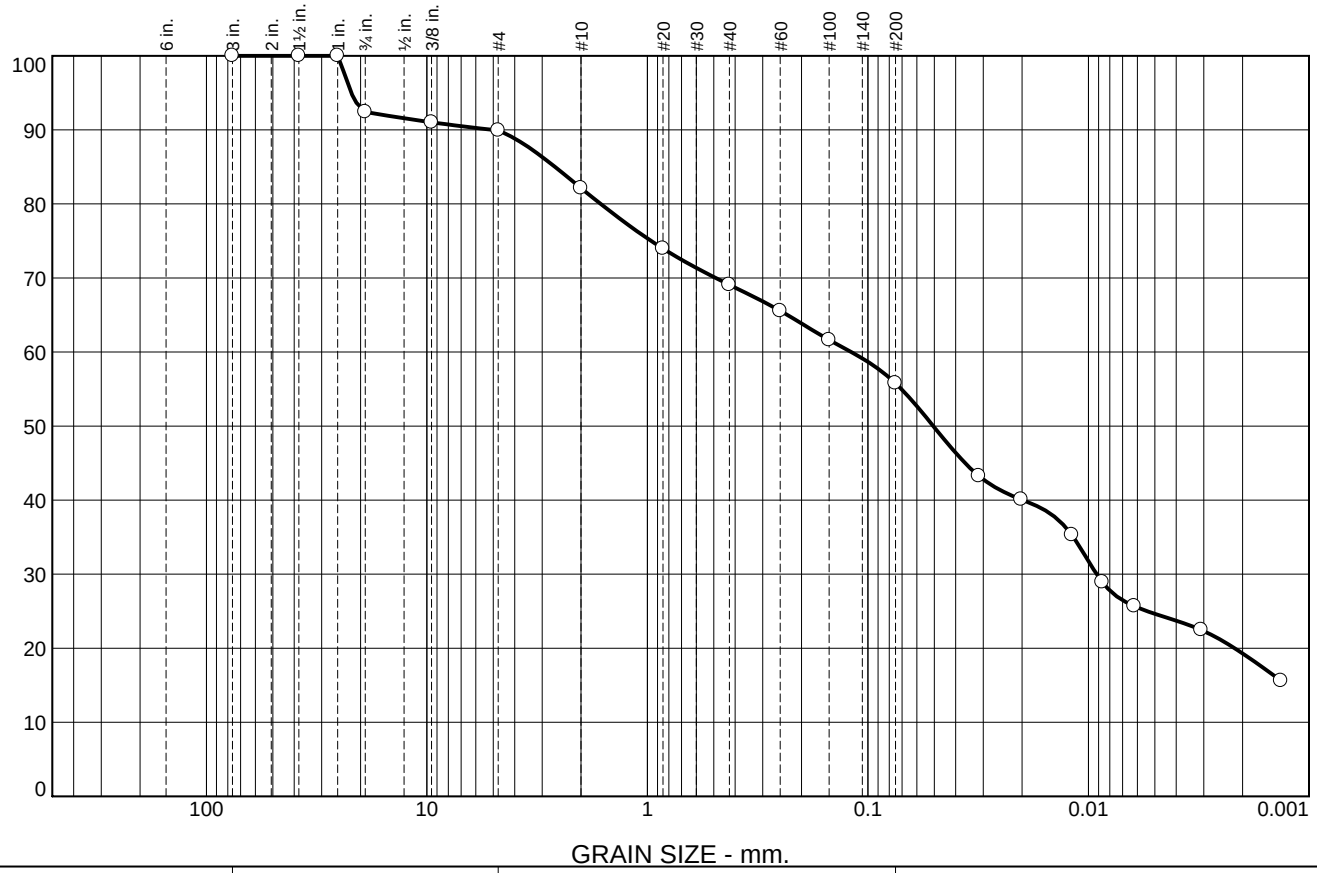
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	8	2	8	13	13	31	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	92		
.375	91		
#4	90		
#10	82		
#20	74		
#40	69		
#60	66		
#100	62		
#200	56		
0.0314 mm.	43		
0.0202 mm.	40		
0.0119 mm.	35		
0.0086 mm.	29		
0.0062 mm.	26		
0.0031 mm.	22		
0.0013 mm.	16		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 22 LL= 36 PI= 14

Coefficients

D_{90}= 5.0115 D_{85}= 2.6251 D_{60}= 0.1191
D_{50}= 0.0505 D_{30}= 0.0092 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(5)

Remarks

Source of Sample: P-128 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/15/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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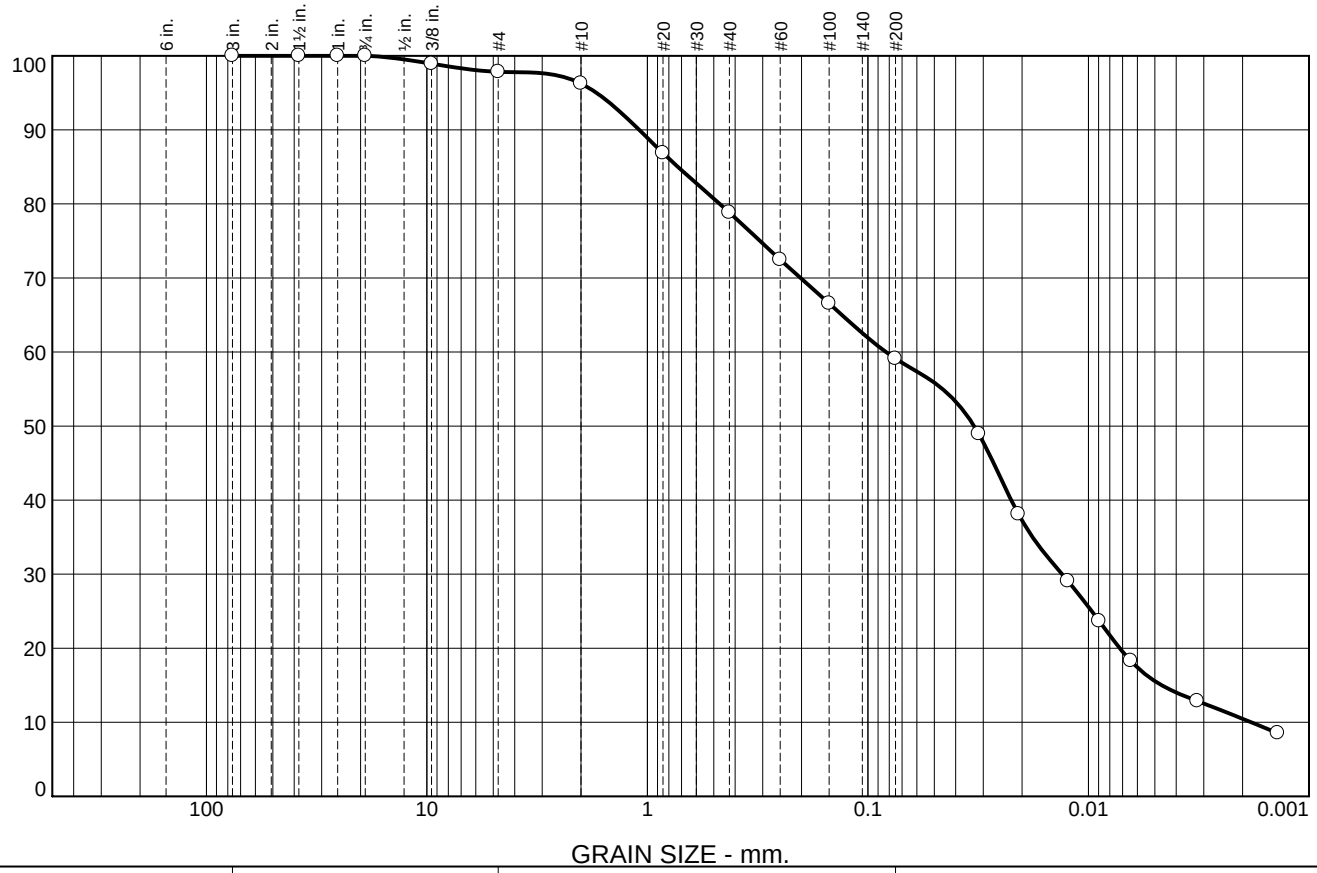
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	2	17	20	43	16

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	96		
#20	87		
#40	79		
#60	72		
#100	67		
#200	59		
0.0314 mm.	49		
0.0208 mm.	38		
0.0124 mm.	29		
0.0089 mm.	24		
0.0064 mm.	18		
0.0032 mm.	13		
0.0014 mm.	8.5		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6) with trace gravel-sized rock fragments

Atterberg Limits

PL= 23 LL= 36 PI= 13

Coefficients

D_{90}= 1.0905 D_{85}= 0.7273 D_{60}= 0.0828
D_{50}= 0.0330 D_{30}= 0.0132 D_{15}= 0.0047
D_{10}= 0.0018 C_u= 45.32 C_c= 1.15

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: P-130 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/19/2017

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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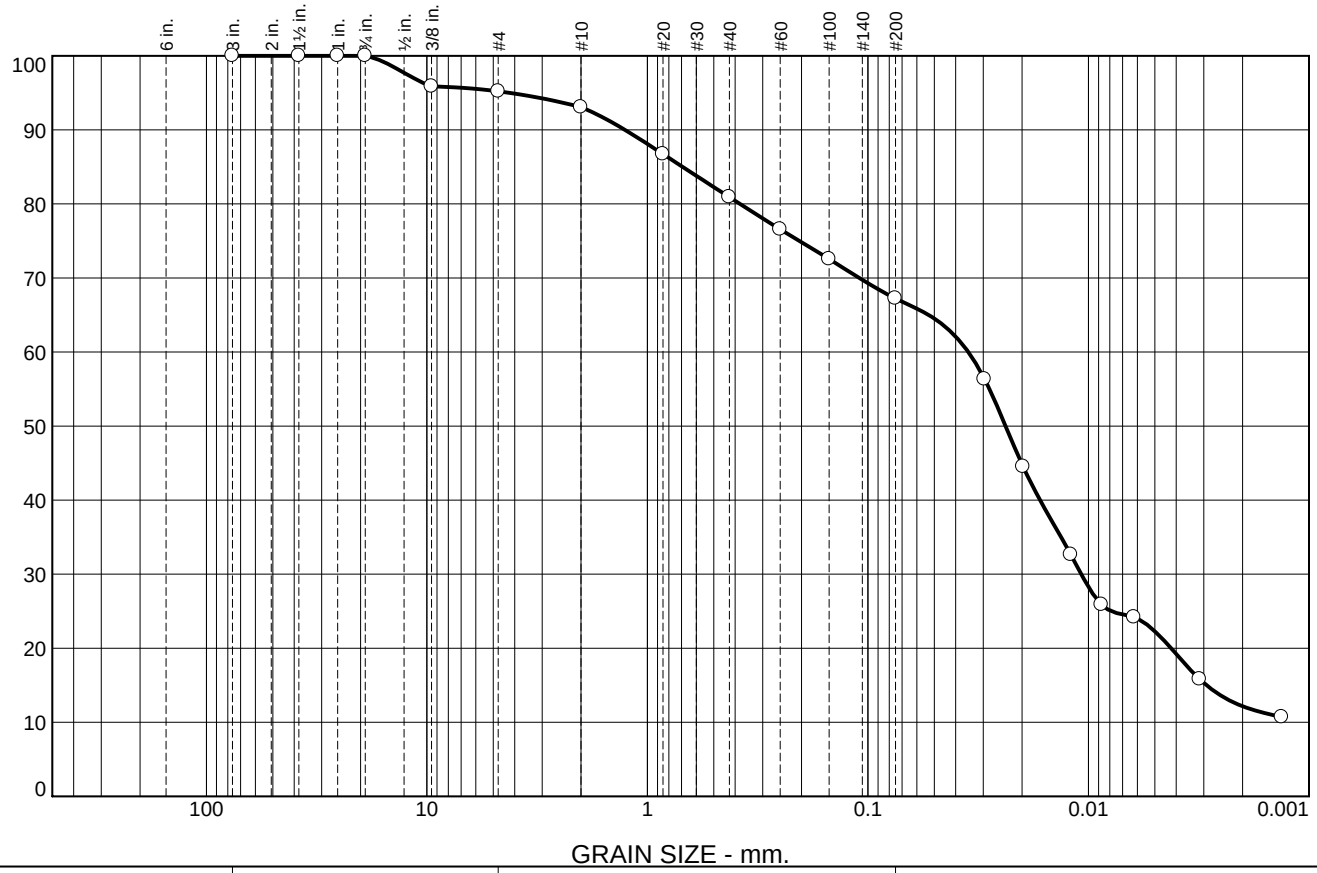
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	2	12	14	45	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	95		
#10	93		
#20	87		
#40	81		
#60	77		
#100	73		
#200	67		
0.0296 mm.	56		
0.0198 mm.	45		
0.0120 mm.	33		
0.0087 mm.	26		
0.0062 mm.	24		
0.0031 mm.	16		
0.0013 mm.	11		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, orangish brown to grayish brown, Sandy CLAY (CL)(A-6) with trace gravel-sized rock fragments

Atterberg Limits

PL= 24 LL= 36 PI= 12

Coefficients

D_{90}= 1.2655 D_{85}= 0.6924 D_{60}= 0.0351
D_{50}= 0.0238 D_{30}= 0.0108 D_{15}= 0.0029
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(7)

Remarks

Source of Sample: P-131 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

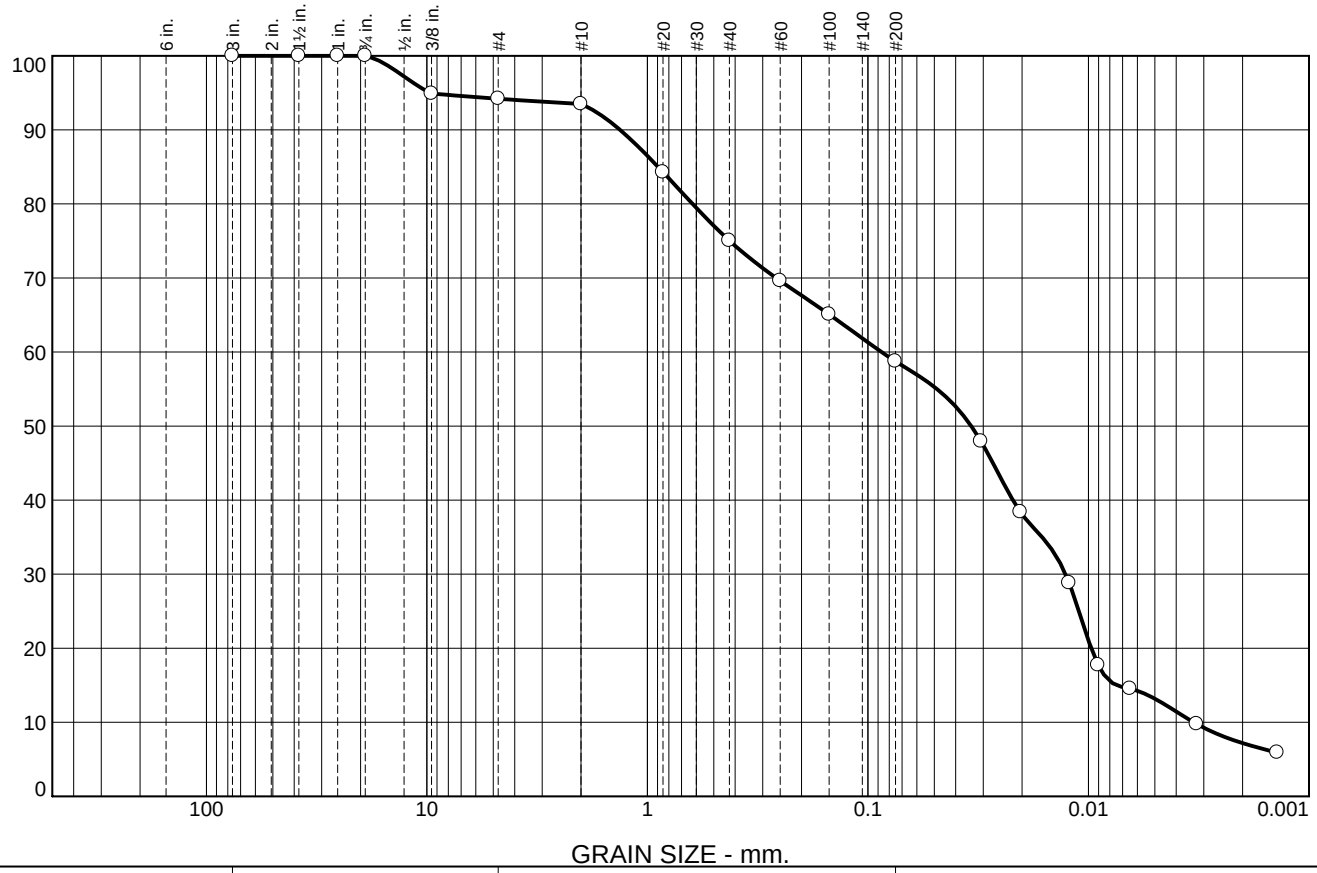
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	0	19	16	46	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	95		
#4	94		
#10	94		
#20	84		
#40	75		
#60	70		
#100	65		
#200	59		
0.0307 mm.	48		
0.0203 mm.	38		
0.0122 mm.	29		
0.0090 mm.	18		
0.0065 mm.	15		
0.0032 mm.	9.8		
0.0014 mm.	5.9		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish brown, Sandy SILT (ML) (A-4) with trace gravel

Atterberg Limits

PL= 27 LL= 34 PI= 7

Coefficients

D_{90}= 1.3314 D_{85}= 0.8953 D_{60}= 0.0867
D_{50}= 0.0340 D_{30}= 0.0127 D_{15}= 0.0074
D_{10}= 0.0033 C_u= 26.04 C_c= 0.56

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: P-132 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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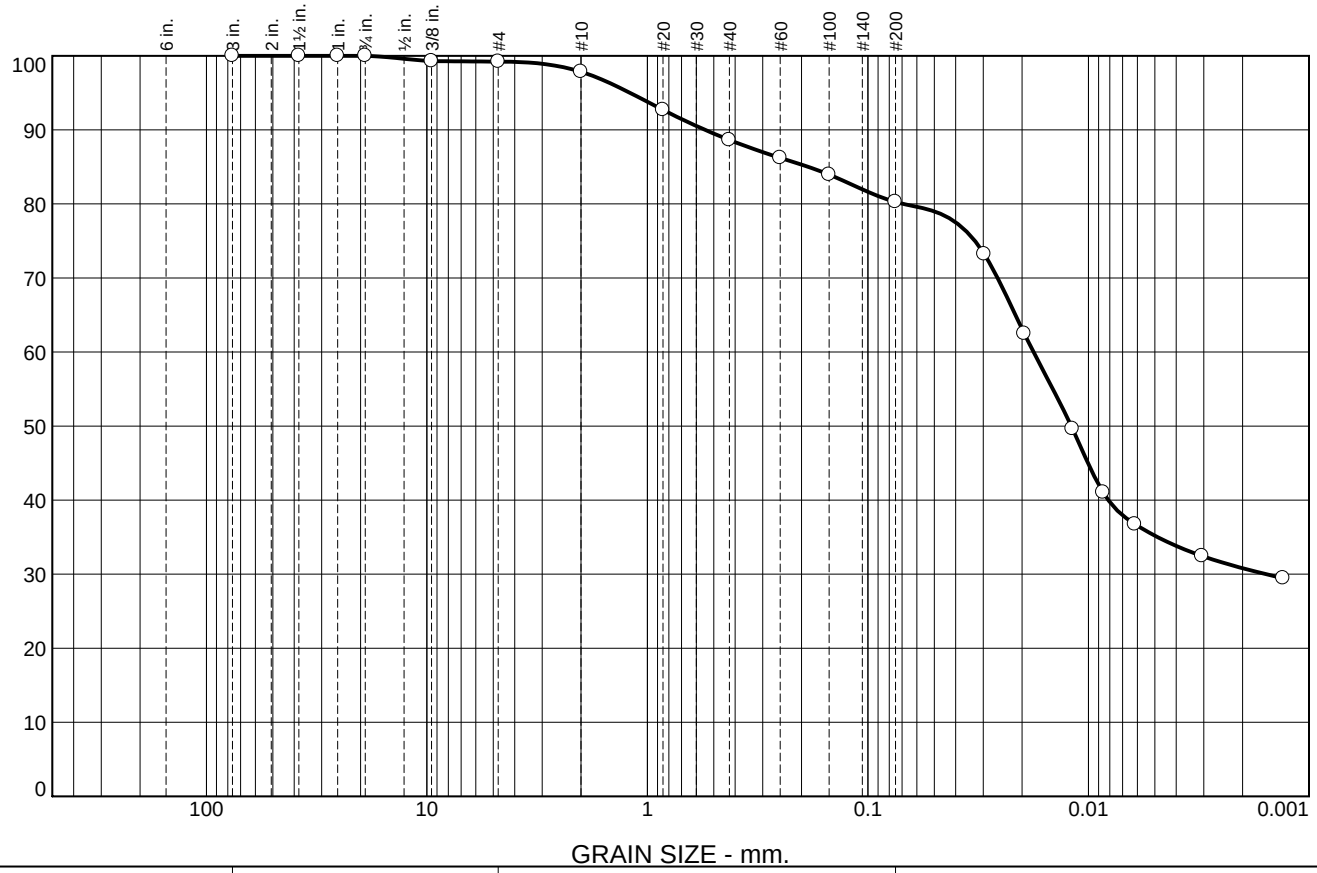
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	9	9	45	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	98		
#20	93		
#40	89		
#60	86		
#100	84		
#200	80		
0.0297 mm.	73		
0.0196 mm.	62		
0.0118 mm.	50		
0.0086 mm.	41		
0.0062 mm.	37		
0.0031 mm.	32		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Soft, moist, orangish brown, Sandy CLAY (CL)(A-7-6)

Atterberg Limits

PL= 25 LL= 47 PI= 22

Coefficients

D_{90}= 0.5475 D_{85}= 0.1866 D_{60}= 0.0177
D_{50}= 0.0120 D_{30}= 0.0016 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(18)

Remarks

Source of Sample: P-134 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

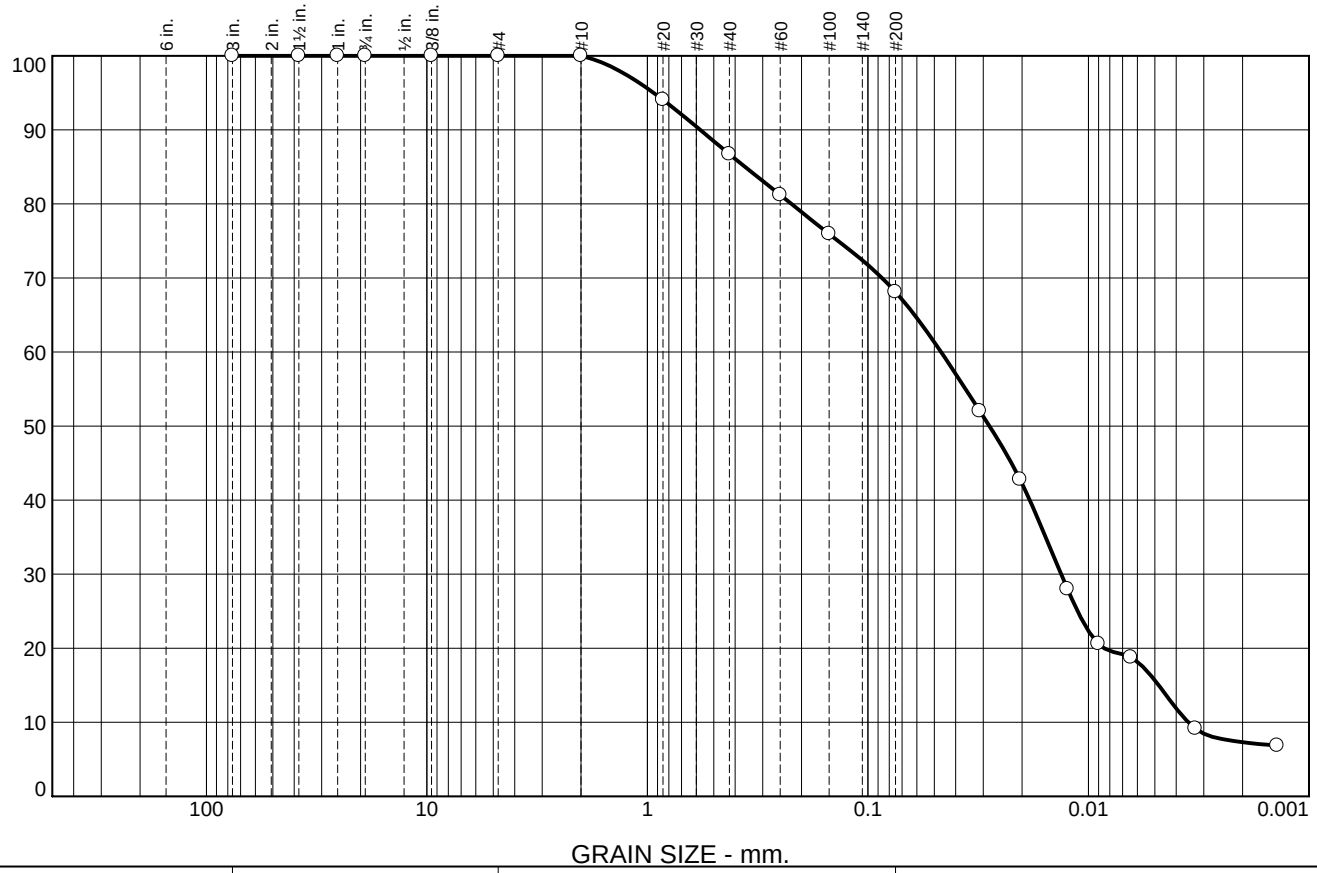
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	13	19	52	16

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	94		
#40	87		
#60	81		
#100	76		
#200	68		
0.0311 mm.	52		
0.0204 mm.	43		
0.0125 mm.	28		
0.0090 mm.	21		
0.0064 mm.	19		
0.0033 mm.	9.2		
0.0014 mm.	6.9		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 24 LL= 32 PI= 8

Coefficients

D_{90}= 0.5760 D_{85}= 0.3607 D_{60}= 0.0466
D_{50}= 0.0281 D_{30}= 0.0133 D_{15}= 0.0048
D_{10}= 0.0035 C_u= 13.22 C_c= 1.08

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-135 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

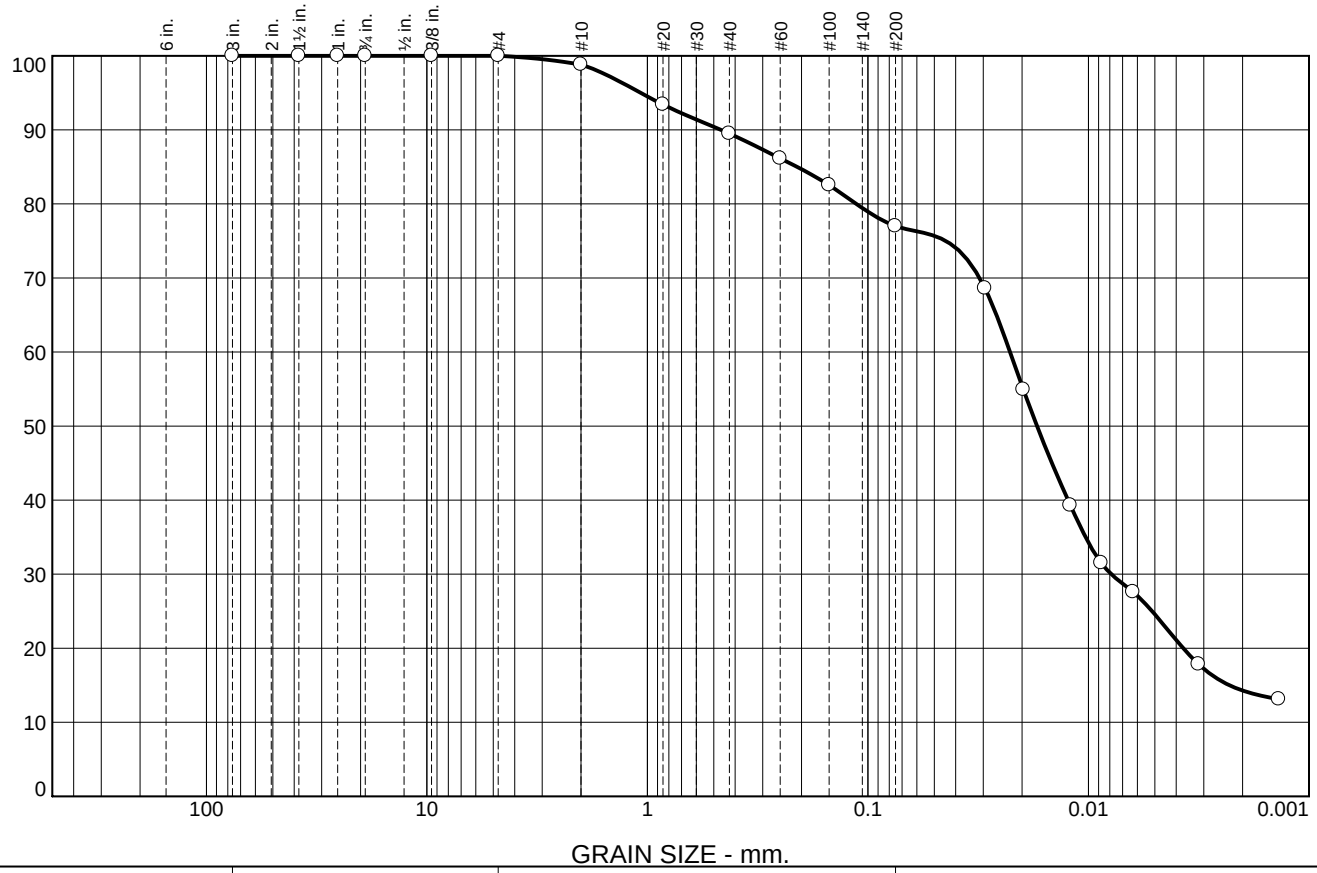
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	10	12	52	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	93		
#40	89		
#60	86		
#100	83		
#200	77		
0.0295 mm.	69		
0.0197 mm.	55		
0.0121 mm.	39		
0.0088 mm.	32		
0.0063 mm.	28		
0.0032 mm.	18		
0.0014 mm.	13		

* (no specification provided)

Soil Description

Medium stiff, moist, orangish tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 31 LL= 39 PI= 8

Coefficients

D_{90}= 0.4645 D_{85}= 0.2097 D_{60}= 0.0227
D_{50}= 0.0171 D_{30}= 0.0079 D_{15}= 0.0023
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(7)

Remarks

Source of Sample: P-136 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

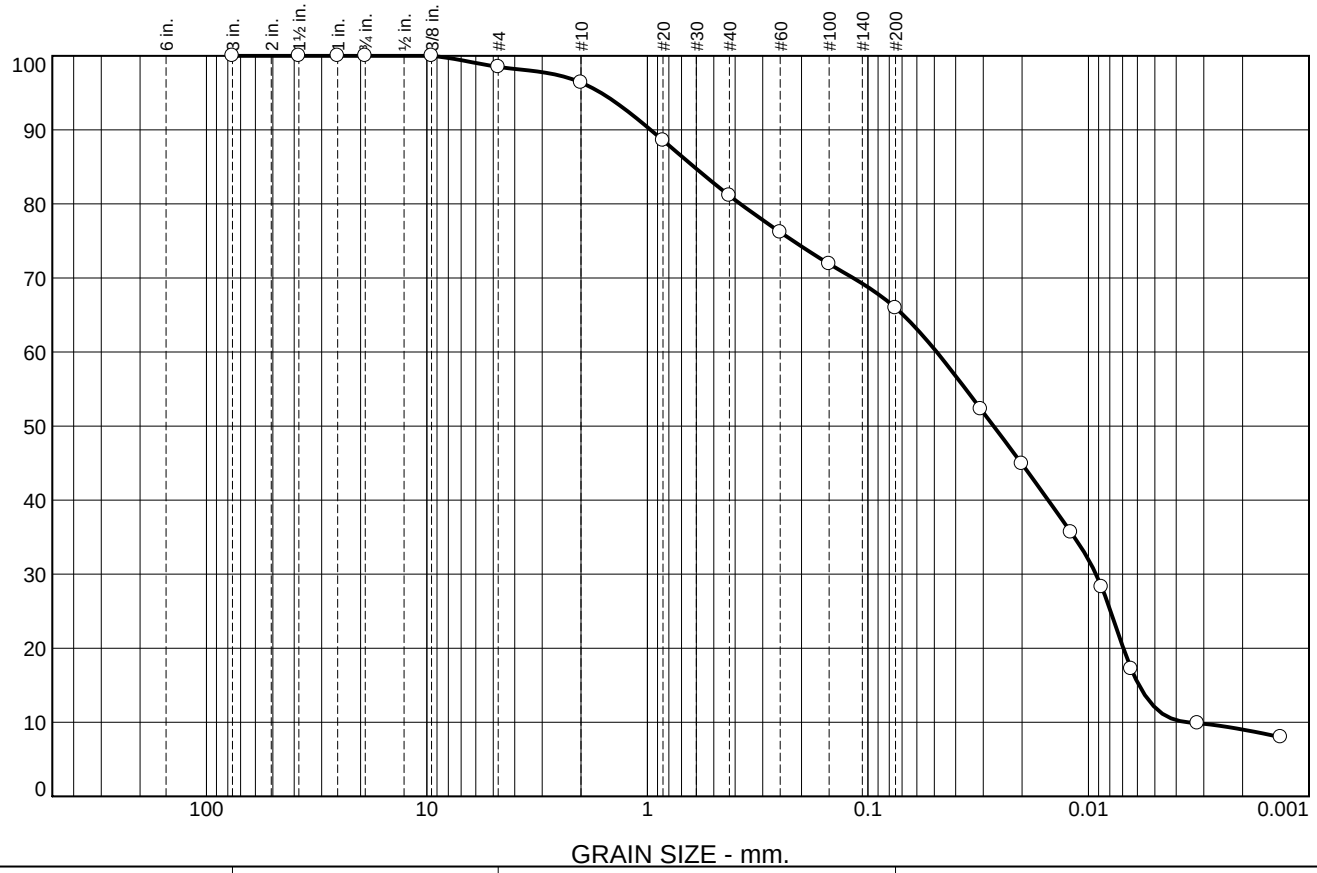
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	3	15	15	54	12

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	96		
#20	89		
#40	81		
#60	76		
#100	72		
#200	66		
0.0308 mm.	52		
0.0201 mm.	45		
0.0120 mm.	36		
0.0087 mm.	28		
0.0064 mm.	17		
0.0032 mm.	9.9		
0.0013 mm.	8.0		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 27 LL= 37 PI= 10

Coefficients

D_{90}= 0.9676 D_{85}= 0.6143 D_{60}= 0.0488
D_{50}= 0.0269 D_{30}= 0.0092 D_{15}= 0.0059
D_{10}= 0.0035 C_u= 13.77 C_c= 0.49

Classification

USCS= ML AASHTO= A-4(6)

Remarks

Source of Sample: P-137 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/5/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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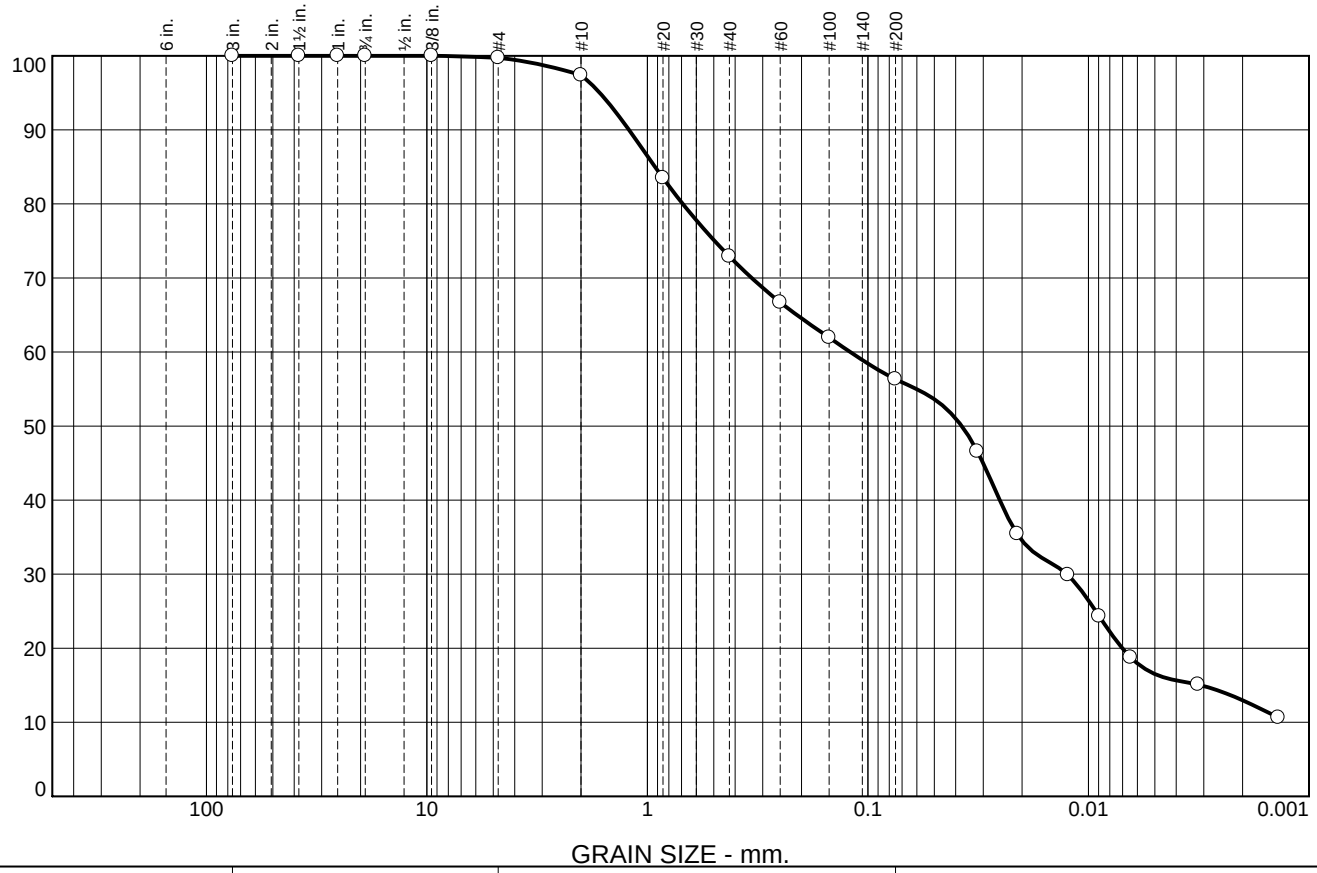
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	3	24	17	39	17

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	97		
#20	83		
#40	73		
#60	67		
#100	62		
#200	56		
0.0319 mm.	47		
0.0211 mm.	35		
0.0124 mm.	30		
0.0089 mm.	24		
0.0064 mm.	19		
0.0032 mm.	15		
0.0014 mm.	11		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace roots

Atterberg Limits

PL= 23 LL= 29 PI= 6

Coefficients

D_{90}= 1.2129 D_{85}= 0.9239 D_{60}= 0.1203
D_{50}= 0.0375 D_{30}= 0.0125 D_{15}= 0.0031
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: P-138 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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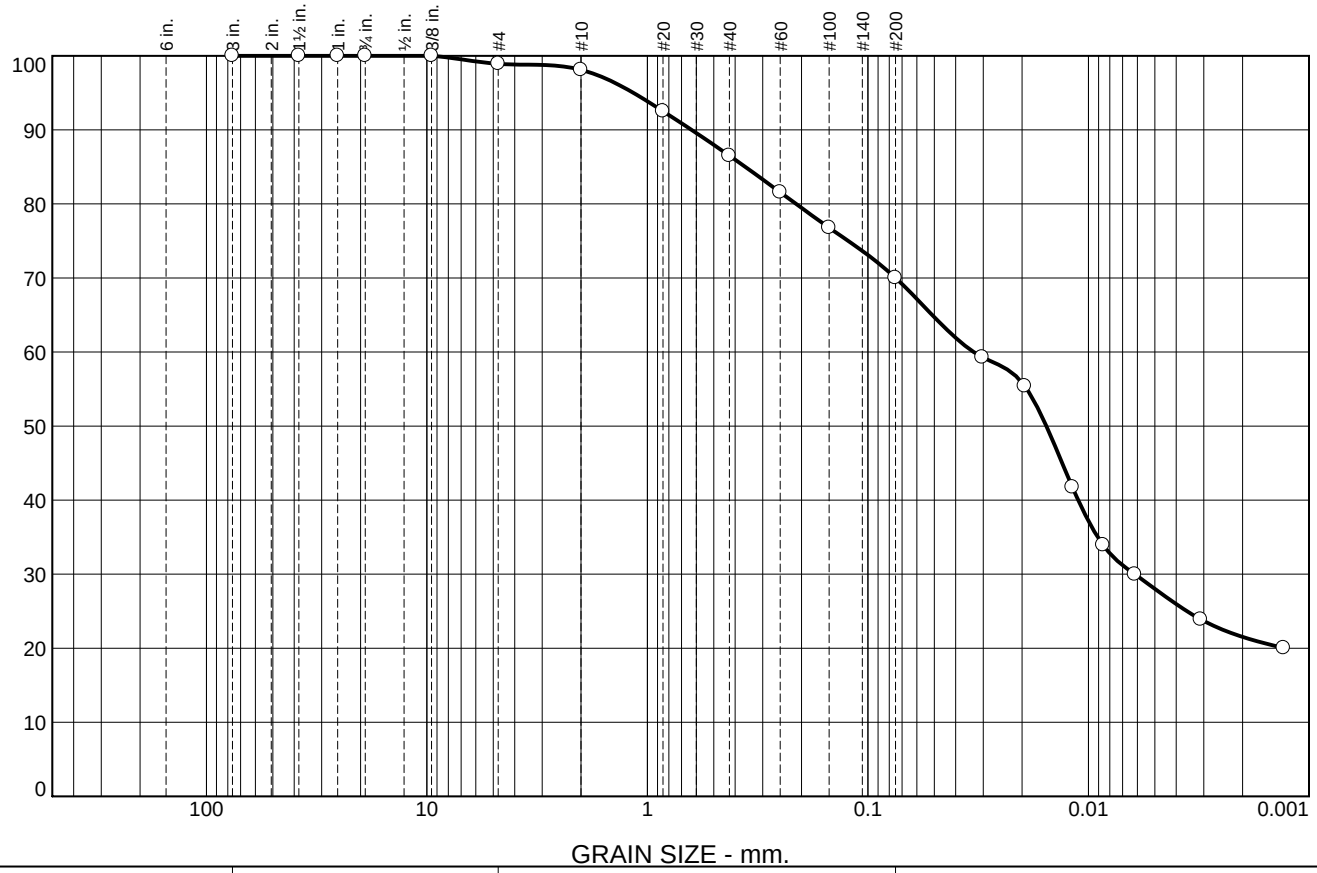
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	11	17	42	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	98		
#20	93		
#40	87		
#60	82		
#100	77		
#200	70		
0.0303 mm.	59		
0.0194 mm.	55		
0.0118 mm.	42		
0.0086 mm.	34		
0.0062 mm.	30		
0.0031 mm.	24		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Medium stiff, moist, tannish brown, Plastic CLAY (CH) (A-7-6) with trace gravel

Atterberg Limits

PL= 21 LL= 52 PI= 31

Coefficients

D_{90}= 0.6310 D_{85}= 0.3601 D_{60}= 0.0331
D_{50}= 0.0155 D_{30}= 0.0062 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(21)

Remarks

Source of Sample: P-139 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/2/2017

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

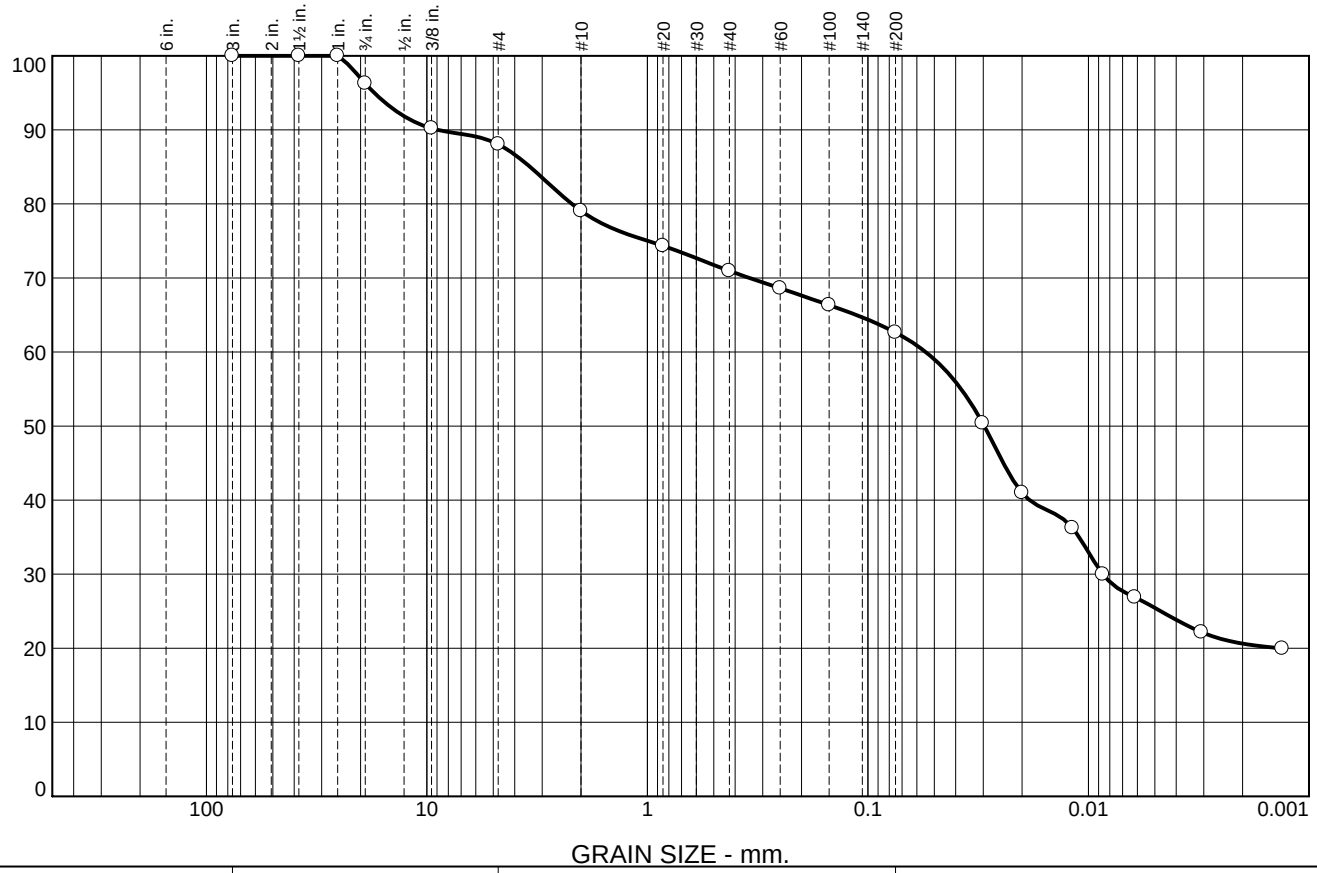
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	8	9	8	8	38	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	96		
.375	90		
#4	88		
#10	79		
#20	74		
#40	71		
#60	69		
#100	66		
#200	63		
0.0302 mm.	50		
0.0200 mm.	41		
0.0118 mm.	36		
0.0086 mm.	30		
0.0062 mm.	27		
0.0031 mm.	22		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel

Atterberg Limits

PL= 22 LL= 48 PI= 26

Coefficients

D_{90}= 8.9506 D_{85}= 3.4071 D_{60}= 0.0547
D_{50}= 0.0297 D_{30}= 0.0086 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(14)

Remarks

Source of Sample: P-140 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/19/2017

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

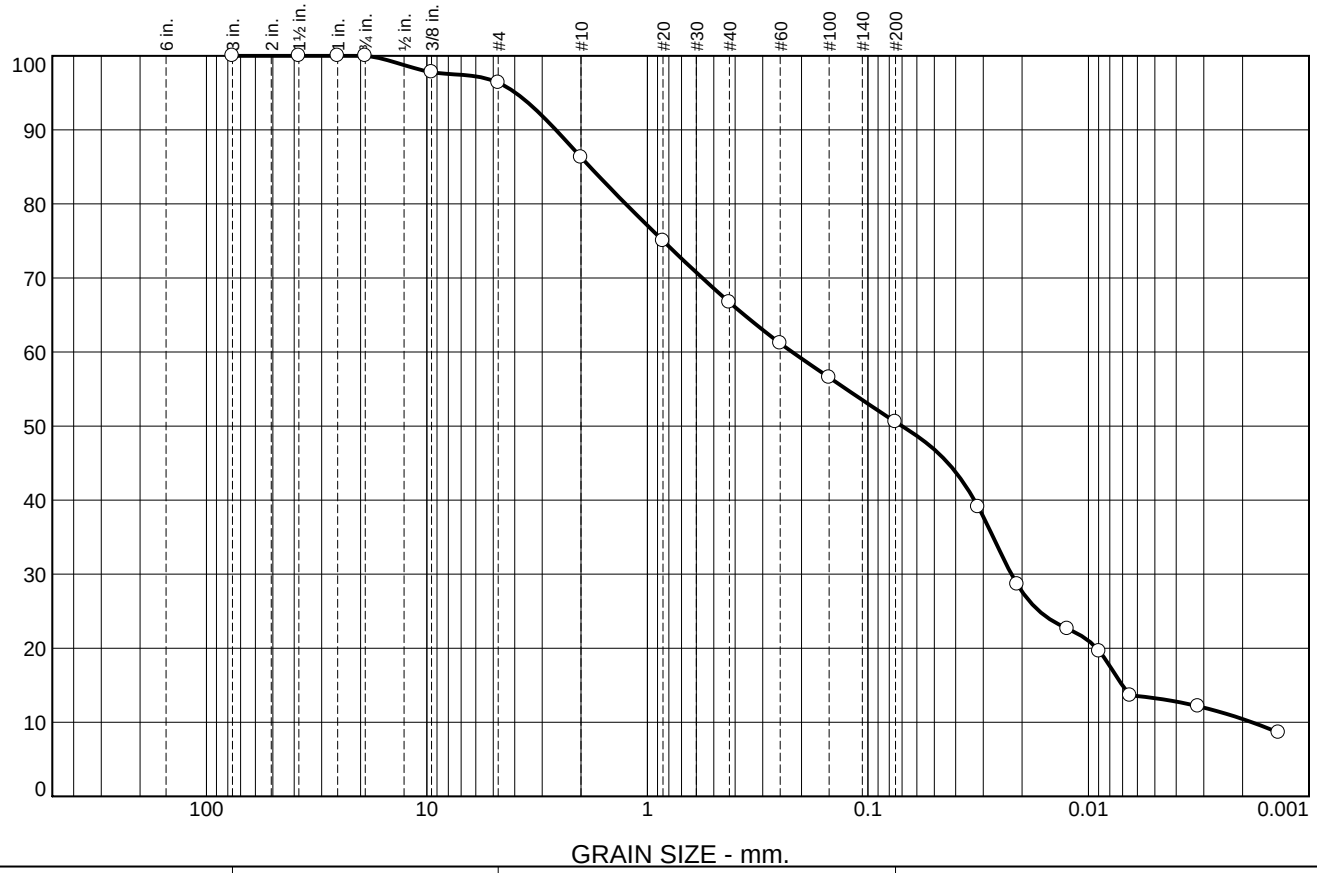
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	10	19	16	38	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	96		
#10	86		
#20	75		
#40	67		
#60	61		
#100	57		
#200	51		
0.0316 mm.	39		
0.0210 mm.	29		
0.0125 mm.	23		
0.0089 mm.	20		
0.0065 mm.	14		
0.0032 mm.	12		
0.0014 mm.	8.6		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-4) with trace roots and gravel

Atterberg Limits

PL= 25 LL= 33 PI= 8

Coefficients

D_{90}= 2.6025 D_{85}= 1.8216 D_{60}= 0.2205
D_{50}= 0.0700 D_{30}= 0.0224 D_{15}= 0.0070
D_{10}= 0.0018 C_u= 121.48 C_c= 1.25

Classification

USCS= ML AASHTO= A-4(2)

Remarks

Source of Sample: P-144 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/19/2017

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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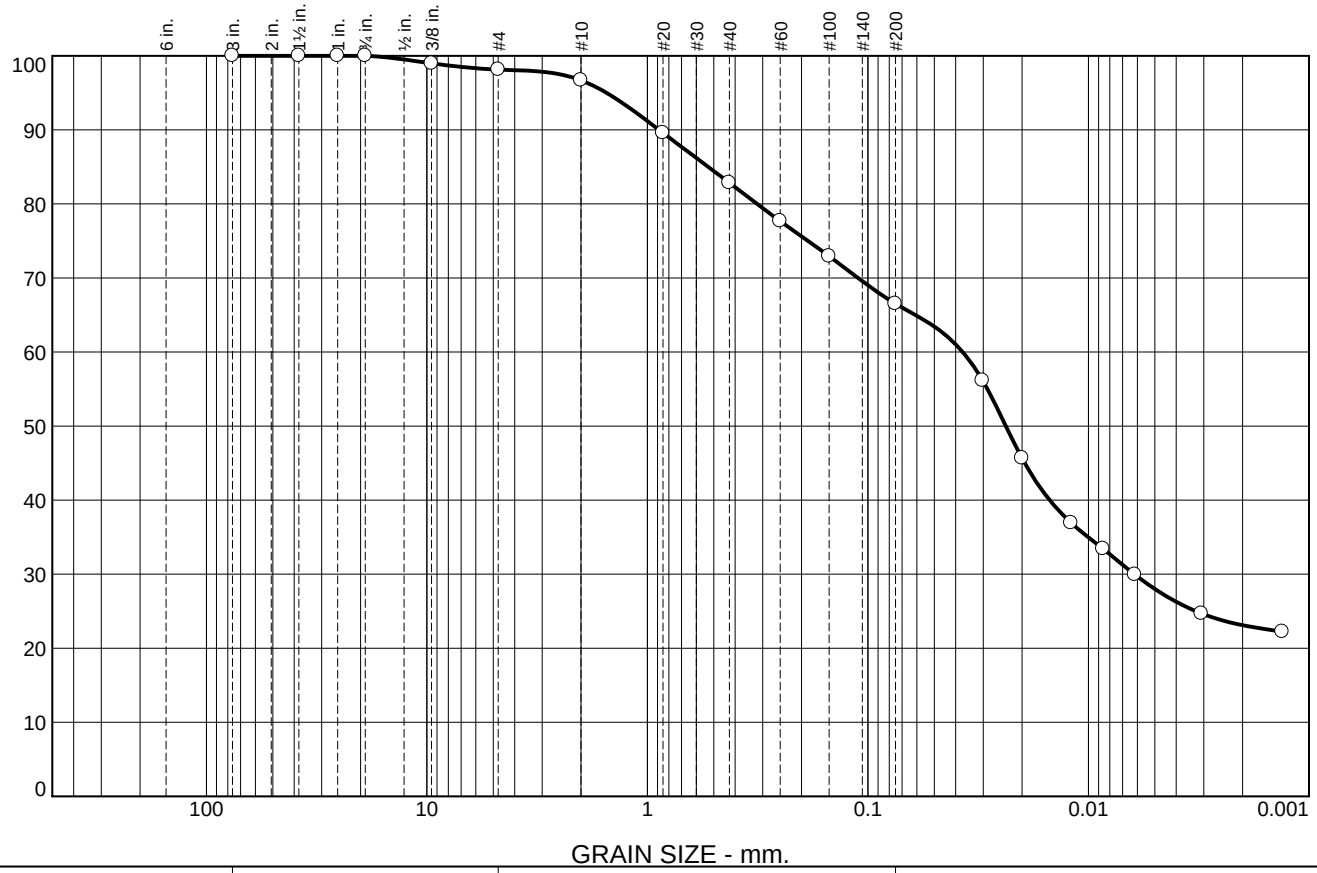
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	14	16	39	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	97		
#20	90		
#40	83		
#60	78		
#100	73		
#200	67		
0.0302 mm.	56		
0.0200 mm.	46		
0.0120 mm.	37		
0.0086 mm.	33		
0.0062 mm.	30		
0.0031 mm.	25		
0.0013 mm.	22		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, grayish brown to tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel

Atterberg Limits

PL= 25 LL= 49 PI= 24

Coefficients

D_{90}= 0.8865 D_{85}= 0.5299 D_{60}= 0.0372
D_{50}= 0.0237 D_{30}= 0.0062 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(15)

Remarks

Source of Sample: P-148 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/19/2017

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1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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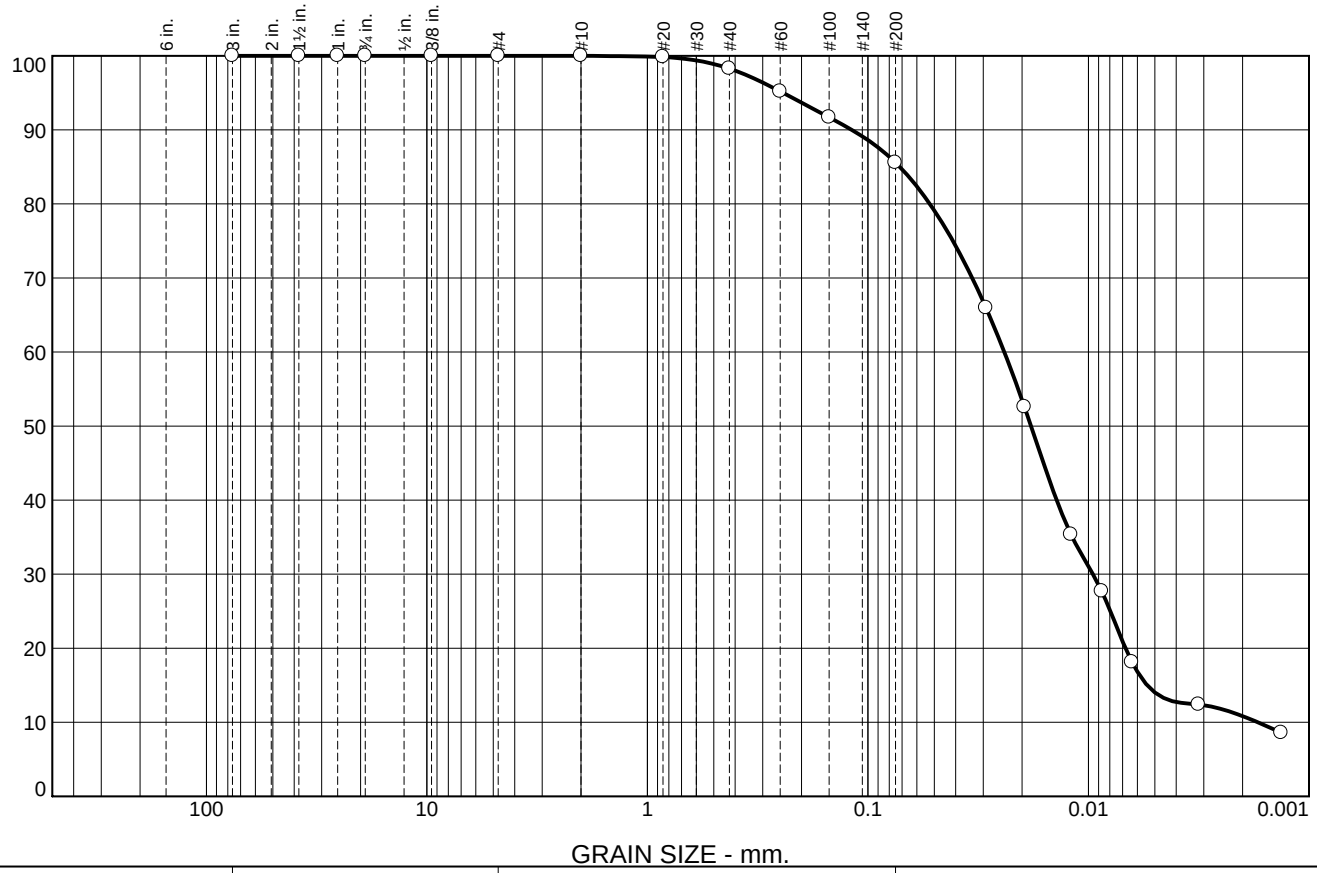
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	12	72	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	98		
#60	95		
#100	92		
#200	86		
0.0291 mm.	66		
0.0195 mm.	53		
0.0120 mm.	35		
0.0087 mm.	28		
0.0064 mm.	18		
0.0032 mm.	12		
0.0013 mm.	8.6		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown to reddish tan, Sandy SILT (ML)(A-5)

Atterberg Limits

PL= 39 LL= 48 PI= 9

Coefficients

D_{90}= 0.1184 D_{85}= 0.0717 D_{60}= 0.0241
D_{50}= 0.0182 D_{30}= 0.0095 D_{15}= 0.0054
D_{10}= 0.0017 C_u= 14.11 C_c= 2.22

Classification

USCS= ML AASHTO= A-5(12)

Remarks

Source of Sample: P-149 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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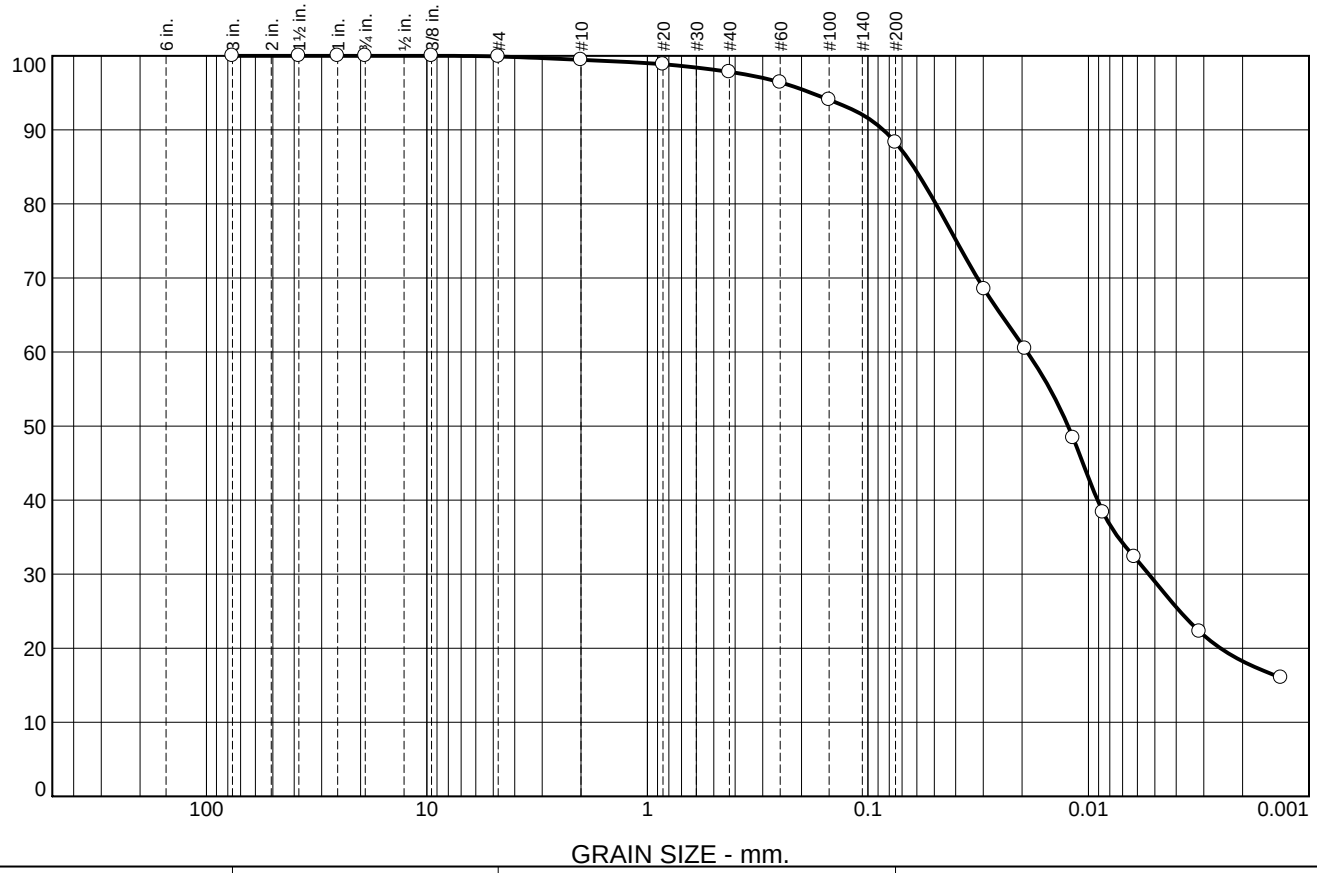
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	10	59	29

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	99		
#40	98		
#60	96		
#100	94		
#200	88		
0.0297 mm.	68		
0.0194 mm.	60		
0.0117 mm.	48		
0.0086 mm.	38		
0.0062 mm.	32		
0.0031 mm.	22		
0.0013 mm.	16		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 39 LL= 72 PI= 33

Coefficients

D_{90}= 0.0852 D_{85}= 0.0621 D_{60}= 0.0190
D_{50}= 0.0124 D_{30}= 0.0053 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(36)

Remarks

Source of Sample: P-150 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/14/17

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
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Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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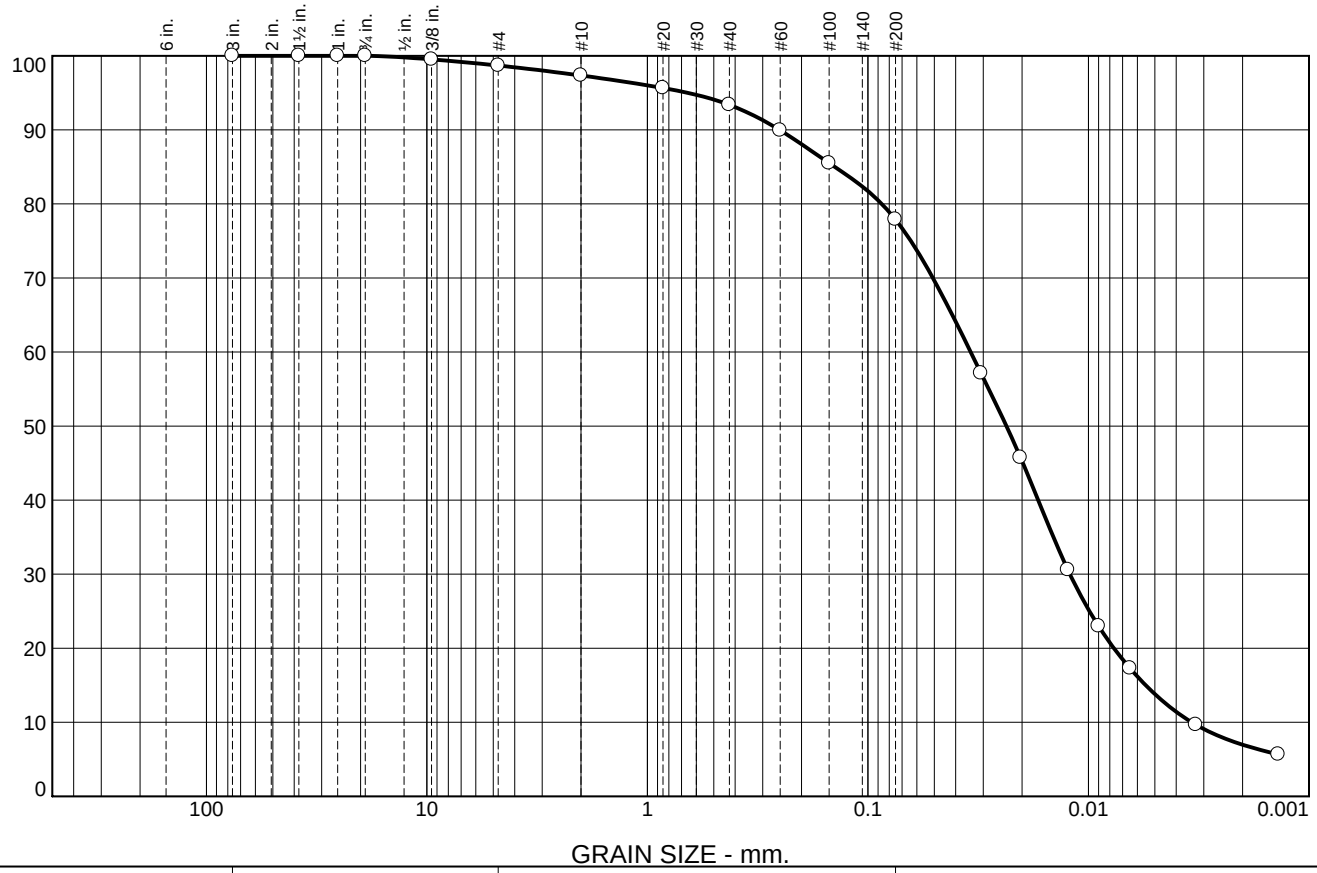
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	4	15	64	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	96		
#40	93		
#60	90		
#100	86		
#200	78		
0.0307 mm.	57		
0.0203 mm.	46		
0.0124 mm.	31		
0.0090 mm.	23		
0.0065 mm.	17		
0.0033 mm.	9.7		
0.0014 mm.	5.7		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-7-5)

Atterberg Limits

PL= 32 LL= 43 PI= 11

Coefficients

D_{90}= 0.2518 D_{85}= 0.1414 D_{60}= 0.0342
D_{50}= 0.0236 D_{30}= 0.0121 D_{15}= 0.0055
D_{10}= 0.0034 C_u= 10.06 C_c= 1.27

Classification

USCS= ML AASHTO= A-7-5(10)

Remarks

Source of Sample: P-151 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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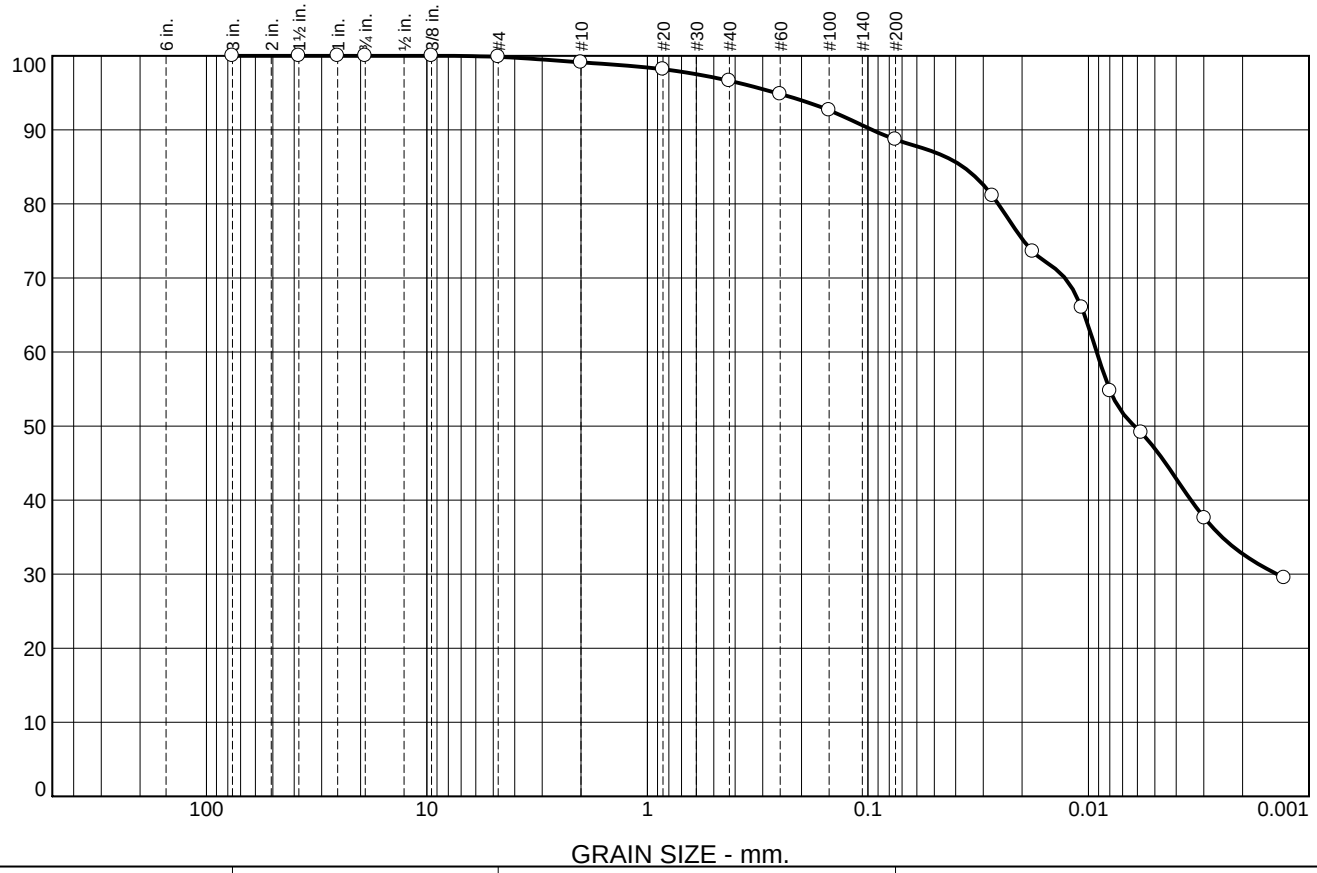
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	2	8	42	47

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	97		
#60	95		
#100	93		
#200	89		
0.0273 mm.	81		
0.0179 mm.	74		
0.0107 mm.	66		
0.0080 mm.	55		
0.0058 mm.	49		
0.0030 mm.	38		
0.0013 mm.	30		

* (no specification provided)

Soil Description

Stiff, moist, reddish tan to reddish brown, Elastic SILT (MH)(A-7-5) with trace roots and gravel

Atterberg Limits

PL= 34 LL= 57 PI= 23

Coefficients

D_{90}= 0.0958 D_{85}= 0.0370 D_{60}= 0.0092
D_{50}= 0.0062 D_{30}= 0.0014 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(25)

Remarks

Source of Sample: P-152 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

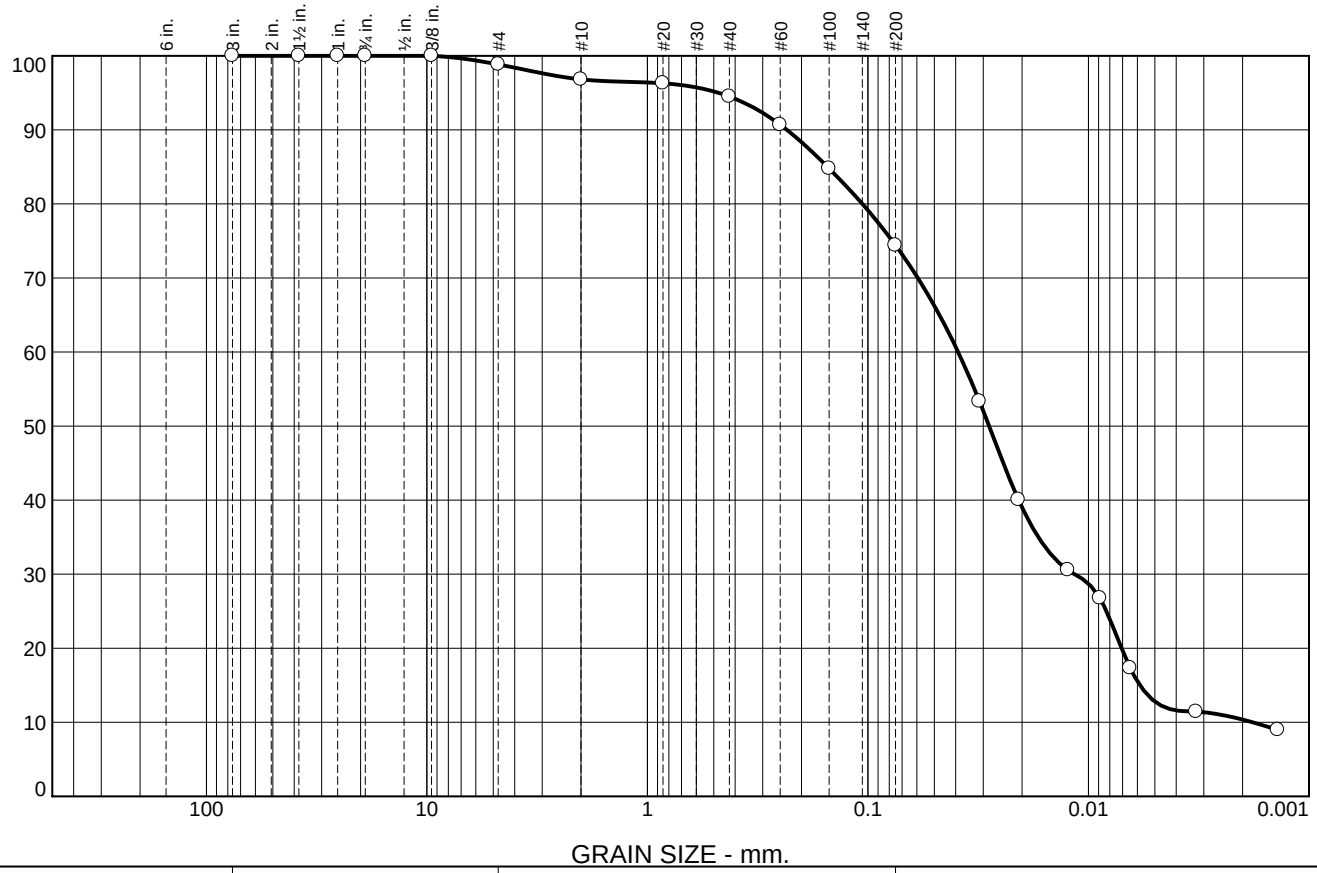
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	2	21	61	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	96		
#40	95		
#60	91		
#100	85		
#200	74		
0.0312 mm.	53		
0.0208 mm.	40		
0.0124 mm.	31		
0.0089 mm.	27		
0.0065 mm.	17		
0.0032 mm.	11		
0.0014 mm.	9.0		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, tannish brown, Sandy SILT (ML)(A-7-5) with trace roots and gravel

Atterberg Limits

PL= 30 LL= 41 PI= 11

Coefficients

D_{90}= 0.2331 D_{85}= 0.1525 D_{60}= 0.0390
D_{50}= 0.0282 D_{30}= 0.0116 D_{15}= 0.0058
D_{10}= 0.0018 C_u= 21.63 C_c= 1.90

Classification

USCS= ML AASHTO= A-7-5(9)

Remarks

Source of Sample: P-153 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

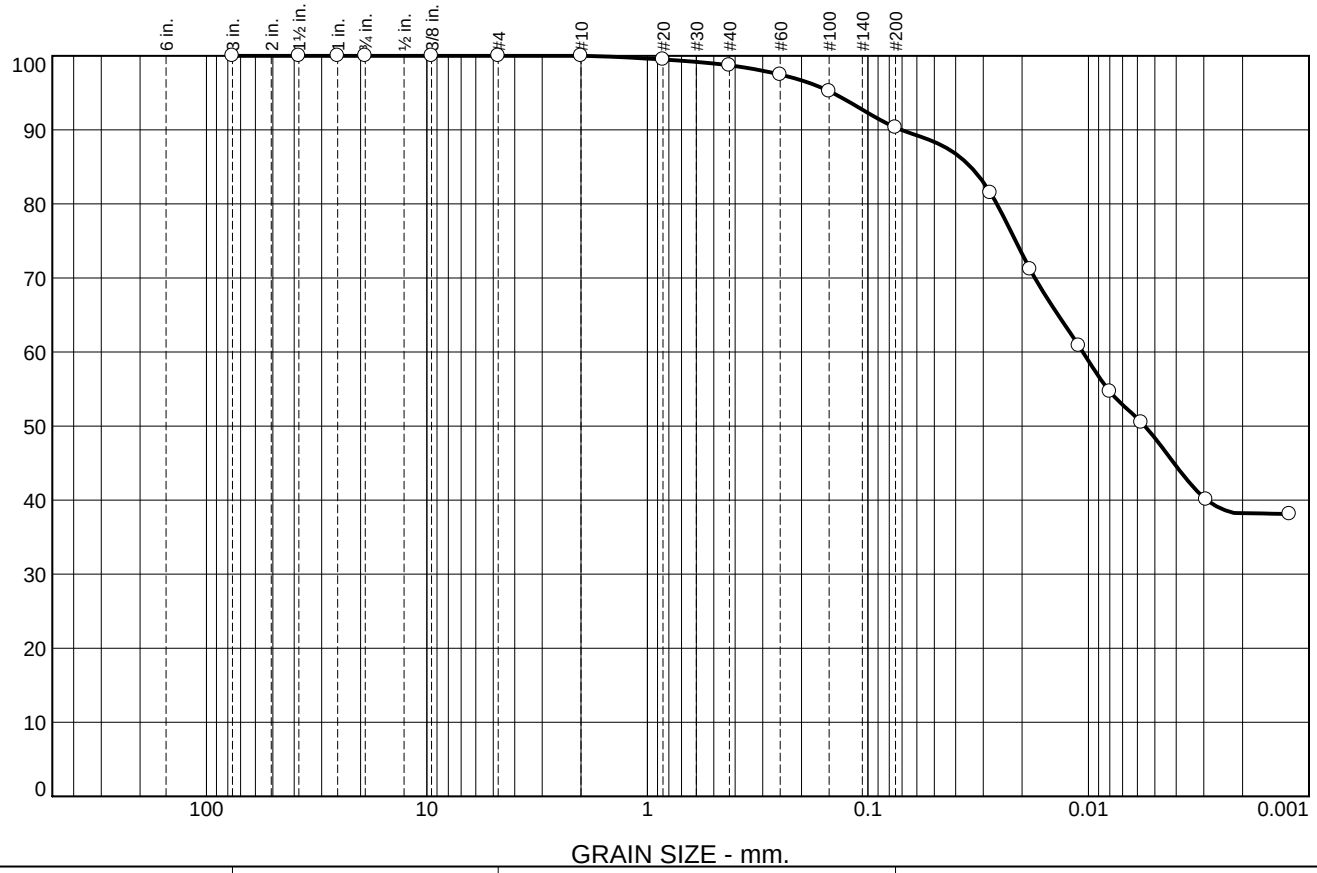
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	9	42	48

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	99		
#60	97		
#100	95		
#200	90		
0.0278 mm.	81		
0.0184 mm.	71		
0.0111 mm.	61		
0.0080 mm.	55		
0.0058 mm.	51		
0.0029 mm.	40		
0.0012 mm.	38		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 36 LL= 65 PI= 29

Coefficients

D_{90}= 0.0705 D_{85}= 0.0342 D_{60}= 0.0106
D_{50}= 0.0055 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(32)

Remarks

Source of Sample: P-154 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

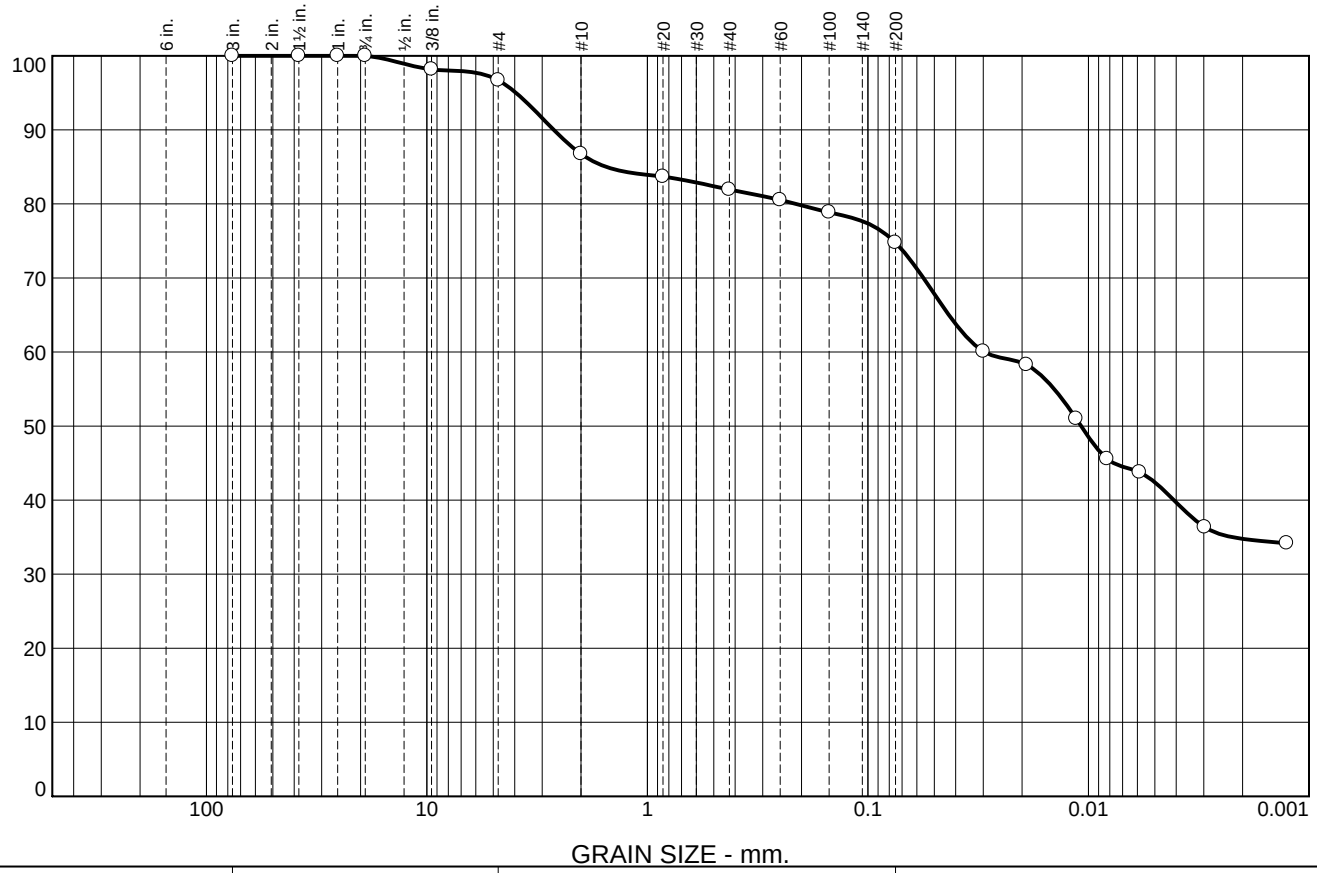
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	10	5	7	33	42

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	87		
#20	84		
#40	82		
#60	81		
#100	79		
#200	75		
0.0299 mm.	60		
0.0191 mm.	58		
0.0114 mm.	51		
0.0082 mm.	46		
0.0059 mm.	44		
0.0030 mm.	36		
0.0013 mm.	34		

* (no specification provided)

Soil Description

Stiff, moist, tan, Elastic SILT (MH)(A-5)

Atterberg Limits

PL= 43 LL= 51 PI= 8

Coefficients

D_{90}= 2.6592 D_{85}= 1.5384 D_{60}= 0.0296
D_{50}= 0.0108 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(9)

Remarks

Source of Sample: P-155 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

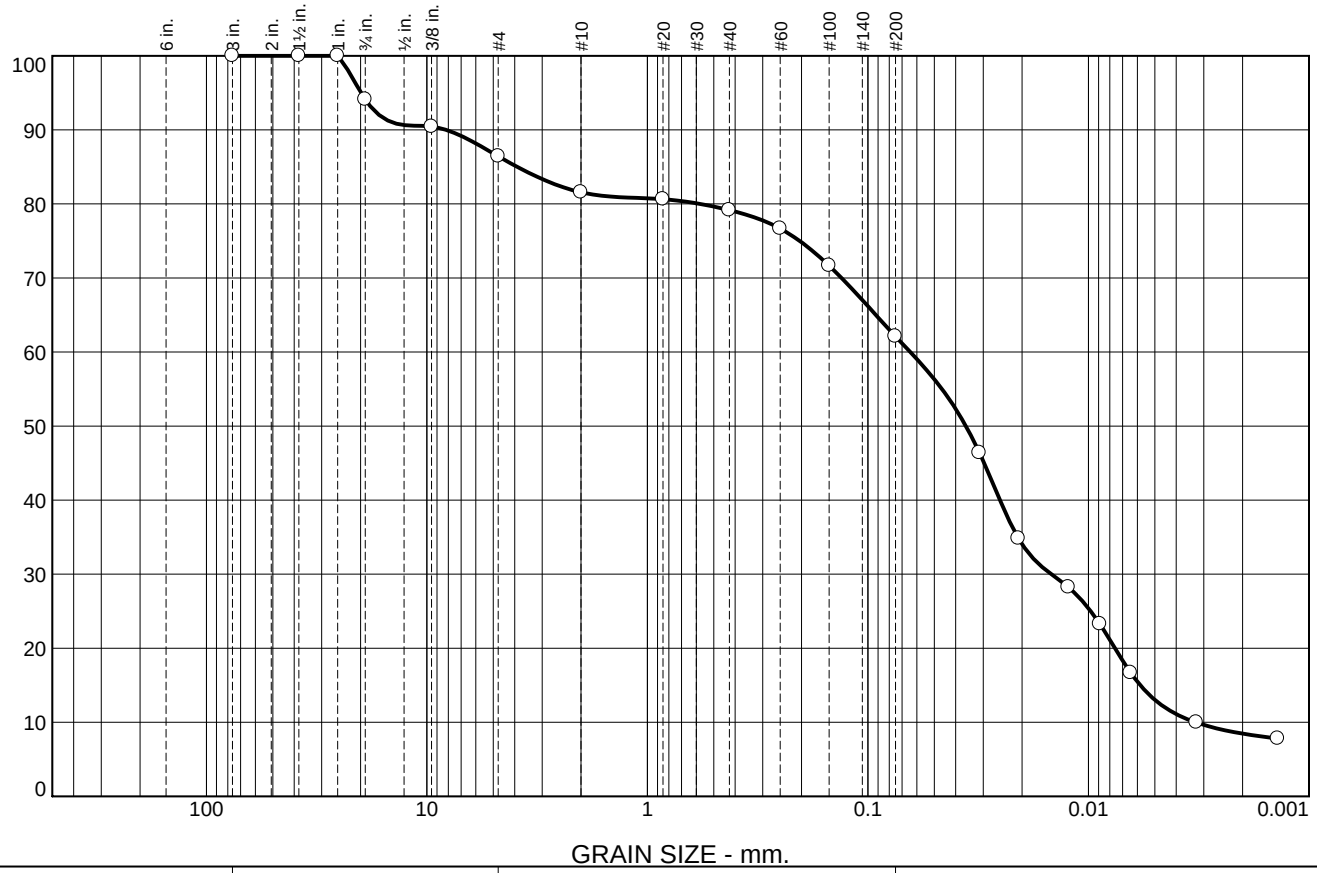
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	6	8	4	3	17	49	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	94		
.375	90		
#4	86		
#10	82		
#20	81		
#40	79		
#60	77		
#100	72		
#200	62		
0.0312 mm.	46		
0.0208 mm.	35		
0.0123 mm.	28		
0.0089 mm.	23		
0.0064 mm.	17		
0.0032 mm.	10.0		
0.0014 mm.	7.8		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy CLAY (CL)(A-6)

Atterberg Limits

PL= 19 LL= 32 PI= 13

Coefficients

D_{90}= 8.1911 D_{85}= 3.8937 D_{60}= 0.0643
D_{50}= 0.0359 D_{30}= 0.0147 D_{15}= 0.0058
D_{10}= 0.0033 C_u= 19.72 C_c= 1.04

Classification

USCS= CL AASHTO= A-6(6)

Remarks

Source of Sample: P-159 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

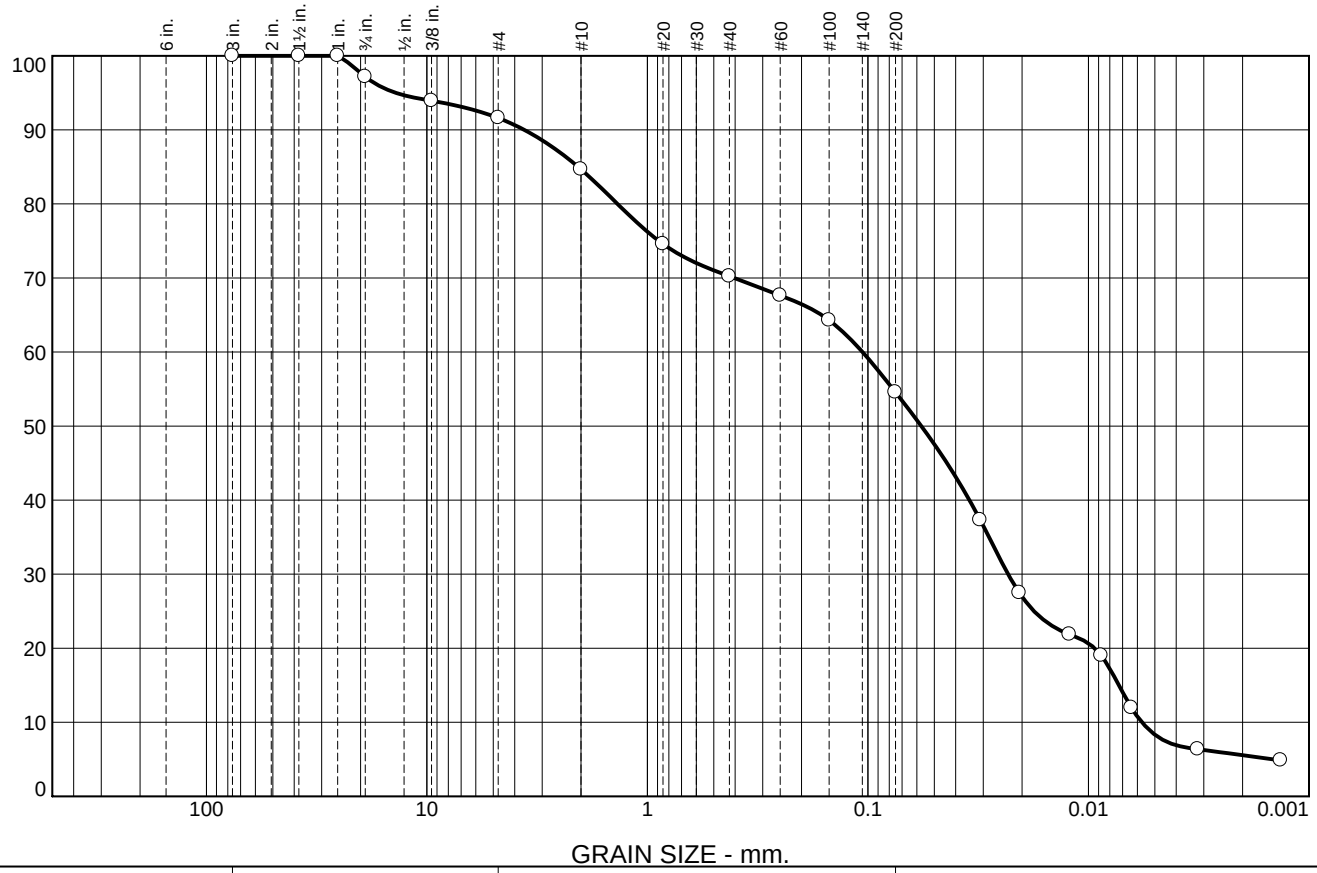
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	3	5	7	15	15	47	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	97		
.375	94		
#4	92		
#10	85		
#20	75		
#40	70		
#60	68		
#100	64		
#200	55		
0.0309 mm.	37		
0.0206 mm.	27		
0.0122 mm.	22		
0.0087 mm.	19		
0.0064 mm.	12		
0.0032 mm.	6.4		
0.0013 mm.	4.9		

* (no specification provided)

Soil Description

Aery stiff to stiff, moist, tannish brown, Sandy CLAY (CL) (A-4)

Atterberg Limits

PL= 24 LL= 33 PI= 9

Coefficients

D_{90}= 3.6171 D_{85}= 2.0608 D_{60}= 0.1059
D_{50}= 0.0573 D_{30}= 0.0231 D_{15}= 0.0073
D_{10}= 0.0057 C_u= 18.50 C_c= 0.88

Classification

USCS= CL AASHTO= A-4(3)

Remarks

Source of Sample: P-161 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

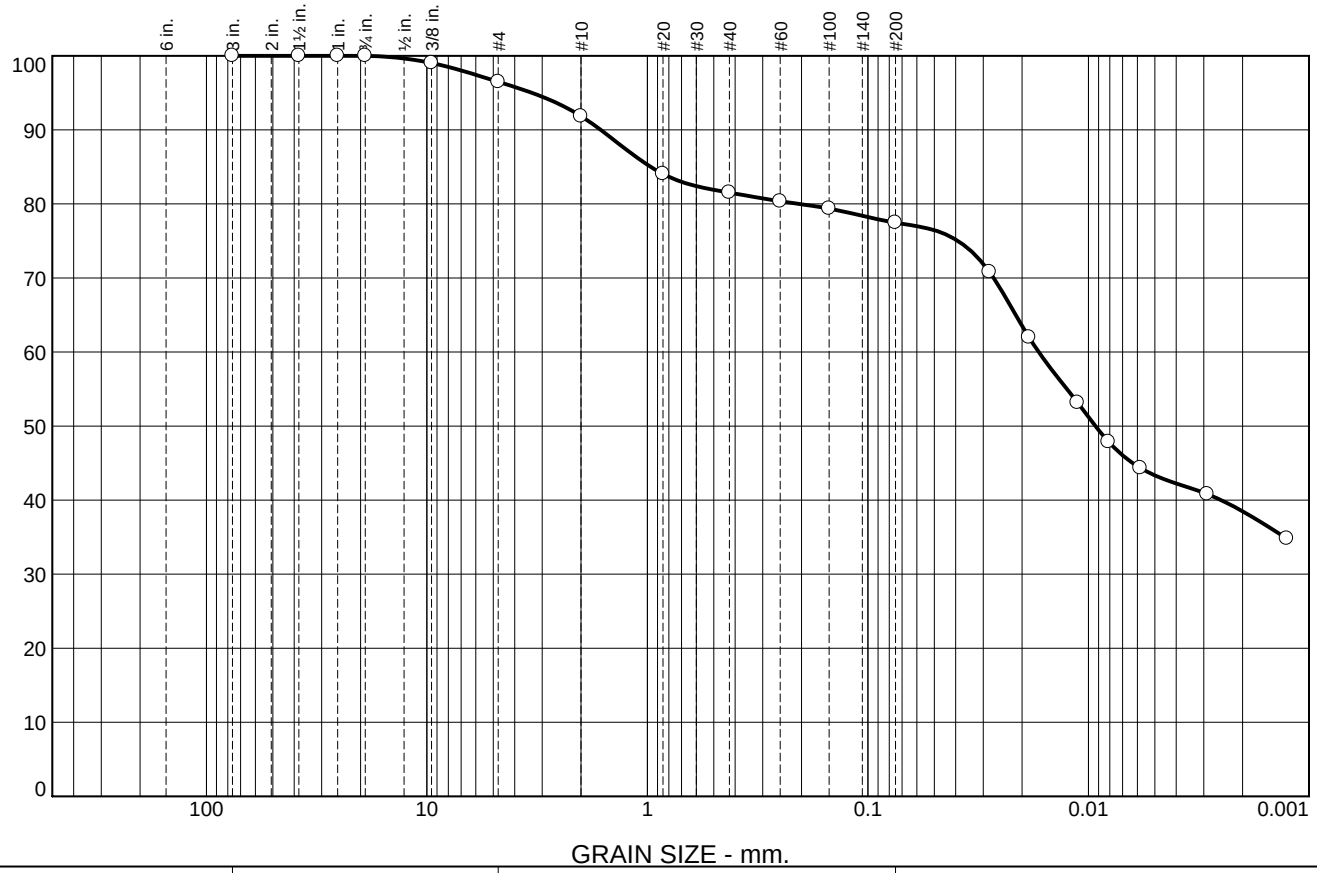
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	4	10	5	34	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	96		
#10	92		
#20	84		
#40	82		
#60	80		
#100	79		
#200	77		
0.0281 mm.	71		
0.0186 mm.	62		
0.0112 mm.	53		
0.0081 mm.	48		
0.0058 mm.	44		
0.0029 mm.	41		
0.0013 mm.	35		

* (no specification provided)

Soil Description

Soft wet, brownish gray, Plastic CLAY (CH)(A-7-6) with trace gravel

Atterberg Limits

PL= 26 LL= 56 PI= 30

Coefficients

D_{90}= 1.6299 D_{85}= 0.9662 D_{60}= 0.0168
D_{50}= 0.0093 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(24)

Remarks

Source of Sample: P-165 **Depth:** 5.00-6.50
Sample Number: S-4

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

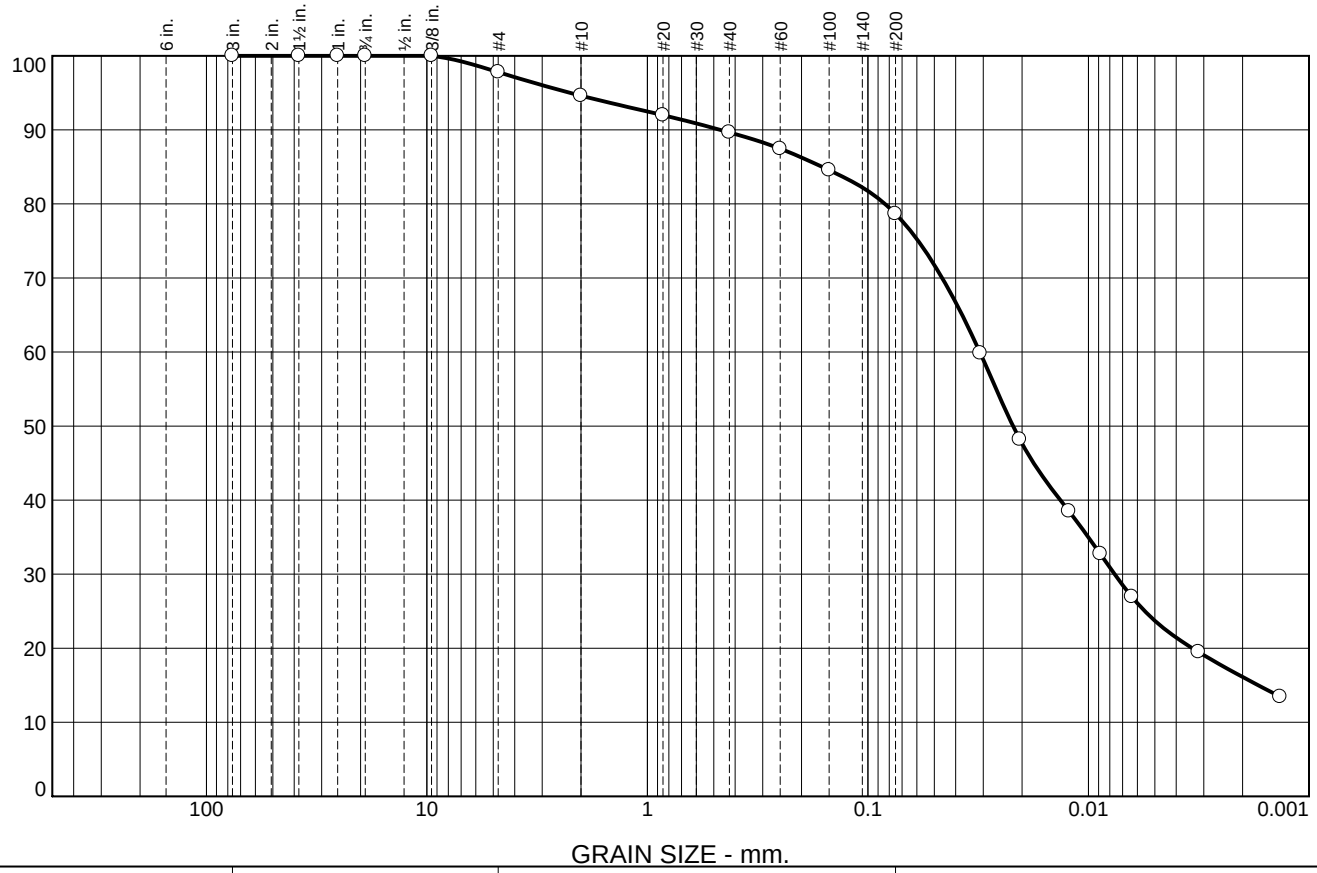
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	3	5	11	55	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	98		
#10	95		
#20	92		
#40	90		
#60	87		
#100	85		
#200	79		
0.0309 mm.	60		
0.0205 mm.	48		
0.0123 mm.	39		
0.0088 mm.	33		
0.0064 mm.	27		
0.0032 mm.	19		
0.0014 mm.	13		

* (no specification provided)

Soil Description

Soft to medium stiff, wet, reddish brown to grayish brown, Sandy SILT (ML)(A-6) with trace roots and gravel

Atterberg Limits

PL= 28 LL= 39 PI= 11

Coefficients

D_{90}= 0.4673 D_{85}= 0.1614 D_{60}= 0.0311
D_{50}= 0.0220 D_{30}= 0.0076 D_{15}= 0.0017
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(9)

Remarks

Source of Sample: P-166 **Depth:** 3.50-6.50
Sample Number: S-2/S-3/S-4

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

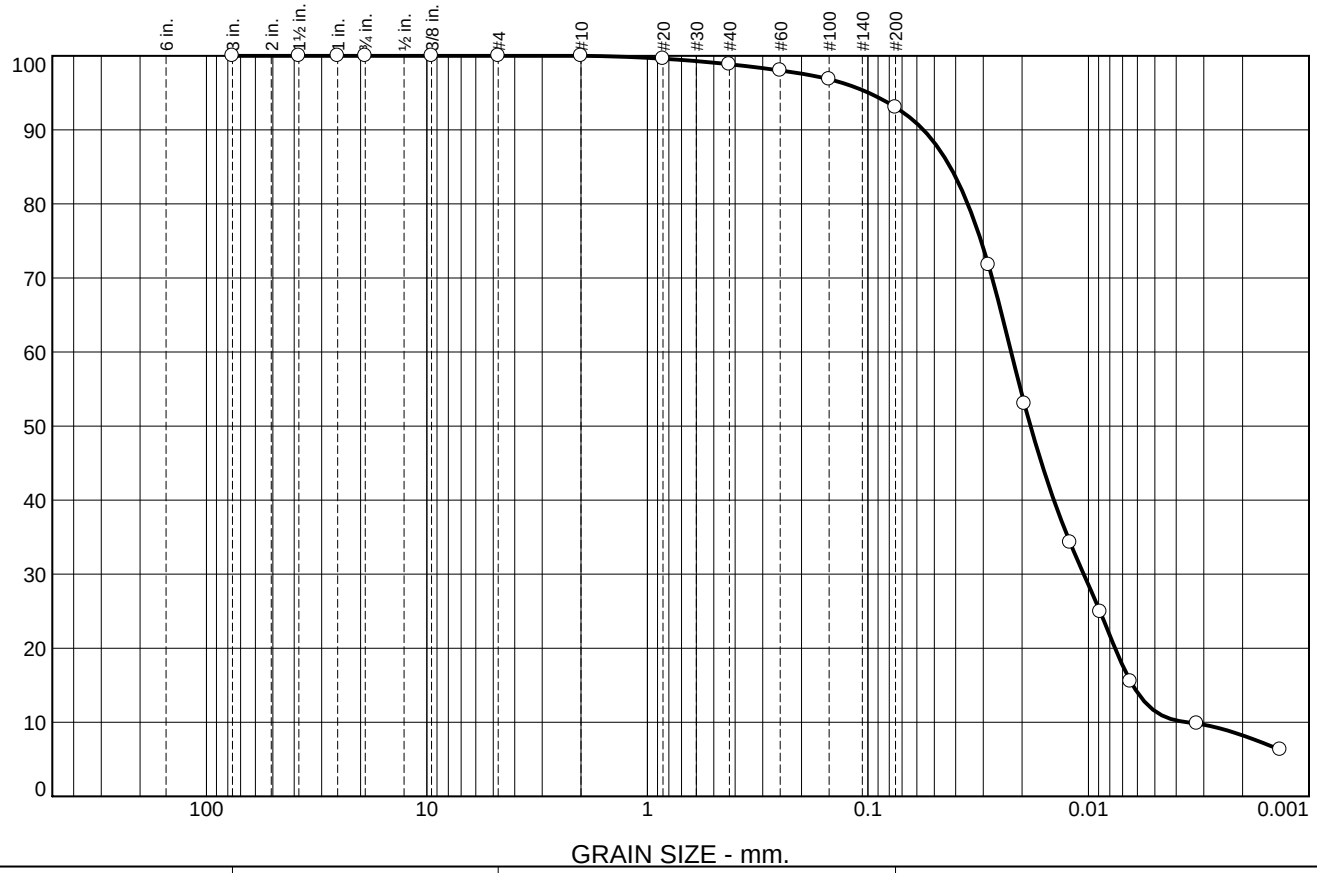
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	6	81	12

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	97		
#200	93		
0.0284 mm.	72		
0.0195 mm.	53		
0.0121 mm.	34		
0.0089 mm.	25		
0.0065 mm.	16		
0.0032 mm.	9.8		
0.0014 mm.	6.3		

* (no specification provided)

Soil Description

Very stiff, moist, tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 28 LL= 35 PI= 7

Coefficients

D_{90}= 0.0560 D_{85}= 0.0424 D_{60}= 0.0224
D_{50}= 0.0183 D_{30}= 0.0105 D_{15}= 0.0063
D_{10}= 0.0036 C_u= 6.29 C_c= 1.38

Classification

USCS= ML AASHTO= A-4(8)

Remarks

Source of Sample: P-167 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

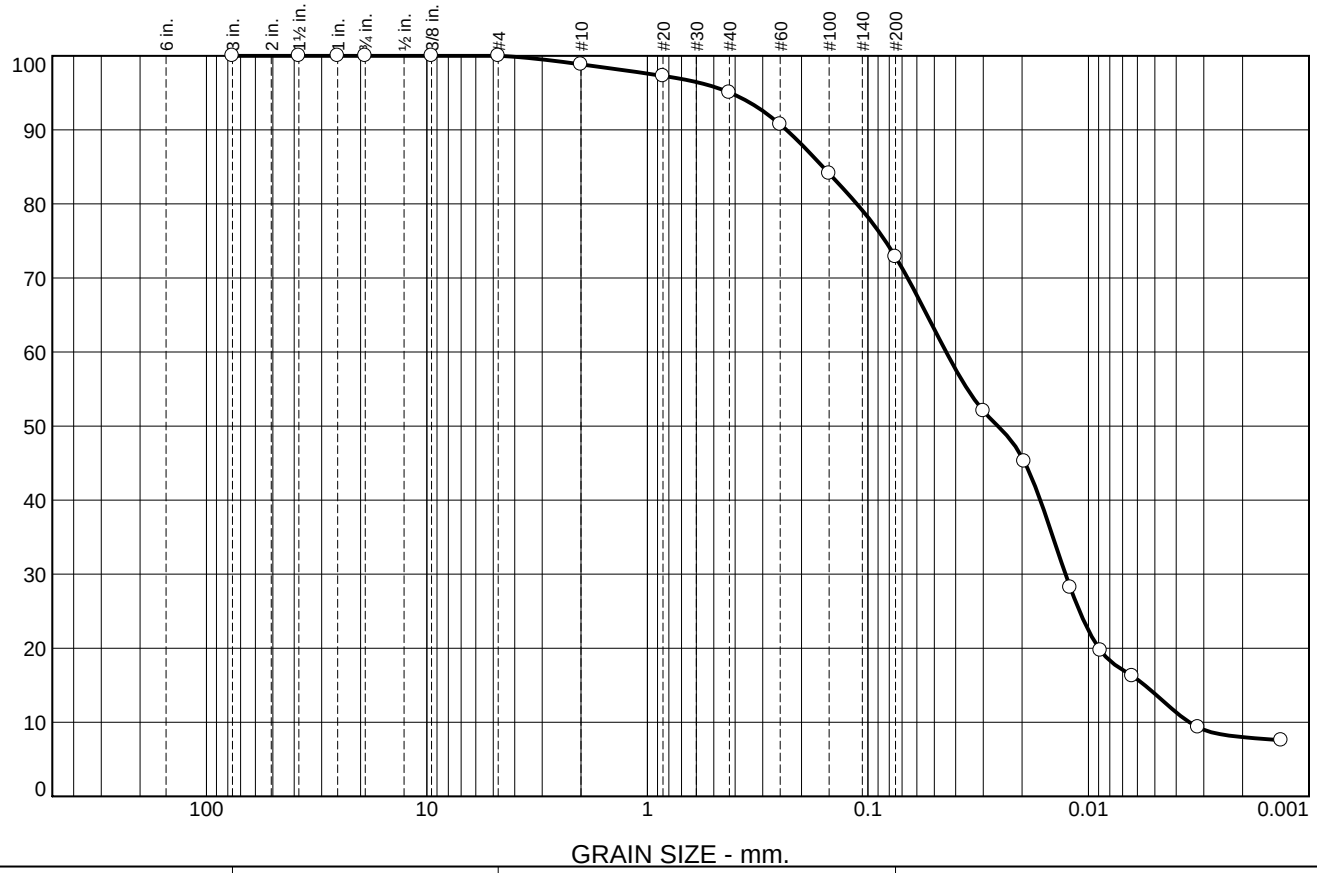
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	4	22	59	14

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	97		
#40	95		
#60	91		
#100	84		
#200	73		
0.0300 mm.	52		
0.0195 mm.	45		
0.0121 mm.	28		
0.0088 mm.	20		
0.0063 mm.	16		
0.0032 mm.	9.3		
0.0013 mm.	7.6		

* (no specification provided)

Soil Description

Hard, moist, tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 25 LL= 30 PI= 5

Coefficients

D_{90}= 0.2343 D_{85}= 0.1599 D_{60}= 0.0442
D_{50}= 0.0257 D_{30}= 0.0127 D_{15}= 0.0056
D_{10}= 0.0035 C_u= 12.69 C_c= 1.05

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: P-168 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

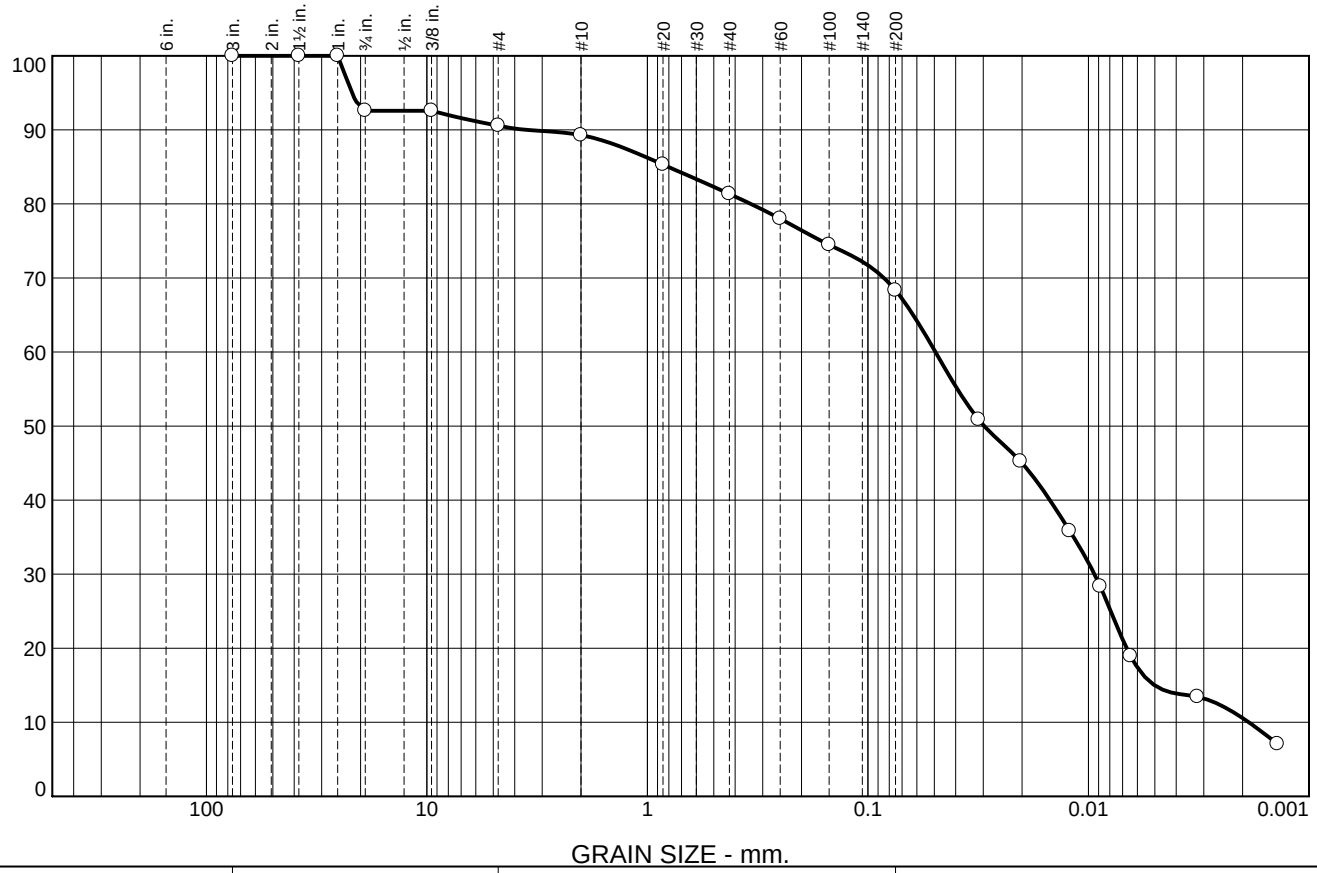
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	7	2	2	8	13	53	15

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	93		
.375	93		
#4	91		
#10	89		
#20	85		
#40	81		
#60	78		
#100	74		
#200	68		
0.0315 mm.	51		
0.0204 mm.	45		
0.0122 mm.	36		
0.0088 mm.	28		
0.0064 mm.	19		
0.0032 mm.	13		
0.0014 mm.	7.1		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 33 LL= 40 PI= 7

Coefficients

D_{90}= 3.5185 D_{85}= 0.8046 D_{60}= 0.0494
D_{50}= 0.0297 D_{30}= 0.0094 D_{15}= 0.0050
D_{10}= 0.0019 C_u= 26.35 C_c= 0.95

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-169 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/16/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

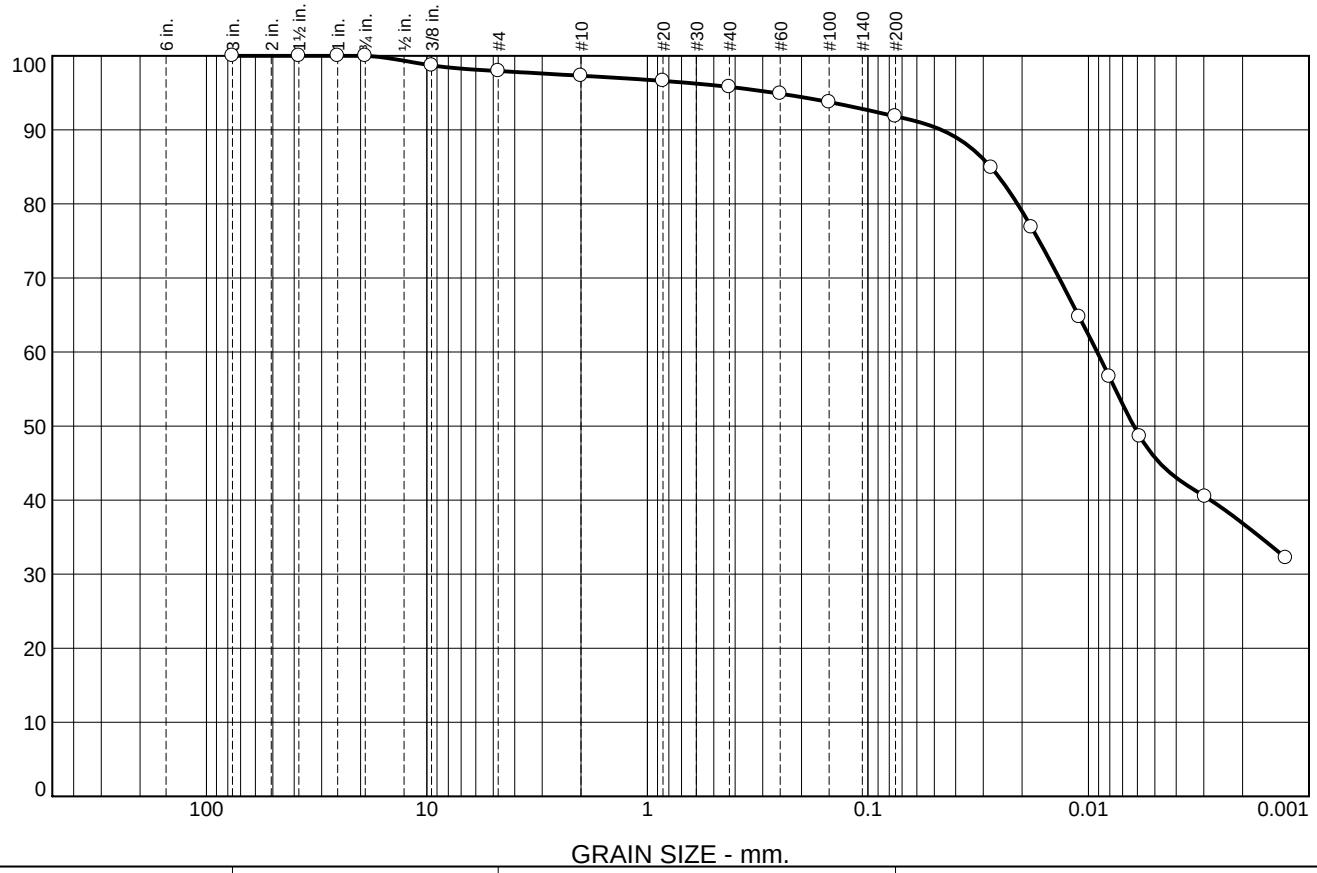
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	1	4	46	46

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	97		
#20	97		
#40	96		
#60	95		
#100	94		
#200	92		
0.0276 mm.	85		
0.0181 mm.	77		
0.0110 mm.	65		
0.0080 mm.	57		
0.0059 mm.	49		
0.0030 mm.	40		
0.0013 mm.	32		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with trace rocks

Atterberg Limits

PL= 39 LL= 66 PI= 27

Coefficients

D_{90}= 0.0465 D_{85}= 0.0278 D_{60}= 0.0091
D_{50}= 0.0062 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(32)

Remarks

Source of Sample: P-171 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/14/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

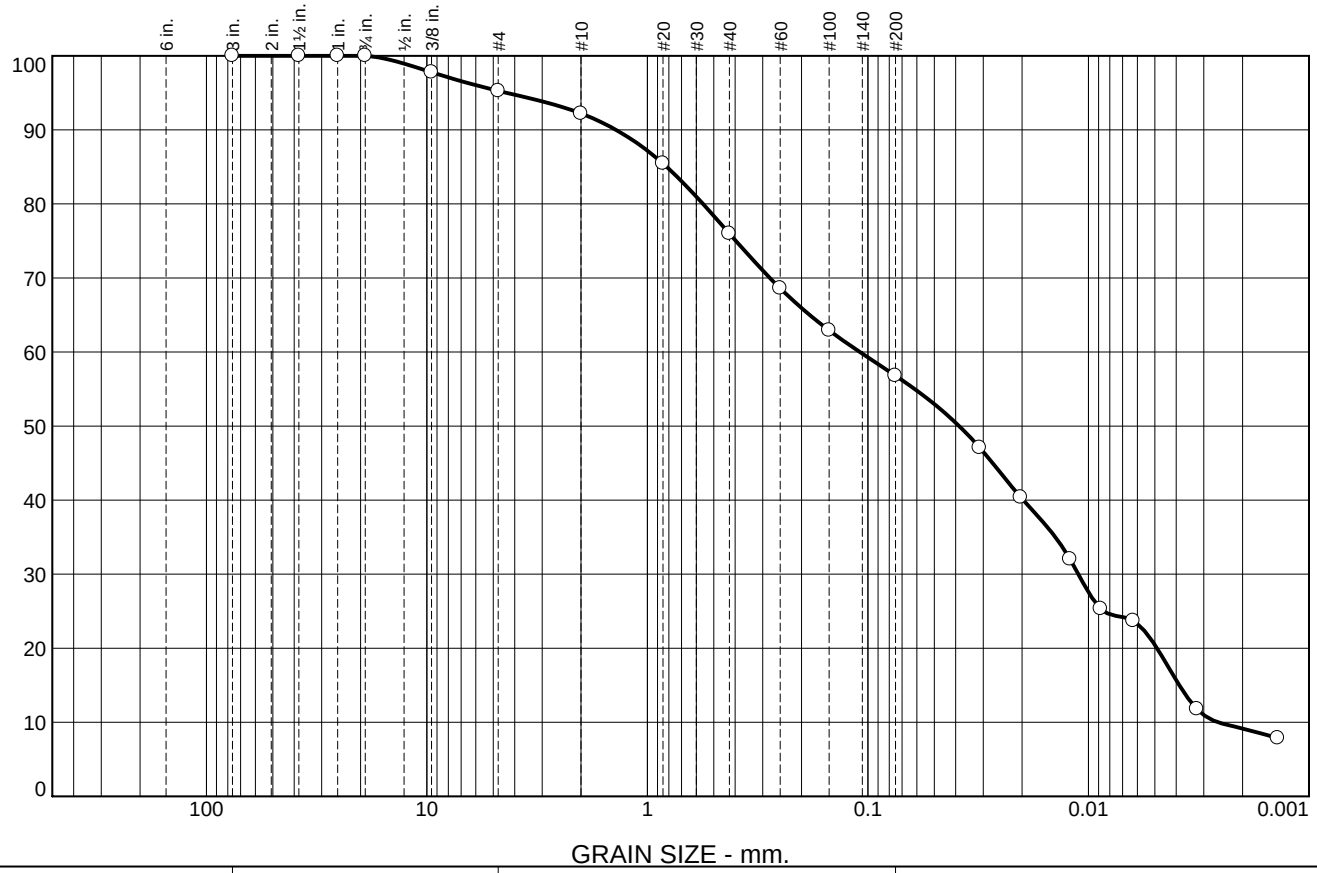
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	3	16	19	37	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	95		
#10	92		
#20	85		
#40	76		
#60	69		
#100	63		
#200	57		
0.0311 mm.	47		
0.0203 mm.	40		
0.0121 mm.	32		
0.0088 mm.	25		
0.0063 mm.	24		
0.0032 mm.	12		
0.0014 mm.	7.9		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown to tan, Sandy CLAY (CL)(A-6) with trace gravel

Atterberg Limits

PL= 23 LL= 34 PI= 11

Coefficients

D_{90}= 1.3884 D_{85}= 0.8178 D_{60}= 0.1087
D_{50}= 0.0386 D_{30}= 0.0111 D_{15}= 0.0039
D_{10}= 0.0026 C_u= 42.02 C_c= 0.44

Classification

USCS= CL AASHTO= A-6(4)

Remarks

Source of Sample: P-172 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/6/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

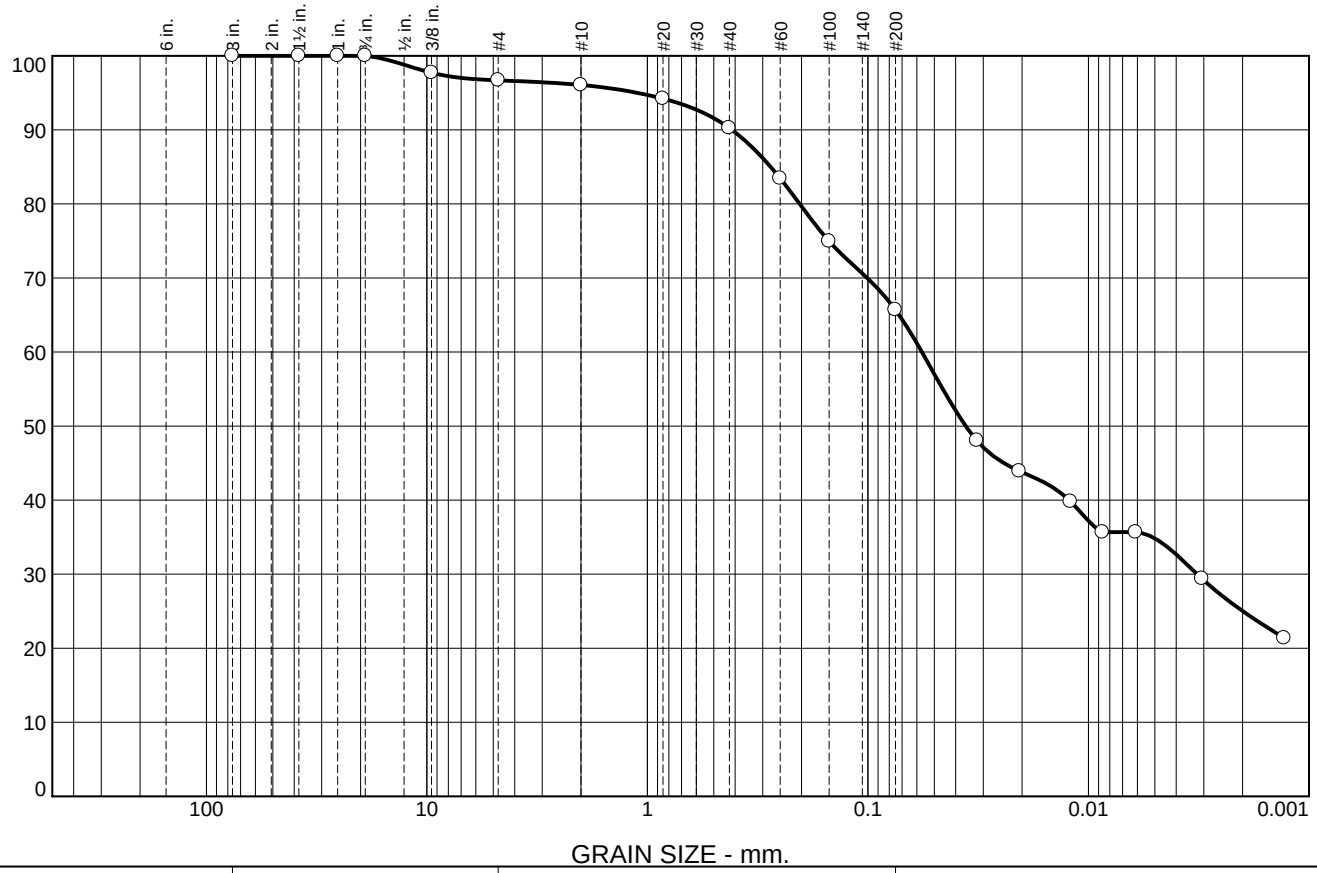
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	1	6	24	31	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	96		
#20	94		
#40	90		
#60	83		
#100	75		
#200	66		
0.0321 mm.	48		
0.0206 mm.	44		
0.0120 mm.	40		
0.0086 mm.	36		
0.0061 mm.	36		
0.0031 mm.	29		
0.0013 mm.	21		

* (no specification provided)

Soil Description

Stiff to medium stiff, dry to moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 35 LL= 53 PI= 18

Coefficients

D_{90}= 0.4140 D_{85}= 0.2762 D_{60}= 0.0569
D_{50}= 0.0360 D_{30}= 0.0032 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(12)

Remarks

Source of Sample: P-174 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

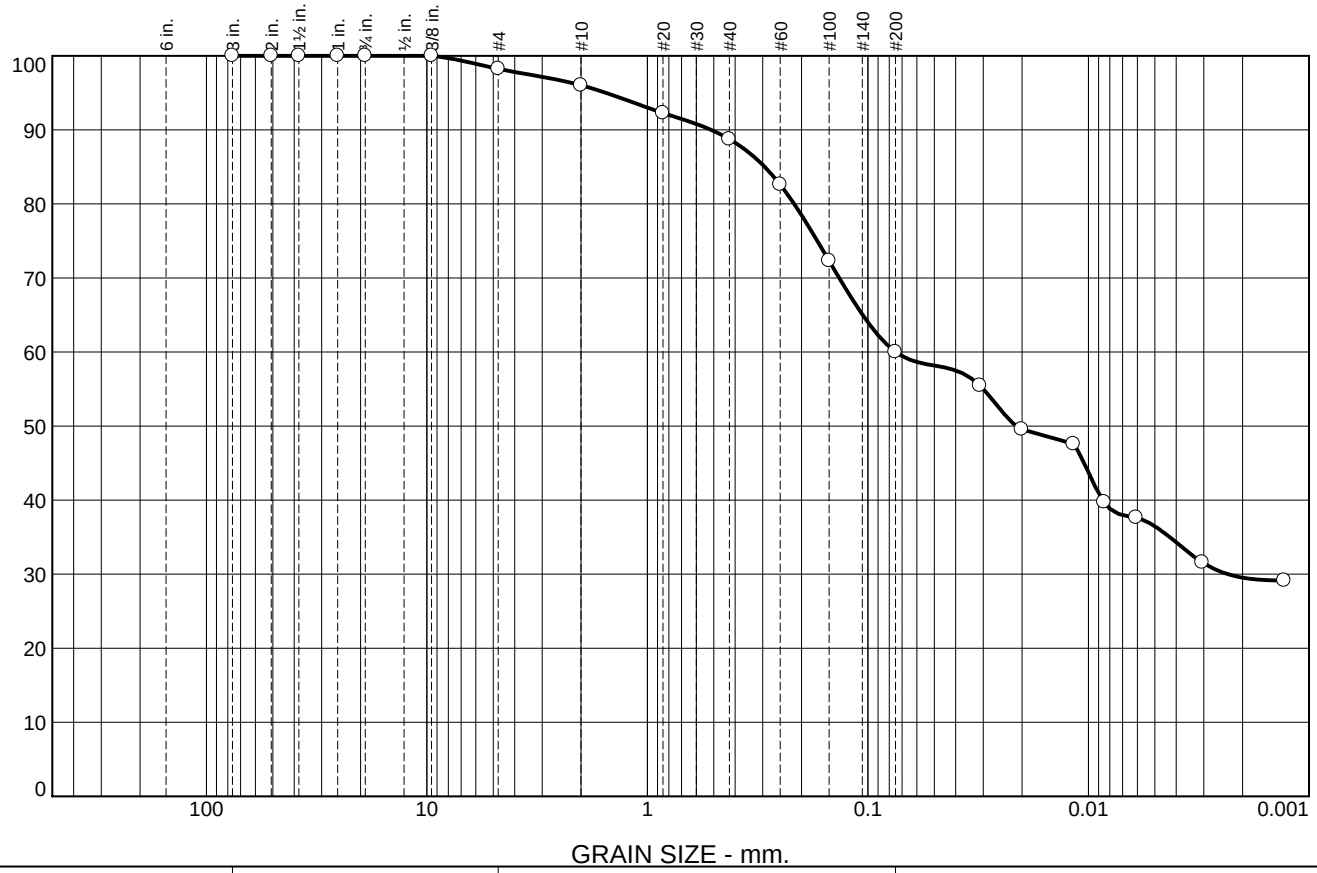
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	2	7	29	24	36

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
2	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	98		
#10	96		
#20	92		
#40	89		
#60	83		
#100	72		
#200	60		
0.0310 mm.	55		
0.0201 mm.	50		
0.0117 mm.	48		
0.0085 mm.	40		
0.0061 mm.	38		
0.0030 mm.	32		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic CLAY (CH) (A-7-6) with trace gravel

Atterberg Limits

PL= 25 LL= 50 PI= 25

Coefficients

D_{90}= 0.5144 D_{85}= 0.2939 D_{60}= 0.0748
D_{50}= 0.0212 D_{30}= 0.0023 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(13)

Remarks

Source of Sample: P-175 **Depth:** 0.50-2.00
Sample Number: S-1

Date: 11/14/17

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1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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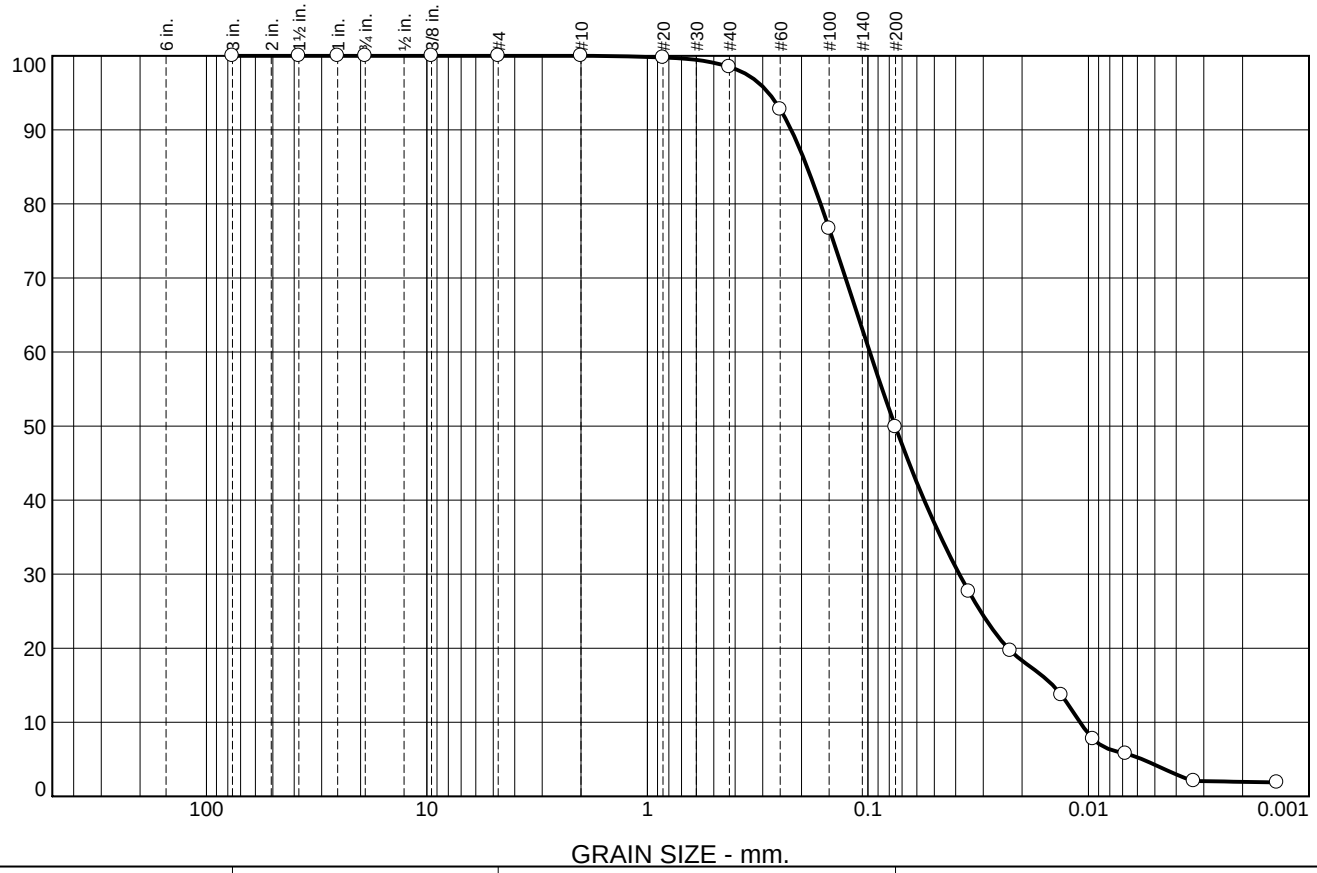
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	48	46	4

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	98		
#60	93		
#100	77		
#200	50		
0.0349 mm.	28		
0.0226 mm.	20		
0.0133 mm.	14		
0.0095 mm.	7.8		
0.0068 mm.	5.8		
0.0033 mm.	2.1		
0.0014 mm.	1.9		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 30 LL= 36 PI= 6

Coefficients

D_{90}= 0.2228 D_{85}= 0.1889 D_{60}= 0.0981
D_{50}= 0.0753 D_{30}= 0.0385 D_{15}= 0.0145
D_{10}= 0.0109 C_u= 8.98 C_c= 1.38

Classification

USCS= ML AASHTO= A-4(1)

Remarks

Source of Sample: P-176 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/17/2017

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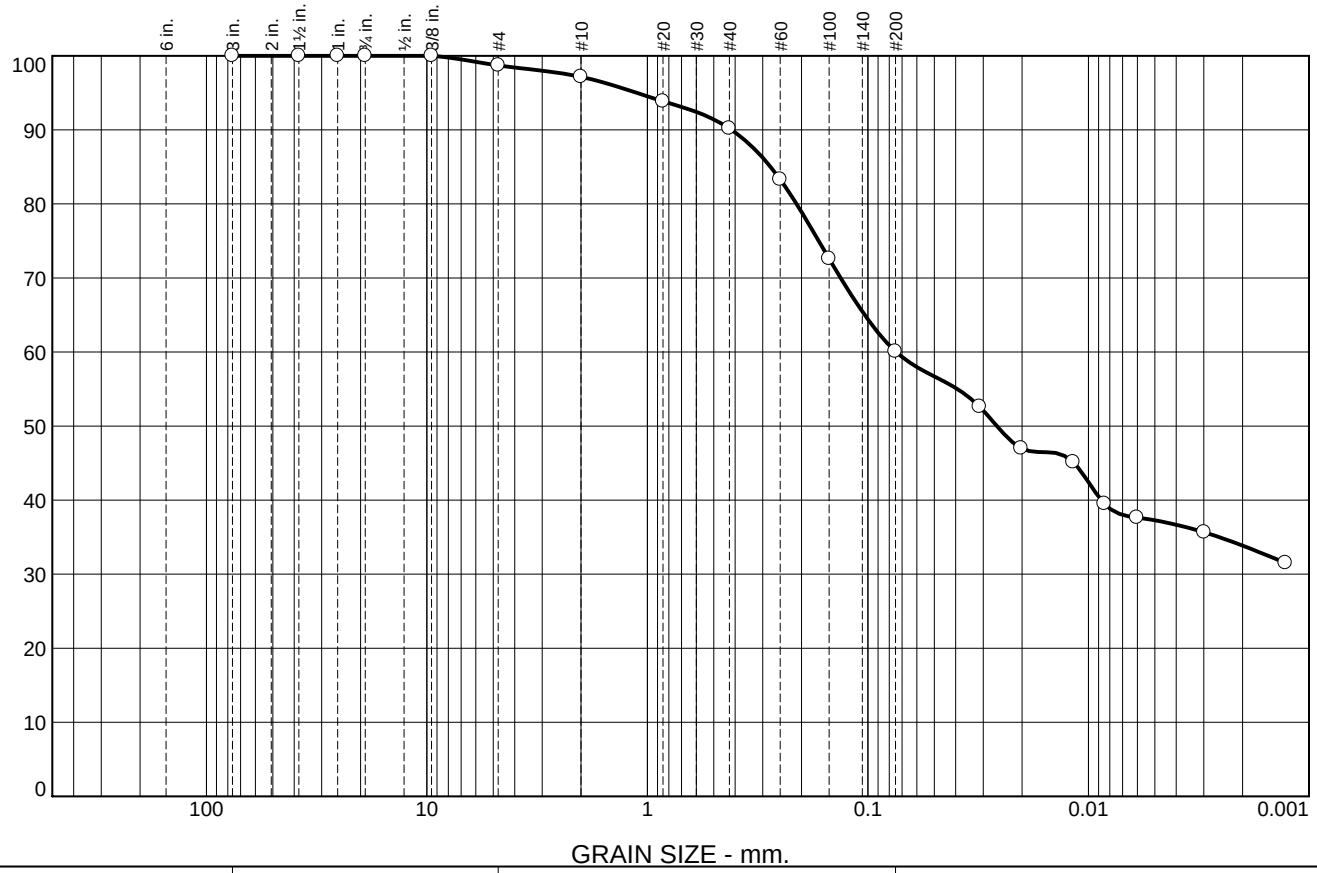
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	7	30	23	37

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	94		
#40	90		
#60	83		
#100	73		
#200	60		
0.0312 mm.	53		
0.0202 mm.	47		
0.0117 mm.	45		
0.0085 mm.	40		
0.0060 mm.	38		
0.0030 mm.	36		
0.0013 mm.	32		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy CLAY (CL) (A-7-6) with trace gravel

Atterberg Limits

PL= 21 LL= 46 PI= 25

Coefficients

D_{90}= 0.4154 D_{85}= 0.2765 D_{60}= 0.0744
D_{50}= 0.0260 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(12)

Remarks

Source of Sample: P-177 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/14/2017

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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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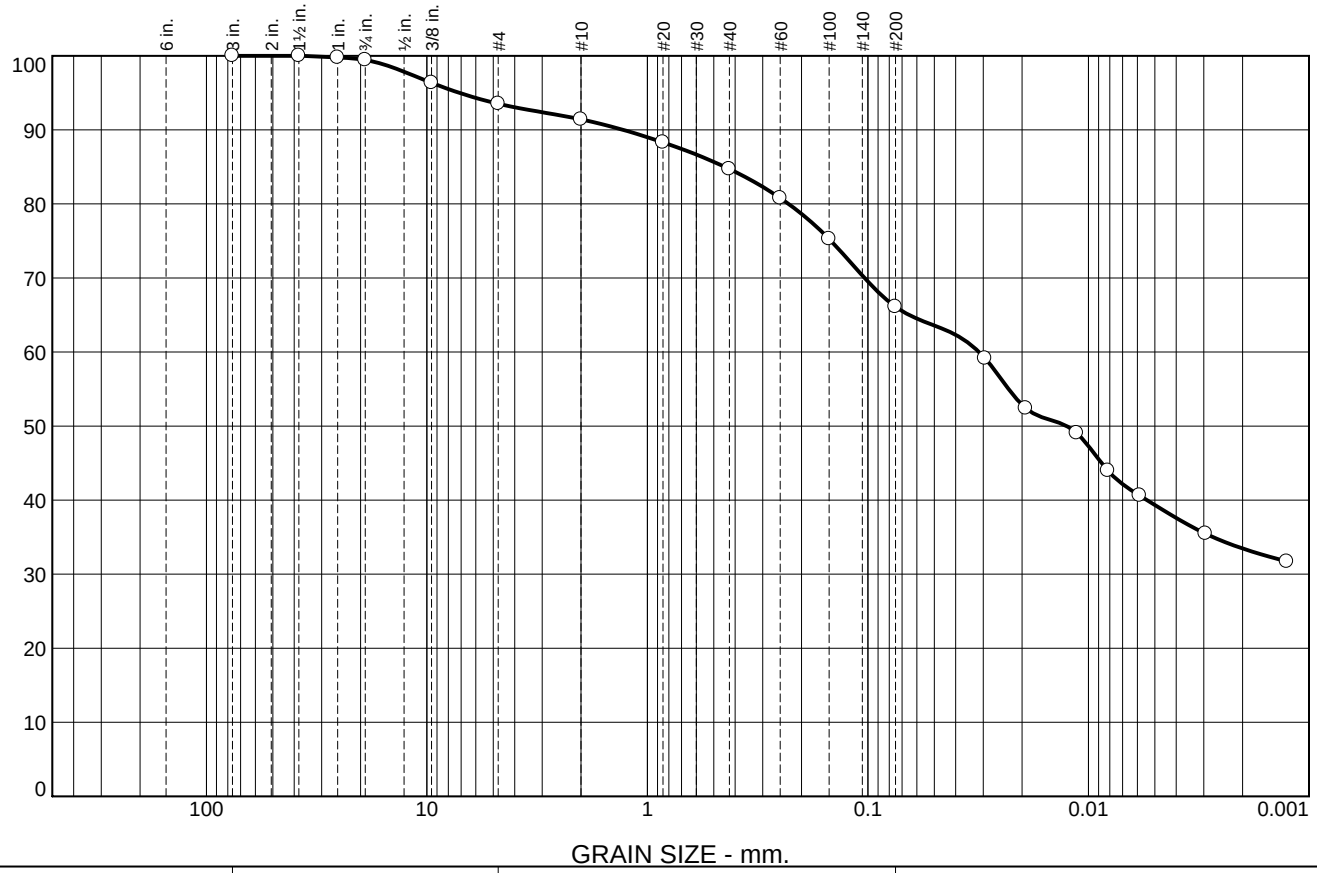
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	1	5	3	6	19	27	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	99		
.375	96		
#4	94		
#10	91		
#20	88		
#40	85		
#60	81		
#100	75		
#200	66		
0.0294 mm.	59		
0.0192 mm.	52		
0.0113 mm.	49		
0.0082 mm.	44		
0.0059 mm.	41		
0.0029 mm.	35		
0.0013 mm.	32		

* (no specification provided)

Soil Description

Stiff to very stiff, dry to moist, reddish brown, Plastic CLAY (CH)(A-7-6) with trace gravel

Atterberg Limits

PL= 28 LL= 60 PI= 32

Coefficients

D_{90}= 1.2889 D_{85}= 0.4451 D_{60}= 0.0313
D_{50}= 0.0126 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(21)

Remarks

Source of Sample: P-178 **Depth:** 1.00-4.00
Sample Number: D4S-1498

Date: 11/14/2017

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Phone: (704) 525-5152
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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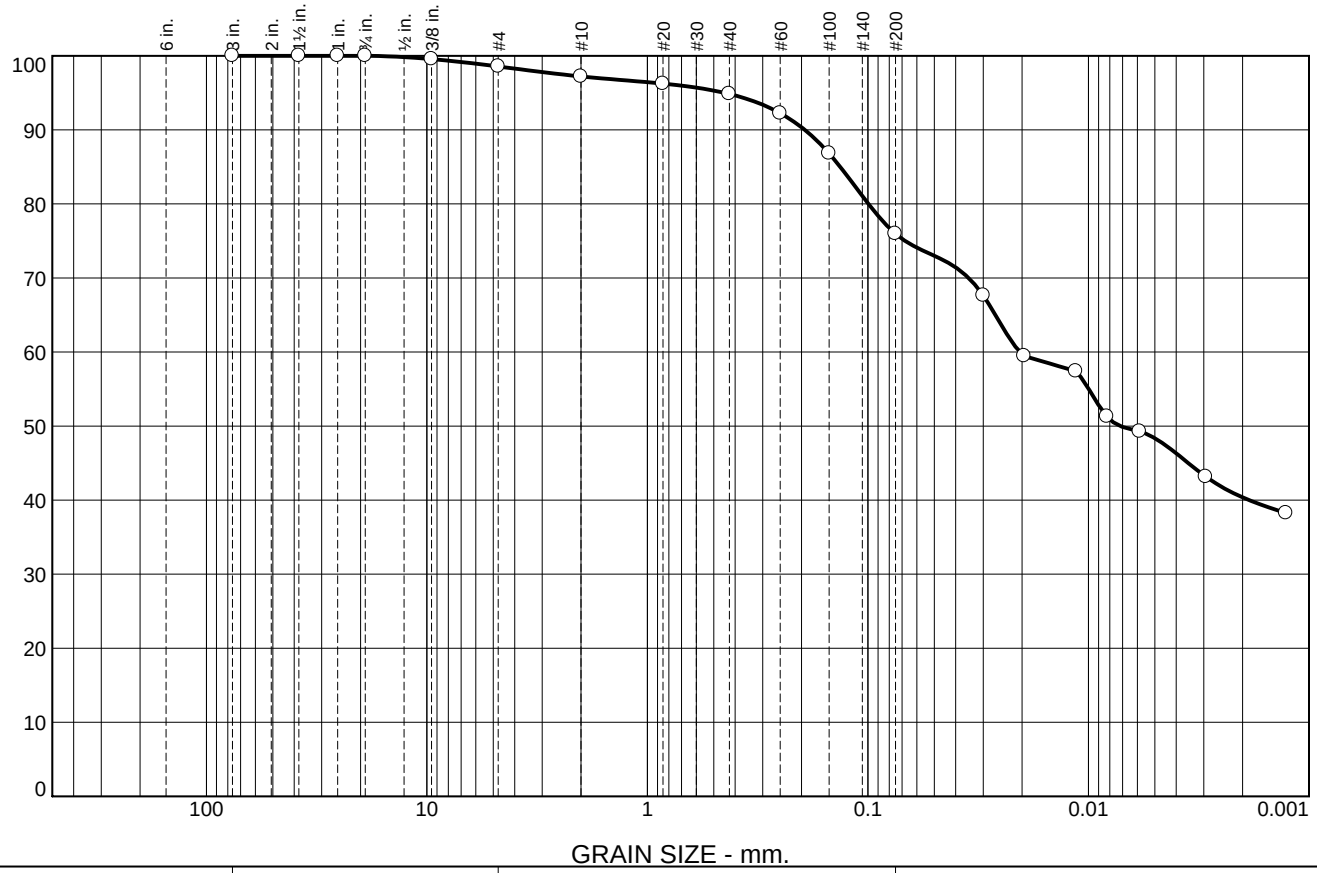
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	2	19	28	48

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	96		
#40	95		
#60	92		
#100	87		
#200	76		
0.0300 mm.	68		
0.0196 mm.	59		
0.0114 mm.	57		
0.0082 mm.	51		
0.0059 mm.	49		
0.0029 mm.	43		
0.0013 mm.	38		

* (no specification provided)

Soil Description

Stiff to very stiff, dry to moist, reddish brown, Sandy CLAY (CL)(A-7-6) with trace gravel

Atterberg Limits

PL= 27 LL= 49 PI= 22

Coefficients

D_{90}= 0.1934 D_{85}= 0.1335 D_{60}= 0.0205
D_{50}= 0.0072 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(17)

Remarks

Source of Sample: P-178 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/19/2017

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1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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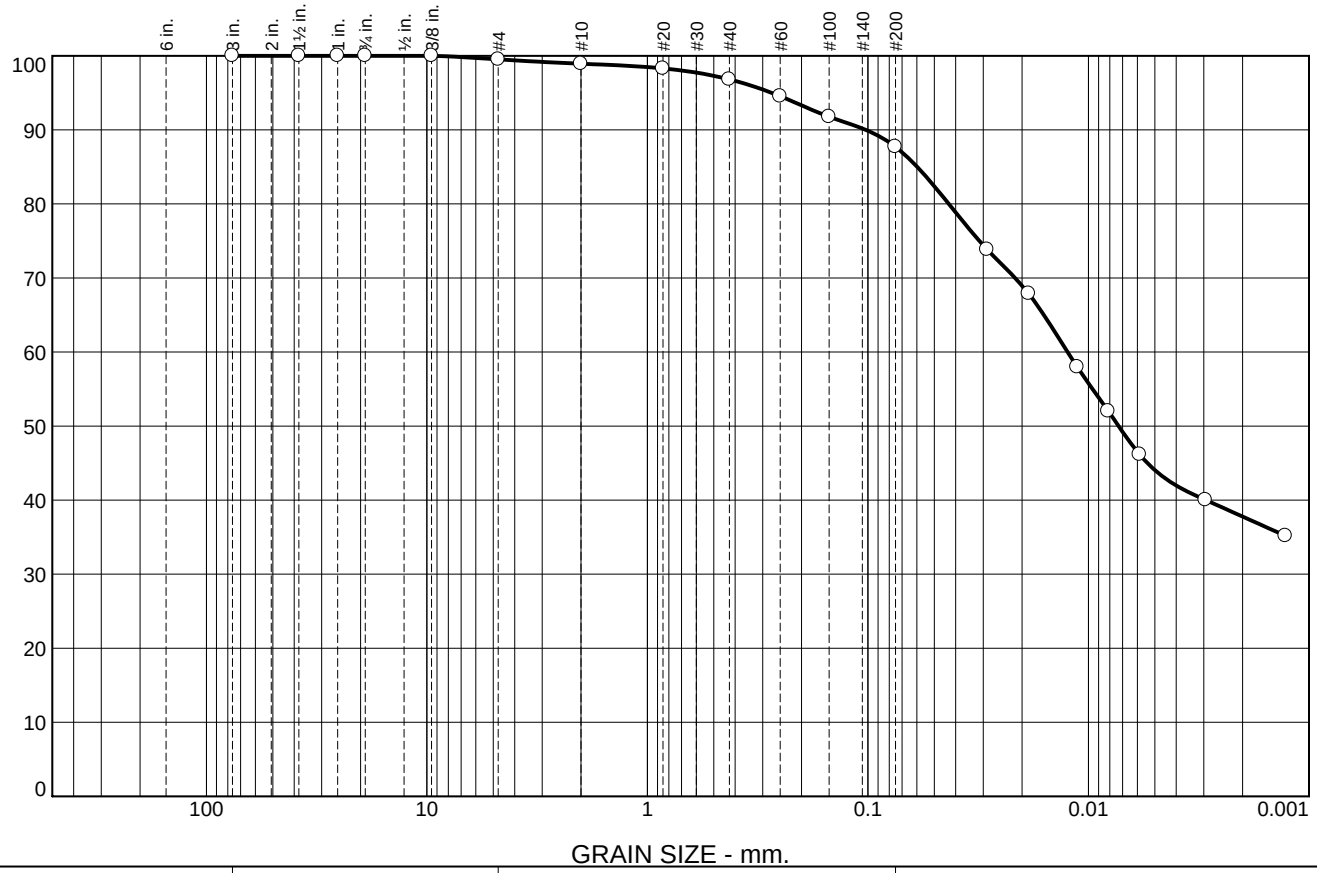
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	2	9	44	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	98		
#40	97		
#60	95		
#100	92		
#200	88		
0.0288 mm.	74		
0.0187 mm.	68		
0.0112 mm.	58		
0.0081 mm.	52		
0.0059 mm.	46		
0.0029 mm.	40		
0.0013 mm.	35		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, orangish brown, Plastic CLAY (CH)(A-7-6) with trace roots

Atterberg Limits

PL= 26 LL= 56 PI= 30

Coefficients

D_{90}= 0.1023 D_{85}= 0.0598 D_{60}= 0.0124
D_{50}= 0.0073 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(29)

Remarks

Source of Sample: P-179 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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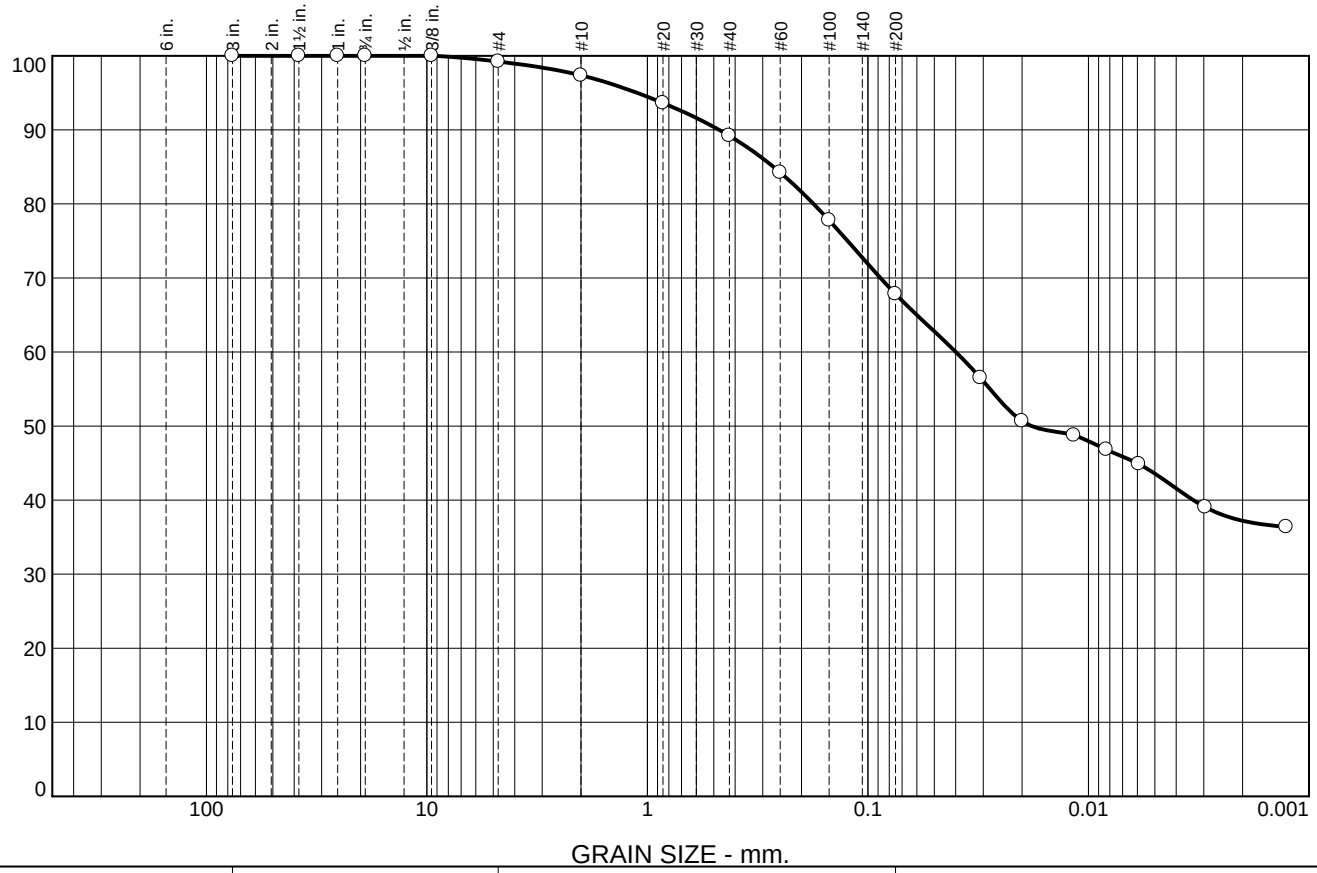
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	8	21	24	44

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	99		
#10	97		
#20	94		
#40	89		
#60	84		
#100	78		
#200	68		
0.0309 mm.	57		
0.0200 mm.	51		
0.0116 mm.	49		
0.0083 mm.	47		
0.0059 mm.	45		
0.0030 mm.	39		
0.0013 mm.	36		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 29 LL= 59 PI= 30

Coefficients

D_{90}= 0.4726 D_{85}= 0.2681 D_{60}= 0.0399
D_{50}= 0.0181 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(20)

Remarks

Source of Sample: P-180 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

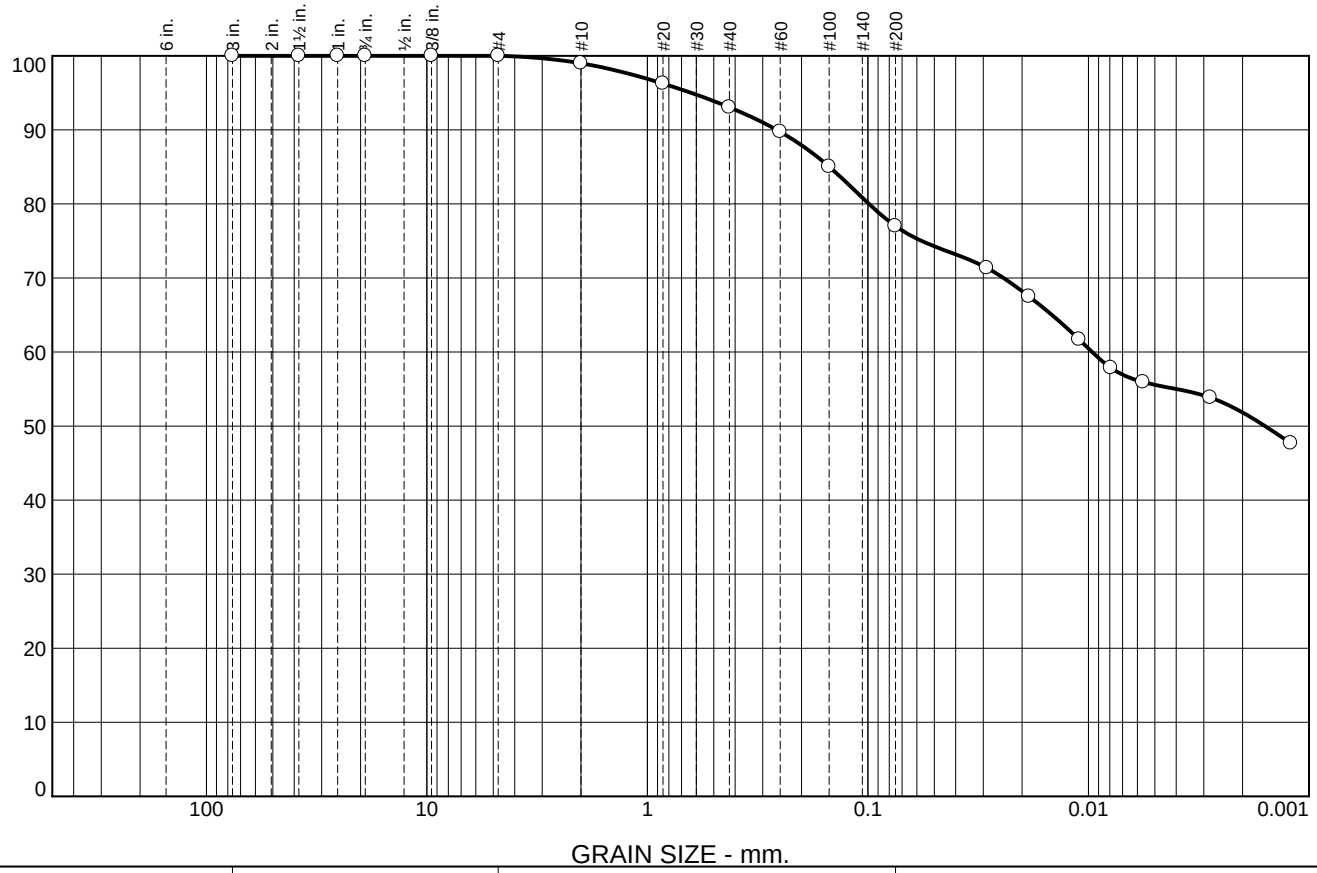
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/DC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	6	16	21	56

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	96		
#40	93		
#60	90		
#100	85		
#200	77		
0.0289 mm.	71		
0.0186 mm.	68		
0.0110 mm.	62		
0.0079 mm.	58		
0.0056 mm.	56		
0.0028 mm.	54		
0.0012 mm.	48		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-5)

Atterberg Limits

PL= 32 LL= 81 PI= 49

Coefficients

D_{90}= 0.2591 D_{85}= 0.1494 D_{60}= 0.0096
D_{50}= 0.0016 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(41)

Remarks

Source of Sample: P-181 **Depth:** 0.50-2.00
Sample Number: S-1/S-2

Date: 11/14/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

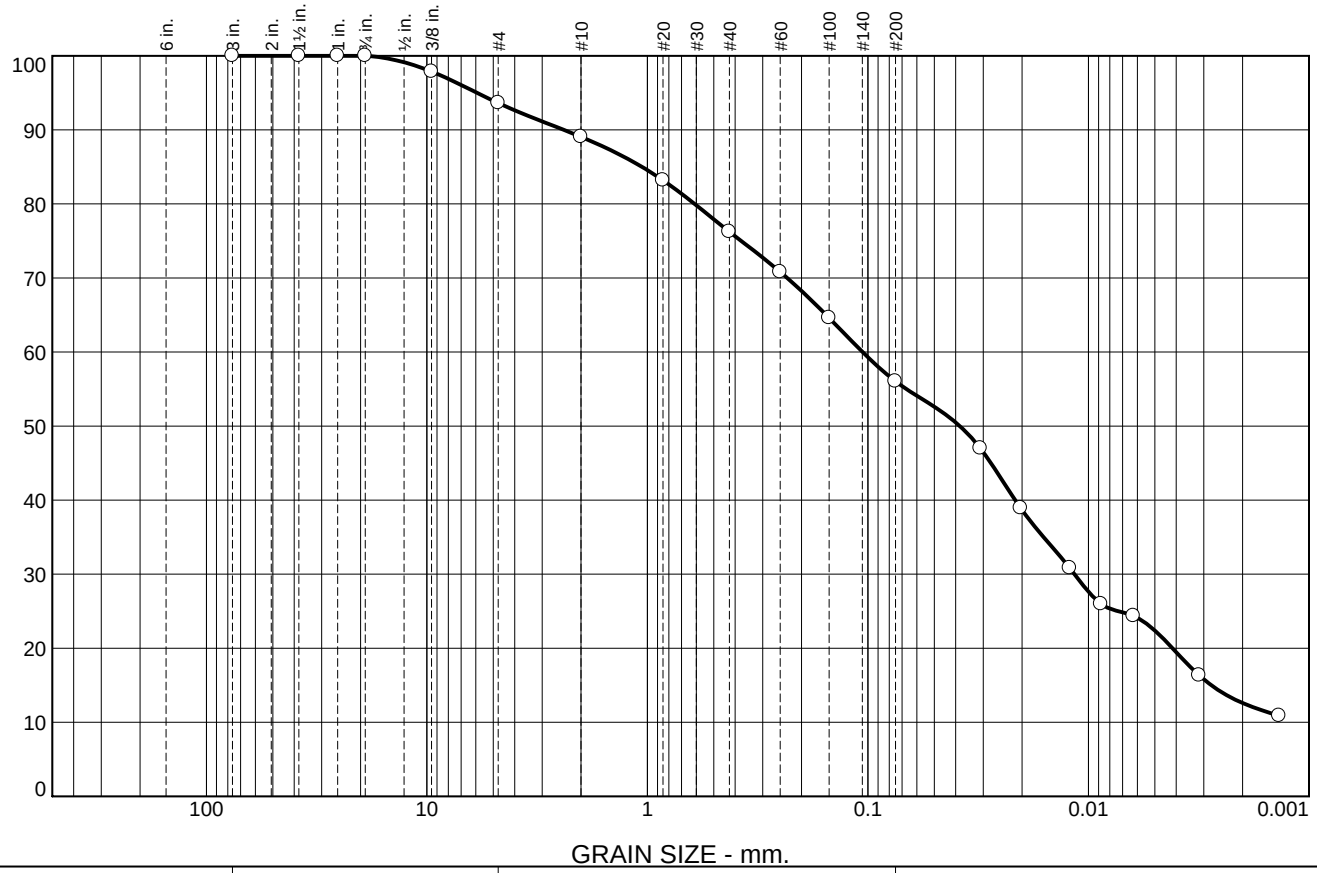
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	5	13	20	34	22

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	94		
#10	89		
#20	83		
#40	76		
#60	71		
#100	65		
#200	56		
0.0309 mm.	47		
0.0203 mm.	39		
0.0122 mm.	31		
0.0088 mm.	26		
0.0062 mm.	24		
0.0031 mm.	16		
0.0014 mm.	11		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy SILT (ML)(A-7-5)

Atterberg Limits

PL= 33 LL= 47 PI= 14

Coefficients

D_{90}= 2.3973 D_{85}= 1.0589 D_{60}= 0.1058
D_{50}= 0.0383 D_{30}= 0.0116 D_{15}= 0.0028
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(7)

Remarks

Source of Sample: P-182 **Depth:** 2.00-3.50
Sample Number: S-2

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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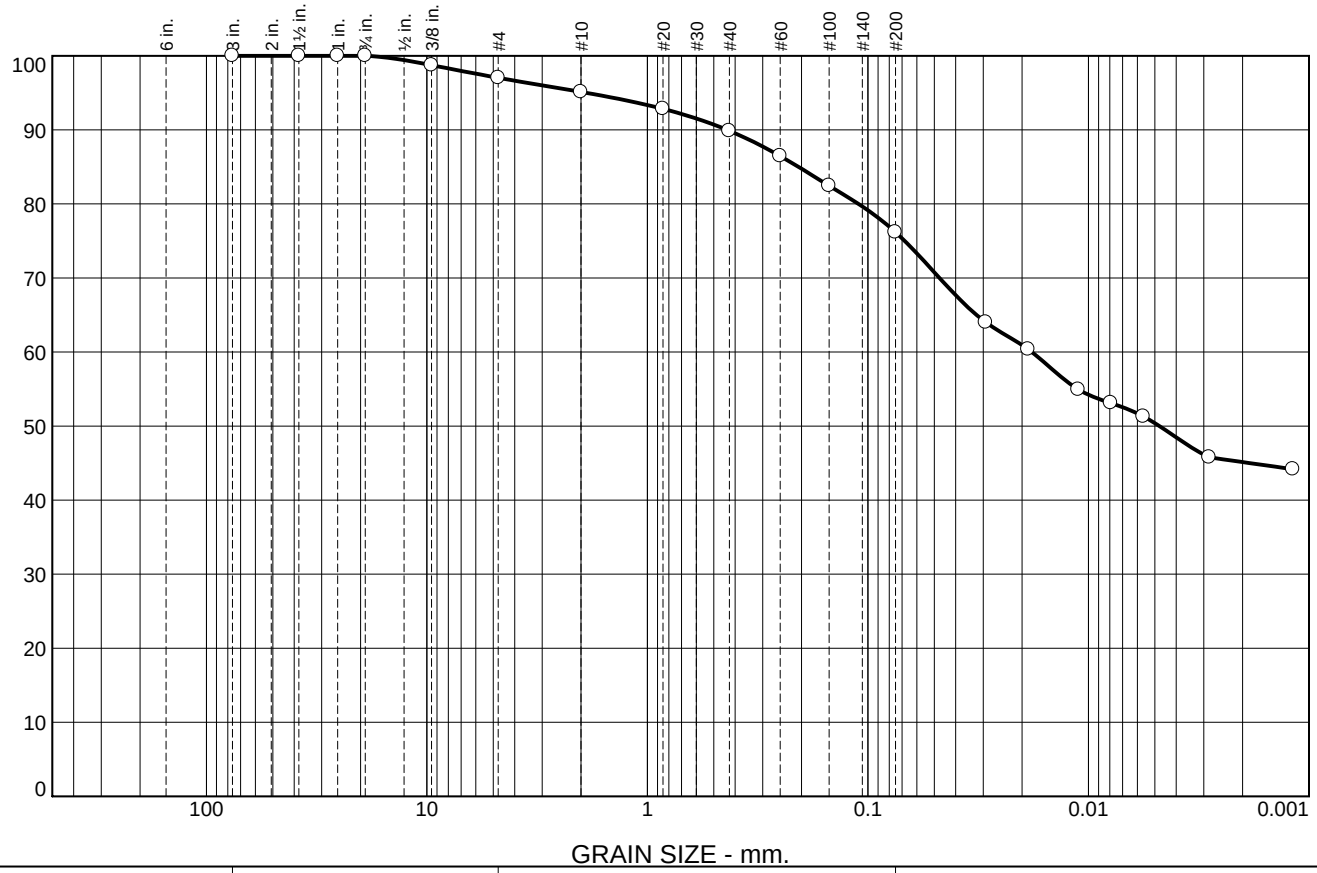
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	2	5	14	26	50

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	97		
#10	95		
#20	93		
#40	90		
#60	86		
#100	82		
#200	76		
0.0292 mm.	64		
0.0188 mm.	60		
0.0111 mm.	55		
0.0079 mm.	53		
0.0056 mm.	51		
0.0028 mm.	46		
0.0012 mm.	44		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with trace gravel

Atterberg Limits

PL= 32 LL= 57 PI= 25

Coefficients

D_{90}= 0.4353 D_{85}= 0.2065 D_{60}= 0.0181
D_{50}= 0.0048 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(21)

Remarks

Source of Sample: P-184 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

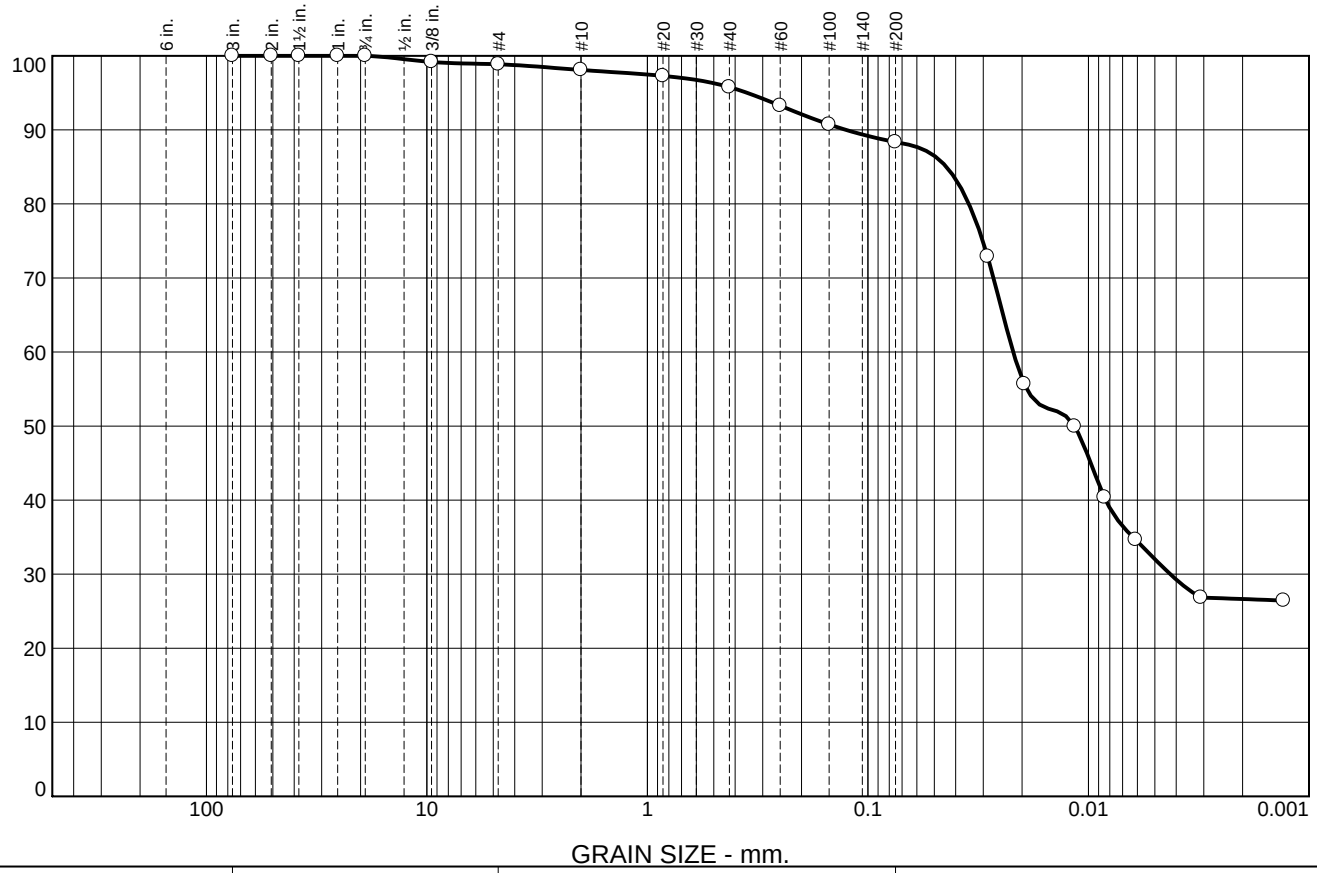
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	2	8	56	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
2	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	99		
#10	98		
#20	97		
#40	96		
#60	93		
#100	91		
#200	88		
0.0287 mm.	73		
0.0196 mm.	56		
0.0116 mm.	50		
0.0085 mm.	40		
0.0061 mm.	35		
0.0031 mm.	27		
0.0013 mm.	26		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to tannish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 37 LL= 53 PI= 16

Coefficients

D_{90}= 0.1259 D_{85}= 0.0441 D_{60}= 0.0220
D_{50}= 0.0116 D_{30}= 0.0043 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(18)

Remarks

Source of Sample: P-185 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/17

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1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

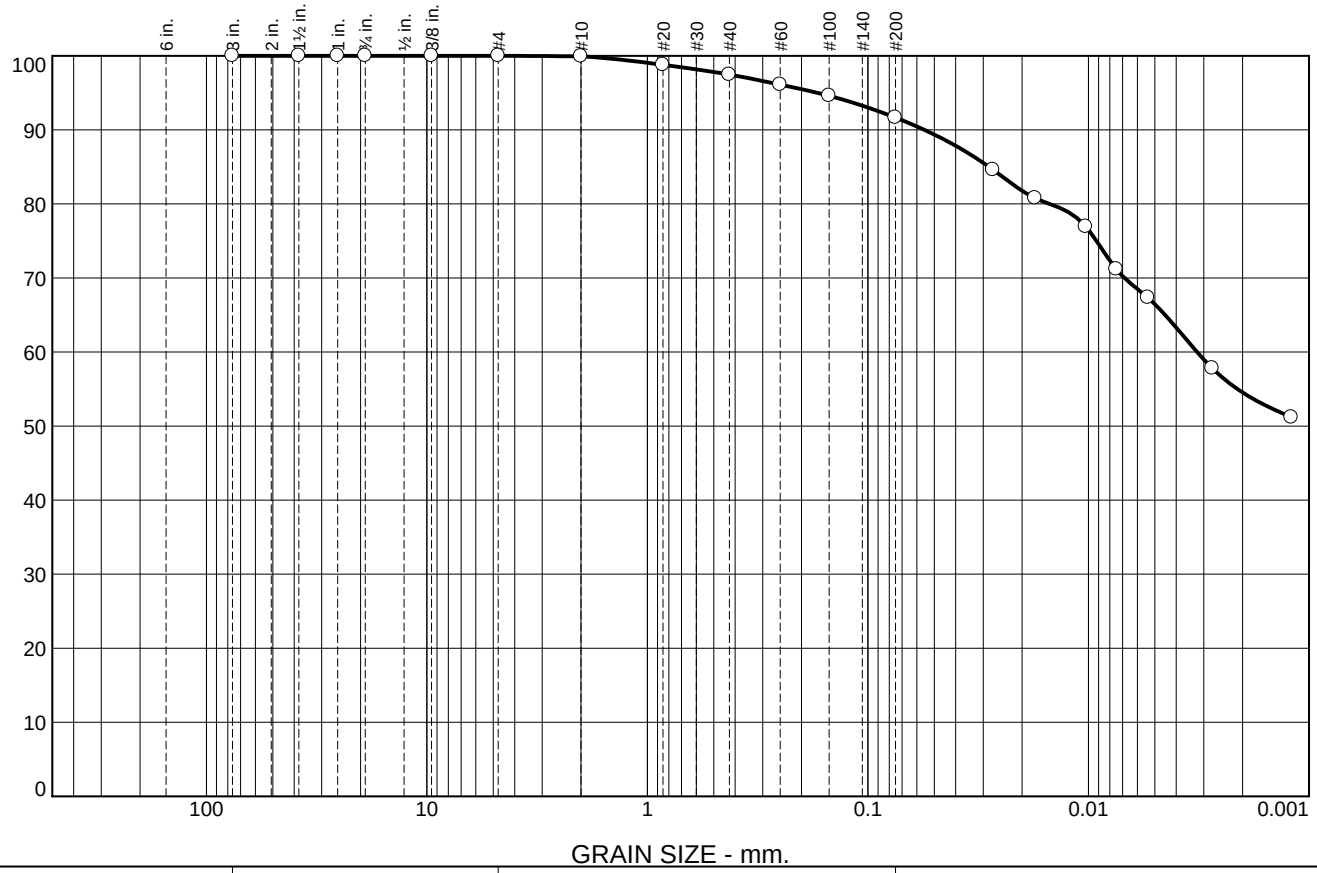
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	5	26	66

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	97		
#60	96		
#100	95		
#200	92		
0.0271 mm.	85		
0.0175 mm.	81		
0.0103 mm.	77		
0.0075 mm.	71		
0.0054 mm.	67		
0.0027 mm.	58		
0.0012 mm.	51		

* (no specification provided)

Soil Description

Very stiff, moist, orangish brown, Elastic SILT (MH) (A-7-5) with trace gravel

Atterberg Limits

PL= 44 LL= 57 PI= 13

Coefficients

D_{90}= 0.0555 D_{85}= 0.0282 D_{60}= 0.0032
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

Source of Sample: P-186 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

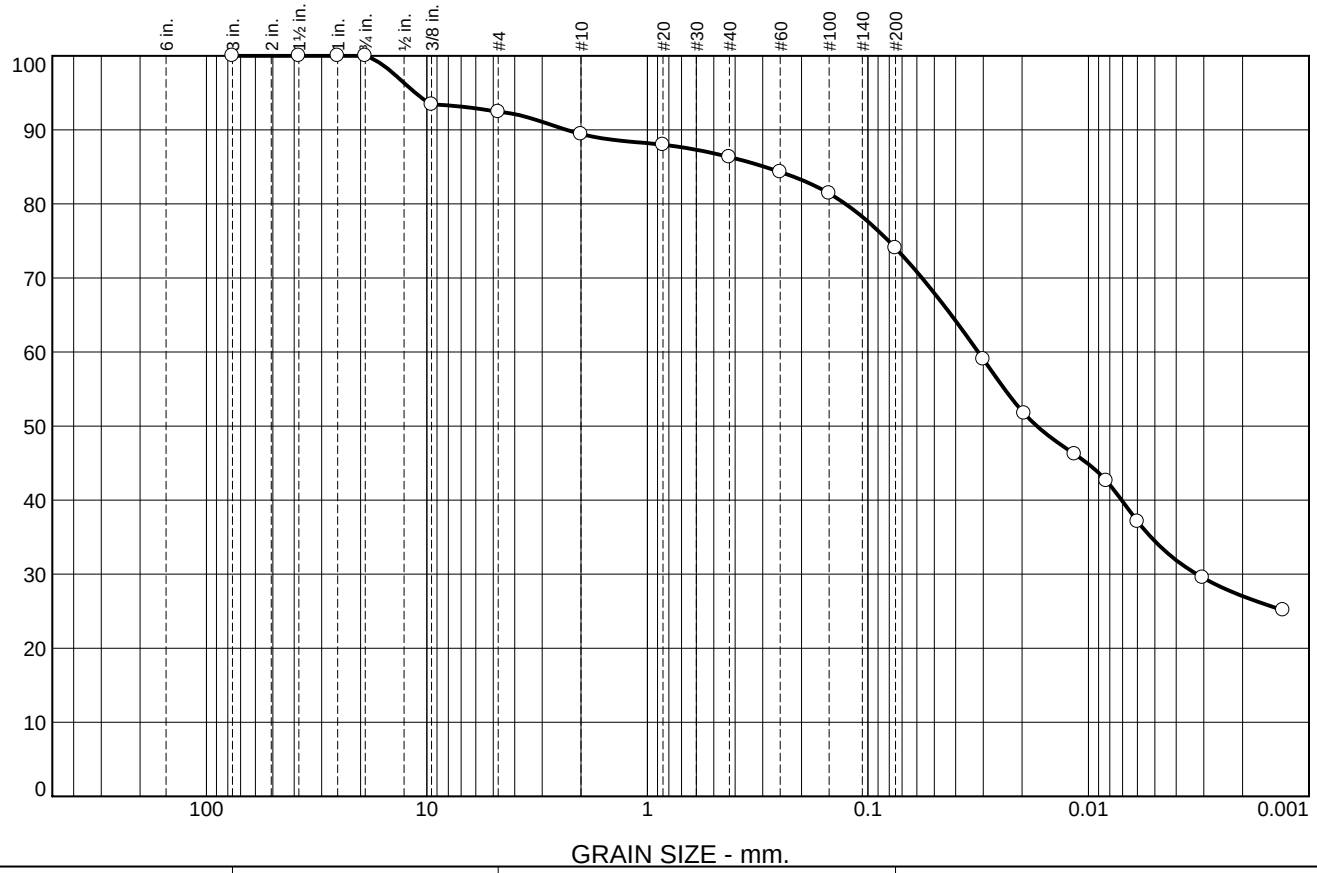
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	3	3	12	40	34

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	93		
#4	92		
#10	89		
#20	88		
#40	86		
#60	84		
#100	81		
#200	74		
0.0300 mm.	59		
0.0196 mm.	52		
0.0116 mm.	46		
0.0083 mm.	43		
0.0060 mm.	37		
0.0030 mm.	30		
0.0013 mm.	25		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5) with trace gravel

Atterberg Limits

PL= 35 LL= 51 PI= 16

Coefficients

D_{90}= 2.3285 D_{85}= 0.2940 D_{60}= 0.0316
D_{50}= 0.0171 D_{30}= 0.0032 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(13)

Remarks

Source of Sample: P-187 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

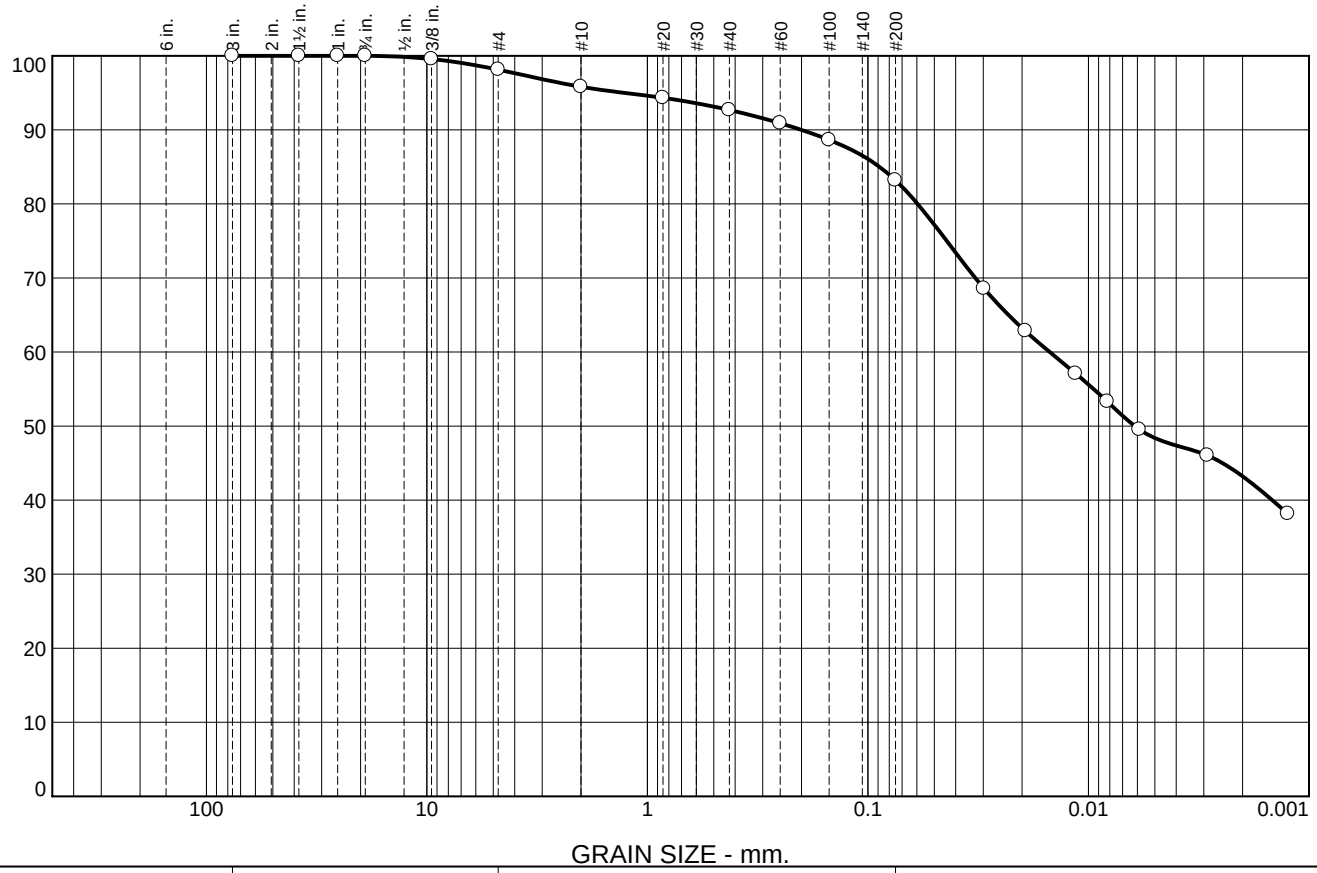
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	2	3	10	35	48

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	98		
#10	96		
#20	94		
#40	93		
#60	91		
#100	89		
#200	83		
0.0298 mm.	69		
0.0193 mm.	63		
0.0114 mm.	57		
0.0082 mm.	53		
0.0059 mm.	50		
0.0029 mm.	46		
0.0012 mm.	38		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 17 LL= 58 PI= 41

Coefficients

D_{90}= 0.2006 D_{85}= 0.0886 D_{60}= 0.0150
D_{50}= 0.0062 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(35)

Remarks

Source of Sample: P-187 **Depth:** 3.50-5.00
Sample Number: S-3

Date: 11/17/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

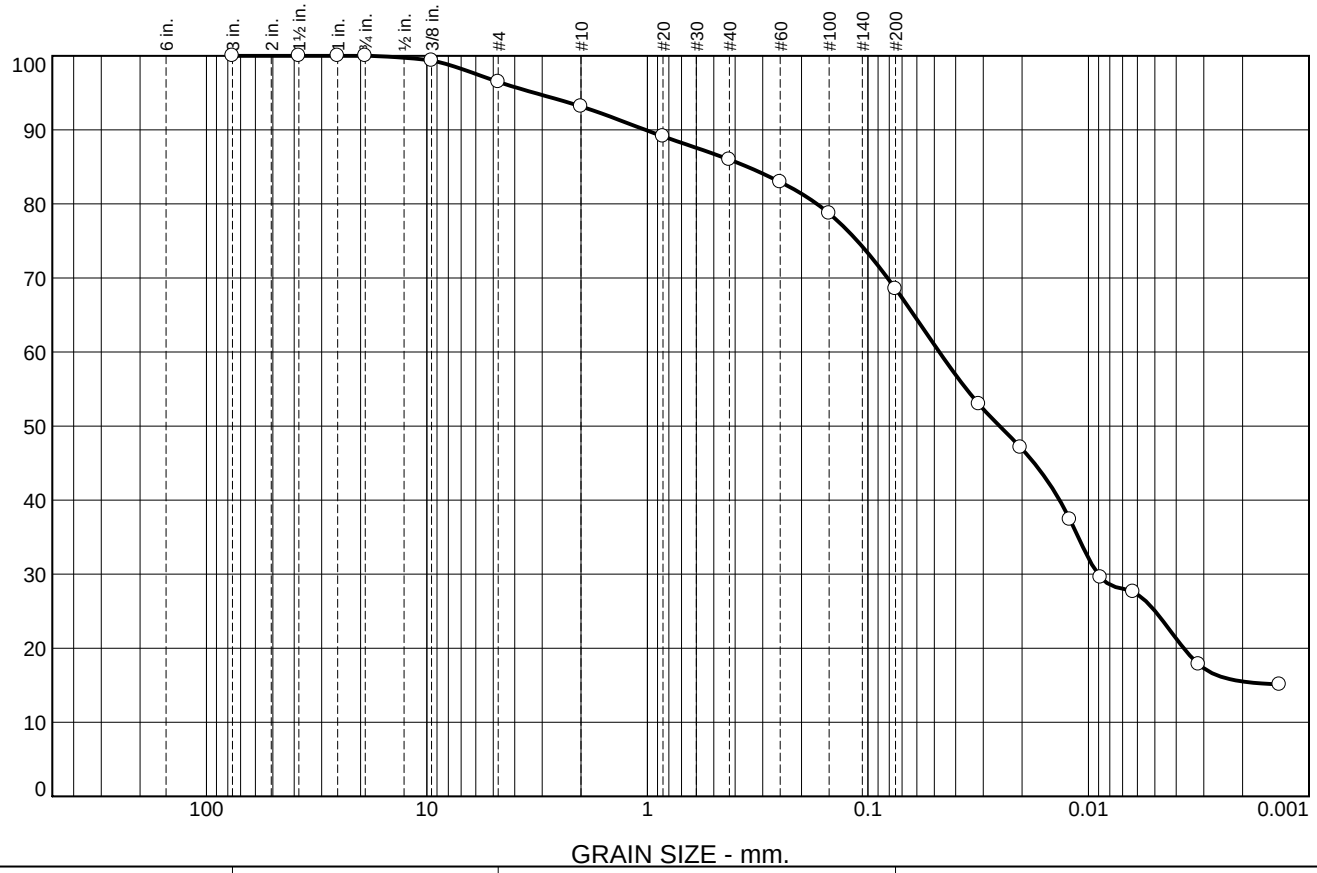
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	3	7	17	44	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	96		
#10	93		
#20	89		
#40	86		
#60	83		
#100	79		
#200	69		
0.0314 mm.	53		
0.0203 mm.	47		
0.0121 mm.	37		
0.0088 mm.	30		
0.0063 mm.	28		
0.0032 mm.	18		
0.0014 mm.	15		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 38 LL= 46 PI= 8

Coefficients

D_{90}= 1.0221 D_{85}= 0.3516 D_{60}= 0.0475
D_{50}= 0.0253 D_{30}= 0.0091 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-188 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/19/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

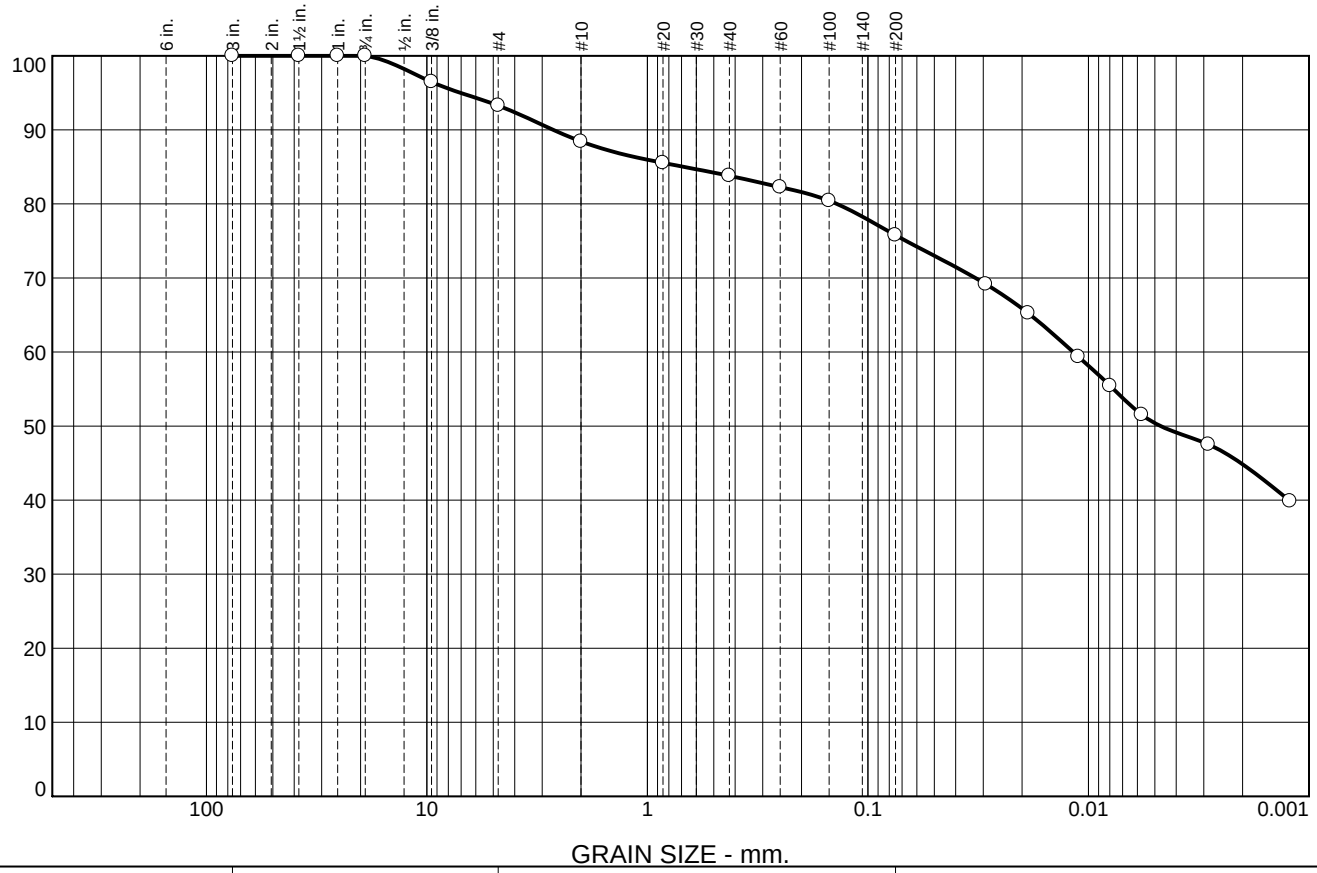
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	5	4	8	26	50

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	93		
#10	88		
#20	86		
#40	84		
#60	82		
#100	80		
#200	76		
0.0292 mm.	69		
0.0188 mm.	65		
0.0111 mm.	59		
0.0080 mm.	55		
0.0057 mm.	52		
0.0029 mm.	48		
0.0012 mm.	40		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, grayish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 37 LL= 58 PI= 21

Coefficients

D_{90}= 2.6707 D_{85}= 0.6830 D_{60}= 0.0117
D_{50}= 0.0047 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(19)

Remarks

Source of Sample: P-189 **Depth:** 0.80-5.00
Sample Number: S-1/S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

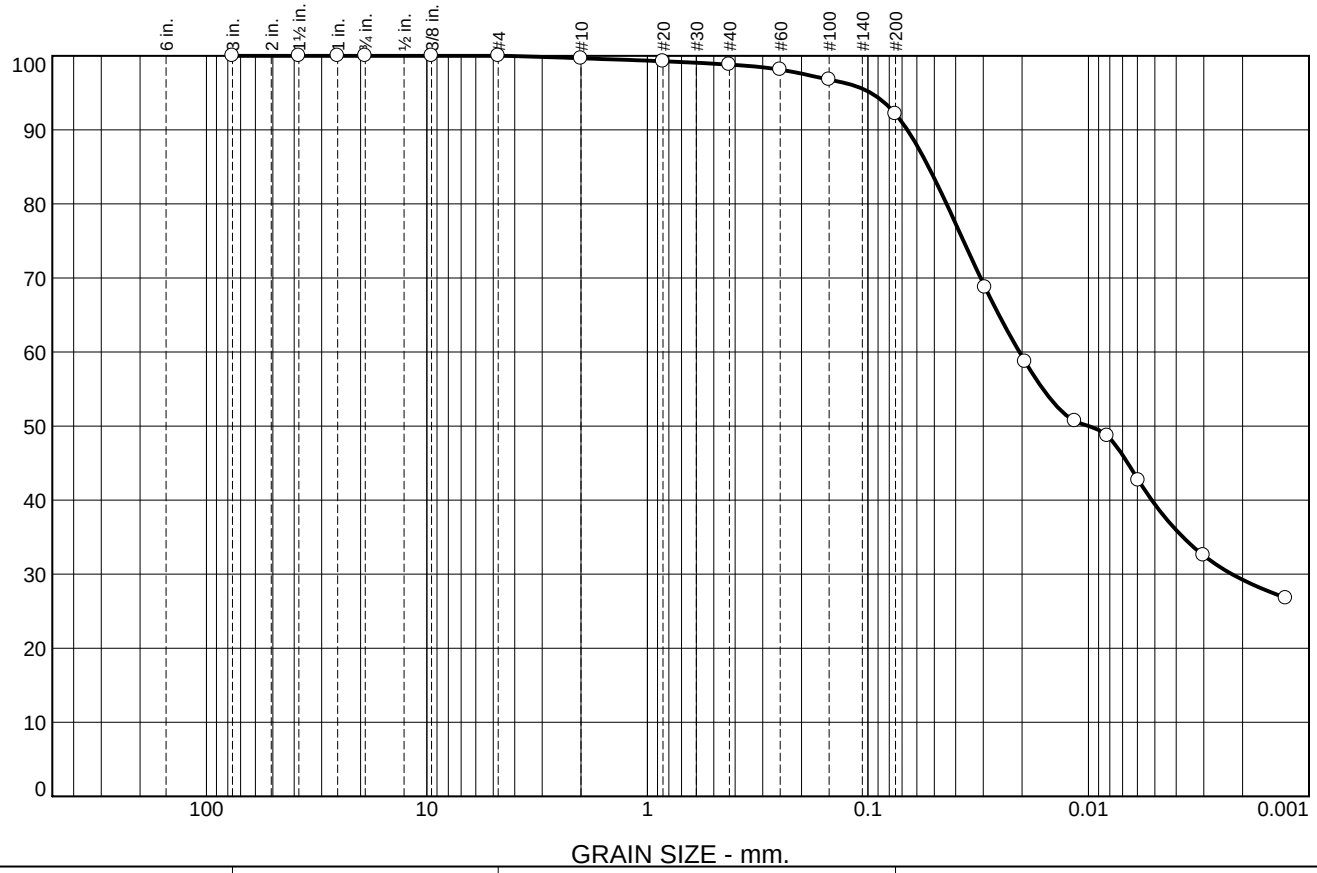
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	7	53	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	99		
#60	98		
#100	97		
#200	92		
0.0294 mm.	69		
0.0194 mm.	59		
0.0115 mm.	51		
0.0082 mm.	49		
0.0059 mm.	43		
0.0030 mm.	33		
0.0013 mm.	27		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 41 LL= 57 PI= 16

Coefficients

D_{90}= 0.0663 D_{85}= 0.0531 D_{60}= 0.0206
D_{50}= 0.0100 D_{30}= 0.0022 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(21)

Remarks

Source of Sample: P-190 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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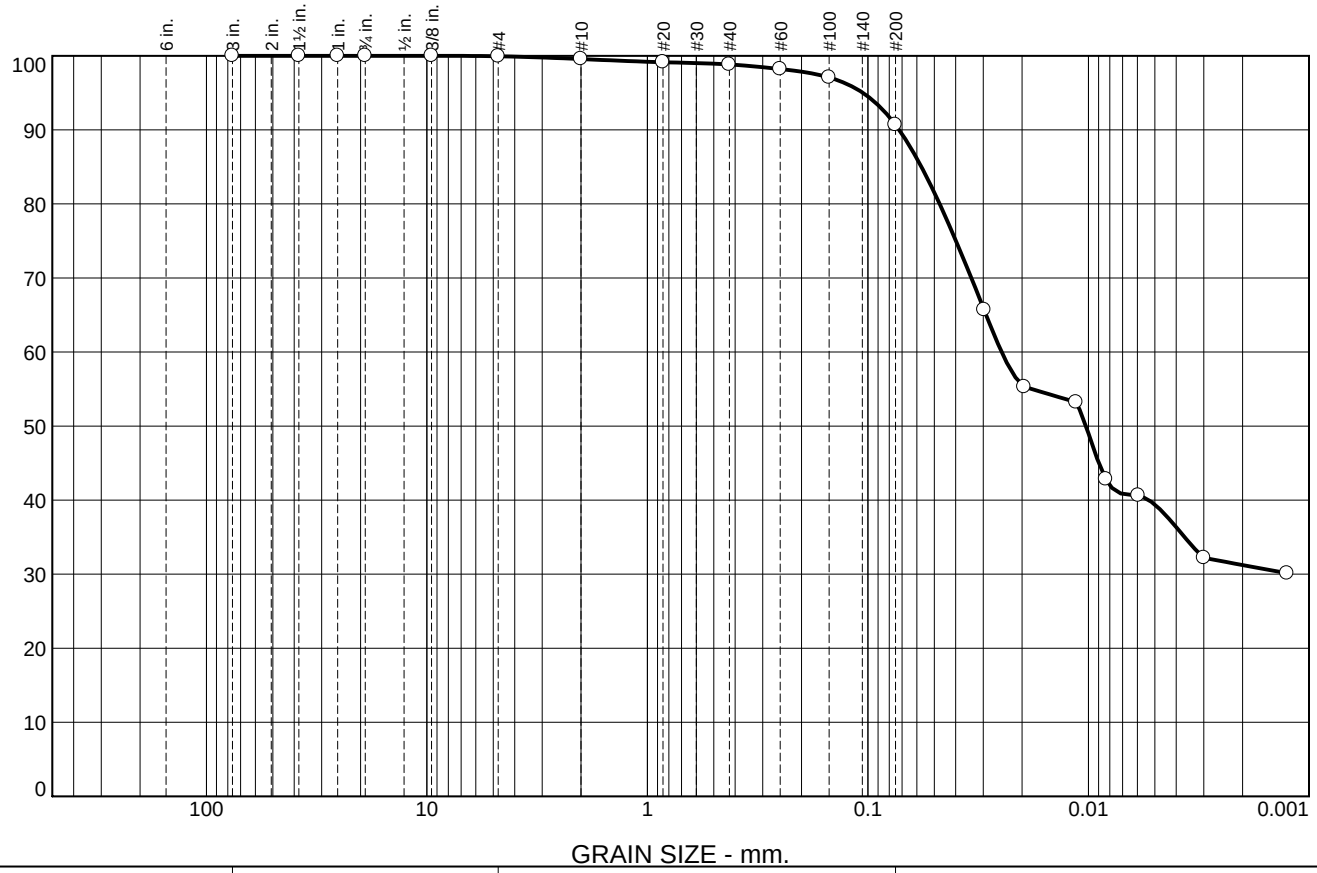
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	8	52	39

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	99		
#40	99		
#60	98		
#100	97		
#200	91		
0.0297 mm.	66		
0.0195 mm.	55		
0.0114 mm.	53		
0.0083 mm.	43		
0.0059 mm.	41		
0.0030 mm.	32		
0.0013 mm.	30		

* (no specification provided)

Soil Description

Medium stiff to soft, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 34 LL= 51 PI= 17

Coefficients

D_{90}= 0.0722 D_{85}= 0.0572 D_{60}= 0.0248
D_{50}= 0.0103 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: P-191 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

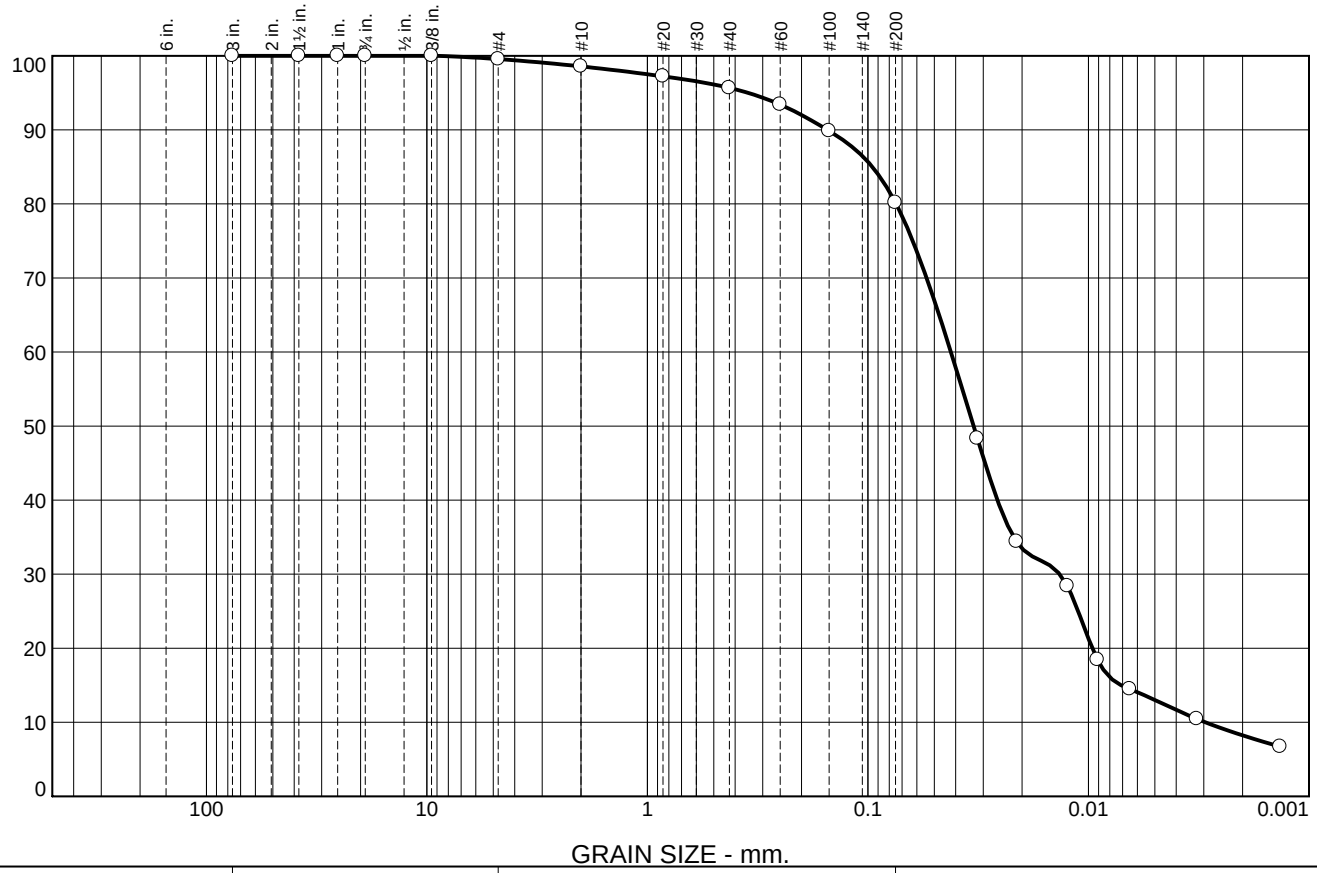
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	16	67	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	99		
#20	97		
#40	96		
#60	93		
#100	90		
#200	80		
0.0319 mm.	48		
0.0212 mm.	34		
0.0125 mm.	28		
0.0091 mm.	18		
0.0065 mm.	14		
0.0032 mm.	10		
0.0014 mm.	6.7		

* (no specification provided)

Soil Description

Stiff, moist, orangish brown, Sandy SILT (ML)(A-4) with trace gravel

Atterberg Limits

PL= 31 LL= 37 PI= 6

Coefficients

D_{90}= 0.1528 D_{85}= 0.0955 D_{60}= 0.0421
D_{50}= 0.0332 D_{30}= 0.0135 D_{15}= 0.0071
D_{10}= 0.0030 C_u= 14.24 C_c= 1.47

Classification

USCS= ML AASHTO= A-4(6)

Remarks

Source of Sample: P-192 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/21/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

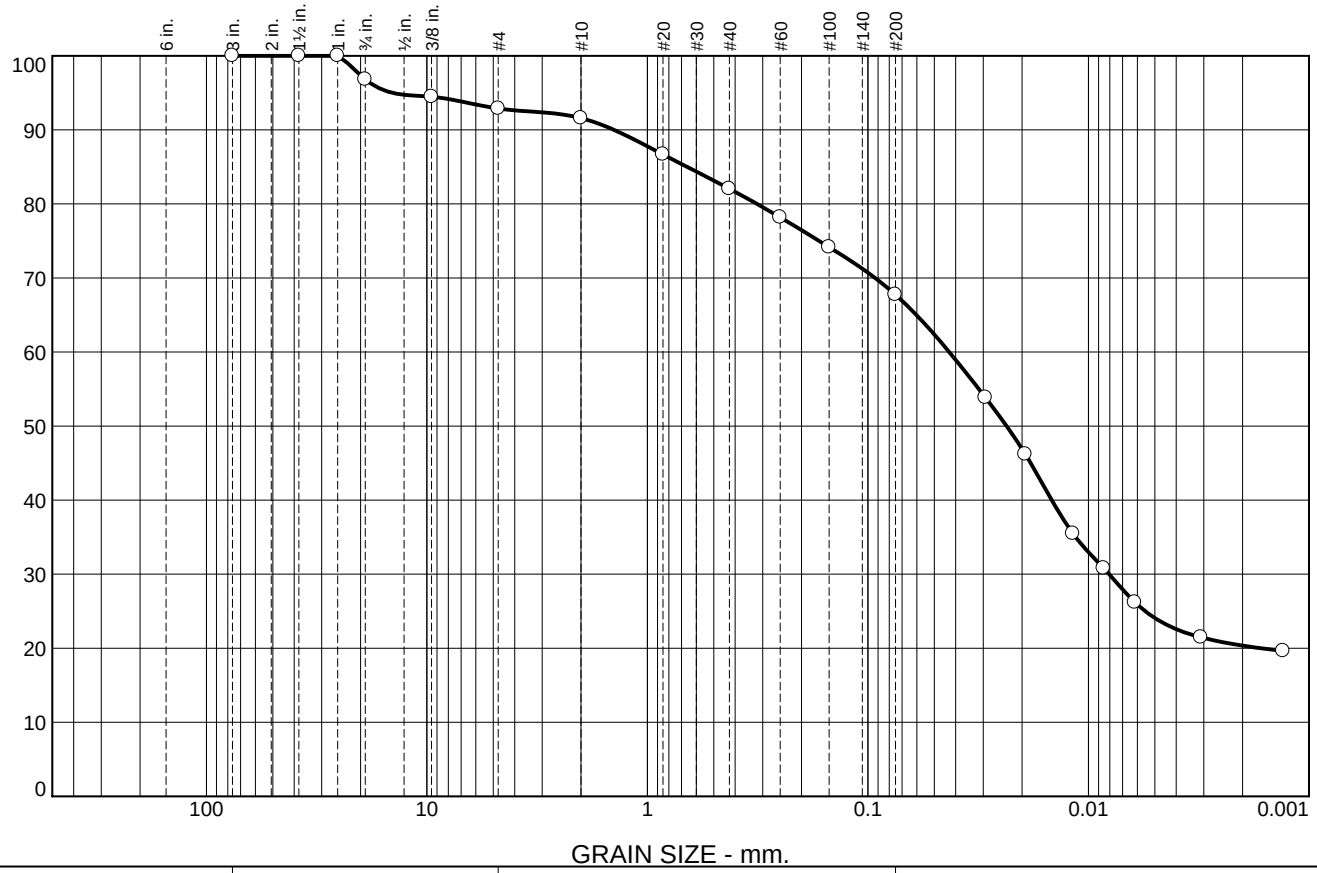
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	3	4	1	10	14	44	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	97		
.375	94		
#4	93		
#10	92		
#20	87		
#40	82		
#60	78		
#100	74		
#200	68		
0.0293 mm.	54		
0.0193 mm.	46		
0.0118 mm.	35		
0.0085 mm.	31		
0.0062 mm.	26		
0.0031 mm.	21		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish tan to brown, Sandy SILT (ML)(A-4) with trace roots and gravel

Atterberg Limits

PL= 26 LL= 35 PI= 9

Coefficients

D_{90}= 1.4191 D_{85}= 0.6607 D_{60}= 0.0428
D_{50}= 0.0235 D_{30}= 0.0081 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-193 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

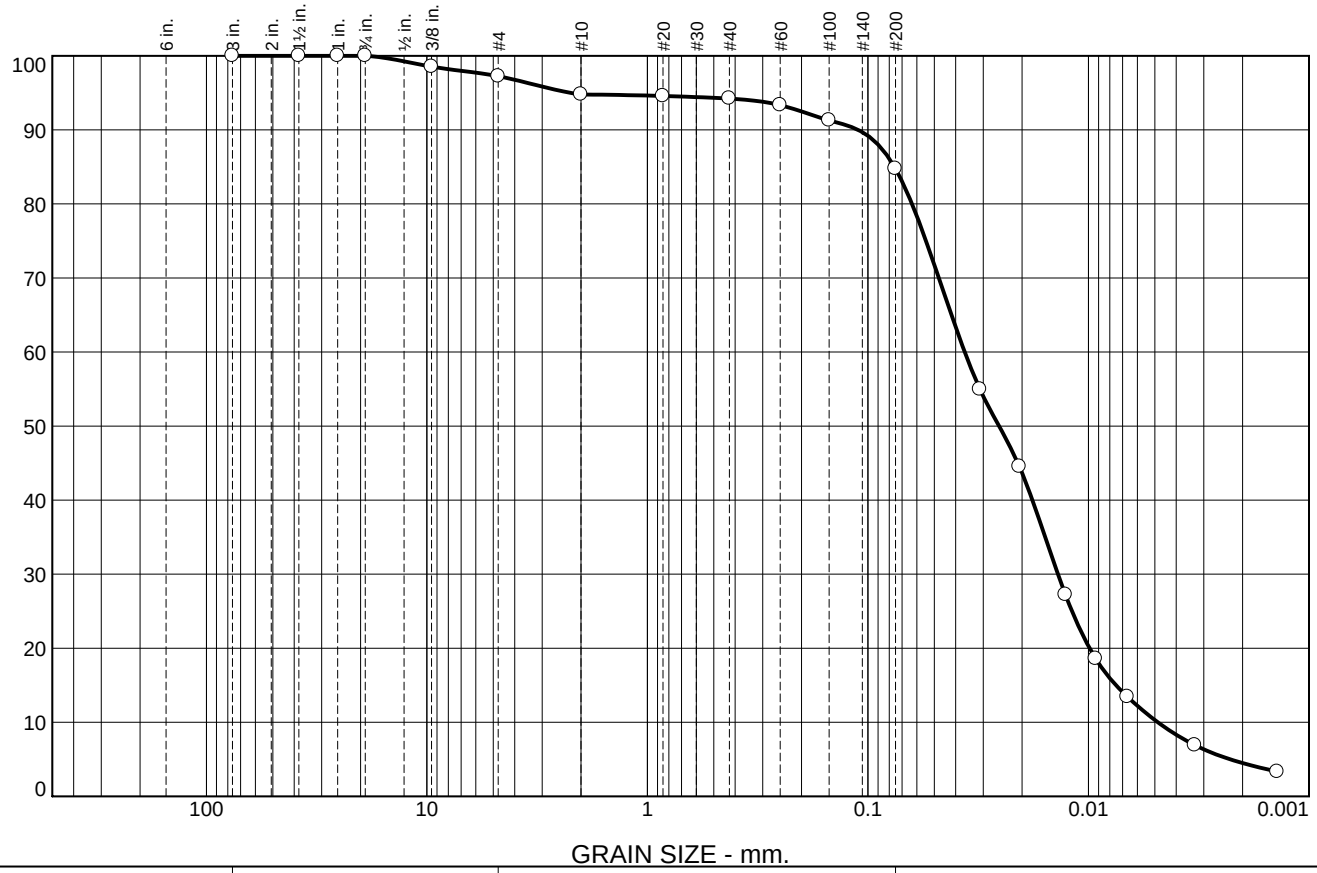
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	2	1	9	75	10

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	97		
#10	95		
#20	95		
#40	94		
#60	93		
#100	91		
#200	85		
0.0310 mm.	55		
0.0206 mm.	45		
0.0127 mm.	27		
0.0093 mm.	19		
0.0067 mm.	13		
0.0033 mm.	6.9		
0.0014 mm.	3.3		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown to orangish tan, Sandy SILT (ML) (A-4) with trace gravel-sized rock fragments

Atterberg Limits

PL= 30 LL= 36 PI= 6

Coefficients

D_{90}= 0.1109 D_{85}= 0.0758 D_{60}= 0.0364
D_{50}= 0.0254 D_{30}= 0.0138 D_{15}= 0.0075
D_{10}= 0.0048 C_u= 7.51 C_c= 1.07

Classification

USCS= ML AASHTO= A-4(6)

Remarks

Source of Sample: P-194 **Depth:** 0.50-5.00
Sample Number: S-1/S-2/S-3

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

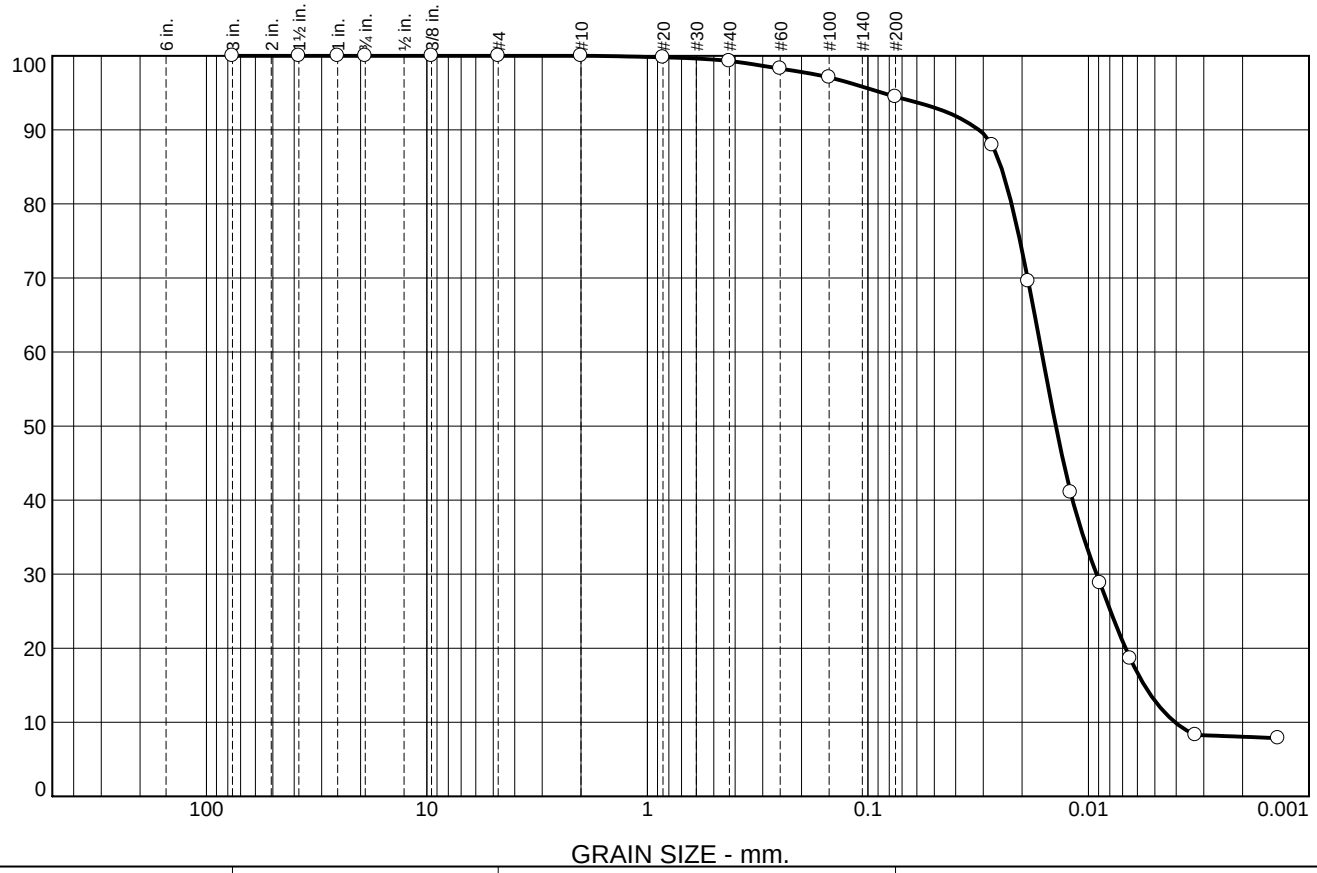
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	5	81	13

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	100		
#20	100		
#40	99		
#60	98		
#100	97		
#200	94		
0.0273 mm.	88		
0.0188 mm.	70		
0.0121 mm.	41		
0.0089 mm.	29		
0.0065 mm.	19		
0.0033 mm.	8.3		
0.0014 mm.	7.9		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A-5)

Atterberg Limits

PL= 42 LL= 52 PI= 10

Coefficients

D_{90}= 0.0314 D_{85}= 0.0249 D_{60}= 0.0163
D_{50}= 0.0141 D_{30}= 0.0092 D_{15}= 0.0056
D_{10}= 0.0040 C_u= 4.03 C_c= 1.28

Classification

USCS= MH AASHTO= A-5(15)

Remarks

Source of Sample: P-197 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/17

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

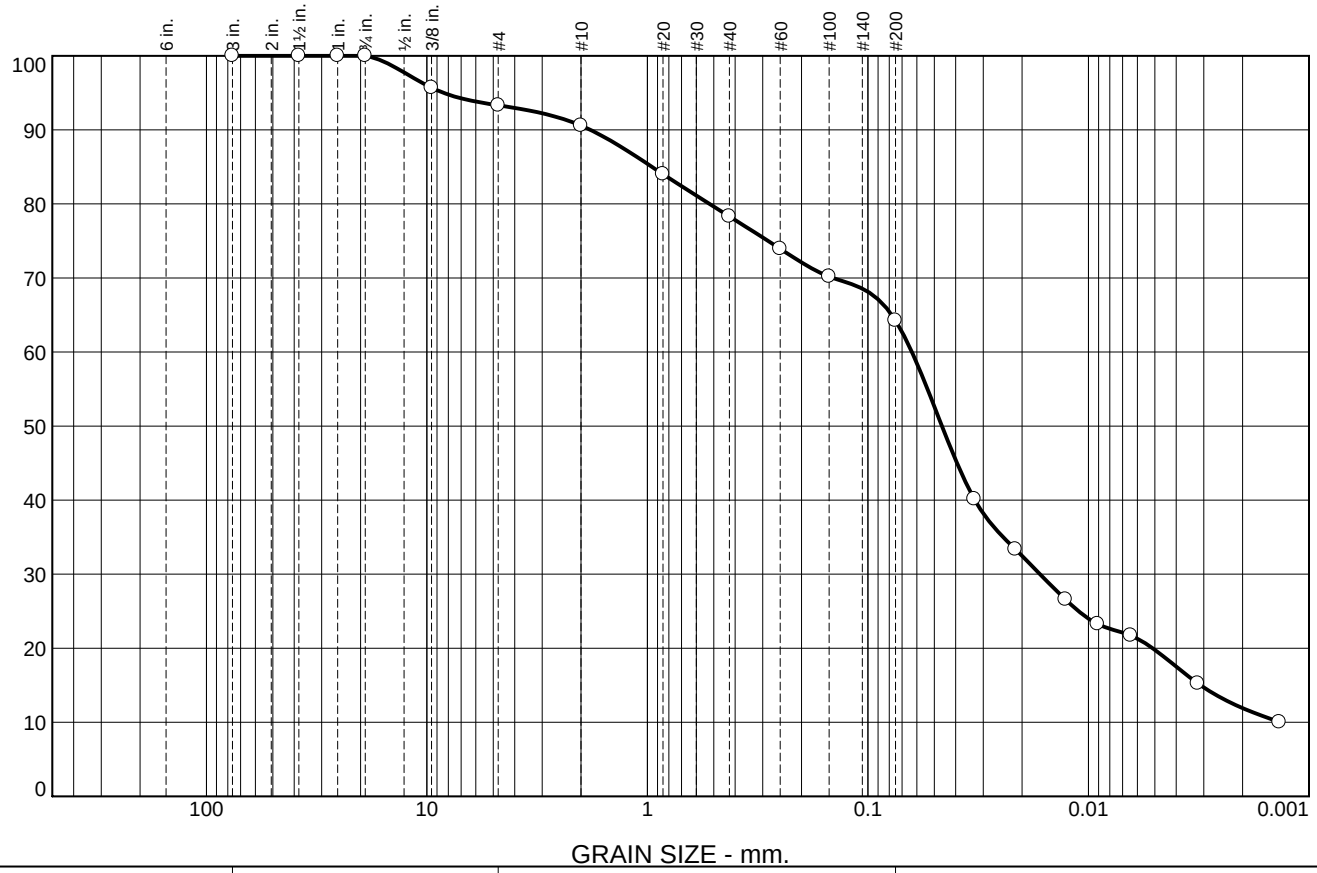
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	2	13	14	44	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	93		
#10	91		
#20	84		
#40	78		
#60	74		
#100	70		
#200	64		
0.0330 mm.	40		
0.0214 mm.	33		
0.0127 mm.	27		
0.0091 mm.	23		
0.0064 mm.	22		
0.0032 mm.	15		
0.0014 mm.	10		

* (no specification provided)

Soil Description

Hard to stiff, moist, reddish brown, Sandy SILT (ML) (A-4) with trace gravel

Atterberg Limits

PL= 29 LL= 36 PI= 7

Coefficients

D_{90}= 1.8161 D_{85}= 0.9536 D_{60}= 0.0632
D_{50}= 0.0462 D_{30}= 0.0166 D_{15}= 0.0031
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-198 **Depth:** 1.20-5.00
Sample Number: S-1/S-2/S-3

Date: 11/17/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

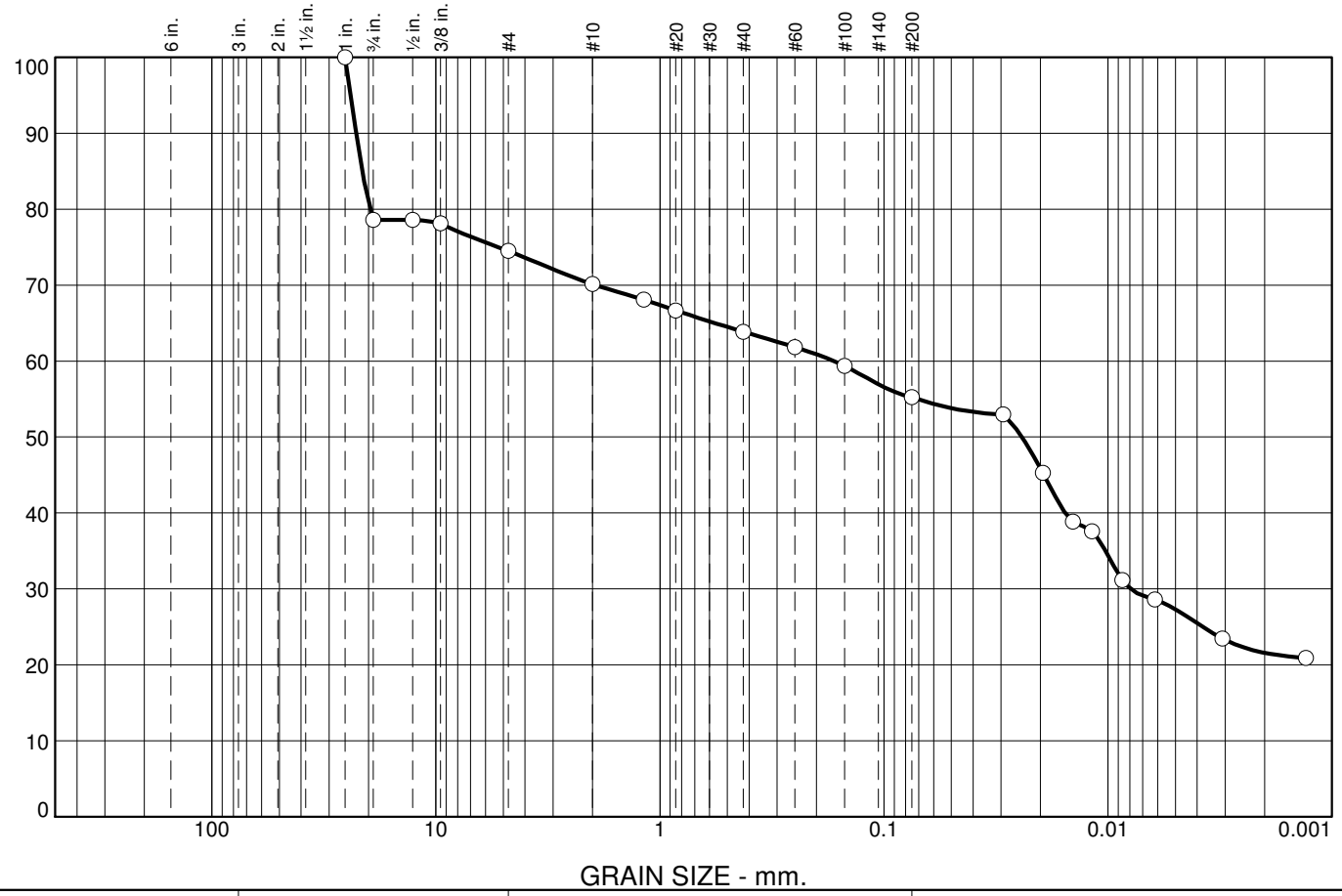
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	21	5	4	6	9	28	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	79		
1/2"	79		
3/8"	78		
#4	74		
#10	70		
#16	68		
#20	67		
#40	64		
#60	62		
#100	59		
#200	55		
0.0294 mm.	53		
0.0195 mm.	45		
0.0143 mm.	39		
0.0118 mm.	38		
0.0086 mm.	31		
0.0062 mm.	29		
0.0031 mm.	23		
0.0013 mm.	21		

* (no specification provided)

Soil Description

Very stiff, brown to tannish brown, Sandy CLAY (CL) (A-4) with trace roots

Atterberg Limits

PL= 21 LL= 30 PI= 9

Coefficients

D_{90}= 22.6947 D_{85}= 21.2910 D_{60}= 0.1671
D_{50}= 0.0243 D_{30}= 0.0079 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-4(3)

Remarks

Source of Sample: P-199 **Depth:** 2.00-6.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

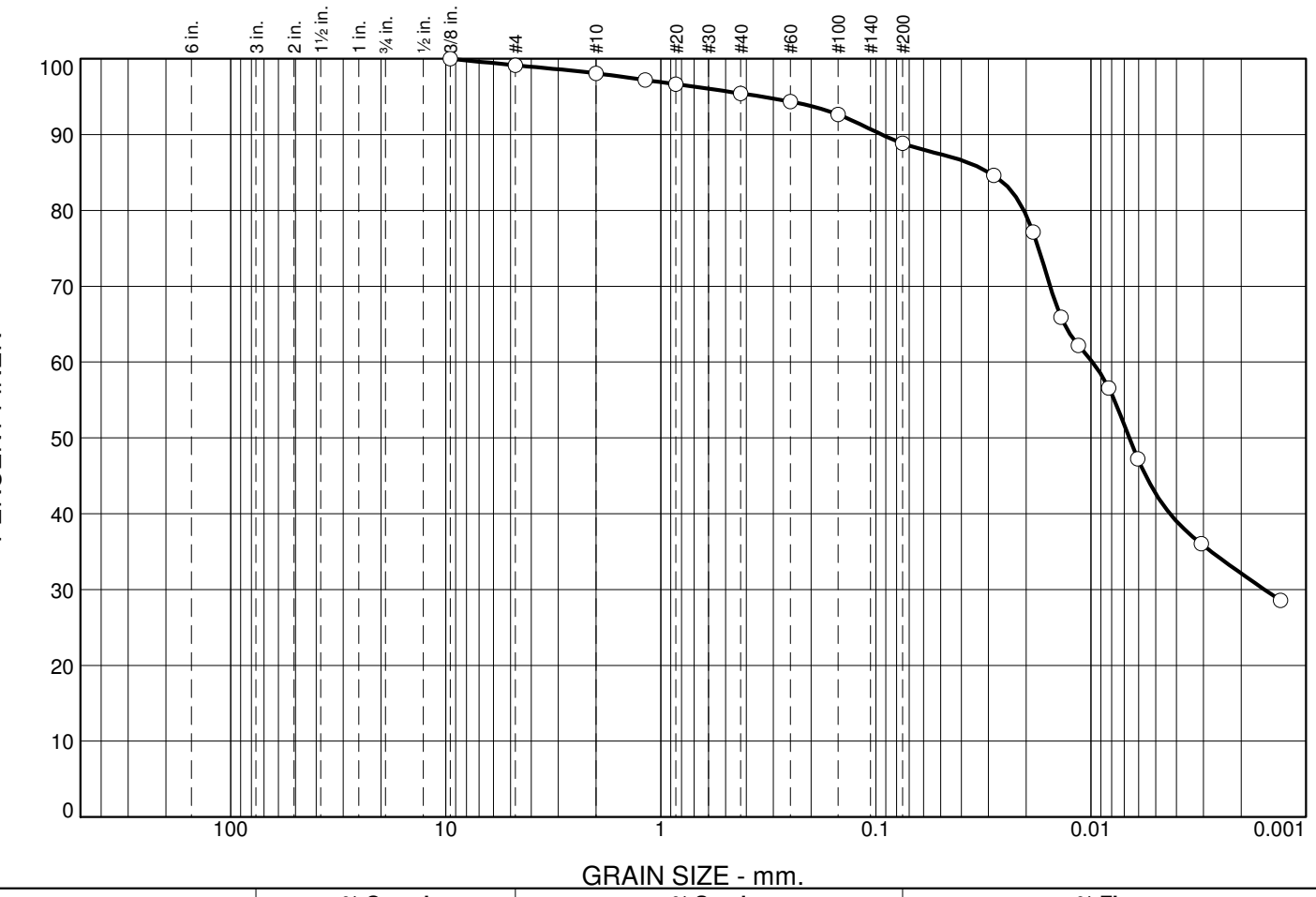
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	3	6	46	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	99		
#10	98		
#16	97		
#20	97		
#40	95		
#60	94		
#100	93		
#200	89		
0.0283 mm.	85		
0.0186 mm.	77		
0.0138 mm.	66		
0.0114 mm.	62		
0.0083 mm.	57		
0.0061 mm.	47		
0.0031 mm.	36		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5)

Atterberg Limits

PL= 30 LL= 46 PI= 16

Coefficients

D_{90}= 0.0938 D_{85}= 0.0299 D_{60}= 0.0098
D_{50}= 0.0066 D_{30}= 0.0016 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(17)

Remarks

Source of Sample: P-201 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:**

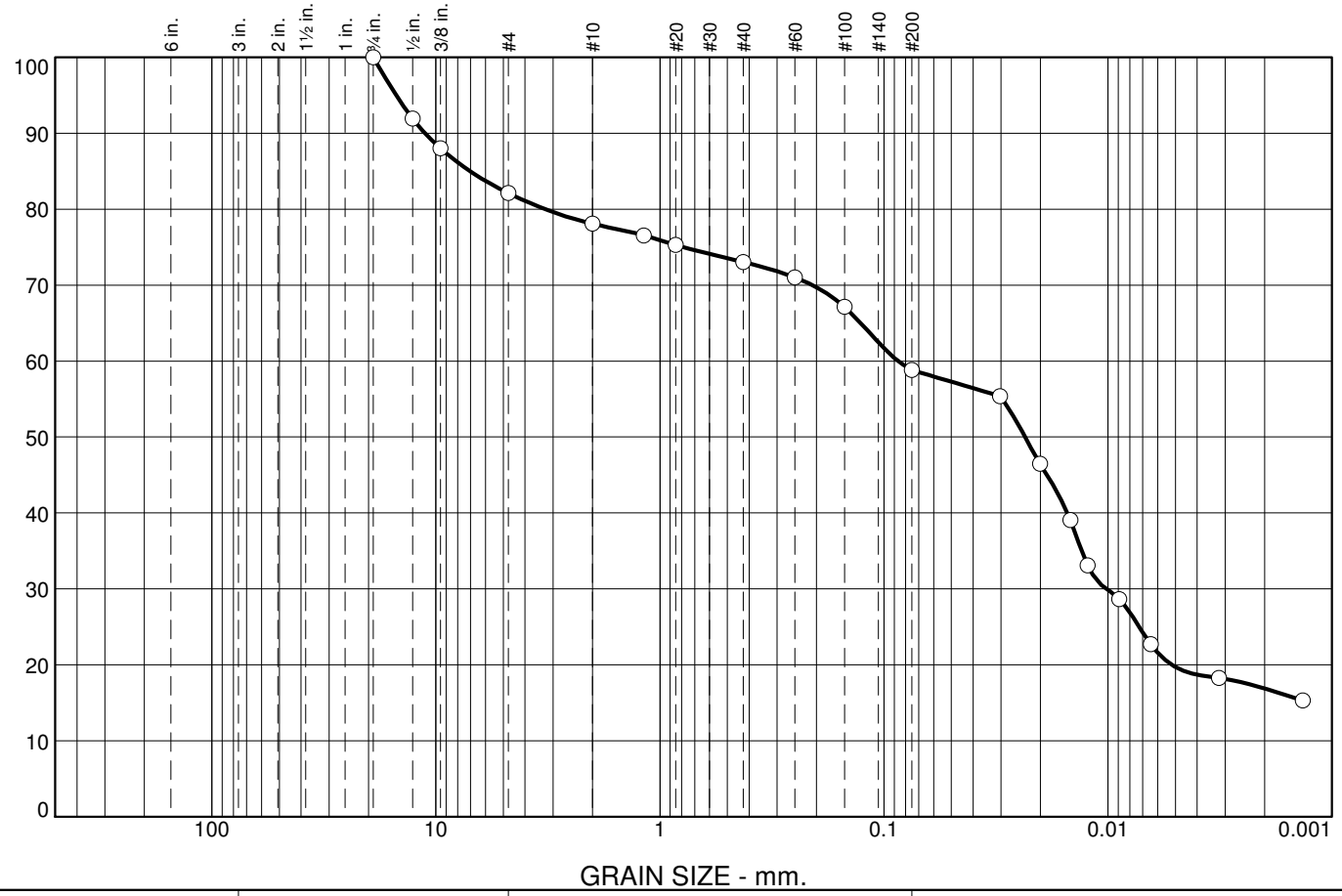
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	18	4	5	14	39	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	92		
3/8"	88		
#4	82		
#10	78		
#16	77		
#20	75		
#40	73		
#60	71		
#100	67		
#200	59		
0.0304 mm.	55		
0.0201 mm.	46		
0.0147 mm.	39		
0.0123 mm.	33		
0.0089 mm.	29		
0.0064 mm.	23		
0.0032 mm.	18		
0.0014 mm.	15		

* (no specification provided)

Soil Description

Stiff, moist, reddish tan, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 25 LL= 35 PI= 10

Coefficients

D_{90}= 11.1834 D_{85}= 7.0282 D_{60}= 0.0865
D_{50}= 0.0234 D_{30}= 0.0102 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-202 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

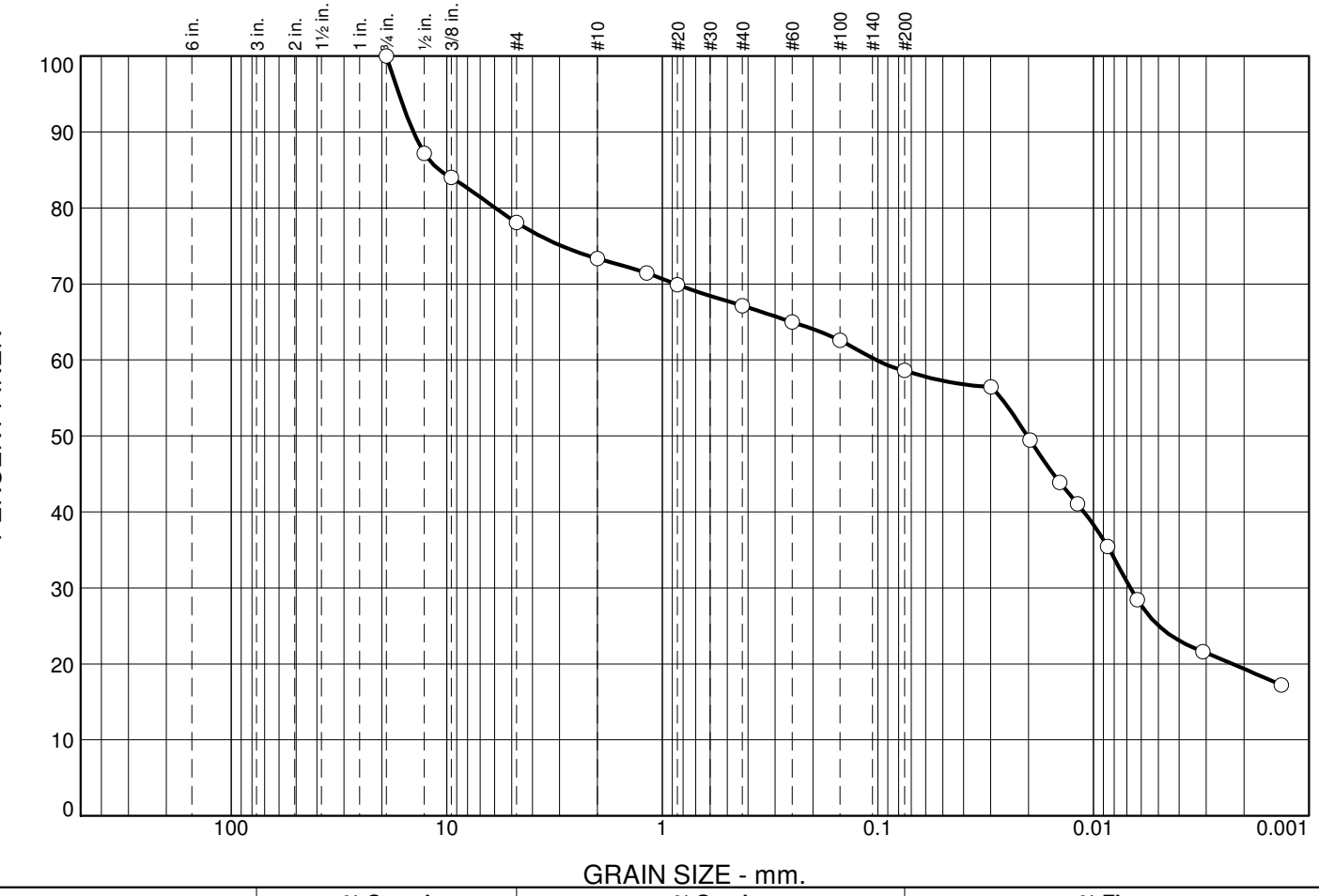
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	22	5	6	8	34	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	87		
3/8"	84		
#4	78		
#10	73		
#16	71		
#20	70		
#40	67		
#60	65		
#100	63		
#200	59		
0.0299 mm.	56		
0.0197 mm.	49		
0.0143 mm.	44		
0.0118 mm.	41		
0.0086 mm.	35		
0.0063 mm.	28		
0.0031 mm.	22		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown to tan, Sandy SILT (ML) (A-7-5) with trace roots and gravel

Atterberg Limits

PL= 36 LL= 48 PI= 12

Coefficients

D_{90}= 14.2668 D_{85}= 10.7992 D_{60}= 0.1016
D_{50}= 0.0203 D_{30}= 0.0067 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(7)

Remarks

Source of Sample: P-203 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

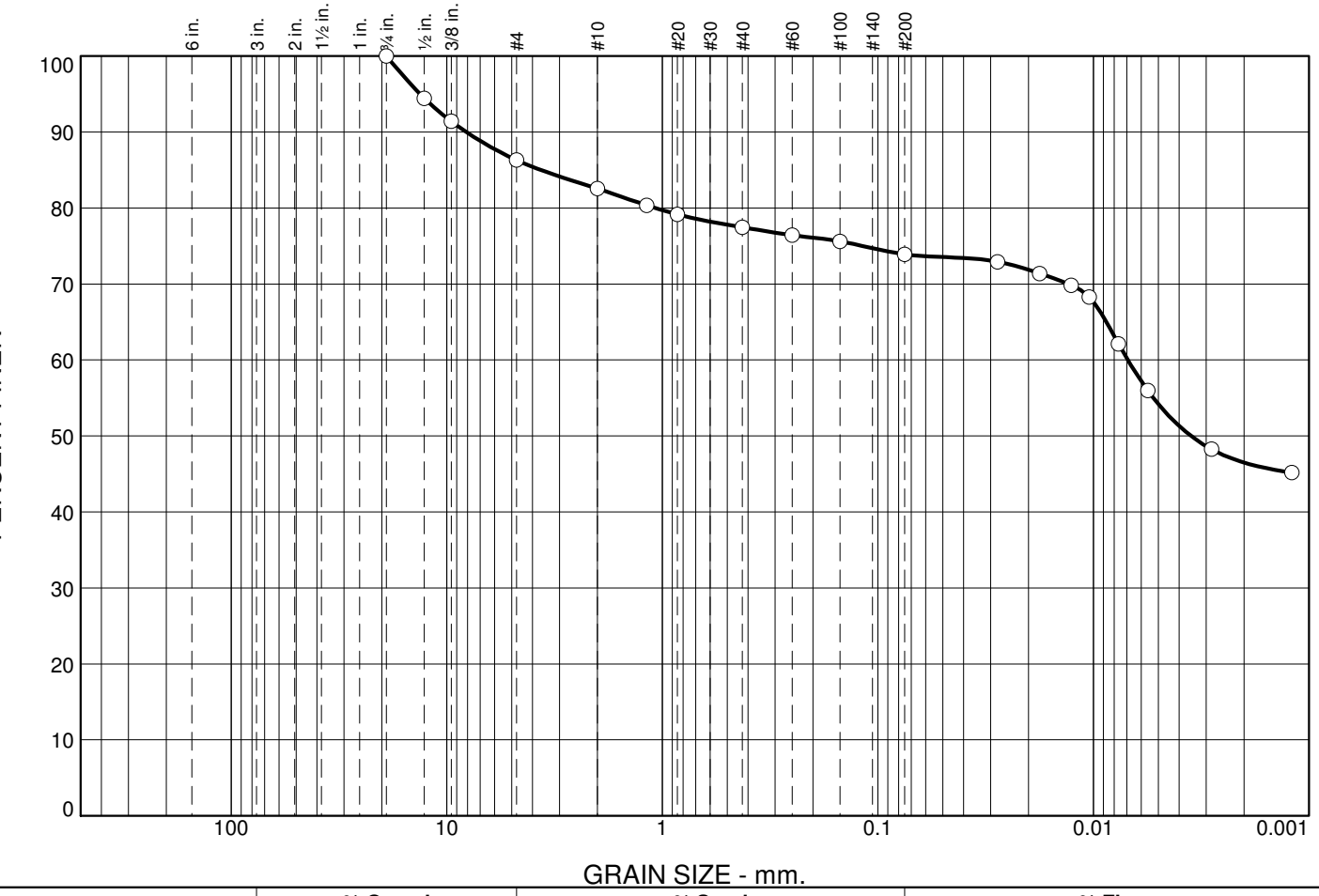
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	14	3	6	3	20	54

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	94		
3/8"	91		
#4	86		
#10	83		
#16	80		
#20	79		
#40	77		
#60	76		
#100	76		
#200	74		
0.0278 mm.	73		
0.0178 mm.	71		
0.0127 mm.	70		
0.0104 mm.	68		
0.0076 mm.	62		
0.0056 mm.	56		
0.0028 mm.	48		
0.0012 mm.	45		

* (no specification provided)

Soil Description

Very stiff, moist, tannish brown, Plastic CLAY (CH) (A-7-6)
-

Atterberg Limits

PL= 23 LL= 50 PI= 27

Coefficients

D_{90}= 8.1020 D_{85}= 3.6511 D_{60}= 0.0069
D_{50}= 0.0035 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(20)

Remarks

Source of Sample: P-206 **Depth:** 4.00-6.00
Sample Number: S-3 **Date:**

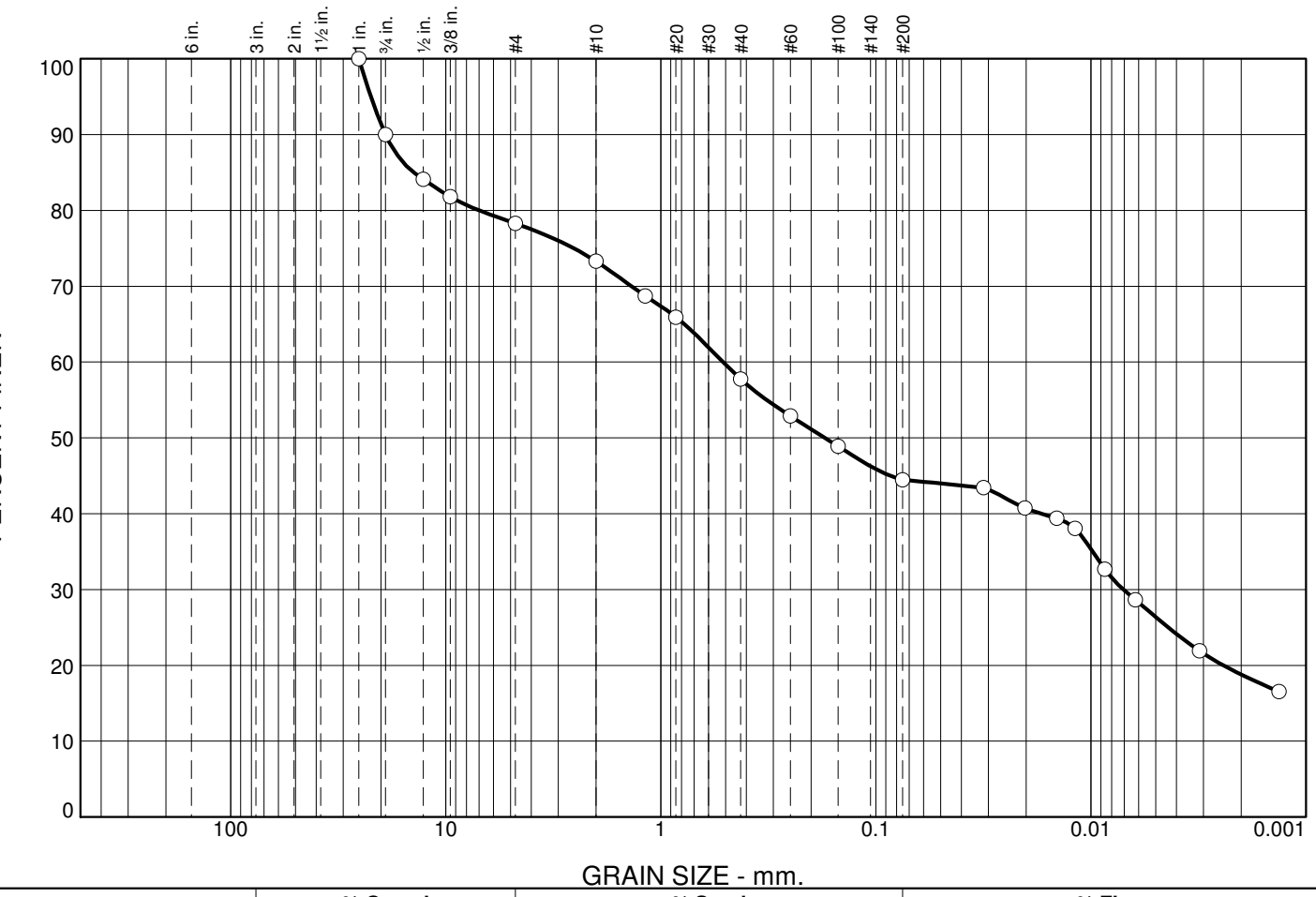
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	10	12	5	15	14	18	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	90		
1/2"	84		
3/8"	82		
#4	78		
#10	73		
#16	69		
#20	66		
#40	58		
#60	53		
#100	49		
#200	44		
0.0315 mm.	43		
0.0202 mm.	41		
0.0144 mm.	39		
0.0119 mm.	38		
0.0086 mm.	33		
0.0062 mm.	29		
0.0031 mm.	22		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish tan, Silty Fine to Medium SAND (SM) (A-4) with trace gravel-sized rock fragments

Atterberg Limits

PL= 29 LL= 41 PI= 12

Coefficients

D_{90}= 19.0530 D_{85}= 14.0437 D_{60}= 0.5137
D_{50}= 0.1726 D_{30}= 0.0071 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-7-6(2)

Remarks

Source of Sample: P-207 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

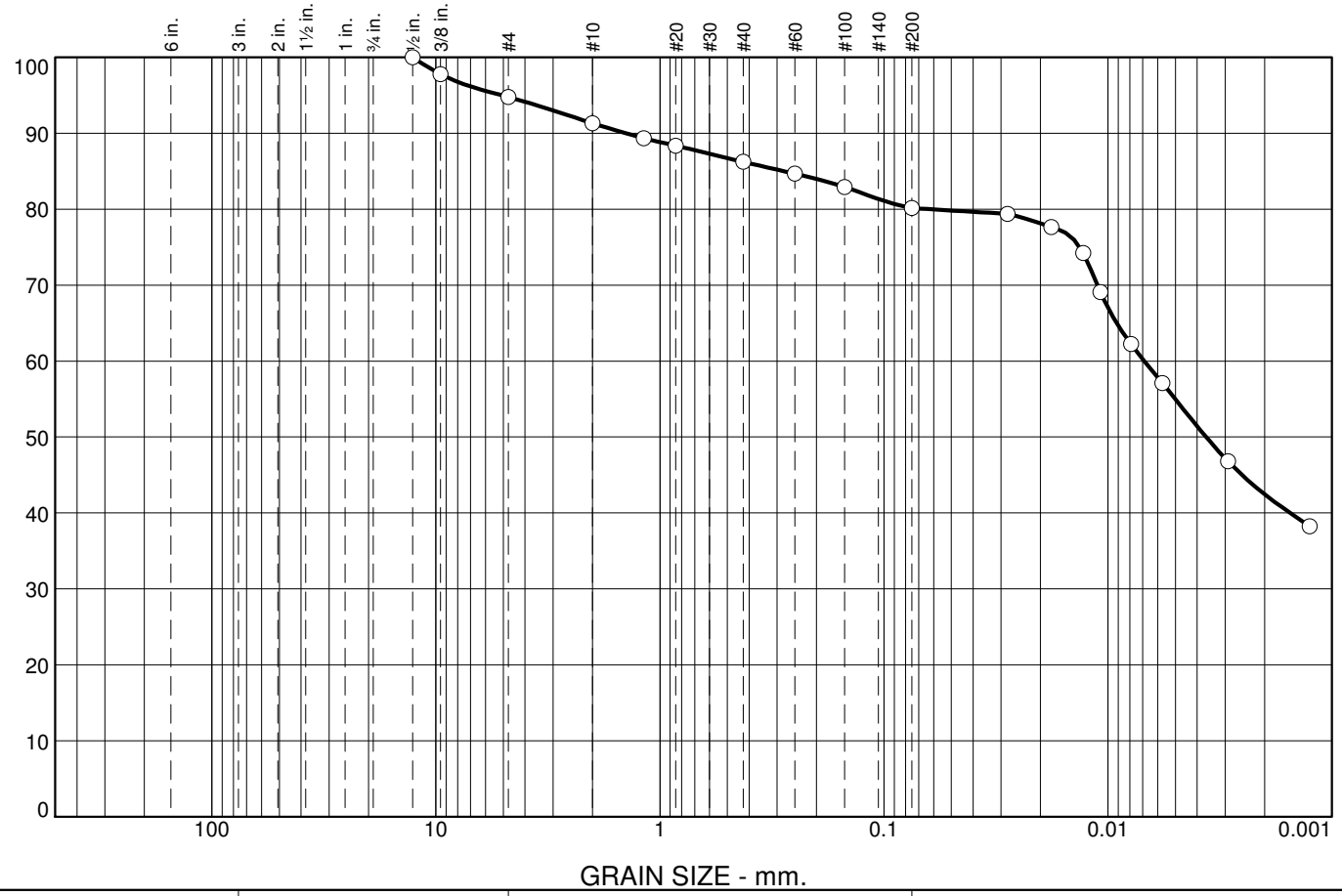
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	4	5	6	25	55

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100		
3/8"	98		
#4	95		
#10	91		
#16	89		
#20	88		
#40	86		
#60	85		
#100	83		
#200	80		
0.0281 mm.	79		
0.0179 mm.	78		
0.0129 mm.	74		
0.0108 mm.	69		
0.0079 mm.	62		
0.0057 mm.	57		
0.0029 mm.	47		
0.0013 mm.	38		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, tan, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 24 LL= 52 PI= 28

Coefficients

D_{90}= 1.4247 D_{85}= 0.2795 D_{60}= 0.0069
D_{50}= 0.0036 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(23)

Remarks

Source of Sample: P-209 **Depth:** 2.00-6.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

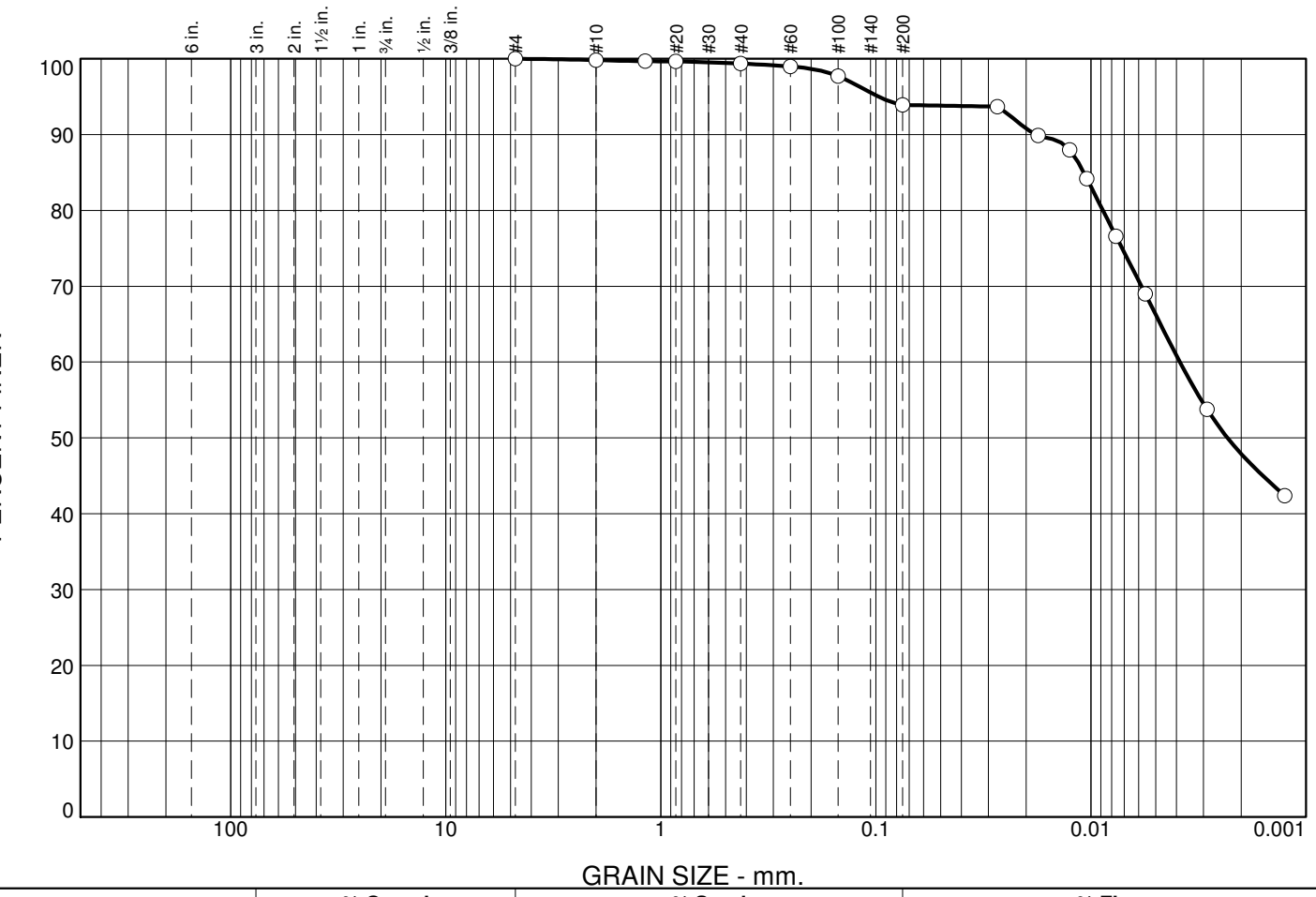
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	5	28	66

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	100		
#20	100		
#40	99		
#60	99		
#100	98		
#200	94		
0.0273 mm.	94		
0.0176 mm.	90		
0.0126 mm.	88		
0.0104 mm.	84		
0.0076 mm.	77		
0.0056 mm.	69		
0.0029 mm.	54		
0.0013 mm.	42		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 39 LL= 68 PI= 29

Coefficients

D_{90}= 0.0180 D_{85}= 0.0108 D_{60}= 0.0039
D_{50}= 0.0023 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(35)

Remarks

Source of Sample: P-210 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:**

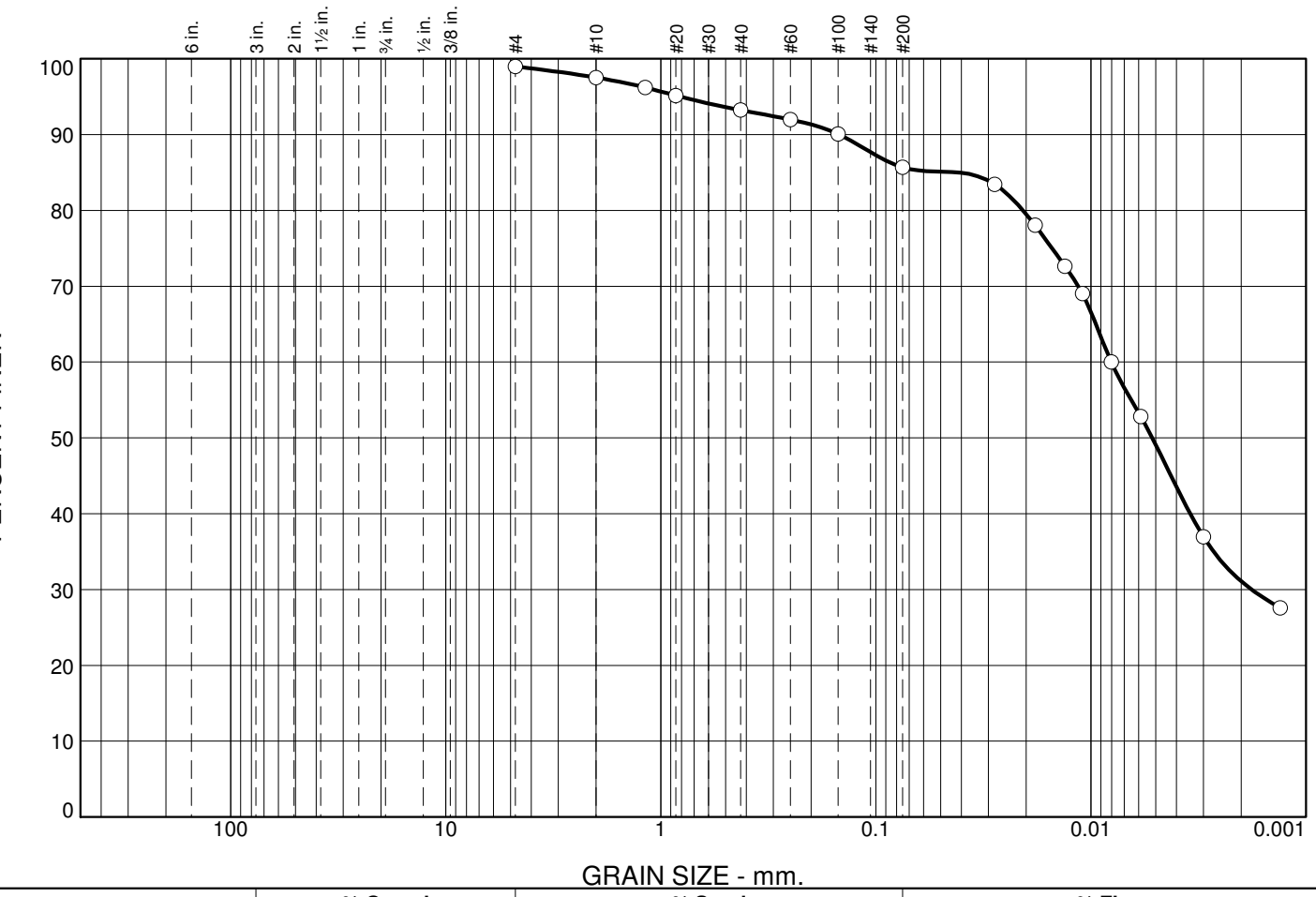
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			1	5	7	37	49

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
0.0280 mm.	83		
0.0182 mm.	78		
0.0132 mm.	73		
0.0109 mm.	69		
0.0080 mm.	60		
0.0059 mm.	53		
0.0030 mm.	37		
0.0013 mm.	28		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Elastic SILT (MH)(A-7-5)

Atterberg Limits

PL= 48 LL= 65 PI= 17

Coefficients

D_{90}= 0.1479 D_{85}= 0.0413 D_{60}= 0.0080
D_{50}= 0.0052 D_{30}= 0.0018 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

Source of Sample: P-210 **Depth:** 4.00-6.00
Sample Number: S-3

Date: 11/21/2017

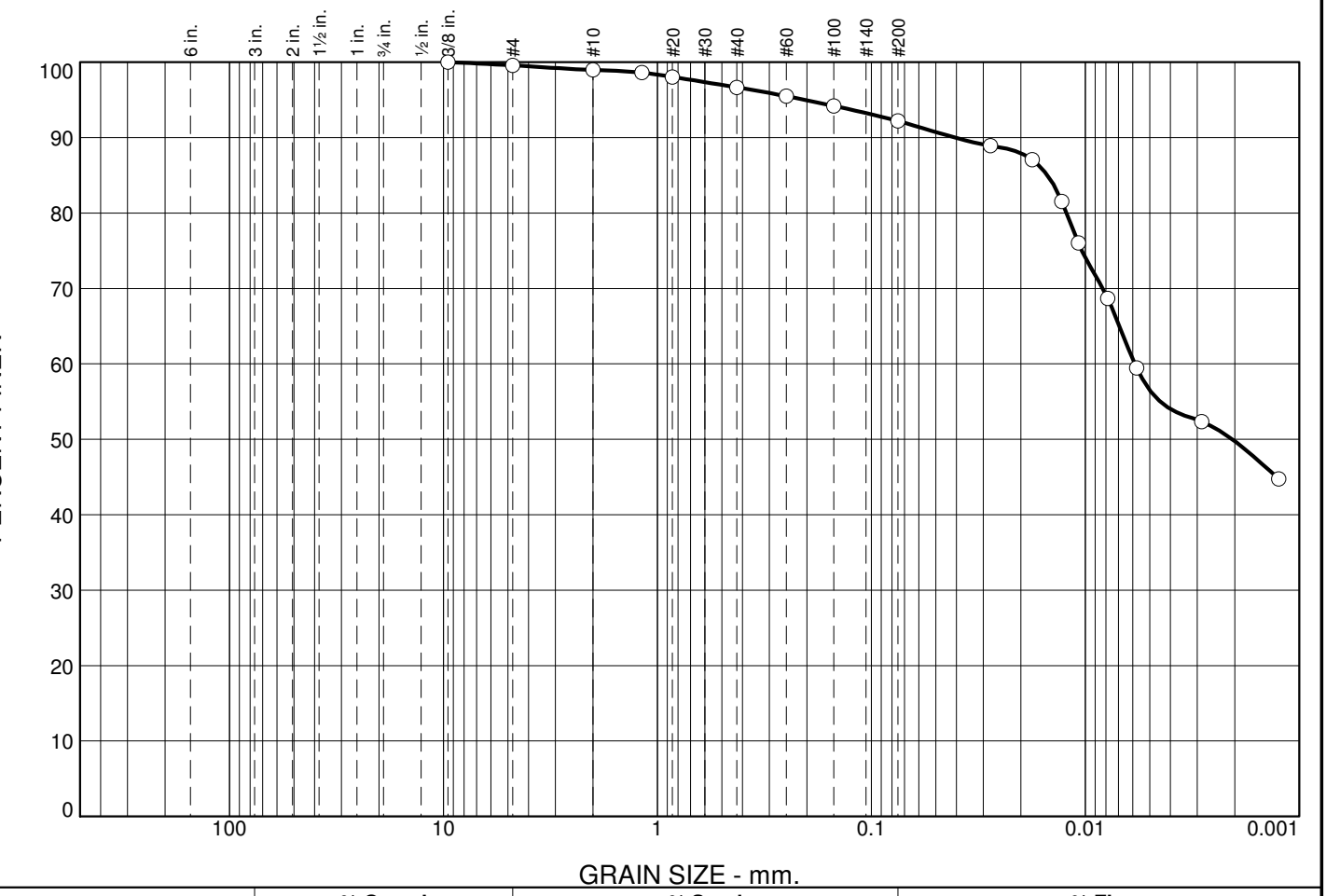
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	2	5	35	57

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	100		
#10	99		
#16	99		
#20	98		
#40	97		
#60	95		
#100	94		
#200	92		
0.0277 mm.	89		
0.0177 mm.	87		
0.0129 mm.	82		
0.0108 mm.	76		
0.0079 mm.	69		
0.0058 mm.	59		
0.0029 mm.	52		
0.0012 mm.	45		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, reddish tan to brownish tan, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 25 LL= 51 PI= 26

Coefficients

D_{90}= 0.0406 D_{85}= 0.0150 D_{60}= 0.0059
D_{50}= 0.0021 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(27)

Remarks

Source of Sample: P-211 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

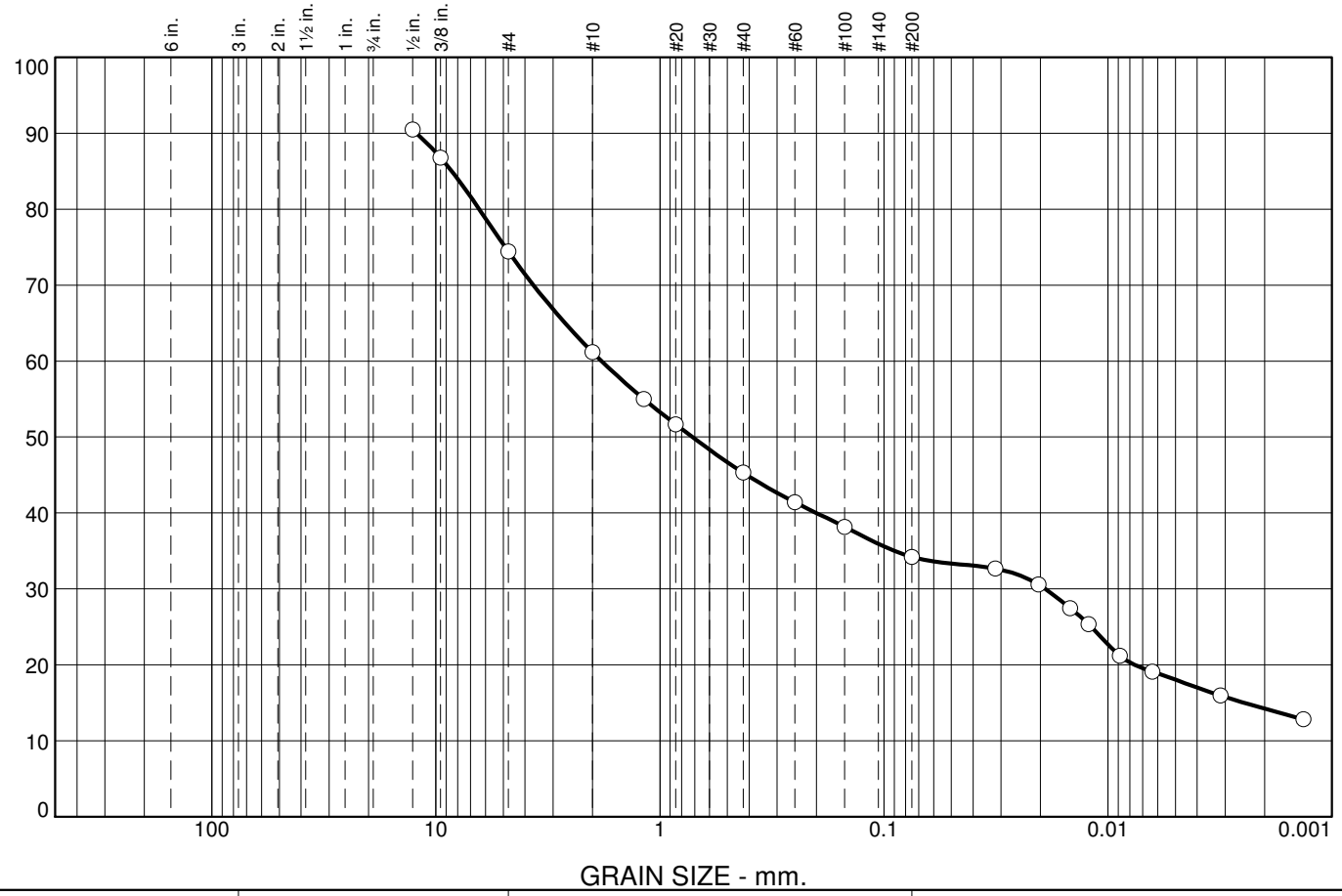
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			13	16	11	16	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	90		
3/8"	87		
#4	74		
#10	61		
#16	55		
#20	52		
#40	45		
#60	41		
#100	38		
#200	34		
0.0318 mm.	33		
0.0204 mm.	31		
0.0147 mm.	27		
0.0122 mm.	25		
0.0088 mm.	21		
0.0063 mm.	19		
0.0031 mm.	16		
0.0013 mm.	13		

* (no specification provided)

Soil Description

Medium dense, moist, tannish gray to brown, Silty Fine to Coarse SAND (SM) (A-2-6) with trace gravel

Atterberg Limits

PL= 25 LL= 36 PI= 11

Coefficients

D_{90}= 12.1970 D_{85}= 8.4858 D_{60}= 1.8226
D_{50}= 0.7165 D_{30}= 0.0191 D_{15}= 0.0025
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-6(0)

Remarks

Source of Sample: P-212 **Depth:** 2.00-6.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

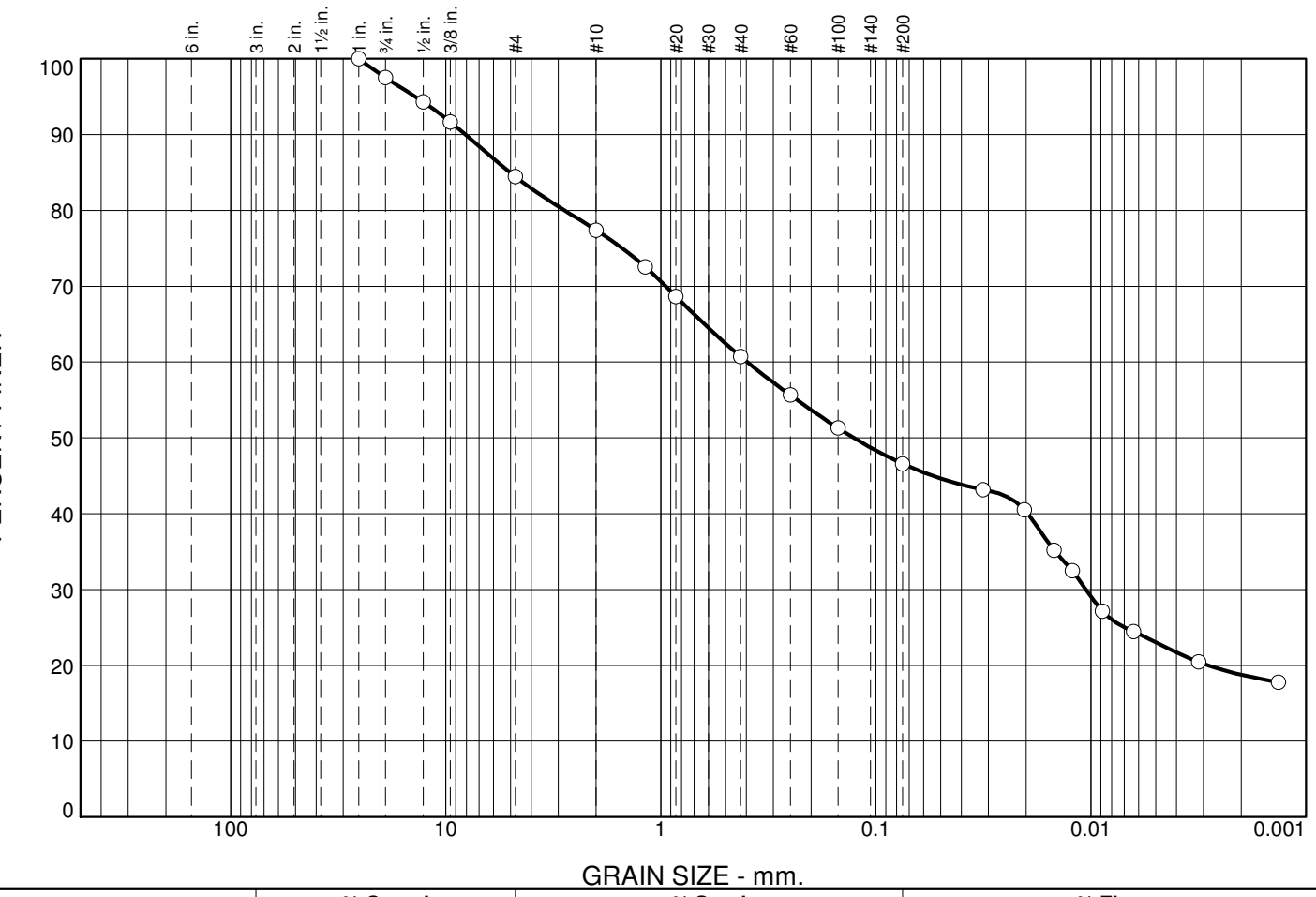
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	2	14	7	16	14	24	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	98		
1/2"	94		
3/8"	92		
#4	84		
#10	77		
#16	73		
#20	69		
#40	61		
#60	56		
#100	51		
#200	47		
0.0318 mm.	43		
0.0204 mm.	41		
0.0148 mm.	35		
0.0122 mm.	32		
0.0088 mm.	27		
0.0063 mm.	24		
0.0032 mm.	20		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Loose, moist, tannish brown, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 25 LL= 32 PI= 7

Coefficients

D_{90}= 8.0935 D_{85}= 5.0242 D_{60}= 0.3964
D_{50}= 0.1266 D_{30}= 0.0105 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(1)

Remarks

Source of Sample: P-215 **Depth:** 2.00-6.00
Sample Number: S-2/S-3 **Date:**

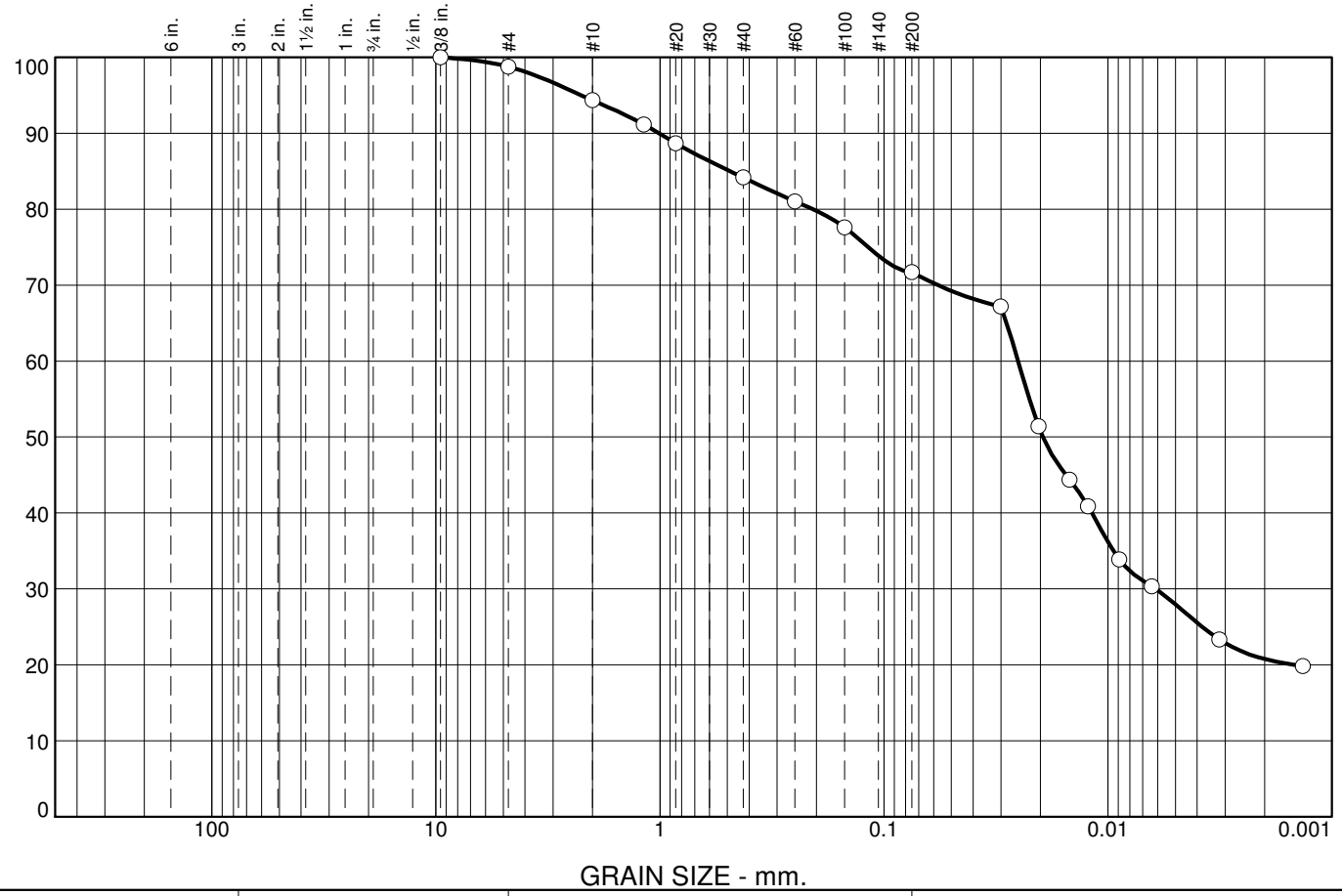
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	5	10	12	44	28

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	99		
#10	94		
#16	91		
#20	89		
#40	84		
#60	81		
#100	78		
#200	72		
0.0301 mm.	67		
0.0204 mm.	51		
0.0148 mm.	44		
0.0123 mm.	41		
0.0089 mm.	34		
0.0064 mm.	30		
0.0032 mm.	23		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Hard, moist, grayish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 25 LL= 31 PI= 6

Coefficients

D_{90}= 1.0103 D_{85}= 0.4866 D_{60}= 0.0252
D_{50}= 0.0195 D_{30}= 0.0061 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(3)

Remarks

Source of Sample: P-217 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

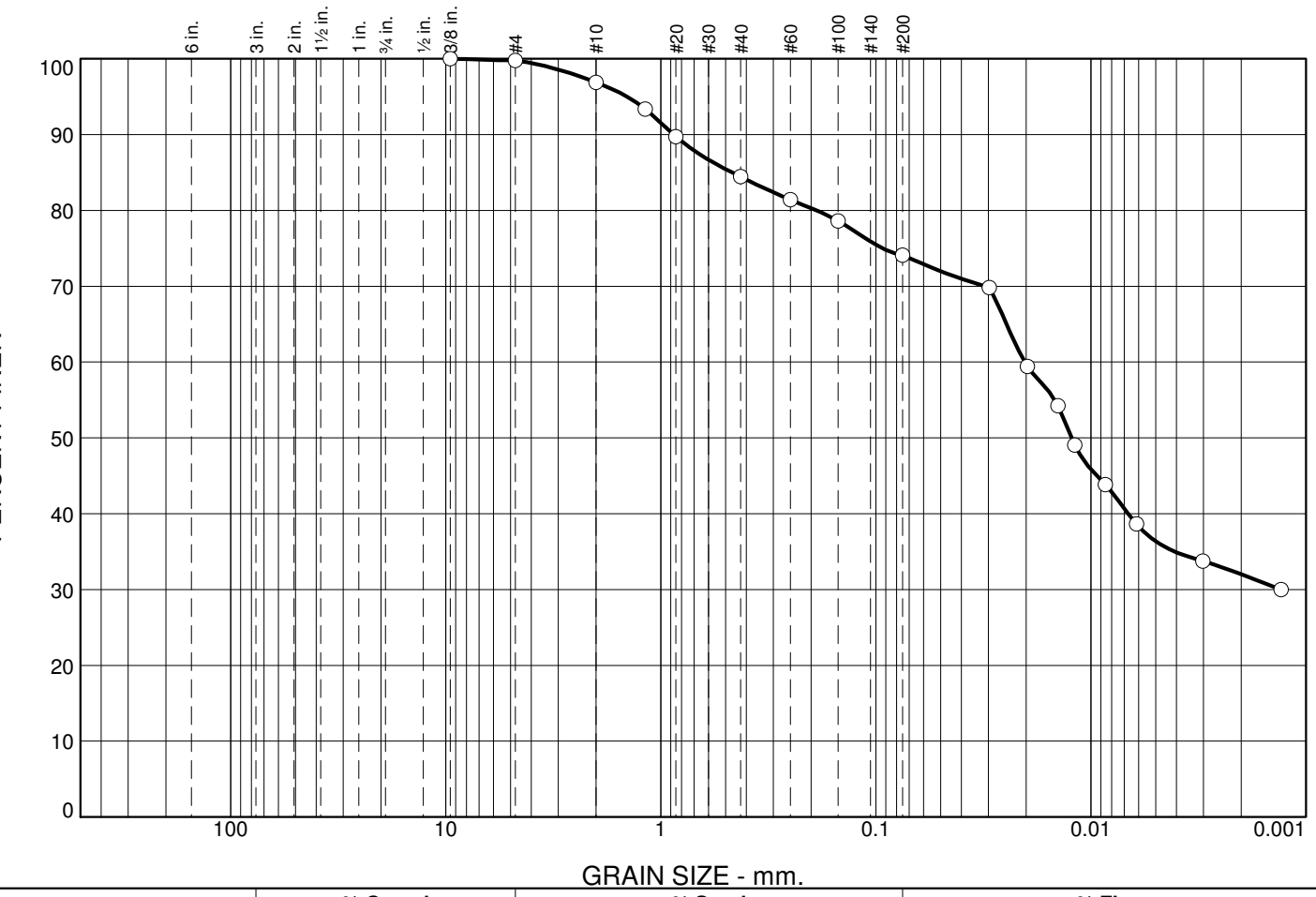
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identica

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	3	13	10	38	36

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	100		
#10	97		
#16	93		
#20	90		
#40	84		
#60	81		
#100	79		
#200	74		
0.0297 mm.	70		
0.0197 mm.	59		
0.0142 mm.	54		
0.0119 mm.	49		
0.0086 mm.	44		
0.0061 mm.	39		
0.0030 mm.	34		
0.0013 mm.	30		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish tan to gray, Plastic CLAY (CH) (A-7-6)

Atterberg Limits

PL= 22 LL= 58 PI= 36

Coefficients

D_{90}= 0.8718 D_{85}= 0.4657 D_{60}= 0.0203
D_{50}= 0.0123 D_{30}= 0.0013 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(27)

Remarks

Source of Sample: P-218 **Depth:** 4.00-6.00
Sample Number: S-3 **Date:**

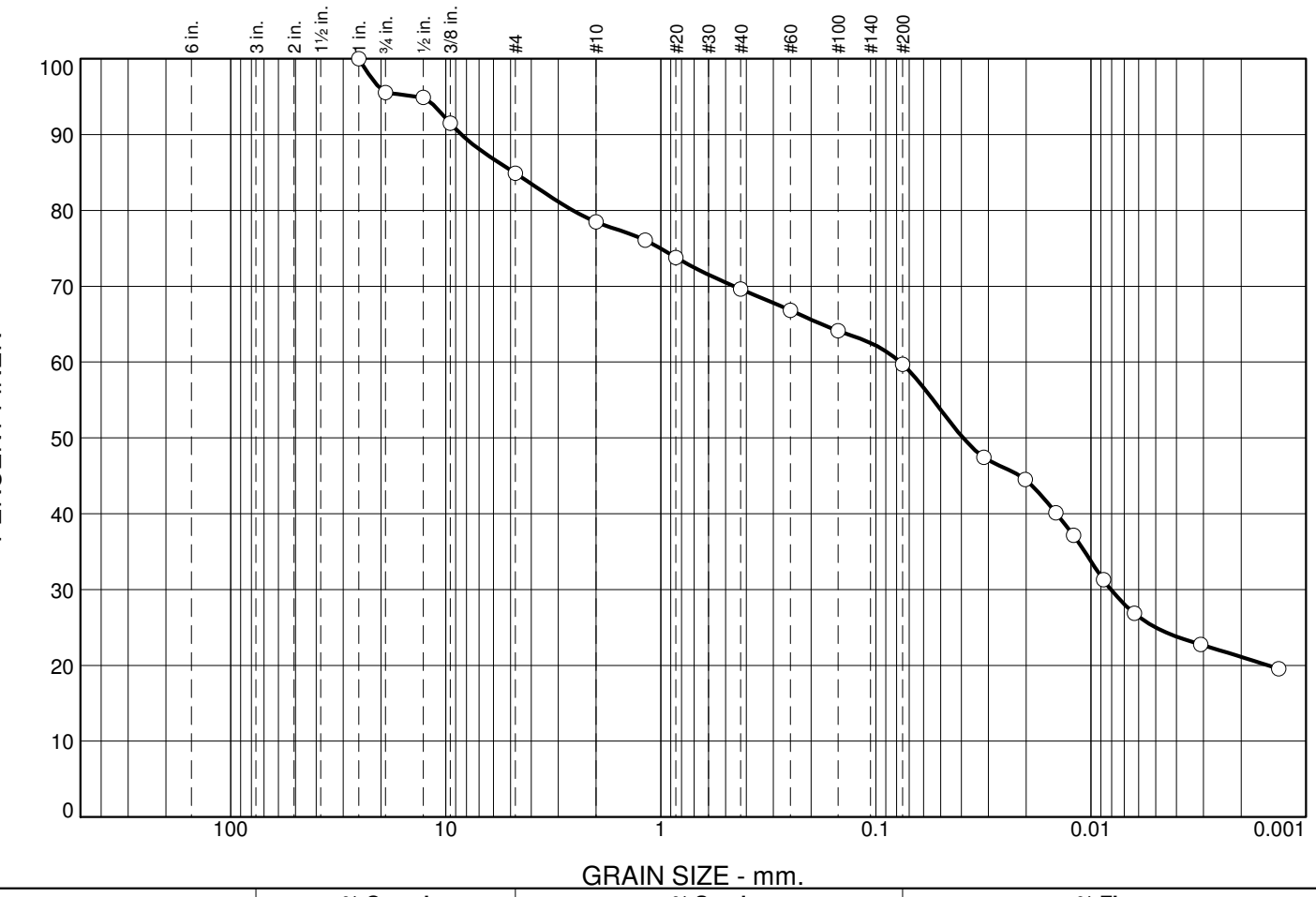
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	4	11	7	8	10	35	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100		
3/4"	96		
1/2"	95		
3/8"	91		
#4	85		
#10	78		
#16	76		
#20	74		
#40	70		
#60	67		
#100	64		
#200	60		
0.0315 mm.	47		
0.0202 mm.	45		
0.0146 mm.	40		
0.0120 mm.	37		
0.0087 mm.	31		
0.0063 mm.	27		
0.0031 mm.	23		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Very stiff, moist, orangish brown to gray, Sandy CLAY (CL) (A-4)

Atterberg Limits

PL= 21 LL= 30 PI= 9

Coefficients

D_{90}= 8.4500 D_{85}= 4.8031 D_{60}= 0.0770
D_{50}= 0.0393 D_{30}= 0.0081 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-4(3)

Remarks

Source of Sample: P-220 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

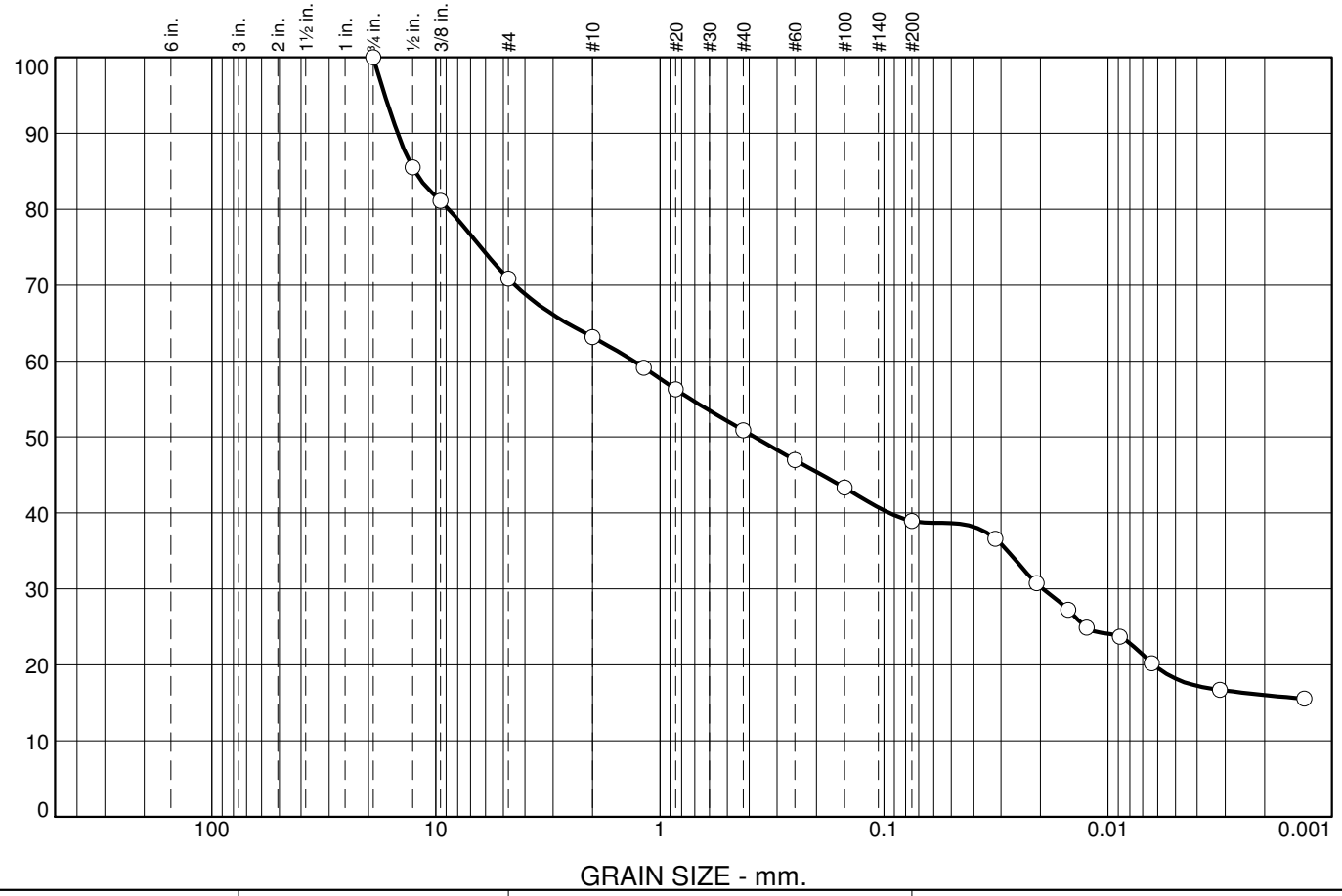
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	29	8	12	12	21	18

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	85		
3/8"	81		
#4	71		
#10	63		
#16	59		
#20	56		
#40	51		
#60	47		
#100	43		
#200	39		
0.0318 mm.	37		
0.0208 mm.	31		
0.0150 mm.	27		
0.0124 mm.	25		
0.0088 mm.	24		
0.0064 mm.	20		
0.0032 mm.	17		
0.0013 mm.	16		

* (no specification provided)

Soil Description

Medium dense, moist, tannish brown, Clayey Fine to Medium SAND (SC) (A-4)

Atterberg Limits

PL= 24 LL= 33 PI= 9

Coefficients

D_{90}= 14.7960 D_{85}= 12.4215 D_{60}= 1.3101
D_{50}= 0.3771 D_{30}= 0.0195 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-4(0)

Remarks

Source of Sample: P-221 **Depth:** 2.00-6.00
Sample Number: S-2/S-3 **Date:**

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: HE **Checked By:** WS

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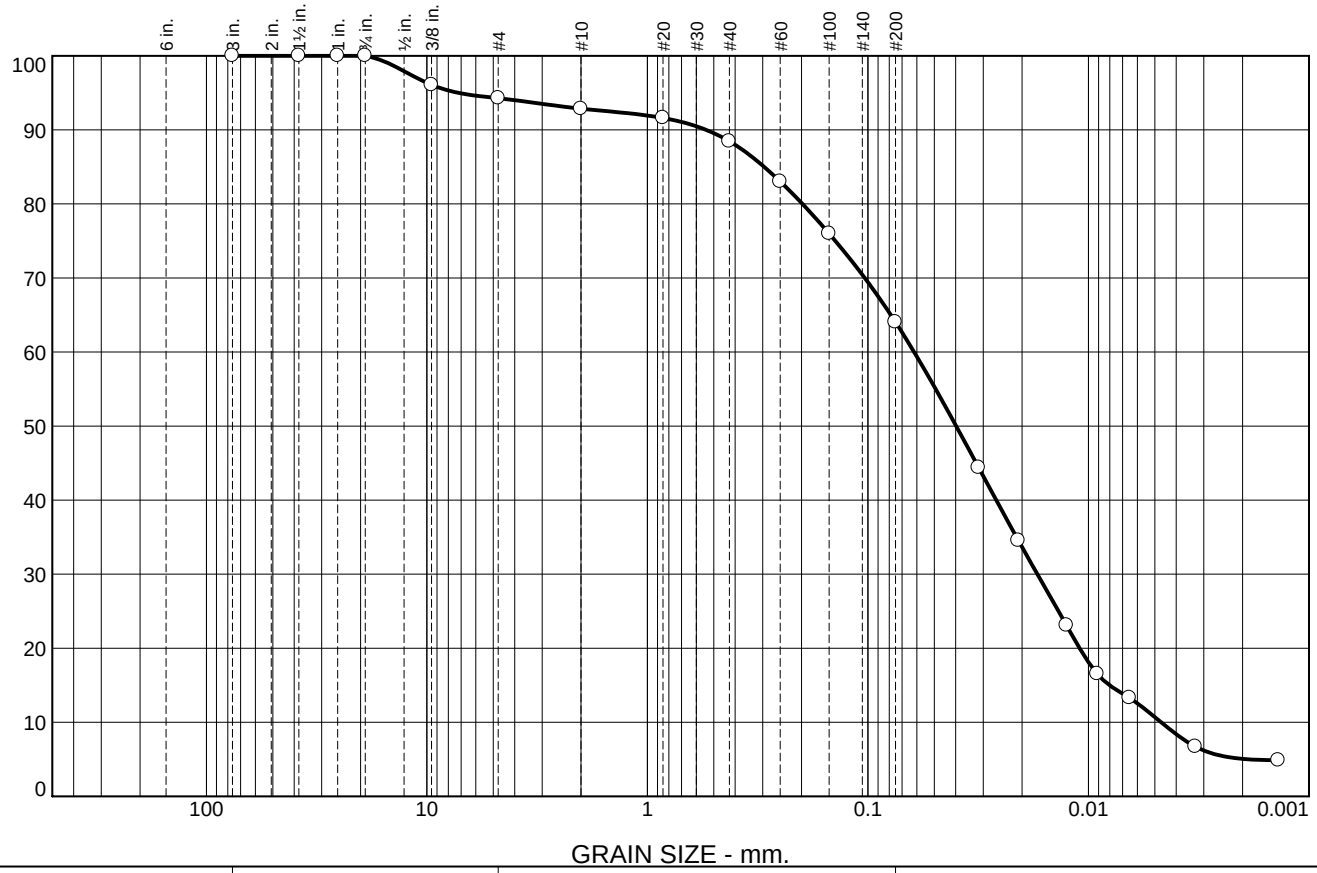
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	1	5	24	53	11

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	94		
#10	93		
#20	92		
#40	88		
#60	83		
#100	76		
#200	64		
0.0315 mm.	44		
0.0208 mm.	35		
0.0126 mm.	23		
0.0091 mm.	17		
0.0065 mm.	13		
0.0033 mm.	6.7		
0.0014 mm.	4.9		

* (no specification provided)

Soil Description

Very stiff, moist, tannish brown, Sandy SILT (ML)(A-6) with trace gravel-sized rock fragments

Atterberg Limits

PL= 26 LL= 37 PI= 11

Coefficients

D_{90}= 0.5411 D_{85}= 0.2955 D_{60}= 0.0617
D_{50}= 0.0398 D_{30}= 0.0170 D_{15}= 0.0080
D_{10}= 0.0047 C_u= 13.20 C_c= 1.01

Classification

USCS= ML AASHTO= A-6(6)

Remarks

Source of Sample: P-222 **Depth:** 2.00-5.00
Sample Number: S-2/S-3

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

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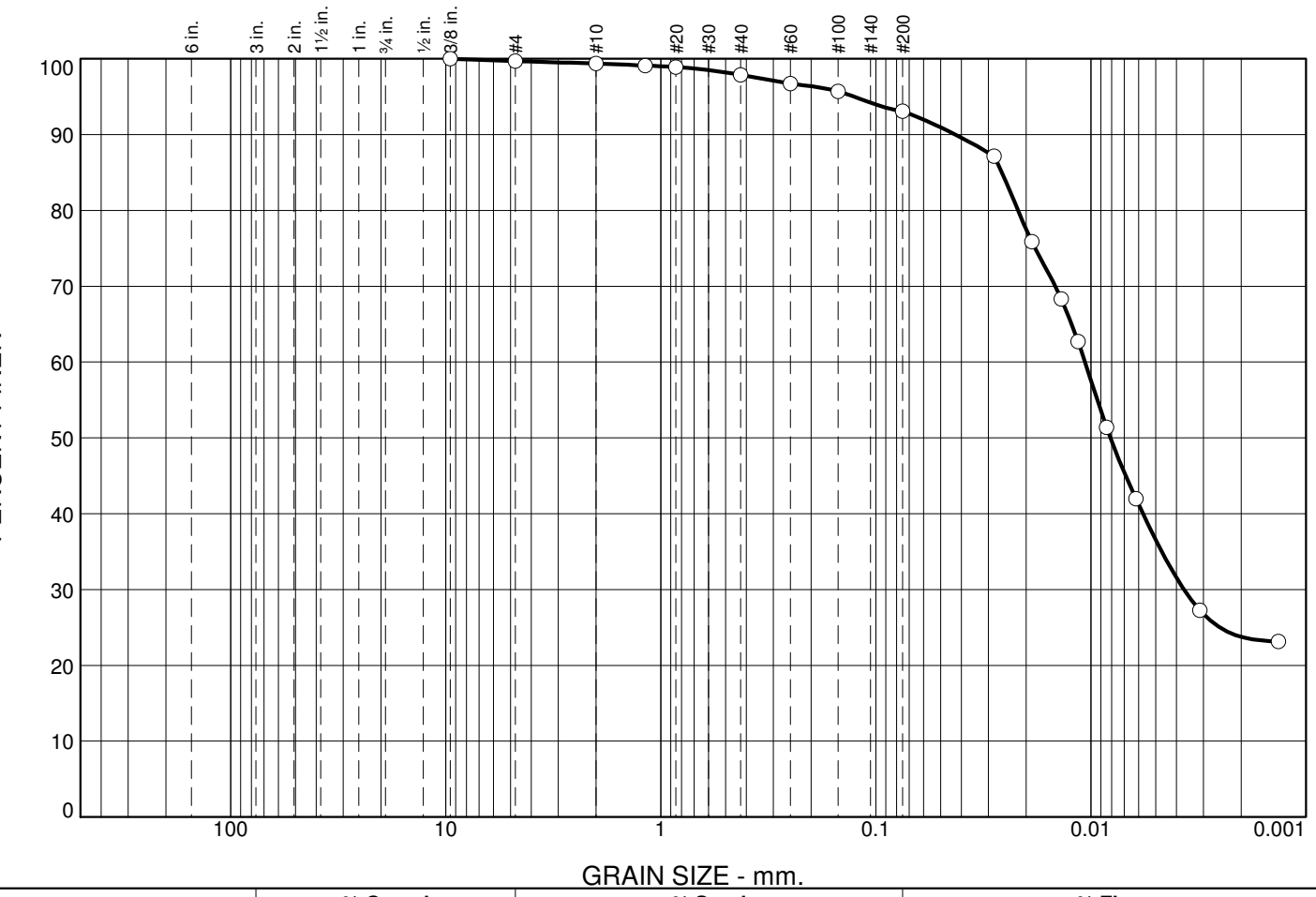
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	1	5	56	37

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	100		
#10	99		
#16	99		
#20	99		
#40	98		
#60	97		
#100	96		
#200	93		
0.0282 mm.	87		
0.0188 mm.	76		
0.0137 mm.	68		
0.0115 mm.	63		
0.0085 mm.	51		
0.0062 mm.	42		
0.0031 mm.	27		
0.0013 mm.	23		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Elastic SILT (MH) (A 7-5)

-

Atterberg Limits

PL= 39 LL= 56 PI= 17

Coefficients

D_{90}= 0.0427 D_{85}= 0.0259 D_{60}= 0.0107
D_{50}= 0.0081 D_{30}= 0.0037 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(22)

Remarks

Source of Sample: P-223 **Depth:** 4.00-6.00
Sample Number: S-3 **Date:**

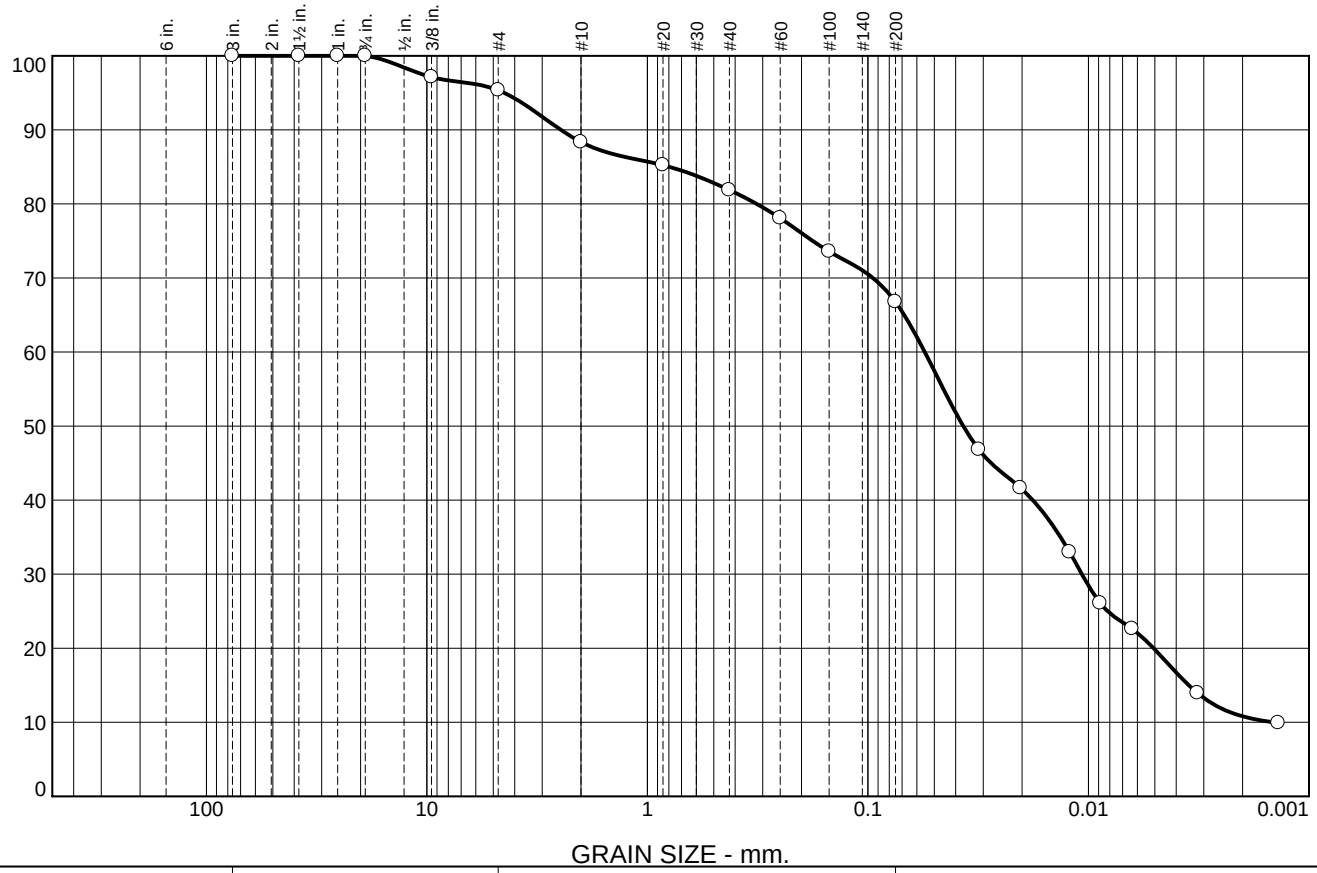
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	7	6	15	47	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	97		
#4	95		
#10	88		
#20	85		
#40	82		
#60	78		
#100	74		
#200	67		
0.0314 mm.	47		
0.0203 mm.	42		
0.0122 mm.	33		
0.0088 mm.	26		
0.0063 mm.	23		
0.0032 mm.	14		
0.0014 mm.	9.9		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown to orangish tan, Sandy SILT (ML)(A-4) with trace gravel

Atterberg Limits

PL= 27 LL= 36 PI= 9

Coefficients

D_{90}= 2.4684 D_{85}= 0.7946 D_{60}= 0.0553
D_{50}= 0.0370 D_{30}= 0.0107 D_{15}= 0.0035
D_{10}= 0.0015 C_u= 38.02 C_c= 1.43

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-224 **Depth:** 0.50-3.50
Sample Number: S-1/S-2

Date: 11/10/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

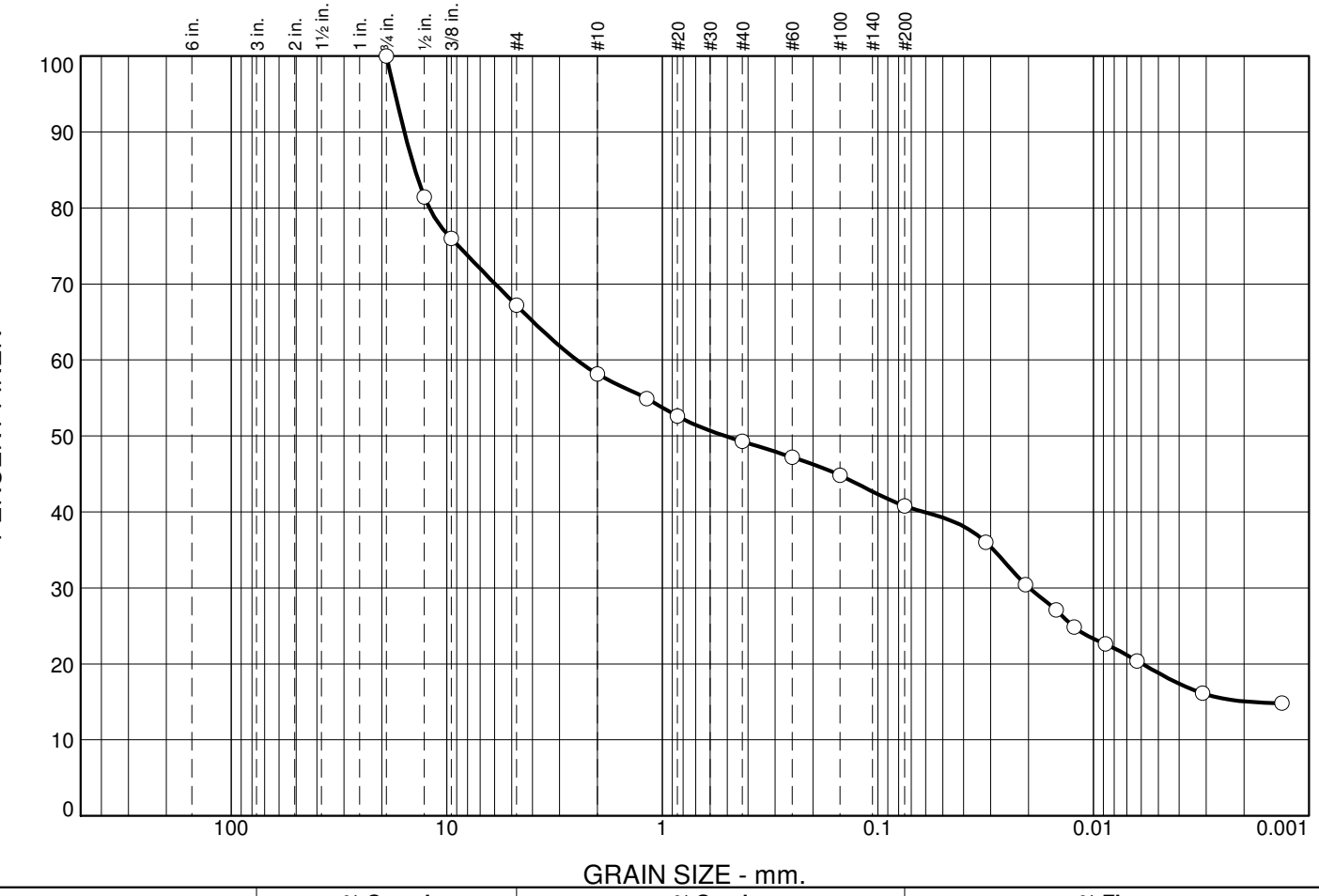
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	33	9	9	8	22	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	81		
3/8"	76		
#4	67		
#10	58		
#16	55		
#20	53		
#40	49		
#60	47		
#100	45		
#200	41		
0.0315 mm.	36		
0.0206 mm.	30		
0.0149 mm.	27		
0.0123 mm.	25		
0.0088 mm.	23		
0.0063 mm.	20		
0.0031 mm.	16		
0.0013 mm.	15		

* (no specification provided)

Soil Description

Medium dense, moist, tannish brown, Clayey GRAVEL (GC) (A-4)

Atterberg Limits

PL= 20 LL= 29 PI= 9

Coefficients

D_{90}= 15.7070 D_{85}= 14.0409 D_{60}= 2.4938
D_{50}= 0.5108 D_{30}= 0.0199 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= GC AASHTO= A-4(1)

Remarks

Source of Sample: P-227 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:**

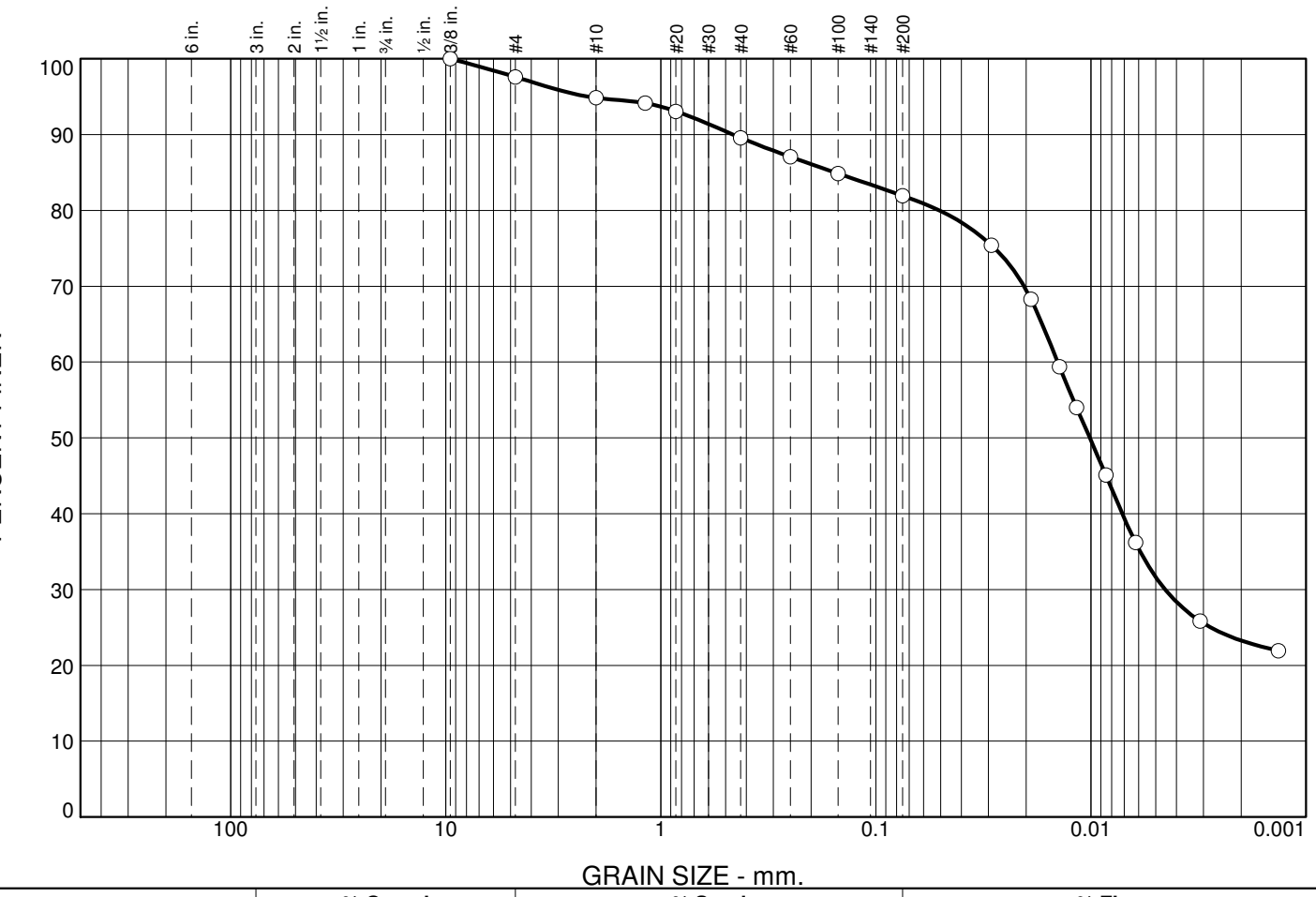
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	3	5	8	50	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100		
#4	98		
#10	95		
#16	94		
#20	93		
#40	90		
#60	87		
#100	85		
#200	82		
0.0291 mm.	75		
0.0190 mm.	68		
0.0140 mm.	59		
0.0117 mm.	54		
0.0085 mm.	45		
0.0062 mm.	36		
0.0031 mm.	26		
0.0013 mm.	22		

* (no specification provided)

Soil Description

Very stiff, moist, reddish tan, Elastic SILT (MH) (A-7-6) with trace gravel-sized rock fragments

Atterberg Limits

PL= 36 LL= 52 PI= 16

Coefficients

D_{90}= 0.4613 D_{85}= 0.1549 D_{60}= 0.0143
D_{50}= 0.0101 D_{30}= 0.0045 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(16)

Remarks

Source of Sample: P-230 **Depth:** 1.00-4.00
Sample Number: S-1/S-2 **Date:**

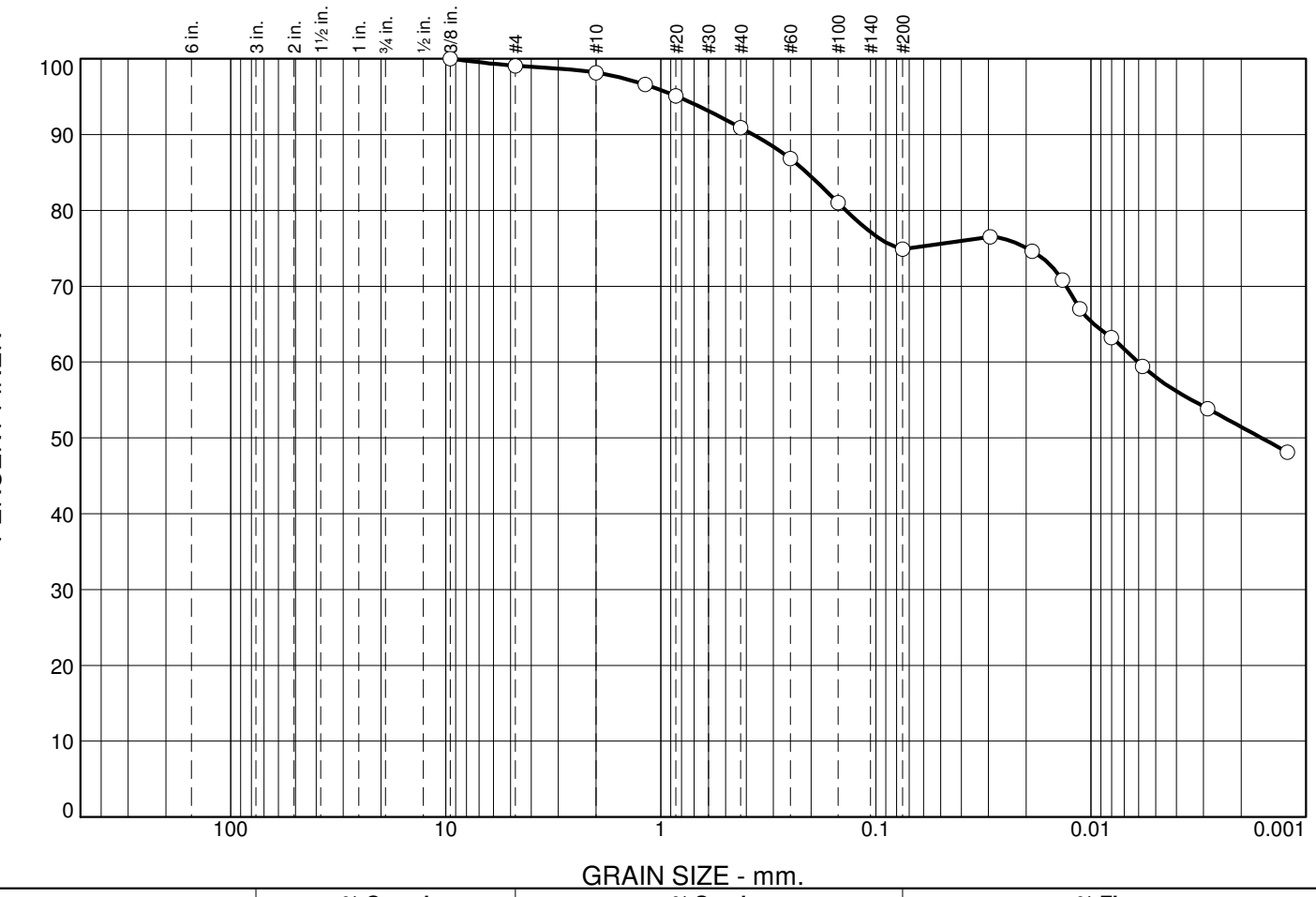
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	7	16	17	58

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	98		
#16	97		
#20	95		
#40	91		
#60	87		
#100	81		
#200	75		
0.0294 mm.	77		
0.0188 mm.	75		
0.0136 mm.	71		
0.0112 mm.	67		
0.0080 mm.	63		
0.0057 mm.	59		
0.0029 mm.	54		
0.0012 mm.	48		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, reddish brown, Plastic Clay (CH)(A-7-6) with trace gravel

Atterberg Limits

PL= 32 LL= 63 PI= 31

Coefficients

D_{90}= 0.3719 D_{85}= 0.2099 D_{60}= 0.0060
D_{50}= 0.0016 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(25)

Remarks

Source of Sample: P-243 **Depth:** 4.00-8.00
Sample Number: S-3/S-4

Date: 11/01/2017

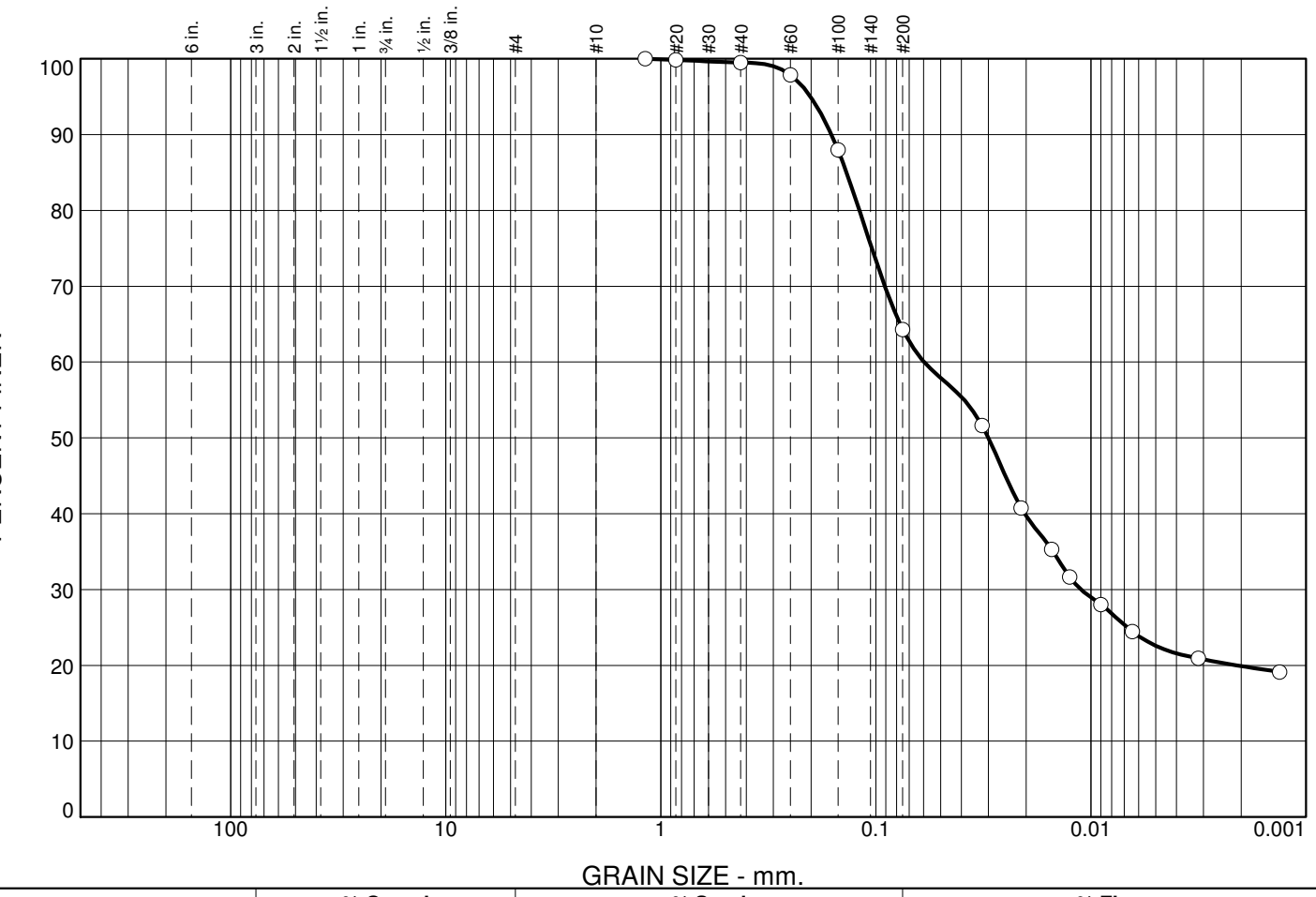
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	35	41	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#16	100		
#20	100		
#40	99		
#60	98		
#100	88		
#200	64		
0.0321 mm.	52		
0.0211 mm.	41		
0.0152 mm.	35		
0.0126 mm.	32		
0.0090 mm.	28		
0.0064 mm.	24		
0.0032 mm.	21		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-4) with trace mica

Atterberg Limits

PL= 31 LL= 40 PI= 9

Coefficients

D_{90}= 0.1609 D_{85}= 0.1369 D_{60}= 0.0596
D_{50}= 0.0300 D_{30}= 0.0111 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-243 **Depth:** 22.00-30.00
Sample Number: S-8/S-9

Date: 11/01/2017

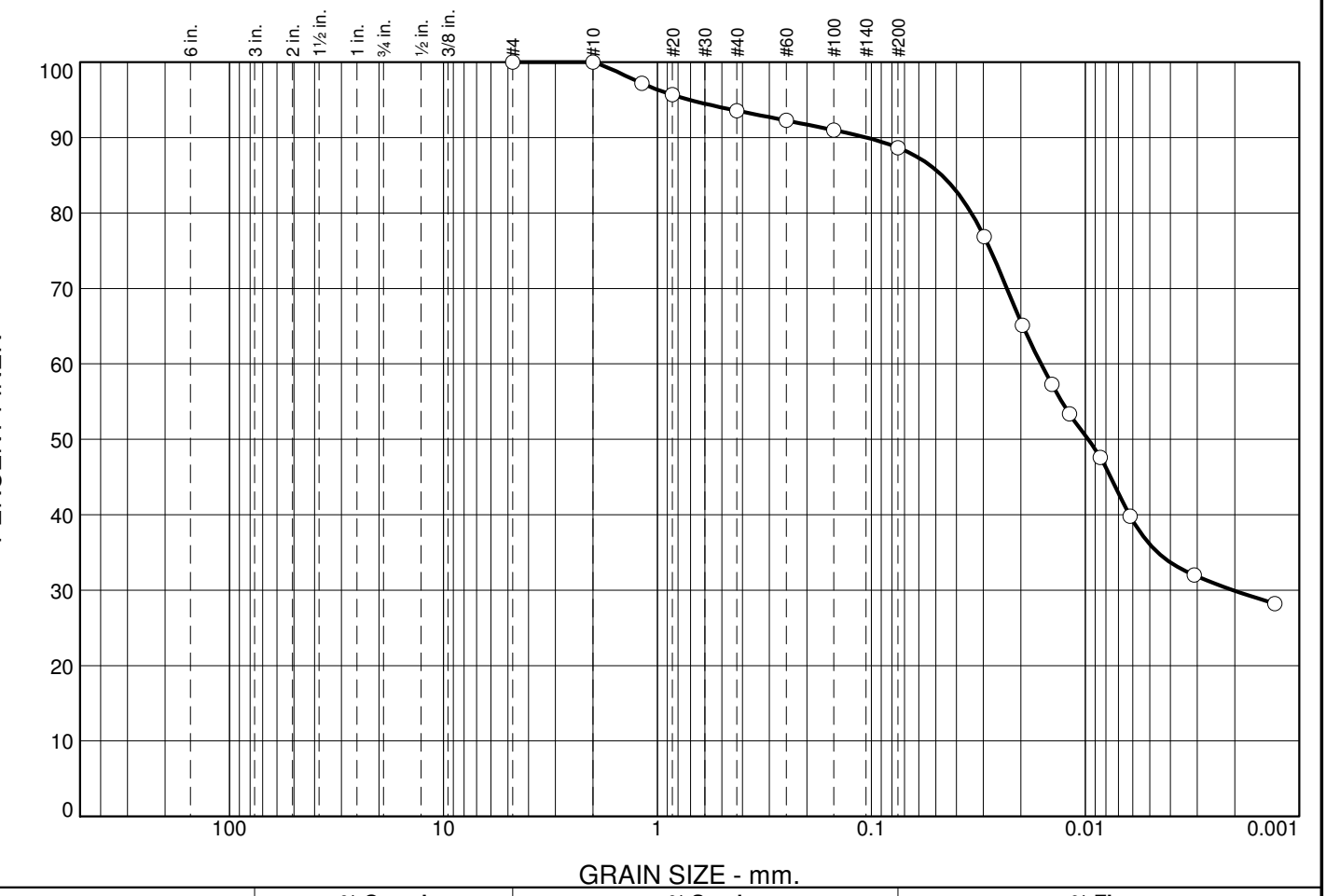
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	6	5	53	36

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	97		
#20	96		
#40	94		
#60	92		
#100	91		
#200	89		
0.0297 mm.	77		
0.0197 mm.	65		
0.0143 mm.	57		
0.0119 mm.	53		
0.0085 mm.	48		
0.0062 mm.	40		
0.0031 mm.	32		
0.0013 mm.	28		

* (no specification provided)

Soil Description

Medium stiff to stiff, red to orangish brown, Elastic SILT (MH) (A-5) with trace mica

Atterberg Limits

PL= 42 LL= 52 PI= 10

Coefficients

D_{90}= 0.1050 D_{85}= 0.0468 D_{60}= 0.0161
D_{50}= 0.0097 D_{30}= 0.0020 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(14)

Remarks

Source of Sample: P-244 **Depth:** 8.00-15.00
Sample Number: S-5/S-6

Date: 11/01/2017

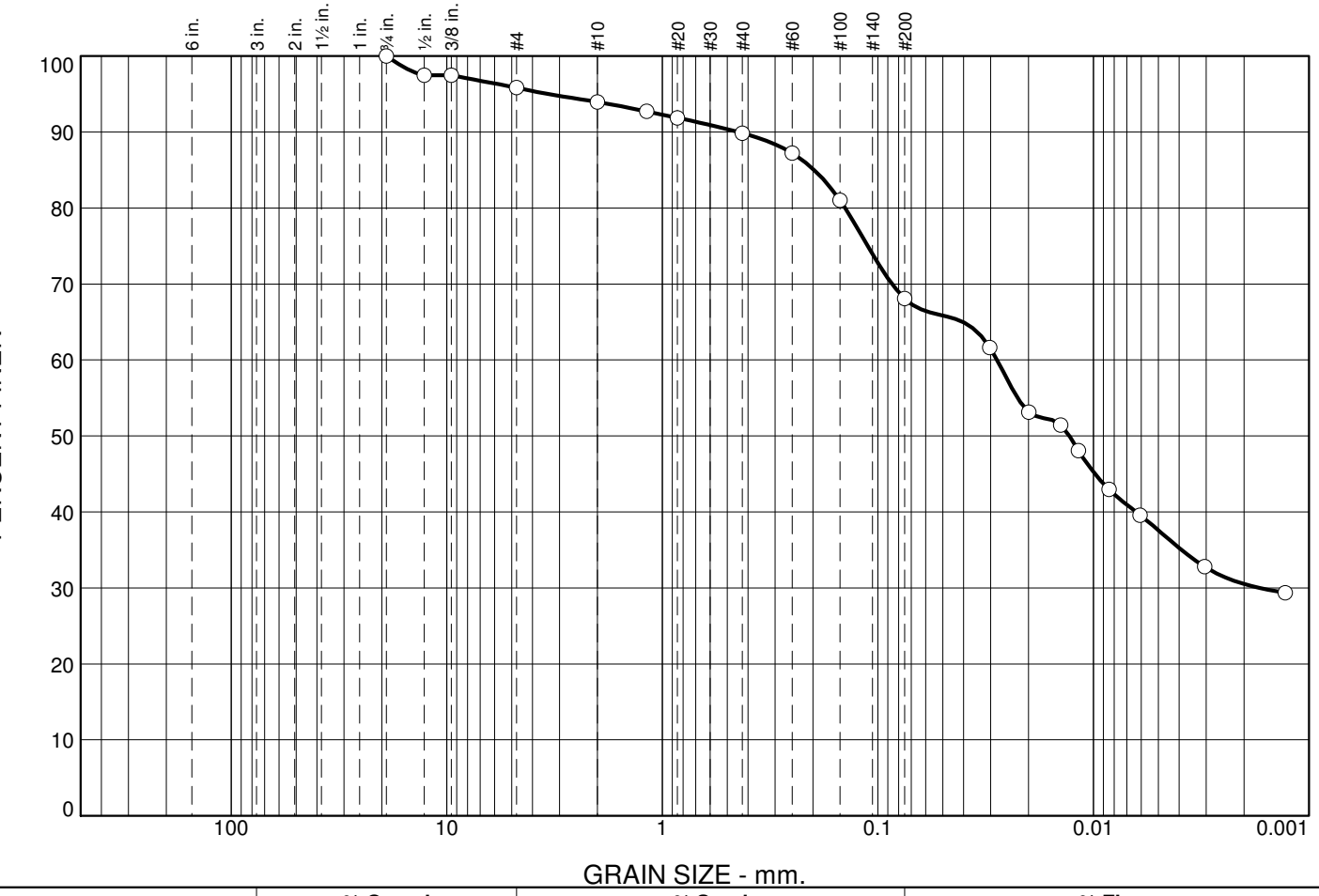
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	2	4	22	30	38

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	97		
3/8	97		
#4	96		
#10	94		
#16	93		
#20	92		
#40	90		
#60	87		
#100	81		
#200	68		
0.0303 mm.	62		
0.0199 mm.	53		
0.0142 mm.	51		
0.0117 mm.	48		
0.0085 mm.	43		
0.0061 mm.	40		
0.0030 mm.	33		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy SILT (ML) (A-5) with trace mica

Atterberg Limits

PL= 31 LL= 41 PI= 10

Coefficients

D_{90}= 0.4433 D_{85}= 0.1976 D_{60}= 0.0280
D_{50}= 0.0129 D_{30}= 0.0017 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-246 **Depth:** 8.00-12.00
Sample Number: S-5

Date: 11/01/2017

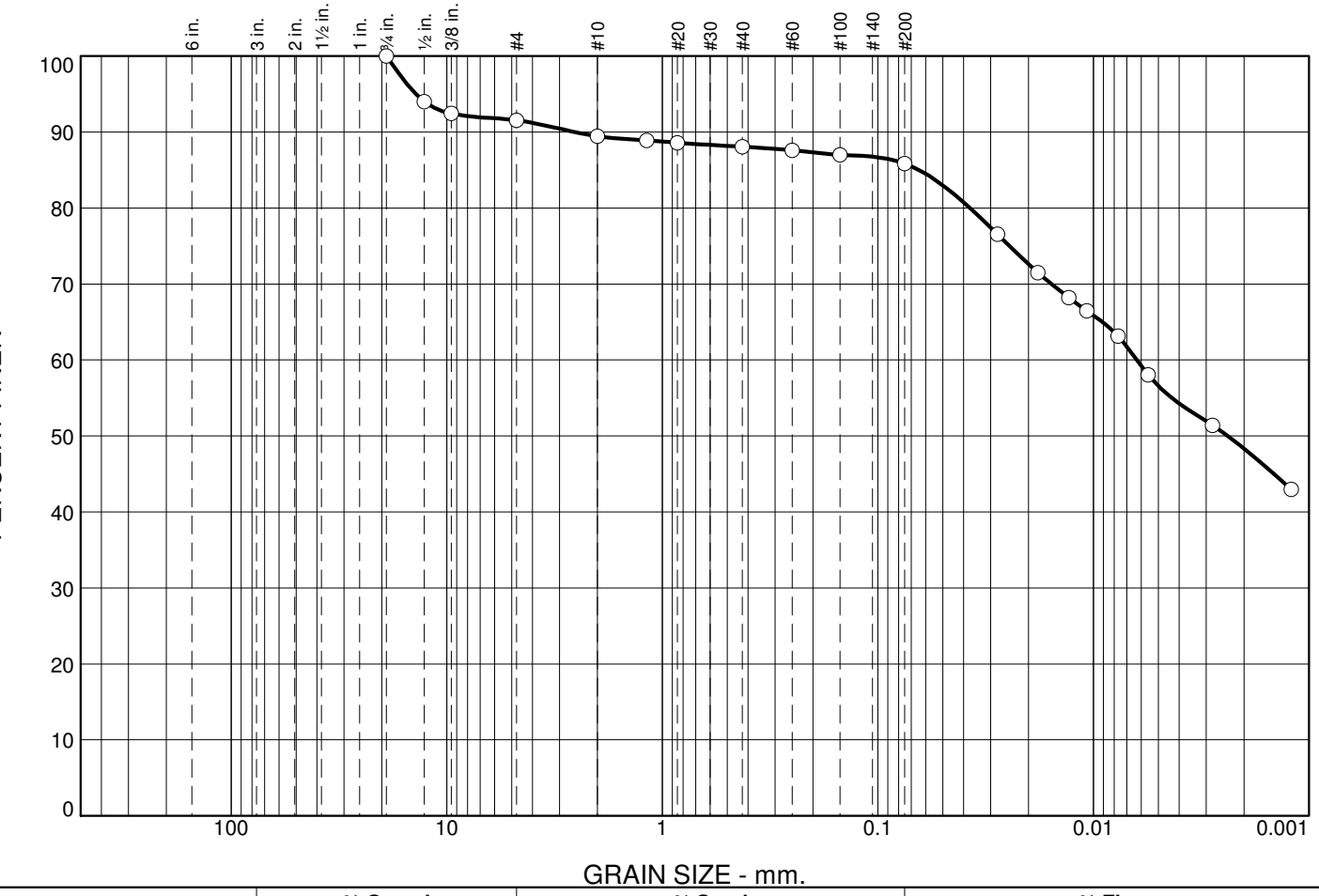
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	3	1	2	29	57

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100		
1/2"	94		
3/8"	92		
#4	92		
#10	89		
#16	89		
#20	89		
#40	88		
#60	88		
#100	87		
#200	86		
0.0279 mm.	77		
0.0181 mm.	72		
0.0130 mm.	68		
0.0107 mm.	66		
0.0077 mm.	63		
0.0056 mm.	58		
0.0028 mm.	51		
0.0012 mm.	43		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Elastic SILT (MH) (A-7-5) with trace mica

Atterberg Limits

PL= 35 LL= 59 PI= 24

Coefficients

D_{90}= 2.5548 D_{85}= 0.0644 D_{60}= 0.0063
D_{50}= 0.0024 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(25)

Remarks

Source of Sample: P-247 **Depth:** 6.00-12.00
Sample Number: S-4/S-5

Date: 11/02/2017

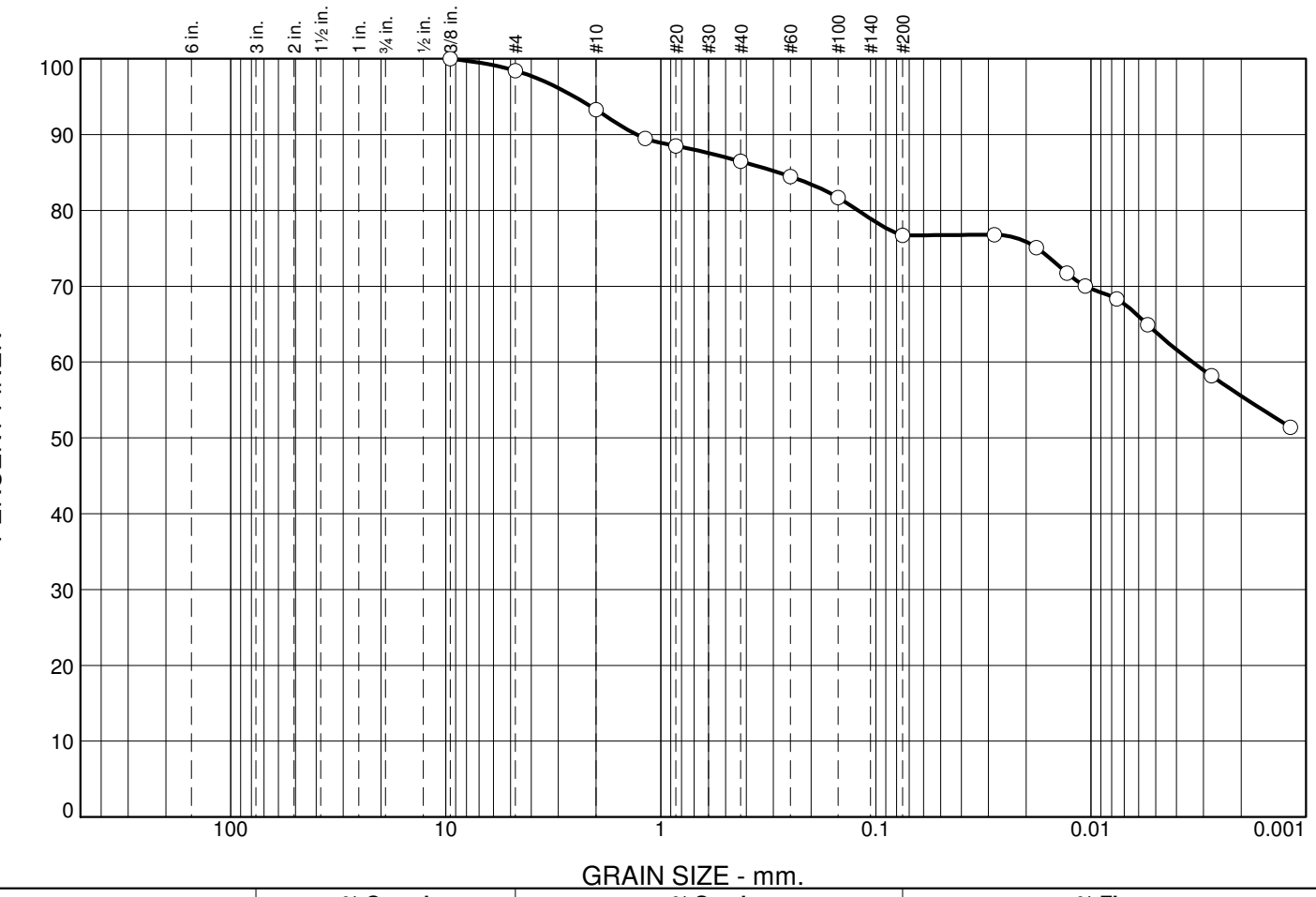
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	5	7	9	13	64

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	98		
#10	93		
#16	89		
#20	88		
#40	86		
#60	84		
#100	82		
#200	77		
0.0281 mm.	77		
0.0179 mm.	75		
0.0129 mm.	72		
0.0106 mm.	70		
0.0076 mm.	68		
0.0054 mm.	65		
0.0027 mm.	58		
0.0012 mm.	51		

* (no specification provided)

Soil Description

Stiff, moist, reddish tan to brown, Elastic SILT (MH) (A 7-5) with trace mica

-

Atterberg Limits

PL= 33 LL= 53 PI= 20

Coefficients

D_{90}= 1.2973 D_{85}= 0.2843 D_{60}= 0.0034
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(17)

Remarks

Source of Sample: P-248 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 10/31/2017

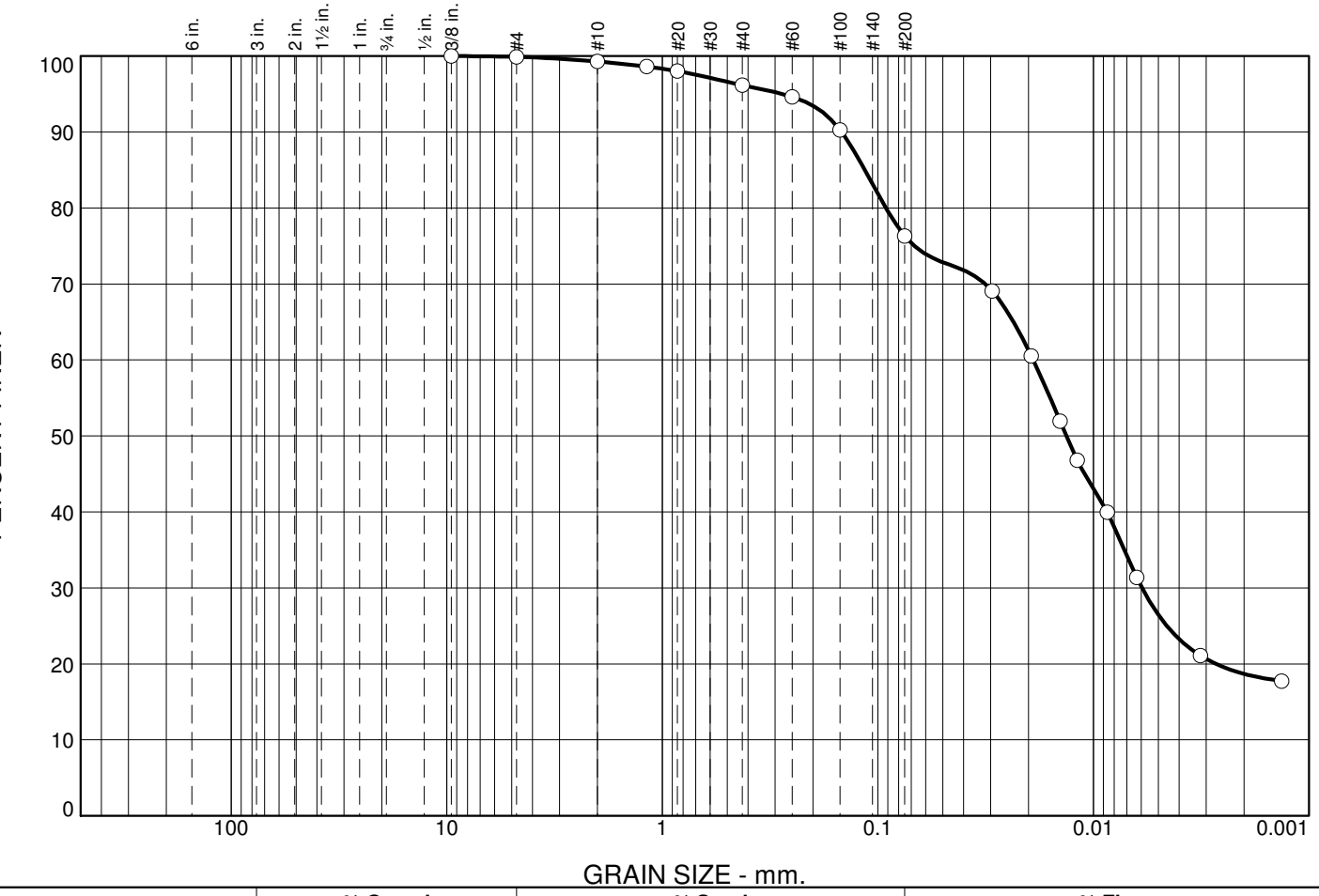
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	20	50	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	99		
#16	99		
#20	98		
#40	96		
#60	95		
#100	90		
#200	76		
0.0295 mm.	69		
0.0194 mm.	61		
0.0143 mm.	52		
0.0119 mm.	47		
0.0086 mm.	40		
0.0063 mm.	31		
0.0032 mm.	21		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, orangish tan to brown, Sandy SILT (ML) (A-5) with trace mica

Atterberg Limits

PL= 46 LL= 49 PI= 3

Coefficients

D_{90}= 0.1473 D_{85}= 0.1148 D_{60}= 0.0190
D_{50}= 0.0134 D_{30}= 0.0059 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(6)

Remarks

Source of Sample: P-249 **Depth:** 17.00-22.00
Sample Number: S-7

Date: 11/02/2017

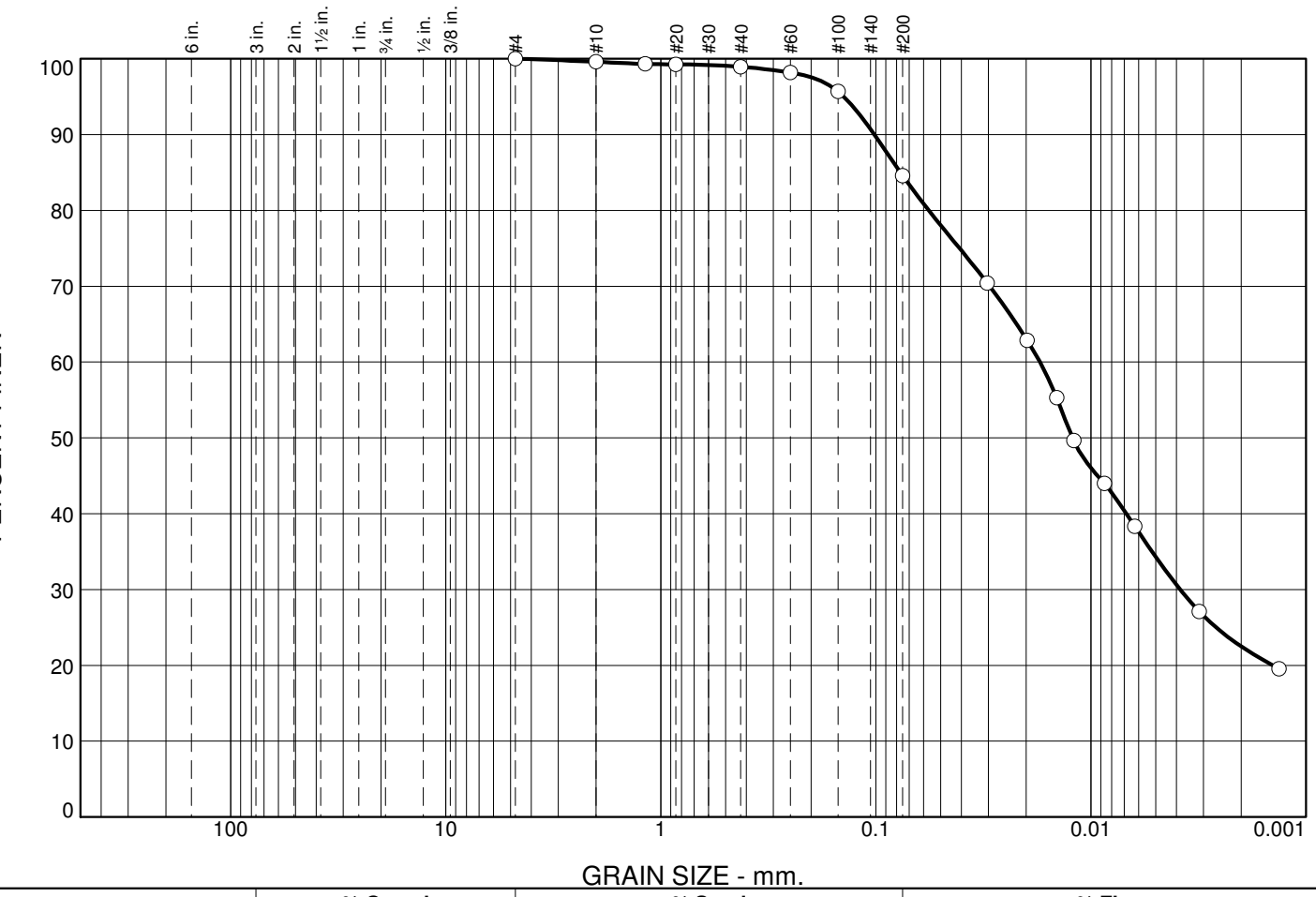
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	14	51	34

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	99		
#20	99		
#40	99		
#60	98		
#100	96		
#200	85		
0.0304 mm.	70		
0.0198 mm.	63		
0.0144 mm.	55		
0.0120 mm.	50		
0.0087 mm.	44		
0.0062 mm.	38		
0.0031 mm.	27		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown to tannish brown, Sandy SILT (ML) (A-5) with trace mica

Atterberg Limits

PL= 36 LL= 42 PI= 6

Coefficients

D_{90}= 0.1015 D_{85}= 0.0768 D_{60}= 0.0173
D_{50}= 0.0122 D_{30}= 0.0038 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(8)

Remarks

Source of Sample: P-250 **Depth:** 12.00-22.00
Sample Number: S-6/S-7

Date: 11/03/2017

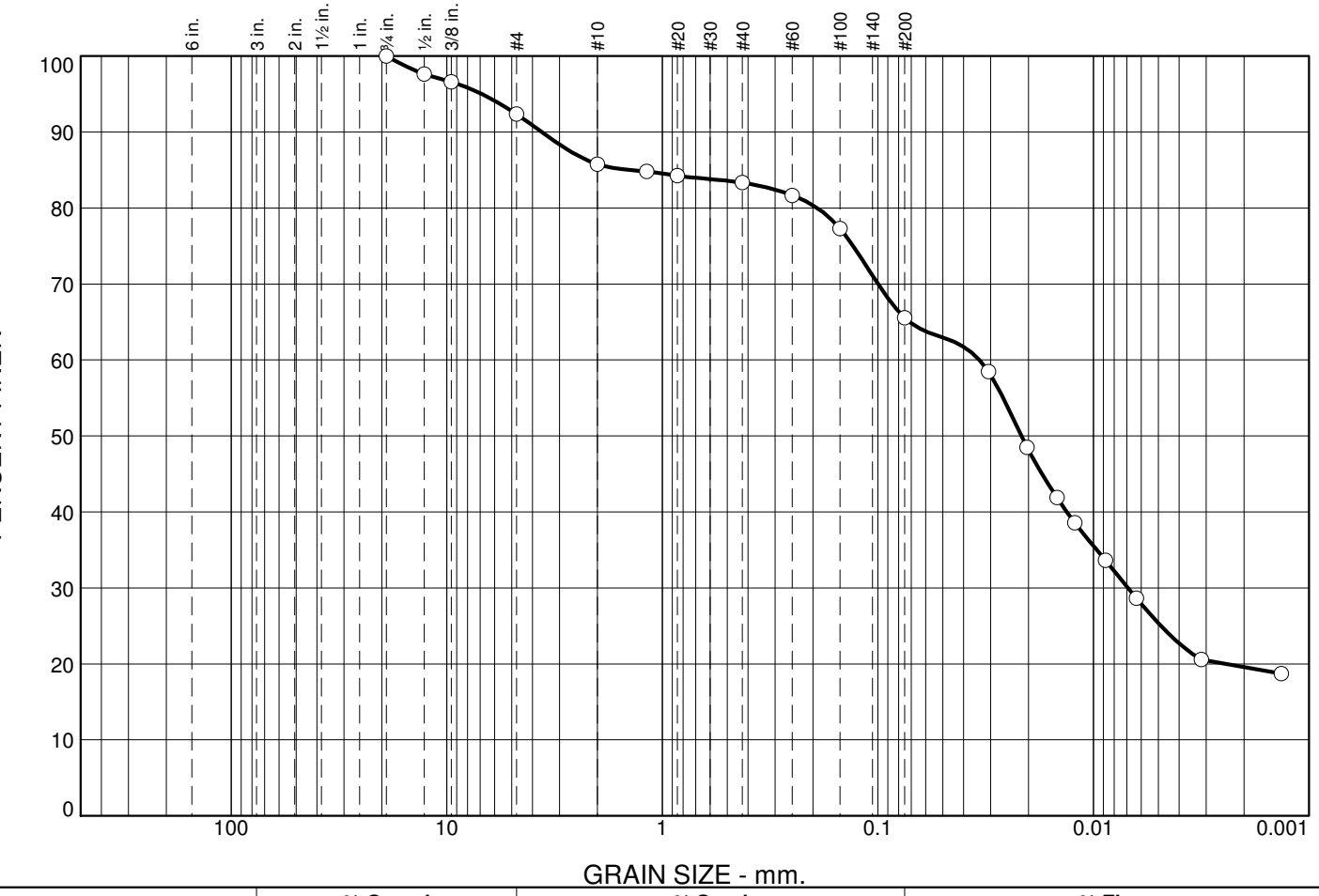
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	8	6	3	17	41	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	98		
3/8	97		
#4	92		
#10	86		
#16	85		
#20	84		
#40	83		
#60	82		
#100	77		
#200	66		
0.0307 mm.	58		
0.0203 mm.	49		
0.0148 mm.	42		
0.0122 mm.	39		
0.0088 mm.	34		
0.0063 mm.	29		
0.0032 mm.	21		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Medium stiff, moist, tannish brown, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 34 LL= 44 PI= 10

Coefficients

D_{90}= 3.6200 D_{85}= 1.4042 D_{60}= 0.0338
D_{50}= 0.0215 D_{30}= 0.0069 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(7)

Remarks

Source of Sample: P-251 **Depth:** 5.00-8.00
Sample Number: S-3/S-4

Date: 11/03/2017

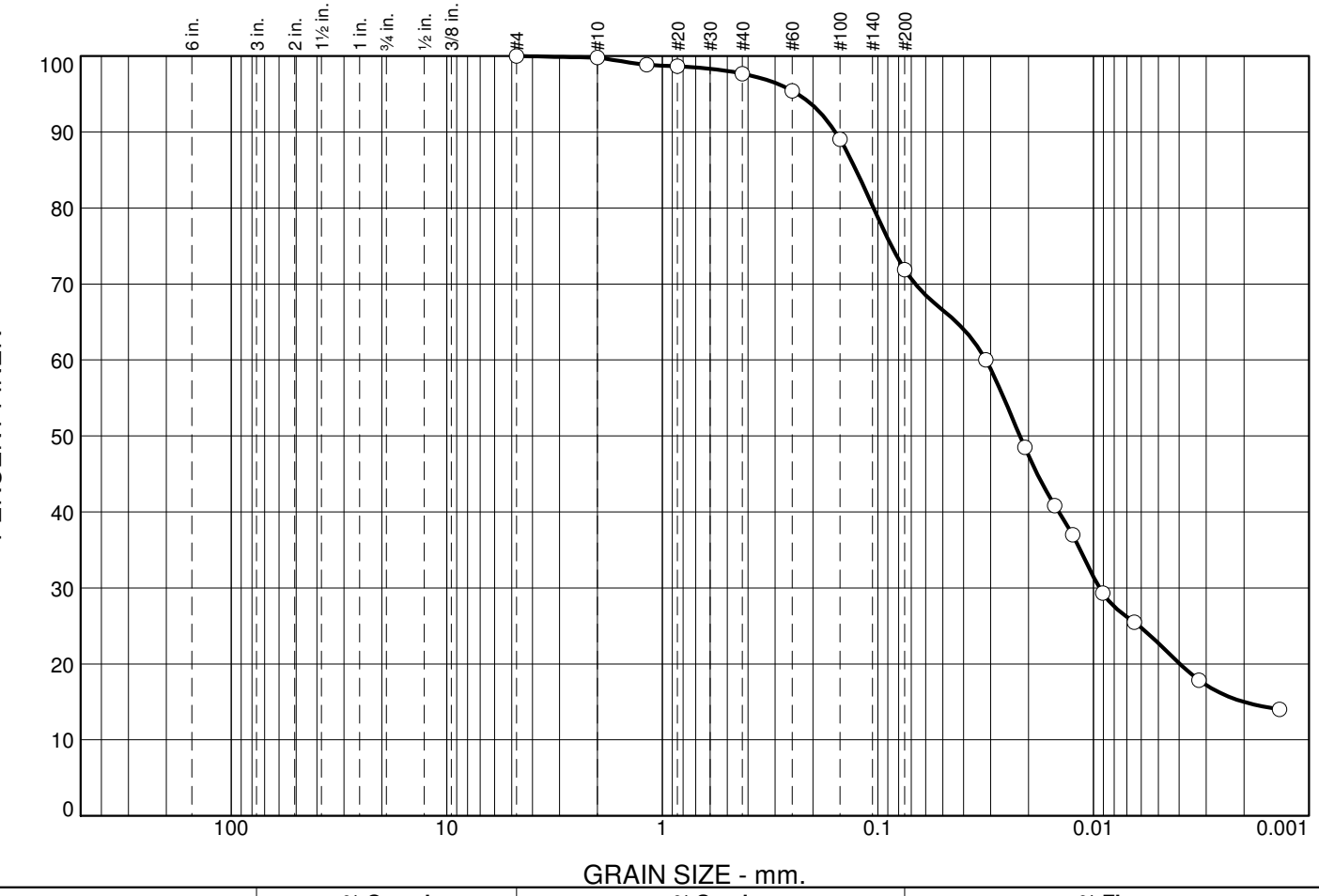
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	26	49	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	99		
#20	99		
#40	98		
#60	95		
#100	89		
#200	72		
0.0316 mm.	60		
0.0208 mm.	49		
0.0151 mm.	41		
0.0125 mm.	37		
0.0091 mm.	29		
0.0065 mm.	25		
0.0032 mm.	18		
0.0014 mm.	14		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 38 LL= 42 PI= 4

Coefficients

D_{90}= 0.1575 D_{85}= 0.1262 D_{60}= 0.0316
D_{50}= 0.0219 D_{30}= 0.0094 D_{15}= 0.0020
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(4)

Remarks

Source of Sample: P-251 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 11/02/2017

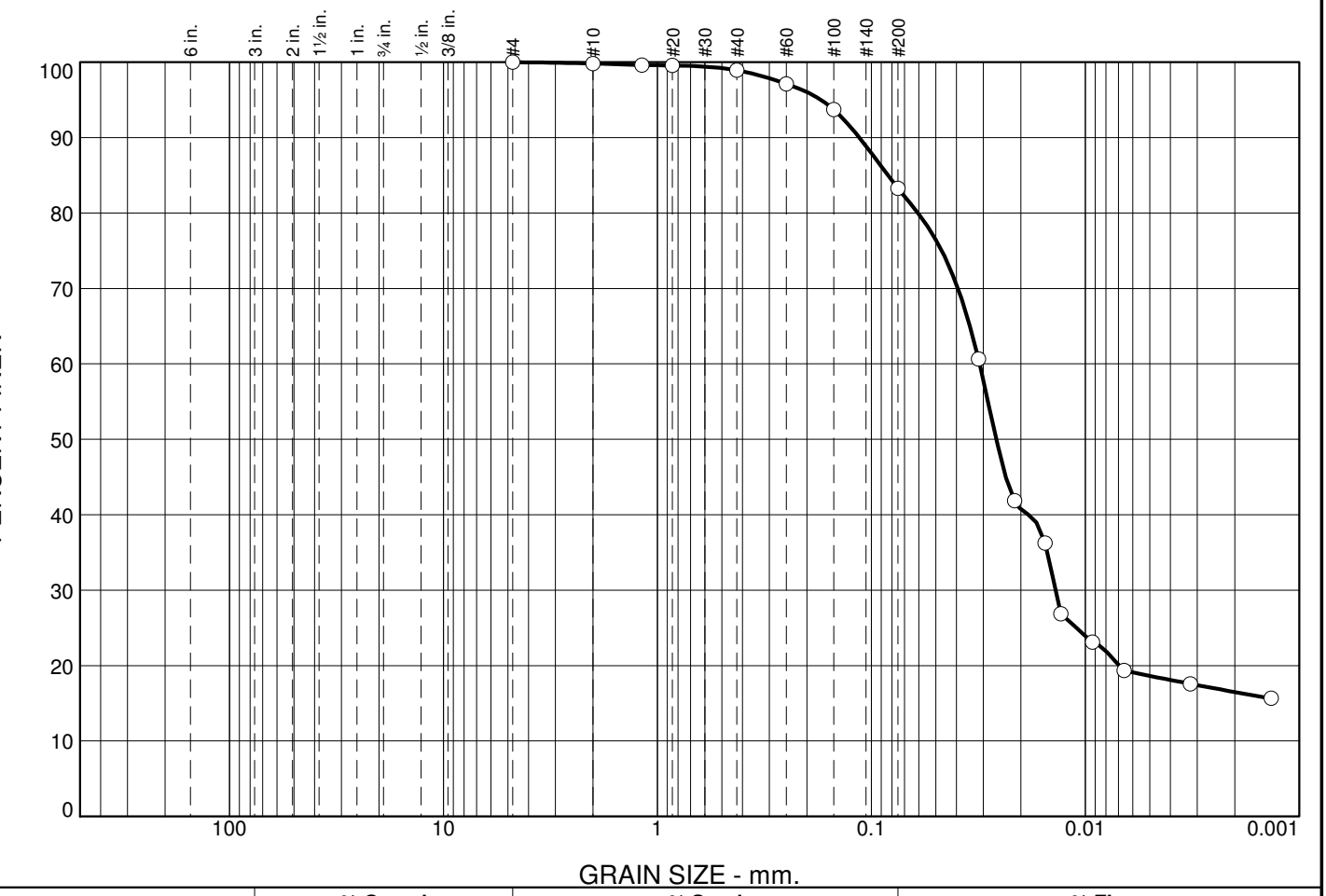
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	16	64	19

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	100		
#20	100		
#40	99		
#60	97		
#100	94		
#200	83		
0.0316 mm.	61		
0.0214 mm.	42		
0.0154 mm.	36		
0.0130 mm.	27		
0.0093 mm.	23		
0.0066 mm.	19		
0.0032 mm.	18		
0.0014 mm.	16		

* (no specification provided)

Soil Description

Very stiff to hard, moist, brown to grayish brown, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 29 LL= 34 PI= 5

Coefficients

D_{90}= 0.1137 D_{85}= 0.0836 D_{60}= 0.0312
D_{50}= 0.0261 D_{30}= 0.0138 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(5)

Remarks

Source of Sample: P-252 **Depth:** 6.00-12.00
Sample Number: S-4/S-5

Date: 10/31/2017

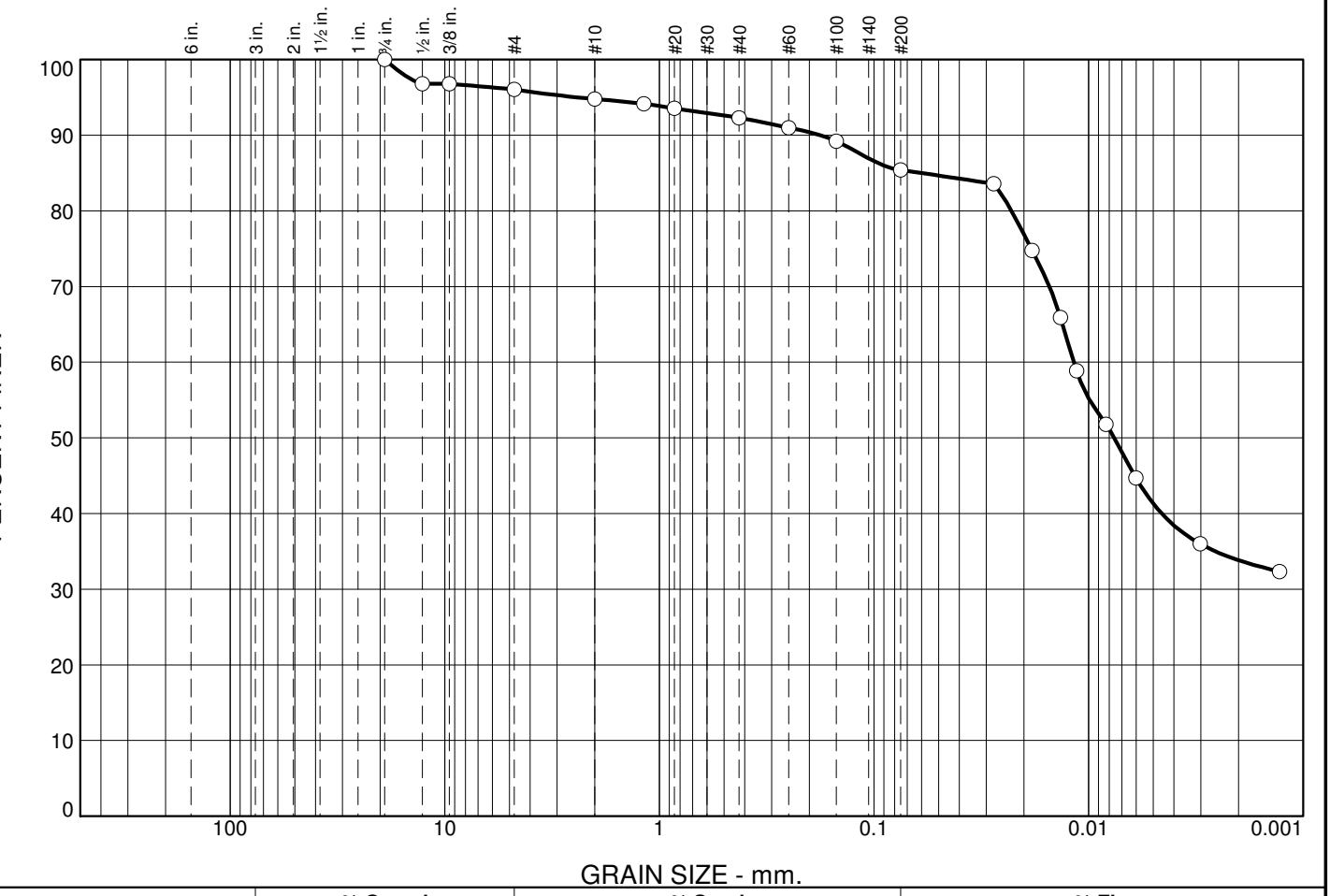
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	1	3	7	44	41

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	97		
3/8	97		
#4	96		
#10	95		
#16	94		
#20	94		
#40	92		
#60	91		
#100	89		
#200	85		
0.0277 mm.	84		
0.0183 mm.	75		
0.0135 mm.	66		
0.0114 mm.	59		
0.0083 mm.	52		
0.0060 mm.	45		
0.0030 mm.	36		
0.0013 mm.	32		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown, Sandy SILT (ML) (A-7-5) with trace roots and gravel

Atterberg Limits

PL= 31 LL= 46 PI= 15

Coefficients

D_{90}= 0.1785 D_{85}= 0.0599 D_{60}= 0.0117
D_{50}= 0.0076 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(15)

Remarks

Source of Sample: P-253 **Depth:** 2.50-6.50
Sample Number: S-2/S-3

Date: 11/02/2017

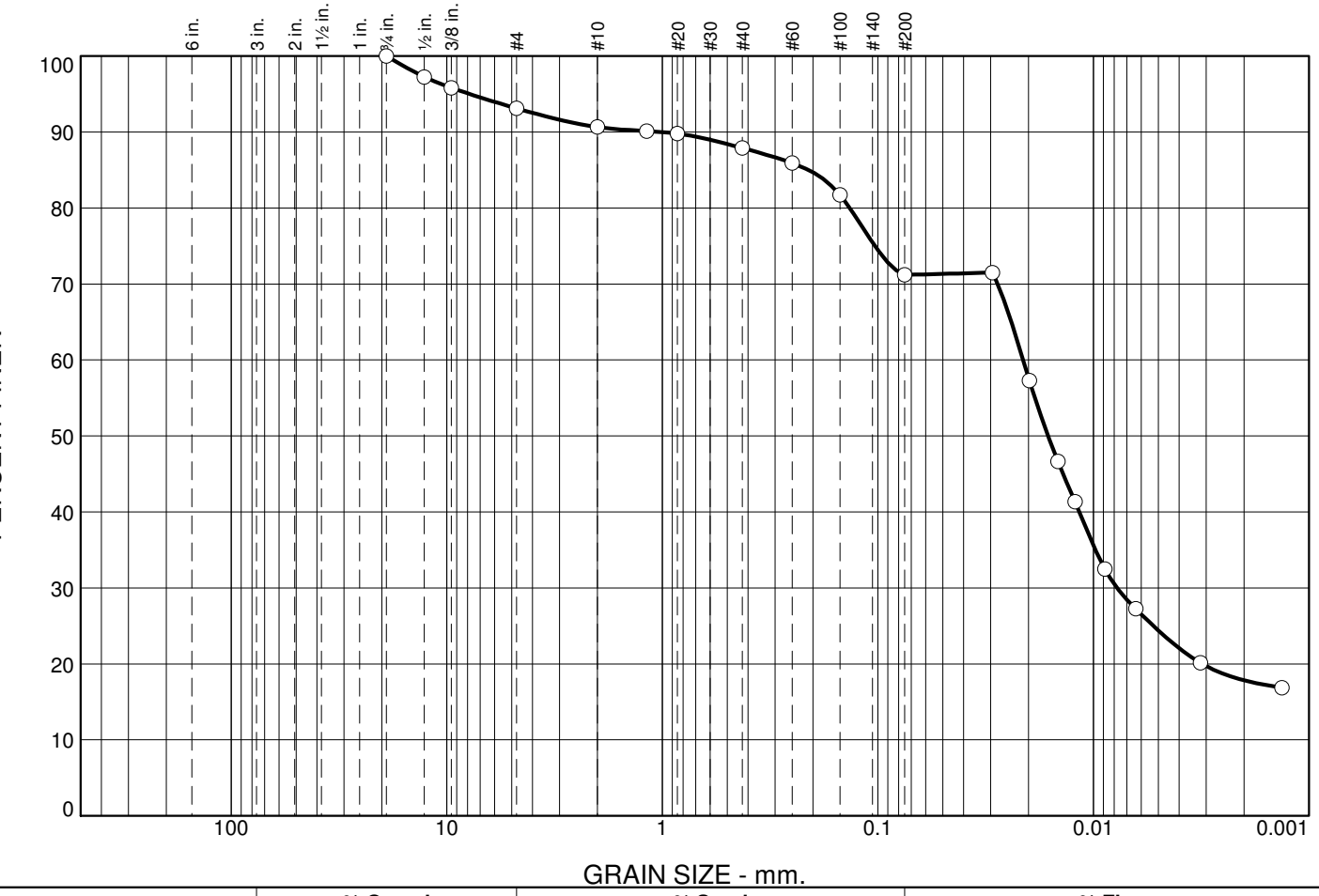
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	2	3	17	47	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	97		
3/8	96		
#4	93		
#10	91		
#16	90		
#20	90		
#40	88		
#60	86		
#100	82		
#200	71		
0.0294 mm.	71		
0.0198 mm.	57		
0.0146 mm.	47		
0.0122 mm.	41		
0.0089 mm.	33		
0.0064 mm.	27		
0.0032 mm.	20		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Very hard to hard, moist, Sandy SILT (ML) (A-6)

Atterberg Limits

PL= 36 LL= 43 PI= 7

Coefficients

D_{90}= 1.0157 D_{85}= 0.2096 D_{60}= 0.0212
D_{50}= 0.0162 D_{30}= 0.0078 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(6)

Remarks

Source of Sample: P-254 **Depth:** 17.00-27.00
Sample Number: S-7/S-8

Date: 11/06/2017

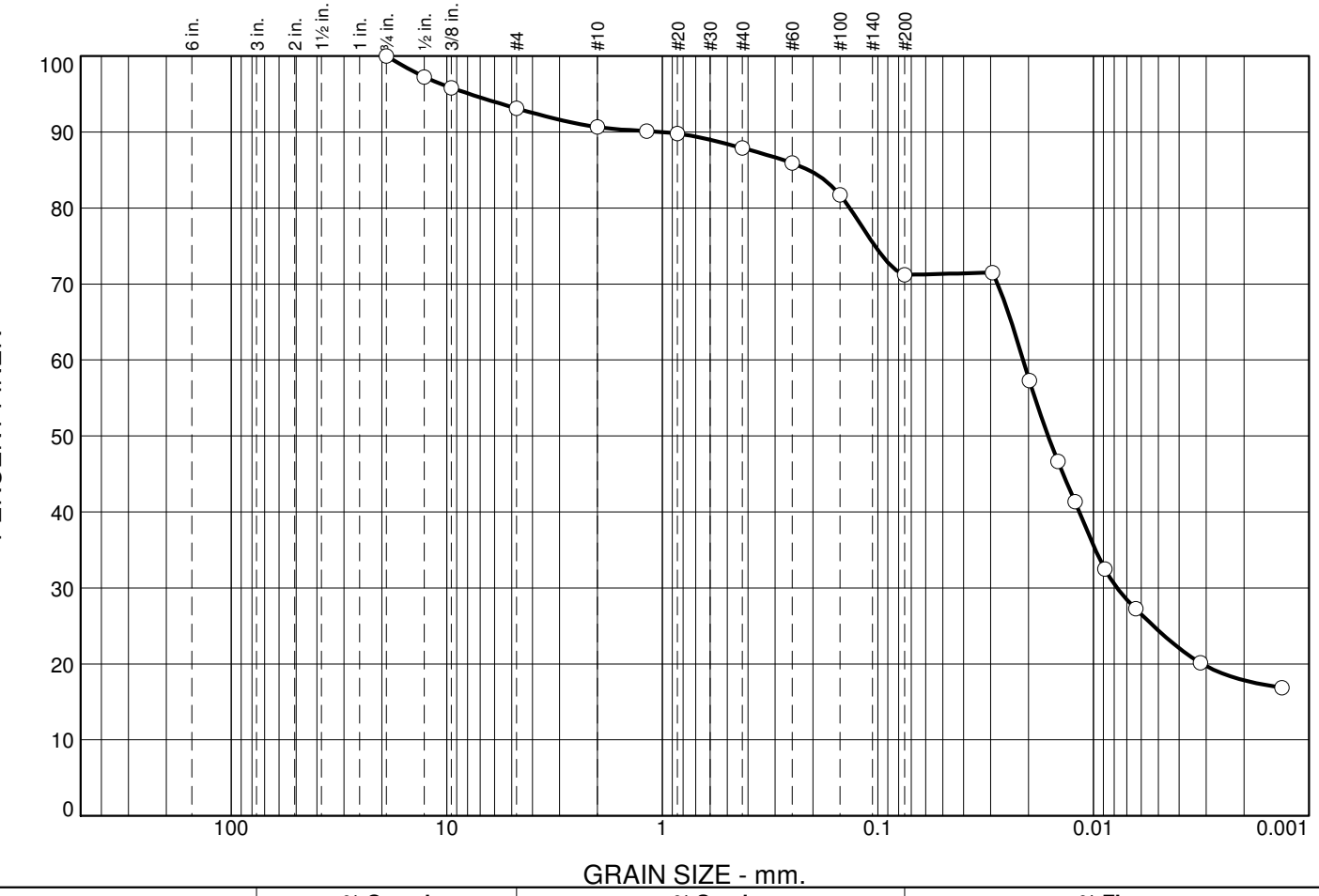
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	2	3	17	47	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	97		
3/8	96		
#4	93		
#10	91		
#16	90		
#20	90		
#40	88		
#60	86		
#100	82		
#200	71		
0.0294 mm.	71		
0.0198 mm.	57		
0.0146 mm.	47		
0.0122 mm.	41		
0.0089 mm.	33		
0.0064 mm.	27		
0.0032 mm.	20		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Very hard to hard, moist, Sandy SILT (ML) (A-6)

Atterberg Limits

PL= 36 LL= 43 PI= 7

Coefficients

D_{90}= 1.0157 D_{85}= 0.2096 D_{60}= 0.0212
D_{50}= 0.0162 D_{30}= 0.0078 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(6)

Remarks

Source of Sample: P-254 **Depth:** 17.00-27.00
Sample Number: S-7/S-8

Date: 11/06/2017

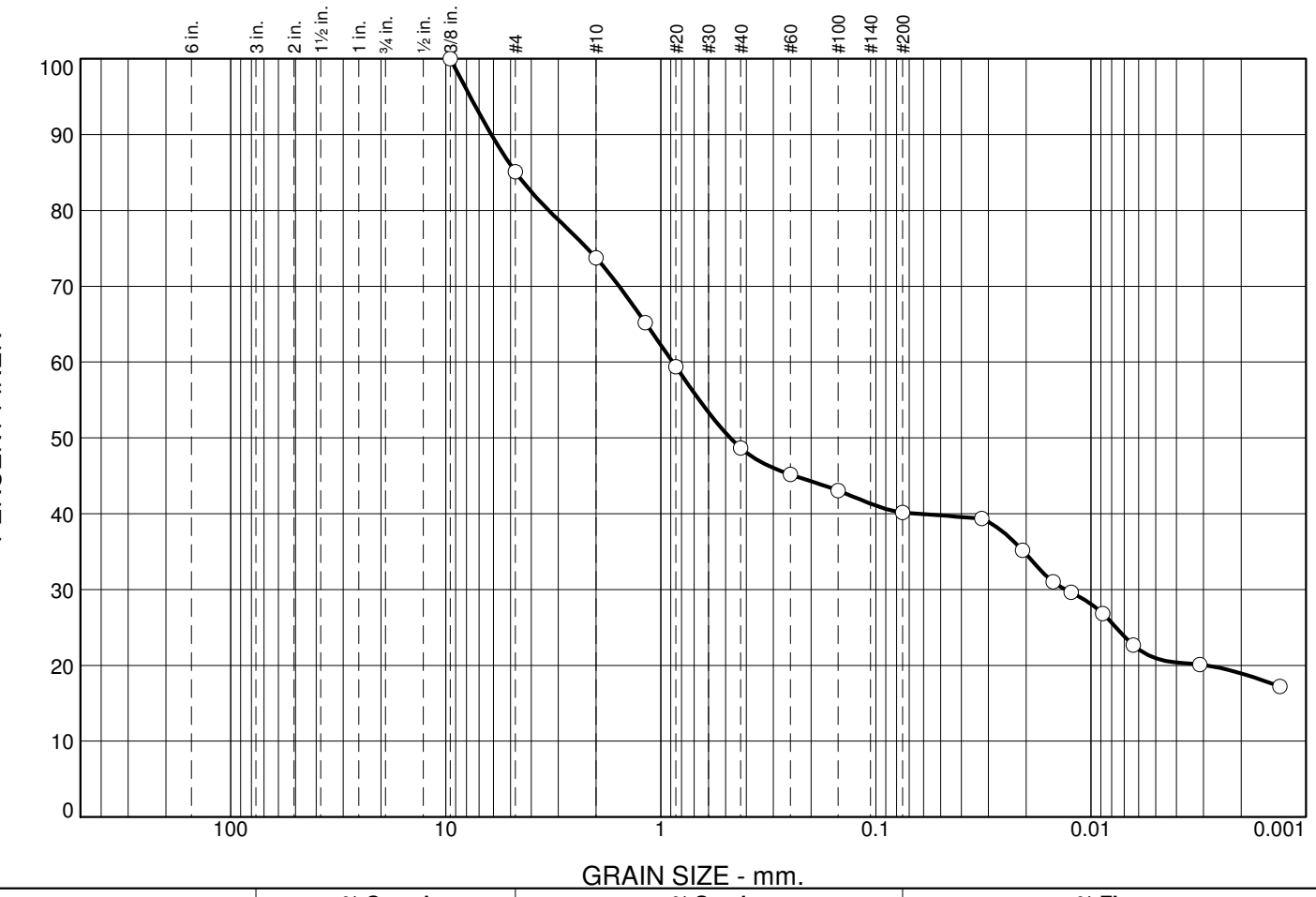
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	15	11	25	9	19	21

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	85		
#10	74		
#16	65		
#20	59		
#40	49		
#60	45		
#100	43		
#200	40		
0.0322 mm.	39		
0.0208 mm.	35		
0.0150 mm.	31		
0.0124 mm.	30		
0.0088 mm.	27		
0.0063 mm.	23		
0.0031 mm.	20		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Loose, moist, reddish brown to orangish brown, Clayey SAND (SC) (A-6) with trace gravel

Atterberg Limits

PL= 19 LL= 31 PI= 12

Coefficients

D_{90}= 6.1369 D_{85}= 4.7195 D_{60}= 0.8802
D_{50}= 0.4757 D_{30}= 0.0131 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SC AASHTO= A-6(1)

Remarks

Source of Sample: P-259 **Depth:** 2.50-6.50
Sample Number: S-2/S-3

Date: 11/02/2017

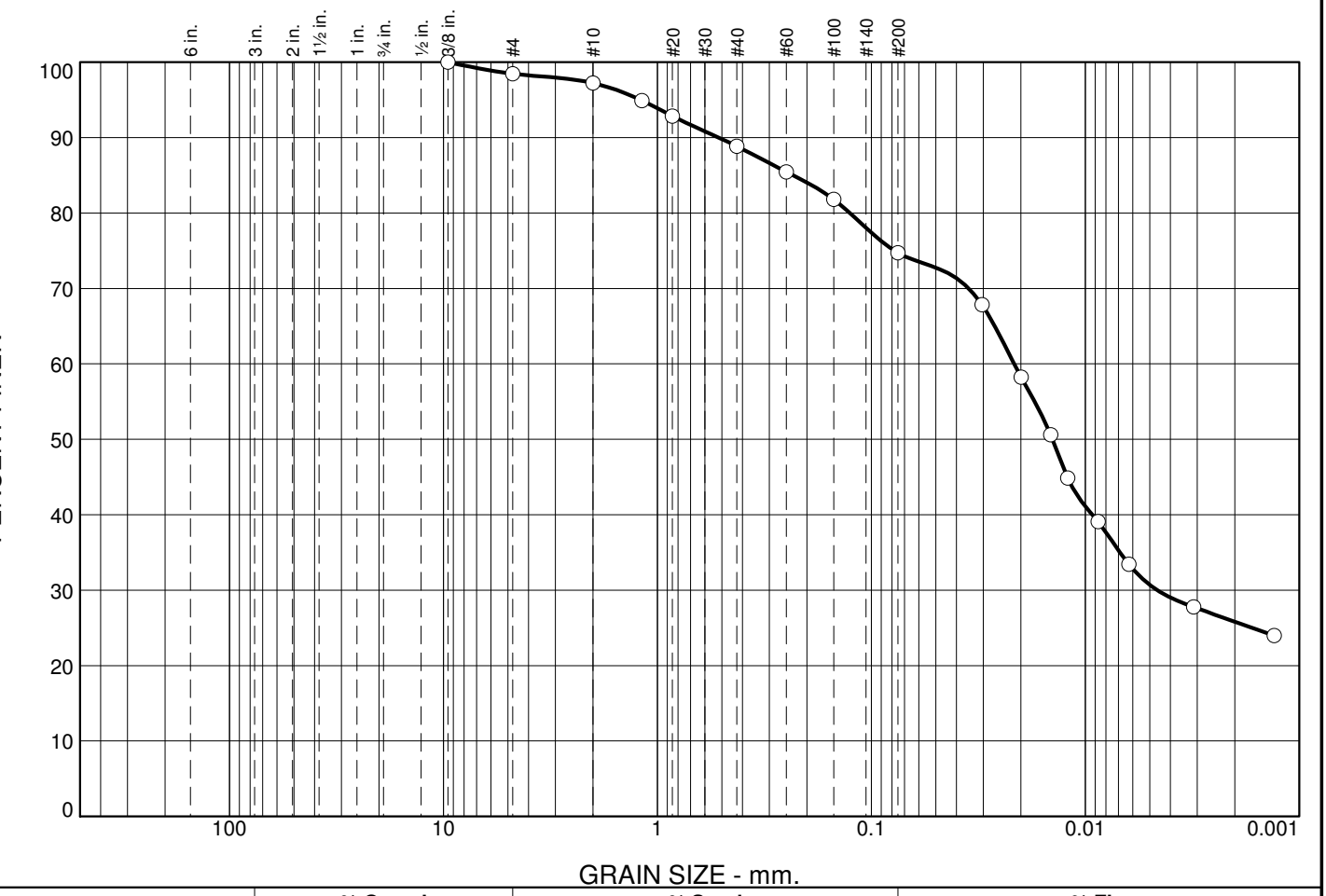
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	8	14	44	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	98		
#10	97		
#16	95		
#20	93		
#40	89		
#60	85		
#100	82		
#200	75		
0.0304 mm.	68		
0.0200 mm.	58		
0.0145 mm.	51		
0.0121 mm.	45		
0.0087 mm.	39		
0.0063 mm.	33		
0.0031 mm.	28		
0.0013 mm.	24		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish tan, Sandy SILT (ML) (A-4)

Atterberg Limits

PL= 30 LL= 39 PI= 9

Coefficients

D_{90}= 0.5183 D_{85}= 0.2324 D_{60}= 0.0215
D_{50}= 0.0142 D_{30}= 0.0046 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(7)

Remarks

Source of Sample: P-260 **Depth:** 6.50-12.00
Sample Number: S-4/S-5

Date: 11/02/2017

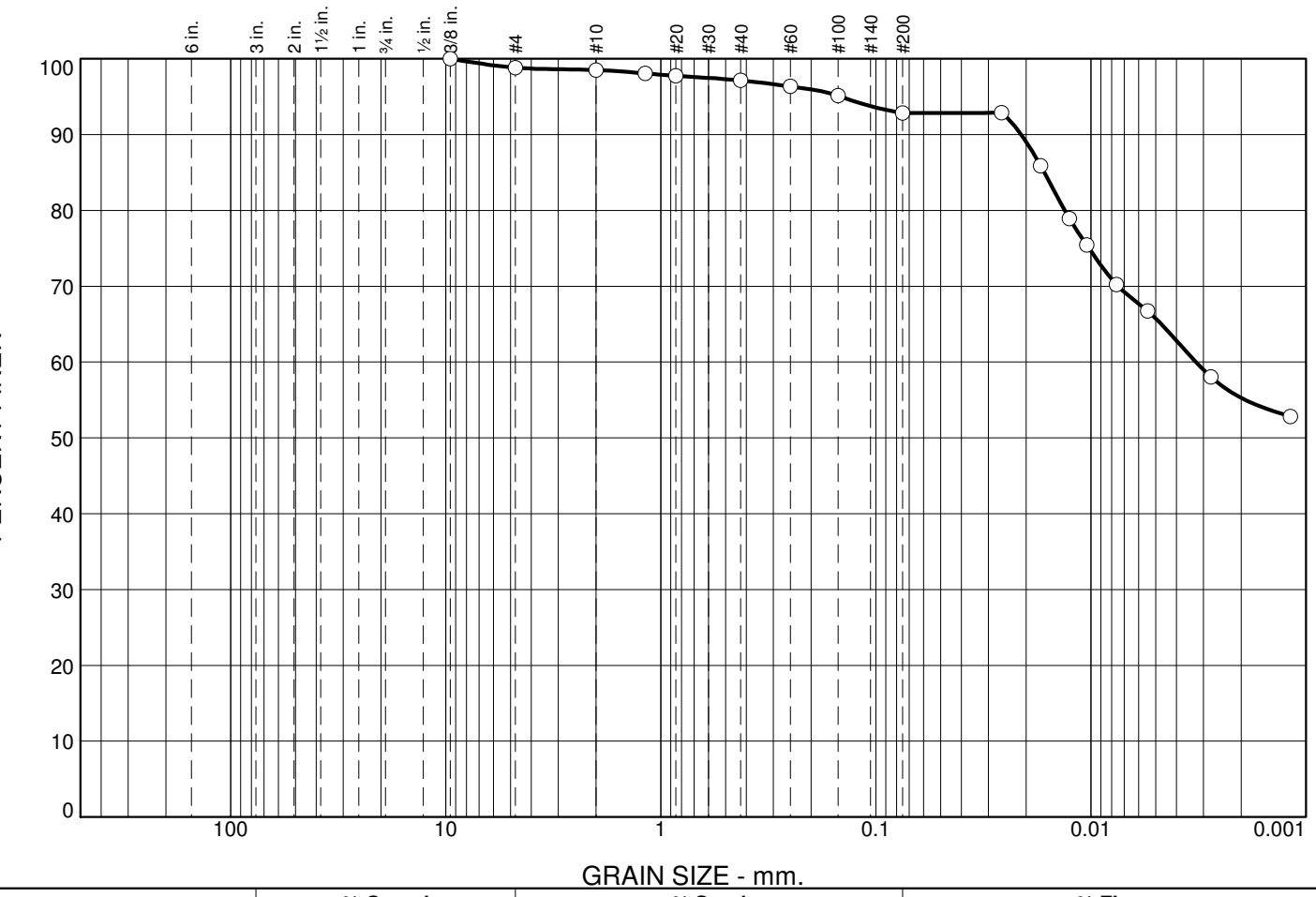
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	2	4	27	66

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	99		
#16	98		
#20	98		
#40	97		
#60	96		
#100	95		
#200	93		
0.0260 mm.	93		
0.0171 mm.	86		
0.0126 mm.	79		
0.0105 mm.	75		
0.0076 mm.	70		
0.0054 mm.	67		
0.0028 mm.	58		
0.0012 mm.	53		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, orangish tan, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 32 LL= 61 PI= 29

Coefficients

D_{90}= 0.0211 D_{85}= 0.0165 D_{60}= 0.0033
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(33)

Remarks

Source of Sample: P-261 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 11/03/2017

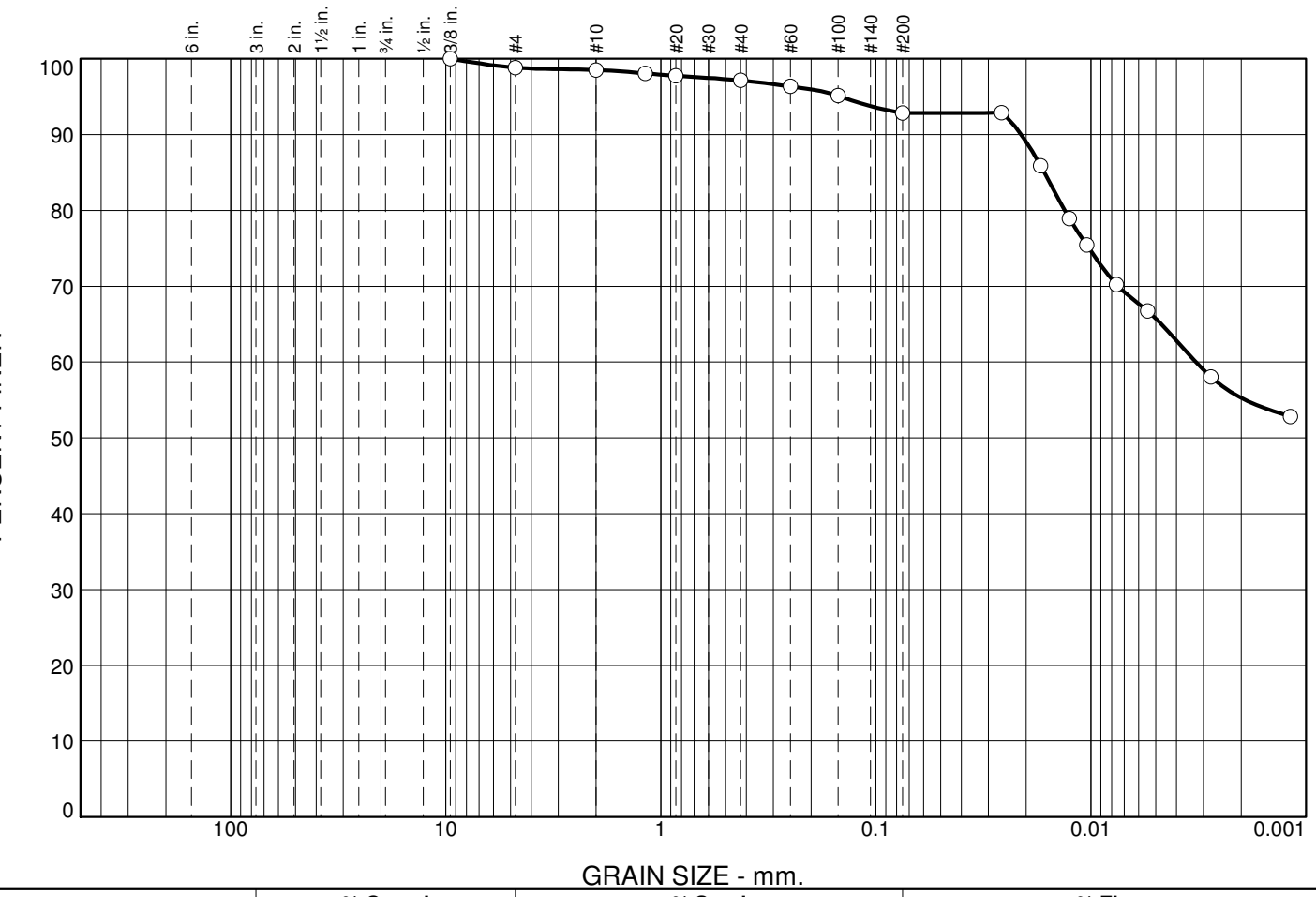
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	2	4	27	66

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	99		
#16	98		
#20	98		
#40	97		
#60	96		
#100	95		
#200	93		
0.0260 mm.	93		
0.0171 mm.	86		
0.0126 mm.	79		
0.0105 mm.	75		
0.0076 mm.	70		
0.0054 mm.	67		
0.0028 mm.	58		
0.0012 mm.	53		

* (no specification provided)

Soil Description

Stiff to medium stiff, moist, orangish tan, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 32 LL= 61 PI= 29

Coefficients

D_{90}= 0.0211 D_{85}= 0.0165 D_{60}= 0.0033
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(33)

Remarks

Source of Sample: P-261 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 11/03/2017

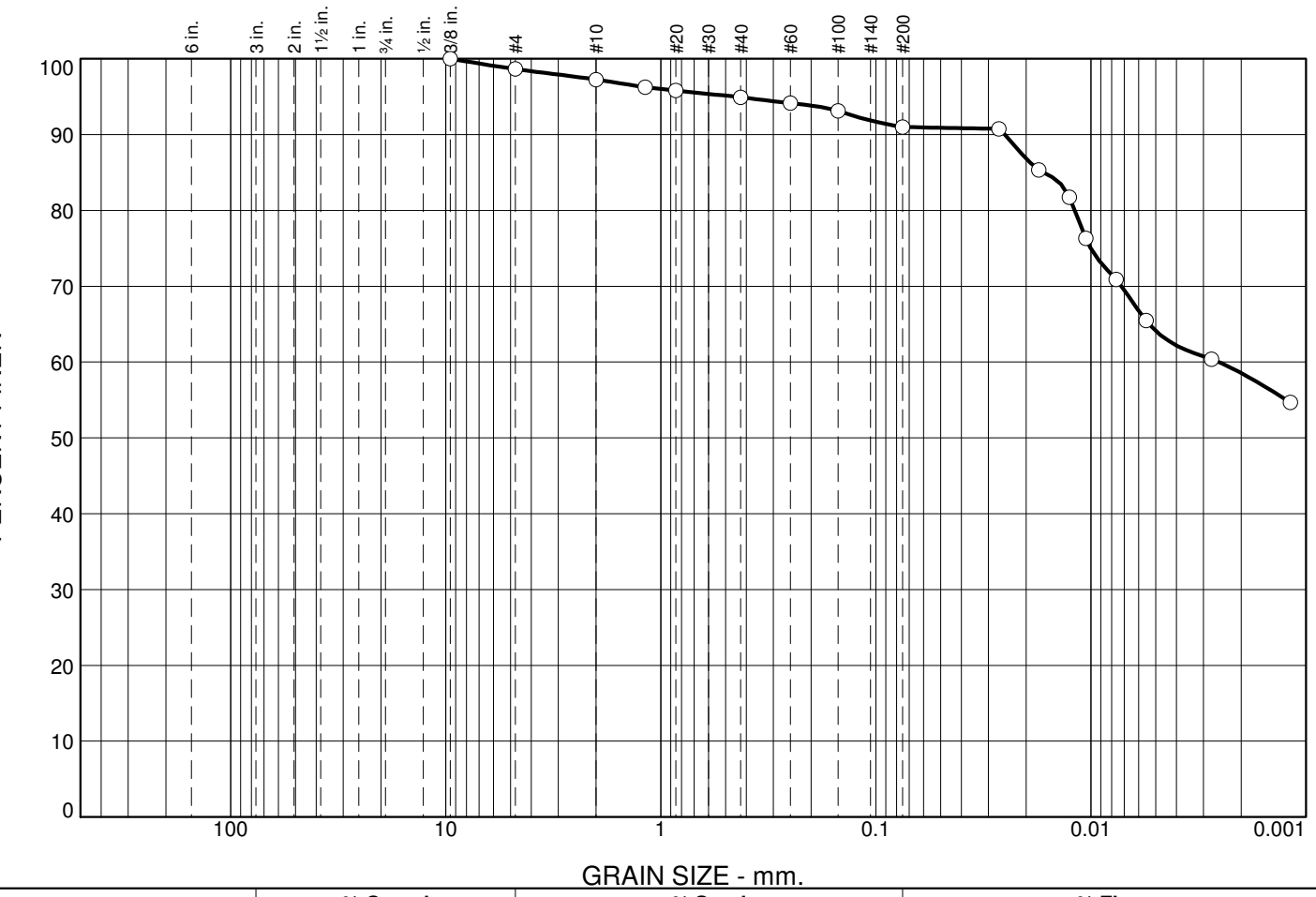
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	2	2	4	27	64

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	97		
#16	96		
#20	96		
#40	95		
#60	94		
#100	93		
#200	91		
0.0268 mm.	91		
0.0175 mm.	85		
0.0126 mm.	82		
0.0106 mm.	76		
0.0076 mm.	71		
0.0055 mm.	65		
0.0027 mm.	60		
0.0012 mm.	55		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, gray to orangish brown, Plastic CLAY (CH) (A-7-5)

Atterberg Limits

PL= 30 LL= 56 PI= 26

Coefficients

D_{90}= 0.0252 D_{85}= 0.0167 D_{60}= 0.0026
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(28)

Remarks

Source of Sample: P-262 **Depth:** 17.00-27.00
Sample Number: S-7/S-8

Date: 11/02/2017

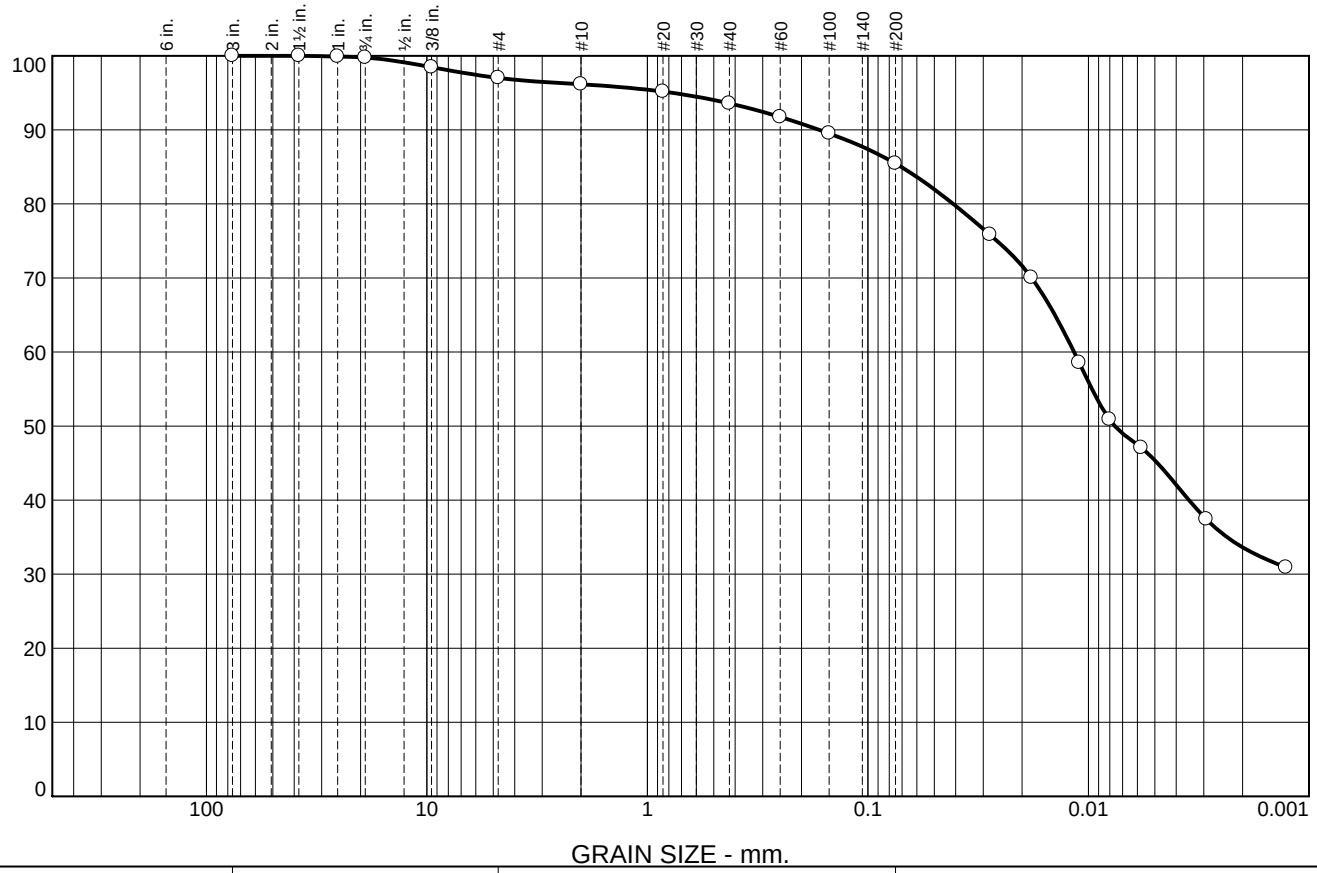
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	1	2	9	40	45

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	98		
#4	97		
#10	96		
#20	95		
#40	94		
#60	92		
#100	90		
#200	85		
0.0279 mm.	76		
0.0182 mm.	70		
0.0110 mm.	59		
0.0080 mm.	51		
0.0058 mm.	47		
0.0029 mm.	37		
0.0013 mm.	31		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, organish brown to tan, Elastic SILT (MH)(A-7-5) with trace gravel

Atterberg Limits

PL= 42 LL= 59 PI= 17

Coefficients

D_{90}= 0.1664 D_{85}= 0.0707 D_{60}= 0.0116
D_{50}= 0.0076 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: P-262 **Depth:** 1.00-4.00
Sample Number: D4S-1499

Date: 11/14/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

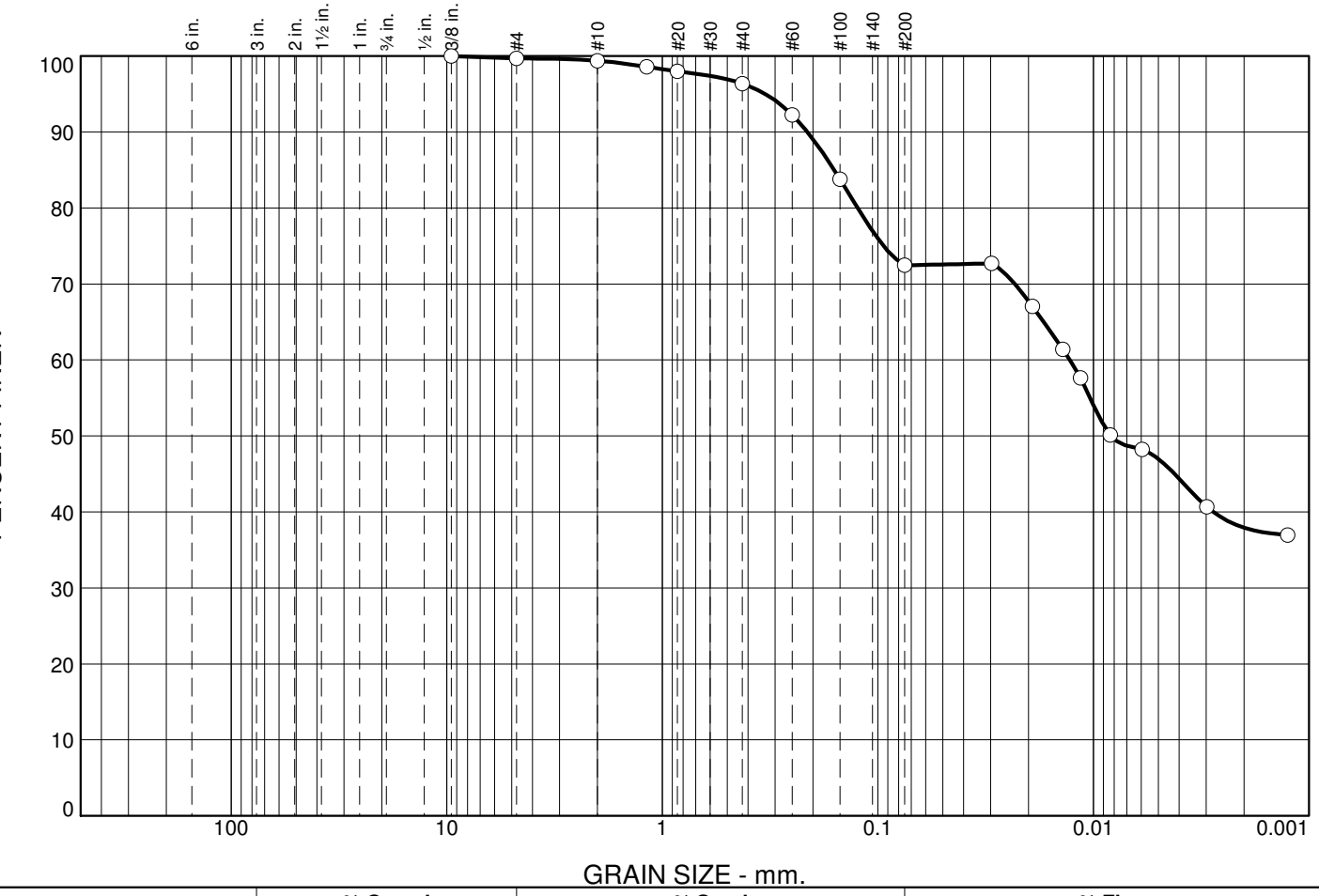
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	3	24	25	47

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	99		
#16	99		
#20	98		
#40	96		
#60	92		
#100	84		
#200	72		
0.0297 mm.	73		
0.0192 mm.	67		
0.0139 mm.	61		
0.0115 mm.	58		
0.0083 mm.	50		
0.0059 mm.	48		
0.0030 mm.	41		
0.0013 mm.	37		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, reddish brown, Sandy SILT (ML) (A-7)

Atterberg Limits

PL= 30 LL= 48 PI= 18

Coefficients

D_{90}= 0.2125 D_{85}= 0.1595 D_{60}= 0.0129
D_{50}= 0.0083 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(13)

Remarks

Source of Sample: P-263 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 10/31/2017

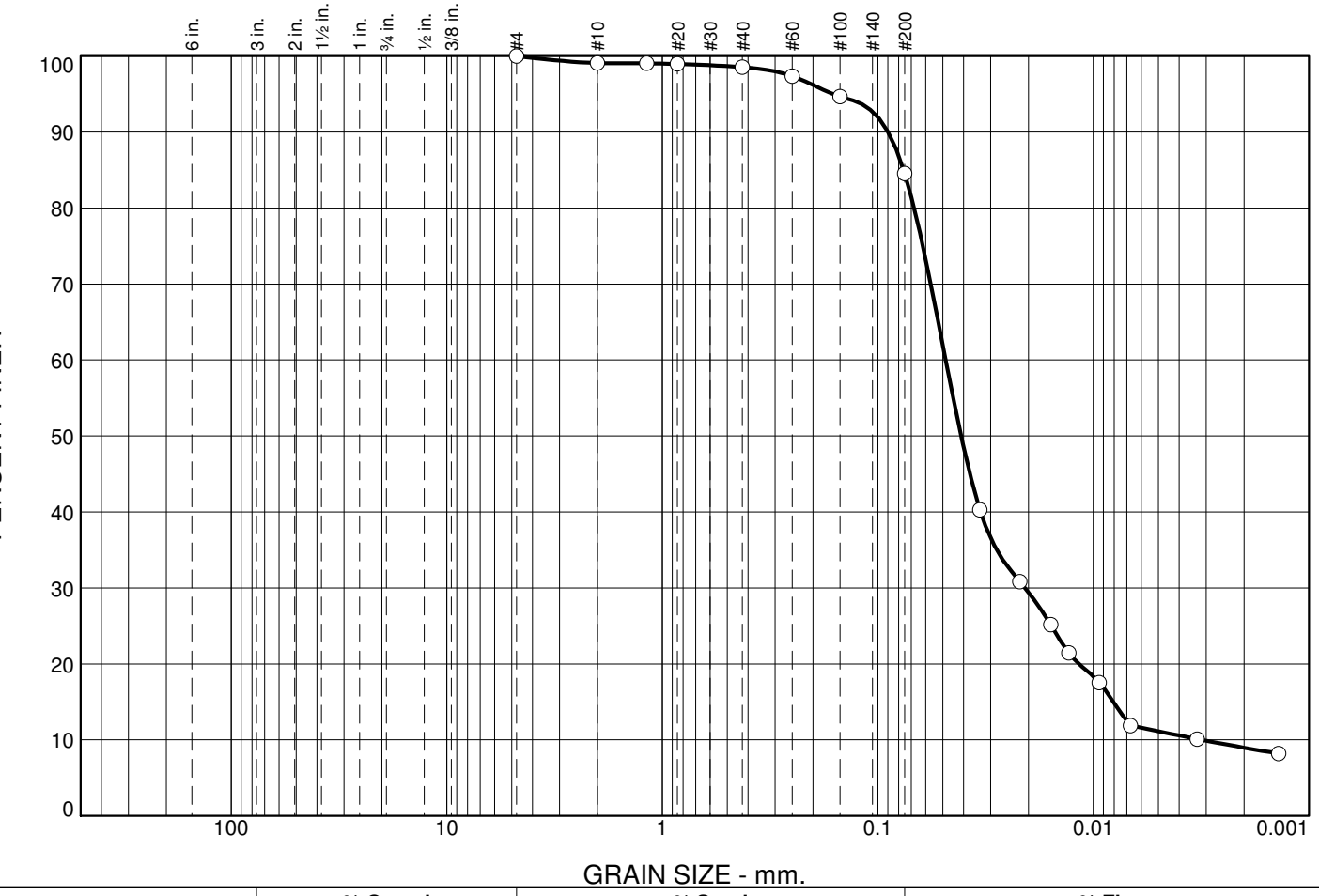
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	0	14	74	11

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	99		
#16	99		
#20	99		
#40	99		
#60	97		
#100	95		
#200	85		
0.0336 mm.	40		
0.0219 mm.	31		
0.0158 mm.	25		
0.0130 mm.	21		
0.0094 mm.	18		
0.0067 mm.	12		
0.0033 mm.	10		
0.0014 mm.	8.2		

* (no specification provided)

Soil Description

Very stiff to hard, moist, tannish brown, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 35 LL= 37 PI= 2

Coefficients

D_{90}= 0.0896 D_{85}= 0.0759 D_{60}= 0.0485
D_{50}= 0.0411 D_{30}= 0.0208 D_{15}= 0.0081
D_{10}= 0.0031 C_u= 15.44 C_c= 2.83

Classification

USCS= ML AASHTO= A-4(4)

Remarks

Source of Sample: P-264 **Depth:** 6.00-12.00
Sample Number: S-3/S-4

Date: 11/06/2017

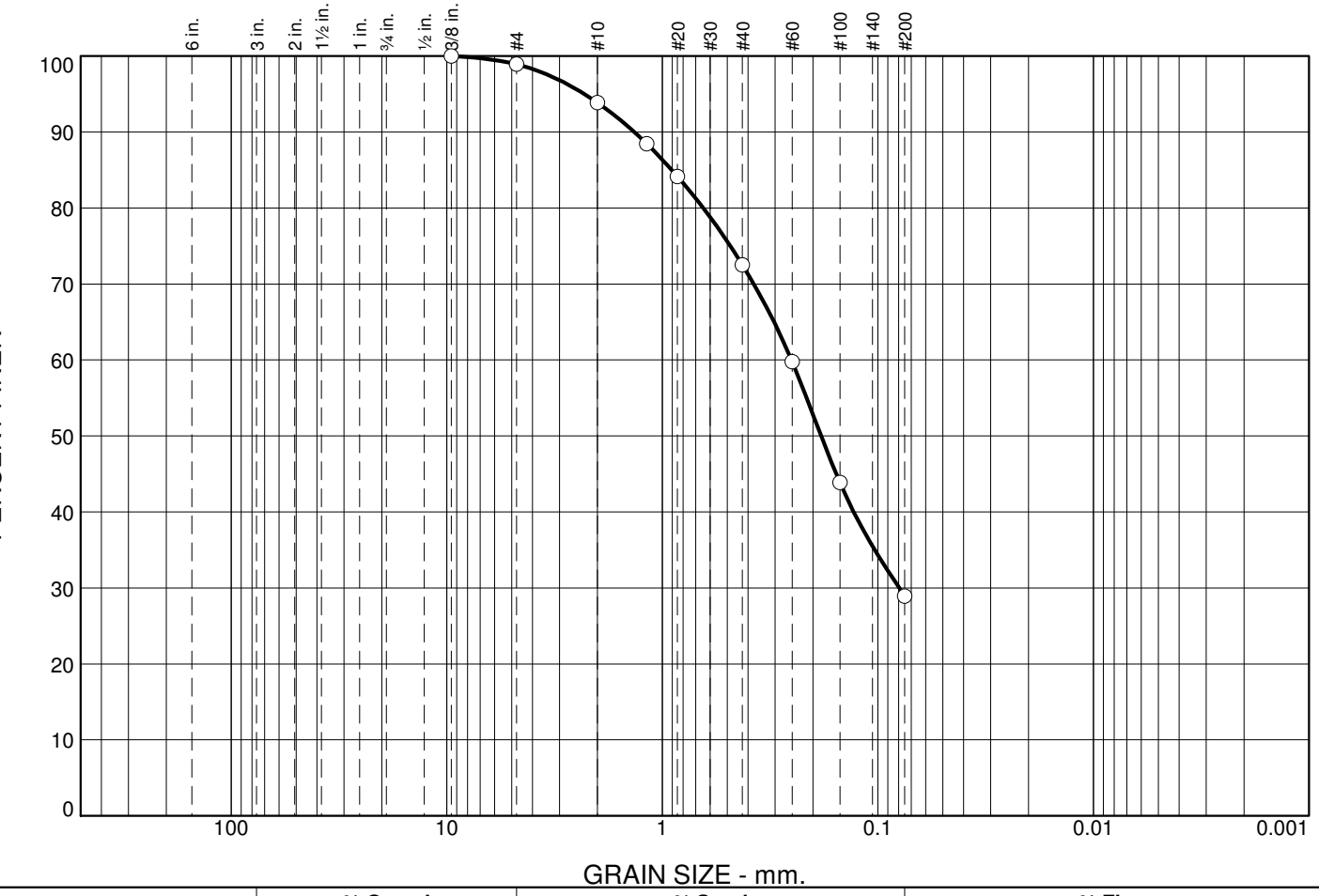
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	5	22	43	29	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	94		
#16	88		
#20	84		
#40	72		
#60	60		
#100	44		
#200	29		

* (no specification provided)

Soil Description

Dense, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-2-4)

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 1.3480 D_{85}= 0.9035 D_{60}= 0.2520
D_{50}= 0.1833 D_{30}= 0.0795 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: R-1 **Depth:** 2.00-4.00
Sample Number: S-2

Date: 11/03/2017

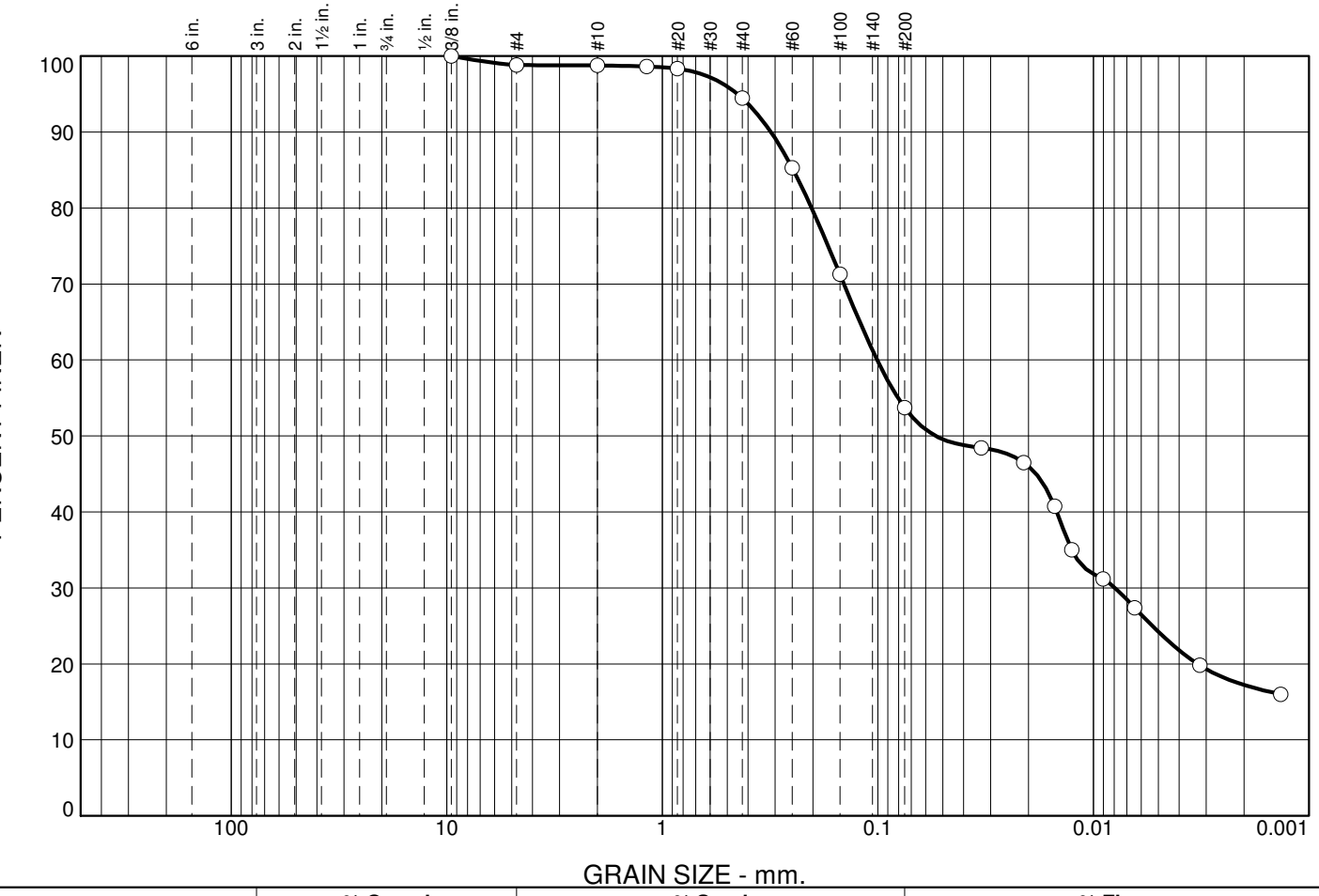
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	5	40	30	24

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	99		
#16	99		
#20	98		
#40	94		
#60	85		
#100	71		
#200	54		
0.0331 mm.	48		
0.0211 mm.	47		
0.0151 mm.	41		
0.0126 mm.	35		
0.0090 mm.	31		
0.0064 mm.	27		
0.0032 mm.	20		
0.0014 mm.	16		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown to grayish brown, Sandy SILT (ML) (A-7-5) with trace mica

Atterberg Limits

PL= 32 LL= 43 PI= 11

Coefficients

D_{90}= 0.3137 D_{85}= 0.2468 D_{60}= 0.1006
D_{50}= 0.0538 D_{30}= 0.0079 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(4)

Remarks

Source of Sample: R-2 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/06/2017

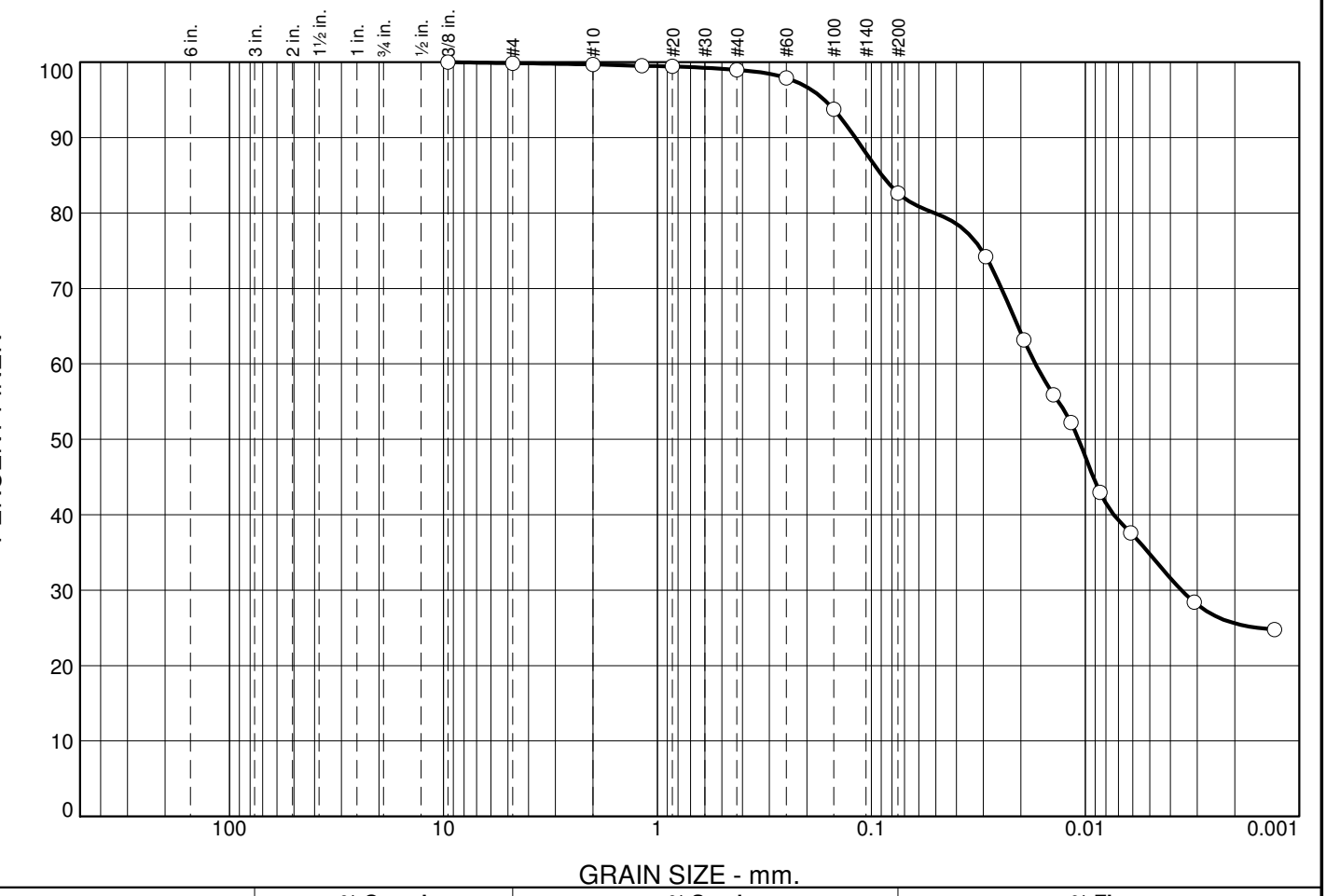
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	16	48	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	100		
#16	100		
#20	99		
#40	99		
#60	98		
#100	94		
#200	83		
0.0292 mm.	74		
0.0194 mm.	63		
0.0141 mm.	56		
0.0117 mm.	52		
0.0085 mm.	43		
0.0061 mm.	38		
0.0031 mm.	28		
0.0013 mm.	25		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, orangish tan to brown, Plastic CLAY (CH) (A-7-6) with slight mica

Atterberg Limits

PL= 28 LL= 51 PI= 23

Coefficients

D_{90}= 0.1189 D_{85}= 0.0891 D_{60}= 0.0171
D_{50}= 0.0108 D_{30}= 0.0036 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(21)

Remarks

Source of Sample: R-3 **Depth:** 2.00-4.00
Sample Number: S-2

Date: 10/31/2017

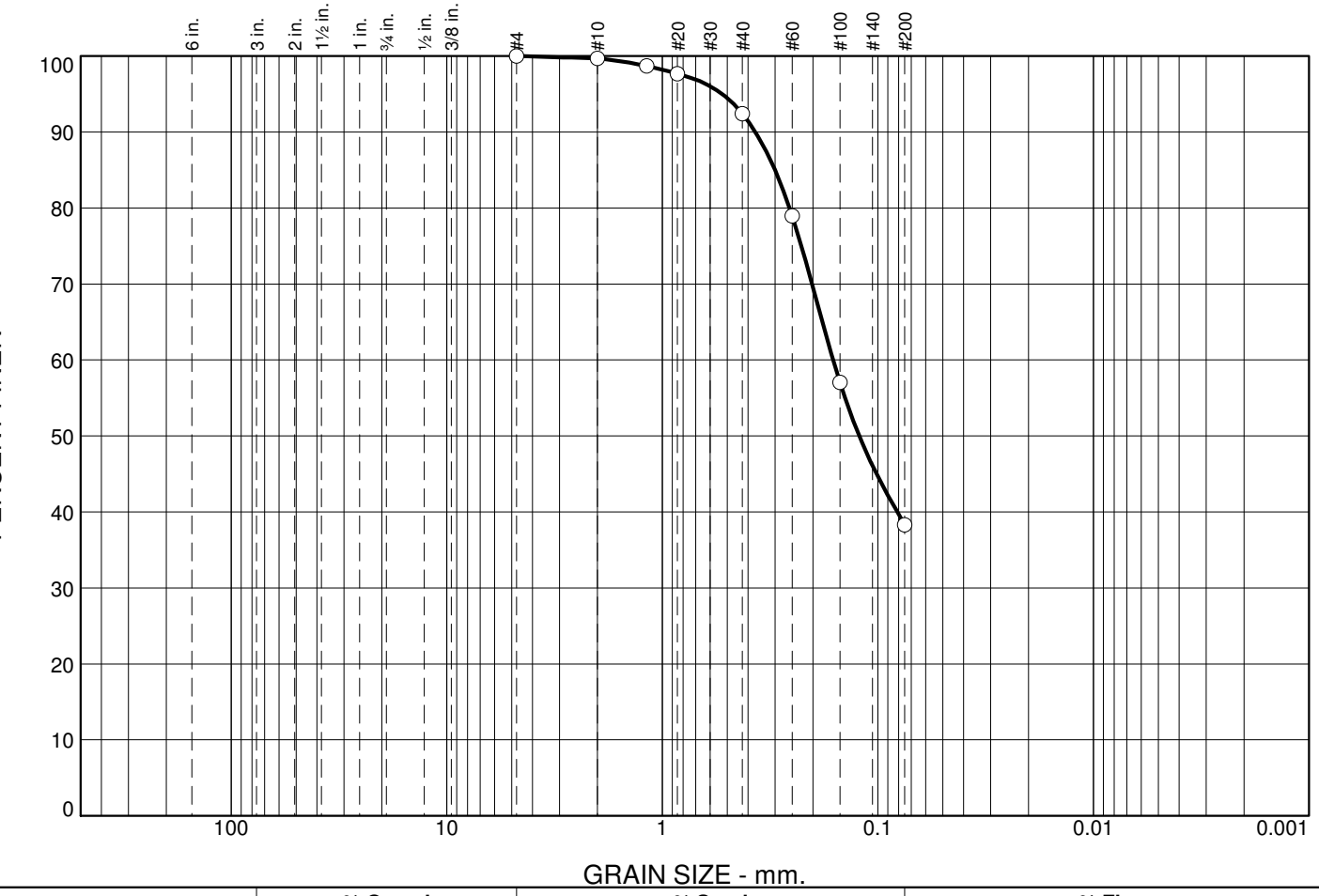
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	8	54	38	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	99		
#20	98		
#40	92		
#60	79		
#100	57		
#200	38		

* (no specification provided)

Soil Description

Very stiff, moist, orangish tan, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 23 LL= 28 PI= 5

Coefficients

D_{90}= 0.3697 D_{85}= 0.3002 D_{60}= 0.1613
D_{50}= 0.1219 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Source of Sample: R-4 **Depth:** 2.00-4.00
Sample Number: S-2

Date: 11/06/2017

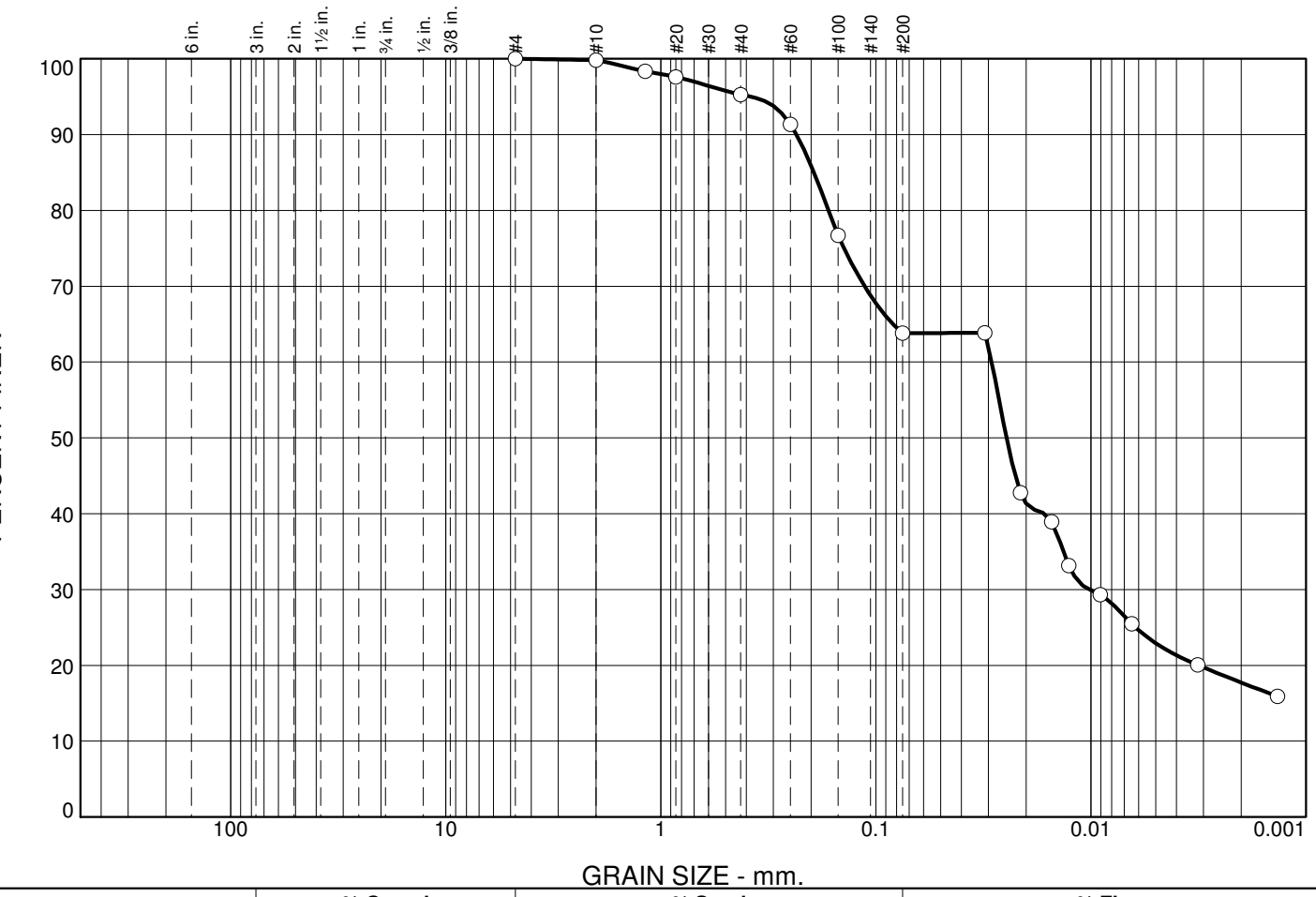
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	5	31	41	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	98		
#20	98		
#40	95		
#60	91		
#100	77		
#200	64		
0.0311 mm.	64		
0.0213 mm.	43		
0.0152 mm.	39		
0.0127 mm.	33		
0.0091 mm.	29		
0.0065 mm.	26		
0.0032 mm.	20		
0.0014 mm.	16		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tan to brown, Sandy SILT (ML) (A-4) with trace mica

Atterberg Limits

PL= 37 LL= 41 PI= 4

Coefficients

D_{90}= 0.2341 D_{85}= 0.1943 D_{60}= 0.0290
D_{50}= 0.0247 D_{30}= 0.0101 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(3)

Remarks

Source of Sample: R-5 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/07/2017

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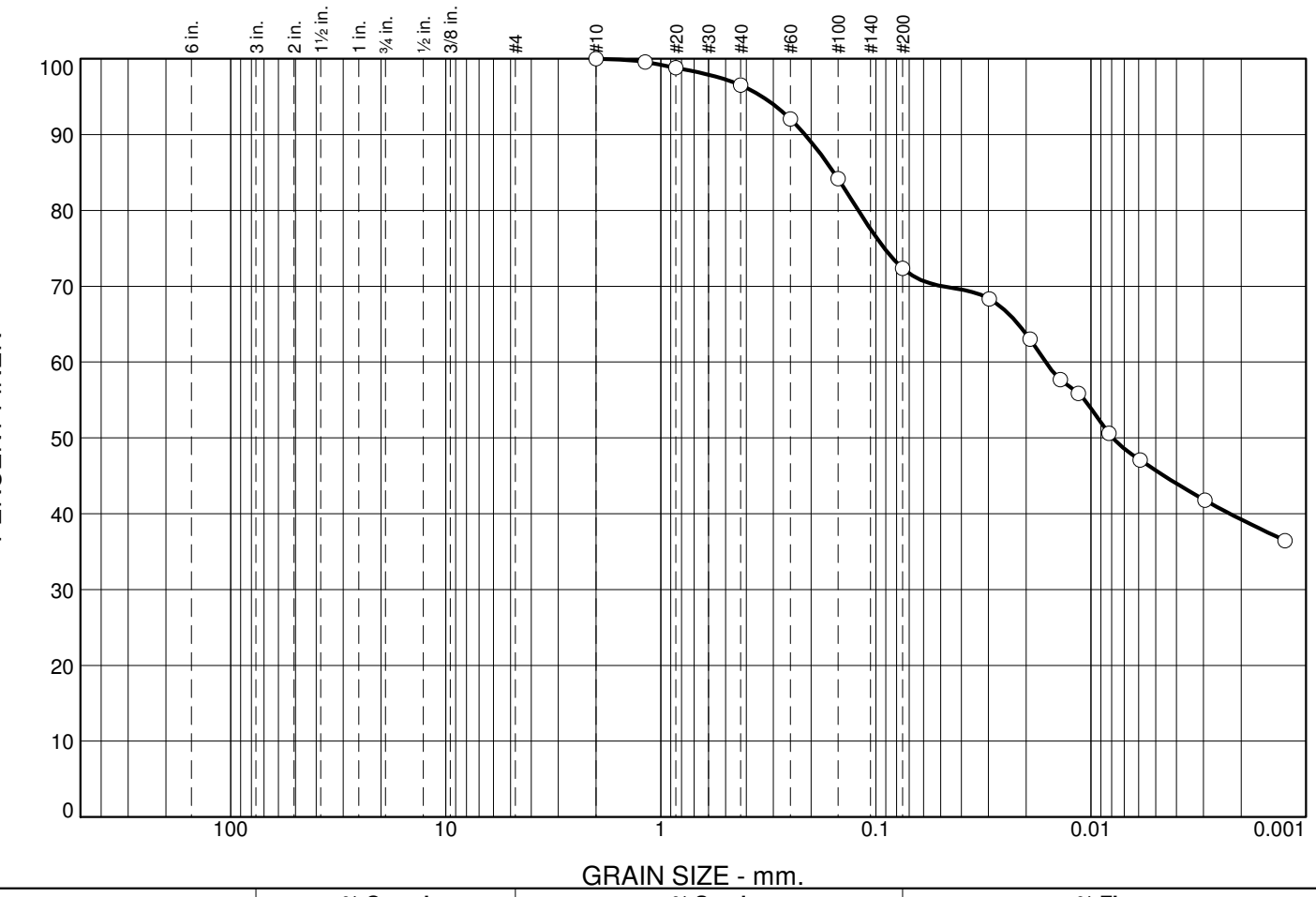
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	25	26	46

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100		
#16	100		
#20	99		
#40	97		
#60	92		
#100	84		
#200	72		
0.0297 mm.	68		
0.0192 mm.	63		
0.0139 mm.	58		
0.0114 mm.	56		
0.0082 mm.	51		
0.0059 mm.	47		
0.0029 mm.	42		
0.0013 mm.	36		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to orangish brown, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 24 LL= 44 PI= 20

Coefficients

D_{90}= 0.2137 D_{85}= 0.1570 D_{60}= 0.0162
D_{50}= 0.0079 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(14)

Remarks

Source of Sample: R-6 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/07/2017

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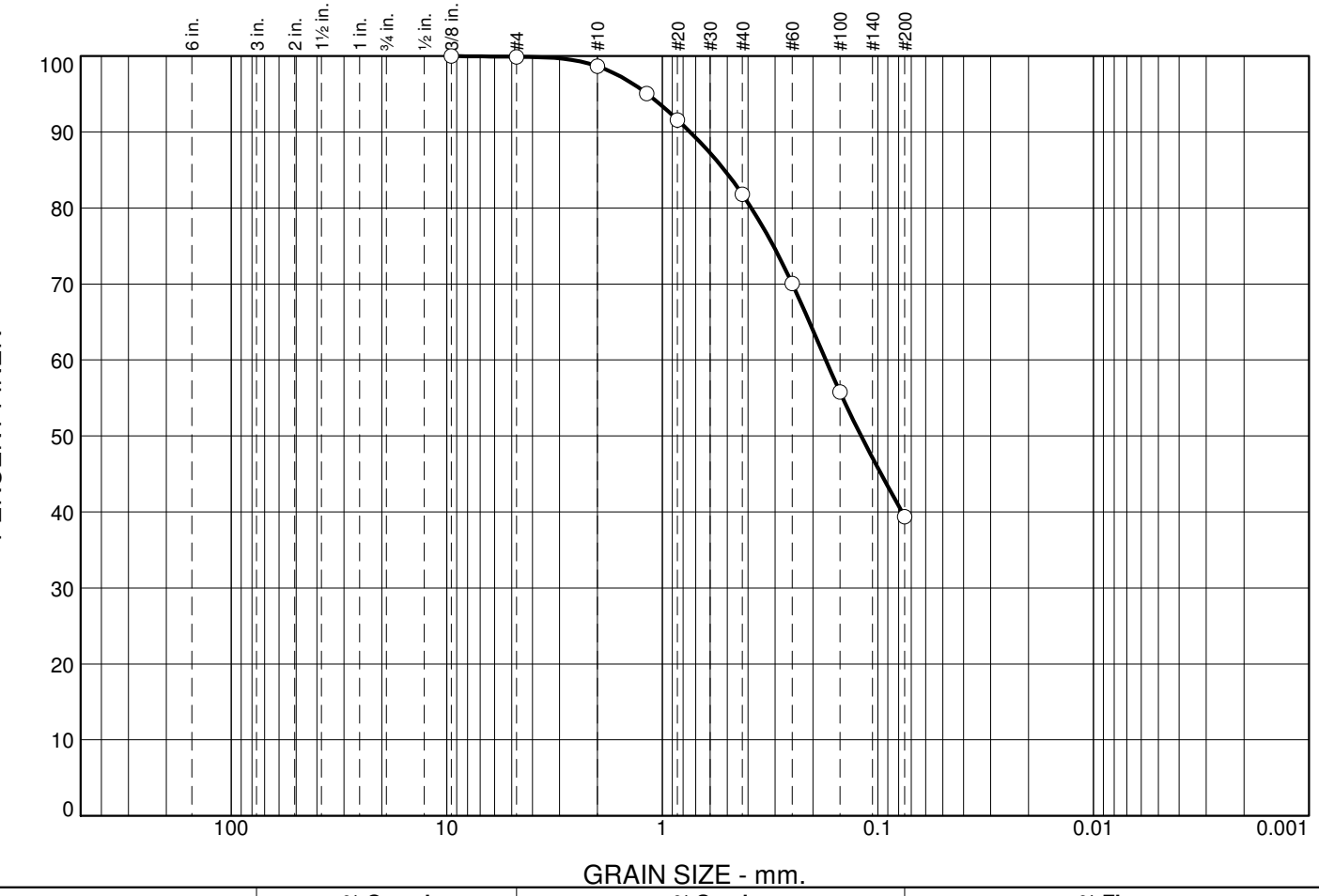
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	17	43	39	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	99		
#16	95		
#20	92		
#40	82		
#60	70		
#100	56		
#200	39		

* (no specification provided)

Soil Description

Medium dense to dense, moist, tan to grayish brown, Silty Fine to Medium SAND (SM) (A-4)

Atterberg Limits

PL= 27 LL= 33 PI= 6

Coefficients

D_{90}= 0.7429 D_{85}= 0.5150 D_{60}= 0.1745
D_{50}= 0.1196 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Source of Sample: R-7 **Depth:** 6.00-12.00
Sample Number: S-4/S-5

Date: 11/07/2017

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1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
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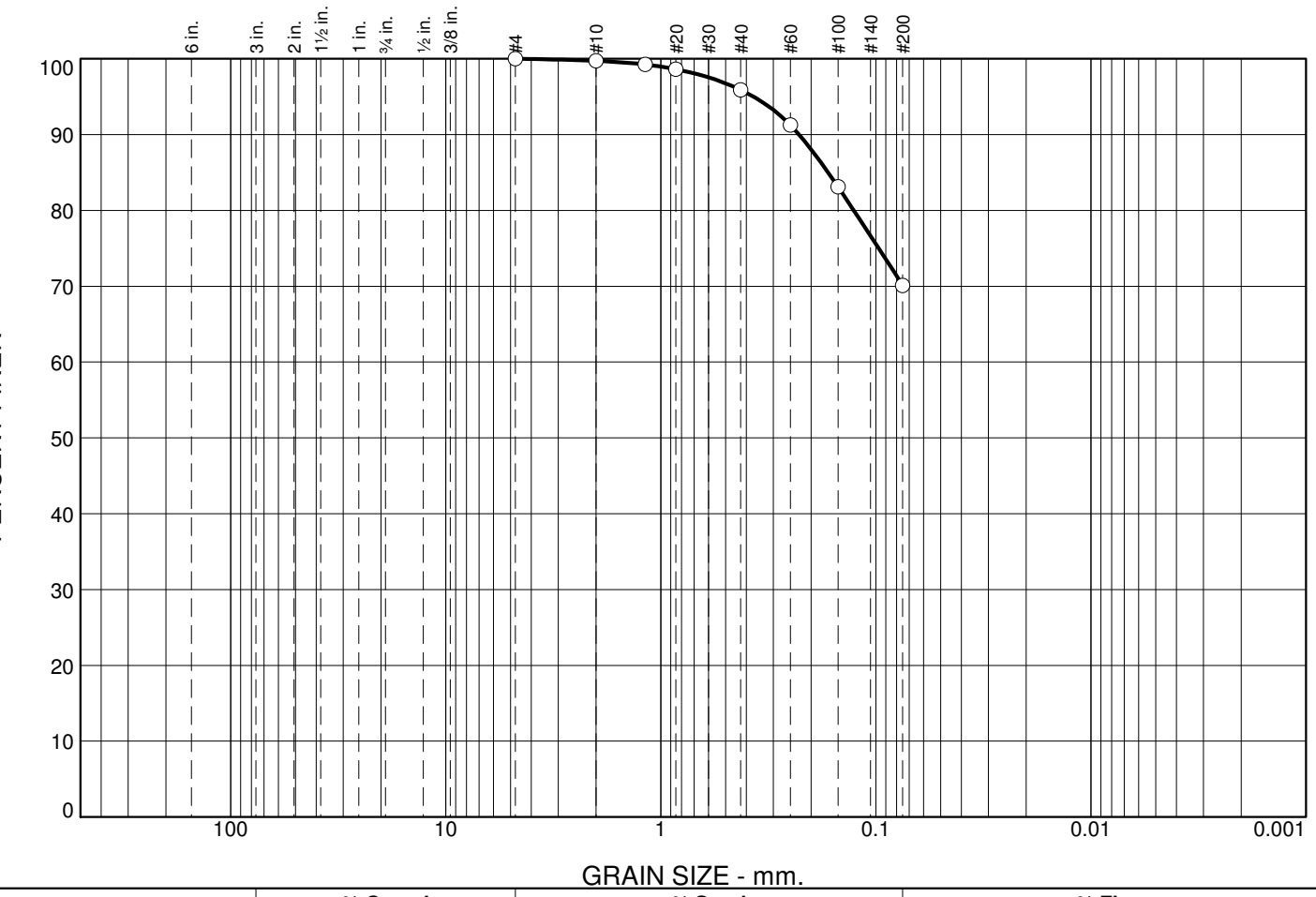
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	4	26	70	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	99		
#20	99		
#40	96		
#60	91		
#100	83		
#200	70		

* (no specification provided)

Soil Description

Medium dense to dense, moist, tan, Sandy SILT (ML) (A-6) with slight roots

Atterberg Limits

PL= 28 LL= 40 PI= 12

Coefficients

D_{90}= 0.2278 D_{85}= 0.1669 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-6(8)

Remarks

Source of Sample: R-8 **Depth:** 4.00-8.00
Sample Number: S-3/S-4

Date: 11/07/2017

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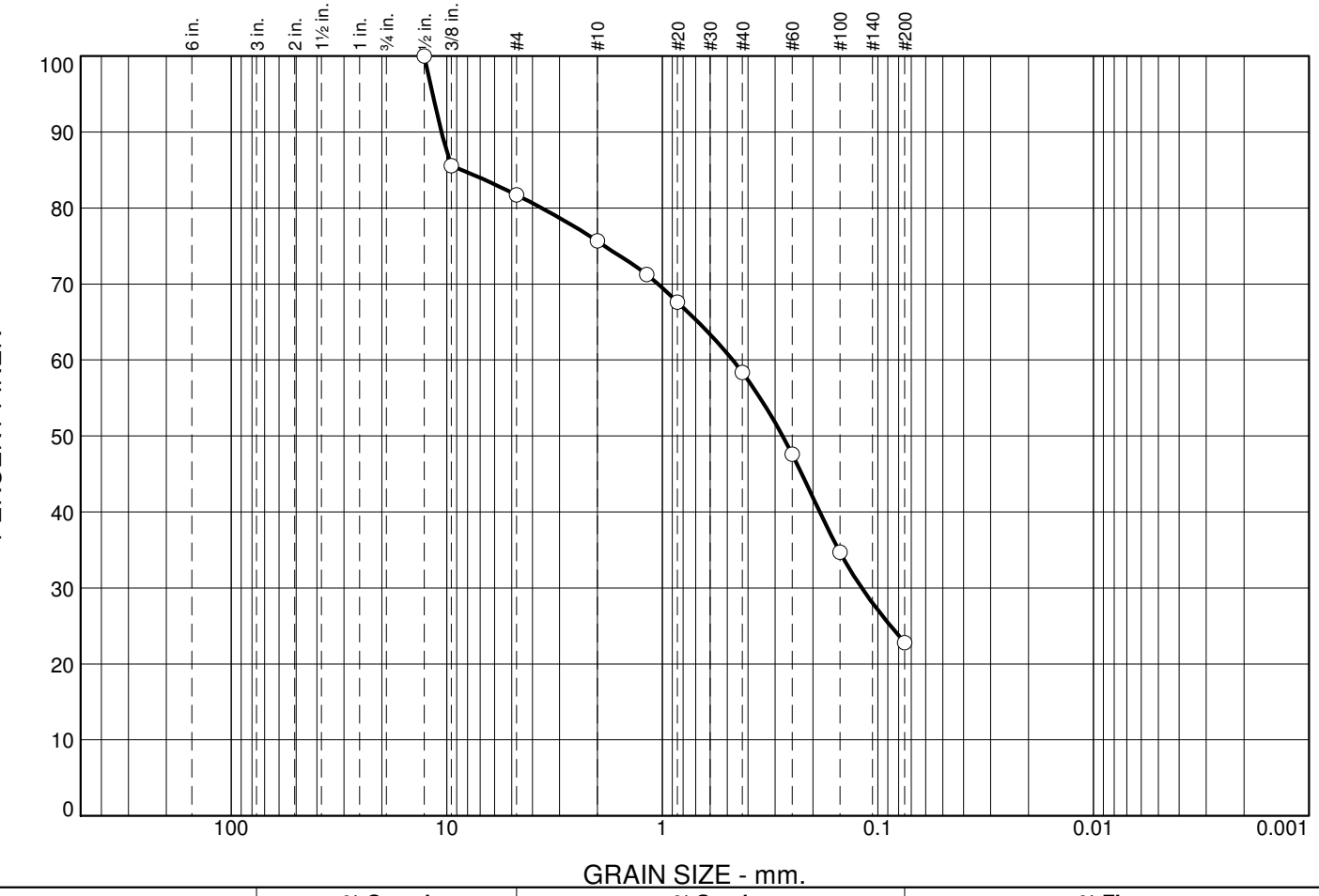
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	18	6	18	35	23	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100		
3/8	86		
#4	82		
#10	76		
#16	71		
#20	68		
#40	58		
#60	48		
#100	35		
#200	23		

* (no specification provided)

Soil Description

Medium dense, moist, tan, Silty Fine to Coarse SAND (SM) (A-4) with slight gravel-sized rock fragments

Atterberg Limits

PL= NP LL= NP PI= NP

Coefficients

D_{90}= 10.5699 D_{85}= 8.5154 D_{60}= 0.4713
D_{50}= 0.2768 D_{30}= 0.1187 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: R-12 **Depth:** 0.50-4.00
Sample Number: S-1/S-2

Date: 10/31/2017

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1200 Woodruff Road, Suite H-12
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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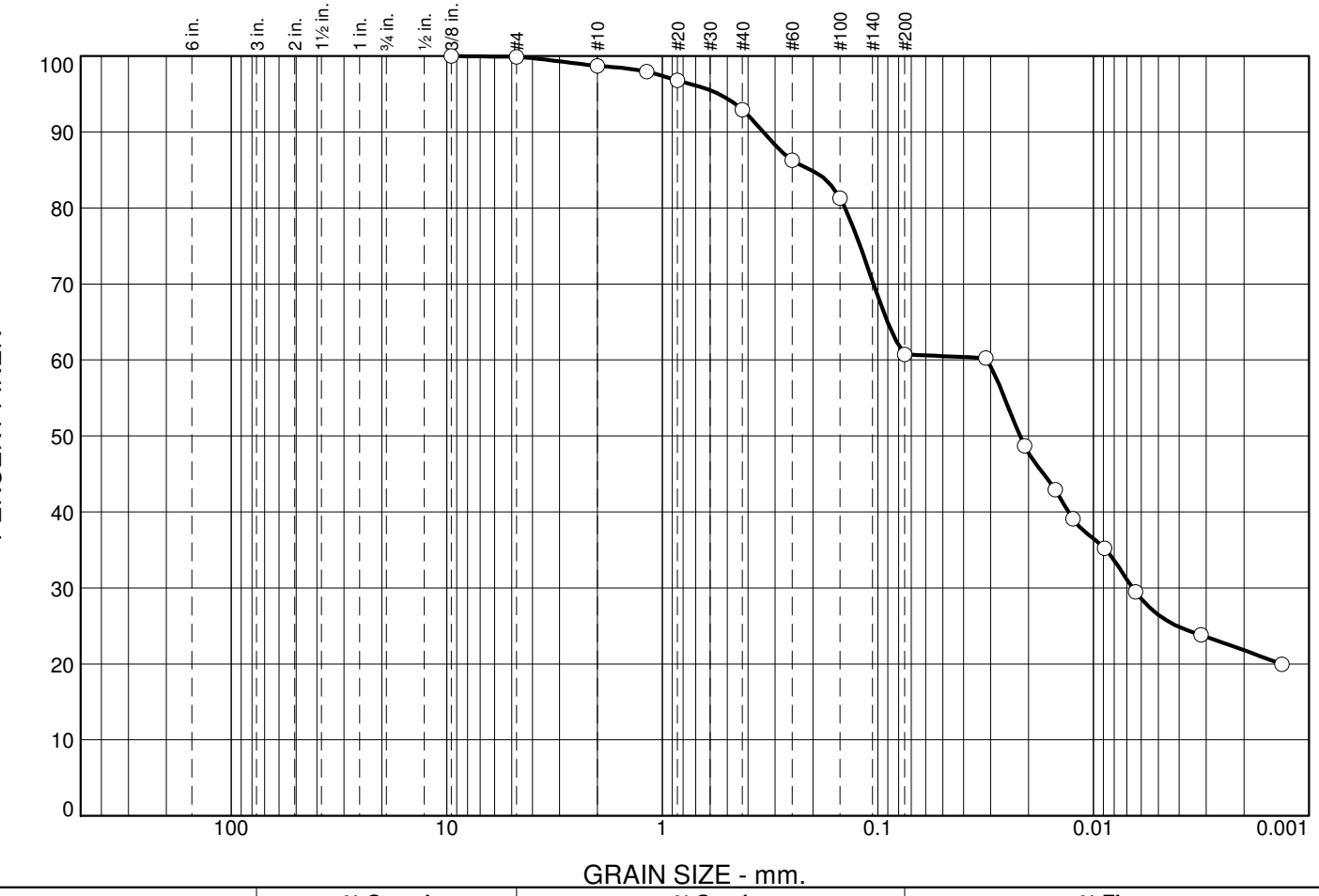
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	1	6	32	35	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	99		
#16	98		
#20	97		
#40	93		
#60	86		
#100	81		
#200	61		
0.0316 mm.	60		
0.0208 mm.	49		
0.0150 mm.	43		
0.0124 mm.	39		
0.0089 mm.	35		
0.0064 mm.	29		
0.0032 mm.	24		
0.0013 mm.	20		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, tannish brown to orangish brown, Sandy SILT (ML) (A-7) with slight mica

Atterberg Limits

PL= 30 LL= 43 PI= 13

Coefficients

D_{90}= 0.3398 D_{85}= 0.2043 D_{60}= 0.0312
D_{50}= 0.0219 D_{30}= 0.0066 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(7)

Remarks

Source of Sample: R-12 **Depth:** 6.00-12.00
Sample Number: S-4/S-5 **Date:** 11/01/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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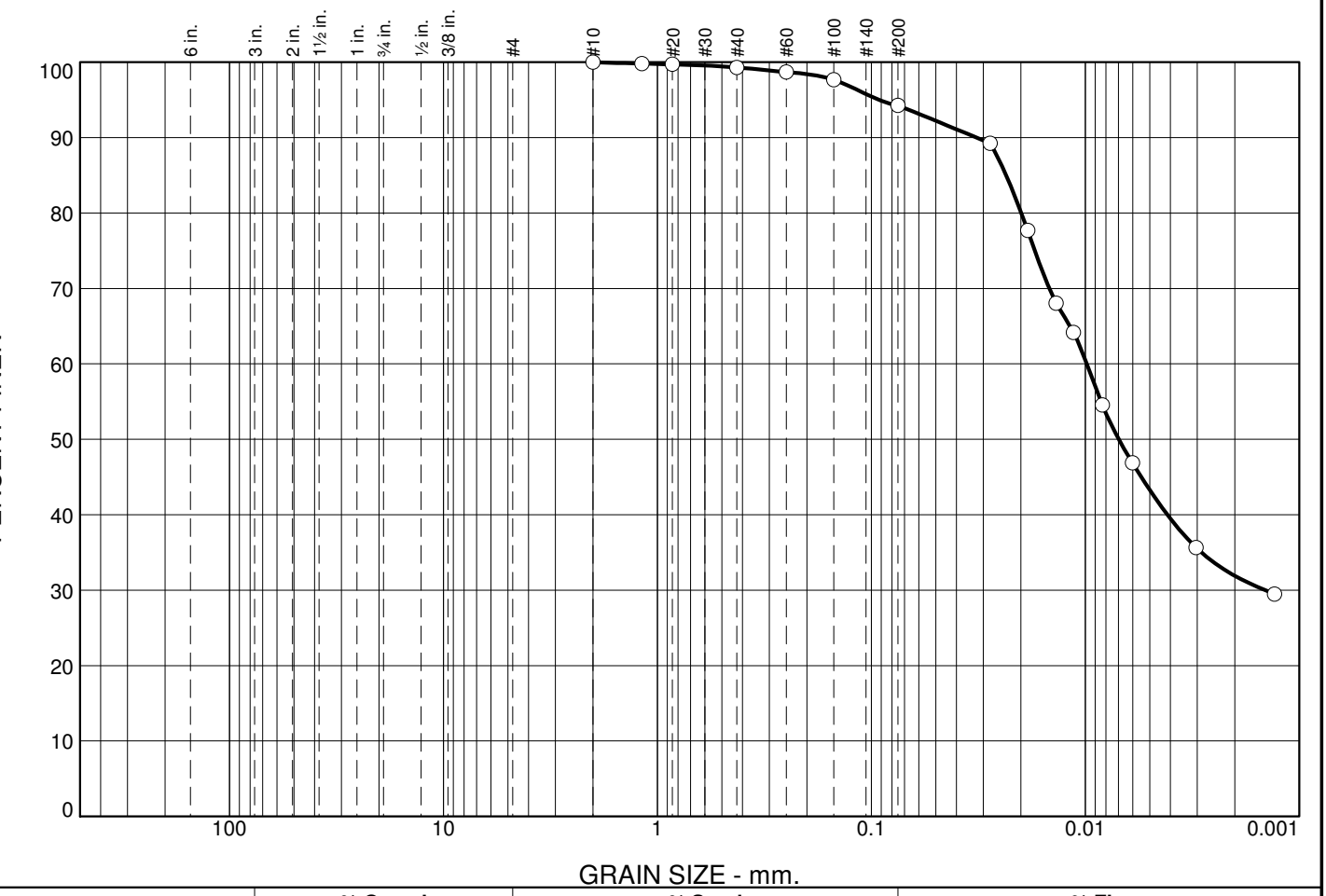
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	1	5	51	43

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#10	100		
#16	100		
#20	100		
#40	99		
#60	99		
#100	98		
#200	94		
0.0279 mm.	89		
0.0186 mm.	78		
0.0137 mm.	68		
0.0114 mm.	64		
0.0083 mm.	55		
0.0060 mm.	47		
0.0030 mm.	36		
0.0013 mm.	29		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown to orangish brown, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 39 LL= 54 PI= 15

Coefficients

D_{90}= 0.0323 D_{85}= 0.0234 D_{60}= 0.0098
D_{50}= 0.0070 D_{30}= 0.0014 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(20)

Remarks

Source of Sample: R-13 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/02/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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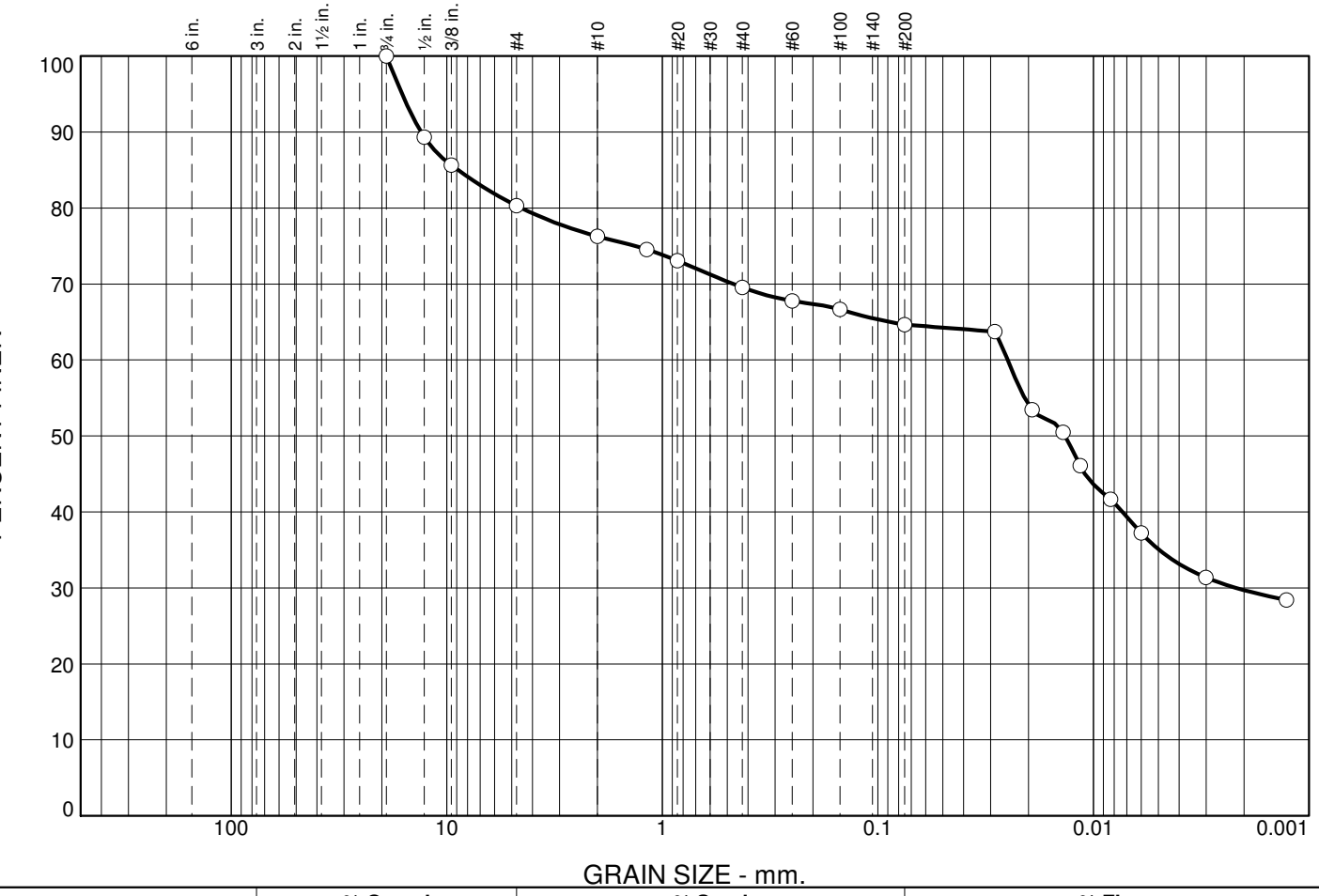
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	20	4	6	5	30	35

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	89		
3/8	86		
#4	80		
#10	76		
#16	75		
#20	73		
#40	70		
#60	68		
#100	67		
#200	65		
0.0287 mm.	64		
0.0192 mm.	53		
0.0138 mm.	50		
0.0115 mm.	46		
0.0083 mm.	42		
0.0060 mm.	37		
0.0030 mm.	31		
0.0013 mm.	28		

* (no specification provided)

Soil Description

Stiff to medium stiff, reddish brown to black, Sandy CLAY (CL) (A-7-6)

Atterberg Limits

PL= 23 LL= 42 PI= 19

Coefficients

D_{90}= 13.1570 D_{85}= 8.8633 D_{60}= 0.0250
D_{50}= 0.0135 D_{30}= 0.0022 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(11)

Remarks

Source of Sample: R-14 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/06/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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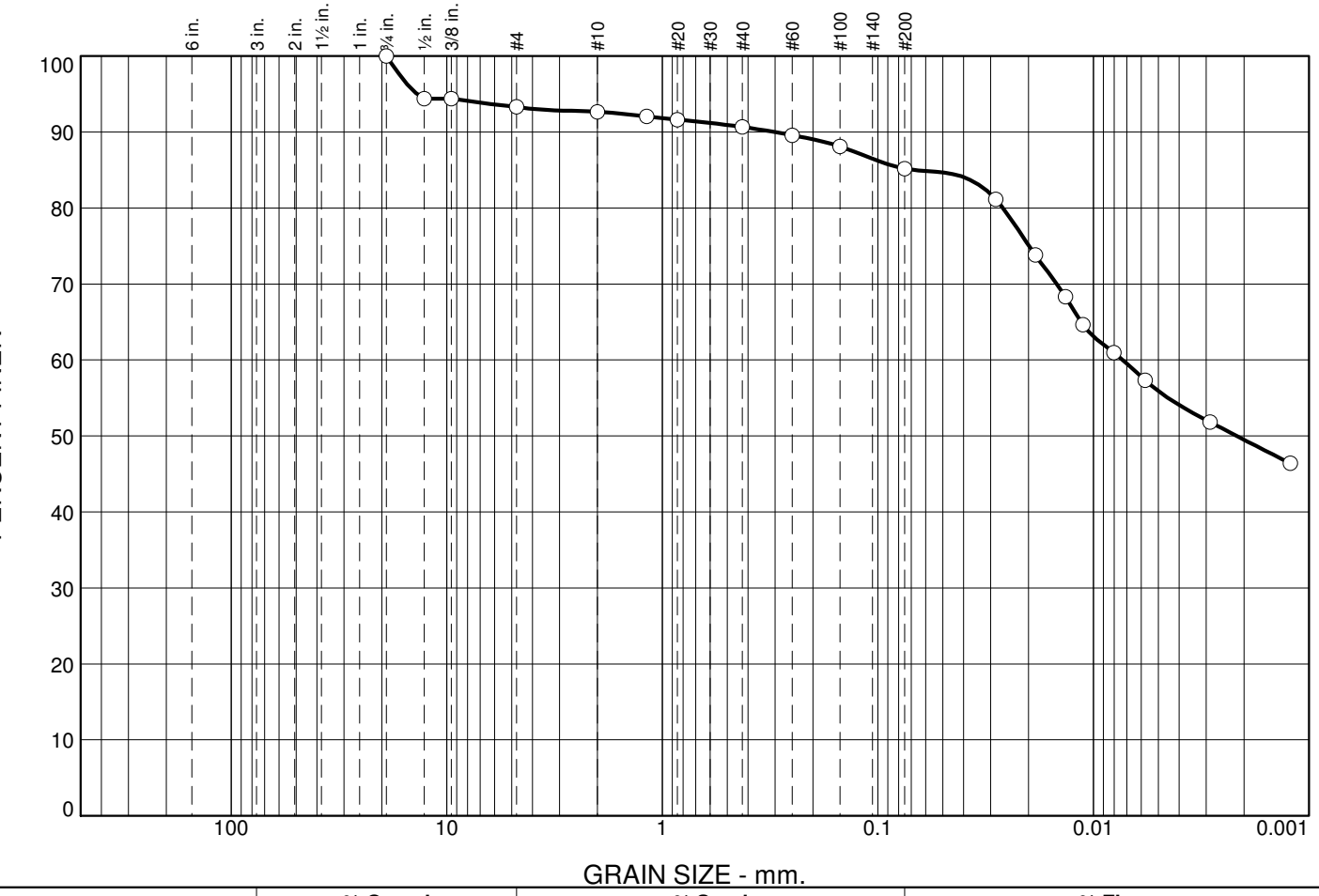
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	0	2	6	29	56

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	94		
3/8	94		
#4	93		
#10	93		
#16	92		
#20	92		
#40	91		
#60	90		
#100	88		
#200	85		
0.0284 mm.	81		
0.0186 mm.	74		
0.0135 mm.	68		
0.0112 mm.	65		
0.0080 mm.	61		
0.0058 mm.	57		
0.0029 mm.	52		
0.0012 mm.	46		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to black, Sandy CLAY (CL) (A-7-6) with slight gravel and wood

Atterberg Limits

PL= 27 LL= 49 PI= 22

Coefficients

D_{90}= 0.3021 D_{85}= 0.0673 D_{60}= 0.0073
D_{50}= 0.0022 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(21)

Remarks

Source of Sample: R-14 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 11/03/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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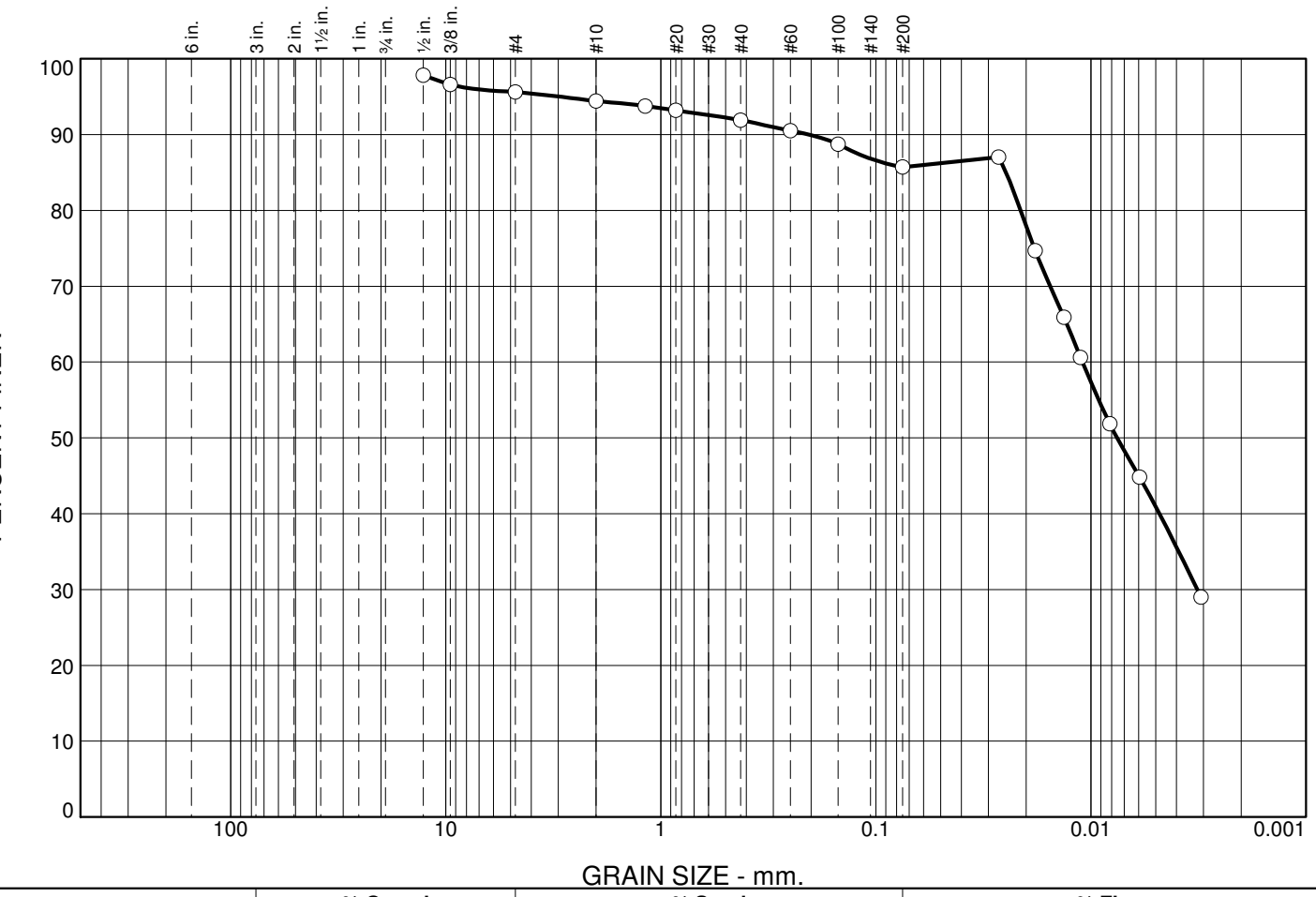
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			2	2	6	45	41

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	98		
3/8	97		
#4	96		
#10	94		
#16	94		
#20	93		
#40	92		
#60	91		
#100	89		
#200	86		
0.0269 mm.	87		
0.0181 mm.	75		
0.0134 mm.	66		
0.0112 mm.	61		
0.0082 mm.	52		
0.0059 mm.	45		
0.0031 mm.	29		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7)

Atterberg Limits

PL= 30 LL= 47 PI= 17

Coefficients

D_{90}= 0.2055 D_{85}= 0.0248 D_{60}= 0.0109
D_{50}= 0.0075 D_{30}= 0.0032 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(17)

Remarks

Source of Sample: R-15 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/07/2017

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1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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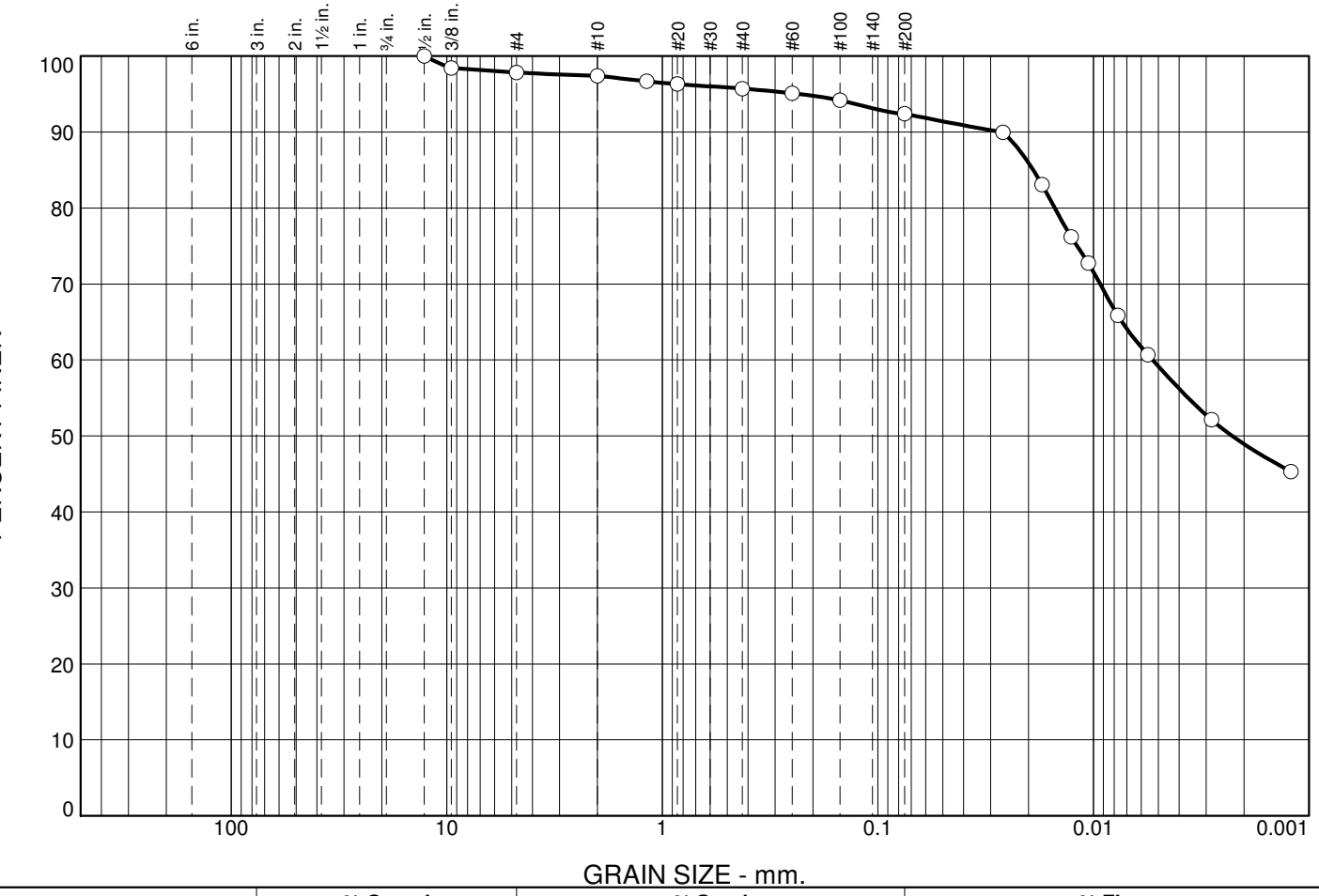
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	1	4	33	59

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100		
3/8	98		
#4	98		
#10	97		
#16	97		
#20	96		
#40	96		
#60	95		
#100	94		
#200	92		
0.0262 mm.	90		
0.0173 mm.	83		
0.0127 mm.	76		
0.0106 mm.	73		
0.0077 mm.	66		
0.0056 mm.	61		
0.0028 mm.	52		
0.0012 mm.	45		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to black, Plastic CLAY (CH) (A-7-5) with slight wood fragments

Atterberg Limits

PL= 31 LL= 63 PI= 32

Coefficients

D_{90}= 0.0270 D_{85}= 0.0190 D_{60}= 0.0053
D_{50}= 0.0023 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-5(35)

Remarks

Source of Sample: R-15 **Depth:** 6.00-12.00
Sample Number: S-4/S-5

Date: 11/01/2017

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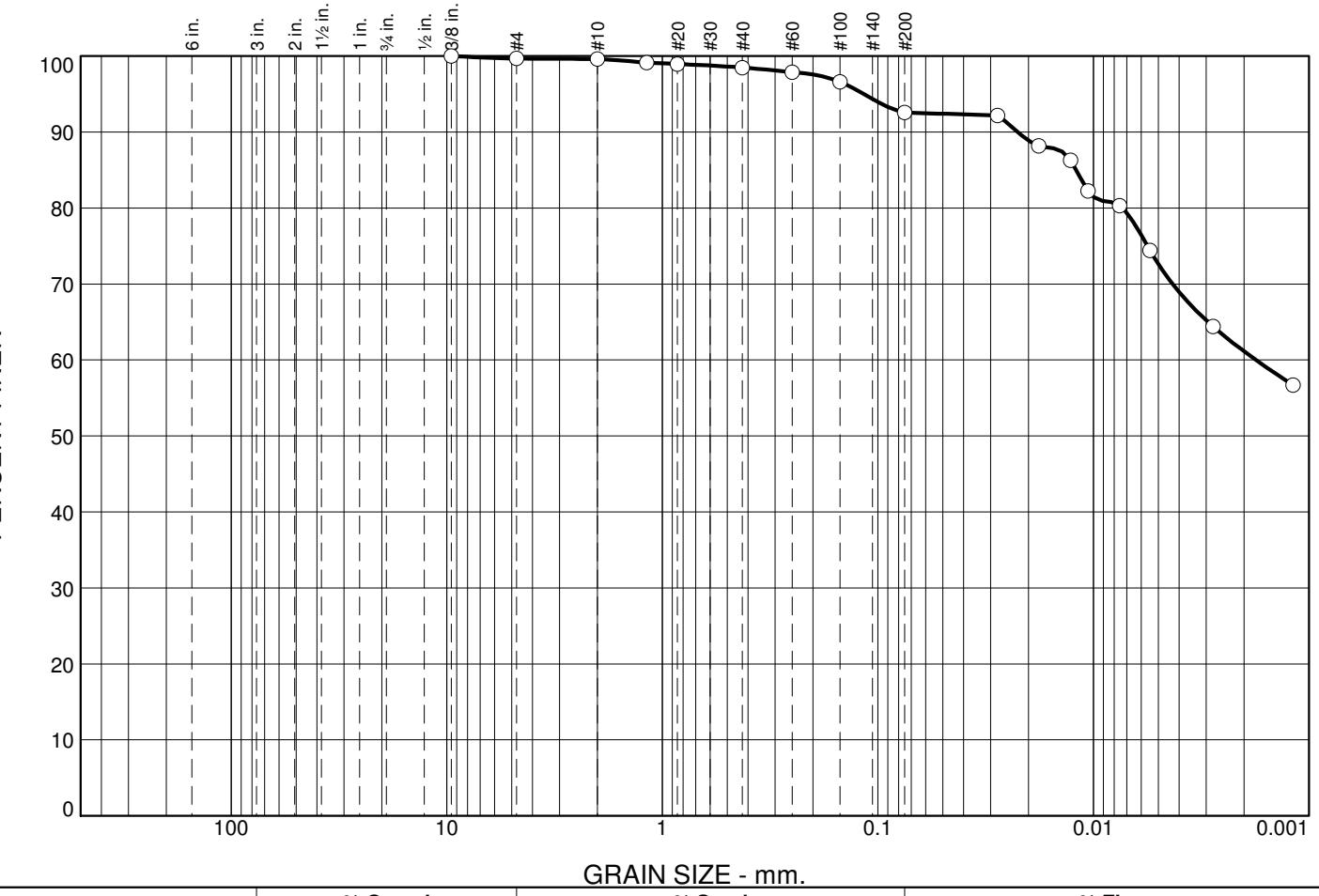
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	2	5	20	73

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	100		
#10	100		
#16	99		
#20	99		
#40	98		
#60	98		
#100	97		
#200	93		
0.0278 mm.	92		
0.0179 mm.	88		
0.0127 mm.	86		
0.0106 mm.	82		
0.0076 mm.	80		
0.0055 mm.	74		
0.0028 mm.	64		
0.0012 mm.	57		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Elastic Silt (MH) (A-5) with slight wood fragments

Atterberg Limits

PL= 36 LL= 67 PI= 31

Coefficients

D_{90}= 0.0224 D_{85}= 0.0120 D_{60}= 0.0018
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(36)

Remarks

Source of Sample: R-16 **Depth:** 8.00-17.00
Sample Number: S-5/S-6

Date: 10/31/2017

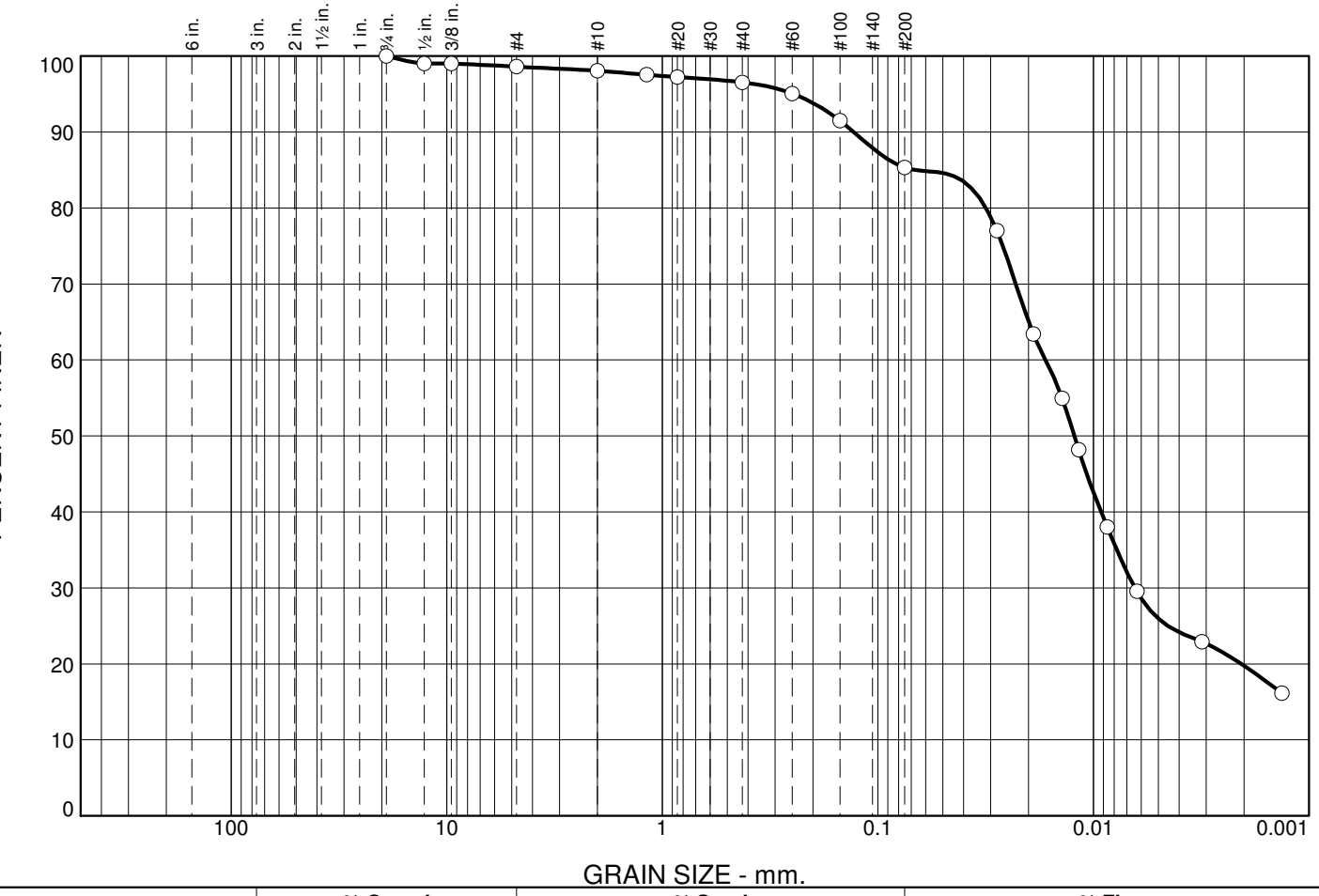
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	1	12	59	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	99		
3/8	99		
#4	99		
#10	98		
#16	98		
#20	97		
#40	97		
#60	95		
#100	91		
#200	85		
0.0280 mm.	77		
0.0190 mm.	63		
0.0139 mm.	55		
0.0117 mm.	48		
0.0086 mm.	38		
0.0063 mm.	30		
0.0031 mm.	23		
0.0013 mm.	16		

* (no specification provided)

Soil Description

Very stiff to stiff, moist, reddish brown to black, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 39 LL= 45 PI= 6

Coefficients

D_{90}= 0.1295 D_{85}= 0.0673 D_{60}= 0.0167
D_{50}= 0.0123 D_{30}= 0.0064 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(8)

Remarks

Source of Sample: R-17 **Depth:** 4.00-8.00
Sample Number: S-3/S-4

Date: 11/06/2017

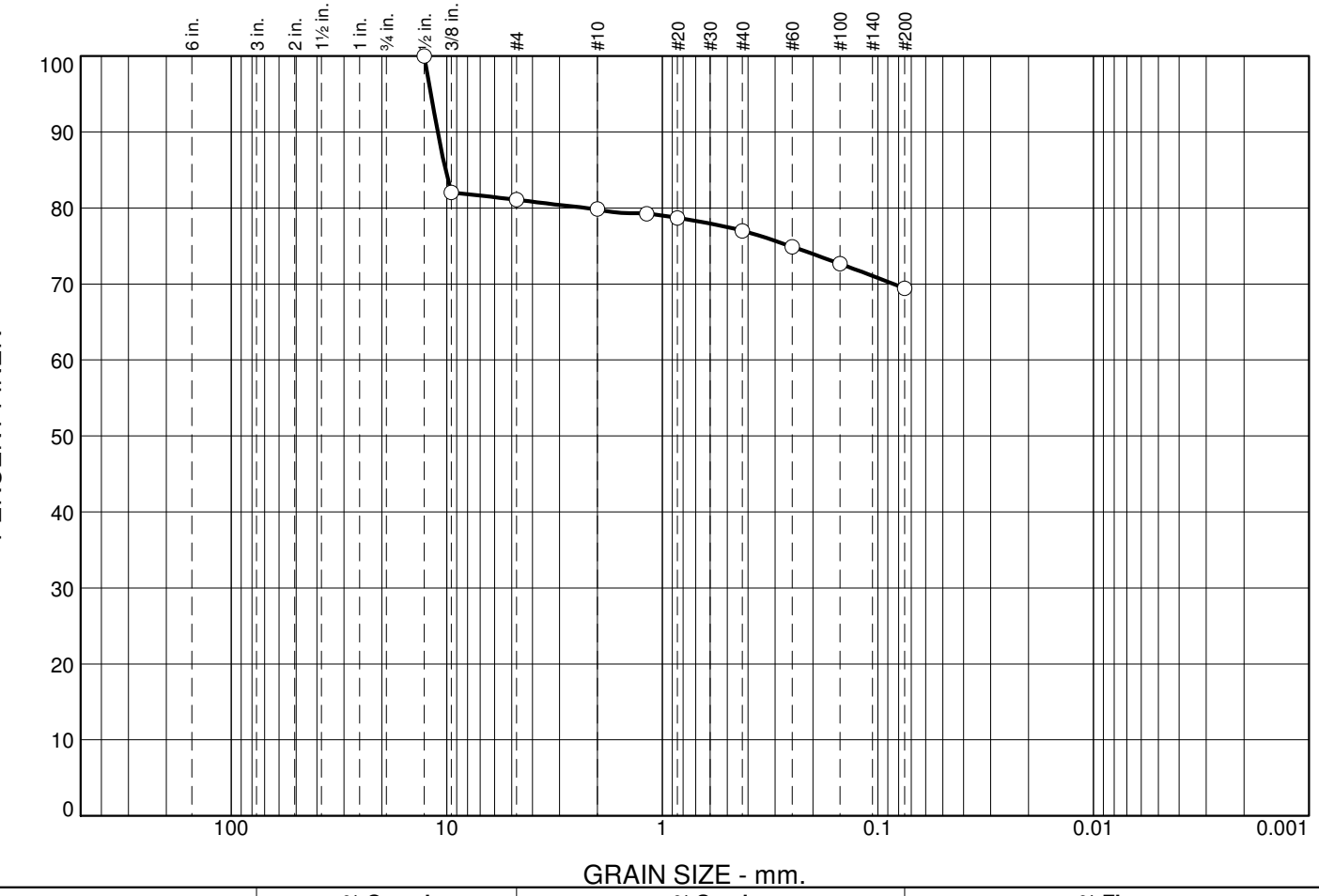
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	19	1	3	8	69	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100		
3/8	82		
#4	81		
#10	80		
#16	79		
#20	79		
#40	77		
#60	75		
#100	73		
#200	69		

* (no specification provided)

Soil Description

Very stiff to very hard, moist, tannish brown, Sandy SILT (ML) (A-5) with gravel-sized rock fragments

Atterberg Limits

PL= 31 LL= 40 PI= 9

Coefficients

D_{90}= 11.0039 D_{85}= 10.1216 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(6)

Remarks

Source of Sample: R-18 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/07/2017

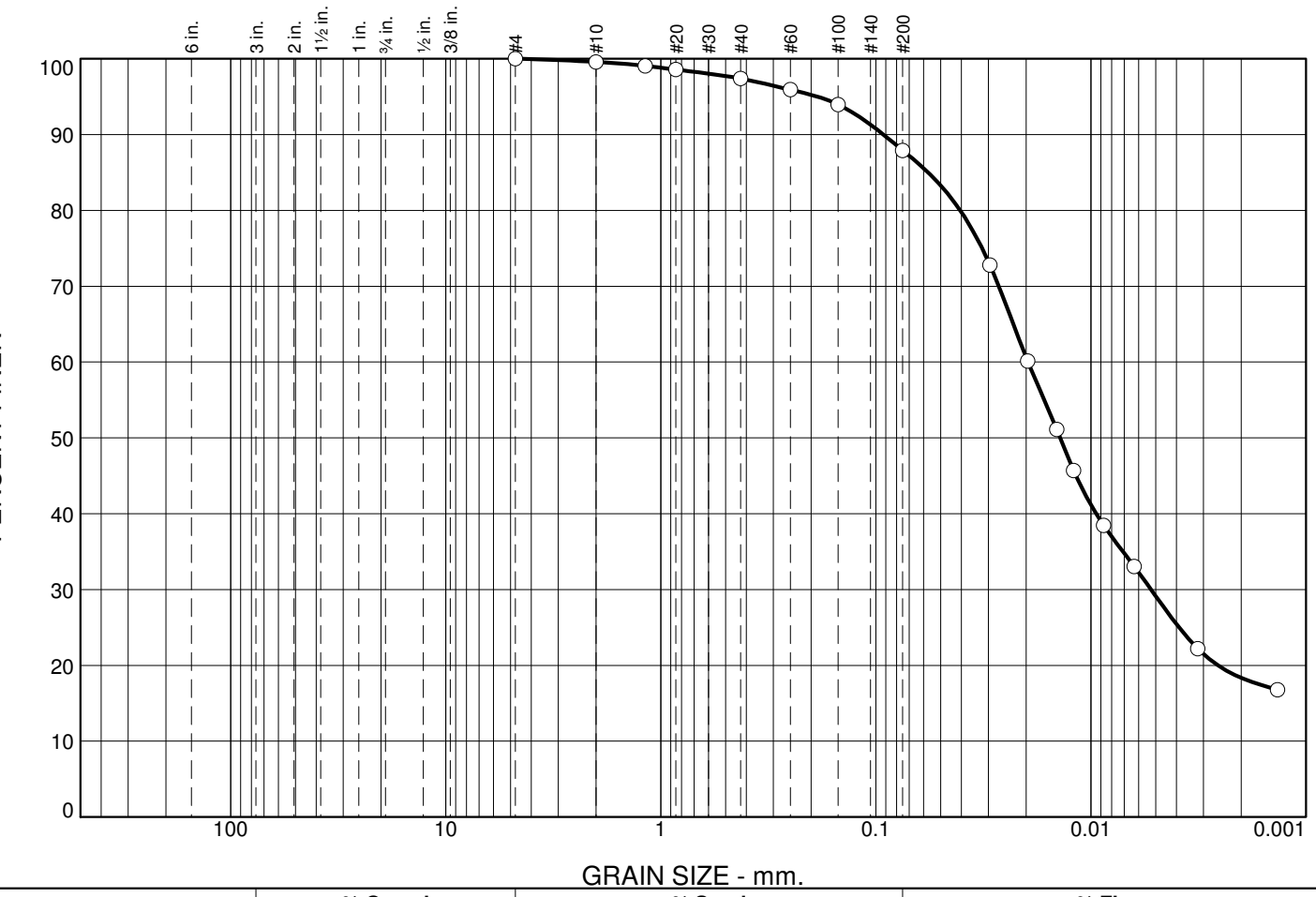
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	0	3	9	59	29

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100		
#10	100		
#16	99		
#20	99		
#40	97		
#60	96		
#100	94		
#200	88		
0.0295 mm.	73		
0.0197 mm.	60		
0.0144 mm.	51		
0.0120 mm.	46		
0.0087 mm.	38		
0.0063 mm.	33		
0.0032 mm.	22		
0.0014 mm.	17		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 36 LL= 46 PI= 10

Coefficients

D_{90}= 0.0923 D_{85}= 0.0572 D_{60}= 0.0196
D_{50}= 0.0139 D_{30}= 0.0052 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(12)

Remarks

Source of Sample: R-19 **Depth:** 4.00-6.00
Sample Number: S-3

Date: 11/03/2017

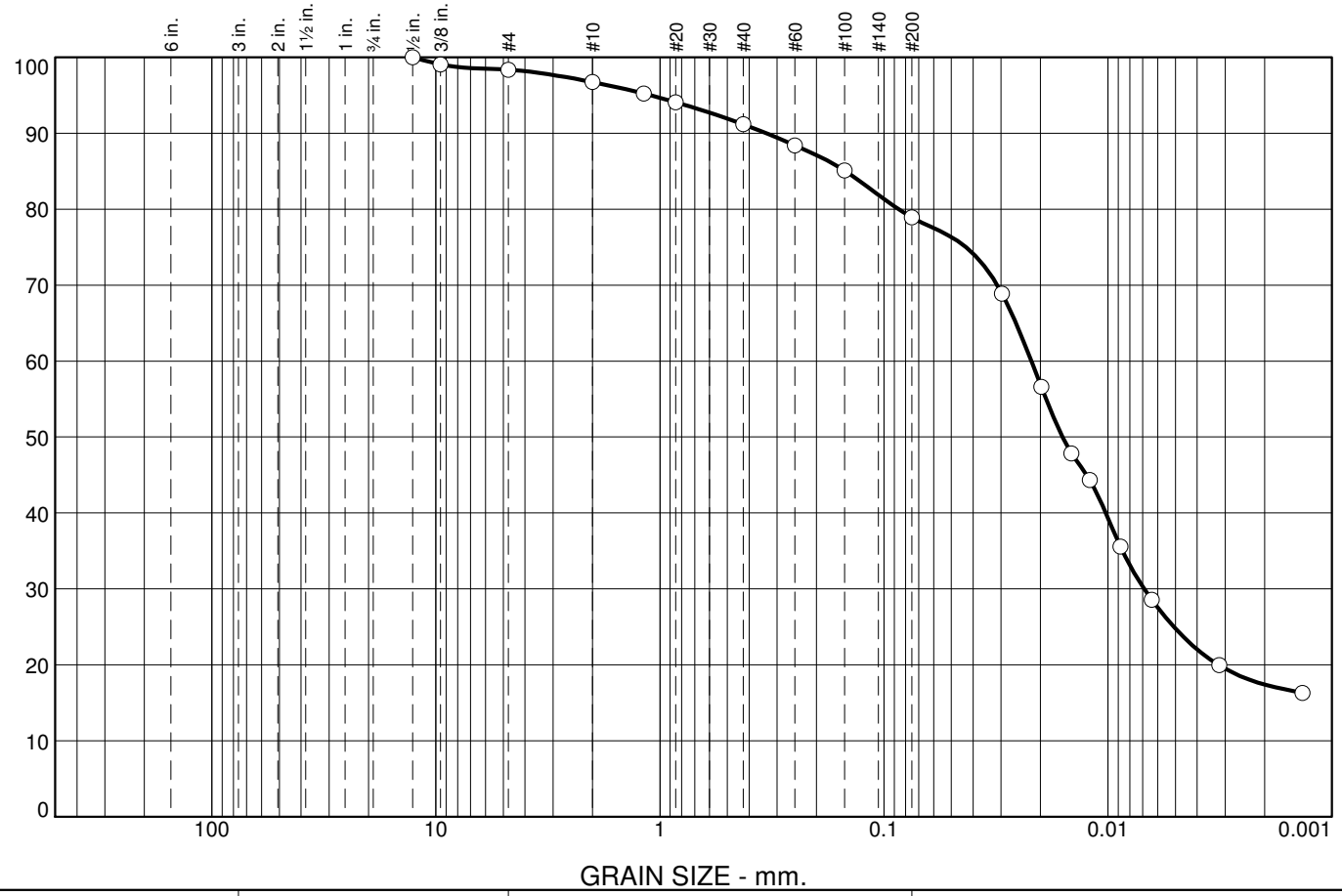
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	6	12	54	25

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100		
3/8	99		
#4	98		
#10	97		
#16	95		
#20	94		
#40	91		
#60	88		
#100	85		
#200	79		
0.0297 mm.	69		
0.0198 mm.	57		
0.0146 mm.	48		
0.0120 mm.	44		
0.0088 mm.	36		
0.0064 mm.	29		
0.0032 mm.	20		
0.0014 mm.	16		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, orangish tan to black, Sandy SILT (ML) (A-5)

Atterberg Limits

PL= 37 LL= 46 PI= 9

Coefficients

D_{90}= 0.3358 D_{85}= 0.1486 D_{60}= 0.0220
D_{50}= 0.0160 D_{30}= 0.0069 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-5(9)

Remarks

Source of Sample: R-20 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 10/31/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: WS **Checked By:** AP/WS

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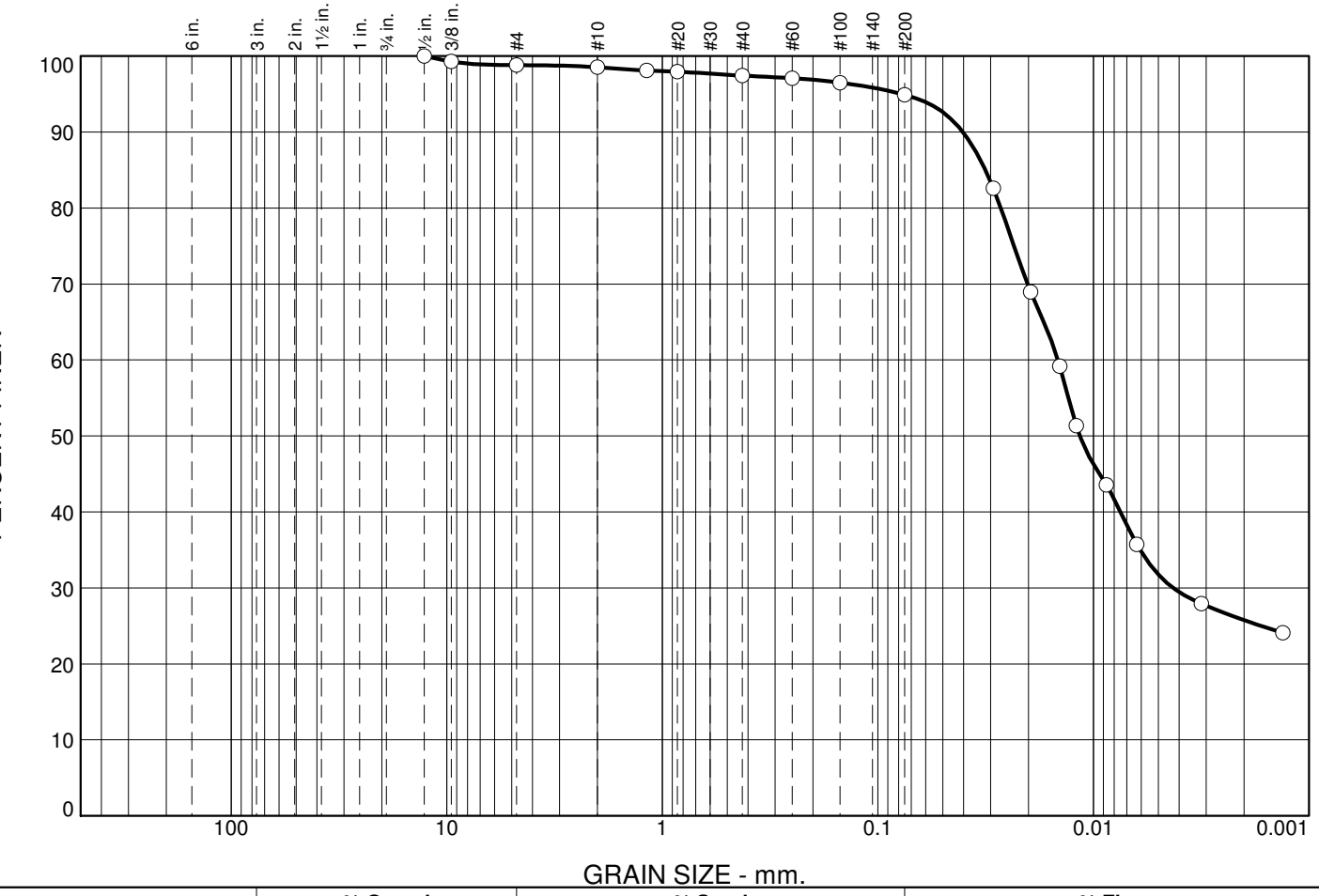
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	0	2	2	63	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2	100		
3/8	99		
#4	99		
#10	99		
#16	98		
#20	98		
#40	97		
#60	97		
#100	97		
#200	95		
0.0291 mm.	83		
0.0195 mm.	69		
0.0143 mm.	59		
0.0120 mm.	51		
0.0087 mm.	44		
0.0063 mm.	36		
0.0032 mm.	28		
0.0013 mm.	24		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown to black, Elastic SILT (MH) (A-7-5)

Atterberg Limits

PL= 33 LL= 60 PI= 27

Coefficients

D_{90}= 0.0403 D_{85}= 0.0317 D_{60}= 0.0146
D_{50}= 0.0116 D_{30}= 0.0043 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(32)

Remarks

Source of Sample: R-21 **Depth:** 12.00-17.00
Sample Number: S-6

Date: 11/01/2017

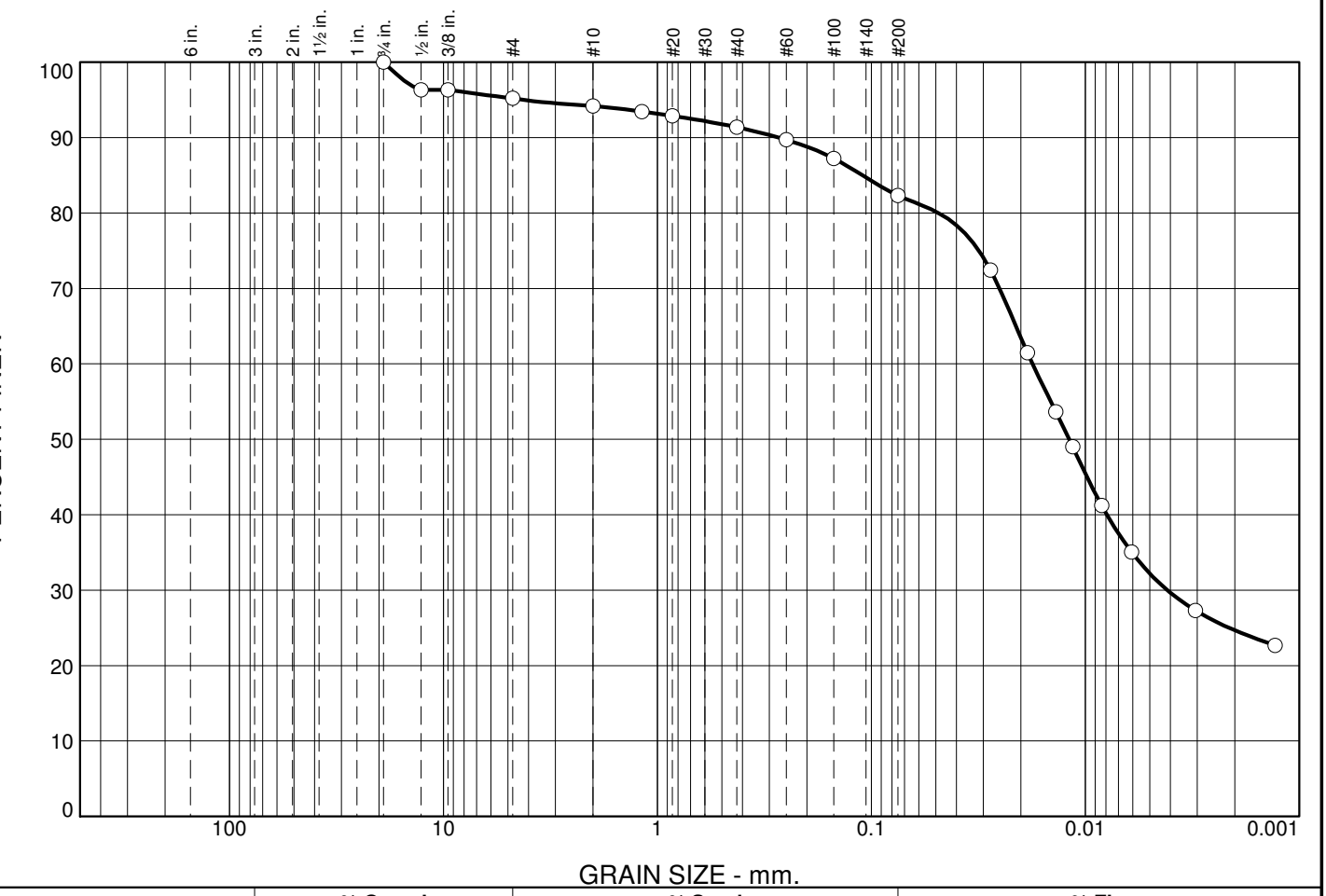
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	1	3	9	50	32

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	96		
3/8	96		
#4	95		
#10	94		
#16	93		
#20	93		
#40	91		
#60	90		
#100	87		
#200	82		
0.0277 mm.	72		
0.0187 mm.	61		
0.0137 mm.	54		
0.0115 mm.	49		
0.0084 mm.	41		
0.0061 mm.	35		
0.0031 mm.	27		
0.0013 mm.	23		

* (no specification provided)

Soil Description

Medium stiff, moist, reddish brown, Sandy SILT (ML) (A-7 5)) with gravel

-

Atterberg Limits

PL= 33 LL= 47 PI= 14

Coefficients

D_{90}= 0.2715 D_{85}= 0.1099 D_{60}= 0.0177
D_{50}= 0.0119 D_{30}= 0.0041 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-7-5(14)

Remarks

Source of Sample: R-22 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 11/07/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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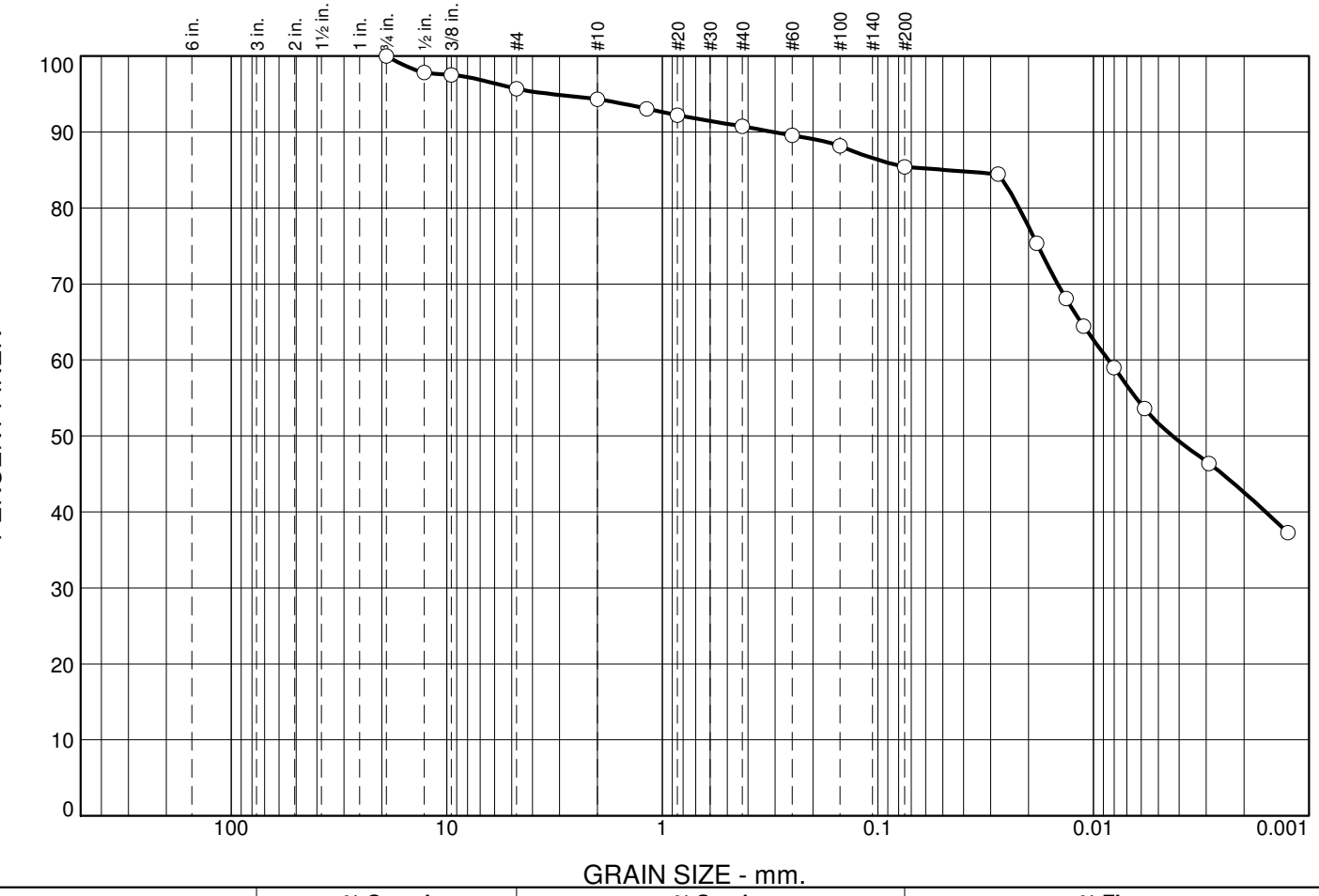
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	4	2	3	6	33	52

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	98		
3/8	98		
#4	96		
#10	94		
#16	93		
#20	92		
#40	91		
#60	90		
#100	88		
#200	85		
0.0277 mm.	84		
0.0183 mm.	75		
0.0134 mm.	68		
0.0111 mm.	64		
0.0080 mm.	59		
0.0058 mm.	54		
0.0029 mm.	46		
0.0013 mm.	37		

* (no specification provided)

Source of Sample: R-23 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Soil Description

Medium stiff to soft, moist, reddish-brown, Elastic SILT (MH) (A-7-5) with slight roots and gravel

Atterberg Limits

PL= 33 LL= 51 PI= 18

Coefficients

D_{90}= 0.3053 D_{85}= 0.0486 D_{60}= 0.0085
D_{50}= 0.0043 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(18)

Remarks

Date: 11/06/2017

ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

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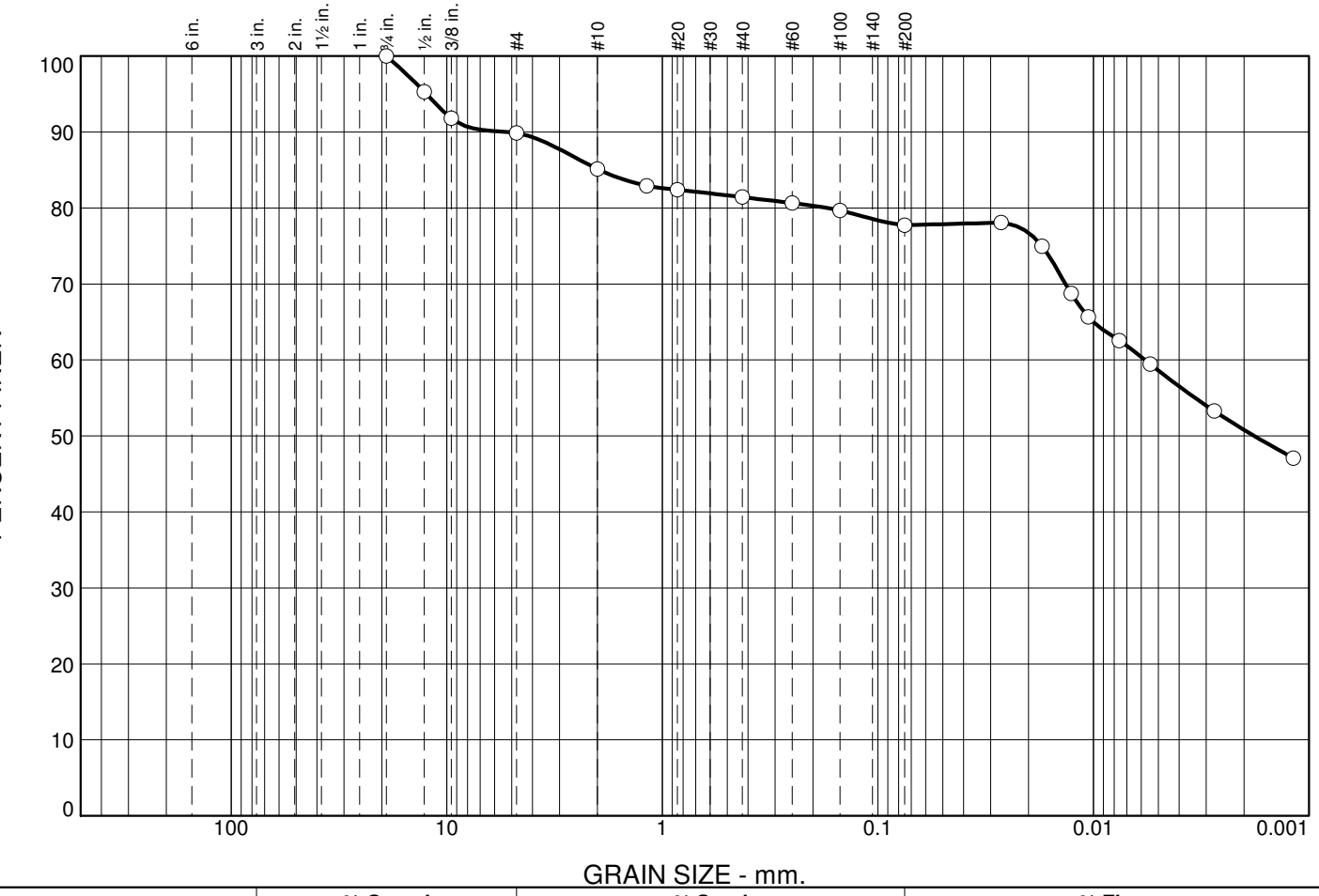
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	10	5	4	3	19	59

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4	100		
1/2	95		
3/8	92		
#4	90		
#10	85		
#16	83		
#20	82		
#40	81		
#60	81		
#100	80		
#200	78		
0.0268 mm.	78		
0.0173 mm.	75		
0.0127 mm.	69		
0.0106 mm.	66		
0.0076 mm.	63		
0.0054 mm.	59		
0.0027 mm.	53		
0.0012 mm.	47		

* (no specification provided)

Soil Description

Very stiff, moist, reddish brown, Elastic SILT (MH) (A-7 6) with gravel
-

Atterberg Limits

PL= 29 LL= 51 PI= 22

Coefficients

D_{90}= 5.1349 D_{85}= 1.9496 D_{60}= 0.0058
D_{50}= 0.0018 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-6(19)

Remarks

Source of Sample: R-23 **Depth:** 6.00-12.00
Sample Number: S-4/S-5

Date: 11/01/2017

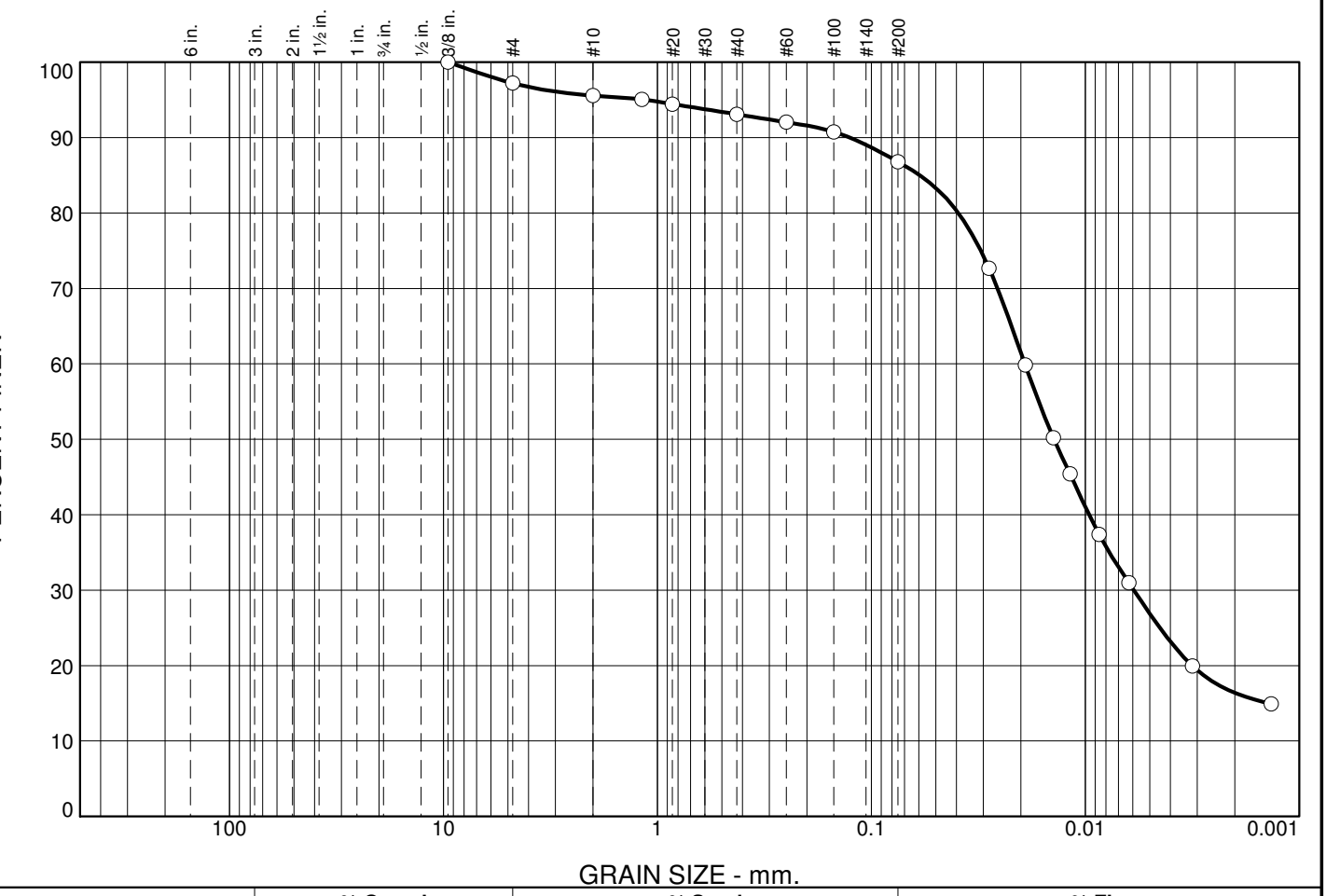
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	3	1	3	6	60	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	97		
#10	96		
#16	95		
#20	94		
#40	93		
#60	92		
#100	91		
#200	87		
0.0282 mm.	73		
0.0191 mm.	60		
0.0141 mm.	50		
0.0118 mm.	45		
0.0086 mm.	37		
0.0062 mm.	31		
0.0032 mm.	20		
0.0014 mm.	15		

* (no specification provided)

Soil Description

Medium stiff to very stiff, moist, reddish tan to brown, Elastic SILT (MH) (A-7-5) with slight gravel-sized rock fragments

Atterberg Limits

PL= 40 LL= 54 PI= 14

Coefficients

D_{90}= 0.1262 D_{85}= 0.0593 D_{60}= 0.0192
D_{50}= 0.0140 D_{30}= 0.0059 D_{15}= 0.0014
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-7-5(17)

Remarks

Source of Sample: R-24 **Depth:** 2.00-6.00
Sample Number: S-2/S-3

Date: 10/31/2017

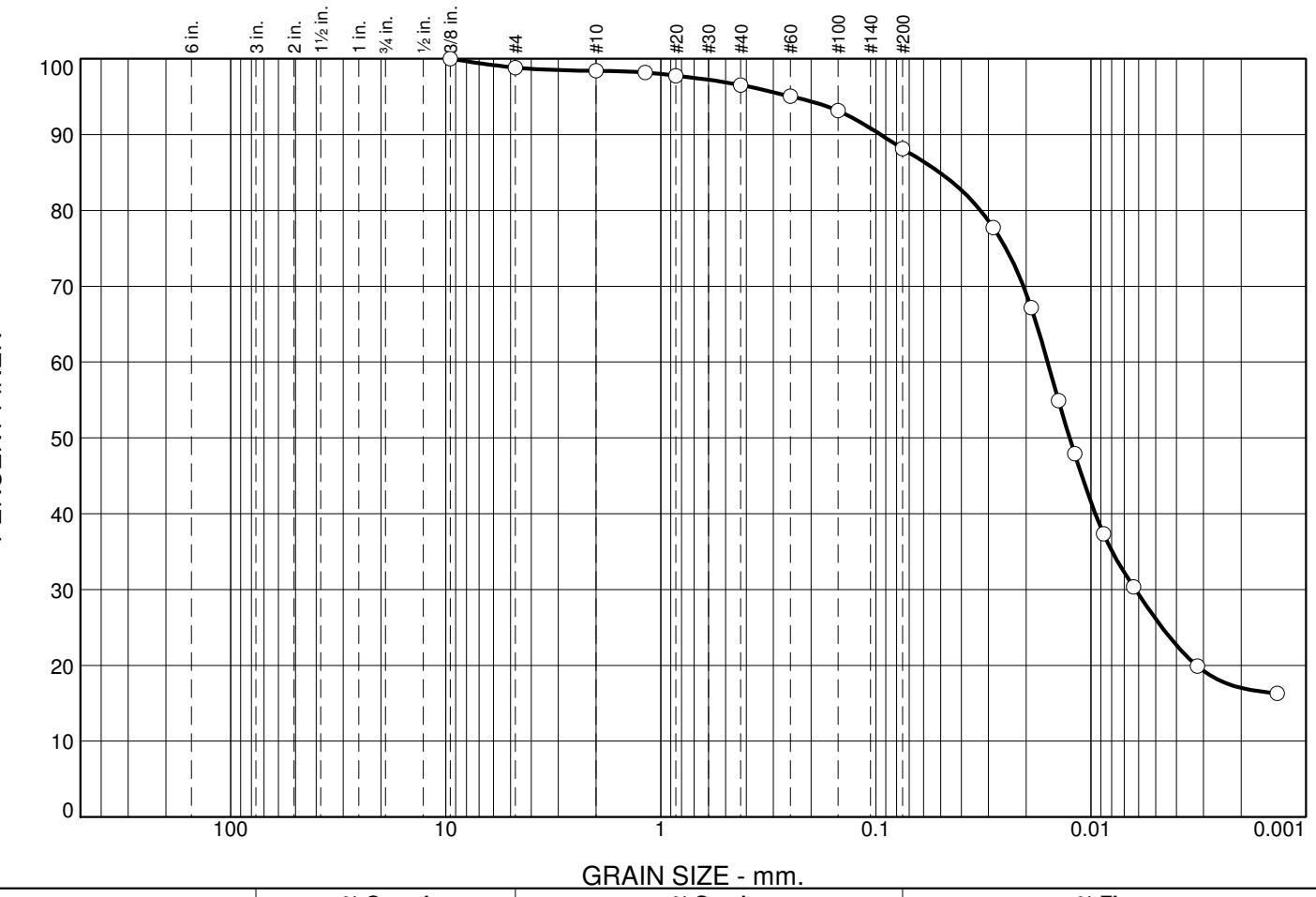
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	1	1	1	9	62	26

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8	100		
#4	99		
#10	98		
#16	98		
#20	98		
#40	97		
#60	95		
#100	93		
#200	88		
0.0285 mm.	78		
0.0189 mm.	67		
0.0141 mm.	55		
0.0119 mm.	48		
0.0087 mm.	37		
0.0063 mm.	30		
0.0032 mm.	20		
0.0014 mm.	16		

* (no specification provided)

Soil Description

Stiff to very stiff, moist, reddish brown to black, Elastic SILT (MH) (A-5) with slight mica

Atterberg Limits

PL= 45 LL= 52 PI= 7

Coefficients

D_{90}= 0.0950 D_{85}= 0.0505 D_{60}= 0.0159
D_{50}= 0.0126 D_{30}= 0.0062 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= MH AASHTO= A-5(12)

Remarks

Source of Sample: R-24 **Depth:** 6.00-12.00
Sample Number: S-3/S-4

Date: 10/31/2017

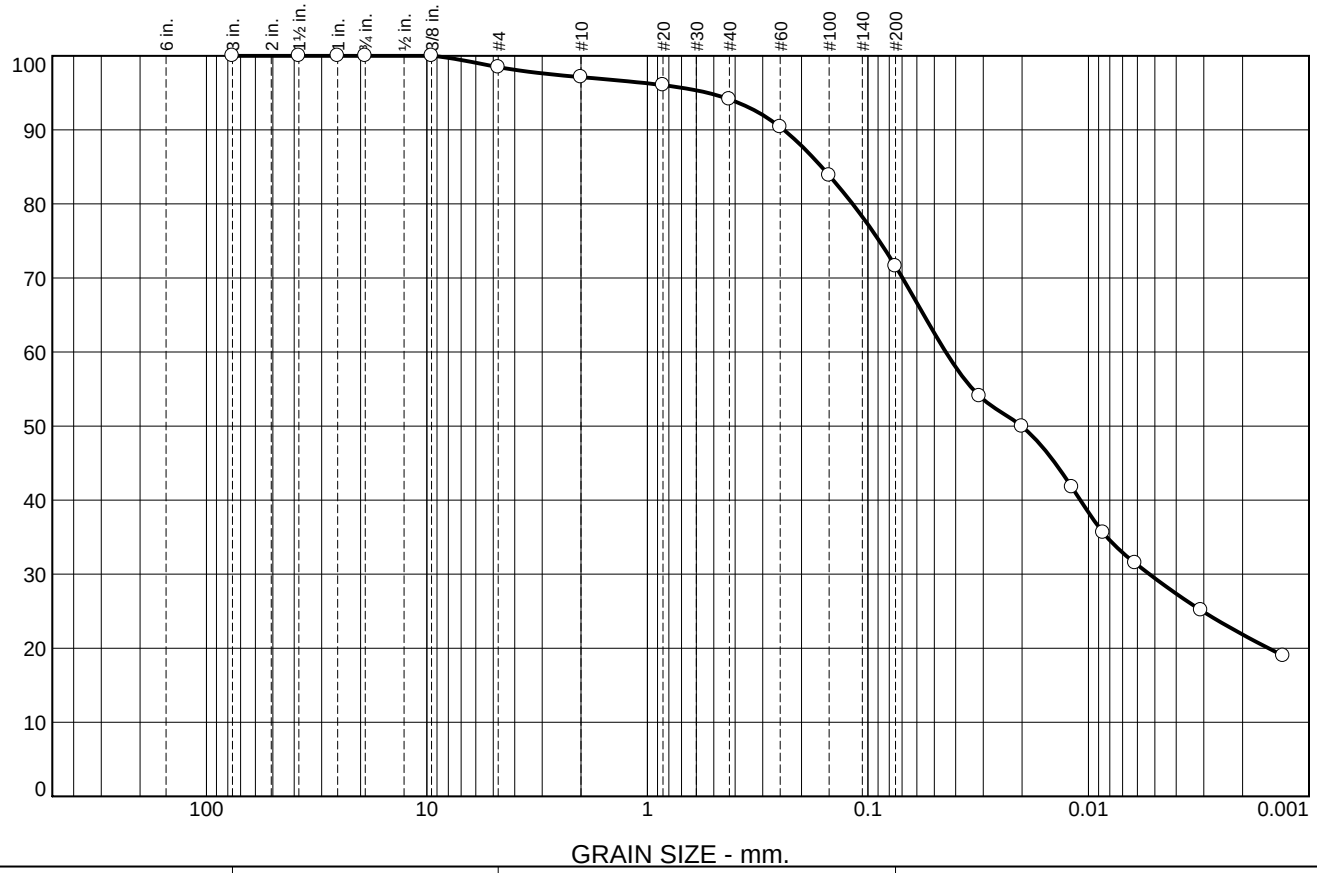
ECS SOUTHEAST, LLP
1200 Woodruff Road, Suite H-12
Greenville, SC 29607
Phone: (864) 987-1610
Fax: (864) 987-1615

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical sam

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	1	3	22	43	29

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	98		
#10	97		
#20	96		
#40	94		
#60	90		
#100	84		
#200	72		
0.0312 mm.	54		
0.0200 mm.	50		
0.0119 mm.	42		
0.0086 mm.	36		
0.0061 mm.	32		
0.0031 mm.	25		
0.0013 mm.	19		

* (no specification provided)

Soil Description

Medium stiff to stiff, moist, dark brown, Sandy CLAY (CL)(A-6) with trace roots and gravel

Atterberg Limits

PL= 21 LL= 36 PI= 15

Coefficients

D_{90}= 0.2409 D_{85}= 0.1621 D_{60}= 0.0444
D_{50}= 0.0201 D_{30}= 0.0053 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(10)

Remarks

Source of Sample: R-25 **Depth:** 0.00-4.00
Sample Number: S-1/S-2

Date: 11/2/2017

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

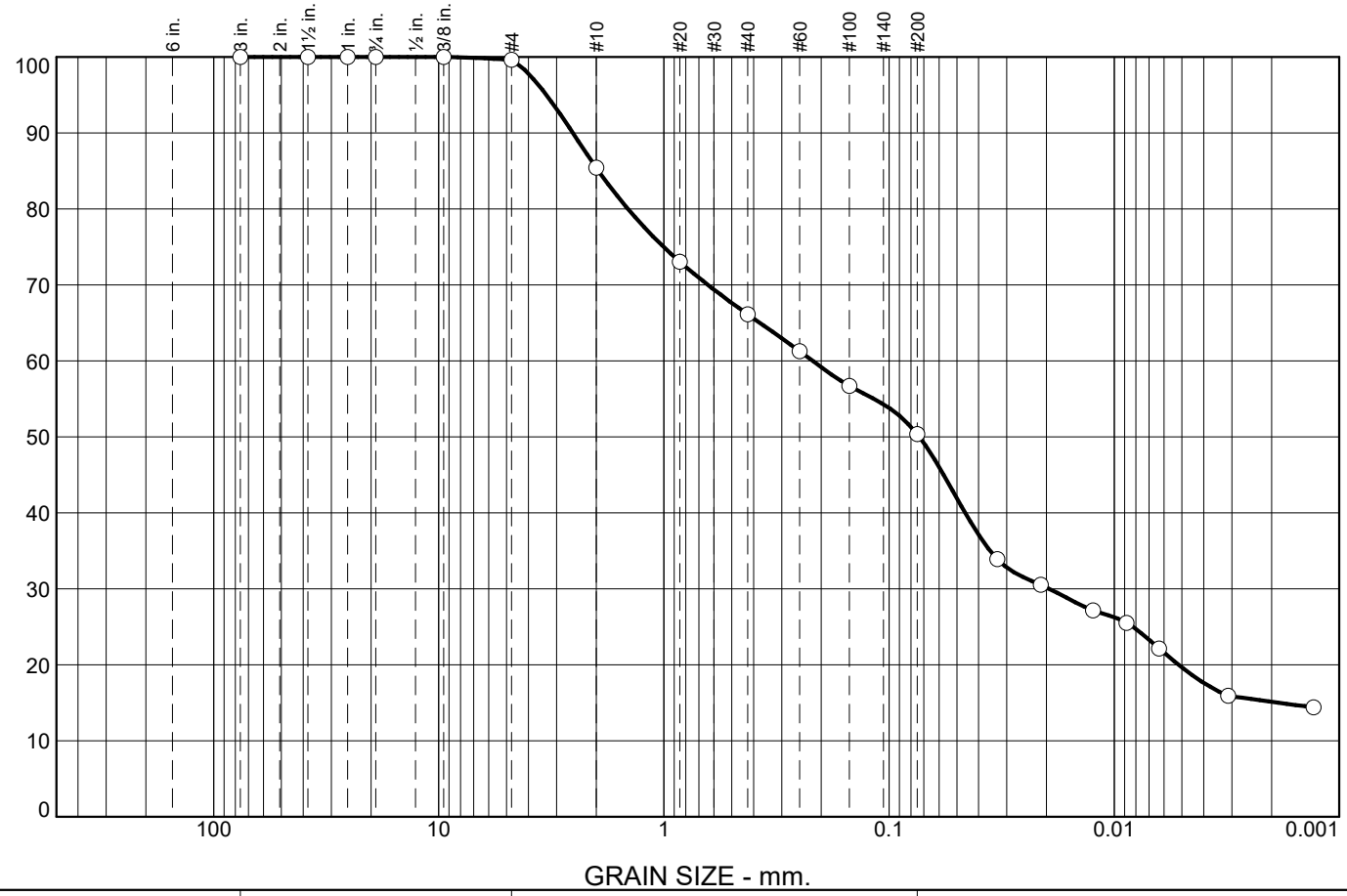
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC/DM

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently identical s

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	15	19	16	30	20

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	85		
#20	73		
#40	66		
#60	61		
#100	57		
#200	50		
0.0331 mm.	34		
0.0212 mm.	31		
0.0124 mm.	27		
0.0088 mm.	26		
0.0063 mm.	22		
0.0031 mm.	16		
0.0013 mm.	14		

* (no specification provided)

Soil Description

Stiff, moist, tannish brown, Sandy CLAY (CL)(A-7-6) with trace gravel

Atterberg Limits

PL= 19 LL= 42 PI= 23

Coefficients

D_{90}= 2.5381 D_{85}= 1.9526 D_{60}= 0.2185
D_{50}= 0.0734 D_{30}= 0.0194 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(8)

Remarks

F.M.=1.46

Source of Sample: SW-1 **Depth:** 0.00-2.00
Sample Number: S-1 **Date:** 5/10/2018

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
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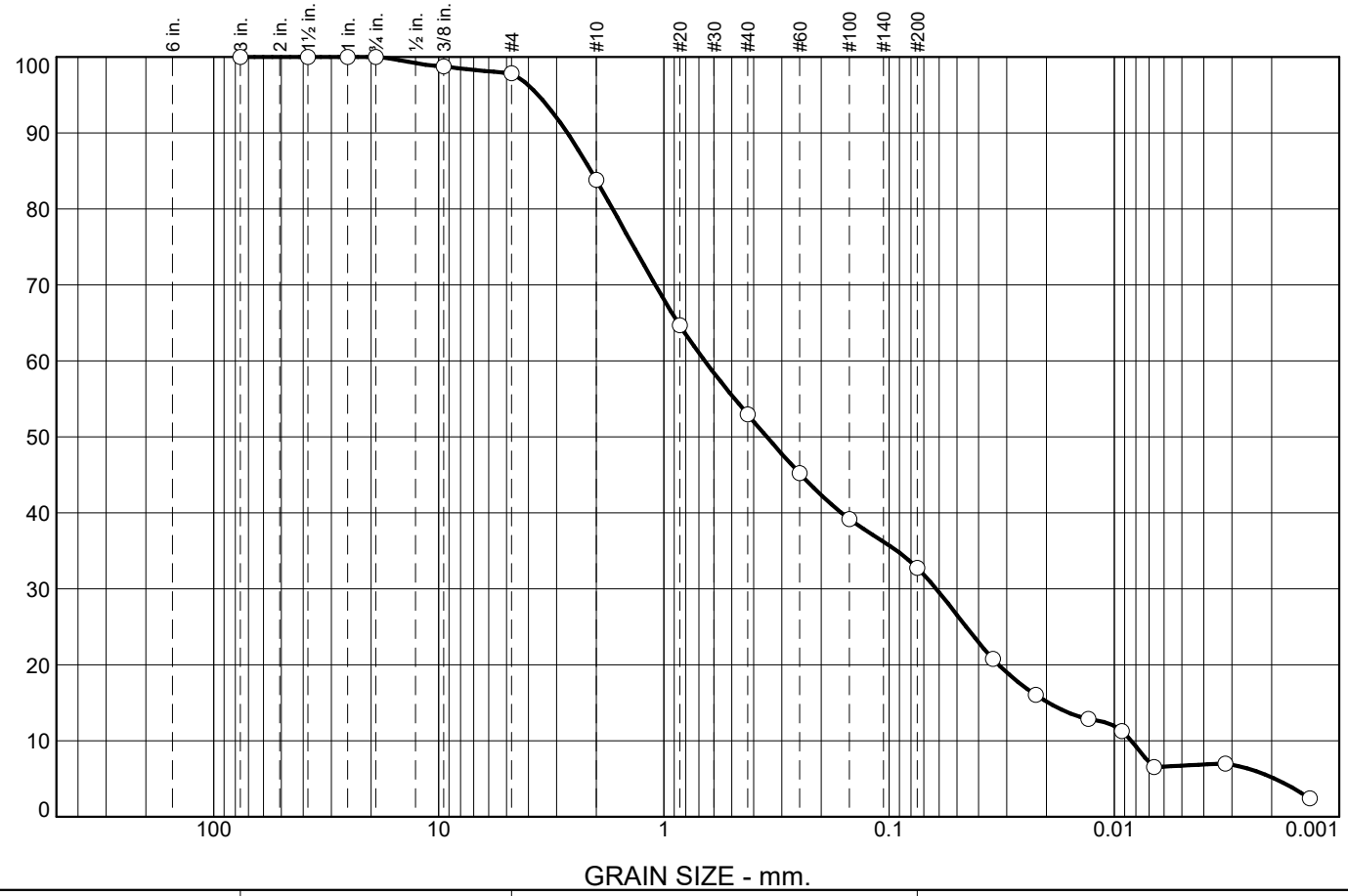
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	14	31	20	26	7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	84		
#20	65		
#40	53		
#60	45		
#100	39		
#200	33		
0.0346 mm.	21		
0.0223 mm.	16		
0.0130 mm.	13		
0.0093 mm.	11		
0.0067 mm.	6.5		
0.0032 mm.	7.0		
0.0014 mm.	2.4		

* (no specification provided)

Soil Description

Extremely dense, moist, tannish brown to redish brown, sampled as Silty, Clayey SAND (SC-SM) (A-2-4)

Atterberg Limits

PL= 19 LL= 24 PI= 5

Coefficients

D_{90}= 2.6857 D_{85}= 2.1094 D_{60}= 0.6594
D_{50}= 0.3490 D_{30}= 0.0618 D_{15}= 0.0196
D_{10}= 0.0084 C_u= 78.43 C_c= 0.69

Classification

USCS= SC-SM AASHTO= A-2-4(0)

Remarks

F.M.=1.99

Source of Sample: SW-1 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:** 5/10/2018

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC/AS

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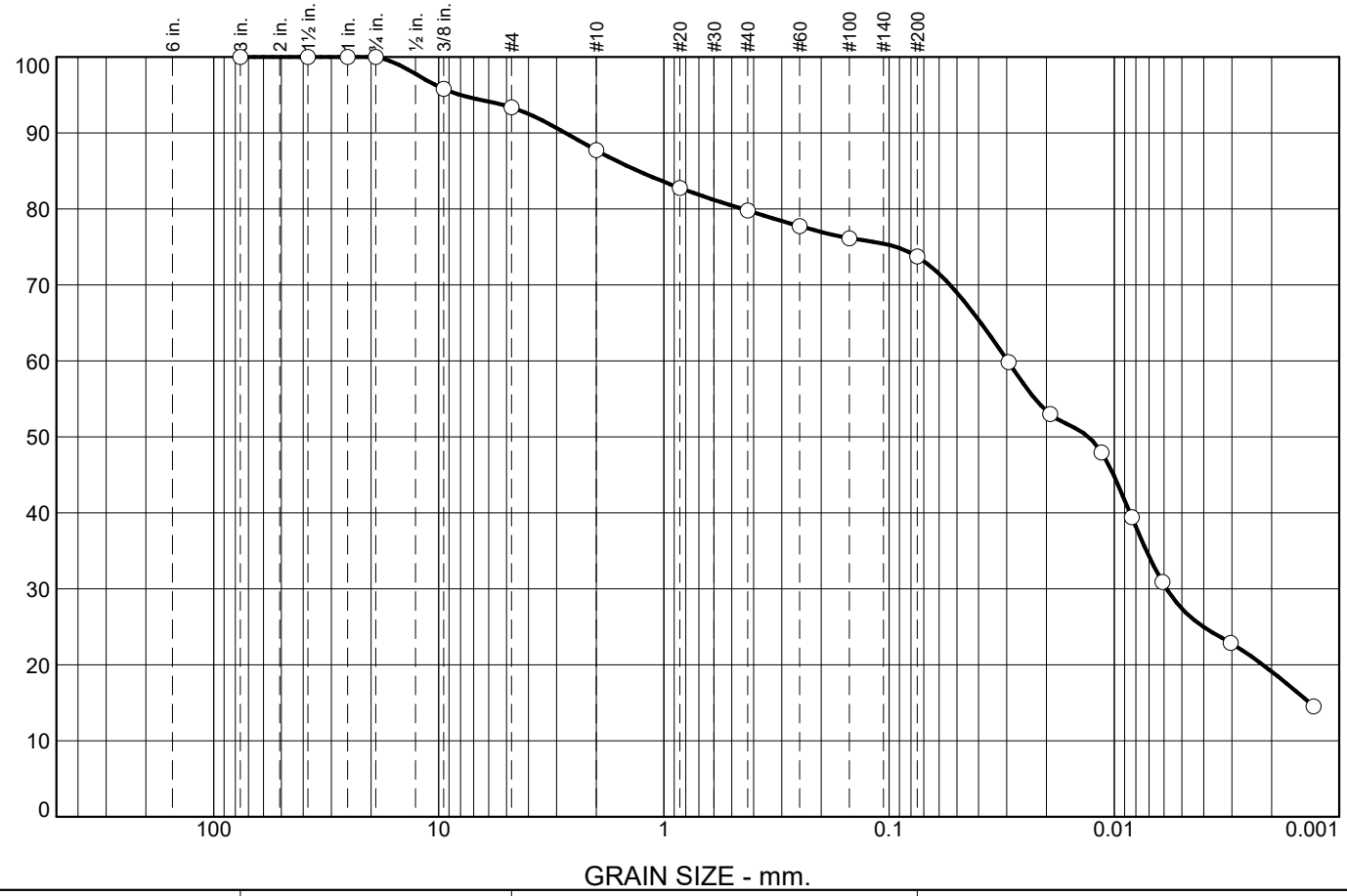
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	7	5	8	6	47	27

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	96		
#4	93		
#10	88		
#20	83		
#40	80		
#60	78		
#100	76		
#200	74		
0.0295 mm.	60		
0.0193 mm.	53		
0.0114 mm.	48		
0.0083 mm.	39		
0.0061 mm.	31		
0.0030 mm.	23		
0.0013 mm.	15		

* (no specification provided)

Soil Description

Stiff, moist, reddish brown, Sandy CLAY (CL)(A-7-6)

Atterberg Limits

PL= 24 LL= 42 PI= 18

Coefficients

D_{90}= 2.7403 D_{85}= 1.3016 D_{60}= 0.0297
D_{50}= 0.0130 D_{30}= 0.0059 D_{15}= 0.0014
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-7-6(13)

Remarks

F.M.=1.02

Source of Sample: SW-2 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:** 5/10/2018

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Fax: (704) 357-0023

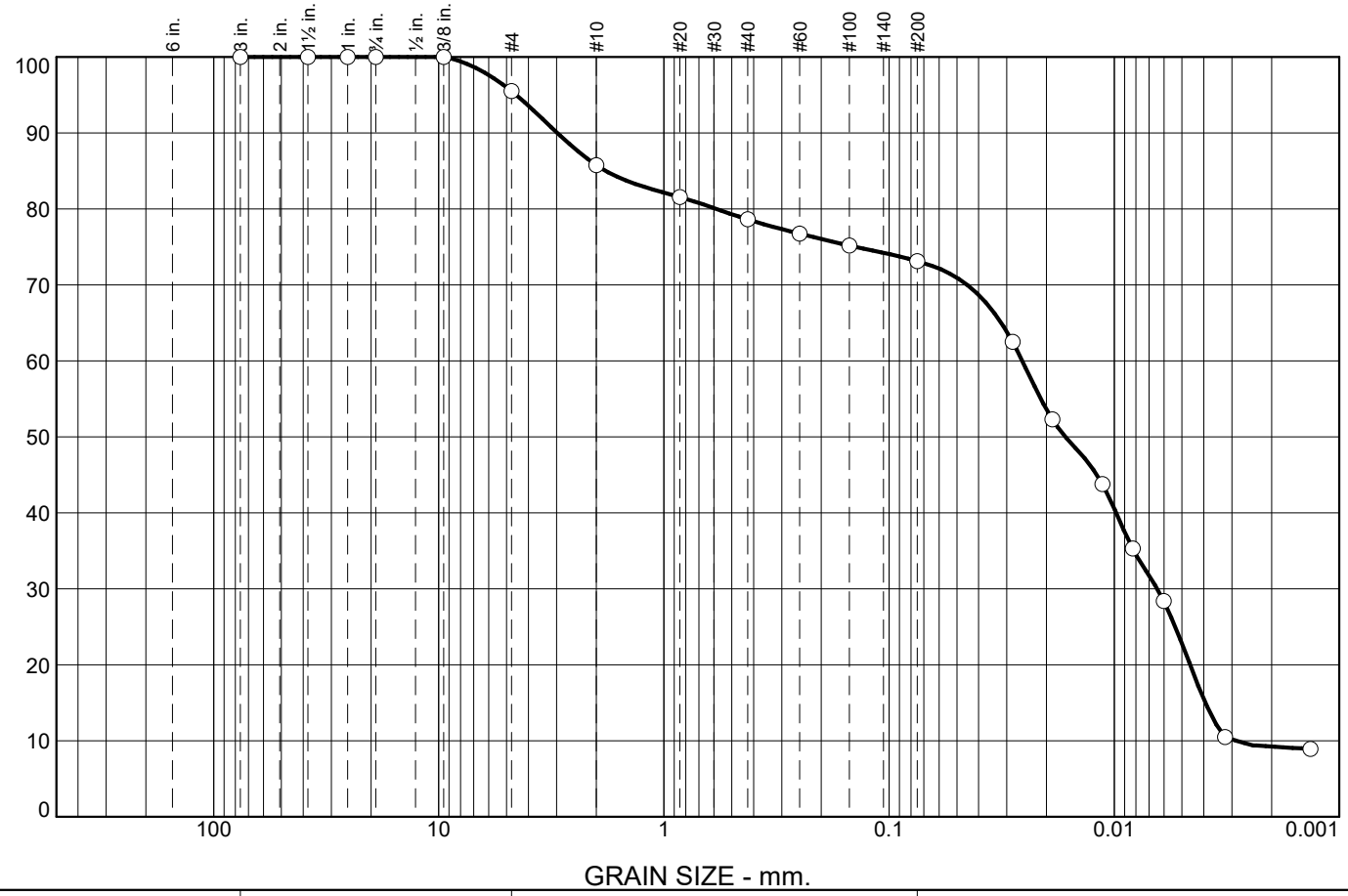
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	5	9	7	6	50	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	95		
#10	86		
#20	82		
#40	79		
#60	77		
#100	75		
#200	73		
0.0283 mm.	62		
0.0188 mm.	52		
0.0113 mm.	44		
0.0083 mm.	35		
0.0060 mm.	28		
0.0032 mm.	11		
0.0013 mm.	8.9		

* (no specification provided)

Soil Description

Firm, moist, grayish brown, Sandy CLAY (CL)(A-6) with trace rock

Atterberg Limits

PL= 18 LL= 35 PI= 17

Coefficients

D_{90}= 2.9726 D_{85}= 1.8145 D_{60}= 0.0256
D_{50}= 0.0165 D_{30}= 0.0064 D_{15}= 0.0039
D_{10}= 0.0029 C_u= 8.92 C_c= 0.56

Classification

USCS= CL AASHTO= A-6(11)

Remarks

F.M.=1.02

Source of Sample: SW-2A **Depth:** 2.00-4.00
Sample Number: S-2 **Date:** 5/10/2018

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Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

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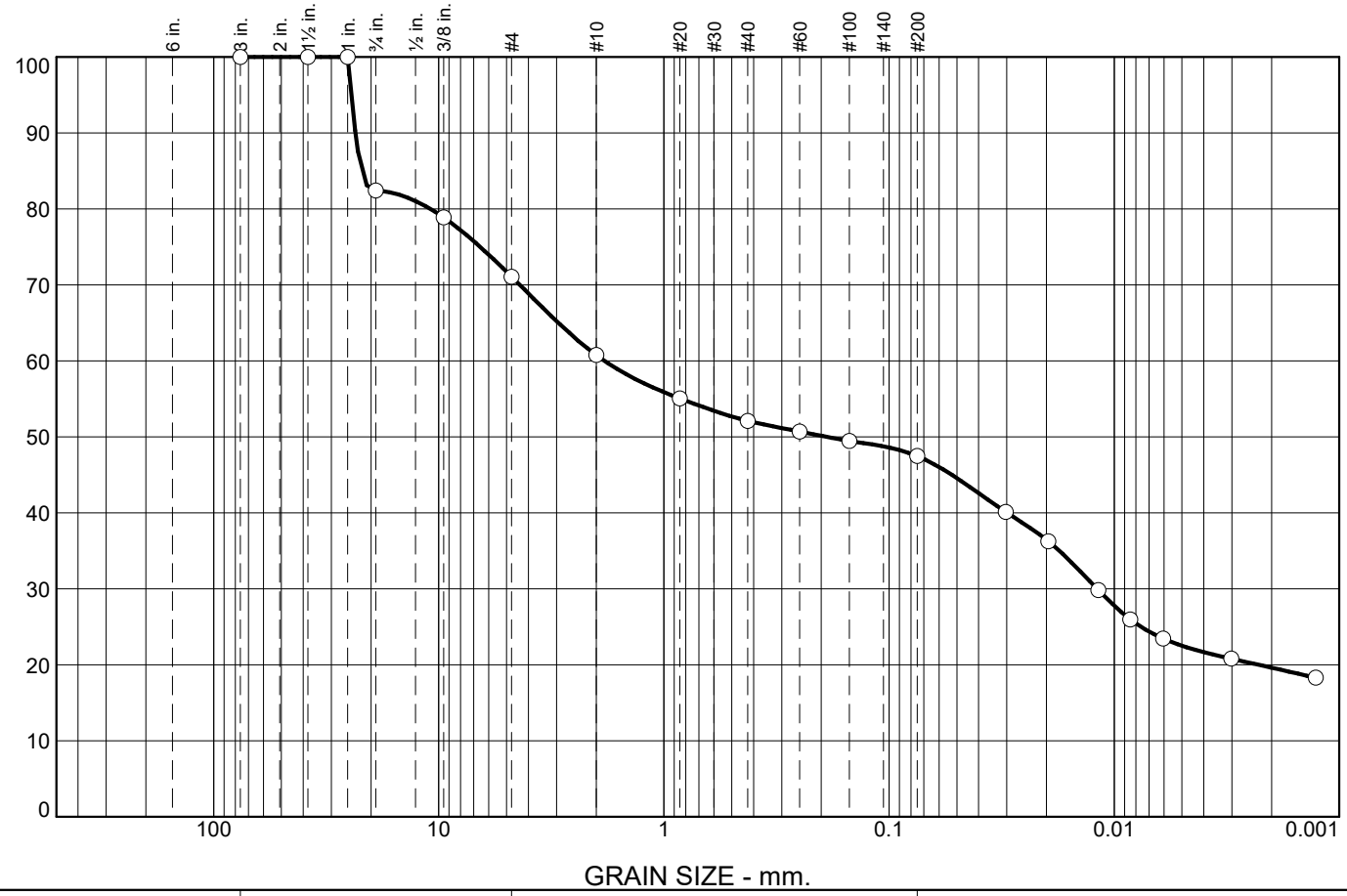
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	18	11	10	9	5	24	23

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	82		
.375	79		
#4	71		
#10	61		
#20	55		
#40	52		
#60	51		
#100	49		
#200	47		
0.0303 mm.	40		
0.0196 mm.	36		
0.0117 mm.	30		
0.0085 mm.	26		
0.0061 mm.	23		
0.0030 mm.	21		
0.0013 mm.	18		

* (no specification provided)

Soil Description

Loose to medium dense, moist, orangeish yellow, Clayey GRAVEL with Sand (GC)(A-7-6)

Atterberg Limits

PL= 29 LL= 59 PI= 30

Coefficients

D_{90}= 23.4622 D_{85}= 22.0186 D_{60}= 1.8390
D_{50}= 0.1890 D_{30}= 0.0119 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GC AASHTO= A-7-6(10)

Remarks

F.M.=2.94

Source of Sample: SW-3 **Depth:** 4.00-6.00
Sample Number: S-3 **Date:** 5/8/2018

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1812 Center Park Drive, Suite D
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Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: SC

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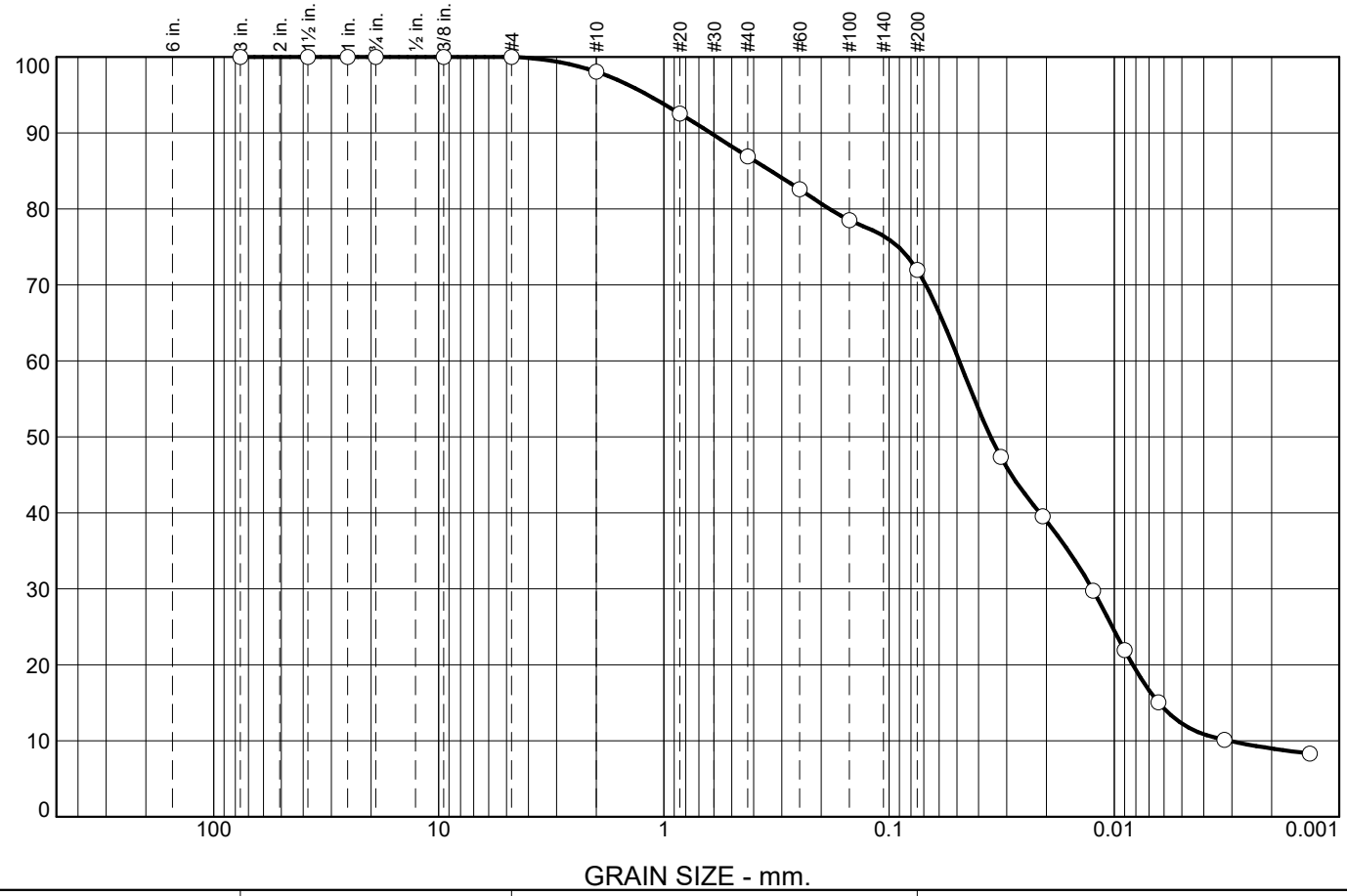
Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	11	15	60	12

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	98		
#20	93		
#40	87		
#60	83		
#100	79		
#200	72		
0.0319 mm.	47		
0.0208 mm.	40		
0.0124 mm.	30		
0.0090 mm.	22		
0.0064 mm.	15		
0.0032 mm.	10		
0.0014 mm.	8.3		

* (no specification provided)

Soil Description

Very stiff, moist, orangeish yellow, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 33 LL= 37 PI= 4

Coefficients

D_{90}= 0.6210 D_{85}= 0.3349 D_{60}= 0.0488
D_{50}= 0.0354 D_{30}= 0.0125 D_{15}= 0.0063
D_{10}= 0.0031 C_u= 15.76 C_c= 1.04

Classification

USCS= ML AASHTO= A-4(3)

Remarks

F.M.=0.54

Source of Sample: SW-3 **Depth:** 6.00-8.00
Sample Number: S-4 **Date:** 5/11/2018

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Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

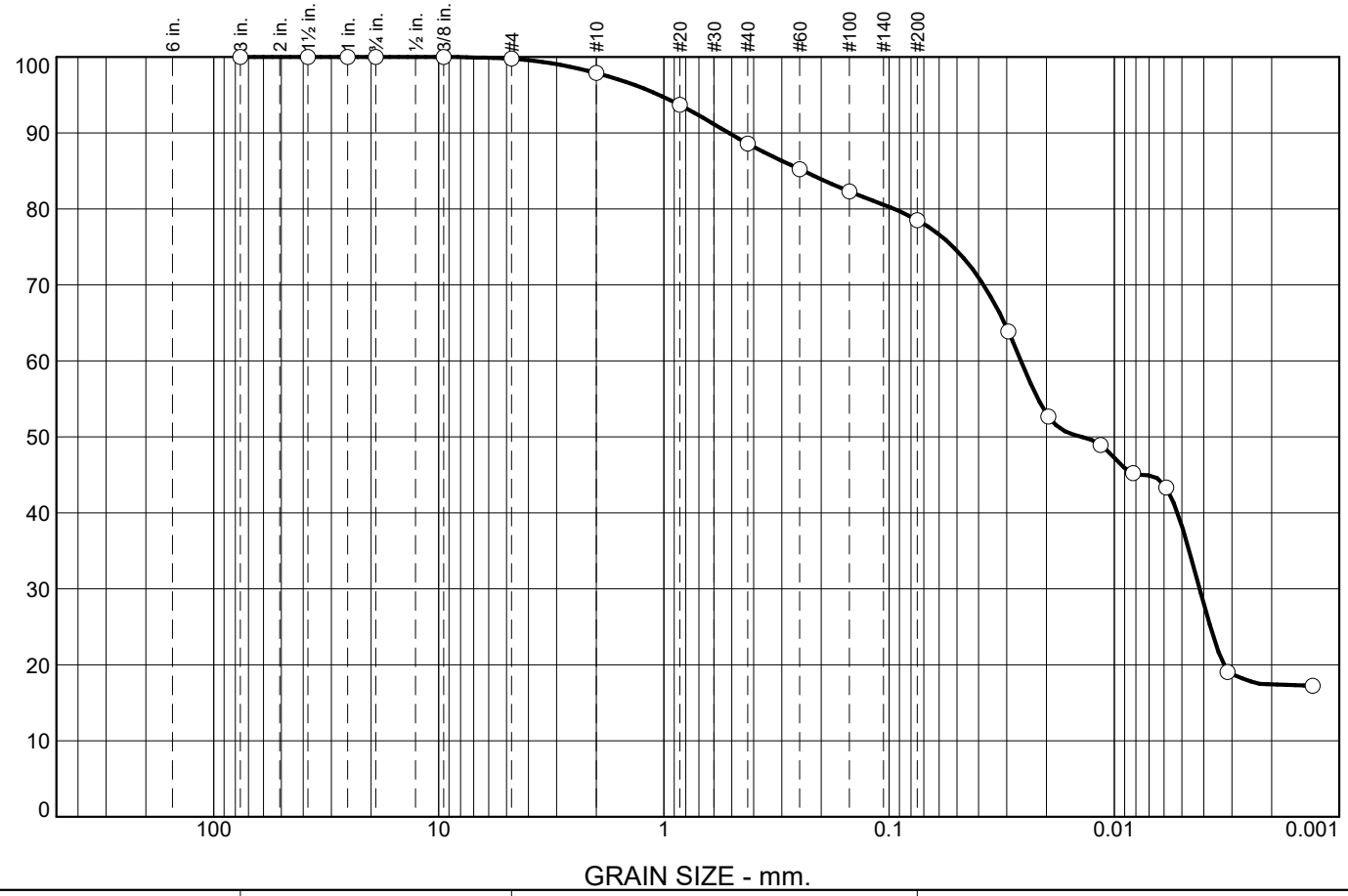
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	2	9	10	41	38

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	98		
#20	94		
#40	89		
#60	85		
#100	82		
#200	79		
0.0295 mm.	64		
0.0196 mm.	53		
0.0115 mm.	49		
0.0082 mm.	45		
0.0059 mm.	43		
0.0031 mm.	19		
0.0013 mm.	17		

* (no specification provided)

Soil Description

Firm, moist, reddish brown, Plastic CLAY (CH)(A-7-6) with trace organics

Atterberg Limits

PL= 26 LL= 63 PI= 37

Coefficients

D_{90}= 0.5146 D_{85}= 0.2405 D_{60}= 0.0260
D_{50}= 0.0139 D_{30}= 0.0042 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(31)

Remarks

F.M.=0.46

Source of Sample: SW-4 **Depth:** 0.00-2.00
Sample Number: S-1 **Date:** 5/8/2018

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Fax: (704) 357-0023

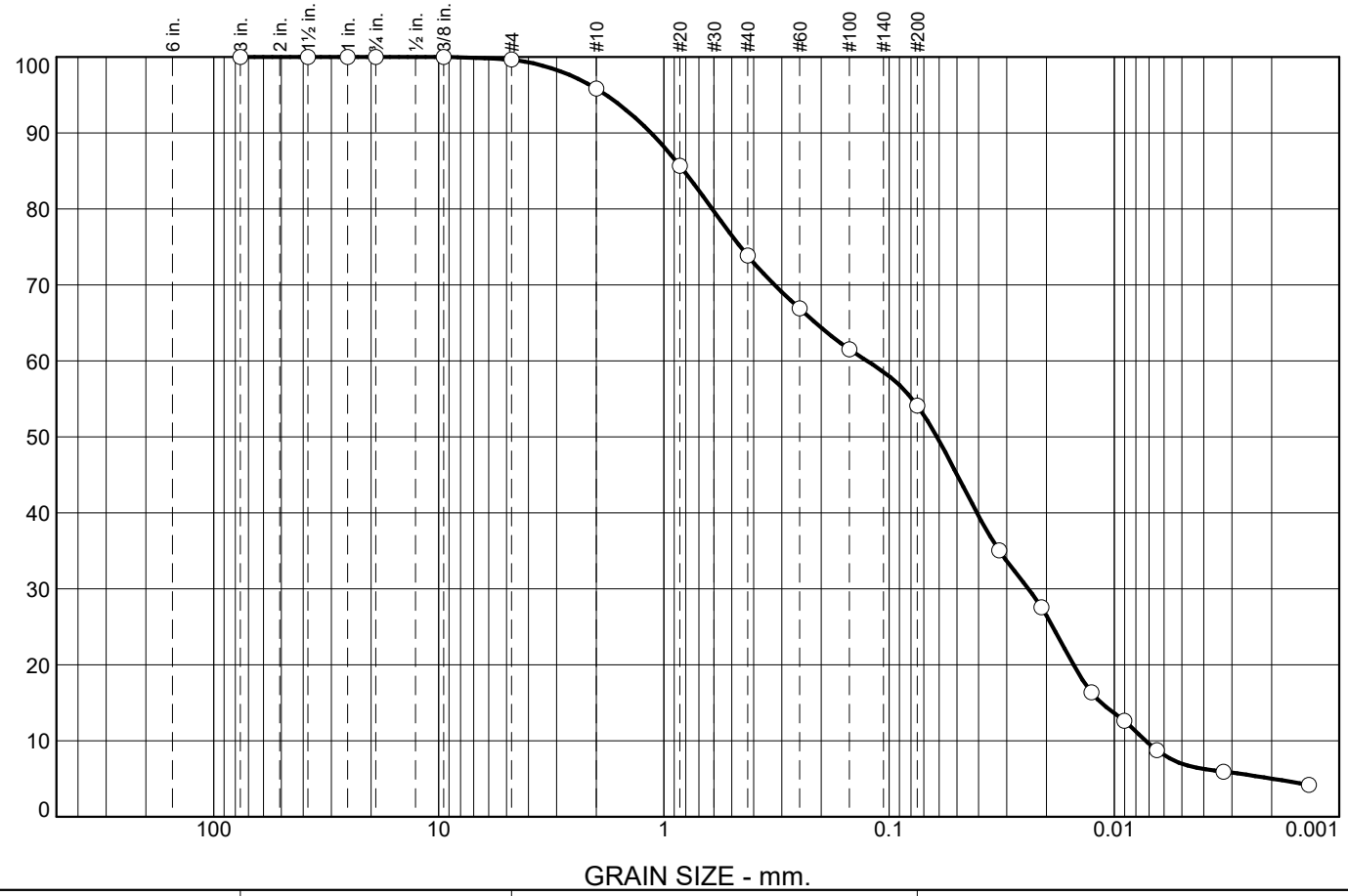
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	0	4	22	20	47	7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	100		
#4	100		
#10	96		
#20	86		
#40	74		
#60	67		
#100	61		
#200	54		
0.0325 mm.	35		
0.0211 mm.	28		
0.0126 mm.	16		
0.0090 mm.	13		
0.0065 mm.	8.8		
0.0033 mm.	5.9		
0.0014 mm.	4.2		

* (no specification provided)

Soil Description

Very hard, moist, orangeish tan to grayish tan, Sandy SILT (ML)(A-4)

Atterberg Limits

PL= 26 LL= 32 PI= 6

Coefficients

D_{90}= 1.1421 D_{85}= 0.8148 D_{60}= 0.1254
D_{50}= 0.0613 D_{30}= 0.0240 D_{15}= 0.0114
D_{10}= 0.0072 C_u= 17.32 C_c= 0.64

Classification

USCS= ML AASHTO= A-4(1)

Remarks

F.M.=1.03

Source of Sample: SW-4 **Depth:** 4.00-6.00
Sample Number: S-3 **Date:** 5/8/2018

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Charlotte, NC 28217
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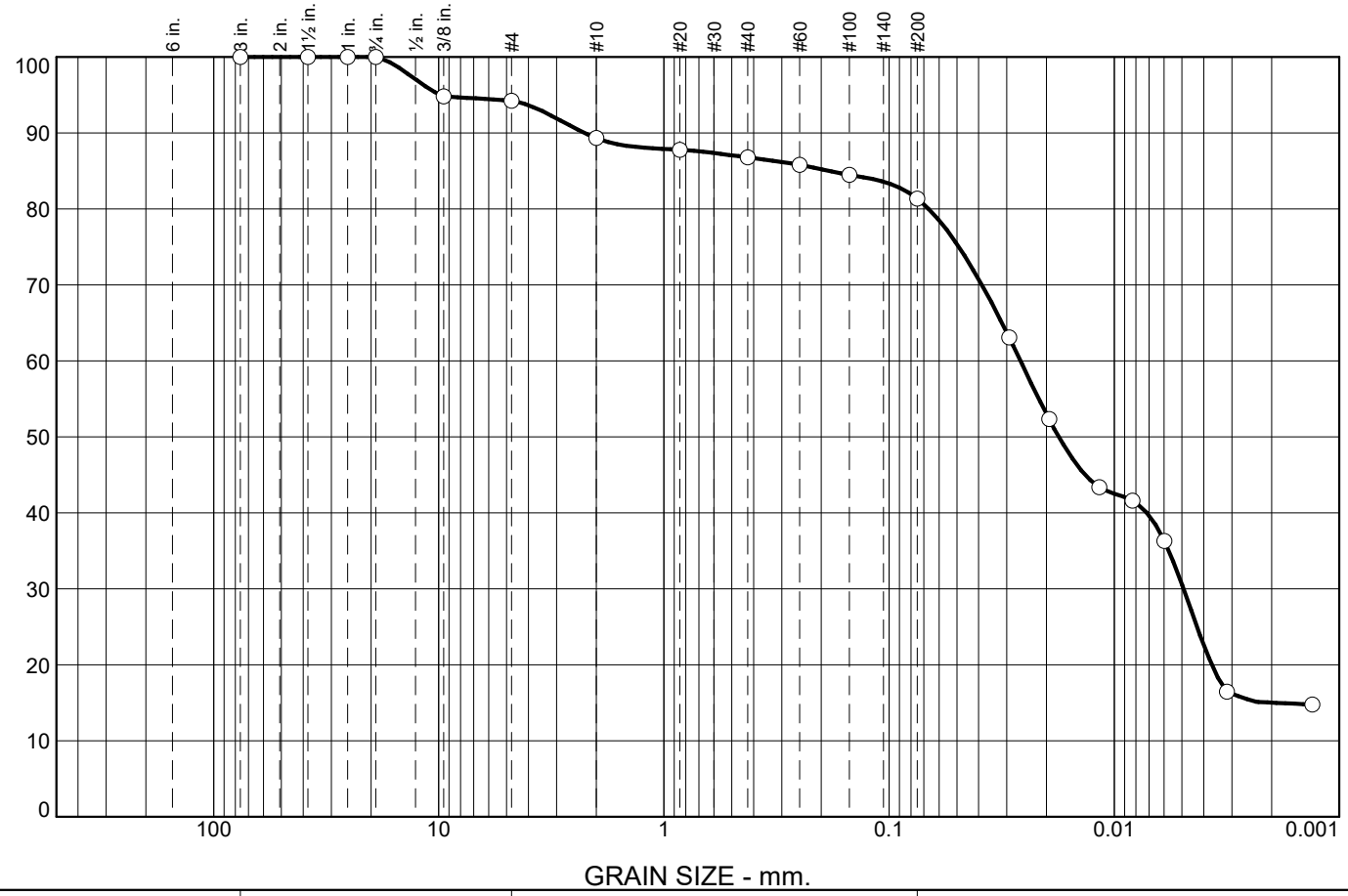
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO
Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	6	5	2	6	50	31

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	95		
#4	94		
#10	89		
#20	88		
#40	87		
#60	86		
#100	84		
#200	81		
0.0293 mm.	63		
0.0195 mm.	52		
0.0117 mm.	43		
0.0083 mm.	42		
0.0060 mm.	36		
0.0032 mm.	16		
0.0013 mm.	15		

* (no specification provided)

Soil Description

Very stiff, moist, orangeish yellow, Plastic CLAY (CH) (A-7-6) with trace gravel

Atterberg Limits

PL= 27 LL= 52 PI= 25

Coefficients

D_{90}= 2.2590 D_{85}= 0.1844 D_{60}= 0.0261
D_{50}= 0.0176 D_{30}= 0.0049 D_{15}= 0.0019
D_{10}= C_u= C_c=

Classification

USCS= CH AASHTO= A-7-6(22)

Remarks

F.M.=0.75

Source of Sample: SW-5 **Depth:** 2.00-4.00
Sample Number: S-2 **Date:** 5/8/2018

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

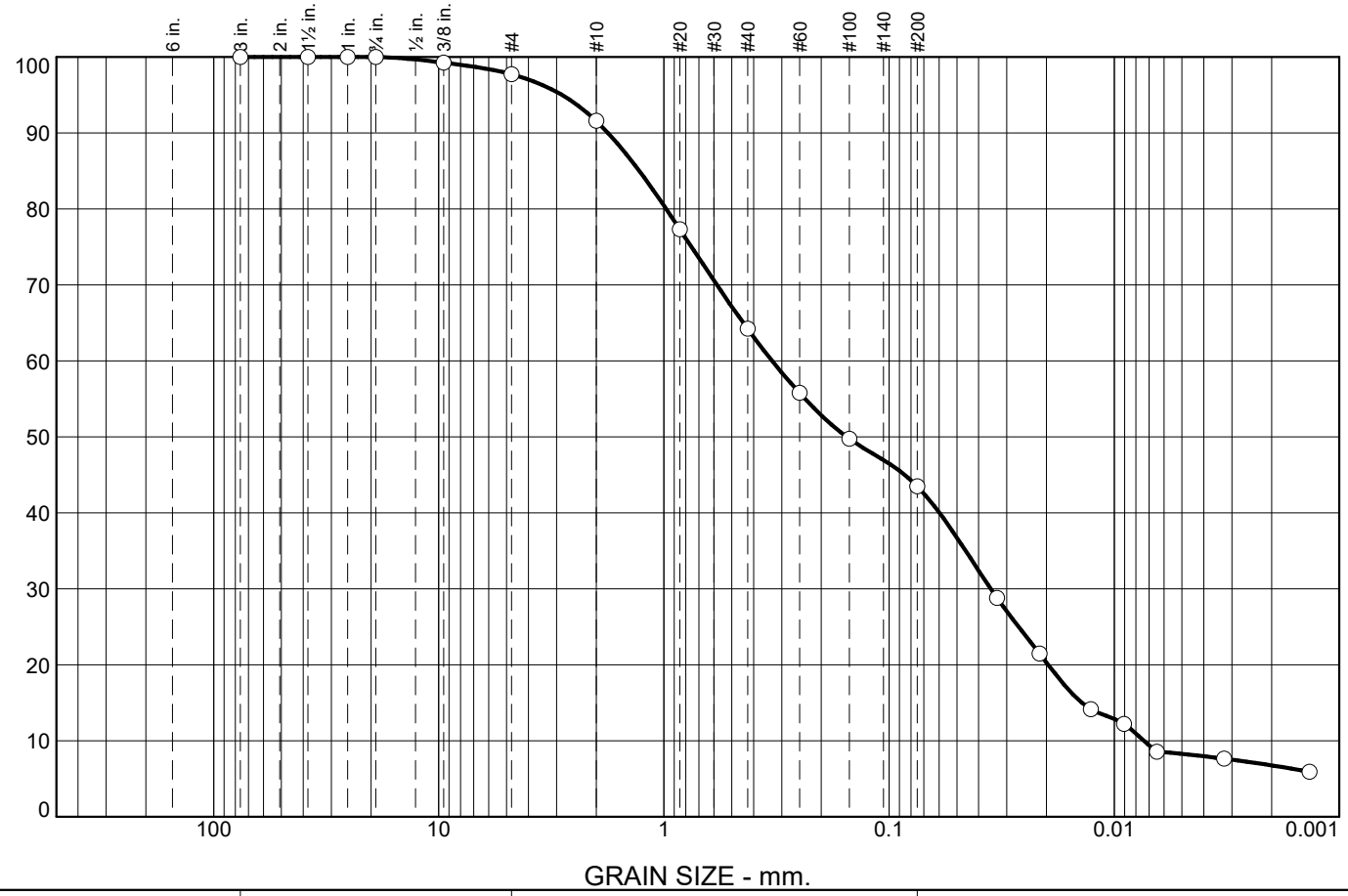
Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO

Project No: 11888 **Figure**

Tested By: AS/SC

These results are for the exclusive use of the client for whom they were obtained. They apply only to the samples tested and are not indicitive of apparently iden

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0	0	2	6	28	21	35	8

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3	100		
1.5	100		
1	100		
.75	100		
.375	99		
#4	98		
#10	92		
#20	77		
#40	64		
#60	56		
#100	50		
#200	43		
0.0331 mm.	29		
0.0215 mm.	21		
0.0127 mm.	14		
0.0091 mm.	12		
0.0065 mm.	8.6		
0.0033 mm.	7.6		
0.0014 mm.	5.9		

* (no specification provided)

Soil Description

Very hard, moist, tannish brown, sampled as Silty SAND (SM)(A-4)

Atterberg Limits

PL= 24 LL= 28 PI= 4

Coefficients

D_{90}= 1.7718 D_{85}= 1.2882 D_{60}= 0.3307
D_{50}= 0.1542 D_{30}= 0.0354 D_{15}= 0.0139
D_{10}= 0.0074 C_u= 44.77 C_c= 0.51

Classification

USCS= SM AASHTO= A-4(0)

Remarks

F.M.=1.47

Source of Sample: SW-5 **Depth:** 8.00-10.00
Sample Number: S-5 **Date:** 5/8/2018

ECS SOUTHEAST, LLP
1812 Center Park Drive, Suite D
Charlotte, NC 28217
Phone: (704) 525-5152
Fax: (704) 357-0023

Client: Civil Engineering Consulting Services
Project: I-26 Widening MM 85-101- GEO
Project No: 11888 **Figure**

Tested By: AS/SC

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