(R-002-2023) Consultant

M E M O R A N D U M

TO: **Adam Ulrich, P.E.**
Project Management Coordinator
Division of Highway Design

FROM: **Erik Scott, P.E.**
Branch Manager, Geotechnical Support & Review
Division of Structural Design

BY: **Zaman Alani**
Geotechnical Support & Review Branch Z. A.
Division of Structural Design

DATE: **January 18, 2024**

Subject: **Geotechnical Roadway Report**
Fayette County
I-64/I-75 Congestion Reduction from Station 256+33 to Station 359+05
Item No. 7-8909.30
Mars No. 9394301D

The geotechnical engineering roadway report for the subject project have been completed by HDR Engineering, Inc. The laboratory testing was performed by HDR Engineering, Inc., and drilling was performed by Geotechnology Inc. The electronic data files in DGN format have been provided to the Design Consultant, HDR Engineering, Inc., for incorporation into the structure plans. The electronic files will also be made available on ProjectWise.

If you have any questions or need additional information, please contact the Geotechnical Support & Review Branch, Division of Structural Design, at 502-564-2374.

cc: **Division of Design (Plan Processing Section)**
Division of Construction
TEBM for Project Delivery & Preservation (District 7)
TEBM for Project Development (District 7)
Project Manager (District 7)
HDR Engineering, Inc
Geotech Branches

Attachment

January 18, 2023

Mr. Erik Scott, P.E.
TEBM, Geotechnical Support & Review Branch
Division of Structural Design
1236 Wilkinson Boulevard
Frankfort, KY 40601-1200

RE: Geotechnical Roadway Report
Station 256+33 I-64/I-75 to Station 359+05 I-64/I-75
FD52 034 0075 012-016
R-002-2023
NHPP 0754 063
Item No.: 7-8909.30
Fayette County

Location and Description

The proposed project will widen Interstate 64 and Interstate 75 (I-64/I-75) from six (6) lanes to eight (8) lanes. The widening will add a lane to the north in the I-64 west bound (WB) and I-75 north bound (NB) direction and will add a lane to the south in the I-64 east bound (EB) and I-75 south bound (SB) direction within the project limits. A project location map is provided in Attachment A. The purpose of the investigation was to define the subsurface conditions along the proposed widening of I-64/I-75. Reduced size geotechnical notes, soil profile, cut stability, and embankment stability sheets are enclosed in Attachment B.

Geology

The project is located in the central portion of Fayette County, Kentucky within the Inner Bluegrass physiographic region of the Central Lowland Province of the United States. The Inner Bluegrass region is characterized as an upland area consisting of rolling hills with low to moderate relief and fertile, phosphatic soils. Within Fayette County, local relief is generally less than 100 feet with steeper terrain along the Kentucky River near the southern border with Madison County. Elevation within Fayette County varies from approximately 549 feet above mean sea level (MSL) at the Valley View Ferry along the Kentucky River to 1,070 feet above MSL near Athens Walnut Hill Road (McGrain and Currens 1978). Site specifically, the elevation ranges from approximately 980 to 1,020 feet above mean sea level (MSL), based on the United States Geological Survey (USGS) 7.5-minute series map of the Lexington East, Kentucky quadrangle (USGS 2022).

A custom soil resource report obtained from the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) indicates that the surficial soil deposits within approximately 38 inches of the ground surface belong to the Otwood, Elk, Huntington, Lanton, Lawrence, McAfee, Mercer, Newark, Salvisa, Bluegrass-Maury, Lowell-Bluegrass, Lowell-Faywood, Lowell-Sandview, and Maury-Bluegrass soils consisting of silt loam, silty clay loam, clay, and bedrock.

The USDA report also indicates that the USCS classification of the surficial soils consist of CL and ML (USDA 2023).

Available mapping by the Kentucky Geologic Survey (KGS) Geologic Map Service (MacQuown and Dobrovolny 1968; KGS 2023) indicates the project site to be predominately underlain by bedrock belonging to the Ordovician-aged Millersburg Member and the Tanglewood Limestone Member, both often interbedded and intertonguing subdivisions of the Lexington Limestone Formation. Additionally, the southern limit of the project site is underlain by the Clays Ferry Formation, also of Ordovician age. The Millersburg Member consists of limestone and shale, generally described as gray, fine- to medium-grained, bioclastic to fossiliferous, and occurring in nodular to irregular beds. Minor amounts of tabular limestone and shale, along with green-gray claystone beds have been noted in the Millersburg Member.

The Millersburg Member generally weathers to a tan clay with fossiliferous limestone rubble. Thickness of the Millersburg Member varies locally, ranging between an estimated 12 to 90 feet thick. The Tanglewood Limestone Member is described as predominately limestone, light-gray, medium- to coarse-grained, thin to thickly bedded, phosphatic, and bioclastic. Lesser amounts of shale occur within the Tanglewood Limestone Member and are noted as medium-gray and mostly interbedded with fine-grained shaly limestone. The Tanglewood Limestone Member commonly weathers to red-brown clay and thickness generally varies from 60 to 100 feet thick.

The basal portion of the Clays Ferry Formation overlies and intertongues with the Millersburg and Tanglewood Limestone Members, and consists primarily of interbedded shale and limestone, with minor siltstone. It is generally less resistant than the underlying members of the Lexington Limestone and weathers to a yellow-gray clay with limestone fragments. Shale within the basal Clays Ferry Formation is described as dark green-gray with silty shale laminae. Interbedded limestone is noted as olive-gray to medium-gray, fine- to coarse-grained, slightly silty, and slightly fossiliferous. The Clays Ferry Formation contains minor amounts of interbedded siltstone, noted as dark green-gray and weathering to tan and/or limy residuum. Thickness of the Clays Ferry Formation is estimated between 95 to 125 feet (Black et al. 1965; Cressman 1973).

Karst Features

Karst features were encountered during the field exploration. Based upon available mapping provided by KGS, multiple karst features are noted within or adjacent to the project limits, with the heaviest concentration of mapped features located east of the existing roadway between Paris Pike and Bryan Station Road, and trending in a general north-south alignment (KGS 2023). Several closed topographic depressions (often indicative of subsurface karst terrain) are also mapped on the 7.5-minute Lexington East quadrangle (MacQuown and Dobrovolny 1968). Based upon the review of karst potential maps (Paylor and Currens 2001; KGS 2023), the bedrock within the project site is noted as “karst prone” with “intense” potential for karst development due to the soluble nature of the underlying carbonate bedrock. It should be noted that this mapping does not represent all of the karst features in the area and not all areas may have been mapped. The KYTC Standard Drawing, BGX-018, should be consulted for the treatment of sinkholes.

A known karst feature is present along the I-64/I-75 mainline alignment from approximately Station 324+00 to Station 325+50. Core boring 18, a cut stability boring at STA 324+69, served supplementally to characterize and provide subsurface information near the known karst feature. Auger refusal was

encountered within core boring 18 at a depth of 12.5 feet. Thereafter, rock core sampling was performed to termination at a depth of 22.5 feet. The measured Rock Quality Designation (RQD) and Recovery (REC) was 37 and 100 percent, respectively. Soundings were subsequently performed along the mainline alignment ahead- and back-station of the karst feature near the existing and proposed toe of the embankment. Auger refusal was encountered within the soundings at depths ranging from 8.0 feet to 13.0 feet. A hand auger was also performed near the crest of the existing slope to determine the outer edge of the feature. Auger refusal was not encountered within the hand auger boring, and the boring was terminated at a depth of 10.0 feet below the ground surface.

Faults/Seismic Activity

The field exploration did not encounter faults. The structural mapping provided by KGS indicates the presence of the Georgetown-Gratz Fault System and the Lexington Fault System within the project site, near Belmont Drive and Spring Station Drive (KGS 2023). The Georgetown-Gratz Fault System consists of northwest-trending normal fault segments extending from the Lexington Fault System to their terminus near Gratz in Owen County, KY (Sparks et al. 2002). The Lexington Fault System trends north-northeast for approximately 75 miles across central Kentucky (Crone and Wheeler 2000). Both structures consist of long inactive, normal faults with no geological evidence of recent activity (Cressman 1973).

Drilling and Sampling

A total of 176 borings were advanced by Geotechnology, Inc. under HDR's guidance and supervision from February through June of 2023. Specifically, to assist with the abbreviated Geotechnical Roadway Report, five (5) cut stability borings, two (2) embankment stability borings, twenty-one (21) disturbed borings, and five (5) karst feature soundings (includes one hand auger sounding) were performed. Several other soundings along the project corridor were implemented in the roadway recommendations; thus, a summary of all soundings included for the development of this report are provided below.

Table 1. Summary of Bedrock Soundings

Borehole No.	Top of Sounding Elevation (MSL)	Depth to Refusal (ft)	Refusal Elevation (MSL)
1051	997.4	16.0	981.4
1056	988.0	10.5	977.5
1057	983.2	8.5	974.7
1061	985.6	13.0	972.6
1063	980.1	8.0	972.1
1073	972.2	4.0	968.2
1075	1014.8	34.0	980.8
1124	979.3	10.5	968.8
1127	979.1	9.5	969.6

Notes: MSL – Mean Sea Level Elevation

The disturbed soil borings were augured at approximately 400-foot intervals along the alignment while obtaining at least one 30-pound soil sample bag every 1,000 feet. The disturbed soil borings collected information regarding the existing soil thickness and type.

The cut slope stability borings and rock cores were performed to determine a proper roadway cut slope configuration recommendation. The soil borings were drilled on the uphill side of the cut, perpendicular to and away from the alignment centerline. Rock core samples were collected 8 feet to 16 feet below the top of rock.

The embankment slope stability borings were performed to determine a proper slope configuration for fill material placement. Disturbed and undisturbed samples, such as SPTs or thin-walled Shelby tube samples, respectively, were obtained based on the soil materials encountered. Soil samples were collected at 5-foot intervals starting at 2 feet below ground surface.

Laboratory Testing

Results from laboratory analysis and boring logs indicate that overburdened materials vary throughout the project. The soil materials encountered within the disturbed sample borings were predominantly silty sand and clayey sand, lean and fat clays, elastic silt, and silt. AASHTO soil classifications ranged from A-4 to A-7-6. Laboratory analysis yielded CBR values ranging from 2.2 to 5.7 with an average CBR value of 4.5. Table 2 below shows the results of the CBR testing. Laboratory testing results are provided in Attachment C.

Table 2. CBR Results

Borehole No.	Natural Moisture Content (%)	CBR	Proctor Test Results	
			Max Dry Density (pcf)	Optimum Moisture Content (%)
13	26.2	2.2	106.2	17.7
16	31.3	4.5	97.5	19.7
1011/8	23.3	5.6	108.9	15.4
1023/9	15.0	5.0	121.3	11.0
1083/10	22.5	5.3	106.1	15.7
1113/17	23.9	2.9	103.0	20.3
1134/25	26.8	5.7	102.8	19.6

Engineering Analysis

Roadway cut and embankment sections were evaluated for stability utilizing the GeoStudio SLOPE/W (Version 11.4.2.250) computer program. The SLOPE/W (2022.1) computer program utilizes a rotational failure surface and calculates the factor of safety (FS) based on the method selected. The Spencer Method was selected for this project to analyze three stability loading cases: short-term, intermediate-term, and long-term.

Short-term (during construction) analyses use total (undrained) shear strength parameters for the embankment modeling conditions that would exist immediately after the final slope geometry has been achieved. Intermediate-term cases consider conditions existing after excess pore pressures have dissipated. These analyses are based on effective shear strength parameters and an elevated water table. Long-term analyses use effective shear strength parameters to model conditions long after the excess pore pressures have dissipated, and the groundwater table has been lowered to normal conditions.

Lastly, based on the subsurface investigation, bedrock will be present at some of the proposed cut locations. A slope inclination of 0.5H:1V isn't desired when rock is encountered at these sections, and the rock may be blasted at the proposed 2H:1V slope inclination.

Embankment Slope Stability Analysis

The following embankment slope stability analysis locations were selected by HDR. The stability analyses performed yield acceptable factors of safety, as presented in the following table.

Table 3. Embankment Slope Stability Results

Station[1]	Embankment Slope Type	Slope Configuration	Factor of Safety			
			Short Term		Long Term	
			Calculated	Minimum Required[2]	Calculated	Minimum Required[2]
276+50 LT.	Roadway	2H:1V	2.6	1.1	1.9	1.4
283+00 RT.	Bridge Approach	2H:1V	2.3	1.2	1.8	1.6
293+00 LT.	Bridge Approach	2H:1V	2.1	1.2	1.6	1.6

[1]Stationing based on I-64/I-75 Mainline Alignment.
[2]Based on Section GT-601-3 of the current KYTC Geotechnical Guidance Manual. The minimum required FS is the smallest value from the range provided in the referenced guidance.

Where soft and/or wet areas are encountered during embankment construction, 2 feet of KY durable limestone rock from roadway excavation wrapped in Fabric-Geotextile, Class 1 or Class 2 (Separation), may be utilized to serve as working platform for embankment stabilization. This working platform should allow for drainage to prevent impoundment of water within the roadway embankment. These adjustments shall be as directed by the Engineer and may depend on seasonal fluctuations in the water table.

Cut Slope Stability Analysis – Retaining Walls

The following cut slope stability analysis locations with retaining walls were selected by HDR. These sections were chosen to analyze the stability of the cut slope with the inclusion of the retaining walls proposed. Several scenarios were analyzed (stability of slope in front of the wall, stability of the wall modeled as a structural element in GeoStudio, a simple analysis only modeling the proposed slope configuration without the wall) and the minimum factor of safety of all scenarios was chosen as the governing case and is reported in the table below. The stability analyses performed yield acceptable factors of safety.

Table 4. Cut Slope Stability Results with Retaining Wall

Station[1]	Cutslope Type	Slope Configuration	Factor of Safety			
			Intermediate Term		Long Term	
			Calculated	Minimum Required[2]	Calculated	Minimum Required[2]
311+00 LT.	Retaining Wall Cut	2H:1V	1.2	1.2	1.6	1.6
320+00 LT.	Retaining Wall Cut	2H:1V	1.7	1.2	2.0	1.6

[1]Stationing based on I-64/I-75 Mainline Alignment.
[2]Based on Section GT-601-3 of the current KYTC Geotechnical Guidance Manual. The minimum required FS is the smallest value from the range provided in the referenced guidance.

Cut Slope Stability Analysis – Noise Walls

The following cut slope stability analysis locations with noise walls were selected by HDR. The stability analyses performed yield acceptable factors of safety as presented in the following table. These cut sections do not include the proposed noise walls as they are not structural elements and do not affect the cut slope geometry, height, or inclination.

Table 5. Cut Slope Stability Results

Station[1]	Cutslope Type	Slope Configuration	Factor of Safety			
			Intermediate Term		Long Term	
			Calculated	Minimum Required[2]	Calculated	Minimum Required[2]
325+00 LT.	Noise Wall Cut	2H:1V	2.0	1.2	1.4	1.4
330+00 LT.	Noise Wall Cut	2H:1V	2.2	1.2	1.4	1.4

[1]Stationing based on I-64/I-75 Mainline Alignment.
[2]Based on Section GT-601-3 of the current KYTC Geotechnical Guidance Manual. The minimum required FS is the smallest value from the range provided in the referenced guidance.

Soil Stabilization

Based on the CBR test results as shown in Table 1, all CBR values fall below the threshold CBR value of 6 for roadbed stabilization, per GT-607-2 and GT-607-3 of the current KYTC Geotechnical Guidance Manual. Select Rock Quantities calculated by the design consultant indicates that an insufficient amount of excavated limestone is available to provide a rock roadbed for the entire project. Therefore, the widening should be designed utilizing a CBR of 2 with 12 inches of chemically stabilized subgrade.

Chemical stabilization, in the form of cement, is the preferred method of subgrade improvement due to the number of soils classifying as lean clay (CL) or silt (ML) relative to those classifying as highly plastic or elastic (CH or MH). Additionally, some granular soils (SC and SM) were encountered in the disturbed sample borings which may be due to limestone bedrock existing at shallow depths within the corridor. Since the subgrade may primarily consist of CL and ML materials and may contain proportionally more coarse-grained material than highly plastic or elastic materials, cement is recommended as it may be more applicable holistically and the use of lime may only show marginal improvements.

Where chemical stabilization is not practical, construct a 15-inch subgrade using Kentucky Coarse Aggregate No. 2's, 3's, or 23's. The coarse aggregates shall be wrapped in Fabric-Geotextile Class 1 or Class 2.

Limestone from roadway excavations may be used as channel lining, embankments, working platforms, slope protections, and stabilizing embankment foundations. Shale interbedding of limestone members was observed within some of the advanced borings. However, Slake Durability Index (SDI) and Jar Slake testing was not performed on recovered specimens to classify the rock's durability. If encountered, non-durable materials shall not be used within areas that require select rock quantities or channel lining.

Geotechnical Recommendations

1. The Contractor is responsible for conducting any operations necessary to excavate the cut areas to the required cross section. These operations shall be incidental to Roadway Excavation or Embankment-in-Place and no additional compensation shall be made for this work.

2. Clearing and grubbing of roadway areas shall be completed in accordance with the requirements of Section 202 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction (Standard Specifications).

3. In accordance with Section 206 of the current Standard Specifications, the moisture content of embankment fill material shall not vary from the optimum moisture content as determined by KM 64-511 by more than +2 percent or less than –2 percent. This moisture content requirement shall have equal weight with the density requirement when determining the acceptability of embankment construction. Refer to the Family of Curves for moisture/density correlation.

4. All water wells or cisterns, septic tanks, catch basins, manholes, etc., that may be encountered within the limits of the construction, whether shown on plans or not, shall be plugged and/or capped in accordance with Section 708 of the current Kentucky Department of Highways Standard Specifications for Road and Bridge Construction.

5. All soils, whether from the roadway or borrow, may require manipulation to obtain proper moisture content prior to compaction. Direct payment shall not be permitted for re-handling, hauling, stockpiling, and/or manipulating soils.

6. The contractor shall conduct grading operations in such a manner that limestone rock obtained from roadway excavation shall be stockpiled separately or otherwise manipulated so that quantities are available for those areas requiring said material. Limestone shall not be placed in the embankments or wasted without the approval of the Engineer. No direct payment for hauling, stockpiling, and/or manipulating excavated material shall be permitted.

7. Excavation of surface ditches and channel changes adjacent to embankment areas shall be performed prior to the placement of the adjacent embankments. The material excavated for the channel changes and surface ditches is suitable for embankment construction if dried to

the proper moisture content in accordance with Section 206 of the current Standard Specifications.

8. Foundation embankment benches shall be constructed in accordance with Standard Drawing RGX-010 at the locations listed below and/or as directed by the Engineer. Contrary to Standard Drawing RGX-010, the typical rise height for benching into soil/earth slopes shall be four (4) to six (6) feet. Benches in earth slopes shall be constructed one at a time beginning with the lowest bench, and each bench shall be backfilled prior to excavation of the next bench. If water is encountered during benching, construct a minimum one (1) foot thick drainage blanket as directed by the Engineer. The drainage blanket shall consist of Kentucky Coarse Aggregate No. 2 in accordance with Section 805 of the current Standard Specifications, or other available material deemed suitable by the Engineer. The drainage blanket shall extend to the toe of slope to provide positive drainage and shall be wrapped with Fabric-Geotextile Class 2 (Subsurface Drainage) in accordance with Sections 214 and 843 of the current Standard Specifications.

I-64/I-75 Mainline
Station 272+75 to 277+75 Left
Station 278+00 to 286+50 Right
Station 281+50 to 286+50 Left
Station 292+00 to 300+25 Right
Station 292+00 to 301+25 Left

I-64/I-75 Northbound
Station 560+00 to 560+50 Left

Ramp B to Paris Pike
Station 25+00 to 28+75 Right

Ramp C to Paris Pike
Station 52+25 to 54+00 Right

9. As directed by the Engineer, adequate drainage shall be provided for any natural spring outlets encountered within the construction limits, whether shown on plans or not. Adequate drainage shall be provided by constructing spring box inlets, if there is a defined throat, in accordance with the Kentucky Department of Highway Standard Drawings RDX-010-05 or RDX-011-05. The outlet pipes should extend to the downstream embankment toes for the discharge of water onto exterior grades. If there is no defined throat, then a one (1) foot drainage blanket wrapped with Fabric-Geotextile, Class 1 or Class 2 (Subsurface Drainage) shall be used in accordance with Sections 214 & 843 of the current Standard Specifications.

10. Perforated pipe for subgrade drainage shall be placed in vertical sags beneath new pavement in accordance with Standard Drawing RDP-005 at the following approximate locations, and/or where designated by the Engineer.

I-64/I-75 Mainline
Station 344+84

11. The Contractor shall conduct grading operations in such a manner that soil (free of rock larger than 4 inches and shale) from roadway excavation be stockpiled separately or otherwise

manipulated so that ample quantities are available for the chemically stabilized roadbed meeting the requirements of Section 208 of the current Standard Specifications. No direct payment will be allowed for such necessary manipulating as stockpiling, hauling and/or handling the material.

12. Construct a 12-inch cement stabilized soil subgrade for the entire project alignment. The chemical cement stabilization shall be applied in accordance with Section 208 of the current Standard Specifications. Where soft and/or wet subgrade is encountered during construction, the thickness of the chemically stabilized layer may be increased (up to 16-inches) to also serve as a working platform for subgrade stabilization. These adjustments shall be as directed by the Engineer and may depend on seasonal fluctuations in the water table.

13. Where chemical stabilization is not possible (such as maintenance of traffic, tie-ins, narrow part-width construction, crossovers, etc.), the subgrade shall be constructed as a 15-inch subgrade using Kentucky Coarse Aggregate No. 2's, 3's, or 23's wrapped in Fabric-Geotextile, Class 1 (Stabilization). These 15-inch aggregate subgrade locations will be determined by the Engineer during construction.

14. Any saturated, soft foundation areas, and/or drainage swales within embankment foundation limits shall be drained if necessary and stabilized with limestone rock from roadway excavation underlain with Fabric-Geotextile, Class 2 (Separation). A thickness of 2 feet is estimated for this treatment, for quantity estimation purposes only. Soft, saturated foundation areas and/or drainage swales were not noted but may be present based on seasonal water table fluctuations. The actual locations will be determined by the Engineer during construction.

15. The noise walls at the locations below will affect the cut slope and/or embankment construction. For this area, please refer to the structural plans for specific instructions for cut slope and embankment construction.

I-64/I-75 Mainline
Station 292+03 to 303+36 Right (Noise Wall #1)
Station 302+00 to 318+42 Right (Noise Wall #2)
Station 320+00 to 333+40 Right (Noise Wall #4)
Station 292+01 to 304+01 Left (Noise Wall #7)
Station 303+41 to 323+00 Left (Noise Wall #8)

16. As directed by the Engineer, existing bituminous concrete located at a distance greater than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be scarified or broken until all cleavage planes are destroyed, or the pavement shall be removed entirely as conditions demand. This shall be performed in compliance with Section 206 of the Standard Specifications.

17. Existing bituminous concrete that is not being overlaid and is located at a distance less than three feet below the proposed subgrade elevation within the limits of new roadway embankments, shall be removed entirely. This shall be performed in compliance with Section 206 of the Standard Specifications.

18. Borrow material, if required for subgrade, shall meet the minimum CBR design value of 2.

19. Some of the soil horizons and slopes on the project are subject to erosion. Necessary procedures in accordance with Sections 212 and 213 of the current Standard Specifications shall be followed on construction.

20. Due to the presence of known sinkholes along the project corridor, treatment is required in accordance with Standard Drawing BGX-018. Treatment is expected to consist of the following based on the Standard Drawing and the encountered subsurface conditions. Remove the debris and overburden soil around the sinkhole. Refill the opening with granular embankment up to a minimum of 2 feet below the rock line and place Geotextile Fabric Class 1 over the granular embankment overlapping the original ground line. Refill the remainder of the opening with a 2 feet thick (minimum) clay soil cap. A reinforced concrete cap can be used as an alternative, but it must be interlocked with rock for support as detailed in Condition No. 2 Alternate No. 2B of the Standard Drawing. If a concrete cap is used, the fabric can be omitted. This treatment is also required for any sinkholes that can potentially occur during roadway construction. Below is the approximate station and offset for the sinkhole located underneath the proposed roadway improvements:

I-64/I-75 Mainline
Station 324+88 Offset 80’ Lt.
Station 338+69 Offset 72’ Rt.

21. If other sinkholes are encountered during construction, please contact the Department’s Geotechnical Services Branch.

22. The appropriate design details for controlling the water flow will be determined by the designer and specified in the plans for the sinkholes identified during the design phase of this project. Water quality mitigation must occur prior to entering a blue line stream.

23. It is possible that wet weather drainage discharges areas will be encountered during construction. If encountered, a one (1) foot thick drainage blanket wrapped in Geotextile Fabric, Class 1 or Class 2, shall be constructed beneath the embankment to ensure positive drainage. The fabric shall be in accordance with Sections 214 & 843 of the current Standards Specifications. The drainage blanket material shall consist of Coarse Aggregate for Rock Drainage Blanket in accordance with Section 805 of the Current Standard Specifications, except natural sand will not be permitted. If a defined area of flow can be located, a spring box with a pipe outlet at the toe of the slope shall also be constructed, as determined by the Engineer.

Design Recommendations

1. Select Rock Quantities calculated by the design consultant indicate limestone is available from roadway excavation for construction purposes. The calculated amount is insufficient to provide a rock roadbed. Excess limestone may be used for channel lining, embankments, working platforms, slope protection, and stabilizing embankment foundations. Shale interbedding of limestone members was observed within some of the advanced borings. SDI and jar slake testing was not performed on recovered bedrock specimens to classify the rock's durability. If encountered, non-durable materials shall not be used within areas that require select rock quantities or channel lining.

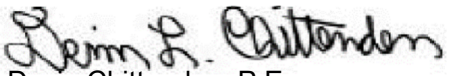
2. The main lanes should be designed for a chemically stabilized subgrade. A CBR design value of 2.0 is recommended for the soil beneath the chemically modified subgrade. Chemical treatment for the top 12 inches of subgrade is recommended. The appropriate chemical for treating the soil types encountered on this project is cement. It is suggested that 6 percent, by dry mass, be utilized to determine plan quantities, using an average maximum dry density of 106.5 pcf. The cement shall be applied in accordance with Section 208 of the current Standard Specifications.

3. An average soil shrinkage value of two (2) percent is estimated for this project. This value should be applied to the formula for calculating the Apparent Shrinkage as outlined in the Design Manual. The recommended rock swell is estimated to be ten (10) percent for material excavated below the rock disintegration zone (RDZ).

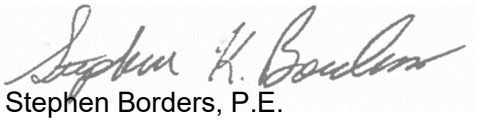
4. A shrink/swell value of zero (0) percent should be applied to RDZ material.

Sincerely,

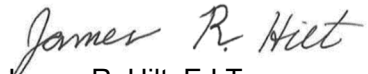
HDR ENGINEERING, Inc.



Devin Chittenden, P.E.
Geotechnical Section Manager



Stephen Borders, P.E.
Sr. Geotechnical Engineer



James R. Hilt, E.I.T.
Geotechnical Engineer in Training

Attachments

Attachment A: Project Location Map and Coordinate Data Sheet

Attachment B: Geotechnical Notes, Soil Profile, and Stability Sections

Attachment C: Laboratory Testing

Attachment D: Drillers Subsurface Logs

Attachment A: Project Location Map and Coordinate Data Sheet

hdrinc.com

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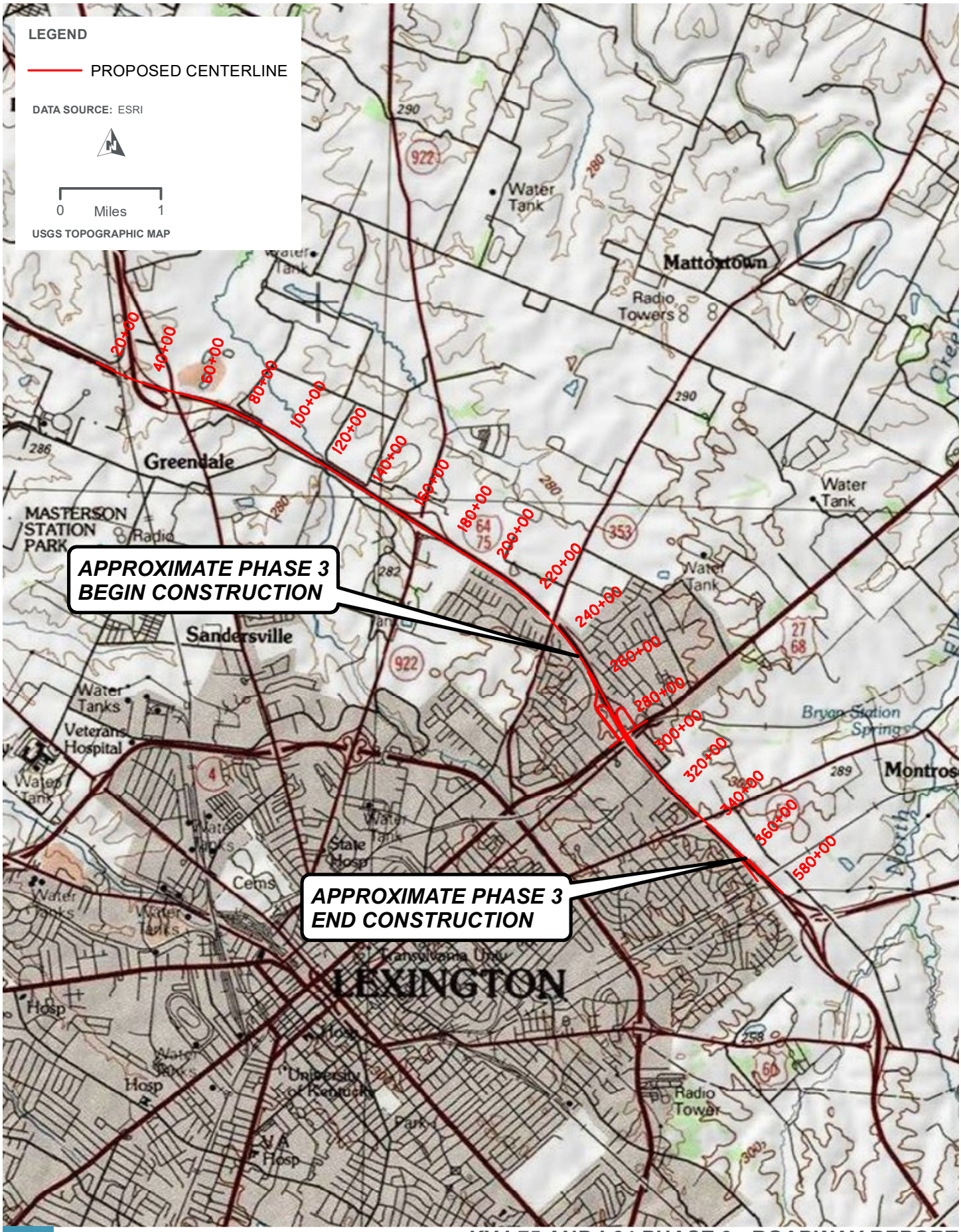
(859) 629-4800


LEGEND
PROPOSED CENTERLINE
DATA SOURCE: ESRI
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USGS TOPOGRAPHIC MAP
APPROXIMATE PHASE 3 BEGIN CONSTRUCTION
APPROXIMATE PHASE 3 END CONSTRUCTION
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340+00
360+00
580+00
Greendale
Mattoxtown
Sandersville
LEXINGTON
Water Tank
Radio Towers
MASTERSON STATION PARK
Veterans Hospital
Water Tanks
Bryan Station Spring
Montros
Radio Tower
University of Kentucky
Transylvania Univ
State Hosp
Cems
Hosp

COORDINATE DATA SUBMISSION FORM

KYTC DIVISION OF STRUCTURAL DESIGN -- GEOTECHNICAL BRANCH

County Fayette **Date** 17-Jun-23

Road Number I-64/I-75

Survey Crew / Consultant HDR

Contact Person Jim Guinn

Item # 7-8909.30

Mars # FD52 034 0075 012-06 NHPP 0754 063

Project # R-002-2023

Notes:

Elevation Datum (circle one) NAVD88 Assumed

HOLE NUMBER	STATION	OFFSET	ELEVATION (ft)	LATITUDE (Decimal Degrees)	LONGITUDE (Decimal Degrees)
Disturbed Soil Borings					
Mainline - I-64/I-75					
1	275+00	105' LT	974.56	38.079231	-84.457966
1011/8	292+00	5' LT	1016.78	38.075099	-84.455236
1023/9	297+00	65' LT	1013.67	38.074089	-84.454047
1083/10	300+90	71' RT	1006.29	38.073018	-84.453578
11	305+00	89' LT	1004.85	38.072445	-84.452231
13	309+00	89' RT	1002.26	38.071304	-84.451753
14	313+00	89' RT	1001.54	38.070512	-84.450775
16	317+00	89' LT	987.03	38.070105	-84.449342
1113/17	320+25	76' RT	985.61	38.069164	-84.448910
19	325+00	89' LT	983.80	38.068601	-84.447313
1123/21	329+00	106' RT	980.33	38.067460	-84.446766
23	333+00	89' LT	975.99	38.067099	-84.445289
24	337+00	89' RT	972.92	38.065991	-84.444698
1134/25	344+70	77' RT	970.60	38.064568	-84.442719
1142/26	352+70	71' RT	976.80	38.063083	-84.440664

HOLE NUMBER	STATION	OFFSET	ELEVATION (ft)	LATITUDE (Decimal Degrees)	LONGITUDE (Decimal Degrees)
Ramp B					
7	20+00	80' RT	980.18	38.076565	-84.455904
2	24+00	100' RT	962.20	38.077571	-84.456465
3	27+00	80' RT	960.94	38.078260	-84.456949
Ramp C					
4	23+00	45' RT	975.82	38.078546	-84.458406
5	27+00	100' RT	961.42	38.077512	-84.457889
6	31+00	100' RT	970.04	38.076559	-84.457173
Mainline - I-64/I-75					
NW-1079	268+99	93' LT	973.26	38.080662	-84.459009
1093	307+00	108' RT.	1008.51	38.071675	-84.452279
1035/12	307+50	115' LT.	1011.14	38.071986	-84.451589
1040	311+25	115' LT.	1013.74	38.07125191	-84.45070014
1103	314+60	116' RT.	1008.44	38.07015118	-84.45043848
1045/15	315+00	115' LT	1005.00	38.070531	-84.449783
1104	315+45	115' RT.	1008.79	38.069991	-84.450220
1051	320+00	115' LT.	997.44	38.06959347	-84.44852108
1052	320+50	115' LT.	996.03	38.06950146	-84.44839271
1115	321+25	76' RT.	984.93	38.06897616	-84.44865685
18	324+69	77' LT	983.44	38.068635	-84.447422
20	325+50	90' RT	985.73	38.068150	-84.447614
1068/22	330+00	120' LT	990.24	38.067725	-84.445975
Embankment Stability					
Mainline - I-64/I-75					
1001	276+50	60' LT	994.34	38.078811	-84.457853
1019	293+00	60' LT.	1017.23	38.07496185	-84.45488067
Ramp B					
1003	23+36	6' RT	1009.66	38.077284	-84.456695
Karst Feature Soundings					
NW-1080	269+99	94 LT	972.93	38.08042272	84.45883830
1075	292+90	78' RT.	1014.79	38.074765	-84.455292
1057	324+25	76' LT	983.17	38.068717	-84.447536
1119	325+00	106' RT.	988.29	38.06821179	-84.44777849
1061	325+50	90' LT	985.62	38.068510	-84.447186
1063	326+25	73' LT	980.08	38.068336	-84.447037
1124	330+00	106' RT.	979.34	38.06727187	-84.44651222
1127	333+00	106' RT.	979.13	38.06670878	-84.44575163
1073	334+00	115' LT.	972.21	38.06696346	-84.44497349
Hand Augers					
1059	324+69	115' LT	994.34	38.068711	-84.447332

Attachment B: Geotechnical Notes, Soil Profile, and Stability Sections

333 West Vine Street, Suite 1400, Lexington, KY 40507-1681
(859) 629-4800

GEOTECHNICAL SYMBOLS

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-8909.30	GI

AASHTO Classification of Soils and Soil-Aggregate Mixtures

General Classification	Granular Materials (35% or less passing 0.075 mm)							Silt-Clay Materials (More than 35% passing 0.075 mm)			
Group Classification	A-1		A-3	A-2				A-4	A-5	A-6	A-7
	A-1-a	A-1-b		A-2-4	A-2-5	A-2-6	A-2-7				A-7-5 A-7-6
Sieve Analysis, Percent Passing											
2.00 mm (No. 10)	50 max	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0.425 mm (No. 40)	30 max	50 max	51 min	- - -	- - -	- - -	- - -	- - -	- - -	- - -	- - -
0.075 mm (No. 200)	15 max	25 max	10 max	35 max	35 max	35 max	35 max	36 min	36 min	36 min	36 min
Characteristics of Fraction Passing 0.425 mm (No. 40)											
Liquid Limit	- - -		- - -	40 max	41 min	40 max	41 min	40 max	41 min	40 max	41 min
Plasticity Index	6 max		N.P.	10 max	10 max	11 min	11 min	10 max	10 max	11 min	11 min

AI Activity Index
LI Liquidity Index
S+C Silt + Clay (% finer than No.200 Sieve)
Rockline Soundings
Disturbed Sample Boring
Undisturbed Sample Boring
Undisturbed Sample Boring & Rock Core
Rock Core
Slope Inclinometer Installation
typical applications:
OW Observation Well
Approximate Footing Elevation
(Date) Water Elevation

VS (psf) Field Vane Shear Strength
Thin-walled Tube Sample
< Standard Penetration Test Sample
N Penetration Resistance
Qu (psf) Unconfined Compressive Strength
UU (psf) Unconsolidated Undrained Triaxial Strength
w% Moisture Content
KY RQD Rock Quality Designation (Kentucky Method)
STD RQD Rock Quality Designation (Standard Method)
SDI(JS) Slake Durability Index (Jar Slake Test)
REC Core Recovery
ϕ Angle of Internal Friction (Total Stress)
$\bar{\phi}$ Angle of Internal Friction (Effective Stress)
c (psf) Cohesion (Total Stress)
$\bar{c}$ (psf) Cohesion (Effective Stress)
γ (pcf) Total Unit Weight
RDZ Rock Disintegration Zone
OB Overburden Bench
IB Intermediate Bench
R Refusal
NR Refusal Not Encountered

Unified Soil Classifications

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GW	Well-graded gravels or gravel-sand mixtures, little or no fines.
		GP	Poorly graded gravels or gravel-sand mixtures, little or no fines.
		GM	Silty gravels, gravel-sand-silt mixtures.
		GC	Clayey gravels, gravel-sand-clay mixtures.
	SAND AND SANDY SOILS	SW	Well graded sands or gravelly sands, little or no fines.
		SP	Poorly graded sands or gravelly sands, little or no fines.
		SM	Silty sands, sand-silt mixtures.
		SC	Clayey sands, sand-clay mixtures.
FINE GRAINED SOILS	SILTS AND CLAYS LL IS 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.
		ML-CL	Silty clay-silty clay with sand and or gravel, sandy silty clay, sandy silty clay with gravel, gravelly silty clay, gravelly silty clay with sand
	SILTS AND CLAYS LL IS GREATER THAN 50	MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		CH	Inorganic clays of high plasticity, fat clays.

Unified Soil Classifications - Continued

MAJOR DIVISIONS		SYMBOL	NAME
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	GP-GC	Poorly graded gravel with clay (or silty clay), poorly graded gravel with clay and sand (or silty clay & sand)
		GP-GM	Poorly graded gravel with silt, poorly graded gravel with silt and sand
		GW-GC	Well graded gravel with clay (or silty clay), well graded gravel with clay and sand (or silty clay and sand)
		GW-GM	Well graded gravel with silt, well graded gravel with silt and sand
		GC-GM	Silty clayey gravel, silty clayey gravel with sand
	SAND AND SANDY SOILS	SW-SC	Well graded sand with clay (or silty clay), well graded sand with clay and gravel (or silty clay & gravel)
		SP-SC	Poorly graded sand with clay (or silty clay), poorly graded sand with clay and gravel (or silty clay and gravel)
		SP-SM	Poorly graded sand with silt, poorly graded sand with silt and gravel
		SC-SM	Silty clayey sand, silty clayey sand with gravel
		SW-SM	Well graded sand with silt, well graded sand with silt and gravel
UNCLASSIFIED MATERIAL		OH	Organic (High Plasticity)
		OL	Organic (Low Plasticity)

LIMESTONE
SANDSTONE
DURABLE SHALE (SDI ≥ 95)
NONDURABLE SHALE (SDI < 95)
GRANULAR EMBANKMENT
STRUCTURE GRANULAR BACKFILL

TALUS, MINE WASTE, FILL MATERIAL, BOULDERS, & ETC.
COAL
DOLOMITE
LIMESTONE (ARGILLACEOUS)
SLOPE PROTECTION

I64/I75
GEOTECHNICAL SYMBOL SHEET

FILE NAME:
USER:
DATE:
E-SHEET NAME:
MicroStation v8.11.9.919

GEOTECHNICAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR CONDUCTING ANY OPERATIONS NECESSARY TO EXCAVATE THE CUT AREAS TO THE REQUIRED CROSS SECTION. THESE OPERATIONS SHALL BE INCIDENTAL TO ROADWAY EXCAVATION OR EMBANKMENT-IN-PLACE AND NO ADDITIONAL COMPENSATION SHALL BE MADE FOR THIS WORK.

2. CLEARING AND GRUBBING OF ROADWAY AREAS SHALL BE COMPLETED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 202 OF THE CURRENT KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION (STANDARD SPECIFICATIONS).

3. IN ACCORDANCE WITH SECTION 206 OF THE CURRENT STANDARD SPECIFICATIONS, THE MOISTURE CONTENT OF EMBANKMENT FILL MATERIAL SHALL NOT VARY FROM THE OPTIMUM MOISTURE CONTENT AS DETERMINED BY KM 64-511 BY MORE THAN +2 PERCENT OR LESS THAN -2 PERCENT. THIS MOISTURE CONTENT REQUIREMENT SHALL HAVE EQUAL WEIGHT WITH THE DENSITY REQUIREMENT WHEN DETERMINING THE ACCEPTABILITY OF EMBANKMENT CONSTRUCTION. REFER TO THE FAMILY OF CURVES FOR MOISTURE/DENSITY CORRELATION.

4. ALL WATER WELLS OR CISTERNS, SEPTIC TANKS, CATCH BASINS, MANHOLES, ETC., THAT MAY BE ENCOUNTERED WITHIN THE LIMITS OF THE CONSTRUCTION, WHETHER SHOWN ON PLANS OR NOT, SHALL BE PLUGGED AND/OR CAPPED IN ACCORDANCE WITH SECTION 708 OF THE CURRENT KENTUCKY DEPARTMENT OF HIGHWAYS STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

5. ALL SOILS, WHETHER FROM THE ROADWAY OR BORROW, MAY REQUIRE MANIPULATION TO OBTAIN PROPER MOISTURE CONTENT PRIOR TO COMPACTION. DIRECT PAYMENT SHALL NOT BE PERMITTED FOR RE-HANDLING, HAULING, STOCKPILING, AND/OR MANIPULATING SOILS.

6. THE CONTRACTOR SHALL CONDUCT GRADING OPERATIONS IN SUCH A MANNER THAT LIMESTONE ROCK OBTAINED FROM ROADWAY EXCAVATION SHALL BE STOCKPILED SEPARATELY OR OTHERWISE MANIPULATED SO THAT QUANTITIES ARE AVAILABLE FOR THOSE AREAS REQUIRING SAID MATERIAL. LIMESTONE SHALL NOT BE PLACED IN THE EMBANKMENTS OR WASTED WITHOUT THE APPROVAL OF THE ENGINEER. NO DIRECT PAYMENT FOR HAULING, STOCKPILING, AND/OR MANIPULATING EXCAVATED MATERIAL SHALL BE PERMITTED.

7. EXCAVATION OF SURFACE DITCHES AND CHANNEL CHANGES ADJACENT TO EMBANKMENT AREAS SHALL BE PERFORMED PRIOR TO THE PLACEMENT OF THE ADJACENT EMBANKMENTS. THE MATERIAL EXCAVATED FOR THE CHANNEL CHANGES AND SURFACE DITCHES IS SUITABLE FOR EMBANKMENT CONSTRUCTION IF DRIED TO THE PROPER MOISTURE CONTENT IN ACCORDANCE WITH SECTION 206 OF THE CURRENT STANDARD SPECIFICATIONS.

8. FOUNDATION EMBANKMENT BENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH STANDARD DRAWING RGX-010 AT THE LOCATIONS LISTED BELOW AND/OR AS DIRECTED BY THE ENGINEER. CONTRARY TO STANDARD DRAWING RGX-010, THE TYPICAL RISE HEIGHT FOR BENCHING INTO SOIL/EARTH SLOPES SHALL BE FOUR (4) TO SIX (6) FEET. BENCHES IN EARTH SLOPES SHALL BE CONSTRUCTED ONE AT A TIME BEGINNING WITH THE LOWEST BENCH, AND EACH BENCH SHALL BE BACKFILLED PRIOR TO EXCAVATION OF THE NEXT BENCH. IF WATER IS ENCOUNTERED DURING BENCHING, CONSTRUCT A MINIMUM ONE (1) FOOT THICK DRAINAGE BLANKET AS DIRECTED BY THE ENGINEER. THE DRAINAGE BLANKET SHALL CONSIST OF KENTUCKY COARSE AGGREGATE NO. 2 IN ACCORDANCE WITH SECTION 805 OF THE CURRENT STANDARD SPECIFICATIONS, OR OTHER AVAILABLE MATERIAL DEEMED SUITABLE BY THE ENGINEER. THE DRAINAGE BLANKET SHALL EXTEND TO THE TOE OF SLOPE TO PROVIDE POSITIVE DRAINAGE AND SHALL BE WRAPPED WITH FABRIC-GEOTEXTILE CLASS 2 (SUBSURFACE DRAINAGE) IN ACCORDANCE WITH SECTIONS 214 AND 843 OF THE CURRENT STANDARD SPECIFICATIONS.

APPROXIMATE STATION LIMITS

I-64/I-75 MAINLINE
STATION 272+75 TO 277+75 LEFT
STATION 278+00 TO 286+50 RIGHT
STATION 281+50 TO 286+50 LEFT
STATION 292+00 TO 300+25 RIGHT
STATION 292+00 TO 301+25 LEFT

I-64/I-75 NORTHBOUND
STATION 560+00 TO 560+50 LEFT

RAMP B TO PARIS PIKE
STATION 25+00 TO 28+75 RIGHT

RAMP C TO PARIS PIKE
STATION 52+25 TO 54+00 RIGHT

9. AS DIRECTED BY THE ENGINEER, ADEQUATE DRAINAGE SHALL BE PROVIDED FOR ANY NATURAL SPRING OUTLETS ENCOUNTERED WITHIN THE CONSTRUCTION LIMITS, WHETHER SHOWN ON PLANS OR NOT. ADEQUATE DRAINAGE SHALL BE PROVIDED BY CONSTRUCTING SPRING BOX INLETS, IF THERE IS A DEFINED THROAT, IN ACCORDANCE WITH THE KENTUCKY DEPARTMENT OF HIGHWAY STANDARD DRAWINGS RDX-010-05 OR RDX-011-05. THE OUTLET PIPES SHOULD EXTEND TO THE DOWNSTREAM EMBANKMENT TOES FOR THE DISCHARGE OF WATER ONTO EXTERIOR GRADES. IF THERE IS NO DEFINED THROAT, THEN A ONE (1) FOOT DRAINAGE BLANKET WRAPPED WITH FABRIC-GEOTEXTILE, CLASS 1 OR CLASS 2 (SUBSURFACE DRAINAGE) SHALL BE USED IN ACCORDANCE WITH SECTIONS 214 & 843 OF THE CURRENT STANDARD SPECIFICATIONS.

10. PERFORATED PIPE FOR SUBGRADE DRAINAGE SHALL BE PLACED IN VERTICAL SAGS BENEATH NEW PAVEMENT IN ACCORDANCE WITH STANDARD DRAWING RDP-005 AT THE FOLLOWING APPROXIMATE LOCATIONS, AND/OR WHERE DESIGNATED BY THE ENGINEER.

APPROXIMATE STATION LIMITS

I-64/I-75 MAINLINE
STATION 344+84

11. THE CONTRACTOR SHALL CONDUCT GRADING OPERATIONS IN SUCH A MANNER THAT SOIL (FREE OF ROCK LARGER THAN 4 INCHES AND SHALE) FROM ROADWAY EXCAVATION BE STOCKPILED SEPARATELY OR OTHERWISE MANIPULATED SO THAT AMPLE QUANTITIES ARE AVAILABLE FOR THE CHEMICALLY STABILIZED ROADBED MEETING THE REQUIREMENTS OF SECTION 208 OF THE CURRENT STANDARD SPECIFICATIONS. NO DIRECT PAYMENT WILL BE ALLOWED FOR SUCH NECESSARY MANIPULATING AS STOCKPILING, HAULING AND/OR HANDLING THE MATERIAL.

12. CONSTRUCT A 12-INCH CEMENT STABILIZED SOIL SUBGRADE FOR THE ENTIRE PROJECT ALIGNMENT. THE CHEMICAL CEMENT STABILIZATION SHALL BE APPLIED IN ACCORDANCE WITH SECTION 208 OF THE CURRENT STANDARD SPECIFICATIONS. WHERE SOFT AND/OR WET SUBGRADE IS ENCOUNTERED DURING CONSTRUCTION, THE THICKNESS OF THE CHEMICALLY STABILIZED LAYER MAY BE INCREASED (UP TO 16-INCHES) TO ALSO SERVE AS A WORKING PLATFORM FOR SUBGRADE STABILIZATION. THESE ADJUSTMENTS SHALL BE AS DIRECTED BY THE ENGINEER AND MAY DEPEND ON SEASONAL FLUCTUATIONS IN THE WATER TABLE.

13. WHERE CHEMICAL STABILIZATION IS NOT POSSIBLE (SUCH AS MAINTENANCE OF TRAFFIC, TIE-INS, NARROW PART-WIDTH CONSTRUCTION, CROSSOVERS, ETC.), THE SUBGRADE SHALL BE CONSTRUCTED WITH A 15-INCH SUBGRADE USING KENTUCKY COARSE AGGREGATE NO. 2'S, 3'S, OR 23'S WRAPPED IN FABRIC-GEOTEXTILE, CLASS 1 (STABILIZATION). THESE 15-INCH AGGREGATE SUBGRADE LOCATIONS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

14. ANY SATURATED, SOFT FOUNDATION AREAS, AND/OR DRAINAGE SWALES WITHIN EMBANKMENT FOUNDATION LIMITS SHALL BE DRAINED IF NECESSARY AND STABILIZED WITH LIMESTONE ROCK FROM ROADWAY EXCAVATION UNDERLAIN WITH FABRIC-GEOTEXILE, CLASS 2 (SEPARATION). A THICKNESS OF 2 FEET IS ESTIMATED FOR THIS TREATMENT, FOR QUANTITY ESTIMATION PURPOSES ONLY. SOFT, SATURATED FOUNDATION AREAS AND/OR DRAINAGE SWALES WERE NOT NOTED BUT MAY BE PRESENT BASED ON SEASONAL WATER TABLE FLUCTUATIONS. THE ACTUAL LOCATIONS WILL BE DETERMINED BY THE ENGINEER DURING CONSTRUCTION.

15. THE NOISE WALLS AT THE LOCATIONS BELOW WILL AFFECT THE CUT SLOPE AND/OR EMBANKMENT CONSTRUCTION. FOR THIS AREA, PLEASE REFER TO THE STRUCTURAL PLANS FOR SPECIFIC INSTRUCTIONS FOR CUT SLOPE AND EMBANKMENT CONSTRUCTION.

I-64/I-75 MAINLINE
STATION 292+03 TO 303+36 (NOISE WALL #1)
STATION 302+00 TO 318+42 (NOISE WALL #2)
STATION 320+00 TO 333+40 (NOISE WALL #4)
STATION 292+01 TO 304+01 (NOISE WALL #7)
STATION 303+41 TO 323+00 (NOISE WALL #8)

16. AS DIRECTED BY THE ENGINEER, EXISTING BITUMINOUS CONCRETE LOCATED AT A DISTANCE GREATER THAN THREE FEET BELOW THE PROPOSED SUBGRADE ELEVATION WITHIN THE LIMITS OF NEW ROADWAY EMBANKMENTS, SHALL BE SCARIFIED OR BROKEN UNTIL ALL CLEAVAGE PLANES ARE DESTROYED, OR THE PAVEMENT SHALL BE REMOVED ENTIRELY AS CONDITIONS DEMAND. THIS SHALL BE PERFORMED IN COMPLIANCE WITH SECTION 206 OF THE STANDARD SPECIFICATIONS.

17. EXISTING BITUMINOUS CONCRETE THAT IS NOT BEING OVERLAID AND IS LOCATED AT A DISTANCE LESS THAN THREE FEET BELOW THE PROPOSED SUBGRADE ELEVATION WITHIN THE LIMITS OF NEW ROADWAY EMBANKMENTS, SHALL BE REMOVED ENTIRELY. THIS SHALL BE PERFORMED IN COMPLIANCE WITH SECTION 206 OF THE STANDARD SPECIFICATIONS.

18. BORROW MATERIAL, IF REQUIRED FOR SUBGRADE, SHALL MEET THE MINIMUM CBR DESIGN VALUE OF 2.

19. SOME OF THE SOIL HORIZONS AND SLOPES ON THE PROJECT ARE SUBJECT TO EROSION. NECESSARY PROCEDURES IN ACCORDANCE WITH SECTIONS 212 AND 213 OF THE CURRENT STANDARD SPECIFICATIONS SHALL BE FOLLOWED ON CONSTRUCTION.

20. DUE TO THE PRESENCE OF KNOWN SINKHOLES ALONG THE PROJECT CORRIDOR, TREATMENT IS REQUIRED IN ACCORDANCE WITH STANDARD DRAWING BGX-018. TREATMENT IS EXPECTED TO CONSIST OF THE FOLLOWING BASED ON THE STANDARD DRAWING AND THE ENCOUNTERED SUBSURFACE CONDITIONS. REMOVE THE DEBRIS AND OVERBURDEN SOIL AROUND THE SINKHOLE. REFILL THE OPENING WITH GRANULAR EMBANKMENT UP TO A MINIMUM OF 2 FEET BELOW THE ROCK LINE AND PLACE GEOTEXTILE FABRIC CLASS 1 OVER THE GRANULAR EMBANKMENT OVERLAPPING THE ORIGINAL GROUND LINE. REFILL THE REMAINDER OF THE OPENING WITH A 2 FEET THICK (MINIMUM) CLAY SOIL CAP. A REINFORCED CONCRETE CAP CAN BE USED AS AN ALTERNATIVE, BUT IT MUST BE INTERLOCKED WITH ROCK FOR SUPPORT AS DETAILED IN CONDITION NO. 2 ALTERNATE NO. 2B OF THE STANDARD DRAWING. IF A CONCRETE CAP IS USED, THE FABRIC CAN BE OMITTED. THIS TREATMENT IS ALSO REQUIRED FOR ANY SINKHOLES THAT CAN POTENTIALLY OCCUR DURING ROADWAY CONSTRUCTION. BELOW IS THE APPROXIMATE STATION AND OFFSET FOR THE SINKHOLE LOCATED UNDERNEATH THE PROPOSED ROADWAY IMPROVEMENTS:

I-64/I-75 MAINLINE
STATION 324+88 OFFSET 80' LT.
STATION 338+69 OFFSET 72' RT.

21. IF OTHER SINKHOLES ARE ENCOUNTERED DURING CONSTRUCTION, PLEASE CONTACT THE DEPARTMENT'S GEOTECHNICAL SERVICES BRANCH.

22. THE APPROPRIATE DESIGN DETAILS FOR CONTROLLING THE WATER FLOW WILL BE DETERMINED BY THE DESIGNER AND SPECIFIED IN THE PLANS FOR THE SINKHOLES IDENTIFIED DURING THE DESIGN PHASE OF THIS PROJECT. WATER QUALITY MITIGATION MUST OCCUR PRIOR TO ENTERING A BLUE LINE STREAM.

23. IT IS POSSIBLE THAT WET WEATHER DRAINAGE DISCHARGES AREAS WILL BE ENCOUNTERED DURING CONSTRUCTION. IF ENCOUNTERED, A ONE (1) FOOT THICK DRAINAGE BLANKET WRAPPED IN GEOTEXTILE FABRIC, CLASS 1 OR CLASS 2, SHALL BE CONSTRUCTED BENEATH THE EMBANKMENT TO ENSURE POSITIVE DRAINAGE. THE FABRIC SHALL BE IN ACCORDANCE WITH SECTIONS 214 & 843 OF THE CURRENT STANDARDS SPECIFICATIONS. THE DRAINAGE BLANKET MATERIAL SHALL CONSIST OF COARSE AGGREGATE FOR ROCK DRAINAGE BLANKET IN ACCORDANCE WITH SECTION 805 OF THE CURRENT STANDARD SPECIFICATIONS, EXCEPT NATURAL SAND WILL NOT BE PERMITTED. IF A DEFINED AREA OF FLOW CAN BE LOCATED, A SPRING BOX WITH A PIPE OUTLET AT THE TOE OF THE SLOPE SHALL ALSO BE CONSTRUCTED, AS DETERMINED BY THE ENGINEER.

SCALE: N/A

I-64/I-75
GEOTECHNICAL NOTES

SCALE:	1" = 100' HORIZONTAL 1" = 10' VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
		FAYETTE	7-8909.30	G3

DATUM

1050

1040

1030

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 278+00 TO STA. 286+50 RIGHT

1020

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 272+75 TO STA. 277+75 LEFT

1010

1000

990

BEGIN CONSTRUCTION
STA. 256+33

SB EXISTING GROUNDLINE

980

1
275+00
105' LT.
EL. 974.56
w%
25.0 ① R
(972.06)

970

960

NB EXISTING GROUNDLINE

950

940

930

920

910

900

890

880

DATUM

SAMPLE NO.		1
STATION		275+00
OFFSET		105' Lt.
DEPTH		0.0'-2.5'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	39.7
	SAND (- NO 10 + NO. 200)	17.8
	SILT (- 0.075 mm + 0.002 mm)	32.9
	CLAY (- 0.002 mm)	9.6
LIQUID LIMIT		33
PLASTIC LIMIT		23
PLASTICITY INDEX		10
ACTIVITY INDEX		1.04
SPECIFIC GRAVITY		2.692
AASHTO CLASSIFICATION		A-4(1)
UNIFIED CLASSIFICATION		SC
CALIFORNIA BEARING RATIO		-
MAXIMUM DRY DENSITY (pcf)		-
OPTIMUM MOISTURE (%)		-
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		-

255+00 256+00 257+00 258+00 259+00 260+00 261+00 262+00 263+00 264+00 265+00 266+00 267+00 268+00 269+00 270+00 271+00 272+00 273+00 274+00 275+00 276+00 277+00 278+00 279+00 280+00

I-64\I-75
SOIL PROFILE SHEET
STA. 255+00 TO STA. 280+00

SCALE: 1" = 100' HORIZONTAL 1" = 10' VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
	FAYETTE	7-8909.30	G4

DATUM

REFER TO GEOTECHNICAL NOTE 15 FOR STA. 292+01 TO STA. 304+01 LEFT

REFER TO GEOTECHNICAL NOTE 15 FOR STA. 292+03 TO STA. 303+36 RIGHT

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 292+00 TO STA. 301+25 LEFT

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 281+50 TO STA. 286+50 LEFT

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 292+00 TO STA. 300+25 RIGHT

REFER TO GEOTECHNICAL NOTE 15 FOR STA. 303+41 TO STA. 323+00 LEFT

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 278+00 TO STA. 286+50 RIGHT

REFER TO GEOTECHNICAL NOTE 15 FOR STA. 302+00 TO STA. 318+42 RIGHT

SB EXISTING GROUNDLINE

NB EXISTING GROUNDLINE

1011/8
292+00
5' LT.
EL. 1016.78
w%
23.3 (5)
23.1 (6)
23.9 (7)
25.5
23.4 (6)
25.2
23.4
24.0 (7)
R
(973.98)

1023/9
297+00
65' LT.
EL. 1013.67
w%
15.0
12.8
23.2 (8)
23.4
25.9
27.3
R
(983.67)

1083/10
300+90
71' RT.
EL. 1006.29
22.5 (9)
29.5
R
(991.79)

11
305+00
89' LT.
EL. 1004.85
20.6 (10)
R
(1003.85)

13
309+00
89' RT.
EL. 1002.26
w%
26.2 (10)
R
(998.66)

SAMPLE NO.		5	6	7	8	9	10
STATION		292+00	292+00	292+00	297+00	300+90	309+00
OFFSET		5' Lt.	5' Lt.	5' Lt.	65' Lt.	71' Rt.	89' Rt.
DEPTH		3.0'-5.0'	5.0'-10.0'	10.0'-15.0'	0.0'-7.0'	0.0'-10.0'	0.0'-3.6'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	12.6	3.8	2.7	45.1	8.2	2.6
	SAND (- NO 10 + NO. 200)	21.6	14.5	15.7	13.8	18.9	11.6
	SILT (- 0.075 mm + 0.002 mm)	37.3	46.9	48.2	24.8	47.9	42.9
	CLAY (- 0.002 mm)	28.5	34.9	33.5	16.3	25.0	43.0
LIQUID LIMIT		38	40	38	37	36	47
PLASTIC LIMIT		23	25	21	33	22	26
PLASTICITY INDEX		15	15	17	4	14	21
ACTIVITY INDEX		0.53	0.43	0.51	0.25	0.56	0.49
SPECIFIC GRAVITY		2.788	2.779	2.748	2.826	2.755	2.795
AASHTO CLASSIFICATION		A-6(8)	A-6(13)	A-6(14)	A-4(0)	A-6(9)	A-7-6(20)
UNIFIED CLASSIFICATION		CL	CL	CL	SM	CL	CL
CALIFORNIA BEARING RATIO		5.6	-	-	5.0	5.3	2.2
MAXIMUM DRY DENSITY (pcf)		108.9	-	-	121.3	106.1	106.2
OPTIMUM MOISTURE (%)		15.4	-	-	11.0	15.7	17.7
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		2.2	-	-	23.7	3.6	0.1

1020 1010 1000 990 980 970 960 950 940 930 920 910 900

280+00 281+00 282+00 283+00 284+00 285+00 286+00 287+00 288+00 289+00 290+00 291+00 292+00 293+00 294+00 295+00 296+00 297+00 298+00 299+00 300+00 301+00 302+00 303+00 304+00 305+00 306+00 307+00 308+00 309+00 310+00

I-64\I-75
SOIL PROFILE SHEET
STA. 280+00 TO STA. 310+00

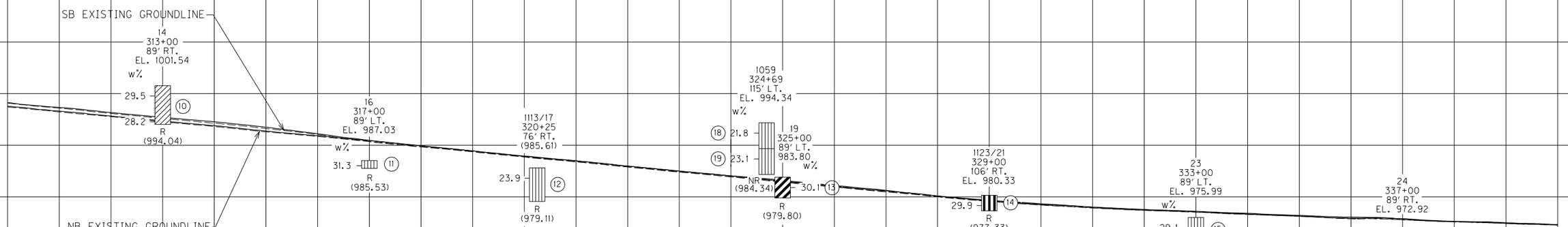
SCALE: 1" = 100' HORIZONTAL 1" = 10' VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
	FAYETTE	7-8909.30	G5

REFER TO GEOTECHNICAL NOTE 20 FOR STA. 324+88 OFFSET 80' RIGHT

REFER TO GEOTECHNICAL NOTE 15 FOR STA. 320+00 TO 333+40 RIGHT

REFER TO GEOTECHNICAL NOTE 20 FOR STA. 338+69 OFFSET 72' RT.

REFER TO GEOTECHNICAL NOTE 10 FOR STA. 334+84



SAMPLE NO.		10	11	12	13	14	15	16	18	19
STATION		309+00	317+00	320+25	325+00	329+00	333+00	337+00	324+69	324+69
OFFSET		89' Rt.	89' Lt.	76' Rt.	89' Lt.	106' Rt.	89' Lt.	89' Rt.	115' Lt.	115' Lt.
DEPTH		0.0'-3.6'	0.0'-1.5'	0.0'-6.5'	0.0'-4.0'	0.0'-3.0'	0.0'-4.5'	0.0'-9.0'	0.0'-5.0'	5.0'-10.0'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	2.6	3.2	8.6	2.7	16.9	3.0	3.8	0.7	2.2
	SAND (- NO 10 + NO. 200)	11.6	18.8	22.9	23.7	20.4	16.5	15.4	24.6	21.7
	SILT (- 0.075 mm + 0.002 mm)	42.9	45.2	36.6	40.9	36.5	37.6	58.1	49.3	48.7
	CLAY (- 0.002 mm)	43.0	32.8	32.0	32.7	26.3	42.9	22.7	25.4	27.3
LIQUID LIMIT		47	48	46	50	51	47	40	41	41
PLASTIC LIMIT		26	29	28	27	31	32	25	26	26
PLASTICITY INDEX		21	19	18	23	20	15	15	15	15
ACTIVITY INDEX		0.49	0.58	0.56	0.70	0.76	0.35	0.66	0.59	0.55
SPECIFIC GRAVITY		2.795	2.795	2.837	2.868	2.831	2.865	2.735	2.705	2.725
AASHTO CLASSIFICATION		A-7-6(20)	A-7-6(16)	A-7-6(12)	A-7-6(17)	A-7-5(12)	A-7-5(14)	A-6(13)	A-7-6(11)	A-7-6(11)
UNIFIED CLASSIFICATION		CL	ML	ML	CH	MH	ML	CL	ML	ML
CALIFORNIA BEARING RATIO		-	4.5	2.9	-	-	-	-	-	-
MAXIMUM DRY DENSITY (pcf)		-	97.5	103.0	-	-	-	-	-	-
OPTIMUM MOISTURE (%)		-	19.7	20.3	-	-	-	-	-	-
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		-	0.5	0.6	-	-	-	-	-	-

I-64\I-75
SOIL PROFILE SHEET
STA. 310+00 TO STA. 340+00

SCALE:	1" = 100' HORIZONTAL 1" = 10' VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
		FAYETTE	7-8909.30	G6

DATUM
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910
900

REFER TO GEOTECHNICAL NOTE 10 FOR STA. 345+28

END CONSTRUCTION
STA. 359+05 I-64/I-75

SB EXISTING GROUNDLINE

1134/25
344+70
77' RT.
EL. 970.60
w%
26.8
17
R
(961.60)

1142/26
352+60
71' RT.
EL. 976.80
17
R
(971.80)

NB EXISTING GROUNDLINE

340+00 341+00 342+00 343+00 344+00 345+00 346+00 347+00 348+00 349+00 350+00 351+00 352+00 353+00 354+00 355+00 356+00 357+00 358+00 359+00 360+00

SAMPLE NO.		17
STATION		344+70
OFFSET		77' Rt.
DEPTH		0.0'-9.0'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	2.3
	SAND (- NO 10 + NO. 200)	12.6
	SILT (- 0.075 mm + 0.002 mm)	68.6
	CLAY (- 0.002 mm)	16.5
LIQUID LIMIT		33
PLASTIC LIMIT		24
PLASTICITY INDEX		9
ACTIVITY INDEX		0.55
SPECIFIC GRAVITY		2.774
AASHTO CLASSIFICATION		A-4(8)
UNIFIED CLASSIFICATION		ML
CALIFORNIA BEARING RATIO		5.7
MAXIMUM DRY DENSITY (pcf)		102.8
OPTIMUM MOISTURE (%)		19.6
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		-

I-64\I-75
SOIL PROFILE SHEET
STA. 340+00 TO STA. 360+00

FILE NAME: C:\PWWORKING\EASTOI\D2089637\PHASE3-GOO600PF.DGN
USER: WSHUECRA
DATE PLOTTED: December 18, 2023
SHEET NAME: ——
OpenRoads Designer v10.12.02.4E

SCALE:	1" = 100 HORIZONTAL 1" = 10 VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
		FAYETTE	7-8909.30	G7

DATUM

1070
1060
1050
1040
1030
1020
1010
1000
990
980
970
960
950
940
930
920
910
900
890

REFER TO GEOTECHNICAL NOTE 8 FOR STA. 25+00 TO 28+75 RIGHT

7
20+00
80' RT.
EL. 980.18
w%
23.5 — (2)
R
(977.68)

2
24+00
100' RT.
EL. 962.20
w%
36.0 — (2)
R
(958.20)

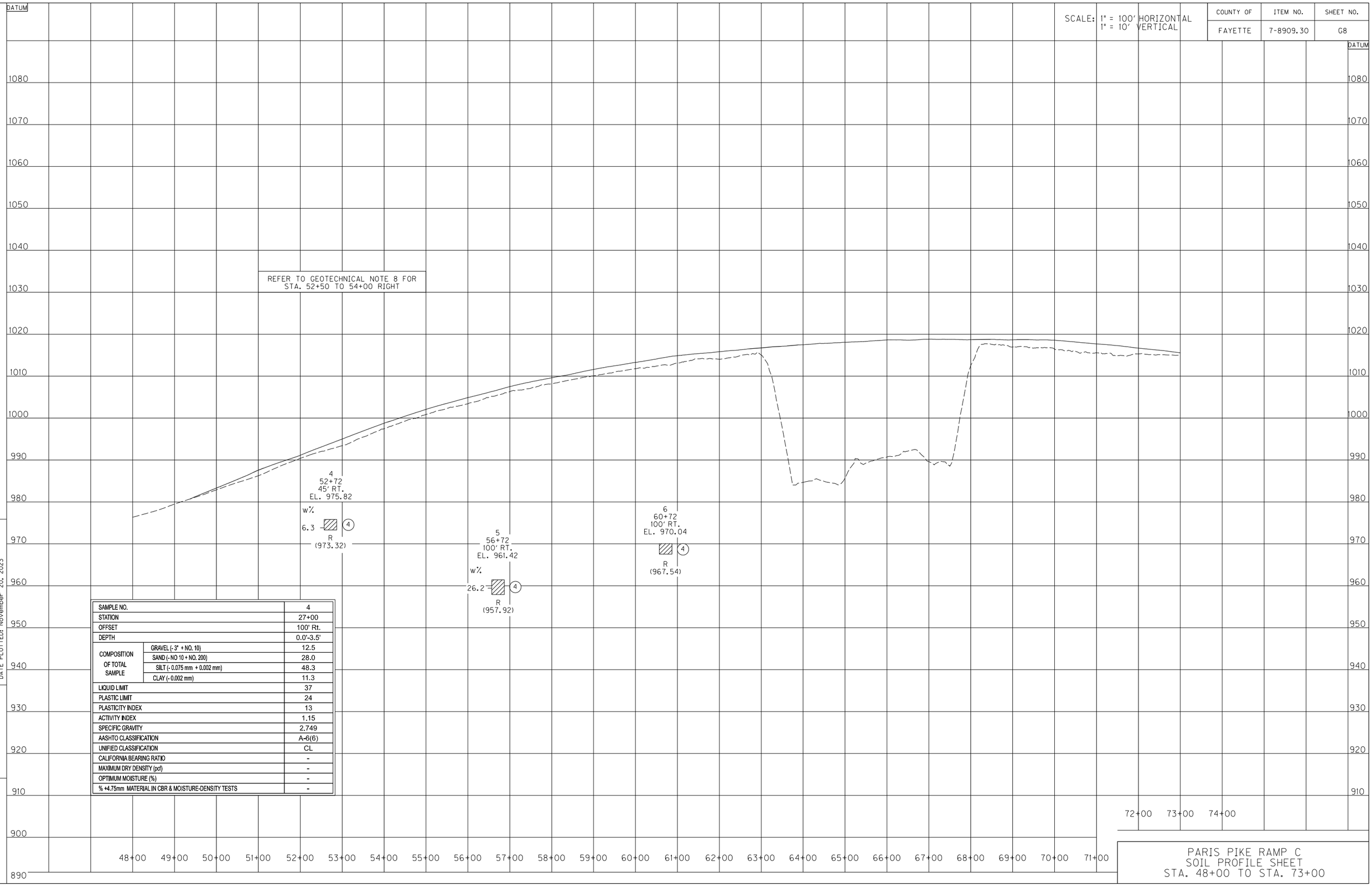
3
27+00
80' RT.
EL. 960.94
w%
58.6 — (3)
R
(958.44)

SAMPLE NO.		2	3
STATION		24+00	27+00
OFFSET		100' Rt.	80' Rt.
DEPTH		0.0'-4.0'	0.0'-2.5'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	4.9	0.5
	SAND (- NO 10 + NO. 200)	15.4	13.0
	SILT (- 0.075 mm + 0.002 mm)	70.3	73.1
	CLAY (- 0.002 mm)	9.3	13.3
LIQUID LIMIT		40	44
PLASTIC LIMIT		26	34
PLASTICITY INDEX		14	10
ACTIVITY INDEX		1.50	0.75
SPECIFIC GRAVITY		2.436	2.620
AASHTO CLASSIFICATION		A-6(12)	A-5(11)
UNIFIED CLASSIFICATION		ML	ML
CALIFORNIA BEARING RATIO		-	-
MAXIMUM DRY DENSITY (pcf)		-	-
OPTIMUM MOISTURE (%)		-	-
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		-	-

12+00 13+00 14+00 15+00 16+00 17+00 18+00 19+00 20+00 21+00 22+00 23+00 24+00 25+00 26+00 27+00 28+00 29+00 30+00 31+00 32+00 33+00 34+00 35+00 36+00 37+00 38+00 39+00 40+00 41+00 42+00

PARIS PIKE RAMP B
SOIL PROFILE
STA. 20+00 TO STA. 41+68.35

SCALE:	1" = 100' HORIZONTAL 1" = 10' VERTICAL	COUNTY OF	ITEM NO.	SHEET NO.
		FAYETTE	7-8909.30	G8



SAMPLE NO.		4
STATION		27+00
OFFSET		100' Rt.
DEPTH		0.0'-3.5'
COMPOSITION OF TOTAL SAMPLE	GRAVEL (- 3" + NO. 10)	12.5
	SAND (- NO 10 + NO. 200)	28.0
	SILT (- 0.075 mm + 0.002 mm)	48.3
	CLAY (- 0.002 mm)	11.3
LIQUID LIMIT		37
PLASTIC LIMIT		24
PLASTICITY INDEX		13
ACTIVITY INDEX		1.15
SPECIFIC GRAVITY		2.749
AASHTO CLASSIFICATION		A-6(6)
UNIFIED CLASSIFICATION		CL
CALIFORNIA BEARING RATIO		-
MAXIMUM DRY DENSITY (pcf)		-
OPTIMUM MOISTURE (%)		-
% +4.75mm MATERIAL IN CBR & MOISTURE-DENSITY TESTS		-

PARIS PIKE RAMP C
SOIL PROFILE SHEET
STA. 48+00 TO STA. 73+00

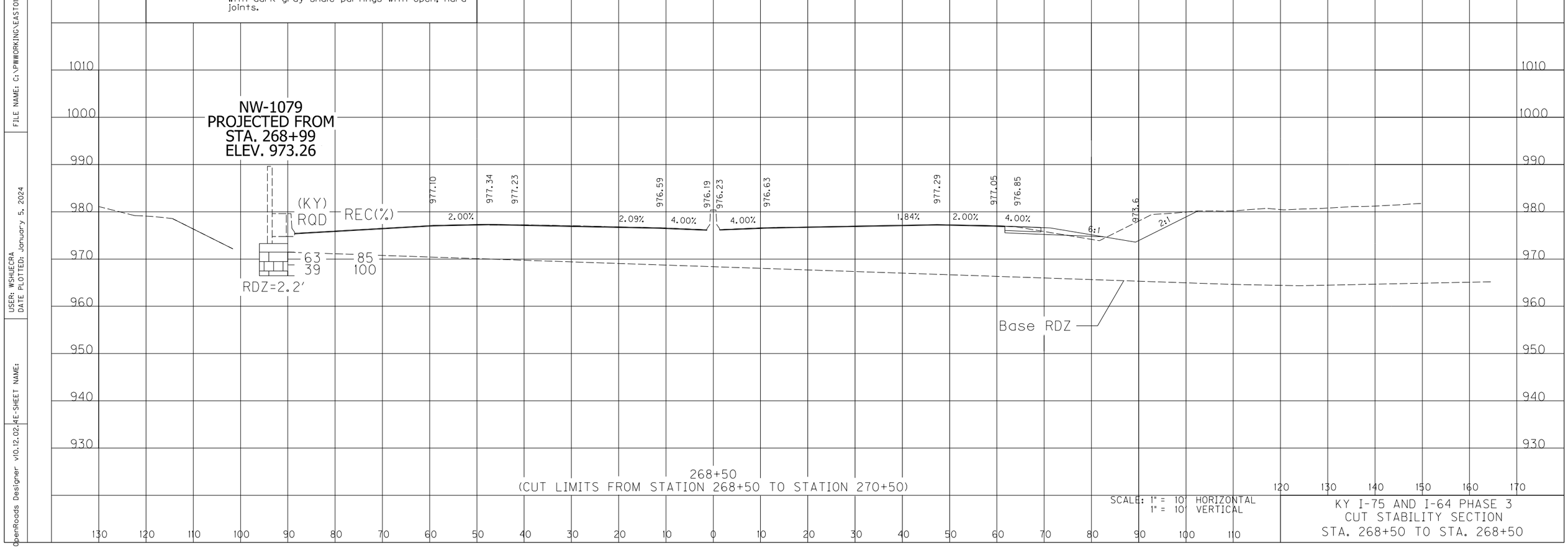
COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G9

ADDITIONAL ROCKLINE SOUNDINGS

STATION	OFFSET	DEPTH TO REFUSAL
269+99	94' LT.	1.2'

CORE LOG STA. 268+99, 93' LT.

ELEVATION	DESCRIPTION
973.26 - 971.5	Overburden
971.5 - 966.5	Limestone: Light to medium gray, fine to medium crystalline/fossiliferous, thinly bedded with dark gray shale partings with open, hard joints.



268+50
(CUT LIMITS FROM STATION 268+50 TO STATION 270+50)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

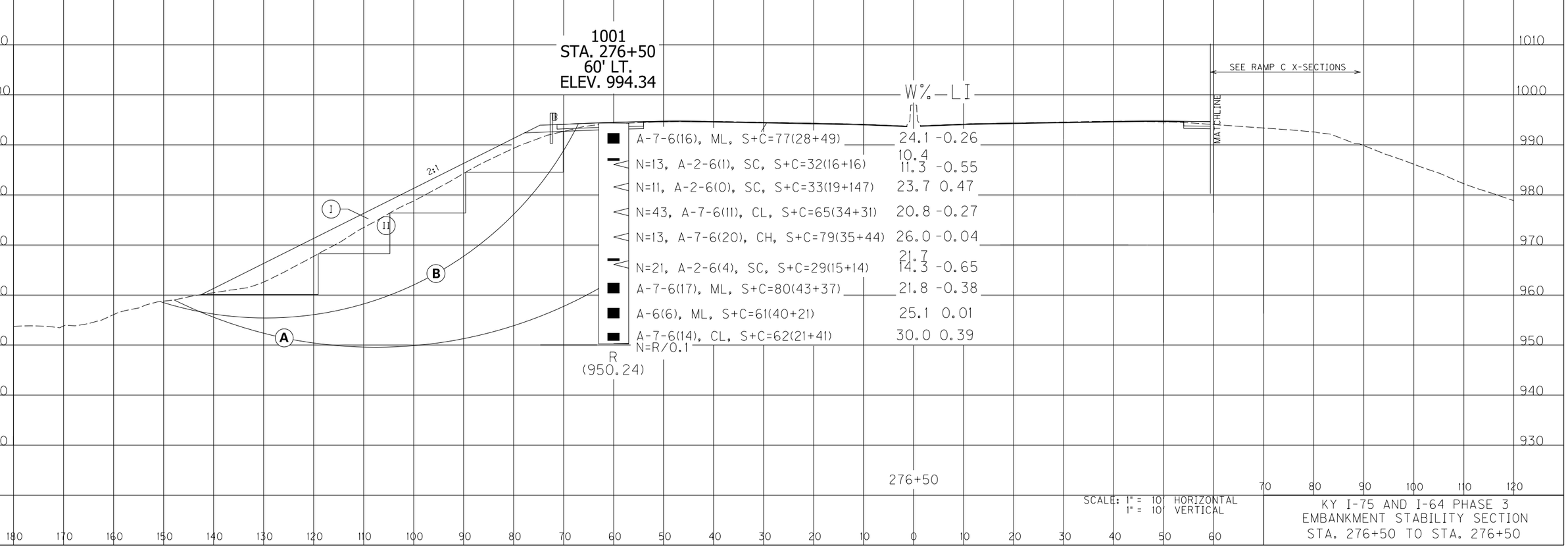
KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 268+50 TO STA. 268+50

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G10

ASSUMED SOIL STRENGTH PARAMETERS		
SOIL	I	II
SHORT TERM	c=1500 PSF ϕ=0° γ=125 PCF	c=1800 PSF ϕ=0° γ=125 PCF
LONG TERM	$\bar{c}$=300 PSF $\bar{\phi}$=28° γ=125 PCF	$\bar{c}$=270 PSF $\bar{\phi}$=28° γ=125 PCF

FACTORS OF SAFETY		
SHORT TERM	A	2.6
LONG TERM	B	1.9

SUMMARY OF TRIAXIAL TEST RESULTS			
STATION	276+50	STATION	276+50
OFFSET	60' LT.	OFFSET	60' LT.
DEPTH	2.0-3.0, 3.0-4.0, 32.0-34.0	DEPTH	37.0-38.0, 38.0-39.0, 42.0-44.0
$\bar{c}$	86 psf	$\bar{c}$	1,267 psf
$\bar{\Phi}$	31°	$\bar{\Phi}$	28°

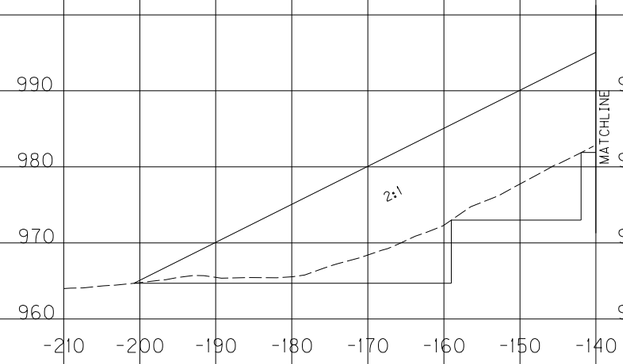


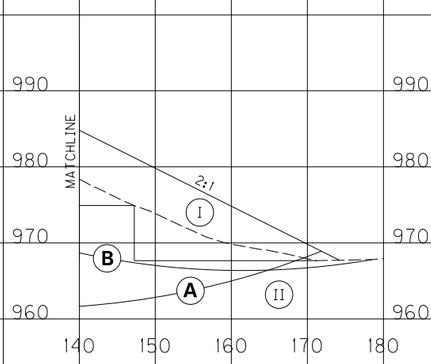
SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
EMBANKMENT STABILITY SECTION
STA. 276+50 TO STA. 276+50

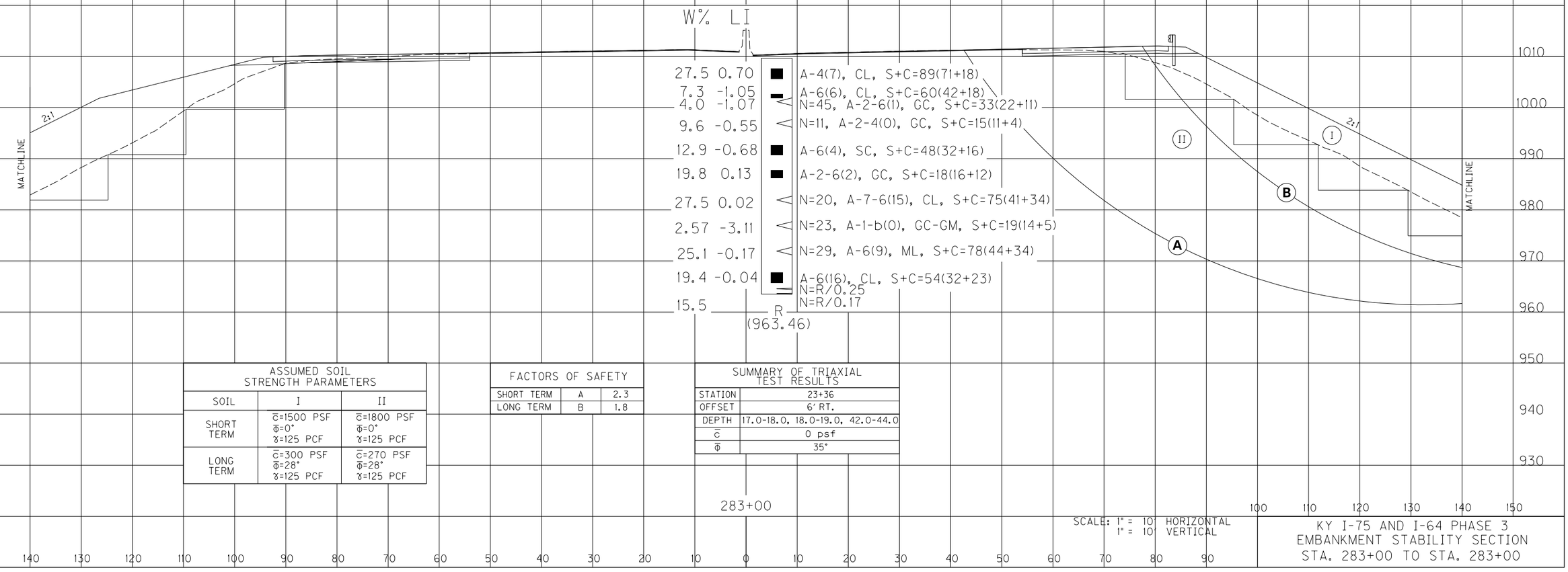
OpenRoads Designer v10.12.02.4E-SHEET NAME:
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
FILE NAME: C:\PWWORKING\EASTO\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G11





1003
PARIS PIKE RAMP B
STA. 23+36
6' RT.
ELEV. 1009.66



ASSUMED SOIL STRENGTH PARAMETERS		
SOIL	I	II
SHORT TERM	$\bar{C}$=1500 PSF $\bar{\Phi}$=0° γ=125 PCF	$\bar{C}$=1800 PSF $\bar{\Phi}$=0° γ=125 PCF
LONG TERM	$\bar{C}$=300 PSF $\bar{\Phi}$=28° γ=125 PCF	$\bar{C}$=270 PSF $\bar{\Phi}$=28° γ=125 PCF

FACTORS OF SAFETY		
SHORT TERM	A	2.3
LONG TERM	B	1.8

SUMMARY OF TRIAXIAL TEST RESULTS	
STATION	23+36
OFFSET	6' RT.
DEPTH	17.0-18.0, 18.0-19.0, 42.0-44.0
$\bar{C}$	0 psf
$\bar{\Phi}$	35°

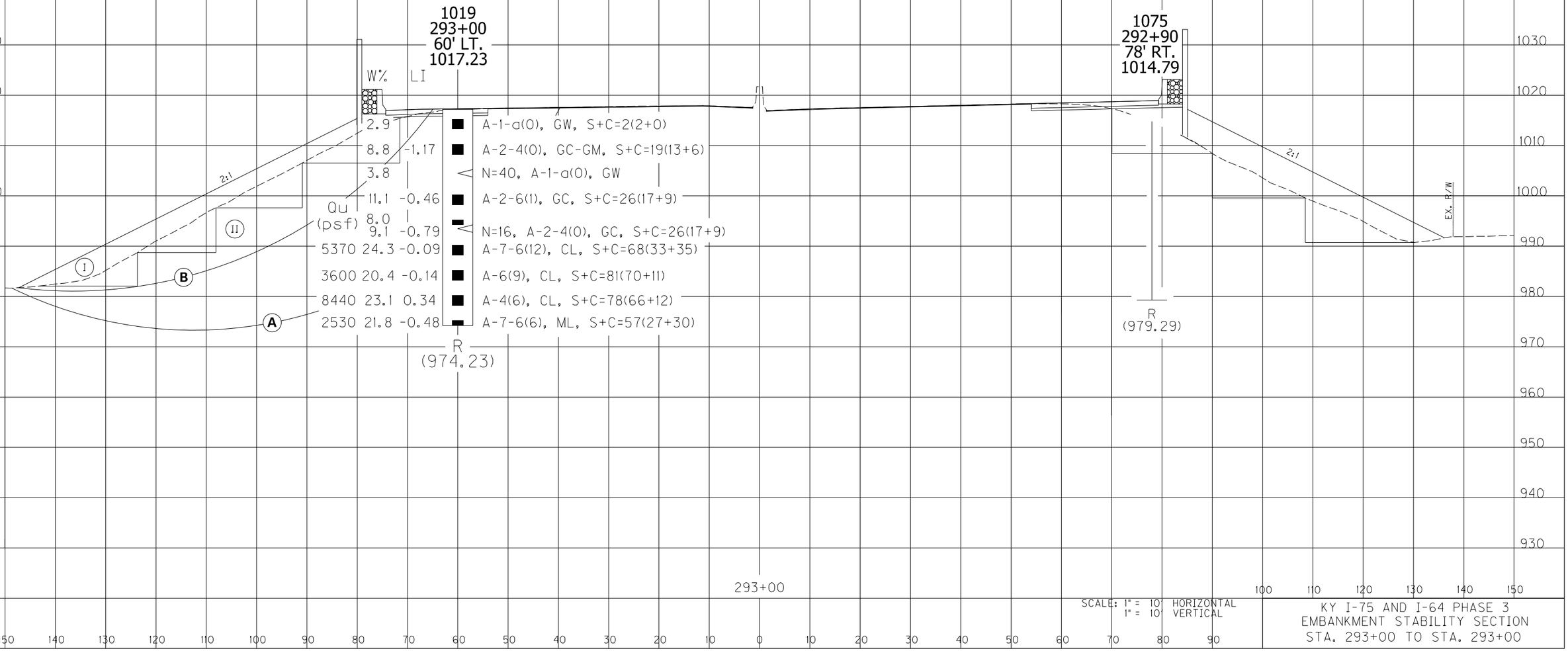
SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
EMBANKMENT STABILITY SECTION
STA. 283+00 TO STA. 283+00

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G12

ASSUMED SOIL STRENGTH PARAMETERS		
SOIL	I	II
SHORT TERM	$\bar{c}$=1500 PSF $\bar{\phi}$=0° γ=125 PCF	$\bar{c}$=1400 PSF $\bar{\phi}$=0° γ=125 PCF
LONG TERM	$\bar{c}$=300 PSF $\bar{\phi}$=28° γ=125 PCF	$\bar{c}$=100 PSF $\bar{\phi}$=28° γ=125 PCF

FACTORS OF SAFETY		
SHORT TERM	A	2.1
LONG TERM	B	1.6



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
EMBANKMENT STABILITY SECTION
STA. 293+00 TO STA. 293+00

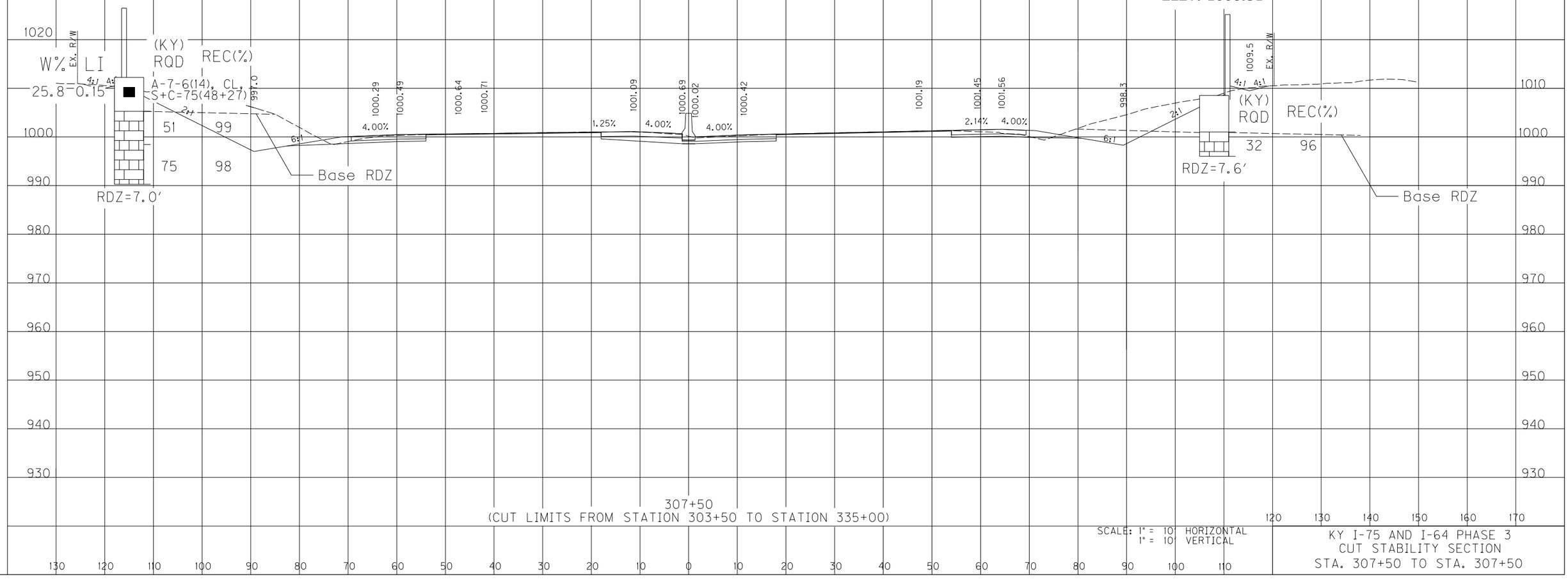
COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G13

CORE LOG STA. 307+50, 115' LT.

ELEVATION	DESCRIPTION
1011.1 - 1004.1	Overburden
1004.1 - 989.1	Limestone: Light to medium gray, fine to course grained, thin to medium bedded, bioclastic, argillaceous with dark gray, wavy shale beds, moderately hard to moderately soft.

CORE LOG STA. 307+00, 108' RT.

ELEVATION	DESCRIPTION
1008.5 - 1001.0	Overburden
1001.0 - 996.0	Limestone: Light gray, fine to medium grained, slightly fossiliferous, thinly bedded with dark gray shale partings and beds, moderately hard, fresh to slightly weathered.



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 307+50 TO STA. 307+50

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G14

CORE LOG STA. 315+00, 115' LT.

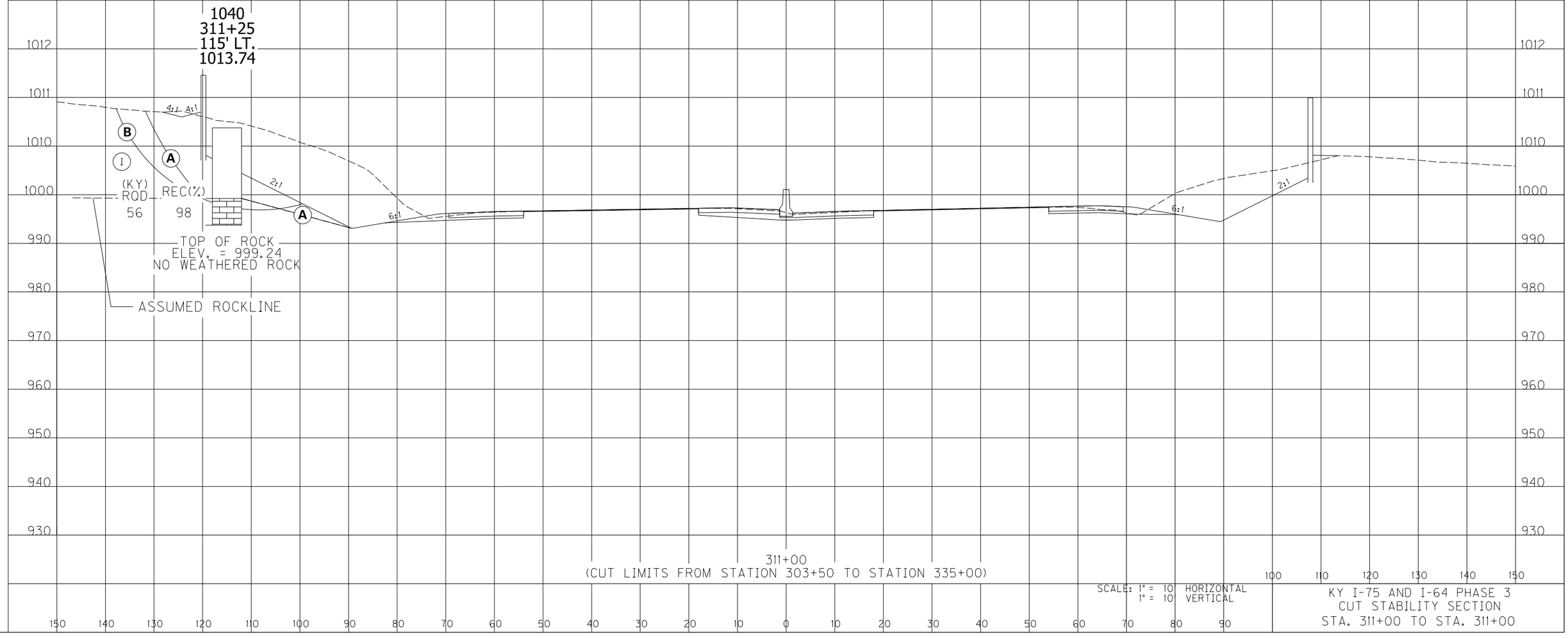
ELEVATION	DESCRIPTION
1005.0 - 995.0	Overburden
995.0 - 985.0	Limestone & Shale: Light gray, fine to medium grained, bioclastic, argillaceous limestone interbedded with medium gray shale, thinly bedded, moderately hard, slightly weathered.

ASSUMED SOIL STRENGTH PARAMETERS

SOIL	I
INTERMEDIATE TERM	$\bar{c}$=190 PSF $\bar{\phi}$=29° γ=130 PCF
LONG TERM	$\bar{c}$=35 PSF $\bar{\phi}$=28° γ=130 PCF

FACTORS OF SAFETY

INTERMEDIATE TERM	A	1.2
LONG TERM	B	1.6



311+00
(CUT LIMITS FROM STATION 303+50 TO STATION 335+00)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 311+00 TO STA. 311+00

FILE NAME: C:\PWWORKING\EASTON\D2089637\PHASE 3 I-64 I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
OpenRoads Designer v10.12.02.4E-SHEET NAME:

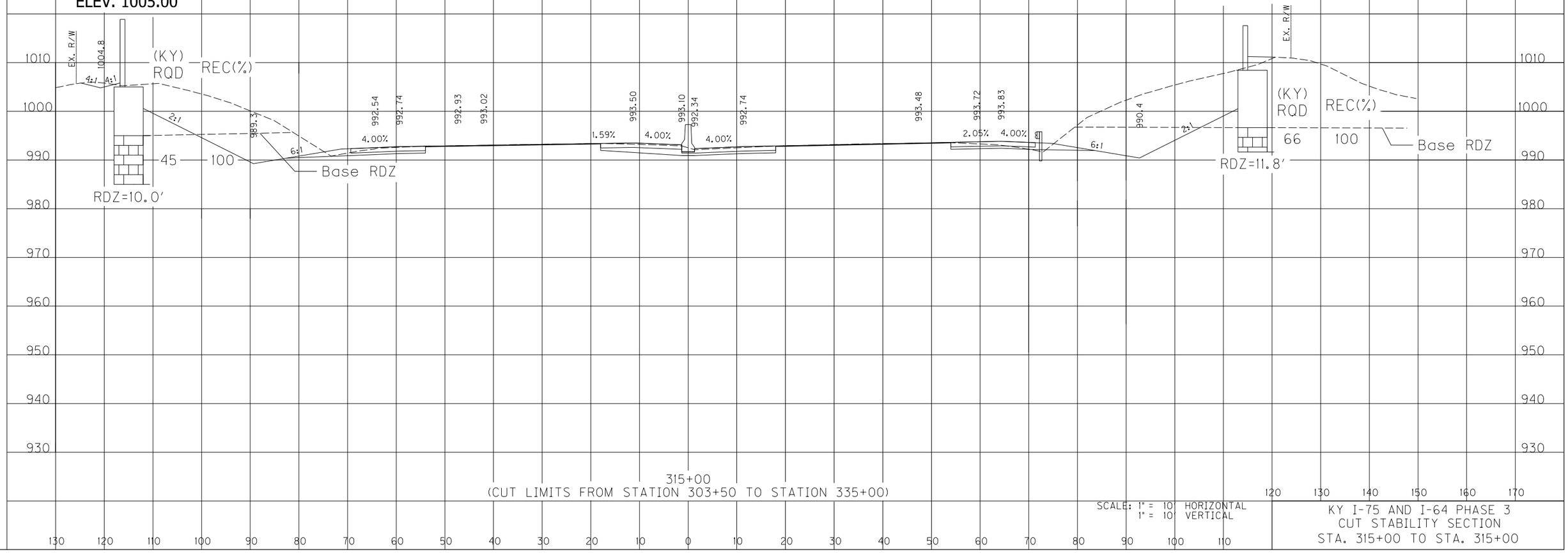
COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G15

CORE LOG STA. 315+00, 115' LT.

ELEVATION	DESCRIPTION
1005.0 - 995.0	Overburden
995.0 - 985.0	Limestone: Light gray, fine to medium grained, thinly bedded, bioclastic, argillaceous with dark gray, wavy shale partings, moderately hard to moderately soft, slightly to moderately weathered.

CORE LOG STA. 314+60, 116' RT.

ELEVATION	DESCRIPTION
1008.4 - 996.6	Overburden
996.6 - 991.6	Limestone: Light gray, slightly weathered to fresh, moderately hard, highly reactive, fossiliferous with thin, dark gray shale wisps, thinly bedded with open, hard joints.



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 315+00 TO STA. 315+00

FILE NAME: C:\PWWORKING\EASTO\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
SHEET NAME:
OpenRoads Designer v10.12.02.4E

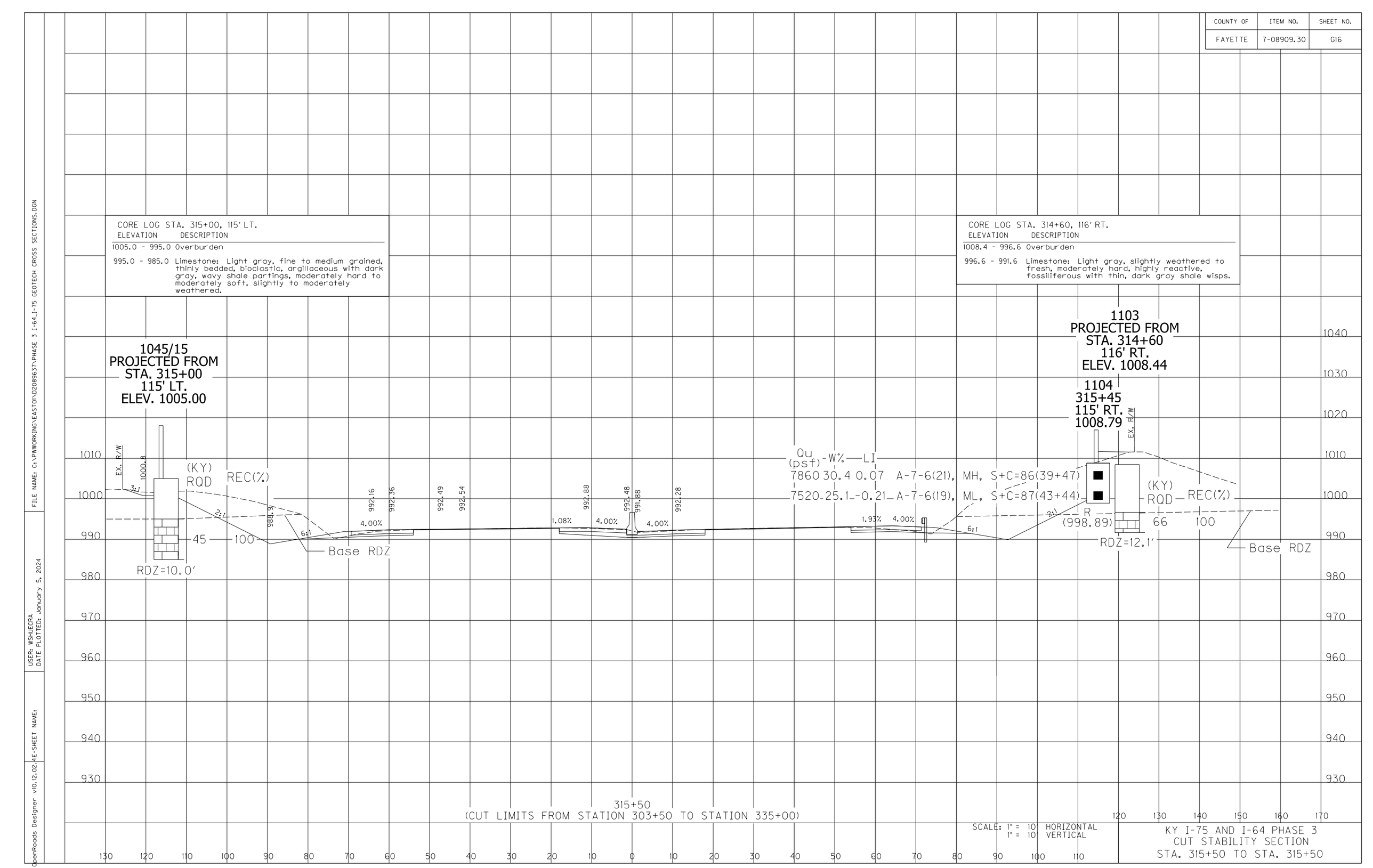
COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G16

CORE LOG STA. 315+00, 115' LT.

ELEVATION	DESCRIPTION
1005.0 - 995.0	Overburden
995.0 - 985.0	Limestone: Light gray, fine to medium grained, thinly bedded, bioclastic, argillaceous with dark gray, wavy shale partings, moderately hard to moderately soft, slightly to moderately weathered.

CORE LOG STA. 314+60, 116' RT.

ELEVATION	DESCRIPTION
1008.4 - 996.6	Overburden
996.6 - 991.6	Limestone: Light gray, slightly weathered to fresh, moderately hard, highly reactive, fossiliferous with thin, dark gray shale wisps.



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 315+50 TO STA. 315+50

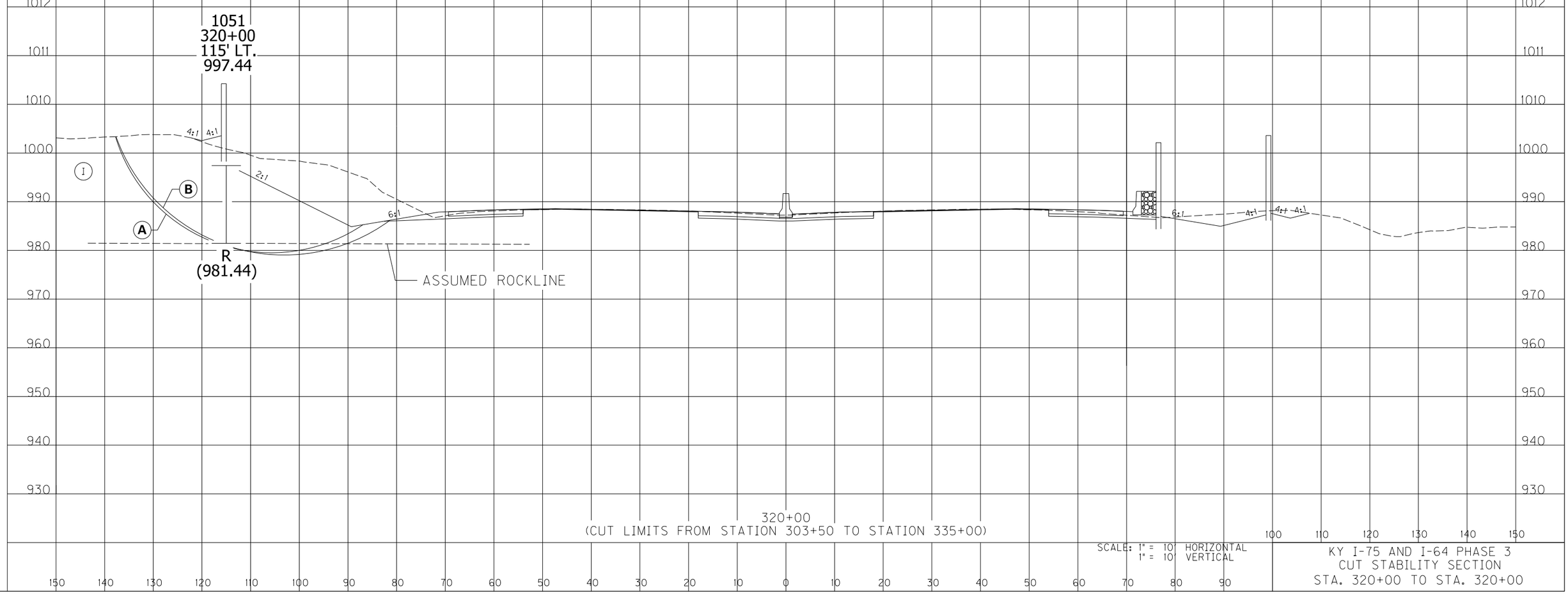
FILE NAME: C:\PWWORKING\EAST01\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
SHEET NAME:
OpenRoads Designer v10.12.02.46

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G17

ASSUMED SOIL STRENGTH PARAMETERS	
SOIL	I
INTERMEDIATE TERM	$\bar{c}$=190 PSF $\bar{\Phi}$=29° γ=125 PCF
LONG TERM	$\bar{c}$=38 PSF $\bar{\Phi}$=29° γ=125 PCF

FACTORS OF SAFETY		
INTERMEDIATE TERM	A	1.7
LONG TERM	B	2.0

BORINGS USED TO DETERMINE PARAMETERS		
BORING	STATION	OFFSET
1049	319+00	115' LT.
1054	323+00	115' LT.



320+00
(CUT LIMITS FROM STATION 303+50 TO STATION 335+00)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 320+00 TO STA. 320+00

FILE NAME: C:\PWWORKING\EASTOI\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
SHEET NAME:
OpenRoads Designer v10.12.02.4E

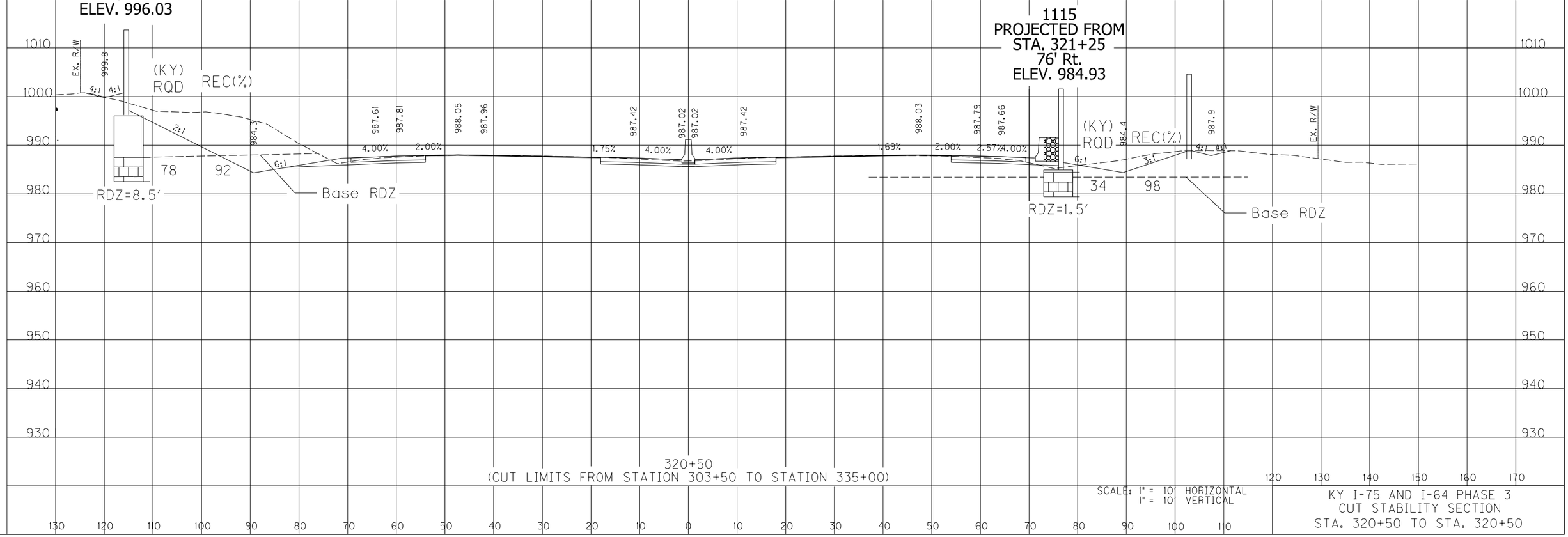
COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G18

CORE LOG STA. 320+50, 115' LT.

ELEVATION	DESCRIPTION
996.0 - 987.5	Overburden
987.5 - 982.5	Limestone: Medium gray, medium to coarse grained, bioclastic with dark gray, wavy shale beds, thinly bedded, moderately hard to hard, slightly weathered to fresh.

CORE LOG STA. 321+25, 76' RT.

ELEVATION	DESCRIPTION
984.9 - 984.4	Overburden
984.4 - 979.4	Limestone: Light to medium gray, fine to medium grained, thinly bedded, hard, fresh to moderately weathered with several iron stained joint surfaces and open vugs, bioclastic, with some dark gray wavy shale beds.



320+50
(CUT LIMITS FROM STATION 303+50 TO STATION 335+00)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 320+50 TO STA. 320+50

FILE NAME: C:\PWWORKING\EASTOI\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
SHEET NAME:
OpenRoads Designer v10.12.02.46

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G19

ASSUMED SOIL STRENGTH PARAMETERS	
SOIL	I
INTERMEDIATE TERM	$\bar{C}$=190 PSF $\bar{\Phi}$=29° γ=125 PCF
LONG TERM	$\bar{C}$=38 PSF $\bar{\Phi}$=29° γ=125 PCF

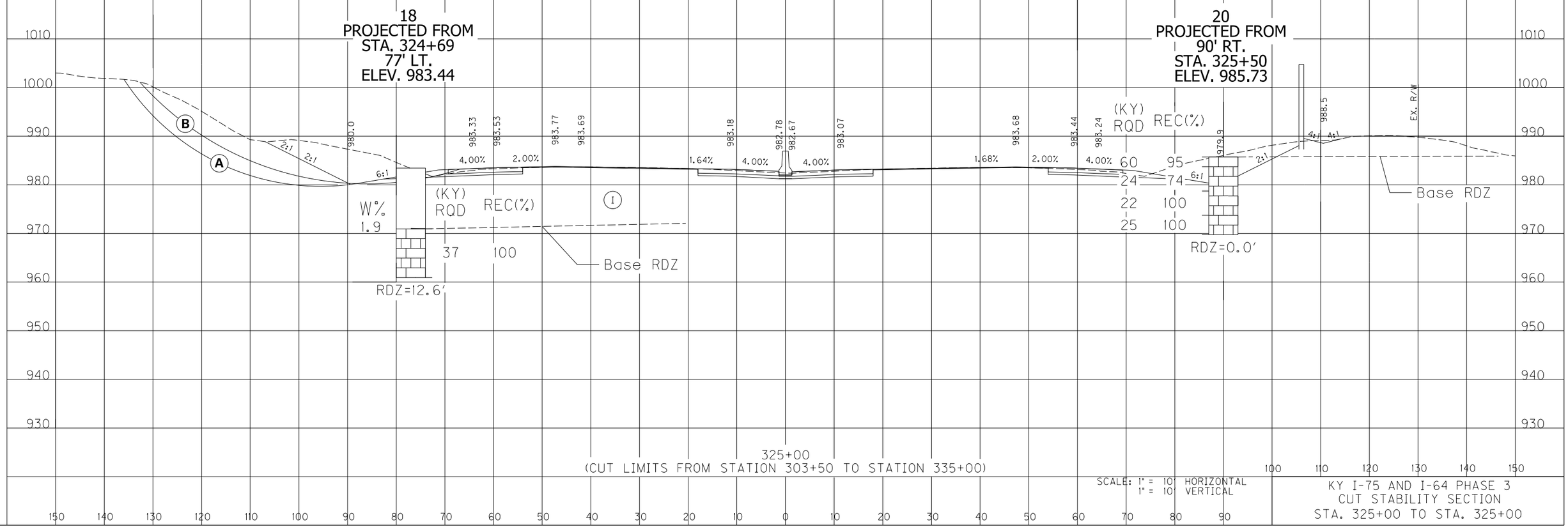
FACTORS OF SAFETY		
INTERMEDIATE TERM	A	2.0
LONG TERM	B	1.4

CORE LOG STA. 324+69, 77' LT.

ELEVATION	DESCRIPTION
983.4 - 970.9	Overburden
970.9 - 960.9	Limestone: Light to medium gray, medium to course grained, thinly bedded, slightly to moderately weathered, bioclastic, moderately hard with dark gray, wavy shale beds.

CORE LOG STA. 325+50, 90' RT.

ELEVATION	DESCRIPTION
985.7 - 969.7	Limestone: Light to medium gray, moderately weathered, moderately hard, highly reactive, fossiliferous and crystalline with thin shale wisps, thinly bedded with open hard joints.



325+00
(CUT LIMITS FROM STATION 303+50 TO STATION 335+00)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 325+00 TO STA. 325+00

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G20

CORE LOG STA. 330+00, 120' LT.

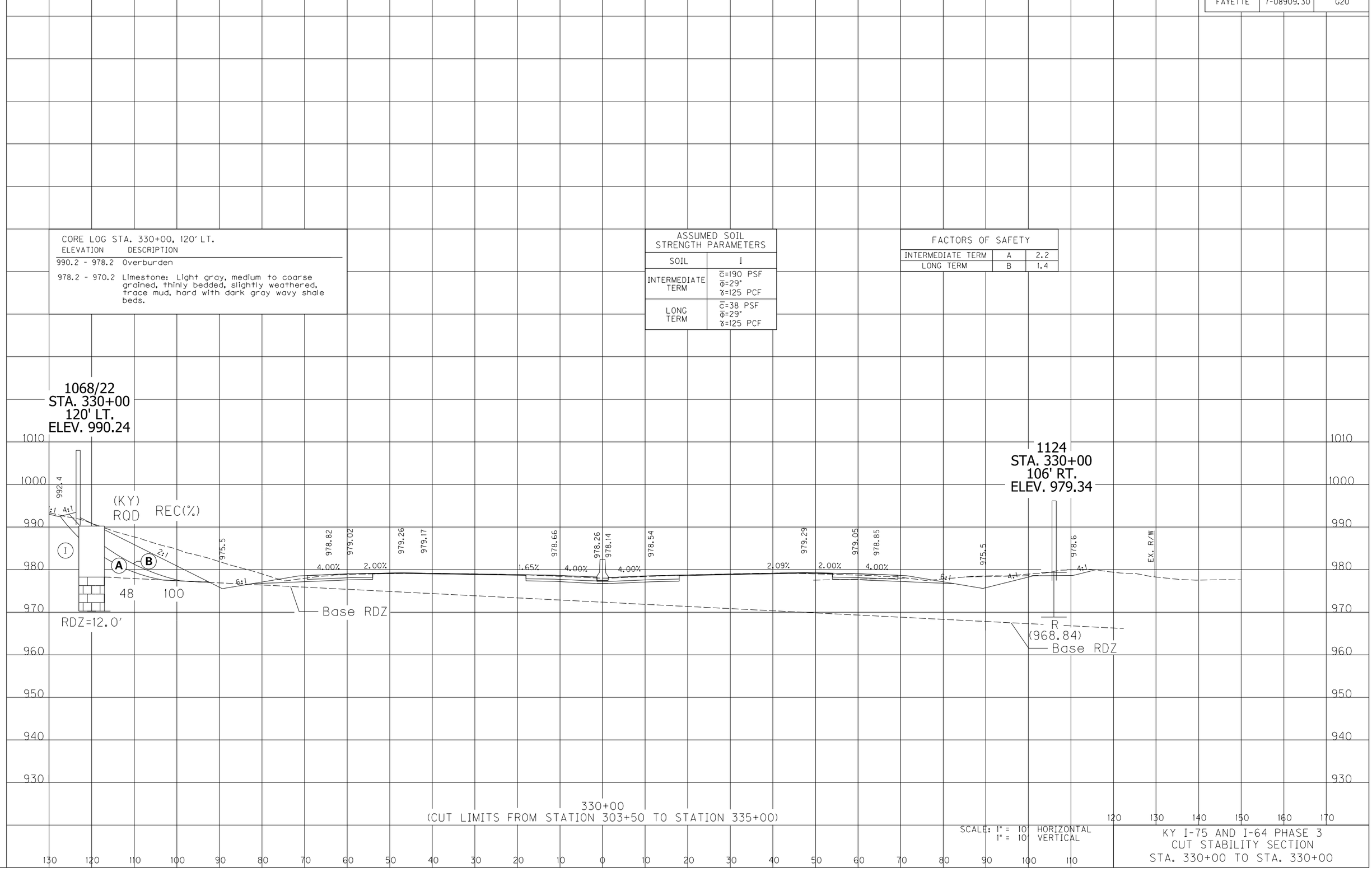
ELEVATION	DESCRIPTION
990.2 - 978.2	Overburden
978.2 - 970.2	Limestone: Light gray, medium to coarse grained, thinly bedded, slightly weathered, trace mud, hard with dark gray wavy shale beds.

ASSUMED SOIL STRENGTH PARAMETERS

SOIL	I
INTERMEDIATE TERM	$\bar{C}$=190 PSF Φ=29° γ=125 PCF
LONG TERM	$\bar{C}$=38 PSF Φ=29° γ=125 PCF

FACTORS OF SAFETY

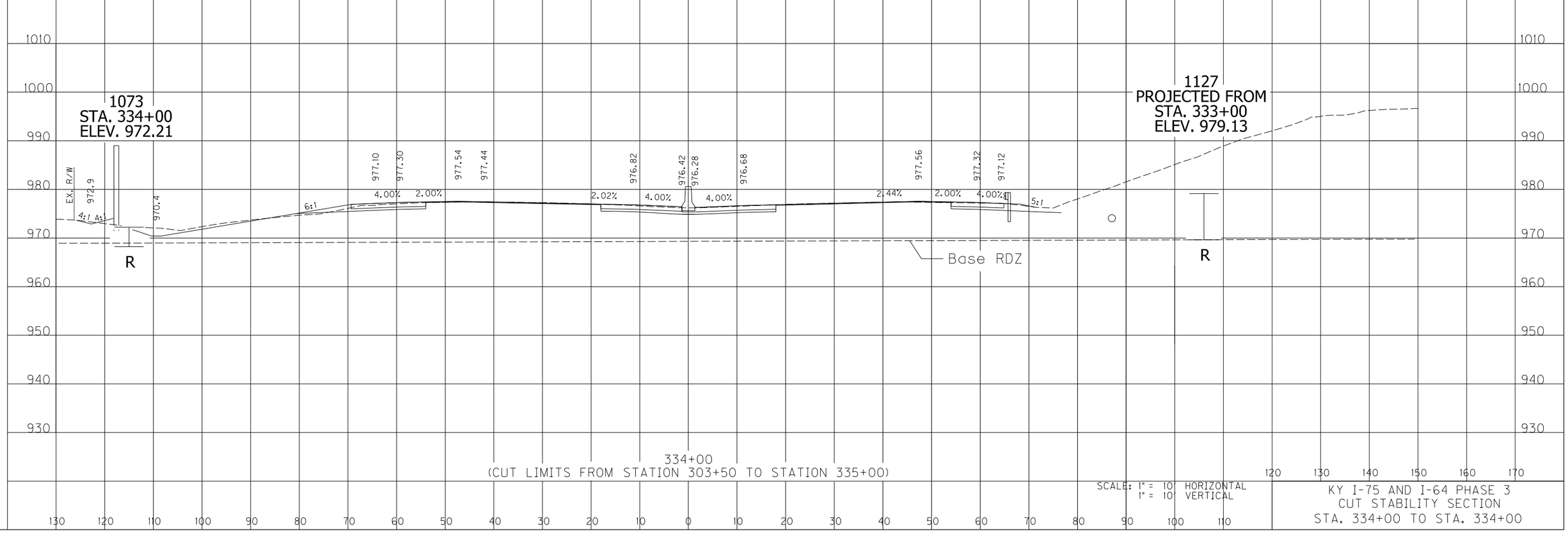
INTERMEDIATE TERM	A	2.2
LONG TERM	B	1.4



SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 330+00 TO STA. 330+00

COUNTY OF	ITEM NO.	SHEET NO.
FAYETTE	7-08909.30	G21



334+00
(CUT LIMITS FROM STATION 303+50 TO STATION 335+00)

SCALE: 1" = 10' HORIZONTAL
1" = 10' VERTICAL

KY I-75 AND I-64 PHASE 3
CUT STABILITY SECTION
STA. 334+00 TO STA. 334+00

FILE NAME: C:\PWWORKING\EASTON\D2089637\PHASE 3 I-64_I-75 GEOTECH CROSS SECTIONS.DGN
USER: WSHUECRA
DATE PLOTTED: January 5, 2024
SHEET NAME:
OpenRoads Designer v10.12.02.4E

Attachment C: Drillers Subsurface Logs

333 West Vine Street, Suite 1400, Lexington, KY 40507-1681
(859) 629-4800

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1***	Immediate Water Depth ***NA***	Start Date ***06/06/2023***	Hole Type ***fill profile***
Surface Elevation ***974.6'***	Static Water Depth ***NA***	End Date ***06/06/2023***	Rig_Number ***BD-1***
Total Depth ***2.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***275+00.00 105.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
972.1	2.5	Brown, lean clay Bag #1	NMC #1 @ 2'	25.0
		(Refusal @ 2.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***2***	Immediate Water Depth ***NA***	Start Date ***06/05/2023***	Hole Type ***fill profile***
Surface Elevation ***962.2'***	Static Water Depth ***NA***	End Date ***06/05/2023***	Rig_Number ***BD-1***
Total Depth ***4.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***24+00.00 100.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
958.2	4.0	Brown, silty lean clay Bag #2	NMC #1 @ 2'	36.0
		(Refusal @ 4)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***3***	Immediate Water Depth ***NA***	Start Date ***06/09/2023***	Hole Type ***fill profile***
Surface Elevation ***960.9'***	Static Water Depth ***NA***	End Date ***06/09/2023***	Rig_Number ***BD-1***
Total Depth ***2.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***27+00.00 80.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
958.4	2.5	Brown, silty clay Bag #3 (Refusal @ 2.5)	NMC #1 @ 2'	58.6

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***4***	Immediate Water Depth ***NA***	Start Date ***06/05/2023***	Hole Type ***fill profile***
Surface Elevation ***975.8'***	Static Water Depth ***NA***	End Date ***06/05/2023***	Rig_Number ***BD-1***
Total Depth ***2.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***52+72.00 45.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
973.3	2.5	Soil Type #4	NMC #1 @ 2'	6.3
		(Refusal @ 2.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***5***	Immediate Water Depth ***NA***	Start Date ***06/05/2023***	Hole Type ***fill profile***
Surface Elevation ***961.4'***	Static Water Depth ***NA***	End Date ***06/05/2023***	Rig_Number ***BD-1***
Total Depth ***3.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***56+72.00 100.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
957.9	3.5	Dark brown, silty lean clay Bag #4	NMC #1 @ 2'	26.2
		(Refusal @ 3.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***6***	Immediate Water Depth ***NA***	Start Date ***05/30/2023***	Hole Type ***fill profile***
Surface Elevation ***970.0'***	Static Water Depth ***NA***	End Date ***05/30/2023***	Rig_Number ***BD-1***
Total Depth ***2.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***60+72.00 100.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
967.5	2.5	Soil Type #4 (Refusal @ 2.5)	NMC #1 @ 2'	

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***7***	Immediate Water Depth ***NA***	Start Date ***06/06/2023***	Hole Type ***fill profile***
Surface Elevation ***980.2'***	Static Water Depth ***NA***	End Date ***06/06/2023***	Rig_Number ***BD-1***
Total Depth ***2.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***20+00.00 80.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
977.7	2.5	Soil Type #2 (Refusal @ 2.5)	NMC #1 @ 2'	23.5

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***11***	Immediate Water Depth ***NA***	Start Date ***06/17/2023***	Hole Type ***cut profile***
Surface Elevation ***1004.9'***	Static Water Depth ***NA***	End Date ***06/17/2023***	Rig_Number ***TD-4***
Total Depth ***1.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***305+00.00 89.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
1003.9	1.0	Soil Type #10 (Refusal @ 1')	NMC #1 @ 0.5'	20.6

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***13***	Immediate Water Depth ***NA***	Start Date ***03/07/2023***	Hole Type ***cut profile***
Surface Elevation ***1002.3'***	Static Water Depth ***NA***	End Date ***03/07/2023***	Rig_Number ***BD-1***
Total Depth ***3.6'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***309+00.00 89.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
998.7	3.6	Brown. lean clay w/trace silt Bag #10	NMC #1 @ 2'	26.2
		(Refusal @ 3.6)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***14***	Immediate Water Depth ***NA***	Start Date ***02/17/2023***	Hole Type ***cut profile***
Surface Elevation ***1001.5'***	Static Water Depth ***NA***	End Date ***02/17/2023***	Rig_Number ***TD-6***
Total Depth ***7.5'***	Driller ***Gilbert, Tony***	Latitude(83)	
Location ***313+00.00 89.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
		Brown, clayey silt with trace sand Soil Type #10	NMC #1 @ 2'	29.5
994.0	7.5	(Refusal @ 7.5)	NMC #2 @ 7'	28.2

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***16***	Immediate Water Depth ***NA***	Start Date ***03/21/2023***	Hole Type ***cut profile***
Surface Elevation ***987.0'***	Static Water Depth ***NA***	End Date ***03/21/2023***	Rig_Number ***BD-1***
Total Depth ***1.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***317+00.00 89.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
985.5	1.5	Brown and tan, silt w/trace clay Bag #11 (Refusal @ 1.5)	NMC #1 @ 1'	31.3

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***18***	Immediate Water Depth ***NA***	Start Date ***04/18/2023***	Hole Type ***core***
Surface Elevation ***983.4'***	Static Water Depth ***NA***	End Date ***04/18/2023***	Rig_Number ***BD-1***
Total Depth ***22.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***324+69.00 77.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
		Overburden.						
970.9	12.5	(Begin Core)						
		Rock Core	SS-1	12.5-12.6	0.1	50/0.10'	SPT	
		Gray shale.						
960.9	22.5							22.5
		(Bottom of Hole 22.5')						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***19***	Immediate Water Depth ***NA***	Start Date ***03/21/2023***	Hole Type ***cut profile***
Surface Elevation ***983.8'***	Static Water Depth ***NA***	End Date ***03/21/2023***	Rig_Number ***BD-1***
Total Depth ***4.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***325+00.00 89.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
979.8	4.0	Brown, lean clay w/trace silt Bag #13	NMC #1 @ 2'	30.1
		(Refusal @ 4)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***20***	Immediate Water Depth ***NA***	Start Date ***02/15/2023***	Hole Type ***core***
Surface Elevation ***985.7'***	Static Water Depth ***NA***	End Date ***02/15/2023***	Rig_Number ***BD-1***
Total Depth ***16.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***325+50.00 90.0' Rt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) Run (ft)	Rec. (ft) Rec (ft)	SPT Blows Rec (%)	Sample Type SDI (JS)	Remarks
		Overburden						
		Rock Core						
		(Begin Core)	60 / 60	2.0	1.8	90		2.0
5			24 / 24	5.0	3.8	76		5
		Gray limestone.						7.0
10			16 / 22	5.0	5.0	100		10
								12.0
15			20 / 25	4.0	4.0	100		15
969.7	16.0							16.0
20		(Bottom of Hole 16.0')						20
25								25
30								30
35								35
40								40
45								45
50								50

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***23***	Immediate Water Depth ***NA***	Start Date ***03/15/2023***	Hole Type ***cut profile***
Surface Elevation ***976.0'***	Static Water Depth ***NA***	End Date ***03/15/2023***	Rig_Number ***BD-1***
Total Depth ***4.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***333+00.00 89.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
971.5	4.5	Light brown, lean clay w/silt Bag #15	NMC #1 @ 2'	29.1
		(Refusal @ 4.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***24***	Immediate Water Depth ***NA***	Start Date ***02/20/2023***	Hole Type ***cut profile***
Surface Elevation ***972.9'***	Static Water Depth ***NA***	End Date ***02/20/2023***	Rig_Number ***BD-1***
Total Depth ***9.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***337+00.00 89.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
			NMC #1 @ 2'	25.5
5		Brown, clay Bag #16		
			NMC #2 @ 7'	23.1
963.9	9.0			
10		(Refusal @ 9)		
15				
20				
25				
30				
35				
40				
45				
50				

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1001***	Immediate Water Depth ***NA***	Start Date ***05/22/2023***	Hole Type ***sample***
Surface Elevation ***994.3'***	Static Water Depth ***NA***	End Date ***05/22/2023***	Rig_Number ***BD-1***
Total Depth ***44.1'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***276+50.00 60.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No.	Depth (ft) Run (ft)	Rec. (ft) Rec (ft)	SPT Blows Rec (%)	Sample Type SDI (JS)	Std/Ky RQD	Remarks
		Medium stiff, brown, moist, fat clay (fill).	ST-1	2.0-4.0	2.0		ST		
5 988.8	5.5								5
986.8	7.5	Medium stiff, brown, moist, clay (fill).	ST-2	7.0-7.5	0.4		ST		
		Medium stiff, brown, moist, clay with limestone fragments (fill).	SS-1	7.5-9.0	1.2	16-8-5	SPT		
10 983.8	10.5								10
			SS-2	12.0-13.5	0.3	10-5-6	SPT		
15		Brown, wet, clay with limestone fragments.							15
			SS-3	17.0-18.5	1.3	5-7-36	SPT		
20 974.1	20.3								20
		Stiff, brown, moist, clay.	SS-4	22.0-23.5	1.5	3-5-8	SPT		
25 969.1	25.3								25
		Stiff, brown, moist, clay with limestone fragments.	ST-3	27.0-27.5	0.5		ST		
			SS-5	27.5-29.0		13-13-8	SPT		
30 963.8	30.5								30
		Brown and gray, moist, silty clay.	ST-4	32.0-34.0	1.0		ST		
35 958.8	35.5								35
		Stiff, brown, clay.	ST-5	37.0-39.0	1.5		ST		
40 953.8	40.5								40
		Brown, silty sandy clay.	ST-6	42.0-43.5	1.3		ST		
950.3	44.0								
45 950.2	44.1	Gray shale.	SS-6	44.0-44.1	0.0	50/0.10'	SPT		45
		(Bottom of Hole 44.1') (Refusal @ 44)							
50									50

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1003***	Immediate Water Depth ***NA***	Start Date ***05/25/2023***	Hole Type ***sample***
Surface Elevation ***1009.7'***	Static Water Depth ***NA***	End Date ***05/25/2023***	Rig_Number ***BD-1***
Total Depth ***46.2'***	Driller ***Pattison, Preston***	Latitude(83)	
Location ***23+36.00 6.0' Rt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No.	Depth (ft)	Rec. (ft)	SPT Blows	Sample Type	Remarks
		Overburden						
		Rock Core	Std/Ky RQD	Run (ft)	Rec (ft)	Rec (%)	SDI (JS)	
			E-3101-1	2.0-4.0	1.1		ST	
			E-3101-2	7.0-7.8	0.8		ST	
			SPT-1	7.8-9.3	0.3	29-25-20	SPT	
		Brown, moist, clay with sand and gravel.	SPT-2	12.0-13.5	0.5	7-4-7	SPT	
			E-3101-3	17.0-19.0	1.5		ST	
985.7	24.0		E-3101-4	22.0-23.5	1.2		ST	
			SPT-3	27.0-28.5	1.3	7-9-11	SPT	
		Brown, sand with gravel.	SPT-4	32.0-33.5	0.5	12-9-14	SPT	
973.7	36.0		SPT-5	37.0-38.5	1.2	19-14-15	SPT	
		Brown, gravelly clay.	E-3101-5	42.0-44.0	2.0		ST	
963.7	46.0		SPT-6	45.0-45.3	0.0	50/0.25'	SPT	
963.5	46.2	Gray limestone.	SPT-7	46.0-46.2	0.1	50/0.17'	SPT	

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1003***	Immediate Water Depth ***NA***	Start Date ***05/25/2023***	Hole Type ***sample***
Surface Elevation ***1009.7'***	Static Water Depth ***NA***	End Date ***05/25/2023***	Rig_Number ***BD-1***
Total Depth ***46.2'***	Driller ***Pattison, Preston***	Latitude(83)	
Location ***23+36.00 6.0' Rt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
55		(Bottom of Hole 46.2') (Refusal @ 46)						55
60								60
65								65
70								70
75								75
80								80
85								85
90								90
95								95
100								100

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1011/8***	Immediate Water Depth ***NA***	Start Date ***06/12/2023***	Hole Type ***cut profile***
Surface Elevation ***1016.8'***	Static Water Depth ***NA***	End Date ***06/12/2023***	Rig_Number ***TD-4***
Total Depth ***42.8'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***292+00.00 5.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
1011.8	5.0	Brown, lean clay Bag #5	NMC #1 @ 4'	23.3
		Brown, lean clay Bag #6	NMC #2 @ 7'	23.1
1006.8	10.0			
		Red and brown, silty lean clay Bag #7	NMC #3 @ 12'	23.9
1001.8	15.0			
		Brown and tan, lean clay Soil Type #6	NMC #4 @ 17'	25.5
996.8	20.0			
		Brown clay w/trace silt Soil Type #6	NMC #5 @ 22'	23.4
991.8	25.0			
		Brown, lean clay Soil Type #6	NMC #6 @ 27'	25.2
986.8	30.0			
		Dark brown, silty lean clay Soil Type #7	NMC #7 @ 32'	23.4
981.8	35.0			
		Dark brown, silty lean clay Soil Type #7	NMC #8 @ 37'	24.0
974.0	42.8			
		(Refusal @ 42.8)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 1/15/24

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1019***	Immediate Water Depth ***NA***	Start Date ***05/24/2023***	Hole Type ***sample***
Surface Elevation ***1017.2'***	Static Water Depth ***NA***	End Date ***05/24/2023***	Rig_Number ***BD-1***
Total Depth ***43.0'***	Driller ***Chris, Lake***	Latitude(83)	
Location ***293+00.00 60.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
			ST-1	2.0-4.0	0.8		ST	
5								5
		Brown, clay with limestone floaters (fill).						
			ST-2	7.0-9.0	1.0		ST	
10								10
1005.2	12.0							
1003.7	13.5	Asphalt and base (fill).	SS-1	12.0-13.5	1.3	15-17-23	SPT	
15								15
			ST-3	17.0-19.0	0.7		ST	
20		Brown, clay with limestone floaters (fill).						20
			ST-4	22.0-23.0	0.6		ST	
			SS-2	23.0-24.5	0.9	8-9-7	SPT	
25								25
991.5	25.8							
			ST-5	27.0-29.0	1.5		ST	
30								30
			ST-6	32.0-34.0	1.6		ST	
35		Medium stiff, brown, clay with limestone floaters.						35
			ST-7	37.0-39.0	2.0		ST	
40								40
975.2	42.0							
974.2	43.0	Brown, weathered shale (bedrock).	ST-8	42.0-43.0	0.9		ST	
45								45
		(Bottom of Hole 43.0') (No Refusal)						
50								50

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1023/9***	Immediate Water Depth ***NA***	Start Date ***04/14/2023***	Hole Type ***cut profile***
Surface Elevation ***1013.7'***	Static Water Depth ***NA***	End Date ***04/14/2023***	Rig_Number ***BD-1***
Total Depth ***30.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***297+00.00 65.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
1006.7	7.0	Tan and gray, silty lean clay Bag #8	NMC #1 @ 3'	15.0
1001.7	12.0	Gray and tan, silt w/trace clay Soil Type #8	NMC #2 @ 8'	12.8
996.7	17.0	Light brown, lean clay w/trace silt Soil Type #8	NMC #3 @ 13'	23.2
991.7	22.0	Light brown, lean clay w/trace silt Soil Type #8	NMC #4 @ 18'	23.4
986.7	27.0	Brown, silty clay w/trace sand Soil Type #8	NMC #5 @ 23'	25.8
983.7	30.0	Brown, silty clay w/trace sand Soil Type #8	NMC #6 @ 28'	27.3
		(Refusal @ 30)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1035/12***	Immediate Water Depth ***NA***	Start Date ***03/30/2023***	Hole Type ***core and sample***
Surface Elevation ***1011.1'***	Static Water Depth ***NA***	End Date ***03/30/2023***	Rig_Number ***BD-1***
Total Depth ***22.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***307+50.00 115.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No.	Depth (ft)	Rec. (ft)	SPT Blows	Sample Type	Remarks
		Overburden						
		Medium stiff, brown, moist, fat clay.	ST-1	2.0-4.0	1.6		ST	
1004.1	7.0	(Begin Core)						
			Std/Ky RQD	Run (ft)	Rec (ft)	Rec (%)	SDI (JS)	
		Gray limestone with shale.	82 / 51	6.8	6.8	100		13.8
			83 / 71	8.2	8.2	100		
989.1	22.0							22.0
		(Bottom of Hole 22.0')						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Project ID: ***S-011-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure Wall***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1040***	Immediate Water Depth ***NA***	Start Date ***03/29/2023***	Hole Type ***core***
Surface Elevation ***1013.7'***	Static Water Depth ***NA***	End Date ***03/29/2023***	Rig_Number ***BD-1***
Total Depth ***20.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***311+25.00 115.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
		Brown, moist, fat clay.						
999.2	14.5	(Begin Core)						
		Rock Core						
		Gray limestone with shale.	62 / 56	5.5	5.5	100		
993.7	20.0							20.0
		(Bottom of Hole 20.0')						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1045/15***	Immediate Water Depth ***NA***	Start Date ***03/27/2023***	Hole Type ***core***
Surface Elevation ***1005.0'***	Static Water Depth ***NA***	End Date ***03/27/2023***	Rig_Number ***BD-1***
Total Depth ***20.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***315+00.00 115.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
995.0	10.0	Medium stiff to stiff, brown, moist, fat clay. (Begin Core)						
985.0	20.0	Gray limestone with shale.	67 / 45	10.0	10.0	100		20.0
		(Bottom of Hole 20.0')						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1056***	Immediate Water Depth ***NA***	Start Date ***04/18/2023***	Hole Type ***sounding***
Surface Elevation ***988.0'***	Static Water Depth ***NA***	End Date ***04/18/2023***	Rig_Number ***BD-1***
Total Depth ***10.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***323+75.00 90.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
		Medium stiff, brown, moist, clay.						
977.5	10.5	(Refusal)						
		Rock Core						
		(Bottom of Hole 10.5') (Refusal @ 10.5)						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1057***	Immediate Water Depth ***NA***	Start Date ***04/18/2023***	Hole Type ***sounding***
Surface Elevation ***983.2'***	Static Water Depth ***NA***	End Date ***04/18/2023***	Rig_Number ***BD-1***
Total Depth ***9.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***324+25.00 76.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
		Medium stiff, brown, wet, fat clay.						
974.7	8.5	(Refusal)						
974.2	9.0	Gray, limestone with shale (bedrock).						
		Rock Core						
		(Bottom of Hole 9.0') (Refusal @ 8.5)						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1059***	Immediate Water Depth ***NA***	Start Date ***06/06/2023***	Hole Type ***cut profile***
Surface Elevation ***994.3'***	Static Water Depth ***NA***	End Date ***06/06/2023***	Rig_Number ***Hand Equipment***
Total Depth ***10.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***324+69.00 115.0' Lt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
989.3	5.0	Bag #18	NMC #1 @ 2'	21.8
984.3	10.0	Bag #19	NMC #2 @ 7'	23.1
		(No Refusal)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1061***	Immediate Water Depth ***NA***	Start Date ***04/18/2023***	Hole Type ***sounding***
Surface Elevation ***985.6'***	Static Water Depth ***NA***	End Date ***04/18/2023***	Rig_Number ***BD-1***
Total Depth ***14.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***325+50.00 90.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Brown, moist, fat clay with limestone fragments.						
972.6	13.0	(Refusal)						
971.6	14.0	Gray, limestone with shale (bedrock).						
		(Bottom of Hole 14.0') (Refusal @ 13)						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 12/19/23

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1063***	Immediate Water Depth ***NA***	Start Date ***04/18/2023***	Hole Type ***sounding***
Surface Elevation ***980.1'***	Static Water Depth ***NA***	End Date ***04/18/2023***	Rig_Number ***BD-1***
Total Depth ***8.8'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***326+25.00 73.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
		Overburden.						
972.1	8.0	(Refusal)						
		Rock Core						
971.3	8.8	Brown, weathered shale with limestone (bedrock).						
		(Bottom of Hole 8.8') (Refusal @ 8)						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1068/22***	Immediate Water Depth ***NA***	Start Date ***03/16/2023***	Hole Type ***core***
Surface Elevation ***990.2'***	Static Water Depth ***NA***	End Date ***03/16/2023***	Rig_Number ***BD-1***
Total Depth ***20.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***330+00.00 120.0' Lt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Overburden						
978.2	12.0	Brown, moist, clay. (Begin Core)						
		Rock Core						
970.2	20.0	Gray shale with limestone.	56 / 48	8.0	8.0	100		20.0
		(Bottom of Hole 20.0')						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1083/10***	Immediate Water Depth ***NA***	Start Date ***06/15/2023***	Hole Type ***cut profile***
Surface Elevation ***1006.3'***	Static Water Depth ***NA***	End Date ***06/15/2023***	Rig_Number ***TD-4***
Total Depth ***14.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***300+90.00 71.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
		Brown, silty lean clay w/rock Bag #9	NMC #1 @ 5'	22.5
996.3	10.0			
		Brown, lean clay w/trace silt Soil Type #9	NMC #2 @ 12'	29.5
991.8	14.5			
		(Refusal @ 14.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Project ID: ***S-012-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure Wall*** Project Manager:

Hole Number ***1104***	Immediate Water Depth ***NA***	Start Date ***02/14/2023***	Hole Type ***sample***
Surface Elevation ***1008.8'***	Static Water Depth ***NA***	End Date ***02/14/2023***	Rig_Number ***TD-6***
Total Depth ***9.9'***	Driller ***Gilbert, Tony***	Latitude(83)	
Location ***315+45.00 115.0' Rt.***		Longitude(83)	

Lithology Elevation	Lithology Depth	Description (Overburden / Rock Core)	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
		Stiff, brown, moist, clay.	1	2.0-4.0	1.3		ST	
			2	7.0-9.0	2.0		ST	
998.9	9.9							
		(Bottom of Hole 9.9') (Refusal @ 9.9)						

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1113/17***	Immediate Water Depth ***NA***	Start Date ***06/08/2023***	Hole Type ***cut profile***
Surface Elevation ***985.6'***	Static Water Depth ***NA***	End Date ***06/08/2023***	Rig_Number ***BD-1***
Total Depth ***6.5'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***320+25.00 76.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
		Brown and tan, silty clay Bag #12	NMC #1 @ 2'	23.9
979.1	6.5	(Refusal @ 6.5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1123/21***	Immediate Water Depth ***NA***	Start Date ***02/17/2023***	Hole Type ***cut profile***
Surface Elevation ***980.3'***	Static Water Depth ***NA***	End Date ***02/17/2023***	Rig_Number ***BD-1***
Total Depth ***3.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***329+00.00 106.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
977.3	3.0	Brown and black, silt w/trace clay Bag #14	NMC #1 @ 2'	29.9
		(Refusal @ 3)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023*** Item Number: ***07-08909.30***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway*** Project Manager:

Hole Number ***1134/25***	Immediate Water Depth ***NA***	Start Date ***02/21/2023***	Hole Type ***cut profile***
Surface Elevation ***970.6'***	Static Water Depth ***NA***	End Date ***02/21/2023***	Rig_Number ***BD-1***
Total Depth ***9.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***344+70.00 77.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
5		Light brown, silty lean clay Bag #17	NMC #1 @ 5'	26.8
961.6	9.0	(Refusal @ 9)		
10				
15				
20				
25				
30				
35				
40				
45				
50				

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

SUBSURFACE PROFILE LOG

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Hole Number ***1142/26***	Immediate Water Depth ***NA***	Start Date ***02/24/2023***	Hole Type ***cut profile***
Surface Elevation ***976.8'***	Static Water Depth ***NA***	End Date ***02/24/2023***	Rig_Number ***BD-1***
Total Depth ***5.0'***	Driller ***Lake, Chris***	Latitude(83)	
Location ***352+60.00 71.0' Rt.***	Geologist	Longitude(83)	

Elevation	Depth	Description	Jar #	NMC (%)
971.8	5.0	Soil Type #17	NMC #1 @ 2'	
		(Refusal @ 5)		

Bag # - indicates bag was obtained in this boring
Soil Type # - references soil type from bag sample obtained in a previous boring

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

DRILLER'S SUBSURFACE LOG

Printed: 6/9/21

Project ID: ***S-025-2021***	***Fayette - I-75 MP 111.0-117.7***	Project Type: ***Structure Wall***
Item Number: ***07-08909.00***		Project Manager:

Hole Number ***NW-1079***	Immediate Water Depth ***NA***	Start Date ***04/06/2021***	Hole Type ***core and sample***
Surface Elevation ***973.3'***	Static Water Depth ***NA***	End Date ***04/06/2021***	Rig_Number ***TD-6***
Total Depth ***6.8'***	Driller ***Gilbert, Tony***	Latitude(83) ***38.080662***	
Location ***268+99.00 93.0' Lt.***		Longitude(83) ***-84.459009***	

Lithology Elevation	Lithology Depth	Description	Overburden / Rock Core	Sample No. / Std/Ky RQD	Depth (ft) / Run (ft)	Rec. (ft) / Rec (ft)	SPT Blows / Rec (%)	Sample Type / SDI (JS)	Remarks
971.5	1.8	Overburden.	(Begin Core)						
		Gray limestone.		63 / -	2.7	2.4	89		4.5
966.5	6.8			35 / -	2.3	2.3	100		6.8
		(Bottom of Hole 6.8')							

Attachment D: Laboratory Testing

333 West Vine Street, Suite 1400, Lexington, KY 40507-1681
(859) 629-4800

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	275+00 105.0' Lt.	Hole #:	1
Lab ID#:	1	Depth (ft):	0-2.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	96.8	3/8"	83.6	No. 4	73.8
No. 10	60.3	No. 40	48.9	No. 200	42.5
0.002 mm	9.6				

Gravel (-3" + No. 10)	39.7	Coarse Sand (-No. 10 + No. 40)	11.4
Fine Sand (-No. 40 +No. 200)	6.4	Silts (-No. 200 + 0.002mm)	32.9
Clay (-0.002mm)	9.6	Colloids (-0.001mm)	7.1

Liquid Limit:	33	Plastic Limit:	23	Plasticity Index:	10
		Activity:	1.04	Spec. Gravity:	2.692

AASHTO Classification:	A-4 (1)
Unified Classification:	SC

D 10 (mm):	0.002	NAT MT =	25.00
D 30 (mm):	0.019	LIQ =	0.19962
D 50 (mm):	0.493		
D 60 (mm):	1.910		
D 90 (mm):	13.308		
D 95 (mm):	17.322		
		Cu =	916.90051
Sieve Type:	With Gravel		
Notes:		Cc =	0.08947
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	24+00 100.0' Rt.	Hole #:	2
Lab ID#:	2	Depth (ft):	0-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.2
No. 10	95.1	No. 40	85.2	No. 200	79.6
0.002 mm	9.3				

Gravel (-3" + No. 10)	4.9	Coarse Sand (-No. 10 + No. 40)	9.8
Fine Sand (-No. 40 +No. 200)	5.6	Silts (-No. 200 + 0.002mm)	70.3
Clay (-0.002mm)	9.3	Colloids (-0.001mm)	5.3

Liquid Limit:	40	Plastic Limit:	26	Plasticity Index:	14
		Activity:	1.50	Spec. Gravity:	2.436

AASHTO Classification:	A-6 (12)
Unified Classification:	ML

D 10 (mm):	0.002	NAT MT =	35.97
D 30 (mm):	0.006	LIQ =	0.71215
D 50 (mm):	0.016		
D 60 (mm):	0.027		
D 90 (mm):	0.902		
D 95 (mm):	1.981		
		Cu =	13.17193
Sieve Type:	With Gravel		
Notes:		Cc =	0.59713
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	27+00 80.0' Rt.	Hole #:	3
Lab ID#:	3	Depth (ft):	0-2.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	99.5	No. 40	90.5	No. 200	86.4
0.002 mm	13.3				

Gravel (-3" + No. 10)	0.5	Coarse Sand (-No. 10 + No. 40)	8.9
Fine Sand (-No. 40 +No. 200)	4.1	Silts (-No. 200 + 0.002mm)	73.1
Clay (-0.002mm)	13.3	Colloids (-0.001mm)	9.1

Liquid Limit:	44	Plastic Limit:	34	Plasticity Index:	10
		Activity:	0.75	Spec. Gravity:	2.620

AASHTO Classification:	A-5 (11)
Unified Classification:	ML

D 10 (mm):	0.001	NAT MT =	58.55
D 30 (mm):	0.005	LIQ =	2.45512
D 50 (mm):	0.012		
D 60 (mm):	0.020		
D 90 (mm):	0.340		
D 95 (mm):	0.923		
		Cu =	17.48174
Sieve Type:	With Gravel		
Notes:		Cc =	0.89240
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	56+72 100.0' Rt.	Hole #:	5
Lab ID#:	4	Depth (ft):	0-3.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	98.1	No. 4	94.0
No. 10	87.5	No. 40	71.5	No. 200	59.5
0.002 mm	11.3				

Gravel (-3" + No. 10)	12.5	Coarse Sand (-No. 10 + No. 40)	16.0
Fine Sand (-No. 40 +No. 200)	12.0	Silts (-No. 200 + 0.002mm)	48.3
Clay (-0.002mm)	11.3	Colloids (-0.001mm)	7.4

Liquid Limit:	37	Plastic Limit:	24	Plasticity Index:	13
		Activity:	1.15	Spec. Gravity:	2.749

AASHTO Classification:	A-6 (6)
Unified Classification:	CL

D 10 (mm):	0.002	NAT MT =	26.18
D 30 (mm):	0.008	LIQ =	0.16757
D 50 (mm):	0.037		
D 60 (mm):	0.080		
D 90 (mm):	2.779		
D 95 (mm):	5.591		
		Cu =	50.45241
Sieve Type:	With Gravel		
Notes:		Cc =	0.52251
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	292+00 5.0' Lt.	Hole #:	1011/8
Lab ID#:	5	Depth (ft):	3-5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	99.1	No. 4	97.8
No. 10	87.4	No. 40	70.9	No. 200	65.8
0.002 mm	28.5				

Gravel (-3" + No. 10)	12.6	Coarse Sand (-No. 10 + No. 40)	16.5
Fine Sand (-No. 40 +No. 200)	5.1	Silts (-No. 200 + 0.002mm)	37.3
Clay (-0.002mm)	28.5	Colloids (-0.001mm)	23.4

Liquid Limit:	38	Plastic Limit:	23	Plasticity Index:	15
		Activity:	0.53	Spec. Gravity:	2.788

AASHTO Classification:	A-6 (8)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	23.28
D 30 (mm):	0.002	LIQ =	0.01861
D 50 (mm):	0.016		
D 60 (mm):	0.043		
D 90 (mm):	2.491		
D 95 (mm):	3.776		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	292+00 5.0' Lt.	Hole #:	1011/8
Lab ID#:	6	Depth (ft):	5-10

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.8
No. 10	96.2	No. 40	86.2	No. 200	81.8
0.002 mm	34.9				

Gravel (-3" + No. 10)	3.8	Coarse Sand (-No. 10 + No. 40)	10.0
Fine Sand (-No. 40 +No. 200)	4.5	Silts (-No. 200 + 0.002mm)	46.9
Clay (-0.002mm)	34.9	Colloids (-0.001mm)	27.3

Liquid Limit:	40	Plastic Limit:	25	Plasticity Index:	15
		Activity:	0.43	Spec. Gravity:	2.779

AASHTO Classification:	A-6 (13)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	23.09
D 30 (mm):	0.001	LIQ =	-0.12727
D 50 (mm):	0.006		
D 60 (mm):	0.014		
D 90 (mm):	0.763		
D 95 (mm):	1.656		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	292+00 5.0' Lt.	Hole #:	1011/8
Lab ID#:	7	Depth (ft):	10-15

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	97.3	No. 40	84.6	No. 200	81.7
0.002 mm	33.5				

Gravel (-3" + No. 10)	2.7	Coarse Sand (-No. 10 + No. 40)	12.8
Fine Sand (-No. 40 +No. 200)	2.9	Silts (-No. 200 + 0.002mm)	48.2
Clay (-0.002mm)	33.5	Colloids (-0.001mm)	26.8

Liquid Limit:	38	Plastic Limit:	21	Plasticity Index:	17
		Activity:	0.51	Spec. Gravity:	2.748

AASHTO Classification:	A-6 (14)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	23.94
D 30 (mm):	0.001	LIQ =	0.17292
D 50 (mm):	0.007		
D 60 (mm):	0.015		
D 90 (mm):	0.823		
D 95 (mm):	1.510		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	297+00 65.0' Lt.	Hole #:	1023/9
Lab ID#:	8	Depth (ft):	0-7

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	88.6
3/4"	88.6	3/8"	85.4	No. 4	76.3
No. 10	54.9	No. 40	47.0	No. 200	41.1
0.002 mm	16.3				

Gravel (-3" + No. 10)	45.1	Coarse Sand (-No. 10 + No. 40)	7.9
Fine Sand (-No. 40 +No. 200)	5.9	Silts (-No. 200 + 0.002mm)	24.8
Clay (-0.002mm)	16.3	Colloids (-0.001mm)	12.7

Liquid Limit:	37	Plastic Limit:	33	Plasticity Index:	4
		Activity:	0.25	Spec. Gravity:	2.826

AASHTO Classification:	A-4 (0)
Unified Classification:	SM

D 10 (mm):	0.000	NAT MT =	14.99
D 30 (mm):	0.015	LIQ =	-4.50190
D 50 (mm):	0.765		
D 60 (mm):	2.460		
D 90 (mm):	27.260		
D 95 (mm):	36.919		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	300+90 71.0' Rt.	Hole #:	1083/10
Lab ID#:	9	Depth (ft):	0-10

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	98.2	No. 4	96.4
No. 10	91.8	No. 40	79.4	No. 200	72.9
0.002 mm	25.0				

Gravel (-3" + No. 10)	8.2	Coarse Sand (-No. 10 + No. 40)	12.4
Fine Sand (-No. 40 +No. 200)	6.5	Silts (-No. 200 + 0.002mm)	47.9
Clay (-0.002mm)	25.0	Colloids (-0.001mm)	17.7

Liquid Limit:	36	Plastic Limit:	22	Plasticity Index:	14
		Activity:	0.56	Spec. Gravity:	2.755

AASHTO Classification:	A-6 (9)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	22.47
D 30 (mm):	0.003	LIQ =	0.03374
D 50 (mm):	0.013		
D 60 (mm):	0.028		
D 90 (mm):	1.594		
D 95 (mm):	3.639		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	309+00 89.0' Rt.	Hole #:	13
Lab ID#:	10	Depth (ft):	0-3.6

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.9
No. 10	97.4	No. 40	92.1	No. 200	85.8
0.002 mm	43.0				

Gravel (-3" + No. 10)	2.6	Coarse Sand (-No. 10 + No. 40)	5.3
Fine Sand (-No. 40 +No. 200)	6.3	Silts (-No. 200 + 0.002mm)	42.9
Clay (-0.002mm)	43.0	Colloids (-0.001mm)	35.2

Liquid Limit:	47	Plastic Limit:	26	Plasticity Index:	21
		Activity:	0.49	Spec. Gravity:	2.795

AASHTO Classification:	A-7-6 (20)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	26.18
D 30 (mm):	0.000	LIQ =	0.00873
D 50 (mm):	0.004		
D 60 (mm):	0.008		
D 90 (mm):	0.236		
D 95 (mm):	0.988		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	317+00 89.0' Lt.	Hole #:	16
Lab ID#:	11	Depth (ft):	0-1.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.5
No. 10	96.8	No. 40	88.1	No. 200	78.0
0.002 mm	32.8				

Gravel (-3" + No. 10)	3.2	Coarse Sand (-No. 10 + No. 40)	8.7
Fine Sand (-No. 40 +No. 200)	10.1	Silts (-No. 200 + 0.002mm)	45.2
Clay (-0.002mm)	32.8	Colloids (-0.001mm)	27.1

Liquid Limit:	48	Plastic Limit:	29	Plasticity Index:	19
		Activity:	0.58	Spec. Gravity:	2.795

AASHTO Classification:	A-7-6 (16)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	31.27
D 30 (mm):	0.001	LIQ =	0.11933
D 50 (mm):	0.008		
D 60 (mm):	0.018		
D 90 (mm):	0.593		
D 95 (mm):	1.445		
		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	320+25 76.0' Rt.	Hole #:	1113/17
Lab ID#:	12	Depth (ft):	0-6.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.4
No. 10	91.4	No. 40	77.4	No. 200	68.6
0.002 mm	32.0				

Gravel (-3" + No. 10)	8.6	Coarse Sand (-No. 10 + No. 40)	14.1
Fine Sand (-No. 40 +No. 200)	8.8	Silts (-No. 200 + 0.002mm)	36.6
Clay (-0.002mm)	32.0	Colloids (-0.001mm)	26.7

Liquid Limit:	46	Plastic Limit:	28	Plasticity Index:	18
		Activity:	0.56	Spec. Gravity:	2.837

AASHTO Classification:	A-7-6 (12)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	23.92
D 30 (mm):	0.002	LIQ =	-0.22682
D 50 (mm):	0.012		
D 60 (mm):	0.032		
D 90 (mm):	1.706		
D 95 (mm):	2.947		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	325+00 89.0' Lt.	Hole #:	19
Lab ID#:	13	Depth (ft):	0-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	99.1	No. 4	98.2
No. 10	97.3	No. 40	91.0	No. 200	73.6
0.002 mm	32.7				

Gravel (-3" + No. 10)	2.7	Coarse Sand (-No. 10 + No. 40)	6.3
Fine Sand (-No. 40 +No. 200)	17.4	Silts (-No. 200 + 0.002mm)	40.9
Clay (-0.002mm)	32.7	Colloids (-0.001mm)	26.1

Liquid Limit:	50	Plastic Limit:	27	Plasticity Index:	23
		Activity:	0.70	Spec. Gravity:	2.868

AASHTO Classification:	A-7-6 (17)
Unified Classification:	CH

D 10 (mm):	0.000	NAT MT =	30.08
D 30 (mm):	0.002	LIQ =	0.13403
D 50 (mm):	0.009		
D 60 (mm):	0.022		
D 90 (mm):	0.383		
D 95 (mm):	1.131		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	329+00 106.0' Rt.	Hole #:	1123/21
Lab ID#:	14	Depth (ft):	0-3

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	94.0	No. 4	88.3
No. 10	83.1	No. 40	74.0	No. 200	62.7
0.002 mm	26.3				

Gravel (-3" + No. 10)	16.9	Coarse Sand (-No. 10 + No. 40)	9.2
Fine Sand (-No. 40 +No. 200)	11.2	Silts (-No. 200 + 0.002mm)	36.5
Clay (-0.002mm)	26.3	Colloids (-0.001mm)	23.5

Liquid Limit:	51	Plastic Limit:	31	Plasticity Index:	20
		Activity:	0.76	Spec. Gravity:	2.831

AASHTO Classification:	A-7-5 (12)
Unified Classification:	MH

D 10 (mm):	0.000	NAT MT =	29.89
D 30 (mm):	0.003	LIQ =	-0.05560
D 50 (mm):	0.021		
D 60 (mm):	0.057		
D 90 (mm):	5.856		
D 95 (mm):	10.690		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	333+00 89.0' Lt.	Hole #:	23
Lab ID#:	15	Depth (ft):	0-4.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	97.0	No. 40	90.1	No. 200	80.5
0.002 mm	42.9				

Gravel (-3" + No. 10)	3.0	Coarse Sand (-No. 10 + No. 40)	6.9
Fine Sand (-No. 40 +No. 200)	9.6	Silts (-No. 200 + 0.002mm)	37.6
Clay (-0.002mm)	42.9	Colloids (-0.001mm)	35.8

Liquid Limit:	47	Plastic Limit:	32	Plasticity Index:	15
		Activity:	0.35	Spec. Gravity:	2.865

AASHTO Classification:	A-7-5 (14)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	29.09
D 30 (mm):	0.000	LIQ =	-0.19425
D 50 (mm):	0.004		
D 60 (mm):	0.010		
D 90 (mm):	0.417		
D 95 (mm):	1.272		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	337+00 89.0' Rt.	Hole #:	24
Lab ID#:	16	Depth (ft):	0-9

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	99.6	No. 4	99.2
No. 10	96.2	No. 40	85.7	No. 200	80.8
0.002 mm	22.7				

Gravel (-3" + No. 10)	3.8	Coarse Sand (-No. 10 + No. 40)	10.5
Fine Sand (-No. 40 +No. 200)	4.9	Silts (-No. 200 + 0.002mm)	58.1
Clay (-0.002mm)	22.7	Colloids (-0.001mm)	18.9

Liquid Limit:	40	Plastic Limit:	25	Plasticity Index:	15
		Activity:	0.66	Spec. Gravity:	2.735

AASHTO Classification:	A-6 (13)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	24.29
D 30 (mm):	0.003	LIQ =	-0.04710
D 50 (mm):	0.011		
D 60 (mm):	0.020		
D 90 (mm):	0.799		
D 95 (mm):	1.675		

Sieve Type:	With Gravel	Cu =	
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	344+70 77.0' Rt.	Hole #:	1134/25
Lab ID#:	17	Depth (ft):	0-9

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.8
No. 10	97.7	No. 40	90.2	No. 200	85.0
0.002 mm	16.5				

Gravel (-3" + No. 10)	2.3	Coarse Sand (-No. 10 + No. 40)	7.4
Fine Sand (-No. 40 +No. 200)	5.2	Silts (-No. 200 + 0.002mm)	68.6
Clay (-0.002mm)	16.5	Colloids (-0.001mm)	13.8

Liquid Limit:	33	Plastic Limit:	24	Plasticity Index:	9
		Activity:	0.55	Spec. Gravity:	2.774

AASHTO Classification:	A-4 (8)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	26.84
D 30 (mm):	0.004	LIQ =	0.31602
D 50 (mm):	0.012		
D 60 (mm):	0.020		
D 90 (mm):	0.391		
D 95 (mm):	1.145		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	324+69 115.0' Lt.	Hole #:	1059
Lab ID#:	18	Depth (ft):	0-5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	99.3	No. 40	77.1	No. 200	74.7
0.002 mm	25.4				

Gravel (-3" + No. 10)	0.7	Coarse Sand (-No. 10 + No. 40)	22.2
Fine Sand (-No. 40 +No. 200)	2.4	Silts (-No. 200 + 0.002mm)	49.3
Clay (-0.002mm)	25.4	Colloids (-0.001mm)	20.7

Liquid Limit:	41	Plastic Limit:	26	Plasticity Index:	15
		Activity:	0.59	Spec. Gravity:	2.705

AASHTO Classification:	A-7-6 (11)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	21.81
D 30 (mm):	0.003	LIQ =	-0.27906
D 50 (mm):	0.012		
D 60 (mm):	0.025		
D 90 (mm):	1.042		
D 95 (mm):	1.477		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	324+69 115.0' Lt.	Hole #:	1059
Lab ID#:	19	Depth (ft):	5-10

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	97.8	No. 40	78.5	No. 200	76.1
0.002 mm	27.3				

Gravel (-3" + No. 10)	2.2	Coarse Sand (-No. 10 + No. 40)	19.3
Fine Sand (-No. 40 +No. 200)	2.4	Silts (-No. 200 + 0.002mm)	48.7
Clay (-0.002mm)	27.3	Colloids (-0.001mm)	21.9

Liquid Limit:	41	Plastic Limit:	26	Plasticity Index:	15
		Activity:	0.55	Spec. Gravity:	2.725

AASHTO Classification:	A-7-6 (11)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	23.12
D 30 (mm):	0.002	LIQ =	-0.19181
D 50 (mm):	0.011		
D 60 (mm):	0.023		
D 90 (mm):	1.067		
D 95 (mm):	1.593		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	ST-1	Depth (ft):	2-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	100.0	No. 40	92.5	No. 200	77.4
0.002 mm	49.3				

Gravel (-3" + No. 10)	0.0	Coarse Sand (-No. 10 + No. 40)	7.5
Fine Sand (-No. 40 +No. 200)	15.2	Silts (-No. 200 + 0.002mm)	28.1
Clay (-0.002mm)	49.3	Colloids (-0.001mm)	42.8

Liquid Limit:	48	Plastic Limit:	29	Plasticity Index:	19
		Activity:	0.39	Spec. Gravity:	2.863

AASHTO Classification:	A-7-6 (16)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	24.10
D 30 (mm):	0.000	LIQ =	-0.25776
D 50 (mm):	0.002		
D 60 (mm):	0.008		
D 90 (mm):	0.319		
D 95 (mm):	0.711		

Cu =

Sieve Type: No Gravel

Notes:

Cc =

Silts + Clays + Colloids: N/A

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	SS-1	Depth (ft):	7.5-9

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	92.4	3/8"	77.5	No. 4	67.5
No. 10	52.3	No. 40	39.8	No. 200	31.9
0.002 mm	16.1				

Gravel (-3" + No. 10)	47.7	Coarse Sand (-No. 10 + No. 40)	12.4
Fine Sand (-No. 40 +No. 200)	7.9	Silts (-No. 200 + 0.002mm)	15.8
Clay (-0.002mm)	16.1	Colloids (-0.001mm)	13.9

Liquid Limit:	33	Plastic Limit:	19	Plasticity Index:	14
		Activity:	0.87	Spec. Gravity:	2.814

AASHTO Classification:	A-2-6 (1)
Unified Classification:	SC

D 10 (mm):	0.000	NAT MT =	11.33
D 30 (mm):	0.048	LIQ =	-0.54762
D 50 (mm):	1.510		
D 60 (mm):	3.103		
D 90 (mm):	17.015		
D 95 (mm):	20.884		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	SS-2	Depth (ft):	12-13.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	77.4	No. 4	71.1
No. 10	57.0	No. 40	40.8	No. 200	32.5
0.002 mm	13.6				

Gravel (-3" + No. 10)	43.0	Coarse Sand (-No. 10 + No. 40)	16.1
Fine Sand (-No. 40 +No. 200)	8.3	Silts (-No. 200 + 0.002mm)	18.9
Clay (-0.002mm)	13.6	Colloids (-0.001mm)	11.7

Liquid Limit:	30	Plastic Limit:	18	Plasticity Index:	12
		Activity:	0.88	Spec. Gravity:	2.766

AASHTO Classification:	A-2-6 (0)
Unified Classification:	SC

D 10 (mm):	0.000	NAT MT =	23.66
D 30 (mm):	0.046	LIQ =	0.47206
D 50 (mm):	1.023		
D 60 (mm):	2.405		
D 90 (mm):	13.982		
D 95 (mm):	16.299		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	SS-3	Depth (ft):	17-18.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	92.5	3/8"	91.9	No. 4	91.3
No. 10	84.5	No. 40	73.9	No. 200	64.8
0.002 mm	31.3				

Gravel (-3" + No. 10)	15.5	Coarse Sand (-No. 10 + No. 40)	10.6
Fine Sand (-No. 40 +No. 200)	9.1	Silts (-No. 200 + 0.002mm)	33.5
Clay (-0.002mm)	31.3	Colloids (-0.001mm)	28.9

Liquid Limit:	45	Plastic Limit:	26	Plasticity Index:	19
		Activity:	0.61	Spec. Gravity:	2.843

AASHTO Classification:	A-7-6 (11)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	20.81
D 30 (mm):	0.001	LIQ =	-0.27325
D 50 (mm):	0.015		
D 60 (mm):	0.045		
D 90 (mm):	4.008		
D 95 (mm):	20.801		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	SS-4	Depth (ft):	22-23.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.9
No. 10	98.9	No. 40	89.1	No. 200	79.2
0.002 mm	44.6				

Gravel (-3" + No. 10)	1.1	Coarse Sand (-No. 10 + No. 40)	9.8
Fine Sand (-No. 40 +No. 200)	10.0	Silts (-No. 200 + 0.002mm)	34.6
Clay (-0.002mm)	44.6	Colloids (-0.001mm)	38.1

Liquid Limit:	51	Plastic Limit:	27	Plasticity Index:	24
		Activity:	0.54	Spec. Gravity:	2.838

AASHTO Classification:	A-7-6 (20)
Unified Classification:	CH

D 10 (mm):	0.000	NAT MT =	25.97
D 30 (mm):	0.000	LIQ =	-0.04305
D 50 (mm):	0.004		
D 60 (mm):	0.010		
D 90 (mm):	0.489		
D 95 (mm):	1.082		
		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	SS-5	Depth (ft):	27.5-29

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	95.4
3/4"	86.9	3/8"	73.0	No. 4	66.6
No. 10	55.7	No. 40	39.4	No. 200	29.4
0.002 mm	14.0				

Gravel (-3" + No. 10)	44.3	Coarse Sand (-No. 10 + No. 40)	16.3
Fine Sand (-No. 40 +No. 200)	10.0	Silts (-No. 200 + 0.002mm)	15.3
Clay (-0.002mm)	14.0	Colloids (-0.001mm)	11.4

Liquid Limit:	39	Plastic Limit:	24	Plasticity Index:	15
		Activity:	1.07	Spec. Gravity:	2.739

AASHTO Classification:	A-2-6 (1)
Unified Classification:	SC

D 10 (mm):	0.000	NAT MT =	14.33
D 30 (mm):	0.084	LIQ =	-0.64469
D 50 (mm):	1.167		
D 60 (mm):	2.815		
D 90 (mm):	21.026		
D 95 (mm):	24.718		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	ST-4	Depth (ft):	32-34

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	97.2	No. 40	87.3	No. 200	80.2
0.002 mm	37.6				

Gravel (-3" + No. 10)	2.8	Coarse Sand (-No. 10 + No. 40)	10.0
Fine Sand (-No. 40 +No. 200)	7.0	Silts (-No. 200 + 0.002mm)	42.7
Clay (-0.002mm)	37.6	Colloids (-0.001mm)	33.4

Liquid Limit:	48	Plastic Limit:	29	Plasticity Index:	19
		Activity:	0.51	Spec. Gravity:	2.778

AASHTO Classification:	A-7-6 (17)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	21.82
D 30 (mm):	0.000	LIQ =	-0.37780
D 50 (mm):	0.006		
D 60 (mm):	0.013		
D 90 (mm):	0.650		
D 95 (mm):	1.414		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	ST-5	Depth (ft):	37-39

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	98.9	No. 4	98.4
No. 10	89.5	No. 40	69.3	No. 200	60.8
0.002 mm	21.3				

Gravel (-3" + No. 10)	10.5	Coarse Sand (-No. 10 + No. 40)	20.3
Fine Sand (-No. 40 +No. 200)	8.5	Silts (-No. 200 + 0.002mm)	39.5
Clay (-0.002mm)	21.3	Colloids (-0.001mm)	17.0

Liquid Limit:	37	Plastic Limit:	25	Plasticity Index:	12
		Activity:	0.56	Spec. Gravity:	2.766

AASHTO Classification:	A-6 (6)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	25.14
D 30 (mm):	0.004	LIQ =	0.01148
D 50 (mm):	0.028		
D 60 (mm):	0.070		
D 90 (mm):	2.094		
D 95 (mm):	3.405		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	276+50 60.0' Lt.	Hole #:	1001
Lab ID#:	ST-6	Depth (ft):	42-43.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	98.4	No. 4	97.9
No. 10	94.8	No. 40	81.1	No. 200	61.8
0.002 mm	41.2				

Gravel (-3" + No. 10)	5.2	Coarse Sand (-No. 10 + No. 40)	13.6
Fine Sand (-No. 40 +No. 200)	19.3	Silts (-No. 200 + 0.002mm)	20.6
Clay (-0.002mm)	41.2	Colloids (-0.001mm)	39.0

Liquid Limit:	46	Plastic Limit:	20	Plasticity Index:	26
		Activity:	0.63	Spec. Gravity:	2.804

AASHTO Classification:	A-7-6 (14)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	30.04
D 30 (mm):	0.000	LIQ =	0.38615
D 50 (mm):	0.009		
D 60 (mm):	0.054		
D 90 (mm):	1.163		
D 95 (mm):	2.130		

Cu =

Sieve Type: With Gravel

Notes:

Cc =

Silts + Clays + Colloids: N/A

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	E-3101-1	Depth (ft):	2-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.6
No. 10	99.0	No. 40	92.5	No. 200	88.9
0.002 mm	18.3				

Gravel (-3" + No. 10)	1.0	Coarse Sand (-No. 10 + No. 40)	6.4
Fine Sand (-No. 40 +No. 200)	3.6	Silts (-No. 200 + 0.002mm)	70.6
Clay (-0.002mm)	18.3	Colloids (-0.001mm)	14.4

Liquid Limit:	30	Plastic Limit:	22	Plasticity Index:	8
		Activity:	0.44	Spec. Gravity:	2.846

AASHTO Classification:	A-4 (7)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	27.54
D 30 (mm):	0.004	LIQ =	0.69237
D 50 (mm):	0.010		
D 60 (mm):	0.017		
D 90 (mm):	0.126		
D 95 (mm):	0.769		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	E-3101-2	Depth (ft):	7-7.75

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	91.0
3/4"	88.7	3/8"	85.1	No. 4	82.3
No. 10	74.8	No. 40	65.2	No. 200	60.1
0.002 mm	18.4				

Gravel (-3" + No. 10)	25.2	Coarse Sand (-No. 10 + No. 40)	9.6
Fine Sand (-No. 40 +No. 200)	5.1	Silts (-No. 200 + 0.002mm)	41.7
Clay (-0.002mm)	18.4	Colloids (-0.001mm)	14.9

Liquid Limit:	36	Plastic Limit:	22	Plasticity Index:	14
		Activity:	0.76	Spec. Gravity:	2.770

AASHTO Classification:	A-6 (6)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	7.32
D 30 (mm):	0.005	LIQ =	-1.04875
D 50 (mm):	0.031		
D 60 (mm):	0.074		
D 90 (mm):	22.129		
D 95 (mm):	33.994		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	SPT-1	Depth (ft):	7.75-9.25

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	82.1	3/8"	65.5	No. 4	58.0
No. 10	50.4	No. 40	41.7	No. 200	32.9
0.002 mm	11.4				

Gravel (-3" + No. 10)	49.6	Coarse Sand (-No. 10 + No. 40)	8.7
Fine Sand (-No. 40 +No. 200)	8.8	Silts (-No. 200 + 0.002mm)	21.5
Clay (-0.002mm)	11.4	Colloids (-0.001mm)	9.3

Liquid Limit:	35	Plastic Limit:	20	Plasticity Index:	15
		Activity:	1.32	Spec. Gravity:	2.750

AASHTO Classification:	A-2-6 (1)
Unified Classification:	GC

D 10 (mm):	0.001	NAT MT =	3.96
D 30 (mm):	0.046	LIQ =	-1.06929
D 50 (mm):	1.877		
D 60 (mm):	5.725		
D 90 (mm):	21.439		
D 95 (mm):	23.151		

Cu = 4544.68466

Cc = 0.29610

Sieve Type:	With Gravel
Notes:	
Silts + Clays + Colloids:	N/A

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	SPT-2	Depth (ft):	12-13.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	88.0
3/4"	84.9	3/8"	58.5	No. 4	43.2
No. 10	34.2	No. 40	23.6	No. 200	14.7
0.002 mm	3.4				

Gravel (-3" + No. 10)	65.8	Coarse Sand (-No. 10 + No. 40)	10.5
Fine Sand (-No. 40 +No. 200)	8.9	Silts (-No. 200 + 0.002mm)	11.3
Clay (-0.002mm)	3.4	Colloids (-0.001mm)	2.0

Liquid Limit:	22	Plastic Limit:	14	Plasticity Index:	8
		Activity:	2.33	Spec. Gravity:	2.815

AASHTO Classification:	A-2-4 (0)
Unified Classification:	GC

D 10 (mm):	0.016	NAT MT =	9.59
D 30 (mm):	1.083	LIQ =	-0.55068
D 50 (mm):	6.453		
D 60 (mm):	9.877		
D 90 (mm):	28.025		
D 95 (mm):	37.433		

		Cu =	599.55444
Sieve Type:	With Gravel		
Notes:		Cc =	7.21331
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	E-3101-3	Depth (ft):	17-19

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	96.5	3/8"	85.3	No. 4	76.1
No. 10	66.2	No. 40	55.8	No. 200	47.5
0.002 mm	16.0				

Gravel (-3" + No. 10)	33.8	Coarse Sand (-No. 10 + No. 40)	10.4
Fine Sand (-No. 40 +No. 200)	8.3	Silts (-No. 200 + 0.002mm)	31.5
Clay (-0.002mm)	16.0	Colloids (-0.001mm)	12.6

Liquid Limit:	38	Plastic Limit:	23	Plasticity Index:	15
		Activity:	0.94	Spec. Gravity:	2.687

AASHTO Classification:	A-6 (4)
Unified Classification:	SC

D 10 (mm):	0.000	NAT MT =	12.87
D 30 (mm):	0.010	LIQ =	-0.67556
D 50 (mm):	0.126		
D 60 (mm):	0.793		
D 90 (mm):	12.690		
D 95 (mm):	17.319		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	E-3101-4	Depth (ft):	22-23.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	87.2
3/4"	82.6	3/8"	70.8	No. 4	58.8
No. 10	44.4	No. 40	34.3	No. 200	27.8
0.002 mm	12.0				

Gravel (-3" + No. 10)	55.6	Coarse Sand (-No. 10 + No. 40)	10.2
Fine Sand (-No. 40 +No. 200)	6.5	Silts (-No. 200 + 0.002mm)	15.8
Clay (-0.002mm)	12.0	Colloids (-0.001mm)	9.6

Liquid Limit:	39	Plastic Limit:	17	Plasticity Index:	22
		Activity:	1.84	Spec. Gravity:	2.828

AASHTO Classification:	A-2-6 (2)
Unified Classification:	GC

D 10 (mm):	0.001	NAT MT =	19.77
D 30 (mm):	0.136	LIQ =	0.12596
D 50 (mm):	2.795		
D 60 (mm):	5.082		
D 90 (mm):	29.135		
D 95 (mm):	38.167		
		Cu =	4487.90900
Sieve Type:	With Gravel		
Notes:		Cc =	3.21536
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	SPT-3	Depth (ft):	27-28.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	95.1	No. 4	94.4
No. 10	91.1	No. 40	82.9	No. 200	74.9
0.002 mm	34.2				

Gravel (-3" + No. 10)	8.9	Coarse Sand (-No. 10 + No. 40)	8.2
Fine Sand (-No. 40 +No. 200)	8.1	Silts (-No. 200 + 0.002mm)	40.6
Clay (-0.002mm)	34.2	Colloids (-0.001mm)	28.6

Liquid Limit:	46	Plastic Limit:	27	Plasticity Index:	19
		Activity:	0.56	Spec. Gravity:	2.783

AASHTO Classification:	A-7-6 (15)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	27.45
D 30 (mm):	0.001	LIQ =	0.02361
D 50 (mm):	0.008		
D 60 (mm):	0.020		
D 90 (mm):	1.619		
D 95 (mm):	8.700		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	SPT-4	Depth (ft):	32-33.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	92.6
3/4"	81.2	3/8"	59.2	No. 4	46.5
No. 10	36.7	No. 40	27.2	No. 200	19.1
0.002 mm	5.4				

Gravel (-3" + No. 10)	63.3	Coarse Sand (-No. 10 + No. 40)	9.4
Fine Sand (-No. 40 +No. 200)	8.2	Silts (-No. 200 + 0.002mm)	13.7
Clay (-0.002mm)	5.4	Colloids (-0.001mm)	3.7

Liquid Limit:	19	Plastic Limit:	15	Plasticity Index:	4
		Activity:	0.74	Spec. Gravity:	2.856

AASHTO Classification:	A-1-b (0)
Unified Classification:	GC-GM

D 10 (mm):	0.007	NAT MT =	2.57
D 30 (mm):	0.668	LIQ =	-3.10780
D 50 (mm):	5.748		
D 60 (mm):	9.747		
D 90 (mm):	23.467		
D 95 (mm):	31.208		

		Cu =	1432.44998
Sieve Type:	With Gravel		
Notes:		Cc =	6.72512
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	SPT-5	Depth (ft):	37-38.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	95.3	No. 40	80.8	No. 200	78.2
0.002 mm	34.3				

Gravel (-3" + No. 10)	4.7	Coarse Sand (-No. 10 + No. 40)	14.4
Fine Sand (-No. 40 +No. 200)	2.6	Silts (-No. 200 + 0.002mm)	43.9
Clay (-0.002mm)	34.3	Colloids (-0.001mm)	29.4

Liquid Limit:	38	Plastic Limit:	27	Plasticity Index:	11
		Activity:	0.32	Spec. Gravity:	2.740

AASHTO Classification:	A-6 (9)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	25.08
D 30 (mm):	0.001	LIQ =	-0.17448
D 50 (mm):	0.007		
D 60 (mm):	0.017		
D 90 (mm):	1.136		
D 95 (mm):	1.942		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	23+36 6.0' Rt.	Hole #:	1003
Lab ID#:	E-3101-5	Depth (ft):	42-44

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.6
No. 10	86.8	No. 40	61.1	No. 200	54.8
0.002 mm	22.8				

Gravel (-3" + No. 10)	13.2	Coarse Sand (-No. 10 + No. 40)	25.6
Fine Sand (-No. 40 +No. 200)	6.3	Silts (-No. 200 + 0.002mm)	32.1
Clay (-0.002mm)	22.8	Colloids (-0.001mm)	18.5

Liquid Limit:	36	Plastic Limit:	20	Plasticity Index:	16
		Activity:	0.70	Spec. Gravity:	2.842

AASHTO Classification:	A-6 (6)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	19.44
D 30 (mm):	0.005	LIQ =	-0.03485
D 50 (mm):	0.043		
D 60 (mm):	0.312		
D 90 (mm):	2.488		
D 95 (mm):	3.485		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:

Location:	307+50 115.0' Lt.	Hole #:	1035/12
Lab ID#:	ST-1	Depth (ft):	2-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.4
No. 10	90.5	No. 40	76.9	No. 200	74.7
0.002 mm	26.7				

Gravel (-3" + No. 10)	9.5	Coarse Sand (-No. 10 + No. 40)	13.6
Fine Sand (-No. 40 +No. 200)	2.2	Silts (-No. 200 + 0.002mm)	48.0
Clay (-0.002mm)	26.7	Colloids (-0.001mm)	23.0

Liquid Limit:	42	Plastic Limit:	23	Plasticity Index:	19
		Activity:	0.71	Spec. Gravity:	2.731

AASHTO Classification:	A-7-6 (14)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	25.82
D 30 (mm):	0.003	LIQ =	0.14836
D 50 (mm):	0.012		
D 60 (mm):	0.025		
D 90 (mm):	1.892		
D 95 (mm):	3.103		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-1	Depth (ft):	2-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	93.9	3/8"	70.5	No. 4	48.1
No. 10	24.8	No. 40	5.1	No. 200	1.7
0.002 mm	0.2				

Gravel (-3" + No. 10)	75.2	Coarse Sand (-No. 10 + No. 40)	19.7
Fine Sand (-No. 40 +No. 200)	3.4	Silts (-No. 200 + 0.002mm)	1.4
Clay (-0.002mm)	0.2	Colloids (-0.001mm)	0.1

Liquid Limit:	25	Plastic Limit:	0	Plasticity Index:	25
		Activity:	112.51	Spec. Gravity:	2.606

AASHTO Classification:	A-1-a (0)
Unified Classification:	GW

D 10 (mm):	0.625	NAT MT =	2.90
D 30 (mm):	2.427	LIQ =	
D 50 (mm):	5.043		
D 60 (mm):	6.864		
D 90 (mm):	16.935		
D 95 (mm):	19.984		
		Cu =	10.98019
Sieve Type:	With Gravel		
Notes:		Cc =	1.37302
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-2	Depth (ft):	7-9

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	87.6
3/4"	79.9	3/8"	63.3	No. 4	51.9
No. 10	41.7	No. 40	27.4	No. 200	19.1
0.002 mm	6.0				

Gravel (-3" + No. 10)	58.3	Coarse Sand (-No. 10 + No. 40)	14.3
Fine Sand (-No. 40 +No. 200)	8.2	Silts (-No. 200 + 0.002mm)	13.1
Clay (-0.002mm)	6.0	Colloids (-0.001mm)	2.9

Liquid Limit:	24	Plastic Limit:	17	Plasticity Index:	7
		Activity:	1.17	Spec. Gravity:	2.858

AASHTO Classification:	A-2-4 (0)
Unified Classification:	GC-GM

D 10 (mm):	0.006	NAT MT =	8.79
D 30 (mm):	0.564	LIQ =	-1.17294
D 50 (mm):	4.039		
D 60 (mm):	7.782		
D 90 (mm):	28.544		
D 95 (mm):	37.778		

		Cu =	1291.27120
Sieve Type:	With Gravel		
Notes:		Cc =	6.79345
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	SS-1	Depth (ft):	12-13.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	56.2
3/4"	48.4	3/8"	34.4	No. 4	22.9
No. 10	14.0	No. 40	6.6	No. 200	3.3
0.002 mm					

Gravel (-3" + No. 10)	86.0	Coarse Sand (-No. 10 + No. 40)	7.4
Fine Sand (-No. 40 +No. 200)	3.3	Silts (-No. 200 + 0.002mm)	
Clay (-0.002mm)		Colloids (-0.001mm)	

Liquid Limit:	0	Plastic Limit:	0	Plasticity Index:	0
		Activity:	0.00	Spec. Gravity:	

AASHTO Classification:	A-1-a (0)
Unified Classification:	GW

D 10 (mm):	0.861	NAT MT =	3.77
D 30 (mm):	7.289	LIQ =	
D 50 (mm):	20.094		
D 60 (mm):	26.560		
D 90 (mm):	42.686		
D 95 (mm):	46.198		

		Cu =	30.84479
Sieve Type:	Wash Grad		
Notes:		Cc =	2.32333
Silts + Clays + Colloids:	3.3		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-3	Depth (ft):	17-19

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	82.6
3/4"	75.2	3/8"	59.5	No. 4	53.6
No. 10	46.1	No. 40	35.6	No. 200	26.1
0.002 mm	9.2				

Gravel (-3" + No. 10)	53.9	Coarse Sand (-No. 10 + No. 40)	10.4
Fine Sand (-No. 40 +No. 200)	9.5	Silts (-No. 200 + 0.002mm)	16.9
Clay (-0.002mm)	9.2	Colloids (-0.001mm)	8.1

Liquid Limit:	33	Plastic Limit:	18	Plasticity Index:	15
		Activity:	1.63	Spec. Gravity:	2.866

AASHTO Classification:	A-2-6 (1)
Unified Classification:	GC

D 10 (mm):	0.002	NAT MT =	11.06
D 30 (mm):	0.152	LIQ =	-0.46296
D 50 (mm):	3.145		
D 60 (mm):	9.717		
D 90 (mm):	33.591		
D 95 (mm):	40.983		

		Cu =	4090.41108
Sieve Type:	With Gravel		
Notes:		Cc =	1.00155
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	SS-2	Depth (ft):	23-24.5

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	84.9
3/4"	83.1	3/8"	61.9	No. 4	52.5
No. 10	42.4	No. 40	32.4	No. 200	25.7
0.002 mm	9.0				

Gravel (-3" + No. 10)	57.6	Coarse Sand (-No. 10 + No. 40)	10.1
Fine Sand (-No. 40 +No. 200)	6.6	Silts (-No. 200 + 0.002mm)	16.8
Clay (-0.002mm)	9.0	Colloids (-0.001mm)	6.8

Liquid Limit:	27	Plastic Limit:	17	Plasticity Index:	10
		Activity:	1.11	Spec. Gravity:	2.833

AASHTO Classification:	A-2-4 (0)
Unified Classification:	GC

D 10 (mm):	0.002	NAT MT =	9.06
D 30 (mm):	0.229	LIQ =	-0.79361
D 50 (mm):	3.820		
D 60 (mm):	8.230		
D 90 (mm):	31.594		
D 95 (mm):	39.745		

		Cu =	3300.36053
Sieve Type:	With Gravel		
Notes:		Cc =	2.55433
Silts + Clays + Colloids:	N/A		

Remarks:

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Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-5	Depth (ft):	27-29

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	97.0	No. 4	95.8
No. 10	86.3	No. 40	74.8	No. 200	67.8
0.002 mm	34.7				

Gravel (-3" + No. 10)	13.7	Coarse Sand (-No. 10 + No. 40)	11.5
Fine Sand (-No. 40 +No. 200)	7.0	Silts (-No. 200 + 0.002mm)	33.0
Clay (-0.002mm)	34.7	Colloids (-0.001mm)	29.3

Liquid Limit:	44	Plastic Limit:	26	Plasticity Index:	18
		Activity:	0.52	Spec. Gravity:	2.850

AASHTO Classification:	A-7-6 (12)
Unified Classification:	CL

D 10 (mm):	0.000	NAT MT =	24.32
D 30 (mm):	0.001	LIQ =	-0.09322
D 50 (mm):	0.011		
D 60 (mm):	0.032		
D 90 (mm):	2.807		
D 95 (mm):	4.418		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-6	Depth (ft):	32-34

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	99.1	No. 4	98.7
No. 10	97.2	No. 40	86.1	No. 200	81.5
0.002 mm	11.1				

Gravel (-3" + No. 10)	2.8	Coarse Sand (-No. 10 + No. 40)	11.1
Fine Sand (-No. 40 +No. 200)	4.5	Silts (-No. 200 + 0.002mm)	70.4
Clay (-0.002mm)	11.1	Colloids (-0.001mm)	7.5

Liquid Limit:	34	Plastic Limit:	22	Plasticity Index:	12
		Activity:	1.08	Spec. Gravity:	2.746

AASHTO Classification:	A-6 (9)
Unified Classification:	CL

D 10 (mm):	0.002	NAT MT =	20.35
D 30 (mm):	0.005	LIQ =	-0.13735
D 50 (mm):	0.015		
D 60 (mm):	0.025		
D 90 (mm):	0.736		
D 95 (mm):	1.479		
		Cu =	15.32232
Sieve Type:	With Gravel		
Notes:		Cc =	0.69832
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-7	Depth (ft):	37-39

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	99.8
No. 10	97.0	No. 40	82.2	No. 200	77.6
0.002 mm	12.0				

Gravel (-3" + No. 10)	3.0	Coarse Sand (-No. 10 + No. 40)	14.8
Fine Sand (-No. 40 +No. 200)	4.6	Silts (-No. 200 + 0.002mm)	65.5
Clay (-0.002mm)	12.0	Colloids (-0.001mm)	6.9

Liquid Limit:	29	Plastic Limit:	20	Plasticity Index:	9
		Activity:	0.75	Spec. Gravity:	2.737

AASHTO Classification:	A-4 (6)
Unified Classification:	CL

D 10 (mm):	0.002	NAT MT =	23.09
D 30 (mm):	0.005	LIQ =	0.34360
D 50 (mm):	0.016		
D 60 (mm):	0.028		
D 90 (mm):	0.960		
D 95 (mm):	1.618		
		Cu =	18.64476
Sieve Type:	With Gravel		
Notes:		Cc =	0.67550
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***S-009-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure***
Item Number: ***07-08909.30***		Project Manager:

Location:	293+00 60.0' Lt.	Hole #:	1019
Lab ID#:	ST-8	Depth (ft):	42-43

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	98.4
No. 10	86.6	No. 40	67.3	No. 200	57.0
0.002 mm	29.8				

Gravel (-3" + No. 10)	13.4	Coarse Sand (-No. 10 + No. 40)	19.3
Fine Sand (-No. 40 +No. 200)	10.2	Silts (-No. 200 + 0.002mm)	27.2
Clay (-0.002mm)	29.8	Colloids (-0.001mm)	24.4

Liquid Limit:	41	Plastic Limit:	28	Plasticity Index:	13
		Activity:	0.44	Spec. Gravity:	2.865

AASHTO Classification:	A-7-6 (6)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	21.77
D 30 (mm):	0.002	LIQ =	-0.47890
D 50 (mm):	0.029		
D 60 (mm):	0.124		
D 90 (mm):	2.565		
D 95 (mm):	3.700		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***S-012-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure Wall***
Item Number: ***07-08909.30***		Project Manager:

Location:	315+45 115.0' Rt.	Hole #:	1104
Lab ID#:	1	Depth (ft):	2-4

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	97.1	No. 40	91.2	No. 200	86.0
0.002 mm	47.4				

Gravel (-3" + No. 10)	2.9	Coarse Sand (-No. 10 + No. 40)	5.9
Fine Sand (-No. 40 +No. 200)	5.2	Silts (-No. 200 + 0.002mm)	38.6
Clay (-0.002mm)	47.4	Colloids (-0.001mm)	40.1

Liquid Limit:	50	Plastic Limit:	29	Plasticity Index:	21
		Activity:	0.44	Spec. Gravity:	2.822

AASHTO Classification:	A-7-6 (21)
Unified Classification:	MH

D 10 (mm):	0.000	NAT MT =	30.39
D 30 (mm):	0.000	LIQ =	0.06604
D 50 (mm):	0.003		
D 60 (mm):	0.007		
D 90 (mm):	0.285		
D 95 (mm):	1.152		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

Soil Classification and Gradation Test Results

Project ID: ***S-012-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Structure Wall***
Item Number: ***07-08909.30***		Project Manager:

Location:	315+45 115.0' Rt.	Hole #:	1104
Lab ID#:	2	Depth (ft):	7-9

Sieve Size	%Passing	Sieve Size	%Passing	Sieve Size	%Passing
3"	100.0	2"	100.0	1"	100.0
3/4"	100.0	3/8"	100.0	No. 4	100.0
No. 10	99.9	No. 40	97.8	No. 200	87.4
0.002 mm	44.5				

Gravel (-3" + No. 10)	0.1	Coarse Sand (-No. 10 + No. 40)	2.1
Fine Sand (-No. 40 +No. 200)	10.3	Silts (-No. 200 + 0.002mm)	42.9
Clay (-0.002mm)	44.5	Colloids (-0.001mm)	37.4

Liquid Limit:	48	Plastic Limit:	29	Plasticity Index:	19
		Activity:	0.43	Spec. Gravity:	2.813

AASHTO Classification:	A-7-6 (19)
Unified Classification:	ML

D 10 (mm):	0.000	NAT MT =	25.06
D 30 (mm):	0.000	LIQ =	-0.20729
D 50 (mm):	0.003		
D 60 (mm):	0.007		
D 90 (mm):	0.116		
D 95 (mm):	0.267		

		Cu =	
Sieve Type:	With Gravel		
Notes:		Cc =	
Silts + Clays + Colloids:	N/A		

Remarks:

Copies:

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-5
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 28.5' to 29.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023

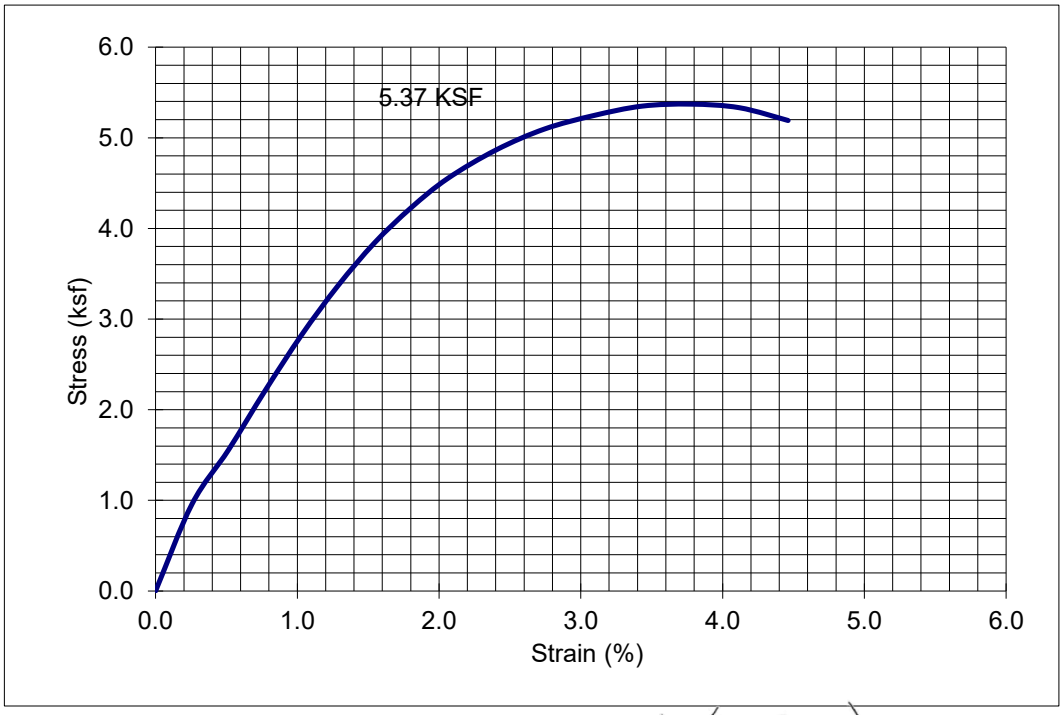
Soil Type	: Brown Sandy Lean Clay				
Wet Density	: 132.0	pcf	Initial Height	: 5.83	in
Dry Density	: 109.6	pcf	Initial Diameter	: 2.86	in
Moisture	: 20.5	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	43.0	0.04	0.3	0.96
3	70.0	0.04	0.5	1.56
4	99.5	0.05	0.8	2.21
5	127.5	0.05	1.0	2.82
6	152.6	0.05	1.3	3.37
7	174.4	0.05	1.5	3.84
8	192.5	0.05	1.8	4.23
9	207.7	0.05	2.1	4.55
10	222.9	0.05	2.4	4.87
11	234.3	0.05	2.7	5.10
12	242.0	0.05	3.1	5.24
13	247.7	0.05	3.4	5.35
14	249.6	0.05	3.8	5.37
15	248.6	0.05	4.1	5.33
16	242.9	0.05	4.5	5.19
17	233.4	0.05	4.8	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-5
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 28.5' to 29.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023
Soil Type	: Brown Sandy Lean Clay		
Wet Density	: 132.0 pcf	Initial Height	: 5.83 in
Dry Density	: 109.6 pcf	Initial Diameter	: 2.86 in
Moisture	: 20.5 %	Proving Ring	: #22734
Deg. of Sat.	: 93.4 %	SPECIFIC GRAVITY	: 2.850
Comments	: AASHTO: T-208		



APPROVED BY: Kevin E. Walker

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-6
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 33.0' to 33.5'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023

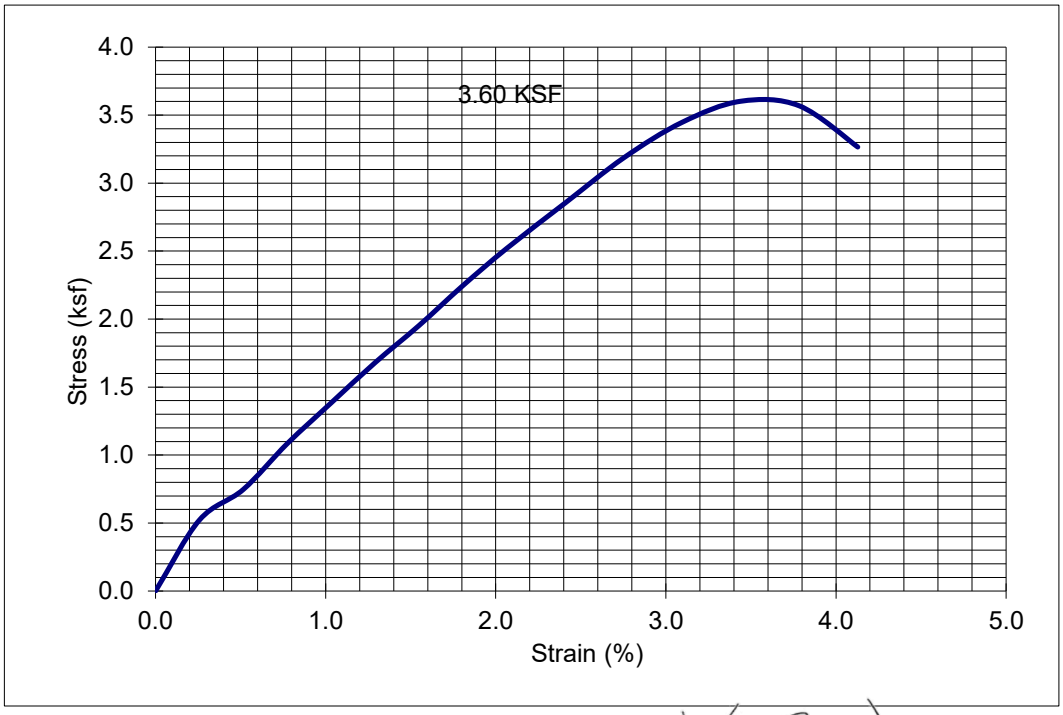
Soil Type	: Dark Brown Lean Clay with Sand				
Wet Density	: 122.3	pcf	Initial Height	: 5.81	in
Dry Density	: 98.3	pcf	Initial Diameter	: 2.84	in
Moisture	: 24.5	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	23.0	0.04	0.3	0.52
3	33.0	0.04	0.5	0.75
4	48.0	0.04	0.8	1.08
5	61.4	0.04	1.0	1.38
6	74.8	0.04	1.3	1.68
7	87.1	0.04	1.5	1.95
8	100.5	0.04	1.8	2.25
9	113.1	0.04	2.1	2.52
10	128.5	0.05	2.4	2.85
11	144.0	0.05	2.8	3.19
12	156.4	0.05	3.1	3.45
13	164.0	0.05	3.4	3.60
14	163.0	0.05	3.8	3.57
15	149.7	0.05	4.1	3.27
16	132.4	0.05	4.5	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-6
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 33.0' to 33.5'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023
Soil Type	: Dark Brown Lean Clay with Sand		
Wet Density	: 122.3 pcf	Initial Height	: 5.81 in
Dry Density	: 98.3 pcf	Initial Diameter	: 2.84 in
Moisture	: 24.5 %	Proving Ring	: #22734
Deg. of Sat.	: 90.3 %	SPECIFIC GRAVITY	: 2.746
Comments	: AASHTO: T-208		



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UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-7
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 38.5' to 39.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023

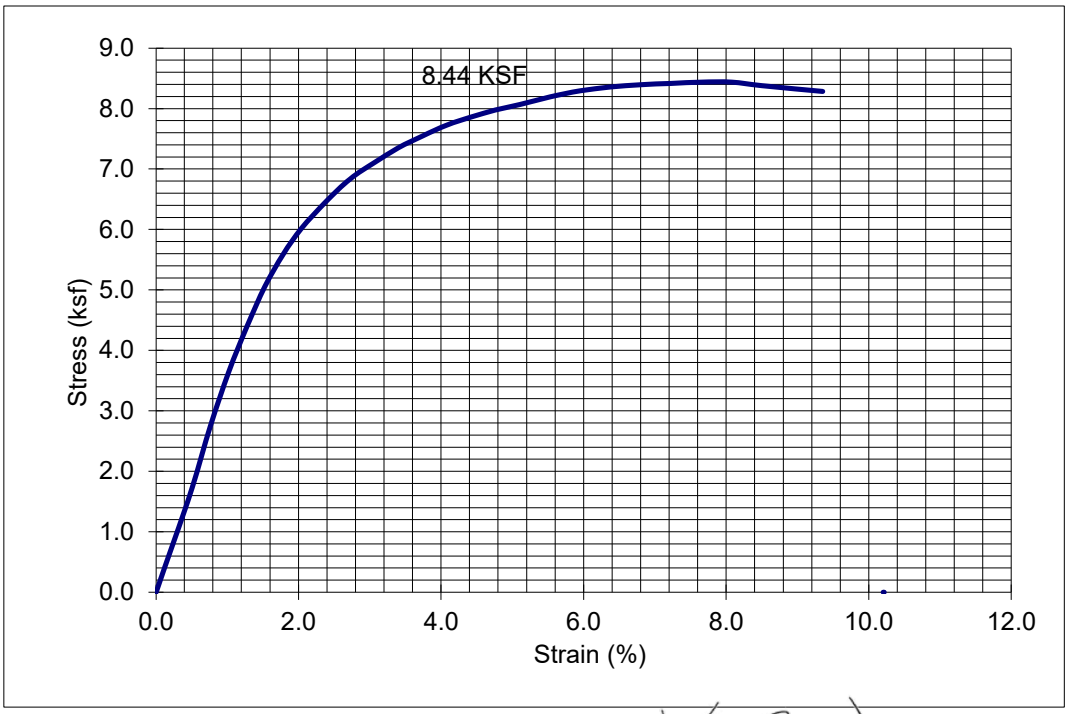
Soil Type	: Brown Lean Clay with Sand				
Wet Density	: 131.9	pcf	Initial Height	: 5.88	in
Dry Density	: 108.2	pcf	Initial Diameter	: 2.86	in
Moisture	: 21.9	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	38.0	0.04	0.3	0.85
3	77.6	0.04	0.5	1.74
4	123.7	0.04	0.8	2.76
5	164.0	0.04	1.0	3.65
6	198.2	0.05	1.3	4.40
7	228.6	0.05	1.5	5.06
8	253.4	0.05	1.8	5.59
9	273.3	0.05	2.0	6.02
10	294.3	0.05	2.4	6.46
11	312.6	0.05	2.7	6.84
12	326.1	0.05	3.1	7.11
13	338.6	0.05	3.4	7.35
14	349.0	0.05	3.7	7.55
15	358.4	0.05	4.1	7.73
16	366.0	0.05	4.4	7.86
17	372.6	0.05	4.8	7.98
18	378.2	0.05	5.1	8.07
19	385.8	0.05	5.5	8.19
20	392.4	0.05	6.0	8.30
21	397.1	0.05	6.4	8.36
22	400.9	0.05	6.8	8.40
23	403.7	0.05	7.2	8.42
24	406.6	0.05	7.7	8.44
25	408.4	0.05	8.1	8.44
26	407.5	0.05	8.5	8.38
27	406.6	0.05	9.4	8.28
28	396.2	0.05	10.2	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-7
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 38.5' to 39.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023
Soil Type	: Brown Lean Clay with Sand		
Wet Density	: 131.9 pcf	Initial Height	: 5.88 in
Dry Density	: 108.2 pcf	Initial Diameter	: 2.86 in
Moisture	: 21.9 %	Proving Ring	: #22734
Deg. of Sat.	: 100.0 %	SPECIFIC GRAVITY	: 2.737
Comments	: AASHTO: T-208		



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UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-8
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 42.5' to 43.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023

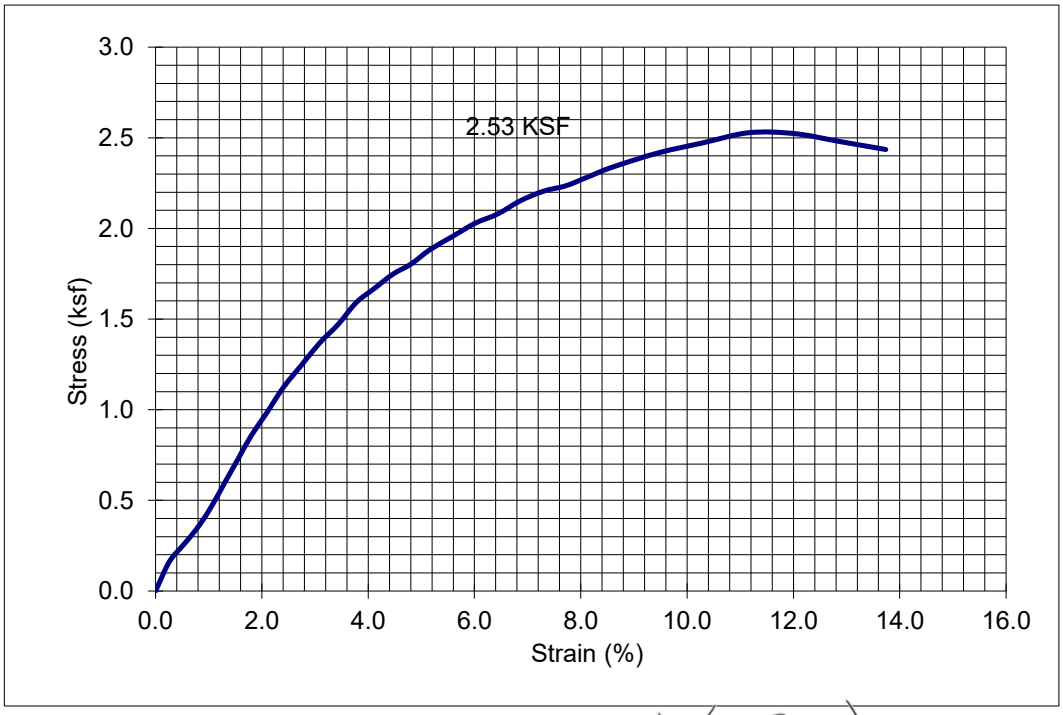
Soil Type	: Brown Sandy Silt				
Wet Density	: 124.8	pcf	Initial Height	: 5.82	in
Dry Density	: 96.3	pcf	Initial Diameter	: 2.82	in
Moisture	: 29.6	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	7.0	0.04	0.3	0.16
3	11.0	0.04	0.5	0.25
4	15.0	0.04	0.8	0.34
5	20.0	0.04	1.0	0.46
6	26.0	0.04	1.3	0.59
7	32.0	0.04	1.5	0.72
8	38.0	0.04	1.8	0.86
9	43.0	0.04	2.1	0.97
10	50.0	0.04	2.4	1.12
11	55.7	0.04	2.7	1.25
12	61.4	0.04	3.1	1.37
13	66.2	0.05	3.4	1.47
14	71.9	0.05	3.8	1.59
15	75.7	0.05	4.1	1.67
16	79.5	0.05	4.5	1.75
17	82.4	0.05	4.8	1.80
18	86.2	0.05	5.2	1.88
19	90.0	0.05	5.6	1.95
20	93.8	0.05	6.0	2.03
21	96.6	0.05	6.4	2.08
22	100.5	0.05	6.9	2.15
23	103.4	0.05	7.3	2.21
24	105.3	0.05	7.7	2.24
25	108.2	0.05	8.2	2.29
26	111.1	0.05	8.6	2.34
27	116.0	0.05	9.4	2.42
28	119.8	0.05	10.3	2.47
29	123.7	0.05	11.2	2.53
30	124.6	0.05	12.0	2.52
31	123.7	0.05	12.9	2.48
32	122.7	0.05	13.7	2.44
33	118.9	0.05	14.6	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-8
Project County	: Fayette	Sample Loc.	: Boring No. 1019
Project State	: Kentucky	Sample Depth	: 42.5' to 43.0'
Laboratory #	: 10118407	Date Tested	: 7/18/2023
Submitted By	: HDR	Date Reported	: 7/20/2023
Soil Type	: Brown Sandy Silt		
Wet Density	: 124.8 pcf	Initial Height	: 5.82 in
Dry Density	: 96.3 pcf	Initial Diameter	: 2.82 in
Moisture	: 29.6 %	Proving Ring	: #22734
Deg. of Sat.	: 98.8 %	SPECIFIC GRAVITY	: 2.865
Comments	: AASHTO: T-208		



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UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-1
Project County	: Fayette	Sample Loc.	: Boring No. 1104
Project State	: Kentucky	Sample Depth	: 3.5' to 4.0'
Laboratory #	: 10118407	Date Tested	: 9/8/2023
Submitted By	: HDR	Date Reported	: 9/11/2023

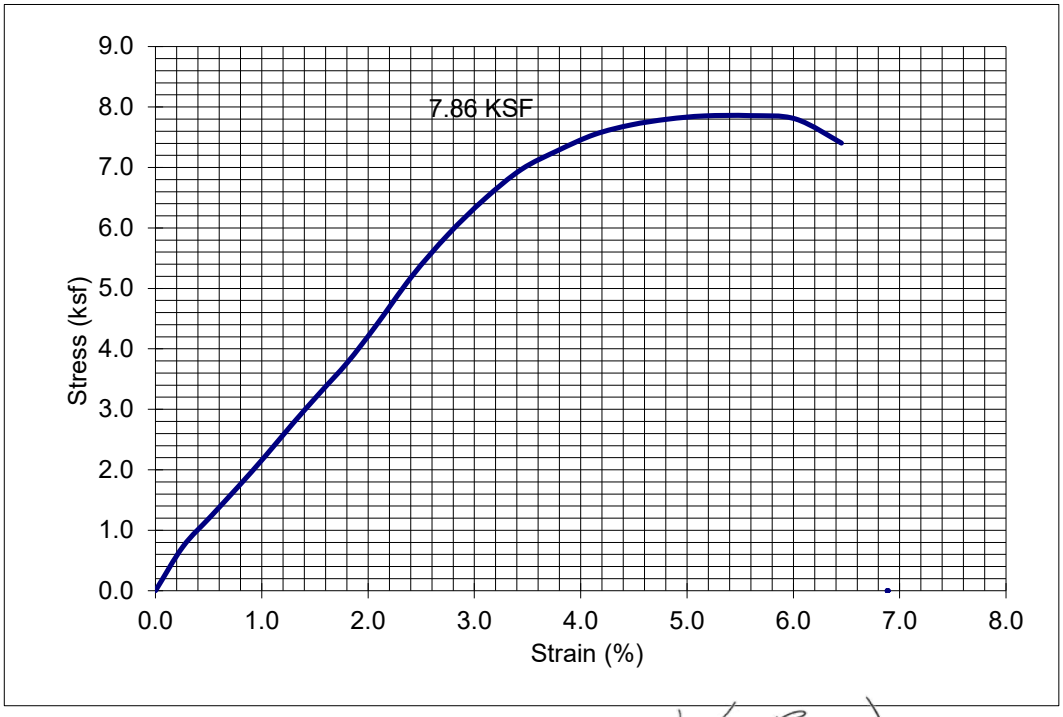
Soil Type	: Brown Elastic Silt				
Wet Density	: 125.2	pcf	Initial Height	: 5.81	in
Dry Density	: 98.7	pcf	Initial Diameter	: 2.84	in
Moisture	: 26.9	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	32.0	0.04	0.3	0.73
3	53.8	0.04	0.5	1.22
4	75.7	0.04	0.8	1.71
5	98.6	0.04	1.0	2.22
6	122.7	0.04	1.3	2.76
7	145.9	0.04	1.5	3.28
8	168.7	0.04	1.8	3.78
9	195.3	0.04	2.1	4.36
10	233.4	0.04	2.4	5.19
11	265.7	0.05	2.8	5.89
12	293.3	0.05	3.1	6.48
13	316.5	0.05	3.4	6.97
14	331.9	0.05	3.8	7.28
15	345.2	0.05	4.1	7.55
16	353.7	0.05	4.5	7.70
17	359.4	0.05	4.8	7.80
18	363.1	0.05	5.2	7.85
19	365.0	0.05	5.6	7.86
20	364.1	0.05	6.0	7.80
21	347.1	0.05	6.5	7.40
22	209.6	0.05	6.9	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-1
Project County	: Fayette	Sample Loc.	: Boring No. 1104
Project State	: Kentucky	Sample Depth	: 3.5' to 4.0'
Laboratory #	: 10118407	Date Tested	: 9/8/2023
Submitted By	: HDR	Date Reported	: 9/11/2023
Soil Type	: Brown Elastic Silt		
Wet Density	: 125.2 pcf	Initial Height	: 5.81 in
Dry Density	: 98.7 pcf	Initial Diameter	: 2.84 in
Moisture	: 26.9 %	Proving Ring	: #22734
Deg. of Sat.	: 96.6 %	SPECIFIC GRAVITY	: 2.822
Comments	: AASHTO: T-208		



APPROVED BY: Kevin E. Walker

hdrinc.com

4645 Village Square Drive, Suite F, Paducah, KY 42001
T 270.444.9691 F 270.538.1599

UNCONFINED COMPRESSION TEST

AASHTO: T-208

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-1
Project County	: Fayette	Sample Loc.	: Boring No. 1104
Project State	: Kentucky	Sample Depth	: 7.1' to 7.6'
Laboratory #	: 10118407	Date Tested	: 9/8/2023
Submitted By	: HDR	Date Reported	: 9/11/2023

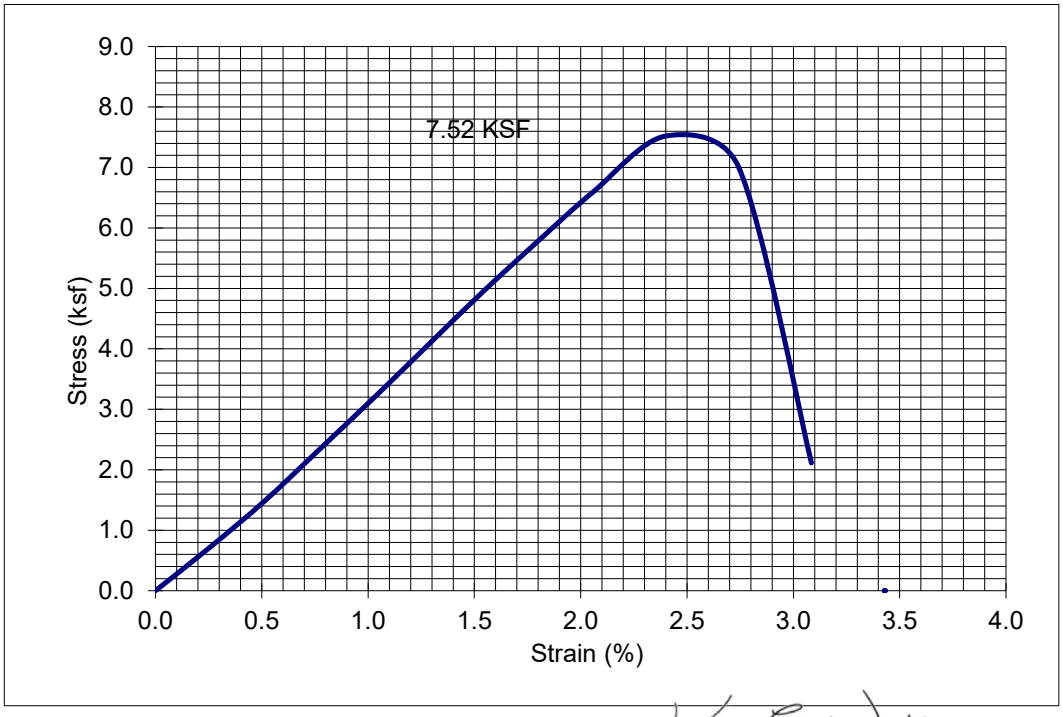
Soil Type	: Brown Silt				
Wet Density	: 125.9	pcf	Initial Height	: 5.84	in
Dry Density	: 102.3	pcf	Initial Diameter	: 2.85	in
Moisture	: 23.1	%	Proving Ring	: #22734	

RESULTS:

#	Axial Load lbs	Corrected Area sf	Unit Strain %	Stress Ksf
1	0.0	0.04	0.0	0.00
2	32.0	0.04	0.3	0.72
3	66.2	0.04	0.5	1.49
4	104.4	0.04	0.8	2.34
5	143.0	0.04	1.0	3.19
6	183.0	0.04	1.3	4.08
7	222.9	0.05	1.5	4.95
8	261.0	0.05	1.8	5.78
9	298.1	0.05	2.1	6.59
10	341.4	0.05	2.4	7.52
11	319.3	0.05	2.7	7.01
12	96.6	0.05	3.1	2.11
13	70.0	0.05	3.4	0.00

UNCONFINED COMPRESSION TEST

Project Name	: KY I-75 and I-64 Phase 3		
Project #	: 10118407	Sample #	: ST-1
Project County	: Fayette	Sample Loc.	: Boring No. 1104
Project State	: Kentucky	Sample Depth	: 7.1' to 7.6'
Laboratory #	: 10118407	Date Tested	: 9/8/2023
Submitted By	: HDR	Date Reported	: 9/11/2023
Soil Type	: Brown Silt		
Wet Density	: 125.9 pcf	Initial Height	: 5.84 in
Dry Density	: 102.3 pcf	Initial Diameter	: 2.85 in
Moisture	: 23.1 %	Proving Ring	: #22734
Deg. of Sat.	: 90.7 %	SPECIFIC GRAVITY	: 2.813
Comments	: AASHTO: T-208		

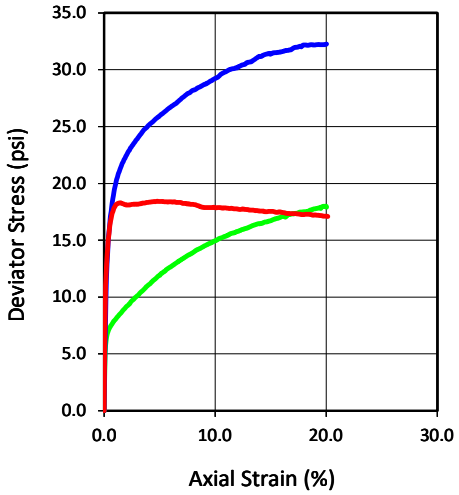


APPROVED BY: Kevin E. Walker

Consolidated Undrained Triaxial Test (ASTM D4767)

PROJECT NAME :	KY I-75 and KY I-64 Phase 3	SAMPLE NO. :	ST-1/ST-1/ST-4
PROJECT NO. :	10118470	SAMPLE DEPTH :	2.5/3.5/33.5
PROJECT LOCATION :	Fayette Co., KY	SAMPLE TYPE :	ST
BORING NUMBER :	1001	DESCRIPTION :	Silt with Sand
REMARKS :	ST-1 2.5 / ST-1 3.5 / ST-4 33.5	TEST TYPE :	Consolidated Undrained

Deviator Stress Vs. Axial Strain

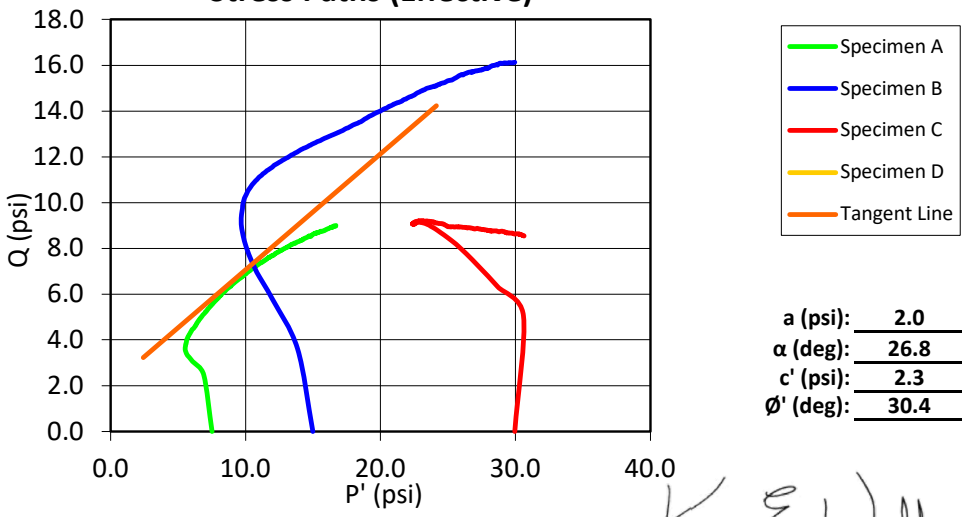


Initial	Specimen A	B	C	D
Water Content (%)	31.8	28.4	28.1	
Dry Density (pcf)	96.1	97.9	95.3	
Saturation (%)	100.00	98.6	95.2	
Void Ratio	0.860	0.826	0.820	
Diameter (in)	2.831	2.846	2.762	
Height (in)	5.905	5.829	5.795	
Specific Gravity	2.86	2.86	2.78	
Liquid Limit	48	48	48	
Plastic Limit	29	29	29	
After Consolidation	**A**	**B**	**C**	**D**
B-Value	1.00	0.98	0.95	
Water Content (%)	32.4	29.3	29.2	
Dry Density (pcf)	96.2	98.1	96.7	
Saturation (%)	100.0	100.0	100.0	
Void Ratio	0.858	0.821	0.793	
Effective Stress (psi)	7.5	15.0	30.0	
Back Press. (psi)	53.4	50.3	52.3	
Rate of Strain	0.005	0.005	0.005	

Maximum Deviator Stress Criterion	
c (psi)	1.0
Ø (deg)	29.5
c' (psi)	0.6
Ø' (deg)	31.3

After Shear	A	B	C	D
σ'1 at Failure (psi)	25.70	46.08	32.15	
σ'3 at Failure (psi)	7.70	13.82	13.72	

Stress Paths (Effective)

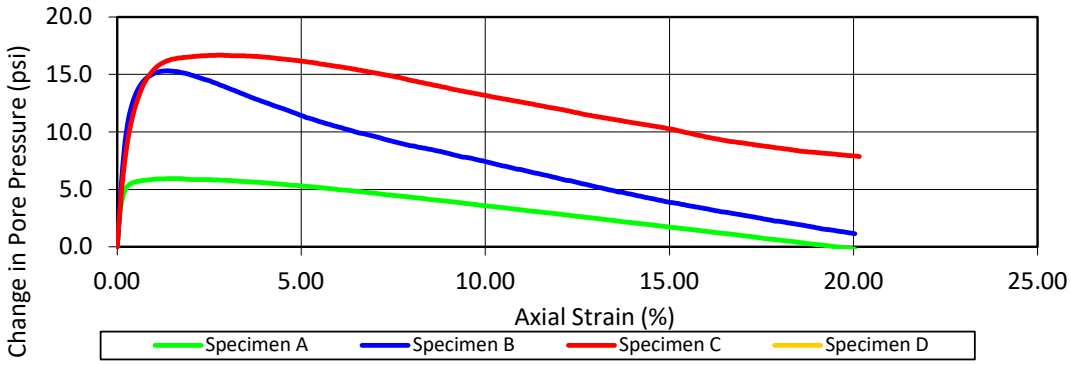


a (psi):	2.0
α (deg):	26.8
c' (psi):	2.3
Ø' (deg):	30.4

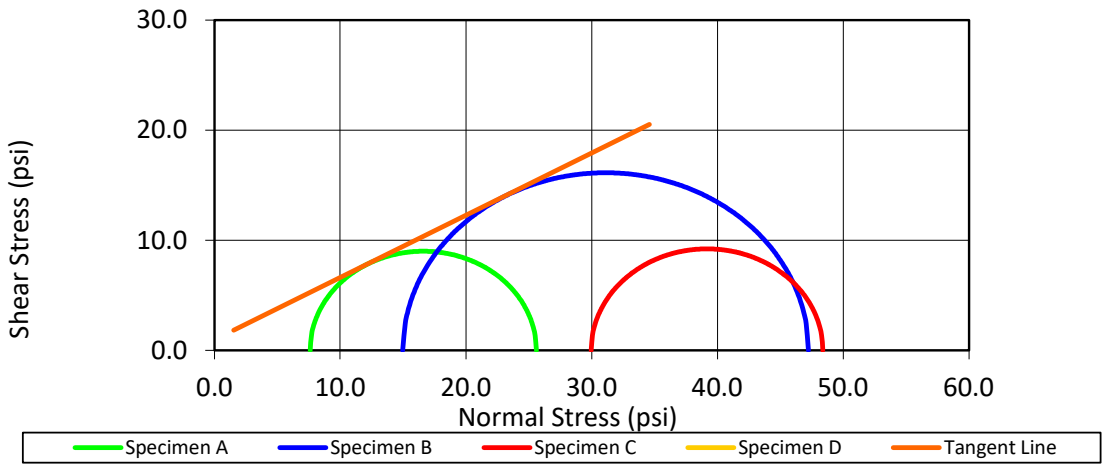
Approved By: Kevin E. Walker

Date: 9-19-23

Change in Pore Pressure vs. Axial Strain

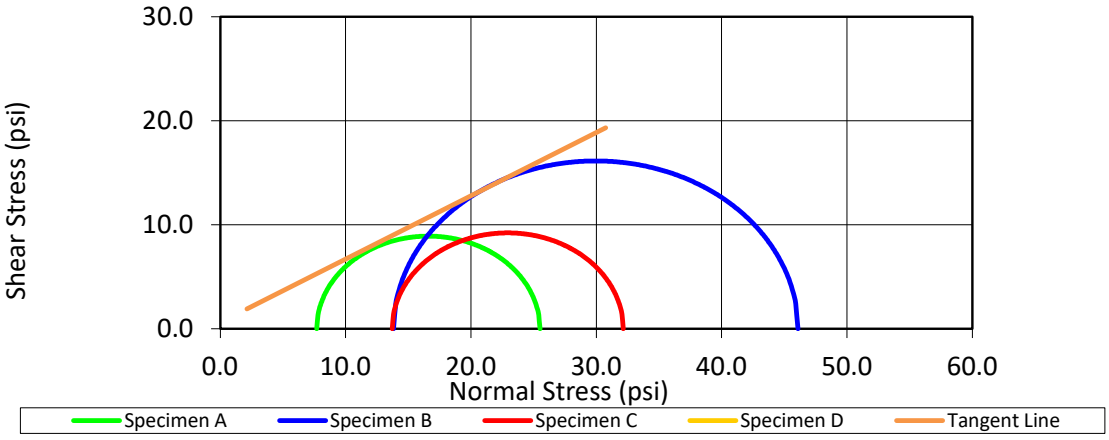


Total Stress



Maximium Deviator Stress Criterion: **c (psi):** **1.0** **Ø (deg):** **29.5**

Effective Stress



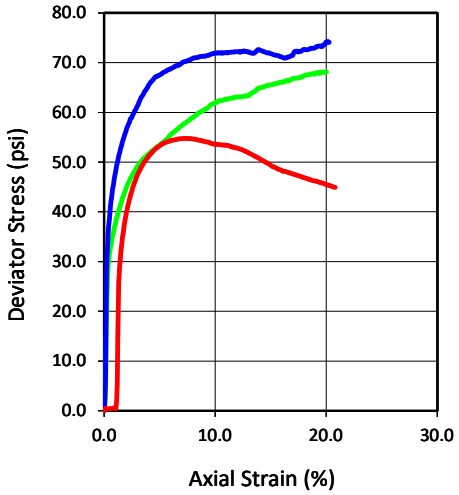
Maximium Deviator Stress Criterion: **c' (psi):** **0.6** **Ø' (deg):** **31.3**

Consolidated Undrained Triaxial Test (ASTM D4767)

PROJECT NAME : I-64 / I-75 Split
PROJECT NO. : 10118407
PROJECT LOCATION : Fayette Co., KY
BORING NUMBER : ST-5/ST-5/ST-6
REMARKS : ST-5 38.0 / ST-5 38.5 / ST-6 43.0

SAMPLE NO. : 1001
SAMPLE DEPTH : 38.0/38.5/43.0
SAMPLE TYPE : ST
DESCRIPTION : Sandy Silt/Sandy Silt/Sandy Lean Clay
TEST TYPE : Consolidated Undrained

Deviator Stress Vs. Axial Strain

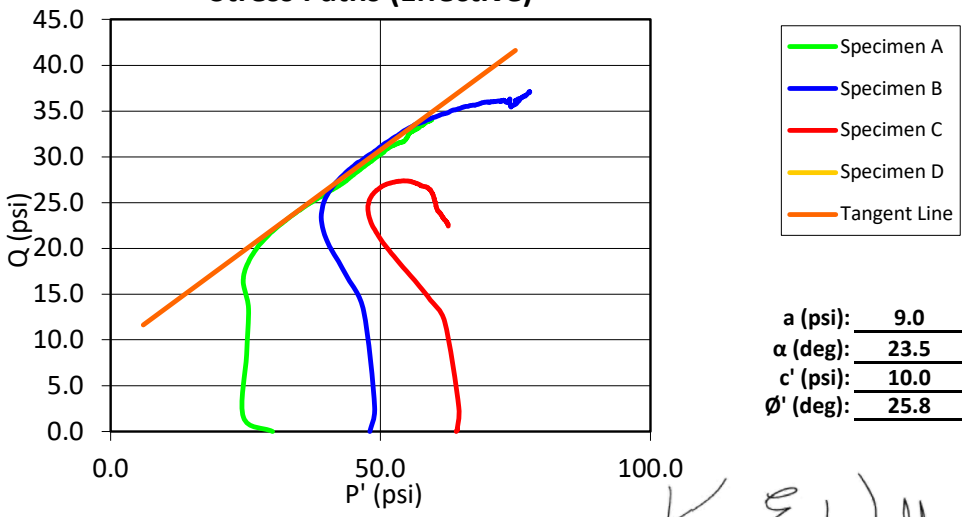


Initial	A	B	C	D
Water Content (%)	22.8	26.3	28.7	
Dry Density (pcf)	106.4	102.0	97.9	
Saturation (%)	100.0	100.0	100.0	
Void Ratio	0.623	0.693	0.787	
Diameter (in)	2.862	2.863	2.846	
Height (in)	5.850	5.903	5.818	
Specific Gravity	2.77	2.77	2.80	
Liquid Limit	37	37	46	
Plastic Limit	25	25	20	
After Consolidation	**A**	**B**	**C**	**D**
B-Value	1.00	0.96	0.95	
Water Content (%)	24.2	27.4	29.0	
Dry Density (pcf)	106.9	102.1	98.0	
Saturation (%)	100.0	100.0	100.0	
Void Ratio	0.615	0.691	0.786	
Effective Stress (psi)	30.0	48.0	64.0	
Back Press. (psi)	53.0	55.5	53.0	
Rate of Strain	0.005	0.005	0.005	

Maximium Principal Stress Ratio	
c (psi)	6.7
Ø (deg)	16.0
c' (psi)	8.8
Ø' (deg)	27.9

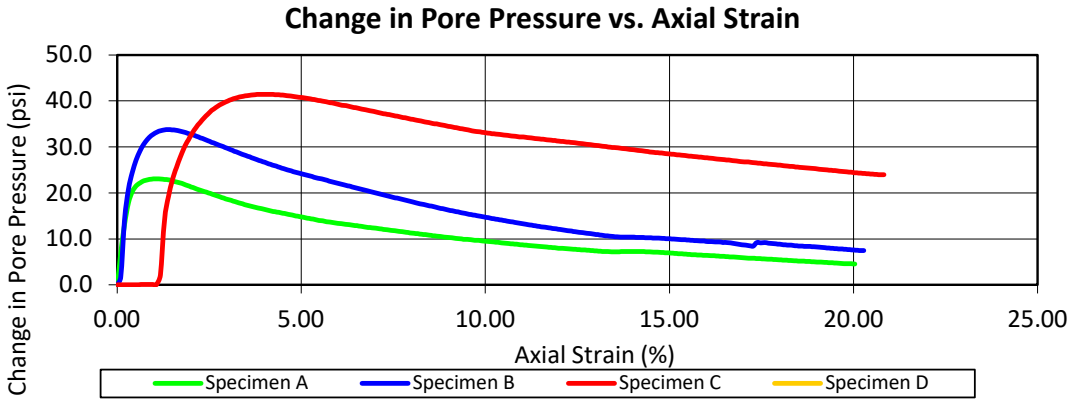
After Shear	A	B	C	D
σ'1 at Failure (psi)	47.58	69.48	75.52	
σ'3 at Failure (psi)	7.13	14.68	22.90	

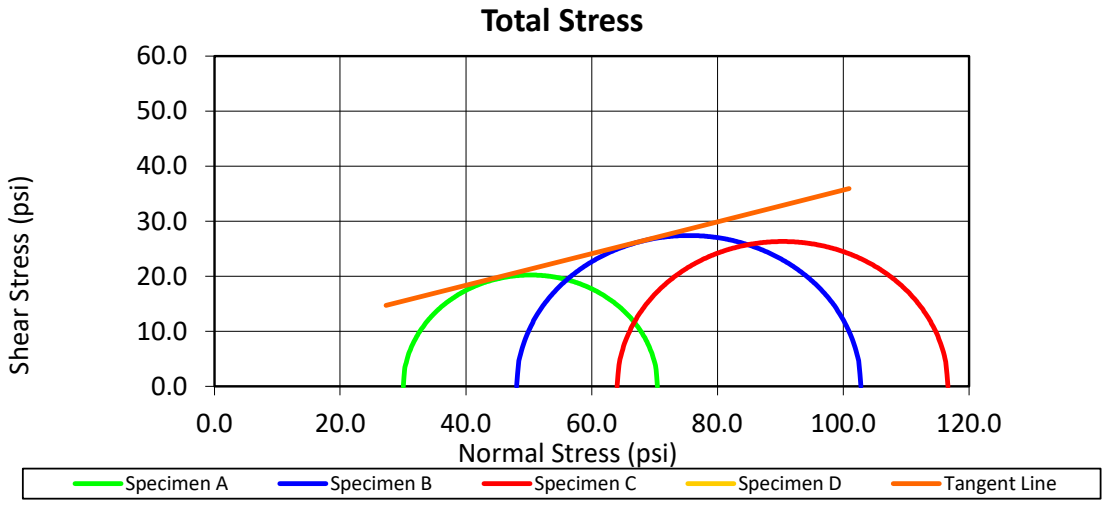
Stress Paths (Effective)



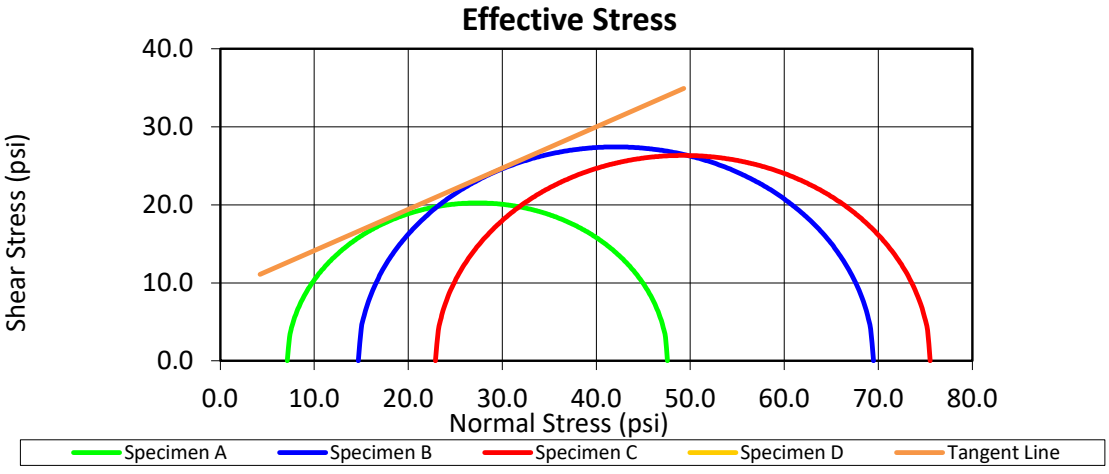
a (psi):	9.0
α (deg):	23.5
c' (psi):	10.0
Ø' (deg):	25.8

Approved By: Kevin E. Walker
Date: 9-19-23





Maximum Principal Stress Ratio Criterion: **c (psi):** **6.7** **Ø (deg):** **16.0**



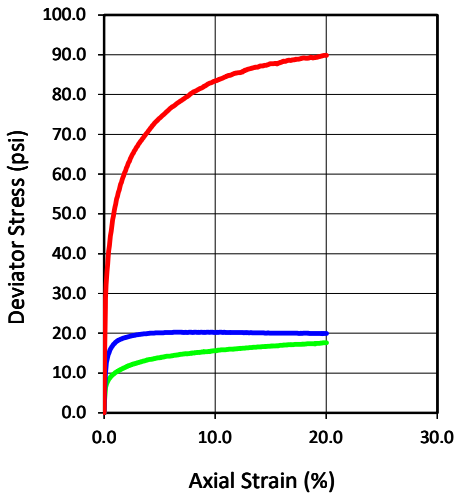
Maximum Principal Stress Ratio Criterion: **c' (psi):** **8.8** **Ø' (deg):** **27.9**

Consolidated Undrained Triaxial Test (ASTM D4767)

PROJECT NAME : I-64 / I-75 Split
PROJECT NO. : 10118407
PROJECT LOCATION : Fayette Co., KY
BORING NUMBER : 1003
REMARKS : ST-3 18.0 / ST-3 18.5 / ST-5 43.5

SAMPLE NO. : ST-3/ST-3/ST-5
SAMPLE DEPTH : 18.0/18.5/43.5
SAMPLE TYPE : ST
DESCRIPTION : Clayey Sand w/Gravel, Clayey Sand w/Gravel, Sandy Lean Clay
TEST TYPE : Consolidated Undrained

Deviator Stress Vs. Axial Strain

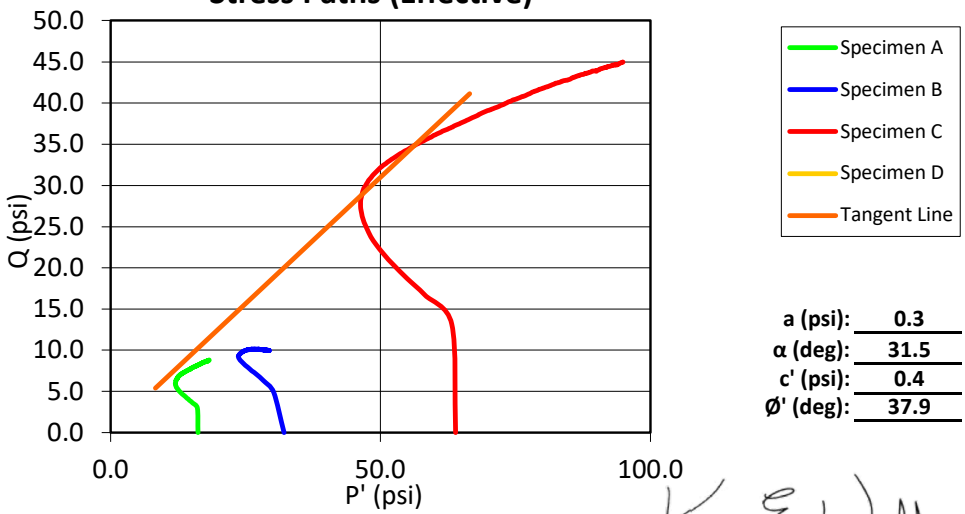


Initial	A	B	C	D
Water Content (%)	30.5	30.7	18.7	
Dry Density (pcf)	96.6	96.2	116.6	
Saturation (%)	100.0	100.0	100.0	
Void Ratio	0.737	0.744	0.521	
Diameter (in)	2.841	2.848	2.843	
Height (in)	5.888	5.780	5.899	
Specific Gravity	2.69	2.69	2.84	
Liquid Limit	38	38	36	
Plastic Limit	23	23	20	
After Consolidation	**A**	**B**	**C**	**D**
B-Value	1.00	1.00	0.97	
Water Content (%)	30.5	29.8	19.6	
Dry Density (pcf)	97.2	96.3	116.8	
Saturation (%)	113.1	108.0	107.1	
Void Ratio	0.726	0.741	0.519	
Effective Stress (psi)	16.0	32.0	64.0	
Back Press. (psi)	41.3	64.1	47.7	
Rate of Strain	0.005	0.005	0.005	

Maximium Principal Stress Ratio	
c (psi)	0.1
Ø (deg)	19.3
c' (psi)	0.0
Ø' (deg)	34.8

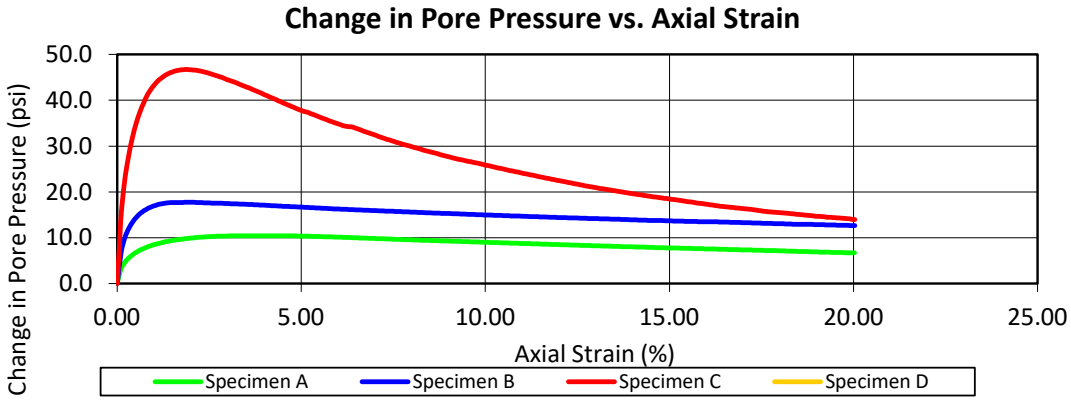
After Shear	A	B	C	D
σ'1 at Failure (psi)	19.78	34.21	81.62	
σ'3 at Failure (psi)	5.83	14.61	17.70	

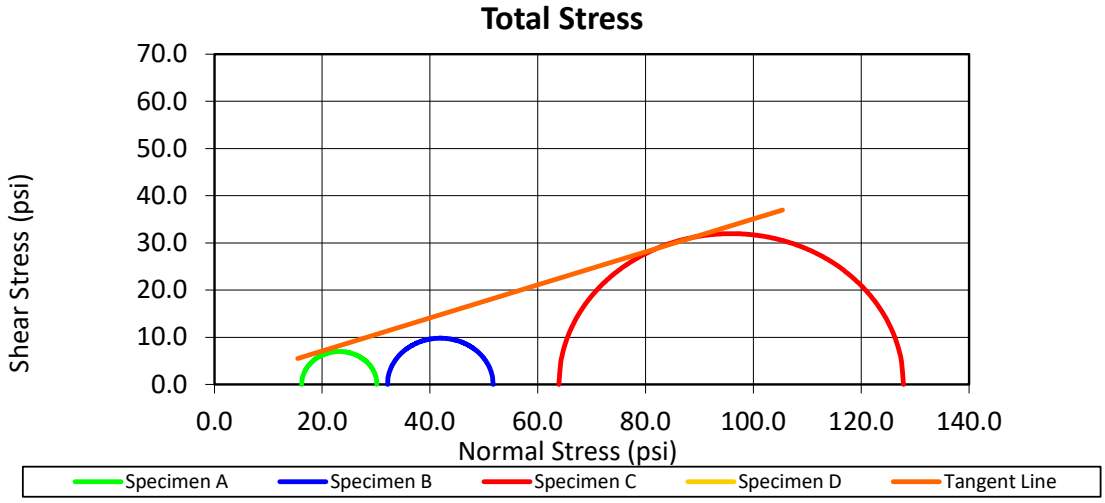
Stress Paths (Effective)



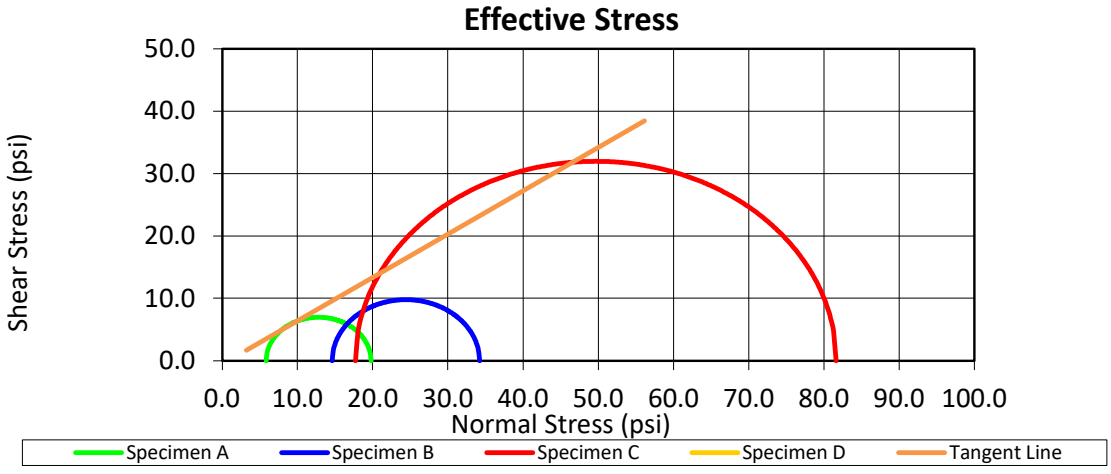
a (psi):	0.3
α (deg):	31.5
c' (psi):	0.4
Ø' (deg):	37.9

Approved By: Kevin E. Walker
Date: 9-19-23





Maximum Principal Stress Ratio Criterion: **c (psi): 0.1** **Ø (deg): 19.3**



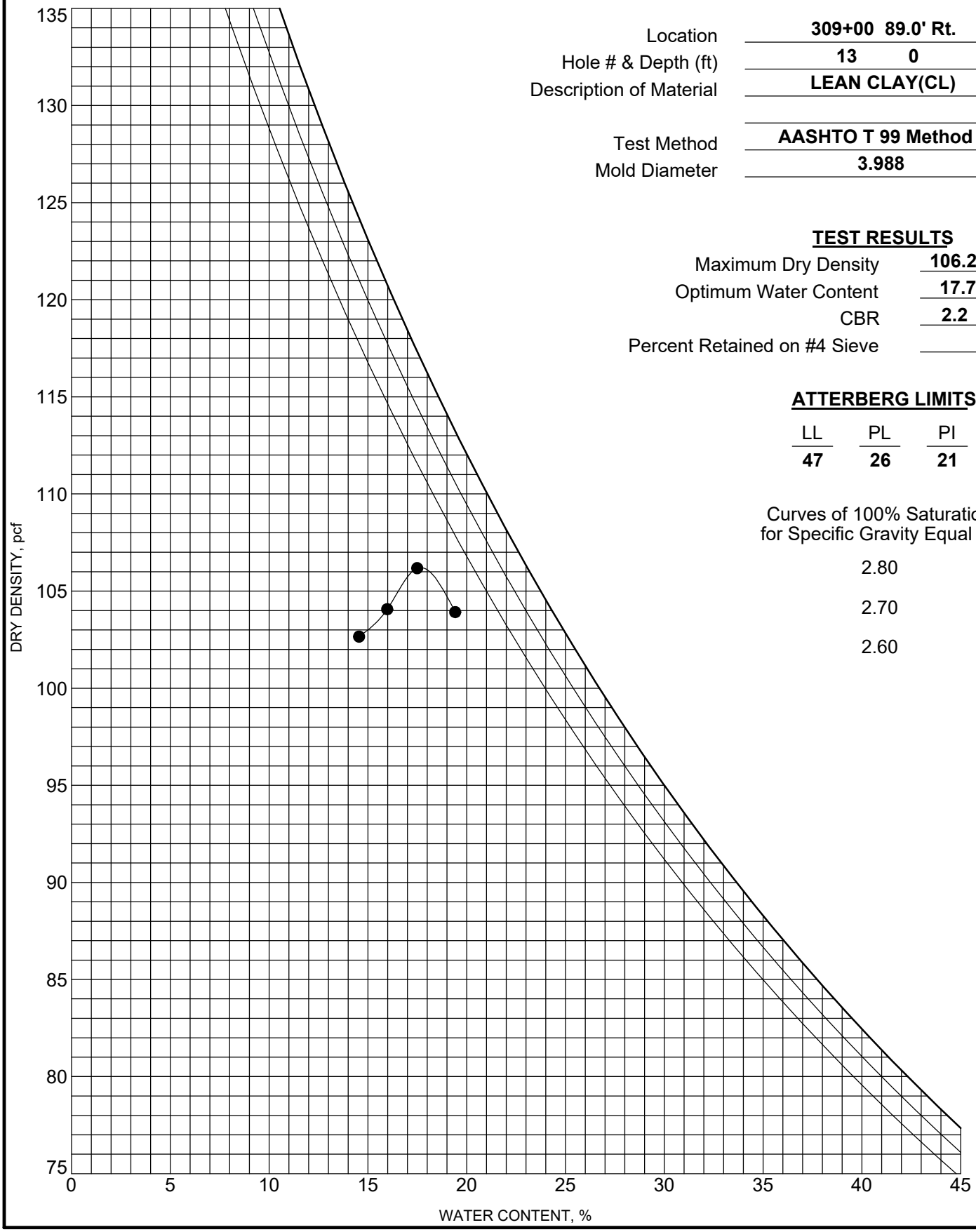
Maximum Principal Stress Ratio Criterion: **c' (psi): 0.0** **Ø' (deg): 34.8**

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**309+00 89.0' Rt.**
Hole # & Depth (ft)	**13 0**
Description of Material	**LEAN CLAY(CL)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**106.2 PCF**
Optimum Water Content	**17.7 %**
CBR	**2.2**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
47	**26**	**21**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

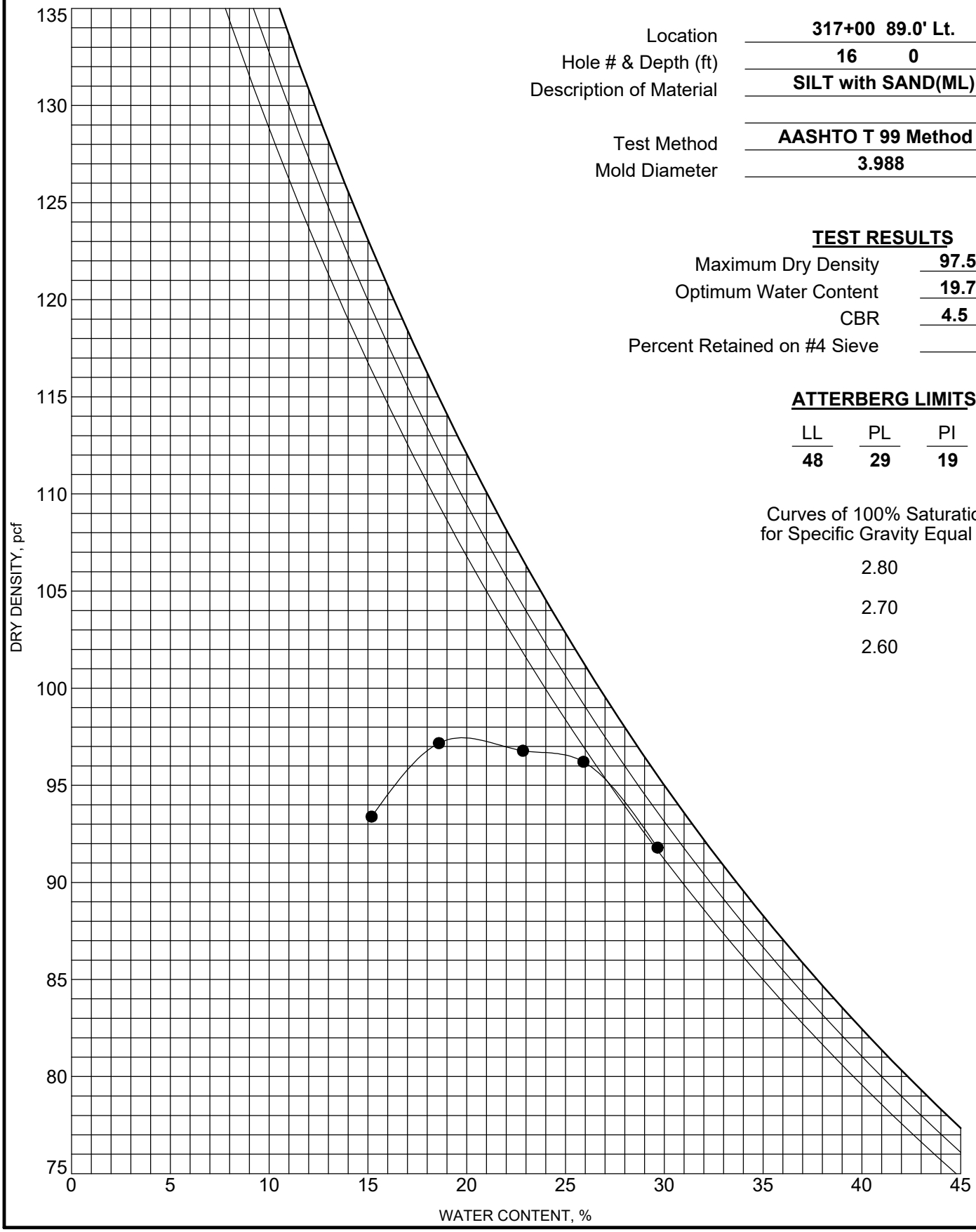
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**317+00 89.0' Lt.**
Hole # & Depth (ft)	**16 0**
Description of Material	**SILT with SAND(ML)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**97.5 PCF**
Optimum Water Content	**19.7 %**
CBR	**4.5**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
48	**29**	**19**

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

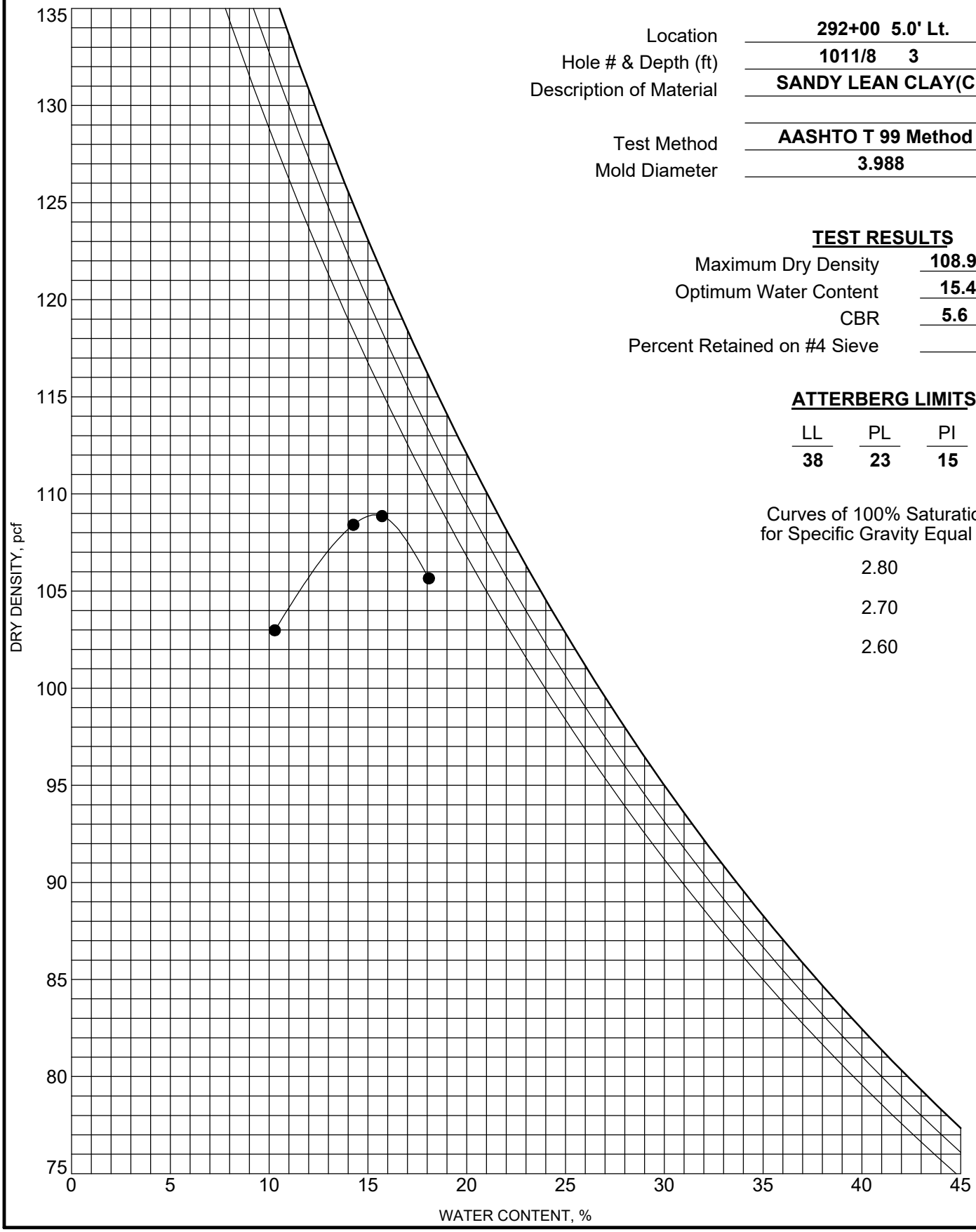
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**292+00 5.0' Lt.**
Hole # & Depth (ft)	**1011/8 3**
Description of Material	**SANDY LEAN CLAY(CL)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**108.9 PCF**
Optimum Water Content	**15.4 %**
CBR	**5.6**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
38	**23**	**15**

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

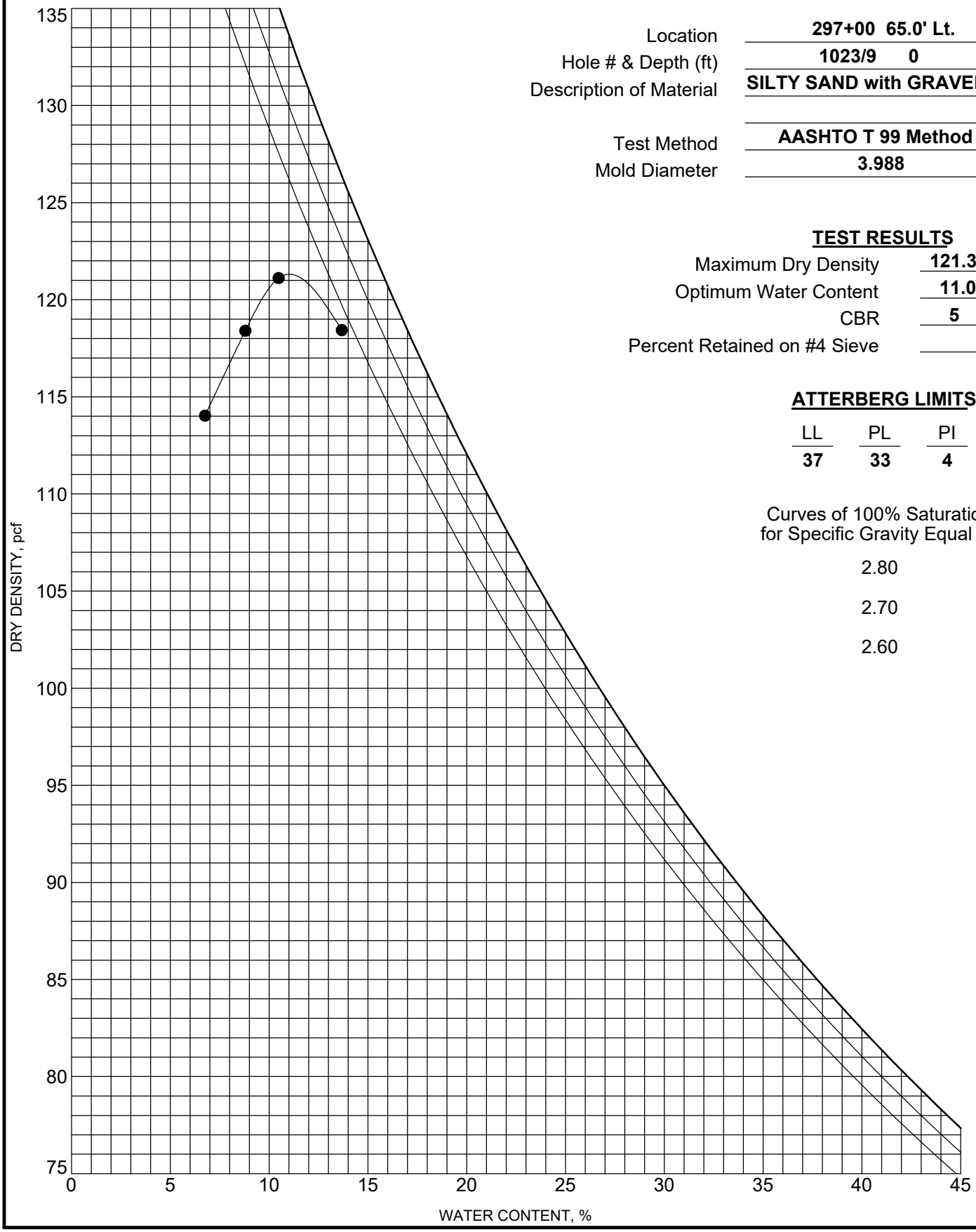
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**297+00 65.0' Lt.**
Hole # & Depth (ft)	**1023/9 0**
Description of Material	**SILTY SAND with GRAVEL(SM)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**121.3 PCF**
Optimum Water Content	**11.0 %**
CBR	**5**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
37	**33**	**4**

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

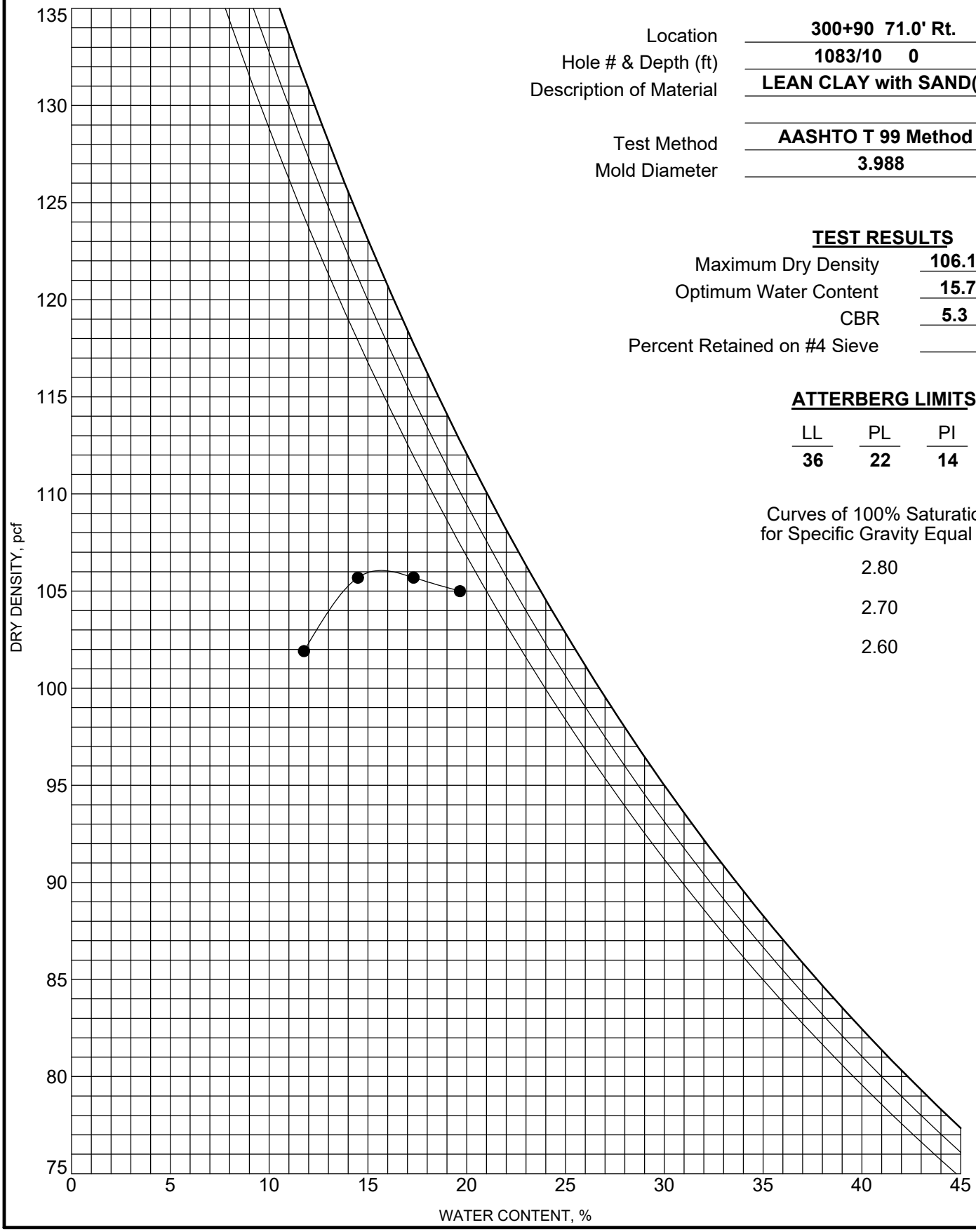
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**300+90 71.0' Rt.**
Hole # & Depth (ft)	**1083/10 0**
Description of Material	**LEAN CLAY with SAND(CL)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**106.1 PCF**
Optimum Water Content	**15.7 %**
CBR	**5.3**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
36	**22**	**14**

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

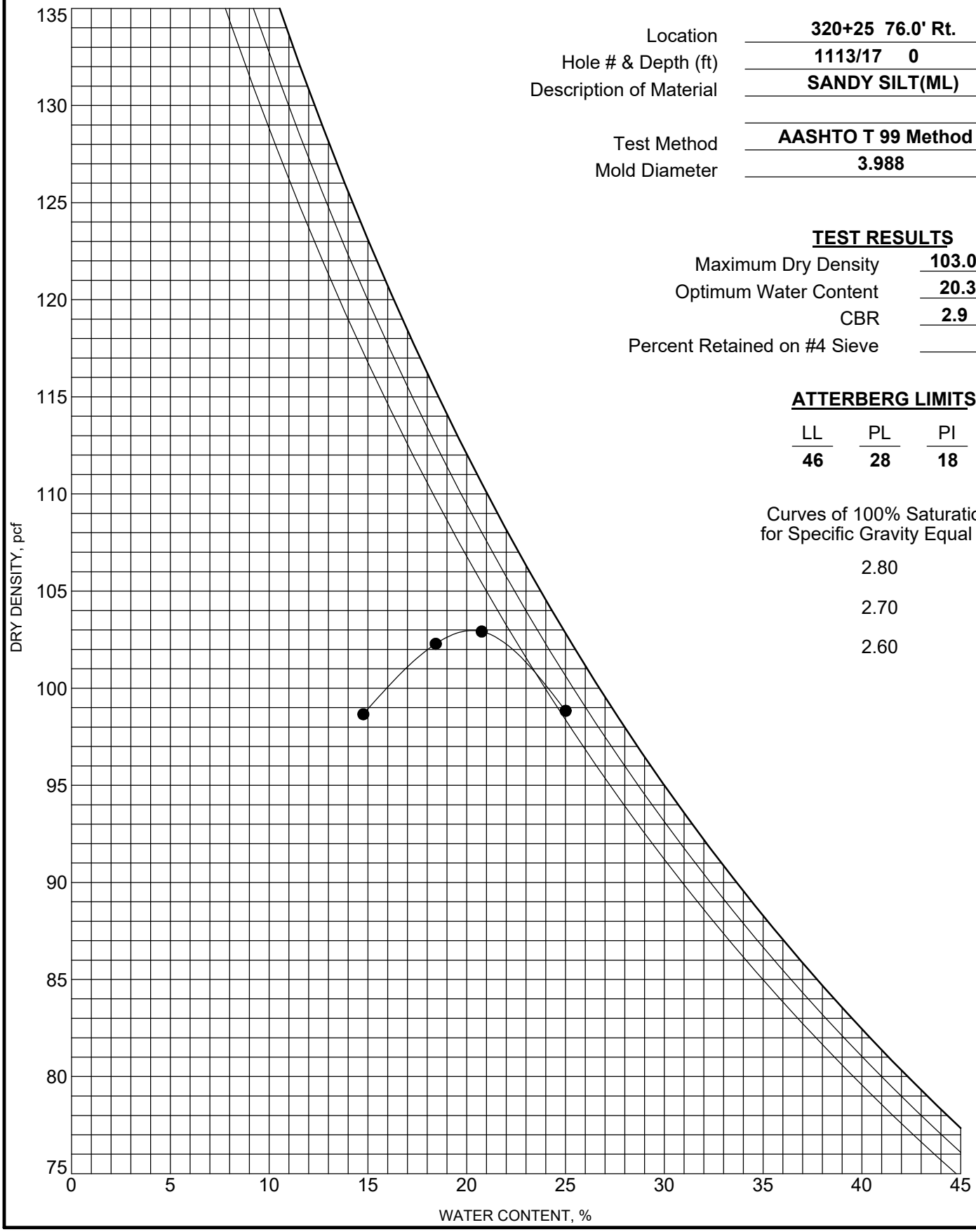
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**320+25 76.0' Rt.**
Hole # & Depth (ft)	**1113/17 0**
Description of Material	**SANDY SILT(ML)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**103.0 PCF**
Optimum Water Content	**20.3 %**
CBR	**2.9**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
46	**28**	**18**

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

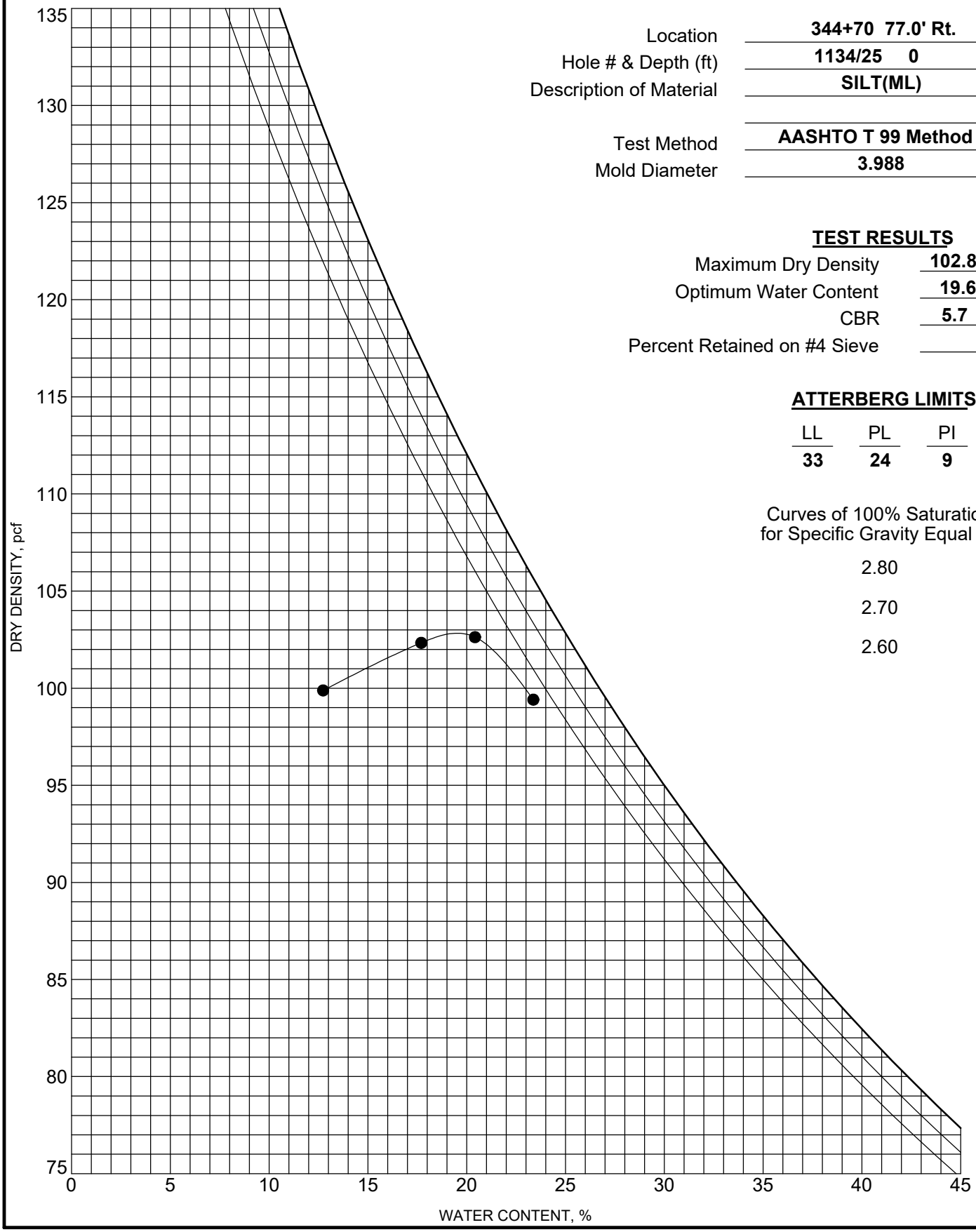
2.60

Drilling Firm: Geotechnology
For: Division of Structural Design
Geotechnical Branch

Printed: 1/2/24

MOISTURE-DENSITY RELATIONSHIP

Project ID: ***R-002-2023***	***Fayette - I-75 MP 111.0-112.9***	Project Type: ***Roadway***
Item Number: ***07-08909.30***		Project Manager:



Location	**344+70 77.0' Rt.**
Hole # & Depth (ft)	**1134/25 0**
Description of Material	**SILT(ML)**
Test Method	**AASHTO T 99 Method A**
Mold Diameter	**3.988**

TEST RESULTS

Maximum Dry Density	**102.8 PCF**
Optimum Water Content	**19.6 %**
CBR	**5.7**
Percent Retained on #4 Sieve	

ATTERBERG LIMITS

LL	PL	PI
33	**24**	**9**

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

2.60