



**GEOTECHNICAL DATA REPORT**  
**I-40 BRIDGE REPLACEMENT / REST AREA TRUCK**  
**PARKING**  
**SMITH - PUTNAM COUNTY, TENNESSEE**

**FEDERAL AID PROJECT No. NH-I-40-5 (161)**  
**TDOT PROJECT No. 80I040-S1-009**  
**TDOT PIN 131552.01**  
**TDOT GES No. 8001625**

Prepared for:  
**HMB PROFESSIONAL ENGINEERS, LLC**  
**FRANKFORT, KENTUCKY**

Prepared by:  
**UES PROFESSIONAL SOLUTIONS 25, LLC**  
**MEMPHIS, TENNESSEE**

Date:  
**OCTOBER 29, 2025**

UES Project No.:  
**A24138.00136.001**

**SAFETY**  
**TEAMWORK**  
**RESPONSIVENESS**  
**INTEGRITY**  
**VALUE**  
**EXCELLENCE**



October 29, 2025

Alex Carpenter, P.E.  
HMB Professional Engineers, LLC  
3 HMB Circle  
Frankfort, Kentucky 40601

Re: Geotechnical Data Report  
I-40 Bridge Replacement / Rest Area Truck Parking  
Smith - Putnam County, Tennessee  
UES Project No. A24138.00136.001  
Federal Aid Project No. NH-I-40-5 (161)  
TDOT Project No. 80I040-S1-009  
TDOT PIN 131552.01  
TDOT GES No. 8001625

Dear Mr. Carpenter:

Presented in this report are the results of the geotechnical exploration performed by UES Professional Solutions 25, LLC (UES) for the referenced project. The report includes our understanding of the project, observed site conditions, and data as listed in the Table of Contents.

We appreciate the opportunity to provide geotechnical services for this project. If you have any questions regarding this report, or if we can be of any additional service to you, please do not hesitate to contact us.

Respectfully submitted,

**UES**

A handwritten signature in black ink, appearing to read "Amber Meadows".

Amber Meadows  
Project Manager

A handwritten signature in blue ink, appearing to read "Ashraf S. Elsayed".

Ashraf S. Elsayed, Ph.D., P.E., BC.GE  
Chief Engineer – South Region

ABM/ASE:jtm

Copies submitted: Client (email)



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**Geotechnical Data Report  
I-40 Bridge Replacement / Rest Area Truck Parking  
Smith - Putnam County, Tennessee**

**October 29, 2025**

**UES Project No. A24138.00136.001 | TDOT PIN 131552.01 | TDOT GES No. 8001625**

## **1.0 SCOPE OF SERVICES**

Presented in this report are the results of the geotechnical exploration for design and construction of the proposed Interstate 40 (I-40) Welcome Center improvements and bridge replacement in Smith and Putnam County, Tennessee. The referenced project includes upgrades to the existing Welcome Center ramps, truck parking spaces to be added to the TDOT-owned property within the Welcome Center, and the replacement of the existing adjacent bridge structure of I-40 over the eastbound entrance and exit ramps and Caney Fork River. The project location is shown on Figure 1 included in Appendix B.

Data presented in this report are based on the geology, provided plans and project information, and the results of the geotechnical exploration. Results of borings, in-situ testing, sampling, and laboratory testing are included in the report. A total of 39 borings were performed in the vicinity of the site as shown on Figure 2 in Appendix B. Results of borings, in-situ testing, sampling, and laboratory testing are included in the report. The general site conditions are discussed. Unless noted otherwise, all dimensions, measurements, depths, and locations in this report should be considered approximate. Important information prepared by the Geotechnical Business Council (GBC) of the Geoprofessional Business Association for studies of this type is presented in Appendix A for your review.

## **2.0 GENERAL INFORMATION**

### **Planned Modifications**

The proposed I-40 Welcome Center (MM267) and interchange improvements project include replacement of the twin bridges for eastbound (EB) and westbound (WB) I-40 with a single bridge, ramp and access drive modifications, and addition of new parking and drive areas to the adjacent Welcome Center in Smith & Putnam County. The project length is approximately 0.86 miles. The I-40 corridor is a full access-controlled facility with an interchange to access the Welcome Center. Based on provided plans<sup>1</sup>, the project will utilize two conceptual typical sections for I-40: four-lane

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<sup>1</sup> Drawings titled, *Preliminary Function Design Plans*, developed by State of Tennessee – Department of Transportation – Bureau of Engineering, and dated 2025.





freeway with a depressed median and six-lane freeway with median barrier for the proposed bridge. The planned modifications are discussed in the following paragraphs.

#### Bridge 80I00400036: I-40 EB & WB over the Caney Fork River and EB access ramps

The existing twin bridges are two 320-foot-long, 44-foot-wide, four-span, pre-stressed, concrete bridges with 14 feet and 11 inches of vertical clearance at their intersection with EB I-40 entrance and exit ramps, and 45 to 48 feet of vertical clearance at the Caney Fork River bottom. Each bridge consists of two, 12-foot-wide travel lanes and outside/inside shoulders. A retaining wall is located at the east abutment.

The existing twin bridges will be replaced with either a 325-foot long, 135-foot-wide, two-span, steel bridge or a 322-foot long, 135-foot-wide, three-span, steel bridge. Sides slopes are anticipated to range from two horizontal units for every vertical unit (2H:1V) to (10H:1V). Abutment slopes are anticipated to match existing. Up to 2 feet of cut and 12 feet of fill will be required to achieve design grades.

#### Ancillary Modifications

Additional improvements will be made to the I-40 Welcome Center interchange including modifying the existing alignment and side slopes of I-40 WB entrance ramp (Ramp A), I-40 EB exit ramp (Ramp B), I-40 EB entrance ramp (Ramp C), and I-40 WB exit ramp (Ramp D) in accordance with current design standards. Up to 30 feet of cut and 12 feet of fill will be required to achieve design grades. Sides slopes are anticipated to range from 2H:1V to 10H:1V.

#### Welcome Center Modifications

The existing wooded areas to the west of the Welcome Center will be clear cut for the construction of a 125-bay truck parking lot expansion with associated drive areas. Grading information for the proposed parking and drive areas was not provided.

### **Topography and Drainage**

Based on the provided plans, the existing topography at the site ranges from approximately El<sup>2</sup> 480 to El 580 across the project area, with the exception of the Caney Fork River which has a mudline elevation of El 455 at the bridge crossing. The site is within the floodplain of Caney Fork River, which drains west into the Cumberland River.

### **Geology**

The site is located in the eastern Highland Rim physiographic province of central Tennessee, within Smith and Putnam Counties. The region is underlain by Middle Ordovician carbonate bedrock, specifically the Bigby–Cannon Limestone, which dominates the local stratigraphy. This formation, as mapped by the Tennessee Division of Geology, consists primarily of the Cannon facies—medium-dark gray to brownish-black, microcrystalline to medium-grained, thin- to

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<sup>2</sup> Elevations are referenced in units of feet to North American Vertical datum (NAVD 88).



medium-bedded limestone with common chert and occasional silty mottling. The Dove facies is present only as relatively thin zones and is characterized by medium-light gray to medium gray, cryptocrystalline limestone with conchoidal fracture and scattered calcite stringers. The formation typically ranges from 50 to 125 feet thick in this region.

Overlying the bedrock is a mantle of unconsolidated surficial materials that include residual soils, colluvium, and alluvium. These deposits vary in composition and thickness depending on topographic position.

On uplands and hillslopes, the surficial cover consists of residual soils formed in place by the weathering of the underlying limestone, often accompanied by colluvium on slopes and benches. These deposits typically include clayey and silty materials with varying amounts of chert fragments. Depth to bedrock in these areas commonly ranges from approximately 3 to more than 5 feet, depending on slope position and degree of weathering. In some locations—particularly on footslopes or benches—residual and colluvial soils may exceed 60 inches in thickness above the limestone.

In the lower-lying floodplain areas adjacent to streams and drainageways, Holocene alluvium is present. These deposits consist primarily of silt, silty clay loam, and minor sand or gravel layers, reflecting modern fluvial processes. According to USDA NRCS mapping, soils in these environments commonly exhibit clay-rich subsoils and moderate to poor drainage, with depths to bedrock typically exceeding 40 to 50 inches.

### 3.0 GEOTECHNICAL EXPLORATION

The geotechnical exploration consisted of 39 borings in the locations of the proposed structures as described in Table 1. The borings were located in the field by a UES representative. The boring locations shown on Figure 2 in Table 1 are approximate; if elevations or more precise locations are required, the client should retain a registered surveyor to establish boring locations and elevations.

**Table 1. Boring Location Summary.**

| Boring(s)                            | Proposed Improvement    |
|--------------------------------------|-------------------------|
| BR-1 through BR-5                    | Bridge                  |
| WB-1, WB-2, EB-1, and EB-2           | Approaches              |
| W-1 through W-11 and E-1 through E-9 | Entrance and Exit Ramps |
| P-1 through P-10                     | Parking and Drive Areas |

The borings were drilled on March 27 through May 14, 2025, with ATV- and track-mounted rotary drill rigs (Geoprobe 7822DT, CME 550X, and CME 750X) using hollow stem augers and rotary wash drilling methods. Borings BR-3 and BR-4 were drilled through the bridge deck of the WB and EB driving lanes, respectively. Auger refusal occurred in Borings BR-1 through BR-5, E-1 through E-3, E-8 through E-9, EB-1, EB-2, W-1, W-2, W-4 through W-11, and WB-2 during drilling at



approximate depths of 4 to 57 feet (El 459 to El 527). Borings BR-1 through BR-5 were advanced into rock by NQ coring to total depths of 32 to 67 feet (El 433 to El 487). Rock core samples were obtained in 2- to 5-foot-long segments.

Soil sampling procedures included Standard Penetration Test (SPT) and thin-walled (Shelby) tube methods. SPT's were conducted at 2.5- and 5-foot depth intervals using an automatic hammer to obtain the standard penetration resistance, or N-values<sup>3</sup>, of the sampled material. Composite bulk sample of auger cuttings/spoils were collected at Borings W-1, W-7, W-11, E-6, P-2, P-5, and P-8 and placed in buckets. Groundwater observations were made during drilling operations. Pavement core samples were collected in Borings EB-1, EB-2, WB-1, and WB-2 during drilling.

Samples collected by UES were visually examined by a geologist and transported to our laboratory for further evaluation and testing. The samples were examined in the laboratory by a geotechnical professional who prepared descriptive logs of the materials encountered. Descriptions of the rock cores are provided on the boring logs. Boring logs and rock core photographs are presented in Appendix C. An explanation of the terms and symbols used on the boring logs, and an explanation of rock core descriptions, are also provided in Appendix C. Included on each boring log are surveyed location and surface elevation data. Included in Table 2 are in situ tests and measurements made as part of the fieldwork and recorded on the boring logs.

**Table 2. Field Tests and Measurements.**

| Item                                                      | Test Method                |
|-----------------------------------------------------------|----------------------------|
| Soil Classification                                       | ASTM D 2488/ D 3282        |
| Standard Penetration Test (SPT)                           | ASTM D 1586/ AASHTO T206   |
| Thin-Walled (Shelby) Tube Sampling                        | ASTM D 1587/ AASHTO T207   |
| Phreatic Surface Level Measurement in Boring              | ASTM D 4750                |
| Rock Core Drilling and Sampling of Rock                   | ASTM D 2113 / AASHTO T 225 |
| Rock Quality Designation (RQD <sup>4</sup> ) of Rock Core | ASTM D 6032                |

The boring logs and related information depict subsurface conditions only at the specific locations and times where sampling was conducted. The passage of time could result in changes in conditions, interpreted to exist, at or between the locations where sampling was conducted.

<sup>3</sup> The standard penetration resistance, or N-value, is defined as the number of blows required to drive the split-spoon sampler 12 inches with a 140-pound hammer falling 30 inches. Since the split spoon sampler is driven 18 inches or until refusal, the blows for the first 6 inches are for seating the sampler, and the number of blows for the final 12 inches is the N-value. Additionally, "refusal" of the split-spoon sampler occurs when the sampler is driven less than 6 inches with 50 blows of the hammer.

<sup>4</sup> Rock quality designation is the ratio of the sum of the pieces of core measuring 4 inches or larger to the total length of the cored interval, expressed as a percentage.



## 4.0 LABORATORY REVIEW AND TESTING

Laboratory testing was performed on soil and rock samples to assess engineering and index properties. Moisture contents, grain size (sieve analyses), Atterberg limits, unconsolidated-undrained triaxial compression (UU), and compressive strength of rock core test results are presented on the boring logs in Appendix C.

Laboratory test results for grain size distributions, Atterberg, UU, consolidated-drained direct shear (CD), standard Proctor, and rock core compressive strength results are presented in Appendix D. Laboratory tests and corresponding test method standards are listed in Table 3.

**Table 3. Summary of Laboratory Tests and Methods.**

| Laboratory Test                                    | ASTM   | AASHTO |
|----------------------------------------------------|--------|--------|
| Moisture Content                                   | D 2216 | T 265  |
| Grain Size Analysis by Sieving                     | D 6913 | T 88   |
| Grain Size Analysis by Hydrometer                  | D 7928 | T 88   |
| Atterberg Limits                                   | D 4318 | T 98   |
| Unconsolidated-Undrained Triaxial Compression (UU) | D 2850 | T 296  |
| Consolidated-Drained Direct Shear (CD)             | D 3080 | T 236  |
| Moisture-Density Relationship (Standard Effort)    | D 698  | T 99   |
| California Bearing Ratio (CBR)                     | D 1883 | T 193  |
| Compressive Strength of Rock Core Specimens        | D 7012 | T 226  |

The boring logs were prepared from field logs, visual classification of the soil samples, and laboratory test results. Terms and symbols used on the boring logs are presented on the Boring Log: Terms and Symbols in Appendix C. Stratification lines on the boring logs indicate approximate changes in strata. The transition between materials could be gradual or could occur between recovered samples. The stratification given on the boring logs, or described herein, is for use by UES in its analyses and should not be used as the basis of design or construction cost estimates without realizing that there can be variation from that shown or described.

## 5.0 SUBSURFACE CONDITIONS

### Existing Pavement and Ground Surface Conditions

The ground surface at the locations of the borings was covered with 3 to 15 inches of topsoil in landscaped areas and 4 to 25 inches of asphalt underlain by up to 38 inches of base materials in paved areas. The designation, location, and ground surface conditions encountered at the borings are presented in Table 4. It should be noted that due to the sample intervals and space between boring locations, the actual depth of base materials may vary between samples and borings.

**Table 4. Ground Surface Conditions Summary.**

| Boring or Pavement Core      | Station   Offset <sup>1</sup><br>(feet) | Material                                   | Thickness<br>(inches) |
|------------------------------|-----------------------------------------|--------------------------------------------|-----------------------|
| BR-1                         | 546+25.5   17.5 RT                      | Asphalt                                    | 20                    |
| BR-2                         | 546+95.5   6.5 RT                       | Asphalt                                    | 14                    |
| BR-3 <sup>2</sup>            | 548+28.0   15.5 LT                      | Asphalt                                    | 4                     |
|                              |                                         | Concrete                                   | 14                    |
|                              |                                         | Void Space                                 | 32                    |
|                              |                                         | Concrete                                   | 7.5                   |
| BR-4 <sup>2</sup>            | 549+09.5   17.5 RT                      | Asphalt                                    | 4.25                  |
|                              |                                         | Concrete                                   | 13.75                 |
|                              |                                         | Void Space                                 | 24                    |
| BR-5                         | 550+20.0   9.0 RT                       | Asphalt                                    | 5                     |
|                              |                                         | Base Materials: crushed limestone and sand | 13                    |
| E-1                          | 519+98.0   67.0 RT                      | Asphalt                                    | 7                     |
|                              |                                         | Base Materials: crushed limestone and sand | 12                    |
| E-2                          | 523+87.5   60.0 RT                      | Asphalt                                    | 7.5                   |
|                              |                                         | Base Materials: crushed limestone and sand | 10.5                  |
| E-3                          | 527+81.5   101.5 RT                     | Asphalt                                    | 5                     |
|                              |                                         | crushed limestone and sand                 | 11                    |
| E-4                          | 533+96.5   44.0 RT                      | Asphalt                                    | 7                     |
|                              |                                         | Base Materials: crushed limestone and sand | 35                    |
| E-5                          | 534+17.0   116.5 RT                     | Topsoil                                    | 3                     |
| E-6                          | 538+18.0   52.0 RT                      | Asphalt                                    | 4                     |
|                              |                                         | Base Materials: crushed limestone and sand | 38                    |
| E-7                          | 537+89.0   112.11 RT                    | Topsoil                                    | 3                     |
| E-8                          | 542+58.0   52.0 RT                      | Asphalt                                    | 8                     |
|                              |                                         | Base Materials: crushed limestone and sand | 34                    |
| E-9                          | 542+48.5   152.0 RT                     | Topsoil                                    | 2                     |
| EB-1                         | 545+07.0   47.0 RT                      | Asphalt                                    | 13                    |
|                              |                                         | Base Materials: crushed limestone and sand | 29                    |
|                              |                                         | Asphalt                                    | 21.5                  |
| EB-1 (lane) <sup>3</sup>     |                                         | Asphalt                                    | 16.75                 |
| EB-1 (shoulder) <sup>3</sup> |                                         | Asphalt                                    | 5                     |
| EB-2                         | 551+07.5   39.0 RT                      | Base Materials: crushed limestone and sand | 37                    |
|                              |                                         | Asphalt                                    | 21.25                 |
|                              |                                         | Asphalt                                    | 8.5                   |
| P-1                          | 509+87.5   375.0 LT                     | Topsoil                                    | 3                     |
| P-2                          | 511+55.5   551.0 LT                     | Topsoil                                    | 3                     |
| P-3                          | 519+12.5   277.5 LT                     | Topsoil                                    | 12                    |
| P-4                          | 519+86.5   553.0 LT                     | Topsoil                                    | 7                     |

**Table 4. Ground Surface Conditions Summary (continued).**

| Boring or Pavement Core      | Station   Offset <sup>1</sup><br>(feet) | Material                                   | Thickness<br>(inches) |
|------------------------------|-----------------------------------------|--------------------------------------------|-----------------------|
| P-5                          | 525+56.0   204.0 LT                     | Topsoil                                    | 10                    |
| P-6                          | 526+17.5   489.0 LT                     | Topsoil                                    | 4                     |
| P-7                          | 527+89.0   395.0 LT                     | Topsoil                                    | 4                     |
| P-8                          | 531+12.5   322.5 LT                     | Topsoil                                    | 3                     |
| P-9                          | 535+03.5   528.0 LT                     | Asphalt                                    | 4                     |
|                              |                                         | Base Materials: crushed limestone and sand | 8                     |
| P-10                         | 538+69.0   681.0 LT                     | Topsoil                                    | 3                     |
| W-1                          | 510+98.5   123.5 LT                     | Topsoil                                    | 3                     |
| W-2                          | 511+50.5   70.0 LT                      | Asphalt                                    | 10                    |
|                              |                                         | Base Materials: crushed limestone and sand | 32                    |
| W-3                          | 514+61.0   105.5 LT                     | Topsoil                                    | 3                     |
| W-4                          | 514+81.5   46.5 LT                      | Asphalt                                    | 12                    |
|                              |                                         | Base Materials: crushed limestone and sand | 30                    |
| W-5                          | 518+43.0   98.5 LT                      | Topsoil                                    | 6                     |
| W-6                          | 521+73.0   103.0 LT                     | Topsoil                                    | 3                     |
| W-7                          | 521+88.5   35.0 LT                      | Asphalt                                    | 10                    |
|                              |                                         | Base Materials: crushed limestone and sand | 10                    |
| W-8                          | 524+76.0   104.5 LT                     | Topsoil                                    | 15                    |
| W-9                          | 525+06.07   36.0 LT                     | Asphalt                                    | 16                    |
|                              |                                         | Base Materials: crushed limestone and sand | 9                     |
| W-10                         | 528+81.0   126.0 LT                     | Topsoil                                    | 3                     |
| W-11                         | 529+05.5   51.5 LT                      | Asphalt                                    | 9                     |
|                              |                                         | Base Materials: crushed limestone and sand | 33                    |
| WB-1                         | 541+01.5   14.5 LT                      | Asphalt                                    | 12                    |
|                              |                                         | Base Materials: crushed limestone and sand | 30                    |
|                              |                                         | Asphalt                                    | 24.5                  |
| WB-1 (lane) <sup>3</sup>     | 541+01.5   14.5 LT                      | Asphalt                                    | 9.5                   |
| WB-1 (shoulder) <sup>3</sup> |                                         | Asphalt                                    | 7                     |
| WB-2                         | 552+41.5   13.5 LT                      | Base Materials: crushed limestone and sand | 35                    |
|                              |                                         | Asphalt                                    | 18.75                 |
|                              |                                         | Asphalt                                    | 5.25                  |

<sup>1</sup> Offset to the right and left of the centerline is notated as RT and LT, respectively.

<sup>2</sup> Borings drilled through the bridge deck; thicknesses shown are in reference to the bridge deck.

<sup>3</sup> Pavement core

Pavement cores were obtained near Borings WB-1, WB-2, EB-1, and EB-2 with a coring machine equipped with a 4-inch diameter core barrel. Pavement material thicknesses presented in Table 4 were measured from recovered core samples at core locations and boring locations during



drilling. Pavement thicknesses presented in this report might not reflect the maximum thicknesses encountered during construction. The recovered pavement core samples were marked and labeled in the field for identification then returned to our laboratory. Photographs of the recovered pavement cores are included in Appendix E.

### **General Stratigraphy**

Beneath the pavement materials and topsoil shown in Table 4 and from the creek bottom in Borings BR-3 and BR-4, the stratigraphy generally consisted of interlayered fine- and coarse-grained soils underlain by limestone and shale bedrock. More specific descriptions of the stratigraphy encountered are provided below and on the boring logs in Appendix C.

#### ***Fine-Grained Soils***

The fine-grained soils were generally classified as low plasticity, lean clay (CL), silt (ML), and silty clay (CL-ML) and high plasticity fat clay (CH) and elastic silt (MH) with varying amounts of sand and gravel by the Unified Soil Classification System (USCS) and A-2-6, A-4, A-6, A-7-5, and A-7-6 by the AASHTO method. Moisture contents of tested samples ranged from 1 to 54 percent. Liquid limits (LL) and plasticity indices (PI) of the tested samples ranged from 30 to 98 percent and 5 to 58 percent, respectively. SPT N-values ranged from 0 to 40 blows per foot (bpf). The UU tests performed on relatively undisturbed Shelby Tube samples yielded an undrained shear strength range of 1,840 to 2,850 pounds per square foot (psf). The results of field and laboratory testing were indicative of very soft to hard consistencies in this upper fine-grained stratum.

#### ***Coarse-Grained Soils***

The coarse-grained soils were generally classified as clayey sand (SC, SC-SM), silty sand (SM), clayey gravel (GC), intermixed sand (SP, SP-SC, SP-SM), and intermixed gravel (GP, GW, GP-GC) by USCS and A-1-b, A-2-4, A-2-6, A-2-7, A-4, A-6, and A-7-6 by the AASHTO method. SPT N-values measured in the coarse-grained soils ranged from 0 to greater than 50 bpf, indicative of very loose to very dense conditions.

#### ***Bedrock***

Auger refusal on apparent bedrock occurred in Borings BR-1 through BR-5, E-1 through E-3, E-8 through E-9, EB-1, EB-2, W-1, W-2, W-4 through W-11, and WB-2 at depths of 3.9 to 56.5 feet (EI 459 to EI 527). Borings BR-1 through BR-5 were advanced into rock by NQ coring to total depths of 32 to 67 feet (EI 433 to EI 487).

Split spoons obtained in the upper foot of bedrock in Borings BR-4, BR-5, E-1 through E-3, EB-2, W-7, W-8, and EB-2 yielded highly weathered limestone. SPT N-values measured in the weathered rock ranged from 40 to greater than 50 bpf, indicative of dense to very dense conditions.

Rock cores recovered in the bedrock consisted of medium strong to very strong, gray, very finely to coarsely crystalline, thin to medium bedded, moderately weathered to unweathered limestone and/or gray to black, aphanitic to medium crystalline, thin to medium bedded, slightly weathered





to highly weathered calcareous shale with mudstone (encountered in Borings BR-2 through BR-4). Uniaxial compressive strength tests on rock core samples generally ranged from 5,037 to 17,877 pounds per square inch (psi), indicative of medium strong to very strong rock. Photos of rock cores and the uniaxial compressive strength testing results are presented in Appendix C and Table 5, respectively. RQD values measured from the rock cores ranged from 39 to 100 percent, indicative of poor to excellent quality rock. Rock core recovery and RQD generally increased with depth in the limestone, except within and around the observed shale where RQD generally decreased.

**Table 5. Unconfined Compressive Strength of Rock Core Samples.**

| DATE TESTED | BORING NO. | CORE NO. | DEPTH FT | DIAMETER IN | LENGTH IN | DENSITY LBS/FT <sup>3</sup> | LOAD LBS | STRENGTH PSI |
|-------------|------------|----------|----------|-------------|-----------|-----------------------------|----------|--------------|
| 5/30/2025   | BR-1       | 1        | 57.50    | 1.98        | 4.00      | 169.1                       | 34,887   | 11,290       |
| 5/30/2025   |            | 3        | 64.50    | 1.99        | 4.19      | 167.3                       | 48,549   | 15,664       |
| 5/30/2025   | BR-2       | 1        | 41.25    | 1.99        | 4.01      | 168.3                       | 33,694   | 10,882       |
| 5/30/2025   |            | 2        | 46.70    | 1.99        | 4.20      | 167.0                       | 44,881   | 14,496       |
| 5/30/2025   |            | 3        | 51.10    | 1.99        | 4.16      | 166.2                       | 44,435   | 14,366       |
| 5/30/2025   | BR-3       | 1        | 8.25     | 1.99        | 4.04      | 168.3                       | 45,541   | 14,709       |
| 5/30/2025   |            | 2        | 16.60    | 1.99        | 4.08      | 169.0                       | 24,154   | 7,801        |
| 5/30/2025   |            | 3        | 21.30    | 1.99        | 4.07      | 166.0                       | 42,549   | 13,756       |
| 5/30/2025   |            | 5        | 29.30    | 1.99        | 4.02      | 168.1                       | 46,290   | 14,951       |
| 5/30/2025   | BR-4       | 1        | 10.20    | 1.99        | 4.16      | 168.9                       | 23,319   | 7,539        |
| 5/30/2025   |            | 2        | 15.80    | 1.99        | 4.11      | 170.3                       | 15,579   | 5,037        |
| 5/30/2025   |            | 3        | 17.30    | 1.99        | 4.06      | 170.1                       | 23,968   | 7,741        |
| 5/30/2025   |            | 4        | 22.00    | 1.99        | 4.03      | 169.7                       | 55,294   | 17,877       |
| 5/30/2025   |            | 5        | 77.00    | 1.98        | 4.01      | 168.8                       | 39,855   | 12,898       |
| 5/30/2025   | BR-5       | 1        | 6.25     | 1.99        | 4.10      | 167.3                       | 17,163   | 5,543        |
| 5/30/2025   |            | 2        | 13.20    | 1.99        | 4.06      | 169.1                       | 48,536   | 15,692       |
| 5/30/2025   |            | 3        | 15.40    | 1.99        | 4.12      | 169.8                       | 41,974   | 13,557       |
| 5/30/2025   |            | 4        | 27.70    | 1.99        | 4.09      | 168.7                       | 41,850   | 13,517       |
| 5/30/2025   |            | 5        | 29.40    | 1.99        | 4.14      | 169.1                       | 43,677   | 14,107       |

## Groundwater

Groundwater was encountered during drilling at depths of 15 to 43.5 feet (El 469.5 to El 493.8) in Borings BR-1, BR-2, E-5, E-7, and E-9. Borings BR-3 and BR-4 were drilled in the Caney Fork River where mudline elevations were El 467.4 and El 473.2, respectively. Groundwater was not encountered in the remaining borings. Groundwater levels vary over time due to the effects of seasonal variation in precipitation, stage of and proximity to Caney Fork River, or other factors not evident at the time of exploration.

## 6.0 LIMITATIONS

This report has been prepared on behalf of, and for the exclusive use of, the client for specific application to the named project as described herein. If this report is provided to other parties, it should be provided in its entirety with all supplementary information. In addition, the client should





make it clear the information is provided for factual data only, and not as a warranty of subsurface conditions presented in this report.

UES has attempted to conduct the services reported herein in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions. The recommendations and conclusions contained in this report are professional opinions. The report is not a bidding document and should not be used for that purpose.

Our scope for this phase of the project did not include any environmental assessment or investigation for the presence or absence of wetlands or hazardous or toxic materials in the soil, surface water, groundwater, or air, on or below or around this site. Any statements in this report or on the boring logs regarding odors noted or unusual or suspicious items or conditions observed are strictly for the information of our client. Our scope did not include an assessment of the effects of flooding and erosion of creeks or rivers adjacent to or on the project site.

Our scope did not include: any services to investigate or detect the presence of mold or any other biological contaminants (such as spores, fungus, bacteria, viruses, and the by-products of such organisms) on and around the site; or any services, designed or intended, to prevent or lower the risk of the occurrence of an infestation of mold or other biological contaminants.

The analyses, conclusions, and recommendations contained in this report are based on the data obtained from the geotechnical exploration. The field exploration methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Consequently, subsurface conditions could vary gradually, abruptly, and/or nonlinearly between sample locations and/or intervals.

The conclusions or recommendations presented in this report should not be used without UES's review and assessment if the nature, design, or location of the facilities is changed, if there is a lapse in time between the submittal of this report and the start of work at the site, or if there is a substantial interruption or delay during work at the site. If changes are contemplated or delays occur, UES must be allowed to review them to assess their impact on the findings, conclusions, and/or design recommendations given in this report. UES will not be responsible for any claims, damages, or liability associated with any other party's interpretations of the subsurface data or with reuse of the subsurface data or engineering analyses in this report.

The recommendations included in this report have been based in part on assumptions about variations in site stratigraphy that can be evaluated further during earthwork and foundation construction. UES should be retained to perform construction observation and continue its geotechnical engineering service using observational methods. UES cannot assume liability for the adequacy of its recommendations when they are used in the field without UES being retained to observe construction.



## Appendix A

### **IMPORTANT INFORMATION ABOUT THIS GEOTECHNICAL-ENGINEERING REPORT**



# Important Information about This Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

**The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.**

## Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

## Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

*Do not rely on this report if your geotechnical engineer prepared it:*

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.*

## Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

## You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

### Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual site-wide subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

### This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

### This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

### Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

*conspicuously that you’ve included the material for information purposes only.* To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

### Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

### Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

### Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. *Geotechnical engineers are not building-envelope or mold specialists.*



**GEOPROFESSIONAL  
BUSINESS  
ASSOCIATION**

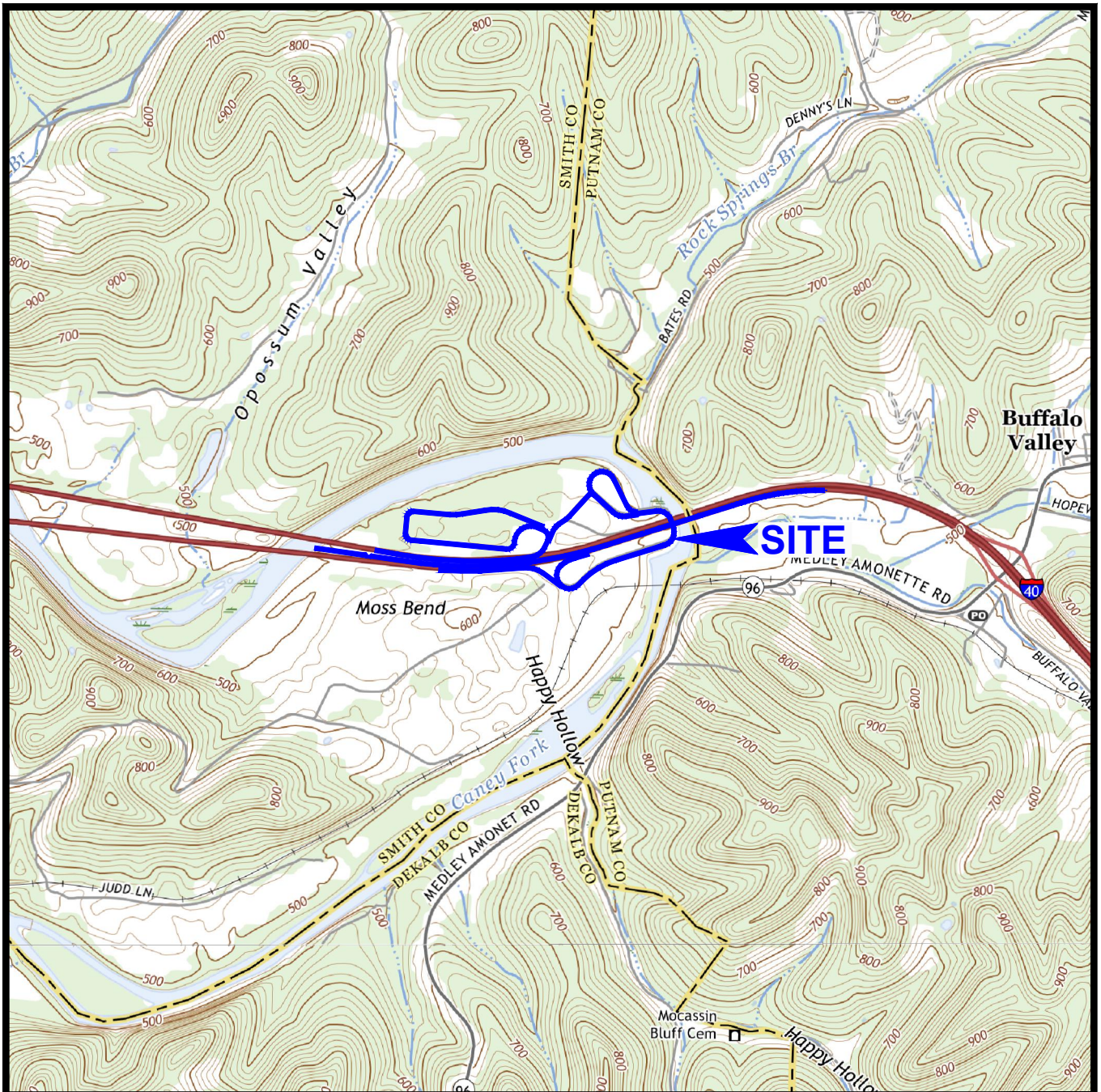
Telephone: 301/565-2733

e-mail: [info@geoprofessional.org](mailto:info@geoprofessional.org) [www.geoprofessional.org](http://www.geoprofessional.org)



## Appendix B FIGURES





#### NOTES

1. Plan adapted from 7.5 minute U.S.G.S. maps for Buffalo Valley and Center Hill Dam, Tennessee quadrangles, last revised in 2022.

0 2,000 4,000



SCALE IN FEET

|               |               |                |
|---------------|---------------|----------------|
| Drawn By: WAH | Ck'd By: JTM  | App'vd By: ABM |
| Date: 5-19-25 | Date: 6-12-25 | Date: 6-12-25  |



I-40 Bridge Replacement /  
Rest Area Truck Parking  
Smith - Putnam County, Tennessee

#### SITE LOCATION AND TOPOGRAPHY

Project Number  
A24138.00136.001

FIGURE 1





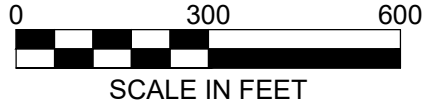
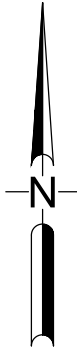


**NOTES**

1. Plan adapted from a October 24, 2024 aerial photograph courtesy of Google Earth and a drawing set printed on May 8, 2025, titled "Smith - Putnam I-40 Bridge Replacement/Rest Area Truck Parking (L.M. 16.316/L.M.0.078)", prepared by State of Tennessee Department of Transportation Bureau of Engineering.
2. Boring locations were surveyed by the project surveyor.

**LEGEND**

- Boring Location - Bridge
- Boring Location - Approaches
- Boring Location - Acceleration/Deceleration Lanes
- Boring Location - Parking and Drives
- Pavement Core Location



|                                                                                          |               |                 |
|------------------------------------------------------------------------------------------|---------------|-----------------|
| Drawn By: WAH                                                                            | Ck'd By: JTM  | App'd By: ABM   |
| Date: 5-29-25                                                                            | Date: 6-12-25 | Date: 6-12-25   |
|     |               |                 |
| I-40 Bridge Replacement /<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |               |                 |
| <b>AERIAL PHOTOGRAPH OF<br/>SITE AND BORING LOCATIONS</b>                                |               |                 |
| Project Number<br>A24138.00136.001                                                       |               | <b>FIGURE 2</b> |





Appendix C  
**BORING INFORMATION**



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
|------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------------------|---------------------------------------------------------------|---------|--------------------------------------------------|---------------------------------------------------------------------------------------|----|----|--|
| Surface Elevation: <u>518.3</u>                      |                      | Completion Date: <u>5/10/25</u>                                                                                                                                 |                    | GRAPHIC LOG                     | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES | SHEAR STRENGTH, tsf                              |                                                                                       |    |    |  |
| Datum <u>NAVD88</u>                                  |                      | Station: <u>546+25</u>                                                                                                                                          |                    |                                 |                                                               |         | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586) |                                                                                       |    |    |  |
| Offset: <u>18</u>                                    |                      | ▲ N-VALUE (BLOWS PER FOOT)                                                                                                                                      |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| DEPTH<br>IN FEET                                     | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                                                                                                         | PL                 | WATER CONTENT, %                |                                                               |         |                                                  |                                                                                       | LL |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | 10                              | 20                                                            | 30      | 40                                               | 50                                                                                    |    |    |  |
|                                                      |                      | Asphalt: 20 inches                                                                                                                                              |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      | Stiff, brown, sandy, LEAN CLAY, trace gravel - CL                                                                                                               |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 5                                                    | 513                  |                                                                                                                                                                 | 7-4-6              | SS1                             |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      | Medium stiff, brown, sandy, LEAN CLAY and gravel - CL                                                                                                           | 2-3-2              | SS2                             |                                                               |         |                                                  |                                                                                       |    |    |  |
| 10                                                   | 508                  | Medium stiff, brown, sandy, LEAN CLAY, trace organics and gravel - (CL)<br>53% passing No. 200 sieve                                                            | 3-2-3              | SS3                             |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 15                                                   | 503                  |                                                                                                                                                                 | 3-3-5              | *SS4                            |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 20                                                   | 498                  |                                                                                                                                                                 | 2-3-4              | SS5                             |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 25                                                   | 493                  |                                                                                                                                                                 | 3-3-3              | SS6                             |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 30                                                   | 488                  | Medium stiff, brown, FAT CLAY, some sand, trace gravel - (CH)<br>73% passing No. 200 sieve                                                                      | 4-4-4              | SS7                             |                                                               |         |                                                  |                                                                                       |    | 61 |  |
| 35                                                   | 483                  | Medium dense, brown, CLAYEY GRAVEL, some sand - (GC)<br>32% passing No. 200 sieve                                                                               | 7-7-10             | SS8                             |                                                               |         |                                                  |                                                                                       |    |    |  |
| 40                                                   | 478                  | Stiff, gray, sandy SILT, trace clay - ML<br>52% passing No. 200 sieve                                                                                           | 3-5-5              | SS9                             |                                                               |         |                                                  |                                                                                       |    |    |  |
| 45                                                   | 473                  | Medium dense, brown and gray SAND, trace clay, silt and gravel - SP-SC<br>6% passing No. 200 sieve                                                              | 5-7-5              | SS10                            |                                                               |         |                                                  |                                                                                       |    |    |  |
| 50                                                   | 468                  | Medium dense, brown GRAVEL - GP                                                                                                                                 | 3-4-8              | SS11                            |                                                               |         |                                                  |                                                                                       |    |    |  |
| 55                                                   | 463                  | Very dense, brown GRAVEL and sand - GP                                                                                                                          | 4-11-25<br>3-12-26 | SS12<br>SS13                    |                                                               |         |                                                  |                                                                                       |    |    |  |
| 60                                                   | 458                  | Strong to very strong, gray, very finely to medium crystalline, thin to medium bedded, slightly weathered to unweathered, fossiliferous, argillaceous LIMESTONE | 97%<br>65%         | NQ1                             |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      | Uniaxial Compressive Strength = 11,290 psi                                                                                                                      | 98%<br>95%         | NQ2                             |                                                               |         |                                                  |                                                                                       |    |    |  |
| 65                                                   | 453                  | 1-inch core loss                                                                                                                                                |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      | Uniaxial Compressive Strength = 15,664 psi                                                                                                                      |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
|                                                      |                      | 4-inch core loss                                                                                                                                                |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 70                                                   | 448                  | Boring terminated at 66.5 feet                                                                                                                                  |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| 75                                                   | 443                  |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  |                                                                                       |    |    |  |
| GROUNDWATER DATA                                     |                      |                                                                                                                                                                 |                    | DRILLING DATA                   |                                                               |         |                                                  | Drawn by: SAS                                                                         |    |    |  |
| ENCOUNTERED AT <u>43.5</u> FEET ∇                    |                      |                                                                                                                                                                 |                    | AUGER <u>3 3/4"</u> HOLLOW STEM |                                                               |         |                                                  | Checked by: JTM                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | WASHBORING FROM <u>45</u> FEET  |                                                               |         |                                                  | App'vd. by: ABM                                                                       |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | JCG/KJB DRILLER JTW/JJA LOGGER  |                                                               |         |                                                  | Date: 5/21/25                                                                         |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | CME 550X DRILL RIG              |                                                               |         |                                                  | Date: 6/12/25                                                                         |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | HAMMER TYPE <u>Auto</u>         |                                                               |         |                                                  | Date: 6/16/25                                                                         |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    | HAMMER EFFICIENCY <u>88</u> %   |                                                               |         |                                                  |  |    |    |  |
| REMARKS: Station and offset are in reference to I-40 |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  | I-40 Bridge Replacement                                                               |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  | Rest Area Truck Parking                                                               |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  | Smith - Putnam County, Tennessee                                                      |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  | LOG OF BORING: BR-1                                                                   |    |    |  |
|                                                      |                      |                                                                                                                                                                 |                    |                                 |                                                               |         |                                                  | Project No. A24138.00136.001                                                          |    |    |  |

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
|------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------|---------------------------------------------------------------|---------|----------------------------------------------------------------------------------------|----|----|----|----|
| Surface Elevation: <u>499.4</u>                      |                      | Completion Date: <u>4/29/25</u>                                                                                                                       |  | GRAPHIC LOG | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES | SHEAR STRENGTH, tsf                                                                    |    |    |    |    |
| Datum <u>NAVD88</u>                                  |                      | Station: <u>546+96</u>                                                                                                                                |  |             |                                                               |         | Δ - UU/2      ○ - QU/2      □ - SV                                                     |    |    |    |    |
|                                                      |                      | Offset: <u>7</u>                                                                                                                                      |  |             |                                                               |         | 0.5      1.0      1.5      2.0      2.5                                                |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586)                                       |    |    |    |    |
| DEPTH<br>IN FEET                                     | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                                                                                               |  |             |                                                               |         | ▲ N-VALUE (BLOWS PER FOOT)                                                             |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | PL  -----  LL                                                                          |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | WATER CONTENT, %                                                                       |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | 10                                                                                     | 20 | 30 | 40 | 50 |
| 5                                                    | 494                  | Asphalt: 14 inches                                                                                                                                    |  |             | 4-4-3                                                         | SS1     | ▲                                                                                      | ●  |    |    |    |
|                                                      |                      | Medium stiff, brown and gray, sandy, LEAN CLAY, some gravel - CL                                                                                      |  |             |                                                               | ST2     |                                                                                        | ●  |    |    |    |
| 10                                                   | 489                  | Loose, brown and gray, CLAYEY SAND, little gravel - (SC)                                                                                              |  |             | 2-2-2                                                         | SS3     | ▲                                                                                      | ●  |    |    |    |
|                                                      |                      | 49.6% passing No. 200 sieve                                                                                                                           |  |             |                                                               | ST4     |                                                                                        |    |    | ●  | 71 |
| 15                                                   | 484                  | Brown and gray, CLAYEY GRAVEL, little sand - (GC)                                                                                                     |  |             |                                                               |         |                                                                                        |    |    |    |    |
|                                                      |                      | 30% passing No. 200 sieve                                                                                                                             |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 20                                                   | 479                  | Medium stiff, gray and brown, sandy, LEAN CLAY - (CL)                                                                                                 |  |             | 1-3-4                                                         | SS5     | ▲                                                                                      |    | ●  |    |    |
|                                                      |                      | some gravel                                                                                                                                           |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 25                                                   | 474                  | 50% passing No. 200 sieve                                                                                                                             |  |             | 2-3-3                                                         | SS6     | ▲                                                                                      |    | ●  |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 30                                                   | 469                  | Loose to dense, brown SAND and gravel, trace silt and clay - SP-SM                                                                                    |  |             | 2-5-13                                                        | SS7     |                                                                                        | ●  | ▲  |    |    |
|                                                      |                      | 8% passing No. 200 sieve                                                                                                                              |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 35                                                   | 464                  | 5% passing No. 200 sieve                                                                                                                              |  |             | 5-13-18                                                       | SS8     |                                                                                        |    |    | ▲  |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 40                                                   | 459                  |                                                                                                                                                       |  |             | 1-2-6                                                         | SS9     | ▲                                                                                      |    |    | ●  |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 45                                                   | 454                  | Medium dense, brown GRAVEL and sand - GP                                                                                                              |  |             | 5-9-13                                                        | SS10    |                                                                                        |    | ●  | ▲  |    |
|                                                      |                      | Strong, gray, very finely to medium crystalline, thin to medium bedded, slightly weathered to unweathered, fossiliferous, argillaceous LIMESTONE      |  |             | 100%<br>65%                                                   | NQ1     |                                                                                        |    |    |    |    |
| 50                                                   | 449                  | Uniaxial Compressive Strength = 10,882 psi                                                                                                            |  |             | 100%<br>96%                                                   | NQ2     |                                                                                        |    |    |    |    |
|                                                      |                      | Uniaxial Compressive Strength = 14,496 psi                                                                                                            |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 55                                                   | 444                  | Uniaxial Compressive Strength = 14,366 psi                                                                                                            |  |             | 100%<br>68%                                                   | NQ3     |                                                                                        |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 60                                                   | 439                  | Gray to black, aphanitic to finely grained, thin to medium bedded, slightly to moderately weathered, calcareous SHALE interbedded with gray limestone |  |             | 100%<br>41%                                                   | NQ4     |                                                                                        |    |    |    |    |
|                                                      |                      | 2-inch highly weathered clayey shale seam                                                                                                             |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 65                                                   | 434                  | Gray to black, aphanitic to finely grained, medium bedded, highly to moderately weathered SHALE                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
|                                                      |                      | Boring terminated at 59.8 feet                                                                                                                        |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 70                                                   | 429                  |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| 75                                                   | 424                  |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
| <b>GROUNDWATER DATA</b>                              |                      |                                                                                                                                                       |  |             |                                                               |         | <b>DRILLING DATA</b>                                                                   |    |    |    |    |
| ENCOUNTERED AT <u>30</u> FEET ▼                      |                      |                                                                                                                                                       |  |             |                                                               |         | AUGER <u>3 3/4"</u> HOLLOW STEM                                                        |    |    |    |    |
| AT <u>28</u> FEET AFTER <u>16</u> HOURS ▼            |                      |                                                                                                                                                       |  |             |                                                               |         | WASHBORING FROM <u>35</u> FEET                                                         |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | JCG DRILLER    EER LOGGER                                                              |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | CME 550X DRILL RIG                                                                     |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | HAMMER TYPE <u>Auto</u>                                                                |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | HAMMER EFFICIENCY <u>88</u> %                                                          |    |    |    |    |
| REMARKS: Station and offset are in reference to I-40 |                      |                                                                                                                                                       |  |             |                                                               |         |                                                                                        |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | Drawn by: SAS    Checked by: JTM    App'vd. by: ABM                                    |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | Date: 5/21/25    Date: 6/12/25    Date: 6/16/25                                        |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         |   |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | LOG OF BORING: BR-2                                                                    |    |    |    |    |
|                                                      |                      |                                                                                                                                                       |  |             |                                                               |         | Project No. A24138.00136.001                                                           |    |    |    |    |

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS A24138.00136.001.GPJ GTINC 0638301.GPJ 10/29/25 THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               |                                                                                        |                                                  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------|--|--|
| Surface Elevation: <u>467.4</u>                                                                                                                                                                           |                      | Completion Date: <u>5/8/25</u>                                                                                                                                                                                                                  |                          | GRAPHIC LOG                                                                                                                                                                  | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES                                                                                | SHEAR STRENGTH, tsf                              |  |  |
| Datum <u>NAVD88</u>                                                                                                                                                                                       |                      | Station: <u>548+28</u>                                                                                                                                                                                                                          |                          |                                                                                                                                                                              |                                                               |                                                                                        | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586) |  |  |
|                                                                                                                                                                                                           |                      | Offset: <u>-15</u>                                                                                                                                                                                                                              |                          |                                                                                                                                                                              |                                                               |                                                                                        | ▲ N-VALUE (BLOWS PER FOOT)                       |  |  |
| DEPTH<br>IN FEET                                                                                                                                                                                          | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                                                                                                                                                                                         |                          |                                                                                                                                                                              |                                                               | WATER CONTENT, %                                                                       |                                                  |  |  |
|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 | PL I 10 20 30 40 50 I LL |                                                                                                                                                                              |                                                               |                                                                                        |                                                  |  |  |
|                                                                                                                                                                                                           |                      | Medium dense, gray and brown SAND, trace gravel and clay - SP<br>4% passing No. 200 sieve                                                                                                                                                       | 1-2-8                    | SS1                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 5                                                                                                                                                                                                         | 462                  |                                                                                                                                                                                                                                                 | 50/4"                    | *SS2                                                                                                                                                                         |                                                               |                                                                                        |                                                  |  |  |
| 10                                                                                                                                                                                                        | 457                  | Strong, gray, very finely to medium crystalline, thin to medium bedded, slightly weathered to unweathered, fossiliferous, argillaceous LIMESTONE<br>Uniaxial Compressive Strength = 14,709 psi<br>2.5-inch core loss                            | 95%<br>81%               | NQ1                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 15                                                                                                                                                                                                        | 452                  |                                                                                                                                                                                                                                                 | 98%<br>98%               | NQ2                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 20                                                                                                                                                                                                        | 447                  | 1-inch core loss<br>Uniaxial Compressive Strength = 7,801 psi                                                                                                                                                                                   | 100%<br>100%             | NQ3                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 25                                                                                                                                                                                                        | 442                  | Uniaxial Compressive Strength = 13,756 psi<br>Gray, very finely to medium crystalline, thin bedded, slightly weathered, argillaceous LIMESTONE interbedded with shale and mudstone<br>1-inch core loss<br>1-inch core loss<br>3-inch clay layer | 97%<br>39%               | NQ4                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 30                                                                                                                                                                                                        | 437                  | Gray to black, aphanitic to finely grained, medium bedded, highly to moderately weathered SHALE and mudstone<br>3.5-inch clay layer                                                                                                             | 98%<br>72%               | NQ5                                                                                                                                                                          |                                                               |                                                                                        |                                                  |  |  |
| 35                                                                                                                                                                                                        | 432                  | Strong, gray, medium crystalline, thin bedded, slightly weathered to unweathered, fossiliferous and argillaceous LIMESTONE<br>Uniaxial Compressive Strength = 14,951 psi<br>Boring terminated at 32 feet.                                       |                          |                                                                                                                                                                              |                                                               |                                                                                        |                                                  |  |  |
| 40                                                                                                                                                                                                        | 427                  |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               |                                                                                        |                                                  |  |  |
| 45                                                                                                                                                                                                        | 422                  |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               |                                                                                        |                                                  |  |  |
| GROUNDWATER DATA                                                                                                                                                                                          |                      |                                                                                                                                                                                                                                                 |                          | DRILLING DATA                                                                                                                                                                |                                                               | Drawn by: SAS<br>Date: 5/21/25                                                         |                                                  |  |  |
| ENCOUNTERED AT <u>0</u> FEET ▼                                                                                                                                                                            |                      |                                                                                                                                                                                                                                                 |                          | AUGER <u>3 3/4"</u> HOLLOW STEM<br>WASHBORING FROM <u>0</u> FEET<br>JCG DRILLER JWT LOGGER<br>CME 550X DRILL RIG<br>HAMMER TYPE <u>Auto</u><br>HAMMER EFFICIENCY <u>88</u> % |                                                               | Checked by: JTM<br>Date: 6/12/25                                                       |                                                  |  |  |
| REMARKS: Station and offset are in reference to I-40.<br>Bridge Deck - Asphalt: 4 inches   Concrete: 14 inches   Void space: 32 inches  <br>Concrete: 7.5 inches   Top of bridge deck to mudline: 53 feet |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               | App'vd. by: ABM<br>Date: 6/16/25                                                       |                                                  |  |  |
|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               |   |                                                  |  |  |
|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |                                                  |  |  |
|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               | LOG OF BORING: BR-3                                                                    |                                                  |  |  |
|                                                                                                                                                                                                           |                      |                                                                                                                                                                                                                                                 |                          |                                                                                                                                                                              |                                                               | Project No. A24138.00136.001                                                           |                                                  |  |  |









LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTNC 06383031.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.





NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001 GPJ GTINC 06383801 GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

**Project No. A24138.00136.001**

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

|                                 |                      |                                                                                  |  |             |                                                               |                                                                                        |                                                  |    |  |
|---------------------------------|----------------------|----------------------------------------------------------------------------------|--|-------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------|----|--|
| Surface Elevation: <u>510.8</u> |                      | Completion Date: <u>3/28/25</u>                                                  |  | GRAPHIC LOG | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES                                                                                | SHEAR STRENGTH, tsf                              |    |  |
| Datum <u>NAVD88</u>             |                      | Station: <u>537+89</u><br>Offset: <u>112</u>                                     |  |             |                                                               |                                                                                        | $\Delta$ - UU/2 $\bigcirc$ - QU/2 $\square$ - SV |    |  |
|                                 |                      |                                                                                  |  |             |                                                               |                                                                                        | 0.5      1.0      1.5      2.0      2.5          |    |  |
| DEPTH<br>IN FEET                | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                          |  |             |                                                               | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586)                                       |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | $\blacktriangle$ N-VALUE (BLOWS PER FOOT)                                              |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | WATER CONTENT, %                                                                       |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | PL                                                                                     | 10      20      30      40      50               | LL |  |
|                                 |                      | Topsoil and grass: 3 inches                                                      |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      | Medium stiff to stiff, brown, silty, LEAN CLAY, some sand - CL                   |  | 3-3-4       | SS1                                                           |                                                                                        |                                                  |    |  |
|                                 |                      | Brown, CLAYEY SAND - (SC)<br>38% passing No. 200 sieve                           |  |             | ST2                                                           |                                                                                        |                                                  |    |  |
| 5                               | 506                  | Medium dense, red to tan SAND, trace clay - SP-SC                                |  | 4-6-9       | SS3                                                           |                                                                                        |                                                  |    |  |
|                                 |                      | Medium stiff, gray and red, sandy, LEAN CLAY - (CL)<br>59% passing No. 200 sieve |  | 2-3-4       | SS4                                                           |                                                                                        |                                                  |    |  |
|                                 |                      | Medium dense, red SAND, trace clay - SP                                          |  | 2-5-7       | SS5                                                           |                                                                                        |                                                  |    |  |
| 15                              | 496                  |                                                                                  |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      | Very dense, red and brown, CLAYEY SAND and gravel - SC                           |  | 11-15-17    | SS6                                                           |                                                                                        |                                                  |    |  |
| 20                              | 491                  |                                                                                  |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      | Stiff, brown and black, sandy, FAT CLAY, little organics - CH                    |  | 4-6-3       | SS7                                                           |                                                                                        |                                                  |    |  |
| 25                              | 486                  |                                                                                  |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      | 2-inch tan clayey sand seam                                                      |  | 6-23-5      | SS8                                                           |                                                                                        |                                                  |    |  |
| 30                              | 481                  | Brown and gray, sandy, CLAYEY GRAVEL - GC                                        |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      | Boring terminated at 30 feet.                                                    |  |             |                                                               |                                                                                        |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | Drawn by: SAS      Checked by: JTM      App'vd. by: ABM                                |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | Date: 4/1/25      Date: 6/12/25      Date: 6/16/25                                     |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               |   |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | LOG OF BORING: E- 7                                                                    |                                                  |    |  |
|                                 |                      |                                                                                  |  |             |                                                               | Project No. A24138.00136.001                                                           |                                                  |    |  |

|                                                      |  |                                     |  |
|------------------------------------------------------|--|-------------------------------------|--|
| <b>GROUNDWATER DATA</b>                              |  | <b>DRILLING DATA</b>                |  |
| ENCOUNTERED AT <u>23.5</u> FEET $\nabla$             |  | ___ AUGER <u>3 3/4"</u> HOLLOW STEM |  |
|                                                      |  | WASHBORING FROM ___ FEET            |  |
|                                                      |  | JT DRILLER <u>SAS</u> LOGGER        |  |
|                                                      |  | <u>CME750X</u> DRILL RIG            |  |
|                                                      |  | HAMMER TYPE <u>Auto</u>             |  |
|                                                      |  | HAMMER EFFICIENCY <u>85</u> %       |  |
| REMARKS: Station and offset are in reference to I-40 |  |                                     |  |



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS A24138.00136.001.GPJ GTINC 0638301.GPJ 4/23/25 THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

|                                                                                |                      |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
|--------------------------------------------------------------------------------|----------------------|--------------------------------------------------------------------|--|-------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------|------|--|
| Surface Elevation: <u>514.7</u>                                                |                      | Completion Date: <u>4/15/25</u>                                    |  | GRAPHIC LOG | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES                                                                                | SHEAR STRENGTH, tsf                              |      |  |
| Datum <u>NAVD88</u>                                                            |                      | Station: <u>542+58</u>                                             |  |             |                                                               |                                                                                        | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586) |      |  |
|                                                                                |                      | Offset: <u>52</u>                                                  |  |             |                                                               |                                                                                        | ▲ N-VALUE (BLOWS PER FOOT)                       |      |  |
| DEPTH<br>IN FEET                                                               | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                            |  |             |                                                               | WATER CONTENT, %                                                                       |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | PL                                                                                     | LL                                               |      |  |
|                                                                                |                      | Asphalt: 8 inches                                                  |  |             |                                                               |                                                                                        |                                                  |      |  |
|                                                                                |                      | Base Material: 34 inches gray and white crushed limestone and sand |  | 17-26-14    | SS1                                                           |                                                                                        |                                                  |      |  |
|                                                                                |                      | Gray, LEAN CLAY and gravel - CL                                    |  | 50/4"       | SS2                                                           |                                                                                        |                                                  | S-4" |  |
| 5                                                                              | 510                  | Boring terminated at 3.8 feet due to auger refusal.                |  |             |                                                               |                                                                                        |                                                  |      |  |
| 10                                                                             | 505                  |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
| 15                                                                             | 500                  |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
| 20                                                                             | 495                  |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
| 25                                                                             | 490                  |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
| 30                                                                             | 485                  |                                                                    |  |             |                                                               |                                                                                        |                                                  |      |  |
| GROUNDWATER DATA                                                               |                      |                                                                    |  |             |                                                               | DRILLING DATA                                                                          |                                                  |      |  |
| <input checked="" type="checkbox"/> FREE WATER NOT ENCOUNTERED DURING DRILLING |                      |                                                                    |  |             |                                                               | ___ AUGER <u>3 1/4"</u> HOLLOW STEM WASHBORING FROM ___ FEET                           |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | ___ JJA DRILLER <u>SAS</u> LOGGER                                                      |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | ___ Geoprobe7822DT DRILL RIG                                                           |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | HAMMER TYPE <u>Auto</u>                                                                |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | HAMMER EFFICIENCY <u>98</u> %                                                          |                                                  |      |  |
| REMARKS: Station and offset are in reference to I-40                           |                      |                                                                    |  |             |                                                               | Drawn by: AG<br>Date: 4/23/25                                                          |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | Checked by: JTM<br>Date: 6/12/25                                                       |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | App'vd. by: ABM<br>Date: 6/16/25                                                       |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               |   |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | LOG OF BORING: E- 8                                                                    |                                                  |      |  |
|                                                                                |                      |                                                                    |  |             |                                                               | Project No. A24138.00136.001                                                           |                                                  |      |  |

|                                                      |                      |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|------------------------------------------------------|----------------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------|----------------------------------|---------------------------------------------------------------------------------------------|--|----------------------------------|--|--|
| Surface Elevation: <u>493.0</u>                      |                      | Completion Date: <u>3/28/25</u>                                                            |                                                                                                                                                                                         | GRAPHIC LOG |     | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD                                                                                                                    |  | SAMPLES |                                  | SHEAR STRENGTH, tsf                                                                         |  |                                  |  |  |
| Datum <u>NAVD88</u>                                  |                      | Station: <u>542+48</u><br>Offset: <u>152</u>                                               |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  | $\Delta$ - UU/2 $\bigcirc$ - QU/2 $\square$ - SV<br>0.5      1.0      1.5      2.0      2.5 |  |                                  |  |  |
| DEPTH<br>IN FEET                                     | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                                    | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586)<br>$\blacktriangle$ N-VALUE (BLOWS PER FOOT)                                                                                           |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            | WATER CONTENT, %<br>PL $\leftarrow$ 10      20      30      40      50 $\rightarrow$ LL                                                                                                 |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      | Topsoil and grass: 2 inches<br>Stiff, brown, sandy, LEAN CLAY, some organics - CL          |                                                                                                                                                                                         | 4-4-5       | SS1 |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      | Medium stiff to hard, brown, LEAN CLAY, some limestone gravel - CL                         |                                                                                                                                                                                         | 5-2-3       | SS2 |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            |                                                                                                                                                                                         | 4-11-20     | SS3 |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            |                                                                                                                                                                                         | 1-3-3       | SS4 |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| 5                                                    | 488                  |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| 10                                                   | 483                  |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| 15                                                   | 478                  | Very dense, gray and brown GRAVEL and sand, trace clay - GP-GC<br>8% passing No. 200 sieve |                                                                                                                                                                                         | 5-11-19     | SS5 |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| 20                                                   | 473                  | Boring terminated at 18.7 feet due to auger refusal.                                       |                                                                                                                                                                                         | 50/2"       | SS6 |                                                                                                                                                                                  |  | S-2"    |                                  |                                                                                             |  |                                  |  |  |
| 25                                                   | 468                  |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| 30                                                   | 463                  |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
| GROUNDWATER DATA                                     |                      |                                                                                            | DRILLING DATA                                                                                                                                                                           |             |     | Drawn by: SAS<br>Date: 4/1/25                                                                                                                                                    |  |         | Checked by: JTM<br>Date: 6/12/25 |                                                                                             |  | App'vd. by: ABM<br>Date: 6/16/25 |  |  |
| ENCOUNTERED AT <u>15</u> FEET $\nabla$               |                      |                                                                                            | ___ AUGER <u>3 3/4"</u> HOLLOW STEM<br>WASHBORING FROM ___ FEET<br>JT DRILLER <u>SAS</u> LOGGER<br><u>CME750X</u> DRILL RIG<br>HAMMER TYPE <u>Auto</u><br>HAMMER EFFICIENCY <u>85</u> % |             |     | <br><b>I-40 Bridge Replacement<br/>Rest Area Truck Parking<br/>Smith - Putnam County, Tennessee</b><br><br><b>LOG OF BORING: E- 9</b><br><br><b>Project No. A24138.00136.001</b> |  |         |                                  |                                                                                             |  |                                  |  |  |
| REMARKS: Station and offset are in reference to I-40 |                      |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |
|                                                      |                      |                                                                                            |                                                                                                                                                                                         |             |     |                                                                                                                                                                                  |  |         |                                  |                                                                                             |  |                                  |  |  |

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTNC 06383031.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTNC 06383031.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001 GPJ GTINC 06383801 GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 06383001.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.







NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



Completion Date: 3/29/25

Station: 521+73Offset: -103

**SHEAR STRENGTH, tsf**

$\Delta$  - UU/2       $\bigcirc$  - QU/2       $\square$  - SV

0.5      1.0      1.5      2.0      2.5

### STANDARD PENETRATION RESISTANCE

(ASTM D 1586)

▲ N-VALUE (BLOWS PER FOOT)

**WATER CONTENT, %**

PL |-----| 10 | 20 | 30 | 40 | 50 |-----| LL

DEPTH  
IN FEETELEVATION  
IN FEET

## DESCRIPTION OF MATERIAL

## GRAPHIC LOG

DRY UNIT WEIGHT (pcf)  
SPT BLOW COUNTS  
CORE RECOVERY/RQD

## SAMPLES

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
 LOG OF BORING 2020 JDM - ELEVATIONS A24138.001 TO 136.001.GPJ GTINC 0638301.GPJ 10/26/2020 THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

Topsoil and grass: 3 inches

Soft to medium stiff, brown, FAT CLAY, trace sand and organics - (CH)

91% passing No. 200 sieve

trace gravel

5—525

Soft, brown, ELASTIC SILT, trace gravel - (MH)

86% passing No. 200 sieve

10 — 520

Boring terminated at 13.5 feet due to auger refusal.

15—515

## GROUNDWATER DATA

X FREE WATER NOT  
ENCOUNTERED DURING DRILLING

## DRILLING DATA

\_\_\_ AUGER 3 3/4" HOLLOW STEM

WASHBORING FROM FEET

JT DRILLER    SAS LOGGER

CME750X DRILL RIG

HAMMER TYPE Auto

HAMMER EFFICIENCY 85 %

REMARKS: Station and offset are in reference to I-40

|               |
|---------------|
| Drawn by: SAS |
|---------------|

Date: 4/1/25

|                 |
|-----------------|
| Checked by: JTM |
|-----------------|

Date: 6/12/25

App'vd. by: ABM

Date: 6/16/25



**I-40 Bridge Replacement  
Rest Area Truck Parking  
Smith - Putnam County, Tennessee**

LOG OF BORING: W- 6

**Project No. A24138.00136.001**

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001 GPJ GTINC 06383801 GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS A24138.00136.001.GPJ GTINC 0638301.GPJ 10/29/25

|                                                                                |                      |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
|--------------------------------------------------------------------------------|----------------------|-----------------------------------------------------------------------------------------|--|------------------|---------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------|-------------|----|
| Surface Elevation: <u>529.1</u>                                                |                      | Completion Date: <u>3/29/25</u>                                                         |  | GRAPHIC LOG      | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES                                                                                | SHEAR STRENGTH, tsf                              |             |    |
| Datum <u>NAVD88</u>                                                            |                      | Station: <u>524+76</u>                                                                  |  |                  |                                                               |                                                                                        | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586) |             |    |
|                                                                                |                      | Offset: <u>-105</u>                                                                     |  |                  |                                                               |                                                                                        | ▲ N-VALUE (BLOWS PER FOOT)                       |             |    |
| DEPTH<br>IN FEET                                                               | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                                 |  |                  |                                                               |                                                                                        | WATER CONTENT, %                                 |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               |                                                                                        | PL                                               |             | LL |
|                                                                                |                      | Topsoil: 12 inches                                                                      |  |                  |                                                               |                                                                                        |                                                  |             |    |
|                                                                                |                      | Stiff, brown, FAT CLAY, little sand, trace organics - (CH)<br>81% passing No. 200 sieve |  | 3-5-7            | SS1                                                           |                                                                                        |                                                  |             |    |
|                                                                                |                      |                                                                                         |  | 3-17<br>-50/4.5" | SS2                                                           |                                                                                        |                                                  | 67<br>10.5" |    |
| 5                                                                              | 524                  | Gray LIMESTONE<br>Boring terminated at 5.1 feet due to auger refusal.                   |  |                  |                                                               |                                                                                        |                                                  |             |    |
| 10                                                                             | 519                  |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
| 15                                                                             | 514                  |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
| 20                                                                             | 509                  |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
| 25                                                                             | 504                  |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
| 30                                                                             | 499                  |                                                                                         |  |                  |                                                               |                                                                                        |                                                  |             |    |
| GROUNDWATER DATA                                                               |                      |                                                                                         |  |                  |                                                               | DRILLING DATA                                                                          |                                                  |             |    |
| <input checked="" type="checkbox"/> FREE WATER NOT ENCOUNTERED DURING DRILLING |                      |                                                                                         |  |                  |                                                               | ___ AUGER <u>3 3/4"</u> HOLLOW STEM WASHBORING FROM ___ FEET                           |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | ___ JT DRILLER <u>SAS</u> LOGGER                                                       |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | ___ CME750X DRILL RIG                                                                  |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | HAMMER TYPE <u>Auto</u>                                                                |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | HAMMER EFFICIENCY <u>85</u> %                                                          |                                                  |             |    |
| REMARKS: Station and offset are in reference to I-40                           |                      |                                                                                         |  |                  |                                                               | Drawn by: SAS<br>Date: 4/1/25                                                          |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | Checked by: JTM<br>Date: 6/12/25                                                       |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | App'vd. by: ABM<br>Date: 6/16/25                                                       |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               |   |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | LOG OF BORING: W- 8                                                                    |                                                  |             |    |
|                                                                                |                      |                                                                                         |  |                  |                                                               | Project No. A24138.00136.001                                                           |                                                  |             |    |

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.

NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 06383001.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS 424138.001/36.001.GPJ GTINC 063830301.GPJ AND THE TRANSITION MAY BE GRADUAL. GRAPHIC LOG FOR ILLUSTRATION PURPOSES ONLY.



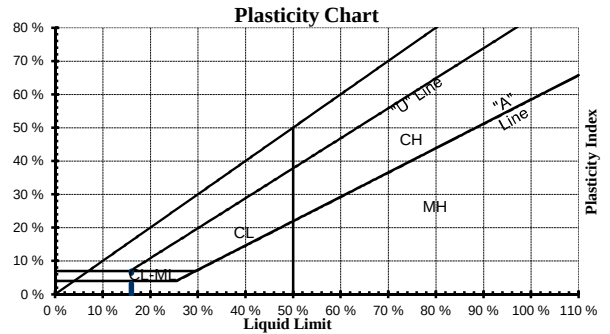
NOTE: STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARIES BETWEEN SOIL TYPES  
LOG OF BORING 2020 JDM - ELEVATIONS A24138.00136.001.GPJ GTINC 0638301.GPJ 4/23/25

|                                                                                |                      |                                                                         |  |             |                                                               |          |                                                                                        |    |    |    |    |    |    |
|--------------------------------------------------------------------------------|----------------------|-------------------------------------------------------------------------|--|-------------|---------------------------------------------------------------|----------|----------------------------------------------------------------------------------------|----|----|----|----|----|----|
| Surface Elevation: <u>523.9</u>                                                |                      | Completion Date: <u>4/17/25</u>                                         |  | GRAPHIC LOG | DRY UNIT WEIGHT (pcf)<br>SPT BLOW COUNTS<br>CORE RECOVERY/RQD | SAMPLES  | SHEAR STRENGTH, tsf                                                                    |    |    |    |    |    |    |
| Datum <u>NAVD88</u>                                                            |                      | Station: <u>552+41</u>                                                  |  |             |                                                               |          | STANDARD PENETRATION RESISTANCE<br>(ASTM D 1586)                                       |    |    |    |    |    |    |
|                                                                                |                      | Offset: <u>-14</u>                                                      |  |             |                                                               |          | ▲ N-VALUE (BLOWS PER FOOT)                                                             |    |    |    |    |    |    |
| DEPTH<br>IN FEET                                                               | ELEVATION<br>IN FEET | DESCRIPTION OF MATERIAL                                                 |  |             |                                                               |          | WATER CONTENT, %                                                                       |    |    |    |    |    |    |
|                                                                                |                      | Asphalt: 7 inches                                                       |  |             |                                                               |          | PL                                                                                     | 10 | 20 | 30 | 40 | 50 | LL |
|                                                                                |                      | Base Material: 35 inches gray and white crushed limestone sand and clay |  |             |                                                               | 23-32-12 | SS1                                                                                    |    |    |    |    |    |    |
|                                                                                |                      | Gray LIMESTONE and clay                                                 |  |             |                                                               | 50/5"    | SS2                                                                                    |    |    |    |    |    |    |
|                                                                                |                      | Boring terminated at 3.9 feet due to auger refusal.                     |  |             |                                                               |          |                                                                                        |    |    |    |    |    |    |
| 5                                                                              | 519                  |                                                                         |  |             |                                                               |          |                                                                                        |    |    |    |    |    |    |
| 10                                                                             | 514                  |                                                                         |  |             |                                                               |          |                                                                                        |    |    |    |    |    |    |
| 15                                                                             | 509                  |                                                                         |  |             |                                                               |          |                                                                                        |    |    |    |    |    |    |
| GROUNDWATER DATA                                                               |                      |                                                                         |  |             |                                                               |          | DRILLING DATA                                                                          |    |    |    |    |    |    |
| <input checked="" type="checkbox"/> FREE WATER NOT ENCOUNTERED DURING DRILLING |                      |                                                                         |  |             |                                                               |          | ___ AUGER <u>3 1/4"</u> HOLLOW STEM WASHBORING FROM ___ FEET                           |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | ___ JJA DRILLER <u>SAS</u> LOGGER                                                      |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | <u>Geoprobe7822DT</u> DRILL RIG                                                        |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | HAMMER TYPE <u>Auto</u>                                                                |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | HAMMER EFFICIENCY <u>98</u> %                                                          |    |    |    |    |    |    |
| REMARKS: Station and offset are in reference to I-40                           |                      |                                                                         |  |             |                                                               |          | Drawn by: AG<br>Date: 4/23/25                                                          |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | Checked by: JTM<br>Date: 6/12/25                                                       |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | App'vd. by: ABM<br>Date: 6/16/25                                                       |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          |   |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | I-40 Bridge Replacement<br>Rest Area Truck Parking<br>Smith - Putnam County, Tennessee |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | LOG OF BORING: WB-2                                                                    |    |    |    |    |    |    |
|                                                                                |                      |                                                                         |  |             |                                                               |          | Project No. A24138.00136.001                                                           |    |    |    |    |    |    |

# BORING LOG: TERMS AND SYMBOLS

## LEGEND

|     |                                                                                     |
|-----|-------------------------------------------------------------------------------------|
| CS  | Continuous Sampler                                                                  |
| GB  | Grab Sample                                                                         |
| NQ  | NQ Rock Core                                                                        |
| PST | Three-Inch Diameter Piston Tube Sample                                              |
| SS  | Split-Spoon Sample (Standard Penetration Test)                                      |
| ST  | Three-Inch Diameter Shelby Tube Sample                                              |
| *   | Sample Not Recovered                                                                |
| PL  | Plastic Limit (ASTM D4318)                                                          |
| LL  | Liquid Limit (ASTM D4318)                                                           |
| SV  | Shear Strength from Field Vane (ASTM D2573)                                         |
| UU  | Shear Strength from Unconsolidated-Undrained Triaxial Compression Test (ASTM D2850) |
| QU  | Shear Strength from Unconfined Compression Test (ASTM D2166)                        |



## SOIL GRAIN SIZE

US STANDARD SIEVE

|                                |         |        |      |        |        |      |       |       |  |
|--------------------------------|---------|--------|------|--------|--------|------|-------|-------|--|
|                                | 12"     | 3"     | 3/4" | 4      | 10     | 40   | 200   |       |  |
| BOULDERS                       | COBBLES | GRAVEL |      | SAND   |        |      | SILT  | CLAY  |  |
|                                |         | COARSE | FINE | COARSE | MEDIUM | FINE |       |       |  |
|                                | 300     | 76.2   | 19.1 | 4.76   | 2.00   | 0.42 | 0.074 | 0.005 |  |
| SOIL GRAIN SIZE IN MILLIMETERS |         |        |      |        |        |      |       |       |  |

## UNIFIED SOIL CLASSIFICATION SYSTEM

| Major Divisions                                                     |                          |                                  | Symbol | Description                                                 |
|---------------------------------------------------------------------|--------------------------|----------------------------------|--------|-------------------------------------------------------------|
| Coarse-Grained Soils (More than 50% Larger than No. 200 Sieve Size) | Gravel and Gravelly Soil | Clean Gravels Little or no Fines | GW     | Well-Graded Gravel, Gravel- Sand Mixture                    |
|                                                                     |                          |                                  | GP     | Poorly-Graded Gravel, Gravel-Sand Mixture                   |
|                                                                     |                          | Gravels with Appreciable Fines   | GM     | Silty Gravel, Gravel-Sand-Silt Mixture                      |
|                                                                     |                          |                                  | GC     | Clayey-Gravel, Gravel-Sand-Clay Mixture                     |
|                                                                     | Sand and Sandy Soils     | Clean Sands Little or no Fines   | SW     | Well-Graded Sand, Gravelly Sand                             |
|                                                                     |                          |                                  | SP     | Poorly-Graded Sand, Gravelly Sand                           |
|                                                                     |                          | Sands with Appreciable Fines     | SM     | Silty Sand, Sand-Silt Mixture                               |
|                                                                     |                          |                                  | SC     | Clayey-Sand, Sand-Clay Mixture                              |
| Fine-Grained Soils (More than 50% Smaller than No. 200 Sieve Size)  | Silts and Clays          | Liquid Limit Less Than 50        | ML     | Silt, Sandy Silt, Clayey Silt, Slight Plasticity            |
|                                                                     |                          |                                  | CL     | Lean Clay, Sandy Clay, Silty Clay, Low to Medium Plasticity |
|                                                                     |                          |                                  | OL     | Organic Silts or Lean Clays, Low Plasticity                 |
|                                                                     | Silts and Clays          | Liquid Limit Greater Than 50     | MH     | Silt, High Plasticity                                       |
|                                                                     |                          |                                  | CH     | Fat Clay, High Plasticity                                   |
|                                                                     |                          |                                  | OH     | Organic Clay, Medium to High Plasticity                     |
|                                                                     | Highly Organic Soils     |                                  | PT     | Peat, Humus, Swamp Soil                                     |

## STRENGTH OF COHESIVE SOILS

## DENSITY OF GRANULAR SOILS

| Consistency  | Undrained Shear Strength (tsf) | Unconfined Comp. Strength (tsf) | Descriptive Term | Approximate $N_{60}$ -Value Range |
|--------------|--------------------------------|---------------------------------|------------------|-----------------------------------|
| Very Soft    | less than 0.125                | less than 0.25                  | Very Loose       | 0 to 4                            |
| Soft         | 0.125 to 0.25                  | 0.25 to 0.5                     | Loose            | 5 to 10                           |
| Medium Stiff | 0.25 to 0.5                    | 0.5 to 1.0                      | Medium Dense     | 11 to 30                          |
| Stiff        | 0.5 to 1.0                     | 1.0 to 2.0                      | Dense            | 31 to 50                          |
| Very Stiff   | 1.0 to 2.0                     | 2.0 to 3.0                      | Very Dense       | >50                               |
| Hard         | greater than 2.0               | greater than 4.0                |                  |                                   |

N-Value (Blow Count) is the last two, 6-inch drive increments (i.e. 4/7/9, N = 7 + 9 = 16). Values are shown as a summation on the grid plot and shown in the Unit Dry Weight/SPT column.

## RELATIVE COMPOSITION

## OTHER TERMS

|        |           |                                                                     |
|--------|-----------|---------------------------------------------------------------------|
| Trace  | 0 to 10%  | Layer - Inclusion greater than 3 inches thick.                      |
| Little | 10 to 20% | Seam - Inclusion 1/8-inch to 3 inches thick                         |
| Some   | 20 to 35% | Parting - Inclusion less than 1/8-inch thick                        |
| And    | 35 to 50% | Pocket - Inclusion of material that is smaller than sample diameter |



Relative composition and Unified Soil Classification System (USCS) designations are based on visual descriptions and are approximate only. If laboratory tests were performed to classify the soil, the USCS designation is shown in parenthesis.

# ROCK CORE DESCRIPTIONS

| <b>TERM</b><br>Strength<br>Color<br>Crystallinity<br>Grain Size<br>Mass Bedding<br>Weathering<br>Voids<br>Quality                                                                              | <b>REFERENCE</b>                                                                                                      |                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
|                                                                                                                                                                                                | <b>STRENGTH</b>                                                                                                       |                                                                                 |
|                                                                                                                                                                                                | <i>Description</i>                                                                                                    | <i>Uniaxial Compressive Strength (psi)</i>                                      |
|                                                                                                                                                                                                | Extremely Weak                                                                                                        | less than 150                                                                   |
|                                                                                                                                                                                                | Very Weak                                                                                                             | 150 to 700                                                                      |
|                                                                                                                                                                                                | Weak                                                                                                                  | 700 to 4,000                                                                    |
|                                                                                                                                                                                                | Medium Strong                                                                                                         | 4,000 to 7,000                                                                  |
|                                                                                                                                                                                                | Strong                                                                                                                | 7,000 to 15,000                                                                 |
|                                                                                                                                                                                                | Very Strong                                                                                                           | 15,000 to 36,000                                                                |
|                                                                                                                                                                                                | Extremely Strong                                                                                                      | greater than 36,000                                                             |
| <b>SEDIMENTARY ROCK TYPE</b>                                                                                                                                                                   | <b>COLOR</b>                                                                                                          |                                                                                 |
| <i>Sandstone</i> - Predominantly quartz grains cemented by silica, iron, clay or carbonate material. Color depends on cementing agent; porous and pervious; hard and generally thickly bedded. | Common colors are gray, brown, black and white. Exotic colors such as green, blue, maroon can be used when necessary. |                                                                                 |
| <i>Siltstone</i> - Composition similar to sandstone but at least 50% grains 0.002 to 0.02 millimeters in size. Rarely forms thick beds, but often hard.                                        | <b>CRYSTALLINITY</b>                                                                                                  |                                                                                 |
| <i>Shale</i> - Predominant particles are less than 0.002 millimeters with a well defined fissile fabric. Commonly interbedded with sandstone or limestone and relatively soft.                 | <i>Description</i>                                                                                                    | <i>Criteria</i>                                                                 |
| <i>Limestone</i> - Contains more than 50% calcium carbonate. The calcite can be precipitated chemically, organically, or it may be detrital in origin. Reacts with dilute HCL.                 | Aphanitic                                                                                                             | Crystals cannot be seen with the naked eye                                      |
| <i>Dolomite</i> - Harder and heavier than limestone. Forms by alteration of limestone or by direct precipitation from sea water. Reacts with dilute HCL only when powdered.                    | Very Finely Crystalline                                                                                               | Crystals are barely visible with the naked eye                                  |
| <i>Coal</i> - Composed of highly altered plant remains and varying amounts of clay, generally black in color.                                                                                  | Finely Crystalline                                                                                                    | Crystals are easily visible with the naked eye                                  |
| <i>Chert</i> - Formed by silica deposited from solution in water. May occur as nodules or relatively thick beds.                                                                               | Medium Crystalline                                                                                                    | Crystals are medium size; up to 1/8-inch diameter                               |
| <b>GEOLOGIC DEFINITIONS</b>                                                                                                                                                                    | Coarsely Crystalline                                                                                                  | Crystals are 1/8- to 1/4-inch in diameter                                       |
| <i>Stylolite</i> - A term applied to parts of certain limestones which have a column like development that is grooved, sutured or striated and irregular in cross-section.                     | Very Coarsely Crystalline                                                                                             | Crystals are larger than 1/4-inch in diameter                                   |
| <i>Fissility</i> - A property of splitting along closely spaced parallel planes.                                                                                                               | <b>GRAIN SIZE</b>                                                                                                     |                                                                                 |
| <i>Argillaceous</i> - A term applied to rock or substances having a notable portion, greater than 30%, clay in composition.                                                                    | <i>Description</i>                                                                                                    | <i>Criteria</i>                                                                 |
| <i>Oolitic</i> - A spherical or ellipsoidal texture, 0.25 to 2.0 mm in diameter, with concentric or radial structure.                                                                          | Very Finely Grained                                                                                                   | Grains cannot be seen with the naked eye                                        |
| <i>Brecciated</i> - A rock texture which is composed of angular fragments which correspond in size to gravel and/or pebbles.                                                                   | Fine Grained                                                                                                          | Grains are barely visible with the naked eye                                    |
| <i>Slickenside</i> - A polished or striated surface on or within a rock.                                                                                                                       | Medium Grained                                                                                                        | Grains up to 2 mm in diameter                                                   |
|                                                                                                                                                                                                | Coarse Grained                                                                                                        | Grains are larger than 2 mm in diameter                                         |
|                                                                                                                                                                                                | <b>BEDDING</b>                                                                                                        |                                                                                 |
|                                                                                                                                                                                                | <i>Description</i>                                                                                                    | <i>Criteria</i>                                                                 |
|                                                                                                                                                                                                | Thin                                                                                                                  | less than 2 inches                                                              |
|                                                                                                                                                                                                | Medium                                                                                                                | 2 to 24 inches                                                                  |
|                                                                                                                                                                                                | Thick                                                                                                                 | 24 to 48 inches                                                                 |
|                                                                                                                                                                                                | Massive                                                                                                               | greater than 48 inches                                                          |
|                                                                                                                                                                                                | <b>WEATHERING</b>                                                                                                     |                                                                                 |
|                                                                                                                                                                                                | <i>Description</i>                                                                                                    | <i>Criteria</i>                                                                 |
|                                                                                                                                                                                                | Unweathered                                                                                                           | No visible alteration of rock mass                                              |
|                                                                                                                                                                                                | Slightly Weathered                                                                                                    | Slight discoloration inward from fractures                                      |
|                                                                                                                                                                                                | Moderately Weathered                                                                                                  | Discoloration throughout, slight loss of strength, texture intact               |
|                                                                                                                                                                                                | Highly Weathered                                                                                                      | Entire rock mass appears discolored and dull, texture indistinct, fabric intact |
|                                                                                                                                                                                                | Severely Weathered                                                                                                    | Majority of rock mass reduced to soil-like state with relic rock structure      |
|                                                                                                                                                                                                | <b>VOIDS</b>                                                                                                          |                                                                                 |
|                                                                                                                                                                                                | <i>Description</i>                                                                                                    | <i>Criteria</i>                                                                 |
|                                                                                                                                                                                                | Dense                                                                                                                 | Usually not visible with the naked eye                                          |
|                                                                                                                                                                                                | Pitted                                                                                                                | Visible to 1/4-inch                                                             |
|                                                                                                                                                                                                | Vuggy                                                                                                                 | 1/4-inch to diameter of the core                                                |
|                                                                                                                                                                                                | Cavity                                                                                                                | Larger than 6 inches in diameter                                                |
|                                                                                                                                                                                                | <b>QUALITY</b>                                                                                                        |                                                                                 |
|                                                                                                                                                                                                | <i>Percent RQD</i>                                                                                                    | <i>Description</i>                                                              |
|                                                                                                                                                                                                | 90 to 100                                                                                                             | Excellent                                                                       |
|                                                                                                                                                                                                | 75 to 90                                                                                                              | Good                                                                            |
|                                                                                                                                                                                                | 50 to 75                                                                                                              | Fair                                                                            |
|                                                                                                                                                                                                | 25 to 50                                                                                                              | Poor                                                                            |
|                                                                                                                                                                                                | 0 to 25                                                                                                               | Very Poor                                                                       |

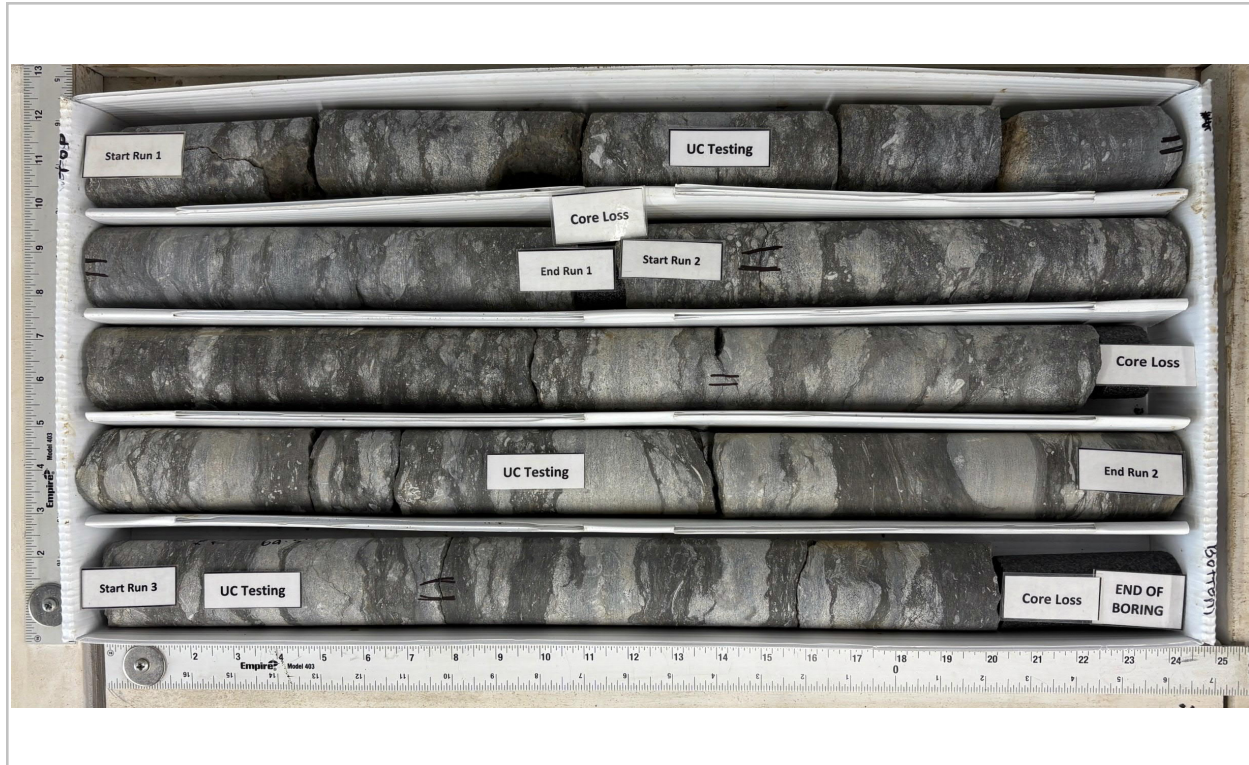
A24138.00136.001

TDOT PIN 131552.00

BR-1

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 1 of 1

**BORING BR-1**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 1          | 56.5 - 59.5      | 97                 | 65            |
| 2          | 59.5 - 64.5      | 98                 | 95            |
| 3          | 64.5 - 66.5      | 83                 | 83            |

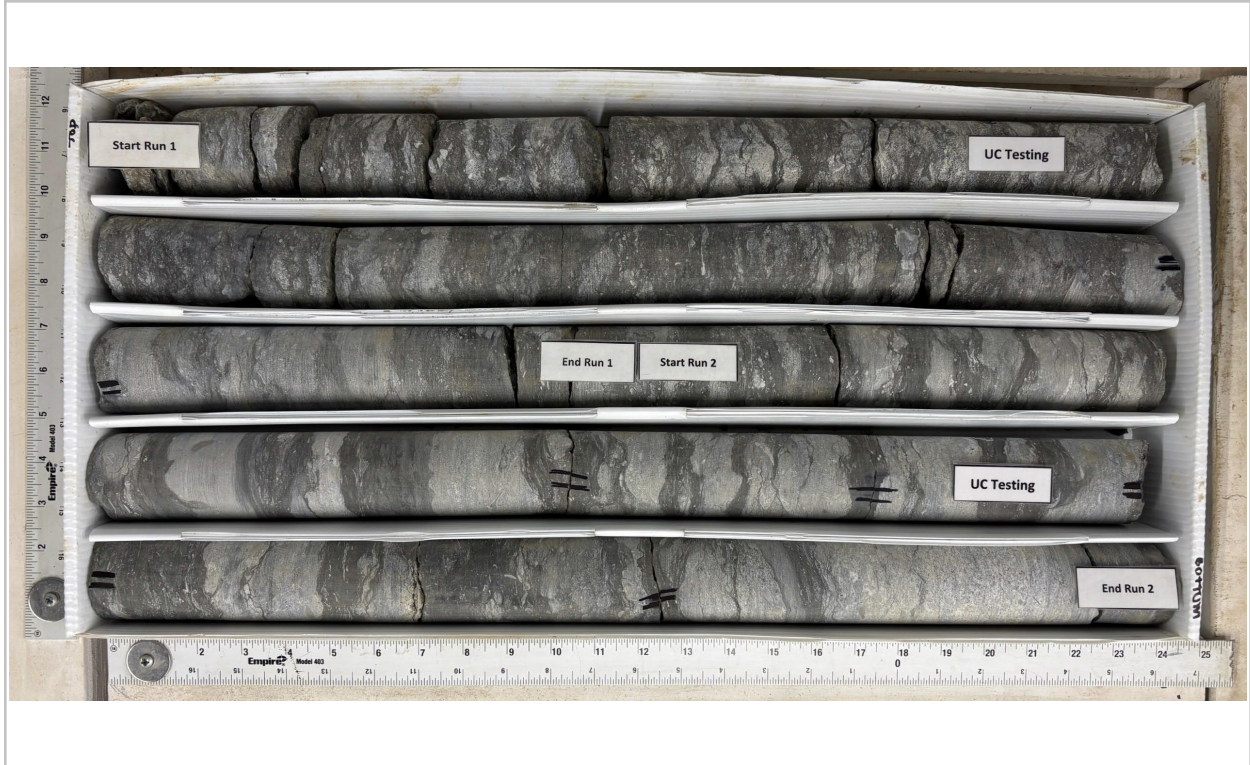


A24138.00136.001

TDOT PIN 131552.00  
I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

BR-2

Box 1 of 2



**BORING BR-2**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 1          | 39.8 - 44.8      | 100                | 65            |
| 2          | 44.8 - 49.8      | 100                | 96            |

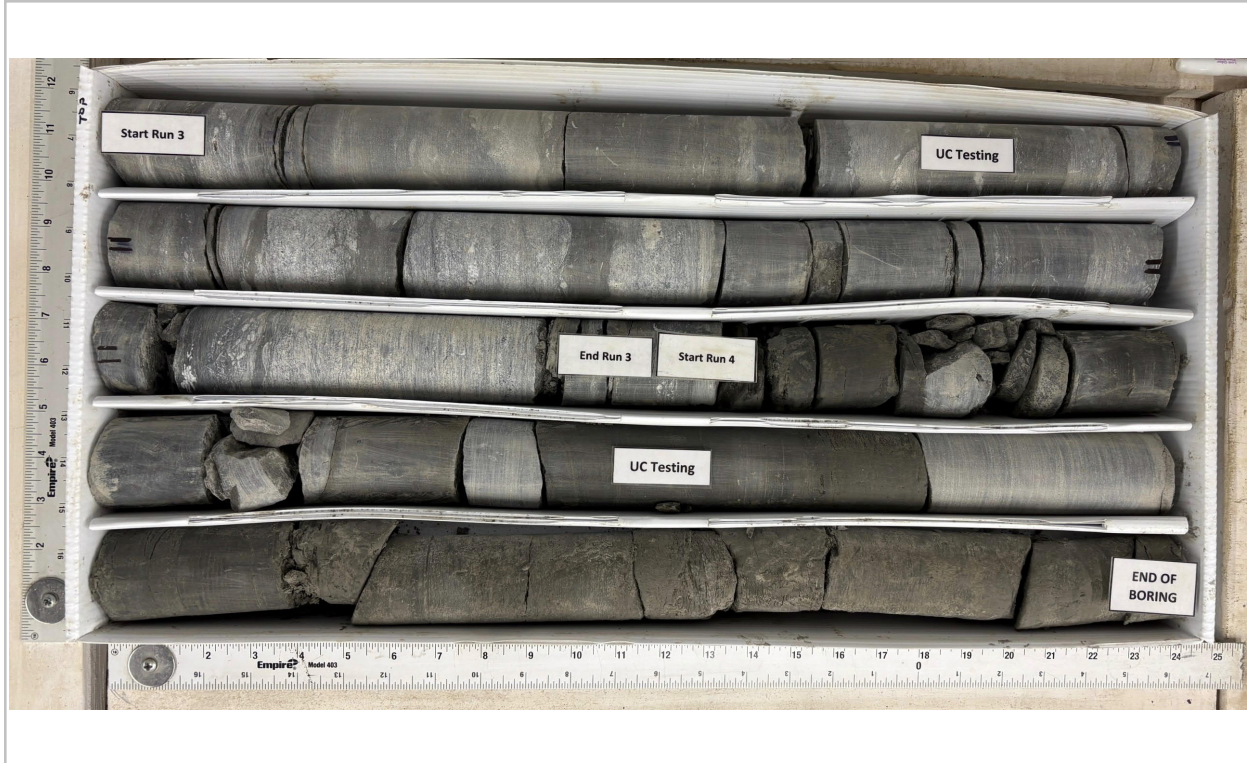
A24138.00136.001

TDOT PIN 131552.00

BR-2

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 2 of 2



### **BORING BR-2**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 3          | 49.8 - 54.8      | 100                | 68            |
| 4          | 54.8 - 59.8      | 100                | 41            |

A24138.00136.001

TDOT PIN 131552.00

BR-3

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 1 of 3

**BORING BR-3**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 1          | 8.25 - 12.25     | 95                 | 81            |
| 2          | 12.25 - 17.25    | 98                 | 98            |
| 3          | 17.25 - Cont.    | 100                | 100           |



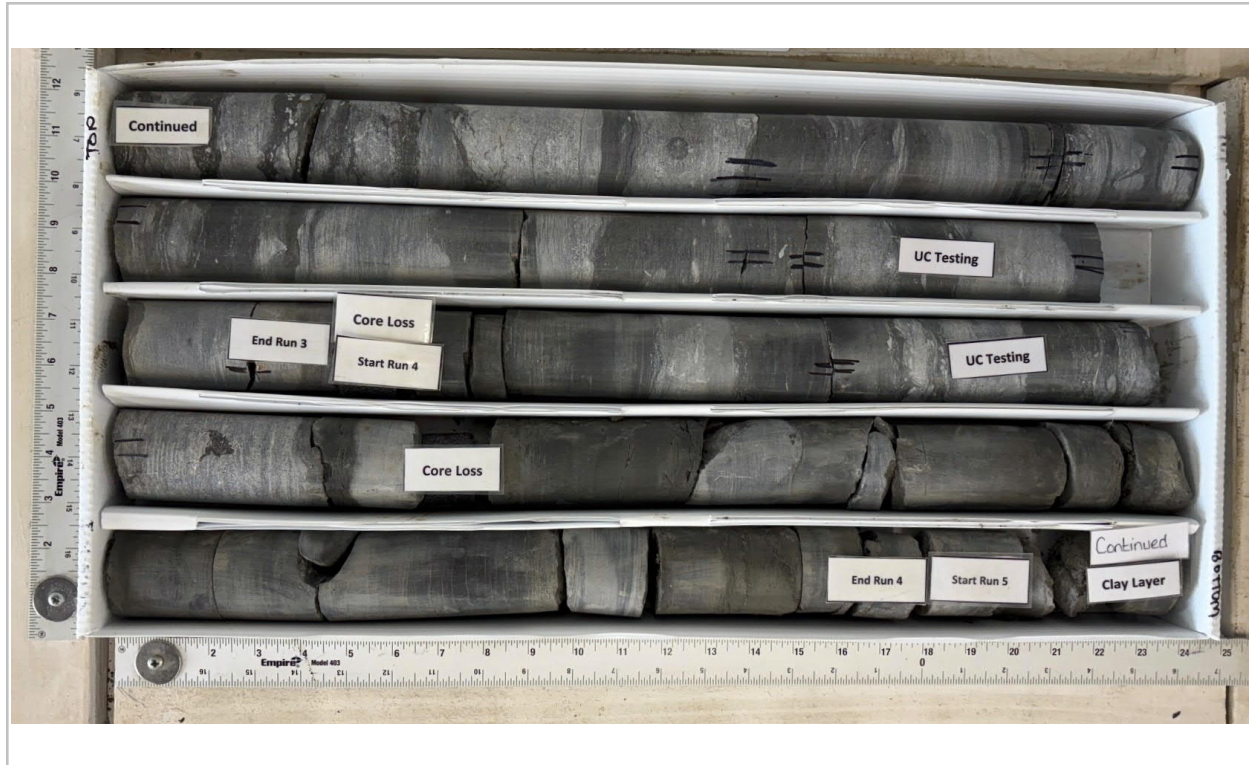
A24138.00136.001

TDOT PIN 131552.00

BR-3

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 2 of 3

**BORING BR-3**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 3          | Cont. - 22.25    | 100                | 100           |
| 4          | 22.25 - 27.25    | 97                 | 39            |
| 5          | 27.25 - Cont.    | 98                 | 72            |

A24138.00136.001

TDOT PIN 131552.00

BR-3

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 3 of 3



**BORING BR-3**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 5          | Cont. - 32.0     | 98                 | 72            |

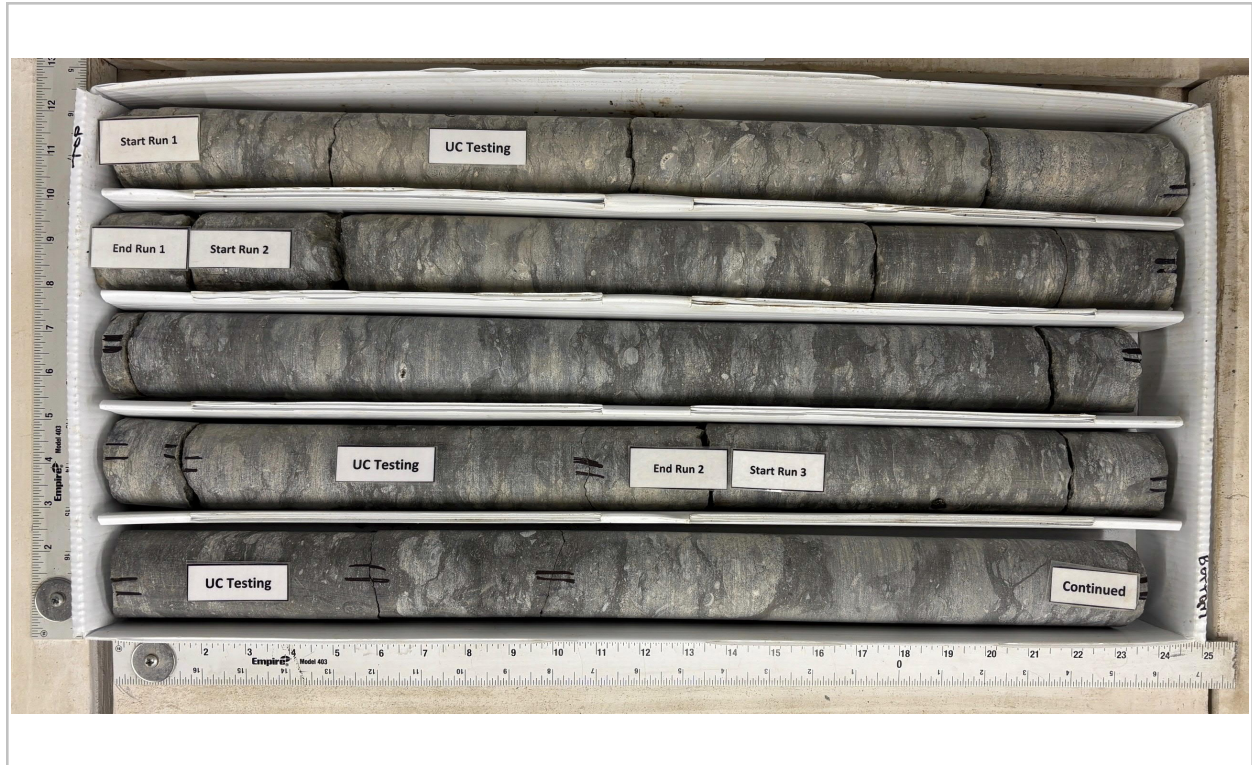
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TDOT PIN 131552.00

BR-4

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 1 of 3

**BORING BR-4**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 1          | 9.9 - 12.0       | 100                | 100           |
| 2          | 12.0 - 17.0      | 100                | 93            |
| 3          | 17.0 - Cont.     | 100                | 93            |



A24138.00136.001

TDOT PIN 131552.00

BR-4

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 2 of 3

**BORING BR-4**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 3          | Cont. - 22.0     | 100                | 93            |
| 4          | 22.0 - 27.0      | 100                | 100           |
| 5          | 27.0 - Cont.     | 100                | 82            |

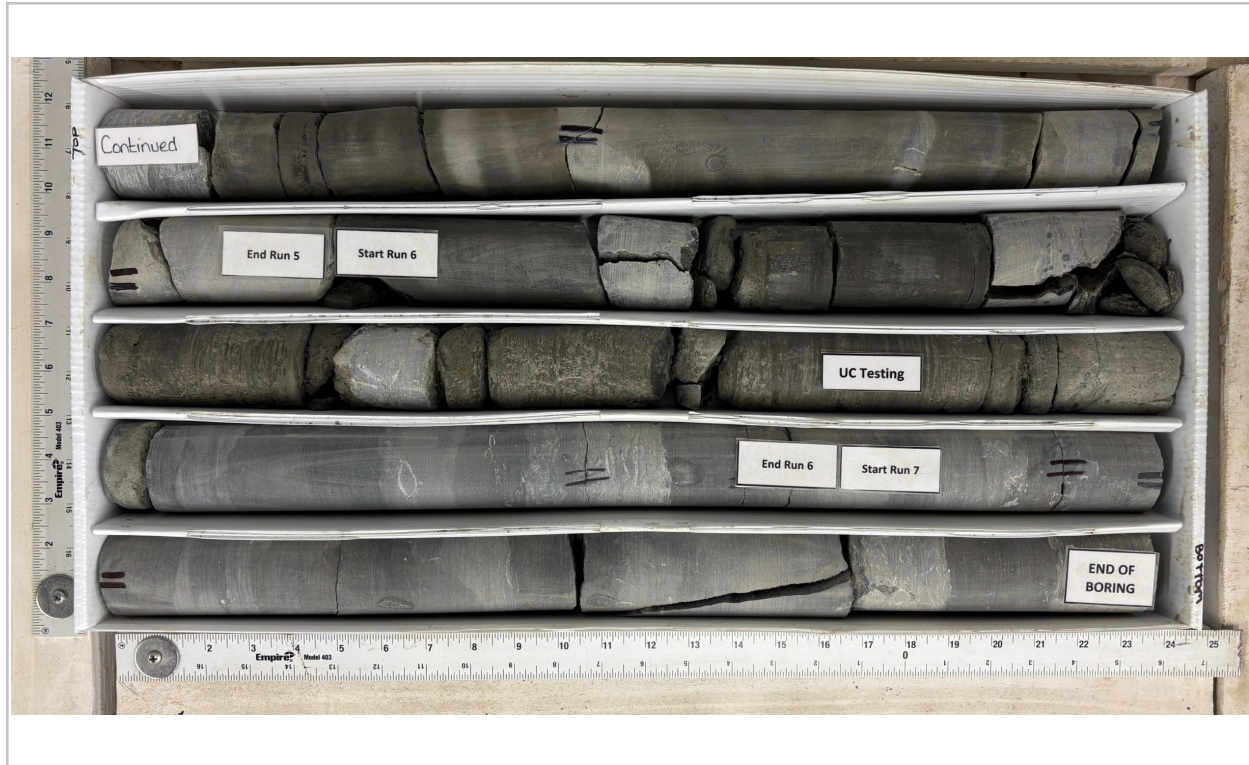
A24138.00136.001

TDOT PIN 131552.00

BR-4

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 3 of 3

**BORING BR-4**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 5          | Cont. - 32.0     | 100                | 82            |
| 6          | 32.0 - 37.0      | 100                | 80            |
| 7          | 37.0 - 39.9      | 100                | 81            |

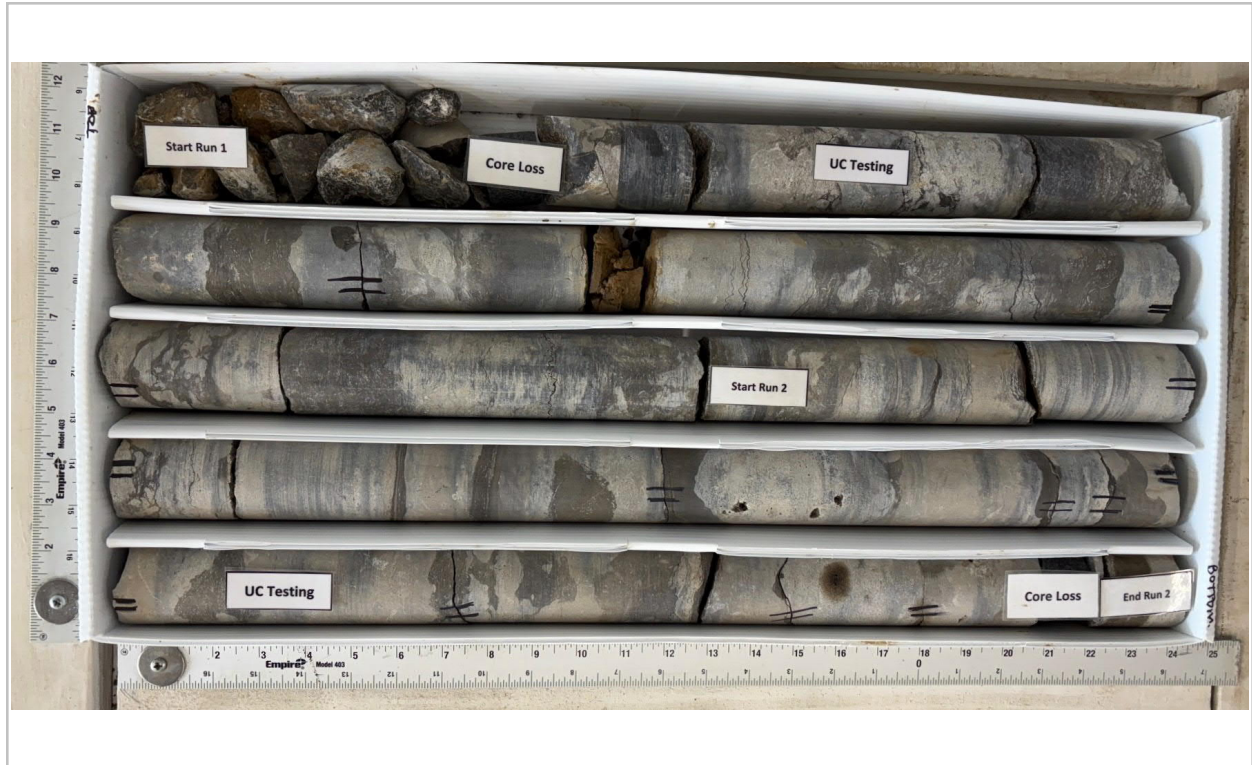
A24138.00136.001

TDOT PIN 131552.00

BR-5

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 1 of 3

**BORING BR-5**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 1          | 5.2 - 10.2       | 98                 | 70            |
| 2          | 10.2 - 15.2      | 98                 | 92            |



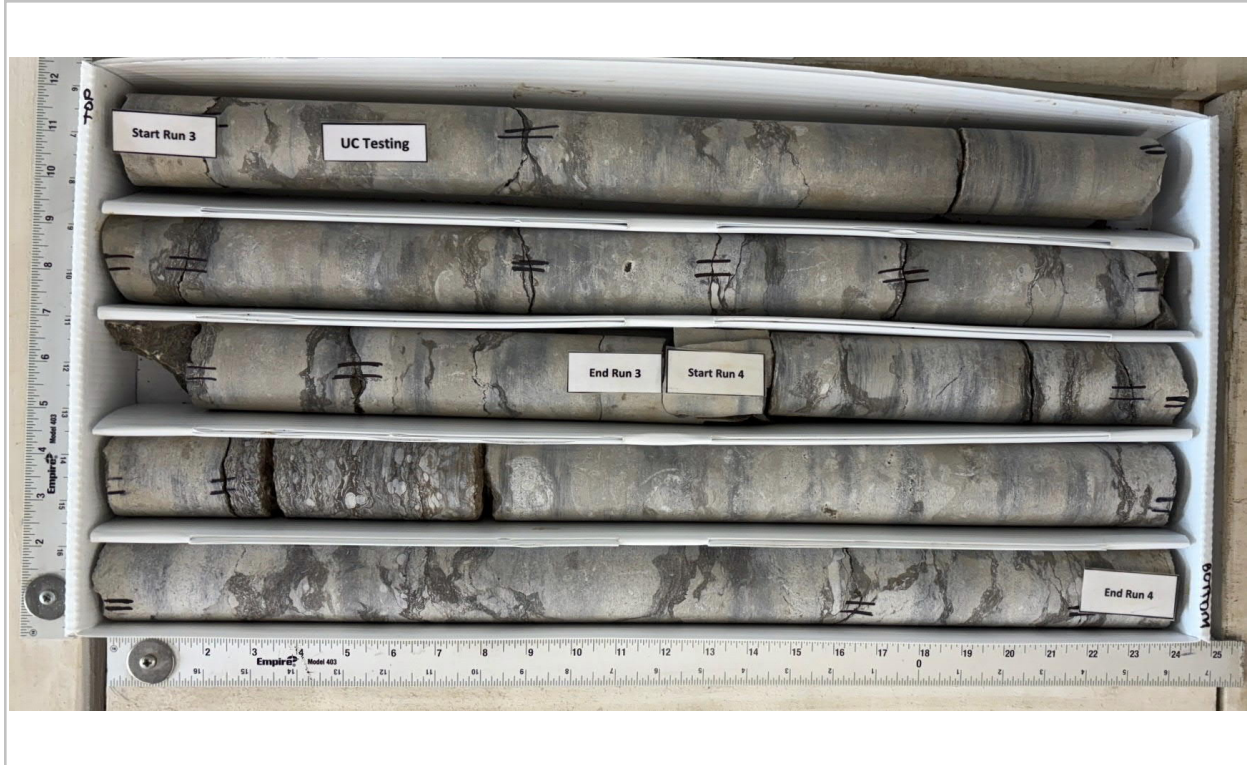
A24138.00136.001

TDOT PIN 131552.00

BR-5

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 2 of 3

**BORING BR-5**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 3          | 15.2 - 20.2      | 100                | 100           |
| 4          | 20.2 - 25.2      | 100                | 100           |

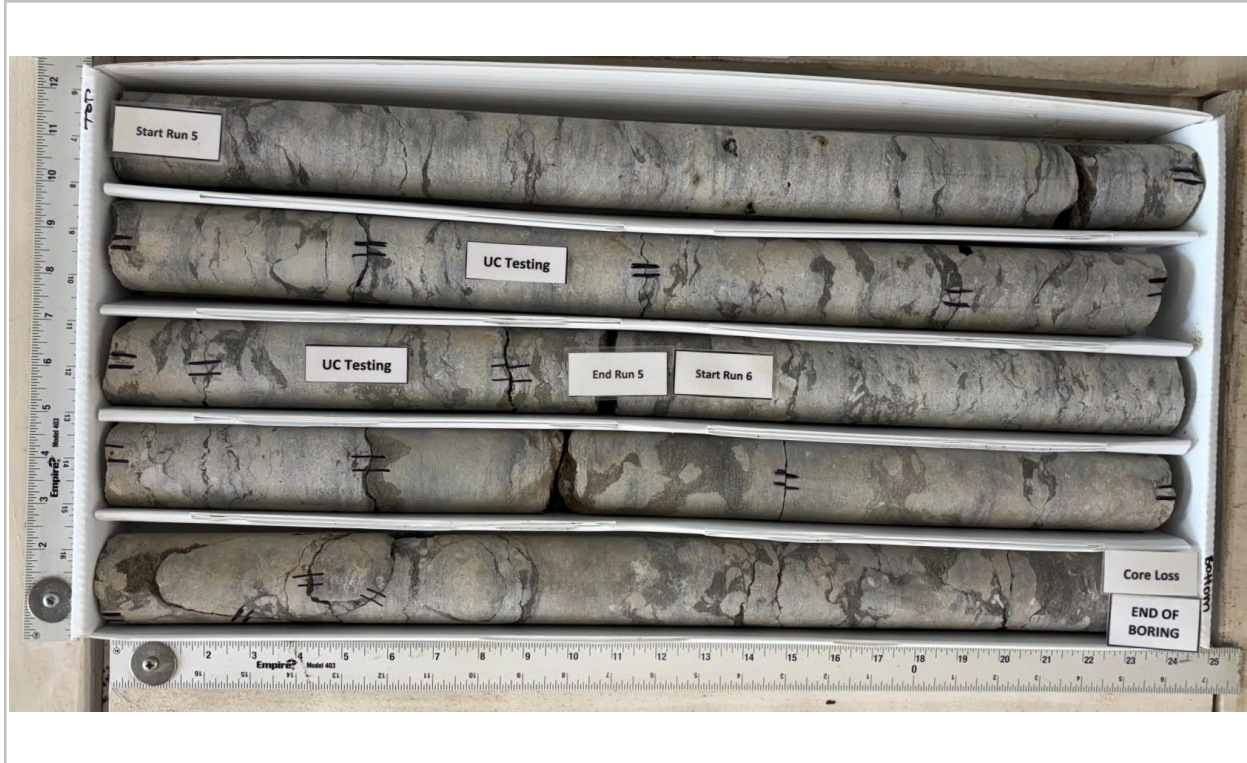
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TDOT PIN 131552.00

BR-5

I-40 Truck Stop and Bridge Replacement over Caney Fork River  
Smith/Putnam County, Tennessee

Box 3 of 3

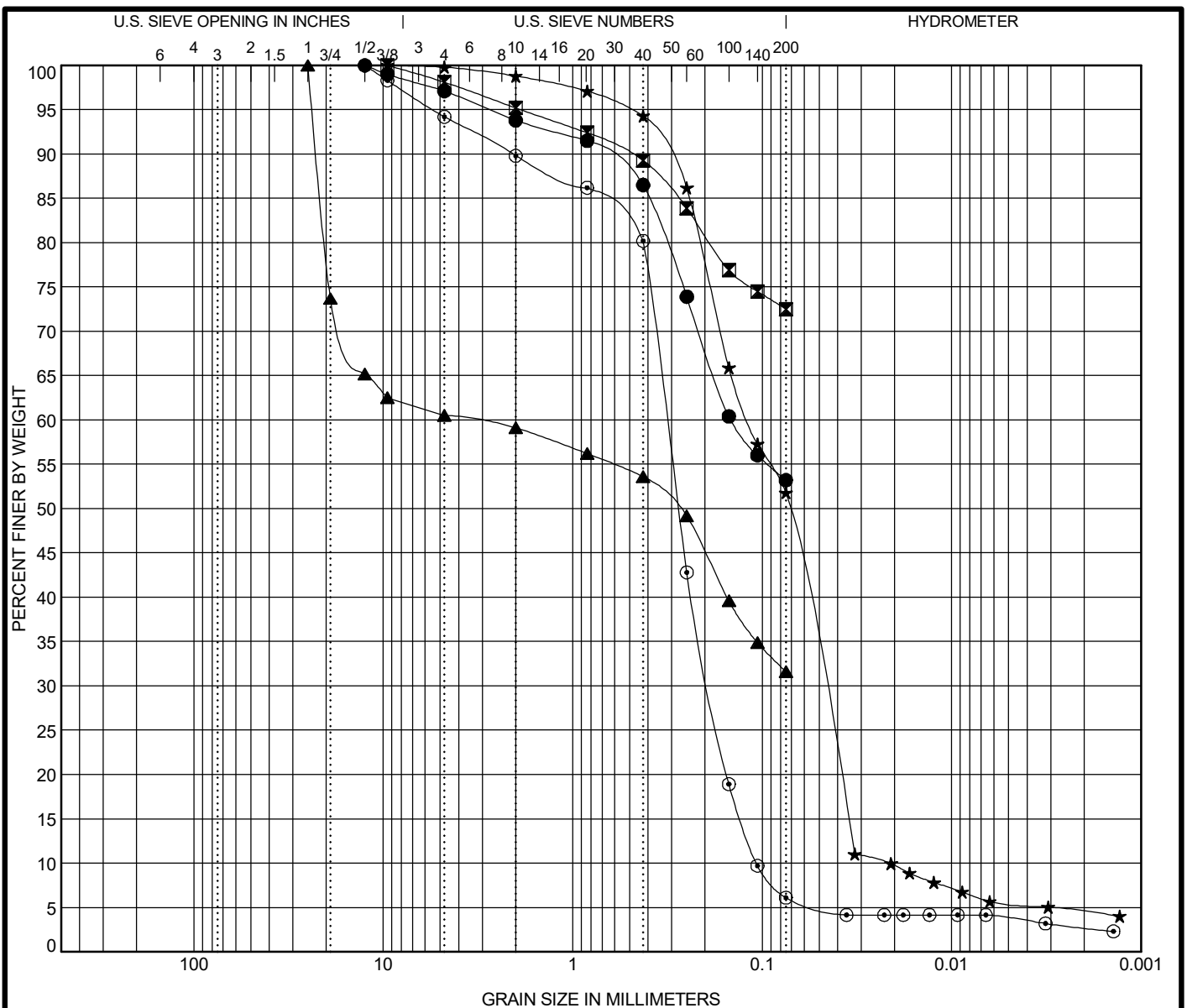
**BORING BR-5**

| <u>RUN</u> | <u>DEPTH, FT</u> | <u>RECOVERY, %</u> | <u>RQD, %</u> |
|------------|------------------|--------------------|---------------|
| 5          | 25.2 - 30.2      | 100                | 100           |
| 6          | 30.2 - 35.2      | 97                 | 97            |





Appendix D  
**LABORATORY TEST DATA**

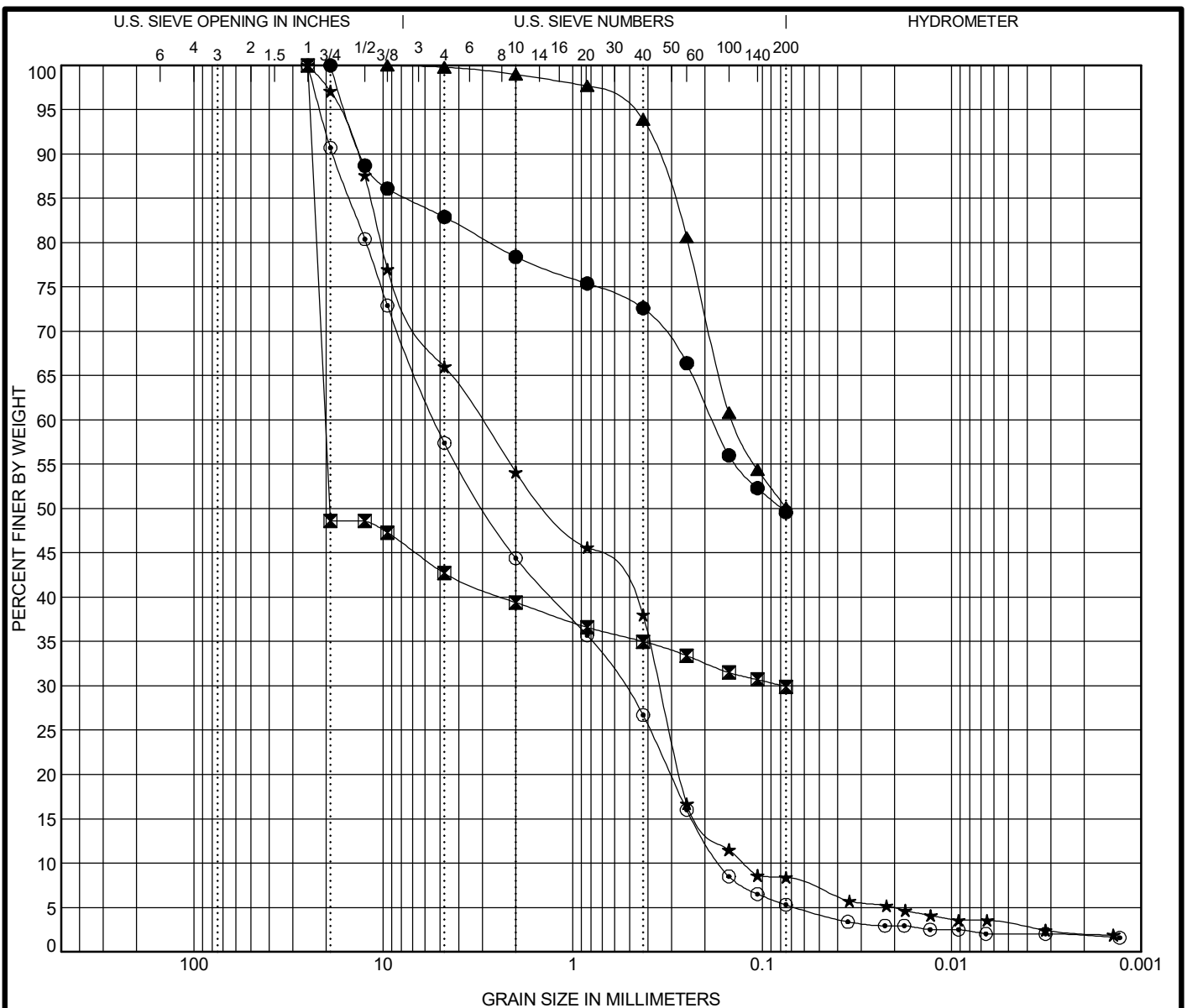


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |      | Classification                             |       |       | LL    | PL      | PI    | Cc    | Cu    |
|-------------------------|------|------|--------------------------------------------|-------|-------|-------|---------|-------|-------|-------|
| ●                       | BR-1 | 8.5  | SANDY LEAN CLAY(CL), A-7-6 (11)            |       |       | 49    | 23      | 26    |       |       |
| ☒                       | BR-1 | 28.5 | FAT CLAY with SAND(CH), A-7-6 (25)         |       |       | 61    | 27      | 34    |       |       |
| ▲                       | BR-1 | 33.5 | CLAYEY GRAVEL with SAND(GC), A-2-4         |       |       | 28    | 19      | 9     |       |       |
| ★                       | BR-1 | 38.5 | SANDY SILT(ML), A-4                        |       |       |       |         |       | 0.91  | 5.52  |
| ◎                       | BR-1 | 43.5 | POORLY GRADED SAND with CLAY(SP-SC), A-2-4 |       |       |       |         |       | 1.06  | 2.98  |
| Specimen Identification |      |      | D100                                       | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
| ●                       | BR-1 | 8.5  | 12.5                                       | 0.145 |       |       | 2.9     | 43.9  | 53.2  |       |
| ☒                       | BR-1 | 28.5 | 9.5                                        |       |       |       | 1.9     | 25.6  | 72.5  |       |
| ▲                       | BR-1 | 33.5 | 25                                         | 3.488 |       |       | 39.5    | 28.9  | 31.6  |       |
| ★                       | BR-1 | 38.5 | 9.5                                        | 0.118 | 0.048 | 0.021 | 0.2     | 48.0  | 46.3  | 5.5   |
| ◎                       | BR-1 | 43.5 | 12.5                                       | 0.319 | 0.19  | 0.107 | 5.8     | 88.1  | 2.3   | 3.8   |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**

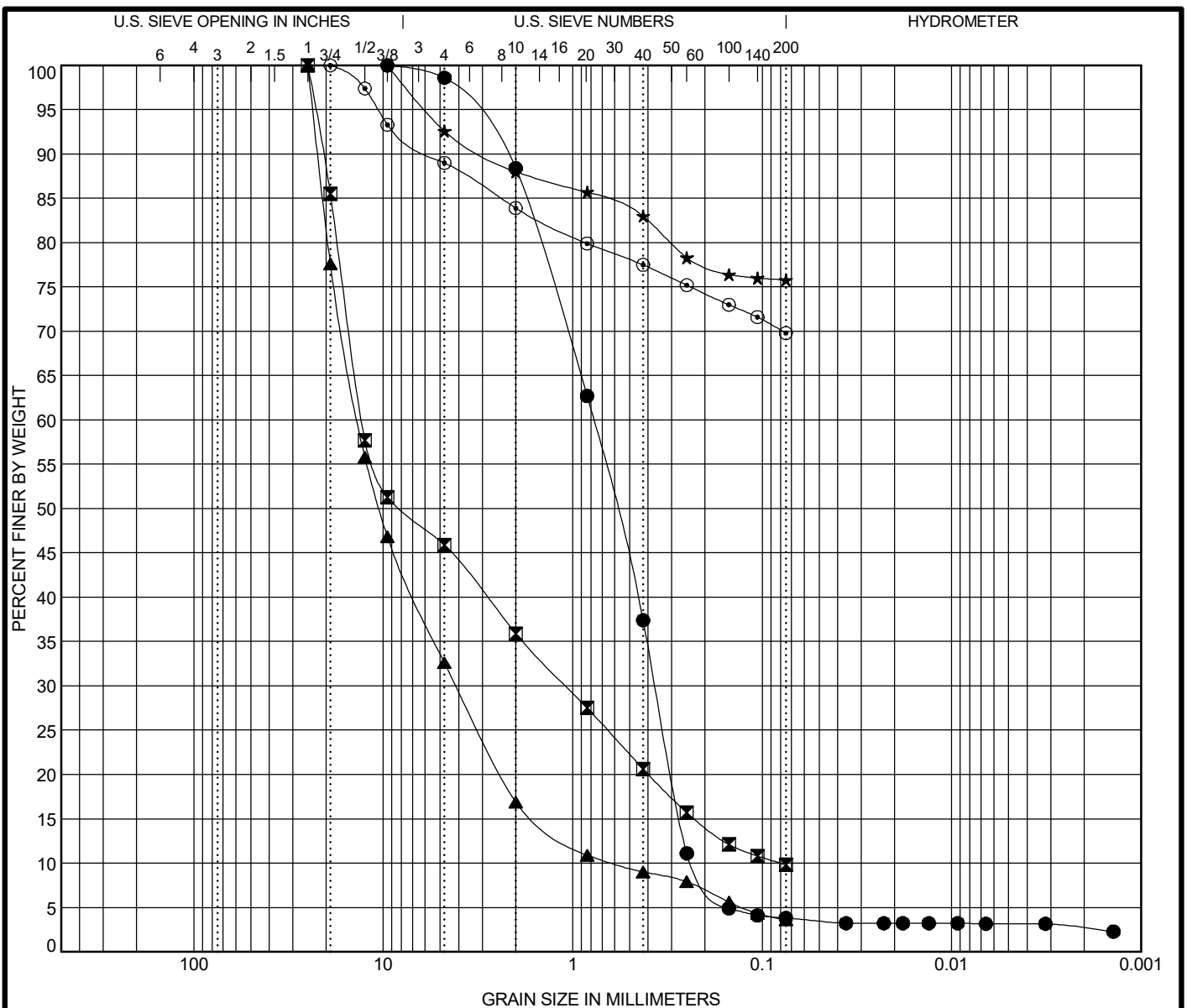


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |      | Classification                                    |        |       | LL    | PL      | PI    | Cc    | Cu    |
|-------------------------|------|------|---------------------------------------------------|--------|-------|-------|---------|-------|-------|-------|
| ●                       | BR-2 | 3.0  | CLAYEY SAND with GRAVEL(SC), A-7-6 (7)            |        |       | 43    | 22      | 21    |       |       |
| ☒                       | BR-2 | 8.0  | CLAYEY GRAVEL(GC), A-2-7 (4)                      |        |       | 71    | 33      | 38    |       |       |
| ▲                       | BR-2 | 18.5 | SANDY LEAN CLAY(CL), A-4 (2)                      |        |       | 32    | 22      | 10    |       |       |
| ★                       | BR-2 | 23.5 | P. GRADED SAND with SILT and GRAVEL(SP-SM), A-2-4 |        |       |       |         |       | 0.31  | 24.50 |
| ◎                       | BR-2 | 28.5 | P. GRADED SAND with SILT and GRAVEL(SP-SM), A-2-4 |        |       |       |         |       | 0.34  | 32.12 |
| Specimen Identification |      |      | D100                                              | D60    | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
| ●                       | BR-2 | 3.0  | 19                                                | 0.183  |       |       | 17.1    | 33.3  | 49.6  |       |
| ☒                       | BR-2 | 8.0  | 25                                                | 20.192 | 0.078 |       | 57.3    | 12.8  | 29.9  |       |
| ▲                       | BR-2 | 18.5 | 9.5                                               | 0.144  |       |       | 0.2     | 49.7  | 50.1  |       |
| ★                       | BR-2 | 23.5 | 25                                                | 3.071  | 0.348 | 0.125 | 34.0    | 57.6  | 5.3   | 3.1   |
| ◎                       | BR-2 | 28.5 | 25                                                | 5.336  | 0.546 | 0.166 | 42.6    | 52.1  | 3.3   | 2.0   |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**

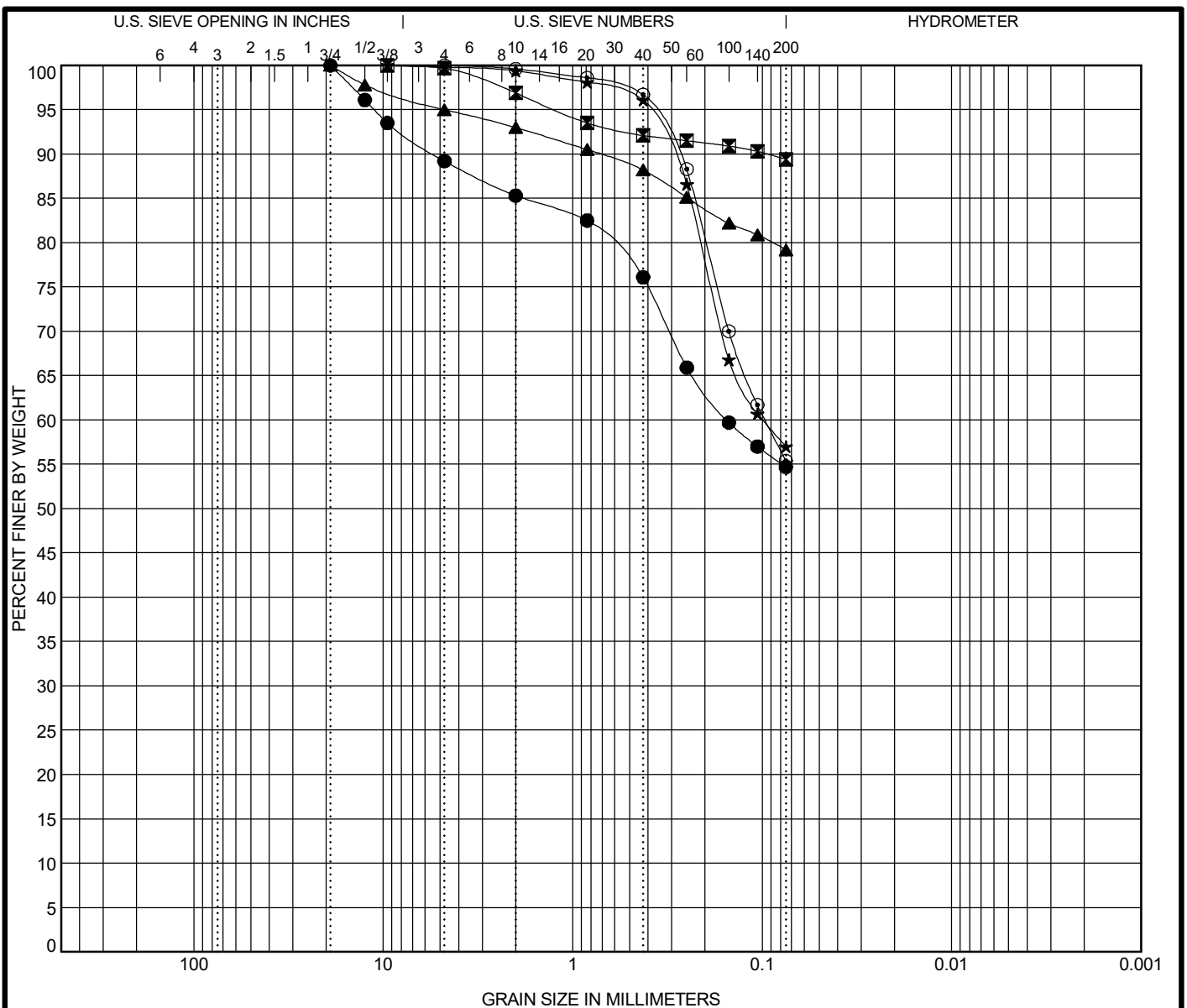


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |      | Classification                                   |        |       |       | LL      | PL    | PI    | Cc    | Cu     |
|-------------------------|------|------|--------------------------------------------------|--------|-------|-------|---------|-------|-------|-------|--------|
| ●                       | BR-3 | 0.0  | POORLY GRADED SAND(SP), A-1-b (0)                |        |       |       |         |       |       | 0.75  | 3.42   |
| ☒                       | BR-4 | 2.0  | WELL GRADED GRAVEL with SILT and SAND(GW), A-2-4 |        |       |       |         |       |       | 1.14  | 161.01 |
| ▲                       | BR-4 | 7.0  | WELL GRADED GRAVEL with SAND(GW), A-2-4          |        |       |       |         |       |       | 2.06  | 22.28  |
| ★                       | E- 1 | 3.5  | ELASTIC SILT with SAND(MH), A-7-5 (27)           |        |       |       | 66      | 34    | 32    |       |        |
| ◎                       | E- 1 | 13.0 | SANDY LEAN CLAY(CL), A-7-6 (16)                  |        |       |       | 48      | 24    | 24    |       |        |
| Specimen Identification |      |      | D100                                             | D60    | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |        |
| ●                       | BR-3 | 0.0  | 9.5                                              | 0.781  | 0.366 | 0.228 | 1.4     | 94.8  | 0.7   | 3.1   |        |
| ☒                       | BR-4 | 2.0  | 25                                               | 12.941 | 1.087 | 0.08  | 54.1    | 36.1  | 9.8   |       |        |
| ▲                       | BR-4 | 7.0  | 25                                               | 13.55  | 4.116 | 0.608 | 67.4    | 29.0  | 3.6   |       |        |
| ★                       | E- 1 | 3.5  | 9.5                                              |        |       |       | 7.4     | 16.8  | 75.8  |       |        |
| ◎                       | E- 1 | 13.0 | 19                                               |        |       |       | 11.0    | 19.2  | 69.8  |       |        |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**



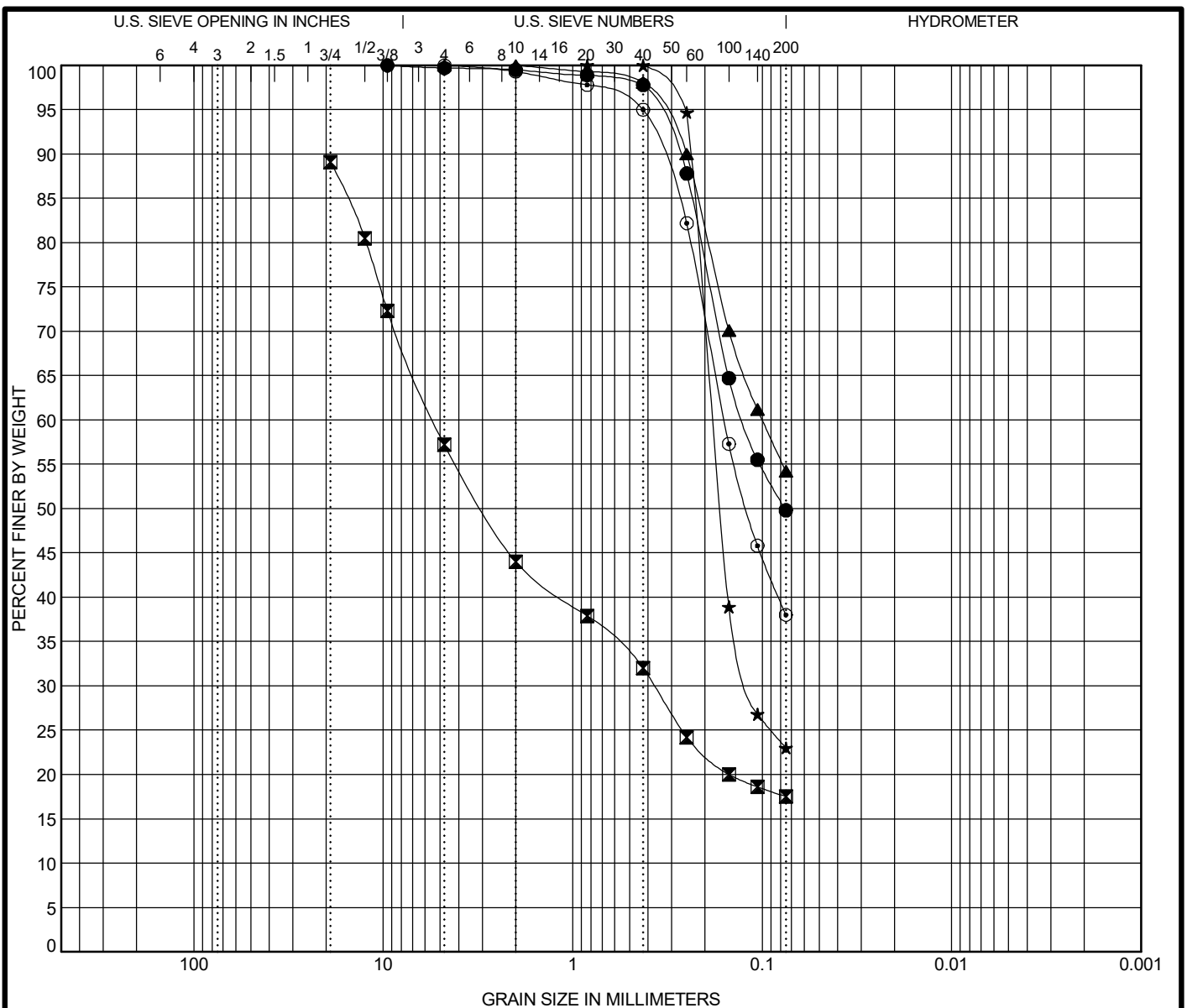
| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |     |      | Classification                     |       |     | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|-----|------|------------------------------------|-------|-----|-----|---------|-------|-------|-------|
| ●                       | E-2 | 6.0  | SANDY FAT CLAY(CH), A-7-6 (10)     |       |     | 50  | 26      | 24    |       |       |
| ☒                       | E-2 | 13.5 | ELASTIC SILT(MH), A-7-5 (28)       |       |     | 58  | 31      | 27    |       |       |
| ▲                       | E-3 | 3.5  | FAT CLAY with SAND(CH), A-7-6 (20) |       |     | 52  | 28      | 24    |       |       |
| ★                       | E-4 | 5.0  | SANDY LEAN CLAY(CL), A-6 (6)       |       |     | 37  | 23      | 14    |       |       |
| ◎                       | E-4 | 18.5 | SANDY SILTY CLAY(CL-ML), A-4 (1)   |       |     | 25  | 20      | 5     |       |       |
| Specimen Identification |     |      | D100                               | D60   | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | E-2 | 6.0  | 19                                 | 0.154 |     |     | 10.8    | 34.5  | 54.7  |       |
| ☒                       | E-2 | 13.5 | 9.5                                |       |     |     | 0.3     | 10.3  | 89.4  |       |
| ▲                       | E-3 | 3.5  | 19                                 |       |     |     | 5.0     | 15.8  | 79.2  |       |
| ★                       | E-4 | 5.0  | 9.5                                | 0.099 |     |     | 0.2     | 42.8  | 57.0  |       |
| ◎                       | E-4 | 18.5 | 4.75                               | 0.097 |     |     | 0.0     | 44.6  | 55.4  |       |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**



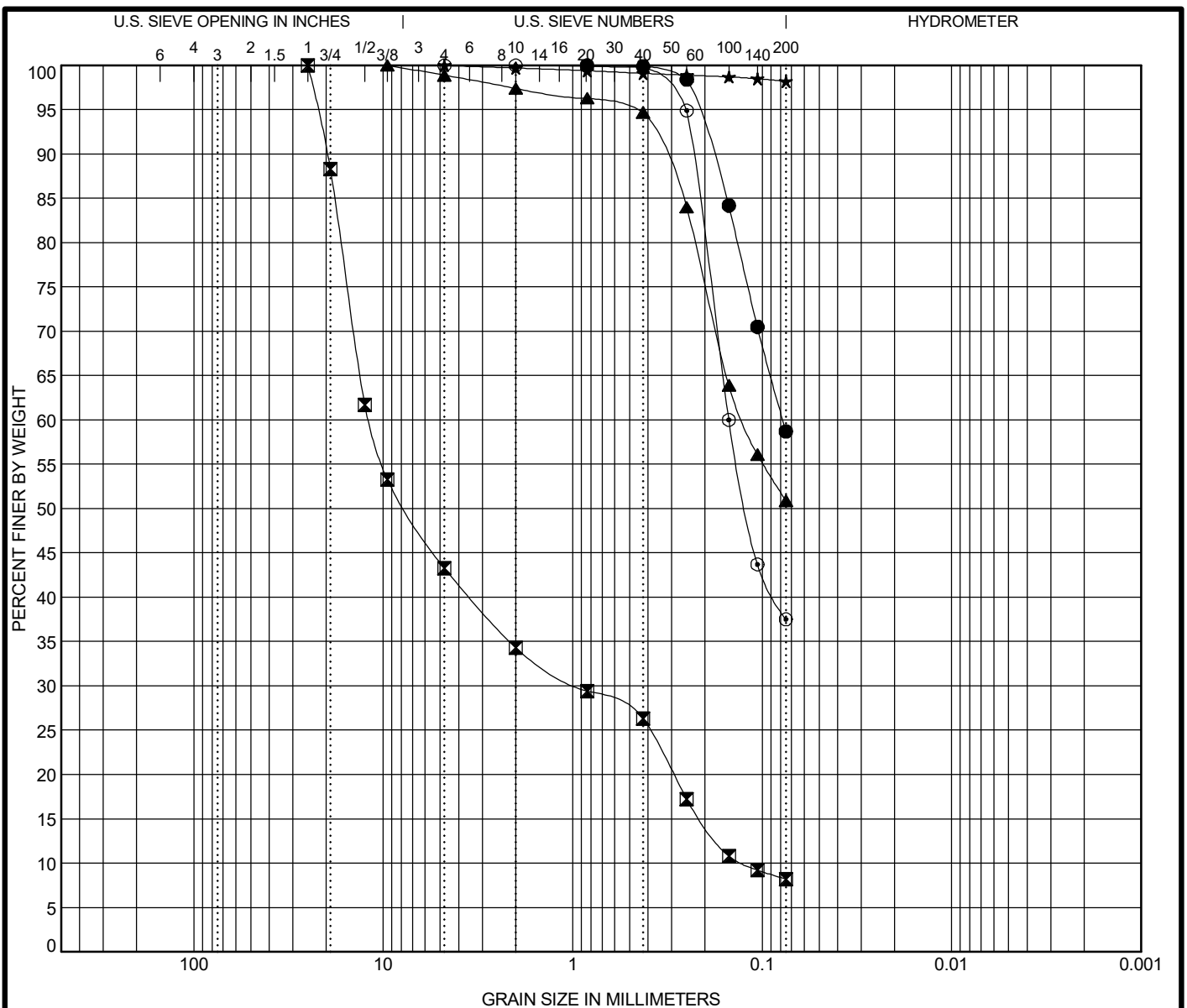


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |     |      | Classification                     |       |       | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|-----|------|------------------------------------|-------|-------|-----|---------|-------|-------|-------|
| ●                       | E-5 | 8.0  | CLAYEY SAND(SC), A-6 (5)           |       |       | 36  | 20      | 16    |       |       |
| ☒                       | E-5 | 28.5 | CLAYEY SAND with GRAVEL(SC), A-2-6 |       |       |     |         |       |       |       |
| ▲                       | E-6 | 3.5  | SANDY LEAN CLAY(CL), A-6 (6)       |       |       | 37  | 20      | 17    |       |       |
| ★                       | E-6 | 6.0  | SILTY SAND(SM), A-2-4 (0)          |       |       | 30  | 24      | 6     |       |       |
| ◎                       | E-7 | 3.0  | CLAYEY SAND(SC), A-6 (1)           |       |       | 31  | 19      | 12    |       |       |
| Specimen Identification |     |      | D100                               | D60   | D30   | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | E-5 | 8.0  | 9.5                                | 0.126 |       |     | 0.3     | 49.9  | 49.8  |       |
| ☒                       | E-5 | 28.5 | 19                                 | 5.401 | 0.371 |     | 31.9    | 39.7  | 17.5  |       |
| ▲                       | E-6 | 3.5  | 4.75                               | 0.1   |       |     | 0.0     | 45.8  | 54.2  |       |
| ★                       | E-6 | 6.0  | 0.84                               | 0.182 | 0.116 |     | 0.0     | 77.0  | 23.0  |       |
| ◎                       | E-7 | 3.0  | 4.75                               | 0.159 |       |     | 0.0     | 62.0  | 38.0  |       |



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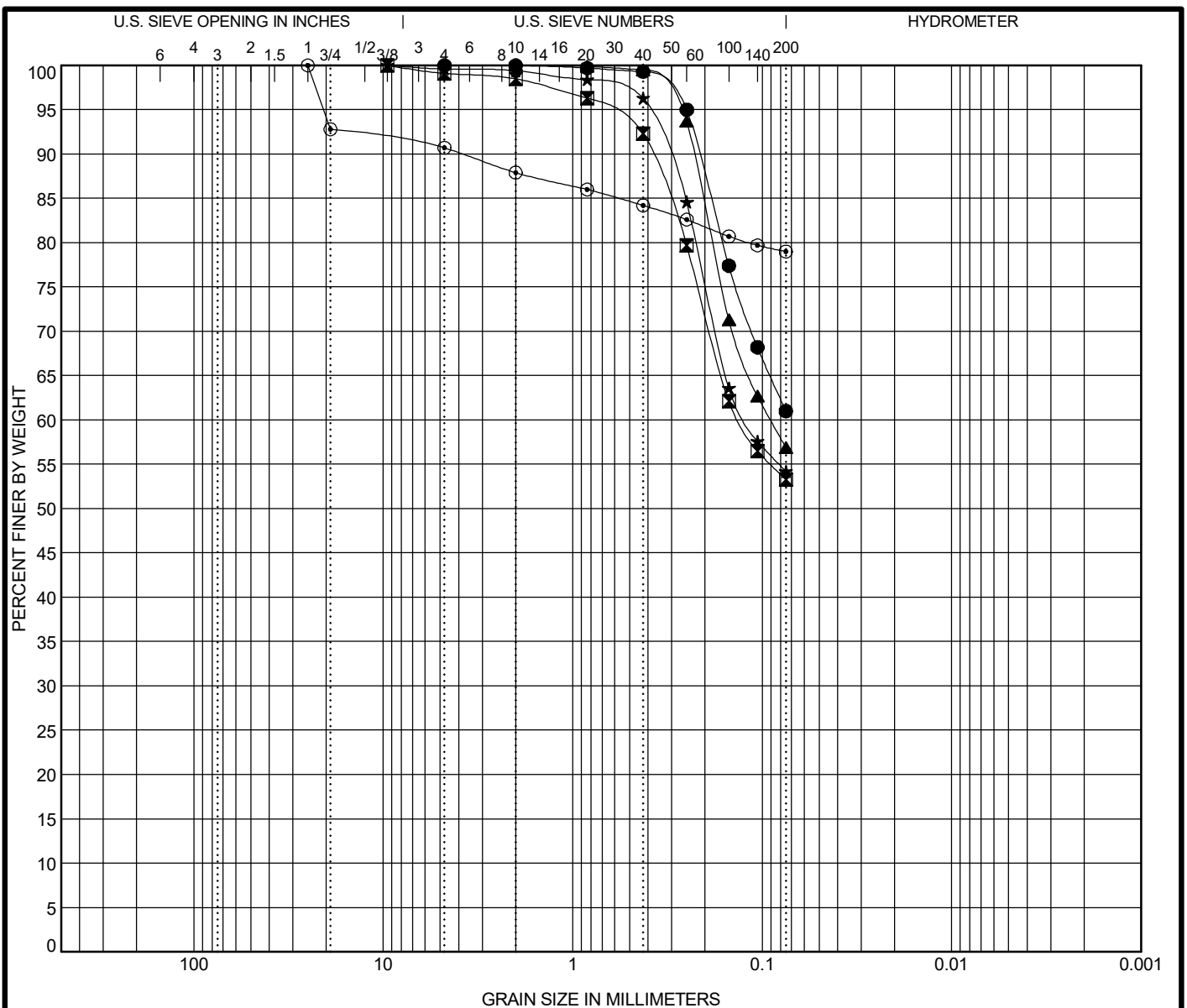


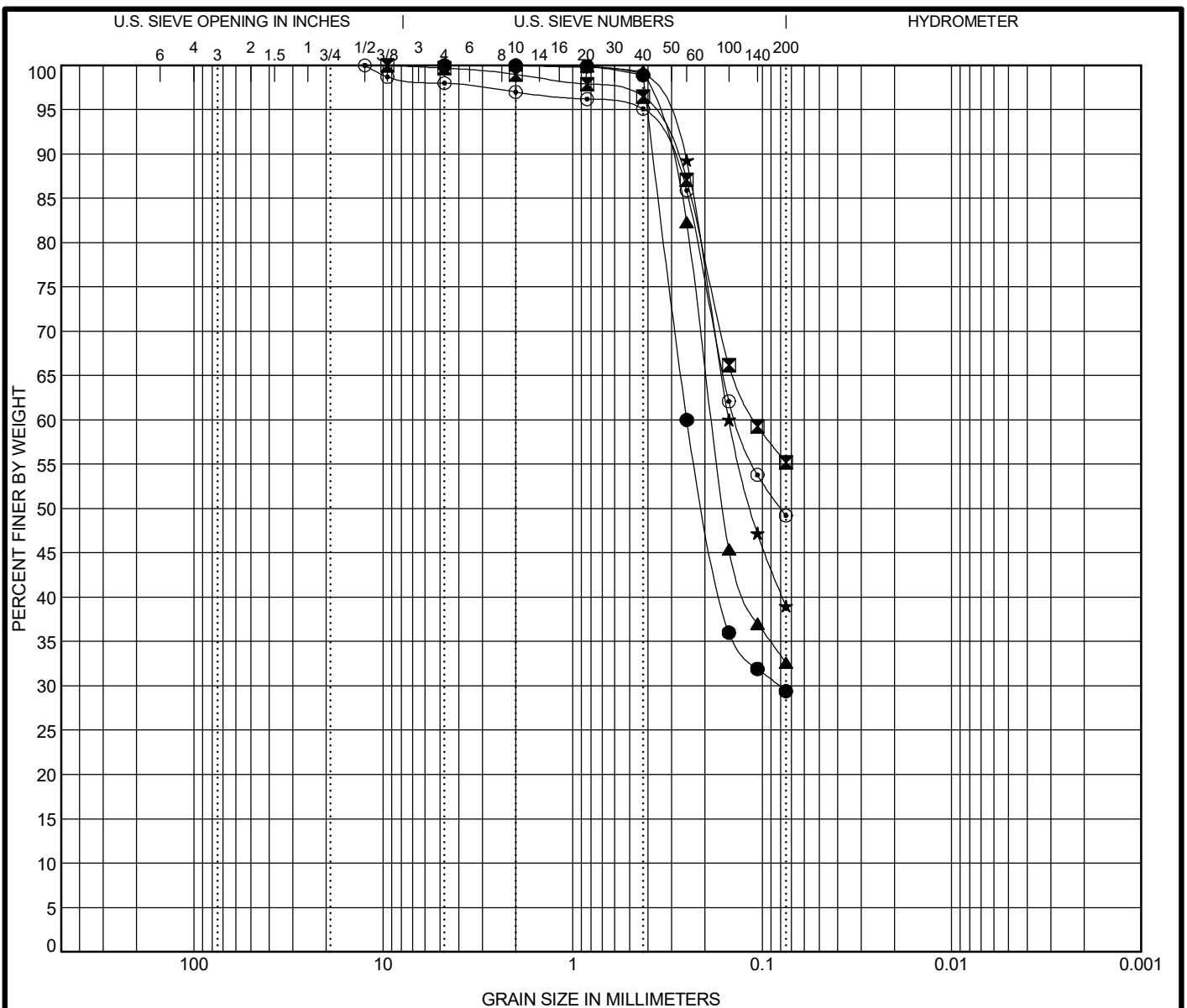
| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |      | Classification                                    |        |       | LL    | PL      | PI    | Cc    | Cu    |
|-------------------------|------|------|---------------------------------------------------|--------|-------|-------|---------|-------|-------|-------|
| ●                       | E-7  | 8.5  | SANDY LEAN CLAY(CL), A-6 (6)                      |        |       | 30    | 15      | 15    |       |       |
| ☒                       | E-9  | 13.5 | P. GRADED GRAVEL with CLAY and SAND(GP-GC), A-2-6 |        |       |       |         |       | 0.59  | 93.78 |
| ▲                       | EB-1 | 3.5  | SANDY LEAN CLAY(CL), A-6 (3)                      |        |       | 30    | 17      | 13    |       |       |
| ★                       | EB-2 | 3.5  | FAT CLAY(CH), A-7-5 (63)                          |        |       | 88    | 36      | 52    |       |       |
| ◎                       | P-1  | 8.5  | CLAYEY SAND(SC), A-4 (0)                          |        |       | 31    | 21      | 10    |       |       |
| Specimen Identification |      |      | D100                                              | D60    | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
| ●                       | E-7  | 8.5  | 0.84                                              | 0.078  |       |       | 0.0     | 41.3  | 58.7  |       |
| ☒                       | E-9  | 13.5 | 25                                                | 11.825 | 0.934 | 0.126 | 56.7    | 35.1  | 8.2   |       |
| ▲                       | EB-1 | 3.5  | 9.5                                               | 0.126  |       |       | 1.1     | 48.0  | 50.9  |       |
| ★                       | EB-2 | 3.5  | 4.75                                              |        |       |       | 0.0     | 1.8   | 98.2  |       |
| ◎                       | P-1  | 8.5  | 4.75                                              | 0.15   |       |       | 0.0     | 62.5  | 37.5  |       |



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**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**



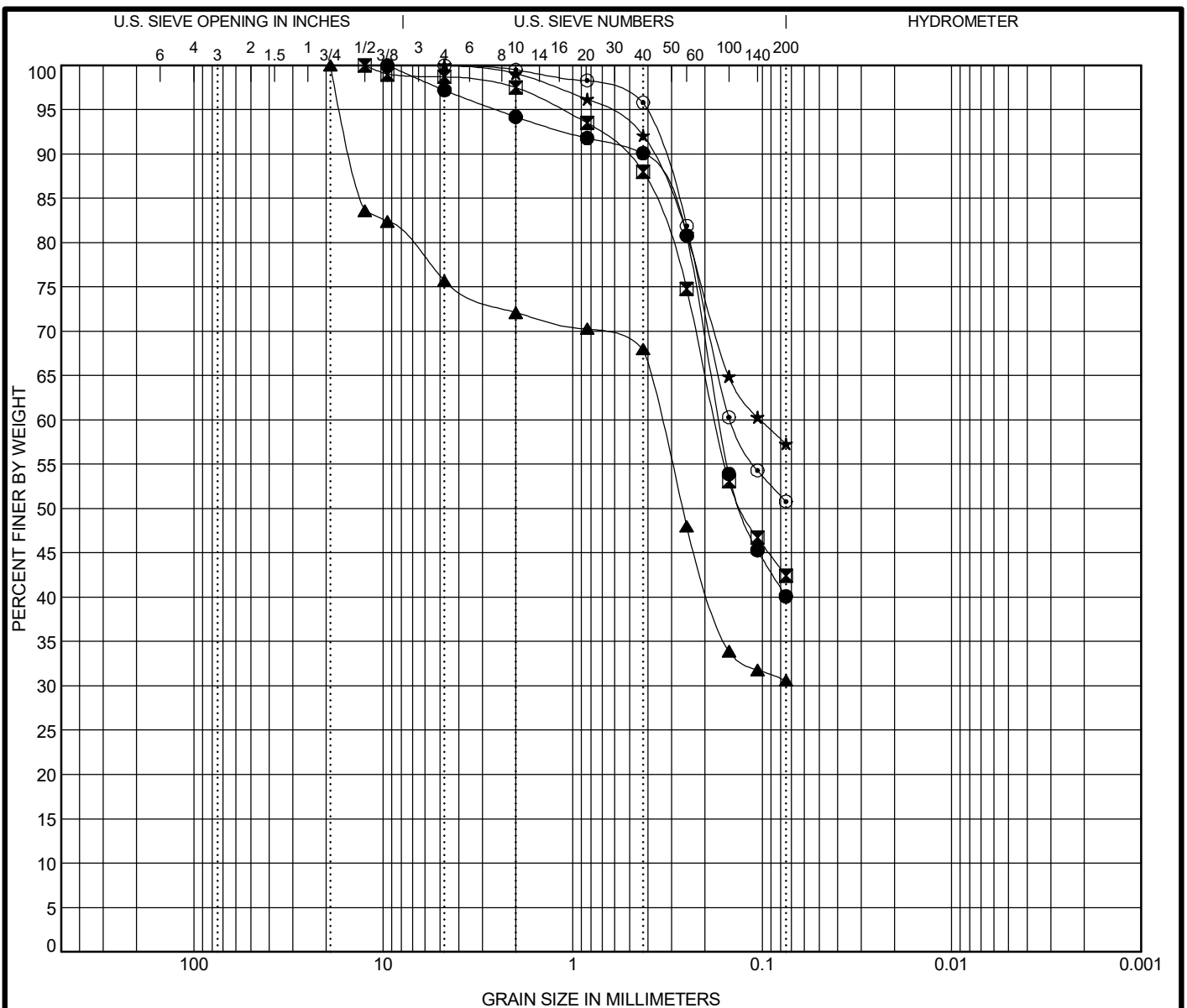


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |     | Classification               |       |       | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|------|-----|------------------------------|-------|-------|-----|---------|-------|-------|-------|
| ●                       | P- 7 | 6.0 | CLAYEY SAND(SC), A-2-6 (1)   |       |       | 36  | 19      | 17    |       |       |
| ☒                       | P- 8 | 0.5 | SANDY LEAN CLAY(CL), A-6 (6) |       |       | 32  | 16      | 16    |       |       |
| ▲                       | P- 9 | 8.5 | CLAYEY SAND(SC), A-2-6 (1)   |       |       | 38  | 23      | 15    |       |       |
| ★                       | P-10 | 3.5 | CLAYEY SAND(SC), A-6 (2)     |       |       | 30  | 16      | 14    |       |       |
| ◎                       | W- 1 | 0.5 | CLAYEY SAND(SC), A-6 (2)     |       |       | 27  | 16      | 11    |       |       |
| Specimen Identification |      |     | D100                         | D60   | D30   | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | P- 7 | 6.0 | 4.75                         | 0.25  | 0.081 |     | 0.0     | 70.6  | 29.4  |       |
| ☒                       | P- 8 | 0.5 | 9.5                          | 0.11  |       |     | 0.3     | 44.5  | 55.2  |       |
| ▲                       | P- 9 | 8.5 | 2                            | 0.184 |       |     | 0.0     | 67.4  | 32.6  |       |
| ★                       | P-10 | 3.5 | 4.75                         | 0.15  |       |     | 0.0     | 61.0  | 39.0  |       |
| ◎                       | W- 1 | 0.5 | 12.5                         | 0.137 |       |     | 2.0     | 48.8  | 49.2  |       |



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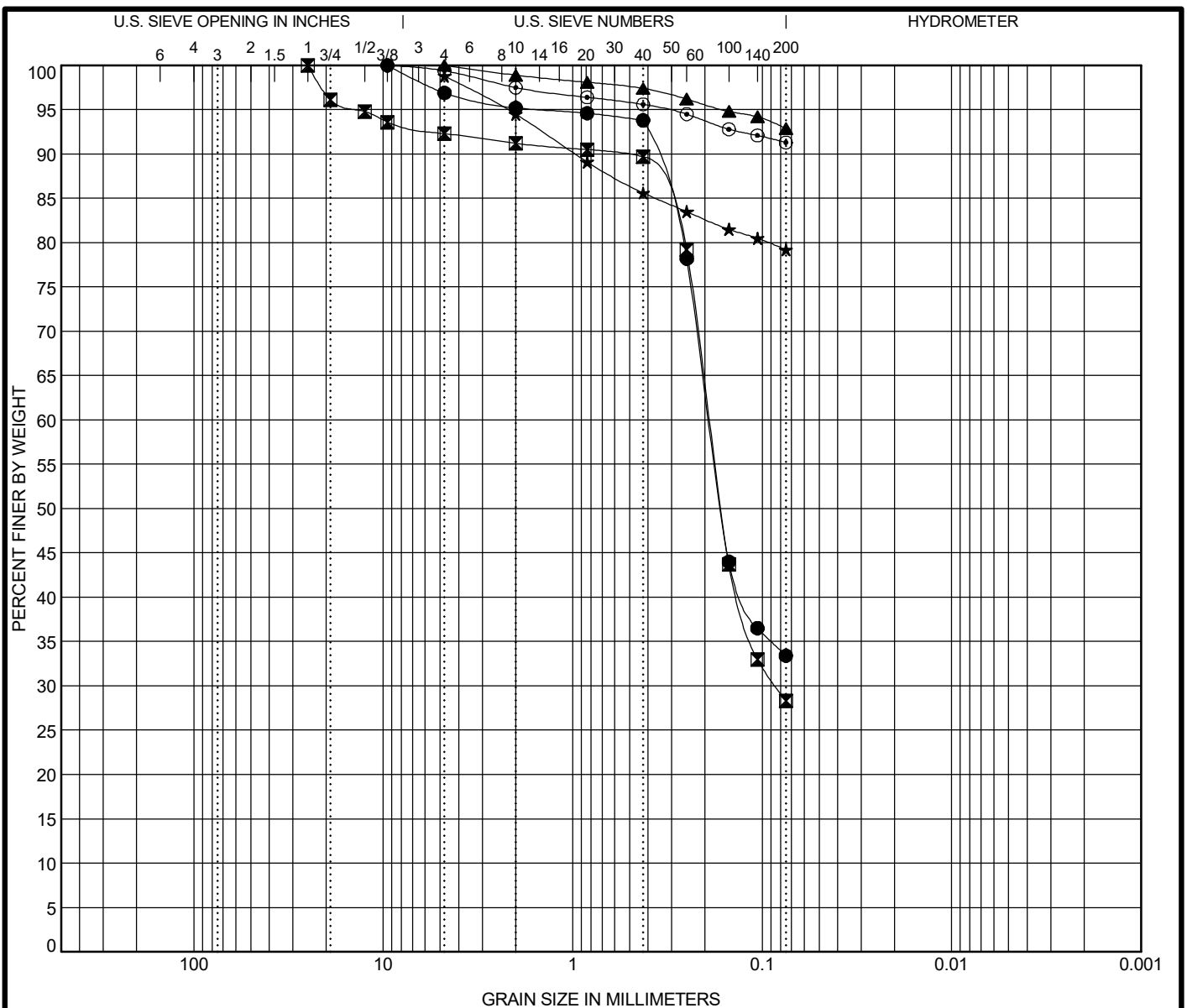
| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |     |      | Classification                     |       |     | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|-----|------|------------------------------------|-------|-----|-----|---------|-------|-------|-------|
| ●                       | W-1 | 3.0  | SILTY, CLAYEY SAND(SC-SM), A-4 (0) |       |     | 22  | 15      | 7     |       |       |
| ⊠                       | W-2 | 6.0  | CLAYEY SAND(SC), A-7-6 (6)         |       |     | 46  | 19      | 27    |       |       |
| ▲                       | W-2 | 13.5 | CLAYEY SAND with GRAVEL(SC), A-2-7 |       |     |     |         |       |       |       |
| ★                       | W-3 | 6.0  | SANDY LEAN CLAY(CL), A-4 (3)       |       |     | 29  | 20      | 9     |       |       |
| ⊙                       | W-3 | 8.5  | SANDY SILTY CLAY(CL-ML), A-4 (1)   |       |     | 24  | 17      | 7     |       |       |
| Specimen Identification |     |      | D100                               | D60   | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | W-1 | 3.0  | 9.5                                | 0.168 |     |     | 2.8     | 57.1  | 40.1  |       |
| ⊠                       | W-2 | 6.0  | 12.5                               | 0.176 |     |     | 1.3     | 56.3  | 42.4  |       |
| ▲                       | W-2 | 13.5 | 19                                 | 0.344 |     |     | 24.3    | 45.1  | 30.6  |       |
| ★                       | W-3 | 6.0  | 4.75                               | 0.102 |     |     | 0.0     | 42.7  | 57.3  |       |
| ⊙                       | W-3 | 8.5  | 4.75                               | 0.147 |     |     | 0.0     | 49.2  | 50.8  |       |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
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**Smith - Putnam County, Tennessee**  
**A24138.00136.001**



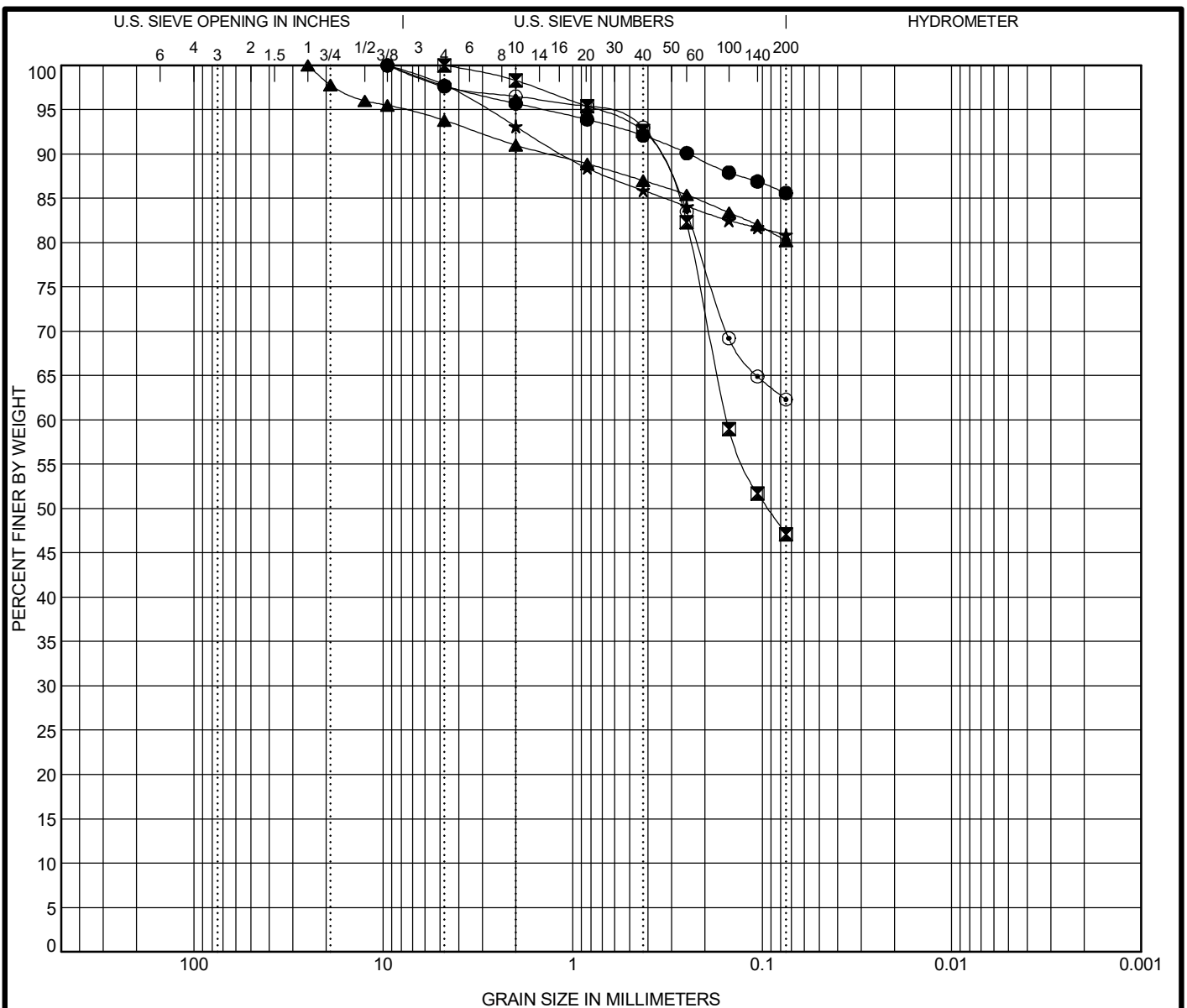


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |     |      | Classification                     |      |       | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|-----|------|------------------------------------|------|-------|-----|---------|-------|-------|-------|
| ●                       | W-4 | 3.5  | CLAYEY SAND(SC), A-2-4             |      |       |     |         |       |       |       |
| ☒                       | W-4 | 18.0 | CLAYEY SAND(SC), A-2-6 (0)         |      |       | 33  | 21      | 12    |       |       |
| ▲                       | W-5 | 8.0  | FAT CLAY(CH), A-7-5 (66)           |      |       | 98  | 40      | 58    |       |       |
| ★                       | W-5 | 18.5 | FAT CLAY with SAND(CH), A-7-6 (29) |      |       | 61  | 27      | 34    |       |       |
| ◎                       | W-6 | 1.0  | FAT CLAY(CH), A-7-6 (40)           |      |       | 62  | 22      | 40    |       |       |
| Specimen Identification |     |      | D100                               | D60  | D30   | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | W-4 | 3.5  | 9.5                                | 0.19 |       |     | 3.1     | 63.5  | 33.4  |       |
| ☒                       | W-4 | 18.0 | 25                                 | 0.19 | 0.085 |     | 7.7     | 64.0  | 28.3  |       |
| ▲                       | W-5 | 8.0  | 4.75                               |      |       |     | 0.0     | 7.1   | 92.9  |       |
| ★                       | W-5 | 18.5 | 4.75                               |      |       |     | 0.0     | 19.6  | 79.2  |       |
| ◎                       | W-6 | 1.0  | 9.5                                |      |       |     | 0.6     | 8.1   | 91.3  |       |



**GRAIN SIZE DISTRIBUTION**  
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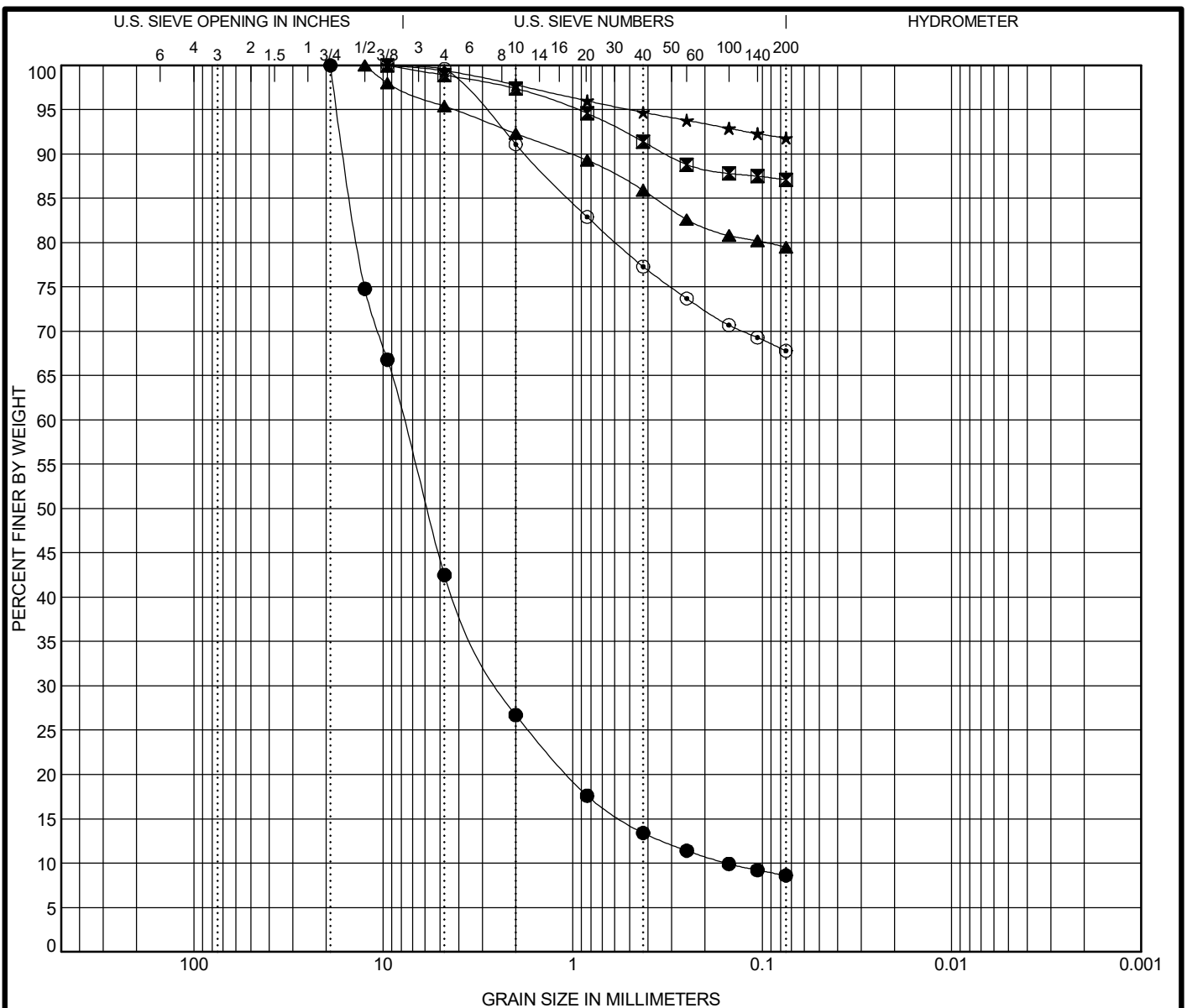


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |     | Classification                     |       |     | LL  | PL      | PI    | Cc    | Cu    |
|-------------------------|------|-----|------------------------------------|-------|-----|-----|---------|-------|-------|-------|
| ●                       | W- 6 | 6.0 | ELASTIC SILT(MH), A-7-5 (32)       |       |     | 65  | 33      | 32    |       |       |
| ⊠                       | W- 7 | 5.0 | CLAYEY SAND(SC), A-4 (2)           |       |     | 26  | 16      | 10    |       |       |
| ▲                       | W- 7 | 6.0 | SILT with SAND(ML), A-7-6 (14)     |       |     | 44  | 28      | 16    |       |       |
| ★                       | W- 8 | 1.0 | FAT CLAY with SAND(CH), A-7-6 (22) |       |     | 52  | 26      | 26    |       |       |
| ⊙                       | W- 9 | 2.0 | SANDY LEAN CLAY(CL), A-7-6 (14)    |       |     | 44  | 18      | 26    |       |       |
| Specimen Identification |      |     | D100                               | D60   | D30 | D10 | %Gravel | %Sand | %Silt | %Clay |
| ●                       | W- 6 | 6.0 | 9.5                                |       |     |     | 2.3     | 12.1  | 85.6  |       |
| ⊠                       | W- 7 | 5.0 | 4.75                               | 0.153 |     |     | 0.0     | 52.9  | 47.1  |       |
| ▲                       | W- 7 | 6.0 | 25                                 |       |     |     | 6.2     | 13.6  | 80.2  |       |
| ★                       | W- 8 | 1.0 | 9.5                                |       |     |     | 2.2     | 16.9  | 80.9  |       |
| ⊙                       | W- 9 | 2.0 | 9.5                                |       |     |     | 2.4     | 35.3  | 62.3  |       |



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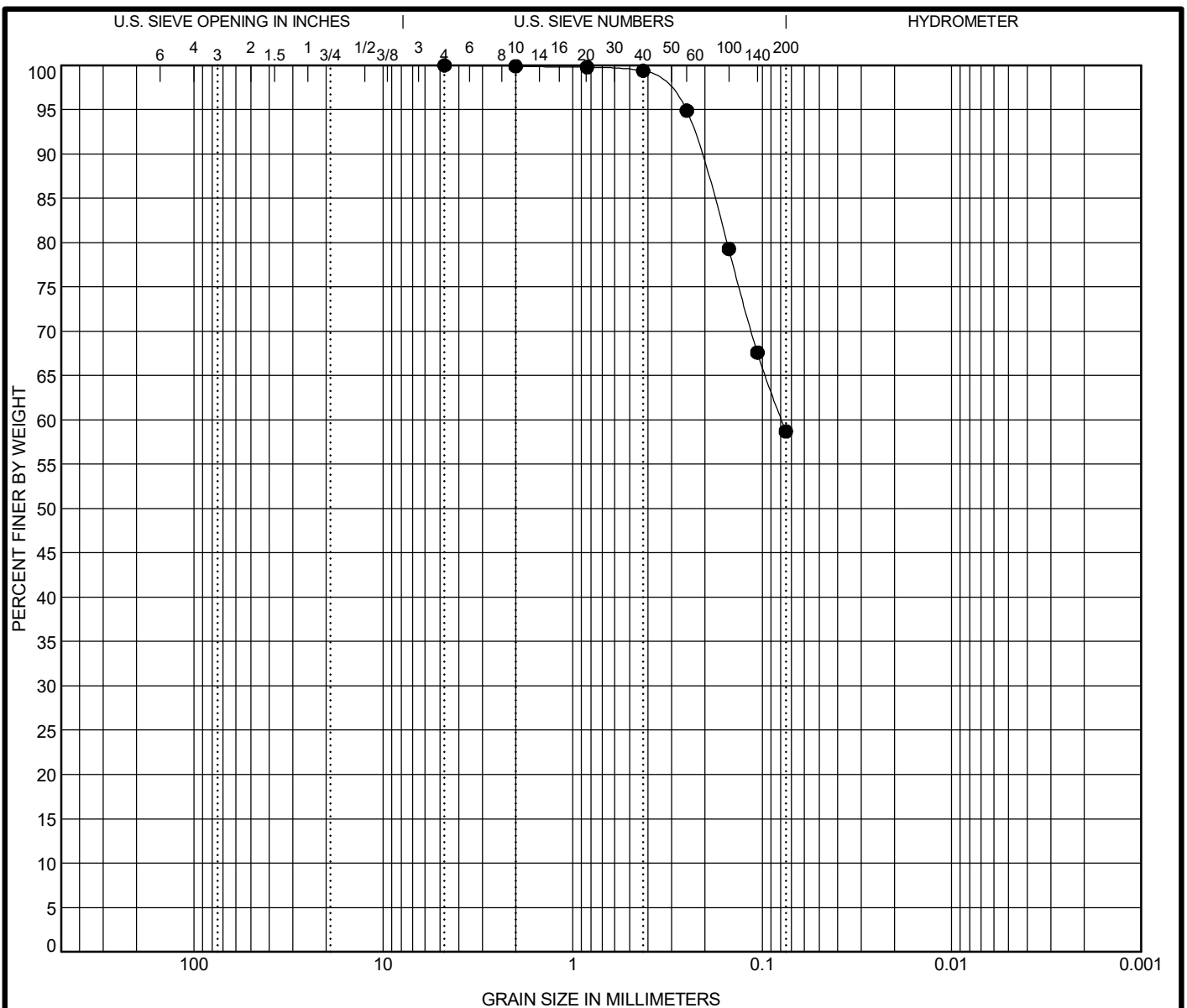


| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |      |     | Classification                                    |       |       | LL    | PL      | PI    | Cc    | Cu    |
|-------------------------|------|-----|---------------------------------------------------|-------|-------|-------|---------|-------|-------|-------|
| ●                       | W-9  | 3.5 | P. GRADED GRAVEL with CLAY and SAND(GP-GC), A-2-7 |       |       |       |         |       | 4.73  | 50.42 |
| ☒                       | W-10 | 3.5 | FAT CLAY(CH), A-7-6 (40)                          |       |       | 66    | 25      | 41    |       |       |
| ▲                       | W-10 | 8.0 | FAT CLAY with SAND(CH), A-7-5 (38)                |       |       | 74    | 30      | 44    |       |       |
| ★                       | W-11 | 3.5 | FAT CLAY(CH), A-7-6 (59)                          |       |       | 85    | 29      | 56    |       |       |
| ◎                       | W-11 | 7.0 | SANDY FAT CLAY(CH), A-7-5 (34)                    |       |       | 80    | 31      | 49    |       |       |
| Specimen Identification |      |     | D100                                              | D60   | D30   | D10   | %Gravel | %Sand | %Silt | %Clay |
| ●                       | W-9  | 3.5 | 19                                                | 7.825 | 2.396 | 0.155 | 57.5    | 33.9  | 8.6   |       |
| ☒                       | W-10 | 3.5 | 9.5                                               |       |       |       | 1.1     | 11.8  | 87.1  |       |
| ▲                       | W-10 | 8.0 | 12.5                                              |       |       |       | 4.6     | 15.9  | 79.5  |       |
| ★                       | W-11 | 3.5 | 9.5                                               |       |       |       | 0.6     | 7.6   | 91.8  |       |
| ◎                       | W-11 | 7.0 | 9.5                                               |       |       |       | 0.4     | 31.8  | 67.8  |       |



**GRAIN SIZE DISTRIBUTION**  
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**Smith - Putnam County, Tennessee**  
**A24138.00136.001**



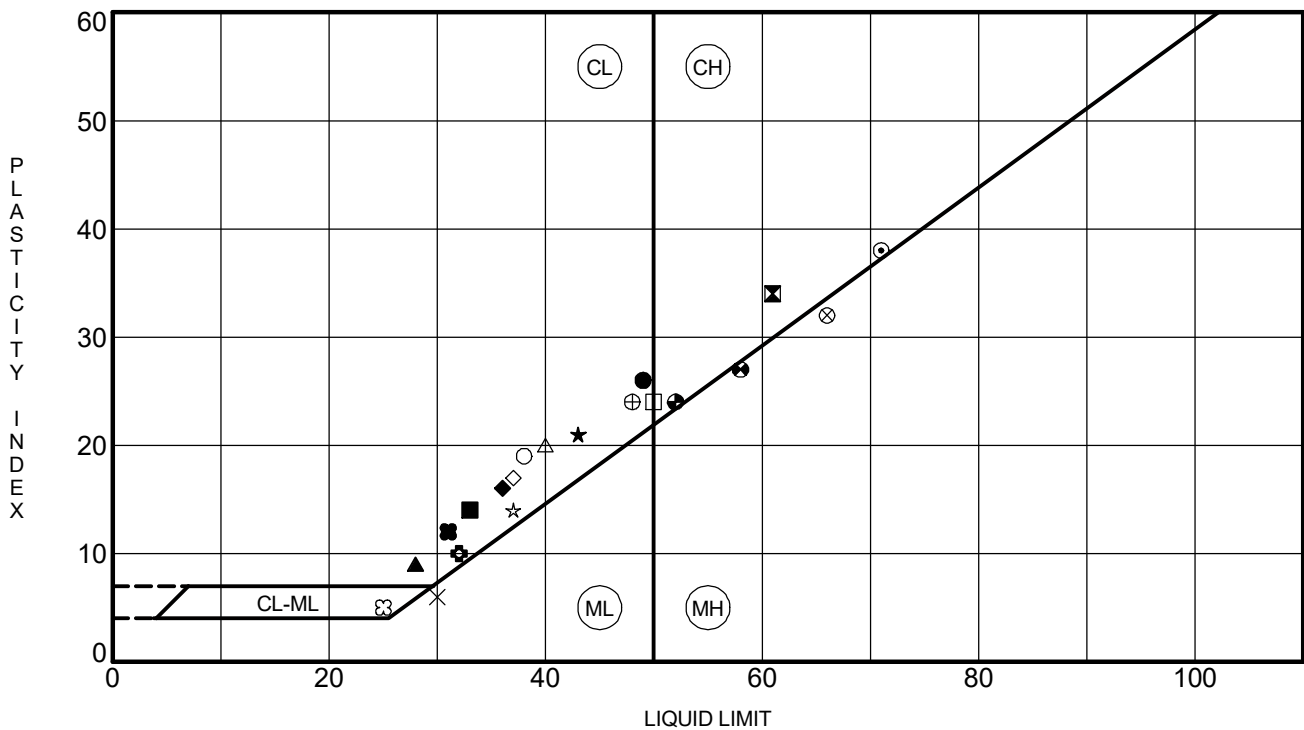
| COBBLES | GRAVEL |      | SAND   |        |      | SILT OR CLAY |
|---------|--------|------|--------|--------|------|--------------|
|         | coarse | fine | coarse | medium | fine |              |

| Specimen Identification |       | Classification |                              |  |  | LL | PL | PI | Cc | Cu |
|-------------------------|-------|----------------|------------------------------|--|--|----|----|----|----|----|
| ●                       | WB- 1 | 6.0            | SANDY LEAN CLAY(CL), A-6 (4) |  |  |    | 31 | 20 | 11 |    |
|                         |       |                |                              |  |  |    |    |    |    |    |
|                         |       |                |                              |  |  |    |    |    |    |    |
|                         |       |                |                              |  |  |    |    |    |    |    |
|                         |       |                |                              |  |  |    |    |    |    |    |

| Specimen Identification |       | D100 | D60  | D30   | D10 | %Gravel | %Sand | %Silt | %Clay |
|-------------------------|-------|------|------|-------|-----|---------|-------|-------|-------|
| ●                       | WB- 1 | 6.0  | 4.75 | 0.079 |     | 0.0     | 41.3  | 58.7  |       |
|                         |       |      |      |       |     |         |       |       |       |
|                         |       |      |      |       |     |         |       |       |       |
|                         |       |      |      |       |     |         |       |       |       |



**GRAIN SIZE DISTRIBUTION**  
**I-40 Bridge Replacement**  
**Rest Area Truck Parking**  
**Smith - Putnam County, Tennessee**  
**A24138.00136.001**

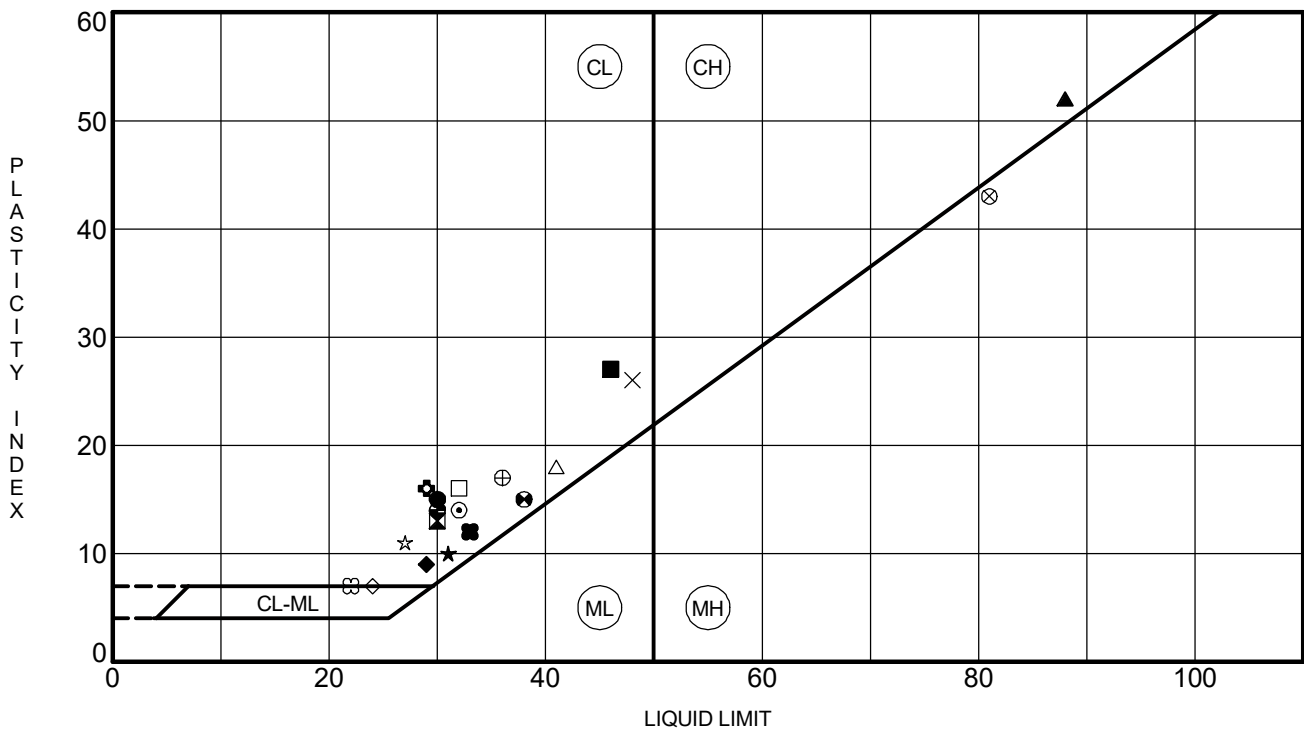


|   | Specimen Identification |      | LL | PL | PI | Fines | Classification                         |
|---|-------------------------|------|----|----|----|-------|----------------------------------------|
| ● | BR-1                    | 8.5  | 49 | 23 | 26 | 53    | SANDY LEAN CLAY(CL), A-7-6 (11)        |
| ⊠ | BR-1                    | 28.5 | 61 | 27 | 34 | 73    | FAT CLAY with SAND(CH), A-7-6 (25)     |
| ▲ | BR-1                    | 33.5 | 28 | 19 | 9  | 32    | CLAYEY GRAVEL with SAND(GC), A-2-4     |
| ★ | BR-2                    | 3.0  | 43 | 22 | 21 | 50    | CLAYEY SAND with GRAVEL(SC), A-7-6 (7) |
| ⊙ | BR-2                    | 8.0  | 71 | 33 | 38 | 30    | CLAYEY GRAVEL(GC), A-2-7 (4)           |
| ⊕ | BR-2                    | 18.5 | 32 | 22 | 10 | 50    | SANDY LEAN CLAY(CL), A-4 (2)           |
| ○ | BR-5                    | 1.5  | 38 | 19 | 19 |       | SANDY LEAN CLAY(CL), A-6               |
| △ | BR-5                    | 3.5  | 40 | 20 | 20 |       | SANDY LEAN CLAY(CL), A-6               |
| ⊗ | E- 1                    | 3.5  | 66 | 34 | 32 | 76    | ELASTIC SILT with SAND(MH), A-7-5 (27) |
| ⊕ | E- 1                    | 13.0 | 48 | 24 | 24 | 70    | SANDY LEAN CLAY(CL), A-7-6 (16)        |
| □ | E- 2                    | 6.0  | 50 | 26 | 24 | 55    | SANDY FAT CLAY(CH), A-7-6 (10)         |
| ⊗ | E- 2                    | 13.5 | 58 | 31 | 27 | 89    | ELASTIC SILT(MH), A-7-5 (28)           |
| ⊕ | E- 3                    | 3.5  | 52 | 28 | 24 | 79    | FAT CLAY with SAND(CH), A-7-6 (20)     |
| ☆ | E- 4                    | 5.0  | 37 | 23 | 14 | 57    | SANDY LEAN CLAY(CL), A-6 (6)           |
| ⊗ | E- 4                    | 18.5 | 25 | 20 | 5  | 55    | SANDY SILTY CLAY(CL-ML), A-4 (1)       |
| ■ | E- 5                    | 6.0  | 33 | 19 | 14 |       | LEAN CLAY(CL), A-2-6                   |
| ◆ | E- 5                    | 8.0  | 36 | 20 | 16 | 50    | CLAYEY SAND(SC), A-6 (5)               |
| ◇ | E- 6                    | 3.5  | 37 | 20 | 17 | 54    | SANDY LEAN CLAY(CL), A-6 (6)           |
| × | E- 6                    | 6.0  | 30 | 24 | 6  | 23    | SILTY SAND(SM), A-2-4 (0)              |
| ■ | E- 7                    | 3.0  | 31 | 19 | 12 | 38    | CLAYEY SAND(SC), A-6 (1)               |



**ATTERBERG LIMITS RESULTS**  
I-40 Bridge Replacement  
Rest Area Truck Parking  
Smith - Putnam County, Tennessee  
A24138.00136.001





| Specimen Identification | LL   | PL | PI | Fines | Classification                     |
|-------------------------|------|----|----|-------|------------------------------------|
| ● E- 7                  | 8.5  | 30 | 15 | 59    | SANDY LEAN CLAY(CL), A-6 (6)       |
| ⊠ EB-1                  | 3.5  | 30 | 17 | 51    | SANDY LEAN CLAY(CL), A-6 (3)       |
| ▲ EB-2                  | 3.5  | 88 | 36 | 52    | FAT CLAY(CH), A-7-5 (63)           |
| ★ P- 1                  | 8.5  | 31 | 21 | 10    | CLAYEY SAND(SC), A-4 (0)           |
| ⊙ P- 2                  | 0.5  | 32 | 18 | 14    | SANDY LEAN CLAY(CL), A-6 (6)       |
| ⊕ P- 3                  | 6.0  | 29 | 13 | 16    | SANDY LEAN CLAY(CL), A-6 (5)       |
| ○ P- 4                  | 3.5  | 30 | 16 | 14    | SANDY LEAN CLAY(CL), A-6 (5)       |
| △ P- 5                  | 3.5  | 41 | 23 | 18    | SANDY LEAN CLAY(CL)                |
| ⊗ P- 6                  | 13.5 | 81 | 38 | 43    | ELASTIC SILT(MH), A-7-5 (39)       |
| ⊕ P- 7                  | 6.0  | 36 | 19 | 17    | CLAYEY SAND(SC), A-2-6 (1)         |
| □ P- 8                  | 0.5  | 32 | 16 | 16    | SANDY LEAN CLAY(CL), A-6 (6)       |
| ⊕ P- 9                  | 8.5  | 38 | 23 | 15    | CLAYEY SAND(SC), A-2-6 (1)         |
| ⊕ P-10                  | 3.5  | 30 | 16 | 14    | CLAYEY SAND(SC), A-6 (2)           |
| ★ W- 1                  | 0.5  | 27 | 16 | 11    | CLAYEY SAND(SC), A-6 (2)           |
| ⊗ W- 1                  | 3.0  | 22 | 15 | 7     | SILTY, CLAYEY SAND(SC-SM), A-4 (0) |
| ■ W- 2                  | 6.0  | 46 | 19 | 27    | CLAYEY SAND(SC), A-7-6 (6)         |
| ◆ W- 3                  | 6.0  | 29 | 20 | 9     | SANDY LEAN CLAY(CL), A-4 (3)       |
| ◇ W- 3                  | 8.5  | 24 | 17 | 7     | SANDY SILTY CLAY(CL-ML), A-4 (1)   |
| × W- 4                  | 8.5  | 48 | 22 | 26    | SANDY LEAN CLAY(CL), A-7-6         |
| ■ W- 4                  | 18.0 | 33 | 21 | 12    | CLAYEY SAND(SC), A-2-6 (0)         |



**ATTERBERG LIMITS RESULTS**  
I-40 Bridge Replacement  
Rest Area Truck Parking  
Smith - Putnam County, Tennessee  
A24138.00136.001





## UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS ASTM D2850

CLIENT : HMB Professional Engineers, LLC

DATE: 4/9/2025

PROJECT NO.: A24138.00136.001

PROJECT: PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River

LOCATION: Smith County, TN

BORING NO.: W-5

SAMPLE NO.: ST-4

DEPTH (ft.): 8.0-10.0

SAMPLE OBTAINED BY: Shelby Tube

CONDITION: Undisturbed

SAMPLE DESCRIPTION: Stiff, brown and orange, FAT CLAY - (CH)

LIQUID LIMIT (%): 98

PLASTIC LIMIT (%): 40

PLASTICITY INDEX (%): 58

USCS: CH

SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed)

LOAD CELL NO.:

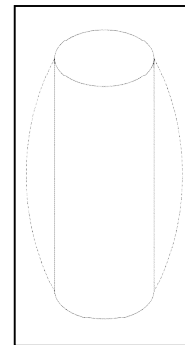
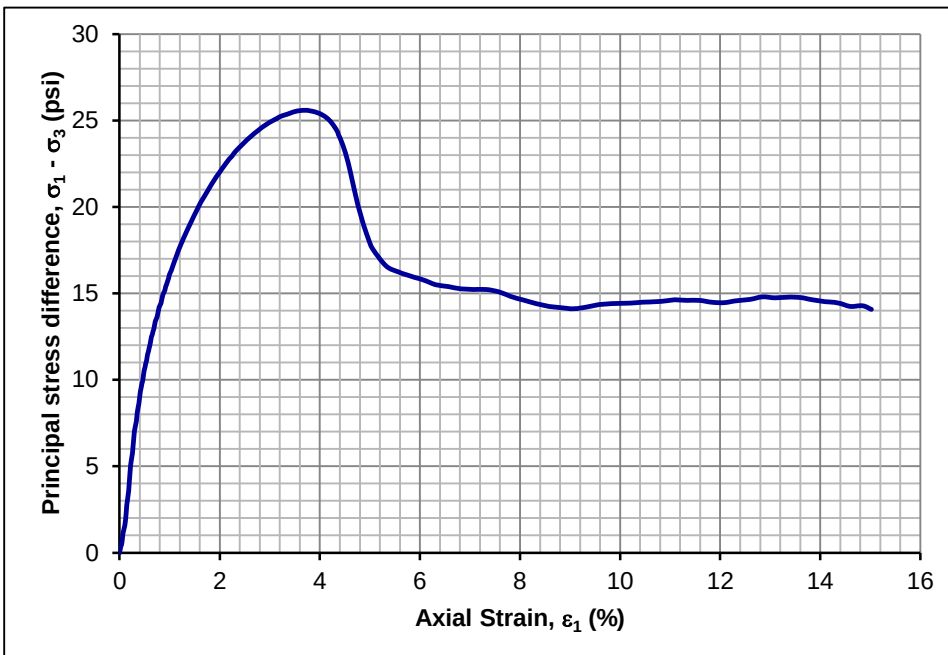
### INITIAL SAMPLE DATA

|                           |       |
|---------------------------|-------|
| AVERAGE DIAMETER (in.):   | 2.85  |
| HEIGHT (in.):             | 5.89  |
| HEIGHT TO DIAMETER RATIO: | 2.07  |
| WET UNIT WEIGHT (pcf):    | 122.9 |
| DRY UNIT WEIGHT (pcf):    | 96.0  |
| VOID RATIO:               | 0.79  |
| MOISTURE CONTENT (%)*:    | 28.0  |
| DEGREE OF SATURATION (%): | 97.7  |

### FAILURE DATA\*\*\*

|                                                                      |       |
|----------------------------------------------------------------------|-------|
| MOISTURE CONTENT AFTER FAILURE (%)**:                                | 30.0  |
| AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):                    | 1.0   |
| AXIAL STRAIN AT FAILURE (%):                                         | 3.8   |
| PRINCIPAL STRESS DIFFERENCE AT FAILURE, $\sigma_1 - \sigma_3$ (psi): | 25.6  |
| MINOR PRINCIPAL STRESS AT FAILURE, $\sigma_3$ (psi):                 | 5.3   |
| MAJOR PRINCIPAL STRESS AT FAILURE, $\sigma_1$ (psi):                 | 30.9  |
| UNDRAINED COMPRESSIVE STRENGTH, $U_u$ (psf):                         | 3,680 |
| UNDRAINED SHEAR STRENGTH, $s_u$ (psf):                               | 1,840 |
| LIMITING UNDRAINED COMP. STRESS @ 10% STRAIN (psf):                  | N/A   |

### FAILURE SHAPES



REMARKS :

\* Initial moisture content determined from sample cuttings.

\*\* Final moisture content determined from entire sample.

\*\*\* Failure stress values have been corrected for membrane effects.



## UNCONSOLIDATED-UNDRAINED TRIAXIAL COMPRESSION TEST ON COHESIVE SOILS ASTM D2850

CLIENT : HMB Professional Engineers, LLC

DATE: 4/9/2025

PROJECT NO.: A24138.00136.001

PROJECT: PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River

LOCATION: Smith County, TN

BORING NO.: W-10

SAMPLE NO.: ST-4

DEPTH (ft.): 8.0-10.0

SAMPLE OBTAINED BY: Shelby Tube

CONDITION: Undisturbed

SAMPLE DESCRIPTION: Very stiff, brown and orange, FAT CLAY with SAND - (CH)

LIQUID LIMIT (%): 74

PLASTIC LIMIT (%): 30

PLASTICITY INDEX (%): 44

USCS: CH

SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed)

LOAD CELL NO.:

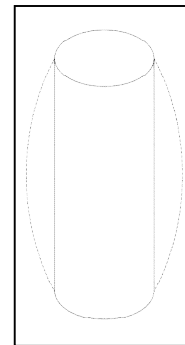
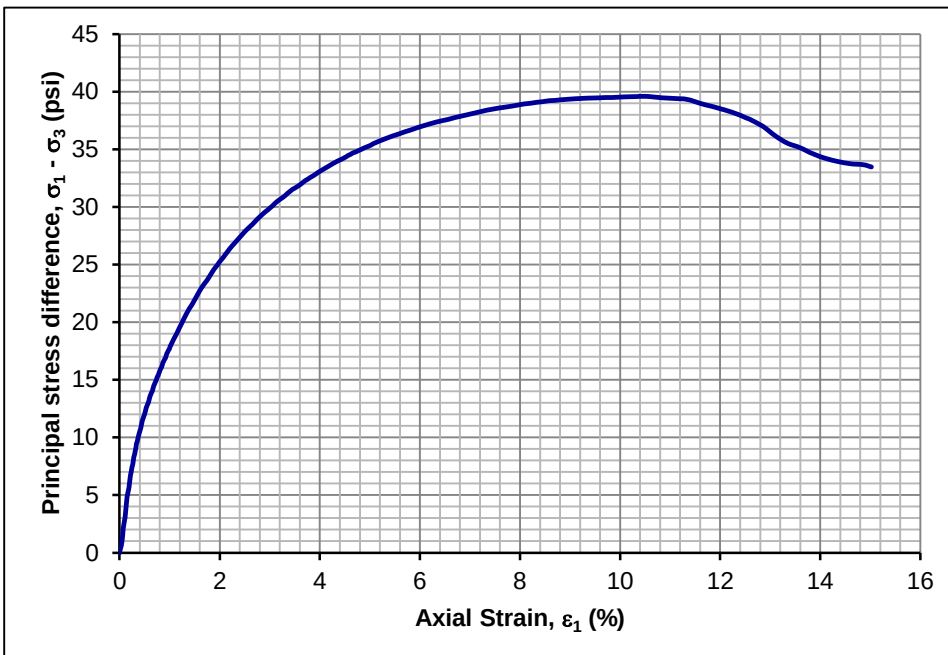
### INITIAL SAMPLE DATA

|                           |       |
|---------------------------|-------|
| AVERAGE DIAMETER (in.):   | 2.86  |
| HEIGHT (in.):             | 5.89  |
| HEIGHT TO DIAMETER RATIO: | 2.06  |
| WET UNIT WEIGHT (pcf):    | 124.8 |
| DRY UNIT WEIGHT (pcf):    | 99.0  |
| VOID RATIO:               | 0.73  |
| MOISTURE CONTENT (%)*:    | 26.1  |
| DEGREE OF SATURATION (%): | 97.6  |

### FAILURE DATA\*\*\*

|                                                                      |       |
|----------------------------------------------------------------------|-------|
| MOISTURE CONTENT AFTER FAILURE (%)**:                                | 23.6  |
| AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):                    | 1.0   |
| AXIAL STRAIN AT FAILURE (%):                                         | 10.3  |
| PRINCIPAL STRESS DIFFERENCE AT FAILURE, $\sigma_1 - \sigma_3$ (psi): | 39.6  |
| MINOR PRINCIPAL STRESS AT FAILURE, $\sigma_3$ (psi):                 | 5.3   |
| MAJOR PRINCIPAL STRESS AT FAILURE, $\sigma_1$ (psi):                 | 44.9  |
| UNDRAINED COMPRESSIVE STRENGTH, $U_u$ (psf):                         | 5,700 |
| UNDRAINED SHEAR STRENGTH, $s_u$ (psf):                               | 2,850 |
| LIMITING UNDRAINED COMP. STRESS @ 10% STRAIN (psf):                  | 5,695 |

### FAILURE SHAPES

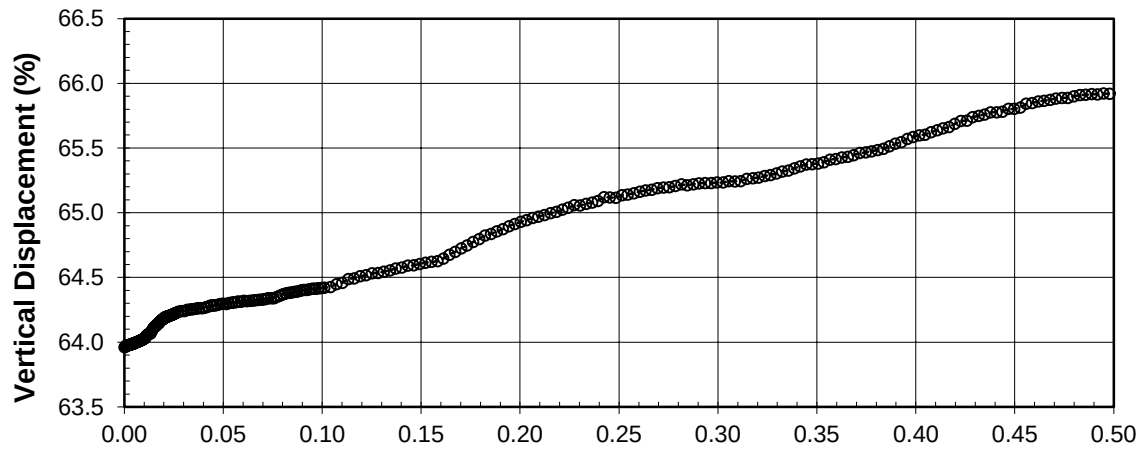
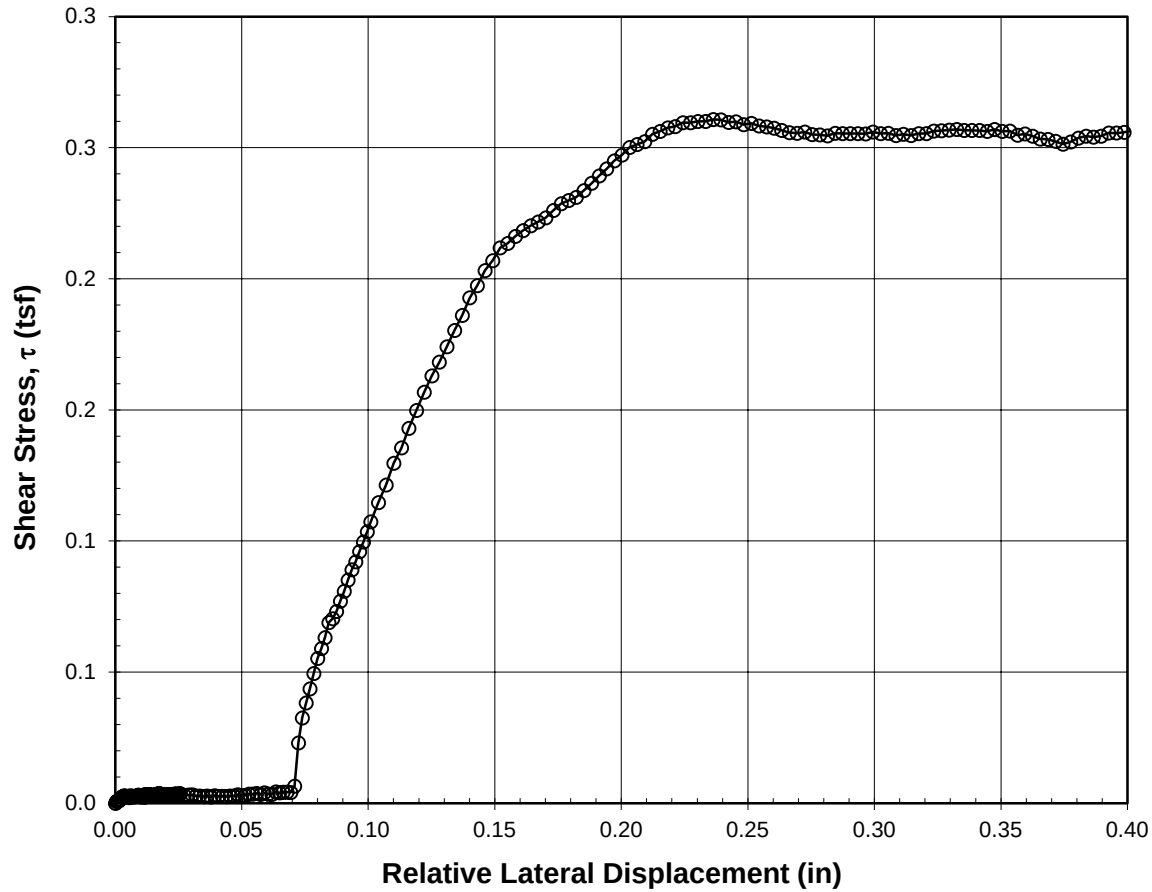


REMARKS :

\* Initial moisture content determined from sample cuttings.

\*\* Final moisture content determined from entire sample.

\*\*\* Failure stress values have been corrected for membrane effects.



(+) Compression  
(-) Dilation

### DRAINED DIRECT SHEAR TEST

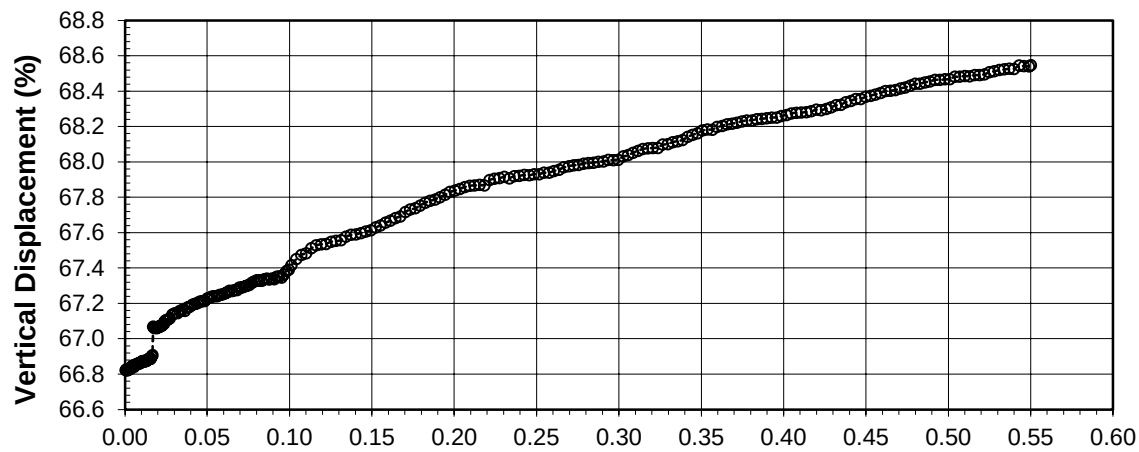
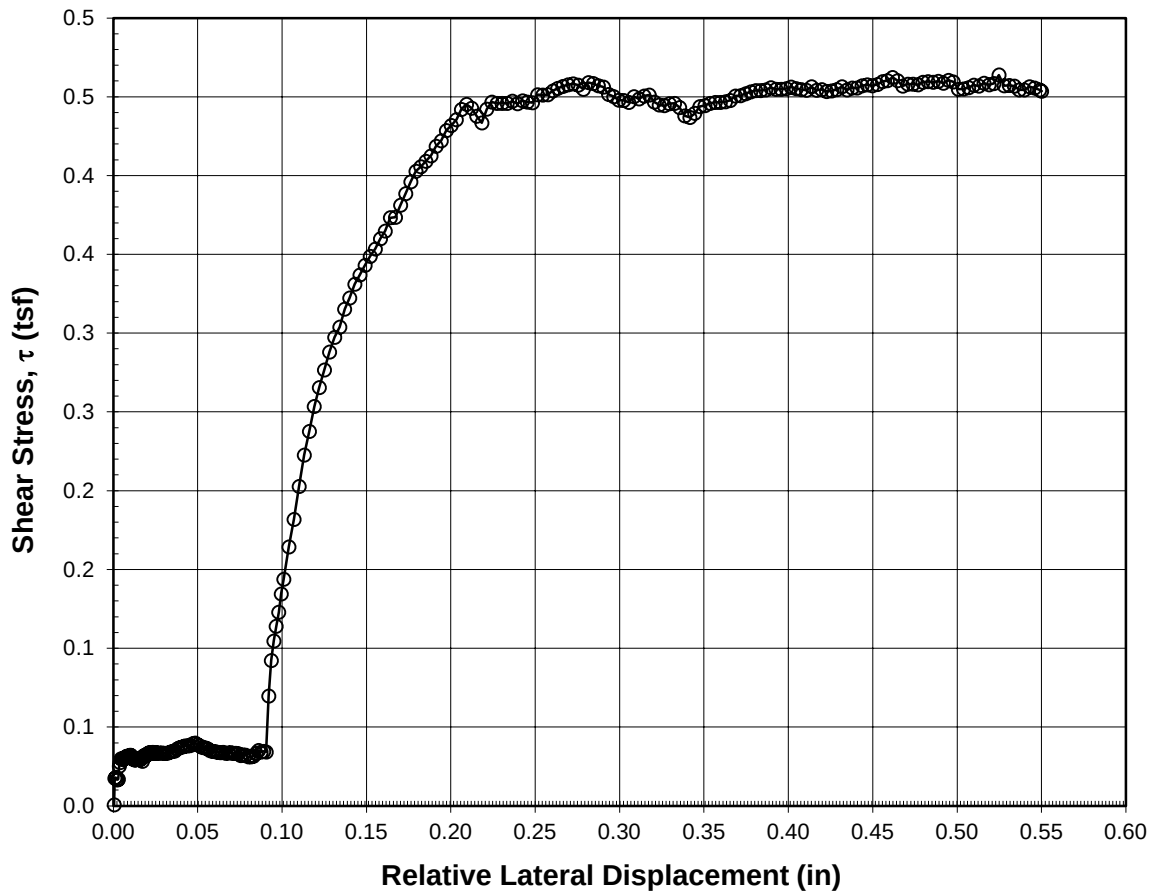
ASTM D 3080

Boring: W-3

Sample: ST-3 - Depth: 8 ft

$\sigma'_{v,c} = 5.00$  PSI





### DRAINED DIRECT SHEAR TEST

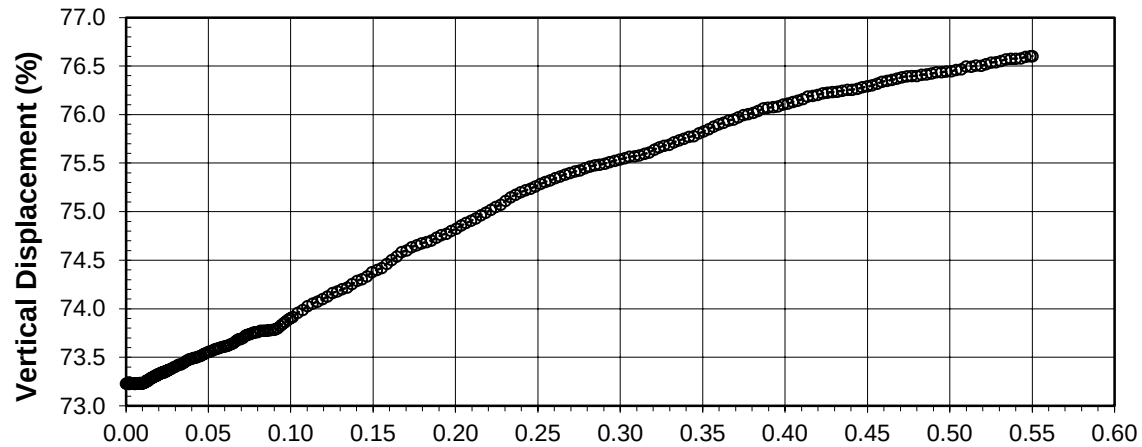
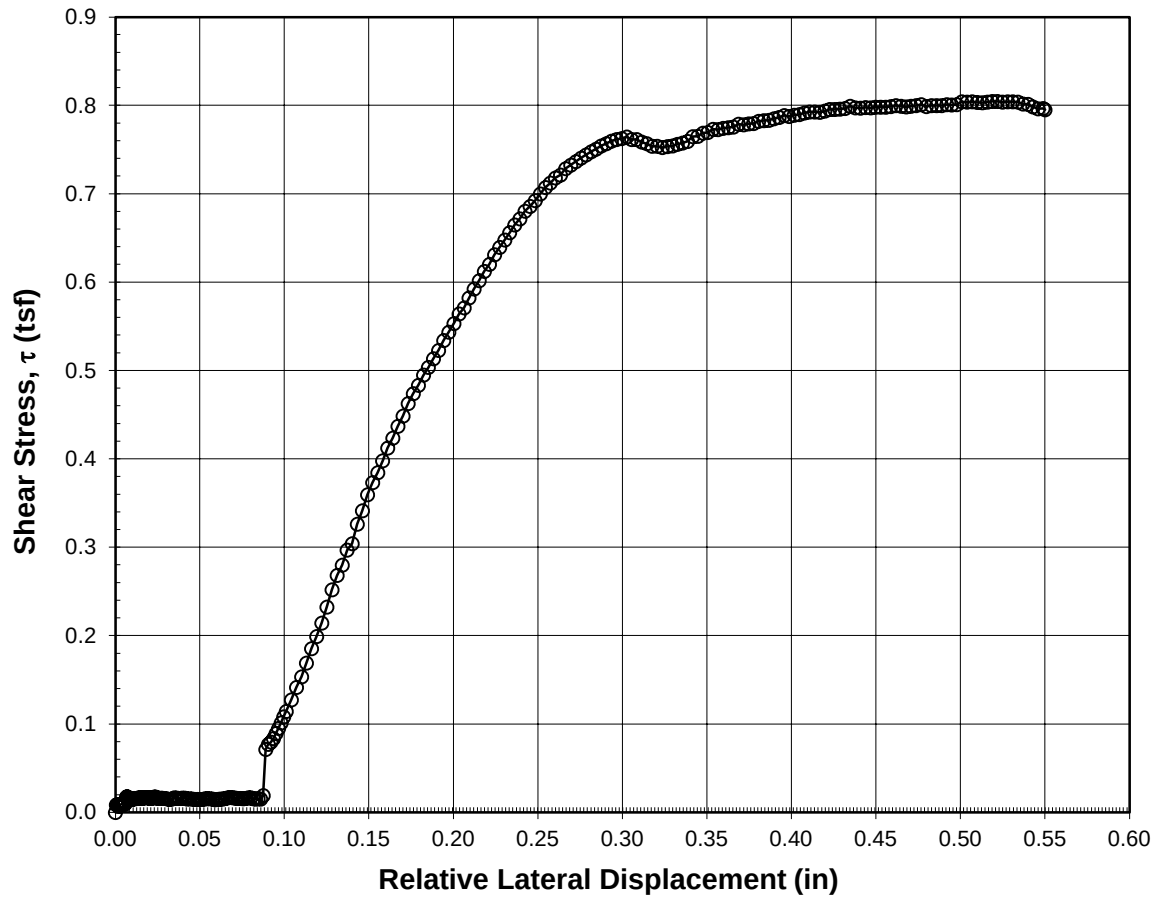
ASTM D 3080

Boring: W-3

Sample: ST-3 - Depth: 6 ft

$\sigma'_{v,c} = 10.00$  PSI

(+) Compression  
(-) Dilation



### DRAINED DIRECT SHEAR TEST

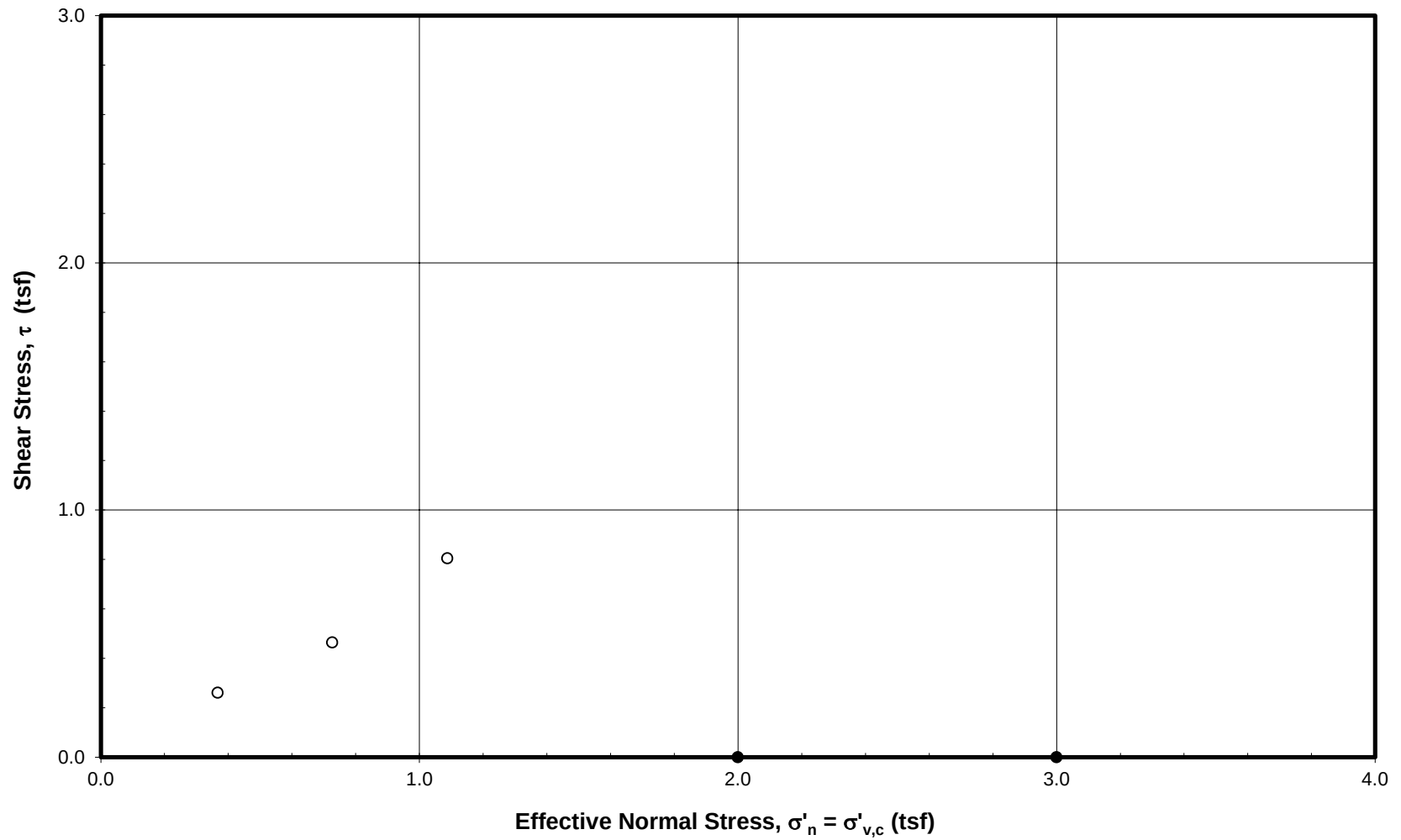
ASTM D 3080

Boring: W-3

Sample: ST-3 - Depth: 6 ft

$\sigma'_{v,c} = 15.00$  PSI

(+) Compression  
(-) Dilation



**DRAINED DIRECT SHEAR TEST**  
ASTM D 3080  
Boring: W-3 Sample: ST-3 -Depth: 8ft



Appendix E  
**SUMMARY OF COMPACTION AND CBR TEST RESULTS**



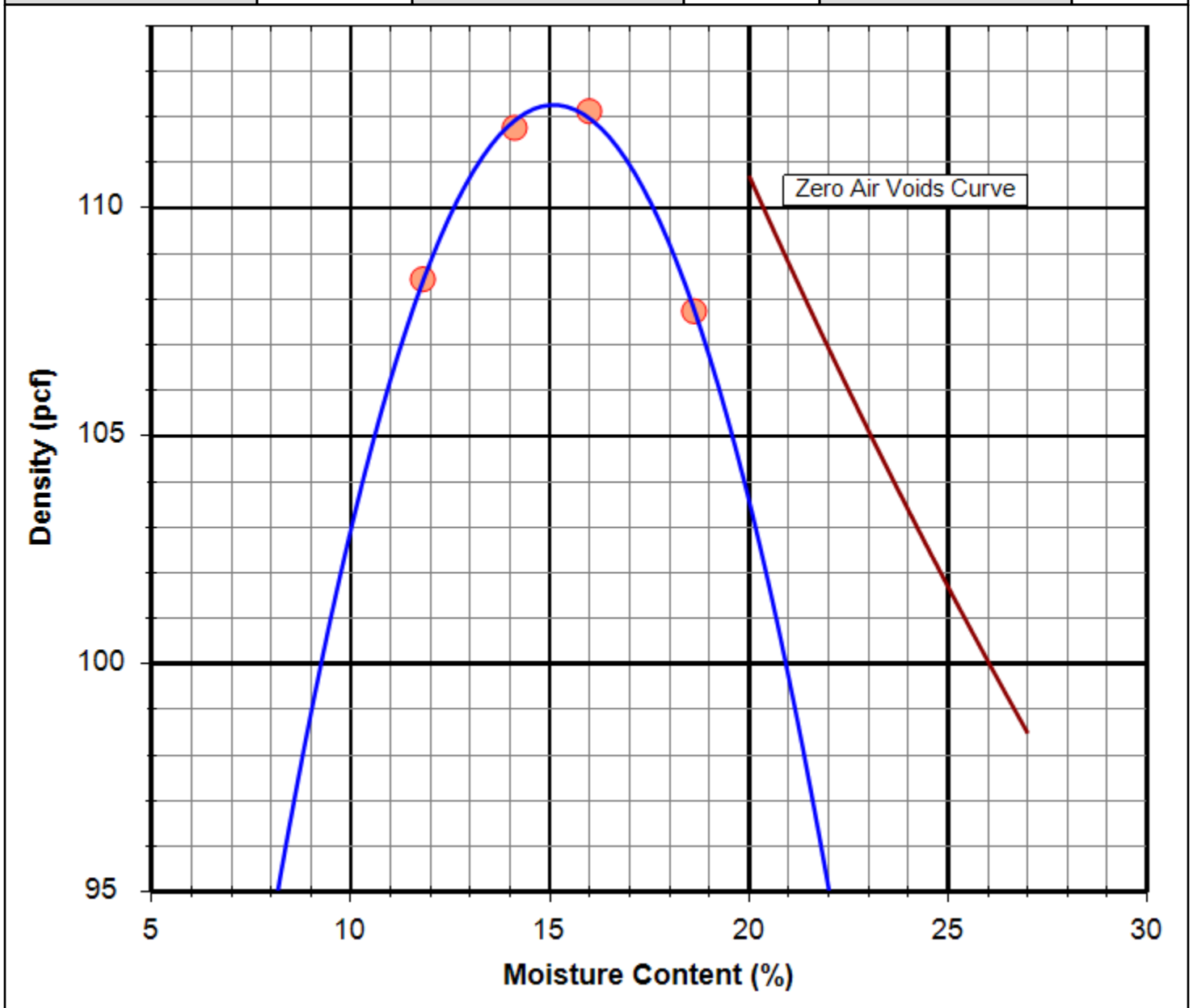
### Summary of Compaction and CBR Test Results.

| Boring No. | Depth (ft.) | USCS/ AASHTO   | Liquid Limit (%) | Plastic Limit (%) | Proctor Results               |                              | CBR Results     |                       |                        |     | Percent Compaction (%) * |
|------------|-------------|----------------|------------------|-------------------|-------------------------------|------------------------------|-----------------|-----------------------|------------------------|-----|--------------------------|
|            |             |                |                  |                   | Maximum Dry Unit Weight (pcf) | Optimum Moisture Content (%) | Blows per Layer | Dry Unit Weight (pcf) | Moisture Content (%) * | CBR |                          |
| E-6        | 0 to 5      | CL/ A-6 (7)    | 37               | 19                | 112.3                         | 15.0                         | 25              | 108.5                 | 14.4                   | 5.9 | 96.6                     |
|            |             |                |                  |                   |                               |                              | 56              | 115.0                 | 14.2                   | 6.2 | 102.4                    |
| P-2        | 0 to 5      | CL/ A-6 (6)    | 32               | 18                | 113.6                         | 14.3                         | 10              | 98.7                  | 14.3                   | 1.6 | 86.9                     |
|            |             |                |                  |                   |                               |                              | 25              | 109.7                 | 14.4                   | 6.2 | 96.6                     |
|            |             |                |                  |                   |                               |                              | 56              | 114.1                 | 14.5                   | 6.4 | 100.4                    |
| P-5        | 1 to 10     | CL/ A-7-6 (7)  | 41               | 23                | 112.6                         | 15.5                         | 25              | 109.3                 | 15.9                   | 5.1 | 97.1                     |
|            |             |                |                  |                   |                               |                              | 56              | 112.8                 | 15.8                   | 3.9 | 100.2                    |
| P-8        | 0 to 5      | CL/ A-6 (6)    | 32               | 16                | 116.8                         | 13.3                         | 10              | 100.3                 | 12.8                   | 2.0 | 85.9                     |
|            |             |                |                  |                   |                               |                              | 25              | 112.2                 | 12.8                   | 7.5 | 96.1                     |
|            |             |                |                  |                   |                               |                              | 56              | 117.8                 | 13.0                   | 8.1 | 100.9                    |
| W-1        | 0 to 5      | SC/ A-6 (2)    | 27               | 16                | 114.8                         | 14.0                         | 10              | 105.2                 | 13.3                   | 2.5 | 91.6                     |
|            |             |                |                  |                   |                               |                              | 25              | 113.9                 | 13.4                   | 3.2 | 99.2                     |
|            |             |                |                  |                   |                               |                              | 56              | 117.2                 | 13.4                   | 5.8 | 102.1                    |
| W-7        | 1 to 5      | SC/ A-4 (2)    | 26               | 16                | 108.6                         | 15.6                         | 25              | 98.4                  | 14.1                   | 0.9 | 90.6                     |
|            |             |                |                  |                   |                               |                              | 56              | 107.6                 | 13.7                   | 1.5 | 99.1                     |
| W-11       | 1 to 7      | CH/ A-7-5 (34) | 80               | 31                | 96.5                          | 23.0                         | 10              | 81.0                  | 22.2                   | 0.4 | 83.9                     |
|            |             |                |                  |                   |                               |                              | 25              | 92.7                  | 22.4                   | 1.3 | 96.1                     |
|            |             |                |                  |                   |                               |                              | 56              | 93.4                  | 21.8                   | 3.4 | 96.8                     |



# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

|                            |                                                                                                 |  |                           |       |              |                           |    |      |  |
|----------------------------|-------------------------------------------------------------------------------------------------|--|---------------------------|-------|--------------|---------------------------|----|------|--|
| Client:                    | HMB Professional Engineers, LLC                                                                 |  |                           |       | Project No.: | A24138.00136.001          |    |      |  |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |  |                           |       | Date:        | 5/9/2025                  |    |      |  |
| Sample Obtained From:      | E-6                                                                                             |  |                           |       | Depth (ft.): | 0 - 5'                    |    |      |  |
| Sample Description:        | Red-brown, sandy, LEAN CLAY - (CL), A-6 (6)                                                     |  |                           |       | LL           | PL                        | PI | USCS |  |
|                            |                                                                                                 |  |                           |       | 37           | 20                        | 17 | CL   |  |
| Maximum Dry Density (pcf): | 112.3                                                                                           |  | Optimum Moisture Content: | 15.0% |              | In Situ Moisture Content: |    | -    |  |

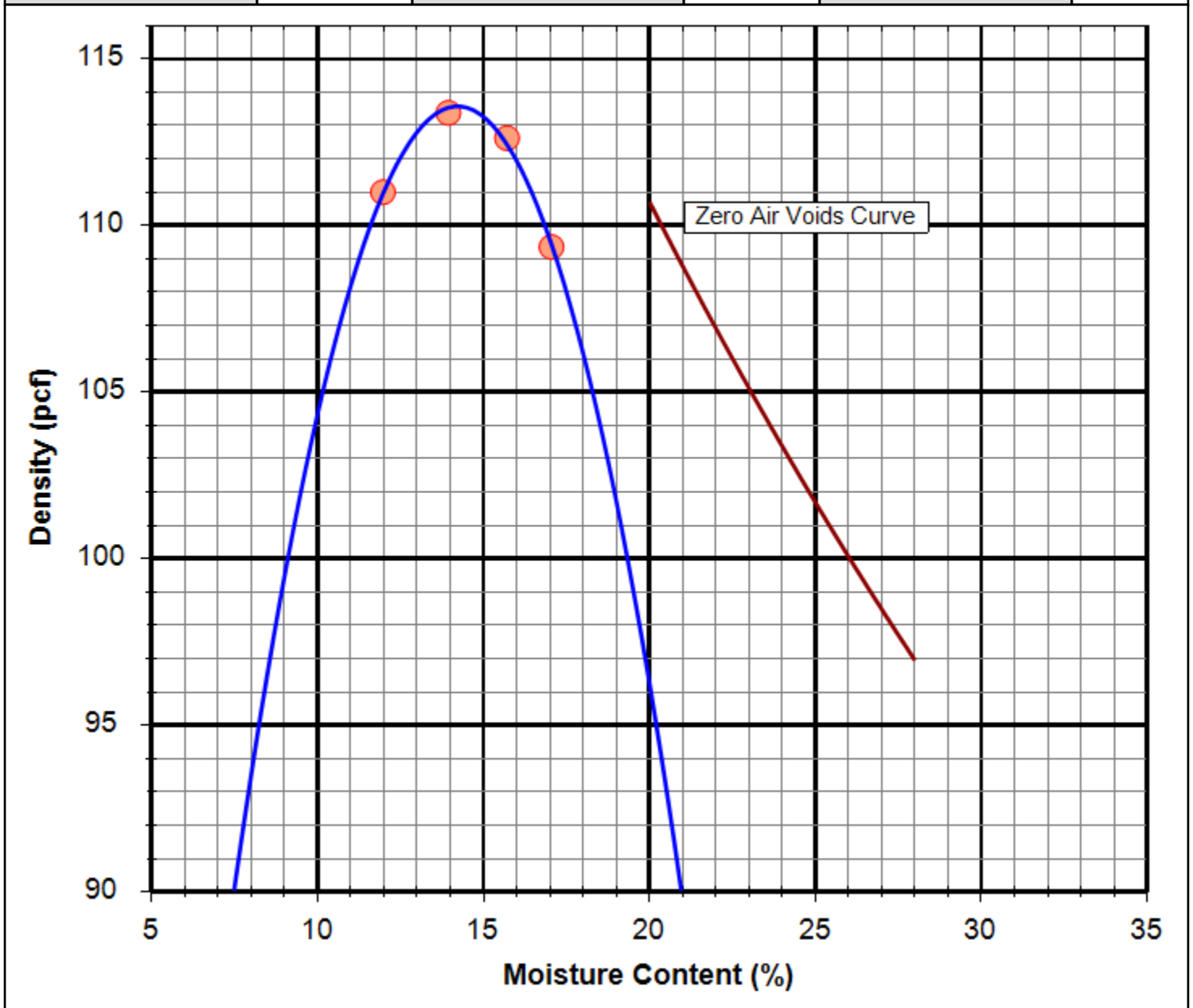






# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

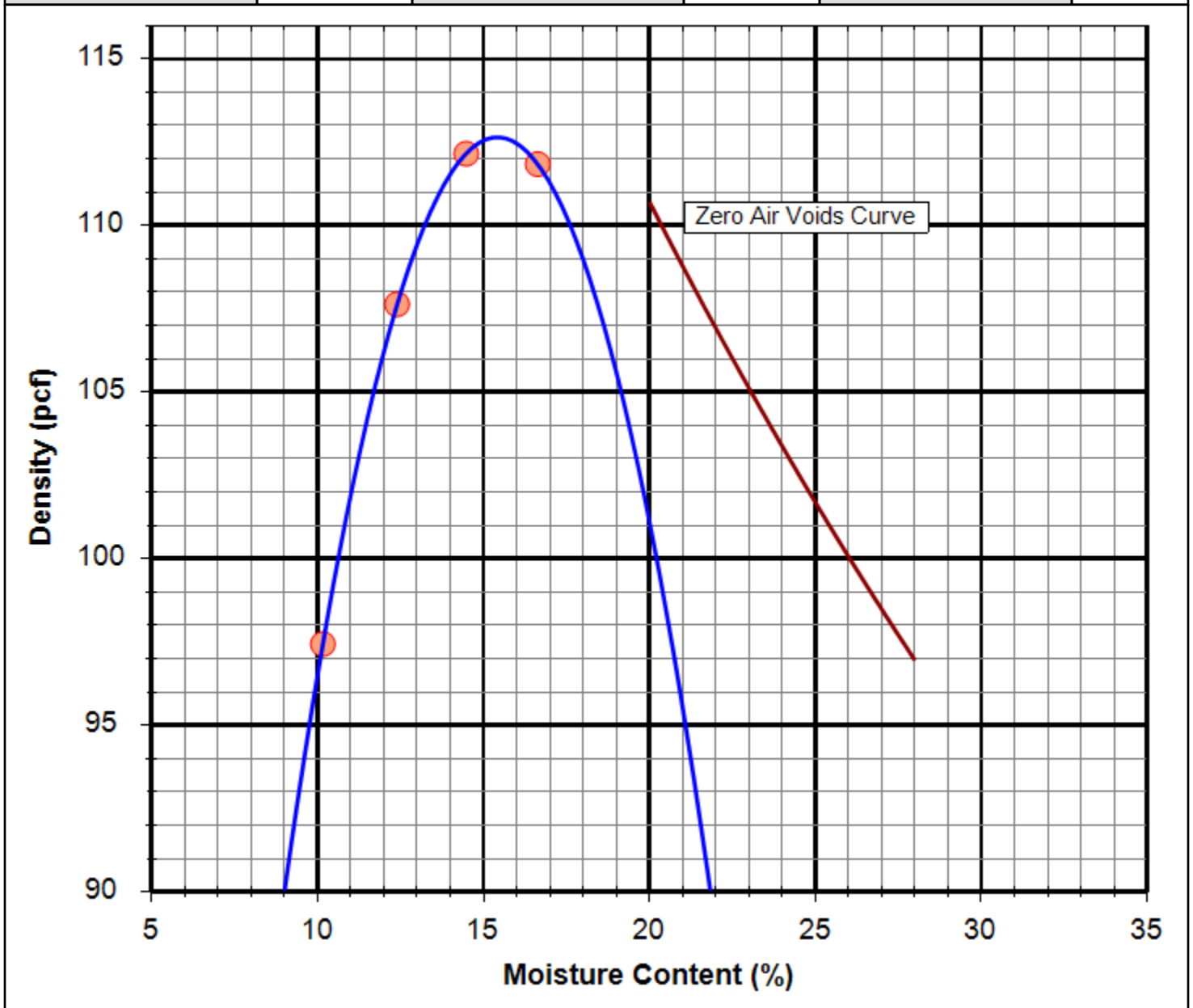
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/9/2025         |    |      |
| Sample Obtained From:      | P-2                                                                                             |                           |       | Depth (ft.):              | 0 - 5'           |    |      |
| Sample Description:        | Brown, sandy, LEAN CLAY - (CL), A-6 (6)                                                         |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 32                        | 18               | 14 | CL   |
| Maximum Dry Density (pcf): | 113.6                                                                                           | Optimum Moisture Content: | 14.3% | In Situ Moisture Content: |                  | -  |      |





# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

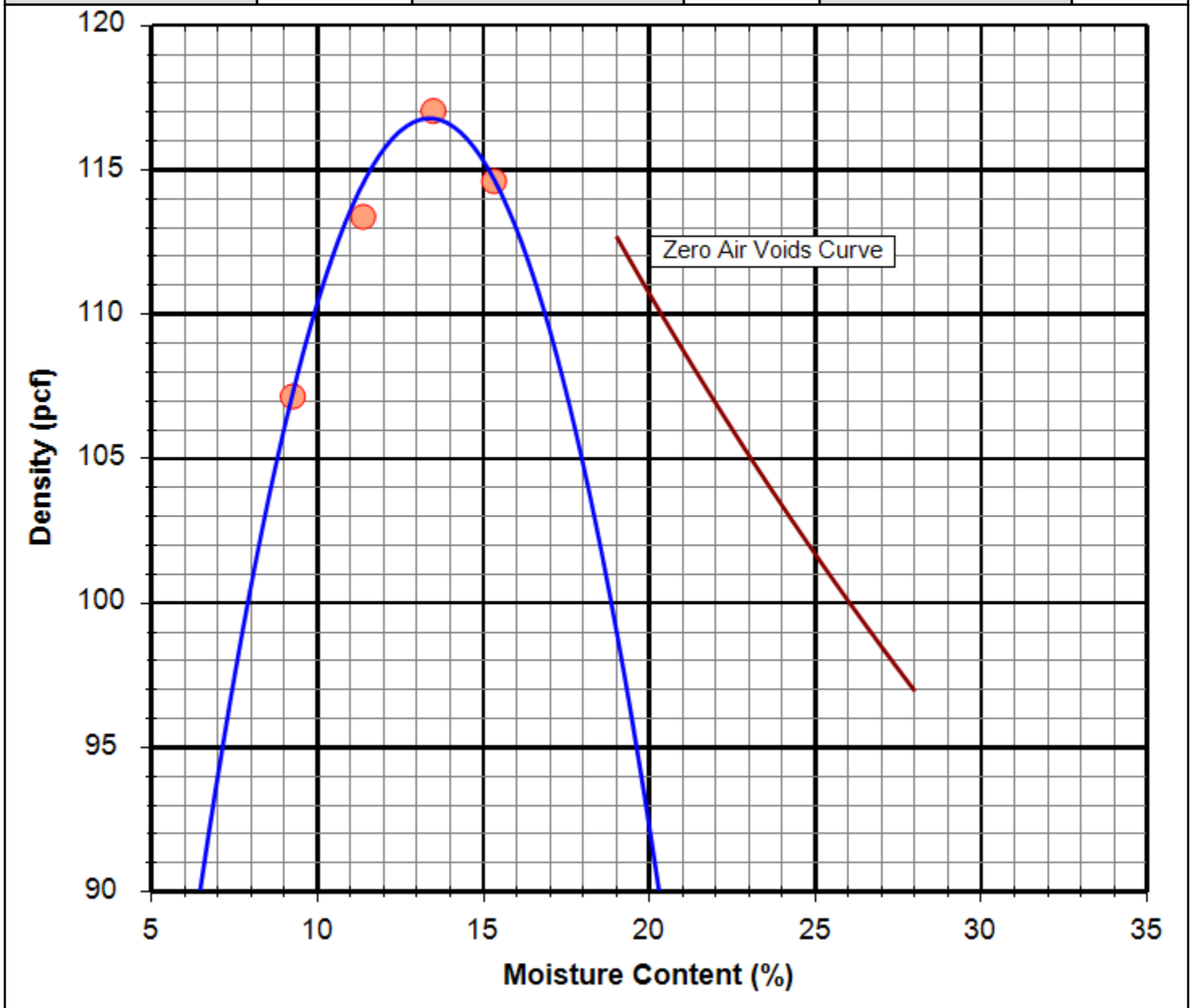
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/2/2025         |    |      |
| Sample Obtained From:      | P-5                                                                                             |                           |       | Depth (ft.):              | 1 - 10'          |    |      |
| Sample Description:        | Red-brown, sandy, LEAN CLAY - (CL), A-7-6 (7)                                                   |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 41                        | 23               | 18 | CL   |
| Maximum Dry Density (pcf): | 112.6                                                                                           | Optimum Moisture Content: | 15.5% | In Situ Moisture Content: |                  | -  |      |





# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

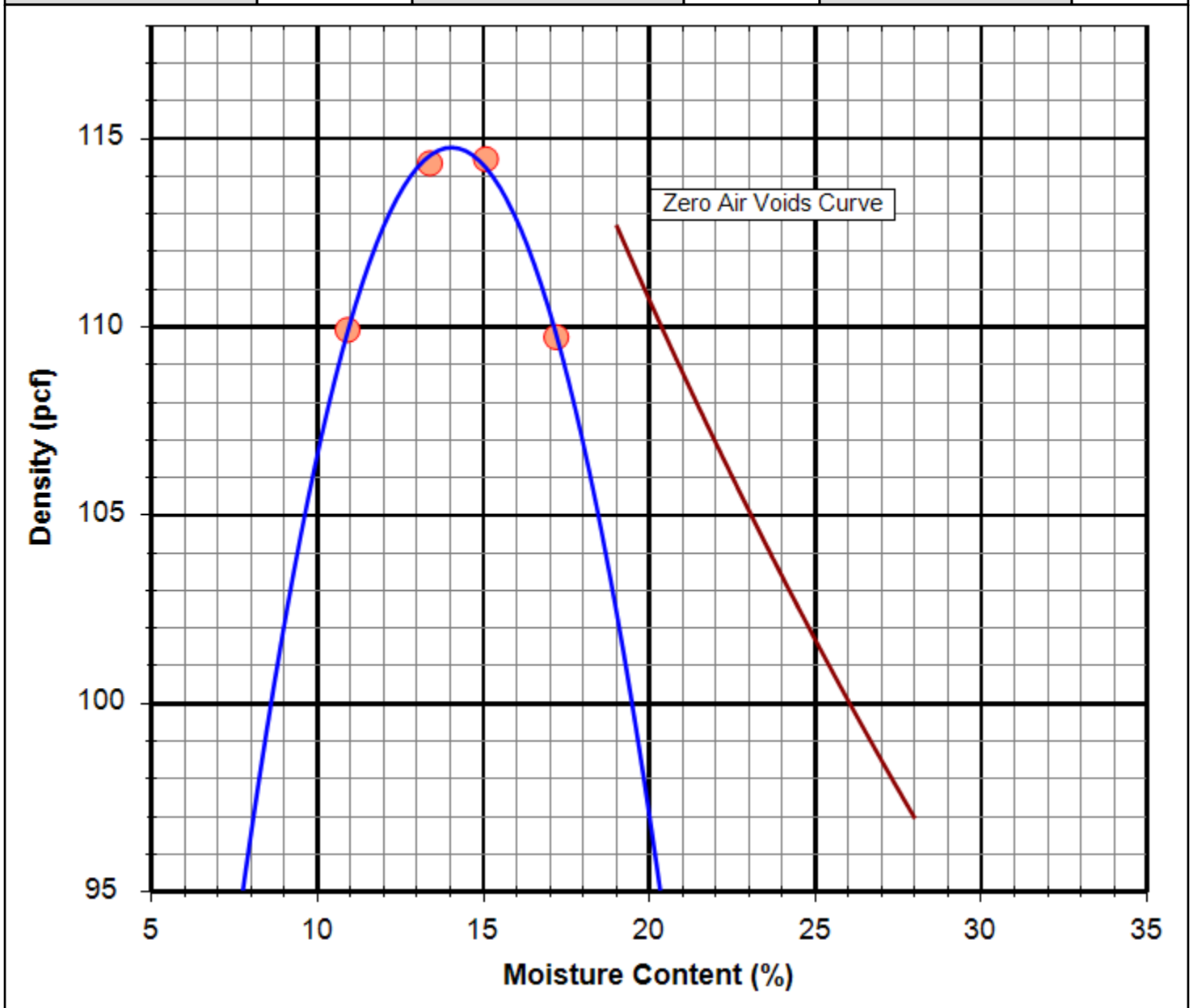
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/2/2025         |    |      |
| Sample Obtained From:      | P-8                                                                                             |                           |       | Depth (ft.):              | 0 - 5'           |    |      |
| Sample Description:        | Brown, sandy, LEAN CLAY - (CL), A-6 (6)                                                         |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 32                        | 16               | 16 | CL   |
| Maximum Dry Density (pcf): | 116.8                                                                                           | Optimum Moisture Content: | 13.3% | In Situ Moisture Content: |                  | -  |      |





# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

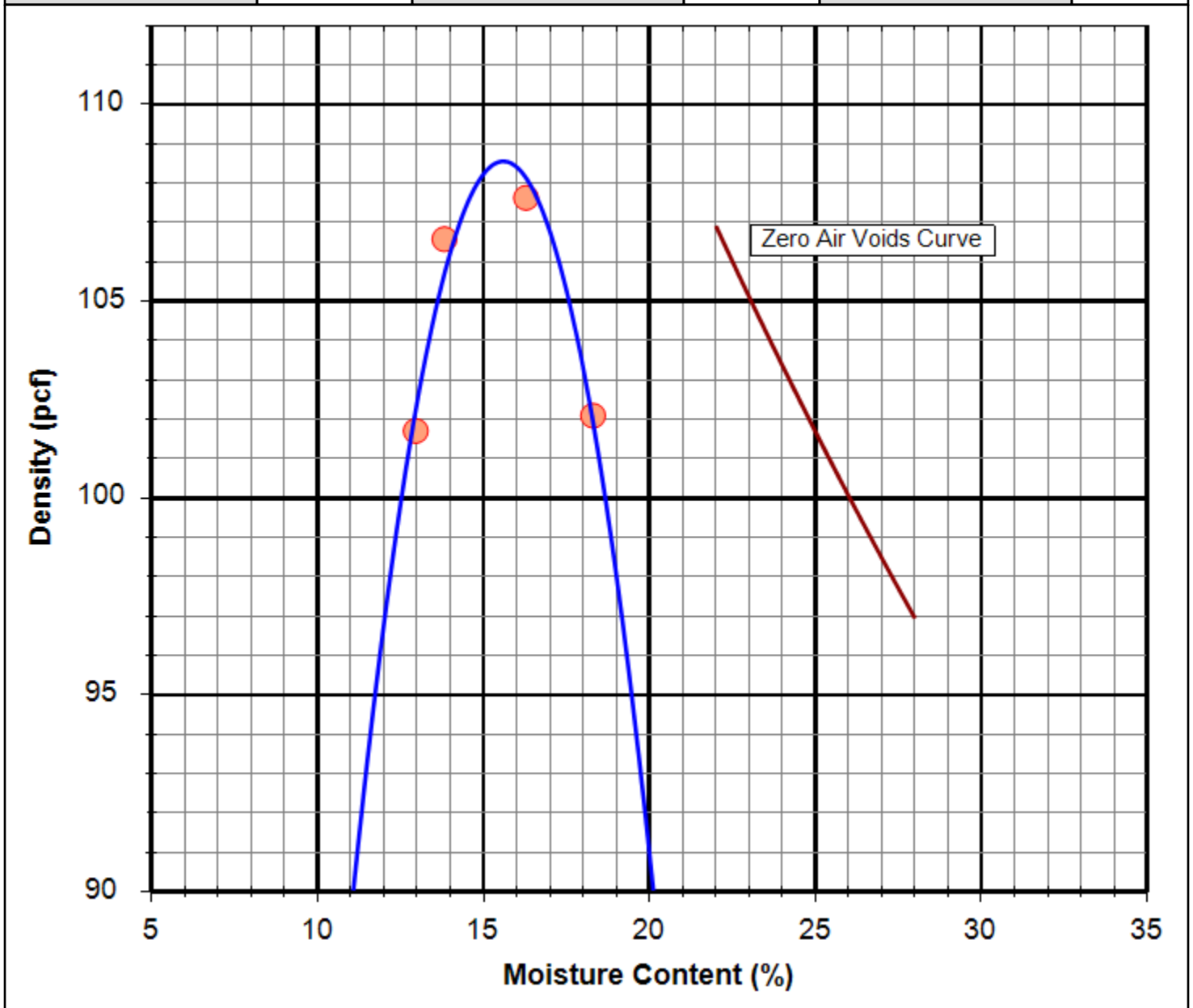
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/23/2025        |    |      |
| Sample Obtained From:      | W-1                                                                                             |                           |       | Depth (ft.):              | 0 - 5'           |    |      |
| Sample Description:        | Brown, CLAYEY SAND - (SC), A-6 (2)                                                              |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 27                        | 16               | 11 | SC   |
| Maximum Dry Density (pcf): | 114.8                                                                                           | Optimum Moisture Content: | 14.0% | In Situ Moisture Content: |                  | -  |      |





# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

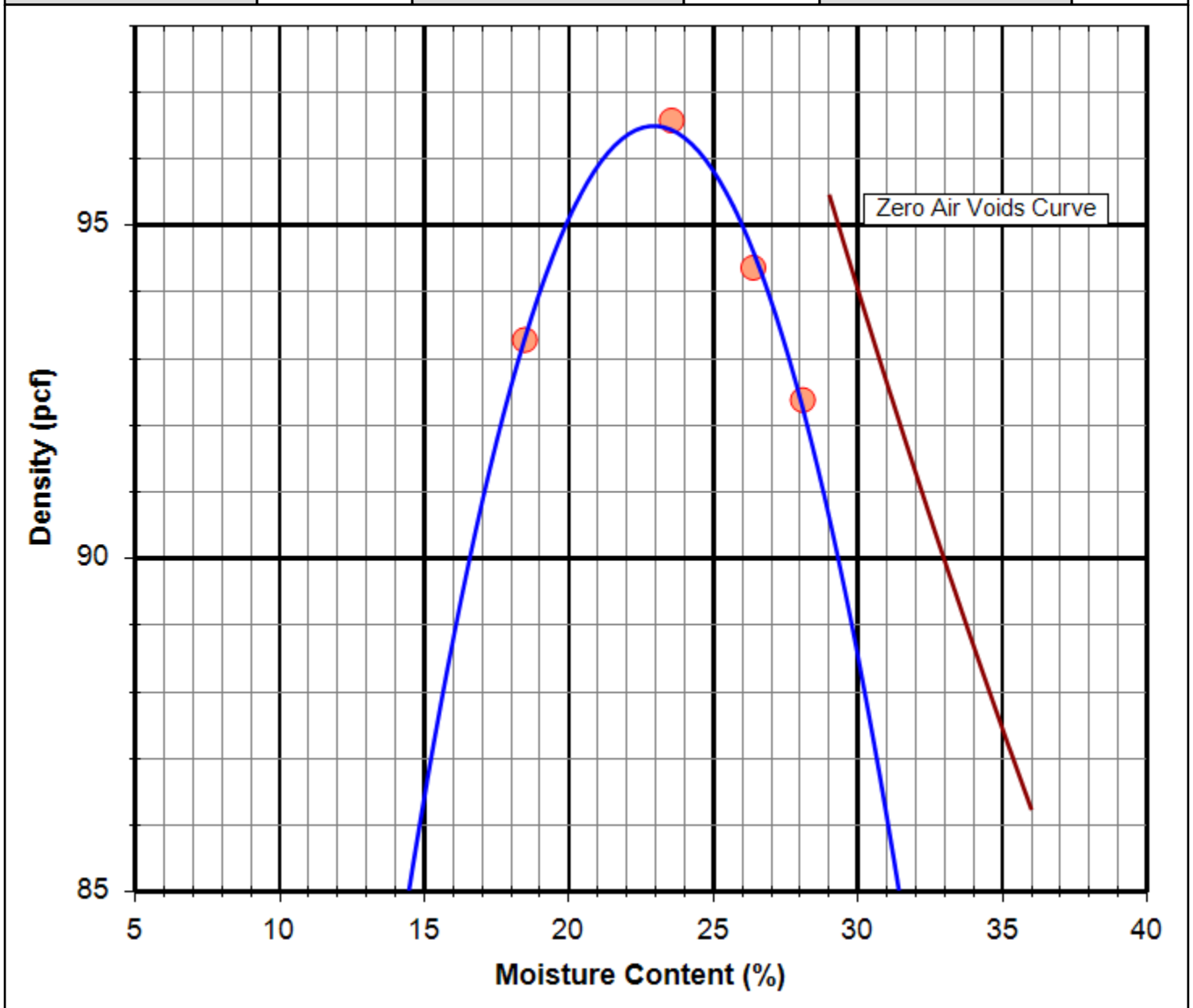
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/14/2025        |    |      |
| Sample Obtained From:      | W-7                                                                                             |                           |       | Depth (ft.):              | 1 - 5'           |    |      |
| Sample Description:        | Brown, CLAYEY SAND - (SC), A-4 (2)                                                              |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 26                        | 16               | 10 | SC   |
| Maximum Dry Density (pcf): | 108.6                                                                                           | Optimum Moisture Content: | 15.6% | In Situ Moisture Content: |                  | -  |      |





# STANDARD PROCTOR MOISTURE DENSITY TEST, ASTM D698, METHOD A

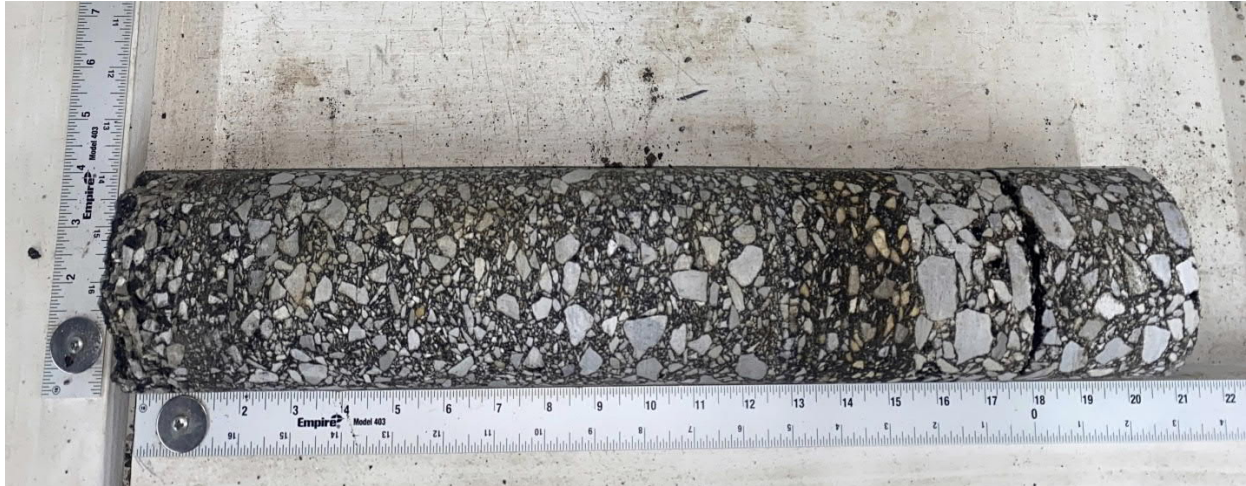
|                            |                                                                                                 |                           |       |                           |                  |    |      |
|----------------------------|-------------------------------------------------------------------------------------------------|---------------------------|-------|---------------------------|------------------|----|------|
| Client:                    | HMB Professional Engineers, LLC                                                                 |                           |       | Project No.:              | A24138.00136.001 |    |      |
| Project:                   | PIN 131552.01 I-40 Truck Stop and Bridge Replacement over Carney Fork River, Buffalo Valley, TN |                           |       | Date:                     | 5/14/2025        |    |      |
| Sample Obtained From:      | W-11                                                                                            |                           |       | Depth (ft.):              | 1 - 7'           |    |      |
| Sample Description:        | Brown, sandy, FAT CLAY - (CH), A-7-5 (34)                                                       |                           |       | LL                        | PL               | PI | USCS |
|                            |                                                                                                 |                           |       | 80                        | 31               | 49 | CH   |
| Maximum Dry Density (pcf): | 96.5                                                                                            | Optimum Moisture Content: | 23.0% | In Situ Moisture Content: |                  | -  |      |



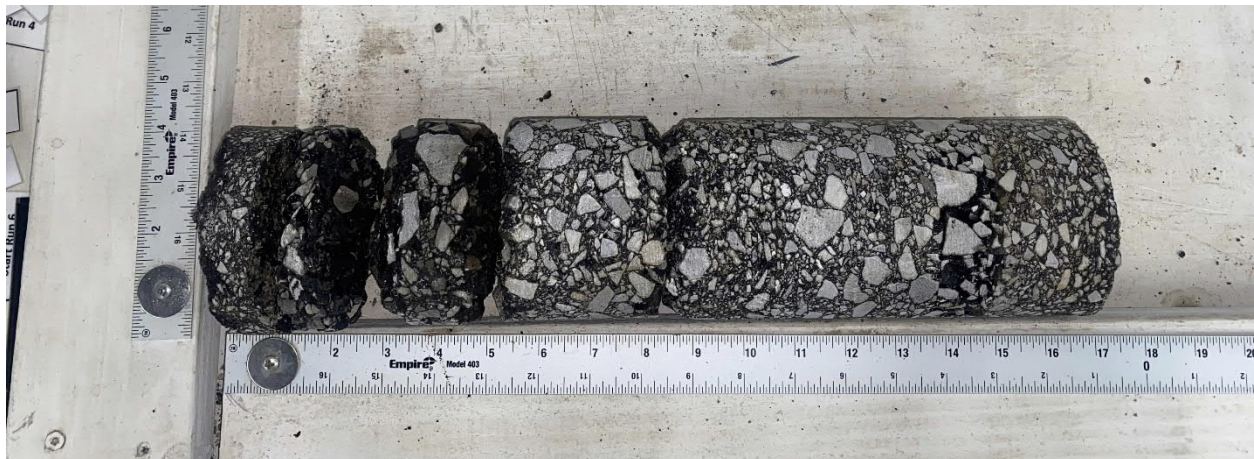




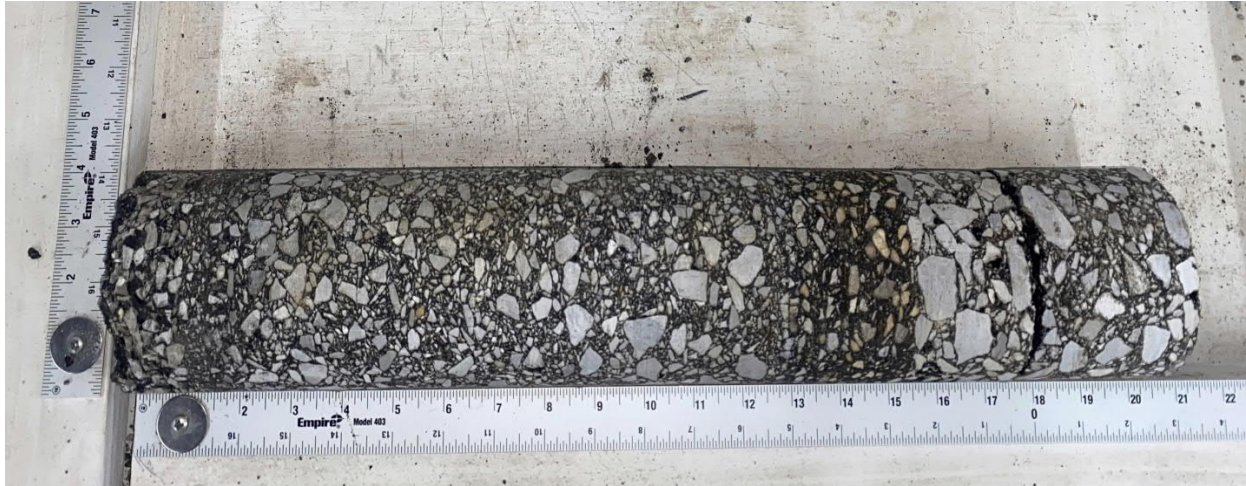
Appendix F  
**PAVEMENT CORE PHOTOGRAPHS**



|                                                                                     |              |
|-------------------------------------------------------------------------------------|--------------|
| I-40 Bridge Replacement / Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring EB-1 (Lane) 545+07.0   47.0 RT                                               |              |
| A24138.00136.001                                                                    | Photograph 1 |
| Description: 21 ½ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |



|                                                                                    |              |
|------------------------------------------------------------------------------------|--------------|
| I-40 Bridge Replacement/ Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring EB-1 (Shoulder) 545+07.0   47.0 RT                                          |              |
| A24138.00136.001                                                                   | Photograph 2 |
| Description: 16 ¾ inches of asphalt.<br>Photograph taken on May 22, 2025.          |              |



|                                                                                     |              |
|-------------------------------------------------------------------------------------|--------------|
| I-40 Bridge Replacement / Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring EB-2 (Lane) 551+07.5   39.0 RT                                               |              |
| A24138.00136.001                                                                    | Photograph 3 |
| Description: 21 ¼ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |



|                                                                                    |              |
|------------------------------------------------------------------------------------|--------------|
| I-40 Bridge Replacement/ Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring EB-2 (Shoulder) 551+07.5   39.0 RT                                          |              |
| A24138.00136.001                                                                   | Photograph 4 |
| Description: 8 ½ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |





|                                                                                     |              |
|-------------------------------------------------------------------------------------|--------------|
| I-40 Bridge Replacement / Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring WB-1 (Lane) 541+01.5   14.5 LT                                               |              |
| A24138.00136.001                                                                    | Photograph 5 |
| Description: 24 ½ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |



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| I-40 Bridge Replacement/ Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring WB-1 (Shoulder) 541+01.5   14.5 LT                                          |              |
| A24138.00136.001                                                                   | Photograph 6 |
| Description: 9 ½ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |



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| I-40 Bridge Replacement / Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring WB-2 (Lane) 552+41.5   13.5 LT                                               |              |
| A24138.00136.001                                                                    | Photograph 7 |
| Description: 18 ¾ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |



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| I-40 Bridge Replacement/ Rest Area Truck Parking<br>Smith-Putnam County, Tennessee |              |
| Boring WB-2 (Shoulder) 552+41.5   13.5 LT                                          |              |
| A24138.00136.001                                                                   | Photograph 8 |
| Description: 5 ¼ inches of asphalt.<br>Photograph taken on May 22, 2025.           |              |