



ECS Mid-Atlantic, LLC

Geotechnical Engineering Report

Proposed Ritner Highway Warehouse Development

3485 Ritner Highway
Newville, Cumberland County, Pennsylvania

ECS Project Number 18:5941

June 20, 2023





June 20, 2023

Mr. Andrew Kronenberg
AAMPA Holdings, LLC
1514 Commerce Avenue, Suite 203
Carlisle, PA 17015

ECS Project No. 18:5941

Reference: Geotechnical Engineering Report
Proposed Ritner Highway Warehouse Development
Newville, Cumberland County, Pennsylvania

Dear Mr. Kronenberg:

ECS Mid-Atlantic, LLC (ECS) has completed the subsurface exploration and geotechnical engineering analyses for the above-referenced project. Our services were performed in general accordance with our Proposal No. 18:9133-GP, dated February 1, 2023. This report presents our understanding of the geotechnical aspects of the project, results of the field exploration, laboratory testing, and our design and construction recommendations.

It has been our pleasure to be of service to AAMP Holdings, LLC during this phase of this project. We would appreciate the opportunity to remain involved during the continuation of the design phase and to provide our services during construction phase operations as well to verify the assumptions of subsurface conditions made for this report. Should you have any questions concerning the information contained in this report, or if we can be of further assistance to you, please contact us.

Respectfully submitted,

ECS Mid-Atlantic, LLC

Kyle T. Eldridge
Geotechnical Staff Project Manager
keldridge@ecslimited.com



Derek G. Ridinger, P.E.
Associate Principal
dridinger@ecslimited.com

TABLE OF CONTENTS

EXECUTIVE SUMMARY	1
1.0 INTRODUCTION	2
2.0 PROJECT INFORMATION.....	3
2.1 Project Location.....	3
2.2 Proposed Construction	4
3.0 FIELD EXPLORATION AND LABORATORY TESTING	5
3.1 Subsurface Characterization.....	5
3.1.1 Site Geology.....	5
3.1.2 Karst Mapping	6
3.2 Soil Survey Mapping	6
3.3 Groundwater Observations	7
3.4 Laboratory Testing.....	7
4.0 DESIGN RECOMMENDATIONS	8
4.1 Foundation Design.....	8
4.2 Floor Slabs	9
4.3 Mechanically Stabilized Earth (MSE) Retaining Walls.....	10
4.3.1 Wall Design Parameters	10
4.4 Below Grade Walls	11
4.5 Seismic Design Characteristics	13
4.6 Pavements	13
5.0 SITE CONSTRUCTION RECOMMENDATIONS	15
5.1 Karst Related – General Risk.....	15
5.2 Subgrade Preparation.....	15
5.2.1 Site Grading and Settlement Monitoring	15
5.2.2 Stripping and Grubbing	16
5.2.3 Proofrolling.....	16
5.3 Earthwork Operations	17
5.3.1 Removal of Existing Structures.....	17
5.3.2 Rock Excavation.....	17
5.3.3 Blasting Operations	18
5.3.4 Subgrade Considerations and Recommended Improvement Alternatives	18
5.3.5 Structural Fill Materials	19
5.3.6 Proposed Fill Slopes.....	20
5.4 Foundation and Slab Observations.....	20
5.5 Utility Installations.....	21
6.0 CLOSING.....	22

APPENDICES

Appendix A – Drawings & Reports

- Site Location Diagram
- Exploration Location Diagrams
- Subsurface Cross Sections
- Geologic Map
- Soil Survey Map
- Karst Features Map

Appendix B – Field Operations

- Reference Notes for Boring Logs
- Reference Notes for Rock Cores
- Subsurface Exploration Procedure: Standard Penetration Testing (SPT)
- Boring Logs B-01 through B-50
- Rock Core Photographs

Appendix C – Laboratory Testing

- Laboratory Test Results Summary
- Plasticity Chart(s)
- Grain Size Analysis/Analyses
- Modified Proctor Test Results
- CBR Results

Appendix D – Supplemental Report Documents

- Sinkhole Repair Details
- Settlement Plate Specification
- Proposed Settlement Plate Locations

EXECUTIVE SUMMARY

The following summarizes the main findings of the exploration, particularly those that may have a cost impact on the planned development. Further, our principal foundation recommendations are summarized. Information gleaned from the Executive Summary should not be utilized in lieu of reading the entire geotechnical report.

- The proposed buildings can be supported by conventional shallow foundations consisting of column and/or strip footings bearing on the existing soils. The foundations can be designed for an allowable soil bearing pressure of 2,000 psf for Buildings B and 2,500 psf for Building A and C based on anticipated design loads.
- A majority of the available on-site borrow materials will consist of Stratum I soils that were found to be highly plastic and comprised of fine-grained Clayey (CL)(CH) material. These materials are anticipated to be highly moisture sensitive and difficult to place during periods of adverse climate conditions. Regionally these soils are commonly used as Structural Fill provided they are moisture conditioned and meet the minimum unit weight recommendations for soil, as specified within this report. It should be anticipated that these soils will require significant moisture conditioning as well as mixing/blending with more coarse-grained materials in order to achieve marginal suitability for reuse on-site. Due to their ability to retain water, they should not be used to backfill exposed retaining walls and could be problematic for subgrade support of pavements that are exposed to freezing air temperatures. We recommend Clayey (CL)(CH) soils of Stratum I should not be utilized as on-site fill without ECS approval of material type as well as placement location and elevation.
- The onsite soils are generally not suitable for reuse as fill in a retaining wall reinforced zone without being blended with more gravelly materials and moisture conditioned.
- Significant excavation difficulties which may slow down the construction process should be anticipated, especially in cut areas surrounding the southeast corner of Building B, the northeast corner of Building A, the southwest corner of Building C, select retaining walls, and during deep utility excavations, which will likely require blasting to reach proposed grades.
- Based on the existing and proposed site grades shown on the provided plan, maximum cuts and fills on the order of approximately 20 feet and 25 feet, respectively, will be required in order to reach final proposed grades. We recommend a minimum of six (6) settlement plates in the areas where proposed grades are greater than 15 feet from existing grades. Two (2) of the plates should be installed prior to any new fill placement and the remaining four (4) should be installed after approximately 8 feet of Structural Fill have been placed.
- The design of site retaining walls must account for global stability considerations as part of the design process. This should include evaluation of both the backslope and toe slope of the wall, which may significantly impact the overall stability of the retaining wall system. ECS should be contacted to review the final site grading plans and to perform a final global stability analysis on the proposed wall geometry to determine if special design considerations are required. ECS can design the walls if desired.

Refer to the text of the report for site specific design and construction recommendations

1.0 INTRODUCTION

The purpose of this study was to provide geotechnical information for design and construction of the proposed Ritner Highway Warehouse Development at the project site. The recommendations developed for this report are based on project information supplied by Frederick Seibert & Associates.

Our services were provided in accordance with the Proposal No. 18:9133-GP, dated February 1, 2023, as authorized by AAMP Holdings, LLC, which includes our Terms and Conditions of Service.

It should be noted that ECS previously completed a *Geotechnical Engineering Report for Stormwater Management*, which included a Carbonate Assessment of the site, dated May 30, 2023. Please refer to that report for detailed information regarding stormwater management recommendations and observed surficial karst features.

This report contains the results of our subsurface exploration, site characterization, laboratory testing, engineering analyses, and recommendations for the design and construction of the proposed development.

This report includes the following:

- A review of area and site geologic conditions.
- A review of surface topographical features and site conditions.
- A brief review and description of our field procedures.
- A brief review and description of our field and laboratory test procedures and the results of testing conducted.
- A review of subsurface soil stratigraphy with pertinent available physical properties.
- Final copies of our boring logs
- Discussion of site preparation including depth of removal of soil or rock and over-excavation.
- Discussion of groundwater concerns relative to the planned construction.
- Recommended allowable soil bearing pressure and recommendations for suitable shallow foundations and anticipated maximum settlement.
- Recommended frost depth.
- Recommendations regarding specifications for Structural Fill.
- Recommended pavement sections for heavy and light duty pavement including a CBR value.
- Discussion of parameters for slab on grade construction and modulus of subgrade reaction.
- Recommendations for site seismic design coefficients based on the 2018 IBC parameters.
- Design and construction recommendations for below-grade or site retaining wall construction, including lateral earth pressures, sliding resistance coefficients and allowable bearing pressures, if applicable.

2.0 PROJECT INFORMATION

2.1 PROJECT LOCATION

The project site is located at the physical address of 3485 Ritner Highway in Newville, Pennsylvania. The site is located on the west side of Ritner Highway and consists of agricultural fields with localized wooded areas. At the time of exploration, the existing site grades were highly variable with a total topographic relief on the order of approximately ± 60 feet.

Refer to Figure 2.1.A and the Site Location DiagramMap in Appendix A for a detailed depiction of the project site location.



Figure 2.1.A – Site Location

2.2 PROPOSED CONSTRUCTION

Based on the “Conditional Use Plan – Ritner Highway AAMPA”, by Frederick, Seibert & Associates, Inc., dated February 24, 2023, we understand that the proposed development consists of a warehouse development consisting of three (3) Warehouses with associated pavement areas, retaining walls, and stormwater management facilities. Cuts and fills associate with proposed site grading are on the order of 28 and 33 feet, respectively.

The following information explains our understanding of the structure and assumed loads:

DESIGN VALUES	
SUBJECT	DESIGN INFORMATION / EXPECTATIONS
Approximate Building Footprint	Building A: 423,360 SF
	Building B: 706,944 SF
	Building C: 225,680 SF
# of Stories	1 story above grade
Usage	Warehouse/Distribution
Column Loads	Assumed - 150 Kips maximum
Wall Loads	Assumed - 5.0 kips/ft maximum
Slab Load	Assumed - 500 psf
Lowest Finish Floor Elevation (FFE)	Building A: El. 628.0 ft
	Building B: El. 618.0 ft
	Building C: El. 615.0 ft

3.0 FIELD EXPLORATION AND LABORATORY TESTING

Our exploration procedures are explained in greater detail in Appendix B including the insert titled Subsurface Exploration Procedure. Our scope of work included drilling a total of 50 geotechnical borings. Our borings were located with a handheld GPS unit and their approximate locations are shown on the Exploration Location Plan in Appendix A.

3.1 SUBSURFACE CHARACTERIZATION

The following sections provide generalized characterizations of the soil strata. Please refer to both the Subsurface Cross-Section in Appendix A and the boring logs in Appendix B.

SUBSURFACE STRATIGRAPHY	
Stratum	Description
n/a	Surficial Material: Topsoil Thickness 3 to 12 inches
I	LEAN CLAY (CL), FAT CLAY (CH), or SILT (ML), varying amounts of gravel and sand, brown, reddish brown, orangish brown, moist, very stiff to hard, and/or loose to very dense
II	Limestone Bedrock, highly to moderately weathered, hard, intensely fractured, gray, encountered as shallow as 1 foot below existing grade and was observed exposed at the surface across the site

3.1.1 Site Geology

According to the Geologic Map of Pennsylvania (1980)¹, the site is underlain by the Rockdale Run Formation, the Shadygrove Formation, and the Stonehenge Formation. When a site is located near existing geologic contacts, the site often exhibits characteristic of all those rock types. These formations are included in the *Engineering Characteristics of the Rocks of Pennsylvania*², and are described as having the following characteristics.

The Rockdale Run Formation consists of very light gray, finely laminated, fine-grained limestone with pink to brown lenses of chert, minor dolomite beds, and abundant quartz. The bottom portion of the formation is medium-bedded and thick bedded in the upper portion. Jointing and fracturing is moderately well developed in a blocky manner, regularly spaced, and open and steeply dipping throughout the formation. It is moderately resistant to weathering. Prolonged exposure and weathering has formed a highly uneven and pinnacled soil-rock interface. It should be expected that the depth to bedrock and/or large cobbles and boulders will be variable. Solution channel openings provide moderate to high secondary porosity.

The Shadygrove Formation consists of light gray to pinkish gray, finely crystalline limestone, with abundant nodules of brown chert, few sandstone beds, and few beds of laminated dolomite. Jointing

¹ Berg, T. M., Edmunds, W. E., Geyer, A. R., and others, compilers, 1980, Geologic map of Pennsylvania (2nd ed.): Pennsylvania Geological Survey, 4th ser., Map 1, 3 sheets, scale 1:250,000

² Geyer, A. R., and Wilshusen, J. P., (1982), *Engineering Characteristics of the Rocks of Pennsylvania*. Bureau of Topographic and Geologic Survey.

and fracturing is moderately well developed in a blocky manner, regularly spaced, and open and steeply dipping throughout the formation. It is moderately resistant to weathering. Prolonged exposure and weathering have formed a highly uneven and pinnaced soil-rock interface. It should be expected that the depth to bedrock and/or large cobbles and boulders will be variable. Solution channel openings provide moderate to high secondary porosity.

The Stonehenge Formation is included within the Beekmantown Group (ob) and is composed of gray, finely crystalline limestone and dark gray laminated limestone with numerous flat-pebble breccia and shale interbeds. The formation is moderately well to well bedded in a thin to flaggy manner. Fracturing and jointing is poorly to moderately well-developed and abundant, seamy, open, and steeply dipping. Moderate weathering to a shallow depth takes the form of rectangular fragments. Due to the pinnaced nature of the bedrock surface the soil mantle varies greatly. The formation has good subsurface drainage due to joint-, bedding-, solution channel openings providing moderate to high magnitude secondary porosity.

Limestone is carbonate based, and therefore, prone to dissolution in water and karst processes including sinkhole formation.

3.1.2 Karst Mapping

The Rockdale Run, Shadygrove, and Stonehenge Formations are composed of carbonate bedrock that is prone to karst activity. Karst activity can take the form of soft and loose soils above the bedrock, uneven bedrock surfaces, closed surficial depressions, and sinkholes. The Karst Features Map located in Appendix A depicts a scale of the level of karst activity in the vicinity of the site. The Karst Features Map shows one (1) apparent sinkholes and 49 surface depressions within about 1/2 mile of the project site; however, the data is incomplete as there is not a requirement within the State to track and document the naturally developing karst activity. Based on our experience in the area and known karst features at nearby sites, the risk of sinkholes and related karst activity near this location is high.

3.2 SOIL SURVEY MAPPING

Based on our review of the Soil Survey (USDA - Natural Resources Conservation Service (websoilsurvey.nrcs.usda.gov), the site soils are mapped Duffield silt loam, 3 to 8 percent slopes, Hagerstown silt loam, Hagerstown silt loam, rocky, Hagerstown-Rock outcrop complex, and Huntington silt loam. These soil types are described as having the following properties:

SOIL MAPPING SUMMARY						
Mapped Soil Unit	Soil Unit Symbol	Origin/ Type	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group	KSat (in/hr)
Duffield silt loam, 3 to 8 percent slopes	DuB	Residuum weathered from limestone	60 to 80 inches to lithic bedrock	>80 inches	B	(0.60 – 2.00)
Hagerstown silt loam, 3 to 8 percent slopes	HaB	Clayey residuum weathered from limestone	43 to 98 inches to lithic bedrock	>80 inches	B	(0.60 – 2.00)

SOIL MAPPING SUMMARY						
Mapped Soil Unit	Soil Unit Symbol	Origin/ Type	Depth to Restrictive Feature	Depth to Water Table	Hydrologic Soil Group	KSat (in/hr)
Hagerstown silt loam, rocky, 3 to 15 percent slopes	HcB / HcC	Clayey residuum weathered from argillaceous limestone	40 to 84 inches to lithic bedrock	>80 inches	B	(0.60 – 2.00)
Hagerstown-Rock outcrop complex, 0 to 25 percent slopes	HdB / HdD	Residuum weathered from limestone	40 to 84 inches to lithic bedrock	>80 inches	B	(0.60 – 2.00)
Huntington silt loam, 0 to 5 percent slopes	HuA	Colluvium derived from limestone and shale	>80 inches	>80 inches	B	(0.60 – 2.00)

3.3 GROUNDWATER OBSERVATIONS

Groundwater was not encountered during our subsurface exploration at the locations and depths explored. Additionally, no apparent signs of the seasonal high ground water table were observed while probing below the infiltration testing depths.

ECS installed piezometer monitoring wells at the location of B-23, B-34, and B-41. The monitoring wells were installed at the highest elevations within each proposed building and extended 5 to 8.5 feet below proposed finished floor elevations ranging from approximate EL. 606.5 to 620.0 feet.

Water readings were recorded for the duration of approximately 1 month after installation and the wells were observed as being dry during each visit to site.

Variations in the long term water table may occur as a result of changes in precipitation, evaporation, surface water runoff, construction activities, and other factors.

3.4 LABORATORY TESTING

The laboratory testing consisted of selected tests performed on samples obtained during our field exploration operations. Classification and index property tests were performed on representative soil samples.

Each sample was visually classified on the basis of texture and plasticity in accordance with ASTM D2488 Standard Practice for Description and Identification of Soils (Visual-Manual Procedures) and including USCS classification symbols, and ASTM D2487 Standard Practice for Classification for Engineering Purposes (Unified Soil Classification System (USCS)). After classification, the samples were grouped in the major zones noted on the boring logs in Appendix B. The group symbols for each soil type are indicated in parentheses along with the soil descriptions. The stratification lines between strata on the logs are approximate; in situ, the transitions may be gradual. Additional testing as part of this project included Modified Proctor testing and California Bearing Ratio (CBR) testing to help evaluate the proposed pavement subgrades.

4.0 DESIGN RECOMMENDATIONS

4.1 FOUNDATION DESIGN

Provided subgrades and Structural Fills are prepared as discussed herein, the proposed structures can be supported by conventional shallow foundations consisting of column and continuous wall footings. The design of the foundations shall utilize the following parameters:

FOUNDATION DESIGN PARAMETERS		
Design Parameter	Column Footing	Wall Footing
Net Allowable Bearing Pressure ¹	2,000 psf (Building B) 2,500 psf (Building A and C)	2,000 psf (Building B) 2,500 psf (Building A and C)
Acceptable Bearing Soil Material	Stratum I, II, or Structural Fill	Stratum I, II, or Structural Fill
Minimum Width	24 inches	18 inches
Minimum Footing Embedment Depth for Interior Foundations (below slab or	24 inches	24 inches
Minimum Footing Embedment Depth for Exterior Foundations (below slab or	36 inches	36 inches
Estimated Total Settlement (max.)	1 inch	1 inch
Estimated Differential Settlement	Less than ½ inch between columns	Less than ½ inch over 35 feet

Note¹: Net allowable bearing pressure is the applied pressure in excess of the surrounding overburden soils above the base of the foundation.

Materials at the foundation bearing elevations (*Structural Fill, Stratum I, II*) are anticipated to be generally suitable for support of the associated proposed structures; however, it should be noted that significant portions of the Stratum I materials encountered at the foundation bearing elevations will likely contain excessively high moisture content and/or be comprised of extremely moisture sensitive material. As such, some select areas of overexcavation and replacement should be anticipated. Excavations left open for long periods of time may compromise the bearing subgrade materials due to the moisture sensitive materials. Therefore, where soft or yielding soils are identified through observation and/or completion of proofrolling at the footing bearing elevations, the unsuitable soils should be undercut and removed. Additionally, periods of adverse climate conditions which may likely occur throughout the duration of the construction schedule may often result in compromised subgrade conditions that will likely require remediation as well as slow down construction

Foundation undercut excavations should be widened 1 foot beyond the footing dimension on each side and then 1 foot for every 1 foot of over excavation (equivalent to a 1(H):1(V) slope for improved bearing area) where overexcavation exceeds 2 feet in depth. The undercut areas should be backfilled with Structural Fill and compacted under engineering review until the designed bearing elevation has been reached. As an alternate, lean concrete ($f'_c=1,000$ psi) may be used to backfill the undercut. If lean concrete is used, the excavation should be 6 inches larger than the footing on each side and no additional lateral overexcavation is necessary.

Bedrock encountered prior to reaching the designed bottom of footing elevations should be overexcavated a minimum of 12 inches below the proposed footing elevations and a minimum of 1 foot below the proposed finished floor elevation and replaced with compacted Structural Fill. Transition zones from rock to soil should incorporate a minimum of 15 lineal feet of footing with overexcavation and replacement with 2A aggregate to a minimum depth of 1 foot to reduce the potential for differential settlement in the soil section.

4.2 FLOOR SLABS

Provided subgrades and Structural Fills are prepared as discussed herein, the proposed floor slabs can be constructed as Ground Supported Slabs (or Slab-On-Grade). Based on the lowest finished floor elevations for each building, it appears that the slabs will bear on newly compacted Structural fill or *Stratum I – CLAY or SILT* (CL/CH/ML). As previously mentioned, significant portions of the *Stratum I* soils contain elevated in-situ moisture content which will require moisture conditioning and will also be highly moisture sensitive and extremely difficult to place during periods of adverse climate conditions. **There is a high likelihood that if construction is conducted during wet seasons subgrade remediation, such as those discussed in Section 5.3.3, will be required for slab subgrade support.** The following graphic depicts our soil-supported slab recommendations:

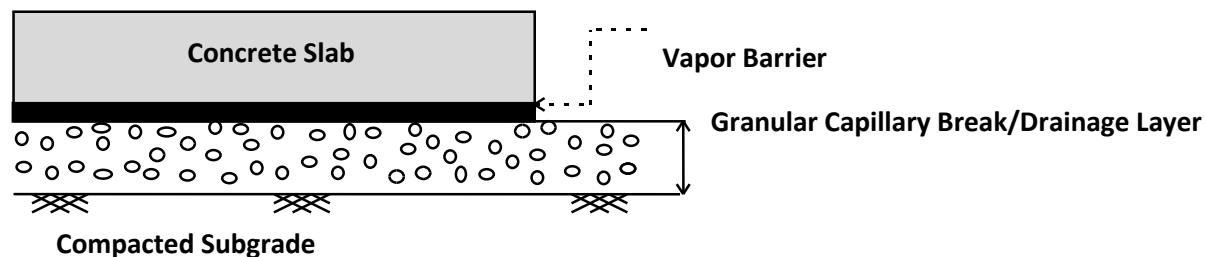


Figure 4.2.A

1. Drainage Layer Thickness: 6 inches minimum recommended
2. Drainage Layer Material: Coarse Graded Aggregate
3. Subgrade compacted to **95%** maximum dry density in Accordance with ASTM D1157

Soft or yielding soils may be encountered in some areas. Those soils should be removed and replaced with compacted Structural Fill in accordance with the recommendations included in this report.

Subgrade Modulus: Provided the Structural Fill and Granular Drainage Layer are constructed in accordance with our recommendations, the slab may be designed assuming a modulus of subgrade reaction, k_1 of 100 pci (lbs./cu. inch). The modulus of subgrade reaction value is based on a 1 ft by 1 ft plate load test basis.

Vapor Barrier: Before the placement of concrete, a vapor barrier may be placed on top of the granular drainage layer to provide additional protection against moisture penetration through the floor slab. When a vapor barrier is used, special attention should be given to surface curing of the slab to reduce the potential for uneven drying, curling and/or cracking of the slab. Depending on proposed flooring material types, the structural engineer and/or the architect may choose to eliminate the vapor barrier.

Slab Isolation: Soil-supported slabs should be isolated from the foundations and foundation-supported elements of the structure so that differential movement between the foundations and slab will not induce excessive shear and bending stresses in the floor slab. Where the structural configuration prevents the use of a free-floating slab such as in a drop down footing/monolithic slab configuration, the

slab should be designed with suitable reinforcement and load transfer devices to preclude overstressing of the slab.

4.3 MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS

There are three (3) proposed site retaining walls associated with the site development. Wall A is in the northern portion of the property and consist of a fill wall proposed to support an access drive/parking area and retain materials from SWM Areas. This wall has an approximate maximum exposed height on the order of 18 feet and an approximate length of 1,575 feet. Wall B is east of proposed Building B and consist of a fill wall proposed to support a parking lot and retain materials from the neighboring property. This wall has an approximate maximum exposed height on the order of 16 feet and an approximate length of 185 feet. Wall C is west of proposed Building A and consists of a fill wall proposed to support a parking lot and retain materials from the neighboring property. This wall has an approximate maximum exposed height on the order of 4 feet and an approximate length of 230 feet.

The design of site retaining walls must account for global stability considerations as part of the design process. This should include evaluation of both the backslope and toe slope of the wall, which may significantly impact the overall stability of the retaining wall system. ECS should be contacted to review the final site grading plans and to perform a final global stability analysis on the proposed wall geometry to determine if special design considerations are required. ECS can design the walls if desired.

4.3.1 Wall Design Parameters

Unlike below grade walls, site retaining walls are free to rotate at the top (not restrained). For these walls, the "Active" (k_a) soil condition should be used along with a triangular distribution of earth pressures. In addition, site retaining walls should be designed to withstand lateral earth pressures created by the wall backfill

The reinforced zone is designed as the section of wall backfill which contains the geotextile reinforcement. In order to function properly for the design life of the wall, we recommend the soils used in the reinforced zone conform to the properties presented in the table below.

RETAINING WALL BACKFILL IN THE REINFORCED SOIL ZONE	
Soil Parameter	Estimated Value
Soil Classification	Silty SAND (SM) or more granular
Fines Content	Max. 30% > #200 Sieve
Active Earth Pressure Coefficient, K_a	0.33
Maximum Particle Size	1 inch
Retained Soil Moist Unit Weight (γ)	120 pcf
Angle of Internal Friction (ϕ)	30°
Friction Coefficient [Concrete on Soil] (μ)	0.30

It is critical that the soils used for backfilling of the retaining walls meet the soil parameters recommended above. If the soils available do not meet those parameters, then ECS should be contacted to provide revised values, and to confirm that only suitable soils will be used for wall backfill. The onsite soils are generally not suitable for reuse as fill in the reinforced zone without being blended with more gravelly materials and moisture conditioned to conform of the backfill parameters presented

above. The backfill materials should be placed in 8-inch thick loose layers and compacted to 95 percent of the modified Proctor maximum dry density. We recommend that backfill directly behind the walls be compacted with hand-held compactors. Care should be used to avoid the operation of heavy equipment to compact the wall backfill since it may overload and damage the wall. In addition, such loads are not typically considered in the design of site retaining walls and are not provided for in our recommendations.

Care should be used to avoid the operation of heavy equipment to compact the wall backfill since it may overload and damage the wall. In addition, such loads are not typically considered in the design of site retaining walls and are not provided for in our recommendations. We recommend that backfill directly behind the walls be compacted with hand-held compactors.

Most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed walls. If soft/loose or otherwise unsuitable soils are observed at the footing bearing elevation over-excavation and replacement of excavated materials in a controlled manner or replaced with alternative imported Structural Fill may be required. It is important to have ECS observe the foundation subgrade prior to placing the leveling pad, to confirm the bearing soils are what was anticipated. We recommend that a representative of ECS be present to monitor foundation excavations and fill placement.

ENGINEERING SOIL PARAMETERS	
Soil Parameter	Estimated value
Bearing Material	Soil
Allowable Soil Bearing Pressure	2,000 psf
Minimum Wall Embedment Below Grade	12 inches
Passive Earth Pressure Coefficient, K_p	2.561
Soil Moist Unit Weight (γ)	110 pcf
Friction Angle (degrees)	26°
Cohesion (C)	0 psf
Interface Friction Angle [Concrete on Rock/Soil] (ϕ_r)	18°
Sliding Friction Coefficient [Concrete on Rock/Soil] (μ)	0.30

Wall Drainage: Retaining walls should be provided with a wall and drainage system to relieve hydrostatic pressures which may develop behind the walls. This system should consist of weepholes through the wall and/or a 4-inch perforated, closed joint drain line located along the backside of the walls above the top of the footing. The drain line should be surrounded by a minimum of 6 inches of AASHTO #57 Stone wrapped with an approved non-woven geotextile, such as Mirafi 140-N or equivalent. Wall drains can consist of a 12-inch wide zone of free draining gravel, such as AASHTO #57 Stone, employed directly behind the wall and separated from the soils beyond with a non-woven geotextile. Heel or chimney drains may also be required for cut walls. This can be further evaluated at the time of excavation.

4.4 BELOW GRADE WALLS

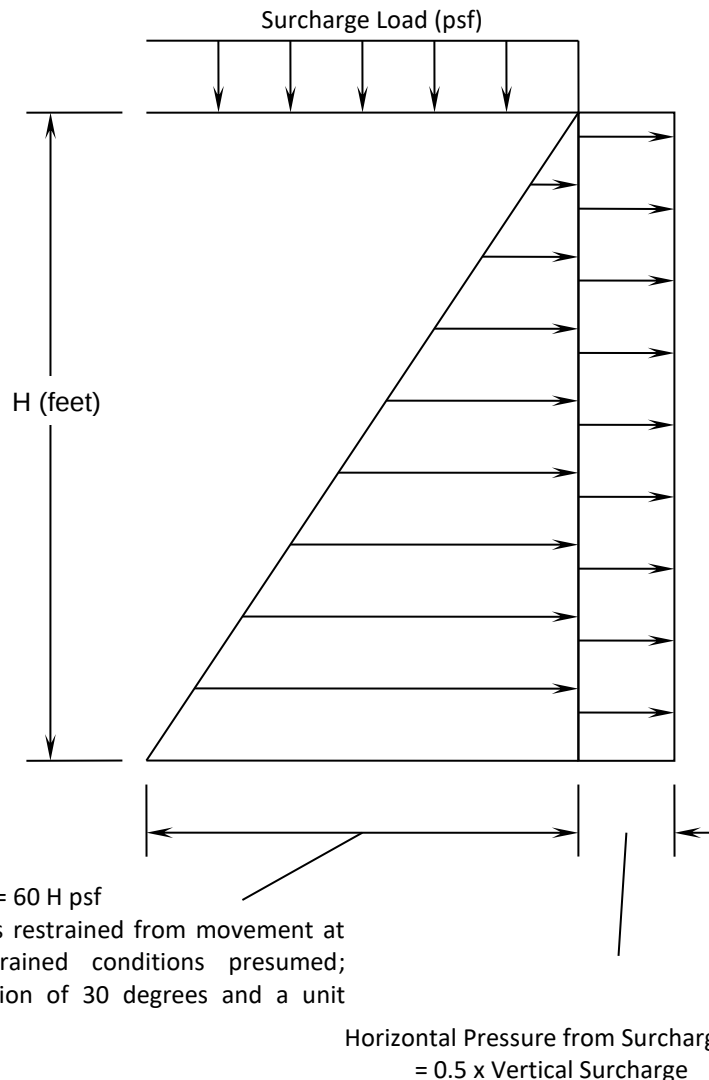
We recommend that below grade walls be designed to withstand at-rest lateral earth pressures and surcharge loads from adjacent building foundations, and/or streets. These recommendations apply to a

“drained” condition which is where there is drainage material behind below grade walls that prevents hydrostatic water pressures on the back of the below grade wall.

To accomplish a drained condition, drainage materials such as a free draining gravel, geocomposite drainage panels, weep holes, and an underslab drainage system should be used.

We recommend that walls that are restrained from movement at the top be designed for a linearly increasing lateral earth pressure. The following Figure depicts our recommended at-rest lateral earth pressure condition for a “drained below-grade wall” with restrained wall top:

This diagram is not suitable for the design of Support of Excavation or temporary shoring systems.



Surcharge loads imposed within a 45 degree slope of the base of the wall should be considered in the below grade wall design. The influence of these surcharge loads on the below grade walls should be based on an at-rest pressure coefficient, k_0 , of 0.5 in the case of restrained walls.

4.5 SEISMIC DESIGN CHARACTERISTICS

The International Building Code (IBC) 2018 requires site classification for seismic design based on the upper 100 feet of a soil profile. At least two methods are utilized in classifying sites, namely the shear wave velocity (v_s) method and the Standard Penetration Resistance (N-value) method. The latter method (Standard Penetration Resistance) was used in classifying this site.

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

Based upon our interpretation of the subsurface conditions, the appropriate Seismic Site Classification is "C" as shown in the preceding table.

Ground Motion Parameters: In addition to the seismic site classification noted above, ECS has determined the design spectral response acceleration parameters following the IBC 2018 methodology. The Mapped Responses were estimated from the free seismic design maps available from *Structural Engineers Association of California (SEAOC)* (<http://seismicmaps.org>). The design responses for the short (0.2 sec, S_{DS}) and 1-second period (S_{D1}) are noted in bold at the far right end of the following table.

GROUND MOTION PARAMETERS [IBC 2018 METHOD]								
Period (sec)	Mapped Spectral Response Accelerations (g)		Values of Site Coefficient for Site Class		Maximum Spectral Response Acceleration Adjusted for Site Class (g)		Design Spectral Response Acceleration (g)	
Reference	Figures 1613.2.1 (1) & (2)		Tables 1613.2.3 (1) & (2)		Eqs. 16-37 & 16-38		Eqs. 16-39 & 16-40	
0.2	S_s	0.124	F_a	1.3	$S_{MS}=F_a S_s$	0.161	$S_{DS}=2/3 S_{MS}$	0.107
1.0	S_1	0.051	F_v	1.5	$S_{M1}=F_v S_1$	0.077	$S_{D1}=2/3 S_{M1}$	0.051

The Site Class definition should not be confused with the Seismic Design Category designation which the Structural Engineer typically assesses. If a higher site classification is beneficial to the project, we can provide additional testing methods that may yield more favorable results.

4.6 PAVEMENTS

Subgrade Characteristics: Based on the results of our borings and test pits, it appears that the pavement subgrades in cuts will consist mainly of LEAN CLAY (CL) or FAT CLAY (CH) materials.

California Bearing Ratio (CBR) testing achieved during laboratory testing provided results of 2.8% and 14.4%. Based on the fine-grained nature of soil overburden on-site, we have utilized a CBR value of 3% for design purposes. It should be noted that FAT CLAY may not be suitable for pavement subgrades and remediation of the subgrade soils, including moisture adjustments or removal and replacement, could be required.

Anticipated traffic loading was not provided, and therefore, we have assumed approximate equivalent axle loadings of 50,000 and 1,000,000 for light-duty and heavy-duty pavements, respectively. In addition, we have assumed an initial serviceability of 4.2, terminal serviceability of 2.2, a reliability of 90 percent, a standard deviation of 0.45 for flexible pavements, and a design life of 20 years. The design analyses for pavements have been based on methodology from the American Association of State Highway and Transportation Officials' (AASHTO) Guide of Design of Pavement Structures, 1993 and guidelines established for SUPERPAVE as outlined in the Pavement Design Guide from the Pennsylvania Asphalt Pavement Association. For preliminary design the general pavement sections below can be considered and are guidelines that may or may not comply with local jurisdictional minimums.

PRELIMINARY PAVEMENT SECTIONS				
MATERIAL	FLEXIBLE PAVEMENT		RIGID PAVEMENT	
	Light Duty	Heavy Duty	Light Duty	Heavy Duty*
Portland Cement Concrete ($f'_c = 4000$ psi)	-	-	6.0 inch	9.0 inch
Asphaltic Wearing Course (Superpave -9.5mm)	1.5 inch	2.0 inch	-	-
Asphaltic Base Course (Superpave -25.0mm)	3.0 inch	5.5 inch	-	-
Crushed Stone Base	8.0 inch	12.0 inch	6.0 inch	8.0 inch

*Thicker reinforced concrete pavement may be required for truck dolly pads.

In general, heavy duty sections are areas that will be subjected to trucks, buses, or other similar vehicles including main drive lanes of the development. Light duty sections are appropriate for vehicular traffic and parking areas.

Large, front loading trash dumpsters frequently impose concentrated front wheel loads on pavements during loading. This type of loading typically results in rutting of asphalt pavement and ultimately pavement failures. For preliminary design purposes, we recommend that the pavement in trash pickup areas consist of a 6-inch thick, 4,000 psi, reinforced concrete slab over 6-inches of dense graded aggregate. When traffic loading becomes available ECS or the Civil Engineer can design the pavements.

5.0 SITE CONSTRUCTION RECOMMENDATIONS

5.1 KARST RELATED – GENERAL RISK

Although sinkholes stem from geologic conditions within the underlying rock, they are often triggered by changes in the surface and subsurface drainage patterns. In order to reduce the potential for future sinkhole development which could impact foundation performance, positive surface drainage should be maintained both during and after construction. ECS recommends that the following preventative measures be followed to reduce the potential inducement of sinkhole formation in proposed development areas and to incorporate good construction practices. If subsidence features such as sinkholes, surface depressions, and exposed rock pinnacles are encountered, ECS should be consulted to provide a recommendation for repair on a case by case basis.

1. Earthwork operations should be graded to drain away from structures at times. Upon completion of daily earthwork operations, the ground surface should be sealed by thorough rolling to reduce infiltration of precipitation and facilitate runoff.
2. Sediment control management facilities should be located outside of planned construction areas. Inlets associated with storm drain systems should not be utilized as temporary sediment control devices during construction.
3. During construction, care should be taken to reduce the ponding of surface water in and/or adjacent to the buildings. The foundations should be excavated and poured the same day, if possible, or the founding soils should be provided with a mud mat (lean concrete).
4. Visual observations during earthwork operations should be carried out in order to detect previous unexposed or recently created collapse features. Such features should be called to ECS's attention for remedial improvement.
5. Final site grading should include sloping grades and piping of downspouts away from the building.
6. Storm piping should be designed such that joints and structure tie-ins remain watertight with allowance for some settlement. Leaking storm pipes promote subsurface seepage and can instigate sinkhole development in the form of surficial dropouts with little or no warning. It may be beneficial to use bentonite clay around pipe joints to reduce the potential for long-term leaking.

Areas identified to be suspect during the initial earthwork phase should be further explored during construction to determine the extent, both vertically and horizontally, of possible solution activity. We recommend that available geotechnical data be made available to ECS during earthwork operations.

5.2 SUBGRADE PREPARATION

5.2.1 Site Grading and Settlement Monitoring

Based on the existing and proposed site grades shown on the provided plan, maximum cuts and fills on the order of approximately 28 feet and 30 feet, respectively, will be required in order to reach proposed final grade.

Having a structure bear partially over natural soils, particularly weathered rock, and partially over recently placed Structural fill could create intolerable differential settlements between the portion of the building in cut and the portion of building bearing in fill. Considering the overall depth of the new fill to be placed, this potential is even greater due to settlement potential of the fill mass and the underlying soils. With deep fills, there are two possible contributors to overall settlement: 1) settlement of the fill mass due to the self-weight of the materials placed and 2) settlement of the underlying in-situ soils due to the weight of the fill mass. This settlement is typically minor and is most times realized during the construction process, prior to building construction. However, as the fill depth increases, the magnitude of this settlement increases as well as minor settlement within each lift is compounded by the overall fill height. The higher compaction requirement is intended to reduce the potential for new fill to settle under the self-weight of the materials placed and reduce differential settlement between the new fill and the cut areas of the pad.

We recommend a minimum of six (6) settlement plates in the areas where proposed grades are greater than 15 feet from existing grades. Two (2) of the plates should be installed prior to any new fill placement and the remaining four (4) should be installed after approximately 8 feet of Structural Fill have been placed. It will be essential to take accurate measurements on a continuous basis as well as interpret data related to settlements, lateral movements, and ground heave within the soils and ECS should be retained to do this work given the project experience. Specifications for the settlement plates are included in Appendix D as well. Baseline readings should be obtained prior to placement of fill.

5.2.2 Stripping and Grubbing

The subgrade preparation should consist of stripping vegetation, rootmat, topsoil, unsuitable existing fill, and other soft or unsuitable materials from the 10-foot expanded building and 5-foot expanded pavement limits, and 5 feet beyond the toe of Structural Fills. Borings and test pits performed in “undisturbed” areas of the site contained an observed 3 to 12 inches of topsoil. Deeper topsoil or organic laden soils may be present in wet, low-lying, and poorly drained areas. In wooded areas, the root balls may extend as deep as about 2 feet and will require additional localized stripping depth to completely remove the organics. ECS should be retained to verify that topsoil and unsuitable surficial materials have been removed prior to the placement of Structural Fill or construction of structures.

5.2.3 Proofrolling

Prior to fill placement or other construction on subgrades, the subgrades should be evaluated by an ECS field technician. The exposed subgrade should be thoroughly proofrolled with construction equipment having a minimum axle load of 10 tons [e.g. fully loaded tandem-axle dump truck]. Proofrolling should be traversed in two perpendicular directions with overlapping passes of the vehicle under the observation of an ECS technician. This procedure is intended to assist in identifying localized yielding materials.

Where proofrolling identifies areas that are unstable or “pumping” subgrade those areas should be repaired prior to the placement of subsequent Structural Fill or other construction materials. Methods of stabilization include undercutting, moisture conditioning, or chemical stabilization. The situation should be discussed with ECS to determine the appropriate procedure. Test pits may be excavated to explore the shallow subsurface materials to help in determining the cause of the observed unstable materials, and to assist in the evaluation of appropriate remedial actions to stabilize the subgrade.

5.3 EARTHWORK OPERATIONS

5.3.1 Removal of Existing Structures

Development of the project will include demolishing the existing buildings and associated infrastructure at the site. Existing foundation elements and utilities within the footprint of the proposed buildings should be removed and backfilled with compacted Structural Fill placed under engineering review. Existing foundations or slabs situated within the proposed pavement areas should be over-excavated and removed such that the top of the concrete is a minimum of 2 feet below the finished subgrade elevation. The foundations and pavements may be processed for reuse as Structural Fill provided all steel reinforcement is removed and the material is well-graded containing no fragments larger than 4-inches in diameter and conforms to the parameters presented in **Section 5.3.4**. If existing slabs are to remain, they should be rubblized to allow downward migration of water.

5.3.2 Rock Excavation

Bedrock was encountered in most of the borings performed on site, signified by auger refusal. Rock coring was performed in B-17, B-23, B-29, B-34, B-41, and B-48, with samples indicating that the underlying rock was composed of dominantly of Limestone. In general, the Limestone was classified as being moderately weathered, gray, hard, and intensely to highly to moderately fractured. The onsite bedrock was encountered at depths as shallow as approximately 1-foot below existing grade as recorded in B-15. Significant excavation difficulties which may slow down the construction process should be anticipated, especially in cut areas surrounding the southeast corner of Building B, the northeast corner of Building A, the southwest corner of Building C, select retaining walls, and during deep utility excavations. It is common within Limestone geology that many variables will determine the excavation difficulty including, but not limited to, extent of weathering/fracturing, orientation, bedding, structure, hardness, and density of highly weathered and/or competent rock.

Usually, rock saws employed for trench excavations are capable of exceeding our refusal depths by several feet, but with some difficulty. The use of hydraulic rams on heavy duty excavation equipment, or the use of blasting, should be anticipated. Bulk excavations should be performed using heavy-duty construction equipment capable of ripping and removing weathered rock and removing large boulders/shot rock or by blasting as discussed in **Section 5.3.3**.

The field logs paired with our profiles in the appendices may be used to estimate preliminary rock excavation based on the refusal depths; but we do not recommend straight line interpolation of bedrock surfaces for the estimation of excavation quantities due to the variable bedrock surface that is common in this geology.

The geologic factors affecting the difficulty of excavation include rock hardness, rock structures (i.e., foliation or bedding), joint and fracture spacing and degree of weathering. The ease of excavation will also be governed by the type of excavation equipment used and the contractor's willingness to utilize the equipment to its full potential. Rock excavation is expected to vary due to variability in the rock surface and hardness/weathering between exploration points. Additional borings, test pits, air probes, or geophysics may be performed to increase the data in areas previously unexplored.

5.3.3 Blasting Operations

When blasting, it is imperative to minimize charges to avoid “over-blasting” of the bedrock beyond required excavation depths. Increased/manmade fractures within the existing bedrock will increase settlement. Upon completion of blasting procedures, all loose rock and “over-blast” must be completely excavated from all structural areas. This is especially relevant in areas where blasting within the building pad will presumably extend to the footing bottom elevations, therefore the pad will require excavation of blast and reconstruction for stability purposes. Excavated bedrock may be utilized as structural fill provided it is sufficiently processed to meet the requirements presented in this report.

Given the variability of depth to rock, variable weathering of the bedrock, and the potential for highly weathered zones, blasting should be planned and conducted with care. The potential of overshooting the rock and/or shooting soil seams presents a risk that could result in the need for supplemental overexcavation to provide adequate subgrade stability. If excessive charges are set, or if the charge pattern is too close or too deep, the underlying bedrock could fracture along naturally occurring bedding planes. This expansion can occur below the depth of excavation and can contribute to the development of weak zones.

Once loads are placed on expanded bedrock materials, then the open fractures tend to close up causing settlement. Therefore, it is strongly recommended that the charge patterns and the depths be carefully controlled and monitored to avoid over blasting. Where over blasting occurs, the disturbed materials must be removed and replaced, often at significant cost.

The potential for over blasting should be recognized during both the design and construction phases. We strongly recommend that ECS meets with the grading contractor and any blasting specialist to review any shot pattern and blasting procedures at the time of construction to minimize difficulties associated with over blasting. Vibration monitoring should be installed to maintain peak particle velocities at nearby structures to less than 2.0 in/sec.

Excavation of blast materials should be observed by ECS to determine the suitability and composition of the materials for reuse as compacted fill. Furthermore, the areas should be examined for the limits and extents of overblast and oversee the overexcavation and stabilization of such areas. The subgrade should be evaluated by the ECS representative to determine if the material has been overblasted. Loose or unstable materials due to overblast will require overexcavation and replacement.

5.3.4 Subgrade Considerations and Recommended Improvement Alternatives

Each of the seven (7) samples of *Stratum I* soils that were subjected to USCS classification laboratory analyses were generally found to be highly plastic and predominantly comprised of fine-grained CLAY (CL/CH) material, which will be highly moisture sensitive. Additionally, in-situ moisture contents of samples tested ranged from 16.4 to 40.3 percent, most of which contained natural moisture contents greater than 2% above the laboratory determined optimal moisture content of 11.6% and 16.3%.

Therefore, it is our recommendation that applications utilized to reduce moisture content and avoid subgrade degradation during construction, beyond conventional moisture conditioning techniques such as scarifying and windrowing, (etc.), should be anticipated for subgrade preparation at the site where subgrade materials are comprised of *Stratum I*. Subgrade improvement alternatives employed to reduce construction challenges associated with the poor workability of *Stratum I*, as well as to

maintain suitable bearing conditions once foundation subgrade elevations are achieved may consist of the following:

- Material Mixing
 - On-site processed rock or imported coarse-grained material may be blended into the Stratum I soils.
 - The resulting mixture should consist of a well-graded material that meets the structural fill requirements within this report.
 - The Stratum I soils should not be expected to blend easily, and achieving the structural fill recommendations within this report through mixing these materials will likely prove difficult
- Chemical Stabilization
 - Soil cement, lime stabilization, etc.
 - Adequate ratios of soil to cement/lime can be tested utilizing on-site soils
- Removal and Replacement
 - Once subgrade elevation is reached, undercut a minimum of 2 feet of the Stratum I soils.
 - Geogrid Textile Fabric may be considered to further stabilize the subgrade in select areas of the site.
 - Replace with suitable structural fill up to proposed subgrade elevations

The measures presented above are typical of acceptable, and proven effective industry standard practices.

It is our recommendation that Clayey (CL)(CH) Stratum I soils should not be utilized as Structural Fill without ECS approval of material type and placement location and elevation. It should be noted that a sheep's foot roller should be utilized for compaction of this material. Additionally, due to the moisture sensitivity associated with this soil type, it will be necessary that any exposed Stratum I material at the site is properly sealed prior to precipitation events.

5.3.5 Structural Fill Materials

Prior to placement of Structural Fill, representative bulk samples (about 50 pounds) of on-site and/or off-site borrow should be submitted to ECS for laboratory testing, which will typically include Atterberg limits, natural moisture content, grain-size distribution, and moisture-density relationships (i.e., Proctors) for compaction. Import materials should be tested prior to being hauled to the site to determine if they meet project specifications.

Limited use of rock fills may be appropriate in some areas of the site where overall fill depths exceed 10 feet. Twelve to eighteen (12-18) inch lifts of well-graded rock fill may be approved by ECS provided maximum particle sizes do not exceed approximately 12-inches and the rock consists of a durable rock type such as wimestone. When fills are 10 feet or less, we recommend that no "rock" fills be placed, and that all fills meet the grain size criteria provided. Rock fill consists of rock particles that have a high void content between the rock particles. Rock fills are not suitable for satisfactory long term performance. These rock materials can be blended with other soils types to form a suitable particle size distribution for reuse as structural fill as outlined below. Due to the large quantities of anticipated rock

cut, the use of a rock crusher will be required to process the blasted bedrock to meeting the material properties presented below.

Satisfactory Structural Fill Materials: Materials satisfactory for use as Structural Fill should consist of inorganic soils with the following engineering properties and compaction requirements.

STRUCTURAL FILL INDEX PROPERTIES	
Subject	Property
Building and Pavement Areas	LL < 40, PI <20
Max. Particle Size	4 inches
Minimum Dry Density	105 pcf

STRUCTURAL FILL COMPACTION REQUIREMENTS	
Subject	Requirement
Compaction Standard	Modified Proctor, ASTM D1557
Required Compaction	95% of Max. Dry Density
Moisture Content	±2 % points of the soil's optimum value
Loose Thickness	8 inches prior to compaction

On-Site Borrow Suitability: The on-site soils appear to be generally suitable for reuse as Structural Fill but will pose so construction difficulties. Due to the high percentaget of fines, the Stratum I soils will be highly sensitive to moisture and difficult to place when exposed to adverse weather. Subgrade remediation, as presented in **Section 5.3.4**, may be required.

Regionally these soils are commonly used as Structural Fill provided they are moisture conditioned and meet the minimum unit weight recommendations for soil, as specified in the table above. Due to their ability to retain water, they should not be used to backfill exposed retaining walls and could be problematic for subgrade support of pavements that are exposed to freezing air temperatures. Additionally blending with imported soils and/or shot rock may be required. Depending on the weather

Fill Placement: Fill materials should not be placed on frozen soils, on frost-heaved soils, and/or on excessively wet soils. Borrow fill materials should not contain frozen materials at the time of placement, and all frozen or frost-heaved soils should be removed prior to placement of Structural Fill or other fill soils and aggregates. Excessively wet soils or aggregates should be scarified, aerated, and moisture conditioned.

5.3.6 Proposed Fill Slopes

Slopes comprised of Structural Fill may be constructed at a slope of 3(H):1(V) or flatter. Slopes steeper than 3(H):1(V) should be evaluated by ECS. All slopes should be properly vegetated to reduce the likelihood of surficial erosion and sloughing.

5.4 FOUNDATION AND SLAB OBSERVATIONS

Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore,

foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 1 to 3-inch thick "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

Footing Subgrade Observations: Most of the soils at the foundation bearing elevation are anticipated to be suitable for support of the proposed structure. It is important to have ECS observe the foundation subgrade prior to placing foundation concrete, to confirm the bearing soils are what was anticipated.

Slab Subgrade Verification: Prior to placement of a drainage layer, the subgrade should be prepared in accordance with the recommendations found in **Section 5.2.3 Proofrolling**.

5.5 UTILITY INSTALLATIONS

Utility Subgrades: The soils encountered in our exploration are expected to be generally suitable for support of utility pipes. The pipe subgrades should be observed and probed for stability by ECS. Loose or unsuitable materials encountered should be removed and replaced with suitable compacted Structural Fill, or pipe stone bedding material.

Utility Backfilling: The granular bedding material (often AASHTO #57 stone) should be at least 4 inches thick, but not less than that specified by the civil engineer's project drawings and specifications. We recommend that the bedding materials be placed up to the springline of the pipe. Fill placed for support of the utilities, as well as backfill over the utilities, should satisfy the requirements for Structural Fill and Fill Placement.

Utility Excavation Dewatering: It is possible that perched water may be encountered by utility excavations which extend below existing grades. It is expected that removal of perched water which seeps into excavations could be accomplished by pumping from sumps excavated in the trench bottom and which are backfilled with AASHTO No. 57 Stone or open graded bedding material. Should water conditions beyond the capability of sump pumping be encountered, the contractor should submit a Dewatering Plan in accordance with project specifications.

Excavation Safety: Excavations and slopes should be constructed and maintained in accordance with OSHA excavation safety standards. The contractor is solely responsible for designing, constructing, and maintaining stable temporary excavations and slopes. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations. ECS is providing this information solely as a service to our client. ECS is not assuming responsibility for construction site safety or the contractor's activities; such responsibility is not being implied and should not be inferred.

6.0 CLOSING

ECS has prepared this report to guide the geotechnical-related design and construction aspects of the project. We performed these services in accordance with the standard of care expected of professionals in the industry performing similar services on projects of like size and complexity at this time in the region. No other representation, expressed or implied, and no warranty or guarantee is included or intended in this report.

The description of the proposed project is based on information provided to ECS by AAMPA Holdings, LLC. If any of this information is inaccurate, either due to our interpretation of the documents provided or if the site's design changed, ECS should be contacted immediately to review the report in light of the changes and provide additional or alternate recommendations as required to reflect the proposed construction.

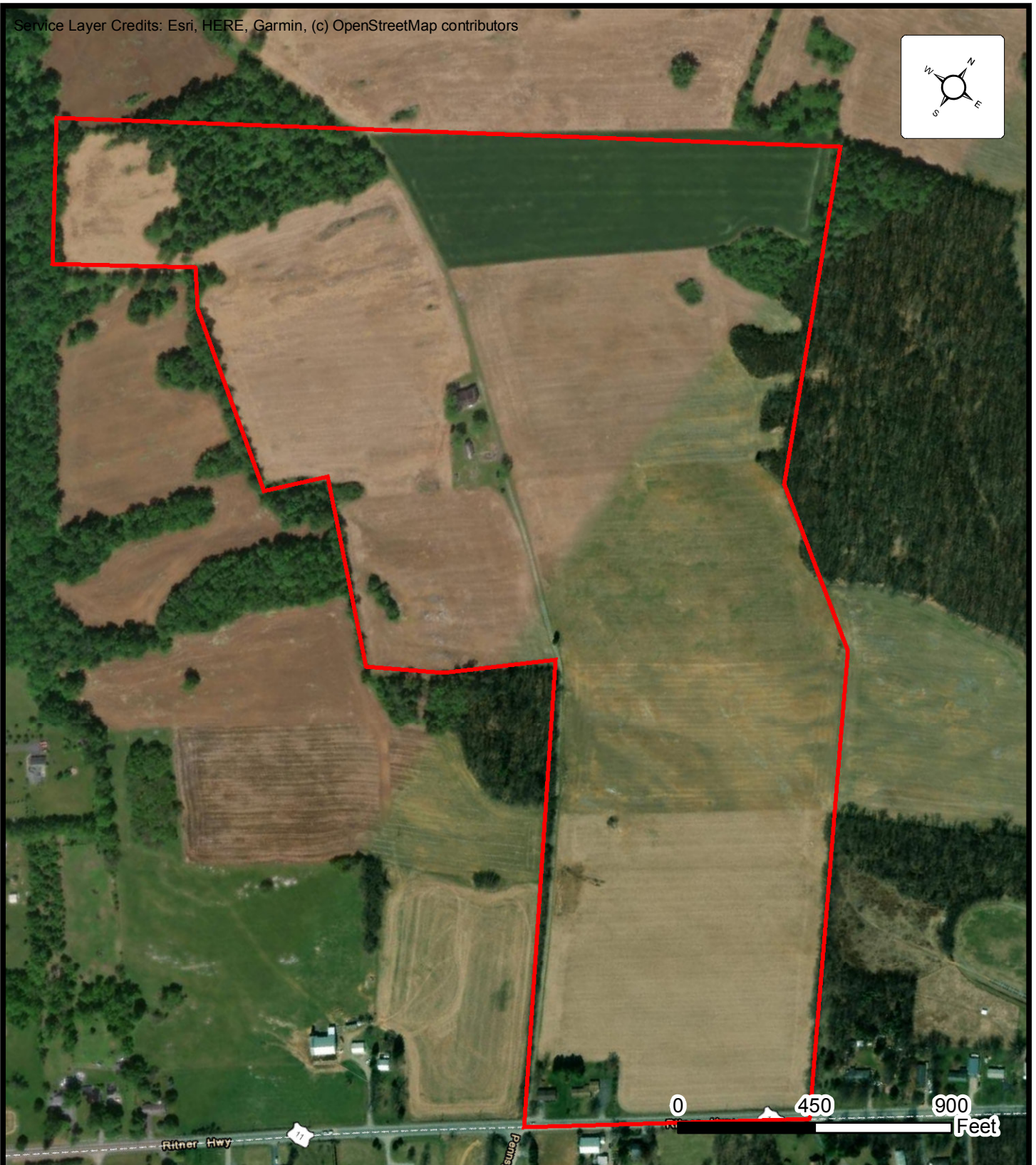
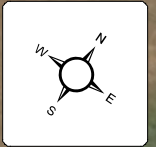
We recommend that ECS review the project plans and specifications so we can confirm that those plans/specifications are in accordance with the recommendations of this geotechnical report.

Field observations, and quality assurance testing during earthwork and foundation installation are an extension of, and integral to, the geotechnical design. We recommend that ECS be retained to apply our expertise throughout the geotechnical phases of construction, and to provide consultation and recommendation should issues arise.

ECS is not responsible for the conclusions, opinions, or recommendations of others based on the data in this report.

APPENDIX A – Diagrams & Reports

Site Location Diagram
Exploration Location Diagram
Subsurface Cross Sections
Geologic Map
Soil Survey Map
Karst Features Map



SITE LOCATION DIAGRAM
PROPOSED RITNER HIGHWAY
WAREHOUSE DEVELOPMENT
3485 RITNER HIGHWAY, NEWVILLE, PENNSYLVANIA
APPALACHIAN ASSET MANAGEMENT

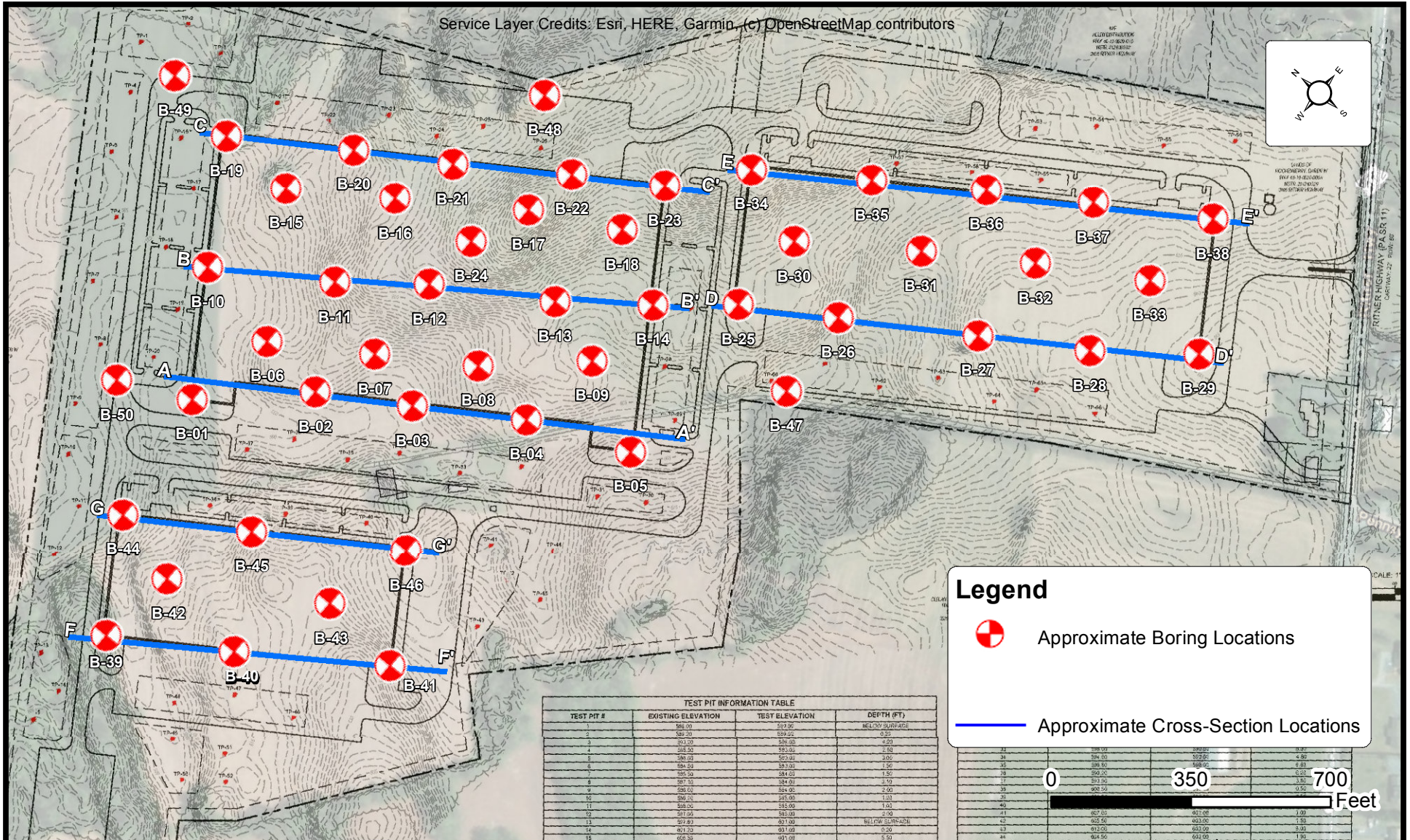
ENGINEER
DGR

SCALE
AS NOTED

PROJECT NO.
18:5941

FIGURE
1 OF 1

DATE
5/18/2023

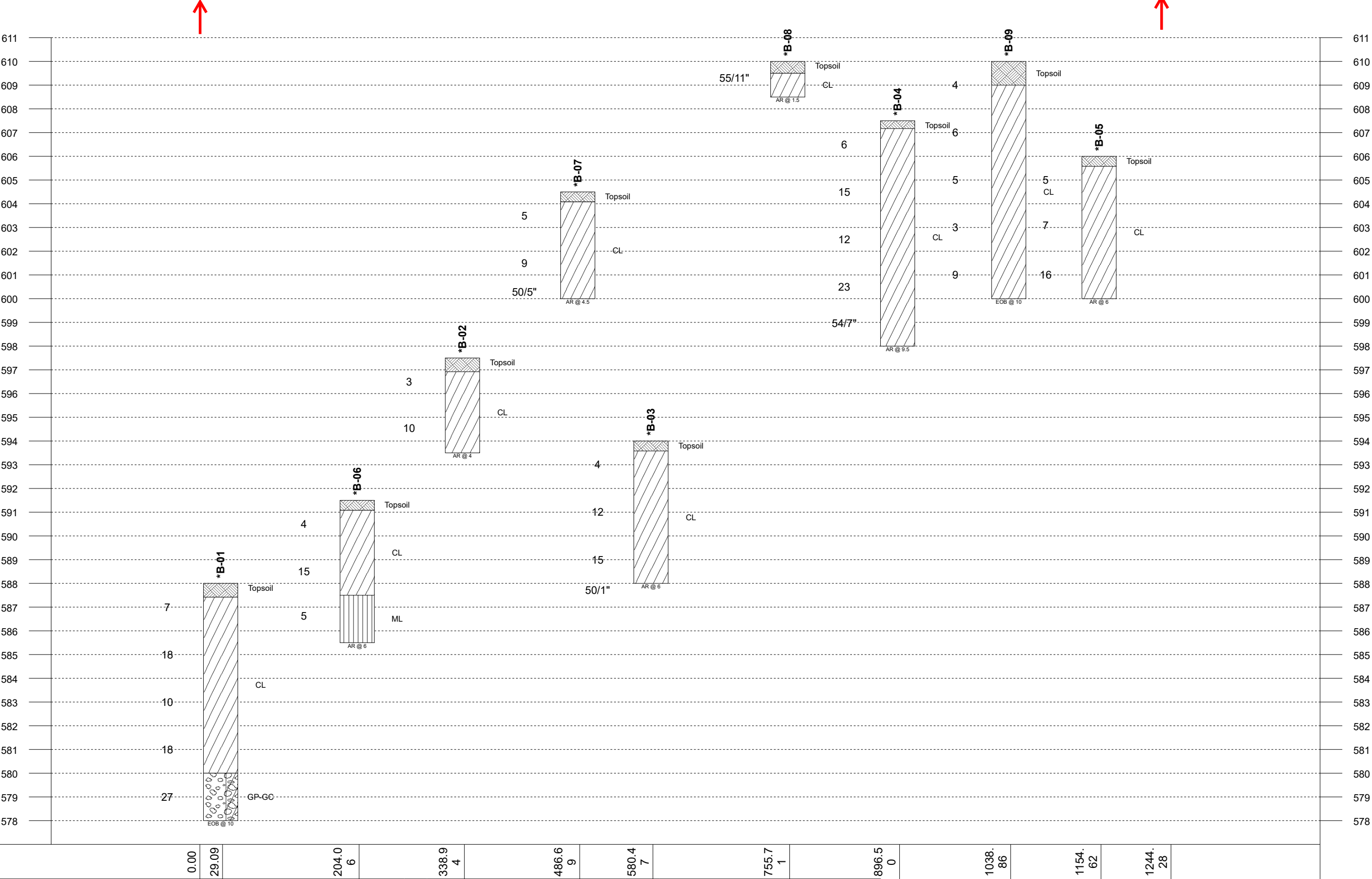


EXPLORATION LOCATION DIAGRAM PROPOSED RITNER HIGHWAY WAREHOUSE DEVELOPMENT

3485 RITNER HIGHWAY, NEWVILLE, PENNSYLVANIA
APPALACHIAN ASSET MANAGEMENT

ENGINEER
DGR
SCALE
AS NOTED
PROJECT NO.
18:5941-A
FIGURE
1 OF 1
DATE
5/18/2023

Proposed Building B FFE: EL. 618.0'



Legend Key

- Topsoil
- Lean CLAY
- SILT
- Poorly Graded Gravel

Notes:

- 1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
- 2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
- 3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
- 4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit	Water Content	Liquid Limit
X	●	△
[FINES CONTENT %]		
▶	BOTTOM OF CASING	
⏏	LOSS OF CIRCULATION	
○	CALIBRATED PENETROMETER	

▽	WL (First Encountered)	■	Fill
▼	WL (Completion)	■	Possible Fill
▽	WL (Estimated Seasonal High Water)	■	Probable Fill
▽	WL (Stabilized)	■	Rock

GENERALIZED SUBSURFACE SOIL PROFILE

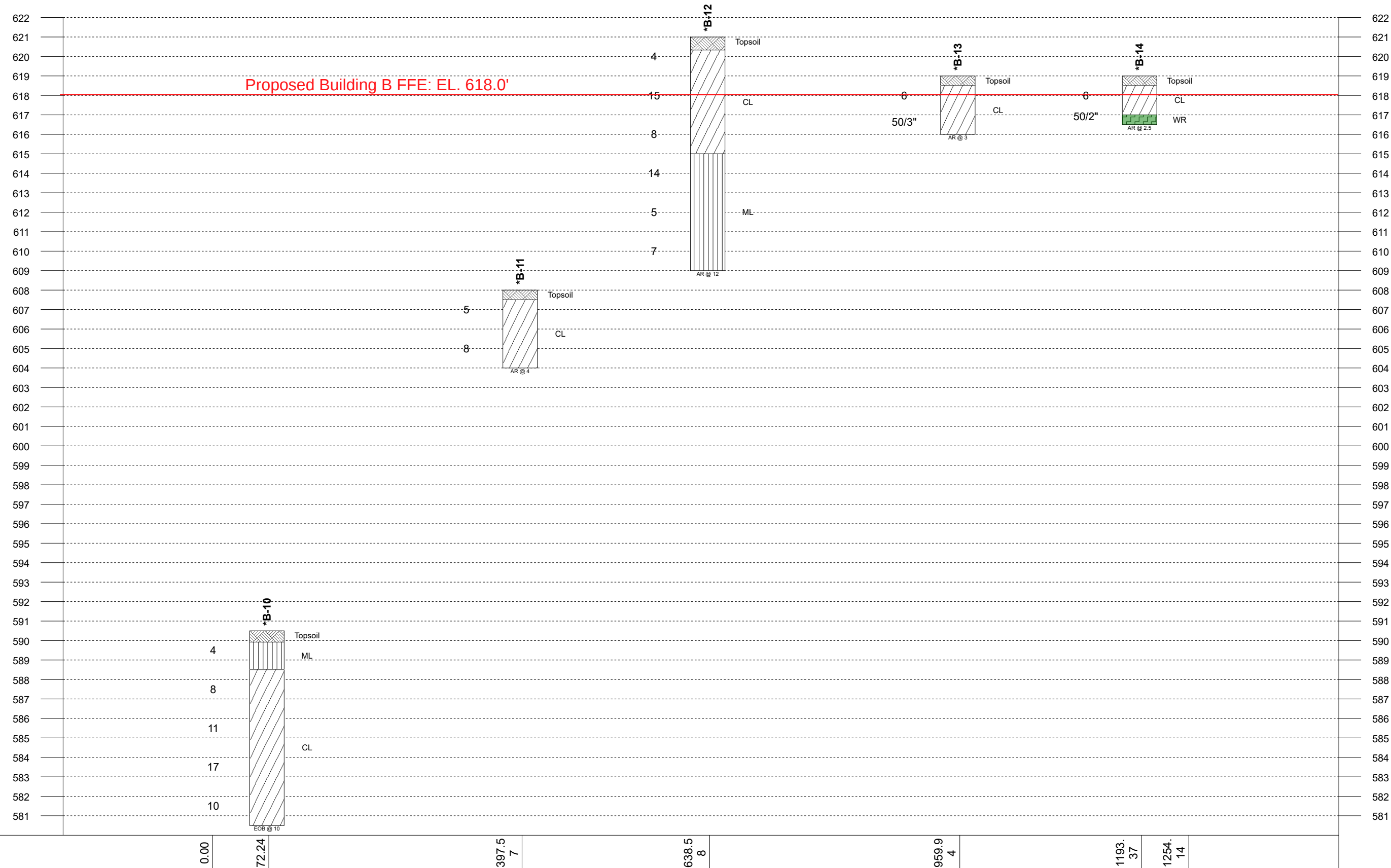
A-A'

Proposed Ritner Highway Warehouse Development

Appalachian Asset Management

3485 Ritner Highway, Newville, Pennsylvania, 17241

Project No: 18:5941-A Date: 06/16/2023



Legend Key

 Topsoil

 Lean CLAY

 Weathered Rock

 SILT

Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit	Water Content	Liquid Limit	▽	WL (First Encountered)		Fill
X	●	△	▼	WL (Completion)		Possible Fill
[FINES CONTENT %]			▽	WL (Estimated Seasonal High Water)		Probable Fill
	BOTTOM OF CASING		▽	WL (Stabilized)		Rock
	LOSS OF CIRCULATION					
○	CALIBRATED PENETROMETER					



GENERALIZED SUBSURFACE SOIL PROFILE

B-B'

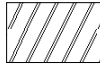
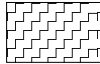
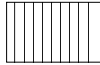
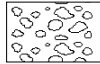
Proposed Ritner Highway Warehouse Development

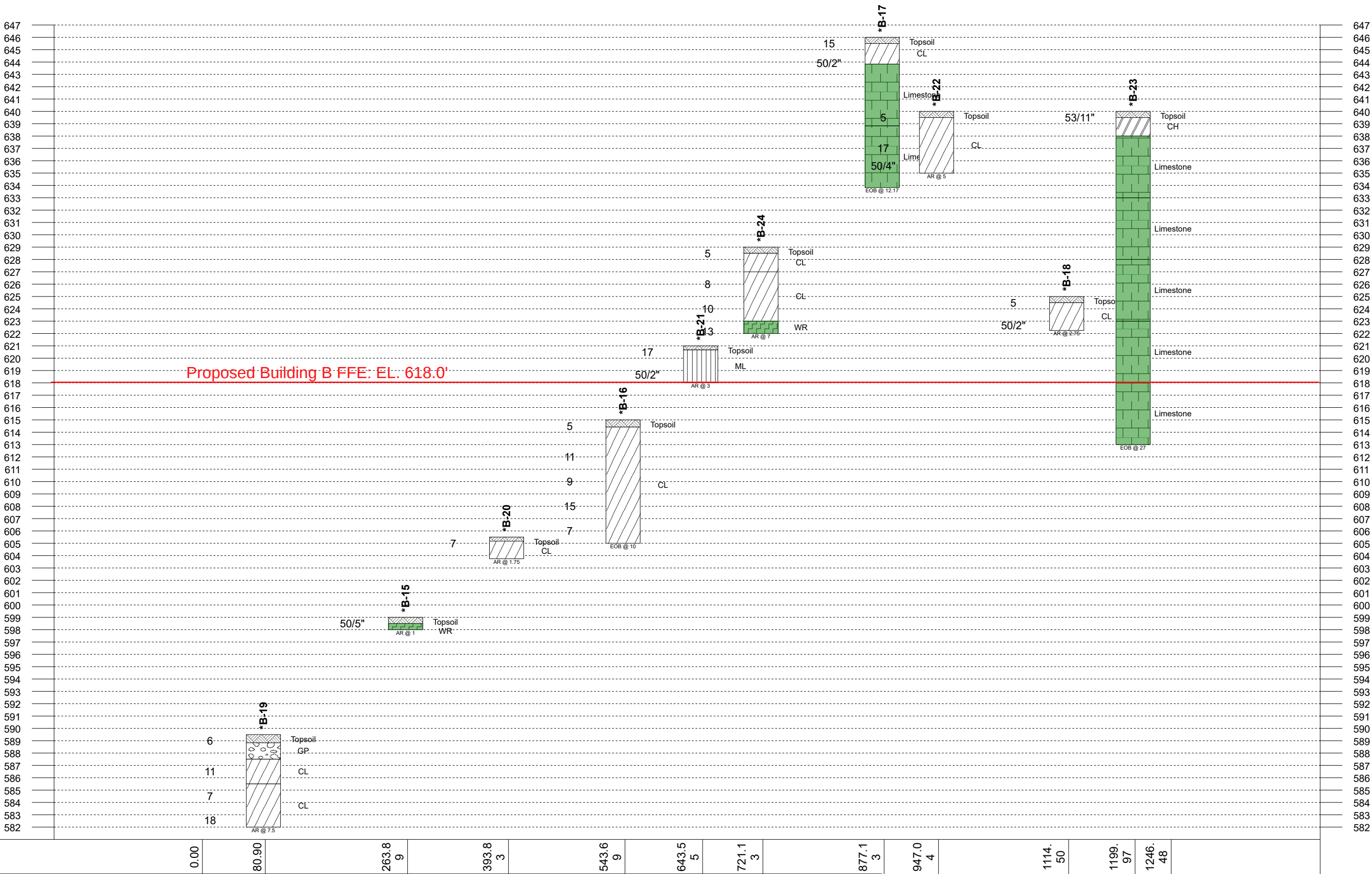
Appalachian Asset Management

3485 Ritner Highway, Newville, Pennsylvania, 17241

Project No: 18:5941-A Date: 06/16/2023

Legend Key

-  Topsoil
-  Lean CLAY
-  Limestone
-  Fat CLAY
-  Weathered Rock
-  SILT
-  Poorly Graded GRAVEL



Notes:
1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

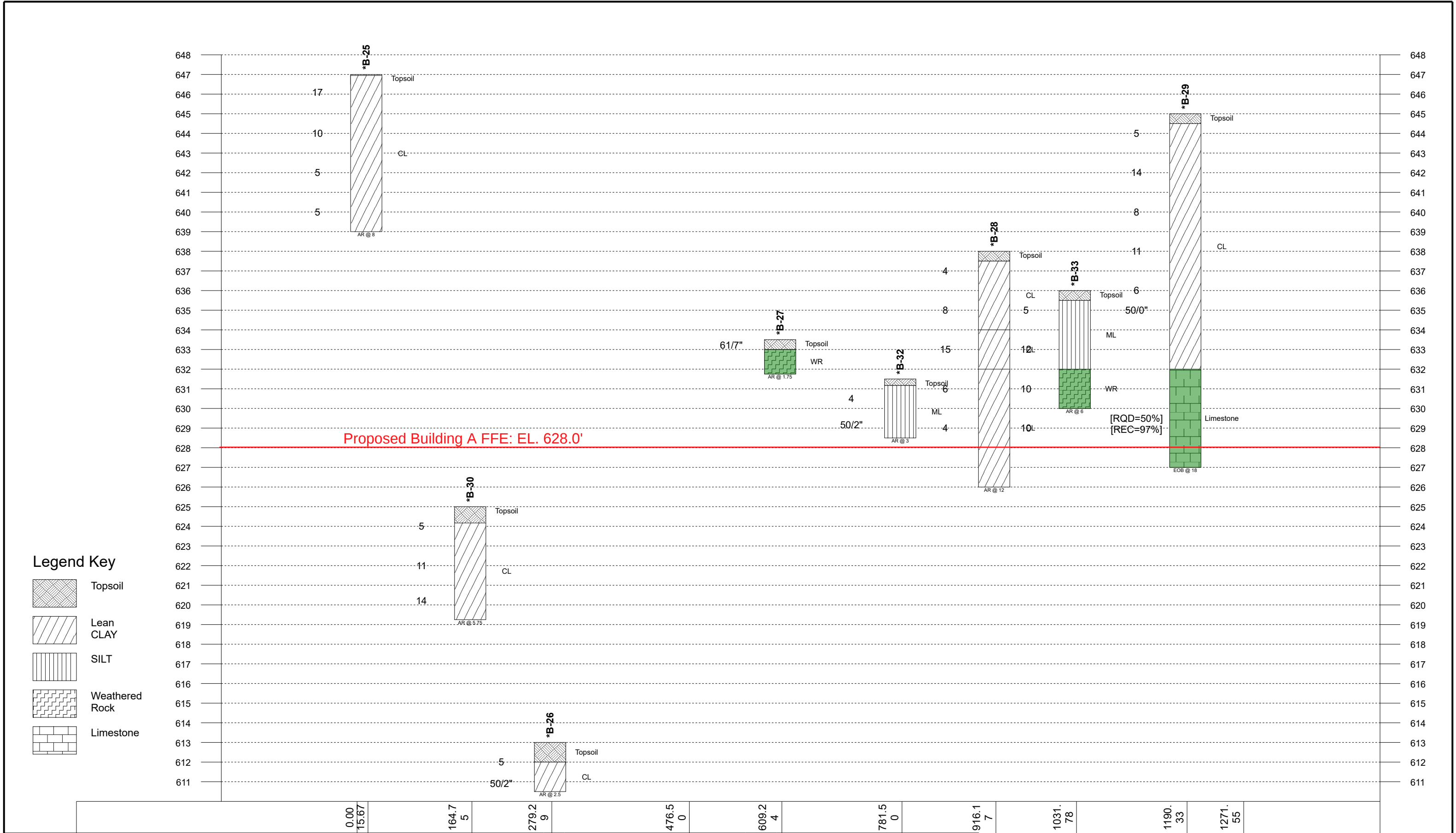
Plastic Limit	Water Content	Liquid Limit
X	●	△
[FINES CONTENT %]		
	BOTTOM OF CASING	
	LOSS OF CIRCULATION	
○	CALIBRATED PENETROMETER	

▽	WL (First Encountered)
▼	WL (Completion)
▽	WL (Estimated Seasonal High Water)
▽	WL (Stabilized)

	Fill
	Possible Fill
	Probable Fill
	Rock



GENERALIZED SUBSURFACE SOIL PROFILE			
C-C'			
Proposed Ritner Highway Warehouse Development			
Appalachian Asset Management			
3485 Ritner Highway, Newville, Pennsylvania, 17241			
Project No:	18:5941-A	Date:	06/16/2023



Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit	Water Content	Liquid Limit
X	●	△
[FINES CONTENT %]		
▀	BOTTOM OF CASING	
⏏	LOSS OF CIRCULATION	
○	CALIBRATED PENETROMETER	

▽	WL (First Encountered)	■	Fill
▼	WL (Completion)	■	Possible Fill
▽	WL (Estimated Seasonal High Water)	■	Probable Fill
▽	WL (Stabilized)	■	Rock

GENERALIZED SUBSURFACE SOIL PROFILE

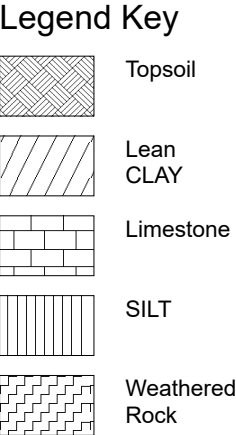
D-D'

Proposed Ritner Highway Warehouse Development

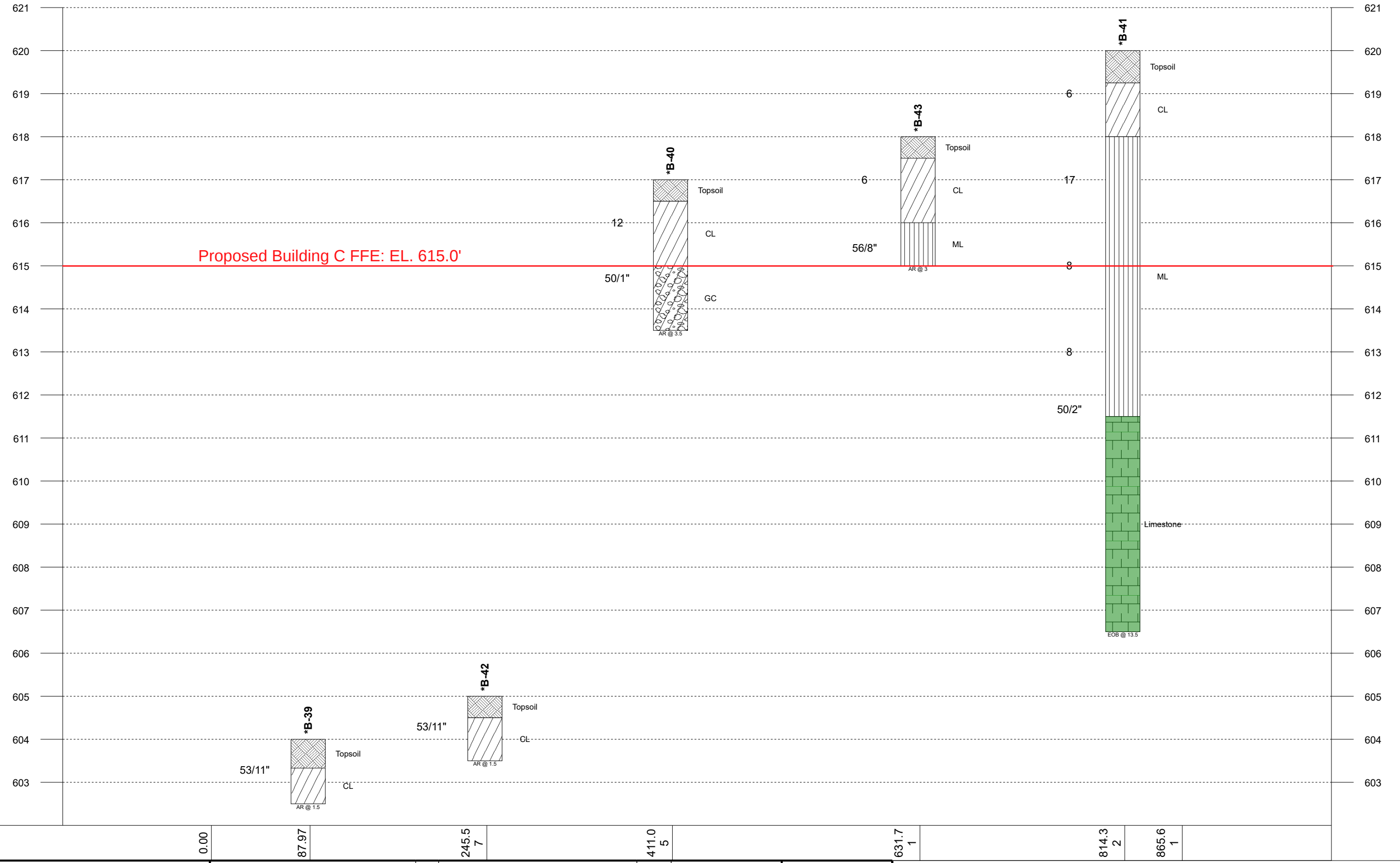
Appalachian Asset Management

3485 Ritner Highway, Newville, Pennsylvania, 17241

Project No: 18:5941-A Date: 06/16/2023



Project No:	18:5941-A	Date:	06/16/2023
-------------	-----------	-------	------------



Legend Key

Topsoil

Lean CLAY

SILT

CLAYEY GRAVEL

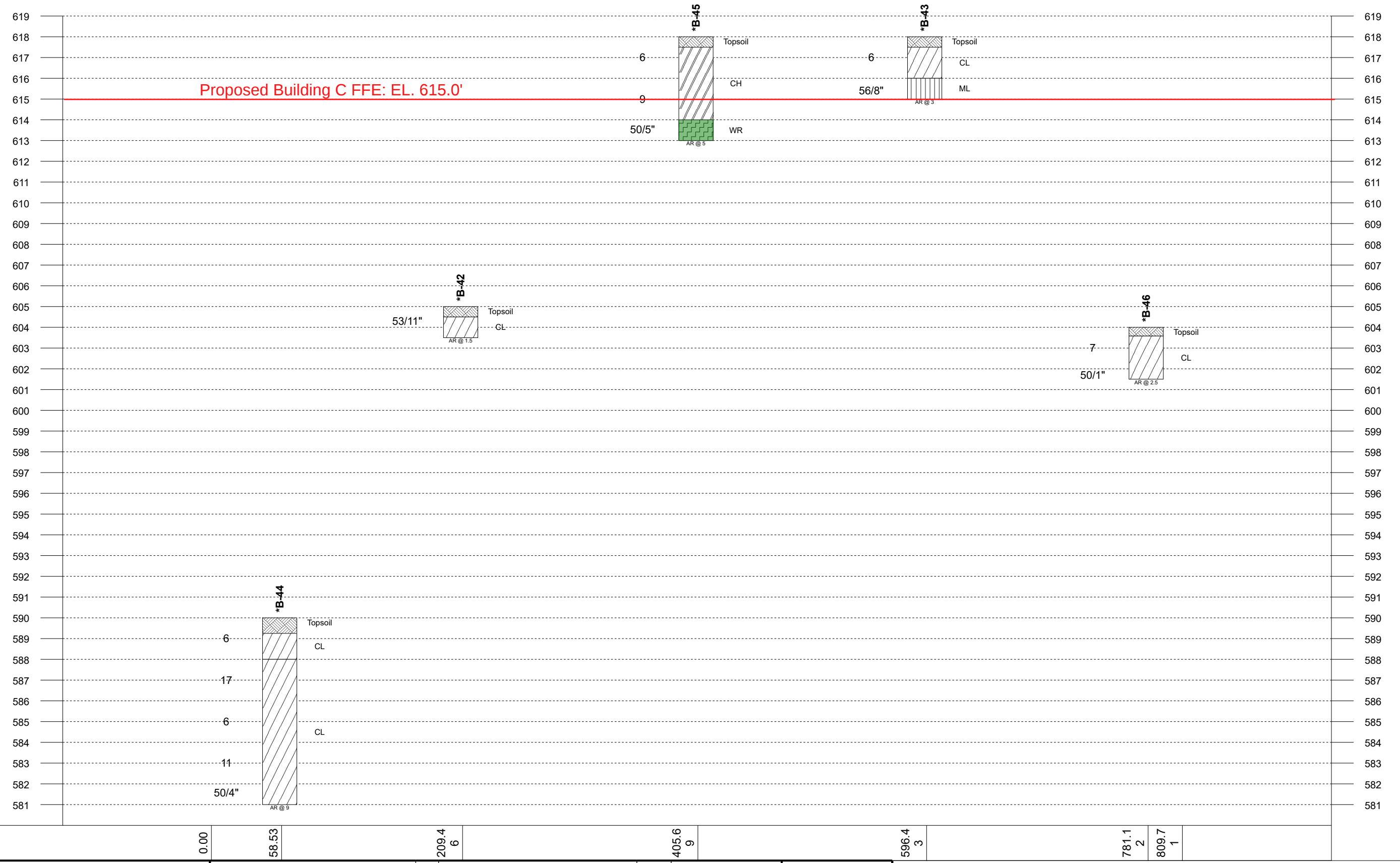
Limestone

Notes:
1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit	Water Content	Liquid Limit	▽ WL (First Encountered)		Fill
X		△	▼ WL (Completion)		Possible Fill
[FINES CONTENT %]			▽ WL (Estimated Seasonal High Water)		Probable Fill
	BOTTOM OF CASING		▽ WL (Stabilized)		Rock
	LOSS OF CIRCULATION				
	CALIBRATED PENETROMETER				



GENERALIZED SUBSURFACE SOIL PROFILE		
F-F'		
Proposed Ritner Highway Warehouse Development		
Appalachian Asset Management		
3485 Ritner Highway, Newville, Pennsylvania, 17241		
Project No:	18:5941-A	Date: 06/16/2023



Notes:

1- EOB: END OF BORING AR: AUGER REFUSAL SR: SAMPLER REFUSAL.
2- THE NUMBER BELOW THE STRIPS IS THE DISTANCE ALONG THE BASELINE.
3- SEE INDIVIDUAL BORING LOG AND GEOTECHNICAL INFORMATION.
4- STANDARD PENETRATION TEST RESISTANCE (LEFT OF BORING) IN BLOWS PER FOOT (ASTM D1586).

Plastic Limit	Water Content	Liquid Limit	▽	WL (First Encountered)	Fill
X	●	△	▼	WL (Completion)	Possible Fill
[FINES CONTENT %]			▽	WL (Estimated Seasonal High Water)	Probable Fill
▶	BOTTOM OF CASING		▽	WL (Stabilized)	Rock
▶▶	LOSS OF CIRCULATION				
○	CALIBRATED PENETROMETER				

GENERALIZED SUBSURFACE SOIL PROFILE

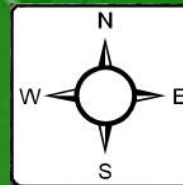
G-G'

Proposed Ritner Highway Warehouse Development

Appalachian Asset Management

3485 Ritner Highway, Newville, Pennsylvania, 17241

Project No: 18:5941-A Date: 06/16/2023



Rockdale Run Formation

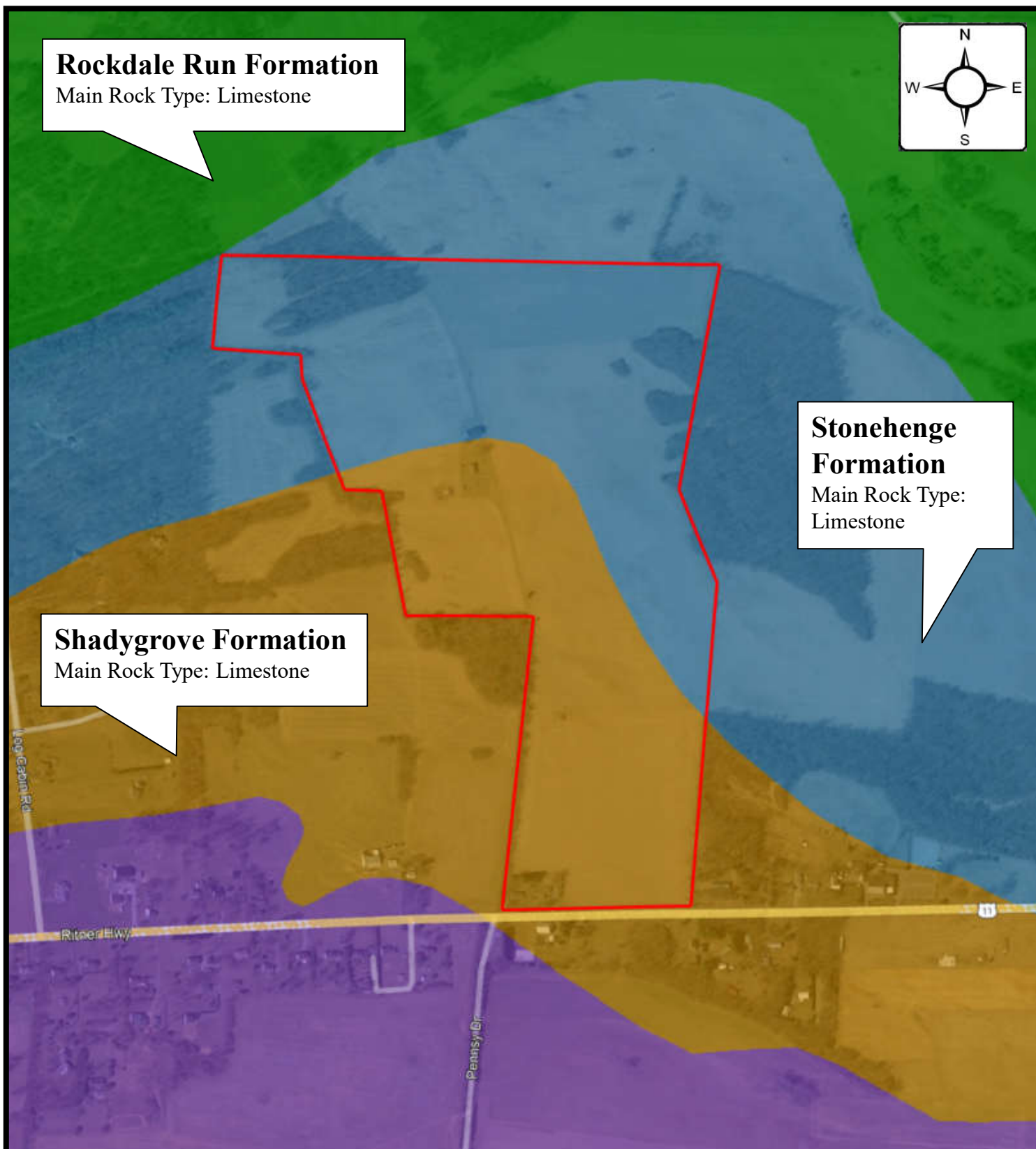
Main Rock Type: Limestone

Stonehenge Formation

Main Rock Type: Limestone

Shadygrove Formation

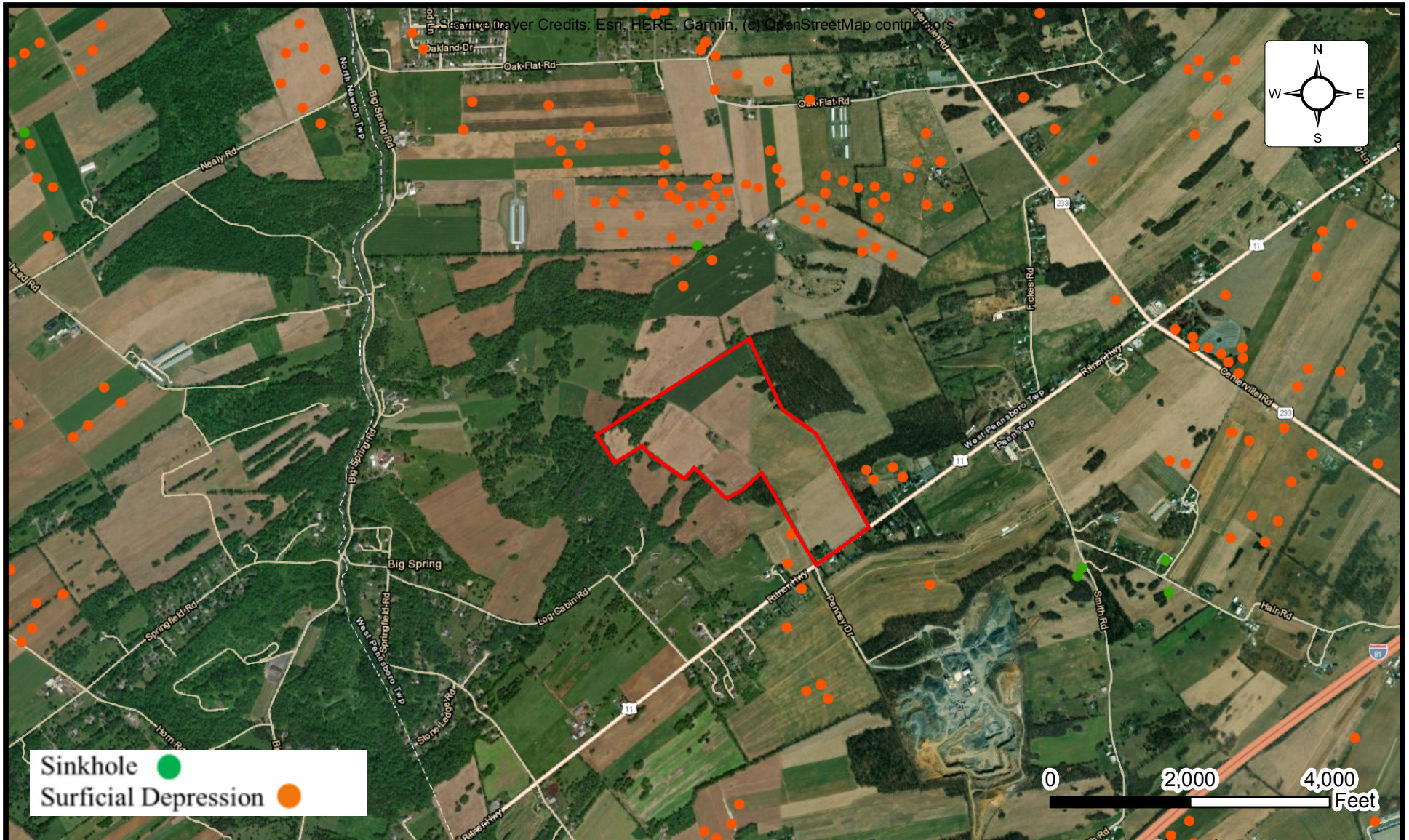
Main Rock Type: Limestone



GEOLOGIC MAP PROPOSED RITNER HIGHWAY WAREHOUSE DEVELOPMENT

3485 RITNER HIGHWAY, NEWVILLE, PA
APPALACHIAN ASSET MANAGEMENT

DRAFTER	RWB
SCALE	NTS
PROJECT NO.	18:5941
DATE	5/26/2023
SOURCE	PA DCNR Geologic Map http://www.gis.dcnr.state.pa.us



KARST FEATURES MAP

PROPOSED RITNER HIGHWAY WAREHOUSE DEVELOPMENT

3485 RITNER HIGHWAY, NEWVILLE, PENNSYLVANIA
APPALACHIAN ASSET MANAGEMENT

ENGINEER DGR
SCALE AS NOTED
PROJECT NO. 18:5941
FIGURE 1 OF 1
DATE 5/30/2023



SOIL SURVEY MAP PROPOSED RITNER HIGHWAY WAREHOUSE DEVELOPMENT

3485 RITNER HIGHWAY, NEWVILLE, PA
APPALACHIAN ASSET MANAGEMENT

DRAFTER	MSD
SCALE	NTS
PROJECT NO.	18:5941
DATE	5/18/2023
SOURCE	Web Soil Survey https://websoilsurvey.nrcs.usda.gov

APPENDIX B – Field Operations

Reference Notes for Boring Logs

Reference Notes for Rock Cores

Subsurface Exploration Procedure: Standard Penetration Testing (SPT)

Boring Logs B-01 through B-50

Rock Core Photographs



REFERENCE NOTES FOR ROCK CORES

ROCK CLASSIFICATION TYPES		
Igneous	Sedimentary	Metamorphic
Coarse Grained DIABASE DIORITE GABBRO GRANITE PEGMATITE PERIDOTITE SYENITE	Clastic (sediment) SHALE SILTSTONE SANDSTONE CONGLOMERATE LIMESTONE, OOLITIC	Foliated GNEISS PHYLLITE SCHIST SLATE
Fine Grained ANDESITE BASALT RHYOLITE TRACHYTE	Chemically Formed DOLOSTONE GYPSUM HALITE LIMESTONE	Non-Foliated AMPHIBOLITE HORNFELS MARBLE QUARTZITE
Pyroclastic OBSIDIAN PUMICE TUFF	Organic Remains CHALK COAL COQUINA	

HARDNESS	
Very Soft	Deformed by hand
Soft	Scratched with a fingernail
Moderately Hard	Scratched easily with a knife
Hard	Scratched with difficulty with a knife
Very Hard	Cannot be scratched with a knife

JOINT/FRACTURE SPACING	
Fractured/Jointed	Spacing
Very Widely	> 10 feet
Slightly	3 - 10 feet
Moderately	1 - 3 feet
Highly	2 inches - 1 foot
Intensely	< 2 inches

BEDDING	
Thinly	≤ 0.3 ft.
Medium	>0.3 ft. ≤ 1 ft.
Thickly	>1 ft. ≤ 3 ft.
Massive	>3 ft.

JOINT OR FRACTURE CONTINUITY
It shall be noted whether the joints or fractures are continuous or discontinuous. If continuity of joints is not discernable at the scale of the rock core, continuous joints or fractures shall be assumed.

JOINT/FRACTURE ORIENTATION	
The range or average orientation of each joint set or fracture trend shall be measured in degrees from a horizontal plane where possible. If no measurement is possible, the qualitative terms High, Moderate or Low-angle shall be used. Record whether the joints are present in Conjugate sets (i.e. having an opposite sense of dip)	
High	61-90 degree
Moderate	31-60 degree
Low-angle	0-30 degree
Dip-angle	(1-90) _____ degrees (if measured)

Description Sequence	Example Rock Classification Description
ROCK TYPE, [REC=_% ,RQD=_%], Weathering, Hardness, Bedding, Joint/Fracture Spacing, Joint/Fracture Surface Condition, Wall Rock Condition, Joint or Fracture Continuity, Joint/Fracture Orientation, Color, Additional Features	LIMESTONE, [REC=95%,RQD=60%], Highly Weathered, Hard, Thinly Bedded, Slightly Fractured/Jointed, Slightly Rough, Hard Wall Rock, Continuous, Moderate-angle Dip, Gray White

Recovery (REC(%))
$\frac{\text{Total rock recovered from run}}{\text{Total Run Length}}$

Rock Quality Designation (RQD(%))*	
$\frac{\text{Sum of core pieces } \geq 4 \text{ inches long}}{\text{Total Run Length}}$	
RQD%	Description of Rock Quality
0-25%	Very Poor
>25%-50%	Poor
>50%-75%	Fair
>75%-90%	Good
>90%	Excellent

WEATHERING	
Unweathered	No evidence of any chemical or mechanical alteration.
Slightly Weathered	Slight discoloration on surface, slight alteration along discontinuities, less than 10 percent of the rock volume altered.
Moderately Weathered	Discoloring evident, surface pitted and altered with alteration penetrating well below rock surfaces, weathering 'halos' evident. 10 to 50 percent of the rock altered.
Highly Weathered	Entire mass discolored, alteration pervading nearly all of the rock, with some pockets of slightly weathered rock noticeable, some minerals leached away.
Decomposed	Rock reduced to a soil with relict rock structure remaining (i.e. saprolite). Generally molded and crumbled by hand (friable).

JOINT/FRACTURE SURFACE CONDITION			
The following qualitative terms shall be used to describe surface condition of joints and fractures. Multiple terms can be used.			
Very rough	Slightly rough	Slickensided	Gouge

WALL ROCK CONDITION
The qualitative terms 'hard wall rock' or 'soft wall rock' shall be used to describe the condition of the parent rock on either side of the joint or fracture.

*ASTM D6032-17: RQD is performed on cores using BQ to PQ sized bits (1.433 to 3.345 inch diameter cores, respectively)



REFERENCE NOTES FOR BORING LOGS

MATERIAL^{1,2}

	ASPHALT
	CONCRETE
	GRAVEL
	TOPSOIL
	VOID
	BRICK
	AGGREGATE BASE COURSE
	GW WELL-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GP POORLY-GRADED GRAVEL gravel-sand mixtures, little or no fines
	GM SILTY GRAVEL gravel-sand-silt mixtures
	GC CLAYEY GRAVEL gravel-sand-clay mixtures
	SW WELL-GRADED SAND gravelly sand, little or no fines
	SP POORLY-GRADED SAND gravelly sand, little or no fines
	SM SILTY SAND sand-silt mixtures
	SC CLAYEY SAND sand-clay mixtures
	ML SILT non-plastic to medium plasticity
	MH ELASTIC SILT high plasticity
	CL LEAN CLAY low to medium plasticity
	CH FAT CLAY high plasticity
	OL ORGANIC SILT or CLAY non-plastic to low plasticity
	OH ORGANIC SILT or CLAY high plasticity
	PT PEAT highly organic soils

DRILLING SAMPLING SYMBOLS & ABBREVIATIONS

SS	Split Spoon Sampler	PM	Pressuremeter Test
ST	Shelby Tube Sampler	RD	Rock Bit Drilling
WS	Wash Sample	RC	Rock Core, NX, BX, AX
BS	Bulk Sample of Cuttings	REC	Rock Sample Recovery %
PA	Power Auger (no sample)	RQD	Rock Quality Designation %
HSA	Hollow Stem Auger		

PARTICLE SIZE IDENTIFICATION

DESIGNATION	PARTICLE SIZES
Boulders	12 inches (300 mm) or larger
Cobbles	3 inches to 12 inches (75 mm to 300 mm)
Gravel: Coarse	¾ inch to 3 inches (19 mm to 75 mm)
Fine	4.75 mm to 19 mm (No. 4 sieve to ¾ inch)
Sand: Coarse	2.00 mm to 4.75 mm (No. 10 to No. 4 sieve)
Medium	0.425 mm to 2.00 mm (No. 40 to No. 10 sieve)
Fine	0.074 mm to 0.425 mm (No. 200 to No. 40 sieve)
Silt & Clay ("Fines")	<0.074 mm (smaller than a No. 200 sieve)

COHESIVE SILTS & CLAYS

UNCONFINED COMPRESSIVE STRENGTH, QP ⁴	SPT ⁵ (BPF)	CONSISTENCY ⁷ (COHESIVE)
<0.25	<2	Very Soft
0.25 - <0.50	2 - 4	Soft
0.50 - <1.00	5 - 8	Firm
1.00 - <2.00	9 - 15	Stiff
2.00 - <4.00	16 - 30	Very Stiff
4.00 - 8.00	31 - 50	Hard
>8.00	>50	Very Hard

RELATIVE AMOUNT ⁷	COARSE GRAINED (%) ⁸	FINE GRAINED (%) ⁸
Trace	≤5	≤5
With	10 - 20	10 - 25
Adjective (ex: "Silty")	25 - 45	30 - 45

GRAVELS, SANDS & NON-COHESIVE SILTS

SPT ⁵	DENSITY
<5	Very Loose
5 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
>50	Very Dense

WATER LEVELS⁶

	WL (First Encountered)
	WL (Completion)
	WL (Seasonal High Water)
	WL (Stabilized)

FILL AND ROCK

FILL	POSSIBLE FILL	PROBABLE FILL	ROCK

¹Classifications and symbols per ASTM D 2488-17 (Visual-Manual Procedure) unless noted otherwise.

²To be consistent with general practice, "POORLY GRADED" has been removed from GP, GP-GM, GP-GC, SP, SP-SM, SP-SC soil types on the boring logs.

³Non-ASTM designations are included in soil descriptions and symbols along with ASTM symbol [Ex: (SM-FILL)].

⁴Typically estimated via pocket penetrometer or Torvane shear test and expressed in tons per square foot (tsf).

⁵Standard Penetration Test (SPT) refers to the number of hammer blows (blow count) of a 140 lb. hammer falling 30 inches on a 2 inch OD split spoon sampler required to drive the sampler 12 inches (ASTM D 1586). "N-value" is another term for "blow count" and is expressed in blows per foot (bpf). SPT correlations per 7.4.2 Method B and need to be corrected if using an auto hammer.

⁶The water levels are those levels actually measured in the borehole at the times indicated by the symbol. The measurements are relatively reliable when augering, without adding fluids, in granular soils. In clay and cohesive silts, the determination of water levels may require several days for the water level to stabilize. In such cases, additional methods of measurement are generally employed.

⁷Minor deviation from ASTM D 2488-17 Note 14.

⁸Percentages are estimated to the nearest 5% per ASTM D 2488-17.



SUBSURFACE EXPLORATION PROCEDURE: STANDARD PENETRATION TESTING (SPT) ASTM D 1586 Split-Barrel Sampling

Standard Penetration Testing, or **SPT**, is the most frequently used subsurface exploration test performed worldwide. This test provides samples for identification purposes, as well as a measure of penetration resistance, or N-value. The N-Value, or blow counts, when corrected and correlated, can approximate engineering properties of soils used for geotechnical design and engineering purposes.

SPT Procedure:

- Involves driving a hollow tube (split-spoon) into the ground by dropping a 140-lb hammer a height of 30-inches at desired depth
- Recording the number of hammer blows required to drive split-spoon a distance of 18-24 inches (in 3 or 4 Increments of 6 inches each)
- Auger is advanced* and an additional SPT is performed
- One SPT typically performed for every two to five feet. An approximate 1.5 inch diameter soil sample is recovered.



**Drilling Methods May Vary—* The predominant drilling methods used for SPT are open hole fluid rotary drilling and hollow-stem auger drilling.

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-01		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -10689.2		EASTING: 2069392.1		STATION:		SURFACE ELEVATION: 588.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %		
									20	40	60	80	100	1	2	3		4	5
														1	2	3		4	5
5	S-1	SS	24	17	Topsoil Thickness[7.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm to very stiff		583	1-3-4-5 (7)	7									23.0	
	S-2	SS	24	18			583	5-7-11-11 (18)	18										19.9
	S-3	SS	24	17			583	2-4-6-6 (10)	10										24.7
	S-4	SS	24	15			583	10-9-9-9 (18)	18										27.6
10	S-5	SS	24	16	(GP-GC) GRAVEL WITH CLAY, gray, moist, medium dense		578	17-18-9-10 (27)	27									28.1	
					END OF BORING AT 10 FT														
15							573												
20							568												
25							563												
30							558												

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Not Encountered	BORING STARTED: May 01 2023		CAVE IN DEPTH:	
 WL (Completion)	Not Encountered	BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-02		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -10922.1		EASTING: 2069605.1		STATION:		SURFACE ELEVATION: 597.5		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %								
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
	S-1	SS	24	22	Topsoil Thickness[7.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, soft to stiff			2-1-2-2 (3)															
	S-2	SS	23	21				4-4-6-50/5" (10)		10													
5					AUGER REFUSAL AT 4 FT		593																
10							588																
15							583																
20							578																
25							573																
30							568																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☒ WL (First Encountered)	Not Encountered	BORING STARTED: May 02 2023		CAVE IN DEPTH:	
☒ WL (Completion)	Not Encountered	BORING COMPLETED: May 02 2023		HAMMER TYPE: Auto	
☒ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☒ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-03		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11128.1		EASTING: 2069731.3		STATION:		SURFACE ELEVATION: 594.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
									RQD REC		WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	18	Topsoil Thickness[5.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, soft to very hard			2-2-2-3 (4)				
	S-2	SS	24	24				4-6-6-8 (12)				
5	S-3	SS	24	24			589	1-3-12-8 (15)				
	S-4	SS	7	0	AUGER REFUSAL AT 6 FT			5-50/1" (50/1")				
10							584					
15							579					
20							574					
25							569					
30							564					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 02 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 02 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-04		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11394.7		EASTING: 2069901.0		STATION:		SURFACE ELEVATION: 607.5		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
										RQD		WATER CONTENT % [FINES CONTENT] %
										REC		10 20 30 40 50
5	S-1	SS	24	13	Topsoil Thickness[4.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to very hard		603	3-3-3-7 (6)	6		20.2	
	S-2	SS	24	16			598	4-7-8-11 (15)	15		2.00	
	S-3	SS	24	19				3-4-8-9 (12)	12		25.7	
	S-4	SS	24	17				11-13-10-11 (23)	23		22.7	
	S-5	SS	13	13				1-4-50/1" (54/7")	54/7"		3.00	
10					AUGER REFUSAL AT 9.5 FT		598				22.0	
											24.4	
15							593					
20							588					
25							583					
30							578					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 02 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 02 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-05		SHEET: 1 of 1							
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.											
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 							
NORTHING: -11642.8		EASTING: 2069990.1		STATION:		SURFACE ELEVATION: 606.0		BOTTOM OF CASING 							
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY	LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF	WATER CONTENT % [FINES CONTENT] %
									20 40 60 80 100			1 2 3 4 5			
5	S-1	SS	24	20	Topsoil Thickness[5.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to very stiff		601	1-3-2-3 (5)					1.00	1.50	
	S-2	SS	22	17				3-3-4-50/4" (7)							7
	S-3	SS	24	14				6-7-9-25 (16)							16
						AUGER REFUSAL AT 6 FT									
10							596								
15							591								
20							586								
25							581								
30							576								
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL															
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023				CAVE IN DEPTH:							
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023				HAMMER TYPE: Auto							
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: RB15							
☒ WL (Stabilized)								DRILLING METHOD: HSA 3.25"							
GEOTECHNICAL BOREHOLE LOG															

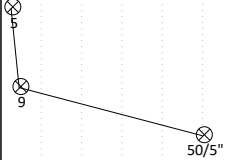
CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-06		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -10735.4		EASTING: 2069651.7		STATION:		SURFACE ELEVATION: 591.5		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %								
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
5	S-1	SS	24	18	Topsoil Thickness[5.00"] (CL) SANDY LEAN CLAY WITH GRAVEL, orangish brown, moist, soft to stiff		587	2-1-3-2 (4)															
	S-2	SS	24	24				5-6-9-11 (15)		15													
	S-3	SS	21	12	(ML) SANDY SILT WITH GRAVEL, orangish brown, moist, medium dense			2-3-2-50/3" (5)		5													
					AUGER REFUSAL AT 6 FT																		
10							582																
15							577																
20							572																
25							567																
30							562																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☒ WL (First Encountered)	Not Encountered	BORING STARTED: May 03 2023		CAVE IN DEPTH:	
☒ WL (Completion)	Not Encountered	BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto	
☒ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☒ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-07		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10959.0		EASTING: 2069827.9		STATION:		SURFACE ELEVATION: 604.5		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	14	Topsoil Thickness[5.00"] (CL) LEAN CLAY, orangish brown, moist, firm to very hard			2-2-3-3 (5)				
	S-2	SS	24	21				4-5-4-4 (9)				
	S-3	SS	5	5				50/5" (50/5")				
5					AUGER REFUSAL AT 4.5 FT		600					
10							595					
15							590					
20							585					
25							580					
30							575					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 02 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 02 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"		
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-08		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11187.3		EASTING: 2069970.2		STATION:		SURFACE ELEVATION: 610.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	17	17	Topsoil Thickness[6.00"] (CL) LEAN CLAY, brown, moist, very hard AUGER REFUSAL AT 1.5 FT			3-5-50/5" (55/11")				
5							605					
10							600					
15							595					
20							590					
25							585					
30							580					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 02 2023		CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 02 2023		HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: ATV		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-09		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11429.5		EASTING: 2070116.8		STATION:		SURFACE ELEVATION: 610.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
										RQD	WATER CONTENT % [FINES CONTENT] %	
										REC	10 20 30 40 50	
5	S-1	SS	24	21	Topsoil Thickness[12.00"] (CL) LEAN CLAY, brown, moist, soft to stiff		605	1-2-2-4 (4)				
	S-2	SS	24	22				2-3-3-4 (6)				1.00
	S-3	SS	24	10				3-2-3-3 (5)				0.25
	S-4	SS	24	6				2-1-2-2 (3)				1.00
10	S-5	SS	24	24				2-4-5-10 (9)				
					END OF BORING AT 10 FT		600					
15							595					
20							590					
25							585					
30							580					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 05 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 05 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: ATV		LOGGED BY: RB15		DRILLING METHOD: HSA 3.25"				
WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-10		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -10501.8		EASTING: 2069691.0		STATION:		SURFACE ELEVATION: 590.5		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %		
									20	40	60	80	100	1	2	3		4	5
														RQD	REC				
5	S-1	SS	24	24	Topsoil Thickness[7.00"] (ML) SILT, brown, moist, very loose		586	1-2-2-3 (4)	⊗										
	S-2	SS	24	20	(CL) LEAN CLAY WITH SAND, orangish brown, moist, firm to very stiff			3-4-4-5 (8)	⊗								1.50		
	S-3	SS	24	18				2-4-7-8 (11)	⊗										
	S-4	SS	24	24				10-9-8-7 (17)	⊗										
10	S-5	SS	24	24			581	5-5-5-6 (10)	⊗										
					END OF BORING AT 10 FT														
15							576												
20							571												
25							566												
30							561												

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☐ WL (First Encountered)	Not Encountered	BORING STARTED: May 01 2023		CAVE IN DEPTH:	
☐ WL (Completion)	Not Encountered	BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto	
☐ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☐ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-11		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION		
NORTHING: -10768.7		EASTING: 2069877.4		STATION:		SURFACE ELEVATION: 608.0		BOTTOM OF CASING		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %						
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
	S-1	SS	24	17	Topsoil Thickness[6.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm			2-2-3-3 (5)		5													
	S-2	SS	24	16				6-4-4-10 (8)		8													
5					AUGER REFUSAL AT 4 FT		603																
10							598																
15							593																
20							588																
25							583																
30							578																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Not Encountered	BORING STARTED: May 01 2023		CAVE IN DEPTH:	
 WL (Completion)	Not Encountered	BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-12		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10968.4		EASTING: 2070012.4		STATION:		SURFACE ELEVATION: 621.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT X PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY RQD REC		CALIBRATED PENETROMETER TSP	
	S-1	SS	24	23	Topsoil Thickness[8.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, soft to stiff		616	2-2-2-4 (4)	4	1.00	23.9	
	S-2	SS	24	22				6-7-8-11 (15)	15	27.8		
5	S-3	SS	24	23				2-3-5-6 (8)	8	31.2		
	S-4	SS	24	23	(ML) SANDY SILT, orangish brown, moist, loose to medium dense		611	6-7-7-8 (14)	14	37.8		
10	S-5	SS	24	22				1-2-3-4 (5)	5	27.6		
	S-6	SS	24	21				2-3-4-7 (7)	7	27.1		
					AUGER REFUSAL AT 12 FT							
15							606					
20							601					
25							596					
30							591					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 02 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 02 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1						
WL (Stabilized)						DRILLING METHOD: HSA 3.25"						
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-13		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11239.6		EASTING: 2070184.8		STATION:		SURFACE ELEVATION: 619.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	19	Topsoil Thickness[6.00"]			2-2-4-3 (6)				
	S-2	SS	9	7	(CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to very hard			3-50/3" (50/3")				
					AUGER REFUSAL AT 3 FT							
5							614					
10							609					
15							604					
20							599					
25							594					
30							589					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
☐ WL (First Encountered)		Not Encountered		BORING STARTED: May 05 2023		CAVE IN DEPTH:						
☐ WL (Completion)		Not Encountered		BORING COMPLETED: May 05 2023		HAMMER TYPE: Auto						
☐ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
☐ WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

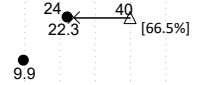
CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-14		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11444.8		EASTING: 2070297.4		STATION:		SURFACE ELEVATION: 619.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	⊗ STANDARD PENETRATION BLOWS/FT 20 40 60 80 100 ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		△ LIQUID LIMIT × PLASTIC LIMIT ○ CALIBRATED PENETROMETER TSF 1 2 3 4 5 ● WATER CONTENT % [FINES CONTENT] % 1.00 20 23.6 48 16.3 96.3%	
5	S-1	SS	24	16	Topsoil Thickness[6.00"] (CL) LEAN CLAY, orangish brown, moist, firm (WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL WITH CLAY, gray, moist, very dense [Weathered LIMESTONE] AUGER REFUSAL AT 2.5 FT		614	2-2-4-6 (6) 50/2" (50/2")				
10	S-2	SS	2	2			609					
15							604					
20							599					
25							594					
30							589					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 05 2023		CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 05 2023		HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: RB15		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-15		SHEET: 1 of 1										
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.														
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 										
NORTHING: -10550.5		EASTING: 2069956.6		STATION:		SURFACE ELEVATION: 599.0		BOTTOM OF CASING 										
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6" 13-50/5" (50/5")	STANDARD PENETRATION BLOWS/FT 20 40 60 80 100 ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC					LIQUID LIMIT X PLASTIC LIMIT CALIBRATED PENETROMETER TSF 1 2 3 4 5 WATER CONTENT % [FINES CONTENT] % 10 20 30 40 50				
5	S-1	SS	11	2	Topsoil Thickness[6.00"] (WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL, gray, dry, very dense [Weathered LIMESTONE] AUGER REFUSAL AT 1 FT		594		 50/5"									
10							589											
15							584											
20							579											
25							574											
30							569											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																		
 WL (First Encountered)		Not Encountered		BORING STARTED: May 01 2023				CAVE IN DEPTH:										
 WL (Completion)		Not Encountered		BORING COMPLETED: May 01 2023				HAMMER TYPE: Auto										
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1				DRILLING METHOD: HSA 3.25"						
 WL (Stabilized)																		
GEOTECHNICAL BOREHOLE LOG																		

CLIENT: Appalachian Asset Management						PROJECT NO.: 18:5941-A		BORING NO.: B-16		SHEET: 1 of 1																																																																																																																																																																																																														
PROJECT NAME: Proposed Ritner Highway Warehouse Development						DRILLER/CONTRACTOR: Eichelbergers, Inc.																																																																																																																																																																																																																		
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241									LOSS OF CIRCULATION 																																																																																																																																																																																																															
NORTHING: -10789.2			EASTING: 2070103.1			STATION:		SURFACE ELEVATION: 615.0		BOTTOM OF CASING 																																																																																																																																																																																																														
<table border="1"><thead><tr><th rowspan="3">DEPTH (FT)</th><th rowspan="3">SAMPLE NUMBER</th><th rowspan="3">SAMPLE TYPE</th><th rowspan="3">SAMPLE DIST. (IN)</th><th rowspan="3">RECOVERY (IN)</th><th rowspan="3">DESCRIPTION OF MATERIAL</th><th rowspan="3">WATER LEVELS</th><th rowspan="3">ELEVATION (FT)</th><th rowspan="3">BLOWS/6"</th><th colspan="2">ROCK QUALITY DESIGNATION & RECOVERY</th><th colspan="2">LIQUID LIMIT / PLASTIC LIMIT</th><th colspan="5">CALIBRATED PENETROMETER TSF</th></tr><tr><th colspan="2"></th><th colspan="2"></th><th colspan="5"></th></tr><tr><th>20</th><th>40</th><th>60</th><th>80</th><th>100</th><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th></tr></thead><tbody><tr><td></td><td>S-1</td><td>SS</td><td>24</td><td>20</td><td rowspan="5">Topsoil Thickness[7.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to stiff</td><td rowspan="5"> </td><td rowspan="5">610</td><td>2-2-3-4 (5)</td><td colspan="2">⊗ STANDARD PENETRATION BLOWS/FT</td><td colspan="2">△ LIQUID LIMIT × PLASTIC LIMIT</td><td colspan="5"></td></tr><tr><td></td><td>S-2</td><td>SS</td><td>24</td><td>24</td><td>4-5-6-7 (11)</td><td colspan="2">⊗ 11</td><td colspan="2">○ CALIBRATED PENETROMETER TSF</td><td colspan="5"></td></tr><tr><td>5</td><td>S-3</td><td>SS</td><td>24</td><td>24</td><td>2-4-5-5 (9)</td><td colspan="2">⊗ 9</td><td colspan="2">● WATER CONTENT % [FINES CONTENT] %</td><td colspan="5"></td></tr><tr><td></td><td>S-4</td><td>SS</td><td>24</td><td>22</td><td>6-7-8-8 (15)</td><td colspan="2">⊗ 15</td><td colspan="2">— RQD</td><td colspan="5"></td></tr><tr><td></td><td>S-5</td><td>SS</td><td>24</td><td>21</td><td>1-3-4-7 (7)</td><td colspan="2">⊗ 7</td><td colspan="2">— REC</td><td colspan="5"></td></tr><tr><td>10</td><td colspan="4"></td><td>END OF BORING AT 10 FT</td><td></td><td>605</td><td colspan="5"></td><td colspan="5"></td></tr><tr><td>15</td><td colspan="4"></td><td></td><td></td><td>600</td><td colspan="5"></td><td colspan="5"></td></tr><tr><td>20</td><td colspan="4"></td><td></td><td></td><td>595</td><td colspan="5"></td><td colspan="5"></td></tr><tr><td>25</td><td colspan="4"></td><td></td><td></td><td>590</td><td colspan="5"></td><td colspan="5"></td></tr><tr><td>30</td><td colspan="4"></td><td></td><td></td><td>585</td><td colspan="5"></td><td colspan="5"></td></tr></tbody></table>												DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT / PLASTIC LIMIT		CALIBRATED PENETROMETER TSF														20	40	60	80	100	1	2	3	4	5		S-1	SS	24	20	Topsoil Thickness[7.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to stiff		610	2-2-3-4 (5)	⊗ STANDARD PENETRATION BLOWS/FT		△ LIQUID LIMIT × PLASTIC LIMIT								S-2	SS	24	24	4-5-6-7 (11)	⊗ 11		○ CALIBRATED PENETROMETER TSF							5	S-3	SS	24	24	2-4-5-5 (9)	⊗ 9		● WATER CONTENT % [FINES CONTENT] %								S-4	SS	24	22	6-7-8-8 (15)	⊗ 15		— RQD								S-5	SS	24	21	1-3-4-7 (7)	⊗ 7		— REC							10					END OF BORING AT 10 FT		605											15							600											20							595											25							590											30							585										
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT / PLASTIC LIMIT										CALIBRATED PENETROMETER TSF																																																																																																																																																																																																			
									20	40	60	80	100	1	2	3	4	5																																																																																																																																																																																																						
	S-1	SS	24	20	Topsoil Thickness[7.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to stiff		610	2-2-3-4 (5)	⊗ STANDARD PENETRATION BLOWS/FT		△ LIQUID LIMIT × PLASTIC LIMIT																																																																																																																																																																																																													
	S-2	SS	24	24				4-5-6-7 (11)	⊗ 11		○ CALIBRATED PENETROMETER TSF																																																																																																																																																																																																													
5	S-3	SS	24	24				2-4-5-5 (9)	⊗ 9		● WATER CONTENT % [FINES CONTENT] %																																																																																																																																																																																																													
	S-4	SS	24	22				6-7-8-8 (15)	⊗ 15		— RQD																																																																																																																																																																																																													
	S-5	SS	24	21				1-3-4-7 (7)	⊗ 7		— REC																																																																																																																																																																																																													
10					END OF BORING AT 10 FT		605																																																																																																																																																																																																																	
15							600																																																																																																																																																																																																																	
20							595																																																																																																																																																																																																																	
25							590																																																																																																																																																																																																																	
30							585																																																																																																																																																																																																																	
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																																																																																																																																																																																																																								
WL (First Encountered) Not Encountered						BORING STARTED: May 02 2023			CAVE IN DEPTH:																																																																																																																																																																																																															
WL (Completion) Not Encountered						BORING COMPLETED: May 02 2023			HAMMER TYPE: Auto																																																																																																																																																																																																															
WL (Seasonal High Water) Not Encountered						EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"																																																																																																																																																																																																														
WL (Stabilized)																																																																																																																																																																																																																								
GEOTECHNICAL BOREHOLE LOG																																																																																																																																																																																																																								

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-17		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11057.7		EASTING: 2070306.1		STATION:		SURFACE ELEVATION: 646.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		CALIBRATED PENETROMETER TSF	
									ROCK QUALITY DESIGNATION & RECOVERY		1	2
	S-1	SS	24	12	Topsoil Thickness[6.00"]			2-5-10-12 (15)				
	S-2	SS	2	2	(CL) SANDY LEAN CLAY, brown, moist, stiff			50/2" (50/2")				
5	R-1	RC	60	50	LIMESTONE, [REC=83%,RQD=8%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		641					
10	R-2	RC	60	58	LIMESTONE, [REC=97%,RQD=23%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		636					
					END OF BORING AT 12.17 FT							
15							631					
20							626					
25							621					
30							616					

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☐ WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
☐ WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
☐ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☐ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-18		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11283.2		EASTING: 2070389.1		STATION:		SURFACE ELEVATION: 625.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	17	Topsoil Thickness[6.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to very hard			2-2-3-4 (5)				1.00
	S-2	SS	8	6	AUGER REFUSAL AT 2.75 FT			7-50/2" (50/2")				
5							620					
10							615					
15							610					
20							605					
25							600					
30							595					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 05 2023		CAVE IN DEPTH:						
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 05 2023		HAMMER TYPE: Auto						
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
☒ WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-19		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -10331.6		EASTING: 2069973.3		STATION:		SURFACE ELEVATION: 589.5		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %		
									20	40	60	80	100	1	2	3		4	5
														RQD	REC				
5	S-1	SS	24	8	Topsoil Thickness[8.00"] (GP) GRAVEL, gray, moist, loose		585	3-2-4-3 (6)	6										
	S-2	SS	24	12	(CL) LEAN CLAY WITH SAND, light brown, moist, stiff			4-5-6-7 (11)	11								1.25		
	S-3	SS	24	19	(CL) GRAVELLY LEAN CLAY, light brown to orangish brown, moist, firm to very stiff			1-3-4-6 (7)	7										
	S-4	SS	23	22				8-8-10-50/5" (18)	18										
					AUGER REFUSAL AT 7.5 FT														
10																			
15																			
20																			
25																			
30																			

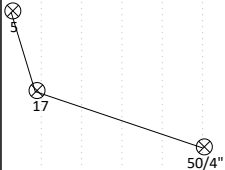
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☒ WL (First Encountered)	Not Encountered	BORING STARTED: May 01 2023		CAVE IN DEPTH:	
☒ WL (Completion)	Not Encountered	BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto	
☒ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☒ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-20		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION		
NORTHING: -10595.1		EASTING: 2070143.2		STATION:		SURFACE ELEVATION: 605.5		BOTTOM OF CASING		
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	☒ STANDARD PENETRATION BLOWS/FT 20 40 60 80 100 ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC	☐ LIQUID LIMIT ☒ PLASTIC LIMIT ☐ CALIBRATED PENETROMETER TSF 1 2 3 4 5 ☒ WATER CONTENT % [FINES CONTENT] % 10 20 30 40 50
5	S-1	SS	19	14	Topsoil Thickness[4.00"] (CL) LEAN CLAY, orangish brown, moist, firm AUGER REFUSAL AT 1.75 FT		601	2-3-4-50/1" (7)	☒ 7	
10							596			
15							591			
20							586			
25							581			
30							576			
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL										
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023			CAVE IN DEPTH:			
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023			HAMMER TYPE: Auto			
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50			LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"	
☒ WL (Stabilized)										
GEOTECHNICAL BOREHOLE LOG										

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-21		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10806.2		EASTING: 2070277.4		STATION:		SURFACE ELEVATION: 621.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
									— RQD			
									— REC			
	S-1	SS	24	16	Topsoil Thickness[4.00"] (ML) SANDY SILT WITH GRAVEL, orangish brown, moist, medium dense to very dense		2-3-14-17 (17)					
	S-2	SS	8	2	AUGER REFUSAL AT 3 FT		11-50/2" (50/2")					
5							616					
10							611					
15							606					
20							601					
25							596					
30							591					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1				
 WL (Stabilized)								DRILLING METHOD: HSA 3.25"				
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-22		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11063.9		EASTING: 2070438.4		STATION:		SURFACE ELEVATION: 640.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
									— RQD			
									— REC			
5	S-1	SS	24	24	Topsoil Thickness[6.00"] (CL) SANDY LEAN CLAY WITH GRAVEL, orangish brown, moist, firm to very hard		635	2-2-3-4 (5)				
	S-2	SS	24	14								
	S-3	SS	10	5								
					AUGER REFUSAL AT 5 FT							
10												
15												
20												
25												
30												
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 05 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 05 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1				
 WL (Stabilized)								DRILLING METHOD: HSA 3.25"				
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-23		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11280.1		EASTING: 2070570.1		STATION:		SURFACE ELEVATION: 640.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %				
									20	40	60	80	100	1		2	3	4	5
	S-1	SS	17	17	Topsoil Thickness[6.00"] (CH) FAT CLAY WITH SAND, orangish brown, moist, very hard			2-3-50/5" (53/11")							27	64			
5	R-1	RC	60	51	LIMESTONE, [REC=85%,RQD=0%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		635								27.8	[77.5%]			
10	R-2	RC	60	57	LIMESTONE, [REC=95%,RQD=0%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		630												
15	R-3	RC	60	51	LIMESTONE, [REC=85%,RQD=23%], Moderately Weathered, Hard, Moderately Fractured/Jointed, Gray		625												
20	R-4	RC	60	58	LIMESTONE, [REC=98%,RQD=65%], Moderately Weathered, Hard, Moderately Fractured/Jointed, Gray		620												
25	R-5	RC	60	60	LIMESTONE, [REC=100%,RQD=37%], Moderately Weathered, Hard, Moderately Fractured/Jointed, Gray		615												
30					END OF BORING AT 27 FT		610												

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Monitoring Well	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
 WL (Completion)	Monitoring Well	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Monitoring Well	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

[illegible]

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-25		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11614.8		EASTING: 2070439.9		STATION:		SURFACE ELEVATION: 647.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %						
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
5	S-1	SS	22	12	Topsoil Thickness[6.00"] (CL) LEAN CLAY, orangish brown, moist. very soft to firm		642	1-7-10-50/4" (17)		17													
	S-2	SS	24	24			642	4-5-5-5 (10)		10													
	S-3	SS	24	12			642	2-3-2-2 (5)		5													
	S-4	SS	24	12			642	2-2-3-6 (5)		5													
10					AUGER REFUSAL AT 8 FT		637																
15							632																
20							627																
25							622																
30							617																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☒ WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
☒ WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
☒ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: CBP1	
☒ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-26		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11839.4		EASTING: 2070578.5		STATION:		SURFACE ELEVATION: 613.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
									RQD REC		WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	19	Topsoil Thickness[12.00"]			1-2-3-4 (5)				
	S-2	SS	2	2	(CL) LEAN CLAY WITH SAND, brown, moist, firm to very hard			50/2" (50/2")				
					AUGER REFUSAL AT 2.5 FT						1.00	
5							608				22.0	
											22	
											21.1	
											40 [71.2%]	
10							603					
15							598					
20							593					
25							588					
30							583					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-27		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -12120.8		EASTING: 2070751.5		STATION:		SURFACE ELEVATION: 633.5		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	13	10	Topsoil Thickness[6.00"] (WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL WITH CLAY, gray, moist, very dense [Weathered LIMESTONE] AUGER REFUSAL AT 1.75 FT			6-11-50/1" (61/7")			61/7"	
5							629					
10							624					
15							619					
20							614					
25							609					
30							604					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: RB15		DRILLING METHOD: HSA 3.25"		
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-28		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -12380.9		EASTING: 2070914.9		STATION:		SURFACE ELEVATION: 638.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		WATER CONTENT % [FINES CONTENT] %	
									20 40 60 80 100		RQD REC		1 2 3 4 5	
									CALIBRATED PENETROMETER TSF					
0	S-1	SS	24	21	Topsoil Thickness[6.00"] (CL) LEAN CLAY, orangish brown, moist, soft to firm			1-2-2-4 (4)	4				22.8	
1	S-2	SS	24	16				3-3-5-5 (8)	8				1.00	29.4
5	S-3	SS	24	16	(CL) LEAN CLAY WITH GRAVEL, light brown, moist, stiff		633	10-7-8-5 (15)	15			0.25	40.3	
6	S-4	SS	24	11	(CL) LEAN CLAY, orangish brown, moist, soft to firm			4-2-4-5 (6)	6			1.00	26.1	
10	S-5	SS	24	19				2-2-2-4 (4)	4				27.0	
12					AUGER REFUSAL AT 12 FT									
15							623							
20							618							
25							613							
30							608							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☐ WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
☐ WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
☐ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: RB15	
☐ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-29		SHEET: 1 of 1			
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.							
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 			
NORTHING: -12601.3		EASTING: 2071078.3		STATION:		SURFACE ELEVATION: 645.0		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	⊗ STANDARD PENETRATION BLOWS/FT ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		△ LIQUID LIMIT × PLASTIC LIMIT ○ CALIBRATED PENETROMETER TSF 1 2 3 4 5 ● WATER CONTENT % [FINES CONTENT] % 10 20 30 40 50
5	S-1	SS	24	20	Topsoil Thickness[6.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, loose to medium dense		640	1-2-3-5 (5)			
	S-2	SS	24	18			640	2-7-7-10 (14)			
	S-3	SS	24	24			640	1-4-4-5 (8)			
	S-4	SS	24	16			640	3-3-8-6 (11)			
	S-5	SS	24	24			640	2-2-4-6 (6)			
10	S-6	SS	0	0			635	50/0" (50/0")			
15	R-1	RC	60	58	LIMESTONE, [REC=97%,RQD=50%], Slightly Weathered, Hard, Highly Fractured/Jointed, Gray		630				
20					END OF BORING AT 18 FT		625				
25							620				
30							615				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023		CAVE IN DEPTH: 11.00					
WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto					
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: ZR					
WL (Stabilized)						DRILLING METHOD: HSA 3.25"					
GEOTECHNICAL BOREHOLE LOG											

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-30		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11635.2		EASTING: 2070674.0		STATION:		SURFACE ELEVATION: 625.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %		
									20	40	60	80	100	1	2	3		4	5
														RQD	REC				
5	S-1	SS	24	21	Topsoil Thickness[10.00"] (CL) LEAN CLAY, orangish brown, moist, firm to stiff		620	2-2-3-5 (5)										1.75	
	S-2	SS	24	17				5-4-7-9 (11)											
	S-3	SS	19	17				2-4-10-50/1" (14)											
					AUGER REFUSAL AT 5.75 FT														
10																			
15																			
20																			
25																			
30																			

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
 WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: RB15	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-31		SHEET: 1 of 1			
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.							
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 			
NORTHING: -11900.3		EASTING: 2070838.5		STATION:		SURFACE ELEVATION: 627.0		BOTTOM OF CASING 			
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	☒ STANDARD PENETRATION BLOWS/FT 20 40 60 80 100 ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC ☐ LIQUID LIMIT ☒ PLASTIC LIMIT ☐ CALIBRATED PENETROMETER TSF 1 2 3 4 5 ● WATER CONTENT % [FINES CONTENT] % 10 20 30 40 50		
5	S-1	SS	20	14	Topsoil Thickness[3.00"] (WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL WITH SILT, gray, moist, medium dense [Weathered LIMESTONE] AUGER REFUSAL AT 1.75 FT		622	20-14-16-50/2 " (30)	☒ 30		
10							617				
15							612				
20							607				
25							602				
30							597				
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL											
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023		CAVE IN DEPTH:					
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto					
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: RB15		DRILLING METHOD: HSA 3.25"			
☒ WL (Stabilized)											
GEOTECHNICAL BOREHOLE LOG											

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-32		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -12149.0		EASTING: 2071015.2		STATION:		SURFACE ELEVATION: 631.5		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	24	Topsoil Thickness[4.00"]			1-1-3-5 (4)				
	S-2	SS	8	8	(ML) SILT, reddish brown, moist, loose to very dense			14-50/2" (50/2")				
					AUGER REFUSAL AT 3 FT							
5							627					
10							622					
15							617					
20							612					
25							607					
30							602					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023		CAVE IN DEPTH:						
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto						
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: ZR		DRILLING METHOD: HSA 3.25"				
☒ WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-33		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -12370.1		EASTING: 2071135.2		STATION:		SURFACE ELEVATION: 636.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %		
									20	40	60	80	100	1	2	3		4	5
														RQD	REC				
5	S-1	SS	24	24	Topsoil Thickness[6.00"] (ML) SILT WITH SAND, reddish brown to tan, moist, loose to medium dense			1-2-3-4 (5)	⊗								19.1		
	S-2	SS	24	24				7-7-5-6 (12)	⊗	12									21.8
	S-3	SS	24	2	(WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL, gray, dry, loose [Weathered LIMESTONE]		631	2-5-5-7 (10)	⊗								5.8		
	S-4	SS	24	6				5-4-6-2 (10)	⊗	10									1.9
10	AUGER REFUSAL AT 8 FT						626												
15							621												
20							616												
25							611												
30							606												

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

☒ WL (First Encountered)	Not Encountered	BORING STARTED: May 03 2023		CAVE IN DEPTH:	
☒ WL (Completion)	Not Encountered	BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto	
☒ WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: ZR	
☒ WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

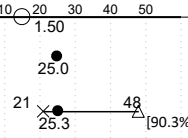
CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-34		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11427.5		EASTING: 2070749.0		STATION:		SURFACE ELEVATION: 647.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %								
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
	S-1	SS	20	12	Topsoil Thickness[12.00"]			1-7-10-50/2" (17)	⊗ 17														
5	R-1	RC	60	60	(CL) LEAN CLAY WITH GRAVEL, orangish brown, moist [Weathered] LIMESTONE, [REC=100%,RQD=8%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		642		8														
10	R-2	RC	60	60	LIMESTONE, [REC=100%,RQD=10%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		637		10														
15	R-3	RC	60	36	LIMESTONE, [REC=60%,RQD=20%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		632		20														
20	R-4	RC	60	55	LIMESTONE, [REC=92%,RQD=33%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		627		33														
25	R-5	RC	60	60	LIMESTONE, [REC=100%,RQD=33%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		622																
30					END OF BORING AT 27 FT		617																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Monitoring Well	BORING STARTED: May 04 2023	CAVE IN DEPTH:
 WL (Completion)	Monitoring Well	BORING COMPLETED: May 04 2023	HAMMER TYPE: Auto
 WL (Seasonal High Water)	Monitoring Well	EQUIPMENT: Diedrich D50	LOGGED BY: CBP1
 WL (Stabilized)			DRILLING METHOD: HSA 3.25"

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-35		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11654.0		EASTING: 2070901.1		STATION:		SURFACE ELEVATION: 631.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	⊗ STANDARD PENETRATION BLOWS/FT 20 40 60 80 100 ROCK QUALITY DESIGNATION & RECOVERY — RQD — REC		△ LIQUID LIMIT × PLASTIC LIMIT ○ CALIBRATED PENETROMETER TSF 1 2 3 4 5 ● WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	21	Topsoil Thickness[6.00"] (CL) LEAN CLAY, orangish brown, moist, firm to very hard			2-3-4-14 (7)				
	S-2	SS	9	6				7-50/3" (50/3")				
					AUGER REFUSAL AT 3.5 FT							
5							626					
10							621					
15							616					
20							611					
25							606					
30							601					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023		CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: RB15		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

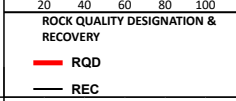
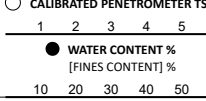
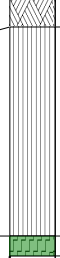
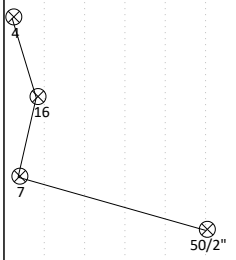
CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-36		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11923.8		EASTING: 2071065.9		STATION:		SURFACE ELEVATION: 623.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %						
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
5	S-1	SS	24	22	Topsoil Thickness[12.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, soft to very stiff		618	1-2-1-3 (3)	3														
	S-2	SS	24	15			618	2-5-7-6 (12)	12											1.00			
	S-3	SS	24	24			618	3-5-8-13 (13)	13														
	S-4	SS	24	16			618	5-7-10-11 (17)	17														
10	S-5	SS	24	19			613	4-6-7-9 (13)	13											2.00			
					END OF BORING AT 10 FT																		
15																							
20																							
25																							
30																							

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
 WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: RB15	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-37		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -12159.1		EASTING: 2071215.7		STATION:		SURFACE ELEVATION: 626.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
												
	S-1	SS	24	20	Topsoil Thickness[9.00"] (ML) SILT, reddish brown, moist, very loose to medium dense			2-1-3-5 (4)				
	S-2	SS	24	20				4-7-9-8 (16)				
5	S-3	SS	24	1				2-2-5-5 (7)				
	S-4	SS	8	2				14-50/2" (50/2")				
					(WR) WEATHERED LIMESTONE SAMPLED AS GRAVEL, gray, moist, very dense [Weathered LIMESTONE] AUGER REFUSAL AT 6.5 FT							
10							621					
							616					
15							611					
20							606					
25							601					
30							596					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: ZR		DRILLING METHOD: HSA 3.25"		
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-38		SHEET: 1 of 1						
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.										
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 						
NORTHING: -12421.6		EASTING: 2071376.3		STATION:		SURFACE ELEVATION: 630.0		BOTTOM OF CASING 						
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT			
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF			
									20 40 60 80 100		1 2 3 4 5			
										— RQD	● WATER CONTENT % [FINES CONTENT] %			
										— REC	10 20 30 40 50			
	S-1	SS	24	16	Topsoil Thickness[6.00"] (ML) SANDY SILT, reddish brown to tan, moist, loose to medium dense			1-2-3-4 (5)						
	S-2	SS	24	24				5-5-6-7 (11)						
5	S-3	SS	24	24				2-4-7-8 (11)						
	S-4	SS	24	24				8-9-13-16 (22)						
	S-5	SS	24	24				3-5-7-11 (12)						
10														
	S-6	SS	24	24				3-4-6-7 (10)						
15					END OF BORING AT 15 FT		615							
20							610							
25							605							
30							600							
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL														
 WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023				CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023				HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: ZR		DRILLING METHOD: HSA 3.25"						
 WL (Stabilized)														
GEOTECHNICAL BOREHOLE LOG														

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-39		SHEET: 1 of 1										
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.														
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 										
NORTHING: -10906.7		EASTING: 2068787.0		STATION:		SURFACE ELEVATION: 604.0		BOTTOM OF CASING 										
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT					LIQUID LIMIT PLASTIC LIMIT				
									ROCK QUALITY DESIGNATION & RECOVERY					CALIBRATED PENETROMETER TSF				
									20 40 60 80 100					1 2 3 4 5				
									RQD					WATER CONTENT % [FINES CONTENT] %				
									REC					10 20 30 40 50				
	S-1	SS	17	14	Topsoil Thickness[8.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, very hard AUGER REFUSAL AT 1.5 FT			1-3-50/5" (53/11")	 53/11"									
5							599											
10							594											
15							589											
20							584											
25							579											
30							574											
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																		
 WL (First Encountered)		Not Encountered		BORING STARTED: May 01 2023				CAVE IN DEPTH:										
 WL (Completion)		Not Encountered		BORING COMPLETED: May 01 2023				HAMMER TYPE: Auto										
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1				DRILLING METHOD: HSA 3.25"						
 WL (Stabilized)																		
GEOTECHNICAL BOREHOLE LOG																		

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-40		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11177.9		EASTING: 2068962.7		STATION:		SURFACE ELEVATION: 617.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	21	Topsoil Thickness[6.00"] (CL) SANDY LEAN CLAY, orangish brown, moist, stiff			3-3-9-12 (12)				
	S-2	SS	7	2	(GC) CLAYEY GRAVEL, gray, moist, very dense			3-50/1" (50/1")				
					AUGER REFUSAL AT 3.5 FT							
5							612					
10							607					
15							602					
20							597					
25							592					
30							587					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023		CAVE IN DEPTH:						
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto						
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
☒ WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-41		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11518.5		EASTING: 2069178.9		STATION:		SURFACE ELEVATION: 620.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %								
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
5	S-1	SS	24	15	Topsoil Thickness[9.00"] (CL) SANDY LEAN CLAY WITH GRAVEL, orangish brown, moist, firm		615	2-2-4-4 (6)	6								28.1						
	S-2	SS	24	24	(ML) GRAVELLY SILT WITH SAND, orangish brown, moist, loose to medium dense			8-8-9-11 (17)	17								17.1						
	S-3	SS	24	24				4-3-5-6 (8)	8								30.2						
	S-4	SS	24	24				6-5-3-3 (8)	8								28.7						
10	S-5	SS	8	3				1-50/2" (50/2")	50/2"								33.0						
	R-1	RC	60	45	LIMESTONE, [REC=75%,RQD=60%], Moderately Weathered, Hard, Moderately Fractured/Jointed, Gray		610																
15	END OF BORING AT 13.5 FT						605																
20							600																
25							595																
30							590																

THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Monitoring Well	BORING STARTED:	May 03 2023	CAVE IN DEPTH:
 WL (Completion)	Monitoring Well	BORING COMPLETED:	May 03 2023	HAMMER TYPE: Auto
 WL (Seasonal High Water)	Monitoring Well	EQUIPMENT:	Diedrich D50	LOGGED BY:
 WL (Stabilized)			CBP1	DRILLING METHOD: HSA 3.25"

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-42		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10939.9		EASTING: 2069020.1		STATION:		SURFACE ELEVATION: 605.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	17	17	Topsoil Thickness[6.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, very hard AUGER REFUSAL AT 1.5 FT			2-3-50/5" (53/11")				
5							600					
10							595					
15							590					
20							585					
25							580					
30							575					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 01 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 01 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-43		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11276.5		EASTING: 2069211.4		STATION:		SURFACE ELEVATION: 618.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	20	Topsoil Thickness[6.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm			2-3-3-4 (6)				
	S-2	SS	14	13	(ML) SILT WITH SAND, orangish brown, moist, very dense			4-6-50/2" (56/8")				
5					AUGER REFUSAL AT 3 FT		613					
10							608					
15							603					
20							598					
25							593					
30							588					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management						PROJECT NO.: 18:5941-A		BORING NO.: B-44		SHEET: 1 of 1																																																																																																																												
PROJECT NAME: Proposed Ritner Highway Warehouse Development						DRILLER/CONTRACTOR: Eichelbergers, Inc.																																																																																																																																
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 																																																																																																																														
NORTHING: -10742.4			EASTING: 2069052.5			STATION:		SURFACE ELEVATION: 590.0		BOTTOM OF CASING 																																																																																																																												
<table border="1"><thead><tr><th rowspan="2">DEPTH (FT)</th><th rowspan="2">SAMPLE NUMBER</th><th rowspan="2">SAMPLE TYPE</th><th rowspan="2">SAMPLE DIST. (IN)</th><th rowspan="2">RECOVERY (IN)</th><th rowspan="2">DESCRIPTION OF MATERIAL</th><th rowspan="2">WATER LEVELS</th><th rowspan="2">ELEVATION (FT)</th><th rowspan="2">BLOWS/6"</th><th colspan="2">ROCK QUALITY DESIGNATION & RECOVERY</th><th colspan="2">LIQUID LIMIT / PLASTIC LIMIT</th></tr><tr><th>STANDARD PENETRATION BLOWS/FT</th><th>CALIBRATED PENETROMETER TSP</th><th>WATER CONTENT % [FINES CONTENT] %</th><th></th></tr></thead><tbody><tr><td rowspan="5">5</td><td>S-1</td><td>SS</td><td>24</td><td>20</td><td rowspan="5">Topsoil Thickness[9.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm (CL) SANDY LEAN CLAY, orangish brown, moist, firm to very hard</td><td rowspan="5"></td><td rowspan="5">585</td><td>2-2-4-5 (6)</td><td>⊗ 6</td><td rowspan="5">○ 1.75</td><td colspan="2"></td></tr><tr><td>S-2</td><td>SS</td><td>24</td><td>19</td><td>5-7-10-10 (17)</td><td>⊗ 17</td><td></td></tr><tr><td>S-3</td><td>SS</td><td>24</td><td>16</td><td>2-4-2-3 (6)</td><td>⊗ 6</td><td></td></tr><tr><td>S-4</td><td>SS</td><td>24</td><td>13</td><td>4-5-6-6 (11)</td><td>⊗ 11</td><td></td></tr><tr><td>S-5</td><td>SS</td><td>10</td><td>6</td><td>7-50/4" (50/4")</td><td>⊗ 50/4"</td><td></td></tr><tr><td>10</td><td colspan="5">AUGER REFUSAL AT 9 FT</td><td></td><td>580</td><td></td><td></td><td></td><td colspan="2"></td></tr><tr><td>15</td><td colspan="5"></td><td></td><td>575</td><td></td><td></td><td></td><td colspan="2"></td></tr><tr><td>20</td><td colspan="5"></td><td></td><td>570</td><td></td><td></td><td></td><td colspan="2"></td></tr><tr><td>25</td><td colspan="5"></td><td></td><td>565</td><td></td><td></td><td></td><td colspan="2"></td></tr><tr><td>30</td><td colspan="5"></td><td></td><td>560</td><td></td><td></td><td></td><td colspan="2"></td></tr></tbody></table>												DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT / PLASTIC LIMIT		STANDARD PENETRATION BLOWS/FT	CALIBRATED PENETROMETER TSP	WATER CONTENT % [FINES CONTENT] %		5	S-1	SS	24	20	Topsoil Thickness[9.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm (CL) SANDY LEAN CLAY, orangish brown, moist, firm to very hard		585	2-2-4-5 (6)	⊗ 6	○ 1.75			S-2	SS	24	19	5-7-10-10 (17)	⊗ 17		S-3	SS	24	16	2-4-2-3 (6)	⊗ 6		S-4	SS	24	13	4-5-6-6 (11)	⊗ 11		S-5	SS	10	6	7-50/4" (50/4")	⊗ 50/4"		10	AUGER REFUSAL AT 9 FT						580						15							575						20							570						25							565						30							560					
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT / PLASTIC LIMIT																																																																																																																											
									STANDARD PENETRATION BLOWS/FT	CALIBRATED PENETROMETER TSP	WATER CONTENT % [FINES CONTENT] %																																																																																																																											
5	S-1	SS	24	20	Topsoil Thickness[9.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm (CL) SANDY LEAN CLAY, orangish brown, moist, firm to very hard		585	2-2-4-5 (6)	⊗ 6	○ 1.75																																																																																																																												
	S-2	SS	24	19				5-7-10-10 (17)	⊗ 17																																																																																																																													
	S-3	SS	24	16				2-4-2-3 (6)	⊗ 6																																																																																																																													
	S-4	SS	24	13				4-5-6-6 (11)	⊗ 11																																																																																																																													
	S-5	SS	10	6				7-50/4" (50/4")	⊗ 50/4"																																																																																																																													
10	AUGER REFUSAL AT 9 FT						580																																																																																																																															
15							575																																																																																																																															
20							570																																																																																																																															
25							565																																																																																																																															
30							560																																																																																																																															
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL																																																																																																																																						
☐ WL (First Encountered) ☒ WL (Completion) ☒ WL (Seasonal High Water) ☒ WL (Stabilized)						Not Encountered		BORING STARTED: May 01 2023		CAVE IN DEPTH:																																																																																																																												
						Not Encountered		BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto																																																																																																																												
						Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1																																																																																																																												
										DRILLING METHOD: HSA 3.25"																																																																																																																												
GEOTECHNICAL BOREHOLE LOG																																																																																																																																						

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-45		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11035.5		EASTING: 2069238.4		STATION:		SURFACE ELEVATION: 618.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
									RQD REC		WATER CONTENT % [FINES CONTENT] %	
5	S-1	SS	24	17	Topsoil Thickness[6.00"] (CH) SANDY FAT CLAY, orangish brown, moist, firm to stiff		613	2-3-3-2 (6)			33.3	
	S-2	SS	24	13				3-4-5-5 (9)			25	
	S-3	SS	11	3	(WR) WEATHERED LIMESTONE SAMPLED AS CLAYEY GRAVEL, gray, moist, very dense [Weathered LIMESTONE]			2-50/5" (50/5")			20.7	
					AUGER REFUSAL AT 5 FT						58	
10							608					
15							603					
20							598					
25							593					
30							588					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023		CAVE IN DEPTH:						
WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023		HAMMER TYPE: Auto						
WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-46		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -11352.9		EASTING: 2069439.0		STATION:		SURFACE ELEVATION: 604.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100	1 2 3 4 5	WATER CONTENT % [FINES CONTENT] %	
	S-1	SS	24	24	Topsoil Thickness[5.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm to very hard			3-2-5-6 (7)				
	S-2	SS	7	2	AUGER REFUSAL AT 2.5 FT			5-50/1" (50/1")				
5							599					
10							594					
15							589					
20							584					
25							579					
30							574					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 03 2023				CAVE IN DEPTH:				
 WL (Completion)		Not Encountered		BORING COMPLETED: May 03 2023				HAMMER TYPE: Auto				
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"		
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-47		SHEET: 1 of 1		
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.						
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 		
NORTHING: -11830.8		EASTING: 2070325.3		STATION:		SURFACE ELEVATION: 608.0		BOTTOM OF CASING 		

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		ROCK QUALITY DESIGNATION & RECOVERY		LIQUID LIMIT PLASTIC LIMIT		CALIBRATED PENETROMETER TSF		WATER CONTENT % [FINES CONTENT] %						
									20	40	60	80	100	1	2	3	4	5	10	20	30	40	50
									RQD		REC												
5	S-1	SS	24	16	Topsoil Thickness[12.00"] (CL) LEAN CLAY WITH GRAVEL, orangish brown, moist, soft to stiff		603	2-3-7-6 (10)	10														
	S-2	SS	24	15					7-5-7-8 (12)	12													
	S-3	SS	24	16					2-2-2-4 (4)	4													
	S-4	SS	24	6					1-4-2-3 (6)	6													
10	S-5	SS	24	12					4-4-5-4 (9)	9													
					END OF BORING AT 10 FT			598															
15							593																
20							588																
25							583																
30							578																

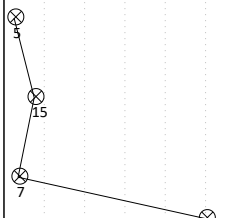
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL

 WL (First Encountered)	Not Encountered	BORING STARTED: May 04 2023		CAVE IN DEPTH:	
 WL (Completion)	Not Encountered	BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto	
 WL (Seasonal High Water)	Not Encountered	EQUIPMENT: Diedrich D50		LOGGED BY: RB15	
 WL (Stabilized)				DRILLING METHOD: HSA 3.25"	

GEOTECHNICAL BOREHOLE LOG

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-48		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10889.1		EASTING: 2070562.1		STATION:		SURFACE ELEVATION: 633.5		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
	S-1	SS	18	9	Topsoil Thickness[4.00"] (CH) SANDY FAT CLAY, orangish brown, moist, very stiff			2-8-20-50/0" (28)				
5	R-1	RC	60	58	LIMESTONE, [REC=97%,RQD=0%], Moderately Weathered, Hard, Intensely Fractured/Jointed, Gray		629					
10					END OF BORING AT 6.5 FT		624					
15							619					
20							614					
25							609					
30							604					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 04 2023		CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 04 2023		HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-49		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10143.1		EASTING: 2070011.6		STATION:		SURFACE ELEVATION: 587.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	STANDARD PENETRATION BLOWS/FT		LIQUID LIMIT PLASTIC LIMIT	
									ROCK QUALITY DESIGNATION & RECOVERY		CALIBRATED PENETROMETER TSF	
									20 40 60 80 100		1 2 3 4 5	
									RQD REC		WATER CONTENT % [FINES CONTENT] %	
											10 20 30 40 50	
5	S-1	SS	24	20	Topsoil Thickness[12.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, very soft to very stiff		582	1-1-3-4 (4)				
	S-2	SS	24	18				4-5-7-10 (12)				
	S-3	SS	24	20				2-4-6-8 (10)				
	S-4	SS	24	22				8-11-10-13 (21)				
10	S-5	SS	24	24			577	2-2-5-6 (7)				
15	S-6	SS	24	24			572	2-1-1-3 (2)				
	S-7	SS	4	2	(WR) WEATHERED LIMESTONE SAMPLED AS CLAYEY GRAVEL, gray, moist, very dense [Weathered LIMESTONE] AUGER REFUSAL AT 16 FT			50/4" (50/4")				
20							567					
25							562					
30							557					
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
 WL (First Encountered)		Not Encountered		BORING STARTED: May 01 2023		CAVE IN DEPTH:						
 WL (Completion)		Not Encountered		BORING COMPLETED: May 01 2023		HAMMER TYPE: Auto						
 WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50		LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"				
 WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												

CLIENT: Appalachian Asset Management				PROJECT NO.: 18:5941-A		BORING NO.: B-50		SHEET: 1 of 1				
PROJECT NAME: Proposed Ritner Highway Warehouse Development				DRILLER/CONTRACTOR: Eichelbergers, Inc.								
SITE LOCATION: 3485 Ritner Highway, Newville, Pennsylvania, 17241								LOSS OF CIRCULATION 				
NORTHING: -10514.2		EASTING: 2069311.5		STATION:		SURFACE ELEVATION: 589.0		BOTTOM OF CASING 				
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	SAMPLE DIST. (IN)	RECOVERY (IN)	DESCRIPTION OF MATERIAL	WATER LEVELS	ELEVATION (FT)	BLOWS/6"	⊗ STANDARD PENETRATION BLOWS/FT		△ LIQUID LIMIT	
									20 40 60 80 100		×	PLASTIC LIMIT
								ROCK QUALITY DESIGNATION & RECOVERY		○ CALIBRATED PENETROMETER TSF		
								— RQD		1 2 3 4 5		
								— REC		● WATER CONTENT % [FINES CONTENT] %		
										10 20 30 40 50		
	S-1	SS	24	18	Topsoil Thickness[9.00"] (CL) LEAN CLAY WITH SAND, orangish brown, moist, firm to stiff			1-2-3-6 (5)	⊗ 3			
	S-2	SS	24	22				6-7-8-10 (15)	⊗ 15			
5	S-3	SS	24	20				3-3-4-4 (7)	⊗ 7			
	S-4	SS	1	1				50/1" (50/1")				
					AUGER REFUSAL AT 6 FT							
10												
15												
20												
25												
30												
THE STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY LINES BETWEEN SOIL TYPES. IN-SITU THE TRANSITION MAY BE GRADUAL												
☒ WL (First Encountered)		Not Encountered		BORING STARTED: May 01 2023				CAVE IN DEPTH:				
☒ WL (Completion)		Not Encountered		BORING COMPLETED: May 01 2023				HAMMER TYPE: Auto				
☒ WL (Seasonal High Water)		Not Encountered		EQUIPMENT: Diedrich D50				LOGGED BY: CBP1		DRILLING METHOD: HSA 3.25"		
☒ WL (Stabilized)												
GEOTECHNICAL BOREHOLE LOG												



RUN	DEPTH	RECOVERY	RQD
1	2'-7'	83%	8%
2	7'-12'	97%	23%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
 3485 Ritner Highway, Newville, PA

Project Number: 5941
 Boring Number: B-17
 Boring Completed: May 2023
 Page 1 of 1



RUN	DEPTH	RECOVERY	RQD
1	2'-7'	85%	0%
2	7'-12'	95%	0%
3	12'-17'	85%	23%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
 3485 Ritner Highway, Newville, PA

Project Number: 5941
 Boring Number: B-23
 Boring Completed: May 2023
 Page 1 of 2



RUN	DEPTH	RECOVERY	RQD
4	17'-22'	98%	65%
5	22'-27'	100%	37%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
 3485 Ritner Highway, Newville, PA

Project Number: 5941
 Boring Number: B-23
 Boring Completed: May 2023
 Page 2 of 2

R-1

RUN

DEPTH

RECOVERY

RQD

1

13'-18'

97%

50%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
3485 Ritner Highway, Newville, PA

Project Number: 5941
Boring Number: B-29
Boring Completed: May 2023
Page 1 of 1

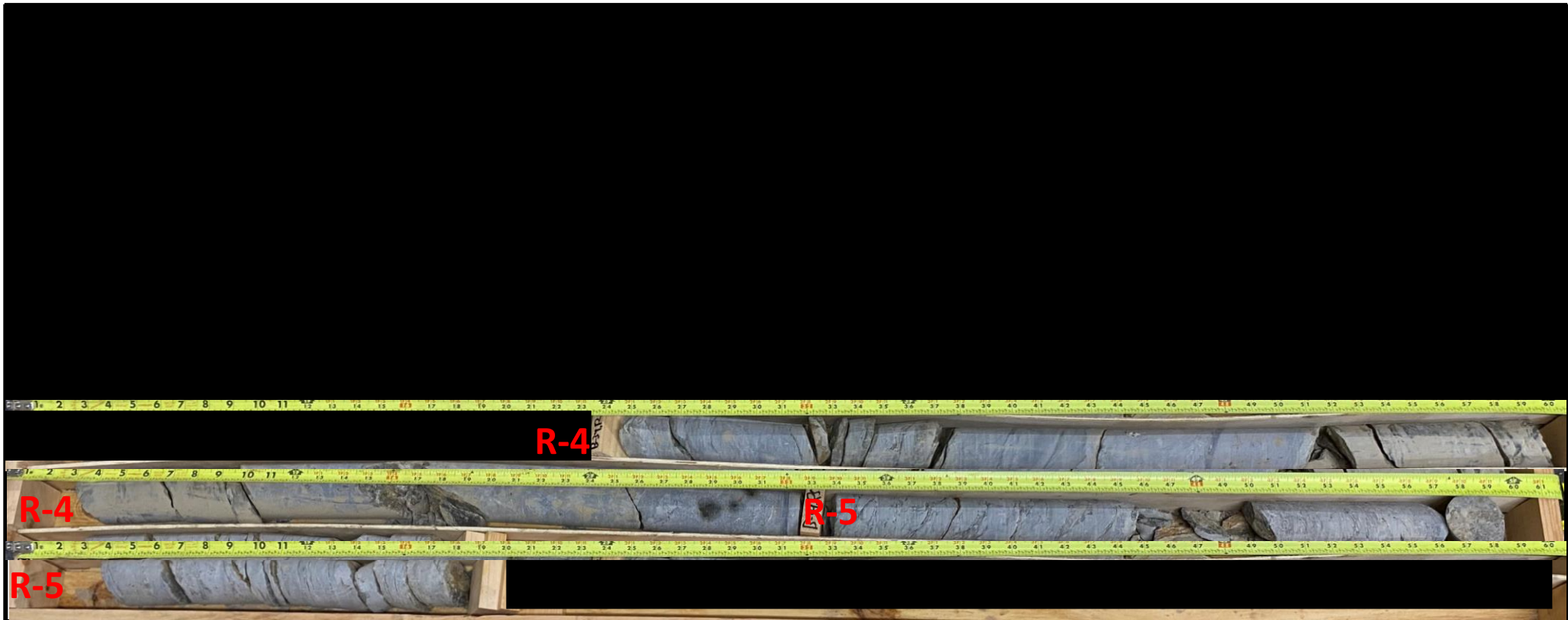


RUN	DEPTH	RECOVERY	RQD
1	2'-7'	100%	8%
2	7'-12'	100%	10%
3	12'-17'	60%	20%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
 3485 Ritner Highway, Newville, PA

Project Number: 5941
 Boring Number: B-34
 Boring Completed: May 2023
 Page 1 of 2



RUN	DEPTH	RECOVERY	RQD
4	17'-22'	92%	33%
5	22'-25'	100%	33%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
 3485 Ritner Highway, Newville, PA

Project Number: 5941
 Boring Number: B-34
 Boring Completed: May 2023
 Page 2 of 2



RUN	DEPTH	RECOVERY	RQD
1	8.5'-13.5'	75%	60%



ROCK CORE PHOTOGRAPHS
Proposed Ritner Highway Warehouse
3485 Ritner Highway, Newville, PA

Project Number: 5941
Boring Number: B-41
Boring Completed: May 2023
Page 1 of 1



RUN	DEPTH	RECOVERY	RQD
-----	-------	----------	-----

1	1.5'-6.5'	97%	0%
---	-----------	-----	----

	ROCK CORE PHOTOGRAPHS Proposed Ritner Highway Warehouse 3485 Ritner Highway, Newville, PA	Project Number: 5941 Boring Number: B-48 Boring Completed: May 2023 Page 1 of 1
--	--	--

APPENDIX C – Laboratory Testing

Laboratory Testing Summary

Plasticity Charts

Grain Size Analyses

Modified Proctor Results

CBR Results

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-01	S-1	0-2	23.0										
B-01	S-2	2-4	19.9	CL	41	18	23	83.1					
B-01	S-3	4-6	24.7										
B-01	S-4	6-8	27.6										
B-01	S-5	8-10	28.1										
B-04	S-1	0-2	20.2										
B-04	S-2	2-4	25.7										
B-04	S-3	4-6	22.7										
B-04	S-4	6-8	22.0										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihe	

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-04	S-5	8-9	24.4										
B-12	S-1	0-2	23.9										
B-12	S-2	2-4	27.8										
B-12	S-3	4-6	31.2										
B-12	S-4	6-8	37.8										
B-12	S-5	8-10	27.6										
B-12	S-6	10-12	27.1										
B-14	S-1	0-2	23.6	CL	48	20	28	96.3					
B-14	S-2	2-2	16.3										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihe	

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-17	S-1	0-2	22.3	CL	40	24	16	66.5					
B-17	S-2	2-2	9.9										
B-23	S-1	0-1	27.8	CH	64	27	37	77.5					
B-24	S-1	0-2	24.9										
B-24	S-2	2-4	20.6										
B-24	S-3	4-6	20.4										
B-24	S-4	6-8	2.9										
B-26	S-1	0-2	22.0										
B-26	S-2	2-2	21.1	CL	40	22	18	71.2					

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihe	

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-28	S-1	0-2	22.8										
B-28	S-2	2-4	29.4										
B-28	S-3	4-6	40.3										
B-28	S-4	6-8	26.1										
B-28	S-5	8-10	27.0										
B-29	S-1	0-2	22.0										
B-29	S-2	2-4	16.4	CL	28	18	10	72.6	122.5	11.6	14.4	13.4	
B-29	S-3	4-6	23.3										
B-29	S-4	6-8	33.1										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihe	

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-29	S-5	8-10	39.8										
B-29	S-6	10-10											
B-33	S-1	0-2	19.1										
B-33	S-2	2-4	21.8										
B-33	S-3	4-6	5.8										
B-33	S-4	6-8	1.9										
B-35	S-1	0-2	25.0										
B-35	S-2	2-3	25.3	CL	48	21	27	90.3					
B-41	S-1	0-2	28.1										

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agoliheh	

Laboratory Testing Summary

Sample Location	Sample Number	Depth ()	^MC (%)	Soil Type	Atterberg Limits			**Percent Passing No. 200 Sieve	Moisture - Density		CBR (%)		#Organic Content (%)
					LL	PL	PI		<Maximum Density (pcf)	<Optimum Moisture (%)	0.1 in.	0.2 in.	
B-41	S-2	2-4	17.1										
B-41	S-3	4-6	30.2										
B-41	S-4	6-8	28.7										
B-41	S-5	8-9	33.0										
B-45	S-1	0-2	33.3										
B-45	S-2	2-4	30.0	CH	58	25	33	69.5					
B-45	S-3	4-5	20.7										
B-48	S-1	0-2	29.7	CH	53	23	30	84.3	107.0	16.3	2.8	2.4	

Notes: See test reports for test method, ^ASTM D2216-19, *ASTM D2488, **ASTM D1140-17, #ASTM D2974-20e1 < See test report for D4718 corrected values

Definitions: MC: Moisture Content, Soil Type: USCS (Unified Soil Classification System), LL: Liquid Limit, PL: Plastic Limit, PI: Plasticity Index, CBR: California Bearing Ratio, OC: Organic Content

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



Office / Lab

ECS Mid-Atlantic LLC - York

Address

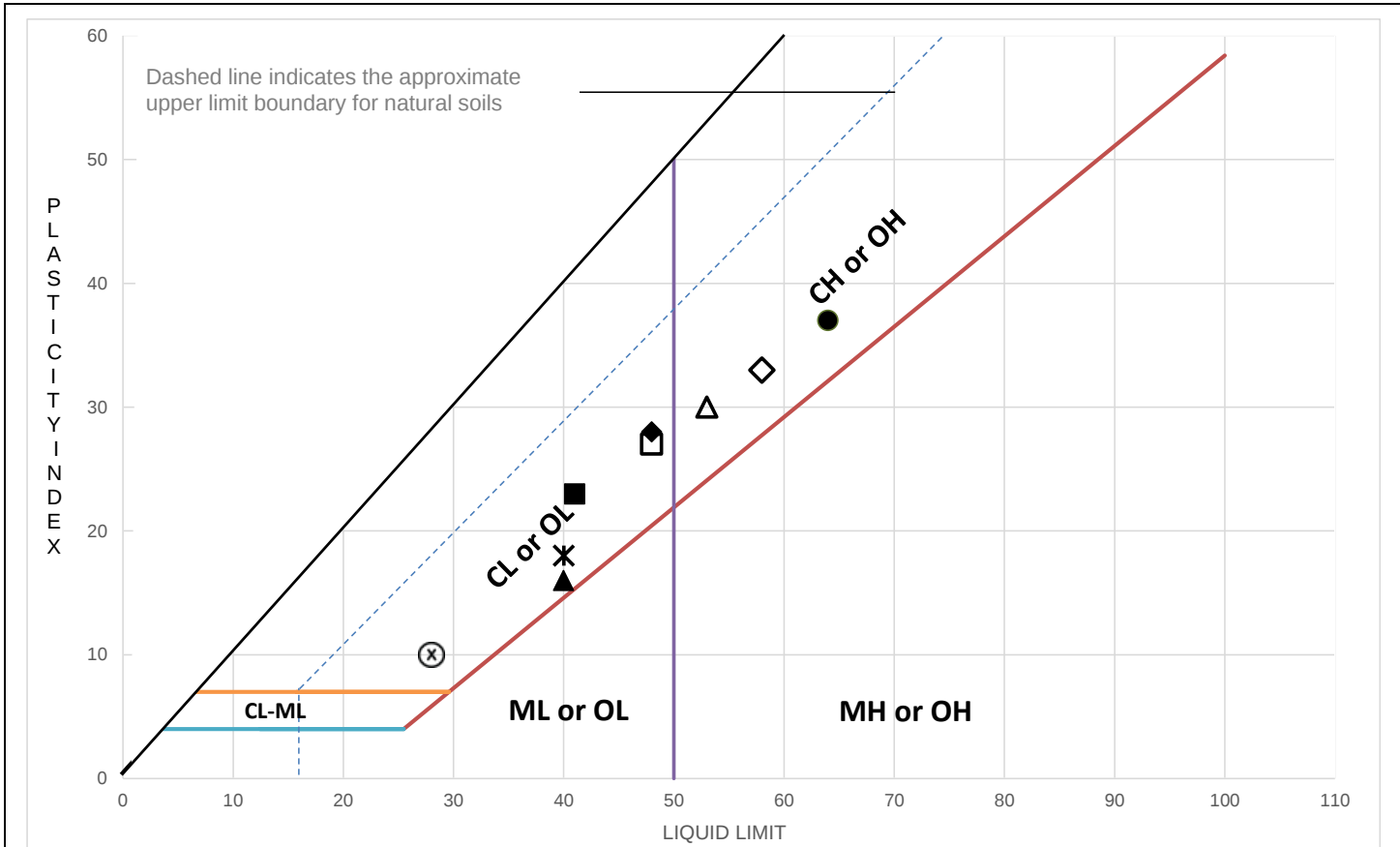
52-6 Grumbacher Road
York, PA 17406

Office Number / Fax

(717)767-4788
(717)767-5658

Tested by	Checked by	Approved by	Date Received
JGates		agolihe	

LIQUID AND PLASTIC LIMITS TEST REPORT



TEST RESULTS (ASTM D4318-10 (MULTIPOINT TEST))

	Sample Location	Sample Number	Sample Depth (ft)	LL	PL	PI	%<#40	%<#200	AASHTO	USCS	Material Description
■	B-01	S-2	2.00-4.00	41	18	23	87.6	83.1	A-7-6	CL	Lean Clay with Sand
◆	B-14	S-1	0.00-2.00	48	20	28	98.6	96.3	A-7-6	CL	Lean Clay
▲	B-17	S-1	0.00-2.00	40	24	16	72.1	66.5	A-6	CL	Sandy Lean Clay
●	B-23	S-1	0.00-1.42	64	27	37	81.3	77.5	A-7-6	CH	Fat Clay with Sand
*	B-26	S-2	2.00-2.17	40	22	18	79.2	71.2	A-6	CL	Lean Clay with Sand
⊗	B-29	S-2	2.00-4.00	28	18	10	91.9	72.6	A-4	CL	Lean Clay with Sand
□	B-35	S-2	2.00-2.75	48	21	27	94.4	90.3	A-7-6	CL	Lean Clay
◇	B-45	S-2	2.00-4.00	58	25	33	82.4	69.5	A-7-6	CH	Sandy Fat Clay
△	B-48	S-1	0.00-1.50	53	23	30	88.0	84.3	A-7-6	CH	Sandy Fat Clay

Project: Proposed Ritner Highway Warehouse
Client: Appalachian Asset Management

Project No.: 18:5941-A
Date Reported: 5/31/2023



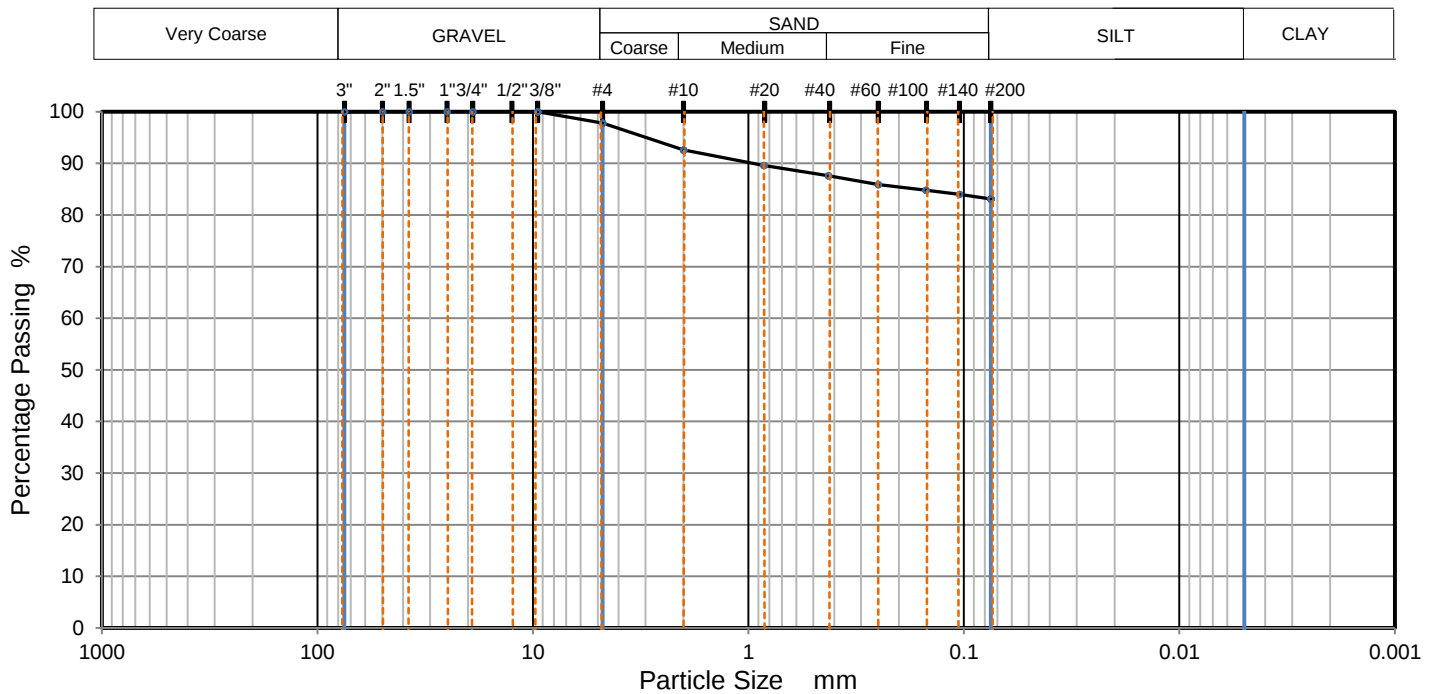
Office / Lab
ECS Mid-Atlantic LLC - York

Address
52-6 Grumbacher Road
York, PA 17406

Office Number / Fax
(717)767-4788
(717)767-5658

Tested by JGates	Checked by	Approved by agolihew	Date Received
---------------------	------------	-------------------------	---------------

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	98		
#10	93		
#20	90		
#40	88		
#60	86		
#100	85		
#140	84		
#200	83		

Dry Mass of sample, g

30.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	2
Coarse Sand, #4 to #10 sieve	5
Medium Sand, #10 to #40	5
Fine Sand, #40 to #200	5
Fines <#200	83

USCS	CL	Liquid Limit	41	D90	0.953	D50		D10	
AASHTO	A-7-6	Plastic Limit	18	D85	0.165	D30		Cu	
USCS Group Name	Lean clay with sand	Plasticity Index	23	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Lean Clay with Sand
 Sample Source: B-01

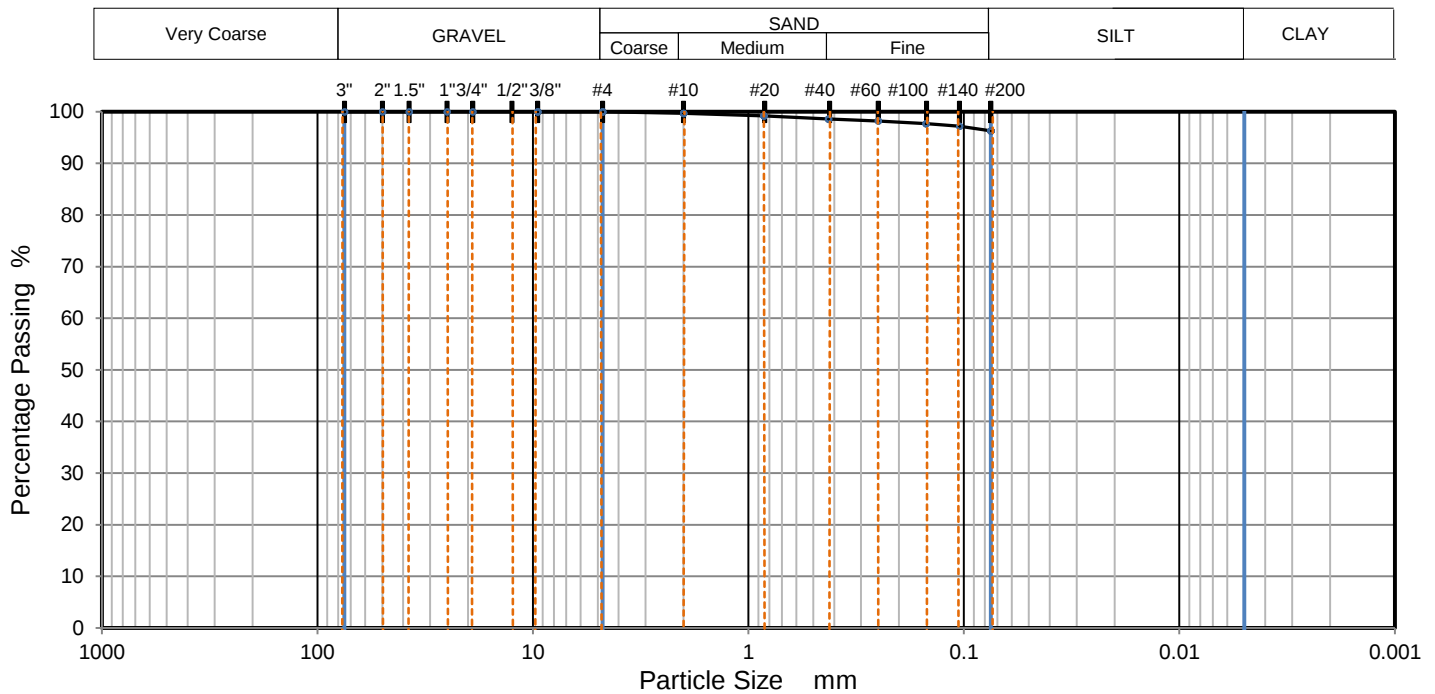
Project No.: 18:5941-A
 Depth (ft): 2.0 - 4.0
 Sample No.: S-2
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	100.0		
#10	99.7		
#20	99.2		
#40	98.6		
#60	98.2		
#100	97.7		
#140	97.2		
#200	96.3		

Dry Mass of sample, g

25.9

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.0
Coarse Sand, #4 to #10 sieve	0.3
Medium Sand, #10 to #40	1.1
Fine Sand, #40 to #200	2.3
Fines <#200	96.3

USCS	CL	Liquid Limit	48	D90		D50		D10	
AASHTO	A-7-6	Plastic Limit	20	D85		D30		Cu	
USCS Group Name	Lean clay	Plasticity Index	28	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Lean Clay
 Sample Source: B-14

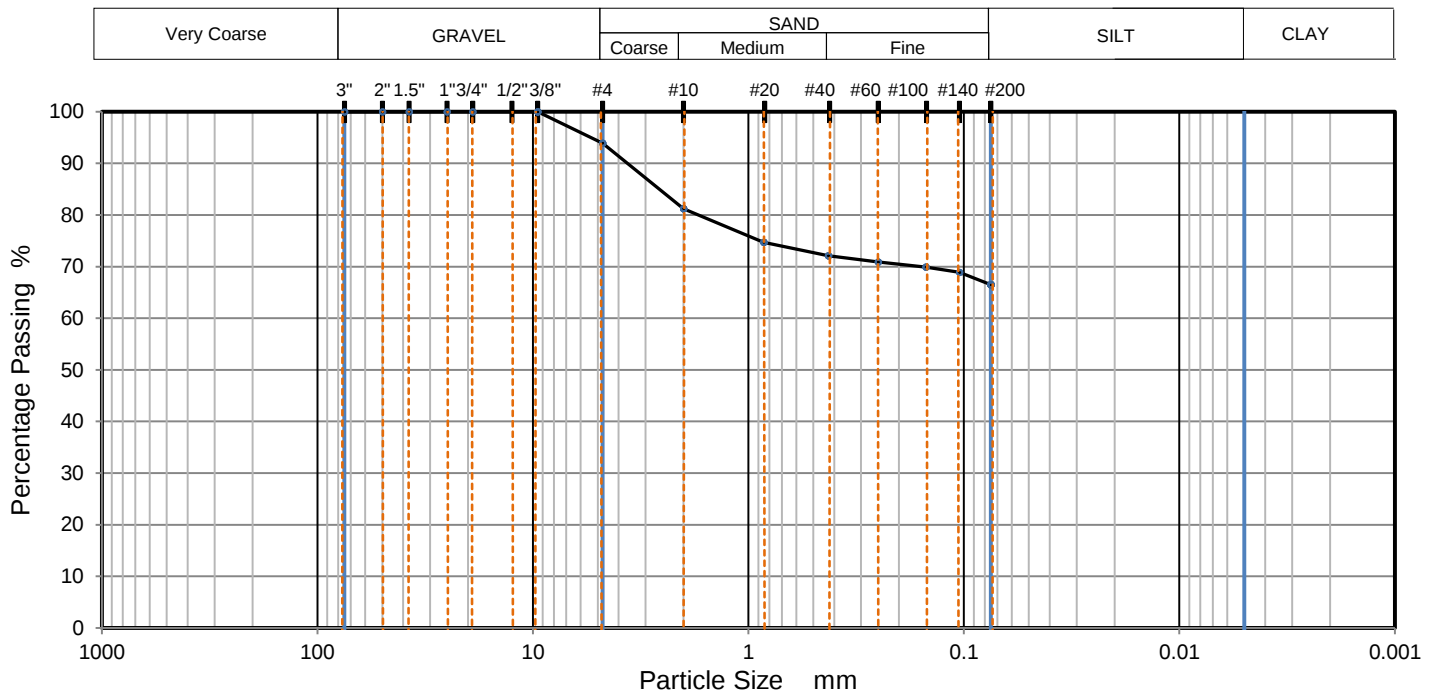
Project No.: 18:5941-A
 Depth (ft): 0.0 - 2.0
 Sample No.: S-1
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	94		
#10	81		
#20	75		
#40	72		
#60	71		
#100	70		
#140	69		
#200	67		

Dry Mass of sample, g

27.1

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	6
Coarse Sand, #4 to #10 sieve	13
Medium Sand, #10 to #40	9
Fine Sand, #40 to #200	6
Fines <#200	67

USCS	CL	Liquid Limit	40	D90	3.642	D50		D10	
AASHTO	A-6	Plastic Limit	24	D85	2.591	D30		Cu	
USCS Group Name	Sandy lean clay	Plasticity Index	16	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Sandy Lean Clay
 Sample Source: B-17

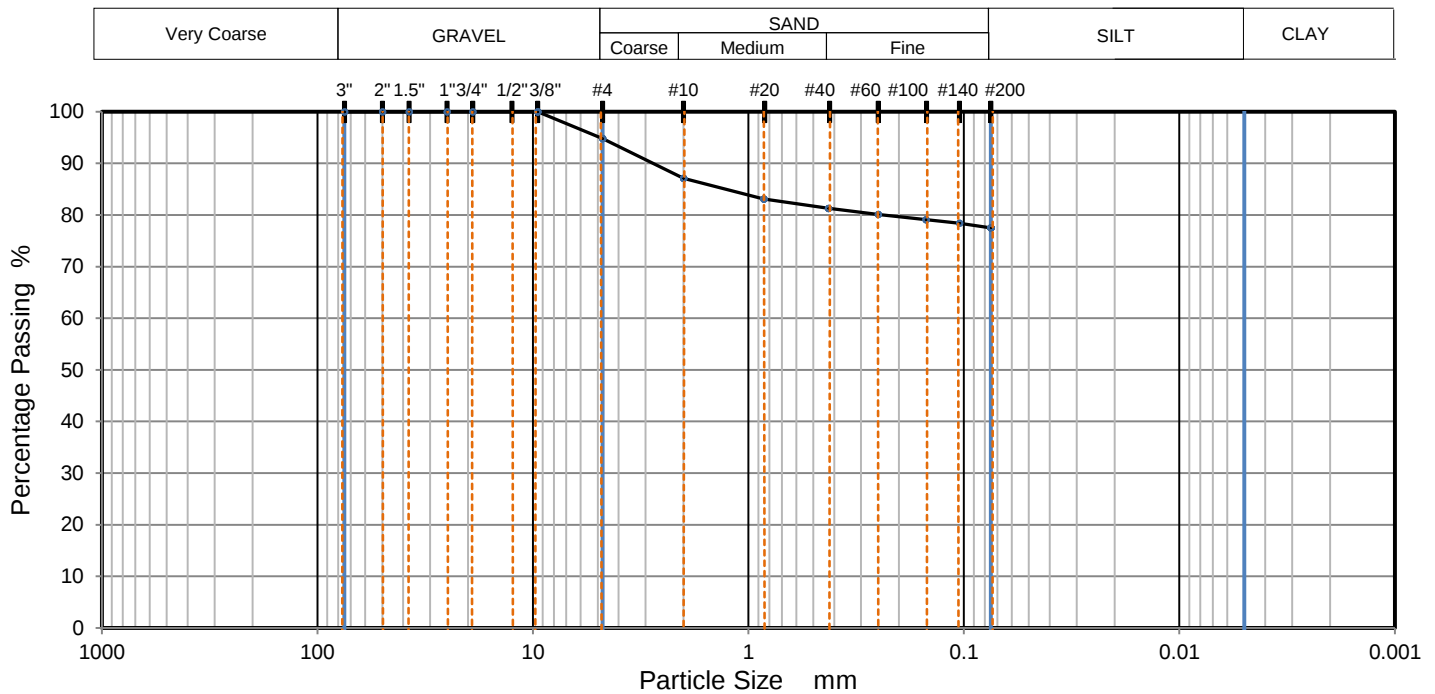
Project No.: 18:5941-A
 Depth (ft): 0.0 - 2.0
 Sample No.: S-1
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	94.8		
#10	87.1		
#20	83.1		
#40	81.3		
#60	80.1		
#100	79.1		
#140	78.4		
#200	77.5		

Dry Mass of sample, g

20.6

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	5.2
Coarse Sand, #4 to #10 sieve	7.7
Medium Sand, #10 to #40	5.8
Fine Sand, #40 to #200	3.8
Fines <#200	77.5

USCS	CH	Liquid Limit	64	D90	2.770	D50		D10	
AASHTO	A-7-6	Plastic Limit	27	D85	1.276	D30		Cu	
USCS Group Name	Fat clay with sand	Plasticity Index	37	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Fat Clay with Sand
 Sample Source: B-23

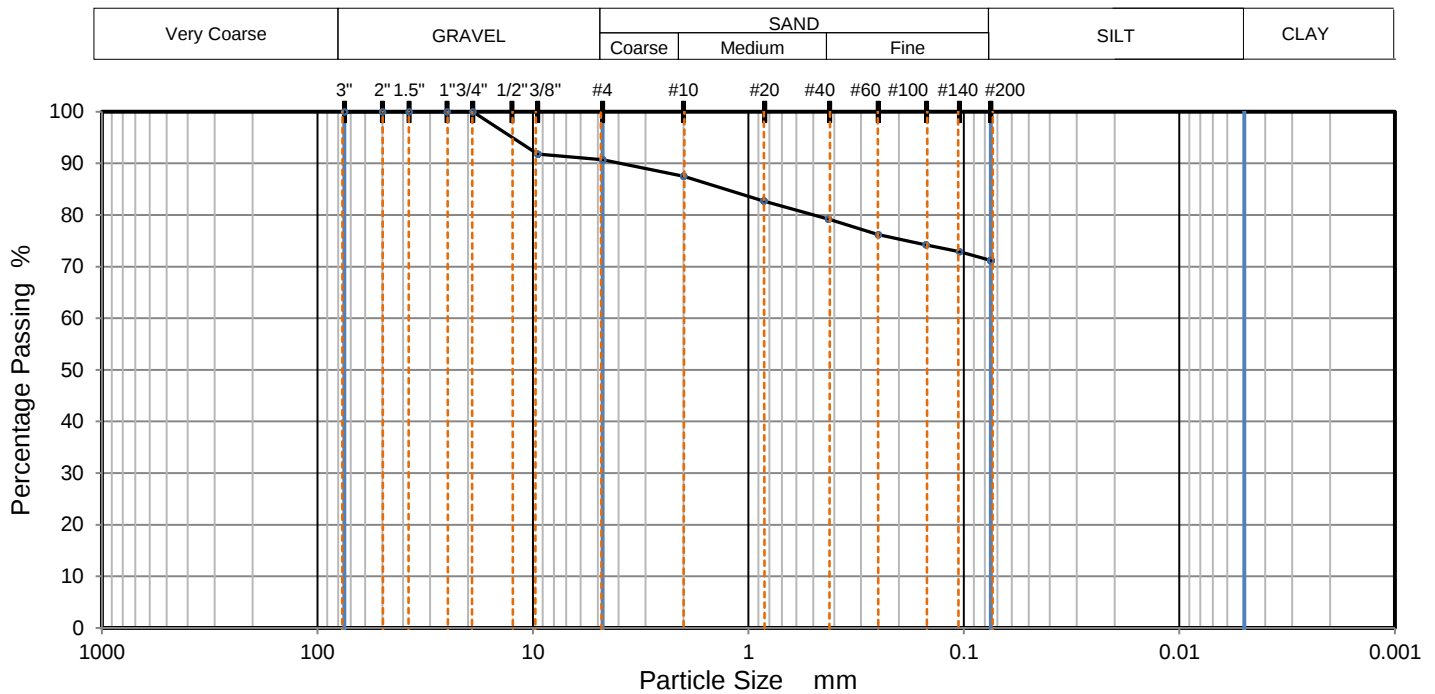
Project No.: 18:5941-A
 Depth (ft): 0.0 - 1.4
 Sample No.: S-1
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	91.8		
#4	90.7		
#10	87.5		
#20	82.7		
#40	79.2		
#60	76.2		
#100	74.2		
#140	72.9		
#200	71.2		

Dry Mass of sample, g

23.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	9.3
Coarse Sand, #4 to #10 sieve	3.2
Medium Sand, #10 to #40	8.3
Fine Sand, #40 to #200	8.0
Fines <#200	71.2

USCS	CL	Liquid Limit	40	D90	3.931	D50		D10	
AASHTO	A-6	Plastic Limit	22	D85	1.281	D30		Cu	
USCS Group Name	Lean clay with sand	Plasticity Index	18	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Lean Clay with Sand
 Sample Source: B-26

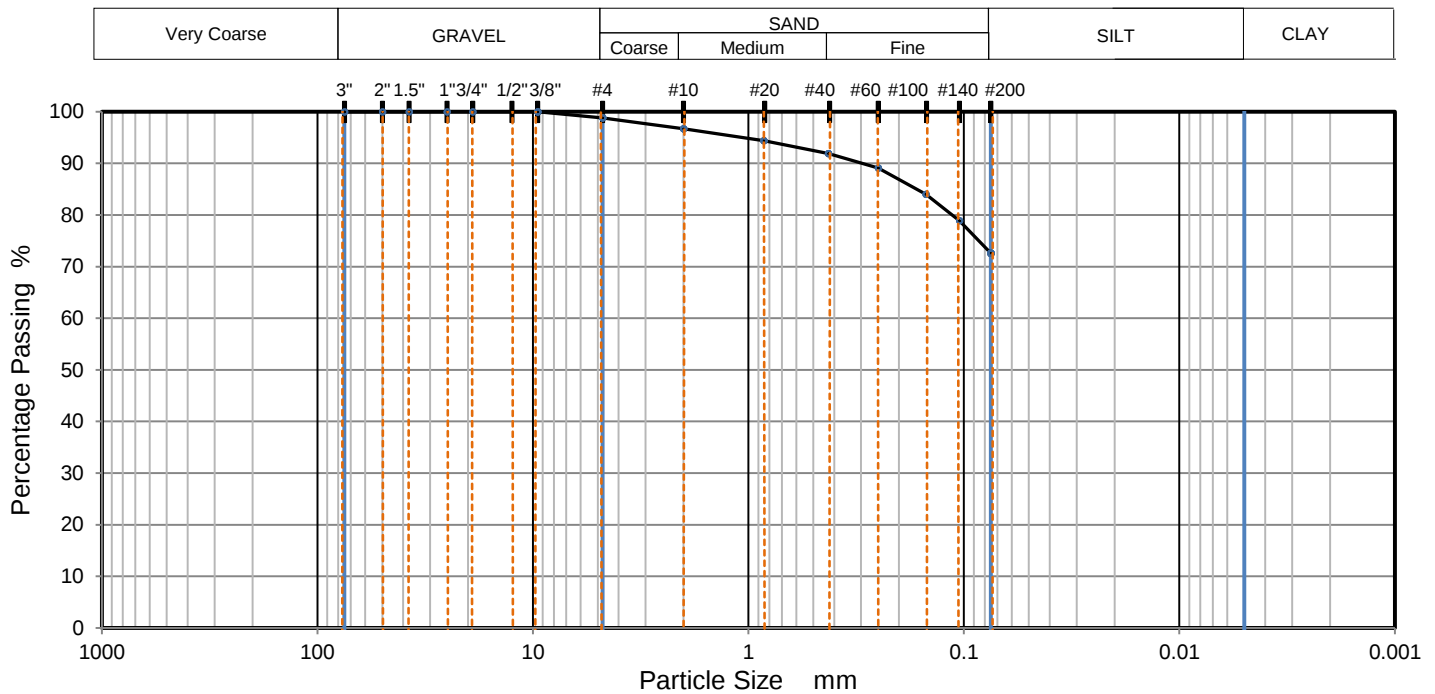
Project No.: 18:5941-A
 Depth (ft): 2.0 - 2.2
 Sample No.: S-2
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	100		
#4	99		
#10	97		
#20	94		
#40	92		
#60	89		
#100	84		
#140	79		
#200	73		

Dry Mass of sample, g

5875.3

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	1
Coarse Sand, #4 to #10 sieve	2
Medium Sand, #10 to #40	5
Fine Sand, #40 to #200	19
Fines <#200	73

USCS	CL	Liquid Limit	28	D90	0.297	D50		D10	
AASHTO	A-4	Plastic Limit	18	D85	0.166	D30		Cu	
USCS Group Name	Lean clay with sand	Plasticity Index	10	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse

Project No.: 18:5941-A

Client: Appalachian Asset Management

Depth (ft): 2.0 - 4.0

Sample Description: Lean Clay with Sand

Sample No.: S-2

Sample Source: B-29

Date Reported: 5/31/2023



Office / Lab

Address

Office Number / Fax

ECS Mid-Atlantic LLC - York

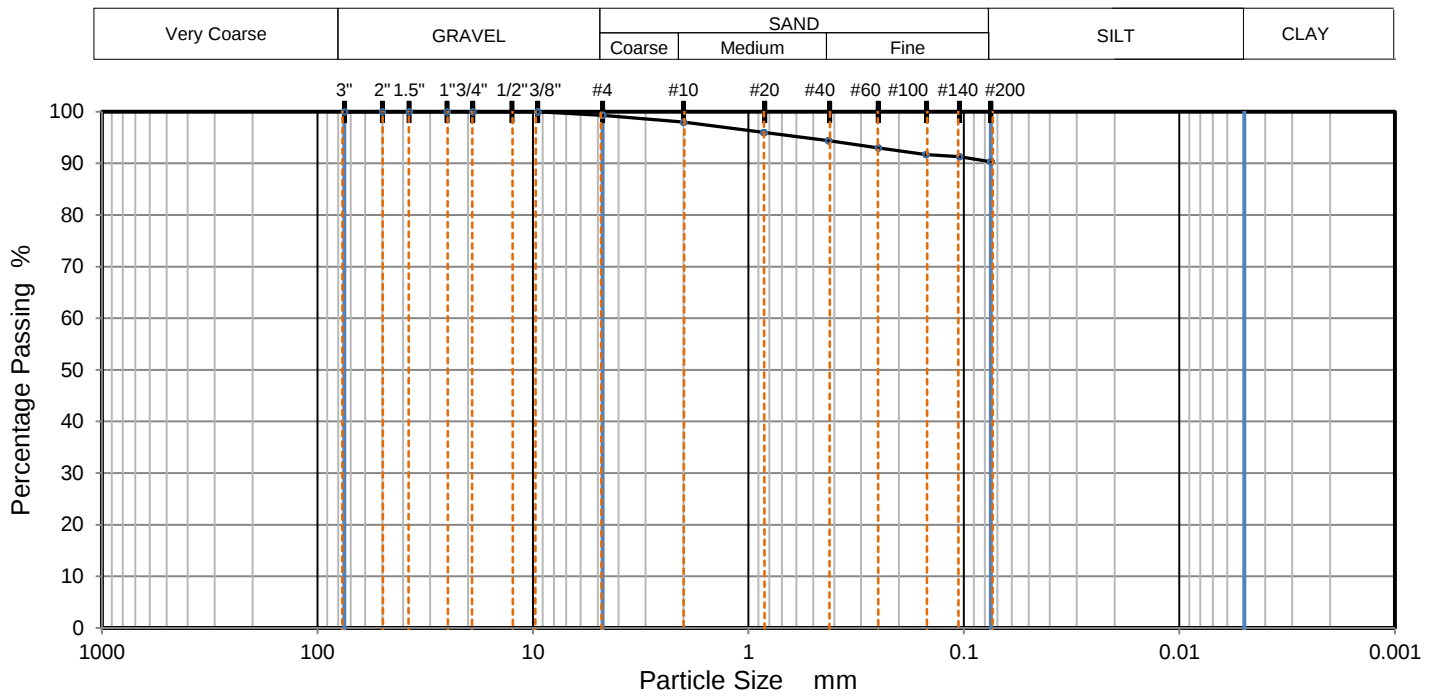
52-6 Grumbacher Road
York, PA 17406

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	99.3		
#10	98.0		
#20	96.0		
#40	94.4		
#60	93.0		
#100	91.7		
#140	91.3		
#200	90.3		

Dry Mass of sample, g

24.2

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	0.7
Coarse Sand, #4 to #10 sieve	1.3
Medium Sand, #10 to #40	3.6
Fine Sand, #40 to #200	4.1
Fines <#200	90.3

USCS	CL	Liquid Limit	48	D90		D50		D10	
AASHTO	A-7-6	Plastic Limit	21	D85		D30		Cu	
USCS Group Name	Lean clay	Plasticity Index	27	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse

Client: Appalachian Asset Management

Sample Description: Lean Clay

Sample Source: B-35

Project No.: 18:5941-A

Depth (ft): 2.0 - 2.8

Sample No.: S-2

Date Reported: 5/31/2023



Office / Lab

Address

Office Number / Fax

ECS Mid-Atlantic LLC - York

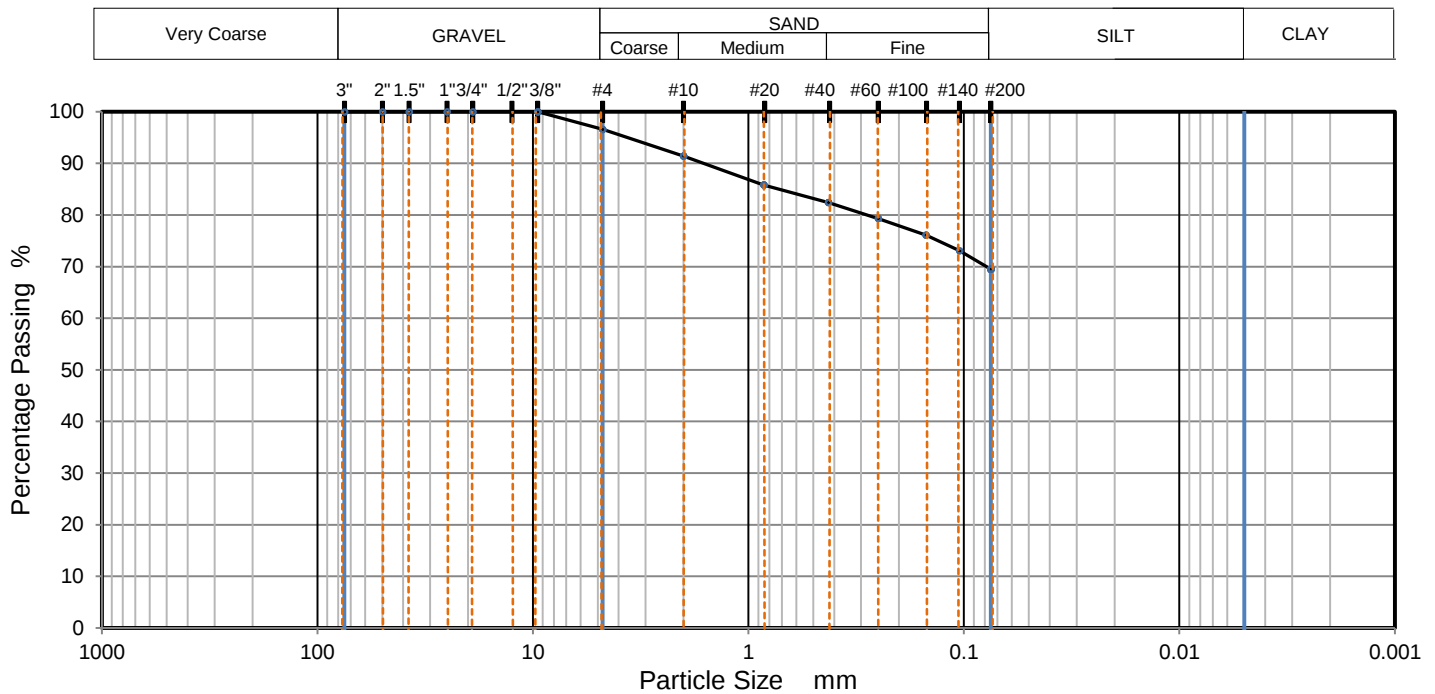
52-6 Grumbacher Road
York, PA 17406

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD B)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100.0		
2"	100.0		
1 1/2"	100.0		
1"	100.0		
3/4"	100.0		
3/8"	100.0		
#4	96.6		
#10	91.4		
#20	85.8		
#40	82.4		
#60	79.3		
#100	76.1		
#140	73.1		
#200	69.5		

Dry Mass of sample, g

30.7

Sample Proportions	% dry mass
Very coarse, >3" sieve	0.0
Gravel, 3" to # 4 sieve	3.4
Coarse Sand, #4 to #10 sieve	5.2
Medium Sand, #10 to #40	9.0
Fine Sand, #40 to #200	12.9
Fines <#200	69.5

USCS	CH	Liquid Limit	58	D90	1.615	D50		D10	
AASHTO	A-7-6	Plastic Limit	25	D85	0.722	D30		Cu	
USCS Group Name	Sandy fat clay	Plasticity Index	33	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse

Client: Appalachian Asset Management

Sample Description:

Sample Source: B-45

Project No.: 18:5941-A

Depth (ft): 2.0 - 4.0

Sample No.: S-2

Date Reported: 5/31/2023



Office / Lab

Address

Office Number / Fax

ECS Mid-Atlantic LLC - York

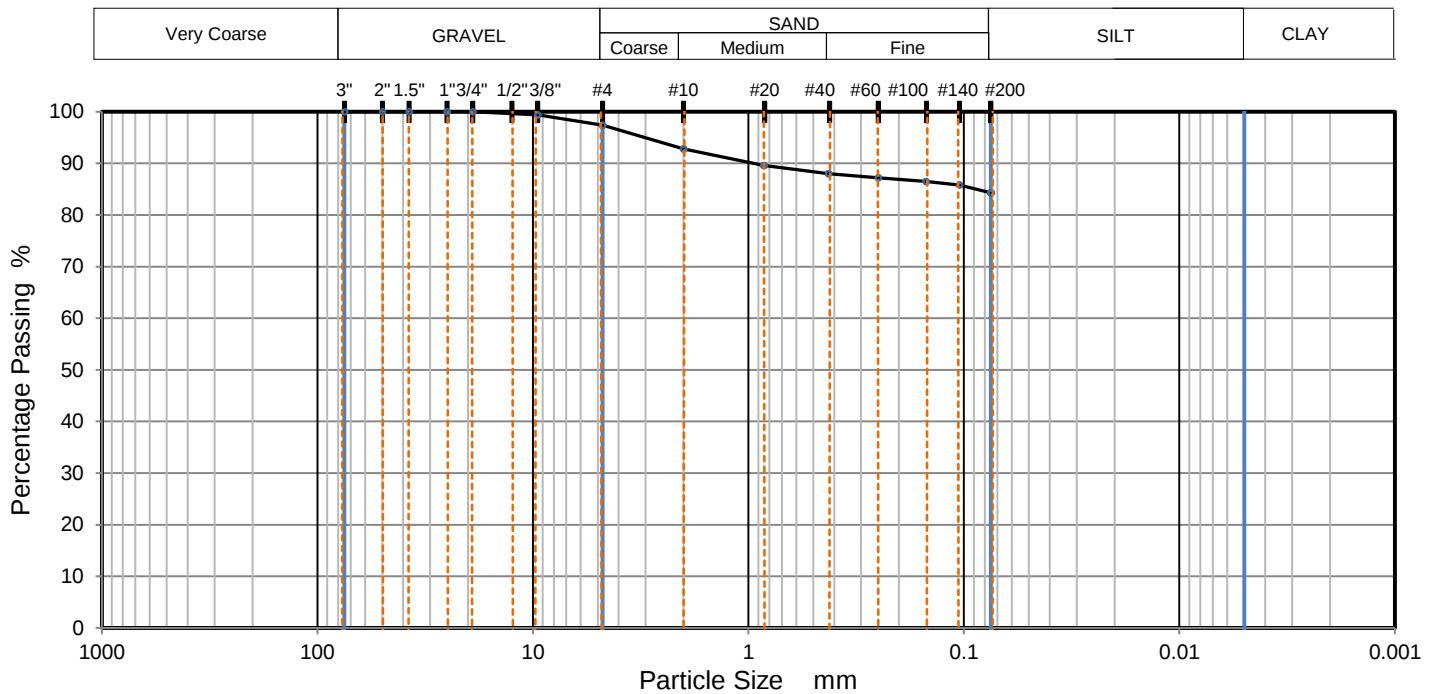
52-6 Grumbacher Road
York, PA 17406

(717)767-4788

(717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

PARTICLE SIZE DISTRIBUTION



TEST RESULTS (ASTM D6913M-17-METHOD A)

Sieving		Hydrometer Sedimentation	
Particle Size	% Passing	Particle Size mm	% Passing
3"	100		
2"	100		
1 1/2"	100		
1"	100		
3/4"	100		
3/8"	99		
#4	97		
#10	93		
#20	90		
#40	88		
#60	87		
#100	87		
#140	86		
#200	84		

Dry Mass of sample, g

5823.5

Sample Proportions	% dry mass
Very coarse, >3" sieve	0
Gravel, 3" to # 4 sieve	3
Coarse Sand, #4 to #10 sieve	5
Medium Sand, #10 to #40	5
Fine Sand, #40 to #200	4
Fines <#200	84

USCS	CH	Liquid Limit	53	D90	0.946	D50		D10	
AASHTO	A-7-6	Plastic Limit	23	D85	0.088	D30		Cu	
USCS Group Name	Fat clay with sand	Plasticity Index	30	D60		D15		Cc	

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample Description: Sandy Fat Clay
 Sample Source: B-48

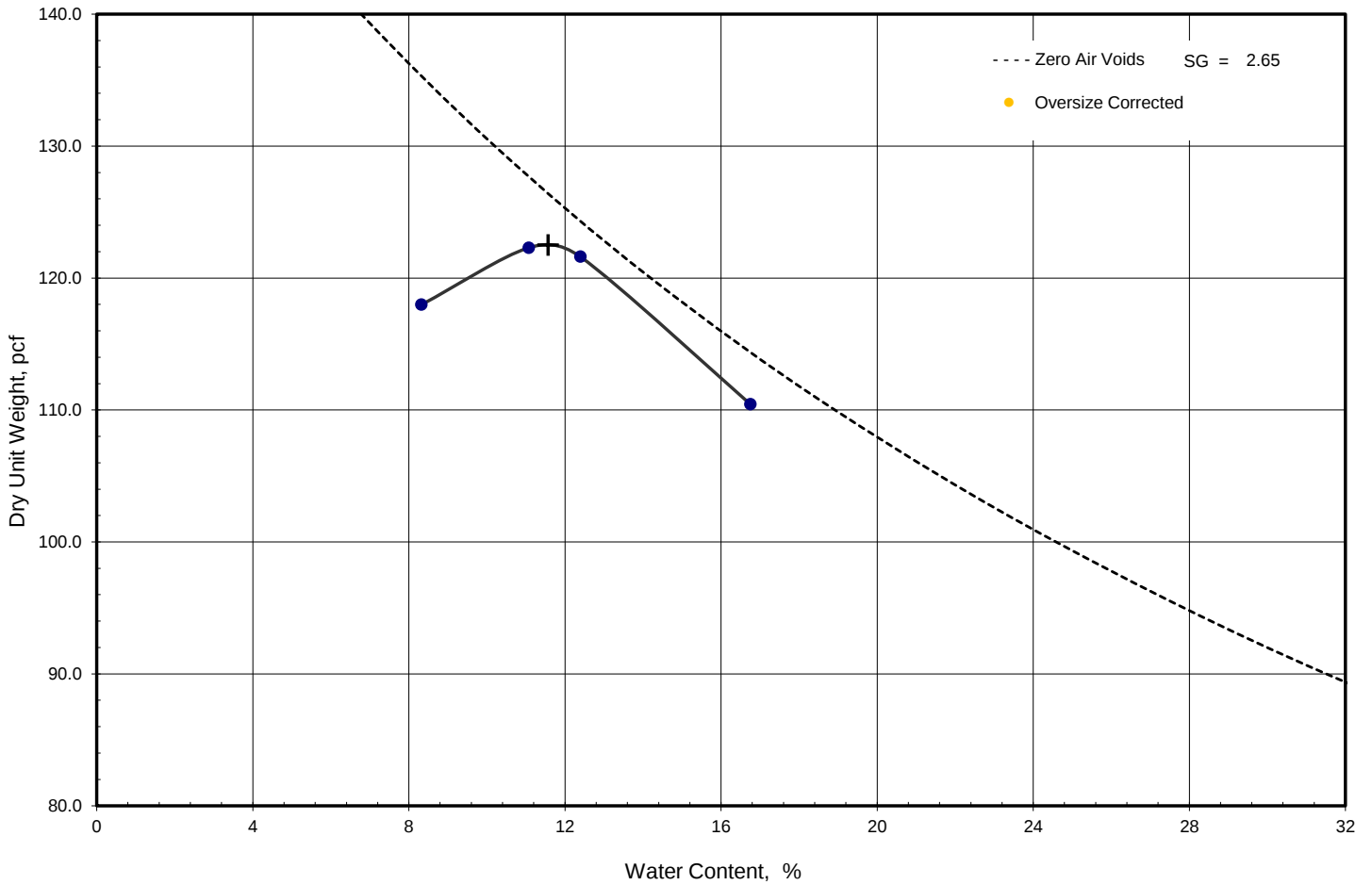
Project No.: 18:5941-A
 Depth (ft): 0.0 - 1.5
 Sample No.: S-1
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihe		

Laboratory Compaction Characteristics of Soil Using Modified Effort



Optimum Moisture Content		11.6	%	Preparation	ASTM dry preparation method	
Maximum Dry Unit Weight		122.5	pcf	Type of rammer	Mechanical - sector face	
				Test Specification / Method	ASTM D1557-12e1-method C	
				Specific gravity - D854 water pycnometer	2.65	Historical
Cumulative material retained on:		3/4 in. sieve	%	Coarse Aggregate Specific Gravity -		
		3/8 in. sieve	%			
		#4 sieve	%			

Soil Description	Nat. Moist. %	Liquid Limit	Plasticity Index	%< #200	USCS	AASHTO
Lean Clay with Sand	16.4	28	10	72.6	CL	A-4

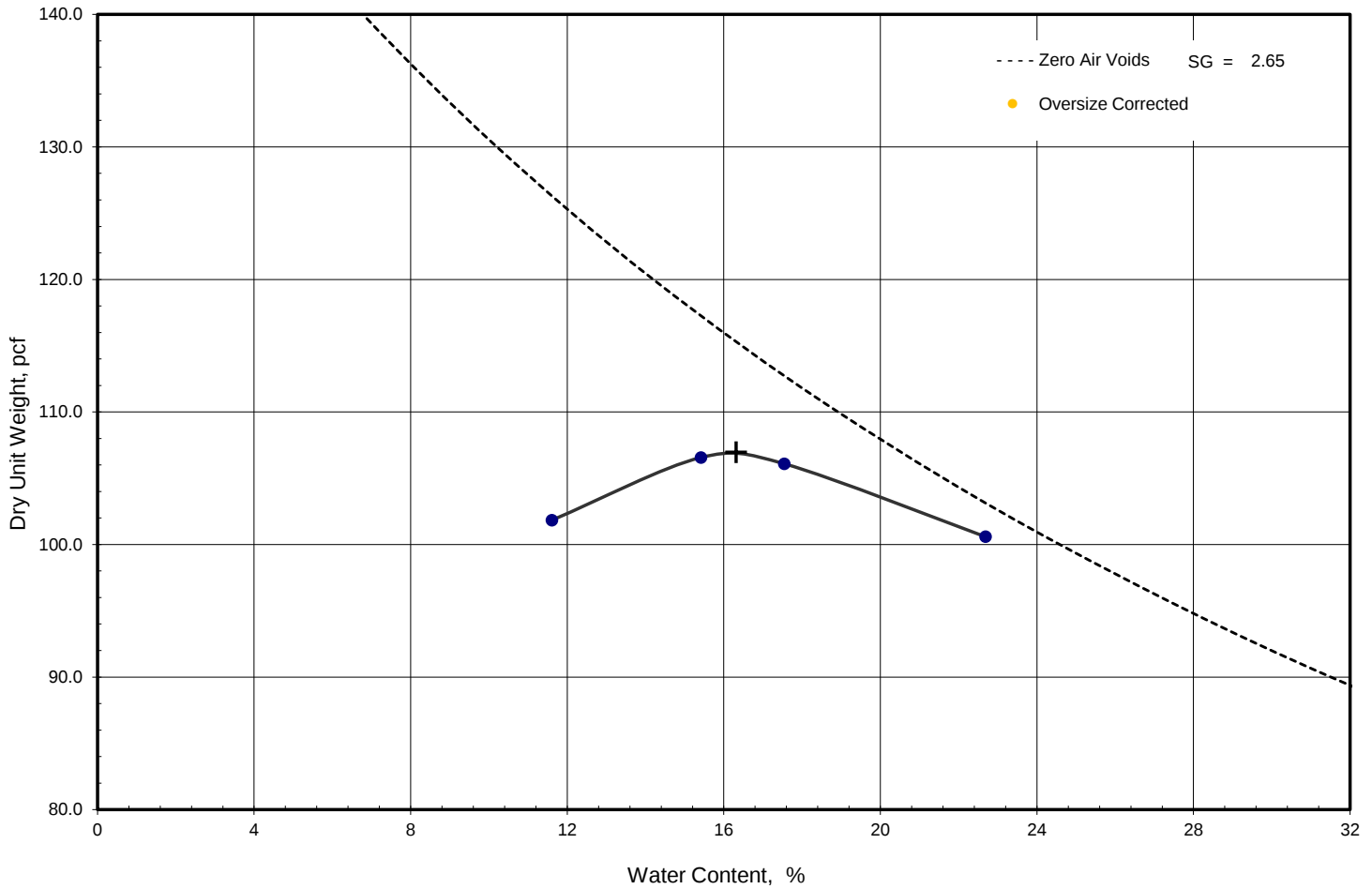
Project: Proposed Ritner Highway Warehouse	Project No.: 18:5941-A
Client: Appalachian Asset Management	Depth (ft.): 2 - 4
Sample / Source: B-29	Sample No.: S-2
Test Reference/No.:	Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew		

Laboratory Compaction Characteristics of Soil Using Modified Effort



Optimum Moisture Content			16.3	%	Preparation	ASTM dry preparation method	
Maximum Dry Unit Weight			107.0	pcf	Type of rammer	Mechanical - sector face	
					Test Specification / Method	ASTM D1557-12e1-method C	
					Specific gravity - D854 water pycnometer	2.65	Historical
Cumulative material retained on:	3/4 in. sieve	%	Coarse Aggregate Specific Gravity -				
	3/8 in. sieve	%					
	#4 sieve	%					

Soil Description	Nat. Moist. %	Liquid Limit	Plasticity Index	%< #200	USCS	AASHTO
Sandy Fat Clay	29.7	53	30	84.3	CH	A-7-6

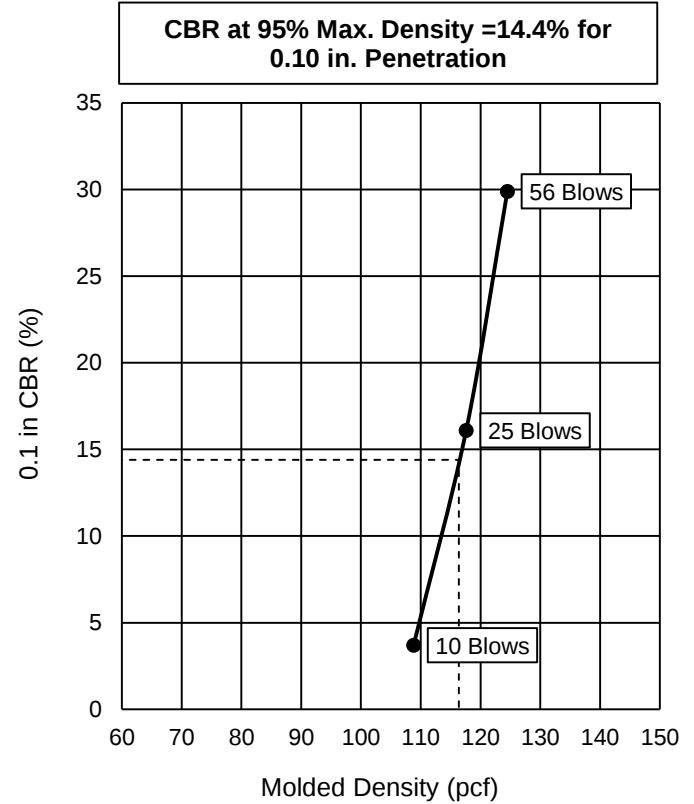
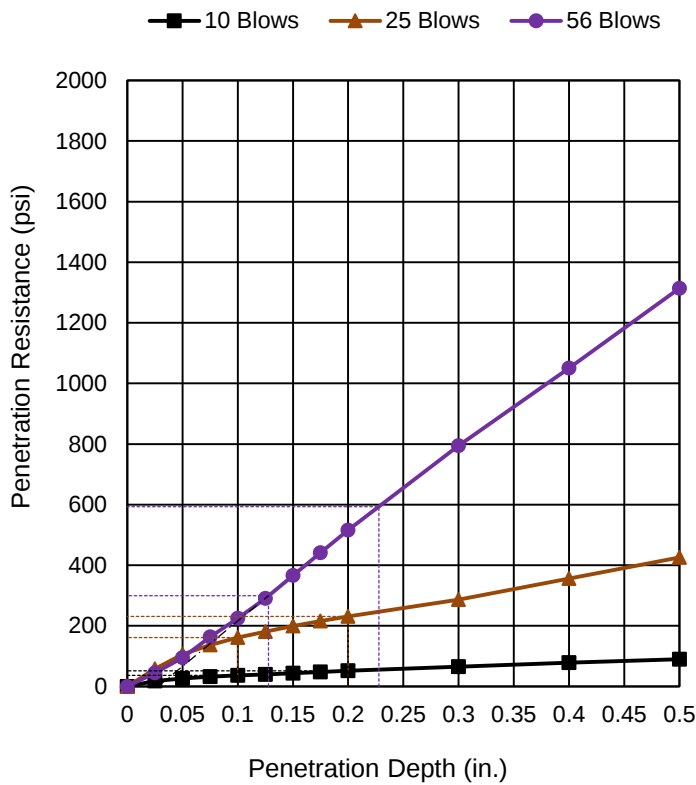
Project: Proposed Ritner Highway Warehouse Client: Appalachian Asset Management Sample / Source: B-48 Test Reference/No.:	Project No.: 18:5941-A Depth (ft.): 0 - 1.5 Sample No.: S-1 Date Reported: 5/31/2023
--	---



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agoliheW		

California Bearing Ratios (CBR) of Laboratory-Compacted Soils



TEST RESULTS (ASTM D-1883)

	Molded			Soaked			CBR (%)		Linearty Correction (in.)	Surcharge (lbs.)	Max Swell (%)		
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.1 in.	0.2 in.					
1	108.8	88.8	12.1	101.2	82.6	19.6	3.7	3.4	0.00	10	0.79		
2	117.6	96.0	12.4	112.1	91.5	17.1	16.1	15.4	0.00	10	0.63		
3	124.5	101.6	12.3	120.8	98.6	15.2	29.9	39.5	0.03	10	0.52		
	Material Description					AASHTO	USCS	MAX. Dens. (pcf)	Optimum Moisture (%)	LL	PI	% Fines	% Gravel
	Lean Clay with Sand												
						A-4	CL	122.5	11.6	28	10	72.6	1.2

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample / Source B-29
 Test Reference/No.: 1

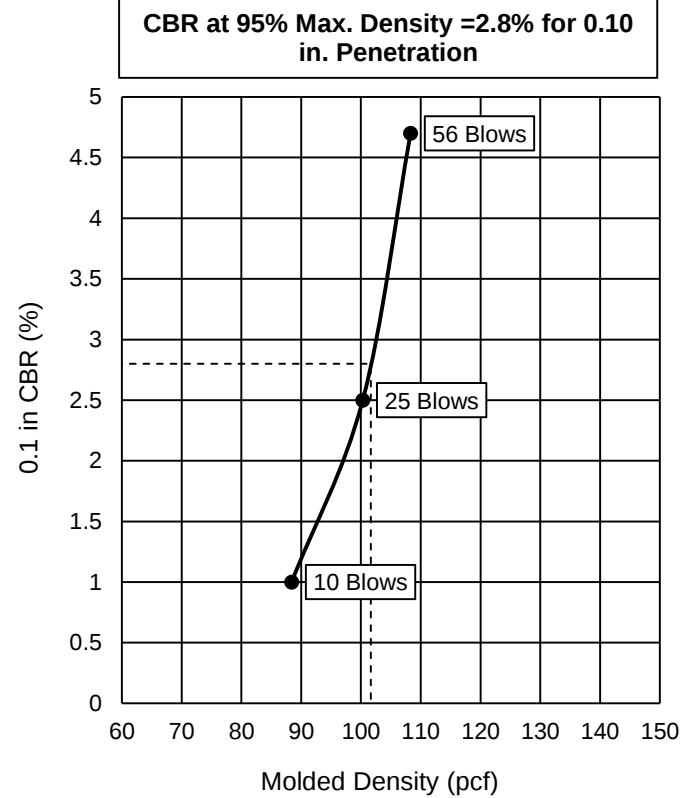
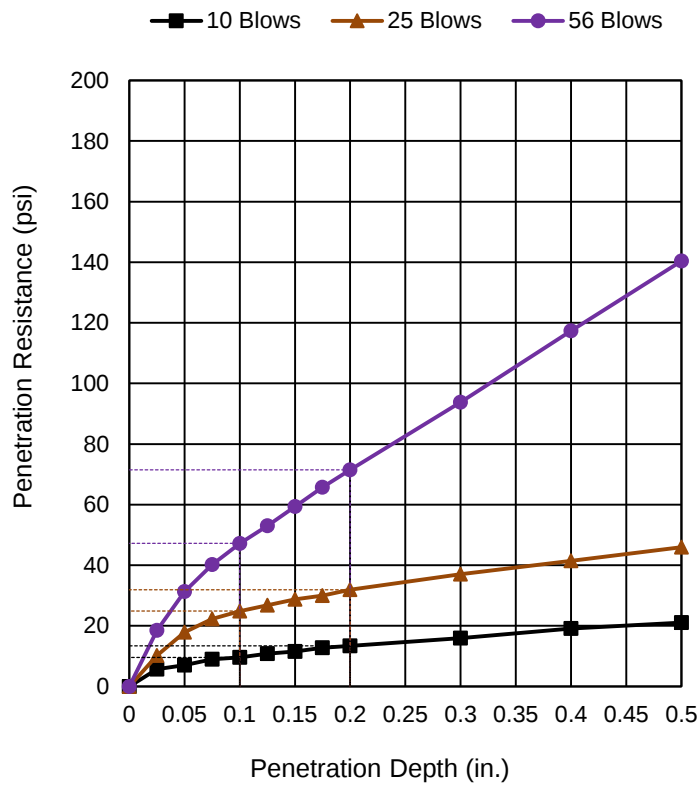
Project No.: 18:5941-A
 Depth (ft.): 2 - 4
 Sample No.: S-2
 Date Reported: 5/31/2023



Office / Lab	Address	Office Number / Fax
ECS Mid-Atlantic LLC - York	52-6 Grumbacher Road York, PA 17406	(717)767-4788 (717)767-5658

Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew		

California Bearing Ratios (CBR) of Laboratory-Compacted Soils



TEST RESULTS (ASTM D-1883)

	Molded			Soaked			CBR (%)		Linearty Correction (in.)	Surcharge (lbs.)	Max Swell (%)		
	Density (pcf)	Percent of Max. Dens.	Moisture (%)	Density (pcf)	Percent of Max. Dens.	Moisture (%)	0.1 in.	0.2 in.					
1	88.4	82.6	19.1	75.9	70.9	34.3	1.0	0.9	0.00	10	3.32		
2	100.3	93.7	18.9	87.6	81.9	32.1	2.5	2.1	0.00	10	2.96		
3	108.3	101.2	18.7	96.7	90.4	28.8	4.7	4.8	0.00	10	3.28		
	Material Description					AASHTO	USCS	MAX. Dens. (pcf)	Optimum Moisture (%)	LL	PI	% Fines	% Gravel
	Sandy Fat Clay												
						A-7-6	CH	107.0	16.3	53	30	84.3	2.6

Project: Proposed Ritner Highway Warehouse
 Client: Appalachian Asset Management
 Sample / Source B-48
 Test Reference/No.: 1

Project No.: 18:5941-A
 Depth (ft.): 0 - 1.5
 Sample No.: S-1
 Date Reported: 5/31/2023



Office / Lab
 ECS Mid-Atlantic LLC - York

Address
 52-6 Grumbacher Road
 York, PA 17406

Office Number / Fax
 (717)767-4788
 (717)767-5658

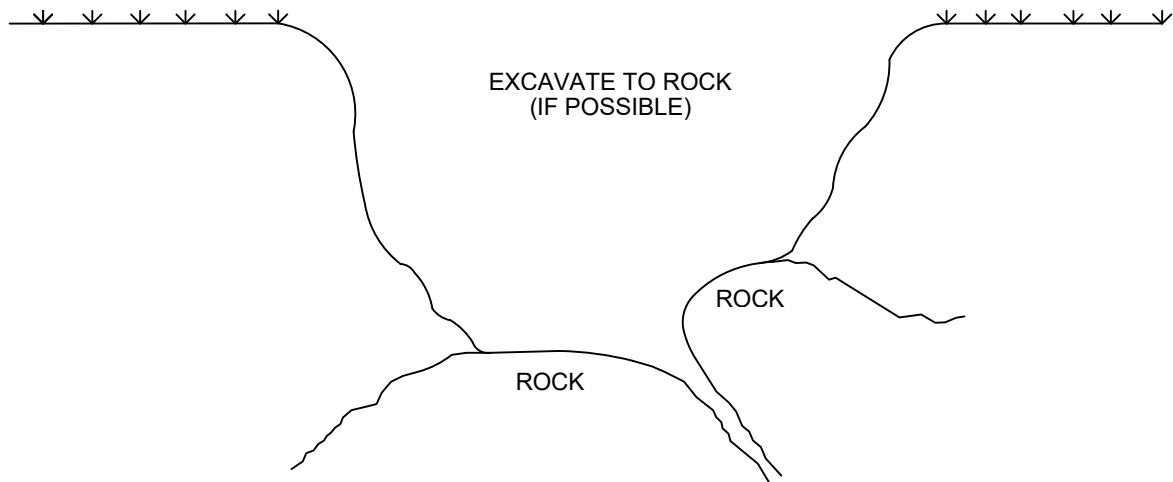
Tested by	Checked by	Approved by	Date Received	Remarks
JGates		agolihew		

APPENDIX D – Details

Sinkhole Repair Details

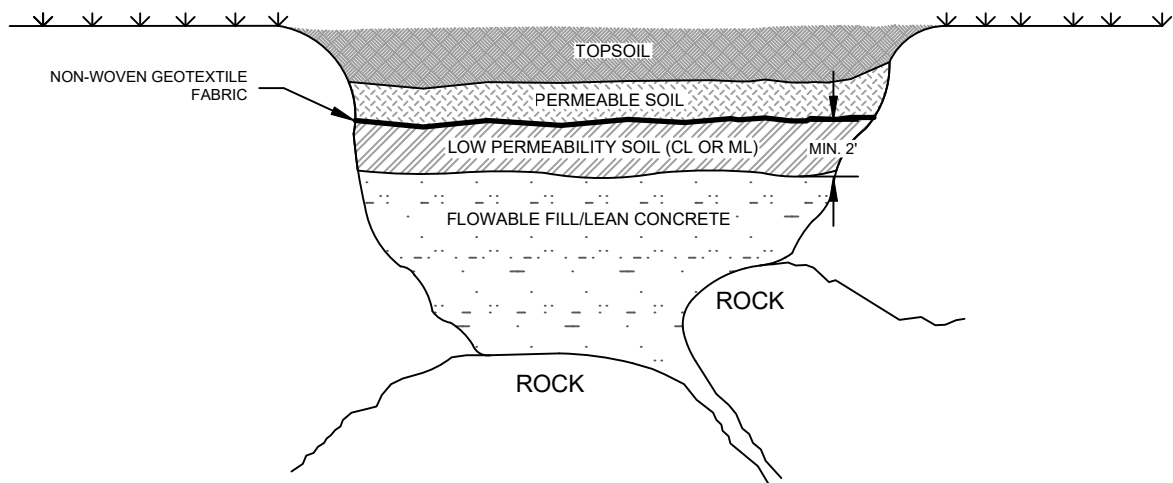
Settlement Plate Specifications

Proposed Settlement Plate Locations



STEP 1: EXCAVATE THE SINKHOLE DOWN TO ROCK, IF POSSIBLE.

STEP 2: CLEAN OUT ALL LOOSE SOIL AND EXPOSE THROAT, IF POSSIBLE.



STEP 3: PLACE APPROXIMATELY 2 TO 3 FEET (OR AS NEEDED) OF FLOWABLE FILL/LEAN CONCRETE.

STEP 4: COMPACT LOW PERMEABILITY SOIL (CL OR ML MATERIALS) OVER FLOWABLE FILL/LEAN CONCRETE TO A MINIMUM THICKNESS OF 2 FEET.

STEP 5: COVER THE SOIL WITH NON-WOVEN GEOTEXTILE FABRIC.

STEP 6: COVER GEOTEXTILE WITH PERMEABLE SOIL, COMPATIBLE WITH THE ON-SITE SOILS. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY (MDD) AS OBTAINED BY ASTM D698 (OR 92% OF THE MDD AS OBTAINED BY ASTM D1557.)

STEP 7: FILL THE REMAINDER OF THE HOLE WITH SOIL TO MATCH GRADE. THIS CAN BE LAYERED TO MATCH THE EXISTING SOIL PROFILE.

NOTE: ALL SINKHOLE REPAIRS SHOULD BE PERFORMED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER EXPERIENCED WITH CARBONATE GEOLOGY AND SINKHOLE REPAIR PROCEDURES. DETAILS CAN BE MODIFIED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER BASED ON THE ENCOUNTERED CONDITIONS. POSITIVE DRAINAGE AWAY FROM THE OPEN EXCAVATION SHOULD BE MAINTAINED.

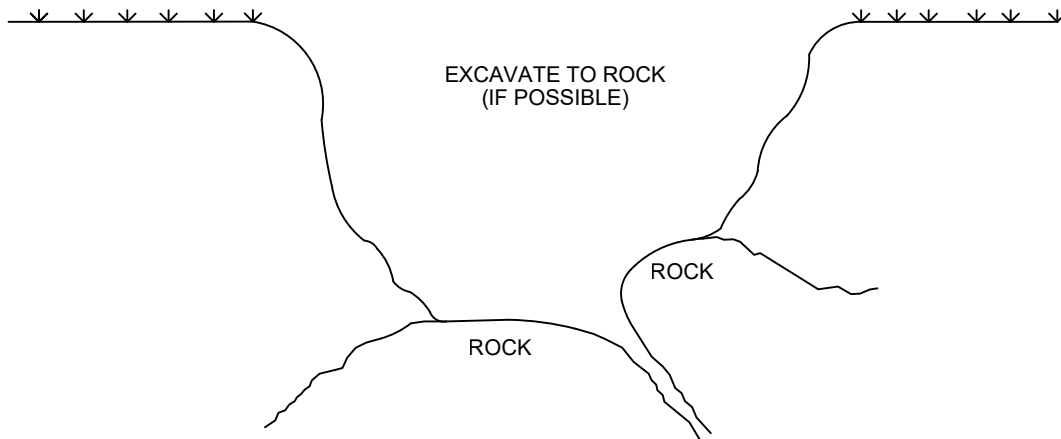


ECS MID-ATLANTIC, LLC
52-6 GRUMBACHER ROAD
YORK, PA 17406
(717)-767-4788

TYPICAL SINKHOLE REPAIR DETAIL

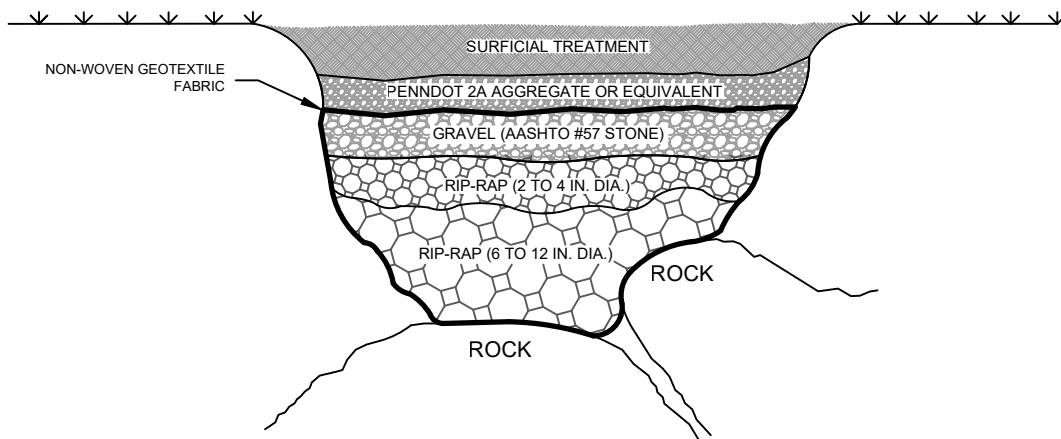
GROUTED REPAIR

NOT TO SCALE



STEP 1: EXCAVATE THE SINKHOLE DOWN TO ROCK, IF POSSIBLE.

STEP 2: CLEAN OUT ALL LOOSE SOIL AND EXPOSE THROAT, IF POSSIBLE.



STEP 3: LINE THE EXCAVATION WITH NON-WOVEN GEOTEXTILE FABRIC (MIRAFI 140N OR EQUIVALENT).

STEP 4: PLACE A LAYER OF LARGE STONE IN THE EXCAVATION. STONE SHOULD BE APPROXIMATELY 6 TO 12 INCHES IN DIAMETER.

STEP 5: PLACE A LAYER OF SMALLER STONE ON TOP. THIS LAYER SHOULD CONSIST OF STONES APPROXIMATELY 2 TO 4 INCHES IN DIAMETER.

STEP 6: PLACE A LAYER OF GRAVEL ON TOP OF THE SMALLER STONES. THE GRAVEL SHOULD BE AASHTO #57 STONE OR EQUIVALENT.

STEP 7: COVER THE GRAVEL WITH THE GEOTEXTILE FABRIC. THIS WILL PREVENT THE FINES FROM THE NEXT LAYER FROM BEING LOST IN THE VOID SPACE OF THE GRAVEL/STONE.

STEP 8: PLACE A LAYER OF PENNDOT 2A AGGREGATE OR EQUIVALENT ON TOP OF THE GEOTEXTILE FABRIC. COMPACT TO A MINIMUM OF 95% OF THE MAXIMUM DRY DENSITY (MDD) AS OBTAINED BY ASTM D698 (OR 92% OF THE MDD AS OBTAINED BY ASTM D1557.)

STEP 9: FILL THE REMAINDER OF THE HOLE WITH SOIL TO MATCH GRADE. THIS CAN BE LAYERED TO MATCH THE EXISTING SOIL PROFILE.

NOTE: IDEALLY EACH LAYER IS APPROXIMATELY 6 INCHES TO 2 FEET THICK; HOWEVER, THICKER LAYERS ARE SOMETIMES WARRANTED DEPENDING ON THE DEPTH OF THE FEATURE. ALL SINKHOLE REPAIRS SHOULD BE PERFORMED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER EXPERIENCED WITH CARBONATE GEOLOGY AND SINKHOLE REPAIR PROCEDURES. DETAILS CAN BE MODIFIED AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER BASED ON THE ENCOUNTERED CONDITIONS. POSITIVE DRAINAGE AWAY FROM THE OPEN EXCAVATION SHOULD BE MAINTAINED.



ECS MID-ATLANTIC, LLC
52-6 GRUMBACHER ROAD
YORK, PA 17406
(717)-767-4788

TYPICAL SINKHOLE REPAIR DETAIL

STONE TYPE REPAIR

NOT TO SCALE

SETTLEMENT PLATES

I. DESCRIPTION

This work will consist of the installation of settlement platforms as specified herein. The purpose of installing and measuring the vertical displacement of the settlement plate/platforms is to provide the Engineer with data indicating that the very soft/very loose subsurface conditions have consolidated sufficiently prior to building foundation construction. The Engineer will review and interpret settlement data and provide opinions on when it is appropriate to begin foundation construction. The Contractor shall furnish all necessary labor, equipment, and materials and shall perform all operations necessary and incidental to the installation of all instrumentation specified. Instrumentation shall be installed at the locations indicated on Figure 1 attached at the end of this specification or as directed by the Engineer.

II. MATERIALS

- I. *General* - Settlement platforms are surface displacement reference platforms placed on the prepared ground surface in locations as indicated in geotechnical report prior to preload fill placement. Settlement platforms shall consist of 3 foot square plates to which risers are attached. The risers are extended as the surcharge fill is placed. Settlement platforms are monitored by optical survey methods to determine vertical displacements occurring during and after embankment construction.
- II. *Submittals* - Prior to installation, the Contractor shall submit suppliers' or manufacturer's plans (or shop drawings) to the Engineer for approval.
- III. *Materials* - The base plate shall be made from 1/8-inch thick steel plate conforming to the requirements of ASTM A 36. The casing and inner riser pipe shall be steel pipe conforming to the requirements of ASTM A 53, welded, standard weight. The casing shall consist of 3-inch diameter pipe and the riser shall consist of 1-1/2 inch diameter pipe. Centralizing spacers shall also be provided to maintain the alignment of the exterior casing. A conceptual sketch of the settlement platform is provided as attached to these specifications.

III. EQUIPMENT AND INSTALLATION PROCEDURE

The Engineer shall be present during installation of the settlement platforms to determine the general degree of contractor compliance with the plans and specifications.

Settlement platforms shall be constructed and installed according to Figure 1 before placement of the sand blanket fill material. The settlement platforms shall be installed on a 4-inch thick sand base on the original ground surface. The riser pipe shall be marked in 1-foot increments and labeled at 5-foot increments to indicate the distances above the platform extending up through the embankment fill. Settlement platforms shall be fabricated as shown on Figure 1.

The sand base shall be tamped to provide a firm, level, and unyielding bearing surface for the base plate. The original ground surface must be stripped of all vegetation prior to placement of the sand base. The casing and riser pipes shall be steel pipes of Schedule 40 (ASTM A 53) with a maximum length of 6 feet. Spacers shall be provided between the riser pipe and the casing at a minimum of 3-foot intervals to ensure concentricity. A container, approximately 2.5 feet in diameter and 3 feet high, with both ends open, shall be placed around the initial length of casing pipe. This container shall be backfilled with tamped clean sand or fine gravel to support the pipe in a vertical position during fill placement until the surcharge is carried above the platform.

The casing pipe shall be marked by flags to clearly show its location and to warn equipment operators and others of its location. The Contractor shall maintain the flags during the entire length of the Contract and replace those flags that are missing. At no time shall the settlement platform risers extend higher than 5 feet above the surcharge surface elevation.

Settlement Platforms will be installed at both the original ground elevation (prior to any earthwork), and at design subgrade, prior to construction of the surcharge. Refer to the Settlement Plate Location Plan for location information.

The Contractor is responsible for maintaining the settlement platforms in working order during the length of the Contract. Settlement platforms damaged by the Contractor's construction operation or the operation of subcontractors under the direction of the Contractor shall be repaired or replaced by the Contractor at his expense within three calendar days after the damage occurs.

The Engineer shall survey the platforms (vertically and horizontally) upon completion of the installation of the settlement platforms. All settlement platforms should be initially surveyed within 24 hours after installation and prior to Fill placement. The Engineer shall survey (vertically) the platforms three times each week or upon completion of 2 feet of fill, whichever occurs first, during earthwork placement, and 3 times a week, for up to 2 weeks, after completion of fill. The Engineer shall determine when settlement has sufficiently ceased and when surcharge removal and foundation construction can begin.

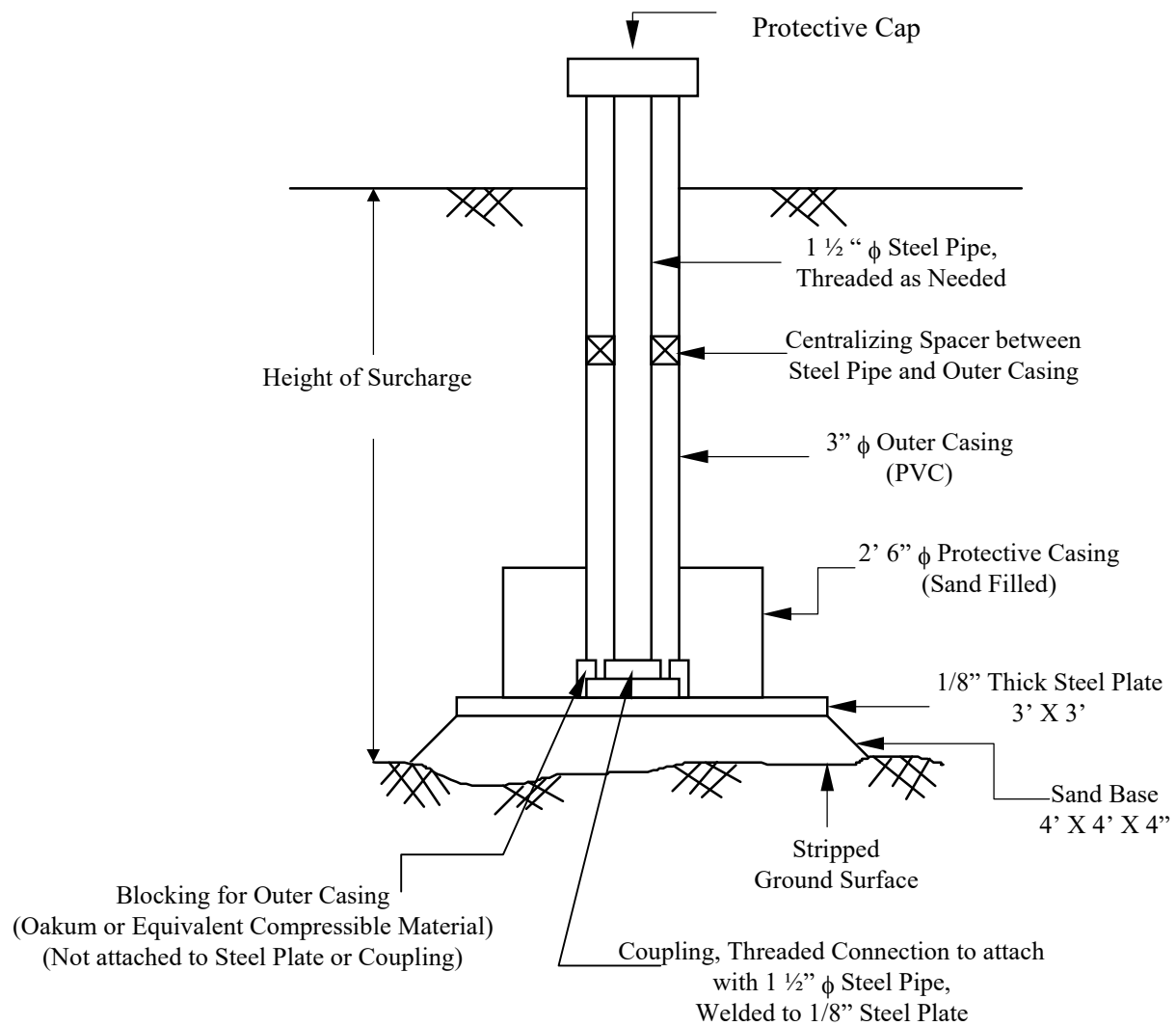
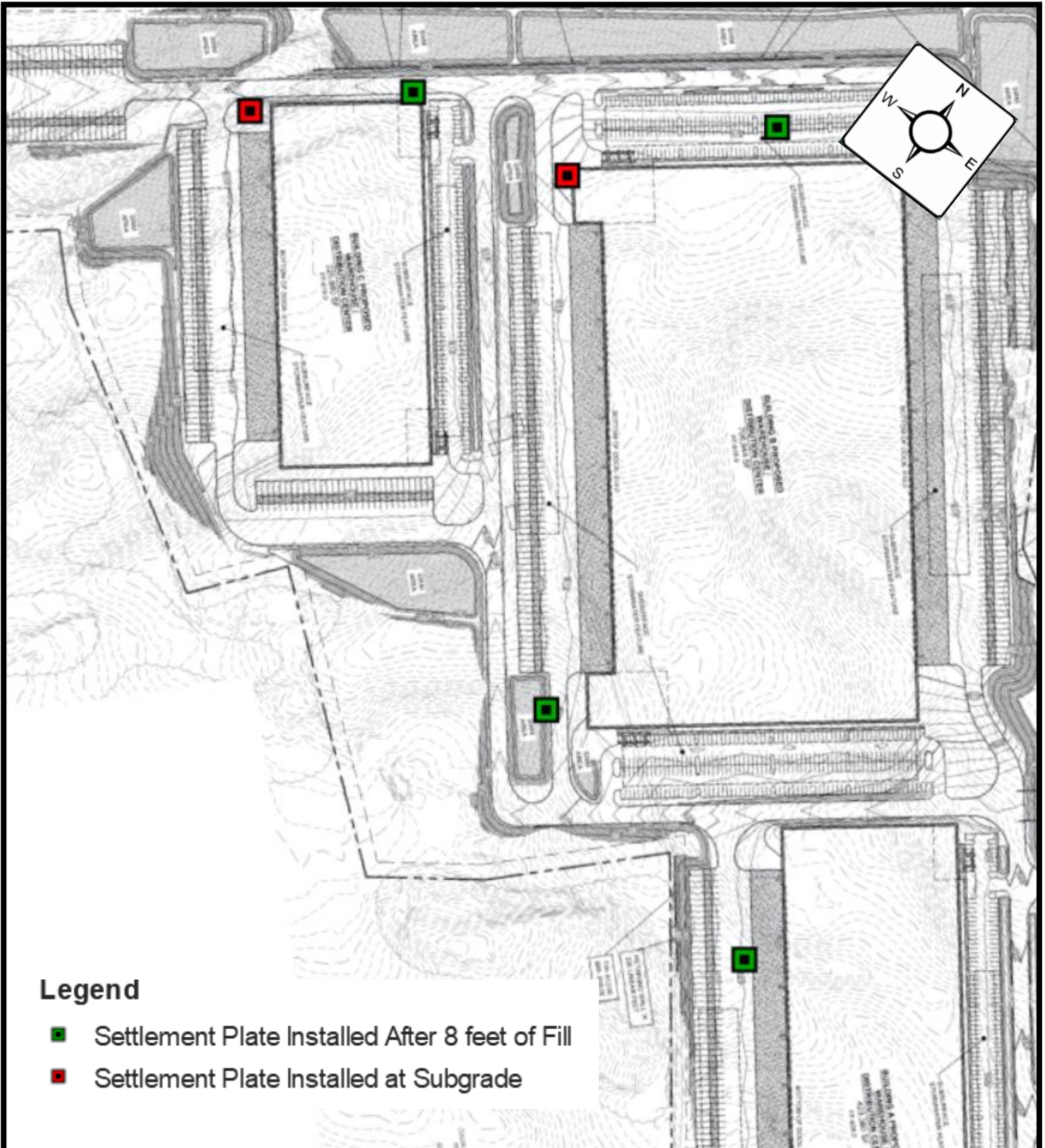


Figure 1 : Conceptual Sketch of Settlement Plate



Legend

- Settlement Plate Installed After 8 feet of Fill
- Settlement Plate Installed at Subgrade



Proposed Settlement Plate Locations PROPOSED RITNER HIGHWAY WAREHOUSE DEVELOPMENT

3485 RITNER HIGHWAY, NEWVILLE, PA
APPALACHIAN ASSET MANAGEMENT

DRAFTER	KTE
SCALE	NTS
PROJECT NO.	18:5941
DATE	6/20/2023
SOURCE	Google Earth