Taylor Run Stream Stabilization Design –Geotechnical 60% submittal City of Alexandria, VA

Draft Geotechnical Engineering Report

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April 16, 2026

Prepared for: City of Alexandria, Virginia – Department of Transportation and Environmental Services

Prepared by: AECOM

AECOM Project Number: 60742359

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Revision history

Revision	Revision date	Details	Name	Position

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1 INTRODUCTION AND SCOPE OF WORK

1.1 Introduction

The purpose of the project is to provide design and engineering services to support the City of Alexandria, Virginia in correcting impairments related to erosion and degradation of stream function, providing stormwater management, and protecting compromised infrastructure within the project area. The project will implement a minimal intervention approach to address critical areas of exposed sanitary sewer infrastructure that are at risk of damage, a deteriorated stormwater outfall, a plunge pool at the upstream daylight location, and two sections of eroding streambank that contain a sanitary sewer line. Improvements to the plunge pool will include the construction of a rock façade and the removal of existing concrete rubble previously placed in the area.

1.2 Scope of Work

The City of Alexandria is planning to conduct a minimal stabilization approach for areas of stream bank and infrastructure stabilization from concept to develop full design and construction documents for the project. This project will be a design project to protect and stabilize the stream and stream embankments at the Taylor Run area.

AECOM was requested to provide geotechnical design recommendations in an area proposed for the planned stabilization by utilizing a geotechnical site characterization that includes a field testing and laboratory testing program. AECOM's scope of work for the project included drilling four soil borings, installing one temporary groundwater well, performing geotechnical laboratory testing, performing engineering analyses, and preparation of this geotechnical engineering report.

2 EXISTING SITE CONDITIONS AND PROPOSED CONSTRUCTION

2.1 Existing Site Conditions

We performed a site visit on October 02, 2025. During our site visit we observed various damage across the designated areas. The limits of the different design areas are shown in Figure 1 of this report. Three to four feet of bank erosion was observed within the site. The observations are summarized below:

Design Area 1:

- Localized erosion observed behind the wingwall.
- Presence of concrete debris within the channel.
- Erosion along both channel banks.

Design Area 2:

- Visible deterioration of the wingwall structure.
- Approximately 2 feet of bank erosion has resulted in the exposure of 12 inches of a ductile iron pipe.
- Bank erosion presents along the left bank of the channel.

Design Area 3:

- Exposed sanitary sewer manhole within the channel.
- Undermining observed beneath the concrete skirt beneath the manhole.
- Accumulation of wood debris that is obstructing flow within the channel.

Design Area 4:

- Channel erosion that has exposed root masses along the channel bank.
- Significant sheet pile retaining wall lateral movement of about 3 to 5 inches.
- Approximately 3 feet of bank erosion that has resulted in the exposure of 18 inches of ductile iron pipe.
- Wood debris is presented within the channel.
- Erosion that was observed along both channel banks.

We did not observe any slope failures or other evidence that would suggest that slope failures have occurred at the site.

2.2 Proposed Construction

This project involves the design of a “minimal stabilization” approach to provide targeted stream stabilization measures aimed at protecting at-risk infrastructure along Taylor Run in the City of Alexandria. The work focuses on four priority areas, each containing vulnerable infrastructure such as degraded outfalls, exposed sanitary sewer manholes, and sanitary sewer stream

crossings. All focus areas and potential construction access points are located within City-owned property. Additionally, the project area is situated within or adjacent to Chinquapin Park.

We understand that the proposed construction involves the installation of gravity retaining walls across all designated design areas to mitigate potential failure of slopes due to slope stability and erosion. The gravity walls are to be underlain by sheet piles. As-built drawings indicate that the existing steel sheet piles extend about 4.5 ft beneath the current ground surface in the stream areas. We also understand that the scour depth is estimated to be about 8 to 10 feet below the current ground surface in the stream channels.

3 RECENT FIELD EXPLORATION

3.1 Regional Geology

The soil borings indicate that the subject site is underlain predominately by Alluvium soils deposited within the current river valleys of the Potomac and its tributaries. These Quaternary deposits consist of interbedded sedimentary deposits of clay, silt, sand, and gravel, with varying amounts of organic materials, including peat and wood fragments. These soils were deposited by rivers and tributary streams in channels, bars, floodplains, terraces, estuaries, and alluvial fans. In the geologic literature, the Quaternary deposits are commonly subdivided into distinct units, such as fine-grained alluvium present at low elevations and various levels of predominantly coarse-grained Quaternary river terraces.

Below the alluvium soils, soils belonging to the Potomac Group were encountered. The Potomac Group sediments are the oldest sedimentary deposits in the aforementioned area. These soils are known to be highly over-consolidated as a result of the weight of a substantial thickness of overlying soils that have since been eroded away. As a result of over-consolidation, Potomac Group soils have been pre-loaded and are capable of supporting substantial loads. However, the Potomac Group clays are well documented with problems associated with slope instability and excessive shrink/swell characteristics.

3.2 Subsurface Explorations

AECOM conducted a subsurface investigation program to investigate the subsoil conditions at the site. Four soil borings were performed and one temporary monitoring well was installed in the field. Due to site access constraints, the borings were drilled along the stream alignment adjacent to King Street. The soil boring locations are illustrated on the Testing Location Plan included as Figure 2. The soil boring logs are included in Appendix A.

3.2.1 Boring Stakeout and Subsurface Utility Clearance

The boring locations were field located and staked by AECOM based on GPS coordinates prior to drilling the borings. Virginia 811 and the VDOT Right of Way and Utility Division were contacted by our drilling subcontractor to mark the existing underground public utilities around the staked boring locations. The ground surface elevations at the testing locations and near the proposed construction layout were determined based on an AECOM topographic survey that was completed for the 30% design.

3.2.2 Drilling Methodology and Sampling

Soil and Land Use Technology, Inc (SaLUT) of Glen Burnie, Maryland drilled the soil test borings to a depth of 30 to 45 ft below the ground surface (bgs) between September 23rd and October 3rd, 2025. The borings were drilled using a Diedrich D-50 Truck-Mounted Drill Rig in general accordance with ASTM D1586 using hollow stem (ASTM D6151) and mud rotary techniques. Representative soil samples were obtained using a two-inch outside diameter split-barrel spoon sampler in general accordance with ASTM D1586 standards. Standard penetration tests (SPTs) were performed by driving the split-spoon sampler into the soil a distance of 24 inches over four six-inch intervals, by means of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler through the second and third six-inch intervals (i.e., the N-values) for each sample are indicated on the soil test boring logs included in Appendix A. A Shelby Tube sampler was used in cohesive material at select depths in order to obtain relatively undisturbed samples for advanced testing. Soil samples were obtained continuously throughout the depth of the borings. The N-values provide an indication of the in-place density (granular materials) and consistency (cohesive materials) of the soils. A temporary monitoring well was installed at boring location B-4 after drilling completion and water measurements were conducted after 24 hours. The borings were backfilled with cuttings and grout after the last groundwater readings.

Representative portions of the soil samples were sealed in glass jars and retained for further review. The visual classifications were based on texture and plasticity, in accordance with the Unified Soil Classification System (USCS). A brief description of the USCS is also included in Appendix A.

3.2.3 Temporary Groundwater Monitoring Well

One temporary groundwater monitoring well was installed within borehole B-4. Within the borehole, a 2-inch diameter PVC pipe with a 10-foot well screen at the bottom end was installed to the bottom of the borehole to obtain a stabilized groundwater reading. The PVC pipe had 2 feet of stick-up above the ground surface. The borehole annulus was backfilled with filter sand to 12 inches above the well screen and sealed with bentonite pellets. A groundwater level reading was collected from the temporary groundwater well after 24 hours. Groundwater level readings from the temporary well are included on the boring log in Appendix A.

4 SUBSURFACE EXPLORATION RESULTS

4.1 Subsurface Conditions

The subsurface materials encountered in the testing locations are described below for the purposes of our discussions in this report. It should be noted that these descriptions do not imply the continuity of the materials encountered in the borings. The descriptions of the materials have been established to characterize similar subsurface conditions based on material gradations and parent geology. The subsurface materials encountered in the soil borings, along with the range of Standard Penetration Test (SPT) N-Values are described below.

Approximately 5 inches of topsoil was encountered at the soil boring locations B-1 and B-2. A subsurface soil profile illustrating subsurface soil conditions is presented in Appendix A.

- Stratum A (Uncontrolled Fill)

Borings B-1 and B-2 indicated the presence of uncontrolled fill soils below the surficial soil. The uncontrolled fill extended to about 4.0 feet below ground surface or to about EL +145 ft and consist of lean clay (CL) and Sandy Silt (ML). Standard Penetration Test N-values for the uncontrolled fill soils vary between 6 to 18 blows per foot bpf.

- Stratum B (Cohesive Native Soils)

Native, highly plastic and medium stiff fat clay soils were encountered below the existing fill at boring location B-1 to a depth of approximately 9 feet or to about EL +141 ft. Stratum B soil contains minor amounts of sand and gravel. The N-values ranged from 5 to 8 blows per foot.

- Stratum C (Granular Alluvium Soils)

Below the uncontrolled fill soils and the native cohesive soils, native alluvium soils were encountered to a depth of 12 feet bgs or to about EL +138 ft. The Stratum C soils consisted of medium dense to dense, Well Graded Sand with Clay (SW), Silty Sand with Gravel (SM), and Clayey Sand (SC). The N-values ranged from 5 to 35 blows per foot.

- Stratum D (Cohesive Potomac Formation Soils)

Below the alluvium soils, native sandy fine-grained soils were encountered. These fine-grained soils extended to the bottom of the exploration, which was terminated at 45 ft bgs or to about EL +87 ft. These soils consisted of soft to very stiff Sandy Lean Clay (CL) and Sandy Fat Clay (CH) The N-values ranged from 4 to 29 blows per foot (bpf).

4.2 Groundwater

Groundwater readings obtained from the soil borings during drilling, immediately after, and in the stabilized reading in the temporary groundwater well are summarized below. The temporary well was abandoned and grouted prior to field work completion and demobilizing from the project site.

The 24-hour groundwater reading within the temporary monitoring well indicated groundwater at a depth of 8 feet bgs or at about EL +143 ft. Groundwater readings are also included in the soil borings logs included in Appendix A.

Seasonal perched water conditions may be encountered during construction due to the presence of fine-grained soils interbedded with free-draining sandy soils. It is possible that stabilized groundwater levels are higher than those obtained from the soil borings. The water level is assumed to be at approximately 100 years' flood elevation in all design areas. It should be noted that fluctuations in groundwater levels may occur as a result of seasonal variations in rainfall, evaporation, construction activity, surface runoff, and other site-specific factors.

4.3 Soil Engineering Property Test Results

Select split-spoon and Shelby tube soil samples were delivered to the SaLUT soil laboratory to determine the physical and engineering properties of the soils encountered in the borings. The soil laboratory tests were conducted in general accordance with applicable ASTM criteria. The testing included moisture content determinations (ASTM D2216), Atterberg Limits tests (ASTM D4318), grain size analyses (ASTM D6913/D7928), and USCS Classification (ASTM D2487). Direct Shear Testing (ASTM D3080), Unconfined Compressive Testing (ASTM D2166), Consolidated Undrained triaxial test ASTM D4767 and One-Dimensional Consolidation Test (ASTM D-2435) were performed on a Shelby tube sample. The soil laboratory test results are included in Appendix C.

4.4 Expected Variations in Subsurface Conditions

Interpretation of general subsurface soil conditions presented herein are based on the soil and groundwater conditions obtained from four soil borings drilled at the site. The subsurface conditions may vary between the exploration locations and the proposed wall locations along the stream alignment. If conditions are found to be different from those observed in the borings, recommendations contained in this report should be re-evaluated by AECOM and confirmed in writing. Since the groundwater level is expected to fluctuate with rainfall, season, temperature, climate, construction in the area, etc., groundwater conditions at the time of construction may be different from those found during the time of the recent exploration.

5 GEOTECHNICAL ENGINEERING RECOMMENDATIONS

Gravity walls in conjunction with steel sheet piles are proposed to reduce the potential for global slope instability and potential erosion adjacent to Taylor Run. Recommended design parameters for the walls and sheet piles, along with the analysis results are presented in the following sections of this report.

5.1 Gravity Walls

The following recommended soil parameters may be used for design of Redi-Rock or similar type gravity retaining wall systems:

Table 5.1 Lateral Earth Pressure Soil Parameters

Wall Type	Backfill Materials Type	Backfill Moist Unit Weight (pcf)	Backfill Internal Friction Angle (degrees)	Active Earth Pressure Coefficient	Passive Earth Pressure Coefficient
Redi-Rock Wall or Similar Gravity Wall	Imported Fill[1]	120	30	0.33	3.0
	AASHTO No. 57 Crushed Stone	100	36	0.26	3.85

[1]Imported granular fill should classify SC, or more granular per UFC-3-220

The recommended lateral earth pressure values do not include hydrostatic pressures resulting from infiltrating surface water or groundwater that may accumulate behind the retaining walls. Therefore, wall backfill materials should be free-draining, and appropriate measures should be implemented to prevent the buildup of excess water behind the walls. Backfill requirements are presented in Table 5.3 of this report.

A perforated 4-inch diameter drainage pipe should be installed at the base of each retaining wall and should be surrounded by a minimum of 6 inches of AASHTO No. 57 crushed stone, wrapped in a geotextile filter fabric. The drainage system should be designed to drain water by gravity to a suitable discharge location away from the wall. As an alternative, weep holes may be provided in lieu of a continuous subdrain system. Weep holes should consist of 3-inch diameter PVC pipes installed at 10-foot intervals along the wall and should be covered on the backfill side with a permeable geotextile filter fabric to prevent migration of fines into the stone.

It is understood that the proposed retaining wall base elevations are approximately EL +144 feet in Design Areas 1 and 2, and EL +124 feet in Design Areas 3 and 4. At these proposed elevations, granular fill soils of Stratum A consisting primarily of sand were encountered in Soil Boring B-2, while native cohesive clay soils were encountered in the remaining borings. Based on these

subsurface conditions, we recommend that the retaining walls be designed for a maximum allowable soil bearing pressure of up to 1,500 psf when founded on the existing materials.

Retaining wall bases should be embedded a minimum of 24 inches below the adjacent stream channel elevation in accordance with Fairfax County frost depth requirements. All foundation excavations should be dewatered and cleaned of loose, soft, or otherwise deleterious materials prior to wall placement. The exposed subgrades should be evaluated and approved by the geotechnical engineer prior to construction. Subgrade preparation recommendations are provided in Section 6.1 of this report.

Based on the 30% design drawings dated October, 2025 for Redi-Rock or similar gravity walls, we recommend that VDOT No. 57 stone l be placed at least 1 foot behind the gravity retaining walls and at least 2 feet below the base of the walls.to reduce erosion potential and improve drainage. Alternatively, VDOT No. 21A stone may be used at the base of the walls and should be compacted to at least 95 percent of the maximum dry density, in accordance with ASTM D698, (Standard Proctor.) In general, the moisture content of the fill materials should be maintained within 2 percent of the optimum moisture content per ASTM D698.

Based on subsurface conditions encountered in Soil Borings B-1 through B-4, total settlement of the retaining walls is estimated to be on the order of 1 inch or less. However, due to the variable and potentially uncontrolled nature of existing fill materials, loose or unsuitable fill materials of Stratum A may be encountered during excavation of retaining walls. If loose or unsuitable materials are encountered, they should be removed and replaced with properly compacted structural fill, crushed stone or gravel wrapped in geotextile fabric. The need for special undercutting should be evaluated by a qualified geotechnical engineer during construction.

Excavations exceeding 4 feet in depth must comply with Occupational Safety and Health Administration (OSHA) requirements, including the implementation of appropriate protective systems such as sloping, shoring, or bracing. Groundwater is expected to be encountered at or above the proposed footing elevations. Therefore, the contractor should be prepared to implement localized dewatering measures, such as submersible pumps in sump pits, trench drains, or well points. The selection of dewatering methods shall be the responsibility of the contractor.

it is our understanding based on the provided information that the anticipated scour depth is approximately 8 feet below the existing streambed elevation. Global stability analyses were performed for Design Areas 1 through 4. The existing slopes were evaluated without gravity walls and with gravity walls. Minimum slope stability factors of safety of 1.25 were considered per the Fairfax County Public Facilities Manual for non-flood channel flow conditions. Rapid drawdown for global stability was performed following the Army Corps of Engineers 2 stages (1970) method of analysis. Analyses included a creek flow elevation that resulted in the lowest computed factor of safety and rapid drawdown for 100-year flood conditions. The creek slope is completely submerged during high flood events. Minimum slope stability factors of safety of 1.1 were considered per EM 1110-2-1902, October 31, 2003, for rapid drawdown conditions. Factors of safety of less than 1.25 were obtained for existing slopes without gravity walls or sheet piles, although acceptable factors of safety were obtained when gravity walls and sheet piles were

added. The results of our analyses and the minimum factors of safety obtained along with and the assumed soil parameters for the various scenarios are presented in Appendix D. Also, a summary of the most critical sections along the stream channel is presented in the table below. It is noted that the retaining wall designer should evaluate internal stability of the proposed walls.

Table 5.2 Global Stability Analysis

MINIMUM GLOBAL STABILITY FACTORS OF SAFETY		
Location	Existing Slope Conditions	Slope with Gravity Wall in conjunction with Sheet Pile
0 + 25	0.9	1.6
10 + 25	0.8	1.4
10 + 50	0.6	1.3
20 + 50	0.5	2.5
30 + 50	0.5	1.6

Table 5.3 Soil Properties

Soil Parameters			
Material Name	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Silt and Lean Clay)	120	0	28
Native Clay	120	0	18
Potomac Clay	120	0	14
Sand with Gravel	120	0	32
AASHTO No. 57 Crushed Stone	100	0	36

5.2 Sheet Piles

The use of steel sheet pile walls in conjunction with the proposed gravity retaining wall system is recommended to mitigate slope stability and erosion/scour potential at the site. Sheet piles were evaluated for unsupported conditions using CT-Shoring software (Version 8.22). The results indicate that a minimum embedment depth of 16 feet below the estimated scour depth is required to achieve stability. An estimated scour depth of 8 feet was assumed in the analysis,

resulting in a total required pile length of approximately 24 feet. The corresponding estimated sheet pile tip elevations are approximately EL 120 feet for Design Areas 1 and 2, and EL 100 feet for Design Areas 3 and 4.

Subsurface conditions encountered in soil borings performed in the vicinity of the proposed walls indicate the presence of very stiff Potomac clay, within the anticipated pile length. Based on these conditions, driving the sheet piles the planned embedment depth of 24 feet could be difficult and it is our opinion that there is a high probability that sheet piles may refuse well above estimated tip elevations. Therefore, we recommend that a deadman anchor system at the top of the sheet pile walls be considered to reduce the required embedment. Additional analysis to assess the depth requirements for sheet piles with deadman anchors can be provided upon request.

In addition to very stiff Potomac Clay soils, a dense sand and gravel layer about 3 ft thick and about 9 ft below existing grades is present at the site. Due to the possibility of pile refusal during driving of sheet piles in the material, consideration can be given to supplemental installation methods such as pre-drilling or proprietary systems such as PileClaw, etc. may be considered. If desired, the Contractor can initially attempt to advance the piles to the specified embedment depths using conventional driving methods and pre-drilling or other methods through the upper dense strata may be performed to facilitate pile advancement, if needed.

In accordance with guidance from the North American Steel Sheet Pile Association, minimum section modulus requirements for steel sheet piles are approximately 25 in^3/ft for low-yield steel and 20 in^3/ft for high-yield steel when driving through soils with SPT N-values in the range of 26 to 30. These values do not account for corrosion considerations, which should be evaluated separately.

The contractor should be responsible for selecting appropriate installation equipment and procedures and should adhere to accepted driving practices. The means and methods of installation should remain the responsibility of the contractor.

6 CONSTRUCTION CONSIDERATIONS

6.1 Subgrade Preparation

Proposed site grades were provided in the 30% submittal. At the onset of any site grading, the entire area should be stripped of organic surficial soil, vegetation, roots, asphalt, construction debris, and any deleterious materials. The geotechnical engineer should be present to verify the suitability of the subgrades to support the wall foundation or to receive stone base course material.

6.2 Fill Placement and Compaction

All new compacted structural fill and backfill should be placed in loose lifts not exceeding 8 inches in thickness and should be compacted to at least 95 percent of the maximum dry density, in accordance with ASTM D698. In general, the moisture content of the fill materials should be

maintained within 3 percent of the optimum moisture content per ASTM D 698. Materials to be used as compacted fill should be classified as SC, or more granular, and should have a Liquid Limit (LL) and Plasticity Index (PI) of less than 40 and 20, respectively.

6.3 Safe Excavation Slopes

Temporary excavations above the groundwater table must be sloped or must be benched safely according to the Occupational Safety and Health Administration (OSHA) guidelines and local code requirements. Plastic covering may be used to cover the temporary slopes to prevent moisture changes and to maintain stability. Due to the presence of cohesionless soils and groundwater in the excavation, sloughing or caving may occur that could create unstable conditions. The contractor should be prepared to provide trench boxes or other adequate bracing or shoring systems along with localized construction dewatering consisting of submersible pumps in gravel sumps or collector trenches. Deep excavations, if necessary, may need well-points to adequately dewater the excavations. The actual means and methods of excavation support and dewatering should be left up to the contractor. All excavations should be performed in accordance with OSHA and local requirements.

6.4 Construction Monitoring

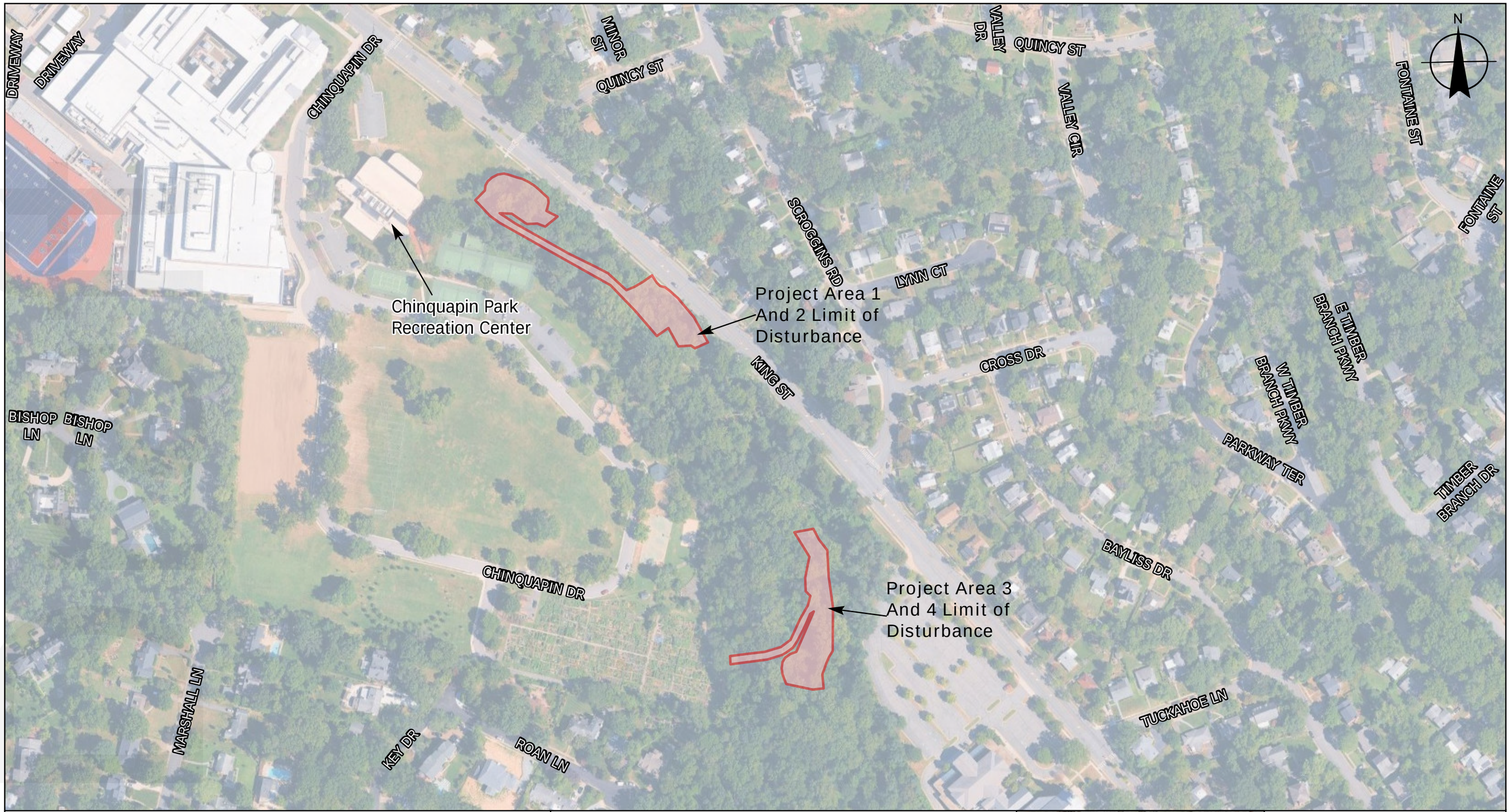
Monitoring of the construction is strongly recommended to address quality control/quality assurance issues and to promptly address non-conforming construction. Full-time construction monitoring should be provided during foundation construction as well as earthwork installation by a qualified geotechnical engineering firm that is familiar with the design and construction criteria for the project. The monitoring should include observation of the undercut excavation operations, foundation bearing materials, subgrade conditions, subgrade preparation, compaction testing of fill and backfill, etc.

7 LIMITATIONS

Interpretation of general subsurface soil conditions presented herein is based on our understanding of the proposed project as described in this report, soil and groundwater conditions encountered in the soil borings performed and other data discussed in this report. Although representative portions of the samples taken were tested, subsurface conditions may vary between the exploration location and the proposed wall locations. This report does not reflect any variations that may occur across the site in areas not sampled. The nature and extent of such variations may not become evident until construction. Groundwater conditions during construction may be different from the observations made in the borings. If variations occur, it will be necessary to reevaluate the recommendations in this report.

This report has been prepared for the specific project discussed and has been prepared in accordance with generally accepted geotechnical engineering practices. No warranty, express or implied, is provided. In the event that any changes in the nature, design, or location of the project as outlined in this report are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed, and the conclusions of this report are modified or verified in writing by AECOM.

Figure 1 - Site Vicinity Map (1 sheet)



Taylor Run Stream
Alexandria, VA

Site Vicinity Plan

DATE - 4/16/2026	DRAWN BY - TMM	CHECKED BY - MA	Project Num. - 60742359	REV - 1

Figure 1

0 300 600 900 Feet

Legend

Project Locations

Notes:
1. Basemap imagery provided by Google
2. Coordinate System NAD 1983 StatePlane 2011 Virginia North
3. Inset map provided by ESRI

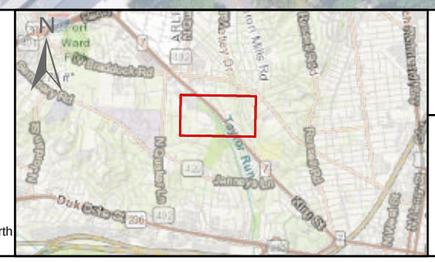


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Figure 2 – Testing Location Plan (1 sheet)

Taylor Run Stream
Alexandria, VA

Exploration Location Plan

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Figure 2

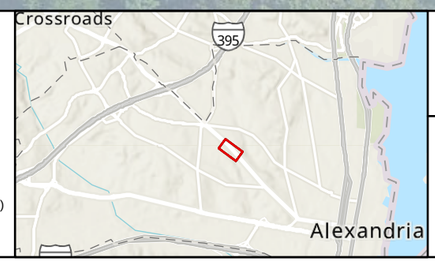
0 100 200 300 400 500 US Feet

Legend

Explorations

- Approximate Boring Location

Notes:
1. Basemap imagery provided by Google (2025)
2. Street Names provided by City of Alexandria (2025)
3. Inset Map Provided by ESRI
4. Coordinate System NAD 1983 StatePlane Virginia North



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Appendix A –Soil Boring Logs (8 sheets)

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Log of Boring B-1

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PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985731.794 E 11887162.335**

DATE STARTED: **9/23/2025**
DATE COMPLETED: **9/23/2025**
LOGGED BY: **P.Mahato**
CHECKED BY: **M.Alhachami**
DRILLING CONTRACTOR: **SaLUT**
DRILL RIG: **CME-45 (Truck)**
DRILLER: **M. Stawas**

DRILL METHOD: **3-1/4" I.D. Hollow Stem Auger**
HAMMER TYPE/WEIGHT: **Auto Hammer/140lbs**
CASING TYPE: **N/A**
CASING SIZE: **N/A**
BIT TYPE/SIZE: **NA/NA**
BOREHOLE DEPTH: **30.0 FT**
SURFACE ELEVATION: **151.00 FT**

Groundwater Observations

Event	Date	Time	Depth (ft)	Cave in Depth (ft)
During Drilling ▽	09-23-2025		10.0	
Completion	09-23-2025		Dry	23.2
24-hour ▼	09-24-2025		7.9	

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	TYPE	BLOWS	REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
150	0.0 - 0.4 ft: TOPSOIL	Topsoil													
	0.4 - 2.0 ft: (FILL) Sampled as Moist, very stiff, dark brown, Sandy Silt, with gravel and roots	ML			S-1		9- 10- 7- 7 (N=17)	6 (25%)							
	2.0 - 4.0 ft: (FILL) Sampled as Moist, medium stiff, grayish brown to dark brown, medium plasticity, Lean Clay, with sand, gravel, and trace roots	CL		A	S-2		3- 3- 3- 4 (N=6)	6 (25%)	18	33	15				
5 145	4.0 - 9.5 ft: Moist, medium stiff, grayish brown to dark brown, high plasticity, FAT CLAY, with sand and gravel	CH		B	S-3		3- 4- 4- 5 (N=8)	12 (50%)	14.1					112.4	
					S-4		2- 2- 3- 2 (N=5)	8 (33%)							
▼	8.0 ft: changes to soft				S-5		1- 1- 3- 17 (N=4)	12 (50%)	20.3	52	15				
10 ▽ 140	9.5 - 12.5 ft: Moist to wet, dense, brown, coarse, WELL GRADED SAND WITH GRAVEL	SW		C	S-6		10- 16- 19- 23 (N=35)	2 (8%)	9.3						
	12.5 - 30.0 ft: Moist, soft, light brown and gray, medium plasticity, LEAN CLAY, with silt				S-7		8- 1- 3- 3 (N=4)	16 (67%)	33.4					87.6	
	14.0 ft: changes to very stiff				S-8		16- 12- 11- 5 (N=23)	12 (50%)							
15 135	16.0 ft: changes to with clay and fine sand				S-9		4- 6- 10- 11 (N=16)	19 (79%)	28.7				84.4		
	18.0 ft: changes to stiff	CL		D	S-10		3- 5- 6- 7 (N=11)	18 (75%)	27.3	44	17				
20	20.0 ft: changes to with silt														
130					S-11		4- 5- 8- 7 (N=13)	24 (100%)							
					S-12		3- 6- 7- 10 (N=13)	24 (100%)							
25	24.0 ft: changes to very stiff						5- 7- 11- 12	24							

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Germantown, MD 20876

B = Bulk Sample S = Split Spoon Sample P = Pitcher Sample
G = Geoprobe T = Shelby Tube Sample RC = Rock Core
PS = Piston Sample H = Hand Auger Sample SC = Sonic Core

Log of Boring B-1

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985731.794 E 11887162.335**

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS	SAMPLES REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
125	26.0 ft: changes to stiff, with sand from 26-28ft	CL		D	S-13		(N=18)	(100%)	26.9						
					S-14		4- 7- 8- 11 (N=15)	24 (100%)	28.6	40	18				
					S-15		5- 6- 9- 12 (N=15)	24 (100%)							
30	Boring completed at 30.0 FT on 9/23/2025 at - HOURS. Boring backfilled with cement/bentonite grout upon completion. Boring was offset 8.6' towards King Street due to underground utilities														

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PS = Piston Sample H = Hand Auger Sample SC = Sonic Core

Log of Boring B-2

AECOM

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985719.598 E 11887174.491**

DATE STARTED: **9/23/2025**
DATE COMPLETED: **9/24/2025**
LOGGED BY: **P.Mahato**
CHECKED BY: **M.Alhachami**
DRILLING CONTRACTOR: **SaLUT**
DRILL RIG: **CME-45 (Truck)**
DRILLER: **M. Stawas**

DRILL METHOD: **3-1/4" I.D. Hollow Stem Auger**
HAMMER TYPE/WEIGHT: **Auto Hammer/140lbs**
CASING TYPE: **N/A**
CASING SIZE: **N/A**
BIT TYPE/SIZE: **NA/NA**
BOREHOLE DEPTH: **30.0 FT**
SURFACE ELEVATION: **151.00 FT**

Groundwater Observations

Event	Date	Time	Depth (ft)	Cave in Depth (ft)
During drilling ▽	09-23-2025		11.0	
Completion	09-24-2025		Dry	14.7

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	TYPE	BLOWS	REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
150	0.0 - 0.3 ft: TOPSOIL	Topsoil													
	0.3 - 2.0 ft: (FILL) Sampled as Moist, medium stiff, dark brown, Sandy Silt, contains gravel and roots	ML			S-1		3- 4- 4- 7 (N=8)	6 (25%)							
	2.0 - 6.0 ft: (FILL) Sampled as Moist, very stiff, dark brown to brown, medium plasticity, Sandy Lean Clay, with gravel			A	S-2		3- 13- 5- 4 (N=18)	10 (42%)	15.4						
	4.0 ft: changes to medium stiff	CL													
5 145					S-3		3- 3- 4- 9 (N=7)	6 (25%)	20.4	38	17				
	6.0 - 10.0 ft: Moist, loose, brown and gray, fine to medium, SILTY SAND				S-4		5- 3- 4- 2 (N=7)	14 (58%)							
		SM													
				C	S-5		2- 3- 2- 4 (N=5)	14 (58%)	27.1	NP	NP		44.4		
10															
▽ 140	10.0 - 12.0 ft: Wet, medium dense, brown, coarse, CLAYEY SAND, contains gravel	SC			S-6		5- 12- 12- 12 (N=24)	10 (42%)	13.1					118.3	
	12.0 - 24.0 ft: Wet, soft, brown, high plasticity, FAT CLAY WITH SAND, coarse sand, coarse gravel				S-7		2- 2- 2- 4 (N=4)	12 (50%)	42.9	54	21			80	
	14.0 ft: changes to Moist, brown and gray														
15					T-1			24 (100%)	32.5	68	23				
135	16.0 ft: changes to stiff				S-8		3- 5- 8- 11 (N=13)	24 (100%)	33						
		CH		D	S-9		5- 7- 8- 10 (N=15)	24 (100%)							
20															
130					S-10		3- 5- 7- 9 (N=12)	24 (100%)							
					T-2			24 (100%)	28	62	20		79		
	24.0 - 26.0 ft: Moist, stiff, brown and gray, medium plasticity, LEAN CLAY, coarse sand,	CL					5- 6- 7- 9	24							
25															

AECOM SOIL ROCK AECOM-GEOTECH_TAYLOR_RUN_STREAM.GPJ AECOM-GEOTECH_PROJECT-DESIGN.GDT 4/10/26 REV-

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Log of Boring B-2

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985719.598 E 11887174.491**

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS	SAMPLES REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
125	coarse gravel	CL			S-11		(N=13)	(100%)	26.1	40	17				
	26.0 - 30.0 ft: Moist, stiff, brown and gray, high plasticity, FAT CLAY, coarse sand, coarse gravel	CH		D	S-12		4- 8- 7- 10 (N=15)	24 (100%)							
	28.0 ft: changes to very stiff, with silt				S-13		6- 7- 10- 12 (N=17)	24 (100%)							
30															

Boring completed at 30.0 FT on 9/24/2025 at - HOURS.
Boring backfilled with cement/bentonite grout upon completion.
Boring was offset 9.6' towards King Street due to underground utilities

Log of Boring B-3

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985161.823 E 11887344.454**

DATE STARTED: **10/3/2025**
DATE COMPLETED: **10/3/2025**
LOGGED BY: **P.Mahato**
CHECKED BY: **M.Alhachami**
DRILLING CONTRACTOR: **Emerson Harper**
DRILL RIG: **Diedrich D-50 (Track)**
DRILLER: **I.Hall**

DRILL METHOD: **3-1/4" I.D. Hollow Stem Auger**
HAMMER TYPE/WEIGHT: **Automatic/140lbs**
CASING TYPE: **N/A**
CASING SIZE: **N/A**
BIT TYPE/SIZE: **NA/NA**
BOREHOLE DEPTH: **45.0 FT**
SURFACE ELEVATION: **132.00 FT**

Groundwater Observations

Event	Date	Time	Depth (ft)	Cave in Depth (ft)
Completion	10-03-2025	13:26	Dry	3.0

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	TYPE	BLOWS	REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
130	0.0 - 2.0 ft: Moist, stiff, dark gray, medium plasticity, SANDY LEAN CLAY WITH GRAVEL, contains root fragments	CL			S-1		6- 8- 5- 5 (N=13)	9 (38%)							
	2.0 - 7.4 ft: Moist, soft, dark gray, medium plasticity, SANDY LEAN CLAY				S-2		2- 2- 1- 1 (N=3)	17 (71%)	39						
5		CL			S-3		2- 1- 1- 2 (N=2)	7 (29%)	39.3	39	26				
125	6.0 ft: changes to medium stiff				S-4		8- 5- 3- 3 (N=8)	15 (63%)							
	7.4 - 43.0 ft: Moist, medium stiff, reddish brown and yellowish brown, high plasticity, FAT CLAY				S-5		1- 2- 5- 6 (N=7)	17 (71%)	31.4	81	26				
10					T-1			17 (71%)	30.7	90	26		96		
120				D											
	13.0 ft: changes to stiff, dark reddish brown with greenish gray				S-7		3- 6- 8- 9 (N=14)	24 (100%)	28.8				99.4		
15		CH													
115															
	18.0 ft: changes to very stiff				S-8		3- 6- 11- 15 (N=17)	24 (100%)	23.4						
20															
110															
	23.0 ft: changes to stiff, reddish brown and greenish gray				S-9		3- 6- 8- 12 (N=14)	24 (100%)	21.1	53	19				
25															

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Log of Boring B-3

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985161.823 E 11887344.454**

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS	SAMPLES REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
105															
	28.0 - 43.0 ft: very stiff				S-10		3- 6- 11- 14 (N=17)	24 (100%)							
30															30.0ft: Driller lost Shelby tube in the hole. Driller mentioned they can't take more tube because of hard clay.
100															
		CH		D	S-11		6- 10- 14- 20 (N=24)	24 (100%)	20.9						
35															
95															
					S-12		6- 10- 18- 15 (N=28)	24 (100%)							
40															
90															
	43.0 - 45.0 ft: Moist, very stiff, reddish brown and greenish gray, high plasticity, FAT CLAY WITH SAND	CH			S-13		5- 8- 17- 28 (N=25)	24 (100%)	22.5	57	20				
45															
	Boring completed at 45.0 FT on 10/3/2025 at 13:24 HOURS. Boring backfilled with cement/bentonite grout upon completion.														

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Log of Boring B-4

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985101.375 E 11887361.219**

DATE STARTED: **10/2/2025**
DATE COMPLETED: **10/2/2025**
LOGGED BY: **P.Mahato**
CHECKED BY: **M.Alhachami**
DRILLING CONTRACTOR: **Emerson Harper**
DRILL RIG: **Diedrich D-50 (Track)**
DRILLER: **I.Hall**

DRILL METHOD: **3-1/4" I.D. Hollow Stem Auger**
HAMMER TYPE/WEIGHT: **Automatic/140lbs**
CASING TYPE: **N/A**
CASING SIZE: **N/A**
BIT TYPE/SIZE: **NA/NA**
BOREHOLE DEPTH: **45.0 FT**
SURFACE ELEVATION: **133.00 FT**

Groundwater Observations

Event	Date	Time	Depth (ft)	Cave in Depth (ft)
Completion	10-02-2025	16:15	Dry	12.6
24-hour	10-03-2025	12:51	Dry	12.6

DEPTH (FT)	ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	SAMPLES TYPE	BLOWS	REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
		0.0 - 4.0 ft: Moist, medium dense, dark gray, fine to medium, SILTY SAND WITH GRAVEL, contains root fragments	SM		C	S-1		6- 8- 8- 12 (N=16)	4 (17%)	25.2						
	130					S-2		11- 9- 6- 10 (N=15)	1 (4%)							
5		4.0 - 7.3 ft: Moist, dense, light gray, fine to coarse, SILTY GRAVEL WITH SAND, angular to subrounded gravel	GM			S-3		19- 18- 17- 9 (N=35)	8 (33%)	4.2	NP	NP		16		
		6.0 ft: changes to loose				S-4		7- 3- 6- 6 (N=9)	15 (63%)	36	54	24				
	125	7.3 - 10.0 ft: Moist, stiff, light gray, high plasticity, FAT CLAY WITH SAND	CH			S-5		6- 4- 6- 9 (N=10)	4 (17%)							
10		10.0 - 23.0 ft: Moist, very stiff, dark gray and olive gray, high plasticity, FAT CLAY				S-6		7- 8- 8- 10 (N=16)	24 (100%)	34.4	81	27				
	120					T-1			0 (NR)							
15						T-2			24 (100%)	32.9	104	26		100		
			CH		D											
	115	18.0 ft: changes to reddish brown				S-8		5- 7- 9- 11 (N=16)	24 (100%)	28.8						
20																
	110	23.0 - 25.0 ft: Moist, very stiff, reddish brown with greenish gray, medium plasticity, LEAN CLAY	CL			S-9		4- 9- 11- 18 (N=20)	24 (100%)	20.7	49	18				
25																

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PS = Piston Sample H = Hand Auger Sample SC = Sonic Core

Log of Boring B-4

PROJECT: **Taylor Run Stream Stabilization**

PROJECT LOCATION: **Taylor Run, Alexandria, VA**

PROJECT NUMBER: **60742359** COORDINATES: **N 6985101.375 E 11887361.219**

DEPTH (FT) / ELEV. (FT)	DESCRIPTION	USCS	GRAPHIC	STRATUM	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES BLOWS	SAMPLES REC (IN) (%)	Moisture Content (%)	Liquid Limit	Plastic Limit	Pocket Pen.(tsf)	Fines Content (%)	Dry Density (pcf)	REMARKS AND TESTS
	25.0 - 38.0 ft: Moist, stiff, reddish brown with greenish gray, high plasticity, FAT CLAY				T-3			24 (100%)	21.5	59	17		98		
105	28.0 ft: changes to very stiff				S-10		5- 7- 11- 16 (N=18)	24 (100%)							
30		CH													
100					S-11		6- 11- 17- 27 (N=28)	24 (100%)	19.6	56	19				
35				D											
95	38.0 - 45.0 ft: Moist, very stiff, reddish brown with greenish gray, high plasticity, FAT CLAY WITH SAND														
40		CH			S-12		7- 11- 18- 40 (N=29)	24 (100%)							
90															
45					S-13		4- 11- 15- 31 (N=26)	24 (100%)							
	Boring completed at 45.0 FT on 10/2/2025 at 13:24 HOURS. Boring backfilled with cement/bentonite grout upon completion.														

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Appendix B – Soil Profiles (1 sheets)

DISTANCE ALONG BASELINE (ft)

ELEVATION (ft)

150 140 130 120 110 100 90

B-1
G.S.E. 151.0 ft

17 A Top-soil
6 FILL
8
5 B FILL
4
35 C CH
4
23
16
11
13 D SW
13
18
15
15 CL

Boring completed at 30 ft.

Elv 141 to 144 ft

B-2
G.S.E. 151.0 ft

8 A Top-soil
18 FILL
7
7 C FILL
5
24 SM
4 SC
13
15 D CH
12
13 CL
15
17 CH

Boring completed at 30 ft.

B-3
G.S.E. 132.0 ft

13 CL
3
2 CL
8
7
14
17 D CH
14
17
24
28
25 CH

Boring completed at 45 ft.

Elv 120 to 124 ft

B-4
G.S.E. 133.0 ft

16 SM
15 C
35 GM
9
10 CH
16
16 CH
20 CL
D
18
28 CH
29
26 CH

Boring completed at 45 ft.

GROUNDWATER SYMBOLS

- During Drilling
- At Drilling Completion
- 24 hour after Drilling

BORING LEGEND

- Topsoil
- USCS Well-graded Sand
- USCS Silty Gravel
- Water
- USCS Low Plasticity Clay
- FILL
- USCS Silty Sand
- USCS High Plasticity Clay
- USCS Clayey Sand

Boring Name
Ground Surface Elevation
SPT N value | Soil/Rock Symbol
Recovery/RQD

AECOM TECHNICAL SERVICES, INC.
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Germantown, MD20876
Tel: (301) 820-3000

NOTES:

1. Subsurface profile is based on limited borings. Variations in conditions between boring locations should be expected.

2. Ground surface elevations at boring locations were estimated using existing topographical information.

Taylor Run Stream Stabilization

Taylor Run

SUBSURFACE PROFILE SECTION		SCALE: AS SHOWN	Appendix
DATE: 4/15/2026	CHECKED BY: MA	PROJECT NO.: 60742359	B

Appendix C – Soil Engineering Property Test Results (56 sheets)

PROJECT :	Taylor Run Stream Stabilization
PROJECT No.:	25-0025
Date:	10/16/2025

SHELBY TUBE INSITU DENSITY AND MOISTURE CONTENT DETERMINATION

(CUTTING SHELBY-TUBE)

Tested By: Amit Neupane

Boring#	Sample#	Depth		Wt. Soil+ tube (g)	Wt. empty tube (g)	Moist Soil Wt. (lbs)	Length Measure of tube seg. (in)				I.Diameter Measure of tube seg. (in)				Inside Volume (CF)	Insitu Density (pcf)	Insitu Moisture Content Determination			
		From (ft)	To (ft)				1st	2nd	3rd	AVG	1st	2nd	3rd	AVG			Can Wt.	Wet+Can	Dry+Can	M.C %
B-3	T-1	10.0	12.0	1565.62	424.58	2.510	5.626	5.638	5.641	5.635	2.854	2.850	2.856	2.853	0.0209	**120.34**	27.17	82.02	69.16	**30.6**
B-4	T-2	14.0	16.0	1547.57	430.91	2.457	5.591	5.586	5.590	5.589	2.781	2.844	2.829	2.818	0.0202	**121.73**	32.41	204.54	161.90	**32.9**
B-4	T-3	25.0	27.0	1645.65	422.24	2.692	5.625	5.571	5.591	5.596	2.821	2.842	2.841	2.835	0.0204	**131.65**	32.63	139.73	121.29	**20.8**

SaLUT-TLB

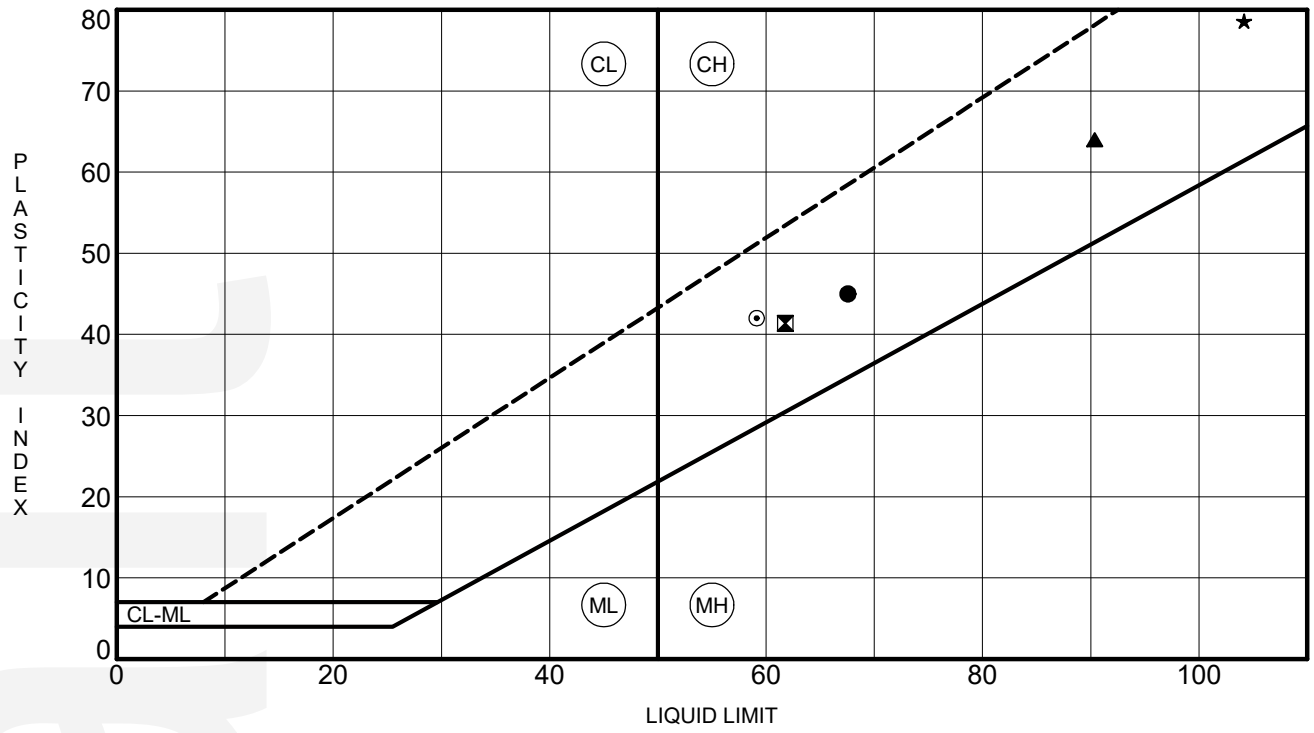
Boring	S No.	Depth (ft)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)	% < #4 Sieve	% < #200 Sieve	Classification	AASHTO	Water Content (%)
B-2	T-1	14.0 - 16.0	68	23	45					32.5
B-2	T-2	22.0 - 24.0	62	20	42	100	79	CH	A-7-6	28.0
B-3	T-1	10.0 - 12.0	90	26	64	100	96	CH	A-7-6	30.7
B-4	T-2	14.0 - 16.0	104	26	78	100	100	CH	A-7-6	32.9
B-4	T-3	25.0 - 27.0	59	17	42	100	98	CH	A-7-6	21.5

Summary of Laboratory Results

Taylor Run Stream

Alexandria, VA

Project Number: 25-0025



	Boring	Depth	LL	PL	PI	Fines	Classification	AASHTO
●	B-2	14.0 - 16.0	68	23	45			
⊠	B-2	22.0 - 24.0	62	20	42	79	FAT CLAY with SAND(CH)	A-7-6
▲	B-3	10.0 - 12.0	90	26	64	96	FAT CLAY(CH)	A-7-6
★	B-4	14.0 - 16.0	104	26	78	100	FAT CLAY(CH)	A-7-6
⊙	B-4	25.0 - 27.0	59	17	42	98	FAT CLAY(CH)	A-7-6

Test Method: ASTM D4318

Tested By: JM, JW Date: 10/16/2025

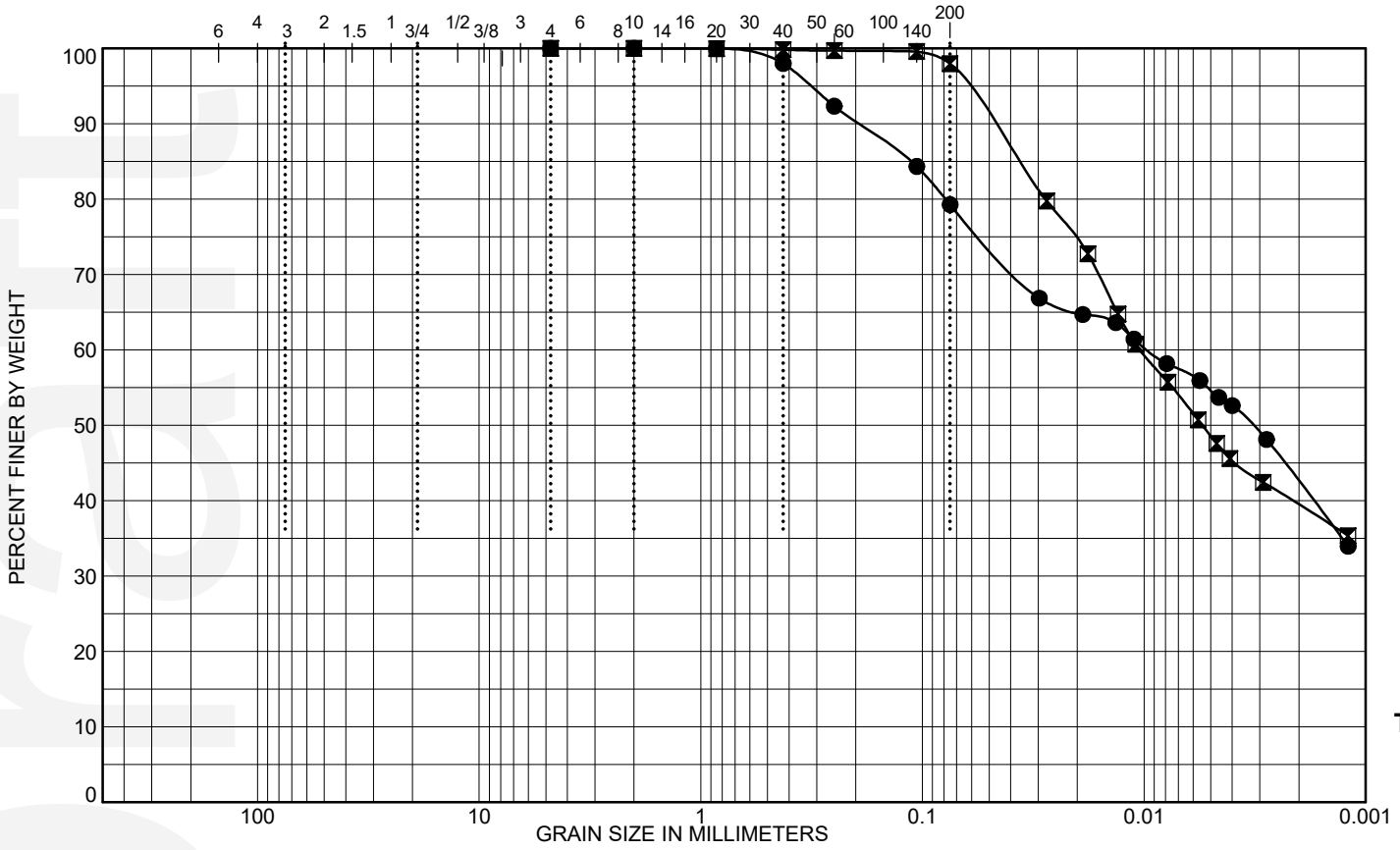
ATTERBERG LIMITS' RESULTS

Project: Taylor Run Stream

Location: Alexandria, VA

Project Number: 25-0025

TLB_ATTERBERG_LIMITS_TAYLOR RUN STREAM.GPJ_TLB2009.GDT_11/4/25



	D10	D30	D60	D100
●			0.01	4.76
⊠			0.01	4.76

Test Method: ASTM D422

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Tested By: JM Date: 10/20/2025

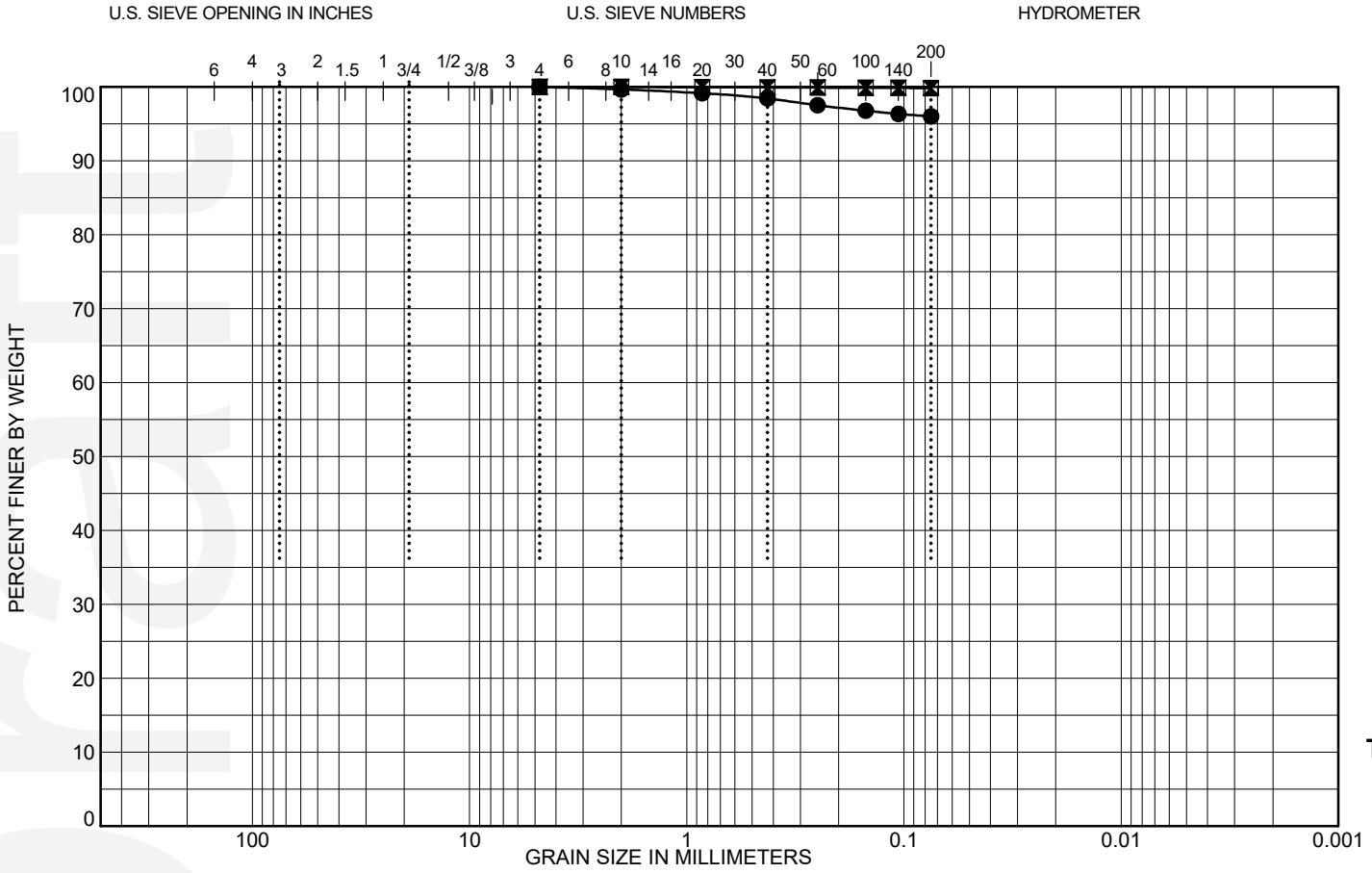
	Boring	S No.	Depth	%Gravel	%Sand	%Silt	%Clay	LL	PI	MC(%)	Classification	AASHTO
●	B-2	T-2	22.0 - 24.0	0.0	20.7	24.6	54.6	62	42	28.0	FAT CLAY with SAND(CH)	A-7-6
⊠	B-4	T-3	25.0 - 27.0	0.0	2.0	49.4	48.6	59	42	21.5	FAT CLAY(CH)	A-7-6

GRAIN SIZE DISTRIBUTION

Taylor Run Stream

Alexandria, VA

Project Number: 25-0025



	D10	D30	D60	D100
●				4.76
⊠				4.76

Test Method: ASTM D422

COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Tested By: JW Date: 11/4/2025

	Boring	S No.	Depth	%Gravel	%Sand	%Silt	%Clay	LL	PI	MC(%)	Classification	AASHTO
●	B-3	T-1	10.0 - 12.0	0.0	4.0	96.0		90	64	30.7	FAT CLAY(CH)	A-7-6
⊠	B-4	T-2	14.0 - 16.0	0.0	0.2	99.8		104	78	32.9	FAT CLAY(CH)	A-7-6

GRAIN SIZE DISTRIBUTION

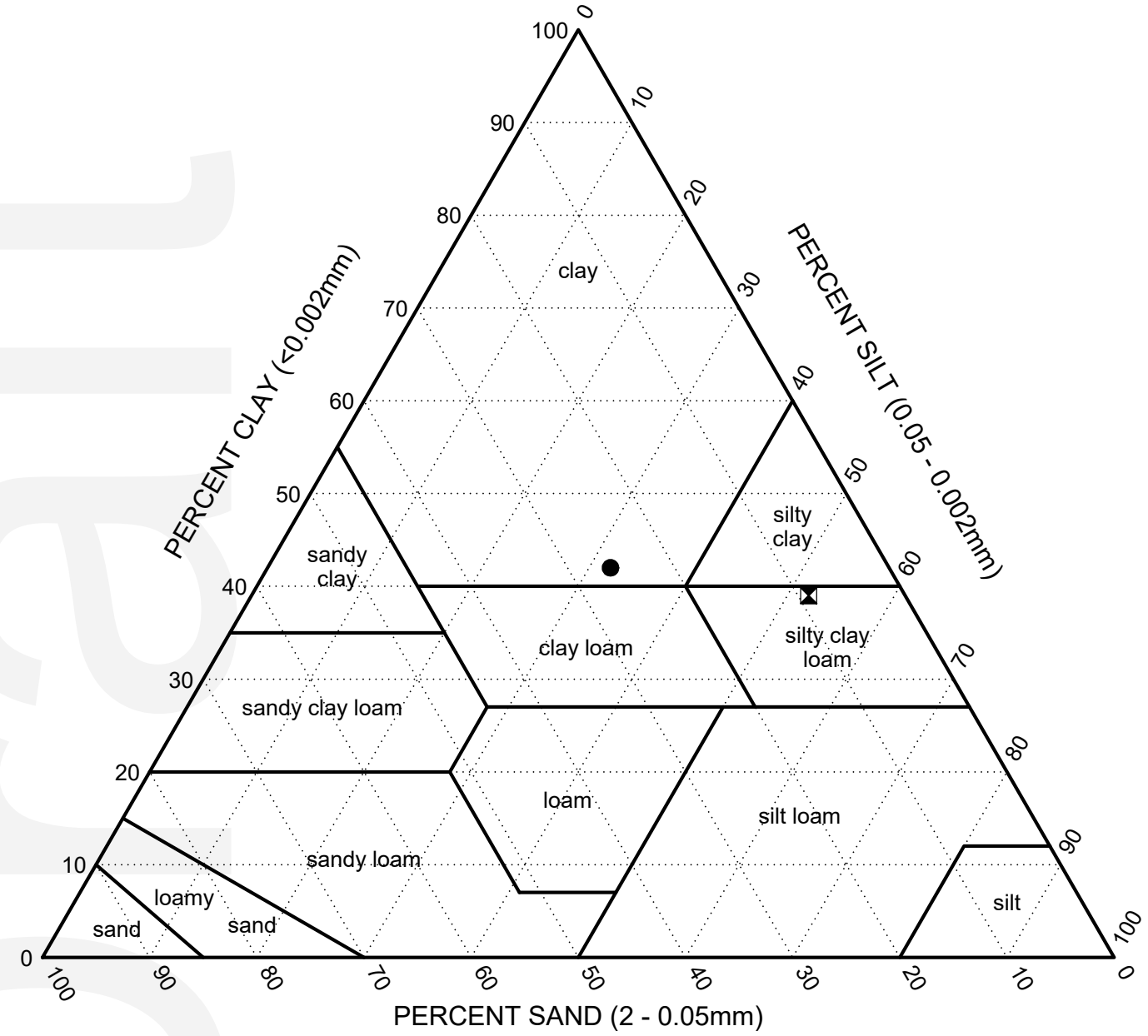
Taylor Run Stream

Alexandria, VA

Project Number: 25-0025

TLB_GRAIN_SIZE_LANDSCAPE_USCS_TAYLOR RUN STREAM.GPJ SALUT2014.GDT 11/4/25

Fractions normalized to 100% passing
the 2mm (#10) sieve



Test Method: ASTM D422

	Boring	Depth	Sand (%)	Silt (%)	Clay (%)	MC(%)	USDA Classification	Tested By	Date
●	B-2	22.0 - 24.0	26.2	31.4	42.5	28.0	CLAY	JM	10/20/2025
⊠	B-4	25.0 - 27.0	9.4	51.2	39.4	21.5	SILTY CLAY LOAM	JM	10/20/2025

USDA Textural Classification Chart

Project: Taylor Run Stream

Location: Alexandria, VA

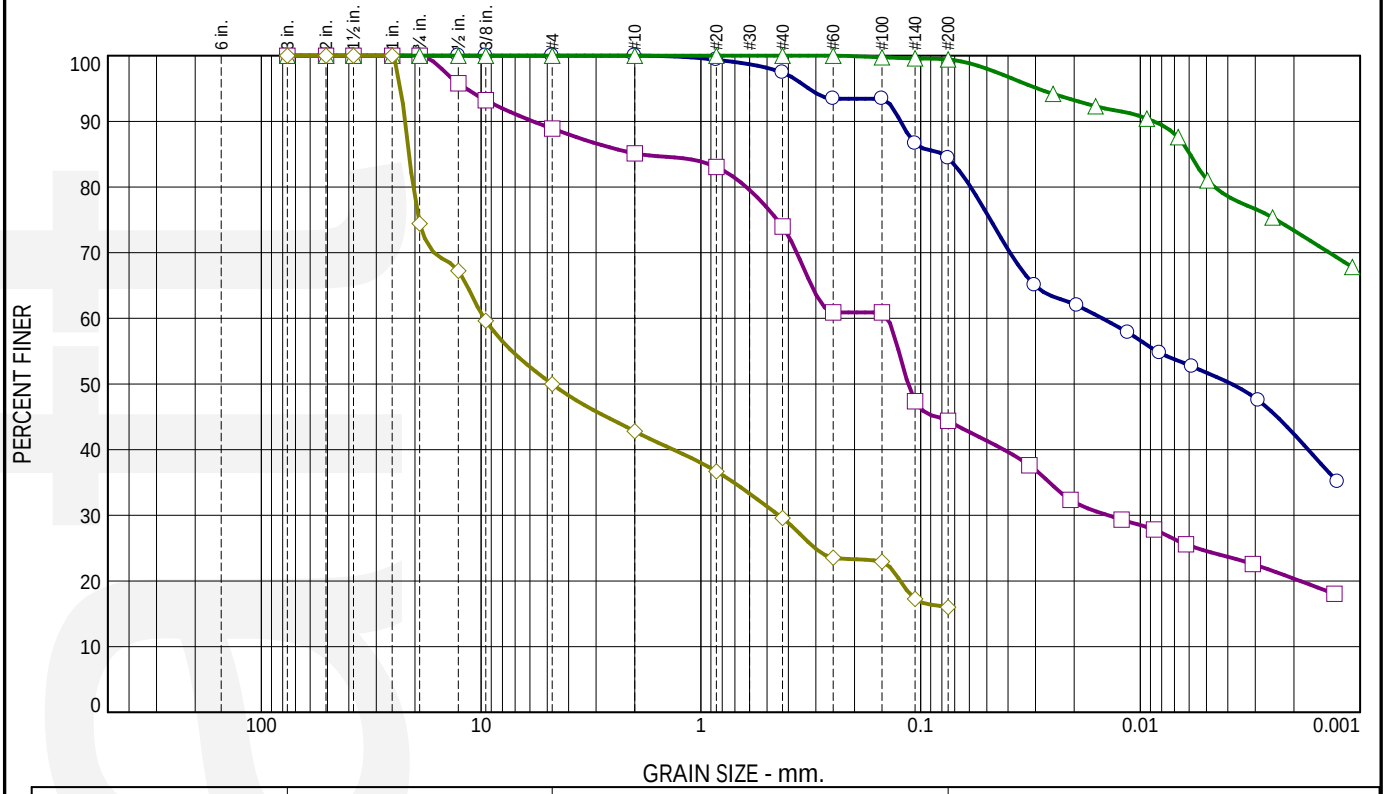
Project Number: 25-0025

Project:	Taylor Run Stream	Client:	SaLUT
Project No.:	1628-01	Client Ref:	60742359
		Report Date:	10/27/2025

Boring No.:	Sample No.:	Depth (ft)	Moisture Content	Unit Weight/Dry Density, pcf	Liquid Limit	Plastic Limit	Wash #200
B-1	S-2	2-4	18.0%	--	33	15	--
B-1	S-3	4-6	14.1%	112.4	--		--
B-1	S-5	8-10	20.3%	--	52	15	--
B-1	S-6	10-12	9.3%	--	--	--	--
B-1	S-7	12-14	33.4%	87.6	--	--	--
B-1	S-9	16-18	28.7%	--	--	--	84.4%
B-1	S-10	18-20	27.3%	--	44	17	--
B-1	S-13	24-26	26.9%	--	--	--	--
B-1	S-14	26-28	28.6%	--	40	18	--
B-2	S-2	2-4	15.4%	--	--	--	--
B-2	S-3	4-6	20.4%	--	38	17	--
B-2	S-5	8-10	27.1%	--	NP	NP	44.4%
B-2	S-6	10-12	13.1%	118.3	--	--	--
B-2	S-7	12-14	42.9%	80.0	54	21	--
B-2	S-9	16-18	33.0%	--	--	--	--
B-2	S-11	20-22	26.1%	--	40	17	--
B-3	S-2	2-4	39.0%	--	--	--	--
B-3	S-3	4-6	39.3%	--	39	26	--
B-3	S-5	8-10	31.4%	--	81	26	--
B-3	S-7	13-15	28.8%	--	--	--	99.4%
B-3	S-8	18-20	23.4%	--	--	--	--
B-3	S-9	23-25	21.1%	--	53	19	--
B-3	S-11	33-35	20.9%	--	--	--	--
B-3	S-13	43-45	22.5%	--	57	20	--
B-4	S-1	0-2	25.2%	--	--	--	--
B-4	S-3	4-6	4.2%	--	NP	NP	16.0%
B-4	S-4	6-8	36.0%	--	54	24	--
B-4	S-6	10-12	34.4%	--	81	27	--
B-4	S-8	18-20	28.8%	--	--	--	--
B-4	S-9	23-25	20.7%	--	49	18	--
B-4	S-11	33-35	19.6%	--	56	19	--

Particle Size Distribution Report

ASTM D6913 and D7928



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	2.6	13.0	32.7	51.7
□	0.0	0.0	11.1	3.8	11.1	29.6	19.8	24.6
△	0.0	0.0	0.0	0.0	0.0	0.6	18.2	81.2
◇	0.0	25.6	24.4	7.2	13.2	13.6	16.0	

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0791	0.0149	0.0038					
□	NP	NP	1.9028	0.1411	0.1140	0.0140				
△			0.0059							
◇	NP	NP	21.2928	9.6962	4.7542	0.4417				

Material Description	USCS	AASHTO
○ Visual classification: clay		
□ Silty sand	SM	A-4(0)
△ Visual classification: clay		
◇ Silty gravel with sand	GM	A-1-b

Project No. Client: SaLUT

Project: Taylor Run Stream

○ Source of Sample: B-1 Depth: 16'-18' Sample Number: S-9

□ Source of Sample: B-2 Depth: 8'-10' Sample Number: S-5

△ Source of Sample: B-3 Depth: 13'-15' Sample Number: S-7

◇ Source of Sample: B-4 Depth: 4'-6' Sample Number: S-3

Remarks:

○ Date tested: 10/23/25

□ 10/23/25

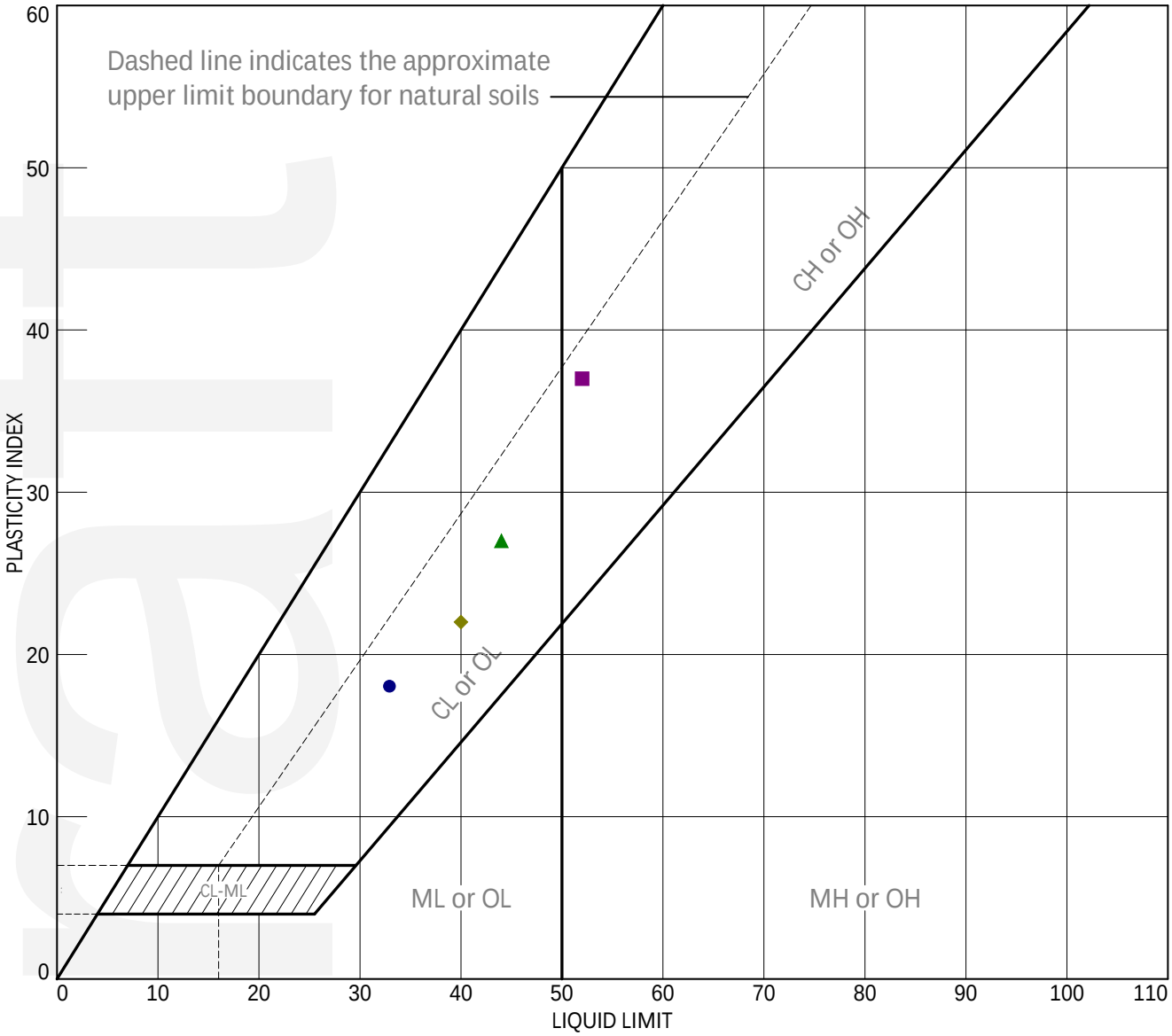
△ Date tested: 10/23/25

◇ Date tested: 10/16/25

Figure

Tested By: AS Checked By: SK

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-1	S-2	2'-4'	18.0	15	33	18	
■	B-1	S-5	8'-10'	20.3	15	52	37	
▲	B-1	S-10	18'-20'	27.3	17	44	27	
◆	B-1	S-14	26'-28	28.6	18	40	22	

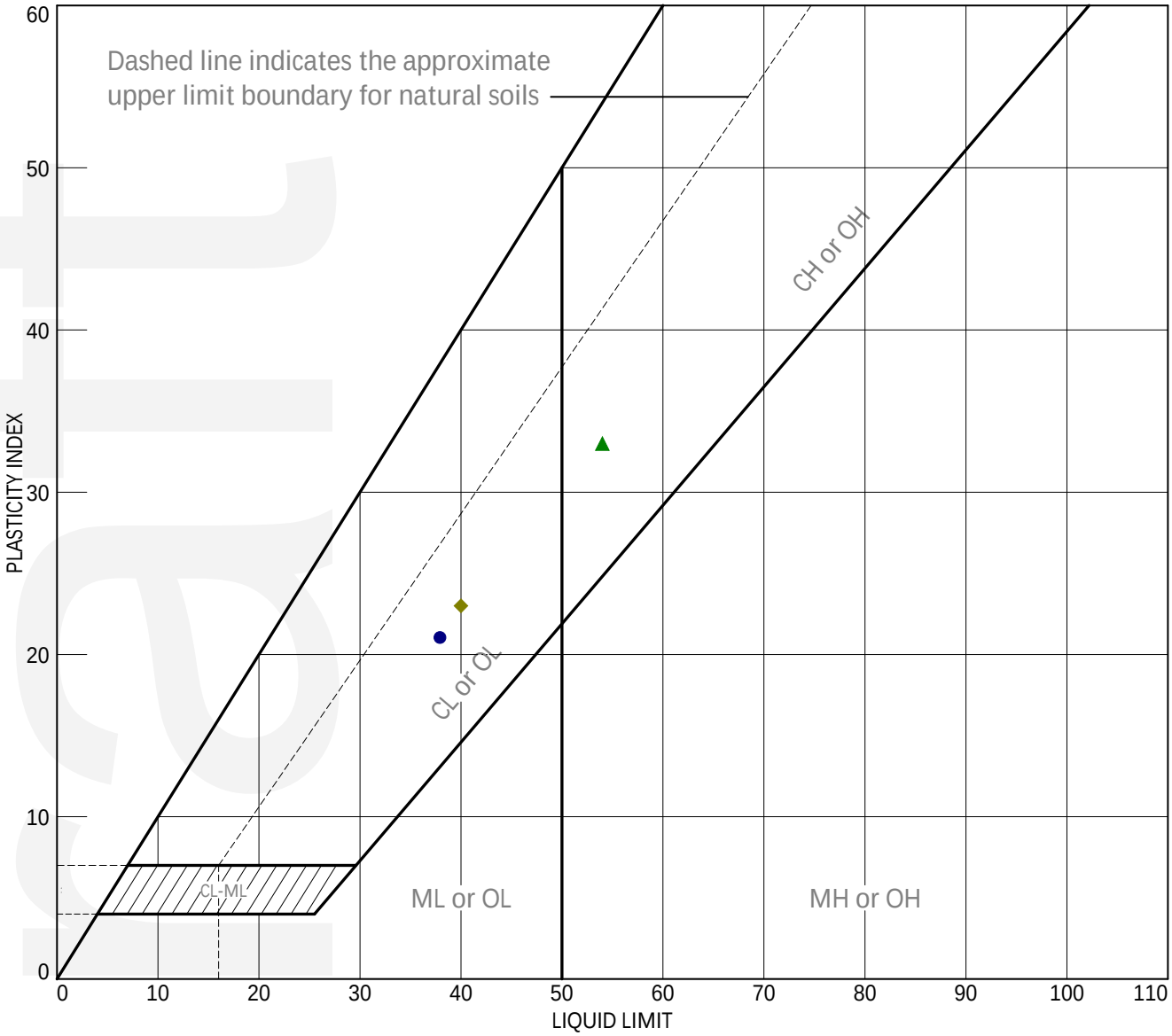
BALTIMORE BMT MATERIALS TESTING

Client: SaLUT

Project: Taylor Run Stream

Project No.: Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-2	S-3	4'-6'	20.4	17	38	21	
■	B-2	S-5	8'-10'		NP	NP	NP	SM
▲	B-2	S-7	12'-14'	42.9	21	54	33	
◆	B-2	S-11	24'-26'	26.1	17	40	23	

BALTIMORE BMT MATERIALS TESTING

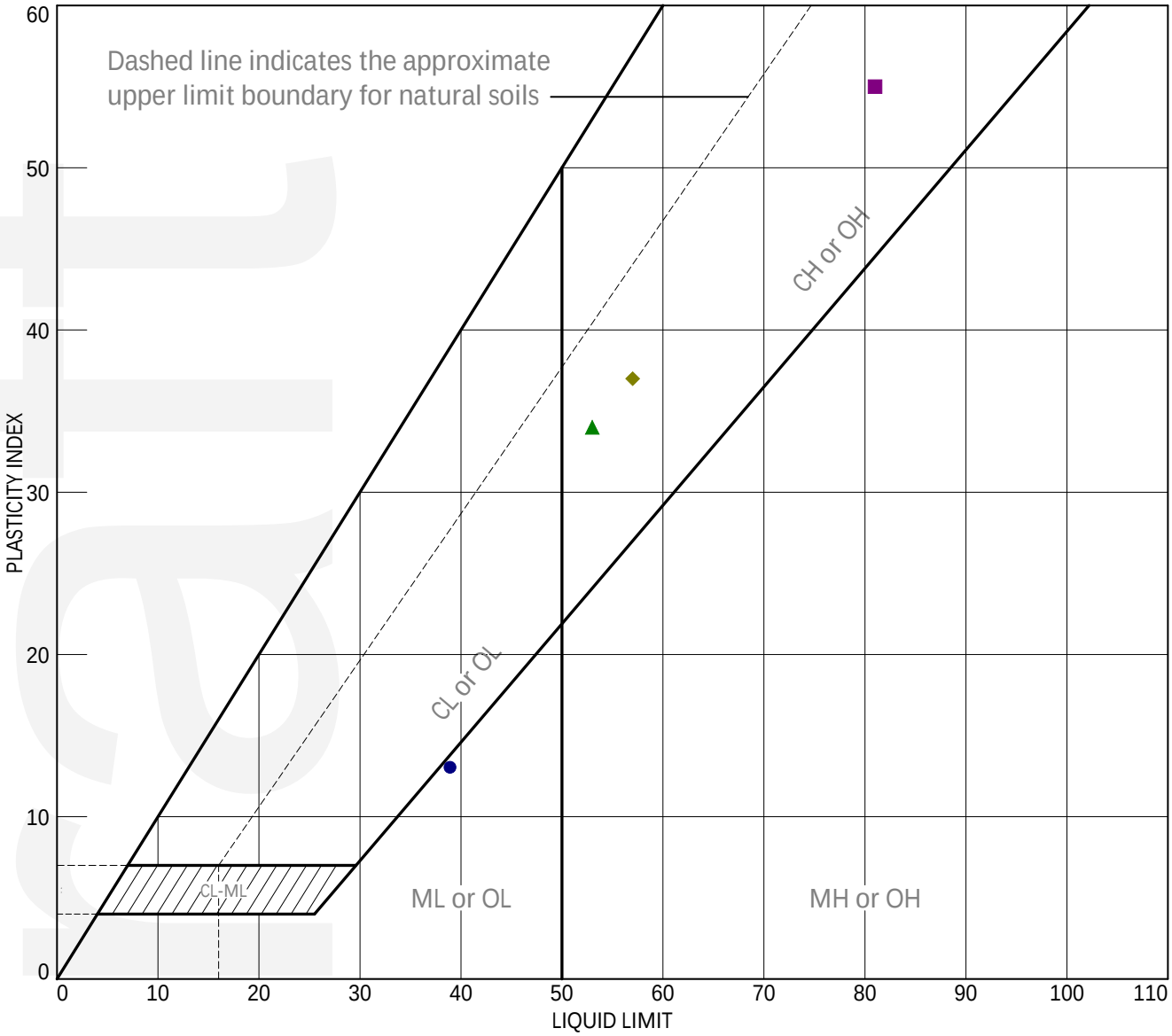
Client: SaLUT

Project: Taylor Run Stream

Project No.:

Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-3	S-3	4'-6'	39.3	26	39	13	
■	B-3	S-5	8'-10'	31.4	26	81	55	
▲	B-3	S-9	23'-25'	21.1	19	53	34	
◆	B-3	S-13	43'-45'	22.5	20	57	37	
▼	B-3	S-7	13'-15'	28.8				

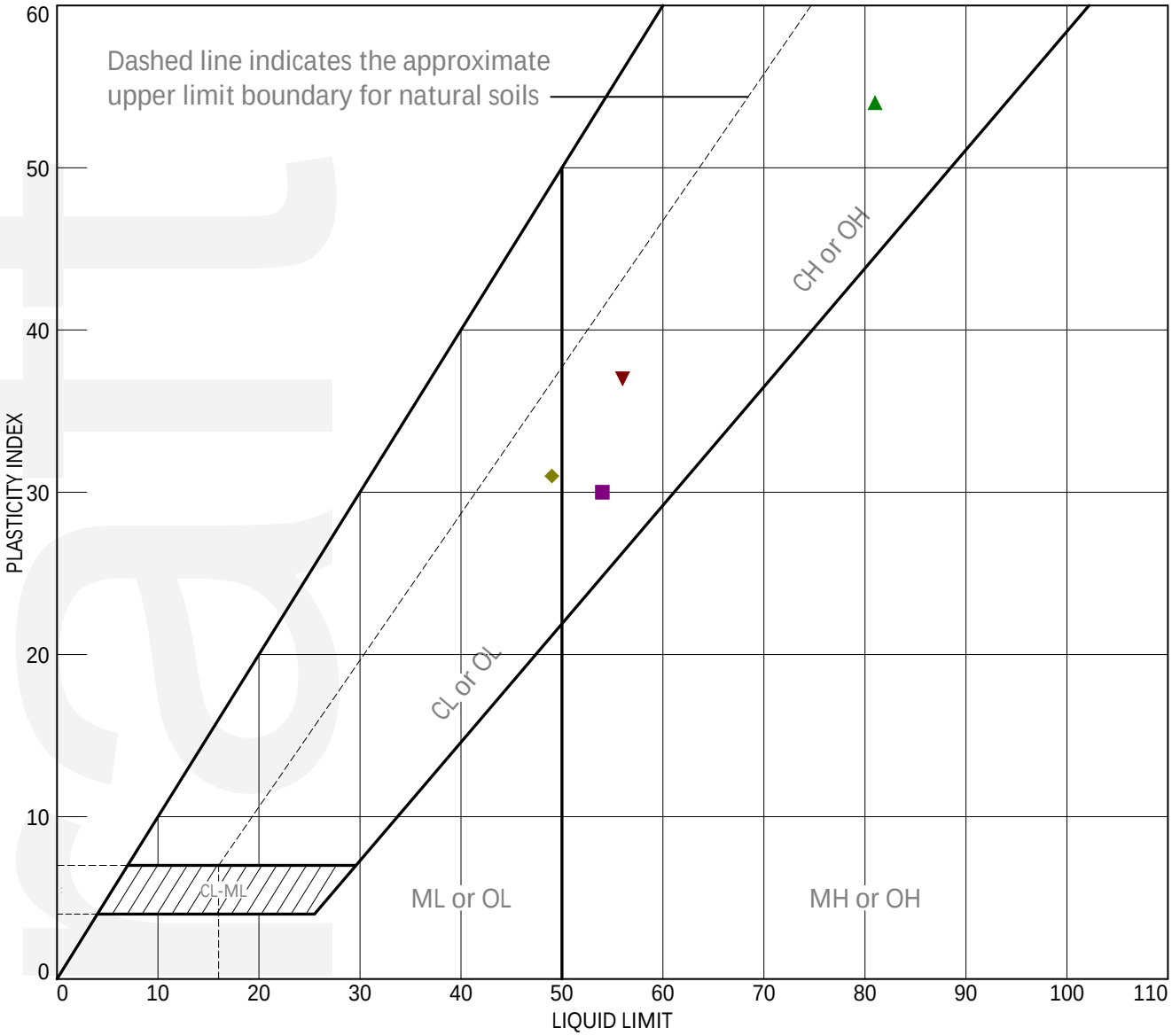
BALTIMORE BMT MATERIALS TESTING

Client: SaLUT

Project: Taylor Run Stream

Project No.: Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-4	S-3	4'-6'	4.2	NP	NP	NP	GM
■	B-4	S-4	6'-8'	36.0	24	54	30	
▲	B-4	S-6	10'-12'	34.0	27	81	54	
◆	B-4	S-9	23'-25'	20.7	18	49	31	
▼	B-4	S-11	33'-35'	19.6	19	56	37	

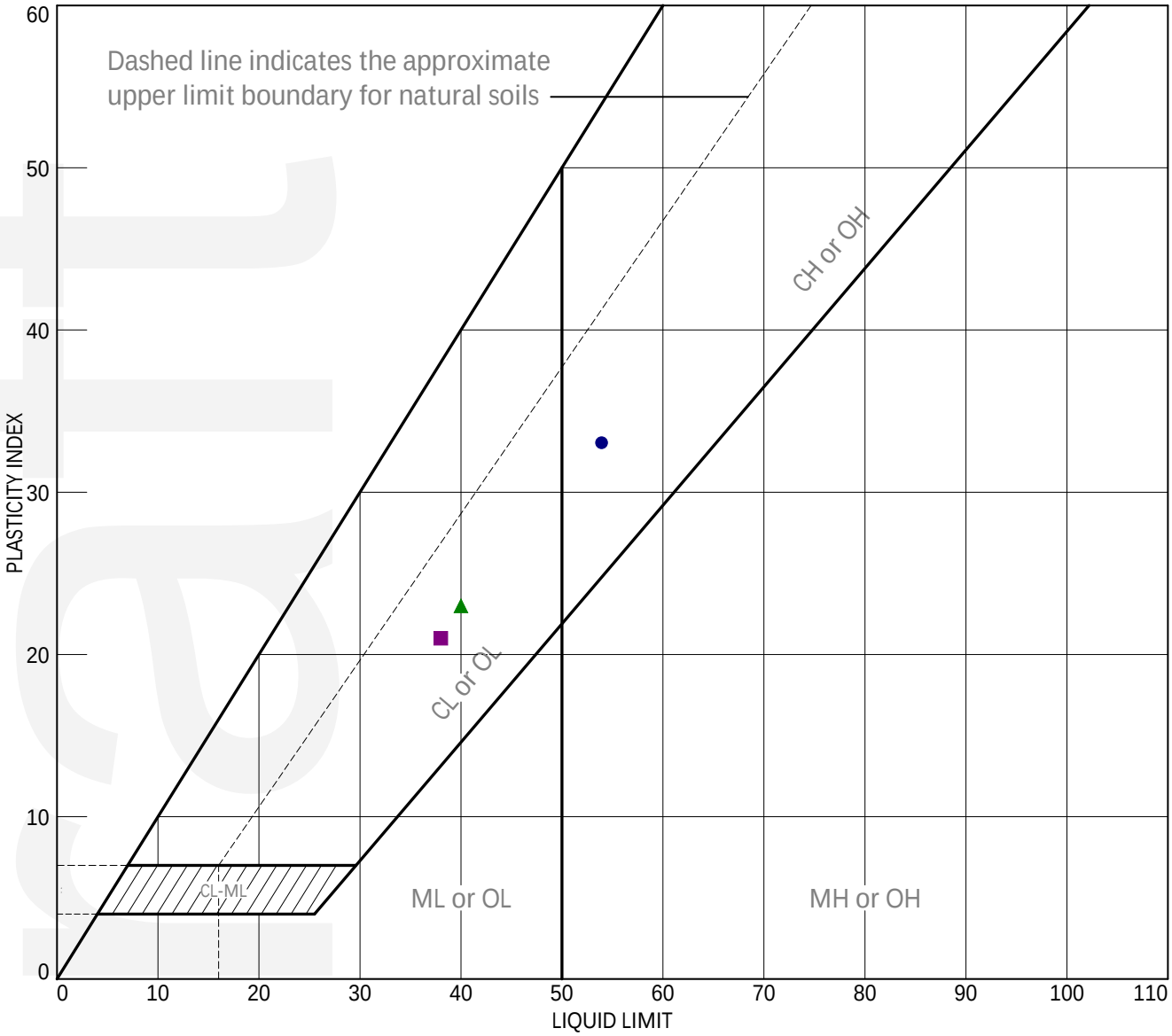
BALTIMORE BMT MATERIALS TESTING

Client: SaLUT

Project: Taylor Run Stream

Project No.: Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-2	S-7	12'-14'	42.9	21	54	33	
■	B-2	S-3	4'-6'	20.4	17	38	21	
▲	B-2	S-11	24'-26'	26.1	17	40	23	

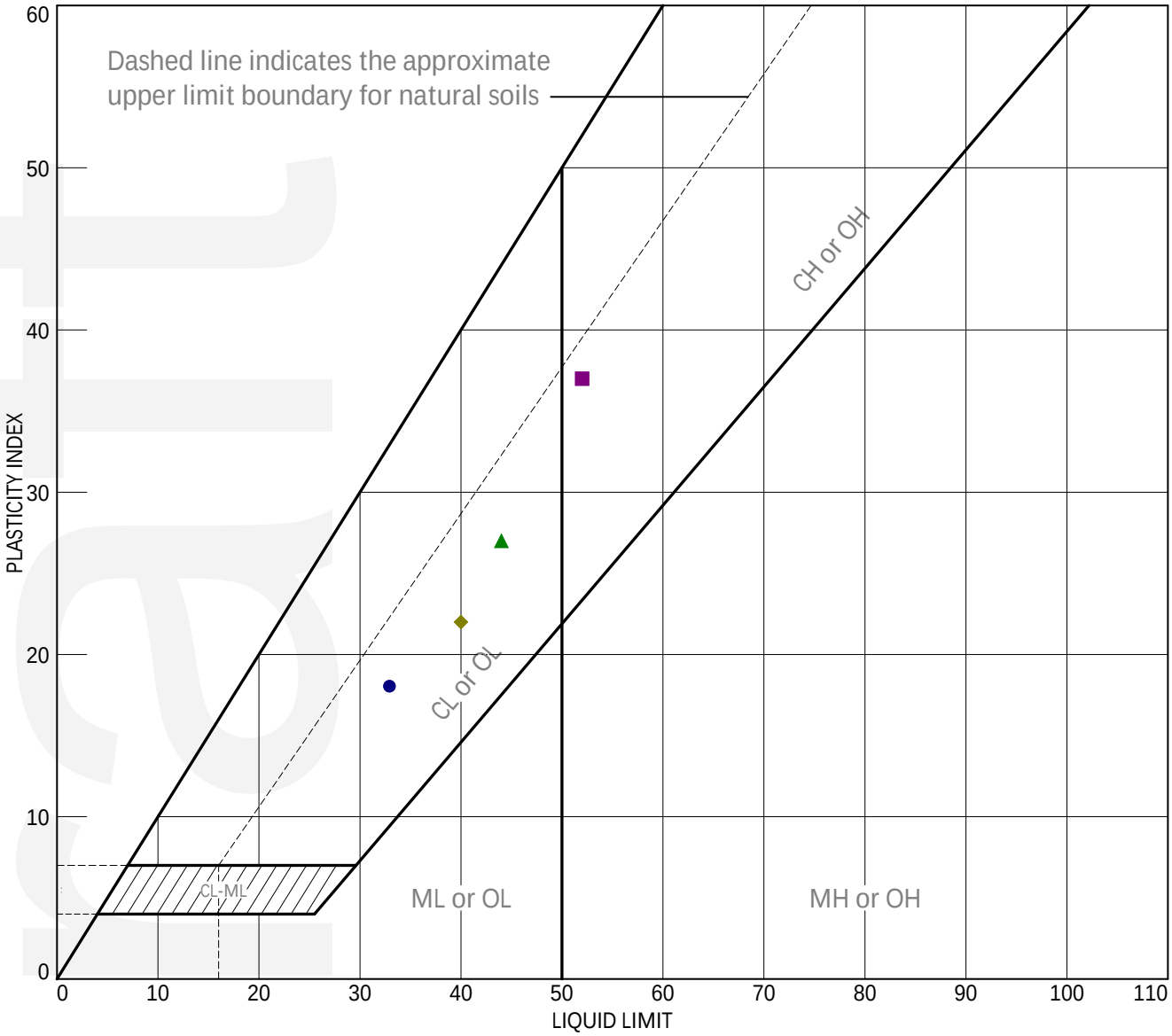
BALTIMORE BMT MATERIALS TESTING

Client: SaLUT

Project: Taylor Run Stream

Project No.: Figure

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	B-1	S-2	2'-4'	18.0	15	33	18	
■	B-1	S-5	8'-10'	20.3	15	52	37	
▲	B-1	S-10	18'-20'	27.3	17	44	27	
◆	B-1	S-14	26'-28	28.6	18	40	22	

BALTIMORE BMT MATERIALS TESTING

Client: SaLUT

Project: Taylor Run Stream

Project No.: Figure

Soil and Land Use Technology Inc. (SaLUT)
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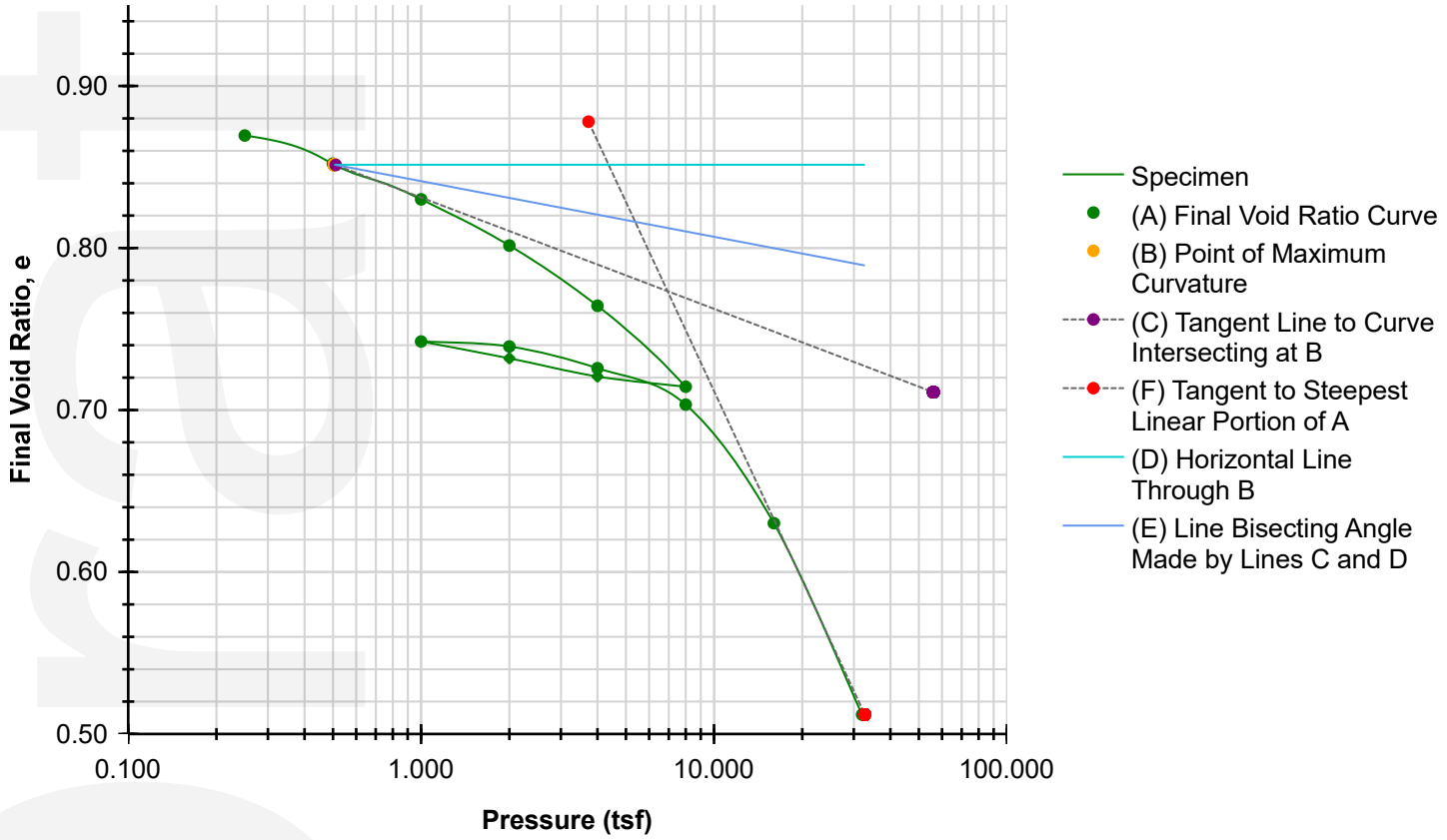
Glen Burnie, MD 21061

Final Voids [Log]

ASTM D-2435



Preconsolidation Stress (tsf)	5.378	**Cc**	0.368	**Cr**	0.037

	BEFORE	AFTER			
			Liquid Limits	62	**Test Date** 10/17/2025
Moisture (%)	28.0	21.8	**Plastic Limits**	20	
Dry Density (pcf)	90.7	106.8			
Saturation (%)	86.9	100.0			
Void Ratio	0.88	0.60	**Specific Gravity**	2.732	MEASURED

Sample Description	Fat CLAY with sand (CH)			
Project Number	25-0025	**Depth (ft)**	22.0-24.0	**Remarks**
Sample Number	T-2	**Boring Number**	B-2	
Project	Taylor Run Stream Stabilization			
Client	AECOM			
Location	Alexandria, Virginia			

Soil and Land Use Technology Inc. (SaLUT)
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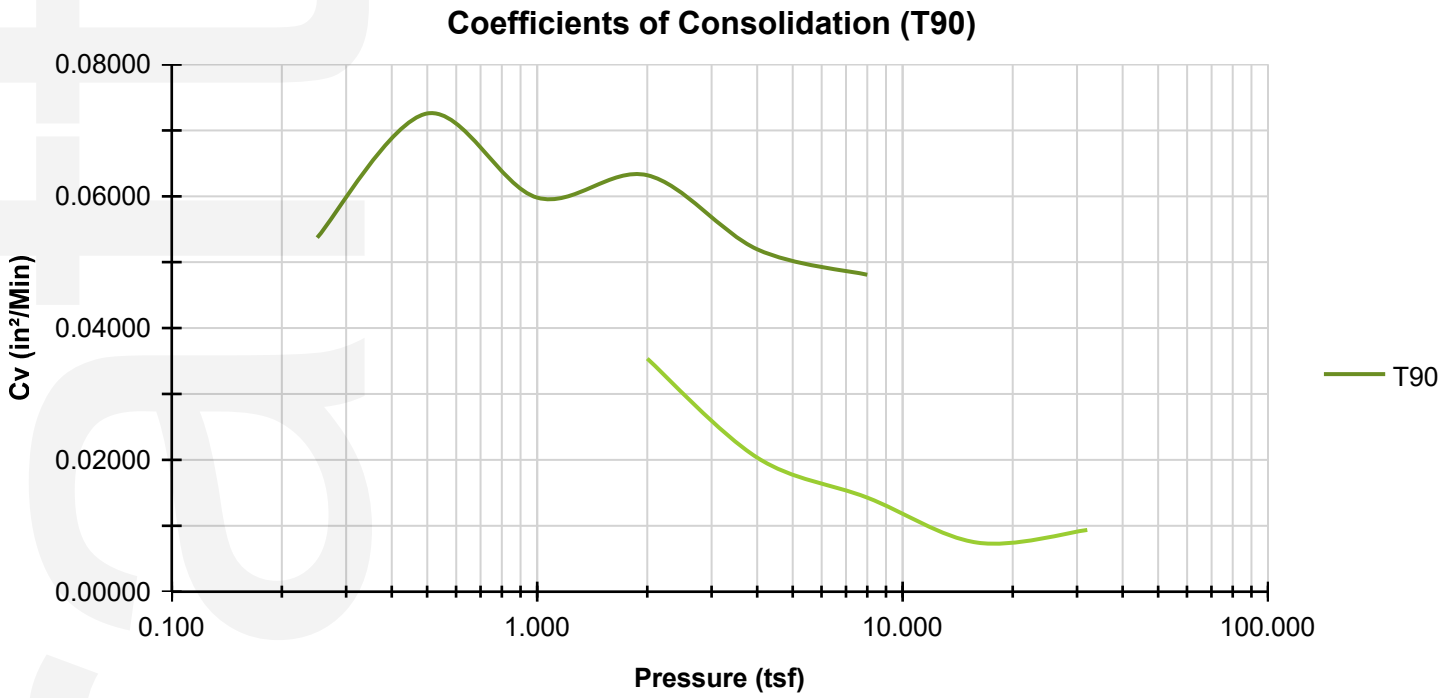
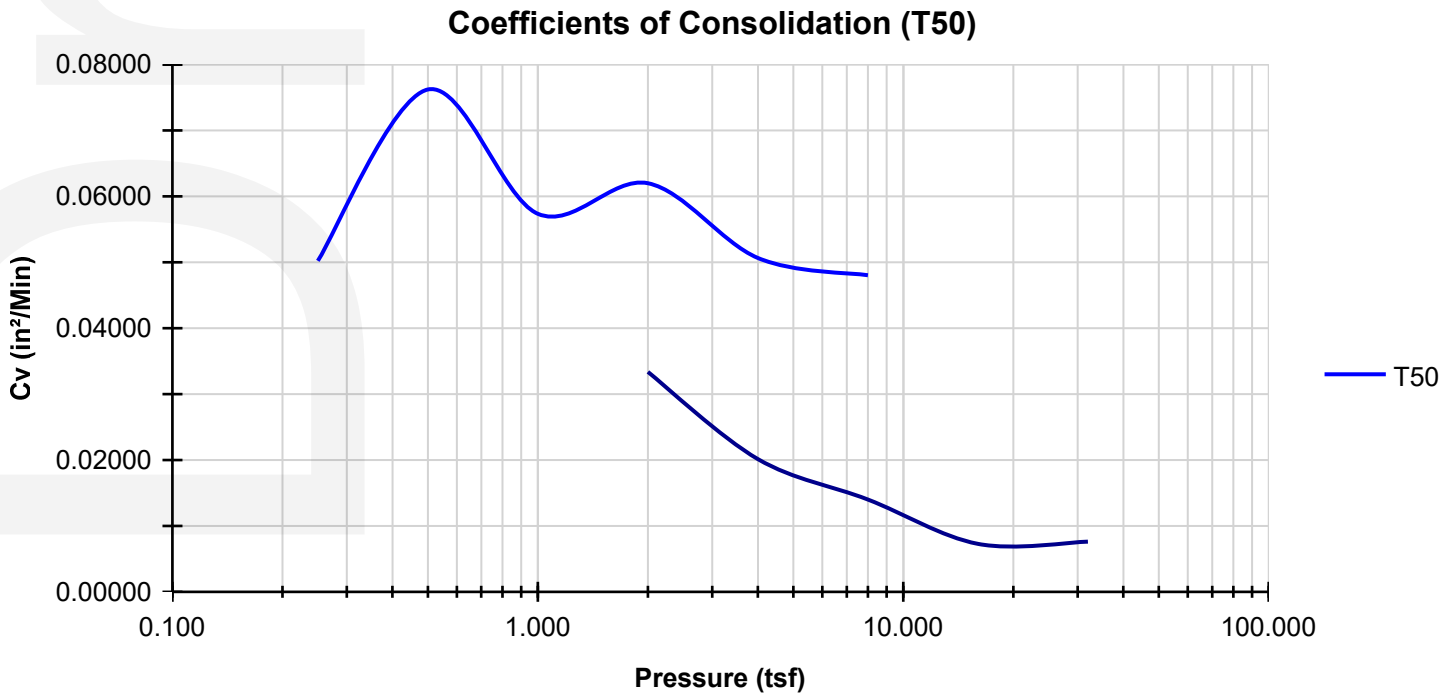
Glen Burnie, MD 21061

Coefficients of Consolidation

ASTM D-2435





Summary

ASTM D-2435

Sample Description	Fat CLAY with sand (CH)			
Project Number	25-0025	**Depth (ft)**	22.0-24.0	**Remarks**
Sample Number	S-12, T-2	**Boring Number**	B-2	
Project	Taylor Run Stream Stabilization			
Client	AECOM			
Location	Alexandria, Virginia			

Index	Loading Sequence (tsf)	Cummulative Change in Height (in)	Specimen Height (in)	Height of Voids (in)	Vertical Strain (%)	Void Ratio	T90 Fitting Time (Hr)	T50 Fitting Time (Hr)	T90 Cv (in²/Min)	T50 Cv (in²/Min)	Sequence Status
0	0.000	0.0000	0.7500	0.0000	0.0	0.880	0.000	0.000	0.00000	0.00000	ENABLED
1	0.250	0.0029	0.7471	0.3475	0.4	0.869	0.037	0.009	0.05373	0.05023	ENABLED
2	0.500	0.0098	0.7402	0.3405	1.3	0.852	0.027	0.006	0.07256	0.07623	ENABLED
3	1.000	0.0186	0.7314	0.3317	2.5	0.830	0.032	0.008	0.05980	0.05737	ENABLED
4	2.000	0.0300	0.7200	0.3203	4.0	0.802	0.029	0.007	0.06319	0.06200	ENABLED
5	4.000	0.0449	0.7051	0.3055	6.0	0.764	0.034	0.008	0.05196	0.05067	ENABLED
6	8.000	0.0648	0.6852	0.2855	8.6	0.714	0.034	0.008	0.04810	0.04804	ENABLED
7	4.000	0.0623	0.6877	0.2880	8.3	0.721	0.000	0.000	0.00000	0.00000	ENABLED
8	2.000	0.0578	0.6922	0.2925	7.7	0.732	0.000	0.000	0.00000	0.00000	ENABLED
9	1.000	0.0537	0.6963	0.2967	7.2	0.742	0.000	0.000	0.00000	0.00000	ENABLED
10	2.000	0.0549	0.6951	0.2954	7.3	0.739	0.048	0.012	0.03536	0.03338	ENABLED
11	4.000	0.0603	0.6897	0.2901	8.0	0.726	0.083	0.019	0.02035	0.02015	ENABLED
12	8.000	0.0692	0.6808	0.2811	9.2	0.703	0.115	0.027	0.01428	0.01401	ENABLED
13	16.000	0.0985	0.6515	0.2518	13.1	0.630	0.202	0.048	0.00744	0.00727	ENABLED
14	32.000	0.1457	0.6043	0.2046	19.4	0.512	0.138	0.039	0.00938	0.00762	ENABLED

Soil and Land Use Technology Inc. (SaLUT)
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Glen Burnie, MD 21061

Consolidated Test Results

ASTM D-2435

Project:	Taylor Run Stream Stabilization
Project Number:	25-0025
Job Number:	25-0025
Test Date:	10/17/2025

Sampling Date:	10/16/2025
Sample Number:	S-12, T-2
Depth (ft)	22.0-24.0
Boring Number:	B-2
Location:	Alexandria, Virginia
Client Name:	AECOM
Remarks:	

Specific Gravity:	2.732	Plastic Limit:	20	Liquid Limit:	62
Specific Gravity Method:	MEASURED			Weight of Ring (g)	61.9
Sampling Method:	Undisturbed	Soil Classification:	CH		
Specimen Description:	Fat CLAY with sand (CH)				

Parameters	Initial	Final
Height (in)	0.7500	0.6043
Height Source	NA	TEST RESULTS
Diameter (in)	2.0000	NA
Area (in²)	3.142	NA
Volume (in³)	2.3562	1.8984
Weight of Container (g)	48.3	32.8
Weight of Wet Soil + Container (g)	302.1	101.5
Weight of Dry Soil + Container (g)	246.6	89.2
Moisture Content (%)	28.0	21.8
Moist Weight + Ring Weight (g)	133.7	126.7
Dry Density (pcf)	90.7	106.8
Wet Density (pcf)	116.1	130.1
Saturation (%)	86.9	100.0
Void Ratio	0.9	0.6

Soil and Land Use Technology Inc. (SaLUT)
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Glen Burnie, MD 21061

Consolidation Test Results

ASTM D-2435

Specimen 1			
Test Description:	Consolidation		
Other Associated Tests:			
Device Details:	CON-2		
Test Specification:	ASTM D-2435		
Test Time:	10/17/2025 12:00:00 AM		
Technician:	A. N	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	Fat CLAY with sand (CH)		
Specimen Preparation:	Cutting Shoe		
Large Particle:			
Moisture Content:	Inundated		
Test Condition:	Undisturbed		
Test Procedure:	ASTM D-2435		
Seating Pressure Used:	YES	Seating Pressure (tsf):	0.050
Preconsolidation Stress:			
Percent Strain [LOG] Graph (tsf):	NA	Final Voids Graph (tsf):	5.378

Tabulated Data - Load Sequence 1 - 0.250 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	10.4	0.0053	0.0000	0.0	0.880
1	00:00:06	10.6	0.0060	0.0007	0.1	0.875
2	00:00:15	10.9	0.0064	0.0011	0.1	0.874
3	00:00:30	10.9	0.0067	0.0014	0.2	0.873
4	00:01:00	10.9	0.0071	0.0018	0.2	0.872
5	00:02:00	10.9	0.0073	0.0020	0.3	0.872
6	00:04:00	10.9	0.0074	0.0021	0.3	0.871
7	00:08:00	10.9	0.0076	0.0023	0.3	0.871
8	00:15:00	10.9	0.0078	0.0025	0.3	0.870
9	00:30:00	10.9	0.0079	0.0026	0.3	0.870
10	01:00:00	10.9	0.0080	0.0027	0.4	0.870
11	02:00:00	10.9	0.0081	0.0028	0.4	0.870
12	04:00:00	10.9	0.0082	0.0029	0.4	0.869
13	06:30:00	10.9	0.0082	0.0029	0.4	0.869

Tabulated Data - Load Sequence 2 - 0.500 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	20.7	0.0082	0.0029	0.4	0.869
1	00:00:06	21.6	0.0125	0.0072	1.0	0.859
2	00:00:15	21.6	0.0131	0.0078	1.0	0.857
3	00:00:30	21.9	0.0135	0.0082	1.1	0.856
4	00:01:00	21.9	0.0138	0.0085	1.1	0.855
5	00:02:00	21.9	0.0141	0.0088	1.2	0.855
6	00:04:00	21.9	0.0143	0.0090	1.2	0.854
7	00:08:00	21.7	0.0145	0.0092	1.2	0.854
8	00:15:00	21.7	0.0146	0.0093	1.2	0.853
9	00:30:00	21.7	0.0147	0.0094	1.3	0.853
10	01:00:00	21.8	0.0149	0.0096	1.3	0.853
11	02:00:00	21.8	0.0150	0.0097	1.3	0.852
12	04:00:00	21.8	0.0151	0.0098	1.3	0.852
13	06:30:00	21.8	0.0151	0.0098	1.3	0.852

Tabulated Data - Load Sequence 3 - 1.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	41.5	0.0151	0.0098	1.3	0.852
1	00:00:06	43.1	0.0208	0.0155	2.1	0.838
2	00:00:15	43.5	0.0214	0.0161	2.1	0.836
3	00:00:30	43.5	0.0218	0.0165	2.2	0.835
4	00:01:00	43.5	0.0223	0.0170	2.3	0.834
5	00:02:00	43.5	0.0226	0.0173	2.3	0.833
6	00:04:00	43.5	0.0229	0.0176	2.3	0.833
7	00:08:00	43.5	0.0231	0.0178	2.4	0.832
8	00:15:00	43.5	0.0233	0.0180	2.4	0.832
9	00:30:00	43.5	0.0235	0.0182	2.4	0.831
10	01:00:00	43.7	0.0237	0.0184	2.4	0.831
11	02:00:00	43.6	0.0238	0.0185	2.5	0.830
12	04:00:00	43.8	0.0239	0.0186	2.5	0.830
13	06:30:00	43.8	0.0239	0.0186	2.5	0.830

Tabulated Data - Load Sequence 4 - 2.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	82.9	0.0239	0.0186	2.5	0.830
1	00:00:06	86.4	0.0312	0.0259	3.5	0.812
2	00:00:15	86.8	0.0320	0.0267	3.6	0.810
3	00:00:30	87.5	0.0326	0.0273	3.6	0.808
4	00:01:00	87.5	0.0332	0.0279	3.7	0.807
5	00:02:00	87.5	0.0336	0.0283	3.8	0.806
6	00:04:00	87.5	0.0339	0.0286	3.8	0.805
7	00:08:00	87.4	0.0342	0.0289	3.9	0.804
8	00:15:00	87.4	0.0345	0.0292	3.9	0.804
9	00:30:00	87.3	0.0348	0.0295	3.9	0.803
10	01:00:00	87.3	0.0350	0.0297	4.0	0.802
11	02:00:00	87.1	0.0352	0.0299	4.0	0.802
12	04:00:00	87.5	0.0353	0.0300	4.0	0.802
13	06:30:00	87.5	0.0353	0.0300	4.0	0.802

Tabulated Data - Load Sequence 5 - 4.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	165.8	0.0353	0.0300	4.0	0.802
1	00:00:06	175.2	0.0444	0.0391	5.2	0.779
2	00:00:15	175.4	0.0455	0.0402	5.4	0.776
3	00:00:30	174.9	0.0464	0.0411	5.5	0.774
4	00:01:00	174.6	0.0470	0.0417	5.6	0.772
5	00:02:00	174.3	0.0476	0.0423	5.6	0.771
6	00:04:00	174.1	0.0481	0.0428	5.7	0.770
7	00:08:00	173.9	0.0486	0.0433	5.8	0.768
8	00:15:00	173.9	0.0490	0.0437	5.8	0.767
9	00:30:00	174.2	0.0494	0.0441	5.9	0.766
10	01:00:00	175.3	0.0497	0.0444	5.9	0.766
11	02:00:00	174.9	0.0500	0.0447	6.0	0.765
12	04:00:00	174.7	0.0502	0.0449	6.0	0.764
13	06:30:00	174.7	0.0502	0.0449	6.0	0.764

Tabulated Data - Load Sequence 6 - 8.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	332.3	0.0502	0.0449	6.0	0.764
1	00:00:06	348.2	0.0622	0.0569	7.6	0.734
2	00:00:15	348.1	0.0636	0.0583	7.8	0.731
3	00:00:30	348.0	0.0646	0.0593	7.9	0.728
4	00:01:00	347.9	0.0655	0.0602	8.0	0.726
5	00:02:00	347.6	0.0664	0.0611	8.1	0.724
6	00:04:00	350.0	0.0672	0.0619	8.3	0.722
7	00:08:00	349.7	0.0679	0.0626	8.3	0.720
8	00:15:00	349.4	0.0684	0.0631	8.4	0.719
9	00:30:00	349.2	0.0689	0.0636	8.5	0.717
10	01:00:00	348.8	0.0694	0.0641	8.5	0.716
11	02:00:00	348.4	0.0698	0.0645	8.6	0.715
12	04:00:00	348.7	0.0700	0.0647	8.6	0.715
13	06:30:00	348.6	0.0701	0.0648	8.6	0.714

Tabulated Data - Load Sequence 7 - 4.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	182.5	0.0701	0.0648	8.6	0.714
1	00:00:06	167.9	0.0680	0.0627	8.4	0.720
2	00:00:15	175.5	0.0679	0.0626	8.4	0.720
3	00:00:30	171.0	0.0679	0.0626	8.4	0.720
4	00:01:00	174.5	0.0679	0.0626	8.3	0.720
5	00:02:00	174.8	0.0678	0.0625	8.3	0.720
6	00:04:00	174.9	0.0678	0.0625	8.3	0.720
7	00:08:00	175.1	0.0678	0.0625	8.3	0.720
8	00:15:00	175.3	0.0677	0.0624	8.3	0.720
9	00:30:00	174.1	0.0677	0.0624	8.3	0.720
10	01:00:00	174.5	0.0677	0.0624	8.3	0.720
11	02:00:00	174.5	0.0677	0.0624	8.3	0.721
12	04:00:00	174.6	0.0677	0.0624	8.3	0.721
13	06:30:00	174.4	0.0676	0.0623	8.3	0.721

Tabulated Data - Load Sequence 8 - 2.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	90.4	0.0676	0.0623	8.3	0.721
1	00:00:06	85.8	0.0649	0.0596	7.9	0.728
2	00:00:15	86.8	0.0647	0.0594	7.9	0.728
3	00:00:30	87.2	0.0644	0.0591	7.9	0.729
4	00:01:00	87.1	0.0642	0.0589	7.9	0.729
5	00:02:00	87.1	0.0640	0.0587	7.8	0.730
6	00:04:00	87.0	0.0639	0.0586	7.8	0.730
7	00:08:00	86.9	0.0637	0.0584	7.8	0.730
8	00:15:00	87.0	0.0637	0.0584	7.8	0.731
9	00:30:00	87.6	0.0636	0.0583	7.8	0.731
10	01:00:00	87.3	0.0635	0.0582	7.8	0.731
11	02:00:00	86.9	0.0633	0.0580	7.7	0.731
12	04:00:00	87.1	0.0632	0.0579	7.7	0.732
13	06:30:00	87.4	0.0631	0.0578	7.7	0.732

Tabulated Data - Load Sequence 9 - 1.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	45.5	0.0631	0.0578	7.7	0.732
1	00:00:06	42.7	0.0609	0.0556	7.4	0.737
2	00:00:15	43.3	0.0608	0.0555	7.4	0.738
3	00:00:30	44.2	0.0606	0.0553	7.4	0.738
4	00:01:00	43.8	0.0603	0.0550	7.3	0.739
5	00:02:00	43.8	0.0601	0.0548	7.3	0.740
6	00:04:00	43.8	0.0598	0.0545	7.3	0.740
7	00:08:00	43.8	0.0597	0.0544	7.2	0.741
8	00:15:00	43.7	0.0595	0.0542	7.2	0.741
9	00:30:00	43.6	0.0594	0.0541	7.2	0.741
10	01:00:00	43.4	0.0593	0.0540	7.2	0.741
11	02:00:00	43.4	0.0592	0.0539	7.2	0.742
12	04:00:00	43.8	0.0591	0.0538	7.2	0.742
13	06:30:00	43.8	0.0590	0.0537	7.2	0.742

Tabulated Data - Load Sequence 10 - 2.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	83.0	0.0590	0.0537	7.2	0.742
1	00:00:06	86.0	0.0591	0.0538	7.2	0.742
2	00:00:15	86.9	0.0592	0.0539	7.2	0.742
3	00:00:30	87.5	0.0594	0.0541	7.2	0.741
4	00:01:00	87.5	0.0597	0.0544	7.2	0.741
5	00:02:00	87.5	0.0599	0.0546	7.3	0.740
6	00:04:00	87.4	0.0600	0.0547	7.3	0.740
7	00:08:00	87.4	0.0601	0.0548	7.3	0.740
8	00:15:00	87.3	0.0601	0.0548	7.3	0.740
9	00:30:00	87.1	0.0602	0.0549	7.3	0.739
10	01:00:00	86.9	0.0602	0.0549	7.3	0.739
11	02:00:00	87.2	0.0602	0.0549	7.3	0.739
12	04:00:00	87.1	0.0602	0.0549	7.3	0.739
13	08:00:00	87.1	0.0602	0.0549	7.3	0.739

Tabulated Data - Load Sequence 11 - 4.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	166.2	0.0602	0.0549	7.3	0.739
1	00:00:06	173.0	0.0604	0.0551	7.3	0.739
2	00:00:15	175.2	0.0608	0.0555	7.4	0.738
3	00:00:30	172.2	0.0613	0.0560	7.5	0.737
4	00:01:00	179.3	0.0622	0.0569	7.6	0.734
5	00:02:00	173.6	0.0632	0.0579	7.7	0.732
6	00:04:00	174.3	0.0639	0.0586	7.8	0.730
7	00:08:00	175.1	0.0645	0.0592	7.9	0.728
8	00:15:00	175.1	0.0649	0.0596	7.9	0.728
9	00:30:00	175.2	0.0652	0.0599	8.0	0.727
10	01:00:00	175.4	0.0654	0.0601	8.0	0.726
11	02:00:00	173.8	0.0655	0.0602	8.0	0.726
12	04:00:00	175.2	0.0656	0.0603	8.0	0.726
13	06:30:00	175.1	0.0656	0.0603	8.0	0.726

Tabulated Data - Load Sequence 12 - 8.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	331.7	0.0656	0.0603	8.0	0.726
1	00:00:06	344.8	0.0659	0.0606	8.1	0.725
2	00:00:15	350.4	0.0664	0.0611	8.1	0.724
3	00:00:30	350.2	0.0672	0.0619	8.3	0.722
4	00:01:00	350.0	0.0683	0.0630	8.4	0.719
5	00:02:00	349.9	0.0696	0.0643	8.6	0.716
6	00:04:00	349.7	0.0708	0.0655	8.7	0.713
7	00:08:00	349.7	0.0720	0.0667	8.9	0.710
8	00:15:00	349.6	0.0729	0.0676	9.0	0.707
9	00:30:00	349.6	0.0736	0.0683	9.1	0.706
10	01:00:00	349.6	0.0741	0.0688	9.2	0.704
11	02:00:00	349.5	0.0743	0.0690	9.2	0.704
12	04:00:00	349.6	0.0744	0.0691	9.2	0.704
13	06:30:00	349.6	0.0745	0.0692	9.2	0.703

Tabulated Data - Load Sequence 13 - 16.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	663.9	0.0745	0.0692	9.2	0.703
1	00:00:06	702.1	0.0751	0.0698	9.3	0.702
2	00:00:15	699.2	0.0768	0.0715	9.5	0.698
3	00:00:30	699.1	0.0788	0.0735	9.8	0.693
4	00:01:00	698.9	0.0817	0.0764	10.2	0.685
5	00:02:00	698.7	0.0851	0.0798	10.6	0.677
6	00:04:00	698.5	0.0891	0.0838	11.2	0.667
7	00:08:00	698.2	0.0938	0.0885	11.8	0.655
8	00:15:00	697.8	0.0987	0.0934	12.5	0.643
9	00:30:00	697.4	0.1015	0.0962	12.8	0.636
10	01:00:00	696.1	0.1027	0.0974	13.0	0.633
11	02:00:00	699.9	0.1033	0.0980	13.1	0.631
12	04:00:00	697.1	0.1036	0.0983	13.1	0.631
13	06:30:00	697.2	0.1038	0.0985	13.1	0.630

Tabulated Data - Load Sequence 14 - 32.000 tsf

ASTM D-2435

Stop Method: 06:30:00 (hh:mm:ss)

Index	Elapsed Time (hh:mm:ss)	Load (Lbf)	Displacement (in)	Settlement (in)	Axial Strain (%)	Void Ratio
0	00:00:00	1,327.9	0.1038	0.0985	13.1	0.630
1	00:00:06	1,393.4	0.1199	0.1146	15.3	0.590
2	00:00:15	1,393.5	0.1211	0.1158	15.4	0.587
3	00:00:30	1,394.8	0.1228	0.1175	15.7	0.583
4	00:01:00	1,394.3	0.1253	0.1200	16.0	0.576
5	00:02:00	1,393.6	0.1300	0.1247	16.6	0.565
6	00:04:00	1,392.9	0.1367	0.1314	17.5	0.548
7	00:08:00	1,397.2	0.1409	0.1356	18.1	0.537
8	00:15:00	1,396.7	0.1441	0.1388	18.5	0.529
9	00:30:00	1,395.9	0.1470	0.1417	18.9	0.522
10	01:00:00	1,395.4	0.1489	0.1436	19.1	0.517
11	02:00:00	1,393.3	0.1500	0.1447	19.3	0.515
12	04:00:00	1,393.7	0.1506	0.1453	19.4	0.513
13	06:30:00	1,393.4	0.1510	0.1457	19.4	0.512

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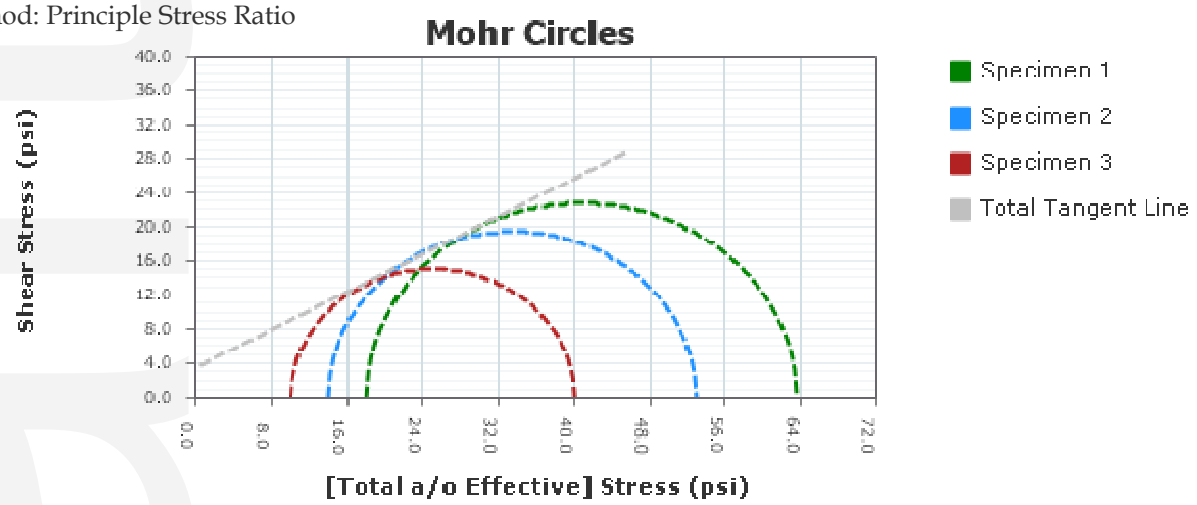
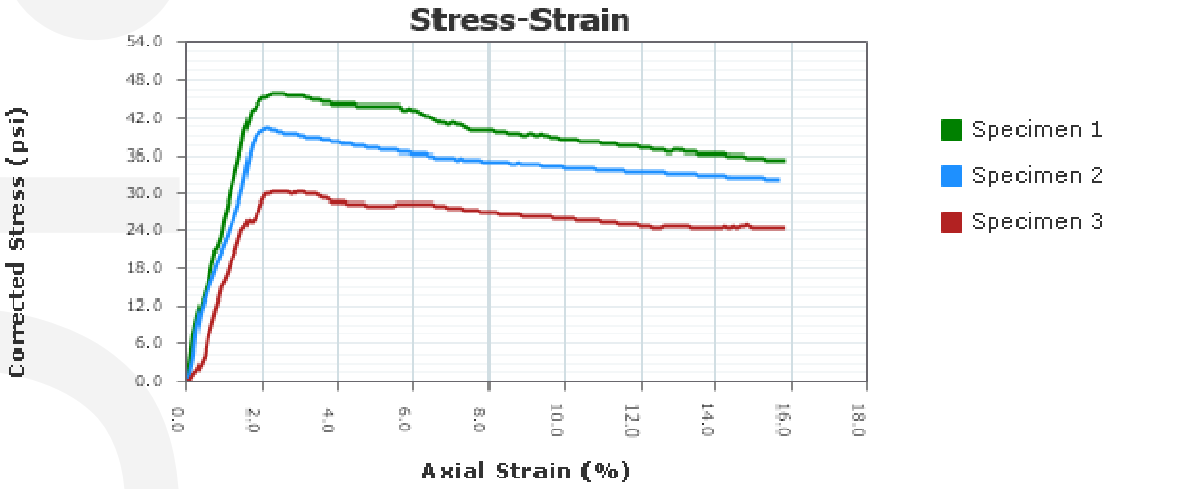
Consolidated Undrained Test

ASTM D4767

Calculation Method: Principle Stress Ratio



Total Strength Intercept (psi):	3.5	Effective Strength Intercept (psi):	NA
Total Friction Angle (°):	29.1	Effective Friction Angle (°):	NA



After Shear	Specimen Number 1	2	3	4	5	6	7	8
σ'1 at Failure (psi)								
σ'3 at Failure (psi)								

Project:	Taylor Run Stream Stabilization
Project Number:	25-0025
Sampling Date:	
Sample Number:	T-1
Sample Depth:	14.0 - 16.0 ft
Location:	Alexandria, Virginia
Remarks:	Clay with Sand and Silt (Visual Classification)

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Consolidated Undrained Test

ASTM D4767

Initial Parameters	Specimen Number							
	1	2	3	4	5	6	7	8
Moisture Content (%)	34.5	32.5	32.7					
Moisture Material	Trimmings	Trimmings	Trimmings					
Dry Density (pcf)	84.4	89.0	88.5					
Saturation (%)	95.2	100.2	99.8					
Void Ratio	0.961	0.859	0.868					
Height (in)	5.5827	5.5892	5.5460					
Diameter (in)	2.8660	2.8588	2.8633					
Test Temperature (°C)	23.0	23.0	23.0					
Membrane Thickness (in)	0.0120	0.0120	0.0120					
Filter Paper Strips	Used	Used	Used					
Saturation Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Height (in)	5.5867	5.5932	5.5480					
Area (in²)	6.460	6.428	6.444					
Volume (in³)	36.0925	35.9543	35.7506					
B-Value	0.960	0.970	0.970					
Method Used	Wet	Wet	Wet					
Consolidation Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Cell Pressure (psi)	48.6	44.0	40.3					
Back Pressure (psi)	30.6	30.0	30.3					
Effective Pressure (psi)	18.0	14.0	10.0					
Height (in)	5.4997	5.5552	5.5030					
Area (in²)	6.396	6.439	6.286					
Volume (in³)	35.1771	35.7713	34.5911					
Dry Density (pcf)	86.4	89.2	91.4					
Saturation (%)	99.2	100.0	97.5					
Void Ratio	0.915	0.854	0.810					
Final Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture Content (%)	34.2	32.2	29.8					
Dry Density (pcf)	90.8	88.6	93.3					
Void Ratio	0.822	0.866	0.773					
Failure Angle (°):								
Test Data	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Comp. Strength at Failure (psi)	45.5	39.0	30.0					
σ'1 at Failure (psi)	53.8	43.7	33.1					
σ'3 at Failure (psi)	8.3	4.7	3.0					
Rate of Strain (%/Hr)	5.5	5.4	5.5					
Rate of Strain (in/min)	0.005000	0.005000	0.005000					
Axial Strain at Failure (%)	2.7	1.8	2.2					

Soil and Land Use Technology Inc. (SaLUT)
530 McCormick Drive, Suite S
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Consolidated Undrained Test

ASTM D4767

Project:	Taylor Run Stream Stabilization
Project Number:	25-0025
Sampling Date:	10/23/2025
Sample Number:	T-1
Sample Depth:	14.0 - 16.0 ft
Location:	Alexandria, Virginia
Boring Number:	B-2
Client Name:	AECOM
Remarks:	Clay with Sand and Silt (Visual Classification)

Specimen 1 Failure Sketch	Specimen 2 Failure Sketch	Specimen 3 Failure Sketch	Specimen 4 Failure Sketch	Specimen 5 Failure Sketch	Specimen 6 Failure Sketch	Specimen 7 Failure Sketch	Specimen 8 Failure Sketch
							

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Consolidated Undrained Test

ASTM D4767

Specimen 1

Test Description:	Triaxial CU 18 psi		
Other Associated Tests:			
Device Details:			
Test Specification:			
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	Clay with Sand and Silt (Visual Classification)		
Specific Gravity:	2.65 (Assumed)		
Plastic Limit:	23	Liquid Limit:	68
Filter Paper Correction:	Yes	Membrane Correction:	Yes
Failure Criteria:	17% Strain		
Initial Moist Weight (g):	1073.0		
Test Remarks:			

Specimen 2

Test Description:	Triaxial CU 14 psi		
Other Associated Tests:			
Device Details:			
Test Specification:			
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	Clay with Sand and Silt (Visual Classification)		
Specific Gravity:	2.65 (Assumed)		
Plastic Limit:	23	Liquid Limit:	68
Filter Paper Correction:	Yes	Membrane Correction:	Yes
Failure Criteria:	16% Strain		
Initial Moist Weight (g):	1110.1		
Test Remarks:			

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Consolidated Undrained Test

ASTM D4767

Specimen 3

Test Description:	Triaxial CU 10 psi		
Other Associated Tests:			
Device Details:			
Test Specification:			
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	Clay with Sand and Silt (Visual Classification)		
Specific Gravity:	2.65 (Assumed)		
Plastic Limit:	23	Liquid Limit:	68
Filter Paper Correction:	Yes	Membrane Correction:	Yes
Failure Criteria:	16% Strain		
Initial Moist Weight (g):	1101.5		
Test Remarks:			

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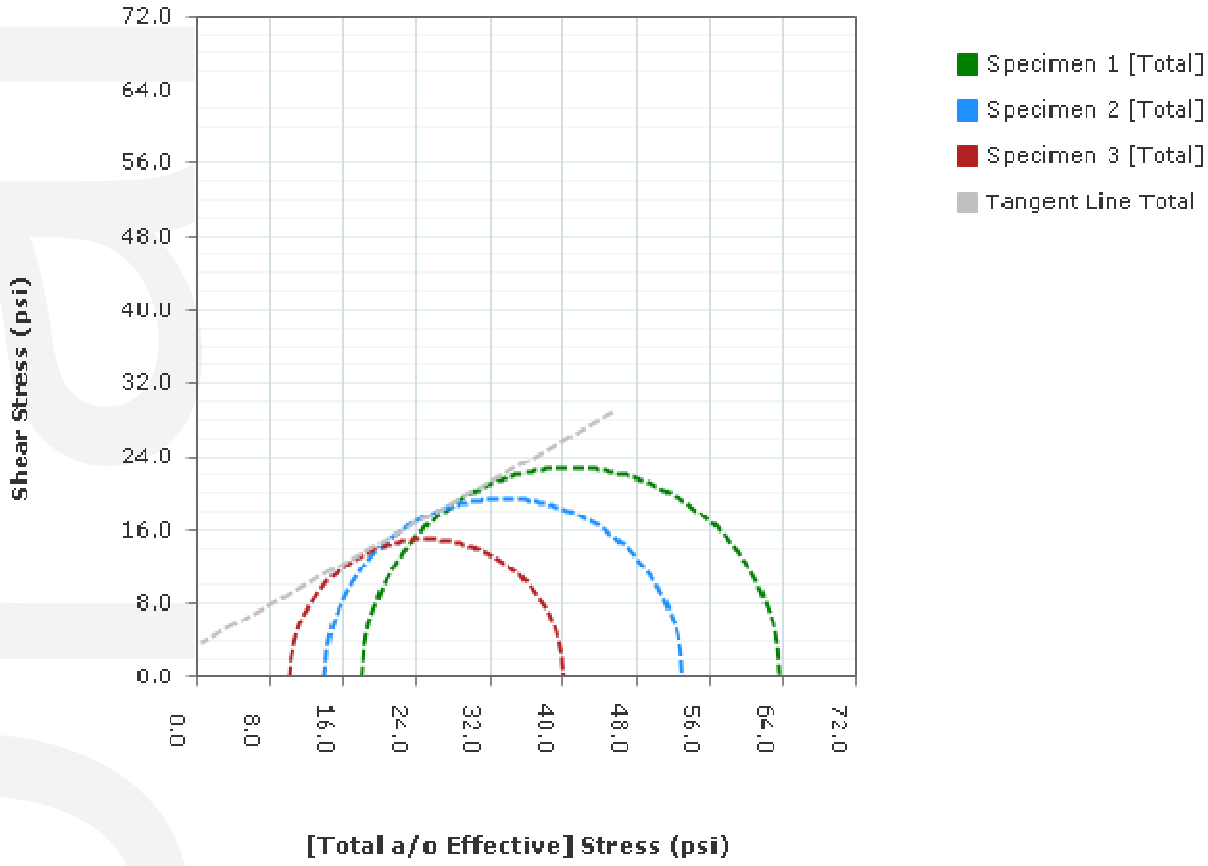
Graph - Mohr Circle (Total)

ASTM D4767



Tangent Line Results	TOTAL	EFFECTIVE
Strength Intercept (psi)	3.5	NA
Friction Angle (°)	29.143	NA

Calculation Method: Principle Stress Ratio

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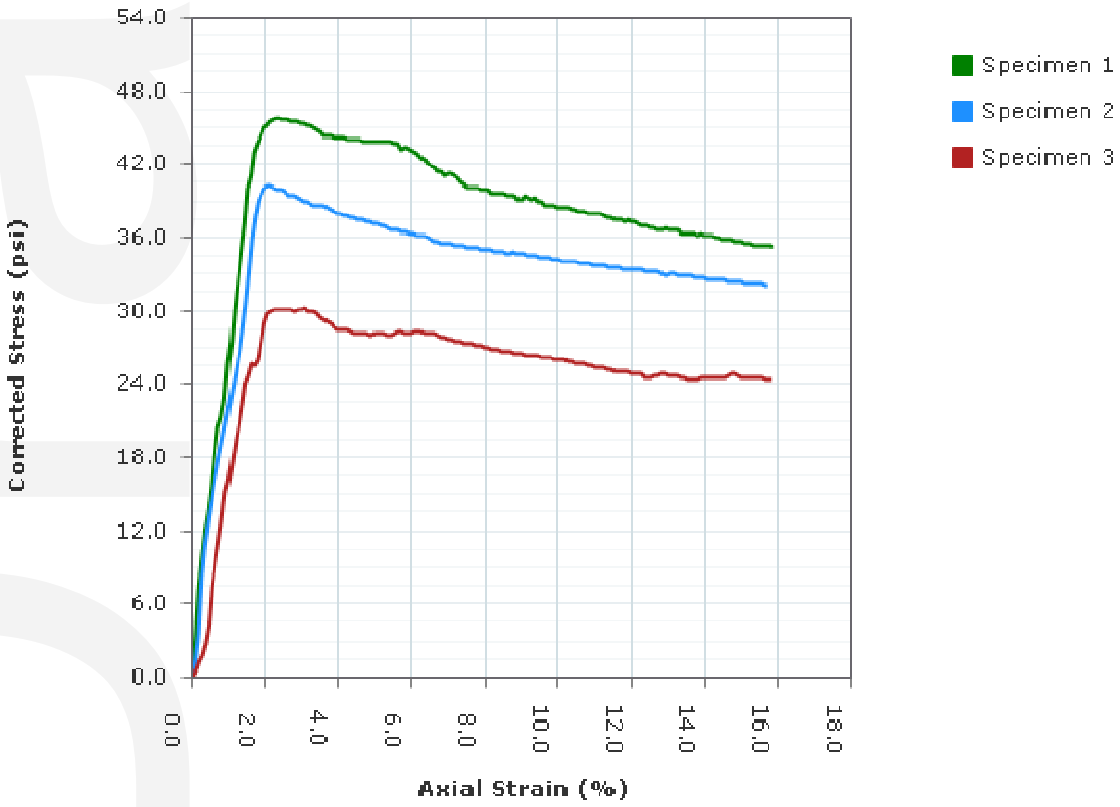
Stress Strain Graph

ASTM D4767



Soil and Land Use Technology Inc. (SaLUT)
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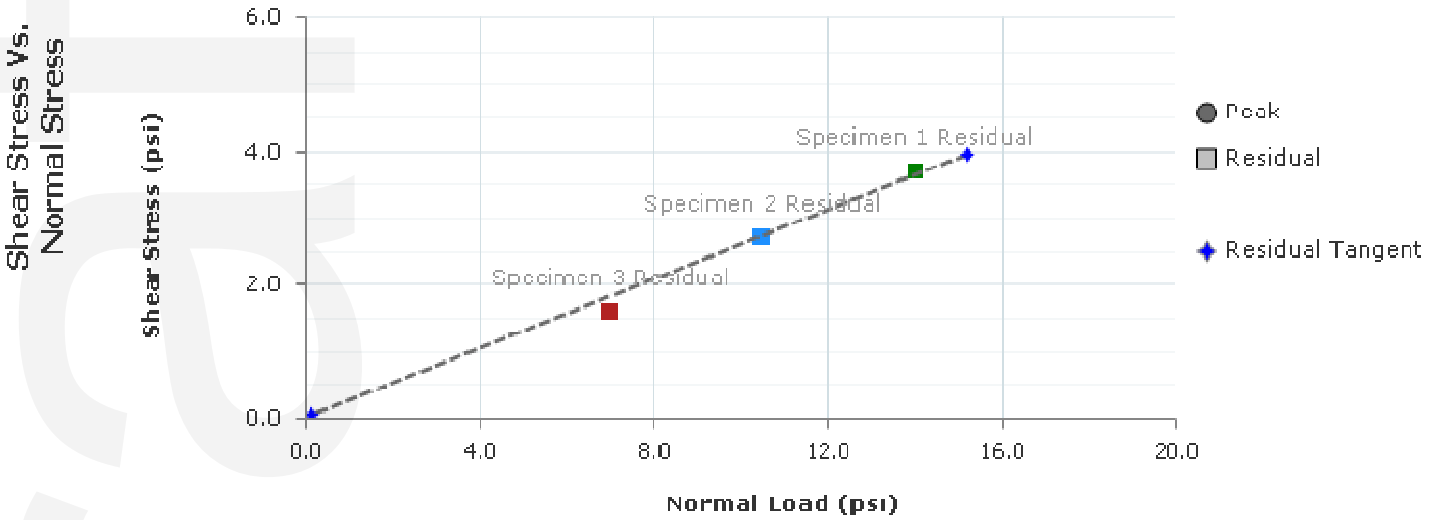
Direct Shear Test

ASTM D3080

Project: Taylor Run Stream Stabilization
Project Number: 25-0025
Location: Alexandria, Virginia
Client Name: AECOM



C (psi): NA
Phi (°): NA
Residual C (psi): 0.0
Residual Phi (°): 14.5

	Specimen Number							
Initial	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture (%):	30.2	30.7	19.6					
Dry Density (pcf):	91.9	91.2	108.6					
Void Ratio:	0.800	0.813	0.523					
Saturation (%):	99.9	100.0	99.3					
Diameter (in):	2.5000	2.5000	2.5000					
Height (in):	1.0000	1.0000	1.0000					
Final	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture (%):	30.2	34.9	22.1					
Dry Density (pcf):	91.9	86.0	104.2					
Void Ratio:	0.800	0.924	0.587					
Saturation (%):	100.0	100.0	100.0					
Height (in):	0.9946	0.9969	0.9969					
Normal Stress (psi):	14.0	10.5	7.0					
Peak Shear Stress (psi):								
Residual Stress (psi):	3.7	2.7	1.6					
Horizontal Deformation (%):								
Rate (in/min):	0.015000	0.015000	0.015000					

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Direct Shear Test

ASTM D3080

Project: Taylor Run Stream Stabilization
Project Number: 25-0025
Sampling Date: 10/15/2025
Sample Number: T-1
Sample Depth: 10.0 - 12.0 ft
Location: Alexandria, Virginia
Client Name: AECOM
Remarks:

Information Parameters	Specimen Number 1	2	3	4	5	6	7	8
Liquid Limit:	90	90	90					
Plastic Limit:	26	26	26					
Specific Gravity:	2.65	2.65	2.65					
Specific Gravity Method:	ASSUMED	ASSUMED	ASSUMED					
Initial Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Test Temperature (°C):	0.0	0.0	0.0					
Sample Shape:	ROUND	ROUND	ROUND					
Height (in):	1.0000	1.0000	1.0000					
Diameter (in):	2.5000	2.5000	2.5000					
Area (in²):	4.909	4.909	4.909					
Volume (in³):	4.9087	4.9087	4.9087					
Moisture (%):	30.2	30.7	19.6					
Dry Density (pcf):	91.9	91.2	108.6					
Wet Density (pcf):	119.6	119.2	129.9					
Saturation (%):	99.9	100.0	99.3					
Void Ratio:	0.800	0.813	0.523					
Porosity (%):	44.4	44.9	34.3					
Consolidation Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Initial Reference Height (in):	1.0000	1.0000	1.0000					
Final Reference Height (in):	0.9946	0.9969	0.9969					
Height (in):	0.9946	0.9969	0.9969					
Final Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture Content (%)	30.2	34.9	22.1					
Dry Density (pcf):	91.9	86.0	104.2					
Wet Density (pcf):	119.7	116.0	127.3					
Saturation (%):	100.0	100.0	100.0					
Void Ratio:	0.800	0.924	0.587					
Porosity (%):	44.4	48.0	37.0					

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Direct Shear Test

ASTM D3080

Project:	Taylor Run Stream Stabilization
Project Number:	25-0025
Sampling Date:	10/15/2025
Sample Number:	T-1
Sample Depth:	10.0 - 12.0 ft
Location:	Alexandria, Virginia
Client Name:	AECOM
Remarks:	

Specific Gravity:	2.65	Plastic Limit:	26	Liquid Limit:	90
Type:	Undisturbed	Soil Classification:	CH		
Specimen Description:	FAT CLAY(CH)				

Specimen 1 Failure Sketch	Specimen 2 Failure Sketch	Specimen 3 Failure Sketch	Specimen 4 Failure Sketch	Specimen 5 Failure Sketch	Specimen 6 Failure Sketch	Specimen 7 Failure Sketch	Specimen 8 Failure Sketch
							

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Direct Shear Test

ASTM D3080

Specimen 1

Test Description:	Normal Load 14 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	FAT CLAY(CH)		
Specific Gravity:	2.65		
Plastic Limit:	26	Liquid Limit:	90
Test Remarks:			

Specimen 2

Test Description:	Normal Load 10.5 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	FAT CLAY(CH)		
Specific Gravity:	2.65		
Plastic Limit:	26	Liquid Limit:	90
Test Remarks:			

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Direct Shear Test

ASTM D3080

Specimen 3

Test Description:	Normal Load 7.0 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	FAT CLAY(CH)		
Specific Gravity:	2.65		
Plastic Limit:	26	Liquid Limit:	90
Test Remarks:			

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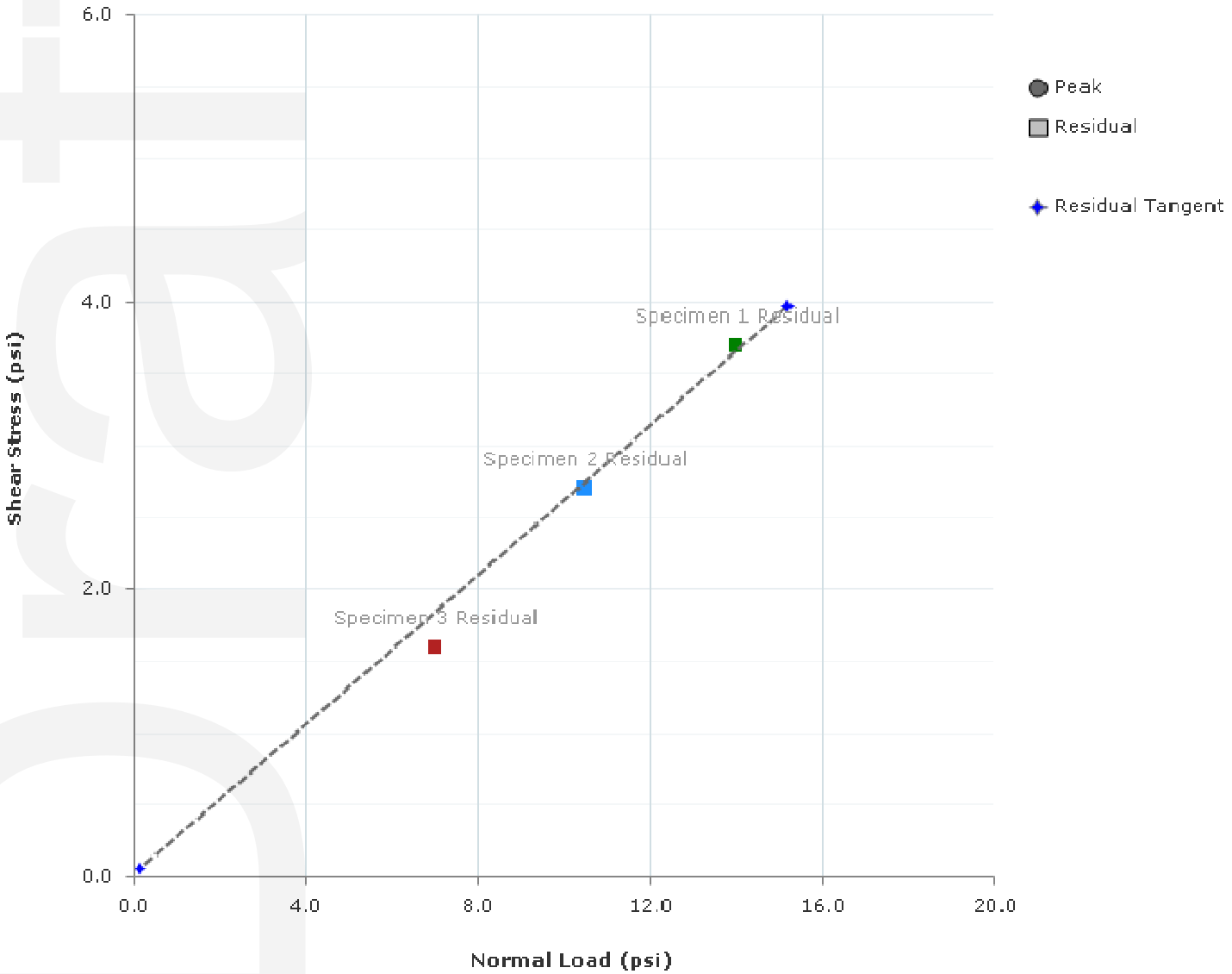
Direct Shear Test - Shear Stress Vs. Normal Stress

ASTM D3080



Tangent Results	C (psi)	Phi (°)
Peak Tangent:	NA	NA
Residual Tangent:	0.0	14.5

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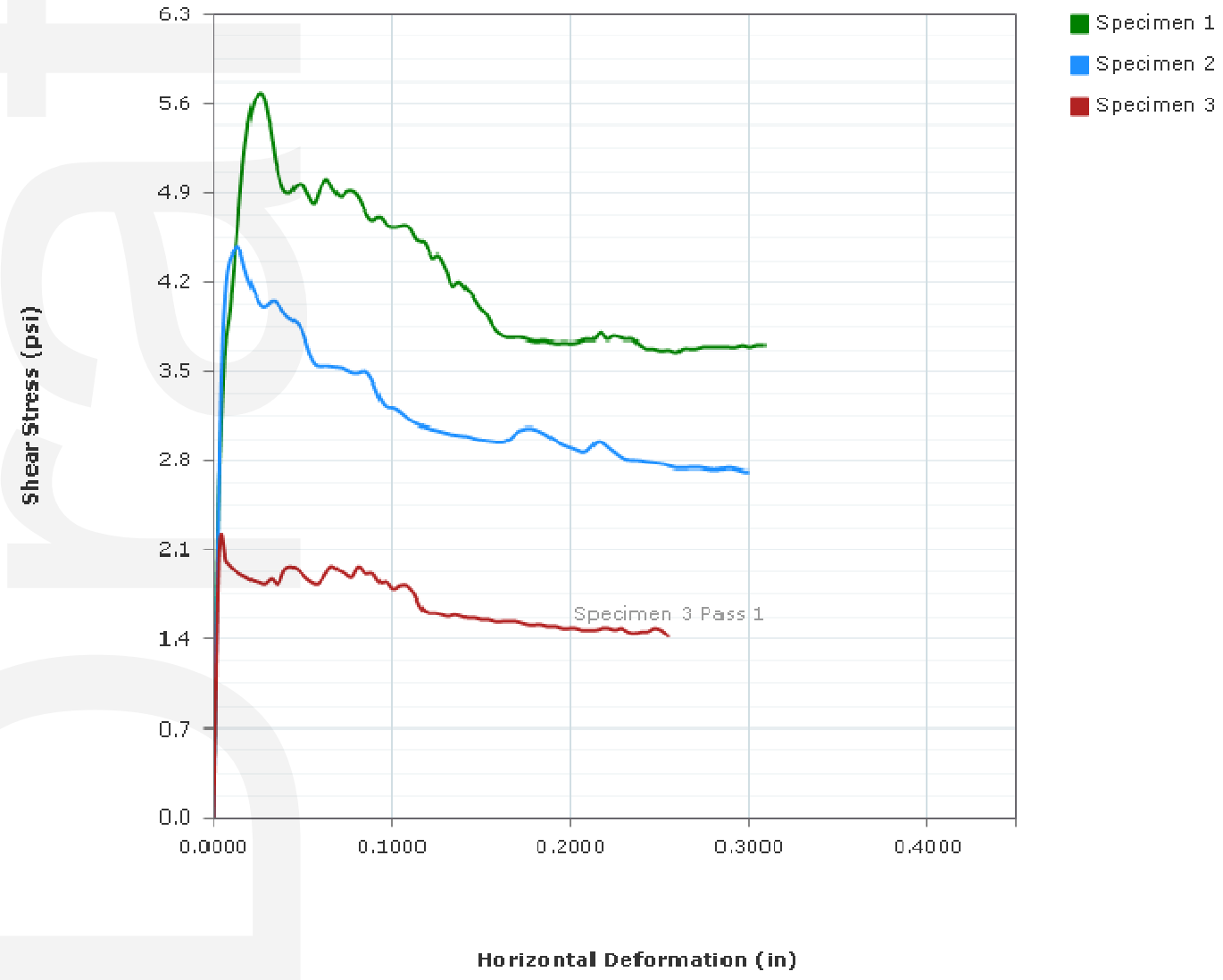
Graph - Stress Deformation

ASTM D3080



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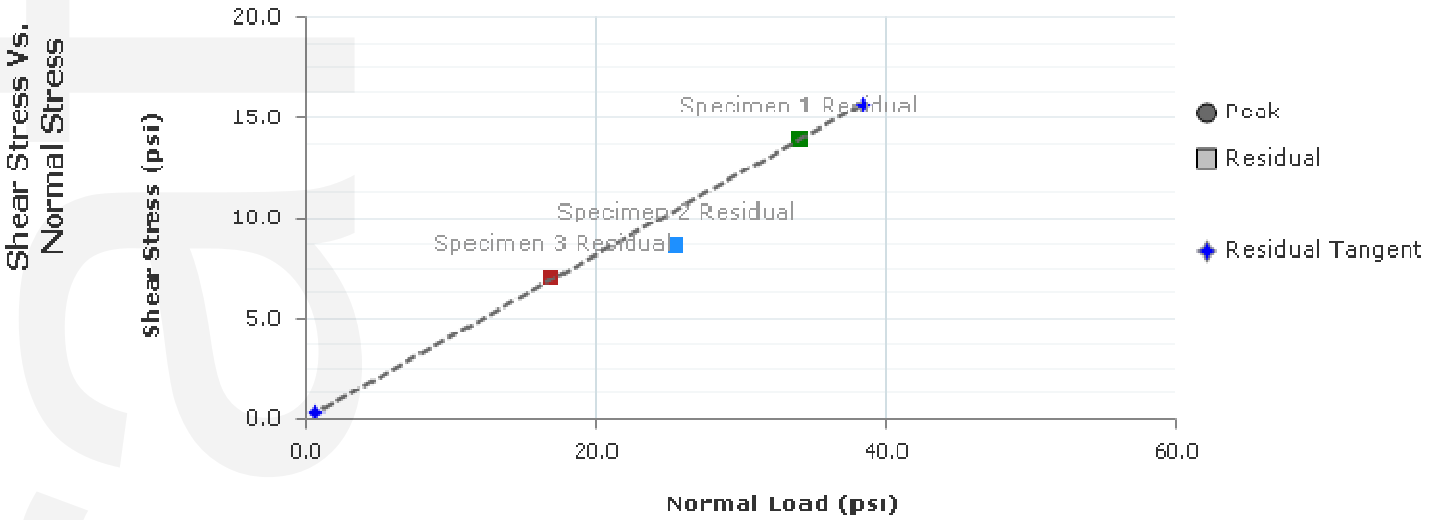
Direct Shear Test

ASTM D3080

Project: Taylor Run Stream Stabilization
Project Number: 25-0025
Location: Alexandria, Virginia
Client Name: AECOM



C (psi): NA
Phi (°): NA
Residual C (psi): 0.1
Residual Phi (°): 22.2

Initial	Specimen Number 1	2	3	4	5	6	7	8
Moisture (%):	20.0	21.4	20.5					
Dry Density (pcf):	107.9	104.0	107.0					
Void Ratio:	0.533	0.591	0.545					
Saturation (%):	99.7	96.0	99.7					
Diameter (in):	2.5000	2.5000	2.5000					
Height (in):	1.0000	1.0000	1.0000					
Final	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture (%):	23.8	24.4	23.1					
Dry Density (pcf):	101.4	100.5	102.6					
Void Ratio:	0.632	0.646	0.612					
Saturation (%):	99.8	100.0	100.0					
Height (in):	0.9891	0.9909	0.9909					
Normal Stress (psi):	34.0	25.5	17.0					
Peak Shear Stress (psi):								
Residual Stress (psi):	13.9	8.6	7.0					
Horizontal Deformation (%):								
Rate (in/min):	0.004000	0.004000	0.004000					

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Direct Shear Test

ASTM D3080

Project: Taylor Run Stream Stabilization
Project Number: 25-0025
Sampling Date: 10/15/2025
Sample Number: T-3
Sample Depth: 25.0 - 27.0 ft
Location: Alexandria, Virginia
Client Name: AECOM
Remarks:

Information Parameters	Specimen Number 1	2	3	4	5	6	7	8
Liquid Limit:	59	59	59					
Plastic Limit:	17	17	17					
Specific Gravity:	2.65	2.65	2.65					
Specific Gravity Method:	ASSUMED	ASSUMED	ASSUMED					
Initial Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Test Temperature (°C):	25.0	25.0	0.0					
Sample Shape:	ROUND	ROUND	ROUND					
Height (in):	1.0000	1.0000	1.0000					
Diameter (in):	2.5000	2.5000	2.5000					
Area (in²):	4.909	4.909	4.909					
Volume (in³):	4.9087	4.9087	4.9087					
Moisture (%):	20.0	21.4	20.5					
Dry Density (pcf):	107.9	104.0	107.0					
Wet Density (pcf):	129.6	126.2	129.0					
Saturation (%):	99.7	96.0	99.7					
Void Ratio:	0.533	0.591	0.545					
Porosity (%):	34.7	37.2	35.3					
Consolidation Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Initial Reference Height (in):	1.0000	1.0000	1.0000					
Final Reference Height (in):	0.9891	0.9909	0.9909					
Height (in):	0.9891	0.9909	0.9909					
Final Parameters	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Moisture Content (%)	23.8	24.4	23.1					
Dry Density (pcf):	101.4	100.5	102.6					
Wet Density (pcf):	125.5	125.0	126.3					
Saturation (%):	99.8	100.0	100.0					
Void Ratio:	0.632	0.646	0.612					
Porosity (%):	38.7	39.2	38.0					

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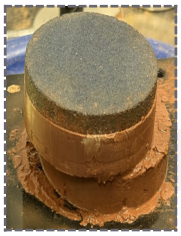
Direct Shear Test

ASTM D3080

Project:	Taylor Run Stream Stabilization
Project Number:	25-0025
Sampling Date:	10/15/2025
Sample Number:	T-3
Sample Depth:	25.0 - 27.0 ft
Location:	Alexandria, Virginia
Client Name:	AECOM
Remarks:	

Specific Gravity:	2.65	Plastic Limit:	17	Liquid Limit:	59
Type:	Undisturbed	Soil Classification:	CH		
Specimen Description:	FAT CLAY(CH)				

Specimen 1 Failure Sketch	Specimen 2 Failure Sketch	Specimen 3 Failure Sketch	Specimen 4 Failure Sketch	Specimen 5 Failure Sketch	Specimen 6 Failure Sketch	Specimen 7 Failure Sketch	Specimen 8 Failure Sketch
							

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Direct Shear Test

ASTM D3080

Specimen 1

Test Description:	Normal Load 34 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	10/16/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	Fat CLAY (CH)		
Specific Gravity:	2.65		
Plastic Limit:	17	Liquid Limit:	59
Test Remarks:			

Specimen 2

Test Description:	Normal Load 25.5 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	FAT CLAY(CH)		
Specific Gravity:	2.65		
Plastic Limit:	17	Liquid Limit:	59
Test Remarks:			

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Direct Shear Test

ASTM D3080

Specimen 3

Test Description:	Normal Load 17.0 psi		
Other Associated Tests:			
Device Details:			
Test Specification:	ASTM D3080		
Test Time:	11/12/2025		
Technician:	AN	Sampling Method:	Undisturbed
Specimen Code:		Specimen Lab #:	
Specimen Description:	FAT CLAY(CH)		
Specific Gravity:	2.65		
Plastic Limit:	17	Liquid Limit:	59
Test Remarks:			

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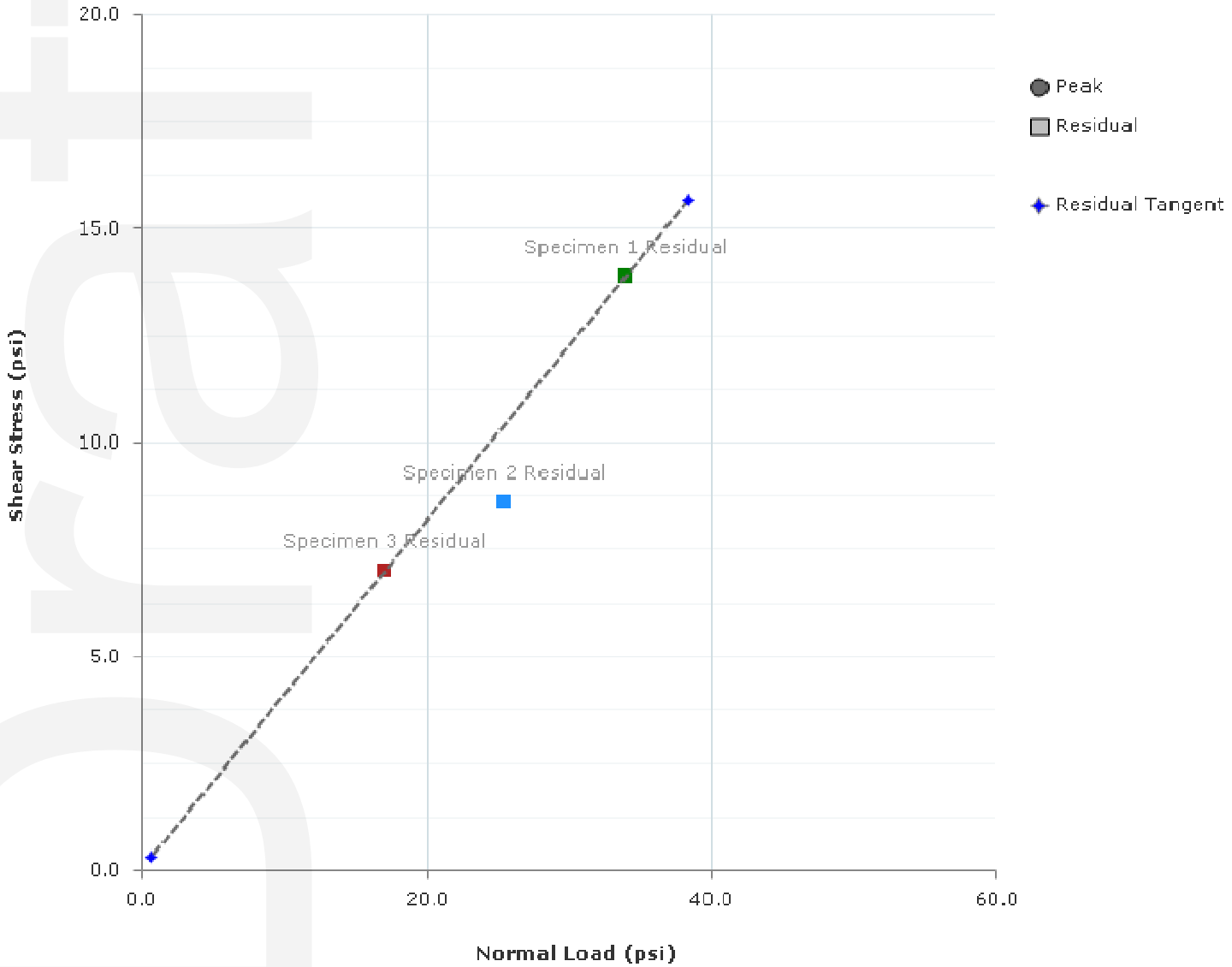
Direct Shear Test - Shear Stress Vs. Normal Stress

ASTM D3080



Tangent Results	C (psi)	Phi (°)
Peak Tangent:	NA	NA
Residual Tangent:	0.1	22.2

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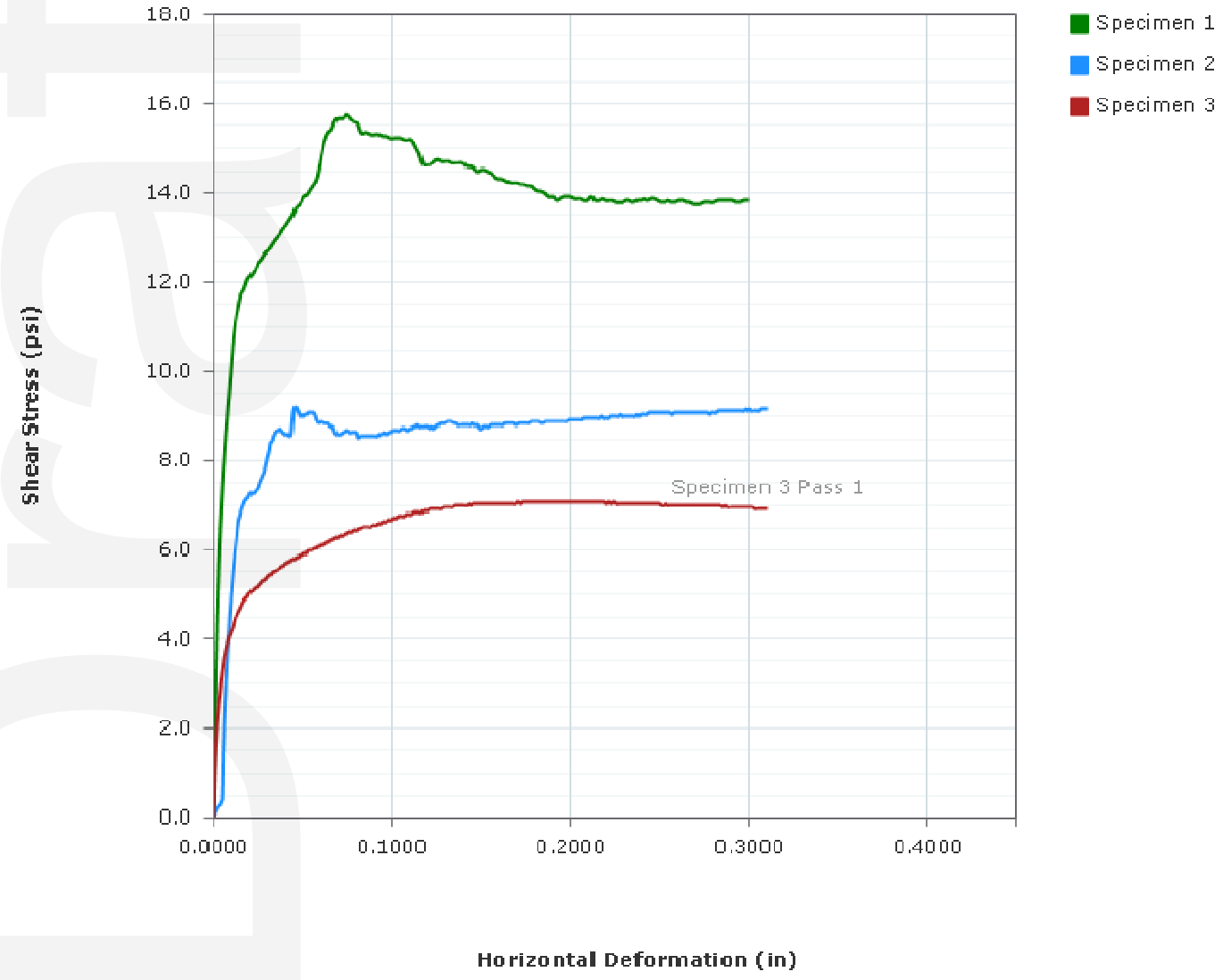
Graph - Stress Deformation

ASTM D3080



Laboratory Soils Testing
Unconfined Compressive Strength of Soil

Sample No. S-12 / T-2 | **Project Name:** Taylor Run Stream Stabilization

Boring No.: B-2 | **Project No.:** 25-0025

Depth (ft): 22.0 - 24.0 | **Location:** Alexandria, Virginia

Sample Description: FAT CLAY with SAND (CH)

Tested By: Amit Neupane | **Date:** 10/16/2025

Sample Data:

Dia (in):	Ht (in):	Wt (gms)	
D1 = 2.812	L1 = 5.582	Before =	1140.22
D2 = 2.811	L2 = 5.591	After =	1132.58
D3 = 2.814	L3 = 5.589		
Avg D (in) = 2.812	**Avg H (in) = 5.587**	**L/D Ratio=**	**1.99**
Area (in^2) =	**6.212**		

Moisture Content:

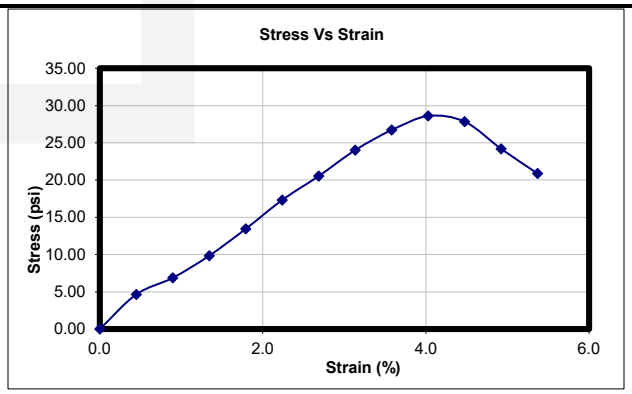
Tare No.	**470B**
Tare wt (gms) =	48.25
Wet + Tare (gms) =	302.14
Dry + Tare (gms) =	246.63
Water wt (gms) =	**55.51**
Dry Soil wt (gms) =	**198.38**
Moisture (%) =	**27.98**

Strain Dial (in)	Load (lbs)	Time (sec)	Deform. ΔL (in)	Unit Strain ΔL/L	Strain (%)	Corr. A (in^2)	Stress (lbs/in^2)
0.000	0.00	0.0	0.000	0.00	0.0	6.21	0.00
0.025	29.00	30.0	0.025	0.00	0.4	6.24	4.65
0.050	43.00	60.0	0.050	0.01	0.9	6.27	6.86
0.075	62.00	90.0	0.075	0.01	1.3	6.30	9.85
0.100	85.00	120.0	0.100	0.02	1.8	6.33	13.44
0.125	110.00	150.0	0.125	0.02	2.2	6.35	17.31
0.150	131.00	180.0	0.150	0.03	2.7	6.38	20.52
0.175	154.00	210.0	0.175	0.03	3.1	6.41	24.01
0.200	172.00	240.0	0.200	0.04	3.6	6.44	26.70
0.225	185.00	270.0	0.225	0.04	4.0	6.47	28.58
0.250	181.00	300.0	0.250	0.04	4.5	6.50	27.83
0.275	158.00	330.0	0.275	0.05	4.9	6.53	24.18
0.300	137.00	360.0	0.300	0.05	5.4	6.56	20.87
0.325							
0.350							
0.375							
0.400							
0.425							
0.450							
0.475							
0.500							
0.550							
0.600							
0.650							
0.700							
0.750							
0.800							
0.850							
						Max	28.6 psi
							4116 psf

SKETCH

Bulge:
Vertical Shear:
Diagonal: Yes

Remarks:



Laboratory Soils Testing
Unconfined Compressive Strength of Soil

Sample No. T-2 | **Project Name: Taylor Run Stream Stabilization**

Boring No.: B-4 | **Project No.: 25-0025**

Depth (ft): 14.0 - 16.0 | **Location: Alexandria, Virginia**

Sample Description: Fat CLAY (CH)

Tested By: Amit Neupane | **Date: 11/03/2025**

Sample Data:

Dia (in):		Ht (in):		Wt (gms)	
D1 =	2.781	L1 =	5.591	Before =	1116.66
D2 =	2.844	L2 =	5.586	After =	1110.12
D3 =	2.829	L3 =	5.590		
Avg D (in) =	**2.818**	**Avg H (in) =**	**5.589**	**L/D Ratio=**	**1.98**
Area (in^2) =	**6.237**				

Moisture Content:

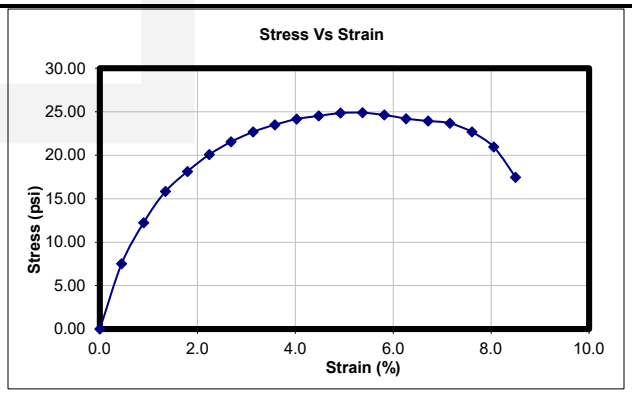
Tare No.	**CL-3**
Tare wt (gms) =	32.41
Wet + Tare (gms) =	204.54
Dry + Tare (gms) =	161.91
Water wt (gms) =	**42.63**
Dry Soil wt (gms) =	**129.5**
Moisture (%) =	**32.92**

Strain Dial (in)	Load (lbs)	Time (sec)	Deform. ΔL (in)	Unit Strain ΔL/L	Strain (%)	Corr. A (in^2)	Stress (lbs/in^2)
0.000	0.00	0.0	0.000	0.00	0.0	6.24	0.00
0.025	47.00	30.0	0.025	0.00	0.4	6.26	7.50
0.050	77.00	60.0	0.050	0.01	0.9	6.29	12.24
0.075	100.00	90.0	0.075	0.01	1.3	6.32	15.82
0.100	115.00	120.0	0.100	0.02	1.8	6.35	18.11
0.125	128.00	150.0	0.125	0.02	2.2	6.38	20.06
0.150	138.00	180.0	0.150	0.03	2.7	6.41	21.53
0.175	146.00	210.0	0.175	0.03	3.1	6.44	22.68
0.200	152.00	240.0	0.200	0.04	3.6	6.47	23.50
0.225	157.00	270.0	0.225	0.04	4.0	6.50	24.16
0.250	160.00	300.0	0.250	0.04	4.5	6.53	24.51
0.275	163.00	330.0	0.275	0.05	4.9	6.56	24.85
0.300	164.00	360.0	0.300	0.05	5.4	6.59	24.88
0.325	163.00	390.0	0.325	0.06	5.8	6.62	24.61
0.350	161.00	420.0	0.350	0.06	6.3	6.65	24.20
0.375	160.00	450.0	0.375	0.07	6.7	6.69	23.93
0.400	159.00	480.0	0.400	0.07	7.2	6.72	23.67
0.425	153.00	510.0	0.425	0.08	7.6	6.75	22.67
0.450	142.00	540.0	0.450	0.08	8.1	6.78	20.93
0.475	119.00	570.0	0.475	0.08	8.5	6.82	17.46
0.500							
0.550							
0.600							
0.650							
0.700							
0.750							
0.800							
0.850							
						Max	24.9 psi
							3583 psf

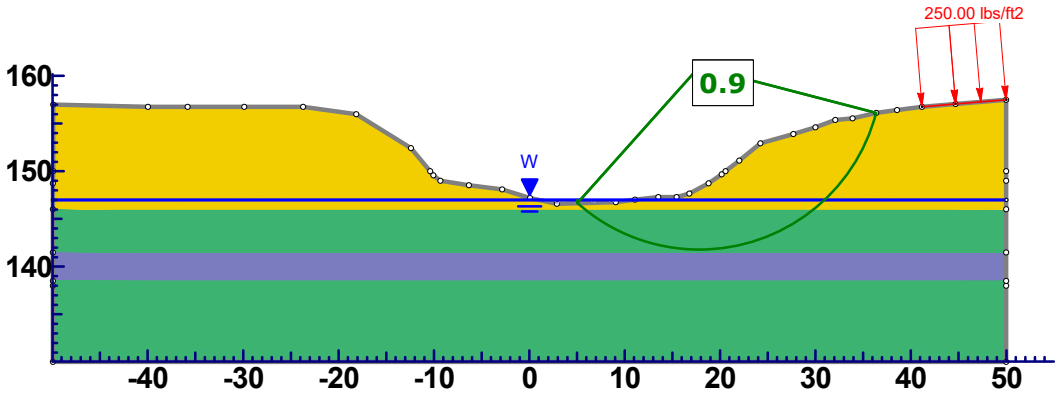
SKETCH

Bulge:
Vertical Shear:
Diagonal: Yes

Remarks:



Appendix D – Slope Stability Analysis (20)



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

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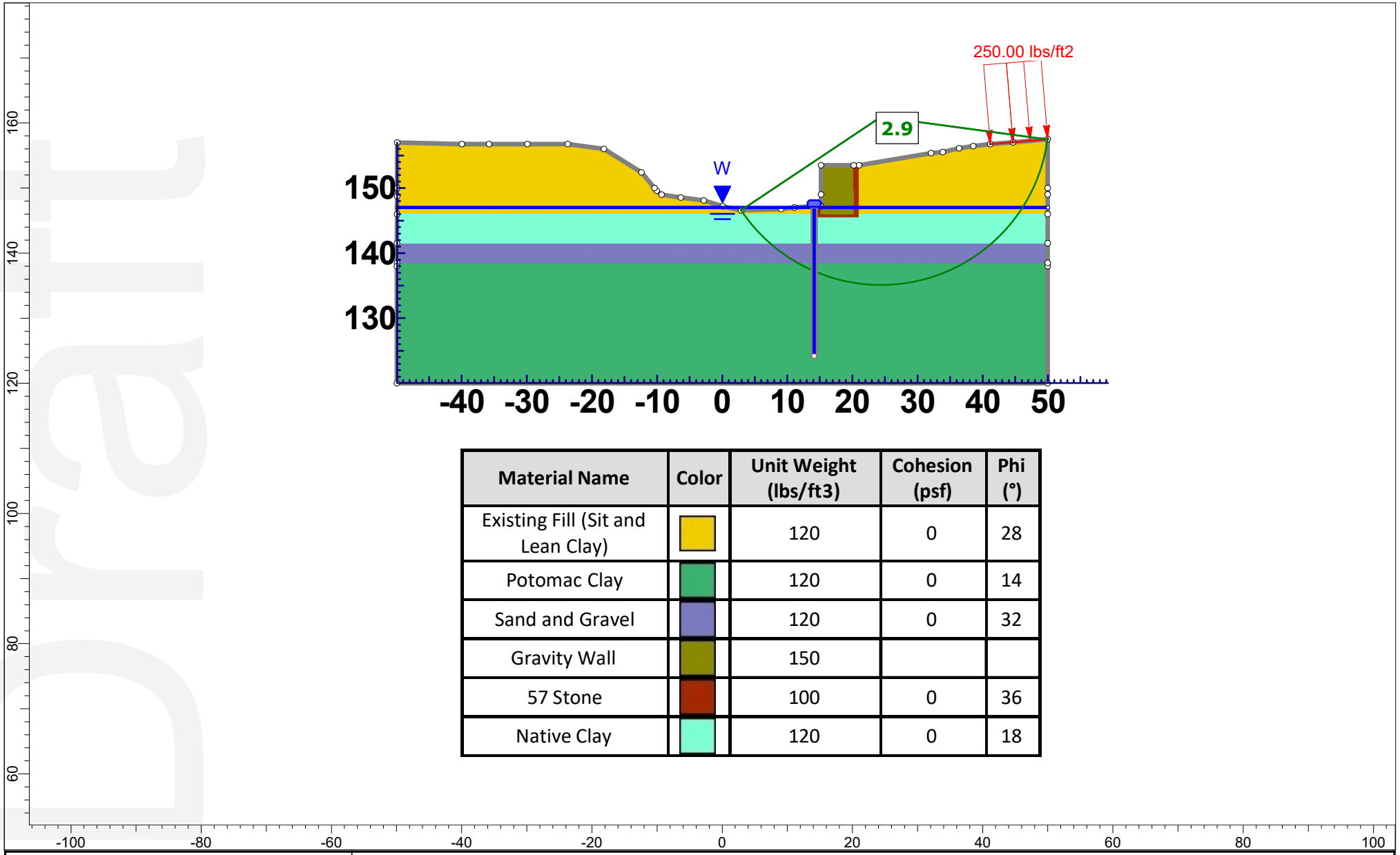
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+25.00 East	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32
Gravity Wall		150		
57 Stone		100	0	36
Native Clay		120	0	18

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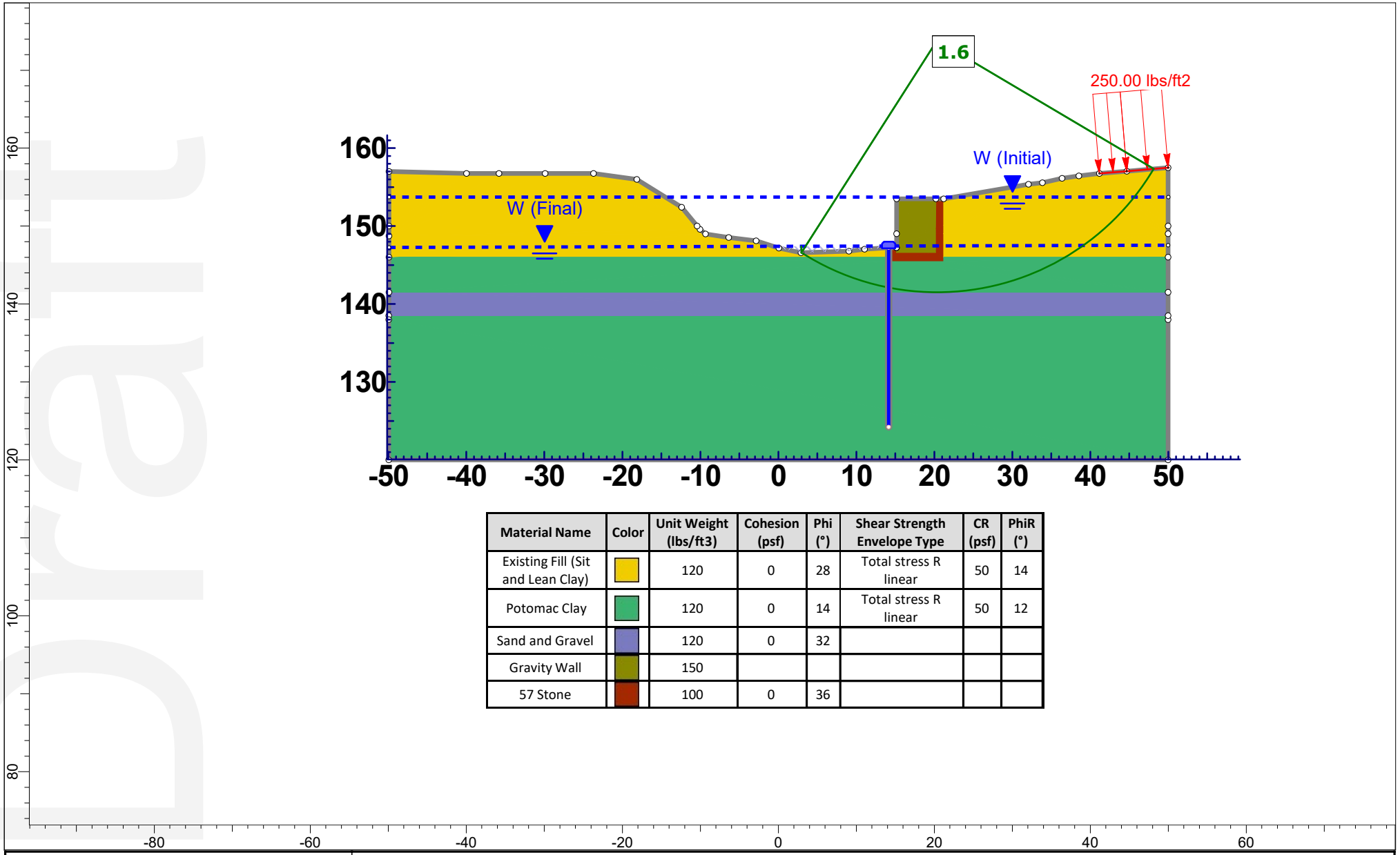
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+25.00 East-Wall	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd

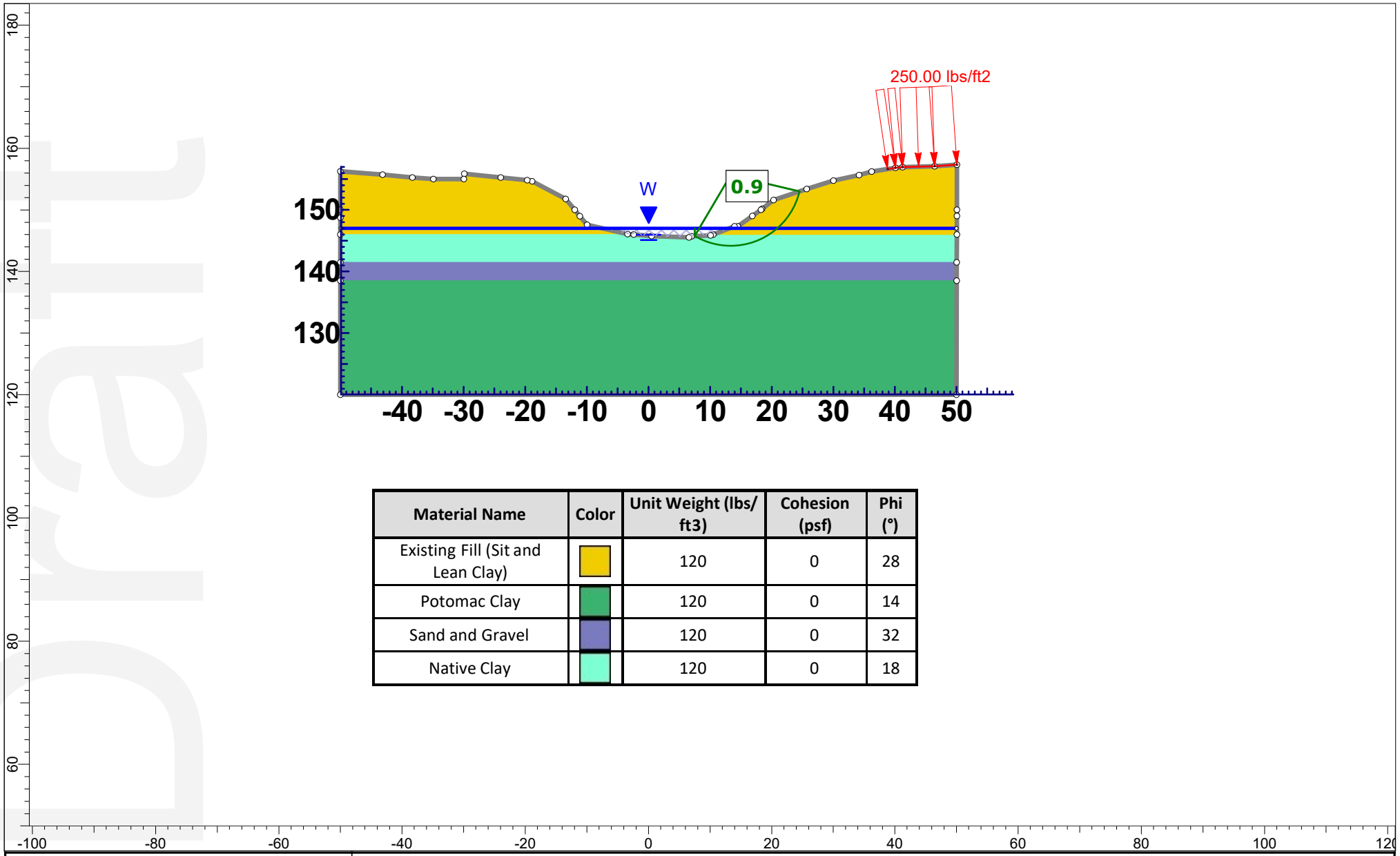


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)	Shear Strength Envelope Type	CR (psf)	PhiR (°)
Existing Fill (Sit and Lean Clay)		120	0	28	Total stress R linear	50	14
Potomac Clay		120	0	14	Total stress R linear	50	12
Sand and Gravel		120	0	32			
Gravity Wall		150					
57 Stone		100	0	36			

rocscience

SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+25.00 East-Wall	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd

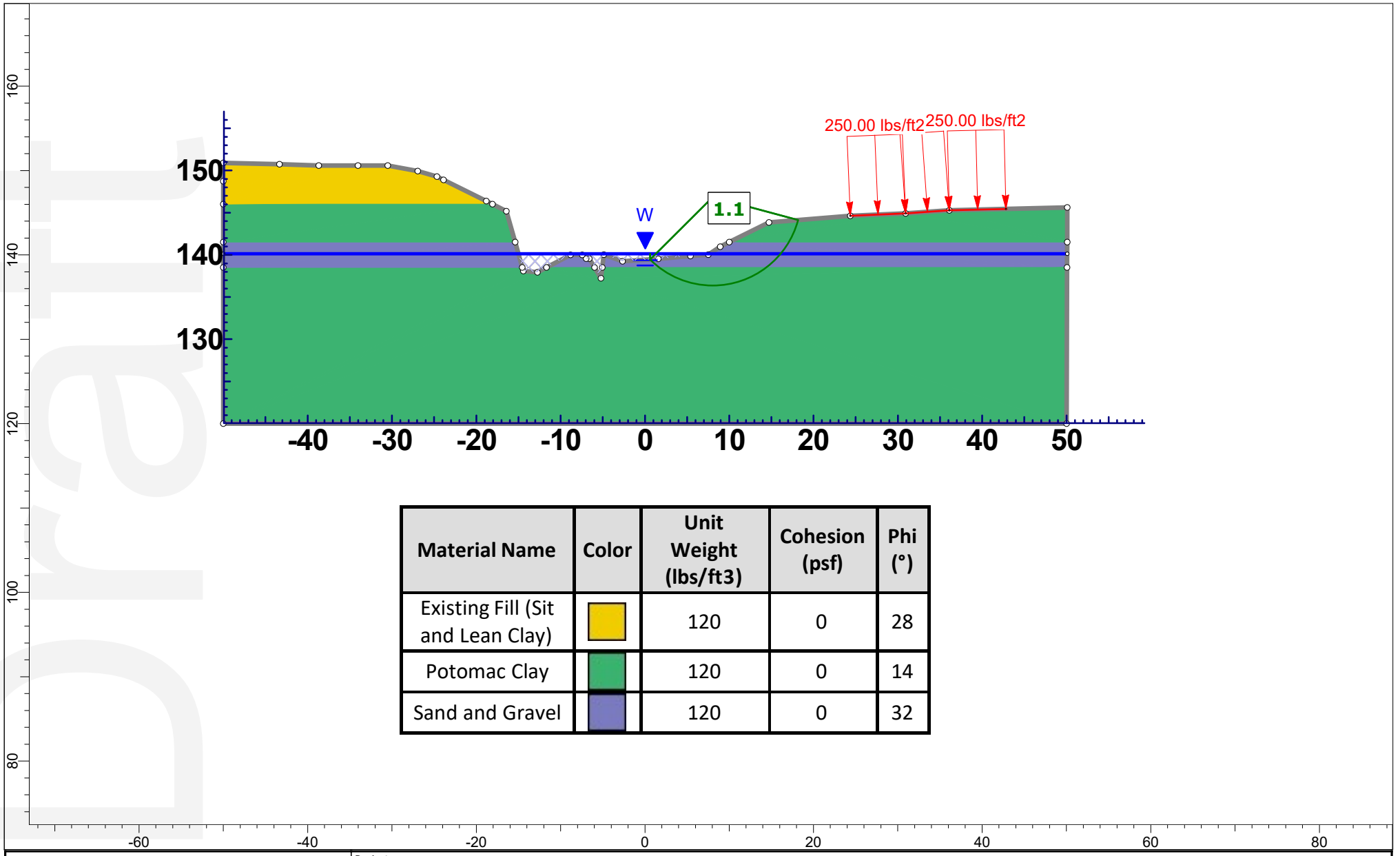


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32
Native Clay		120	0	18

rocscience

SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+51.99 East	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd

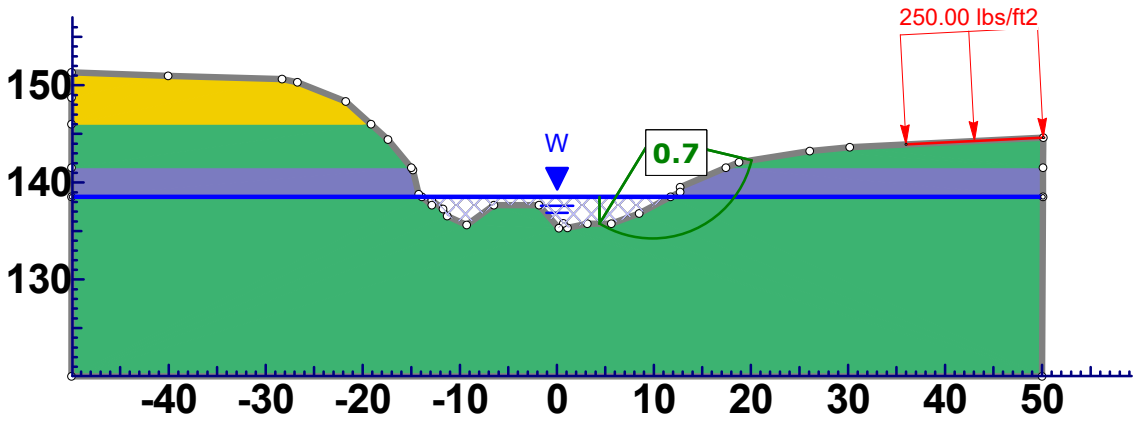


Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

rocscience

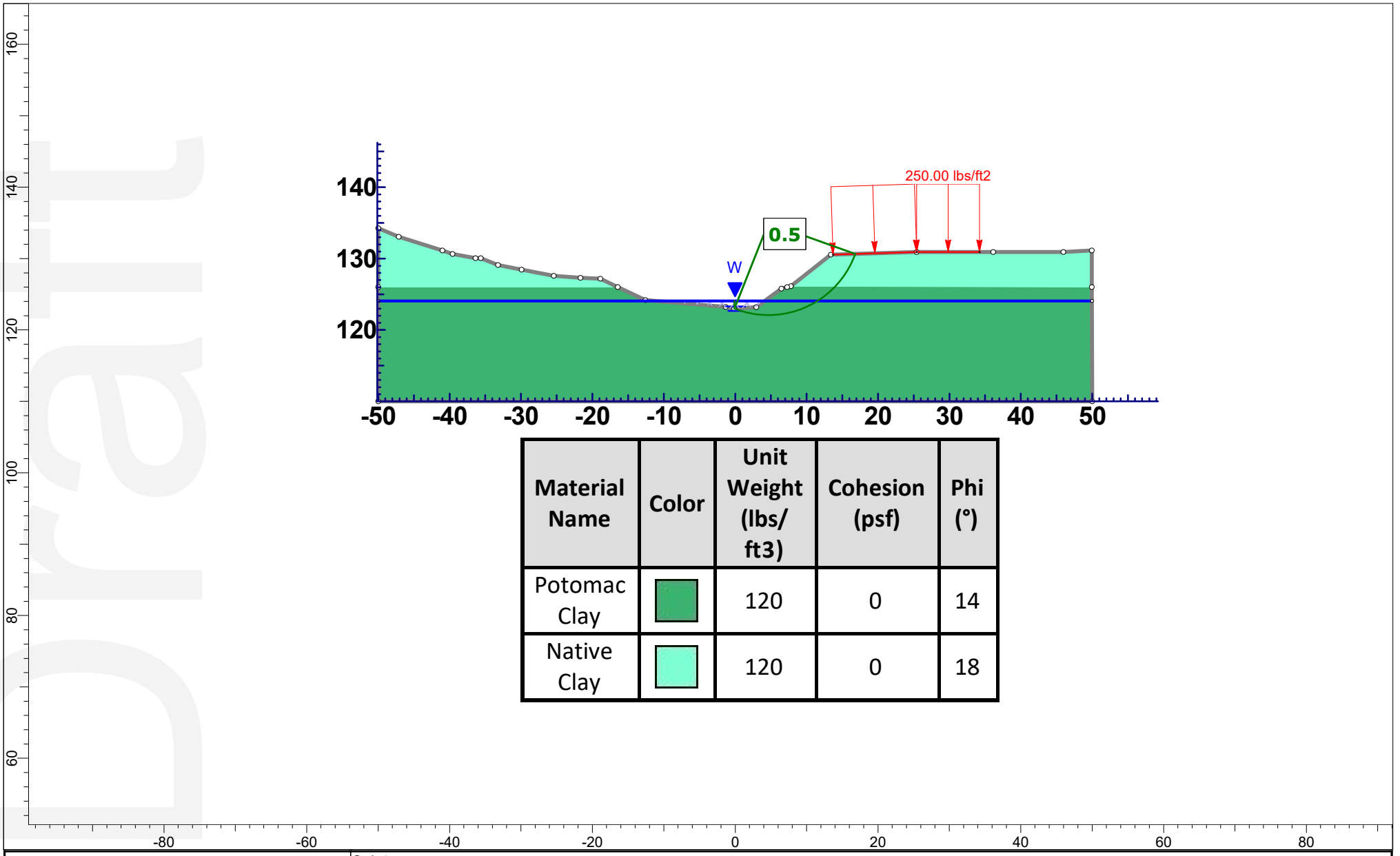
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 10+25.00 East	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

rocscience	Project	Slide2 - An Interactive Slope Stability Program	
	Group	STA 10+50.00 East	Scenario: Master Scenario
	Drawn By		Company
SLIDEINTERPRET 9.030	Date	12/10/2025, 9:58:18 AM	File Name: test.slmd



Material Name	Color	Unit Weight (lbs/ ft3)	Cohesion (psf)	Phi (°)
Potomac Clay		120	0	14
Native Clay		120	0	18

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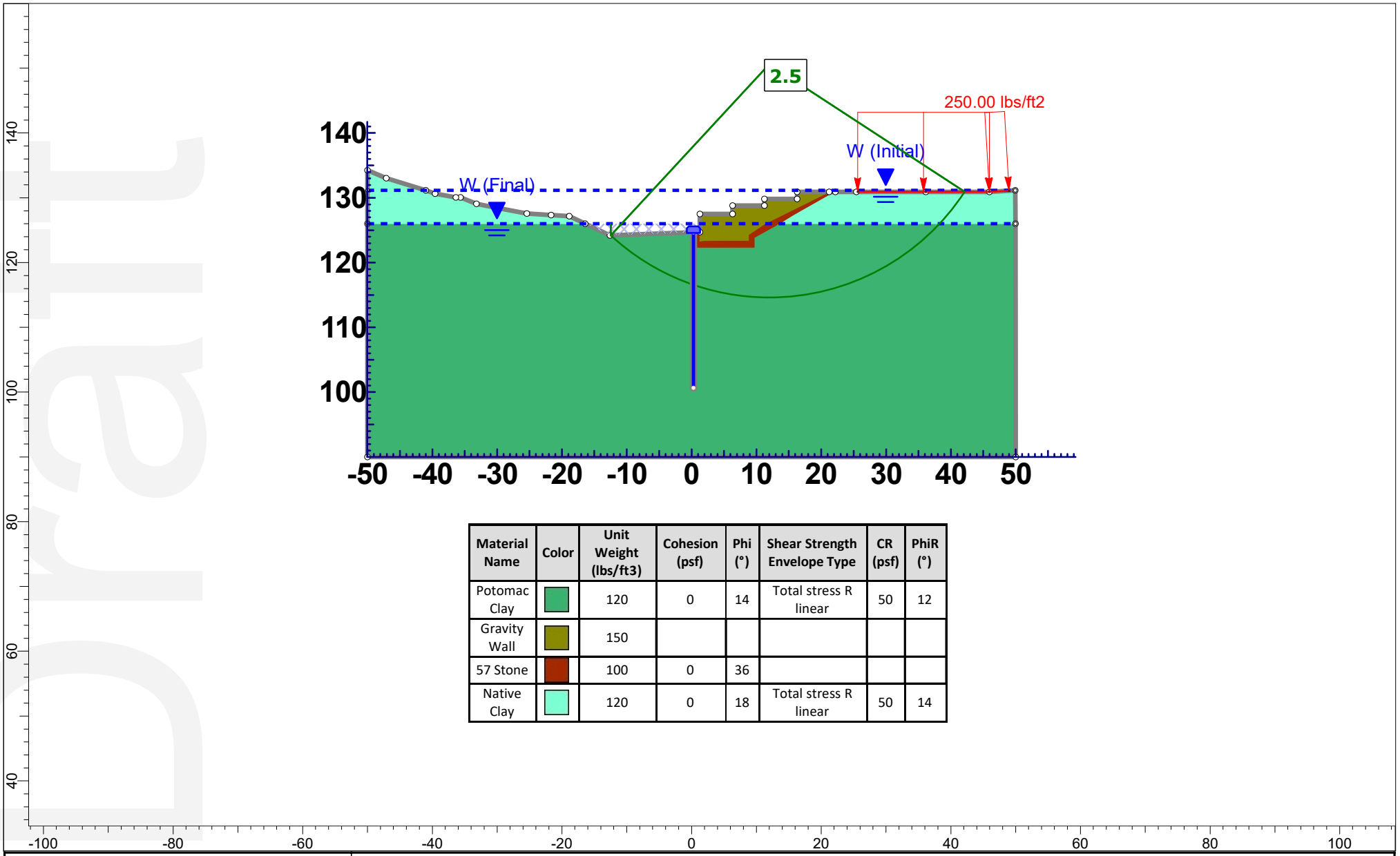
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 20+50.00 East	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)	Shear Strength Envelope Type	CR (psf)	PhiR (°)
Potomac Clay		120	0	14	Total stress R linear	50	12
Gravity Wall		150					
57 Stone		100	0	36			
Native Clay		120	0	18	Total stress R linear	50	14

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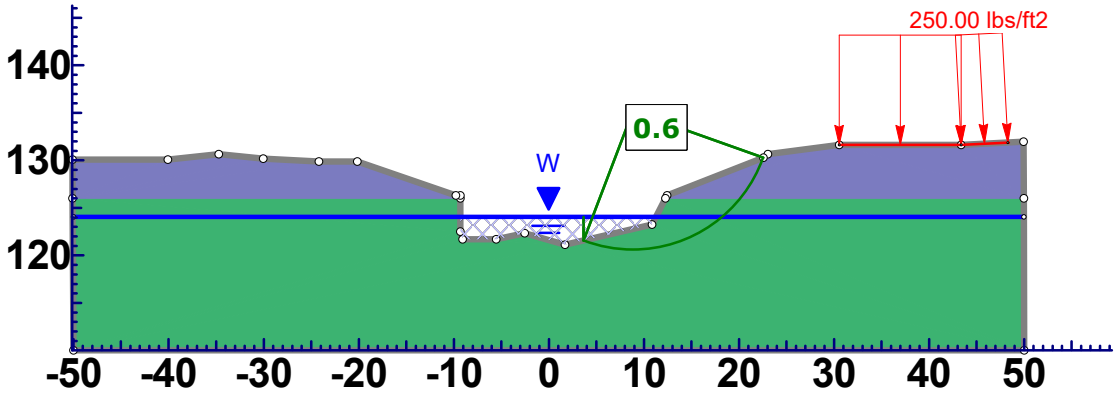
SLIDEINTERPRET 9.030

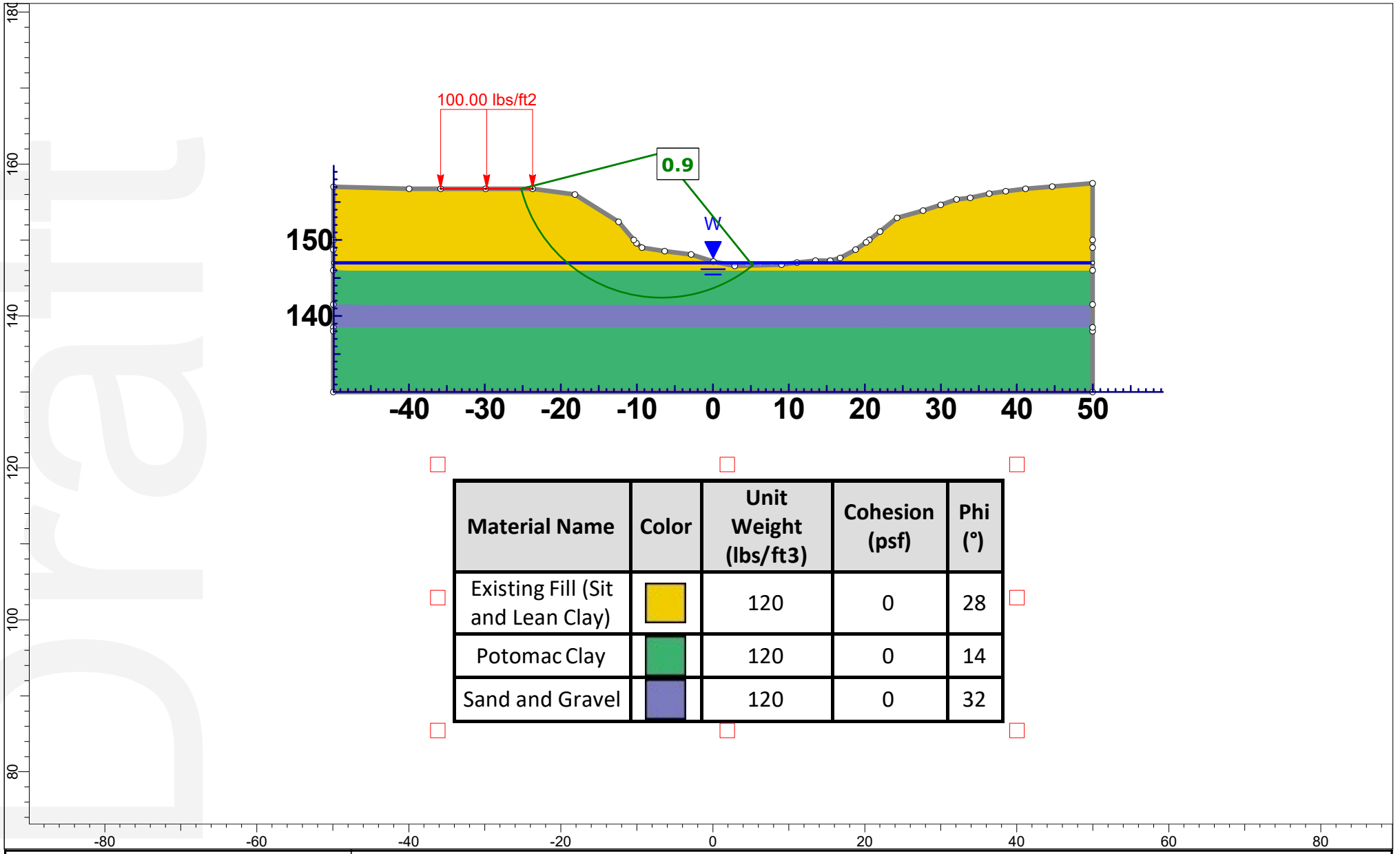
Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 20+50.00 East-Wall RDD	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

rocscience	Project	Slide2 - An Interactive Slope Stability Program	
	Group	STA 30+50.00 East	Scenario: Master Scenario
	Drawn By		Company
	Date	12/10/2025, 9:58:18 AM	File Name: test.slmd

SLIDEINTERPRET 9.030



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

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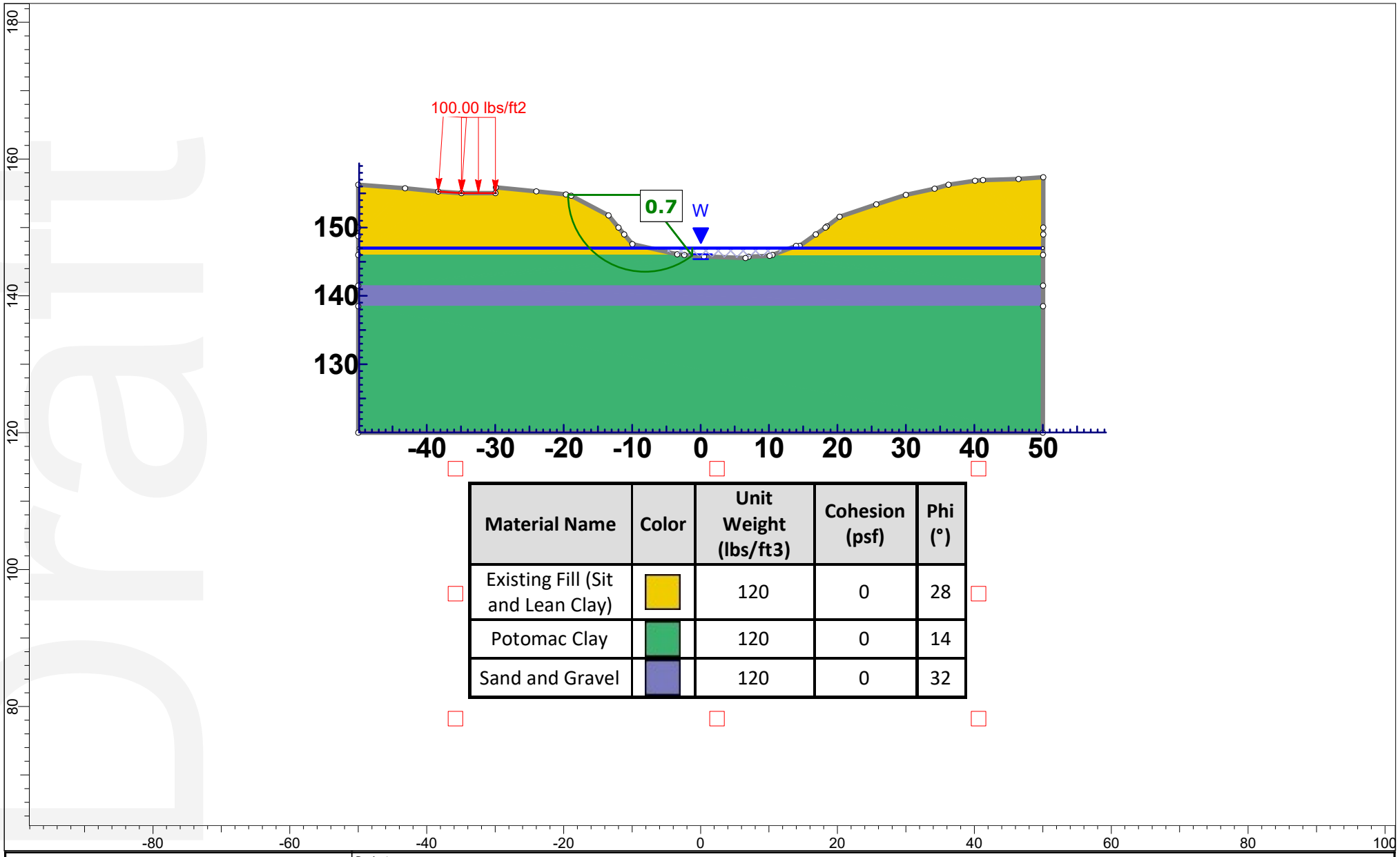
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+25.00 West	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

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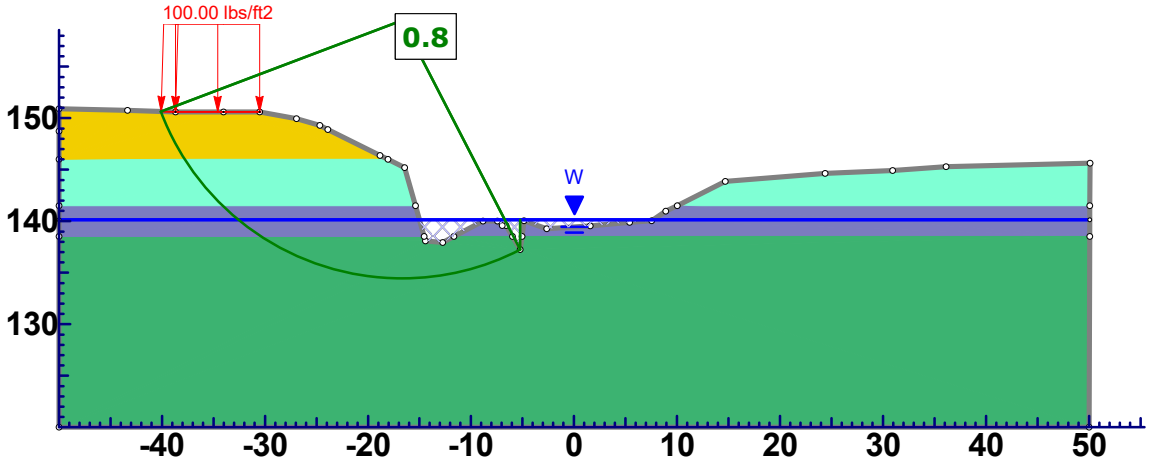
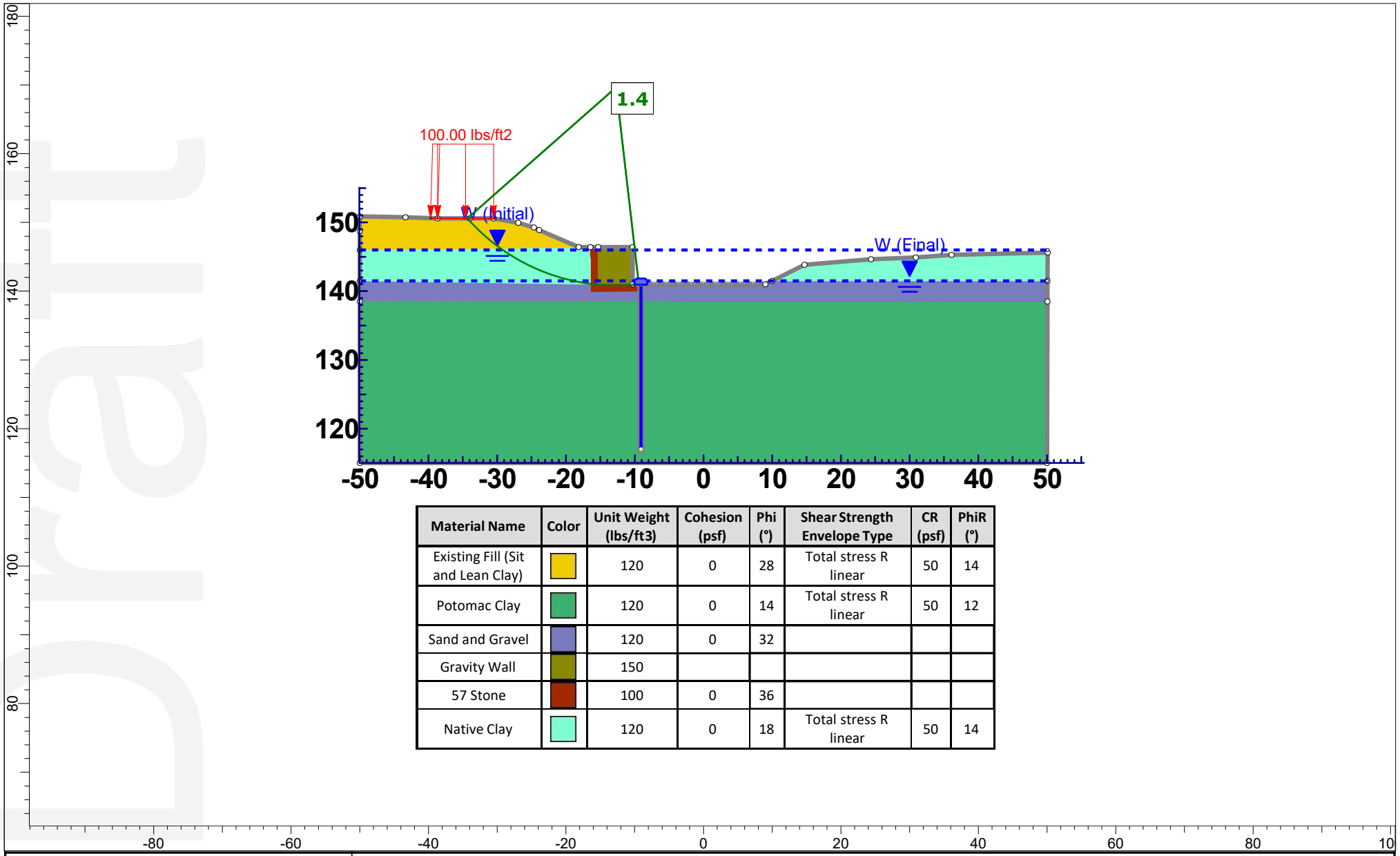
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 0+51.99 West	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32
Native Clay		120	0	18

rocscience	Project: Slide2 - An Interactive Slope Stability Program		
	Group: STA 10+25.00 West	Scenario: Master Scenario	
	Drawn By:	Company:	
SLIDEINTERPRET 9.030	Date: 12/10/2025, 9:58:18 AM	File Name: test.slmd	



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)	Shear Strength Envelope Type	CR (psf)	PhiR (°)
Existing Fill (Sit and Lean Clay)		120	0	28	Total stress R linear	50	14
Potomac Clay		120	0	14	Total stress R linear	50	12
Sand and Gravel		120	0	32			
Gravity Wall		150					
57 Stone		100	0	36			
Native Clay		120	0	18	Total stress R linear	50	14

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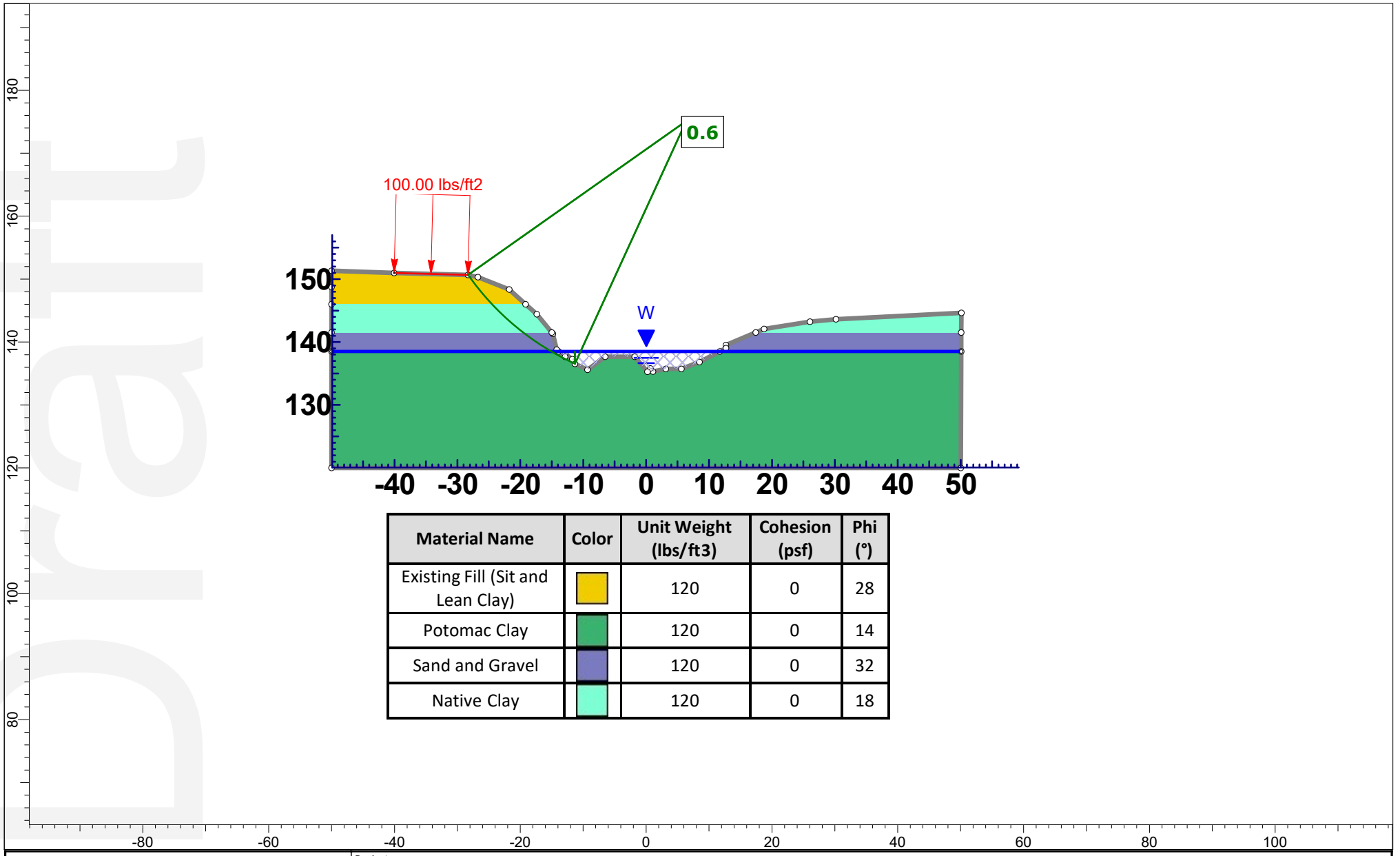
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 10+25.00 West- with wall-RDD	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Existing Fill (Sit and Lean Clay)		120	0	28
Potomac Clay		120	0	14
Sand and Gravel		120	0	32
Native Clay		120	0	18

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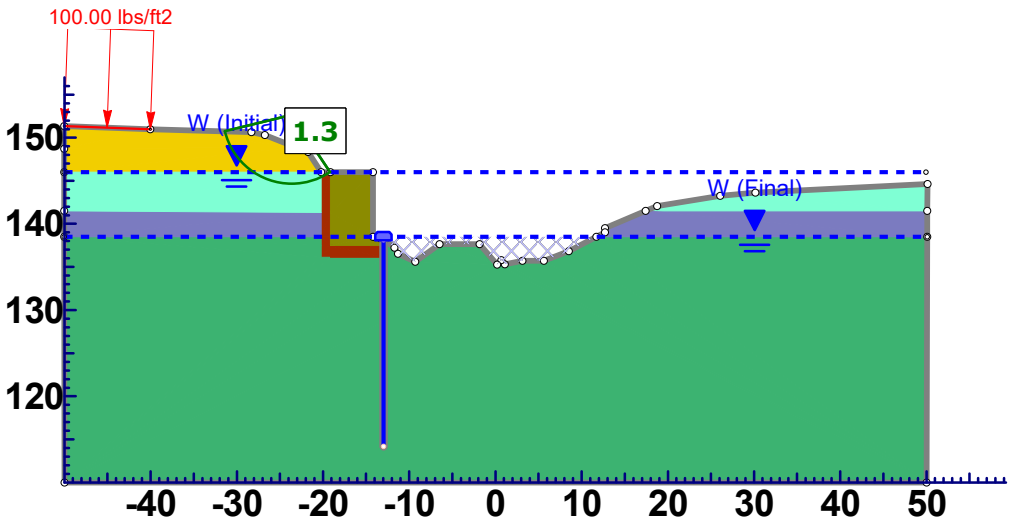
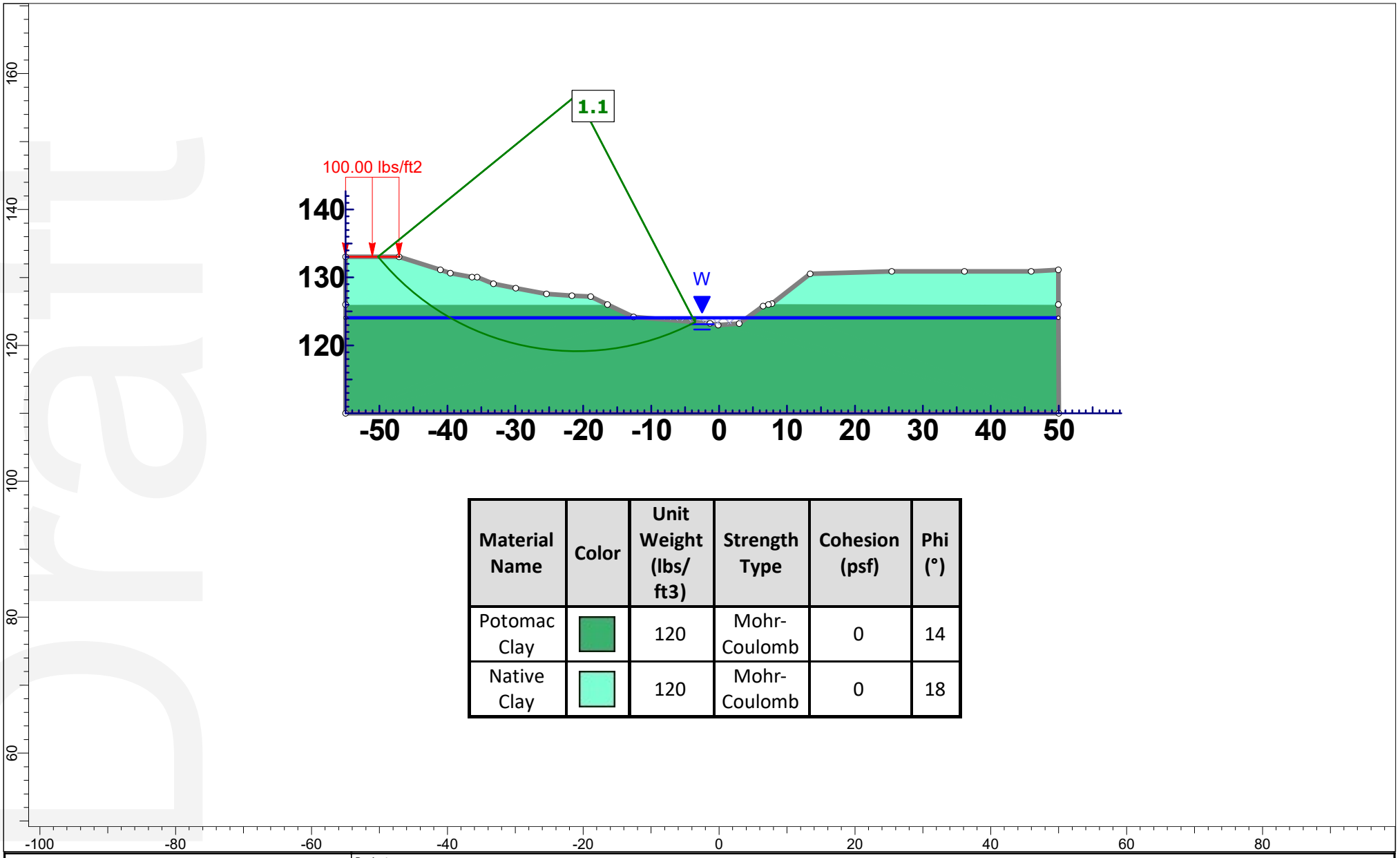
SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 10+50.00 West	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)	Shear Strength Envelope Type	CR (psf)	PhiR (°)
Existing Fill (Sit and Lean Clay)		120	0	28	Total stress R linear	50	14
Potomac Clay		120	0	14	Total stress R linear	50	12
Sand and Gravel		120	0	32			
Gravity Wall		150					
57 Stone		100	0	36			
Native Clay		120	0	18	Total stress R linear	50	14

rocscience	Project	Slide2 - An Interactive Slope Stability Program	
	Group	STA 10+50.00 West-Wall RDD	Scenario: Master Scenario
	Drawn By		Company
SLIDEINTERPRET 9.030	Date	12/10/2025, 9:58:18 AM	File Name: test.slmd



Material Name	Color	Unit Weight (lbs/ ft3)	Strength Type	Cohesion (psf)	Phi (°)
Potomac Clay		120	Mohr-Coulomb	0	14
Native Clay		120	Mohr-Coulomb	0	18

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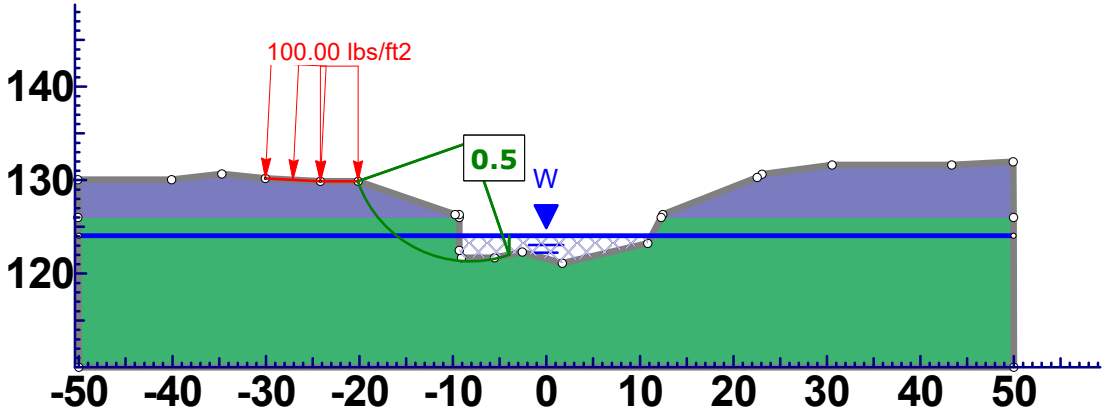
SLIDEINTERPRET 9.030

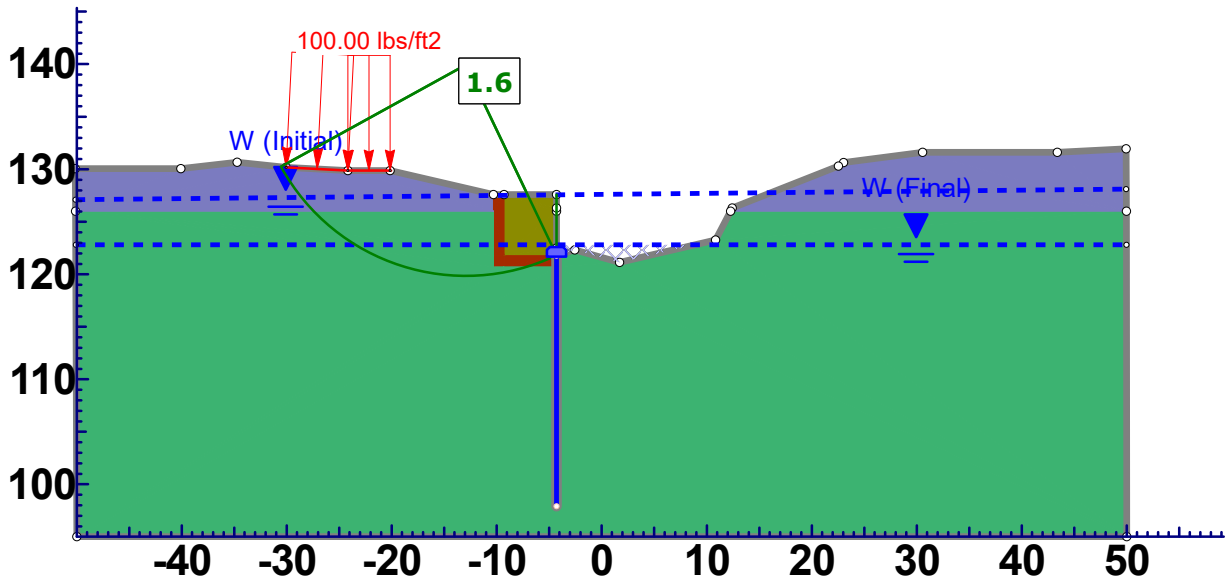
Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 20+50.00 West	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)
Potomac Clay		120	0	14
Sand and Gravel		120	0	32

rocscience	Project: Slide2 - An Interactive Slope Stability Program		
	Group: STA 30+50.00 West	Scenario: Master Scenario	
	Drawn By:	Company:	
	Date: 12/10/2025, 9:58:18 AM	File Name: test.slmd	

SLIDEINTERPRET 9.030



Material Name	Color	Unit Weight (lbs/ft3)	Cohesion (psf)	Phi (°)	Shear Strength Envelope Type	CR (psf)	PhiR (°)
Potomac Clay		120	0	14	Total stress R linear	50	12
Sand and Gravel		120	0	32			
Gravity Wall		150					
57 Stone		100	0	36			

rocscience

SLIDEINTERPRET 9.030

Project	Slide2 - An Interactive Slope Stability Program		
Group	STA 30+50.00 West-RDD with Wall	Scenario	Master Scenario
Drawn By		Company	
Date	12/10/2025, 9:58:18 AM	File Name	test.slmd

About AECOM

AECOM (NYSE: ACM) is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses, and organizations in more than 150 countries.

As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges.

From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated, and vital. A Fortune 500 firm, AECOM companies had revenue of approximately US$19 billion during the 12 months ended June 30, 2015.

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