GEOTECHNICAL ENGINEERING REPORT, REVISION 01

F-16 Mission Training Center
Atlantic City Air National Guard Base
Atlantic City International Airport, New Jersey
Contract AQRC189015

BV Contract # 23-0022-43353
Schnabel Reference 23140043.000

Revised May 14, 2025

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Revised May 14, 2025

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Subject: **Geotechnical Engineering Report, Revision 01, F-16 Mission Training Center, Atlantic City ANG Base, New Jersey, Contract AQRC189015; (BV Contract # 23-0022-43353) (Schnabel Reference 23140043.000)**

Dear Mr. Adams:

SCHNABEL ENGINEERING, LLC (Schnabel) is pleased to submit our revised geotechnical engineering report for this project. This study was performed in accordance with our Subcontract Agreement dated June 14, 2023, and in general accordance with the project requirements detailed in the Scope of Work and the Statement of Work for Architect – Engineer Services, AQRC189015, F-16 Mission Training Center, Atlantic City ANG Base, NJ dated March 3, 2022. We have revised this report to include the results of additional explorations performed in May 2025, in accordance with our agreement dated April 30, 2025.

We appreciate the opportunity to be of service for this project. Please call us if you have any questions regarding this report.

Sincerely,

SCHNABEL ENGINEERING, LLC

STATE OF MARYLAND
DAVID MACGREGOR
56484
PROFESSIONAL ENGINEER

David MacGregor, PE
Principal

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed professional engineer under the laws of the State of Maryland. License No. 56484, Expiration Date: 6/22/25

Jeffrey Sewell, PE (MD)
Principal

EB:SWF:ka:jdb

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GEOTECHNICAL ENGINEERING REPORT, REVISION 01
F-16 MISSION TRAINING CENTER
ATLANTIC CITY ANG BASE, NEW JERSEY

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1.0 SCOPE OF SERVICES

The Statement of Work dated June 1, 2023 in our agreement defines the scope of services for this project.

The objective of this study is to evaluate the subsurface conditions at the site and provide geotechnical engineering recommendations for the planned construction. This report presents the results of subsurface exploration, laboratory testing, resistivity tests, geotechnical engineering analysis, and our geotechnical recommendations regarding the design of foundations, earthwork, pavements, and stormwater management (SWM) structures for the project.

The scope of services was modified by our agreement dated April 30, 2025 to include additional subsurface exploration at the planned stormwater management structures, laboratory testing, and the revision of this report.

This study was conducted under the supervision of a Professional Engineer.

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2.0 DESCRIPTION OF SITE AND PROPOSED CONSTRUCTION

A new F-16 Mission Training Center (MTC) is planned at the Atlantic City Air National Guard Base in New Jersey to house four simulator bays, training rooms, administrative support areas, storage, and latrine space. The building will be 15,000 sf in plan area and the project will also include associated parking, utilities, and stormwater management structures. The building will be single story with a floor slab on grade at about EL 59.5 ft. The facility will be designed as permanent construction in accordance with the DoD Unified Facilities Criteria (UFC) 1-200-01, General Building Requirements and UFC 1-200-02, High Performance and Sustainable Building Requirements. The maximum assumed column loads are 90 kips. New parking lots will surround the building on the east, south and west sides.

A Vicinity Map is included as Figure 1. The project site is about six acres and currently consists of a parking lot with a grass area to the north, a 120 ft wide gravel area to the east, several buildings to the west, and Earhart Drive to the south. A fence separating the site from the airport bounds the site to the north and east. An unused, single-story building is located on the gravel area and the grass area to the north of the parking lot previously housed temporary trailers. The existing site grade slopes gently down from south to north with ground surface elevations between EL 62 ft and EL 57 ft. There are existing electric and communication lines buried at the site as well as buried water and sanitation pipes.

The existing site grades are within 2 to 3 ft of the planned floor grade for the new building. Thus, we have assumed that final site grading will be within 3-ft of the existing grades.

Schnabel obtained the site and project information through our site visits, our discussions, and from the *Scope of Work and the Statement of Work for Architect – Engineer Services, AQRC189015, F-16 Mission Training Center, Atlantic City ANG Base, NJ dated March 3, 2022*.

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3.0 SUBSURFACE EXPLORATION PROGRAM

We performed a subsurface exploration and field-testing program to identify the subsurface stratigraphy underlying the site and to evaluate the geotechnical properties of the materials encountered. This program included test borings for foundations, pavements, earthwork, and stormwater management structures. We also performed three in situ permeameter tests at select boring locations to further investigate the hydraulic properties with regards to stormwater management structures. Exploration methods used are discussed below. The appendices to this report contain the results of our exploration.

3.1 Subsurface Exploration and Field Testing

3.1.1 Test Borings

Schnabel's subcontractor, Uni-Tech Drilling Co., Inc. drilled eight test borings to depths of 16 ft to 80 ft under our observation between July 12 and July 18, 2023. Uni-Tech Drilling performed three additional test borings to a depth of 18 ft under our observation on May 1, 2025. The Standard Penetration Test (SPT) was performed at select depths in the borings. Appendix A includes specific observations, remarks, and logs for the borings; classification criteria; drilling methods; and sampling protocols. Figure 2, included at the end of this report, indicates the approximate test boring locations. We will retain soil samples up from our 2025 exploration 90 days beyond the issuance of this report, unless you request other disposition.

The SPT samples were obtained using a hydraulically driven automatic trip hammer (ATH). Most correlations with SPT data are based on N-values collected with a safety hammer. The energy applied to the split-spoon sampler using the ATH is about 33 percent greater than that applied using the safety hammer, resulting in lower N-values. The hammer blows shown on the boring logs are uncorrected for the higher energy. However, we corrected SPT N-values for the higher energy when using N-values in our analyses.

3.1.2 Infiltration Testing

In addition to the SPTs performed in the test borings, we performed in-situ permeameter tests at the selected test boring locations to further establish the subsurface characteristics for the design of stormwater management structures.

We performed six permeameter tests in general accordance with the guidelines in the New Jersey Department of Environmental Protection *2022 New Jersey Stormwater Best Management Practices Manual* near the test borings SWM-1 through SWM-6. Details of the test results are included in Appendix E and are summarized in Section 8.0 of this report.

3.1.3 Field Resistivity Testing

Schnabel personnel performed field resistivity soundings at the site on July 11, 2023. The resistivity measurements were made using the Wenner four-pin array method in general accordance with ASTM G57 *Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method*, and ANSI/IEEE 81 *Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Grounding System*.

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Resistivity soundings were conducted at two locations, and at each location data was collected along two perpendicular arrays, centered at a common location. We recorded the locations of the traverses using a submeter GPS and they are included on Figure 2, Location Plan. The locations were chosen to avoid pavements and known utility locations. We collected data using “a” spacings of 1, 5, 10, 15, and 20 ft, and we recorded multiple measurements at each location to confirm repeatability, and therefore quality; a 13 foot “a” spacing was also conducted on Line 2A because of an unknown obstruction encountered during data collection of the 15 foot “a” spacing that resulted in an invalid reading. We expect this buried obstruction may have been due to unknown utility or buried debris.

Results from the soil resistivity surveys show that the subsurface resistivity values range from about 2,400 to 85,600 ohm-cm (24 to 856 ohm-m), and the values are lower in the Line 2 area. The results of the measurements are provided in Appendix B.

3.2 Soil Laboratory Testing

Our subcontracted laboratories performed tests on select samples collected during the supplemental subsurface exploration. The testing aided in the classification of materials encountered in the subsurface exploration and provided data for use in the development of recommendations for design of foundations, pavements, earthwork, and stormwater management structures. The results of the laboratory tests are included in Appendix C and are summarized in Section 4.2 of this report. Selected test results are also shown on the boring logs in Appendix A.

3.2.1 Index Testing

We performed index testing on soil samples collected as part of the exploration to provide soil classifications and to provide parameters for use with published correlations with soil properties. Index testing included performing natural moisture content, Atterberg Limit, gradation, and USDA classification tests on selected split spoon samples and two bulk sample of soils representing Strata A and B. The results are presented in Appendix C and are summarized in Section 4.2.

3.2.2 Compaction and CBR Testing

We performed a Modified Proctor Compaction test per ASTM D1557, and a CBR test on two bulk samples to evaluate compaction characteristics and to provide soil parameters for pavement design. The tests were performed on samples from borings PB-01 and SWM-3 collected from depths of 0.5 to 5-ft below ground, mostly representing the Stratum A Existing Fill soils.

3.2.3 Strength and Consolidation Testing

We performed two direct shear tests on shelby tube samples of soils representing Stratum B to evaluate the shear strength of these materials. We also performed a one-dimensional consolidation test on shelby tube sample of soils representing Stratum B to evaluate the compressibility characteristics of these soils.

3.2.4 Corrosivity Testing

We performed tests for pH, sulfides, redox potential, and resistivity testing on three samples. The test results are presented in Appendix C and are summarized in Section 4.5.

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3.2.5 Chemical Testing

Based on SPT recoveries, grab soil samples were collected for chemical laboratory analysis from approximately the 3 ft and 6 ft depth intervals from select geotechnical borings (B-01, PB-01, SWM-1, and SMW-3). Two soil samples from SMW-3 were also collected for laboratory analysis from the intervals (12 ft and 15 ft) near the groundwater table. No petroleum odors or staining were observed during advancement of the geotechnical borings.

Portions of the samples from the SPTs were placed in laboratory-supplied jars for potential laboratory analysis and placed in a cooler on ice. Samples were shipped under a chain of custody to Phase Separation Science, Inc. (Phase) by Schnabel personnel. Ten soil samples were analyzed for RCRA-8 metals, volatile organic compounds (VOCs), total petroleum hydrocarbons (TPH) – diesel range organics (DRO), and TPH – gasoline range organics (GRO). The laboratory analytical report including certificates of analysis and chain of custody is provided in Appendix D.

VOCs and TPH-GRO were not detected in the soil samples.

With the exception of a TCLP barium detection of 0.33 mg/L in sample HA-2, TCLP metals were not detected in the soil samples. The TCLP barium concentration is below the hazardous waste threshold of 100 mg/L. Various total metals were detected in the soils, however based on the TCLP analysis, the elevated concentrations of metals do not require hazardous waste disposal considerations.

TPH-DRO was detected in the 6 ft soil sample from boring PB-1 at a concentration 13 mg/kg. TPH-DRO was not detected in the remaining soil samples.

Low-level detections of arsenic, barium, lead, and chromium were detected in the soil samples. These detected concentrations are believed to be naturally occurring.

Based on the results of the limited environmental sampling, soil generated during construction may be petroleum impacted and require offsite disposal at a facility such as Clean Earth or Soil Safe, Inc. However, the results of the testing do not indicate levels that would require soil disposal at a facility that accepts hazardous waste.

Representative soil and water samples should be collected during construction and tested to determine the actual requirements and facilities that are required for disposal.

During our 2025 exploration, we screened soil samples with a Photo-Ionization Detector (PID) to assist in identifying any volatile organic compounds or hydrocarbon vapors. No volatile organics were detected during our 2025 exploration based on the PID readings, which can be seen on the test boring logs SWM-4 to SWM-6.

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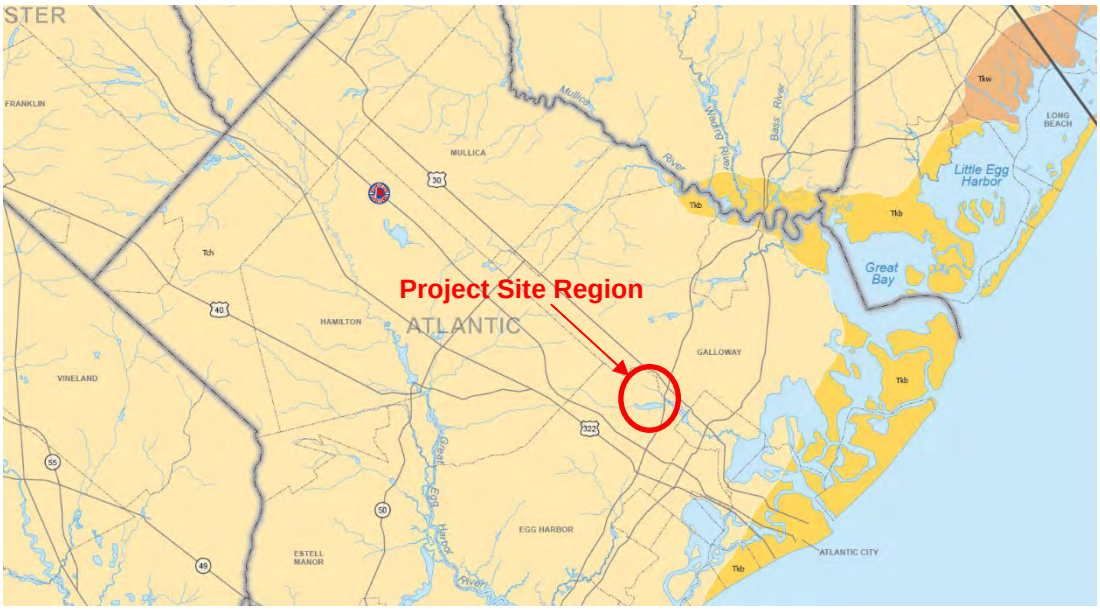
4.0 SITE GEOLOGY AND SUBSURFACE CONDITIONS

4.1 Site Geology

As part of the subsurface exploration study, we reviewed existing geologic data, the test borings performed at the project site, and information in our files. We characterized the following generalized subsurface stratigraphy based on the exploration and laboratory test data included in the appendices.

Based on this review, the site is generally underlain by existing fill soils and Cohansey Formation soils, which are middle Miocene aged coastal plain sediments. The fill soils encountered were likely placed during site grading and utility construction for the facilities that previously or currently occupy the site. The Cohansey Formation is predominantly quartz sand, white to yellow, medium to coarse grained, cross bedded, local clay, gravel, and ironstone beds. The maximum thickness of this formation was observed at 78 ft, which was at the termination depth of 80-ft in B-04. A copy of a section of the map showing the project site is included in Plate 1 below.

Plate 1: Section of Geologic Map Showing the Project Site



Reference: Dalton, R.F. (2014).
"Bedrock Geologic Map of New Jersey", New Jersey Geological and Water Survey

4.2 Generalized Subsurface Stratigraphy

We characterized the following generalized subsurface stratigraphy based on the exploration and laboratory test data included in the appendices.

4.2.1 Ground Cover

Topsoil depths of 1 to 9 inches were encountered in the test borings performed in the grass areas. Borings B-4 and PB-1, performed in the existing parking lot, encountered 1 and 3 inches of asphalt, respectively. Boring B-5, which was performed in the gravel area, encountered 2 inches of what we visually estimated to be No. 57 stone.

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4.2.2 Stratum A: Existing Fill

Existing fill soils of Stratum A were encountered in all of the test borings at depths of 2.0 to 5.2 ft, below the existing ground surface. The fill generally consisted of brown and orangish brown, Clayey Sand with varying amounts of gravel, Silty Clayey Sand and Poorly Graded Sand. Smaller amounts of Sandy Lean Clay were encountered in two test borings (SWM-5 and SWM-6). The measured N values of the fill soils ranged from 4 bpf to 49 bpf, indicating very loose to very dense.

Six split spoon samples and two composite bulk samples were tested within this stratum. Index tests on the samples resulted in the following properties:

- Moisture Content: 5.0 to 12.9 %
- Liquid Limit: 19 to 32
- Plasticity Index: 5 to 15
- % Passing No. 200 Sieve: 24.7 to 37.8

We performed two Modified Proctor Compaction tests and two CBR tests on composite bulk samples, representing mostly Stratum A soils. The samples were Clayey Sand with Gravel, classified as SC, and Silty Clayey Sand, classified as SC-SM, in accordance with the ASTM D2487 classification system. The compaction tests resulted in maximum dry densities of 137.3 pcf and 139.7 when corrected for oversized materials. The optimum moisture contents were 5.4 and 5.9 percent, respectively. Samples were compacted at 131.0 pcf and 133.9 pcf and were submerged for four days. Neither sample swelled during soaking. The laboratory CBR values were 84.2 and 102.4, respectively.

4.2.3 Stratum B: Cohansey Formation

Cohansey Formation soils of Stratum B were encountered beneath the Stratum A fills, to the maximum depths drilled, up to 80 ft below the existing ground surface. The Stratum B soils generally consisted of orangish brown and light gray, Poorly Graded Sand with various amounts of Silt and Clay (SP, SP-SM, SP-SC), Clayey Sand (SC), Silty Sand (SM), or Lean Clay with various amounts of sand (CL). The measured N values of the granular soils ranged from 2 bpf to over 100 bpf, indicating densities of very loose to very dense; and the measured N values of the fine-grained soils were 2 bpf, indicating soft consistency. The N values of the granular soils were lower in some cases (2 to 3 bpf) at the water table to about 10 ft below the water table. Outside of this zone, the N values of the granular soils were generally higher ranging from 11 bpf to over 100 bpf.

16 samples were tested within this stratum. Index tests on the samples resulted in the following properties:

- Moisture Content: 4.2 to 29.7 %
- Liquid Limit: Non plastic to 35
- Plasticity Index: Non plastic to 18
- % Passing No. 200 Sieve: 5.4 to 74.3
- pH = 4.43 to 7.74
- Saturated Resistivity = 651 ohm-cm to 46,200 ohm-cm

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Two Drained Direct Shear tests and one consolidation tests were performed on samples from the stratum. The results are in Appendix C.

4.3 Groundwater

Groundwater was observed in test borings B-1, B-2, B-4, B-5, SWM-1, SWM-4, SWM-5, and SWM-6 during drilling at depths ranging from 13.5 ft to 20.0 ft (about EL 44.5 to 40.0 ft). Borings B-1, B-2, B-4, and B-5 were drilled utilizing the mud rotary method and grouted upon completion. Therefore, only encountered water depths were recorded. The test boring logs in Appendix A include groundwater observations obtained during our subsurface exploration. This data includes depths to groundwater encountered during drilling, upon drilling completion, and following completion of the boring. A summary of water level readings is included in Table 1: .

Table 1: **Summary of Water Level Readings**

Boring Number	Estimated Encountered Water Level	
	Depth (ft)	EL (ft)
B-1	18.0	40.0
B-2	18.0	40.0
B-4	18.0	40.0
B-5	20.0	40.0
PB-1	dry	dry
SWM-1	15.5	41.5
SWM-2	dry	dry
SWM-3	15.5	43.5
SWM-4	16.0	41.5
SWM-5	13.5 (16.5 After Drilling)	44.5 (41.5 After Drilling)
SWM-6	15.0 (16.0 After Drilling)	43.0 (42.0 After Drilling)

The groundwater levels on the logs indicate our estimate of the hydrostatic water table at the time of our subsurface exploration. The final design should anticipate the fluctuation of the hydrostatic water table depending on variations in precipitation, surface runoff, pumping, tidal action, evaporation, leaking utilities, and similar factors.

Based on our groundwater observations, we expect the hydrostatic groundwater level to be at between approximately EL 40 and EL 44.5 ft at the site. Based on our understanding of the proposed construction, we do not expect groundwater to be encountered in the excavations for foundations.

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4.4 Expansive Soils

The surficial soils encountered in the top 10-ft depth within the test borings were mostly classified as sands, with a maximum of 38 percent fine grained soils. The highest Liquid limit was 32 and the highest Plasticity Index was 16. The CBR samples did not swell, when submerged for four days. Based on the laboratory test results and our observations in the test borings, we believe the on-site surficial soils have a low risk of expansion due to changes in their moisture contents.

4.5 Soil Corrosivity

Laboratory testing performed on three samples from borings B-01, B-05 and PB-01, to evaluate the corrosivity of the Stratum A soils resulted in:

- pH = 4.97 to 6.82
- Redox Potential = 263 mV to 296 mV,
- Saturated Resistivity = 10,500 ohm-cm to 42,800 ohm-cm
- Sulfides=negative
- Chloride ion= 5 to 7 PPM
- Sulfate ion = 11 to 21 PPM

Based on these test results, the soils of Stratum A are considered to be non-corrosive for buried metallic structures in accordance with AWWA standards and a low degree of corrosivity for sulfate attack on concrete according to ACI standards.

Results from the in-situ soil resistivity surveys show that the subsurface resistivity values range from about 2,400 to 85,600 ohm-cm (24 to 856 ohm-m), and the values are lower in the Line 2 area. The results of the measurements are provided in Appendix B.

Table 2.1 of the Unified Facilities Criteria for Cathodic Protection, (UFC-3-570-02A), indicates that soils with resistivities from 2,000 to 10,000 have a “moderate to severe risk” for corrosion. Soils with resistivities above 30,000 are “not likely” to have a risk for corrosion.

4.6 Seismic Site Classification

We evaluated the Seismic Site Class and Seismic Site Coefficients for this project according to ASCE 7-16 for use in building design based on an extrapolation of data collected in the subsurface exploration. We assumed a structure Risk Category of II and III, and our analysis indicates Site Class D for this location.

This Site Class was evaluated based on corrected SPT values, extrapolated to a depth of 100 ft. The seismic design parameters that are calculated based on the recommended site class and project location are summarized in Table 2. The parameters are the same for Risk Category II and III.

Table 2: **Seismic Design Parameters**

Period	Mapped Acceleration Parameters	Site Coefficient	Adjusted Maximum Spectral Response Acceleration Parameters	Design Spectral Response

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				Acceleration Parameters
Short	Ss = 0.129 g	Fa = 1.6 g	Sms = 0.207 g	Sds = 0.138 g
1 Second	S1 = 0.041 g	Fv = 2.4 g	Sm1 = 0.098 g	Sd1 = 0.066 g

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5.0 SITE GRADING AND EARTHWORK

We have assumed that the proposed building and site grades will require cuts and fills of up to about 3 ft. Recommendations for compacted fill subgrade preparation, fill soil requirements, placement, and compaction criteria are presented in subsequent sections.

5.1 Compacted Fill Subgrades

Subgrades to receive compacted structural fill for building or pavement support should be stripped of vegetation, topsoil, and organic matter. Our subsurface exploration indicated topsoil to depths of 1 to 6 inches below the ground surface. We recommend a stripping depth of 6- inches be assumed for the site design. The test borings indicate the approximate depth of topsoil based on our visual identification procedures. The depth of stripping needed to provide a suitable base for placement and compaction of earthwork or for pavement subgrade preparation may include topsoil and other softer surficial layers, with or without organic matter.

Compacted structural fill subgrades should consist of firm existing fil soils of Stratum A or suitable natural soils of Stratum B. These soils are expected to be encountered at shallow depths beneath the topsoil and pavements.

There are structures on the site. Additionally, there may be previous structures that have been demolished. Therefore, buried foundations and other associated debris may be encountered during grading activities and at the fill subgrades. Existing foundations should be completely removed from below the proposed building footprint. Existing foundations and walls in the proposed pavement areas should be removed to at least 1 ft below the design pavement subgrade level. Existing utilities and drainage structures within the building footprint should be removed and replaced with compacted structural fill.

The Geotechnical Engineer should evaluate the suitability of the fill subgrades. To evaluate the subgrade suitability for support of the compacted structural fill prior to any undercutting or initiation of fill placement, the stripped subgrades should be proofrolled with a loaded dump truck. Areas that exhibit excessive pumping, weaving, or rutting should be scarified, dried and recompacted, or undercut and replaced with compacted structural fill as recommended by the Geotechnical Engineer. Subgrade evaluation techniques complementary to proofrolling could include a combination of probing with a penetrometer, drilling hand augers, and/or observing test pits.

When excavation of unsuitable materials is required, it should be performed in a manner to limit disturbance of the underlying suitable material. To evaluate required excavation depths, the excavation should be performed under the observation of the Geotechnical Engineer.

Compacted structural fill subgrades should be kept free of ponded water. If springs or other flowing water is present at the compacted structural fill subgrade level, the Contractor should direct water to discharge beyond the fill limits. Recommendations for discharging springs should be provided by the Geotechnical Engineer.

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Compacted structural fill subgrades should be free of snow, ice, and frozen soils. If snow, ice, or frozen soils are present at subgrade levels, these materials should be removed as recommended by the Geotechnical Engineer.

Compacted structural fill subgrades should not be steeper than about 4H:1V. If steeper slopes are present, subgrades should be benched to permit placement of horizontal lifts of fill.

5.2 Compacted Fill

Compacted structural fill and backfill should consist of non-organic on-site and off-site soils that are classified as SC, SM, SP, SW, GC, GM, GP, or GW according to ASTM D2487. The fill materials should not contain particles larger than 3 inches, and must be free of organics, debris, and other unsuitable materials. The Geotechnical Engineer should test and approve the fill materials.

We believe that most of the near-surface on-site soils will meet this criterion. However, some selective excavation will be required to separate these materials from the fine-grained materials also found on-site. Fill material in non-structural “green” areas may consist of materials classified as CL, ML, and MH in addition to the soils described above.

Compacted structural fill should be placed in maximum 8-inch thick horizontal, loose lifts. Fill should be compacted to at least 95 percent of the maximum dry density per ASTM D1557 (Modified Proctor). Soil moisture contents at the time of compaction should be within 3 percent of the soil’s optimum moisture content. Fills placed in green areas where vehicular or aircraft traffic is not expected may be placed and compacted to at least 85 percent of maximum dry density per ASTM D1557 (Modified Proctor).

Backfill placed in excavations, trenches, and other areas that large compaction equipment cannot access should be placed in maximum 6-inch-thick lifts. Backfill should meet the material, placement, and compaction requirements outlined above.

Successful re-use of the excavated, on-site soils as compacted structural fill will depend on their natural moisture contents during excavation. Laboratory test results indicate the moisture contents of the surficial soils are from about 5 to 13 percent, which are up to 8 percent above the optimum moisture content for compaction. Thus, scarifying and drying of these soils should be anticipated to achieve the recommended compaction. Drying of these soils will likely result in some delays, and may not be possible during cooler, wetter weather. We recommend that the earthwork be performed during the warmer, drier times of the year.

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6.0 FOUNDATION RECOMMENDATIONS

We based our geotechnical engineering analysis on the information developed from our subsurface exploration and soil laboratory testing, along with the project development plans, site plans, and structural loading furnished to our office. We recommend shallow spread footings for support of the proposed building based on our analysis. The following sections of the report provide our detailed recommendations.

6.1 Spread Footings

We consider spread footings suitable for support of the proposed structure. Footings should be founded on suitable natural soils of Stratum B or on new compacted structural fill. Compacted structural fill should meet the requirements outlined in Section 5.2 *Compacted Fill* section of this report. We recommend footings supported on these materials be designed for a net allowable soil bearing pressure of 3,500 psf.

Column and wall footings should be at least 24 and 12 inches wide, respectively, for shear considerations. Exterior footings should be founded at least 2.5 ft below final exterior grades for frost protection. Interior footings may be founded at nominal depths below the floor slabs. Where bearing grades between adjacent footings vary, the slope between the bottom edges of adjacent footings should not be steeper than 45 degrees (1H:1V). This bearing pressure provides a factor of safety against general bearing capacity failure of at least 3.0.

The above allowable soil bearing pressure may be increased by 33 percent for wind and seismic loads when used in conjunction with load combinations defined in IBC 2012 Section 1605.3.2, Alternative Basic Load Combinations for use with allowable stress design. This increase is not applicable for other allowable stress load combinations, strength design, or load and resistance factor design.

Settlements of shallow foundations supported on suitable natural soils and on properly placed new compacted structural fill are not expected to exceed about 1 inch. Differential settlements between similarly loaded footings are not expected to exceed about half this value.

6.1.1 Footing Subgrades

Footing subgrades should consist of suitable natural soils or new compacted fill. Some existing fill soils of unknown consistency were encountered at the ground surface to depths of up to 5-ft. Existing fill soils are not considered suitable for footing support. Where existing fill soils are present at the footing subgrade, they should be undercut to firm suitable natural soils and replaced with new compacted structural fill. A detail for the undercutting of the existing fills and replacement with new compacted structural fill is shown on Figure No. 3 at the end of this report.

The Geotechnical Engineer must evaluate the suitability of the footing subgrades. The evaluation should compare the observed subgrade soils with those found in the test borings and described in this report. Evaluation should include visual soil classification and probing to verify a firm consistency. Where unsuitable soils are encountered at the design bearing grade, these soils must be removed down to suitable natural soils as recommended by the Geotechnical Engineer. The lowered excavation should be replaced with materials as described above.

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When removal of unsuitable materials is required, the excavation must be performed in a manner to prevent undermining and disturbance of the building footing subgrades. This is described in Section 9.2. The excavations must limit the disturbance of the underlying suitable material. The excavation should be performed under the observation of the Geotechnical Engineer to evaluate required excavation depths and proper methods.

6.2 Horizontal Resistance of Spread Footings

We expect that resistance to horizontal forces on foundations from wind loads will be required. At-rest earth resistance of the footings may be used to resist the lateral forces. We recommend an ultimate equivalent fluid pressure of 60H psf (where H is the height of the footing in feet measured from the ground surface or below the structural slab to the bottom of the footing) for footings backfilled with compacted structural fill as recommended herein.

Sliding resistance at the base of the footing may also be used to resist the lateral forces. An ultimate frictional resistance of 0.35W (where W is the net footing vertical load) should be used to compute the sliding resistance at the base of the footing when founded on suitable natural soils or new compacted fills.

A factor of safety of 1.5 should be used when evaluating the sliding resistance.

6.3 Floor Slabs

The proposed floor slabs should be supported on firm existing fill soils of Stratum A, suitable natural soils of Stratum B or on new compacted structural fill. A modulus of subgrade reaction, k, of 150 pci should be used in design of floor slabs. The recommended modulus value is for a 1-ft-square plate. Some slab design software may consider different definitions of k for input. The Structural Engineer should contact our office if their software considers a different definition of k.

A minimum 4-inch crushed stone or washed gravel capillary moisture barrier should underlie floor slabs on grade. Moisture barrier material should consist of AASHTO No. 57 crushed stone. The Contractor should compact the stone in place with at least two passes of suitable vibratory compaction equipment.

The Contractor should proofroll and compact floor slab subgrades as recommended in Section 5.1, before placing moisture barrier materials to repair any disturbance that may occur due to construction operations. Because floors will be slab-on-grade, footing and utility excavations below the floor should be backfilled with compacted structural fill as defined in Section 5.2.

Some of the on-site existing fill soils may not be suitable for floor support. These should be identified during the proofrolling. Where unsuitable soils are identified, these soils should be compacted to the required densities or removed and replaced with new compacted fill as described in Section 5.2, *Compacted Fill.*

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7.0 PAVEMENT RECOMMENDATIONS

New asphalt pavements for parking lots around the building are planned.

7.1 Pavement Subgrades

The Contractor should prepare pavement subgrades and place compacted structural fill for pavement support as described in Section 5.0 of this report. Final pavement subgrades should be proofrolled under the observation of the Geotechnical Engineer, as described in Section 5.1, immediately prior to placing subbase or base coarse aggregate to evaluate their suitability to support the pavement.

Adequate control of surface drainage will be a very important consideration for the overall performance of the pavement performance. The pavement surfaces and the areas surrounding pavements should be graded to direct surface water away from paved areas. Utility excavations within pavement areas should be backfilled with compacted structural fill.

7.2 Pavement Design

Soil laboratory testing on two bulk samples of the onsite soils indicated very high CBR values of 84 and 102. The tested soils were mostly sands with only 25 to 27 percent fines. To account for the possibility of more fine-grained soils, we have reduced the recommended CBR value shown below.

We developed the recommended pavement sections based on the *"Pavement-Transportation Computer Assisted Structural Engineering (PCASE)"* software. PCASE is a computer program for the design and evaluation of transportation systems (airfields, roads, and railroads).

We assumed the following traffic loads and input parameters for the pavements:

Average Annual Daily Traffic:	500 passes per day
% Trucks (two axle trucks)	4 percent
% Cars/Passenger Vehicles	96 percent
Design life	25 years
Design CBR	20

Our analysis considers that proper grading will be maintained to provide runoff from the pavement surface and beyond the limits of paved areas. We recommend the pavement sections shown in Table 3.

Table 3: Pavement Section Recommendations

Pavement Section	Layer Thickness (inch)
Superpave Asphalt Mix 9.5 mm, Surface, PG 64-22 (9.5M64) (1 lift)	1.5
Superpave Asphalt Mix 12.5 mm, Base, PG 64-22 (12.5M64) (1 lift)	2.0
Graded Aggregate Base or Bank Run Gravel (1 lift)	6

The asphalt and aggregate materials should conform to New Jersey Department of Transportation (NJDOT) Standards.

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7.3 Concrete Pavement

Concrete pavements around the building are planned. We assume the pads are for support trucks and equipment storage:

We used the Pavement-Transportation Computer Assisted Structural Engineering (PCASE) software Version 7.0.5 to design the concrete test pad. We also considered the guidelines set forth in UCF 3-260-02 (Pavement Design for Airfields) Chapters 2, 4, 6, 8 and 12, and used the thickness design method for rigid pavements based on Navy and Marine Corps Pavements guidelines.

The following design values and additional assumptions were used for our preliminary design of the concrete pads:

- Unreinforced concrete design
- Design period of 20 years
- A minimum concrete flexural strength of 650 psi
- A modulus of subgrade reaction of 150 psi/in.

Based on our assumptions and the results of our analysis using the PCASE Version 7.0.5 software, a minimum rigid pavement thickness of 7 inches is required. Table 8-6 of UCF 3-260-02 requires a minimum aggregate base thickness of 6 inches. The aggregate base should be Graded Aggregate Base (GAB) or Back Run Gravel (BRG) per the New Jersey Department of Transportation (NJDOT) Standards.

The test pad jointing pattern should be designed in accordance with the guidelines set forth in UFC 3-260-02 Chapter 12.

The recommended pavement section assumes a transverse joint spacing of not greater than 15 ft. Dowels should be round smooth steel bars. A dowel center-to-center spacing of 12 inches, a dowel diameter of 1 inch, and a length of 16 inches are recommended for the joints. Dowels should be placed at mid-depth of the PCC slab. A nominal amount of reinforcement may be used within the pavement section to reduce the risk of pavement cracking.

7.4 General Pavement Considerations

Adequate control of surface drainage will be a very important consideration for the overall performance of the pavement design. The area surrounding pavements should be graded to direct surface water away from paved areas. Utility excavations within pavement areas should be backfilled with compacted fill.

Section 5.0 of this report describes the evaluation and approval of the pavement subgrades, and the placement of new compacted fills. The pavement subgrades should be proofrolled under the observation of the Geotechnical Engineer. Subgrades passing the proof roll test are considered suitable for the concrete and asphalt pavement support. Soft or rutting areas should be removed or undercut and stabilized with new compacted fills.

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8.0 STORMWATER MANAGEMENT

We understand that stormwater management best management practices are planned for the site with a lowest level of approximately EL 50 ft. We performed six test borings for stormwater management at planned or potential stormwater management locations (SWM-1 to SWM-6). The boring logs are included in Appendix A. SWM-2 was attempted as a backhoe excavated test pit. However, a fiber optic line was encountered at a 1.5 ft depth. Thus, the pit was terminated, and borings were used for all the stormwater investigations. The borings were drilled to depths of 16 to 18 ft.

The 2022 NJDEP Stormwater Best Management Practices Manual requires that the bottom of the infiltration structure must be at least 2-ft above the groundwater table or bedrock. Groundwater was measured at depths ranging from 13.5 to 18.0 ft. SWM-2 was dry. Bedrock was not encountered in the borings. The Stratum A fill depths in the six borings ranged from 3 to 5 ft below the ground surface.

8.1 Soils Textures

The 2022 NJDEP Stormwater Best Management Practices Manual requires United States Department of Agriculture (USDA) Soil Textural Classifications for each type of soil at the infiltration device.

Permeability tests were performed in each boring at depths of 7 to 9.5 ft below ground. The test method used was in accordance with USBR 7300-89 – Well Permeameter Test (Johnson Permeameter) as described in Section 3 of Chapter 12 of the *New Jersey Stormwater Best Management Practices Manual, April 2022.*

The permeability test results of are summarized in Table 4 and are also included in Appendix D.

Table 4: **Permeability Tests**

Boring ID	Test Depth (ft) and Elevation (ft)	USDA Textural Classification	In-Situ Permeability Rate (inches/hour)
SWM-1	7 / EL 50	Sandy Loam	0.67
SWM-2	7 / EL 50	Sandy Loam	0.19
SWM-3	7 / EL 52	Gravelly Loamy Sand	1.88
SWM-4	9.5 / EL 48	Loamy Sand	0.32
SWM-5	9.5 / EL 48.5	Loamy Sand	0.23
SWM-6	9.5 / EL 48.5	Sand	0.11

It should be noted that the recorded permeability rates are an approximation of the in-situ soil permeability at the locations tested, and variations of the actual permeability of the facility should be expected. The New Jersey Stormwater Best Management Practices Manual requires that a factor of safety of at least 2 must be applied to the tested rates.

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9.0 CONSTRUCTION CONSIDERATIONS

Geotechnical considerations during the construction of this project are provided throughout the previous sections of this report. The sections recommend measures and procedures to perform during the construction to evaluate, replace, improve, and protect the on-site soils during construction. The reader is encouraged to read the entire report. Additional measures during construction are provided below.

9.1 Site Grading and Earthwork

The test boring data indicate the approximate depth of topsoil based on our visual identification procedures. The depth of stripping needed to provide a suitable base for placement and compaction of earthwork or for pavement subgrade preparation may include topsoil and other softer surficial layers, with or without organic matter. The depth of required stripping should be determined by the Excavation Contractor prior to construction using test pits, probes, or other means that the Contractor wishes to employ, and this determination should be the excavation Contractor's responsibility.

Traffic on stripped or undercut subgrades should be limited to reduce disturbance of underlying soils. Also, using lightweight, track-mounted dozer equipment for stripping will limit the disturbance of underlying soils, and may reduce the undercut volume needed. The Contractor should provide site drainage to maintain subgrades free of water and to avoid saturation and disturbance of the subgrade soils before placing compacted structural fill, pavement base course, or moisture barrier material. This will be important during all phases of the construction work. The Contractor should be responsible for reworking of subgrades and compacted structural fill that were initially considered suitable but were later disturbed by equipment and/or weather.

9.2 Spread Footings

The Contractor should exercise care during excavation for spread footings so that as little disturbance as possible occurs at the foundation level. The Contractor should carefully clean loose or soft soils from the bottom of the excavation before placing concrete. A Geotechnical Engineer from our firm should observe actual footing subgrades during construction to evaluate whether subgrade soils meet the requirements as recommended in this report.

Forms may be used, if necessary, but less subgrade disturbance is expected if excavations are made to the required dimensions, and concrete is placed against the soil. If footings are formed, the forms should be pulled, and the excavation backfilled as soon as possible. Water should not be allowed to pond along the outside of footings for long periods of time.

The footing subgrade soils should not be exposed for long periods. Concreting should take place the same day as excavation and approval of the footings.

9.3 Construction Dewatering

The highest groundwater level encountered at the test boring locations was about EL 44.5 ft. We do not expect groundwater to be encountered in the excavations for foundations. If encountered, a system of localized sumps and pumps may be effective for temporary groundwater control during construction.

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Ineffective groundwater control will result in softening of foundation and slab subgrades and the need to remove softened and otherwise unsuitable subgrade materials.

9.4 Engineering Services During Construction

The engineering recommendations provided in this report are based on the information obtained from the subsurface exploration and laboratory testing. However, conditions on the site may vary between the discrete locations observed at the time of our subsurface exploration. The nature and extent of variations between borings may not become evident until during construction.

To account for this variability, a qualified Geotechnical Engineer must provide professional observation and testing of subsurface conditions revealed during construction as an extension of the design engineering services. These services will also help in evaluating the Contractor's conformance with the plans and specifications.

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10.0 GENERAL SPECIFICATION RECOMMENDATIONS

An allowance should be established to account for possible additional costs that may be required to construct earthwork and foundations as recommended in this report. Additional costs may be incurred for a variety of reasons including variation of soil between borings, greater than anticipated unsuitable soils, need for borrow fill material, wet on-site soils, obstructions, and temporary dewatering, etc. The project specifications should indicate the Contractor's responsibility for providing adequate site drainage during construction. Inadequate drainage will most likely lead to disturbance of soils by construction traffic and increased volume of undercut.

This report may be made available to prospective bidders for informational purposes. We recommend that the project specifications contain the following statement:

> *Schnabel Engineering, LLC has prepared this geotechnical engineering report for this project. This report is for informational purposes only and is not part of the contract documents. The opinions expressed represent the Geotechnical Engineer's interpretation of the subsurface conditions, tests, and the results of analyses performed. Should the data contained in this report not be adequate for the Contractor's purposes, the Contractor may make, before bidding, independent exploration, tests, and analyses. This report may be examined by bidders at the office of the Owner, or copies may be obtained from the Owner at nominal charge.*

Additional data and reports prepared by others that could have an impact upon the Contractor's bid should also be made available to prospective bidders for informational purposes.

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11.0 LIMITATIONS

We based the analyses and recommendations submitted in this report on the information revealed by our exploration. We attempted to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction.

This report has been prepared to aid in the evaluation of this site and to assist in the design of the project. It is intended for use concerning this specific project. We based our recommendations on information on the site and proposed construction as described in this report. Substantial changes in loads, locations, or grades should be brought to our attention so we can modify our recommendations as needed. We would appreciate an opportunity to review the plans and specifications as they pertain to the recommendations contained in this report, and to submit our comments to you based on this review.

We have endeavored to complete the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended, and no warranty or guarantee is included or intended in this report or other instrument of service.

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FIGURES

Figure 1: Site Vicinity Map
Figure 2: Location Plan
Figure 3: Footing Undercut Detail

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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community
Esri, HERE, Garmin, (c) OpenStreetMap contributors
Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Projection: WGS 1984 Web Mercator Auxiliary Sphere

NOT TO SCALE

Schnabel ENGINEERING

F-16 MISSION TRAINING CENTER
ATLANTIC CITY ANG BASE ATLANTIC CITY, NEW JERSEY

PROJECT NO. 23140043.000

SITE VICINITY MAP

FIGURE 1

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arcgis
6/16/2023 This Map was Created In Schnabel Engineerings Site Vicinity Map Application

LEGEND

TEST BORING LOCATION

FIELD RESISTIVITY LINE

SCALE: 1"=40'

0 40' 80'

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ATLANTIC CITY NEW JERSEY
SE REFERENCE 230140043.000

SUBSURFACE EXPLORATION
LOCATION PLAN

FIGURE 2

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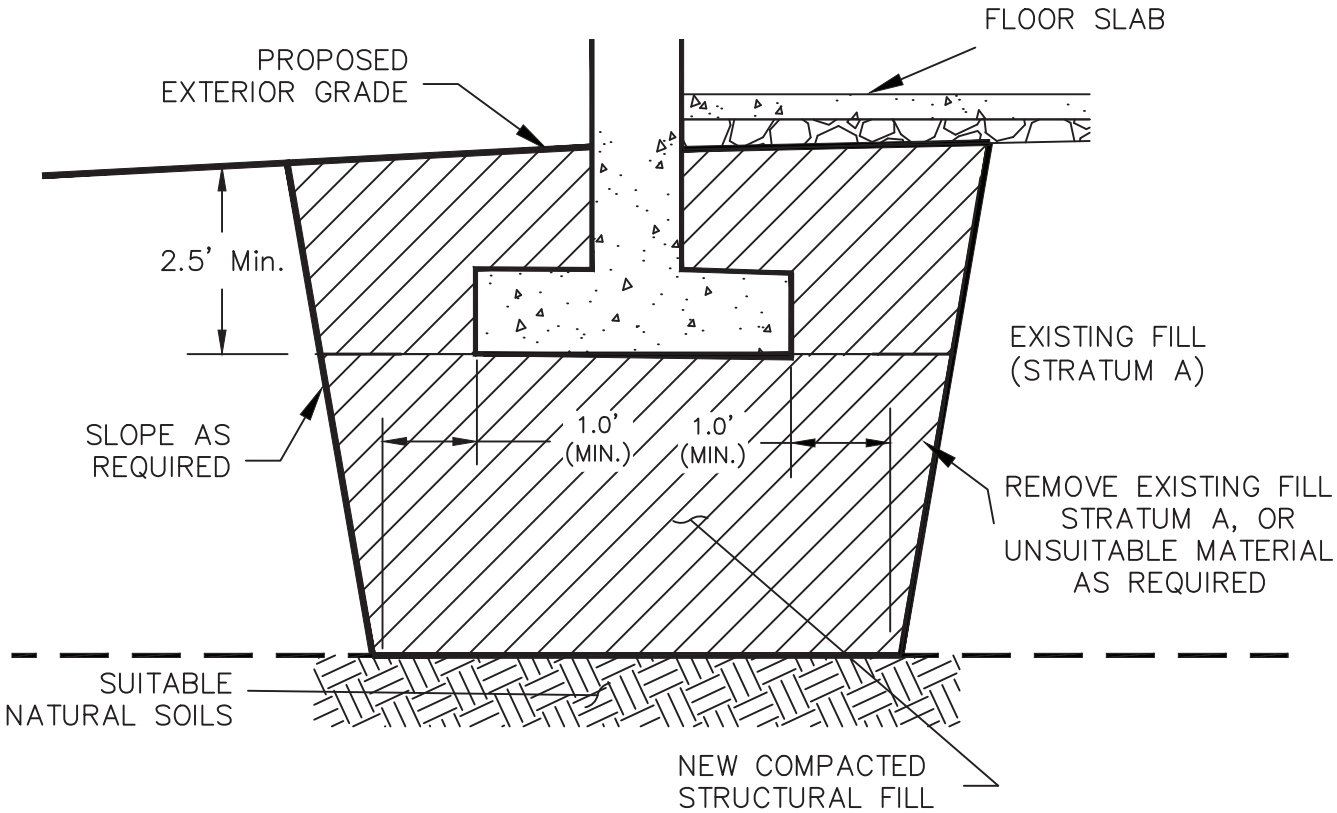
Detail for Undercutting Footing Subgrades



Notes:

1. Footing subgrades must be observed by the testing agency.

2. Where existing fill soils are encountered, excavate unsuitable subgrade soils down to firm natural soils.

3. Undercut subgrades should be evaluated by the testing agency.

4. Place new compacted structural fill as per the project specifications.

Schnabel ENGINEERING	F–16 MISSION TRAINING CENTER ATLANTIC CITY AIR NATIONAL GUARD BASE, NEW JERSY	FOOTING UNDERCUT DETAIL
		PROJECT NO.: 23140043.000
		AUGUST 2023 | FIGURE NO.: 3

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APPENDIX A

SUBSURFACE EXPLORATION DATA

Subsurface Exploration Procedures
General Notes for Subsurface Exploration Logs
Identification of Soil
Boring Logs, B-01 through B-05, PB-01, SWM-1 through SWM-6

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SUBSURFACE EXPLORATION PROCEDURES

Test Borings – Hollow Stem Augers

The borings are advanced by turning an auger with a center opening of 4¼ inches. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger by standard methods. Usually, no water is introduced into the boring using this procedure.

Standard Penetration Test Results

The Standard Penetration Test (SPT) is performed in the borings at regular depth intervals to collect soil samples. The numbers in the Sampling Data column of the boring logs represent SPT results. Each number represents the blows needed to drive a 2-inch O.D., 1⅜-inch I.D. split-spoon sampler 6 inches, using a 140-pound hammer falling 30 inches. The sampler is typically driven a total of 18 or 24 inches. The first 6 inches are considered a seating interval. The total of the number of blows for the second and third 6-inch intervals is the SPT "N-value." The Standard Penetration Test is performed according to ASTM D1586.

The SPT samples were obtained using a hydraulically driven automatic trip hammer (ATH). Most correlations with SPT data are based on N-values collected with a safety hammer. The energy applied to the split-spoon sampler using the ATH is about 33 percent greater than that applied using the safety hammer, resulting in lower N-values. The hammer blows shown on the boring logs are uncorrected for the higher energy. However, we correct SPT N-values for the higher energy when using N-values in our analyses.

Soil Classification Criteria

The group symbols on the logs represent the Unified Soil Classification System Group Symbols (ASTM D2487) based on visual observation and limited laboratory testing of the samples. Criteria for visual identification of soil samples are included in this appendix. Some variation can be expected between samples visually classified and samples classified in the laboratory.

Pocket Penetrometer Results

The values following "PP=" in the sampling data column of the logs represent pocket penetrometer readings. Pocket penetrometer readings provide an estimate of the unconfined compressive strength of fine-grained soils.

Boring Locations and Elevations

Boring locations were staked by Schnabel's representative by using a hand held GPS device. Approximate boring locations are shown on Figure 2. Ground surface elevations at the boring locations were obtained from the *Civil- Existing Conditions Plan* dated June 6, 2023 provided to us by Black and Veatch and are indicated on the boring logs. Locations and elevations should be considered no more accurate than the methods used to determine them.

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GENERAL NOTES FOR SUBSURFACE EXPLORATION LOGS

1. Numbers in sampling data column next to Standard Penetration Test (SPT) symbols indicate blows required to drive a 2-inch O.D., 1⅜-inch I.D. sampling spoon 6 inches using a 140 pound hammer falling 30 inches. The Standard Penetration Test (SPT) N-value is the number of blows required to drive the sampler 12 inches, after a 6-inch seating interval. The Standard Penetration Test is performed in general accordance with ASTM D1586.
2. Visual classification of soil is in accordance with terminology set forth in “Identification of Soil.” The ASTM D2487 group symbols (e.g., CL) shown in the classification column are based on visual observations.
3. Estimated water levels indicated on the logs are only estimates from available data and may vary with precipitation, porosity of the soil, site topography, and other factors.
4. Refusal at the surface of rock, boulder, or other obstruction is defined as an SPT resistance of 50 blows for 1 inch or less of penetration.
5. The logs and related information depict subsurface conditions only at the specific locations and at the particular time when drilled or excavated. Soil conditions at other locations may differ from conditions occurring at these locations. Also, the passage of time may result in a change in the subsurface soil and water level conditions at the subsurface exploration location.
6. The stratification lines represent the approximate boundary between soil and rock types as obtained from the subsurface exploration. Some variation may also be expected vertically between samples taken. The soil profile, water level observations and penetration resistances presented on these logs have been made with reasonable care and accuracy and must be considered only an approximate representation of subsurface conditions to be encountered at the particular location.
7. Key to symbols and abbreviations:

☒	S-1, SPT	Sample No., Standard Penetration Test
	5+10+1	Number of blows in each 6-inch increment

LL	Liquid Limit
MC	Moisture Content (percent)
PL	Plastic Limit
PP	Pocket Penetrometer Reading (tsf)
PID	Photo-Ionization Detector Reading (ppm)
%Passing#200	Percent by weight passing a No. 200 Sieve

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IDENTIFICATION OF SOIL

I. DEFINITION OF SOIL GROUP NAMES (ASTM D2487)

			SYMBOL	GROUP NAME
Coarse-Grained Soils More than 50% retained on No. 200 sieve	Gravels – More than 50% of coarse fraction retained on No. 4 sieve Coarse, ¾" to 3" Fine, No. 4 to ¾"	Clean Gravels Less than 5% fines	GW	WELL GRADED GRAVEL
			GP	POORLY GRADED GRAVEL
		Gravels with fines More than 12% fines	GM	SILTY GRAVEL
			GC	CLAYEY GRAVEL
	Sands – 50% or more of coarse Fraction passes No. 4 sieve Coarse, No. 10 to No. 4 Medium, No. 40 to No. 10 Fine, No. 200 to No. 40	Clean Sands Less than 5% fines	SW	WELL GRADED SAND
			SP	POORLY GRADED SAND
		Sands with fines More than 12% fines	SM	SILTY SAND
			SC	CLAYEY SAND
Fine-Grained Soils 50% or more passes the No. 200 sieve	Silts and Clays – Liquid Limit less than 50 Low to medium plasticity	Inorganic	CL	LEAN CLAY
			ML	SILT
		Organic	OL	ORGANIC CLAY
				ORGANIC SILT
	Silts and Clays – Liquid Limit 50 or more Medium to high plasticity	Inorganic	CH	FAT CLAY
			MH	ELASTIC SILT
		Organic	OH	ORGANIC CLAY
				ORGANIC SILT
Highly Organic Soils	Primarily organic matter, dark in color and organic odor		PT	PEAT

II. DEFINITION OF SOIL COMPONENT PROPORTIONS (ASTM D2487)

			Examples
Adjective Form	GRAVELLY SANDY	>30% to <50% coarse grained component in a fine-grained soil	GRAVELLY LEAN CLAY
	CLAYEY SILTY	>12% to <50% fine grained component in a coarse-grained soil	SILTY SAND
"With"	WITH GRAVEL WITH SAND	>15% to <30% coarse grained component in a fine-grained soil	FAT CLAY WITH GRAVEL
	WITH GRAVEL WITH SAND	>15% to <50% coarse grained component in a coarse-grained soil	POORLY GRADED GRAVEL WITH SAND
	WITH SILT WITH CLAY	>5% to <12% fine grained component in a coarse-grained soil	POORLY GRADED SAND WITH SILT

III. GLOSSARY OF MISCELLANEOUS TERMS

SYMBOLS ..... Unified Soil Classification Symbols are shown above as group symbols. A dual symbol "-" indicates the soil belongs to two groups. A borderline symbol "/" indicates the soil belongs to two possible groups.

FILL ..... Man-made deposit containing soil, rock and often foreign matter.

PROBABLE FILL ..... Soils that contain no visually detected foreign matter but which are suspect with regard to origin.

DISINTEGRATED ROCK (DR) ..... Residual materials with a standard penetration resistance (SPT) between 60 blows per foot and refusal. Refusal is defined as an SPT of 100 blows for 2" or less penetration.

PARTIALLY WEATHERED ROCK (PWR)..... Residual materials with a standard penetration resistance (SPT) between 100 blows per foot and refusal. Refusal is defined as an SPT of 100 blows for 2" or less penetration.

BOULDERS & COBBLES..... Boulders are considered rounded pieces of rock larger than 12 inches, while cobbles range from 3 to 12-inch size.

LENSES..... 0 to ½-inch seam within a material in a test pit.

LAYERS ..... ½ to 12-inch seam within a material in a test pit.

POCKET ..... Discontinuous body within a material in a test pit.

MOISTURE CONDITIONS..... Wet, moist or dry to indicate visual appearance of specimen.

COLOR ..... Overall color, with modifiers such as light to dark or variation in coloration.

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Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **B-01**
Contract Number: 23140043.000
Sheet: 1 of 4

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Frack
Schnabel Representative: B. Glass
Equipment: CME-85
Method: 4-1/4" I.D. Hollow Stem Auger / 3-1/4" Wing Bit
Hammer Type: Auto Hammer (140 lb)
Dates Started: 7/13/23 **Finished:** 7/13/23
Location: See Location Plan
Ground Surface Elevation: 58.0 (ft) **Total Depth:** 80.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/13	9:20 AM	18.0'	8.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.1	Topsoil; 1 inch		57.9					
	FILL, sampled as silty, clayey sand; moist, orangish brown, estimated 5 - 10% fine gravel					S-1, SS 5+3+6+2 REC=18", 75%		Fill Bulk sample collected from 0 to 6 ft
	Change: black							
	Change: brown	FILL		A		S-2, SS 3+2+3+4 REC=18", 75%	LL = 19 PI = 6 MC = 9.3% % Passing #200 = 25.0	
	Change: black					S-3, SS 3+2+3+4 REC=24", 100%	MC = 5.3%	
5.0	CLAYEY SAND; moist, orangish brown, estimated 5 - 10% gravel	SC	53.0		5			Cohansey Formation
8.0	POORLY GRADED SAND, fine to medium grained sand; moist, orangish brown	SP	50.0	B		S-4, SS 6+10+12+9 REC=20", 83%		Switched to mud rotary at 8 ft
					10			
						S-5, SS 9+11+16+16 REC=14", 58%		
					15			
18.0	SANDY SILT; wet, orangish brown ▽	ML	40.0			S-6, SS 4+2+2+1 REC=18", 75%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-01** Contract Number: 23140043.000 Sheet: 2 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SANDY SILT; wet, orangish brown *(continued)*	ML						
23.3	SANDY LEAN CLAY; moist, orangish brown and light gray	CL	34.7			S-7, SS 1+1+1+1 REC=24", 100%	LL = 33 PI = 14 MC = 29.7% % Passing #200 = 73.0	
24.0	SILTY SAND, fine grained sand; wet, orangish brown and light gray	SM	34.0		25			
28.0	SILTY SAND, fine to medium grained sand; wet, orangish brown and light gray	SM	30.0		30	S-8, SS 1+1+1+3 REC=24", 100%	MC = 19.8% % Passing #200 = 25.0	
33.0	POORLY GRADED SAND, fine grained sand; light gray and orangish brown		25.0	B	35	S-9, SS 10+11+16+18 REC=20", 83%		
	Change: fine to medium grained sand	SP			40	S-10, SS 10+9+8+7 REC=20", 83%		
					45	S-11, SS 11+14+15+14 REC=22", 92%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-01** Contract Number: 23140043.000 Sheet: 3 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine grained sand; light gray and orangish brown *(continued)*					S-12, SS 8+12+13+14 REC=19", 79%		
					50			
						S-13, SS 10+12+17+17 REC=14", 58%		
					55			
	Change: light gray, estimated <5% fine gravel					S-14, SS 14+17+17+23 REC=14", 58%		
					60			
		SP		B				
	Change: orangish brown, no gravel					S-15, SS 16+24+29+30 REC=16", 67%		
					65			
						S-16, SS 19+29+31+30 REC=18", 75%		
					70			
						S-17, SS 18+18+18+20		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-01** Contract Number: 23140043.000 Sheet: 4 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine grained sand; light gray and orangish brown *(continued)*	SP		B	75	REC=15", 63%		
					80	S-18, SS 14+12+17+14 REC=24", 100%		
80.0			-22.0					

Bottom of Boring at 80.0 ft.
Boring backfilled with bentonite grout and auger cuttings upon completion.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **B-01A**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Frack
Schnabel Representative: B. Glass
Equipment: CME-85
Method: 4-1/4" I.D. Hollow Stem Auger

Hammer Type: Auto Hammer (140 lb)
Dates Started: 7/14/23 **Finished:** 7/14/23
Location: See Location Plan

Ground Surface Elevation: 58.0 (ft) **Total Depth:** 23.7 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/14	2:50 PM	17.5'	22.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Auger probe to 22 ft							
5								
10								
15								
20								
22.0	SANDY SILT; wet, orangish brown	ML	36.0		SH	SH-1, SH REC=21", 100%	LL = 24 PI = 3 MC = 22.4% % Passing #200 = 68.1	
23.7			34.3					

Bottom of Boring at 23.7 ft.
Boring offset 3 ft south of B-01 to push shelby tube.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **B-02**
Contract Number: 23140043.000
Sheet: 1 of 3

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Frack
Schnabel Representative: B. Glass
Equipment: CME-85
Method: 4-1/4" I.D. Hollow Stem Auger / 3-1/4" Wing Bit
Hammer Type: Auto Hammer (140 lb)
Dates Started: 7/13/23 **Finished:** 7/13/23
Location: See Location Plan
Ground Surface Elevation: 58.0 (ft) **Total Depth:** 60.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/13	3:00 PM	18.0'	8.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Topsoil; 5 inches		57.6					
	FILL, sampled as clayey sand; moist, brown, estimated 5 - 10% fine gravel	FILL		A		S-1, SS 9+26+23+19 REC=21", 88%		Bulk sample collected from 0 to 6 ft Fill
						S-2, SS 9+8+6+7 REC=19", 79%	MC = 9.2%	
4.5			53.5			S-3, SS 7+11+7+5 REC=22", 92%	LL = 25 PI = 11 MC = 12.9% % Passing #200 = 37.8	
5.2	FILL, sampled as clayey sand; moist, brown and orangish brown	FILL	52.8		5			
	CLAYEY SAND; moist, orangish brown and light gray	SC						Cohansey Formation
						S-4, SS 4+5+6+6 REC=24", 100%	MC = 8.7%	Switched to mud rotary at 8 ft
					10			
13.0	SILTY SAND, fine to medium grained sand; moist, orangish brown and light gray	SM	45.0	B		S-5, SS 4+5+5+6 REC=16", 67%	LL = NP PI = NP MC = 9.4% % Passing #200 = 18.1	
					15			
	Change: wet ▽					S-6, SS 2+2+2+1 REC=24", 100%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-02** Contract Number: 23140043.000 Sheet: 2 of 3

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	SILTY SAND, fine to medium grained sand; moist, orangish brown and light gray *(continued)*	SM						
23.0	SANDY LEAN CLAY; moist, orangish brown and light gray	CL	35.0			S-7, SS 1+1+1+5 REC=24", 100%	LL = 32 PI = 12 MC = 27.6% % Passing #200 = 72.1 PP = 0.25 tsf	
24.5	CLAYEY SAND, fine grained sand; moist, orangish brown and light gray	SC	33.5		25			
28.0	POORLY GRADED SAND WITH SILT, fine to medium grained sand; wet, orangish brown and light gray	SP-SM	30.0		30	S-8, SS 1+2+2+2 REC=24", 100%		
33.0	POORLY GRADED SAND, fine to medium grained sand; wet, orangish brown and light gray	SP	25.0	B	35	S-9, SS 10+12+13+11 REC=15", 63%		
					40	S-10, SS 11+9+7+7 REC=19", 79%		
	Change: orangish brown and reddish brown, estimated <5% fine gravel				45	S-11, SS 12+15+18+15 REC=16", 67%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-02** Contract Number: 23140043.000 Sheet: 3 of 3

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine to medium grained sand; wet, orangish brown and light gray *(continued)* Change: orangish brown	SP		B	50	S-12, SS 9+10+15+21 REC=14", 58%		
					55	S-13, SS 15+14+16+15 REC=13", 54%		
60.0			-2.0		60	S-14, SS 13+17+19+20 REC=14", 58%		

Bottom of Boring at 60.0 ft.
Boring backfilled with bentonite grout and auger cuttings upon completion.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING	TEST BORING LOG	**Project:** F-16 Mission Training Center Atlantic City ANG Base, NJ	**Boring Number:** **B-04** **Contract Number:** 23140043.000 **Sheet:** 1 of 4

Contractor: Uni-Tech Drilling
Malaga, New Jersey

Contractor Foreman: M. Frack

Schnabel Representative: B. Glass

Equipment: CME-85

Method: 4-1/4" I.D. Hollow Stem Auger / 3-1/4" Wing Bit

Hammer Type: Auto Hammer (140 lb)

Dates Started: 7/12/23 **Finished:** 7/12/23

Location: See Location Plan

Ground Surface Elevation: 58.0 (ft) **Total Depth:** 80.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/12	10:35 AM	18.0'	18.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.1	Asphalt; 1 inch		57.9					
	FILL, sampled as clayey sand; moist, brown, estimated 5 - 10% gravel	FILL		A		S-1, SS 3+6+7+4 REC=15", 66%		Fill
2.0	CLAYEY SAND, medium to coarse grained sand; moist, orangish brown		56.0			S-2, SS 3+3+4+4 REC=5", 21%	LL = 31 PI = 15 MC = 10.9% % Passing #200 = 33.1	Cohansey Formation
					5	S-3, SS 3+6+9+13 REC=24", 100%	MC = 8.8%	
		SC						
	Change: fine to medium grained sand					S-4, SS 4+7+7+7 REC=24", 100%		
				B	10			
13.0	POORLY GRADED SAND WITH SILT, fine to medium grained sand; moist, orangish brown		45.0			S-5, SS 4+7+7+8 REC=24", 100%		
					15			
		SP-SM						
	Change: wet					S-6, SS 1+2+1+2 REC=24", 100%		Switch to mud rotary at 18 ft

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-04** Contract Number: 23140043.000 Sheet: 2 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND WITH SILT, fine to medium grained sand; moist, orangish brown *(continued)*	SP-SM						
23.0	LEAN CLAY WITH SAND; wet, orangish brown and light gray	CL	35.0		25	S-7, SS 1+1+1+1 REC=24", 100%	LL = 35 PI = 18 MC = 27.3% % Passing #200 = 74.3	
28.0	CLAYEY SAND, fine to medium grained sand; wet, orangish brown and light gray	SC	30.0		30	S-8, SS 1+1+2+3 REC=24", 100%	MC = 19.5% % Passing #200 = 18.9	
33.0	POORLY GRADED SAND, fine grained sand; wet, orangish brown and light gray		25.0	B	35	S-9, SS 7+7+7+9 REC=24", 100%		
	Change: fine to coarse grained sand	SP			40	S-10, SS 10+12+10+10 REC=20", 83%		
					45	S-11, SS 11+13+14+16 REC=18", 75%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-04** Contract Number: 23140043.000 Sheet: 3 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine grained sand; wet, orangish brown and light gray *(continued)*					S-12, SS 9+9+11+14 REC=15", 63%		
					50			
						S-13, SS 10+10+14+20 REC=15", 63%		
					55			
	Change: light brown					S-14, SS 12+16+19+19 REC=13", 54%		
					60			
		SP		B				
						S-15, SS 14+18+23+20 REC=13", 54%		
					65			
	Change: light brown and orangish brown					S-16, SS 17+19+24+29 REC=16", 67%		
					70			
						S-17, SS 33+42+50/5"		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-04** Contract Number: 23140043.000 Sheet: 4 of 4

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine grained sand; wet, orangish brown and light gray *(continued)*	SP		B		REC=12", 71%		
75								
						S-18, SS 20+15+15+18 REC=24", 100%		
80.0			-22.0		80			

Bottom of Boring at 80.0 ft.
Boring backfilled with bentonite grout and auger cuttings upon completion.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING	TEST BORING LOG	**Project:** F-16 Mission Training Center Atlantic City ANG Base, NJ	**Boring Number:** **B-05** **Contract Number:** 23140043.000 **Sheet:** 1 of 3

Contractor: Uni-Tech Drilling
Malaga, New Jersey

Contractor Foreman: M. Frack

Schnabel Representative: B. Glass

Equipment: CME-85

Method: 4-1/4" I.D. Hollow Stem Auger / 3-1/4" Wing Bit

Hammer Type: Auto Hammer (140 lb)

Dates Started: 7/14/23 **Finished:** 7/14/23

Location: See Location Plan

Ground Surface Elevation: 60.0 (ft) **Total Depth:** 60.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/14	---	20.0'	8.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.2	STONE; #57 Stone 2 inches		59.8					
	FILL, sampled as clayey sand with gravel; moist, brown and orangish brown	FILL		A		S-1, SS 7+8+7+3 REC=16", 67%		Fill Bulk sample collected from 0.17 to 5 ft
						S-2, SS 4+5+3+3 REC=24", 100%	MC = 5.0%	
3.0	CLAYEY SAND, fine to coarse grained sand; moist, estimated 5 - 10% fine gravel Change: no gravel	SC-SM	57.0		5	S-3, SS 4+3+5+8 REC=16", 67%	LL = 32 PI = 16 MC = 8.4% % Passing #200 = 15.9	Cohansey Formation
8.0	POORLY GRADED SAND, fine to medium grained sand; moist, orangish brown	SP	52.0	B	10	S-4, SS 6+8+10+12 REC=19", 79%		
	Change: light gray				15	S-5, SS 8+11+15+17 REC=15", 63%		
	Change: orangish brown ▽					S-6, SS 7+7+7+8 REC=20", 83%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-05** Contract Number: 23140043.000 Sheet: 2 of 3

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
20.0	POORLY GRADED SAND WITH SILT, fine to medium grained sand; wet, orangish brown and light gray	SP-SM	40.0			S-7, SS 7+2+4+3 REC=15", 63%		
23.0	CLAYEY SAND; wet, orangish brown and light gray	SC	37.0		25	S-8, SS 2+1+3+2 REC=24", 100%		
	Change: orangish brown				30	S-9, SS 3+2+2+1 REC=19", 79%	MC = 20.1% % Passing #200 = 22.7	
33.0	POORLY GRADED SAND, fine to medium grained sand; wet, orangish brown	SP	27.0	B	35	S-10, SS 10+13+16+15 REC=17", 71%		
38.5	SILTY SAND, fine to medium grained sand; wet, orangish brown	SM	21.5		40	S-11, SS 9+5+6+11 REC=19", 79%	LL = 18 MC = 21.3% % Passing #200 = 22.0	
40.0	POORLY GRADED SAND, fine to medium grained sand; wet, orangish brown Change: 1 inch thick layer of lean clay	SP	20.0		45	S-12, SS 7+6+11+11 REC=19", 79%		

(continued)

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING TEST BORING LOG	Project: F-16 Mission Training Center Atlantic City ANG Base, NJ	Boring Number: **B-05** Contract Number: 23140043.000 Sheet: 3 of 3

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	POORLY GRADED SAND, fine to medium grained sand; wet, orangish brown *(continued)*	SP		B		S-13, SS 9+9+16+18 REC=18", 75%		
50								
						S-14, SS 10+13+13+16 REC=14", 58%		
55								
	Change: estimated <5% fine gravel					S-15, SS 14+16+24+23 REC=15", 63%		
60.0			0.0		60			

Bottom of Boring at 60.0 ft.
Boring backfilled with bentonite grout and auger cuttings upon completion.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **PB-01**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Frack
Schnabel Representative: B. Glass
Equipment: CME-85
Method: 4-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 7/18/23 **Finished:** 7/18/23
Location: See Location Plan
Ground Surface Elevation: 60.0 (ft) **Total Depth:** 16.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Completion ▽	7/18	11:45 AM	Dry	14.0'	---

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Asphalt; 3 inches		59.8					
	FILL, sampled as silty, clayey sand with gravel; moist, brown	FILL		A		S-1, SS 6+8+6+3 REC=20", 83% S-2, SS 5+4+3+3 REC=18", 75%	MC = 9.5% LL = 19 PI = 5 MC = 7.7% % Passing #200 = 27.0	Fill Bulk sample collected from 0.25 to 6 ft 4th interval of blow count was only 3 inches
3.5	SILTY, CLAYEY SAND WITH GRAVEL, fine to medium grained sand; moist, orangish brown	SC-SM	56.5			S-3, SS 4+8+8+10 REC=24", 100%		Cohansey Formation
5.0	POORLY GRADED SAND, fine to coarse grained sand; moist, orangish brown	SP	55.0		5	S-4, SS 11+11+10+8 REC=24", 100%		
7.5	SILTY, CLAYEY SAND, fine to medium grained sand; moist, orangish brown	SC-SM	52.5			SH-1, SH REC=18", 100%	LL = 20 PI = 6 MC = 8.9% % Passing #200 = 28.4	
10.0	POORLY GRADED SAND WITH CLAY, fine grained sand; moist, orangish brown and light gray	SP-SC	50.0	B	10	S-5, SS 3+5+7+10 REC=24", 100% S-6, SS 8+7+8+7 REC=24", 100%		
14.0	POORLY GRADED SAND, fine to medium grained sand; moist, orangish brown and light gray	SP	46.0		15	S-7, SS 2+3+5+5 REC=20", 83%		
16.0			44.0					

Bottom of Boring at 16.0 ft.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING	TEST BORING LOG	**Project:** F-16 Mission Training Center Atlantic City ANG Base, NJ	**Boring Number:** **SWM-01** **Contract Number:** 23140043.000 **Sheet:** 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey

Contractor Foreman: M. Frack

Schnabel Representative: B. Glass

Equipment: CME-85

Method: 4-1/4" I.D. Hollow Stem Auger

Hammer Type: Auto Hammer (140 lb)

Dates Started: 7/18/23 **Finished:** 7/18/23

Location: See Location Plan

Ground Surface Elevation: 57.0 (ft) **Total Depth:** 16.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered ▽	7/18	9:27 AM	15.5'	14.0'	---
Casing Pulled ▼	7/18	9:45 AM	Dry	---	6.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Topsoil; 3 inches		56.8					
	FILL, sampled as clayey sand with gravel; moist, brown, contains asphalt					S-1, SS 3+6+11+17 REC=19", 79%		Fill Bulk sample collected from 0.25 to 6 ft
	Change: no asphalt, contains plastic	FILL		A		S-2, SS 11+22+20+12 REC=18", 75%		
						S-3, SS 4+6+8+6 REC=24", 100%		
5.0	CLAYEY SAND, fine to coarse grained sand; moist, orangish brown		52.0		5			Cohansey Formation
	Change: fine to medium grained sand	SC				S-4, SS 7+9+10+9 REC=24", 100%	MC = 12.7% % Passing #200 = 29.3	USDA: Sandy Loam
8.5	POORLY GRADED SAND, fine to medium grained sand; moist, orangish brown		48.5			S-5, SS 3+5+5+6 REC=24", 100%		
					10	S-6, SS 3+4+5+5 REC=19", 79%		
		SP		B		S-7, SS 4+5+6+7 REC=22", 92%		
					15	S-8, SS 2+1+2+2 REC=18", 75%		
	Change: wet ▽							
16.0			41.0					

Bottom of Boring at 16.0 ft.
Boring offset 4 ft west for permeability test.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **SWM-02**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Frack
Schnabel Representative: B. Glass
Equipment: CME-85
Method: 4-1/4" I.D. Hollow Stem Auger

Hammer Type: Auto Hammer (140 lb)
Dates Started: 7/17/23 **Finished:** 7/17/23
Location: See Location Plan

Ground Surface Elevation: 57.0 (ft) **Total Depth:** 16.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/17	---	N/a	---	---
Completion	7/17	9:50 AM	Dry	14.0'	---
Casing Pulled	7/17	10:00 AM	Dry	---	4.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.5	Topsoil; 6 inches		56.5					
	FILL, sampled as clayey sand with gravel; moist, black Change: brown	FILL		A		S-1, SS 2+7+8+5 REC=24", 100% S-2, SS 3+3+4+3 REC=20", 83%		Fill Bulk sample collected from 0.5 to 6 ft
3.5	CLAYEY SAND, fine to coarse grained sand; moist, orangish brown Change: fine to medium grained sand	SC	53.5		5	S-3, SS 4+5+5+7 REC=16", 67% S-4, SS 6+9+9+9 REC=24", 100%	MC = 12.8% % Passing #200 = 31.3	Cohansey Formation USDA: Sandy Loam
8.0	POORLY GRADED SAND WITH SILT, fine to medium grained sand; moist, orangish brown	SP-SM	49.0	B	10 15	S-5, SS 7+9+8+9 REC=24", 100% S-6, SS 7+7+7+8 REC=24", 100% S-7, SS 7+9+10+10 REC=24", 100% S-8, SS 2+3+4+4 REC=24", 100%		
16.0			41.0					

Bottom of Boring at 16.0 ft.
Boring backfilled with auger cuttings.
Boring offset 4 ft west for permeability test at depth of 7 ft.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING	TEST PIT LOG	**Project:** F-16 Mission Training Center Atlantic City ANG Base, NJ	**Test Pit Number:** SWM-02 (TP) **Contract Number:** 23140043.000 **Sheet:** 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey

Contractor Foreman: M. Frack

Schnabel Representative: B. Glass

Equipment: John Deere 75C

Method: Test Pit

Dates Started: 7/17/23 **Finished:** 7/17/23

Location: See Location Plan

Ground Surface Elevation: 57.0 (ft) **Total Depth:** 2.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Topsoil; 8 inches							
0.7	FILL, sampled as clayey sand with gravel; moist, brown	FILL	56.3					Hit fiber optic line at 1.5 ft. Stop test pit at 1.5 ft. Personnel at the base believe the line is abandoned. Backfilled on 7/18/23. Drilled boring instead of test pit.
2.0			55.0					

Bottom of Test Pit at 2.0 ft.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING	TEST BORING LOG	**Project:** F-16 Mission Training Center Atlantic City ANG Base, NJ	**Boring Number:** **SWM-03** **Contract Number:** 23140043.000 **Sheet:** 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey

Contractor Foreman: M. Frack

Schnabel Representative: B. Glass

Equipment: CME-85

Method: 4-1/4" I.D. Hollow Stem Auger

Hammer Type: Auto Hammer (140 lb)

Dates Started: 7/17/23 **Finished:** 7/17/23

Location: See Location Plan

Ground Surface Elevation: 59.0 (ft) **Total Depth:** 16.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	7/17	---	N/a	---	---
Completion	7/17	11:50 AM	15.5'	14.0'	---
Casing Pulled	7/17	11:55 AM	Dry	---	5.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Topsoil; 3 inches		58.8					
	FILL, sampled as clayey sand with gravel; moist, brown	FILL		A		S-1, SS 2+4+3+2 REC=20", 83%	LL = 22 PI = 9 MC = 10.9% % Passing #200 = 24.7	Fill Bulk sample collected from 0.25 to 6 ft
						S-2, SS 2+3+4+4 REC=24", 100%		
3.0	CLAYEY SAND WITH GRAVEL; moist, orangish brown		56.0					Cohansey Formation
	Change: no gravel	SC				S-3, SS 2+4+5+12 REC=24", 100%		
					5			USDA: Gravelly Loam Sand
6.0	POORLY GRADED SAND WITH SILT AND GRAVEL, fine to coarse grained sand; moist, orangish brown	SP-SM	53.0			S-4, SS 17+20+19+17 REC=20", 83%	MC = 4.4% % Passing #200 = 9.0	
8.0	POORLY GRADED SAND, fine to coarse grained sand; moist, orangish brown		51.0			S-5, SS 3+7+7+6 REC=24", 100%		
				B	10	S-6, SS 3+6+6+6 REC=20", 83%		
		SP				S-7, SS 4+5+6+6 REC=22", 92%		
	Change: fine to medium grained sand				15	S-8, SS 3+5+5+4 REC=24", 100%		
	Change: wet							
16.0			43.0					

Bottom of Boring at 16.0 ft.
Boring offset 4 ft south for permeability test at depth of 7 ft

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **SWM-04**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Bulario
Schnabel Representative: M. Simonds
Equipment: CME-75 Truck Mount
Method: 4-1/4" I.D. Hollow Stem Auger

Hammer Type: Auto Hammer (140 lb)
Dates Started: 5/1/25 **Finished:** 5/1/25
Location: See Location Plan

Ground Surface Elevation: 57.5 (ft) **Total Depth:** 18.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/1	11:07 AM	16.0'	---	---
After Drilling	5/2	---	Dry	---	14.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
	Topsoil; 9 inches					S-1, SPT 2+7+17+14 REC=19", 79%	PID = 0 ppm	Fill
0.8	FILL, sampled as poorly graded sand; moist, dark brown to dark gray, contains cinders	FILL	56.8	A		S-2, SPT 6+9+9+6 REC=18", 75%	PID = 0 ppm	
3.5	FILL, sampled as clayey sand; moist, brown and olive	FILL	54.0			S-3, SPT 3+3+2+2 REC=19", 79%	PID = 0 ppm	
5.0	CLAYEY SAND, fine to medium grained sand; moist, light brown and yellowish brown, contains gravel	SC	52.5	B	5	S-4, SPT 5+7+11+12 REC=18", 75%	PID = 0 ppm	Cohansey Formation
						S-5, SPT 10+7+7+5 REC=15", 63%	PID = 0 ppm	
					10	S-6, SPT 4+5+7+4 REC=18", 75%	PID = 0 ppm	
						S-7, SPT 4+6+7+8 REC=24", 100%	MC = 12.1% % Passing #200 = 15.8 PID = 0 ppm	
					15	S-8, SPT 8+9+8+10 REC=24", 100%	PID = 0 ppm	
	Change: fine grained sand; moist to wet, light yellowish brown					S-9, SPT 10+11+10+12 REC=17", 71%	PID = 0 ppm	
18.0			39.5					

Bottom of Boring at 18.0 ft.
Permeameter test performed at 9.5 ft depth in hole offset 5 ft South (168 degrees).
Backfilled with cuttings supplemented with bentonite pellets.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **SWM-05**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Bulario
Schnabel Representative: M. Simonds
Equipment: CME-75 Truck Mount
Method: 4-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 5/1/25 **Finished:** 5/2/25
Location: See Location Plan
Ground Surface Elevation: 58.0 (ft) **Total Depth:** 18.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/1	12:31 PM	13.5'	---	---
Completion	5/1	12:59 PM	18.0'	---	---
Casing Pulled	5/2	7:50 AM	16.5'	---	---
After Drilling	5/2	10:55 AM	16.5'	---	17.0'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.4	Rootmat and topsoil; 5 inches		57.6					
	FILL, sampled as sandy lean clay; moist, brown and olive brown	FILL		A		S-1, SPT 3+7+7+7 REC=23", 96%	PID = 0 ppm	Fill
						S-2, SPT 4+4+4+3 REC=18", 75%	PID = 0 ppm	
3.0	FILL, sampled as clayey sand, fine to medium grained sand; moist, brown	FILL	55.0			S-3, SPT 2+1+3+6 REC=13", 54%	PID = 0 ppm	
5.0	CLAYEY SAND, fine to medium grained sand; light brown and yellowish brown, contains fine gravel, and coarse grained sand		53.0		5			Cohansey Formation
						S-4, SPT 1+5+6+7 REC=14", 58%	PID = 0 ppm	
						S-5, SPT 6+6+5+6 REC=20", 83%	MC = 8.9% % Passing #200 = 16.0 PID = 0 ppm	
					10	S-6, SPT 8+7+8+7 REC=22", 92%	PID = 0 ppm	
		SC		B				
						S-7, SPT 4+6+6+6 REC=24", 100%	PID = 0 ppm	
	Change: moist to wet							
					15	S-8, SPT 6+7+6+9 REC=18", 75%	PID = 0 ppm	
						S-9, SPT 2+8+8+7 REC=24", 100%	PID = 0 ppm	
18.0			40.0					

Bottom of Boring at 18.0 ft.
Permeameter test performed at 9.5 ft depth in hole offset 5 ft South (169 degrees).
Blank augered to 20 ft to obtain long term groundwater/cave reading.
Backfilled with cuttings supplemented with bentonite pellets.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

Schnabel ENGINEERING — **TEST BORING LOG**

Project: F-16 Mission Training Center
Atlantic City ANG Base, NJ

Boring Number: **SWM-06**
Contract Number: 23140043.000
Sheet: 1 of 1

Contractor: Uni-Tech Drilling
Malaga, New Jersey
Contractor Foreman: M. Bulario
Schnabel Representative: M. Simonds
Equipment: CME-75 Truck Mount
Method: 4-1/4" I.D. Hollow Stem Auger
Hammer Type: Auto Hammer (140 lb)
Dates Started: 5/1/25 **Finished:** 5/2/25
Location: See Location Plan
Ground Surface Elevation: 58.0 (ft) **Total Depth:** 18.0 ft

Groundwater Observations

	Date	Time	Depth	Casing	Caved
Encountered	5/1	9:57 AM	15.0'	---	---
Completion	5/1	2:06 PM	16.7'	---	---
Casing Pulled	5/2	8:13 AM	16.0'	---	---
After Drilling	5/2	11:12 AM	16.0'	---	16.2'

DEPTH (ft)	MATERIAL DESCRIPTION	SYMBOL	ELEV (ft)	STRATUM	SAMPLING DEPTH	SAMPLING DATA	TESTS	REMARKS
0.3	Rootmat and topsoil; 4 inches		57.7			S-1, SPT 4+9+12+5 REC=14", 58%	PID = 0 ppm	Fill
	FILL, sampled as poorly graded sand, fine to medium grained sand; moist, brown	FILL						
2.0	FILL, sampled as sandy lean clay; moist, brown	FILL	56.0	A		S-2, SPT 4+3+7+4 REC=15", 63%	PID = 0 ppm	
3.0	FILL, sampled as poorly graded sand, fine to medium grained sand; moist, dark gray, contains fine gravel	FILL	55.0					
4.0	POORLY GRADED SAND WITH SILT, fine to medium grained sand; moist, light brown and yellowish brown, contains fine gravel		54.0			S-3, SPT 2+6+3+4 REC=19", 79%	PID = 0 ppm	Cohansey Formation
					5	S-4, SPT 8+7+15+15 REC=18", 75%	PID = 0 ppm	
						S-5, SPT 3+6+8+9 REC=20", 83%	MC = 4.2% % Passing #200 = 5.4 PID = 0 ppm	
					10	S-6, SPT 6+8+8+5 REC=18", 75%	PID = 0 ppm	
		SP-SM		B		S-7, SPT 2+2+3+3 REC=24", 100%	PID = 0 ppm	
						S-8, SPT 4+5+7+9 REC=22", 92%	PID = 0 ppm	
	Change: wet				15			
						S-9, SPT 3+6+6+9 REC=16", 67%	PID = 0 ppm	
18.0			40.0					

Bottom of Boring at 18.0 ft.
Permeameter test performed at 9.5 ft depth in hole offset 5 ft East (74 degrees).
Blank augered to 20 ft to obtain long term groundwater/cave reading.
Backfilled with cuttings supplemented with bentonite pellets.

TEST BORING LOG; P:F-16 TRAINING ATLANTIC CITY GINT.GPJ; D: L:SCHNABEL BALTIMORE GINT LIBRARY.GLB; Print:5/13/25

APPENDIX B

FIELD RESISTIVITY TEST RESULTS

Field Resistivity Field Log, Line 1A and 1B
Field Resistivity Field Log, Line 2A and 2B
Field Resistivity Summary Chart

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Soil Resistivity Field Log

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Project Name:	F-16 Mission Training Center
Project Number:	23140043
Site Name:	177 FW Air National Guard
Date:	7/11/2023
Weather (Present and Recent):	70° F and Sunny
Array Type:	Wenner
Meter Model and Serial Number:	AEMC Model 6471, 130587LJDV
Representative:	Grant Cantrell

Notes:

Line 1A Oreintation: N-S

Electrode "a" Spacing (ft)	R Resistance (ohms)	V Potential Difference (mili-Volts)	I Current Injected (mili-Amps)	Apparent Resistivity (Ohm-m)	Apparent Resistivity (Ohm-cm)
1.0	176	0.141	8.05	34.0	3,400
5.0	37.6	145	3.88	360	36,000
10	21.8	145	6.65	418	41,800
15	11.6	24.0	2.07	334	33,400
20	8.51	72.4	8.51	326	32,600

Line 1B Orientation: E-W

Electrode "a" Spacing (ft)	R Resistance (ohms)	V Potential Difference (mili-Volts)	I Current Injected (mili-Amps)	Apparent Resistivity (Ohm-m)	Apparent Resistivity (Ohm-cm)
1.0	62.5	660	10.6	120	12,000
5.0	89.4	663	7.42	856	85,600
10	32.2	244	7.58	616	61,600
15	17.0	66.9	3.95	487	48,700
20	11.3	75.0	6.66	432	43,200

Soil Resistivity Field Log

Project Name:	F-16 Mission Training Center
Project Number:	23140043
Site Name:	177 FW Air National Guard
Date:	7/11/2023
Weather (Present and Recent):	70° F and Sunny
Array Type:	Wenner
Meter Model and Serial Number:	AEMC Model 6471, 130587LJDV
Representative:	Grant Cantrell

Notes:

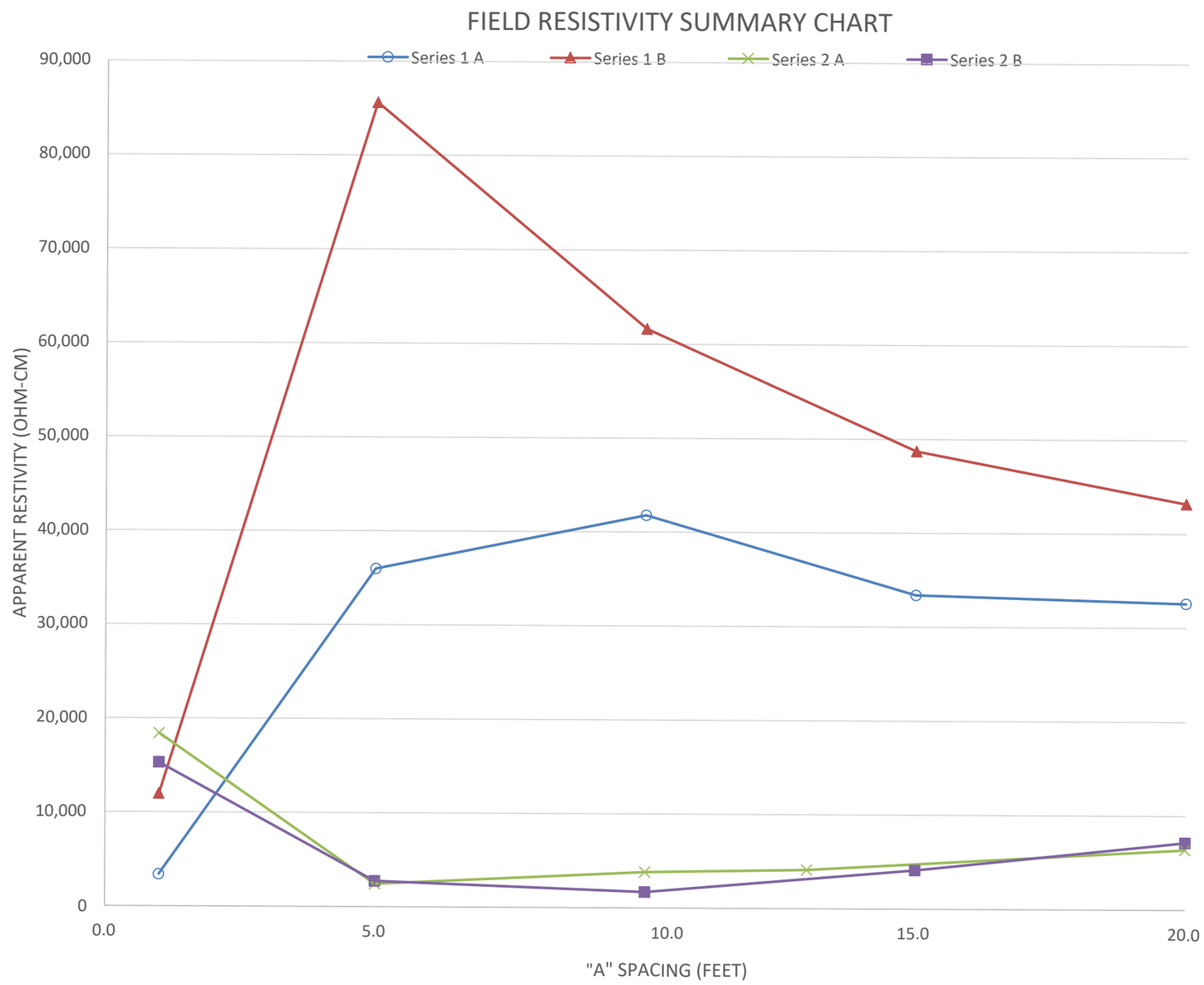
Regarding the 15 ft "a" spacing: While on-site conducting resistivity survey for "a" spacing 15' on Line 2A, unknown obstruction encountered and was unable to obtain data at the specified distance. The SE Rep walked the line and ensured that all connections were in contact, re-ran the test multiple times, poured salt water at electrode locations, and then tried placing electrodes off set from the line, the end results was an error message on the instrument.The representative conducted the test at 13',and there were no errors.

Line 2A Oreintation: NW-SE

Electrode "a" Spacing (ft)	R Resistance (ohms)	V Potential Difference (mili-Volts)	I Current Injected (mili-Amps)	Apparent Resistivity (Ohm-m)	Apparent Resistivity (Ohm-cm)
1.0	96.3	532	5.55	184	18,400
5.0	2.55	15	5.92	24.4	2,440
10	2.0	5.3	2.65	38.2	3,820
13 (see note)	1.65	35.6	21.5	41.2	4,120
20	1.67	5.9	3.54	64.1	6,410

Line 2B Orientation: NE-SW

Electrode "a" Spacing (ft)	R Resistance (ohms)	V Potential Difference (mili-Volts)	I Current Injected (mili-Amps)	Apparent Resistivity (Ohm-m)	Apparent Resistivity (Ohm-cm)
1.0	79.9	458	5.7	153	15,300
5.0	2.88	39.2	13.7	27.5	2,750
10	0.89	4.85	5.47	17.0	1,700
15	1.4	8.05	5.62	41.2	4,120
20	1.87	7.9	4.26	71.6	7,160



Schnabel ENGINEERING	F-16 MISSION TRAINING CENTER ATLANTIC CITY ANG BASE ATLANTIC CITY NEW JERSEY SE REFERENCE 23140043.000	FIELD RESISTIVITY RESULTS

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APPENDIX C

SOIL GEOTECHNICAL LABORATORY TEST DATA

Summary of Laboratory Testing
Atterberg Limit Results
Gradation Curves
USDA Classification
Moisture-Density Relations
CBR Test Results
Laboratory Corrosivity Test Summary

Shelby Tube Test Results- GeoTesting Express
Moisture Content
Density
USCS Classification
Specific Gravity
Particle Size Analysis (2 sheets)
Atterberg Limits (2 sheets)
Direct Shear (2 sheets)
Consolidation (39 Sheets)

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F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Schnabel Project Number: 23140043.000

Location: Atlantic City, NJ

Sample Date: 07/17/23

Jay Kay Testing
(814) 404-9283
www.jaykaytesting.com

Summary of Laboratory Testing

Sample Identification		Depth				Atterberg Limits				Compaction					
Boring ID	Sample ID	Top, ft	Bottom, ft	NMC, % (ASTM D-2216)	Organic Matter, % (ASTM D-2974)	Liquid Limit, % (ASTM D-4318)	Plastic Limit, % (ASTM D-4318)	Plasticity Index, % (ASTM D-4318)	Specific Gravity (ASTM D-854)	Maximum Dry Density, lb/ft³	Optimum Moisture Content, %	AASHTO Classification (M-145)	% < 0.002 mm	% Fines	USCS Classification (ASTM D-2487)
B-01	S-2	2	4	9.3	-	19	13	6	-	-	-	A-2-4	-	25.0	SC-SM
B-01	S-3	4	6	5.3	-	-	-	-	-	-	-	-	-	-	-
B-01	S-4	8	10	-	-	-	-	-	-	-	-	-	-	-	-
B-01	S-7A	23	23.5	29.7	-	33	19	14	-	-	-	A-6	-	73.0	CL
B-01	S-8	28	30	19.8	-	-	-	-	-	-	-	-	-	25.0	-
B-02	S-2	2	4	9.2	-	-	-	-	-	-	-	-	-	-	-
B-02	S-3	4	6	12.9	-	25	14	11	-	-	-	A-6	-	37.8	SC
B-02	S-4	8	10	8.7	-	-	-	-	-	-	-	-	-	-	-
B-02	S-5	13	15	9.4	-	NP	NP	NP	-	-	-	A-2-4	-	18.1	SM
B-02	S-7A	23	24.5	27.6	-	32	20	12	-	-	-	A-6	-	72.1	CL
B-04	S-2	2	4	10.9	-	31	16	15	-	-	-	A-2-6	-	33.1	SC
B-04	S-3	4	6	8.8	-	-	-	-	-	-	-	-	-	-	-
B-04	S-4	8	10	-	-	-	-	-	-	-	-	-	-	-	-
B-04	S-7	23	25	27.3	-	35	17	18	-	-	-	A-6	-	74.3	CL
B-04	S-8	28	30	19.5	-	-	-	-	-	-	-	-	-	18.9	-
B-05	S-2	2	4	5.0	-	-	-	-	-	-	-	-	-	-	-
B-05	S-3	4	6	8.4	-	32	16	16	-	-	-	A-2-6	-	15.9	SC
B-05	S-9	28	30	20.1	-	-	-	-	-	-	-	-	-	22.7	-
B-05	S-11	38	40	21.3	-	18	NP	NP	-	-	-	A-2-4	-	22.0	SM
PB-01	Bulk	0.3	5	7.7	-	19	14	5	-	139.7	5.4	A-2-4	-	27.0	SC-SM
PB-01	S-1	0.25	2	9.5	-	-	-	-	-	-	-	-	-	-	-
PB-01	S-2	2	4	-	-	-	-	-	-	-	-	-	-	-	-
SWM-1	S-4	6	8	12.7	-	-	-	-	-	-	-	-	-	29.3	-
SWM-2	S-4	6	8	12.8	-	-	-	-	-	-	-	-	-	31.3	-
SWM-3	Bulk	0	5	10.9	-	22	13	9	-	137.3	5.6	A-2-4	-	24.7	SC
SWM-3	S-4	6	8	4.4	-	-	-	-	-	-	-	-	-	9.0	-
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JAY KAY TESTING

SUMMARY OF LABORATORY TESTING

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Sample Identification		Depth				Atterberg Limits				Compaction					
Boring ID	Sample ID	Top, ft	Bottom, ft	NMC, % (ASTM D-2216)	Organic Matter, % (ASTM D-2974)	Liquid Limit, % (ASTM D-4318)	Plastic Limit, % (ASTM D-4318)	Plasticity Index, % (ASTM D-4318)	Specific Gravity (ASTM D-854)	Maximum Dry Density, lb/ft³	Optimum Moisture Content, %	AASHTO Classification (M-145)	% < 0.002 mm	% Fines	USCS Classification (ASTM D-2487)
SWM-4	S-7	12	14	12.1	-	-	-	-	-	-	-	-	-	15.8	-
SWM-5	S-5	8	10	8.9	-	-	-	-	-	-	-	-	-	16.0	-
SWM-6	S-5	8	10	4.2	-	-	-	-	-	-	-	-	-	5.4	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

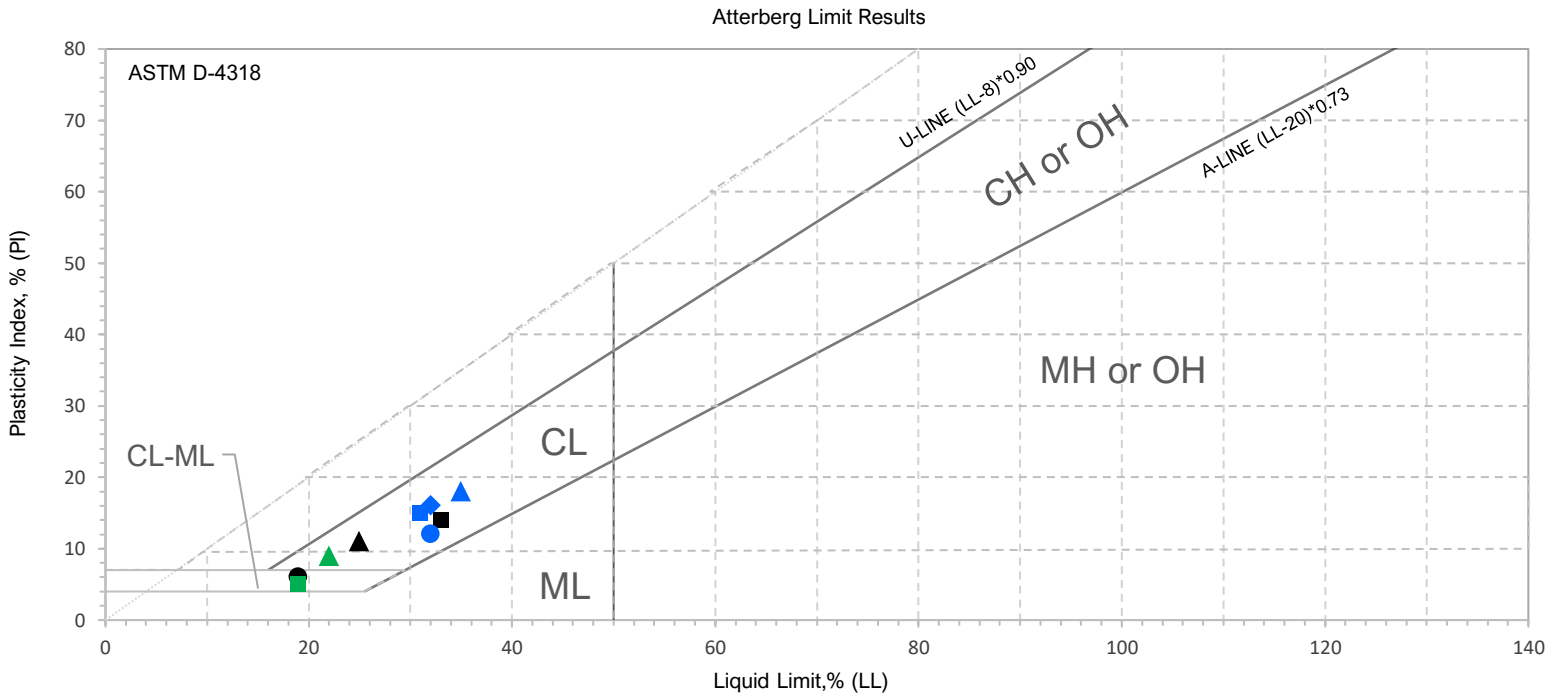
Project Number: 23140043.000

Location: Atlantic City, NJ

Sample Date: 07/17/23

Jay Kay Testing
(814) 404-9283
www.jaykaytesting.com

Summary of Atterberg Limit Testing



	Boring ID	Sample ID	Top	Btm	LL	PL	PI		Boring ID	Sample ID	Top	Btm	LL	PL	PI
●	B-01	S-2	2	4	19	13	6								
■	B-01	S-7A	23	23.5	33	19	14								
▲	B-02	S-3	4	6	25	14	11								
	B-02	S-5	13	15	NP	NP	NP								
●	B-02	S-7A	23	24.5	32	20	12								
■	B-04	S-2	2	4	31	16	15								
▲	B-04	S-7	23	25	35	17	18								
◆	B-05	S-3	4	6	32	16	16								
	B-05	S-11	38	40	18	NP	NP								
■	PB-01	Bulk	0.3	5	19	14	5								
▲	SWM-3	Bulk	0	5	22	13	9								

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

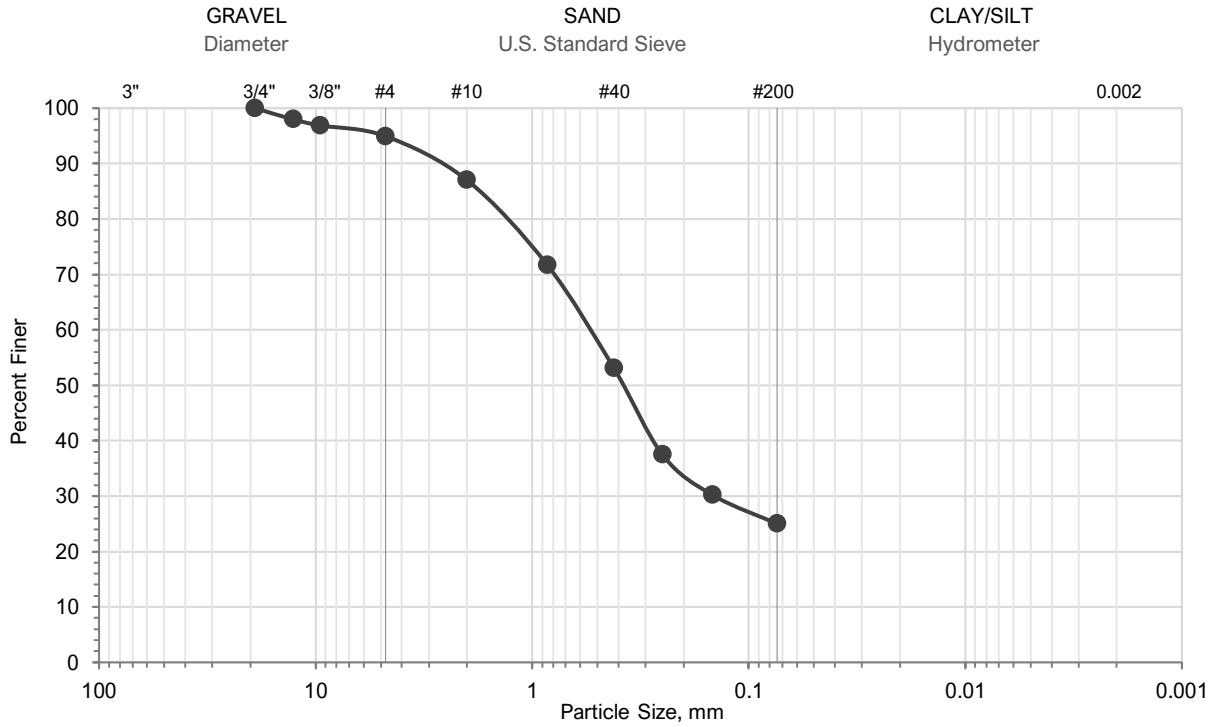
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-01	S-2	2'	4'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

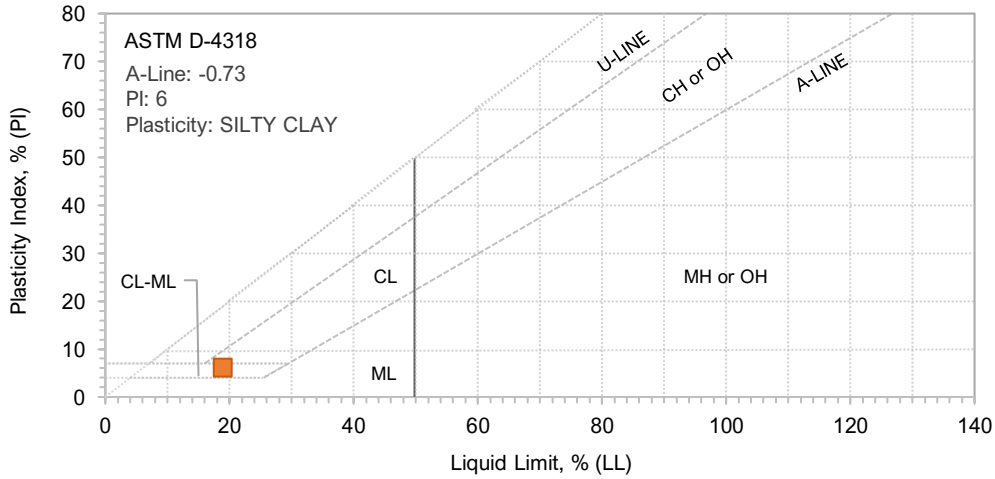


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	100.0
1/2"	12.7	98.0
3/8"	9.51	96.9
#4	4.75	94.9
#10	2.00	87.0
#20	0.85	71.7
#40	0.42	53.1
#60	0.25	37.4
#100	0.147	30.2
#200	0.074	25.0

% Gravel			
Coarse	Fine		Total
0.0	5.1	=	5.1

% Sand				
Coarse	Medium	Fine		Total
7.9	33.9	28.1	=	69.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	19
Plastic Limit, %	13
Plasticity Index, %	6

USCS (D-2487)	AASHTO (M-145)
SC-SM	A-2-4

Soil Description (D-2487)

Brown silty clayey SAND

NMC	9.3%
OM	-
+ 3/8"	3.1%

Sample Type*	Jar
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

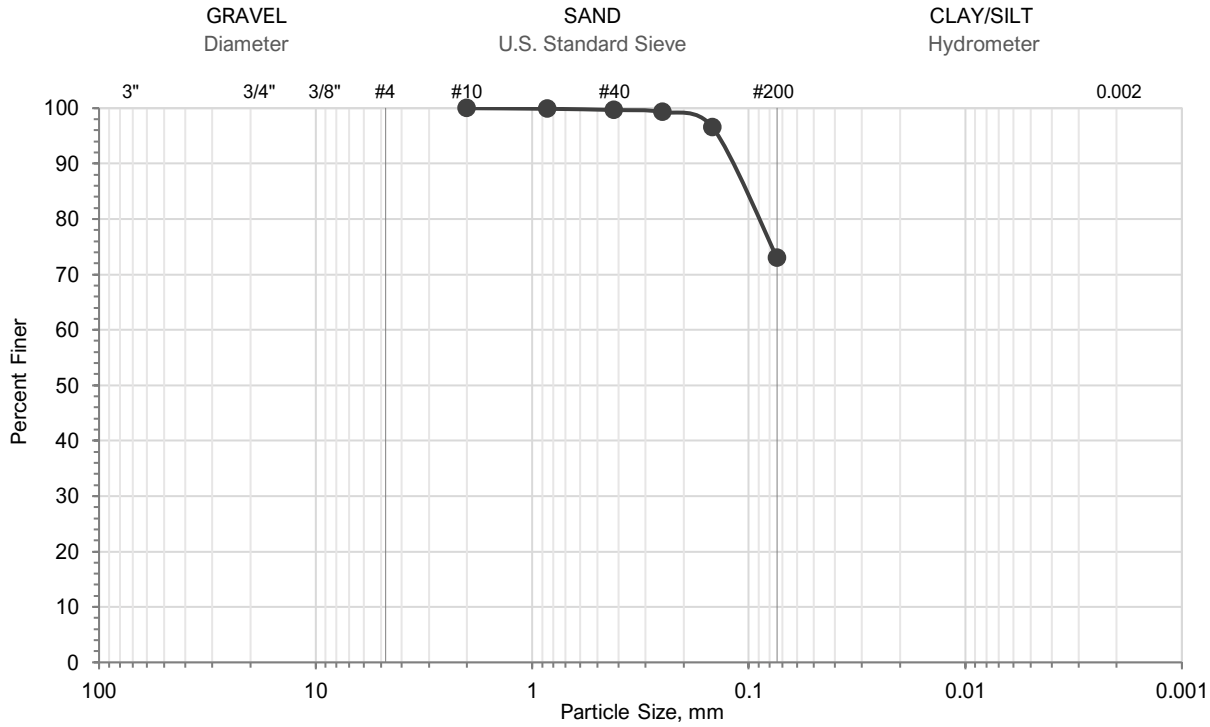
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-01	S-7A	23'	23.5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

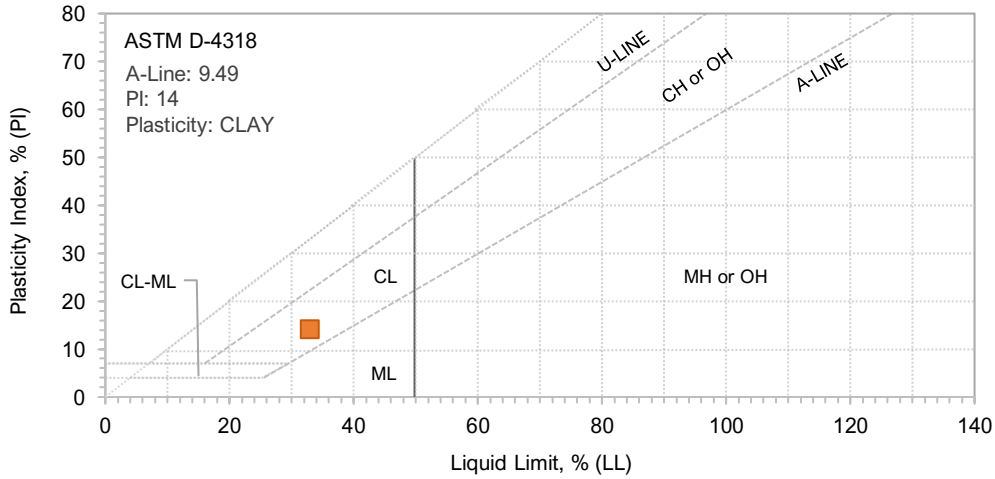
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	-
#10	2.00	100.0
#20	0.85	99.9
#40	0.42	99.7
#60	0.25	99.3
#100	0.147	96.5
#200	0.074	73.0

% Gravel				% Sand					
Coarse	Fine		Total	Coarse	Medium	Fine		Total	
0.0	0.0	=	0.0	0.0	0.3	26.7	=	27.0	

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	33
Plastic Limit, %	19
Plasticity Index, %	14

USCS (D-2487)	AASHTO (M-145)
CL	A-6

Soil Description (D-2487)

Light orange-brown lean CLAY with sand

NMC	29.7%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
+ 3/8"	0.0%	Data 3	-	Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

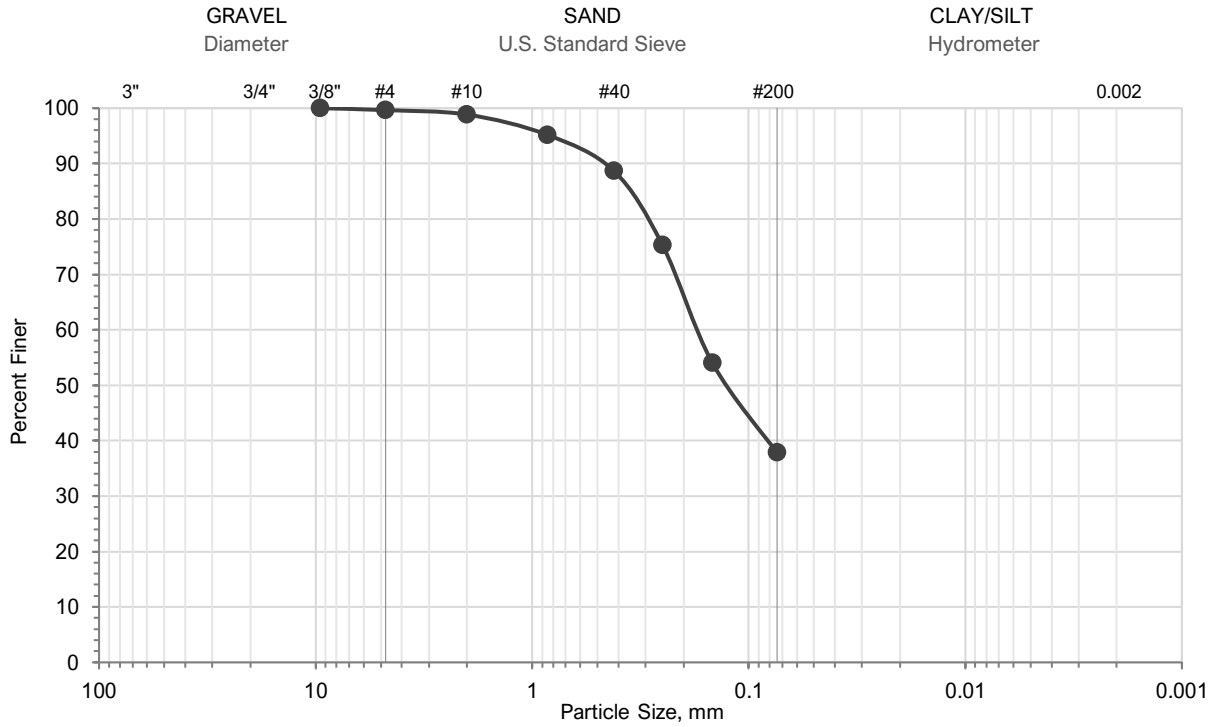
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-02	S-3	4'	6'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

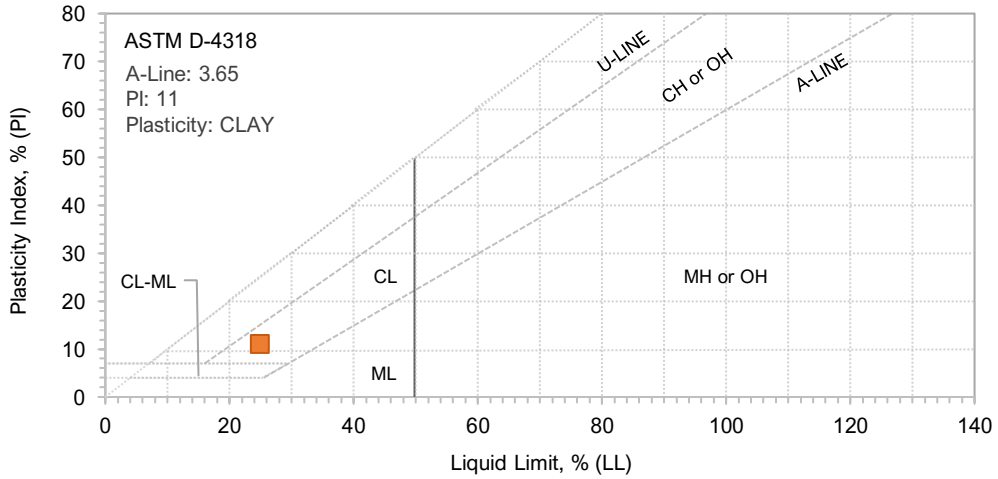


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.7
#10	2.00	98.8
#20	0.85	95.2
#40	0.42	88.7
#60	0.25	75.3
#100	0.147	54.0
#200	0.074	37.8

% Gravel			
Coarse	Fine		Total
0.0	0.3	=	0.3

% Sand				
Coarse	Medium	Fine		Total
0.9	10.1	50.9	=	61.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	25
Plastic Limit, %	14
Plasticity Index, %	11

USCS (D-2487)	AASHTO (M-145)
SC	A-6

Soil Description (D-2487)

Light brown clayey SAND

NMC	12.9%
OM	-
+ 3/8"	0.0%

Sample Type*	Jar
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

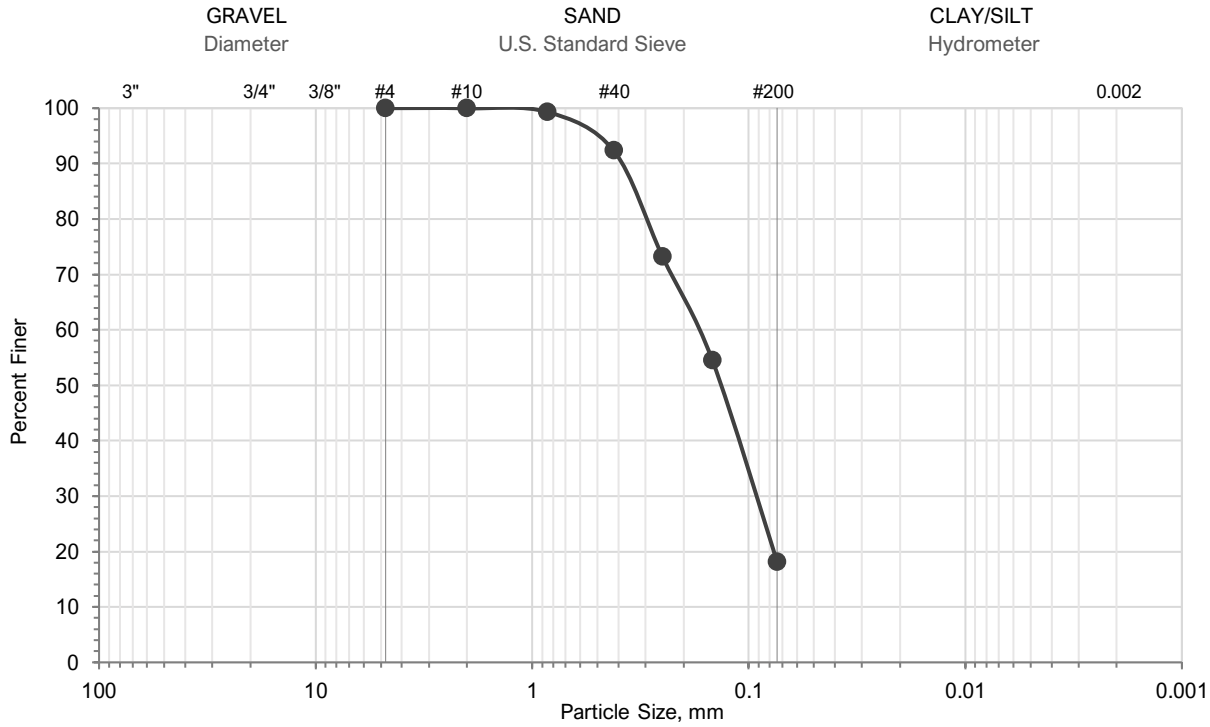
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-02	S-5	13'	15'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

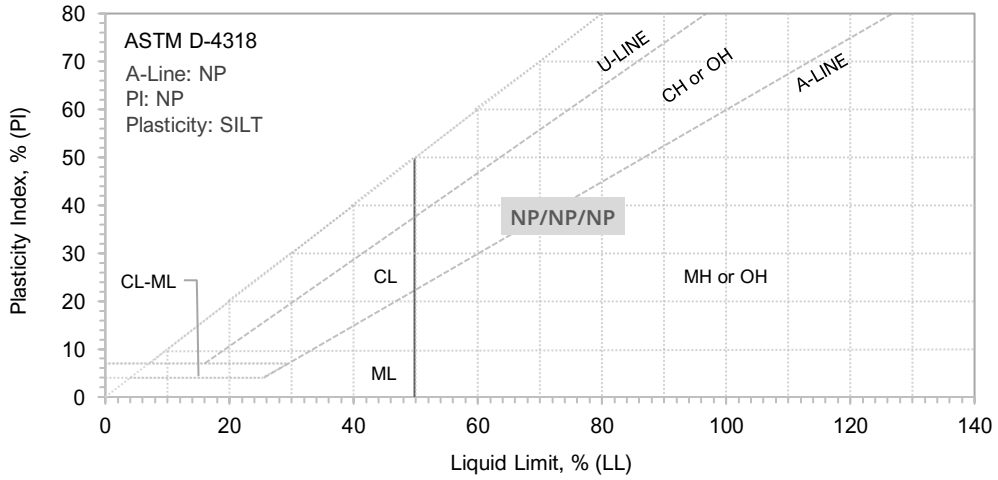


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.3
#40	0.42	92.3
#60	0.25	73.2
#100	0.147	54.4
#200	0.074	18.1

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.1	7.6	74.2	=	81.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	NP
Plastic Limit, %	NP
Plasticity Index, %	NP

USCS (D-2487)	AASHTO (M-145)
SM	A-2-4

Soil Description (D-2487)

Light orange-brown silty SAND

NMC	9.4%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

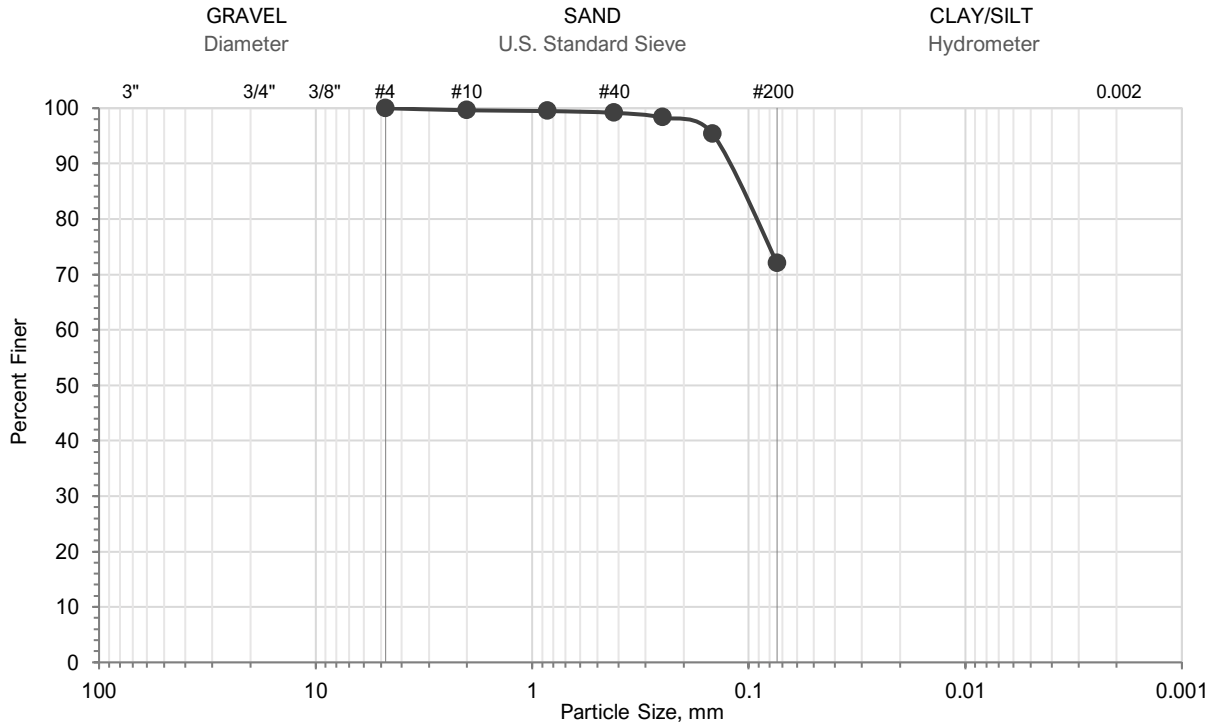
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-02	S-7A	23'	24.5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

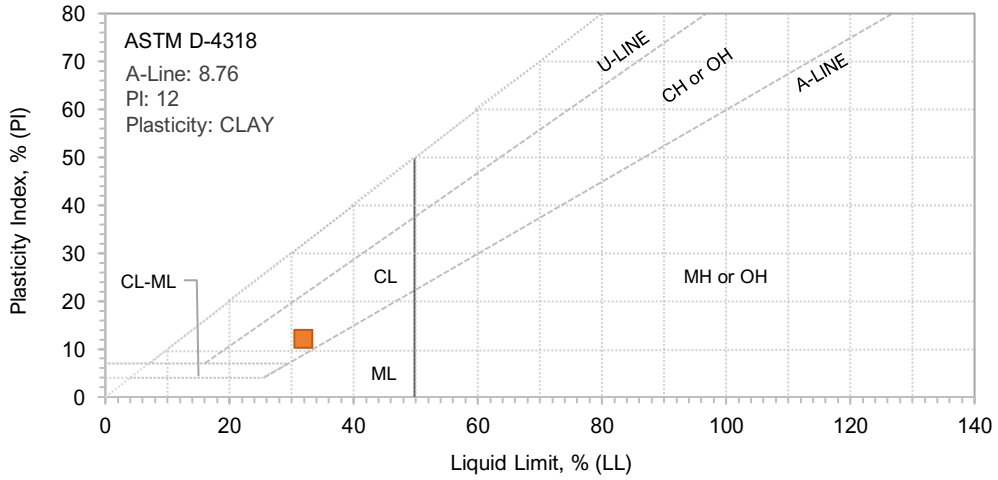


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.6
#20	0.85	99.5
#40	0.42	99.2
#60	0.25	98.3
#100	0.147	95.4
#200	0.074	72.1

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.4	0.4	27.1	=	27.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	32
Plastic Limit, %	20
Plasticity Index, %	12

USCS (D-2487)	AASHTO (M-145)
CL	A-6

Soil Description (D-2487)

Light orange-brown lean CLAY with sand

NMC	27.6%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
+ 3/8"	0.0%	Data 3	-	Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

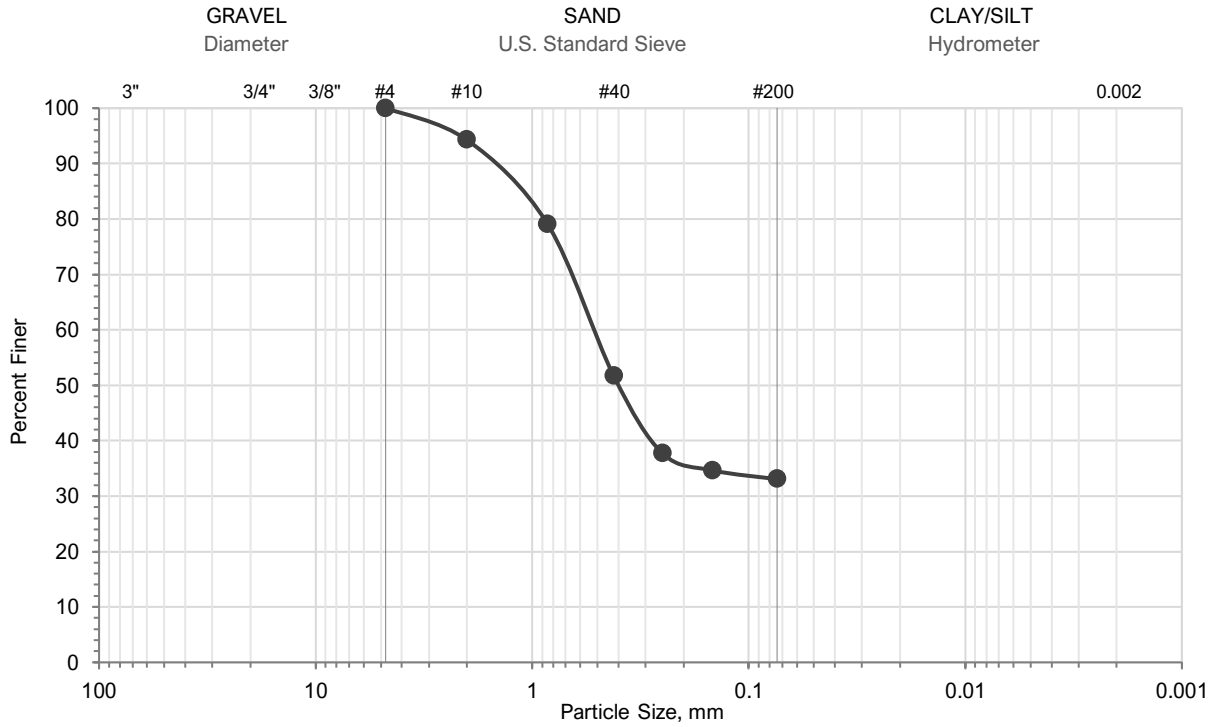
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-04	S-2	2'	4'

Location: Atlantic City, NJ

Sample Date: 07/17/23

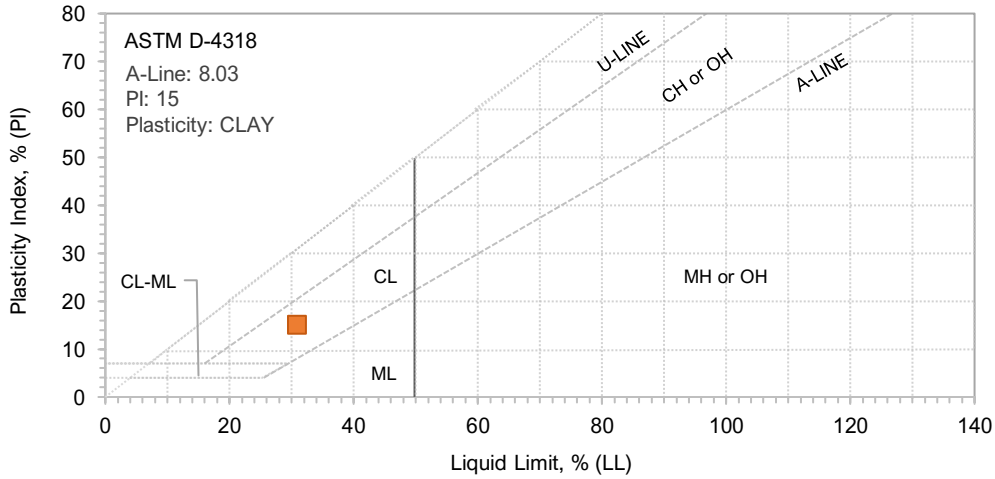
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	94.3
#20	0.85	79.1
#40	0.42	51.7
#60	0.25	37.7
#100	0.147	34.6
#200	0.074	33.1

% Gravel				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
0.0	0.0	=	0.0	5.7	42.6	18.6	=	66.9

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	31
Plastic Limit, %	16
Plasticity Index, %	15

USCS (D-2487)	AASHTO (M-145)
SC	A-2-6

Soil Description (D-2487)

Brown clayey SAND

NMC	10.9%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

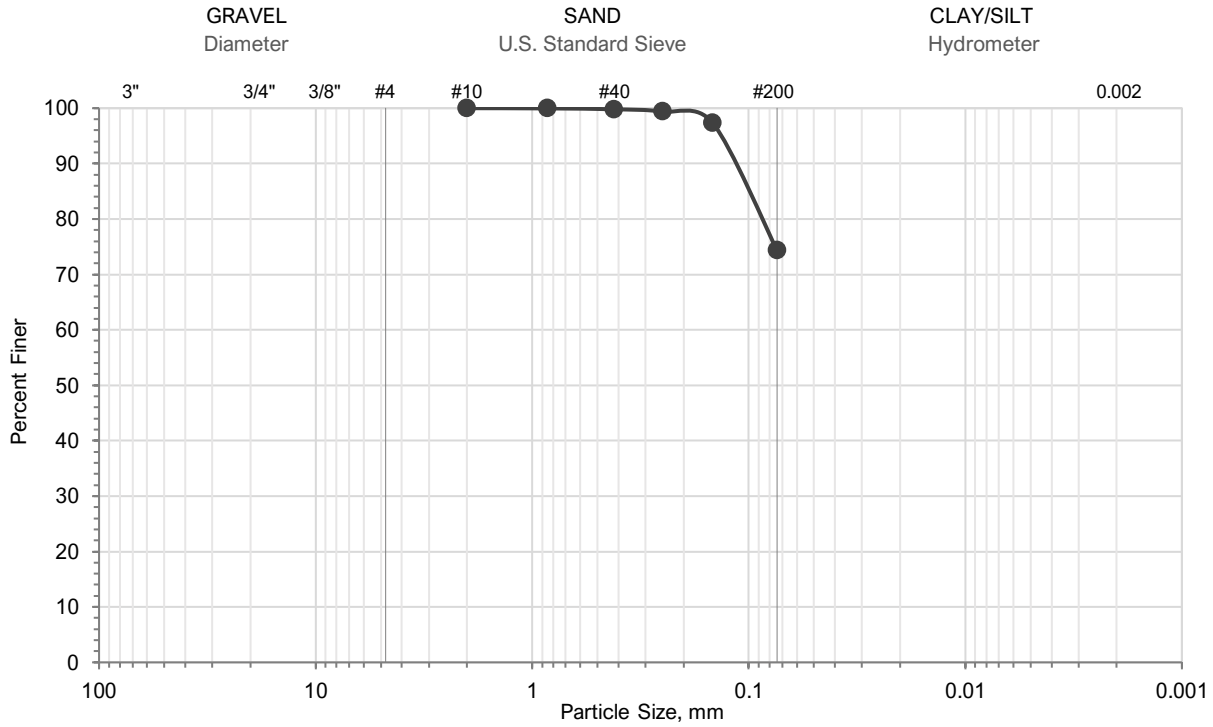
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-04	S-7	23'	25'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

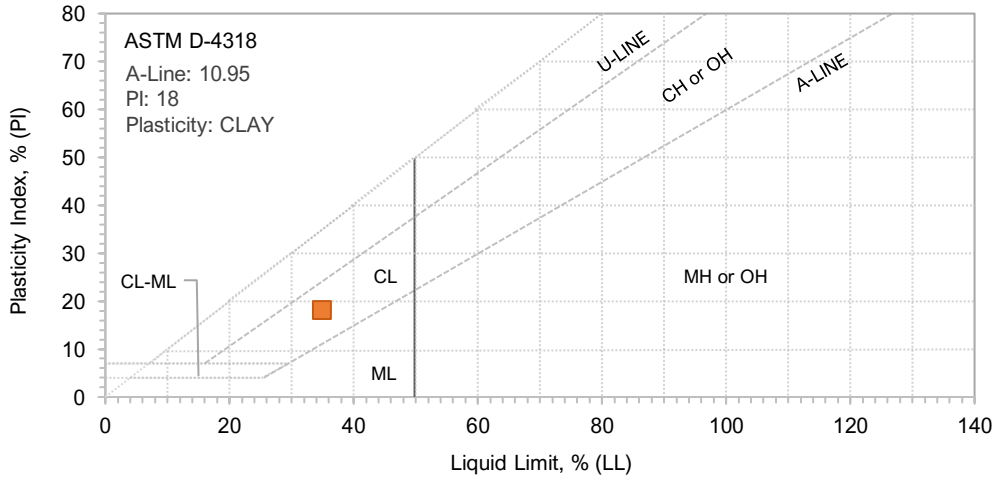


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	-
#10	2.00	100.0
#20	0.85	99.9
#40	0.42	99.8
#60	0.25	99.4
#100	0.147	97.4
#200	0.074	74.3

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.0	0.2	25.5	=	25.7

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	35
Plastic Limit, %	17
Plasticity Index, %	18

USCS (D-2487)	AASHTO (M-145)
CL	A-6

Soil Description (D-2487)

Orange-brown lean CLAY with sand

NMC	27.3%
OM	-
+ 3/8"	0.0%

Sample Type*	Jar
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

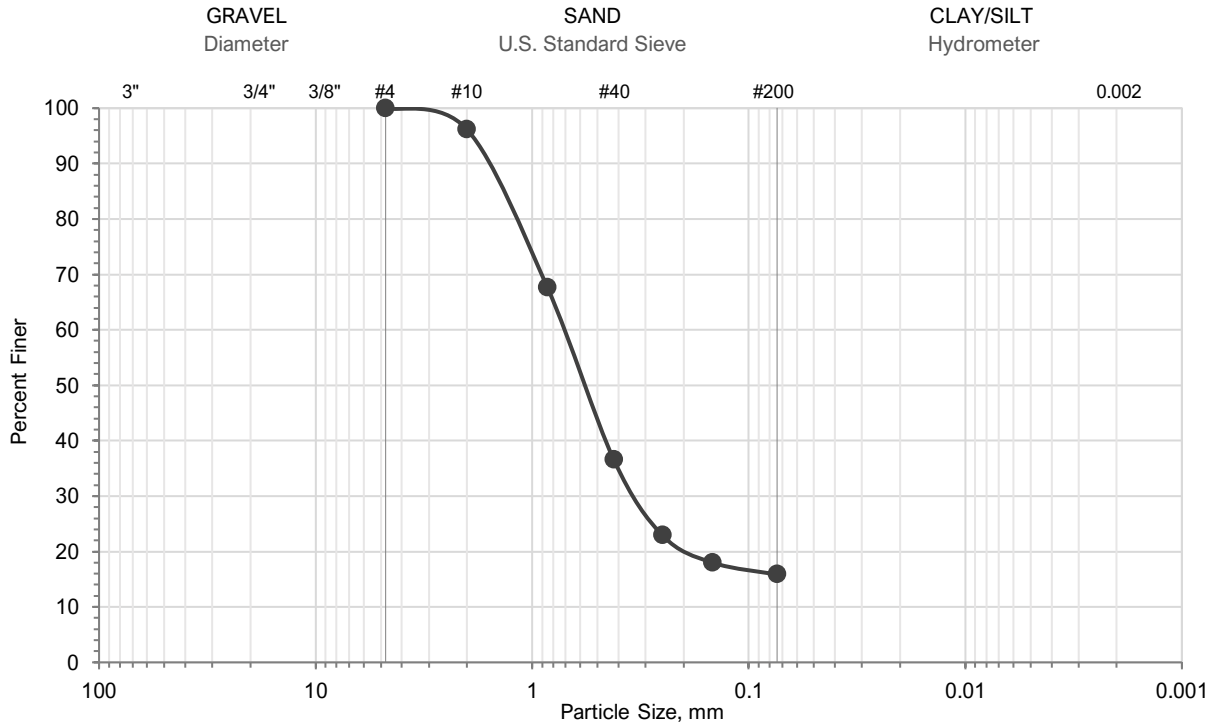
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-05	S-3	4'	6'

Location: Atlantic City, NJ

Sample Date: 07/17/23

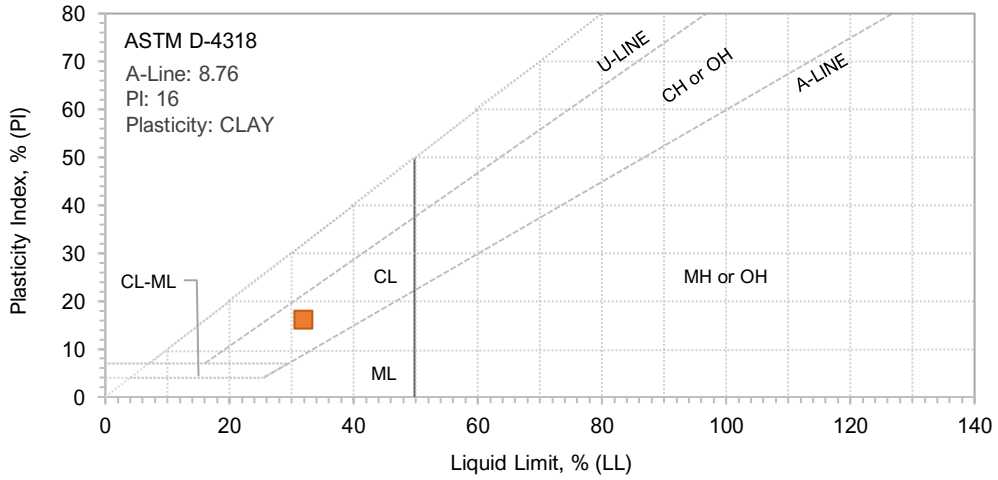
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	96.2
#20	0.85	67.6
#40	0.42	36.6
#60	0.25	22.9
#100	0.147	18.0
#200	0.074	15.9

% Gravel				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
0.0	0.0	=	0.0	3.8	59.6	20.7	=	84.1

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	32
Plastic Limit, %	16
Plasticity Index, %	16

USCS (D-2487)	AASHTO (M-145)
SC	A-2-6

Soil Description (D-2487)

Light brown clayey SAND

NMC	8.4%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	0.0%				

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

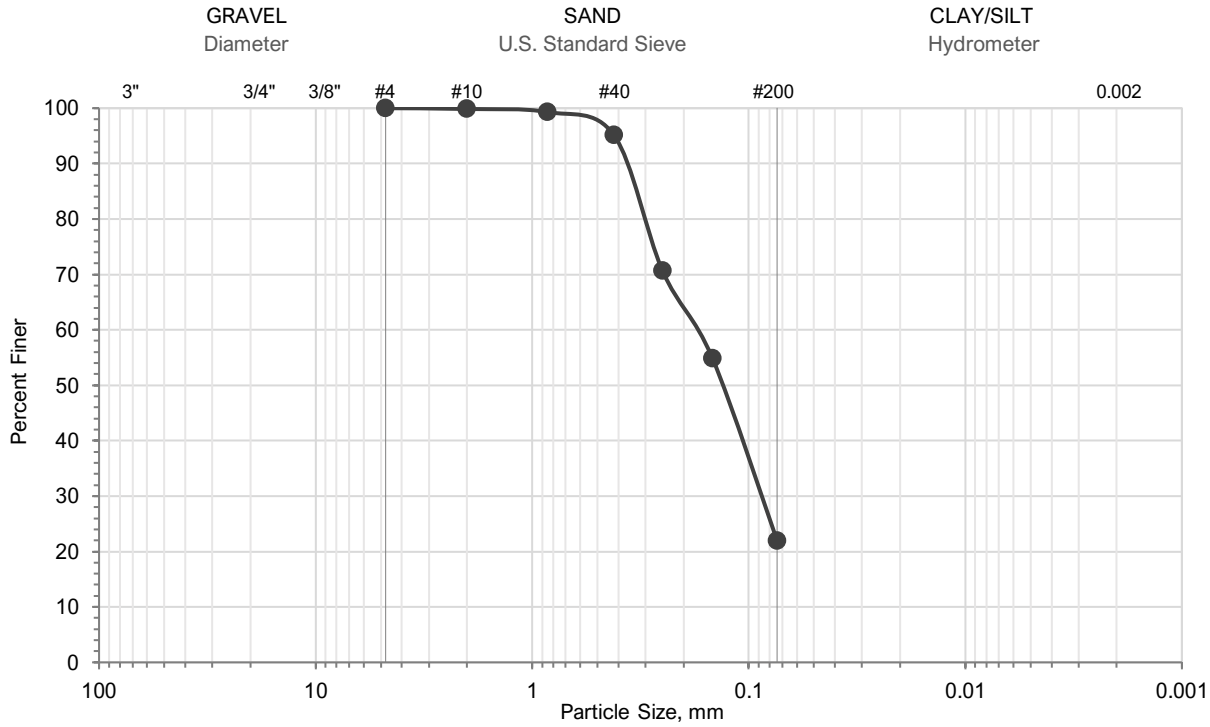
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
B-05	S-11	38'	40'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

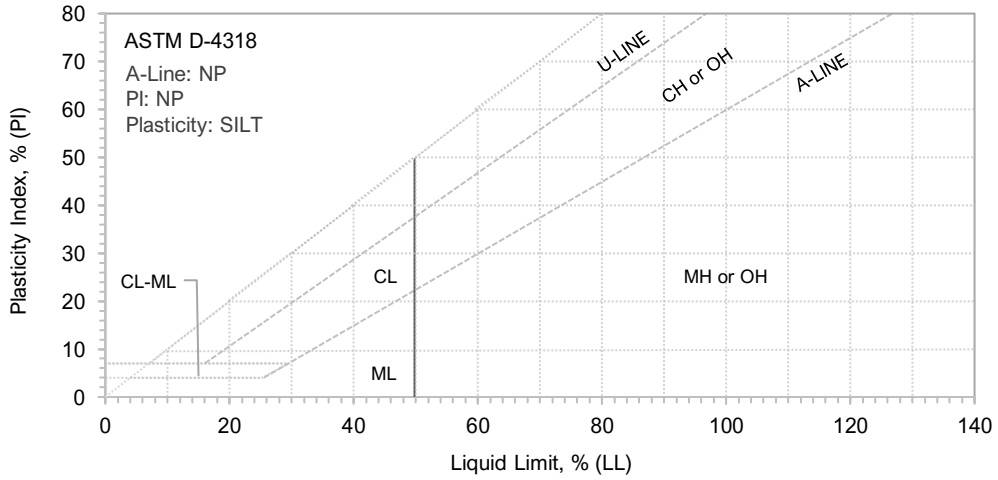


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.3
#40	0.42	95.2
#60	0.25	70.6
#100	0.147	54.8
#200	0.074	22.0

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.1	4.7	73.2	=	78.0

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	18
Plastic Limit, %	NP
Plasticity Index, %	NP

USCS (D-2487)	AASHTO (M-145)
SM	A-2-4

Soil Description (D-2487)

Tan silty SAND

NMC	21.3%	Sample Type*	Jar	Data 4	-
OM	-	Data 2	-	Data 5	-
+ 3/8"	0.0%	Data 3	-	Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

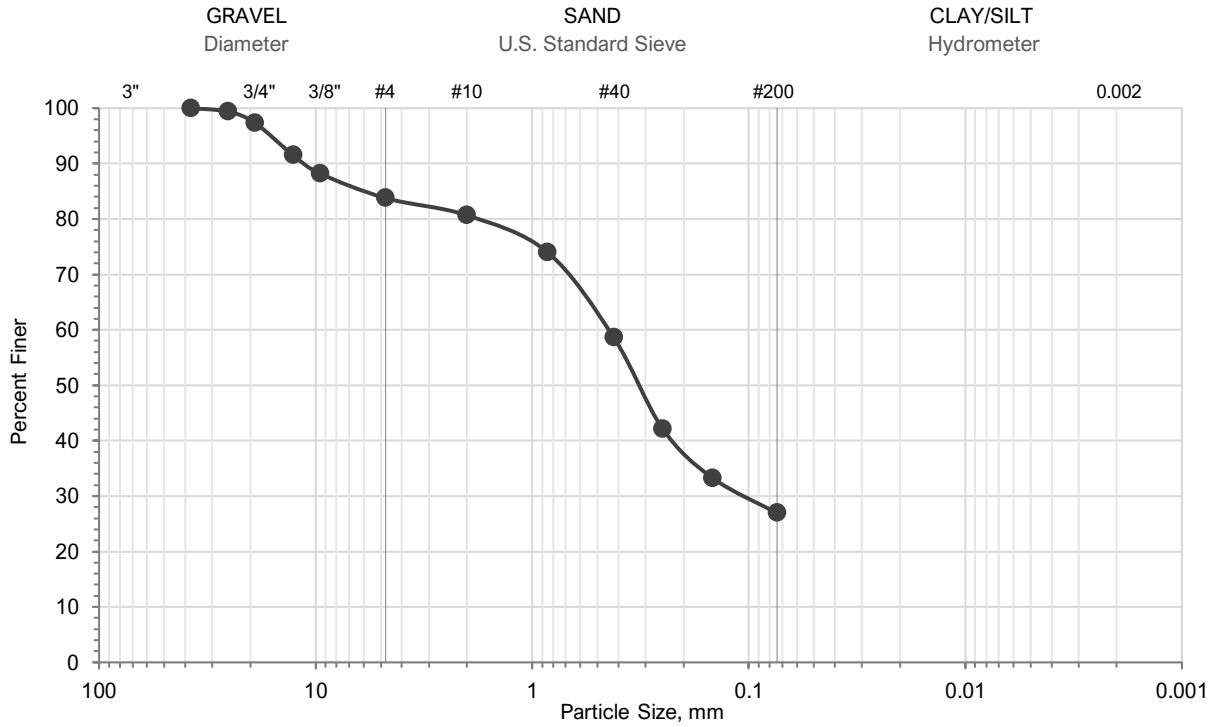
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
PB-01	Bulk	0.3'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913

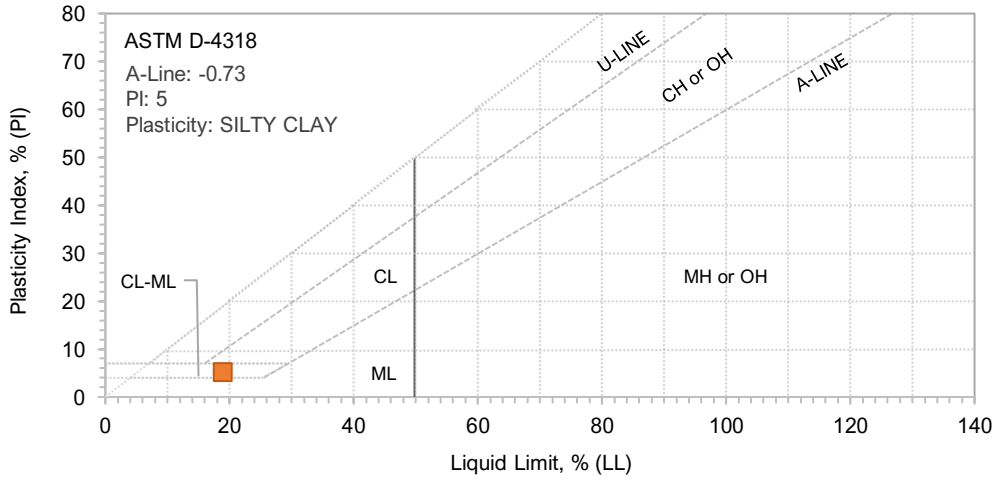


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	100.0
1"	25.4	99.4
3/4"	19.0	97.3
1/2"	12.7	91.5
3/8"	9.51	88.2
#4	4.75	83.8
#10	2.00	80.7
#20	0.85	74.0
#40	0.42	58.6
#60	0.25	42.2
#100	0.147	33.3
#200	0.074	27.0

% Gravel			
Coarse	Fine		Total
2.7	13.5	=	16.2

% Sand				
Coarse	Medium	Fine		Total
3.1	22.1	31.6	=	56.8

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	19
Plastic Limit, %	14
Plasticity Index, %	5

USCS (D-2487)	AASHTO (M-145)
SC-SM	A-2-4

Soil Description (D-2487)

Light brown silty clayey SAND with gravel

NMC	7.7%	Sample Type*	Bulk	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	11.8%				

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

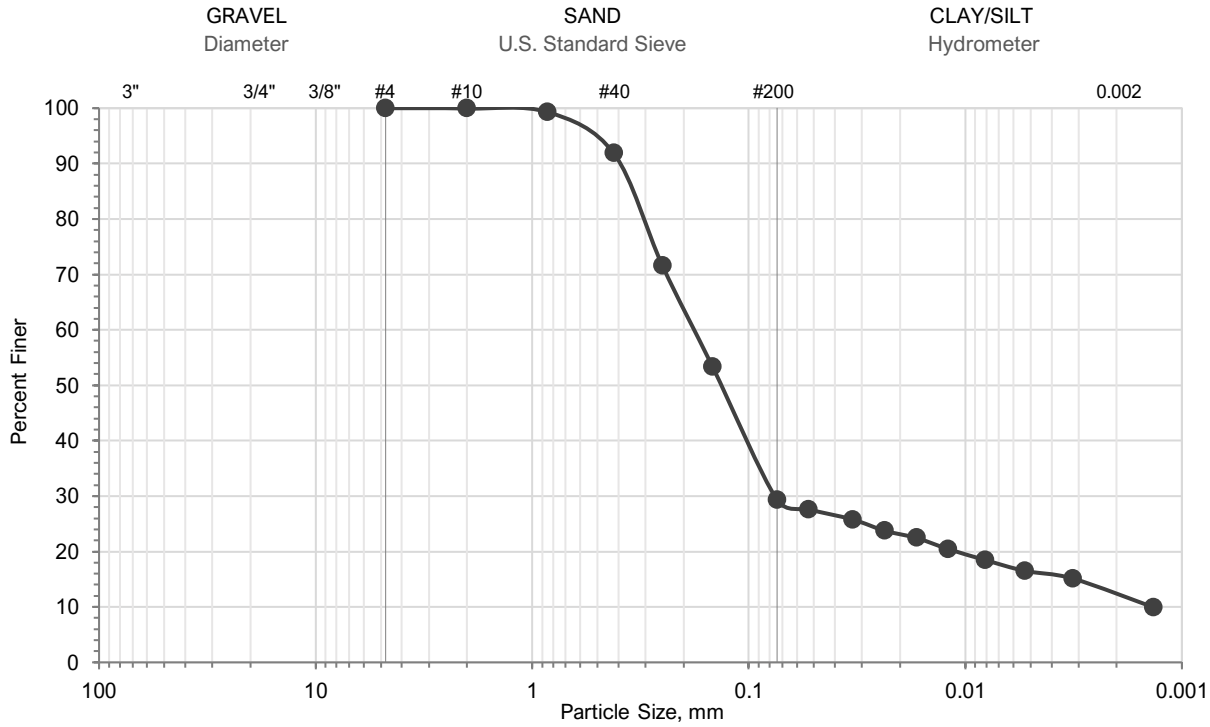
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-1	S-4	6'	8'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913 / ASTM D-7928

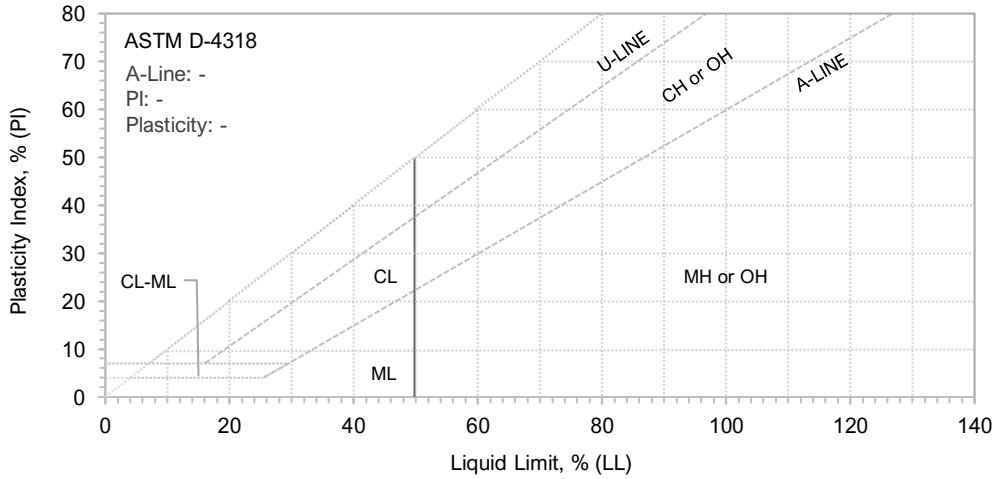


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.3
#40	0.42	91.8
#60	0.25	71.5
#100	0.147	53.4
#200	0.074	29.3

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.1	8.1	62.5	=	70.7

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	-
Plastic Limit, %	-
Plasticity Index, %	-

USCS (D-2487)	AASHTO (M-145)
-	-

Visual Soil Description

Brown silty clayey sand

NMC	12.7%
OM	-
+ 3/8"	0.0%

Specific gravity*	2.70 (assumed)

*Applies to hydrometer-based calculations only

Sample Type*	Jar
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

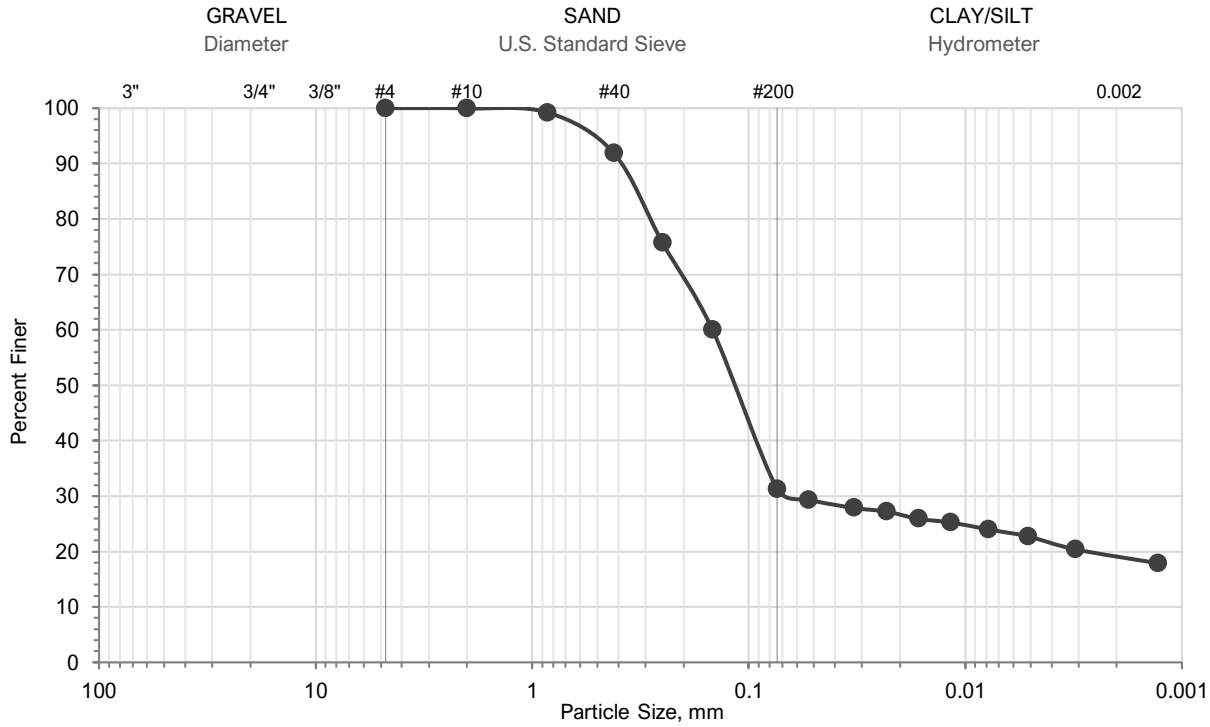
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-2	S-4	6'	8'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913 / ASTM D-7928

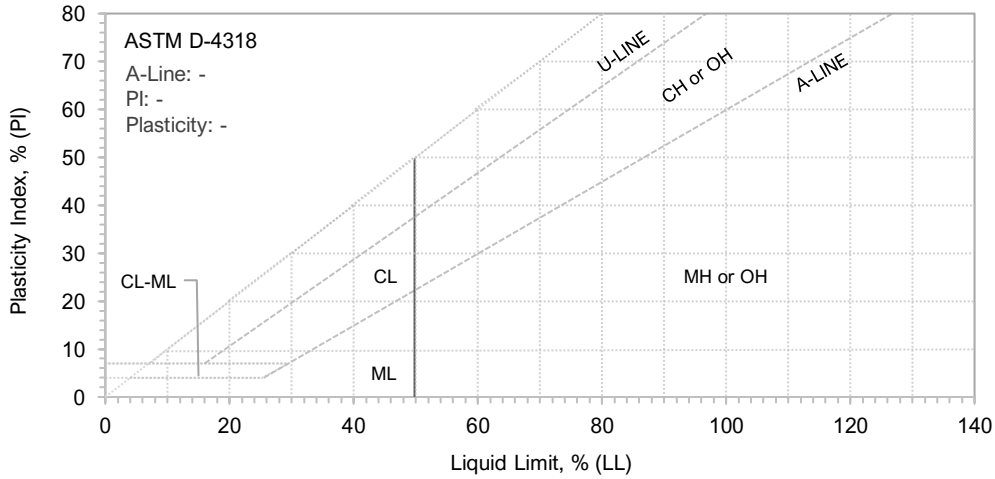


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.9
#20	0.85	99.2
#40	0.42	91.9
#60	0.25	75.7
#100	0.147	60.0
#200	0.074	31.3

% Gravel			
Coarse	Fine		Total
0.0	0.0	=	0.0

% Sand				
Coarse	Medium	Fine		Total
0.1	8.0	60.6	=	68.7

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	-
Plastic Limit, %	-
Plasticity Index, %	-

USCS (D-2487)	AASHTO (M-145)
-	-

Visual Soil Description

Brown silty clayey sand

NMC	12.8%
OM	-
+ 3/8"	0.0%

Specific gravity*	2.70 (assumed)

*Applies to hydrometer-based calculations only

Sample Type*	Jar
Data 2	-
Data 3	-

Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

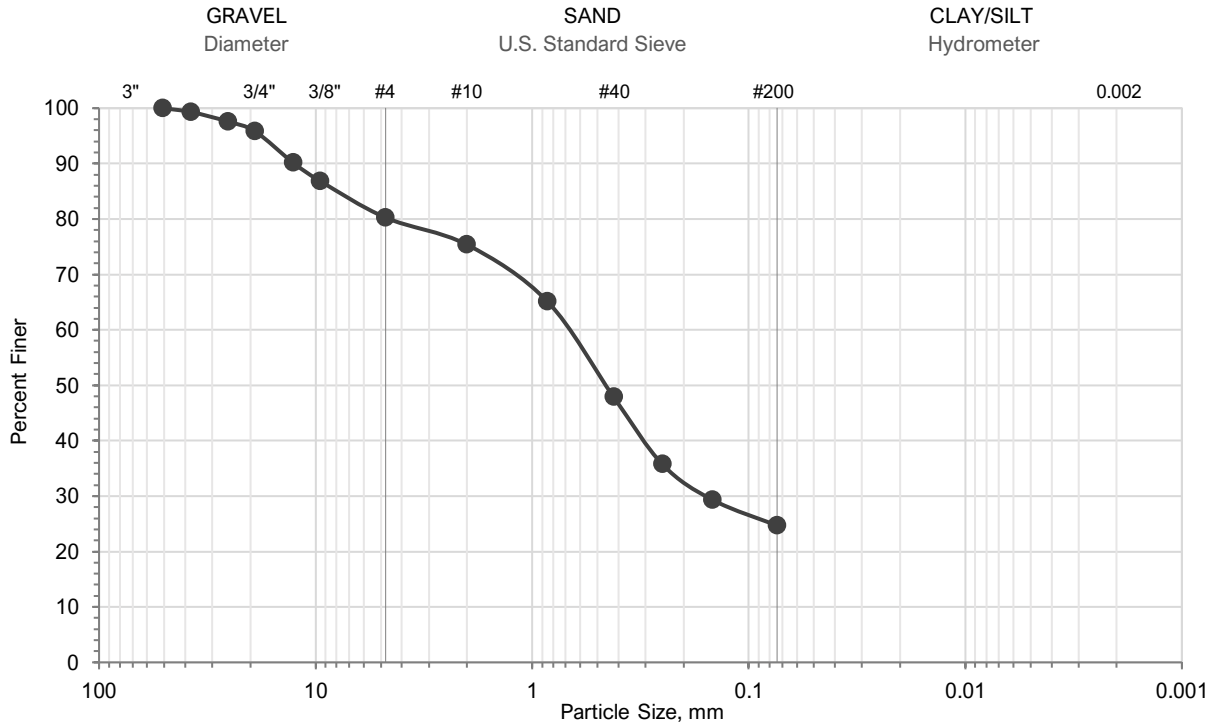
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-3	Bulk	0'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

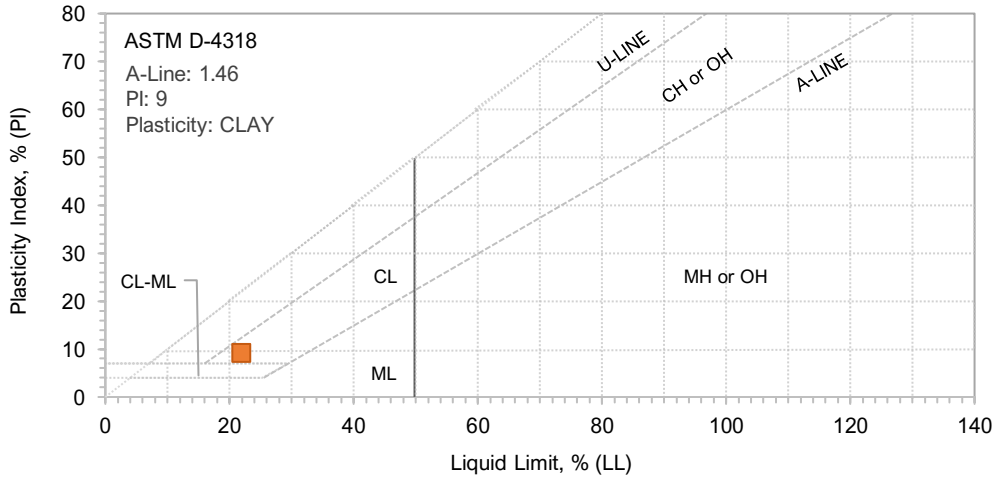
ASTM D-6913



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	100.0
1.5"	37.5	99.3
1"	25.4	97.6
3/4"	19.0	95.8
1/2"	12.7	90.2
3/8"	9.51	86.8
#4	4.75	80.3
#10	2.00	75.4
#20	0.85	65.1
#40	0.42	47.9
#60	0.25	35.7
#100	0.147	29.3
#200	0.074	24.7

% Gravel				% Sand				
Coarse	Fine		Total	Coarse	Medium	Fine		Total
4.2	15.5	=	19.7	4.9	27.5	23.2	=	55.6

D10	-		
D30	-	CC	-
D60	-	CU	-



Liquid Limit, %	22
Plastic Limit, %	13
Plasticity Index, %	9

USCS (D-2487)	AASHTO (M-145)
SC	A-2-4

Soil Description (D-2487)

Dark brown clayey SAND with gravel

NMC	10.9%	Sample Type*	Bulk	Data 4	-
OM	-	Data 2	-	Data 5	-
		Data 3	-	Data 6	-
+ 3/8"	13.2%				

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

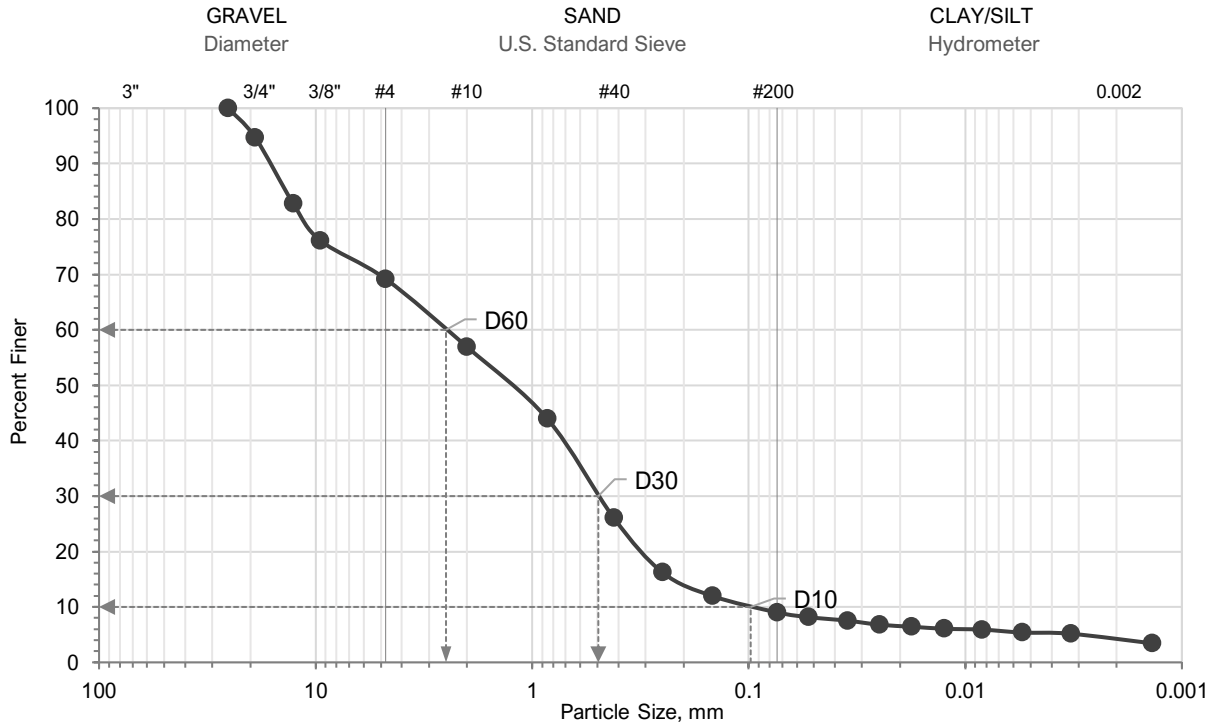
Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-3	S-4	6'	8'

Location: Atlantic City, NJ

Sample Date: 07/17/23

ASTM D-6913 / ASTM D-7928

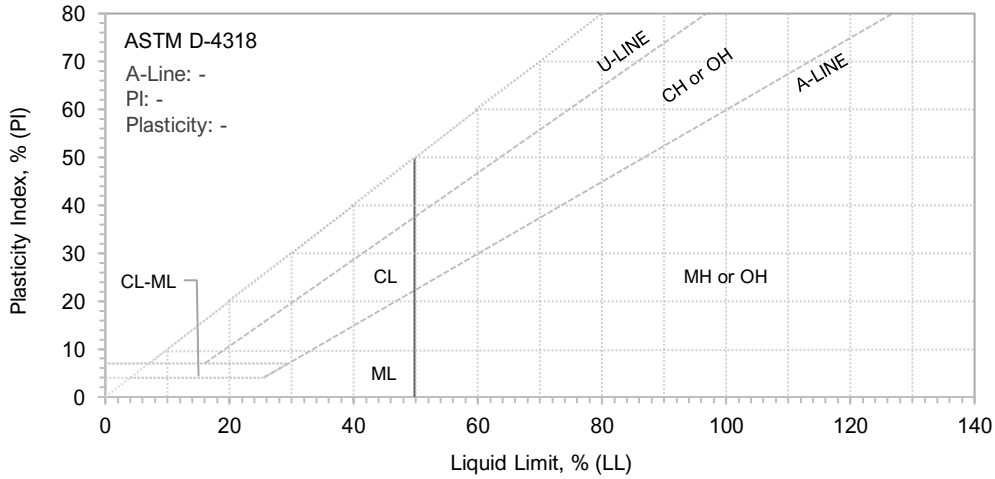


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	100.0
3/4"	19.0	94.7
1/2"	12.7	82.8
3/8"	9.51	76.1
#4	4.75	69.2
#10	2.00	56.9
#20	0.85	43.9
#40	0.42	26.1
#60	0.25	16.2
#100	0.147	12.0
#200	0.074	9.0

% Gravel			
Coarse	Fine		Total
5.3	25.5	=	30.8

% Sand				
Coarse	Medium	Fine		Total
12.3	30.8	17.1	=	60.2

D10	0.0980		
D30	0.4950	CC	1.000
D60	2.5000	CU	25.51



Liquid Limit, % -

Plastic Limit, % -

Plasticity Index, % -

USCS (D-2487)	AASHTO (M-145)
-	-

Visual Soil Description

Brown well-graded sand with silt and gravel

NMC	4.4%
OM	-
+ 3/8"	23.9%

Specific gravity* 2.70 (assumed)

*Applies to hydrometer-based calculations only

Sample Type*	Jar
Data 2	-
Data 3	-

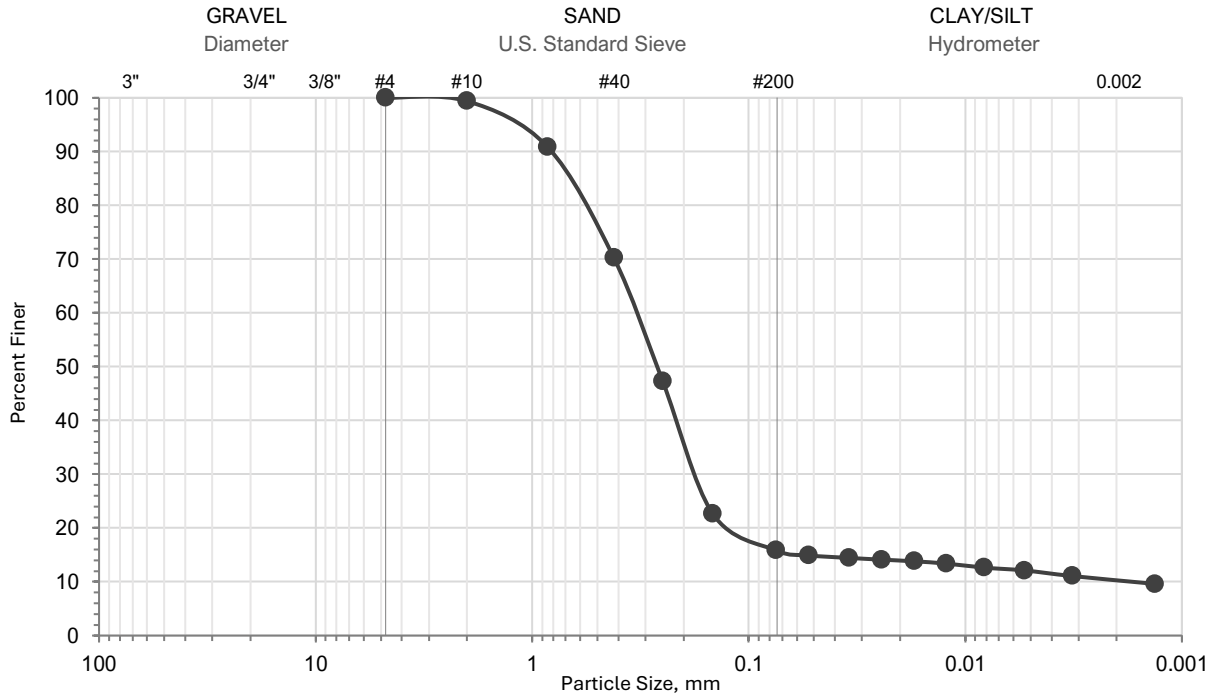
Data 4	-
Data 5	-
Data 6	-

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-4** Sample ID: **S-7** Top Depth **12'** Btm Depth **14'**

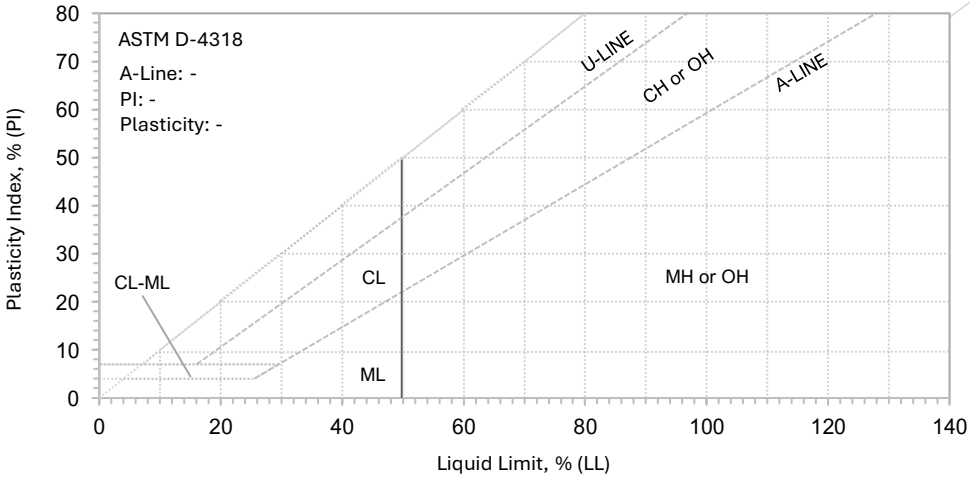
Particle-Size Distribution of Soils ASTM D-6913 / ASTM D-7928



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	99.4
#20	0.85	90.9
#40	0.42	70.3
#60	0.25	47.3
#100	0.147	22.7
#200	0.075	15.8

% Gravel (> 4.75 mm)			% Sand (≤ 4.75 mm)								
	Coarse	0.0		Coarse	0.6	D_{10}	-	Cc	-	Specific gravity* (assumed)
	Fine	0.0		Medium	29.1	D_{30}	-	Cu	-	2.70
	Total	**0.0**		Fine	54.5	D_{60}	-			
				Total	**84.2**					

Atterberg Limits & Classification ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	-
Plastic Limit	-
Plasticity Index	-

AASHTO (M-145)	USCS (D-2487)
-	-

Visual Soil Description

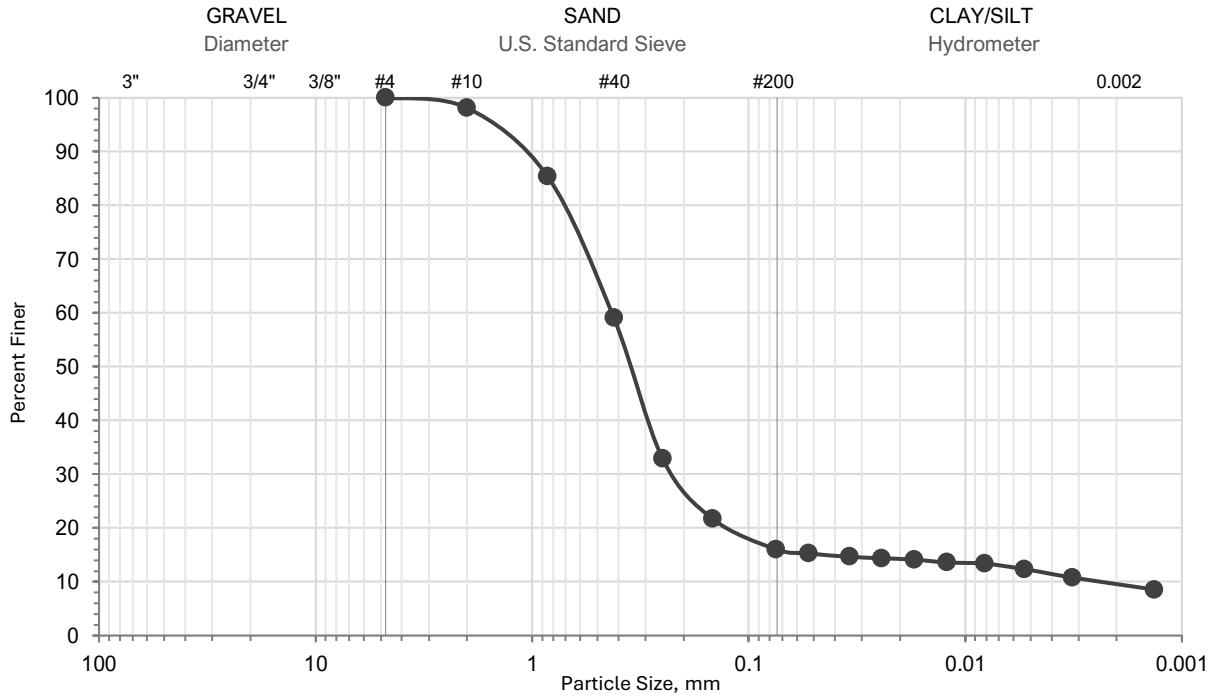
Light brown silty sand

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-5** Sample ID: **S-5** Top Depth **8'** Btm Depth **10'**

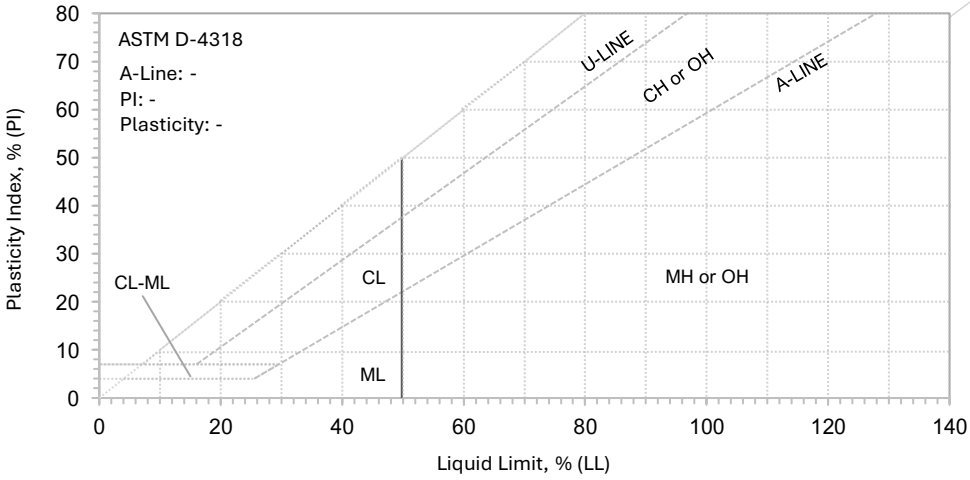
Particle-Size Distribution of Soils ASTM D-6913 / ASTM D-7928



Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	-
#4	4.75	100.0
#10	2.00	98.1
#20	0.85	85.4
#40	0.42	59.1
#60	0.25	32.9
#100	0.147	21.7
#200	0.075	16.0

% Gravel (> 4.75 mm)			% Sand (≤ 4.75 mm)								
	Coarse	0.0		Coarse	1.9	D_{10}	-	Cc	-	Specific gravity*
	Fine	0.0		Medium	39.0	D_{30}	-	Cu	-	(assumed)
	Total	**0.0**		Fine	43.1	D_{60}	-			2.70
				Total	**84.0**					

Atterberg Limits & Classification ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	-
Plastic Limit	-
Plasticity Index	-

AASHTO (M-145)	USCS (D-2487)
-	-

Visual Soil Description

Light brown silty sand

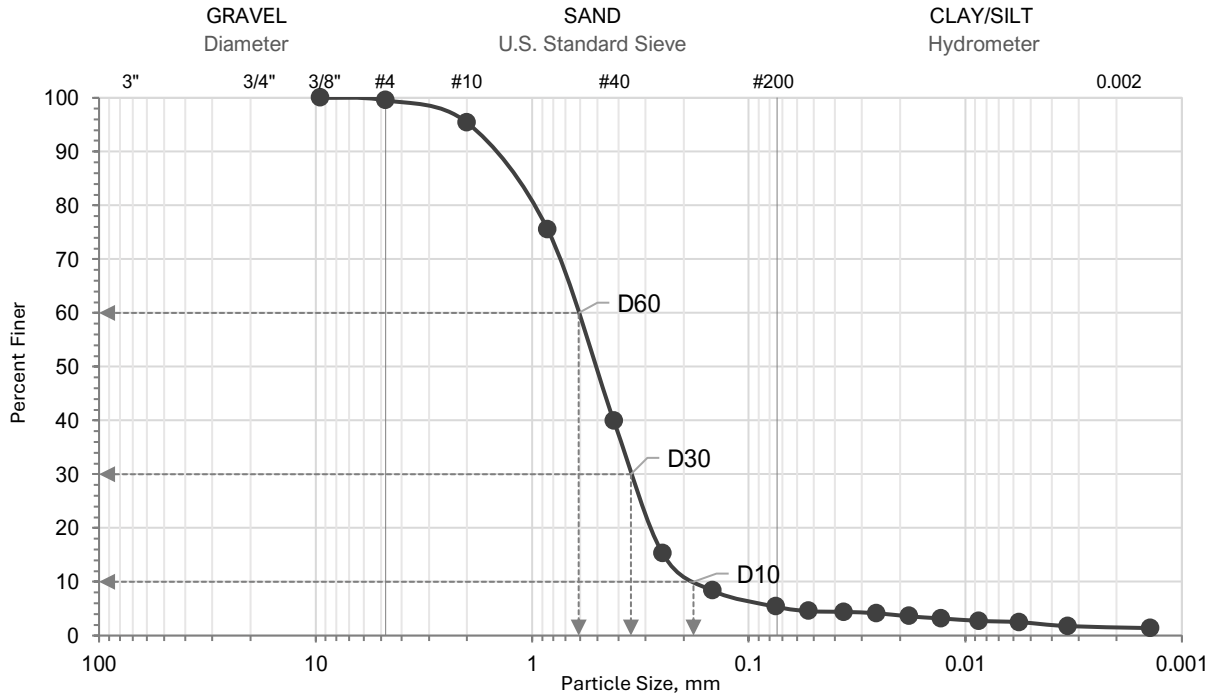
JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-6** Sample ID: **S-5** Top Depth **8'** Btm Depth **10'**

Particle-Size Distribution of Soils

ASTM D-6913 / ASTM D-7928

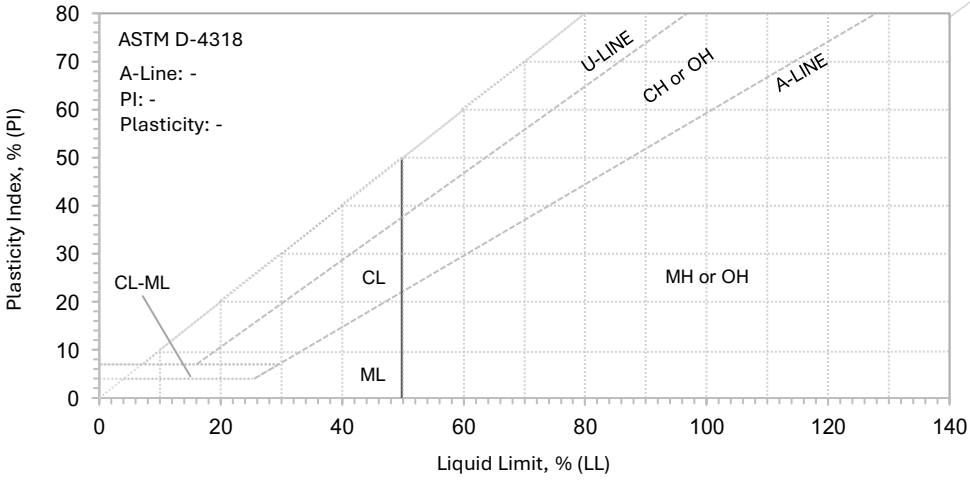


Sieve	Size	Pass, %
-	mm	%
6"	150.0	-
3"	75.0	-
2"	50.8	-
1.5"	37.5	-
1"	25.4	-
3/4"	19.0	-
1/2"	12.7	-
3/8"	9.51	100.0
#4	4.75	99.6
#10	2.00	95.4
#20	0.85	75.6
#40	0.42	39.9
#60	0.25	15.3
#100	0.147	8.3
#200	0.075	5.4

% Gravel (> 4.75 mm)			% Sand (≤ 4.75 mm)								
	Coarse	0.0		Coarse	4.2	D_{10}	0.1800	Cc	1.116	Specific gravity* (assumed)
	Fine	0.4		Medium	55.5	D_{30}	0.3500	Cu	3.39	
	Total	**0.4**		Fine	34.5	D_{60}	0.6100	Poorly-graded sand		2.70
				Total	**94.2**					

Atterberg Limits & Classification

ASTM D-4318



Specimen Data	
Atterberg Limits	
Liquid Limit	-
Plastic Limit	-
Plasticity Index	-

AASHTO (M-145)	USCS (D-2487)
-	-

Visual Soil Description

Light brown poorly-graded sand with silt

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-1	S-4	6'	8'

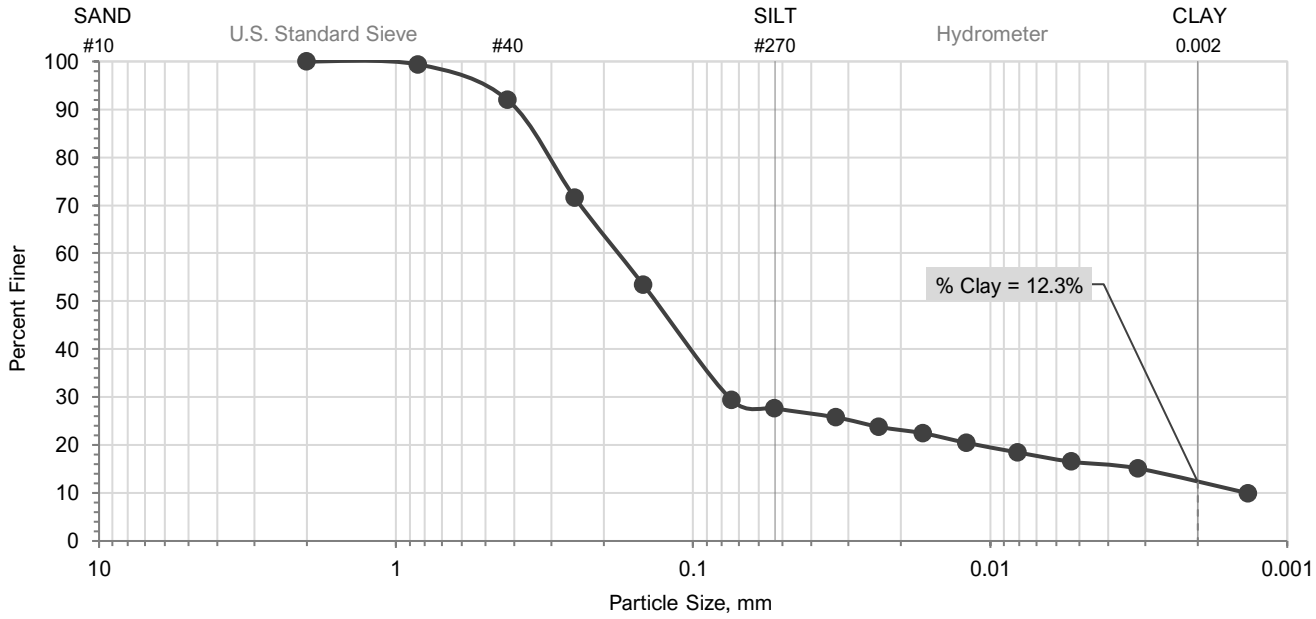
Location: Atlantic City, NJ

Sample Date: 07/17/23

USDA Summation Curve

Test Method: ASTM D-6913 / ASTM D-7928

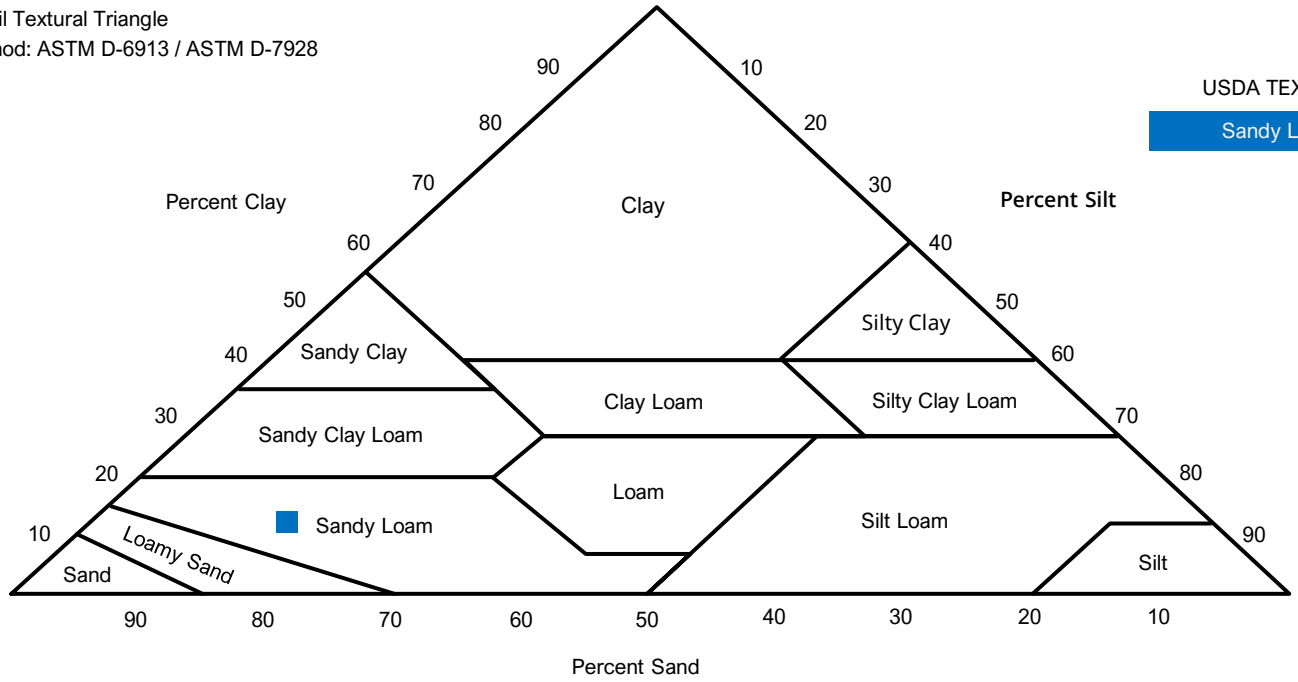
USDA Soil Textural Analysis



% SAND	% SILT	% CLAY
72.4	15.3	12.3

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928



USDA TEXTURE

Sandy Loam

NMC	LL	PL	PI
12.7%	-	-	-

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-2	S-4	6'	8'

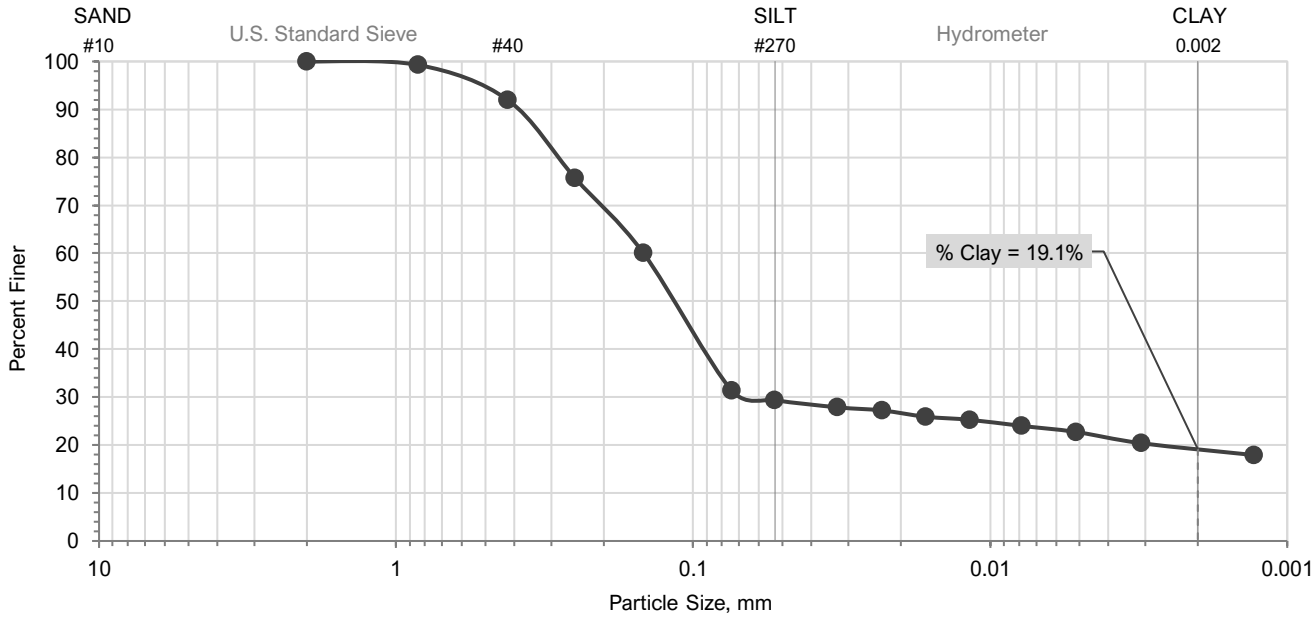
Location: Atlantic City, NJ

Sample Date: 07/17/23

USDA Summation Curve

Test Method: ASTM D-6913 / ASTM D-7928

USDA Soil Textural Analysis



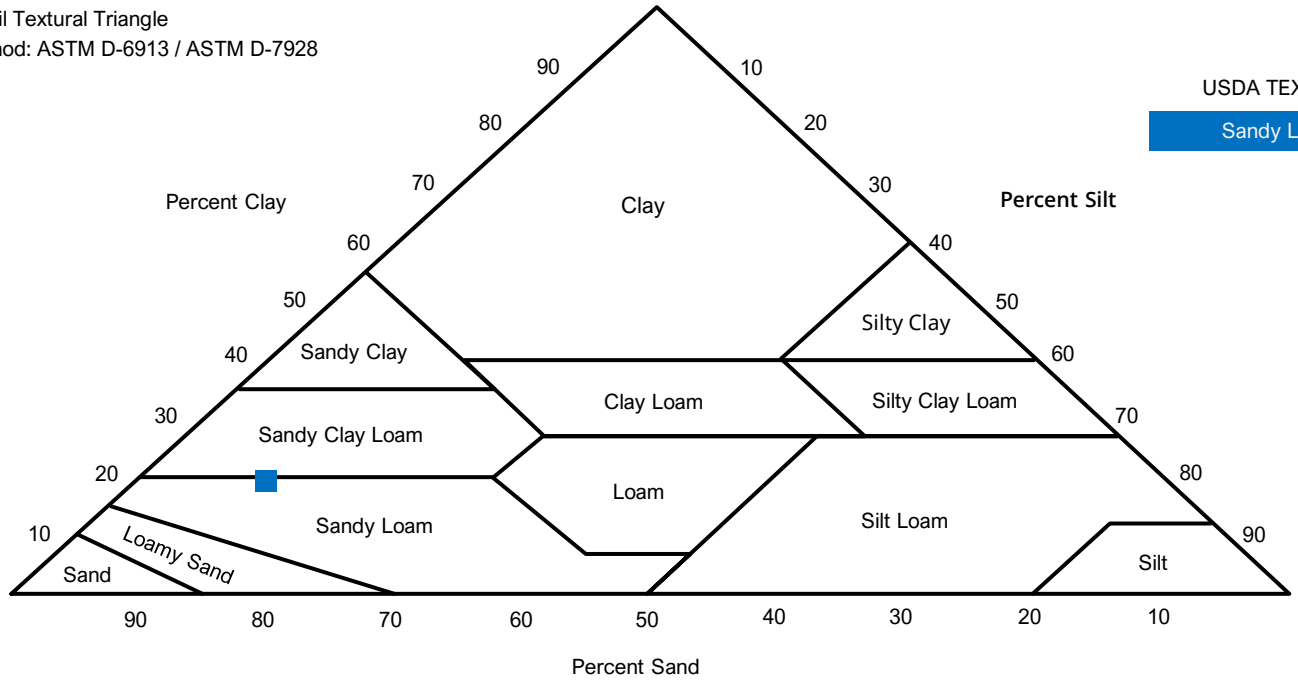
% SAND
70.6

% SILT
10.3

% CLAY
19.1

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928



USDA TEXTURE

Sandy Loam

NMC	LL	PL	PI
12.8%	-	-	-

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-3	S-4	6'	8'

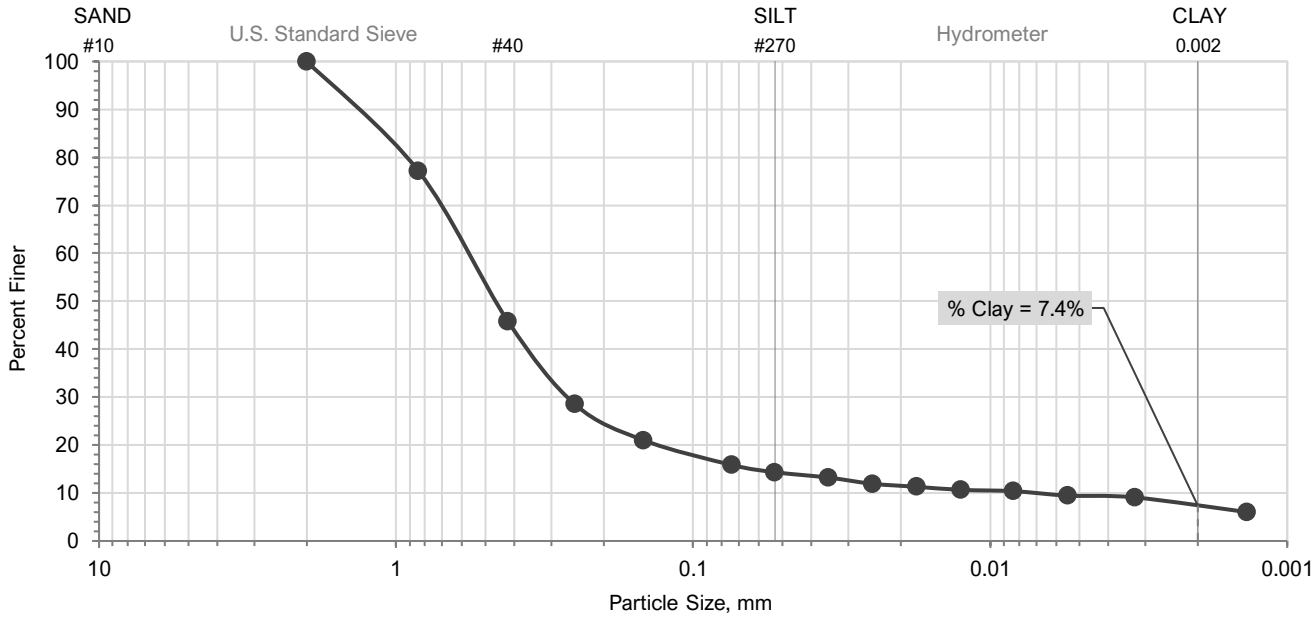
Location: Atlantic City, NJ

Sample Date: 07/17/23

USDA Summation Curve

Test Method: ASTM D-6913 / ASTM D-7928

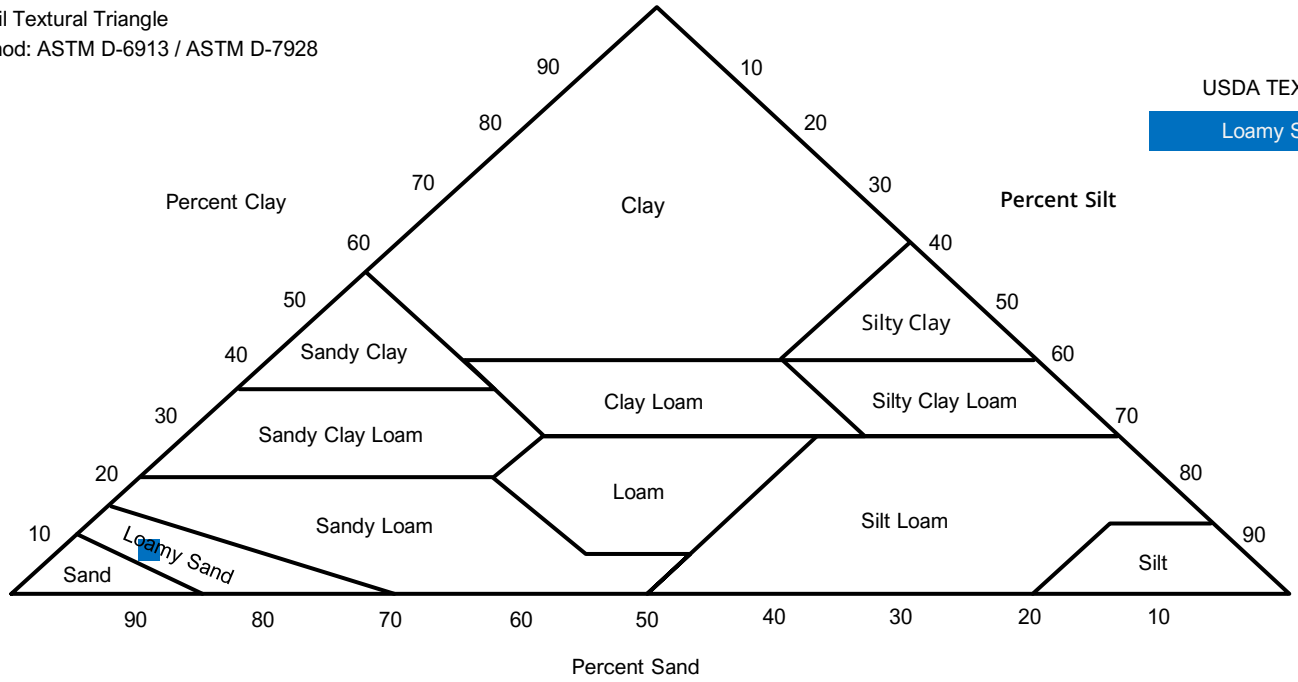
USDA Soil Textural Analysis



% SAND	% SILT	% CLAY
85.7	6.9	7.4

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928



USDA TEXTURE

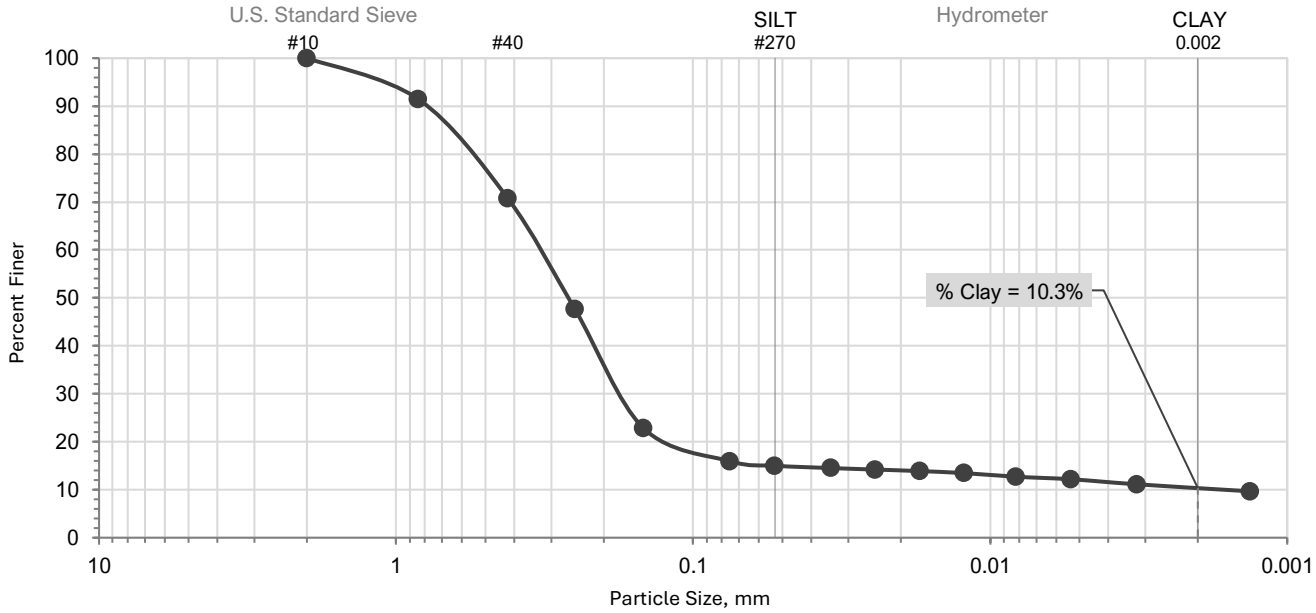
Loamy Sand

NMC	LL	PL	PI
4.4%	-	-	-

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-4** Sample ID: **S-7** Top Depth **12'** Btm Depth **14'**

USDA Summation Curve ASTM D-6913 / ASTM D-7928



Total % (>2 mm)
0.6%

% SAND	% SILT	% CLAY
85.0	4.7	10.3

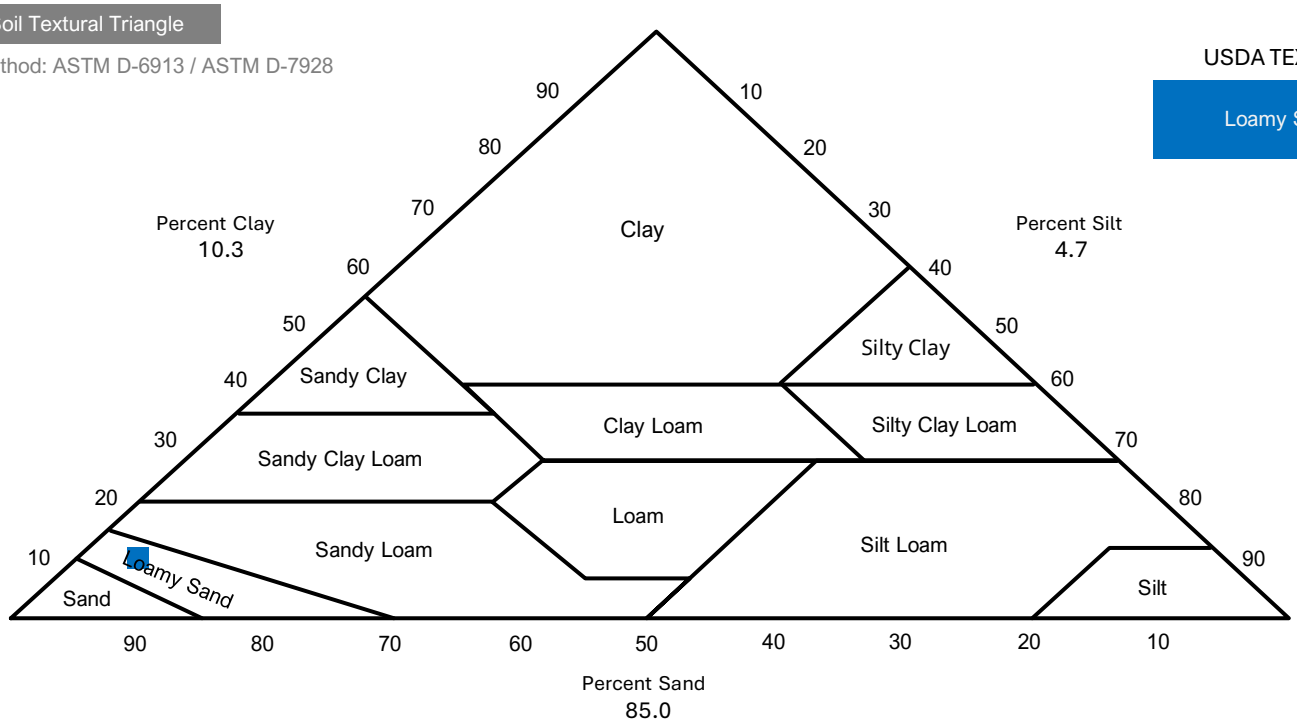
Soil Texture includes only fine-earth fraction (≤2 mm). "Whole-soil Particle-Size Distribution" includes fine-earth fraction (≤2 mm) and coarse fragments (>2 mm). USDA page 2-36.

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928

USDA TEXTURE

Loamy Sand



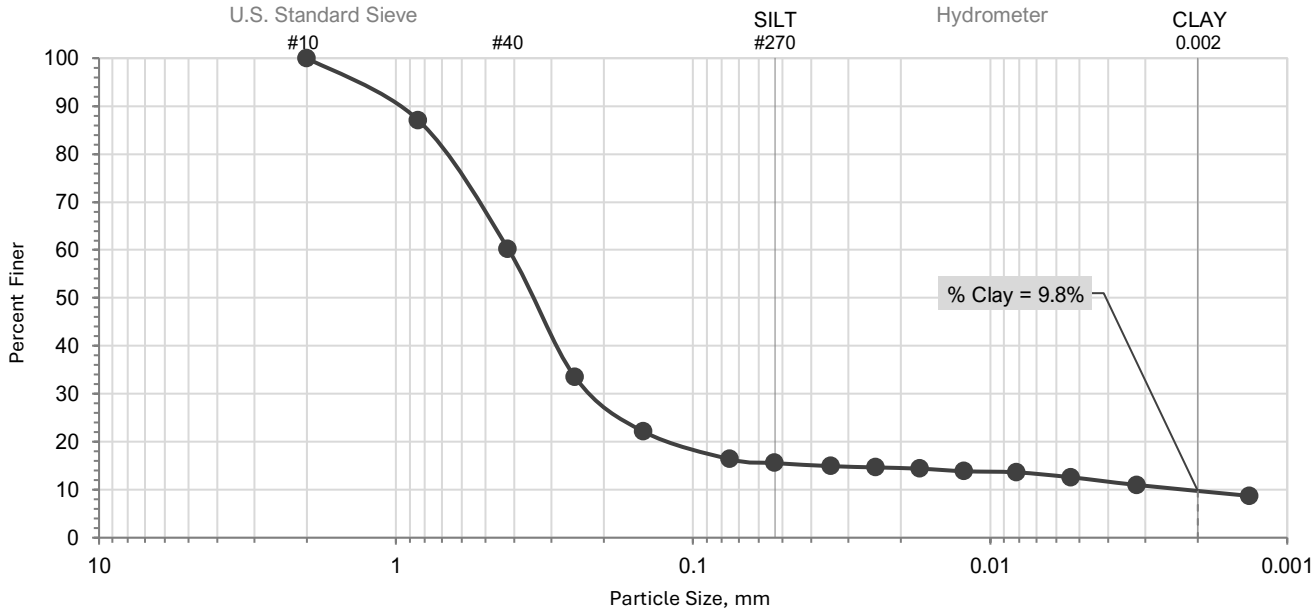
NMC	LL	PL	PI
12.1%	-	-	-

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-5** Sample ID: **S-5** Top Depth **8'** Btm Depth **10'**

USDA Summation Curve ASTM D-6913 / ASTM D-7928



Total % (>2 mm)
1.9%

% SAND	% SILT	% CLAY
84.4	5.8	9.8

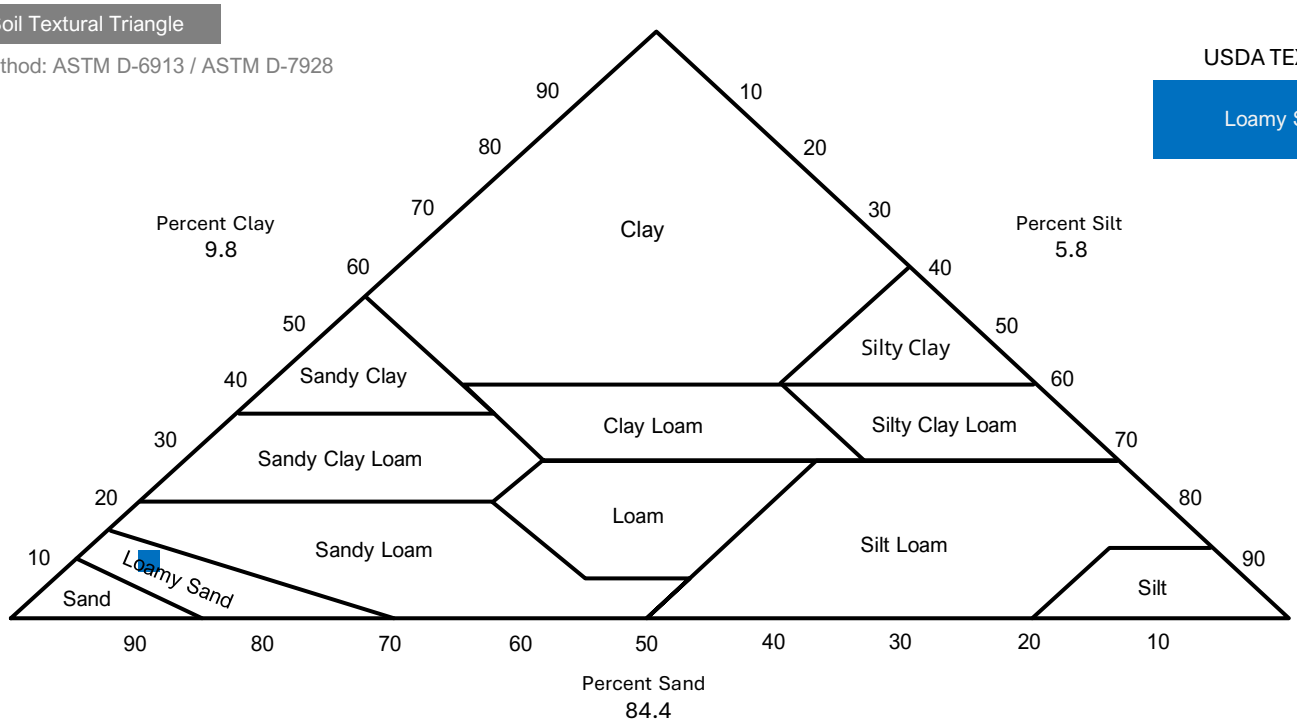
Soil Texture includes only fine-earth fraction (≤2 mm). "Whole-soil Particle-Size Distribution" includes fine-earth fraction (≤2 mm) and coarse fragments (>2 mm). USDA page 2-36.

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928

USDA TEXTURE

Loamy Sand



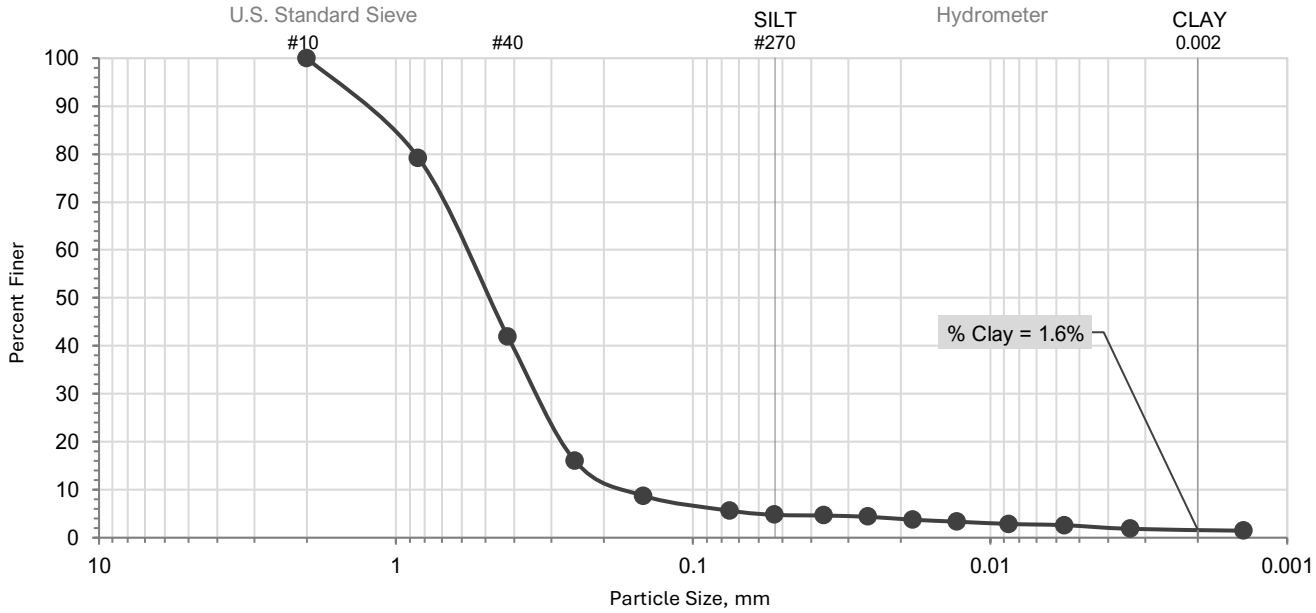
NMC	LL	PL	PI
8.9%	-	-	-

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25

Boring ID: **SWM-6** Sample ID: **S-5** Top Depth **8'** Btm Depth **10'**

USDA Summation Curve ASTM D-6913 / ASTM D-7928



Total % (>2 mm)
4.6%

% SAND	% SILT	% CLAY
95.2	3.2	1.6

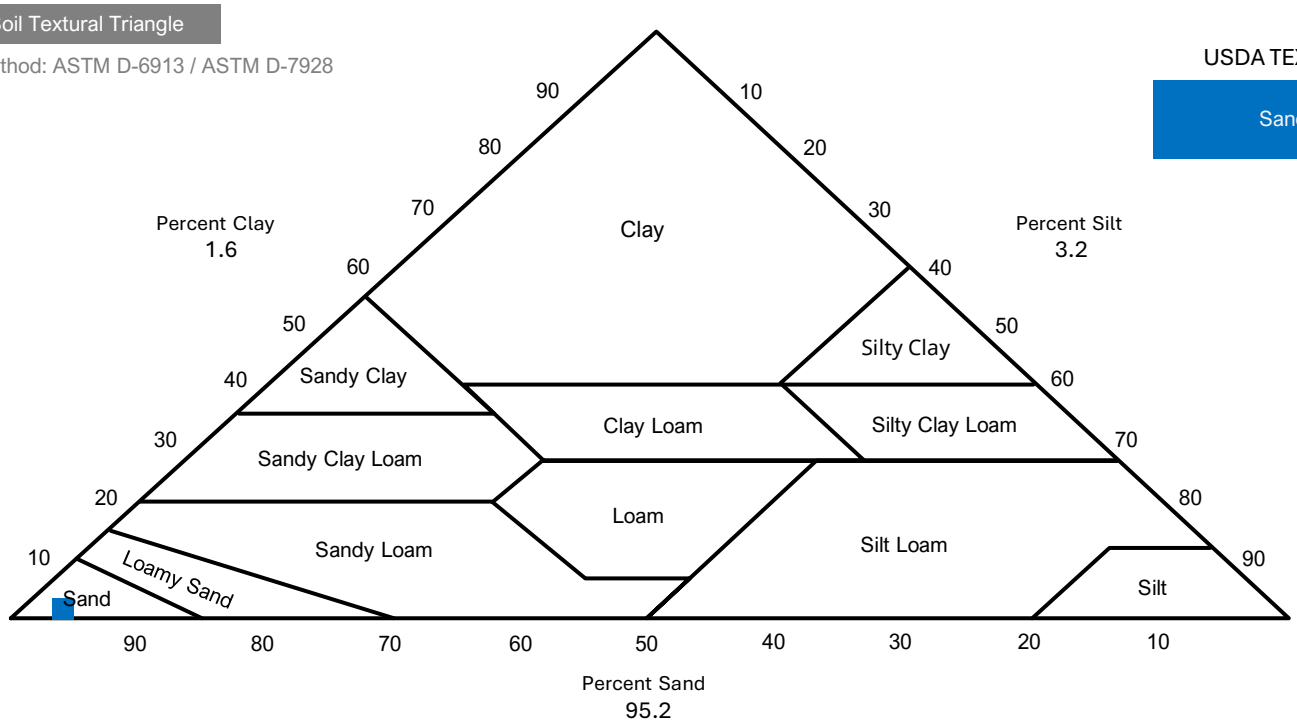
Soil Texture includes only fine-earth fraction (≤2 mm). "Whole-soil Particle-Size Distribution" includes fine-earth fraction (≤2 mm) and coarse fragments (>2 mm). USDA page 2-36.

USDA Soil Textural Triangle

Test Method: ASTM D-6913 / ASTM D-7928

USDA TEXTURE

Sand



NMC	LL	PL	PI
4.2%	-	-	-

JAY KAY TESTING
(814) 404-9283 www.jaykaytesting.com

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
PB-01	Bulk	0.3'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

Moisture-Density Relationship of Soils

MODIFIED PROCTOR

Test Method: ASTM D-1557 (B)

Percent oversize particles: 11.8%

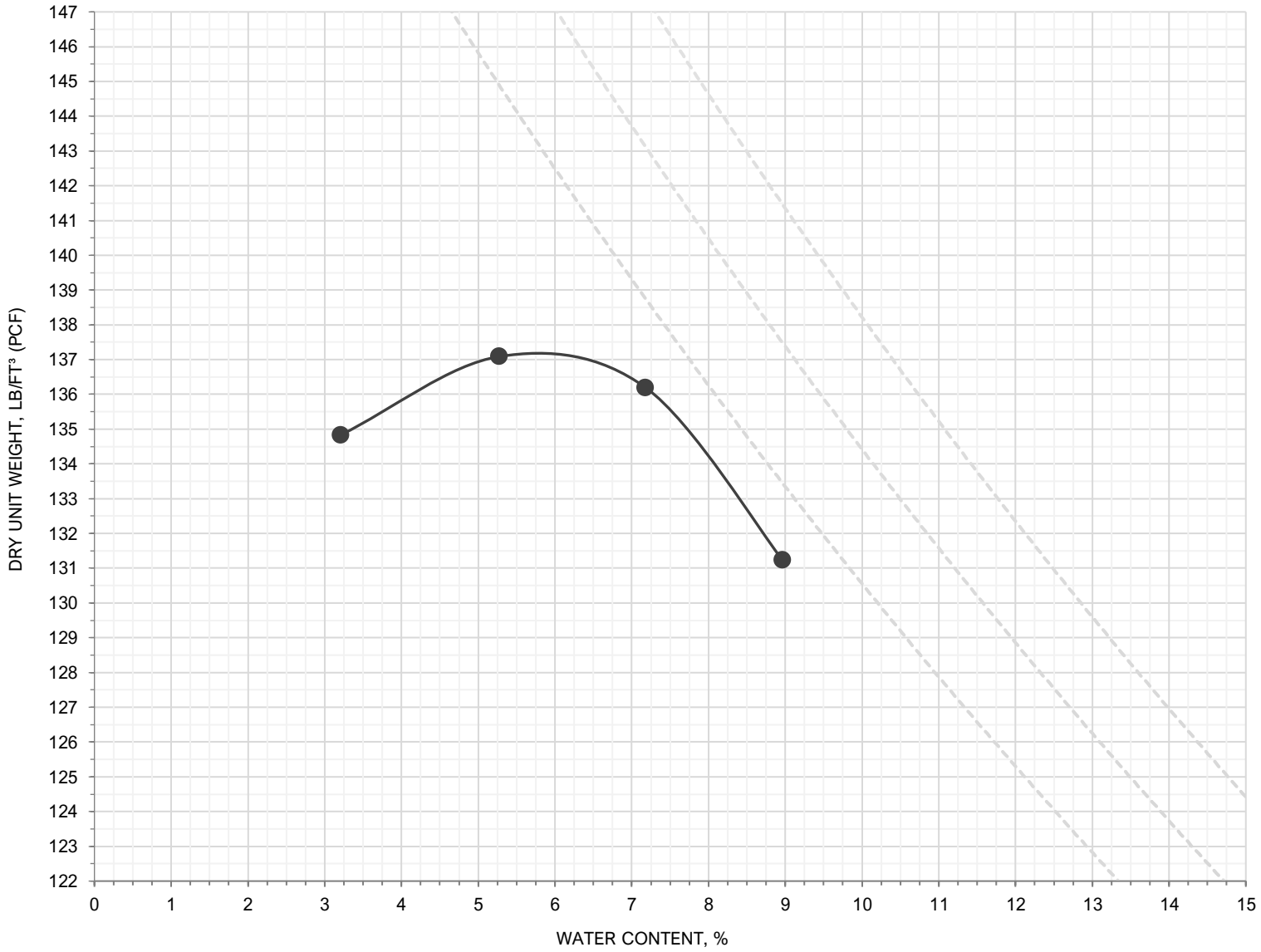
Oversized particles sieve: 3/8-in.

Threshold for correction: > 5.0%

	Uncorrected	Corrected*
Maximum dry unit weight, lb/ft³	137.1	139.7
Optimum water content	5.8%	5.4%

*Corrected for 11.8% oversized particles retained on the 3/8-in. sieve.

Maximum Dry Unit Weight	Optimum Water Content
139.7	5.4%
lb/ft³ (PCF)	



Zero Air Voids (100% Saturation)

Zero air voids curves: 2.65, 2.75, 2.85

Bulk Specific Gravity (assumed): 2.60

NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
7.7%	19%	14%	5%	27.0	SC-SM	A-2-4	Light brown silty clayey SAND with gravel

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-3	Bulk	0'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

Moisture-Density Relationship of Soils

MODIFIED PROCTOR

Test Method: ASTM D-1557 (B)

Percent oversize particles: 13.2%

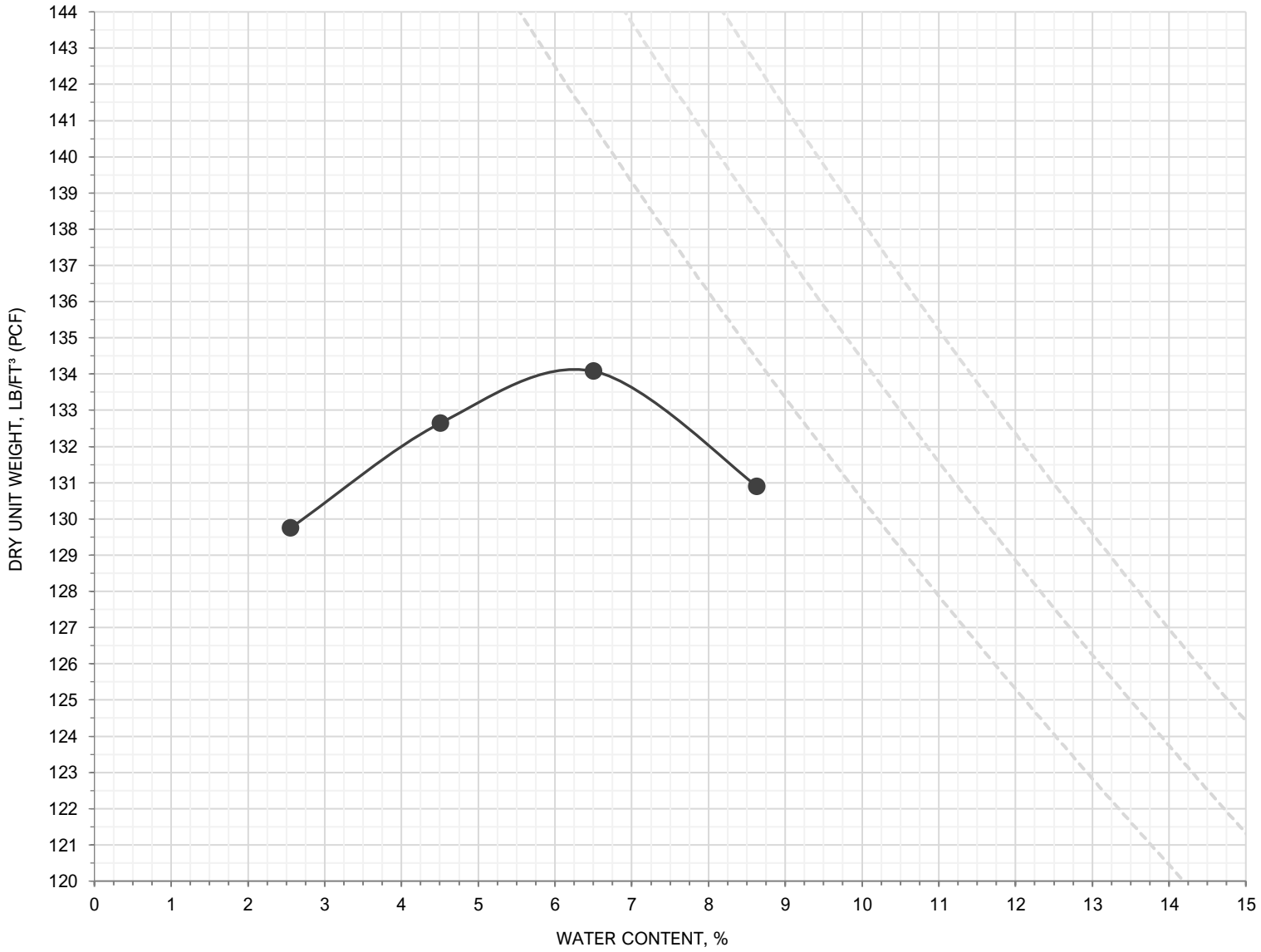
Oversized particles sieve: 3/8-in.

Threshold for correction: > 5.0%

	Uncorrected	Corrected*
Maximum dry unit weight, lb/ft³	134.1	137.3
Optimum water content	6.2%	5.6%

*Corrected for 13.2% oversized particles retained on the 3/8-in. sieve.

Maximum Dry Unit Weight	Optimum Water Content
137.3	5.6%
lb/ft³ (PCF)	



Zero Air Voids (100% Saturation)

Zero air voids curves: 2.65, 2.75, 2.85

Bulk Specific Gravity (assumed): 2.60

NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
10.9%	22%	13%	9%	24.7	SC	A-2-4	Dark brown clayey SAND with gravel

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
PB-01	Bulk	0.3'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

California Bearing Ratio of Laboratory-Compacted Soils (CBR)

Test Method: ASTM D-1883, Compaction Method: ASTM D-1557 (B)

	Uncorrected	Corrected*
Soaked (± 96 hours) CBR at 0.1"	80.5%	102.4%
Soaked (± 96 hours) CBR at 0.2"	107.9%	114.6%

Surcharge, lb/ft²	50
Target MDD, lb/ft³	139.7
Target OMC, %	5.4%

CBR at 0.1"*	CBR at 0.2"*
102.4%	114.6%

Specimen Swell	0.10%

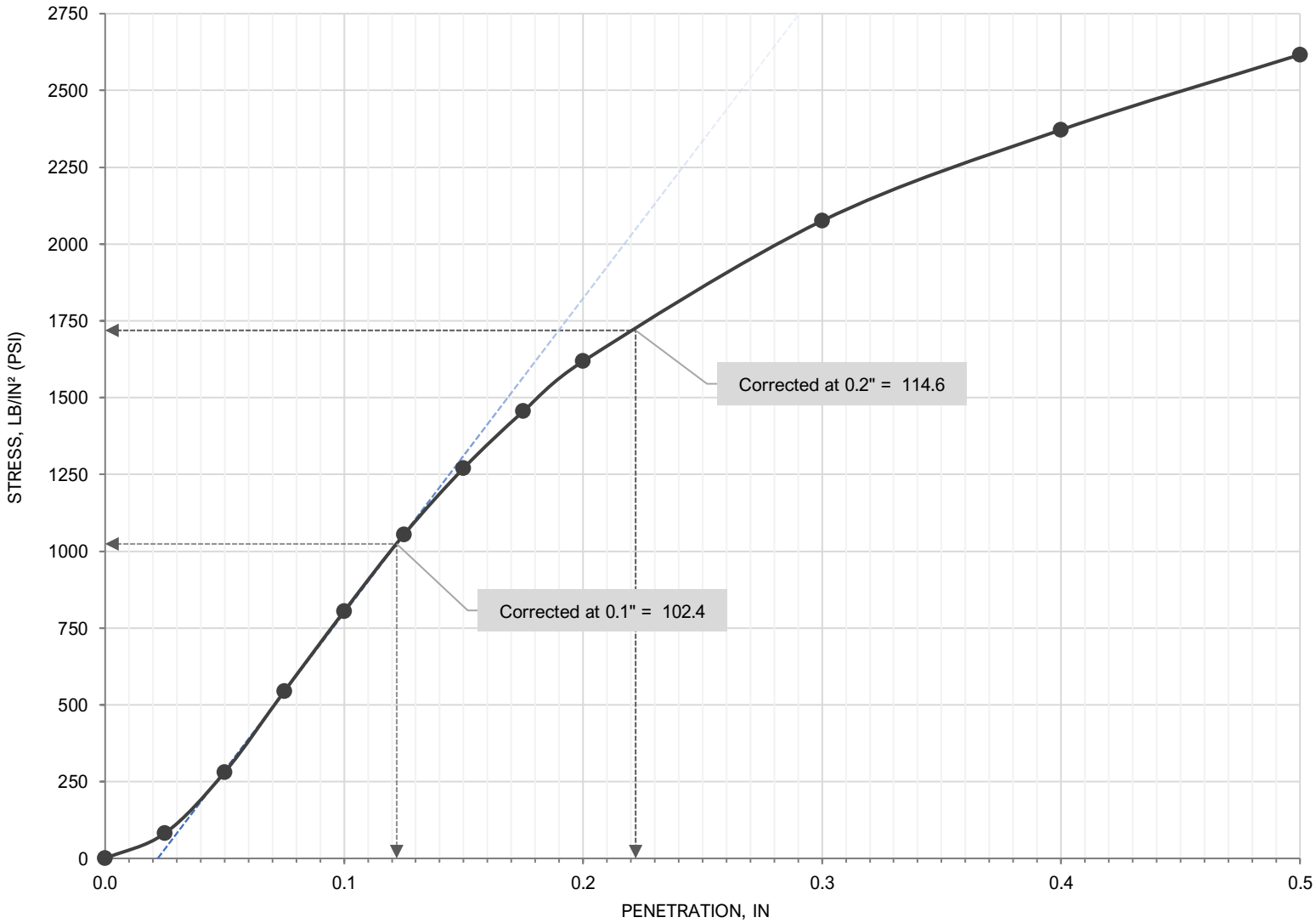
Specimen Data

AS-MOLDED

Dry unit weight, lb/ft³	133.9	Blows per layer, #	25
Water content	5.9%	Achieved compaction	95.9%

AFTER-SOAK

Water content of top 1" layer	6.4%



NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
7.7%	19%	14%	5%	27.0	SC-SM	A-2-4	Light brown silty clayey SAND with gravel

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Project Number: 23140043.000

Jay Kay Testing

Boring ID	Sample ID	Top	Btm
SWM-3	Bulk	0'	5'

Location: Atlantic City, NJ

Sample Date: 07/17/23

California Bearing Ratio of Laboratory-Compacted Soils (CBR)

Test Method: ASTM D-1883, Compaction Method: ASTM D-1557 (B)

	Uncorrected	Corrected*
Soaked (± 96 hours) CBR at 0.1"	75.5%	84.2%
Soaked (± 96 hours) CBR at 0.2"	79.9%	82.4%

Surcharge, lb/ft²	50
Target MDD, lb/ft³	137.3
Target OMC, %	5.6%

CBR at 0.1"*	CBR at 0.2"*
84.2%	82.4%

Specimen Swell	0.04%

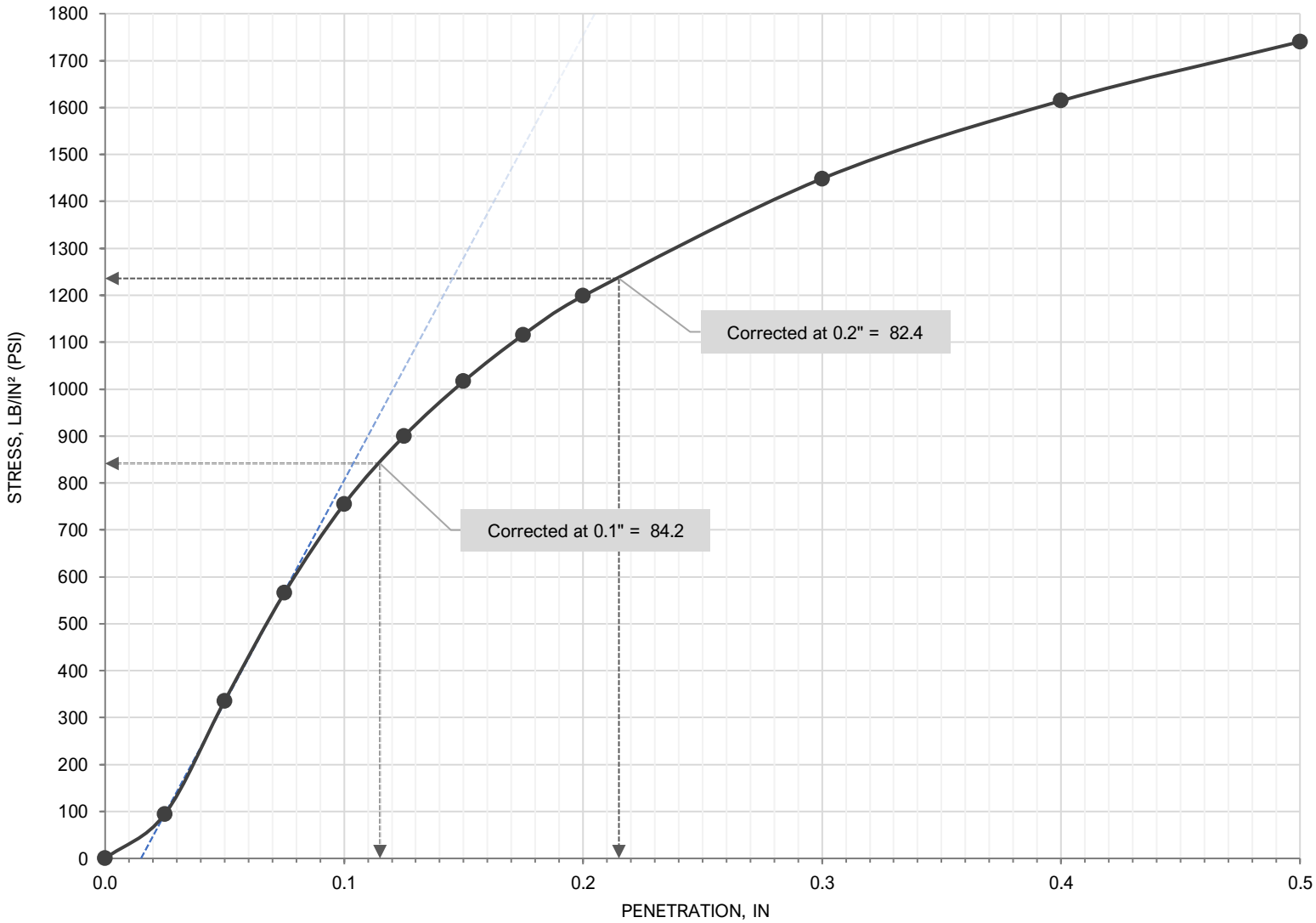
Specimen Data

AS-MOLDED

Dry unit weight, lb/ft³	131.0	Blows per layer, #	25
Water content	5.6%	Achieved compaction	95.4%

AFTER-SOAK

Water content of top 1" layer	8.0%



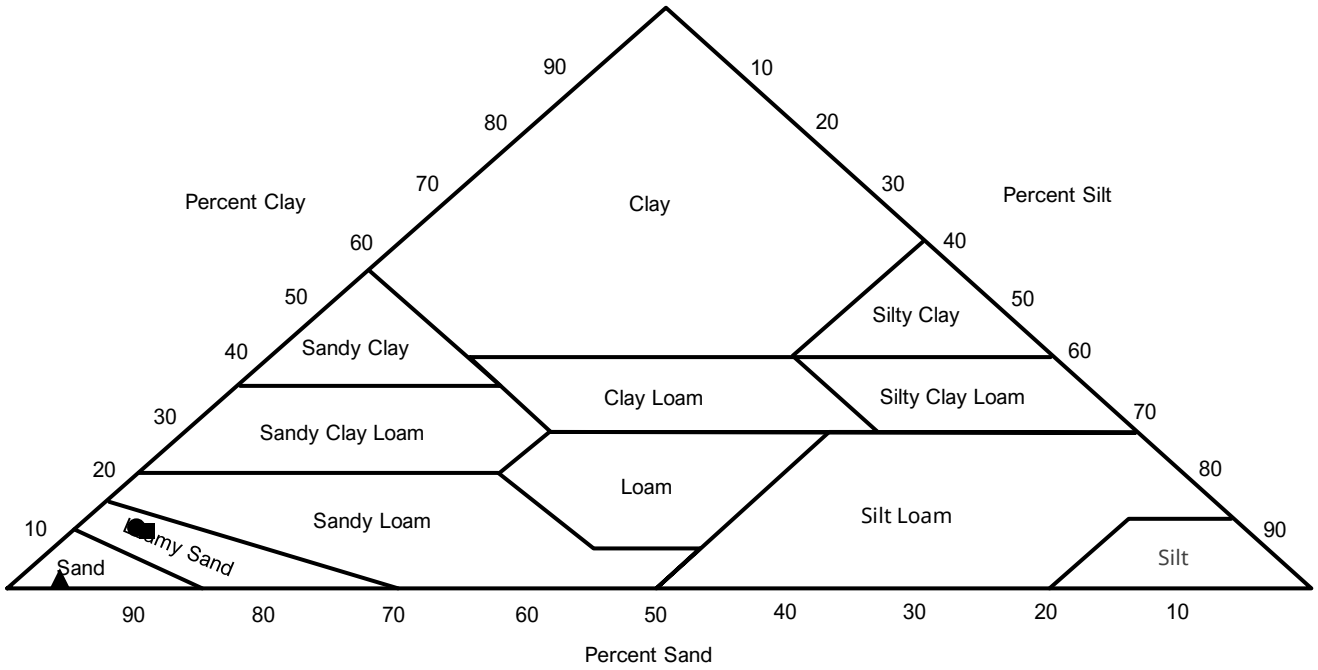
NMC	LL	PL	PI	% Fines	USCS	AASHTO	Soil Description (D-2487)
10.9%	22%	13%	9%	24.7	SC	A-2-4	Dark brown clayey SAND with gravel

08/15/23 Tested by: ST/JT Reviewed by: KD Jay Kay Testing

JAY KAY TESTING

USDA SOIL TEXTURAL ANALYSIS

Job Name:	**F-16 Mission Training Center SWM**	Client:	Schnabel
Job Number:	23140043.010	PM/Reviewer:	DM
Location:	Egg Harbor, New Jersey	Tester:	ST/JT
Sample Date:	05/02/25	Report Date:	05/13/25



	Boring ID	Sample ID	Top	Btm	% Sand	% Silt	% Clay	USDA Texture
●	SWM-4	S-7	12	14	85.0%	4.7%	10.3%	Loamy Sand
■	SWM-5	S-5	8	10	84.4%	5.8%	9.8%	Loamy Sand
▲	SWM-6	S-5	8	10	95.2%	3.2%	1.6%	Sand

Laboratory Corrosivity Testing

F-16 Mission Training Center, Atlantic City ANG Base, New Jersey

Schnabel Project Number: 23140043.000

Jay Kay Testing, Inc.
(814) 404-9283
DC , MD, PA, VA
www.jaykaytesting.com

Sample ID		Depth			pH[1] ASTM G-51		ORP[2] ASTM D-1498	Resistivity ASTM G-57			Chloride[3] ASTM D-512		Sulfate[4] ASTM D-516		Sulfide[5] Methylene Titration	
Boring ID	Sample ID	Top, ft	Bottom, ft	Natural Water Content, %	pH (1:1)	Test Temperature, °C	ORP (Redox), mV (1:1)	As Received, Ω-cm	Minimum, Ω-cm	Saturated, Ω-cm	Chlorides, PPM (mg/kg) (1:1)	Chlorides, µg/kg (1:1)	Sulfates, PPM (mg/kg) (3:1)	Sulfates, % Dry Weight (3:1)	Sulfides Ion Presence (1:1)	Remarks
B-01	S-2	2	4	9.3	6.82	20.0	-	52,500	-	10,500	-		-		-	
B-01	S-3	4	6	5.3	6.04	19.9	269	150,000	-	35,500	5	5,000	16	0.0016	negative	
B-01	S-4	8	10	-	5.85	19.8	-	220,000	-	46,200	-		-		-	
B-02	S-3	4	6	12.9	7.74	20.4	-	7,800	-	2,900	-		-		-	
B-02	S-4	8	10	8.7	4.77	20.3	-	91,000	-	25,000	-		-		-	
B-04	S-3	4	6	8.8	4.60	20.1	-	2,100	-	651	-		-		-	
B-04	S-4	8	10	-	4.43	19.8	-	9,650	-	4,580	-		-		-	
B-05	S-2	2	4	5.0	5.42	20.1	263	180,000	-	42,800	6	6,000	11	0.0011	negative	
PB-01	S-1	0.25	2	9.5	4.97	20.2	296	71,500	-	20,100	7	7,000	21	0.0021	negative	

[1] pH verified with second pH meter.

[2] ORP electrode. Verified with separate ORP meter.

[3] Verified with separate chloride photometer method.

[4] Turbidimetric photometer method. Verified with separate turbidimetric titration method. All dilutions are 1:1 except sulfate, 3:1 (per method).

[5] Pomeroy methylene blue method (titration). Verified with a separate method using auto-dilution ampoules for colorimetric analysis.

08/13/23 Tested by: ST/JT Reviewed by: KD- Schnabel 8/28/23

Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	---	Sample Type:	---	Tested By:	md
Sample ID:	---	Test Date:	08/25/23	Checked By:	ank
Depth :	---	Test Id:	727868		

Moisture Content of Soil and Rock - ASTM D2216

Boring ID	Sample ID	Depth	Description	Moisture Content, %
B-01A	Shelby Tube	22-23.7	Moist, yellowish brown sandy silt	22.4
PB-01	Shelby Tube	8-9.5	Moist, yellowish brown silty clayey sand	8.9

Notes: Temperature of Drying : 110° Celsius

Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	---	Sample Type:	---	Tested By:	md
Sample ID:	---	Test Date:	08/25/23	Checked By:	jsc
Depth :	---	Test Id:	727866		

Laboratory Determination of Density (Unit Weight) of Soil Specimens by ASTM D7263

Boring ID	Sample ID	Depth	Visual Description	Bulk Density pcf	Moisture Content %	Dry Density pcf	*
B-01A	Shelby Tube	22-23.7	Moist, yellowish brown sandy silt	114.8	22.42	93.73	(1)
PB-01	Shelby Tube	8-9.5	Moist, yellowish brown silty clayey sand	130.8	8.919	120.1	(2)

* Sample Comments

(1): Method B-Cylinder, Intact

(2): Method B-Cylinder, Intact

Notes: Moisture Content determined by ASTM D2216.

Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	---	Sample Type:	---	Tested By:	cam
Sample ID:	---	Test Date:	08/25/23	Checked By:	ank
Depth :	---	Test Id:	727862		

USCS Classification - ASTM D2487

Boring ID	Sample ID	Depth	Group Name	Group Symbol	Gravel, %	Sand, %	Fines, %
B-01A	Shelby Tube	22-23.7	Sandy SILT	ML	0.0	31.9	68.1
PB-01	Shelby Tube	8-9.5	Silty, Clayey SAND	SC-SM	0.0	71.6	28.4

Remarks: Grain Size analysis performed by ASTM D 6913 results enclosed
Atterberg Limits performed by ASTM D4318, results enclosed

Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	---	Sample Type:	---	Tested By:	ckg
Sample ID:	---	Test Date:	08/23/23	Checked By:	ank
Depth :	---	Test Id:	727870		

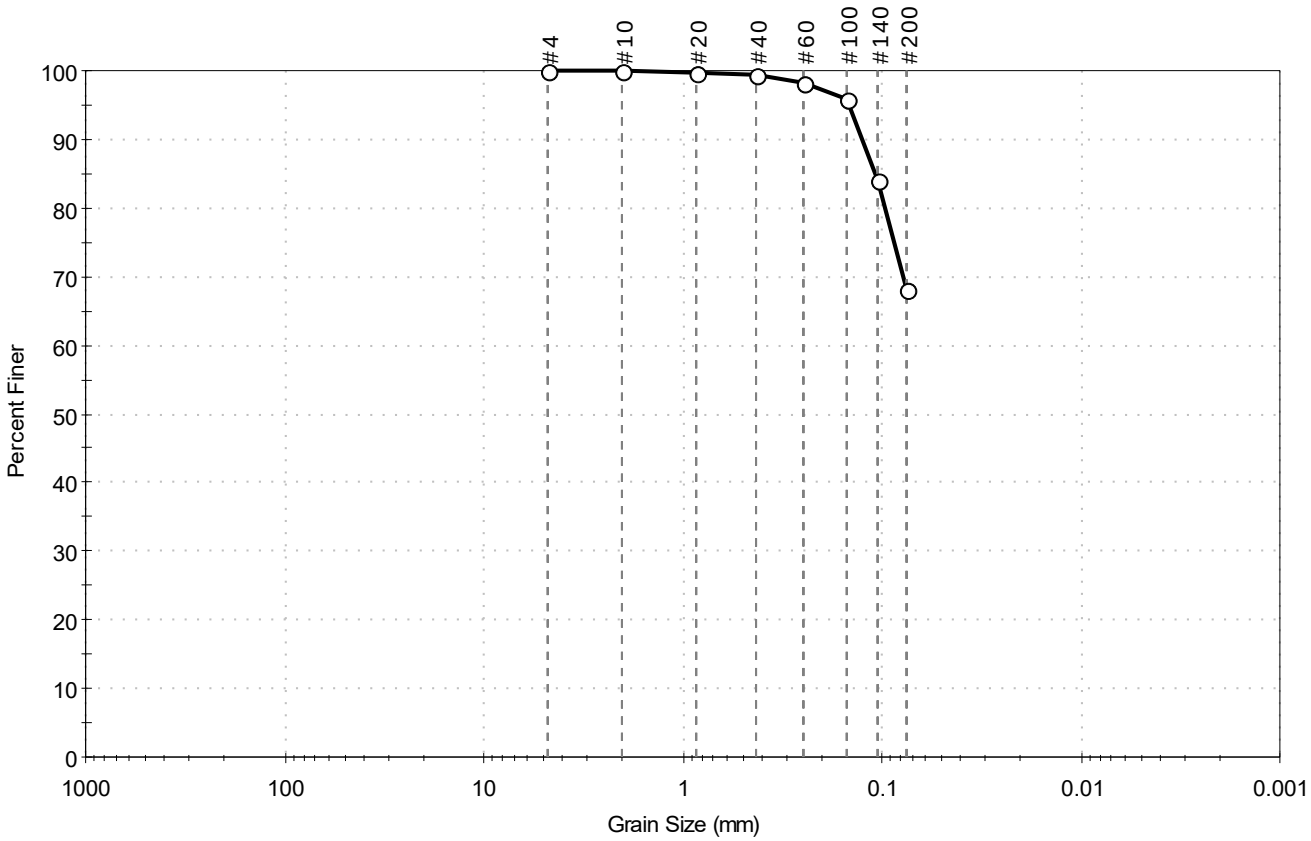
Specific Gravity of Soils by ASTM D854

Boring ID	Sample ID	Depth	Visual Description	Specific Gravity	Comment
B-01A	Shelby Tube	22-23.7	Moist, yellowish brown sandy silt	2.69	
PB-01	Shelby Tube	8-9.5	Moist, yellowish brown silty clayey sand	2.66	

Notes: Specific Gravity performed by using method B (oven dried specimens) of ASTM D854
Moisture Content determined by ASTM D2216.

Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	B-01A	Sample Type:	tube	Tested By:	ckg
Sample ID:	Shelby Tube	Test Date:	08/22/23	Checked By:	jsc
Depth :	22-23.7	Test Id:	727863		
Test Comment:	---				
Visual Description:	Moist, yellowish brown sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	31.9	68.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	99		
#60	0.25	98		
#100	0.15	96		
#140	0.11	84		
#200	0.075	68		

Coefficients

D_{85} = 0.1091 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM Sandy SILT (ML)

AASHTO Silty Soils (A-4 (0))

Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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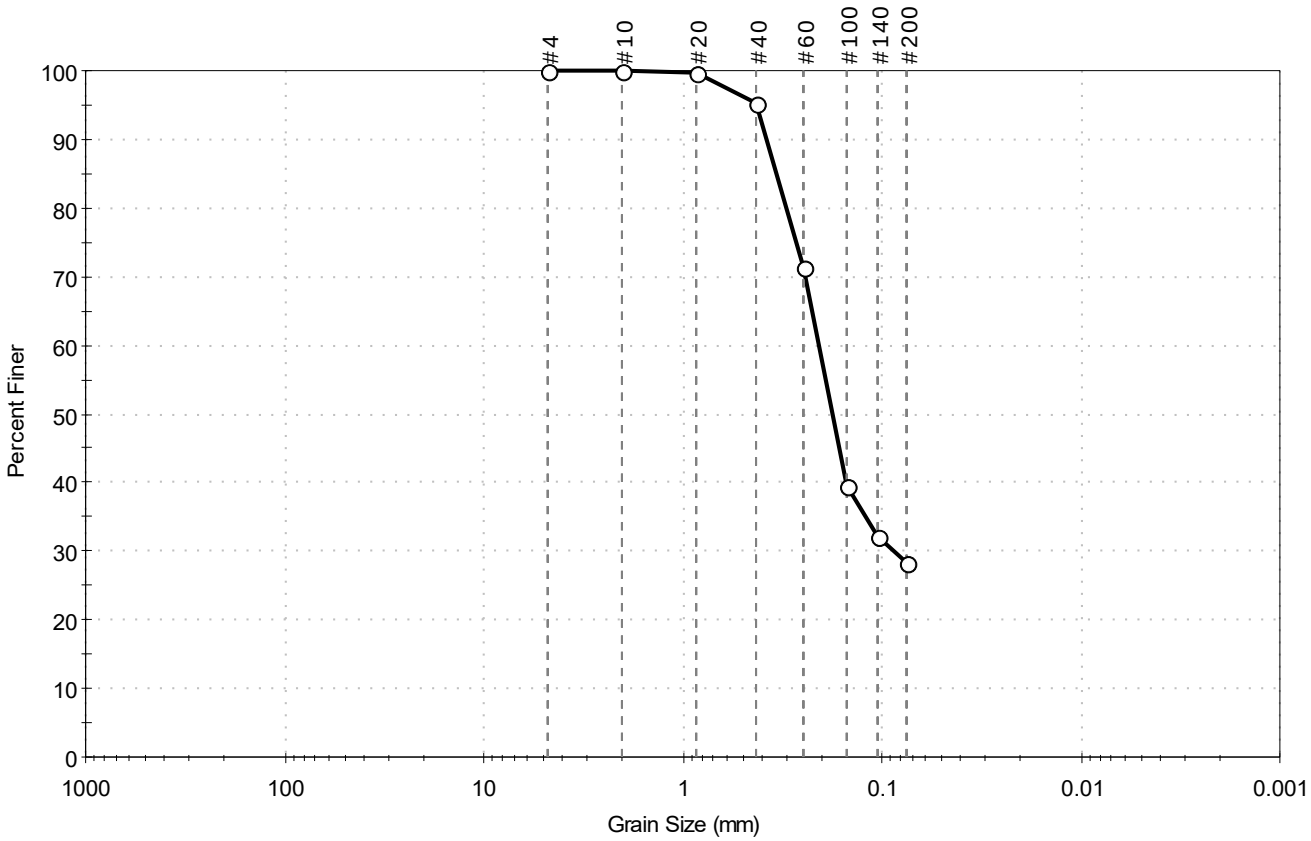
Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	PB-01	Sample Type:	tube	Tested By:	ckg
Sample ID:	Shelby Tube	Test Date:	08/22/23	Checked By:	jsc
Depth :	8-9.5	Test Id:	727864		
Test Comment:	---				
Visual Description:	Moist, yellowish brown silty clayey sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D6913



% Cobble	% Gravel	% Sand	% Silt & Clay Size
--	0.0	71.6	28.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	100		
#40	0.42	95		
#60	0.25	71		
#100	0.15	40		
#140	0.11	32		
#200	0.075	28		

Coefficients

D_{85} = 0.3386 mm D_{30} = 0.0866 mm

D_{60} = 0.2084 mm D_{15} = N/A

D_{50} = 0.1774 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM Silty, Clayey SAND (SC-SM)

AASHTO Silty Gravel and Sand (A-2-4 (0))

Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

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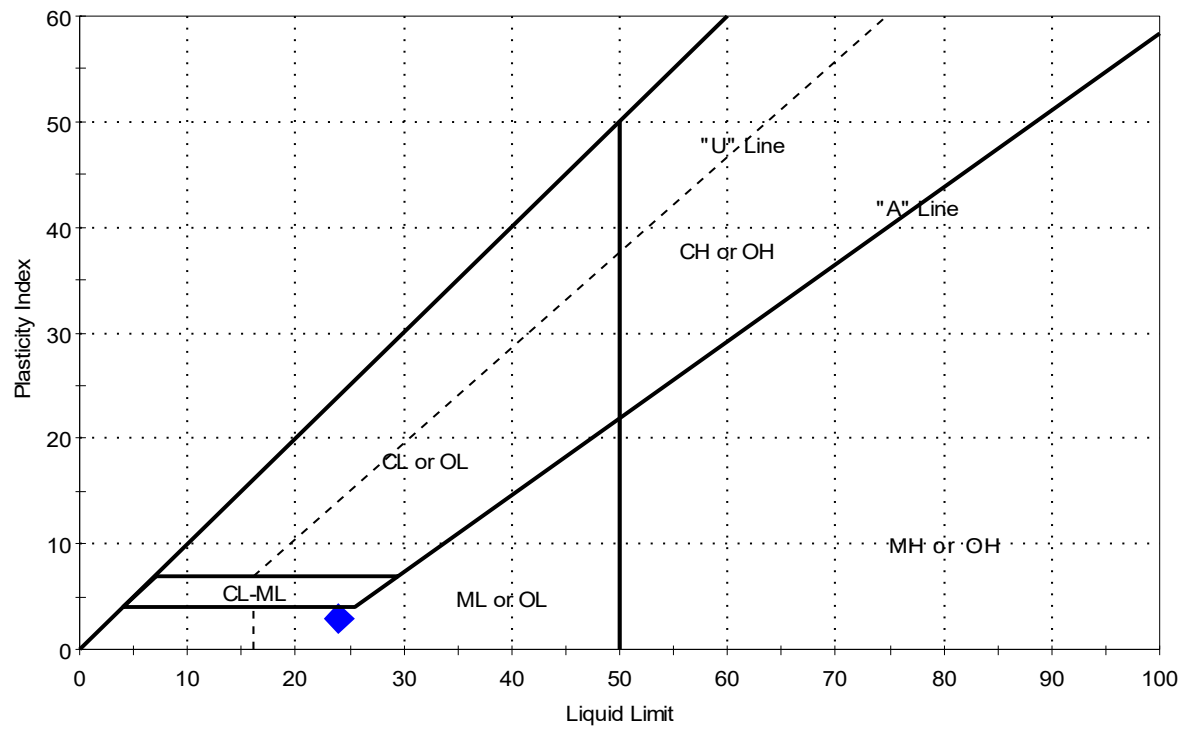
Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	B-01A	Sample Type:	tube	Tested By:	cam
Sample ID:	Shelby Tube	Test Date:	08/22/23	Checked By:	ank
Depth :	22-23.7	Test Id:	727851		
Test Comment:	---				
Visual Description:	Moist, yellowish brown sandy silt				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	Shelby Tube	B-01A	22-23.7	22	24	21	3	0.5	Sandy SILT (ML)

Sample Prepared using the WET method

1% Retained on #40 Sieve

Dry Strength: HIGH

Dilatancy: SLOW

Toughness: LOW

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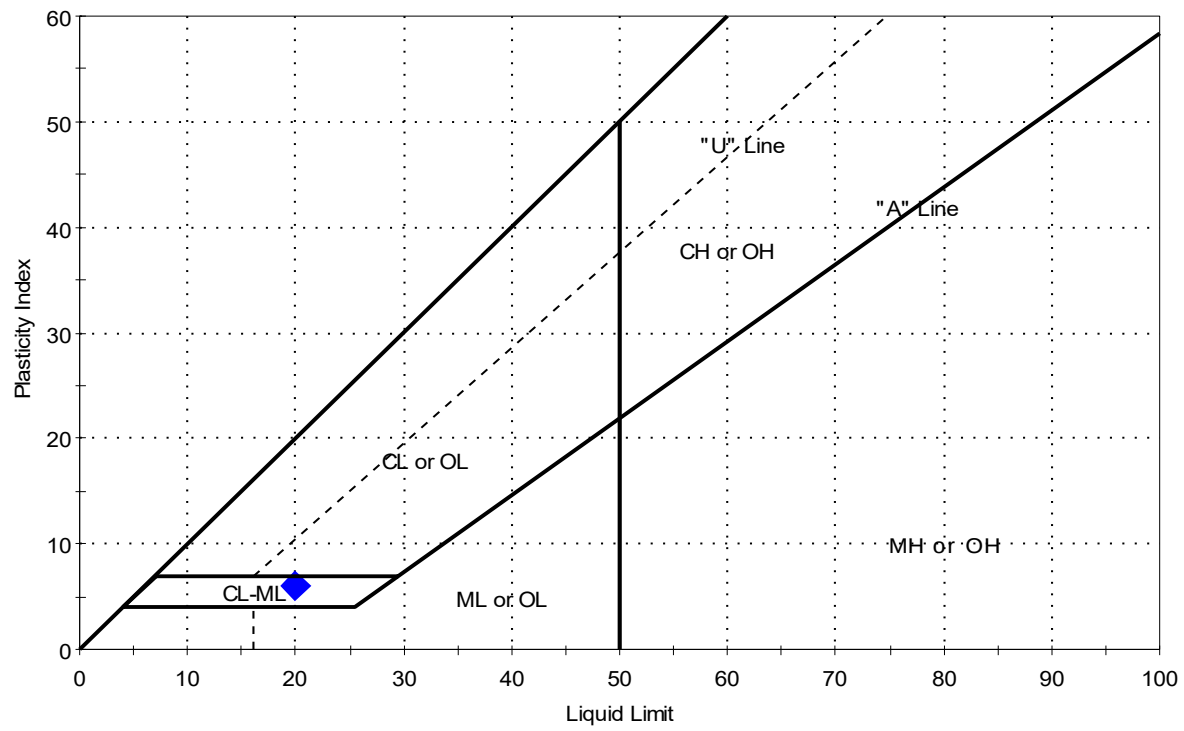
Client:	Schnabel Engineering, LLC				
Project:	F-16 Mission Training Center				
Location:	Atlantic City, NJ			Project No:	GTX-317638
Boring ID:	PB-01	Sample Type:	tube	Tested By:	cam
Sample ID:	Shelby Tube	Test Date:	08/22/23	Checked By:	ank
Depth :	8-9.5	Test Id:	727852		
Test Comment:	---				
Visual Description:	Moist, yellowish brown silty clayey sand				
Sample Comment:	---				

Atterberg Limits - ASTM D4318



Symbol	Sample ID	Boring	Depth	Natural Moisture Content, %	Liquid Limit	Plastic Limit	Plasticity Index	Liquidity Index	Soil Classification
◆	Shelby Tube	PB-01	8-9.5	9	20	14	6	-0.8	Silty, Clayey SAND (SC-SM)

Sample Prepared using the WET method

5% Retained on #40 Sieve

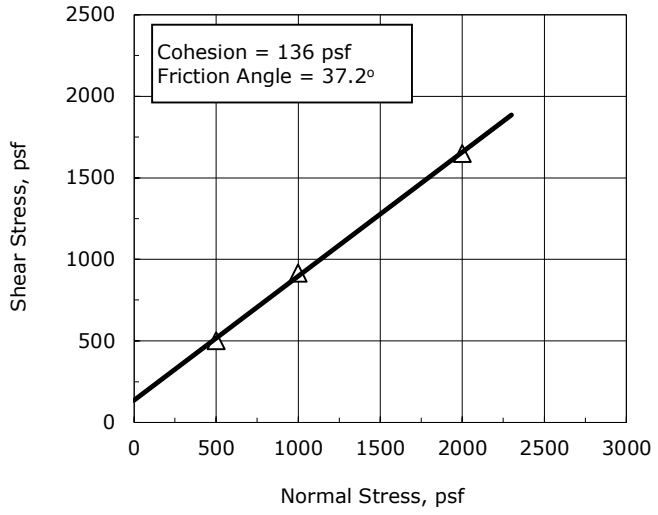
Dry Strength: HIGH

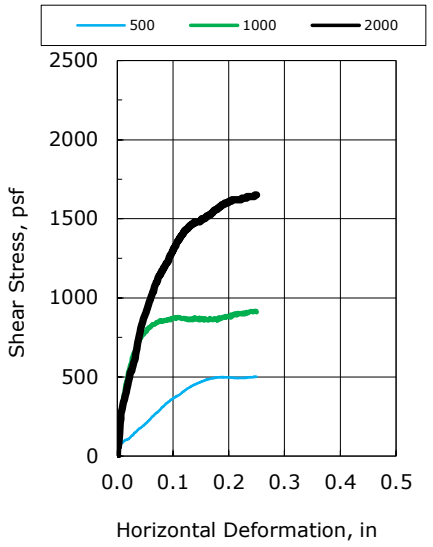
Dilatancy: SLOW

Toughness: LOW

Client:	Schnabel Engineering, LLC
Project Name:	F-16 Mission Training Center
Project Location:	Atlantic City, NJ
GTX #:	317638
Test Date:	08/24/23
Tested By:	sjt
Checked By:	njh
Boring ID:	B-01A
Sample ID:	Shelby Tube
Depth, ft:	22-23.7
Visual Description:	Moist, yellowish brown sandy silt

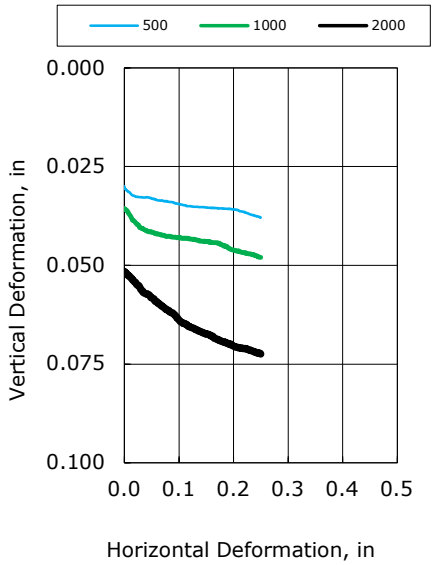
Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080





Test No.:	DS-1-1	DS-1-2	DS-1-3
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	147.9	149.7	152.3
Initial Dry Density, pcf:	92.9	93.2	95.7
Initial Moisture Content, %:	23.5	24.7	23.4
Initial Bulk Density, pcf:	114.7	116.2	118.2
Initial Degree of Saturation:	78.3	82.9	83.6
Initial Void Ratio:	0.81	0.80	0.75
Final Dry Density, pcf:	96.6	97.8	103.2
Final Moisture Content, %:	29.8	29.6	27.5
Final Bulk Density, pcf:	125.4	126.8	131.6
Normal Stress, psf:	500	1000	2000
Maximum Shear Stress, psf:	502	917	1650
Shear Rate, in/min:	0.0004	0.0004	0.0004

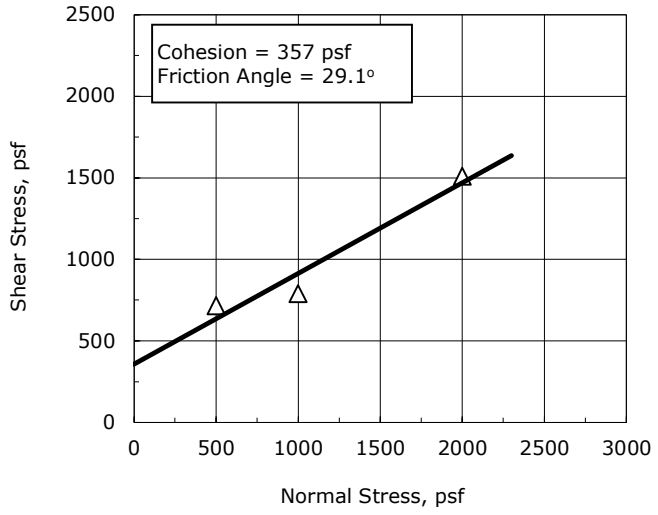
Sample Type:	intact
Measured Specific Gravity:	2.69
Liquid Limit:	24
Plastic Limit:	21
Plasticity Index:	3
% Passing #200 sieve:	68.1
Soil Classification:	Sandy SILT
Group Symbol:	ML

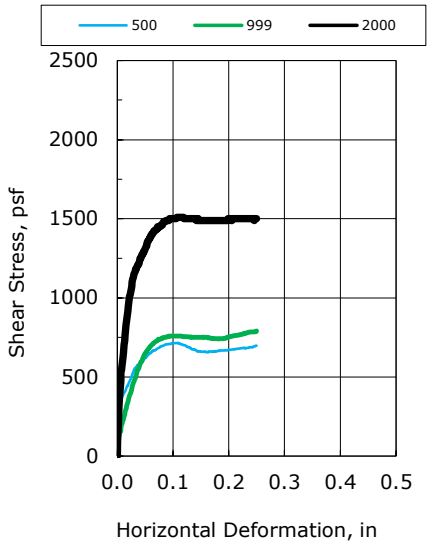


Notes:
Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D2216
Specific Gravity determined by ASTM D854
Atterberg Limits determined by ASTM D4318
Percent passing #200 sieve determined by ASTM D6913
Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content.
Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

Client:	Schnabel Engineering, LLC
Project Name:	F-16 Mission Training Center
Project Location:	Atlantic City, NJ
GTX #:	317638
Test Date:	08/30/23
Tested By:	sjt
Checked By:	njh
Boring ID:	PB-01
Sample ID:	Shelby Tube
Depth, ft:	8-9.5
Visual Description:	Moist, yellowish brown silty, clayey sand

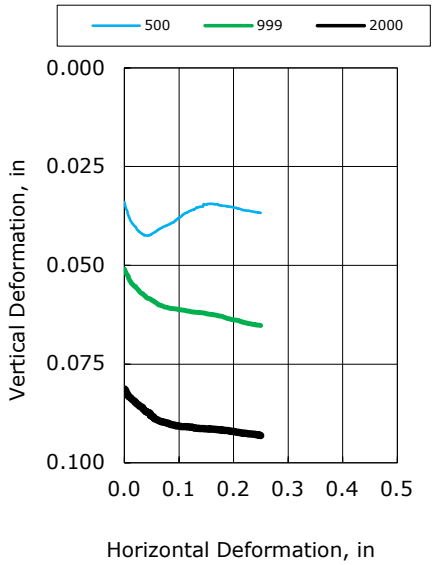
Direct Shear Test of Soils Under Consolidated Drained Conditions by ASTM D3080





Test No.:	DS-2-1	DS-2-2	DS-2-3
Initial Diameter, in:	2.5	2.5	2.5
Initial Height, in:	1.0	1.0	1.0
Initial Mass, grams:	168.5	159.7	162.5
Initial Dry Density, pcf:	118.9	111.6	113.6
Initial Moisture Content, %:	10.0	11.1	11.0
Initial Bulk Density, pcf:	130.8	124.0	126.1
Initial Degree of Saturation:	67.3	60.3	63.4
Initial Void Ratio:	0.40	0.49	0.46
Final Dry Density, pcf:	123.4	119.3	125.2
Final Moisture Content, %:	14.7	16.1	15.0
Final Bulk Density, pcf:	141.5	138.5	144.0
Normal Stress, psf:	500	999	2000
Maximum Shear Stress, psf:	716	791	1510
Shear Rate, in/min:	0.0004	0.0004	0.0004

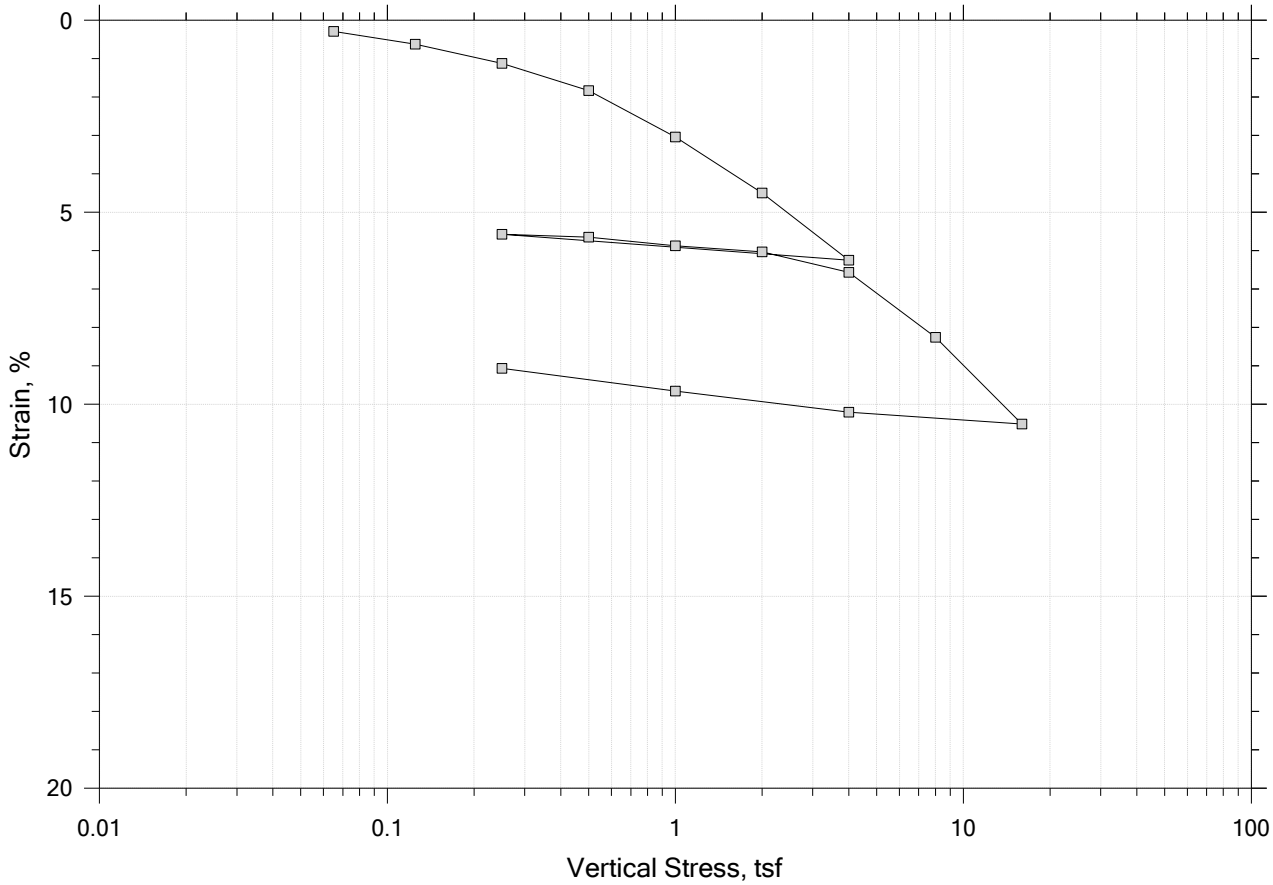
Sample Type:	intact
Measured Specific Gravity:	2.66
Liquid Limit:	20
Plastic Limit:	14
Plasticity Index:	6
% Passing #200 sieve:	28.4
Soil Classification:	Silty, Clayey SAND
Group Symbol:	SC-SM

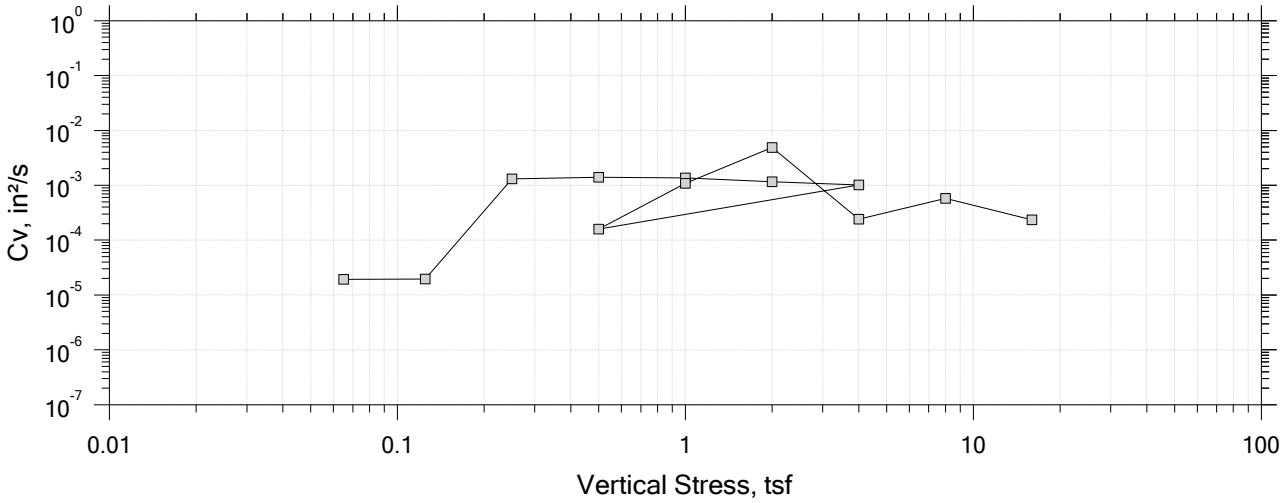


Notes:
Moisture content obtained before shear from sample trimmings
Moisture Content determined by ASTM D2216
Specific Gravity determined by ASTM D854
Atterberg Limits determined by ASTM D4318
Percent passing #200 sieve determined by ASTM D6913
Extruded from tube, cut, trimmed and placed into apparatus at the as-received density and moisture content.
Values for cohesion and friction angle determined from best-fit straight line to the data for the specific test conditions. Actual strength parameters may vary and should be determined by an engineer for site-specific conditions.

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report





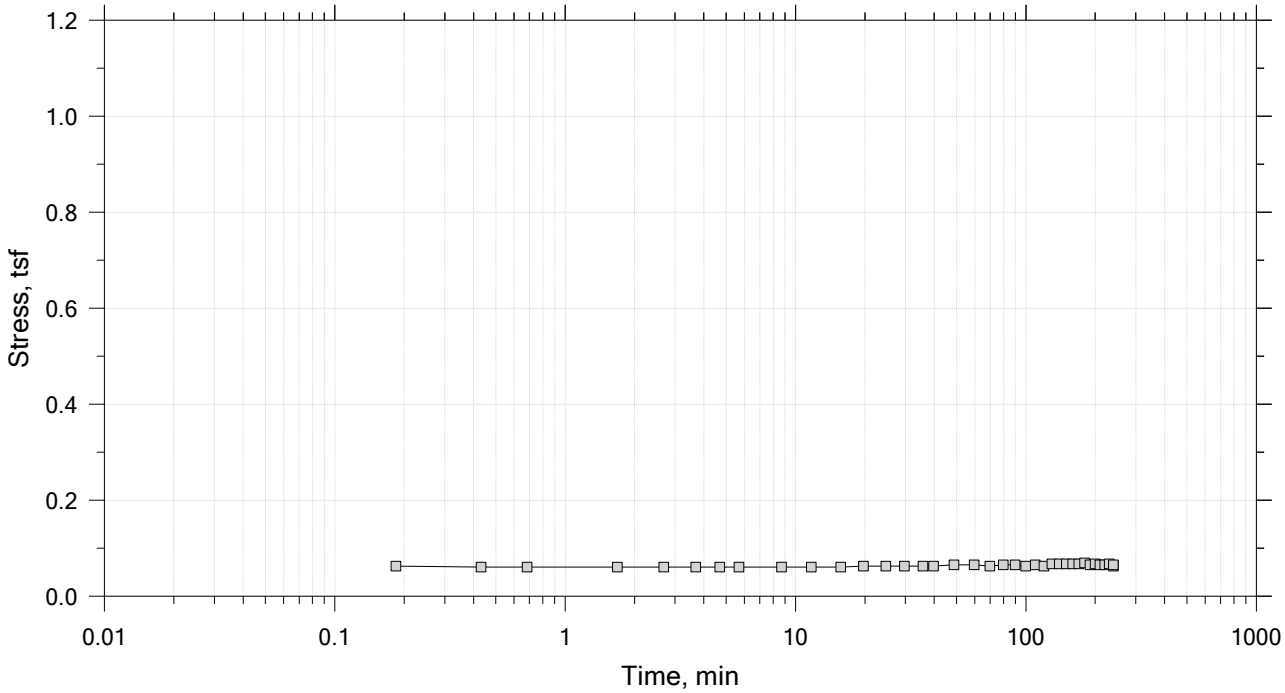
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		
	Displacement at End of Increment		

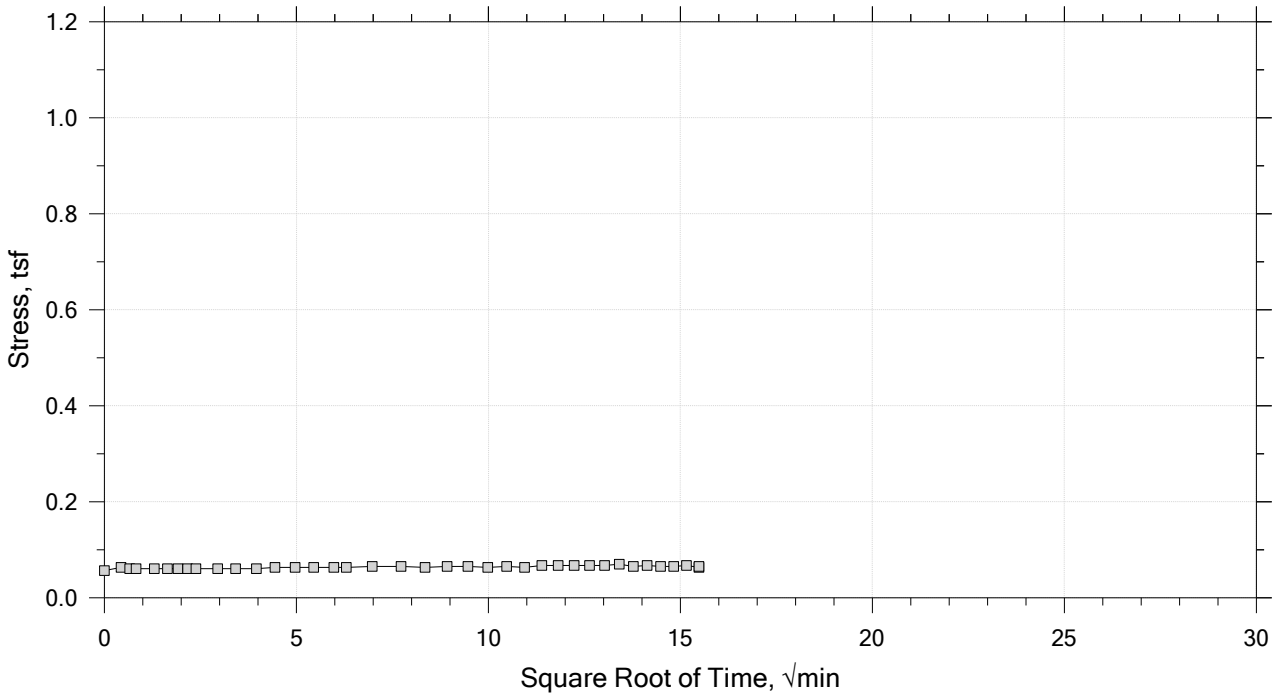
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 17

Constant Volume Step

Stress: 0.0651 tsf





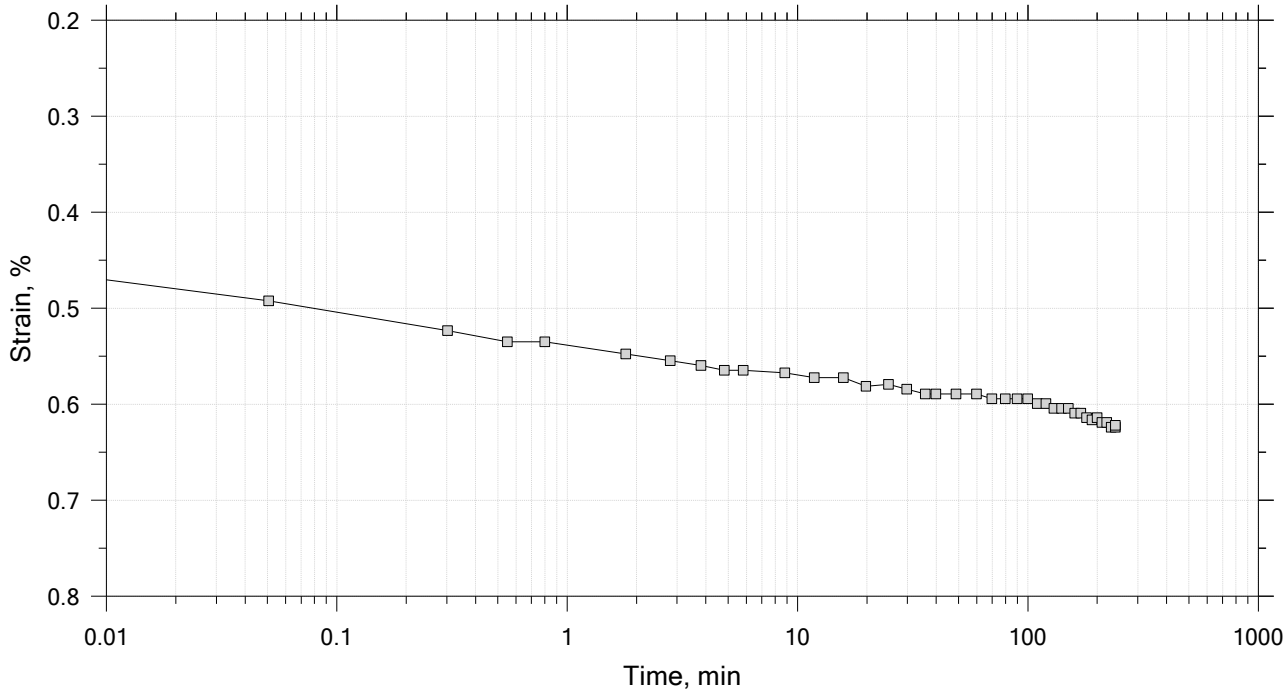
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

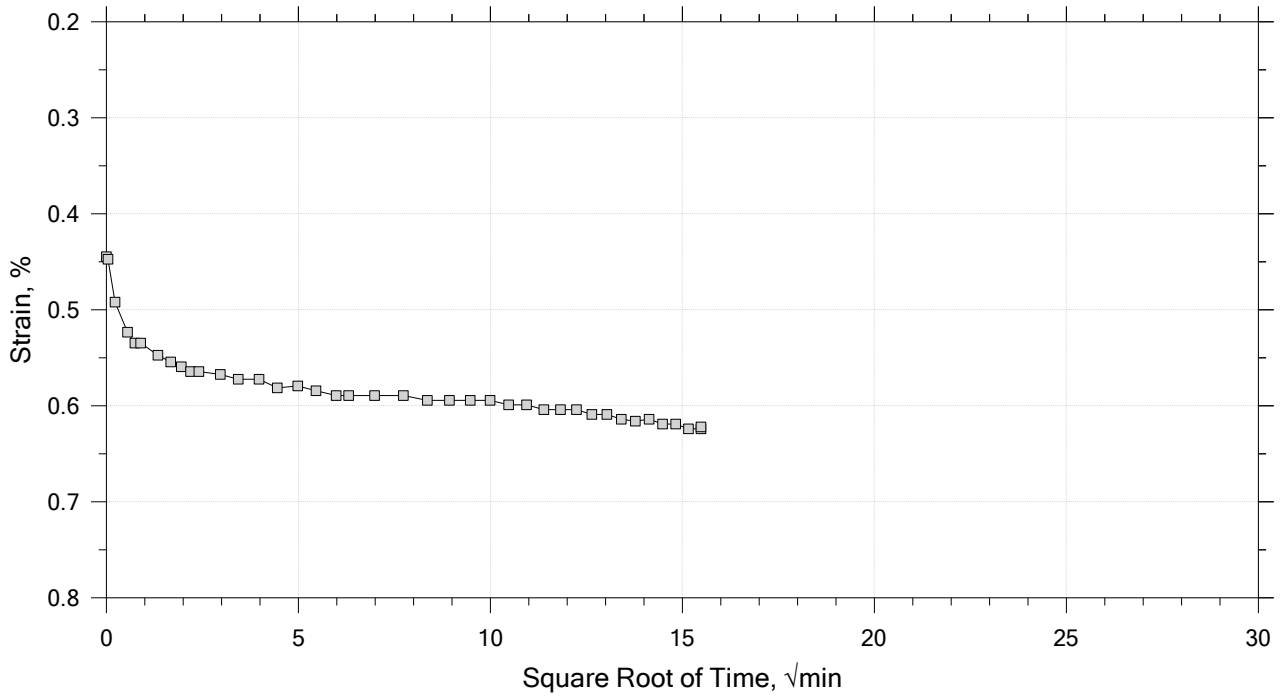
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 17

Constant Load Step

Stress: 0.125 tsf





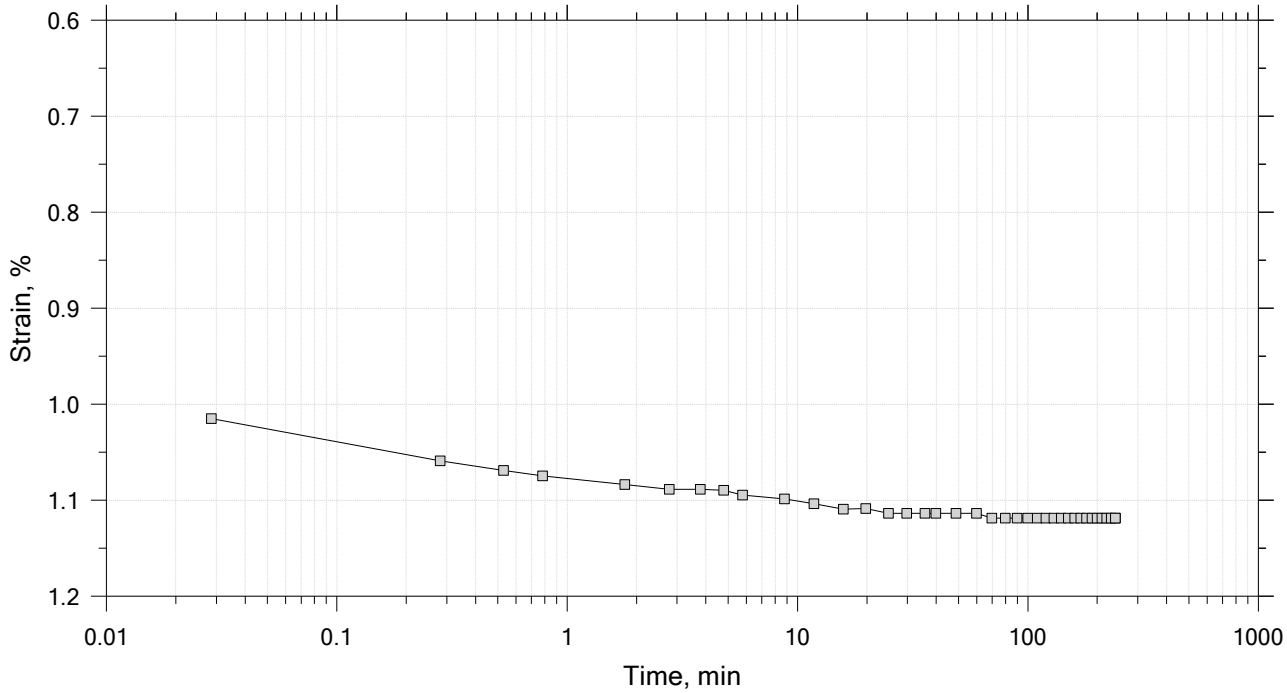
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		

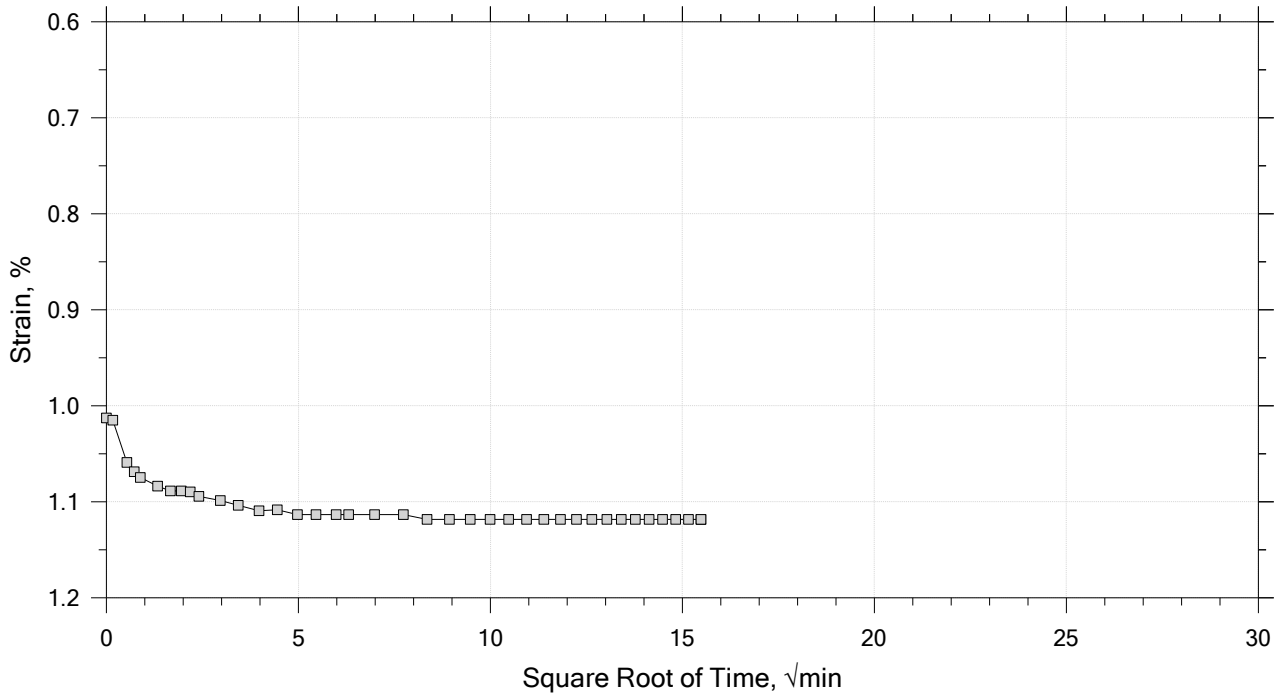
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 17

Constant Load Step

Stress: 0.25 tsf





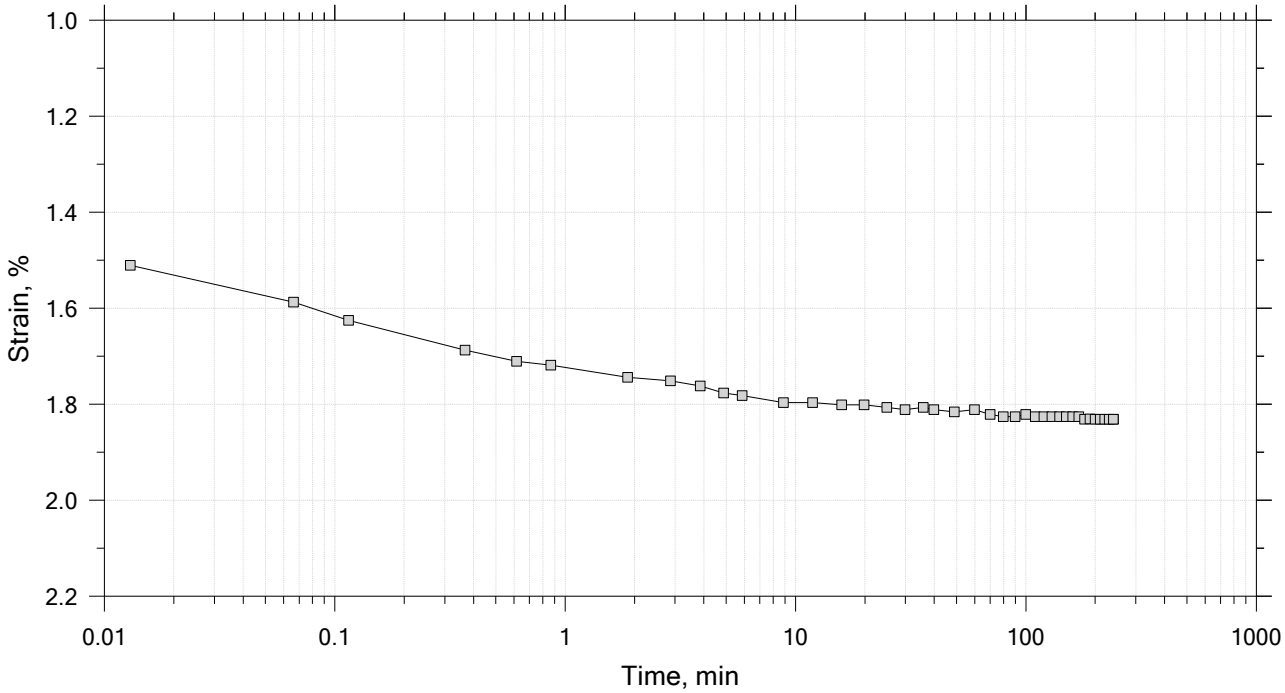
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

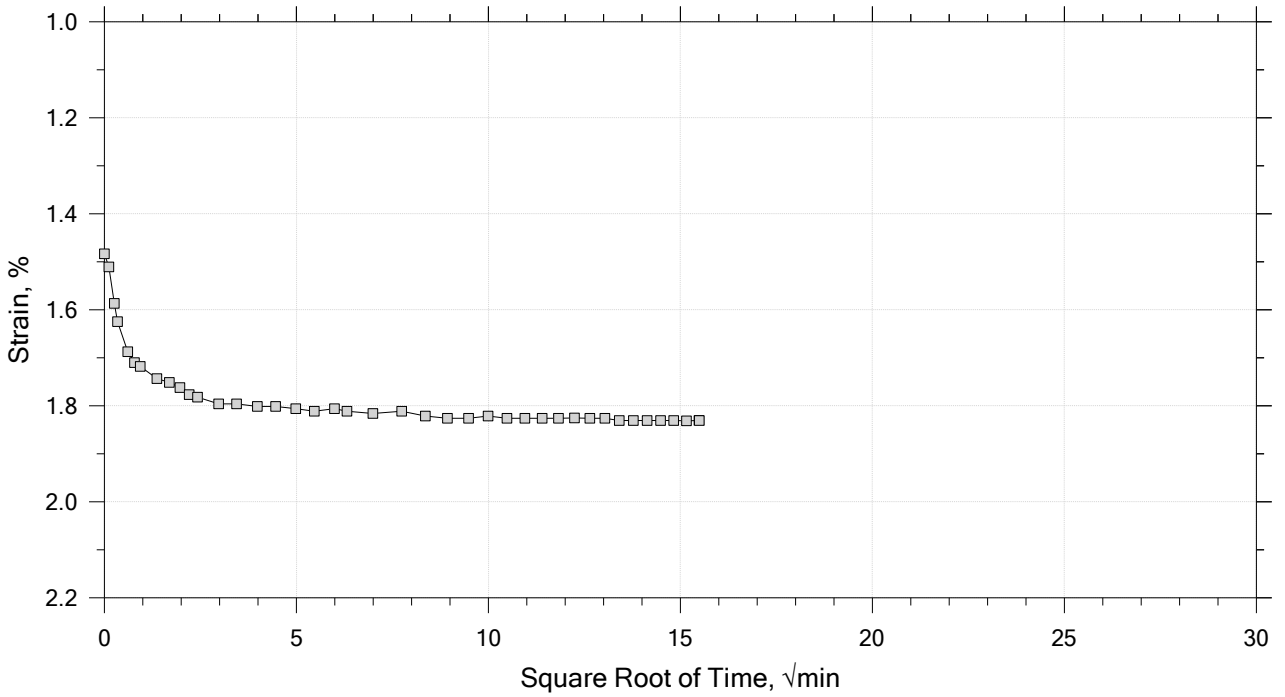
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 17

Constant Load Step

Stress: 0.5 tsf





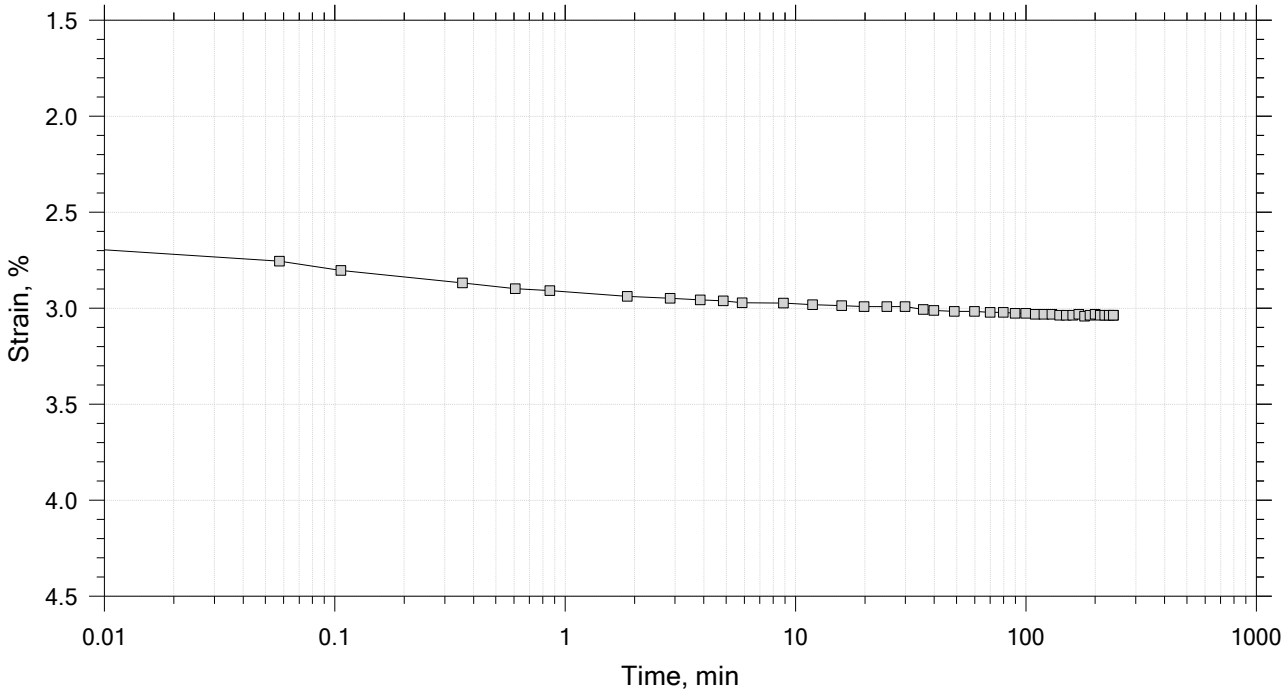
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

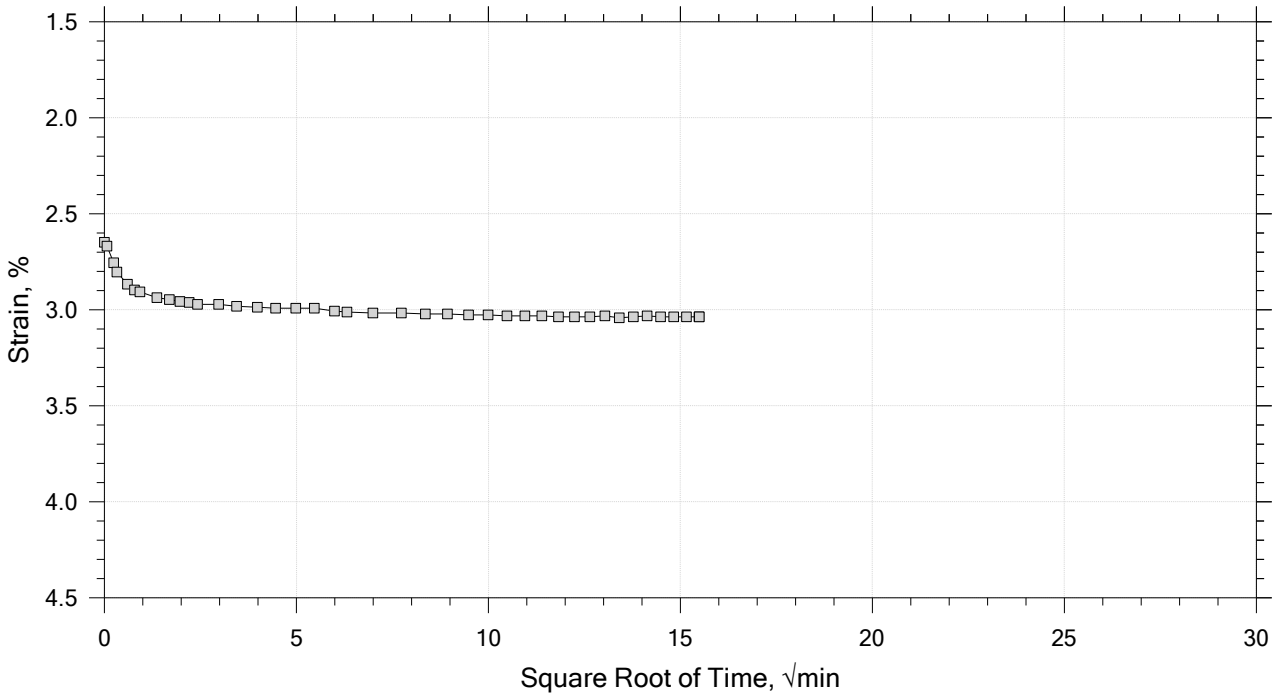
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 17

Constant Load Step

Stress: 1 tsf





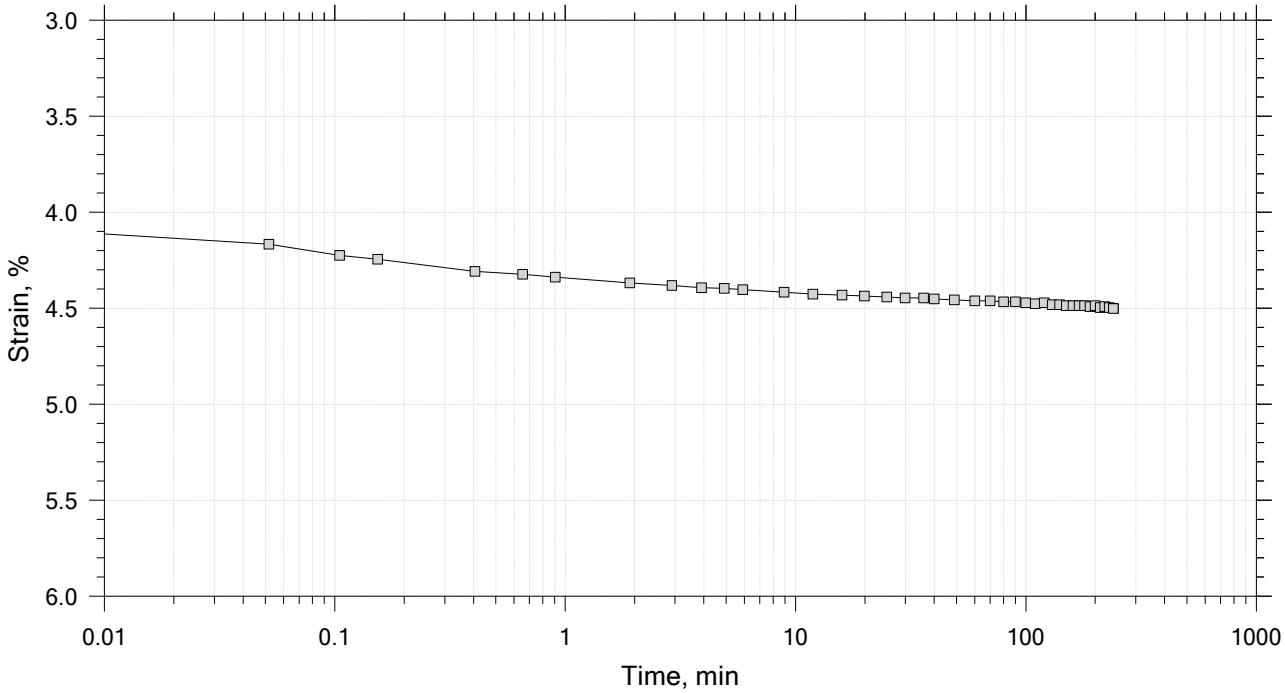
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

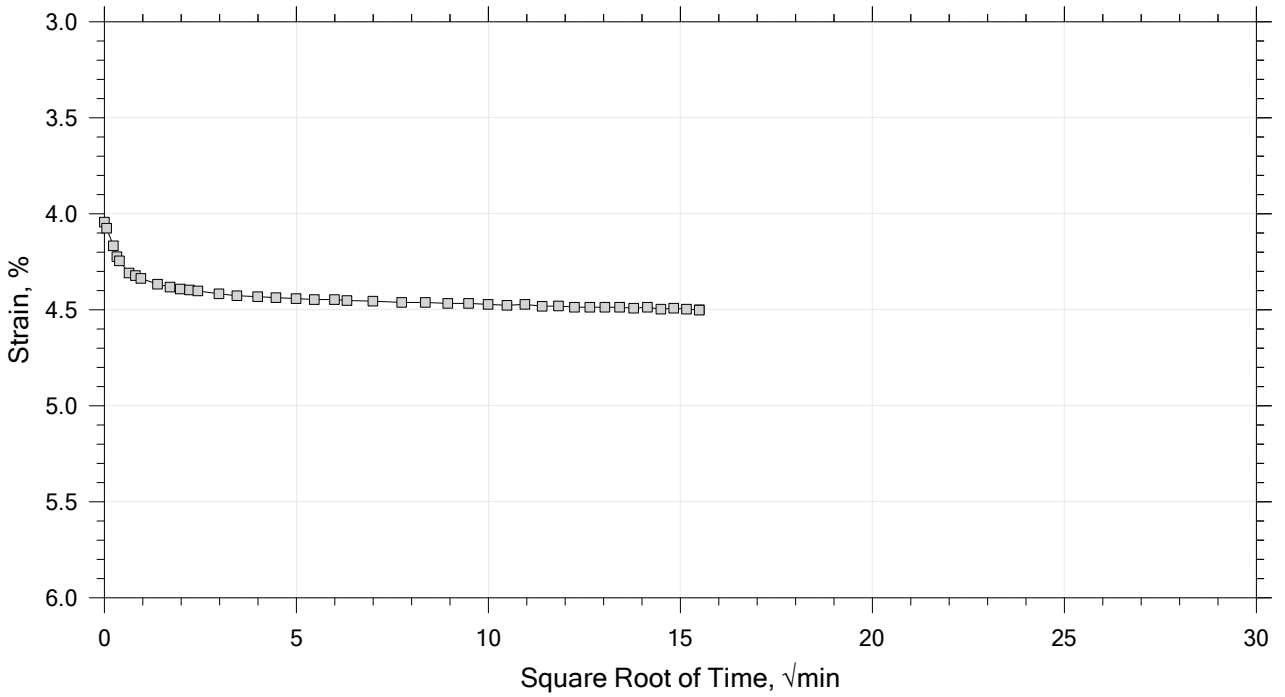
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 17

Constant Load Step

Stress: 2 tsf





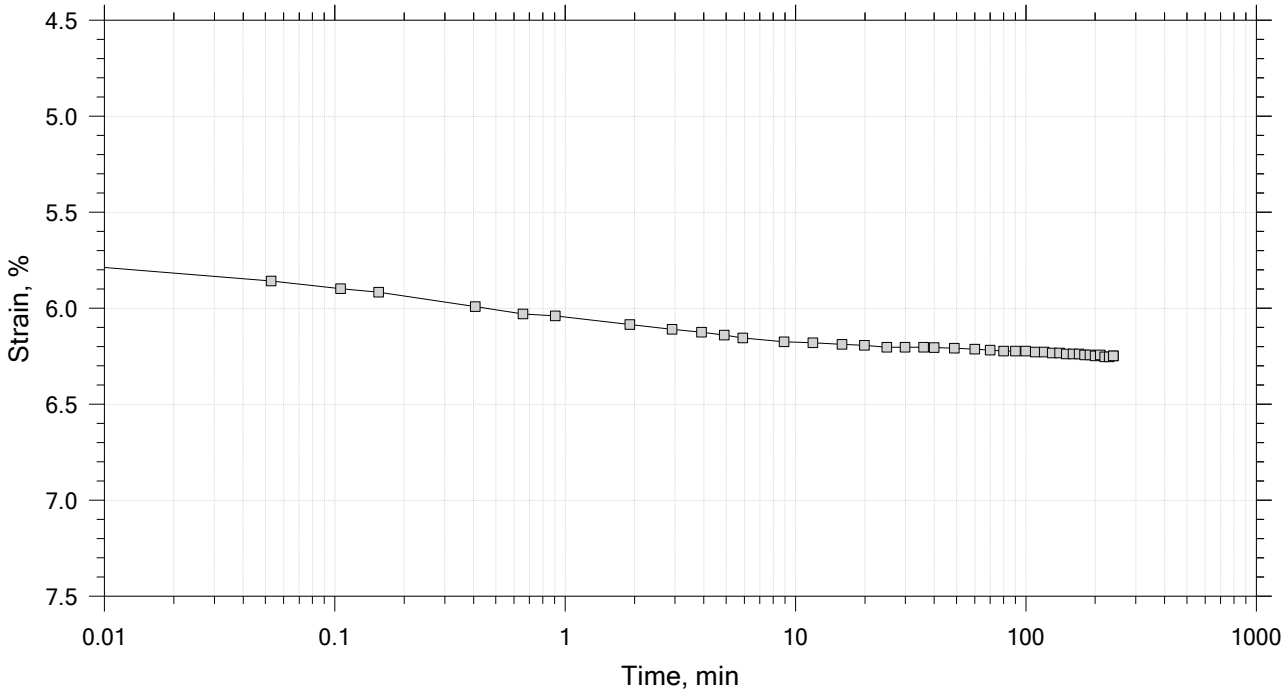
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

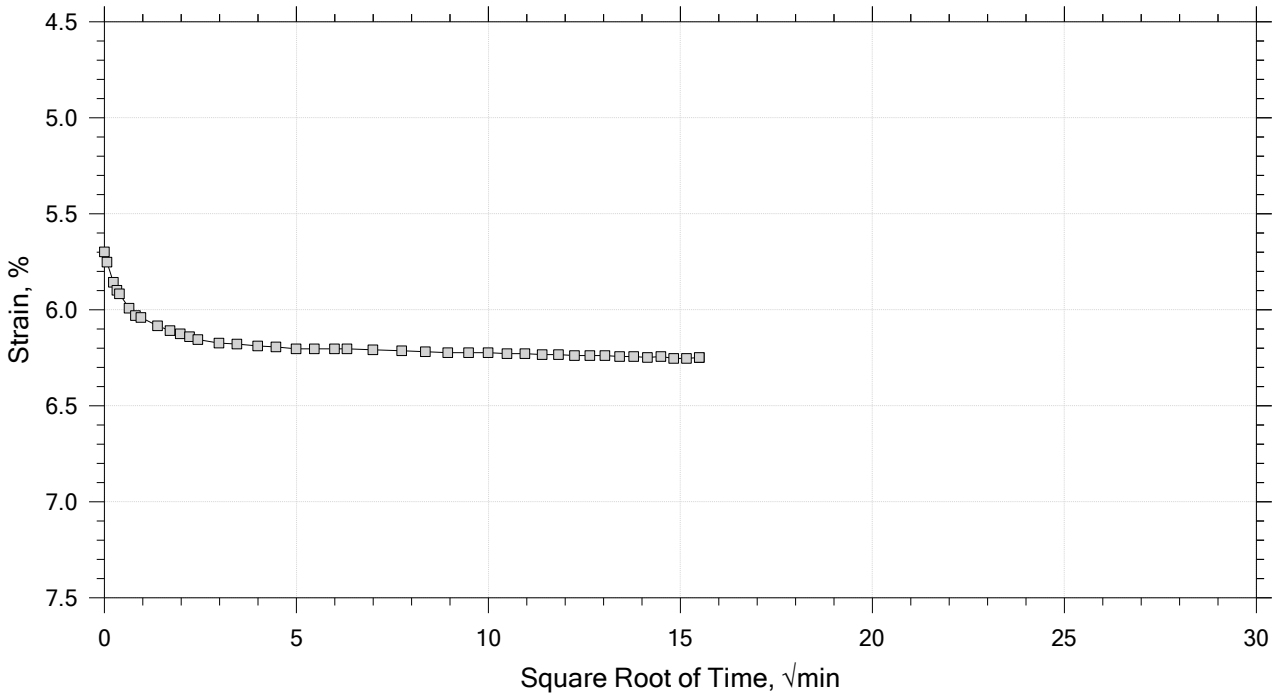
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 17

Constant Load Step

Stress: 4 tsf





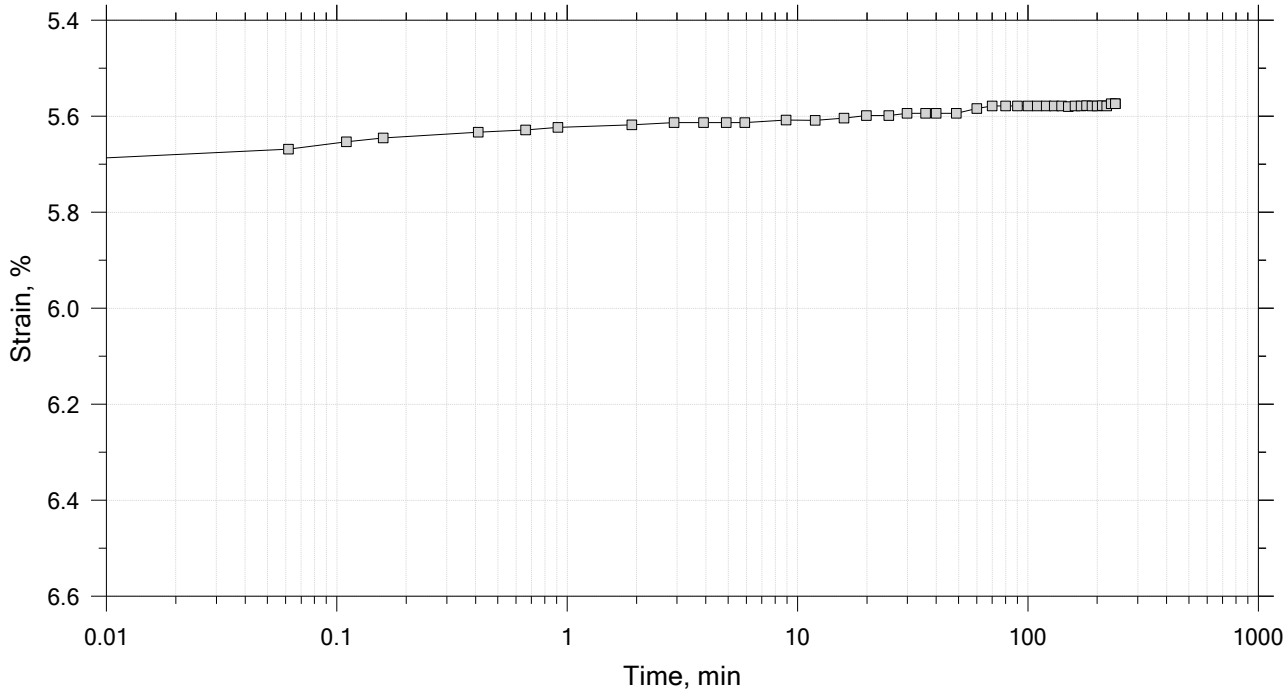
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

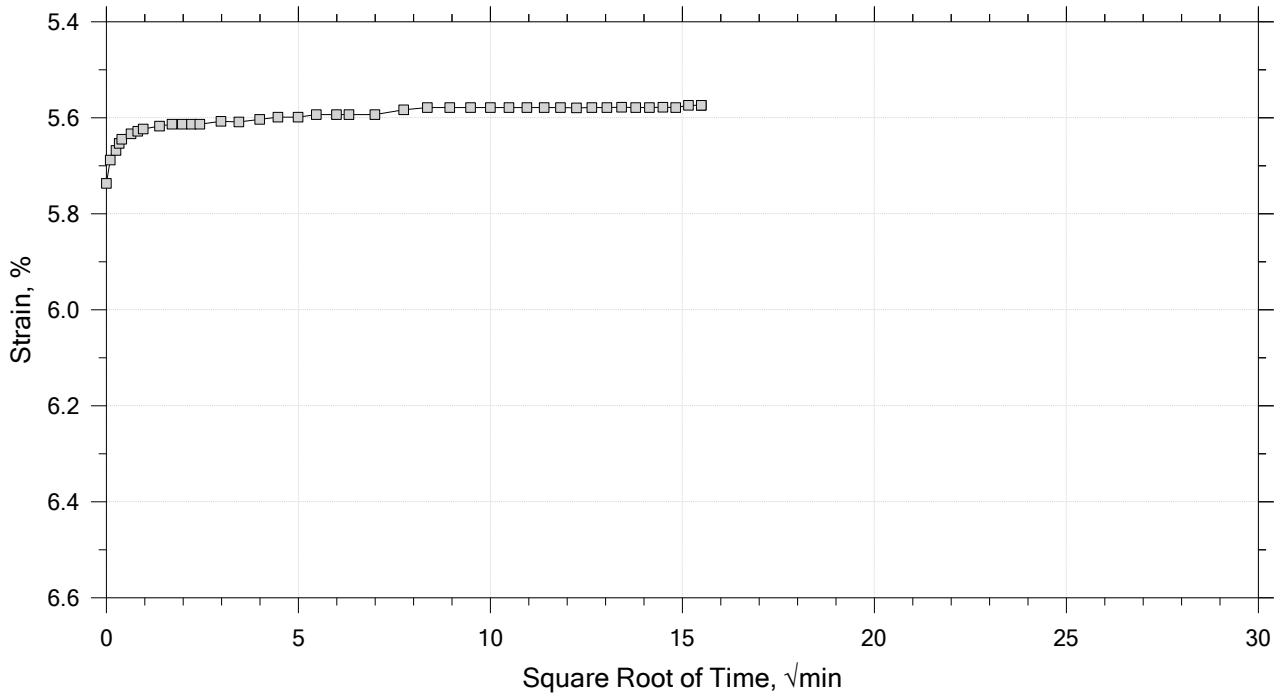
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 17

Constant Load Step

Stress: 0.25 tsf





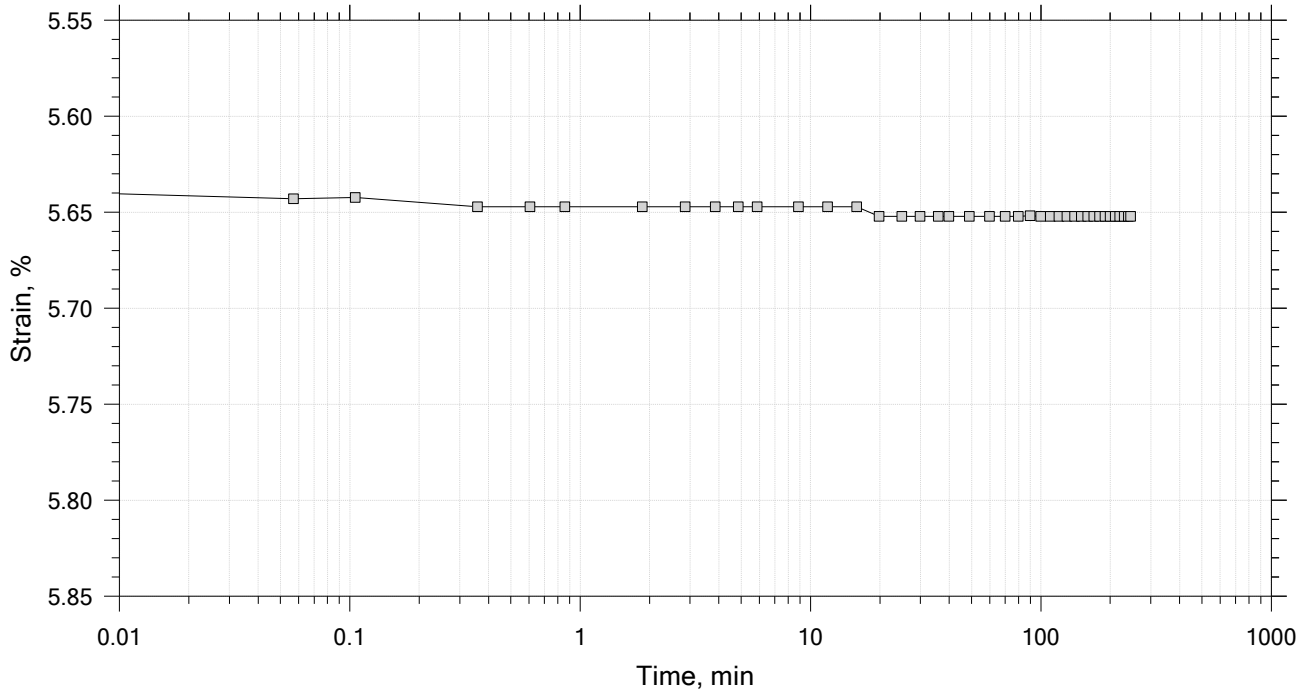
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

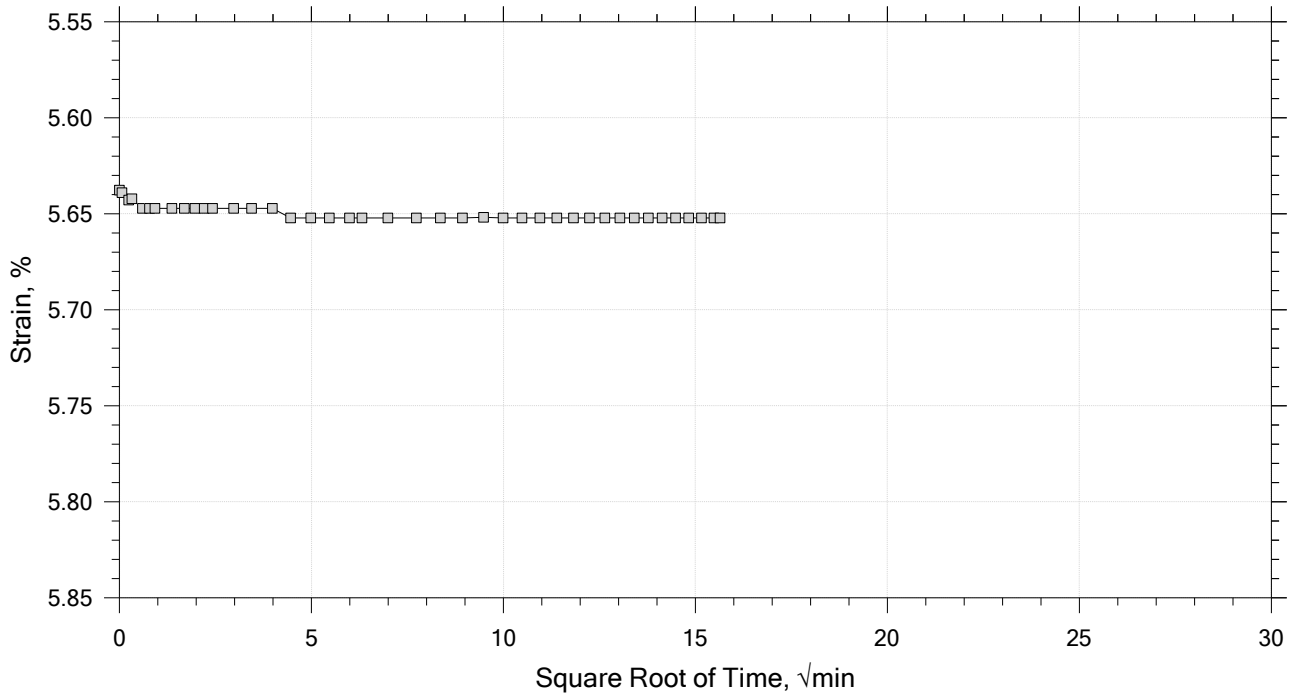
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 17

Constant Load Step

Stress: 0.5 tsf





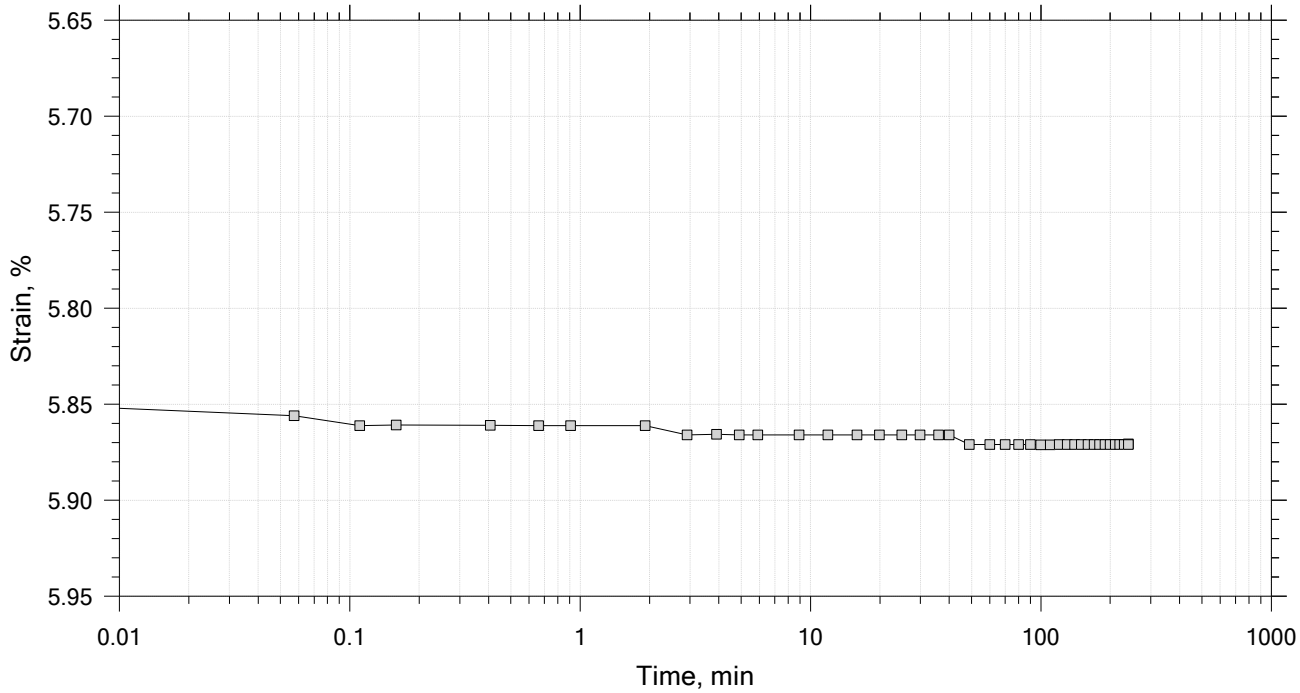
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		

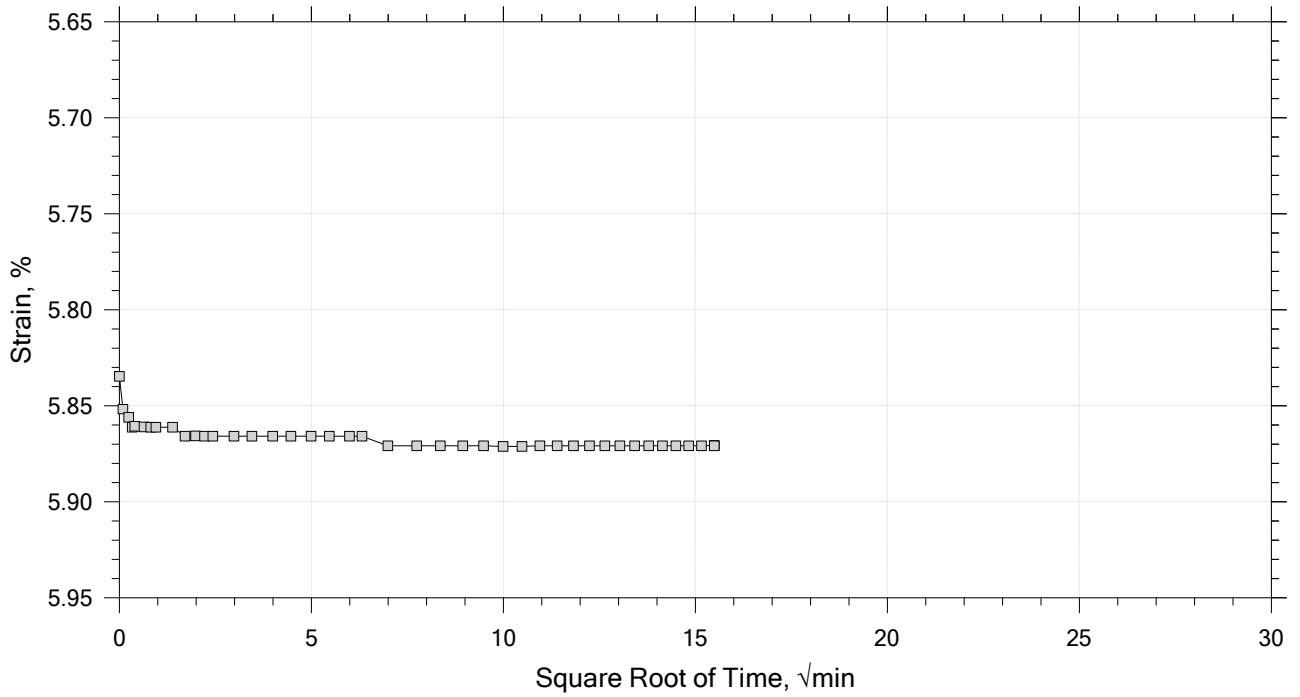
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 17

Constant Load Step

Stress: 1 tsf





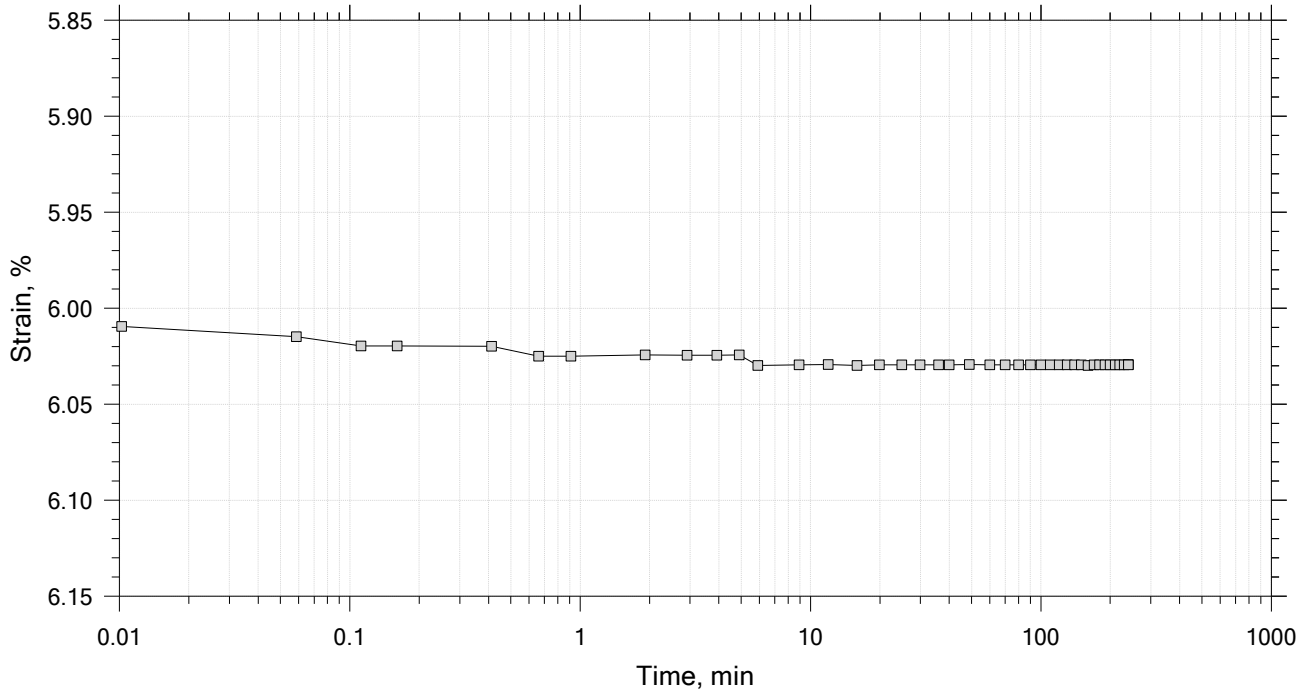
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

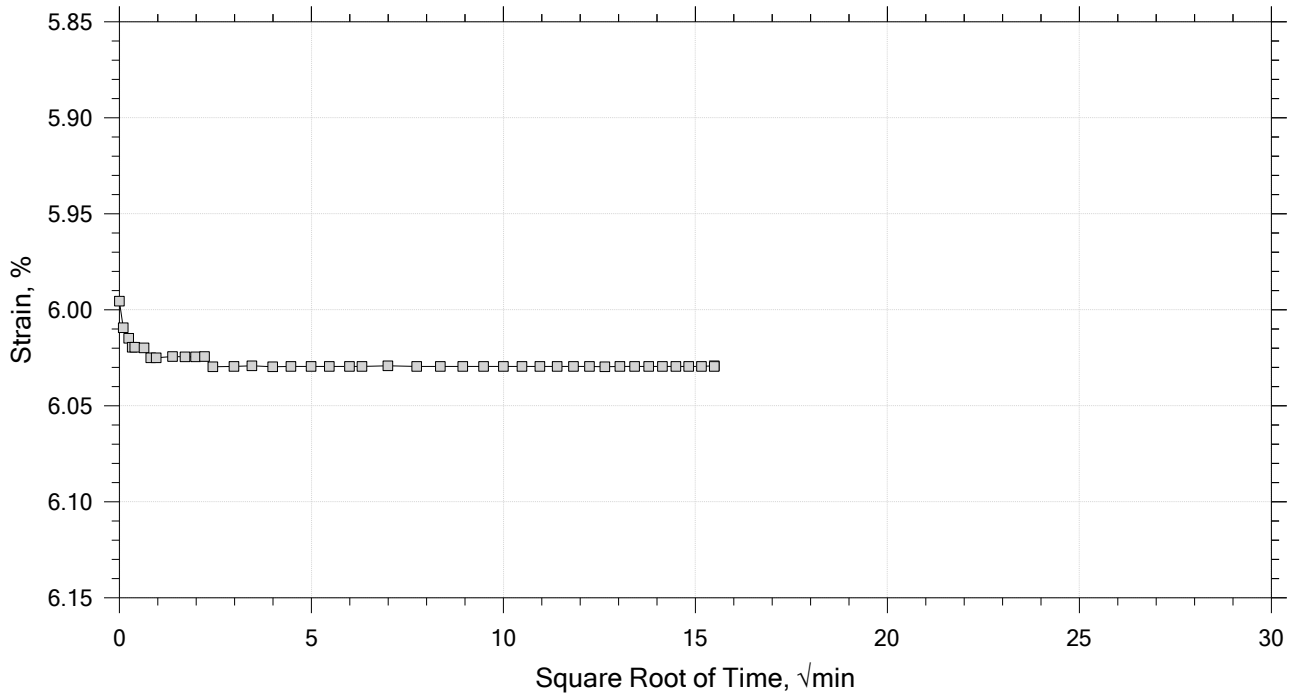
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 17

Constant Load Step

Stress: 2 tsf





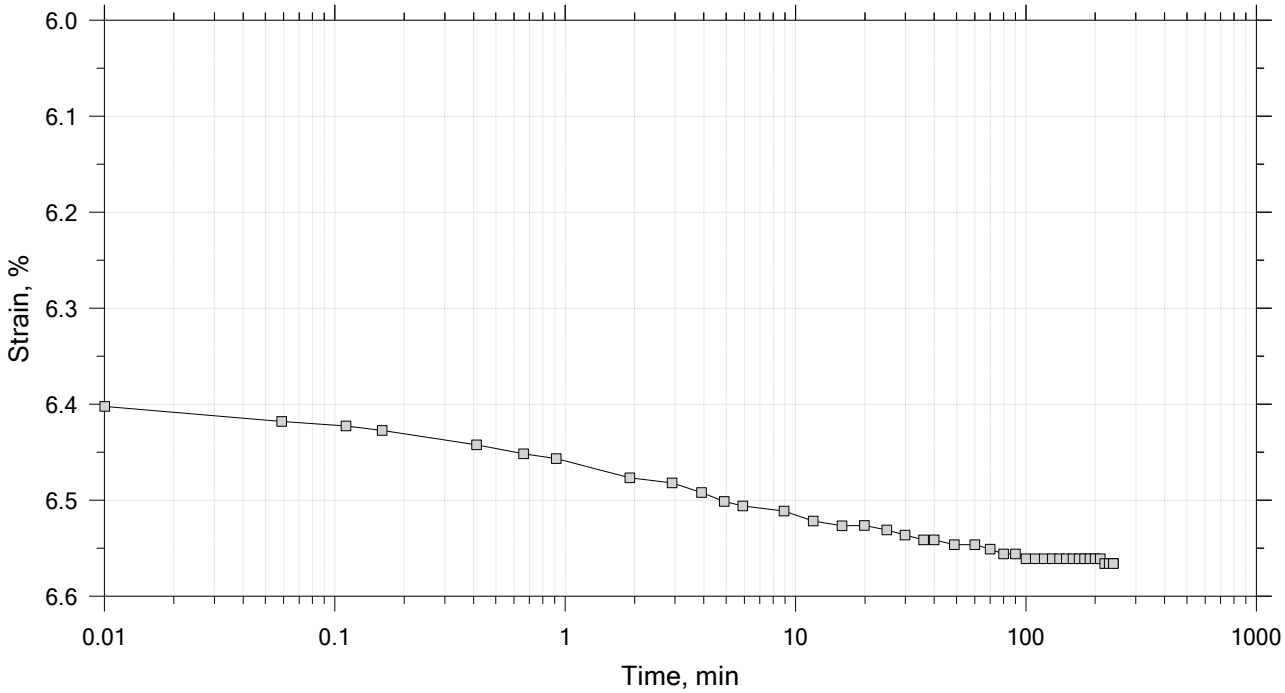
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

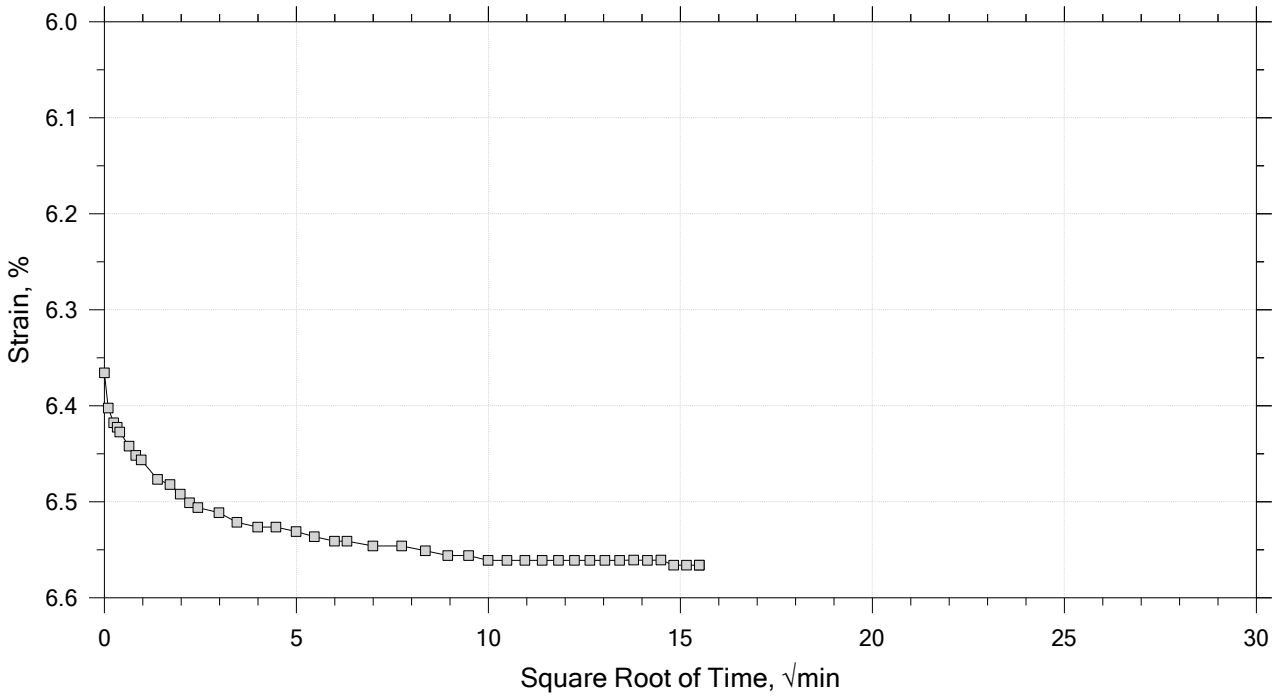
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 17

Constant Load Step

Stress: 4 tsf





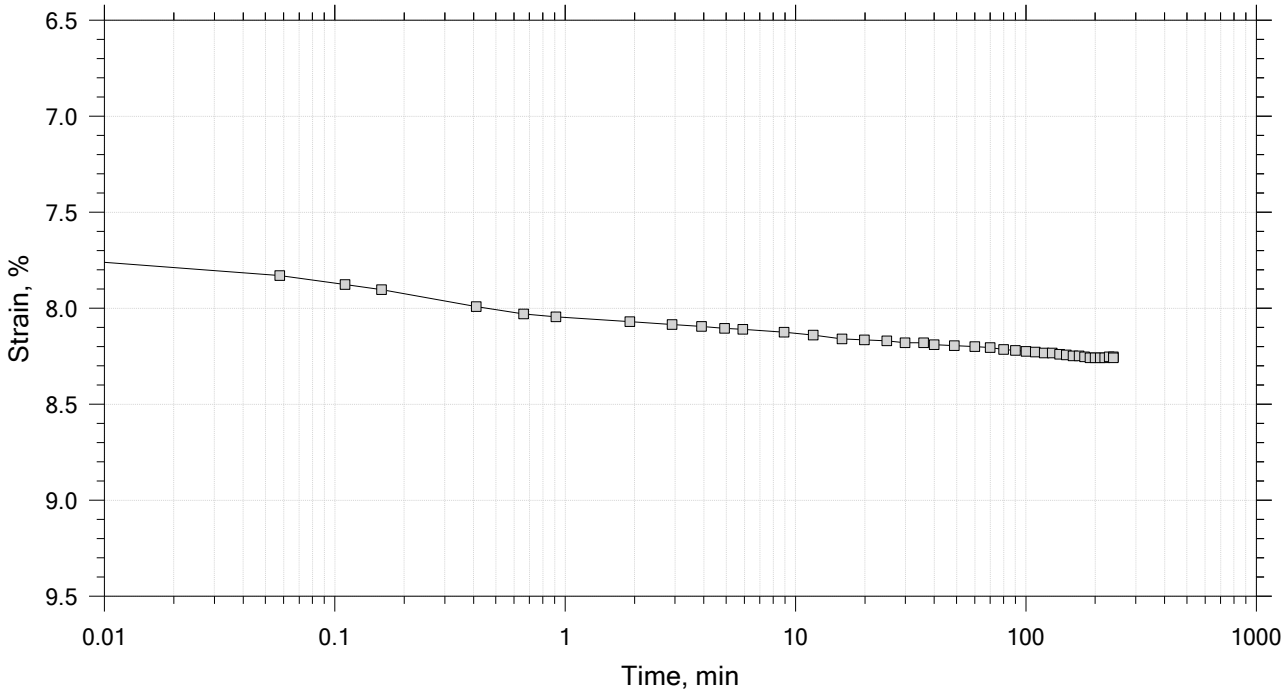
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

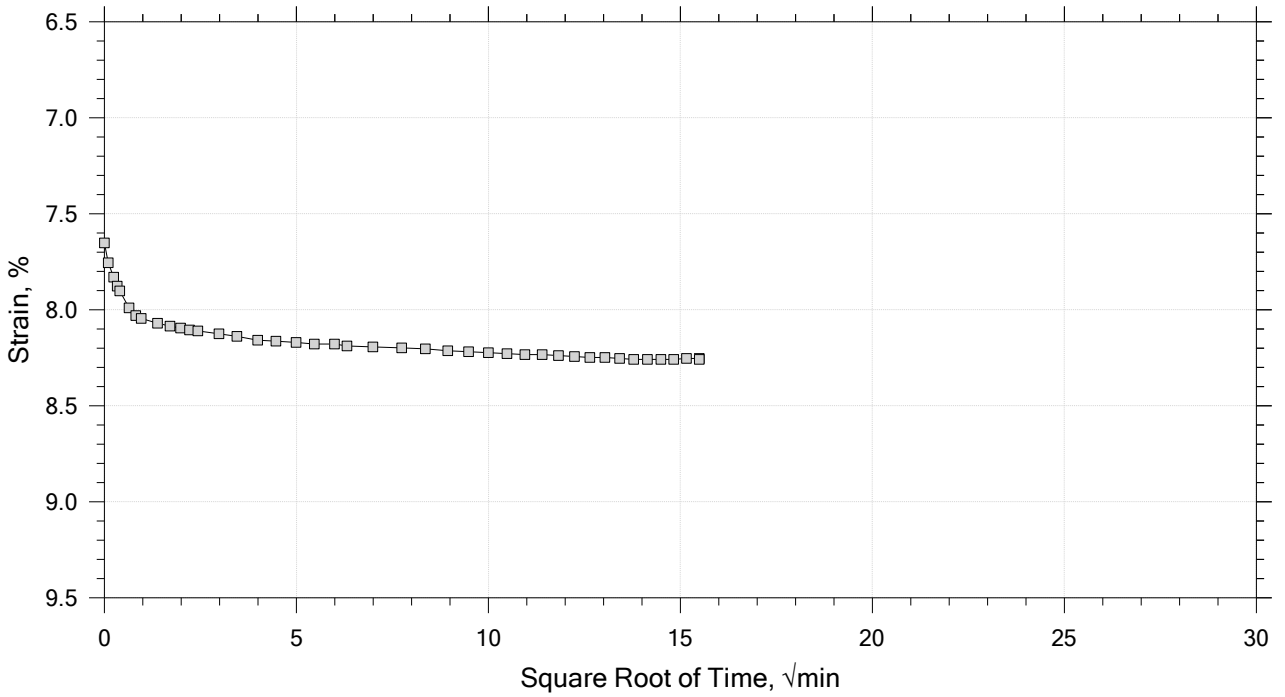
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 17

Constant Load Step

Stress: 8 tsf





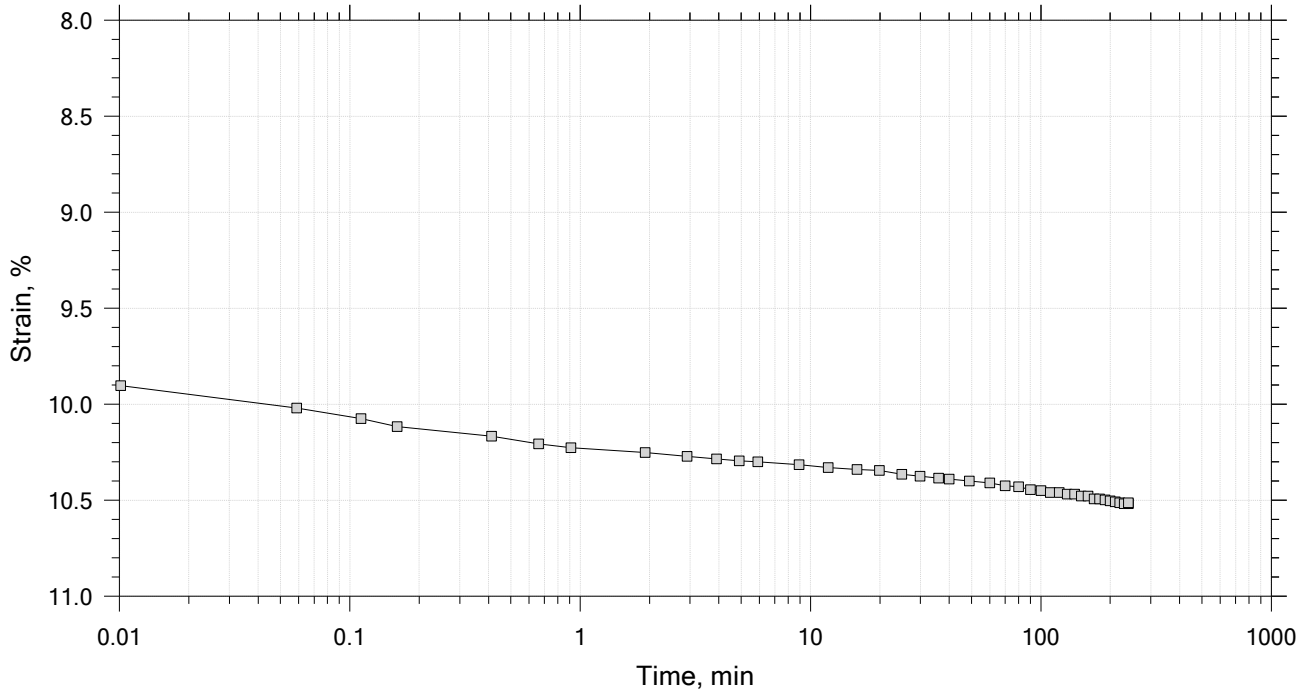
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

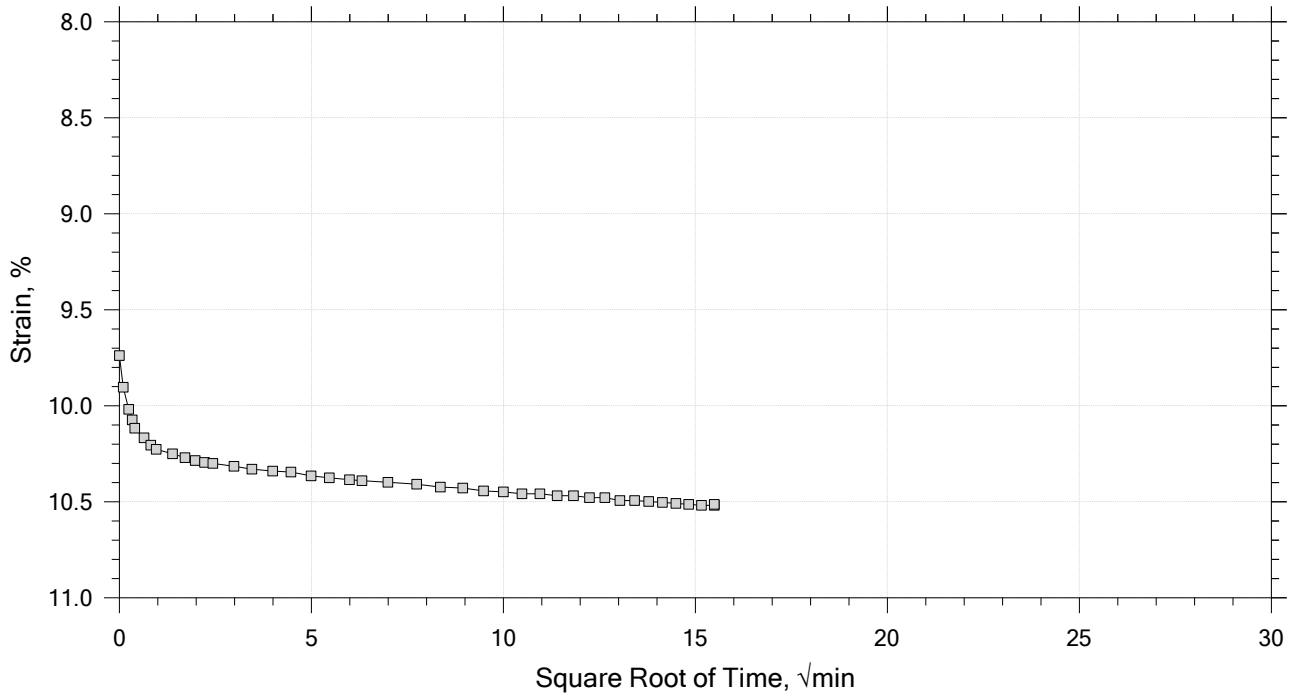
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 17

Constant Load Step

Stress: 16 tsf





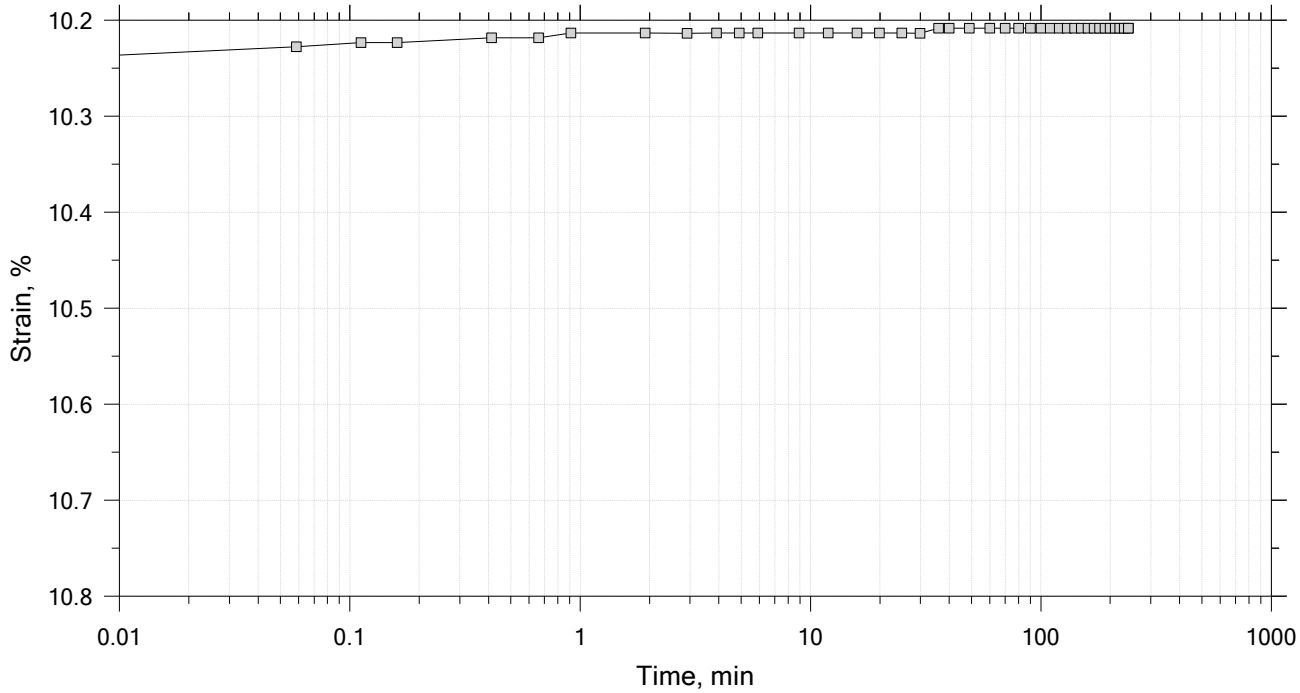
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		

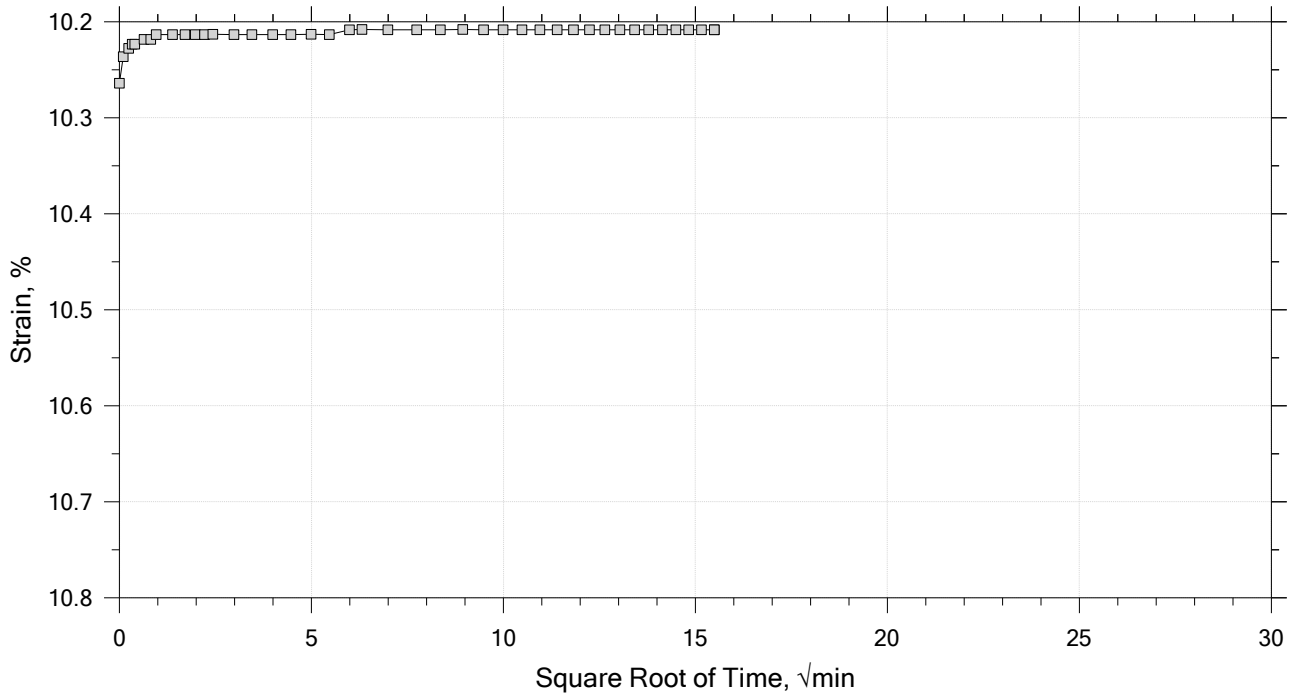
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 17

Constant Load Step

Stress: 4 tsf





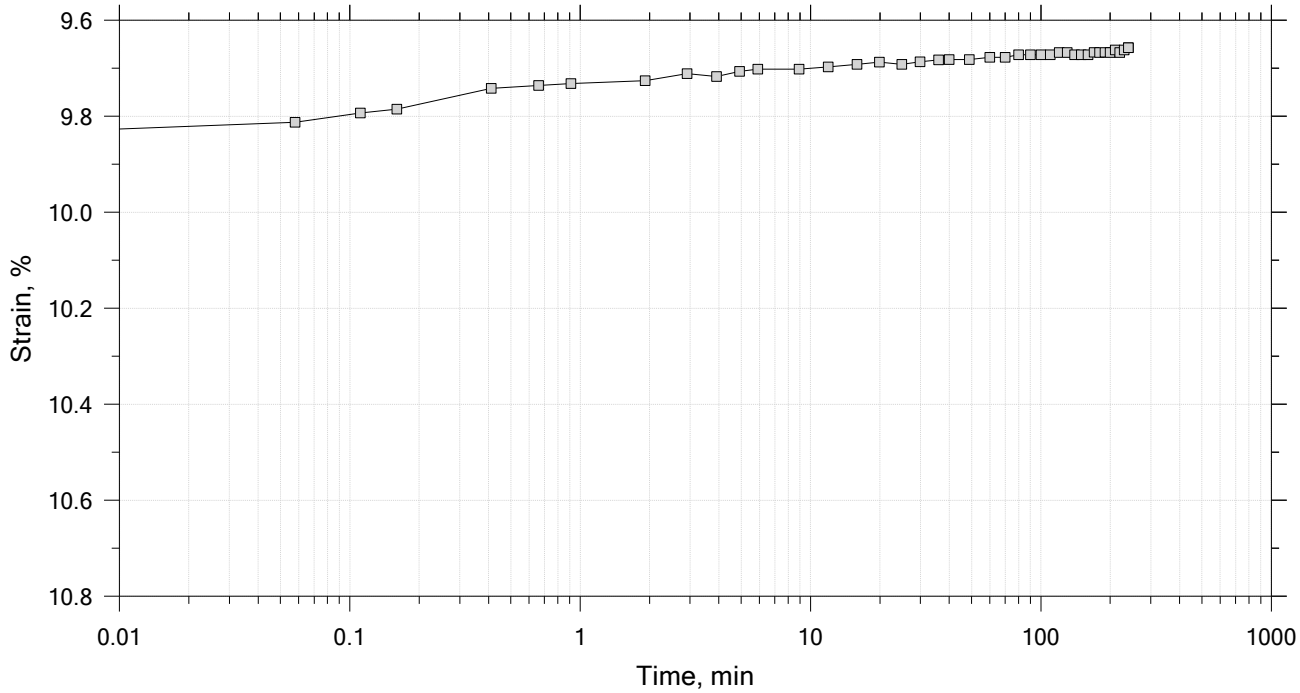
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

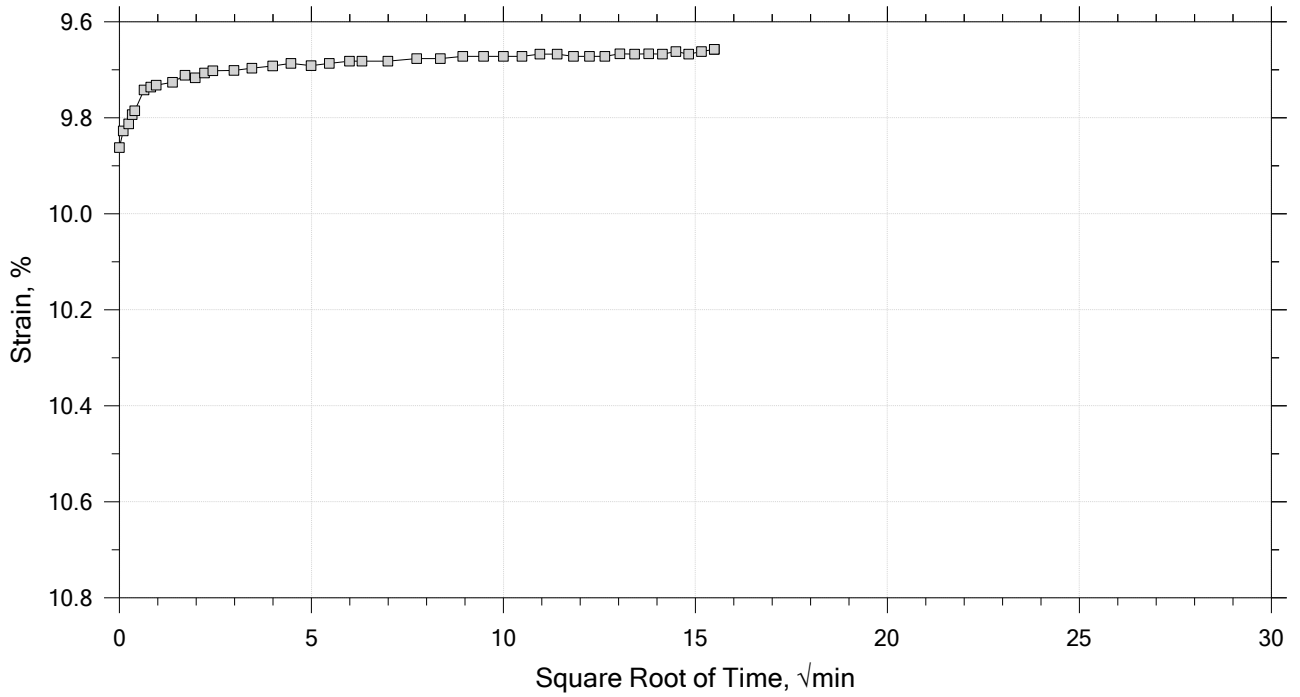
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 16 of 17

Constant Load Step

Stress: 1 tsf





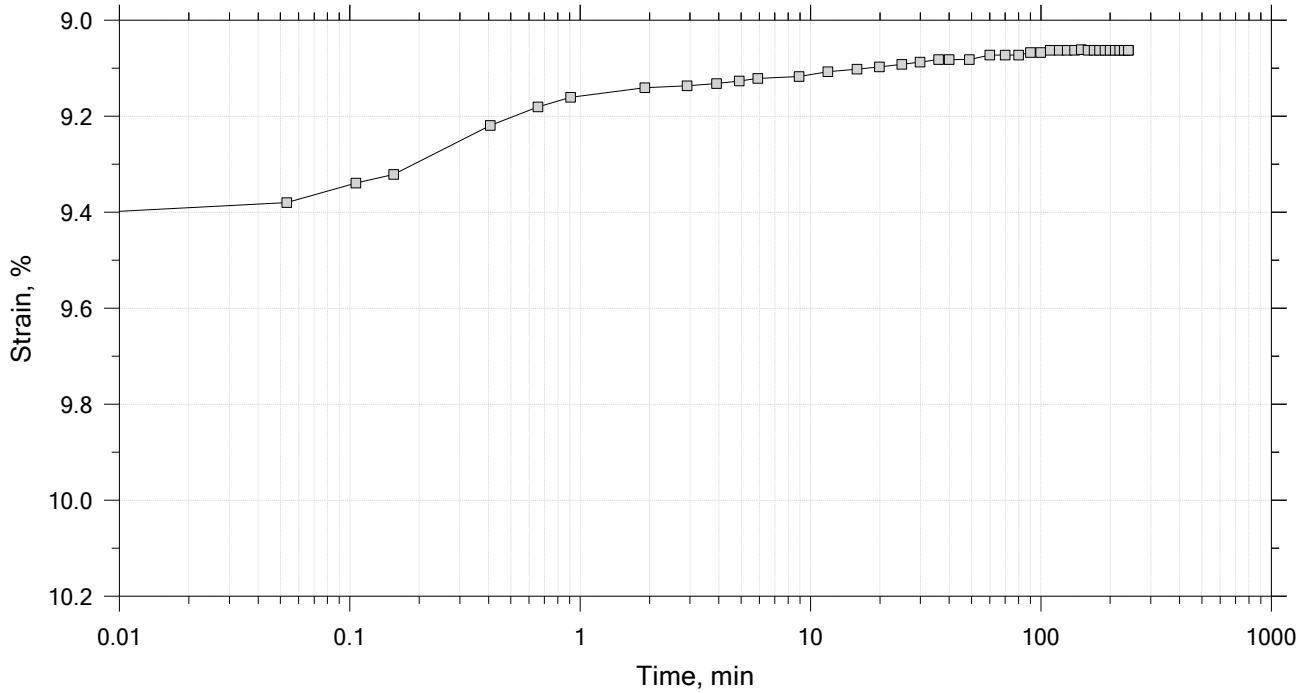
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: B-01A	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
	Test No.: IP-2	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown sandy silt		
	Remarks: TX-012, Swell Pressure - 0.0651 tsf		

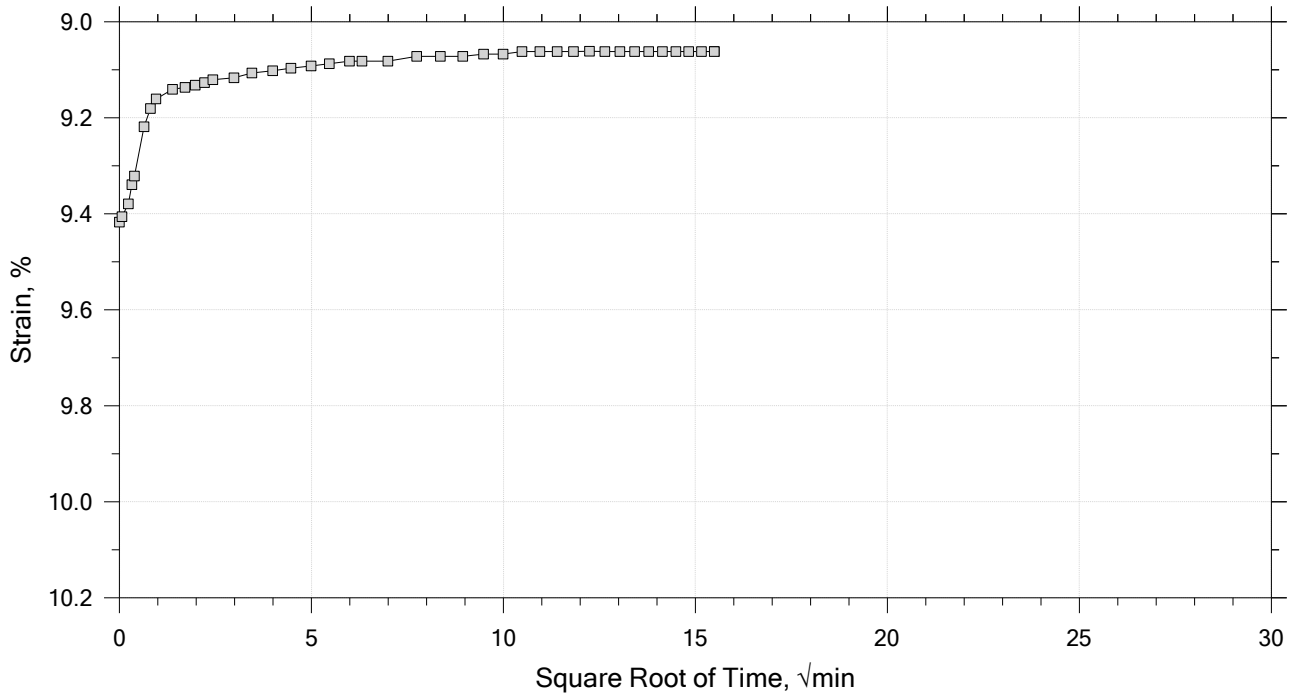
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 17 of 17

Constant Load Step

Stress: 0.25 tsf





Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Measured Specific Gravity: 2.69	Liquid Limit: 24
Initial Height: 1.00 in	Initial Void Ratio: 0.714	Plastic Limit: 21
Final Height: 0.95 in	Final Void Ratio: 0.628	Plasticity Index: 3

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	E6824	RING		E5108
Mass Container, gm	8.54	110.86	110.86	8.32
Mass Container + Wet Soil, gm	110.2	267.16	266.23	162.24
Mass Container + Dry Soil, gm	91.58	237.12	237.12	133.4
Mass Dry Soil, gm	83.04	126.26	126.26	125.08
Water Content, %	22.42	23.79	23.06	23.06
Void Ratio	---	0.71	0.63	---
Degree of Saturation, %	---	89.67	98.75	---
Dry Unit Weight, pcf	---	97.987	103.14	---

Warning: The change in the sample wet weight during the test is not consistent with the change in the moisture content.

Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Square Root of Time Coefficients

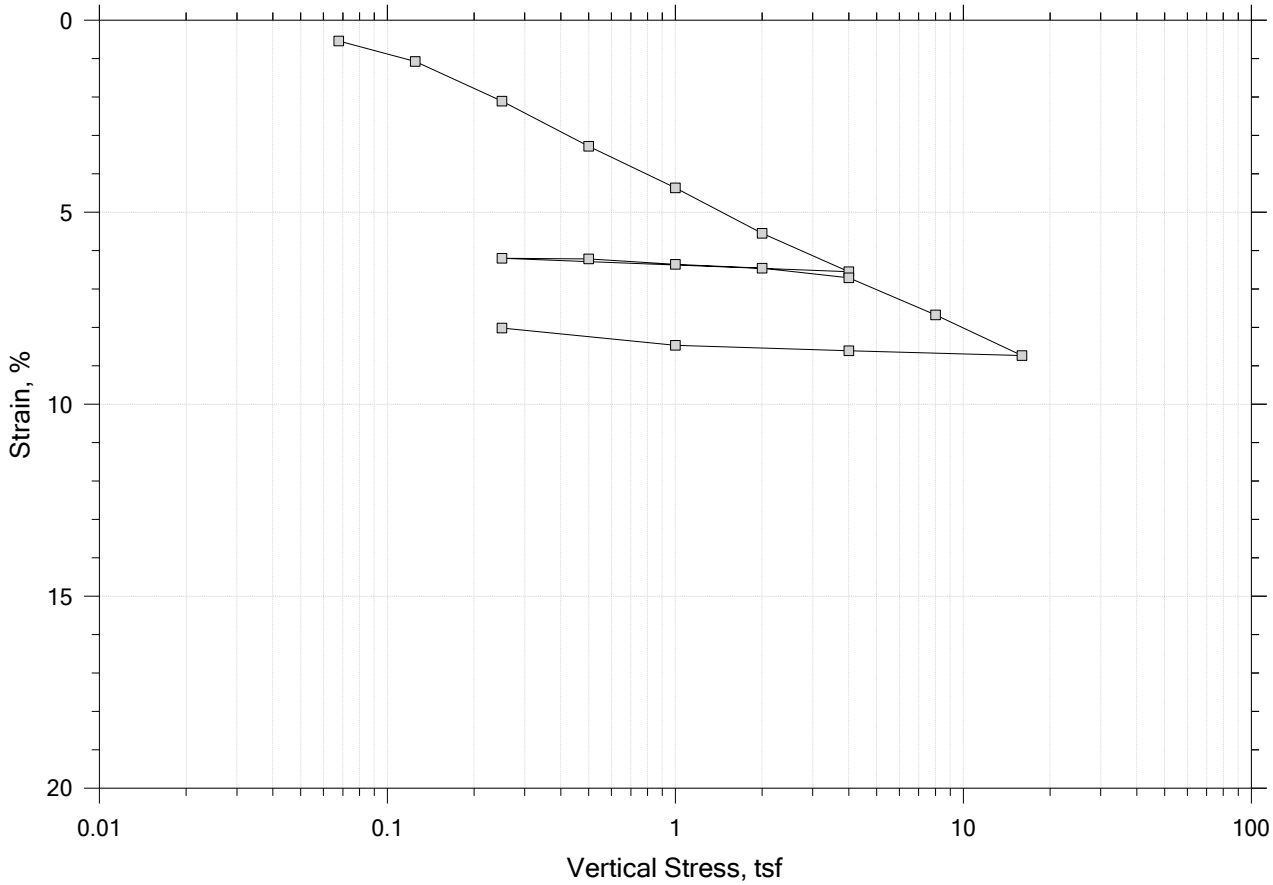
Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv in²/s	Mv 1/tsf	k ft/day
1	0.0651	0.002900	0.709	0.290	182.792	1.93e-05	4.45e-02	1.61e-05
2	0.125	0.006220	0.703	0.622	178.989	1.96e-05	5.54e-02	2.03e-05
3	0.250	0.01118	0.695	1.12	2.656	1.31e-03	3.97e-02	9.72e-04
4	0.500	0.01831	0.682	1.83	2.452	1.40e-03	2.85e-02	7.47e-04
5	1.00	0.03037	0.662	3.04	2.454	1.37e-03	2.41e-02	6.19e-04
6	2.00	0.04501	0.637	4.50	2.834	1.15e-03	1.46e-02	3.17e-04
7	4.00	0.06248	0.607	6.25	3.127	1.01e-03	8.74e-03	1.66e-04
8	0.250	0.05574	0.618	5.57	8.874	3.52e-04	1.80e-03	1.19e-05
9	0.500	0.05652	0.617	5.65	19.855	1.59e-04	3.14e-03	9.31e-06
10	1.00	0.05871	0.613	5.87	2.884	1.09e-03	4.38e-03	8.92e-05
11	2.00	0.06029	0.610	6.03	0.637	4.91e-03	1.59e-03	1.46e-04
12	4.00	0.06566	0.601	6.57	12.785	2.43e-04	2.68e-03	1.22e-05
13	8.00	0.08259	0.572	8.26	5.266	5.75e-04	4.23e-03	4.56e-05
14	16.0	0.1051	0.534	10.5	12.345	2.35e-04	2.82e-03	1.24e-05
15	4.00	0.1021	0.539	10.2	0.912	3.11e-03	2.54e-04	1.48e-05
16	1.00	0.09657	0.548	9.66	6.405	4.47e-04	1.84e-03	1.54e-05
17	0.250	0.09062	0.559	9.06	2.535	1.15e-03	7.93e-03	1.70e-04

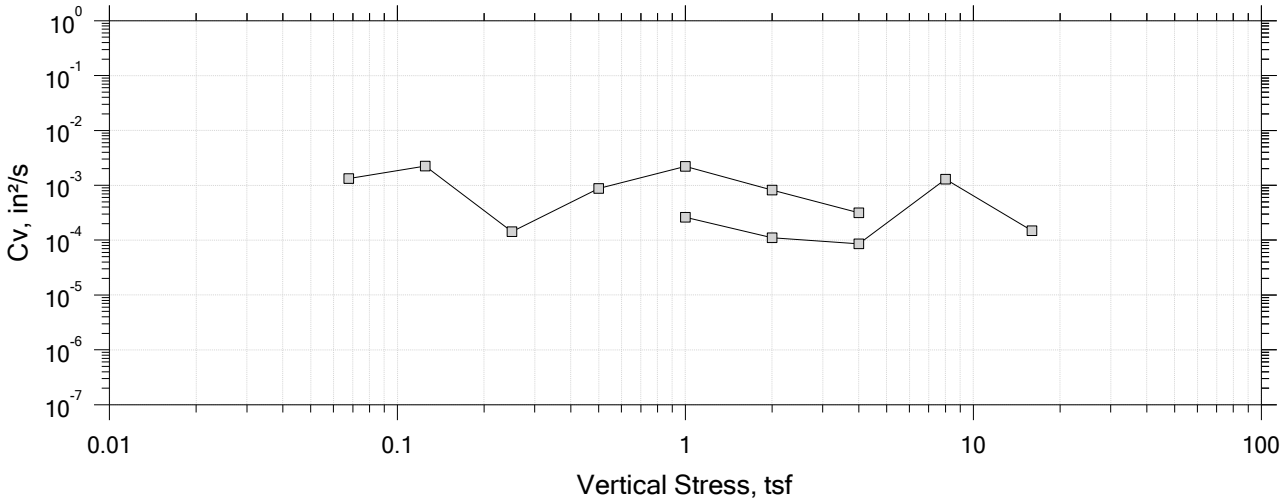
GeoTesting EXPRESS

Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: B-01A	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 22-23.7
Test No.: IP-2	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown sandy silt		
Remarks: TX-012, Swell Pressure - 0.0651 tsf		
Displacement at End of Increment		

One-Dimensional Consolidation by ASTM D2435 - Method B

Summary Report





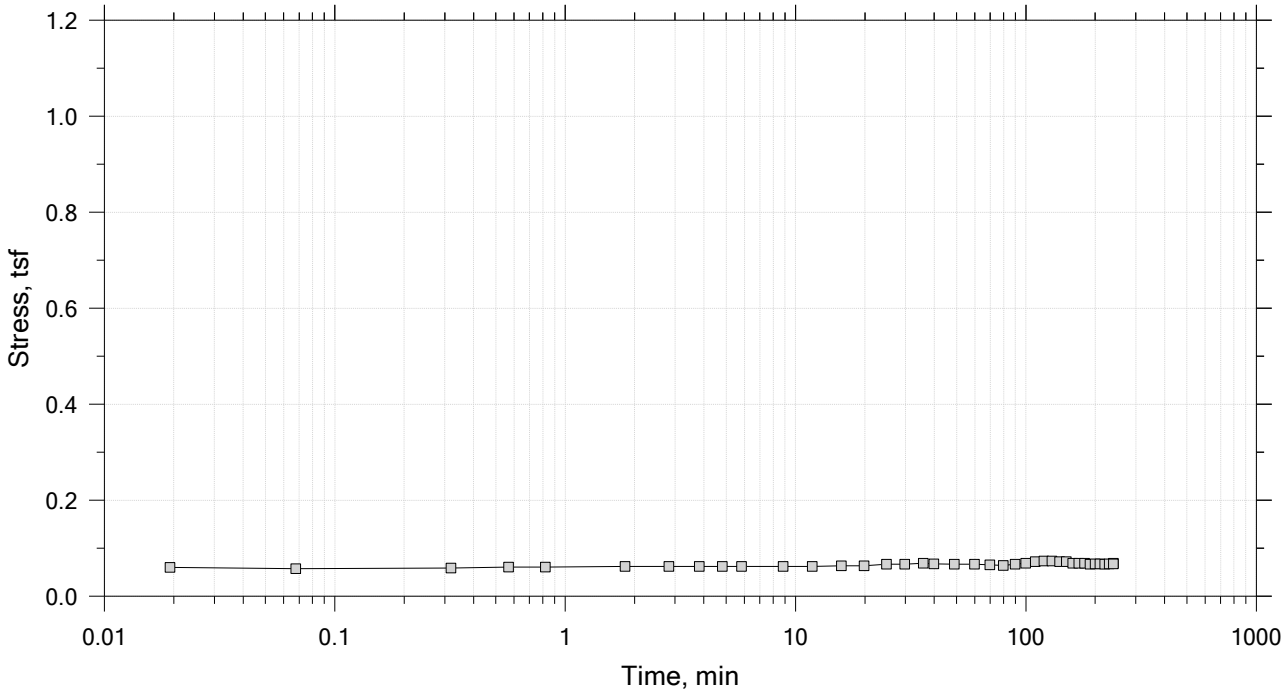
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		
	Displacement at End of Increment		

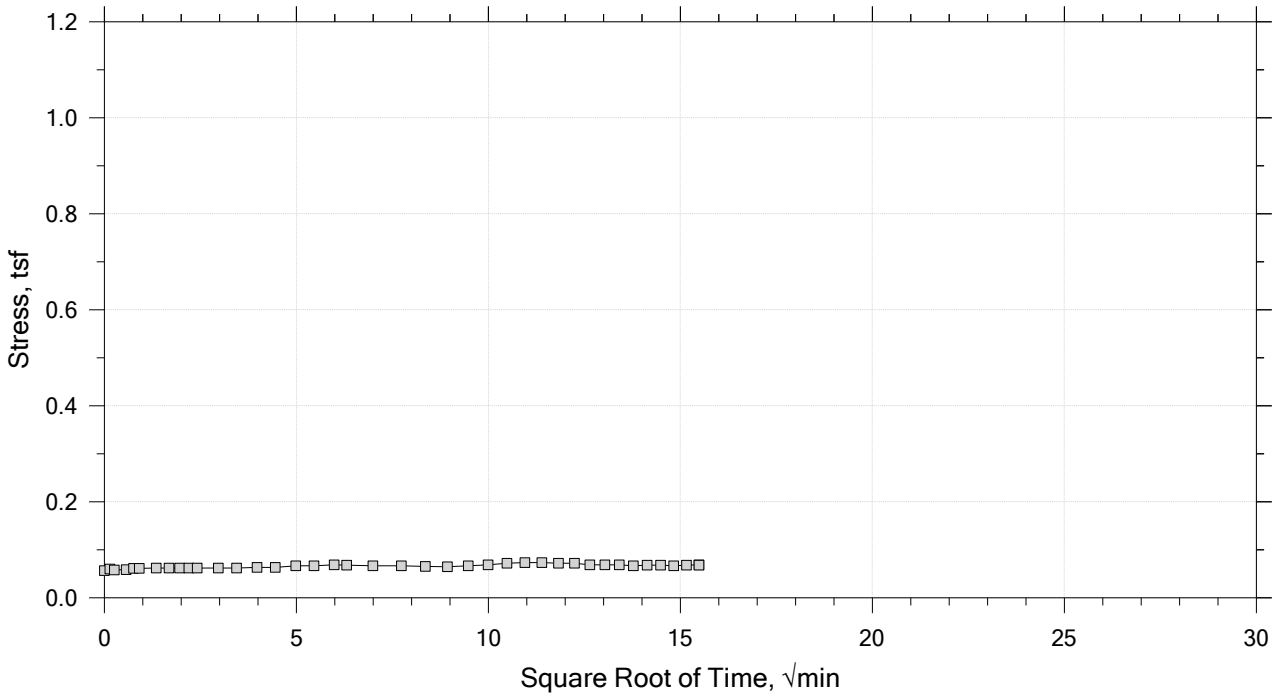
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 1 of 17

Constant Volume Step

Stress: 0.0677 tsf





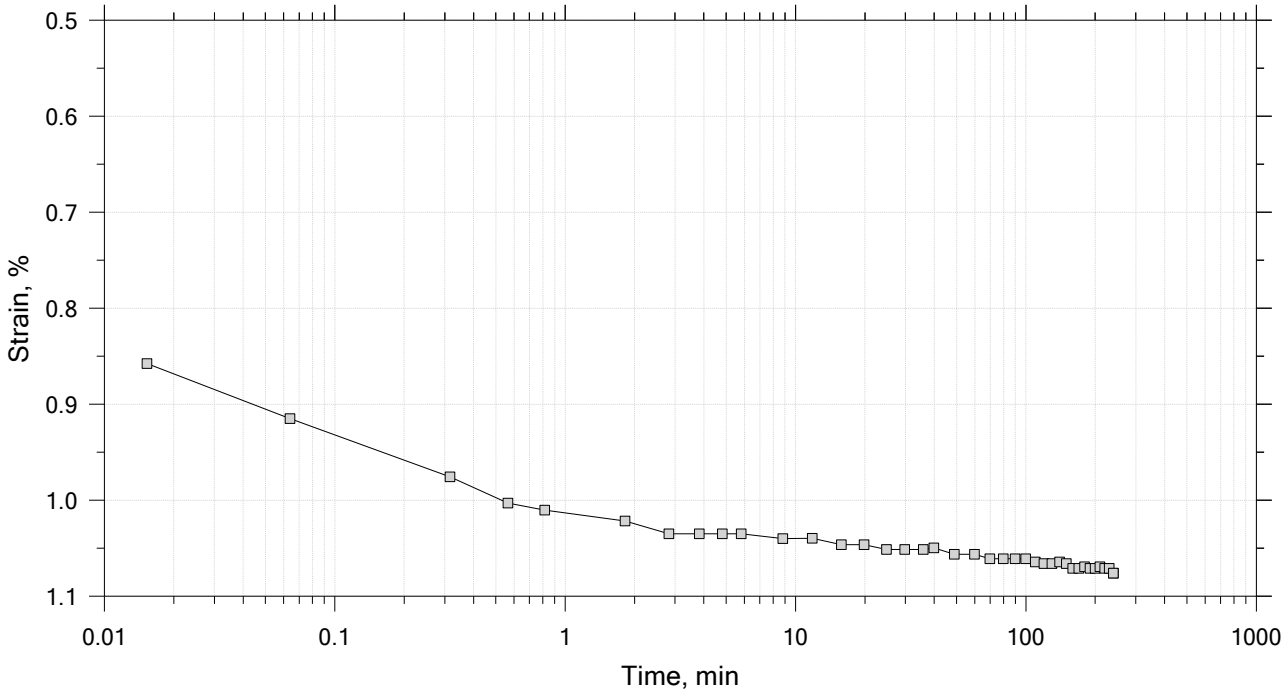
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

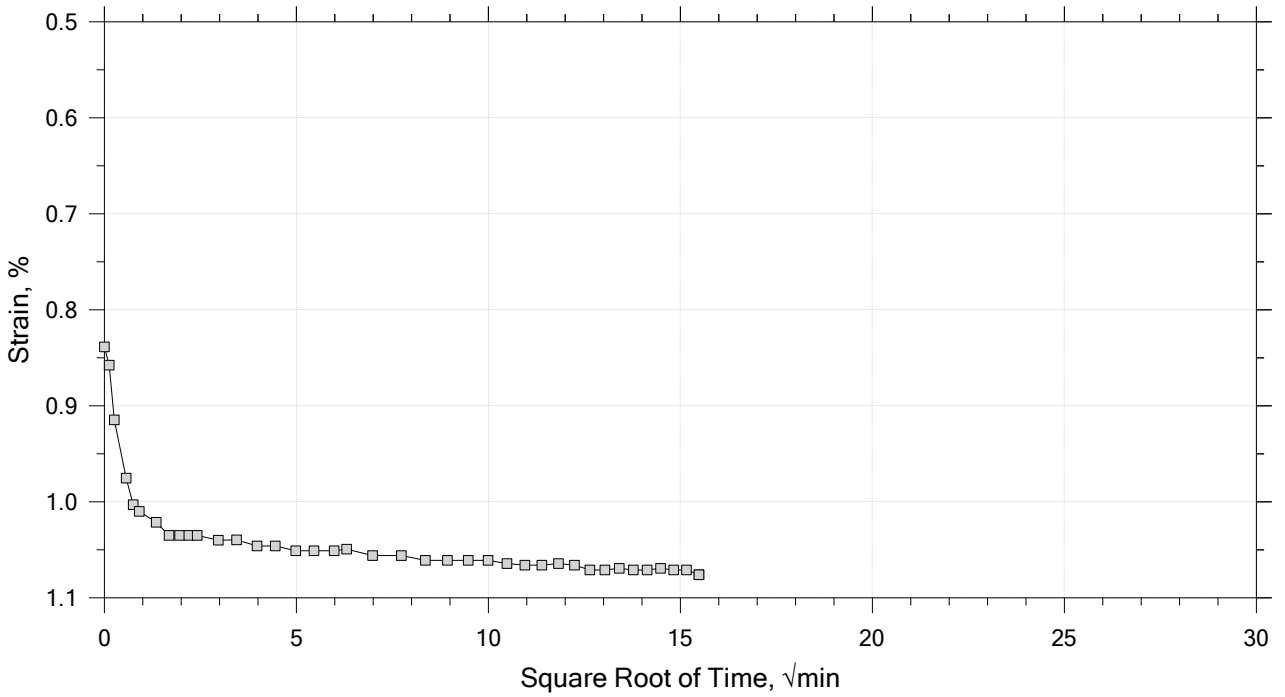
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 2 of 17

Constant Load Step

Stress: 0.125 tsf





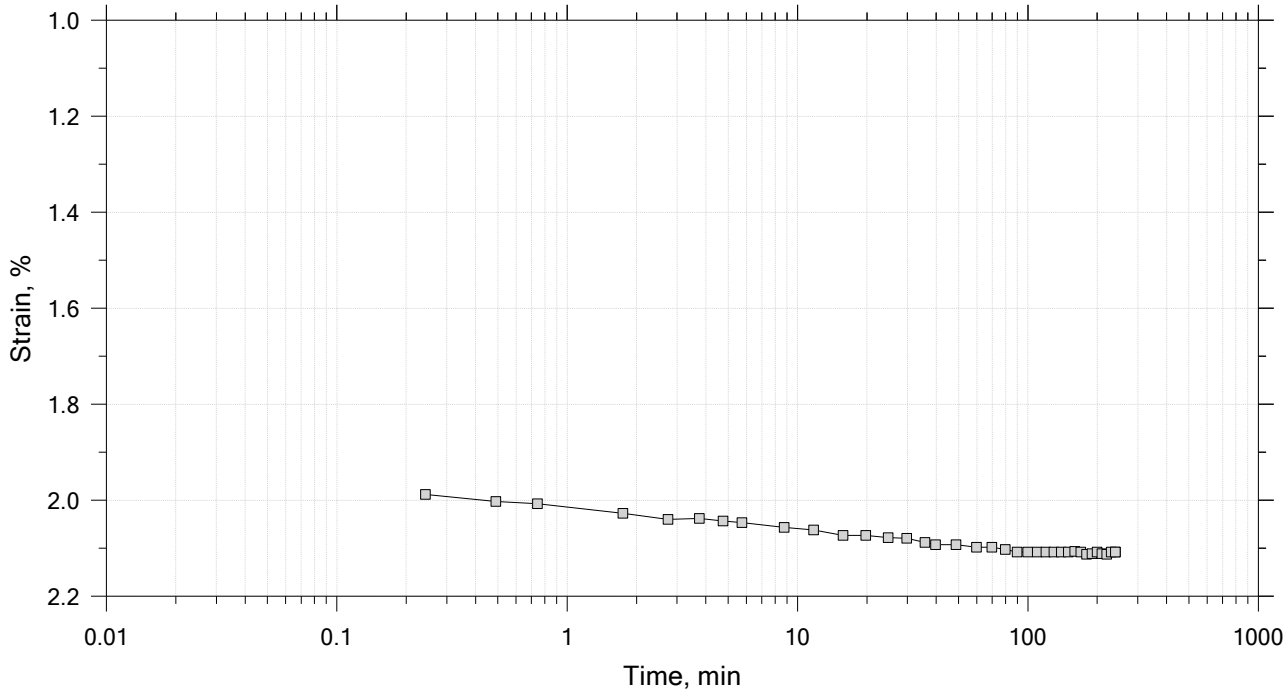
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

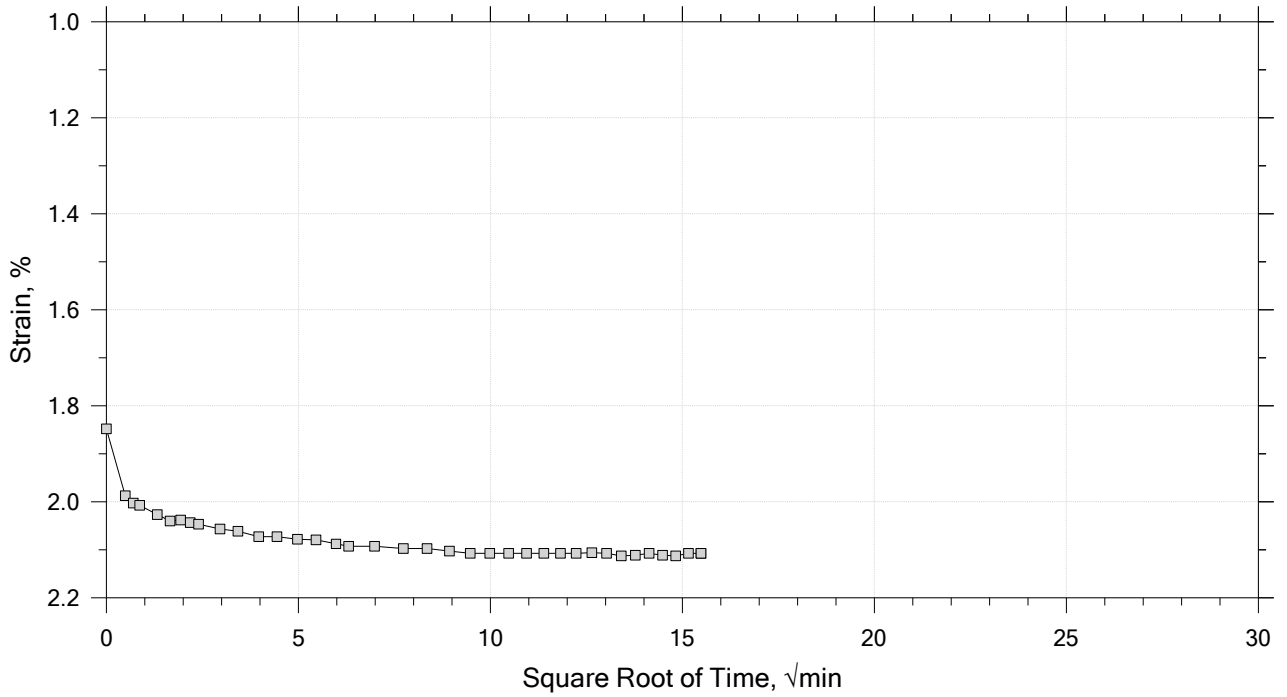
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 3 of 17

Constant Load Step

Stress: 0.25 tsf





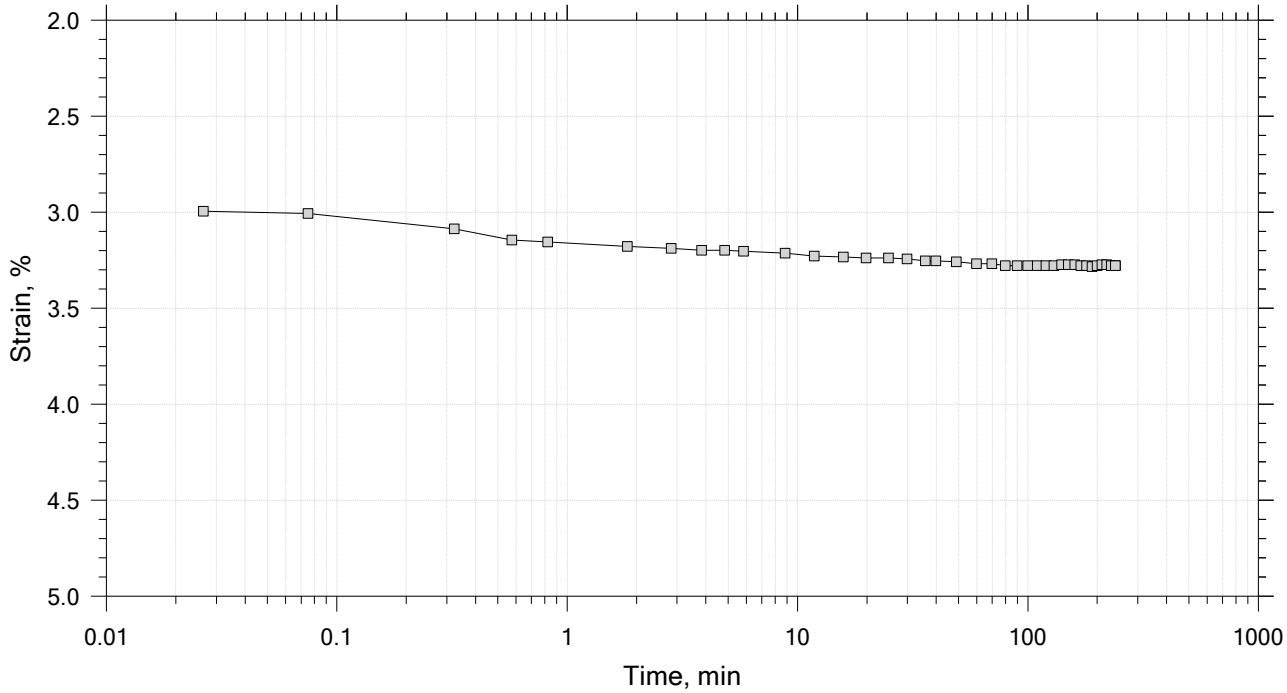
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

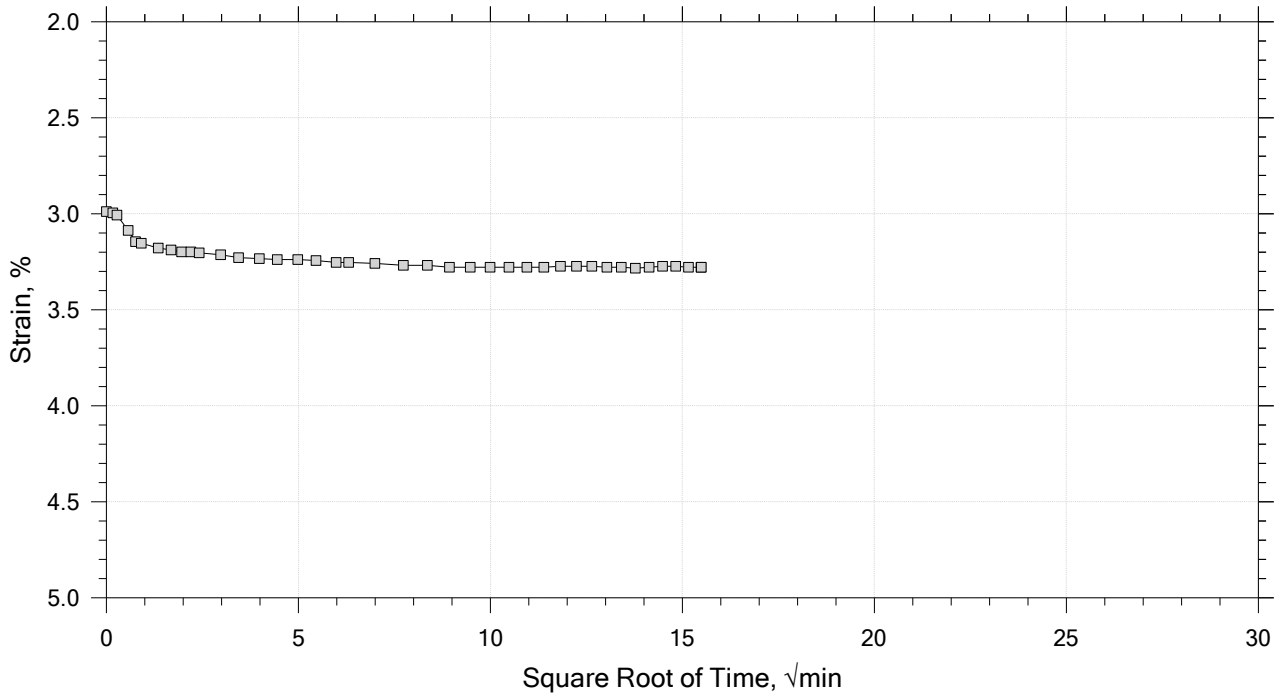
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 4 of 17

Constant Load Step

Stress: 0.5 tsf





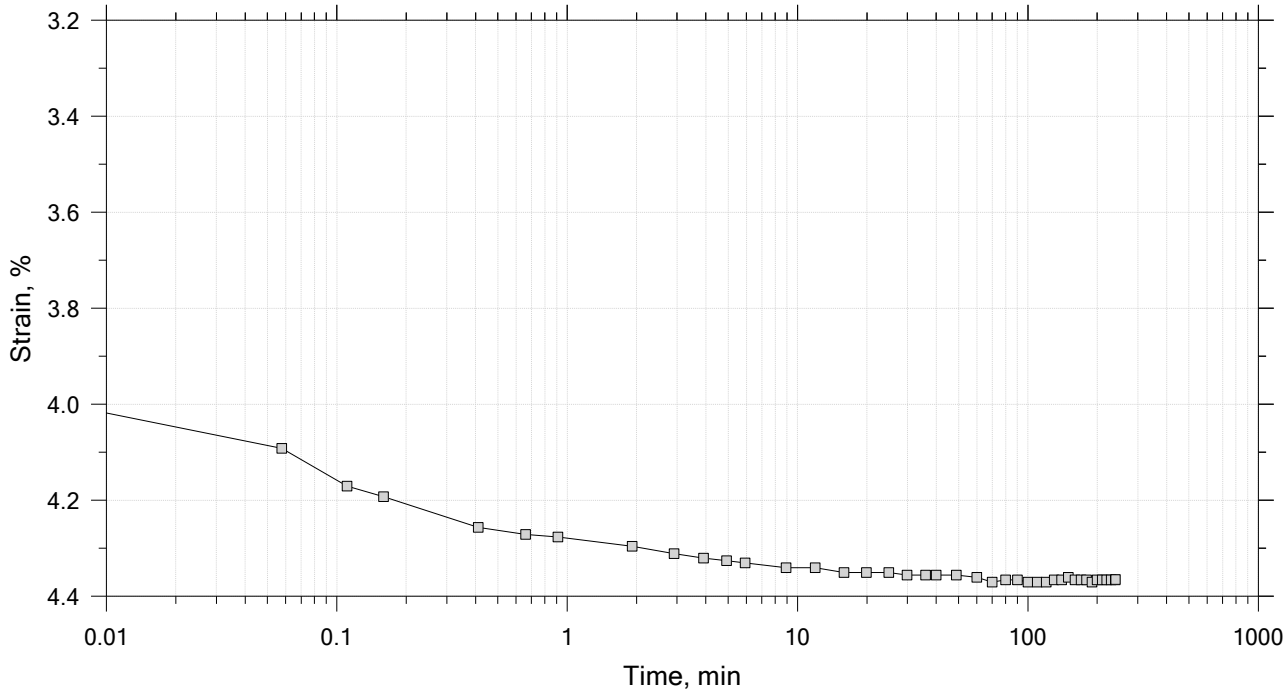
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

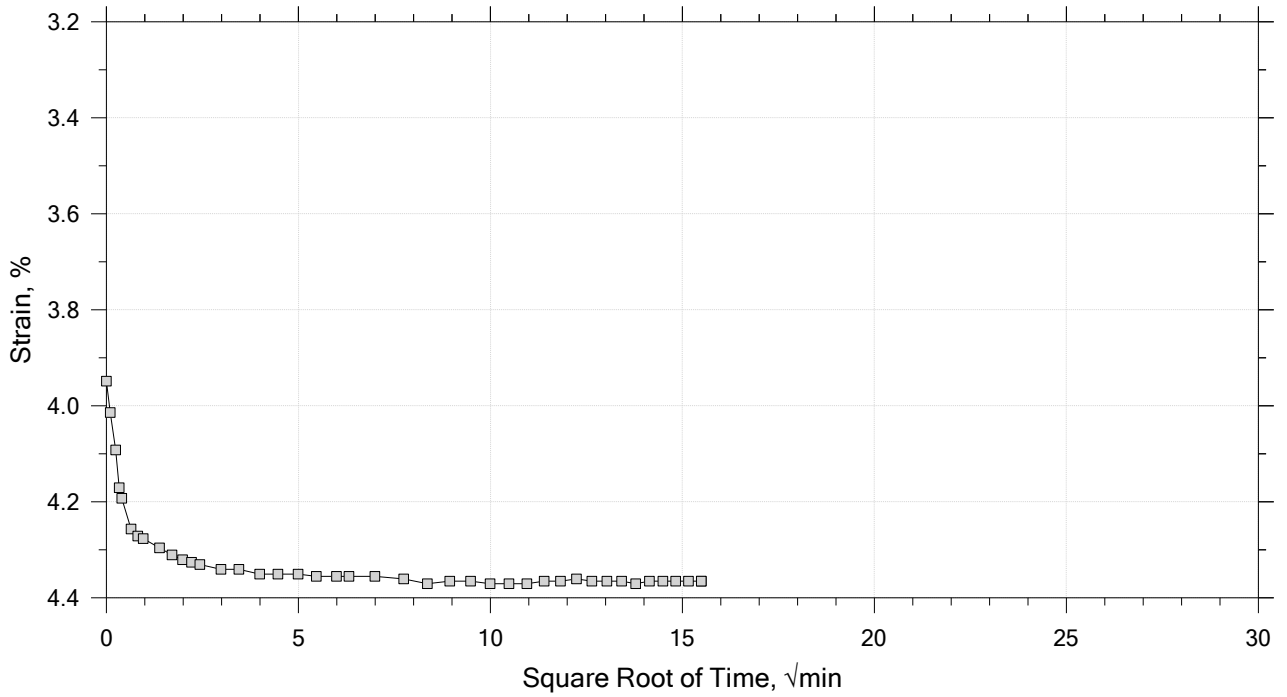
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 5 of 17

Constant Load Step

Stress: 1 tsf





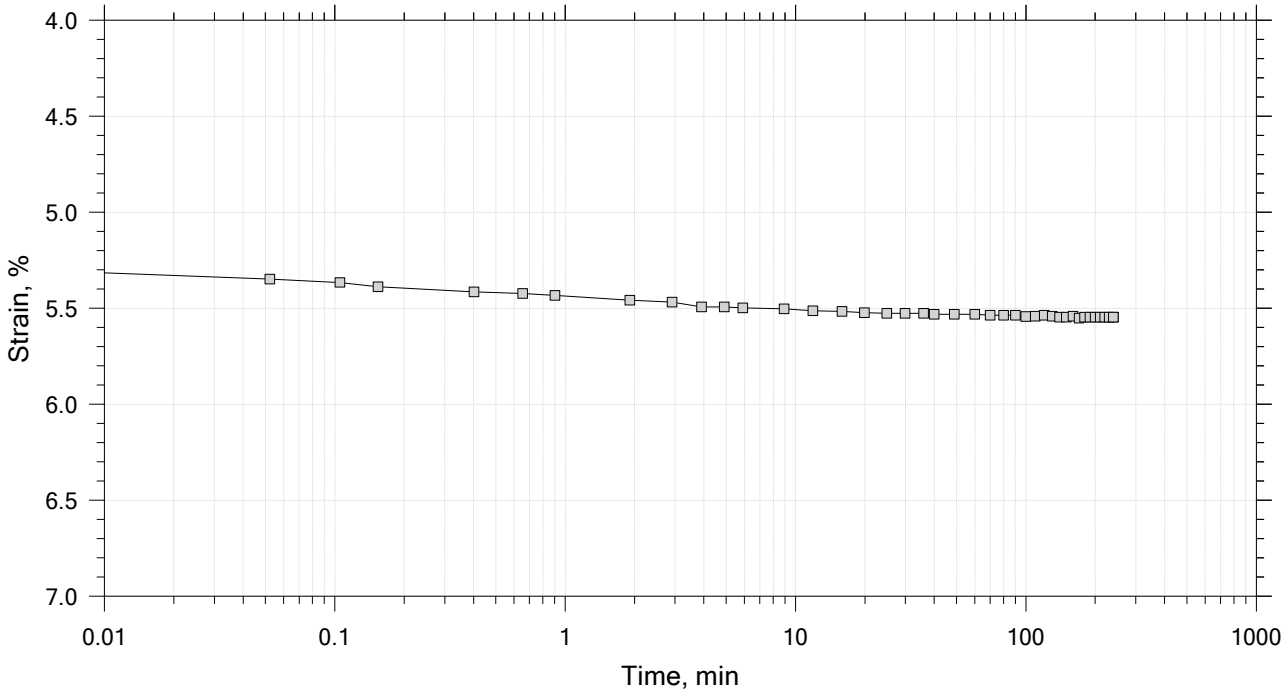
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

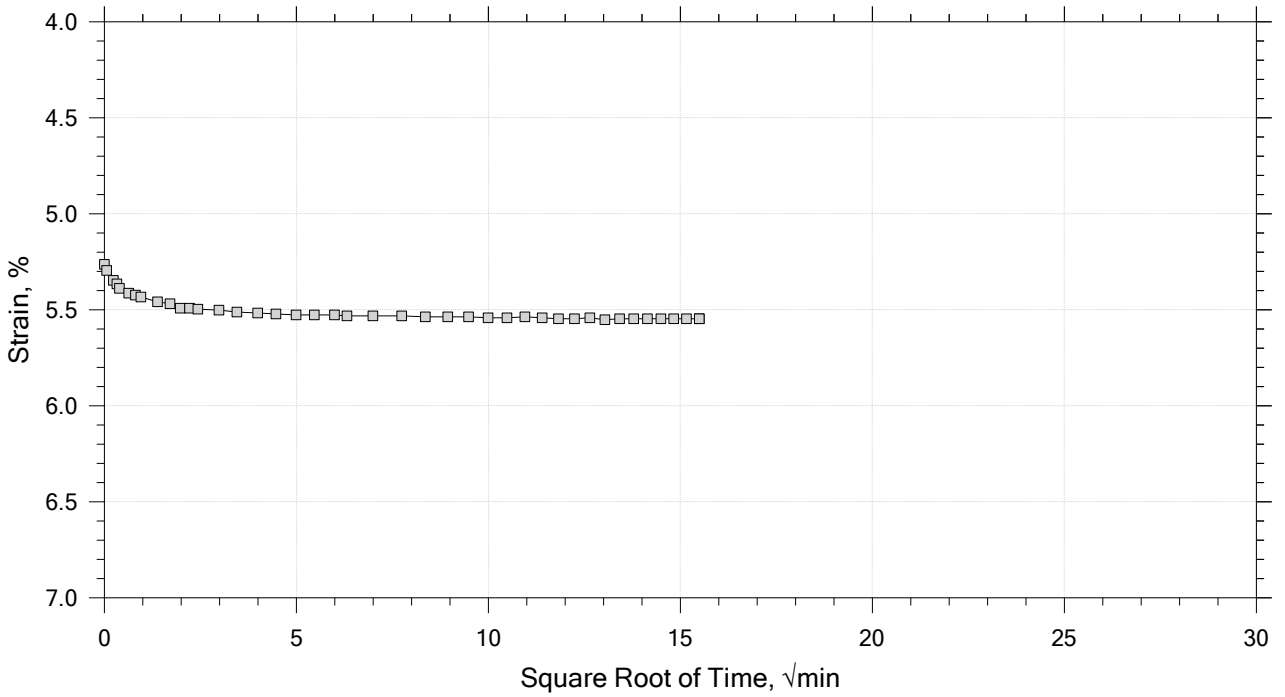
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 6 of 17

Constant Load Step

Stress: 2 tsf





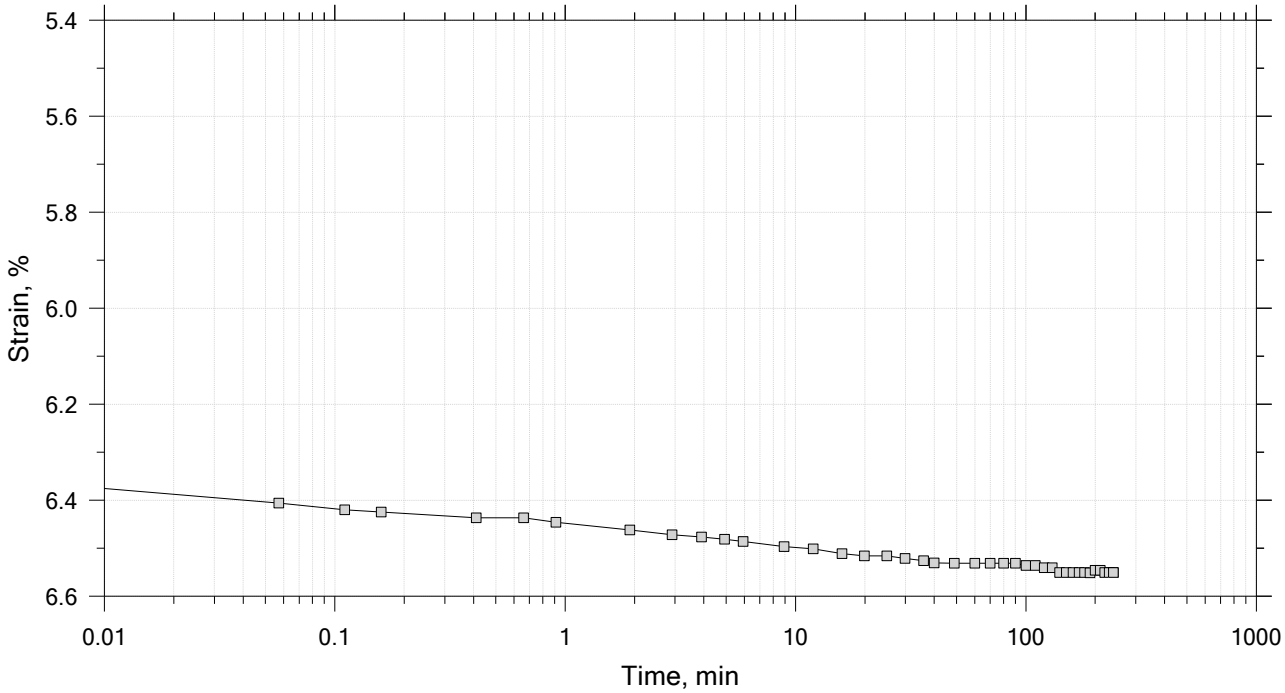
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

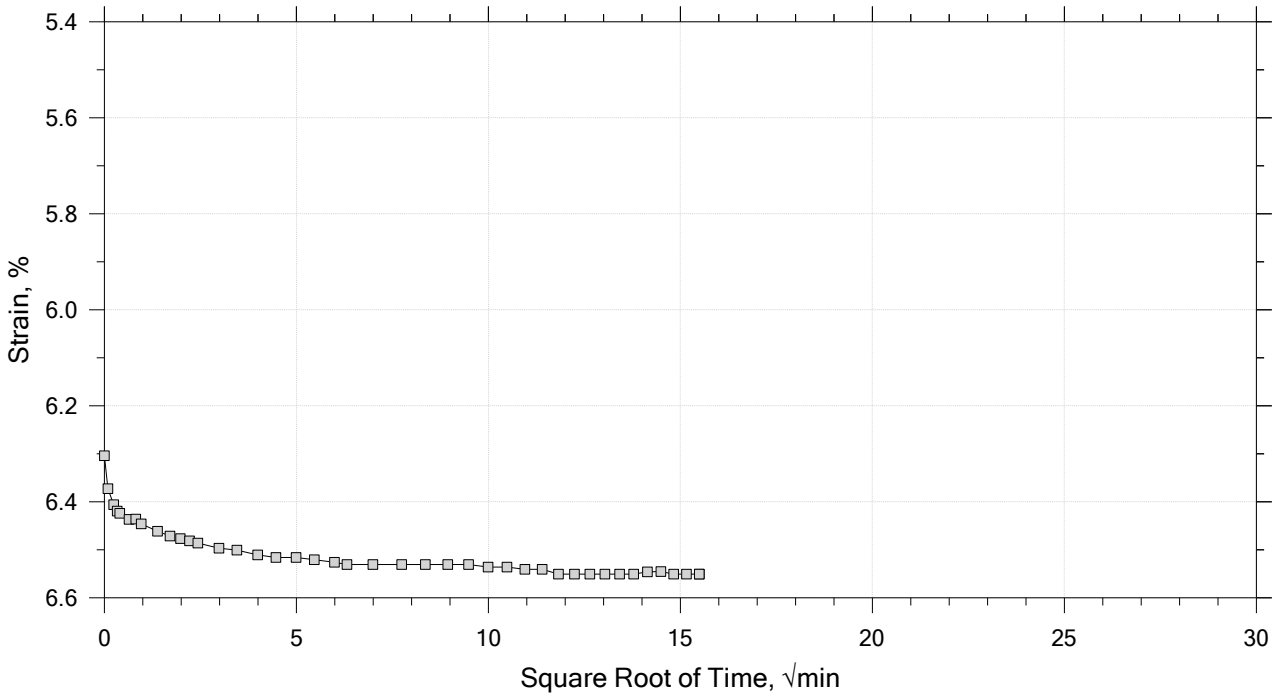
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 7 of 17

Constant Load Step

Stress: 4 tsf





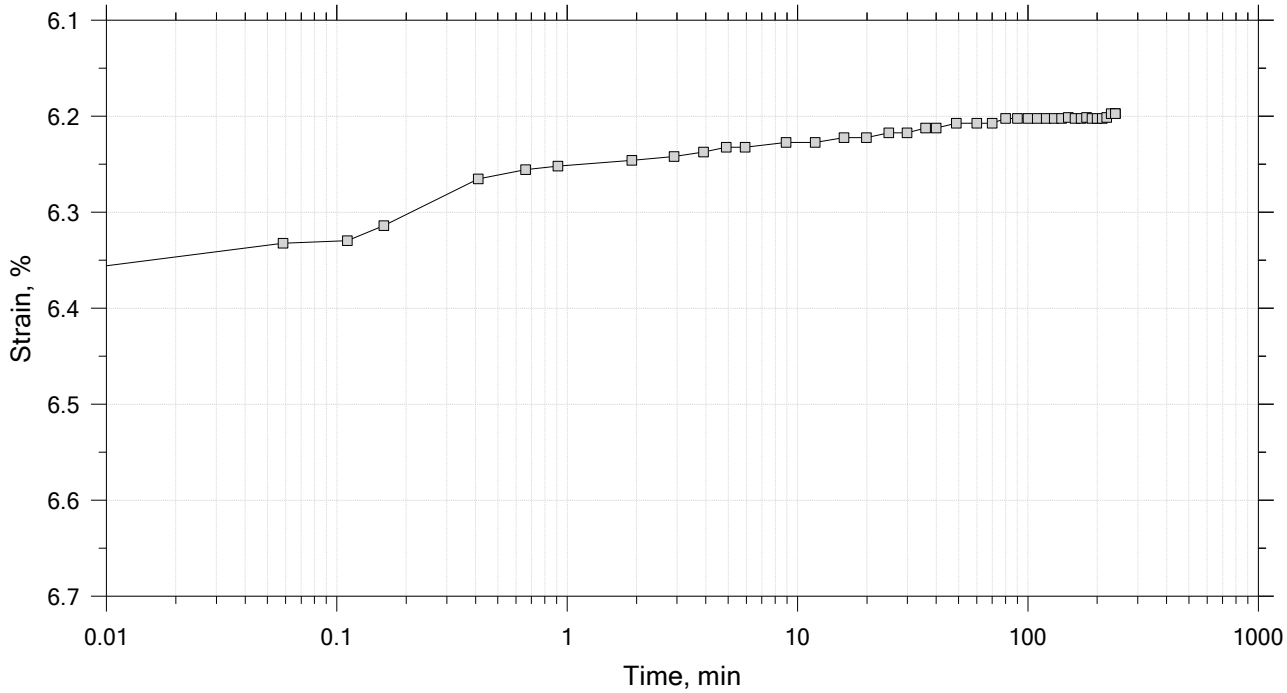
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

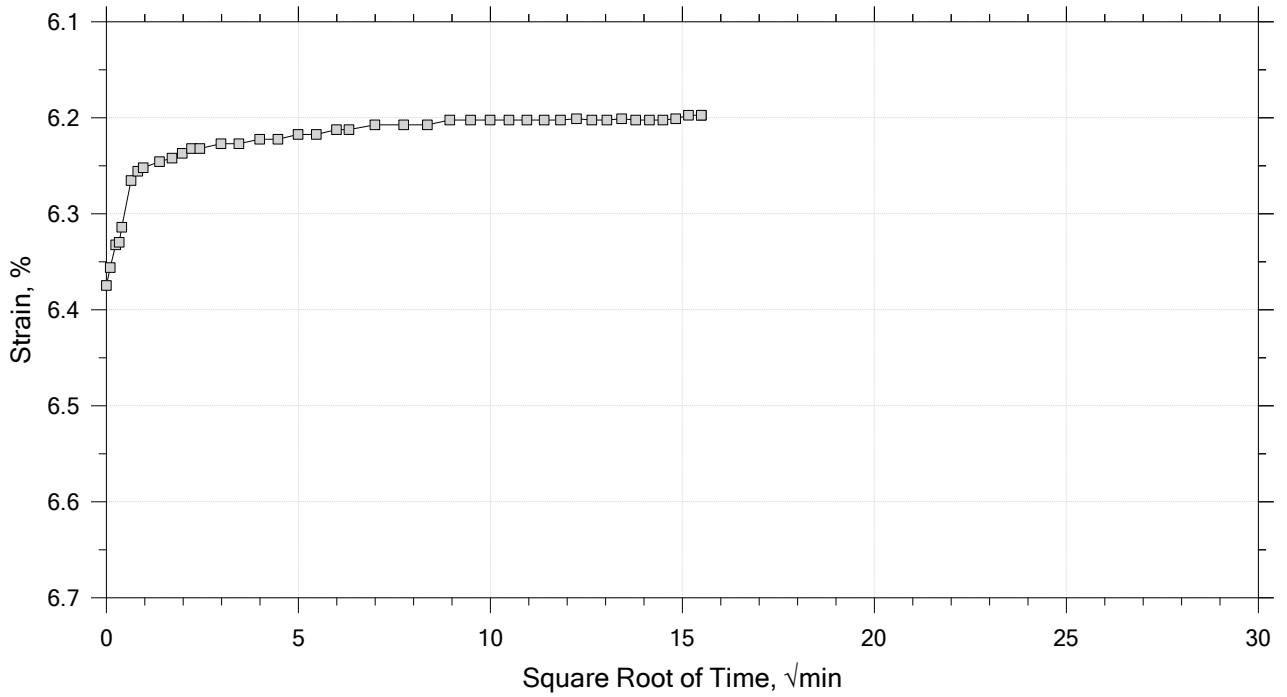
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 8 of 17

Constant Load Step

Stress: 0.25 tsf





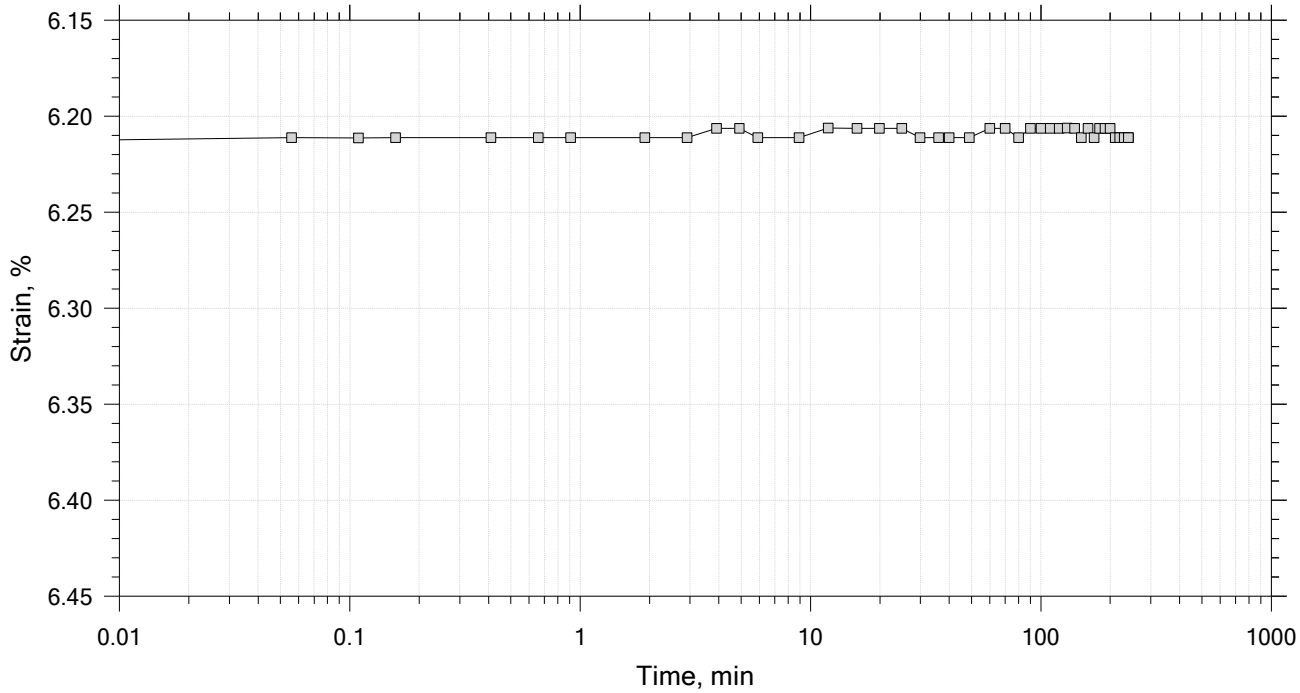
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

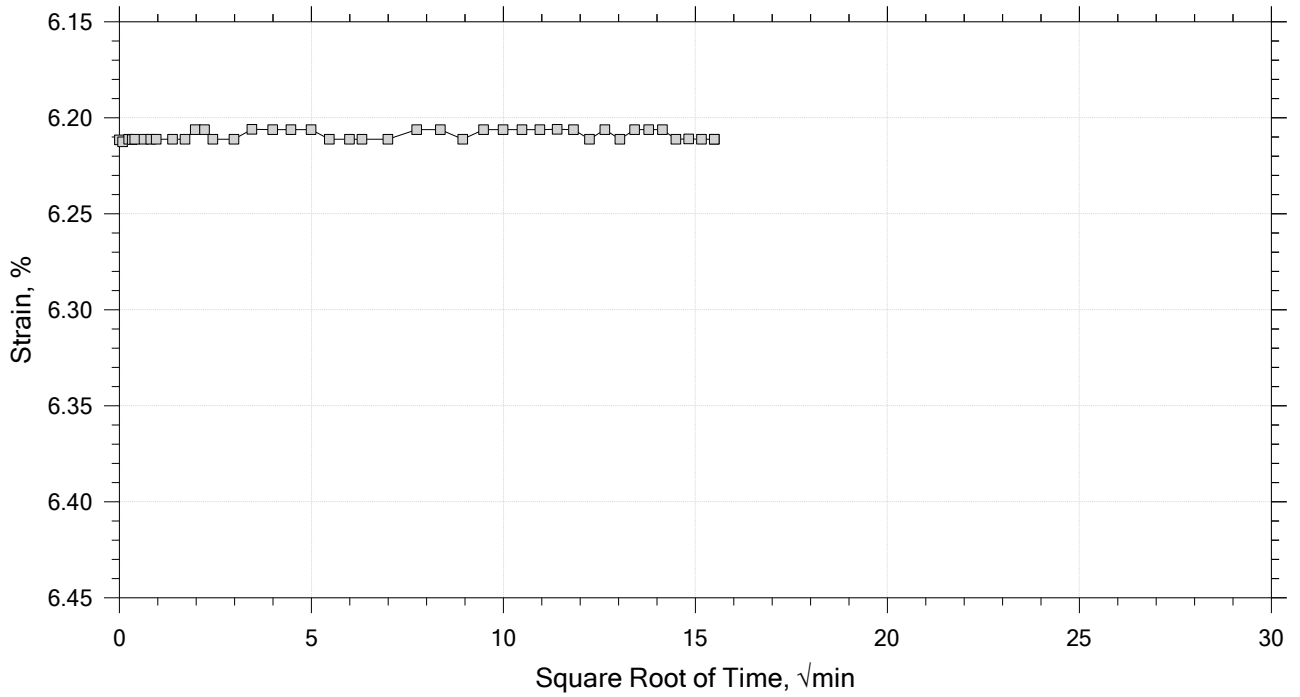
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 9 of 17

Constant Load Step

Stress: 0.5 tsf





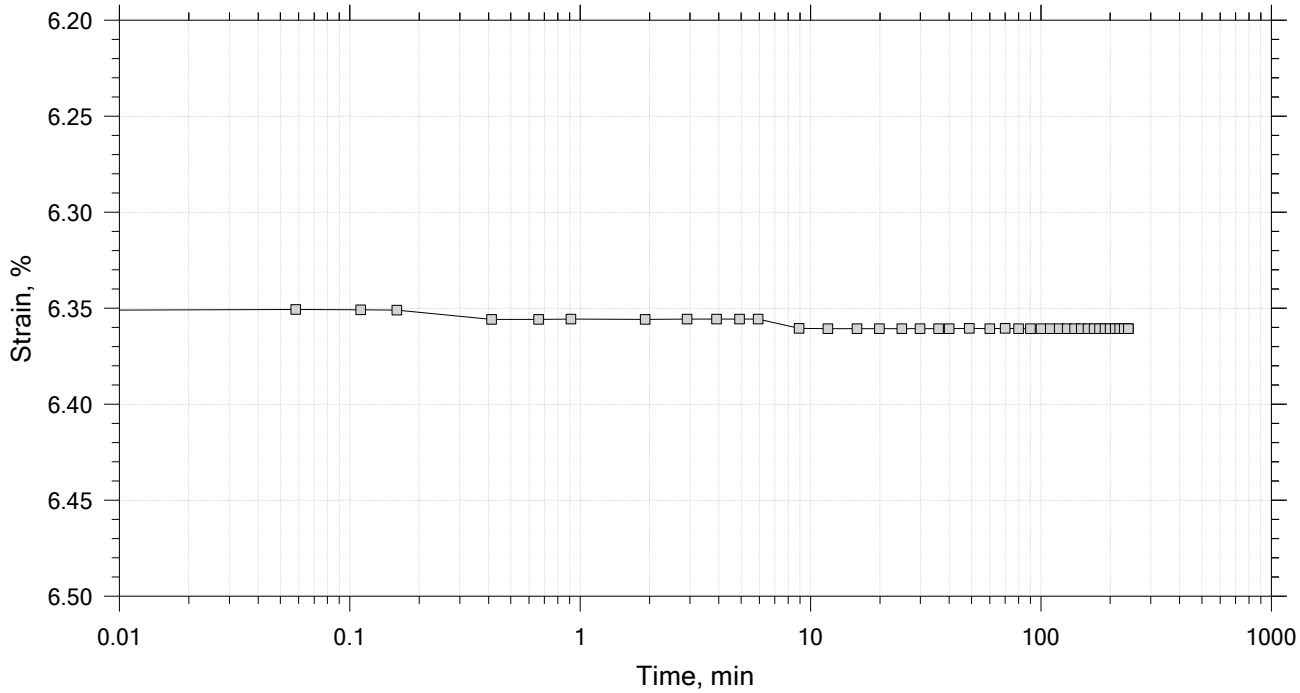
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

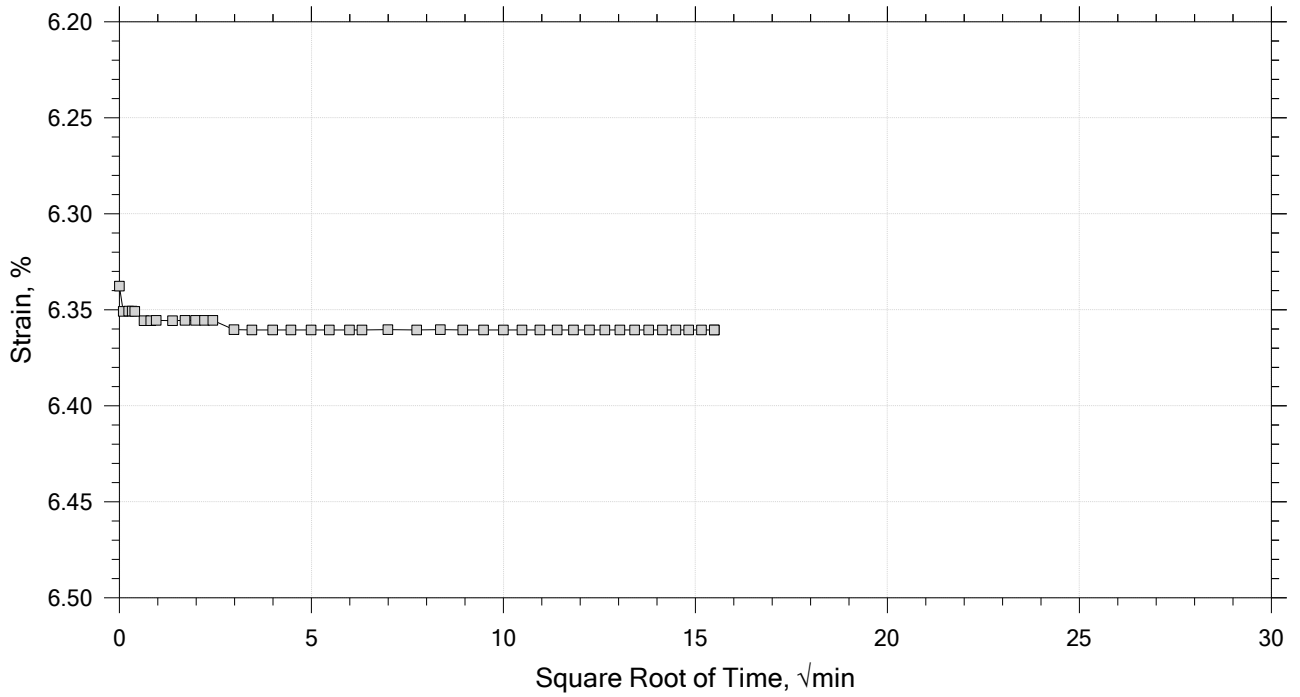
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 10 of 17

Constant Load Step

Stress: 1 tsf





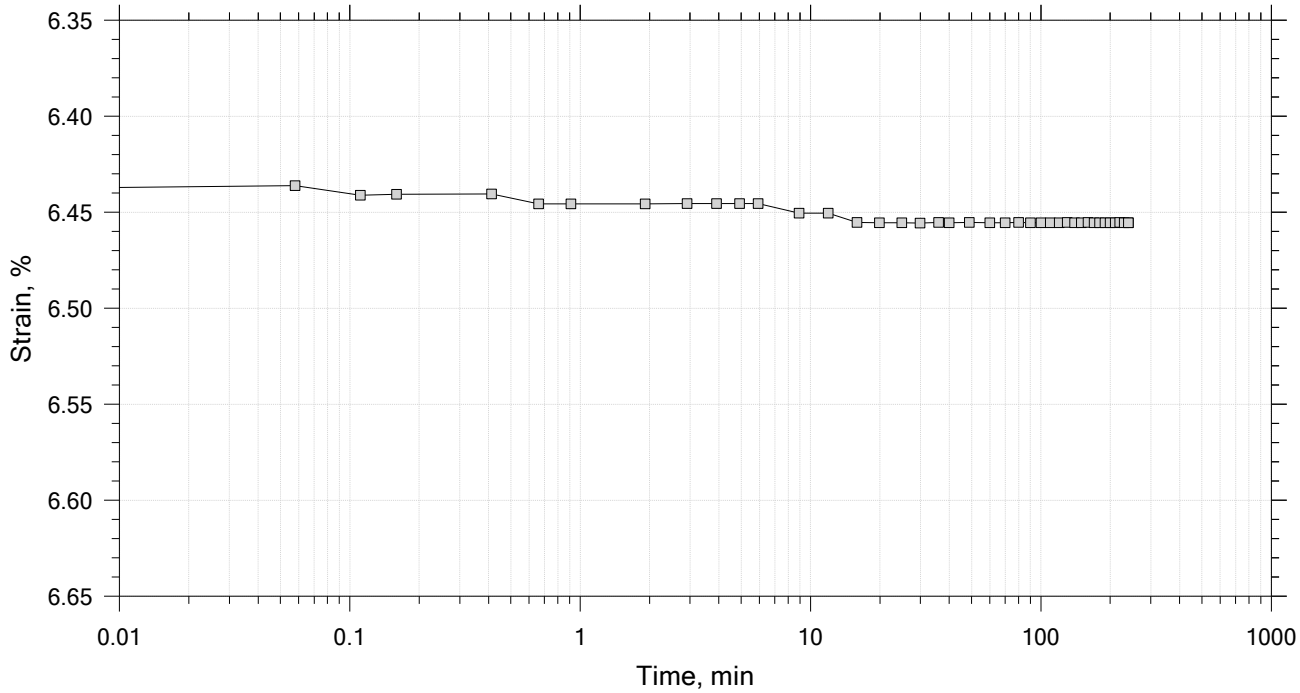
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

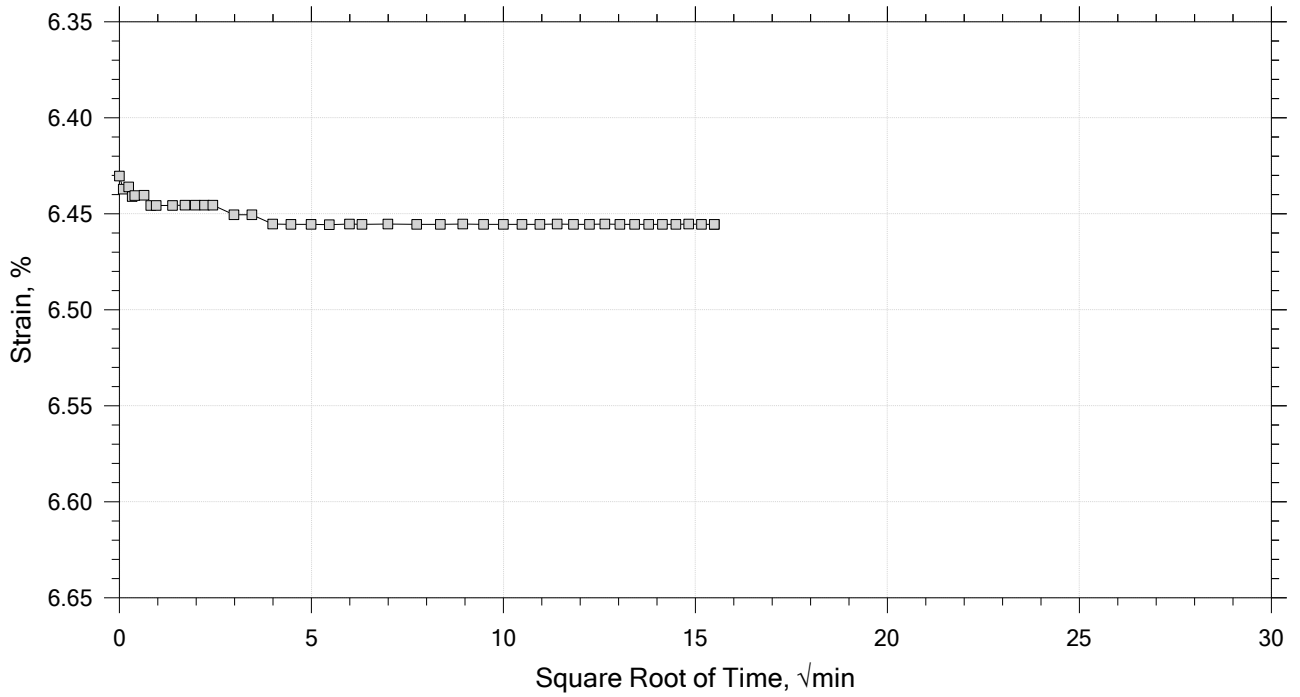
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 11 of 17

Constant Load Step

Stress: 2 tsf





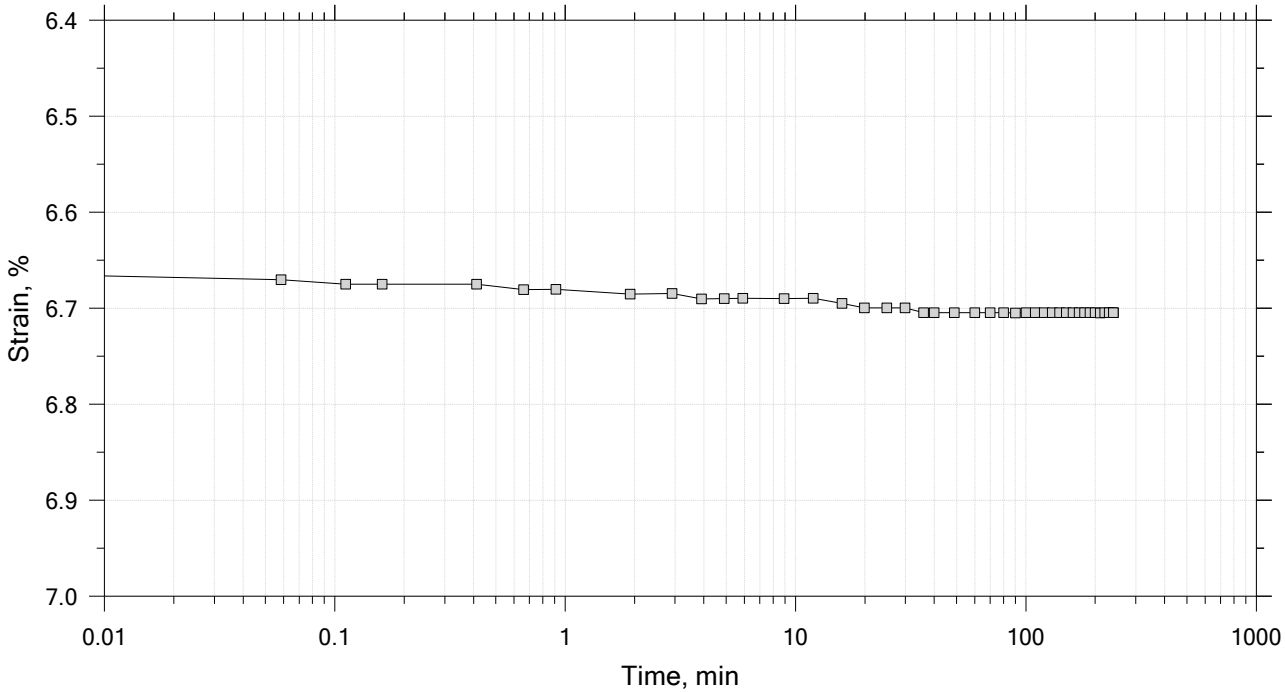
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

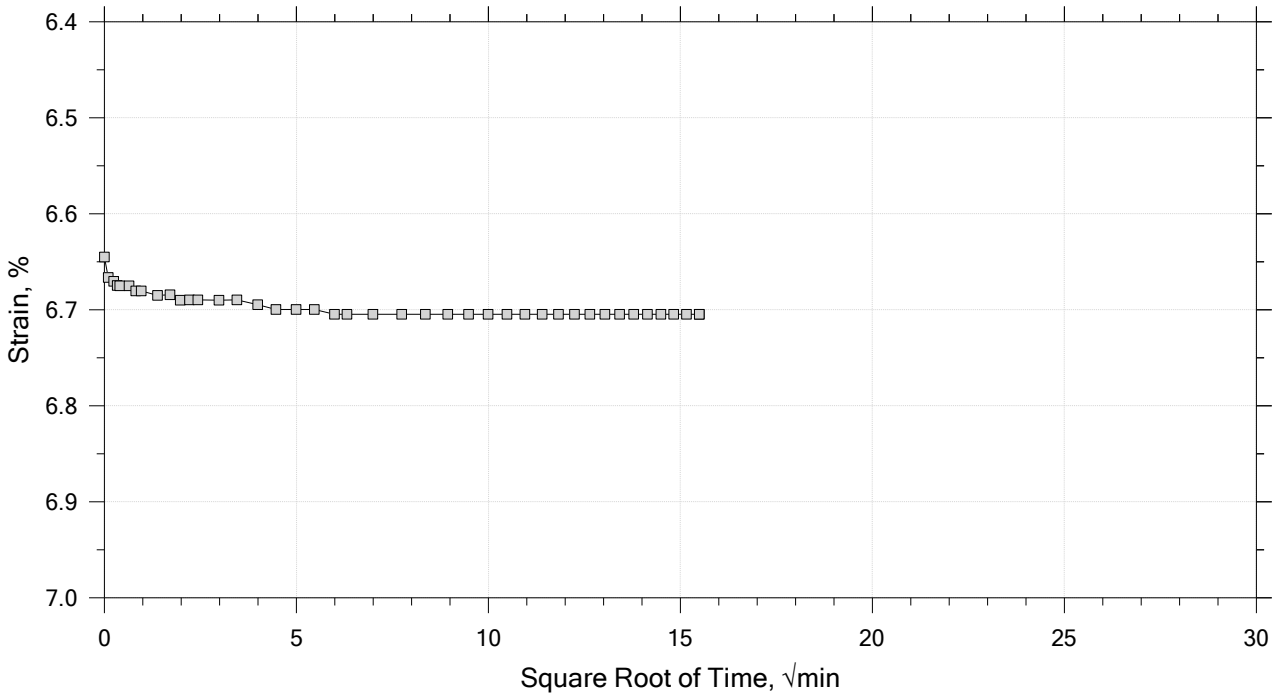
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 12 of 17

Constant Load Step

Stress: 4 tsf





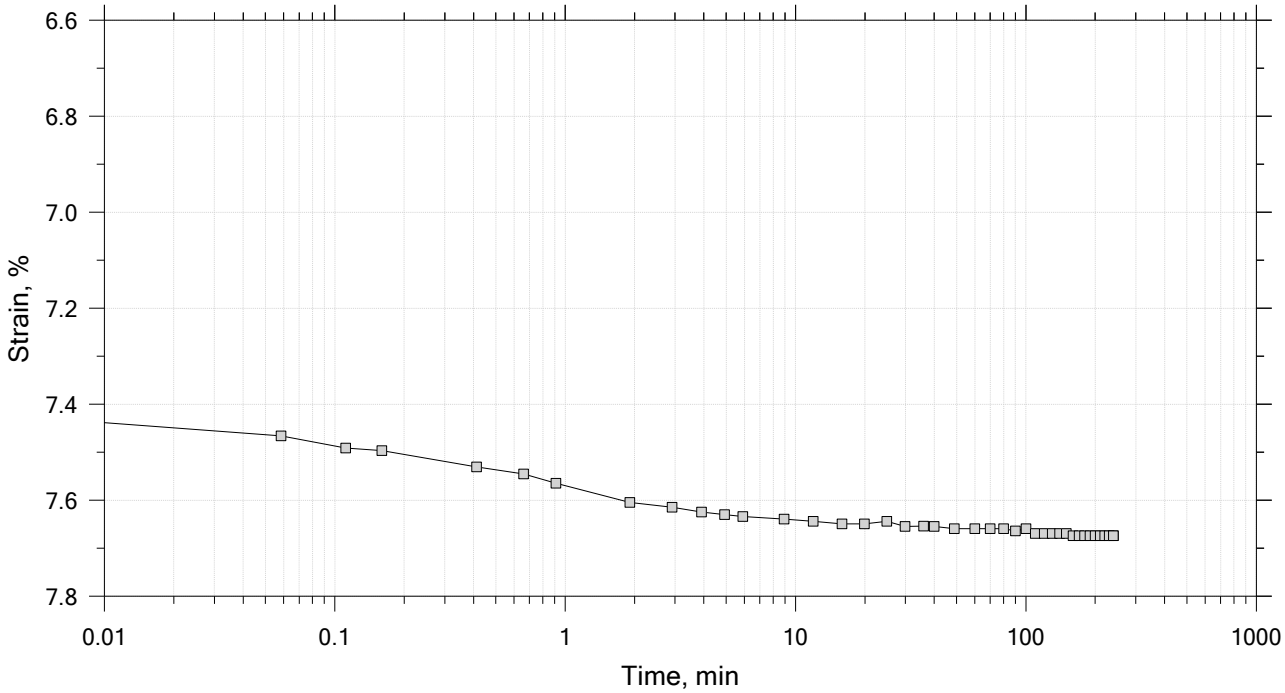
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

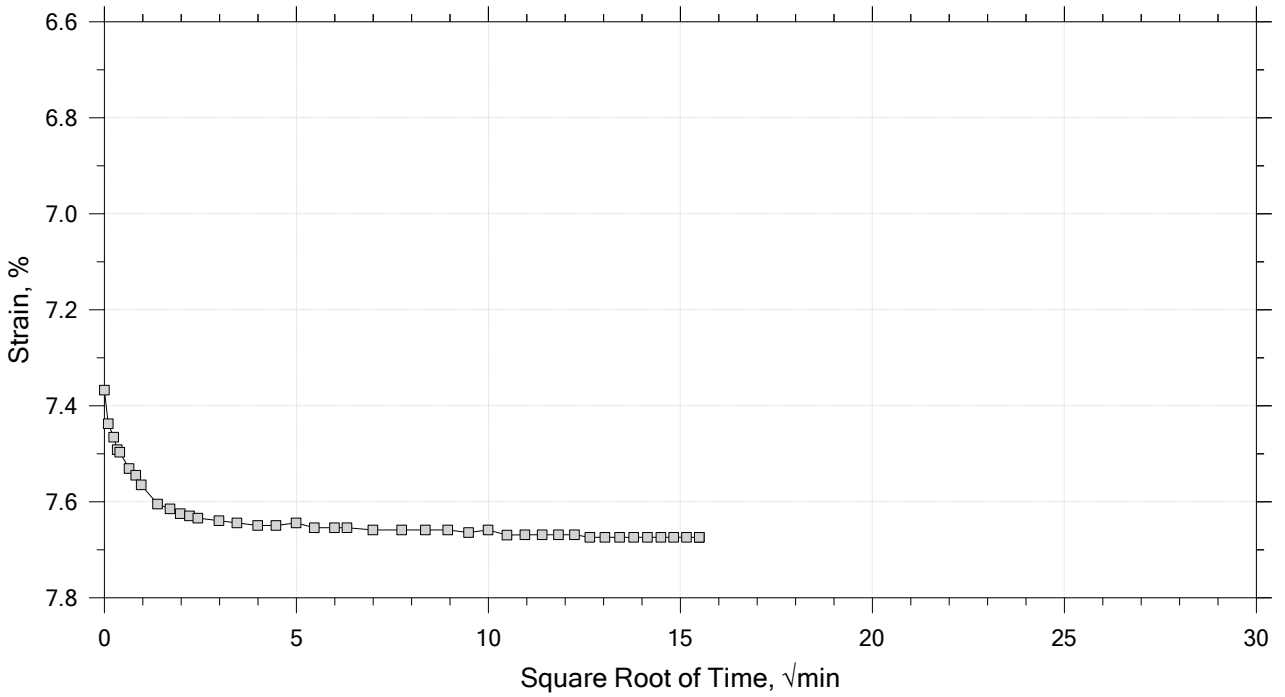
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 13 of 17

Constant Load Step

Stress: 8 tsf





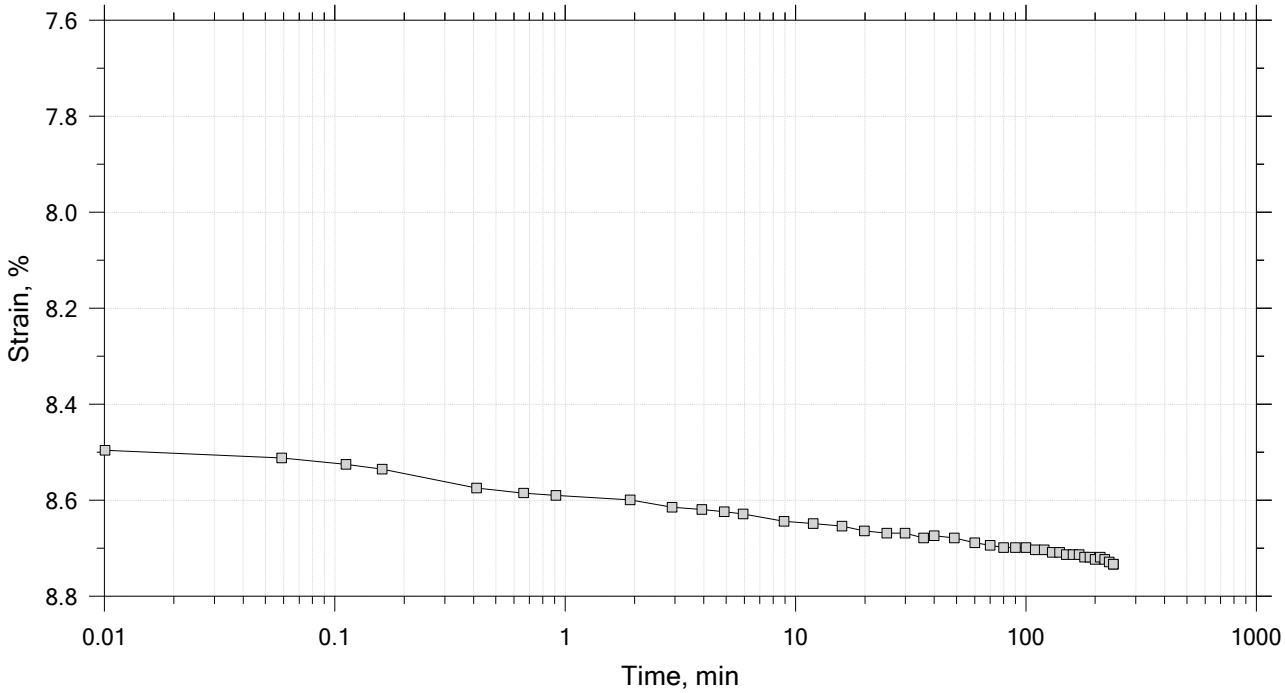
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

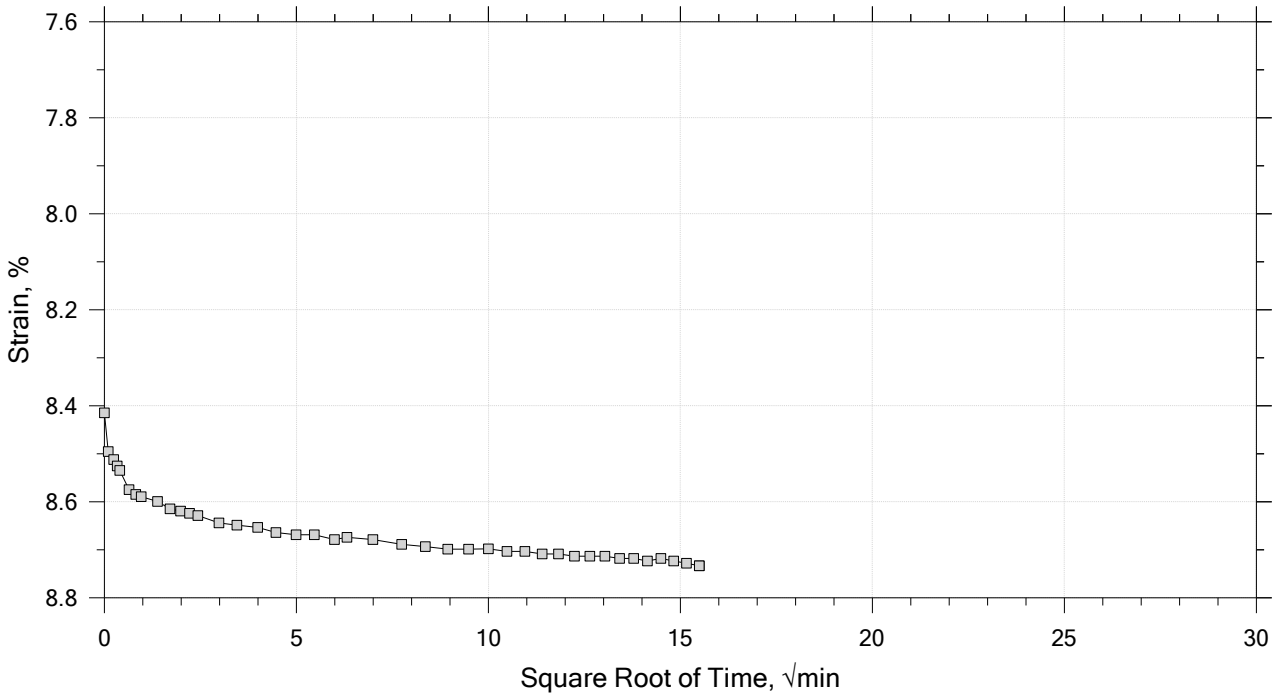
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 14 of 17

Constant Load Step

Stress: 16 tsf





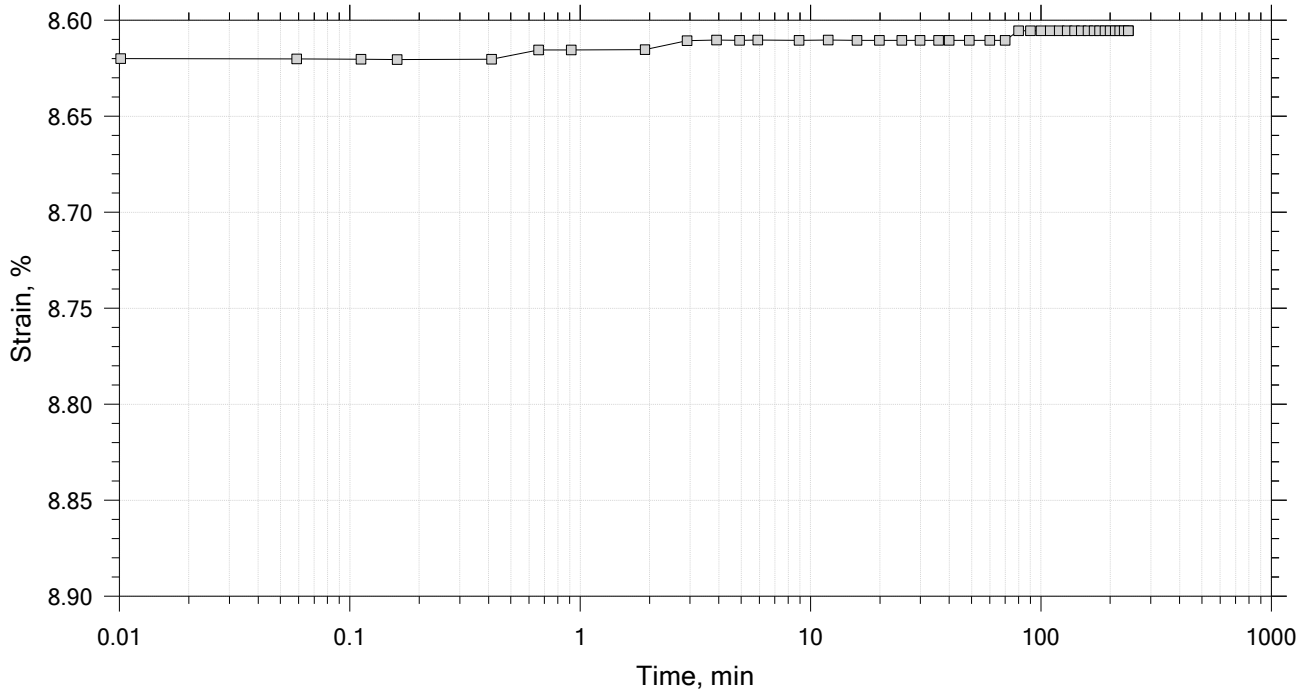
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

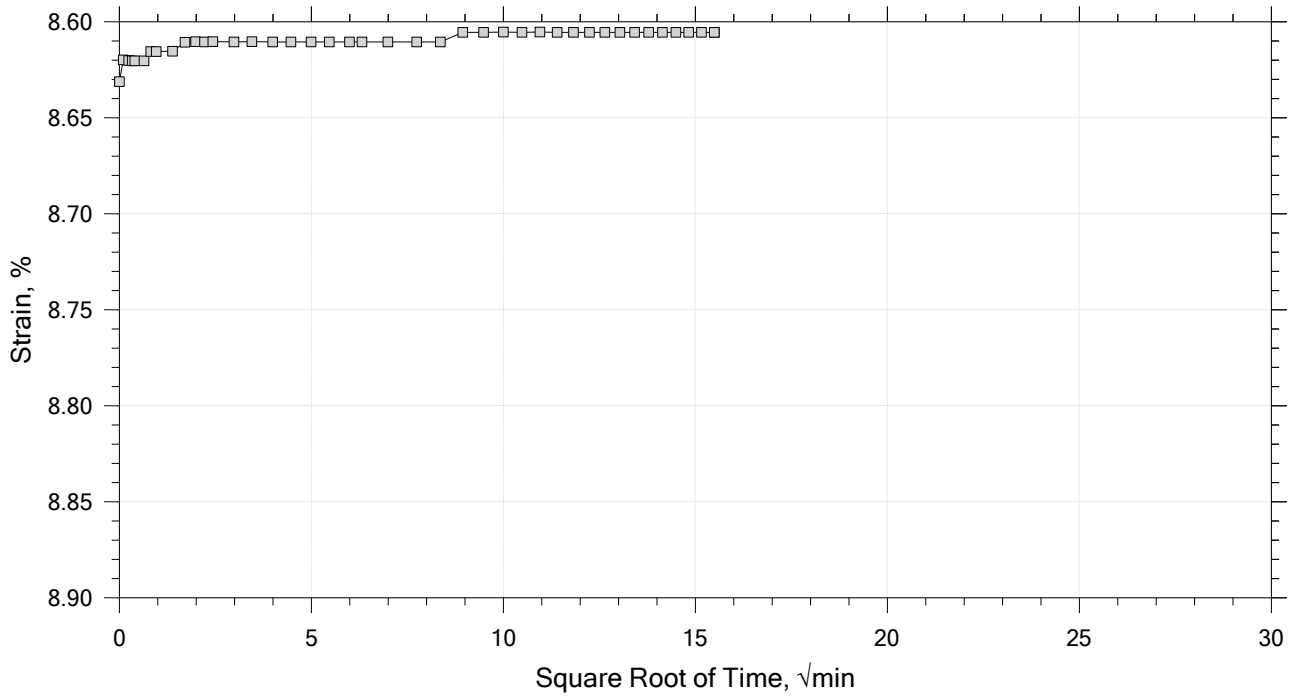
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 15 of 17

Constant Load Step

Stress: 4 tsf





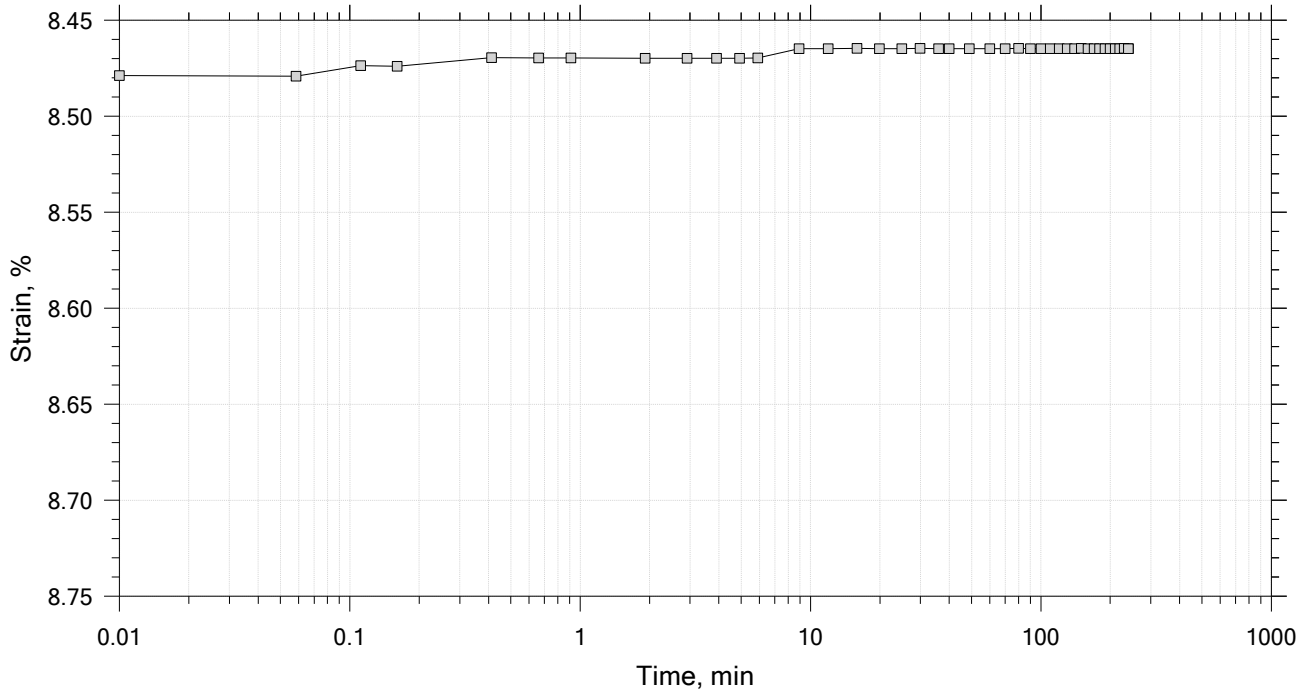
GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

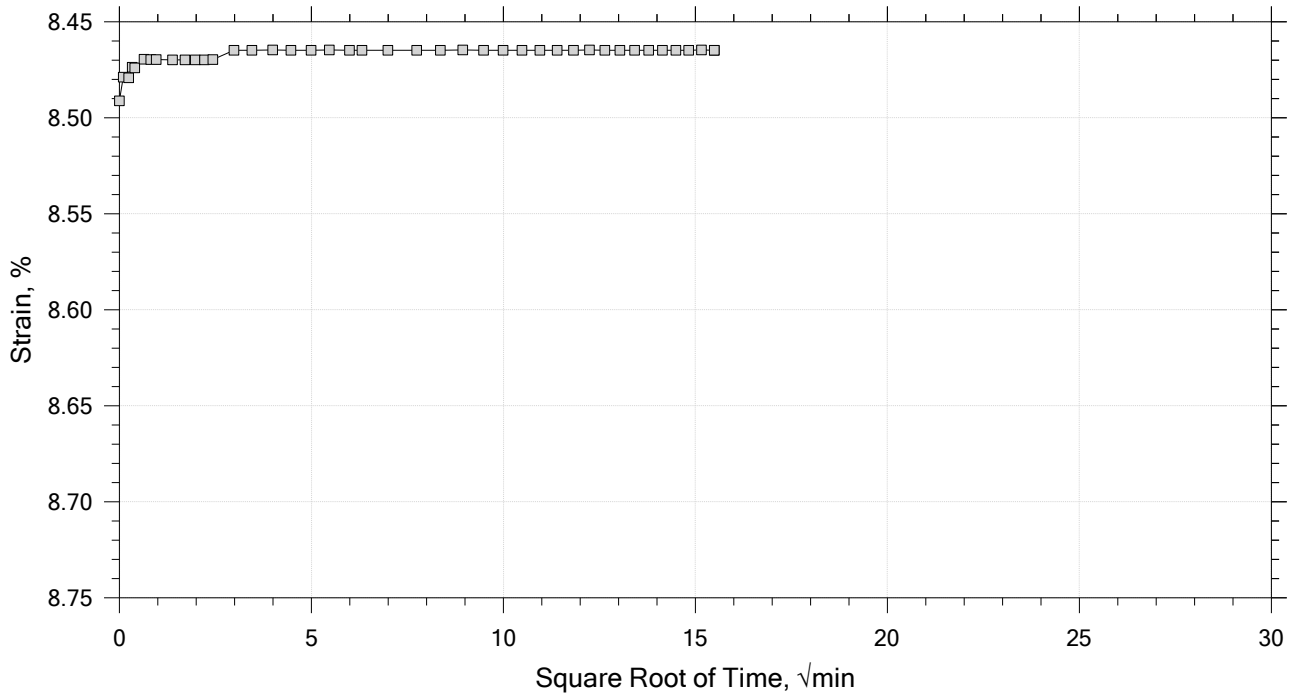
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 16 of 17

Constant Load Step

Stress: 1 tsf





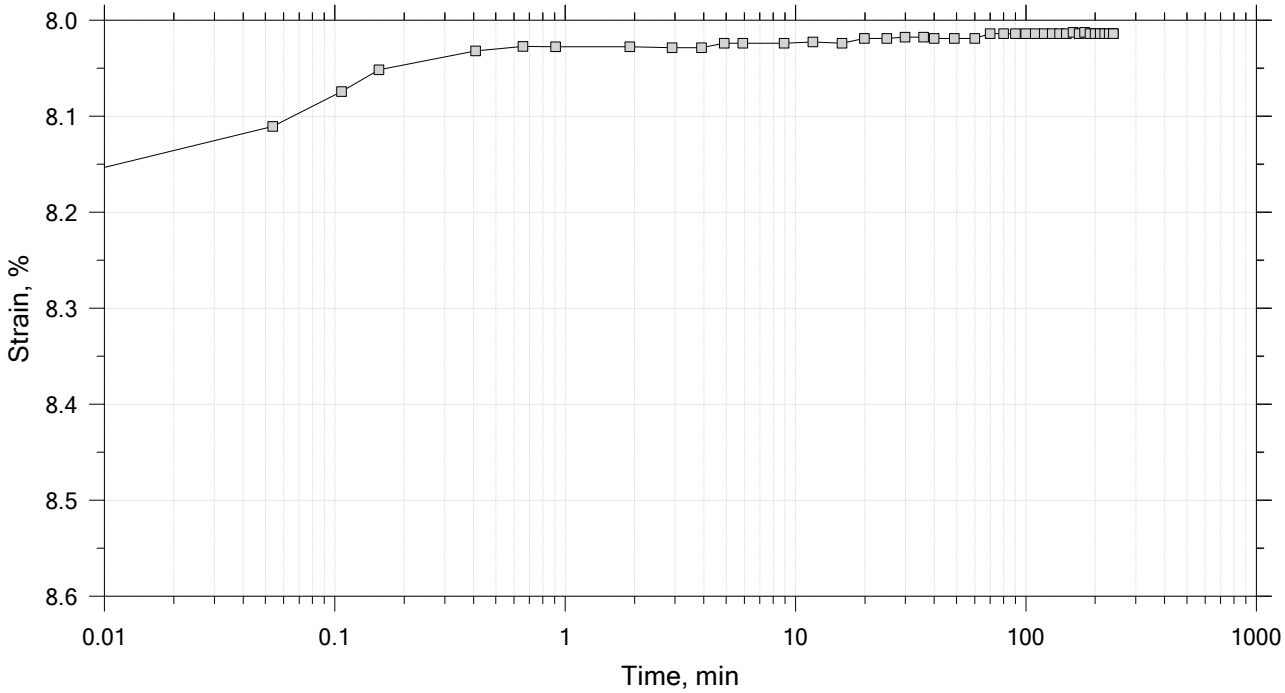
Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

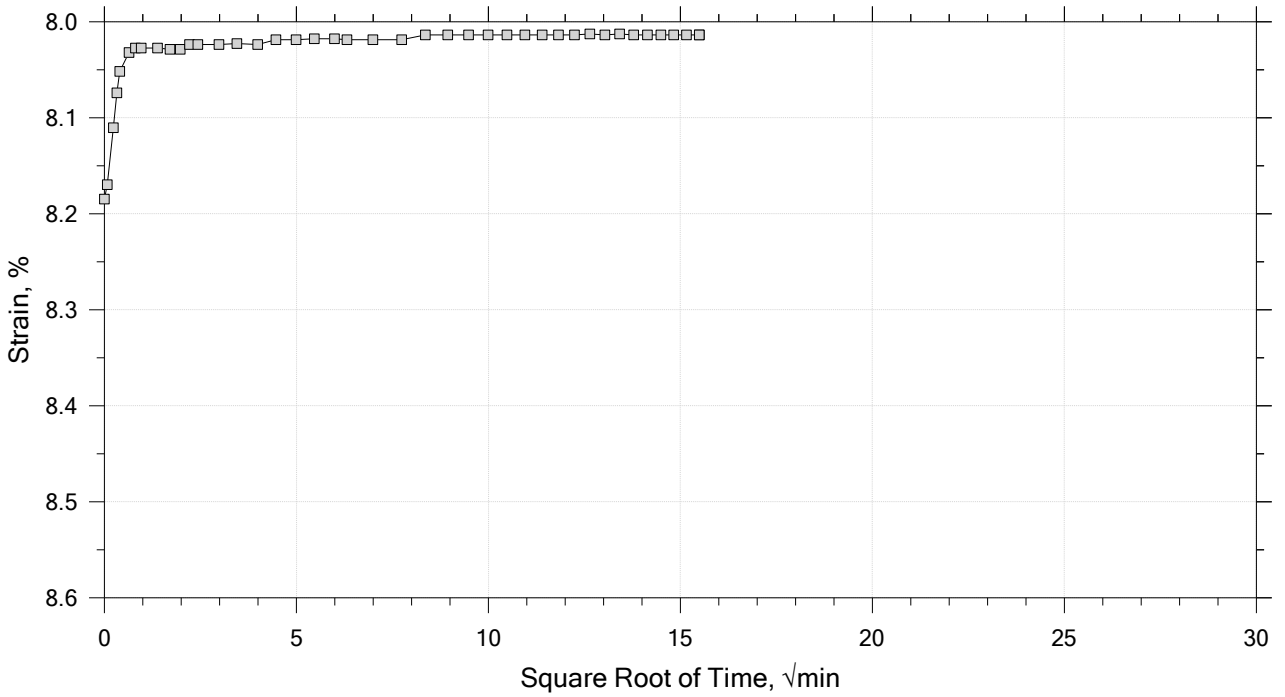
One-Dimensional Consolidation by ASTM D2435 - Method B

Time Curve 17 of 17

Constant Load Step

Stress: 0.25 tsf





GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Specimen Diameter: 2.50 in	Measured Specific Gravity: 2.66	Liquid Limit: 20
Initial Height: 1.00 in	Initial Void Ratio: 0.492	Plastic Limit: 14
Final Height: 0.93 in	Final Void Ratio: 0.387	Plasticity Index: 6

	Before Test Trimmings	Before Test Specimen	After Test Specimen	After Test Trimmings
Container ID	E1422	RING		E2610
Mass Container, gm	8.32	109.73	109.73	8.34
Mass Container + Wet Soil, gm	117.62	266.31	273.31	170.74
Mass Container + Dry Soil, gm	108.67	253.18	253.18	150.76
Mass Dry Soil, gm	100.35	143.45	143.45	142.42
Water Content, %	8.92	9.15	14.03	14.03
Void Ratio	---	0.49	0.39	---
Degree of Saturation, %	---	49.51	96.39	---
Dry Unit Weight, pcf	---	111.33	119.71	---

GeoTesting EXPRESS

Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
Boring No.: PB-01	Tested By: jlw	Checked By: njh
Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
Test No.: IP-1	Sample Type: intact	Elevation: ---
Description: Moist, yellowish brown silty, clayey sand		
Remarks: TX-011, Swell Pressure - 0.0677 tsf		

One-Dimensional Consolidation by ASTM D2435 - Method B

Square Root of Time Coefficients

Step	Applied Stress tsf	Final Displacement in	Void Ratio	Strain at End %	Sq.Rt. T90 min	Cv in²/s	Mv 1/tsf	k ft/day
1	0.0677	0.005419	0.483	0.542	2.648	1.33e-03	8.01e-02	1.99e-03
2	0.125	0.01076	0.475	1.08	1.546	2.25e-03	9.32e-02	3.92e-03
3	0.250	0.02108	0.460	2.11	23.992	1.43e-04	8.25e-02	2.20e-04
4	0.500	0.03278	0.443	3.28	3.809	8.78e-04	4.68e-02	7.70e-04
5	1.00	0.04366	0.426	4.37	1.481	2.21e-03	2.18e-02	8.99e-04
6	2.00	0.05547	0.409	5.55	3.902	8.18e-04	1.18e-02	1.81e-04
7	4.00	0.06551	0.394	6.55	9.914	3.15e-04	5.02e-03	2.96e-05
8	0.250	0.06197	0.399	6.20	2.467	1.26e-03	9.43e-04	2.22e-05
9	0.500	0.06211	0.399	6.21	---	---	---	---
10	1.00	0.06361	0.397	6.36	11.908	2.61e-04	2.99e-03	1.46e-05
11	2.00	0.06455	0.395	6.46	27.872	1.11e-04	9.49e-04	1.97e-06
12	4.00	0.06705	0.392	6.70	35.911	8.59e-05	1.25e-03	2.00e-06
13	8.00	0.07674	0.377	7.67	2.369	1.28e-03	2.42e-03	5.83e-05
14	16.0	0.08733	0.361	8.73	20.160	1.48e-04	1.32e-03	3.66e-06
15	4.00	0.08606	0.363	8.61	79.912	3.69e-05	1.07e-04	7.36e-08
16	1.00	0.08465	0.365	8.46	13.352	2.21e-04	4.69e-04	1.94e-06
17	0.250	0.08014	0.372	8.01	0.644	4.62e-03	6.01e-03	5.20e-04

GeoTesting EXPRESS	Project: F-16 Mission Training Center	Location: Atlantic City, NJ	Project No.: GTX-317638
	Boring No.: PB-01	Tested By: jlw	Checked By: njh
	Sample No.: Shelby Tube	Test Date: 08/21/23	Depth: 8-9.5
	Test No.: IP-1	Sample Type: intact	Elevation: ---
	Description: Moist, yellowish brown silty, clayey sand		
	Remarks: TX-011, Swell Pressure - 0.0677 tsf		
	Displacement at End of Increment		

APPENDIX D

SOIL CHEMICAL LABORATORY TEST DATA

Phase Separation Science Report

Schnabel Engineering, LLC
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PHASE
SEPARATION
SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Atlantic City MTC
PSS Project No.: 23071918

July 26, 2023

David MacGregor
Schnabel Engineering - Owings Mills
300 Red Brooke Blvd, Suite 109
Owings Mills, MD 21117

Reference: PSS Project No: **23071918**
Project Name: Atlantic City MTC
Project Location: Atlantic City, NJ
Project ID.: 23140043.000

Dear David MacGregor:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23071918**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on August 23, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Project ID: 23140043.000

The following samples were received under chain of custody by Phase Separation Science (PSS) on 07/19/2023 at 04:49 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23071918-001	B-1, 4-FT	SOIL	07/13/23 08:10
23071918-002	B-1, 5-FT	SOIL	07/13/23 08:20
23071918-003	PB-1, 4-FT	SOIL	07/18/23 10:45
23071918-004	PB-1, 6-FT	SOIL	07/18/23 10:55
23071918-005	SWM-1, 3-FT	SOIL	07/18/23 09:00
23071918-006	SWM-1, 6-FT	SOIL	07/17/23 09:10
23071918-007	SWM-3, 3 FT	SOIL	07/17/23 11:18
23071918-008	SWM-3, 6 FT	SOIL	07/17/23 11:30
23071918-009	SWM-3, 12 FT	SOIL	07/17/23 11:44
23071918-010	SWM-3, 15 FT	SOIL	07/17/23 11:50

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

PHASE
SEPARATION
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Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Atlantic City MTC

PSS Project No.: 23071918

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 4-FT **Date/Time Sampled: 07/13/2023 08:10** **PSS Sample ID: 23071918-001**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 91.6**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**2.3**	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064
Barium	**21**	mg/kg	0.47		1	07/21/23	07/25/23 20:04	1064
Cadmium	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064
Chromium	**14**	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064
Lead	**5.9**	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064
Mercury	ND	mg/kg	0.094		1	07/21/23	07/22/23 15:05	1064
Selenium	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064
Silver	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:05	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.6		1	07/22/23	07/24/23 18:53	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*79*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 18:53*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 20:04	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*101*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 20:04*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.021		1	07/24/23	07/24/23 15:29	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 4-FT **Date/Time Sampled: 07/13/2023 08:10** **PSS Sample ID: 23071918-001**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 91.6**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0053		1	07/24/23	07/24/23 15:29	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Chloroform	ND	mg/kg	0.0053		1	07/24/23	07/24/23 15:29	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Methyl Acetate	ND	mg/kg	0.026		1	07/24/23	07/24/23 15:29	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Methylene chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 15:29	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 4-FT **Date/Time Sampled: 07/13/2023 08:10** **PSS Sample ID: 23071918-001**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 91.6**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Vinyl chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 15:29	1045
m&p-Xylene	ND	mg/kg	0.0021		1	07/24/23	07/24/23 15:29	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 15:29	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*98*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 15:29*	*1045*
Dibromofluoromethane	*96*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 15:29*	*1045*
Toluene-D8	*100*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 15:29*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 5-FT **Date/Time Sampled: 07/13/2023 08:20** **PSS Sample ID: 23071918-002**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 90.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**2.1**	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064
Barium	**28**	mg/kg	0.46		1	07/21/23	07/25/23 20:08	1064
Cadmium	ND	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064
Chromium	**19**	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064
Lead	**9.9**	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064
Mercury	ND	mg/kg	0.091		1	07/21/23	07/22/23 15:45	1064
Selenium	ND	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064
Silver	ND	mg/kg	0.46		1	07/21/23	07/22/23 15:45	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.7		1	07/22/23	07/24/23 19:13	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*79*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 19:13*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/24/23 02:10	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*95*	*%*	*68-120*		*1*	*07/23/23*	*07/24/23 02:10*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.023		1	07/24/23	07/24/23 15:50	1045
Benzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Bromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Bromodichloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Bromoform	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Bromomethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 5-FT **Date/Time Sampled: 07/13/2023 08:20** **PSS Sample ID: 23071918-002**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 90.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0058		1	07/24/23	07/24/23 15:50	1045
Carbon Disulfide	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Carbon tetrachloride	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Chlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Chloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Chloroform	ND	mg/kg	0.0058		1	07/24/23	07/24/23 15:50	1045
Chloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Cyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Dibromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2-Dibromoethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Dichlorodifluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2-Dichloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Ethylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
2-Hexanone (MBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Isopropylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Methyl Acetate	ND	mg/kg	0.029		1	07/24/23	07/24/23 15:50	1045
Methylcyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Methylene chloride	ND	mg/kg	0.0058		1	07/24/23	07/24/23 15:50	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Naphthalene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Styrene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Tetrachloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: B-1, 5-FT **Date/Time Sampled: 07/13/2023 08:20** **PSS Sample ID: 23071918-002**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 90.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Trichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Trichlorofluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Vinyl chloride	ND	mg/kg	0.0058		1	07/24/23	07/24/23 15:50	1045
m&p-Xylene	ND	mg/kg	0.0023		1	07/24/23	07/24/23 15:50	1045
o-Xylene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 15:50	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*99*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 15:50*	*1045*
Dibromofluoromethane	*93*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 15:50*	*1045*
Toluene-D8	*97*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 15:50*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 4-FT **Date/Time Sampled: 07/18/2023 10:45** **PSS Sample ID: 23071918-003**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**4.3**	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064
Barium	**33**	mg/kg	0.44		1	07/21/23	07/25/23 20:12	1064
Cadmium	ND	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064
Chromium	**23**	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064
Lead	**7.4**	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064
Mercury	ND	mg/kg	0.088		1	07/21/23	07/22/23 15:50	1064
Selenium	ND	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064
Silver	ND	mg/kg	0.44		1	07/21/23	07/22/23 15:50	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.7		1	07/22/23	07/24/23 19:33	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*75*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 19:33*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 20:47	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*99*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 20:47*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.023		1	07/24/23	07/24/23 16:12	1045
Benzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Bromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Bromodichloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Bromoform	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Bromomethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 4-FT **Date/Time Sampled: 07/18/2023 10:45** **PSS Sample ID: 23071918-003**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0058		1	07/24/23	07/24/23 16:12	1045
Carbon Disulfide	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Carbon tetrachloride	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Chlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Chloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Chloroform	ND	mg/kg	0.0058		1	07/24/23	07/24/23 16:12	1045
Chloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Cyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Dibromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2-Dibromoethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Dichlorodifluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2-Dichloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Ethylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
2-Hexanone (MBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Isopropylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Methyl Acetate	ND	mg/kg	0.029		1	07/24/23	07/24/23 16:12	1045
Methylcyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Methylene chloride	ND	mg/kg	0.0058		1	07/24/23	07/24/23 16:12	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Naphthalene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Styrene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Tetrachloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 4-FT **Date/Time Sampled: 07/18/2023 10:45** **PSS Sample ID: 23071918-003**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Trichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Trichlorofluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Vinyl chloride	ND	mg/kg	0.0058		1	07/24/23	07/24/23 16:12	1045
m&p-Xylene	ND	mg/kg	0.0023		1	07/24/23	07/24/23 16:12	1045
o-Xylene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 16:12	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*101*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 16:12*	*1045*
Dibromofluoromethane	*102*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 16:12*	*1045*
Toluene-D8	*99*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 16:12*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 6-FT **Date/Time Sampled: 07/18/2023 10:55** **PSS Sample ID: 23071918-004**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**1.5**	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064
Barium	**13**	mg/kg	0.47		1	07/21/23	07/25/23 20:16	1064
Cadmium	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064
Chromium	**17**	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064
Lead	**4.1**	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064
Mercury	ND	mg/kg	0.094		1	07/21/23	07/22/23 15:55	1064
Selenium	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064
Silver	ND	mg/kg	0.47		1	07/21/23	07/22/23 15:55	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

Diesel fuel and heavier fuel oil patterns observed in samples.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	**13**	mg/kg	3.5		1	07/22/23	07/24/23 22:13	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*77*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 22:13*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 21:09	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*101*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 21:09*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.021		1	07/24/23	07/24/23 16:34	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 6-FT **Date/Time Sampled: 07/18/2023 10:55** **PSS Sample ID: 23071918-004**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0053		1	07/24/23	07/24/23 16:34	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Chloroform	ND	mg/kg	0.0053		1	07/24/23	07/24/23 16:34	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Methyl Acetate	ND	mg/kg	0.027		1	07/24/23	07/24/23 16:34	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Methylene chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 16:34	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: PB-1, 6-FT **Date/Time Sampled: 07/18/2023 10:55** **PSS Sample ID: 23071918-004**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Vinyl chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 16:34	1045
m&p-Xylene	ND	mg/kg	0.0021		1	07/24/23	07/24/23 16:34	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:34	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*99*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 16:34*	*1045*
Dibromofluoromethane	*99*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 16:34*	*1045*
Toluene-D8	*99*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 16:34*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 3-FT **Date/Time Sampled: 07/18/2023 09:00** **PSS Sample ID: 23071918-005**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.3**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**2.9**	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064
Barium	**17**	mg/kg	0.52		1	07/21/23	07/25/23 20:20	1064
Cadmium	ND	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064
Chromium	**18**	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064
Lead	**7.5**	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064
Mercury	ND	mg/kg	0.10		1	07/21/23	07/22/23 16:00	1064
Selenium	ND	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064
Silver	ND	mg/kg	0.52		1	07/21/23	07/22/23 16:00	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.7		1	07/22/23	07/24/23 13:59	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*75*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 13:59*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 21:30	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*79*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 21:30*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.022		1	07/24/23	07/24/23 16:55	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 3-FT **Date/Time Sampled: 07/18/2023 09:00** **PSS Sample ID: 23071918-005**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.3**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0054		1	07/24/23	07/24/23 16:55	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Chloroform	ND	mg/kg	0.0054		1	07/24/23	07/24/23 16:55	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Methyl Acetate	ND	mg/kg	0.027		1	07/24/23	07/24/23 16:55	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Methylene chloride	ND	mg/kg	0.0054		1	07/24/23	07/24/23 16:55	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 3-FT **Date/Time Sampled: 07/18/2023 09:00** **PSS Sample ID: 23071918-005**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.3**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Vinyl chloride	ND	mg/kg	0.0054		1	07/24/23	07/24/23 16:55	1045
m&p-Xylene	ND	mg/kg	0.0022		1	07/24/23	07/24/23 16:55	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 16:55	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*103*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 16:55*	*1045*
Dibromofluoromethane	*103*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 16:55*	*1045*
Toluene-D8	*100*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 16:55*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 6-FT **Date/Time Sampled: 07/17/2023 09:10** **PSS Sample ID: 23071918-006**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**3.8**	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064
Barium	**22**	mg/kg	0.50		1	07/21/23	07/25/23 20:25	1064
Cadmium	ND	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064
Chromium	**24**	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064
Lead	**8.4**	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064
Mercury	ND	mg/kg	0.10		1	07/21/23	07/22/23 16:05	1064
Selenium	ND	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064
Silver	ND	mg/kg	0.50		1	07/21/23	07/22/23 16:05	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.7		1	07/22/23	07/24/23 21:13	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*74*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 21:13*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 21:52	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*97*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 21:52*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.022		1	07/24/23	07/24/23 17:17	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 6-FT **Date/Time Sampled: 07/17/2023 09:10** **PSS Sample ID: 23071918-006**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0055		1	07/24/23	07/24/23 17:17	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Chloroform	ND	mg/kg	0.0055		1	07/24/23	07/24/23 17:17	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Methyl Acetate	ND	mg/kg	0.027		1	07/24/23	07/24/23 17:17	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Methylene chloride	ND	mg/kg	0.0055		1	07/24/23	07/24/23 17:17	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-1, 6-FT **Date/Time Sampled: 07/17/2023 09:10** **PSS Sample ID: 23071918-006**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Vinyl chloride	ND	mg/kg	0.0055		1	07/24/23	07/24/23 17:17	1045
m&p-Xylene	ND	mg/kg	0.0022		1	07/24/23	07/24/23 17:17	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:17	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*104*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 17:17*	*1045*
Dibromofluoromethane	*101*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 17:17*	*1045*
Toluene-D8	*93*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 17:17*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 3 FT **Date/Time Sampled: 07/17/2023 11:18** **PSS Sample ID: 23071918-007**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	ND	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064
Barium	**3.1**	mg/kg	0.47		1	07/21/23	07/25/23 20:29	1064
Cadmium	ND	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064
Chromium	**3.8**	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064
Lead	**2.4**	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064
Mercury	ND	mg/kg	0.093		1	07/21/23	07/22/23 16:10	1064
Selenium	ND	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064
Silver	ND	mg/kg	0.47		1	07/21/23	07/22/23 16:10	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.5		1	07/22/23	07/24/23 19:53	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*74*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 19:53*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.10		1	07/23/23	07/23/23 22:13	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*99*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 22:13*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.021		1	07/24/23	07/24/23 17:39	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 3 FT **Date/Time Sampled: 07/17/2023 11:18** **PSS Sample ID: 23071918-007**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0053		1	07/24/23	07/24/23 17:39	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Chloroform	ND	mg/kg	0.0053		1	07/24/23	07/24/23 17:39	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Methyl Acetate	ND	mg/kg	0.026		1	07/24/23	07/24/23 17:39	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Methylene chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 17:39	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 3 FT **Date/Time Sampled: 07/17/2023 11:18** **PSS Sample ID: 23071918-007**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 94.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Vinyl chloride	ND	mg/kg	0.0053		1	07/24/23	07/24/23 17:39	1045
m&p-Xylene	ND	mg/kg	0.0021		1	07/24/23	07/24/23 17:39	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 17:39	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*96*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 17:39*	*1045*
Dibromofluoromethane	*104*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 17:39*	*1045*
Toluene-D8	*102*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 17:39*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 6 FT **Date/Time Sampled: 07/17/2023 11:30** **PSS Sample ID: 23071918-008**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**1.5**	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064
Barium	**13**	mg/kg	0.42		1	07/21/23	07/25/23 20:33	1064
Cadmium	ND	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064
Chromium	**15**	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064
Lead	**4.7**	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064
Mercury	ND	mg/kg	0.084		1	07/21/23	07/22/23 16:15	1064
Selenium	ND	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064
Silver	ND	mg/kg	0.42		1	07/21/23	07/22/23 16:15	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.7		1	07/22/23	07/24/23 20:13	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*78*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 20:13*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.11		1	07/23/23	07/23/23 22:35	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*100*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 22:35*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.023		1	07/24/23	07/24/23 18:00	1045
Benzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Bromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Bromodichloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Bromoform	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Bromomethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 6 FT **Date/Time Sampled: 07/17/2023 11:30** **PSS Sample ID: 23071918-008**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0057		1	07/24/23	07/24/23 18:00	1045
Carbon Disulfide	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Carbon tetrachloride	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Chlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Chloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Chloroform	ND	mg/kg	0.0057		1	07/24/23	07/24/23 18:00	1045
Chloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Cyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Dibromochloromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2-Dibromoethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Dichlorodifluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2-Dichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2-Dichloropropane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Ethylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
2-Hexanone (MBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Isopropylbenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Methyl Acetate	ND	mg/kg	0.028		1	07/24/23	07/24/23 18:00	1045
Methylcyclohexane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Methylene chloride	ND	mg/kg	0.0057		1	07/24/23	07/24/23 18:00	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Naphthalene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Styrene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Tetrachloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 6 FT **Date/Time Sampled: 07/17/2023 11:30** **PSS Sample ID: 23071918-008**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 89.2**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Trichloroethene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Trichlorofluoromethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Vinyl chloride	ND	mg/kg	0.0057		1	07/24/23	07/24/23 18:00	1045
m&p-Xylene	ND	mg/kg	0.0023		1	07/24/23	07/24/23 18:00	1045
o-Xylene	ND	mg/kg	0.0011		1	07/24/23	07/24/23 18:00	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*98*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 18:00*	*1045*
Dibromofluoromethane	*102*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 18:00*	*1045*
Toluene-D8	*98*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 18:00*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 12 FT **Date/Time Sampled: 07/17/2023 11:44** **PSS Sample ID: 23071918-009**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 85.9**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**2.3**	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064
Barium	**26**	mg/kg	0.44		1	07/21/23	07/25/23 20:53	1064
Cadmium	ND	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064
Chromium	**16**	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064
Lead	**7.6**	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064
Mercury	ND	mg/kg	0.088		1	07/21/23	07/22/23 16:20	1064
Selenium	ND	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064
Silver	ND	mg/kg	0.44		1	07/21/23	07/22/23 16:20	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	3.9		1	07/22/23	07/24/23 20:33	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*77*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 20:33*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.12		1	07/23/23	07/23/23 22:56	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*97*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 22:56*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.024		1	07/24/23	07/24/23 18:22	1045
Benzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Bromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Bromodichloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Bromoform	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Bromomethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 12 FT **Date/Time Sampled: 07/17/2023 11:44** **PSS Sample ID: 23071918-009**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 85.9**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0060		1	07/24/23	07/24/23 18:22	1045
Carbon Disulfide	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Carbon tetrachloride	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Chlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Chloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Chloroform	ND	mg/kg	0.0060		1	07/24/23	07/24/23 18:22	1045
Chloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Cyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Dibromochloromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2-Dibromoethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Dichlorodifluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2-Dichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2-Dichloropropane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Ethylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
2-Hexanone (MBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Isopropylbenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Methyl Acetate	ND	mg/kg	0.030		1	07/24/23	07/24/23 18:22	1045
Methylcyclohexane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Methylene chloride	ND	mg/kg	0.0060		1	07/24/23	07/24/23 18:22	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Naphthalene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Styrene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Tetrachloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 12 FT **Date/Time Sampled: 07/17/2023 11:44** **PSS Sample ID: 23071918-009**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 85.9**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Trichloroethene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Trichlorofluoromethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Vinyl chloride	ND	mg/kg	0.0060		1	07/24/23	07/24/23 18:22	1045
m&p-Xylene	ND	mg/kg	0.0024		1	07/24/23	07/24/23 18:22	1045
o-Xylene	ND	mg/kg	0.0012		1	07/24/23	07/24/23 18:22	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*101*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 18:22*	*1045*
Dibromofluoromethane	*98*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 18:22*	*1045*
Toluene-D8	*97*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 18:22*	*1045*

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Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 15 FT **Date/Time Sampled: 07/17/2023 11:50** **PSS Sample ID: 23071918-010**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 75.5**

RCRA Metals — Analytical Method: SW-846 6020 B — Preparation Method: SW3050B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Arsenic	**1.9**	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064
Barium	**9.7**	mg/kg	0.61		1	07/21/23	07/25/23 20:57	1064
Cadmium	ND	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064
Chromium	**11**	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064
Lead	**3.4**	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064
Mercury	ND	mg/kg	0.12		1	07/21/23	07/22/23 16:25	1064
Selenium	ND	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064
Silver	ND	mg/kg	0.61		1	07/21/23	07/22/23 16:25	1064

Total Petroleum Hydrocarbons - DRO — Analytical Method: SW-846 8015C DRO — Preparation Method: SW3550C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-DRO (Diesel Range Organics)	ND	mg/kg	4.4		1	07/22/23	07/24/23 20:53	1069
Surrogate(s)	***Recovery***		***Limits***					
o-Terphenyl	*75*	*%*	*39-119*		*1*	*07/22/23*	*07/24/23 20:53*	*1069*

Total Petroleum Hydrocarbons - GRO — Analytical Method: SW-846 8015C GRO — Preparation Method: SW5030

Qualifier(s): See Batch 205286 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
TPH-GRO (Gasoline Range Organics)	ND	mg/kg	0.14		1	07/23/23	07/23/23 23:18	1045
Surrogate(s)	***Recovery***		***Limits***					
a,a,a-Trifluorotoluene	*98*	*%*	*68-120*		*1*	*07/23/23*	*07/23/23 23:18*	*1045*

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	mg/kg	0.027		1	07/24/23	07/24/23 18:44	1045
Benzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Bromochloromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Bromodichloromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Bromoform	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Bromomethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045

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Certificate of Analysis

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 15 FT **Date/Time Sampled: 07/17/2023 11:50** **PSS Sample ID: 23071918-010**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 75.5**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
2-Butanone (MEK)	ND	mg/kg	0.0068		1	07/24/23	07/24/23 18:44	1045
Carbon Disulfide	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Carbon tetrachloride	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Chlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Chloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Chloroform	ND	mg/kg	0.0068		1	07/24/23	07/24/23 18:44	1045
Chloromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Cyclohexane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2-Dibromo-3-chloropropane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Dibromochloromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2-Dibromoethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2-Dichlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,3-Dichlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,4-Dichlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Dichlorodifluoromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1-Dichloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2-Dichloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1-Dichloroethene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
cis-1,2-Dichloroethene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2-Dichloropropane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
cis-1,3-Dichloropropene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
trans-1,2-Dichloroethene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
trans-1,3-Dichloropropene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Ethylbenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
2-Hexanone (MBK)	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Isopropylbenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Methyl Acetate	ND	mg/kg	0.034		1	07/24/23	07/24/23 18:44	1045
Methylcyclohexane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Methylene chloride	ND	mg/kg	0.0068		1	07/24/23	07/24/23 18:44	1045
4-Methyl-2-Pentanone (MIBK)	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Methyl-t-Butyl Ether	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Naphthalene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Styrene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1,2,2-Tetrachloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Tetrachloroethene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045

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Certificate of Analysis

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Sample ID: SWM-3, 15 FT **Date/Time Sampled: 07/17/2023 11:50** **PSS Sample ID: 23071918-010**
Matrix: SOIL **Date/Time Received: 07/19/2023 16:49** **% Solids SM2540G-11: 75.5**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Toluene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2,3-Trichlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,2,4-Trichlorobenzene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1,1-Trichloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1,2-Trichloroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Trichloroethene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Trichlorofluoromethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
1,1,2-Trichlorotrifluoroethane	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Vinyl chloride	ND	mg/kg	0.0068		1	07/24/23	07/24/23 18:44	1045
m&p-Xylene	ND	mg/kg	0.0027		1	07/24/23	07/24/23 18:44	1045
o-Xylene	ND	mg/kg	0.0014		1	07/24/23	07/24/23 18:44	1045
Surrogate(s)	***Recovery***		***Limits***					
4-Bromofluorobenzene	*97*	*%*	*89-111*		*1*	*07/24/23*	*07/24/23 18:44*	*1045*
Dibromofluoromethane	*99*	*%*	*91-108*		*1*	*07/24/23*	*07/24/23 18:44*	*1045*
Toluene-D8	*98*	*%*	*93-104*		*1*	*07/24/23*	*07/24/23 18:44*	*1045*

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Project Name: Atlantic City MTC

PSS Project No.: 23071918

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

General Comments:
Samples are not for NJ DEP compliance.

Analytical:

Total Petroleum Hydrocarbons-GRO

Batch: 205286
Method exceedance: Quality control sample surrogate exceedances identified, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.
Prep Method(s): SW-846 5030

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Lab Chronology

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SM2540G	B-1, 4-FT	Initial	23071918-001	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	B-1, 5-FT	Initial	23071918-002	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	PB-1, 4-FT	Initial	23071918-003	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	PB-1, 6-FT	Initial	23071918-004	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-1, 3-FT	Initial	23071918-005	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-1, 6-FT	Initial	23071918-006	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-3, 3 FT	Initial	23071918-007	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-3, 6 FT	Initial	23071918-008	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-3, 12 FT	Initial	23071918-009	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	SWM-3, 15 FT	Initial	23071918-010	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	205203-1-BLK	BLK	205203-1-BLK	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	233120055 D	MD	23071906-001 D	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
	230719-Stewart D	MD	23071913-001 D	S	205203	205203	07/19/2023 14:52	07/19/2023 14:52
SW-846 6020 B	B-1, 4-FT	Initial	23071918-001	S	96363	205294	07/21/2023 10:35	07/22/2023 15:05
	B-1, 5-FT	Initial	23071918-002	S	96363	205294	07/21/2023 10:35	07/22/2023 15:45
	PB-1, 4-FT	Initial	23071918-003	S	96363	205294	07/21/2023 10:35	07/22/2023 15:50
	PB-1, 6-FT	Initial	23071918-004	S	96363	205294	07/21/2023 10:35	07/22/2023 15:55
	SWM-1, 3-FT	Initial	23071918-005	S	96363	205294	07/21/2023 10:35	07/22/2023 16:00
	SWM-1, 6-FT	Initial	23071918-006	S	96363	205294	07/21/2023 10:35	07/22/2023 16:05
	SWM-3, 3 FT	Initial	23071918-007	S	96363	205294	07/21/2023 10:35	07/22/2023 16:10
	SWM-3, 6 FT	Initial	23071918-008	S	96363	205294	07/21/2023 10:35	07/22/2023 16:15
	SWM-3, 12 FT	Initial	23071918-009	S	96363	205294	07/21/2023 10:35	07/22/2023 16:20
	SWM-3, 15 FT	Initial	23071918-010	S	96363	205294	07/21/2023 10:35	07/22/2023 16:25
	96363-1-BKS	BKS	96363-1-BKS	S	96363	205294	07/21/2023 10:35	07/22/2023 15:01
	96363-1-BLK	BLK	96363-1-BLK	S	96363	205294	07/21/2023 10:35	07/22/2023 14:56
	B-1, 4-FT S	MS	23071918-001 S	S	96363	205294	07/21/2023 10:35	07/22/2023 15:10
	B-1, 4-FT SD	MSD	23071918-001 S	S	96363	205294	07/21/2023 10:35	07/22/2023 15:15
	96363-1-BKS	Reanalysis	96363-1-BKS	S	96363	205391	07/21/2023 10:35	07/25/2023 19:59
	96363-1-BLK	Reanalysis	96363-1-BLK	S	96363	205391	07/21/2023 10:35	07/25/2023 19:55
	B-1, 4-FT	Reanalysis	23071918-001	S	96363	205391	07/21/2023 10:35	07/25/2023 20:04
	B-1, 5-FT	Reanalysis	23071918-002	S	96363	205391	07/21/2023 10:35	07/25/2023 20:08
	PB-1, 4-FT	Reanalysis	23071918-003	S	96363	205391	07/21/2023 10:35	07/25/2023 20:12
	PB-1, 6-FT	Reanalysis	23071918-004	S	96363	205391	07/21/2023 10:35	07/25/2023 20:16
	SWM-1, 3-FT	Reanalysis	23071918-005	S	96363	205391	07/21/2023 10:35	07/25/2023 20:20
	SWM-1, 6-FT	Reanalysis	23071918-006	S	96363	205391	07/21/2023 10:35	07/25/2023 20:25
	SWM-3, 3 FT	Reanalysis	23071918-007	S	96363	205391	07/21/2023 10:35	07/25/2023 20:29
	SWM-3, 6 FT	Reanalysis	23071918-008	S	96363	205391	07/21/2023 10:35	07/25/2023 20:33
	SWM-3, 12 FT	Reanalysis	23071918-009	S	96363	205391	07/21/2023 10:35	07/25/2023 20:53
	SWM-3, 15 FT	Reanalysis	23071918-010	S	96363	205391	07/21/2023 10:35	07/25/2023 20:57
SW-846 8015C DRO	B-1, 4-FT	Initial	23071918-001	S	96372	205301	07/22/2023 10:31	07/24/2023 18:53
	B-1, 5-FT	Initial	23071918-002	S	96372	205301	07/22/2023 10:31	07/24/2023 19:13
	PB-1, 4-FT	Initial	23071918-003	S	96372	205301	07/22/2023 10:31	07/24/2023 19:33
	PB-1, 6-FT	Initial	23071918-004	S	96372	205301	07/22/2023 10:31	07/24/2023 22:13
	SWM-1, 3-FT	Initial	23071918-005	S	96372	205301	07/22/2023 10:31	07/24/2023 13:59
	SWM-1, 6-FT	Initial	23071918-006	S	96372	205301	07/22/2023 10:31	07/24/2023 21:13

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Lab Chronology

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SW-846 8015C DRO	SWM-3, 3 FT	Initial	23071918-007	S	96372	205301	07/22/2023 10:31	07/24/2023 19:53
	SWM-3, 6 FT	Initial	23071918-008	S	96372	205301	07/22/2023 10:31	07/24/2023 20:13
	SWM-3, 12 FT	Initial	23071918-009	S	96372	205301	07/22/2023 10:31	07/24/2023 20:33
	SWM-3, 15 FT	Initial	23071918-010	S	96372	205301	07/22/2023 10:31	07/24/2023 20:53
	96372-1-BKS	BKS	96372-1-BKS	S	96372	205301	07/22/2023 10:31	07/24/2023 15:43
	96372-1-BLK	BLK	96372-1-BLK	S	96372	205301	07/22/2023 10:31	07/24/2023 15:19
	96372-1-BSD	BSD	96372-1-BSD	S	96372	205301	07/22/2023 10:31	07/24/2023 16:14
	Near Jellyfish Structure (Sample 1) S	MS	23072101-001 S	S	96372	205301	07/22/2023 10:31	07/24/2023 16:54
	Near Jellyfish Structure (Sample 1) SD	MSD	23072101-001 S	S	96372	205301	07/22/2023 10:31	07/24/2023 17:14
SW-846 8015C GRO	B-1, 4-FT	Initial	23071918-001	S	96383	205286	07/23/2023 07:54	07/23/2023 20:04
	B-1, 5-FT	Initial	23071918-002	S	96383	205286	07/23/2023 07:54	07/24/2023 02:10
	PB-1, 4-FT	Initial	23071918-003	S	96383	205286	07/23/2023 07:54	07/23/2023 20:47
	PB-1, 6-FT	Initial	23071918-004	S	96383	205286	07/23/2023 07:54	07/23/2023 21:09
	SWM-1, 3-FT	Initial	23071918-005	S	96383	205286	07/23/2023 07:54	07/23/2023 21:30
	SWM-1, 6-FT	Initial	23071918-006	S	96383	205286	07/23/2023 07:54	07/23/2023 21:52
	SWM-3, 3 FT	Initial	23071918-007	S	96383	205286	07/23/2023 07:54	07/23/2023 22:13
	SWM-3, 6 FT	Initial	23071918-008	S	96383	205286	07/23/2023 07:54	07/23/2023 22:35
	SWM-3, 12 FT	Initial	23071918-009	S	96383	205286	07/23/2023 07:54	07/23/2023 22:56
	SWM-3, 15 FT	Initial	23071918-010	S	96383	205286	07/23/2023 07:54	07/23/2023 23:18
	96383-2-BKS	BKS	96383-2-BKS	S	96383	205286	07/23/2023 07:54	07/23/2023 18:15
	96383-2-BLK	BLK	96383-2-BLK	S	96383	205286	07/23/2023 07:54	07/23/2023 19:42
	96383-2-BSD	BSD	96383-2-BSD	S	96383	205286	07/23/2023 07:54	07/23/2023 18:37
	B-1, 4-FT S	MS	23071918-001 S	S	96383	205286	07/23/2023 07:54	07/23/2023 18:59
	B-1, 4-FT SD	MSD	23071918-001 S	S	96383	205286	07/23/2023 07:54	07/23/2023 19:20
SW-846 8260 D	B-1, 4-FT	Initial	23071918-001	S	96408	205321	07/24/2023 09:19	07/24/2023 15:29
	B-1, 5-FT	Initial	23071918-002	S	96408	205321	07/24/2023 09:19	07/24/2023 15:50
	PB-1, 4-FT	Initial	23071918-003	S	96408	205321	07/24/2023 09:19	07/24/2023 16:12
	PB-1, 6-FT	Initial	23071918-004	S	96408	205321	07/24/2023 09:19	07/24/2023 16:34
	SWM-1, 3-FT	Initial	23071918-005	S	96408	205321	07/24/2023 09:19	07/24/2023 16:55
	SWM-1, 6-FT	Initial	23071918-006	S	96408	205321	07/24/2023 09:19	07/24/2023 17:17
	SWM-3, 3 FT	Initial	23071918-007	S	96408	205321	07/24/2023 09:19	07/24/2023 17:39
	SWM-3, 6 FT	Initial	23071918-008	S	96408	205321	07/24/2023 09:19	07/24/2023 18:00
	SWM-3, 12 FT	Initial	23071918-009	S	96408	205321	07/24/2023 09:19	07/24/2023 18:22
	SWM-3, 15 FT	Initial	23071918-010	S	96408	205321	07/24/2023 09:19	07/24/2023 18:44
	96408-1-BKS	BKS	96408-1-BKS	S	96408	205321	07/24/2023 09:19	07/24/2023 09:41
	96408-1-BLK	BLK	96408-1-BLK	S	96408	205321	07/24/2023 09:19	07/24/2023 11:51
	96408-1-BSD	BSD	96408-1-BSD	S	96408	205321	07/24/2023 09:19	07/24/2023 10:03
	S-1 S	MS	23071804-001 S	S	96408	205321	07/24/2023 09:19	07/24/2023 10:24
	S-1 SD	MSD	23071804-001 S	S	96408	205321	07/24/2023 09:19	07/24/2023 10:46

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 6020 B Prep Method: SW3050B
Seq Number: 205294 Matrix: Solid Date Prep: 07/21/23
MB Sample Id: 96363-1-BLK LCS Sample Id: 96363-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Arsenic	<0.4282	19.04	19.19	101	80-120	mg/kg	
Cadmium	<0.4282	19.04	18.33	96	80-120	mg/kg	
Chromium	<0.4282	19.04	19.32	101	80-120	mg/kg	
Lead	<0.4282	19.04	19.30	101	80-120	mg/kg	
Mercury	<0.08564	0.3808	0.3816	100	80-120	mg/kg	
Selenium	<0.4282	19.04	18.75	98	80-120	mg/kg	
Silver	<0.4282	1.904	1.858	98	80-120	mg/kg	

Analytical Method: SW-846 6020 B Prep Method: SW3050B
Seq Number: 205391 Matrix: Solid Date Prep: 07/21/23
MB Sample Id: 96363-1-BLK LCS Sample Id: 96363-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Barium	<0.4282	19.04	18.14	95	80-120	mg/kg	

Analytical Method: SW-846 6020 B Prep Method: SW3050B
Seq Number: 205294 Matrix: Soil Date Prep: 07/21/23
Parent Sample Id: 23071918-001 MS Sample Id: 23071918-001 S MSD Sample Id: 23071918-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Arsenic	2.264	22.38	22.59	91	25.30	90	75-125	11	30	mg/kg	
Barium	21.28	22.38	47.59	118	48.32	105	75-125	2	30	mg/kg	
Cadmium	<0.4677	22.38	22.02	98	25.12	98	75-125	13	30	mg/kg	
Chromium	13.77	22.38	38.95	113	40.29	103	75-125	3	30	mg/kg	
Lead	5.931	22.38	29.30	104	31.67	100	75-125	8	30	mg/kg	
Mercury	<0.09353	0.4476	0.4668	104	0.5511	107	75-125	17	30	mg/kg	
Selenium	<0.4677	22.38	21.50	96	24.54	95	75-125	13	30	mg/kg	
Silver	<0.4677	2.238	2.232	100	2.555	99	75-125	13	30	mg/kg	

Analytical Method: SW-846 8015C DRO Prep Method: SW3550C
Seq Number: 205301 Matrix: Solid Date Prep: 07/22/23
MB Sample Id: 96372-1-BLK LCS Sample Id: 96372-1-BKS LCSD Sample Id: 96372-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
TPH-DRO (Diesel Range Organics)	<3.317	33.09	27.49	83	28.88	86	67-118	5	22	mg/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
o-Terphenyl	71		81		83		39-119	%

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8015C GRO Prep Method: SW5030
Seq Number: 205286 Matrix: Solid Date Prep: 07/23/23
MB Sample Id: 96383-2-BLK LCS Sample Id: 96383-2-BKS LCSD Sample Id: 96383-2-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<0.1000	5.000	5.184	104	5.111	102	77-117	1	25	mg/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
a,a,a-Trifluorotoluene	100		123	*	121	*	68-120	%

Analytical Method: SW-846 8015C GRO Prep Method: SW5030
Seq Number: 205286 Matrix: Soil Date Prep: 07/23/23
Parent Sample Id: 23071918-001 MS Sample Id: 23071918-001 S MSD Sample Id: 23071918-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
TPH-GRO (Gasoline Range Organic:	<0.1062	5.570	4.113	74	4.125	75	18-114	0	30	mg/kg	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
a,a,a-Trifluorotoluene	115		114		68-120	%

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D Prep Method: SW5030
Seq Number: 205321 Matrix: Solid Date Prep: 07/24/23
MB Sample Id: 96408-1-BLK LCS Sample Id: 96408-1-BKS LCSD Sample Id: 96408-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acetone	<0.02000	0.06000	0.06011	100	0.06044	101	40-147	1	25	mg/kg	
Benzene	<0.001000	0.06000	0.05994	100	0.06237	104	85-118	4	25	mg/kg	
Bromochloromethane	<0.001000	0.06000	0.05852	98	0.05992	100	84-121	2	25	mg/kg	
Bromodichloromethane	<0.001000	0.06000	0.06002	100	0.06140	102	88-121	2	25	mg/kg	
Bromoform	<0.001000	0.06000	0.06468	108	0.06585	110	78-129	2	25	mg/kg	
Bromomethane	<0.001000	0.06000	0.05512	92	0.05482	91	66-117	1	25	mg/kg	
2-Butanone (MEK)	<0.005000	0.06000	0.05557	93	0.05566	93	62-115	0	25	mg/kg	
Carbon Disulfide	<0.001000	0.06000	0.05576	93	0.05804	97	79-128	4	25	mg/kg	
Carbon tetrachloride	<0.001000	0.06000	0.05733	96	0.05752	96	87-121	0	25	mg/kg	
Chlorobenzene	<0.001000	0.06000	0.06168	103	0.06278	105	85-119	2	25	mg/kg	
Chloroethane	<0.001000	0.06000	0.05575	93	0.05760	96	75-115	3	25	mg/kg	
Chloroform	<0.005000	0.06000	0.05699	95	0.05795	97	82-116	2	25	mg/kg	
Chloromethane	<0.001000	0.06000	0.06215	104	0.06325	105	69-124	2	25	mg/kg	
Cyclohexane	<0.001000	0.06000	0.05907	98	0.06330	106	72-132	7	25	mg/kg	
1,2-Dibromo-3-chloropropane	<0.001000	0.06000	0.06412	107	0.06428	107	64-141	0	25	mg/kg	
Dibromochloromethane	<0.001000	0.06000	0.06114	102	0.06241	104	87-122	2	25	mg/kg	
1,2-Dibromoethane	<0.001000	0.06000	0.06336	106	0.06404	107	87-117	1	25	mg/kg	
1,2-Dichlorobenzene	<0.001000	0.06000	0.06429	107	0.06348	106	83-121	1	25	mg/kg	
1,3-Dichlorobenzene	<0.001000	0.06000	0.06259	104	0.06479	108	84-121	3	25	mg/kg	
1,4-Dichlorobenzene	<0.001000	0.06000	0.06266	104	0.06294	105	84-121	0	25	mg/kg	
Dichlorodifluoromethane	<0.001000	0.06000	0.04903	82	0.05035	84	56-134	3	25	mg/kg	
1,1-Dichloroethane	<0.001000	0.06000	0.06077	101	0.06199	103	83-120	2	25	mg/kg	
1,2-Dichloroethane	<0.001000	0.06000	0.05638	94	0.05878	98	85-118	4	25	mg/kg	
1,1-Dichloroethene	<0.001000	0.06000	0.05746	96	0.05977	100	83-122	4	25	mg/kg	
1,2-Dichloropropane	<0.001000	0.06000	0.06383	106	0.06493	108	84-120	2	25	mg/kg	
cis-1,2-Dichloroethene	<0.001000	0.06000	0.05917	99	0.06100	102	84-120	3	25	mg/kg	
cis-1,3-Dichloropropene	<0.001000	0.06000	0.06384	106	0.06702	112	84-120	5	25	mg/kg	
trans-1,2-Dichloroethene	<0.001000	0.06000	0.05908	98	0.05940	99	84-121	1	25	mg/kg	
trans-1,3-Dichloropropene	<0.001000	0.06000	0.06647	111	0.06549	109	80-123	1	25	mg/kg	
Ethylbenzene	<0.001000	0.06000	0.06543	109	0.06599	110	87-121	1	25	mg/kg	
2-Hexanone (MBK)	<0.001000	0.06000	0.05937	99	0.05787	96	72-119	3	25	mg/kg	
Isopropylbenzene	<0.001000	0.06000	0.06113	102	0.06027	100	85-121	1	25	mg/kg	
Methyl Acetate	<0.02500	0.06000	0.05592	93	0.05483	91	75-123	2	25	mg/kg	
Methylcyclohexane	<0.001000	0.06000	0.05841	97	0.06137	102	84-123	5	25	mg/kg	
Methylene chloride	<0.005000	0.06000	0.05728	95	0.06042	101	81-117	5	25	mg/kg	
4-Methyl-2-Pentanone (MIBK)	<0.001000	0.06000	0.05853	98	0.05737	96	75-118	2	25	mg/kg	
Methyl-t-Butyl Ether	<0.001000	0.06000	0.06528	109	0.06495	108	74-122	1	25	mg/kg	
Naphthalene	<0.001000	0.06000	0.06467	108	0.06036	101	77-120	7	25	mg/kg	
Styrene	<0.001000	0.06000	0.06916	115	0.06851	114	83-124	1	25	mg/kg	
1,1,2,2-Tetrachloroethane	<0.001000	0.06000	0.06047	101	0.05992	100	75-123	1	25	mg/kg	
Tetrachloroethene	<0.001000	0.06000	0.05503	92	0.05864	98	82-119	6	25	mg/kg	
Toluene	<0.001000	0.06000	0.06251	104	0.06000	100	84-118	4	25	mg/kg	
1,2,3-Trichlorobenzene	<0.001000	0.06000	0.06319	105	0.05729	95	76-127	10	25	mg/kg	
1,2,4-Trichlorobenzene	<0.001000	0.06000	0.07137	119	0.06884	115	82-131	4	25	mg/kg	
1,1,1-Trichloroethane	<0.001000	0.06000	0.05788	96	0.06034	101	84-121	4	25	mg/kg	
1,1,2-Trichloroethane	<0.001000	0.06000	0.05852	98	0.05934	99	83-118	1	25	mg/kg	
Trichloroethene	<0.001000	0.06000	0.05937	99	0.06100	102	85-118	3	25	mg/kg	
Trichlorofluoromethane	<0.001000	0.06000	0.05238	87	0.05367	89	81-121	2	25	mg/kg	
1,1,2-Trichlorotrifluoroethane	<0.001000	0.06000	0.05648	94	0.05567	93	83-122	1	25	mg/kg	
Vinyl chloride	<0.005000	0.06000	0.06012	100	0.06110	102	69-129	2	25	mg/kg	
m&p-Xylene	<0.002000	0.1200	0.1271	106	0.1309	109	86-123	3	25	mg/kg	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D Prep Method: SW5030
Seq Number: 205321 Matrix: Solid Date Prep: 07/24/23
MB Sample Id: 96408-1-BLK LCS Sample Id: 96408-1-BKS LCSD Sample Id: 96408-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
o-Xylene	<0.001000	0.06000	0.06446	107	0.06532	109	84-121	1	25	mg/kg	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
4-Bromofluorobenzene	99		97		97		89-111	%
Dibromofluoromethane	99		94		96		91-108	%
Toluene-D8	99		100		97		93-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: SW-846 6020 B
Seq Number: 205294 Matrix: Solid
CCV Sample Id: CCV 1 Analyzed Date: 07/22/23 15:30

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Arsenic	100	102.5	103	90-110	ug/kg	
Cadmium	100	99.06	99	90-110	ug/kg	
Chromium	100	103.2	103	90-110	ug/kg	
Lead	100	101.9	102	90-110	ug/kg	
Mercury	1.000	0.9920	99	90-110	ug/kg	
Selenium	100	103.8	104	90-110	ug/kg	
Silver	10.00	10.03	100	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205294 Matrix: Solid
CCV Sample Id: CCV 2 Analyzed Date: 07/22/23 16:35

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Arsenic	100	101.9	102	90-110	ug/kg	
Cadmium	100	99.49	99	90-110	ug/kg	
Chromium	100	103	103	90-110	ug/kg	
Lead	100	102	102	90-110	ug/kg	
Mercury	1.000	1.014	101	90-110	ug/kg	
Selenium	100	101.8	102	90-110	ug/kg	
Silver	10.00	9.889	99	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205294 Matrix: Solid
CCV Sample Id: CCV 3 Analyzed Date: 07/22/23 17:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Arsenic	100	102.4	102	90-110	ug/kg	
Cadmium	100	98.73	99	90-110	ug/kg	
Chromium	100	103.2	103	90-110	ug/kg	
Lead	100	101.3	101	90-110	ug/kg	
Mercury	1.000	1.006	101	90-110	ug/kg	
Selenium	100	101.3	101	90-110	ug/kg	
Silver	10.00	9.923	99	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205391 Matrix: Solid
CCV Sample Id: CCV 1 Analyzed Date: 07/25/23 20:42

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Barium	100	96.01	96	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205391 Matrix: Solid
CCV Sample Id: CCV 2 Analyzed Date: 07/25/23 21:42

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Barium	100	96.67	97	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205294 Matrix: Solid
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 07/22/23 14:06

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Arsenic	50.00	50.43	101	90-110	ug/kg	
Cadmium	50.00	48.71	97	90-110	ug/kg	
Chromium	50.00	49.93	100	90-110	ug/kg	
Lead	50.00	50.65	101	90-110	ug/kg	
Mercury	1.000	1.047	105	90-110	ug/kg	
Selenium	50.00	51.47	103	90-110	ug/kg	
Silver	5.000	4.760	95	90-110	ug/kg	

Analytical Method: SW-846 6020 B
Seq Number: 205391 Matrix: Solid
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 07/25/23 19:25

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Barium	50.00	49.04	98	90-110	ug/kg	

Analytical Method: SW-846 8015C DRO
Seq Number: 205301 Matrix: Water
CCV Sample Id: CCV-F1 Analyzed Date: 07/24/23 10:34

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
TPH-DRO (Diesel Range Organics)	2500	2091	84	80-120	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
o-Terphenyl	87	80-120	%	

Analytical Method: SW-846 8015C DRO
Seq Number: 205301 Matrix: Water
CCV Sample Id: CCV-F2 Analyzed Date: 07/24/23 18:13

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
TPH-DRO (Diesel Range Organics)	2500	2145	86	80-120	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
o-Terphenyl	85	80-120	%	

Analytical Method: SW-846 8015C DRO
Seq Number: 205301 Matrix: Water
CCV Sample Id: CCV-F3 Analyzed Date: 07/25/23 00:12

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
TPH-DRO (Diesel Range Organics)	2500	2202	88	80-120	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
o-Terphenyl	86	80-120	%	

Analytical Method: SW-846 8015C DRO
Seq Number: 200071 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 12/29/22 19:01

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
TPH-DRO (Diesel Range Organics)	2500	2828	113	80-120	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
o-Terphenyl	106	80-120	%	

Analytical Method: SW-846 8015C DRO
Seq Number: 200142 Matrix: Solid
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 01/04/23 15:19

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
TPH-DRO (Diesel Range Organics)	2500	2661	106	80-120	mg/kg	

Surrogate	ICV Result	Limits	Units	Flag
o-Terphenyl	110	80-120	%	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8015C GRO
Seq Number: 205286 Matrix: Water
CCV Sample Id: CCV, GRO-1 Analyzed Date: 07/23/23 17:54

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
TPH-GRO (Gasoline Range Organic:	5000	5363	107	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
a,a,a-Trifluorotoluene	124	80-120	%	X

Analytical Method: SW-846 8015C GRO
Seq Number: 205286 Matrix: Water
CCV Sample Id: CCV, GRO-2 Analyzed Date: 07/24/23 02:31

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
TPH-GRO (Gasoline Range Organic:	5000	5040	101	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
a,a,a-Trifluorotoluene	118	80-120	%	

Analytical Method: SW-846 8015C GRO
Seq Number: 178145 Matrix: Solid
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/23/20 16:35

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
TPH-GRO (Gasoline Range Organic:	5.000	5.310	106	80-120	mg/kg	

Surrogate	ICV Result	Limits	Units	Flag
a,a,a-Trifluorotoluene	105	80-120	%	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D

Seq Number: 205321 Matrix: Solid

CCV Sample Id: CCV, VOC-1 Analyzed Date: 07/24/23 09:19

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Acetone	0.06000	0.06151	103	80-120	mg/kg	
Benzene	0.06000	0.06527	109	80-120	mg/kg	
Bromochloromethane	0.06000	0.06245	104	80-120	mg/kg	
Bromodichloromethane	0.06000	0.06376	106	80-120	mg/kg	
Bromoform	0.06000	0.06487	108	80-120	mg/kg	
Bromomethane	0.06000	0.05254	88	80-120	mg/kg	
2-Butanone (MEK)	0.06000	0.05611	94	80-120	mg/kg	
Carbon Disulfide	0.06000	0.06052	101	80-120	mg/kg	
Carbon tetrachloride	0.06000	0.06043	101	80-120	mg/kg	
Chlorobenzene	0.06000	0.06460	108	80-120	mg/kg	
Chloroethane	0.06000	0.05520	92	80-120	mg/kg	
Chloroform	0.06000	0.06034	101	80-120	mg/kg	
Chloromethane	0.06000	0.06264	104	80-120	mg/kg	
Cyclohexane	0.06000	0.06530	109	80-120	mg/kg	
1,2-Dibromo-3-chloropropane	0.06000	0.06421	107	80-120	mg/kg	
Dibromochloromethane	0.06000	0.06448	107	80-120	mg/kg	
1,2-Dibromoethane	0.06000	0.06753	113	80-120	mg/kg	
1,2-Dichlorobenzene	0.06000	0.06281	105	80-120	mg/kg	
1,3-Dichlorobenzene	0.06000	0.06127	102	80-120	mg/kg	
1,4-Dichlorobenzene	0.06000	0.06251	104	80-120	mg/kg	
Dichlorodifluoromethane	0.06000	0.05276	88	80-120	mg/kg	
1,1-Dichloroethane	0.06000	0.06142	102	80-120	mg/kg	
1,2-Dichloroethane	0.06000	0.06213	104	80-120	mg/kg	
1,1-Dichloroethene	0.06000	0.06102	102	80-120	mg/kg	
1,2-Dichloropropane	0.06000	0.06695	112	80-120	mg/kg	
cis-1,2-Dichloroethene	0.06000	0.06225	104	80-120	mg/kg	
cis-1,3-Dichloropropene	0.06000	0.06872	115	80-120	mg/kg	
trans-1,2-Dichloroethene	0.06000	0.05992	100	80-120	mg/kg	
trans-1,3-Dichloropropene	0.06000	0.06968	116	80-120	mg/kg	
Ethylbenzene	0.06000	0.06827	114	80-120	mg/kg	
2-Hexanone (MBK)	0.06000	0.06017	100	80-120	mg/kg	
Isopropylbenzene	0.06000	0.06196	103	80-120	mg/kg	
Methyl Acetate	0.06000	0.05622	94	80-120	mg/kg	
Methylcyclohexane	0.06000	0.06061	101	80-120	mg/kg	
Methylene chloride	0.06000	0.06174	103	80-120	mg/kg	
4-Methyl-2-Pentanone (MIBK)	0.06000	0.05908	98	80-120	mg/kg	
Methyl-t-Butyl Ether	0.06000	0.06505	108	80-120	mg/kg	
Naphthalene	0.06000	0.06028	100	80-120	mg/kg	
Styrene	0.06000	0.07110	119	80-120	mg/kg	
1,1,2,2-Tetrachloroethane	0.06000	0.05873	98	80-120	mg/kg	
Tetrachloroethene	0.06000	0.06078	101	80-120	mg/kg	
Toluene	0.06000	0.06401	107	80-120	mg/kg	
1,2,3-Trichlorobenzene	0.06000	0.06475	108	80-120	mg/kg	
1,2,4-Trichlorobenzene	0.06000	0.06650	111	80-120	mg/kg	
1,1,1-Trichloroethane	0.06000	0.06269	104	80-120	mg/kg	
1,1,2-Trichloroethane	0.06000	0.06198	103	80-120	mg/kg	
Trichloroethene	0.06000	0.06177	103	80-120	mg/kg	
Trichlorofluoromethane	0.06000	0.05553	93	80-120	mg/kg	
1,1,2-Trichlorotrifluoroethane	0.06000	0.05875	98	80-120	mg/kg	
Vinyl chloride	0.06000	0.06460	108	80-120	mg/kg	
m&p-Xylene	0.1200	0.1377	115	80-120	mg/kg	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D

Seq Number: 205321 Matrix: Solid

CCV Sample Id: CCV, VOC-1 Analyzed Date: 07/24/23 09:19

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
o-Xylene	0.06000	0.06524	109	80-120	mg/kg	

Surrogate	CCV Result	Limits	Units	Flag
4-Bromofluorobenzene	99	80-120	%	
Dibromofluoromethane	98	80-120	%	
Toluene-D8	101	80-120	%	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D

Seq Number: 204700 Matrix: Solid
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 06/28/23 07:40

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acetone	0.06000	0.06024	100	70-130	mg/kg	
Benzene	0.06000	0.06129	102	70-130	mg/kg	
Bromochloromethane	0.06000	0.06152	103	70-130	mg/kg	
Bromodichloromethane	0.06000	0.06418	107	70-130	mg/kg	
Bromoform	0.06000	0.06469	108	70-130	mg/kg	
Bromomethane	0.06000	0.06408	107	70-130	mg/kg	
2-Butanone (MEK)	0.06000	0.05914	99	70-130	mg/kg	
Carbon Disulfide	0.06000	0.05822	97	70-130	mg/kg	
Carbon tetrachloride	0.06000	0.06205	103	70-130	mg/kg	
Chlorobenzene	0.06000	0.05906	98	70-130	mg/kg	
Chloroethane	0.06000	0.05727	95	70-130	mg/kg	
Chloroform	0.06000	0.05994	100	70-130	mg/kg	
Chloromethane	0.06000	0.05829	97	70-130	mg/kg	
Cyclohexane	0.06000	0.06135	102	70-130	mg/kg	
1,2-Dibromo-3-chloropropane	0.06000	0.05802	97	70-130	mg/kg	
Dibromochloromethane	0.06000	0.06299	105	70-130	mg/kg	
1,2-Dibromoethane	0.06000	0.05637	94	70-130	mg/kg	
1,2-Dichlorobenzene	0.06000	0.06158	103	70-130	mg/kg	
1,3-Dichlorobenzene	0.06000	0.06056	101	70-130	mg/kg	
1,4-Dichlorobenzene	0.06000	0.05717	95	70-130	mg/kg	
Dichlorodifluoromethane	0.06000	0.05933	99	70-130	mg/kg	
1,1-Dichloroethane	0.06000	0.06117	102	70-130	mg/kg	
1,2-Dichloroethane	0.06000	0.06211	104	70-130	mg/kg	
1,1-Dichloroethene	0.06000	0.05838	97	70-130	mg/kg	
1,2-Dichloropropane	0.06000	0.06358	106	70-130	mg/kg	
cis-1,2-Dichloroethene	0.06000	0.05996	100	70-130	mg/kg	
cis-1,3-Dichloropropene	0.06000	0.06541	109	70-130	mg/kg	
trans-1,2-Dichloroethene	0.06000	0.06001	100	70-130	mg/kg	
trans-1,3-Dichloropropene	0.06000	0.06621	110	70-130	mg/kg	
Ethylbenzene	0.06000	0.06037	101	70-130	mg/kg	
2-Hexanone (MBK)	0.06000	0.05901	98	70-130	mg/kg	
Isopropylbenzene	0.06000	0.05941	99	70-130	mg/kg	
Methyl Acetate	0.06000	0.05831	97	70-130	mg/kg	
Methylcyclohexane	0.06000	0.06021	100	70-130	mg/kg	
Methylene chloride	0.06000	0.05935	99	70-130	mg/kg	
4-Methyl-2-Pentanone (MIBK)	0.06000	0.06144	102	70-130	mg/kg	
Methyl-t-Butyl Ether	0.06000	0.06581	110	70-130	mg/kg	
Naphthalene	0.06000	0.04695	78	70-130	mg/kg	
Styrene	0.06000	0.05916	99	70-130	mg/kg	
1,1,2,2-Tetrachloroethane	0.06000	0.05963	99	70-130	mg/kg	
Tetrachloroethene	0.06000	0.05888	98	70-130	mg/kg	
Toluene	0.06000	0.05941	99	70-130	mg/kg	
1,2,3-Trichlorobenzene	0.06000	0.05032	84	70-130	mg/kg	
1,2,4-Trichlorobenzene	0.06000	0.05017	84	70-130	mg/kg	
1,1,1-Trichloroethane	0.06000	0.06153	103	70-130	mg/kg	
1,1,2-Trichloroethane	0.06000	0.06005	100	70-130	mg/kg	
Trichloroethene	0.06000	0.06172	103	70-130	mg/kg	
Trichlorofluoromethane	0.06000	0.05970	100	70-130	mg/kg	
1,1,2-Trichlorotrifluoroethane	0.06000	0.05918	99	70-130	mg/kg	
Vinyl chloride	0.06000	0.06468	108	70-130	mg/kg	
m&p-Xylene	0.1200	0.1200	100	70-130	mg/kg	

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QC Summary

Project Name Atlantic City MTC
PSS Project No.: 23071918

Analytical Method: SW-846 8260 D

Seq Number: 204700 Matrix: Solid
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 06/28/23 07:40

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
o-Xylene	0.06000	0.06125	102	70-130	mg/kg	

Surrogate	ICV Result	Limits	Units	Flag
4-Bromofluorobenzene	97	70-130	%	
Dibromofluoromethane	100	70-130	%	
Toluene-D8	99	70-130	%	

X = Recovery outside of QC Criteria

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CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

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①

PSS CLIENT: Schnabel | OFFICE LOCATION: Baltimore | PSS Work Order #: 23071918 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 443-750-5111

CONTACT: David MacGregor | EMAIL: dmacgregor@schnabel-eng.com

PROJECT NAME: Atlantic City MTC | PROJECT #: 23140043.000

SITE LOCATION: Atlantic City, NJ | P.O. #:

SAMPLER(S): B. Glass | DW CERT #:

Matrix Codes: SW=Surface Water DW=Drinking Water GW=Ground Water WW=Waste Water O=Oil S=Soil SOL=Solid A=Air WI=Wipe

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

②

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Preservatives Use Codes		TPH-DRO EPA 8015C	TPH-GRO EPA 8015C	VOCs EPA 8260B	RCRA 8 METALS EPA 6020a						
1	B-1, 4-FT	7/13	8:10 am	S	1	G			✓	✓	✓	✓						
2	B-1, 5-FT	7/13	8:20 am	S	1	G			✓	✓	✓	✓						
3	PB-1, 4-FT	7/18	10:45 am	S	1	G			✓	✓	✓	✓						
4	PB-1, 6-FT	7/18	10:55 am	S	1	G			✓	✓	✓	✓						
5	SWM-1, 3-FT	7/18	9:00 am	S	1	G			✓	✓	✓	✓						
6	SWM-1, 6-FT	7/17	9:10 am	S	1	G			✓	✓	✓	✓						
7	SWM-3, 3 FT	7/17	11:18 am	S	1	G			✓	✓	✓	✓						
8	SWM-3, 6 FT	7/17	11:30 am	S	1	G			✓	✓	✓	✓						
9	SWM-3, 12 FT	7/17	11:44 am	S	1	G			✓	✓	✓	✓						
10	SWM-3, 15 FT	7/17	11:50 am	S	1	G			✓	✓	✓	✓						

Analysis/ Method Required ③

⑤

Relinquished By:	Date	Time	Received By:
(1) [signature]	7/14	4:49	[signature]
(2)			
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☒ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☐ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Abs

Coolers: 1 Temp: 4.3-5.9°C

Shipping Carrier: Client

Special Instructions: Contact David if there is not enough material to perform all requested tests.

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

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Sample Receipt Checklist

Project Name: Atlantic City MTC
PSS Project No.: 23071918

Client Name	Schnabel Engineering - Owings Mills	**Received By**	Tyler Enwright
Disposal Date	08/23/2023	**Date Received**	07/19/2023 04:49:00 PM
		Delivered By	Client
		Tracking No	Not Applicable
		Logged In By	Tyler Enwright

Shipping Container(s)

No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	5.9
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

Documentation

		Sampler Name	B. Glass
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	10
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	10

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	N/A
Do VOA vials have zero headspace?		N/A
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 07/19/2023

PM Review and Approval: Amber Confer — Date: 07/20/2023

APPENDIX E

PERMEABILITY TEST RESULTS

Permeameter Test Procedures
Permeameter Test Results: SWM-1, SWM-2, SWM-3, SWM-4, SWM-5, SWM-6

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INFILTRATION TEST PROCEDURES

We performed in-situ permeameter testing in general accordance with New Jersey Department of Environmental Protection's 2022 New Jersey Stormwater Best Management Practices Manual. The tests were performed at an offset location (within about 5 ft) of the SWM boring locations. Permeameter testing was performed by hand augering a 3" to 3 ¼" diameter hole to the depth indicated (7-ft or 9.5 ft). The auger was removed and the soil temperature was measured at the test depth.

The testing was performed in accordance with USBR 7300-89 – Well Permeameter Method. A Johnson permeameter was lowered into the augered hole and was suspended at the proper depth to achieve the appropriate borehole radius to constant head height (H/r) ratio. Water was then released into the permeameter and the borehole. The amount of water required to keep a constant head in the borehole was measured at timed intervals until the readings stabilized.

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Constant-Head Borehole Permeameter Test			Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)			File Name.....:
Project Name.....:	F-16 Mission Training Center		Boring No.....:	SWM-1		Solution and Terminology (USBR 7300-89 Condition I)*
Project No.....:	23140043.000		Investigators.....:	B. Glass		$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$
Project Location.....:	ANG, Atlantic City, NJ		Date.....:	7/18/23		where:
Boring Depth.....:	7.0 ft	(Specify units)	WCU Base Ht. h:	17.0	cm***	K_B: Coefficient of Permeability @ base Tmp. T_B °C: 20
Boring Diameter.....:	8.3	cm	WCU Susp. Ht. S:	7.6	cm	Q: Rate of flow of water from the borehole
Boring Radius r.....:	4.13	cm	Const. Wtr. Ht. H:	24.6	cm	H: Constant height of water in the borehole
Soil Temperature T..:	23	°C	H/r**.....:	6.0	(H/r > 5.0)	r: Radius of the cylindrical borehole
Dyn. Visc. @ T.....:	0.000933	kg/m·s	Dyn. Visc. @ T_B.:	0.001003	kg/m·s	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
2,950	12:14:00 PM									
1,920	12:16:00 PM	1030	2.00	2.00	515.0	34.4	3.44E-03	297.3	4.88	9.75
1,030	12:18:00 PM	890	4.00	2.00	445.0	29.7	2.97E-03	256.9	4.21	8.43
3,120	12:20:00 PM									
2,380	12:25:00 PM	740	9.00	5.00	148.0	9.9	9.89E-04	85.4	1.40	2.80
1,780	12:30:00 PM	600	14.00	5.00	120.0	8.0	8.02E-04	69.3	1.14	2.27
790	12:40:00 PM	990	24.00	10.00	99.0	6.6	6.61E-04	57.1	0.94	1.87
3,160	12:42:00 PM									
2,300	12:52:00 PM	860	34.00	10.00	86.0	5.7	5.75E-04	49.6	0.81	1.63
1,500	1:02:00 PM	800	44.00	10.00	80.0	5.3	5.34E-04	46.2	0.76	1.51
720	1:12:00 PM	780	54.00	10.00	78.0	5.2	5.21E-04	45.0	0.74	1.48
3,190	1:13:00 PM									
2,440	1:23:00 PM	750	64.00	10.00	75.0	5.0	5.01E-04	43.3	0.71	1.42
1,710	1:33:00 PM	730	74.00	10.00	73.0	4.9	4.88E-04	42.1	0.69	1.38
990	1:43:00 PM	720	84.00	10.00	72.0	4.8	4.81E-04	41.6	0.68	1.36
280	1:53:00 PM	710	94.00	10.00	71.0	4.7	4.74E-04	41.0	0.67	1.34
2,560	1:54:00 PM									
1,850	2:04:00 PM	710	104.00	10.00	71.0	4.7	4.74E-04	41.0	0.67	1.34
1,140	2:14:00 PM	710	114.00	10.00	71.0	4.7	4.74E-04	41.0	0.67	1.34

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)

Natural Moisture.....: 12.7%	**Consistence.....:**	**Enter Average K_B Value.....:**	**0.67 in/hr**				
USDA Txt./USCS Class: Sandy Loam/SC	**WT Depth.....:** 15.5 ft	**Data Logger No....:**	Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.				
Struct./% Pass. #200..: 29.3%	**Init. Sat. Time...:**						

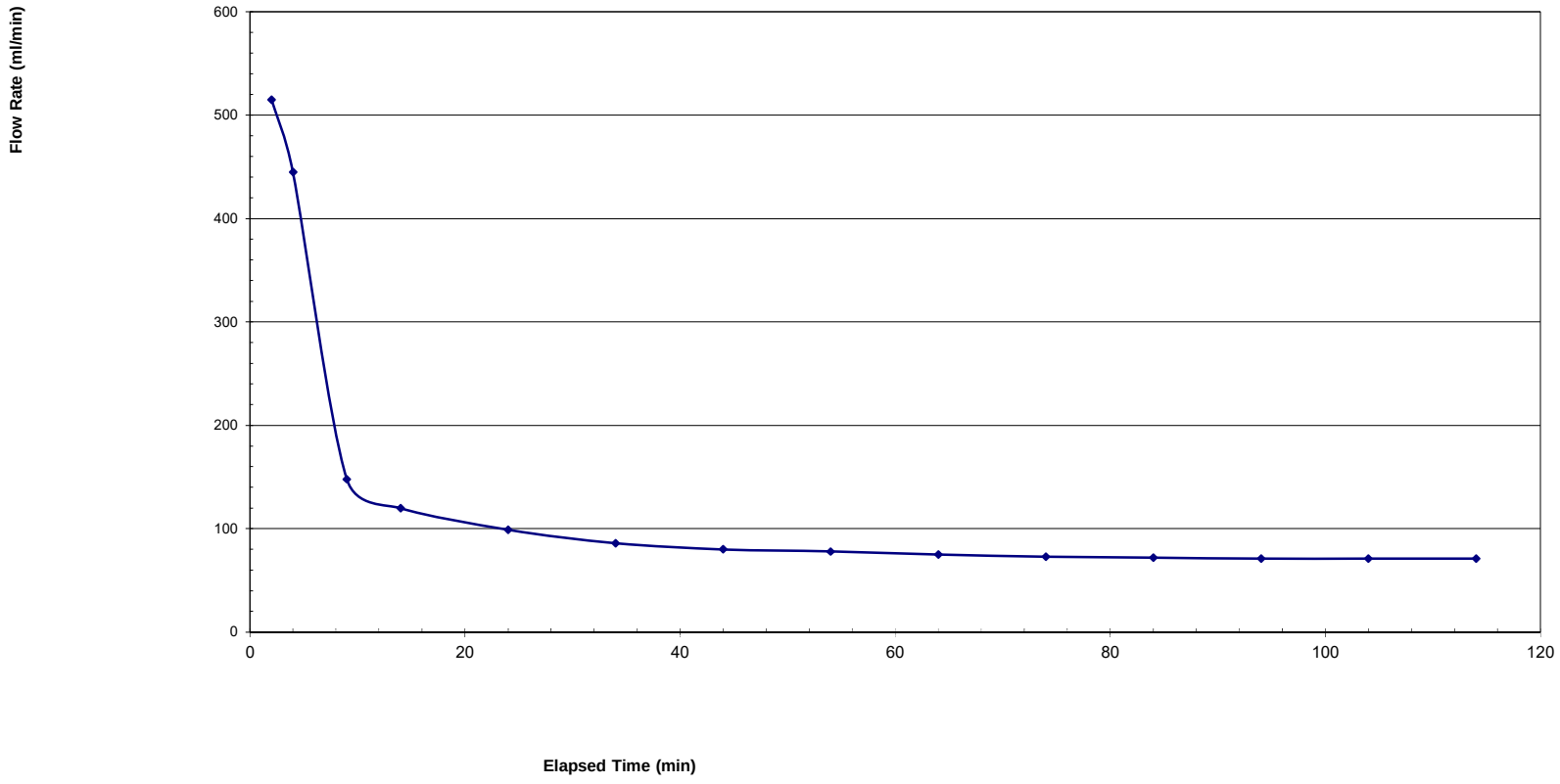
*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

Project Name.....: F-16 Mission Training Center	**Boring No.....:** SWM-1	**Date.....:** 7/18/23	**File Name..:**

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043.000

SWM-1
7 ft depth

Flow Rate vs Elapsed Time



Constant-Head Borehole Permeameter Test	Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)	File Name....:

Project Name.....:	F-16 Mission Training Center	**Boring No.....:**	SWM-2	**Solution and Terminology (USBR 7300-89 Condition I)***	
Project No.....:	23140043.000	**Investigators.....:**	B. Glass	$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$	
Project Location.....:	ANG, Atlantic City, NJ	**Date.....:**	7/17/23	where:	
Boring Depth.....:	7.0 ft **(Specify units)**	**WCU Base Ht. h:**	17.0 **cm*** **	K_B: Coefficient of Permeability @ base Tmp. T_B °C:	20
Boring Diameter.....:	8.26 **cm**	**WCU Susp. Ht. S:**	7.6 **cm**	Q: Rate of flow of water from the borehole	
Boring Radius r.....:	4.13 **cm**	**Const. Wtr. Ht. H:**	24.6 **cm**	H: Constant height of water in the borehole	
Soil Temperature T..:	22 **°C**	**H/r**.....:**	6.0 **(H/r > 5.0)**	r: Radius of the cylindrical borehole	
Dyn. Visc. @ T.....:	0.000955 **kg/m·s**	**Dyn. Visc. @ T_B.:**	0.001003 **kg/m·s**	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C	

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
2,950	10:41:00 AM									
2,140	10:43:00 AM	810	2.00	2.00	405.0	27.7	2.77E-03	239.3	3.93	7.85
1,610	10:45:00 AM	530	4.00	2.00	265.0	18.1	1.81E-03	156.6	2.57	5.14
1,160	10:47:00 AM	450	6.00	2.00	225.0	15.4	1.54E-03	132.9	2.18	4.36
1,060	10:49:00 AM	100	8.00	2.00	50.0	3.4	3.42E-04	29.5	0.48	0.97
960	10:51:00 AM	100	10.00	2.00	50.0	3.4	3.42E-04	29.5	0.48	0.97
3,070	10:52:00 AM									
2,700	11:02:00 AM	370	20.00	10.00	37.0	2.5	2.53E-04	21.9	0.36	0.72
2,420	11:12:00 AM	280	30.00	10.00	28.0	1.9	1.91E-04	16.5	0.27	0.54
2,150	11:22:00 AM	270	40.00	10.00	27.0	1.8	1.85E-04	16.0	0.26	0.52
1,920	11:32:00 AM	230	50.00	10.00	23.0	1.6	1.57E-04	13.6	0.22	0.45
1,680	11:42:00 AM	240	60.00	10.00	24.0	1.6	1.64E-04	14.2	0.23	0.47
1,460	11:52:00 AM	220	70.00	10.00	22.0	1.5	1.50E-04	13.0	0.21	0.43
1,250	12:02:00 PM	210	80.00	10.00	21.0	1.4	1.44E-04	12.4	0.20	0.41
1,050	12:12:00 PM	200	90.00	10.00	20.0	1.4	1.37E-04	11.8	0.19	0.39
850	12:22:00 PM	200	100.00	10.00	20.0	1.4	1.37E-04	11.8	0.19	0.39
650	12:32:00 PM	200	110.00	10.00	20.0	1.4	1.37E-04	11.8	0.19	0.39
450	12:42:00 PM	200	120.00	10.00	20.0	1.4	1.37E-04	11.8	0.19	0.39
250	12:52:00 PM	200	130.00	10.00	20.0	1.4	1.37E-04	11.8	0.19	0.39

Natural Moisture.....:	12.8%	**Consistence.....:**		**Enter Average K_B Value.....:**	**0.19 in/hr.**
USDA Txt./USCS Class:	Sandy Loam/SC	**WT Depth.....:**	15.5	**Data Logger No....:**	
Struct./% Pass. #200..:	31.3%	**Init. Sat. Time...:**			

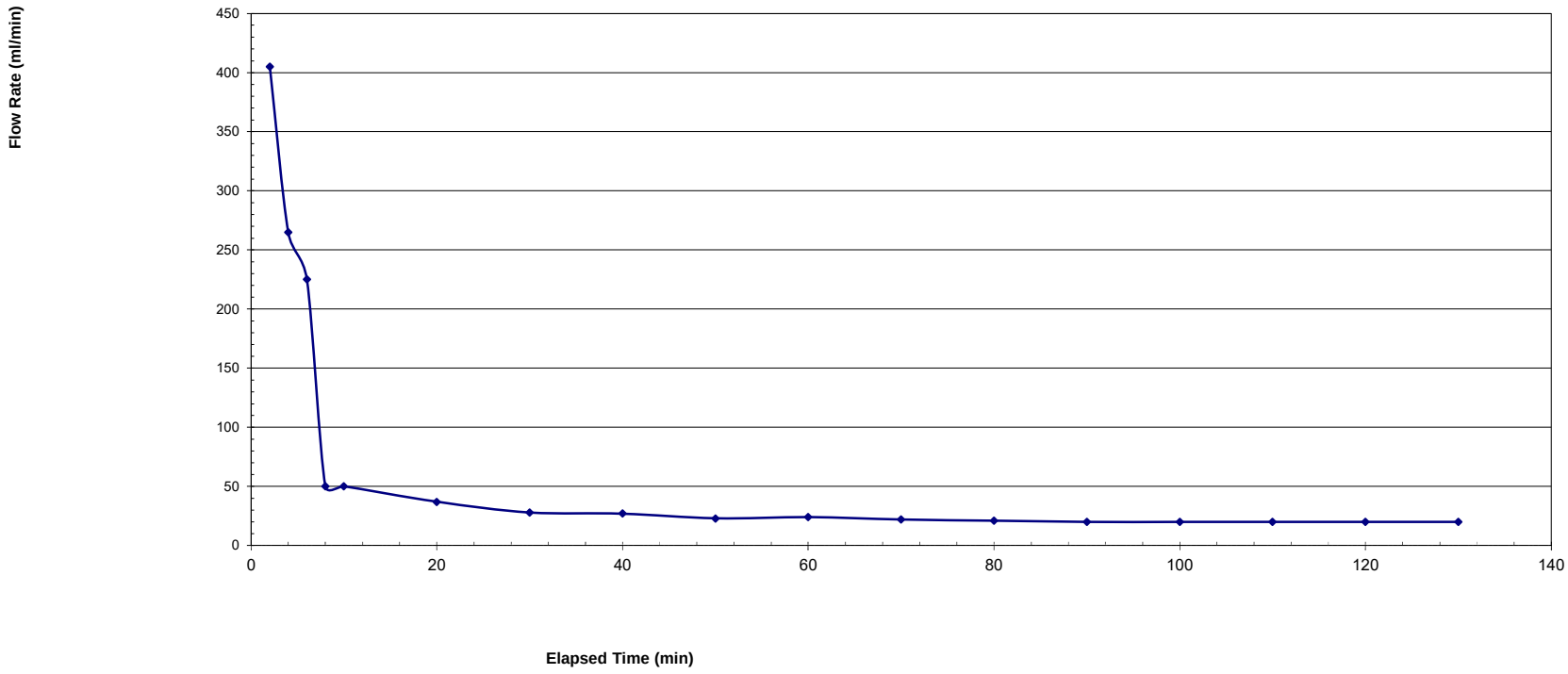
Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.

*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043.000

SWM-2
7 ft depth

Flow Rate vs Elapsed Time



Constant-Head Borehole Permeameter Test			Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)			File Name.....:
Project Name.....:	F-16 Mission Training Center		Boring No.....:	SWM-3		Solution and Terminology (USBR 7300-89 Condition I)*
Project No.....:	23140043.000		Investigators.....:	B. Glass		$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$
Project Location.....:	ANG, Atlantic City, NJ		Date.....:	7/18/23		where:
Boring Depth.....:	7.0 ft	(Specify units)	WCU Base Ht. h:	17.0	cm***	K_B: Coefficient of Permeability @ base Tmp. T_B °C: 20
Boring Diameter.....:	8.3	cm	WCU Susp. Ht. S:	7.6	cm	Q: Rate of flow of water from the borehole
Boring Radius r.....:	4.13	cm	Const. Wtr. Ht. H:	24.6	cm	H: Constant height of water in the borehole
Soil Temperature T..:	23	°C	H/r**.....:	6.0	(H/r > 5.0)	r: Radius of the cylindrical borehole
Dyn. Visc. @ T.....:	0.000933	kg/m·s	Dyn. Visc. @ T_B.:	0.001003	kg/m·s	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
3,200	7:06:00 AM									
40	7:11:00 AM	3160	5.00	5.00	632.0	42.2	4.22E-03	364.8	5.98	11.97
3,200	7:12:00 AM									
150	7:17:00 AM	3050	10.00	5.00	610.0	40.8	4.08E-03	352.1	5.78	11.55
3,210	7:18:00 AM									
1,030	7:23:00 AM	2180	15.00	5.00	436.0	29.1	2.91E-03	251.7	4.13	8.26
3,230	7:24:00 AM									
1,210	7:29:00 AM	2020	20.00	5.00	404.0	27.0	2.70E-03	233.2	3.83	7.65
3,200	7:30:00 AM									
1,510	7:35:00 AM	1690	25.00	5.00	338.0	22.6	2.26E-03	195.1	3.20	6.40
80	7:40:00 AM	1430	30.00	5.00	286.0	19.1	1.91E-03	165.1	2.71	5.42
3,200	7:41:00 AM									
1,910	7:46:00 AM	1290	35.00	5.00	258.0	17.2	1.72E-03	148.9	2.44	4.89
780	7:51:00 AM	1130	40.00	5.00	226.0	15.1	1.51E-03	130.4	2.14	4.28
3,170	7:52:00 AM									
2,000	7:57:00 AM	1170	45.00	5.00	234.0	15.6	1.56E-03	135.1	2.22	4.43
870	8:02:00 AM	1130	50.00	5.00	226.0	15.1	1.51E-03	130.4	2.14	4.28
3,200	8:03:00 AM									
2,100	8:08:00 AM	1100	55.00	5.00	220.0	14.7	1.47E-03	127.0	2.08	4.17
1,090	8:13:00 AM	1010	60.00	5.00	202.0	13.5	1.35E-03	116.6	1.91	3.83
140	8:18:00 AM	950	65.00	5.00	190.0	12.7	1.27E-03	109.7	1.80	3.60

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
3,190	8:19:00 AM									
2,150	8:24:00 AM	1040	70.00	5.00	208.0	13.9	1.39E-03	120.1	1.97	3.94
1,150	8:29:00 AM	1000	75.00	5.00	200.0	13.4	1.34E-03	115.4	1.89	3.79
220	8:34:00 AM	930	80.00	5.00	186.0	12.4	1.24E-03	107.4	1.76	3.52
3,180	8:35:00 AM									
1,090	8:45:00 AM	2090	90.00	10.00	209.0	14.0	1.40E-03	120.6	1.98	3.96
3,000	8:46:00 AM									
960	8:56:00 AM	2040	100.00	10.00	204.0	13.6	1.36E-03	117.8	1.93	3.86
3,180	8:57:00 AM									
1,170	9:07:00 AM	2010	110.00	10.00	201.0	13.4	1.34E-03	116.0	1.90	3.81
3,190	9:08:00 AM									
1,200	9:18:00 AM	1990	120.00	10.00	199.0	13.3	1.33E-03	114.9	1.88	3.77
2,650	9:19:00 AM									
660	9:29:00 AM	1990	130.00	10.00	199.0	13.3	1.33E-03	114.9	1.88	3.77

Natural Moisture.....: 4.4%
USDA Txt./USCS Class: Loamy Sand/SP-SM
Struct./% Pass. #200..: 31.3%

Consistence.....:
WT Depth.....: 15.5 ft
Init. Sat. Time...:

Enter Average K_B Value.....: **1.88 in/hr.**
Data Logger No....:

Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.

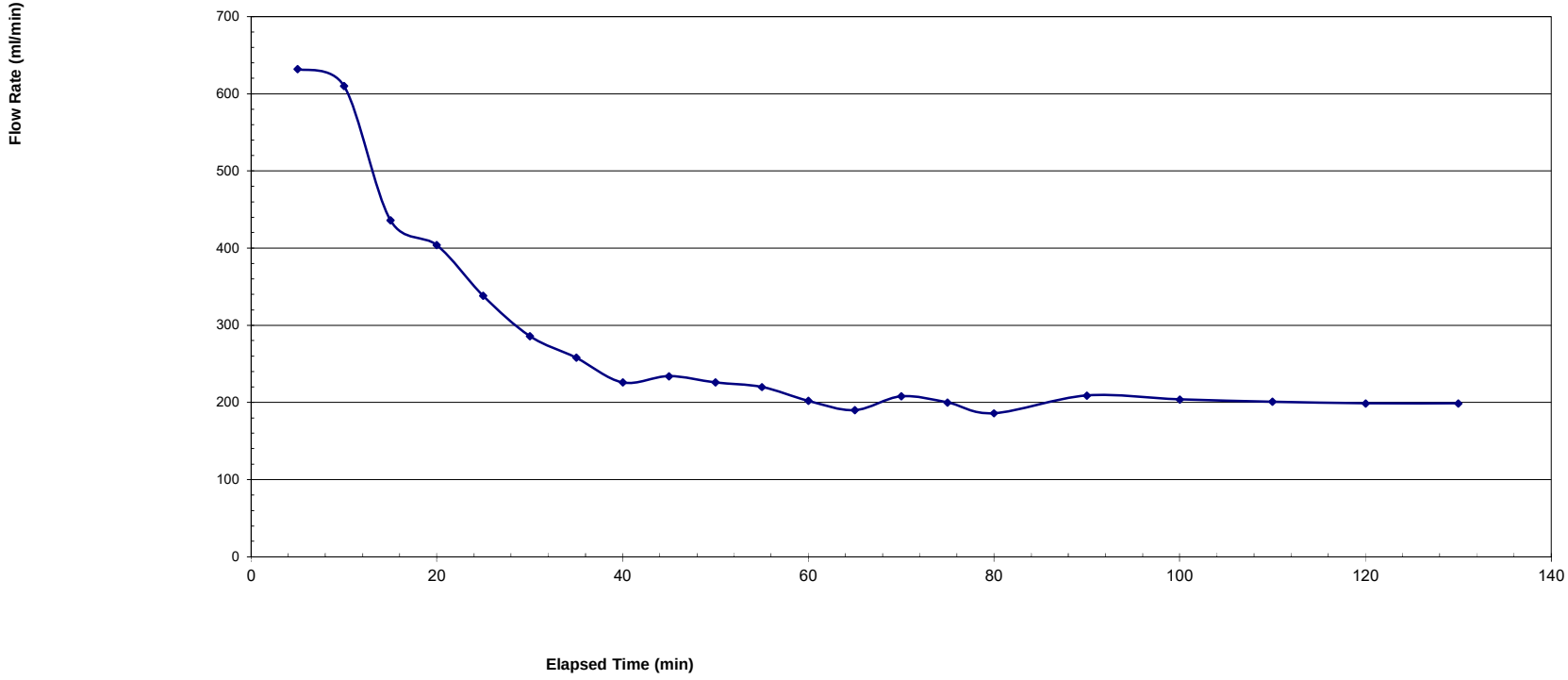
*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

Project Name.....: F-16 Mission Training Center
Boring No.....: SWM-3
Date.....: 7/18/23
File Name..:

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043.000

SWM-3
7 ft depth

Flow Rate vs Elapsed Time



Constant-Head Borehole Permeameter Test	Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)	File Name….:

Project Name……:	F-16 Training Center SWM	**Boring No……:**	SWM-4	**Solution and Terminology (USBR 7300-89 Condition I)***	
Project No……:	23140043	**Investigators……:**	M. Simonds	$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$	
Project Location……:	Egg Harbor, NJ	**Date……:**	5/2/2025	where:	
Boring Depth……:	9.5' **(Specify units)**	**WCU Base Ht. h:**	17.0 **cm*** **	K_B: Coefficient of Permeability @ base Tmp. T_B °C:	20
Boring Diameter……:	7.62 **cm**	**WCU Susp. Ht. S:**	11.0 **cm**	Q: Rate of flow of water from the borehole	
Boring Radius r……:	3.81 **cm**	**Const. Wtr. Ht. H:**	28.0 **cm**	H: Constant height of water in the borehole	
Soil Temperature T..:	12 **°C**	**H/r**……:**	7.3 **(H/r > 5.0)**	r: Radius of the cylindrical borehole	
Dyn. Visc. @ T……:	0.001236 **kg/m·s**	**Dyn. Visc. @ T_B.:**	0.001003 **kg/m·s**	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C	

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
3,200	7:40:00 AM									
3,000	7:41:00 AM	200	1.00	1.00	200.0	15.2	1.52E-03	131.1	2.15	4.30
2,490	7:46:00 AM	510	6.00	5.00	102.0	7.7	7.74E-04	66.8	1.10	2.19
1,900	7:56:00 AM	590	16.00	10.00	59.0	4.5	4.48E-04	38.7	0.63	1.27
1,410	8:06:00 AM	490	26.00	10.00	49.0	3.7	3.72E-04	32.1	0.53	1.05
950	8:16:00 AM	460	36.00	10.00	46.0	3.5	3.49E-04	30.1	0.49	0.99
500	8:26:00 AM	450	46.00	10.00	45.0	3.4	3.41E-04	29.5	0.48	0.97
100	8:36:00 AM	400	56.00	10.00	40.0	3.0	3.03E-04	26.2	0.43	0.86
3,200	8:37:00 AM									
2,760	8:47:00 AM	440	66.00	10.00	44.0	3.3	3.34E-04	28.8	0.47	0.95
2,340	8:57:00 AM	420	76.00	10.00	42.0	3.2	3.19E-04	27.5	0.45	0.90
1,930	9:07:00 AM	410	86.00	10.00	41.0	3.1	3.11E-04	26.9	0.44	0.88
1,550	9:17:00 AM	380	96.00	10.00	38.0	2.9	2.88E-04	24.9	0.41	0.82
1,180	9:27:00 AM	370	106.00	10.00	37.0	2.8	2.81E-04	24.2	0.40	0.80
830	9:37:00 AM	350	116.00	10.00	35.0	2.7	2.65E-04	22.9	0.38	0.75
510	9:47:00 AM	320	126.00	10.00	32.0	2.4	2.43E-04	21.0	0.34	0.69
200	9:57:00 AM	310	136.00	10.00	31.0	2.4	2.35E-04	20.3	0.33	0.67
3,180	9:58:00 AM									
2,880	10:08:00 AM	300	146.00	10.00	30.0	2.3	2.28E-04	19.7	0.32	0.65
2,580	10:18:00 AM	300	156.00	10.00	30.0	2.3	2.28E-04	19.7	0.32	0.65

Natural Moisture……:	12.1	**Consistence……:**		**Enter Average K_B Value……:**	
USDA Txt./USCS Class:	Loamy Sand	**WT Depth……:**	16 ft	**Data Logger No….:**	
Struct./% Pass. #200..:	15.8	**Init. Sat. Time...:**			

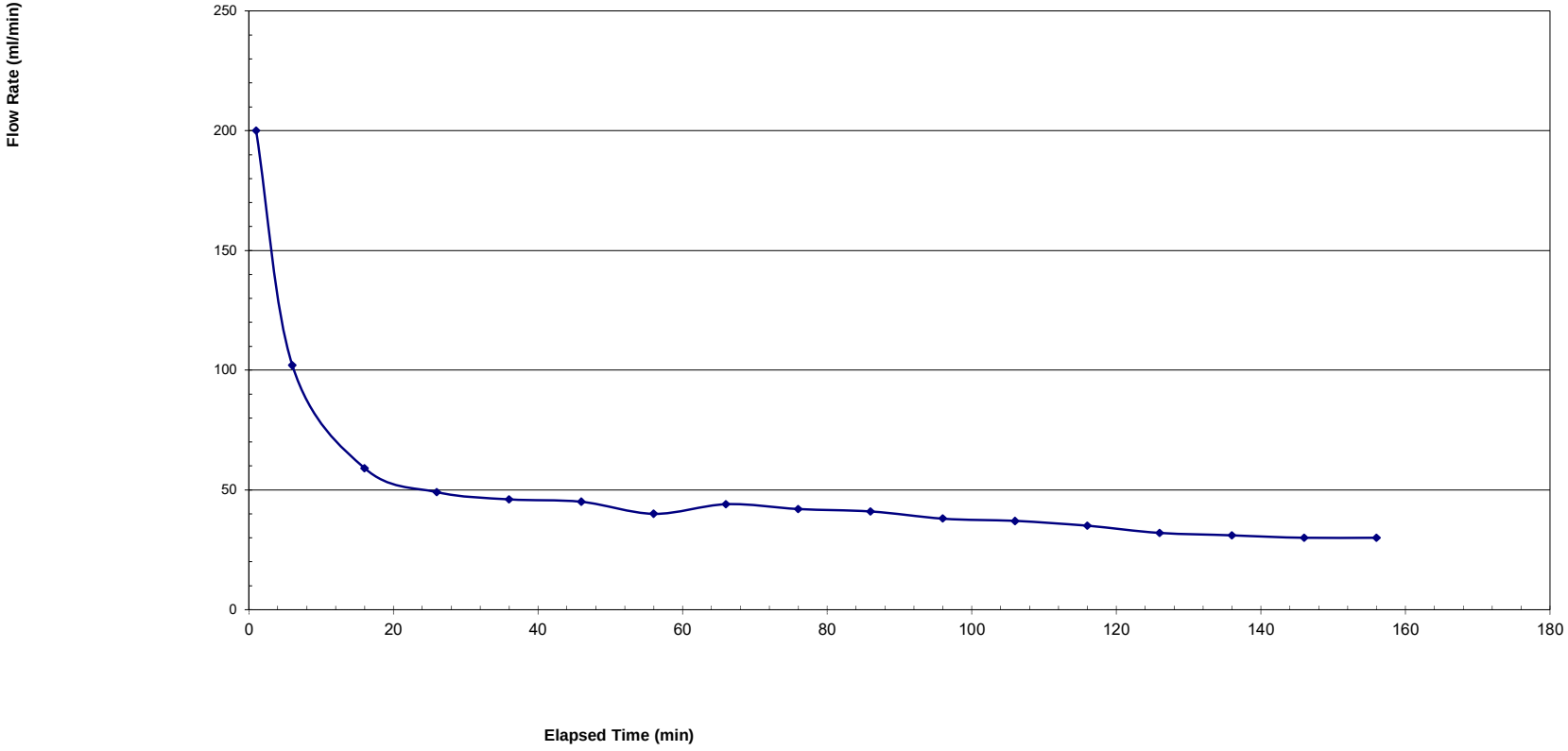
Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.

*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043

SWM-4
9.5 ft depth

Flow Rate vs Elapsed Time



Constant-Head Borehole Permeameter Test	Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)	File Name….:

Project Name……:	F-16 Training Center SWM	**Boring No……:**	SWM-5	**Solution and Terminology (USBR 7300-89 Condition I)***	
Project No……:	23140043	**Investigators……:**	M. Simonds	$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$	
Project Location……:	Egg Harbor, NJ	**Date……:**	5/2/2025	where:	
Boring Depth……:	9.5' **(Specify units)**	**WCU Base Ht. h:**	17.0 **cm*** **	K_B: Coefficient of Permeability @ base Tmp. T_B °C:	20
Boring Diameter……:	7.62 **cm**	**WCU Susp. Ht. S:**	11.0 **cm**	Q: Rate of flow of water from the borehole	
Boring Radius r……:	3.81 **cm**	**Const. Wtr. Ht. H:**	28.0 **cm**	H: Constant height of water in the borehole	
Soil Temperature T..:	12 **°C**	**H/r**……:**	7.3 **(H/r > 5.0)**	r: Radius of the cylindrical borehole	
Dyn. Visc. @ T……:	0.001236 **kg/m·s**	**Dyn. Visc. @ T_B.:**	0.001003 **kg/m·s**	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C	

Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
3,200	10:49:00 AM									
2,800	10:59:00 AM	400	10.00	10.00	40.0	3.0	3.03E-04	26.2	0.43	0.86
2,430	11:09:00 AM	370	20.00	10.00	37.0	2.8	2.81E-04	24.2	0.40	0.80
2,100	11:19:00 AM	330	30.00	10.00	33.0	2.5	2.50E-04	21.6	0.35	0.71
1,790	11:29:00 AM	310	40.00	10.00	31.0	2.4	2.35E-04	20.3	0.33	0.67
1,510	11:39:00 AM	280	50.00	10.00	28.0	2.1	2.12E-04	18.3	0.30	0.60
1,250	11:49:00 AM	260	60.00	10.00	26.0	2.0	1.97E-04	17.0	0.28	0.56
1,000	11:59:00 AM	250	70.00	10.00	25.0	1.9	1.90E-04	16.4	0.27	0.54
760	12:09:00 PM	240	80.00	10.00	24.0	1.8	1.82E-04	15.7	0.26	0.52
548	12:19:00 PM	212	90.00	10.00	21.2	1.6	1.61E-04	13.9	0.23	0.46
320	12:29:00 PM	228	100.00	10.00	22.8	1.7	1.73E-04	14.9	0.25	0.49
120	12:39:00 PM	200	110.00	10.00	20.0	1.5	1.52E-04	13.1	0.22	0.43
3,200	12:40:00 PM									
2,990	12:50:00 PM	210	120.00	10.00	21.0	1.6	1.59E-04	13.8	0.23	0.45
2,780	1:00:00 PM	210	130.00	10.00	21.0	1.6	1.59E-04	13.8	0.23	0.45

Natural Moisture……:	8.9	**Consistence……:**		**Enter Average K_B Value……:**	
USDA Txt./USCS Class:	Loamy Sand	**WT Depth……:**	16.5 ft	**Data Logger No….:**	
Struct./% Pass. #200..:	16.0	**Init. Sat. Time...:**			

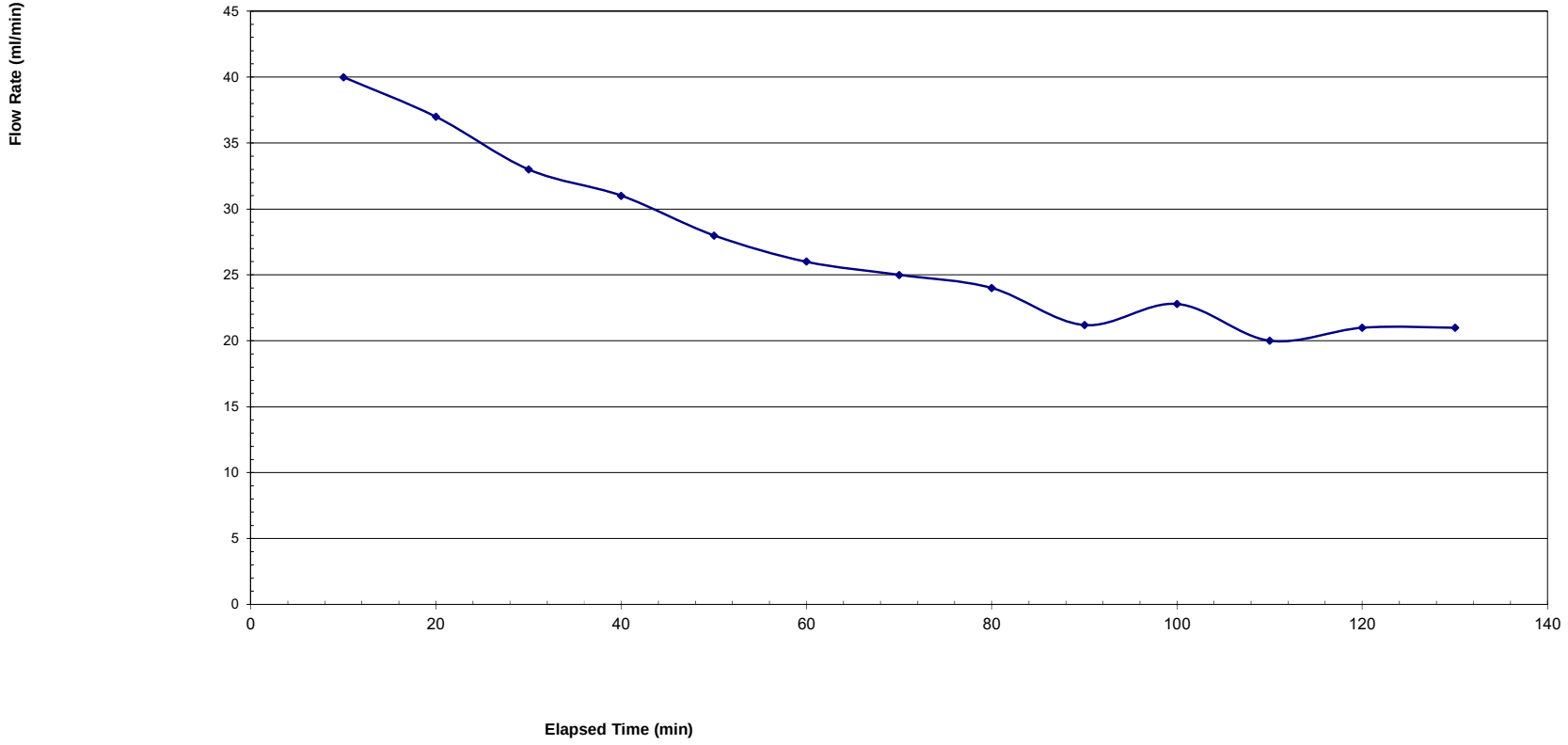
Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.

*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043

SWM-5
9.5 ft depth

Flow Rate vs Elapsed Time



Constant-Head Borehole Permeameter Test	Solution: USBR 7300-89 Condition I (Deep WT or Impermeable layer)	File Name….:

Project Name……:	F-16 Training Center SWM	**Boring No……:**	SWM-6	**Solution and Terminology (USBR 7300-89 Condition I)***	
Project No……:	23140043	**Investigators……:**	M. Simonds	$K_B = QV/(2\pi H^2)[\ln\{H/r+((H/r)^2+1)^{0.5}\}-((H/r)^2+1)^{0.5}/(H/r)+1/(H/r))]$	
Project Location……:	Egg Harbor, NJ	**Date……:**	5/2/2025	where:	
Boring Depth……:	9.5' **(Specify units)**	**WCU Base Ht. h:**	17.0 **cm*** **	K_B: Coefficient of Permeability @ base Tmp. T_B °C:	20
Boring Diameter……:	7.62 **cm**	**WCU Susp. Ht. S:**	10.0 **cm**	Q: Rate of flow of water from the borehole	
Boring Radius r……:	3.81 **cm**	**Const. Wtr. Ht. H:**	27.0 **cm**	H: Constant height of water in the borehole	
Soil Temperature T..:	12 **°C**	**H/r**……:**	7.1 **(H/r > 5.0)**	r: Radius of the cylindrical borehole	
Dyn. Visc. @ T……:	0.001236 **kg/m·s**	**Dyn. Visc. @ T_B.:**	0.001003 **kg/m·s**	V: Dynamic viscosity of water @ T °C/Dyn. Visc. of water @ T_B °C	

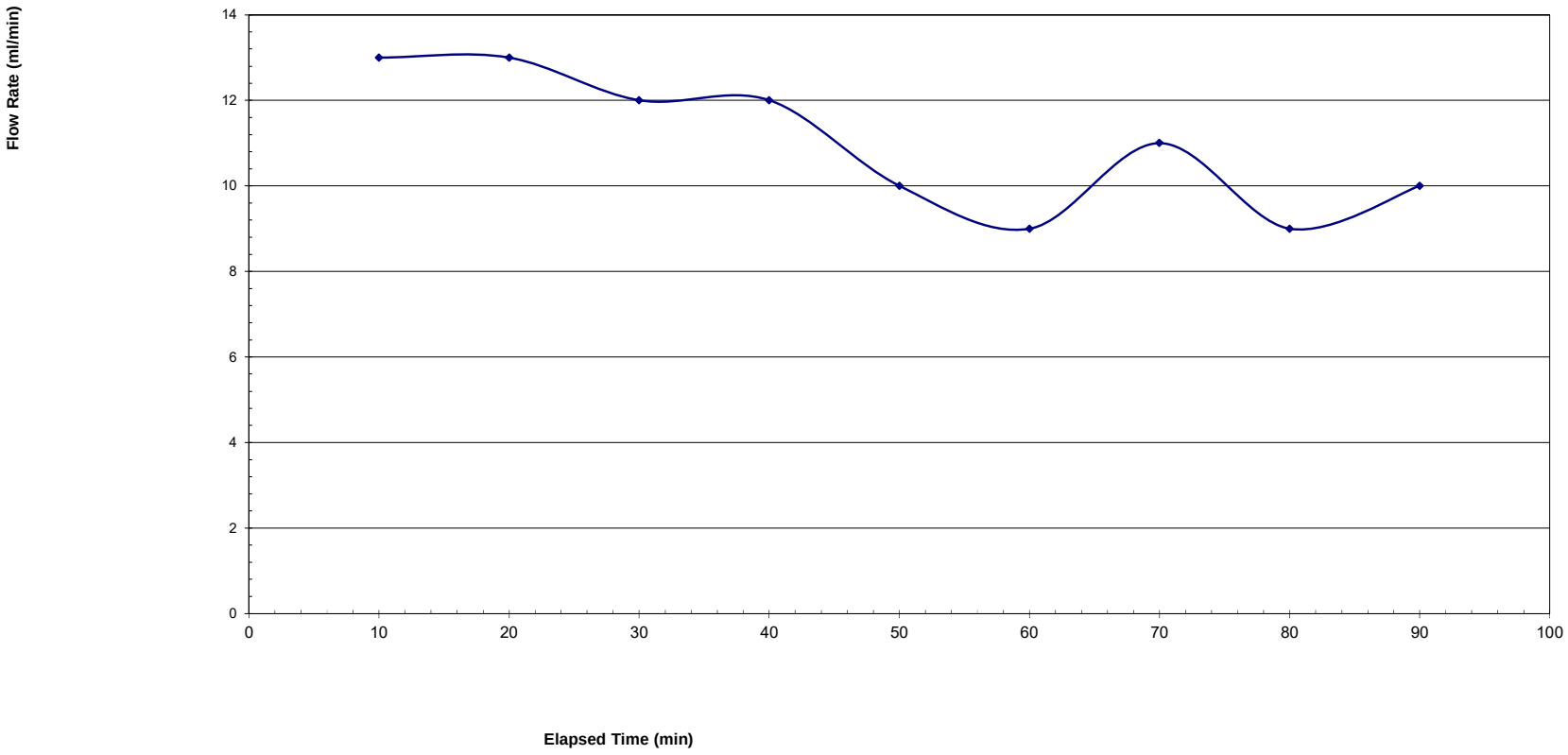
Reservoir Volume (ml)	Time (12 hr) (h:mm:ss A/P)	Volume Out (ml)	Elapsed Time Total (min) x	Elapsed Time Interval (min)	Flow Rate (ml/min) y	K_B Equivalent Values (µm/sec)	(cm/sec)	(cm/day)	(in/hr)	(ft/day)
3,200	1:04:00 PM									
3,070	1:14:00 PM	130	10.00	10.00	13.0	1.0	1.04E-04	9.0	0.15	0.30
2,940	1:24:00 PM	130	20.00	10.00	13.0	1.0	1.04E-04	9.0	0.15	0.30
2,820	1:34:00 PM	120	30.00	10.00	12.0	1.0	9.62E-05	8.3	0.14	0.27
2,700	1:44:00 PM	120	40.00	10.00	12.0	1.0	9.62E-05	8.3	0.14	0.27
2,600	1:54:00 PM	100	50.00	10.00	10.0	0.8	8.02E-05	6.9	0.11	0.23
2,510	2:04:00 PM	90	60.00	10.00	9.0	0.7	7.21E-05	6.2	0.10	0.20
2,400	2:14:00 PM	110	70.00	10.00	11.0	0.9	8.82E-05	7.6	0.12	0.25
2,310	2:24:00 PM	90	80.00	10.00	9.0	0.7	7.21E-05	6.2	0.10	0.20
2,210	2:34:00 PM	100	90.00	10.00	10.0	0.8	8.02E-05	6.9	0.11	0.23

Natural Moisture……:	4.2	**Consistence……:**		**Enter Average K_B Value……:**	
USDA Txt./USCS Class:	Sand	**WT Depth……:**	16 ft	**Data Logger No….:**	
Struct./% Pass. #200..:	5.4	**Init. Sat. Time...:**			

Note: K_B is determined by visually analyzing the Flow Rate vs Elapsed Time Graph and averaging the the results for the final three to five stabilized values.

*USBR 7300-89 Condition I exists when the distance from the water surface in the borehole to the water table or an impermiable layer is ≥3X the depth of the water in the borehole. **H/r ≥5 - ≤10. ***Model JP-M1: h = 15 cm, WCU-3 (3" Dia.): h = 10 cm, WCU-2 (2" Dia.) h = 17 cm. © Johnson Permeameter, LLC. Revised 2/28/2020

F-16 Mission Training Center
Atlantic City ANG Base, Atlantic City, New Jersey
Schnabel Reference: 23140043

SWM-6
9.5 ft depth

Flow Rate vs Elapsed Time