



## STORMWATER MANAGEMENT TESTING REPORT

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# **Proposed Block 57, Lot 9.01**

**East Windsor Township, Mercer County, New Jersey**

July 2022

*Updated August 2023*

Prepared For:

**MENLO ENGINEERING ASSOCIATES, INC.**

261 Cleveland Avenue  
Highland Park, New Jersey 08904

Attn: Mr. Gregory Oman

---

Prepared By:

**GEO-TECHNOLOGY ASSOCIATES, INC.**

*Geotechnical and Environmental Consultants*

14 Worlds Fair Drive, Suite A  
Somerset, New Jersey 08873

GTA Job No: 31221171

# GEO-TECHNOLOGY ASSOCIATES, INC.

GEOTECHNICAL AND  
ENVIRONMENTAL CONSULTANTS

*A Practicing Geoprofessional Business Association Member Firm*



July 6, 2022  
*Updated August 17, 2023*

Menlo Engineering Associates, Inc.  
261 Cleveland Avenue  
Highland Park, New Jersey 08904

Attn: Gregory Oman

Re: Stormwater Management Testing Report  
***Proposed Block 57, Lot 9.01***  
East Windsor Township, Mercer County, New Jersey

Dear Greg:

In accordance with our agreements dated May 26, 2022 and July 7, 2023, Geo-Technology Associates, Inc. (GTA) has performed subsurface explorations and associated testing for the planning and design of stormwater management (SWM) facilities related to a proposed hospitality development located at 359-375 U.S. Route 130 in East Windsor Township, Mercer County, New Jersey. The exploration consisted of excavating 15 test pits within the proposed basin areas, visually classifying the encountered soils, performing in-situ infiltration tests, and performing limited laboratory testing. The results of the field and laboratory testing, and GTA's recommendations regarding the design and construction of the proposed SWM basins are included in this report.

GTA appreciates the opportunity to have been of assistance to you on this project. Please contact our office at (732) 271-9301 if you have questions or require additional information.

Very truly yours,  
**GEO-TECHNOLOGY ASSOCIATES, INC.**

Allison Tether, P.G.  
Senior Project Manager

Dennis C. Loh, P.E.  
Vice President

AFS/AMT/DCL  
Job No. 31221171

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# **STORMWATER MANAGEMENT TESTING REPORT**

**PROPOSED BLOCK 57, LOT 9.01  
EAST WINDSOR TOWNSHIP  
MERCER COUNTY, NEW JERSEY  
JULY 2022  
*UPDATED AUGUST 2023***

## **INTRODUCTION**

This report presents the results of a subsurface exploration and in-situ infiltration testing performed by Geo-Technology Associates, Inc. (GTA) for the planning and design of stormwater management (SWM) facilities related to a proposed hospitality development to be constructed in East Windsor Township, Mercer County, New Jersey. The site is located at 359-375 U.S. Route 130 and is currently identified as Lots 9, 10, and 11 in Block 57 on the East Windsor Township tax map. Please refer to the Site Location Map, which is Figure 1 in Appendix A of this report.

GTA was provided with an undated grading plan prepared by Menlo Engineering Associates, Inc. (Menlo) titled “Soil Test Locations.” The plan indicates the site boundaries, existing site features and topography, and the layout and dimensions of the proposed buildings, pavement areas, and stormwater management (SWM) basins throughout the site. The plan was marked up to show the locations of 15 requested test pit explorations within the proposed SWM basin areas. GTA was also provided with an aerial image of the site showing the requested test pit locations with respect to existing site features. Following our initial exploration, GTA was provided with a revised plan indicating two potential underground SWM basins below the proposed parking lot along U.S. Route 130. The plan was marked up to show the requested locations of 6 additional test pits.

The scope of this study included a field exploration, field and laboratory testing, and geotechnical engineering analyses. The field exploration included the observation of a total of 21 test pit excavations at the requested locations within the proposed SWM basin areas. In-situ field and infiltration tests were performed at each test pit location, and limited laboratory testing was performed on soil samples obtained from the explorations to assist in characterizing the general subsurface conditions. The conclusions and recommendations presented in this report were derived from engineering analyses of field and laboratory data, and preliminary information for the proposed SWM basins as detailed herein.

## **SITE CONDITIONS**

The site is bounded by U.S. Route 130 to the west, commercial properties along U.S. Route 130 to the north and south, and residential properties along Oak Lane to the east. At the time of our study, the northern portion of the site was occupied by the Americana Kitchen and Bar restaurant and associated parking lots and the southern portion of the site contained 2 commercial buildings and associated parking areas. The central portion of the site was vacant land that was predominantly covered in grass.

Based on the topographic information provided to us and our visual observations of the site, the ground surface at the site generally slopes gently from about Elevation (EL) 105 feet in the southern portion of the site down to about EL 96 feet in the northern portion of the site.

## **PROPOSED SWM BASIN CONSTRUCTION**

Based on the plan provided to us, we understand the proposed site improvements will include 7 bioretention basins throughout the site, including linear basins along the northern, eastern and southern property boundaries, a linear basin in the central portion of the site, and 2 larger basins in the central portion of the site and in the eastern corner. Based on scaled measurements, the bottom areas of the 5 linear basins will range from about 560 square feet to 1,400 square feet, and the bottom areas of the 2 larger basins will be approximately 2,700 square feet and 4,200 square feet. We understand the basin bottoms will be established at roughly EL 95 feet, corresponding to depths ranging from about 1 to 8½ feet below the existing surface grades.

Following our exploration, GTA was provided with a revised plan provided by Menlo titled “Grading and Drainage Plan” dated December 14, 2021. The plan shows modifications to the previous SWM design, including the addition of 2 potential underground SWM basins beneath the northern parking lot along U.S. Route 130. We understand the proposed basins, labeled “Small Scale Infiltration System #1” and “Small Scale Infiltration System #2” will have bottom areas of approximately 2,160 square feet and 2,340 square feet, respectively, and both basins will be established at EL 93 feet.

## **SITE GEOLOGY**

The subject site is situated within the Coastal Plains physiographic province characterized by unconsolidated deposits gently dipping to the southeast. The site is underlain by the Late Cretaceous age Merchantville Formation, as shown on the *Bedrock Geologic Map of the Hightstown Quadrangle, Middlesex and Mercer Counties, New Jersey (OFM 107, 2015)* published by the New Jersey Geological Survey. This formation is described as predominantly olive, dark gray, and black where unweathered, and olive brown to yellowish brown where weathered, glauconite sand, glauconite silt, and sand to clayey silt. Glauconite and quartz are the major sand components, with minor feldspar, mica, and pyrite. The unit can be as much as 60 feet in thickness.

According to the *Surficial Geology of the Hightstown Quadrangle, Middlesex and Mercer Counties, New Jersey (OFM 44, 2002)* prepared by the New Jersey Geological Survey, the site overburden soils consist of the Pensauken Formation. The Pensauken Formation is described as yellow to reddish-yellow sand and pebble gravel, with minor silt and clay. The sand is chiefly quartz with some weathered feldspar and minor glauconite and mica. The unit can be locally iron-cemented and contain localized beds of dark gray to reddish-yellow clay, and can be as much as 140 feet in thickness.

Please refer to the referenced publications for more detailed descriptions of the geologic members.

## **SUBSURFACE EXPLORATION**

The subsurface exploration program consisted of excavating a total of 21 test pits at the requested locations within the proposed SWM basin areas. The initial 15 test pits were excavated by Heritage Contracting Company, Inc. on June 1 and 2, 2022 using a Caterpillar 308C excavator and extended to depths ranging from approximately 8 to 15 feet below the existing surface grades. The 6 additional test pits were excavated by J.A. Neary Excavating on July 27, 2023 using a Case CX160 excavator and extended to depths of about 15 feet below the ground surface. The explorations were located in the field by GTA using the existing site features as reference. In-situ infiltration tests were performed adjacent to each of the test pit excavations at depths ranging from about 1½ to 7 feet below the ground surface.

The approximate locations of the explorations performed for this study are shown on the Test Pit Location Plan, which is included as Figure 2 in Appendix A. Detailed descriptions of the encountered subsurface conditions are indicated on the Logs of Test Pits, which are presented in Appendix B. The ground surface elevations indicated on the exploration logs were obtained from interpolation of topographic contours indicated on the plans provided to us, and should be considered approximate.

Soil samples obtained from the test pits were brought to GTA’s laboratory for visual classification by a geotechnical engineer and limited laboratory testing. The soil descriptions shown on the logs are therefore based on visual observation of the samples, supplemented by the laboratory results.

**LABORATORY TESTING**

Laboratory testing performed for this study included grain-size distribution and Atterberg Limits testing for classification of the soils in accordance with the Unified Soil Classification System (USCS), and natural moisture content determinations. Detailed results of the laboratory testing performed for this study are included in Appendix C. The results of the testing are summarized in the following table:

**SUMMARY OF LABORATORY TESTING**

<b>Test Pit Location</b>	<b>Depth (Ft.)</b>	<b>LL (%)</b>	<b>PI (%)</b>	<b>USCS Classification</b>	<b>NMC (%)</b>	<b>Fines (%)</b>
TP-1	4½	34.1	10.5	Sandy Lean CLAY (CL)	21.4	54.8
TP-9	11	34.6	6.6	Sandy SILT (ML)	29.3	68.2
TP-13	4½	54.2	23.8	Sandy Elastic SILT (MH)	28.9	70.0
TP-14	4	NV	NV	Sandy SILT (ML)	27.5	56.3

Note: LL=Liquid Limit, PI=Plastic Index, NV=Not-verified, NMC=Natural Moisture Content

**SUBSURFACE CONDITIONS**

In general, an approximately 2- to 9-inch-thick layer of topsoil was encountered at the ground surface in 15 of the 21 explorations performed for this and our previous study, averaging approximately 6 inches. Existing fill materials were encountered at the ground surface in Test Pits

TP-9, TP-10, and TP-102 through TP-105. Fill materials were encountered below the topsoil in 13 of the 15 test pits, and extended to depths ranging from about 1 to 8½ feet below the existing surface grades. The fill generally consisted of silty sand and sandy lean clay soils with varying amounts of gravel and cobbles, and contained minor amounts of debris including asphalt, bricks, plastic, and scrap metal. Abandoned sanitary sewer and gas utility lines were encountered in Test Pits TP-2 and TP-3 at depths of about 7½ and 5½ feet below the ground surface, respectively. Test Pits TP-6 and TP-9 encountered buried asphalt layers within the fill at depths of about 1 foot below the ground surface.

The natural soils encountered below the fill materials appear to be consistent with the geologic mapping. In general, the subsurface profile consisted of interlayered fine-grained sandy silts (ML), elastic silts (MH), and sandy lean clays (CL) with some thinner layers of silty sands (SM) encountered at the 3 of the test pit locations.

Groundwater was not encountered in the test pits performed for this or our previous study. However, slight to rapid seepage of perched or trapped water was observed in 20 of the 21 test pits at depths ranging from about 4 to 9 feet below the ground surface. This perched/trapped water seepage subsided as the test pit excavations continued and stopped over time. The water did not collect in the bottoms of the test pits. Therefore, it is our opinion that the water seepage is indicative of a perched water condition and not the true groundwater level. Long-term groundwater readings were not obtained because the explorations were backfilled upon completion for safety considerations. Fluctuations in the groundwater level typically occur due to several factors, including variations in precipitation, seasonal changes, and site development activities. It should be anticipated that seepage of perched or trapped water may occur at potentially shallow depths throughout the site.

## **INFILTRATION TEST RESULTS**

In-situ infiltration tests were performed adjacent to each of the test pits performed for this study using a double-ring infiltrometer in accordance with the ASTM D 3385 test procedure. The tests were performed at depths ranging from approximately 1½ to 5½ feet below the ground surface within the existing fill and natural soils. The results of the infiltration tests performed for this study are summarized in the following table.



**SUMMARY OF INFILTRATION TEST RESULTS**

<b>Test Pit Location</b>	<b>Approximate Test Depth* (ft)</b>	<b>Final Water Level Drop (in)</b>	<b>Time Interval (min)</b>	<b>USCS Classification</b>	<b>Measured Infiltration Rate (in/hr)</b>
TP-1	4½	0	60	Sandy Lean CLAY with gravel (CL)	0
TP-2	3	¼	30	Silty SAND with gravel (SM) [FILL]	0.5
TP-3	3	0	60	Sandy Lean CLAY (CL) [FILL]	0
TP-4	3	½	30	Silty SAND with gravel (SM) [FILL]	1
TP-5	1½	½	30	Silty SAND with gravel (SM) [FILL]	1
TP-5	4	0	60	Sandy Lean CLAY (CL)	0
TP-6	2	0	60	Silty SAND with gravel (SM) [FILL]	0
TP-6	4	0	60	Sandy Lean CLAY (CL)	0
TP-7	2½	½	60	Sandy SILT (ML)	0.5
TP-8	2	½	60	Silty SAND (SM)	0.5
TP-9	2	½	60	Silty SAND (SM)	0.5
TP-10	2½	½	20	Sandy Lean CLAY with gravel (CL)	1.5
TP-11	3½	½	60	Sandy Lean CLAY (CL)	0.5
TP-12	3	½	60	Sandy Elastic SILT (MH)	0.5
TP-13	4½	0	60	Sandy Elastic SILT (MH)	0
TP-14	2½	½	60	Sandy Lean CLAY (CL)	0.5
TP-15	5½	½	60	Silty SAND with gravel (SM)	0.5
TP-101	7	0	60	Sandy Lean CLAY (CL)	0
TP-102	7	0	60	Sandy Lean CLAY (CL)	0
TP-103	5½	0	60	Sandy Lean CLAY (CL)	0
TP-104	6	¼	60	Sandy Lean CLAY (CL)	0.25
TP-105	6	¼	60	Sandy Lean CLAY (CL)	0.25
TP-106	5	0	60	Sandy Lean CLAY (CL)	0

\*Beneath the existing ground surface.

Note: A factor of safety of at least 2 should be applied to the measured infiltration rates for design purposes.

## **CONCLUSIONS AND RECOMMENDATIONS**

The primary conditions that affect the capacity to infiltrate water are the soil gradation and density properties and the presence of hydraulically restrictive layers such as silt or clay (fines), rock, or groundwater, each of which would restrict the flow of water into the underlying aquifer. The subsurface profile generally consisted of predominantly granular existing fill materials that extended to depths ranging from about 1 to 8½ feet below the ground surface, overlying natural fine-grained soils that extended to the completion depths. Groundwater was not observed in the test pits; however, perched water seepage was observed at 20 of the 21 test pits at depths ranging from about 4 to 9 feet below the ground surface.

The infiltration tests performed in the existing fill and natural site soils resulted in infiltration rates ranging from about 0 to 1.5 inches per hour, indicating the soils are not receptive or only slightly receptive to infiltration, which is typical for fine-grained soils.

Based on the subsurface profile and infiltration test results, it is GTA's opinion that the soils tested in the proposed basin areas are generally not suitable for infiltration of collected stormwater.

Construction oversight by competent engineering personnel during installation of stormwater management facilities is critical to successful functioning of the system. Ideally, construction oversight should be provided by the geotechnical engineer, or qualified representative, retained by the project owner to document construction operations and assure that project specifications and special construction requirements are met. Periodic inspection and maintenance of the system will be required to maximize the efficiency and design life of the system.

## **ADDITIONAL SERVICES**

We recommended that GTA be retained to provide geotechnical consultation and construction observation and testing services as outlined below:

- Review final site plans to evaluate if they conform to the intent of this report.
- Provide on-site observation during SWM basin construction.
- Perform infiltration testing at the time of construction after the basin subgrades have been properly prepared.

## **LIMITATIONS**

This report, including all supporting exploration logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by GTA in connection with this Project have been prepared for the exclusive use of Menlo Engineering Associates, Inc. (Client) pursuant to the Agreements between GTA and Client dated May 25, 2022 and July 7, 2023, and in accordance with generally accepted engineering practice. All terms and conditions set forth in the Agreement and the General Provisions attached thereto are incorporated herein by reference. No warranty, express or implied, is made herein. Use and reproduction of this report by any other person without the expressed written permission of GTA and Client is unauthorized and such use is at the sole risk of the user.

The analysis and recommendations contained in this report are based on the data obtained from limited observation and testing of the encountered materials. Test pits indicate subsurface conditions only at specific locations and times, and only at the depths penetrated. They do not necessarily reflect strata or variations that may exist between the exploration locations. Consequently, the analysis and recommendations must be considered preliminary until the subsurface conditions can be verified by direct observation at the time of construction. If variations of subsurface conditions from those described in this report are noted during construction, recommendations in this report may need to be re-evaluated.

In the event that any changes in the nature, design, or location of the facilities are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed, and conclusions of this report are verified in writing. GTA is not responsible for any claims, damages, or liability associated with interpretation of subsurface data or reuse of the subsurface data or engineering analysis without the expressed written authorization of GTA.

The scope of our services for this geotechnical exploration did not include any environmental assessment or investigation for the presence or absence of wetlands, or hazardous or toxic materials in the soil, surface water, groundwater or air, on or below or around this site. Any statements in this report or on the logs regarding odors or unusual or suspicious items or conditions observed are strictly for the information of our Client.

This report and the attached logs are instruments of service. The subject matter of this report is limited to the facts and matters stated herein. Absence of a reference to any other conditions or subject matter shall not be construed by the reader to imply approval by the writer.

**31221171**

**GEO-TECHNOLOGY ASSOCIATES, INC.**

# Important Information about This

# Geotechnical-Engineering Report

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

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

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

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

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

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

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

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

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

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

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

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

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

## Read this Report in Full

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

## You Need to Inform Your Geotechnical Engineer About Change

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

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

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

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

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

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

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

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

### This Report Could Be Misinterpreted

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

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

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

### Give Constructors a Complete Report and Guidance

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

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

### Read Responsibility Provisions Closely

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

### Geoenvironmental Concerns Are Not Covered

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

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

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

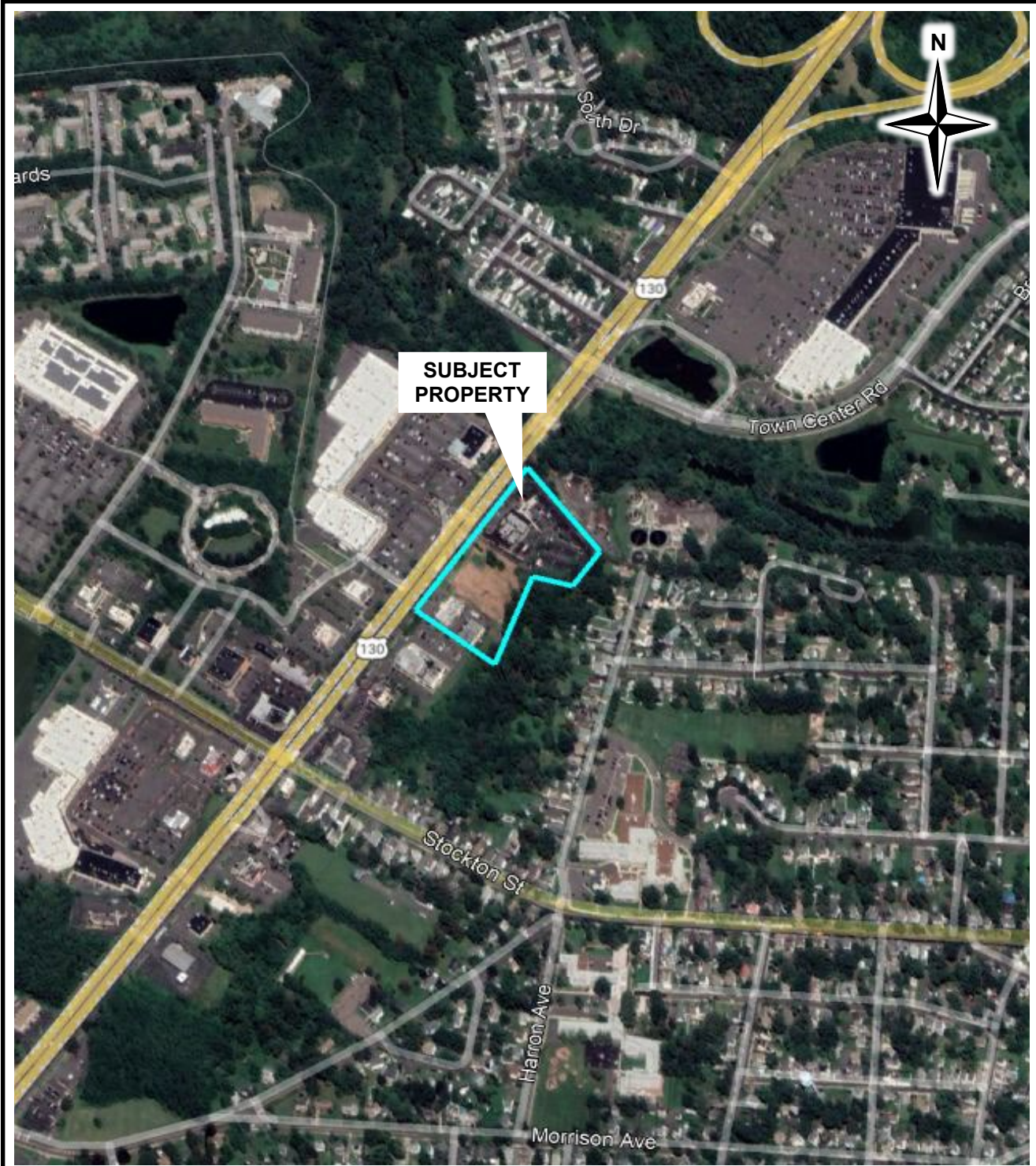


Telephone: 301/565-2733

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

# **APPENDIX A**

## **Figures**



Note: Site boundary is approximate.

**SITE LOCATION MAP**



14 Worlds Fair Drive, Suite A  
 Somerset, New Jersey 08873  
 (732) 271-9301  
 fax (732) 271-9306

**GEO-TECHNOLOGY ASSOCIATES, INC.**

***PROPOSED BLOCK 57, LOT 9.01***

East Windsor Township  
 Mercer County, New Jersey

Prepared For: Menlo Engineering Associates, Inc.

SOURCE: Google Maps

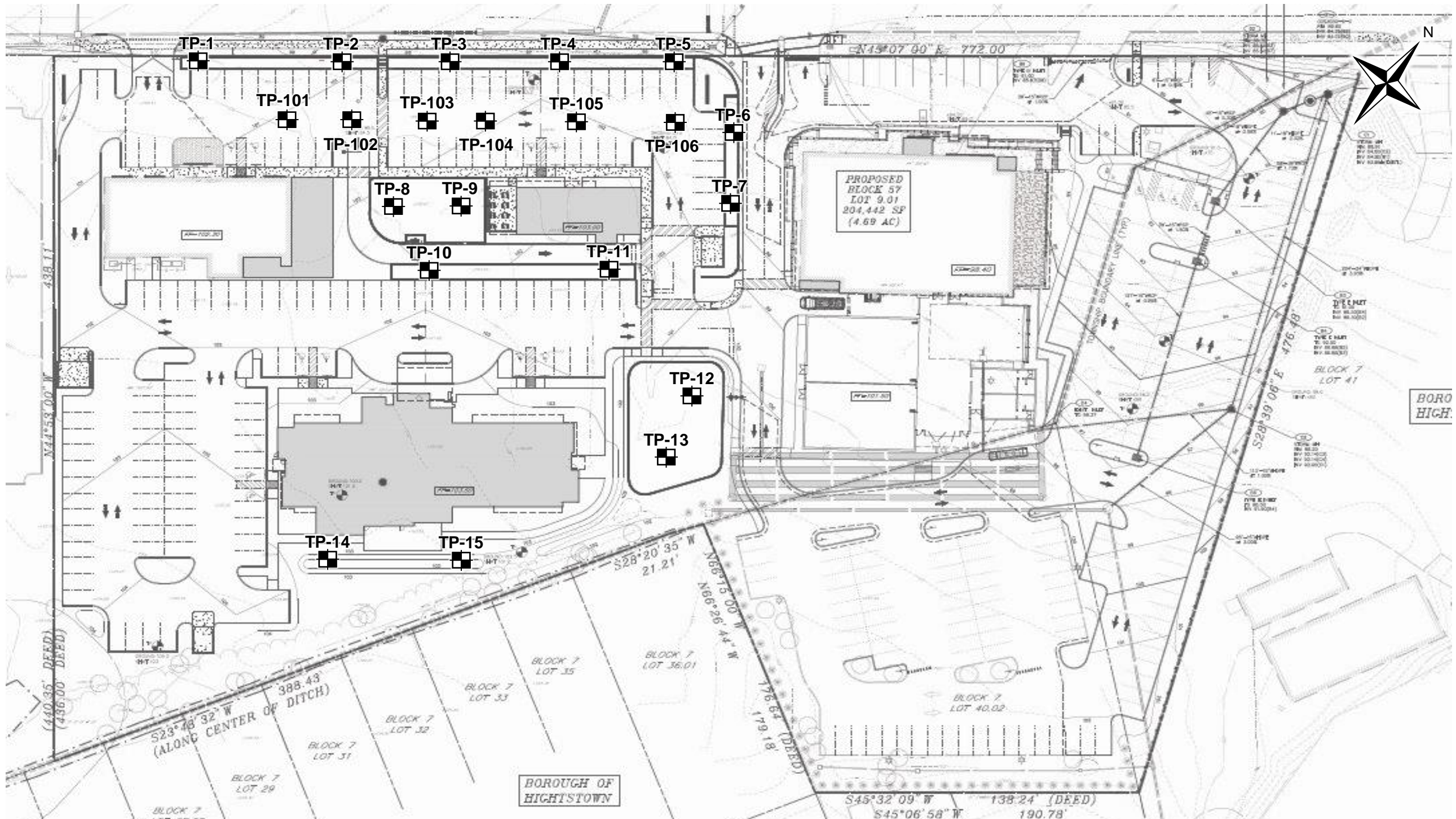
SCALE: NTS

DATE: JUNE 2022

PROJECT #: 31221171


**Figure 1**





\*Unnamed and undated base plan provided to GTA.

**LEGEND:**

**TP-X**  Indicates the numbers and approximate locations of test pits performed by GTA for this study.

**TEST PITS LOCATION PLAN**



14 Worlds Fair Drive, Suite A  
Somerset, New Jersey 08873  
(732) 271-9301  
fax (732) 271-9306

**GEO-TECHNOLOGY ASSOCIATES, INC.**

**PROPOSED BLOCK 57, LOT 9.01**

East Windsor Township  
Mercer County, New Jersey

Prepared For: Menlo Engineering Associates, Inc.

DESIGN BY: *	DRAWN BY: AFS	REVIEWED BY: AMT
SCALE: NTS	DATE: AUG. 2023	PROJECT #: 31221171

Figure 2

# **APPENDIX B**

## **Exploration Logs**

# NOTES FOR EXPLORATION LOGS

## KEY TO USCS TERMINOLOGY AND GRAPHIC SYMBOLS

MAJOR DIVISIONS (BASED UPON ASTM D 2488)			SYMBOLS	
			GRAPHIC	LETTER
<b>COARSE-GRAINED SOILS</b>  <small>MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE</small>	<b>GRAVEL AND GRAVELLY SOILS</b>  <small>MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE</small>	<b>CLEAN GRAVELS</b>  <small>(LESS THAN 15% PASSING THE NO. 200 SIEVE)</small>		GW
		<b>GRAVELS WITH FINES</b>  <small>(MORE THAN 15% PASSING THE NO. 200 SIEVE)</small>		GP
	<b>SAND AND SANDY SOILS</b>  <small>MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE</small>	<b>CLEAN SANDS</b>  <small>(LESS THAN 15% PASSING THE NO. 200 SIEVE)</small>		SW
		<b>SANDS WITH FINES</b>  <small>(MORE THAN 15% PASSING THE NO. 200 SIEVE)</small>		SP
		<b>SANDS WITH FINES</b>  <small>(MORE THAN 15% PASSING THE NO. 200 SIEVE)</small>		SM
		<b>SANDS WITH FINES</b>  <small>(MORE THAN 15% PASSING THE NO. 200 SIEVE)</small>		SC
<b>FINE-GRAINED SOILS</b>  <small>MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE</small>	<b>SILT OR CLAY</b> <small>(&lt;15% RETAINED ON THE NO. 200 SIEVE)</small>			ML
	<b>SILT OR CLAY WITH SAND OR GRAVEL</b> <small>(15% TO 30% RETAINED ON THE NO. 200 SIEVE)</small>			CL
	<b>SANDY OR GRAVELLY SILT OR CLAY</b> <small>(&gt;30% RETAINED ON THE NO. 200 SIEVE)</small>			OL
	<b>ELASTIC SILTS AND FAT CLAYS</b>  <small>LIQUID LIMIT LESS THAN 50</small>			MH
	<b>ELASTIC SILTS AND FAT CLAYS</b>  <small>LIQUID LIMIT GREATER THAN 50</small>			CH
<b>HIGHLY ORGANIC SOILS</b>				OH
<b>HIGHLY ORGANIC SOILS</b>				PT

NOTE: DUAL SYMBOLS ARE USED TO INDICATE COARSE-GRAINED SOILS WHICH CONTAIN AN ESTIMATED 5 TO 15% FINES BASED ON VISUAL CLASSIFICATION OR BETWEEN 5 AND 12% FINES BASED ON LABORATORY TESTING; AND FINE-GRAINED SOILS WHEN THE PLOT OF LIQUID LIMIT & PLASTICITY INDEX VALUES FALLS IN THE PLASTICITY CHART'S CROSS-HATCHED AREA. FINE-GRAINED SOILS ARE CLASSIFIED AS ORGANIC (OL OR OH) WHEN ENOUGH ORGANIC PARTICLES ARE PRESENT TO INFLUENCE ITS PROPERTIES. LABORATORY TEST RESULTS ARE USED TO SUPPLEMENT SOIL CLASSIFICATION BY THE VISUAL-MANUAL PROCEDURES OF ASTM D 2488.

## ADDITIONAL TERMINOLOGY AND GRAPHIC SYMBOLS

ADDITIONAL DESIGNATIONS	DESCRIPTION		GRAPHIC SYMBOLS
		TOPSOIL	
	MAN MADE FILL		
	GLACIAL TILL		
	COBBLES AND BOULDERS		
RESIDUAL SOIL DESIGNATIONS	DESCRIPTION	"N" VALUE	GRAPHIC SYMBOLS
	HIGHLY WEATHERED ROCK	50 TO 50/1"	
	PARTIALLY WEATHERED ROCK	MORE THAN 50 BLOWS FOR 1" OF PENETRATION OR LESS, AUGER PENETRABLE	

### COARSE-GRAINED SOILS (GRAVEL AND SAND)

DESIGNATION	BLOWS PER FOOT (BPF) "N"
VERY LOOSE	0 - 4
LOOSE	5 - 10
MEDIUM DENSE	11 - 30
DENSE	31 - 50
VERY DENSE	>50

NOTE: "N" VALUE DETERMINED AS PER ASTM D 1586

### FINE-GRAINED SOILS (SILT AND CLAY)

CONSISTENCY	BPF "N"
VERY SOFT	<2
SOFT	2 - 4
MEDIUM STIFF	5 - 8
STIFF	9 - 15
VERY STIFF	16 - 30
HARD	>30

NOTE: ADDITIONAL DESIGNATIONS TO ADVANCE SAMPLER INDICATED IN BLOW COUNT COLUMN:  
WOH = WEIGHT OF HAMMER  
WOR = WEIGHT OF ROD(S)

### SAMPLE TYPE

DESIGNATION	SYMBOL
SOIL SAMPLE	S-
SHELBY TUBE	U-
ROCK CORE	R-

### WATER DESIGNATION

DESCRIPTION	SYMBOL
ENCOUNTERED DURING DRILLING	
UPON COMPLETION OF DRILLING	
24 HOURS AFTER COMPLETION	

NOTE: WATER OBSERVATIONS WERE MADE AT THE TIME INDICATED. POROSITY OF SOIL STRATA, WEATHER CONDITIONS, SITE TOPOGRAPHY, ETC. MAY CAUSE WATER LEVEL CHANGES.

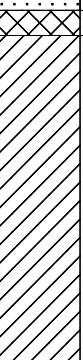

# LOG OF TEST PIT NO. TP-1

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
99.2	0			4 In. of Topsoil	
98.5		CL		FILL - Dark yellow-brown (10YR 3/4), moist, silty sand with gravel, plastic, and asphalt fragments [Sandy Loam per USDA] Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY with gravel [Sandy Clay per USDA]	- Infiltration rate = 0 in/hr at 4-1/2 Ft. - NMC = 21.4%
	5			- Dark yellow-brown (10YR 4/4) and brown (10YR 4/3) at 5 Ft.	
89.5	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
85.5	15			Test pit complete at 14 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-1**

# LOG OF TEST PIT NO. TP-2

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **98.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
97.8	0		[Dotted Pattern]	9 In. of Topsoil	
	5		[Cross-hatch Pattern]	FILL - Dark yellow-brown (10YR 3/4), moist, silty sand with gravel [Sandy Loam per USDA]  - Dark yellow-brown (10YR 4/4), moist, sandy lean clay [Sandy Clay per USDA] at 4-1/2 Ft.  - with an abandoned sewer line (roughly 12 In. in diameter) at 7-1/2 Ft.	- Infiltration rate = 0.5 in/hr at 3 Ft.  - Sidewall collapse at 6 Ft.  - Moderate perched water seepage at 7-1/2 Ft.
90.0	10	ML	[Vertical Lines]	Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
84.5	15			Test pit complete at 14 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-2**

# LOG OF TEST PIT NO. TP-3

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **97.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
96.8	0		[Cross-hatch symbol]	8 In. of Topsoil	
			[Cross-hatch symbol]	FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with gravel [Sandy Loam per USDA] - Dark olive-brown (2.5Y 3/3) at 2 Ft. - Dark yellow-brown (10YR 4/4), moist, sandy lean clay [Sandy Clay per USDA] at 3 Ft. - Dark gray (2.5Y 4/1) and dark olive-brown (2.5Y 3/3) at 4 Ft.	- Infiltration rate = 0 in/hr at 3 Ft.
91.5	5	CL	[Diagonal lines symbol]	- with an abandoned gas service line at 5-1/2 Ft. Yellow-brown (10YR 5/8), moist, Lean CLAY [Clay per USDA]	- Moderate perched water seepage at 5-1/2 Ft.
89.5	10			Test pit complete at 8 Ft. due to perched water seepage.	- Offset by 3 Ft. - Rapid perched water seepage at 6 Ft.
	15				
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-3**

# LOG OF TEST PIT NO. TP-4

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **97.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
96.8	0		[Cross-hatch symbol]	8 In. of Topsoil	
			[Diagonal lines symbol]	FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with gravel [Sandy Loam per USDA] - Dark olive-brown (2.5Y 3/3) at 2 Ft.	- Infiltration rate = 1 in/hr at 3 Ft.
93.5	5	CL	[Diagonal lines symbol]	Dark yellow-brown (10YR 4/6) and gray-brown (10YR 5/2), moist, Sandy Lean CLAY with gravel [Sandy Clay per USDA]	
90.5	10	ML	[Vertical lines symbol]	Brown (10YR 4/3) and dark gray-brown (10YR 4/2), moist, Sandy SILT [Silt Loam per USDA]  - Very dark gray (10YR 3/1) at 11 Ft.	
82.5	15			Test pit complete at 15 Ft.	- Moderate perched water seepage at 7 Ft.
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-4**

# LOG OF TEST PIT NO. TP-5

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **96 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
95.3	0		[Cross-hatch symbol]	8 In. of Topsoil	- Infiltration rate = 1 in/hr at 1-1/2 Ft.  - Infiltration rate = 0 in/hr at 4 Ft.  - Slight trapped water seepage at 7 Ft.
			[Diagonal lines symbol]	FILL - Dark yellow-brown (10YR 4/4), moist, silty sand with gravel [Sandy Loam per USDA]	
92.0	5	CL	[Diagonal lines symbol]	Dark yellow-brown (10YR 4/4) and gray-brown (10YR 5/2), moist, Sandy Lean CLAY [Sandy Clay per USDA]  - wet at 7 Ft.	
86.0	10	ML	[Vertical lines symbol]	Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
81.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-5**



# LOG OF TEST PIT NO. TP-6

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **96 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
95.7	0		[Cross-hatch symbol]	4 In. of Topsoil	
94.7		ML	[Vertical lines symbol]	FILL - Dark yellow-brown (10YR 4/4), moist, silty sand with gravel [Sandy Loam per USDA] - with asphalt layer (4 In. in thickness) at 1 Ft.	- Infiltration rate = 0 in/hr at 2 Ft.  - Infiltration rate = 0 in/hr at 4 Ft. - Slight trapped water seepage at 5 Ft.
92.5		CL	[Diagonal lines symbol]	Yellow-brown (10YR 5/8), moist, Sandy SILT with gravel [Silt Loam per USDA]  Dark yellow-brown (10YR 3/4) and dark gray-brown (10YR 4/2), moist, Sandy Lean CLAY [Sandy Clay per USDA] - wet at 5 Ft.	
87.0	10	ML	[Vertical lines symbol]	Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
82.0	15			Test pit complete at 14 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-6**

# LOG OF TEST PIT NO. TP-7

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/2/2022**  
 DATE COMPLETED: **6/2/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **97.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
96.8	0		XXXXXX	8 In. of Topsoil	
96.0		ML		FILL - Dark yellow-brown (10YR 3/6), moist, silty sand with gravel and asphalt fragments [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 2-1/2 Ft. - Slight perched water seepage at 4-1/2 Ft.
				Dark yellow-brown (10YR 4/6), moist, Sandy SILT [Silt Loam per USDA]	
93.0	5	CL	//	Yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA]  - Dark gray-brown (10YR 4/2) at 6 Ft.	
87.5	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
82.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

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 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-7**




# LOG OF TEST PIT NO. TP-8

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **101 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
100.4	0			7 In. of Topsoil	
99.5				FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with asphalt fragments [Sandy Loam per USDA]	
98.5		SM		Dark brown (10YR 3/3), moist, Silty SAND [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 2 Ft.  - Rapid trapped water seepage at 4 Ft.
		CL		Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA]	
	5			- with gravel at 4 Ft.  - Dark gray-brown (10YR 4/2), gravel grades out at 5-1/2 Ft.	
	10				
90.0		ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
86.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-8**





# LOG OF TEST PIT NO. TP-9

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **101 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			FILL - Dark yellow-brown (10YR 4/6), moist, silty gravel with sand and cobbles [Gravelly Loam per USDA] - with asphalt layer on western side of test pit (4 In. in thickness) at 9 In.	
99.0		SM		Dark yellow-brown (10YR 3/3), moist, Silty SAND [Sandy Loam per USDA]	- Infiltration rate = 0.5 in/hr at 2 Ft. - Slight water seepage at 3-1/2 Ft. - Rapid trapped water seepage at 5-1/2 Ft.
98.0		CL		Dark yellow-brown (10YR 4/6), wet, Sandy Lean CLAY [Sandy Clay per USDA]  - Dark yellow-brown (10YR 4/6) and Light gray-brown (10YR 6/2), with gravel at 5-1/2 Ft. - Dark yellow-brown (10YR 4/6) and olive-brown (2.5Y 4/3) at 6 Ft.	
	5				
	10				
90.0		ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	- NMC = 29.3%
86.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.  
 Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**  
 14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-9**




# LOG OF TEST PIT NO. TP-10

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **101 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
99.0	0	CL		FILL - Dark yellow-brown (10YR 3/6), moist, silty gravel with sand [Gravelly Loam per USDA] - White (10YR 8/1), poorly-graded gravel [Gravel per USDA] at 9 In. - Dark olive-brown (2.5Y 3/3), moist, silty sand [Sandy Loam per USDA] with asphalt fragments at 1 Ft.	- Infiltration rate = 1.5 in/hr at 2-1/2 Ft. - Moderate trapped water seepage at 4-1/2 Ft.
	5			Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY with gravel [Sandy Clay per USDA]  - with a boulder at 5-1/2 Ft.  - Dark yellow-brown (10YR 4/6) and dark gray-brown (10YR 4/2) at 7 Ft.	
91.0	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
86.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



**GEO-TECHNOLOGY ASSOCIATES, INC.**

14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

**LOG OF TEST PIT NO. TP-10**

# LOG OF TEST PIT NO. TP-11

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **100.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
100.3	0			2 In. of Topsoil	
99.0		CL		FILL - Dark yellow-brown (10YR 3/6), moist, silty sand with gravel and cobbles [Sandy Loam per USDA] Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA]	- Infiltration rate = 0.5 in/hr at 3-1/2 Ft. - Slight trapped water seepage at 5 Ft.
	5			- Dark gray-brown (10YR 4/2) at 5 Ft.	
92.5		ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
85.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-11**


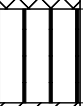
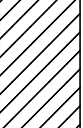
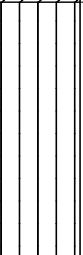
# LOG OF TEST PIT NO. TP-12

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **101 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
100.8	0			2 In. of Topsoil	- Infiltration rate = 0.5 in/hr at 3 Ft. - Moderate perched water seepage at 4 Ft.
99.0		MH		FILL - Dark yellow-brown (10YR 3/4), moist, silty sand with gravel, cobbles, and asphalt fragments [Sandy Loam per USDA] - with a metallic rod on southern sidewall at 6 In.	
96.5	5	CL		Brown (7.5YR 5/8), moist, Sandy Elastic SILT [Clay Loam per USDA]  Very dark gray (10YR 3/2), moist, Lean CLAY [Sandy Clay per USDA]	
93.0	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
86.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-12**

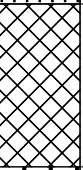
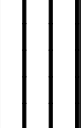

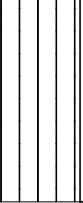
# LOG OF TEST PIT NO. TP-13

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **101.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
101.3	0			2 In. of Topsoil FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with gravel, cobbles, and half bricks [Sandy Loam per USDA] - with asphalt fragments at 2 Ft.	
97.0	5	MH		Brown (7.5YR 5/8), moist, Sandy Elastic SILT [Clay Loam per USDA]	- Infiltration rate = 0 in/hr at 4-1/2 Ft. - NMC = 28.9% - Moderate trapped water seepage at 6 Ft.
93.5		CL		Very dark gray-brown (10YR 3/2), moist, Lean CLAY [Clay per USDA]	
92.0	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
86.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-13**



# LOG OF TEST PIT NO. TP-14

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **103.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
103.2	0		[Dotted pattern]	4 In. of Topsoil	
102.0			[Cross-hatch pattern]	FILL - Brown (10YR 4/3), moist, silty gravel with sand	
		CL	[Diagonal lines /]	Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA]	
100.5		ML	[Vertical lines]	Light olive-brown (2.5YR 5/6), moist, Sandy SILT [Silt Loam per USDA] - Dark yellow-brown (10YR 4/6) with gravel at 4 Ft.	- Infiltration rate = 0.5 in/hr at 2-1/2 Ft. - NMC = 27.5% - Moderate trapped water seepage at 4-1/2 Ft.
97.5	5	CL	[Diagonal lines /]	Dark yellow-brown (10YR 4/6) and dark gray-brown (10YR 4/2), moist, Sandy Lean CLAY [Sandy Clay per USDA]	
94.5	10	MH	[Vertical lines]	Very dark gray (10YR 3/1), moist, Sandy Elastic SILT [Clay Loam per USDA]	
88.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-14**







# LOG OF TEST PIT NO. TP-15

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **6/1/2022**  
 DATE COMPLETED: **6/1/2022**  
 CONTRACTOR: **Heritage Contracting Company, Inc.**  
 EQUIPMENT: **CAT 308C CR**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **103 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
102.5	0			6 In. of Topsoil	
				FILL - Dark olive-brown (2.5Y 3/3), moist, silty sand with gravel and asphalt fragments [Sandy Loam per USDA]	
100.5				- with buried topsoil layer (6 In. in thickness) at 2 Ft.	
99.5		SM		Dark yellow-brown (10YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
		ML		Light olive-brown (2.5Y 5/6), moist, Sandy SILT [Silt Loam per USDA]	
97.5	5	SM		Dark yellow-brown (10YR 4/6), moist, Silty SAND with gravel [Sandy Loam per USDA]	- Infiltration rate = 0.5 at 5-1/2 Ft.
95.0		CL		Dark yellow-brown (10YR 4/6) and gray-brown (10YR 5/2), moist, Sandy Lean CLAY [Sandy Clay per USDA]	- Moderate perched water seepage at 7 Ft.
90.5	10				
		MH		Very dark gray (10YR 3/1), moist, Sandy Elastic SILT [Clay Loam per USDA]	
88.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-15**





# LOG OF TEST PIT NO. TP-101

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
99.2	0			4 In. of Topsoil	
				FILL - Dark yellow-brown (10YR 4/6), moist, Silty SAND with gravel [Sandy Loam per USDA]	
96.0	5	CL		Very dark gray-brown (10YR 3/2), moist, Sandy Lean CLAY [Sandy Clay per USDA]  - Dark yellow-brown (10YR 4/6) and dark gray (10YR 4/1) at 5-1/2 Ft.	- Infiltration rate = 0 in/hr at 7 Ft. - Slight perched water seepage at 8 Ft.
89.5	10	ML		Dark gray-brown (10YR 4/2), moist, Sandy SILT [Silt Loam per USDA]  - Very dark gray (10YR 3/1) at 11-1/2 Ft.	
84.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-101**

# LOG OF TEST PIT NO. TP-102

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
95.0	0		[Cross-hatch symbol]	FILL - Dark yellow-brown (10YR 3/4), moist, silty sand with gravel and asphalt fragments [Sandy Loam per USDA] - Dark olive-brown (2.5Y 3/3) at 2 Ft. - with a PVC pipe at 4 Ft.	
88.5	5	CL	[Diagonal lines symbol]	Yellow-brown (10YR 5/8) and olive-gray (5Y 4/2), moist, Sandy Lean CLAY [Sandy Clay per USDA] - Dark yellow-brown (10YR 4/6) and olive-brown (2.5Y 4/3) at 7-1/2 Ft.	- Infiltration rate = 0 in/hr at 7 Ft. - Slight trapped water seepage at 9 Ft.
84.5	10	ML	[Vertical lines symbol]	Very dark gray (10YR 3/1), moist, Sandy SILT with gravel [Silt Loam per USDA]	
84.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-102**

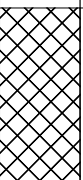


# LOG OF TEST PIT NO. TP-103

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
	0			FILL - Dark yellow-brown (10YR 4/4), moist, silty sand with gravel [Sandy Loam per USDA]	
94.5	5	CL		Dark yellow-brown (10YR 4/6) and brown (10YR 4/3), moist, Sandy Lean CLAY [Sandy Clay per USDA]	- Infiltration rate = 0 in/hr at 5-1/2 Ft.
91.5	10	ML		Dark gray-brown (10YR 4/2), moist, Sandy SILT [Silt Loam per USDA]  - Very dark gray (10YR 3/1) at 11 Ft.	- Slight trapped water seepage at 7-1/2 Ft.
84.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-103**

# LOG OF TEST PIT NO. TP-104

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99.5 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
0			[Cross-hatch symbol]	FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with gravel, bricks, and cobbles [Sandy Loam per USDA]  - Dark olive-brown (2.5Y 3/3) at 2 Ft.  - with boulder at 4 Ft.	
94.5	5	CL	[Diagonal lines symbol]	Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA]  - with gravel at 6-1/2 Ft.	- Infiltration rate = 0.25 in/hr at 6 Ft. - Slight trapped water seepage at 7 Ft.
91.0	10	ML	[Vertical lines symbol]	Brown (10YR 4/3) and dark gray-brown (10YR 4/2), moist, Sandy SILT [Silt Loam per USDA]  - Very dark gray (10YR 3/1) at 13 Ft.	
84.5	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-104**

# LOG OF TEST PIT NO. TP-105

Sheet 1 of 1

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **99 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
95.5	0		[Cross-hatched symbol]	FILL - Dark yellow-brown (10YR 4/6), moist, silty sand with gravel and cobbles [Sandy Loam per USDA] - Dark olive-brown (2.5Y 3/3) at 2 Ft.	
95.5	5	CL	[Diagonal hatched symbol]	Dark yellow-brown (10YR 4/6), moist, Sandy Lean CLAY [Sandy Clay per USDA] - with gravel at 5 Ft. - Dark yellow-brown (10YR 4/6) and gray-brown (10YR 5/2) at 5-1/2 Ft.	- Infiltration rate = 0.25 in/hr at 6 Ft. - Slight trapped water seepage at 7-1/2 Ft.
89.0	10	ML	[Vertical line symbol]	Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
84.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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**LOG OF TEST PIT NO. TP-105**

Sheet 1 of 1


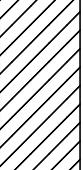

# LOG OF TEST PIT NO. TP-106

PROJECT: **Proposed Block 57, Lot 9.01**  
 PROJECT LOCATION: **East Windsor Township, Mercer County, New Jersey**  
 CLIENT: **Menlo Engineering Associates, Inc.**

PROJECT NO.: **31221171**

DATE STARTED: **7/27/2023**  
 DATE COMPLETED: **7/27/2023**  
 CONTRACTOR: **J.A. Neary Excavating, Inc.**  
 EQUIPMENT: **Case CX160**

GROUNDWATER ENCOUNTERED: **N/E**  
 GROUND SURFACE ELEVATION: **98 Ft.**  
 DATUM: **Topo**  
 LOGGED BY: **AFS**  
 CHECKED BY: **AMT**

ELEVATION (ft.)	DEPTH (ft.)	USCS	GRAPHIC SYMBOL	DESCRIPTION	REMARKS
97.8	0			3 In. of Topsoil FILL - Dark yellow-brown (10YR 4/4), moist, Silty SAND with gravel [Sandy Loam per USDA]	
93.0	5	CL		Dark yellow-brown (10YR 4/4) and gray-brown (10YR 5/2), moist, Sandy Lean CLAY [Sandy Clay per USDA]	- Infiltration rate = 0 in/hr at 5 Ft.  - Slight trapped water seepage at 7 Ft.
88.0	10	ML		Very dark gray (10YR 3/1), moist, Sandy SILT [Silt Loam per USDA]	
83.0	15			Test pit complete at 15 Ft.	
	20				
	25				
	30				

NOTES: **Location and elevation are approximate.**  
**Backfilled on completion.**



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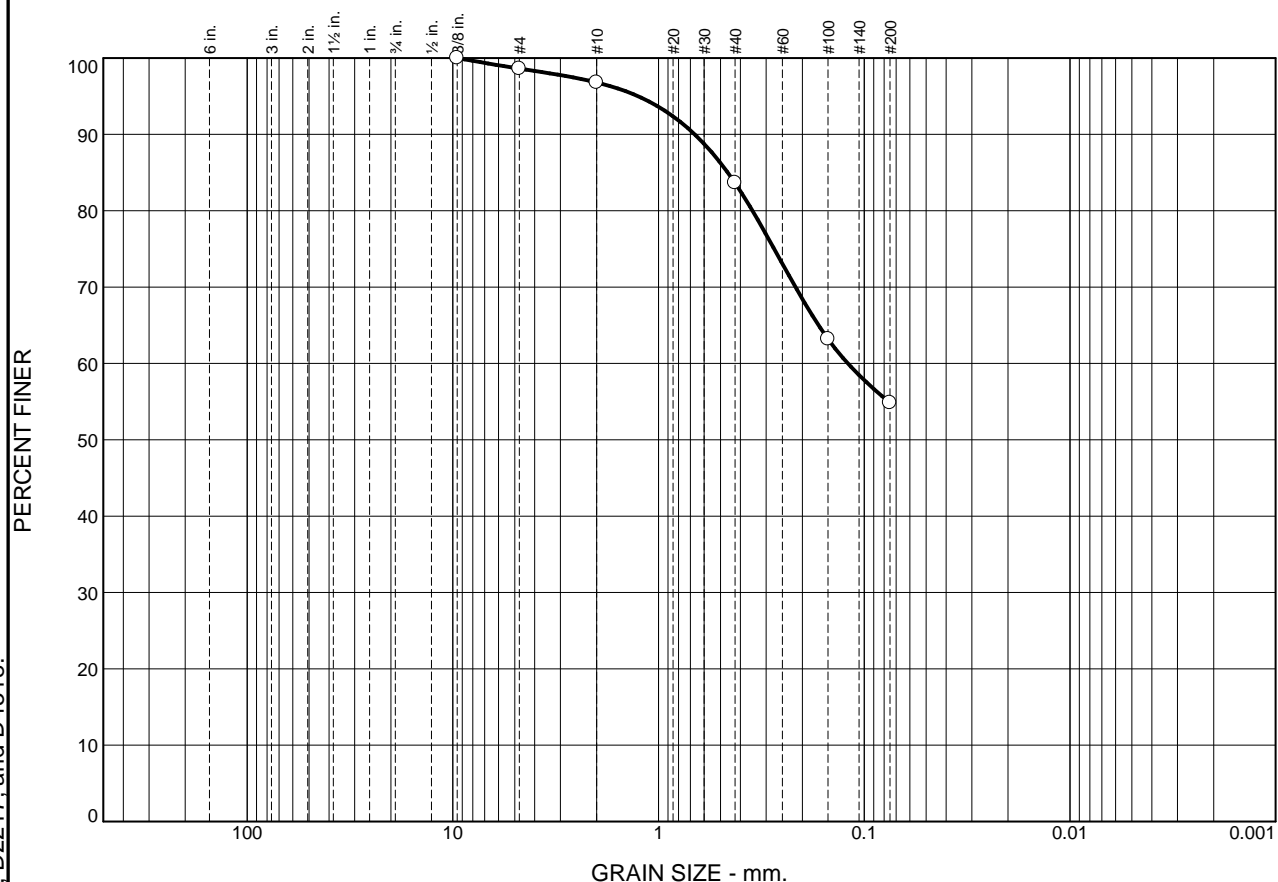
**LOG OF TEST PIT NO. TP-106**



# **APPENDIX C**

## **Laboratory Data**

# Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

GRAIN SIZE - mm.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	1.4	1.8	13.2	28.8	54.8	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
34.1	23.6	0.4610	0.1202						

Material Description						USCS	AASHTO
Sandy Lean CLAY						CL	A-4(3)

<b>Project No.</b> 31221171 <b>Client:</b> Menlo Engineering Associates, Inc. <b>Project:</b> Proposed Block 57, Lot 9.01  <input type="radio"/> <b>Source of Sample:</b> TP-1 <b>Depth:</b> 4.5	<b>Remarks:</b> ONMC = 21.4 %
GEO-TECHNOLOGY ASSOCIATES, INC. 14 Worlds Fair Drive, Suite A Somerset, NJ 08873	

Figure

**Tested By:** DRC                      **Checked By:** AFS

# Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	0.3	31.5	68.2	

LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
34.6	28.0	0.1086							

Material Description						USCS	AASHTO
○ Sandy SILT						ML	A-4(4)

<p><b>Project No.</b> 31221171    <b>Client:</b> Menlo Engineering Associates, Inc.  <b>Project:</b> Proposed Block 57, Lot 9.01</p> <p>○ <b>Source of Sample:</b> TP-9    <b>Depth:</b> 11</p>	<p><b>Remarks:</b>                  ○ NMC = 29.3 %</p>
GEO-TECHNOLOGY ASSOCIATES, INC. 14 Worlds Fair Drive, Suite A Somerset, NJ 08873	

**Figure**

**Tested By:** CH                      **Checked By:** AFS



# Particle Size Distribution Report



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

% +3"	% Gravel		% Sand			% Fines			
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay		
0.0	0.0	5.3	3.1	7.3	28.0	56.3			
LL	PL	D85	D60	D50	D30	D15	D10	Cc	Cu
NV	NV	0.4826	0.1389						

Material Description	USCS	AASHTO
<input type="radio"/> Sandy SILT	ML	A-4(0)

**Project No.** 31221171      **Client:** Menlo Engineering Associates, Inc.  
**Project:** Proposed Block 57, Lot 9.01  
  
 **Source of Sample:** TP-14      **Depth:** 4

**Remarks:**  
 ONMC = 27.5 %

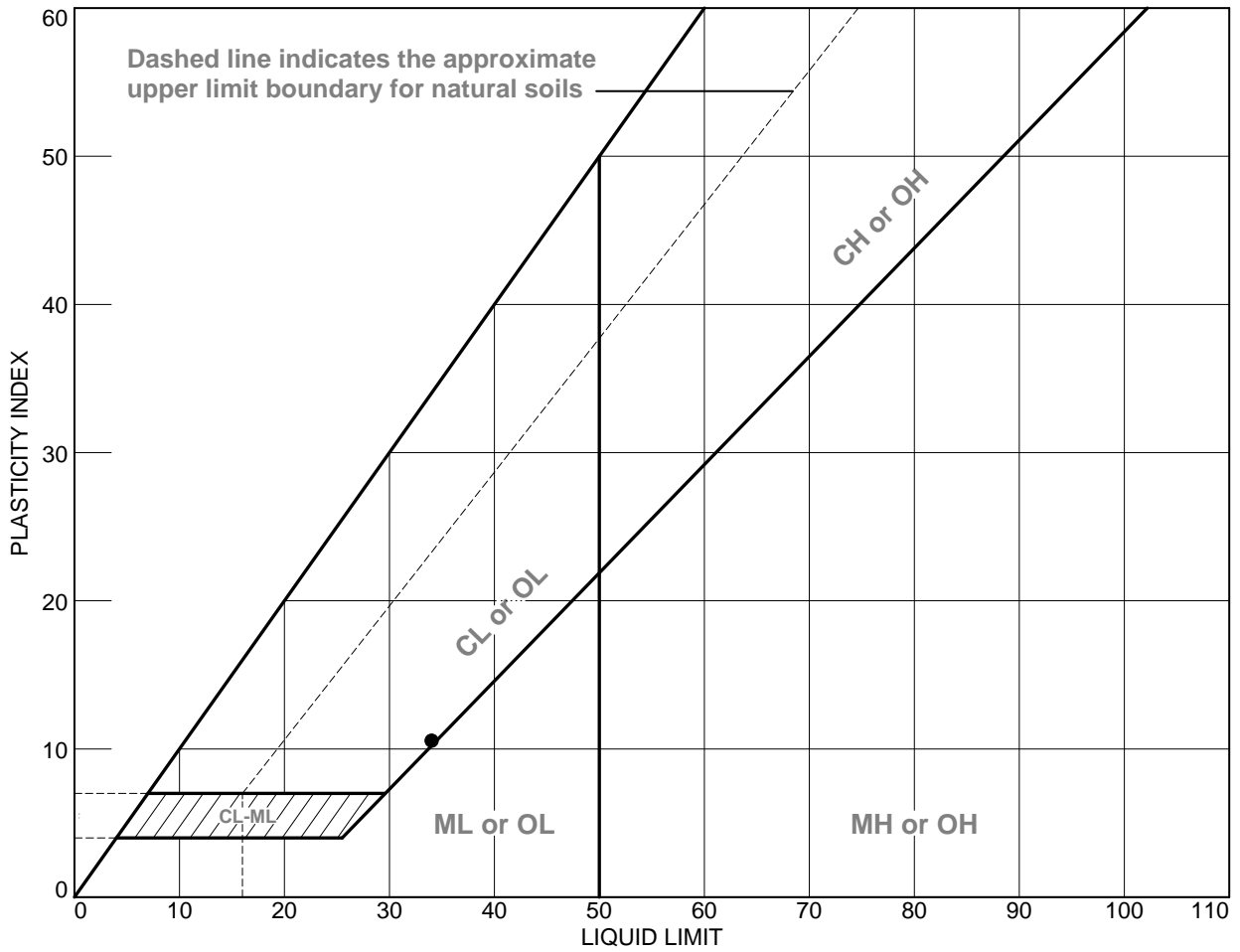


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**Figure**

**Tested By:** CH      **Checked By:** AFS

# LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-1		4.5	21.4	23.6	34.1	10.5	CL



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 Somerset, NJ 08873

**Client:** Menlo Engineering Associates, Inc.  
**Project:** Proposed Block 57, Lot 9.01

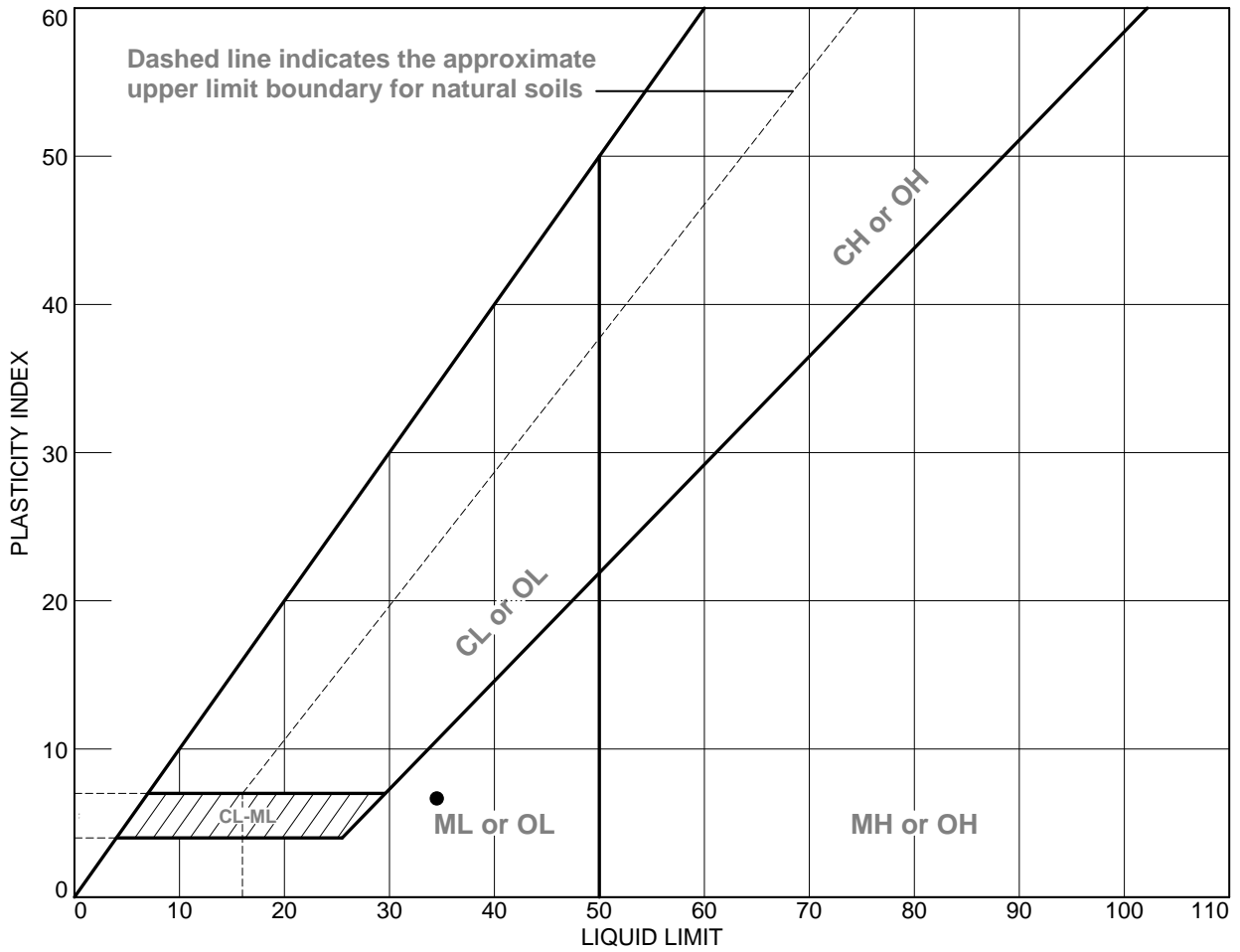
**Project No.:** 31221171

**Figure**

**Tested By:** DRC

**Checked By:** AFS

# LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-9		11	29.3	28.0	34.6	6.6	ML



**GEO-TECHNOLOGY ASSOCIATES, INC.**  
 14 Worlds Fair Drive, Suite A  
 Somerset, NJ 08873

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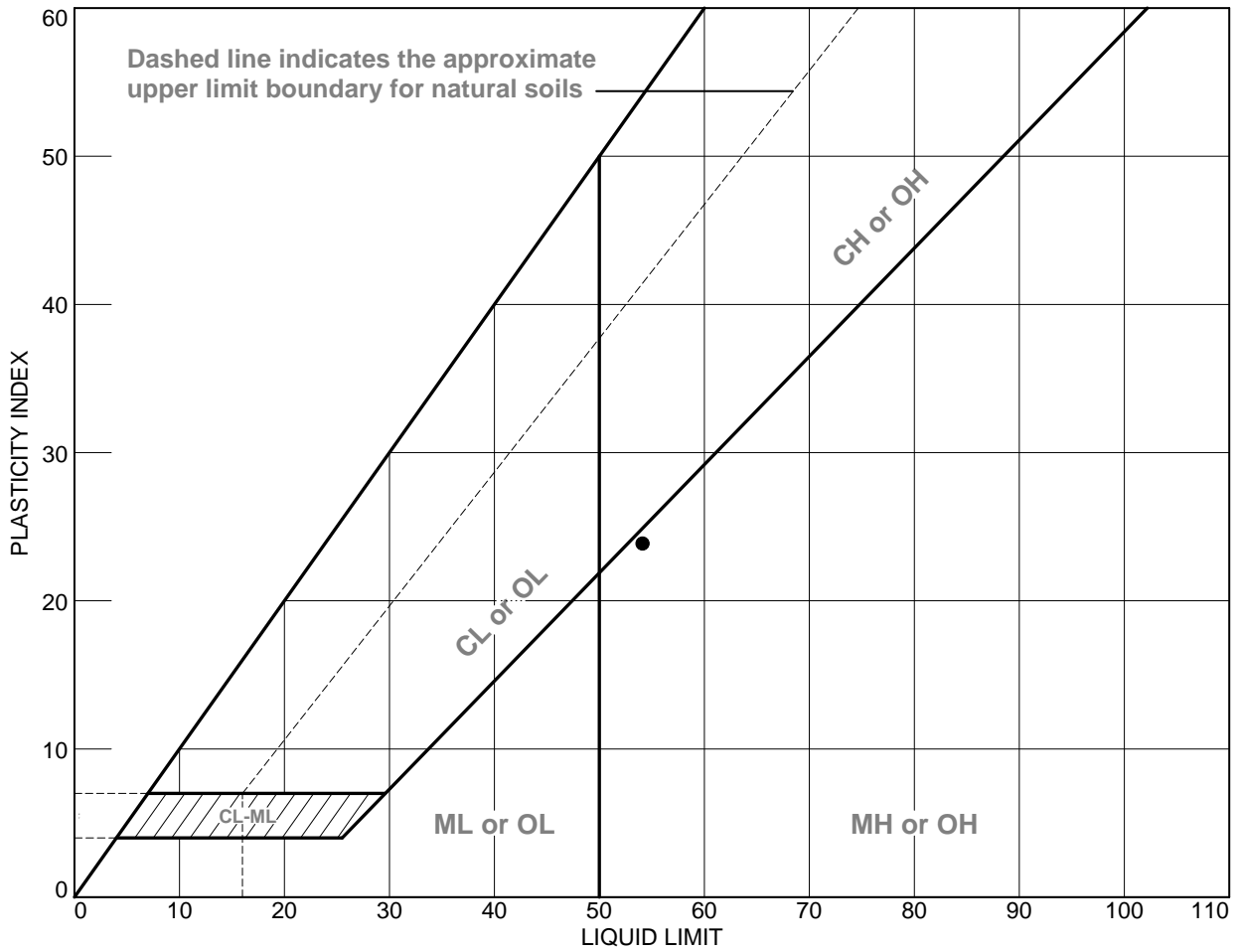
**Project No.:** 31221171

**Figure**

Tested By: DC

Checked By: AFS

# LIQUID AND PLASTIC LIMITS TEST REPORT - ASTM D4318



ASTM Specifications performed my include: D421, D422, D2216, D2217, and D4318.

SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	TP-13		4.5	28.9	30.4	54.2	23.8	MH



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**Project No.:** 31221171

**Figure**

**Tested By:** DRC

**Checked By:** AFS