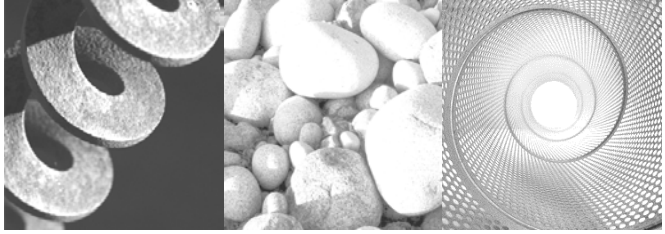
PRELIMINARY ASSESSMENT FOR MAINTENANCE DREDGING SEARSPORT HARBOR FEDERAL NAVIGATION PROJECT - SEARSPORT, MAINE

APPENDIX D

CAD CELL INVESTIGATION REPORT

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GEI Consultants

Consulting
Engineers and
Scientists

Report of Geotechnical Explorations

Subsurface Exploration and Site Characterization, Searsport Harbor

Confined Aquatic Disposal (CAD) Cells
Searsport, Maine

U.S. Army Corps of Engineers
Contract No. W912WJ-21-D-0001

Submitted to:
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New England District
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Project 2400096



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1. Introduction

1.1 Purpose

This report presents the results of the marine subsurface exploration program at the Mack Point area of the Searsport Harbor Federal Navigation Project (FNP). The work was conducted by GEI Consultants, Inc. for the U.S. Army Corps of Engineers, New England District (USACE-NAE).

The explorations will support the design and construction of Confined Aquatic Disposal (CAD) cells, for subaqueous storage of dredge sediments, from Searsport Harbor, Maine.

1.2 Authorization

Ms. Erin Bradley of the USACE-NAE authorized our work on December 13, 2021, by a signed USACE Contract W912WJ-21-D-0001 and task order number W912WJ24F0010, dated December 21, 2023, between GEI and USACE-NAE.

1.3 Scope of Work

We performed the following field preparation work for the explorations:

- Reviewed and evaluated available published geologic data and existing subsurface exploration data from previous explorations by others.
- Prepared a Work Plan, Accident Prevention Plan (APP) and Tidal Correction Plan, including a plan showing proposed locations of our geotechnical borings.
- Driller notified DigSafe and a Local Notice to Mariners form was submitted to the U.S. Coast Guard.
- Held a kick-off meeting to review coordination requirements, project schedule, walkthrough of Work Plan and health and safety procedures outlined in the APP.

We performed the following exploration work:

- Engaged New England Boring Contractors (NEBC) to drill 12 borings over water from a spud barge.
- Coordinated the drilling and provided full-time observation of the borings.

We performed the following laboratory testing on soil samples collected from the borings:

- 33 grain size distribution tests including hydrometer [ASTM D6913 and ASTM D7928]
- 31 Atterberg limits test [ASTM D4318]
- 42 moisture contents [ASTM D2216]
- 32 specific gravity [ASTM D854]
- 29 organics content tests [ASTM D2974]
- 25 classifications of organic clay and organic silt following methodology outlined in ASTM D2487, paragraph 3.1.3 and 3.1.4.

We completed this report of geotechnical explorations presenting the results of the geotechnical explorations, subsurface conditions and laboratory testing.

2. Site and Project Description

2.1 Site Description

The project site is the Mack Point area of the Searsport Harbor. The Federal channel extends from deep water in Penobscot Bay to the terminal berths at Mack Point near Searsport, Maine. Water depths in the investigation area of Searsport Harbor typically range from approximately 20 feet to 35 feet. The mean tide range in Searsport Harbor is approximately 10.2 feet from Mean Lower Low Water (MLLW) to mean higher high water (MHHW). A Site Location Map is included as Fig. 1.

2.2 Project Description

We understand that the purpose of the project is to obtain geotechnical information to be used in the design of CAD cells for disposal of maintenance dredging material from the Searsport Harbor FNP area, which will be presented in the Dredged Material Management Program (DMMP).

The marine subsurface exploration program consisted of 12 exploratory borings with standard penetration tests (SPT) to evaluate the sediment and overburden soils and collect samples to perform geotechnical laboratory testing. The borings were performed on the water using a marine plant consisting of a spud barge and a support boat.

The key elements of the field exploration program were as follows:

1. Searsport Harbor - Advanced all 12 borings to El. -76 feet MLLW. The typical water column in the drilling area was 20 to 35 feet, therefore the borings extended approximately 41 to 56 feet into the harbor sediments or to refusal, whichever came first.

2.3 Elevation and Horizontal Datums

All horizontal locations are reported on the logs referencing the Maine East, ME 1801 NAD83 datum in US survey feet. Elevations of the water levels were obtained from the National Oceanic and Atmospheric Administration (NOAA) Tidal Elevation webpage for Station 8413320, Bar Harbor, Maine. The datum for NOAA elevations was MLLW.

2.4 Site Geology

Based on the U.S. Geological Survey Surficial Geology of the Searsport Quadrangle, Maine, by Woodrow Thomson, dated 2014, the surficial soils in the area generally consist of

Presumpscot Formation and Till. The Presumpscot Formation is a glaciomarine silt, clay and sand deposit (Maine's "Blue Clay") with shelly horizons. The Presumpscot Formation overlies an irregular surface of Till in a complex manner. The Till is described as a loose to very compact, poorly sorted, massive to weakly stratified mixture of sand, silt and gravel-size rock debris deposited by glacial ice. Till in Searsport quadrangle reaches a thickness of 85 feet or more.

The U.S. Geological Survey Bedrock Geologic Map of Maine (Osberg et al. 1985) identifies the bedrock at the project vicinity shoreline as Penobscot Formation. Osberg et al. described the formation as wide range of volcanic and marine sedimentary rocks that have metamorphosed to schist, gneiss, and marble.

2.5 Previous Boring Data

Previous borings were performed in and around Mack Point by S.W. Cole for Moffatt & Nichol in June 2023, for the Sprague Terminal Facility's Mack Point expansion project. S.W. Cole performed the land borings and engaged NEBC to drill the marine borings from a barge. The four marine borings were drilled to depths ranging from around 54.5 feet to 90 feet below mudline, while the three land borings were advanced to a depth of 42 feet below ground surface. The subsurface conditions encountered by the marine borings included:

- Bay Mud - characterized by very soft, gray, wet, silty clay with an organic odor, found to depths ranging between 2 feet and 15 feet below the mudline. Blow counts in the bay mud were typically recorded as Weight of Rod (WOR). In the boring performed closer to shore, this material was medium dense and coarser.
- Glacial Marine Sediment - S.W. Cole did not delineate a separate soil stratum between the bay mud and glacial till on the boring logs, but an approximately 5- to 10-foot-thick layer of silty sand, silty clay, or sand and gravel was indicated in some of the borings below the bay mud.
- Glacial Till - consisted of very dense, gray, wet, gravelly sand and silt, found beneath the layer of bay mud extending to depths between 45 feet and 68 feet below the mudline.
- Bedrock - characterized as dark gray schist with some calcite veins, hard, fresh to lightly weathered, identified as 'Penobscot Formation,' found beneath the layer of glacial till (and in one borehole beneath a 5-foot-thick layer of weathered bedrock) to the bottoms of the explorations. Elevation of the top of bedrock ranged from El. -67 to -92 feet MLLW.

3. Subsurface Explorations and Testing

3.1 2024 Borings

GEI engaged NEBC to perform 12 soil borings (FD24-01 through FD24-12) between April 16, 2024, and April 30, 2024. Boring locations are shown in Fig. 2. The final boring logs are provided in Appendix A, and the field boring logs are provided in Appendix B. A summary of the boring locations is presented in Table 1.

NEBC engaged Prock Marine to provide a flat deck barge, approximately 48 feet wide and 120 feet long, with 55-foot-long spuds for the borings. The borings were performed using a D-30 (S/N-43680) skid drill rig mounted to the deck of the spud barge. The borings were performed from a moon well in a platform constructed off the stern of the barge that extended 10 feet off the stern. The borings were advanced using 4-inch-minimum-diameter, driven, flush joint steel casing and rotary wash drilling techniques (ASTM D5783). Casing was extended through the water column and into the subsurface materials. Many samples were collected "open hole," where the roller bit was advanced beyond the casing to the next sampling interval, as indicated in the boring logs.

The borings in the Mack Point area were drilled to elevations -75 to -77 feet MLLW. The borings were terminated when the required elevation was achieved. No refusal was encountered. Refusal of the sampling spoon for the purposes of this project was defined as 100 blows per 6 inches of penetration or bouncing refusal.

Mudline elevations at the boring locations were estimated from the measured depths to mudline below the water level and the tide elevations from the NOAA Tides and Currents for the Bar Harbor, ME Station No. 8413320. For each boring, the most representative and repeatable mudline elevation from all the measurements recorded in the tidal correction log was used and rounded to the nearest half foot. The locations of the borings were surveyed by GEI using a Trimble DA2 Real Time Kinematic (RTK) survey instrument. Upon completion, the borings were backfilled with soil cuttings.

The GEI field engineer was present on a full-time basis to document the position of the barge, document the as-drilled location of each boring, log the borings, classify and photograph soil samples, and observe the performance of the SPTs.

Daily field reports prepared by GEI providing a summary of the daily operations, communications, and personnel are presented in Appendix E. Daily safety meeting sheets and daily tidal correction logs are presented in Appendix F and Appendix G, respectively.

3.1.1 Standard Penetration Tests

SPTs were performed in general accordance with ASTM Standard D1586. A 140-pound automatic hammer was used to drive the standard 24-inch long, 2-inch-O.D. split-spoon sampler over a 30-inch drop. Split-spoon sampling was performed continuously in the borings to El. -76 feet MLLW.

A SPT Energy Measurement Calibration Report for the D-30 drill rig automatic hammer performed in November 2023, and provided by NEBC, is presented in Appendix H. The average hammer efficiency measured is reported as 82%, resulting in an energy correction factor (C_n) of C_n =1.37. Field (uncorrected) SPT N-values and SPT N-values corrected for energy (N_{60}) are shown on the boring logs in Appendix A.

3.1.2 Soil Sampling

Soil samples were classified using the Unified Soil Classification System (USCS) as defined in ASTM Standards D2487 and D2488. The SPT N value, penetration, and recovery were recorded for each split spoon sample. All but seven split spoon soil samples were photographed, as presented in Appendix C.

Field torvane and pocket penetrometer tests were performed in the field on cohesive soil samples, as noted in the logs.

Split spoon samples were placed in plastic bags inside glass jars. The tops of the jars were sealed with electrical tape around the lid to preserve natural moisture content. Soil samples were transported to our lab in Woburn, Massachusetts. An engineer or geologist checked soil classifications at GEI's laboratory in general accordance with ASTM D2488.

3.2 Deviations from Work Plan

In general, the borings were completed in accordance with the approved Work Plan and the USACE-NAE was notified of all changes.

NEBC used a D-30 (S/N 43680) marine barge drill rig with an automatic hammer; which was different than the proposed drill rig (CME 45C) presented in the Work Plan.

After reviewing the subsurface data from the first three borings, FD24-01, -07 and -10, the USACE-NAE requested the remaining nine borings be relocated to define the transitions to denser material, since softer organic silt over glaciomarine clay had been found down to El -76 ft MLLW. The remaining locations in the proposed Mack Point CAD cell (FD24-02 thru -06) were moved approximately 50 feet outside the CAD cell footprint. The remaining locations in the southern channel proposed CAD cell (FD24-08, -09, -11 and -12) were also moved to the corners of the CAD cell footprint.

We relocated the nine boring locations per the USACE-NAE request and used the GPS to navigate to the shifted locations. Due to the relocation, borings FD24-02 through -06, -08, -09, -11 and -12 were not performed within 25 feet of the planned coordinates in the Work Plan. At the proposed Mack Point CAD cell, the relocated borings were performed 110 to 275 feet from the planned coordinates in the Work Plan, and in the southern channel proposed CAD cell the relocated borings were performed 76 to 95 feet from the planned coordinates in the Work Plan (Table 1).

4. Subsurface Conditions

The soil layers encountered in the borings are described below, beginning at the mudline and proceeding downward. The subsurface conditions are known only at the boring locations. The subsurface conditions at other locations may vary significantly from those described below. These variations may not become evident until construction. A summary of subsurface conditions is presented in Table 2.

Bay Sediment: An approximately 9- to 25-foot-thick layer of bay sediment was encountered at the mudline in all borings, with an average thickness of about 14 feet. The bay sediment consisted of very soft to soft, black to gray, organic silt (OL, OH) and organic clay (OL, OH) with organic fibers and wood fragments. See Photos No. 54 and 238 in Appendix C for reference. A strong, marine-like, organic odor was observed in most soil samples collected in this stratum. The field N-values ranged from Weight of Rod (WOR) to 4 blows per foot (bpf) material, indicating a very soft to soft material.

Glacial Marine Sediment: A layer of glacial marine sediment, associated with the Presumpscot Formation, was encountered below the bay sediment in all borings. All borings except FD24-02, FD24-07, and FD24-09 were terminated in this layer. The thickness of the stratum ranged from approximately 23 to 38 feet. This layer consisted generally of lean clay (CL) with low to high plasticity and with occasional traces of shell, sand, and gravel. The upper half of the stratum is generally stiff with field N-values ranging from 2 to 18 bpf, and the lower half being very soft with field N-values typically WOR. For the stiff clay, see Photo Nos. 35 and 188 for reference. For the soft clay, see Photo Nos. 123 and 148 for reference.

Seams of silty sand (SM) was encountered in FD24-04 samples S15 and S16 at depths of 28 to 30.5 feet, and sandy lean clay (CL) in FD24-06 samples S15 and S16 at depths of 29 to 32 feet, see Photos 91, 92, and 142.

Glacial Till: Glacial till was encountered below the glacial marine sediment in FD24-02, FD24-07, and FD24-09 only. The glacial till ranged from approximately 1.5 to 7.5 feet thick, though none of the borings located the bottom of this layer. The field SPT N-values in the glacial till ranged from 7 to 22 bpf indicating a medium stiff to medium very stiff soil. The glacial till layer consisted of gray, unstratified sandy lean clay (CL) with gravel, or clayey gravel with sand (GC-GM), with varying amounts of silt. See Photos No. 51 and 214 for reference.

5. Laboratory Testing

Soil samples were selected to represent the varying lithology encountered during the subsurface explorations. We coordinated with the USACE-NAE by submitting a list of proposed samples for laboratory analysis, for review and approval. Index testing was performed at the GEI lab in Woburn, Massachusetts. A summary of index testing results is included in Table 3. Index testing results are shown in Appendix D.

We performed the following laboratory tests:

- 33 grain size distribution tests including hydrometer analyses in accordance with ASTM D6913 and ASTM D7928.
- 31 Atterberg limits in general accordance with ASTM D4318. Samples were prepared using the wet method.
- 42 moisture content tests outlined in ASTM D2216.
- 32 specific gravity tests outlined in D854.
- 29 organic content tests in general accordance with ASTM D2974.
- 25 classifications of organic clay and organic silt following methodology outlined in ASTM D2487, paragraph 3.1.3 and 3.1.4.

As indicated below, we did not perform 16 assigned index tests because there was not enough sample available to perform the test, after completing the other assigned tests.

Boring	Sample	Index Tests Not Performed
FD24-01	S7	Specific Gravity
	S10	Specific Gravity
FD24-02	S10	Specific Gravity
FD24-03	S8	Combined Sieve and Hydrometer
FD24-04	S7 (17-24”)	Atterberg Limits
	S11	Atterberg Limits
FD24-06	S6	Specific Gravity
	S8 (9-18")	Atterberg Limits
	S15 (12-24")	Atterberg Limits
FD24-07	S3	Atterberg Limits
FD24-08	S4	Atterberg Limits, Combined Sieve and Hydrometer
	S16	Atterberg Limits, Organic Content

Tables

Table 1: Proposed and As-Drilled Boring Locations
Subsurface Exploration and Site Characterization, Searsport Habor, Searsport, Maine

Boring No.	Date Drilled	Proposed Coordinates		As-Drilled Coordinates		Distance from Proposed Coordinates (ft)	Proposed Termination Elevation (MLLW)	As-Drilled Mudline (MLLW)	Total Depth Drilled below Mudline (ft)	Boring Final El. (MLLW)
		Northing	Easting	Northing	Easting					
FD24-01	4/16 & 4/17	285021	879598	285019	879596	3	-76	-26.1	50.0	-76.1
FD24-02	4/22	285072	879522	285221	879399	193	-76	-22.9	54.0	-76.9
FD24-03	4/24 & 4/25	285103	879598	285235	879839	275	-76	-26.1	50.0	-76.1
FD24-04	4/25	285072	879676	285021	879809	143	-76	-27.3	48.0	-75.3
FD24-05	4/29	284985	879676	284836	879791	188	-76	-26.7	50.0	-76.7
FD24-06	4/24	284938	879598	284832	879625	110	-76	-28.4	48.0	-76.4
FD24-07	4/17	284985	879522	284984	879522	1	-76	-24.8	52.0	-76.8
FD24-08	4/26	283693	880117	283751	880052	87	-76	-37.1	38.0	-75.1
FD24-09	4/29 & 4/30	283692	880288	283755	880354	91	-76	-38.5	38.0	-76.5
FD24-10	4/18	283608	880203	283611	880205	4	-76	-36.7	40.0	-76.7
FD24-11	4/30	283518	880116	283473	880056	76	-76	-36.8	40.0	-76.8
FD24-12	4/18 & 4/19	283524	880286	283460	880356	95	-76	-38.0	38.0	-76.0

Notes: 1. Coordinates are listed in U.S. Feet and reference ME 1801 NAD83. Elevations are listed in feet and reference Mean Lower Water (MLLW) datum.

Table 2: Subsurface Summary
Subsurface Exploration and Site Characterization, Searsport Habor, Searsport, Maine

Boring No.	As-Drilled Coordinates		Proposed Termination Elevation (MLLW)	As-Drilled Mudline (MLLW)	Total Depth Drilled below Mudline (ft)	Boring Final El. (MLLW)	Overburden Strata Thickness			Total Overburden Thickness (ft)
	Northing	Easting					Bay Sediment	Glacial Marine Sediment	Glacial Till	
FD24-01	285019	879596	-76	-26.1	50	-76.1	14.0	36.0	-	>50
FD24-02	285221	879399	-76	-22.9	54	-76.9	15.2	31.3	7.5	>54
FD24-03	285235	879839	-76	-26.1	50	-76.1	12.3	37.7	-	>50
FD24-04	285021	879809	-76	-27.3	48	-75.3	13.4	34.6	-	>48
FD24-05	284836	879791	-76	-26.7	50	-76.7	17.5	32.5	-	>50
FD24-06	284832	879625	-76	-28.4	48	-76.4	24.8	23.2	-	>48
FD24-07	284984	879522	-76	-24.8	52	-76.8	13.2	37.3	1.5	>52
FD24-08	283751	880052	-76	-37.1	38	-75.1	10.7	27.3	-	>38
FD24-09	283755	880354	-76	-38.5	38	-76.5	9.0	28.3	0.8	>38
FD24-10	283611	880205	-76	-36.7	40	-76.7	10.7	29.3	-	>40
FD24-11	283473	880056	-76	-36.8	40	-76.8	12.3	27.7	-	>40
FD24-12	283460	880356	-76	-38.0	38	-76.0	10.5	27.5	-	>38

Notes: 1. Coordinates are listed in U.S. Feet and reference ME 1801 NAD83. Elevations are listed in feet and reference Mean Lower Water (MLLW) datum.
2. ">" indicates the total overburden thickness is greater than measured thickness, since refusal was not encountered, and/or bedrock not defined.

Table 3: Geotechnical Laboratory Testing Results
Subsurface Exploration and Site Characterization, Searsport Habor, Searsport, Maine

Boring No.	Sample No.	Depth (ft)	Water Content (%)	Organic Content (%)	Specific Gravity	LL (%)	PL (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Laboratory Log and Soil Description
FD24-01	S7	12-14	40.4	3.2	--	51	36	0	15.3	65.7	19.0	ORGANIC SOIL (OH)
	S7 (Oven-Dry) - see note 1	12-14	40.4	--	--	34	--	--	--	--	--	ORGANIC SOIL (OH)
	S10	18-20	25.6	1.4	--	27	17	0	1.1	63.6	35.3	LEAN CLAY (CL)
	S10 (Oven-Dry) - see note 1	18-20	25.6	--	--	27	--	--	--	--	--	LEAN CLAY (CL)
	S23	44-46	42.4	1.7	2.71	38	21	0	1.2	45.2	53.6	LEAN CLAY (CL)
	S23 (Oven-Dry) - see note 1	44-46	42.4	--	--	34	--	--	--	--	--	LEAN CLAY (CL)
FD24-02	S6	10-12	97.8	4.9	--	67	32	0	7.6	55.6	36.8	ORGANIC SOIL (OH)
	S6 (Oven-Dry) - see note 1	10-12	97.8	--	--	43	--	--	--	--	--	ORGANIC SOIL (OH)
	S10	18-20	27.0	1.1	--	35	19	0	0.8	41.7	57.5	LEAN CLAY (CL)
	S10 (Oven-Dry) - see note 1	18-20	27	--	--	33	--	--	--	--	--	LEAN CLAY (CL)
	S16	30-32	40.5	--	2.78	40	21	--	--	--	--	LEAN CLAY (CL)
	S24	46-48	10.6	--	2.76	--	--	19.4	29.5	36.8	14.3	SANDY LEAN CLAY WITH GRAVEL (CL)
FD24-03	S3	4-6	114.5	5.9	--	95	35	0	3.6	50.3	46.1	ORGANIC SOIL (OH)
	S3 (Oven-Dry) - see note 1	4-6	114.5	--	--	48	--	--	--	--	--	ORGANIC SOIL (OH)
	S8	14-16	23.8	0.5	2.77	27	17	--	--	--	--	LEAN CLAY (CL)
	S8 (Oven-Dry) - see note 1	14-16	23.8	--	--	26	--	--	--	--	--	LEAN CLAY (CL)
	S18	34-36	42.3	--	2.74	44	22	--	--	--	--	LEAN CLAY (CL)
	S25 (20-24")	48-50	22.5	--	2.74	--	--	1.2	21.2	48.4	29.2	LEAN CLAY WITH SAND (CL)
FD24-04	S2	2-4	110.5	5.9	--	94	33	--	--	--	--	ORGANIC SOIL (OH)
	S2 (Oven-Dry) - see note 1	2-4	110.5	--	--	53	--	--	--	--	--	ORGANIC SOIL (OH)
	S7 (17-24")	12-14	29.4	--	2.65	--	--	3.9	42.5	47.2	6.4	SANDY SILT (ML)
	S11	20-22	47.1	2.5	2.73	--	--	0	5.4	71.0	23.6	LEAN CLAY (CL) - See Note 2
	S15	28-30	15.8	--	2.68	--	--	13	67.3	15.3	4.4	SILTY SAND (SM)
FD24-05	S6	10-12	82.2	3.9	2.72	71	27	0.4	5.3	60.9	33.4	ORGANIC SOIL (OH)
	S6 (Oven-Dry) - see note 1	10-12	82.2	--	--	43	--	--	--	--	--	ORGANIC SOIL (OH)
	S17	32-34	28.1	1.4	2.78	36	20	0	0.6	45.4	54.0	LEAN CLAY (CL)
	S17 (Oven-Dry) - see note 1	32-34	28.1	--	--	32	--	--	--	--	--	LEAN CLAY (CL)
	S22	42-44	39.6	1.4	2.77	48	24	0	2.2	28.0	69.8	LEAN CLAY (CL)
	S22 (Oven-Dry) - see note 1	42-44	39.6	--	--	41	--	--	--	--	--	LEAN CLAY (CL)
FD24-06	S6	10-12	82.2	3.2	--	73	31	--	--	--	--	ORGANIC SOIL (OH)
	S6 (Oven-Dry) - see note 1	10-12	82.2	--	--	45	--	--	--	--	--	ORGANIC SOIL (OH)
	S8 (9-18")	14-16	29.4	0.7	--	--	--	0.2	29.8	66.1	3.9	SANDY LEAN CLAY (CL) - See Note 2
	S11	20-22	40.0	2.0	2.68	30	21	--	--	--	--	ORGANIC SOIL (OL)
	S11 (Oven-Dry) - see note 1	20-22	40.0	--	--	22	--	--	--	--	--	ORGANIC SOIL (OL)
	S15 (12-24")	28-30	38.6	--	2.73	--	--	0.2	30.9	55.6	13.3	SANDY LEAN CLAY (CL)
FD24-07	S3	4-6	99.6	5.4	2.60	--	--	0.8	2.8	51.4	45.0	ORGANIC SOIL (OL) - See Note 3
	S9	16-18	24.2	1.4	2.76	31	17	0	1.0	56.8	42.2	LEAN CLAY (CL)
	S9 (Oven-Dry) - see note 1	16-18	28.1	--	--	28	--	--	--	--	--	LEAN CLAY (CL)
	S18	34-36	42.7	--	--	40	21	--	--	--	--	LEAN CLAY (CL)
	S26	50-52	10.1	--	2.72	--	--	15.9	34.2	38.7	11.2	SANDY LEAN CLAY WITH GRAVEL (CL)

Table 3: Geotechnical Laboratory Testing Results
Subsurface Exploration and Site Characterization, Searsport Habor, Searsport, Maine

Boring No.	Sample No.	Depth (ft)	Water Content (%)	Organic Content (%)	Specific Gravity	LL (%)	PL (%)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Laboratory Log and Soil Description
FD24-08	S4	6-8	86.7	5.9	2.69	--	--	--	--	--	--	ORGANIC SOIL (OL) - See Note 3
	S9	16-18	24.6	0.8	2.78	29	19	0	1.2	62.9	35.9	LEAN CLAY (CL)
	S9 (Oven-Dry) - see note 1	16-18	24.6	--	--	26	--	--	--	--	--	LEAN CLAY (CL)
	S16	30-32	40.4	--	2.81	--	--	0	1.0	28.8	70.2	LEAN CLAY (CL)
FD24-09	S2	2-4	93.3	4.5	--	81	29	0	4.6	53.4	42.0	ORGANIC SOIL (OH)
	S2 (Oven-Dry) - see note 1	2-4	93.3	--	--	48	--	--	--	--	--	ORGANIC SOIL (OH)
	S10	18-20	30.6	--	2.78	44	19	0.1	1.2	35.1	63.6	LEAN CLAY (CL)
	S15	28-30	40.5	--	2.77	39	19	--	--	--	--	LEAN CLAY (CL)
	S19 (15-24")	36-38	7.7	--	2.76	20	15	36.2	32.5	22.7	8.6	SILTY CLAYEY GRAVEL WITH SAND (GC-GM)
FD24-10	S4	6-8	105.2	5.4	2.68	95	32	0	4.5	52.3	43.2	ORGANIC SOIL (OH)
	S4 (Oven-Dry) - see note 1	6-8	105.2	--	--	52	--	--	--	--	--	ORGANIC SOIL (OH)
	S10	18-20	26.3	1.2	2.76	31	16	0	0.8	56.1	43.1	LEAN CLAY (CL)
	S10 (Oven-Dry) - see note 1	18-20	26.3	--	--	28	--	--	--	--	--	LEAN CLAY (CL)
	S17	32-34	44.9	2.2	2.72	47	21	0	1.7	27.8	70.5	LEAN CLAY (CL)
	S17 (Oven-Dry) - see note 1	32-34	44.9	--	--	40	--	--	--	--	--	LEAN CLAY (CL)
FD24-11	S5	8-10	88.4	5.2	2.69	76	35	0	7.1	48.9	44.0	ORGANIC SOIL (OH)
	S5 (Oven-Dry) - see note 1	8-10	46.7	--	--	47	--	--	--	--	--	ORGANIC SOIL (OH)
	S12	22-24	26.9	1.6	2.76	29	16	0	1.1	59.1	39.8	LEAN CLAY (CL)
	S12 (Oven-Dry) - see note 1	22-24	26.9	--	--	26	--	--	--	--	--	LEAN CLAY (CL)
	S20	38-40	46.2	2.3	2.68	49	23	0	1.7	32.4	65.9	LEAN CLAY (CL)
	S20 (Oven-Dry) - see note 1	38-40	46.2	--	--	41	--	--	--	--	--	LEAN CLAY (CL)
FD24-12	S3	4-6	102.7	7.5	2.56	100	37	0	5.5	49.4	45.1	ORGANIC SOIL (OH)
	S3 (Oven-Dry) - see note 1	4-6	102.7	--	--	53	--	--	--	--	--	ORGANIC SOIL (OH)
	S9	16-18	27.5	1.8	2.73	33	18	0	0.6	43.3	56.1	LEAN CLAY (CL)
	S9 (Oven-Dry) - see note 1	16-18	27.5	--	--	30	--	--	--	--	--	LEAN CLAY (CL)
	S18	34-36	40.1	2.1	2.75	36	19	0	0.4	35.8	63.8	LEAN CLAY (CL)
	S18 (Oven-Dry) - see note 1	34-36	34.0	--	--	34	--	--	--	--	--	LEAN CLAY (CL)

Notes: 1. Per ASTM D 2487, regarding organic silt and clay:

3.1.3 organic clay—a clay with sufficient organic content to influence the soil properties. For classification, an organic clay is a soil that would be classified as a clay except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

3.1.4 organic silt—a silt with sufficient organic content to influence the soil properties. For classification, an organic silt is a soil that would be classified as a silt except that its liquid limit value after oven drying is less than 75 % of its liquid limit value before oven drying.

2. No Atterberg post-organics test performed in conjunction with organic content test, but sample visually assumed to be inorganic.

3. No Atterberg post-organics test performed in conjunction with organic content test, but sample visually assumed to be organic.

Figures



0 2000 4000 8000 12000

SCALE, FEET

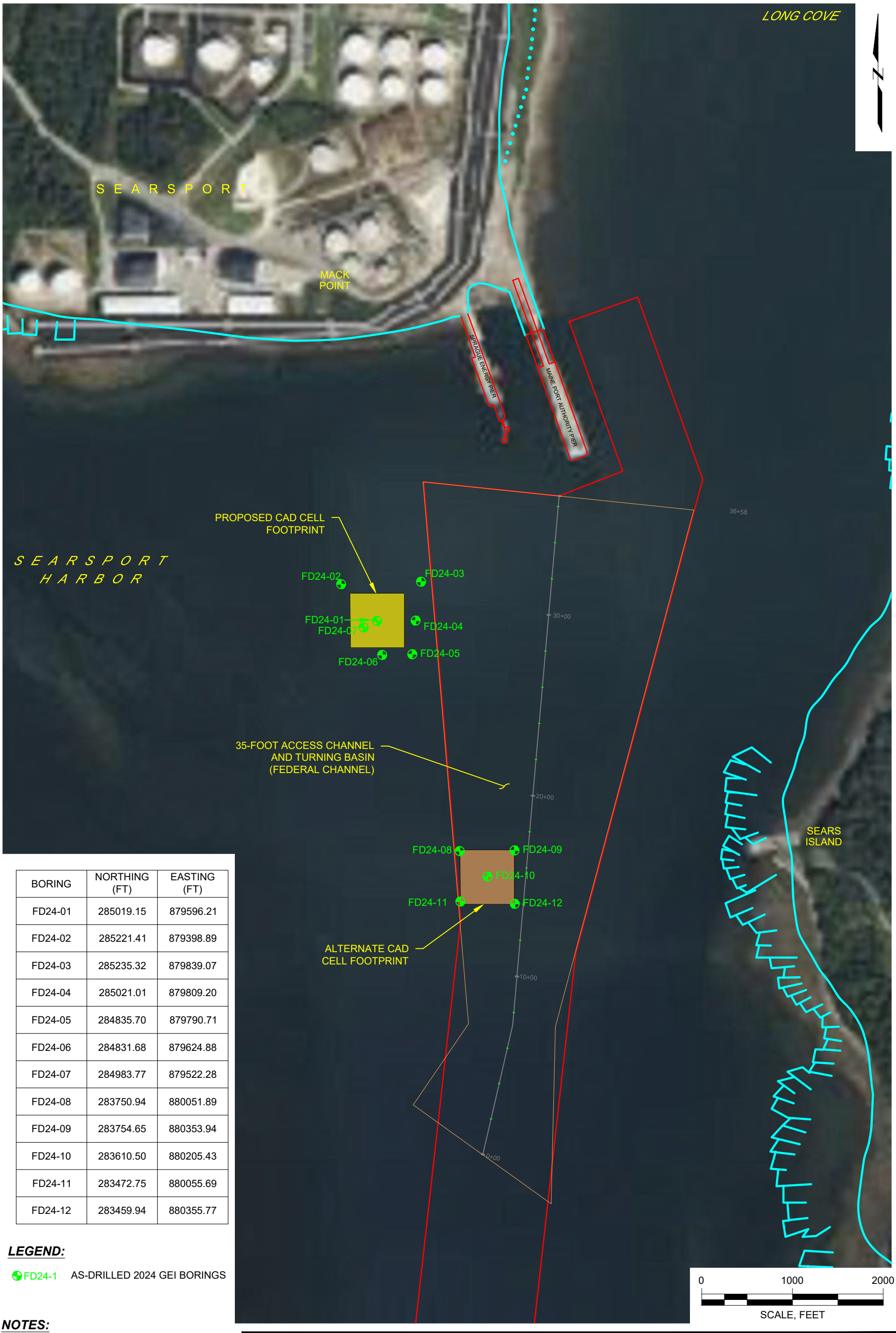
This Image is from U.S.G.S. Topographic 7.5 Minute Series
Searsport Quadrangle, Maine 2021.
Datum is North American Vertical Datum of 1988.
Contour Interval is 10 feet.



MAINE
QUADRANGLE LOCATION

Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, Maine Report of Geotechnical Explorations	GEI Consultants	SITE LOCATION MAP
USACE New England District Concord, Massachusetts	Project 2400096	August 2024 Fig. 1

B:\Working\USACE NEW ENGLAND\2400096 Searsport Harbor Drilling\00_CAD\Figures\Report\2400096-01 SLM



BORING	NORTHING (FT)	EASTING (FT)
FD24-01	285019.15	879596.21
FD24-02	285221.41	879398.89
FD24-03	285235.32	879839.07
FD24-04	285021.01	879809.20
FD24-05	284835.70	879790.71
FD24-06	284831.68	879624.88
FD24-07	284983.77	879522.28
FD24-08	283750.94	880051.89
FD24-09	283754.65	880353.94
FD24-10	283610.50	880205.43
FD24-11	283472.75	880055.69
FD24-12	283459.94	880355.77

LEGEND:

FD24-1 AS-DRILLED 2024 GEI BORINGS

NOTES:

1. BORING COORDINATES ARE REFERENCED TO MAINE EAST, ME 1801 NAD 83.

SOURCE:

1. PLAN BASED ON BASE FILES PROVIDED BY THE USACE-NAE.

Subsurface Exploration and Site Characterization,
Searsport Harbor, Searsport, Maine
Report of Geotechnical Explorations

USACE New England District
Concord, Massachusetts

GEI Consultants

EXPLORATION LOCATION PLAN

Project 2400096 | August 2024 | Fig. 2

JULIANO, ALEX B:\Working\USACE NEW ENGLAND\2400096 Searsport Harbor Drilling\00_CAD\Figures\Report\2400096-02 BLP_Final.dwg - 8/2/2024

Appendix A

Final Boring Logs

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

10. COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 285019.15 E: 879596.21

LOCATION METHOD: GPS

2. HOLE NUMBER: FD24-01

3. DRILLING AGENCY: NEBC

11. DATE BORING: STARTED Apr 16 2024; COMPLETED Apr 16 2024

4. NAME OF DRILLER: Sam Cooley

12. HAMMER TYPE: Automatic, 30" drop, 140 lb

EFFICIENCY (%): 82.0

5. EQUIPMENT: D30 (Manufactured in House)

13. SIZE AND TYPE OF BIT: Drive and Wash

6. DIRECTION OF BORING: Vertical; DEG FROM VERTICAL: ; BEARING:

14. ELEVATION SURFACE: -26.1'

15. ELEVATION GROUND WATER: 5.1'

7. THICKNESS OF OVERBURDEN: 50.0'

16. TOTAL NUMBER CORE BOXES: 0

8. DEPTH DRILLED INTO ROCK:

17. SIGNATURE AND TITLE OF INSPECTOR: Mustaki Ahmed, Geotechnical Professional

9. TOTAL DEPTH OF BORING: 50.0'

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-28.14	2.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low to medium plasticity fines; gray, wet, very soft, trace fine gravel, few organics, organic odor *Bay Sediment*	90	S1								WOH = WOR PP= 0.00 tsf
-30.14	4.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low to medium plasticity fines; gray, wet, very soft, few organics, organic odor	40	S2								WOH = WOR PP= 0.00 tsf
-32.14	6.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low to medium plasticity fines; gray, wet, very soft, few fine sand	100	S3								WOH = WOR PP= 0.00 tsf
-34.14	8.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) medium plasticity fines; gray, wet, very soft, few fine sand, trace organics	100	S4								WOH = WOR PP= 0.00 tsf
-36.14	10.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) medium plasticity fines; olive gray, wet to moist, very soft, few fine sand	100	S5								WOH = WOR PP= 0.00 tsf
-38.14	12.00	0 0 0 0	WOH	0		(OH) S6: Similar to S5 except organic odor	100	S6								WOH = WOR PP= 0.00 tsf
-40.14	14.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) medium plasticity fines; olive gray to brown, wet to moist, very soft, few fine sand, few organics, organic odor, peat pocket (4")	100	S7	0	15	85	51	15	40	OH	WOH = WOR PP= 0.00 tsf
-42.14	16.00	0 0 0 5	WOH	0		LEAN CLAY (CL) low to medium plasticity fines; olive gray with brown, wet to moist, very soft, mottled *Glacial Marine Sediment*	100	S8								WOH = WOR PP= 0.75 tsf
-44.14	18.00	0 0 0 1	WOH	0		(CL) S9: Similar to S8	60	S9								WOH = WOR PP= 0.25 tsf
-46.14	20.00	2 2 3 3	5	7		LEAN CLAY (CL) low to medium plasticity fines; olive gray with brown, moist, medium stiff, mottled	100	S10	0	1	99	27	10	26	CL	PP= 0.75 tsf
-48.14	22.00	0 3 4 4	7	10		(CL) S11: Similar to S10	100	S11								PP= 0.75 tsf
-50.14	24.00	3 3 3 4	6	8		(CL) S12: Similar to S10 (CL) S13: Similar to S10	100	S12								PP= 0.75 tsf

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 285019.15 E: 879596.21

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-52.14	26.00	2, 2, 3, 4	5	7		(CL) S13: Similar to S10	100	S13								PP= 0.75 tsf
-54.14	28.00	4, 3, 5, 5	8	11		LEAN CLAY (CL) low to medium plasticity fines; bluish gray, moist, medium stiff, mottled	75	S14								PP= 0.50 tsf
-56.14	30.00	5, 4, 5, 5	9	12		(CL) S15: Similar to S14, except stiff	100	S15								PP= 0.50 tsf
-58.14	32.00	0, 0, 3, 3	3	4		LEAN CLAY (CL) low to medium plasticity fines; bluish gray, moist, soft	85	S16								PP= 0.50 tsf
-60.14	34.00	3, 4, 5, 5	9	12		LEAN CLAY (CL) low to medium plasticity fines; bluish gray, moist, stiff	85	S17								PP= 0.75 tsf
-62.14	36.00	0, 0, 0, 2	WOH	0		LEAN CLAY (CL) low to medium plasticity fines; bluish gray, moist to wet, very soft	60	S18								Bottom of 4-inch casing PP= 0.25 tsf
-64.14	38.00	1, 3, 2, 2	5	7		LEAN CLAY (CL) low to medium plasticity fines; bluish gray, moist, medium stiff, trace organics	100	S19								PP= 0.25 tsf
-66.14	40.00	0, 0, 3, 2	3	4		(CL) S20: Similar to S19, except soft	55	S20								PP= 0.00 tsf
-68.14	42.00	0, 0, 0, 0	WOH	0		(CL) S21: Similar to S19, except very soft	38	S21								PP= 0.50 tsf
-70.14	44.00	0, 0, 0, 0	WOH	0		(CL) S22: Similar to S19, except very soft	100	S22								Lost water PP= 0.00 tsf
-72.14	46.00	0, 0, 0, 0	WOH	0		(CL) S23: Similar to S19, except very soft	100	S23	0	1	99	38	17	42	CL	Drove 3-inch casing inside 4-inch casing PP= 0.00 tsf
-74.14	48.00	0, 0, 0, 0	WOH	0		(CL) S24: Similar to S19, except very soft	100	S24								Bottom of 3-inch casing PP= 0.00 tsf
-76.14	50.00	0, 0, 0, 0	WOH	0		(CL) S25: Similar to S19, except very soft	100	S25								PP= 0.00 tsf
						Borehole finished at 50.0										

-54 -59 -64 -69 -74 -79

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-02
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	54.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	54.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 285221.41 E: 879398.89
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 22 2024
COMPLETED	Apr 22 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-22.9'
15. ELEVATION GROUND WATER	6.8'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Alex Juliano, Geotechnical Engineer

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0				ORGANIC SOIL (OH) high plasticity fines; olive gray, wet, very soft, trace shell fragments, organic odor										WOH = WOR
	—	0	WO	0		*Bay Sediment*	4	S1								
		0	H													-24
-24.90	2.00	0														
		0				(OH) S2: Similar to S1										WOH = WOR
	—	0	WO	0			79	S2								
-26.90	4.00	0	H													
		0				(OH) S3: Similar to S1										WOH = WOR
	—	0	WO	0			55	S3								
-28.90	6.00	0	H													
		0				(OH) S4: Similar to S1										WOH = WOR
	—	0	WO	0			46	S4								-29
-30.90	8.00	0	H													
		0				(OH) S5: Similar to S1										WOH = WOR
	—	0	WO	0			65	S5								
-32.90	10.00	0	H													
		0				(OH) S6: Similar to S1										WOH = WOR
	—	0	WO	0			96	S6	0	8	92	67	35	98	OH	-34
-34.90	12.00	0	H													
		0				(OH) S7: Similar to S1										WOH = WOR
	—	0	WO	0			63	S7								
-36.90	14.00	0	H													
		0				(OH) S8 (0-14"): Similar to S1										
	—	3														
-38.10	15.20	3	6	8			100	S8								PP= 1.00 tsf
-38.90	16.00	5				LEAN CLAY (14-24") (CL) low to medium plasticity fines; olive gray and, wet, medium stiff, trace organics, thin silt/ sand seams, mottled										
		3				*Glacial Marine Sediment*										-39
	—	6				(CL) S9: Similar to S8 (14-24")	100	S9								PP= 1.00 tsf
		7	13	18												
-40.90	18.00	8														
		5				(CL) S10: Similar to S8 (14-24"), except stiff										
	—	5														
		7	12	16			100	S10	0	1	99	35	16	27	CL	PP= 1.00 tsf
-42.90	20.00	7														
		5				LEAN CLAY (CL) medium plasticity fines; olive gray, wet, very soft, mottled										
-43.90	21.00	5														
		5	10	14		(CL) S11 (12-24"): Similar to S8 (14-24")	100	S11								PP= 0.25 tsf
-44.90	22.00	6														-44
-44.90	22.00	0				LEAN CLAY (CL) medium plasticity fines; gray, wet, soft, mottled										
	—	0														
		2	2	3			25	S12								PP= 0.50 tsf
-46.90	24.00	3				LEAN CLAY (CL) medium plasticity fines; gray, moist, medium stiff, mottled										
																Bottom of 4-inch casing

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 285221.41 E: 879398.89

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-48.90	26.00	3, 4, 3, 3	7	10		LEAN CLAY (CL) medium plasticity fines; gray, moist, medium stiff, mottled	35	S13								PP= 0.00 tsf TV= 0.20 tsf
-50.90	28.00	4, 4, 4, 5	8	11		(CL) S14: Similar to S13, except stiff	100	S14								PP= 0.25 tsf TV= 0.25 tsf
-52.90	30.00	2, 2, 3, 5	5	7		(CL) S15: Similar to S13, except medium stiff	100	S15								PP= 0.50 tsf TV= 0.20 tsf WOH = WOR
-54.90	32.00	0, 0, 0, 0	WOH	0		LEAN CLAY (CL) low plasticity fines; gray, wet, very soft	100	S16				40	19	41	CL	PP= 0.50 tsf TV= 0.20 tsf WOH = WOR
-56.90	34.00	0, 0, 0, 0	WOH	0		(CL) S17: Similar to S16	100	S17								PP= 0.00 tsf TV= 0.15 tsf WOH = WOR
-58.90	36.00	0, 0, 0, 0	WOH	0		(CL) S18: Similar to S16	35	S18								PP= 0.00 tsf TV= 0.20 tsf WOH = WOR
-60.90	38.00	0, 0, 0, 0	WOH	0		(CL) S19: Similar to S16	100	S19								PP= 0.00 tsf TV= 0.20 tsf WOH = WOR
-62.90	40.00	0, 0, 0, 0	WOH	0		(CL) S20: Similar to S16	100	S20								WOH = WOR
-64.90	42.00	0, 0, 0, 0	WOH	0		(CL) S21: Similar to S16	100	S21								PP= 0.00 tsf TV= 0.20 tsf WOH = WOR
-66.90	44.00	0, 0, 0, 0	WOH	0		(CL) S22: Similar to S16	100	S22								PP= 0.00 tsf TV= 0.20 tsf WOH = WOR
-68.90	46.00	0, 0, 0, 0	WOH	0		(CL) S23: Similar to S16	100	S23								PP= 0.00 tsf TV= 0.15 tsf
-69.40	46.50	0				(CL) S24 (0-6"): Similar to S16, moist										Some gravel in wash
-70.90	48.00	4, 4, 6	8	11		SANDY LEAN CLAY WITH GRAVEL (6-16") (CL) low plasticity fines; gray, moist, loose, some fine to coarse sand, little fine to coarse gravel, subrounded up to 1" *Glacial Till*	65	S24	19	30	51			11	CL	
-72.90	50.00	3, 3, 4, 6	7	10		(CL) S25: Similar to S24 (6-16")	75	S25								PP= 1.00 tsf TV= 0.30 tsf
-74.90	52.00	8, 5, 5, 4	10	14		(CL) S26: Similar to S24 (6-16")	35	S26								PP= 0.75 tsf TV= 0.20 tsf
-76.90	54.00	5, 6, 4, 4	10	14		(CL) S27: Similar to S24 (6-16")	13	S27								
						Borehole finished at 54.0										

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-03
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	50.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	50.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 285235.32 E: 879839.07
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 24 2024
COMPLETED	Apr 25 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-26.1'
15. ELEVATION GROUND WATER	9.6'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Alex Juliano, Geotechnical Engineer

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0				ORGANIC SOIL (OH) high plasticity fines; olive gray, wet, very soft, trace shells and fibers, organic odor										WOH = WOR
		0				*Bay Sediment*										
	—	0	WOH	0			80	S1								
-28.10	2.00	0														
		0				(OH) S2: Similar to S1										WOH = WOR
		0														
	—	0	WOH	0			42	S2								-29
-30.10	4.00	0														
		0				(OH) S3: Similar to S1, very plastic										WOH = WOR
		0														
	—	0	WOH	0			70	S3	0	4	96	95	60	115	OH	
-32.10	6.00	0														
		0				(OH) S4: No Recovery										WOH = WOR
		0														
	—	0	WOH	0			0	S4								
-34.10	8.00	0														-34
		0				(OH) S5: Similar to S1										WOH = WOR
		0														
	—	0	WOH	0			100	S5								
-36.10	10.00	0														
		0				(OH) S6: Similar to S1										WOH = WOR
		0														
	—	0	WOH	0			100	S6								
-38.10	12.00	0														
-38.40	12.30	0				(OH) S7 (0-4"): Similar to S1										WOH = WOR
		0				LEAN CLAY (4-24") (CL) low to medium plasticity fines;										
		0				gray, very soft, some fine sand, trace shells and fibers,										PP= 1.00 tsf
	—	0	WOH	0		mottled	100	S7								TV= 0.20 tsf -39
-40.10	14.00	0				*Glacial Marine Sediment*										
		2				LEAN CLAY (CL) low to medium plasticity fines; gray,										Casing removed
		3				medium stiff, some fine sand										for night. Barge
	—	3	6	8			100	S8				27	10	24	CL	left in place
-42.10	16.00	4														
		4				(CL) S9: Similar to S8, except mottled, silt seams, stiff										
		5														
	—	5	10	14			100	S9								
-44.10	18.00	5														-44
		4				(CL) S10:Similar to S8										
		5														
	—	4	9	12			100	S10								
-46.10	20.00	5														
		2				(CL) S11: Similar to S8, except silt seams										
		4														
	—	6	10	14			65	S11								PP= 2.00 tsf
-48.10	22.00	1														TV= 0.25 tsf
		7				(CL) S12: Similar to S8, except very stiff										
		8														
	—	8	16	22			100	S12								PP= 2.00 tsf -49
-50.10	24.00	8														TV= 0.30 tsf
						(CL) S13: Similar to S8, except soft										

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 285235.32 E: 879839.07

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-52.10	26.00	0 0 3 4	3	4		(CL) S13: Similar to S8, except soft	42	S13								
-54.10	28.00	0 0 4 3	4	5		(CL) S14: Similar to S8, except soft	65	S14								PP= 2.00 tsf TV= 0.30 tsf
-56.10	30.00	3 3 3 2	6	8		(CL) S15: Similar to S8, except medium stiff	100	S15								
-58.10	32.00	3 2 3 2	5	7		(CL) S16: Similar to S8, except medium stiff, shells	100	S16								WOH = WOR
-60.10	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S8, except very soft, shells	100	S17								PP= 0.00 tsf TV= 0.00 tsf
-62.10	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S8, except very soft, shells	100	S18				44	22	42	CL	WOH = WOR PP= 0.00 tsf TV= 0.20 tsf
-64.10	38.00	0 0 0 0	WOH	0		(CL) S19: Similar to S8, except very soft, shells	100	S19								WOH = WOR
-66.10	40.00	0 0 0 0	WOH	0		(CL) S20: Similar to S8, except very soft, shells	100	S20								WOH = WOR PP= 0.00 tsf TV= 0.20 tsf
-68.10	42.00	0 0 0 0	WOH	0		(CL) S21: Similar to S8, except very soft, shells	100	S21								WOH = WOR
-70.10	44.00	0 0 0 0	WOH	0		(CL) S22: Similar to S8, except very soft, shells	100	S22								WOH = WOR
-72.10	46.00	0 0 0 0	WOH	0		(CL) S23: Similar to S8, except very soft, shells	100	S23								WOH = WOR
-74.10	48.00	0 0 0 0	WOH	0		(CL) S24: Similar to S8, except very soft, shells	100	S24								WOH = WOR
-75.80	49.70	0 0 0 0	WOH	0		(CL) S25 (0-20"): Similar to S8, except very soft, shells	100	S25	1	21	78			23	CL	
-76.10	50.00					LEAN CLAY WITH SAND (20-24") (CL) gray, wet, very soft, some fine to coarse sand, trace gravel										
						Borehole finished at 50.0										

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-04
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	48.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	48.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 285021.01 E: 879809.20
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 25 2024
COMPLETED	Apr 25 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-27.3'
15. ELEVATION GROUND WATER	9.4'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Alex Juliano, Geotechnical Engineer

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0 0 0 0				ORGANIC SOIL (OH) olive gray, wet, very soft, trace shells, organic odor										WOH = WOR
	—		WOH	0		*Bay Sediment*	65	S1								
-29.30	2.00	0														WOH = WOR -29
		0 0 0 0				(OH) S2: Similar to S1										
	—		WOH	0			65	S2				94	61	111		
-31.30	4.00	0														WOH = WOR
		0 0 0 0				(OH) S3: Similar to S1										
	—		WOH	0			50	S3								
-33.30	6.00	0														WOH = WOR
		0 0 0 0				(OH) S4: Similar to S1										-34
	—		WOH	0			46	S4								
-35.30	8.00	0														WOH = WOR
		0 0 0 0				(OH) S5: Similar to S1										
	—		WOH	0			100	S5								
-37.30	10.00	0														WOH = WOR
		0 0 0 0				(OH) S6: Similar to S1										
	—		WOH	0			100	S6								
-39.30	12.00	0														WOH = WOR -39
		0 0 0				(OH) S7 (0-17"): Similar to S1										
	—		WOH	0			100	S7	4	43	54			29	ML	
-40.70	13.40	0														
-41.30	14.00	0				SANDY SILT (ML) low plasticity fines; olive gray, very soft, some fine to coarse sand, trace shells and fibers, trace fine gravel, organic odor										WOH = WOR
		0 0 0 0				*Glacial Marine Sediment*										
	—		WOH	0		(ML) S8: Similar to S7 (17-24"), except low to medium plasticity	100	S8								
-43.30	16.00	0														WOH = WOR
		0 0 0 0				(ML) S9: Similar to S7 (17-24")										-44
	—		WOH	0			100	S9								
-45.30	18.00	0														WOH = WOR
		0 0 0 0				(ML) S10: Similar to S7 (17-24")										
	—		WOH	0			92	S10								
-47.30	20.00	0														WOH = WOR
		0 0 0 0				LEAN CLAY (CL) low plasticity fines; olive gray, very soft, some fine to coarse sand, trace shells and fibers, organic odor										
	—		WOH	0			100	S11	0	5	95			47	CL	
-49.30	22.00	0														WOH = WOR -49
		0 0 0 0				(CL) S12: Similar to S11										
	—		WOH	0			100	S12								
-51.30	24.00	0														
						(CL) S13: Similar to S11										WOH = WOR

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DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 285021.01 E: 879809.20

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-53.30	26.00	0 0 0 0	WOH	0		(CL) S13: Similar to S11	100	S13								WOH = WOR
-55.30	28.00	0 0 0 5	WOH	0		(CL) S14: Similar to S11	100	S14								
-57.30	30.00	2 6 6 4	12	16		SILTY SAND (SM) gray, wet, medium dense, some nonplastic fines, trace gravel	63	S15	13	67	20			16	SM	
-57.70	30.40	5				SILTY SAND (0-5") (SM) gray, wet, medium dense, some fine to coarse gravel										
-59.30	32.00	1 2 3	3	4		LEAN CLAY (5-19") (CL) low to medium plasticity fines; gray, wet, soft, mottled	80	S16								PP= 0.00 tsf TV= 0.20 tsf WOH = WOR
-61.30	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S16 (5-19")	70	S17								Bottom of 4-inch casing PP= 0.00 tsf TV= 0.20 tsf
-63.30	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S16 (5-19")	100	S18								WOH = WOR
-65.30	38.00	0 0 0 0	WOH	0		(CL) S19: Similar to S16 (5-19")	100	S19								WOH = WOR
-67.30	40.00	0 0 0 0	WOH	0		(CL) S20: Similar to S16 (5-19")	100	S20								WOH = WOR
-69.30	42.00	0 0 0 0	WOH	0		(CL) S21: Similar to S16 (5-19")	100	S21								WOH = WOR
-71.30	44.00	0 0 0 0	WOH	0		(CL) S22: Similar to S16 (5-19")	100	S22								WOH = WOR
-73.30	46.00	0 0 0 0	WOH	0		(CL) S23: Similar to S16 (5-19")	100	S23								WOH = WOR
-75.30	48.00	0 0 0 0	WOH	0		(CL) S24: Similar to S16 (5-19")	100	S24								
						Borehole finished at 48.0										

Boring Designation **FD24-05**

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

1. PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

10. COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 284835.70 E: 879790.71

LOCATION METHOD: GPS

2. HOLE NUMBER: FD24-05

3. DRILLING AGENCY: NEBC

11. DATE BORING: STARTED Apr 29 2024; COMPLETED Apr 29 2024

4. NAME OF DRILLER: Sam Cooley

12. HAMMER TYPE: Automatic, 30" drop, 140 lb

EFFICIENCY (%): 82.0

5. EQUIPMENT: D30 (Manufactured in House)

13. SIZE AND TYPE OF BIT: Drive and Wash

6. DIRECTION OF BORING: Vertical; DEG FROM VERTICAL: ; BEARING:

14. ELEVATION SURFACE: -26.7'

15. ELEVATION GROUND WATER: 2.2'

7. THICKNESS OF OVERBURDEN: 50.0'

16. TOTAL NUMBER CORE BOXES: 0

8. DEPTH DRILLED INTO ROCK:

17. SIGNATURE AND TITLE OF INSPECTOR: Mustaki Ahmed, Geotechnical Professional

9. TOTAL DEPTH OF BORING: 50.0'

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-28.65	2.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low plasticity fines; olive gray, wet, very soft, trace shell fragments, trace organics, organic odor *Bay Sediment*	80	S1								WOH = WOR PP= 0.00 tsf
-30.65	4.00	0 0 0 0	WOH	0		(OH) S2: Similar to S1, except trace fibers, clay	4	S2								WOH = WOR PP= 0.00 tsf
-32.65	6.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low to medium plasticity fines; olive gray, wet, very soft, few fine sand, trace shells and organics, organic odor	63	S3								WOH = WOR PP= 0.00 tsf
-34.65	8.00	0 0 0 0	WOH	0		(OH) S4: Similar to S3	65	S4								WOH = WOR PP= 0.00 tsf
-36.65	10.00	0 0 0 0	WOH	0		(OH) S5: Similar to S3	75	S5								WOH = WOR PP= 0.00 tsf
-38.65	12.00	0 0 0 0	WOH	0		(OH) S6: Similar to S3, very plastic	100	S6	0	5	94	71	44	82	OH	WOH = WOR PP= 0.00 tsf
-40.65	14.00	0 0 0 0	WOH	0		(OH) S7: Similar to S3, except moist to wet	90	S7								WOH = WOR PP= 0.00 tsf
-42.65	16.00	0 0 0 0	WOH	0		(OH) S8: Similar to S3, pat pocket (~2") at the tip, moist to wet	65	S8								WOH = WOR PP= 0.00 tsf
-44.15	17.50	2 3 4	7	10		(OH) S9 (0-16"): Similar to S8, thin (2") layer of medium to coarse sand	80	S9								PP= 0.00 tsf
-46.65	20.00	2 3 3 5 5	8	11		LEAN CLAY (16-19") (CL) low to medium plasticity fines; olive gray and brown, moist, medium stiff, mottled *Glacial Marine Sediment*	100	S10								Bottom of 4-inch casing PP= 1.50 tsf
-48.65	22.00	3 2 3 4	5	7		(CL) S11: Similar to S10, except trace angular rock fragments	100	S11								PP= 1.00 tsf TV= 0.15 tsf
-50.65	24.00	1 2 3 3	5	7		LEAN CLAY (CL) low to medium plasticity fines; light gray and black, moist, medium stiff, trace organics (CL) S13: Similar to S12	85	S12								PP= 1.00 tsf TV= 0.15 tsf

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DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 284835.70 E: 879790.71

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-52.65	26.00	3, 4, 4, 4	8	11		(CL) S13: Similar to S12	100	S13								PP= 0.25 tsf TV= 0.15 tsf
-54.65	28.00	1, 1, 2, 3	3	4		(CL) S14: Similar to S12, except soft	100	S14								PP= 0.50 tsf TV= 0.15 tsf
-56.65	30.00	1, 1, 2, 2	3	4		(CL) S15: Similar to S12, except trace fine sand, soft	90	S15								PP= 0.00 tsf TV= 0.10 tsf
-58.65	32.00	2, 4, 6, 7	10	14		(CL) S16: Similar to S12, except stiff	95	S16								PP= 1.50 tsf TV= 0.20 tsf
-60.65	34.00	3, 5, 8, 7	13	18		(CL) S17: Similar to S12, except stiff, medium plasticity	65	S17	0	1	99	36	16	28	CL	PP= 0.50 tsf TV= 0.20 tsf
-62.65	36.00	4, 5, 5, 6	10	14		(CL) S18: Similar to S12, except stiff	75	S18								PP= 0.50 tsf TV= 0.20 tsf
-64.65	38.00	3, 3, 4, 6	7	10		(CL) S19: Similar to S12	65	S19								PP= 0.25 tsf TV= 0.15 tsf
-66.65	40.00	3, 4, 4, 4	8	11		(CL) S20: Similar to S12	100	S20								PP= 0.25 tsf TV= 0.10 tsf WOH = WOR
-68.65	42.00	0, 0, 0, 0	WOH	0		(CL) S21: Similar to S12, except trace shells, very soft	95	S21								PP= 0.50 tsf TV= 0.15 tsf WOH = WOR
-70.65	44.00	0, 0, 0, 0	WOH	0		(CL) S22: Similar to S12, except very soft, high plasticity	100	S22	0	2	98	48	24	40	CL	PP= 0.00 tsf TV= 0.15 tsf WOH = WOR
-72.65	46.00	0, 0, 0, 0	WOH	0		(CL) S23: Similar to S12, except very soft	55	S23								PP= 0.00 tsf TV= 0.05 tsf WOH = WOR
-74.65	48.00	0, 0, 0, 0	WOH	0		(CL) S24: Similar to S12, except very soft	100	S24								PP= 0.00 tsf TV= 0.05 tsf WOH = WOR
-76.65	50.00	0, 0, 0, 0	WOH	0		(CL) S21: Similar to S12, except trace shells, very soft	85	S25								PP= 0.00 tsf TV= 0.00 tsf
						Borehole finished at 50.0										

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-06
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	48.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	48.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 284831.68 E: 879624.88
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 24 2024
COMPLETED	Apr 24 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-28.4'
15. ELEVATION GROUND WATER	5.3'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Alex Juliano, Geotechnical Engineer

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-30.40	2.00	0 0 0 0	WOH	0		(OH) S1: No recovery *Bay Sediment*	0	S1								WOH = WOR
-32.40	4.00	0 0 0 0	WOH	0		(OH) S2: No recovery, muck on outside of spoon	0	S2								WOH = WOR
-34.40	6.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) low plasticity fines; olive gray, wet, very soft, few fine sand, trace shells, organic odor	100	S3								WOH = WOR
-36.40	8.00	0 0 0 0	WOH	0		(OH) S4: No recovery	0	S4								WOH = WOR
-38.40	10.00	0 0 0 0	WOH	0		(OH) S5: Similar to S3	42	S5								PP= 0.00 tsf TV= 0.00 tsf
-40.40	12.00	0 0 0 0	WOH	0		(OH) S6: Similar to S3	50	S6				73	42	82	OH	WOH = WOR
-42.40	14.00	0 0 0 0	WOH	0		(OH) S7: Similar to S3, except little fine sand (5%)	85	S7								WOH = WOR
-43.20	14.80	2				(OH) S8 (0-9"): Similar to S7										
-44.40	16.00	3 1 1	4	5		SANDY LEAN CLAY (9-18") (CL) olive gray, wet, soft, some fine to medium coarse sand, trace shells, organic odor	75	S8	0	30	70			29	CL	
-46.40	18.00	0 0 0 0	WOH	0		(CL) S9: Similar to S8 , 4" long wood fiber	38	S9								WOH = WOR
-48.40	20.00	0 0 0 0	WOH	0		(CL) S10: Similar to S8, fibers observed	100	S10								
-50.40	22.00	0 0 1 1	1	1		ORGANIC SOIL (OL) low plasticity fines; olive gray, wet, very soft, fibers	85	S11				30	9	40	OL	WOH = WOR
-52.40	24.00	0 0 0 0	WOH	0		(OL) S12: Similar to S11, moderate amount of shells	75	S12								PP= 0.00 tsf TV= 0.00 tsf
						(OL) S13 (0-10"): Similar to S11										WOH = WOR

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 284831.68 E: 879624.88

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-53.20	24.80	0	WOH	0		(OL) S13 (0-10"): Similar to S11										
		0				LEAN CLAY (10-24") (CL) low plasticity fines; gray, wet, very soft, little fine sand, little shells, trace fibers	100	S13								PP= 0.00 tsf
-54.40	26.00	0				*Glacial Marine Sediment*										TV= 0.10 tsf
		0				(CL) S14: Similar to S13 (10-24")										WOH = WOR
		0	WOH	0			100	S14								
		0														
-56.40	28.00	0														WOH = WOR
		0				(CL) S15 (0-12"): Similar to S13 (10-24")										
-57.40	29.00	0	WOH	0			100	S15	0	31	69			39	CL	
		0				SANDY LEAN CLAY (CL) gray, very loose, some shells and fibers										
-58.40	30.00	0														WOH = WOR
		0				(CL) S16: Similar to S15 (12-24")										Bottom of 4-inch casing
		0	WOH	0			100	S16								
		0														
-60.40	32.00	0														WOH = WOR
		0				LEAN CLAY (CL) low to medium plasticity fines; gray, wet, very soft, little shells										
		0	WOH	0			20	S17								PP= 0.00 tsf
-62.40	34.00	0														TV= 0.00 tsf
		0				(CL) S18: Similar to S17										WOH = WOR
		0	WOH	0			100	S18								PP= 0.00 tsf
-64.40	36.00	0														TV= 0.15 tsf
		0				(CL) S19: Similar to S17										WOH = WOR
		0	WOH	0			100	S19								PP= 0.00 tsf
-66.40	38.00	0														TV= 0.15 tsf
		0				(CL) S20: Similar to S17										WOH = WOR
		0	WOH	0			100	S20								
		0														
-68.40	40.00	0														WOH = WOR
		0				(CL) S21: Similar to S17, except no shells										
		0	WOH	0			100	S21								
-70.40	42.00	0														WOH = WOR
		0				(CL) S22: Similar to S17, except no shells										
		0	WOH	0			100	S22								
-72.40	44.00	0														WOH = WOR
		0				(CL) S23: Similar to S17, except no shells										
		0	WOH	0			100	S23								
-74.40	46.00	0														WOH = WOR
		0				(CL) S24: Similar to S17										
		0	WOH	0			100	S24								
-76.40	48.00	0														
						Borehole finished at 48.0										

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-07
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	52.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	52.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 284983.77 E: 879522.28
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 17 2024
COMPLETED	Apr 18 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-24.8'
15. ELEVATION GROUND WATER	7.6'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Mustaki Ahmed, Geotechnical Professional

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LAB: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0				ORGANIC SOIL (OL) low to medium plasticity fines; gray, wet, very soft, few organics, organic odor										WOH = WOR
	—	0	WOH	0		*Bay Sediment*	65	S1								PP= 0.00 tsf
-26.82	2.00	0														
		0				(OL) S2: Similar to S1										WOH = WOR
	—	0	WOH	0			45	S2								PP= 0.00 tsf
-28.82	4.00	0														
		0				(OL) S3: Similar to S1										WOH = WOR
	—	0	WOH	0			70	S3	1	3	96			100	OL	PP= 0.00 tsf
-30.82	6.00	0														
		0				(OL) S4: Similar to S1										WOH = WOR
	—	0	WOH	0			25	S4								PP= 0.00 tsf
-32.82	8.00	0														
		0				(OL) S5: Similar to S1										WOH = WOR
	—	0	WOH	0			45	S5								PP= 0.00 tsf
-34.82	10.00	0														
		0				(OL) S6: Similar to S1										WOH = WOR
	—	0	WOH	0			65	S6								PP= 0.00 tsf
-36.82	12.00	0														
		0				(OL) S7 (0-14"): Similar to S1										WOH = WOR
-38.02	13.20	0	WOH	0			90	S7								PP= 0.50 tsf
-38.82	14.00	0				LEAN CLAY (14-22") (CL) medium to high plasticity fines; gray, moist, very soft, trace organics										
		5				*Glacial Marine Sediment*										
	—	6	13	18		LEAN CLAY (CL) low to medium plasticity fines; gray and brown, moist, stiff, mottled	100	S8								PP= 1.00 tsf
-40.82	16.00	7														
		9														
		12				(CL) S9: Similar to S8 except very stiff										
	—	9	18	25			100	S9	0	1	99	31	14	24	CL	PP= 1.25 tsf
-42.82	18.00	9														
		8														
		0				(CL) S10: Similar to S9 except medium stiff										
	—	1	6	8			100	S10								PP= 1.50 tsf
-44.82	20.00	5														
		7														
		9				(CL) S11: Similar to S9 except stiff										
	—	7	14	19			80	S11								PP= 1.00 tsf
-46.82	22.00	7														
		6														
		3				LEAN CLAY (CL) low to medium plasticity fines; gray, moist, medium stiff, trace organics										
	—	3	6	8			65	S12								PP= 0.75 tsf
-48.82	24.00	3														
		4				(CL) S13: Similar to S12										Bottom of 4-inch casing

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 284983.77 E: 879522.28

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-50.82	26.00	0 0 4 3	4	5		(CL) S13: Similar to S12	48	S13								PP= 0.75 tsf
-52.82	28.00	0 0 3 3	3	4		LEAN CLAY (CL) medium plasticity fines; bluish gray, moist, few organics, trace shell fragments	100	S14								PP= 0.25 tsf
-54.82	30.00	0 0 0 0	WOH	0		(CL) S15: Similar to S14	17	S15								PP= 0.00 tsf WOH = WOR
-56.82	32.00	0 0 0 0	WOH	0		LEAN CLAY (CL) medium plasticity fines; bluish gray, moist to wet, very soft, few organics	100	S16								PP= 0.00 tsf WOH = WOR
-58.82	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S16, except trace S18: shell fragments	100	S17								PP= 0.00 tsf WOH = WOR
-60.82	36.00	0 0 0 0	WOH	0		(CL) Similar to S16	60	S18				40	19	43	CL	PP= 0.00 tsf WOH = WOR
-62.82	38.00	0 0 0 0	WOH	0		(CL) S19: Similar to S16	100	S19								PP= 0.00 tsf WOH = WOR
-64.82	40.00	0 0 0 0	WOH	0		(CL) S20: Similar to S16 except trace S21: shell fragments	100	S20								PP= 0.00 tsf WOH = WOR
-66.82	42.00	0 0 0 0	WOH	0		(CL) Similar to S16	80	S21								PP= 0.00 tsf WOH = WOR
-68.82	44.00	0 0 0 0	WOH	0		(CL) S22: Similar to S16	50	S22								PP= 0.00 tsf WOH = WOR
-70.82	46.00	0 0 0 0	WOH	0		(CL) S23: Similar to S16	100	S23								PP= 0.00 tsf WOH = WOR
-72.82	48.00	0 0 0 0	WOH	0		LEAN CLAY (CL) medium plasticity fines; olive gray, moist, very soft, trace organics	100	S24								PP= 0.00 tsf WOH = WOR
-73.82	49.00	0 0	WOH	0		LEAN CLAY (0-12") (CL) medium plasticity fines; light gray, wet, very soft	100	S25								PP= 0.00 tsf
-74.82	50.00	0 0				SANDY LEAN CLAY WITH GRAVEL (12-24") (CL) medium plasticity fines; light gray, moist to wet, very soft, little fine to coarse sand, little fine to coarse gravel, angular										
-76.82	52.00	0 3 6 8	9	12		SANDY LEAN CLAY WITH GRAVEL (CL) medium plasticity fines; light gray, moist, stiff, some medium to coarse sand, little fine to coarse gravel, angular	100	S26	16	34	50			10	CL	Gravel in the tip of spoon
						Glacial Till										
						Borehole finished at 52.0										

Boring Designation **FD24-08**

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

1. PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

10. COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283750.94 E: 880051.89

LOCATION METHOD: GPS

2. HOLE NUMBER: FD24-08

3. DRILLING AGENCY: NEBC

11. DATE BORING — STARTED: Apr 26 2024 — COMPLETED: Apr 26 2024

4. NAME OF DRILLER: Sam Cooley

12. HAMMER TYPE: Automatic, 30" drop, 140 lb

EFFICIENCY (%): 82.0

5. EQUIPMENT: D30 (Manufactured in House)

13. SIZE AND TYPE OF BIT: Drive and Wash

6. DIRECTION OF BORING: Vertical — DEG FROM VERTICAL: — BEARING: —

14. ELEVATION SURFACE: -37.1'

15. ELEVATION GROUND WATER: 5.6'

7. THICKNESS OF OVERBURDEN: 38.0'

16. TOTAL NUMBER CORE BOXES: 0

8. DEPTH DRILLED INTO ROCK:

17. SIGNATURE AND TITLE OF INSPECTOR: Alex Juliano, Geotechnical Engineer

9. TOTAL DEPTH OF BORING: 38.0'

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0,0,0,0	WOH	0		ORGANIC SILT (OL) low plasticity fines; olive gray, wet, very soft, trace shells, organic odor *Bay Sediment*	60	S1								WOH = WOR
-39.10	2.00	0,0,0,0														WOH = WOR -39
		0,0,0,0	WOH	0		(OL) S2: Similar to S1	100	S2								
-41.10	4.00															WOH = WOR
		0,0,0,0	WOH	0		(OL) S3: Similar to S1	55	S3								
-43.10	6.00															WOH = WOR, Visually classified as OL -44
		0,0,0,0	WOH	0		(OL) S4: Similar to S2	100	S4						87	OL	
-45.10	8.00															WOH = WOR
		0,0,0,0	WOH	0		(OL) S5: Similar to S3	85	S5								
-47.10	10.00															WOH = WOR
-47.80	10.70	0,0,0,0	WOH	0		(OL) S6 (0-8"): Similar to S1 LEAN CLAY (8-24") (CL) low to medium plasticity fines; gray, wet, very soft *Glacial Marine Sediment*	100	S6								PP= 2.00 tsf TV= 0.20 tsf
-49.10	12.00															Bottom of 4-inch casing -49
		0,0,2,2	2	3		(CL) S7: Similar to S6 (8-24")	55	S7								
-51.10	14.00															
		1,3,2,4	5	7		(CL) S8: Similar to S6 (8-24"), except medium stiff	100	S8								
-53.10	16.00															
		2,4,4,6	8	11		(CL) S9: Similar to S6 (8-24"), except medium stiff, low plasticity	65	S9	0	1	99	29	10	25	CL	-54
-55.10	18.00															
		2,3,5,4	8	11		(CL) S10: Similar to S6 (8-24"), except medium stiff	90	S10								PP= 1.50 tsf TV= 0.20 tsf
-57.10	20.00															
		4,4,6,5	10	14		(CL) S12: Similar to S6 (8-24"), except stiff	100	S11								PP= 1.50 tsf TV= 0.20 tsf
-59.10	22.00															-59
		3,4,5,3	9	12		(CL) S11: Similar to S6 (8-24"), except stiff	80	S12								PP= 1.50 tsf TV= 0.20 tsf
-61.10	24.00					(CL) S13: Similar to S6 (8-24"), except medium stiff										

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 2 of 2

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283750.94 E: 880051.89

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-63.10	26.00	0 3 4 5	7	10		(CL) S13: Similar to S6 (8-24"), except medium stiff	100	S13								PP= 1.50 tsf TV= 0.20 tsf
-65.10	28.00	0 3 4 4	7	10		(CL) S14: Similar to S6 (8-24"), except medium stiff	100	S14								
-67.10	30.00	2 3 4 3	7	10		(CL) S15: Similar to S6 (8-24"), except medium stiff	100	S15								
-69.10	32.00	0 0 0 0	WOH	0		(CL) S16: Similar to S6 (8-24"), except very soft	100	S16	0	1	99			40	CL	WOH = WOR PP= 0.00 tsf TV= 0.15 tsf
-71.10	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S6 (8-24"), except very soft	100	S17								WOH = WOR PP= 0.00 tsf TV= 0.10 tsf
-73.10	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S6 (8-24"), except very soft	100	S18								WOH = WOR PP= 0.00 tsf TV= 0.10 tsf
-75.10	38.00	0 0 0 0	WOH	0		(CL) S19: Similar to S6 (8-24"), except very soft	100	S19								WOH = WOR PP= 0.00 tsf TV= 0.10 tsf
						Borehole finished at 38.0										

-64 -69 -74 -79 -84 -89

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-09
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	38.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	38.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 283754.65 E: 880353.94
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 29 2024
COMPLETED	Apr 30 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-38.5'
15. ELEVATION GROUND WATER	8.4'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Mustaki Ahmed, Geotechnical Professional

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LAB: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0				ORGANIC SILT (OH) low to medium plasticity fines; olive gray, wet, very soft, trace shells, fibers, organic odor										WOH = WOR -39
	—	0	WOH	0		*Bay Sediment*	63	S1								PP= 0.00 tsf
-40.50	2.00	0														
		0				(OH) S2: Similar to S1										WOH = WOR
	—	0	WOH	0			90	S2	0	5	95	81	52	93	OH	PP= 0.00 tsf
-42.50	4.00	0														
		0				(OH) S3: Similar to S1, except trace clay										WOH = WOR
	—	0	WOH	0			100	S3								PP= 0.00 tsf -44
-44.50	6.00	0														
		0				(OH) S4: Similar to S1, except very soft, trace clay in tip										WOH = WOR
	—	0	WOH	0			100	S4								PP= 0.00 tsf
-46.50	8.00	0														
		0				(OH) S5 (0-12"): Similar to S1, few fine to coarse sand (5-10%)										
-47.50	9.00	0					100	S5								PP= 0.00 tsf
		6	6	8		LEAN CLAY (12-24") (CL) mediium to high plasticity fines; olive gray and brown, moist to wet, medium stiff, mottled										
-48.50	10.00	7				*Glacial Marine Sediment*										
		0														-49
	—	3	7	10		(CL) S6: Similar to S5 (12-24"), trace thin silt seam, few shell fragments	85	S6								PP= 1.25 tsf
-50.50	12.00	4														TV= 0.10 tsf
		5														
		0				(CL) S7 (0-12"): Similar to S5 (12-24")										
-51.50	13.00	5	10	14			75	S7								PP= 1.50 tsf
		5				LEAN CLAY (12-18") (CL) low to medium plasticity fines; olive gray and black, moist, stiff, trace organics										TV= 0.15 tsf
-52.50	14.00	7														
-52.50	14.00	1				(CL) S8: Similar to S7 (12-18")										
		6														
	—	7	13	18			65	S8								PP= 2.50 tsf
-54.50	16.00	9														TV= 0.15 tsf -54
		3				(CL) S9: Similar to S7 (12-18"), except olive gray										Bottom of 4-inch casing
	—	5	10	14			95	S9								PP= 2.00 tsf
		5														TV= 0.10 tsf
-56.50	18.00	5														
		9				(CL) S10: Similar to S7 (12-18"), except very stiff, few shell fragments										
	—	8	17	23			85	S10	0	1	99	44	25	31	CL	PP= 0.75 tsf
		9														TV= 0.00 tsf
-58.50	20.00	7														
		1				(CL) S11: Similar to S7 (12-18"), except medium stiff										-59
	—	2	5	7			90	S11								PP= 0.50 tsf
		3														TV= 0.15 tsf
-60.50	22.00	5														
		3				(CL) S12: Similar to S7 (12-18"), except medium stiff										
	—	3	7	10			90	S12								PP= 0.50 tsf
		4														TV= 0.50 tsf
-62.50	24.00	4				(CL) S13: Similar to S7 (12-18"), except soft, trace no shell										

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283754.65 E: 880353.94

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY							REMARKS
									Gravel	Sand	Fines	LL	PI	MC	ASTM Class	
		2				(CL) S13: Similar to S7 (12-18"), except soft, trace no shell										
		2	4	5			90	S13								PP= 0.25 tsf
		2														TV= 0.00 tsf
-64.50	26.00	3														WOH = WOR
		0				(CL) S14: Similar to S7 (12-18"), except very soft										
		0	WO													
		0	H	0			100	S14								PP= 0.00 tsf
		0														TV= 0.00 tsf
-66.50	28.00	0														WOH = WOR
		0				LEAN CLAY (CL) medium plasticity fines; olive gray, moist to wet, very soft, trace organics										
		0	WO													
		0	H	0			95	S15				39	20	41	CL	PP= 0.00 tsf
		0														TV= 0.00 tsf
-68.50	30.00	0														WOH = WOR
		0				(CL) S16: Similar to S15										
		0	WO													
		0	H	0			100	S16								PP= 0.00 tsf
		0														TV= 0.00 tsf
-70.50	32.00	0														WOH = WOR
		0				(CL) S17: Similar to S15										
		0	WO													
		0	H	0			100	S17								PP= 0.00 tsf
		0														TV= 0.00 tsf
-72.50	34.00	0														WOH = WOR
		0				(CL) S18: Similar to S15										
		0	WO													
		0	H	0			100	S18								PP= 0.00 tsf
		0														TV= 0.00 tsf
-74.50	36.00	0														
		0				(CL) S19 (0-15"): Similar to S15										
-75.50	37.00	0														
		12	22	30			100	S19	36	33	31	20	5	8	GC-GM	PP= 0.00 tsf
		10				SILTY CLAYEY GRAVEL WITH SAND (15-24") (GC-GM) gray, moist, medium dense											TV= 0.00 tsf
-76.50	38.00	18				*Glacial Till*										
						Borehole finished at 38.0										

-64 -69 -74 -79 -84 -89

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-10
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	40.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	40.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 283610.50 E: 880205.43
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 18 2024
COMPLETED	Apr 18 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-36.7'
15. ELEVATION GROUND WATER	10.0'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Mustaki Ahmed, Geotechnical Professional

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-38.71	2.00	0 0 0 0	WOH	0		ORGANIC SOIL (OH) high plasticity fines; olive gray, wet, very soft, trace fine sand, trace shell fragments, organic odor *Bay Sediment*	85	S1								WOH = WOR PP= 0.00 tsf
-40.71	4.00	0 0 0 0	WOH	0		(OH) S2: Similar to S1	85	S2								WOH = WOR PP= 0.00 tsf
-42.71	6.00	0 0 0 0	WOH	0		(OH) S3: Similar to S1	70	S3								WOH = WOR PP= 0.00 tsf
-44.71	8.00	0 0 0 0	WOH	0		(OH) S4: Similar to S1	100	S4	0	5	96	95	63	105	OH	WOH = WOR PP= 0.00 tsf
-46.71	10.00	0 0 0 0	WOH	0		(OH) low to medium plasticity fines; wet, S5: Similar to S1	100	S5								WOH = WOR PP= 0.00 tsf
-47.41	10.70	0				(ML) S6 (0-8"): Similar to S1										
-48.71	12.00	0 3 3	3	4		LEAN CLAY (8-16") (CL) medium plasticity fines; dark gray, moist to wet, soft, trace fine sand, trace organics *Glacial Marine Sediment*	100	S6								PP= 0.25 tsf
-50.71	14.00	2 2 2 3	4	5		LEAN CLAY (CL) low to medium plasticity fines; dark gray, moist to wet, soft, few silt, trace fine sand, silt pocket (0.5-1")	95	S7								PP= 0.75 tsf
-52.71	16.00	3 4 6 7	10	14		LEAN CLAY (CL) low to medium plasticity fines; dark gray, moist to wet, stiff	75	S8								PP= 1.00 tsf
-54.71	18.00	0 0 0 0	WOH	0		LEAN CLAY (CL) low to medium plasticity fines; olive gray, moist to wet, soft, trace shell fragments	75	S9								WOH = WOR PP= 0.25 tsf
-56.71	20.00	0 3 4 4	7	10		(CL) S10: Similar to S9, moist, except no shell	100	S10	0	1	99	31	15	26	CL	PP= 0.50 tsf
-58.71	22.00	0 4 4 6	8	11		(CL) S11: Similar to S9, trace organics, organic odor, angular rock fragment	100	S11								PP= 0.50 tsf
-60.71	24.00	0 5 6 5	11	15		LEAN CLAY (CL) low to medium plasticity fines; olive gray, moist, medium stiff, trace shell fragments, trace organics (CL) S13: Similar to S12	100	S12								Bottom of 4-inch casing PP= 0.75 tsf

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283610.50 E: 880205.43

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-62.71	26.00	4 1 4 4	5	7		(CL) S13: Similar to S12	100	S13								PP= 0.60 tsf
-64.71	28.00	0 0 3 3	3	4		(CL) S14: Similar to S12, except no shell	17	S14								PP= 0.13 tsf
-66.71	30.00	0 0 4 3	4	5		LEAN CLAY (CL) low to medium plasticity fines; light gray, moist to wet, soft	85	S15								PP= 0.13 tsf
-68.71	32.00	0 0 0 0	WOH	0		LEAN CLAY (CL) medium to high plasticity fines; light gray, moist to wet, very soft, trace shell fragments, trace organics	100	S16								WOH = WOR PP= 0.00 tsf
-70.71	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S16, moist, except no shell	100	S17	0	2	98	47	26	45	CL	WOH = WOR PP= 0.00 tsf
-72.71	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S16, except no shell	100	S18								WOH = WOR PP= 0.00 tsf
-74.71	38.00	0 0 0 0	WOH	0		LEAN CLAY (CL) medium to high plasticity fines; light gray, moist, very soft, trace shell fragments, trace organics	100	S19								WOH = WOR PP= 0.00 tsf
-76.71	40.00	0 0 0 0	WOH	0		(CL) S20: Similar to S19	100	S20								WOH = WOR PP= 0.00 tsf
						Borehole finished at 40.0										

-64 -69 -74 -79 -84 -89

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT	Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME
2. HOLE NUMBER	FD24-11
3. DRILLING AGENCY	NEBC
4. NAME OF DRILLER	Sam Cooley
5. EQUIPMENT	D30 (Manufactured in House)
6. DIRECTION OF BORING	Vertical
DEG FROM VERTICAL	
BEARING	
7. THICKNESS OF OVERBURDEN	40.0'
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF BORING	40.0'
10. COORDINATE SYSTEM	NAD 1983 StatePlane Maine East FIPS 1801 Feet
VERTICAL	MLLW
LOCATION COORDINATES	N: 283472.75 E: 880055.69
LOCATION METHOD:	GPS
11. DATE BORING STARTED	Apr 30 2024
COMPLETED	Apr 30 2024
12. HAMMER TYPE	Automatic, 30" drop, 140 lb
EFFICIENCY (%)	82.0
13. SIZE AND TYPE OF BIT	Drive and Wash
14. ELEVATION SURFACE	-36.8'
15. ELEVATION GROUND WATER	0.9'
16. TOTAL NUMBER CORE BOXES	0
17. SIGNATURE AND TITLE OF INSPECTOR	Mustaki Ahmed, Geotechnical Professional

ELEV	DEPTH	BLOWS/0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0,0,0,0				(OH) No recovery										WOH = WOR
	—	0,0,0,0	WOH	0		*Bay Sediment*	0	S1								PP= 0.00 tsf
-38.83	2.00															TV= 0.00 tsf
		0,0,0,0				ORGANIC SOIL (OH) high plasticity fines; olive gray, wet, very soft, trace shell fragments and fine sand										WOH = WOR
	—	0,0,0,0	WOH	0			100	S2								PP= 0.00 tsf
-40.83	4.00															TV= 0.00 tsf
		0,0,0,0				(OH) S3: Similar to S2										WOH = WOR
	—	0,0,0,0	WOH	0			100	S3								PP= 0.00 tsf
-42.83	6.00															TV= 0.00 tsf
		0,0,0,0				(OH) S4: Similar to S2										WOH = WOR
	—	0,0,0,0	WOH	0			96	S4								PP= 0.00 tsf
-44.83	8.00															TV= 0.00 tsf
		0,0,0,0				(OH) S5: Similar to S2										WOH = WOR
	—	0,0,0,0	WOH	0			80	S5	0	7	93	76	41	88	OH	PP= 0.00 tsf
-46.83	10.00															TV= 0.00 tsf
		0,0,0,0				(OH) S6: Similar to S2, except trace clay										WOH = WOR
	—	0,0,0,0	WOH	0			55	S6								PP= 0.00 tsf
-48.83	12.00															TV= 0.00 tsf
-49.13	12.30	0				(OH) S7 (0-4"): Similar to S2										WOH = WOR
		0,0,0,0				SILTY CLAY (4-24") (CL-ML) olive gray and black, wet, very soft, trace organics, fine sand/ silt seam (1")										
	—	0,0,0,0	WOH	0		*Glacial Marine Sediment*	100	S7								PP= 0.25 tsf
-50.83	14.00															TV= 0.00 tsf
		0,0,0,0				LEAN CLAY (CL) olive gray and black, wet, very soft, trace organics										WOH = WOR
	—	0,0,0,0	WOH	0			77	S8								PP= 0.25 tsf
-52.83	16.00															TV= 0.00 tsf
		0,0,0,0				(CL) S9: Smilar to S7 (4-24")										WOH = WOR
	—	0,0,0,0	WOH	0			100	S9								Bottom of 4-inch casing
-54.83	18.00															PP= 0.25 tsf
		0,0,0,0				LEAN CLAY (CL) low to medium plasticity fines; olive gray and black, moist to wet, very soft, few organics										TV= 0.00 tsf
	—	0,0,0,0	WOH	0			100	S10								WOH = WOR
-56.83	20.00															PP= 0.25 tsf
		0,0,0,0				(CL) S11: Similar to S10, thin (0.5") layer of fine sand/ silt										TV= 0.00 tsf
	—	0,0,0,0	WOH	0			100	S11								WOH = WOR
-58.83	22.00															PP= 0.25 tsf
		0,0,0,0				(CL) S12: Similar to S10										TV= 0.00 tsf
	—	0,0,0,0	WOH	0			100	S12	0	1	99	29	13	27	CL	WOH = WOR
-60.83	24.00															PP= 0.00 tsf
						(CL) S13: Similar to S10										TV= 0.00 tsf
																WOH = WOR

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283472.75 E: 880055.69

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-62.83	26.00	0 0 0 0	WOH	0		(CL) S13: Similar to S10	100	S13								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-64.83	28.00	0 0 0 0	WOH	0		(CL) S14: Similar to S10, except less organics	65	S14								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-66.83	30.00	0 0 0 0	WOH	0		(CL) S15: Similar to S10, except light gray, no organics	70	S15								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-68.83	32.00	0 0 0 0	WOH	0		(CL) S16: Similar to S10, except light gray, no organics	100	S16								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-70.83	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S10, except light gray, no organics	100	S17								WOH = WOR
-72.83	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S10, except light gray, no organics	100	S18								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-74.83	38.00	0 0 0 0	WOH	0		(CL) S19: Similar to S10, except trace shell fragments	100	S19								PP= 0.00 tsf TV= 0.00 tsf WOH = WOR
-76.83	40.00	0 0 0 0	WOH	0		(CL) S20: Similar to S10, except high plasticity	96	S20	0	2	98	49	26	46	CL	PP= 0.00 tsf TV= 0.00 tsf
						Borehole finished at 40.0										

-64 -69 -74 -79 -84 -89

DRILLING LOG

DIVISION: North Atlantic

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 1 of 2

1. PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

10. COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283459.94 E: 880355.77

LOCATION METHOD: GPS

2. HOLE NUMBER: FD24-12

3. DRILLING AGENCY: NEBC

11. DATE BORING: STARTED Apr 18 2024; COMPLETED Apr 19 2024

4. NAME OF DRILLER: Sam Cooley

12. HAMMER TYPE: Automatic, 30" drop, 140 lb

EFFICIENCY (%): 82.0

5. EQUIPMENT: D30 (Manufactured in House)

13. SIZE AND TYPE OF BIT: Drive and Wash

6. DIRECTION OF BORING: Vertical; DEG FROM VERTICAL: ; BEARING:

14. ELEVATION SURFACE: -38.0'

15. ELEVATION GROUND WATER: 2.7'

7. THICKNESS OF OVERBURDEN: 38.0'

16. TOTAL NUMBER CORE BOXES: 0

8. DEPTH DRILLED INTO ROCK:

17. SIGNATURE AND TITLE OF INSPECTOR: Mustaki Ahmed, Geotechnical Professional

9. TOTAL DEPTH OF BORING: 38.0'

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY: Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
		0				ORGANIC SOIL (OH) high plasticity fines; olive gray, wet, very soft, trace shell fragments, organic odor										WOH = WOR
	—	0	WOH	0		*Bay Sediment*	63	S1								PP= 0.00 tsf
-40.00	2.00	0														
		0				(OH) organic odor, S2: Similar to S1, except no shells										WOH = WOR
	—	0	WOH	0			90	S2								PP= 0.00 tsf
-42.00	4.00	0														
		0				(OH) S3: Similar to S1										WOH = WOR
	—	0	WOH	0			100	S3	0	6	95	100	63	103	OH	PP= 0.00 tsf -43
-44.00	6.00	0														
		0				(OH) S4: Similar to S1										WOH = WOR
	—	0	WOH	0			85	S4								PP= 0.00 tsf
-46.00	8.00	0														
		0				(OH) S5: Similar to S1										WOH = WOR
	—	0	WOH	0			70	S5								
-48.00	10.00	0														
-48.40	10.40	0				(OH) S6 (0-5"): Similar to S1										WOH = WOR -48
		0				LEAN CLAY (5-16") (CL) low to medium plasticity fines; brown and olive gray, moist to wet, very soft, trace angular coarse gravel, shell fragments, mottled											
	—	0	WOH	0			65	S6								PP= 0.50 tsf
-50.00	12.00	0				*Glacial Marine Sediment*										
		4				LEAN CLAY (CL) low to medium plasticity fines; brown and olive gray, moist to wet, medium stiff, trace angular coarse gravel, mottled											
	—	4	7	10			95	S7								PP= 1.50 tsf
-52.00	14.00	3														
		4				(CL) S8: Similar to S7, except very stiff										
	—	8	18	25			75	S8								PP= 1.50 tsf -53
-54.00	16.00	10														
		12														
		4				LEAN CLAY (CL) low to medium plasticity fines; olive gray, moist, stiff, trace organics										
	—	6	13	18			95	S9	0	1	99	33	15	28	CL	PP= 1.50 tsf
-56.00	18.00	7														
		9														
		5				(CL) S10: Similar to S9										
	—	7	15	21			100	S10								PP= 1.13 tsf
-58.00	20.00	8														-58
		0				LEAN CLAY (CL) medium plasticity fines; olive gray, moist, medium stiff, trace organics										
	—	0	6	8			85	S11								PP= 1.25 tsf
-60.00	22.00	6														
		3				(CL) S12: Similar to S11, except stiff										
	—	7	14	19			63	S12								PP= 0.38 tsf
-62.00	24.00	7														
		5				(CL) S13: Similar to S11, except trace shells										

(continued on next page)

DRILLING LOG (Cont Sheet)

INSTALLATION: Searsport Harbor Federal Navigation Project

Sheet 2 of 2

PROJECT: Subsurface Exploration and Site Characterization, Searsport Harbor Searsport, ME

COORDINATE SYSTEM: NAD 1983 StatePlane Maine East FIPS 1801 Feet

VERTICAL: MLLW

LOCATION COORDINATES: N: 283459.94 E: 880355.77

LOCATION METHOD: GPS

ELEV	DEPTH	BLOWS/ 0.5ft	N	N60	LEGEND	FIELD CLASSIFICATION OF MATERIALS (Description)	% REC	Samp No.	LABORATORY Gravel	Sand	Fines	LL	PI	MC	ASTM Class	REMARKS
-64.00	26.00	5 4 3 3	7	10		(CL) S13: Similar to S11, except trace shells	45	S13								PP= 0.50 tsf WOH = WOR
-66.00	28.00	0 0 0 0	WOH	0		(CL) S14: Similar to S11, except very soft	100	S14								PP= 0.25 tsf WOH = WOR
-68.00	30.00	0 0 0 0	WOH	0		LEAN CLAY (CL) medium plasticity fines; olive gray, moist, very soft, trace shell fragments, trace organics	100	S15								
-70.00	32.00	0 0 0 0	WOH	0		(CL) S16: Similar to S15, except no shells	75	S16								WOH = WOR
-72.00	34.00	0 0 0 0	WOH	0		(CL) S17: Similar to S15	100	S17								WOH = WOR
-74.00	36.00	0 0 0 0	WOH	0		(CL) S18: Similar to S15, except no shells	100	S18	0	0	100	36	17	40	CL	WOH = WOR
-76.00	38.00	0 0 0 0	WOH	0		(CL) S20: Similar to S15, except no shells	100	S19								WOH = WOR
						Borehole finished at 38.0										

-63
-68
-73
-78
-83
-88

Appendix B

Field Boring Logs

Boring Location: FD24-1
Ground El./ Datum: -26.14
Rig Type: D30
Groundwater Depth: 5.03 ft MLLW Date: 4/16/24

Date Start/Finish: 04/16/24 - 4/17/24
Driller/Company: NEBC
Casing Type/Size: 4" / 3"
Hammer Type/Drive System: Automated 140lb
GEI Rep.: M. Ahmed Total Depth (ft):

FD24-1
Pg. 1 of 2

Depth ft	Sample Type and No.	Blows per 6 in. or RQD	Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
11.86						Barge deck.
6.86				5.03		Water Level ▽
1.86						
-3.14						
-8.14						
-13.14						
-18.14						
-23.14						
						Mudline.
-28.14 0-2'	S-1	WR-WR WR-WR	24-21.4	PP = 0	Bay Mud / Silt	Silt (ML/OL), gray, very soft, low to M. plasticity, trace gravel (5%)
2-4'	S-2	WR-WR WR-WR	24-9.6	PP = 0		Silt (ML/OL), gray, very soft, L to M plasticity, organics (5%) Organics
4-6	S-3	WR	24/24	PP = 0.		Same as S-1 & S-2, except trace sand (5%)
6-8'	S-4	WR	24/24	PP = 0		ML/OL, M. plasticity, organics, trace sand (5%) *
8-10'	S-5	WR	24/24	PP = 0		ML/OL, olive gray, very soft, M. Plas. trace sand (5%)
10-12	S-6	WR	24/24	PP = 0		11" Odor
12-14'	S-7	WR	24/24	PP = 0		ML, Peat Pocket (4") olive gray to brown, very soft, M. plasticity; trace ** sand (5%) Odor
14-16'	S-8	WR/18" 2 5	24/24	PP = 0.75 tsf	Clay	CL/CH, mottled, olive gray to brown, very soft, M to H plasticity
16-18'	S-9	WR/6" 1/18"	24/14	PP = 0.25 tsf		Same as S-8; except M. plasticity.
18-20'	S-10	22-33	24/24	PP = 0.75 tsf		Lean clay / Fat clay (CL/CH), olive gray, medium stiff, M to H plasticity, mottled.

Project Name: Seaspan Drilling
GEI Project No: 2400096
Client: USACE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: ** = Atterberg.
* = Grain size.

GEI Consultants

Boring Location FD24-1 | Date Start/Finish 4/16/24 - 4/17/24 | FD24-1

Ground El./ Datum | Driller/Company NEBC

Rig Type D30 (manufactured in house) | Casing Type/Size 4"/3"

Groundwater Depth ____ Date 4/16/24 | Hammer Type/Drive System Automated (140 lb)

GEI Rep. M. Ahmed | Total Depth (ft) 50 ft | Pg 2 of 2

Depth ft	Sample: Type and No.	Sample: Blows per 6 in. or RQD	Sample: Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
20-22'	S-11	WH/6" 3-4-4	24/24	PP-0.75tsf		same as S-10 **
22-24	S-12	3-3-3-4	24/24	PP-0.75tsf		Same as S-10 & S-11; *
24-26'	S-13	2-2-3-4	24/24	PP=0.75tsf		Same as S.10 to S-13
26'-28'	S-14	4-3-5-5	24/18"	PP=0.5tsf		" bluish gray, M to H plasticity
28-30'	S-15	5-4-5-5	24/24	PP=0.5tsf		" stiff
30-32'	S-16	WH/12-3-3	24/20	PP=0.5tsf		CL/CH, soft, blueish gray, M to H plasticity
32-34'	S-17	3-4-5-5	24/20	PP=0.75tsf		CL/CH, stiff, blueish gray, high plasticity
34-36'	S-18	WH/18"-2	24/14	PP=0.25tsf	Clay	CL/CH, very soft, blueish gray, M to H plasticity
36-38'	S-19	1-3-22	24/24	PP=0.25 tsf		" , medium stiff, trace organic
38-40'	S-20	WH/12 3-2	24/13.5"	PP=0 tsf		" , soft, trace organics *
40-42'	S-21	WH/24	24/9"	PP=0.5tsf		"
42-44'	S-22	WH/24	24/24	Lost water at 42 ft PP=0 tsf		" **
44-46'	S-23	WH/24	24/24	Drive 3-inch casing inside the 4-inch PP=0 tsf		Lean/fat Clay, very soft, gray, M to H plasticity, moist to wet, trace organics
46-48'	S-24	WH/24	24/24	PP=0 tsf		"
48-50'	S-25	WH/24	24/24	PP=0 tsf		"
-76 ft MLLW.						End of Boring

Project Name: Seaspout Drilling

GEI Project No: 2400094

Client: USACE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler

Pen - Penetration Length | Rec - Recovery Length | C - Core Sample

S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %

U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: Boring terminated at 50 ft below mudline (-76 ft MLLW).
NO refusal encountered

GEI Consultants

At the end of the drilling: 4" Casing = 35 ft below the mudline
3" Casing = 46 ft " " "

Boring Location: FD-24-2
Ground El./ Datum: -22.9 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/22/24 — 4/22/24
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Automatic 140#
GEI Rep.: A. Juliano Total Depth (ft): 54'

FD24-2

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen./ Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						Tide El @ 0805 6.8 FT MLLW 37' to mudline from deck 7.3' freeboard
-22.9						Mudline -22.9 MLLW
0830 start						
0-2	S1	WOR	24/1		River Bottom Mud	S1: Silt (ML/OL) Very soft, olive gray, wet low to med. plasticity, organic odor, trace shells
-24.9						
2-4	S2	WOR	24/19			S2: Same as S1
4-6	S3	WOR	24/13			S3: Same as S1
6-8	S4	WOR	24/11			S4: Same as S1
8-10	S5	WOR	24/16			S5: Same as S1
-32.9						
10-12	S6	WOR	24/23			S6: Same as S1, fibers observed
12-14	S7	WOR	24/15			S7: Same as S1
14-16	S8	WOR 3 3 5	24/24	PP=1.0	15'	S8: (0-14") same as S1 S9: (14-24") Lean clay (CL); med stiff, olive gray, wet, low to med plasticity, trace organics, thin sand seams, mottled silt
-37.9						
-38.9						

Project Name: Searsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: FD24-2 location was adjusted to 50 ft outside CAD cell per Gina's revised locations

GEI Consultants

Boring Location: FD24-2 Adjusted location 50' outside cell | Date Start/Finish: 4/22/24
Ground El./ Datum: -22.9' MLLW | Driller/Company: NEBC Sam Cooley
Rig Type: D30 | Casing Type/Size: 4"
Groundwater Depth: ____ Date: ____ | Hammer Type/Drive System: Auto
GEI Rep.: A. Juliano | Total Depth (ft): ____

FD24-2

Depth ft	Sample Type and No.	Blows per 6 in. or RQD	Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-38.9						
16-18	S9	3 6 7 8	24/24	PP=1.0	CLAY	S9: Similar to S8
18-20	S10	5 5 7 7	24/24	PP=1.0		S10: Similar to S8, except stiff
20-22	S11	5 5 5 6	24/24	PP=0.25		S11: (0-12") Very soft Lean clay olive gray, med plasticity, wet (12-24") Similar to S8
22-24	S12	WOR WOR 2 3	24/6	PP=0.5 leave		S12: Lean clay (CL) soft, gray, wet, med plasticity, mottled. *
24-26	S13	3 4 3 3	24/8	Casing at 24' and sample open hole PP=0 Sv=0.2		S13: Lean clay (CL) med stiff gray, wet med plasticity, mottled,
26-28	S14	4 4 4 5	24/24	Sv=0.25 PP=0.25	GLACIOMARINE	S14: Similar to S13, except stiff
28-30	S15	2 2 3 5	24/24	Sv=0.2 PP=0.5		S15: Similar to S13, medium stiff
-52.9						
30-32	S16	WOR	24/24	Sv=0.2 PP=0.5		S16: Lean clay (CL) Very soft, gray, wet, low plasticity *
32-34	S17	WOR	24/24"	Sv=0.15 PP=0		S17 Similar to S16
34-36	S18	WOR	24/8"	Sv=0.2 PP=0		S18 Similar to S16
36-38	S19	WOR	24/24	Sv=0.2 PP=0		S19 Similar to S16
38-40	S20	WOR	24/24			S20 Similar to S16
-62.9						

Project Name: Seaspout Harbor
GEI Project No: 2400496
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-2
Ground El./ Datum: -22.9 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/22/24
Driller/Company: Sam Cooley NEBC
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto - 140#
GEI Rep.: AMJ Total Depth (ft): 54

FD 24 -2
Pg. 3 of 3

Depth ft	Sample Type and No.	Blows per 6 in. or RQD	Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
40 - 42	S21	WOR	24/24	PP=0 Sv = 0.2		S21: Similar to S16
42 - 44	S22	WOR	24/24	Sv=0.2 Pp=0		S22: Similar to S16
44 - 46	S23	WOR	24/24	Pp=0 Sv=0.15	Clay	S23: Similar to S16
-68.9						
-69.4 46 - 48	S24	WOH 4 4 6	24/16	some gravel in wash @ 46 ft	46.5	S24: Silty Sand (SM); ~55% fine sand. ~40% low plasticity silt and clay, ~5% fine to coarse gravel, Subrounded up to 1" gray, stiff (Glacial Till)
-70.9 48 - 50	S25	3 3 4 6	24/18	Sv=0.3 Pp=1.0		S25: similar to S24
50 - 52	S26	8 5 5 4	24/8	Sv=0.2 Pp=0.75	Glacial Till	S26: Similar to S24, except ~10% gravel ~50% fine sand ~40% fines
52 - 54	S27	5 6 4 4	24/3			S27: Similar to S26
-76.9				-76.9'	54	END of boring Terminated at 54' below mudline (-76.9' MLLW)
1425 stop						

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-3
Ground El./ Datum: -26.1 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/24 – 4/25/24
Driller/Company: Sam Cooley NEBC
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 50

FD24-3

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						TIDE EL @ 1355 is 9.6 ft MLLW 43' from deck to mudline -7.3 freeboard 35.7 water column
1400 start					0	Mudline -26.1 MLLW
0 – 2	S1	WOR	24/19			S1: ORGANIC SILT (OL/ML); wet, very soft, olive grey, strong organic odor, shells, fibers
2 – 4	S2	WOR	24/10			S2: Similar to S1
4 – 6	S3	WOR	24/17		River Bottom Sediment	S3: Similar to S1
6 – 8	S4	WOR	24/0			S4: No Recovery
-34.1 8 – 10	S5	WOR	24/24			S5: Similar to S1 note update photo; wrong cover in photo (says S4)
10 – 12	S6	WOR	24/24			S6: Similar to S1
12 – 14	S7	WOR	24/24	S_u = 0.2 tsf P_p = 1.0 tsf casing removed for night barge left in place.	123 -38.4	S7: (0-4"): Similar to S1 (4-24"): Lean clay (CL) very soft grey, wet, low to med plasticity, shell fibers, mottled w 10% fine sand
-40.1 1440 stop for day on 4/24 -42.1 0715 resume on 4/25/24 14 – 16	S8	2 3 3 4	24/24			S8: Lean clay (CL); grey, wet, med stiff, ~10% fine sand ★ low to med plasticity

Project Name: USACE Searsport Harbor
GEI Project No: 2400096
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: FD24-3 location was adjusted to be ~50 ft outside CAD cell per USACE request

GEI Consultants

Boring Location: FD24-3
Ground El./ Datum: -26.1 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/24 – 4/25/24
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 50

FD24-3

Pg. 2 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-42.1						
16 – 18	S9	4 5 5 5	24/24			S9: Similar to SB, mottled, silt seams, stiff
18 – 20	S10	4 5 4 5	24/24			S10: " "
20 – 22	S11	2 4 6 1	24/16	Pp = 2.0 tsf Sv = 0.25 tsf		S11: " " no silt seams
22 – 24	S12	7 8 8 8	24/24	Pp = 2.0 tsf Sv = 0.3 tsf		S12: " "; very stiff, no silt seams
24 – 26	S13	WOH WOH 3 4	24/10		GLACIOMARINE CLAY	SB " " Soft, no silt seams
26 – 28	S14	WOR WOR 4 3	24/16	Pp = 2.0 tsf Sv = 0.30 tsf		S14 " " Soft, no silt seams
-54.1						
28 – 30	S15	3 3 3 2	24/24			S15: " " med. stiff, no silt seams
30 – 32	S16	3 2 3 2	24/24			S16 " " med stiff, shells observed
32 – 34	S17	WOR x4	24/24	Pp = 0.0 Sv = 0.0		S17: " " Shells, very soft
34 – 36	S18	WOR x4	24/24	Pp = 0 Sv = 0.2 tsf		S18 " " Shells, very soft
36 – 38	S19	WOR x4	24/24			S19: " "
38 – 40	S20	WOR x4	24/24	Pp = 0 Sv = 0.2 tsf		S20: " "
-66.1						

Project Name: USACE Searsport Harbor
GEI Project No: 2400096
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-3
Ground El./ Datum: -26.1 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/2024 - 4/25/2024
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140 #
GEI Rep.: A. Juliano Total Depth (ft): 50

FD24-3

Pg. 3 of 3

-66.1

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
40 - 42	S21	WOR	24/24		CLAY	S21 " "
42 - 44	S22	WOR	24/24			S22 " "
44 - 46	S23	WOR	24/24			S23: " "
46 - 48	S24	WOR	24/24			S24: " "
48 - 50	S25	WOR	24/24		50'	S25: 0-20 " " 20-24: Clayey sand (SC); ~50% fine sand, ~50% fines, grey, wet, very loose, ☆ Terminate boring at 50 ft. (-76.1 MLLW)

-76.1
1050
Stop

Project Name: USACE Searsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-4
Ground El./ Datum: -27.3 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/25/24
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140 #
GEI Rep.: A. Juliano Total Depth (ft): 48

FD24 - 4

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						Tide El @ 1121 is 9.4 FT MLLW 44' deck to mudline -7.3 freeboard 36.7 Water column
1120 -27.3					0	Mudline -27.3 FT MLLW
0 - 2	S1	WOR	24/16			S1: ORGANIC SILT (ML/OL): olive gray, very soft, wet, strong organic odor, trace shells, low plasticity
2 - 4	S2	WOR	24/16			S2: Similar to S1
4 - 6	S3	WOR	24/12			S3: Similar to S1
6 - 8	S4	WOR	24/11		River Bottom sediment	S4: similar to S1
8 - 10	S5	WOR	24/24			S5: : Similar to S1
10 - 12	S6	WOR	24/24			S6: Similar to S1
12 - 14	S7	WOR	24/24	-40.7	13.4	S7 0-17" Similar to S1 (17-24"): Sandy Silt (ML) - 30% fine sand ~60% low plasticity silt and clay, olive gray, very loose, wet, organic odor, shell fibers *
14 - 16	S8	WOR	24/24		CLAY/SILT	S8: Similar to S7 (17-24")
-43.3						

Project Name: USACE Scarsport Harbor
GEI Project No: 240096
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: FD24-4 was adjusted to be ~50 ft outside CAD cell per USACE request

GEI Consultants

Boring Location: FD24-4
Ground El./ Datum: -27.3 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/25/24
Driller/Company: NEBC Sim. Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Julimo Total Depth (ft): 48

FD 24 -4

Pg. 2 of 3

Depth ft	Sample Type and No.	Blows per 6 in. or RQD	Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-43.3						
16 – 18	X S9	WOR	24/24		GLACIAL MARINE CLAY S1 4 and S46	S9: similar to S7 (17-24")
18 – 20	X S10	WOR	24/22			S10: " "
20 – 22	X S11	WOR	24/24			S11: " " some fibers
22 – 24	X S12	WOR	24/24			S12: " " some fibers
24 – 26	X S13	WOR x2 WOH x2	24/24			S13: " "
26 – 28	S14	WOR/16" -5	24/24			S14: " "
28 – 30	S15	2 6 6 4	24/15			S15: clayey sand (SC): ~80% f-c sand, ~20% nonplastic fines, gray, wet, med dense.
-57.3						
30 – 32	S16	5 1 2 3	24/19	Sv=0.2 tsf PP=0 Open hole after 32'		S16: (0-5") Similar to S15; except ~10% f-c gravel, ~70% f-c sand (5-19") Lean clay (CL): gray, soft, wet, mottled low to med plasticity
32 – 34	S17	WOR	24/17	Pp=0 Sv=0.2 tsf		S17: Similar to S16 (5-19")
34 – 36	S18	WOR	24/24			S18: " "
36 – 38	S19	WOR	24/24			S19: " "
38 – 40	S20	WOR	24/24			S20 " "
-47.3						

Project Name: USACE SEARSPUIT HARBOR
GEI Project No: 2400086
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-4
Ground El./ Datum: -27.3 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/25/24
Driller/Company: NEBC
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 48

FD24-4

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-67.3 40						
40 – 42	X S21	WOR	24/24			S21: 〃 〃
42 – 44	X S22	WOR	24/24			S22: 〃 〃
44 – 46	X S23	WOR	24/24			S23: 〃 〃
46 – 48	X S24	WOR	24/24			S24: 〃 〃
-75.3						Terminate at 48' (-75.3 MLLW)

Project Name: USACE Seaspport Harbor
GEI Project No: 2400916
Client: USACE -- NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-5
Ground El./ Datum:
Rig Type: D30 (Manufactured in house)
Groundwater Depth: ____ Date: 04/29/24

Date Start/Finish: 04/29/24 - 4/29/24
Driller/Company: NEBC
Casing Type/Size: 4"
Hammer Type/Drive System: Automated 140lb
GEI Rep.: M. Ahmed Total Depth (ft): 50.

FD24-5
Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						Tide Elev. 2.05 ft MLLW Mudline Elev. -26.65 ft MLLW.
-26.65 ft MLLW 0-2	S1	WR	24/19	PP = 0 tsf	BAY MUD (SILT)	Silt (ML/OL), very soft, olive gray, wet, low plasticity, trace shells & organics, organic odor.
2-4	S-2	WR	24/1"	PP = 0 tsf		S2: similar to S1, except trace fibers, clay.
4-6'	S-3	WR	24/15"	PP = 0 tsf		S3: Similar to S1, except trace fine sand (5%), low to medium plasticity.
6-8'	S-4	WR	24/16"	PP = 0 tsf		S4: similar to S3, trace shell
8-10'	S5	WR	24/18"	PP = 0 tsf		S5: Similar to S3.
10-12'	S6	WR	24/24	PP = 0 tsf		S6: Similar to S3, except fine sand (10%), trace shell.
12-14'	S7	WR	24/21"	PP = 0 tsf		S7: similar to S6, trace shell, L to M. plasticity; moist to wet
14-16'	S8	WR	24/16"	PP = 0 tsf		S8: Similar to S7, except peat pocket (~2") at the tip; moist to wet
16-18'	S9	2 3 4 2	24/19"	PP = 0 tsf Bottom of 4" casing	~17.5 CLAY	S9 (top 16"): Similar to S8, 2" medium to coarse sand b/t silt & clay S9 (bottom 8"): lean clay (CL), medium stiff, light gray; moist.

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location FD24-5
Ground El./ Datum
Rig Type D30
Groundwater Depth ____ Date ____

Date Start/Finish 4/29/24 –
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140 lb)
GEI Rep. M. Ahmed Total Depth (ft) ____

FD 24-5
Pg. 2 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
18-20'	S10	3 3 5 5	24/24	PP = 1.5 tsf		S10: Lean clay / fat clay (CL/CH), olive gray & brown, medium, medium to high plasticity, stiff, moist, mottled
20-22	S11	3 2 3 4	24/24	PP = 1.0 tsf Sv = 0.15 tsf	GLACIAL MARINE CLAY	S11: Similar to S10, except trace angular rock fragments (≤5%)
22-24	S12	1 2 3 3	24/	PP = 1.0 tsf Sv = 0.15		S12: Lean / fat clay (CL/CH), light gray & black, medium stiff, medium to high plasticity, moist, trace organics.
24-26	S13	3 4 4 4	24/	PP = 0.25 tsf Sv = 0.15		S13: Similar to S12.
26-28	S14	1 1 2 3	24/24	PP = 0.5 tsf Sv = 0.15		S14: Similar to S12, except soft
28-30	S15	1 1 3 2	24/24	PP = 0 tsf Sv = 0.1 tsf		S15: Similar to S12, except trace fine sand (5%), soft
30-32'	S16	2 4 6 7	24/23	PP = 1.5 tsf Sv = 0.2		S16: similar to S12, except stiff.

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: Bottom of 4" casing 18' bellow mudline.

GEI Consultants

Boring Location FD24-5
Ground El./ Datum -26.65
Rig Type D30 (Manufactured in house)
Groundwater Depth ____ Date 4/29/24

Date Start/Finish 4/29/24 (8AM) - 4/29/24 13:00 PM
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140 lb)
GEI Rep. M. Ahmed Total Depth (ft) 50

FD24-5
Pg. 3 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
32-34	S17	3 5 8 7	24/	PP = 0.5 tsf Sv = 0.2 tsf		S17: Similar to S12, except stiff
34-36	S18	4 5 5 6	24/18"	PP = 0.5 tsf Sv = 0.2 tsf		S18: Similar to S12, except stiff
36-38	S19	3 3 4 6	24/ 15.5	PP = 0.25 tsf Sv = 0.15	MARINE CLAY	S19: Similar to S12,
38-40	S20	3 4 4 4	24/ 24	PP = 0.25 Sv = 0.1 tsf		S20: Similar to S12.
40-42	S21	WOR/24"	24/	PP = 0.5 Sv = 0.15	GLACIAL	S21: Similar to S12, except trace shell; very soft
42-44	S22	WOR/24"	24/24	PP = 0 tsf Sv = 0.15		S22: Similar to S12, except very soft
44-46	S23	WOR/24"	24/13"	PP = 0 tsf Sv = 0.05		S23: Similar to S12, except very soft
46-48	S24	WOR/24"	24/24	PP = 0 Sv = 0.05		S24: Similar to S12, except very soft
48-50	S-25	WOR/24"	24/20	PP = 0; Sv = 0		S25: Similar to S12, except very soft, trace shell.

Project Name: 2400096
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: Boring terminated at 50 feet below mudline (-76 ft MLLW); no refusal encountered.

GEI Consultants

Boring Location: FD24-6
Ground El./ Datum: -28.4 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/24
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto #140
GEI Rep.: A. Juliano Total Depth (ft): 48

FD24 - 6

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						TIDE El. @ 0850 is 5.3 FT MLLW 41' from deck to mudline - 7.3' freeboard 33.7' water column
					0'	Mudline -28.4 MLLW
0905 Start 0-2	X S1	WOR	24/0			S1: No recovery
2-4	X S2	WOR	24/0			S2: No recovery, muck on outside of spoon
4-6	X S3	WOR	24/24			S3: Organic silt (ML/OL) very soft, wet, olive gray, strong organic odor, shells observed low plasticity, ~10% fine sand
6-8	X S4	WOR	24/0			S4: No recovery
8-10	X S5	WOR	24/10			S5: Similar to S3
10-12	X S6	WOR	24/12	Pp = 0 tsf Sv = 0 tsf	River Bottom MUD	S6 Similar to S3
12-14	X S7	WOR	24/20			S7: Similar to S3, except ~15% fine sand
14-16	X S8	23, 1, 1	24/18			S8: (0-9") Similar to S7 (9-18") Silt w/ sand (ML) ~40% fine to med sand, ~60% silt, olive gray, wet, loose, organic odor, shells observed.
-44.4						

Project Name: Scarsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: FD24-6 Moved ~50 ft outside CAD cell footprint per USACE request

GEI Consultants

Boring Location: FD24-6
Ground El./ Datum: -28.4 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/24
Driller/Company: NEBC
Casing Type/Size: 4" FIS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 48

FD 24 - 6

Pg. 2 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-44.4						
16 - 18	S9	WOR	24/9		River Bottom Sediment	S9: similar to S8, 4" long wood fiber
18 - 20	S10	WOR WOR WOH WOH	24/24			S10: Similar to S8, fibers observed
20 - 22	S11	WOR WOH 1 1	24/20			S11 Similar to S10
22 - 24	S12	WOR X4	24/18	Pp = 0 Sv = 0		S12 Similar to S10, moderate amount of shells
-52.4						(-53.2 MLLW)
-53.2	S13	WOR X4	24/24	Pp = 0 Sv = 0.11 tsf	24.8'	S13 (0-10") Similar to S12
-54.4						(10-24"): Lean clay (CL); gray, very soft, wet, fibers observed, little shells, low plasticity ~10% fine sand
26 - 28	S14	WOR	24/24		GLACIOMARINE CLAY	S14: Similar to S13
28 - 30	S15	WOR	24/24	stop casing at 30' open hole after 30'		S15: (0-12") Similar to S13
-58.4 stop casing						(12-24"): clayey sand (SC) ~55% f-c sand, ~45% silt and clay, fibers, shells, gray, wet, very loose, ^ many ★
30 - 32	S16	WOR	24/24			S16: Similar to S15 (12-24")
32 - 34	S17	WOR	24/5	Pp = 0 Sv = 0		S17: Lean clay (CL); very soft, wet, gray, little shells; low to med plasticity ★
34 - 36	S18	WOR	24/24	Sv = 0.15 tsf Pp = 0.0		S18 Similar to S17
36 - 38	S19	WOR	24/24	Pp = 0.0 Sv = 0.15 tsf		S19 Similar to S17, shells observed, ^ little
38 - 40	S20	WOR	24/24			S20: Similar to S17, shells observed
-68.4						

Project Name: Searsport Harbor
GEI Project No: 2400096
Client: USACE-NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-6A
Ground El./ Datum: -28.4 MLLW
Rig Type: D80
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/24/2024
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 48

FD 24 -6

Pg. 3 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
-68.4 40 -42	S21	WOR	24/24		CLAY	S21: similar to S17, no shells
-70.4 42 - 44	S22	WOR	24/24			S22: similar to S17, no shells
44 - 46	S23	WOR	24/24			S23 similar to S17, no shells
46 - 48 -76.4 1310	S24	WOR	24/24		48'	S24: Similar to S17
						End of boring, terminated at 48' (-76.4 MLLW)

Project Name: Searsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location FD24-7
Ground El./ Datum -24.82 ft MLLW
Rig Type D30 (Manufactured in house)
Groundwater Depth 7.63 Date 4/17/24

Date Start/Finish 4/17/24
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated 140lb
GEI Rep. M. Ahmed Total Depth (ft) 52'

FD24-7

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
14.39 MLLW						Barge Deck.
9.39				7.63 ft MLLW		water level ▽
4.39						
-0.61						
-5.61						
-10.61						
-15.61						
-20.61						
				-24.82 ft MLLW		Mudline
-25.6 0-2	S-1	WR/24"	24/16"	PP = 0 tsf	Bay Mud / Silt	ML/OL, very soft, olive gray, saturated L to M plasticity, organic odor, trace organics.
2-4	S-2	WR/24"	24/11"	PP = 0 tsf		Same as S-1,
4-6	S-3	WR/24"	24/17"	PP = 0 tsf		Same as S-1 & S-2.
6-8'	S-4	WR/24"	24/6"	PP = 0 tsf		"
8-10'	S-5	WR/24"	24/11"	PP = 0 tsf		"
10-12'	S-6	WR/24"	24/16"	PP = 0 tsf		" **
12-14	S-7	WR/24"	24/22"	PP = 0 tsf (Top 12") PP = 0.5 tsf (12"-22")		Top 14" — Same as previous samples.

Project Name: Seaspan Homeport Drilling
GEI Project No: 24 000 26
Client: USACE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-7
Ground El./ Datum: -24.82 ft MLLW
Rig Type:
Groundwater Depth: 7.63 Date: 4/17/24
Date Start/Finish:
Driller/Company: NEBC
Casing Type/Size: 4"
Hammer Type/Drive System: Automated 140lb
GEI Rep.: M. Ahmed Total Depth (ft): 52'

FD24-7

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						Bottom 8": Lean clay/ fat clay, very soft, olive gray, M. to H. plasticity, moist, trace organics.
14-16'	S-8	5-6-7-9	24/24	PP = 1 tsf		Lean clay / fat clay, stiff, olive gray to brown, (CL/CH) M to H. plasticity, moist mottled.
16-18'	S-9	12-9-9-8	24/24	PP = 1.25 tsf		11, except. very stiff **
18-20'	S-10	WH-1-5-7	24/24	PP = 1.5 tsf		11, except medium stiff
20-22'	S-11	9-7-7-6	24/19	PP = 1.0 tsf		11, except stiff
22-24'	S-12	3-3-3-4	24/16	PP = 0.75 tsf		Lean clay / Fat clay, medium stiff, olive gray, M. to H. plasticity, moist, trace organics.
24-26'	S-13	WR-WH-4-3	24/23	PP = 0.75 tsf		11 same as S-12
26-28'	S-14	WH/12" 3-3	24/24	PP = 0.25 tsf		Lean clay, soft, blueish gray, Medium plasticity, moist, trace shell, organics
28-30'	S-15	WH/24"	24/4"	—		Driller accidently cleaned the spoon before sampling. No photo. Same as previous sample, except very soft
30-32'	S-16	WR/12" WH/12"	24/24	PP = 0 tsf		Lean clay, very soft, blueish gray, M. plasticity, moist to wet, trace organics -
32-34'	S-17	WH/24"	24/24	PP = 0 tsf		11, trace shell
34-36'	S-18	WR/24"	24/24	PP = 0 tsf		Lean clay (CL), very soft, blueish gray, M. plasticity, moist to wet, trace organics
36-38'	S-19	WR/24"	24/24	PP = 0 tsf		Same as S-18 ** H. plasticity?

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: ** Atterberg limit.

GEI Consultants

Boring Location FD24-7
Ground El./ Datum -24.82ft MLLW
Rig Type D30
Groundwater Depth 7.63 Date 4/17/24

Date Start/Finish
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated 140lb
GEI Rep. M. Ahmed Total Depth (ft) 52

FD 24-7

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
38-40	S-20	WR-24"	24/24	PP = 0 tsf		Same as S-19., trace shell.
40-42	S-21	WR-24"	24/19"	PP = 0 tsf		Same as S-19, but no shell.
42-44	S-22	WR/24"	24/12"	PP = 0 tsf		Same as S-21
44-46	S-23	WR/24"	24/24	PP = 0 tsf		〃
46-48	S-24	WR/24"	24/24	PP = 0 tsf		Lean clay (CL), very soft, olive gray, moist M. plasticity, trace organics.
48-50	S-25	WR/24"	24/24	PP = 0 tsf		Lean clay (CL), very soft, light gray, M. plasticity, with (top-12") Bottom 12": Sandy (20%) clay (65%) with gravel (15%), very soft, light gray, moist to wet, M. plasticity, angular (S&G); *
50-52	S-26	WR/6" 3-6-8	24/.	Gravel in tip of the spoon.		Sandy (30%) clay (55%) with gravel (15%), stiff, light gray, moist, M. plasticity medium to coarse sand, fine to coarse gravel, angular
						End of boring (-76 MLLW) No refusal encountered.

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: At the end of drilling: 24 ft below mudline

GEI Consultants

Boring Location: FD24-8
Ground El./ Datum: -37.1 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/26/2024
Driller/Company: NEDC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 38

FD24 - 8

Pg. 1 of 2

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						TIDE EL. @1440 5.6 FT MLLW on 4/25 50 FT from deck to mudline -7.3 FT freeboard 42.7 FT water column
start 0640 -37.1						Mudline -37.1 MLLW
0 / 2	S1	WOR	24/14			S1: ORGANIC SILT (ML/OL); very soft, wet, olive gray, low plasticity, trace shells, strong organic odor
2 / 4	S2	WOR	24/24			S2: similar to S1
4 / 6	S3	WOR	24/13		RIVER MUD	S3 similar to S1
6 / 8	S4	WOR	24/24			S4 similar to S1
8 / 10	S5	WOR	24/20			S5 similar to S1
-47.1 10 / 12 -47.8	S6	WOR	24/24	Sv = 0.2 tsf Pp = 2.0 tsf	10.7	S6 (0-8") similar to S1 (8-24"): Lean clay (CL); very soft, wet, gray, low to med plasticity (-47.8)
12 / 14	S7	WOR WOR 2 2	24/13	Stop casing at 12', open hole after 12'	CLAY	S7: similar to S6 (8-24")
14 / 16 -53.1	S8	1 3 2 4	24/24			S8 " " ; except Med. stiff

Project Name: Searsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: FD24-8 relocated to corner of AIH. CAD cell per USACE request.

GEI Consultants

Boring Location: FD24-8
Ground El./ Datum: -37.1 MLLW
Rig Type: D30
Groundwater Depth: _____ Date: _____

Date Start/Finish: 4/26/2024
Driller/Company: NEBC Sam Cooley
Casing Type/Size: 4" FJS
Hammer Type/Drive System: Auto 140#
GEI Rep.: A. Juliano Total Depth (ft): 38

FD 24-8

Pg. 2 of 2

-53.1

Depth ft	Sample Type and No.	Blows per 6 in. or RQD	Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
16 – 18	S9	2 4 4 6	24/16		GLACIAL MARINE CLAY	S9: " " ; except med stiff
18 – 20	S10	2 3 5 4	24/22	Sv = 0.2 tsf Pp = 1.5 tsf		S10: " " ; except med stiff
20 – 22	S11	4 4 6 5	24/24	Sv = 0.2 tsf Pp = 1.5 tsf		S11: " " ; except stiff
22 – 24	S12	3 4 5 3	24/19	Sv = 0.2 tsf Pp = 1.5 tsf		S12: " " ; except stiff
24 – 26	S13	WOH 3 4 5	24/24	Sv = 0.2 tsf Pp = 1.5 tsf		S13: " " ; med stiff
26 – 28	S14	WOR 3 4 4	24/24			S14: " " ; med stiff
28 – 30	S15	2 3 4 3	24/24			S15: " " ; med stiff
30 – 32	S16	WOR	24/24	Pp = 0 Sv = 0.15		S16: " " ; very soft
32 – 34	S17	WOR	24/24	Pp = 0 Sv = 0.1		S17: " " very soft
34 – 36	S18	WOR	24/24	Pp = 0 Sv = 0.1		S18: " " very soft
36 – 38	S19	WOR	24/24	Pp = 0 Sv = 0.1	38	S19: " " very soft

-75.1 1148 complete

Termmate boring at 38' below mudline (-75.1 FT MLLW)

Project Name: Searsport Harbor
GEI Project No: 2400096
Client: USACE - NAE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location FD24-9
Ground El./ Datum −38.5 ft MLLW
Rig Type D30
Groundwater Depth 8.39 ft MLLW Date 4/29/24

Date Start/Finish 4/29/24 (13:45)
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated 140lb
GEI Rep. M. Ahmed Total Depth (ft) 38

FD24-9

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						• Tide Elev. 8.39 ft MLLW. Mudline Elev. −38.5 ft MLLW
−38.5						
0-2'	S1	WR /24"	24 /15"	PP = 0 tsf Sv = 0	BAY MUD (SILT)	Silt (ML/OL), very soft, olive gray, wet, trace organics, shell, fiber, low to medium plasticity
2-4'	S2	WR /24"	24/22"	PP = 0		S2: similar to S1; organic odor.
4-6'	S3	WR /24"	24 /24"	PP = 0		S3: Similar to S1, except trace clay.
6-8'	S4	WR/ 24"	24/24	PP = 0		S4: Similar to S1, except very soft, trace clay in tip.
8-10'	S5	WR/12" 6-7	24 /24	PP = 0 tsf (Top) PP = 0.75 tsf (bottom)	SILT/CLAY	S5 (top 12"): Similar to S1, few fine to coarse sand (5-10%) S5 (bottom 12"): Lean clay (CL/ML), olive gray & brown, medium to stiff, moist to wet, mottled, medium plasticity
10-12'	S6	WOH 3-4-5	24/ 20"	PP = 1.25 tsf Sv = 0.1		S6: similar to S5 (bottom 12") trace thin silt seam, few shell fragments.
12-14	S7	WOH -5-5 -7	24/ 18"	PP = 1.5 tsf Sv = 0.15	CLAY	S7 (top 12"): similar to S5 (bot-12") S7 (Bot-12"): Lean clay / fat clay (CL/CH), olive gray & black, stiff, moist, trace organic
14-16'	S8	1- 6- 7- 9	24/ 16"	PP = 2.5 Sv = 0.15		S8: Similar to S7 (bot-12").

Borge left in place → casing removed

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location: FD24-9
Ground El./ Datum: -38.5 ft MLLW
Rig Type: D30
Groundwater Depth: 8.39 ft MLLW Date:

Date Start/Finish: 4/29/24 - 4/30/24
Driller/Company: NEBC
Casing Type/Size: 4"
Hammer Type/Drive System: Automated (140lb)
GEI Rep.: M. Ahmed Total Depth (ft): 38

FD24-9

7:00 AM.

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
16-18	S9	3 5 5 5	24/ 23.	PP = 2 tsf Sv = 0.1		Lean / fat clay (CL/CH), olive gray, stiff, moist, M to H plasticity.
18-20	S10	9 8 9 7	24/ 20.5	PP = 0.75 Sv = 0.1		S10: Similar to S9, except few Very stiff, trace organics, shell fragment, olive gray & black.
20-22	S11	1 2 3 5	24/21.5	PP = 0.5 Sv = 0.15		S11: Similar to S10, except medium stiff
22-24	S12	3 3 4 4	24/	PP = 0.5 Sv = 0.5		Similar to S10, except medium stiff
24-26	S13	2 2 2 3	24/22	PP = 0.25 Sv = 0		Similar to S10, except soft, trace no shell
26-28	S14	WOR /24"	24/24	PP = 0 Sv = 0		Similar to S10, except very soft

Project Name: Searsport Harbor Drilling
GEI Project No: 2400096
Client: USACE

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

13.45 9.15 AM

Boring Location	FD24-9	Date Start/Finish	4-29-24 to 4/30/24
Ground El./ Datum	-38.5 ft MLLW	Driller/Company	NEBC
Rig Type	D30	Casing Type/Size	4"
Groundwater Depth	8.39 ft MLLW Date 4/29/24	Hammer Type/Drive System	Automated (140lb)
		GEI Rep.	M. Ahmed
		Total Depth (ft)	38'

FD24-9

Pg. 3 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
28-30	S15	WOR/24"	24/23	PP= 0 Sv= 0		Lean clay (CL), olive gray, very soft, moist to wet, medium plasticity, trace organics.
30-32	S16	WR/24"	24/24	PP= 0 Sv= 0		S16: Similar to S15
32-34	S17	WR/24"	24/24	PP=0 Sv= 0.		S17: Similar to S15. **
34-36	S18	WR/24"	24/24	PP= 0 Sv=0		S18: Similar to S15.
36-38	S19	WR/12-10-18	24/24	Pv= 0 Sv=0	37	S19 (Top-15"): Similar to S15 S19 (Bot-9"): Silty Clayey Sand (SC-SM) with gravel, medium dense, gray, moist, Sand = 40% Gravel = 15% Silt & clay = 45%. *
-76ft MLLW						Boring terminated at 38 ft below mudline (-76 ft MLLW) no refusal encountered.

Project Name:	Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
GEI Project No:	Pen - Penetration Length; Rec - Recovery Length; C - Core Sample
Client:	S - Split Spoon Sample; Qp - Pocket Penetrometer Strength; RQD - Length of Sound Cores > 4 in./Length Cored, %
	U - Undisturbed Sample; Sv - Pocket Torvane Shear Strength; PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: ** Atterberg limit - * Grain size.
4-inch casing 16 ft below mudline.

GEI Consultants

Boring Location: FD24-10
Ground El./ Datum: -36.71
Rig Type: D30 (Manufactured in house)
Groundwater Depth: 9.99ft MLLW Date: 4/18/24

Date Start/Finish: 4/18/24
Driller/Company: NEBC
Casing Type/Size: 4"
Hammer Type/Drive System: Automated 140lb
GEI Rep.: M. Ahmed Total Depth (ft):

FD24-10

Pg. 1 of 3

Depth ft	Sample: Type and No.	Sample: Blows per 6 in. or RQD	Sample: Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
17.29 ft MLLW						Barge deck
12.29				9.99ft MLLW.		Water level. ▽
7.29						
2.29						
-2.71						
-7.71						
-12.71						
-17.71						
-22.71						
-27.71						
-32.71						
				-36.71 ft MLLW.		Mudline
-37.71	0-2	S-1	WR/24"/24"/20"	PP = 0 tsf		ML/OL, very soft, olive gray, saturated, M. plasticity, trace sand (5%), shell, no organics fine

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location FD24-10 | Date Start/Finish | FD24-10

Ground El./ Datum | Driller/Company

Rig Type | Casing Type/Size

Groundwater Depth ____ Date ____ | Hammer Type/Drive System

GEI Rep. ____ Total Depth (ft) ____ | Pg. 2 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
2-4	S-2	WR/24"	24/20"	PP = 0 tsf	Bay Mud (silt)	Same as S-1 **
4-6	S-3	WR/24"	24/17"	PP = 0 tsf		"
6-8	S-4	WR/24"	24/24	PP = 0 tsf		"
8-10	S-5	WR/24"	24/24	PP = 0 tsf		Same as S-1, except silt (90%) sand (10%).
10-12	S-6	WR-WH-3-3	24/24	PP Top = 0 tsf PP bottom = 0.25 tsf		Top (8") = Same as S-1. Bottom (16") = Lean clay (CL), soft, dark gray, medium plasticity, moist to wet, trace fine sand, organics.
12-14	S-7	2-2-2-3	24/23	PP = 0.5 to 1.0 tsf		Lean clay/fat clay (CL/CH), soft, dark gray, M. to H. plasticity, moist to wet, silt pocket (0.5-1") (10%), trace fine sand (5%) *
14-16	S-8	3-4-6-7	24/18"	PP = 1 tsf	Clay	Lean/fat clay, stiff, dark gray, M. to H plasticity, moist to wet
16-18	S-9	WR/18" - WH/6"	24/18"	PP = 0 to 0.5 tsf		Same as S-8, except trace shell soft, olive gray.
18-20	S-10	WH/6" 3-4-4	24/24"	PP = 0.5 tsf		" , except no shell. soft, olive gray.
20-22	S-11	WH-4-4-6	24/24"	PP = 0.5 tsf		" , trace organics., odor, angular rock fragment (1%)
22-24	S-12	WH-5-6-5	24/24	PP = 0.75 tsf		Lean/fat clay (CL/CH), medium stiff, olive gray. M. to H. plasticity, trace shell, organics.
24-26	S-13	4-1-4-4	24/24	PP = 0.5 to 0.75 tsf		Same as S-12
26-28	S-14	WR/12" 3-3	24/14	PP = 0 to 0.25 tsf		Same as S-12, except no shell.

Project Name:

GEI Project No:

Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler

Pen - Penetration Length | Rec - Recovery Length | C - Core Sample

S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %

U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

8.00 12.10

Boring Location FD24-10
Ground El./ Datum
Rig Type D30
Groundwater Depth ____ Date 4/18/24

Date Start/Finish 4/18/24 / 4/18/24
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140lb)
GEI Rep. M. Ahmed Total Depth (ft) 40

FD24-10
Pg. 2 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
28-30	S-15	WR/6"-WH/6"-4-3	24/20	PP = 0 to • 0.25 tsf		Lean clay / fat clay (CL/CH), soft, light gray, moist to wet, M. to H. plasticity.
30-32	S-16	WR/24"	24/24	PP = 0 tsf		same as S-15, except very soft, trace shell, organics
32-34	S-17	WR/24	24/24	PP = 0 tsf		Same as S-16, except no shell.
34-36	S-18	WR/24	24/24	PP = 0 tsf		Same as 17
36-38	S-19	WR/24"	24/24	PP = 0 tsf		Lean/fat clay (CL, CH), very soft, light gray, moist to wet, M to H plasticity, trace organics, shell
38-40	S-20	WR/24"	24/24	PP = 0 tsf		Same as S-19
-76 MLLW						Boring ended at 40 ft below mudline (-76 ft MLLW)
						No refusal encountered.

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: Casing 22' below mudline at the end of the drilling.

GEI Consultants

10 00 AM 13:30

Boring Location: FD24-11	Date Start/Finish: 4/30/24 - 4/30/24	FD24-11	
Ground El./ Datum: -36.83 ft MLLW	Driller/Company: NEBC		
Rig Type: D30	Casing Type/Size: 4"		
Groundwater Depth: 0.87 ft MLLW Date: 4/30/24 10:07 AM	Hammer Type/Drive System: Automated (140lb)		
	GEI Rep.: M. Ahmed Total Depth (ft): 40	Pg. 1 of 2	

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
						Tide Elev. @ 0.87 ft MLLW, Mudline Elev. @ -36.83 ft MLLW.
36.83						
0-2	S1	WR/24"	24/0"	PP = Sv =		NO recovery
2-4	S2	WR/24"	24/24	PP = 0	BAY MUD (SILT)	Silt (ML), very soft, olive gray, wet, trace shell fragments, trace fine sand (5%), L. to M. plasticity
4-6	S3	WR/24	24/24	"		S3: Similar to S2
6-8	S4	WR/24	24/23	"		S4: Similar to S2
8-10	S5	WR/24	24/19	"		S5: Similar to S2
10-12	S6	WR/24"	24/13	"		S6: Similar to S2, except trace clay
12-14	S7	WR/24"	24/24	PP_T = 0 tsf PP_{bott} = 0.5 tsf Sv = 0	12.3' CLAY	S7 (Top 4"): Similar to S2 S7 (Bot-20"): Silty clay (CL-ML), very soft, fine sand/silt seam (1"), olive gray & black, trace organics
14-16	S8	WR/24"	24/18.5	PP = 0.25 Sv = 0		S8: Similar to S7 (Bot-20"). (CL), trace no silt
16-18'	S9	WR/24"	24/24	PP = 0.25 Sv = 0		S9: Similar to S7 (Bot-20") (CL)

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: * 4" casing 16 ft below mudline

GEI Consultants

10:00 - 12:30

Boring Location	FD24-11	Date Start/Finish	4/30/24 - 4/30/24
Ground El./ Datum	-36.83 ft MLLW.	Driller/Company	NEBC
Rig Type	D30	Casing Type/Size	4"
Groundwater Depth	0.87 ft MLLW Date 4/30/24 10:00	Hammer Type/Drive System	Automated (140lb)
		GEI Rep. M. Ahmed	Total Depth (ft) 40

FD24-11

Pg 2 of 2

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
18'-20'	S-10	WOR/12" WOH/12"	24/24	PP=0.25 tsf Sv=0	GLACIAL MARINE CLAY	Lean clay (CL), very soft, olive gray & black, moist to wet, few organics; M. to H plasticity *
20-22	S11	WOR 12" WOH/12"	24/24	PP=0.25 tsf Sv=0 tsf		S11: Similar to S10 thin fine sand/silt seam (~0.5")
22-24	S12	WOR 12" WOH/12"	24/24	PP=0 tsf Sv=0		S12: Similar to S10.
24-26	S13	WOR/24"	24/24	PP=0 tsf.		S13: Similar to S10.
26-28	S14	WOR -12" WH/12"	24/16	PP=0 tsf		S14: Similar to S10 less organics.
28-30	S-15	WOR/12" WH/12"	24/17	PP=0 tsf		S15: Similar to S10 **, except light gray, no organics
30-32	S16	WOR 24"	24/24	"		S16: Similar to S10, except light gray, no organics.
32-34	S17	WOR 24"	24/24	"		S17: Similar to S16, light gray, no organics, **
34-36	S18	WOR/24"	24/24	"		S18: Similar to S10, light gray, trace no organics.
36-38	S19	WOR/24"	24/24	PP=0 tsf		S19: Similar to S10, except trace shell fragments.
38-40	S20	WOR/24"	24/23	PP=0 tsf		S20: Similar to S10 **

Project Name:	Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler	
GEI Project No:	Pen - Penetration Length	Rec - Recovery Length
Client:	S - Split Spoon Sample	Qp - Pocket Penetrometer Strength
	U - Undisturbed Sample	Sv - Pocket Torvane Shear Strength
	C - Core Sample	RQD - Length of Sound Cores > 4 in./Length Cored, %
		PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: ** Atterberg limit
* Grain size,

Boring terminated at 40 ft below mudline. No refusal encountered.

GEI Consultants

1. PM

Boring Location FD24 - 12
Ground El./ Datum
Rig Type D30
Groundwater Depth 2.73' MLLW Date 4/18/24/ 12.45

Date Start/Finish 4/18/24 - 4/19/24
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140lb)
GEI Rep. M. Ahmed Total Depth (ft)

FD24 -12

Pg. 1 of 3

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
10.00						Barge deck
5				2.73'		Water level ▽
0						
-5						
-10						
-15						
-20						
-25						
-30						
-35				-38' MLLW		Mudline
0-2'	S-1	WR/24"	24/15"	PP=0 tsf		silt (ML/OL), very soft, olive gray, wet low to M. Plasticity, organic odor, trace shell
-40 2-4'	S-2	WR/24"	24/22	PP=0 tsf		Same as S-1, except no shell
4-6'	S-3	WR/24"	24/24	PP=0 tsf		Same as S-1.

Project Name:
GEI Project No:
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

Boring Location FD24-12
Ground El./ Datum
Rig Type D30
Groundwater Depth Date 4/18/24

Date Start/Finish 4/18/24 - 4/19/24.
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140lb)
GEI Rep. M. Ahmed Total Depth (ft)

FD24-12

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
6-8'	S-4	WR/24"	24/20	PP = 0 tsf	Bay Mud (SM/ML)	same as S-1 to S-3.
8-10'	S-5	WR/24	24/17"	PP = 0 tsf		
10-12'	S-6	WR/24"	24/16"	PP = 0.25 to 0.75 tsf		top (5"): same as above bottom (12"): lean/fat clay, very soft, olive gray to brown, moist to wet, M to H plasticity, trace angular coarse gravel (2%), shell, mottled
12-14	S-7	4-4-3-4	24/23	PP = 1 to 2 tsf	Clay	Lean clay/fat clay, medium stiff, olive gray, moist to wet, M to H plasticity, trace angular coarse gravel (2%), mottled.
14-16	S-8	4-8-10-12	24/18.5	PP = 1.5 tsf		same as S-7, except very stiff.
16-18	S-9	4-6-7-9	24/23	PP = 1 to 2 tsf		Lean/fat clay (CL/CH), stiff, olive gray, moist, M to H plasticity, trace organics.
18-20'	S-10	5-7-8-8	24/	PP = 1 to 1.25 tsf		same as S-9.
20-22	S-11	WH/12"-6-6	24/20.5	PP = 1.25 tsf		lean/fat clay (CL/CH), medium stiff, olive gray, moist, M to H plasticity, trace organics.
22-24	S-12	3-7-7-5	24/15"	P = 0.25 to 0.5 tsf		Same as S-11, except stiff.
24-26	S-13	5-4-3-3	24/22"	P = 0.5 tsf		same as S-11, trace shell
26-28	S-14	WR/24"	24/24	P = 0.25 tsf		same as S-11, except very soft

Project Name:
GEI Project No: 2400096
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length Rec - Recovery Length C - Core Sample
S - Split Spoon Sample Qp - Pocket Penetrometer Strength RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample Sv - Pocket Torvane Shear Strength PID - Photo Ionization Detector (Jar Headspace), ppm

Notes:

GEI Consultants

10.00 AM.

Boring Location FD24-12
Ground El./ Datum
Rig Type D30
Groundwater Depth ____ Date 4/18/24

Date Start/Finish 4/18/24 – 4/19/24
Driller/Company NEBC
Casing Type/Size 4"
Hammer Type/Drive System Automated (140lb)
GEI Rep. M. Ahmed Total Depth (ft) 38

FD24-12

Depth ft	Sample Type and No.	Sample Blows per 6 in. or RQD	Sample Pen / Rec in.	Drilling Remarks / Field Test Data	Layer Name	Soil and Rock Descriptions
28-30	S-15	WR/24"	24/24	PP = 0 tsf		Lean/fat clay (CL,CH), very soft, olive gray, moist, trace shell, organics
30-32	S-16	WR/24"	24/18"	PP = 0 tsf		Same as S-15, except no shell
32-34	S-17	WR/24"	24/24	PP = 0 tsf	Clay	Lean/fat clay (CL/CH), very soft, olive gray, moist, trace shell, organics, **
34-36	S-18	WR/24"	24/24	PP = 0 tsf		Same as S-17, except no shell
36-38	S-19	WR/24"	24/24	PP = 0 tsf		Same as S-18
						End of boring at 38-ft below mudline (-76 ft MLLW)

Project Name:
GEI Project No: 2400096
Client:

Blows per 6 in. - 140 lb. Hammer Falling 30 in. to drive a 2.0 in. OD Split Spoon Sampler
Pen - Penetration Length | Rec - Recovery Length | C - Core Sample
S - Split Spoon Sample | Qp - Pocket Penetrometer Strength | RQD - Length of Sound Cores > 4 in./Length Cored, %
U - Undisturbed Sample | Sv - Pocket Torvane Shear Strength | PID - Photo Ionization Detector (Jar Headspace), ppm

Notes: ** Atterberg

GEI Consultants

Appendix C

Soil Sample Photographs

Boring Split Spoon Sample Photos - Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, Maine

Photo No. 1 – FD24-01 S1 ____ 1
Photo No. 2 – FD24-01 S2 ____ 1
Photo No. 3 – FD24-01 S3 ____ 2
Photo No. 4 – FD24-01 S4 ____ 2
Photo No. 5 – FD24-01 S5 ____ 3
Photo No. 6 – FD24-01 S6 ____ 3
Photo No. 7 – FD24-01 S7 ____ 4
Photo No. 8 – FD24-01 S8 ____ 4
Photo No. 9 – FD24-01 S9 ____ 5
Photo No. 10 – FD24-01 S10 ____ 5
Photo No. 11 – FD24-01 S11 ____ 6
Photo No. 12 – FD24-01 S12 ____ 6
Photo No. 13 – FD24-01 S13 ____ 7
Photo No. 14 – FD24-01 S14 ____ 7
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Photo No. 16 – FD24-01 S16 ____ 8
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Photo No. 20 – FD24-01 S20 ____ 10
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Photo No. 226 – FD24-10 S12 113
Photo No. 227 – FD24-10 S13 114
Photo No. 228 – FD24-10 S14 114
Photo No. 229 – FD24-10 S15 115
Photo No. 230 – FD24-10 S16 115

Photo No. 231 – FD24-10 S17 ____ *116*
Photo No. 232 – FD24-10 S18 ____ *116*
Photo No. 233 – FD24-10 S19 ____ *117*
Photo No. 234 – FD24-10 S20 ____ *117*
Photo No. 235 – FD24-11 S1 ____ *118*
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Photo No. 243 – FD24-11 S9 ____ *122*
Photo No. 244 – FD24-11 S10 ____ *122*
Photo No. 245 – FD24-11 S11 ____ *123*
Photo No. 246 – FD24-11 S12 ____ *123*
Photo No. 247 – FD24-11 S13 ____ *124*
Photo No. 248 – FD24-11 S14 ____ *124*
Photo No. 249 – FD24-11 S15 ____ *125*
Photo No. 250 – FD24-11 S16 ____ *125*
Photo No. 251 – FD24-11 S17 ____ *126*
Photo No. 252 – FD24-11 S18 ____ *126*
Photo No. 253 – FD24-11 S19 ____ *127*
Photo No. 254 – FD24-11 S20 ____ *127*
Photo No. 255 – FD24-12 S1 ____ *128*
Photo No. 256 – FD24-12 S2 ____ *128*
Photo No. 257 – FD24-12 S3 ____ *129*
Photo No. 258 – FD24-12 S4 ____ *129*
Photo No. 259 – FD24-12 S5 ____ *130*
Photo No. 260 – FD24-12 S6 ____ *130*
Photo No. 261 – FD24-12 S7 ____ *131*
Photo No. 262 – FD24-12 S8 ____ *131*
Photo No. 263 – FD24-12 S9 ____ *132*
Photo No. 264 – FD24-12 S10 ____ *132*
Photo No. 265 – FD24-12 S11 ____ *133*
Photo No. 266 – FD24-12 S12 ____ *133*
Photo No. 267 – FD24-12 S13 ____ *134*
Photo No. 268 – FD24-12 S14 ____ *134*
Photo No. 269 – FD24-12 S15 ____ *135*
Photo No. 270 – FD24-12 S16 ____ *135*
Photo No. 271 – FD24-12 S17 ____ *136*
Photo No. 272 – FD24-12 S18 ____ *136*
Photo No. 273 – FD24-12 S19 ____ *137*



Photo No. 1 – FD24-01 S1



Photo No. 2 – FD24-01 S2



Photo No. 3 – FD24-01 S3



Photo No. 4 – FD24-01 S4



Photo No. 5 – FD24-01 S5



Photo No. 6 – FD24-01 S6



Photo No. 7 – FD24-01 S7



Photo No. 8 – FD24-01 S8



Photo No. 9 – FD24-01 S9



Photo No. 10 – FD24-01 S10



Photo No. 11 – FD24-01 S11

NOT PHOTOGRAPHED

Photo No. 12 – FD24-01 S12



Photo No. 13 – FD24-01 S13



Photo No. 14 – FD24-01 S14



Photo No. 15 – FD24-01 S15

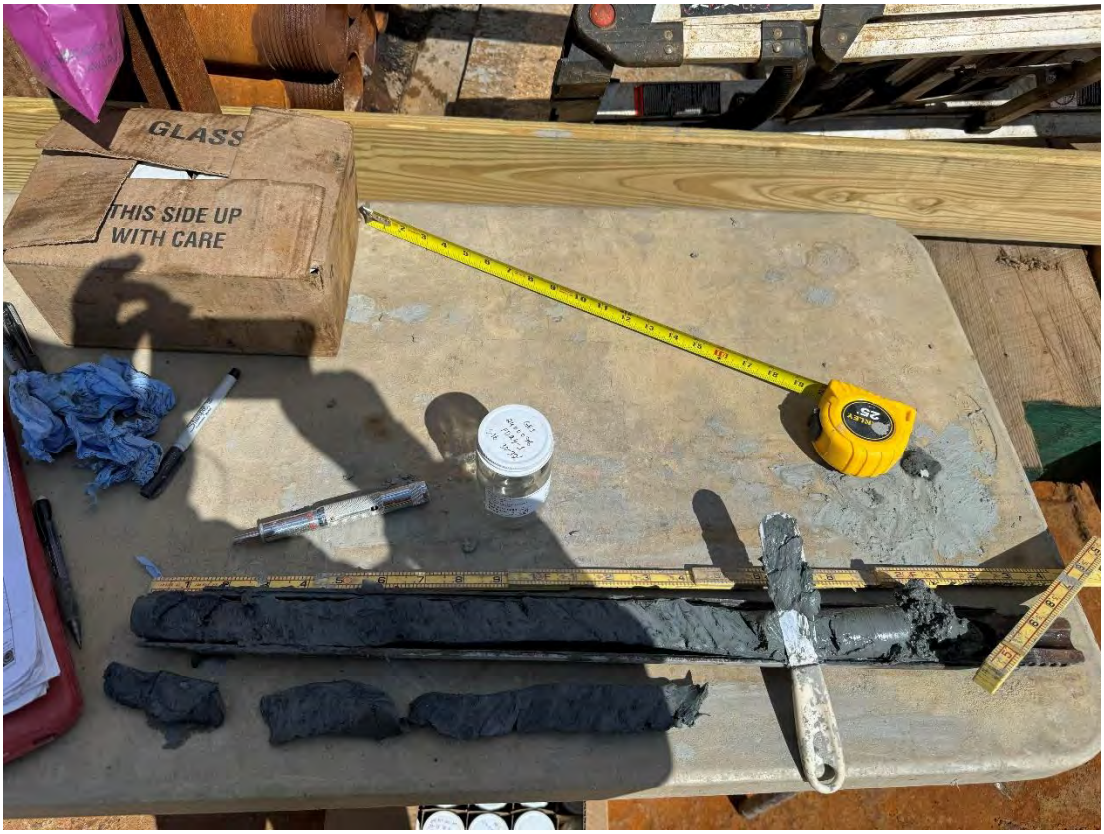


Photo No. 16 – FD24-01 S16



Photo No. 17 – FD24-01 S17



Photo No. 18 – FD24-01 S18



Photo No. 19 – FD24-01 S19



Photo No. 20 – FD24-01 S20



Photo No. 21 – FD24-01 S21



Photo No. 22 – FD24-01 S22



Photo No. 23 – FD24-01 S23



Photo No. 24 – FD24-01 S24



Photo No. 25 – FD24-01 S25



Photo No. 26 – FD24-02 S1



Photo No. 27 – FD24-02 S2

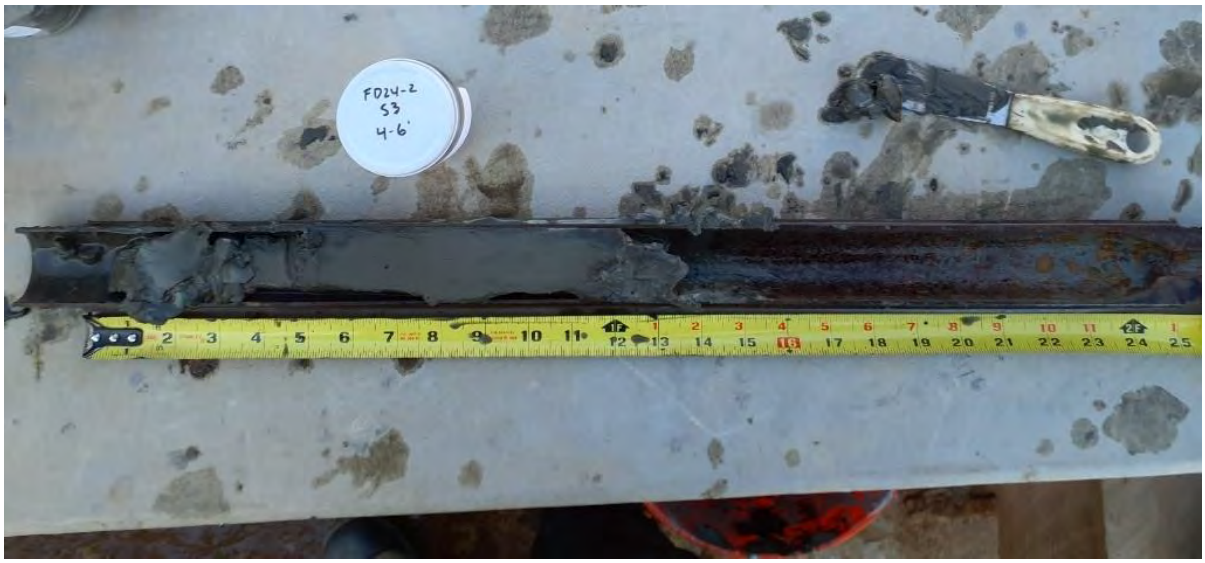


Photo No. 28 – FD24-02 S3



Photo No. 29 – FD24-02 S4



Photo No. 30 – FD24-02 S5



Photo No. 31 – FD24-02 S6



Photo No. 32 – FD24-02 S7



Photo No. 33 – FD24-02 S8



Photo No. 34 – FD24-02 S9



Photo No. 35 – FD24-02 S10



Photo No. 36 – FD24-02 S11



Photo No. 37 – FD24-02 S12



Photo No. 38 – FD24-02 S13



Photo No. 39 – FD24-02 S14



Photo No. 40 – FD24-02 S15



Photo No. 41 – FD24-02 S16



Photo No. 42 – FD24-02 S17



Photo No. 43 – FD24-02 S18



Photo No. 44 – FD24-02 S19



Photo No. 45 – FD24-02 S20



Photo No. 46 – FD24-02 S21

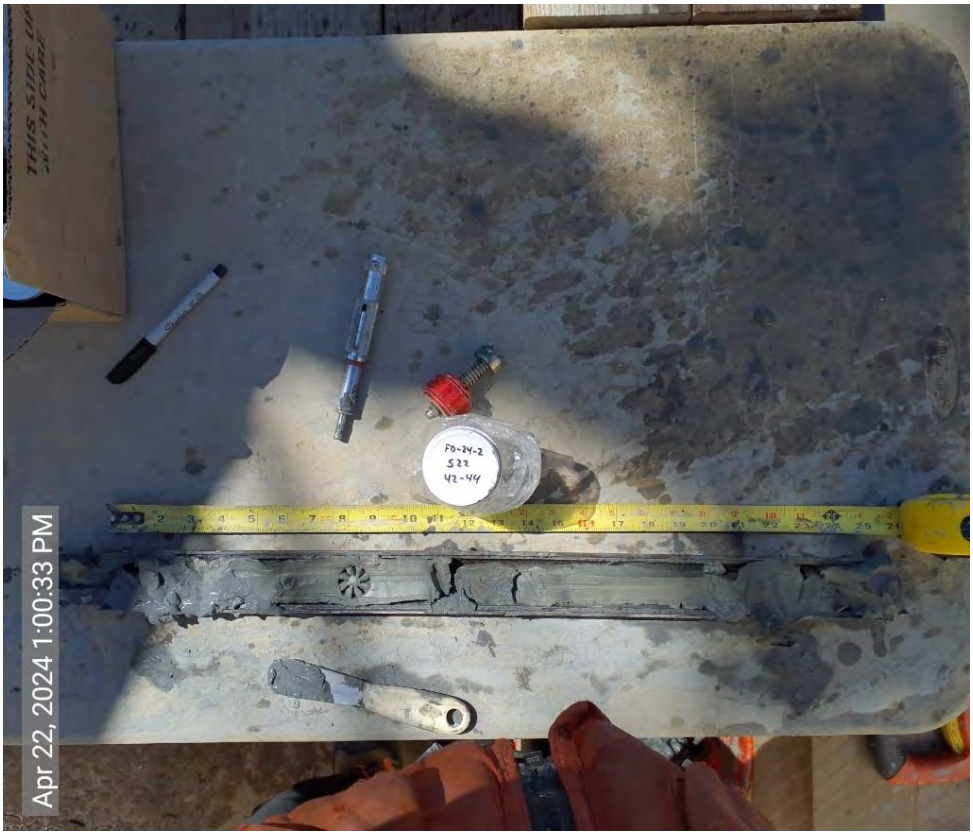


Photo No. 47 – FD24-02 S22



Photo No. 48 – FD24-02 S23



Photo No. 49 – FD24-02 S24



Photo No. 50 – FD24-02 S25



Photo No. 51 – FD24-02 S26



Photo No. 52 – FD24-02 S27



Photo No. 53 – FD24-03 S1



Photo No. 54 – FD24-03 S2



Photo No. 55 – FD24-03 S3

NO RECOVERY

Photo No. 56 – FD24-03 S4



Photo No. 57 – FD24-03 S5



Photo No. 58 – FD24-03 S6

NOT PHOTOGRAPHED

Photo No. 59 – FD24-03 S7



Photo No. 60 – FD24-03 S8



Photo No. 61 – FD24-03 S9



Photo No. 62 – FD24-03 S10



Photo No. 63 – FD24-03 S11



Photo No. 64 – FD24-03 S12



Photo No. 65 – FD24-03 S13



Photo No. 66 – FD24-03 S14



Photo No. 67 – FD24-03 S15



Photo No. 68 – FD24-03 S16



Photo No. 69 – FD24-03 S17



Photo No. 70 – FD24-03 S18



Photo No. 71 – FD24-03 S19



Photo No. 72 – FD24-03 S20



Photo No. 73 – FD24-03 S21



Photo No. 74 – FD24-03 S22



Photo No. 75 – FD24-03 S23



Photo No. 76 – FD24-03 S24



Photo No. 77 – FD24-03 S25



Photo No. 78 – FD24-04 S1



Photo No. 79 – FD24-04 S2



Photo No. 80 – FD24-04 S3



Photo No. 81 – FD24-04 S4



Photo No. 82 – FD24-04 S5



Photo No. 83 – FD24-04 S6



Photo No. 84 – FD24-04 S7



Photo No. 85 – FD24-04 S8

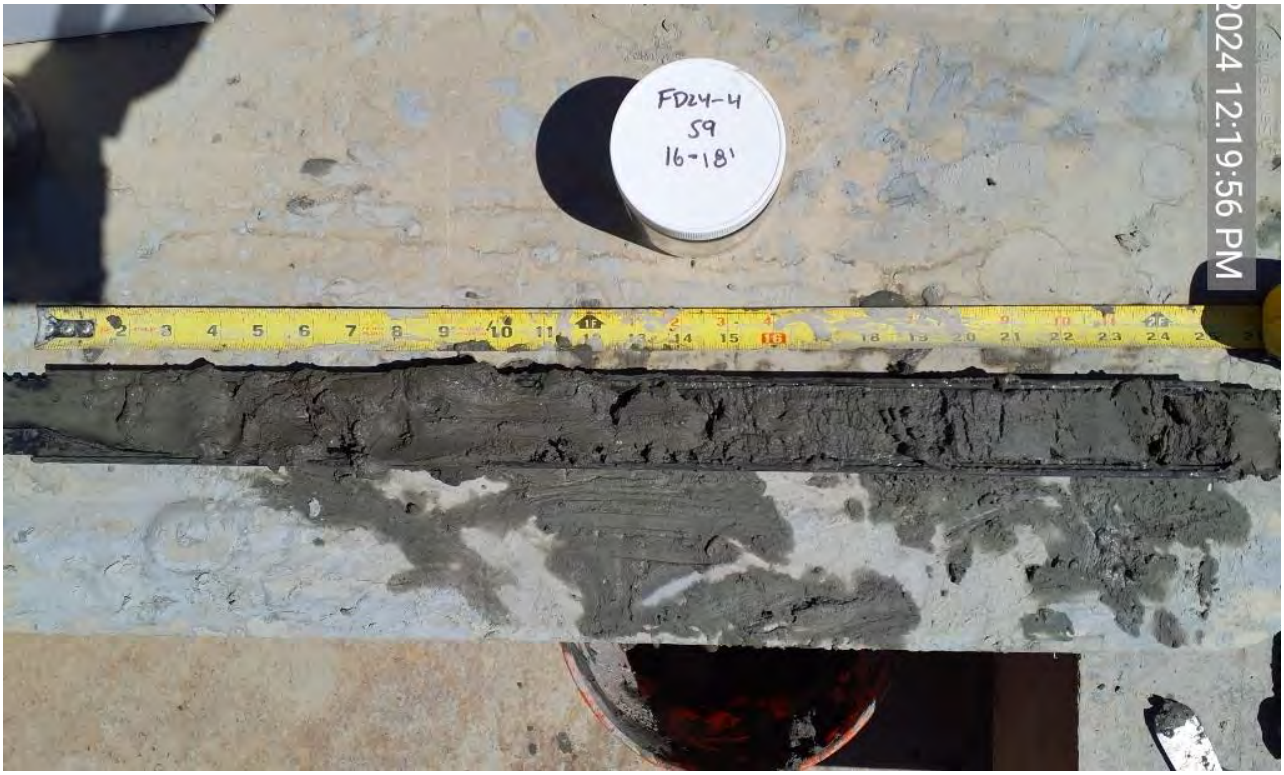


Photo No. 86 – FD24-04 S9



Photo No. 87 – FD24-04 S10



Photo No. 88 – FD24-04 S11



Photo No. 89 – FD24-04 S12



Photo No. 90 – FD24-04 S13



Photo No. 91 – FD24-04 S14



Photo No. 92 – FD24-04 S15



Photo No. 93 – FD24-04 S16



Photo No. 94 – FD24-04 S17



Photo No. 95 – FD24-04 S18



Photo No. 96 – FD24-04 S19

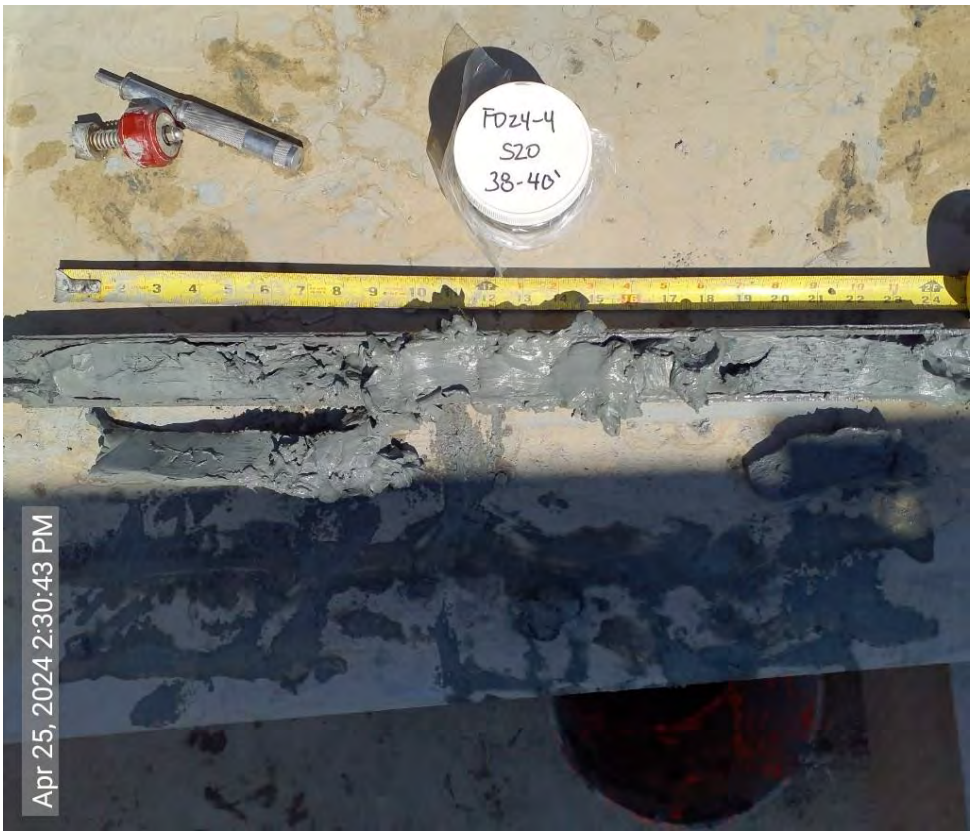


Photo No. 97 – FD24-04 S20



Photo No. 98 – FD24-04 S21



Photo No. 99 – FD24-04 S22



Photo No. 100 – FD24-04 S23



Photo No. 101 – FD24-04 S24



Photo No. 102 – FD24-05 S1



Photo No. 103 – FD24-05 S2



Photo No. 104 – FD24-05 S3



Photo No. 105 – FD24-05 S4



Photo No. 106 – FD24-05 S5



Photo No. 107 – FD24-05 S6



Photo No. 108 – FD24-05 S7



Photo No. 109 – FD24-05 S8



Photo No. 110 – FD24-05 S9



Photo No. 111 – FD24-05 S10



Photo No. 112 – FD24-05 S11



Photo No. 113 – FD24-05 S12



Photo No. 114 – FD24-05 S13



Photo No. 115 – FD24-05 S14



Photo No. 116 – FD24-05 S15



Photo No. 117 – FD24-05 S16



Photo No. 118 – FD24-05 S17



Photo No. 119 – FD24-05 S18



Photo No. 120 – FD24-05 S19



Photo No. 121 – FD24-05 S20



Photo No. 122 – FD24-05 S21



Photo No. 123 – FD24-05 S22



Photo No. 124 – FD24-05 S23



Photo No. 125 – FD24-05 S24



Photo No. 126 – FD24-05 S25

NO RECOVERY

Photo No. 127 – FD24-06 S1

NO RECOVERY

Photo No. 128 – FD24-06 S2



Photo No. 129 – FD24-06 S3

NO RECOVERY

Photo No. 130 – FD24-06 S4



Photo No. 131 – FD24-06 S5



Photo No. 132 – FD24-06 S6



Photo No. 133 – FD24-06 S7



Photo No. 134 – FD24-06 S8



Photo No. 135 – FD24-06 S9



Photo No. 136 – FD24-06 S10



Photo No. 137 – FD24-06 S11



Photo No. 138 – FD24-06 S12



Photo No. 139 – FD24-06 S13



Photo No. 140 – FD24-06 S14



Photo No. 141 – FD24-06 S15



Photo No. 142 – FD24-06 S16



Photo No. 143 – FD24-06 S17



Photo No. 144 – FD24-06 S18



Photo No. 145 – FD24-06 S19



Photo No. 146 – FD24-06 S20



Photo No. 147 – FD24-06 S21



Photo No. 148 – FD24-06 S22



Photo No. 149 – FD24-06 S23



Photo No. 150 – FD24-06 S24



Photo No. 151 – FD24-07 S1



Photo No. 152 – FD24-07 S2



Photo No. 153 – FD24-07 S3



Photo No. 154 – FD24-07 S4



Photo No. 155 – FD24-07 S5



Photo No. 156 – FD24-07 S6



Photo No. 157 – FD24-07 S7



Photo No. 158 – FD24-07 S8



Photo No. 159 – FD24-07 S9



Photo No. 160 – FD24-07 S10

NOT PHOTOGRAPHED

Photo No. 161 – FD24-07 S11

NOT PHOTOGRAPHED

Photo No. 162 – FD24-07 S12



Photo No. 163 – FD24-07 S13



Photo No. 164 – FD24-07 S14

NOT PHOTOGRAPHED

Photo No. 165 – FD24-07 S15



Photo No. 166 – FD24-07 S16



Photo No. 167 – FD24-07 S17



Photo No. 168 – FD24-07 S18



Photo No. 169 – FD24-07 S19



Photo No. 170 – FD24-07 S20

NOT PHOTOGRAPHED

Photo No. 171 – FD24-07 S21



Photo No. 172 – FD24-07 S22



Photo No. 173 – FD24-07 S23



Photo No. 174 – FD24-07 S24



Photo No. 175 – FD24-07 S25



Photo No. 176 – FD24-07 S26



Photo No. 177 – FD24-08 S1



Photo No. 178 – FD24-08 S2



Photo No. 179 – FD24-08 S3



Photo No. 180 – FD24-08 S4



Photo No. 181 – FD24-08 S5



Photo No. 182 – FD24-08 S6



Photo No. 183 – FD24-08 S7



Photo No. 184 – FD24-08 S8



Photo No. 185 – FD24-08 S9



Photo No. 186 – FD24-08 S10



Photo No. 187 – FD24-08 S11



Photo No. 188 – FD24-08 S12



Photo No. 189 – FD24-08 S13



Photo No. 190 – FD24-08 S14



Photo No. 191 – FD24-08 S15



Photo No. 192 – FD24-08 S16



Photo No. 193 – FD24-08 S17



Photo No. 194 – FD24-08 S18



Photo No. 195 – FD24-08 S19



Photo No. 196 – FD24-09 S1



Photo No. 197 – FD24-09 S2



Photo No. 198 – FD24-09 S3



Photo No. 199 – FD24-09 S4



Photo No. 200 – FD24-09 S5



Photo No. 201 – FD24-09 S6



Photo No. 202 – FD24-09 S7



Photo No. 203 – FD24-09 S8



Photo No. 204 – FD24-09 S9



Photo No. 205 – FD24-09 S10



Photo No. 206 – FD24-09 S11



Photo No. 207 – FD24-09 S12



Photo No. 208 – FD24-09 S13



Photo No. 209 – FD24-09 S14



Photo No. 210 – FD24-09 S15

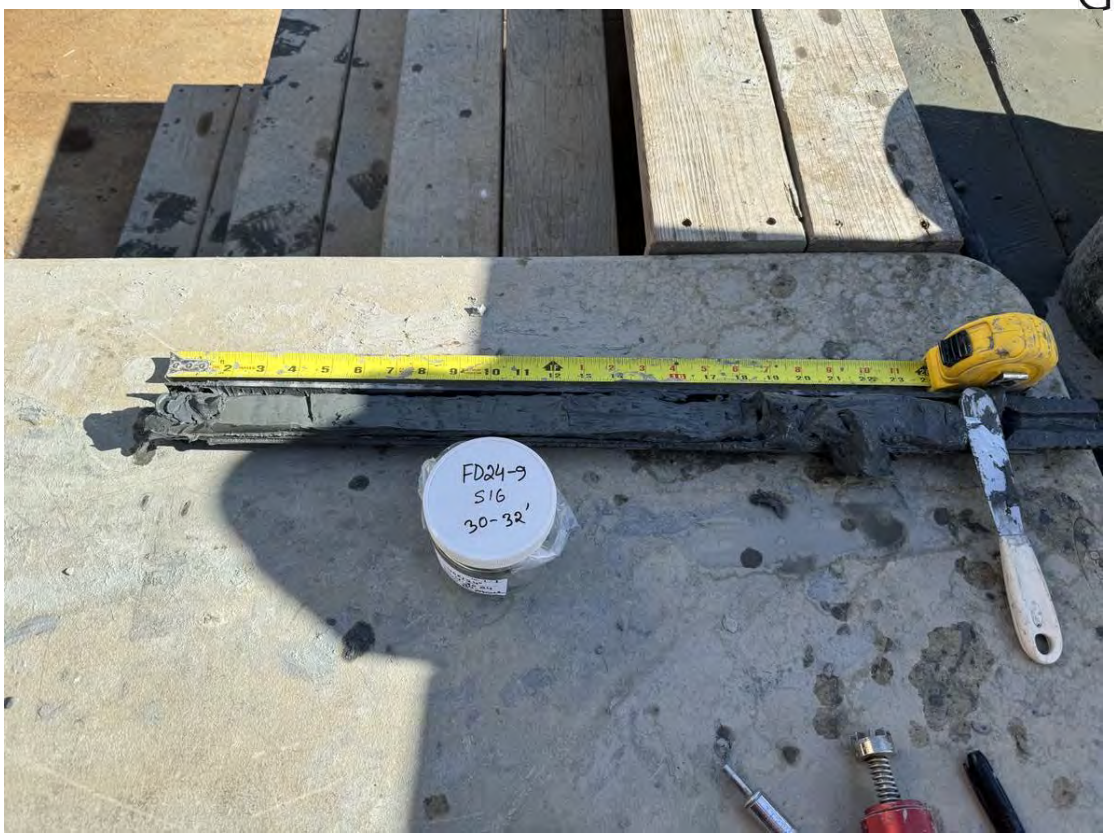


Photo No. 211 – FD24-09 S16



Photo No. 212 – FD24-09 S17



Photo No. 213 – FD24-09 S18



Photo No. 214 – FD24-09 S19



Photo No. 215 – FD24-10 S1



Photo No. 216 – FD24-10 S2



Photo No. 217 – FD24-10 S3



Photo No. 218 – FD24-10 S4



Photo No. 219 – FD24-10 S5



Photo No. 220 – FD24-10 S6



Photo No. 221 – FD24-10 S7



Photo No. 222 – FD24-10 S8



Photo No. 223 – FD24-10 S9



Photo No. 224 – FD24-10 S10



Photo No. 225 – FD24-10 S11



Photo No. 226 – FD24-10 S12



Photo No. 227 – FD24-10 S13



Photo No. 228 – FD24-10 S14



Photo No. 229 – FD24-10 S15



Photo No. 230 – FD24-10 S16



Photo No. 231 – FD24-10 S17



Photo No. 232 – FD24-10 S18



Photo No. 233 – FD24-10 S19



Photo No. 234 – FD24-10 S20

NOT PHOTOGRAPHED

Photo No. 235 – FD24-11 S1



Photo No. 236 – FD24-11 S2



Photo No. 237 – FD24-11 S3



Photo No. 238 – FD24-11 S4



Photo No. 239 – FD24-11 S5



Photo No. 240 – FD24-11 S6

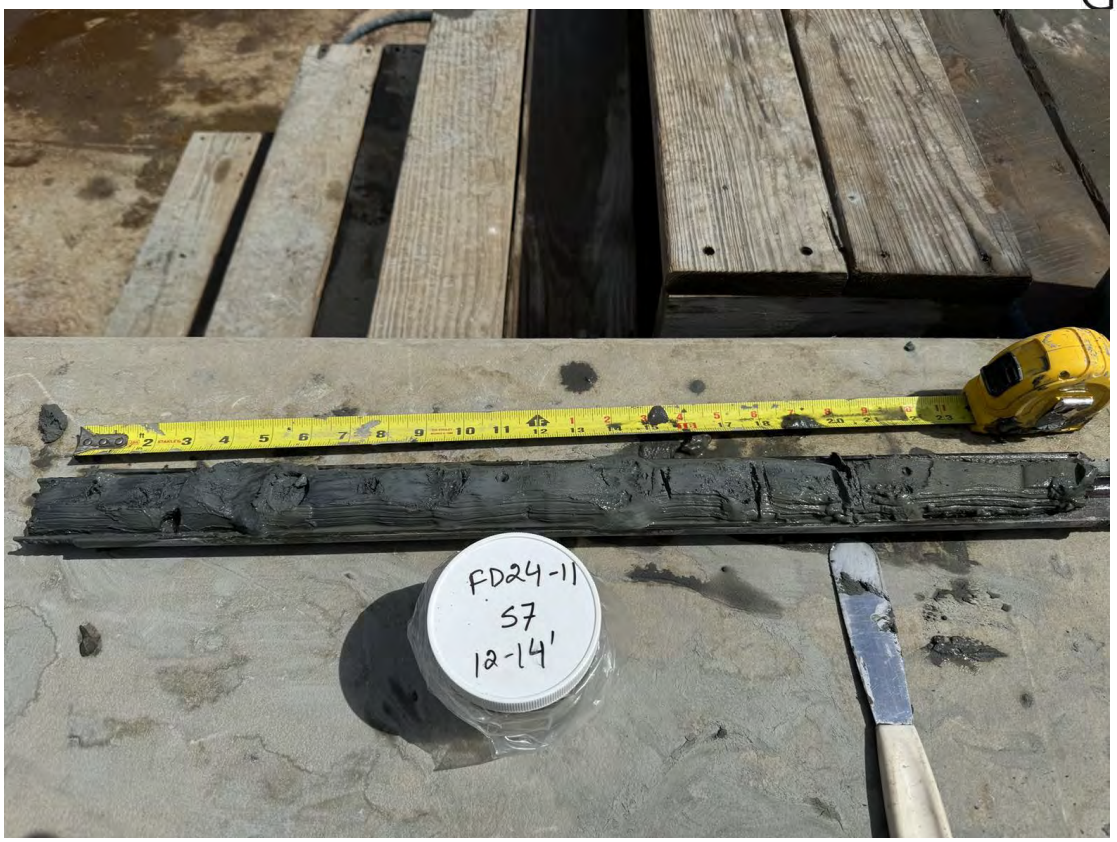


Photo No. 241 – FD24-11 S7



Photo No. 242 – FD24-11 S8



Photo No. 243 – FD24-11 S9



Photo No. 244 – FD24-11 S10



Photo No. 245 – FD24-11 S11



Photo No. 246 – FD24-11 S12



Photo No. 247 – FD24-11 S13



Photo No. 248 – FD24-11 S14



Photo No. 249 – FD24-11 S15



Photo No. 250 – FD24-11 S16



Photo No. 251 – FD24-11 S17



Photo No. 252 – FD24-11 S18



Photo No. 253 – FD24-11 S19



Photo No. 254 – FD24-11 S20



Photo No. 255 – FD24-12 S1



Photo No. 256 – FD24-12 S2



Photo No. 257 – FD24-12 S3



Photo No. 258 – FD24-12 S4



Photo No. 259 – FD24-12 S5



Photo No. 260 – FD24-12 S6



Photo No. 261 – FD24-12 S7



Photo No. 262 – FD24-12 S8



Photo No. 263 – FD24-12 S9



Photo No. 264 – FD24-12 S10



Photo No. 265 – FD24-12 S11



Photo No. 266 – FD24-12 S12



Photo No. 267 – FD24-12 S13



Photo No. 268 – FD24-12 S14



Photo No. 269 – FD24-12 S15



Photo No. 270 – FD24-12 S16



Photo No. 271 – FD24-12 S17



Photo No. 272 – FD24-12 S18

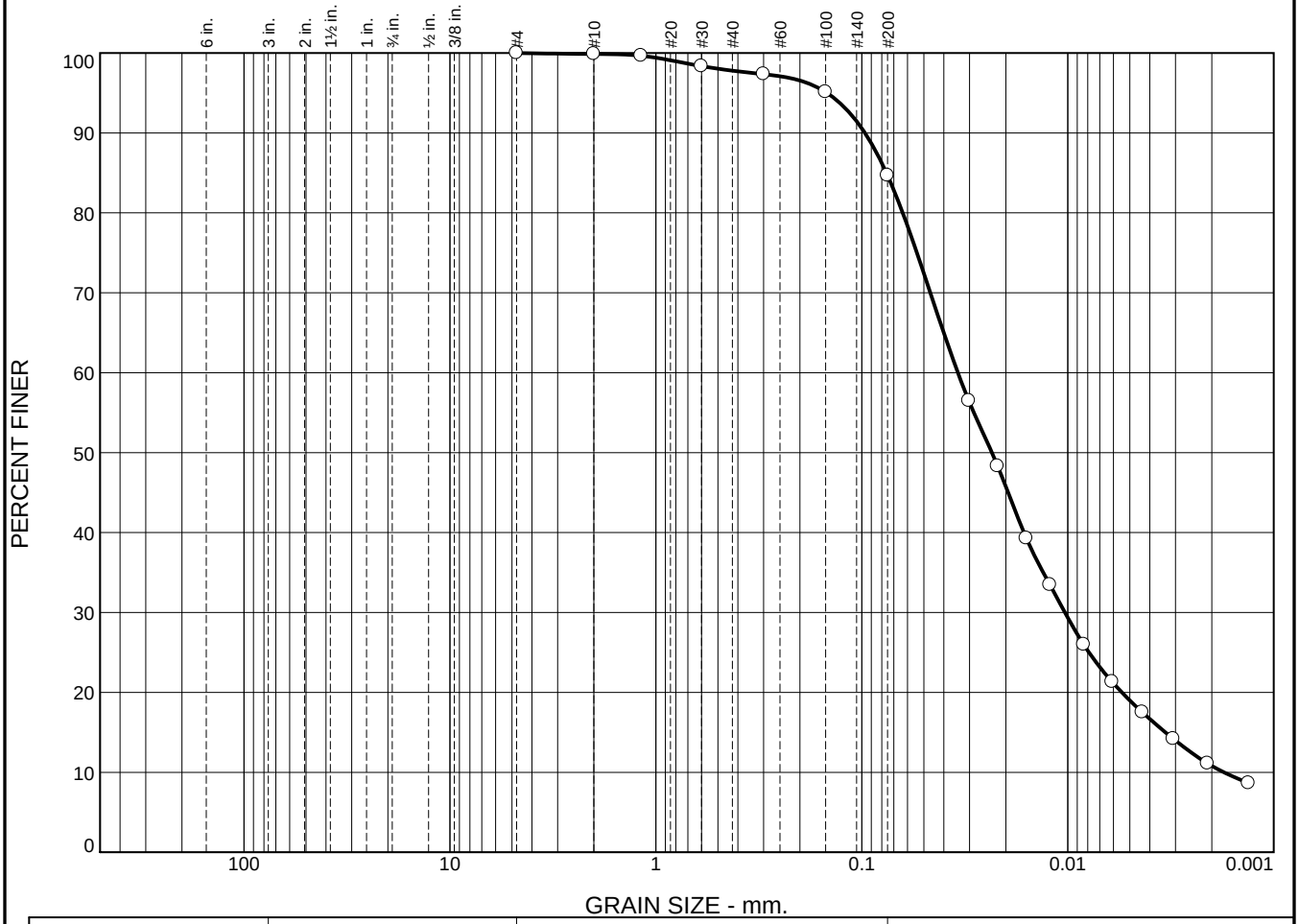


Photo No. 273 – FD24-12 S19

Appendix D

Laboratory Data Test Results

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	2.1	13.1	65.7	19.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	51	36	0.0759	0.0342	0.0234	0.0103	0.0034	0.0017	1.79	19.62

Material Description	USCS	AASHTO
○ ORGANIC SOIL	MH	A-7-5(16)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-01 **Depth:** 12-14 ft **Sample Number:** S7

Remarks:

○As received WC = 40.4%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 12-14 ft
Sample Number: S7
Material Description: ORGANIC SOIL
Liquid Limit: 51
Plastic Limit: 36
USCS Classification: MH
AASHTO Classification: A-7-5(16)
Testing Remarks: As received WC = 40.4%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
40.77	0.00	200.80	#4	200.80	100.0
			#10	200.85	99.9
			#16	200.94	99.7
			#30	201.47	98.4
			#50	201.88	97.4
			#100	202.79	95.1
			#200	207.04	84.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =40.77
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.7	1.0180	1.0145	0.0127	18.7	11.3	0.0303	56.5
4.00	24.7	1.0159	1.0124	0.0127	16.6	11.9	0.0219	48.3
8.00	24.6	1.0136	1.0101	0.0127	14.3	12.5	0.0159	39.3
14.00	24.6	1.0121	1.0086	0.0127	12.8	12.9	0.0122	33.5
31.00	24.5	1.0102	1.0067	0.0127	10.9	13.4	0.0084	26.0
60.00	24.5	1.0090	1.0055	0.0127	9.7	13.7	0.0061	21.3
120.00	24.6	1.0080	1.0045	0.0127	8.7	14.0	0.0043	17.5
240.00	25.3	1.0070	1.0036	0.0126	7.7	14.3	0.0031	14.2
532.00	24.4	1.0064	1.0029	0.0127	7.1	14.4	0.0021	11.1
1387.00	23.1	1.0060	1.0022	0.0129	6.7	14.5	0.0013	8.6

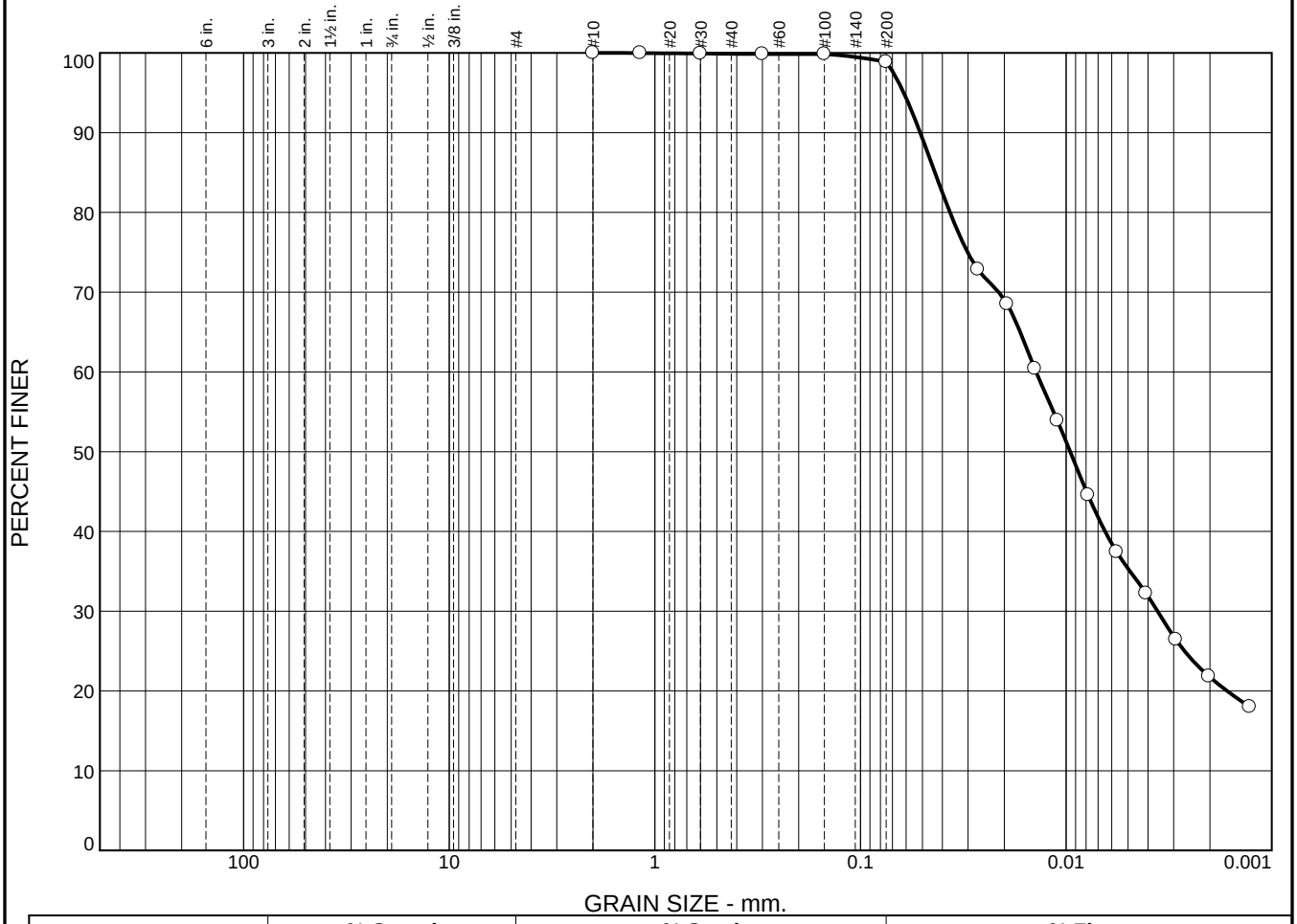
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	2.1	13.1	15.3	65.7	19.0	84.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0017	0.0034	0.0055	0.0103	0.0234	0.0342	0.0633	0.0759	0.0966	0.1476

Fineness Modulus	C_u	C_c
0.10	19.62	1.79

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	1.0	63.6	35.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	27	17	0.0435	0.0140	0.0096	0.0036				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-4(9)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-01 **Depth:** 18-20 ft **Sample Number:** S10

Remarks:

○As received WC = 25.6%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/18/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
Liquid Limit: 27
Plastic Limit: 17
USCS Classification: CL
AASHTO Classification: A-4(9)
Testing Remarks: As received WC = 25.6%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
51.32	0.00	204.79	#10	204.79	100.0
			#16	204.80	100.0
			#30	204.83	99.9
			#50	204.86	99.9
			#100	204.86	99.9
			#200	205.37	98.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =51.32
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.8	1.0270	1.0235	0.0127	27.7	9.0	0.0269	72.9
4.00	24.8	1.0256	1.0221	0.0127	26.3	9.3	0.0194	68.5
8.00	24.7	1.0230	1.0195	0.0127	23.7	10.0	0.0142	60.4
14.00	24.7	1.0209	1.0174	0.0127	21.6	10.6	0.0110	53.9
30.00	24.6	1.0179	1.0144	0.0127	18.6	11.4	0.0078	44.6
60.00	24.6	1.0156	1.0121	0.0127	16.3	12.0	0.0057	37.4
120.00	24.7	1.0139	1.0104	0.0127	14.6	12.4	0.0041	32.2
240.00	25.3	1.0119	1.0085	0.0126	12.6	13.0	0.0029	26.5
528.00	24.4	1.0106	1.0071	0.0127	11.3	13.3	0.0020	21.8
1383.00	23.1	1.0096	1.0058	0.0129	10.3	13.6	0.0013	18.0

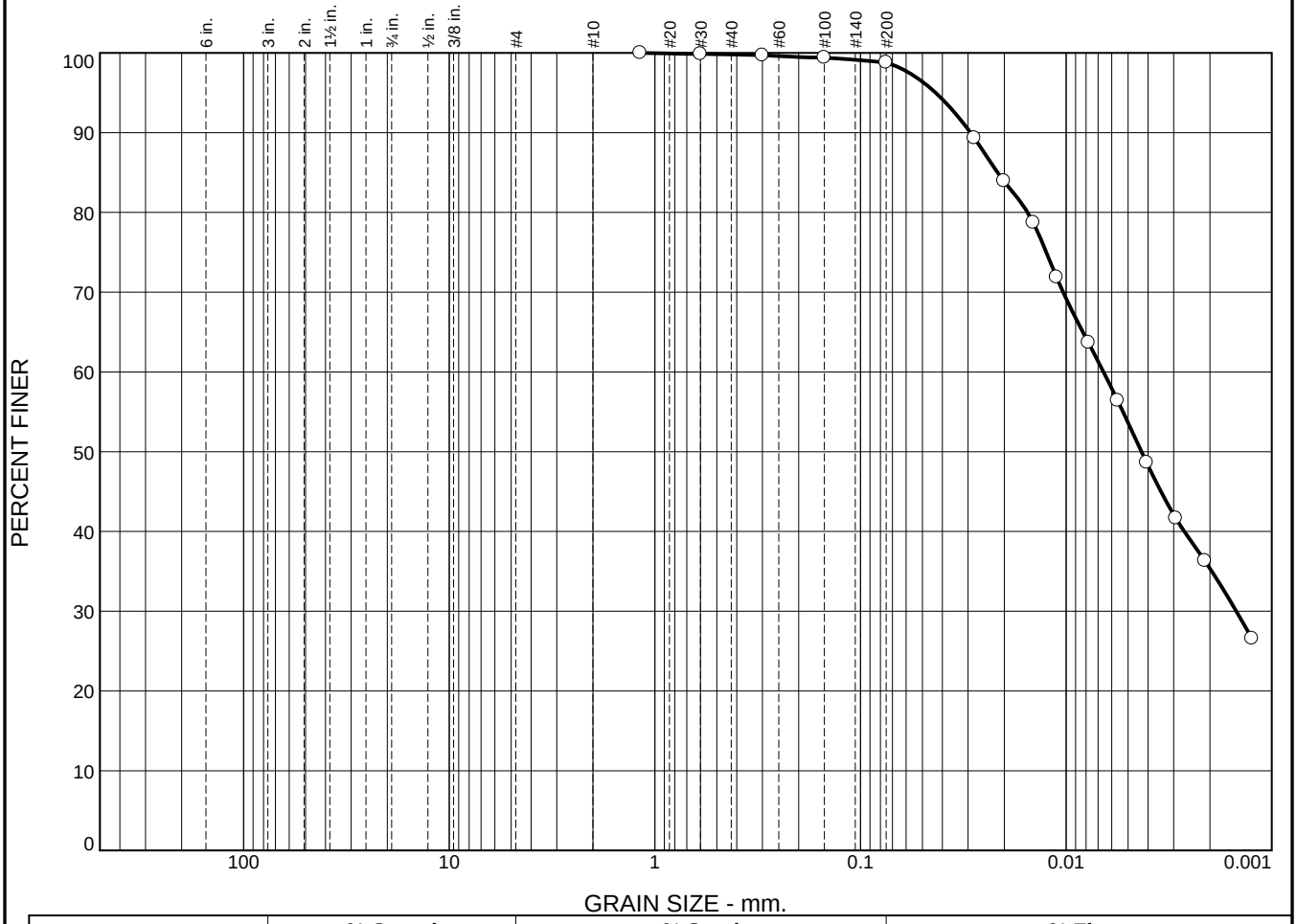
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.1	63.6	35.3	98.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0016	0.0036	0.0096	0.0140	0.0367	0.0435	0.0513	0.0616

Fineness Modulus
0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	1.0	45.2	53.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	38	21	0.0215	0.0066	0.0043	0.0015				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(18)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-01 **Depth:** 44-46 ft **Sample Number:** S23

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 42.4%

Fines classified visually

Figure

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 44-46 ft
Sample Number: S23
Material Description: LEAN CLAY
Liquid Limit: 38
Plastic Limit: 21
USCS Classification: CL
AASHTO Classification: A-6(18)
Testing Remarks: As received WC = 42.4%
Fines classified visually
Tested by: S. Larson 6/10/24
Checked by: W. Lukas 6/11/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
37.08	0.00	31.45	#16	31.45	100.0
			#30	31.50	99.9
			#50	31.56	99.7
			#100	31.67	99.4
			#200	31.90	98.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =37.08
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.71
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.1	1.0245	1.0209	0.0128	25.2	9.6	0.0280	89.3
4.00	24.3	1.0232	1.0196	0.0127	23.9	10.0	0.0201	83.9
8.00	24.2	1.0220	1.0184	0.0127	22.7	10.3	0.0144	78.7
14.00	24.2	1.0204	1.0168	0.0127	21.1	10.7	0.0111	71.9
30.00	24.1	1.0185	1.0149	0.0128	19.2	11.2	0.0078	63.7
60.00	24.1	1.0168	1.0132	0.0128	17.5	11.7	0.0056	56.4
120.00	24.0	1.0150	1.0114	0.0128	15.7	12.1	0.0041	48.6
240.00	23.8	1.0134	1.0097	0.0128	14.1	12.6	0.0029	41.6
464.00	24.6	1.0120	1.0085	0.0127	12.7	12.9	0.0021	36.3
1440.00	23.1	1.0100	1.0062	0.0129	10.7	13.5	0.0012	26.6

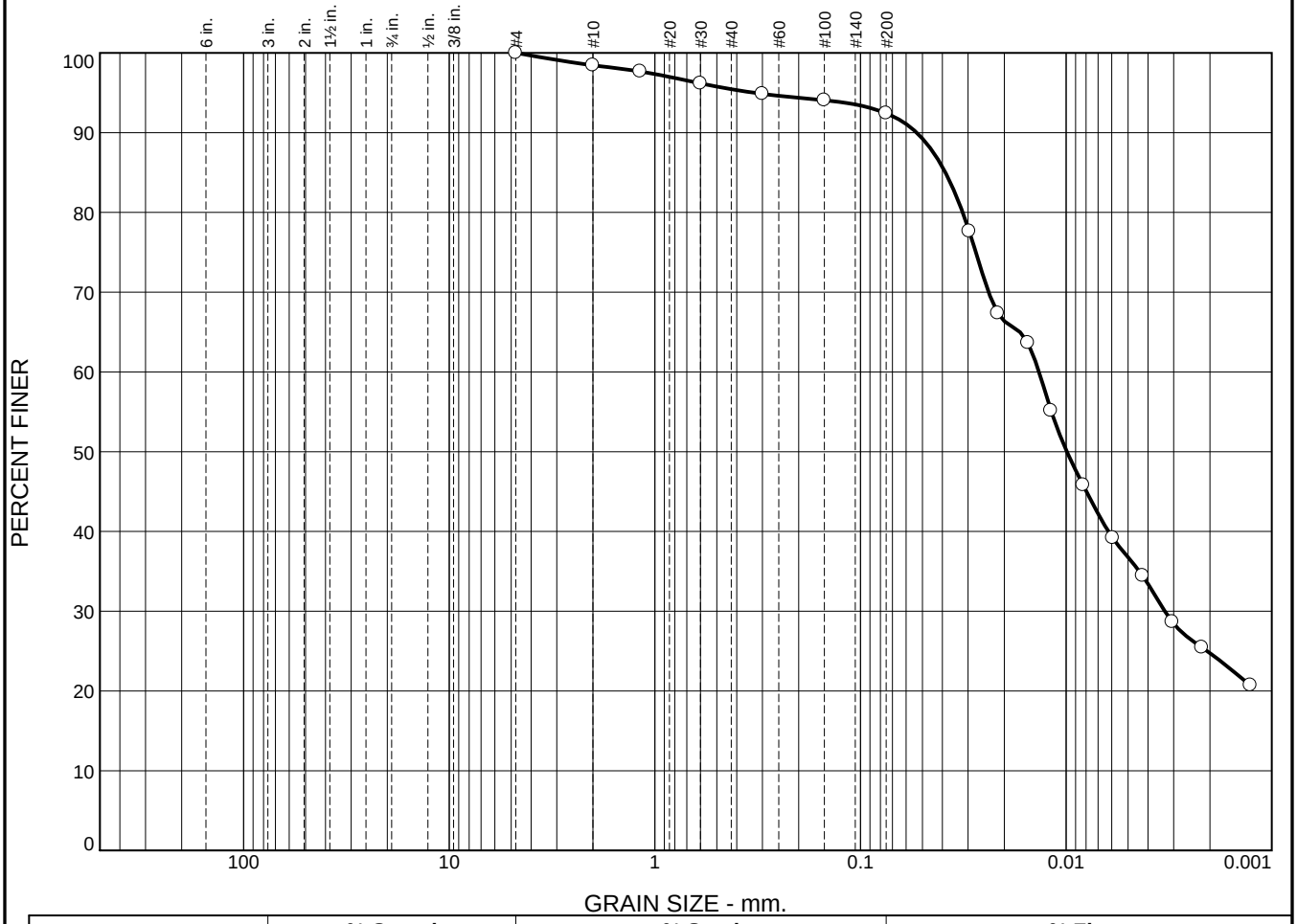
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	1.0	1.2	45.2	53.6	98.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0015	0.0043	0.0066	0.0154	0.0215	0.0292	0.0431

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	1.6	2.9	3.1	55.6	36.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	67	32	0.0387	0.0136	0.0099	0.0033				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-5(38)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-02 **Depth:** 10-12 ft **Sample Number:** S6

Remarks:

○As received WC = 97.8%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 10-12 ft
Sample Number: S6
Material Description: ORGANIC SOIL
Liquid Limit: 67
Plastic Limit: 32
USCS Classification: OH
AASHTO Classification: A-7-5(38)
Testing Remarks: As received WC = 97.8%
Fines classified visually
Tested by: S. Larson 6/10/24
Checked by: W. Lukas 6/11/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
33.51	0.00	31.25	#4	31.25	100.0
			#10	31.77	98.4
			#16	32.03	97.7
			#30	32.53	96.2
			#50	32.97	94.9
			#100	33.24	94.1
			#200	33.79	92.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.4
Weight of hydrometer sample =33.51
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.3	1.0202	1.0166	0.0128	20.9	10.8	0.0296	77.6
4.00	24.3	1.0180	1.0144	0.0128	18.7	11.3	0.0215	67.4
8.00	24.3	1.0172	1.0136	0.0128	17.9	11.6	0.0153	63.6
14.00	24.2	1.0154	1.0118	0.0128	16.1	12.0	0.0118	55.2
30.00	24.2	1.0134	1.0098	0.0128	14.1	12.6	0.0083	45.8
60.00	24.1	1.0120	1.0084	0.0128	12.7	12.9	0.0059	39.2
120.00	24.0	1.0110	1.0074	0.0128	11.7	13.2	0.0042	34.4
240.00	23.8	1.0098	1.0061	0.0128	10.5	13.5	0.0030	28.7
466.00	24.4	1.0090	1.0055	0.0127	9.7	13.7	0.0022	25.5
1441.00	23.2	1.0082	1.0044	0.0129	8.9	13.9	0.0013	20.7

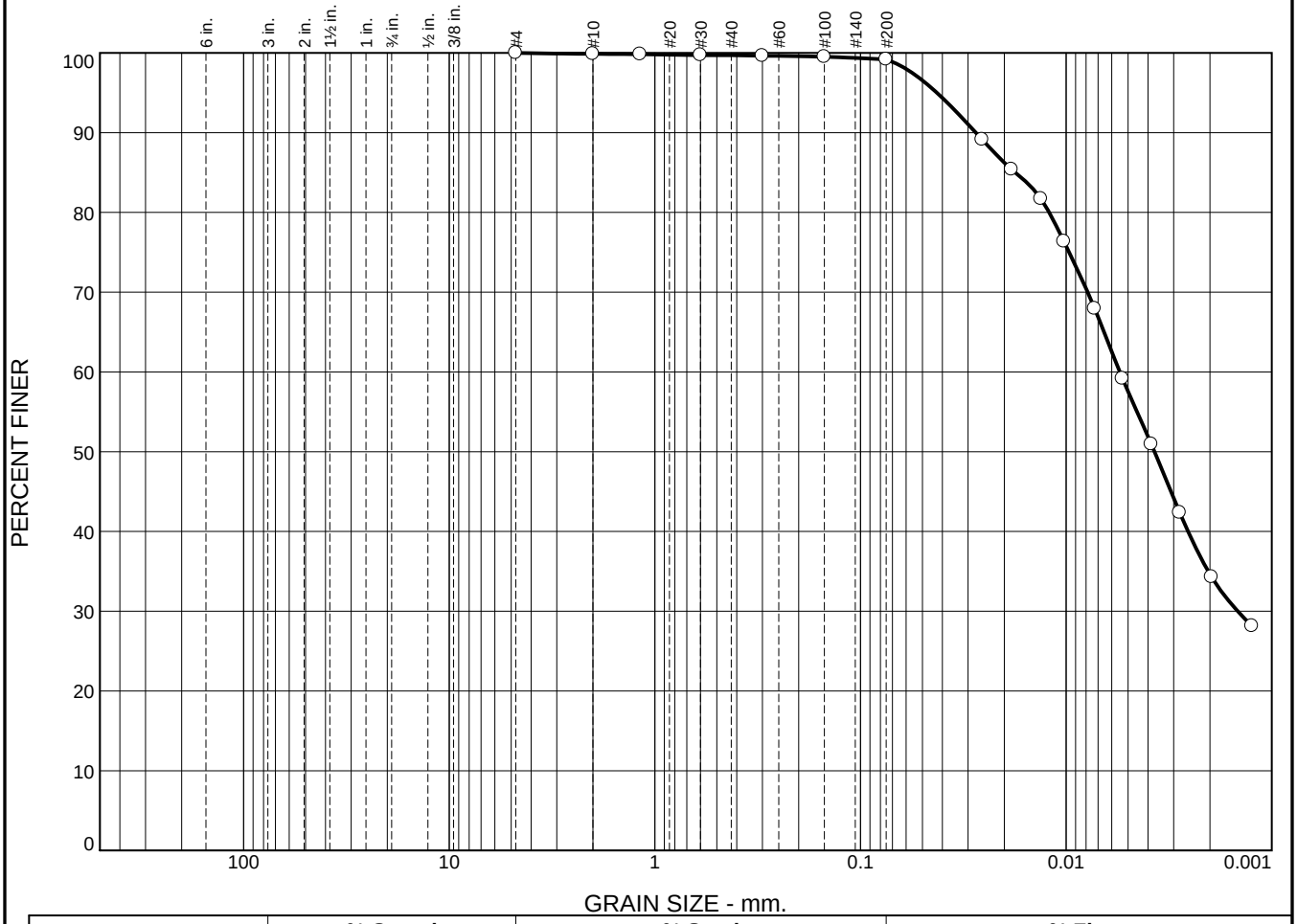
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	1.6	2.9	3.1	7.6	55.6	36.8	92.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0033	0.0099	0.0136	0.0318	0.0387	0.0533	0.3277

Fineness Modulus
0.19

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.2	0.5	41.7	57.5

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	35	19	0.0177	0.0055	0.0037	0.0015				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(16)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-02 **Depth:** 18-20 ft **Sample Number:** S10

Remarks:

○As received WC = 27.0%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
Liquid Limit: 35
Plastic Limit: 19
USCS Classification: CL
AASHTO Classification: A-6(16)
Testing Remarks: As received WC = 27.0%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
47.45	0.00	190.37	#4	190.37	100.0
			#10	190.43	99.9
			#16	190.45	99.8
			#30	190.50	99.7
			#50	190.54	99.6
			#100	190.60	99.5
			#200	190.76	99.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =47.45
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.9	1.0301	1.0267	0.0127	30.8	8.1	0.0256	89.1
4.00	24.8	1.0290	1.0255	0.0127	29.7	8.4	0.0184	85.4
8.00	24.8	1.0279	1.0244	0.0127	28.6	8.7	0.0133	81.7
14.00	24.8	1.0263	1.0228	0.0127	27.0	9.2	0.0103	76.4
30.00	24.7	1.0238	1.0203	0.0127	24.5	9.8	0.0073	67.9
60.00	24.6	1.0212	1.0177	0.0127	21.9	10.5	0.0053	59.2
121.00	24.8	1.0187	1.0152	0.0127	19.4	11.2	0.0039	50.9
240.00	25.4	1.0160	1.0127	0.0126	16.7	11.9	0.0028	42.4
526.00	24.4	1.0138	1.0103	0.0127	14.5	12.5	0.0020	34.3
1381.00	23.1	1.0122	1.0084	0.0129	12.9	12.9	0.0013	28.1

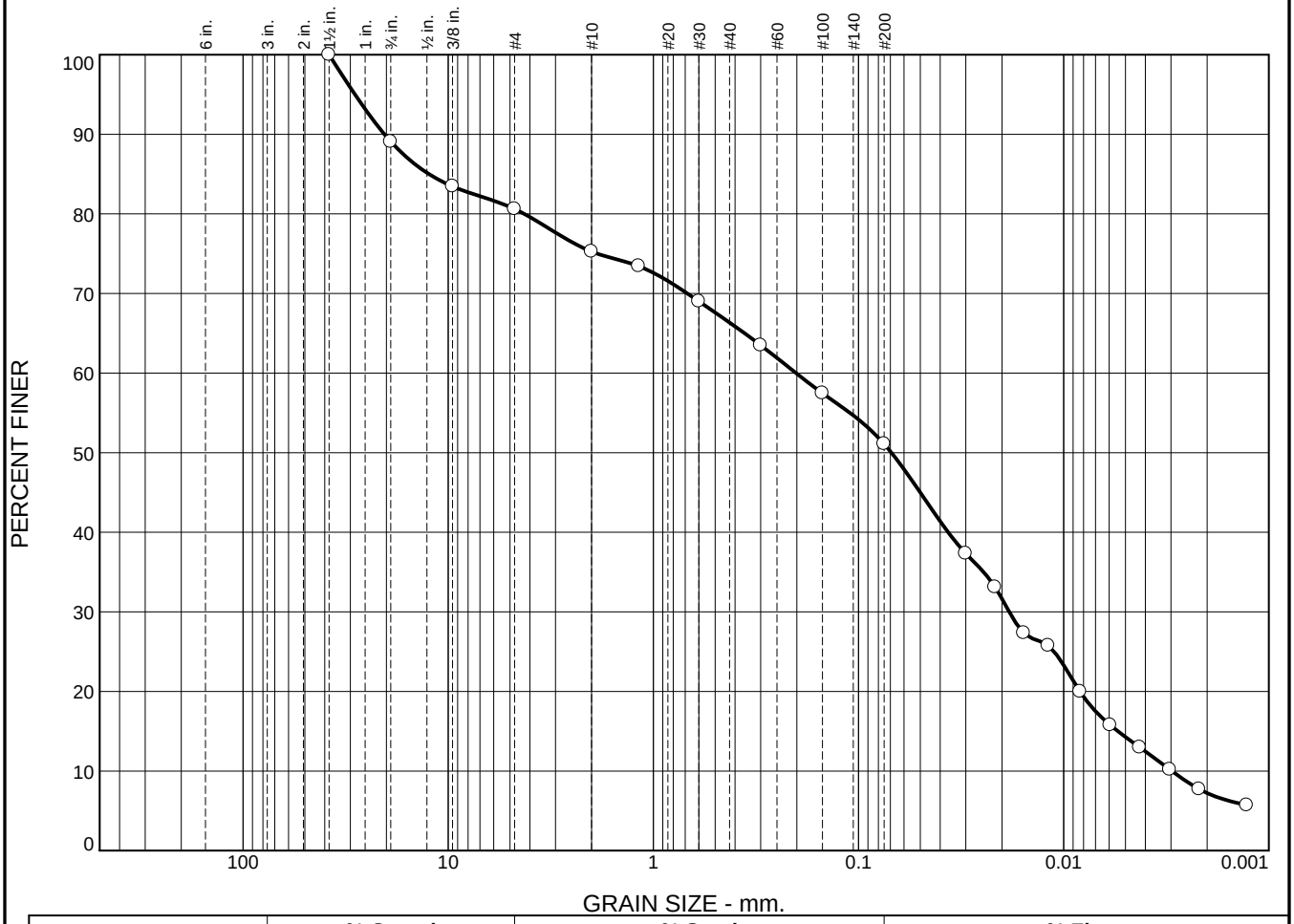
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	0.5	0.8	41.7	57.5	99.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0015	0.0037	0.0055	0.0121	0.0177	0.0275	0.0425

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	10.9	8.5	5.3	9.0	15.2	36.8	14.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			12.4093	0.2016	0.0691	0.0184	0.0054	0.0030	0.57	67.94

Material Description	USCS	AASHTO
○ Sandy LEAN CLAY with Gravel	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-02 **Depth:** 46-48 ft **Sample Number:** S24

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 10.6%

Fines classified visually

Figure

Tested By: S. Larson 5/13/24 **Checked By:** W. Lukas 5/14/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 46-48 ft **Sample Number:** S24
Material Description: Sandy LEAN CLAY with Gravel
USCS Classification: CL
Testing Remarks: As received WC = 10.6%
Fines classified visually
Tested by: S. Larson 5/13/24 **Checked by:** W. Lukas 5/14/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
231.12	0.00	21.40	1.5	21.40	100.0
			3/4	46.64	89.1
			3/8	59.63	83.5
			#4	66.20	80.6
			#10	78.57	75.3
44.90	0.00	230.40	#16	231.49	73.4
			#30	234.13	69.0
			#50	237.42	63.5
			#100	241.01	57.5
			#200	244.82	51.1

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 75.3
Weight of hydrometer sample =44.9
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.76
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.1	1.0178	1.0142	0.0126	18.5	11.4	0.0300	37.3
4.00	24.1	1.0162	1.0126	0.0126	16.9	11.8	0.0216	33.1
8.00	24.1	1.0140	1.0104	0.0126	14.7	12.4	0.0157	27.3
14.00	24.1	1.0134	1.0098	0.0126	14.1	12.6	0.0119	25.8
30.00	24.1	1.0112	1.0076	0.0126	11.9	13.1	0.0083	20.0
61.00	24.1	1.0096	1.0060	0.0126	10.3	13.6	0.0059	15.8
120.00	24.3	1.0085	1.0049	0.0125	9.2	13.9	0.0043	13.0
240.00	24.5	1.0074	1.0039	0.0125	8.1	14.2	0.0030	10.2
468.00	24.8	1.0064	1.0029	0.0125	7.1	14.4	0.0022	7.7
1440.00	22.8	1.0060	1.0022	0.0128	6.7	14.5	0.0013	5.7

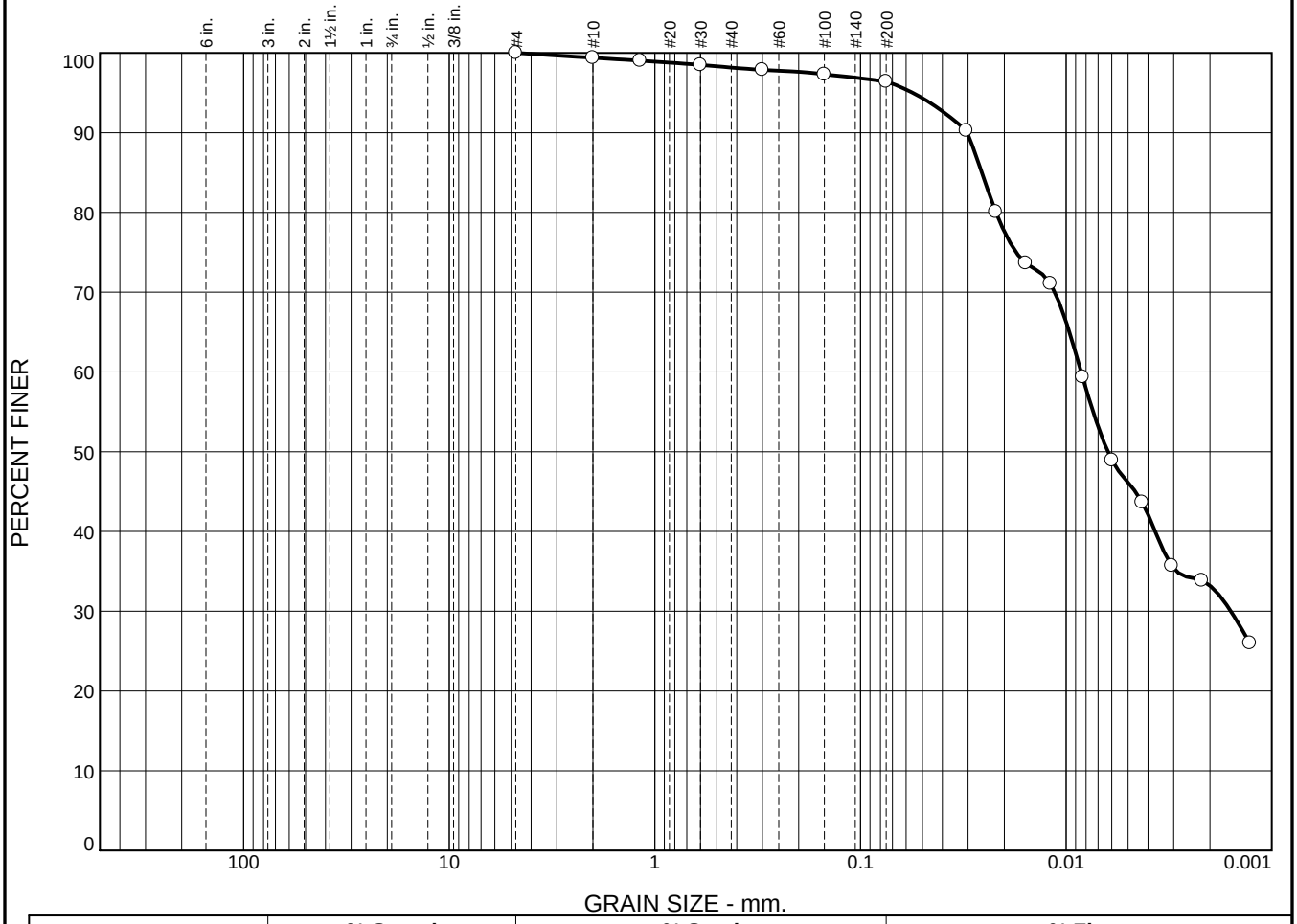
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	10.9	8.5	19.4	5.3	9.0	15.2	29.5	36.8	14.3	51.1

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0030	0.0054	0.0083	0.0184	0.0691	0.2016	4.2595	12.4093	20.4645	28.4694

Fineness Modulus	C_u	C_c
2.07	67.94	0.57

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.6	1.2	1.8	50.3	46.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	95	35	0.0257	0.0085	0.0063	0.0016				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-5(69)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-03 **Depth:** 4-6 ft **Sample Number:** S3

Remarks:

○As received WC = 114.5%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Figure

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 4-6 ft
Sample Number: S3
Material Description: ORGANIC SOIL
Liquid Limit: 95
Plastic Limit: 35
USCS Classification: OH
AASHTO Classification: A-7-5(69)
Testing Remarks: As received WC = 114.5%
Fines classified visually
Tested by: S. Larson 6/10/24
Checked by: W. Lukas 6/11/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
24.52	0.00	30.68	#4	30.68	100.0
			#10	30.83	99.4
			#16	30.92	99.0
			#30	31.05	98.5
			#50	31.20	97.9
			#100	31.34	97.3
			#200	31.56	96.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.4
Weight of hydrometer sample =24.52
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.2	1.0176	1.0140	0.0128	18.3	11.5	0.0306	90.3
4.00	24.3	1.0160	1.0124	0.0128	16.7	11.9	0.0220	80.1
8.00	24.3	1.0150	1.0114	0.0128	15.7	12.1	0.0157	73.6
14.00	24.3	1.0146	1.0110	0.0128	15.3	12.2	0.0119	71.1
30.00	24.2	1.0128	1.0092	0.0128	13.5	12.7	0.0083	59.4
60.00	24.1	1.0112	1.0076	0.0128	11.9	13.1	0.0060	48.9
120.00	24.0	1.0104	1.0068	0.0128	11.1	13.4	0.0043	43.7
240.00	23.8	1.0092	1.0055	0.0128	9.9	13.7	0.0031	35.7
469.00	24.4	1.0088	1.0053	0.0127	9.5	13.8	0.0022	33.9
1440.00	23.2	1.0078	1.0040	0.0129	8.5	14.0	0.0013	26.0

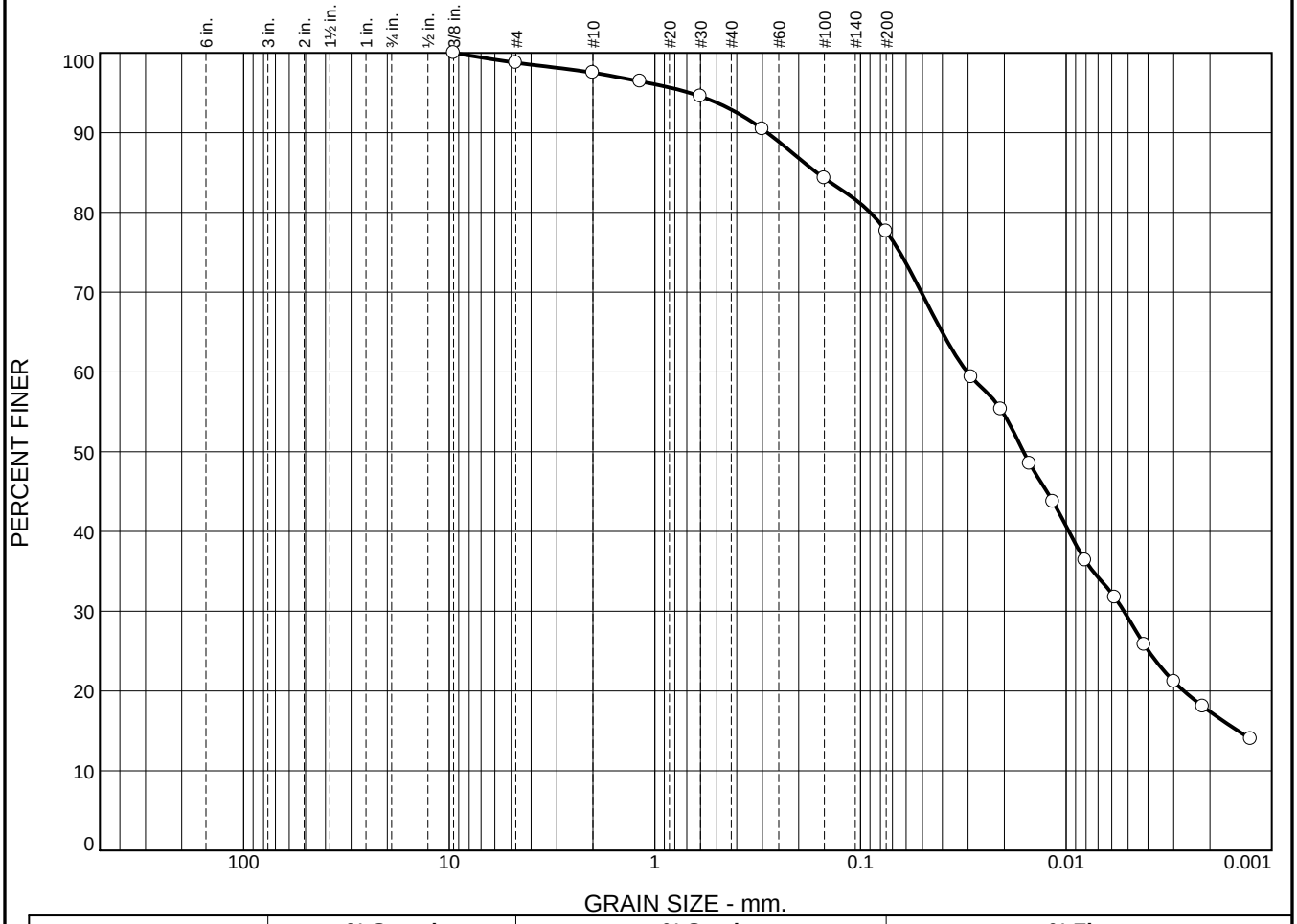
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.6	1.2	1.8	3.6	50.3	46.1	96.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0016	0.0063	0.0085	0.0219	0.0257	0.0303	0.0558

Fineness Modulus
0.08

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	1.2	1.3	4.6	15.3	48.4	29.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1634	0.0303	0.0161	0.0052	0.0015			

Material Description	USCS	AASHTO
○ LEAN CLAY with Sand	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source:** FD24-03 **Depth:** 48-50 ft **Sample No.:** S25(20-24")

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 22.5%

Fines classified visually

Figure

Tested By: S. Larson 5/13/24 **Checked By:** W. Lukas 5/14/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 48-50 ft **Sample Number:** S25(20-24")
Material Description: LEAN CLAY with Sand
USCS Classification: CL
Testing Remarks: As received WC = 22.5%
Fines classified visually
Tested by: S. Larson 5/13/24 **Checked by:** W. Lukas 5/14/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
45.58	0.00	214.04	3/8	214.04	100.0
			#4	214.60	98.8
			#10	215.17	97.5
			#16	215.67	96.4
			#30	216.52	94.6
			#50	218.39	90.5
			#100	221.20	84.3
			#200	224.23	77.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 97.5
Weight of hydrometer sample =45.58
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.74
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.2	1.0212	1.0176	0.0126	21.9	10.5	0.0289	59.4
4.00	24.2	1.0200	1.0164	0.0126	20.7	10.8	0.0208	55.3
8.00	24.1	1.0180	1.0144	0.0126	18.7	11.3	0.0151	48.5
14.00	24.0	1.0166	1.0130	0.0127	17.3	11.7	0.0116	43.7
30.00	24.1	1.0144	1.0108	0.0126	15.1	12.3	0.0081	36.4
60.00	24.2	1.0130	1.0094	0.0126	13.7	12.7	0.0058	31.7
120.00	24.4	1.0112	1.0077	0.0126	11.9	13.1	0.0042	25.8
240.00	24.5	1.0098	1.0063	0.0126	10.5	13.5	0.0030	21.2
461.00	24.9	1.0088	1.0054	0.0125	9.5	13.8	0.0022	18.1
1440.00	22.7	1.0080	1.0042	0.0129	8.7	14.0	0.0013	14.0

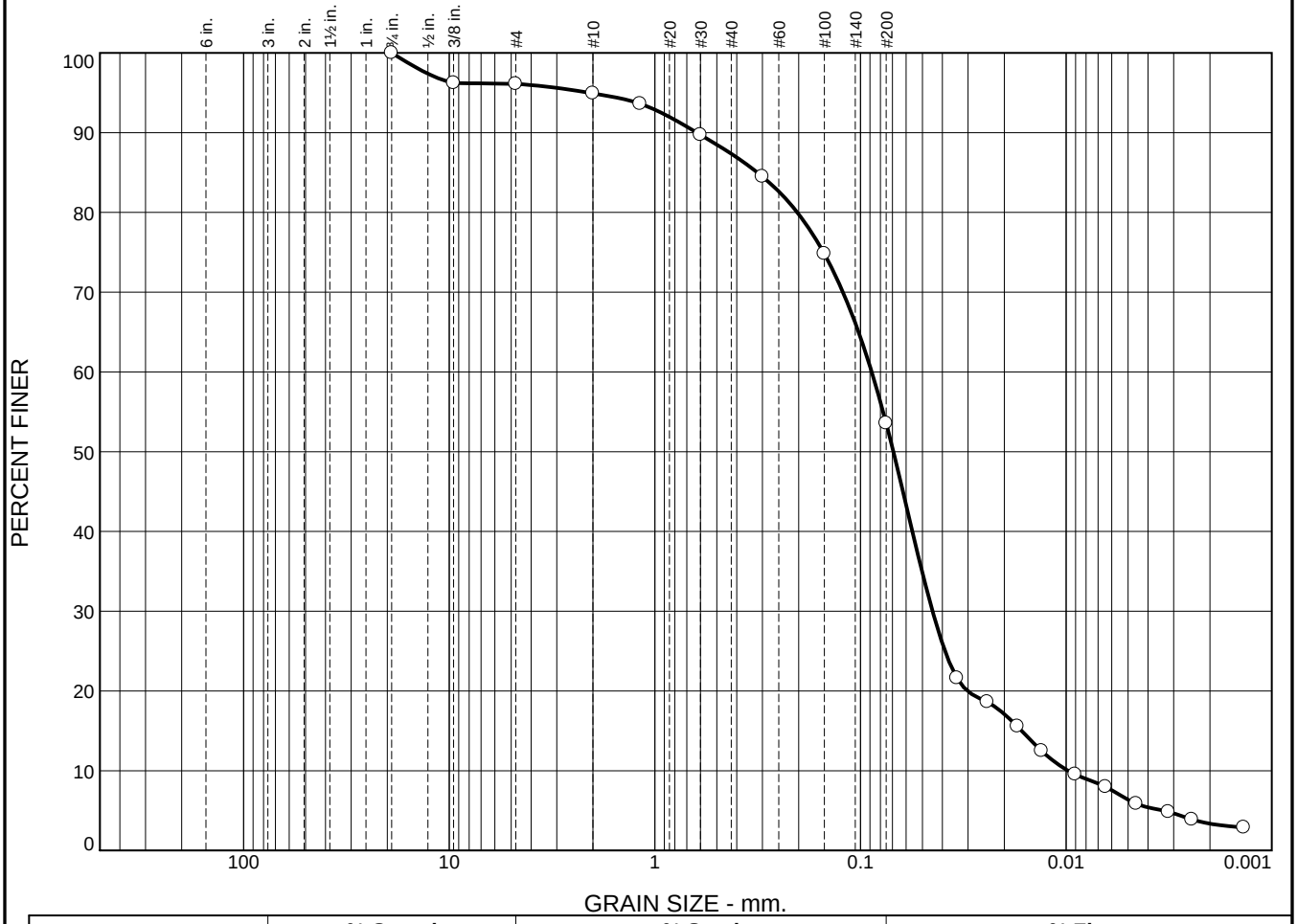
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	1.2	1.2	1.3	4.6	15.3	21.2	48.4	29.2	77.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0015	0.0027	0.0052	0.0161	0.0303	0.0897	0.1634	0.2840	0.6779

Fineness Modulus
0.38

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	3.9	1.2	7.5	33.8	47.2	6.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.3172	0.0882	0.0692	0.0447	0.0165	0.0098	2.31	9.02

Material Description	USCS	AASHTO
○ Sandy SILT	ML	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source:** FD24-04 **Depth:** 12-14 ft **Sample No.:** S7(17-24")

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 29.4%

Fines classified visually

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-04
Depth: 12-14 ft **Sample Number:** S7(17-24")
Material Description: Sandy SILT
USCS Classification: ML
Testing Remarks: As received WC = 29.4%
Fines classified visually
Tested by: S. Larson 5/17/24 **Checked by:** M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
150.95	0.00	17.98	3/4	17.98	100.0
			3/8	23.68	96.2
			#4	23.84	96.1
			#10	25.66	94.9
40.62	0.00	212.84	#16	213.39	93.6
			#30	215.06	89.7
			#50	217.30	84.5
			#100	221.44	74.8
			#200	230.54	53.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 94.9
Weight of hydrometer sample =40.62
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.65
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.9	1.0094	1.0058	0.0130	10.1	13.6	0.0340	21.6
4.00	23.9	1.0086	1.0050	0.0130	9.3	13.8	0.0242	18.6
8.00	23.8	1.0078	1.0041	0.0130	8.5	14.0	0.0173	15.6
14.00	23.7	1.0070	1.0033	0.0130	7.7	14.3	0.0132	12.5
30.00	23.8	1.0062	1.0025	0.0130	6.9	14.5	0.0090	9.5
60.00	23.7	1.0058	1.0021	0.0130	6.5	14.6	0.0064	8.0
120.00	23.9	1.0052	1.0016	0.0130	5.9	14.7	0.0046	5.9
240.00	25.5	1.0046	1.0013	0.0128	5.3	14.9	0.0032	4.9
404.00	26.1	1.0042	1.0010	0.0127	4.9	15.0	0.0024	3.9
1380.00	22.8	1.0046	1.0008	0.0132	5.3	14.9	0.0014	2.9

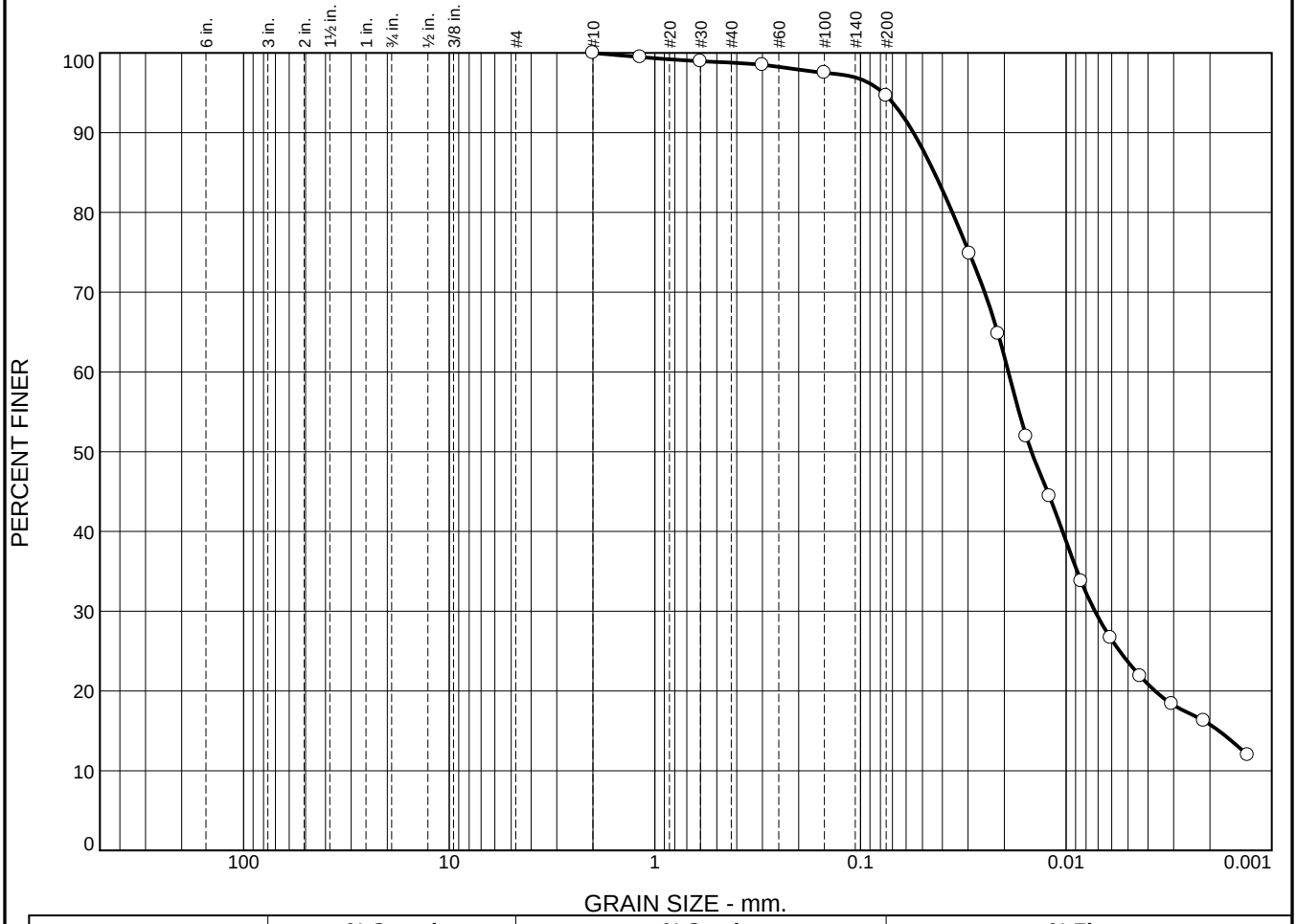
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	3.9	3.9	1.2	7.5	33.8	42.5	47.2	6.4	53.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0098	0.0165	0.0302	0.0447	0.0692	0.0882	0.2030	0.3172	0.6252	2.0894

Fineness Modulus	C_u	C_c
0.70	9.02	2.31

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	1.2	4.2	71.0	23.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.0438	0.0191	0.0148	0.0072	0.0018			

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-04 **Depth:** 20-22 ft **Sample Number:** S11

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○Fines classified visually

Figure

Tested By: S. Larson 5/29/24 **Checked By:** M. Alstede 5/29/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-04
Depth: 20-22 ft **Sample Number:** S11
Material Description: LEAN CLAY
USCS Classification: CL
Testing Remarks: Fines classified visually
Tested by: S. Larson 5/29/24 **Checked by:** M. Alstede 5/29/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
34.53	0.00	364.72	#10	364.72	100.0
			#16	364.90	99.5
			#30	365.08	99.0
			#50	365.24	98.5
			#100	365.58	97.5
			#200	366.57	94.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =34.53
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.73
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.0	1.0200	1.0164	0.0127	20.7	10.8	0.0295	74.9
4.00	24.0	1.0178	1.0142	0.0127	18.5	11.4	0.0214	64.8
8.00	23.9	1.0150	1.0114	0.0127	15.7	12.1	0.0157	51.9
14.00	23.7	1.0134	1.0097	0.0127	14.1	12.6	0.0121	44.4
30.00	23.5	1.0111	1.0074	0.0128	11.8	13.2	0.0085	33.8
60.00	23.2	1.0096	1.0058	0.0128	10.3	13.6	0.0061	26.7
120.00	22.9	1.0086	1.0048	0.0129	9.3	13.8	0.0044	21.9
240.00	24.2	1.0076	1.0040	0.0127	8.3	14.1	0.0031	18.4
480.00	25.8	1.0068	1.0036	0.0124	7.5	14.3	0.0021	16.3
1383.00	23.1	1.0064	1.0026	0.0128	7.1	14.4	0.0013	12.0

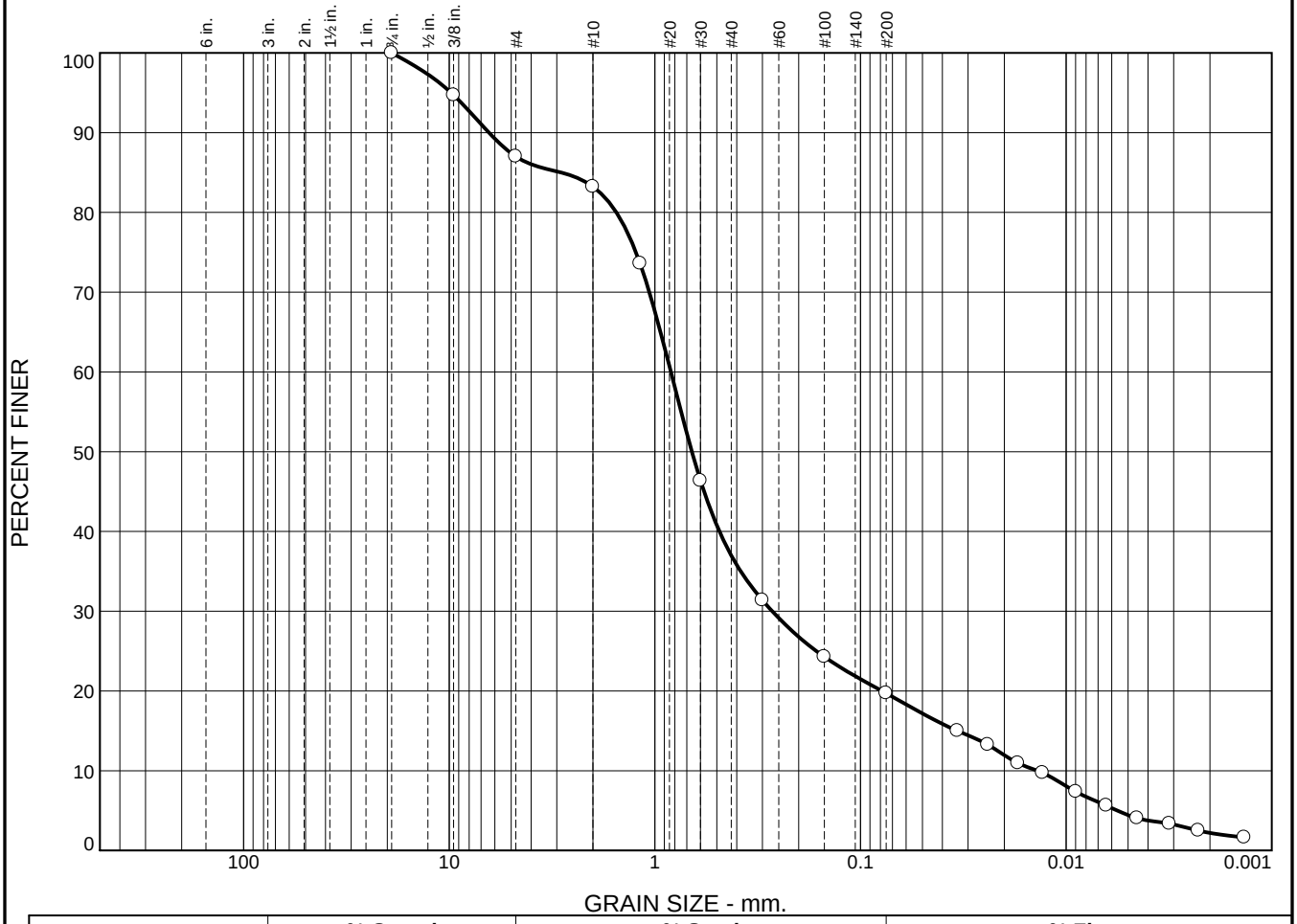
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	1.2	4.2	5.4	71.0	23.6	94.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
	0.0018	0.0037	0.0072	0.0148	0.0191	0.0358	0.0438	0.0553	0.0776

Fineness Modulus
0.06

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	13.0	3.8	46.2	17.3	15.3	4.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			2.8537	0.8361	0.6609	0.2688	0.0338	0.0138	6.27	60.68

Material Description	USCS	AASHTO
○ Silty SAND	SM	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-04 **Depth:** 28-30 ft **Sample Number:** S15

Remarks:

○As received WC = 15.8%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-04
Depth: 28-30 ft **Sample Number:** S15
Material Description: Silty SAND
USCS Classification: SM
Testing Remarks: As received WC = 15.8%
Fines classified visually
Tested by: S. Larson 5/17/24 **Checked by:** M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
213.61	0.00	31.47	3/4	31.47	100.0
			3/8	42.77	94.7
			#4	59.21	87.0
			#10	67.30	83.2
45.85	0.00	199.03	#16	204.33	73.6
			#30	219.34	46.4
			#50	227.59	31.4
			#100	231.50	24.3
			#200	234.02	19.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 83.2
Weight of hydrometer sample =45.85
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.68
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.0	1.0088	1.0052	0.0129	9.5	13.8	0.0338	15.0
4.00	24.0	1.0082	1.0046	0.0129	8.9	13.9	0.0240	13.3
8.00	24.0	1.0074	1.0038	0.0129	8.1	14.2	0.0171	10.9
14.00	23.9	1.0070	1.0034	0.0129	7.7	14.3	0.0130	9.7
30.00	23.8	1.0062	1.0025	0.0129	6.9	14.5	0.0090	7.4
60.00	23.8	1.0056	1.0019	0.0129	6.3	14.6	0.0064	5.6
120.00	24.1	1.0050	1.0014	0.0129	5.7	14.8	0.0045	4.1
240.00	25.8	1.0044	1.0012	0.0126	5.1	14.9	0.0031	3.4
458.00	26.2	1.0040	1.0009	0.0126	4.7	15.1	0.0023	2.5
1380.00	22.8	1.0044	1.0006	0.0131	5.1	14.9	0.0014	1.7

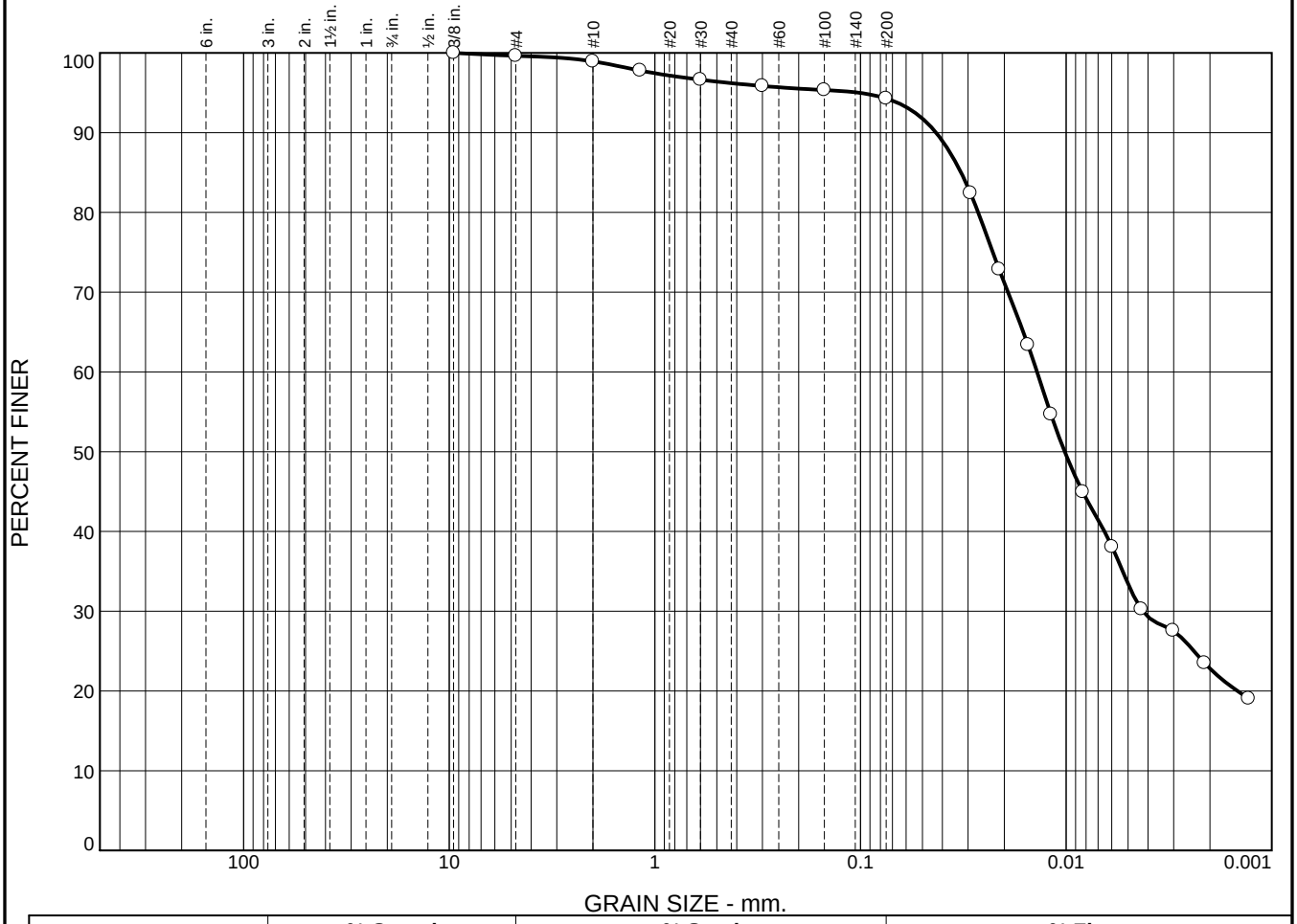
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	13.0	13.0	3.8	46.2	17.3	67.3	15.3	4.4	19.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0138	0.0338	0.0786	0.2688	0.6609	0.8361	1.5387	2.8537	6.4110	9.7925

Fineness Modulus	C_u	C_c
2.58	60.68	6.27

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.4	0.7	2.7	1.9	60.9	33.4

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	71	27	0.0324	0.0139	0.0102	0.0042				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-6(48)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-05 **Depth:** 10-12 ft **Sample Number:** S6

Remarks:

○As received WC = 82.2%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Figure

Tested By: S. Larson 5/29/24 **Checked By:** M. Alstede 5/29/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 10-12 ft
Sample Number: S6
Material Description: ORGANIC SOIL
Liquid Limit: 71
Plastic Limit: 27
USCS Classification: OH
AASHTO Classification: A-7-6(48)
Testing Remarks: As received WC = 82.2%
Fines classified visually
Tested by: S. Larson 5/29/24
Checked by: M. Alstede 5/29/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
33.03	0.00	371.98	3/8	371.98	100.0
			#4	372.10	99.6
			#10	372.33	98.9
			#16	372.71	97.8
			#30	373.09	96.6
			#50	373.35	95.9
			#100	373.52	95.3
			#200	373.87	94.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.9
Weight of hydrometer sample =33.03
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.72
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.1	1.0210	1.0174	0.0127	21.7	10.6	0.0292	82.4
4.00	24.0	1.0190	1.0154	0.0127	19.7	11.1	0.0212	72.9
8.00	24.0	1.0170	1.0134	0.0127	17.7	11.6	0.0153	63.4
14.00	23.8	1.0152	1.0115	0.0128	15.9	12.1	0.0119	54.7
30.00	23.5	1.0132	1.0095	0.0128	13.9	12.6	0.0083	45.0
60.00	23.2	1.0118	1.0080	0.0129	12.5	13.0	0.0060	38.1
120.00	22.9	1.0102	1.0064	0.0129	10.9	13.4	0.0043	30.3
240.00	24.2	1.0094	1.0058	0.0127	10.1	13.6	0.0030	27.6
480.00	25.8	1.0082	1.0050	0.0125	8.9	13.9	0.0021	23.5
1385.00	23.1	1.0078	1.0040	0.0129	8.5	14.0	0.0013	19.0

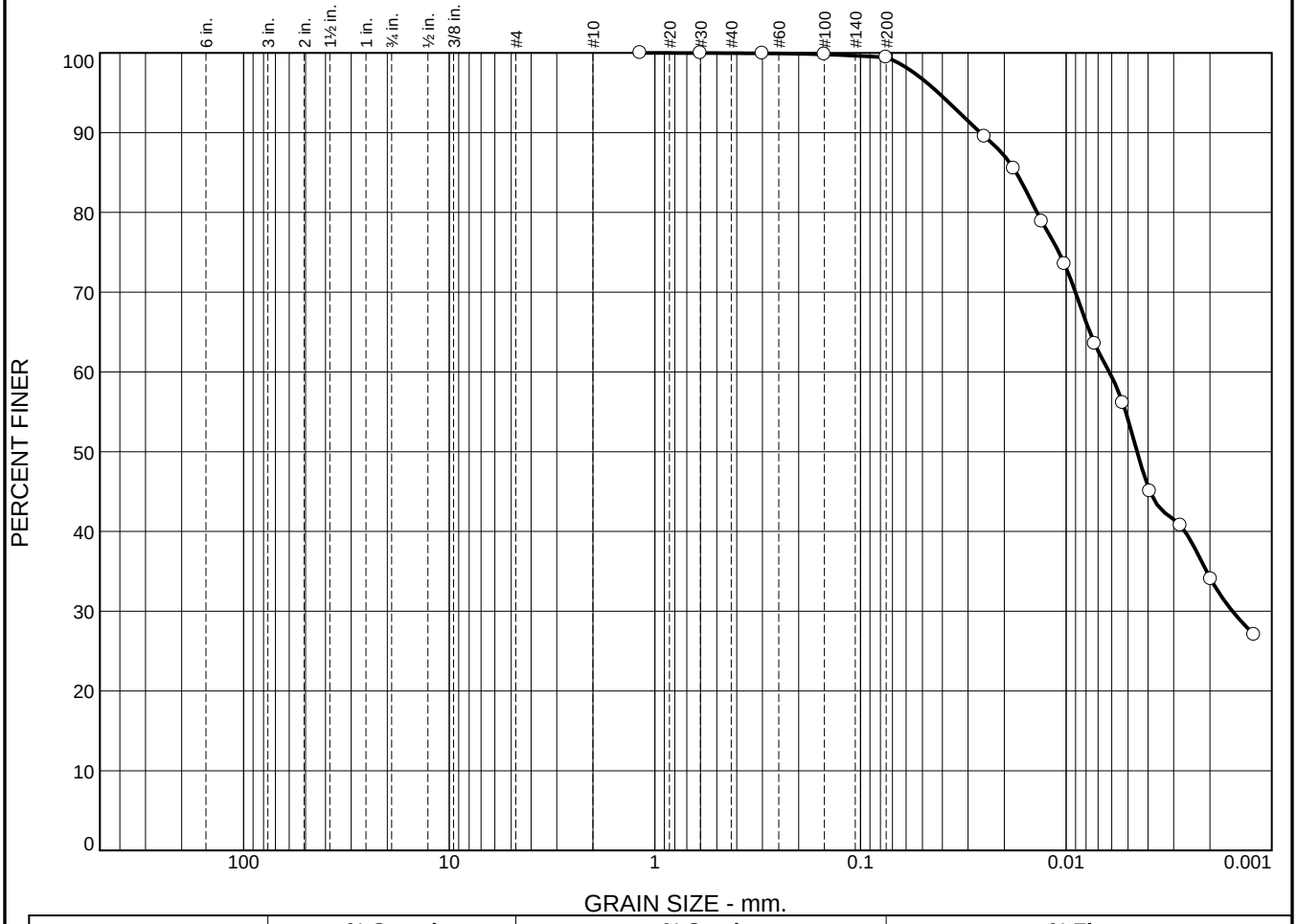
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.4	0.4	0.7	2.7	1.9	5.3	60.9	33.4	94.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0015	0.0042	0.0102	0.0139	0.0268	0.0324	0.0429	0.1016

Fineness Modulus
0.16

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.0	0.6	45.4	54.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	36	20	0.0175	0.0062	0.0045	0.0016				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(17)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-05 **Depth:** 32-34 ft **Sample Number:** S17

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 28.1%

Fines classified visually

Figure

Tested By: S. Larson 5/29/24 **Checked By:** M. Alstede 5/29/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 32-34 ft
Sample Number: S17
Material Description: LEAN CLAY
Liquid Limit: 36
Plastic Limit: 20
USCS Classification: CL
AASHTO Classification: A-6(17)
Testing Remarks: As received WC = 28.1%
Fines classified visually
Tested by: S. Larson 5/29/24
Checked by: M. Alstede 5/29/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
47.45	0.00	192.53	#16	192.53	100.0
			#30	192.54	100.0
			#50	192.56	99.9
			#100	192.62	99.8
			#200	192.80	99.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =47.45
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.78
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.1	1.0308	1.0272	0.0125	31.5	8.0	0.0249	89.5
4.00	24.0	1.0296	1.0260	0.0125	30.3	8.3	0.0180	85.5
8.00	23.9	1.0276	1.0240	0.0125	28.3	8.8	0.0131	78.9
14.00	23.8	1.0260	1.0223	0.0125	26.7	9.2	0.0102	73.5
30.00	23.6	1.0230	1.0193	0.0126	23.7	10.0	0.0073	63.6
60.00	23.3	1.0208	1.0171	0.0126	21.5	10.6	0.0053	56.1
120.00	22.9	1.0175	1.0137	0.0127	18.2	11.5	0.0039	45.0
240.00	24.0	1.0160	1.0124	0.0125	16.7	11.9	0.0028	40.8
480.00	25.7	1.0136	1.0103	0.0123	14.3	12.5	0.0020	34.0
1389.00	23.1	1.0120	1.0082	0.0126	12.7	12.9	0.0012	27.1

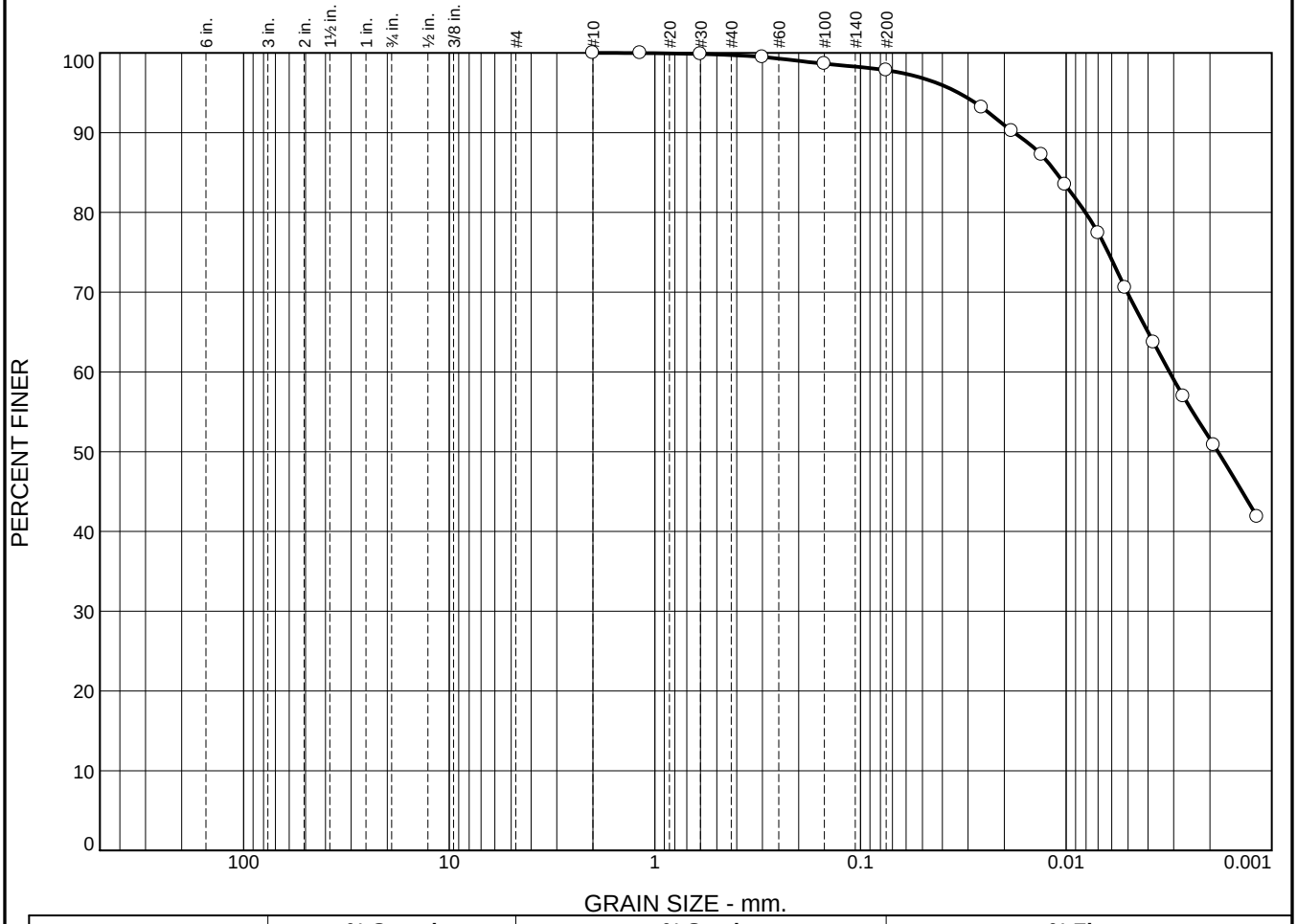
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	45.4	54.0	99.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0016	0.0045	0.0062	0.0139	0.0175	0.0261	0.0418

Fineness Modulus
0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.3	1.9	28.0	69.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	48	24	0.0112	0.0031	0.0018					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-7-6(27)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-05 **Depth:** 42-44 ft **Sample Number:** S22

Remarks:

○Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 42-44 ft
Sample Number: S22
Material Description: LEAN CLAY
Liquid Limit: 48
Plastic Limit: 24
USCS Classification: CL
AASHTO Classification: A-7-6(27)
Testing Remarks: Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
42.70	0.00	206.03	#10	206.03	100.0
			#16	206.04	100.0
			#30	206.09	99.9
			#50	206.25	99.5
			#100	206.61	98.6
			#200	206.96	97.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =42.7
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.77
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.2	1.0290	1.0254	0.0125	29.7	8.4	0.0257	93.2
4.00	24.2	1.0282	1.0246	0.0125	28.9	8.7	0.0184	90.2
8.00	24.1	1.0274	1.0238	0.0125	28.1	8.9	0.0132	87.2
14.00	24.0	1.0264	1.0228	0.0125	27.1	9.1	0.0101	83.5
31.00	23.7	1.0248	1.0211	0.0126	25.5	9.6	0.0070	77.4
60.00	23.3	1.0230	1.0193	0.0127	23.7	10.0	0.0052	70.6
120.00	22.9	1.0212	1.0174	0.0127	21.9	10.5	0.0038	63.7
240.00	23.8	1.0192	1.0155	0.0126	19.9	11.0	0.0027	57.0
480.00	25.4	1.0172	1.0139	0.0123	17.9	11.6	0.0019	50.8
1397.00	23.1	1.0152	1.0114	0.0127	15.9	12.1	0.0012	41.9

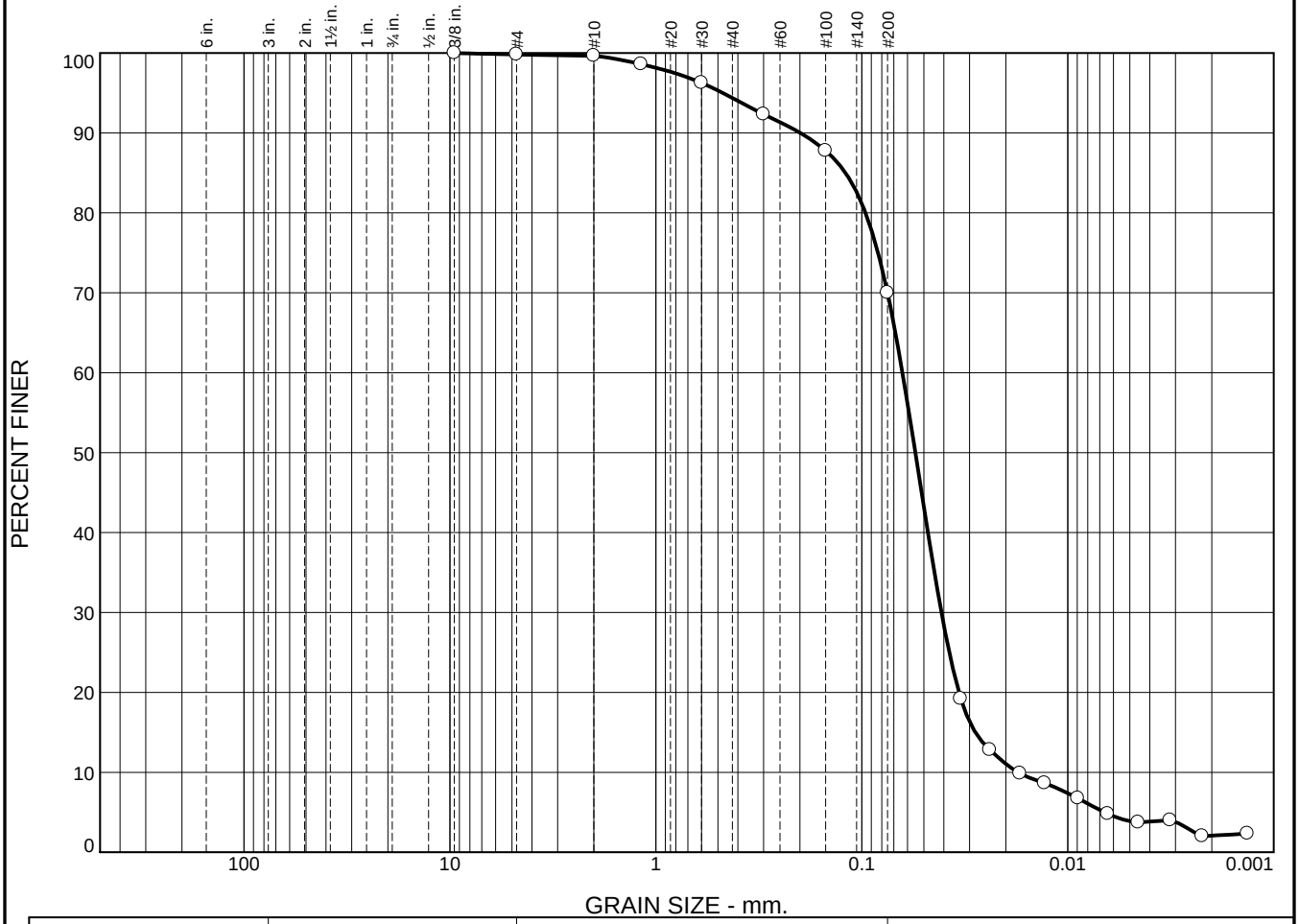
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	1.9	2.2	28.0	69.8	97.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0018	0.0031	0.0081	0.0112	0.0179	0.0334

Fineness Modulus
0.02

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.1	5.3	24.4	66.1	3.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1199	0.0635	0.0550	0.0411	0.0281	0.0174	1.52	3.64

Material Description	USCS	AASHTO
○ Sandy LEAN CLAY	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source:** FD24-06 **Depth:** 14-16 ft **Sample No.:** S8(9-18")

Remarks:

○As received WC = 29.4%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/29/24 **Checked By:** M. Alstede 5/29/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 14-16 ft **Sample Number:** S8(9-18")
Material Description: Sandy LEAN CLAY
USCS Classification: CL
Testing Remarks: As received WC = 29.4%
Fines classified visually
Tested by: S. Larson 5/29/24 **Checked by:** M. Alstede 5/29/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
54.54	0.00	203.24	3/8	203.24	100.0
			#4	203.34	99.8
			#10	203.43	99.7
			#16	204.00	98.6
			#30	205.28	96.3
			#50	207.42	92.3
			#100	209.91	87.8
			#200	219.60	70.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.7
Weight of hydrometer sample =54.54
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.70
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.2	1.0102	1.0066	0.0128	10.9	13.4	0.0331	19.2
4.00	24.2	1.0080	1.0044	0.0128	8.7	14.0	0.0239	12.8
8.00	24.1	1.0070	1.0034	0.0128	7.7	14.3	0.0171	9.9
14.00	24.0	1.0066	1.0030	0.0128	7.3	14.4	0.0130	8.7
30.00	23.7	1.0060	1.0023	0.0129	6.7	14.5	0.0089	6.7
60.00	23.3	1.0054	1.0017	0.0129	6.1	14.7	0.0064	4.8
120.00	22.9	1.0051	1.0013	0.0130	5.8	14.8	0.0046	3.7
240.00	24.0	1.0050	1.0014	0.0128	5.7	14.8	0.0032	4.0
480.00	25.5	1.0040	1.0007	0.0126	4.7	15.1	0.0022	2.0
1391.00	23.0	1.0046	1.0008	0.0130	5.3	14.9	0.0013	2.3

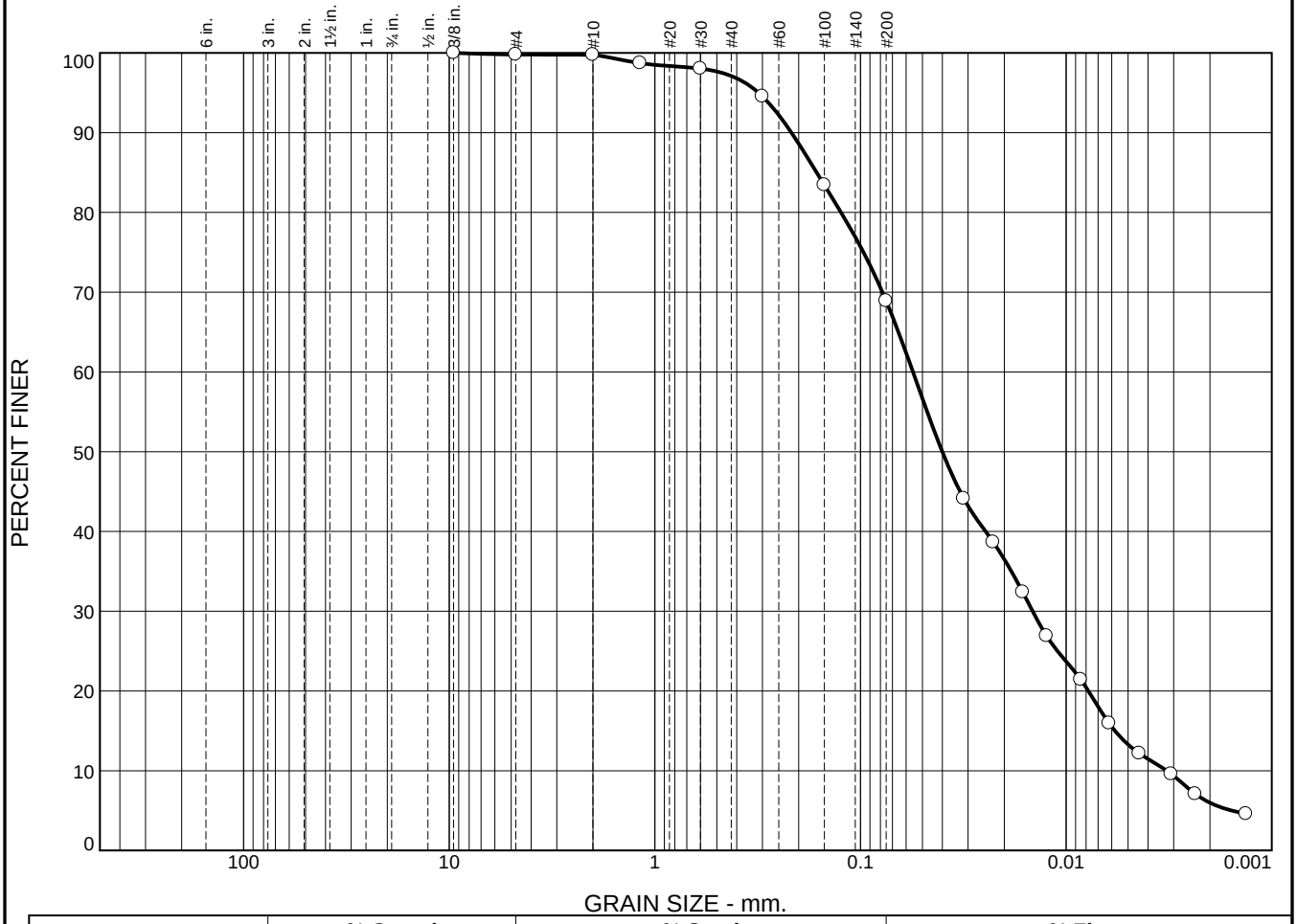
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.1	5.3	24.4	29.8	66.1	3.9	70.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0174	0.0281	0.0338	0.0411	0.0550	0.0635	0.0960	0.1199	0.1990	0.4732

Fineness Modulus	C_u	C_c
0.26	3.64	1.52

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.2	0.0	2.7	28.2	55.6	13.3

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.1633	0.0556	0.0400	0.0146	0.0058	0.0032	1.18	17.15

Material Description	USCS	AASHTO
○ Sandy LEAN CLAY	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source:** FD24-06 **Depth:** 28-30 ft **Sample No.:** S15(12-24")

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 38.6%

Fines classified visually

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 28-30 ft **Sample Number:** S15(12-24")
Material Description: Sandy LEAN CLAY
USCS Classification: CL
Testing Remarks: As received WC = 38.6%
Fines classified visually
Tested by: S. Larson 5/17/24 **Checked by:** M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
155.49	0.00	31.53	3/8	31.53	100.0
			#4	31.85	99.8
			#10	31.90	99.8
40.21	0.00	200.80	#16	201.22	98.7
			#30	201.50	98.0
			#50	202.90	94.6
			#100	207.38	83.4
			#200	213.24	68.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.8
Weight of hydrometer sample =40.21
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.73
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.4	1.0150	1.0113	0.0128	15.7	12.1	0.0315	44.1
4.00	23.4	1.0136	1.0099	0.0128	14.3	12.5	0.0226	38.7
8.00	23.4	1.0120	1.0083	0.0128	12.7	12.9	0.0163	32.4
14.00	23.4	1.0106	1.0069	0.0128	11.3	13.3	0.0125	26.9
31.00	23.4	1.0092	1.0055	0.0128	9.9	13.7	0.0085	21.4
60.00	23.4	1.0078	1.0041	0.0128	8.5	14.0	0.0062	15.9
120.00	23.6	1.0068	1.0031	0.0128	7.5	14.3	0.0044	12.2
240.00	25.3	1.0058	1.0024	0.0125	6.5	14.6	0.0031	9.6
410.00	26.0	1.0050	1.0018	0.0124	5.7	14.8	0.0024	7.1
1380.00	22.8	1.0050	1.0012	0.0129	5.7	14.8	0.0013	4.6

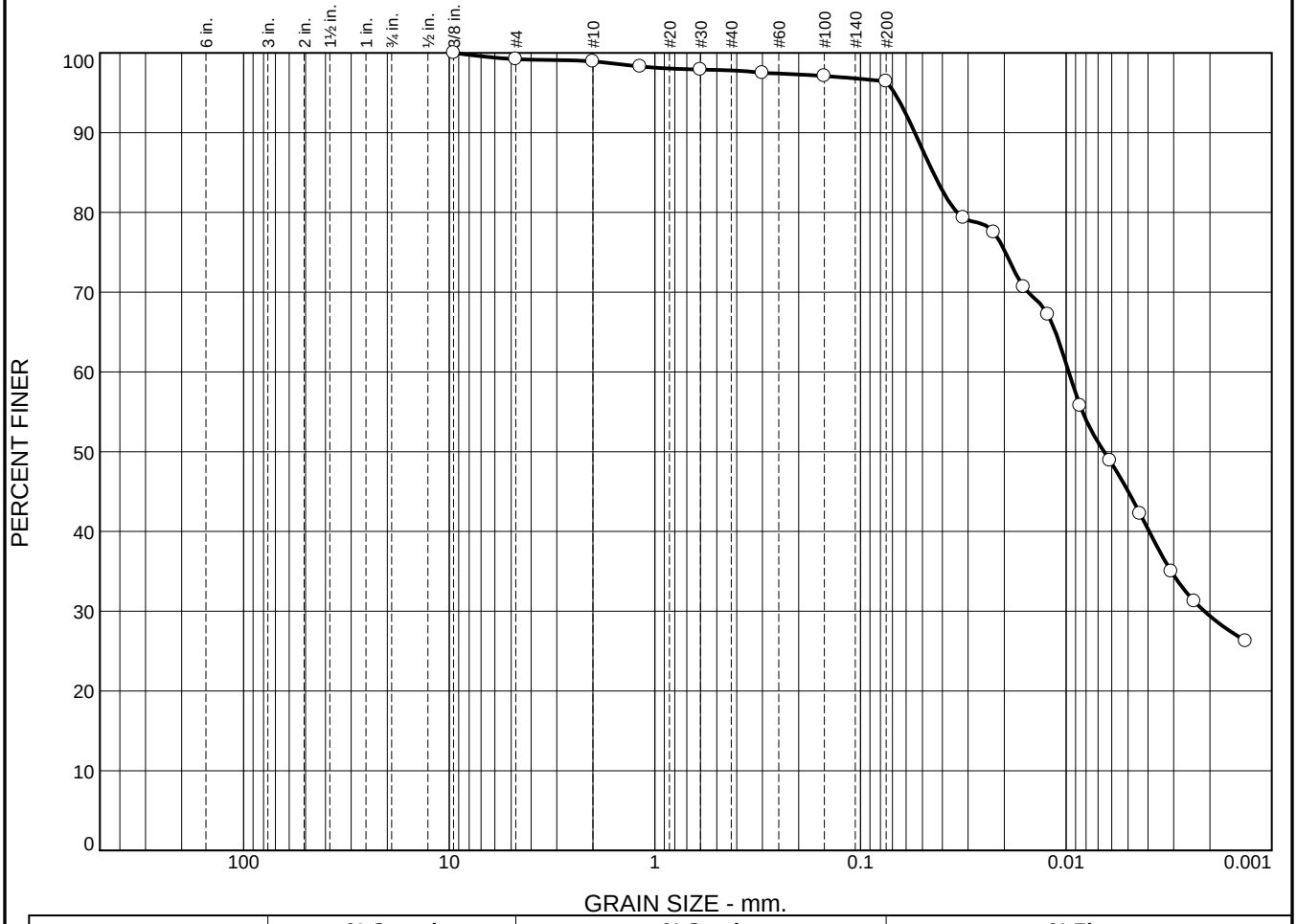
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.0	2.7	28.2	30.9	55.6	13.3	68.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0032	0.0058	0.0078	0.0146	0.0400	0.0556	0.1244	0.1633	0.2168	0.3133

Fineness Modulus	C_u	C_c
0.26	17.15	1.18

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.8	0.3	1.1	1.4	51.4	45.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○			0.0444	0.0097	0.0065	0.0021				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-07 **Depth:** 4-6 ft **Sample Number:** S3

Remarks:

○As received WC = 100.4%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 4-6 ft **Sample Number:** S3
Material Description: LEAN CLAY
USCS Classification: CL
Testing Remarks: As received WC = 100.4%
Fines classified visually
Tested by: S. Larson 5/17/24 **Checked by:** M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
99.46	0.00	31.84	3/8	31.84	100.0
			#4	32.62	99.2
			#10	32.90	98.9
28.09	0.00	204.81	#16	204.99	98.3
			#30	205.10	97.9
			#50	205.22	97.5
			#100	205.33	97.1
			#200	205.52	96.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.9
Weight of hydrometer sample =28.09
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.60
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.9	1.0175	1.0139	0.0132	18.2	11.5	0.0317	79.3
4.00	23.8	1.0172	1.0135	0.0132	17.9	11.6	0.0225	77.5
8.00	23.8	1.0160	1.0123	0.0132	16.7	11.9	0.0161	70.6
14.00	23.8	1.0154	1.0117	0.0132	16.1	12.0	0.0123	67.2
30.00	23.8	1.0134	1.0097	0.0132	14.1	12.6	0.0086	55.8
60.00	23.8	1.0122	1.0085	0.0132	12.9	12.9	0.0061	48.9
120.00	24.0	1.0110	1.0074	0.0132	11.7	13.2	0.0044	42.2
240.00	25.6	1.0094	1.0061	0.0130	10.1	13.6	0.0031	35.0
402.00	26.2	1.0086	1.0055	0.0129	9.3	13.8	0.0024	31.3
1380.00	22.9	1.0084	1.0046	0.0134	9.1	13.9	0.0013	26.3

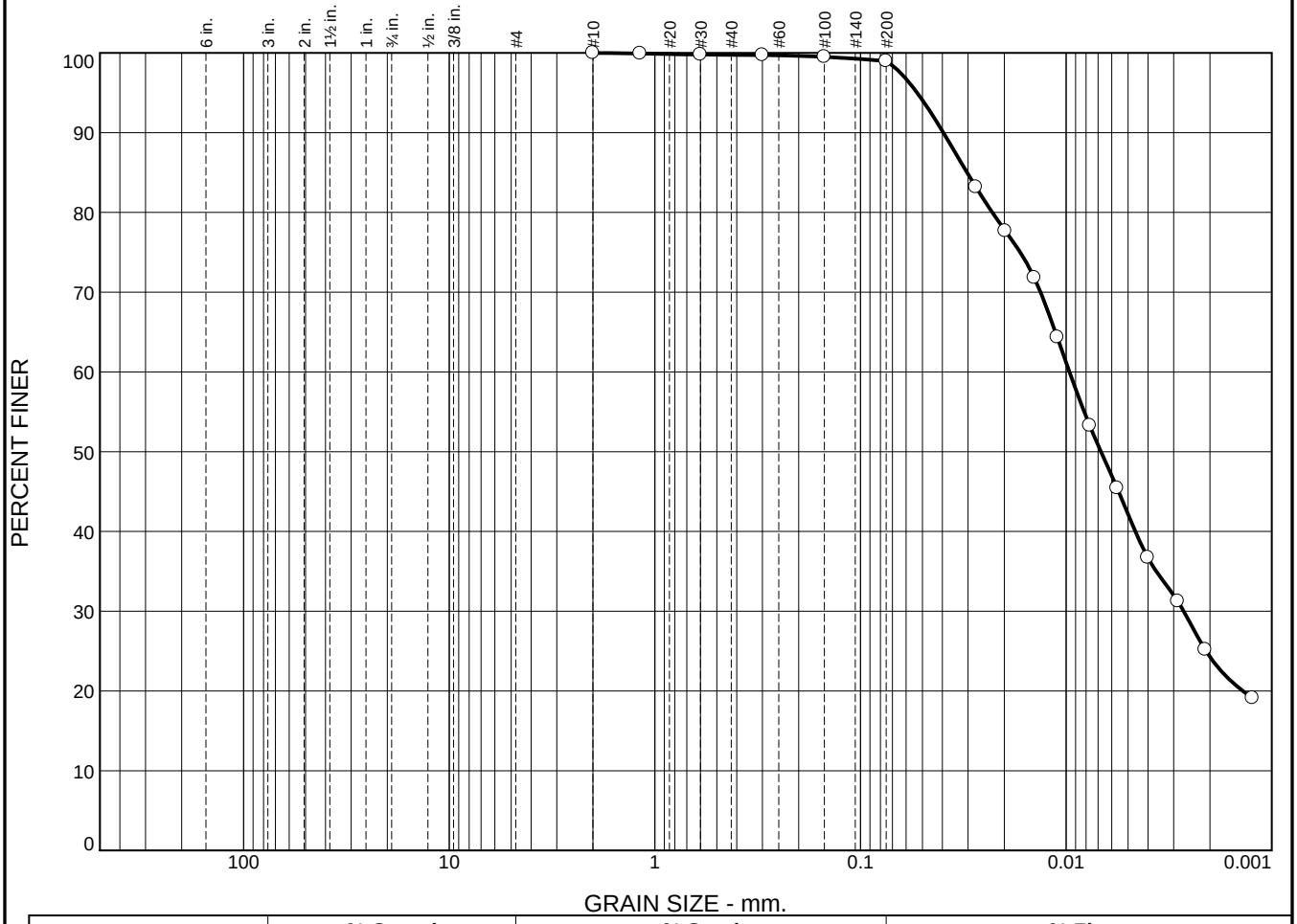
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.8	0.8	0.3	1.1	1.4	2.8	51.4	45.0	96.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0021	0.0065	0.0097	0.0339	0.0444	0.0544	0.0684

Fineness Modulus
0.11

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	0.8	56.8	42.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	31	17	0.0303	0.0096	0.0068	0.0027				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(13)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-07 **Depth:** 16-18 ft **Sample Number:** S9

Remarks:

○Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 6/10/24 **Checked By:** M. Alstede 6/10/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
Liquid Limit: 31
Plastic Limit: 17
USCS Classification: CL
AASHTO Classification: A-6(13)
Testing Remarks: Fines classified visually
Tested by: S. Larson 6/10/24
Checked by: M. Alstede 6/10/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
39.97	0.00	34.64	#10	34.64	100.0
			#16	34.67	99.9
			#30	34.72	99.8
			#50	34.75	99.7
			#100	34.84	99.5
			#200	35.05	99.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =39.97
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.76
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.1	1.0248	1.0212	0.0126	25.5	9.6	0.0275	83.2
4.00	24.1	1.0234	1.0198	0.0126	24.1	9.9	0.0198	77.7
8.00	24.1	1.0219	1.0183	0.0126	22.6	10.3	0.0143	71.8
14.00	24.1	1.0200	1.0164	0.0126	20.7	10.8	0.0111	64.3
31.00	24.0	1.0172	1.0136	0.0126	17.9	11.6	0.0077	53.3
60.00	24.0	1.0152	1.0116	0.0126	15.9	12.1	0.0056	45.4
125.00	23.9	1.0130	1.0094	0.0126	13.7	12.7	0.0040	36.7
252.00	23.9	1.0116	1.0080	0.0126	12.3	13.0	0.0029	31.2
477.00	24.2	1.0100	1.0064	0.0126	10.7	13.5	0.0021	25.2
1440.00	23.4	1.0086	1.0049	0.0127	9.3	13.8	0.0012	19.1

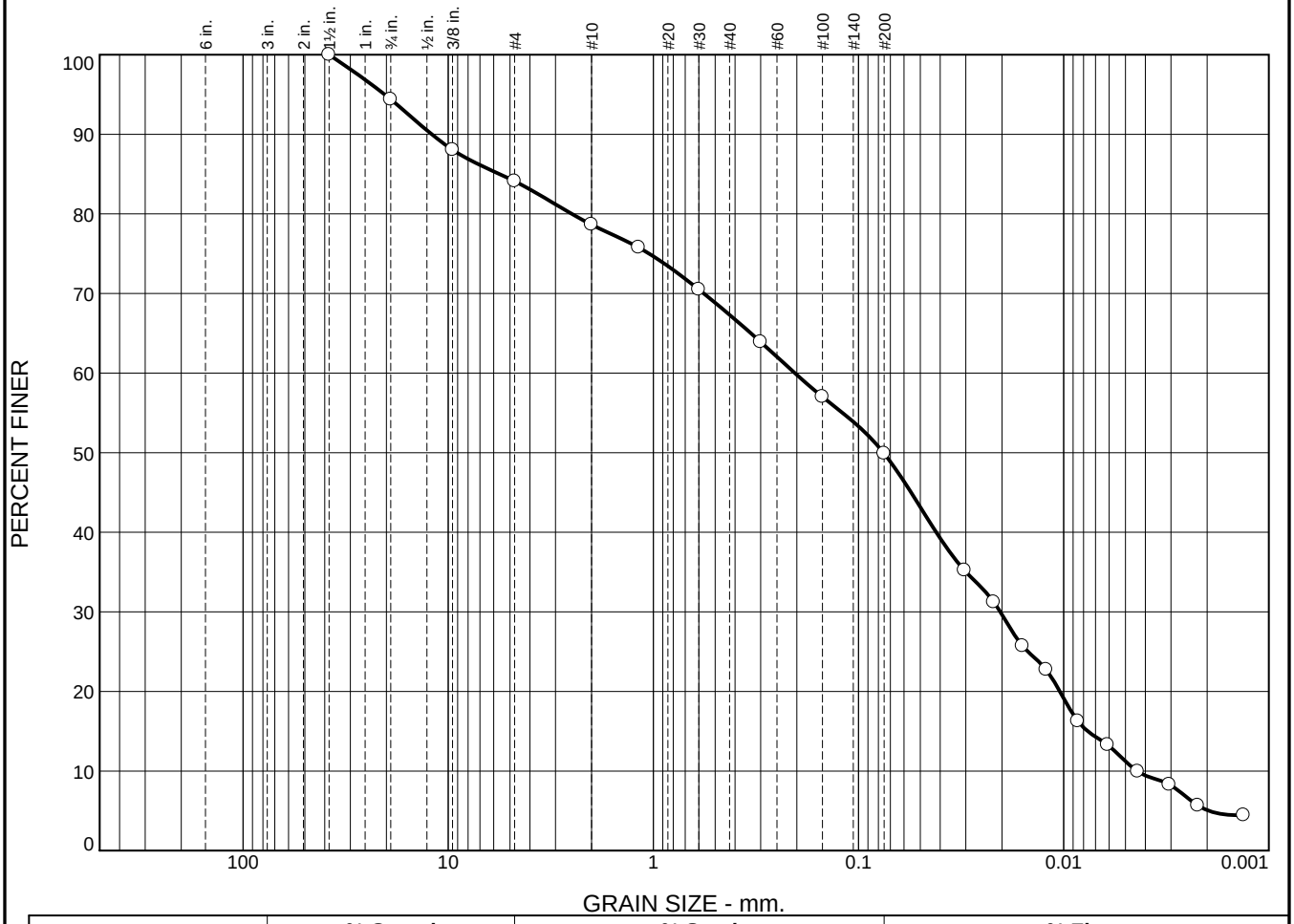
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.0	56.8	42.2	99.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0014	0.0027	0.0068	0.0096	0.0229	0.0303	0.0396	0.0530

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	5.6	10.3	5.4	11.4	17.4	38.7	11.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			5.6133	0.2043	0.0755	0.0204	0.0076	0.0044	0.46	46.52

Material Description	USCS	AASHTO
○ Sandy LEAN CLAY with Gravel	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-07 **Depth:** 50-52 ft **Sample Number:** S26

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 10.1%

Fines classified visually

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 50-52 ft **Sample Number:** S26
Material Description: Sandy LEAN CLAY with Gravel
USCS Classification: CL
Testing Remarks: As received WC = 10.1%
Fines classified visually
Tested by: S. Larson 5/17/24 **Checked by:** M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
329.73	0.00	31.48	1.5	31.48	100.0
			3/4	50.03	94.4
			3/8	70.87	88.1
			#4	83.87	84.1
			#10	101.87	78.7
50.03	0.00	203.56	#16	205.39	75.8
			#30	208.75	70.5
			#50	212.94	63.9
			#100	217.32	57.0
			#200	221.85	49.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 78.7
Weight of hydrometer sample =50.03
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.72
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.9	1.0178	1.0142	0.0127	18.5	11.4	0.0304	35.2
4.00	23.9	1.0162	1.0126	0.0127	16.9	11.8	0.0219	31.2
8.00	23.8	1.0140	1.0103	0.0128	14.7	12.4	0.0159	25.7
14.00	23.8	1.0128	1.0091	0.0128	13.5	12.7	0.0122	22.7
30.00	23.8	1.0102	1.0065	0.0128	10.9	13.4	0.0085	16.3
60.00	23.8	1.0090	1.0053	0.0128	9.7	13.7	0.0061	13.3
120.00	24.1	1.0076	1.0040	0.0127	8.3	14.1	0.0044	9.9
240.00	25.7	1.0066	1.0033	0.0125	7.3	14.4	0.0031	8.3
457.00	26.3	1.0054	1.0023	0.0124	6.1	14.7	0.0022	5.7
1380.00	22.9	1.0056	1.0018	0.0129	6.3	14.6	0.0013	4.4

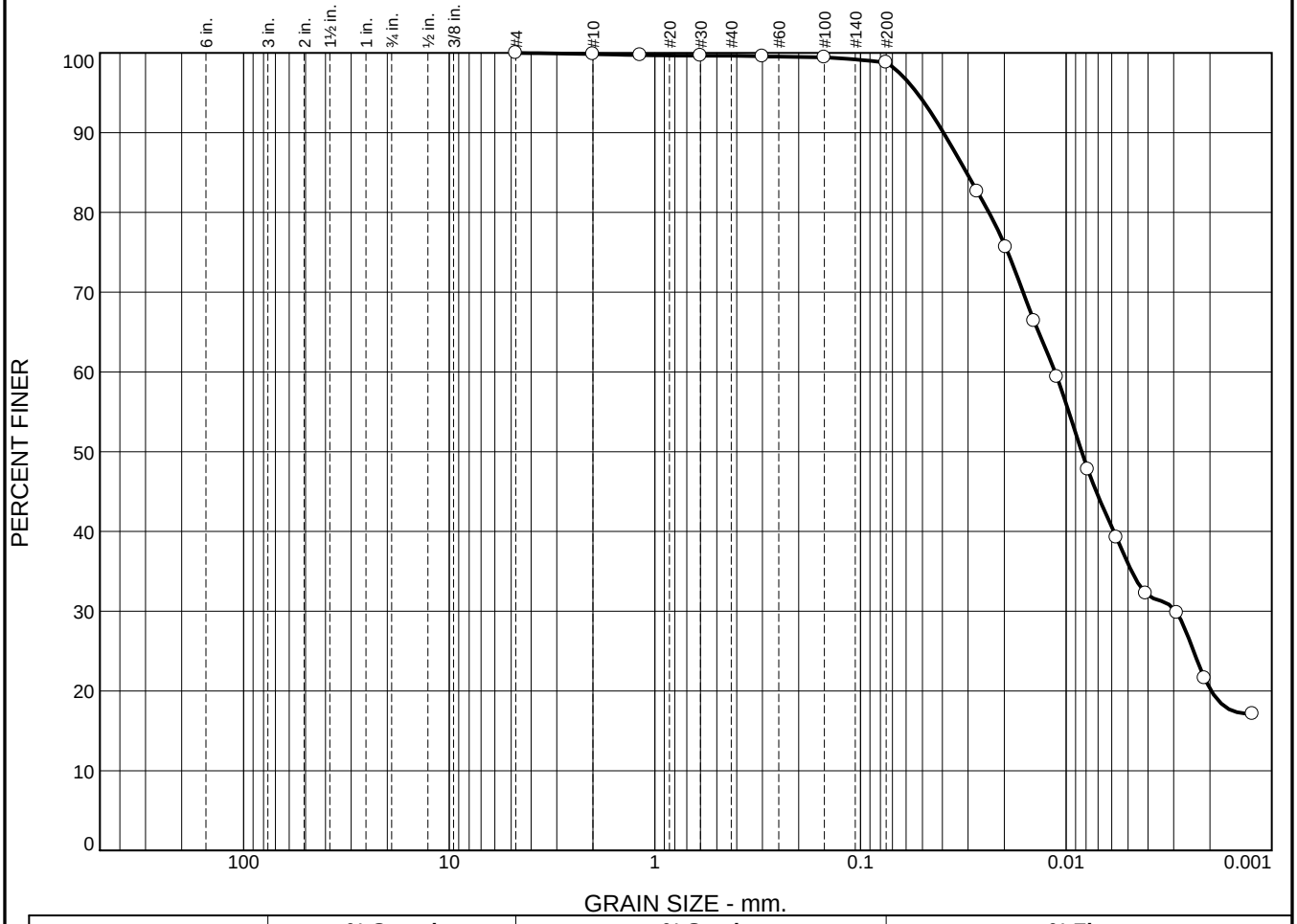
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	5.6	10.3	15.9	5.4	11.4	17.4	34.2	38.7	11.2	49.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0044	0.0076	0.0104	0.0204	0.0755	0.2043	2.4949	5.6133	12.0269	20.4175

Fineness Modulus	C_u	C_c
1.87	46.52	0.46

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.3	0.8	62.9	35.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	29	19	0.0305	0.0113	0.0084	0.0029				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-4(9)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-08 **Depth:** 16-18 ft **Sample Number:** S9

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 24.6%

Fines classified visually

Figure

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-08
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
Liquid Limit: 29
Plastic Limit: 19
USCS Classification: CL
AASHTO Classification: A-4(9)
Testing Remarks: As received WC = 24.6%
Fines classified visually
Tested by: S. Larson 6/10/24
Checked by: W. Lukas 6/11/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
40.53	0.00	31.77	#4	31.77	100.0
			#10	31.83	99.9
			#16	31.88	99.7
			#30	31.91	99.7
			#50	31.95	99.6
			#100	32.00	99.4
			#200	32.26	98.8

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =40.53
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.78
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.5	1.0250	1.0215	0.0124	25.7	9.5	0.0271	82.6
4.00	24.4	1.0232	1.0197	0.0125	23.9	10.0	0.0197	75.6
8.00	24.4	1.0208	1.0173	0.0125	21.5	10.6	0.0143	66.4
14.00	24.3	1.0190	1.0154	0.0125	19.7	11.1	0.0111	59.4
30.00	24.2	1.0160	1.0124	0.0125	16.7	11.9	0.0079	47.8
60.00	24.1	1.0138	1.0102	0.0125	14.5	12.5	0.0057	39.2
120.00	24.0	1.0120	1.0084	0.0125	12.7	12.9	0.0041	32.2
246.00	23.8	1.0114	1.0077	0.0125	12.1	13.1	0.0029	29.8
471.00	24.2	1.0092	1.0056	0.0125	9.9	13.7	0.0021	21.6
1440.00	23.3	1.0082	1.0045	0.0126	8.9	13.9	0.0012	17.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.3	0.8	1.2	62.9	35.9	98.8

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0020	0.0029	0.0084	0.0113	0.0238	0.0305	0.0395	0.0532

Fineness Modulus
0.02

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	0.8	28.8	70.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○			0.0107	0.0032	0.0021					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-08 **Depth:** 30-32 ft **Sample Number:** S16

Remarks:

○As received WC = 40.4%

Fines classified visually

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400 Unicorn Park Drive
Woburn, MA 01801

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Figure

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-08
Depth: 30-32 ft **Sample Number:** S16
Material Description: LEAN CLAY
USCS Classification: CL
Testing Remarks: As received WC = 40.4%
Fines classified visually
Tested by: S. Larson 6/10/24 **Checked by:** W. Lukas 6/11/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
35.64	0.00	40.41	#10	40.41	100.0
			#16	40.42	100.0
			#30	40.46	99.9
			#50	40.52	99.7
			#100	40.63	99.4
			#200	40.77	99.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =35.64
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.81
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.5	1.0254	1.0219	0.0123	26.1	9.4	0.0267	95.3
4.00	24.4	1.0245	1.0210	0.0124	25.2	9.6	0.0192	91.3
8.00	24.4	1.0240	1.0205	0.0124	24.7	9.8	0.0136	89.1
14.00	24.3	1.0230	1.0194	0.0124	23.7	10.0	0.0105	84.7
31.00	24.2	1.0216	1.0180	0.0124	22.3	10.4	0.0072	78.5
60.00	24.1	1.0200	1.0164	0.0124	20.7	10.8	0.0053	71.4
123.00	24.0	1.0182	1.0146	0.0124	18.9	11.3	0.0038	63.5
250.00	23.9	1.0164	1.0128	0.0124	17.1	11.8	0.0027	55.6
475.00	24.3	1.0148	1.0112	0.0124	15.5	12.2	0.0020	49.0
1440.00	23.3	1.0126	1.0089	0.0125	13.3	12.8	0.0012	38.6

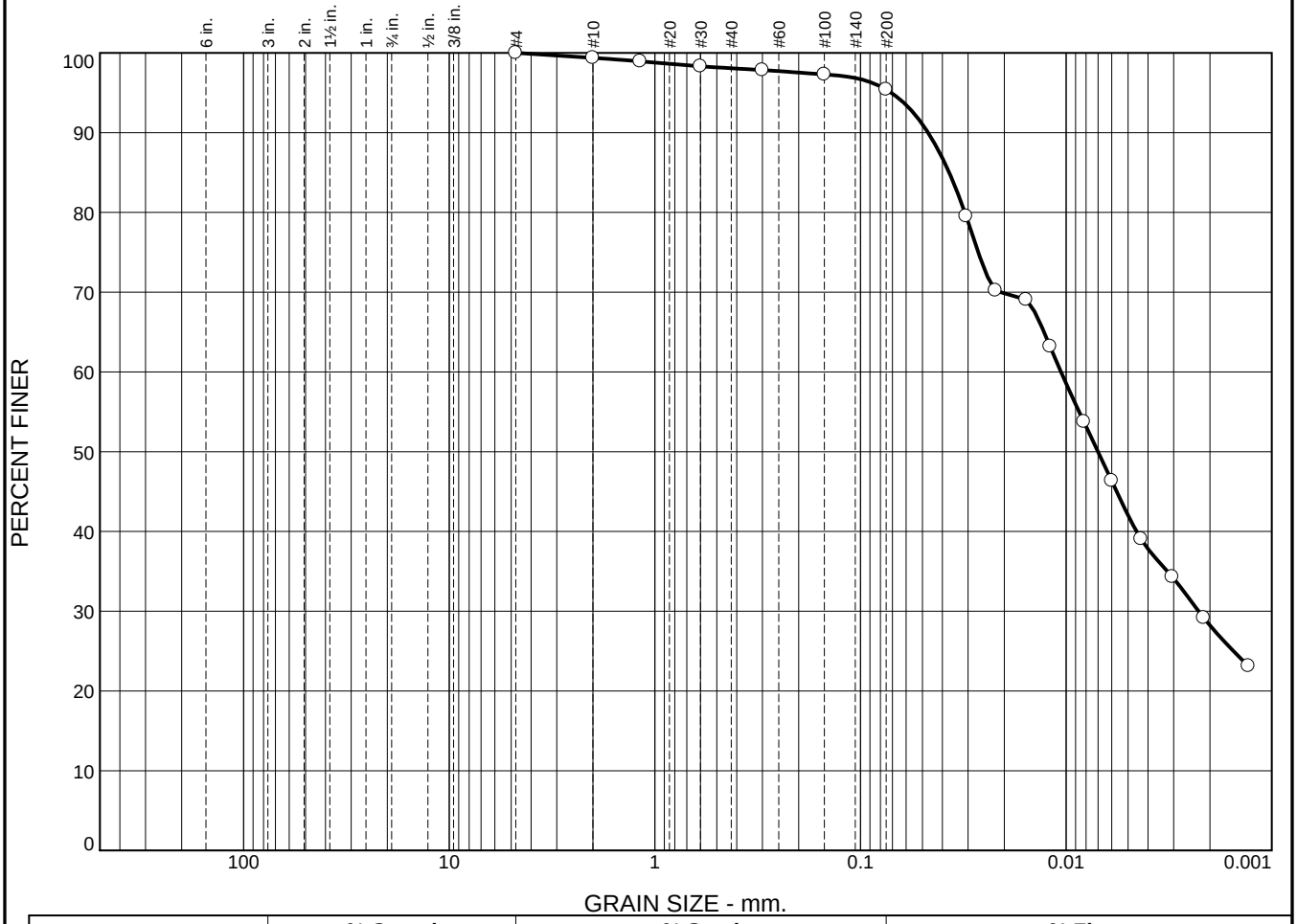
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.8	1.0	28.8	70.2	99.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0032	0.0078	0.0107	0.0151	0.0261

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.6	1.3	2.7	53.4	42.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	81	29	0.0371	0.0106	0.0070	0.0023				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-6(58)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-09 **Depth:** 2-4 ft **Sample Number:** S2

Remarks:

○Fines classified visually

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400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 2-4 ft
Sample Number: S2
Material Description: ORGANIC SOIL
Liquid Limit: 81
Plastic Limit: 29
USCS Classification: OH
AASHTO Classification: A-7-6(58)
Testing Remarks: Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
27.43	0.00	188.87	#4	188.87	100.0
			#10	189.04	99.4
			#16	189.16	98.9
			#30	189.33	98.3
			#50	189.46	97.8
			#100	189.61	97.3
			#200	190.13	95.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.4
Weight of hydrometer sample =27.43
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.7
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.2	1.0174	1.0138	0.0128	18.1	11.5	0.0306	79.5
4.00	24.1	1.0158	1.0122	0.0128	16.5	11.9	0.0221	70.2
8.00	24.1	1.0156	1.0120	0.0128	16.3	12.0	0.0157	69.1
14.00	24.0	1.0146	1.0110	0.0128	15.3	12.2	0.0120	63.2
31.00	23.8	1.0130	1.0093	0.0128	13.7	12.7	0.0082	53.8
60.00	23.3	1.0118	1.0081	0.0129	12.5	13.0	0.0060	46.3
120.00	22.9	1.0106	1.0068	0.0130	11.3	13.3	0.0043	39.1
240.00	23.9	1.0096	1.0060	0.0128	10.3	13.6	0.0030	34.3
480.00	25.4	1.0084	1.0051	0.0126	9.1	13.9	0.0021	29.2
1395.00	23.1	1.0078	1.0040	0.0129	8.5	14.0	0.0013	23.1

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.6	1.3	2.7	4.6	53.4	42.0	95.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0023	0.0070	0.0106	0.0311	0.0371	0.0469	0.0708

Fineness Modulus
0.08

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.1	0.0	0.2	1.0	35.1	63.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	44	19	0.0175	0.0044	0.0027					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-7-6(27)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-09 **Depth:** 18-20 ft **Sample Number:** S10

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 30.6%

Fines classified visually

Figure

Tested By: S. Larson 5/17/24 **Checked By:** M. Alstede 5/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
Liquid Limit: 44
Plastic Limit: 19
USCS Classification: CL
AASHTO Classification: A-7-6(27)
Testing Remarks: As received WC = 30.6%
Fines classified visually
Tested by: S. Larson 5/17/24
Checked by: M. Alstede 5/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
395.09	0.00	31.39	3/8	31.39	100.0
			#4	31.59	99.9
			#10	31.77	99.9
45.76	0.00	205.15	#16	205.16	99.9
			#30	205.18	99.8
			#50	205.26	99.7
			#100	205.44	99.3
			#200	205.69	98.7

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =45.76
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.78
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	23.8	1.0315	1.0278	0.0125	32.2	7.8	0.0247	94.9
4.00	23.7	1.0288	1.0251	0.0126	29.5	8.5	0.0183	85.7
8.00	23.7	1.0280	1.0243	0.0126	28.7	8.7	0.0131	82.9
14.00	23.7	1.0262	1.0225	0.0126	26.9	9.2	0.0102	76.8
31.00	23.6	1.0244	1.0207	0.0126	25.1	9.7	0.0070	70.6
60.00	23.6	1.0226	1.0189	0.0126	23.3	10.1	0.0052	64.5
120.00	23.8	1.0202	1.0165	0.0125	20.9	10.8	0.0038	56.4
240.00	25.4	1.0180	1.0147	0.0123	18.7	11.3	0.0027	50.0
408.00	26.1	1.0158	1.0126	0.0122	16.5	11.9	0.0021	43.1
1380.00	22.9	1.0134	1.0096	0.0127	14.1	12.6	0.0012	32.7

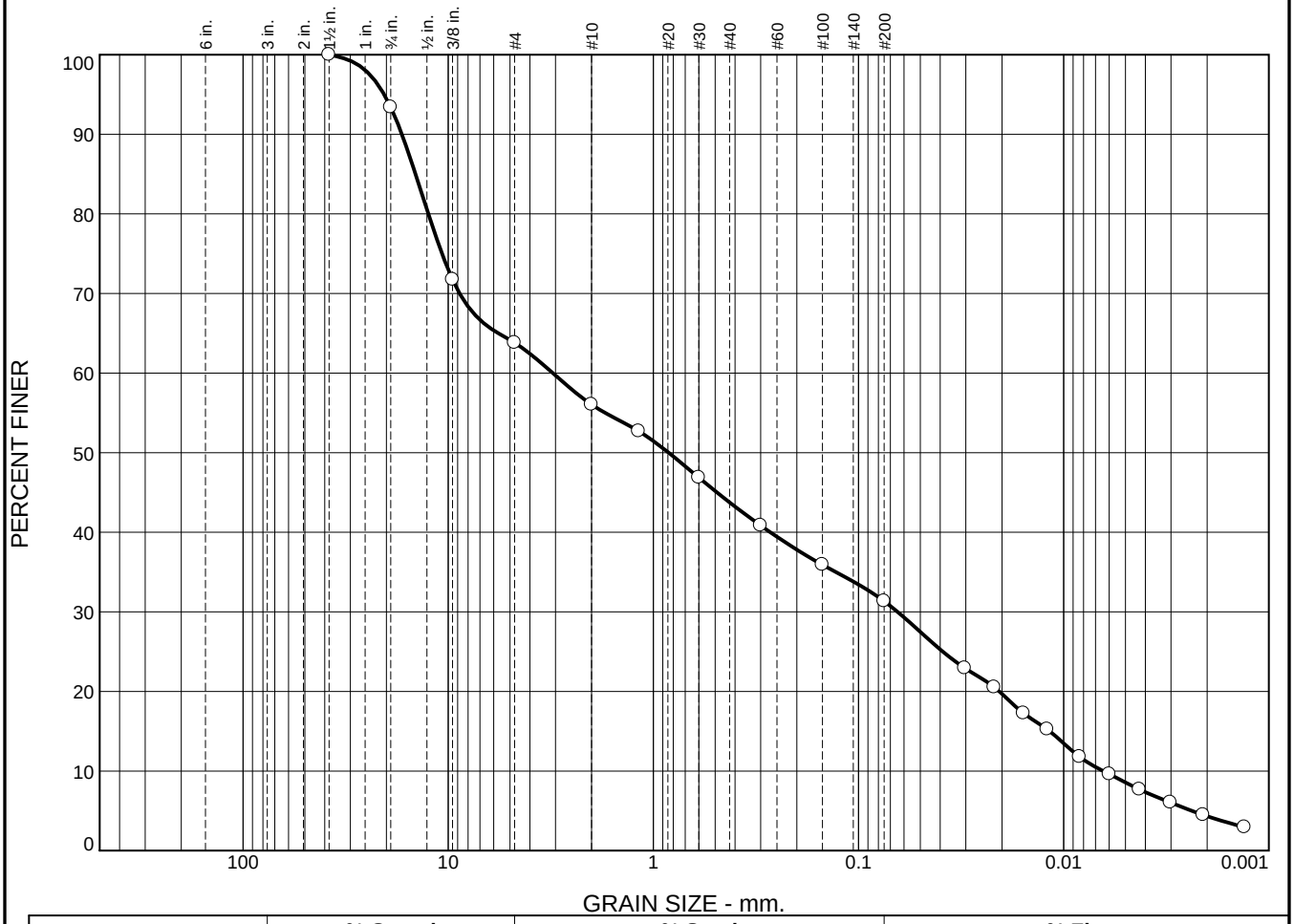
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.1	0.1	0.0	0.2	1.0	1.2	35.1	63.6	98.7

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0027	0.0044	0.0115	0.0175	0.0214	0.0250

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	6.6	29.6	7.8	12.2	12.5	22.7	8.6

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	20	15	14.4353	3.0890	0.8430	0.0645	0.0117	0.0064	0.21	481.72

Material Description	USCS	AASHTO
○ Silty Clayey GRAVEL with Sand	GC-GM	A-2-4(0)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source:** FD24-09 **Depth:** 36-38 ft **Sample No.:** S19(Bot-9")

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400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 7.7%

Fines classified visually

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 36-38 ft
Sample Number: S19(Bot-9")
Material Description: Silty Clayey GRAVEL with Sand
Liquid Limit: 20
Plastic Limit: 15
USCS Classification: GC-GM
AASHTO Classification: A-2-4(0)
Testing Remarks: As received WC = 7.7%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
414.67	0.00	30.82	1.5	30.82	100.0
			3/4	58.17	93.4
			3/8	147.99	71.7
			#4	180.87	63.8
			#10	213.09	56.0
48.45	0.00	191.62	#16	194.51	52.7
			#30	199.56	46.9
			#50	204.75	40.9
			#100	209.02	35.9
			#200	212.98	31.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 56.0
Weight of hydrometer sample =48.45
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.76
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.8	1.0161	1.0126	0.0125	16.8	11.9	0.0303	22.9
4.00	24.7	1.0148	1.0113	0.0125	15.5	12.2	0.0218	20.5
8.00	24.7	1.0130	1.0095	0.0125	13.7	12.7	0.0157	17.3
14.00	24.6	1.0119	1.0084	0.0125	12.6	13.0	0.0120	15.2
30.00	24.6	1.0100	1.0065	0.0125	10.7	13.5	0.0084	11.8
60.00	24.6	1.0088	1.0053	0.0125	9.5	13.8	0.0060	9.6
120.00	24.8	1.0077	1.0042	0.0125	8.4	14.1	0.0043	7.7
240.00	25.7	1.0066	1.0033	0.0123	7.3	14.4	0.0030	6.1
520.00	24.5	1.0060	1.0025	0.0125	6.7	14.5	0.0021	4.5
1376.00	23.1	1.0054	1.0016	0.0127	6.1	14.7	0.0013	2.9

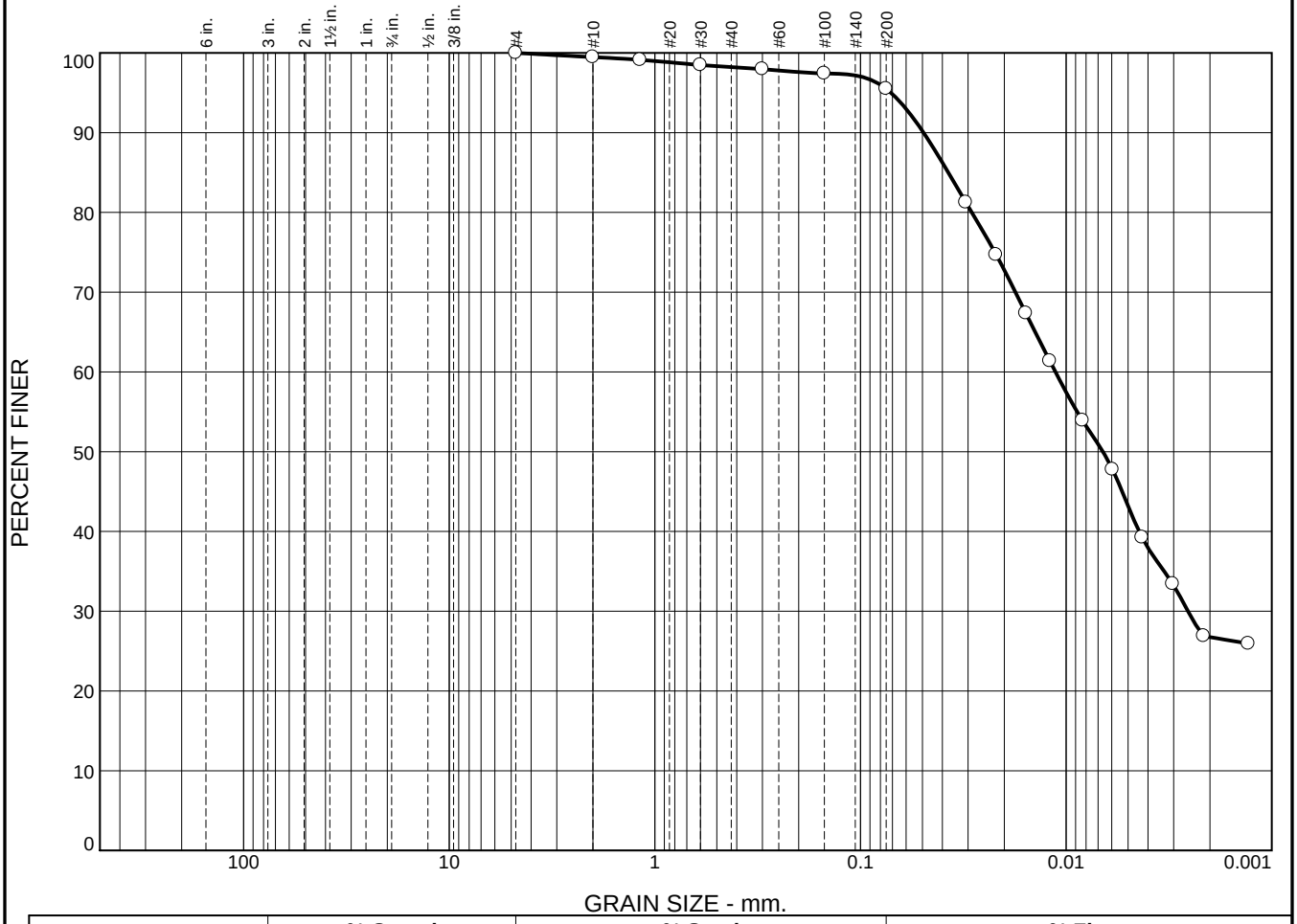
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.6	29.6	36.2	7.8	12.2	12.5	32.5	22.7	8.6	31.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
0.0064	0.0117	0.0206	0.0645	0.8430	3.0890	12.4968	14.4353	16.8209	20.5019

Fineness Modulus	C_u	C_c
3.37	481.72	0.21

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.5	1.3	2.7	52.3	43.2

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	95	32	0.0374	0.0113	0.0066	0.0026				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-5(72)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-10 **Depth:** 6-8 ft **Sample Number:** S4

Remarks:

○Fines classified visually

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Woburn, MA 01801

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Figure

Tested By: S. Larson 6/17/24 **Checked By:** W. Lukas 6/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 6-8 ft
Sample Number: S4
Material Description: ORGANIC SOIL
Liquid Limit: 95
Plastic Limit: 32
USCS Classification: OH
AASHTO Classification: A-7-5(72)
Testing Remarks: Fines classified visually
Tested by: S. Larson 6/17/24
Checked by: W. Lukas 6/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
26.44	0.00	31.25	#4	31.25	100.0
			#10	31.39	99.5
			#16	31.48	99.1
			#30	31.65	98.5
			#50	31.79	98.0
			#100	31.93	97.4
			#200	32.44	95.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.5
Weight of hydrometer sample =26.44
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.68
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.8	1.0170	1.0135	0.0128	17.7	11.6	0.0307	81.3
4.00	25.3	1.0158	1.0124	0.0127	16.5	11.9	0.0219	74.7
8.00	25.2	1.0146	1.0112	0.0127	15.3	12.2	0.0157	67.4
14.00	25.2	1.0136	1.0102	0.0127	14.3	12.5	0.0120	61.4
30.00	25.0	1.0124	1.0090	0.0127	13.1	12.8	0.0083	53.9
60.00	24.9	1.0114	1.0080	0.0127	12.1	13.1	0.0060	47.8
120.00	24.8	1.0100	1.0065	0.0128	10.7	13.5	0.0043	39.3
240.00	25.4	1.0089	1.0056	0.0127	9.6	13.8	0.0030	33.4
503.00	24.0	1.0081	1.0045	0.0129	8.8	14.0	0.0021	26.9
1416.00	22.5	1.0082	1.0043	0.0131	8.9	13.9	0.0013	25.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.5	1.3	2.7	4.5	52.3	43.2	95.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0026	0.0066	0.0113	0.0288	0.0374	0.0494	0.0711

Fineness Modulus
0.07

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.0	0.8	56.1	43.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	31	16	0.0274	0.0092	0.0065	0.0028				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(14)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-10 **Depth:** 18-20 ft **Sample Number:** S10

Remarks:

○Fines classified visually

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Woburn, MA 01801

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Figure

Tested By: B. Nourai 6/17/24 **Checked By:** W. Lukas 6/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
Liquid Limit: 31
Plastic Limit: 16
USCS Classification: CL
AASHTO Classification: A-6(14)
Testing Remarks: Fines classified visually
Tested by: B. Nourai 6/17/24
Checked by: W. Lukas 6/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
40.03	0.00	40.42	#10	40.42	100.0
			#16	40.43	100.0
			#30	40.43	100.0
			#50	40.45	99.9
			#100	40.49	99.8
			#200	40.73	99.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =40.03
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.76
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	25.3	1.0250	1.0216	0.0124	25.7	9.5	0.0270	84.8
4.00	25.3	1.0238	1.0204	0.0124	24.5	9.8	0.0194	80.1
8.00	24.9	1.0218	1.0184	0.0125	22.5	10.3	0.0142	71.9
14.00	25.1	1.0200	1.0166	0.0124	20.7	10.8	0.0109	65.0
30.00	25.1	1.0174	1.0140	0.0124	18.1	11.5	0.0077	54.9
60.00	24.8	1.0152	1.0117	0.0125	15.9	12.1	0.0056	46.0
120.00	24.7	1.0132	1.0097	0.0125	13.9	12.6	0.0040	38.1
240.00	25.4	1.0111	1.0078	0.0124	11.8	13.2	0.0029	30.4
507.00	23.9	1.0099	1.0063	0.0126	10.6	13.5	0.0021	24.5
1420.00	22.6	1.0098	1.0059	0.0128	10.5	13.5	0.0012	23.3

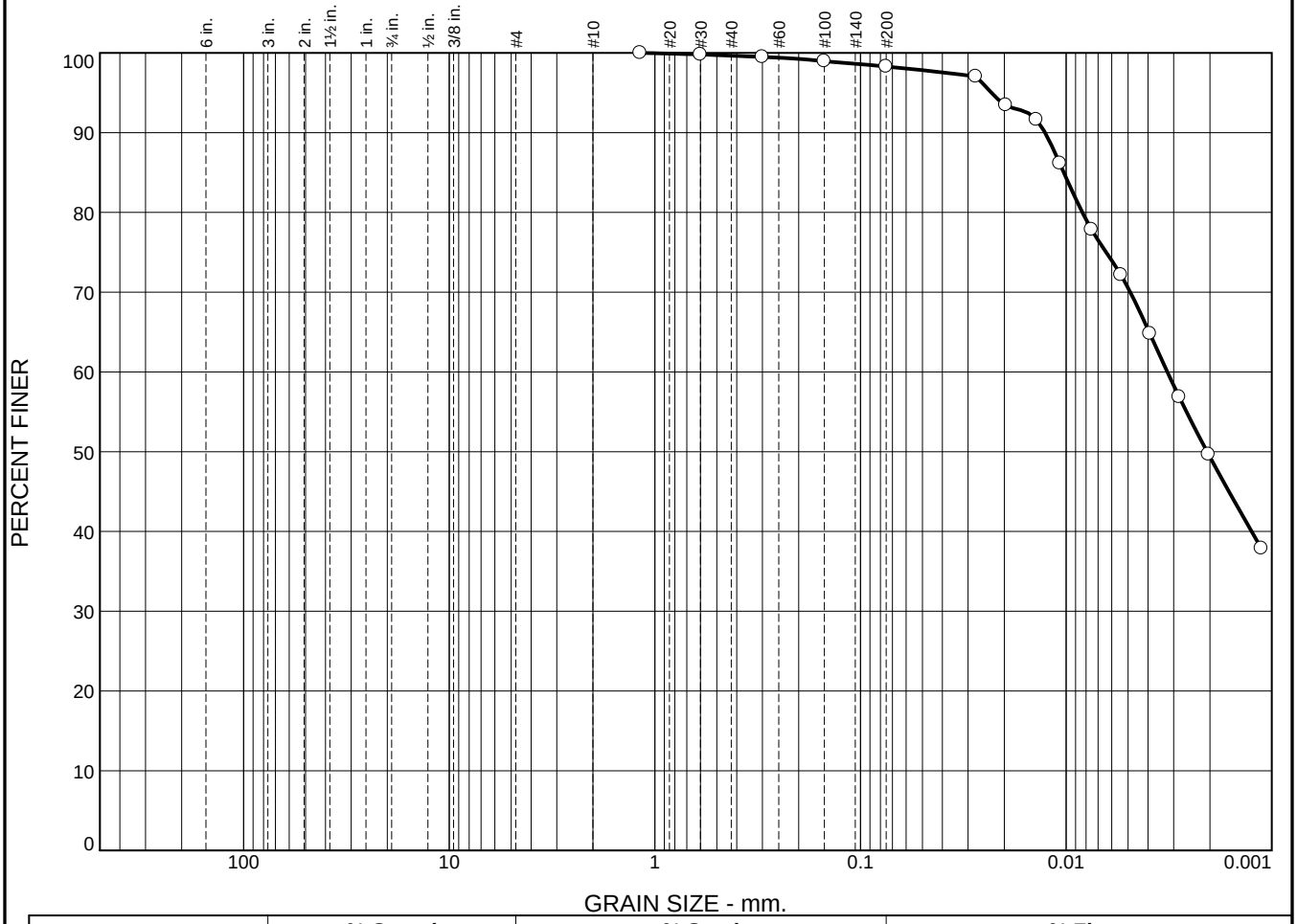
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	56.1	43.1	99.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0028	0.0065	0.0092	0.0193	0.0274	0.0381	0.0520

Fineness Modulus
0.00

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.3	1.4	27.8	70.5

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	47	21	0.0103	0.0032	0.0021					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-7-6(28)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-10 **Depth:** 32-34 ft **Sample Number:** S17

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 44.9%

Fines classified visually

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/28/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 32-34 ft
Sample Number: S17
Material Description: LEAN CLAY
Liquid Limit: 47
Plastic Limit: 21
USCS Classification: CL
AASHTO Classification: A-7-6(28)
Testing Remarks: As received WC = 44.9%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
35.10	0.00	230.39	#16	230.39	100.0
			#30	230.46	99.8
			#50	230.57	99.5
			#100	230.76	98.9
			#200	230.99	98.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =35.10
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.72
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.8	1.0250	1.0215	0.0126	25.7	9.5	0.0275	97.0
4.00	24.8	1.0242	1.0207	0.0126	24.9	9.7	0.0196	93.4
8.00	24.8	1.0238	1.0203	0.0126	24.5	9.8	0.0140	91.6
14.00	24.7	1.0226	1.0191	0.0126	23.3	10.1	0.0107	86.1
30.00	24.5	1.0208	1.0173	0.0127	21.5	10.6	0.0075	77.8
60.00	24.2	1.0196	1.0160	0.0127	20.3	10.9	0.0054	72.2
120.00	24.0	1.0180	1.0144	0.0127	18.7	11.3	0.0039	64.8
240.00	24.2	1.0162	1.0126	0.0127	16.9	11.8	0.0028	56.9
480.00	24.2	1.0146	1.0110	0.0127	15.3	12.2	0.0020	49.6
1670.00	23.6	1.0121	1.0084	0.0128	12.8	12.9	0.0011	37.9

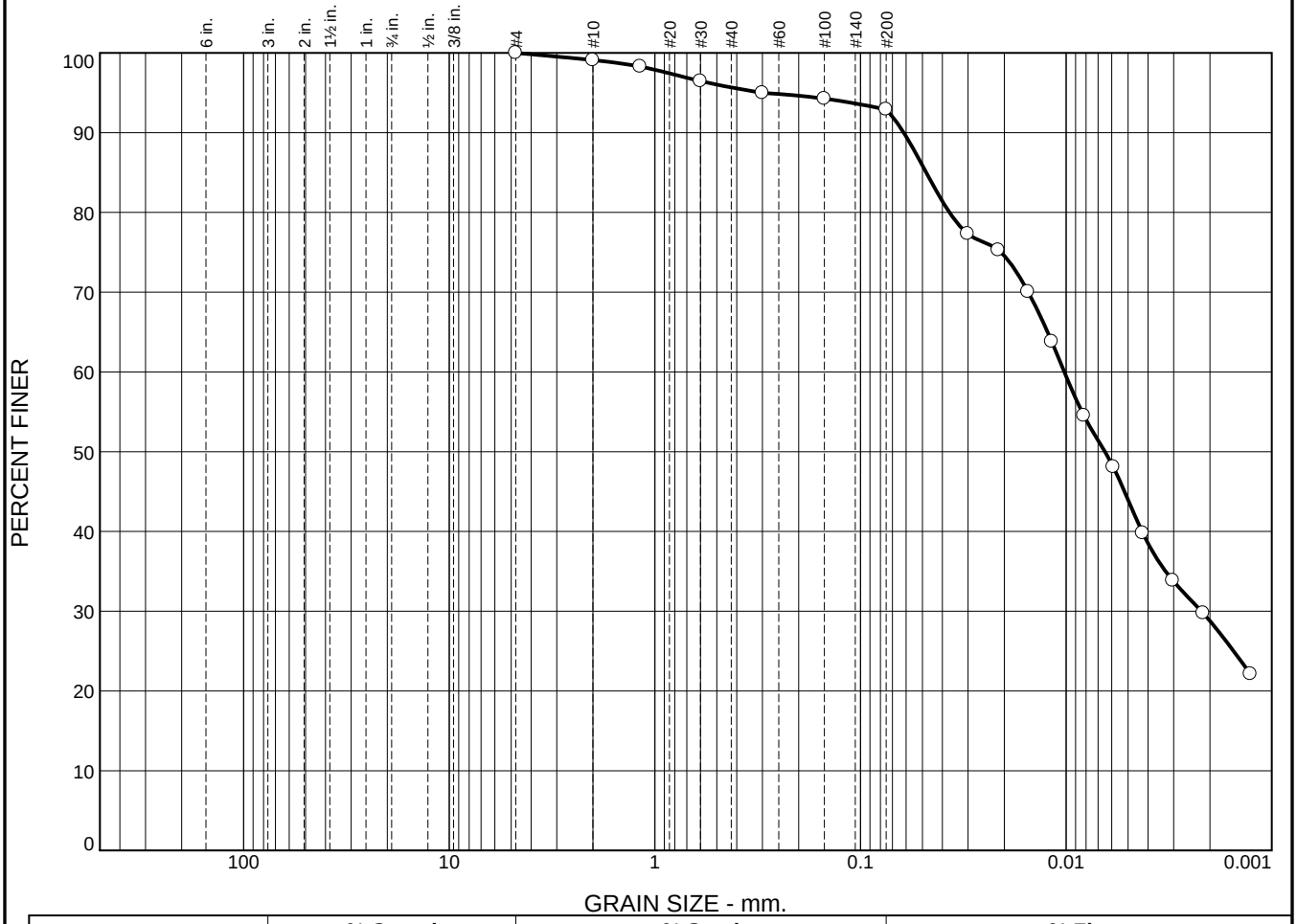
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.3	1.4	1.7	27.8	70.5	98.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0021	0.0032	0.0083	0.0103	0.0127	0.0231

Fineness Modulus
0.02

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.9	3.4	2.8	48.9	44.0

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	76	35	0.0479	0.0102	0.0065	0.0022				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-5(46)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-11 **Depth:** 8-10 ft **Sample Number:** S5

Remarks:

○As received WC = 88.4%

Fines classified visually

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Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 8-10 ft
Sample Number: S5
Material Description: ORGANIC SOIL
Liquid Limit: 76
Plastic Limit: 35
USCS Classification: OH
AASHTO Classification: A-7-5(46)
Testing Remarks: As received WC = 88.4%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
30.84	0.00	205.17	#4	205.17	100.0
			#10	205.45	99.1
			#16	205.70	98.3
			#30	206.26	96.5
			#50	206.72	95.0
			#100	206.94	94.3
			#200	207.36	92.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.1
Weight of hydrometer sample =30.84
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.69
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.7	1.0186	1.0151	0.0127	19.3	11.2	0.0301	77.3
4.00	24.7	1.0182	1.0147	0.0127	18.9	11.3	0.0214	75.3
8.00	24.6	1.0172	1.0137	0.0128	17.9	11.6	0.0153	70.1
14.00	24.5	1.0160	1.0125	0.0128	16.7	11.9	0.0118	63.8
30.00	24.4	1.0142	1.0107	0.0128	14.9	12.4	0.0082	54.5
60.00	24.1	1.0130	1.0094	0.0128	13.7	12.7	0.0059	48.1
120.00	24.0	1.0114	1.0078	0.0128	12.1	13.1	0.0042	39.8
240.00	24.2	1.0102	1.0066	0.0128	10.9	13.4	0.0030	33.9
480.00	24.2	1.0094	1.0058	0.0128	10.1	13.6	0.0022	29.8
1440.00	23.7	1.0080	1.0043	0.0129	8.7	14.0	0.0013	22.1

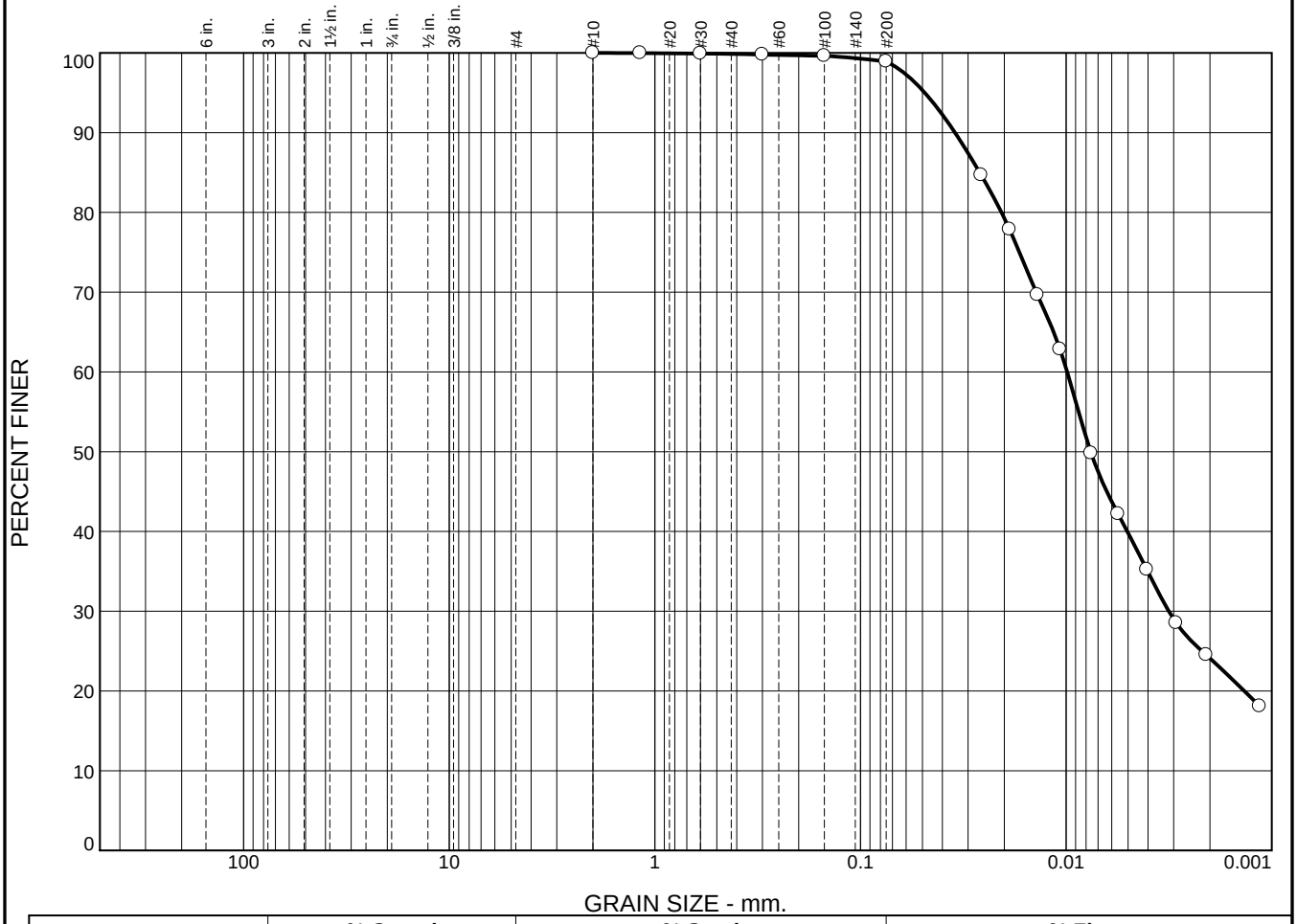
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.9	3.4	2.8	7.1	48.9	44.0	92.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0022	0.0065	0.0102	0.0370	0.0479	0.0617	0.3039

Fineness Modulus
0.17

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	1.0	59.1	39.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	29	16	0.0263	0.0099	0.0076	0.0032				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(12)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-11 **Depth:** 22-24 ft **Sample Number:** S12

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○Fines classified visually

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 22-24 ft
Sample Number: S12
Material Description: LEAN CLAY
Liquid Limit: 29
Plastic Limit: 16
USCS Classification: CL
AASHTO Classification: A-6(12)
Testing Remarks: Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
46.15	0.00	202.94	#10	202.94	100.0
			#16	202.95	100.0
			#30	202.98	99.9
			#50	203.04	99.8
			#100	203.11	99.6
			#200	203.44	98.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =46.15
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.76
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.7	1.0284	1.0249	0.0125	29.1	8.6	0.0259	84.7
4.00	24.7	1.0264	1.0229	0.0125	27.1	9.1	0.0189	77.9
8.00	24.6	1.0240	1.0205	0.0125	24.7	9.8	0.0138	69.7
14.00	24.6	1.0220	1.0185	0.0125	22.7	10.3	0.0107	62.9
31.00	24.4	1.0182	1.0147	0.0125	18.9	11.3	0.0076	49.8
60.00	24.2	1.0160	1.0124	0.0126	16.7	11.9	0.0056	42.2
120.00	23.9	1.0140	1.0104	0.0126	14.7	12.4	0.0041	35.2
240.00	24.1	1.0120	1.0084	0.0126	12.7	12.9	0.0029	28.5
480.00	24.2	1.0108	1.0072	0.0126	11.5	13.3	0.0021	24.5
1671.00	23.7	1.0090	1.0053	0.0126	9.7	13.7	0.0011	18.1

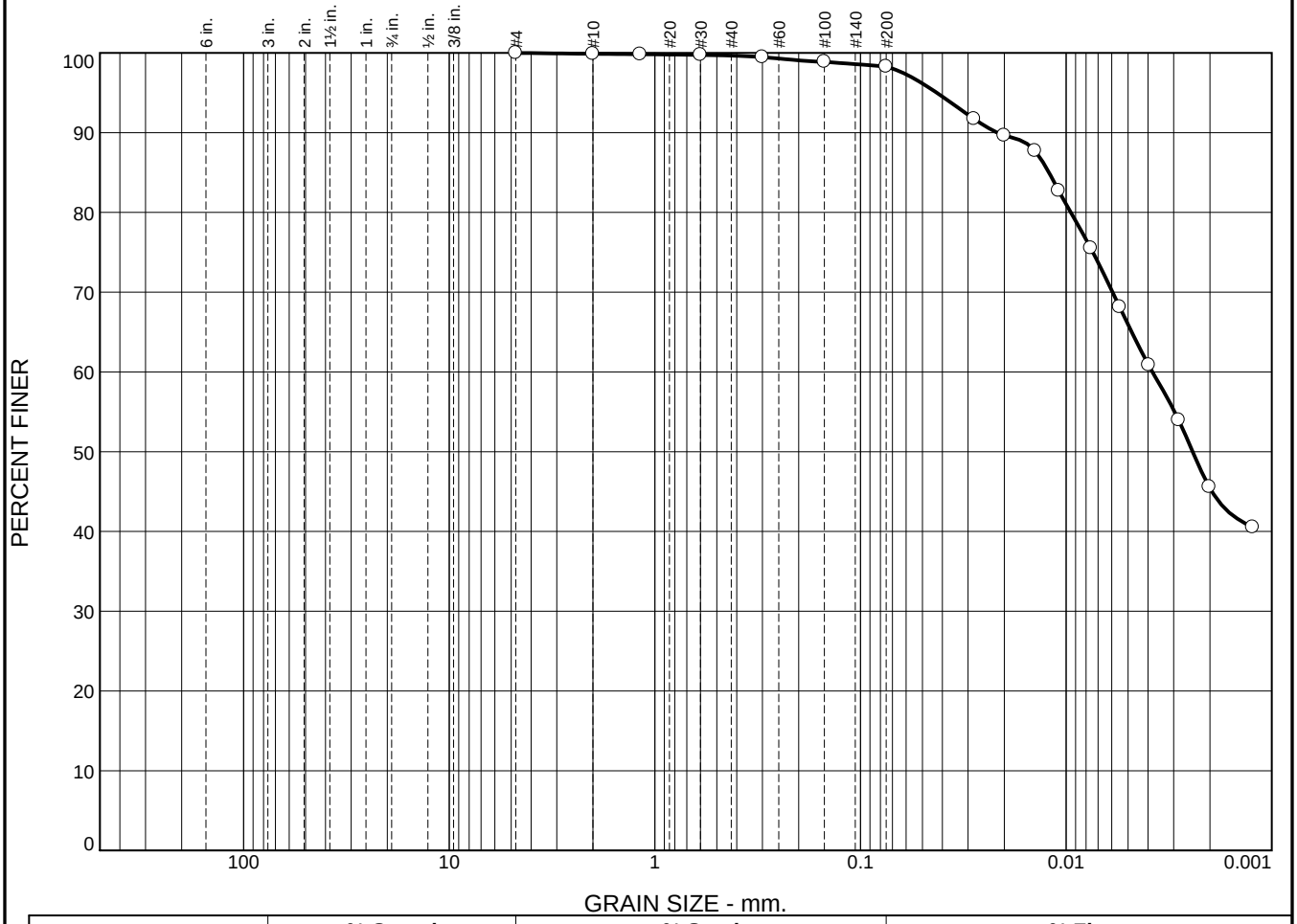
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	1.0	1.1	59.1	39.8	98.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
		0.0014	0.0032	0.0076	0.0099	0.0206	0.0263	0.0347	0.0487

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.1	0.2	1.4	32.4	65.9

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	49	23	0.0121	0.0038	0.0024					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-7-6(29)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-11 **Depth:** 38-40 ft **Sample Number:** S20

Remarks:

○Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Figure

Tested By: B. Nourai 6/17/24 **Checked By:** W. Lukas 6/17/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 38-40 ft
Sample Number: S20
Material Description: LEAN CLAY
Liquid Limit: 49
Plastic Limit: 23
USCS Classification: CL
AASHTO Classification: A-7-6(29)
Testing Remarks: Fines classified visually
Tested by: B. Nourai 6/17/24
Checked by: W. Lukas 6/17/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
35.87	0.00	30.68	#4	30.68	100.0
			#10	30.72	99.9
			#16	30.74	99.8
			#30	30.77	99.7
			#50	30.87	99.5
			#100	31.08	98.9
			#200	31.29	98.3

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.9
Weight of hydrometer sample =35.87
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.68
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	25.3	1.0240	1.0206	0.0127	24.7	9.8	0.0280	91.7
4.00	25.0	1.0236	1.0202	0.0127	24.3	9.9	0.0200	89.7
8.00	25.3	1.0231	1.0197	0.0127	23.8	10.0	0.0142	87.7
14.00	25.2	1.0220	1.0186	0.0127	22.7	10.3	0.0109	82.7
30.00	25.1	1.0204	1.0170	0.0127	21.1	10.7	0.0076	75.5
60.00	24.8	1.0188	1.0153	0.0128	19.5	11.1	0.0055	68.1
120.00	24.6	1.0172	1.0137	0.0128	17.9	11.6	0.0040	60.9
240.00	25.3	1.0155	1.0121	0.0127	16.2	12.0	0.0028	54.0
509.00	23.9	1.0139	1.0103	0.0129	14.6	12.4	0.0020	45.6
1422.00	22.5	1.0130	1.0091	0.0131	13.7	12.7	0.0012	40.5

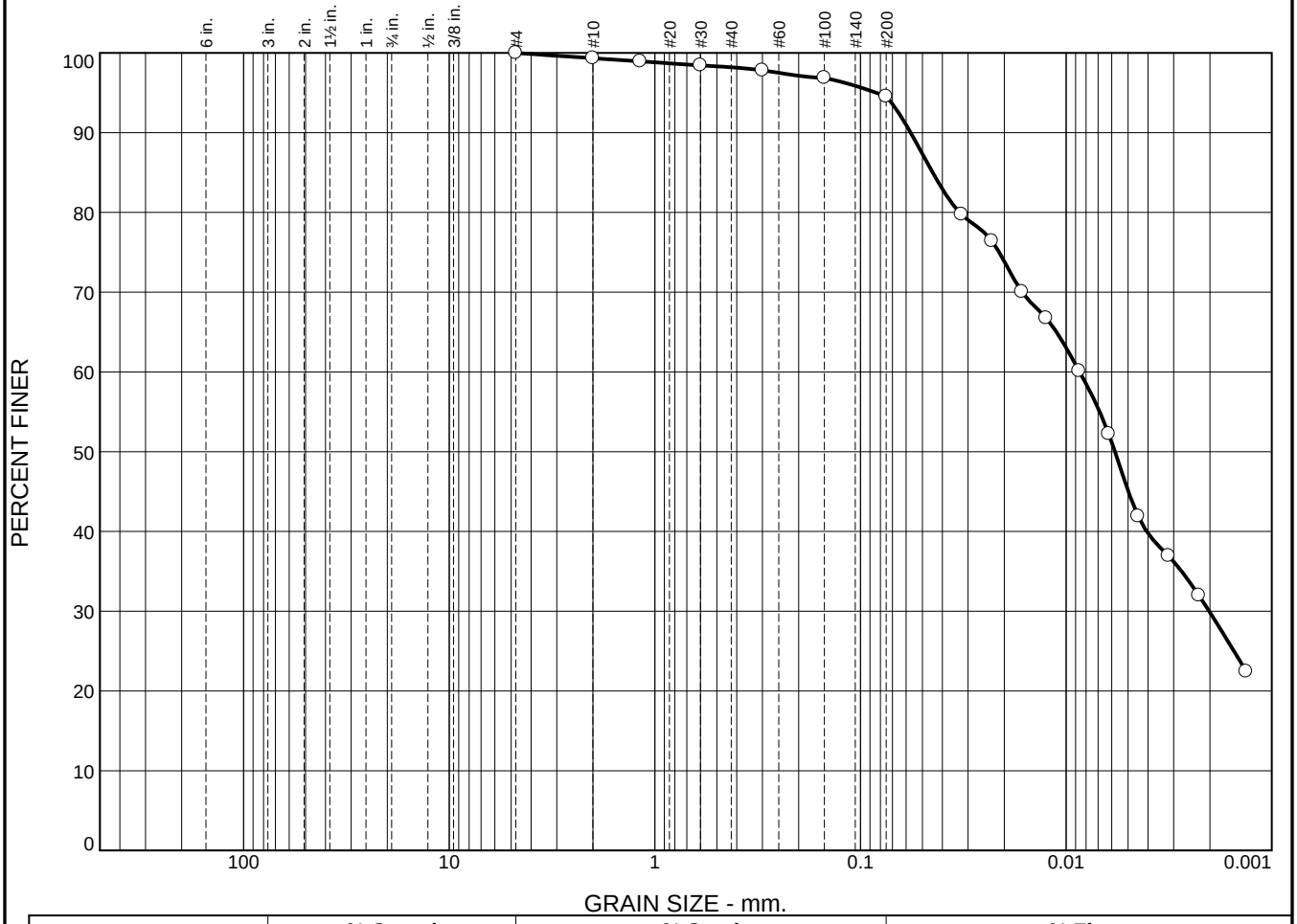
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.1	0.2	1.4	1.7	32.4	65.9	98.3

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0024	0.0038	0.0095	0.0121	0.0216	0.0426

Fineness Modulus
0.02

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.7	1.1	3.7	49.4	45.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	100	37	0.0446	0.0086	0.0058	0.0020				

Material Description	USCS	AASHTO
○ ORGANIC SOIL	OH	A-7-5(71)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-12 **Depth:** 4-6 ft **Sample Number:** S3

Remarks:

○As received WC = 102.7%

Fines classified visually

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

GEI Consultants

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 4-6 ft
Sample Number: S3
Material Description: ORGANIC SOIL
Liquid Limit: 100
Plastic Limit: 37
USCS Classification: OH
AASHTO Classification: A-7-5(71)
Testing Remarks: As received WC = 102.7%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
25.59	0.00	212.87	#4	212.87	100.0
			#10	213.04	99.3
			#16	213.14	98.9
			#30	213.27	98.4
			#50	213.43	97.8
			#100	213.67	96.9
			#200	214.27	94.5

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.3
Weight of hydrometer sample =25.59
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.56
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.7	1.0160	1.0125	0.0133	16.7	11.9	0.0323	79.8
4.00	24.6	1.0155	1.0120	0.0133	16.2	12.0	0.0230	76.4
8.00	24.6	1.0145	1.0110	0.0133	15.2	12.3	0.0164	70.1
14.00	24.5	1.0140	1.0105	0.0133	14.7	12.4	0.0125	66.8
30.00	24.3	1.0130	1.0094	0.0133	13.7	12.7	0.0087	60.1
60.00	24.1	1.0118	1.0082	0.0134	12.5	13.0	0.0062	52.2
120.00	24.0	1.0102	1.0066	0.0134	10.9	13.4	0.0045	41.9
240.00	24.1	1.0094	1.0058	0.0134	10.1	13.6	0.0032	36.9
480.00	24.2	1.0086	1.0050	0.0133	9.3	13.8	0.0023	32.0
1440.00	23.7	1.0072	1.0035	0.0134	7.9	14.2	0.0013	22.5

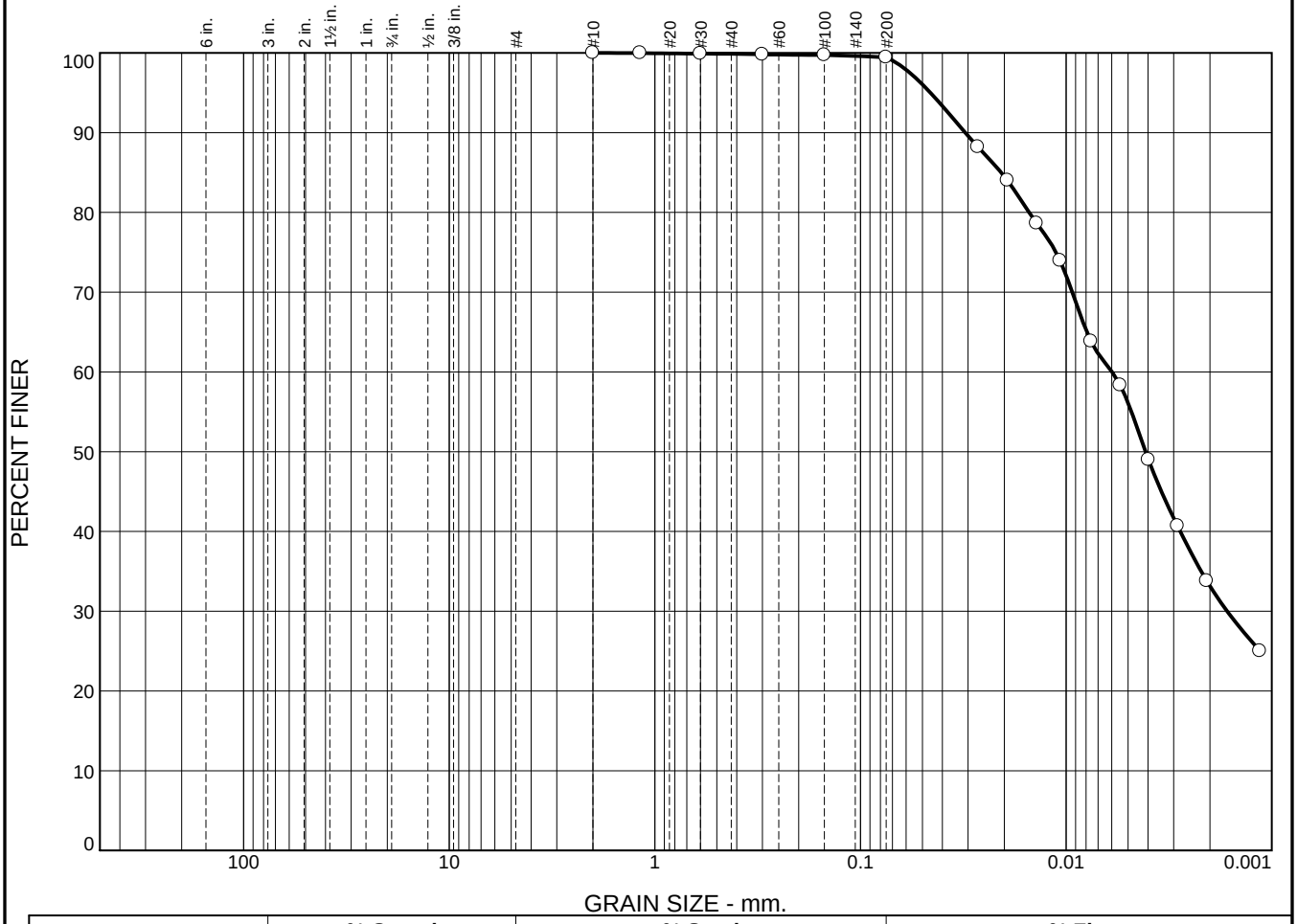
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.7	1.1	3.7	5.5	49.4	45.1	94.5

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0020	0.0058	0.0086	0.0330	0.0446	0.0570	0.0838

Fineness Modulus
0.08

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.1	0.5	43.3	56.1

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_C	C_u
○	33	18	0.0207	0.0060	0.0041	0.0016				

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(15)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-12 **Depth:** 16-18 ft **Sample Number:** S9

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 27.5%

Fines classified visually

Figure

Tested By: S. Larson 5/28/24 **Checked By:** M. Alstede 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
Liquid Limit: 33
Plastic Limit: 18
USCS Classification: CL
AASHTO Classification: A-6(15)
Testing Remarks: As received WC = 27.5%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: M. Alstede 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
41.18	0.00	220.55	#10	220.55	100.0
			#16	220.56	100.0
			#30	220.59	99.9
			#50	220.63	99.8
			#100	220.66	99.7
			#200	220.78	99.4

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =41.18
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.73
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.7	1.0265	1.0230	0.0126	27.2	9.1	0.0269	88.2
4.00	24.7	1.0254	1.0219	0.0126	26.1	9.4	0.0193	84.0
8.00	24.7	1.0240	1.0205	0.0126	24.7	9.8	0.0139	78.6
14.00	24.6	1.0228	1.0193	0.0126	23.5	10.1	0.0107	74.0
30.00	24.4	1.0202	1.0167	0.0126	20.9	10.8	0.0076	63.8
60.00	24.2	1.0188	1.0152	0.0127	19.5	11.1	0.0055	58.3
120.00	24.0	1.0164	1.0128	0.0127	17.1	11.8	0.0040	49.0
240.00	24.2	1.0142	1.0106	0.0127	14.9	12.4	0.0029	40.7
480.00	24.2	1.0124	1.0088	0.0127	13.1	12.8	0.0021	33.8
1670.00	23.7	1.0102	1.0065	0.0127	10.9	13.4	0.0011	25.0

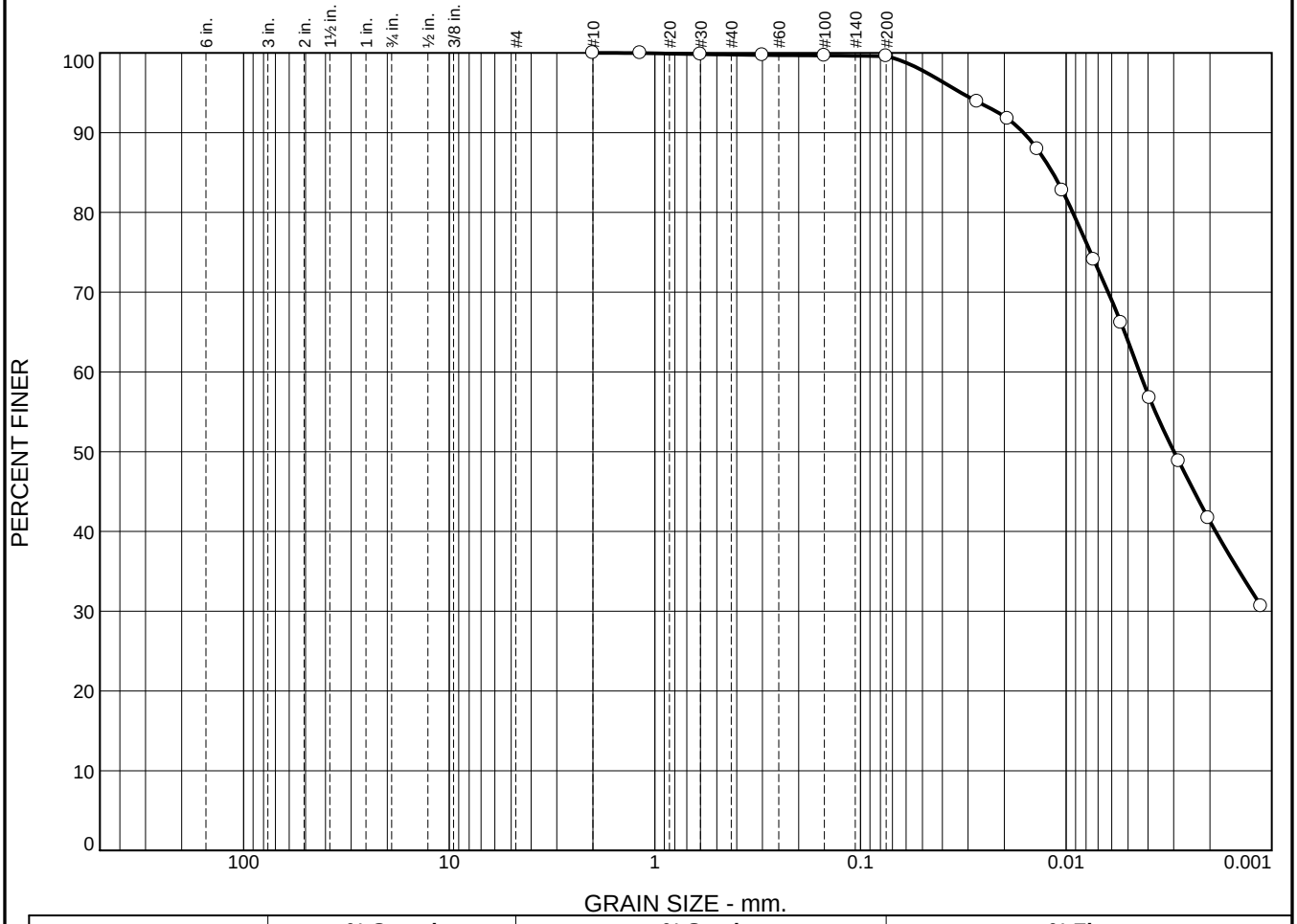
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.1	0.5	0.6	43.3	56.1	99.4

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
			0.0016	0.0041	0.0060	0.0151	0.0207	0.0309	0.0457

Fineness Modulus
0.01

Particle Size Distribution Report



	% +3"	% Gravel		% Sand			% Fines	
		Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
○	0.0	0.0	0.0	0.0	0.2	0.2	35.8	63.8

	LL	PL	D_{85}	D_{60}	D_{50}	D_{30}	D_{15}	D_{10}	C_c	C_u
○	36	19	0.0116	0.0044	0.0030					

Material Description	USCS	AASHTO
○ LEAN CLAY	CL	A-6(18)

Project No. 2400096 **Client:** USACE - New England

Project: Subsurface Exploration and Site Characterization

○ **Source of Sample:** FD24-12 **Depth:** 34-36 ft **Sample Number:** S18

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Remarks:

○As received WC = 40.1%

Fines classified visually

Figure

Tested By: S. Larson 5/28/24 **Checked By:** W. Lukas 5/28/24

GRAIN SIZE DISTRIBUTION TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 34-36 ft
Sample Number: S18
Material Description: LEAN CLAY
Liquid Limit: 36
Plastic Limit: 19
USCS Classification: CL
AASHTO Classification: A-6(18)
Testing Remarks: As received WC = 40.1%
Fines classified visually
Tested by: S. Larson 5/28/24
Checked by: W. Lukas 5/28/24

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
36.95	0.00	220.15	#10	220.15	100.0
			#16	220.16	100.0
			#30	220.21	99.8
			#50	220.25	99.7
			#100	220.27	99.7
			#200	220.30	99.6

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 100.0
Weight of hydrometer sample =36.95
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -4.207
Meniscus correction only = 0.7
Specific gravity of solids = 2.75
Hydrometer type = 151H
Hydrometer effective depth equation: L = 16.294964 **-** 0.2645 **x Rm**

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
2.00	24.5	1.0256	1.0221	0.0125	26.3	9.3	0.0271	93.9
4.00	24.5	1.0251	1.0216	0.0125	25.8	9.5	0.0193	91.8
8.00	24.5	1.0242	1.0207	0.0125	24.9	9.7	0.0138	87.9
14.50	24.4	1.0230	1.0195	0.0126	23.7	10.0	0.0104	82.8
31.00	24.2	1.0210	1.0174	0.0126	21.7	10.6	0.0073	74.1
60.00	23.9	1.0192	1.0156	0.0126	19.9	11.0	0.0054	66.2
120.00	23.8	1.0170	1.0133	0.0127	17.7	11.6	0.0039	56.7
240.00	24.0	1.0151	1.0115	0.0126	15.8	12.1	0.0028	48.8
480.00	24.1	1.0134	1.0098	0.0126	14.1	12.6	0.0020	41.7
1670.00	23.6	1.0109	1.0072	0.0127	11.6	13.2	0.0011	30.7

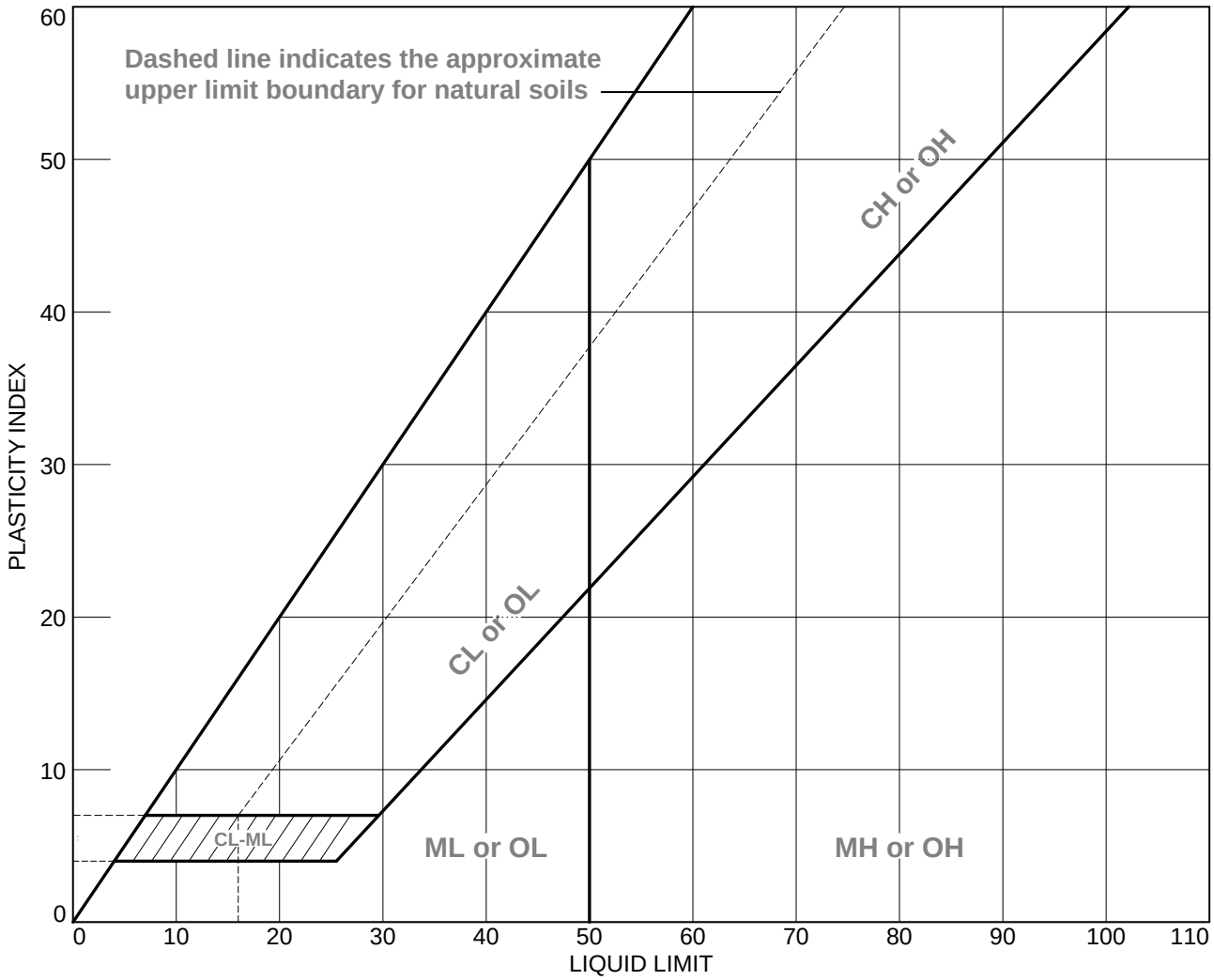
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.0	0.2	0.2	0.4	35.8	63.8	99.6

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0030	0.0044	0.0093	0.0116	0.0161	0.0324

Fineness Modulus
0.01

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S7 (Oven Dry)	12-14 ft			34		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

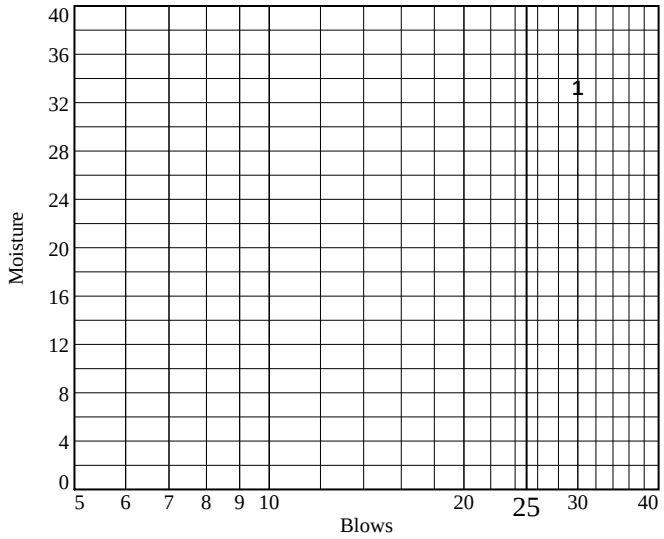
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 12-14 ft **Sample Number:** S7 (Oven Dry)
Material Description: Organic Soil
USCS: OH
Tested by: S. Larson 6/10/24 **Checked by:** W. Lukas 6/11/24

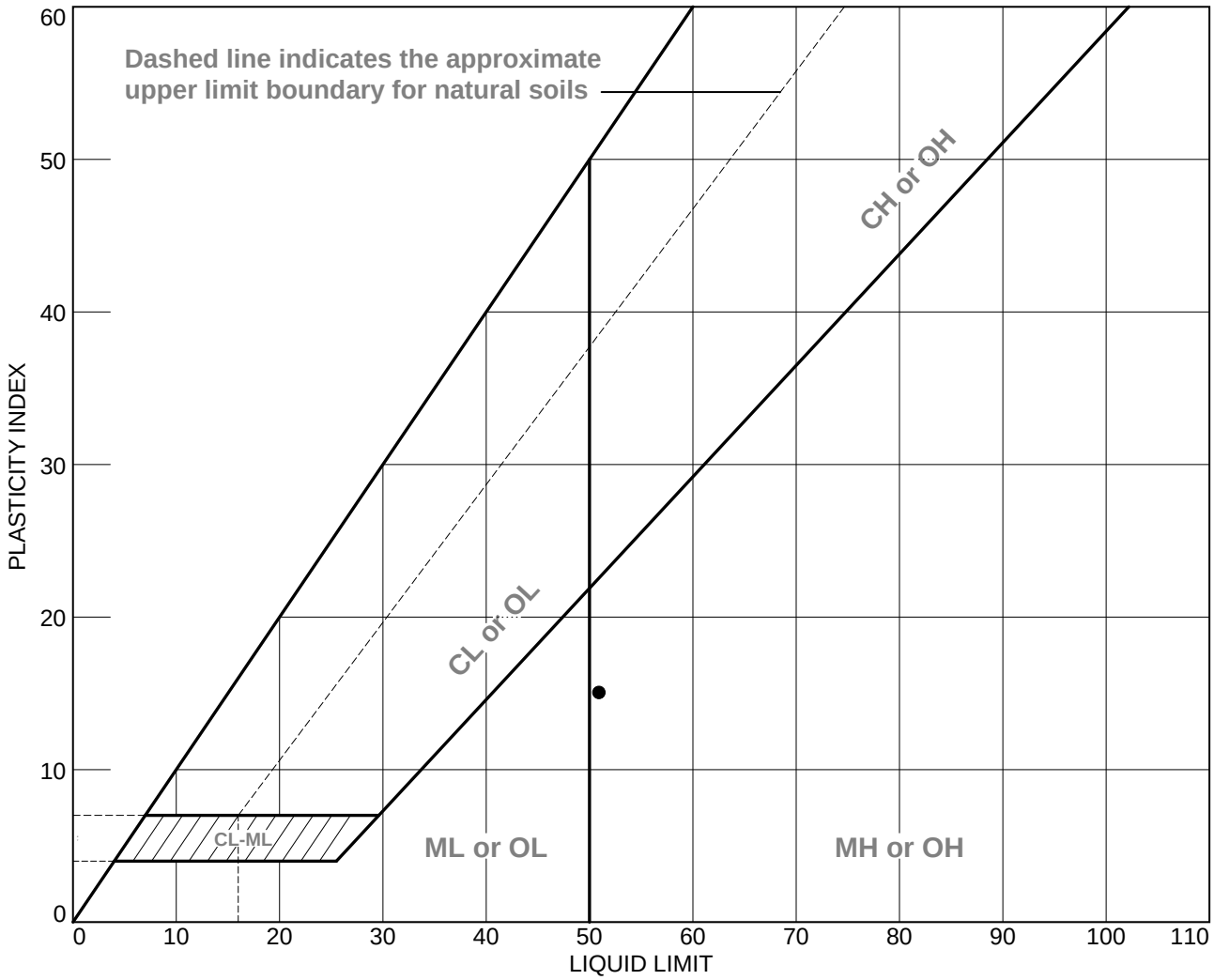
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.52					
Dry+Tare	20.46					
Tare	11.28					
# Blows	30					
Moisture	33.3					



Liquid Limit= 34
Plastic Limit=
Plasticity Index=

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S7	12-14 ft	40.4	36	51	15	OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/3/24 **Checked By:** W. Lukas 6/11/24

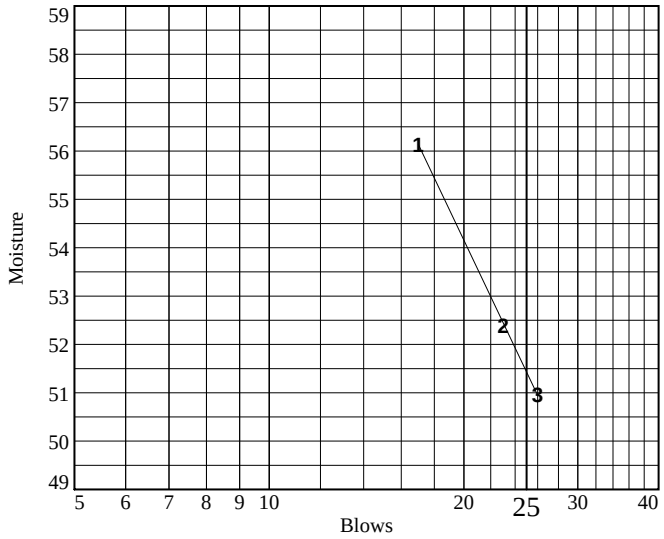
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 12-14 ft
Sample Number: S7
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(16)
Tested by: S. Larson 6/3/24
Checked by: W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.59	24.37	25.09			
Dry+Tare	19.16	19.91	20.64			
Tare	11.27	11.4	11.91			
# Blows	17	23	26			
Moisture	56.1	52.4	51.0			



Liquid Limit= 51
Plastic Limit= 36
Plasticity Index= 15
Natural Moisture= 40.4
Liquidity Index= 0.3

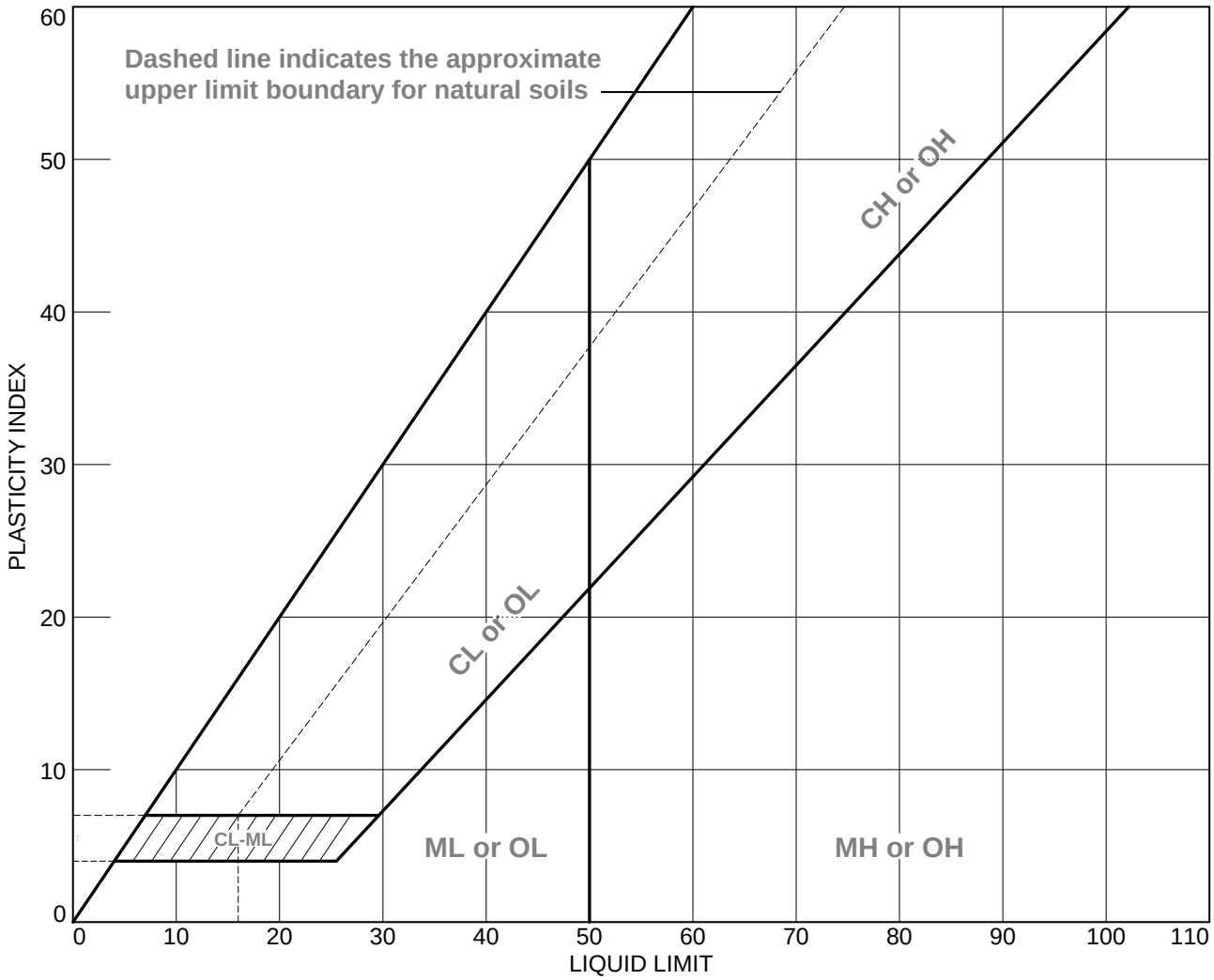
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.89	17.79			
Dry+Tare	16.16	16.12			
Tare	11.36	11.37			
Moisture	36.0	35.2			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
201.6	162.96	67.41	40.4

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S10 (Oven Dry)	18-20 ft			27		CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

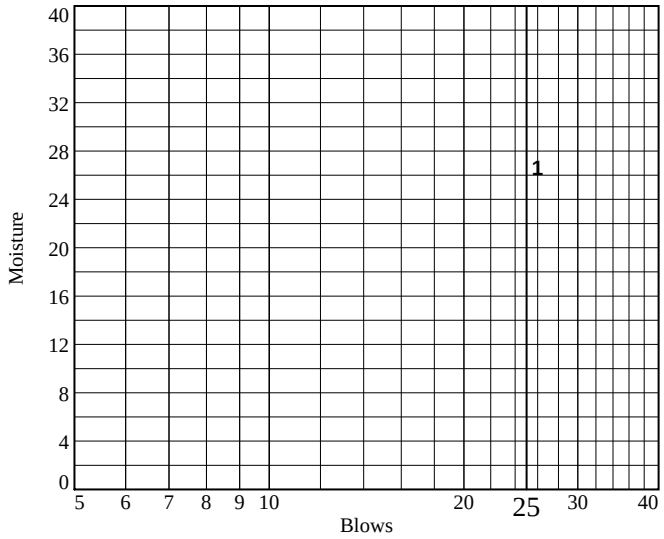
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 18-20 ft **Sample Number:** S10 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/10/24 **Checked by:** W. Lukas 6/11/24

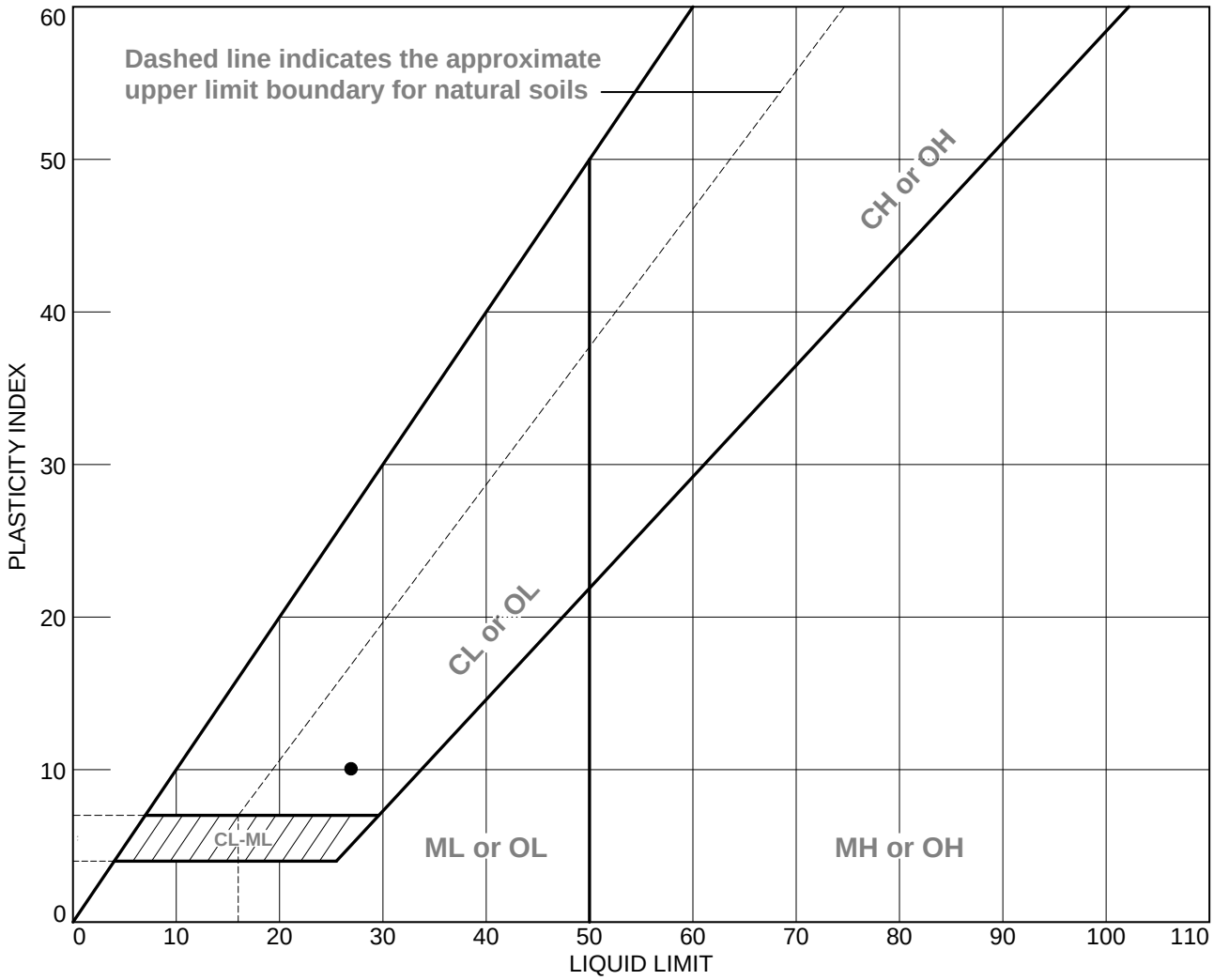
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.29					
Dry+Tare	20.78					
Tare	11.37					
# Blows	26					
Moisture	26.7					



Liquid Limit= 27
Plastic Limit= _____
Plasticity Index= _____

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S10	18-20 ft	25.6	17	27	10	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/3/24 **Checked By:** W. Lukas 6/11/24

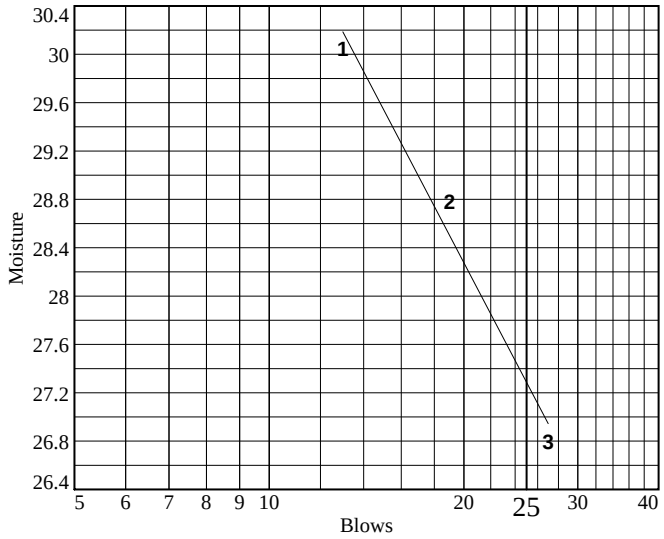
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-4(9)
Tested by: S. Larson 6/3/24
Checked by: W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.37	25.18	18.97			
Dry+Tare	21.38	22.10	16.40			
Tare	11.43	11.40	6.81			
# Blows	13	19	27			
Moisture	30.1	28.8	26.8			

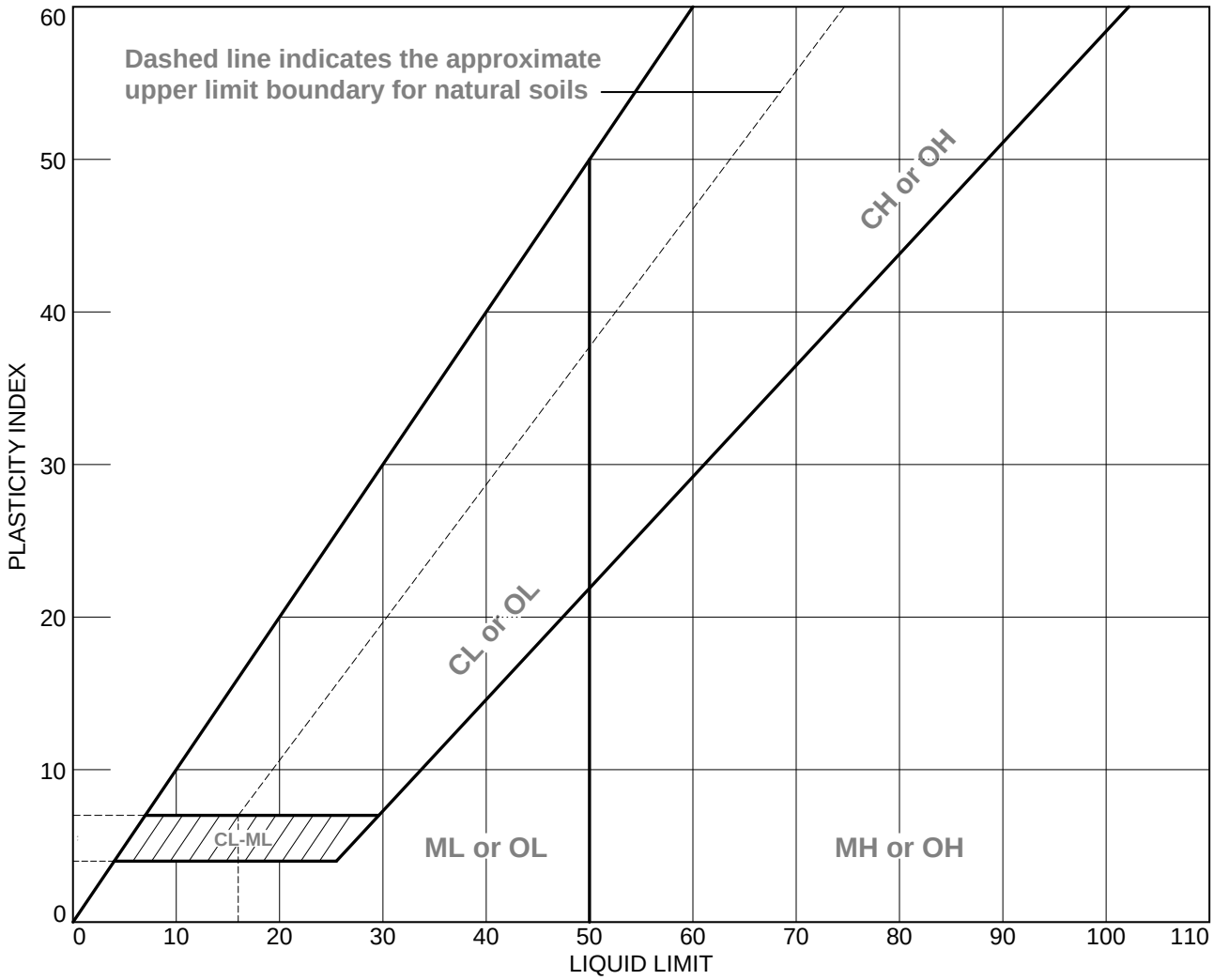


Liquid Limit= 27
Plastic Limit= 17
Plasticity Index= 10
Natural Moisture= 25.6
Liquidity Index= 0.9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.73	18.48			
Dry+Tare	16.82	17.47			
Tare	11.37	11.41			
Moisture	16.7	16.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S23 (Oven Dry)	44-46 ft	42.4		34		CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/14/24 **Checked By:** W. Lukas 6/17/24

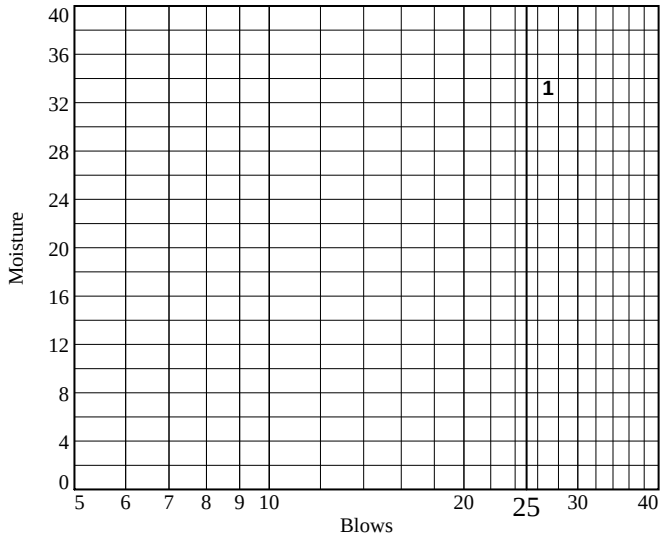
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 44-46 ft **Sample Number:** S23 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/14/24 **Checked by:** W. Lukas 6/17/24

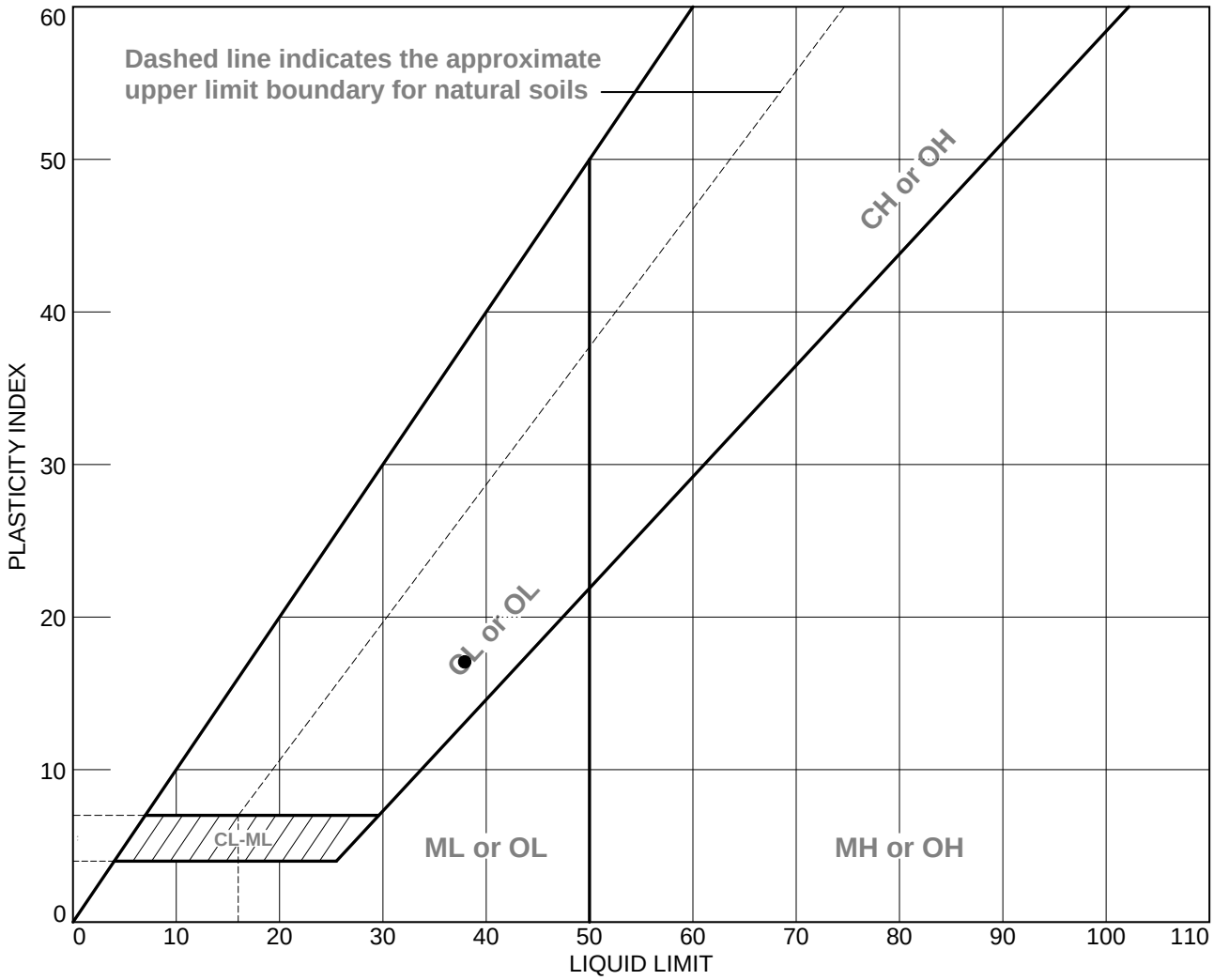
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	44.92					
Dry+Tare	41.53					
Tare	31.34					
# Blows	27					
Moisture	33.3					



Liquid Limit= 34
Plastic Limit=
Plasticity Index=
Natural Moisture= 42.4

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-01	S23	44-46 ft	42.4	21	38	17	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/5/24 **Checked By:** W. Lukas 6/5/24

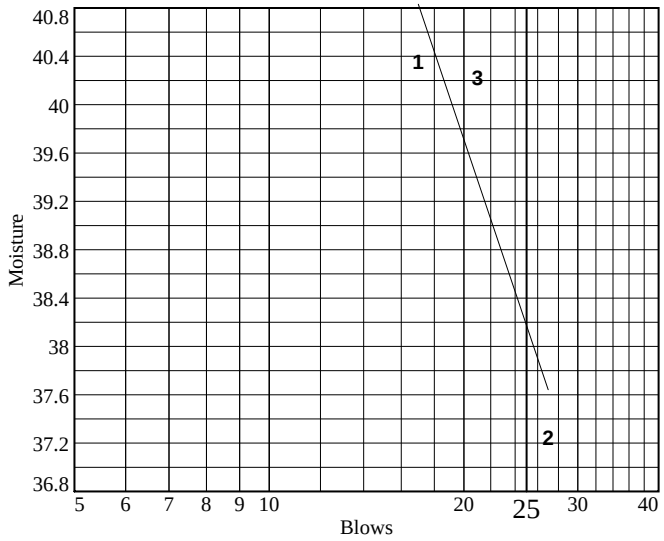
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-01
Depth: 44-46 ft
Sample Number: S23
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(18)
Tested by: S. Larson 6/5/24
Checked by: W. Lukas 6/5/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.44	20.07	21.19			
Dry+Tare	19.90	16.52	18.39			
Tare	11.13	6.99	11.43			
# Blows	17	27	21			
Moisture	40.4	37.3	40.2			

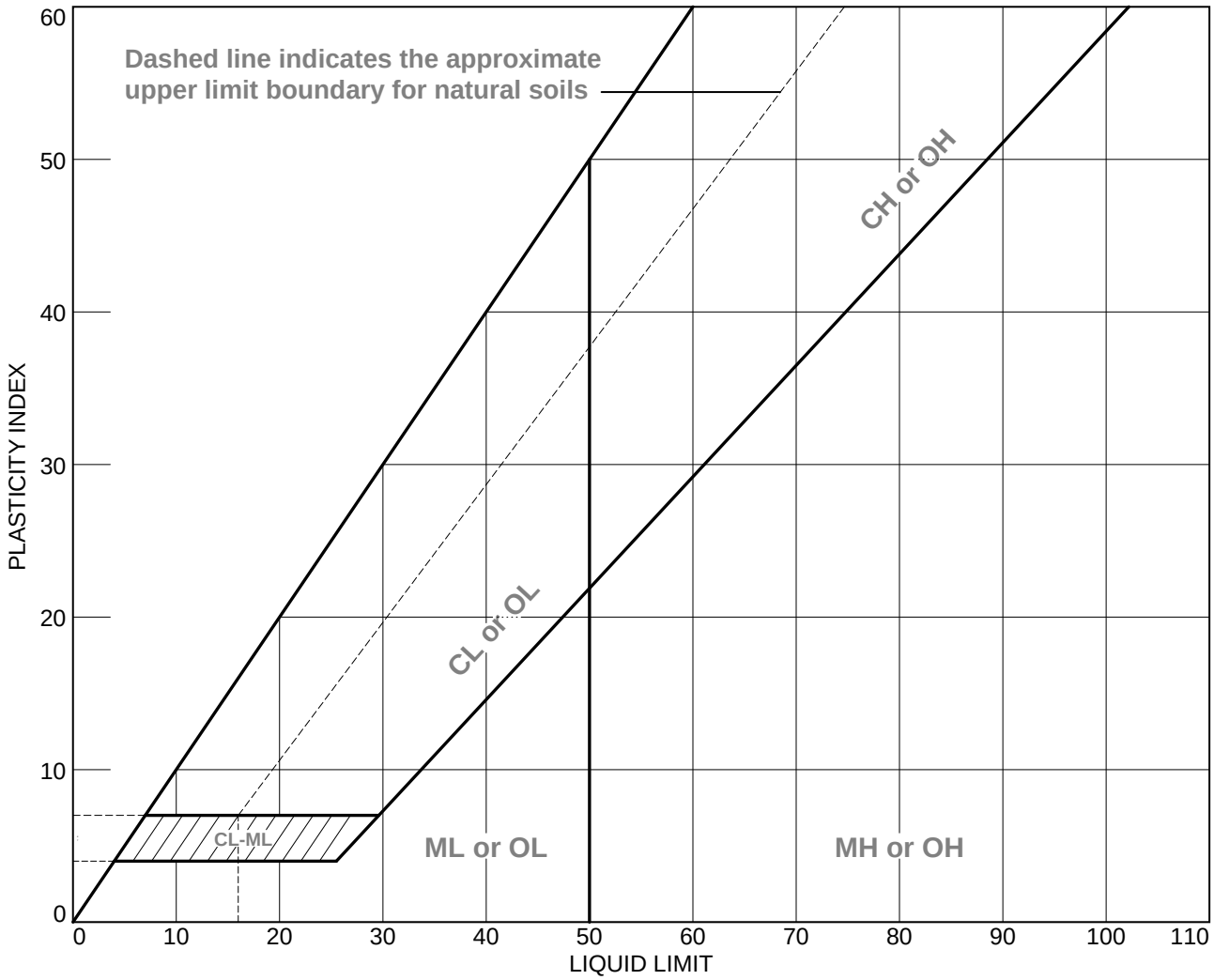


Liquid Limit= 38
Plastic Limit= 21
Plasticity Index= 17
Natural Moisture= 42.4
Liquidity Index= 1.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.22	17.76			
Dry+Tare	17.02	16.66			
Tare	11.39	11.34			
Moisture	21.3	20.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-02	S6 (Oven Dry)	10-12 ft			43		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/12/24 **Checked By:** W. Lukas 6/13/24

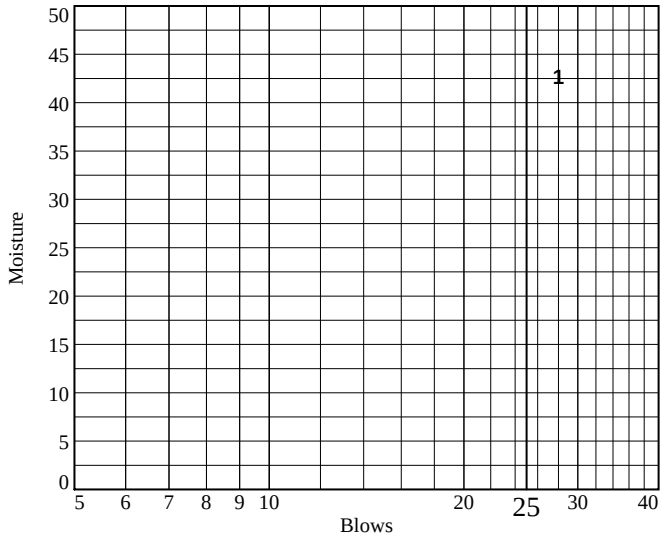
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 10-12 ft **Sample Number:** S6 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/12/24 **Checked by:** W. Lukas 6/13/24

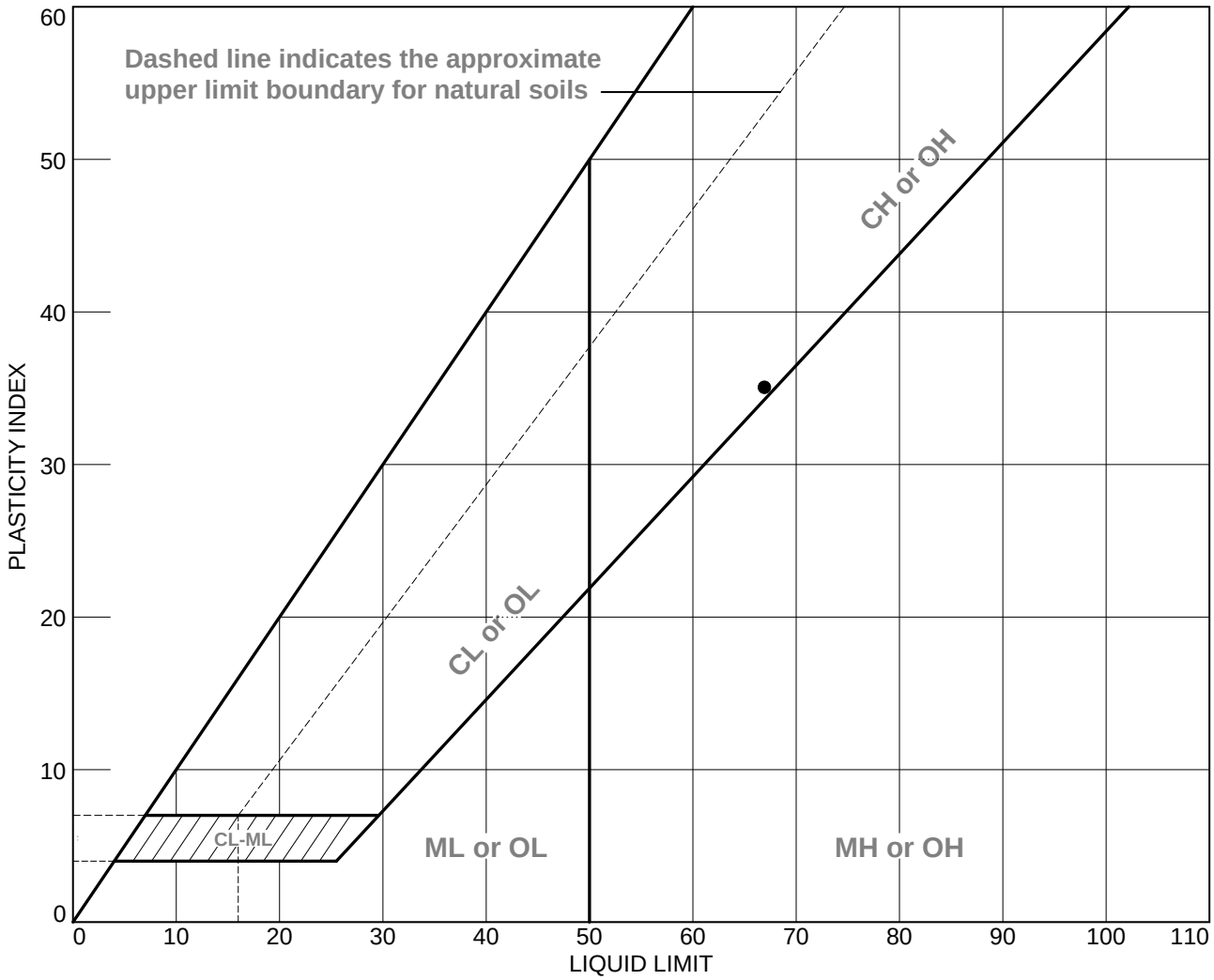
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.22					
Dry+Tare	19.75					
Tare	11.64					
# Blows	28					
Moisture	42.8					



Liquid Limit= 43
Plastic Limit=
Plasticity Index=

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-02	S6	10-12 ft	97.8	32	67	35	OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/3/24 **Checked By:** M. Alstede 6/11/24

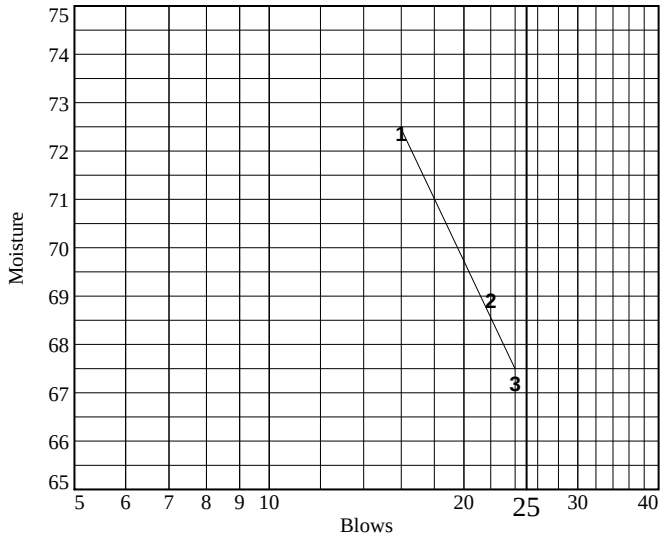
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 10-12 ft
Sample Number: S6
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(38)
Tested by: S. Larson 6/3/24
Checked by: M. Alstede 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	21.67	19.07	14.96			
Dry+Tare	17.53	15.90	11.68			
Tare	11.81	11.30	6.80			
# Blows	16	22	24			
Moisture	72.4	68.9	67.2			

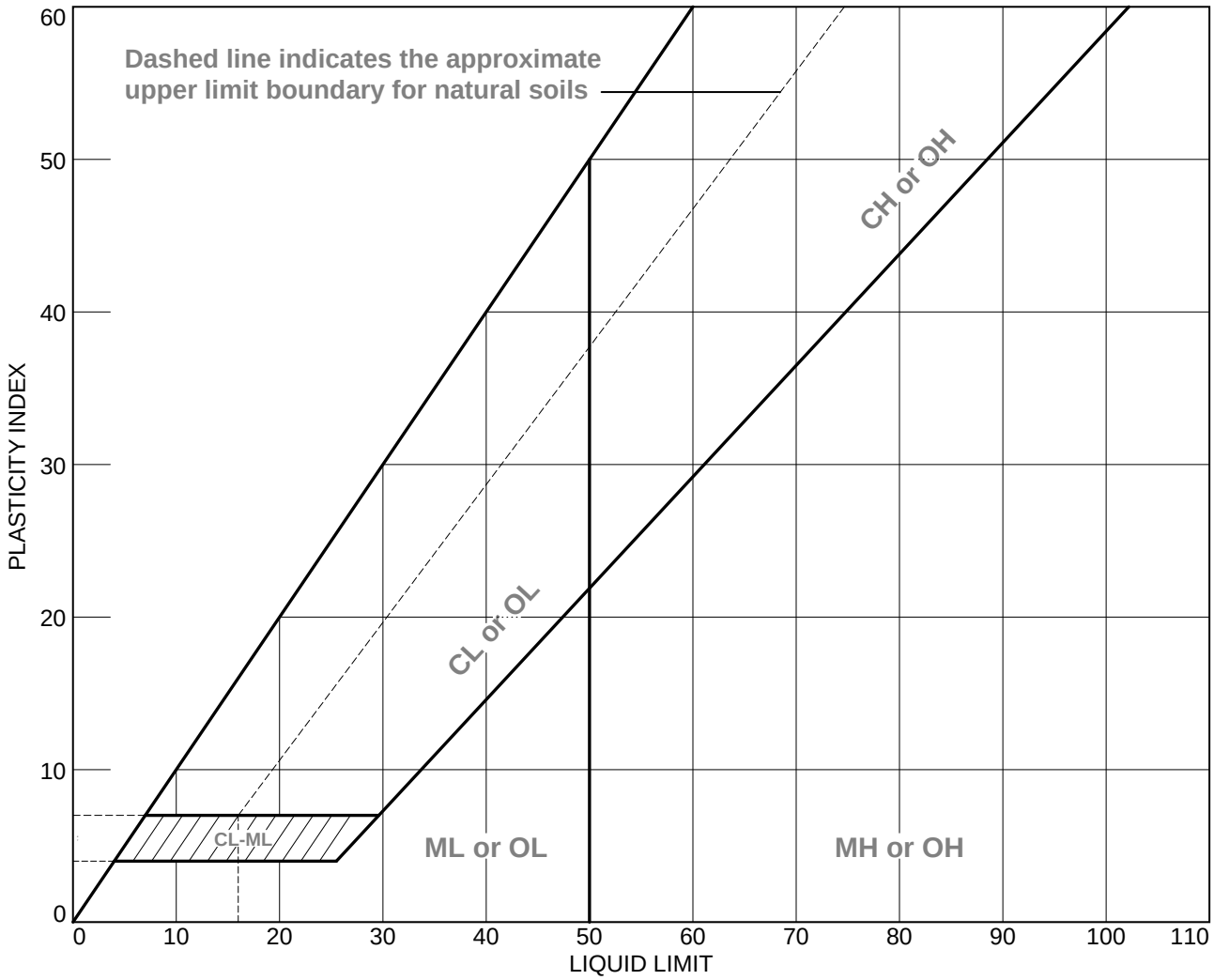


Liquid Limit= 67
Plastic Limit= 32
Plasticity Index= 35
Natural Moisture= 97.8
Liquidity Index= 1.9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.89	27.41			
Dry+Tare	17.21	25.91			
Tare	11.87	21.40			
Moisture	31.5	33.3			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-02	S10 (Oven Dry)	18-20 ft			33		CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/4/24 **Checked By:** W. Lukas 6/4/24

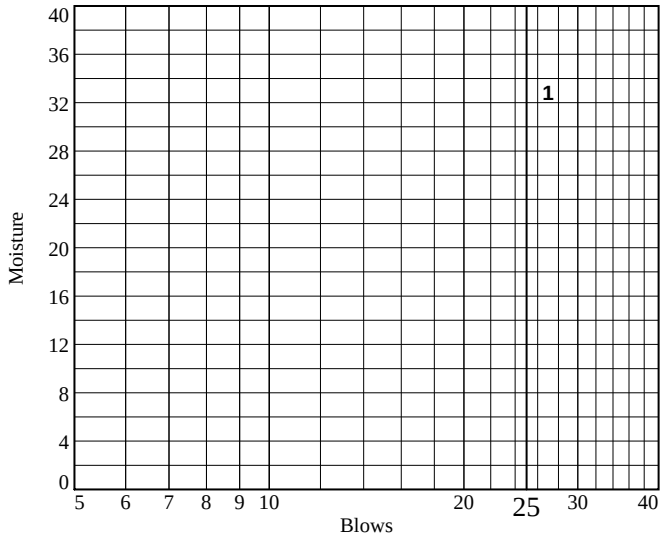
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 18-20 ft **Sample Number:** S10 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/4/24 **Checked by:** W. Lukas 6/4/24

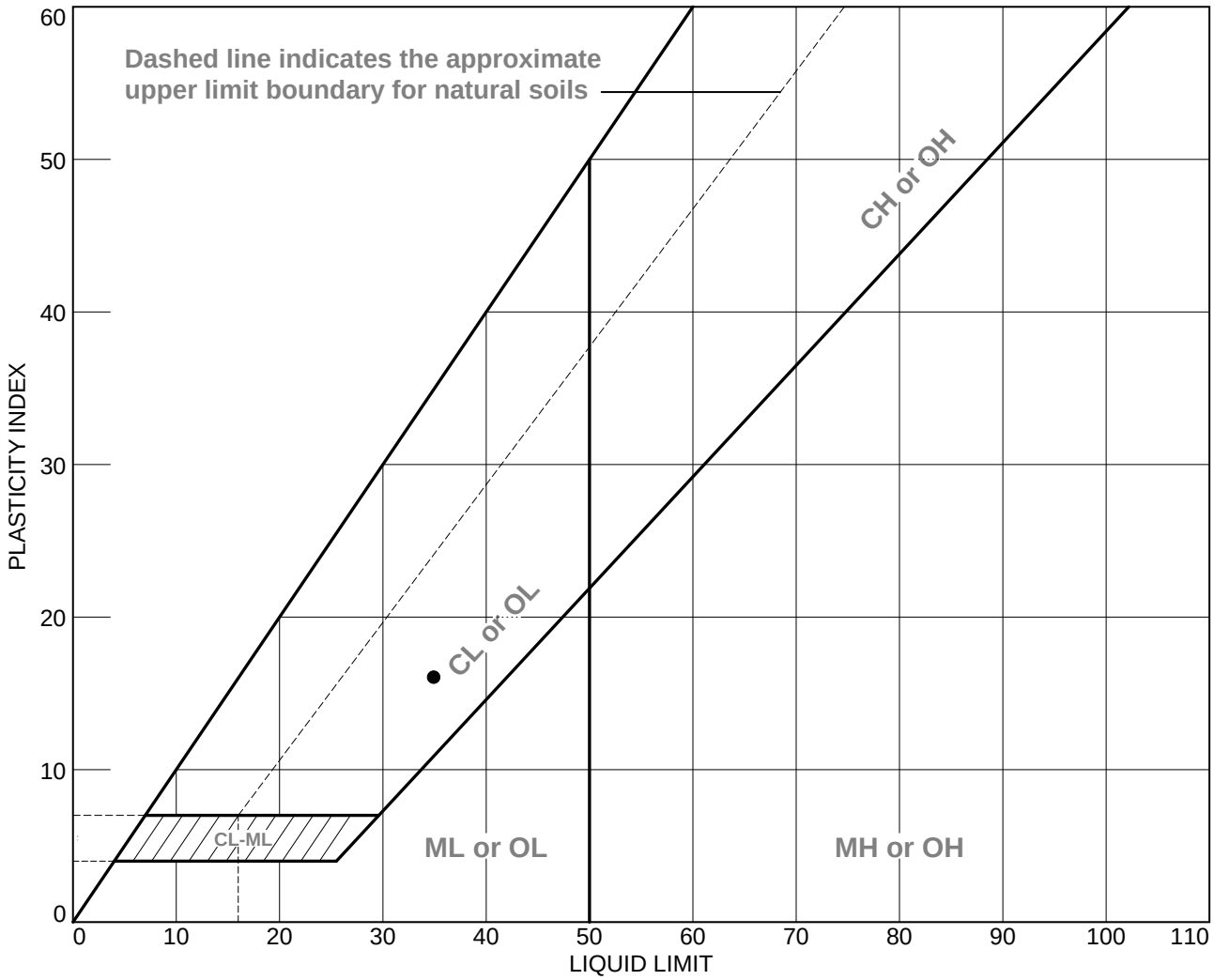
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.94					
Dry+Tare	20.85					
Tare	11.46					
# Blows	27					
Moisture	32.9					



Liquid Limit= 33
Plastic Limit= _____
Plasticity Index= _____

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-02	S10	18-20 ft	27.0	19	35	16	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 5/30/24 **Checked By:** W. Lukas 6/4/24

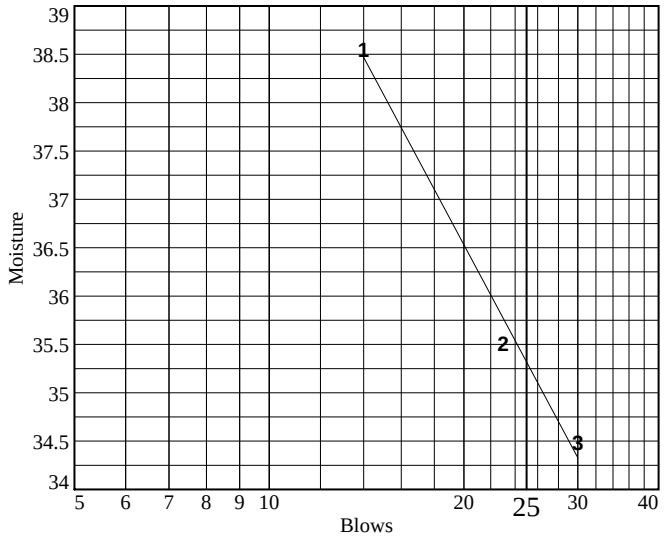
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 18-20 ft **Sample Number:** S10
Material Description: LEAN CLAY
USCS: CL **AASHTO:** A-6(16)
Tested by: S. Larson 5/30/24 **Checked by:** W. Lukas 6/4/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.10	22.49	23.10			
Dry+Tare	22.72	18.81	20.12			
Tare	11.36	8.45	11.48			
# Blows	14	23	30			
Moisture	38.6	35.5	34.5			

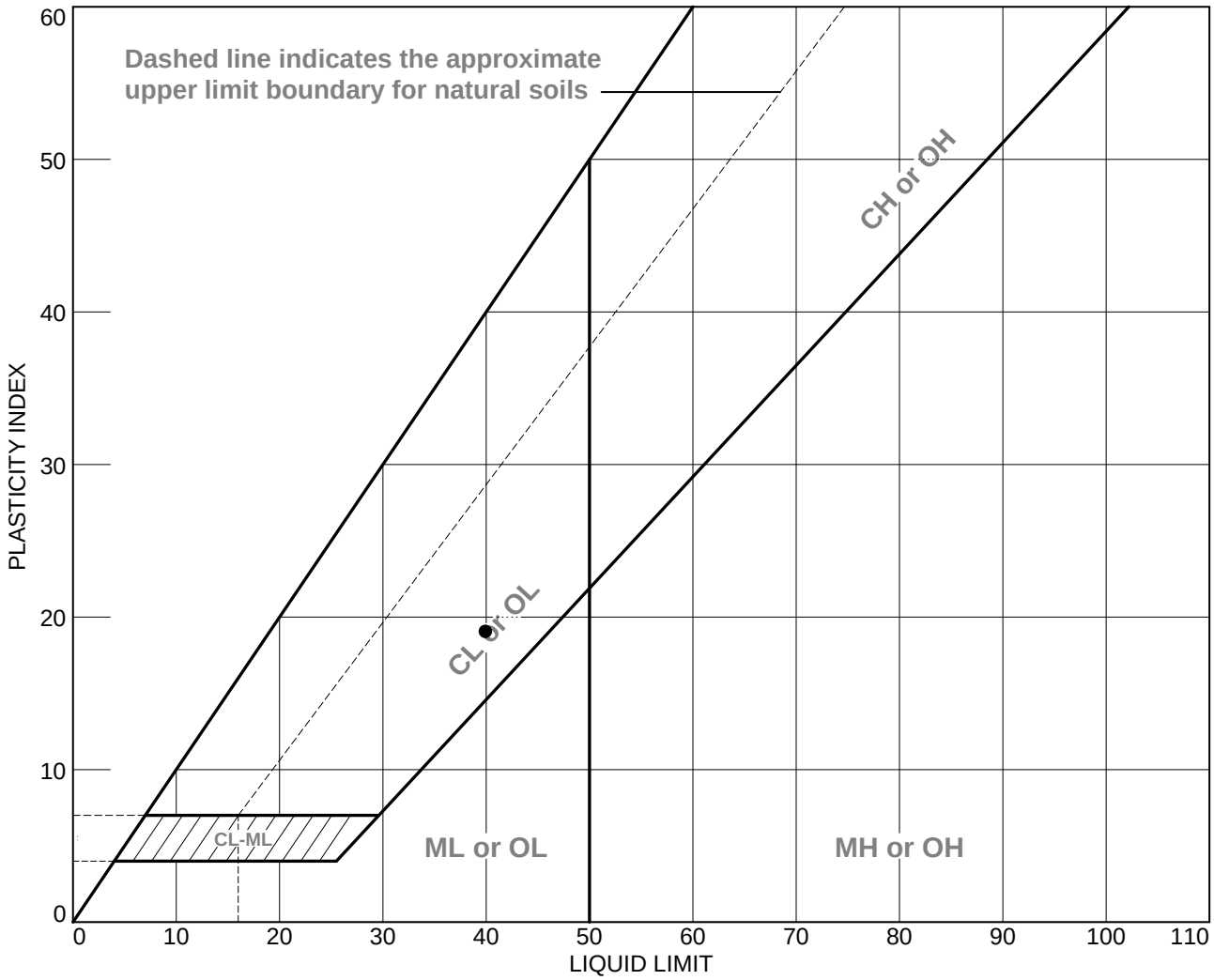


Liquid Limit= 35
Plastic Limit= 19
Plasticity Index= 16
Natural Moisture= 27.0
Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.27	17.66			
Dry+Tare	17.24	16.69			
Tare	11.85	11.45			
Moisture	19.1	18.5			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-02	S16	46-48 ft	40.5	21	40	19	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 5/29/24 **Checked By:** M. Alstede 5/30/24

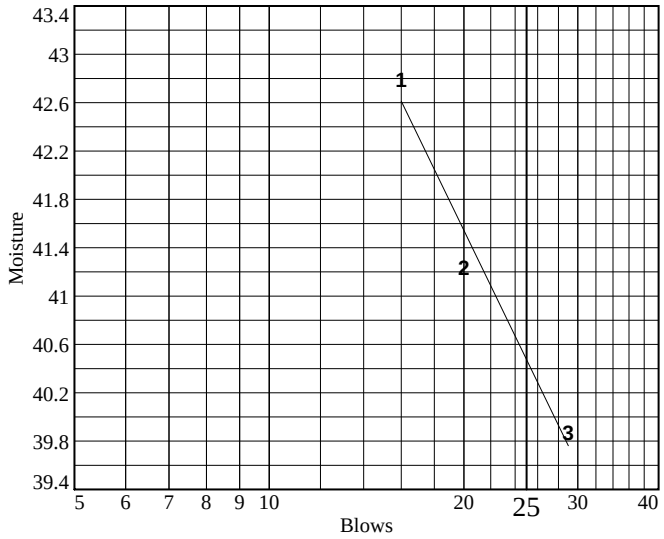
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-02
Depth: 46-48 ft **Sample Number:** S16
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 5/29/24 **Checked by:** M. Alstede 5/30/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	28.97	26.17	29.12			
Dry+Tare	23.71	21.86	24.06			
Tare	11.42	11.41	11.37			
# Blows	16	20	29			
Moisture	42.8	41.2	39.9			



Liquid Limit= 40
Plastic Limit= 21
Plasticity Index= 19
Natural Moisture= 40.5
Liquidity Index= 1.0

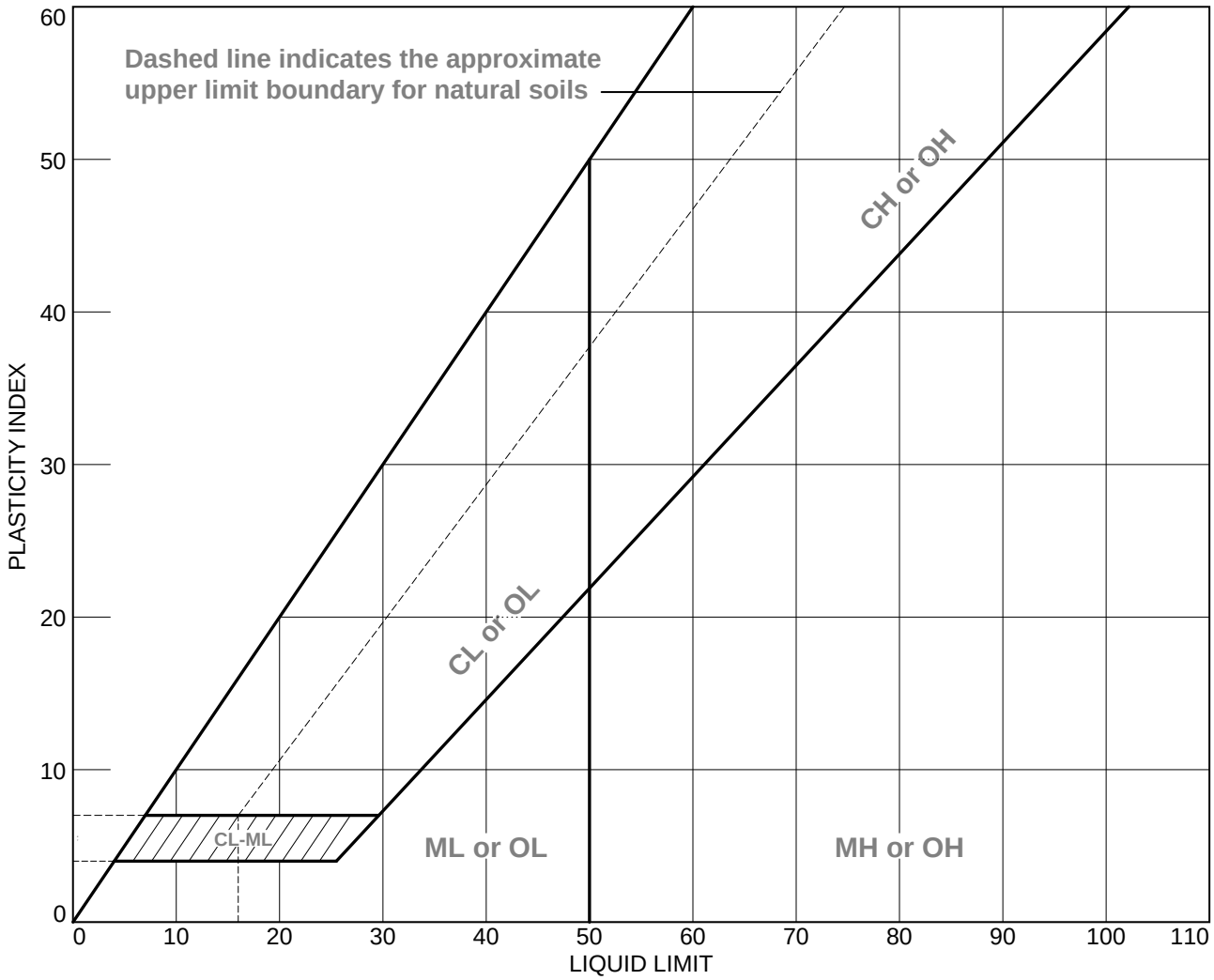
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.17	17.72			
Dry+Tare	17.08	16.61			
Tare	11.87	11.36			
Moisture	20.9	21.1			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
76.15	60.36	21.34	40.5

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-03	S3 (Oven Dry)	4-6 ft	114.5		48		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/13/24 **Checked By:** W. Lukas 6/13/24

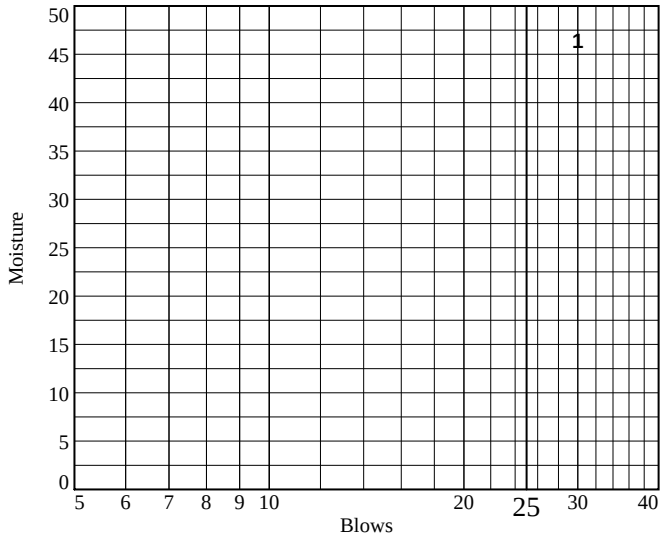
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 4-6 ft **Sample Number:** S3 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: M. Alstede 6/13/24 **Checked by:** W. Lukas 6/13/24

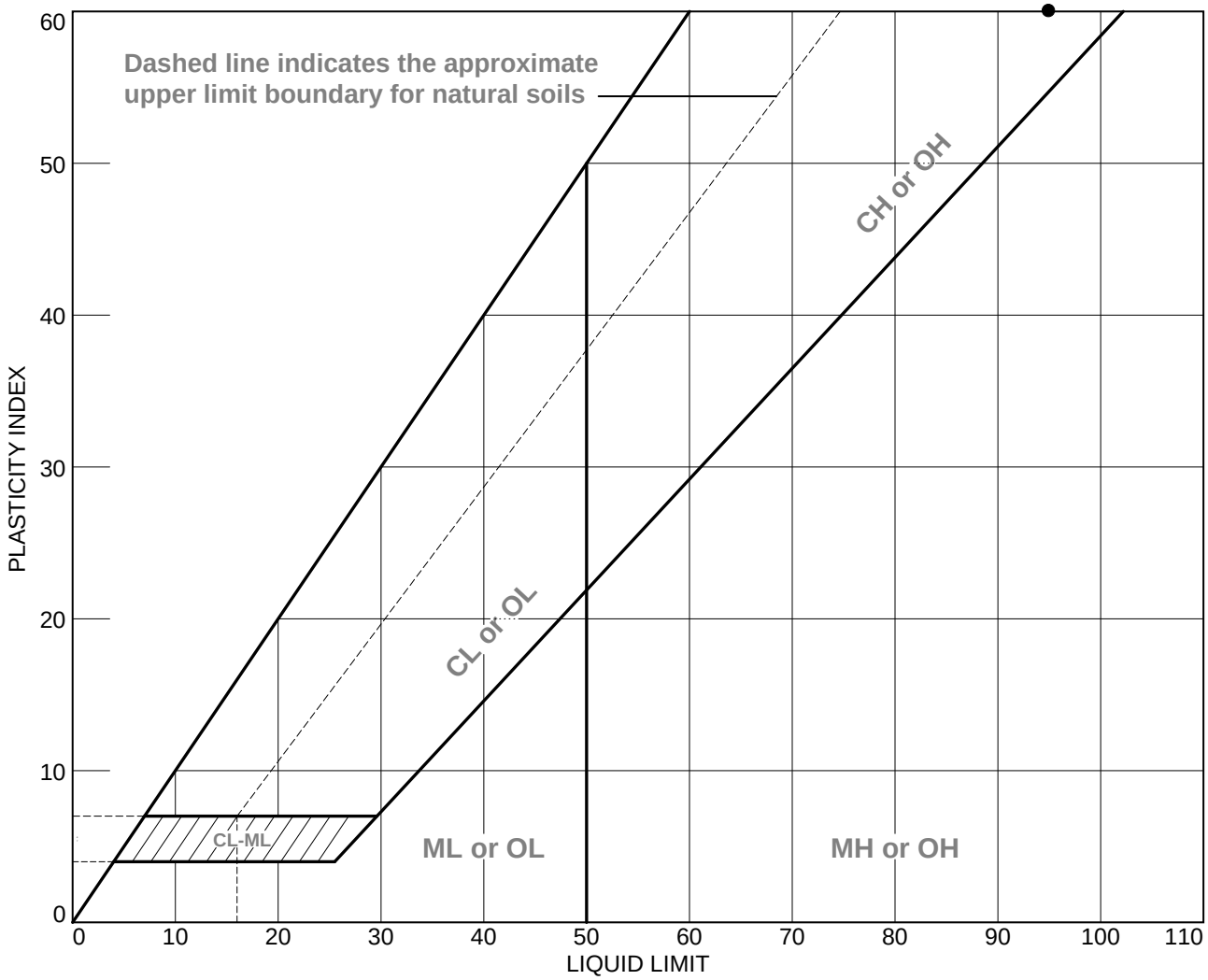
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.29					
Dry+Tare	21.55					
Tare	11.35					
# Blows	30					
Moisture	46.5					



Liquid Limit= 48
Plastic Limit=
Plasticity Index=
Natural Moisture= 114.5

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-03	S3	4-6 ft	114.5	35	95	60	OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/11/24 **Checked By:** W. Lukas 6/11/24

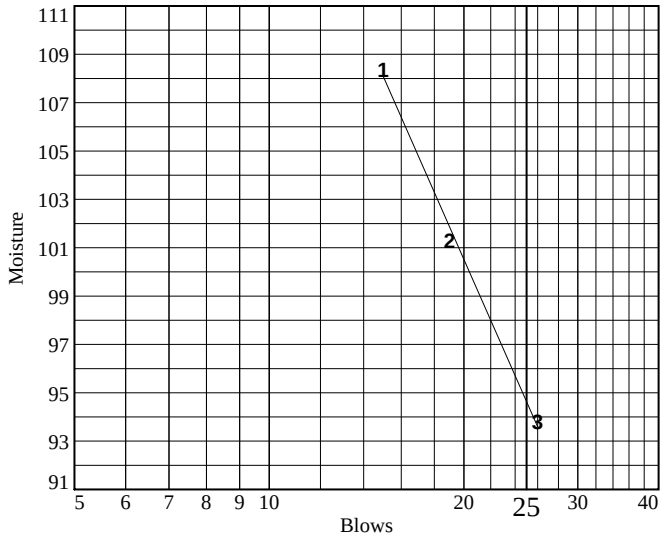
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 4-6 ft
Sample Number: S3
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(69)
Tested by: M. Alstede 6/11/24
Checked by: W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	21.56	28.96	41.02			
Dry+Tare	16.40	24.36	36.31			
Tare	11.64	19.82	31.29			
# Blows	15	19	26			
Moisture	108.4	101.3	93.8			

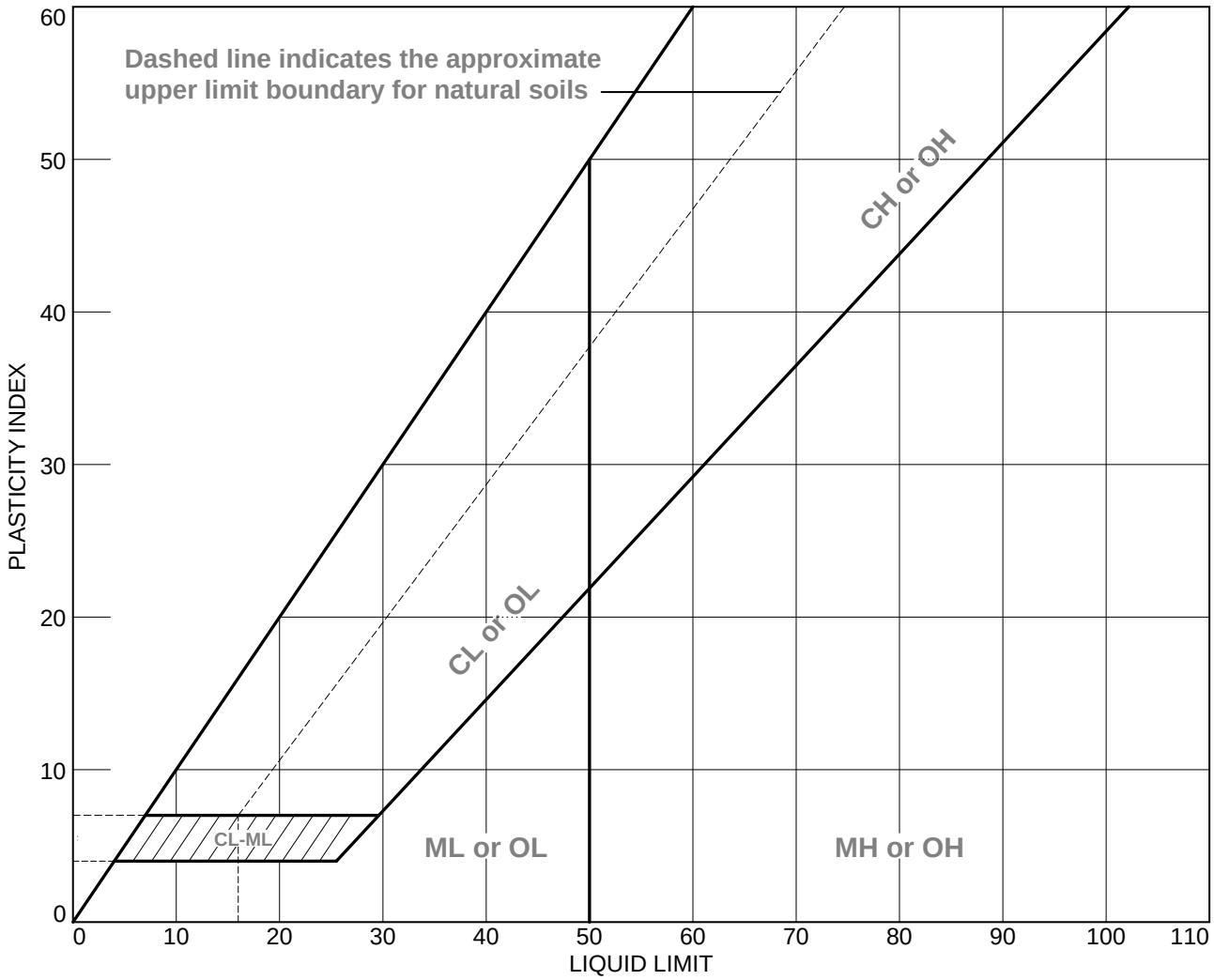


Liquid Limit= 95
Plastic Limit= 35
Plasticity Index= 60
Natural Moisture= 114.5
Liquidity Index= 1.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	13.32	17.44			
Dry+Tare	11.67	15.87			
Tare	6.81	11.41			
Moisture	34.0	35.2			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-03	S8 (Oven Dry)	14-16 ft			26		CL

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

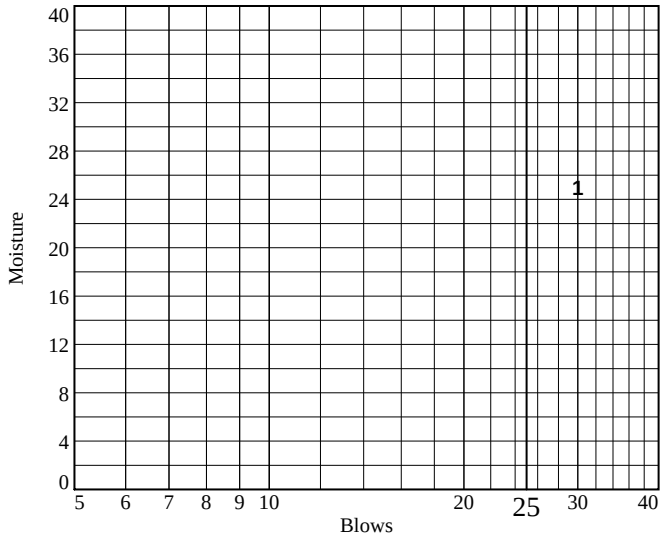
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 14-16 ft **Sample Number:** S8 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/10/24 **Checked by:** W. Lukas 6/11/24

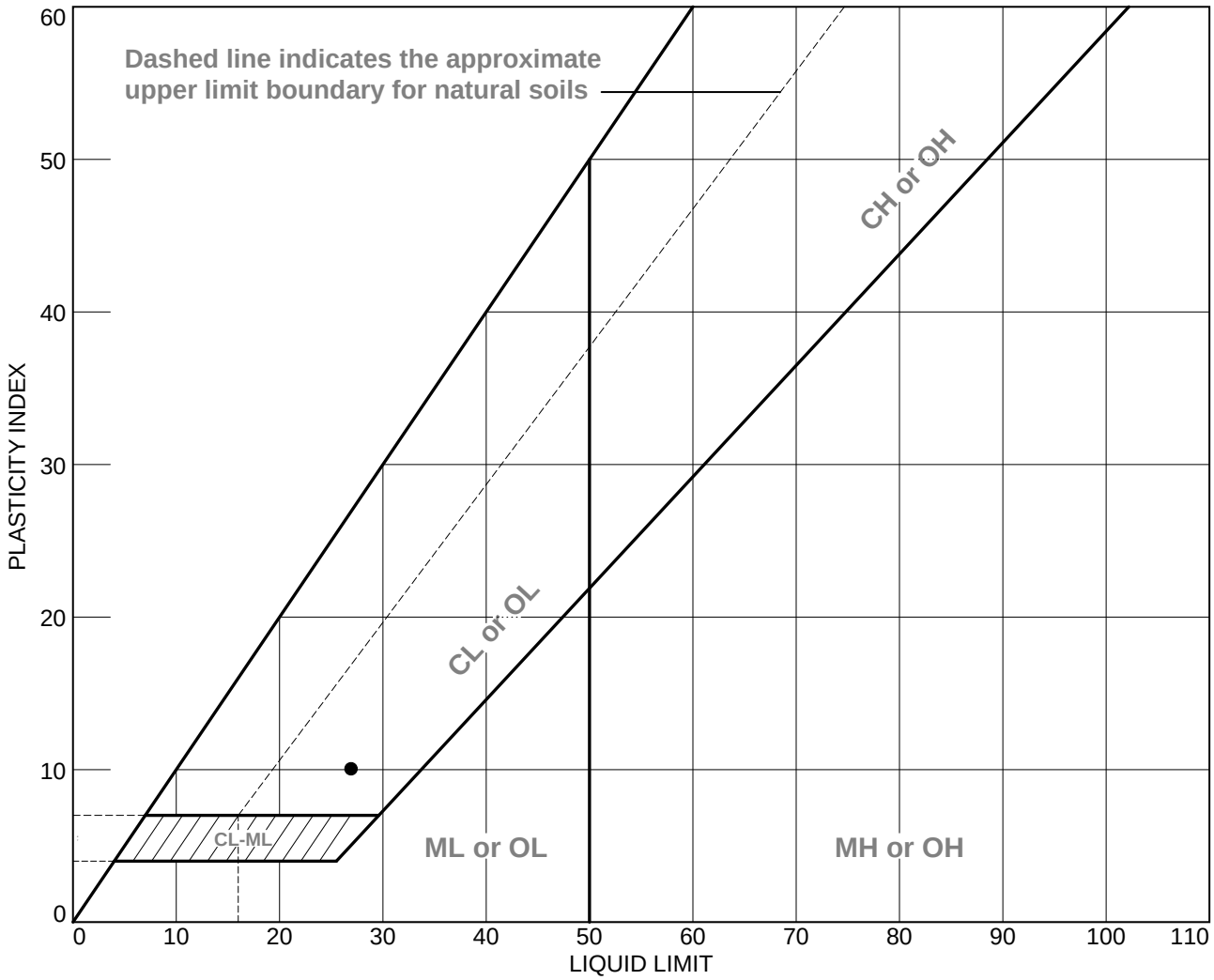
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.88					
Dry+Tare	20.58					
Tare	11.38					
# Blows	30					
Moisture	25.0					



Liquid Limit= 26
Plastic Limit=
Plasticity Index=

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-03	S8	14-16 ft	23.8	17	27	10	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/4/24 **Checked By:** W. Lukas 6/4/24

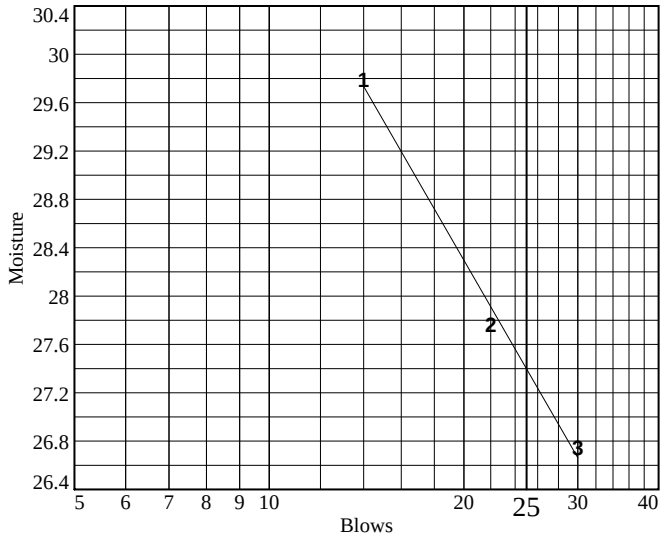
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 14-16 ft **Sample Number:** S8
Material Description: LEAN CLAY
USCS: CL
Tested by: M. Alstede 6/4/24 **Checked by:** W. Lukas 6/4/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	21.42	23.89	29.06			
Dry+Tare	18.11	20.53	25.35			
Tare	7.00	8.43	11.48			
# Blows	14	22	30			
Moisture	29.8	27.8	26.7			

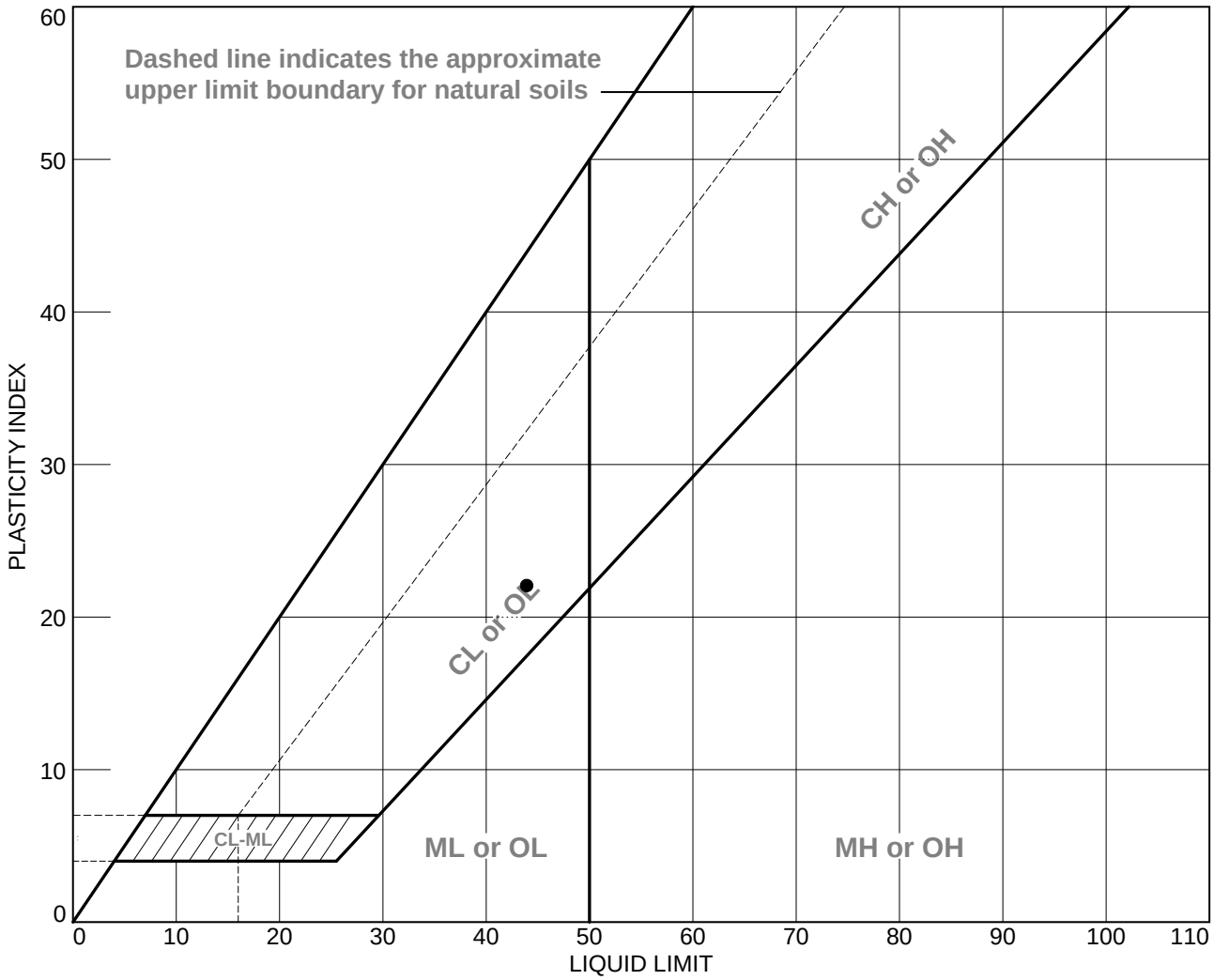


Liquid Limit= 27
Plastic Limit= 17
Plasticity Index= 10
Natural Moisture= 23.8
Liquidity Index= 0.7

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	28.91	28.57			
Dry+Tare	27.80	27.49			
Tare	21.46	21.27			
Moisture	17.5	17.4			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-03	S18	34-36 ft	42.3	22	44	22	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/5/24 **Checked By:** W. Lukas 6/5/24

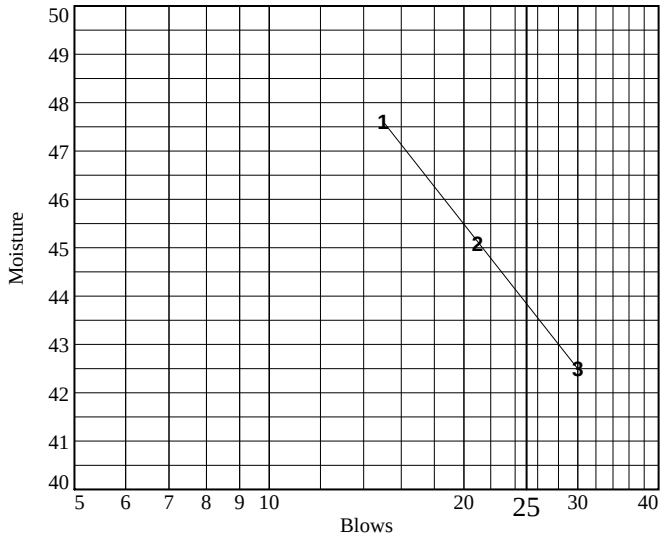
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-03
Depth: 34-36 ft **Sample Number:** S18
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/5/24 **Checked by:** W. Lukas 6/5/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.19	22.35	17.27			
Dry+Tare	19.39	18.94	14.15			
Tare	11.41	11.38	6.81			
# Blows	15	21	30			
Moisture	47.6	45.1	42.5			



Liquid Limit= 44
Plastic Limit= 22
Plasticity Index= 22
Natural Moisture= 42.3
Liquidity Index= 0.9

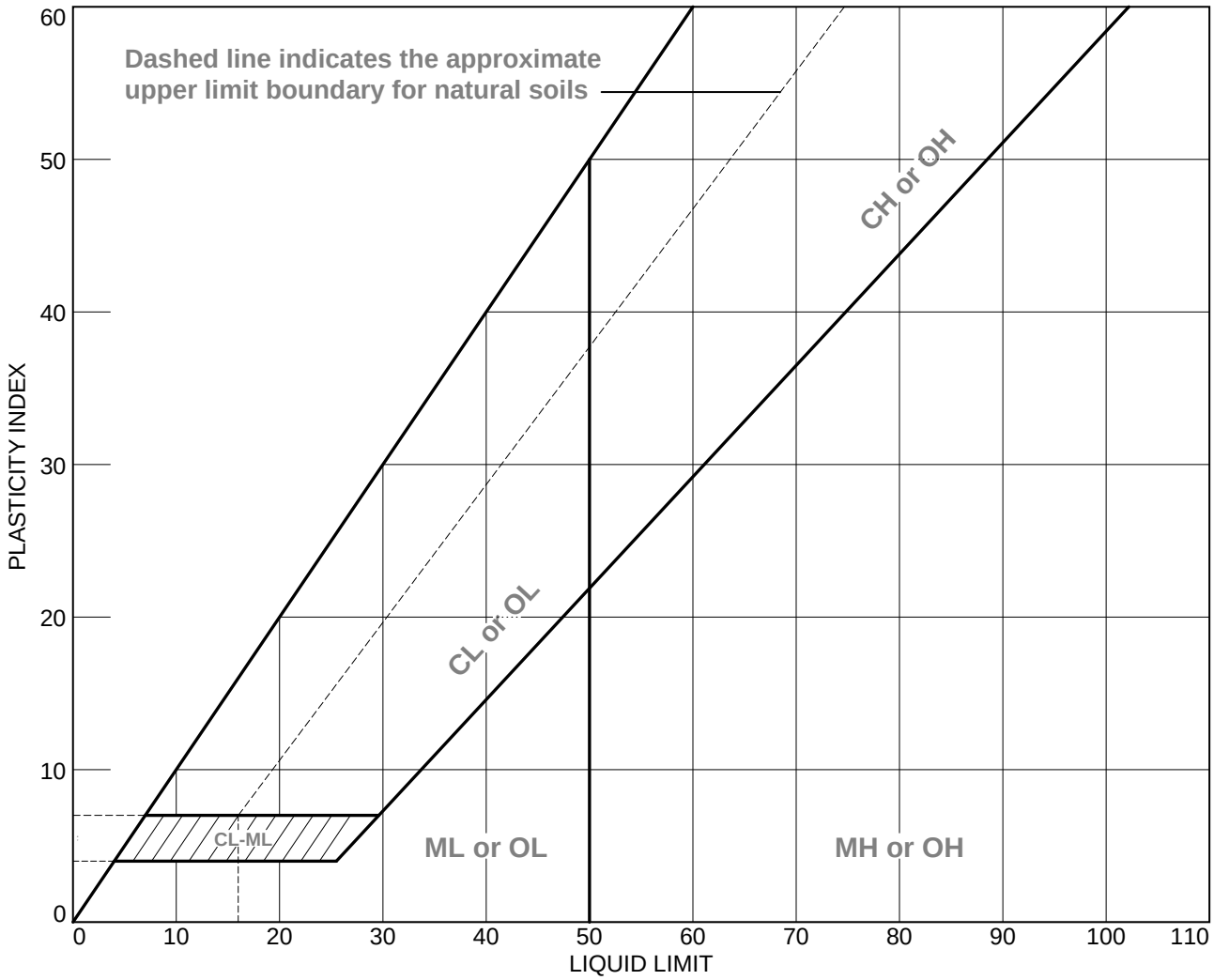
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.93	19.36			
Dry+Tare	16.77	17.94			
Tare	11.42	11.38			
Moisture	21.7	21.6			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
65.82	52.59	21.33	42.3

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-04	S2 (Oven Dry)	2-4 ft	110.5		53		OH

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/13/24 **Checked By:** W. Lukas 6/13/24

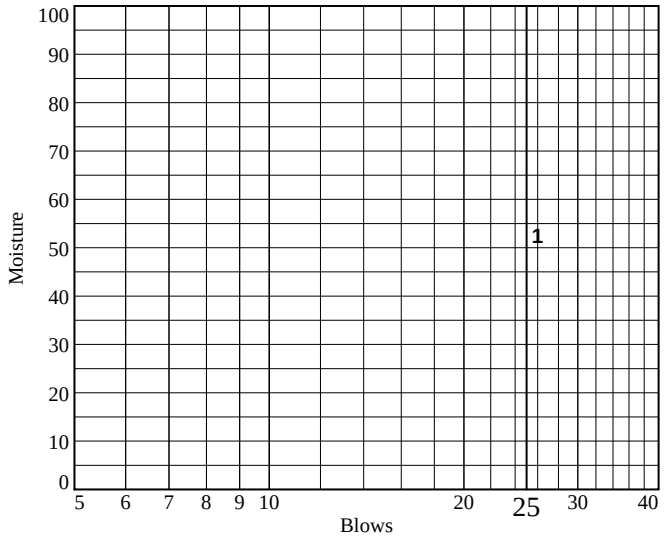
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-04
Depth: 2-4 ft **Sample Number:** S2 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: M. Alstede 6/13/24 **Checked by:** W. Lukas 6/13/24

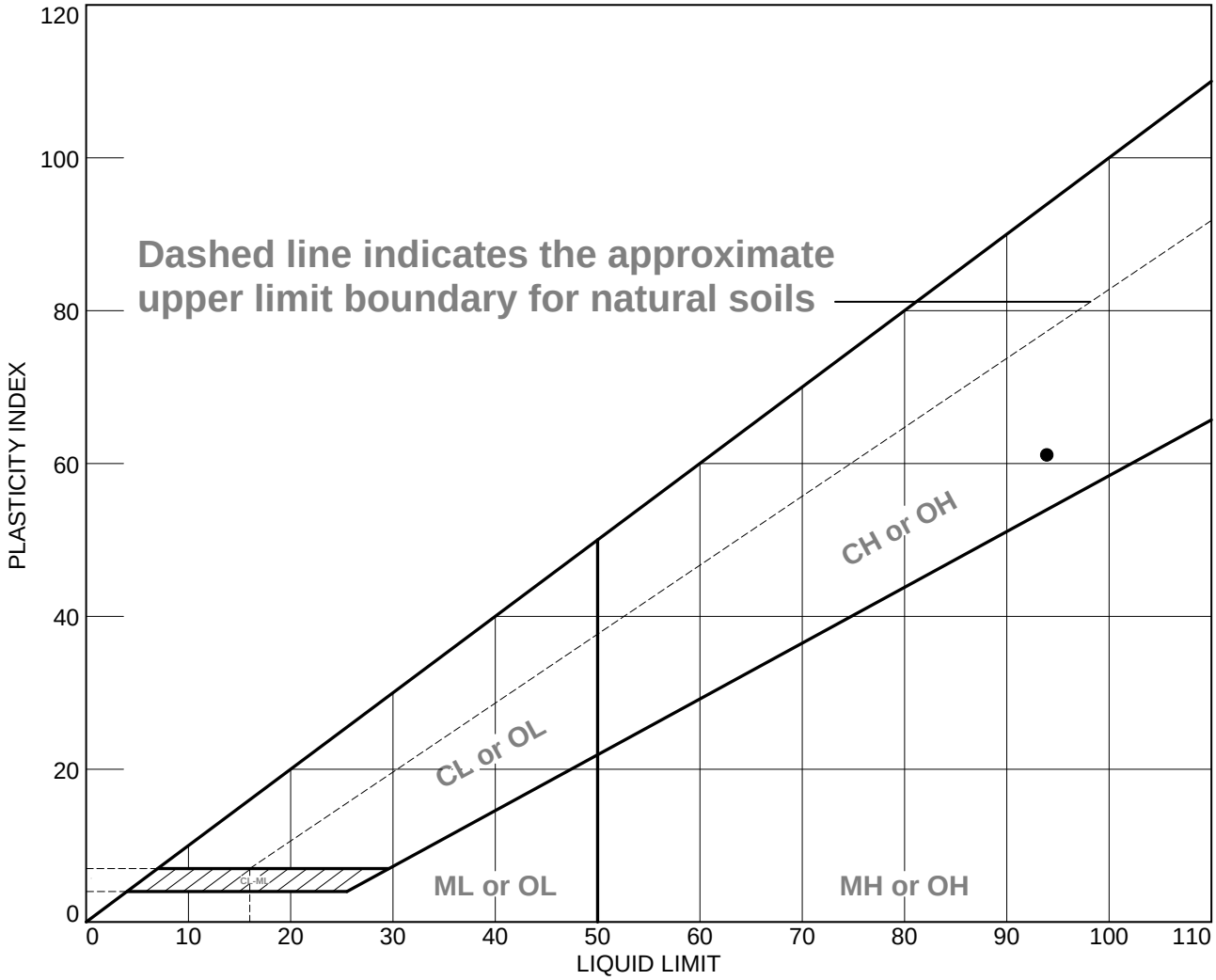
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.46					
Dry+Tare	21.25					
Tare	11.37					
# Blows	26					
Moisture	52.7					



Liquid Limit= 53
Plastic Limit=
Plasticity Index=
Natural Moisture= 110.5

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-04	S2	2-4 ft	110.5	33	94	61	OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/6/24 **Checked By:** W. Lukas 6/11/24

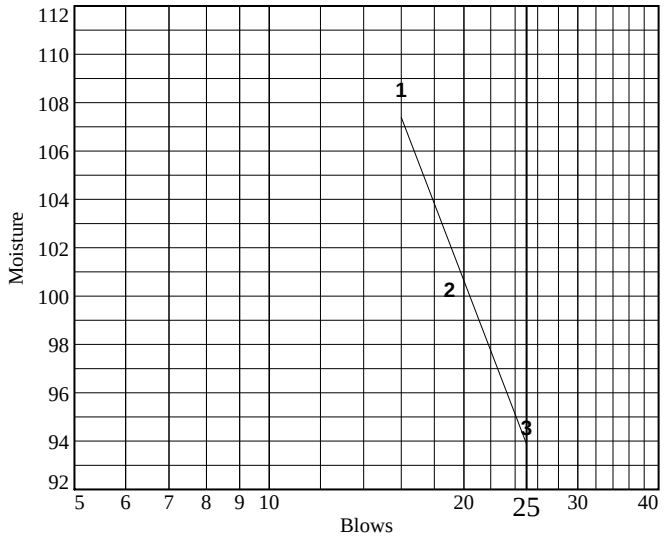
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-04
Depth: 2-4 ft **Sample Number:** S2
Material Description: ORGANIC SOIL
USCS: OH
Tested by: M. Alstede 6/6/24 **Checked by:** W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.61	34.24	34.25			
Dry+Tare	25.88	27.87	28.12			
Tare	19.68	21.52	21.64			
# Blows	16	19	25			
Moisture	108.5	100.3	94.6			

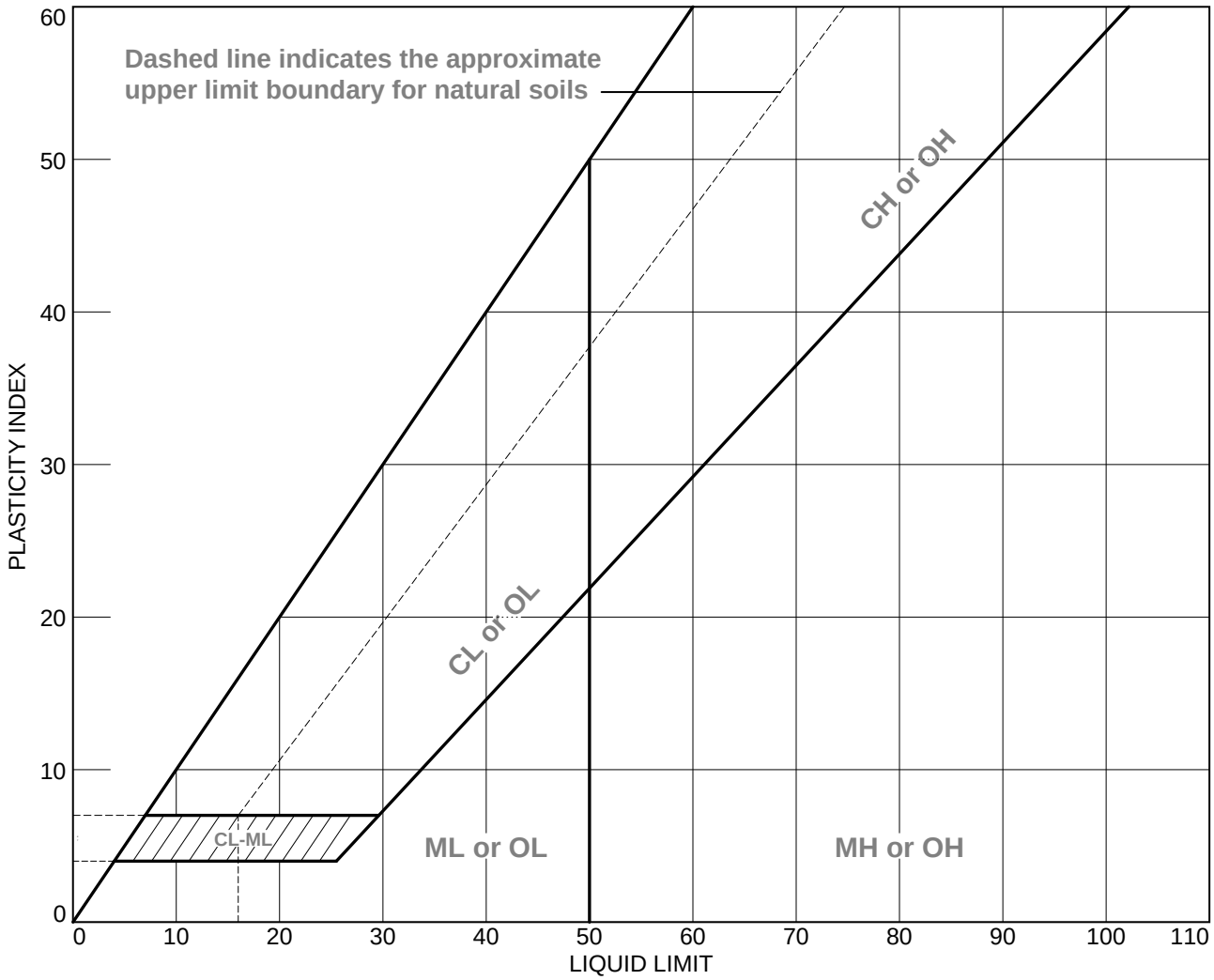


Liquid Limit= 94
Plastic Limit= 33
Plasticity Index= 61
Natural Moisture= 110.5
Liquidity Index= 1.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.20	12.97			
Dry+Tare	16.54	11.43			
Tare	11.41	6.82			
Moisture	32.4	33.4			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S6 (Oven Dry)	10-12 ft			43		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/10/24 **Checked By:** W. Lukas 6/11/24

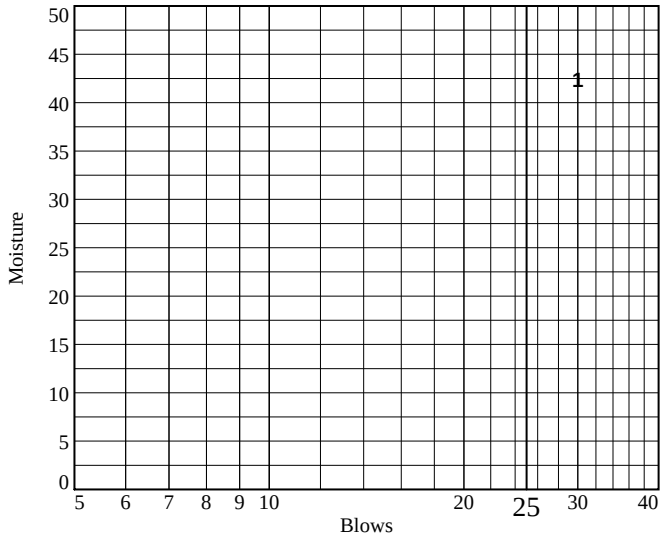
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 10-12 ft **Sample Number:** S6 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/10/24 **Checked by:** W. Lukas 6/11/24

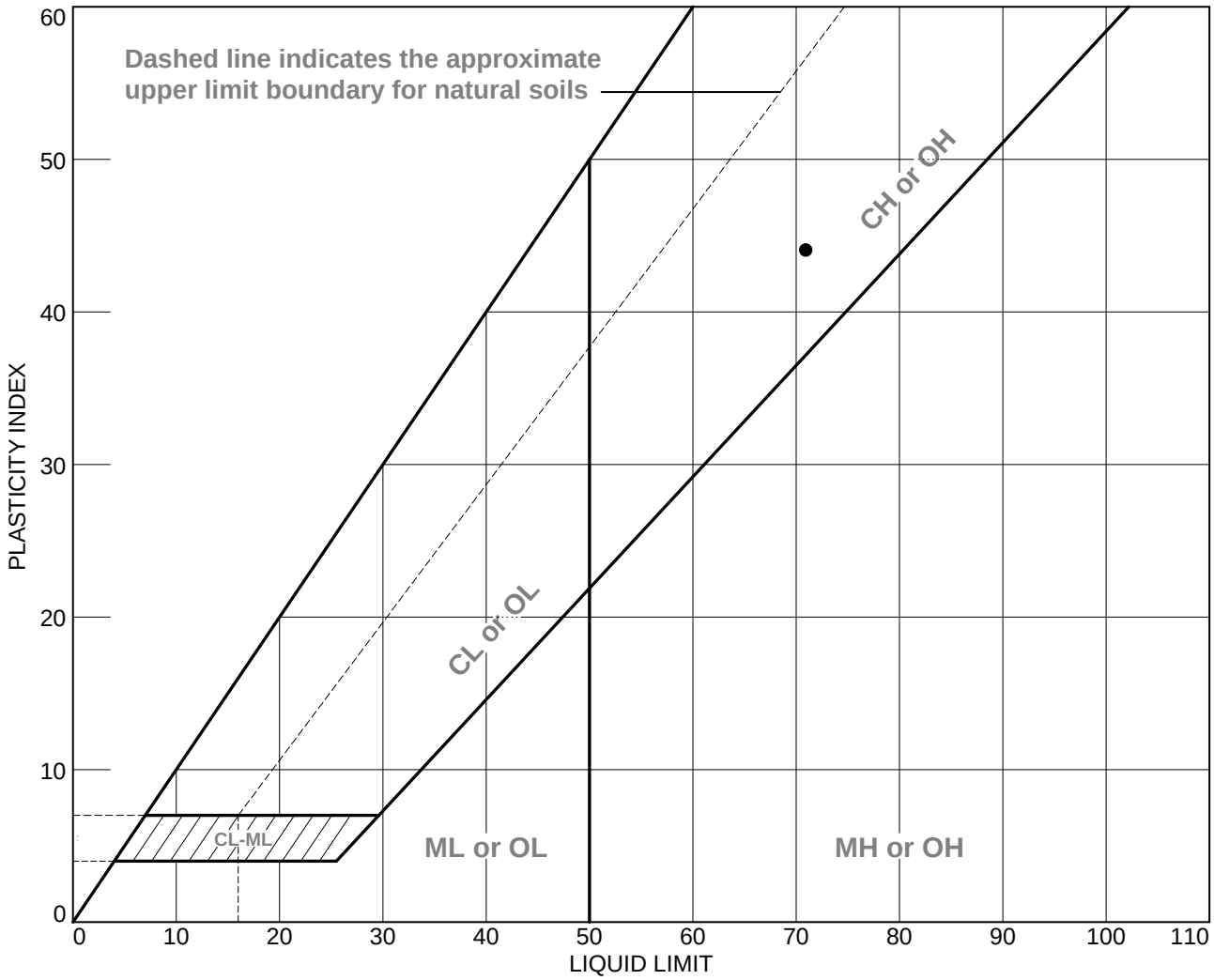
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.02					
Dry+Tare	19.71					
Tare	11.92					
# Blows	30					
Moisture	42.5					



Liquid Limit= 43
Plastic Limit= _____
Plasticity Index= _____

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S6	10-12 ft	82.2	27	71	44	OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/5/24 **Checked By:** W. Lukas 6/11/24

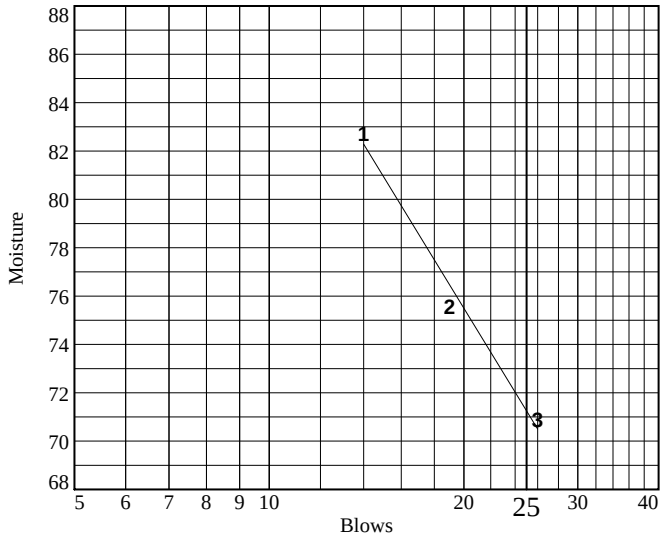
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 10-12 ft
Sample Number: S6
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-6(48)
Tested by: M. Alstede 6/5/24
Checked by: W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.04	31.95	34.02			
Dry+Tare	27.77	26.78	28.87			
Tare	21.40	19.94	21.61			
# Blows	14	19	26			
Moisture	82.7	75.6	70.9			

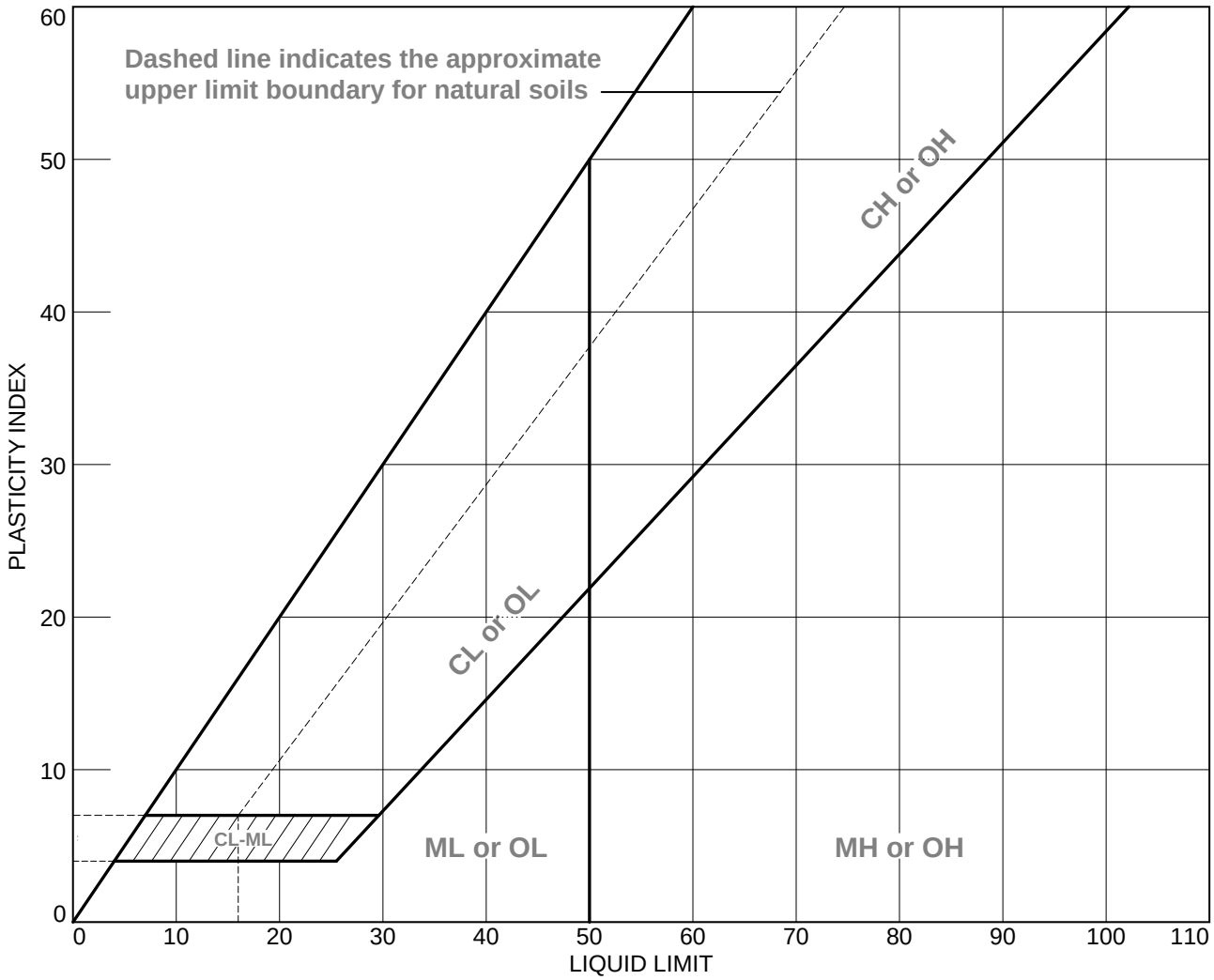


Liquid Limit= 71
Plastic Limit= 27
Plasticity Index= 44
Natural Moisture= 82.2
Liquidity Index= 1.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.24	27.79			
Dry+Tare	16.90	26.07			
Tare	11.98	19.87			
Moisture	27.2	27.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S17 (Oven Dry)	32-34 ft	28.1		32		CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/13/24 **Checked By:** W. Lukas 6/13/24

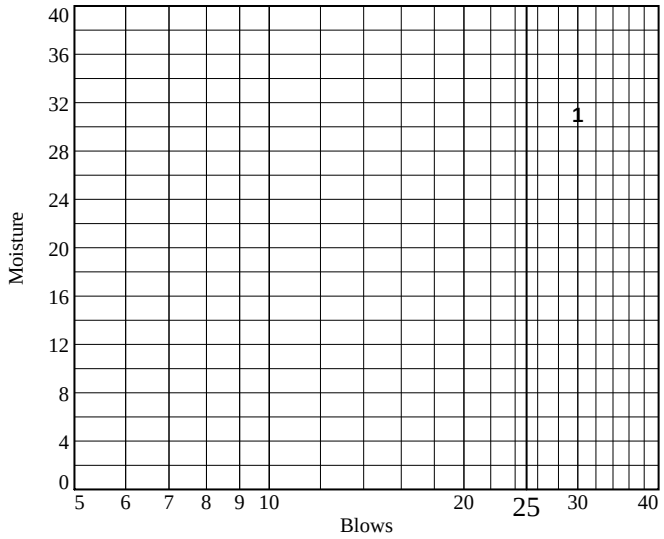
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 32-34 ft **Sample Number:** S17 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: M. Alstede 6/13/24 **Checked by:** W. Lukas 6/13/24

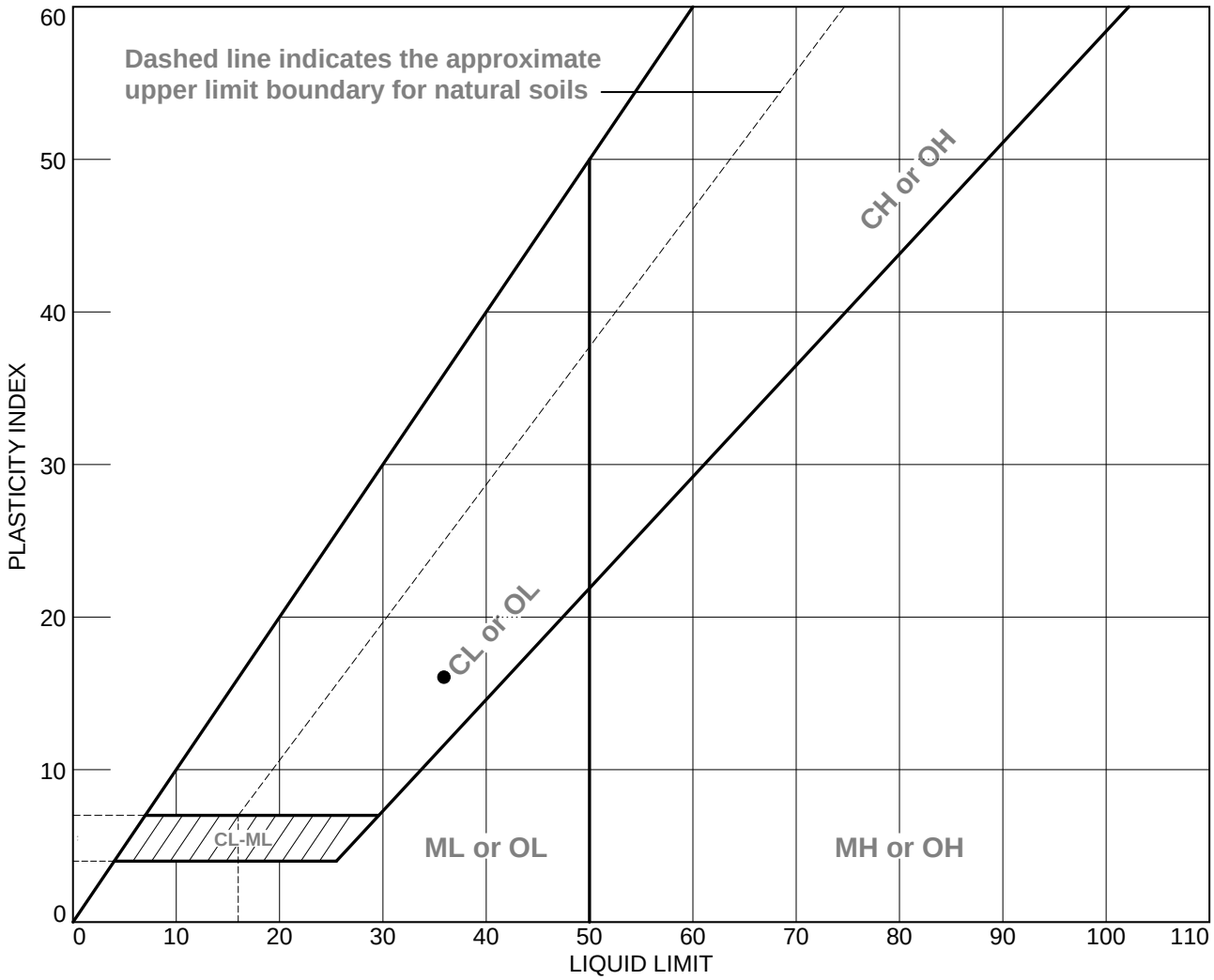
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	26.20					
Dry+Tare	22.7					
Tare	11.43					
# Blows	30					
Moisture	31.1					



Liquid Limit= 32
Plastic Limit=
Plasticity Index=
Natural Moisture= 28.1

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S17	32-34 ft	28.1	20	36	16	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/5/24 **Checked By:** W. Lukas 6/5/24

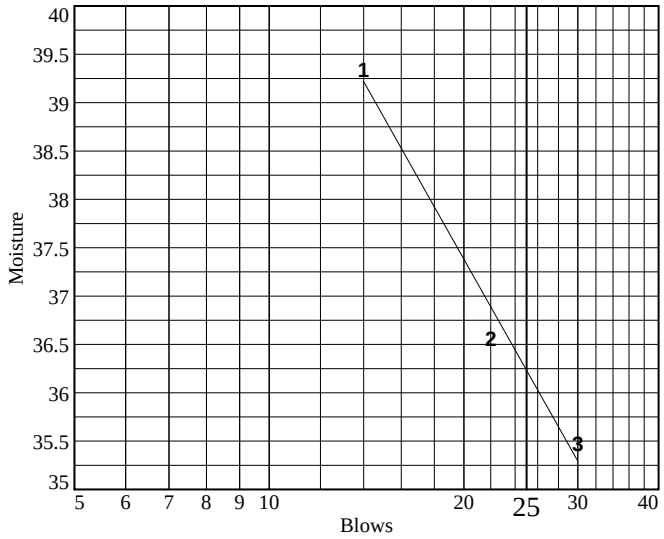
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 32-34 ft **Sample Number:** S17
Material Description: LEAN CLAY
USCS: CL **AASHTO:** A-6(17)
Tested by: M. Alstede 6/5/24 **Checked by:** W. Lukas 6/5/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.88	26.97	24.43			
Dry+Tare	21.78	22.79	21.13			
Tare	11.36	11.36	11.83			
# Blows	14	22	30			
Moisture	39.3	36.6	35.5			

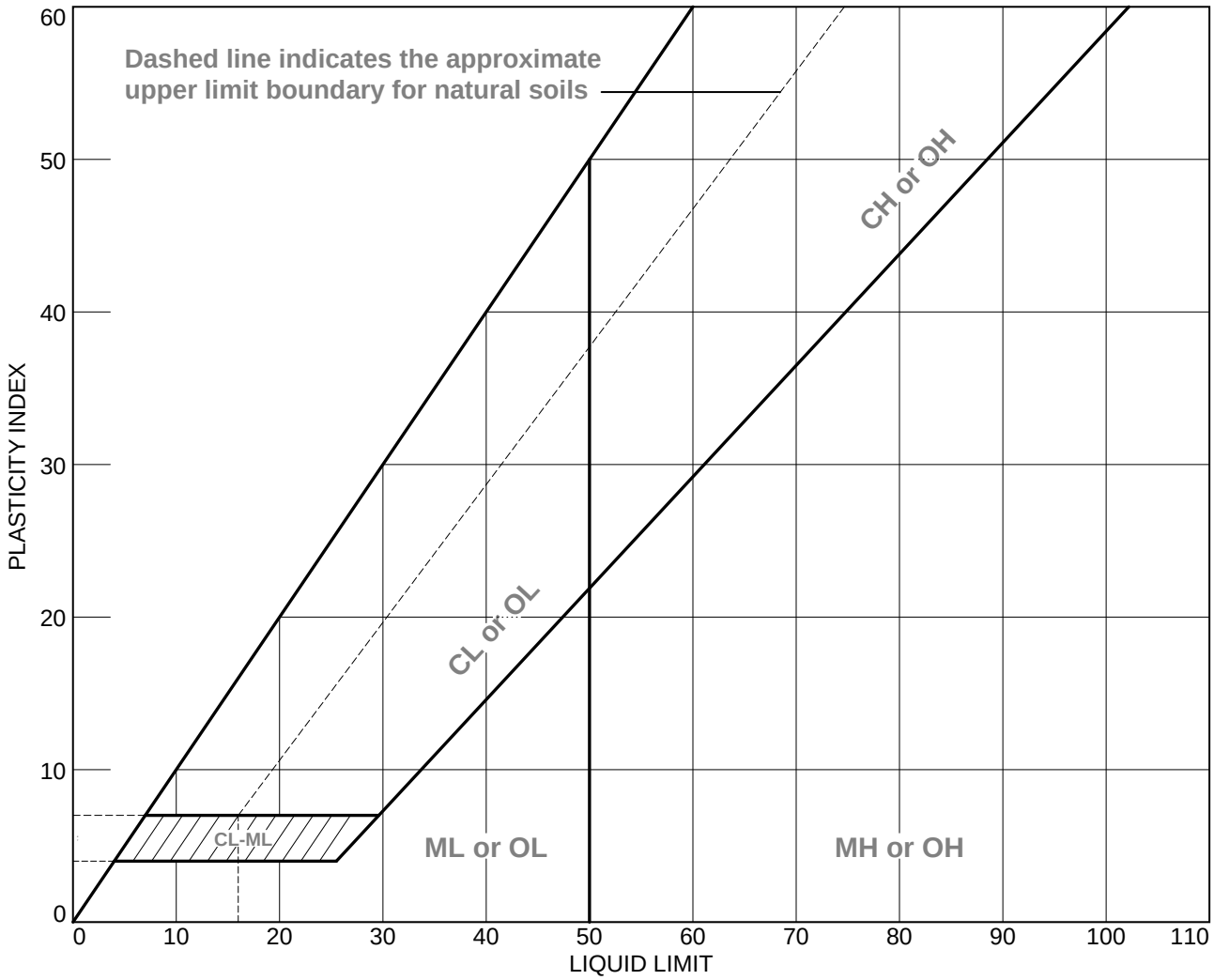


Liquid Limit= 36
Plastic Limit= 20
Plasticity Index= 16
Natural Moisture= 28.1
Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	18.53	19.25			
Dry+Tare	17.32	18.03			
Tare	11.36	11.87			
Moisture	20.3	19.8			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S22 (Oven Dry)	S22	39.6		41		CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/14/24 **Checked By:** W. Lukas 6/17/24

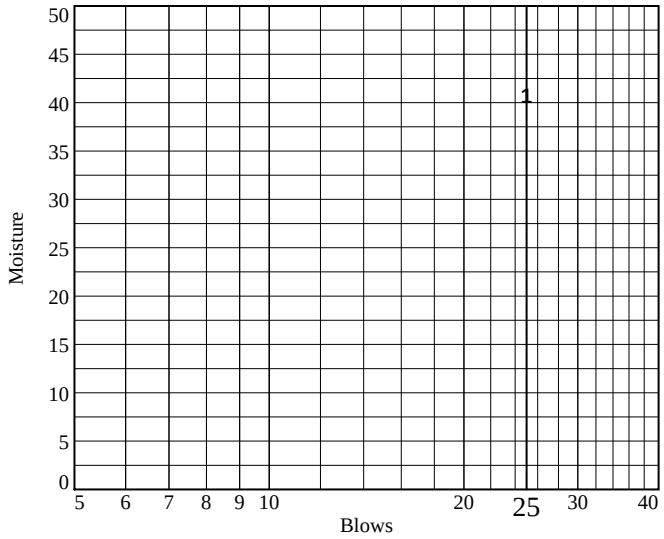
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: S22 **Sample Number:** S22 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/14/24 **Checked by:** W. Lukas 6/17/24

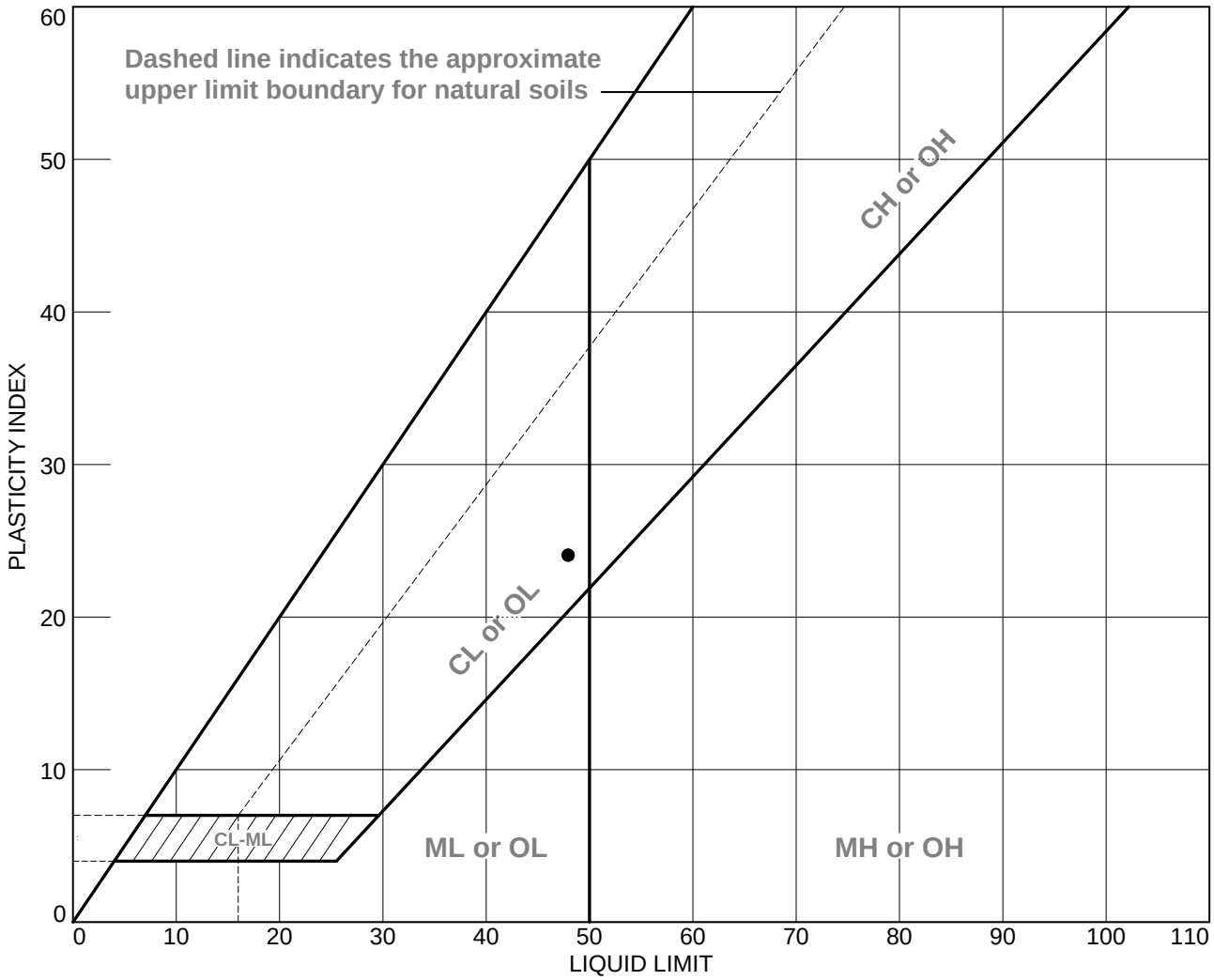
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.41					
Dry+Tare	20.61					
Tare	11.30					
# Blows	25					
Moisture	40.8					



Liquid Limit= 41
Plastic Limit=
Plasticity Index=
Natural Moisture= 39.6

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-05	S22	42-44 ft	39.6	24	48	24	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/11/24 **Checked By:** W. Lukas 6/11/24

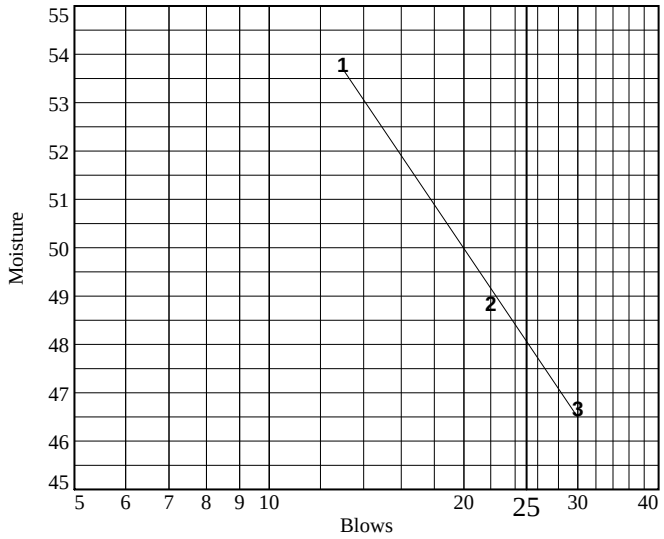
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-05
Depth: 42-44 ft
Sample Number: S22
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-7-6(27)
Tested by: M. Alstede 6/11/24
Checked by: W. Lukas 6/11/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	31.88	45.81	47.23			
Dry+Tare	27.00	41.07	42.03			
Tare	17.93	31.37	30.89			
# Blows	13	22	30			
Moisture	53.8	48.9	46.7			

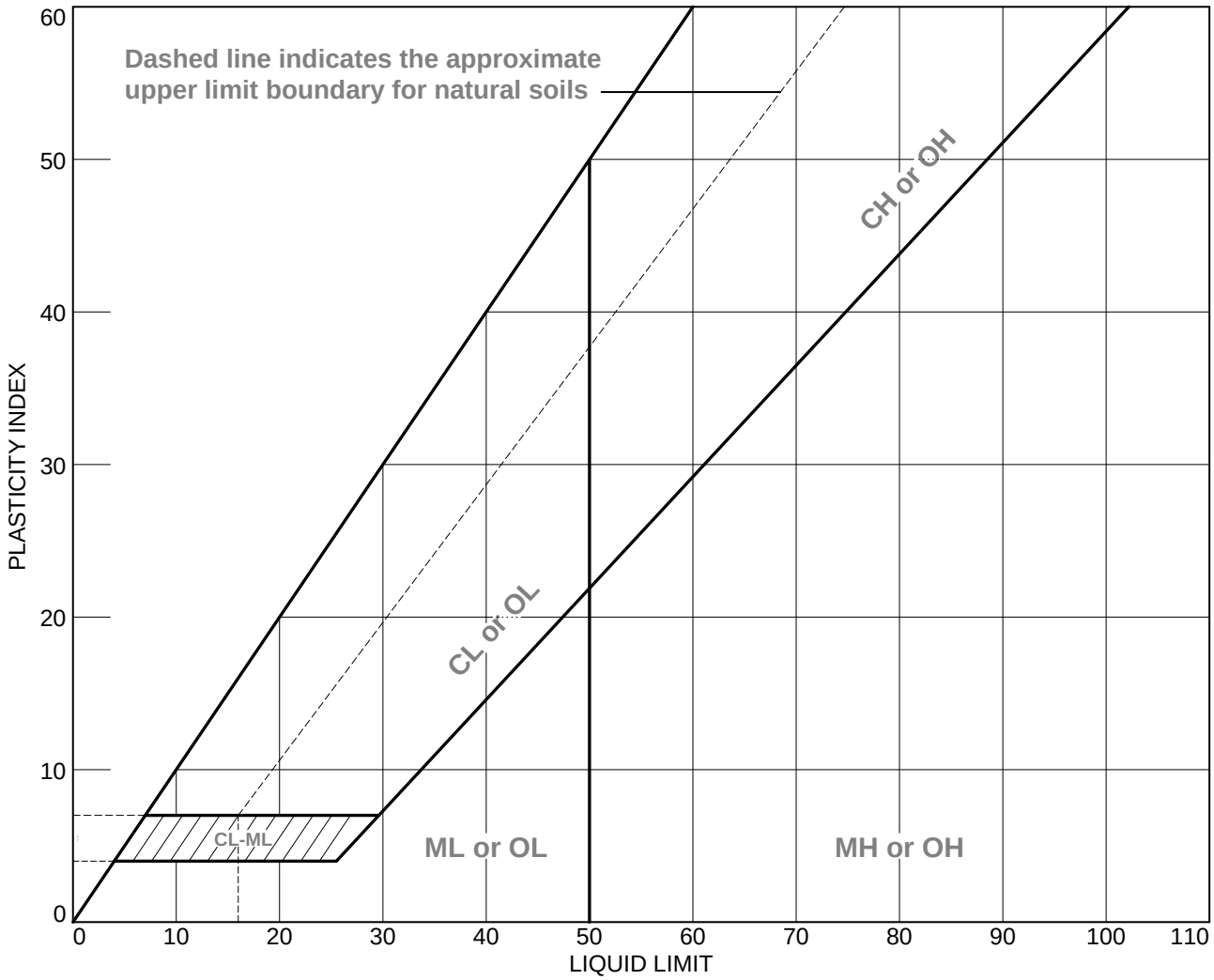


Liquid Limit= 48
Plastic Limit= 24
Plasticity Index= 24
Natural Moisture= 39.6
Liquidity Index= 0.7

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.63	19.55			
Dry+Tare	16.42	18.10			
Tare	11.30	11.97			
Moisture	23.6	23.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-06	S6 (Oven Dry)	10-12 ft	82.2		45		OH

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/27/24 **Checked By:** M. Alstede 6/27/24

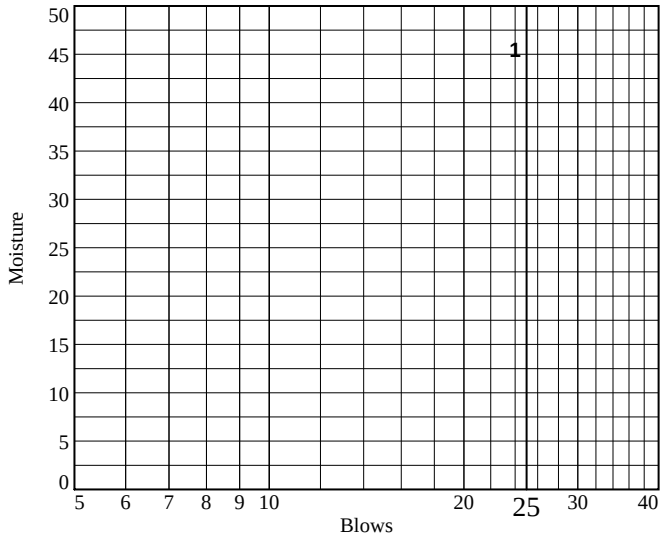
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 10-12 ft
Sample Number: S6 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: B. Nourai 6/27/24
Checked by: M. Alstede 6/27/24

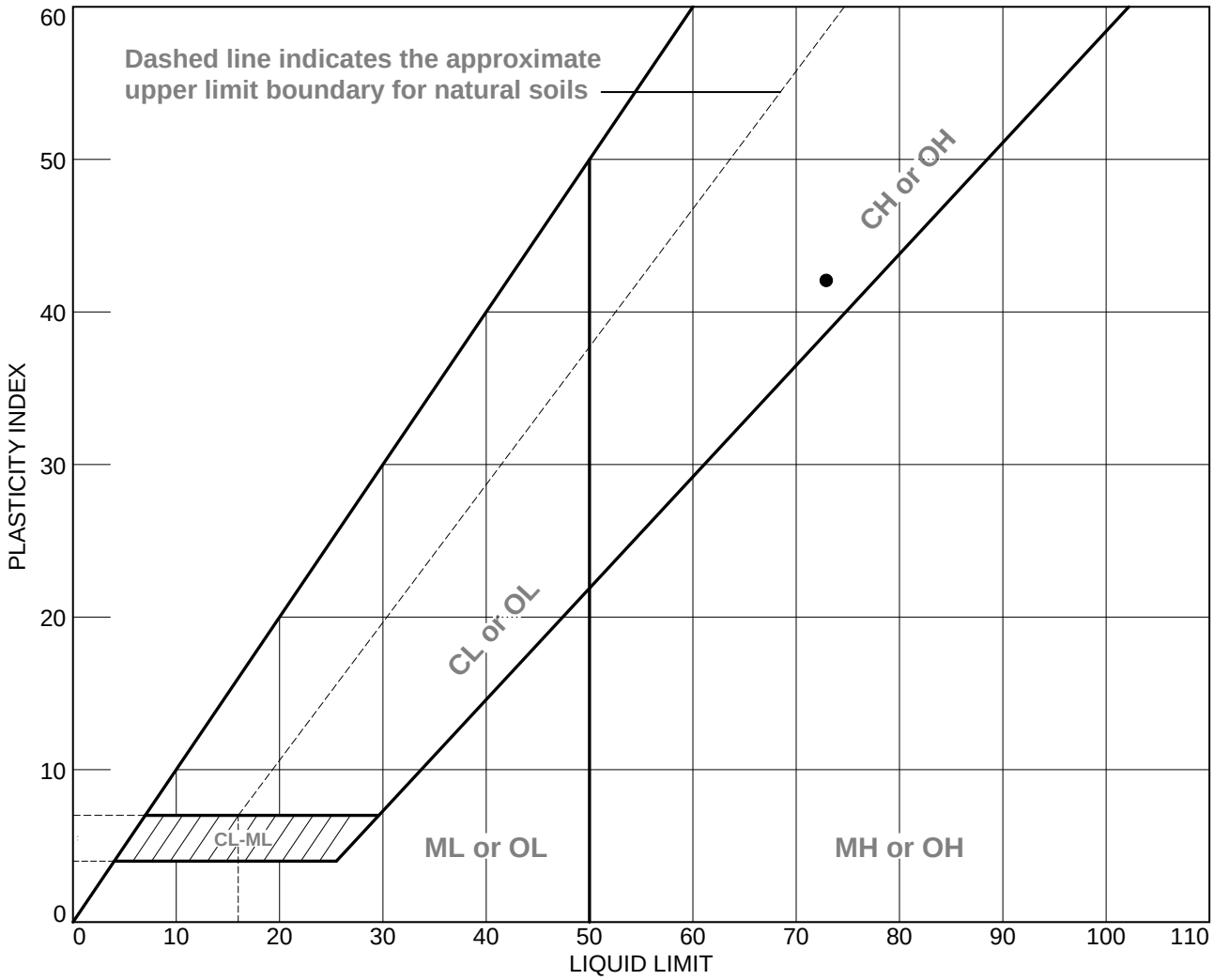
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.11					
Dry+Tare	20.13					
Tare	11.39					
# Blows	24					
Moisture	45.5					



Liquid Limit= 45
Plastic Limit=
Plasticity Index=
Natural Moisture= 82.2

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-06	S6	10-12 ft	82.2	31	73	42	OH

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/24/24 **Checked By:** M. Alstede 6/25/24

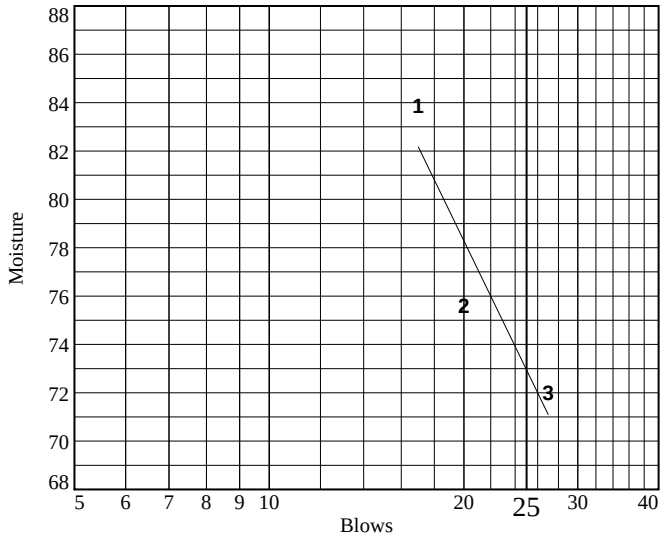
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 10-12 ft **Sample Number:** S6
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/24/24 **Checked by:** M. Alstede 6/25/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.07	23.38	33.73			
Dry+Tare	18.29	18.23	27.96			
Tare	11.40	11.42	19.95			
# Blows	17	20	27			
Moisture	83.9	75.6	72.0			

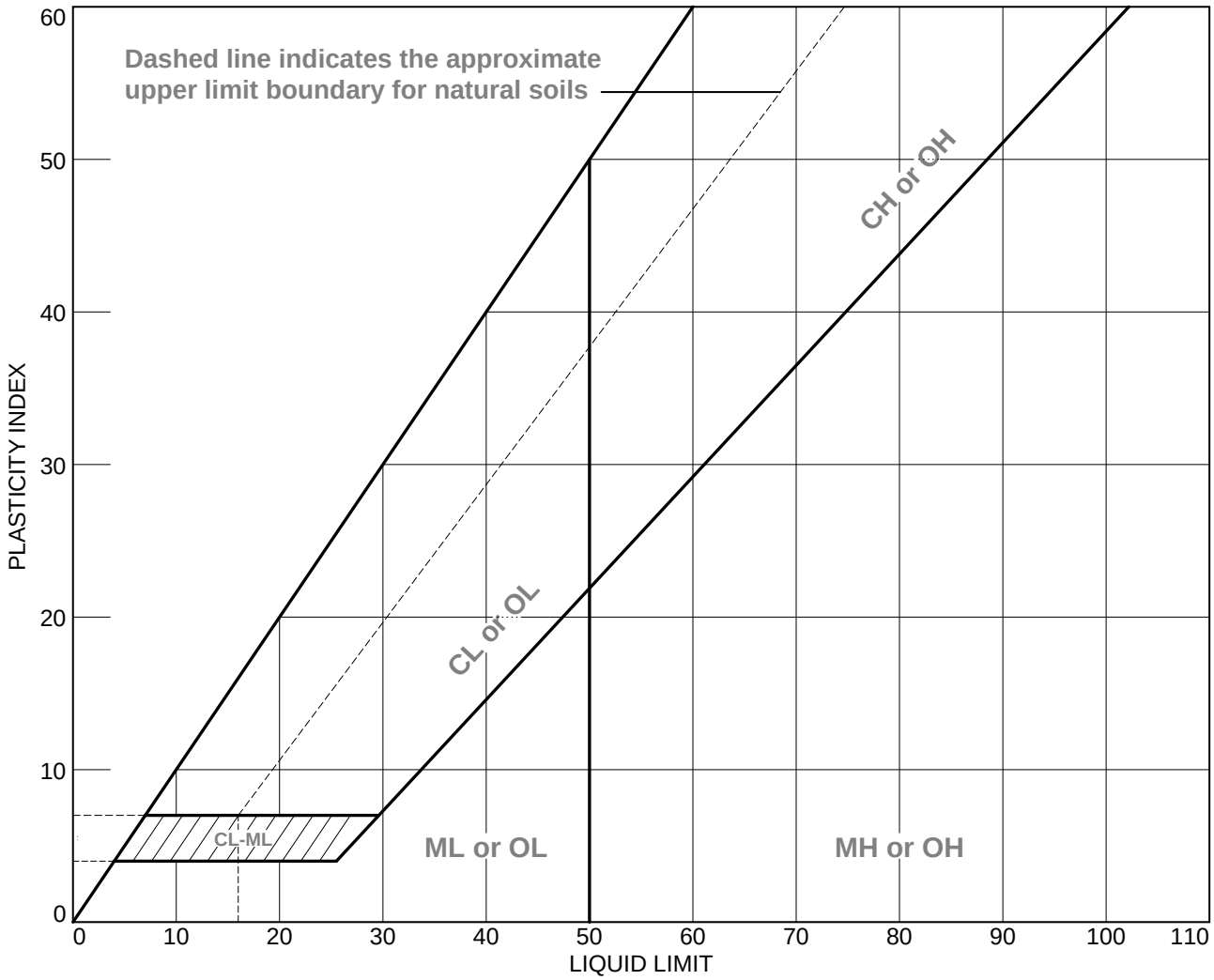


Liquid Limit= 73
Plastic Limit= 31
Plasticity Index= 42
Natural Moisture= 82.2
Liquidity Index= 1.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.64	26.11			
Dry+Tare	26.15	24.62			
Tare	21.39	19.77			
Moisture	31.3	30.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-06	S11 (Oven Dry)	20-22 ft	40.0		22		OL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/27/24 **Checked By:** M. Alstede 6/27/24

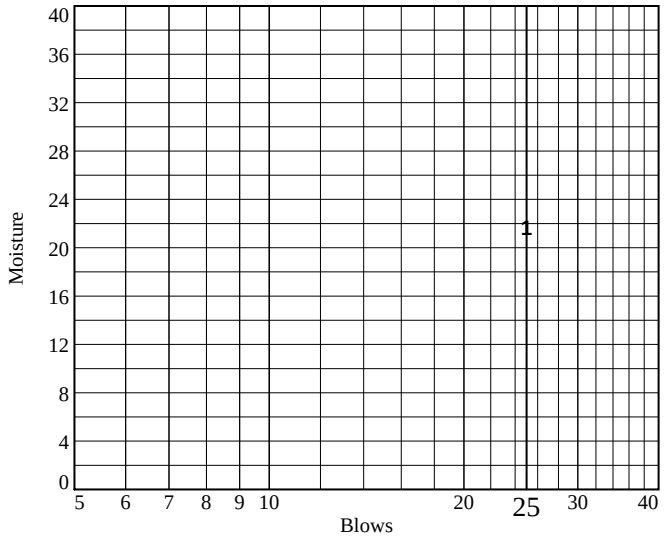
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 20-22 ft **Sample Number:** S11 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OL
Tested by: B. Nourai 6/27/24 **Checked by:** M. Alstede 6/27/24

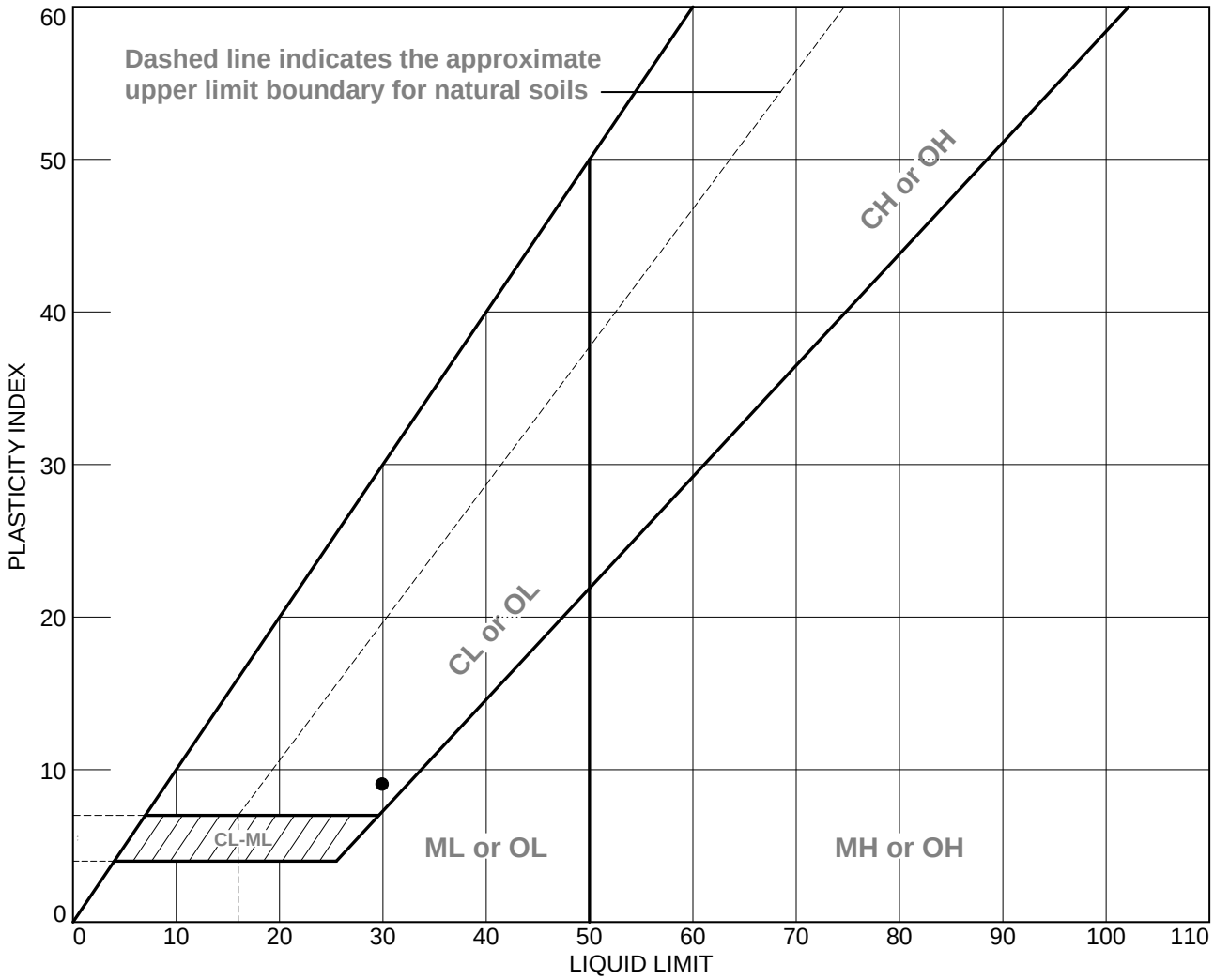
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.53					
Dry+Tare	21.42					
Tare	11.71					
# Blows	25					
Moisture	21.7					



Liquid Limit= 22
Plastic Limit=
Plasticity Index=
Natural Moisture= 40.0

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-06	S11	20-22 ft	40.0	21	30	9	OL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/24/24 **Checked By:** M. Alstede 6/25/24

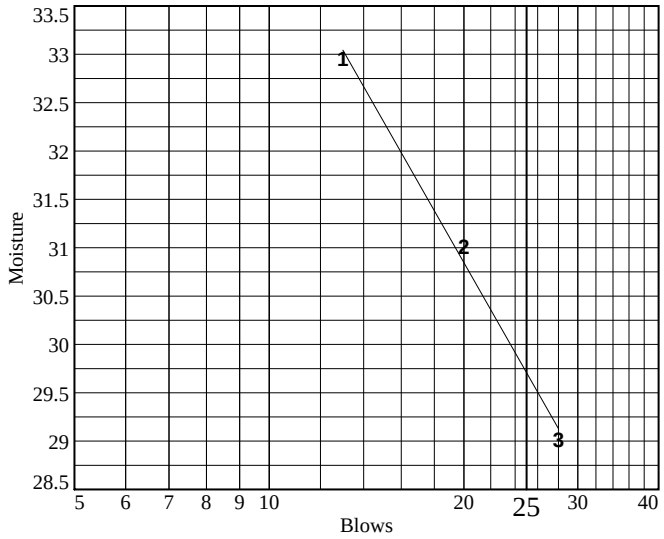
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-06
Depth: 20-22 ft **Sample Number:** S11
Material Description: ORGANIC SOIL
USCS: OL
Tested by: B. Nourai 6/24/24 **Checked by:** M. Alstede 6/25/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.22	24.00	18.49			
Dry+Tare	19.54	21.09	15.86			
Tare	11.41	11.71	6.80			
# Blows	13	20	28			
Moisture	33.0	31.0	29.0			

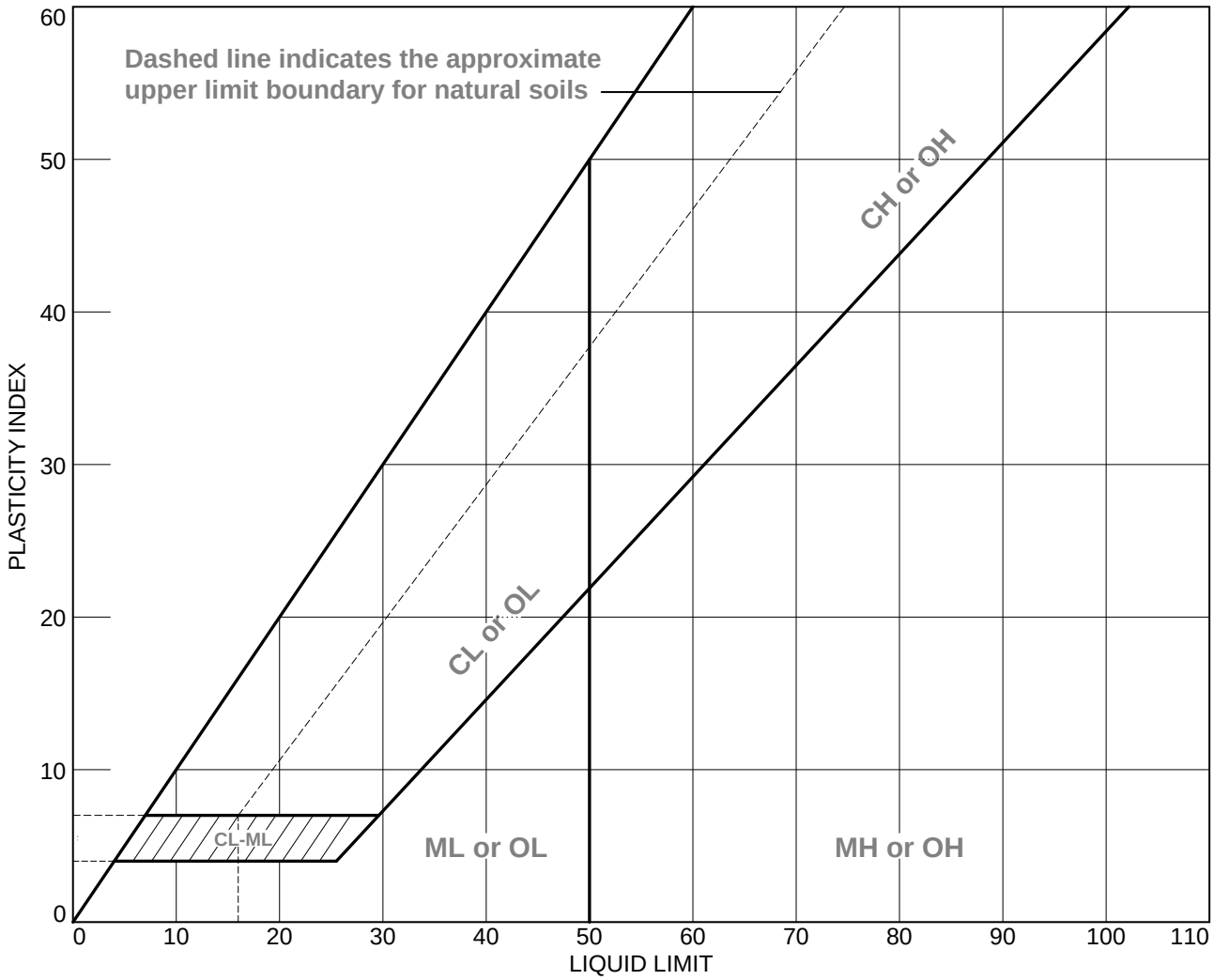


Liquid Limit= 30
Plastic Limit= 21
Plasticity Index= 9
Natural Moisture= 40.0
Liquidity Index= 2.1

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.56	17.38			
Dry+Tare	26.51	16.29			
Tare	21.43	11.39			
Moisture	20.7	22.2			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-07	S9 (Oven Dry)	16-18 ft	28.1		28		CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/25/24 **Checked By:** M. Alstede 6/25/24

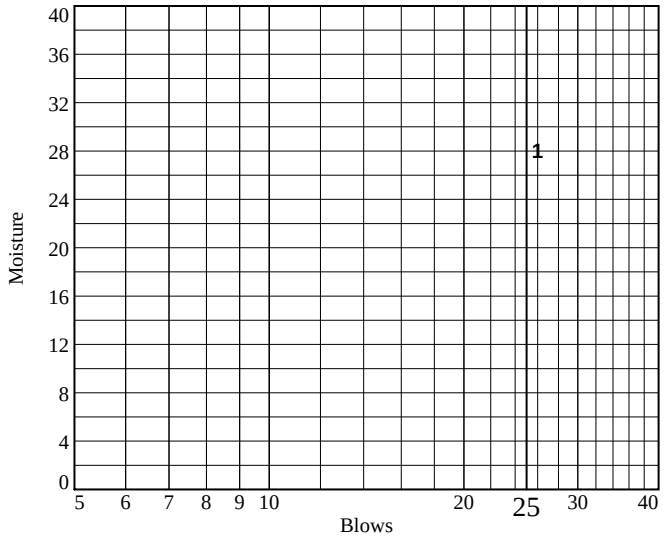
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 16-18 ft **Sample Number:** S9 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/25/24 **Checked by:** M. Alstede 6/25/24

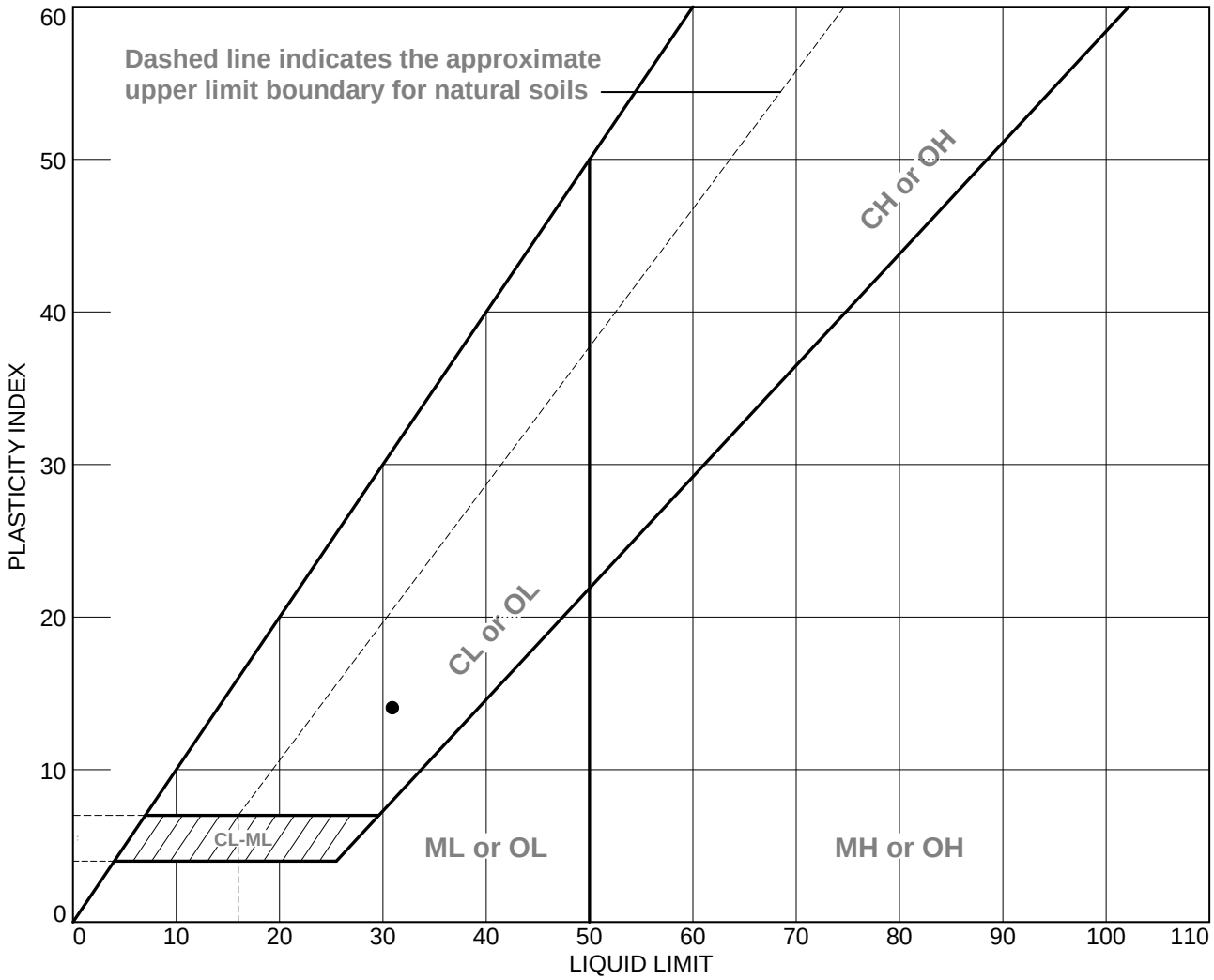
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.70					
Dry+Tare	21.91					
Tare	11.98					
# Blows	26					
Moisture	28.1					



Liquid Limit= 28
Plastic Limit=
Plasticity Index=
Natural Moisture= 28.1

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-07	S9	16-18 ft	24.2	17	31	14	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/14/24 **Checked By:** M. Alstede 6/14/24

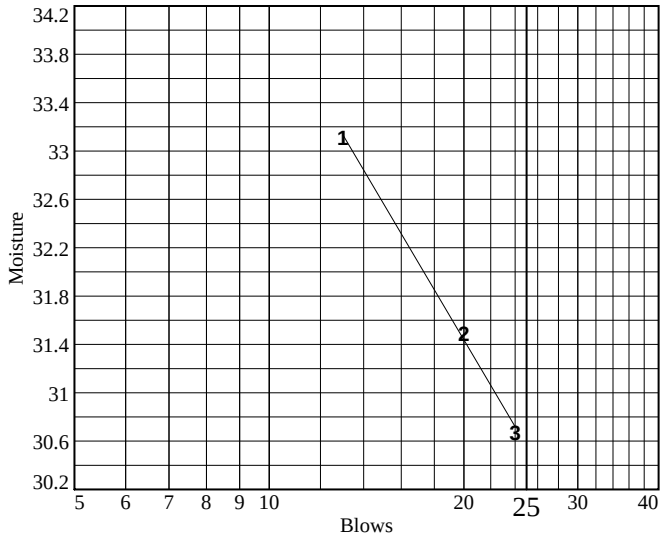
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(13)
Tested by: S. Larson 6/14/24
Checked by: M. Alstede 6/14/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	32.18	23.28	19.30			
Dry+Tare	29.12	20.48	16.41			
Tare	19.88	11.59	6.99			
# Blows	13	20	24			
Moisture	33.1	31.5	30.7			

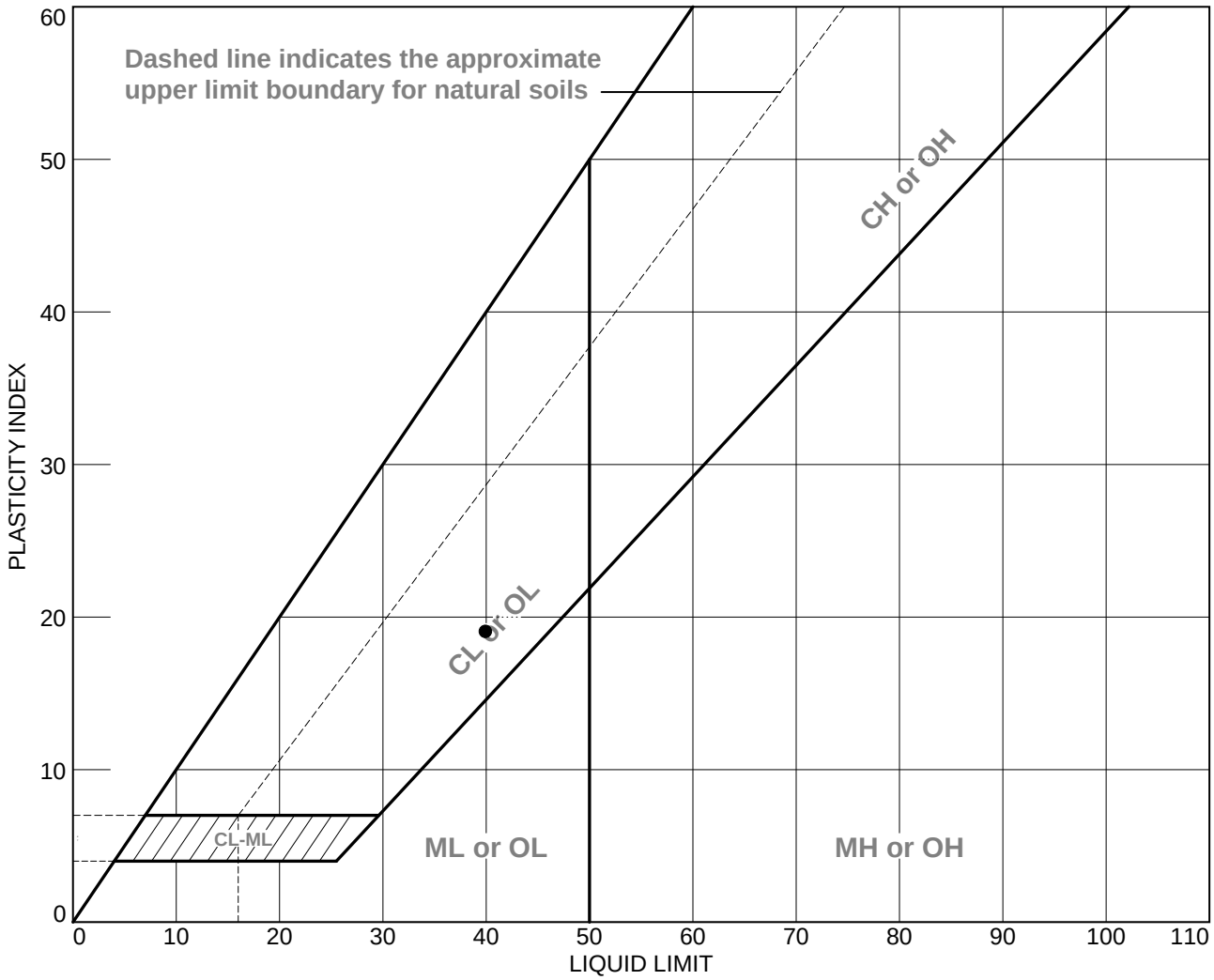


Liquid Limit= 31
Plastic Limit= 17
Plasticity Index= 14
Natural Moisture= 24.2
Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	37.38	24.11			
Dry+Tare	36.50	23.21			
Tare	31.37	17.92			
Moisture	17.2	17.0			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-07	S18	34-36 ft	42.7	21	40	19	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 5/30/24 **Checked By:** W. Lukas 6/4/24

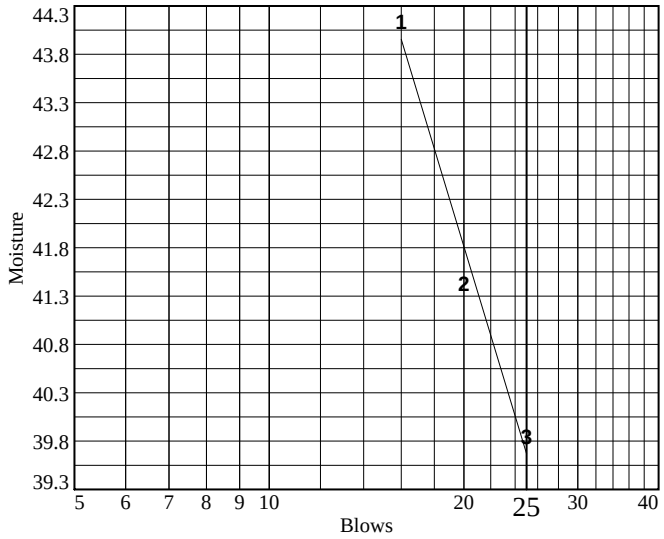
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-07
Depth: 34-36 ft **Sample Number:** S18
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 5/30/24 **Checked by:** W. Lukas 6/4/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	27.48	23.61	25.05			
Dry+Tare	22.43	20.03	21.18			
Tare	10.99	11.39	11.47			
# Blows	16	20	25			
Moisture	44.1	41.4	39.9			



Liquid Limit= 40
Plastic Limit= 21
Plasticity Index= 19
Natural Moisture= 42.7
Liquidity Index= 1.1

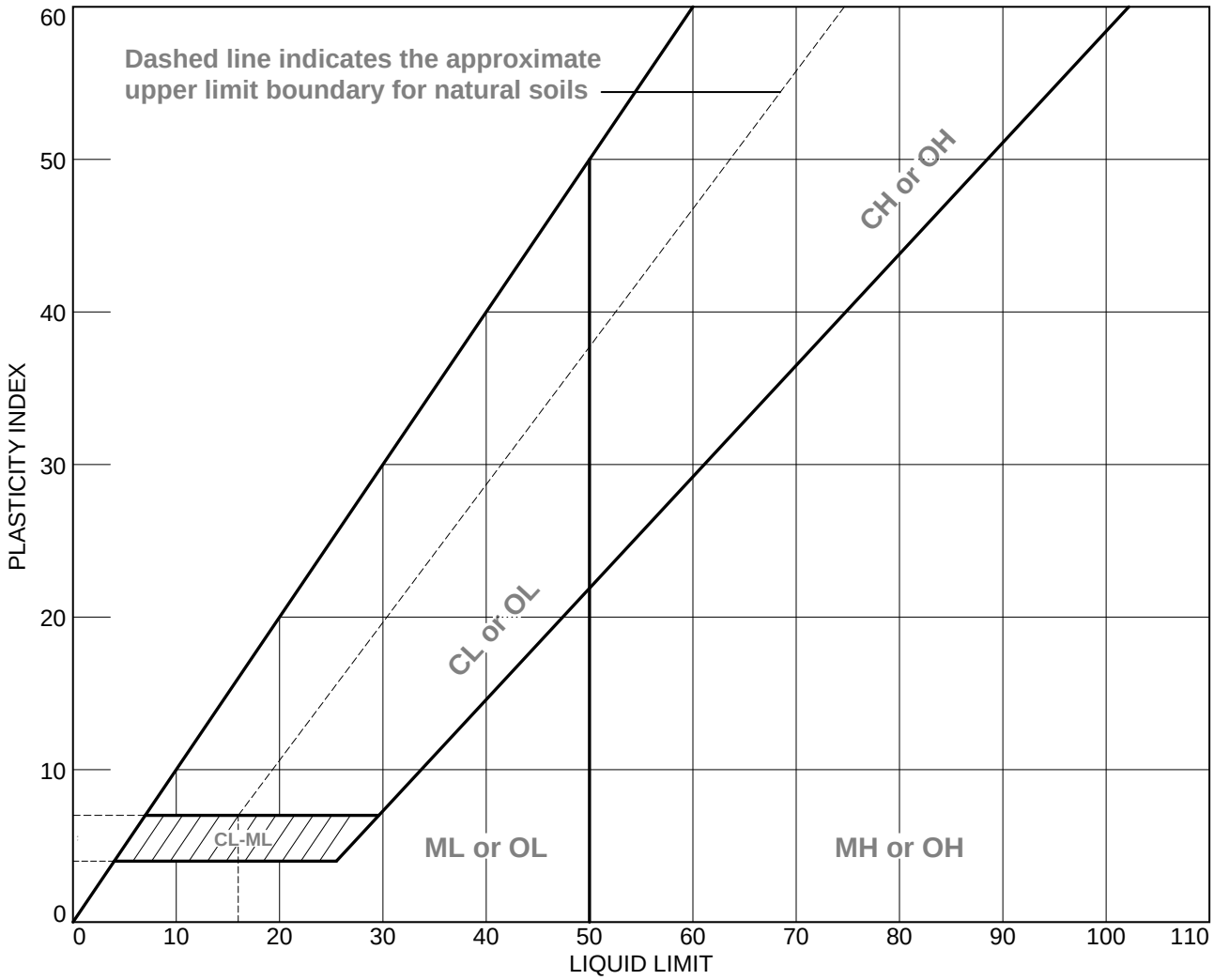
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.57	27.82			
Dry+Tare	26.50	26.40			
Tare	21.47	19.78			
Moisture	21.3	21.5			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
54.63	44.74	21.58	42.7

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-08	S9 (Oven Dry)	16-18 ft	24.6		26		CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/17/24 **Checked By:** W. Lukas 6/17/24

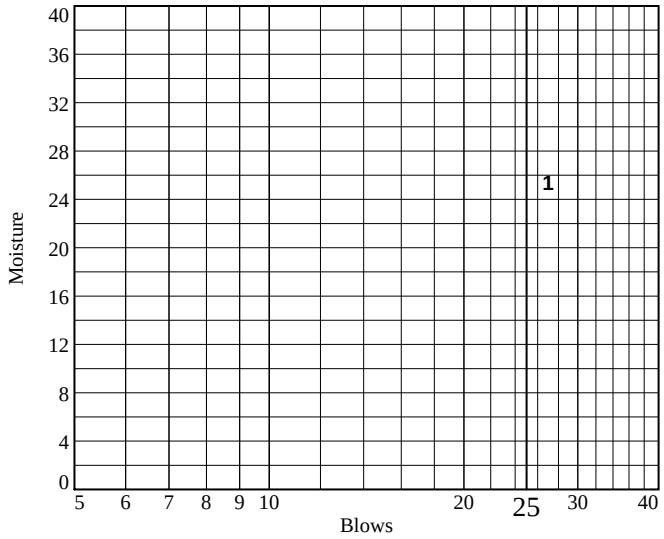
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-08
Depth: 16-18 ft **Sample Number:** S9 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/17/24 **Checked by:** W. Lukas 6/17/24

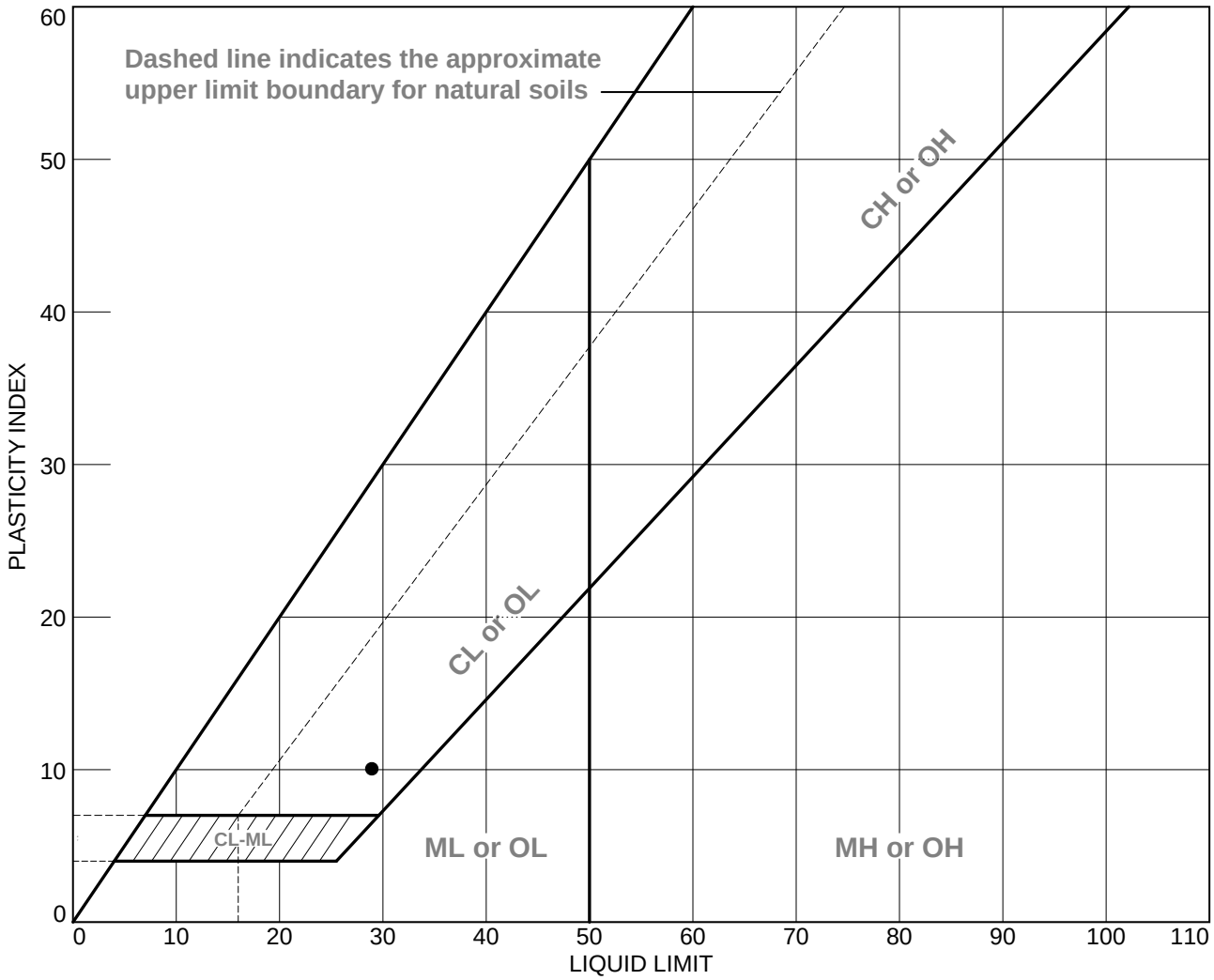
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.45					
Dry+Tare	21.82					
Tare	11.48					
# Blows	27					
Moisture	25.4					



Liquid Limit= 26
Plastic Limit=
Plasticity Index=
Natural Moisture= 24.6

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-08	S9	16-18 ft	24.6	19	29	10	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/6/24 **Checked By:** M. Alstede 6/10/24

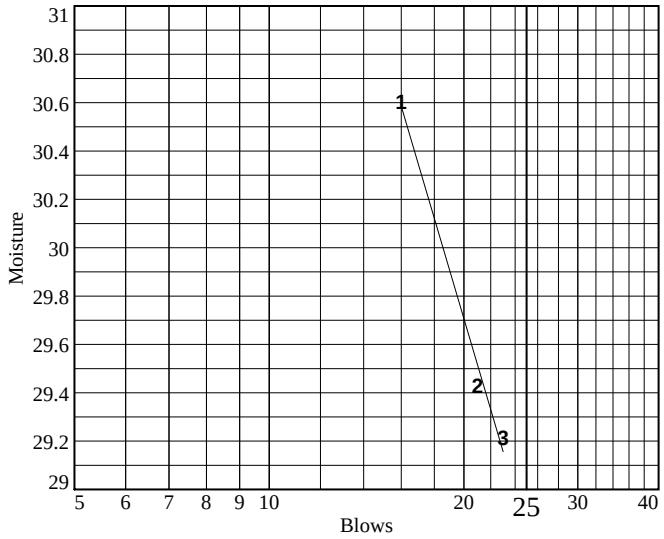
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-08
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-4(9)
Tested by: S. Larson 6/6/24
Checked by: M. Alstede 6/10/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.88	23.32	33.63			
Dry+Tare	21.00	20.68	30.86			
Tare	11.59	11.71	21.38			
# Blows	16	21	23			
Moisture	30.6	29.4	29.2			

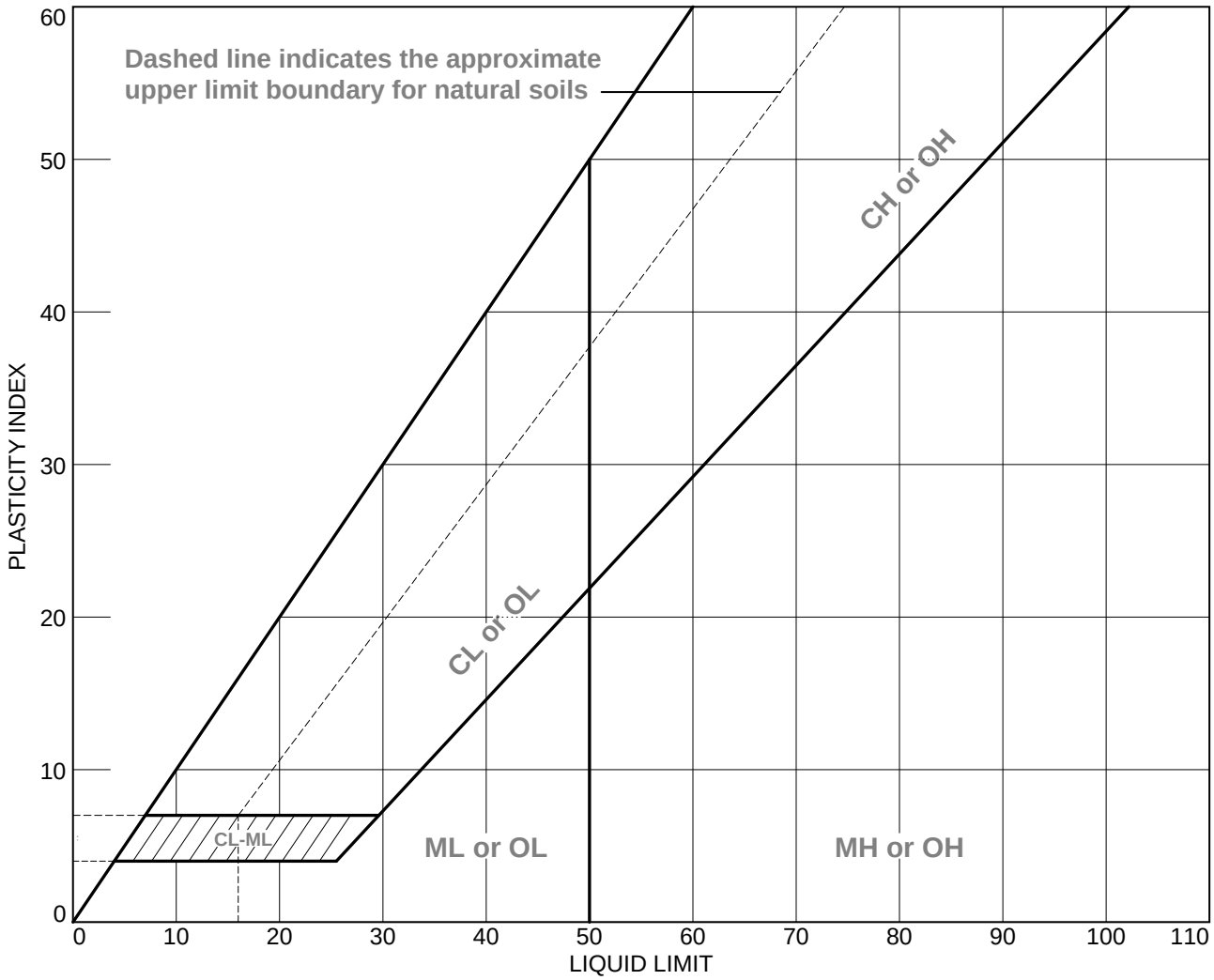


Liquid Limit= 29
Plastic Limit= 19
Plasticity Index= 10
Natural Moisture= 24.6
Liquidity Index= 0.6

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	19.63	19.74			
Dry+Tare	18.40	18.43			
Tare	11.81	11.37			
Moisture	18.7	18.6			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-09	S2 (Oven Dry)	2-4 ft	93.3		48		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/24/24 **Checked By:** E. Fazlic 6/26/24

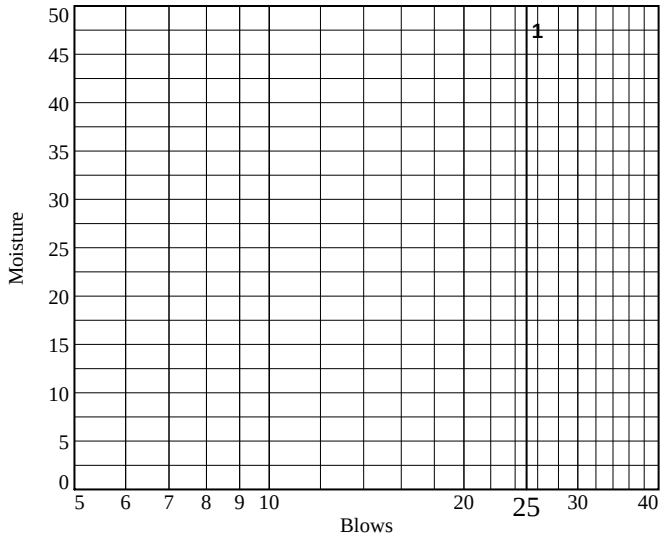
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 2-4 ft **Sample Number:** S2 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/24/24 **Checked by:** E. Fazlic 6/26/24

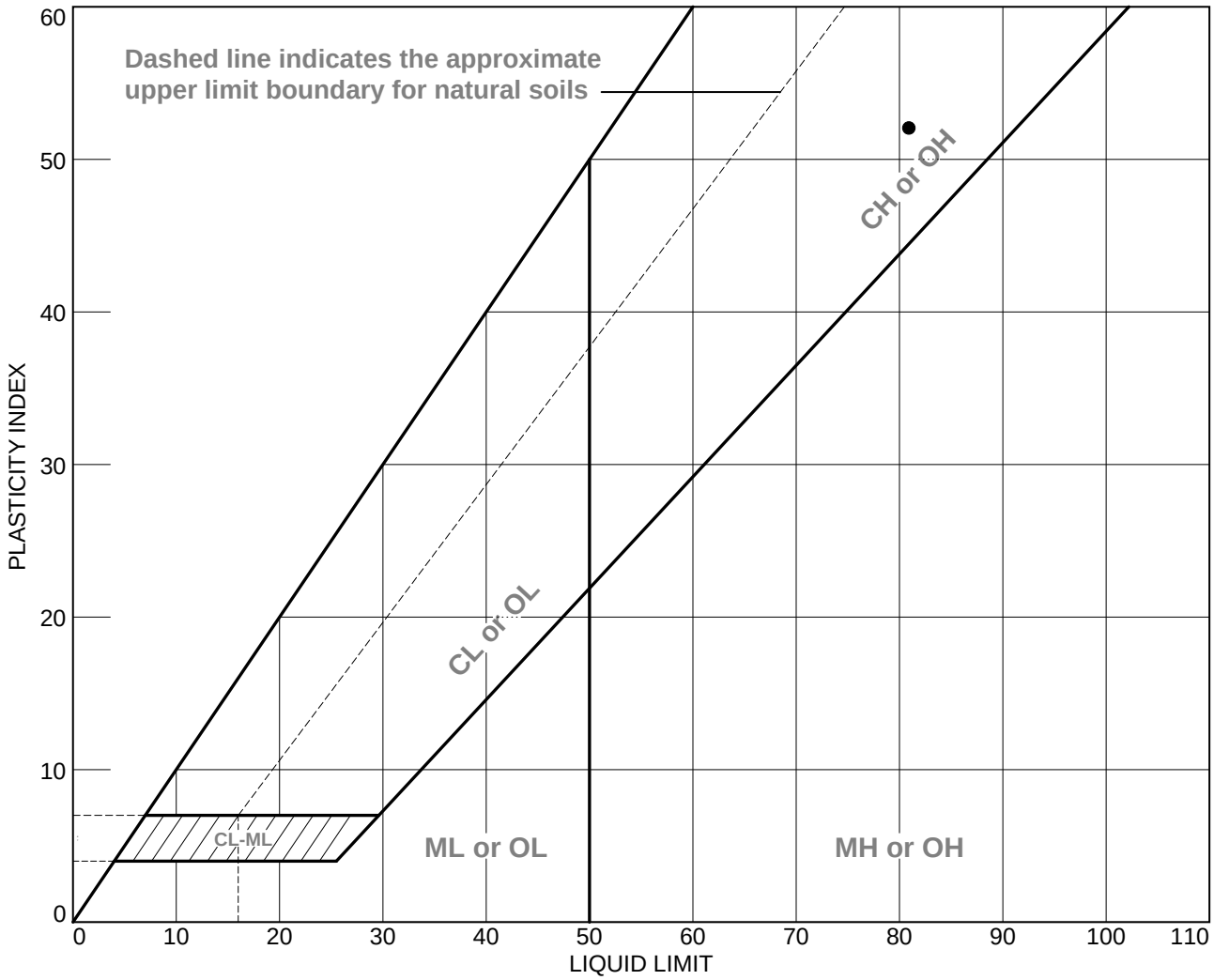
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.88					
Dry+Tare	19.92					
Tare	11.58					
# Blows	26					
Moisture	47.5					



Liquid Limit= 48
Plastic Limit=
Plasticity Index=
Natural Moisture= 93.3

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-09	S2	2-4 ft	93.3	29	81	52	OH

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/20/24 **Checked By:** W. Lukas 6/20/24

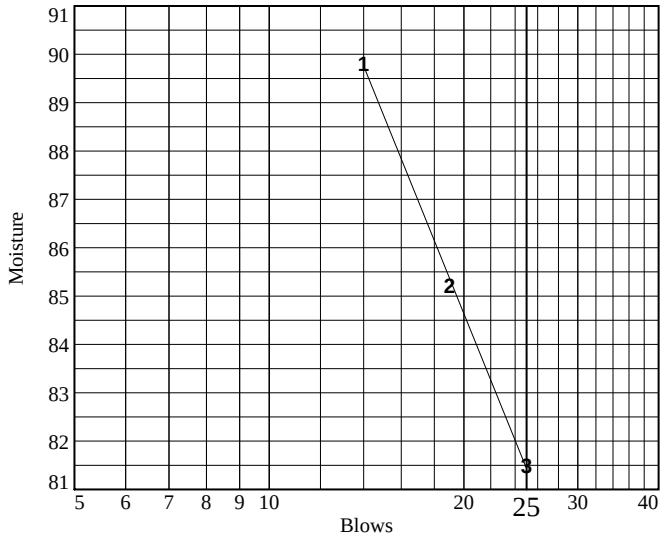
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 2-4 ft
Sample Number: S2
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-6(58)
Tested by: B. Nourai 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.31	24.52	26.05			
Dry+Tare	17.66	18.69	19.66			
Tare	11.37	11.85	11.82			
# Blows	14	19	25			
Moisture	89.8	85.2	81.5			

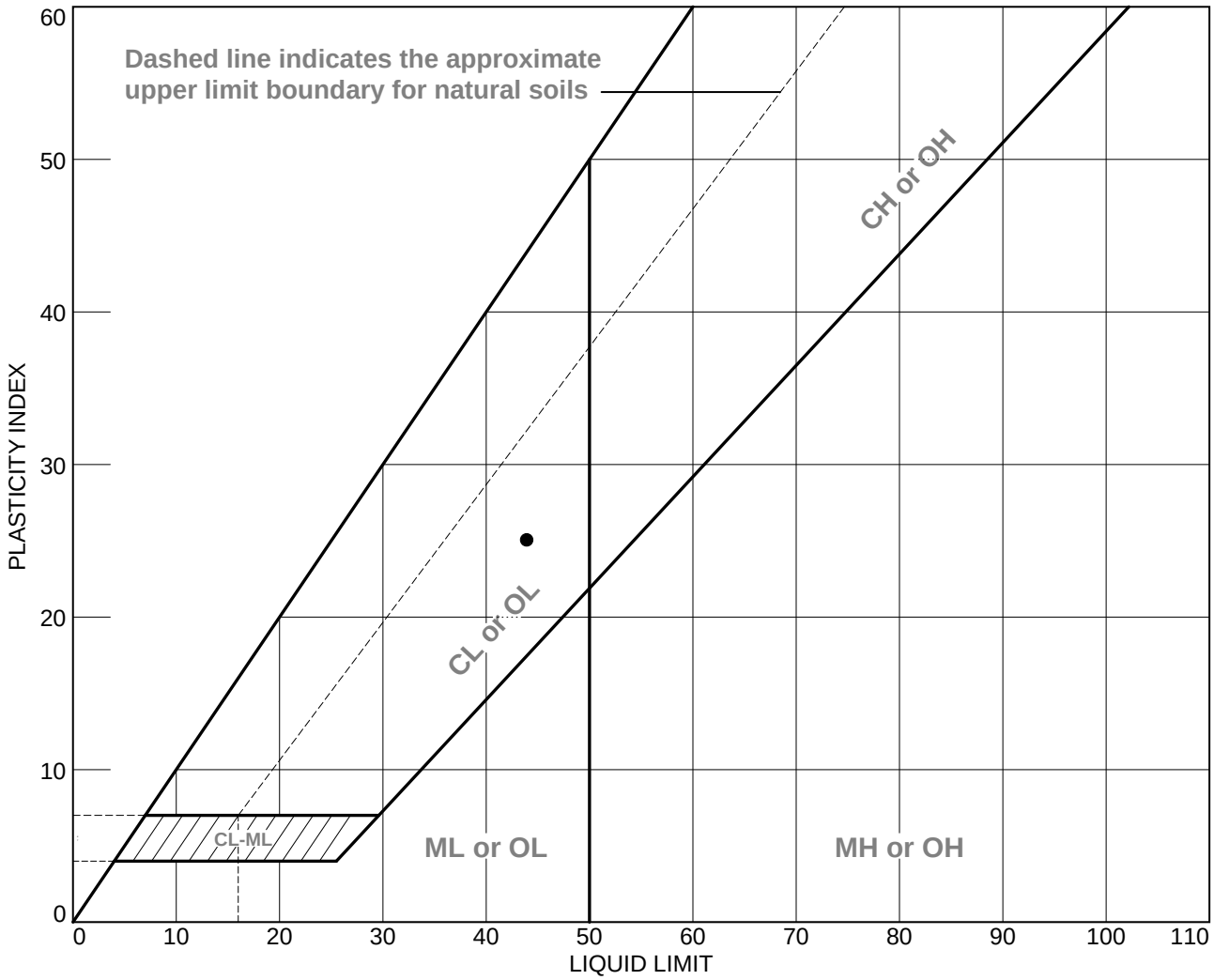


Liquid Limit= 81
Plastic Limit= 29
Plasticity Index= 52
Natural Moisture= 93.3
Liquidity Index= 1.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.72	26.30			
Dry+Tare	26.34	24.88			
Tare	21.61	20.01			
Moisture	29.2	29.2			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-09	S10	18-20 ft	30.6	19	44	25	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/20/24 **Checked By:** W. Lukas 6/20/24

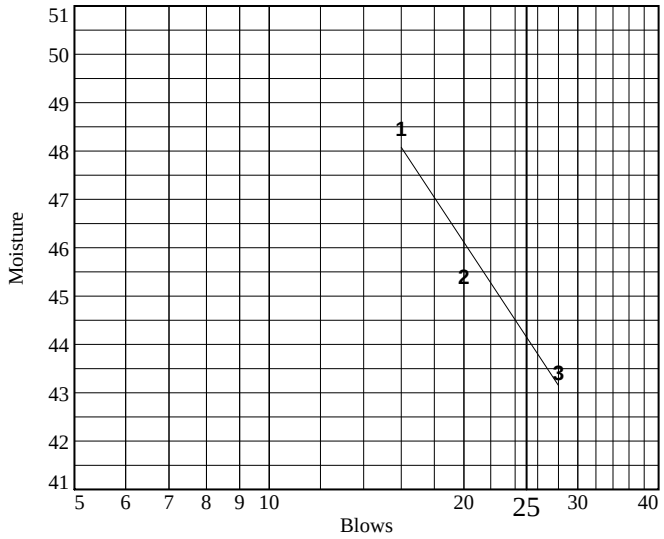
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 18-20 ft **Sample Number:** S10
Material Description: LEAN CLAY
USCS: CL **AASHTO:** A-7-6(27)
Tested by: S. Larson 6/20/24 **Checked by:** W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.61	24.66	22.15			
Dry+Tare	20.96	20.39	17.56			
Tare	11.37	10.99	6.99			
# Blows	16	20	28			
Moisture	48.5	45.4	43.4			

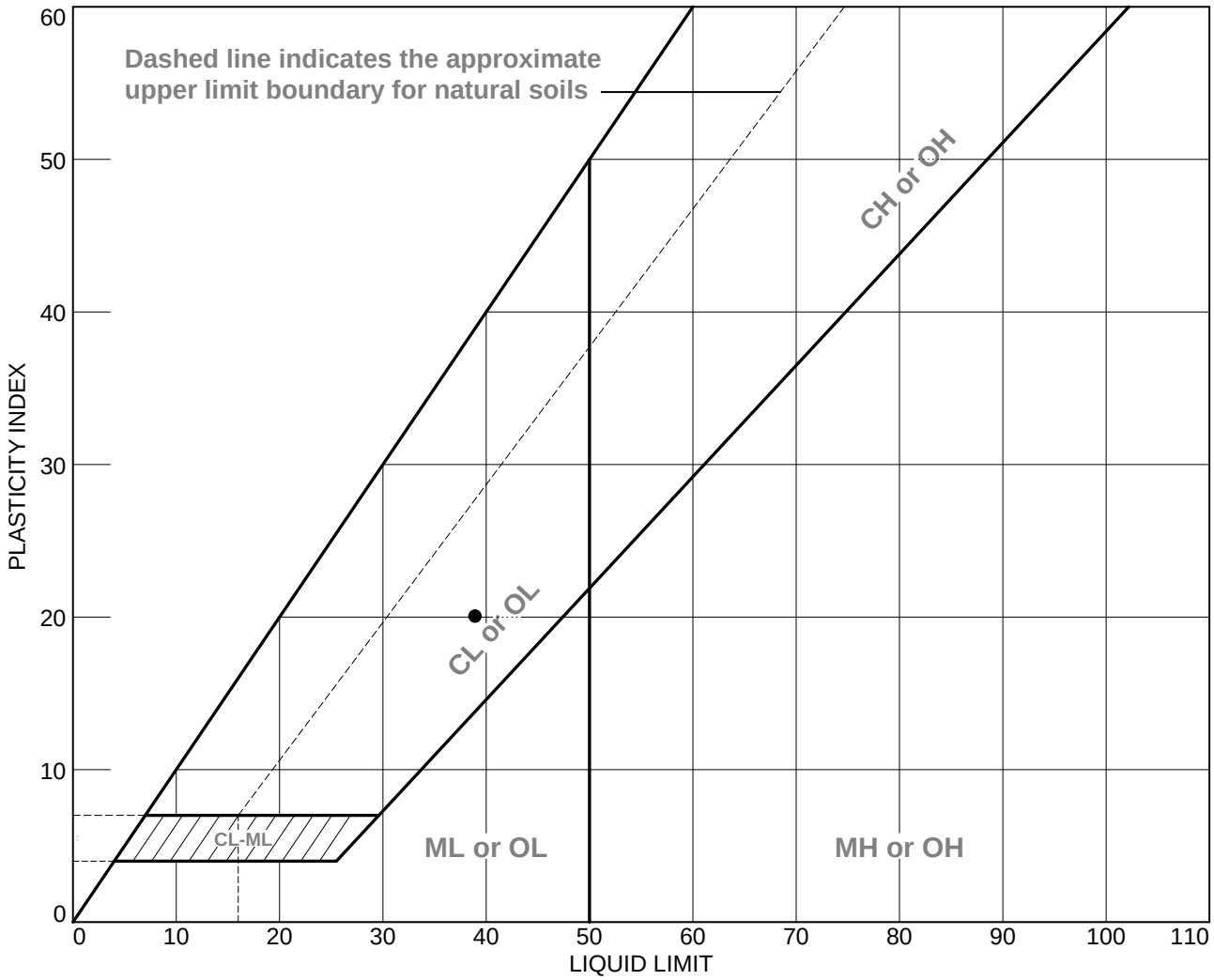


Liquid Limit= 44
Plastic Limit= 19
Plasticity Index= 25
Natural Moisture= 30.6
Liquidity Index= 0.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	28.63	27.57			
Dry+Tare	27.46	26.53			
Tare	21.19	21.32			
Moisture	18.7	20.0			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-09	S15	28-30 ft	40.5	19	39	20	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/19/24 **Checked By:** W. Lukas 6/19/24

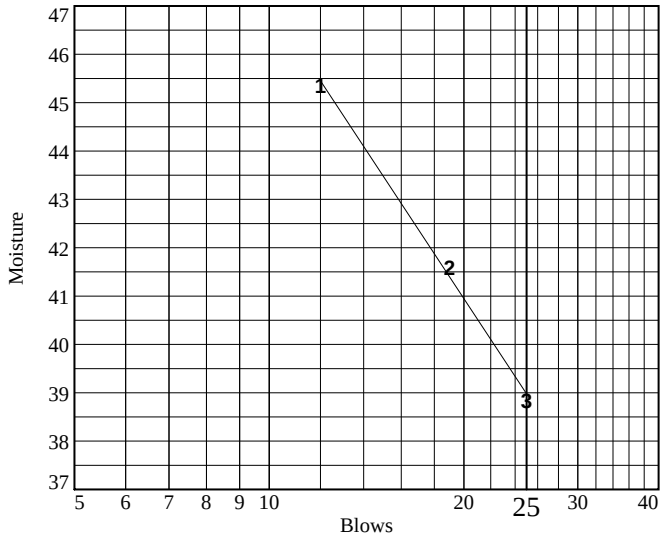
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 28-30 ft **Sample Number:** S15
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/19/24 **Checked by:** W. Lukas 6/19/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.18	24.33	22.99			
Dry+Tare	19.50	20.54	19.75			
Tare	11.39	11.43	11.41			
# Blows	12	19	25			
Moisture	45.4	41.6	38.8			



Liquid Limit= 39
Plastic Limit= 19
Plasticity Index= 20
Natural Moisture= 40.5
Liquidity Index= 1.1

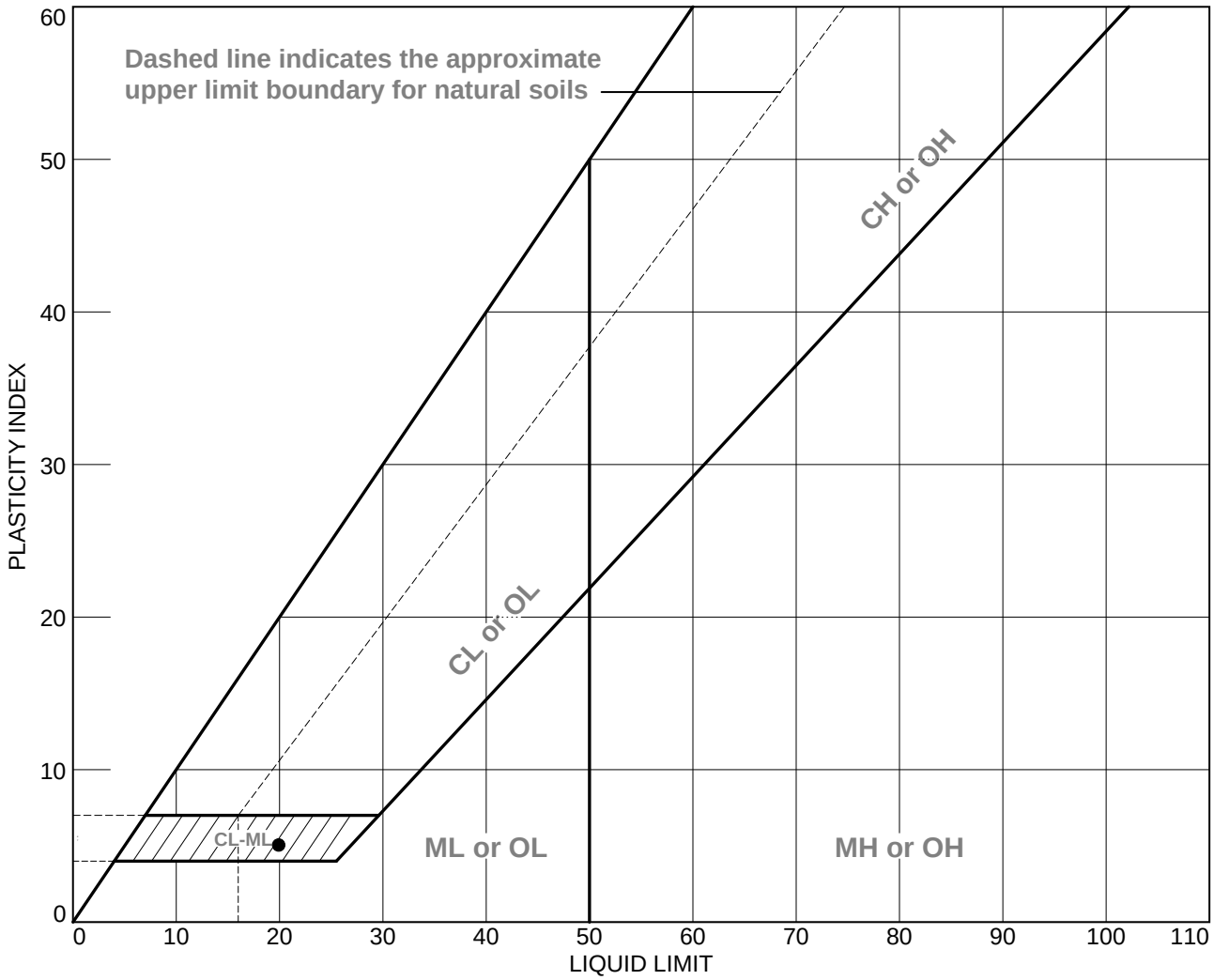
Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.92	17.40			
Dry+Tare	16.89	16.45			
Tare	11.42	11.40			
Moisture	18.8	18.8			

Natural Moisture Data

Wet+Tare	Dry+Tare	Tare	Moisture
55.76	45.84	21.34	40.5

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-09	S19(Bot-9")	36-38 ft	7.7	15	20	5	CL-ML

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/26/24 **Checked By:** E. Fazlic 6/26/24

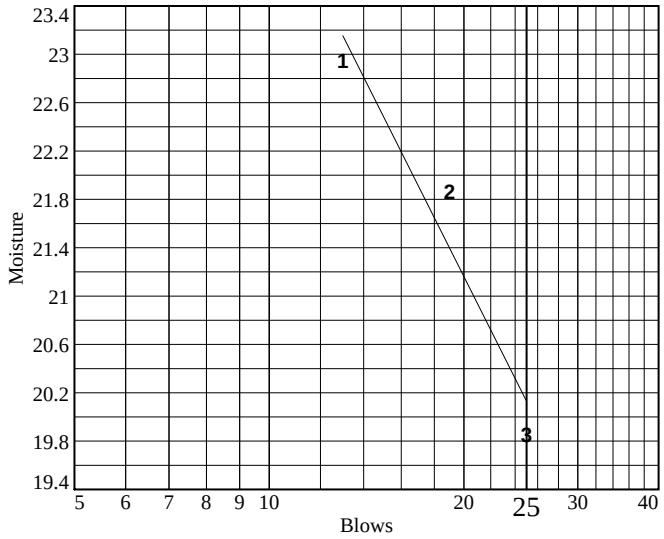
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-09
Depth: 36-38 ft **Sample Number:** S19(Bot-9")
Material Description: Clayey Silty
USCS: CL-ML
Tested by: S. Larson 6/26/24 **Checked by:** E. Fazlic 6/26/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.76	24.02	23.35			
Dry+Tare	22.26	21.75	21.41			
Tare	11.37	11.37	11.64			
# Blows	13	19	25			
Moisture	23.0	21.9	19.9			

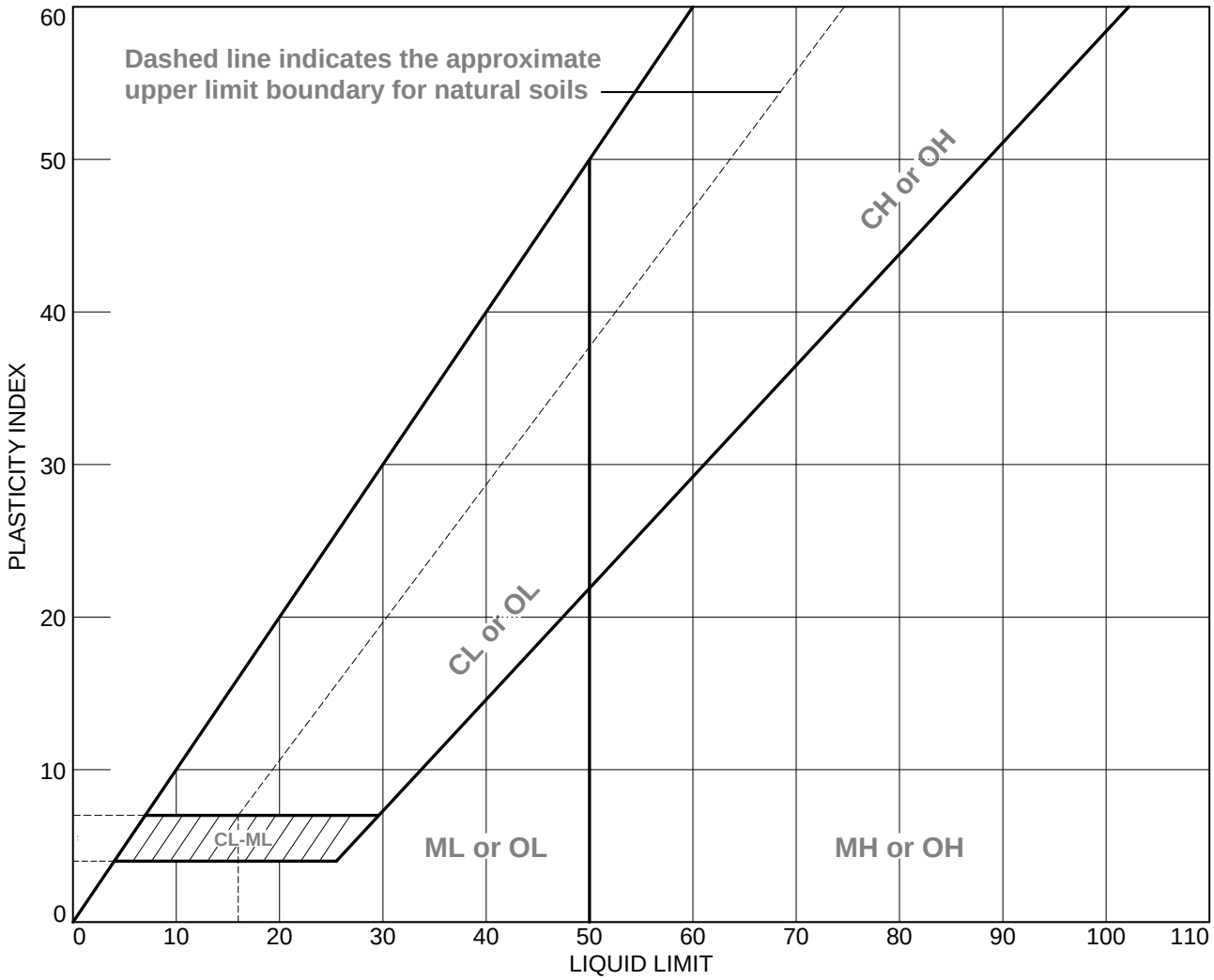


Liquid Limit= 20
Plastic Limit= 15
Plasticity Index= 5
Natural Moisture= 7.7
Liquidity Index= -1.5

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.12	26.67			
Dry+Tare	25.33	25.81			
Tare	19.99	19.87			
Moisture	14.8	14.5			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S4 (Oven Dry)	6-8 ft	105.2		52		OH

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/26/24 **Checked By:** E. Fazlic 6/26/24

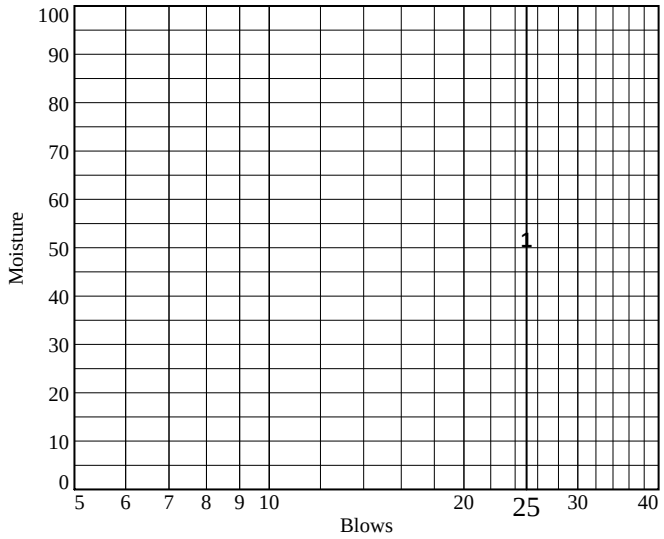
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 6-8 ft
Sample Number: S4 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/26/24
Checked by: E. Fazlic 6/26/24

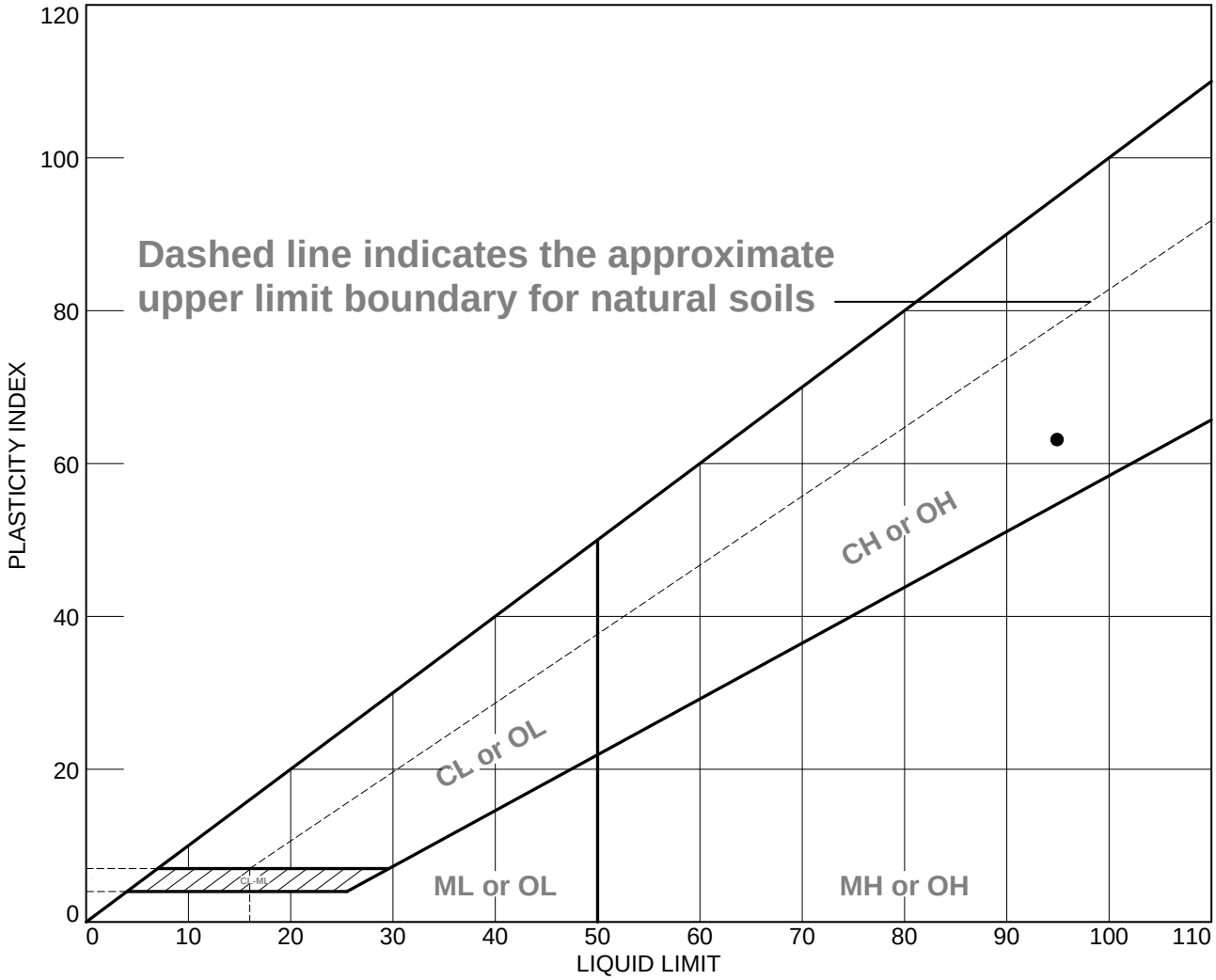
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.76					
Dry+Tare	19.55					
Tare	11.42					
# Blows	25					
Moisture	51.8					



Liquid Limit= 52
Plastic Limit=
Plasticity Index=
Natural Moisture= 105.2

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S4	6-8 ft	105.2	32	95	63	OH

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: M. Alstede 6/21/24 **Checked By:** S. Larson 6/25/24

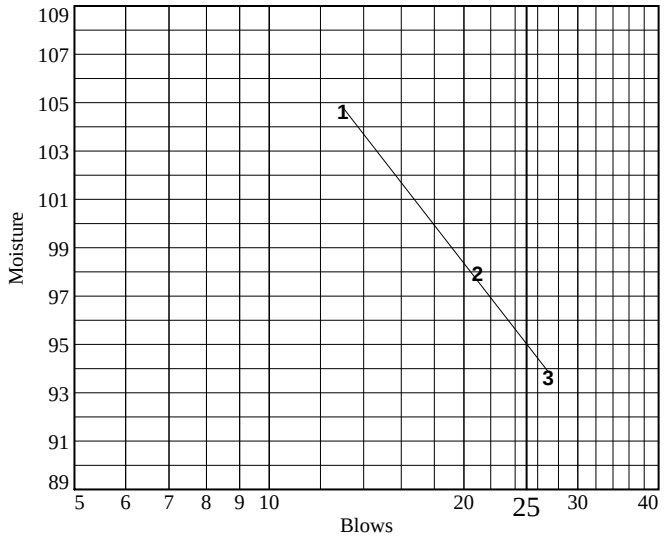
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 6-8 ft
Sample Number: S4
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(72)
Tested by: M. Alstede 6/21/24
Checked by: S. Larson 6/25/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.51	23.06	20.32			
Dry+Tare	17.25	17.28	14.57			
Tare	11.27	11.38	8.43			
# Blows	13	21	27			
Moisture	104.7	98.0	93.6			

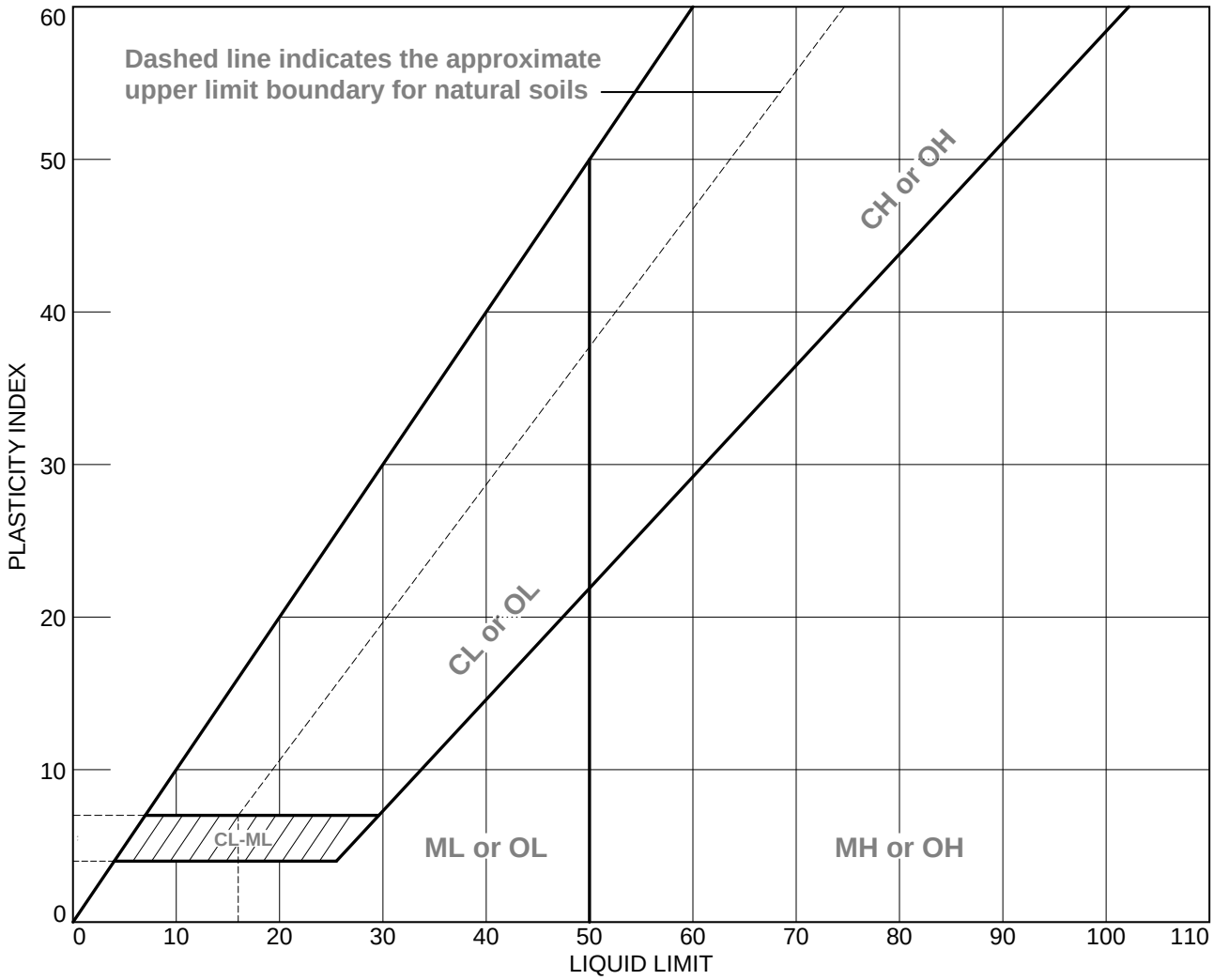


Liquid Limit= 95
Plastic Limit= 32
Plasticity Index= 63
Natural Moisture= 105.2
Liquidity Index= 1.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.59	27.70			
Dry+Tare	25.75	25.77			
Tare	19.98	19.85			
Moisture	31.9	32.6			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S10 (Oven Dry)	18-20 ft	26.3		28		CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/26/24 **Checked By:** E. Fazlic 6/26/24

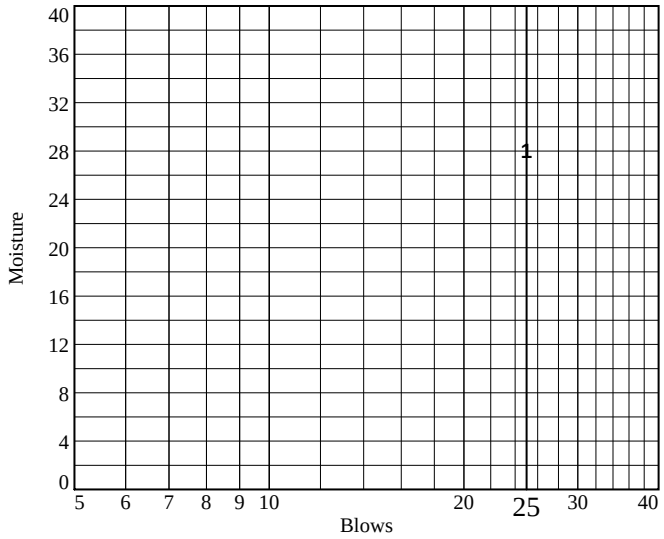
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 18-20 ft **Sample Number:** S10 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/26/24 **Checked by:** E. Fazlic 6/26/24

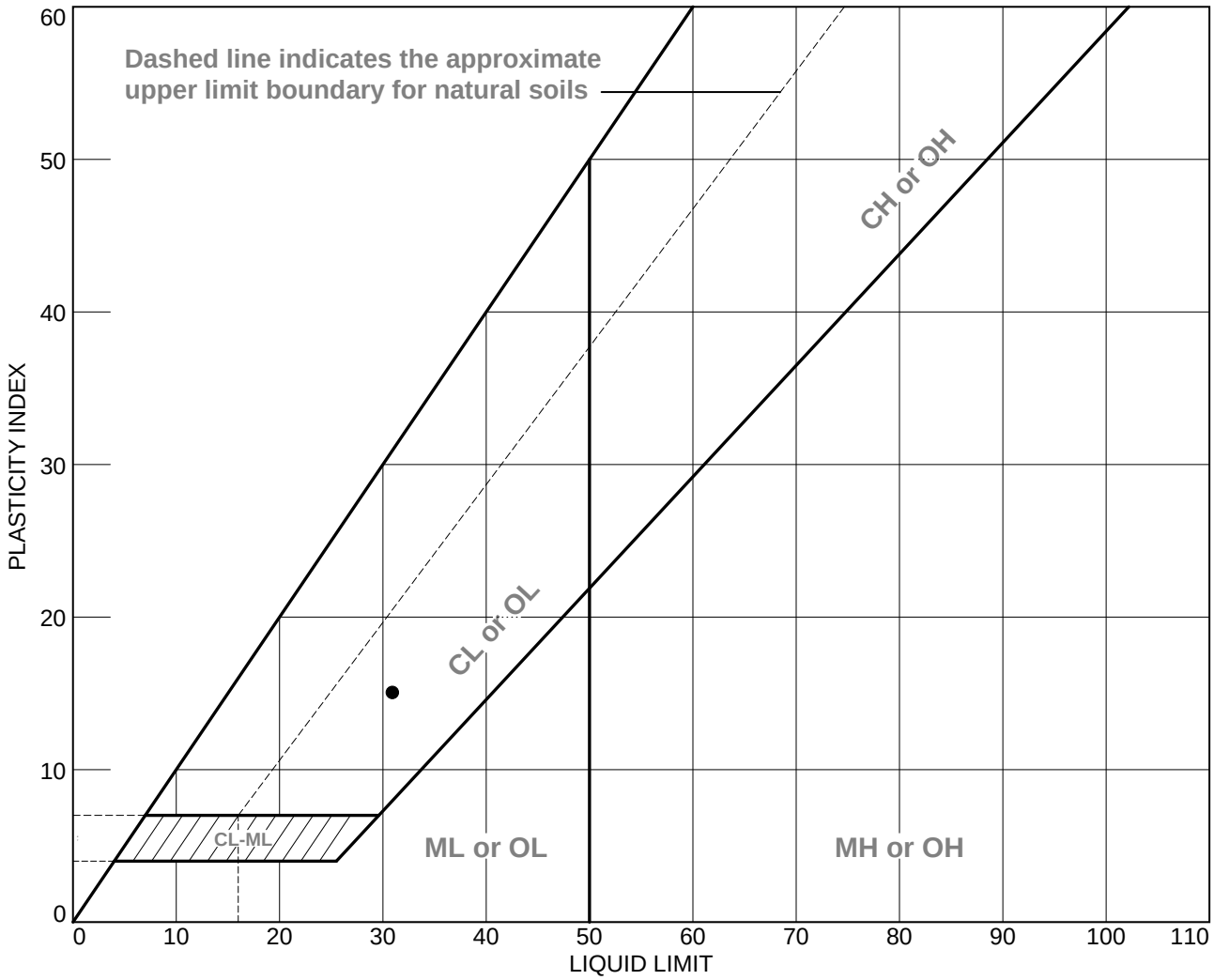
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	22.16					
Dry+Tare	19.15					
Tare	8.43					
# Blows	25					
Moisture	28.1					



Liquid Limit= 28
Plastic Limit=
Plasticity Index=
Natural Moisture= 26.3

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S10	18-20 ft	26.3	16	31	15	CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/20/24 **Checked By:** W. Lukas 6/20/24

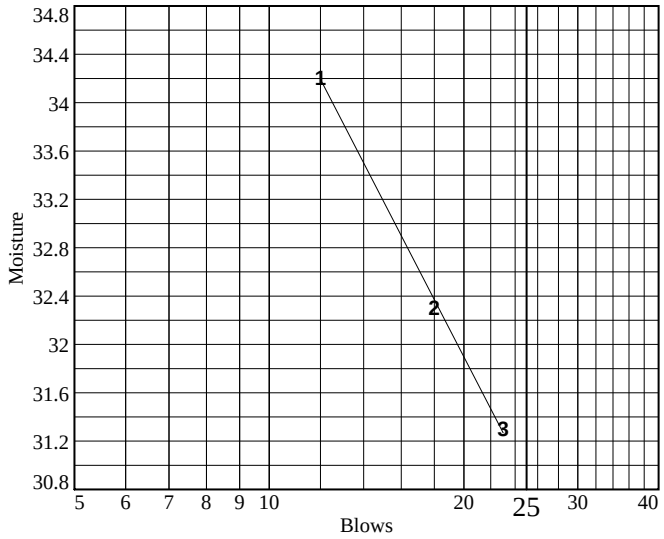
LIQUID AND PLASTIC LIMIT TEST DATA

6/26/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 18-20 ft
Sample Number: S10
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(14)
Tested by: B. Nourai 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.75	25.26	21.26			
Dry+Tare	20.65	22.00	17.86			
Tare	11.59	11.91	7.00			
# Blows	12	18	23			
Moisture	34.2	32.3	31.3			

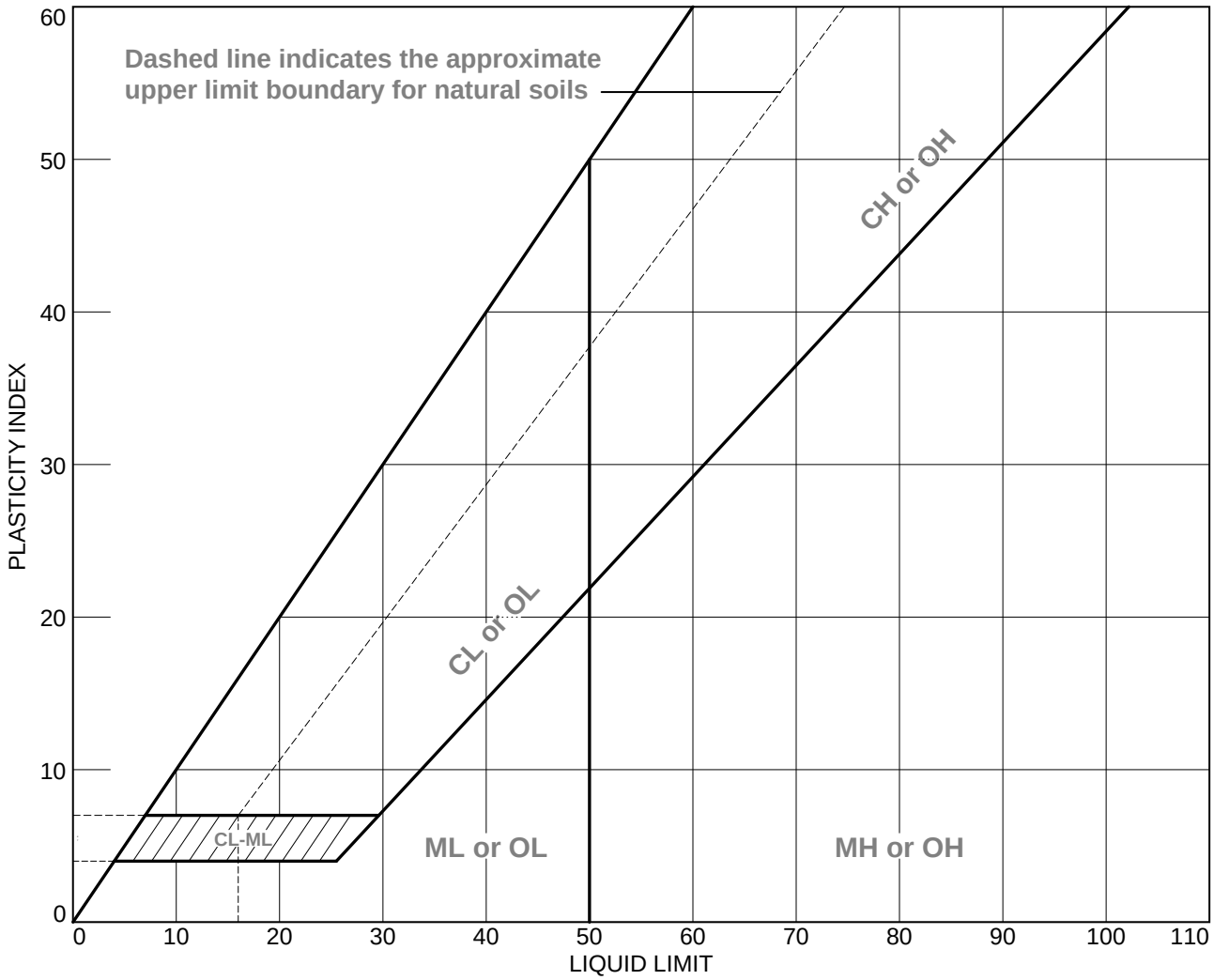


Liquid Limit= 31
Plastic Limit= 16
Plasticity Index= 15
Natural Moisture= 26.3
Liquidity Index= 0.7

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	12.95	17.98			
Dry+Tare	12.09	17.10			
Tare	6.81	11.48			
Moisture	16.3	15.7			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S17 (Oven Dry)	32-34 ft	44.9		40		CL

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Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/28/24

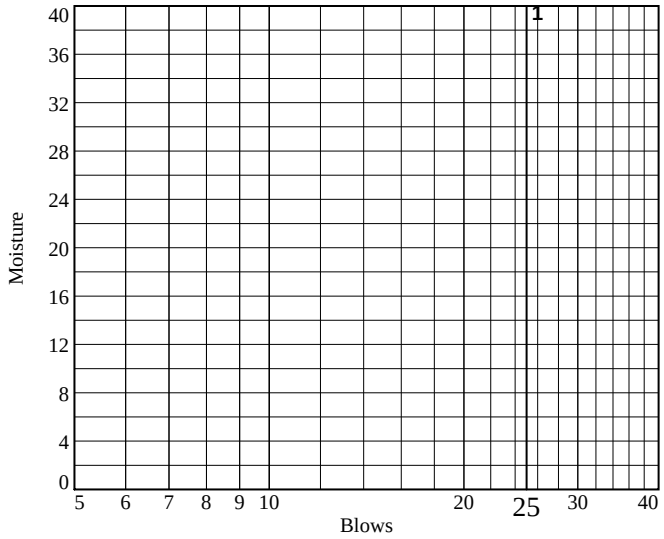
LIQUID AND PLASTIC LIMIT TEST DATA

6/28/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 32-34 ft **Sample Number:** S17 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/28/24

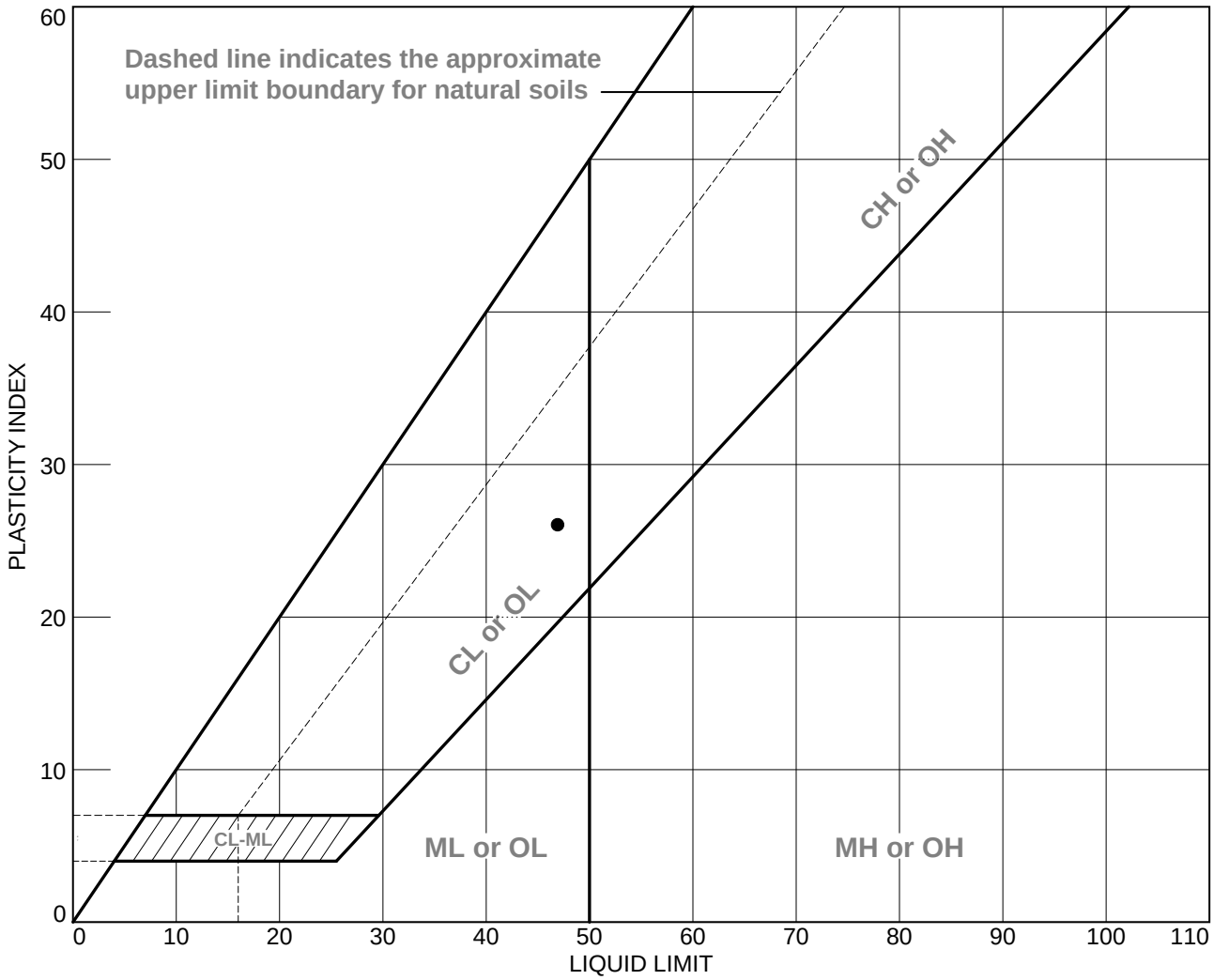
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.85					
Dry+Tare	20.39					
Tare	11.64					
# Blows	26					
Moisture	39.5					



Liquid Limit= 40
Plastic Limit=
Plasticity Index=
Natural Moisture= 44.9

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-10	S17	32-34 ft	44.9	21	47	26	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/27/24 **Checked By:** M. Alstede 6/27/24

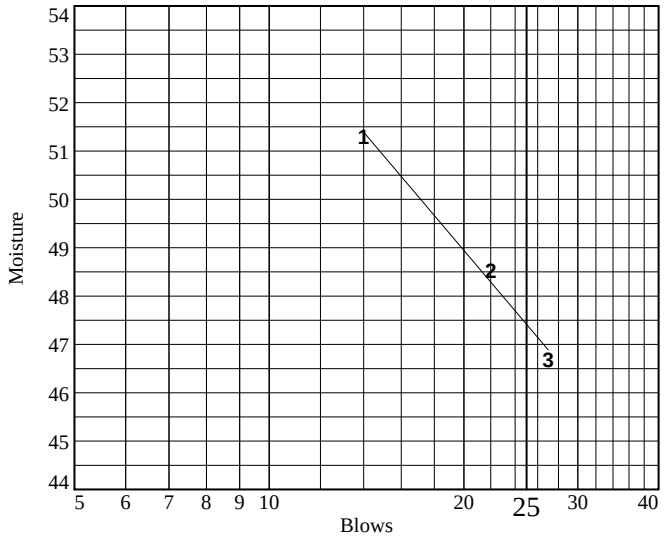
LIQUID AND PLASTIC LIMIT TEST DATA

6/28/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-10
Depth: 32-34 ft
Sample Number: S17
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-7-6(28)
Tested by: B. Nourai 6/27/24
Checked by: M. Alstede 6/27/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.12	23.68	23.47			
Dry+Tare	19.81	19.66	19.64			
Tare	11.41	11.38	11.44			
# Blows	14	22	27			
Moisture	51.3	48.6	46.7			

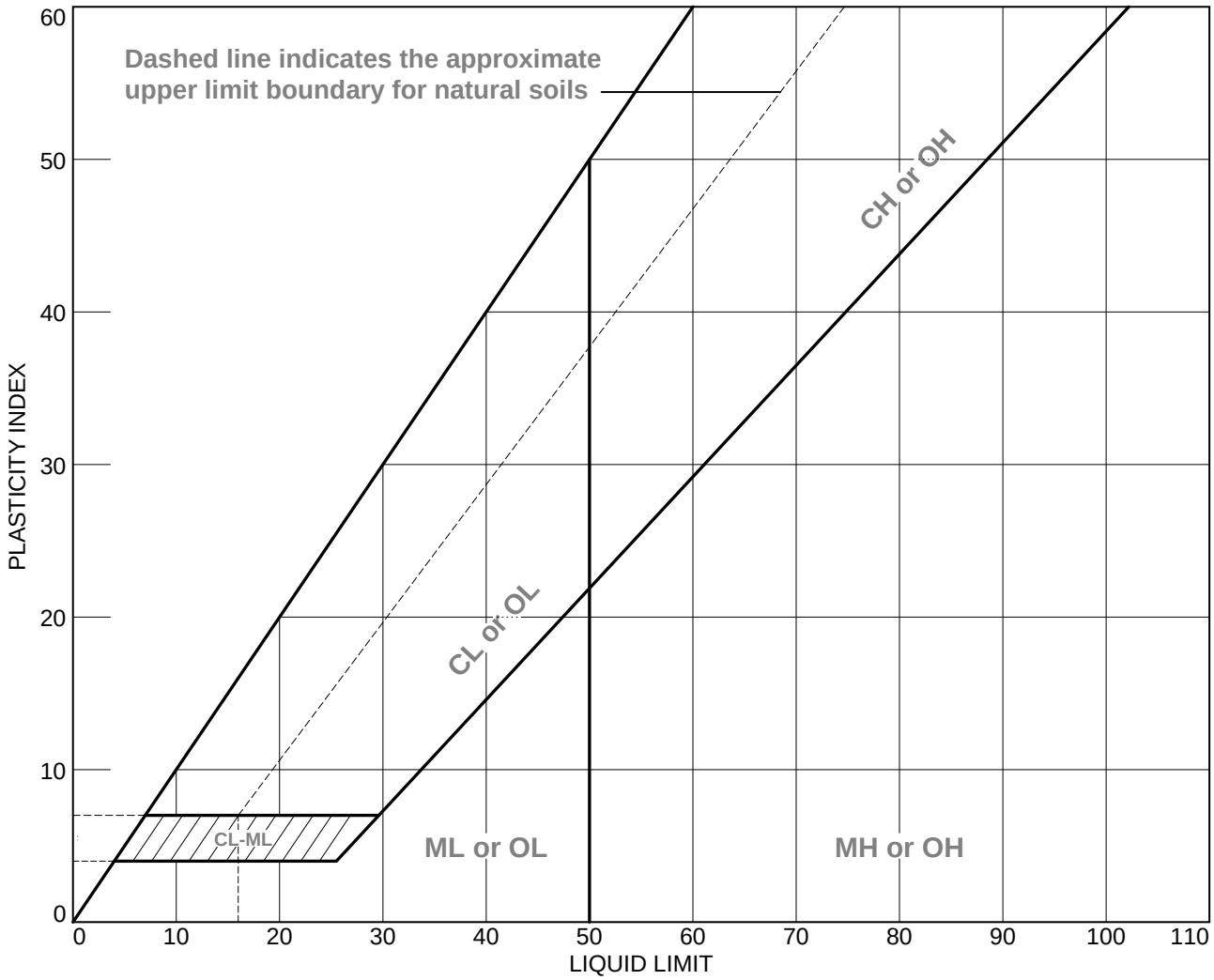


Liquid Limit= 47
Plastic Limit= 21
Plasticity Index= 26
Natural Moisture= 44.9
Liquidity Index= 0.9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	17.50	17.43			
Dry+Tare	16.48	16.32			
Tare	11.33	11.16			
Moisture	19.8	21.5			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA								
SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S5 (Oven Dry)	8-10 ft	46.7		47		OH

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/25/24 **Checked By:** M. Alstede 6/25/24

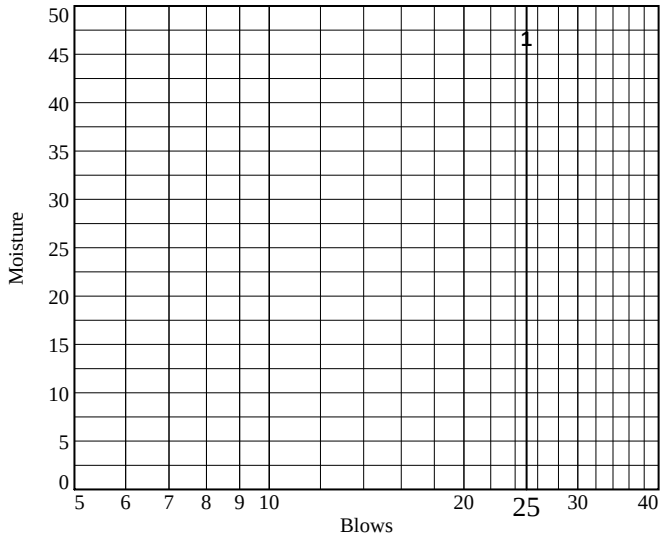
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 8-10 ft **Sample Number:** S5 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: B. Nourai 6/25/24 **Checked by:** M. Alstede 6/25/24

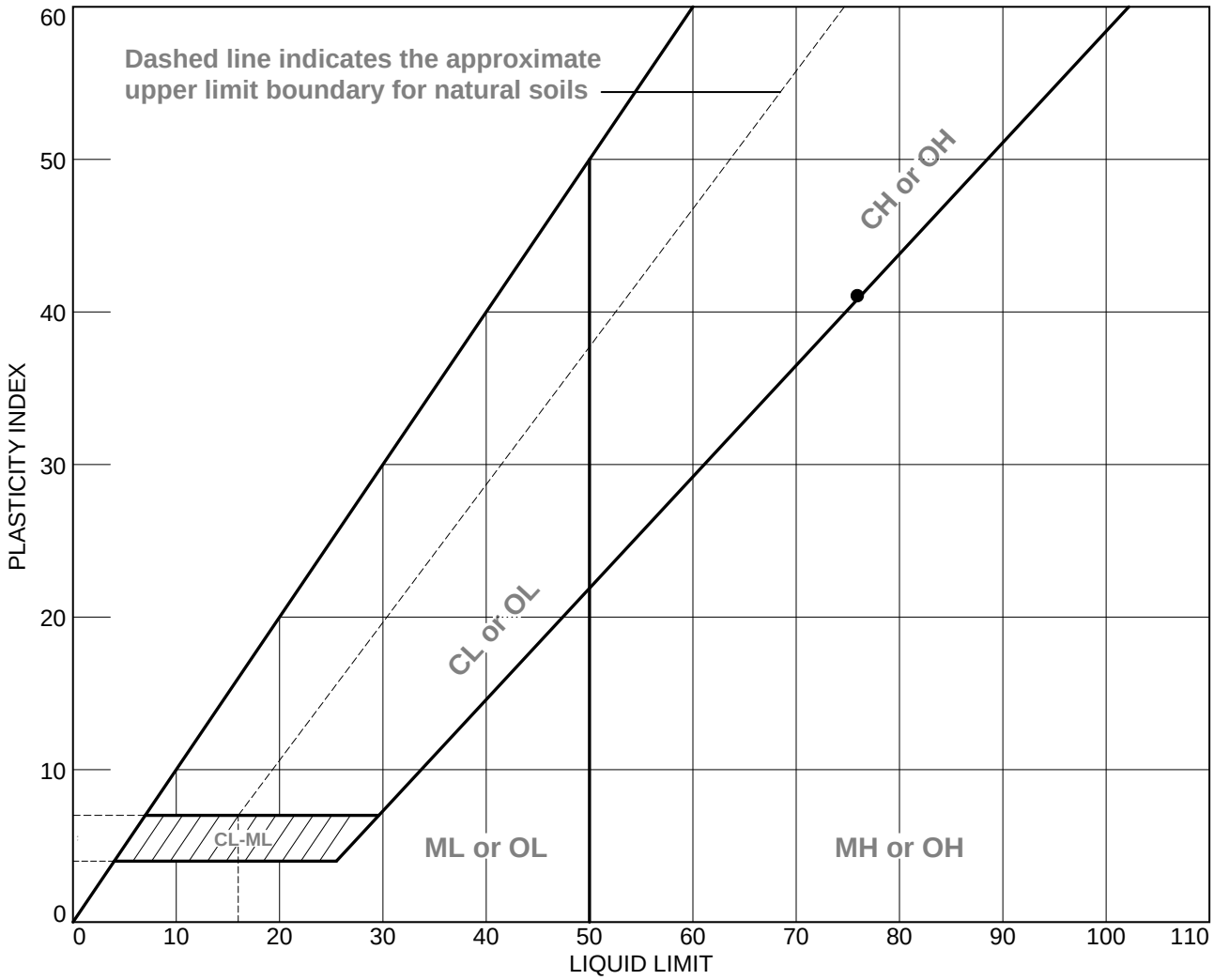
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.55					
Dry+Tare	19.70					
Tare	11.45					
# Blows	25					
Moisture	46.7					



Liquid Limit= 47
Plastic Limit=
Plasticity Index=
Natural Moisture= 46.7

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S5	8-10 ft	88.4	35	76	41	OH

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/20/24 **Checked By:** W. Lukas 6/20/24

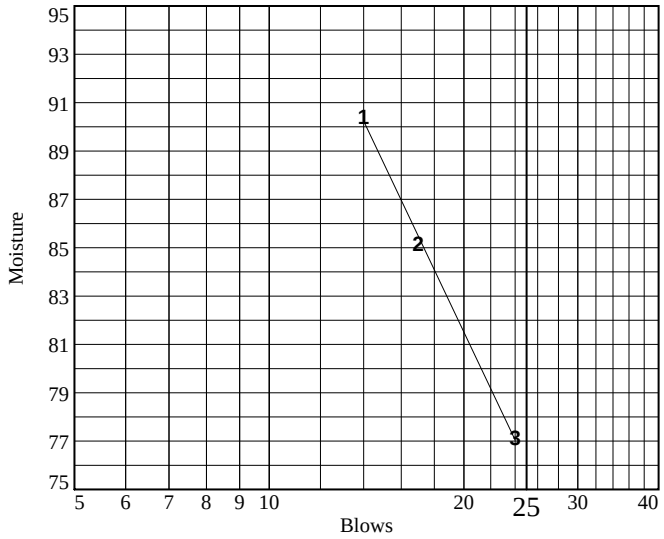
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 8-10 ft
Sample Number: S5
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(46)
Tested by: S. Larson 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	20.94	23.74	24.31			
Dry+Tare	16.40	18.05	18.94			
Tare	11.38	11.37	11.98			
# Blows	14	17	24			
Moisture	90.4	85.2	77.2			

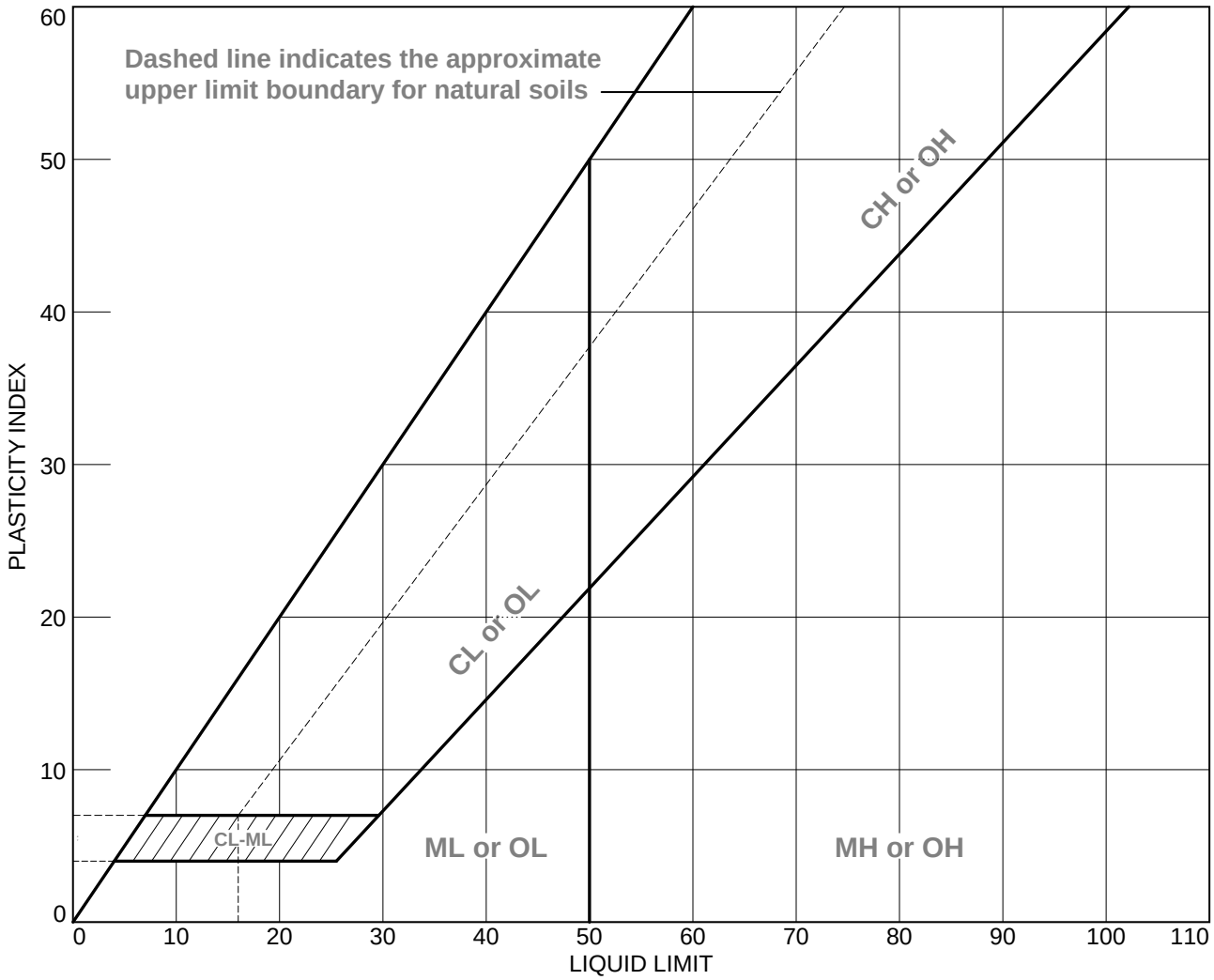


Liquid Limit= 76
Plastic Limit= 35
Plasticity Index= 41
Natural Moisture= 88.4
Liquidity Index= 1.3

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.25	27.85			
Dry+Tare	24.60	26.18			
Tare	19.88	21.34			
Moisture	35.0	34.5			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S12 (Oven Dry)	22-24 ft	26.9		26		CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/27/24 **Checked By:** M. Alstede 6/27/24

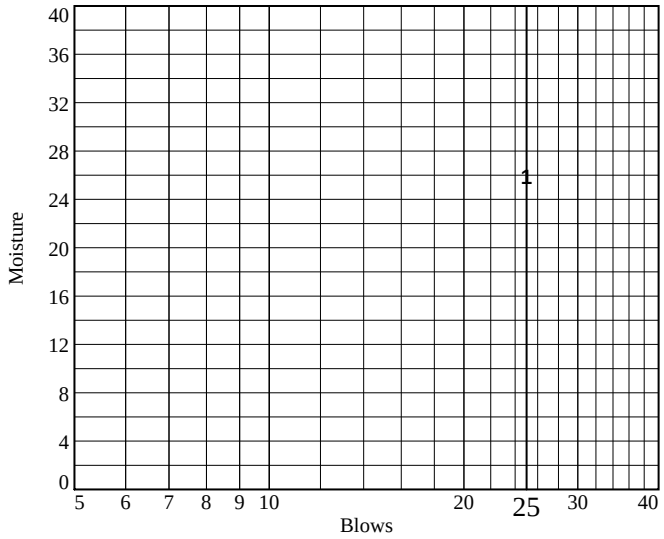
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 22-24 ft **Sample Number:** S12 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/27/24 **Checked by:** M. Alstede 6/27/24

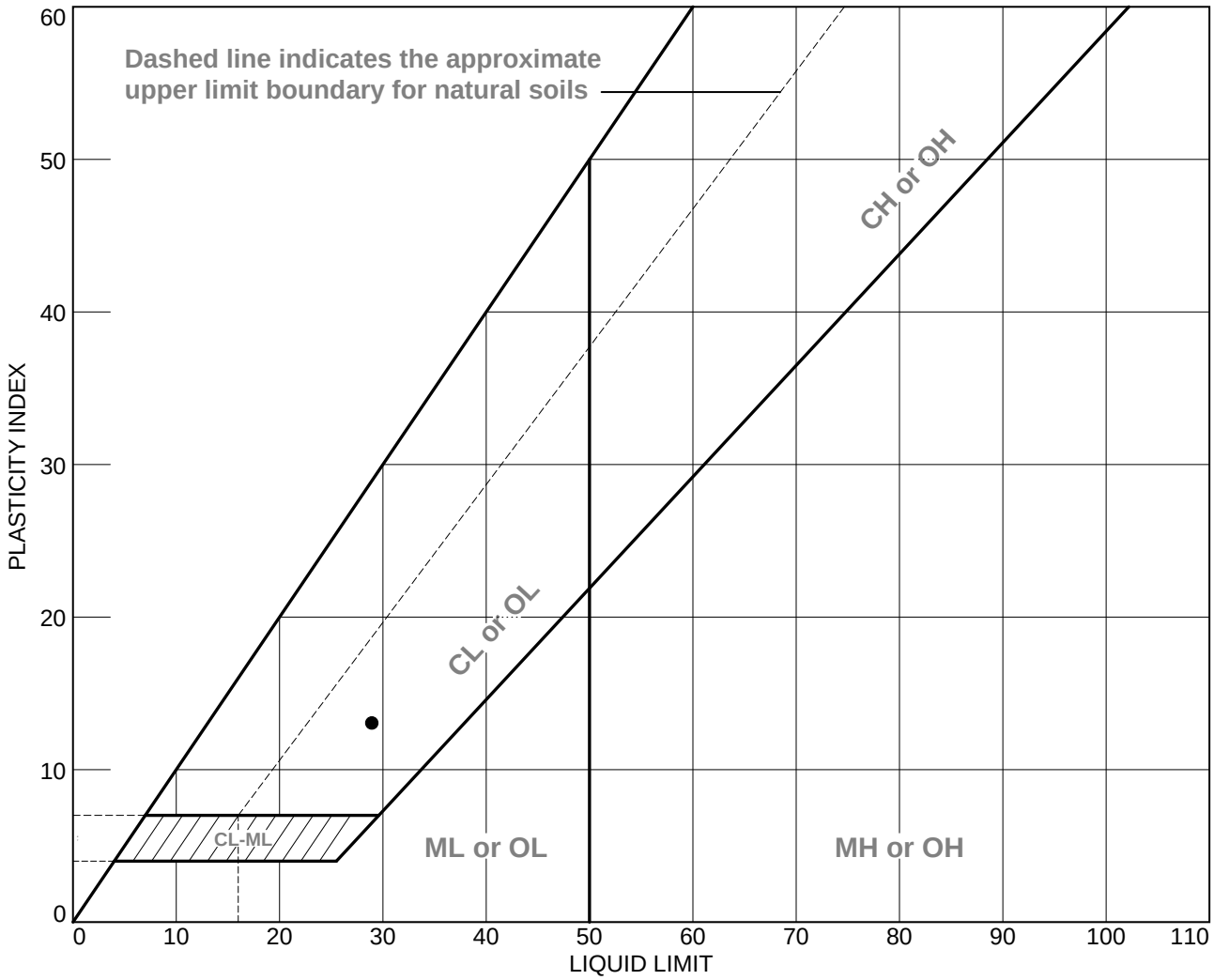
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.41					
Dry+Tare	21.73					
Tare	11.41					
# Blows	25					
Moisture	26.0					



Liquid Limit= 26
Plastic Limit=
Plasticity Index=
Natural Moisture= 26.9

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S12	22-24 ft	26.9	16	29	13	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/24/24 **Checked By:** M. Alstede 6/25/24

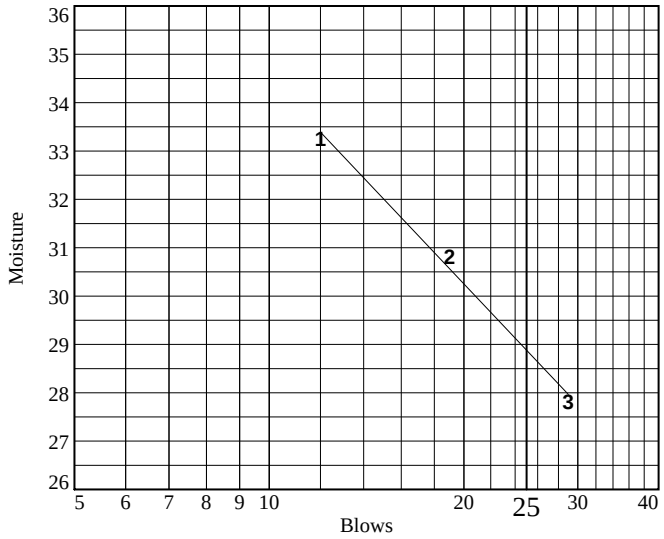
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 22-24 ft
Sample Number: S12
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(12)
Tested by: B. Nourai 6/24/24
Checked by: M. Alstede 6/25/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	34.85	23.73	24.50			
Dry+Tare	31.55	20.82	21.65			
Tare	21.63	11.38	11.41			
# Blows	12	19	29			
Moisture	33.3	30.8	27.8			

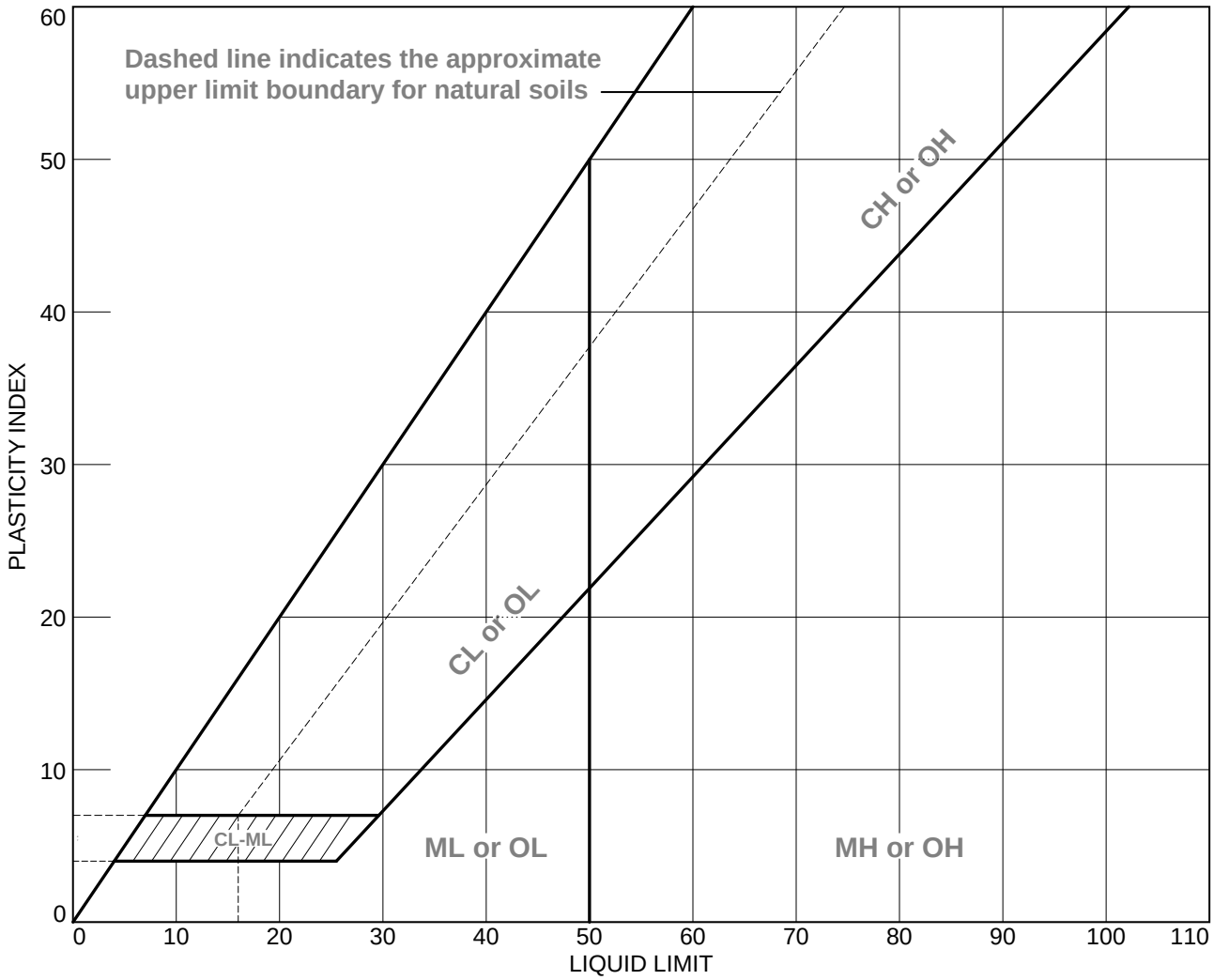


Liquid Limit= 29
Plastic Limit= 16
Plasticity Index= 13
Natural Moisture= 26.9
Liquidity Index= 0.8

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.57	27.96			
Dry+Tare	26.75	27.06			
Tare	21.52	21.48			
Moisture	15.7	16.1			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S20 (Oven Dry)	38-40 ft	46.2		41		CL

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/27/24 **Checked By:** M. Alstede 6/27/24

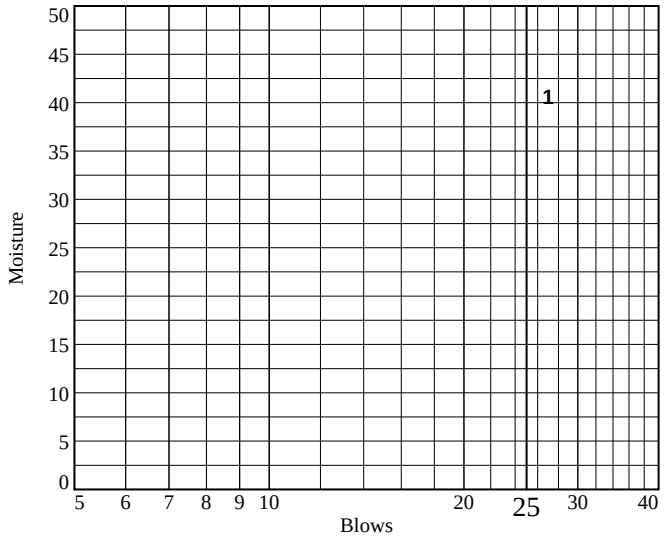
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 38-40 ft **Sample Number:** S20 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/27/24 **Checked by:** M. Alstede 6/27/24

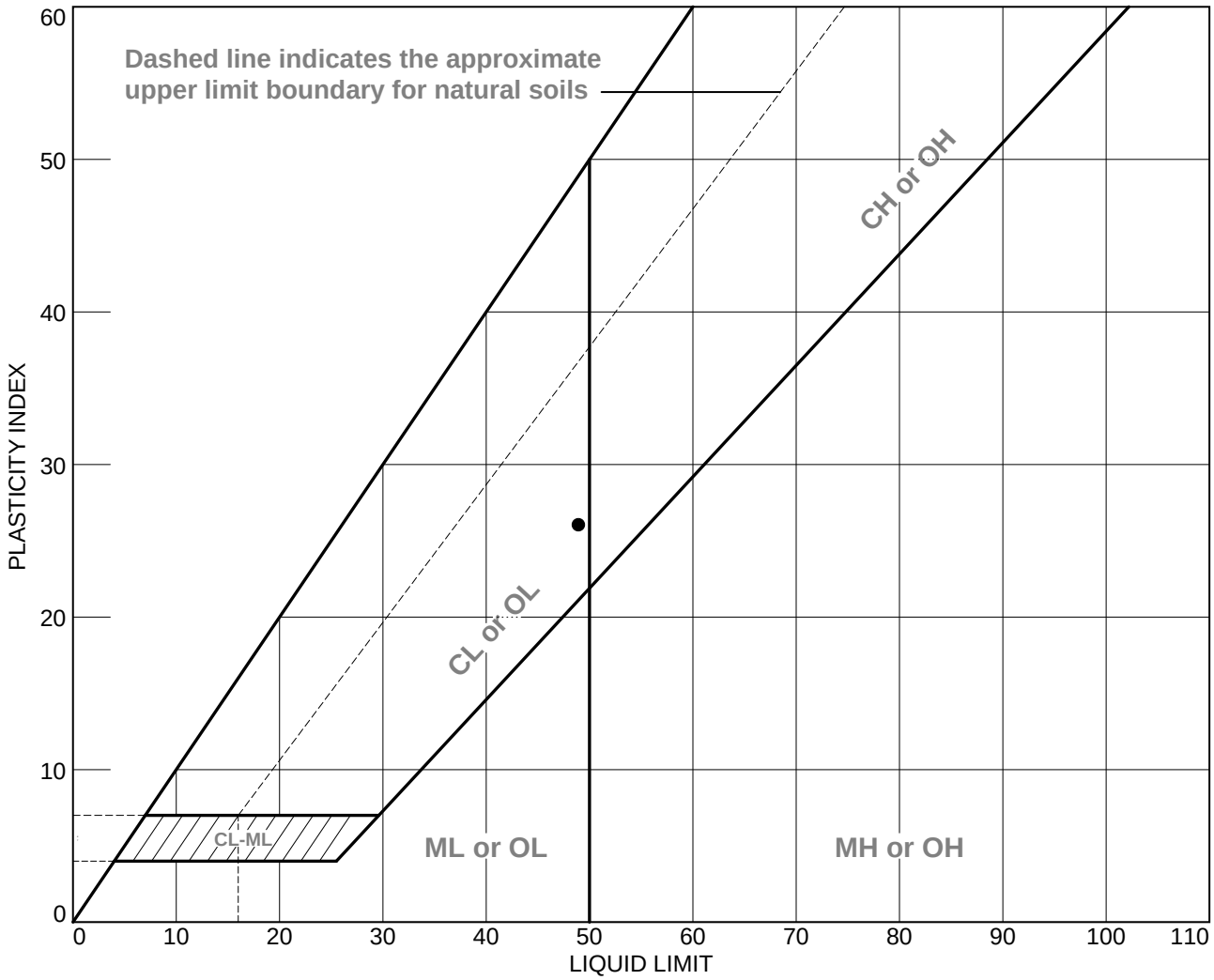
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	19.03					
Dry+Tare	15.49					
Tare	6.80					
# Blows	27					
Moisture	40.7					



Liquid Limit= 41
Plastic Limit=
Plasticity Index=
Natural Moisture= 46.2

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-11	S20	38-40 ft	46.2	23	49	26	CL

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/24/24 **Checked By:** M. Alstede 6/25/24

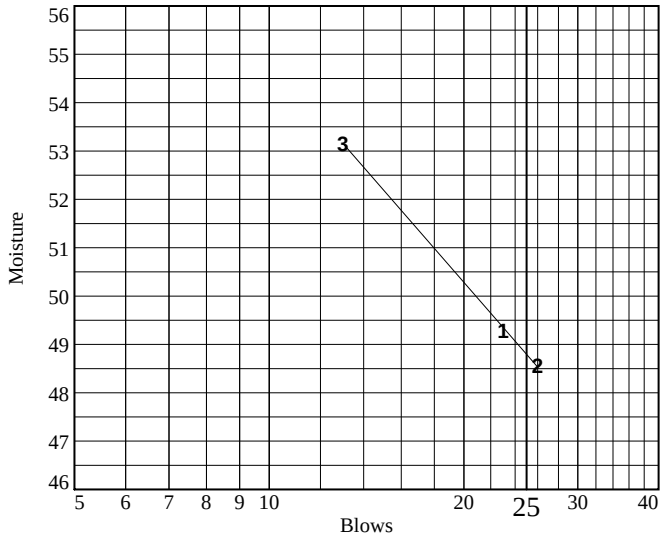
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-11
Depth: 38-40 ft
Sample Number: S20
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-7-6(29)
Tested by: S. Larson 6/24/24
Checked by: M. Alstede 6/25/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	33.08	32.30	37.54			
Dry+Tare	29.18	28.23	32.00			
Tare	21.27	19.85	21.58			
# Blows	23	26	13			
Moisture	49.3	48.6	53.2			

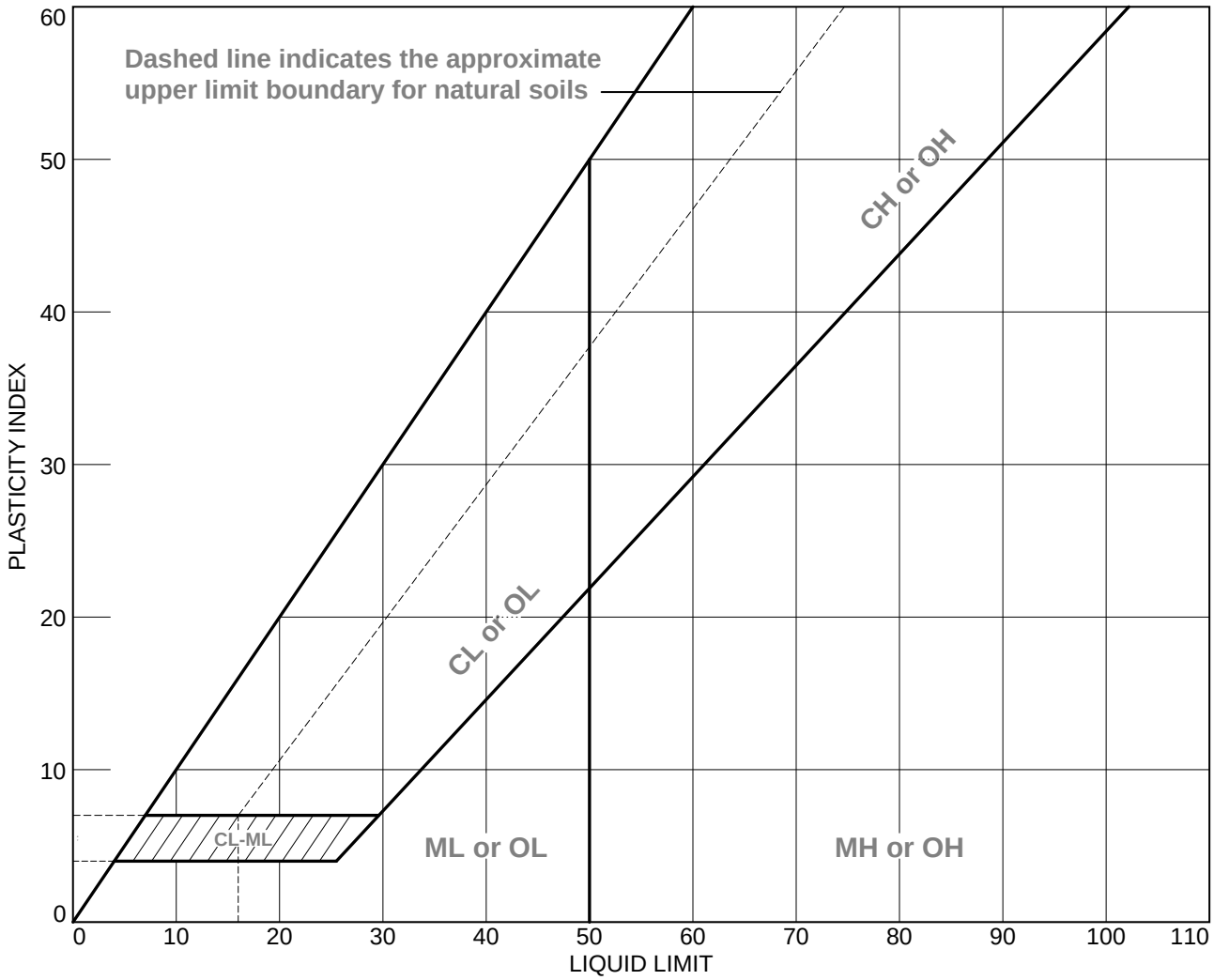


Liquid Limit= 49
Plastic Limit= 23
Plasticity Index= 26
Natural Moisture= 46.2
Liquidity Index= 0.9

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.90	23.39			
Dry+Tare	25.59	22.25			
Tare	19.88	17.28			
Moisture	22.9	22.9			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S3 (Oven Dry)	4-6 ft	102.7		53		OH

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/26/24 **Checked By:** E. Fazlic 6/26/24

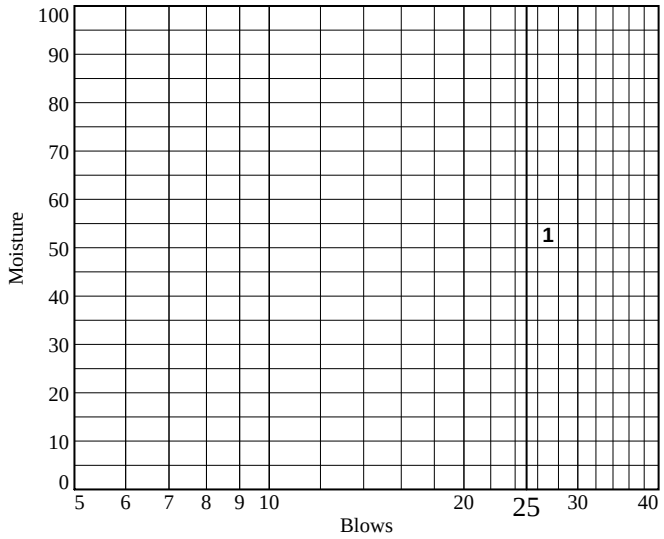
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 4-6 ft **Sample Number:** S3 (Oven Dry)
Material Description: ORGANIC SOIL
USCS: OH
Tested by: S. Larson 6/26/24 **Checked by:** E. Fazlic 6/26/24

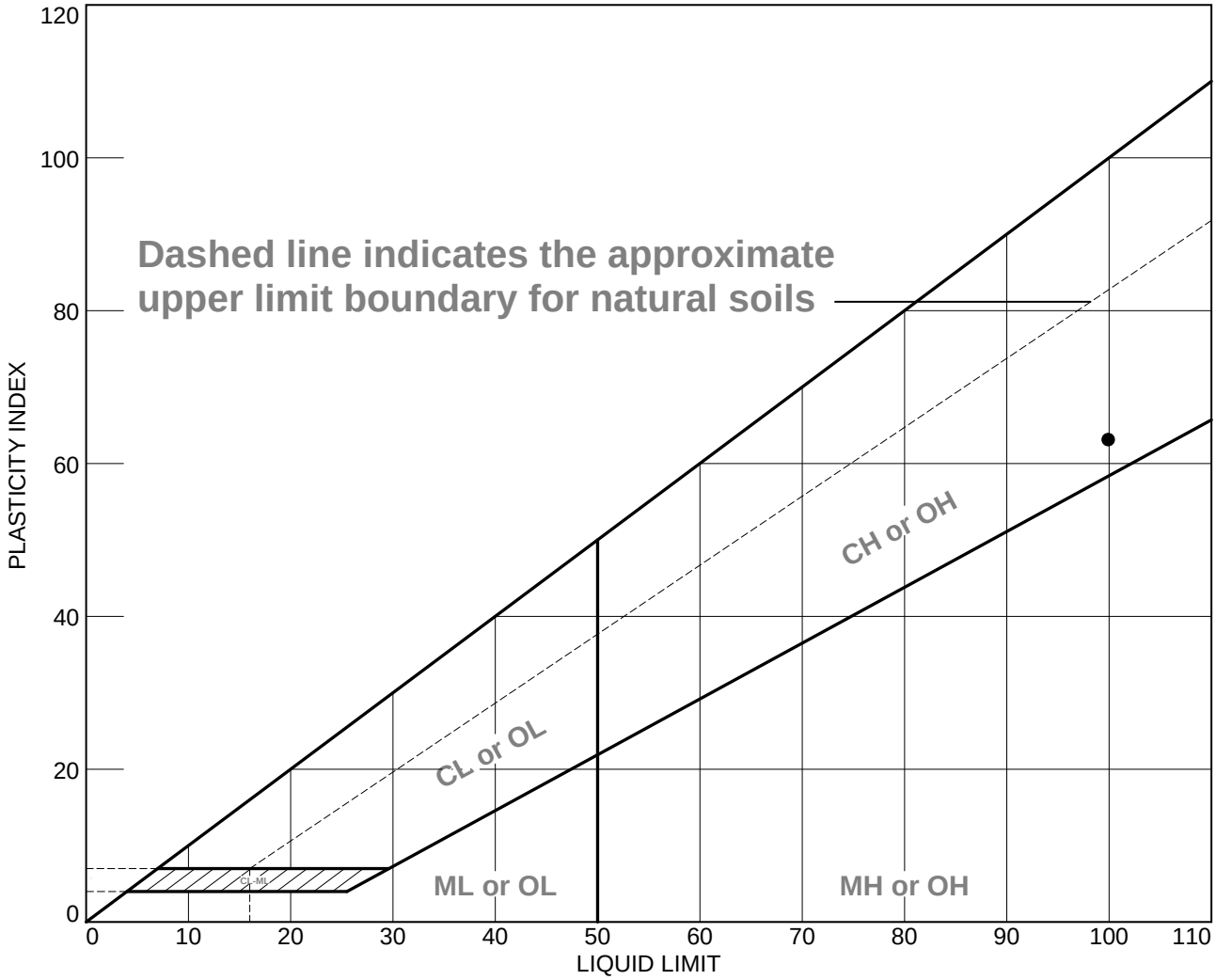
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.79					
Dry+Tare	19.49					
Tare	11.37					
# Blows	27					
Moisture	53.0					



Liquid Limit= 53
Plastic Limit=
Plasticity Index=
Natural Moisture= 102.7

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S3	4-6 ft	102.7	37	100	63	OH

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Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/20/24 **Checked By:** W. Lukas 6/20/24

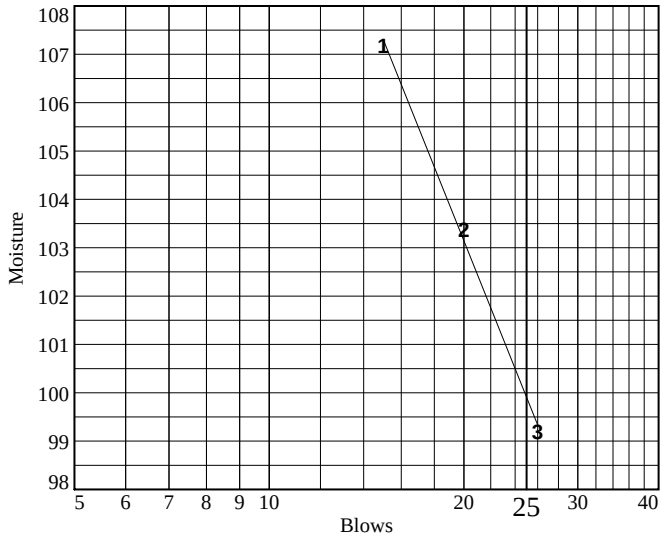
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 4-6 ft
Sample Number: S3
Material Description: ORGANIC SOIL
USCS: OH
AASHTO: A-7-5(71)
Tested by: B. Nourai 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.26	23.70	24.11			
Dry+Tare	17.85	17.31	17.90			
Tare	11.87	11.13	11.64			
# Blows	15	20	26			
Moisture	107.2	103.4	99.2			

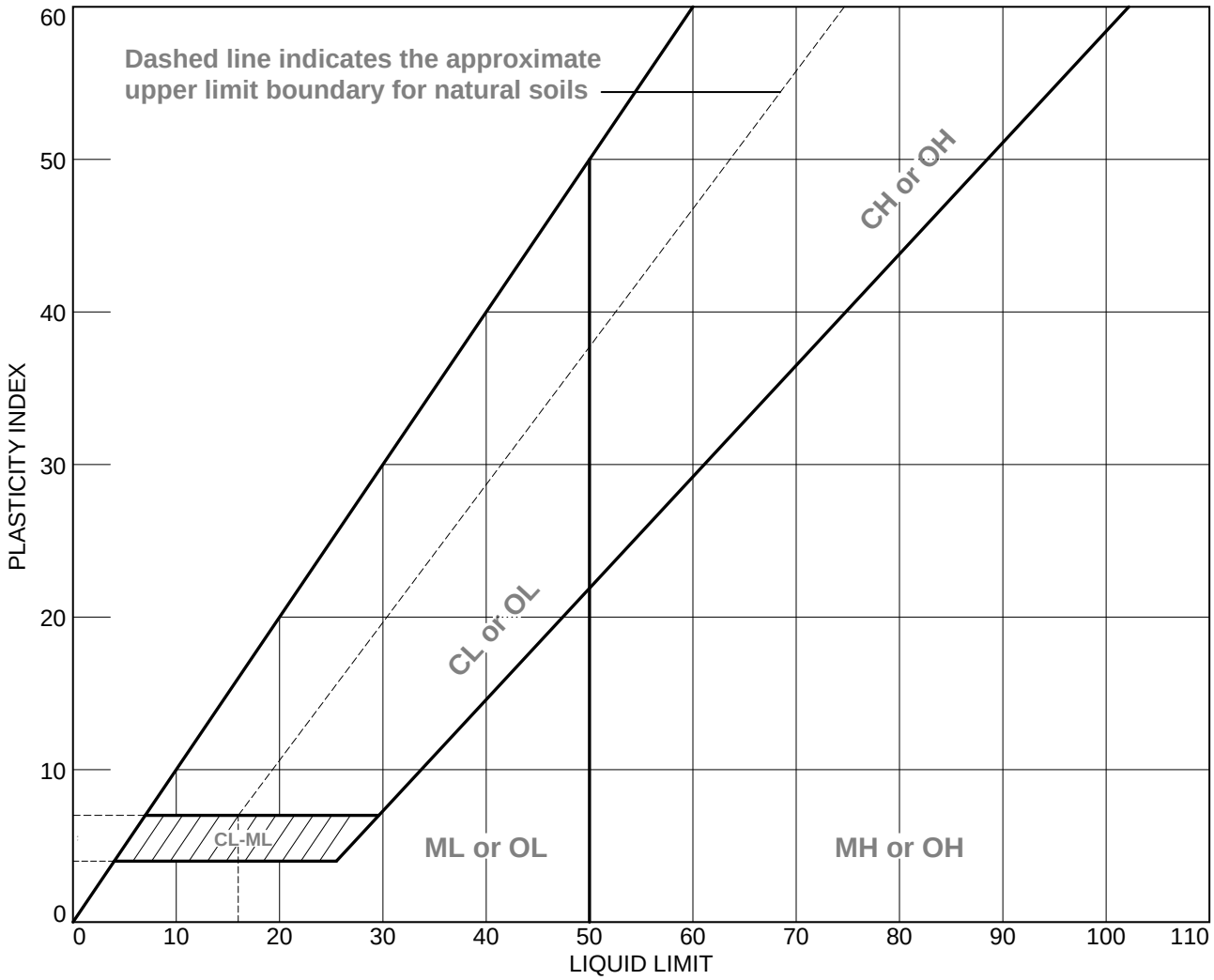


Liquid Limit= 100
Plastic Limit= 37
Plasticity Index= 63
Natural Moisture= 102.7
Liquidity Index= 1.0

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	27.51	27.61			
Dry+Tare	25.88	25.92			
Tare	21.47	21.39			
Moisture	37.0	37.3			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S9 (Oven Dry)	16-18 ft	27.5		30		CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/26/24 **Checked By:** E. Fazlic 6/26/24

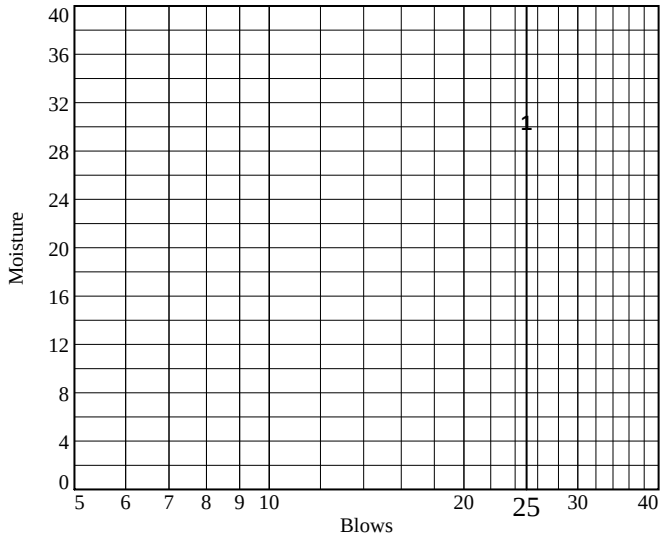
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 16-18 ft **Sample Number:** S9 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: S. Larson 6/26/24 **Checked by:** E. Fazlic 6/26/24

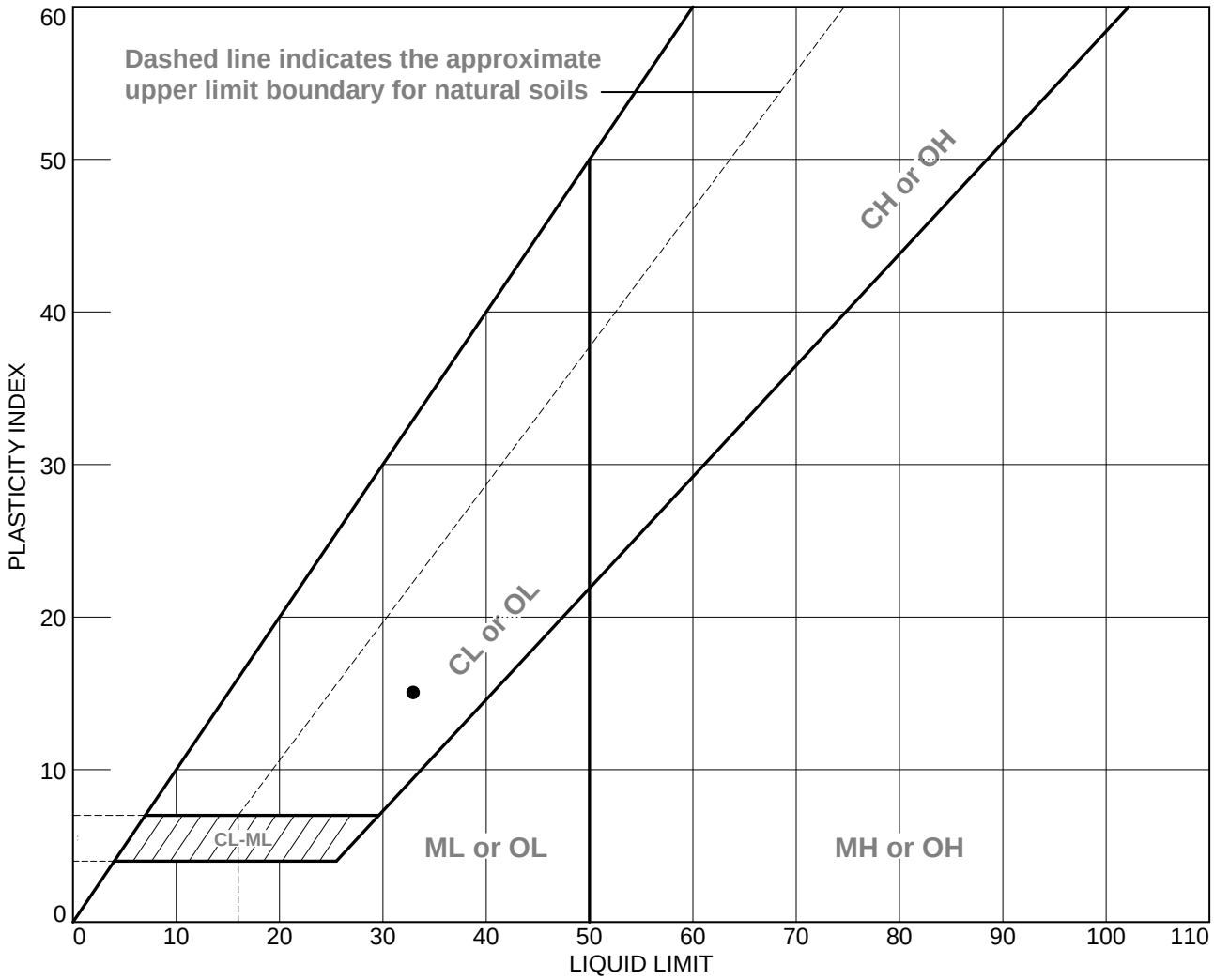
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	25.41					
Dry+Tare	22.26					
Tare	11.91					
# Blows	25					
Moisture	30.4					



Liquid Limit= 30
Plastic Limit=
Plasticity Index=
Natural Moisture= 27.5

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S9	16-18 ft	27.5	18	33	15	CL

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400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/20/24 **Checked By:** W. Lukas 6/20/24

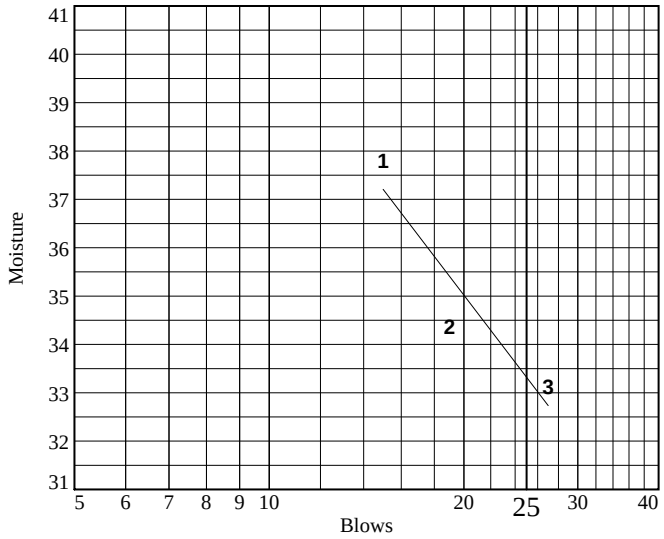
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 16-18 ft
Sample Number: S9
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(15)
Tested by: S. Larson 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.49	24.60	23.08			
Dry+Tare	20.89	21.24	20.16			
Tare	11.37	11.47	11.35			
# Blows	15	19	27			
Moisture	37.8	34.4	33.1			

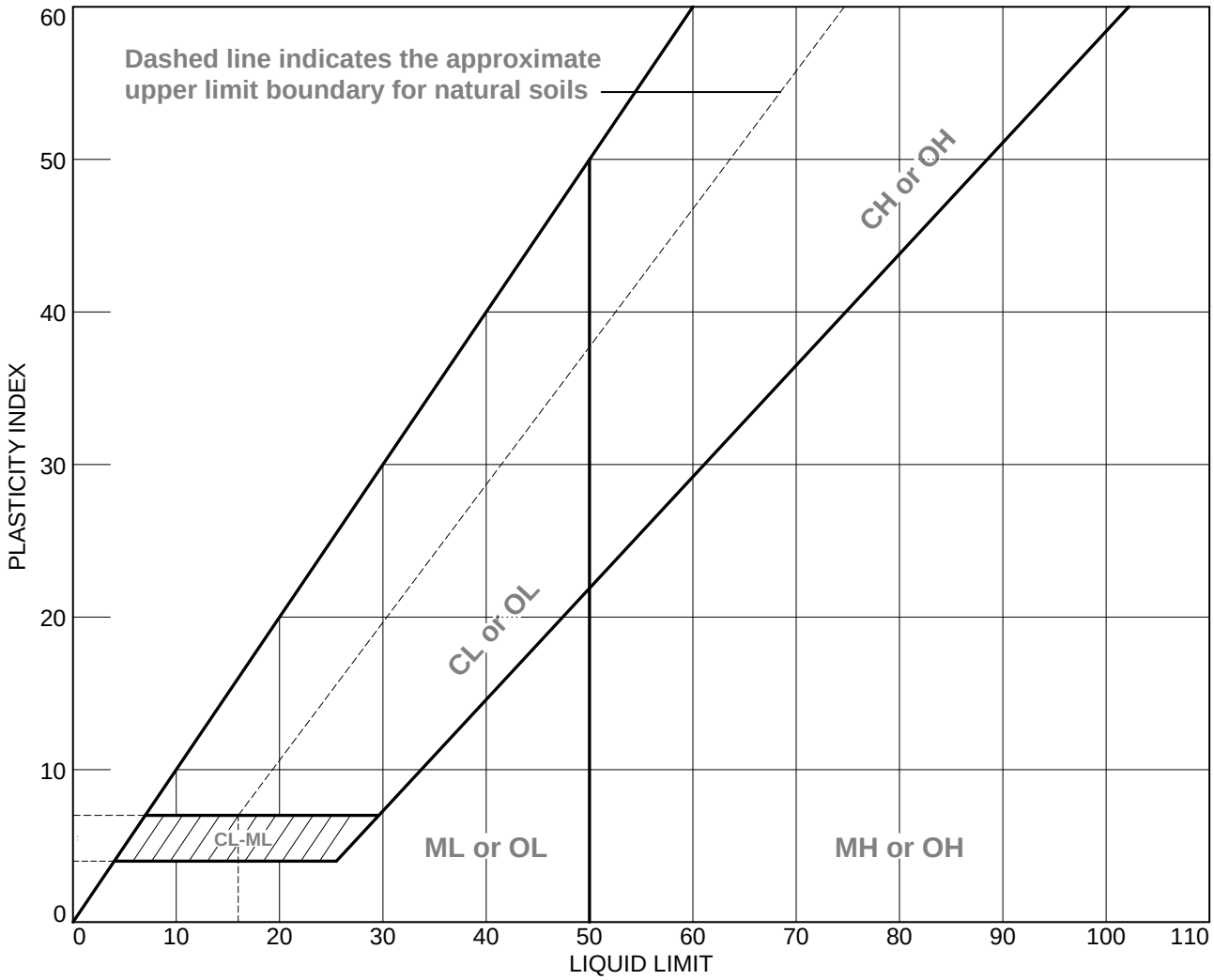


Liquid Limit= 33
Plastic Limit= 18
Plasticity Index= 15
Natural Moisture= 27.5
Liquidity Index= 0.6

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.25	27.60			
Dry+Tare	25.24	26.69			
Tare	19.70	21.47			
Moisture	18.2	17.4			

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S18 (Oven Dry)	34-36 ft	34.0		34		CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: B. Nourai 6/25/24 **Checked By:** M. Alstede 6/25/24

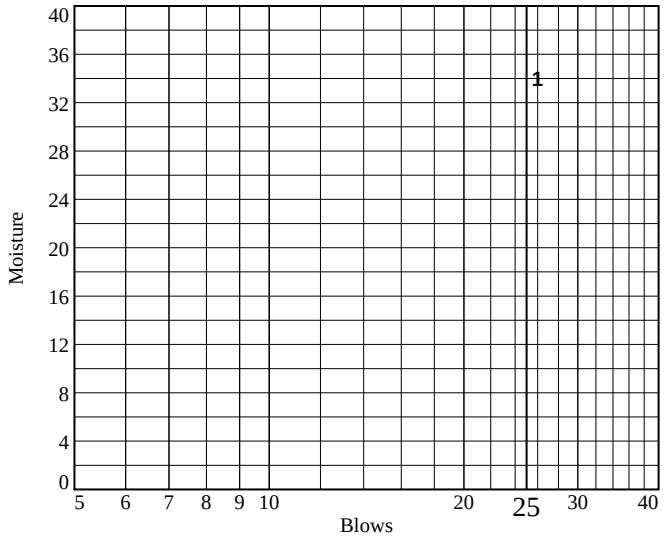
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 34-36 ft **Sample Number:** S18 (Oven Dry)
Material Description: LEAN CLAY
USCS: CL
Tested by: B. Nourai 6/25/24 **Checked by:** M. Alstede 6/25/24

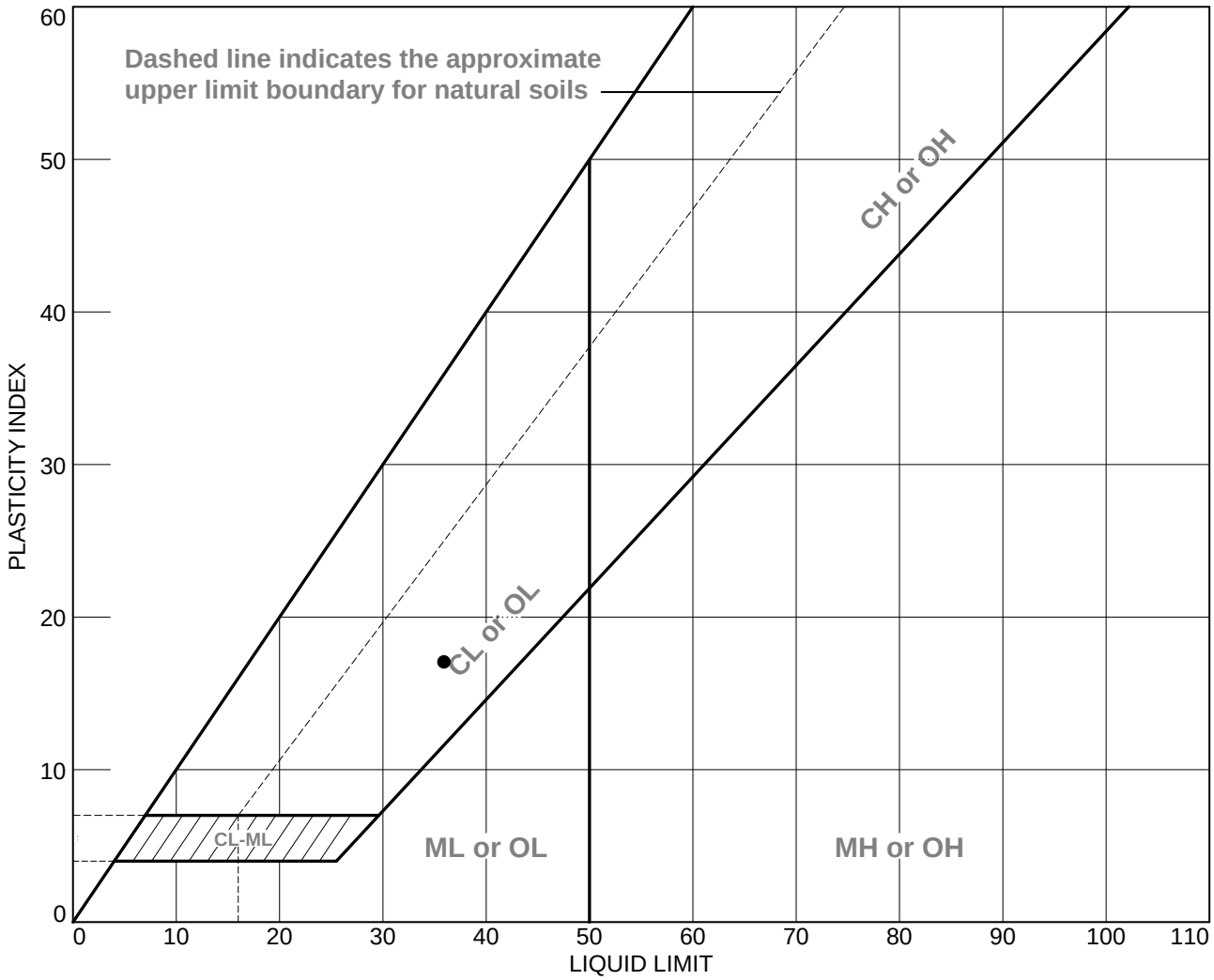
Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	23.90					
Dry+Tare	20.75					
Tare	11.49					
# Blows	26					
Moisture	34.0					



Liquid Limit= 34
Plastic Limit=
Plasticity Index=
Natural Moisture= 34.0

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

SYMBOL	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	USCS
●	FD24-12	S18	34-36 ft	40.1	19	36	17	CL

GEI Consultants, Inc.
400 Unicorn Park Drive
Woburn, MA 01801

Client: USACE - New England

Project: Subsurface Exploration and Site Characterization

Project No.: 2400096 **Figure**

Tested By: S. Larson 6/20/24 **Checked By:** W. Lukas 6/20/24

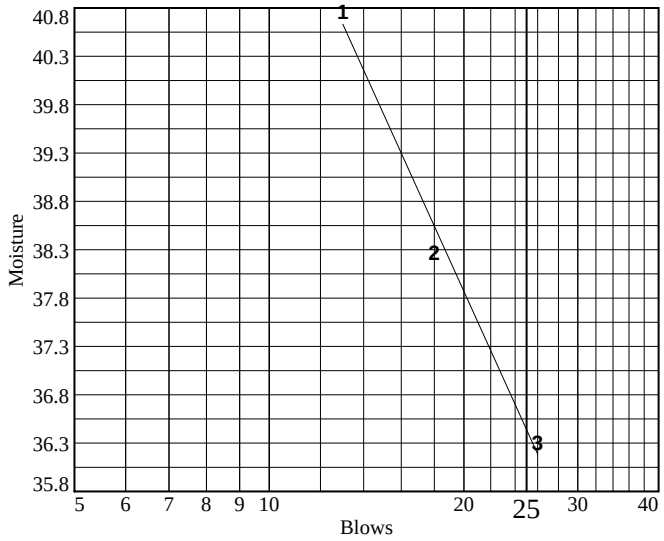
LIQUID AND PLASTIC LIMIT TEST DATA

6/27/2024

Client: USACE - New England
Project: Subsurface Exploration and Site Characterization
Project Number: 2400096
Location: FD24-12
Depth: 34-36 ft
Sample Number: S18
Material Description: LEAN CLAY
USCS: CL
AASHTO: A-6(18)
Tested by: S. Larson 6/20/24
Checked by: W. Lukas 6/20/24

Liquid Limit Data

Run No.	1	2	3	4	5	6
Wet+Tare	24.55	22.93	23.21			
Dry+Tare	20.75	19.73	20.08			
Tare	11.43	11.37	11.46			
# Blows	13	18	26			
Moisture	40.8	38.3	36.3			



Liquid Limit= 36
Plastic Limit= 19
Plasticity Index= 17
Natural Moisture= 40.1
Liquidity Index= 1.2

Plastic Limit Data

Run No.	1	2	3	4	
Wet+Tare	26.37	26.21			
Dry+Tare	25.33	25.22			
Tare	19.92	19.85			
Moisture	19.2	18.4			

Water Content and Organic Content

Project No.	2400096
By	
Date	
Checked By	M. Aistedt
Date	6/25/24

Boring	FD24-12	FD24-08					
Sample	S18	S4					
Test							
Depth	34'-36'	6'-8'					

Water Content

Tare #	VA1	VB6					
Date in oven	6/20/24	6/20/24					
Date out of oven	6/21/24	6/21/24					
Oven Temperature	110°C	110°C					
Wet Wt. + Tare, **A** (g)	93.68	97.13					
Dry Wt. + Tare, **B** (g)	81.47	77.73					
Tare, **C** (g)	49.99	55.35					
Wt. Water, **A** - **B** (g)	12.21	19.40					
Dry Wt, **B** - **C** (g)	31.48	22.38					
Water Content* (%)	38.8 ✓	86.7 ✓					

Organic Content

Tare #	VA1	VB6					
Date in oven	6/21/24	6/21/24					
Date out of oven	6/24/24	6/24/24					
Oven Temperature	440°C	440°C					
Dry Wt. + Tare, **B** (g)	81.53	77.84					
Ignited Wt. + Tare, **D** (g)	80.87	76.51					
Tare, **C** (g)	49.99	55.35					
✓ Organic Wt, **B** - **D** (g)	0.66	1.33					
✓ Dry Wt, **B** - **C** (g)	31.54	22.49					
✓ Organic Content* (%)	2.1	5.9					
✓ Percent Fixed* (%)	97.9 ✓	94.1 ✓					

Formulas

Water Content = (**A** - **B**) / (**B** - **C**) * 100

Organic Content = (**B** - **D**) / (**B** - **C**) * 100

Percent Fixed = (**D** - **C**) / (**B** - **C**) * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content and Organic Content

Project No.	2400096
By	S. Larson
Date	6/20/24
Checked By	W. LUKAS
Date	6/20/24

Boring	FD24-10	FD24-11	FD24-11	FD24-11	FD24-12	FD24-12	
Sample	S17	S5	S12	S20	S3	S9	
Test							
Depth	32-34'	8-10'	22-24'	38-40'	4-6'	16-18'	

Water Content

Tare #	B2	B3	B10	VA1	B6	B9	
Date in oven	6/18/24	6/18/24	6/18/24	6/18/24	6/18/24	6/18/24	
Date out of oven	6/19/24	6/19/24	6/19/24	6/19/24			
Oven Temperature	110°C	110°C	110°C	110°C	110°C	110°C	
Wet Wt. + Tare, **A** (g)	97.95	98.55	97.06	90.88	95.41	86.71	
Dry Wt. + Tare, **B** (g)	83.26	77.44	88.12	77.96	74.47	78.16	
Tare, **C** (g)	51.94	53.22	54.94	49.99	55.35	46.12	
Wt. Water, **A - B** (g)	14.69	21.11	8.94	12.92	20.94	8.55	
Dry Wt, **B - C** (g)	31.32	24.22	33.18	27.97	19.12	32.04	
Water Content* (%)	46.9 ✓	87.2 ✓	26.9 ✓	46.2 ✓	109.5 ✓	26.7 ✓	

Organic Content

Tare #	B2	B3	B10	VA1	B6	B9	
Date in oven	6/19/24	6/19/24	6/19/24	6/19/24	6/19/24	6/19/24	
Date out of oven	6/20/24	6/20/24	6/20/24	6/20/24	6/20/24	6/20/24	
Oven Temperature	440°C	440°C	440°C	440°C	440°C	440°C	
Dry Wt. + Tare, **B** (g)	83.34	77.61	88.11	78.00	74.66	78.11	
Ignited Wt. + Tare, **D** (g)	82.66	76.35	87.57	77.35	73.21	77.52	
Tare, **C** (g)	51.94	53.22	54.94	49.99	55.35	46.12	
Organic Wt, **B - D** (g)	0.68	1.26	0.54	0.65	1.45	0.59	
Dry Wt, **B - C** (g)	31.40	24.39	33.17	28.01	19.31	31.99	
Organic Content* (%)	2.2	5.2	1.6	2.3	7.5	1.8	
Percent Fixed* (%)	97.8 ✓	94.8 ✓	98.4 ✓	97.7 ✓	92.5 ✓	98.2 ✓	

Formulas

Water Content = **(A - B) / (B - C)** * 100

Organic Content = **(B - D) / (B - C)** * 100

Percent Fixed = **(D - C) / (B - C)** * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content and Organic Content

Project No.	2400096
By	S. Larson
Date	6/4/24
Checked By	W. Likas
Date	6/5/24

Boring	FD24-03	FD24-04	FD24-06	FD24-05	FD24-08	FD24-06	
Sample	S8	S11	S8 (9-18")	S22	S9	S6	
Test							
Depth	14-16'	20-22'	14-16'	42-44'	16-18'	10'-12'	

Water Content

Tare #	B2	B6	B3	B10	VA1	B9	
Date in oven	5/30/24	5/30/24	5/31/24	5/31/24	5/31/24	5/31/24	
Date out of oven	6/2/24	6/2/24	6/2/24	6/2/24	6/2/24	6/2/24	
Oven Temperature	110°C	110°C	110°C	110°C	110°C	110°C	
Wet Wt. + Tare, **A** (g)	99.58	100.80	108.19	101.21	91.53	86.26	
Dry Wt. + Tare, **B** (g)	90.41	86.25	95.71	88.08	83.34	68.15	
Tare, **C** (g)	51.94	55.35	53.23	54.94	50.00	46.12	
Wt. Water, **A - B** (g)	9.17	14.55	12.48	13.13	8.19	18.11	
Dry Wt, **B - C** (g)	38.47	30.90	42.48	33.14	33.34	22.03	
Water Content* (%)	23.8 ✓	47.1 ✓	29.4 ✓	39.6 ✓	24.6 ✓	82.2 ✓	

Organic Content

Tare #	B2	B6	B3	B10	VA1	B9	
Date in oven	6/3/24	6/3/24	6/3/24	6/3/24	6/3/24	6/3/24	
Date out of oven	6/4/24	6/4/24	6/4/24	6/4/24	6/4/24	6/4/24	
Oven Temperature	440°C	440°C	440°C	440°C	440°C	440°C	
Dry Wt. + Tare, **B** (g)	90.14	86.10	95.59	87.67	83.15	67.93	
Ignited Wt. + Tare, **D** (g)	89.93	85.34	95.28	87.21	82.87	67.24	
Tare, **C** (g)	51.94	55.35	53.23	54.94	50.00	46.12	
Organic Wt, **B - D** (g)	0.21	0.76	0.31	0.46	0.28	0.69	
Dry Wt, **B - C** (g)	38.2	30.75	42.36	32.73	33.15	21.81	
Organic Content* (%)	0.5	2.5	0.7	1.4	0.8	3.2	
Percent Fixed* (%)	99.5 ✓	97.5 ✓	99.3 ✓	98.6 ✓	99.2 ✓	96.8 ✓	

Formulas

Water Content = **(A - B) / (B - C)** * 100

Organic Content = **(B - D) / (B - C)** * 100

Percent Fixed = **(D - C) / (B - C)** * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content and Organic Content

Project No.	2400096
By	M. Mistede + S. Larson 6/17/24
Date	6/12/24
Checked By	V. Lukas
Date	6/17/24

Boring	FD24-10	FD24-06	FD24-07	FD24-07	FD24-09	FD24-10	
Sample	S4	S11	S3	S9	S2	S10	
Test							
Depth	6-8 ft	20-22ft	4-6 ft	16-18ft	2-4 ft	18-20ft	

Water Content

Tare #	B3	VA1	B10	B2	B6	B9	
Date in oven	6/12/24	6/12/24	6/12/24	6/12/24	6/12/24	6/12/24	
Date out of oven	6/13/24	6/13/24	6/13/24	6/13/24	6/13/24	6/13/24	
Oven Temperature	110°C	110°C	110°C	110°C	110°C	110°C	
Wet Wt. + Tare, **A** (g)	93.44	97.14	97.15	100.26	106.57	91.98	
Dry Wt. + Tare, **B** (g)	72.83	83.66	76.09	90.85	81.85	82.42	
Tare, **C** (g)	53.23	50.00	54.95	51.94	55.35	46.11	
Wt. Water, **A** - **B** (g)	20.61	13.48	21.06	9.41	24.72	9.56	
Dry Wt, **B** - **C** (g)	19.60	33.66	21.14	38.91	26.50	36.31	
Water Content* (%)	105.2 ✓	40.0 ✓	99.6 ✓	24.2 ✓	93.3 ✓	26.3 ✓	

Organic Content

Tare #	B3	VA1	B10	B2	B6	B9	
Date in oven	6/14/24	6/14/24	6/14/24	6/14/24	6/14/24	6/14/24	
Date out of oven	6/17/24	6/17/24	6/17/24	6/17/24	6/17/24	6/17/24	
Oven Temperature	440°C	440°C	440°C	440°C	440°C	440°C	
Dry Wt. + Tare, **B** (g)	72.53	83.47	75.84	90.56	81.56	82.13	
Ignited Wt. + Tare, **D** (g)	71.49	82.81	74.72	90.03	80.39	81.70	
Tare, **C** (g)	53.23	50.00	54.95	51.94	55.35	46.11	
Organic Wt, **B** - **D** (g)	1.04	0.66	1.12	0.53	1.17	0.43	
Dry Wt, **B** - **C** (g)	19.30	33.47	20.89	38.62	26.21	36.02	
Organic Content* (%)	5.4	2.0	5.4	1.4	4.5	1.2	
Percent Fixed* (%)	94.6 ✓	98.0 ✓	94.6 ✓	98.6 ✓	95.5 ✓	98.8 ✓	

Formulas

Water Content = (**A** - **B**) / (**B** - **C**) * 100

Organic Content = (**B** - **D**) / (**B** - **C**) * 100

Percent Fixed = (**D** - **C**) / (**B** - **C**) * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content and Organic Content

Project No.	2400096
By	S. Larson
Date	5/22/24
Checked By	W. Lucas
Date	5/22/24

Boring	FD24-01	FD24-01	FD24-02				
Sample	S7	S10	S10				
Test							
Depth	12-14ft	18'-20'	18'-20'				

Water Content

Tare #	O-1	BS-14	A1				
Date in oven	5/20/24	5/20/24	5/20/24				
Date out of oven	5/21/24	5/21/24	5/21/24				
Oven Temperature	110°C	110°C	110°C				
Wet Wt. + Tare, **A** (g)	201.60	305.47	215.25				
Dry Wt. + Tare, **B** (g)	162.96	275.79	186.10				
Tare, **C** (g)	67.41	159.76	77.96				
Wt. Water, **A - B** (g)	38.64	29.68	29.15				
Dry Wt, **B - C** (g)	95.55	116.03	108.14				
Water Content* (%)	40.4 ✓	25.6 ✓	27.0 ✓				

Organic Content

Tare #	O-1	B2	B3				
Date in oven	5/21/24	5/21/24	5/21/24				
Date out of oven	5/22/24	5/22/24	5/22/24				
Oven Temperature	440°C	440°C	440°C				
Dry Wt. + Tare, **B** (g)	162.90	86.75	97.54				
Ignited Wt. + Tare, **D** (g)	159.83	86.27	97.06				
Tare, **C** (g)	67.41	51.94	53.23				
Organic Wt, **B - D** (g)	3.07	0.48	0.48				
Dry Wt, **B - C** (g)	95.49	34.81	44.31				
Organic Content* (%)	3.2	1.4	1.1				
Percent Fixed* (%)	96.8 ✓	98.6 ✓	98.9 ✓				

Formulas

Water Content = **(A - B)** / **(B - C)** * 100

Organic Content = **(B - D)** / **(B - C)** * 100

Percent Fixed = **(D - C)** / **(B - C)** * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content and Organic Content

Project No.	2400096
By	M. Aistedt
Date	5/22/24
Checked By	W. Lukas
Date	5/29/24

Boring	FD24-01	FD24-02	FD24-03	FD24-04	FD24-05	FD24-05	
Sample	S23	S6	S3	S2	S6	S17	
Test							
Depth	44-46 ft	10-12 ft	4-6 ft	2-4 ft	10-12 ft	32-34 ft	

Water Content

Tare #	VA1	B6	B9	B10	B3	B2	
Date in oven	5/22/24	5/22/24	5/22/24	5/22/24	5/22/24	5/22/24	
Date out of oven	5/23/24	5/23/24	5/23/24	5/23/24	5/23/24	5/23/24	
Oven Temperature	110°C	110°C	110°C	110°C	110°C	110°C	
Wet Wt. + Tare, **A** (g)	94.85	95.73	83.18	87.78	92.94	99.38	
Dry Wt. + Tare, **B** (g)	81.50	75.76	63.39	70.54	75.03	88.96	
Tare, **C** (g)	50.00	55.35	46.11	54.94	53.23	51.94	
Wt. Water, **A - B** (g)	13.35	19.97	19.79	17.24	17.91	10.42	
Dry Wt, **B - C** (g)	31.50	20.41	17.28	15.60	21.80	37.02	
Water Content* (%)	42.4	97.8	114.5	110.5	82.2	28.1	

Organic Content

Tare #	VA1	B6	B9	B10	B3	B2	
Date in oven	5/23/24	5/23/24	5/23/24	5/23/24	5/23/24	5/23/24	
Date out of oven	5/28/24	5/28/24	5/28/24	5/28/24	5/28/24	5/28/24	
Oven Temperature	440°C	440°C	440°C	440°C	440°C	440°C	
Dry Wt. + Tare, **B** (g)	81.24	75.60	63.15	70.42	74.85	88.76	
Ignited Wt. + Tare, **D** (g)	80.70	74.60	62.14	69.50	74.00	88.26	
Tare, **C** (g)	50.00	55.35	46.11	54.94	53.23	51.94	
Organic Wt, **B - D** (g)	0.54	1.00	1.01	0.92	0.85	0.50	
Dry Wt, **B - C** (g)	31.24	20.25	17.04	15.48	21.62	36.82	
Organic Content* (%)	1.7	4.9	5.9	5.9	3.9	1.4	
Percent Fixed* (%)	98.3	95.1	94.1	94.1	96.1	98.6	

Formulas

Water Content = **(A - B) / (B - C)** * 100

Organic Content = **(B - D) / (B - C)** * 100

Percent Fixed = **(D - C) / (B - C)** * 100

*Organic Content or Percent Volatiles

REMARKS & TEST NOTES

GEI Consultants

Water Content

Project No.	2400096
By	M. Alsted
Date	5/21/24
Checked By	W. Lukas
Date	5/29/24

Check Method Used

___ ASTM D2216 (Oven)

___ ASTM D4643 (Microwave)

___ Other (indicate)

Boring	FD24-06				
Sample	S8(9-18")				
Depth	14-16ft				
Test					
Method (A or B)					
Tare #	MA-7				
Tare (g)	19.92				
Wet Wt. + Tare (g)	40.11				
Dry Wt. + Tare (g)	35.52				
Wt. Water (g)	4.59				
Dry Wt. (g)	15.60				
Water Content (%)	29.4 ✓				

Boring					
Sample					
Depth					
Test					
Method (A or B)					
Tare #					
Tare (g)					
Wet Wt. + Tare (g)					
Dry Wt. + Tare (g)					
Wt. Water (g)					
Dry Wt. (g)					
Water Content (%)					

REMARKS & TEST NOTES

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Misiedl
Date	5/22/24
Checked By	W. Lukas
Date	5/28/24

Boring	FD24-01	FD24-02	FD24-02
Sample	S23	S16	S24
Test			
Depth	44-46 ft	30-32 ft	46-48ft
USCS Classification			
USCS Symbol	CL	CL	CL
% Passing No. 4 Sieve	100	100	100
Method of Air Removal	VAC	VAC	VAC
Flask #	SG6	SG6	SG21
M_p (g)	178.779	178.779	170.561
V_p (mL)	499.27	499.27	499.30
Temperature (°C)	23.7	22.5	22.6
$M_{pws,t}$ (g)	694.652	697.255	692.485
Tare #	Q-77	MB-77	MB-2
Dry Wt. + Tare (g)	361.395	432.591	442.441
Tare (g)	332.998	400.779	405.126
M_s (g)	28.397	31.812	37.315
$\rho_{w,t}$ (g/mL)	0.99737	0.99764	0.99764
K	0.99917	0.99945	0.99943
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.736	676.881	668.683
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.709	2.781	2.761
$G_{20°C} = K * G_t$	2.71	2.78	2.76

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistedt
Date	5/28/24
Checked By	D. Likas
Date	6/4/24

Boring	FD24-03	FD24-03	
Sample	S8	S18	
Test			
Depth	14 - 16 ft	34 - 36 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG6	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	23.3	23.2	
$M_{pws,t}$ (g)	693.87	685.83	
Tare #	AH-25	WL-4	
Dry Wt. + Tare (g)	199.407	233.003	
Tare (g)	172.692	205.920	
M_s (g)	26.715	27.083	
$\rho_{w,t}$ (g/mL)	0.99747	0.99749	
K	0.99926	0.99929	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.786	668.608	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.774	2.746	
$G_{20°C} = K * G_t$	2.77	2.74	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistedt
Date	6/3/24
Checked By	W. Likos
Date	6/5/24

Boring	FD24-03	FD24-04	
Sample	S25(S2)-24"	S7	
Test			
Depth	48-50 ft	12-14 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	95	100	
Method of Air Removal	VAC	VAC	
Flask #	SG6	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	24.3	24.2	
$M_{pws,t}$ (g)	706.73	687.88	
Tare #	JV-5	BOWL	
Dry Wt. + Tare (g)	386.131	230.499	
Tare (g)	338.864	199.387	
M_s (g)	47.267	31.112	
$\rho_{w,t}$ (g/mL)	0.99723	0.99725	
K	0.99902	0.99904	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.16060	668.488	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.748	2.655	
$G_{20°C} = K * G_t$	2.784	2.65	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Mistedi
Date	6/4/24
Checked By	W. Lucas
Date	6/11/24

Boring	FD24-04	FD24-04	
Sample	S11	S15	
Test			
Depth	20-22 ft	28-30 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG16	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	24.6	24.6	
$M_{pws,t}$ (g)	692.94	702.17	
Tare #	T-13	ST-MB	
Dry Wt. + Tare (g)	427.719	465.927	
Tare (g)	401.980	412.141	
M_s (g)	25.739	53.786	
$\rho_{w,t}$ (g/mL)	0.99715	0.99715	
K	0.99894	0.99894	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.626	668.438	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.731	2.682	
$G_{20°C} = K * G_t$	2.73 ✓	2.68 ✓	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Alstedt
Date	6/10/24
Checked By	W. Lukas
Date	6/13/24

Boring	FD24-05	FD24-05	
Sample	S6	S17	
Test			
Depth	10-12 ft	32-34 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG16	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	24.8	24.8	
$M_{pws,t}$ (g)	694.001	690.061	
Tare #	AH-25	PH-20	
Dry Wt. + Tare (g)	200.167	441.344	
Tare (g)	172.679	407.552	
M_s (g)	27.488	33.792	
$\rho_{w,t}$ (g/mL)	0.99710	0.99710	
K	0.99889	0.99889	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.601	668.413	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.725	2.783	
$G_{20°C} = K * G_t$	2.72 ✓	2.78 ✓	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistedt
Date	6/11/24
Checked By	W. Lukas
Date	6/13/24

Boring	FD24-05	FD24-06	
Sample	S22	S11	
Test			
Depth	42-44 ft	20-22 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG16	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	24.6	24.8	
$M_{pws,t}$ (g)	698.921	685.872	
Tare #	WL-4	MA-60	
Dry Wt. + Tare (g)	240.753	231.601	
Tare (g)	205.903	203.743	
M_s (g)	34.850	27.858	
$\rho_{w,t}$ (g/mL)	0.99715	0.99710	
K	0.99894	0.99889	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.626	668.413	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.776	2.679	
$G_{20°C} = K * G_t$	2.77 ✓	2.68 ✓	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistedt
Date	6/12/24
Checked By	W. Lucas
Date	6/17/24

Boring	FD24-06	FD24-07	
Sample	S15 (12-24")	S3	
Test			
Depth	28-30 ft	4-6 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG6	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	25.4	25.3	
$M_{pws,t}$ (g)	692.963	678.408	
Tare #	Q-77	MB-87	
Dry Wt. + Tare (g)	359.083	350.875	
Tare (g)	333.182	334.551	
M_s (g)	25.901	16.324	
$\rho_{w,t}$ (g/mL)	0.996694	0.996697	
K	0.99874	0.99876	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.521	668.348	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.738	2.606	
$G_{20°C} = K * G_t$	2.73	2.60	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Alstedt
Date	6/13/24
Checked By	W. Lucas
Date	6/19/24

Boring	FD24-07	FD24-07	
Sample	S9	S26	
Test			
Depth	16-18 ft	50-52 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG6	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	24.9	24.7	
$M_{pws,t}$ (g)	702.472	695.378	
Tare #	JV-5	BOWL	
Dry Wt. + Tare (g)	379.367	241.976	
Tare (g)	338.841	199.367	
M_s (g)	40.526	42.609	
$\rho_{w,t}$ (g/mL)	0.99707	0.99712	
K	0.99887	0.99892	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.586	668.423	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.768	2.722	
$G_{20°C} = K * G_t$	2.76	2.72	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Alstedt
Date	6/17/24
Checked By	W. Lukas
Date	06/20/24

Boring	FD24-08	FD24-08	
Sample	S9	S16	
Test			
Depth	16-18 ft	30-32 ft	
USCS Classification			
USCS Symbol	CL	CL	
% Passing No. 4 Sieve	100	100	
Method of Air Removal	VAC	VAC	
Flask #	SG6	SG21	
M_p (g)	178.779	170.561	
V_p (mL)	499.27	499.30	
Temperature (°C)	23.5	23.7	
$M_{pws,t}$ (g)	689.310	684.850	
Tare #	MA-60	AH-25	
Dry Wt. + Tare (g)	223.285	197.993	
Tare (g)	203.713	172.699	
M_s (g)	19.572	25.294	
$\rho_{w,t}$ (g/mL)	0.99742	0.99737	
K	0.99921	0.99917	
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.761	668.548	
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.787	2.813	
$G_{20°C} = K * G_t$	2.78	2.81	

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistrup
Date	6/20/24
Checked By	EF
Date	6/26/24

Boring	FD24-09	FD24-09	FD24-09
Sample	S10	S15	S19 (Bot 9")
Test			
Depth	18-20 ft	28-30 ft	36-38 ft
USCS Classification			
USCS Symbol	CL	CL	CL
% Passing No. 4 Sieve	100	100	100
Method of Air Removal	VAC	VAC	VAC
Flask #	SG6	SG21	SG7
M_p (g)	178.779	170.561	150.358
V_p (mL)	499.27	499.30	499.32
Temperature (°C)	23.6	23.4	23.3
$M_{pws,t}$ (g)	699.064	690.245	672.562
Tare #	JV-5	ST-MB	BK-1
Dry Wt. + Tare (g)	373.712	445.910	437.087
Tare (g)	338.873	412.062	399.241
M_s (g)	34.839 ✓	33.848 ✓	37.846 ✓
$\rho_{w,t}$ (g/mL)	0.99740	0.99745	0.99747
K	0.99919	0.99924	0.99926
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.751 ✓	668.588 ✓	648.415 ✓
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.781 ✓	2.776 ✓	2.762 ✓
$G_{20°C} = K * G_t$	2.78 ✓	2.77 ✓	2.76 ✓

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Alstedt
Date	6/20/24
Checked By	CF
Date	6/26/24

Boring	FD24-10		
Sample	S4		
Test			
Depth	6-8 ft		
USCS Classification			
USCS Symbol	CL		
% Passing No. 4 Sieve	100		
Method of Air Removal	VAC		
Flask #	SG23		
M_p (g)	157.557		
V_p (mL)	499.27		
Temperature (°C)	23.2		
$M_{pws,t}$ (g)	668.237		
Tare #	PH-20		
Dry Wt. + Tare (g)	427.763		
Tare (g)	407.552		
M_s (g)	20.211 ✓		
$\rho_{w,t}$ (g/mL)	0.99749		
K	0.99929		
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	655.574 ✓		
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.678 ✓		
$G_{20°C} = K * G_t$	2.68 ✓		

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400916
By	M. Alsted
Date	6/24/24
Checked By	EF
Date	6/26/24

Boring	FD24-10	FD24-10	FD24-11
Sample	S10	S17	S5
Test			
Depth	18-20 ft	32-34 ft	8-10ft
USCS Classification			
USCS Symbol	CL	CL	CL
% Passing No. 4 Sieve	100	100	100
Method of Air Removal	VAC	VAC	VAC
Flask #	SG16	SG7	SG21
M_p (g)	178.779	150.358	170.561
V_p (mL)	499.27	499.32	499.30
Temperature (°C)	25.5	25.5	25.5
$M_{pws,t}$ (g)	703.995	665.942	683.681
Tare #	AH-25	MB-87	MA-60
Dry Wt. + Tare (g)	215.719	362.670	228.142
Tare (g)	172.661	334.563	203.737
M_s (g)	43.058 ✓	28.107 ✓	24.405 ✓
$\rho_{w,t}$ (g/mL)	0.99692	0.99692	0.99692
K	0.99871	0.99871	0.99871
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.511 ✓	648.140 ✓	668.323 ✓
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.765 ✓	2.728 ✓	2.698 ✓
$G_{20°C} = K * G_t$	2.76 ✓	2.72 ✓	2.69 ✓

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aistedt
Date	01/24/24
Checked By	cf
Date	6/26/24

Boring	FD24-11		
Sample	S12		
Test			
Depth	22-24 ft		
USCS Classification			
USCS Symbol	CL		
% Passing No. 4 Sieve	100		
Method of Air Removal	VAC		
Flask #	SG23		
M_p (g)	157.557		
V_p (mL)	199.27		
Temperature (°C)	25.5		
$M_{pws,t}$ (g)	687.617		
Tare #	B0-8		
Dry Wt. + Tare (g)	489.347		
Tare (g)	438.652		
M_s (g)	50.695 ✓		
$\rho_{w,t}$ (g/mL)	0.99692		
K	0.99871		
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	655.289		
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.760 ✓		
$G_{20°C} = K * G_t$	2.76 ✓		

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Aisiede
Date	6/26/24
Checked By	EF
Date	6/28/24

Boring	FD24-08		
Sample	S4		
Test			
Depth	6-8 ft		
USCS Classification			
USCS Symbol	CL		
% Passing No. 4 Sieve	100		
Method of Air Removal	VAC		
Flask #	SG6		
M_p (g)	178.779		
V_p (mL)	499.27		
Temperature (°C)	22.4		
$M_{pws,t}$ (g)	692.546		
Tare #	BS-4		
Dry Wt. + Tare (g)	433.024		
Tare (g)	408.115		
M_s (g)	24.909		
$\rho_{w,t}$ (g/mL)	0.99768		
K	0.99947		
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.891		
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.692		
667.637 $G_{20°C} = K * G_t$	2.69		

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Nistedt
Date	6/25/24
Checked By	CH
Date	6/28/24

Boring	TD24-11	TD24-12	TD24-12
Sample	S20	S3	S9
Test			
Depth	38-40 ft	4-6 ft	16-18 ft
USCS Classification			
USCS Symbol	CL	CL	CL
% Passing No. 4 Sieve	100	100	100
Method of Air Removal	VAC	VAC	VAC
Flask #	SG16	SG7	SG21
M_p (g)	178.779	15:.353	170.561
V_p (mL)	499.71	199.32	199.20
Temperature (°C)	24.1	24.2	23.9
$M_{pws,t}$ (g)	699.765	657.875	694.032
Tare #	BOWL	R-1	T-13
Dry Wt. + Tare (g)	236.172	411.593	442.197
Tare (g)	199.361	395.916	401.985
M_s (g)	36.811	15.677	40.212
$\rho_{w,t}$ (g/mL)	0.99727	0.99725	0.99732
K	0.99907	0.99904	0.99912
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	676.686	648.305	668.523
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.681	2.567	2.735
$G_{20°C} = K * G_t$	2.68	2.56	2.73

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Specific Gravity Determination
ASTM D854

Project No.	2400096
By	M. Mistedt
Date	6/25/24
Checked By	EF
Date	6/28/24

Boring	FD24-12		
Sample	S19		
Test			
Depth	34-36 ft		
USCS Classification			
USCS Symbol	CL		
% Passing No. 4 Sieve	100		
Method of Air Removal	VAC		
Flask #	SG23		
M_p (g)	157.557		
V_p (mL)	499.27		
Temperature (°C)	23.9		
$M_{pws,t}$ (g)	676.774		
Tare #	Q-77		
Dry Wt. + Tare (g)	366.305		
Tare (g)	332.891		
M_s (g)	33.414		
$\rho_{w,t}$ (g/mL)	0.99732		
K	0.99912		
$M_{pw,t} = M_p + (V_p * \rho_{w,t})$ (g)	655.489		
$G_t = \frac{\rho_s}{\rho_{w,t}} = \frac{M_s}{(M_{pw,t} - (M_{pws,t} - M_s))}$	2.755		
$G_{20°C} = K * G_t$	2.75		

Notes:

M_p = average calibrated mass of the dry pycnometer

V_p = average calibrated volume of the pycnometer

$M_{pw,t}$ = mass of pycnometer and water at the test temperature

$M_{pws,t}$ = mass of pycnometer, water, and soil solids at the test temperature

M_s = mass of the oven dry soil solids

$\rho_{w,t}$ = density of water at the test temperature (g/mL) (table 2 ASTM D854)

K = temperature coefficient given in table 2 ASTM D854

TEST REMARKS

GEI Consultants

Appendix E

Daily Progress Reports

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Mon. April 15, 2024 0
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 1410 **Departure:** 1545 **Weather:** 57F, mostly cloudy, windy

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations

Summary of Work Performed and Observations

1410: Arrived at the site.

1445: Reached barge.

1500-1530: Conducted the initial kickoff meeting, which included a walk through of Work Plan, Accident Prevention Plan, and health and safety procedures with the subcontractors. The start time for the following day was decided to be on 0630.

1545: Departed site

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete ?

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Tues. April 16, 2024 1
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0620 **Departure:** 1630 **Weather:** 42F, sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine
Gina Romano, USACE-NAE Geology
Alex Dumas, USACE-NAE Safety

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Mobilized to boring FD24-1 with GPS. Mudline for FD24-1 was observed to be El. -26.14 feet MLLW, indicating the boring will be drilled to at least 50 feet below mudline.

3. Sampled boring FD24-1 continuously to 44 feet below mudline (El. -70.14 feet MLLW) and stopped for day. No refusal encountered. Casing and barge was left in-place overnight.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete ?
FD24-1	0930 / 0	1600 / 44	44	No

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Wed. April 17, 2024 2
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0630 **Departure:** 1630 **Weather:** 35F, sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine
Gina Romano, USACE-NAE Geology

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.
2. Sampled boring FD24-1 continuously from 44 ft to 50 ft below mudline. The boring was terminated at 50 ft below mudline (El. -76.14 feet MLLW). No refusal encountered.
3. Mobilized to boring FD24-7 with GPS. Mudline for FD24-7 was observed to be El. -24.82 feet MLLW, indicating the boring will be drilled to at least 52 feet below mudline.
4. Sampled boring FD24-7 continuously from 0 to 52 feet below mudline. The boring was terminated at 52 ft below mudline (El. -76.82 feet MLLW). No refusal encountered.
5. Mobilized to boring FD24-10. Barge was left in-place overnight.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete ?
FD24-1	0715 / 44	0850 / 50	6	Yes
FD24-7	0915 / 0	1600 / 52	52	Yes

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Thurs. April 18, 2024 3
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0630 **Departure:** 1630 **Weather:** 35F, sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine
Gina Romano, USACE-NAE Geology

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Setup on boring FD24-10 after being left in place overnight. Mudline for FD24-10 was observed to be El. -36.71 feet MLLW, indicating the boring will be drilled to at least 40 feet below mudline.

3. Sampled boring FD24-10 continuously from 0 ft to 40 ft below mudline. The boring was terminated at 40 ft below mudline (El. -76.71 feet MLLW). No refusal encountered.

4. Mobilized to boring FD24-12 with GPS. Mudline for FD24-12 was observed to be El. -38 feet MLLW, indicating the boring will be drilled to at least 38 feet below mudline.

5. Sampled boring FD24-12 continuously from 0 to 20 feet below mudline (El. -58 feet MLLW). Casing and barge was left in-place overnight.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete ?
FD24-10	0715 / 0	1200 / 40	40	Yes
FD24-12	1300 / 0	1545/ 20	20	No

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Fri. April 19, 2024 4
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0630 **Departure:** 1200 **Weather:** 40F, partly cloudy

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Sampled boring FD24-12 continuously from 20 ft to 38 ft below mudline. The boring was terminated at 38 ft below mudline (El. -76 feet MLLW). No refusal encountered.

3. Gina Romano requested the remaining 9 borings be moved outside the limits of the proposed CAD cell footprints to define the transitions to denser material, since softer organic silt over glaciomarine clay has been found down to grade. Prior to the start of drilling at location FD24-12 (on 4/18/2024), FD24-12 was relocated at the direction of Gina to the corner of the channel CAD cell. The remaining locations in the southern channel CAD cell were also moved to the corners of the CAD cell. The remaining locations in the Mack Point CAD cell were moved 50 ft outside the cell footprint.

4. Mobilized to the adjusted location of boring FD24-2 (50 ft outside the CAD cell footprint). Barge was left in-place for weekend.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-12	0700 / 20	1000/ 38	38	Yes

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Mon. April 22, 2024 5
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0600 **Departure:** 1530 **Weather:** 45F, partly sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Alex Juliano

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Checked the location of boring FD24-2 (relocated 50 ft outside the CAD cell footprint) with GPS. Location had not changed over weekend. Mudline for FD24-2 was observed to be El. -22.9 feet MLLW, indicating the boring will be drilled to at least 54 feet below mudline.

3. Sampled boring FD24-2 continuously from 0 ft to 54 ft below mudline. The boring was terminated at 54 ft below mudline (El. -76.9 feet MLLW). No refusal encountered.

4. Due to expected high sustained winds and wind gusts, Prock moved the barge to the sheltered cove east of Mack Point for night. Marine conditions will be assessed in the morning.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-2	0830 / 0	1425 / 54	54	Yes

By: Alex Juliano **Reviewed By:** Mustaki Ahmed

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Wed. April 24, 2024 6
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 2
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0645 **Departure:** 1530 **Weather:** 45F, partly sunny and light rain

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Alex Juliano

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. On Tuesday 4/23/2024, Prock Marine and NEBC recommended a weather day be exercised due to high wind gusts making the surf rough in Searsport Harbor as presented in NOAA weather forecasts. GEI and USACE agreed with assessment. On Wednesday 4/24, barge was moved out of sheltered cove east of Mack Point to resume drilling.

2. GEI conducted the daily safety meeting with the project team prior to beginning work.

3. Mobilized to boring FD24-6 with GPS (relocated 50 ft outside the CAD cell footprint). Mudline for FD24-6 was observed to be El. -28.4 feet MLLW, indicating the boring will be drilled to at least 48 feet below mudline.

4. Sampled boring FD24-6 continuously from 0 ft to 48 ft below mudline. The boring was terminated at 48 ft below mudline (El. -76.4 feet MLLW). No refusal encountered.

5. Mobilized to boring FD24-3 with GPS (relocated 50 ft outside the CAD cell footprint). Mudline for FD24-3 was observed to be El. -26.1 feet MLLW, indicating the boring will be drilled to at least 50 feet below mudline.

6. Sampled boring FD24-3 continuously from 0 ft to 14 ft below mudline (El. -40.1 feet MLLW) and stopped for day. No refusal encountered. Casing was removed for night but the barge was left in-place overnight.

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Wed. April 24, 2024 6
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 2 of 2
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-6	0905 / 0	1310 / 54	48	Yes
FD24-3	1400 / 0	1500 / 14	14	No

By: Alex Juliano **Reviewed By:** Mustaki Ahmed

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GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:**	Thurs. April 25, 2024
		Report No.	7
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0630 **Departure:** 1630 **Weather:** 30F, partly sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Alex Juliano

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. GEI checked the location of boring FD24-3 with GPS. Location had not changed overnight. Sampled boring FD24-3 continuously from 14 ft to 50 ft below mudline. The boring was terminated at 50 ft below mudline (El. -76.1 feet MLLW). No refusal encountered.

3. Mobilized to boring FD24-4 with GPS (relocated 50 ft outside the CAD cell footprint). Mudline for FD24-4 was observed to be El. -27.3 feet MLLW, indicating the boring will be drilled to at least 48 feet below mudline.

4. Sampled boring FD24-4 continuously from 0 ft to 48 ft below mudline. The boring was terminated at 48 ft below mudline (El. -75.3 feet MLLW). No refusal encountered.

5. Mobilized to the adjusted location of boring FD24-8 (at corner of Alt. CAD cell). Barge was left in-place for night.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-3	0715 / 14	1050 / 50	50	Yes
FD24-4	1120 / 0	1520 / 48	48	Yes

By: Alex Juliano **Reviewed By:** Mustaki Ahmed

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Fri. April 26, 2024 8
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0615 **Departure:** 1300 **Weather:** 50F, partly sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
John Wentland, Prock Marine
Bill Blake, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Alex Juliano

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Checked the location of boring FD24-8 (relocated to NW corner of Alt. CAD cell footprint) with GPS. Location had not changed overnight. Mudline for FD24-8 was observed to be El. -37.1 feet MLLW, indicating the boring will be drilled to at least 38 feet below mudline.

3. Sampled boring FD24-8 continuously from 0 ft to 38 ft below mudline. The boring was terminated at 38 ft below mudline (El. -75.1 feet MLLW). No refusal encountered.

4. Mobilized to the adjusted location of boring FD24-5 (50 ft outside the CAD cell footprint). Barge was left in-place for weekend.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-8	0640 / 0	1148 / 38	38	Yes

By: Alex Juliano **Reviewed By:** Mustaki Ahmed

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Mon. April 29, 2024 9
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0700 **Departure:** 1600 **Weather:** 60F, sunny

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.

2. Checked the location of boring FD24-5 (50 ft outside the CAD cell footprint) with GPS. Location did not change during weekend. Mudline for FD24-5 was observed to be El. -26.65 feet MLLW, indicating the boring will be drilled to at least 50 feet below mudline.

3. Sampled boring FD24-5 continuously from 0 ft to 50 ft below mudline. The boring was terminated at 50 ft below mudline (El. -76.65 feet MLLW). No refusal encountered.

4. Mobilized to the adjusted location of boring FD24-9 (at corner of Alt. CAD cell). Mudline for FD24-9 was observed to be El. -38.5 feet MLLW, indicating the boring will be drilled to at least 38 feet below mudline.

5. Sampled boring FD24-9 continuously from 0 ft to 16 ft below mudline. Casings was removed, but barge was left in-place overnight.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-5	0800 / 0	1300 / 50	50	Yes
FD24-9	1330 / 0	1530 / 16	16	No

By: Mustaki Ahmed **Reviewed By: Alex Juliano**

GEI Consultants

FIELD OBSERVATION REPORT

Project :	Subsurface Exploration and Site Characterization, Searsport Harbor, Searsport, ME Contract: W912WJ-21-D-0001	**Date:** **Report No.**	Tues. April 30, 2024 10
Client :	U.S. Army Corps of Engineers New England District	**Page:**	Page 1 of 1
Contractor:	New England Boring Contractors	**GEI Proj. No.**	2400096

Time of Arrival: 0700 **Departure:** 1430 **Weather:** 41F, drizzle

Persons Contacted, Company
Sam Cooley, NEBC – Driller
Adam Ford, NEBC – Driller Assistant
David Hall, Prock Marine – Barge Operator
Caleb Conway, Prock Marine
John Wentland, Prock Marine
Forrest Prock, Prock Marine

GEI Representatives
Mustaki Ahmed

Purpose of Site Visit: Observe subsurface explorations.

Summary of Work Performed and Observations

1. GEI conducted the daily safety meeting with the project team prior to beginning work.
2. Checked the location of boring FD24-9 (at corner of Alt. CAD cell) with GPS. Location did not change during overnight.
3. Sampled boring FD24-9 continuously from 16 ft to 38 ft below mudline. The boring was terminated at 38 ft below mudline (El. -76.65 feet MLLW). No refusal encountered.
4. Mobilized to the adjusted location of boring FD24-11 (at corner of Alt. CAD cell). Mudline for FD24-11 was observed to be El. -36.83 feet MLLW, indicating the boring will be drilled to at least 40 feet below mudline.
5. Sampled boring FD24-11 continuously from 0 ft to 40 ft below mudline.
6. The boring program field work was completed. NEBC and Prock Marine will demobilize tomorrow.

Boring No.	Start Time/Depth (Ft)	Finish Time/Depth (Ft)	Overburden Sampled (Ft)	Complete?
FD24-9	0700 /16	0930 / 38	22	Yes
FD24-11	1005 / 0	1330 / 40	40	Yes

By: Mustaki Ahmed **Reviewed By:** Alex Juliano

GEI Consultants

Appendix F

Daily Safety Meeting Sheets

GEI Consultants

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	Project Name: Searsport Harbor Drilling
[1]Date: 04/15/2024	Time: 3:30 PM
Briefing Conducted by: Mustaki Ahmed	Signature: Mustaki Ahmed

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

- ☐ Accident Reporting Procedures
- ☐ Cellular Phone Charged w/Service
- ☐ Changes to the HASP
- ☐ Cold Stress
- ☐ Confined Space
- ☐ Decon Procedures
- ☐ Exposure Guidelines
- ☑ General PPE Usage
- ☐ Heat Stress
- ☐ Hearing Conservation
- ☐ Lockout/Tagout
- ☐ Personal Hygiene
- ☐ Respiratory Protection
- ☐ Review of Hazards
- ☐ Site Control
- ☐ Site Emergency Procedures
- ☑ Slips, Trips, Falls
- ☐ Traffic Safety
- ☑ Other: work plan
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:

Daily Safety Topic Description:

Weather – 57°, mostly cloudy, windy.

The health & safety topic covered the good house keeping, PPE, spill, kit, fire extinguisher, and drill rig inspection form.

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
[illegible]	[signature]	[illegible]		
Dave Hall	[signature]	Prock		
Coley Company	[signature]	Prock		
[illegible]	[signature]	[illegible]		
Mustaki Ahmed	Mustaki Ahmed	Prock GEI		

[1] This form is applicable for only 1 day of site activity.

GEI

Project Safety Briefing Form

Project Number: 2400096	**Project Name:** Seasport Harbor Drilling
Date: 04/15/24	**Time:** 3:00 pm
Briefing Conducted by: Mustaki Ahmed	**Signature:** Mustaki Ahmed.

This sign-in log documents that a project specific-briefing was conducted in accordance with the site-specific HASP and GEI's H&S policy. GEI personnel who perform work on site are required to attend this project briefing. Applicable health and safety SOPs and any additional hazards are also required to be reviewed during this briefing. Prior to the start of the project or upon the start of a new on-site project team member, this form must be completed. Please keep a copy of this form with the project files.

TOPICS COVERED (check all those covered):

SOP HS-001 Biological Hazards		SOP HS-025 Manual Lifting	
SOP HS-002 Bloodborne Pathogens		SOP HS -26 Hazard Identification	
SOP HS-003 Container Management		SOP HS-27 Confined Space Entry for Sanitary Sewers	
SOP HS-004 Driver Safety		SOP HS-28 Safe Trailer Use	
SOP HS-005a Electrical Safety		Accident Reporting Procedures	
SOP HS-005b Lockout/Tagout		Changes to the HASP	
SOP HS-006 Excavation/Trenching		Cold Stress	
SOP HS-008a Hand Tools (Non-Powered)		Confined Space	
SOP HS-008b Powered Hand Tools		Decon Procedures	
SOP HS-009 Hazardous Substances Management		Exposure Guidelines	
SOP HS-010 Inclement Weather ✓		General PPE Usage ✓	
SOP HS-011 Ladders		Heat Stress	
SOP HS-012 Noise Exposure		Hearing Conservation	
SOP HS-013 Nuclear Density Gauge		Personal Hygiene	
SOP HS-014 Utility Markout		Respiratory Protection	
SOP HS-015 Respirator Fit Test		Review of Hazard Evaluation	
SOP HS-016 Traffic Hazards		Site Control	
SOP HS-017 Water Safety		Site Emergency Procedures	
SOP HS-018 Working Around Heavy Equipment		Slips, Trips, Falls ✓	
SOP HS-019 Rail Safety		Other (Specify): ✓ Work plan	
SOP HS-020 Aerial Lift		Other (Specify):	
SOP HS-021 Mobile Equipment		Other (Specify):	
SOP HS-022 Aquatic Ecological Survey/Electrofishing		Other (Specify):	
SOP HS-023 Scaffolding		Other (Specify):	
SOP HS-024 Wilderness Safety		Other (Specify):	

Personnel Sign-in List

Printed Name	Signature
Sam Cuhz	
Dave Hall	
ADAMFORD	
Caleb Conway	
John Wentland	
Mustaki Ahmed	Mustaki Ahmed

GEI Consultants

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor Drilling
[1]Date: 4/16/24	**Time:** 7.30
Briefing Conducted by: Mustaki Ahmed	**Signature:** Mustaki Ahmed

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☑ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☑ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☐ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☐ Other: Work plan	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☑ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description: Weather: 42°F, mostly sunny.
Reached at the site 6.20. Driller reached at 6.00
Reached barge 7.10

PPE, Slips, trips & falls, good housekeeping, ~~are~~ briefly talked about work plan, went through several topics from APP.

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Mustaki Ahmed	Mustaki Ahmed	GEI	6.30	
Gina Romero		USACE	0630	
ADAMFORD		NEBC	630	
Dave Hall		PRock	0600	
John Wentland		Prock	0600	
Caleb Cowan		Prock	600	
Bill Blake		Prock	600	
Forrest Prock		Prock	0600	
Alex Dumas		USACE	0600	
Sam Tobey		NE Diving Contractors	0630	

[1] This form is applicable for *only* 1 day of site activity.

GEI Consultants

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor Drilling
[1]Date: 4/17/2024	**Time:** 7.05
Briefing Conducted by: Mustaki Ahmed	**Signature:** Mustaki Ahmed

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☐ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☐ Other:	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☐ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description: Weather 35°F, Sunny.
Inclimenf weather → Untill 40 mph for prock marine, thunderstorm, lightening.
Nearest hospital.

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Mustaki Ahmed	Mustaki Ahmed	GEI	6:30	
Sam Cooley		HETSC	6:00	
Adam Wood		HETSC	6:00	
Caleb Caron		prock	6:00	
Bill Blake		Prock	6:00	
Dave Hall		Prock	0600	
Forrest Prock		Prock	0600	
John Westland		Prock	0600	
Gina Rondeau		USACE	0630	

[1] This form is applicable for only 1 day of site activity.

GEI Consultants

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor Drilling
[1]Date: 4/18/24	**Time:** 7.05
Briefing Conducted by: Muptaki Ahmed	**Signature:** Muptaki Ahmed

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

- ☐ Accident Reporting Procedures
- ☐ Cellular Phone Charged w/Service
- ☐ Changes to the HASP
- ☐ Cold Stress
- ☐ Confined Space
- ☐ Decon Procedures
- ☐ Exposure Guidelines
- ☑ General PPE Usage
- ☐ Heat Stress
- ☐ Hearing Conservation
- ☐ Lockout/Tagout
- ☐ Personal Hygiene
- ☐ Respiratory Protection
- ☐ Review of Hazards
- ☐ Site Control
- ☐ Site Emergency Procedures
- ☑ Slips, Trips, Falls
- ☐ Traffic Safety
- ☐ Other: Incident reporting
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ Other:

Daily Safety Topic Description: Weather 36°F, Partly cloudy. Safety near water. Discussed the action plan if someone falls into the water. PPE, nearmisses, incident reporting.

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Muptaki Ahmed	MA	GEI	6.30	
Caleb Cowen		Peak	6:00	
Dave Hall		Brock	0600	
Tom Wentland		Brock	0600	
Bill Blake		Brock	600	
Scott Marr		Weiss	600	
Adam Ford		Weiss	600	
Gina Romano		USACE	0630	

[1] This form is applicable for only 1 day of site activity.

GEI

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor Drilling
[1]Date: 4/19/24	**Time:** 7.00
Briefing Conducted by: Mustaki Ahmed	**Signature:** Mustaki Ahmed

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☑ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☐ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☐ Other: Driving safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☐ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description: Weather = 40°f, partly cloudy.
General PPE usage, slips, trips & falls, good housekeeping. Driving safety on our way back to home.

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Mustaki Ahmed	MA	GEI	6.30	
SAM Cooley		NEBC	0600	
ADAM FORD		NEBC	0600	
Caleb Conway		Crock	6:00	
Bill Blake		Crock	6:00	
Forrest Crock		Crock	0600	
John Westland		Crock	0600	

[1] This form is applicable for only 1 day of site activity.

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor
[1]Date: 4/22/2024	**Time:** 0805
Briefing Conducted by: A.Juliano	**Signature:** AMJ

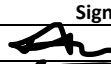
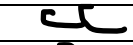
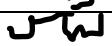
This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☑ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☑ Other: Water Safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☑ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description:
Water Safety

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Alex Juliano		GEI	0600	1530
Adam Ford		NEBC	0600	1530
Sam Cooley		NEBC	0600	1530
Bill Blake		Prock Marine	0600	
Caleb Conway		Prock Marine	0600	
Forest Prock		Prock Marine	0600	
David Hall		Prock Marine	0600	
John Wetland		Prock Marine	0600	

[1] This form is applicable for *only* 1 day of site activity.

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor
[1]Date: 4/24/2024	**Time:** 0848
Briefing Conducted by: A.Juliano	**Signature:** AMJ

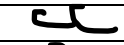
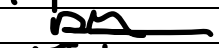
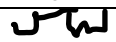
This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☑ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☑ Other: Water Safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☑ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description:
Water Safety

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Alex Juliano		GEI	0645	
Adam Ford		NEBC	0700	
Sam Cooley		NEBC	0700	
Bill Blake		Prock Marine	0600	
Caleb Conway		Prock Marine	0600	
Forest Prock		Prock Marine	0600	
David Hall		Prock Marine	0600	
John Wetland		Prock Marine	0600	

[1] This form is applicable for *only* 1 day of site activity.

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor
[1]Date: 4/25/2024	**Time:** 0648
Briefing Conducted by: A.Juliano	**Signature:** AMJ

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☑ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☑ Other: Water Safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☑ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description:

Water Safety, slips trips and falls as puddles on barge froze overnight

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Alex Juliano		GEI	0630	
Adam Ford		NEBC	0600	
Sam Cooley		NEBC	0600	
Bill Blake		Prock Marine	0600	
Forest Prock		Prock Marine	0600	
David Hall		Prock Marine	0600	
John Wetland		Prock Marine	0600	

[1] This form is applicable for *only* 1 day of site activity.

Revised January 2022

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** Searsport Harbor
[1]Date: 4/26/2024	**Time:** 0630
Briefing Conducted by: A.Juliano	**Signature:** AMJ

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☑ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☑ Other: Water Safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☑ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description:
Water Safety, barge safety prep for weekend

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Alex Juliano		GEI	0615	
Adam Ford		NEBC	0600	
Sam Cooley		NEBC	0600	
Bill Blake		Prock Marine	0600	
Forest Prock		Prock Marine	0600	
David Hall		Prock Marine	0600	
John Wetland		Prock Marine	0600	

[1] This form is applicable for *only* 1 day of site activity.

Revised January 2022

GEI Consultants

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	Project Name: Searsport Harbor Drilling
[1]Date: 04/29/24	Time: 7:40
Briefing Conducted by: Mustafa Ahmed	Signature: MA

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☐ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☐ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☐ Other:	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☐ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description:

Slippery dock., Water safety; conex door safety due to wind. Weather: 64°f. Sunny, windy

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Mustafa Ahmed	MA	GEI	7:00	
Sam Coy		NEB	0700	
Caleb Condra		Prock	0600	
John Ventriland		Prock	0600	
Dave Hall		People	0600	
Forrest Prock		Prock	0600	

[1] This form is applicable for only 1 day of site activity.

GEI

Daily Safety Briefing and Site Visitor Sign-In

Project Number: 2400096	**Project Name:** SEAASPORT HARBOR DRILLING
[1]Date: 4/30/24	**Time:** 7:20
Briefing Conducted by: Mustaki Ahmed	**Signature:** MA

This sign-in log documents the tailgate briefing conducted in accordance with the site specific HASP. Personnel who perform work operations on site are required to attend each briefing and to acknowledge receipt of each briefing, daily.

TOPICS COVERED (check all those covered):

☐ Accident Reporting Procedures	☑ General PPE Usage	☐ Site Control	☐ Other:
☐ Cellular Phone Charged w/Service	☐ Heat Stress	☐ Site Emergency Procedures	☐ Other:
☐ Changes to the HASP	☐ Hearing Conservation	☑ Slips, Trips, Falls	☐ Other:
☐ Cold Stress	☐ Lockout/Tagout	☐ Traffic Safety	☐ Other:
☐ Confined Space	☐ Personal Hygiene	☐ Other: Water safety	☐ Other:
☐ Decon Procedures	☐ Respiratory Protection	☐ Other:	☐ Other:
☐ Exposure Guidelines	☐ Review of Hazards	☐ Other:	☐ Other:

Daily Safety Topic Description: Weather : 41°, Drizzle

Slippery condition

Personnel Sign-in List

Printed Name	Signature	Company Name	Time-In	Time-Out
Mustaki Ahmed	MA	GEI	7:00	
Caleb Conway		Prock	6:00	
Sam Cook		NEBC	0600	
Adam Ford		NEBC	6:00	
John Wentland		Prock	0600	
Dave Hall		Prock	0600	

[1] This form is applicable for *only* 1 day of site activity.

Appendix G

Daily Tidal Correction Logs

TIDAL CORRECTION LOG

Boring No. FD24-01

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PAGE 1 **OF** 1
PROJECT # 2400096
DATE: 4/16/2024
WEATHER: 42°F, mostly sunny
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
9:28	4/16/2024	S1	5.03	6.8	38	11.9	-26.1				
11:42	4/16/2024	S9	1.62	6.8	34.5	8.5	-26.0	52	1.5	16	rod
15:27	4/16/2024	S22	6.05	6.4	38	12.5	-25.6				
7:20	4/17/2024	S23	10.3	6.5	42.25	16.8	-25.4				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-02

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/22/2024
WEATHER: 45°F, partly sunny
DATUM MLLW
GEI REP. A. Juliano

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
8:20	4/22/2024	S1	6.8	7.3	37	14.1	-22.9	40	3	37	casing
12:00	4/22/2024	S20	10	7.3	40.2	17.3	-22.9	85	4.5	40.3	rod

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-03

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/25/2024
WEATHER: 50°F, mostly sunny
DATUM MLLW
GEI REP. A. Juliano

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
14:00	4/24/2024	S18	9.6	7.3	43	16.9	-26.1	48	4.5	43.5	casing
14:40	4/24/2024	S7	7.6	7.3	41	14.9	-26.1	60	5	14	rod
7:00	4/25/2024	S8	-0.14	7.3	33.3	7.2	-26.1	55	5	16.7	rod
9:45	4/25/2024	S20	6.1	7.3	39.5	13.4	-26.1	83	3	40.5	rod
10:28	4/25/2024	S24	8	7.3	41.4	15.3	-26.1	93	3.5	48.1	rod

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-04

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/25/2024
WEATHER: 50°F, mostly sunny
DATUM MLLW
GEI REP. A. Juliano

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
11:20	4/25/2024	S17	9.4	7.3	44	16.7	-27.3	50	5	45	casing
12:00	4/25/2024	S6	10.5	7.3	45.1	17.8	-27.3	60	3	11.9	rod
14:18	4/25/2024	S18	8.9	7.3	43.5	16.2	-27.3	82	2.5	36	rod

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-05

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/29/2024
WEATHER: 60°F, sunny
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
8:00	4/29/2024	S1	2.05	7.3	36	9.4	-26.7				
11:47	4/29/2024	S21	3.66	7.3	37.6	11.0	-26.6				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-06

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/24/2024
WEATHER: 45°F, partly sunny/ rain
DATUM MLLW
GEI REP. A. Juliano

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
9:00	4/24/2024	S1	5.3	7.3	41	12.6	-28.4	45	3	42	casing
11:45	4/24/2024	S17	11.5	7.3	47.2	18.8	-28.4	85	4	33.8	rod
13:10	4/24/2024	S24	10.6	8.3	46.3	18.9	-27.4	100	5.5	48.2	rod

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-07

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PAGE 1 **OF** 1
PROJECT # 2400096
DATE: 4/17/2024
WEATHER: 35°F, sunny
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
9:15	4/17/2024	S1	7.63	7.3	39.75	14.9	-24.8				
12:13	4/17/2024	S3	2.05	7.3	34.42	9.4	-25.1				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-08

PAGE 1 **OF** 1

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/25/2024
WEATHER: 50°F, mostly sunny
DATUM MLLW
GEI REP. A. Juliano

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
14:40	4/25/2024	Mudline	5.6	7.3	50	12.9	-37.1	52	2	50	casing
8:30	4/26/2024	S8	1.2	7.3	45.6	8.5	-37.1	63	1	16.4	rod
11:11	4/26/2024	S17	8	7.3	52.4	15.3	-37.1	90	3.5	34.1	rod

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

GEI Consultants

TIDAL CORRECTION LOG

Boring No. FD24-09

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PROJECT # 2400096
DATE: 4/29/2024
WEATHER: 60°F, sunny
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
13:42	4/29/2024	S1	8.39	7.3	54	15.7	-38.3				
7:25	4/30/2024	S9	5.16	7.3	52.00	12.5	-39.5				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-10

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PAGE 1 **OF** 1
PROJECT # 2400096
DATE: 4/18/2024
WEATHER: 35°F, sunny
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
6:57	4/18/2024	S1	9.99	7.3	54	17.3	-36.7				
10:07	4/18/2024	S11	7.84	7.3	52.8	15.1	-37.6				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-11

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PAGE 1 **OF** 1
PROJECT # 2400096
DATE: 4/30/2024
WEATHER: 41°F, drizzle
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
10:03	4/30/2024	S1	0.87	7.3	45	8.2	-36.8				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

TIDAL CORRECTION LOG

Boring No. FD24-11

PROJECT Subsurface Exploration and Site Characterization - Searsport Harbor
Confined Aquatic Disposal (CAD) Cells

LOCATION Searsport, Maine
CLIENT USACE New England District
CONTRACTOR New England Boring Contractors

PAGE 1 **OF** 1
PROJECT # 2400096
DATE: 4/19/2024
WEATHER: 40°F, partly cloudy
DATUM MLLW
GEI REP. M. Ahmed

Time (hours)	Date	Sample No.	Tide El. MLLW (ft)	Freeboard (ft)	Depth to Mudline (ft)	Deck El. MLLW (ft)	Mudline El. MLLW (ft.)	Casing /Rod Length (ft)	Casing/Rod Stickup (ft)	Casing/Rod Tip Depth Below Mudline (ft)	Notes
12:46	4/18/2024	S1	2.73	7.3	48	10.0	-38.0				
7:06	4/19/2024	S11	8.97	8.3	53.8	17.3	-36.5				

NOTES:
1. Tide Elevation referenced from NOAA Tidal Elevation Station 8413320, Bar Harbor, Maine
2. MSL El. (feet) + 5.56 feet = MLLW Elevation (feet)
3. NAVD 88 El. (feet) + 5.83 feet = MLLW Elevation (feet)

Appendix H

SPT Calibration Report

December 1, 2023
GTR Project No. 23.330

Mr. Steve Garside
New England Boring Contractors
40 Fordway Street
Derry, NH 03038

Re: Standard Penetration Test Energy Measurement Calibration
Marine Barge Rig - D 30 with Automatic Hammer (S/N 43680)
Lowell, MA

Dear Steve:

At your request, we have analyzed the standard penetration test energy measurement calibrations taken on November 17, 2023. The testing was conducted in order to evaluate the energy delivered to the sampling rods for drill rig and hammer combinations. This information was used to determine the appropriate energy correction factor for the rig-hammer system. The particular rig tested in this report was the D-30 (S/N 43680) marine barge rig with an Automatic Hammer. The dynamic testing was carried out in general accordance with ASTM D4633-16, "Standard Test Method for Energy Measurement for Dynamic Penetrometers".

Field Information

One (1) D-30 marine barge rig with an Automatic Hammer was evaluated. See Appendix B for pictures of the rig. The rig was fitted with an automatic hammer. A borehole was performed onsite in the Merrimack River as part of the Rourke Bridge Replacement Project in Lowell, MA. The drilling was accomplished using rotary drive and wash with NWJ rods. A standard split spoon sampler was used to collect the samples. Standard penetration tests (SPTs) were conducted at depths of 20, 22, 24, 26, 28, and 30 feet in general accordance with ASTM D4633-16 and the MaineDOT Specifications. The collected soil samples generally indicated fine to medium sand with trace amounts of silt and gravel. Refer to Table 1 for details on the field information and conditions.

Instrumentation

For tests the instrumentation consisted of a 24-inch-long NWJ rod sub section. The rod was equipped with two full bridge foil resistance strain gages. Two piezo resistive accelerometer transducers were also attached to each of the instrumented sub sections. A Pile Driving Analyzer™ (PDA) Model 8G, manufactured by Pile Dynamics, Inc. was used to collect the data. The PDA is a computer fitted with a data acquisition and signal conditioning system. During driving of the drill string, the strain and acceleration signals are recorded and processed for each hammer blow. The strain signal is converted to a force record and the acceleration signal is converted to a velocity record. The PDA saves selected hammer blows containing this information to disk and determines the compressive stresses, displacement, and energy at the

point of measurement. This information can be viewed on the computer screen during driving. Refer to Appendix A for literature and background on dynamic testing in general.

Energy Measurement

The primary purpose of the testing was to determine the energy transferred from the hammer to the instrumented subsection. The PDA measurements of force and velocity were analyzed to calculate the energy using the FV method (EMX), which is based on both force and velocity measurements as follows:

$$EMX = \int F(t)\, v(t) dt$$

Another method, known as the EF2 method, was not used due to the limitations associated with the measurements (i.e. based on force alone assuming proportionality at the gage locations since velocity is not used in the analysis). The EF2 method is not the recommended method in ASTM D4633.

The rated energy (designated as ER) for the hammer is 350 lb-ft based on the 2.5 feet (30 inch) drop height and 140 pound ram. The actual efficiency or energy transfer ratio (ETR) for the hammer system can then be determined using EMX and ER as follows:

$$ETR = (EMX/ER)*100\%$$

For SPT, the typical ETR is taken as 60%, based on history and experience from prior studies. To adjust the measured SPT N values (Nmeasured) for actual hammer performance, the ETR can be used to correct the Nmeasured to N_{60} by using the correction factor (Cn) determined as:

$$Cn = ETR/60\%$$

and $N_{60} = Cn * Nmeasured$.

This is a correction for energy only. The application of additional corrections for overburden, non-conventional samplers, etc., was not considered in this study and should be evaluated for appropriateness by the geotechnical engineer for this project.

Results

The results of the testing program are summarized in Tables 1 for the automatic hammer. The tables include EMX, ER, ETR, FMX (maximum measured force in the rod subsection), and BPM (blows per minute). The blow count, including the SPT N-value, and the soil description were recorded by GTR. See Appendix C for the boring log. The data was presented with statistical information including the average, maximum, minimum and standard deviation for the N-value associated with group of data sets (sample depths) for the hammer. In addition, the data for all depths for a particular hammer combined are also presented in the tables. Note that the N-value may not match the number of blows analyzed due to differences between the inspector's blow count observations and the PDA recorded number. In some cases, bad blows or unreliable data from the PDA may also have been omitted. These results for the blows are presented in Appendix D as plots with blow number and in tabular form. Additional information is also presented in

Appendix D including maximum velocity, maximum acceleration, maximum displacement and final displacement.

For the D-30 marine barge Rig with an Automatic Hammer the results indicate that the average ETR varied between 78% and 87% for the five conforming test depths. The average ETR for all data with N-Values between 10 and 50 (5 locations) was around 82%, resulting in an overall Cn = 1.37. The typical blow rate was around 41 bpm for the automatic hammer.

This report has been prepared in accordance with generally accepted geotechnical engineering principles with specific application to this project. Our conclusions are based on applicable standards of practice, including any information reported to and/or prepared for us. No other warranty, expressed or implied, is made.

We have appreciated this opportunity to work with you on this project. If you have any questions regarding this report, please contact us at (978) 251-9395.

Sincerely,
Geosciences Testing and Research, Inc.

Thomas J. Stolki
Geotechnical Engineer

Curtis A. George, P.E. (NJ)
Principal

Attachments: Table, Appendices A - D

23.330 NE Boring SPT Calibration Report - Marine Barge D-30

TABLE

TABLE 1
SPT ROD[1] CALIBRATION
MARINE BARGE D-30 WITH AUTOMATIC HAMMER
SUMMARY OF RESULTS

RIG TYPE	HAMMER TYPE	BORING	DATE	Test Number	OPERATOR	DEPTH	SAMPLE [2] DESCRIPTION	BLOW [2] COUNT	BLOWS [3] ANALYZED		EMX[4] (k-ft)	ER[5] (k-ft)	ETR[6] (%)	FMX (kips)	BPM (bpm)	Cn[7]
Marine Barge D-30 (S/N-43680)	Auto Hammer	SS-4	11/17/23	#1	S	20-22	m. dense, dark grey, f.c SAND, trace Gravel, trace Silt	15,22,22,25	44	Average	0.29	0.35	82.40	38.20	43.30	1.37
										Std.Dev.	0.00	0.00	1.20	1.20	0.20	
										Maximum	0.30	0.35	84.70	40.00	43.60	
										Minimum	0.28	0.35	80.20	3.70	42.80	
				#2	S	24-26	m.dense, light grey, f.m SAND, some Silt	2,5,5,4	10	Average	0.30	0.35	85.40	38.00	47.20	1.42
										Std.Dev.	0.00	0.00	1.40	1.00	0.10	
										Maximum	0.30	0.35	87.10	39.00	47.40	
										Minimum	0.30	0.35	82.80	35.00	46.90	
				#3	S	26-28		2,4,6,6	10	Average	0.28	0.35	80.20	44.10	38.00	1.34
										Std.Dev.	0.00	0.00	0.90	0.80	0.10	
										Maximum	0.29	0.35	81.40	45.10	38.10	
										Minimum	0.27	0.35	78.30	42.50	37.80	
				#4	S	28-30		2,7,3,6	10	Average	0.28	0.35	80.80	36.00	36.70	1.35
										Std.Dev.	0.00	0.00	0.90	1.00	0.10	
										Maximum	0.29	0.35	81.80	37.00	36.90	
										Minimum	0.28	0.35	78.90	34.00	36.60	
				#5	S	30-32		3,4,6,6	10	Average	0.28	0.35	81.20	42.60	35.10	1.35
										Std.Dev.	0.00	0.00	1.10	1.00	0.10	
										Maximum	0.29	0.35	82.80	44.20	35.20	
										Minimum	0.28	0.35	79.20	40.90	35.00	
				Average	-	-	-	-	84	Average	0.29	0.35	82.16	39.14	41.37	1.37
										Maximum	0.30	0.35	87.10	45.10	47.40	
										Minimum	0.27	0.35	78.30	3.70	35.00	

Notes:
1. NWJ rods used with NWJ instrumented rod.
2. The soil description and SPT N-value were recorded by GTR. The SPT N-value is the sum of the middle 2 numbers when the sampler s driven for 4 - six inch intervals
3. Blows analyzed correspond to SPT N-value and may not match up exactly with the N-value due to differences in blow count logging between PDA and inspector or poor data quality.
4. EMX is the integration of F and V obtained from the PDA.
5. ER is the rated energy of 350 lb-ft based on 140 pound hammer and 2.5 feet drop height.
6. ETR is the energy transfer ratio based on (EMX/ER)*100%.
7. Cn is the energy correction factor which is equal to ETR/60% and is used to convert the measured SPT N-value to the corrected equivalent value representing 60% energy transfer.

APPENDIX A
DYNAMIC ANALYSIS LITERATURE

HIGH STRAIN DYNAMIC PILE TESTING

Introduction

Dynamic pile testing (a.k.a. High Strain Dynamic Pile Testing - HSDPT) is commonly employed for evaluating the capacity of driven piles. It is also provides information about hammer performance and pile integrity/stresses. Dynamic testing is carried out in accordance with ASTM D4945, "Standard Test Method for High Strain Dynamic Testing of Piles". Dynamic pile testing involves using strain gages and accelerometers to record an impact wave and its reflections generated by a piling hammer. Both driven piles and drilled foundations can be tested (provided that an impact hammer is used to create the high strain wave for the drilled foundations).

Procedure

Dynamic pile testing was performed using a Pile Driving Analyzer (PDA®), such as the PAK®, PAL®, or PAX® systems, manufactured by Pile Dynamics, Inc. (PDI) of Cleveland, Ohio. These systems are computers fitted with data acquisition and signal conditioning components. The instrumentation consists of two strain gages and two accelerometer transducers attached a minimum of 1.5 pile diameters below the pile top. During impact, the strain and acceleration signals are recorded and processed for each hammer blow. The strain signal is converted to a force record and the acceleration signal is converted to a velocity record. The PDA® saves selected hammer blows containing this information to disk and determines the transferred energy, compressive/tensile stresses, displacement, pile integrity, and the estimated pile bearing capacity using the Case Method. This information can be viewed on the computer screen during driving. A screen shot of data collection in the PDA® Windows (PDA-W®) Program is provided in Figure 1. Selected blows can be further processed to predict the static pile capacity using signal matching programs.

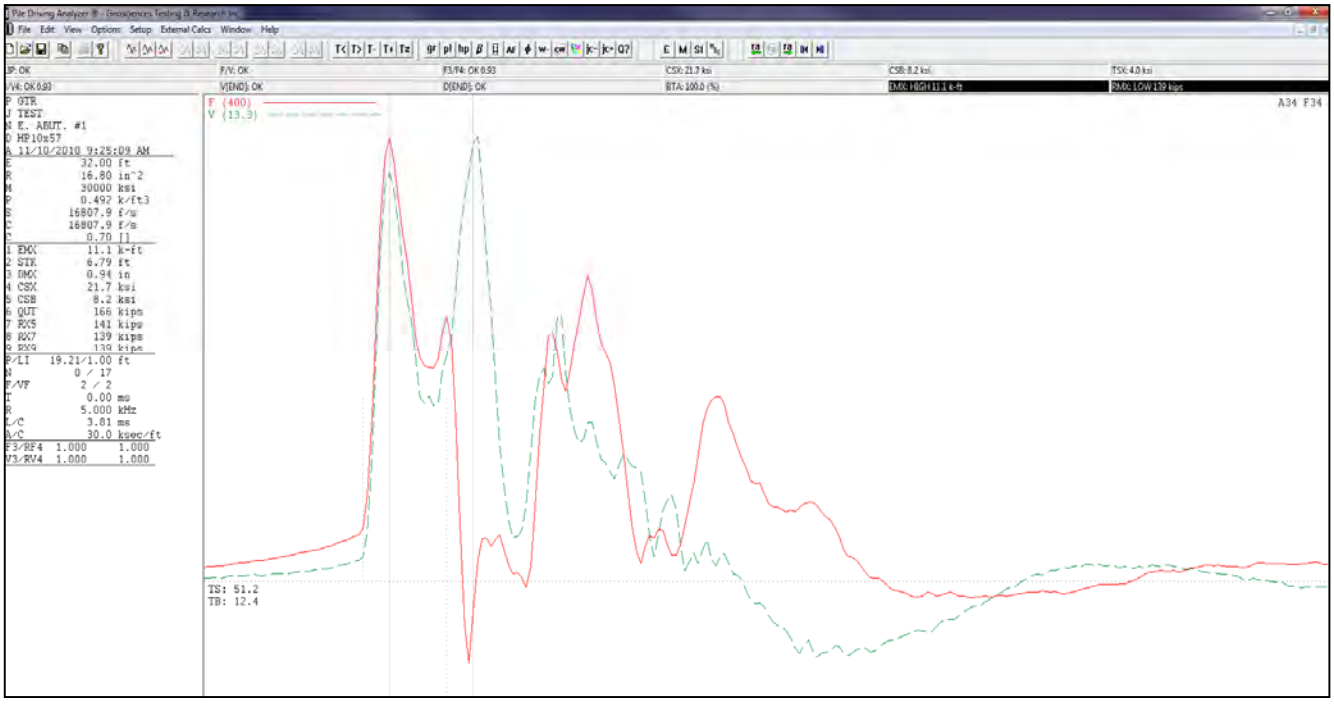


Figure 1. Data collection during pile driving in the (PDI - PDA®-Win Program).

Theory

When a ram strikes the pile head, it initiates a large strain wave that propagates down the pile as illustrated in Figure 2. External soil resistance or changes in the pile's impedance (due to variations in the pile's material or geometry) causes reflection waves that are recorded by the instrumentation. Knowing the material properties and pile geometry at the point of measurement, the strain can be converted to force, while the acceleration is integrated with time to produce velocity.

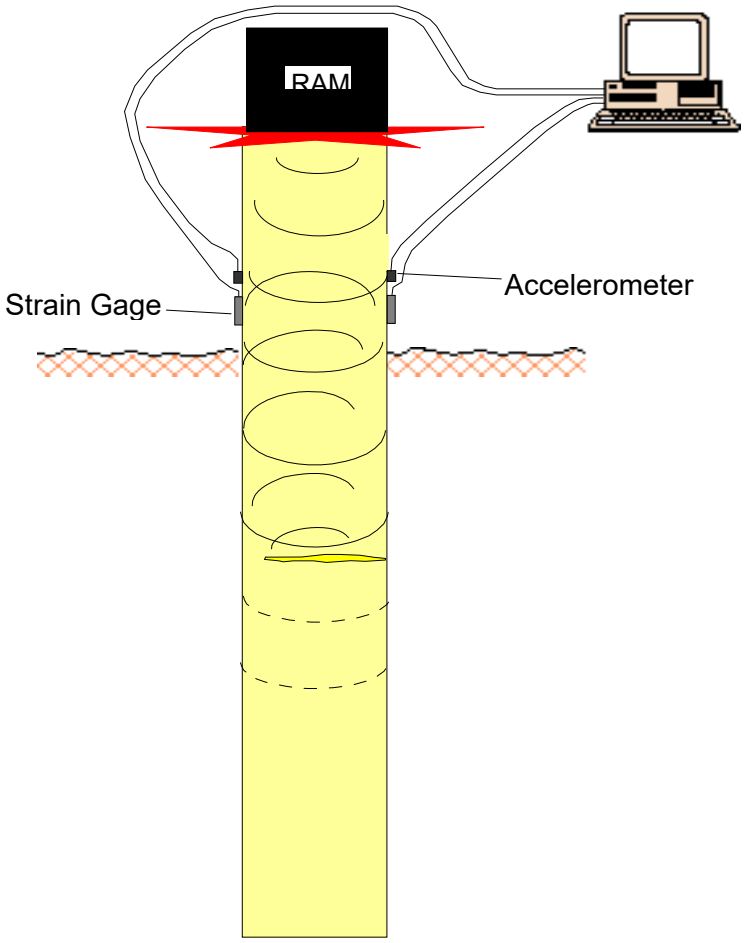


Figure 2. Pile instrumentation and hammer impact.

As long as there is no change in the pile impedance and there are no external forces (i.e. friction), the force and velocity are proportional (equal). Reflections at the tip can be explained by two classical boundary conditions. Free end conditions (analogous to easy driving through soft clay) require zero force and no velocity restrictions at the tip, resulting in a compression wave returning as a tension wave and an increase in velocity (theoretically doubling). Figure 3 graphically presents a typical reflection from a pipe pile during penetration into soft clay. Fixed end conditions (analogous to hard driving into bedrock) require zero velocity and no force restrictions at the tip, resulting in a compression wave being reflected with a greater magnitude than the incident wave (theoretically doubling) and the tip velocity at theoretically zero. Figure 4 graphically presents a typical reflection from an H-pile driven to bedrock. The time the wave takes to travel down to the tip and reflect back to the transducers is twice the pile length divided by the wave speed of the pile material (2L/C).

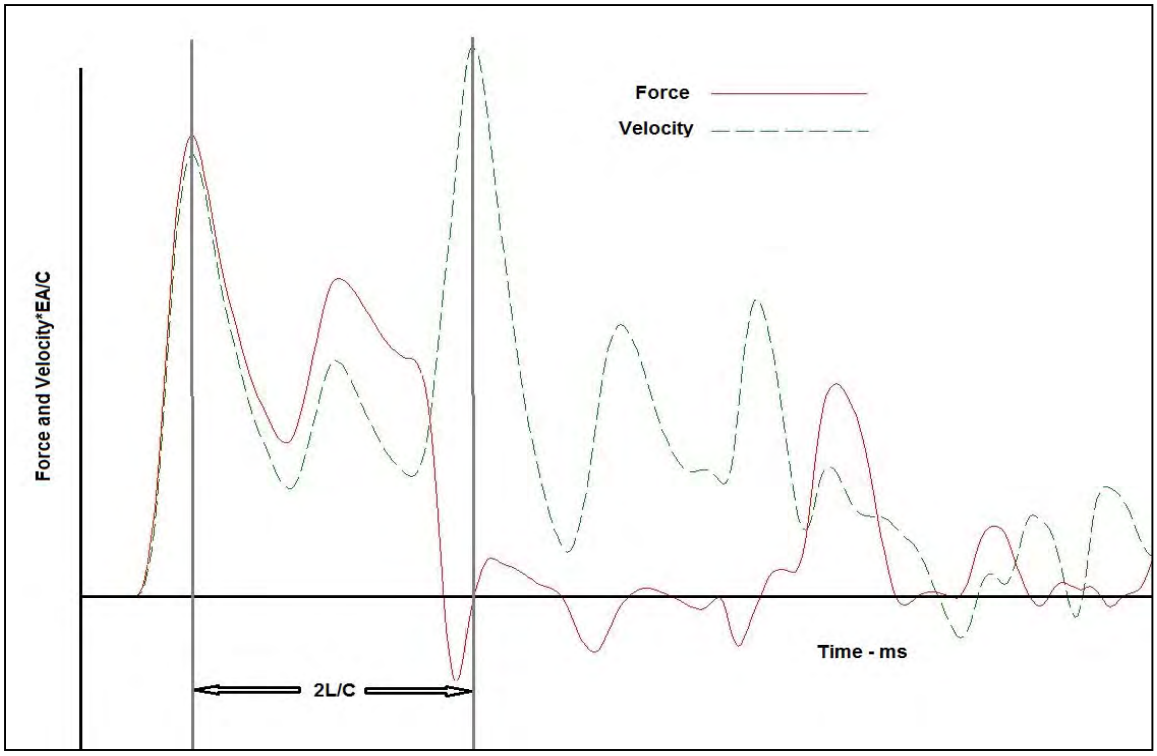


Figure 3. Typical Force and Velocity traces for a pipe pile driven into soft clay (high velocity and low force at tip - 2L/C).

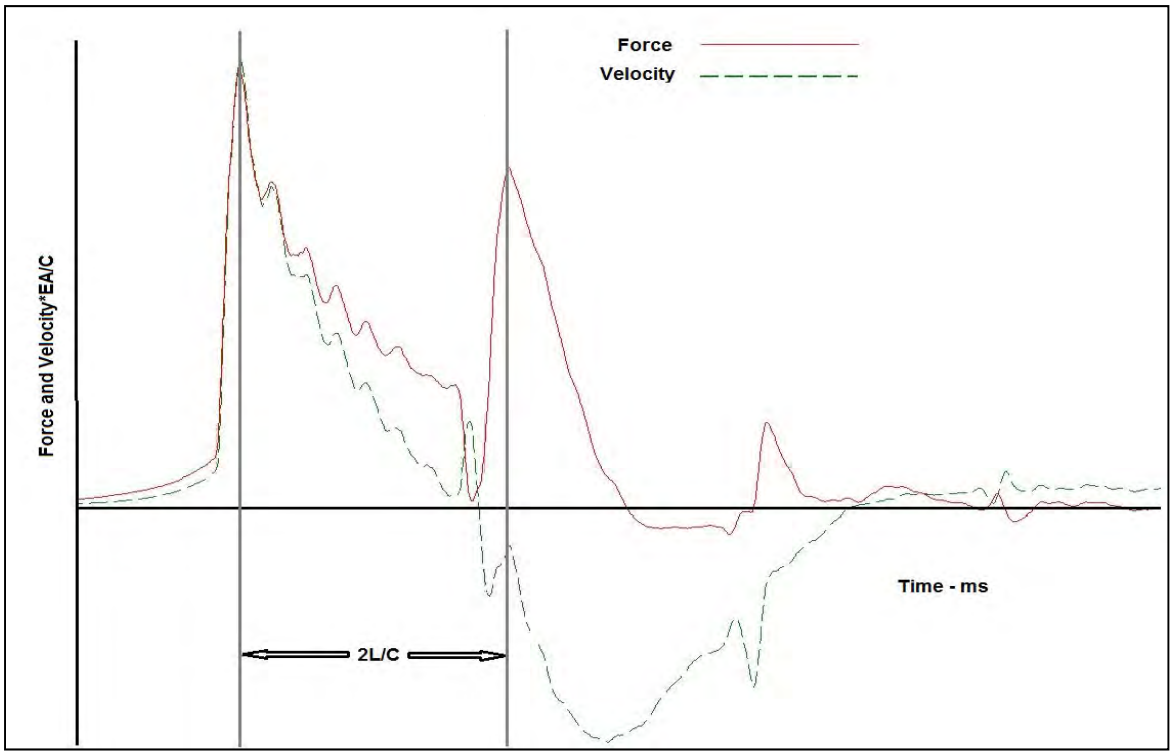


Figure 4. Typical Force and Velocity traces for an H-pile driven into bedrock (high force and low velocity at tip - 2L/C).

If a pile contains a defect or is damaged (e.g. reduction in impedance) during driving, the wave reflecting from the zone of decreased impedance will show a reduction in the force and increase in the velocity (somewhat comparable to "free end conditions"). These reflections would arrive to the measuring transducers before the expected reflections associated with the pile tip as the damaged zone is at a point along the pile between the transducer location and pile tip. The detection of damage during driving is usually easily identifiable and typically associated with cracking of concrete piles or splice breakage.

Dynamic Testing Summary Output

After data collection, the most pertinent output quantities from the dynamic pile testing can be summarized in a graphical manner. The data can be also presented in tabular format, averaging the results based on penetration depth or blow number as specified by the user. Figure 5 shows typical graphical output. Each of the three plots presents two quantities sharing the vertical (penetration) axis.

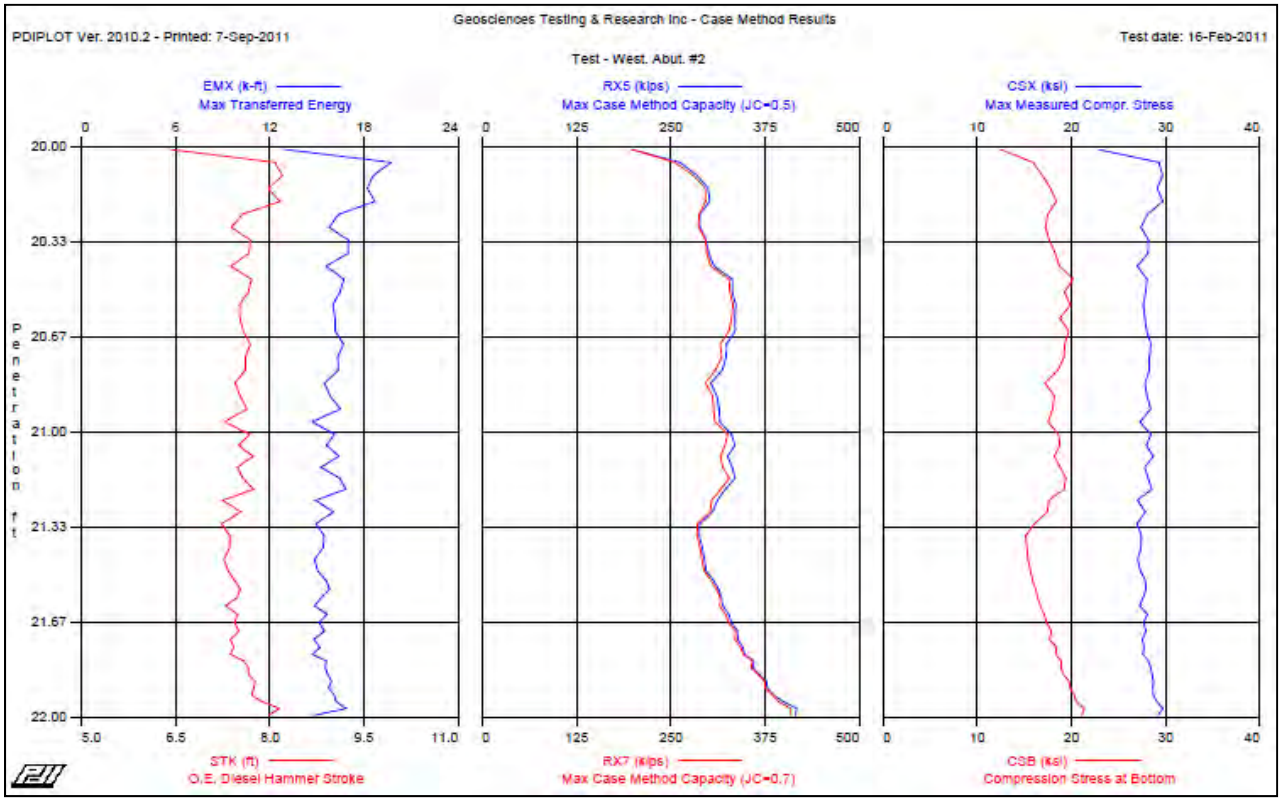


Figure 5. Typical Dynamic Testing summary Output (PDI Plot® Program)

Signal Matching Analyses

Signal matching using the dynamic testing data can be performed to predict the static pile capacity. Programs such as CAPWAP® (developed by Pile Dynamics, Inc.) or TEPWAP/PWAP (developed by GTR) are numerical analyses used to solve the one dimensional wave equation using the measured force and velocity. E.A Smith (1960) suggested modeling the hammer-pile-soil system for use in the wave equation by a series of masses, springs and dashpots as shown in Figure 6. The signal matching programs determine the best match between measured and calculated pile top forces and

replace the hammer input with the measured force and velocity. The pile is separated into many small segments, often 1 meter in length. The velocity record obtained from the dynamic pile testing transducers is used as input to the top pile segment. The resistance, damping, and quake are the primary soil parameters assigned by the user to each pile segment below grade. The signal matching programs will calculate the displacement, velocity, and stresses (forces) for each pile segment based on the input velocity record and the user assigned soil parameters. These parameters are adjusted and modified in an iterative fashion until the best match is obtained between the force calculated for the pile top segment and the force measured at the pile top during testing. The user assigned soil parameters based on the best match represent the "actual soil conditions", including the resistance (and therefore pile capacity). This capacity is based on the resistance at the time of the testing. Static load tests are typically conducted several days or weeks after driving. Therefore, restrike tests are recommended to be performed some time after driving to assess time dependent changes in pile capacity, such as setup or relaxation.

New PDA Appendix.docx

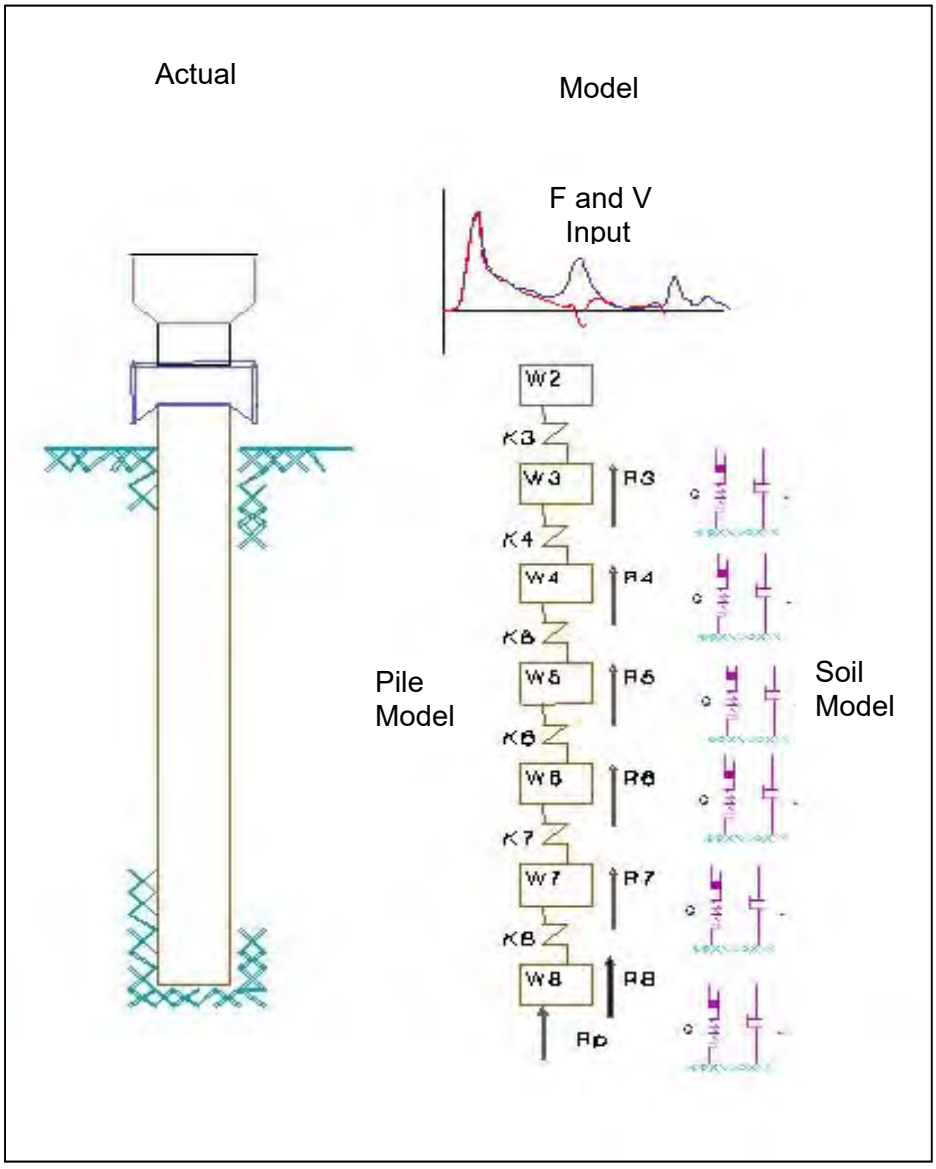


Figure 6. Signal Matching Model (i.e. CAPWAP® or TEPWAP/PWAP).

APPENDIX B
RIG

GEOSCIENCES TESTING AND RESEARCH, INC.
55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net



Project: New England Boring SPT Calibration
Project No: 23.330
Drawn By: TJS
Date: 11/17/23
S/N: 43680

GEOSCIENCES TESTING AND RESEARCH, INC.
55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net



Project: New England Boring SPT Calibration
Project No: 23.330
Drawn By: TJS
Date: 11/17/23
S/N: 43680

APPENDIX C
BORING LOG

GEOSCIENCES TESTING AND RESEARCH, INC.

55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net

Boring No:	SS-4	Project No:	-
GTR Project Number:	23.330	GTR Rep:	T. Stolki
Project Name:	SPT Calibration	Chk'd By:	C. George
Location:	Lowell, MA	Drilling Company:	New England Boring Contractors

PG 1 of 2

Driller:	Sam	Helper(s):	Adam
Start Date:	11/17/2023	End Date:	11/17/2023
Gnd Surface Elev (ft):	-		
Location:	-		
Note:	Marine Barge mounted D-30 / Autohammer S/N: 43680		

Equipment	Casing	Sampler	Core	Groundwater		Depth (ft)		
				Date	Time	Water	Casing	Hole
Type	'HW	SS						
Size I.D.	4"	1.75"						
Hammer Wt.	300 lb	140 lb	-					
Hammer Fall	-	30"	-					

Depth	Case BPF	Sample Data: No.	Pen/ Rcvy	Depth (El.)	Blows per 6in	Field Test	Description and Classification	Stratum: Description	Additional Data	Notes
0										1, 2
5										
10							Sampling not performed in the upper 20 feet			
15										
20		SS-1	24/24	20-22	15-22		moist, m. dense, dark grey, f.c SAND, trace Gravel, trace Silt			
					22-25					
		SS-2	24/15	22-24	2-4					
					4-4					
25		SS-3	24/14	24-26	2-5			SANDS		
					5-4		moist, m.dense, light grey, f.m SAND, some Silt.			
		SS-4	24/21	26-28	2-4					
					6-6					
		SS-5	24/15	28-30	2-7					
30					3-6					

NOTES:
1. Depth from waterline to mudline was 6 feet at the time of drilling.
2. Depth is referenced from mudline.

Order of Sample Description **(Modified Burmister)**

1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
   "some" - 20% to 35% minor grain size
   "little" - 10% to 20% minor grain size
   "trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands)	Cohesive Soils (Clays)
Relative Density / Blows per Foot	Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

GEOSCIENCES TESTING AND RESEARCH, INC.

55 Middlesex Street, Suite 225, North Chelmsford, MA.
Phone: (978) 251-9395 www.gtrinc.net

Boring No:	SS-4	Project No:	-
GTR Project Number:	23.330	GTR Rep:	T. Stolki
Project Name:	SPT Calibration	Chk'd By:	C. George
Location:	Lowell, MA	Drilling Company:	New England Boring Contractors

Driller:	Sam	Helper(s):	Adam
Start Date:	11/17/2023	End Date:	11/17/2023
Gnd Surface Elev (ft):	-		
Location:	-		
Note:	Marine Barge mounted D-30 / Autohammer S/N: 43680		

Equipment	Casing	Sampler	Core	Groundwater		Depth (ft)		
Type	'HW	SS		Date	Time	Water	Casing	Hole
Size I.D.	4"	1.375"						
Hammer Wt.	300 lb	140 lb	-					
Hammer Fall	30"	30"	-					

Depth	Case BPF	Sample Data No.	Pen/ Rcvy	Depth (El.)	Blows per 6in	Field Test	Description and Classification	Stratum Description	Additional Data	Notes
30										
		SS-6	24/21	30-32	3-4		moist. m. dense, light grey, f.m SAND,	SANDS		
					6-6		some Silt.			
							Bottom of boring at 32 feet below mudline.	32'		3
35										
40										
45										
50										
55										
60										

NOTES:

3. Boring terminated at 32 feet below mudline.

Order of Sample Description (Modified Burmister)

1. Moisture Content: Dry, Moist, Wet
2. Soil Relative Density or Consistency
3. Color
4. Major Component: Should be capitalized
5. Minor Component: "and" - 35% to 50% minor grain size
   "some" - 20% to 35% minor grain size
   "little" - 10% to 20% minor grain size
   "trace" - < 10% of minor grain size

PENETRATION RESISTANCE (N) GUIDE

Cohesionless Soils (Sands)	Cohesive Soils (Clays)
Relative Density / Blows per Foot	Consistency / Blows per Foot
Very Loose >> 0 - 4	Very Soft >> Below 2
Loose >> 4 - 10	Soft >> 2 - 4
Medium Dense >> 10 - 30	Medium Stiff >> 4 - 8
Dense >> 30 - 50	Stiff >> 8 - 15
Very Dense >> Over 50	Very Stiff >> 15 - 30
	Hard >> Over 30

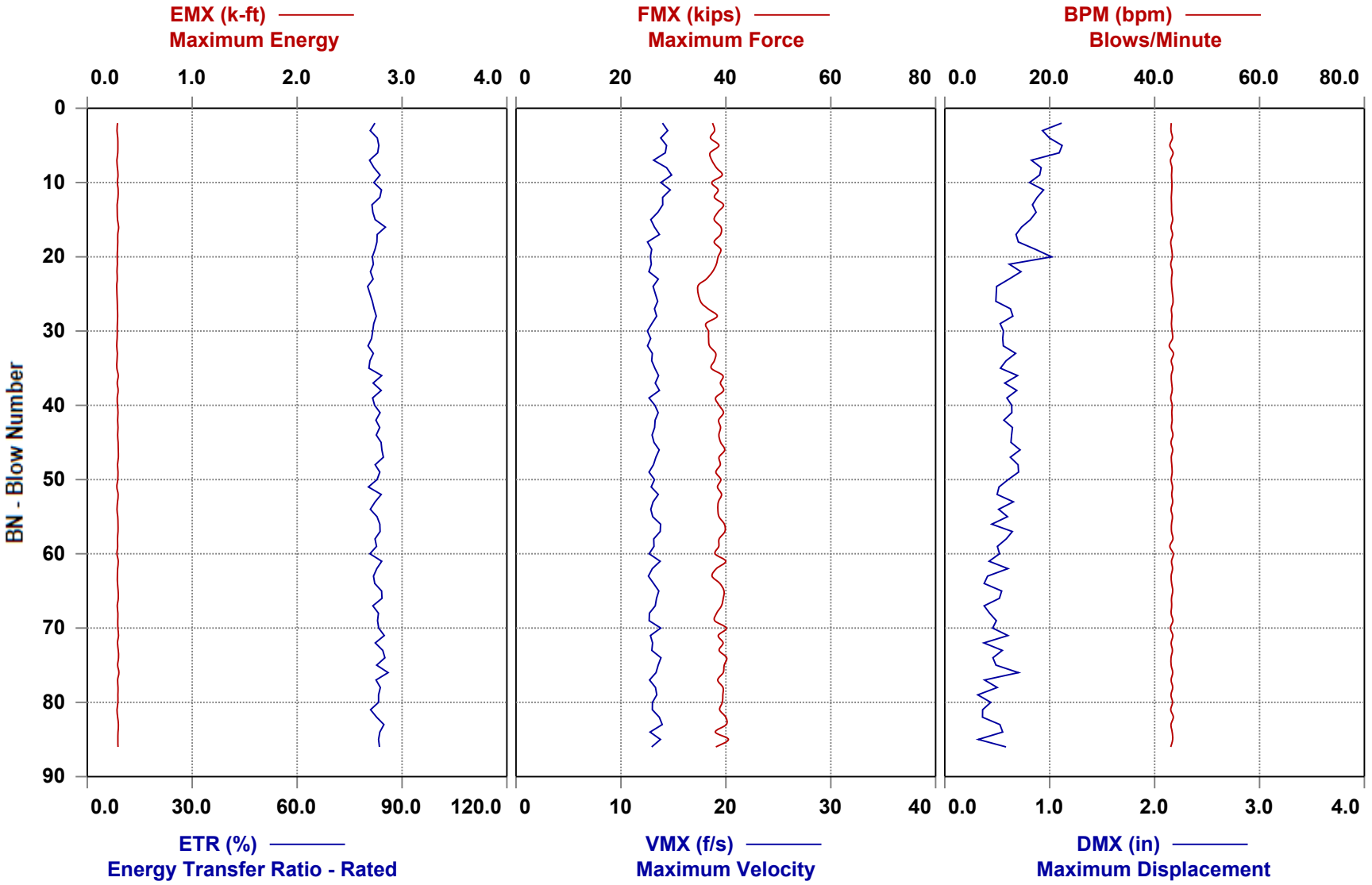
APPENDIX D
PDA DATA

Pile Dynamics, Inc. - PDIPLOT2 Ver 2022.1.62.0 - Case Method & iCAP® Results

Printed: 22-November-2023 Test started: 17-November-2023

23.330 NE BORING SPT 11-17-23 - D30 20'-22'

NWJ SPT CALIBRATION



Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 20'-22' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

AR: 1.50 in² SP: 0.492 k/ft³
LE: 29.50 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
DMX: Maximum Displacement
DFN: Final Displacement
EF2: Energy of F² (ASTM D4633)
AMX: Maximum Acceleration

BL#	Depth	BLC	EMX	ETR	FMX	VMX	BPM	DMX	DFN	EF2	AMX
	ft	bl/ft	k-ft	(%)	kips	f/s	bpm	in	in	k-ft	g's
17	20.00	0	0.290	82.9	39.0	13.7	43.4	0.68	0.68	0.367	2,049
18	20.00	0	0.290	82.8	37.8	12.5	43.1	0.70	0.70	0.361	1,807
19	20.00	0	0.288	82.3	39.0	12.9	43.3	0.86	0.86	0.367	1,965
20	20.00	0	0.285	81.5	38.5	12.8	43.4	1.02	1.02	0.357	1,896
21	20.00	0	0.286	81.8	38.2	12.9	43.1	0.61	0.61	0.355	2,217
22	20.00	0	0.283	81.0	37.5	12.7	43.4	0.73	0.73	0.352	1,896
23	20.00	0	0.286	81.7	36.3	13.6	43.2	0.61	0.61	0.352	2,383
24	20.00	0	0.281	80.2	34.7	13.1	43.2	0.49	0.49	0.342	2,273
26	20.00	0	0.285	81.5	35.2	13.5	43.5	0.49	0.49	0.349	2,289
27	20.00	0	0.287	82.0	36.6	13.2	43.2	0.63	0.63	0.350	2,357
28	20.00	0	0.289	82.7	38.4	13.4	43.3	0.65	0.65	0.358	2,282
29	20.00	0	0.287	81.9	36.2	12.9	43.2	0.53	0.53	0.353	2,047
30	20.00	0	0.286	81.6	36.7	12.5	43.3	0.56	0.56	0.353	1,966
31	20.00	0	0.285	81.3	36.7	12.8	43.4	0.55	0.55	0.348	2,177
32	20.00	0	0.281	80.3	36.9	12.5	42.8	0.56	0.56	0.346	2,147
33	20.00	0	0.286	81.8	38.1	13.0	43.6	0.68	0.68	0.357	2,183
34	20.00	0	0.283	80.8	37.8	12.9	43.2	0.58	0.58	0.352	2,169
35	20.00	0	0.282	80.5	37.2	13.2	43.5	0.53	0.53	0.352	2,329
36	20.00	0	0.295	84.2	39.4	13.6	43.2	0.69	0.69	0.364	2,380
37	20.00	0	0.286	81.7	39.0	13.3	43.3	0.57	0.57	0.358	2,243
38	20.00	0	0.294	84.0	39.6	13.7	43.4	0.69	0.69	0.365	2,316
39	20.00	0	0.286	81.6	38.0	12.7	43.1	0.59	0.59	0.358	1,988
40	20.00	0	0.288	82.2	38.7	13.2	43.4	0.64	0.64	0.360	2,182
41	20.00	0	0.293	83.7	39.5	13.6	43.3	0.64	0.64	0.361	2,264
42	20.00	0	0.289	82.5	38.6	13.3	43.3	0.56	0.56	0.357	2,251
43	20.00	0	0.293	83.6	39.0	13.2	43.2	0.64	0.64	0.364	2,205
44	20.00	0	0.289	82.6	38.7	13.0	43.5	0.64	0.64	0.360	1,928
45	20.00	0	0.294	84.0	39.0	13.1	43.1	0.63	0.63	0.368	2,181
46	20.00	0	0.295	84.2	39.8	13.6	43.4	0.72	0.72	0.368	2,322
47	20.00	0	0.296	84.7	38.7	13.3	43.2	0.62	0.62	0.366	2,066
48	20.00	0	0.288	82.3	38.9	13.1	43.3	0.70	0.70	0.361	2,119
49	20.00	0	0.293	83.7	38.1	12.7	43.3	0.70	0.70	0.365	2,006
50	20.00	0	0.290	82.9	39.0	13.2	43.2	0.60	0.60	0.359	2,175
51	20.00	0	0.281	80.4	38.4	12.9	43.4	0.52	0.52	0.352	2,106
52	20.00	0	0.294	84.1	39.2	13.6	43.3	0.50	0.50	0.368	2,106
53	20.00	0	0.288	82.3	38.6	13.1	43.4	0.65	0.65	0.359	2,190
54	20.00	0	0.283	80.9	38.5	12.8	43.1	0.51	0.51	0.360	1,949
55	20.00	0	0.290	82.9	38.7	13.0	43.4	0.60	0.60	0.364	2,043
56	20.00	0	0.293	83.7	39.7	13.8	43.2	0.45	0.45	0.365	2,260
57	20.00	0	0.293	83.7	39.8	13.7	43.2	0.64	0.64	0.366	2,288
58	20.00	0	0.288	82.3	38.7	13.1	43.5	0.59	0.59	0.358	2,159
59	20.00	0	0.289	82.7	38.6	13.1	42.9	0.50	0.50	0.358	2,031
60	20.00	0	0.283	80.8	37.9	12.7	43.6	0.52	0.52	0.350	1,950
61	20.00	0	0.295	84.2	40.0	13.7	43.2	0.42	0.42	0.368	2,308
		Average	0.288	82.4	38.2	13.1	43.3	0.61	0.61	0.359	2,146

Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 20'-22' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

BL#	Depth	BLC	EMX	ETR	FMX	VMX	BPM	DMX	DFN	EF2	AMX
	ft	bl/ft	k-ft	(%)	kips	f/s	bpm	in	in	k-ft	g's
	Std. Dev.		0.004	1.2	1.2	0.4	0.2	0.10	0.10	0.007	146
	Maximum		0.296	84.7	40.0	13.8	43.6	1.02	1.02	0.368	2,383
	Minimum		0.281	80.2	34.7	12.5	42.8	0.42	0.42	0.342	1,807

Total number of blows analyzed: 44

BL# Sensors

2-86 F1: [679NWJ2] 217.3 (1.00); F4: [679NWJ1] 217.6 (1.00); A2: [K6143] 406.9 (1.00); A3: [K13150] 356.3 (1.00)

Time Summary

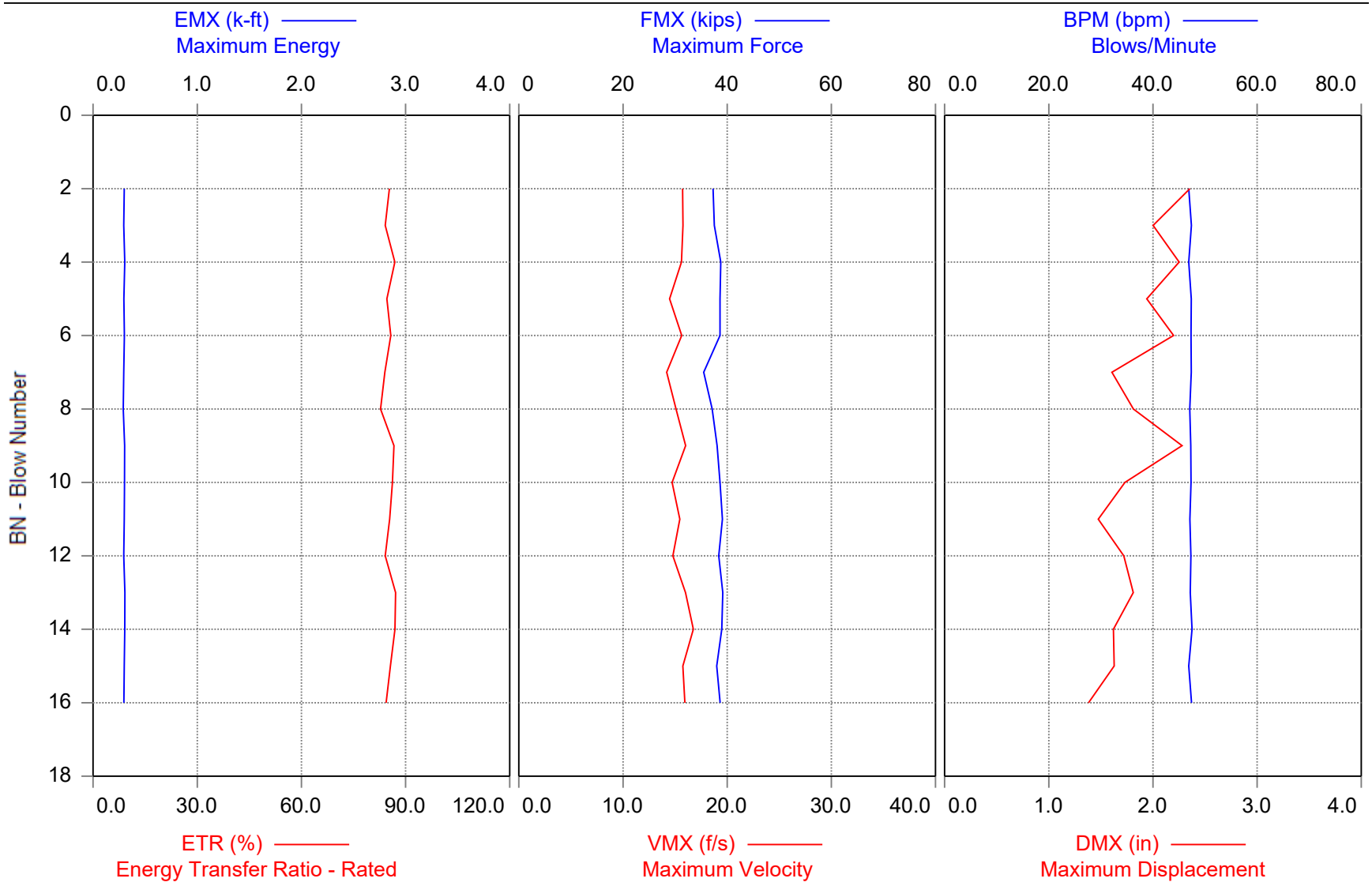
Drive 2 minutes 23 seconds 8:53 AM - 8:55 AM BN 1 - 87

Pile Dynamics, Inc. - PDIPLOT2 Ver 2022.1.62.0 - Case Method & iCAP® Results

Printed: 22-November-2023 **Test started: 17-November-2023**

23.330 NE BORING SPT 11-17-23 - D30 24'-26'

NWJ SPT CALIBRATION



Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 24'-26' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

AR: 1.50 in² SP: 0.492 k/ft³
LE: 34.50 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
DMX: Maximum Displacement
DFN: Final Displacement
EF2: Energy of F² (ASTM D4633)
AMX: Maximum Acceleration

BL#	Depth ft	BLC bl/ft	EMX k-ft	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	EF2 k-ft	AMX g's
4	24.00	0	0.3	86.9	39	15.6	46.9	2.25	2.25	0.4	2,419
5	24.00	0	0.3	84.6	39	14.5	47.4	1.94	1.94	0.4	2,400
6	24.00	0	0.3	85.7	39	15.6	47.3	2.20	2.20	0.4	2,408
7	24.00	0	0.3	84.0	35	14.2	47.4	1.61	1.54	0.3	2,142
8	24.00	0	0.3	82.8	37	15.1	47.1	1.81	1.80	0.3	2,067
9	24.00	0	0.3	86.7	38	16.0	47.3	2.28	2.28	0.4	2,030
10	24.00	0	0.3	86.2	39	14.7	47.3	1.73	1.70	0.4	2,166
11	24.00	0	0.3	85.4	39	15.5	47.1	1.47	1.45	0.4	2,253
12	24.00	0	0.3	84.1	38	14.8	47.3	1.72	1.70	0.3	2,317
13	24.00	0	0.3	87.1	39	16.0	47.2	1.81	1.80	0.4	2,187
	Average		0.3	85.4	38	15.2	47.2	1.88	1.87	0.4	2,239
	Std. Dev.		0.0	1.4	1	0.6	0.1	0.26	0.28	0.0	135
	Maximum		0.3	87.1	39	16.0	47.4	2.28	2.28	0.4	2,419
	Minimum		0.3	82.8	35	14.2	46.9	1.47	1.45	0.3	2,030

Total number of blows analyzed: 10

BL# Sensors

2-16 F3: [679NWJ1] 217.6 (1.00); F4: [679NWJ2] 217.3 (1.00); A1: [K13150] 356.3 (1.00); A2: [K6143] 406.9 (1.00)

Time Summary

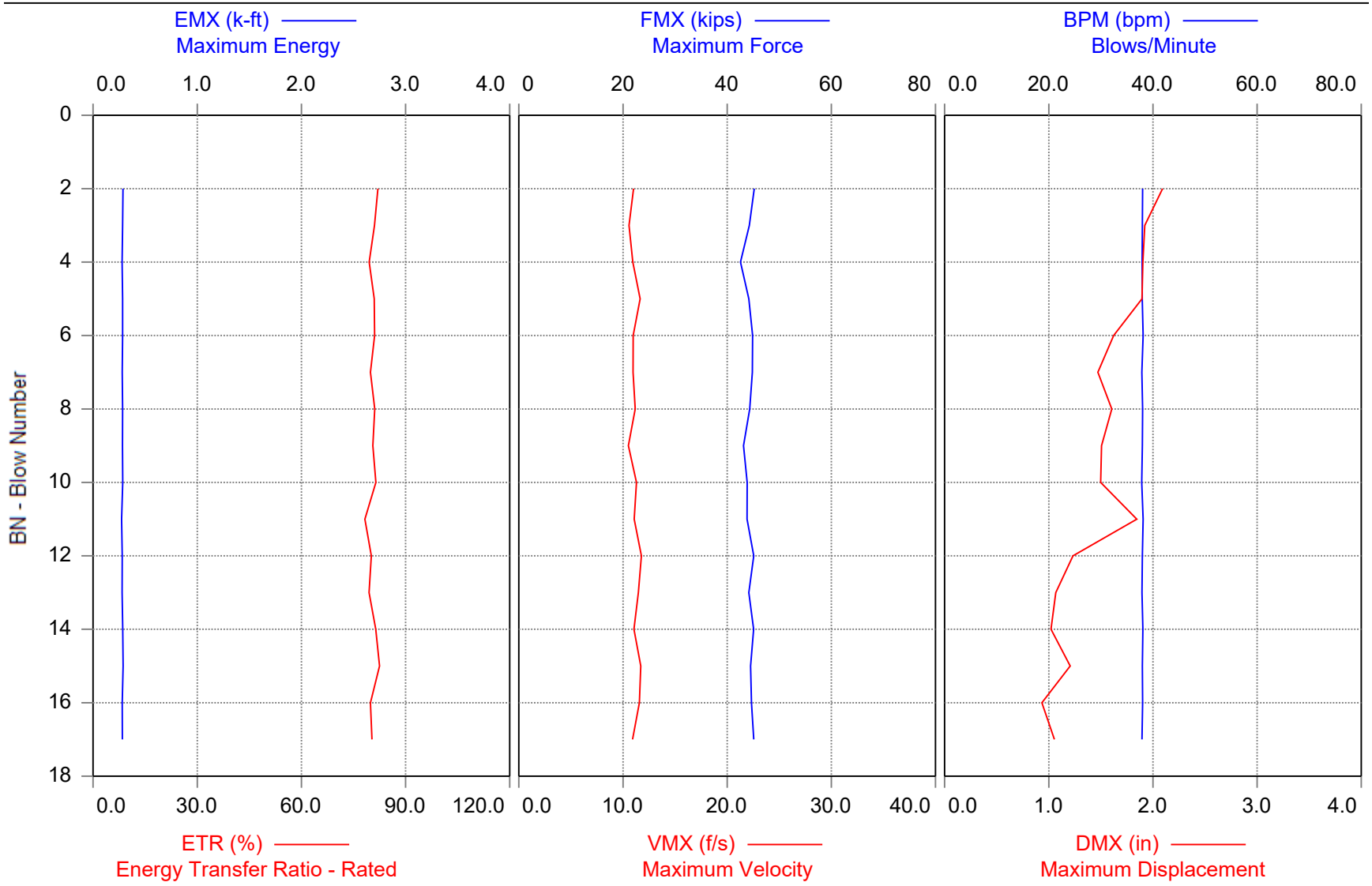
Drive 19 seconds 9:22 AM - 9:22 AM BN 1 - 16

Pile Dynamics, Inc. - PDIPLOT2 Ver 2022.1.62.0 - Case Method & iCAP® Results

Printed: 22-November-2023 **Test started: 17-November-2023**

23.330 NE BORING SPT 11-17-23 - D30 26'-28'

NWJ SPT CALIBRATION



Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 26'-28' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

AR: 1.50 in² SP: 0.492 k/ft³
LE: 37.00 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
DMX: Maximum Displacement
DFN: Final Displacement
EF2: Energy of F² (ASTM D4633)
AMX: Maximum Acceleration

BL#	Depth ft	BLC bl/ft	EMX k-ft	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	EF2 k-ft	AMX g's
4	26.00	0	0.278	79.5	42.5	10.9	37.9	1.90	1.90	0.356	2,261
5	26.00	0	0.283	81.0	44.2	11.6	38.0	1.89	1.89	0.365	2,032
6	26.00	0	0.284	81.1	44.9	11.0	38.1	1.62	1.62	0.372	2,365
7	26.00	0	0.280	79.9	44.8	11.0	37.9	1.47	1.46	0.370	2,303
8	26.00	0	0.284	81.1	44.3	11.2	38.0	1.60	1.60	0.366	2,001
9	26.00	0	0.282	80.6	43.1	10.5	38.0	1.51	1.49	0.365	2,073
10	26.00	0	0.285	81.4	43.8	11.3	37.8	1.50	1.49	0.372	2,341
11	26.00	0	0.274	78.3	43.8	11.1	38.1	1.84	1.84	0.364	1,791
12	26.00	0	0.280	80.1	45.1	11.8	38.0	1.23	1.22	0.375	2,233
13	26.00	0	0.278	79.5	44.1	11.5	37.9	1.07	1.07	0.366	2,153
		Average	0.281	80.2	44.1	11.2	38.0	1.56	1.56	0.367	2,155
		Std. Dev.	0.003	0.9	0.8	0.4	0.1	0.26	0.26	0.005	172
		Maximum	0.285	81.4	45.1	11.8	38.1	1.90	1.90	0.375	2,365
		Minimum	0.274	78.3	42.5	10.5	37.8	1.07	1.07	0.356	1,791

Total number of blows analyzed: 10

BL# Sensors

2-17 F3: [679NWJ1] 217.6 (1.00); F4: [679NWJ2] 217.3 (1.00); A1: [K13150] 356.3 (1.00); A2: [K6143] 406.9 (1.00)

Time Summary

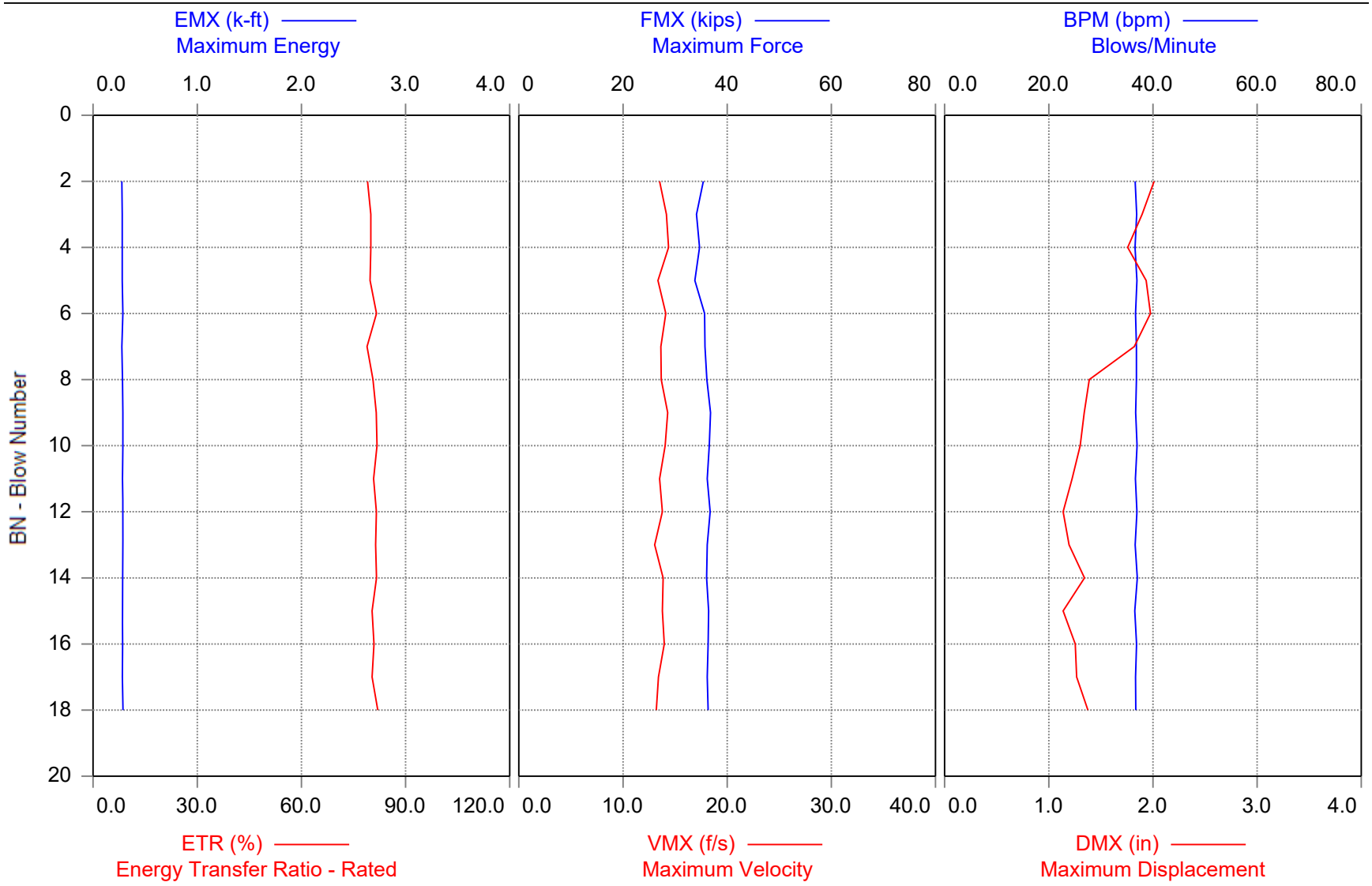
Drive 25 seconds 9:33 AM - 9:34 AM BN 1 - 17

Pile Dynamics, Inc. - PDIPLOT2 Ver 2022.1.62.0 - Case Method & iCAP® Results

Printed: 22-November-2023 **Test started: 17-November-2023**

23.330 NE BORING SPT 11-17-23 - D30 28'-30'

NWJ SPT CALIBRATION



Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 28'-30' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

AR: 1.50 in² SP: 0.492 k/ft³
LE: 38.50 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
DMX: Maximum Displacement
DFN: Final Displacement
EF2: Energy of F² (ASTM D4633)
AMX: Maximum Acceleration

BL#	Depth ft	BLC bl/ft	EMX k-ft	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	EF2 k-ft	AMX g's
4	28.00	0	0.280	80.0	35	14.4	36.6	1.76	1.76	0.316	2,528
5	28.00	0	0.279	79.8	34	13.4	36.9	1.93	1.93	0.314	2,483
6	28.00	0	0.286	81.6	36	14.1	36.7	1.98	1.98	0.321	2,493
7	28.00	0	0.276	78.9	36	13.6	36.8	1.82	1.82	0.318	2,369
8	28.00	0	0.282	80.6	36	13.7	36.8	1.39	1.38	0.332	2,414
9	28.00	0	0.285	81.6	37	14.3	36.7	1.34	1.33	0.332	2,447
10	28.00	0	0.286	81.8	37	14.0	36.9	1.30	1.29	0.332	2,474
11	28.00	0	0.283	80.8	36	13.5	36.6	1.22	1.21	0.331	2,199
12	28.00	0	0.286	81.6	37	13.8	36.9	1.14	1.12	0.333	2,542
13	28.00	0	0.285	81.4	36	13.0	36.6	1.19	1.18	0.333	2,130
		Average	0.283	80.8	36	13.8	36.7	1.51	1.50	0.326	2,408
		Std. Dev.	0.003	0.9	1	0.4	0.1	0.31	0.32	0.008	132
		Maximum	0.286	81.8	37	14.4	36.9	1.98	1.98	0.333	2,542
		Minimum	0.276	78.9	34	13.0	36.6	1.14	1.12	0.314	2,130

Total number of blows analyzed: 10

BL# Sensors

2-18 F1: [679NWJ1] 217.6 (1.00); F3: [679NWJ2] 217.3 (1.00); A2: [K13150] 356.3 (1.00); A4: [K6143] 406.9 (1.00)

Time Summary

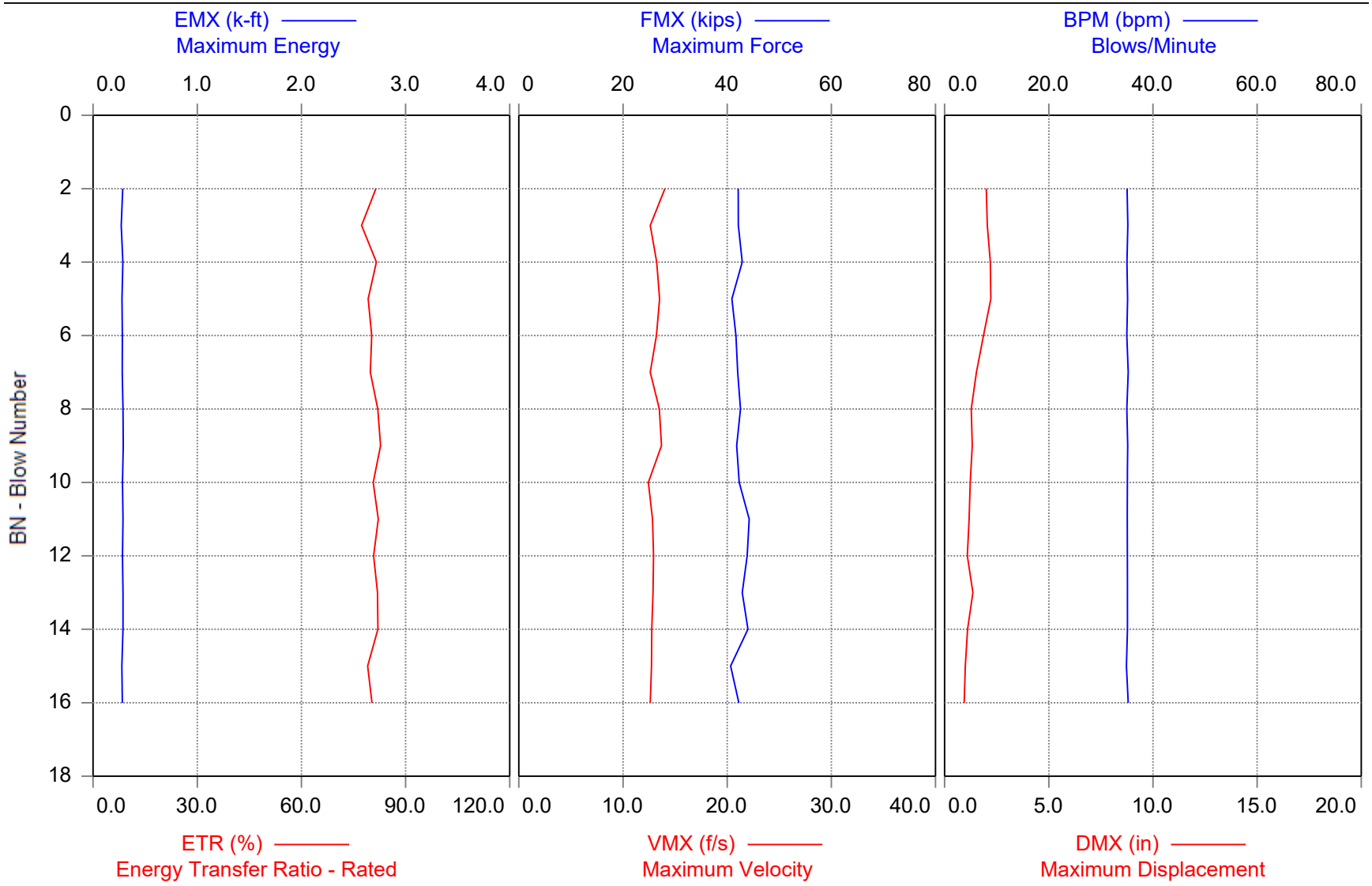
Drive 27 seconds 9:43 AM - 9:44 AM BN 1 - 18

Pile Dynamics, Inc. - PDIPLOT2 Ver 2022.1.62.0 - Case Method & iCAP® Results

Printed: 22-November-2023 **Test started: 17-November-2023**

23.330 NE BORING SPT 11-17-23 - D30 30'-32'

NWJ SPT CALIBRATION



Case Method & iCAP® Results

23.330 NE BORING SPT 11-17-23 - D30 30'-32' NWJ SPT CALIBRATION
OP: TJS Date: 17-November-2023

AR: 1.50 in² SP: 0.492 k/ft³
LE: 40.50 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

EMX: Maximum Energy
ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
VMX: Maximum Velocity
BPM: Blows/Minute
DMX: Maximum Displacement
DFN: Final Displacement
EF2: Energy of F² (ASTM D4633)
AMX: Maximum Acceleration

BL#	Depth ft	BLC bl/ft	EMX k-ft	ETR (%)	FMX kips	VMX f/s	BPM bpm	DMX in	DFN in	EF2 k-ft	AMX g's
5	30.00	0	0.277	79.2	40.9	13.5	35.1	2.22	2.22	0.349	2,169
6	30.00	0	0.281	80.2	41.7	13.2	35.0	1.86	1.86	0.358	2,130
7	30.00	0	0.279	79.8	42.0	12.6	35.2	1.53	1.50	0.356	2,037
8	30.00	0	0.287	82.0	42.5	13.5	35.0	1.28	1.24	0.364	2,119
9	30.00	0	0.290	82.8	41.8	13.7	35.1	1.33	1.30	0.365	2,136
10	30.00	0	0.282	80.7	42.3	12.4	35.1	1.23	1.20	0.364	1,967
11	30.00	0	0.287	82.1	44.2	12.8	35.0	1.17	1.14	0.383	2,129
12	30.00	0	0.283	80.8	43.8	12.9	35.1	1.09	1.05	0.379	2,159
13	30.00	0	0.287	81.9	42.9	12.9	35.1	1.35	1.33	0.378	2,004
14	30.00	0	0.287	82.0	44.0	12.8	35.1	1.10	1.09	0.383	2,138
		Average	0.284	81.2	42.6	13.0	35.1	1.42	1.39	0.368	2,099
		Std. Dev.	0.004	1.1	1.0	0.4	0.1	0.34	0.36	0.012	66
		Maximum	0.290	82.8	44.2	13.7	35.2	2.22	2.22	0.383	2,169
		Minimum	0.277	79.2	40.9	12.4	35.0	1.09	1.05	0.349	1,967

Total number of blows analyzed: 10

BL# Sensors

2-16 F2: [679NWJ2] 217.3 (1.00); F3: [679NWJ1] 217.6 (1.00); A1: [K6143] 406.9 (1.00); A4: [K13150] 356.3 (1.00)

Time Summary

Drive 47 seconds 9:50 AM - 9:51 AM BN 1 - 17