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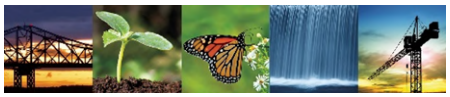
GEOTECHNICAL DESIGN REPORT

PRESQUE ISLE BYPASS, SEGMENT 1
MAINE DOT WIN 6462.92
PRESQUE ISLE, MAINE

September 2025
09.0025832.06

Prepared for:
Maine Department of Transportation
Augusta, Maine

Prepared by:
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VIA EMAIL

September 11, 2025
File No. 09.0025832.06

Mr. Cody Russell
Maine Department of Transportation
16 State House Station
Augusta, ME 04333-0016

Re: Geotechnical Design Report
Presque Isle Bypass, Segment 1
MaineDOT WIN 6462.92
Presque Isle, Maine

Dear Cody:

We are pleased to provide this Geotechnical Design Report, which includes geotechnical design recommendations for the proposed highway alignments, bridges, and culverts for the Presque Isle Bypass, Segment 1 Project in Presque Isle, Maine. Our work was completed under GZA GeoEnvironmental, Inc.'s (GZA's) June 3, 2020 General Consulting Agreement (GCA CTM20200603000000000709) with the Maine Department of Transportation (MaineDOT) Highway Program, and incorporates GZA's Proposal No. 09.P000038.24 dated August 4, 2023, and the *Limitations* Included in **Appendix A** of this report.

It has been a pleasure serving MaineDOT on this phase of the project, and we look forward to our continued work with you through project completion. If you have any questions regarding the report, or if we can provide further assistance, please do not hesitate to contact the undersigned.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Blaine M. Cardali, P.E.
Senior Project Manager



Christopher L. Snow, P.E.
Consultant Reviewer

Andrew R. Blaisdell, P.E.
Associate Principal

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Attachment: Geotechnical Design Report

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TABLE OF CONTENTS

Page

1.0 INTRODUCTION 1
1.1 BACKGROUND 1
1.1.1 Proposed Roadways 1
1.1.2 Proposed Bridges 2
1.1.3 Proposed Culverts 2
1.2 OBJECTIVES AND SCOPE OF SERVICES 3
2.0 SUBSURFACE EXPLORATIONS 3
2.1 100- SERIES TEST BORINGS 4
2.2 300 & 400- SERIES TEST BORINGS 4
2.3 500- SERIES TEST BORINGS AND PROBES 5
2.4 600- SERIES TEST BORINGS AND PROBES 5
2.5 BOREHOLE TELEVIEWER SURVEY 5
3.0 LABORATORY TESTING 6
4.0 SUBSURFACE CONDITIONS 6
4.1 SURFICIAL AND BEDROCK GEOLOGY 6
4.2 SUBSURFACE PROFILE 7
4.2.1 Subsurface Condition Summaries for Bridges and Culverts 9
4.2.2 Bedrock 11
4.2.3 Groundwater 12
5.0 ENGINEERING EVALUATIONS 12
5.1 GENERAL 12
5.2 APPROACH AND HIGHWAY EMBANKMENTS 13
5.3 HIGHWAY ROCK CUT SLOPES 13
5.3.1 Stability Assessment Methodology 14
5.3.2 Rockfall Catchment Evaluation 15
5.4 EVALUATION OF FOUNDATION TYPES 15
5.4.1 Ridge Abutment And Culvert Foundations 15
5.4.2 Bridge Wingwall Considerations 16
5.4.3 Culvert Footing Considerations 16
5.5 LOAD AND RESISTANCE FACTORS 16
5.6 SPREAD FOOTING DESIGN CONSIDERATIONS 17
5.6.1 Spread Footing On Glacial Till 17
5.7 LATERAL EARTH PRESSURE 18
5.8 BRIDGES 18
5.9 CULVERTS 18
5.10 SEISMIC DESIGN CONSIDERATIONS 18
5.11 FROST PROTECTION 19
5.11.1 Frost Insulation 19
6.0 RECOMMENDATIONS 19

TABLE OF CONTENTS (*CONTINUED*)

6.1 EARTH EMBANKMENTS 19
6.2 ROCK CUTS 20
6.3 ROCK CUTS 20
6.3.1 Rock Excavation Methods 20
6.4 FROST AND SUBGRADE CONDITIONS FOR PAVEMENT DESIGN 20
6.5 PAVEMENT DRAINAGE DESIGN CONSIDERATIONS 21
6.6 SEISMIC DESIGN FOR BRIDGES 21
6.7 BRIDGE ABUTMENT AND WINGWALL DESIGN 22
6.8 BOX CULVERT AND INLET AND OUTLET WALL DESIGN 22
6.9 RECOMMENDATIONS FOR SPREAD FOOTING DESIGN 23

7.0 CONSTRUCTION CONSIDERATIONS 25

7.1 EXCAVATION, TEMPORARY LATERAL SUPPORT AND DEWATERING 25
7.2 SUBGRADE PREPARATION 26
7.3 REUSE OF ON-SITE MATERIALS 27

TABLES

TABLE 1 Summary of Subsurface Explorations
TABLE 2 Probe Summary Table
TABLE 3 Bedrock Summary Table
TABLE 4 Pavement Subgrade Summary Table

FIGURES

FIGURE 1 Locus Plan
FIGURE 2 Henderson Road Bridge Boring Location Plan
FIGURE 3 Henderson Road Bridge Interpretive Subsurface Profile
FIGURE 4 MNR Bridge Boring Location Plan
FIGURE 5 MNR Bridge Interpretive Subsurface Profile
FIGURE 6 Easton Road Bridge Boring Location Plan
FIGURE 7 Easton Road Bridge Interpretive Subsurface Profile
FIGURE 8 Conant Road Bridge Boring Location Plan
FIGURE 9 Conant Road Bridge Interpretive Subsurface Profile
FIGURE 10 Clark Brook Arch Culvert Boring Location Plan and Interpretive Subsurface Profile
FIGURE 11 Tributary to Clark Brook Culvert Boring Location Plan and Interpretive Subsurface Profile
FIGURE 12 Tributary to Williams Brook Culvert Boring Location Plan and Interpretive Subsurface Profile

TABLE OF CONTENTS (*CONTINUED*)

FIGURE 13 Williams Brook Culvert Boring Location Plan and Interpretive Subsurface Profile

FIGURE 14 Tributary to Merritt Brook Culvert Boring Location Plan and Interpretive Subsurface Profile

FIGURE 15 Conant Road over Tributary to Merritt Brook Culvert Boring Location Plan and Interpretive Subsurface Profile

APPENDICES

APPENDIX A Limitations

APPENDIX B Test Boring Logs

APPENDIX C Highway Boring Location Plans (by others)

APPENDIX D Borehole Geophysical Test Report

APPENDIX E Laboratory Test Results

APPENDIX F Rock Core Photographs

APPENDIX G Engineering Calculations

1.0 INTRODUCTION

This report presents the results of the geotechnical evaluation by GZA GeoEnvironmental, Inc. (GZA) for the highway alignments, bridges, and culverts proposed for the Presque Isle Bypass, Segment 1 in Presque Isle, Maine. Our services were completed in accordance with GZA's June 3, 2020, General Consulting Agreement (GCA CTM20200603000000000709) with the Maine Department of Transportation (MaineDOT) Highway Program, and incorporates GZA's Proposal No. 09.P000038.24 dated August 4, 2023, and the *Limitations* Included in **Appendix A** of this report. Additionally, previous exploration data included in this report were completed and were performed under GZA's March 11, 2015, General Consulting Agreement (GCA CT20110613000000006485) with the MaineDOT Highway Program, and incorporated GZA's Proposal No. 09.P0000106.15 dated February 10, 2015. Vanasse Hangen Brustlin, Inc. (VHB) is serving as the highway and bridge designer for MaineDOT.

1.1 BACKGROUND

The project includes the construction of Phase 2 of a new bypass road to carry traffic around downtown Presque Isle. The project will tie into U.S. Route 1 south of downtown and extend to the terminus of the previously construction Phase 1 portion, which is a temporary intersection with Conant Road. The Phase 2 bypass alignment (also known as Segment 1) will cross Henderson Road, Maine Northern Railway, Easton Road and Conant Road, replacing the existing at-grade intersection at Conant with an overpass bridge.

Our understanding of the current development plan is based on the draft PSE plan set dated July 15, 2025 (file entitled "6462.92_PI BYPASS_Final_PS&E_2025-07-15.pdf"). Segment 1 is approximately 6.2 miles long, extending from Route 1 (Sta. 7320+00) to approximately 1,600 feet north of Conant Road (Sta. 7646+50) where it meets the previously constructed Segment 2 to the north. A new T-intersection and southern connector road will connect the bypass to Route 1 south of Presque Isle. A segment of Route 1 will be taken out of service just north of the new T-intersection. The new intersection will require approximately 2,500 feet of new or reconstructed roadway near the existing Route 1 corridor (Sta. 101+00 to 115+00 and 20+00 to 25+00). The Segment 1 alignment consists primarily of agricultural land and wooded areas of varying density.

1.1.1 Proposed Roadways

The bypass is planned to be a two-lane road, one lane in each direction, with shoulders on each side of the road. The northeastern terminus of Segment 1 will be an at-grade connection with Segment 2 of this project south of Conant Road.

Segment 2 of the bypass is planned to include twenty significant cut and fill areas of at least 15 feet to reach design grades, including the following:

- Typical 15- to 20-foot cut from Sta. 29+00 to 36+50;
- Typical 10- to 29-foot fill from Sta. 101+00 to 103+50;
- Typical 10- to 25-foot cut from Sta. 104+50 to 111+00;

- Typical 10-to 20-foot fill from Sta. 600+50 to 605+50;
- Typical 10-to 30-foot fill from Sta. 709+00 to 717+50;
- Typical 10- to 32-foot fill from Sta. 7336+50 to 7348+00;
- Typical 10- to 30-foot cut from Sta. 7348+50 to 7359+00;
- Typical 10- to 25-foot fill from Sta. 7361+50 to 7365+00;
- Typical 10- to 25-foot cut from Sta. 7387+00 to 7390+50;
- Typical 10- to 15-foot fill from Sta. 7394+50 to 7399+00;
- Typical 10- to 25-foot fill from Sta. 7418+00 to 7430+50 (south of Henderson Road bridge) and from Sta. 7431+50 to 7438+00 (north of Henderson Road bridge);
- Typical 10- to 35-foot fill from Sta. 7450+00 to 7465+50 (south of Maine Northern Railway bridge) and from Sta. 7467+00 to 7476+50;
- Typical 10- to 33-foot fill from Sta. 7538+00 to 7551+00 (south of Easton Road bridge) and from Sta. 7552+50 to 7557+00 (north of Easton Road bridge);
- Typical 10- to 27-foot fill from Sta. 7612+50 to 7620+00 and Sta. 7623+50 to 7626+00;
- Typical 10- to 27-foot fill from Sta. 7629+00 to 7632+50 (Conant Road bridge within area).

1.1.2 Proposed Bridges

Four bridges are planned to be constructed in Segment 1, including bridges over Henderson Road, Maine Northern Railway (Fort Fairfield Subdivision), Easton Road and Conant Road. Each bridge will be a single span and will have a superstructure consisting of a reinforced concrete slab over five steel plate girders.

The substructures for the Henderson Road Bridge (72 feet long; Sta. 7430+55 to 7431+27), the Maine Northern Railway Bridge (132 feet long; Sta. 7465+39 to 7466+71), the Easton Road Bridge (85 feet long; Sta. 7551+23 to Sta. 7552+08) and the Conant Road Bridge (150 feet long; Sta. 7629+88 to 7631+38) are proposed to be full height abutments supported on spread footings.

1.1.3 Proposed Culverts

Six culverts are planned in Segment 1, including Clark Brook Arch Culvert, Tributary to Clark Brook 3-sided Culvert, Tributary to Williams Brook Box Culvert, Williams Brook Box Culvert, Tributary to Merritt Brook Box Culvert, and Conant Road over Tributary to Merritt Brook Box Culvert.

The Clark Brook culvert is proposed to be a new, 160-foot-long (Sta. 7344+47) concrete arch culvert comprised of approximately 17-foot-high, segmental precast, rigid frame concrete arches with a 30-foot span on cast-in-place concrete pedestals, with four 30- to 65-foot-long precast concrete headwalls and wing walls and a 37-degree skew. The culvert invert will be filled with approximately 24 inches of special fill to create a natural streambed, and will include a wildlife passage shelf constructed of void-filled riprap, which will also underly the special fill. The foundation is planned to be cast-in-place concrete spread footings bearing on bedrock or Glacial Till.

The Tributary to Clark Brook culvert is proposed to be a new, 120-foot-long (Sta. 7362+50.9), three-sided box culvert comprised of a rigid frame concrete, open-bottom structure with a 12-foot span and a 10-foot rise supported on cast-in-place concrete pedestals, with four, 14- to 25-foot-long concrete headwalls and wing walls. The culvert invert will be filled with approximately 24 inches of special fill to create a natural streambed and underlain by void-filled riprap. The foundation is planned to be cast-in-place concrete spread footings.

The other four culverts, including Tributary to Williams Brook culvert (104 feet long; Sta. 7396+27.8), Williams Brook culvert (92 feet long; Sta. 7473+16), Tributary to Merritt Brook culvert (110 feet long; Sta. 7614+70.3), and Conant Road over Tributary to Merritt Brook culvert (92 feet long; Sta. 327+92.1), are proposed to be new precast box culverts with concrete headwalls and wingwalls. The culverts will each have 2-foot-tall precast headwalls and 2-foot-deep toe walls at the inlet and outlet. The box culvert inverts will be filled with 3.5-feet of void-filled riprap, except for the stream channel which will consist of approximately 24 inches of special fill to create a natural streambed. Tributary to Williams Brook, Williams Brook and Tributary to Merritt Brook will have terrestrial wildlife crossing shelves. The prepared subgrade is anticipated to consist of a 1-foot-thick layer of Underdrain backfill material placed on stabilization/reinforcement geotextile overlying the natural subgrade.

1.2 OBJECTIVES AND SCOPE OF SERVICES

The objectives of our work are to evaluate subsurface conditions and to provide geotechnical engineering recommendations and construction considerations for the Presque Isle Bypass, Segment 1 project. To meet these objectives, GZA completed the following Scope of Services:

- Conducted site visits to observe surficial conditions, traffic and boring access;
- Coordinated and observed a subsurface exploration program, consisting of 169 test borings and a borehole geophysical test to evaluate subsurface conditions for the bypass mainline, the five culverts, and the Henderson Road, Maine Northern Railway, and Easton Road bridges;
- Conducted a laboratory testing program to evaluate engineering properties of the site soils and bedrock;
- Conducted geotechnical engineering analyses to assess subsurface conditions for design of the mainline, including pavement design considerations, pavement drainage considerations, and rock slope stability and catchment evaluations;
- Conducted geotechnical engineering analyses to evaluate foundation types and design parameters for the proposed bridges and retaining walls, lateral earth pressures for abutment and wingwall design, and seismic design considerations;
- Developed geotechnical engineering recommendations; and
- Prepared this report summarizing our findings and design recommendations.

2.0 SUBSURFACE EXPLORATIONS

GZA completed multiple phases of subsurface explorations for the project including 75 previous test borings in 2014 (100-series) as part of the Segment 2 portion, a preliminary phase in 2015 including 170

test borings (300- and 400-series), a supplemental exploration program in 2017 consisting of 9 test borings and 82 probes (500-series), and a final design exploration program in 2023 consisting of 38 borings (600 series). The as-drilled boring locations were surveyed by MaineDOT and provided to GZA and are shown on the logs and in **Figures 2 through 15** (Bridges and Culverts) and in **Appendix C** (Highway)**.** New England Boring, formerly Maine Test Boring of Hermon, Maine provided drilling services. Elevations referenced in this report are in feet and refer to North American Vertical Datum of 1988 (NAVD 88).

The borings were typically drilled using 3- and 4-inch casing, and drive- or spin-and-wash drilling techniques, as noted on the boring logs. Standard penetration testing (SPT) and split spoon sampling were performed continuously in the upper portion of some borings and otherwise at 5-foot typical intervals using a 24-inch-long, 1-3/8-inch inside diameter sampler. The borings were generally backfilled with crushed stone and/or soil cuttings, and topped with asphalt cold patch in roadway areas. GZA personnel monitored the drilling work and prepared logs of each boring that are included in **Appendix B**. Additional details of each program are described in the following sections.

2.1 100- SERIES TEST BORINGS

GZA previously completed a subsurface investigation program between April 2, 2014 and April 22, 2014, as part of the Segment 2 portion of the project, which consisted of 75 test borings, including 42 test borings for the bypass mainline (HB-100 series), 19 test borings for the four ramps associated with the Conant Road bridge (RB-100 series), six test borings at the Conant Road bridge (BB-100 series), and eight test borings at the State Street bridge (BB-110 series). Forty of these borings are relevant to the Conant Road bridge, highway and associated on ramps that are included in Segment 1 portion of the project including: HB-PB-111 through HB-PB-125, RB-PB-111 through RB-PB-113 RB-PB-121 through RB-PB-127, RB-PB-131 through RB-PB-136, RB-PB-141 through RB-PB-143, and BB-PB-101 through BB-PB-106.

Test borings were drilled to depths of approximately 4 to 30 feet below ground surface. Two-inch diameter bedrock cores were obtained at the six bridge boring locations (BB-PB-101, -103, -105, -114, -115, and -117) to assess the nature of the bedrock. Core lengths ranged from 7 to 13 feet.

2.2 300 & 400- SERIES TEST BORINGS

GZA completed a subsurface investigation program between March 30, 2015 and September 2, 2015, consisting of 170 test borings, including 138 test borings for the bypass mainline (HB-300 and HB-400 series), four test borings at the Clark Brook culvert (CB-310 series), two test borings at the Tributary to Clark Brook culvert (CB-320 series), three test borings at the Tributary to Williams Brook Culvert (CB-330 series), six test borings at the Henderson Road bridge (BB-300 series), six test borings at the Maine Northern Railway bridge (BB-310 series), three test borings at the Williams Brook culvert (CB-340 series), six test borings at the Easton Road Bridge (BB-320 series), and two test borings at the Merritt Brook culvert (CB-350 series).

Test borings were drilled to depths of approximately 4 to 49 feet below ground surface. Two-inch diameter bedrock cores were obtained at eight highway boring locations (HB-PB-320, -333, -334, -338, -350, -353, -397, and -399), three culvert boring locations (CB-PB-311, -313, and -342), and eighteen bridge boring locations (BB-PB-301, -302, -303, -304, -305, -306, -311, -312, -313, -314, -315, -316, -321,

-322, -323, -324, -325, and -326) to assess the nature of the bedrock. Core lengths ranged from 5 to 27 feet. The deeper core areas corresponded to proposed rock cut areas.

Groundwater monitoring wells were installed in six of the highway test borings to measure stabilized groundwater levels. The wells consisted of 2-inch diameter, 0.010-inch slotted plastic pipe set in the completed drill holes and backfilled with filter sand surrounding the screen and bentonite surface seals.

3-inch inside-diameter PVC casing was installed in completed borehole HB-PB-333. The casing sections were advanced by hand through the overburden and upper weathered/fractured rock to maintain an open borehole prior to borehole televiewer logging.

2.3 500- SERIES TEST BORINGS AND PROBES

GZA completed a subsurface investigation program between January 3, 2017 and February 26, 2017, consisting of 13 test borings and 82 probes, including 82 auger probes for the bypass mainline (HP-500 series), four test borings at the Clark Brook culvert (CB-500 series), four test borings at the Henderson Road bridge (BB-500 series), and five test borings at the Easton Road Bridge (BB-510 series).

Test borings were drilled to depths of approximately 9 to 25 feet below ground surface. Two-inch diameter bedrock cores were obtained at one culvert boring location (CB-PB-504) and six bridge boring locations (BB-PB-501 through -504 and -511, and -511A) to assess the nature of the bedrock. Core lengths ranged from 5 to 10 feet.

2.4 600- SERIES TEST BORINGS AND PROBES

GZA completed a subsurface investigation program between October 5, 2023, and October 18, 2023, consisting of 38 test borings, including 31 test borings for the bypass mainline (HB-600 series), 2 test borings at the Conant Road over Merritt Brook culvert (HB-620 series), and 5 test borings at the Conant Road bridge (BB-600 series).

Test borings were drilled to depths of approximately 4 to 34 feet below ground surface. Two-inch diameter bedrock cores were obtained at four bridge boring locations (BB-PB-601 through -604 and -606) to assess the nature of the bedrock. Core lengths ranged from 5 to 10 feet.

2.5 BOREHOLE TELEVIEWER SURVEY

Northeast Geophysical Services (NGS) of Bangor, Maine conducted borehole televiewer logging in the cored portion of the completed borehole HB-PB-333 on October 28, 2015.

The purpose of the televiewer logging was to evaluate the location and orientation of discontinuities in the bedrock. Acoustic Televiewer (ATV) and Optical Televiewer (OTV) were performed in the borehole. The survey results included the depth, dip and dip direction of apparent discontinuities in the bedrock. More detailed information, along with OTV and ATV image log plots, interpreted results of the televiewer logs, and polar plots of the dip and dip direction of the interpreted features for the borehole are contained in a report prepared by NGS dated November 2015, which is attached in **Appendix D**. The interpreted type, aperture and orientation of each apparent discontinuity are summarized in **Table A-1** of **Appendix D**.

3.0 LABORATORY TESTING

GZA retained two laboratories to complete a laboratory testing program, including Thielsch Engineering of Cranston, Rhode Island to assess the gradation and index properties of the soil and GeoTesting Express, Inc. of Acton, Massachusetts to assess the strength of the bedrock. The testing program included:

COMPLETED LABORATORY TESTS		
Laboratory Test	**ASTM Standard**	**Number of Tests**
Grain Size Analysis	D6913	158
Hydrometer	D7928	22
Atterberg Limits	D4318	7
Moisture Content	D2216	196
Unconfined Compressive Strength (with axial and lateral strain)	D7012 Method D	5

Results of the testing are included in **Appendix E**.

4.0 SUBSURFACE CONDITIONS

4.1 SURFICIAL AND BEDROCK GEOLOGY

Based on available geologic mapping[1], the surficial geologic units mapped in the area include Glacial sand and gravel deposits and Glacial Till.
Based on available bedrock geologic mapping[2], bedrock in the vicinity of the site is mapped as the Carys Mills Formation, a lightly-metamorphosed, gray-blue limestone and calcareous siltstone interbedded with buff-weathered ankerite limestone and with gray and green slate.

[1] Neil, Craig D. (compiler) , 2002, Surficial materials of the Presque Isle quadrangle, Maine: Maine Geological Survey, Open-File Map 02-62, map, scale 1:24,000.

[2] Pavlides, Louis, 1978, Bedrock geologic map of the Mars Hill quadrangle and vicinity, Aroostook County, Maine: U.S. Geological Survey, Miscellaneous Investigations Series Map I-1064, map, scale 1:62,500.

4.2 SUBSURFACE PROFILE

Five subsurface units were encountered above bedrock at the site: Topsoil, Fill, Reworked (agriculturally tilled) Glacial Till, Undisturbed Glacial Till, and Weathered/Fractured Rock. The encountered thicknesses at each bridge and culvert boring location are given in the attached **Table 1 - Summary of Subsurface**

Conditions. Detailed descriptions of the materials encountered at specific locations are provided in the boring logs in **Appendix B**. The subsurface conditions are also shown in relation to the proposed bridges and culverts on the Interpretive Subsurface Profiles in **Figures 2** through **15**.

The encountered thicknesses, generalized descriptions and engineering properties of the units encountered, in descending order from ground surface are summarized in the following table and is presented in **Section 4.2.1** for each structure.

Soil Unit	Approximate Encountered Thickness (ft)	Generalized Description
Topsoil / Forest Mat	0.1 to 7.3	Varies From: dark brown, very soft to stiff, SILT with organics, little to trace Gravel, trace Sand to Sandy To: very loose to dense, fine to coarse SAND, some to trace Gravel, Silty to little Silt. *Encountered in 38 of 56 borings for culverts and bridges.* *Encountered in 106 of 204 borings for highway.*
Fill	2 to 7.7	Varies From: brown, very loose to very dense, GRAVEL, with varying amounts of Sand and Silt To: hard, SILT, with varying amounts of Sand and Gravel. Typical MaineDOT Frost Classification Range= 0 to IV Results of 7 Grain Size, 9 Moisture Content Analyses: • AASHTO Classification: A-4, A-2, A-4/A-6, A-1-b, A-4(0), A-1-a • USCS Classifications: SM, GM, GW-GM • Moisture Content: 9.7 to 33.9% *Encountered in 5 of 56 borings for culverts and bridges (Only at Easton Road).* *Encountered in 16 of 204 borings for highway.*

Soil Unit	Approximate Encountered Thickness (ft)	Generalized Description
Reworked Glacial Till	0.8 to 8	Varying From: brown, loose to medium dense, fine to coarse SAND, with varying amounts of Silt and Gravel To: medium stiff, SILT, some Sand, little Gravel. Material appeared to have been placed as Fill or Glacial Till subject to agricultural rework. Typical MaineDOT Frost Classification Range = 0 to IV Results of 22 Grain Size, 1 Atterberg Limits, and 35 Moisture Content Analyses: • AASHTO Classification: A-4, A-6, A-2-4, A-1-b, A-2, A-1-a • USCS Classifications: SM, GM, GP-GM, ML • Moisture Content: 6.8 to 40.4% • Liquid Limit: 27 • Plastic Limit: 16 • Plasticity Index: 11 *Encountered in 7 of 56 borings for culverts and bridges: BB-PB-102 and -103 (Conant Road, Abutment 1), and in borings BB-PB-301, -303, -305, -501, and -502 (Henderson Road, both abutments).* *Encountered in 89 of 204 borings for highway.*
Glacial Till	0.5 to 39	Varying from brown, medium dense to very dense, fine to coarse SAND, trace to some Gravel, and trace to some Silt; To: very stiff to hard, brown, SILT, with varying amounts of Sand and Gravel. Some upper Glacial Till may be Reworked as described above but could not be discerned from split spoon samples. Typical MaineDOT Frost Classification Range = 0 to IV Results of 117 Grain Size, 9 Hydrometer, 9 Atterberg Limits, and 140 Moisture Content Analyses: • AASHTO Classification: A-4, A-6, A-1-b, A-1-a, A-2-4, A-2, A-4(0), A-6(1), A-2-4(0) • USCS Classifications: GM, SM, SM-SC, CL, GC, ML, GP-GM, GM-GC, SP-SM • Moisture Content: 2.4 to 66.9% • Liquid Limit: 21 to 35 • Plastic Limit: 14 to 26 • Plasticity Index: 7 to 11 *Encountered in 51 of 56 borings for culverts and bridges. (Not encountered in CB-PB-311, -312, 503, and -504)* *Encountered in 183 of 204 borings for highway.*

Soil Unit	Approximate Encountered Thickness (ft)	Generalized Description
Weathered/ Fractured Bedrock	0.3 to 7.8	Dense to very dense, grey, angular GRAVEL, little to some fine to coarse Sand, little Silt. Typical MaineDOT Frost Classification Range= 0 to II Results of 7 Grain Size and 7 Moisture Content Analyses: • AASHTO Classification: A-1-b, A-1-a, A-2-4 • USCS Classifications: GM, GP-GM, GW-GM, SM • Moisture Content: 3.4 to 19.3% *Encountered in 7 of 56 borings for culverts and bridges. (BB-PB-101, -105, -323, and -601 through -604)* *Encountered in 44 of 204 borings for highway.*
Top of Bedrock Elevation	See Section 4.2.1 and Table 1	

4.2.1 Subsurface Condition Summaries for Bridges and Culverts

The following sections present general summaries of the subsurface materials, stratum thicknesses and bedrock and groundwater depths and elevations at each bridge and culvert location, which are also presented in **Figures 2 through 15.**

Henderson Road Bridge (Sta. 7430+55 to 7431+27)

GZA drilled ten (10) test borings for the bridge (BB-PB-301 through -306 and BB-PB-501 through -504). Beneath 0 to 3 feet of Topsoil and Forest Mat materials, the borings encountered 3 to 11 feet of Glacial Till overlying bedrock. The upper 3 to 8 feet of Glacial Till was reworked in five borings. Depth to bedrock ranged from 6 to 13 feet (El. 577 to El. 593). Groundwater was measured at depths of 1 to 9 feet (El. 587 to El. 593) during or after drilling. The subsurface conditions are also shown in relation to the proposed bridge on the Interpretive Subsurface Profile in **Figure 3**.

Maine Northern Railway Bridge (Sta. 7465+39 to 7466+71)

GZA drilled six (6) test borings for the bridge (BB-311 through -316). Beneath 0.2 to 2 feet of Topsoil and Forest Mat materials, the borings encountered 1 to 8 feet of Glacial Till overlying bedrock. Depth to bedrock ranged from 3 to 9 feet (El. 586 to El. 602). Groundwater was measured at depths of 3 to 6 feet (El. 588 to El. 600) during or after drilling. The subsurface conditions are also shown in relation to the proposed bridge on the Interpretive Subsurface Profile in **Figure 5**.

Easton Road Bridge (Sta. 7551+23 to 7552+08)

GZA drilled eleven (11) test borings for the bridge (BB-PB-321 through -326 and BB-PB-511 through -514 including -511A). Beneath 0 to 2 feet of Topsoil and Forest Mat materials, the borings encountered 2 to 5 feet of fill in five borings, underlain by 3 to 12 feet of Glacial Till overlying bedrock. Depth to bedrock ranged from 4 to 16 feet (El. 682 to El. 692). Groundwater was measured at depths of 1 to 23 feet (El. 675 to El. 698) during or after drilling. The subsurface conditions are also shown in relation to the proposed bridge on the Interpretive Subsurface Profile in **Figure 7**.

Conant Road Bridge (Sta. 7629+88 to 7631+38)

GZA drilled eleven (11) test borings for the bridge (BB-PB-101 through -106, and BB-PB-601 through -605). Beneath 0 to 0.3 feet of Topsoil and Forest Mat materials, the borings encountered 2 to 20 feet of Glacial Till overlying bedrock. The upper 2 to 6 feet of Glacial Till was reworked in two borings. Depth to bedrock ranged from 2 to 20 feet (El. 614 to El. 641). Groundwater was measured at depths of 1 foot above grade (artesian) to 15 feet (El. 627 to El. 643) during or after drilling. The subsurface conditions are also shown in relation to the proposed bridge on the Interpretive Subsurface Profile in **Figure 9**.

Clark Brook Arch Culvert (Sta. 7344+47)

GZA drilled eight (8) test borings for the culvert (CB-PB-311 through -314, and BB-PB-501 through -504). Beneath 0 to 7 feet of Topsoil and Forest Mat materials, four borings encountered 2 to 6 feet of Glacial Till overlying bedrock and one boring encountered 3 feet of fill directly overlying bedrock. Depth to bedrock ranged from 1 to 9 feet (El. 504 to El. 511). Groundwater was measured at depths of 1 to 4 feet (El. 508 to El. 511) during or after drilling. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 10**.

Tributary to Clark Brook 3-Sided Culvert (Sta. 7362+51)

GZA drilled two (2) test borings for the culvert (CB-PB-321 and -322). Beneath 0.5 to 2 feet of Topsoil and Forest Mat materials, the borings encountered 3 to 5 feet of Glacial Till overlying bedrock. Depth to bedrock ranged from 5 to 6 feet (El. 553 to El. 554). Groundwater was measured at a depth of 3 feet (El. 556) during or after drilling. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 11**.

Tributary to Williams Brook Box Culvert (Sta. 7396+28)

GZA drilled three (3) test borings for the culvert (CB-PB-331 through -333). Beneath 2 to 4 feet of Topsoil and Forest Mat materials, the borings encountered 9 to 13 feet of Glacial Till overlying bedrock. Depth to bedrock ranged from 13 to 17 feet (El. 557 to El. 562). Groundwater was measured at depths of 1 to 2 feet (El. 572 to El. 575) during or after drilling. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 12**.

Williams Brook Box Culvert (Sta. 7473+16)

GZA drilled three (3) test borings for the culvert (CB-PB-341 through -343). Beneath 0.3 to 2 feet of Topsoil and Forest Mat materials, the borings encountered 8 to 10 feet of Glacial Till overlying bedrock.

Depth to bedrock ranged from 10 to 11 feet (El. 580 to El. 582). Groundwater was measured from above ground surface to depths of 4 feet (El. 588 to El. 591) during or after drilling; one boring was drilled in the brook. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 13**.

Tributary to Merritt Brook Box Culvert (Sta. 7614+70)

GZA drilled two (2) test borings for the culvert (CB-PB-351 and -352) and highway boring HB-PB-116 was located in the vicinity of the structure. Beneath 0.4 to 3 feet of Topsoil and Forest Mat materials, the borings encountered approximately 30 feet of Glacial Till overlying bedrock. Depth to bedrock ranged from 30 to 33 feet (El. 577 to El. 581). Groundwater was measured at depths of about 4 feet below (El. 606) to 5 feet above ground (artesian condition; El. 616) during or after drilling. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 14**.

Conant Road over Tributary to Merritt Brook Box Culvert (Sta. 327+92)

GZA drilled two (2) test borings for the culvert (HB-PB-622 and -623). Beneath 0 to 0.3 feet of Topsoil, the borings encountered approximately 8 feet of fill over 9 to 24 feet of Glacial Till. HB-PB-622 was terminated in probable bedrock at a depth of 32 feet (EL. 566.1) and boring HB-PB-623 was terminated within the Glacial Till stratum. Groundwater was measured at a depth of about 7 feet below the ground surface (El. 594) in HB-PB-623 and was not encountered in HB-PB-622. The subsurface conditions are also shown in relation to the proposed culvert on the Interpretive Subsurface Profile in **Figure 14**.

4.2.2 Bedrock

GZA evaluated the top of bedrock elevation based on split spoon refusals, drilling conditions, and/or rock coring results. The top of bedrock was defined using the criteria of split-spoon refusal prior to identification of bedrock by roller bit, casing refusal, auger advancement or rock coring, depending on the drilling method and observations made by GZA's field engineer.

Bedrock was cored in thirty-one (31) bridge borings, four (4) culvert borings, and eight (8) highway borings (at anticipated cut areas) and was classified as Metapelite interbedded with Limestone with calcite stringers and veins throughout. The bedrock was generally described as medium hard to hard, fresh to moderately weathered, aphanitic to fine grained, and gray. The joints were typically very close to moderately spaced, low angle to near vertical, planar to undulating, rough, fresh to discolored and partially open to open. The Rock Quality Designation (RQD) ranged from 0 to 89 percent, with an average RQD of 34 percent. Structure-specific bedrock descriptions are provided on the Interpretive Subsurface Profile sheets. Dry and wet photographs of the collected rock core are presented in **Appendix F**.

Unconfined compressive strength (UCS) testing was conducted on five samples of fresh to slightly weathered rock, the results of which are summarized in the following table.

SUMMARY OF BEDROCK STRENGTH TEST RESULTS							
Boring	**Depth below Existing Grade (ft bgs)**	**Depth below Top of Rock (ft bgs)**	**Elevation (ft NAVD 88)**	**Unconfined Compressive Strength (psi)**	**Secant Modulus @ 50% of Failure Stress (ksi)**	**Unit Weight (pcf)**	**Rock Type**
BB-PB-105	21.8	4.8	616.8	9,546	11,000	167	METAPELITE
BB-PB-301	15.7	4.0	584.8	10,367	12,800	167	METAPELITE
BB-PB-314	10.7	3.1	583.2	14,404	12,400	171	METAPELITE
BB-PB-322	12.5	2.4	686.3	5,369	4,700	168	METAPELITE
BB-PB-325	5.0	0.4	683.7	5,204	21,400	167	METAPELITE

4.2.3 Groundwater

Groundwater depth was measured in all borings where groundwater was encountered. Groundwater depths ranged from approximately 0 to 23 feet except for borings near the Tributary for Merritt Box Culvert where artesian conditions were present and measured approximately 5 feet above the ground surface, and groundwater elevations ranged from approximately El. 508 to 697. Groundwater levels in the borings were measured during or immediately after drilling and may have been affected by drilling procedures, which included the introduction of water for drilling purposes. Groundwater depths and elevations at each exploration are given in **Table 1**.

The groundwater observations were made at the times and under the conditions stated in the boring logs. Fluctuations in groundwater level occur due to variations in season, precipitation, tide levels and construction activities in the area. Consequently, water levels during construction are likely to vary from those encountered at the time the observations were made.

5.0 ENGINEERING EVALUATIONS

5.1 GENERAL

GZA conducted geotechnical engineering evaluations in accordance with *2020 AASHTO LRFD Bridge Design Specifications, 9th Edition* (herein designated as AASHTO) and the *MaineDOT Bridge Design Guide, 2003 Edition*, with updates through 2018 (MaineDOT BDG). The sections that follow describe the evaluations and the geotechnical basis for each element. Supporting calculations are included in **Appendix G**.

5.2 APPROACH AND HIGHWAY EMBANKMENTS

The proposed bridge approaches will be constructed with maximum side slope angles of approximately 2 horizontal to 1 vertical (2H:1V), or flatter. The more significant proposed embankments (maximum heights up to 35 feet) are indicated in **Section 1.1.1**.

We anticipate that the embankments will be constructed over existing granular fill and dense to very dense natural soil. Due to the strength and low compressibility of these soils, embankment settlement and global stability will not be a concern.

5.3 HIGHWAY ROCK CUT SLOPES

Rock slopes with a maximum height of about 20 feet will be excavated on both sides of the deepest portions of the bypass (Sta. 7352 to 7359 and Sta. 7388 to 7391). Therefore, the discontinuities in the rock mass have the potential to negatively influence stability of the rock slopes. The analytical approach applied to the evaluation of the proposed rock slope is described in the remainder of this section.

For the purpose of GZA's evaluation, MaineDOT standard design rock slope inclination of 1H:4V was assumed. The heading of the road in these areas ranges between N20°E and N27°E. Therefore, the dip direction of the slopes will range between 110 and 117 degrees for the western (Left) cuts and between 290 and 297 degrees for the eastern (Right) cuts.

The structural data developed from borehole televiewing data from boring HB-PB-333 were analyzed to identify the significant discontinuities for use in stability evaluations. GZA did not identify any rock exposures (outcrops) in the site vicinity, so we could not map bedrock in the field. The process involved converting the numerical dip and dip direction data from each discontinuity into the unique pole representing the plane of that discontinuity.

The interpretation of the televiewer data resulted in 37 planar features. 29 of the features had an aperture less than 1 mm and are likely either foliation or very small fractures that are typically not considered in stability analyses. However, they were considered to provide a statistically relevant data set. The borehole televiewer data revealed two significant joint sets:

1. JS1: High angle (65- to 80-degree dip) set with dip direction primarily between 70 and 90 degrees.
2. JS2: Low angle to moderately dipping (20- to 40-degree dip) set with a dip direction primarily between 230 and 255 degrees.

Additional features appear randomly scattered. The widest aperture feature was encountered just below top of rock and was low angle (dip of 19 degrees) with a dip direction of 53 degrees. The pole plot for the geophysical data is presented below.

5.3.1 Stability Assessment Methodology

The overall stability of the proposed rock cut slope is governed by: (1) the orientation of the rock discontinuities (joints) with respect to each other and the rock cut face; (2) the continuity of the joints; (3) the cut slope angle; and (4) the shear resistance along the joints. Rock slope stability analyses focus on three primary modes of potential instability: (1) two-dimensional plane instability, (2) three-dimensional wedge instability, and (3) toppling instability.

Plane instability can occur when rock discontinuities are oriented parallel or sub-parallel (within 20 degrees of the cut face), and dip into the excavation at angles greater than the available friction angle along the discontinuities. Based on our experience, we estimated the available friction along the discontinuities to be 30 degrees, in the absence of a significant contribution from roughness. If the great circle representing a joint set is parallel to and in front of (at a flatter slope angle than) the great circle representing the cut slope, the joint set would be predicted to daylight in the proposed cut face, resulting in potential two-dimensional plane instability. JS1 and JS2 are each rotated approximately 20 degrees or more away from the dip direction of the roadway. Therefore, the potential for planar instability is low based on the available data. If the orientation varies along the cut (especially of JS1), scaling may be warranted to remove thin planar wedges.

Three-dimensional wedges can form at the intersection of two or more discontinuities and the cut face. A wedge may be unstable where the line of intersection of the discontinuity planes is parallel or sub-parallel to the cut face and dips toward the excavation depending on the friction angle and orientation of the discontinuities and other factors. This situation would be kinematically possible if the intersection of any two great circles representing joint sets occurred in front of (at a flatter angle) than the great circle representing the proposed cut slope. The available data does not reveal significant joint sets that would intersect the JS1 and JS2 sets to form wedges. However, intersections of random joints with JS1 or JS2 sets may exist when the cut is exposed. Because the JS1 set is at approximately the same inclination as the West rock cut, it is likely that wedges formed along this joint will be removed during blasting. Considering the dip of JS2, the plunge of the line of intersection would likely be less than the friction angle. Therefore, the potential for wedge instability is low.

Toppling instability can occur when tall, elongated blocks form along closely spaced steep to near-vertical discontinuities that dip into the cut face and are intersected by near horizontal joints. The data suggest that the potential for this instability mode is low.

5.3.2 Rockfall Catchment Evaluation

With passage of time, weathering, water, root growth and freeze-thaw cycling will tend to enhance and widen joints in the rock cut slopes, and will result in loosened bedrock blocks, especially if blasting results in a fractured, irregular rock slope with open joints. Even if visibly unstable bedrock blocks are identified and scaled or stabilized during construction, rockfall from the cuts is likely over time. GZA performed a catchment evaluation to assess the rockfall risk for the proposed slope and catchment geometry.

The design cross section provides an approximate 22-foot-wide rockfall catchment zone, extending from the base of the rock cut to the edge of the paved shoulder, including a 2H:1V, 4’ wide toe slope, and a 18’ wide, 4H:1V backslope. Based on our experience and published rockfall catchment references, the approximate one-to-one rock slope height to catchment width ratio provided by this configuration will be suitable for retention of rock fall from environmental factors. Therefore, we conclude that the current design cross section provides acceptable rockfall catchment. The catchment is expected to prevent rockfall for reaching the travelway but may require periodic cleanout of fallen rock.

5.4 EVALUATION OF FOUNDATION TYPES

5.4.1 ridge Abutment and Culvert Foundations

The borings indicate a combination of dense to very dense Glacial Till and/or fractured to potentially intact bedrock is present at the bearing elevations. Undisturbed Glacial Till and fractured bedrock are both considered suitable materials for support of spread footing foundations. To limit the extent of excavation required for foundation subgrade preparation, the preferred approach is to prepare the excavations at design bearing elevations that provide suitable embedment for frost protection and design them to be supported on Glacial Till. Glacial Till design parameters are also suitable for support on fractured and or intact bedrock, except that a 12-inch gravel cushion should be provided over bedrock subgrades to avoid hard points. The tables below indicate the proposed foundation elevations and anticipated subgrade conditions at bridge and culvert locations. Some wingwall footings step up a few feet above the typical bearing elevations below.

PROPOSED BRIDGE FOUNDATION BEARING ELEVATIONS AND CONDITIONS				
Bridge	Abutment 1 and Wingwalls		Abutment 2 and Wingwalls	
	Typical Bearing El. (ft)	Anticipated Bearing Condition	Typical Bearing El. (ft)	Anticipated Bearing Condition
Henderson Road	587	Glacial Till/ Fractured Bedrock	587	Glacial Till/ Fractured/Intact Bedrock
Maine Northern Railway	593.5	Glacial Till/ Fractured/ Intact Bedrock	592.5	Glacial Till
Easton Road	689	Glacial Till/ Fractured Bedrock	688	Glacial Till
Conant Road	626	Fractured/Intact Bedrock	634.5	Glacial Till

PROPOSED CULVERT FOUNDATION BEARING ELEVATIONS AND CONDITIONS		
Culvert	Bearing El. (ft)	Anticipated Bearing Condition
Clark Brook Arch Culvert	510.0 to 506.5	Intact Bedrock
Tributary to Clark Brook 3-Sided Culvert	554.6 to 553.5	Fractured/Intact Bedrock
Tributary to Williams Brook Box Culvert	570.6 to 569.3	Glacial Till
Williams Brook Box Culvert	585.9 to 585.3	Glacial Till
Tributary to Merritt Brook Box Culvert	606.3 to 605.2	Glacial Till
Conant Road over Tributary to Merritt Brook Box Culvert	591.4 to 590.5	Glacial Till

5.4.2 Bridge Wingwall Considerations

The wingwalls for the bridges are anticipated to be stepped at some locations and will be bearing above the anticipated abutment bearing elevations stated above. In these cases, wingwalls are anticipated to bear on compacted fill which should consist of MaineDOT 703.19 Granular Borrow for Underwater Backfill, MaineDOT BDG Type 4 soil.

5.4.3 Culvert Footing Considerations

The bottom of the box culverts (excluding Clark Brook and Tributary to Clark Brook) and inlet and outlet walls will be underlain by 12 inches of MaineDOT 703.19 Granular Borrow for Underwater Backfill. At these depths, the exposed soils are anticipated to consist of medium dense to dense Glacial Till.

5.5 LOAD AND RESISTANCE FACTORS

AASHTO LRFD load factors should be applied to horizontal earth pressure (EH), vertical earth pressure (EV), earth surcharge (ES), and live load surcharge (LS) loads, using the load factors for permanent loads (γ_p) provided in LRFD Table 3.4.1-2 for strength limit state foundation design.

The recommended LRFD resistance factors for strength limit state design of foundations were derived from LRFD Tables 10.5.5.2.2-1, 10.5.5.2.3-1 and 10.5.5.2.4-1 and are presented in the following table.

GEOTECHNICAL RESISTANCE FACTORS – STRENGTH LIMIT STATE			
Foundation Resistance Type	**Method/Condition**	**Resistance Factor (ϕ)**	**AASHTO Reference**
SPREAD FOOTINGS			
Bearing	Footing on Soil	0.45	10.5.5.2.2-1
Sliding	Footing on Soil[1]	0.8	10.5.5.2.2-1

Notes:
1. Resistance factor for footing on rock was taken as equal to footing on soil.

Resistance factors for service and extreme limit state design should be taken as 1.0.

5.6 SPREAD FOOTING DESIGN CONSIDERATIONS

5.6.1 Spread Footing on Glacial Till

Bridge abutments and culverts can be supported on spread footings bearing on Glacial Till or on a minimum 12-inch gravel cushion over bedrock. Several footings are likely to be partially underlain by bedrock as shown in the sketches which are included in the calculation in **Appendix G**. The footing bearing evaluation considers support directly on undisturbed Glacial Till with an allowable foundation settlement of 1 inch for service limit design, and this is also suitable for bearing on a gravel cushion where rock is encountered.

Bearing resistance values have been developed for the abutment and culvert footings bearing on Glacial Till using the theoretical method (Munfakh et al., 2001) based on SPT data. Bearing resistances were evaluated in accordance with Articles 10.6.3.1.1 and 10.6.3.1.2a of AASHTO LRFD.

Nominal, factored, and service bearing resistance values were developed for the proposed abutment, wingwall and culvert footings which are planned to be 6.5 to 24 feet wide. The calculated bearing resistance values are presented in a bearing chart presented in **Section 6.4.1** of this report for the abutment and culvert footing dimensions.

As noted previously, bedrock with varying degrees of weathering will be encountered in the footing excavations. GZA estimated the extent of bedrock that may be encountered for planning purposes based on the available data, which are shown on sketches included in **Appendix G**. Actual conditions will vary. To promote consistency of design and foundation performance, bridge and culvert foundations bearing on a minimum of 12 inches of compacted granular fill placed over bedrock is considered suitable for support using the bearing resistances calculated for Glacial Till.

The resistance against sliding was evaluated in accordance with AASHTO LRFD Table C3.11.5.3-1, (for mass concrete on Glacial Till), using ϕ_s' equal to δ equal to 29 degrees, which allows for the footing to be directly underlain by a Glacial Till. Nominal sliding resistance for footings is equal to the vertical force multiplied by the concrete placement type factor (1.0 for cast-in-place concrete), and the sliding

resistance coefficient (tan δ), which is equal to 0.55. Based on a resistance factor of 0.8 for the Strength condition, the recommended factored sliding resistance coefficient is 0.44.

5.7 LATERAL EARTH PRESSURE

5.8 BRIDGES

Article 3.6.4 of the BDG states that abutments with a height of 5 feet or more and are not fixed at the top should be assumed to experience sufficient horizontal movement of the top of the wall to develop active conditions due to structural deformation of the stem and rotation of the foundation. Based on Article 3.6.4 of the BDG, we conclude active earth pressure is appropriate for design of the abutments. Based on Figure C3.11.5.3-1 of LRFD, the abutments are considered to be short-heeled walls. Therefore, Coulomb theory should be used to calculate active earth pressures. The material properties will be controlled by the backfill material, which is anticipated to consist of BDG Type 4 soil.

In general, passive resistance should be neglected for resistance of sliding and overturning for the foundations in accordance with the BDG in consideration of the potential for future excavation in front of the foundations. However, considering the significant backfill height over the toe of the wingwall footings for the Maine Northern Railway bridge and Easton Road bridge, we anticipate it is unlikely that an excavation would occur that would extend down to the footing elevation. Therefore, we suggest that passive soil resistance be considered against the footing only for wingwall design.

If the wingwall design relies on passive resistance, a 2-inch-thick layer of fill concrete should be placed over the top of the toe of the footing and the adjacent backfill, extending a minimum 9 feet past the face of the footing (corresponding to the width of the passive wedge) to reduce the possibility of excavation of resisting soils on the toe side of the footings. For the passive resistance design, we recommend using a passive earth pressure coefficient of 3.25 and a resistance factor of 0.5 for the passive earth pressure component of sliding resistance in accordance with AASHTO Table 10.5.5.2.2-1.

Design lateral earth pressure recommendations are provided in **Section 6.4** of this report.

5.9 CULVERTS

The precast culvert walls will be restrained from lateral movement at the top and bottom. Therefore, the box culvert walls should be designed for at-rest earth pressure conditions. Culvert inlet and outlet headwalls are a few feet high or shorter. These short walls should be also designed for at-rest earth pressure conditions. Inlet and Outlet Walls (wing walls) that extend beyond the box culvert and are independent of the box culvert are considered free to rotate and should be designed for Rankine active earth pressure with consideration for the design backslope, currently anticipated to be 2H:1V. The material properties will be controlled by the backfill material, which is anticipated to consist of BDG Type 4 soil. Soil properties for Type 4 soil are provided in **Section 6.5** of this report.

5.10 SEISMIC DESIGN CONSIDERATIONS

The subsurface profile for seismic design includes the proposed approach fills (including backfill behind abutments), Glacial Till and bedrock. Seismic site class was determined in general accordance with LRFD Table C3.10.3.1 using the average SPT N-value from the soil materials encountered in the borings and

assumed values for proposed fill above (i.e., below the proposed roadway surface). On this basis, the SPT N-value fell between 15 and 50 blows per foot, and the bridges are assigned to Site Class D.

Per AASHTO LRFD Article 3.10.1, seismic analysis is not required for buried structures except where they cross active faults. The sites are not located on a known fault; therefore, seismic design parameters are not required for the Culverts.
The available subsurface data indicates that the natural materials encountered at the site are sufficiently dense that the potential for liquefaction is very low.

5.11 FROST PROTECTION

New and existing fills are anticipated to be present at the bridge abutments and culverts. Based on the MaineDOT BDG, Section 5.2.1, the Freezing Index for the site is 2,550, and with low to moderate moisture content (15 percent) soils, the estimated depth of frost penetration is approximately 7.1 feet.

5.11.1 Frost Insulation

The proposed geometry at the Henderson Road and Easton Road Bridges incorporates drainage ditches in front of the abutments and parallel to the roadways. Without mitigation, the proximity of these ditches would require significantly lower abutment footing bearing levels and additional bedrock excavation to satisfy minimum frost protection requirements described in the previous section. To avoid these issues, frost insulation should be installed at the eastern (downhill) corners of the Henderson Road abutments and wingwalls, as well as at the eastern (downhill) corner of Easton Road Abutment 1. Expanded polystyrene (EPS) geofoam insulation is proposed adjacent to the buried portions of these structures to reduce frost penetration into the subgrade soils, thereby permitting embedment depths less than the full frost penetration depth. The engineering objective of this insulation detail is to provide sufficient thickness and lateral extent to ensure that the frost penetration path remains at least equal to the design frost penetration depth.

The thermal resistance (R-value) provided by 4 inches of EPS geofoam is greater than that provided by the design 7.1-foot frost embedment depth as evaluated in **Appendix G** and presented in **Section 6.8**. The EPS cross-section detail was developed such that the distance from ground surfaces or the abutment face exposed to air to the bottom of the abutment is equal to or greater than the design frost depth.

6.0 RECOMMENDATIONS

6.1 EARTH EMBANKMENTS

Embankment side slopes should be designed with MaineDOT-typical slope angles of 2H:1V or flatter, except in front of abutments where the 1.75H:1V slope angle may be used with an appropriate riprap surface treatment. Earth slopes should be provided with loam and seed for permanent erosion protection.

At locations where earth cuts expose groundwater seepage in 2H:1V cut areas, we recommend installation of an erosion control blanket to protect the cut slope. The erosion control blanket should consist of a compacted, 8-inch-thick layer of Stone for French Drains (MaineDOT Item 703.24), with a

layer of non-woven separation geotextile placed between the subgrade and the stone. The erosion control blanket should be constructed so that water that travels through the blanket discharges into the ditch.

6.2 ROCK CUTS

Rock cuts are expected to be continuous from approximately Sta. 7348+00 to 7360+00 (maximum exposed 22± feet high, typical height 15 to 20 feet), Sta. 7388+00 to 7391+00 (maximum exposed 14± feet high, typical height 10 to 12 feet), and 7503+00 to 7517+00 (maximum exposed 7± feet high, typical height 3 to 5 feet).

6.3 ROCK CUTS

We recommend that the proposed rock cuts be designed in accordance with the typical sections of the Maine Highway Design Guide. A 1H:4V rock cut slope angle is considered acceptable for this project for slopes higher than 6 feet. The overburden soil should be completely removed to expose bedrock within at least 6 feet laterally from the top of rock cut slopes. It is not necessary to prepare a flat bedrock bench above the rock slope; the cleared zone will consist of a natural bedrock surface. Soil slopes behind the cleared zone should be designed with a 2H:1V slope angle. For low rock cuts or mixed cuts with a rock excavation depth of less than 6 feet, the proposed 2H:1V rock cut slope angle is also considered appropriate for this project.

6.3.1 ROCK EXCAVATION METHODS

The bedrock encountered at the site consists of Metapelite. Based on available subsurface information and observed rock characteristics, the bedrock in this area is anticipated to be relatively weak to moderately strong and highly fractured in the upper zones, making it generally excavatable.

Excavation of the upper few feet of Metapelite can likely be accomplished using conventional heavy equipment such as an excavator equipped with a bucket, or a dozer with a ripper. Where deeper bedrock cuts are required (anticipate 10 or more feet below top of rock), controlled blasting techniques will be required to excavate bedrock for this project, defined as the use of a line of closely spaced, lightly loaded blastholes that are fired either before (presplitting) or after (cushion blasting) the main production blast to define a break line on the perimeter of the excavation. Rock excavation and blasting should be in accordance with Section 203.042 of the Standard Specifications.

Rock excavation within the zone of influence of proposed spread footings (defined as a zone that projects 1 foot horizontally from the bottom of footing and then down on a 1H:1V plane) should be removed by conventional methods. Blasting should not be used within the zone of influence.

6.4 FROST AND SUBGRADE CONDITIONS FOR PAVEMENT DESIGN

- Based on the MaineDOT BDG, the Design Freezing Index for the site is approximately 2550. In accordance with Table 5.1 of the BDG, the estimated depth of frost penetration in fine-grained soil with a moisture content of 20, which is considered appropriate for pavement evaluations in excavation areas considering the presence of glacial till, is about 66 inches for this project.
- To limit frost heaving, materials with low susceptibility to frost-heaving should be provided in the upper 66 inches beneath the paved surface in new embankments. Where this is not possible, the

pavement design should allow for the presence of frost-susceptible material within the depth of freezing.

- Where roadways will be constructed in cut, or at grade locations, the frost-susceptibility of the local subgrade material should be considered in design of the new pavement section. Anticipated pavement subgrade materials are listed in Table 2. Frost classifications are listed for each soil type in the following table.

Material	Maine Frost Classification
Bedrock, Processed Rock Fill	0
Weathered Rock	0 to II
Glacial Till	I to IV
Recompacted/Reworked Glacial Till	I to IV

6.5 PAVEMENT DRAINAGE DESIGN CONSIDERATIONS

Pavement drainage details should promote subsurface water removal beneath the pavement section. This is of particular concern in cut areas. In all rock cut areas, the pavement subgrade area should be shattered to a depth of 4 feet below subgrade elevation. The shattering should extend to the ditch flowlines in rock cut areas less than 6 feet high (non-controlled blasting areas) and to the controlled blasting limits in deeper cuts. The extent and preparation of the shattered material should be in accordance with Standard Specification Section 203.051. The Resident should review and approve the extent of shattered subgrade.

We recommend that lateral Type B underdrains be installed on an approximate 400-foot spacing to promote removal of water from beneath the pavement section in cut areas with possible mixed glacial till and bedrock subgrade. Outside of the pavement limits, the underdrains should be turned downhill to outlet at the ditch flowline. Additional lateral Type B underdrains should be installed if areas of concentrated seepage are encountered during construction.

Based on the current data, the pavement subgrade is anticipated to be either transitioning between glacial till and bedrock or fully within bedrock between approximately 7328+50 to 7336+00, 7347+00 to 7360+50, 7387+00 to 7392+00, and 7501+50 to 7517+00. Lateral Type B underdrains be located to in these areas to limit potential for local saturation of the pavement subgrade.

6.6 SEISMIC DESIGN FOR BRIDGES

The peak ground acceleration coefficient, short- and long-period spectral acceleration coefficients were interpolated from the AASHTO LRFD design guide maps (3.10.2.1-1 through -21 as appropriate). Based on the site coordinates, the recommended AASHTO LRFD Response Spectra (Site Class D) for a 7 percent probability of exceedance in 75 years are summarized for the site are as follows:

SITE CLASS D SEISMIC DESIGN PARAMETERS	
Parameter	**Design Value**
Fpga	1.6
Fa	1.6
Fv	2.4
As (Period = 0.0 sec)	0.12 g
SDs (Period = 0.2 sec)	0.28 g
SD1 (Period = 1.0 sec)	0.13 g

6.7 BRIDGE ABUTMENT AND WINGWALL DESIGN

- Backfill between new abutments, wingwalls, and retaining walls, and a 1.5H:1V plane extending up from the bottom of the abutment to the pavement subgrade should consist of MaineDOT 703.19 Granular Borrow for Underwater Backfill, MaineDOT BDG Type 4 soil. Recommended soil properties for Type 4 soils are as follows:
  - Internal Friction Angle of Soil = 32°
  - Soil Total Unit Weight = 125 pcf
  - Coulomb Active Earth Pressure, K_a = 0.28 (use for design of abutment and wingwalls)
  - Rankine Passive Earth Pressure, K_p = 3.25 (use for Maine Northern Railway bridge and Easton Road bridge wingwall footings only)
- Live load surcharge should be applied as a uniform lateral surcharge pressure using the equivalent fill height (H_{eq}) values developed in accordance with LRFD Section 3.11.6.4, based on the abutment/wingwall height and distance from the wall backface to the edge of traffic. A minimum H_{eq} of 2 feet is recommended.
- Foundation drainage should be provided in accordance with Section 5.4.1.9 of the MaineDOT BDG. We recommend the use of French drains on the uphill side of abutments and wing walls to prevent buildup of differential hydrostatic pressure. The drains should be sloped to drain by gravity and should outlet through a series of 4-inch-diameter weep holes, spaced approximately 10 feet center-to-center.

6.8 BOX CULVERT AND INLET AND OUTLET WALL DESIGN

- Backfill placed between the culvert and existing roadway approaches should consist of MaineDOT 703.19 Granular Borrow, MaineDOT BDG Type 4 soil. Recommended soil properties for Type 4 soils are as follows:
  - Internal Friction Angle of Soil = 32°

- Soil Total Unit Weight = 125 pcf
- At-rest Earth Pressure, K_o = 0.47 (use for design of box culvert walls and inlet and outlet headwalls)
- Rankine Active Earth Pressure, K_a = 0.46 (use for design of culvert inlet and outlet walls unsupported from box and free to rotate, assumes slope of 2H:1V behind wall)

- Live load surcharge should be applied as a uniform lateral surcharge pressure using the equivalent fill height (H_{eq}) values developed in accordance with LRFD Section 3.11.6.4, based on the culvert/inlet and outlet wall height and distance from the wall backface to the edge of traffic. A minimum H_{eq} of 2 feet is recommended.

6.9 RECOMMENDATIONS FOR SPREAD FOOTING DESIGN

- The proposed abutments and wingwalls should be supported on spread footing foundations bearing on undisturbed Glacial Till or on a minimum 12-inch thickness of MaineDOT 703.13 Crushed Stone ¾-Inch, separated from any adjacent soil material by MaineDOT Separation Geotextile.
- Where bridge wingwalls are stepped, subfooting backfill may consist of Granular Borrow for Underwater Backfill (MaineDOT 703.19) compacted up to the footing bearing level in accordance with Specification Section 203.13, except that the required dry density should be 95 percent of the maximum density in accordance with AASHTO T 180.

- Nominal, factored, and service bearing resistance values were developed for a range of effective footing widths for the abutments and culvert footings. In accordance with FHWA GEC 06, C.4.1, the factored bearing resistances for a range of effective footing width, B'_f, values are presented in the following plot.

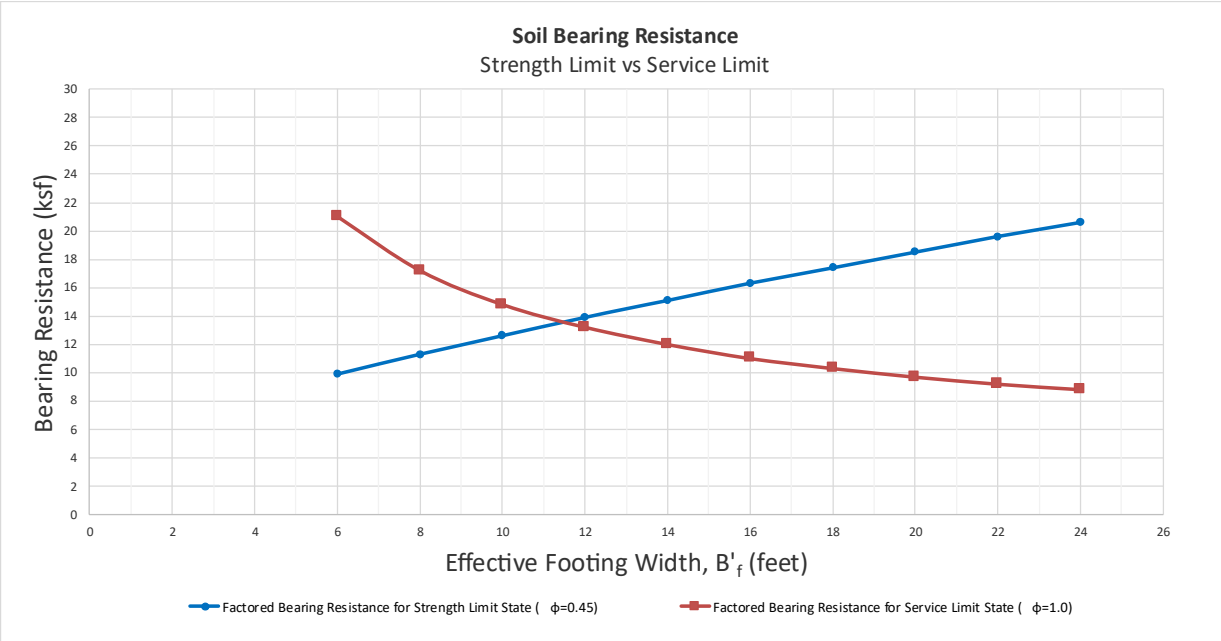
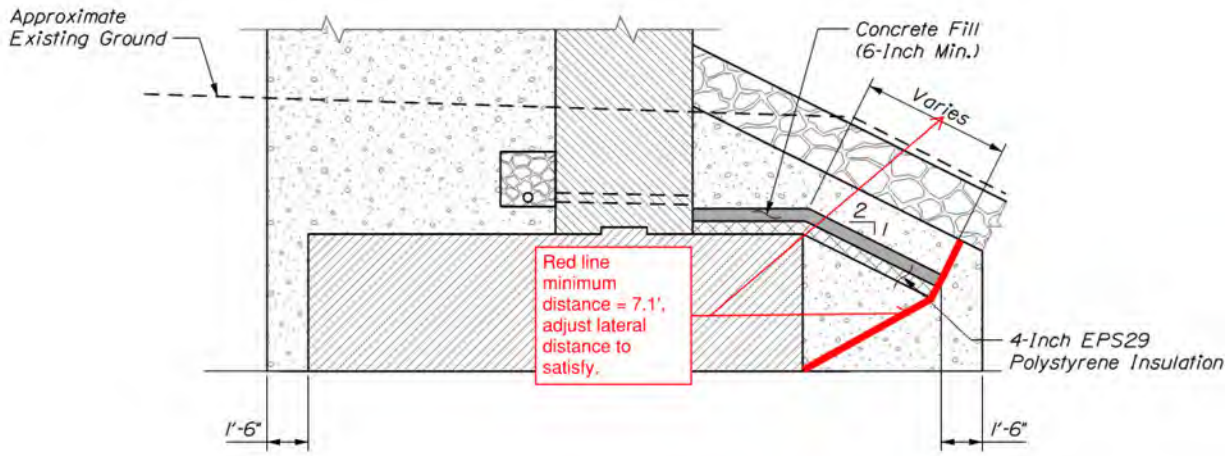


Figure A - Factored Bearing Resistance, Footing on Glacial Till

- The structural designer should check the effective footing widths in their design against the bearing resistance plots to determine the appropriate resistance values per substructure.
- The effective footing concept allows the designer to calculate an equivalent uniform bearing pressure in cases of eccentricity or applied moment, then compare the equivalent pressure to the equivalent resistance values plotted above.
- The base resistance against sliding was evaluated in accordance with AASHTO Article 10.6.3.4 using $\phi_s' = \delta = 29$ degrees. Nominal sliding resistance for footings on Glacial Till is equal to the vertical force multiplied by the sliding resistance coefficient (tan δ), which is equal to 0.55. The factored sliding resistance coefficient is 0.44 for the strength condition.
- Footings founded on soil should be checked for overturning per AASHTO Article 10.6.3.3. Eccentricity of the footing reaction at the strength limit state should be limited such that the resultant reaction on the base of the footing is no further than B/3 from the centerline of the footing, where B is the principal dimension of the footing perpendicular to the axis of rotation.
- Passive resistance on the toe of footings should be neglected when evaluating sliding and overturning, except for the Maine Northern Railway bridge and Easton Road bridge wingwall footings as indicated in **Section 6.4**.
- The foundation embedment and bearing soils have MaineDOT Frost Classifications ranging from 0 to IV, indicating low to high frost susceptibility. Using the site Freezing Index of 2,550 and low-moisture content (<10 percent) for fine to coarse material, we recommend using an 7.1-foot depth of frost penetration for footing design. Alternatively, it is acceptable to design for a reduced embedment depth of at Henderson Road and Easton Road Abutments and their wingwalls, as long as an insulation detail is incorporated which provides frost protection equivalent to 7.1 feet of soil cover. Specific recommendations are provided as follows:
  - We recommend that the insulation consist of a 4-inch-thick layer of EPS geofoam meeting the requirements of EPS29 in accordance with ASTM D6817.
  - EPS geofoam should be placed on a granular soil subgrade surface that is relatively free of irregular gravel and should be protected by a minimum of 6 inches of Concrete fill.
  - An insulation detail similar to that shown below may be used at Henderson and Easton Road bridges to provide the equivalent frost protection of 7.1 feet of soil cover.



FOOTING INSULATION DETAIL
(Footing on Glacial Till Shown, Footing on Bedrock Similar)

- If not bearing on directly on intact bedrock, the proposed box culvert and footings should be supported on 12 inches of MaineDOT 703.22 Underdrain Backfill Material, Type C separated on bottom and sides by Stabilization/Reinforcement Geotextile installed over undisturbed Glacial Till/fractured bedrock, except for the precast concrete toe walls, which should bear directly on naturally deposited Glacial Till/fractured bedrock. Culvert bearing pressures should be checked to confirm that they are less than the resistance values presented above.
- In order to limit seepage beneath the culvert, the Underdrain backfill should not extend upstream or downstream beyond the limits of the key/cutoff walls on the base. The cutoff walls should bear directly on naturally deposited Glacial Till, fractured rock, or compacted Granular Borrow for Underwater Backfill MaineDOT 703.19.

7.0 CONSTRUCTION CONSIDERATIONS

This section provides guidance regarding quality control during excavation, dewatering, and foundation subgrade preparation and protection.

7.1 EXCAVATION, TEMPORARY LATERAL SUPPORT AND DEWATERING

Henderson Road Bridge – Excavations for abutment foundations are anticipated to be within 8 and 7 feet of the existing ground surface at Abutments 1 and 2, respectively, and between 1 and 6 feet below groundwater levels encountered in the borings.

Fort Fairfield Subdivision Bridge – Excavations for abutment foundations are anticipated to be within 3 feet of the existing ground surface at Abutments 1 and 2 and approximately 2 feet above groundwater levels encountered in the borings.

Easton Road Bridge – Excavations for abutment foundations are anticipated to be within 9 and 7 feet of the existing ground surface at Abutments 1 and 2, respectively, and between 2 feet above and 8 feet below groundwater levels encountered in the borings.

Conant Road Bridge – Excavations for abutment foundations are anticipated to be within 20 and 7 feet of the existing ground surface at Abutments 1 and 2, respectively, and between 0 and 5 feet below groundwater levels encountered in the borings.

Culverts – Excavations for culvert foundations are anticipated to be within 5 and 15 feet of the existing ground surface and between 0 and 5 feet below groundwater levels encountered in the borings.

The excavation slopes are anticipated to be feasible using open cut techniques. In all cases, temporary excavations should comply with OSHA excavation safety requirements.

Bedrock excavation is anticipated in the areas previously indicated and locally within footing excavations. Bedrock excavation considerations in highway cut areas and within the zone of influence of footings should be in accordance with **Section 6.2** of this report.

Temporary dewatering will likely be required to control groundwater inflow in excavations or surface water runoff into excavations. We anticipate that the inflow of groundwater or surface water to abutment and culvert excavations can be handled by open pumping from sumps installed at the bottoms of excavations. Groundwater flow is likely to be greatest at the time of excavation and to reduce after dewatering has been initiated. Damming and diversion and/or temporary dewatering are anticipated to be necessary to control groundwater and/or stream inflow in excavations. Depending on permitting and water levels at the time of construction, we anticipate that it would be possible to dam the stream with sandbags and an impermeable membrane, and temporarily divert the flow through a pipe so the contractor can construct foundations in the dry.

The contractor should be responsible for controlling groundwater, surface runoff, infiltration, and water from all other sources by methods which preserve the undisturbed condition of the subgrade and permit foundation construction in-the-dry. Discharge of pumped groundwater should comply with all local, State, and federal regulations.

7.2 SUBGRADE PREPARATION

Fill, Topsoil, Reworked Glacial Till and other unsuitable material should be removed within the zone of influence of the new foundations to expose undisturbed, naturally deposited Glacial Till. After excavation, the exposed subgrade should be proof-compacted with a minimum of eight passes (four in each direction) of a 10-ton vibratory roller. Areas that exhibit weaving or rutting under compaction should be excavated to remove the suspect material, and refilled with compacted gravel borrow. Where soil bearing surfaces are silty/clayey and/or near groundwater level and proof compaction is not appropriate, excavations should be made with a smooth-edged bucket to minimize disturbance. If the subgrade becomes disturbed by construction activities, the disturbed material should be excavated and replaced with Gravel Borrow. The actual extent of the removal and the acceptability of proof-rolling should be based on field observations by the Geotechnical Engineer.

We recommend that removal of unsuitable materials and placement and compaction of new fill be observed by the Geotechnical Engineer.

In the event that foundation subgrades become disturbed after steel placement, all loose material should be removed by hand excavation prior to concrete placement.

Effort should be made to prevent freezing of foundation subgrades. In the event that freezing occurs, the frozen material should be stripped and replaced with compacted Gravel Borrow or crushed stone.

7.3 REUSE OF ON-SITE MATERIALS

In general, we anticipate that the excavated existing fill and Glacial Till will be suitable for reuse as Common Borrow (MaineDOT Item 703.18), assuming unsuitable material is removed and can be moisture conditioned to within 2 percent of optimum moisture content to allow for compaction of the material.

Excavated rock (weathered/fractured rock or intact bedrock) will likely be suitable for reuse as fill following processing. We anticipate the processed rock fill will be used for general embankment fill and/or pavement base/subbase gravel to balance earthwork for the project. Special provisions should be developed to provide gradation requirements appropriate for the intended use.

We anticipate that the excavated Glacial Till will not be suitable for reuse as Granular Borrow (MaineDOT Item 703.19). If the contractor wishes to reuse excavated material as embankment fill, we recommend that the proposed material be stockpiled and tested for grain size distribution. Stockpiled materials meeting the appropriate MaineDOT specifications may be reused on the project.

TABLES

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HENDERSON ROAD BRIDGE OVER HENDERSON ROAD																	
BB-PB-302	590.2	2276109.9	1016890.0	7430+05.8	64.5	R	2.7	587.5	NE	2.0	NE	NE	10.8	NE	12.8	577.4	18.0
BB-PB-301	600.5	2275997.1	1016908.4	7430+33.8	46.4	L	8.5	592.0	NE	2.0	NE	5.0	4.7	NE	11.7	588.8	22.0
BB-PB-501	596.0	2276030.7	1016919.3	7430+41.7	11.9	L	5.8	590.2	NE	NE	NE	3.0	6.3	NE	9.3	586.7	17.4
BB-PB-502	593.5	2276059.0	1016922.3	7430+42.1	16.5	R	2.1	591.4	NE	NE	NE	3.0	3.1	NE	6.1	587.4	14.0
BB-PB-303	595.6	2276040.4	1016920.7	7430+42.2	2.1	L	5.6	590.0	NE	2.0	NE	7.3	NE	NE	9.3	586.3	15.9
BB-PB-503	597.1	2276016.6	1017000.9	7431+24.3	18.3	L	5.4	591.7	NE	NE	NE	NE	8.0	NE	8.0	589.1	11.1
BB-PB-304	596.0	2276034.9	1017003.4	7431+25.1	0.1	R	4.0	592.0	NE	2.0	NE	NE	6.4	NE	8.4	587.6	18.4
BB-PB-504	593.8	2276051.0	1017005.1	7431+25.2	16.3	R	4.6	589.2	NE	3.0	NE	NE	4.5	NE	7.5	586.3	9.5
BB-PB-306	589.8	2276091.5	1017044.4	7431+60.2	60.5	R	1.0	588.8	NE	0.2	NE	NE	9.0	NE	9.2	580.6	14.3
BB-PB-305	600.5	2275967.5	1017038.3	7431+66.6	63.5	L	7.7	592.8	NE	NE	NE	4.0	4.3	NE	8.3	592.2	15.1
MAINE NORTHERN RAILWAY BRIDGE OVER MAINE NORTHERN RAILWAY																	
BB-PB-312	605.4	2275298.5	1020237.5	7464+49.4	50.3	R	5.7	599.7	NE	2.0	NE	NE	1.3	NE	3.3	602.1	8.7
BB-PB-313	594.9	2275230.5	1020309.1	7465+35.2	1.1	R	4.1	590.8	NE	0.2	NE	NE	4.9	NE	5.1	589.8	11.0
BB-PB-311	596.0	2275180.0	1020321.3	7465+58.6	45.2	L	5.6	590.4	NE	2.0	NE	NE	6.6	NE	8.6	587.4	18.7
BB-PB-316	592.5	2275265.7	1020409.6	7466+25.3	58.2	R	4.0	588.5	NE	0.4	NE	NE	3.6	NE	4.0	588.5	8.8
BB-PB-314	593.9	2275205.2	1020417.5	7466+46.5	0.9	R	4.3	589.6	NE	0.3	NE	NE	7.3	NE	7.6	586.3	12.6
BB-PB-315	593.8	2275136.9	1020493.2	7467+34.9	49.4	L	3.0	590.8	NE	0.5	NE	NE	6.5	NE	7.0	586.8	17.3
EASTON ROAD BRIDGE OVER EASTON ROAD																	
BB-PB-321	697.5	2274473.4	1028815.6	7550+95.4	46.2	L	7.5	690.0	NE	0.4	4.6	NE	2.6	NE	7.6	689.9	18.0
BB-PB-511	698.3	2274493.5	1028817.3	7550+97.5	26.1	L	NE	--	NE	NE	NE	NE	6.6	NE	6.6	691.7	13.0
BB-PB-511 A	698.4	2274497.8	1028818.6	7550+99.0	21.9	L	11.3	687.1	NE	NE	NE	NE	11.7	NE	11.7	686.7	21.0
BB-PB-322	698.8	2274554.5	1028822.4	7551+04.0	34.7	R	1.6	697.2	NE	0.2	3.8	NE	6.1	NE	10.1	688.7	15.0
BB-PB-512	698.3	2274525.6	1028824.2	7551+5.2	5.7	R	22.8	675.5	NE	NE	NE	NE	8.5	NE	8.5	689.8	25.0
BB-PB-323	697.9	2274517.3	1028839.5	7551+20.3	2.9	L	1.6	696.3	NE	0.3	3.7	NE	11.1	NE	15.6	682.3	22.0
BB-PB-324	691.9	2274521.2	1028921.3	7552+02.2	0.8	L	2.0	689.9	NE	NE	2.0	NE	4.1	NE	6.1	685.8	18.0
BB-PB-514	692.2	2274534.6	1028930.1	7552+11.2	12.4	R	5.7	686.5	NE	NE	NE	NE	8.1	NE	8.1	684.1	12.1
BB-PB-513	690.6	2274505.3	1028935.4	7552+15.9	17.0	L	8.5	682.1	NE	NE	NE	NE	5.7	NE	5.7	684.9	12.7
BB-PB-325	688.7	2274472.9	1028943.9	7552+23.7	49.6	L	1.8	686.9	NE	NE	2.0	NE	2.6	NE	4.6	684.1	10.0
BB-PB-326	695.3	2274577.0	1028950.2	7552+32.3	54.3	R	2.2	693.1	NE	2.0	NE	NE	8.1	NE	10.1	685.2	17.0

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
CONANT ROAD BRIDGE OVER CONANT ROAD																	
BB-PB-101	642.4	2272588.9	1036011.8	7629+27.0	48.0	R	4.6	637.8	NE	NE	NE	NE	2.0	0.3	2.3	640.1	9.4
BB-PB-601	642.7	2272561.3	1036009.4	7629+43.9	27.2	R	NE	--	NE	0.3	NE	NE	1.5	3.2	1.8	640.9	9.5
BB-PB-603	645.3	2272490.9	1035991.5	7629+80.3	35.6	L	--	--	NE	0.3	NE	NE	10	0	10.3	635.0	16.0
BB-PB-602	642.1	2272527.7	1036030.3	7629+82.4	17.8	R	NE	--	NE	0.3	NE	NE	4.7	1	5	637.1	11.0
BB-PB-103	642.3	2272498.7	1036024.7	7629+99.0	7.0	L	14.8	627.5	NE	NE	NE	6.0	4.4	NE	10.4	632.1	23.8
BB-PB-102	642.5	2272457.6	1035986.2	7630+00.0	63.0	L	+0.6	643.1	NE	NE	NE	2.0	16.3	NE	18.3*	624.0*	20.0
BB-PB-104	633.8	2272461.5	1036148.7	7631+13.0	53.0	R	2.3	631.5	NE	NE	NE	NE	19.7	NE	19.7*	614.1*	22.0
BB-PB-105	638.6	2272406.7	1036123.1	7631+33.0	4.0	L	--	--	NE	NE	NE	NE	10.0	7.0	17.0	621.6	29.1
BB-PB-604	638.8	2272416.5	1036155.6	7631+49.7	25.7	R	--	--	NE	NE	NE	NE	13	4.3	13	625.8	17.3
BB-PB-605	643.2	2272345.5	1036125.5	7631+77.7	46.1	L	--	--	NE	NE	NE	NE	9.0	6.5	9.0	634.2	20.5
BB-PB-106	644.7	2272319.4	1036150.6	7632+14.0	47.0	L	2.0	642.7	NE	NE	NE	NE	9.4	NE	9.4*	635.3*	11.5
CLARK BROOK ARCH CULVERT STA 7344+47.04																	
CB-PB-501	513.7	2273832.1	1008609.8	402+9.7	41.5	L	3.8	509.9	NE	3.7	NE	NE	5.3	NE	9.0*	504.7	11.0
CB-PB-311	512.3	2273830.5	1008655.2	7343+92.7	93.3	L	1.6	510.7	NE	1.3	NE	NE	NE	NE	1.3	511.0	7.4
CB-PB-312	512.0	2273884.6	1008631.5	7343+80.3	35.6	L	3.3	508.7	NE	4.4	NE	NE	NE	NE	4.8*	507.2	4.8
CB-PB-502	512.8	2273871.0	1008693.1	402+99.4	3.0	L	3.0	509.8	NE	4.5	NE	NE	3.4	NE	7.9*	504.9	10.0
CB-PB-503	511.2	2273950.6	1008670.5	7344+31.8	21.2	R	0.7	510.5	NE	7.3	NE	NE	NE	NE	7.3*	503.9	8.5
CB-PB-313	511.8	2273949.4	1008719.5	7344+79.5	9.5	R	1.2	510.6	NE	2.0	NE	NE	1.8	NE	3.8	508.0	8.6
CB-PB-504	511.3	2274011.3	1008674.5	7344+48.7	79.7	R	2.5	508.8	NE	NE	3.2	NE	NE	NE	3.2*	508.1	9.0
CB-PB-314	511.1	2274025.3	1008761.6	7345+73.8	73.8	R	3.1	508.0	NE	2.2	NE	NE	2.1	NE	4.5*	506.6	4.5
TRIBUTARY TO CLARK BROOK 3-SIDED CULVERT STA 7362+50.9																	
CB-PB-321	558.9	2274496.7	1010413.4	7362+58.1	87.2	L	3.0	555.9	NE	2.0	NE	NE	3.6	NE	5.6*	553.3	5.6
CB-PB-322	558.6	2274609.1	1010310.2	7362+07.0	56.6	R	NE	-	NE	0.5	NE	NE	4.9	NE	5.4*	553.2	5.4
TRIBUTARY TO WILLIAMS BROOK BOX CULVERT STA 7396+27.83																	
CB-PB-331	575.5	2275695.8	1013584.5	7396+60.5	63.9	L	1.2	574.3	NE	4.0	NE	NE	9.6	NE	13.6*	561.9	13.6
CB-PB-332	573.9	2275757.7	1013513.5	7396+07.7	14.2	R	1.4	572.5	NE	2.7	NE	NE	12.3	NE	15.0*	558.9	15.0
CB-PB-333	573.3	2275772.7	1013479.2	7395+78.7	37.7	R	1.1	572.2	NE	4.0	NE	NE	12.4	NE	16.4*	556.9	16.4
WILLIAMS BROOK BOX CULVERT STA 7473+16.0																	
CB-PB-341	591.9	2274976.5	1021063.7	7473+20.7	102.7	L	3.8	588.1	NE	0.3	NE	NE	10.0	NE	10.3*	581.6	10.3
CB-PB-342	590.8	2275084.9	1020998.3	7472+39.5	6.1	L	0.0	590.8	NE	2.0	NE	NE	8.8	NE	10.8	580.0	15.8
CB-PB-343	590.9	2275133.1	1020985.7	7472+19.2	39.4	R	1.8	589.1	NE	0.4	NE	NE	10.1	NE	10.5*	580.4	10.5
TRIBUTARY TO MERRITT BROOK BOX CULVERT STA 7614+70.3																	
CB-PB-351	610.1	2273501.1	1034904.9	7614+94.6	69.1	L	3.8	606.3	NE	2.5	NE	NE	30.2	NE	32.7*	577.4	32.7
CB-PB-352	610.9	2273576.5	1035046.8	7615+47.7	82.7	R	4.7	606.2	NE	0.4	NE	NE	29.8	NE	30.2*	580.7	30.2

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
CONANT ROAD OVER TRIBUTARY TO MERRITT BOX CULVERT STA 327+92.12																	
HB-PB-622	598.1	2273141.4	1036043.8	328+28.6	42.0	R	NE	--	0.8	NE	7.7	NE	23.5	2	32	566.1	34
HB-PB-623	600.4	2273097.6	1036128.5	327+88.6	44.6	L	6.8	593.6	NE	0.3	7.7	NE	9	NE	NE	<583.4(BOE)	17
HIGHWAY BORINGS																	
HB-PB-311	575.9	2272869.2	1009132.8	102+49.3	0.0	R	2.5	573.4	NE	NE	>6.0	NE	NE	NE	NE	<569.9(BOE)	6.0
HB-PB-304	542.6	2273711.2	1008858.0	103+54.2	7.5	R	7.8	534.8	NE	0.2	NE	NE	>11.8	NE	NE	<530.6(BOE)	12.0
HB-PB-306	528.8	2273552.6	1008764.9	104+86.1	120.7	L	2.5	526.3	NE	0.3	NE	NE	14.8	NE	15.1*	513.7	15.1
HB-PB-305	573.9	2273578.9	1008933.5	105+00.7	49.3	R	10.0	563.9	NE	0.2	NE	0.8	39.1	NE	40.1*	533.8	40.1
HB-PB-302	539.8	2273264.3	1008522.1	107+08.3	425.2	R	5.5	534.3	0.2	NE	>5.8	NE	NE	NE	NE	<533.8(BOE)	6.0
HB-PB-307	583.1	2273336.1	1008994.0	107+50.9	50.2	R	16.0	567.1	NE	NE	NE	5.0	>37.0	NE	NE	<541.1(BOE)	42.0
HB-PB-308	580.5	2273306.8	1008932.0	107+64.6	16.9	L	3.0	577.5	NE	0.1	NE	3.9	>32.0	NE	NE	<544.5(BOE)	36.0
HB-PB-301	547.7	2273136.5	1008732.2	108+82.4	251.6	L	NE	-	0.3	NE	>11.7	NE	NE	NE	NE	<535.7(BOE)	12.0
HB-PB-309(OW)	585.5	2273113.1	1009077.3	109+94.3	75.6	R	**20.0**	**565.5**	NE	0.3	NE	3.7	>28.0	NE	NE	<553.5(BOE)	32.0
HB-PB-310	563.8	2273061.1	1008961.8	110+05.0	50.6	L	NE	-	NE	NE	5.0	NE	>7.0	NE	NE	<551.8(BOE)	12.0
HB-PB-312	590.7	2272718.8	1009335.1	115+01.6	21.0	R	0.3	590.4	NE	NE	>6.0	NE	NE	NE	NE	<584.7(BOE)	6.0
HB-PB-632	667.6	2271966.6	1036209.3	316+48.9	119.5	L	NE	--	NE	NE	NE	NE	2.5	2.5	2.5	665.1	5
HB-PB-630	663.9	2272003.2	1036144.0	316+89.2	56.2	L	NE	--	NE	NE	NE	NE	NE	2.2	0	663.9	2.2
HB-PB-631	666.6	2272056.0	1036205.3	317+39.4	119.9	L	NE	--	NE	NE	NE	NE	2.5	2.1	2.5	664.1	4.6
HB-PB-628	625.8	2272654.2	1036150.3	323+43.5	76.9	L	NE	--	NE	NE	NE	NE	5.9	0.9	5.9	619.9	6.8
HB-PB-629	615.9	2272664.3	1036237.9	323+54.3	164.4	L	8.2	607.7	NE	NE	NE	NE	9	2.2	9	606.9	11.2
HB-PB-627	612.8	2272729.4	1036191.4	324+19.7	117.4	L	6.1	606.7	NE	NE	NE	NE	7.5	1	7.5	605.3	8.5
RB-PB-121	610.0	2272897.4	1036098.2	600+39.0	7.0	L	4.6	605.4	NE	NE	NE	4.0	>2.0	NE	NE	< 604. (BOE)	6.0
RB-PB-122	604.1	2272855.3	1036245.5	601+92.0	8.0	L	4.5	599.6	NE	0.4	NE	NE	9.0	NE	9.4*	594.7*	10.7
RB-PB-123	610.4	2272699.4	1036438.9	604+50.0	6.0	L	Dry	--	NE	NE	NE	2.0	>4.0	NE	NE	< 604.4 (BOE)	6.0
RB-PB-124	625.2	2272462.0	1036496.6	607+01.0	7.0	L	Dry	--	NE	0.3	NE	2.0	>14.0	NE	NE	< 609.2 (BOE)	16.0
RB-PB-125	651.7	2272216.5	1036538.8	609+50.0	0.0	-	Dry	--	NE	NE	NE	4.0	1.1	NE	5.1*	646.6*	5.1
RB-PB-126	658.8	2272007.6	1036667.3	611+97.0	5.0	L	Dry	--	NE	NE	NE	4.0	NE	2	6.0*	652.8*	6.0
RB-PB-127	662.0	2271859.3	1036868.0	614+45.0	5.0	L	Dry	--	NE	NE	NE	2.3	NE	3.7	6.0*	656.0*	8.2
RB-PB-111	605.6	2273327.2	1035243.7	708+70.0	19.0	L	1.0	604.6	NE	NE	NE	2.0	>4.0	NE	NE	< 599.6 (BOE)	6.0
RB-PB-112	608.2	2273069.9	1035642.5	713+51.0	4.0	L	Dry	--	NE	NE	NE	4.0	>12.0	NE	NE	< 592.2 (BOE)	16.0
RB-PB-113	606.5	2272961.6	1035865.6	715+93.0	0.0	-	3.0	603.5	NE	NE	NE	NE	>16.0	NE	NE	< 590.5 (BOE)	16.0
RB-PB-131	633.6	2273123.6	1035361.5	804+56.0	1.0	R	8.5	625.1	NE	NE	NE	NE	9.0	0.2	9.2*	624.4*	11.5

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
RB-PB-132	635.4	2272729.8	1035668.4	809+56.0	1.0	R	Dry	--	NE	0.3	NE	NE	13.2	0.1	13.5*	621.9*	13.6
RB-PB-133	650.5	2272497.4	1035709.3	811+94.0	1.0	R	Dry	--	NE	NE	NE	2.0	2.3	1.7	6.0*	644.5*	6.0
RB-PB-134	652.8	2272246.8	1035700.1	814+45.0	2.0	R	Dry	--	NE	NE	NE	2.0	12.5	2	16.5*	636.3*	16.5
RB-PB-135	664.4	2272032.4	1035804.1	816+92.0	9.0	R	Dry	--	NE	NE	NE	NE	1.0	3.2	4.2*	660.2*	4.2
RB-PB-136	670.3	2271908.0	1036024.4	819+52.0	0.0	-	Dry	--	NE	NE	NE	NE	1.7	4.3	6.0*	664.3*	6.0
RB-PB-141	671.2	2271842.2	1036344.5	902+66.0	1.0	R	Dry	--	NE	NE	NE	2.0	>4.0	NE	NE	< 665.2 (BOE)	6.0
RB-PB-142	669.5	2271791.9	1036567.8	904+95.0	0.0	-	Dry	--	NE	NE	NE	2.6	NE	3.0	5.6*	663.9*	5.6
RB-PB-143	664.1	2271740.4	1036814.0	907+47.0	1.0	L	Dry	--	NE	NE	NE	2.0	NE	4.1	6.1*	658.0*	6.1
HB-PB-313	666.5	2274201.2	1006252.6	7319+51.0	23.2	R	NE	-	NE	NE	>6.0	NE	NE	NE	NE	< 660.5 (BOE)	6.0
HB-PB-314	654.0	2274116.9	1006488.0	7322+01.0	22.4	R	NE	-	NE	NE	4.6	NE	NE	NE	4.6*	649.4	4.6
HB-PB-315	638.4	2274032.9	1006722.9	7324+51.3	18.1	R	NE	-	NE	NE	3.8	NE	NE	NE	3.8*	634.6	3.8
HB-PB-316	621.3	2273949.8	1006957.4	7327+00.0	0.5	L	5.0	616.3	NE	0.4	5.1	NE	NE	NE	5.5*	615.8	5.5
HB-PB-601	612.6	2274052.8	1007193.4	7329+14.0	148.7	R	NE	--	NE	NE	5.2	NE	NE	0.9	6.1	606.5	6.1
HB-PB-317	607.6	2273909.0	1007198.0	7329+44.2	8.0	R	NE	-	NE	NE	NE	4.0	>3.0	NE	NE	< 600.6 (BOE)	7.0
HB-PB-602	610.7	2273975.6	1007236.2	7329+71.0	80.0	R	NE	--	NE	NE	3.6	NE	NE	1.1	3.6	607.1	4.7
HB-PB-602A	610.7	2273975.6	1007241.2	7329+76.0	80.0	R	NE	--	NE	NE	5	NE	NE	2.3	5	605.7	7.3
HB-PB-603	609.6	2274038.0	1007291.2	7330+16.8	150.3	R	NE	--	NE	NE	4.9	NE	NE	0.3	4.9	604.7	5.2
HB-PB-319	594.6	2273929.5	1007456.0	7331+99.2	63.9	R	7.5	587.1	NE	2.0	NE	NE	9.2	NE	11.2*	583.4	11.2
HB-PB-318	590.0	2273805.5	1007443.0	7331+99.4	60.7	L	NE	-	NE	2.0	NE	NE	7.2	NE	9.2*	580.8	9.2
HB-PB-320(OW)	586.0	2273911.8	1007617.6	7333+64.4	60.0	R	**3.4**	**582.6**	NE	0.3	NE	3.7	9.2	NE	13.2	572.8	20.0
HB-PB-322	582.8	2273803.3	1007610.8	7333+64.6	48.8	L	2.6	580.2	NE	2.0	NE	8.0	3.8	NE	13.8*	569.0	13.8
HB-PB-321	583.7	2273852.3	1007614.4	7333+65.0	0.4	R	0.3	583.4	NE	0.5	NE	3.5	11.8	NE	15.8*	567.9	15.8
HB-PB-323	561.1	2273847.9	1007847.6	7335+98.4	3.8	R	4.5	556.6	NE	2.3	NE	2.2	5.2	NE	9.7*	551.4	9.7
HB-PB-324	527.7	2273838.5	1008202.9	7339+52.3	20.5	L	NE	-	NE	0.5	NE	NE	5.3	NE	5.8*	521.9	5.8
HB-PB-325	518.3	2273843.7	1008419.0	7341+66.0	40.0	L	NE	-	NE	0.5	NE	NE	5.7	NE	6.2*	512.1	6.2
HB-PB-303	515.2	2273962.0	1008785.7	7345+47.0	6.6	R	1.5	513.7	NE	0.2	NE	NE	5.7	NE	5.9*	509.3	5.9
HB-PB-326	525.1	2274002.9	1008941.6	7347+08.4	6.0	R	NE	-	NE	0.3	NE	NE	2.6	NE	2.9*	522.2	2.9
HB-PB-327	569.2	2274097.2	1009147.7	7349+34.6	32.9	R	15.0	554.2	NE	NE	NE	2.0	>19.0	NE	NE	< 548.2 (BOE)	21.0
HB-PB-329(OW)	578.4	2274015.7	1009190.8	7349+48.0	58.3	L	**5.0**	**573.4**	NE	0.3	NE	3.7	32.0	NE	36.0*	542.4	36.0
HB-PB-328	575.1	2274070.4	1009172.7	7349+49.3	0.8	L	17.8	557.3	NE	NE	NE	4.0	24.8	NE	28.8*	546.3	28.8
HB-PB-330	573.3	2274215.8	1009381.5	7351+97.9	58.2	R	5.1	568.2	NE	0.3	NE	1.7	23.6	NE	25.6*	547.7	25.6
HB-PB-331	583.9	2274110.5	1009425.7	7351+97.9	56.0	L	17.9	566.0	NE	0.2	NE	3.8	21.3	NE	25.3*	558.6	25.3
HB-PB-333(GP)	590.1	2274215.2	1009655.8	7354+50.6	49.7	L	11.0	579.1	NE	0.3	NE	1.7	8.1	NE	10.1	580.0	36.4
HB-PB-332	590.2	2274307.5	1009616.7	7354+50.8	50.5	R	NE	-	NE	0.3	NE	1.7	13.9	NE	15.9*	574.3	15.9
HB-PB-335	600.7	2274312.2	1009886.0	7357+00.4	50.6	L	NE	-	NE	0.3	NE	1.7	12.8	NE	14.8*	585.9	14.8

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Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
HB-PB-334	595.8	2274407.7	1009846.7	7357+01.6	52.7	R	15.0	580.8	NE	0.2	NE	1.8	14.6	NE	16.6	579.2	22.0
HB-PB-337	590.2	2274456.2	1010095.4	7359+49.5	0.1	L	9.0	581.2	NE	0.2	NE	3.8	11.6	NE	15.6*	574.6	15.6
HB-PB-336	591.1	2274502.5	1010076.8	7359+50.5	49.8	R	NE	-	NE	0.2	NE	1.8	13.1	NE	15.1*	576.0	15.1
HB-PB-338(OW)	592.3	2274411.1	1010115.8	7359+50.6	49.6	L	**9.0**	**583.3**	NE	0.1	NE	1.9	8.0	NE	10.0	582.3	26.4
HB-PB-339	574.9	2274535.9	1010267.0	7361+38.6	6.1	R	NE	-	NE	0.3	NE	NE	5.5	NE	5.8*	569.1	5.8
HB-PB-604	572.2	2274747.1	1010494.0	7364+29.5	112.2	R	NE	--	NE	NE	NE	NE	7.5	1.8	7.5	564.7	9.3
HB-PB-340	575.5	2274654.6	1010561.4	7364+55.9	0.1	R	7.5	568.0	NE	0.3	NE	NE	15.4	NE	15.7*	559.8	15.7
HB-PB-605	576.3	2274561.7	1010641.7	7364+94.3	115.8	L	NE	--	NE	NE	NE	NE	13.5	1.5	13.5	562.8	15
HB-PB-606	578.6	2274734.8	1010580.6	7365+04.5	67.5	R	NE	--	NE	NE	NE	NE	7.5	3	7.5	571.1	10.5
HB-PB-609	578.0	2274619.3	1010774.3	7365+39.3	113.3	L	10.4	567.6	NE	NE	NE	NE	15.8	NE	NE	<562.2(BOE)	15.8
HB-PB-607	576.3	2274627.2	1010692.9	7365+67.0	74.9	L	9.9	566.4	NE	NE	NE	NE	10	1.6	10	566.3	11.6
HB-PB-608	581.5	2274806.7	1010630.3	7365+77.8	114.8	R	11.4	570.1	NE	0.3	NE	NE	11	2.1	11.3	570.2	13.4
HB-PB-341	582.8	2274741.4	1010780.4	7366+91.5	2.8	L	NE	-	NE	0.2	NE	NE	>7.8	NE	NE	< 574.8 (BOE)	8.0
HB-PB-342	589.4	2274844.5	1011017.2	7369+49.7	3.5	R	NE	-	NE	0.3	NE	NE	>7.7	NE	NE	< 581.4 (BOE)	8.0
HB-PB-343	588.8	2274928.1	1011240.7	7371+88.3	1.9	L	NE	-	NE	0.3	NE	NE	>5.7	NE	NE	< 582.8 (BOE)	6.0
HB-PB-344	591.1	2275018.3	1011473.2	7374+37.7	3.0	L	1.5	589.6	NE	0.3	NE	NE	>5.7	NE	NE	< 585.1 (BOE)	6.0
HB-PB-345	597.1	2275113.9	1011706.5	7376+89.7	2.3	R	4.0	593.1	NE	2.0	NE	NE	>6.0	NE	NE	< 589.1 (BOE)	8.0
HB-PB-346	598.9	2275203.3	1011951.5	7379+50.5	0.8	L	9.8	589.1	NE	0.3	NE	NE	>9.7	NE	NE	< 588.9 (BOE)	10.0
HB-PB-347	601.3	2275286.1	1012185.1	7381+98.3	5.2	L	NE	-	NE	0.3	NE	NE	>5.7	NE	NE	< 595.3 (BOE)	6.0
HB-PB-348	601.8	2275378.4	1012422.3	7384+52.8	2.0	L	7.0	594.8	NE	0.4	NE	NE	>9.6	NE	NE	< 591.8 (BOE)	10.0
HB-PB-349	599.1	2275512.8	1012632.9	7386+97.1	50.0	R	4.0	595.1	NE	0.3	NE	NE	8.8	NE	9.1*	590.0	9.1
HB-PB-350(OW)	605.9	2275423.8	1012668.5	7386+99.4	45.9	L	**19.5**	**586.4**	NE	0.1	NE	3.9	11.0	NE	15.0	590.9	20.0
HB-PB-351	614.5	2275604.6	1012871.8	7389+51.6	55.9	R	NE	-	NE	2.0	NE	NE	5.8	NE	7.8*	606.7	7.8
HB-PB-352	615.2	2275550.9	1012892.4	7389+53.7	1.7	L	NE	-	NE	NE	NE	NE	16.2	NE	16.2*	599.0	16.2
HB-PB-353(GP)	613.2	2275520.3	1012905.5	7389+56.1	34.9	L	18.0	595.2	NE	0.1	NE	1.9	8.8	NE	10.8	602.4	30.4
HB-PB-610	598.8	2275682.0	1012949.4	7390+49.1	104.3	R	NE	--	NE	NE	NE	NE	15	NE	NE	<583.8(BOE)	15
HB-PB-611	588	2275659.2	1013035.0	7391+22.7	56.0	R	9.3	578.7	NE	NE	NE	NE	11.2	1.6	11.2	576.8	12.8
HB-PB-354	591.0	2275631.2	1013126.0	7392+00.6	1.6	R	NE	-	NE	NE	NE	NE	>8.0	NE	NE	< 583. (BOE)	8.0
HB-PB-612	575.3	2275755.2	1013105.0	7392+17.7	126.2	R	3.4	571.9	NE	0.3	NE	NE	8.3	0.8	8.6	566.7	9.4
HB-PB-613	587	2275536.2	1013185.9	7392+29.6	107.0	L	5.7	581.3	NE	0.1	NE	NE	5.9	7.8	6	581.0	13.8
HB-PB-614	584.5	2275584.0	1013239.8	7392+95.8	77.2	L	NE	--	NE	NE	NE	NE	15	NE	NE	<569.5(BOE)	15
HB-PB-615	584	2275566.4	1013323.2	7393+71.3	118.0	L	7.6	576.4	NE	NE	NE	NE	11.7	0.9	11.7	572.3	12.6
HB-PB-355	574.9	2275693.8	1013361.1	7394+43.9	6.4	L	2.7	572.2	NE	1.8	NE	NE	>6.2	NE	NE	< 566.9 (BOE)	8.0
HB-PB-357	577.2	2275826.3	1013829.0	7399+30.2	3.6	R	5.5	571.7	NE	0.4	NE	NE	>5.6	NE	NE	< 571.2 (BOE)	6.0
HB-PB-358	583.4	2275894.7	1014152.3	7402+60.6	1.9	R	5.9	577.5	NE	0.2	NE	NE	>5.8	NE	NE	< 577.4 (BOE)	6.0

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Presque Isle, ME

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					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
HB-PB-359	586.9	2275918.1	1014387.0	7404+95.7	18.2	L	NE	-	NE	0.2	NE	NE	>5.8	NE	NE	< 580.9 (BOE)	6.0
HB-PB-360	588.2	2275981.7	1014629.4	7407+45.3	6.0	R	NE	-	NE	0.2	NE	NE	>5.8	NE	NE	< 582.2 (BOE)	6.0
HB-PB-361	593.9	2276006.2	1014875.8	7409+92.7	2.7	L	NE	-	NE	0.2	NE	NE	>9.8	NE	NE	< 583.9 (BOE)	10.0
HB-PB-362	600.1	2276034.7	1015084.8	7412+03.7	2.6	R	8.7	591.4	NE	NE	NE	2.0	>10.0	NE	NE	< 588.1 (BOE)	12.0
HB-PB-363	594.8	2276053.4	1015329.3	7414+48.8	0.1	L	NE	-	NE	NE	NE	4.0	>2.0	NE	NE	< 588.8 (BOE)	6.0
HB-PB-364	590.8	2276069.7	1015580.0	7417+00.1	0.6	R	5.5	585.3	NE	NE	NE	4.0	>2.0	NE	NE	< 584.8 (BOE)	6.0
HB-PB-365	590.1	2276081.0	1015825.7	7419+46.0	3.0	R	1.8	588.3	NE	NE	NE	4.0	1.6	NE	5.6*	584.5	5.6
HB-PB-366	590.1	2276080.9	1016080.5	7422+00.7	0.2	R	1.5	588.6	NE	1.2	NE	2.8	>8.0	NE	NE	< 578.1 (BOE)	12.0
HB-PB-367	592.7	2276077.6	1016330.2	7424+50.4	0.7	R	1.7	591.0	NE	2.0	NE	7.4	NE	NE	9.4*	583.3	9.4
HB-PB-368	594.1	2276067.1	1016580.3	7427+00.8	0.3	R	2.5	591.6	NE	1.2	NE	3.8	5.9	NE	10.9*	583.2	10.9
HB-PB-369	601.9	2275998.0	1017326.1	7434+49.9	0.0	R	0.5	601.4	NE	2.0	NE	NE	13.1	NE	15.1*	586.8	15.1
HB-PB-370	599.6	2275962.7	1017573.5	7436+99.8	0.5	R	NE	-	NE	NE	NE	2.0	7.2	NE	9.2*	590.4	9.2
HB-PB-371	600.5	2275919.6	1017820.6	7439+50.7	0.5	L	NE	-	NE	NE	NE	4.0	>2.0	NE	NE	< 594.5 (BOE)	6.0
HB-PB-372	603.3	2275871.9	1018065.6	7442+00.3	0.1	R	NE	-	NE	NE	NE	4.0	>2.0	NE	NE	< 597.3 (BOE)	6.0
HB-PB-373	598.4	2275837.2	1018313.9	7444+49.9	20.5	R	NE	-	NE	NE	NE	2.0	>4.0	NE	NE	< 592.4 (BOE)	6.0
HB-PB-374	603.5	2275756.4	1018552.6	7447+00.8	0.2	R	NE	-	NE	NE	NE	NE	>6.0	NE	NE	< 597.5 (BOE)	6.0
HB-PB-375	605.9	2275698.9	1018795.0	7449+49.7	9.8	R	NE	-	NE	NE	NE	NE	5.3	NE	5.3*	600.6	5.3
HB-PB-376	608.8	2275618.0	1019032.1	7451+99.9	1.9	R	NE	-	NE	2.0	NE	2.0	>7.0	NE	NE	< 597.8 (BOE)	11.0
HB-PB-377	603.3	2275542.2	1019272.8	7454+52.11	6.3	R	NE	-	NE	2.0	NE	2.0	4.9	NE	8.9*	594.4	8.9
HB-PB-378	606.8	2275453.0	1019507.1	7457+02.7	2.4	L	NE	-	NE	0.3	NE	1.7	>8.0	NE	NE	< 596.8 (BOE)	10.0
HB-PB-379	611.7	2275385.7	1019746.3	7459+51.7	5.0	R	NE	-	NE	NE	NE	2.0	7.9	NE	9.9*	601.8	9.9
HB-PB-380	605.1	2275331.4	1019939.3	7461+51.7	6.5	R	NE	-	NE	NE	NE	4.0	0.7	NE	4.7*	600.4	4.7
HB-PB-381	606.8	2275270.3	1020128.2	7463+50.1	3.7	L	NE	-	NE	0.3	NE	NE	6.2	NE	6.5*	600.3	6.5
HB-PB-382	605.2	2275139.6	1020717.6	7469+53.7	1.6	L	17.7	587.5	NE	2.0	NE	NE	18.0	NE	20.0*	585.2	20.0
HB-PB-383	592.5	2275094.7	1020959.3	7471+99.4	2.8	L	4.3	588.2	NE	0.3	NE	NE	12.8	NE	13.1*	579.4	13.1

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
HB-PB-384	591.6	2275058.6	1021206.3	7474+49.0	0.5	L	6.3	585.3	NE	2.0	NE	NE	>9.5	NE	NE	< 580.1 (BOE)	11.5
HB-PB-385	597.2	2275024.1	1021455.2	7477+00.3	1.2	L	NE	-	NE	2.0	NE	NE	>4.0	NE	NE	< 591.2 (BOE)	6.0
HB-PB-386	598.5	2274986.1	1021700.0	7479+48.0	6.3	L	0.0	598.5	NE	0.5	NE	NE	5.1	NE	5.6*	592.9	5.6
HB-PB-387	603.9	2274957.8	1021951.6	7482+01.1	1.0	L	NE	-	NE	0.3	NE	NE	>5.7	NE	NE	< 597.9 (BOE)	6.0
HB-PB-388	611.4	2274928.9	1022198.0	7484+49.2	3.2	R	NE	-	NE	0.4	NE	NE	>5.6	NE	NE	< 605.4 (BOE)	6.0
HB-PB-389	614.1	2274892.4	1022449.8	7487+03.6	0.5	R	NE	-	NE	0.5	NE	NE	>5.5	NE	NE	< 608.1 (BOE)	6.0
HB-PB-390	616.7	2274853.4	1022694.6	7489+51.4	5.7	L	6.4	610.3	NE	0.2	NE	NE	7.4	NE	7.6*	609.1	7.6
HB-PB-391	621.0	2274828.0	1022943.6	7492+01.6	2.3	R	9.9	611.1	NE	0.3	NE	NE	>11.7	NE	NE	< 609. (BOE)	12.0
HB-PB-392	624.4	2274791.2	1023189.7	7494+50.4	1.5	L	9.1	615.3	NE	0.5	NE	NE	9.6	NE	10.1*	614.3	10.1
HB-PB-393	630.0	2274760.2	1023437.1	7496+99.7	0.7	R	10.3	619.7	NE	0.5	NE	NE	10.4	NE	10.9*	619.1	10.9
HB-PB-394	633.1	2274727.2	1023687.1	7499+51.8	1.2	R	NE	-	NE	0.7	NE	NE	9.4	NE	10.1*	623.0	10.1
HB-PB-397	639.9	2274644.6	1023924.9	7501+98.6	49.1	L	8.5	631.4	NE	NE	NE	4.0	4.3	NE	8.3	631.6	13.8
HB-PB-395	641.0	2274743.0	1023939.3	7501+99.7	50.4	R	NE	-	NE	NE	NE	2.0	9.5	NE	11.5*	629.5	11.5
HB-PB-396	640.5	2274691.3	1023936.1	7502+03.5	1.3	L	NE	-	NE	NE	NE	2.0	10.7	NE	12.7*	627.8	12.7
HB-PB-398	644.2	2274660.6	1024180.9	7504+50.2	0.8	R	NE	-	NE	NE	NE	2.0	0.5	NE	2.5*	641.7	2.5
HB-PB-399(OW)	647.9	2274677.0	1024434.9	7506+99.7	50.9	R	**13.0**	**634.9**	NE	0.2	NE	3.8	5.1	NE	9.1	638.8	14.6
HB-PB-400	645.8	2274577.6	1024422.0	7507+00.1	49.1	L	NE	-	NE	NE	NE	2.0	5.6	NE	7.6*	638.2	7.6
HB-PB-401	649.9	2274593.4	1024675.4	7509+49.2	0.1	L	NE	-	NE	NE	NE	2.0	4.6	NE	6.6*	643.3	6.6
HB-PB-404	653.0	2274511.5	1024917.3	7511+99.9	49.0	L	10.0	643.0	NE	NE	NE	6.0	10.1	NE	16.1*	636.9	16.1
HB-PB-402	658.4	2274609.6	1024930.6	7511+99.9	49.9	R	NE	-	NE	NE	NE	2.0	11.6	NE	13.6*	646.9	13.6
HB-PB-403	656.4	2274560.8	1024924.6	7512+00.5	0.8	R	NE	-	NE	NE	NE	2.0	5.3	NE	7.3*	649.1	7.3
HB-PB-405	659.2	2274529.3	1025172.2	7514+50.1	0.3	R	NE	-	NE	NE	NE	2.0	8.1	NE	10.1*	649.1	10.1
HB-PB-406	659.7	2274504.6	1025420.3	7516+99.4	0.4	R	NE	-	NE	NE	NE	2.0	3.4	NE	5.4*	654.3	5.4
HB-PB-407	660.9	2274485.5	1025669.7	7519+49.6	0.0	L	NE	-	NE	NE	NE	2.0	>4.0	NE	NE	< 654.9 (BOE)	6.0
HB-PB-408	662.8	2274473.0	1025919.5	7521+99.7	0.1	L	NE	-	NE	NE	NE	NE	2.5	NE	2.5*	660.3	2.5
HB-PB-409	664.6	2274467.3	1026168.7	7524+49.0	0.3	R	NE	-	NE	NE	NE	2.0	1.5	NE	3.5*	661.1	3.5
HB-PB-410	666.8	2274466.7	1026419.4	7526+99.7	0.3	L	NE	-	NE	NE	NE	2.0	>4.0	NE	NE	< 660.8 (BOE)	6.0
HB-PB-411	666.7	2274472.3	1026670.9	7529+51.3	0.2	R	NE	-	NE	0.4	NE	1.6	8.1	NE	10.1*	656.6	10.1
HB-PB-412	670.3	2274472.7	1026868.2	7531+48.5	3.8	L	NE	-	NE	0.3	NE	1.7	8.7	NE	10.7*	659.6	10.7
HB-PB-413	670.3	2274483.4	1027169.6	7534+50.1	0.2	R	NE	-	NE	0.1	NE	1.9	6.2	NE	8.2*	662.1	8.2
HB-PB-414	674.4	2274488.7	1027419.5	7537+00.0	0.0	L	NE	-	NE	0.2	NE	1.8	3.1	NE	5.1*	669.3	5.1
HB-PB-415	672.7	2274495.2	1027669.9	7539+50.5	0.9	R	NE	-	NE	0.3	NE	1.7	7.6	NE	9.6*	663.1	9.6

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
HB-PB-416	673.2	2274500.3	1027920.0	7542+00.6	0.5	R	NE	-	NE	0.2	NE	6.8	8.1	NE	15.1*	658.1	15.1
HB-PB-417	680.8	2274505.0	1028169.6	7544+50.3	0.3	L	NE	-	NE	0.2	NE	1.8	8.5	NE	10.5*	670.3	10.5
HB-PB-418	694.5	2274511.7	1028418.6	7546+99.4	0.8	R	NE	-	NE	0.1	NE	1.9	8.1	NE	10.1*	684.4	10.1
HB-PB-419	701.5	2274517.0	1028669.4	7549+50.3	0.6	R	NE	-	NE	0.3	NE	1.7	8.1	NE	10.1*	691.4	10.1
HB-PB-420	697.4	2274527.1	1029169.3	7554+50.3	0.4	L	NE	-	NE	0.3	NE	NE	8.5	NE	8.8*	688.6	8.8
HB-PB-421	716.5	2274533.2	1029421.9	7557+02.9	0.1	R	NE	-	NE	NE	NE	4.5	4.6	NE	9.1*	707.4	9.1
HB-PB-422	725.5	2274540.4	1029682.4	7559+63.6	1.6	R	NE	-	NE	NE	NE	1.0	4.6	NE	5.6*	719.9	5.6
HB-PB-423	719.6	2274544.9	1029919.8	7562+00.9	0.8	R	NE	-	NE	NE	NE	2.0	6.9	NE	8.9*	710.7	8.9
HB-PB-424	705.5	2274549.5	1030169.4	7564+50.6	0.1	L	NE	-	NE	NE	NE	2.0	3.8	NE	5.8*	699.7	5.8
HB-PB-425	703.2	2274557.3	1030425.4	7567+06.7	2.0	R	NE	-	NE	0.1	NE	1.9	>4.0	NE	NE	< 697.2 (BOE)	6.0
HB-PB-616	690.2	2274454.4	1030657.9	7569+36.9	106.1	L	NE	--	NE	NE	NE	NE	8.2	0.9	8.2	682.0	9.1
HB-PB-426	698.7	2274561.9	1030670.6	7569+51.9	1.1	R	NE	-	NE	0.3	NE	NE	9.8	NE	10.1*	688.6	10.1
HB-PB-617	689.4	2274491.2	1030718.1	7569+97.9	70.6	L	NE	--	NE	0.1	NE	NE	6.1	1	6.2	683.2	7.2
HB-PB-618	682.1	2274446.3	1030796.9	7570+75.6	117.2	L	NE	--	NE	NE	NE	NE	5.5	2.1	5.5	676.6	7.6
HB-PB-427	685.7	2274566.3	1030918.6	7572+00.0	0.0	R	NE	-	NE	0.3	NE	NE	4.9	NE	5.2*	680.5	5.2
HB-PB-428	678.3	2274563.5	1031170.9	7574+52.2	8.4	L	NE	-	NE	0.3	NE	NE	>5.7	NE	NE	< 672.3 (BOE)	6.0
HB-PB-429	669.3	2274567.6	1031414.3	7576+95.6	9.7	L	0.0	669.3	NE	0.3	NE	NE	>5.7	NE	NE	< 663.3 (BOE)	6.0
HB-PB-430	665.3	2274569.3	1031669.3	7579+50.6	13.6	L	NE	-	NE	0.1	NE	NE	>5.9	NE	NE	< 659.3 (BOE)	6.0
HB-PB-431	661.4	2274578.2	1031916.2	7581+97.6	10.2	L	NE	-	NE	0.2	NE	NE	>11.8	NE	NE	< 649.4 (BOE)	12.0
HB-PB-432	656.8	2274592.0	1032168.0	7584+49.7	2.0	L	0.0	656.8	NE	0.3	NE	NE	>5.7	NE	NE	< 650.8 (BOE)	6.0
HB-PB-433	655.6	2274592.9	1032419.7	7587+01.4	1.2	R	NE	-	NE	0.5	NE	NE	>11.5	NE	NE	< 643.6 (BOE)	12.0
HB-PB-434	655.3	2274576.1	1032668.0	7589+50.2	2.2	R	1.0	654.3	NE	NE	NE	NE	>6.0	NE	NE	< 649.3 (BOE)	6.0
HB-PB-435	654.5	2274543.7	1032914.2	7591+98.4	2.9	R	NE	-	NE	NE	NE	NE	>6.0	NE	NE	< 648.5 (BOE)	6.0
HB-PB-436	652.5	2274491.0	1033160.7	7594+50.4	0.7	L	NE	-	NE	1.0	NE	1.0	>4.0	NE	NE	< 646.5 (BOE)	6.0
HB-PB-437	651.6	2274424.0	1033400.5	7596+99.6	4.1	L	NE	-	NE	1.0	NE	NE	>10.5	NE	NE	< 640.1 (BOE)	11.5
HB-PB-438	650.0	2274352.3	1033629.3	7599+39.5	0.2	L	NE	-	NE	0.5	NE	4.5	>7.0	NE	NE	< 638. (BOE)	12.0
HB-PB-111	648.1	2274250.3	1033872.7	7602+03.0	3.0	L	3.7	644.4	NE	2.0	NE	NE	4.4	NE	6.4*	641.7*	6.4
HB-PB-112	645.8	2274146.5	1034086.7	7604+41.0	5.0	L	1.5	644.3	NE	NE	NE	>8.0	NE	NE	NE	< 637.8 (BOE)	8.0
HB-PB-113	644.2	2274025.1	1034316.3	7607+01.0	0.0	-	2.0	642.2	NE	NE	NE	NE	>8.0	NE	NE	< 636.2 (BOE)	8.0
HB-PB-619	632.4	2273852.7	1034387.0	7608+55.1	108.2	L	4.4	628	NE	0.3	NE	NE	11.1	1.9	11.4	621.0	13.3
HB-PB-620	631.2	2273845.6	1034471.5	7609+31.0	67.2	L	3.3	627.9	NE	NE	NE	NE	9.1	0.7	9.1	622.1	9.8

Table 1 - Summary of Subsurface Explorations

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Exploration Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Station	Offset		Groundwater[3]		Approximate Thickness of Strata Encountered [4,5]						Top of Rock[6,7]		Total Exploration Depth (ft)
					(feet)	Dir.	Depth (feet below existing grade)	Elev. [1]	Pavement	Topsoil / Forest Mat / Subsoil	Fill	Reworked Till	Glacial Till	Fractured Bedrock	Depth (ft)	Elev. [1]	
HIGHWAY BORINGS																	
HB-PB-114	634.1	2273888.9	1034520.8	7609+47.0	3.0	L	Dry	--	NE	NE	NE	2.0	>4.0	NE	NE	< 628.1 (BOE)	6.0
HB-PB-621	626.9	2273767.0	1034514.3	7610+12.8	107.3	L	6.2	620.7	NE	NE	NE	NE	10.9	0.7	10.9	616.0	11.6
HB-PB-115	623.9	2273741.1	1034730.7	7612+04.0	1.0	R	3.8	620.1	NE	0.3	NE	NE	>5.7	NE	NE	< 617.9 (BOE)	6.0
HB-PB-116	610.8	2273568.1	1034922.9	7614+64.0	7.0	L	12.2	598.6	NE	3.0	NE	NE	>13.0	NE	NE	< 594.8 (BOE)	16.0
HB-PB-117	607.2	2273407.0	1035104.0	7617+05.0	0.0	-	Dry	--	NE	2.0	NE	NE	>4.0	NE	NE	< 601.2 (BOE)	6.0
HB-PB-118	614.9	2273066.3	1035465.6	7622+02.0	9.0	R	1.7	613.2	NE	NE	NE	NE	>6.0	NE	NE	< 608.9 (BOE)	6.0
HB-PB-119	623.2	2272885.0	1035634.2	7624+50.0	3.0	L	9.0	614.2	NE	NE	NE	NE	11.0	5.0	16.0*	607.2*	16.0
HB-PB-120	634.0	2272690.7	1035860.9	7627+46.0	16.0	R	Dry	--	NE	0.3	NE	1.7	>4.0	NE	NE	< 628. (BOE)	6.0
HB-PB-624	650.1	2272502.5	1035795.1	7628+31.5	164.5	L	NE	--	NE	NE	NE	NE	2.5	2.7	2.5	647.6	5.2
HB-PB-625	650.1	2272526.8	1035851.6	7628+55.1	107.6	L	NE	--	NE	NE	NE	NE	3.2	1.4	3.2	646.9	4.6
HB-PB-626	650.5	2272467.1	1035840.1	7628+88.5	158.4	L	NE	--	NE	NE	NE	NE	3.2	1.4	3.2	647.3	4.6
HB-PB-121	664.3	2272175.4	1036351.3	7634+58.0	11.0	L	Dry	--	NE	0.3	>9.7	NE	NE	NE	NE	< 654.3 (BOE)	10.0
HB-PB-122	667.7	2272026.2	1036546.2	7637+02.0	1.0	L	Dry	--	NE	NE	NE	4.3	3.4	0.3	8.0*	659.7*	8.0
HB-PB-123	660.9	2271771.7	1036968.4	7641+96.0	2.0	L	Dry	--	NE	NE	NE	NE	2.2	3.8	6.0*	654.9*	6.0
HB-PB-124	653.2	2271684.0	1037195.0	7644+39.0	3.0	R	Dry	--	NE	NE	NE	2.8	NE	3.2	6.0*	647.2*	6.0
HB-PB-125	648.1	2271612.8	1037431.3	7646+86.0	1.0	R	Dry	--	NE	NE	NE	2.0	0.8	3.2	6.0*	642.1*	6.0

Notes:

1) Elevations are in feet and reference the North American Vertical Datum of 1988 (NAVD 88). Coordinates are in feet and reference the North American Datum of 1983 (NAD 83), Maine State Plane 2000 Coordinate System.

2) As-completed exploration locations and elevations were surveyed by a MaineDOT survey crew and have been provided to GZA and included above.

3) Groundwater measurements in observation wells, labeled with (OW), were measured in installed observation wells and are shown in **bold**.
Label (BOW) indicates the well was dry, and water is deeper than the bottom of well elevation. -- indicates groundwater level was not observed. Groundwater measurement labeled with "+" indicates water was above ground surface due to artesian condition.

4) ">" indicates the boring was terminated at the depth indicated into the stratum, "NE" indicates stratum not encountered.

5) See boring logs in Appendix B for additional details.

6) * indicates top of rock elevation assumed based on split-spoon practical refusal or termination in weathered rock without refusal.

7) < 665.2 (BOE) indicates top of rock was not encountered and is anticipated to be deeper than the indicated elevation, which corresponds to the bottom of exploration elevation.

Table 2 - Summary of Power Auger Probes

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Probe Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Refusal Depth Below Ground Surface (Feet)	Refusal Elevation (feet)	Date Drilled	Notes
HP-PB-501	584.2	2273226.6	1009019.1	> 44.0	Not Encountered	1/25/2017	Ran out of augers (No Refusal)
HP-PB-502	576.2	2273464.7	1008949.4	23.1	553.1	1/25/2017	
HP-PB-503	583.4	2274003.0	1009258.5	15.0	568.4	1/25/2017	
HP-PB-504	578.2	2274083.9	1009226.7	8.7	569.5	1/25/2017	
HP-PB-505	572.7	2274146.8	1009205.4	20.2	552.5	1/25/2017	
HP-PB-506	589.2	2274033.5	1009355.8	20.3	568.9	1/24/2017	
HP-PB-507	579.1	2274117.7	1009313.0	20.4	558.7	1/25/2017	
HP-PB-508	571.6	2274186.1	1009296.7	13.4	558.2	1/24/2017	
HP-PB-509	577.6	2274161.8	1009411.9	14.0	563.6	1/24/2017	
HP-PB-510	582.5	2274131.4	1009532.9	11.1	571.4	1/24/2017	
HP-PB-511	577.3	2274177.9	1009509.0	17.2	560.1	1/24/2017	
HP-PB-512	578.9	2274270.3	1009476.0	25.3	553.6	1/24/2017	
HP-PB-513	581.1	2274185.1	1009617.9	6.6	574.5	1/24/2017	
HP-PB-514	584.7	2274249.3	1009593.2	10.0	574.7	1/24/2017	
HP-PB-515	587.3	2274313.9	1009566.8	19.8	567.5	1/24/2017	
HP-PB-516	596.0	2274213.5	1009703.4	7.8	588.2	1/23/2017	
HP-PB-517	594.1	2274284.5	1009675.2	6.3	587.8	1/23/2017	
HP-PB-518	590.9	2274350.3	1009643.2	10.1	580.8	1/23/2017	
HP-PB-519	601.3	2274231.4	1009792.1	14.1	587.2	1/23/2017	
HP-PB-520	599.5	2274281.4	1009776.9	13.1	586.4	1/23/2017	
HP-PB-521	597.4	2274335.9	1009760.5	15.3	582.1	1/23/2017	
HP-PB-522	594.8	2274394.6	1009742.2	16.9	577.9	1/23/2017	
HP-PB-523	597.7	2274358.4	1009864.1	14.8	582.9	1/20/2017	
HP-PB-524	601.0	2274327.2	1009979.7	8.7	592.3	1/20/2017	
HP-PB-525	598.0	2274398.1	1009948.6	14.2	583.8	1/20/2017	
HP-PB-526	595.0	2274465.6	1009916.6	14.7	580.3	1/20/2017	
HP-PB-527	598.2	2274359.5	1010088.8	11.6	586.6	1/19/2017	
HP-PB-528	596.2	2274413.5	1010041.2	8.4	587.8	1/19/2017	
HP-PB-529	595.7	2274457.2	1010023.0	15.1	580.6	1/19/2017	
HP-PB-530	594.3	2274521.5	1010001.3	16.3	578.0	1/19/2017	
HP-PB-531	583.9	2274452.3	1010165.0	6.6	577.3	1/19/2017	
HP-PB-532	579.8	2274508.3	1010134.7	12.9	566.9	1/19/2017	
HP-PB-533	615.7	2275439.2	1012764.9	17.7	598.0	1/17/2017	
HP-PB-534	611.5	2275507.7	1012739.8	20.4	591.1	1/17/2017	
HP-PB-535	609.1	2275580.8	1012724.0	12.2	596.9	1/17/2017	
HP-PB-536	616.9	2275490.3	1012838.0	18.5	598.4	1/17/2017	
HP-PB-537	618.0	2275577.3	1012829.8	12.1	605.9	1/17/2017	
HP-PB-538	609.5	2275514.4	1012947.9	22.8	586.7	1/18/2017	
HP-PB-539	609.0	2275567.0	1012939.2	5.1	603.9	1/17/2017	

Table 2 - Summary of Power Auger Probes

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Probe Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Refusal Depth Below Ground Surface (Feet)	Refusal Elevation (feet)	Date Drilled	Notes
HP-PB-540	609.0	2275620.1	1012911.1	17.1	591.9	1/17/2017	
HP-PB-541	601.5	2275546.8	1013028.7	9.5	592.0	1/18/2017	
HP-PB-542	590.7	2275652.6	1013017.9	12.3	578.4	1/18/2017	
HP-PB-543	593.2	2275612.7	1013058.5	6.7	586.5	1/18/2017	
HP-PB-544	594.4	2275578.5	1013125.9	7.8	586.6	1/18/2017	
HP-PB-545	587.1	2275668.4	1013118.4	10.8	576.3	1/18/2017	
HP-PB-546	641.6	2274615.5	1024018.7	2.3	639.3	1/5/2017	
HP-PB-547	642.5	2274677.8	1024027.5	3.6	638.9	1/5/2017	
HP-PB-548	643.2	2274735.4	1024036.7	9.4	633.8	1/5/2017	
HP-PB-549	642.5	2274627.0	1024121.4	4.4	638.1	1/5/2017	
HP-PB-550	645.1	2274699.3	1024135.9	4.4	640.7	1/5/2017	
HP-PB-551	642.3	2274585.3	1024227.1	6.2	636.1	1/5/2017	
HP-PB-552	644.9	2274648.6	1024231.7	6.8	638.1	1/5/2017	
HP-PB-553	647.2	2274709.8	1024233.7	3.0	644.2	1/6/2017	
HP-PB-554	644.0	2274578.3	1024330.3	2.6	641.4	1/6/2017	
HP-PB-555	645.4	2274637.1	1024333.0	9.0	636.4	1/6/2017	
HP-PB-556	647.3	2274694.9	1024334.9	7.0	640.3	1/6/2017	
HP-PB-557	646.9	2274623.8	1024420.2	3.9	643.0	1/6/2017	
HP-PB-558	648.1	2274557.3	1024512.5	2.8	645.3	1/6/2017	
HP-PB-559	649.2	2274611.2	1024524.1	5.5	643.7	1/6/2017	
HP-PB-560	650.3	2274665.7	1024533.9	5.1	645.2	1/6/2017	
HP-PB-561	649.7	2274551.3	1024622.9	3.9	645.8	1/6/2017	
HP-PB-562	650.7	2274640.2	1024633.7	10.2	640.5	1/6/2017	
HP-PB-563	650.0	2274536.0	1024715.1	9.5	640.5	1/9/2017	
HP-PB-564	651.7	2274623.8	1024734.3	10.4	641.3	1/9/2017	
HP-PB-565	650.1	2274530.8	1024805.6	7.3	642.8	1/9/2017	
HP-PB-566	652.3	2274575.7	1024814.0	12.0	640.3	1/9/2017	
HP-PB-567	655.0	2274636.5	1024824.2	5.1	649.9	1/9/2017	
HP-PB-568	656.4	2274499.4	1025011.6	8.0	648.4	1/9/2017	
HP-PB-569	660.5	2274553.9	1025018.9	6.9	653.6	1/9/2017	
HP-PB-570	663.1	2274623.0	1025023.8	7.2	655.9	1/9/2017	
HP-PB-571	657.7	2274493.4	1025101.6	8.2	649.5	1/10/2017	
HP-PB-572	664.1	2274587.6	1025126.9	4.6	659.5	1/10/2017	
HP-PB-573	656.2	2274473.4	1025217.5	11.4	644.8	1/10/2017	
HP-PB-574	663.4	2274591.9	1025227.2	6.4	657.0	1/10/2017	
HP-PB-575	657.2	2274472.1	1025317.9	5.7	651.5	1/10/2017	
HP-PB-576	659.5	2274513.9	1025322.0	7.1	652.4	1/10/2017	
HP-PB-577	662.4	2274577.3	1025323.9	5.9	656.5	1/10/2017	
HP-PB-578	657.4	2274465.3	1025426.6	3.2	654.2	1/10/2017	

Table 2 - Summary of Power Auger Probes

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Probe Designation	Ground Surface Elev. [1,2]	Easting [2]	Northing [2]	Refusal Depth Below Ground Surface (Feet)	Refusal Elevation (feet)	Date Drilled	Notes
HP-PB-579	662.7	2274559.8	1025434.0	7.3	655.4	1/10/2017	
HP-PB-580	656.2	2274446.8	1025516.8	1.4	654.8	1/10/2017	
HP-PB-581	658.8	2274489.9	1025521.2	6.1	652.7	1/10/2017	
HP-PB-582	660.5	2274546.5	1025527.7	10.6	649.9	1/10/2017	

Notes:

1) Elevations are in feet and reference the North American Vertical Datum of 1988 (NAVD 88). Coordinates are in feet and reference the North American Datum of 1983 (NAD 83), Maine State Plane 2000 Coordinate System.

2) As-completed exploration locations and elevations were surveyed by a MaineDOT survey crew and have been provided to GZA and included above.

Table 3 - Summary of Bedrock Data

Presque Isle Bypass Segment 2

WIN 6462.91

Presque Isle, ME

Boring	Easting	Northing	Run	GS Elevation	Depth (ft) Below GS (Core Run)			Depth (ft) to Rock	Depth Below Top of Rock			Length of Core Run (ft)	Rec (in)	Rec (%)	RQD (in)	RQD %	Joint Spacing Desc.	Corr. Spacing (in)	Aperture Desc.	Corr. Aperture (in)	Elev. (ft)		Rock Type
					Top		Bottom		Top		Bottom										Top	Bottom	
HENDERSON ROAD BRIDGE																							
BB-PB-302	2276109.9	1016890.0	R1	590.22	13.0	-	18.0	12.8	0.2	-	5.2	5.0	60	100%	43	72%	Close to Moderate	2.5 in. - 24 in.	Partially Open	0.01-0.02	577.2	572.2	METAPELITE
BB-PB-301	2275997.1	1016908.4	R1	600.544	12.0	-	15.1	11.7	0.3	-	3.4	3.1	37	99%	15	41%	Close	2.5 in. - 8 in.	Partially Open to Open	.01-.1	588.5	585.4	METAPELITE
BB-PB-301	2275997.1	1016908.4	R2	600.544	15.1		18.5	11.7	3.4		6.8	3.4	40	98%	31	76%	Close to Moderate	2.5 in. - 24 in.	Partially Open	0.01-0.02	585.4	582.0	METAPELITE
BB-PB-301	2275997.1	1016908.4	R3	600.544	18.5		22.0	11.7	6.8		10.3	3.5	41	98%	30	71%	Close to Moderate	2.5 in. - 24 in.	Partially Open	0.01-0.02	582.0	578.5	METAPELITE
BB-PB-501	2276030.7	1016919.3	R1	596.0	9.5	-	12.4	9.3	0.2	-	3.1	2.9	14	40%	0	0%	Extremely Close to Very Close	< .75 in. - 2.5 in.	Partially Open	0.01-0.02	586.5	583.6	METAPELITE
BB-PB-501	2276030.7	1016919.3	R2	596.0	12.4		17.4	9.3	3.1		8.1	5.0	60	100%	4	7%	Extremely Close to Very Close	< .75 in. - 2.5 in.	Partially Open	0.01-0.02	583.6	578.6	METAPELITE
BB-PB-502	2276059.0	1016922.3	R1	593.5	8.0	-	10.8	6.1	1.9	-	4.7	2.8	34	101%	0	0%	Close	2.5 in. - 8 in.	Open	0.02-0.1	585.5	582.7	METAPELITE
BB-PB-502	2276059.0	1016922.3	R2	593.5	10.8	-	14.0	6.1	4.7	-	7.9	3.2	38	99%	10	26%	Close	2.5 in. - 8 in.	Open	0.02-0.1	582.7	579.5	METAPELITE
BB-PB-303	2276040.4	1016920.7	R1	595.6	9.3	-	11.3	9.2	0.1	-	2.1	2.0	18	75%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	586.3	584.3	METAPELITE
BB-PB-303	2276040.4	1016920.7	R2	595.6	11.3	-	13.3	9.2	2.1	-	4.1	2.0	30	125%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	584.3	582.3	METAPELITE
BB-PB-303	2276040.4	1016920.7	R3	595.6	13.3	-	15.9	9.2	4.1	-	6.7	2.6	22	71%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	582.3	579.7	METAPELITE
BB-PB-304	2276034.9	1017003.4	R1	596.012	8.4	-	13.4	8.4	0.0	-	5.0	5.0	60	100%	29	48%	Very Close to Moderate	.75 in. - 24 in.	Partially Open to Open	.01-.1	587.6	582.6	METAPELITE
BB-PB-304	2276034.9	1017003.4	R2	596.012	13.4	-	18.4	8.4	5.0	-	10.0	5.0	57	95%	13	22%	Very Close to Close	.75 in. - 8 in.	Open	0.02-0.1	582.6	577.6	METAPELITE
BB-PB-306	2276091.5	1017044.4	R1	589.831	9.3	-	14.3	9.3	0.0	-	5.0	5.0	30	50%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	580.5	575.5	METAPELITE
BB-PB-305	2275967.5	1017038.3	R1	600.507	8.3	-	10.9	8.3	0.0	-	2.6	2.6	12	38%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	592.2	589.6	METAPELITE
BB-PB-305	2275967.5	1017038.3	R2	600.507	10.9	-	13.1	8.3	2.6	-	4.8	2.2	21	80%	4	15%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	589.6	587.4	METAPELITE
BB-PB-305	2275967.5	1017038.3	R3	600.507	13.1	-	15.1	8.3	4.8	-	6.8	2.0	35	146%	8	34%	Very Close to Close	.75 in. - 8 in.	Partially Open	0.01-0.02	587.4	585.4	METAPELITE
MAINE NORTHERN RAILWAY BRIDGE OVER MAINE NORTHERN RAILWAY																							
BB-PB-312	2275298.5	1020237.5	R1	605.441	3.7	-	7.1	3.5	0.2	-	3.6	3.4	41	100%	10	24%	Moderate	8 in. - 24 in.	Tight to Partially Open	0.004-0.02	601.7	598.3	METAPELITE
BB-PB-312	2275298.5	1020237.5	R2	605.441	7.1	-	8.7	3.5	3.6	-	5.2	1.6	19	99%	17	89%	Close	2.5 in. - 8 in.	Partially Open	0.01-0.02	598.3	596.7	METAPELITE
BB-PB-313	2275230.5	1020309.1	R1	594.9	4.5	-	6.0	4.5	0.0	-	1.5	1.5	12	67%	0	0%	Close	2.5 in. - 8 in.	Partially Open to Open	.01-.1	590.4	588.9	METAPELITE
BB-PB-313	2275230.5	1020309.1	R2	594.9	6.0	-	11.0	4.5	1.5	-	6.5	5.0	60	100%	42	70%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	588.9	583.9	METAPELITE
BB-PB-311	2275180.0	1020321.3	R1	596.043	8.7	-	11.7	8.5	0.2	-	3.2	3.0	36	100%	17	47%	Very Close to Moderate	.75 in. - 24 in.	Partially Open	0.01-0.02	587.3	584.3	METAPELITE
BB-PB-311	2275180.0	1020321.3	R2	596.043	11.7	-	16.3	8.5	3.2	-	7.8	4.6	55	100%	48	87%	Very Close to Moderate	.75 in. - 24 in.	Partially Open	0.01-0.02	584.3	579.7	METAPELITE
BB-PB-311	2275180.0	1020321.3	R3	596.043	16.3	-	18.7	8.5	7.8	-	10.2	2.4	29	101%	24	83%	Very Close to Close	.75 in. - 8 in.	Partially Open	0.01-0.02	579.7	577.3	METAPELITE
BB-PB-316	2275265.7	1020409.6	R1	592.5	4.0	-	8.8	4.0	0.0	-	4.8	4.8	58	101%	14	24%	Close to Moderate	2.5 in. - 24 in.	Partially Open	0.01-0.02	588.5	583.7	METAPELITE
BB-PB-314	2275205.2	1020417.5	R1	593.9	7.6	-	12.6	7.6	0.0	-	5.0	5.0	58	97%	49	82%	Close to Moderate	2.5 in. - 24 in.	Tight to Partially Open	0.004-0.02	586.3	581.3	METAPELITE
BB-PB-315	2275136.9	1020493.2	R1	593.8	7.3	-	12.3	7.0	0.3	-	5.3	5.0	46	77%	10	17%	Close	2.5 in. - 8 in.	Tight to Partially Open	0.004-0.02	586.5	581.5	METAPELITE
BB-PB-315	2275136.9	1020493.2	R2	593.8	12.3	-	14.5	7.0	5.3	-	7.5	2.2	26	98%	0	0%	Extremely Close to Very Close	< .75 in. - 2.5 in.	Partially Open to Open	.01-.1	581.5	579.3	METAPELITE
BB-PB-315	2275136.9	1020493.2	R3	593.8	14.5	-	16.0	7.0	7.5	-	9.0	1.5	18	100%	0	0%	Extremely Close to Very Close	< .75 in. - 2.5 in.	Partially Open to Open	.01-.1	579.3	577.8	METAPELITE
BB-PB-315	2275136.9	1020493.2	R4	593.8	16.0	-	17.3	7.0	9.0	-	10.3	1.3	15	96%	11	73%	Close to Moderate	2.5 in. - 24 in.	Tight to Partially Open	0.004-0.02	577.8	576.5	METAPELITE

8/7/2025

09.0025832.01

Table 3 - Summary of Bedrock Data

Presque Isle Bypass Segment 2

WIN 6462.91

Presque Isle, ME

Boring	Easting	Northing	Run	GS Elevation	Depth (ft) Below GS (Core Run)			Depth (ft) to Rock	Depth Below Top of Rock			Length of Core Run (ft)	Rec (in)	Rec (%)	RQD (in)	RQD %	Joint Spacing Desc.	Corr. Spacing (in)	Aperture Desc.	Corr. Aperture (in)	Elev. (ft)		Rock Type
					Top		Bottom		Top		Bottom										Top	Bottom	
EASTON ROAD BRIDGE																							
BB-PB-321	2274473.4	1028815.6	R1	697.5	7.8	-	8.8	7.8	0.0	-	1.0	1.0	6	50%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	689.7	688.7	METAPELITE
BB-PB-321	2274473.4	1028815.6	R2	697.5	8.8	-	12.8	7.8	1.0	-	5.0	4.0	15	31%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	688.7	684.7	METAPELITE
BB-PB-321	2274473.4	1028815.6	R3	697.5	12.8	-	15.3	7.8	5.0	-	7.5	2.5	24	80%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	684.7	682.2	METAPELITE
BB-PB-321	2274473.4	1028815.6	R4	697.5	15.3	-	18.0	7.8	7.5	-	10.2	2.7	24	74%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	682.2	679.5	METAPELITE
BB-PB-511	2274493.5	1028817.3	R1	698.3	6.6	-	10.5	6.6	0.0	-	3.9	3.9	30	64%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	691.7	687.8	METAPELITE
BB-PB-511	2274493.5	1028817.3	R2	698.3	10.5	-	13.0	6.6	3.9	-	6.4	2.5	30	100%	0	0%	Extremely Close	Less than .75 in.	Open	0.02-0.1	687.8	685.3	METAPELITE
BB-PB-511 A	2274497.8	1028818.6	R1	698.3	16.0	-	21.0	11.7	4.3	-	9.3	5.0	60	100%	26	43%	Close to Moderate	2.5 in. - 24 in.	Open	0.02-0.1	682.3	677.3	METAPELITE
BB-PB-322	2274554.5	1028822.4	R1	698.8	10.0	-	15.0	10.0	0.0	-	5.0	5.0	57	95%	31	52%	Very Close to Moderate	.75 in. - 24 in.	Partially Open to Open	.01-.1	688.8	683.8	METAPELITE
BB-PB-512	2274525.6	1028824.2	R1	698.3	15.0	-	20.0	8.5	6.5	-	11.5	5.0	60	100%	9	15%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	683.3	678.3	METAPELITE
BB-PB-512	2274525.6	1028824.2	R2	698.3	20.0	-	25.0	8.5	11.5	-	16.5	5.0	60	100%	24	40%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	678.3	673.3	METAPELITE
BB-PB-323	2274517.3	1028839.5	R1	697.9	17.0	-	22.0	15.1	1.9	-	6.9	5.0	44	73%	0	0%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open to Open	.01-.1	680.9	675.9	METAPELITE
BB-PB-324	2274521.2	1028921.3	R1	691.9	8.0	-	12.0	7.1	0.9	-	4.9	4.0	36	75%	4	8%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open to Open	.01-.1	683.9	679.9	METAPELITE
BB-PB-324	2274521.2	1028921.3	R2	691.9	12.0	-	15.0	7.1	4.9	-	7.9	3.0	30	83%	8	22%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open to Open	.01-.1	679.9	676.9	METAPELITE
BB-PB-324	2274521.2	1028921.3	R3	691.9	15.0	-	18.0	7.1	7.9	-	10.9	3.0	36	100%	0	0%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open to Open	.01-.1	676.9	673.9	METAPELITE
BB-PB-513	2274505.3	1028935.4	R1	690.6	8.0	-	12.7	5.7	2.3	-	7.0	4.7	56	99%	17	30%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	.01-.1	682.6	677.9	METAPELITE
BB-PB-325	2274472.9	1028943.9	R1	688.7	5.0	-	10.0	4.6	0.4	-	5.4	5.0	57	95%	12	20%	Very Close to Moderate	.75 in. - 24 in.	Partially Open	0.01-0.02	683.7	678.7	METAPELITE
BB-PB-326	2274577.0	1028950.2	R1	695.3	12.0	-	17.0	10.1	1.9	-	6.9	5.0	48	80%	14	23%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open	0.01-0.02	683.3	678.3	METAPELITE
CONANT ROAD BRIDGE																							
BB-PB-101	2272588.9	1036011.8	R1	642.4	4.4	-	9.4	2.3	2.1	-	7.1	5.0	57	95%	14	23%	Close	2.5 in. - 8 in.	Partially Open	0.01-0.02	638.0	633.0	METAPELITE
BB-PB-601	2272561.3	1036009.4	R1	642.7	5.0	-	9.5	1.8	3.2	-	7.7	4.5	54	100%	0	0%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open	0.01-0.02	637.7	633.2	METAPELITE
BB-PB-603	2272490.9	1035991.5	R1	645.3	10.3	-	12.8	10.3	0.0	-	2.5	2.5	30	100%	0	0%	Very Close to Close	.75 in. - 8 in.	Tight to Partially Open	0.004-0.02	635.0	632.5	METAPELITE
BB-PB-603	2272490.9	1035991.5	R2	645.3	13.0	-	16.0	10.3	2.7	-	5.7	3.0	36	100%	4	11%	Very Close to Close	.75 in. - 8 in.	Tight to Partially Open	0.004-0.02	632.3	629.3	METAPELITE
BB-PB-602	2272527.7	1036030.3	R1	642.1	6.0	-	11.0	5.0	1.0	-	6.0	5.0	60	100%	7	12%	Very Close to Close	.75 in. - 8 in.	Partially Open	0.01-0.02	636.1	631.1	METAPELITE
BB-PB-103	2272498.7	1036024.7	R1	642.3	13.2	-	16.8	10.4	2.8	-	6.4	3.6	34	79%	8	18%	Very Close to Close	0.75 in. - 8 in.	Partially Open to Open	0.01-0.1	629.1	625.5	METAPELITE
BB-PB-103	2272498.7	1036024.7	R2	642.3	16.8	-	21.8	10.4	6.4	-	11.4	5.0	60	100%	48	80%	Close to Moderately Spaced	2.5 in. - 24 in.	Partially Open	0.01-0.02	625.5	620.5	METAPELITE
BB-PB-103	2272498.7	1036024.7	R3	642.3	21.8	-	23.8	10.4	11.4	-	13.4	2.0	24	100%	9	38%	Close	2.5 in. - 8 in.	Partially Open to Open	0.01-0.1	620.5	618.5	METAPELITE
BB-PB-105	2272406.7	1036123.1	R1	638.6	18.3	-	21.5	17.0	1.3	-	4.5	3.2	32	83%	0	0%	Very Close to Close	0.75 in. - 8 in.	Open	0.02-0.1	620.3	617.1	METAPELITE
BB-PB-105	2272406.7	1036123.1	R2	638.6	21.5	-	25.1	17.0	4.5	-	8.1	3.6	41	95%	18	42%	Very Close to Close	0.75 in. - 8 in.	Open	0.02-0.1	617.1	613.5	METAPELITE
BB-PB-105	2272406.7	1036123.1	R3	638.6	25.1	-	29.1	17.0	8.1	-	12.1	4.0	48	100%	31	65%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	0.01-0.1	613.5	609.5	METAPELITE
BB-PB-605	2272345.5	1036125.5	R1	643.2	15.5	-	17.3	9.0	6.5	-	8.3	1.8	22	100%	0	0%	Close	2.5 in. - 8 in.	Partially Open	0.01-0.02	627.7	625.9	METAPELITE
BB-PB-605	2272345.5	1036125.5	R2	643.2	17.3	-	20.5	9.0	8.3	-	11.5	3.2	38	100%	18	47%	Very Close to Moderate	.75 in. - 24 in.	Tight to Partially Open	0.004-0.02	625.9	622.7	METAPELITE
CLARK BROOK ARCH CULVERT																							
CB-PB-311	2273830.5	1008655.2	R1	512.3	3.0	-	7.4	1.3	1.7	-	6.1	4.4	53	100%	15	28%	Very Close to Close	.75 in. - 8 in.	Tight to Partially Open	0.004-0.02	509.3	504.9	METAPELITE
CB-PB-313	2273949.4	1008719.5	R1	511.8	4.0	-	6.4	3.8	0.2	-	2.6	2.4	29	101%	8	28%	Very Close to Close	.75 in. - 8 in.	Tight to Partially Open	0.004-0.02	507.8	505.4	METAPELITE
CB-PB-313	2273949.4	1008719.5	R2	511.8	6.4	-	8.6	3.8	2.6	-	4.8	2.2	26	98%	9	33%	Very Close to Close	.75 in. - 8 in.	Tight to Partially Open	0.004-0.02	505.4	503.2	METAPELITE
CB-PB-504	2274011.3	1008674.5	R1	511.3	4.0	-	9.0	3.2	0.8	-	5.8	5.0	60	100%	27	45%	Very Close to Moderate	.75 in. - 24 in.	Tight to Partially Open	0.004-0.02	507.3	502.3	METAPELITE
WILLIAMS BROOK BOX CULVERT																							
CB-PB-342	2275084.9	1020998.3	R1	590.78	10.8	-	12.2	10.8	0.0	-	1.4	1.4	17	101%	6	35%	Very Close to Close	.75 in. - 8 in.	Open	0.02-0.1	580.0	578.6	METAPELITE
CB-PB-342	2275084.9	1020998.3	R2	590.78	12.2	-	15.8	10.8	1.4	-	5.0	3.6	40	93%	26	60%	Close	2.5 in. - 8 in.	Tight to Partially Open	0.004-0.02	578.6	575.0	METAPELITE

Table 3 - Summary of Bedrock Data

Presque Isle Bypass Segment 2

WIN 6462.91

Presque Isle, ME

Boring	Easting	Northing	Run	GS Elevation	Depth (ft) Below GS (Core Run)			Depth (ft) to Rock	Depth Below Top of Rock			Length of Core Run (ft)	Rec (in)	Rec (%)	RQD (in)	RQD %	Joint Spacing Desc.	Corr. Spacing (in)	Aperture Desc.	Corr. Aperture (in)	Elev. (ft)		Rock Type
					Top		Bottom		Top		Bottom										Top	Bottom	
HIGHWAY BORINGS																							
HB-PB-320	2273911.8	1007617.6	R1	586.0	13.5	-	16.6	13.5	0.0	-	3.1	3.1	37	99%	20	54%	Extremely Close to Moderate	< .75 in. - 24 in.	Tight to Open	.004-.1	572.5	569.4	METAPELITE
HB-PB-320	2273911.8	1007617.6	R2	586.0	16.6	-	20.0	13.5	3.1	-	6.5	3.4	41	100%	31	76%	Extremely Close to Moderate	< .75 in. - 24 in.	Tight to Partially Open	0.004-0.02	569.4	566.0	METAPELITE
HB-PB-333	2274215.2	1009655.8	R1	590.1	10.8	-	14.5	10.8	0.0	-	3.7	3.7	48	108%	7	15%	Very Close to Close	.75 in. - 8 in.	Tight to Open	.004-.1	579.3	575.6	METAPELITE
HB-PB-333	2274215.2	1009655.8	R2	590.1	14.5	-	19.5	10.8	3.7	-	8.7	5.0	60	100%	13	22%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	575.6	570.6	METAPELITE
HB-PB-333	2274215.2	1009655.8	R3	590.1	19.5	-	23.5	10.8	8.7	-	12.7	4.0	48	100%	13	27%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	570.6	566.6	METAPELITE
HB-PB-333	2274215.2	1009655.8	R4	590.1	23.5	-	26.7	10.8	12.7	-	15.9	3.2	38	99%	18	47%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	566.6	563.4	METAPELITE
HB-PB-333	2274215.2	1009655.8	R5	590.1	26.7	-	29.2	10.8	15.9	-	18.4	2.5	30	100%	8	27%	Very Close to Close	.75 in. - 8 in.	Tight to Open	.004-.1	563.4	560.9	METAPELITE
HB-PB-333	2274215.2	1009655.8	R6	590.1	29.2	-	32.4	10.8	18.4	-	21.6	3.2	38	99%	12	32%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	560.9	557.7	METAPELITE
HB-PB-333	2274215.2	1009655.8	R7	590.1	32.4	-	36.4	10.8	21.6	-	25.6	4.0	47	98%	20	42%	Very Close to Moderate	.75 in. - 24 in.	Partially Open to Open	.01-.1	557.7	553.7	METAPELITE
HB-PB-334	2274407.7	1009846.7	R1	595.8	17.0	-	19.0	16.6	0.4	-	2.4	2.0	18	75%	0	0%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open to Open	.01-.1	578.8	576.8	METAPELITE
HB-PB-334	2274407.7	1009846.7	R2	595.8	19.0	-	19.8	16.6	2.4	-	3.2	0.8	10	104%	0	0%	Very Close	.75 in. - 2.5 in.	Partially Open to Open	.01-.1	576.8	576.0	METAPELITE
HB-PB-334	2274407.7	1009846.7	R3	595.8	19.8	-	22.0	16.6	3.2	-	5.4	2.2	24	91%	8	31%	Very Close to Close	.75 in. - 8 in.	Open	0.02-0.1	576.0	573.8	METAPELITE
HB-PB-338	2274411.1	1010115.8	R1	592.3	10.0	-	11.4	10.0	0.0	-	1.4	1.4	15	89%	4	25%	Very Close to Close	.75 in. - 8 in.	Open	0.02-0.1	582.3	580.9	METAPELITE
HB-PB-338	2274411.1	1010115.8	R2	592.3	11.4	-	15.0	10.0	1.4	-	5.0	3.6	36	83%	10	23%	Very Close to Close	.75 in. - 8 in.	Open	0.02-0.1	580.9	577.3	METAPELITE
HB-PB-338	2274411.1	1010115.8	R3	592.3	15.0	-	18.4	10.0	5.0	-	8.4	3.4	40	98%	16	40%	Very Close to Close	.75 in. - 8 in.	Partially Open to Open	.01-.1	577.3	573.9	METAPELITE
HB-PB-338	2274411.1	1010115.8	R4	592.3	18.4	-	21.6	10.0	8.4	-	11.6	3.2	38	99%	25	66%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	.01-.1	573.9	570.7	METAPELITE
HB-PB-338	2274411.1	1010115.8	R5	592.3	21.6	-	26.4	10.0	11.6	-	16.4	4.8	54	94%	21	37%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	.01-.1	570.7	565.9	METAPELITE
HB-PB-350	2275423.8	1012668.5	R1	605.9	15.0	-	18.7	15.0	0.0	-	3.7	3.7	43	97%	12	28%	Extremely Close to Close	< .75 in. - 8 in.	Open	0.02-0.1	590.9	587.2	METAPELITE
HB-PB-350	2275423.8	1012668.5	R2	605.9	18.7	-	20.0	15.0	3.7	-	5.0	1.3	17	109%	16	100%	Close	2.5 in. - 8 in.	Partially Open to Open	.01-.1	587.2	585.9	METAPELITE
HB-PB-353	2275520.3	1012905.5	R1	613.2	11.0	-	16.0	11.0	0.0	-	5.0	5.0	19	32%	4	7%	Extremely Close to Close	< .75 in. - 8 in.	Open	0.02-0.1	602.2	597.2	METAPELITE
HB-PB-353	2275520.3	1012905.5	R2	613.2	16.0	-	17.6	11.0	5.0	-	6.6	1.6	10	52%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	597.2	595.6	METAPELITE
HB-PB-353	2275520.3	1012905.5	R3	613.2	17.6	-	19.6	11.0	6.6	-	8.6	2.0	18	75%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	595.6	593.6	METAPELITE
HB-PB-353	2275520.3	1012905.5	R4	613.2	19.6	-	22.7	11.0	8.6	-	11.7	3.1	17	46%	0	0%	Extremely Close	Less than .75 in.	Partially Open to Open	.01-.1	593.6	590.5	METAPELITE
HB-PB-353	2275520.3	1012905.5	R5	613.2	22.7	-	25.0	11.0	11.7	-	14.0	2.3	28	100%	28	100%	Very Close to Moderate	.75 in. - 24 in.	Open	0.02-0.1	590.5	588.2	METAPELITE
HB-PB-353	2275520.3	1012905.5	R6	613.2	25.0	-	29.4	11.0	14.0	-	18.4	4.4	48	91%	42	79%	Close to Moderate	2.5 in. - 24 in.	Open	0.02-0.1	588.2	583.8	METAPELITE
HB-PB-353	2275520.3	1012905.5	R7	613.2	29.4	-	30.4	11.0	18.4	-	19.4	1.0	10	83%	10	83%	Moderate	8 in. - 24 in.	Partially Open	0.01-0.02	583.8	582.8	METAPELITE
HB-PB-397	2274644.6	1023924.9	R1	639.9	8.8	-	11.3	8.8	0.0	-	2.5	2.5	30	100%	13	43%	Close to Moderate	2.5 in. - 24 in.	Tight to Partially Open	0.004-0.02	631.1	628.6	METAPELITE
HB-PB-397	2274644.6	1023924.9	R2	639.9	11.3	-	13.8	8.8	2.5	-	5.0	2.5	23	77%	11	37%	Extremely Close to Close	< .75 in. - 8 in.	Partially Open	0.01-0.02	628.6	626.1	METAPELITE
HB-PB-399	2274677.0	1024434.9	R1	647.9	9.1	-	11.6	9.1	0.0	-	2.5	2.5	29	97%	0	0%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	.01-.1	638.8	636.3	METAPELITE
HB-PB-399	2274677.0	1024434.9	R2	647.9	11.6	-	14.6	9.1	2.5	-	5.5	3.0	32	89%	9	25%	Close to Moderate	2.5 in. - 24 in.	Partially Open to Open	.01-.1	636.3	633.3	METAPELITE

Notes:

1) Elevations are in feet and reference the North American Vertical Datum of 1988 (NAVD 88). Coordinates are in feet and reference the North American Datum of 1983 (NAD 83), Maine State Plane 2000 Coordinate System.

2) As-completed exploration locations and elevations were surveyed by a MaineDOT survey crew and have been provided to GZA and included above.

Table 4 - Pavement Subgrade Summary Table

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Mainline Subgrade Summary Table			
Location	**Station Range**	**Nearest Exploration(s)**	**Subgrade Conditions and Remarks**
South of Henderson Rd.	7319+00 to 7328+00	HB-PB-313 to HB-PB-316	Fill
	7328+00 to 7336+00	HB-PB-317 to HB-PB-323	Glacial Till and Bedrock
	7336+00 to 7348+00	HB-PB-324 to HB-PB-326	New Fill
	7348+00 to 7360+00	HB-PB-327 to HB-PB-337	Bedrock
	7360+00 to 7384+00	HB-PB-338 to HB-PB-348	New Fill and Glacial Till
	7384+00 to 7387+00	HB-PB-348 to HB-PB-350	Glacial Till
	7387+00 to 7391+00	HB-PB-350 to HB-PB-352	Bedrock
	7391+00 to 7393+00	HB-PB-353 to HB-PB-354	Glacial Till
	7393+00 to 7408+00	HB-PB-355 to HB-PB-361	New Fill
	7408+00 to 7414+00	HB-PB-362 to HB-PB-363	Reworked Glacial Till and Glacial Till
	7414+00 to 7430+50	HB-PB-363 to HB-PB-368	New Fill
Henderson Rd to Maine Northern Railway	7431+25 to 7465+00	HB-PB-369 to HB-PB-381	New Fill
Maine Northern Railway to Easton Rd	7465+00 to 7481+00	HB-PB-382 to HB-PB-386	New Fill
	7481+00 to 7502+00	HB-PB-387 to HB-PB-395	Glacial Till
	7502+00 to 7516+00	HB-PB-396 to HB-PB-405	Bedrock
	7516+00 to 7522+00	HB-PB-405 to HB-PB-408	Glacial Till and Reworked Glacial Till
	7522+00 to 7551+00	HB-PB-407 to HB-PB-419	New Fill

Table 4 - Pavement Subgrade Summary Table

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

Presque Isle, ME

Mainline Subgrade Summary Table			
Location	**Station Range**	**Nearest Exploration(s)**	**Subgrade Conditions and Remarks**
Easton Road to Conant Road	7551+00 to 7559+00	HB-PB-420 to HB-PB-422	New Fill
	7559+00 to 7563+00	HB-PB-422 to HB-PB-423	Glacial Till
	7563+00 to 7571+00	HB-PB-424 to HB-PB-426	Glacial Till
	7571+00 to 7596+00	HB-PB-427 to HB-PB-437	New Fill
	7596+00 to 7609+00	HB-PB-111 to HB-PB-114	Glacial Till
	7609+00 to 7630+00	HB-PB-115 to HB-PB-120	New Fill
North of Conant Road	7631+00 to 7647+00	HB-PB-120 to HB-PB-125	Glacial Till

Table 4 - Pavement Subgrade Summary Table

Presque Isle By Pass Segment 1 PIN 6462.92

Route 1 to Conant Road

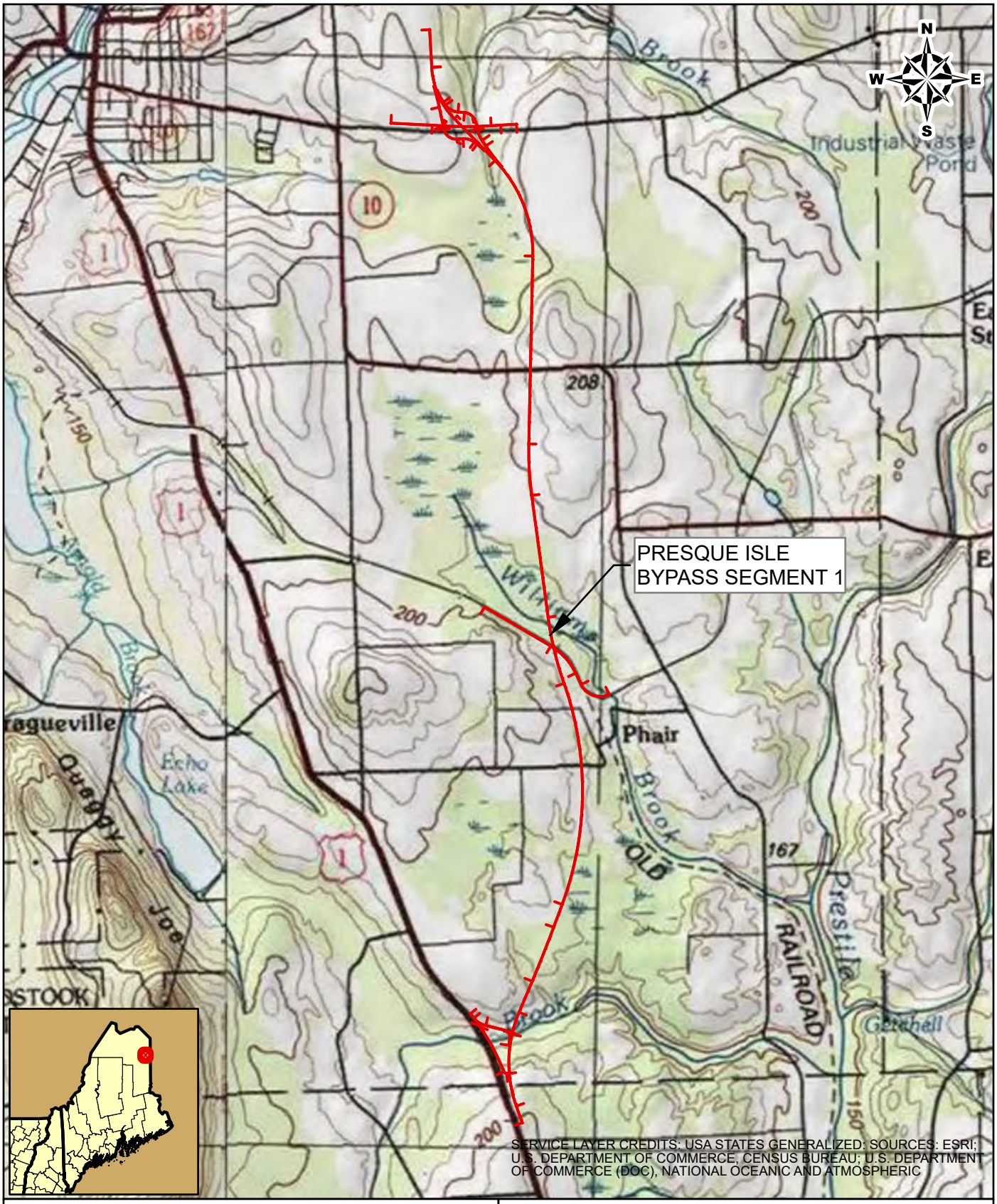
Presque Isle, ME

Connector and Ramp Subgrade Summary Table			
Location	**Station Range**	**Nearest Exploration(s)**	**Subgrade Conditions and Remarks**
Route 1 South Connector	400+00 to 405+00	HB-PB-303 and HB-PB-304	NewFill
	101+00 to 104+00	HB-PB-303 to HB-PB-304	New Fill
	104+00 to 112+00	HB-PB-305 to HB-PB-310	Glacial Till
	112+00 to 115+00	HB-PB-310 to HB-PB-312	Fill
Conant Road NB Off Ramp	707+50 to 717+88	RB-PB-111 to RB-PB-113	New Fill
Conant Road NB On Ramp	600+37 to 609+00	RB-PB-121 to RB-PB-124	New Fill
	609+00 to 615+00	RB-PB-125 to RB-PB-127	Reworked Glacial Till and/or Weathered Bedrock
Conant Road SB On Ramp	807+00 to 817+00	RB-PB-131 to RB-PB-135	New Fill
	815+50 to 820+00	RB-PB-135 to RB-PB-136	Reworked Glacial Till and/or Weathered Bedrock
Conant Road SB Off Ramp	900+00 to 909+00	RB-PB-141 to RB-PB-143	Reworked Glacial Till, Weathered Bedrock and/or Rock

Notes:

1. See report text for generalized properties and design values for subgrade strata.
2. Transitions between subgrade conditions are based on the July 15, 2025, baseline profiles

FIGURES



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0 2,900 5,800 8,700 11,600

SCALE IN FEET

PRESQUE ISLE BYPASS

PRESQUE ISLE, ME

LOCUS PLAN

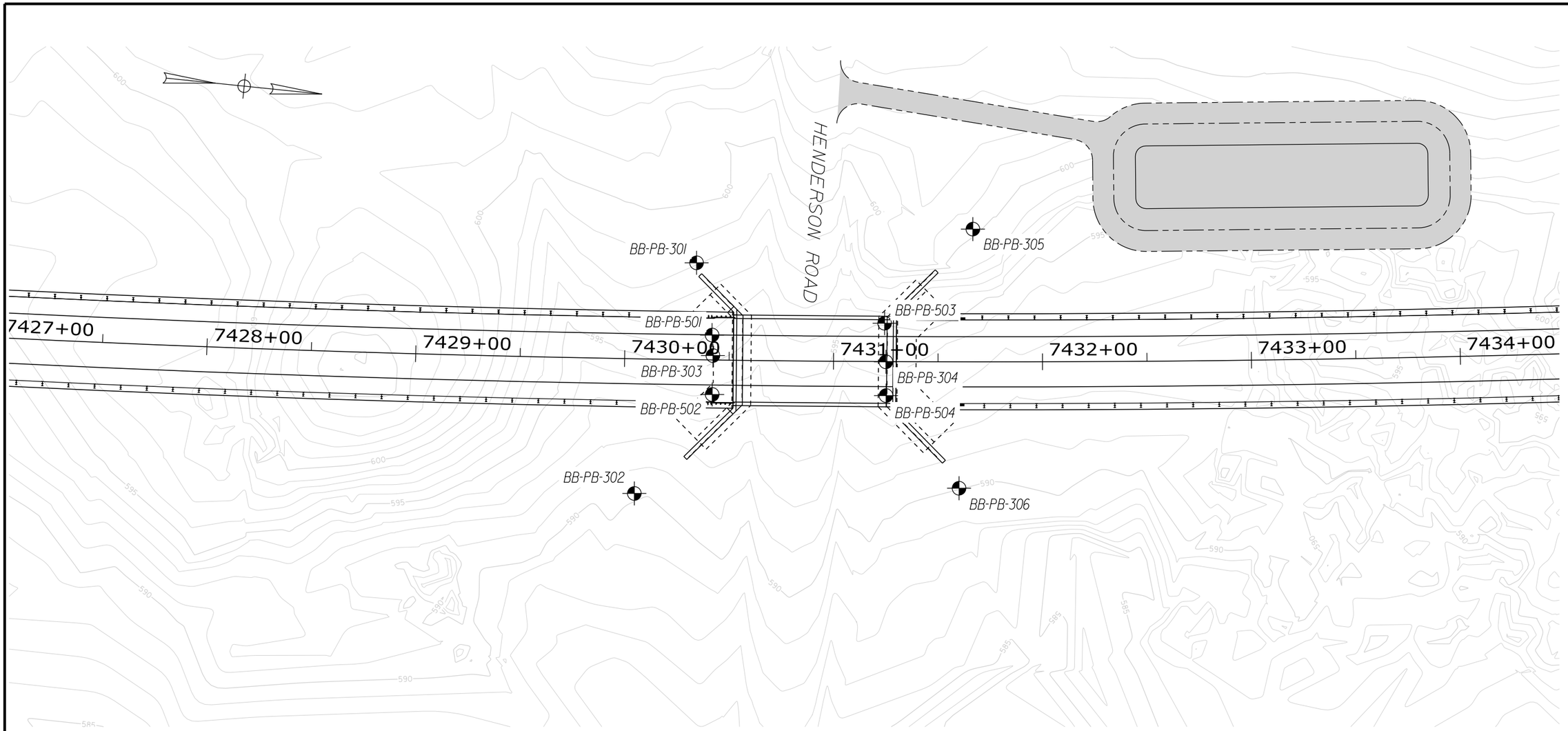
PREPARED BY:

GZA GeoEnvironmental, Inc.
www.gza.com

PREPARED FOR:

MEDOT

PROJ MGR: BMC	REVIEWED BY: ARB	CHECKED BY: CLS	FIGURE
DESIGNED BY: EAF	DRAWN BY: EAF	SCALE: 1 in = 6,000 ft	1
DATE: JULY 2025	PROJECT NO: 09.0025832.06	REVISION NO:	



NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) The as-drilled locations of the BB-PB-300 and BB-PB-500 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

BORING LOCATION PLAN LEGEND

BB-PB-306	Location and designation of BB-PB-300 series borings performed by New England Boring Contractors of Hermon, Maine between April 30 and August 20, 2015 and observed by GZA personnel.
BB-PB-504	Location and designation of BB-PB-500 series borings performed by New England Boring Contractors of Hermon, Maine between January 3 and January 16, 2017 and observed by GZA personnel.

PLAN

25 0 25 50

Scale in Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6580

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	B.C.	7/2025
CHECKED-REVIEWED	A.B.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

E.T.
C.S.

SIGNATURE

P.E. NUMBER

DATE

HENDERSON ROAD BRIDGE
OVER HENDERSON ROAD
PRESQUE ISLE, ME AROOSTOOK COUNTY

BORING LOCATION PLAN

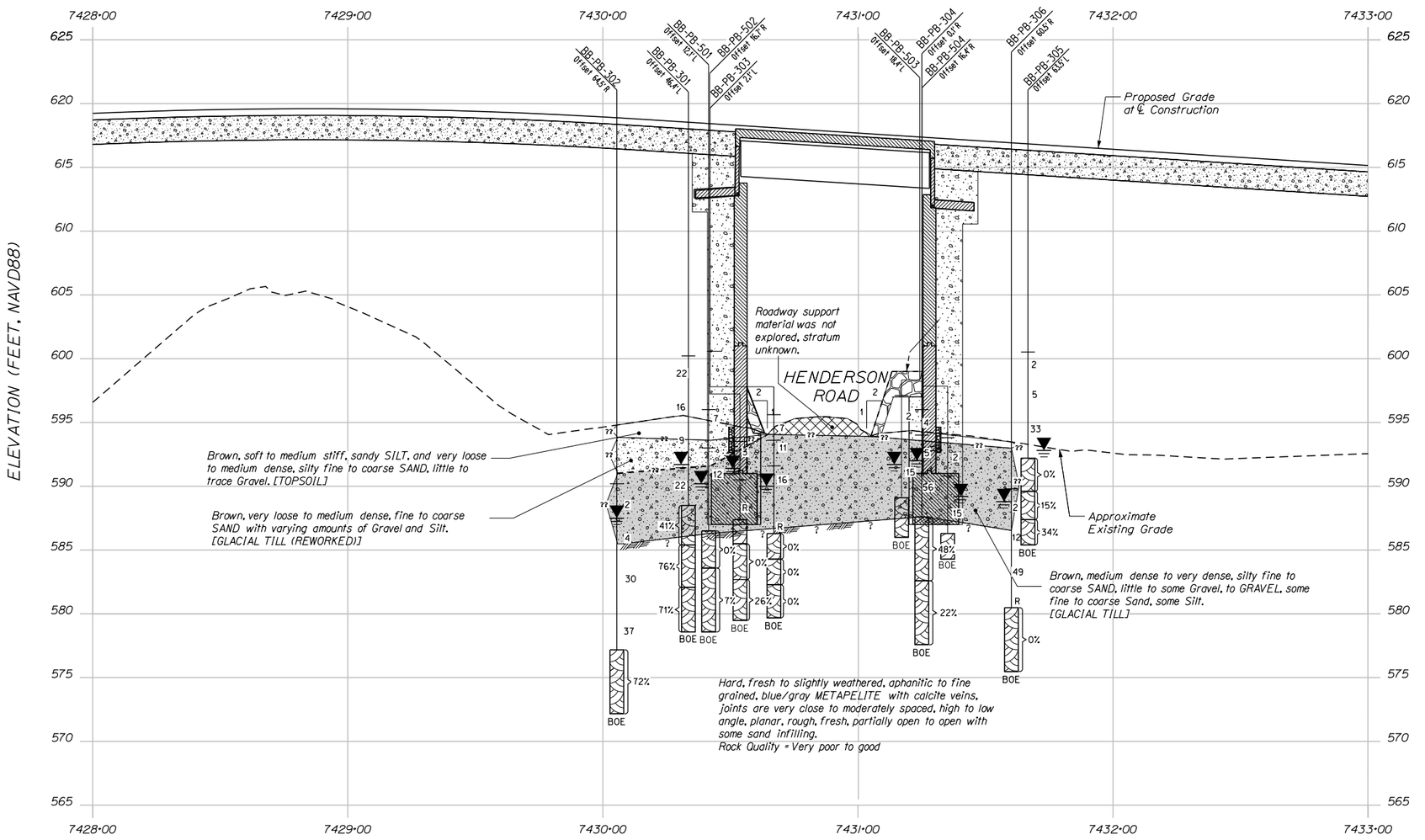
SHEET NUMBER

2

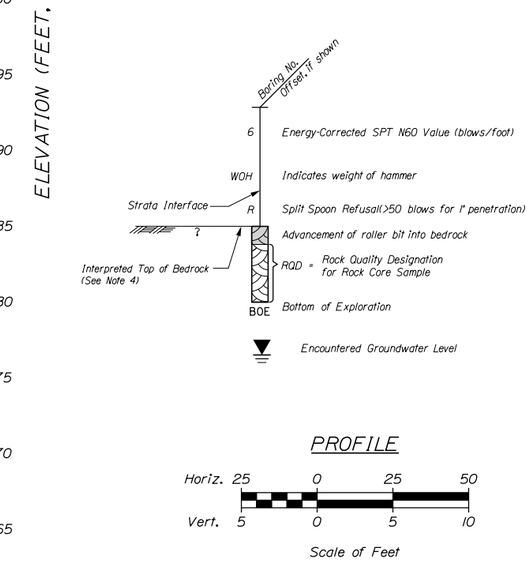
OF 15

Division: HIGHWAY
Filename: ...\Henderson_BLP.dgn

Date:7/29/2025
Username: BMC



INTERPRETIVE SUBSURFACE PROFILE



NOTES

1) Profile map developed from electronic files provided by VHB on July 14, 2025 (z_Henderson_Profile.dgn)

2) The as-drilled locations of the BB-PB-300 and BB-PB-500 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

3) Top of rock is defined using either split spoon refusal prior to identification of bedrock by roller bit or coring, top of rock surface was interpolated to represent anticipated conditions at the baseline.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6580 — BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	E.T.	7/2025
CHECKED-REVIEWED	C.S.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

P.E. NUMBER

SIGNATURE

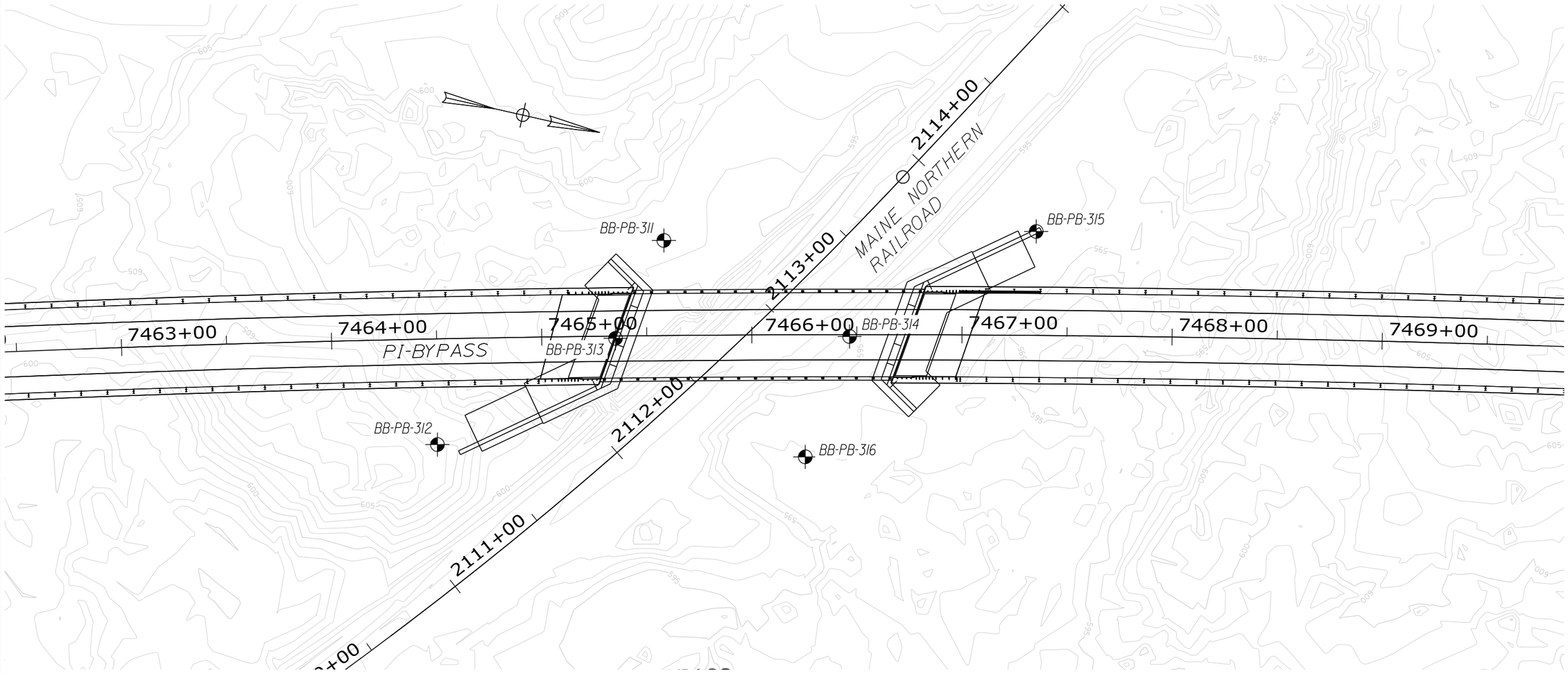
DATE

HENDERSON ROAD BRIDGE
OVER HENDERSON ROAD
PRESQUE ISLE AROOSTOOK COUNTY

INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER
3
OF 15

Filename: ...\Z_Henderson_ISP 7.23.25.dgn Division: HIGHWAY Username: common Date:7/29/2025



NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) The as-drilled locations of the BB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

BORING LOCATION PLAN LEGEND

BB-PB-316 — Location and designation of BB-PB-300 series borings performed by New England Boring Contractors of Hermon, Maine between August 20 and August 26, 2015 and observed by GZA personnel.

PLAN

25 0 25 50

Scale in Feet

Division: HIGHWAY
Filename: ...\Railroad_BLP\Railroad_BLP.dgn

Date:7/29/2025
Username: BMC

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6581

BRIDGE PLANS

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	B.C.	E.T.	7/2025
CHECKED-REVIEWED	A.B.	C.S.	7/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

MAINE NORTHERN RAILWAY BRIDGE
OVER MAINE NORTHERN RAILWAY
PRESQUE ISLE, ME AROOSTOOK COUNTY

BORING LOCATION PLAN

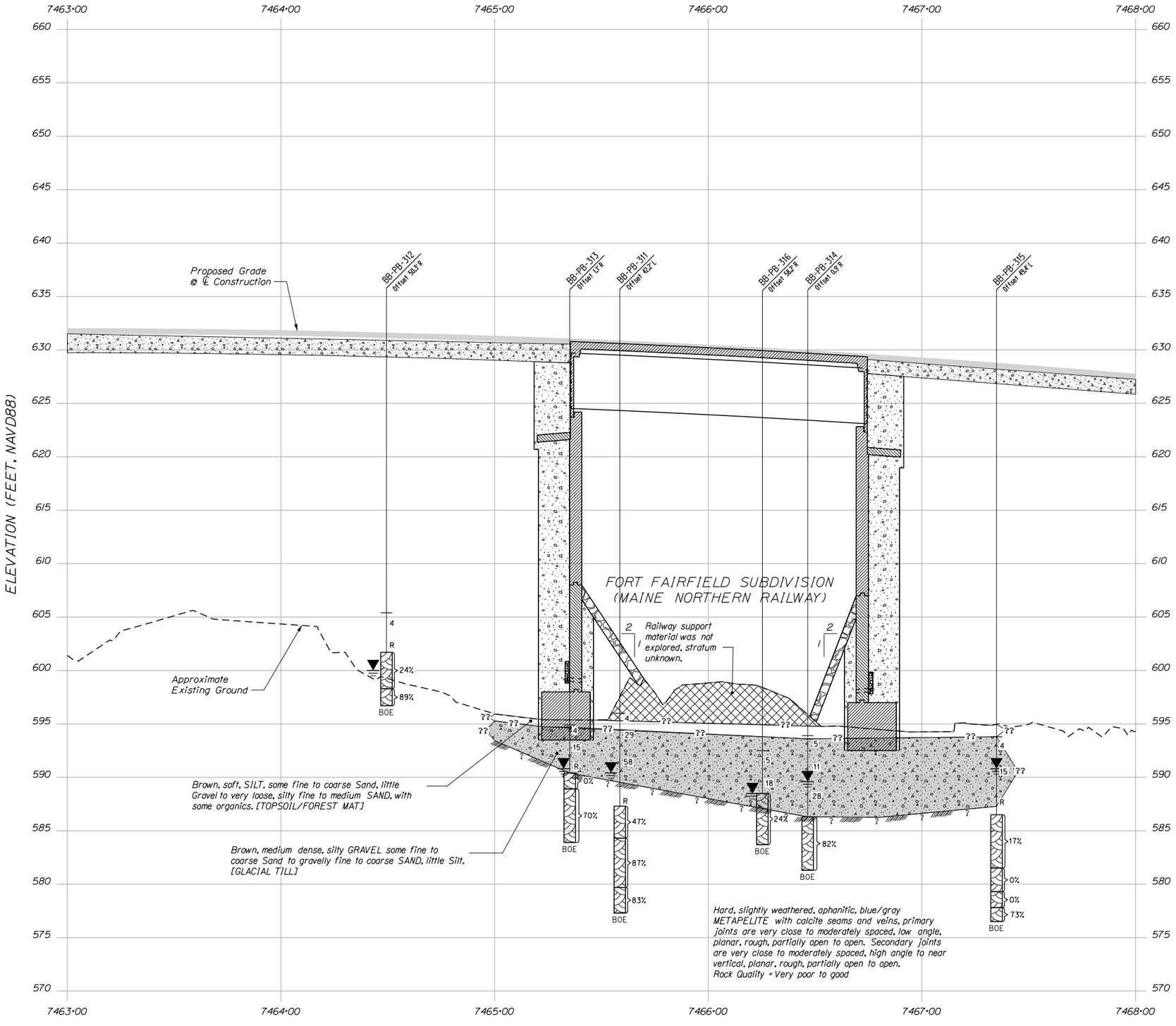
PREPARED BY:

GZA

SHEET NUMBER

4

OF 15



INTERPRETIVE SUBSURFACE PROFILE

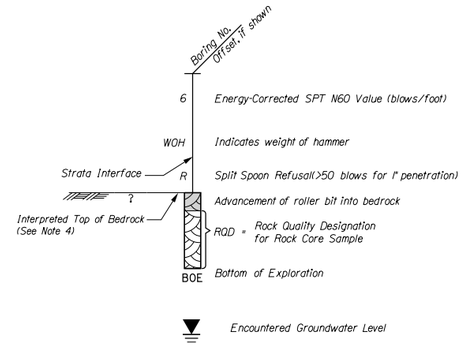
NOTES

1) Profile map developed from electronic files provided by VHB on July 14, 2025 (z_Montreal_Profile.dgn).

2) The as-drilled locations of the BB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

3) Top of rock is defined using either split spoon refusal prior to identification of bedrock by roller bit or coring, top of rock surface was interpolated to represent anticipated conditions at the baseline.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6581

BRIDGE PLANS

	BY	DATE
R.M.	E.T.	7/2025
PROJ. MANAGER	C.S.	7/2025
DESIGN-DETAILED		
CHECKED-REVIEWED	B.C.	
DESIGN2-DETAILED2	A.B.	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

MAINE NORTHERN RAILWAY BRIDGE
OVER MAINE NORTHERN RAILWAY
PRESQUE ISLE AROOSTOOK COUNTY

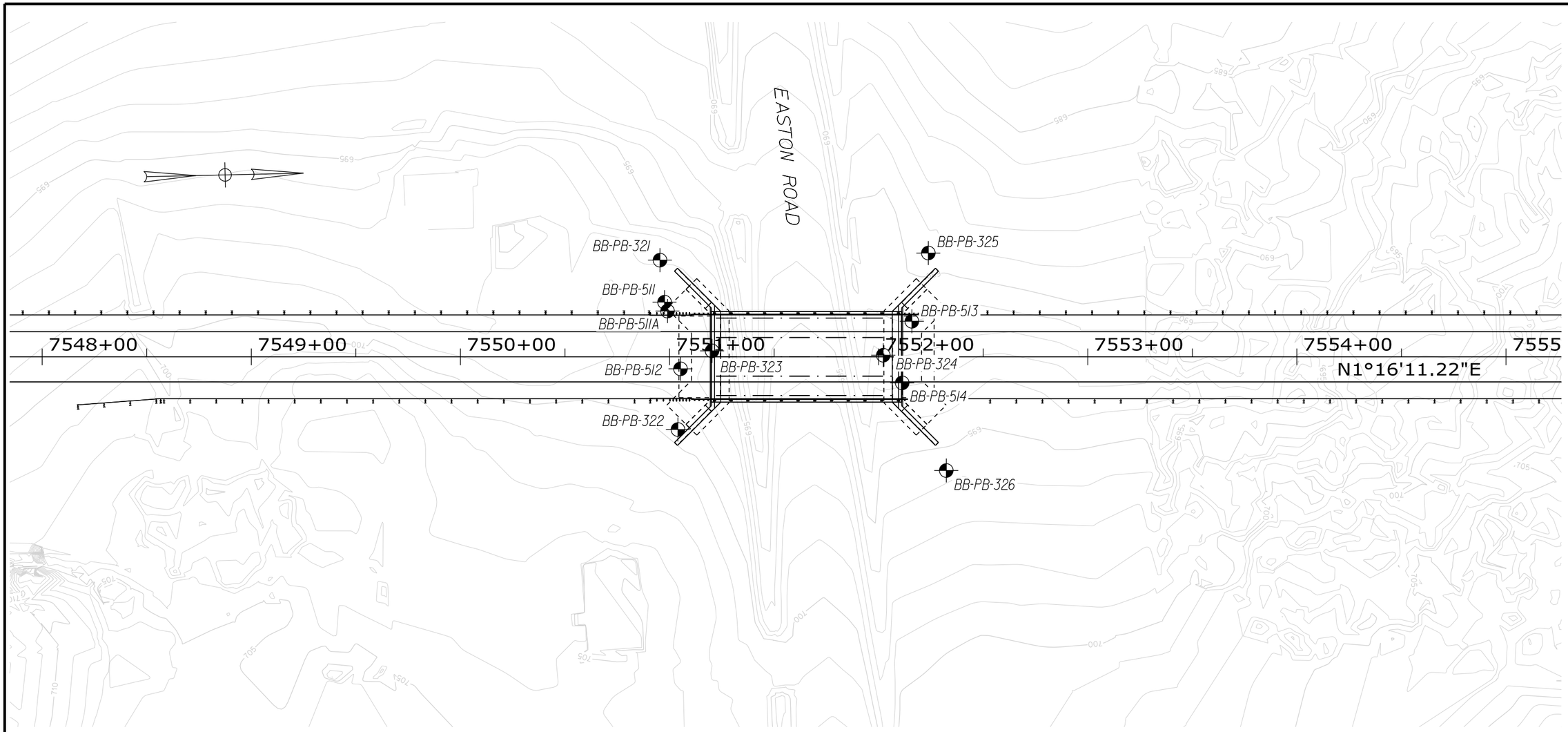
INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER

5

OF 15

Filename: ...\z_Montreal_ISP 7.23.25.dgn Division: HIGHWAY Username: common Date:7/29/2025



NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, z_Easton_Bridge.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) The as-drilled locations of the BB-PB-300 and BB-PB-500 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

BORING LOCATION PLAN LEGEND

BB-PB-326	Location and designation of BB-PB-300 series borings performed by New England Boring Contractors of Hermon, Maine between April 16 and April 21, 2015 and observed by GZA personnel.
BB-PB-513	Location and designation of BB-PB-500 series borings performed by New England Boring Contractors of Hermon, Maine between January 4 and January 12, 2017 and observed by GZA personnel.

PLAN

25 0 25 50

Scale in Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6582

BRIDGE PLANS

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	B.C.	E.T. 7/2025
CHECKED-REVIEWED	A.B.	C.S. 7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

EASTON ROAD BRIDGE
OVER EASTON ROAD
PRESQUE ISLE, ME AROOSTOOK COUNTY

BORING LOCATION PLAN

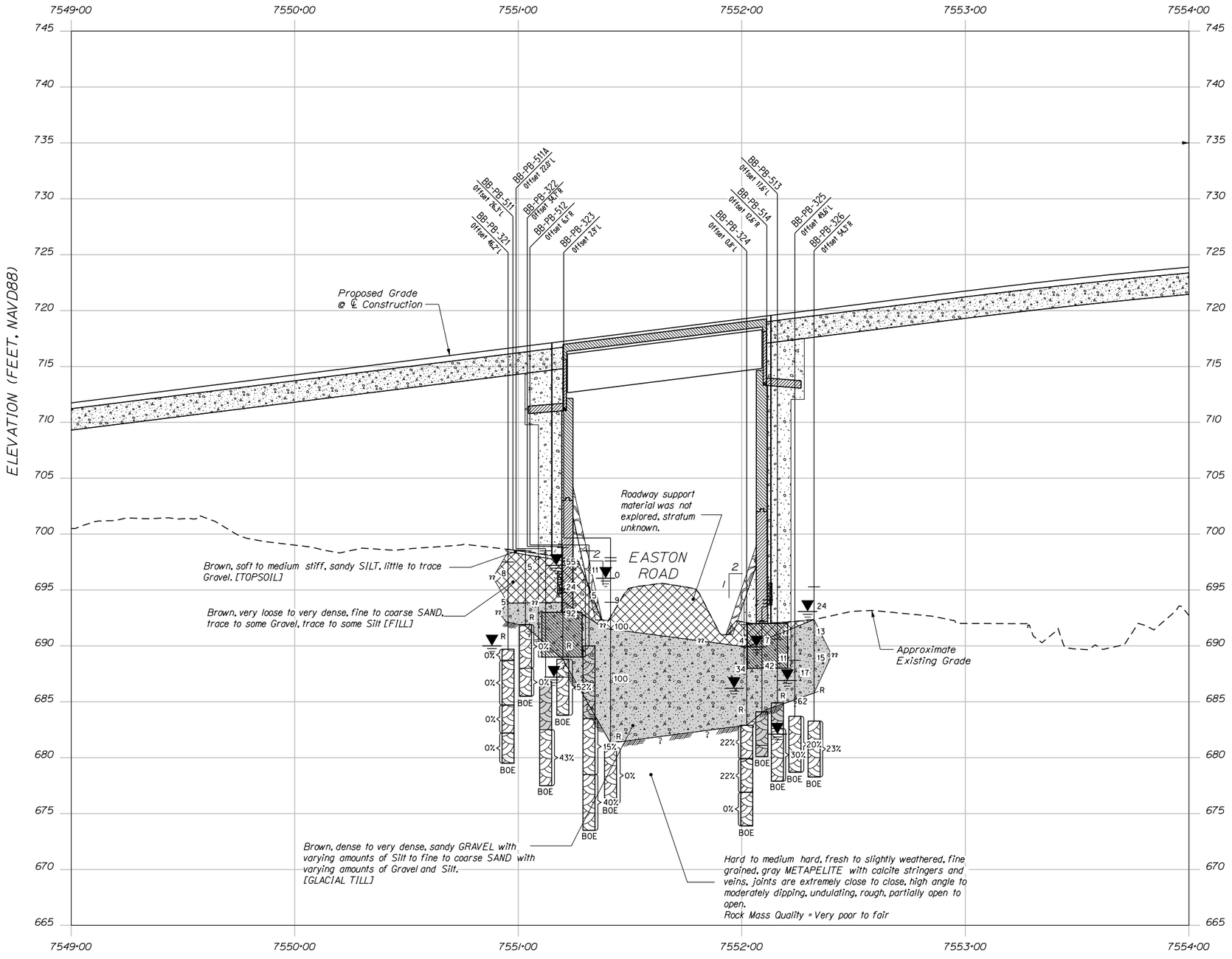
SHEET NUMBER

6

OF 15

Division: HIGHWAY
Filename: ...\Easton_BLP\Easton_BLP.dgn

Date:7/29/2025
Username: BMC



INTERPRETIVE SUBSURFACE PROFILE

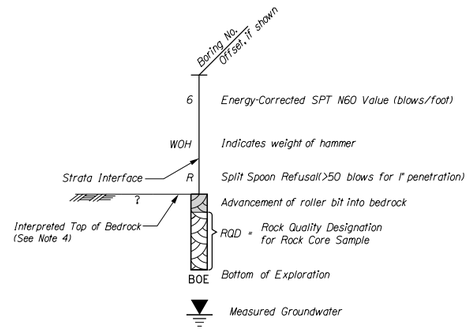
NOTES

1) Profile map developed from electronic file provided by VHB on July 14, 2025 (z_Easton_Prof.dng)

3) The as-drilled locations of the BB-PB-300 and BB-PB-500 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 9, 2019.

4) Top of rock is defined using either split spoon refusal prior to identification of bedrock by roller bit or coring, top of rock surface was interpolated to represent anticipated conditions at the baseline.

5) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6582

BRIDGE PLANS

	R.M.		
PROJ. MANAGER			
DESIGN-DETAILED	B.C.	E.T.	7/2025
CHECKED-REVIEWED	A.B.	C.S.	7/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

BY DATE

SIGNATURE

P.E. NUMBER

DATE

EASTON ROAD BRIDGE
OVER EASTON ROAD
AROOSTOOK COUNTY
PRESQUE ISLE

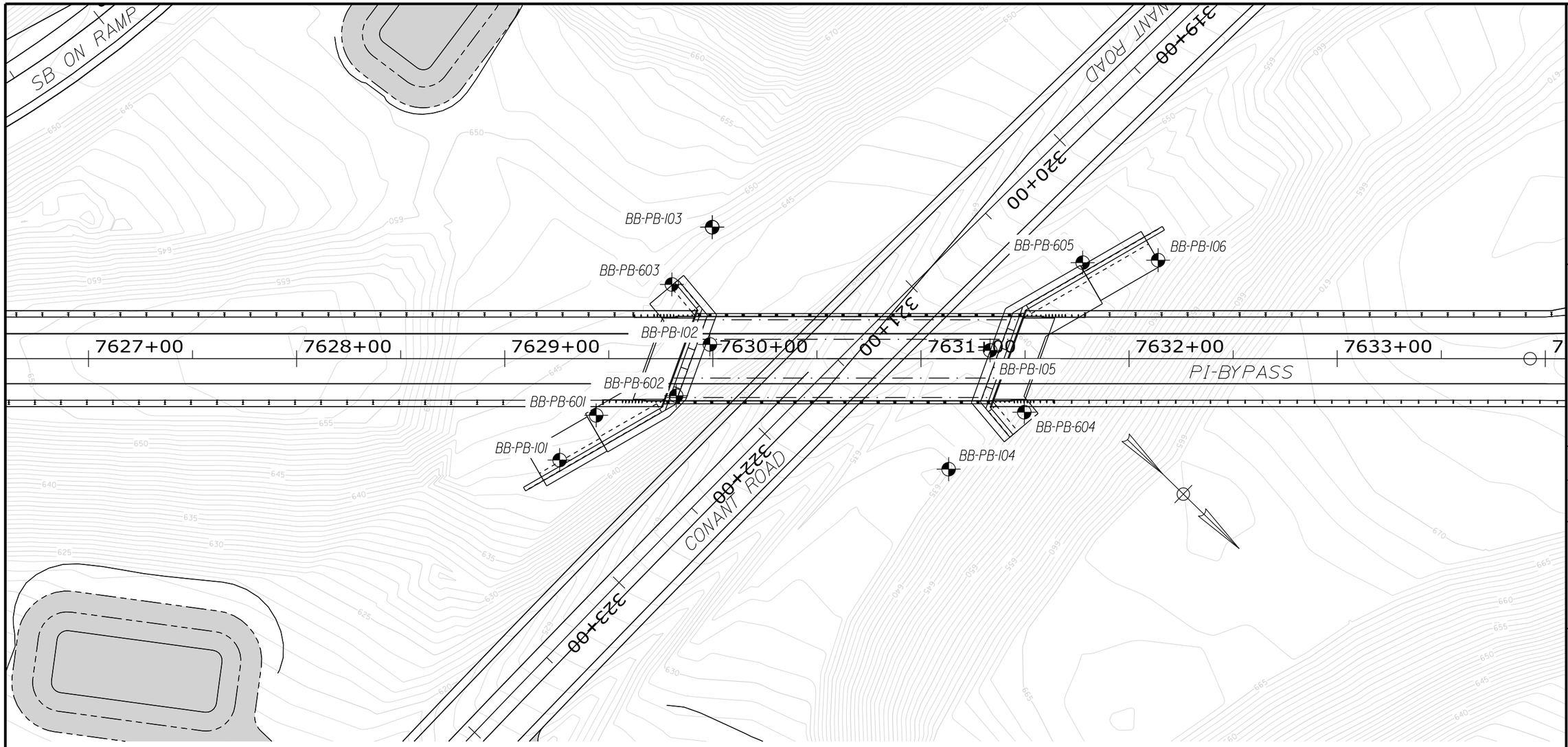
INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER

7

OF 15

Filename: ...\ISPs\z_Easton_ISP 7.22.25.dgn Division: HIGHWAY Username: common Date:7/29/2025



NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) The as-drilled locations of the BB-PB-100 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings050714.dgn) on May 28, 2014.

3) The as-drilled locations of the BB-PB-600 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings_112023) on November 20, 2023.

BORING LOCATION PLAN LEGEND

BB-PB-106 — Location and designation of BB-PB-100 series borings performed by Maine Test Boring between April 7 and April 9, 2014 and observed by GZA personnel.

BB-PB-606 — Location and designation of BB-PB-600 series borings performed by New England Boring Contractors of Hermon, Maine between October 12 and October 17, 2023 and observed by GZA personnel.

PLAN

25 0 25 50

Scale in Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 006462.92

BRIDGE NO. 6491

BRIDGE PLANS

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	B.C.	7/2025
CHECKED-REVIEWED	A.B.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: E.T., C.S.

SIGNATURE

P.E. NUMBER

DATE

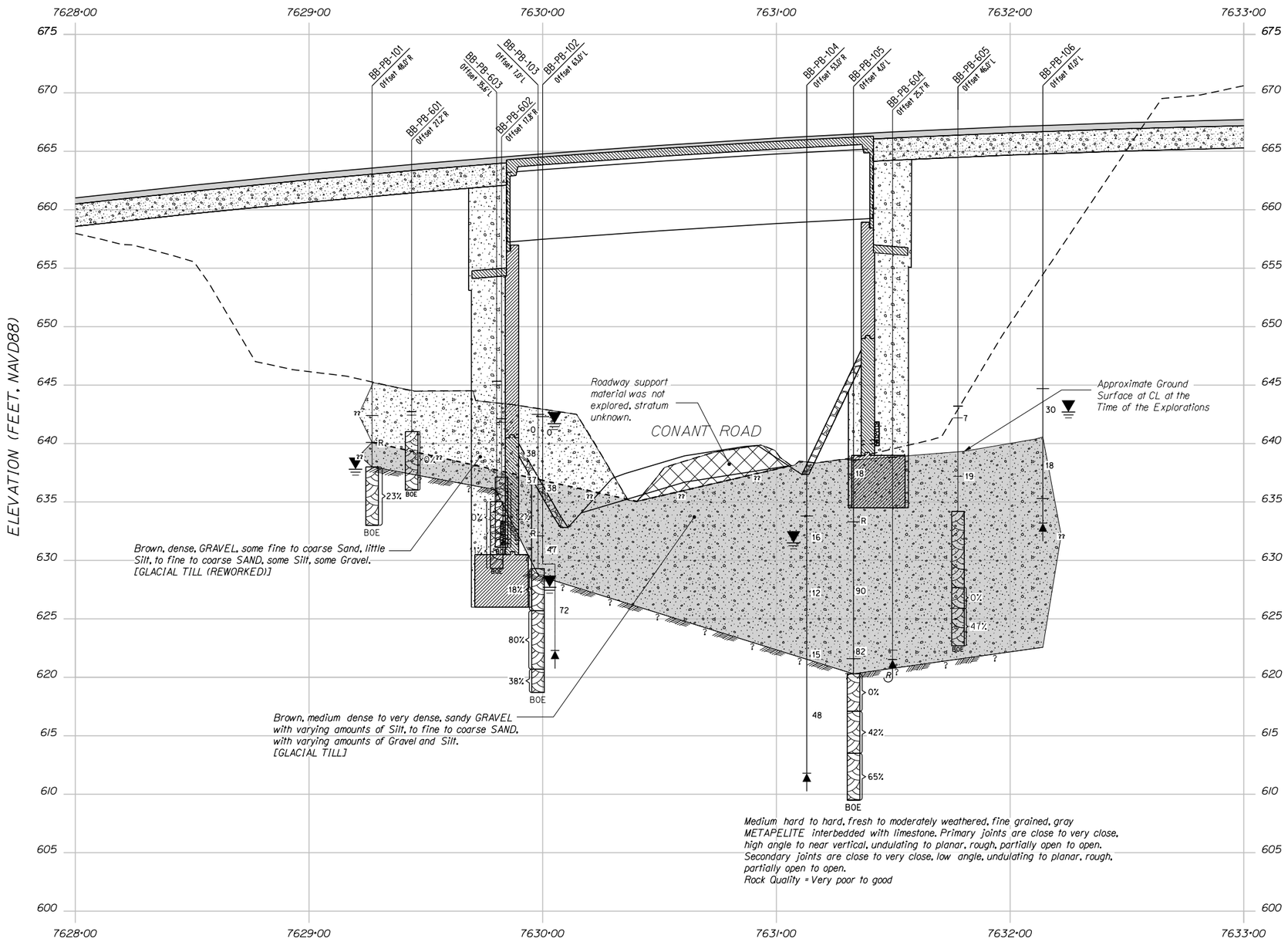
CONANT ROAD BRIDGE
OVER CONANT ROAD
PRESQUE ISLE AROOSTOOK COUNTY

BORING LOCATION PLAN

PREPARED BY: GZA

SHEET NUMBER 8 OF 15

Filename: ...\Conant_BLP\Conant_BLP.dgn Division: HIGHWAY Username: common Date:7/29/2025



INTERPRETIVE SUBSURFACE PROFILE

NOTES

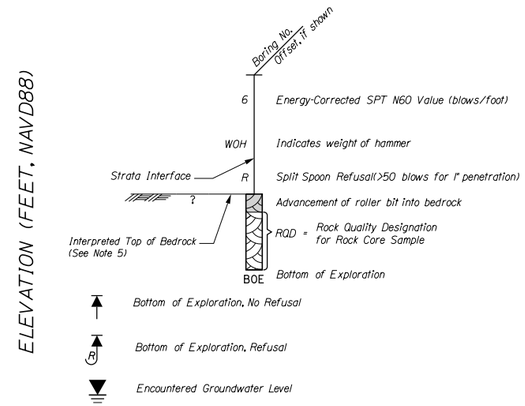
1) Profile map developed from electronic file provided by VHB on July 14, 2025 (z_Conant_Prof.dng)

2) The as-drilled locations of the BB-PB-100 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings050714.dgn) on May 28, 2014.

3) The as-drilled locations of the BB-PB-600 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings_112023.dgn) on November 20, 2023.

4) Top of rock is defined using either split spoon refusal prior to identification of bedrock by roller bit or coring, top of rock surface was interpolated to represent anticipated conditions at the baseline.

5) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.



SCALE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

BRIDGE PLANS

WIN 006462.92

BRIDGE NO. 6491

	BY	DATE
R.M. PROJ. MANAGER		
B.C. DESIGN-DETAILED	E.T.	7/2025
A.B. CHECKED-REVIEWED	C.S.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

CONANT ROAD BRIDGE
OVER CONANT ROAD
PRESQUE ISLE AROOSTOOK COUNTY

INTERPRETIVE SUBSURFACE PROFILE

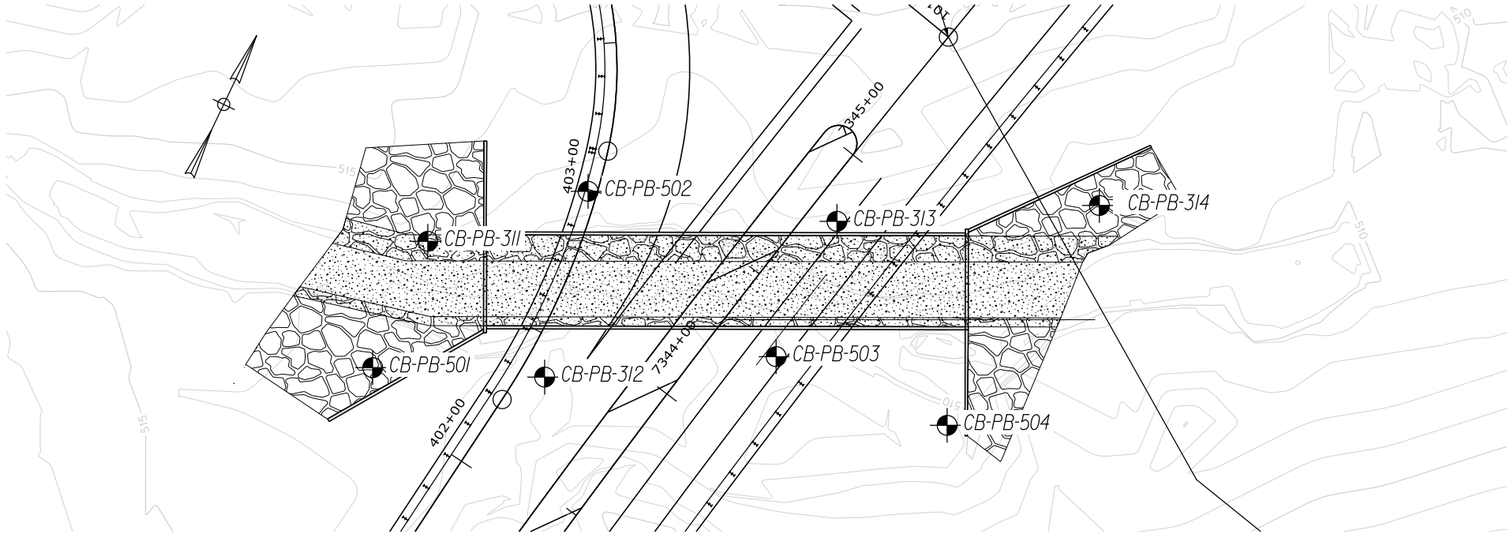
SHEET NUMBER

9

OF 15

Filename: ...\SPs\z_Conant-ISP 7.22.25.dgn Division: HIGHWAY Username: common Date:7/29/2025

CLARK BROOK ARCH CULVERT - STA 7344+47.04 (SKEWED 37°-43'-24")



BORING LOCATION PLAN

INTERPRETIVE SUBSURFACE PROFILE

NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

3) The as-drilled locations of the CB-PB-300 and CB-PB-500 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

BORING LOCATION PLAN LEGEND

CB-PB-314 — Location and designation of CB-PB-300 series borings that were performed by New England Boring Company of Hermon, Maine between August 26 and September 2, 2015.

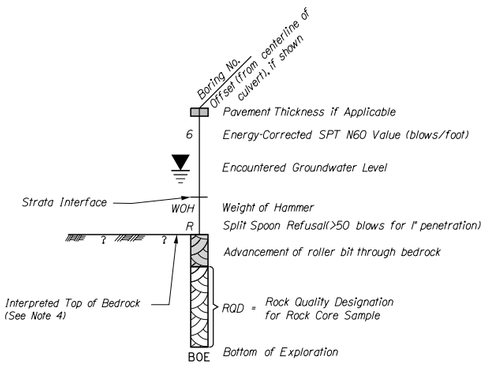
CB-PB-504 — Location and designation of CB-PB-500 series borings that were performed by New England Boring company of Hermon, Maine between February 20 and 26, 2017.

PLAN

25 0 25 50

Scale in Feet

INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	B.C.	7/2025
CHECKED-REVIEWED	A.B.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

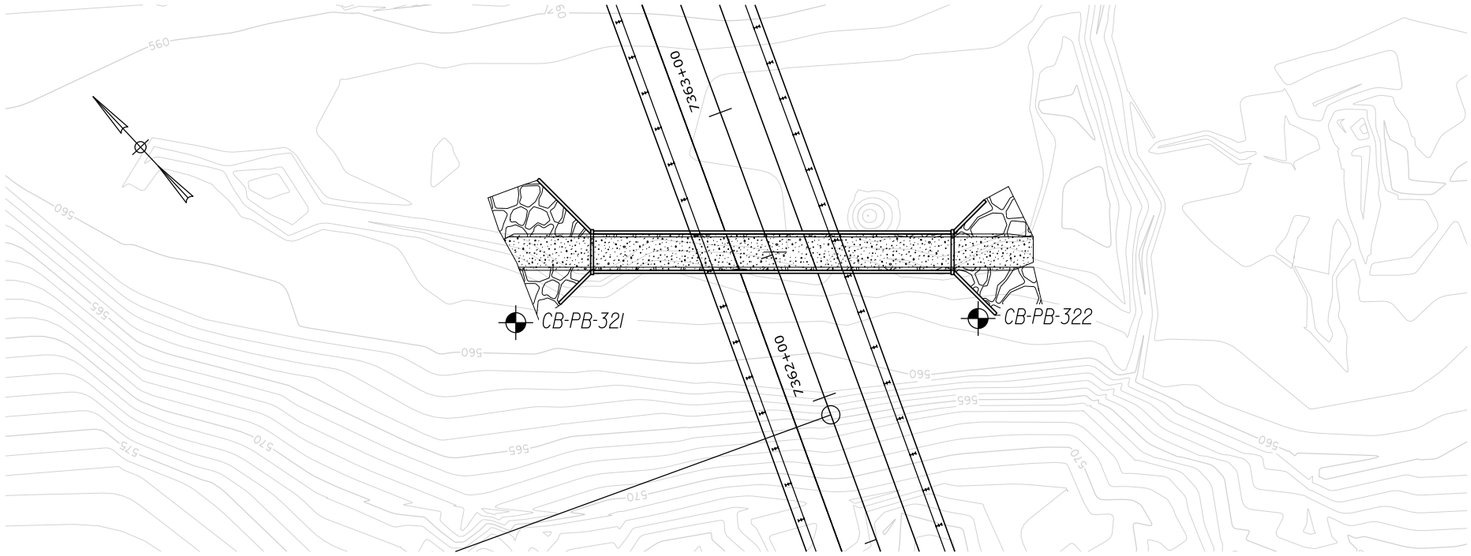
CLARK BROOK ARCH CULVERT
PRESQUE ISLE BYPASS

BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE

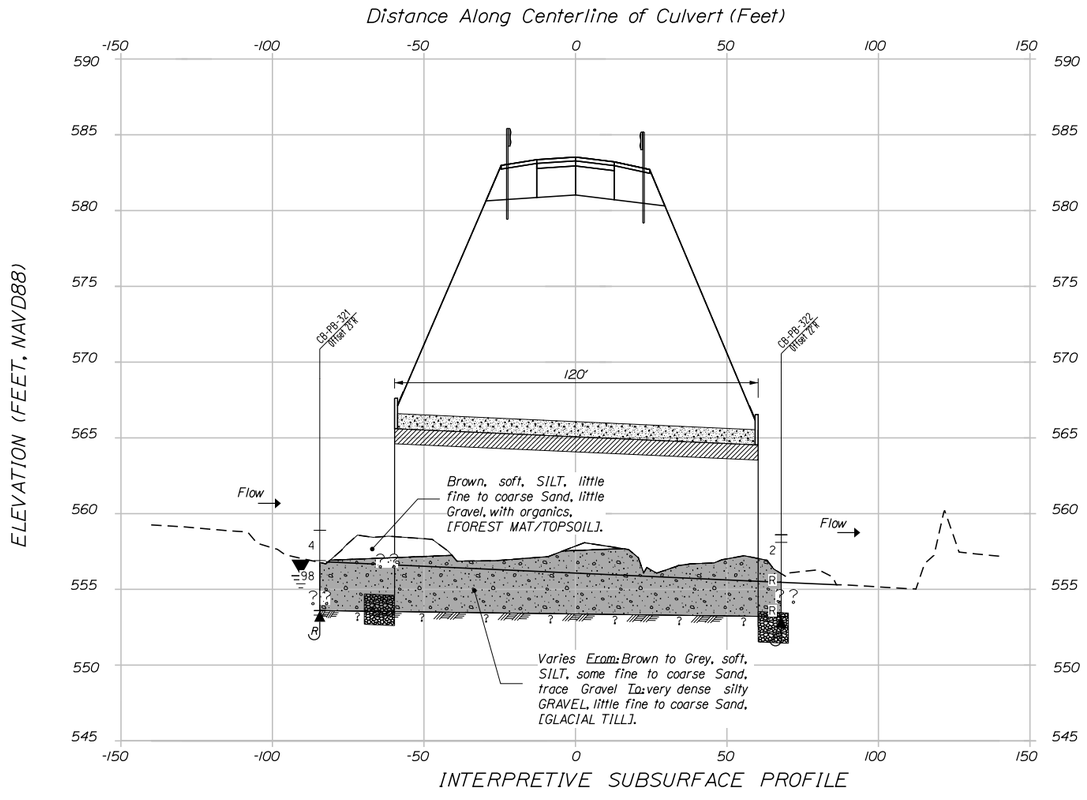
SHEET NUMBER 10 OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

TRIBUTARY TO CLARK BROOK 3-SIDED CULVERT - STA 7362+50.9 (SKEWED)



BORING LOCATION PLAN



INTERPRETIVE SUBSURFACE PROFILE

ELEVATION (FEET, NAVD88)

NOTES

1) Base map developed from electronic files (Contours.dgn and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

3) The as-drilled locations of the CB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

BORING LOCATION PLAN LEGEND

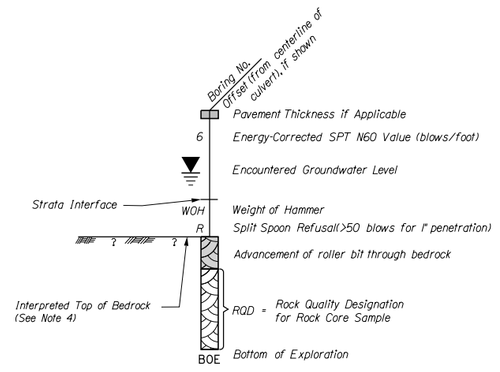
CB-PB-322 — Location and designation of CB-PB-300 series borings that were performed by New England Boring Contractors of Hermon, Maine between August 26 and September 2, 2015.

PLAN

25 0 25 50

Scale in Feet

INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

	R.M.	PROJ. MANAGER
	B.C.	DESIGN-DETAILED
	A.B.	CHECKED-REVIEWED
	C.S.	DESIGN2-DETAILED2
	E.T.	DESIGN3-DETAILED3

BY	DATE
E.T.	7/2025
C.S.	7/2025

REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

SIGNATURE

P.E. NUMBER

DATE

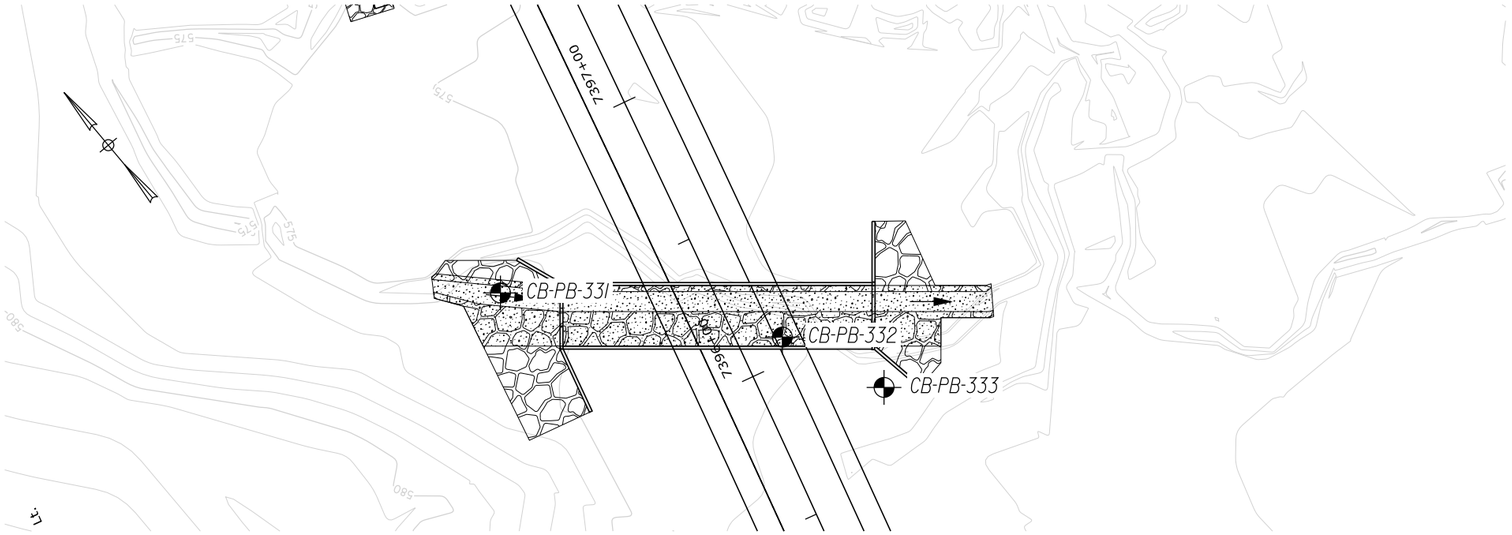
TRIB. TO CLARK BROOK 3-SIDED CULVERT
PRESQUE ISLE BYPASS

BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE

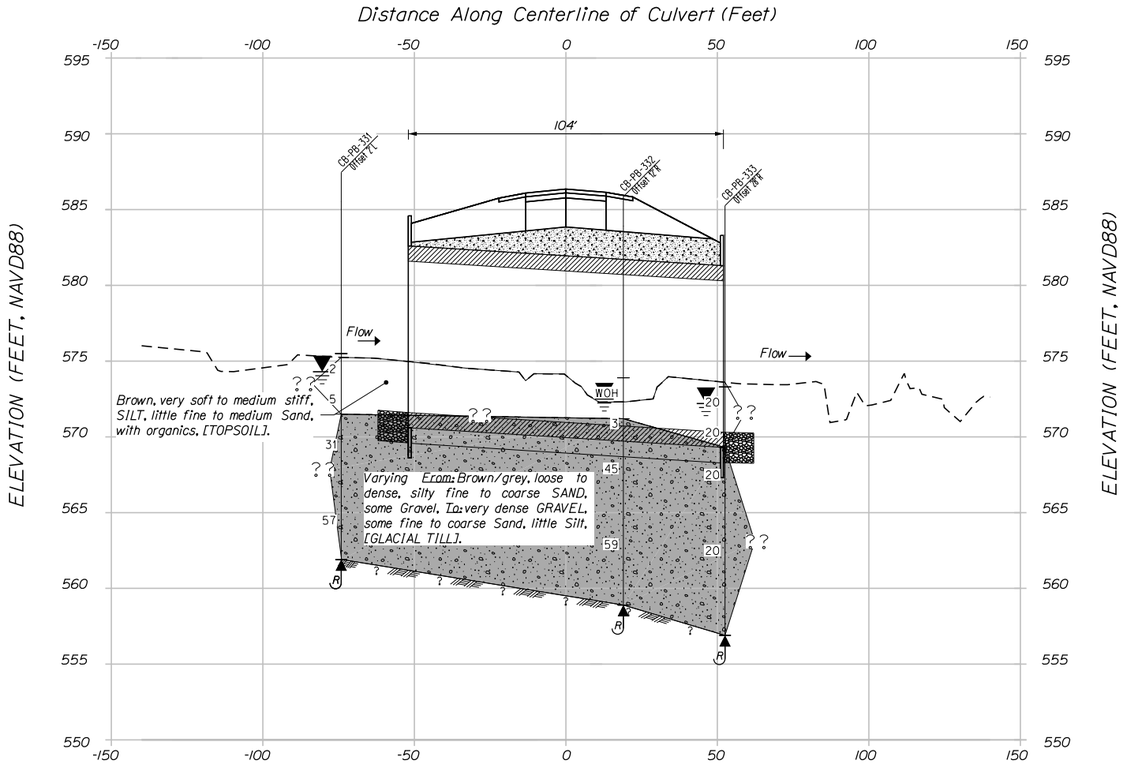
SHEET NUMBER 11 OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

TRIBUTARY TO WILLIAMS BROOK BOX CULVERT - STA 7396+27.83 (SKEWED)



BORING LOCATION PLAN



INTERPRETIVE SUBSURFACE PROFILE

NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

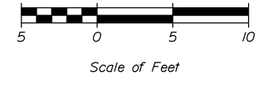
3) The as-drilled locations of the CB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

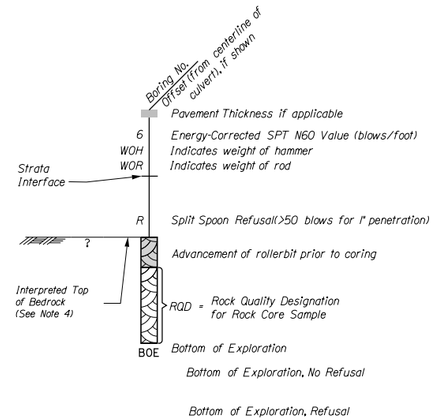
BORING LOCATION PLAN LEGEND

CB-PB-333 — Location and designation of CB-PB-300 series borings that were performed by New England Boring of Hermon, Maine between August 26 and September 2, 2015.

PLAN



INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	B.C.	7/2025
CHECKED-REVIEWED	A.B.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1	E.T.	7/2025
REVISIONS 2	C.S.	7/2025
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE

P.E. NUMBER

DATE

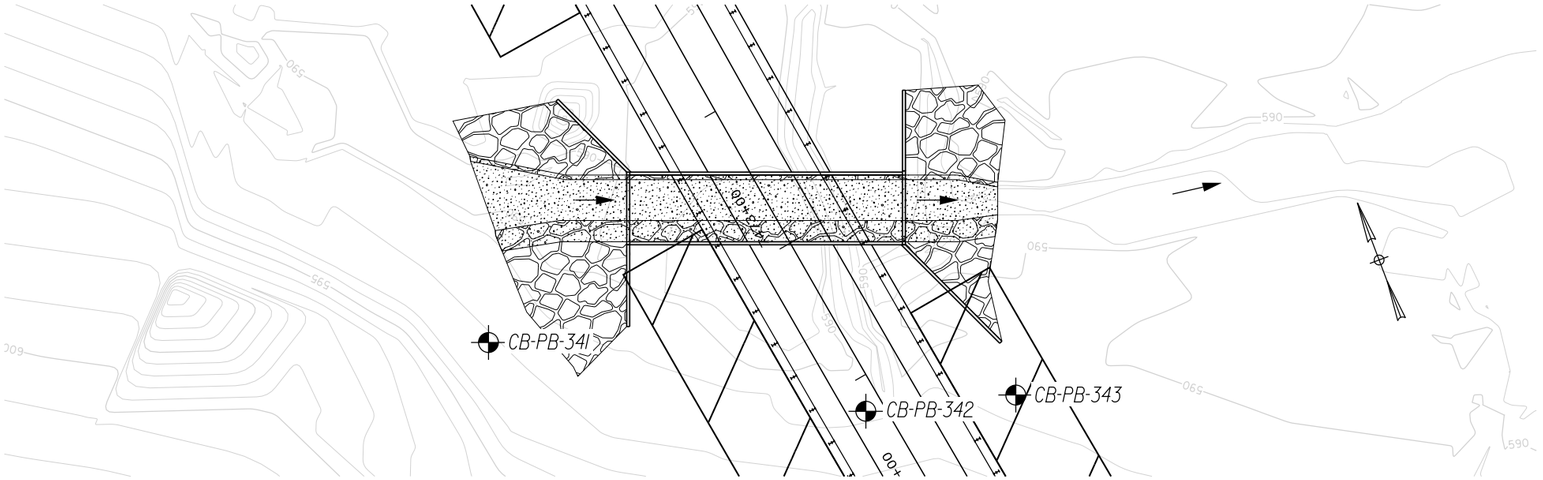
TRIB. TO WILLIAMS BROOK BOX CULVERT
PRESQUE ISLE BYPASS

BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE

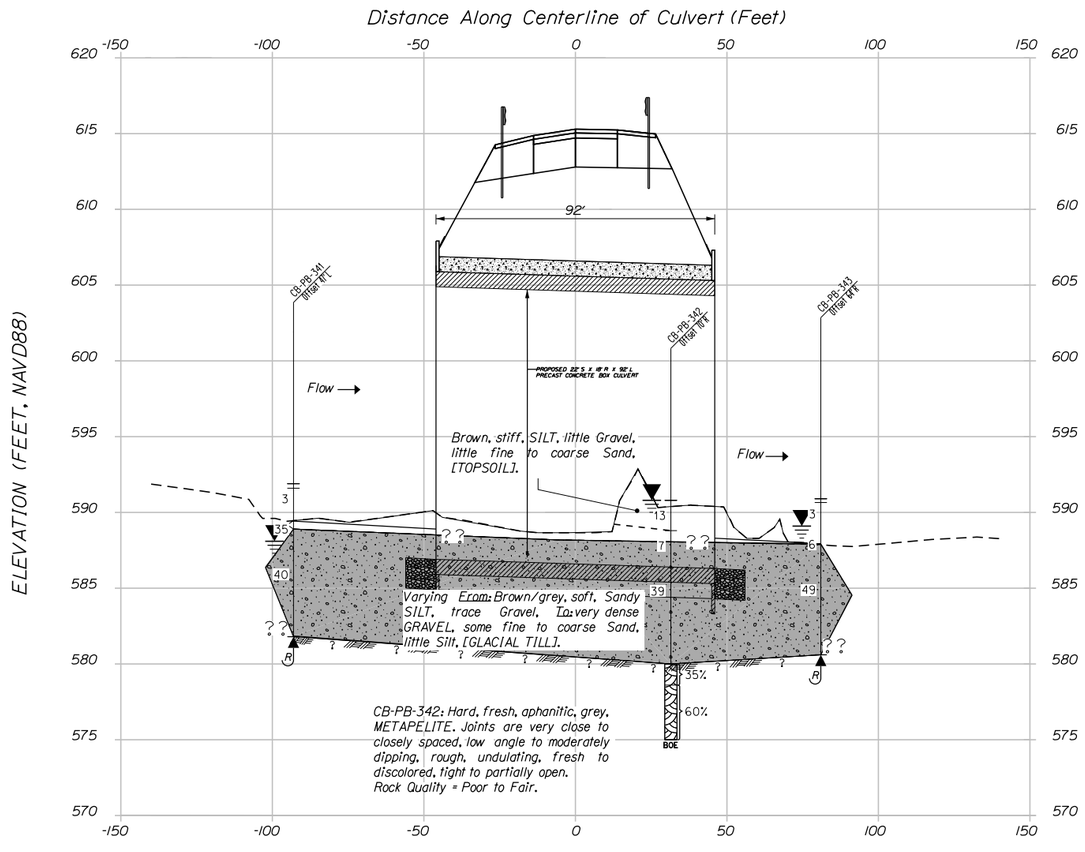
SHEET NUMBER 12 OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

WILLIAMS BROOK BOX CULVERT - STA 7473+16.0 (SKEWED)



BORING LOCATION PLAN



INTERPRETIVE SUBSURFACE PROFILE

NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

3) The as-drilled locations of the CB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

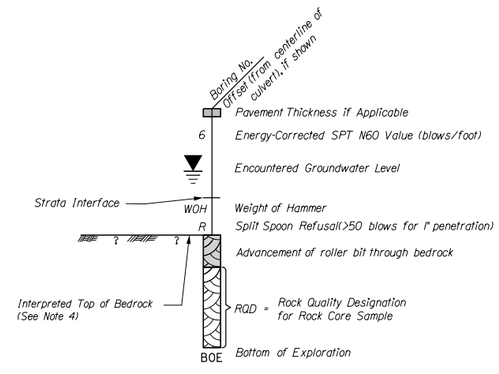
BORING LOCATION PLAN LEGEND

CB-PB-343 — Location and designation of CB-PB-300 series borings that were performed by New England Boring Contractors of Hermon, Maine between August 26 and September 2, 2015.

PLAN

25 0 25 50
Scale in Feet

INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

Horiz. 25 0 25 50
Vert. 5 0 5 10
Scale of Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

PROJ. MANAGER	R.M.	BY	DATE
DESIGN-DETAILED	B.C.	E.T.	7/2027
CHECKED-REVIEWED	A.B.	C.S.	7/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

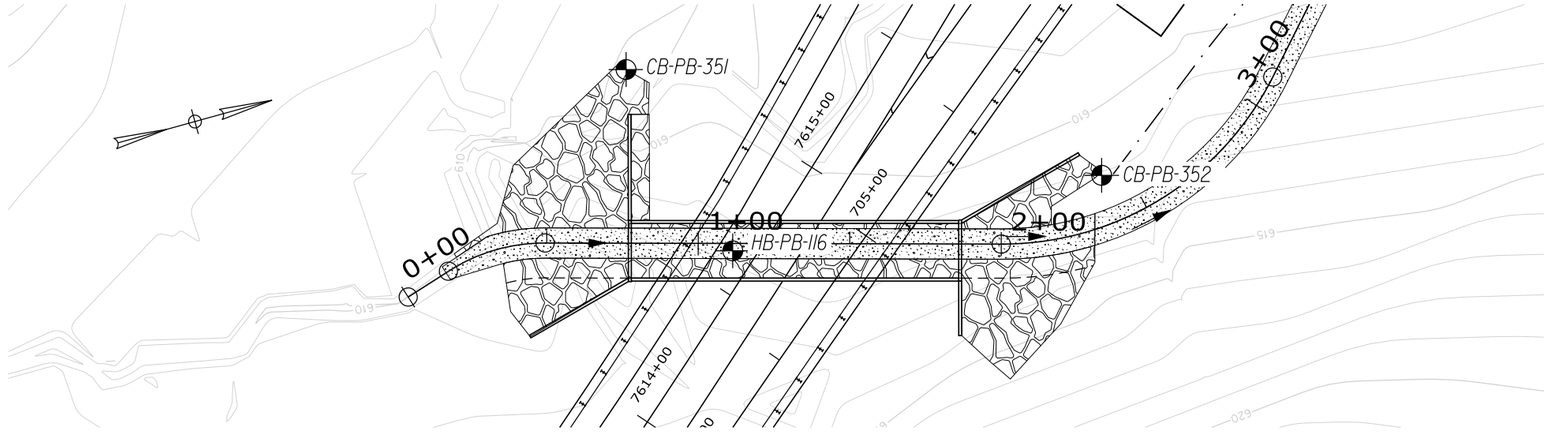
WILLIAMS BROOK BOX CULVERT
PRESQUE ISLE BYPASS

BORING LOCATION PLAN &
INTERPRETIVE SUBSURFACE PROFILE

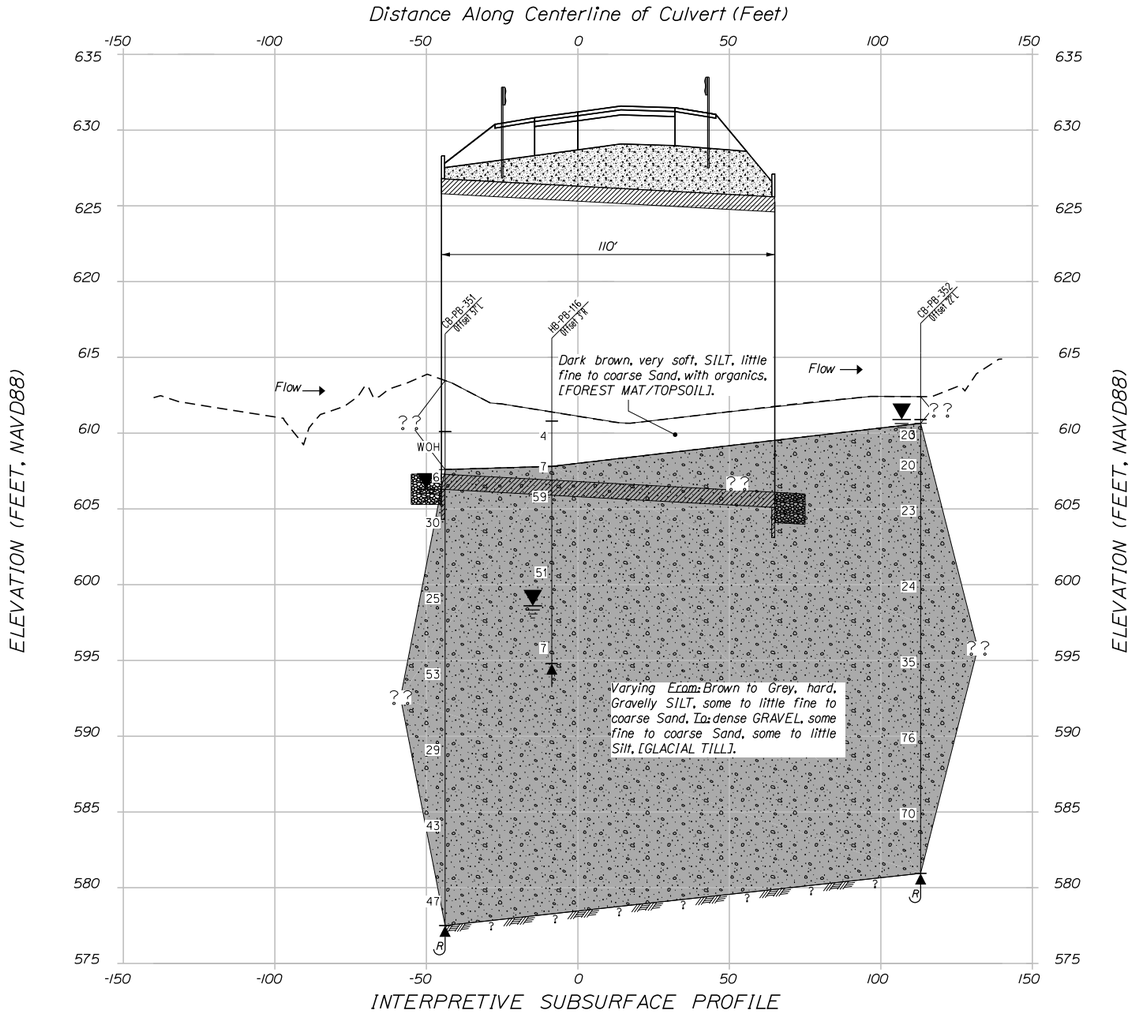
SHEET NUMBER
13
OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

TRIBUTARY TO MERRITT BROOK BOX CULVERT - STA 7614+70.3 (SKEWED)



BORING LOCATION PLAN



NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments.dgn, and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

3) The as-drilled locations of the CB-PB-300 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings.dgn) on September 5, 2019.

4) The as-drilled locations of the HB-PB-100 series test borings were surveyed and provided by MaineDOT in an electronic file (Borings050714.dgn) on May 28, 2014.

5) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

BORING LOCATION PLAN LEGEND

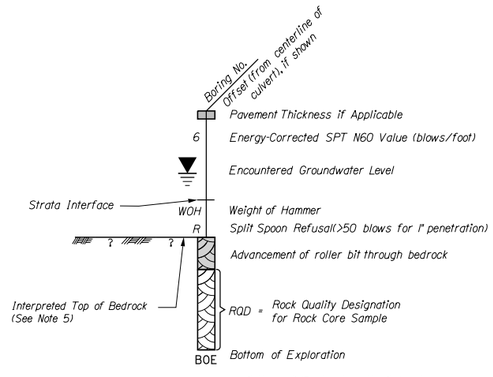
CB-PB-352 — Location and designation of CB-PB-300 series borings that were performed by New England Boring of Hermon, Maine between August 26 and September 2, 2015.

HB-PB-116 — Location and designation of HB-PB-100 series borings that were performed by Maine Test Boring of Hermon, Maine on April 10, 2014.

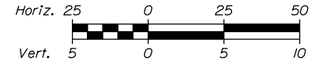
PLAN



INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE



PREPARED BY: GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
CAPITAL PROJECTS
WIN 6462.92
HIGHWAY PLANS

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	B.C.	7/2025
CHECKED-REVIEWED	A.B.	7/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

BY: E.T., C.S.

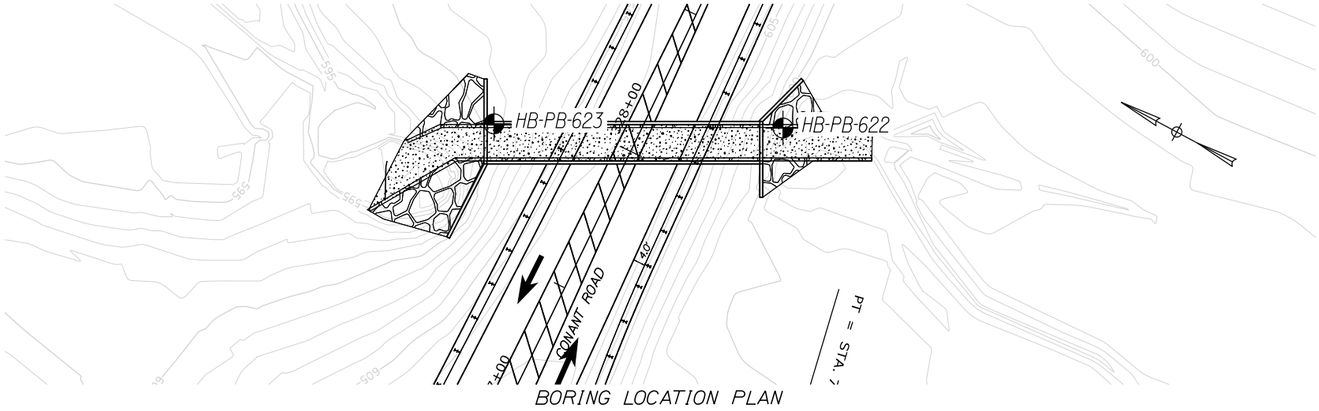
SIGNATURE
P.E. NUMBER
DATE

TRIB. TO MERRITT BROOK BOX CULVERT
PRESQUE ISLE BYPASS
BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE

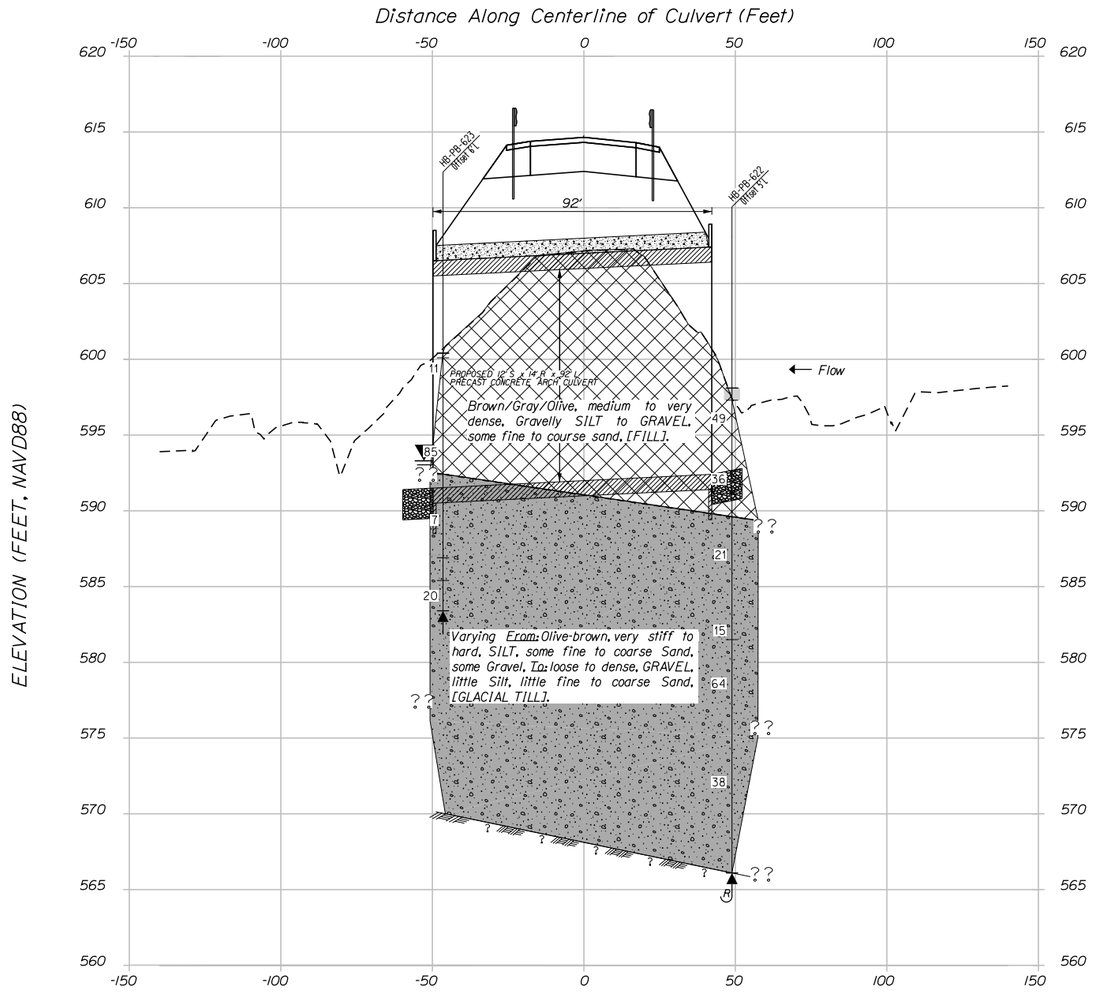
SHEET NUMBER 14 OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

CONANT ROAD OVER TRIBUTARY TO MERRITT BOX CULVERT - STA 327+92.12 (SKEWED)



BORING LOCATION PLAN



INTERPRETIVE SUBSURFACE PROFILE

NOTES

1) Base map developed from electronic files (Contours.dgn, Alignments, and Highway.dgn) provided by VHB on July 14, 2025.

2) ISPs developed from file X_sect_box_culvert.dgn provided by VHB on July 14, 2025.

3) The as-drilled locations of the HB-PB-622 and HB-PB-623 test borings were surveyed and provided by MaineDOT in an electronic file (Borings_112023.dgn) on November 11, 2023.

4) This generalized interpretive soil and rock profile is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and have been developed by interpretations of widely spaced explorations and samples. Actual soil and rock transitions may vary and are probably more erratic. For more specific information refer to the exploration logs.

BORING LOCATION PLAN LEGEND

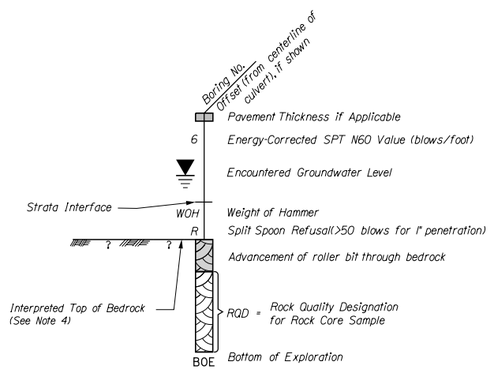
HB-PB-623 — Location and designation of HB-PB-600 series borings that were performed by New England Boring Contractors of Hermon, Maine between October 11 and 16, 2023.

PLAN

25 0 25 50

Scale in Feet

INTERPRETIVE SUBSURFACE PROFILE LEGEND



PROFILE

Horiz. 25 0 25 50

Vert. 5 0 5 10

Scale of Feet

PREPARED BY:

GZA

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

	BY	DATE
R.M.		
E.T.	E.T.	7/2025
C.S.	C.S.	7/2025
B.C.		
A.B.		

SIGNATURE

P.E. NUMBER

DATE

PROJ. MANAGER	
DESIGN-DETAILED	
CHECKED-REVIEWED	
DESIGN2-DETAILED2	
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

CONANT ROAD BOX CULVERT
PRESQUE ISLE BYPASS

BORING LOCATION PLAN & INTERPRETIVE SUBSURFACE PROFILE

SHEET NUMBER 15 OF 15

Filename: ...\Culvert_BLPs\Culvert_BLPs.dgn Division: HIGHWAY Username: common Date:7/29/2025

APPENDIX A – LIMITATIONS

GEOTECHNICAL LIMITATIONS

Use of Report

1. GZA GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of our Client for the stated purpose(s) and location(s) identified in the Proposal for Services and/or Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not expressly identified in the contract documents, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

Standard of Care

2. GZA's findings and conclusions are based on the work conducted as part of the Scope of Services set forth in Proposal for Services and/or Report, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. If conditions other than those described in this report are found at the subject location(s), or the design has been altered in any way, GZA shall be so notified and afforded the opportunity to revise the report, as appropriate, to reflect the unanticipated changed conditions .

3. GZA's services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services, at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

4. In conducting our work, GZA relied upon certain information made available by public agencies, Client and/or others. GZA did not attempt to independently verify the accuracy or completeness of that information. Inconsistencies in this information which we have noted, if any, are discussed in the Report.

Subsurface Conditions

5. The generalized soil profile(s) provided in our Report are based on widely-spaced subsurface explorations and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then become evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

6. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein which were made available to GZA at the time of our evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.

7. Water level readings have been made in test holes (as described in this Report) and monitoring wells at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the level of the groundwater however occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, the presence of subsurface utilities, and/or natural or artificially induced perturbations. The water table encountered in the course of the work may differ from that indicated in the Report.

8. GZA's services did not include an assessment of the presence of oil or hazardous materials at the property. Consequently, we did not consider the potential impacts (if any) that contaminants in soil or groundwater may have on construction activities, or the use of structures on the property.

9. Recommendations for foundation drainage, waterproofing, and moisture control address the conventional geotechnical engineering aspects of seepage control. These recommendations may not preclude an environment that allows the infestation of mold or other biological pollutants.

Compliance with Codes and Regulations

10. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.

Cost Estimates

11. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over either when the work will take place or the labor and material costs required to plan and execute the anticipated work, our cost estimates were made by relying on our experience, the experience of others, and other sources of readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

Additional Services

12. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

APPENDIX B – TEST BORING LOGS

UNIFIED SOIL CLASSIFICATION SYSTEM

MAJOR DIVISIONS			GROUP SYMBOLS	TYPICAL NAMES
COARSE-GRAINED SOILS (more than half of material is larger than No. 200 sieve size)	GRAVELS (more than half of coarse fraction is larger than No. 4 sieve size)	CLEAN GRAVELS (little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines.
			GP	Poorly-graded gravels, gravel sand mixtures, little or no fines.
		GRAVEL WITH FINES (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures.
			GC	Clayey gravels, gravel-sand-clay mixtures.
	SANDS (more than half of coarse fraction is smaller than No. 4 sieve size)	CLEAN SANDS (little or no fines)	SW	Well-graded sands, Gravelly sands, little or no fines
			SP	Poorly-graded sands, Gravelly sand, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, sand-clay mixtures.
FINE-GRAINED SOILS (more than half of material is smaller than No. 200 sieve size)	SILTS AND CLAYS (liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, Silty or Clayey fine sands, or Clayey silts with slight plasticity.
			CL	Inorganic clays of low to medium plasticity, Gravelly clays, Sandy clays, Silty clays, lean clays.
			OL	Organic silts and organic Silty clays of low plasticity.
	SILTS AND CLAYS (liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine Sandy or Silty soils, elastic silts.
			CH	Inorganic clays of high plasticity, fat clays.
			OH	Organic clays of medium to high plasticity, organic silts.
	HIGHLY ORGANIC SOILS		Pt	Peat and other highly organic soils.

Desired Soil Observations (in this order, if applicable):

Color (Munsell color chart)
Moisture (dry, damp, moist, wet)
Density/Consistency (from above right hand side)
Texture (fine, medium, coarse, etc.)
Name (Sand, Silty Sand, Clay, etc., including portions - trace, little, etc.)
Gradation (well-graded, poorly-graded, uniform, etc.)
Plasticity (non-plastic, slightly plastic, moderately plastic, highly plastic)
Structure (layering, fractures, cracks, etc.)
Bonding (well, moderately, loosely, etc.,)
Cementation (weak, moderate, or strong)
Geologic Origin (till, marine clay, alluvium, etc.)
Groundwater level

Maine Department of Transportation
Geotechnical Section
Key to Soil and Rock Descriptions and Terms
Field Identification Information

MODIFIED BURMISTER SYSTEM

Descriptive Term	Portion of Total (%)
trace	0 - 10
little	11 - 20
some	21 - 35
adjective (e.g. Sandy, Clayey)	36 - 50

TERMS DESCRIBING DENSITY/CONSISTENCY

Coarse-grained soils (more than half of material is larger than No. 200 sieve): Includes (1) clean gravels; (2) Silty or Clayey gravels; and (3) Silty, Clayey or Gravelly sands. Density is rated according to standard penetration resistance (N-value).

Density of Cohesionless Soils	Standard Penetration Resistance N_{60}-Value (blows per foot)
Very loose	0 - 4
Loose	5 - 10
Medium Dense	11 - 30
Dense	31 - 50
Very Dense	> 50

Fine-grained soils (more than half of material is smaller than No. 200 sieve): Includes (1) inorganic and organic silts and clays; (2) Gravelly, Sandy or Silty clays; and (3) Clayey silts. Consistency is rated according to undrained shear strength as indicated.

Consistency of Cohesive soils	SPT N_{60}-Value (blows per foot)	Approximate Undrained Shear Strength (psf)	Field Guidelines
Very Soft	WOH, WOR, WOP, <2	0 - 250	Fist easily penetrates
Soft	2 - 4	250 - 500	Thumb easily penetrates
Medium Stiff	5 - 8	500 - 1000	Thumb penetrates with moderate effort
Stiff	9 - 15	1000 - 2000	Indented by thumb with great effort
Very Stiff	16 - 30	2000 - 4000	Indented by thumbnail
Hard	>30	over 4000	Indented by thumbnail with difficulty

Rock Quality Designation (RQD):

RQD (%) = sum of the lengths of intact pieces of core* > 4 inches / length of core advance

REFER TO ISRM KEY

*Minimum NQ rock core (1.88 in. OD of core)

Rock Quality Based on RQD

Rock Quality	RQD (%)
Very Poor	≤25
Poor	26 - 50
Fair	51 - 75
Good	76 - 90
Excellent	91 - 100

Desired Rock Observations (in this order, if applicable):

Color (Munsell color chart)
Texture (aphanitic, fine-grained, etc.)
Rock Type (granite, schist, sandstone, etc.)
Hardness (very hard, hard, mod. hard, etc.)
Weathering (fresh, very slight, slight, moderate, mod. severe, severe, etc.)
Geologic discontinuities/jointing:
-dip (horiz - 0-5 deg., low angle - 5-35 deg., mod. dipping - 35-55 deg., steep - 55-85 deg., vertical - 85-90 deg.)
-spacing (very close - <2 inch, close - 2-12 inch, mod. close - 1-3 feet, wide - 3-10 feet, very wide >10 feet)
-tightness (tight, open, or healed)
-infilling (grain size, color, etc.)
Formation (Waterville, Ellsworth, Cape Elizabeth, etc.)
RQD and correlation to rock quality (very poor, poor, etc.)
ref: ASTM D6032 and FHWA NHI-16-072 GEC 5 - Geotechnical Site Characterization, Table 4-12
Recovery (inch/inch and percentage)
Rock Core Rate (X.X ft - Y.Y ft (min:sec))

Sample Container Labeling Requirements:

WIN
Bridge Name / Town
Boring Number
Sample Number
Sample Depth
Blow Counts
Sample Recovery
Date
Personnel Initials

Modified ISRM Rock Classification (GZA)

Rock cores are visually classified by the Modified ISRM System using the following format and order: Field hardness, weathering, grain size, color, ROCK TYPE, joint description (spacing, dip angle, type, shape and roughness, weathering, aperture, infilling, condition of joint surfaces, other features such as minerals.

FIELD HARDNESS:
Very Hard – Cannot be scratched with knife or sharp pick. Breaking of hand specimens requires several hard blows of geologists pick.
Hard – Can be scratched with knife or pick only with difficulty. Hard blow of hammer required to detach hand specimen.
Medium – Can be grooved or gouged 1/16 in. deep by firm pressure on knife or pick point. Can be excavated in small chips to pieces about 1 in. maximum size by hard blows from the point of a geologist's pick.
Soft – Can be gouged or grooved readily with knife or pick point. Can be excavated in chips to pieces several inches in size by moderate blows of a pick point. Small thin pieces can be broken by finger pressure.
Very Soft – Can be carved with knife. Can be excavated readily with point of pick. Pieces 1 in. or more in thickness can be broken with finger pressure. Can be scratched readily by fingernail.

WEATHERING:
Fresh – Rock fresh, crystals bright, few joints may show slight staining. Rock rings under hammer if crystalline.
Slightly Weathered – Discoloration indicates weathering of rock material and discontinuity surfaces. All the rock material may be discolored by weathering and may be somewhat weaker externally than in its fresh condition. In granitoid rocks some occasional feldspar crystals are dull and discolored. Crystalline rocks ring under hammer.
Moderately Weathered – Less than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a continuous framework or as corestones. In granitoid rock, most feldspars are dull and discolored; some show clayey. Rock has dull sound under hammer and shows significant loss of strength as compared with fresh rock.
Highly Weathered – More than half of the rock material is decomposed and/or disintegrated to a soil. Fresh or discolored rock is present either as a discontinuous framework or as corestones. In granitoid rocks, all feldspars kaolinized to some extent. Some fragments of strong rock usually left.
Completely Weathered – All rock material is decomposed and/or disintegrated to soil. The original mass structure is still largely intact. Quartz may be present as dikes or Stringers.
Residual Soil – All rock material is converted to soil. The mass structure and material fabric are destroyed. There is a large change in volume, but the soil has not been significantly transported.

GRAIN SIZE:
Fine Grained – Barely seen with naked eye.
Coarse Grained: 1/8 in. to 1/4 in.
Aphanitic: Too small to be seen with naked eye.
Medium Grained: Barely seen with naked eye to 1/8 in.
Very Coarse Grained: >1/4 in.

COLOR and ROCK TYPE

JOINT DESCRIPTION:
Spacing and Dip Angle:

Joints	Spacing	Dip	Angle
Extremely Close	Less than ¾ in.	Horizontal	0° - 5°
Very Close	¾ in. – 2 ½ in.	Low Angle	5° - 35°
Close	2 ½ in. - 8 in.	Moderately dipping	35° - 55°
Moderate	8 in. – 24 in.	High Angle	55° - 85°
Wide	24 in. – 80 in.	Vertical	85° - 90°
Very Wide	80 in. – 20 ft.		
Extremely Wide	Greater than 20 ft.		

Type of Discontinuities:
Joint – A break of geologic origin in the continuity of a body of rock along which there has been no visible displacement. May form sets (parallel joints).
Shear – A zone of fractures along which differential movement has taken place parallel to the surface sufficient to produce slickensides, striations, or polishing. May be accompanied by a zone of fractured rock up to a few inches wide.
Fault – Major discontinuity along which there has been appreciable displacement and accompanied by gouge and/or severely fractured adjacent zone of rock.
Shear or Fault Zone – A band or zone of parallel, closely spaced discontinuities along which differential movement has occurred, accompanied by gouge, maylonite, and breccia.
Bedding – A surface parallel to the surface of the deposition
Foliation – A parallel orientation of platy minerals, or mineral banding in metamorphic rocks.

Shape and Roughness:

Shape	Roughness
Stepped	Rough
Undulating	Smooth
Planar	Slickensided

Weathering of Joints:
Fresh – No visible sign of weathering of the rock material
Discolored – The color of the original fresh rock material is changed. The degree of change from the original color should be indicated. If the color change is confined to particular mineral constituents this should be documented.
Decomposed – The rock is weathered to the condition of soil in which the original material fabric is still intact, but some or all of the mineral grains are decomposed
Disintegrated – The rock is weathered to the condition of soil in which the original fabric is still intact. The rock is friable, but the mineral grains are not decomposed.

Aperture:

Tight – Core pieces on either side of a discontinuity can be fitted together by hand so that no visible void spaces remain.
Open – Core pieces on either side of a discontinuity cannot be fitted tightly together and voids are remain.

		Opening
Very Tight	"Closed features"	<0.004 in.
Tight		0.004-0.01 in.
Partially Open		0.01-0.02 in.
Open	"Gapped features"	0.02 – 0.1 in.
Moderately Wide		0.1 – 0.4 in.
Wide		>0.4 in.
Very Wide	"Open features"	0.4 – 4.0 in.
Extremely Wide		4.0 – 40.0 in.
Cavernous		>40 in.

Infilling:
Silt, Sand, Clay, Calcite

Miscellaneous Features:
Pit – Barely seen with the naked eye, to ¼ inch in diameter
Vug – ¼ inch to 2 inches in maximum diameter
Cavity – 2 inches to 2 feet in maximum diameter
Cave – larger than 2 feet in maximum diameter

ROCK OUTCROP CHARACTERIZATION
Also include the following parameters when describing rock outcrops and rock masses:
Persistence:

	Dimensions
Very low persistence	<3.3 ft
Low persistence	3.3 – 9.8 ft
Medium persistence	9.8 -32.8 ft
High persistence	32.8 -65.6 ft
Very high persistence	>65.6 ft

Number of Sets (occurring locally):

I	Massive, occasional random joints
II	One joint set
III	One joint set plus random
IV	Two joint sets
V	Two joint sets plus random
VI	Three joint sets
VII	Three joint sets plus random
VIII	Four or more joint sets
IX	Crushed rock, earth-like

GZA reports the total core recovery and rock quality designation for each core run* on the boring logs. The definitions of these terms are as follows:

TOTAL CORE RECOVERY (REC)

$$\textbf{REC (\%)} = \frac{\text{Sum of Recovered Core}}{\text{Length of Core Run}} \times 100$$

ROCK QUALITY DESIGNATION (RQD)

$$\textbf{RQD (\%)} = \frac{\text{Sum of Lengths of intact Core with Full Diameter in Pieces 4 in. and Longer}}{\text{Length of Core Run}} \times 100$$

The RQD is in general accordance with methodology described by Deere and Deere (1988). In addition, significant vertical to sub-vertical foliation/cross-foliation joints/fractures occur within the rock mass and influence ground behavior. The length of core exhibiting the vertical to sub-vertical joints/fractures has been deducted from the RQD, which is consistent with the "pieces of intact rock core" criteria. The vertical to sub-vertical joints/fractures have been identified on the rock core or the upside divider in the core box with permanent "dots" spaced every 0.1 feet apart. These dots have been counted and entered in the fractures per foot column on the boring log.

* - RQD not reported for severely and/or completely weathered rock or core runs with length of 2.0 feet or less.

BB-PB TEST BORING LOGS

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-101
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	642.4	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/14 - 4/7/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	N1036011.8, E2272588.9	**Casing ID/OD:**	4"	**Water Level*:**	4.6'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0											
	1D	16/10	1.0 - 2.3	10-35-100/4"	R					Top 8": Olive-brown, moist, silty fine to coarse SAND, little Gravel, poorly graded.	
								640.4		-GLACIAL TILL- (SM)	
							RC	640.1		2.0	
										Bottom 4": Gray, dry fine to coarse GRAVEL, trace fine to coarse Sand, poorly graded, apparent rock fragments.	
	R1	60/57	4.4 - 9.4	RQD = 23%			NQ2			-POSSIBLE WEATHERED/FRACTURED BEDROCK- (GP)	
								638.0		2.3	
5										Split spoon refusal at 2.3' (El. 640.1). Possible bedrock.	
										4.4	
										Medium hard, fresh, fine grained, gray METAPELITE interbedded with Limestone. Primary joints are close, moderately dipping, undulating, rough, discolored, partially open. Secondary joints are close, near vertical, undulating, rough, discolored, partially open. Frequent 1/32"-1/8" calcite/lime stringers. Rock Quality = Very Poor Rock Core Times: 2.25, 2.0, 2.25, 1.75 2.5	
								633.0		9.4	
10										**Bottom of Exploration at 9.4 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured in hole 20 minutes after drilling completed. Casing was removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-102
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	642.5	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/14 - 4/8/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	N1036024.7, E2272498.7	**Casing ID/OD:**	4" and 3"	**Water Level*:**	+0.6'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA				
	1D	24/18	1.0 - 3.0	17-20-17-15	F	0		640.5		Brown-olive, fine to coarse SAND, some Silt, some Gravel, poorly graded, frozen. -REWORKED TILL- (SM)	G#65 A-2-4, SM WC=23.5
										2.0	
5	2D	24/16	5.0 - 7.0	5-15-23-36	38	38	27			Brown, moist, dense, silty fine to coarse SAND, some Gravel, poorly graded. -GLACIAL TILL- (SM)	
							31				
							39				
							38				
							39				
10	3D	24/17	10.0 - 12.0	15-22-25-23	47	47	38			Brown, wet, hard, lean CLAY, some fine to coarse SAND, little Gravel. -GLACIAL TILL- (CL)	G#66 A-4, CL LL=22 PL=14 PI=8 WC=10.8
							38				
							44				
							52				
							63				
15	4D	24/11	15.0 - 17.0	27-34-38-36	72	72	RC			Brown, wet, hard, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (CL)	
								624.2		18.3	
										Drill cuttings indicate possible rock at 18.3'. Drilled with roller cone from 18.3-20.0', practical refusal. -POSSIBLE BEDROCK-	
20								622.5		20.0	
										Bottom of Exploration at 20.0 feet below ground surface.	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not representative of penetration resistance.
2. Water level measured prior to drilling. Surface water running into hole.
3. Rope and cathead used for 1D through 3D. Rope sticking to cathead due to rain, swap to spooling winch for 4D for safety purposes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-103
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	642.3	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/14 - 4/7/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	N1035986.2, E2272457.6	**Casing ID/OD:**	4" and 3"	**Water Level*:**	14.8'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	15-19-27-31	F	0	SSA			Brown, fine to coarse SAND, some Silt, some Gravel, poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	G#67 A-1-6, SM WC=25.5
	2D	24/6	2.0 - 4.0	34-22-16-14	38	38				Brown-gray, moist, dense, GRAVEL, some fine to coarse Sand, little Silt poorly graded. -GLACIAL TILL (REWORKED)- (GM)	
	3D	24/7	4.0 - 6.0	22-22-15-14	37	37				Brown-gray, moist, dense, GRAVEL, some fine to coarse Sand, little Silt poorly graded. -GLACIAL TILL (REWORKED)- (GM)	G#68 A-1-6, GM WC=9.2
5							28				
							32	636.3		6.0	
							31				
							36				
	4D	17/14	9.0 - 10.4	6-12-100/5"	R		100			Brown, moist, fine to medium SAND, some Silt, trace Gravel, poorly graded. Gravel piece in tip. -GLACIAL TILL- (SM)	
10							RC	631.9		10.4	
										Split spoon refusal at 10.4' (El. 632.1), rolled to 13.2'. Cuttings consistent with rock from 10.4'-13.2'. Set up to core. -POSSIBLE BEDROCK-	
	R1	43/34	13.2 - 16.8	RQD = 18%			NQ2	629.1		13.2	
15										Medium hard, moderately weathered, fine grained, gray METAPELITE interbedded with Limestone. Joints are close to very close, moderately dipping to high angle, undulating, rough, discolored to decomposed, partially open to open. High angle bedding with occasional mud seams. White calcite/lime stringers throughout. Rock Quality = Very Poor Core Times (min/ft): 3.75, 1.75, 1.75, 2.0	
	R2	60/60	16.8 - 21.8	RQD = 80%						Hard, fresh, fine grained, gray METAPELITE interbedded with Limestone. Primary joints are close to moderately spaced, low angle, planar, rough, discolored, partially open. Secondary joints are moderately spaced, moderately dipping to high angle, planar, rough, discolored, partially open. White calcite/lime stringers throughout. Rock Quality = Good Rock Core Times (min/ft): 2.5, 2.25, 2.5, 2.75, 2.5	
20											
	R3	24/24	21.8 - 23.8	RQD = 38%							
								618.5		Hard, fresh, fine grained, gray METAPELITE interbedded with Limestone. Primary joints are close, low angle, planar, rough, discolored, partially open to open. Secondary joints are close, moderately dipping to high angle, undulating, rough, discolored, partially open. 1/16"-1/4" calcite/lime stringers throughout.	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured approximately 20 minutes after drilling was completed. Casing was removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-103
WIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	642.3	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/14 - 4/7/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	N1035986.2, E2272457.6	**Casing ID/OD:**	4" and 3"	**Water Level*:**	14.8'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										Rock Quality = Poor Rock Core Times (min/ft): 1.75, 2.5	
										23.8	
										Bottom of Exploration at 23.8 feet below ground surface.	
30											
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured approximately 20 minutes after drilling was completed. Casing was removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-104
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	633.8	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	Cased	**Core Barrel:**	--
Boring Location:	E1036148.7, N2272461.5	**Casing ID/OD:**	4"	**Water Level*:**	2.3'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA				
	1D	24/9	1.0 - 3.0	2-8-8-5	16	16				Brown, moist, medium dense, fine to coarse SAND, some Silt, some Gravel, poorly graded, occasional roots. -GLACIAL TILL- (SM)	G#61 A-2-4, SM WC=25.8
5	2D	24/19	5.0 - 7.0	4-5-7-8	12	12				Brown-olive, medium dense, fine to coarse SAND, some Silt, wet, poorly graded. -GLACIAL TILL- (SM)	
10	3D	24/20	10.0 - 12.0	7-8-7-8	15	15				Brown-olive, wet, medium dense, fine to coarse SAND, some Gravel, some Silt, poorly graded. -GLACIAL TILL- (SM)	G#62 A-2-4, SM WC=20.4
15	4D	24/0	15.0 - 17.0	16-19-29-34	48	48				No Recovery. Drill cuttings indicate similar soil to sample 3D.	
							RC	614.1		19.7	
20										Drilled with roller cone from 19.7'-22.0'; drill action and cuttings indicate possible bedrock. -POSSIBLE BEDROCK-	
								611.8		22.0	
25										**Bottom of Exploration at 22.0 feet below ground surface.**	

Remarks:

1. Water level measured after augering to 5.0' bgs, prior to introducing drilling water.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-105
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	638.6	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/14 - 4/8/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	E1036123.1, N2272406.7	**Casing ID/OD:**	4" and 3"	**Water Level*:**	Not observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0											
	1D	24/14	1.0 - 3.0	8-10-8-10	18	18				Brown, moist, medium dense, silty SAND, some Gravel, poorly graded. -GLACIAL TILL- (SM)	G#63 A-4, SM WC=19.6
5	2D	5/5	5.0 - 5.4	50/5"	R					Olive-brown, wet, dense to very dense, silty SAND, some Gravel, poorly graded. -GLACIAL TILL- (SM)	
10	3D	24/10	10.0 - 12.0	20-45-45-26	90	90		628.6		10.0 Gray-brown, wet, very dense, GRAVEL, little fine to coarse Sand, little Silt, poorly graded, angular Gravel. -POSSIBLE WEATHERED/FRACTURED BEDROCK- (GP)	
15	4D	24/16	15.0 - 17.0	24-38-44-51	82	82				Olive-gray, wet, very dense, GRAVEL, some fine to coarse Sand, little Silt, poorly graded, some angular Gravel. - POSSIBLE WEATHERED/FRACTURED BEDROCK (GM)	
								621.6		17.0 Advanced roller cone to 18.3' and began coring. Possible bedrock.	
	R1	38/32	18.3 - 21.5	RQD = 0%			NQ2	620.3		18.3 Medium hard, moderately weathered, gray METAPELITE interbedded with Limestone. Primary joints are close to very close, high angle to near vertical, undulating, rough, discolored, open. Secondary joints similar, low angle. 1/32"-1/4" calcite stringers throughout. Rock Quality = Very Poor Rock Core Times: 2.25, 3.25, 3.0	
20	R2	43/41	21.5 - 25.1	RQD = 42%						Medium hard, moderately weathered, fine grained, gray METAPELITE interbedded with Limestone. Primary joints are close to very close, moderately dipping to high angle, planar, rough, discolored, open. Secondary joints are moderately spaced, low angle, undulating, rough, discolored, partially open. 1/32"-1/4" calcite stringers throughout.	
25											

Remarks:

1. Spooling winch and safety hammer used for sampling due to wet conditions and safety concerns.
2. Well installed in boring to 17.3' bgs. 10' 2" ID screen, 10' 2" ID riser, sand backfill up to 3' bgs, bentonite chips up to ground surface.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-105
WIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	638.6	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/14 - 4/8/14	**Drilling Method:**	Cased	**Core Barrel:**	NQ2 Wireline
Boring Location:	E1036123.1, N2272406.7	**Casing ID/OD:**	4" and 3"	**Water Level*:**	Not observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	R3	48/48	25.1 - 29.1	RQD = 65%						Rock Quality: Poor Rock Core Times (min/ft): 1.75, 1.75 2.25 Medium hard, slightly weathered, fine grained, gray METAPELITE interbedded with Limestone. Primary joints are close to moderately spaced, low angle, undulating, rough, discolored, partially open to open. Secondary joints are similar, high angle. 1/64"- 1/4" calcite stringers throughout. Rock Quality = Fair Rock Core Times (min/ft): 2.25, 1.75 2.0, 2.25	
								609.5		29.1 **Bottom of Exploration at 29.1 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Spooling winch and safety hammer used for sampling due to wet conditions and safety concerns.
2. Well installed in boring to 17.3' bgs. 10' 2" ID screen, 10' 2" ID riser, sand backfill up to 3' bgs, bentonite chips up to ground surface.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: BB-PB-106
WIN: 6462.92

Driller:	Maine Test Boring	**Elevation (ft.)**	644.7	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	Cased	**Core Barrel:**	--
Boring Location:	E1036150.6, N2272319.4	**Casing ID/OD:**	4"	**Water Level*:**	2.0'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA				
	1D	24/8	1.0 - 3.0	23-18-12-14	30	30				Brown, moist, dense, fine to coarse, sandy GRAVEL, little Silt, poorly graded. -GLACIAL TILL- (GM)	
5	2D	24/14	5.0 - 7.0	13-11-7-11	18	18	RC			Brown, moist, medium dense, fine to coarse SAND, some Gravel, some Silt, poorly graded. -GLACIAL TILL- (SM)	
								635.3		9.4	
10										Drilled with roller cone from 9.4'-11.5'; action and cuttings indicate possible bedrock with smooth drilling. -POSSIBLE BEDROCK-	
								633.2		11.5	
										Bottom of Exploration at 11.5 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level taken approximately 20 minutes after drilling was complete and casing removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-301

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.5	**Auger ID/OD:**	N/A
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/18/15-8/18/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1016908.4, E2275997.1	**Casing ID/OD:**	3"	**Water Level*:**	8.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	3-8-14-9	22	22	PUSH			Brown, moist, medium dense, silty fine to coarse SAND, little Gravel, trace organics. -TOPSOIL- (SM)	
								598.5		2.0	
	2D	24/10	2.0 - 4.0	8-8-8-8	16	16				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
							1				
5	3D	24/13	5.0 - 7.0	2-2-7-11	9	9	3			Brown, moist, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL (REWORKED)- (GM)	G#208 A-2-4, GM wc=18.3
							17				
							55	593.5		7.0	
							43				
							41				
10	4D	21/9	10.0 - 11.8	14-15-14-50/3"	29	29	92			Brown, wet, medium dense, GRAVEL, some Silt, some fine to coarse Sand. -GLACIAL TILL- (GM) Split spoon refusal at 11.7' bgs; possible bedrock.	
							NQ	588.8		11.7	
	R1	37/37	12.0 - 15.1	RQD = 41%						Casing met refusal at 11.8' bgs. Drilled with roller cone to 12.0' bgs and set up to core. R1: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE with calcite veins. Primary joints are close, low angle, rough, planar, partially open to open. Secondary joints are close, high angle, planar, rough, fresh, partially open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.0, 1.5, 1.5	
15	R2	40/40	15.1 - 18.4	RQD = 76%						R2: Hard, fresh, aphanitic, gray, METAPELITE with calcite veins and seams. Joints are close to moderately spaced, low angle, planar, rough, fresh, partially open. One high angle joint. Rock Mass Quality = Good Rock Core Times (min/ft): 1.75, 1.5, 1.5	
	R3	42/41	18.5 - 22.0	RQD = 71%						R3: Hard, fresh, aphanitic, gray, METAPELITE with calcite veins and seams. Joints are close, low angle to moderately dipping, planar, rough, fresh, partially open. Rock Mass Quality = Fair Rock Core Times (min/ft): 1.25, 1.0, 1.0, 1.0/6"	
20											
								578.5		22.0	
										Bottom of Exploration at 22.00 feet below ground surface.	
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-302

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.2	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/19/15-8/19/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1016890, E2276109.9	**Casing ID/OD:**	3"	**Water Level*:**	2.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	1-1-1-1	2	2	PUSH			Dark brown, moist, soft, SILT, some fine to coarse Sand, some organics. -FOREST MAT- (ML)	
								588.2		2.0	
	2D	24/12	2.0 - 4.0	2-1-3-8	4	4				Brown, wet, very loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#209 A-1-b, GM wc=16.8
							8				
5	3D	24/0	5.0 - 7.0	13-13-17-15	30	30	20			No recovery.	
							27				
							39				
							26				
							21				
10	4D	24/7	10.0 - 12.0	13-11-26-17	37	37	24			Brown, wet, dense, GRAVEL, some Silt, little fine to coarse Sand. -GLACIAL TILL- (GM)	
							46				
							94			Casing met refusal at 12.8' bgs; split spoon refusal at 12.8' bgs; possible bedrock.	
								577.4		12.8	
	R1	60/60	13.0 - 18.0	RQD = 72%			NQ			Roller cone to 13.0' bgs and set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Joints are close to moderately spaced, low angle to moderately dipping, rough, undulating, fresh, partially open. Rock Mass Quality = Fair Rock Core Times (min/ft): 2.25, 1.25, 1.25, 1.0, 1.0	
15											
								572.2		18.0	
										Bottom of Exploration at 18.00 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-303

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	595.6	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/18/15-8/18/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1016920.7, E2276040.4	**Casing ID/OD:**	3"	**Water Level*:**	5.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	1-2-5-6	7	7	PUSH			Brown, moist, medium stiff, sandy SILT, little Gravel, trace organics. -TOPSOIL- (ML)	
								593.6		2.0	
	2D	24/12	2.0 - 4.0	4-5-6-21	11	11				Brown, moist, stiff, sandy SILT, some Gravel. -GLACIAL TILL (REWORKED)- (ML)	
5								590.6		5.0	
	3D	24/8	5.0 - 7.0	6-8-8-8	16	16	5			Brown, wet, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
							15				
							17				
							36				
	4D	1/0	9.2 - 9.3	50/1"	R		100	586.3		No recovery. Split spoon refusal at 9.3' bgs; possible bedrock.	
10	R1	24/18	9.3 - 11.3	RQD = 0%			NQ			9.3	
										Casing met refusal at 9.3' bgs. Drilled with roller cone to 9.3' bgs. Set up to core. R1: Hard, fresh to slightly weathered aphanitic, gray, METAPELITE. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.0, 1.75	
	R2	24/30	11.3 - 13.3	RQD = 0%						R2: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE. Recovery consisted of gravel.	
	R3	31/22	13.3 - 15.9	RQD = 0%						R3: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE. Recovery consisted of gravel. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.0, 2.0, 1.5/6"	
15								579.7		15.9	
										Bottom of Exploration at 15.90 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: BB-PB-303

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-304

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	596.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/30/15-4/30/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1017003.4, E2276034.9	**Casing ID/OD:**	3" ID	**Water Level*:**	
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	3-2-2-4	4	4	2	595.6		Top 4": -FOREST MAT-	
							3			0.4	
										Brown, moist, soft, sandy, organic SILT, trace root fibers and leaves.	
								594.0		-SUBSOIL- (OL)	
	2D	24/3	2.0 - 4.0	2-2-3-9	5	5	2			2.0	
							3			Brown, moist, loose, silty fine to medium SAND, little Gravel.	
							17			-GLACIAL TILL- (SM)	
5	3D	24/3	5.0 - 7.0	66-35-21-41	56	56	14			Brown, wet, very dense, sandy GRAVEL, trace Silt.	
							34			-GLACIAL TILL- (GW)	
							37				
	R1	60/60	8.4 - 13.4	RQD = 48%			25	587.6		8.4	
							NQ			Casing driven to 8.4' bgs, advanced roller cone to 8.4' bgs, began coring.	
10										Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to moderately spaced, high angle, planar, rough, partially open to open.	
										Rock Mass Quality = Poor	
										Rock Core Times (min/ft): 1.5, 2.0, 2.5, 1.0, 1.5	
	R2	60/57	13.4 - 18.4	RQD = 22%							
15										Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle to low angle, planar, rough, discolored, open, with sand infilling.	
										Rock Mass Quality = Very Poor	
										Rock Core Times (min/ft): 2.0, 1.5, 1.0, 2.0, 2.0	
								577.6		18.4	
20										**Bottom of Exploration at 18.40 feet below ground surface.**	
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-305

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.5	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/19/15-8/20/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1017038.3, E2275967.5	**Casing ID/OD:**	3"	**Water Level*:**	7.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	1-1-1-4	2	2	PUSH			Brown, moist, very loose, fine to coarse SAND, some Silt, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	3-2-3-2	5	5				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#210 A-4, SM wc=29.4
								596.5		4.0	
5	3D	24/8	5.0 - 7.0	16-15-18-30	33	33	26			Brown/gray, moist, dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
							33				
							73				
	R1	31/12	8.3 - 10.9	RQD = 0%			100 NQ	592.2		8.3	
10	R2	26/21	10.9 - 13.1	RQD = 15%						Casing met refusal at 8.3' bgs; possible bedrock. Roller cone to 8.3' bgs and set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.5, 1.0, 1.0/6" R2: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.5, 1.5, 1.0/2"	
	R3	24/35	13.1 - 15.1	RQD = 34%						R3: Hard, fresh, aphanitic, gray, METAPELITE with calcite stringers and veins. Joints are very close to close, low angle to moderately dipping, planar, rough, fresh, partially open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.0, 2.0	
15								585.4		15.1	
20										**Bottom of Exploration at 15.10 feet below ground surface.**	
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-306

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	589.8	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/19/15-8/19/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1017044.4, E2276091.5	**Casing ID/OD:**	3"	**Water Level*:**	1.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-1	2	2	PUSH	589.6		Top 2": -FOREST MAT- 0.2	
										Bottom 4": Brown, moist, very loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/7	2.0 - 4.0	2-5-7-11	12	12				Brown, wet, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
							18				
5	3D	24/16	5.0 - 7.0	17-21-28-24	49	49	59			Brown, wet, dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#211 A-1-a, GM wc=7.0
							35				
							36				
							43				
	4D	1/0	9.2 - 9.3	50/1"	R		50	580.5		Casing met refusal at 9.2' bgs; split spoon refusal at 9.3' bgs; possible bedrock. No recovery. 9.3	
10	R1	60/30	9.3 - 14.3	RQD = 0%			NQ			Roller cone to 9.3' bgs, set up to core. R1: Hard, slightly weathered, aphanitic, gray, METAPELITE. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.0, 2.5, 1.5, 3.0, 2.5	
								575.5		14.3	
15										**Bottom of Exploration at 14.30 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-311

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	596.0	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/20/15-8/20/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020321.3, E2275180	**Casing ID/OD:**	3"	**Water Level*:**	5.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-3-2	4	4	PUSH			Dark brown, moist, soft, SILT, some fine to coarse Sand, little Gravel. -FOREST MAT- (ML)	
								594.0		2.0	
	2D	24/9	2.0 - 4.0	1-12-17-13	29	29				Brown, moist, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
5	3D	24/14	5.0 - 7.0	38-31-27-25	58	58	27			Brown/gray, wet, very dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#212 A-1-b, GM wc=10.9
							62				
							63				
	4D	1/0	8.6 - 8.7	50/1"			100	587.4		Casing met refusal at 8.5' bgs; split spoon refusal at 8.6' bgs; possible bedrock.	
	R1	36/36	8.7 - 11.7	RQD = 47%	R		NQ			8.6	
10										Roller cone to 8.7' bgs and set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Joints are very close to to moderately spaced, low angle to moderately dipping, planar, rough, fresh, partially open. Rock Mass Quality = Poor Rock Core Times (min/ft) 1.5, 1.5, 1.5	
	R2	55/55	11.7 - 16.3	RQD = 87%						R2: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Joints are very close to moderately spaced, low angle to moderately dipping, undulating, rough, fresh, partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 1.5, 1.5, 1.25, 1.5, 0.75/6"	
15	R3	29/29	16.3 - 18.7	RQD = 83%						R3: Hard, fresh, aphanitic, gray, METAPELITE with calcite stringers. Joints are very close to close, low angle to moderately dipping, planar, rough, fresh, partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 1.5, 1.5, 0.5/4"	
								577.3		18.7	
20										**Bottom of Exploration at 18.70 feet below ground surface.**	
25											

Remarks:

1. Water level measured 20 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-312

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.4	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/21/15-8/21/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020237.5, E2275298.5	**Casing ID/OD:**	3"	**Water Level*:**	5.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-1-3-6	4	4	PUSH			Brown, dry, very loose, silty fine to medium SAND, some organics. -FOREST MAT- (SM)	
							12				
								603.4		2.0	
	2D	16/12	2.0 - 3.3	23-34-75/4"	R		51			Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 3.3' bgs; possible bedrock.	G#213 A-1-b, SM wc=12.2
	R1	41/41	3.7 - 7.1	RQD = 24%			NQ	602.1		3.3	
5										Casing met refusal at 3.5' bgs. Roller cone to 3.7' bgs, set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams. Primary joints are very close to closely spaced, low angle, planar, rough, fresh, partially open to open. Secondary joints are moderately spaced, high angle to vertical, planar, rough, fresh, tight to partially open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 1.5, 1.5, 1.0/4"	
	R2	19/17	7.1 - 8.7	RQD = 89%				596.7		R2: Hard, fresh, aphanitic, gray, METAPELITE with calcite veins. Joints are close, low angle, planar, rough, fresh, partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 1.5, 1.0/7"	
10										8.7	
										Bottom of Exploration at 8.70 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-313

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.9	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/20/15-8/20/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020309.1, E2275230.5	**Casing ID/OD:**	3"	**Water Level*:**	4.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-1-3-4	4	4	PUSH	594.7		Top 2": -TOPSOIL-	
										0.2	
										Bottom 8": Brown, moist, soft, SILT, some fine to coarse Sand, little Gravel.	
										-GLACIAL TILL- (ML)	
	2D	24/18	2.0 - 4.0	6-7-8-11	15	15				Brown, moist, medium dense, silty GRAVEL, some fine to coarse Sand.	G#214 A-4, GM wc=16.7
										-GLACIAL TILL- (GM)	
	3D	0/0	4.0 - 4.0	RQD = 0%			NQ			No recovery.	
5	R1	18/12	4.5 - 6.0					590.4		4.5	
								589.8		Casing met refusal at 4.5' bgs. Set up to core.	
										R1, 4.5'-5.1' bgs: 7" thick Boulder.	
	R2	60/60	6.0 - 11.0	RQD = 70%						5.1	
										R1, 5.1'-6.0' bgs: Hard, fresh, aphanitic, gray, METAPELITE with calcite stringers. Joints are close, low angle, rough, undulating, discolored, partially open to open.	
										Rock Mass Quality = Very Poor	
										Rock Core Times (min/ft): 1.0, 0.5/6"	
10										R2: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE with calcite seams and veins. Joints are very close to close, low angle to moderately dipping, rough, undulating, fresh to discolored, partially open to open.	
								583.9		Rock Mass Quality = Fair	
										Rock Core Times (min/ft): 1.0, 1.0, 1.0, 1.0, 1.25	
										11.0	
15										**Bottom of Exploration at 11.00 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-314

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.9	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/25/15-8/26/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020417.5, E2275205.2	**Casing ID/OD:**	3"	**Water Level*:**	4.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	1-2-3-6	5	5	PUSH	593.6		Top 3": -FOREST MAT-	G#215 A-1-b, GM wc=32
										0.3	
										Bottom 8": Brown, moist, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	
	2D	24/10	2.0 - 4.0	6-4-7-7	11	11				Brown, moist, medium dense GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	
5	3D	24/9	5.0 - 7.0	4-7-21-34	28	28	9			Brown, wet, medium dense, GRAVEL, little fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
							24				
	R1	60/58	7.6 - 12.6	RQD = 82%			78 NQ	586.3		7.6	
10										Casing met refusal at 7.6' bgs. Roller cone to 7.6' bgs and set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams and veins. Joints are close to moderately spaced, moderately dipping to high angle, rough, planar, fresh, tight to partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 2.0, 2.0, 2.0, 1.5, 1.5	
								581.3		12.6	
15										**Bottom of Exploration at 12.60 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-315

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.8	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/25/15-8/25/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020493.2, E2275136.9	**Casing ID/OD:**	3"	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	2-2-3-4	5	5	PUSH	593.3		Top 6": -FOREST MAT-	
										0.5	
										Bottom 5": Brown, moist, medium stiff, sandy SILT. -GLACIAL TILL- (ML)	
	2D	24/7	2.0 - 4.0	1-1-1-WOH	2	2				Brown, moist, soft, SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML)	G#216 A-4, ML wc=17.1
5	3D	18/11	5.0 - 6.5	21-16-125	141	141	27			Brown, wet, very dense, GRAVEL, some Silt, some fine to coarse Sand. -GLACIAL TILL- (GM)	
							74				
	R1	60/46	7.3 - 12.3	RQD = 17%			NQ	586.8		7.0	
										Casing met refusal at 7.0' bgs; possible bedrock. Roller cone to 7.3' bgs and set up to core. R1: Hard, fresh, aphanitic, gray, METAPELITE with calcite seams. Primary joints are close, low angle to moderately sipping, planar, rough, fresh, partially open. Secondary joints are very close to close, high angle planar, rough, fresh to discolored, tight to partially open. Some extremely fractured sections. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.0, 1.5, 1.5, 2.0, 3.0	
10											
	R2	26/26	12.3 - 14.5	RQD = 0%						R2: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.25, 1.5, 0.5/2"	
	R3	18/18	14.5 - 16.0	RQD = 0%						R3: Hard, fresh to slightly weathered, aphanitic, gray, METAPELITE. Extremely fractured. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 0.75/8", 1.5/ 7"	
15	R4	15/15	16.0 - 17.3	RQD = 73%				576.5		R4: Hard, fresh, aphanitic, gray, METAPELITE. Joints are close to moderately spaced, high angle, planar, rough, fresh, tight to partially open. Rock Mass Quality = Fair Rock Core Times (min/ft): 1.5, 0.5/3"	
										17.3	
20										**Bottom of Exploration at 17.30 feet below ground surface.**	
25											

Remarks:

1. Water level measured 20 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-316

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.5	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/26/15-8/26/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020409.6, E2275265.7	**Casing ID/OD:**	3"	**Water Level*:**	4.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-1-4-4	5	5	PUSH	592.1		Top 4": -FOREST MAT-	
							2			0.4	
	2D	24/3	2.0 - 4.0	5-7-11-14	18	18	4			Bottom 3": Brown, moist, medium stiff, SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML) Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	
							9	588.5		4.0	
	R1	58/58	4.0 - 8.8	RQD = 24%			29			Casing met refusal at 4.0' bgs; possible bedrock. Roller cone to 4.0' bgs and set up to core. R1: Hard, fresh, aphanitic, METAPELITE with calcite veins and seams. Primary joints are close to moderately spaced, moderately dipping to high angle, rough, planar, fresh, partially open. Secondary joints are close, low angle, rough, planar, fresh, partially open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.0, 1.5, 1.5, 1.5, 1.0/8"	
5							NQ				
								583.7		8.8	
10										**Bottom of Exploration at 8.80 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-321

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	697.5	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/16/15-4/16/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028815.6, E2274473.4	**Casing ID/OD:**	3" ID	**Water Level*:**	7.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	5-6-2-2	8	8	7	697.1		Top 5": -TOPSOIL- 0.4 Bottom 10": Brown, moist, loose, fine to coarse SAND, trace Gravel, trace Silt. -FILL- (SM)	
							4				
	2D	24/2	2.0 - 4.0	2-2-3-2	5	5	5			Brown, moist, loose, fine to coarse SAND, little Gravel, little Silt. -FILL- (SM)	
							6				
							14				
5	3D	24/17	5.0 - 7.0	25-71-47-49	>100		42	692.5		5.0 Gray-brown, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	G#217 A-1-b, SM wc=8.9
							53				
	R1	12/6	7.8 - 8.8	RQD = 0%			108 R/C NQ	689.9		7.6 Casing refusal at 7.6' bgs. Roller cone to 7.8' bgs and set up to core. Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close, highly fractured resulting in angular Gravel. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.5	
	R2	48/15	8.8 - 12.8	RQD = 0%							
10											
	R3	30/24	12.8 - 15.3	RQD = 0%						Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close, highly fractured resulting in angular Gravel. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5, 1.5, 0.75, 1.5	
										Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close and highly fractured resulting in angular Gravel. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5, 2.25, 1.5/.5'	
15	R4	32/24	15.3 - 18.0	RQD = 0%							
										Hard to medium hard, fresh to slighly weathered, fine grained, gray, METAPELITE. Joints are extremely close and highly fractured resulting in angular Gravel. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.5/.5', 2.25, 2.75	
								679.5		18.0 **Bottom of Exploration at 18.00 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 20 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-322

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.8	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/20/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028822.4, E2274554.5	**Casing ID/OD:**	3" ID	**Water Level*:**	1.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	9-33-22-4	55	55	29 16 9	698.6		Top 2": -TOPSOIL- 0.2 Bottom 15": Brown, moist, very dense, fine to coarse SAND, trace Gravel, trace Silt. -FILL- (SP)	
	2D	24/0	2.0 - 4.0	4-10-14-15	24	24	16 42	694.8		4.0 Brown, wet, very dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
5	3D	24/9	4.0 - 6.0	22-43-49-45	92	92	R/C				
10	4D R1	1/0 60/57	10.0 - 10.1 10.1 - 15.1	50/2" RQD = 52%	R		NQ	688.7		Split spoon refusal at 10.1' bgs. Set up to core. 10.1 Hard to medium hard, slightly weathered, fine grained, gray, METAPELITE. Joints are very close to moderately close, moderately dipping to high angle, undulating, rough, fresh. Rock Mass Quality = Fair Rock Core Times (min/ft): 3.25, 2.0, 2.0, 2.0, 2.0	
15								683.8		15.0 **Bottom of Exploration at 15.00 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-323

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	697.9	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/16/15-4/17/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028839.5, E2274517.3	**Casing ID/OD:**	3" ID	**Water Level*:**	1.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	9-19-18-5	F	0	21	697.6		Top 4": -TOPSOIL- (OL) 0.3	G#218 A-4, SM wc=24.3
							14			Bottom 11": Brown, frozen, silty fine to coarse SAND, some Gravel. -FILL- (SM)	
							7				
	2D	24/3	2.0 - 4.0	6-6-3-8	9	9	11			Brown, wet, loose, silty fine to coarse SAND, some Gravel. (SM)	
							24	693.9		4.0	
5	3D	19/10	5.0 - 6.6	24-61-63-60/1"	>100		39			Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
							96				
							172				
							WASH				
10	4D	2/1	10.0 - 10.2	98/2"			R/C			Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
15	5D	1/0	15.0 - 15.1	50/1"	R		R/C	682.8		Split spoon refusal at 15.1' bgs; possible bedrock. 15.1	
										Casing refusal at 15.6' bgs; roller cone to 17.0' bgs, set up to core.	
	R1	60/44	17.0 - 22.0	RQD = 0%			NQ			Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, moderately dipping, undulating, rough, fresh. Rock Core Times (min/ft): 1.5, 2.5, 1.75, 3.0 Rock Mass Quality = Very Poor	
20								675.9		22.0	
										Bottom of Exploration at 22.00 feet below ground surface.	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured after stabilizing overnight.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-324

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	691.9	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/20/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028921.3, E2274521.2	**Casing ID/OD:**	3" ID	**Water Level*:**	2.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	5-2-2-2	4	4	3			Brown, moist, very loose, fine to coarse SAND, trace Gravel, trace Silt. -FILL- (SP)	
							3				
								689.9		2.0	
	2D	24/19	2.0 - 4.0	5-6-28-44	34	34	10			Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
							58				
							108				
5	3D	13/6	5.0 - 6.1	107-110-50/1"	R		67			Gray-brown, wet, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
								685.8			
							209			Split spoon refusal at 6.1' bgs.	
										6.1	
							R/C			Casing refusal at 7.1' bgs. Roller cone to 8.0' bgs, set up to core.	
	R1	48/36	8.0 - 12.0	RQD = 8%			NQ			Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, moderately dipping, undulating, rough. Calcite stringers and veins. Rock Core Times (min/ft): 3.0, 2.25, 1.75, 2.75 Rock Mass Quality = Very Poor	
10											
	R2	36/30	12.0 - 15.0	RQD = 22%						Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, high angle to moderately dipping, undulating, rough. Calcite stringers and veins. Rock Core Times (min/ft): 2.0, 2.5, 3.25 Rock Mass Quality = Very Poor	
15	R3	36/36	15.0 - 18.0	RQD = 0%						Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, high angle to moderately dipping, undulating, rough. Calcite stringers and veins. Rock Core Times (min/ft): 2.0, 2.0, 2.0 Rock Mass Quality = Very Poor	
								673.9		18.0	
										Bottom of Exploration at 18.00 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-325

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	688.7	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/21/15-4/21/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028943.9, E2274472.9	**Casing ID/OD:**	3" ID	**Water Level*:**	1.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	7-13-4-5	F	0	7			Brown, frozen, fine to coarse SAND, trace Gravel, trace Silt. -FILL- (SP)	
							8				
								686.7		2.0	
	2D	24/15	2.0 - 4.0	18-30-32-12	62	62	25			Brown, wet, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	G#220 A-1-a, GP-GM wc=11.8
							32				
							60	684.1		4.6	
5	R1	60/57	5.0 - 10.0	RQD = 20%			R/C NQ			Casing refusal at 4.6' bgs; possible bedrock. Roller cone to 5.0' bgs and begin coring. Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are moderately close to very close, moderately dipping, undulating, rough, fresh. Calcite stringers and veins. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 1.75, 2. 0, 3.5	
10								678.7		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-326

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	695.3	**Auger ID/OD:**	
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/21/15-4/21/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1028950.2, E2274577	**Casing ID/OD:**	3" ID	**Water Level*:**	2.2'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	8-13-11-13	24	24	10			Brown, moist, medium dense, fine to coarse SAND, trace Silt, trace Gravel. -FOREST MAT- (SP)	
							13	693.3		2.0	
	2D	24/20	2.0 - 4.0	5-7-6-10	13	13	7			Brown, wet, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
							8				
							15				
5	3D	24/16	5.0 - 7.0	6-6-9-12	15	15	19			Brown, wet, medium dense, gravelly fine to coarse Sand, trace Silt. -GLACIAL TILL- (SP)	
							30				
							50				
							128				
							R/C				
10	4D	1/0	10.0 - 10.1	50/1"	R			685.2		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1	
										Advanced roller cone to 12.0' bgs and begin to core.	
	R1	60/48	12.0 - 17.0	RQD = 23%			NQ			Hard to medium hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, high angle to moderately dipping, undulating, rough. Some calcite stringers and veins. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 1.75, 1.75, 1.5, 2.0	
15											
								678.3		17.0	
										Bottom of Exploration at 17.00 feet below ground surface.	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-501

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	596.0	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/03/17 - 01/03/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1016919.3, E2276030.7	**Casing ID/OD:**	3"	**Water Level*:**	5.8'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/11	1.0 - 3.0	1-2-5-5	7	7	SSA			Brown, moist, medium stiff, SILT, some fine to medium Sand, little Gravel. -REWORKED GLACIAL TILL- (ML)	
								593.0		3.0	
5	2D	24/12	5.0 - 7.0	4-6-6-11	12	12				Brown/grey, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	R1	35/14	9.5 - 12.4	RQD = 0%			NX	586.7		9.3	
10										Casing refusal at 9.3' bgs. Roller cone to 9.5' bgs and set up to core. R1: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE. Extremely fractured, resulting in angular gravel. Rock Quality = Very Poor Rock Core Times (min:sec): 9.5-10.5 (2:30), 10.5-11.5 (3:30), 11.5-12.4 (4:15)	
	R2	60/60	12.4 - 17.4	RQD = 7%				583.6		12.4	
15										R2: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE. Joints are very close to extremely close, low angle, rough, planar, partially open, fresh to discolored. One high angle joint. Rock Quality = Very Poor Rock Core Times (min:sec): 12.4-13.4 (2:30), 13.4-14.4 (3:00), 14.4-15.4 (2:00), 15.4-16.4 (1:30), 16.4-17.4 (1:30)	
20								578.6		17.4	
25										**Bottom of Exploration at 17.4 feet below ground surface.**	

Remarks:

1. 3" casing to 9.3' bgs
2. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-502

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.5	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/12/17 - 01/12/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1016922.3, E2276059.0	**Casing ID/OD:**	4"/3"	**Water Level*:**	2.1'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/12	1.0 - 3.0	1-1-2-2	3	3	SSA			Brown, moist, soft, sandy SILT, little Gravel. -REWORKED GLACIAL TILL- (ML)	
								590.5		3.0	
5	2D	13/7	5.0 - 6.1	5-9-50/1"	R		R/C			Brown, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								587.4		6.1	
										Split spoon refusal at 6.1' bgs; casing met refusal at 6.1' bgs; roller cone and 3" casing advanced to 8.0' bgs through possible Fractured Rock and set up to core.	
	R1	34/34	8.0 - 10.8	RQD = 0%			NX			R1: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE with Calcite stringers. Primary joints are close, low angle to moderately dipping, rough, planar, discolored, open. Secondary joints are close, high angle, rough, planar, discolored to fresh, open. Rock Quality = Very Poor Rock Core Times (min:sec): 8.0-9.0 (3:15), 9.0-10.0 (2:30), 10.0-10.8 (2:45)	
10								582.7		10.8	
	R2	38/38	10.8 - 14.0	RQD = 26%						R2: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE with Calcite stringers. Primary joints are close, low angle to moderately dipping, rough, planar, discolored, open. Secondary joints are close, high angle, rough, planar, discolored to fresh, open. Rock Quality = Poor Rock Core Times (min:sec): 10.8-11.0 (1:00), 11.0-12.0 (2:30), 12.0-13.0 (2:30), 13.0-14.0 (3:00)	
								579.5		14.0	
15										**Bottom of Exploration at 14.0 feet below ground surface.**	
20											
25											

Remarks:

1. 4" casing to 6.1' bgs, then 3" casing to 8.0' bgs.
2. Roller cone advancement from 6.1'-8.0' bgs to less than approximately 1 min./ft. Increased resistance at 8.0' bgs (750 psi of downward pressure).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-503

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	597.1	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/16/17 - 01/16/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	--
Boring Location:	N1017000.9, E2276016.6	**Casing ID/OD:**	4"	**Water Level*:**	2.1'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
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MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/8	1.0 - 3.0	2-1-1-2	2	2	SSA			Brown, moist, soft, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
5	2D	24/9	5.0 - 7.0	4-7-8-5	15	15				Brown, wet, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
								589.1		8.0 Casing met refusal at 8.0' bgs. Roller cone advanced from 8.0'-11.1' bgs.	
10							R/C			Roller cone times (min:sec): 8.0-9.4 (Less than 1:00), 9.4-10.9 (1:30) Moderate resistance during roller cone advancement indicates possible weak/fractured bedrock.	
								586.2 586.0		10.9 10.9-11.1 (2:00) Increased resistance during roller cone advancement indicates possible increased bedrock strength/quality.	
										11.1 **Bottom of Exploration at 11.1 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured 30 minutes after completion of drilling.
2. Roller cone advancement based on 750 psi of downward pressure.
3. 4" casing to 8.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-504

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.8	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/16/17 - 01/16/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	--
Boring Location:	N1017005.1, E2276051.0	**Casing ID/OD:**	4"	**Water Level*:**	4.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
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MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/3	1.0 - 3.0	1-1-2-1	3	3	SSA			Dark brown, moist, soft, SILT, little fine to medium Sand, with organics. -FOREST MAT- (ML)	
								590.8		3.0	
5	2D	24/10	5.0 - 7.0	3-10-12-12	22	22				Brown, wet, medium dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
							R/C	586.3		7.5	
								585.3		Casing met refusal at 7.5' bgs. Roller cone advanced from 7.5'-9.5' bgs. Roller cone times (min:sec): 7.5-8.5 (2: 00) Moderate resistance during roller cone a dvancement indicates possible weak/fractured bedrock.	
10								584.3		8.5	
										Increased resistance during roller cone a dvancement indicates possible weak/fractured bedrock.	
										9.5	
										Bottom of Exploration at 9.5 feet below ground surface.	
15											
20											
25											

Remarks:

1. 4" casing to 7.5' bgs.
2. Water level measured 15 minutes after completion of drilling.
3. Roller cone advancement at 750 psi downward pressure.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-511

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.3	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/04/17 - 01/04/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1028817.3, E2274493.5	**Casing ID/OD:**	4"/3"	**Water Level*:**	4.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/9	1.0 - 3.0	1-4-1-2	5	5	SSA			Brown, moist, medium stiff, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
5	2D	19/12	5.0 - 6.6	64-62-100-50/1"	>100		R/C			Brown/grey, wet, very dense, GRAVEL, some fine to medium Sand. -GLACIAL TILL- (GP)	
	R1	46/40	6.6 - 10.4	RQD = 0%			NX	691.7		6.6 Split spoon refusal at 6.6' bgs. Casing met refusal at 6.6' bgs; roller bit to 6.6' and set up to core. R1: Hard, fresh to slightly weathered, fine grained, grey, METAPELITE. Joints are extremely close, highly fractured resulting in angular Gravel. Rock Quality = Very Poor Rock Core Times (min:sec): 6.6-7.6 (2:00), 7.6-8.6 (5:00), 8.6-9.6 (4:00), 9.6-10.4 (3:30)	
10	R2	30/30	10.5 - 13.0	RQD = 0%				685.3		R2: Hard, fresh to slightly weathered, fine grained, grey, METAPELITE. Joints are extremely close, highly fractured resulting in angular Gravel. Rock Quality = Very Poor Rock Core Times (min:sec): 10.4-11.4 (3:00), 11.4-12.4 (3:00), 12.4-13.0 (2:00) 13.0 **Bottom of Exploration at 13.0 feet below ground surface.**	
15											
20											
25											

Remarks:

1. 4" casing to 6.6' bgs, and 3" casing to 6.6' bgs.
2. Water level measured 30 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-511A

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.3	**Auger ID/OD:**	SSA
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/12/17 - 01/12/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1028818.6, E2274497.8	**Casing ID/OD:**	4"/3"	**Water Level*:**	11.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA				
5											
10							R/C	686.6		11.7 Casing refusal at 11.7' bgs, roller cone at 750 psi from 11.7'-15.7' bgs at <1 min/ft through possible fractured rock.	
15							NX	682.6		15.7 15.7'-16.0' bgs increased resistance. Roller cone to 16.0' bgs and set up to core.	
	R1	60/60	16.0 - 21.0	RQD = 43%						R1: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE with Calcite stringers and veins. Primary joints are close to moderately spaced, high angle, rough, planar, fresh to discolored, open. Secondary joints are close, low angle, rough, planar, discolored, open. Rock Quality = Poor Rock Core Times (min:sec): 16.0-17.0 (2:45), 17.0-18.0 (2:00), 18.0-19.0 (2:15), 19.0-20.0 (1:30), 20.0-21.0 (1:45)	
20								677.3		21.0 **Bottom of Exploration at 21.0 feet below ground surface.**	
25											

Remarks:

1. Moved from location BB-PB-511 approximately 4.5' east.
2. No samples were taken in overburden materials.
3. 4" casing to 11.7' bgs, then 3" casing to 15.7' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-512

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.3	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/10/17 - 01/10/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1028824.2, E2274525.6	**Casing ID/OD:**	4"/3"	**Water Level*:**	22.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/13	1.0 - 3.0	4-7-4-5	11	11	SSA			Brown/grey, moist, medium dense, silty GRAVEL, some fine to medium Sand, with organics. -GLACIAL TILL- (GM)	
5	2D	24/12	5.0 - 7.0	3-3-2-3	5	5				Brown/grey, moist, loose, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
							R/C/	689.8		8.5 Casing met refusal at 8.5' bgs. Advanced roller bit through apparent fractured rock with 750 psi on drill head.	
10											
15								683.3		15.0 Increased roller cone resistance at approximately 15.0' bgs. Set up to core. R1: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE with Calcite stringers and veins. Joints are very close to close, high angle, rough, planar, partially open to open, fresh to discolored. Rock Quality = Very Poor Rock Core Times (min:sec): 15.0-16.0 (2: 15, 16.0-17.0 (1:45), 17.0-18.0 (2:15), 18.0-19.0 (1:45), 19.0-20.0 (1:45)	
	R1	60/60	15.0 - 20.0	RQD = 15%			NX				
20	R2	60/60	20.0 - 25.0	RQD = 40%						R2: Hard, fresh to slightly weathered, aphanitic, grey, METAPELITE with Calcite stringers and veins. Joints are very close to close, high angle, rough, planar, partially open to open, fresh to discolored. Rock Quality = Poor Rock Core Times (min:sec): 20.0-21.0 (2: 00), 21.0-22.0 (2:30), 22.0-23.0 (2:00), 23.0-24.0 (1:45), 24.0-25.0 (2:30)	
25								673.3		25.0 **Bottom of Exploration at 25.0 feet below ground surface.**	

Remarks:

1. Last water return at 9.7' bgs.
2. 4" casing to 8.0' bgs, then 3" casing to 13.0' bgs.
3. Water level measured 15 minutes after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-513

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	690.6	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/11/17 - 01/11/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	NX
Boring Location:	N1028935.4, E2274505.3	**Casing ID/OD:**	4"/3"	**Water Level*:**	8.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/12	1.0 - 3.0	1-3-8-14	11	11	SSA			Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	8/8	4.0 - 4.7	29-70/2"	R					Brown/grey, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5							R/C	684.9		5.7	
										Split spoon refusal at 4.7' bgs. Casing met refusal at 5.7' bgs. Advanced roller bit through apparent fractured rock with 750 psi on drill head. Increased resistance at 8.0' bgs, then set up to core.	
	R1	56/56	8.0 - 12.7	RQD = 30%			NX	682.6		8.0	
10										R1: Hard, fresh, aphanitic, grey, METAPELITE. Primary joints are close to moderately spaced, high angle, rough, planar, fresh, partially open to open. Secondary joints are close to moderately spaced, low angle, rough, planar, fresh to discolored, partially open to open. Rock Quality = Poor Rock Core Times (min/ft): 2.25, 2.5, 2.0, 2.0, 2.25/0.7'	
								677.9		12.7	
15										**Bottom of Exploration at 12.7 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.
2. 4" casing to 5.7' bgs, then 3" casing to 8.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: BB-PB-514

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	692.2	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	01/12/17 - 01/12/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	-
Boring Location:	N1028930.1, E2274534.6	**Casing ID/OD:**	3"	**Water Level*:**	5.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	1.0 - 3.0	1-3-4-12	7	7	SSA			Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5	2D	24/16	5.0 - 7.0	14-22-20-17	42	42				Brown/grey, moist, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
								684.1		8.1 Casing met refusal at 8.1' bgs. Roller cone advanced from 8.1'-12.1' bgs. Roller cone times (min:sec): 8.1-11.1 (less than 1:00) Moderate resistance during roller cone advancement indicates possible weak/fractured bedrock.	
10							R/C			11.1-12.1 (5:00) Increased resistance during roller cone advancement indicates possible increased bedrock quality.	
								680.1		12.1 **Bottom of Exploration at 12.1 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.
2. Advanced roller cone with approximately 750 psi.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: BB-PB-601

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	642.7	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30
Date Start/Finish:	10-12-23/10-12-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	NQ
Boring Location:	7629+43.9, 27.2' Rt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor: 0.742		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/20	0.0 - 2.0	3-3-4-14	7	9	SSA	642.4		1D (Top 3"): Olive, moist, SILT, with grass and roots, (Topsoil). 0.3	
								640.9		1D (Bottom 17"): Olive, dry, stiff, Clayey SILT, some fine to coarse sand, some gravel, (Glacial Till). 1.8	
										Fractured rock in spoon tip, increased resistance from 1.8'-5.0', probable fractured rock. Auger refusal at 5.0', set up to core at 5.0'.	G#23-S-5175 A-4(0), SM WC=13.6%
5	R1	54/54	5.0 - 9.5	RQD = 0%			NQ	637.7		5.0 R1: Hard, fresh, aphanitic, grey, PHYLLITE. Joints are extremely close to close, moderately dipping to high angle, undulating, smooth, fresh, partially open. Recovery = 100% Rock Quality = Very Poor Rock Core Times (min:sec): 5.0-6.0' (2:26), 6.0-7.0' (2:12), 7.0-8.0' (2:14), 8.0-9.0' (1:49), 9.0-9.5' (1:47)	
10										**Bottom of Exploration at 9.5 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036009.4, E2272561.3).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: BB-PB-602

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	642.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30
Date Start/Finish:	10-12-23/10-12-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	NQ
Boring Location:	7629+82.4, 17.8' Rt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/20	0.0 - 2.0	1-2-7-6	9	11	SSA	641.8		1D (Top 3"): Olive, moist, SILT with roots, (Topsoil). 0.3 1D (Bottom 17"): Olive, moist, medium dense, Gravelly SAND, some silt, (Glacial Till).	G#23-S-5176 A-1-b, SM WC=20.4%
5	2D	0/0	5.0 - 5.0	50/0"	R		NQ	637.1		5.0 Splitspoon refusal at 5.0'. Increased auger resistance from 5.0'-6.0', probable fractured rock.	
	R1	60/60	6.0 - 11.0	RQD = 12%				636.1		6.0 R1: Very hard, fresh, aphanitic, gray PHYLLITE. Joints are very close to close, moderately dipping to high angle, undulating, smooth, fresh, partially open. Recovery = 100% Rock Quality = Poor Rock Core Times (min:sec): 6.0-7.0' (3:54), 7.0-8.0' (3:12), 8.0-9.0' (1:52), 9.0-10.0' (2:31), 10.0-11.0' (2:25)	
10								631.1		11.0 **Bottom of Exploration at 11.0 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036030.3, E2272527.7).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: BB-PB-603

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	645.3	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30
Date Start/Finish:	10-12-23/10-12-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	NQ
Boring Location:	7629+80.3, 35.6' Lt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor: 0.742		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	1-4-3-3	7	9	SSA	645.0		1D (Top 3"): Olive, SILT, trace sand, with roots and grass, (Topsoil). 0.3 1D (Bottom 1"): Olive, moist, stiff, SILT, little gravel, trace sand, roots and grass in top 3", (Glacial Till).	
5	2D	24/24	5.0 - 7.0	8-4-3-5	7	9				Olive, moist, stiff, Clayey SILT, some gravel, some fine to coarse sand, (Glacial Till).	G#23-S-5177 A-4(0), SM WC=14.4%
10	3D	3/3	10.0 - 10.3	50/3"	R		NQ	635.0		Olive, moist, SILT, some gravel, some fine to coarse sand (Glacial Till). 10.3	
	R1	30/30	10.3 - 12.8	RQD = 0%						R1: Hard, fresh, aphanitic, grey, PHYLLITE. Joints are very close to close, moderately dipping to high angle, undulating, smooth, fresh, tight to partially open. Recovery = 100% Rock Quality = Very Poor Rock Core Times (min:sec): 10.5-11.5' (2:46), 11.5-12.5' (2:14), 12.5-13.0' (2:02)	
	R2	36/36	13.0 - 16.0	RQD = 11%				629.3		R2: Hard, fresh, aphanitic, grey, PHYLLITE. Joints are very close to close, high angle, undulating, rough, fresh, tight to partially open. Recovery = 100% Rock Quality = Very Poor Rock Core Times (min:sec): 13.0=14.0' (2:44), 14.0-15.0' (2:03), 15.0-16.0' (2:31) 16.0	
15										**Bottom of Exploration at 16.0 feet below ground surface.**	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1035991.5, E2272490.9).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: BB-PB-604

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	638.8	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30
Date Start/Finish:	10-17-23/10-17-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	NQ
Boring Location:	7631+49.7, 25.7' Rt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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MD = Unsuccessful Split Spoon Sample Attempt
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MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-1-2-1	3	4	SSA			Olive, moist, soft, SILT, some gravel,some fine to coarse sand, (Glacial Till).	
5	2D	24/23	5.0 - 7.0	4-4-6-7	10	12				Olive, moist, stiff, Clayey SILT, fine to coarse sand, little gravel, (Glacial Till).	G#23-S-5178 A-4(0), ML WC=13.8%
10	3D	24/23	10.0 - 12.0	7-12-14-15	26	32				Olive, dry, dense, Silty GRAVEL, some fine to coarse sand, (Glacial Till).	
								625.8		13.0	
	R1	36/5	13.5 - 16.5				R/C			Increased auger resistance at 13.0', probable fractured rock. Advanced roller bit to 13.5' and set up to core. R1: Coring recovery consisted of Grey Gravel, (Fractured Bedrock).	
15	4D	9/9	16.5 - 17.3	48-50/3"	R					Olive/grey, wet, GRAVEL, some fine to coarse sand, little silt, (Probable Fractured Bedrock).	
								621.5		17.3	
20										**Bottom of Exploration at 17.3 feet below ground surface.**	
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036155.6, E2272416.5).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: BB-PB-605

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	643.2	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30
Date Start/Finish:	10-17-23/10-17-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	NQ
Boring Location:	7631+77.7, 46.1' Lt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	WOH-1-5-11	6	7	SSA			Olive, moist, medium stiff, SILT, some fine to coarse sand, little gravel, (Glacial Till).	
5	2D	24/21	5.0 - 7.0	14-6-9-9	15	19				Olive, moist, very stiff, SILT, some fine to coarse sand, little gravel, (Glacial Till).	G#23-S-5166 A-4(0), ML WC=11.0%
								634.2		9.0	
10	3D	5/5	10.0 - 10.4	50/5"	R					Grey, fine to coarse SAND and GRAVEL observed on auger flights at 9.0', (Probable Fractured Bedrock). Grey, GRAVEL, (Fractured Bedrock).	
15	R1	22/22	15.5 - 17.3	RQD = 0%			NQ			Increased auger resistance from 10.4'-15.5', probable fractured bedrock. Auger refusal at 15.5', set up to core. R1: Hard, fresh, aphanitic, grey, PHYLLITE. Joints are close, low angle, undulating, smooth, discolored, partially open. Rock is fractured into gravel pieces from 16.3'-17.3'. Recovery = 100% Rock Quality = Very Poor Rock Core Times (min:sec): 15.5-16.5' (1:50), 16.5-17.3' (1:54)	
	R2	38/38	17.3 - 20.5	RQD = 47%						R2: Hard, fresh, aphanitic, grey, PHYLLITE. Joints are very close to moderately spaced, low angle, undulating, rough, fresh, very tight to partially open. Recovery = 100% Rock Quality = Poor Recovery = 100% Rock Core Times (min:sec): 17.3-18.3' (1:45), 18.3-19.3' (1:36), 19.3-20.3' (1:43), 20.3-20.5' (0:20)	
20								622.7		20.5	
25										**Bottom of Exploration at 20.5 feet below ground surface.**	

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036125.5, E2272345.5).

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

CB-PB TEST BORING LOGS

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-311

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	512.3	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/31/15-9/1/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1008655.2, E2273830.5	**Casing ID/OD:**	3"	**Water Level*:**	1.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	15/5	0.0 - 1.3	1-3-50/3"	R		SPUN	511.0		Dark brown, moist, dense, fine to coarse SAND, some fine to coarse gravel, little silt, (Topsoil).	G#210 A-1-b, SM wc=33.0
							R/C			Splitspoon refusal at 1.3' bgs; possible bedrock.	
										1.3	
										Advanced roller cone to 3.0' bgs and set up to core.	
	R1	53/53	3.0 - 7.4	RQD = 28%			NQ			R1: Hard, fresh, aphanitic, grey, METAPELITE with calcite seams and veins. Joints are very close to close, moderately dipping to high angle, rough, undulating, fresh, tight to partially open. Recovery = 100% Rock Quality = Poor Rock Core Times (min/ft): 2.0, 1.5, 2.0, 2.5, 2.0/4"	
5								504.9		7.4	
										Bottom of Exploration at 7.4 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured 15 minutes after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-312

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	512.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/1/15-9/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008631.5, E2273884.6	**Casing ID/OD:**	--	**Water Level*:**	3.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/1	0.0 - 2.0	2-4-4-3	8	8	HSA			Brown, moist, medium stiff, SILT, some fine to coarse sand, some organics, (Topsoil).	
	2D	24/2	2.0 - 4.0	1-4-2-5	6	6				Brown, wet, loose, fine to coarse SAND, some silt, (Topsoil).	
	3D	1/0	4.3 - 4.4	50/1"	R			507.7		-4.3-	
5								507.2		Split spoon refusal at 4.4' bgs; possible Glacial Till. Augered to auger refusal at 4.8' bgs; possible bedrock. -4.8- **Bottom of Exploration at 4.8 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-313

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	511.8	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/1/15-9/1/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1008719.5, E2273949.4	**Casing ID/OD:**	3"	**Water Level*:**	1.2'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/1	0.0 - 2.0	4-4-3-8	7	7	SPIN			Brown, moist, medium stiff, SILT, some organics, little fine to medium sand, (Topsoil).	
								509.8		2.0	
	2D	22/6	2.0 - 3.8	11-6-3-59/3"	9	9				Brown, moist, loose to dense, GRAVEL some fine to coarse sand, little silt, (Glacial Till). Splitspoon refusal at 3.8' bgs; possible bedrock.	G#221 A-1-a, GP-GM wc=12.7
							NQ	508.0		3.8	
	R1	29/29	4.0 - 6.4	RQD = 28%						Advanced casing to 4.0' bgs. Advanced roller cone to 4.0' bgs, and set up to core. R1: Hard, fresh, aphanitic, grey, METAPELITE with calcite seams and veins. Joints are very close to close, low angle to moderately dipping, rough, undulating, fresh, tight to partially open. Recovery = 100% Rock Quality = Poor Rock Core Times (min/ft): 3.0, 2.5, 1.5/4"	
5											
	R2	26/26	6.4 - 8.6	RQD = 33%						R2: Hard, fresh, aphanitic, grey, METAPELITE with calcite. Joints are very close to close, low angle to moderately dipping, rough, undulating, fresh to discolored, tight to partially open. Recovery = 100% Rock Quality = Poor Rock Core Times (min/ft): 2.0, 1.5, 1.0/4"	
								503.2		8.6	
10										**Bottom of Exploration at 8.6 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured 20 minutes after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: CB-PB-313

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-314

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	511.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/1/15-9/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008761.6, E2274025.3	**Casing ID/OD:**	--	**Water Level*:**	3.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/2	0.0 - 2.0	WOH-WOH-2-2	2	2	HSA			Brown, moist, soft, SILT, some organics, little fine to coarse sand, (Topsoil).	
								508.9		2.2	
	2D	19/10	2.0 - 3.6	2-6-35-56/1"	41	41				Brown, wet, dense, GRAVEL, some fine to coarse sand, little silt, (Glacial Till). Splitspoon refusal at 3.6' bgs; advanced auger to refusal at 4.5' bgs.; possible bedrock.	G#222 A-1-b, GM wc=16.4
								506.6		4.5	
5										**Bottom of Exploration at 4.5 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-321

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	558.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/2/15-9/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1010413.4, E2274496.7	**Casing ID/OD:**	--	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-1-3-8	4	4	HSA			Brown, moist, soft, SILT, some organics, little fine to coarse sand, little gravel, (Topsoil).	
								556.9		2.0	
	2D	19/12	2.0 - 3.6	33-38-55-50/1"	98	98				Grey/brown, wet, very dense, gravelly fine to coarse SAND, little silt, (Glacial Till).	G#223 A-1-a, SP-SM wc=10.1
5	3D	3/0	5.0 - 5.3	70/3"	R			553.3		No recovery. Splitspoon refusal at 5.3' bgs; advanced auger to refusal at 5.6' bgs; possible bedrock.	
										5.6	
										Bottom of Exploration at 5.6 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-322

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	558.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/1/15-9/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1010310.2, E2274609.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	1-1-1-1	2	2	HSA	558.1		1D (Top 6"): Topsoil. 0.5	wc=43.9
										1D (Bottom 6"): Brown/grey, moist, soft, SILT, some fine to coarse sand, trace gravel, (Glacial Till).	
	2D	13/12	2.0 - 3.1	2-29-50/1"	R					Grey, moist, very dense, silty GRAVEL, little fine to coarse sand, (Glacial Till).	
										3.1'-4.0' bgs: Apparent boulder.	
5	3D	1/0	5.0 - 5.1	50/1"	R			553.2		No recovery. Splitspoon refusal at 5.1' bgs; advanced auger to refusal at 5.4' bgs; possible bedrock. 5.4	
										Bottom of Exploration at 5.4 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Boulder from 3.1'-4.0' bgs.
2. Water level measured immediately after completion of drilling.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-331

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/2/15-9/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013584.5, E2275695.8	**Casing ID/OD:**	--	**Water Level*:**	1.2'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-1	2	2	HSA			Brown, moist, soft, SILT, some organics, little fine to medium sand, (Topsoil).	
	2D	24/9	2.0 - 4.0	1-3-2-5	5	5				Brown, wet, medium stiff, SILT, little fine to medium sand, little organics, (Topsoil).	
								571.5		4.0	
5	3D	24/15	5.0 - 7.0	7-15-16-14	31	31				Brown, wet, dense, fine to coarse SAND, some gravel, some silt, (Glacial Till).	G#225 A-1-b, SM wc=9.1
10	4D	24/12	10.0 - 12.0	18-33-24-31	57	57				Brown/grey, wet, very dense, gravelly fine to coarse SAND, little silt, (Glacial Till).	
	5D	1/0	13.5 - 13.6	50/1"	R			561.9		Augered to 13.5' bgs; auger refusal. Split spoon refusal at 13.6' bgs; possible bedrock.	
15										13.6	
										Bottom of Exploration at 13.6 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-332

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/2/15-9/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013513.5, E2275757.7	**Casing ID/OD:**	--	**Water Level*:**	1.4'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/1	0.0 - 2.0	WOH-WOH-WOH-WOH	WOH		HSA			Brown, moist, very soft, SILT, little fine to medium sand, little organics, (Topsoil).	
	2D	24/14	2.0 - 4.0	1-1-2-1	3	3		571.2		2D (Top 8"): Brown, wet, soft, SILT, little fine to medium sand, little organics, (Topsoil).	
										2.7	
										2D (Bottom 6"): Brown/grey, wet, loose, silty fine to coarse SAND, some gravel (Glacial Till).	
5	3D	24/12	5.0 - 7.0	4-18-27-22	45	45				Brown, wet, dense, fine to coarse SAND, some silt, some gravel, (Glacial Till).	G#226 A-2-4, SM wc=8.6
10	4D	24/14	10.0 - 12.0	12-16-43-39	59	59				Brown, wet, very dense, GRAVEL, some fine to coarse sand, little silt, (Glacial Till).	
	5D	1/0	14.9 - 15.0	50/1"	R			558.9		Advanced auger to refusal at 14.9' bgs. Splitspoon refusal at 15.0' bgs; possible bedrock.	
15										15.0	
										Bottom of Exploration at 15.0 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: CB-PB-332

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-333

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	9/2/15-9/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013479.2, E2275772.7	**Casing ID/OD:**	--	**Water Level*:**	1.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/0	0.0 - 2.0	WOH-WOH-1-1	1	1	HSA			No recovery.	
	2D	24/10	2.0 - 4.0	1-1-1-1	2	2				Brown, wet, soft, SILT, little fine to medium sand, little organics, (Topsoil).	
								569.3		4.0	
5	3D	24/13	5.0 - 7.0	2-3-6-11	9	9				Brown, wet, loose, silty GRAVEL, some fine to coarse sand, (Glacial Till).	
10	4D	24/9	10.0 - 12.0	10-11-19-18	30	30				Brown, wet, medium dense, GRAVEL, some fine to coarse sand, little silt, (Glacial Till).	
15	5D	13/10	15.0 - 16.1	21-73-50/1"	R					Brown, wet, very dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	G#227 A-1-b, SM wc=8.9
								556.9		Splitspoon refusal at 16.1' bgs; advanced auger to refusal at 16.4' bgs; possible bedrock.	
										16.4	
										Bottom of Exploration at 16.4 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-341

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/26/15-8/26/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021063.7, E2274976.5	**Casing ID/OD:**	--	**Water Level*:**	3.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	WOH-1-2-4	3	3	HSA	591.6		1D (Top 3"): Topsoil. 0.3	
										1D (Bottom 9"): Brown, moist, soft, sandy SILT, trace gravel, (Glacial Till).	
	2D	24/13	2.0 - 4.0	11-14-21-26	35	35				Brown, wet, dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).	
5	3D	24/9	5.0 - 7.0	20-22-18-13	40	40				Brown, wet, dense, sandy GRAVEL, little silt, (Glacial Till).	G#228 A-1-b, GM wc=9.0
10	4D	1/1	10.0 - 10.1	50/1"	R			581.6		Brown/grey, wet, very dense, GRAVEL, some fine to coarse sand, little silt, (Glacial Till). Splitspoon refusal at 10.1' bgs; advanced auger to refusal at 10.3' bgs; possible bedrock. 10.3	
										Bottom of Exploration at 10.3 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: CB-PB-341

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-342

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.8	**Auger ID/OD:**	--
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/27/15-8/27/15	**Drilling Method:**	Cased	**Core Barrel:**	NQ
Boring Location:	N1020998.3, E2275084.9	**Casing ID/OD:**	3"	**Water Level*:**	+0.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	3-7-6-4	13	13	2			Brown, wet, stiff, SILT, little gravel, little fine to coarse sand, (Topsoil).	
							7				
	2D	24/13	2.0 - 4.0	4-4-3-7	7	7	6	588.8		2.0	
							8			Brown, wet, loose, fine to coarse SAND, little silt, little gravel, (Glacial Till).	
							20				
5	3D	24/14	5.0 - 7.0	18-14-25-25	39	39	4			Brown, wet, dense, fine to coarse SAND, some gravel, little silt, (Glacial Till).	
							35				
							44				
							47				
							50				
10	4D	9/6	10.0 - 10.8	46-71/3"	R		77			Brown, wet, very dense, GRAVEL, little fine to coarse sand, little silt, (Glacial Till).	
	R1	17/17	10.8 - 12.2	RQD = 35%				580.0		Splitspoon refusal at 10.8' bgs; possible bedrock.	
										10.8	
	R2	43/40	12.2 - 15.8	RQD = 60%						Casing met refusal at 10.8' bgs. Advanced roller cone to 10.8' bgs and set up to core.	
										R1: Hard, fresh, aphanitic, grey, METAPELITE. Joints are very close to close, low angle, rough, undulating, fresh to discolored, open.	
										Recovery = 100%	
										Rock Quality = Poor	
										Rock Core Times (min/ft): 2.0, 1.0/4"	
15										R2: Hard, fresh, aphanitic, grey, METAPELITE. Joints are close, low angle to moderately dipping, rough, undulating, fresh to discolored, tight to partially open.	
								575.0		Recovery = 93%	
										Rock Quality = Fair	
										Rock Core Times (min/ft): 2.25, 1.5, 1.5, 1.0/6"	
										15.8	
										Bottom of Exploration at 15.8 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured before start of drilling (pond level).
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-343

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/26/15-8/26/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020985.7, E2275133.1	**Casing ID/OD:**	--	**Water Level*:**	1.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	WOH-1-2-2	3	3	HSA	590.5		1D (Top 4"): Topsoil. 0.4 1D (Bottom 7"): Brown, moist, soft, sandy SILT, trace gravel, (Glacial Till).	
	2D	24/12	2.0 - 4.0	3-2-4-7	6	6				Grey, wet, loose, fine to coarse SAND, some gravel, little silt, (Glacial Till).	G#229 A-1-b, SM wc=18.8
5	3D	24/11	5.0 - 7.0	9-15-34-20	49	49				Brown/grey, wet, dense, sandy GRAVEL, little silt, (Glacial Till).	
10	4D	3/3	10.0 - 10.3	60/3"	R			580.4		Brown/grey, wet, very dense, sandy GRAVEL, little silt, (Glacial Till). Splitspoon refusal at 10.3' bgs. Advanced auger to refusal at 10.5' bgs; possible bedrock. 10.5 **Bottom of Exploration at 10.5 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Boring No.: CB-PB-343

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-351

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	610.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/28/15-8/28/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1034904.9, E2273501.1	**Casing ID/OD:**	--	**Water Level*:**	3.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	WOH-WOH-WOH-WOH	WOH		HSA			Dark brown, moist, very soft, SILT, some organics, little fine to coarse sand, (Topsoil).	
	2D	24/15	2.0 - 4.0	1-3-3-14	6	6		607.6		2D (Top 6"): Dark brown, moist, very soft, SILT, some organics, little fine to coarse sand, (Topsoil).	
										2.5	
										2D (Bottom 9"): Brown/grey, moist, fine to coarse SAND, some Clayey SILT, little gravel, (Glacial Till).	
5	3D	24/6	5.0 - 7.0	15-16-14-17	30	30				Brown/grey, wet, medium dense, silty GRAVEL, little fine to coarse sand, (Glacial Till).	
10	4D	24/23	10.0 - 12.0	6-13-12-18	25	25				Brown/grey, wet, medium dense, silty GRAVEL, little fine to coarse sand, (Glacial Till).	wc=10.7
15	5D	24/6	15.0 - 17.0	17-25-28-26	53	53				Brown/grey, wet, very dense, sandy GRAVEL, little silt, (Glacial Till).	
20	6D	24/16	20.0 - 22.0	11-11-18-22	29	29				Brown/grey, wet, very stiff, Clayey SILT, little fine to coarse sand, trace gravel, (Glacial Till).	
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Boring No.: CB-PB-351

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-351

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	610.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/28/15-8/28/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1034904.9, E2273501.1	**Casing ID/OD:**	--	**Water Level*:**	3.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/5	25.0 - 27.0	20-20-23-26	43	43				Brown/grey, wet, dense, GRAVEL, some silt, some fine to coarse sand, (Glacial Till).	
30	8D	24/6	30.0 - 32.0	10-20-27-45	47	47				Brown/grey, wet, dense, GRAVEL, little fine to medium sand, little silt, (Glacial Till).	
	9D	1/0	32.6 - 32.7	50/1"	R			577.4		Advanced auger to refusal at 32.6' bgs. Splitspoon refusal at 32.7' bgs; possible bedrock.	
										32.7	
35										**Bottom of Exploration at 32.7 feet below ground surface.**	
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-352

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	610.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/27/15-8/28/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1035046.8, E2273576.5	**Casing ID/OD:**	--	**Water Level*:**	8.7'/+4.5'/+4.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	1-1-2-4	3	3	HSA	610.5		1D (Top 4"): Topsoil. 0.4	
										1D (Bottom 5"): Brown, moist, soft, SILT, some fine to coarse sand, trace gravel, (Glacial Till).	
	2D	24/11	2.0 - 4.0	6-6-14-18	20	20				Brown, moist, very stiff, gravelly SILT, little fine to coarse sand, (Glacial Till).	
5	3D	24/18	5.0 - 7.0	4-8-15-11	23	23				Brown, moist, very stiff, gravelly SILT, little fine to coarse sand, (Glacial Till).	wc=9.6
10	4D	24/18	10.0 - 12.0	9-10-14-18	24	24				Brown, wet, very stiff, gravelly SILT, little fine to coarse sand, (Glacial Till).	
15	5D	24/17	15.0 - 17.0	14-14-19-33	35	35				Brown, wet, hard, gravelly SILT, little fine to coarse sand, (Glacial Till).	
20	6D	24/17	20.0 - 22.0	20-35-41-43	76	76				Brown, wet, very dense, GRAVEL, some silt, some fine to coarse sand, (Glacial Till).	
25											

Remarks:

1. Initial water level measured immediately after sample 4D was taken.
2. Encountered spring while augering to 25.0' bgs. Took water measurements at 5 min at 4.5' above ground and 10 min at 4.7' above ground in casing extending above ground surface.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Boring No.: CB-PB-352

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-352

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	610.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	8/27/15-8/28/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1035046.8, E2273576.5	**Casing ID/OD:**	--	**Water Level*:**	8.7'/+4.5'/+4.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/17	25.0 - 27.0	17-29-41-47	70	70				Brown, wet, very dense, GRAVEL, some fine to coarse sand, trace silt, (Glacial Till).	
30	8D	1/0	30.0 - 30.1	50/1"	R			580.7		No recovery. Splitspoon refusal at 30.1' bgs; advanced auger to refusal at 30.2' bgs; possible bedrock. 30.2 **Bottom of Exploration at 30.2 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. Initial water level measured immediately after sample 4D was taken.
2. Encountered spring while augering to 25.0' bgs. Took water measurements at 5 min at 4.5' above ground and 10 min at 4.7' above ground in casing extending above ground surface.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-501

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	513.7	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	02/21/17 - 02/21/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	-
Boring Location:	N1008609.8, E2273832.1	**Casing ID/OD:**	3"	**Water Level*:**	3.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/10	1.0 - 3.0	WOH-WOH-WOH-WOH	WOH		SSA			Brown/tan, moist, very soft, SILT, little fine to medium sand, (Forest Mat).	
	2D	24/3	3.7 - 5.7	3-9-10-7	19	19		510.0		3.7 — Brown, wet, medium dense, Silty fine to medium SAND, trace organics, (Glacial Till).	
5											
	3D	0/0	9.0 - 9.0	50/0"	R		R/C	504.7		9.0 — Splitspoon refusal at 9.0' bgs; casing refusal at 9.4' bgs. Advanced roller cone to 11.0' bgs, >5 min/ft with increased resistance during roller cone advancement indicates possible bedrock.	
10								502.7		11.0 — **Bottom of Exploration at 11.0 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level taken 20 minutes after completion of drilling.
2. 3" casing to 9.4' bgs.
3. 1D sample dropped to 3.7' with weight of hammer, apparent top of glacial till at 3.7' bgs.
4. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-502

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	512.8	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	01/26/17 - 01/26/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	--
Boring Location:	N1008693.1, E2273871.0	**Casing ID/OD:**	4"	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/0	1.0 - 3.0	1-WOH-WOH-WOH	WOH		SSA			No recovery. Took grab sample to describe material. Dark brown, moist, Sandy SILT, with organics, (Forest Mat).	
	2D	24/12	4.5 - 6.5	5-9-17-51	26	26		508.3		4.5 — Grey, wet, medium dense, Sandy GRAVEL, little silt, (Glacial Till).	
							R/C	504.9		7.9 — Casing met refusal at 7.9' bgs. Increased resistance during roller cone advancement indicates possible increased bedrock quality. Roller cone advancement from 8.0'-10.0' bgs approximately 5 min/ft with 750 psi of downward pressure.	
								502.8		10.0 — **Bottom of Exploration at 10.0 feet below ground surface.**	

Remarks:

1. Water level taken 15 minutes after completion of drilling.
2. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-503

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	511.2	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	02/20/17 - 02/20/17	**Drilling Method:**	Cased/SSA	**Core Barrel:**	-
Boring Location:	N1008670.5, E2273950.6	**Casing ID/OD:**	3"	**Water Level*:**	0.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/2	1.0 - 3.0	WOH-WOH-1-WOH	1	1	SSA			Dark brown, moist, very soft, organic SILT, some fine to medium sand, with organics, (Forest Mat).	
	2D	24/24	3.5 - 5.5	WOH-WOH-WOH-WOH	0	0				Dark brown, moist, very soft, organic SILT, (Forest Mat).	
								503.9		7.3	
							R/C			Casing met refusal at 7.3' bgs. Advanced roller cone from 7.3'-8.5' bgs, approximately 7 min/ft with 800 psi pressure. Increased resistance during roller cone advancement indicates increased bedrock quality.	
								502.7		8.5	
										Bottom of Exploration at 8.5 feet below ground surface.	

Remarks:

1. Water level taken approximately 15 minutes after completion of drilling.
2. 3" casing to 7.3' bgs.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: CB-PB-504

WIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	511.3	**Auger ID/OD:**	4.25" OD
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Standard Splitspoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	02/20/17 - 02/20/17	**Drilling Method:**	Cased	**Core Barrel:**	NX
Boring Location:	N1008674.5, E2274011.3	**Casing ID/OD:**	3"	**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_V = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	1D	24/13	1.0 - 3.0	WOH-WOH-WOH-11			SSA			Dark brown to grey, moist, very soft, organic SILT, some fine to medium sand, little gravel, with organics, (Forest Mat).	
								508.1		3.2	
							R/C			Casing met refusal at 3.2' bgs. Advanced roller cone to 4.0' bgs, advancement of approximately 5 min/ft at 750 psi pressure. Set up to core.	
	R1	60/60	4.0 - 9.0	RQD = 45%			NX			R1: Hard, fresh, aphanitic, grey, METAPELITE. Joints are very close to moderately spaced, moderately dipping to high angle, rough, planar, fresh, partially open to tight. Recovery = 100% Rock Quality = Poor Rock Core Times (min:sec): 4.0-5.0 (3:30), 5.0-6.0 (2:15), 6.0-7.0 (1:30), 7.0-8.0 (1:30), 8.0-9.0 (1:45	
5								502.3		9.0	
										Bottom of Exploration at 9.0 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level taken approximately 20 minutes after completion of drilling.
2. 4" casing to 3.2' bgs; then 3" casing to 4.0' bgs.
3. Fine-Grained Soil Descriptions on this log are based on plasticity estimated using visual-manual classification techniques or laboratory Atterberg Limit tests if available, rather than the MaineDOT Standard based on percentages passing specific grain sizes.

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Boring No.: CB-PB-504

HB-PB TEST BORING LOGS

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-111
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	648.1	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/11/14 - 4/11/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1033872.7, N2274250.3	**Casing ID/OD:**		**Water Level*:**	3.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-WOH-1-4	1	1	HSA			Dark brown, moist, very soft, SILT with organics (Topsoil), grading to brown, damp, very soft, gravelly SILT.	
										-GLACIAL TILL- (ML)	
	2D	24/9	2.0 - 4.0	2-3-8-9	11	11				Brown, moist, stiff, gravelly SILT.	
										-GLACIAL TILL- (ML)	
	3D	24/15	4.0 - 6.0	6-14-9-11	23	23				Brown/gray, damp, medium dense, silty SAND, some Gravel.	G#1 A-4, SM WC=10.1
5										-GLACIAL TILL- (SM)	
	4D	5/3	6.0 - 6.4	125/5"	>100			641.7		Brown, moist, very dense, silty GRAVEL and Weathered/fractured Rock.	
										-GLACIAL TILL- (GM)	
										Split spoon refusal at 6.4' (El. 641.7'). Possible bedrock.	
										6.4	
10										**Bottom of Exploration at 6.40 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-112
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	645.8	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/11/14 - 4/11/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1034086.7, N2274146.5	**Casing ID/OD:**		**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-1-1-4	2	2	HSA	643.8		Brown, moist, soft, SILT and fine to medium SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/21	2.0 - 4.0	2-2-2-8	4	4				2.0 — Brown, moist, soft, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL (REWORKED)- (CL)	G#2 A-6, CL LL=27 PL=16 PI=11 WC=18.5
	3D	24/18	4.0 - 6.0	3-7-9-11	16	16				Brown, damp, very stiff, gravelly lean CLAY. -GLACIAL TILL (REWORKED)- (CL)	
5	4D	24/14	6.0 - 8.0	14-13-14-20	27	27				Brown, damp, very stiff, gravelly lean CLAY. -GLACIAL TILL (REWORKED)- (CL)	
								637.8		8.0 **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-113
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	644.2	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/11/14 - 4/11/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1034316.3, N2274025.1	**Casing ID/OD:**		**Water Level*:**	2.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	WOH-1-1-4	2	2	HSA			Brown, moist/wet, very loose, silty SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/20	2.0 - 4.0	3-2-3-3	5	5				Brown, moist, loose, silty SAND, little Gravel. -GLACIAL TILL- (SM)	G#3 A-4, SM WC=27.5
	3D	24/16	4.0 - 6.0	2-3-6-7	9	9				Brown, damp, loose, silty SAND, some Gravel. -GLACIAL TILL- (SM)	
5	4D	24/13	6.0 - 8.0	9-11-16-12	27	27				Brown, moist, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
								636.2		8.0	
										Bottom of Exploration at 8.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-114
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	634.1	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/11/14 - 4/11/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1034520.8, N2273888.9	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	2-WOH-1-3	F	0	HSA			Dark brown, moist, very soft, gravelly SILT, little fine to coarse Sand. -GLACIAL TILL (REWORKED)- (ML)	
								632.1		2.0	
	2D	24/17	2.0 - 4.0	3-3-3-6	6	6				Brown, damp/moist, loose, silty SAND, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/13	4.0 - 6.0	6-7-8-15	15	15				Brown, damp, medium dense, silty SAND, some Gravel. -GLACIAL TILL- (SM)	G#4 A-4, SM WC=12.2
5								628.1		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-115
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	623.9	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/11/14 - 4/11/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1034730.7, N2273741.1	**Casing ID/OD:**		**Water Level*:**	3.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	4-4-2-2	6	6	HSA	623.6		Top 4": Dark brown, moist, medium stiff, SILT (Topsoil). -TOPSOIL- (ML) 0.3	
	2D	24/16	2.0 - 4.0	4-3-5-5	8	8				Bottom 11": Brown, moist, loose, silty GRAVEL, trace fine to medium Sand. -GLACIAL TILL- (GM)	
	3D	24/17	4.0 - 6.0	4-6-6-7	12	12				Brown, damp, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	G#5 A-2, SM WC=17.7
5								617.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed. Hole open to 4.0'.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-116
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	610.8	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1034922.9, N2273568.1	**Casing ID/OD:**		**Water Level*:**	12.2'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-2-2-1	4	4	HSA			Brown, moist, soft, SILT, little Gravel and organics. -TOPSOIL- (ML)	
	2D	24/13	2.0 - 4.0	WOH-2-5-6	7	7				Top 12": Same as sample 1D.	
								607.8		3.0	
	3D	24/14	4.0 - 6.0	4-45-14-11	59	59				Bottom 1": Tan, wet, SILT grading to gray, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5										Gray, damp, hard, gravelly SILT. -GLACIAL TILL- (ML)	
	4D	24/9	9.0 - 11.0	14-21-30-23	51	51				Brown, damp, hard, gravelly SILT, little fine to medium Sand. -GLACIAL TILL- (ML)	
10											
	5D	24/14	14.0 - 16.0	13-16-27-21	43	43				Brown, damp, dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#6 A-1-b, GM WC=6.7
15								594.8		16.0	
										Bottom of Exploration at 16.00 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured at completion of drilling inside of augers.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-117
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	607.2	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035104.0, N2273407.0	**Casing ID/OD:**		**Water Level*:**	+0.5'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/1	0.0 - 2.0	5-1-WOH-1	1	1	HSA			Dark brown, wet, very soft, SILT and ORGANICS. -TOPSOIL- (ML)	
								605.2		2.0	
	2D	24/7	2.0 - 4.0	1-3-3-4	6	6				Dark brown, moist/wet, loose, silty GRAVEL, some fine to coarse Sand, grading to gray, silty GRAVEL. -GLACIAL TILL- (GM)	
	3D	24/15	4.0 - 6.0	3-6-9-12	15	15				Gray, damp, very stiff, clayey GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GC)	G#7 A-4, GC LL=21 PL=14 PI=7 WC=10.2
5								601.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Boring located along west side of stream in a hummock/hollow/wet area. Water level was measured prior to drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-118
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	614.9	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035465.6, N2273066.3	**Casing ID/OD:**		**Water Level*:**	1.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	2-3-6-7	9	9	HSA			Brown, wet, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/10	2.0 - 4.0	6-6-5-2	11	11				Brown, wet, medium dense, silty GRAVEL, some fine to medium Sand. -GLACIAL TILL- (GM)	
	3D	24/10	4.0 - 6.0	1-4-7-4	11	11				Brown, moist, medium dense, silty SAND, some Gravel. -GLACIAL TILL- (SC-SM)	G#8 A-4, SC-SM LL=22 PL=15 PI=7 WC=12.4
5								608.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-119
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	623.2	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035634.2, N2272885.0	**Casing ID/OD:**		**Water Level*:**	9.0'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	3-2-3-4	5	5	HSA			Brown/tan, wet, medium stiff, SILT, some Gravel, little fine to coarse Sand. -GLACIAL TILL- (ML)	
	2D	24/16	2.0 - 4.0	5-5-5-4	10	10				Tan, damp/moist, loose, silty GRAVEL, trace fine Sand. -GLACIAL TILL- (GM)	
	3D	24/9	4.0 - 6.0	6-11-12-13	23	23				Brown, damp, medium dense, silty GRAVEL. -GLACIAL TILL- (GM)	
5											
	4D	24/18	9.0 - 11.0	11-11-38-39	49	49				Brown, damp, dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#9 A-2, SM WC=8.6
10								612.2		11.0	
	5D	24/8	14.0 - 16.0	50-40-40-55	80	80				Gray, dry, very dense, GRAVEL, little Silt. -WEATHERED/FRACTURED BEDROCK- (GM)	
15								607.2		16.0	
										Bottom of Exploration at 16.00 feet below ground surface.	
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed. Hole open to 10.0'.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-120
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	634.0	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/14 - 4/2/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1035860.9, N2272690.7	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	6-6-2-3	8	8	SSA	633.7		Top 3": Topsoil (0.3)	
										Brown-olive, moist, loose, gravelly fine to medium SAND, little Silt. -GLACIAL TILL (REWORKED)- (SP)	
	2D	24/7	2.0 - 4.0	7-4-5-5	9	9		632.0		(2.0) Brown, moist, stiff, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (CL)	
	3D	24/14	4.0 - 6.0	6-7-11-16	18	18				Brown, moist, very stiff, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (CL)	G#16 A-6, CL WC=14.9
5								628.0		(6.0) **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Approximately 42" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-121
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	664.3	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036351.3, N2272175.4	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	11-19-4-3	F	0	SSA	664.0		Top 3": Topsoil/Organics	
										0.3	
										Olive-brown, fine to coarse SAND, little Gravel, little Silt, poorly graded, frozen. -FILL- (SM)	
	2D	24/6	2.0 - 4.0	2-1-2-3	3	3				Olive-brown, moist, very loose, fine to coarse SAND, some Gravel, little Silt, poorly graded. Piece of rotted wood. -FILL- (SM)	
										Piece of gravel in tip.	
	3D	24/1	4.0 - 6.0	4-3-4-4	7	7					
5											
	4D	24/3	6.0 - 8.0	3-3-2-3	5	5				Brown, moist, loose, fine to coarse SAND, some Gravel, some Silt, poorly graded. Piece of wood, horizontal grain. -FILL- (SM)	G#17 A-1-b, SM WC=20.0
	5D	24/4	8.0 - 10.0	5-4-3-2	7	7				Sample 5D same as 4D.	
10								654.3		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Approximately 22" of snow at boring location at time of drilling.
2. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-122
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	667.7	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036546.2, N2272026.2	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample attempt; V = Insitu Vane Shear Test; MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = weight of 140lb. hammer; WOR = weight of rods; WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf); T_v = Pocket Torvane Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw field SPT N-value; Hammer Efficiency Factor = Annual Calibration Value; N_{60} = SPT N-uncorrected corrected for hammer efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf); WC = water content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Sample Information

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	19-33-34-75	F	0	SSA			Olive-brown, fine to coarse SAND, some Silt, little Gravel, occasional organic fibers. Poorly graded, gravel piece in tip, frozen. -GLACIAL TILL (REWORKED)- (SM)	G#18 A-2, SM WC=18.9
	2D	24/19	2.0 - 4.0	75-25-19-13	F	0				Olive-brown, silty fine to coarse SAND, some Gravel. Poorly graded, top 12" frozen. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/21	4.0 - 6.0	12-12-16-14	28	28		663.4		Top 3": Same as 2D. 4.3	G#19 A-6, CL WC=14.1
5	4D	24/19	6.0 - 8.0	14-13-15-11	28	28				Olive-brown, moist, very stiff, sandy lean CLAY, little Gravel. -GLACIAL TILL- (CL) Top 16": Same as 3D.	
								660.0		7.7	
								659.7		Bottom 3": Moderately weathered, gray BEDROCK, horizontal bedding. -WEATHERED/FRACTURED BEDROCK- 8.0	
10										**Bottom of Exploration at 8.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Approximately 18" of snow at boring location at time of drilling.
2. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-123
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	660.9	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/4/14 - 4/4/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036968.4, N2271771.7	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	12-11-8-13	F	0	SSA			Olive-brown, lean CLAY, some fine to coarse Sand, trace Gravel, poorly graded, frozen. Organic fibers in top 12". -GLACIAL TILL- (SM)	G#20 A-6, CL WC=58.1
	2D	24/6	2.0 - 4.0	14-9-7-8	16	16		658.7		Top 2": Same as 1D, moist.	
										2.2	
	3D	24/14	4.0 - 6.0	7-6-6-5	12	12				Bottom 4": Brown-gray GRAVEL, little fine to coarse Sand, trace Silt, poorly graded, platy structure. -WEATHERED/FRACTURED BEDROCK- (GP)	G#21 A-1-a, SM WC=12.8
5								654.9		Brown-gray, dry, medium dense, fine to coarse SAND, some Gravel, trace Silt, poorly graded, platy structure, vertically and horizontally fractured. -WEATHERED/FRACTURED BEDROCK- (SM)	
										6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Approximately 32" of snow at boring location at time of drilling.
2. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-124
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	653.2	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/4/14 - 4/4/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1037195.0, N2271684.0	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	11-9-10-11	F	0	SSA			Olive-brown, fine to coarse SAND, some Gravel, some Silt, poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	
										Top 10": Same as 1D.	
	2D	24/14	2.0 - 4.0	12-12-11-27	23	23		650.4		2.8	
										Bottom 4": Gray, dry, GRAVEL, trace fine to coarse Sand, poorly graded. -WEATHERED/FRACTURED BEDROCK- (GP)	
	3D	24/16	4.0 - 6.0	26-24-16-52	40	40					G#22 A-1-a, GP-GM WC=3.4
5										Brown-gray, dry, dense, GRAVEL, some fine to coarse Sand, trace Silt, poorly graded. -WEATHERED/FRACTURED BEDROCK- (GP-GM)	
								647.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Approximately 29" of snow at boring location at time of drilling.
2. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: HB-PB-125
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	648.1	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/4/14 - 4/4/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1037431.3, N2271612.8	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/21	0.0 - 2.0	15-15-12-24	F	0	SSA			Olive-brown, silty SAND, little Gravel, poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	G#23 A-4, SM WC=40.4
								646.1		2.0	
	2D	24/16	2.0 - 4.0	7-14-11-12	F	0		645.3		Top 10": Olive-brown, moist, fine to coarse SAND, some Gravel, little Silt, poorly graded, frozen top 8". -GLACIAL TILL- (SP)	
										2.8	
	3D	24/24	4.0 - 6.0	9-7-8-10	15	15				Bottom 6": Brown-gray GRAVEL, little fine to coarse Sand, trace Silt, poorly graded. Vertically bedded. -WEATHERED/FRACTURED BEDROCK- (GP)	
5								642.1		Brown-gray, moist, medium dense, GRAVEL some fine to coarse Sand, little Silt poorly graded. Vertically bedded. -WEATHERED/FRACTURED BEDROCK- (GP)	
										6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Approximately 28" of snow at boring location at time of drilling.
2. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-301

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	547.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008732.2, E2273136.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	11-17-31-28	48	48	HSA	547.4		Top 4": Pavement. (0.3)	
										Bottom 15": Brown, dry, dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/24	2.0 - 4.0	26-20-36-32	56	56				Brown, moist, very dense, fine to coarse SAND, some Silt, some Gravel. -FILL- (SM)	G#94 A-2, SM WC=12.4
5	3D	24/15	5.0 - 7.0	12-8-8-9	16	16				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -FILL- (SM)	
10	4D	24/8	10.0 - 12.0	8-8-10-9	18	18				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -FILL- (SM)	
								535.7		(12.0) **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-302

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	539.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008522.1, E2273264.3	**Casing ID/OD:**	--	**Water Level*:**	5.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	15-20-23-18	54	54	HSA	539.6		Top 2": Pavement. (0.2)	
										Brown, dry, very dense, fine to coarse SAND, some Gravel, little Silt. -FILL- (SM)	G#95 A-2, SM WC=14.0
	2D	24/19	2.0 - 4.0	22-28-27-32	55	55				Brown, moist, very dense, fine to coarse SAND, some Silt, some Gravel. -FILL- (GM)	
	3D	24/11	4.0 - 6.0	26-22-16-14	38	38				Brown, wet, dense, fine to coarse SAND, some Gravel, little Silt. -FILL- (SM)	
5								533.8		(6.0) **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-303

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	515.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008785.7, E2273962	**Casing ID/OD:**		**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/0	0.0 - 2.0	2-3-6-5	9	9	HSA	515.0		Top 2": -FOREST MAT-	
										0.2	
										No recovery.	
	2D	23/11	2.0 - 3.9	6-6-6-84/5"	12	12				Brown, wet, medium dense to very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	G#96 A-2, SM WC=35.4
5	3D	11/5	5.0 - 5.9	23-65/5"	R			509.3		Brown, wet, very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
										Split spoon refusal at 5.9'; possible bedrock.	
										5.9	
										Bottom of Exploration at 5.90 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Rock outcropping 5.0' east of boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-304

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	542.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008858, E2273711.2	**Casing ID/OD:**		**Water Level*:**	7.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-3-5	4	4	HSA	542.4		Top 2": -FOREST MAT- 0.2	
										Bottom 4": Brown, moist, very loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	6-5-7-5	12	12				Brown, wet, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	WC=25.6
5	3D	24/6	5.0 - 7.0	3-3-3-4	6	6				Brown, wet, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
10	4D	24/7	10.0 - 12.0	4-12-11-8	23	23				Brown, wet, medium dense, sandy GRAVEL little Silt. -GLACIAL TILL- (GM)	G#98 A-1-b, GM WC=11.2
								530.6		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Ground water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-305

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008933.5, E2273578.9	**Casing ID/OD:**	4" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	1-2-4-2	6	6	SSA	573.7		Top 2": -TOPSOIL-	
								572.9		0.2	
										Bottom 18": Brown, moist, loose, silty fine to medium SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/15	2.0 - 4.0	3-6-11-16	17	17				1.0 -GLACIAL TILL- Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/10	5.0 - 7.0	13-17-20-19	37	37				Brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	24/8	10.0 - 12.0	19-30-38-24	68	68				Brown, moist, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
15	5D	24/11	15.0 - 17.0	11-23-29-32	52	52	RC			Brown, wet, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	WC=9.8
20	6D	24/8	20.0 - 22.0	22-31-29-32	60	60				Brown, wet, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-305

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008933.5, E2273578.9	**Casing ID/OD:**	4" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/19	25.0 - 27.0	19-19-23-28	42	42				Gray, wet, dense, fine to coarse SAND some Gravel, little Silt. -GLACIAL TILL- (SM)	
30	8D	24/18	30.0 - 32.0	30-40-59-75	99	99				Gray and brown, wet, hard, sandy SILT & CLAY, some Gravel. -GLACIAL TILL- (SM-SC)	G#100 A-4, SM-SC WC=9.8
35	9D	21/6	35.0 - 36.8	27-29-43-72/3"	72	72				Gray, wet, very dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
40	10D	1/1	40.0 - 40.1	100/1"	R			533.8		Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 40.1' bgs, possible bedrock. 40.1 **Bottom of Exploration at 40.10 feet below ground surface.**	
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-306

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	528.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008764.9, E2273552.6	**Casing ID/OD:**		**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	3-9-5-4	14	14	HSA	528.5		Top 3": -FOREST MAT-	
										0.3	
										Bottom 1": Brown, moist, medium dense, fine to medium SAND, some Silt, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/6	2.0 - 4.0	4-5-8-11	13	13				Brown, wet, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	24/0	5.0 - 7.0	9-10-10-11	20	20				No recovery.	
10	4D	24/16	10.0 - 12.0	9-16-16-25	32	32				Brown, wet, hard, CLAY, some fine to coarse Sand, trace Gravel. -GLACIAL TILL- (CL)	G#101 A-6, CL WC=12.4
15	5D	1/0	15.0 - 15.1	50/1"	R			513.7		Split spoon refusal at 15.1' bgs, possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. Moved to bottom of slope.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-307

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008994, E2273336.1	**Casing ID/OD:**		**Water Level*:**	16.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-2-6	4	4	HSA			Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/9	2.0 - 4.0	3-3-4-4	7	7				Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/13	5.0 - 7.0	11-13-23-44	36	36		578.1		5.0 Brown, moist, hard, CLAY, some fine to coarse Sand, trace Gravel. -GLACIAL TILL- (CL)	G#102 A-6, CL WC=11.8
10	4D	24/15	10.0 - 12.0	23-26-34-53	60	60				Brown, moist, very dense, sandy GRAVEL, little Clay. -GLACIAL TILL- (GC)	
15	5D	24/24	15.0 - 17.0	22-32-61-62	93	93				Brown, moist, very dense, sandy GRAVEL, little Clay. -GLACIAL TILL- (GC)	
20	6D	24/15	20.0 - 22.0	13-18-29-36	47	47				Brown, wet, dense, clayey fine SAND, trace Gravel. -GLACIAL TILL- (SC)	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-307

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008994, E2273336.1	**Casing ID/OD:**		**Water Level*:**	16.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/12	25.0 - 27.0	29-61-35-39	96	96				Brown, wet, very dense, gravelly fine to coarse SAND, trace Clay. -GLACIAL TILL- (SP)	
30	8D	24/11	30.0 - 32.0	19-25-30-35	55	55				Brown, wet, very dense, gravelly fine to coarse SAND, little Clay. -GLACIAL TILL- (SC)	
35	9D	24/13	35.0 - 37.0	18-37-51-139	88	88				Gray-brown, wet, very dense, sandy GRAVEL, some Clay. -GLACIAL TILL- (GC)	G#103 A-2, GC WC=7.7
40	10D	24/24	40.0 - 42.0	26-33-54-70	87	87				Gray-brown, moist, very dense, sandy GRAVEL, some Clay. -GLACIAL TILL- (GC)	
								541.1		42.0 **Bottom of Exploration at 42.00 feet below ground surface.**	
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-308

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	580.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008932, E2273306.8	**Casing ID/OD:**	4" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-3-2-4	F	0	SSA	580.4		-TOPSOIL- (0.1)	
										Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	4-3-4-6	7	7				Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								576.5		(4.0)	
	3D	24/16	4.0 - 6.0	3-3-3-6	6	6				Brown, wet, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5											
10	4D	24/17	10.0 - 12.0	19-34-27-38	61	61				Brown, wet, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	WC=9.7
15	5D	24/12	15.0 - 17.0	14-11-15-27	26	26	RC			Brown, wet, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
20	6D	24/14	20.0 - 22.0	17-20-23-27	43	43				Brown, wet, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Casing installed to 15.0' bgs.
3. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-308

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	580.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008932, E2273306.8	**Casing ID/OD:**	4" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/8	25.0 - 27.0	24-38-31-21	69	69				Gray-brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	G#105 A-1-a, SM WC=8.2
30	8D	24/9	30.0 - 32.0	29-25-23-34	48	48				Brown, wet, dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
35	9D	24/4	34.0 - 36.0	24-29-47-47	76	76		544.5		Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) 36.0 **Bottom of Exploration at 36.00 feet below ground surface.**	
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Casing installed to 15.0' bgs.
3. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-309

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	585.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009077.3, E2273113.1	**Casing ID/OD:**	4" ID	**Water Level*:**	20.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-3-7	F	0	SSA	585.2		Top 3": -TOPSOIL- 0.3 Bottom 7": Brown, moist, sandy SILT, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (ML)	WC=24.9
	2D	24/10	2.0 - 4.0	3-4-5-4	9	9				Brown, moist, loose, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	3D	24/8	4.0 - 6.0	18-14-25-22	39	39		581.5		4.0 Brown, moist, dense, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
5											
10	4D	24/4	10.0 - 12.0	14-17-36-39	53	53				Brown, moist, very dense, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
15	5D	24/16	15.0 - 17.0	34-32-33-26	65	65	RC			Brown, moist, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
20	6D	24/12	20.0 - 22.0	22-41-32-40	73	73				Gray-brown, wet, very dense, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	G#107 A-1-b, SM WC=10.0
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Solid stem to 15.0' bgs; switched to casing and roller cone.
3. Well installed to 30.0' bgs, 5' of 2" ID PVC screen, 27' of 2" ID PVC riser, sand backfill up to 14.5' bgs, bentonite chips from 14.5' bgs to 7.5' bgs, sand backfill from 7.5' bgs to ground surface. 3' standpipe with lock installed at ground surface.
4. Water level measured immediately after installation of observation well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-309

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	585.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009077.3, E2273113.1	**Casing ID/OD:**	4" ID	**Water Level*:**	20.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/10	25.0 - 27.0	30-65-50-61	>100					Brown, wet, very dense, fine to coarse SAND, little Gravel, some Silt. -GLACIAL TILL- (SM)	
30	8D	24/15	30.0 - 32.0	17-36-65-72	>100					Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
								553.5		32.0 **Bottom of Exploration at 32.00 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Solid stem to 15.0' bgs; switched to casing and roller cone.
3. Well installed to 30.0' bgs, 5' of 2" ID PVC screen, 27' of 2" ID PVC riser, sand backfill up to 14.5' bgs, bentonite chips from 14.5' bgs to 7.5' bgs, sand backfill from 7.5' bgs to ground surface. 3' standpipe with lock installed at ground surface.
4. Water level measured immediately after installation of observation well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-310

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	563.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008961.8, E2273061.1	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	8-10-11-12	21	21	HSA			Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -FILL- (SM)	
	2D	24/7	2.0 - 4.0	6-5-5-23	10	10				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -FILL- (SM)	G#108 A-4/A-6, SM WC=33.9
5								558.8		5.0	
	3D	24/13	5.0 - 7.0	4-4-4-6	8	8				Brown-orange, moist, medium stiff, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	G#109 A-4, ML LC=35 PL=26 PI=9 WC=28.1
10	4D	24/8	10.0 - 12.0	5-9-7-7	16	16				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
								551.8		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-311

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1009132.8, E2272869.2	**Casing ID/OD:**	--	**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	4-10-20-17	30	30	HSA			Brown, moist, medium dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/16	2.0 - 4.0	39-28-44-36	72	72				Brown, wet, very dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	3D	24/16	4.0 - 6.0	29-33-25-15	58	58				Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
5								569.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-312

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1009335.1, E2272718.8	**Casing ID/OD:**	--	**Water Level*:**	0.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	4-11-11-15	22	22	HSA			Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	8/8	2.5 - 3.2	23-60/2"	R					Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
	3D	24/18	4.0 - 6.0	5-7-13-14	20	20				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
5							▽	584.7		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Boulder from 2.0'-2.5' bgs, and 3.2'-3.6' bgs; augered to 4.0' bgs.
2. Water level measured immediately after completion of drilling.
3. Boring moved to 4.0' east of EOP.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-313

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006252.6, E2274201.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	2-6-25-16	31	31	HSA			Brown, moist, dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/19	2.0 - 4.0	17-16-19-13	35	35				Brown, moist, dense, silty GRAVEL, little fine to coarse Sand. -FILL- (GM)	WC=18.4
	3D	24/14	4.0 - 6.0	6-6-6-6	12	12				Brown, moist, medium dense, fine to coarse SAND, some Silt, trace Gravel. -FILL- (SM)	
5								660.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-314

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	654.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006488, E2274116.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	6-8-12-15	20	20	HSA			Brown, moist, medium dense, fine to coarse sandy GRAVEL, some Silt. -FILL- (GM)	
	2D	24/14	2.0 - 4.0	17-16-16-10	32	32				Gray-brown, moist, hard, SILT, some fine to coarse Sand, some Gravel. -FILL- (SM)	G#111 A-4/A-6, SM WC=10.9
	3D	7/5	4.0 - 4.6	16-50/1"	R			649.4		Brown, moist, very dense, gravelly fine to coarse SAND, some Silt. -FILL- (SM) Split spoon refusal at 4.6' bgs; possible bedrock.	
5										4.6 **Bottom of Exploration at 4.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-315

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	638.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006722.9, E2274032.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	11-14-14-14	28	28	HSA			Brown, moist, medium dense, sandy GRAVEL, trace Silt. -FILL- (GP)	
	2D	21/10	2.0 - 3.8	13-16-50-50/4"	R					Brown-gray, moist, very dense, sandy GRAVEL, trace Silt. -FILL- (GP)	WC=9.7
								634.6		Split spoon refusal at 3.8' bgs; augered to 3.8' bgs. Auger refusal; possible bedrock.	
										3.8	
5										**Bottom of Exploration at 3.80 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Boring moved from road to 1.5' east of EOP.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-316

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	621.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006957.4, E2273949.8	**Casing ID/OD:**	--	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.4 - 2.4	3-8-11-14	19	19	HSA	620.9		Top 5": -TOPSOIL- 0.4	
										Bottom 9": Brown, moist, medium dense, sandy GRAVEL, trace Silt. -FILL- (GM)	G#113 A-1-b, GM WC=14.0
	2D	24/20	2.0 - 4.0	23-22-40-45	62	62				Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -FILL- (GM)	
	3D	18/10	4.0 - 5.5	51-66-51-50/1"	R					Brown, wet, very dense, GRAVEL, some fine to coarse Sand, little Silt. -FILL- (GM)	
5								615.8		Split spoon refusal at 5.5' bgs; possible bedrock. 5.5	
										Bottom of Exploration at 5.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-317

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	607.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1007198.0, E2273909.0	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	18-38-37-42	F	0	HSA			Brown, moist, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/16	2.0 - 4.0	40-32-25-26	57	57				Brown, moist, hard, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#114 A-4/A-6, SM WC=25.9
								603.6		4.0	
5	3D	24/14	5.0 - 7.0	13-16-27-36	43	43				Brown, dry, dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
								600.6		7.0	
										Bottom of Exploration at 7.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-318

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/13/15-04/13/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007443, E2273805.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-2-3-2	5	5	HSA			Brown, moist, loose, sandy GRAVEL, some organics. -TOPSOIL- (GM)	
								588.0		2.0	
	2D	24/12	2.0 - 4.0	3-4-4-4	8	8				Brown, moist, loose, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	WC=12.2
5	3D	24/17	5.0 - 7.0	10-20-14-65	34	34				Gray-brown, dry, dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	G#116 A-1-a, GM WC=4.1
	4D	1/0	9.1 - 9.2	50/1"	R			580.8		Auger refusal at 9.1' bgs; split spoon refusal at 9.2' bgs; possible bedrock.	
10										9.2	
										Bottom of Exploration at 9.20 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-319

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/13/15-04/13/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007456, E2273929.5	**Casing ID/OD:**	--	**Water Level*:**	7.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-7-10-11	17	17	HSA			Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -TOPSOIL- (SM)	
								592.6		2.0	
	2D	24/0	2.0 - 4.0	7-6-5-5	11	11					
5	3D	24/18	5.0 - 7.0	5-8-13-35	21	21				Brown, moist, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	4D	14/13	10.0 - 11.2	54-29-60/2"	R					Gray-brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GP-GM)	G#117 A-1-a, GP-GM WC=8.7
								583.4		Split spoon refusal at 11.2' bgs; possible bedrock. 11.2	
										Bottom of Exploration at 11.20 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-320

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	586.0	**Auger ID/OD:**	4" OD SSA
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15 - 4/15/15	**Drilling Method:**	Drive & Wash/SSA	**Core Barrel:**	NQ
Boring Location:	N1007617.6, E2273911.8	**Casing ID/OD:**	3" ID	**Water Level*:**	3.4'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-2-3-5	5	5	SSA	585.7		Top 3": -TOPSOIL-	
										0.3	
										Bottom 10" Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/24	2.0 - 4.0	4-4-4-5	8	8				Brown, wet, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=14.7
								582.0		4.0	
5	3D	24/15	5.0 - 7.0	3-5-7-12	12	12	5			Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
							30				
							46				
							24				
							34				
10	4D	24/10	10.0 - 12.0	16-54-18-26	72	72	43			Brown, wet, hard, sandy SILT, some Gravel. -GLACIAL TILL- (SM-SC)	G#119 A-4/A-6, SM-SC WC=10.4
							40				
							42				
	R1	37/37	13.5 - 16.6	RQD = 54%			NQ	572.8		13.2	
										Casing refusal at 13.2' bgs. Roller cone ahead to 13.5' bgs and set up to core. R1: Hard, fresh to slightly weathered, fine grained to aphanitic, gray, METAPELITE. Joints are very to moderately close, undulating, rough, fresh, low angle to moderately dipping. Rock Mass Quality = Fair Rock Core Times (min/ft): 2.5, 1.75, 1.75	
15											
	R2	41/41	16.6 - 20.0	RQD = 76%						R2: Hard, fresh to slightly weathered, fine grained to aphanitic, gray, METAPELITE. Joints are very close to moderately close, dipping, moderately to high angle, fresh, tight to open. Rock Mass Quality = Good Rock Core Times (min/ft): 1.75, 2.0, 2.0, 0.75/.4'	
20								566.0		20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

1. Water level determined 15 minutes after drilling.
2. Well installed in boring to 20.0' bgs, 10.0' of 2" ID screen, 10' of 2" to riser, sand backfill up to 8.0' bgs, bentonite chips from 8.0'-6.0' bgs, sand backfill from 6.0' bgs to ground surface, then 3.0' stand pipe with lock installed at ground surface.
3. Water level measured in completed well immediately after well installation.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-321

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007614.4, E2273852.3	**Casing ID/OD:**	--	**Water Level*:**	0.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	1-1-2-13	3	3	HSA	583.2		Top 6": -TOPSOIL- 0.5 Bottom 3": Brown, wet, very loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=18.8
	2D	24/6	2.0 - 4.0	18-6-6-12	12	12				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
								579.7		4.0	
5	3D	24/12	5.0 - 7.0	8-10-15-16	25	25				Brown, wet, medium dense, silty SAND, some Gravel. -GLACIAL TILL-(SM-SC)	
10	4D	24/24	10.0 - 12.0	28-20-27-25	47	47				Brown, wet, dense, silty SAND, some Gravel. -GLACIAL TILL- (SM-SC)	G#121 A-4/A-6, SM-SC WC=8.4
15	5D	9/6	15.0 - 15.8	16-65/3"	R			567.9		Brown, wet, very dense, silty SAND, some Gravel. -GLACIAL TILL- (SM-SC) Split spoon refusal at 15.8' bgs; possible bedrock. 15.8 **Bottom of Exploration at 15.80 feet below ground surface.**	
20											
25											

Remarks:

1. Moved to Sta. 7333 +65.
2. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-322

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	582.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15-4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007610.8, E2273803.3	**Casing ID/OD:**	--	**Water Level*:**	2.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	1-2-2-1	4	4	HSA			Brown, moist, very loose, silty fine to coarse SAND, some roots. -TOPSOIL- (SM)	
								580.8		2.0	
	2D	24/13	2.0 - 4.0	2-8-8-6	16	16				Brown, wet, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/14	5.0 - 7.0	4-3-5-7	8	8				B rown, wet, loose, fine to coarse SAND some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#122 A-2, SM WC=12.0
								572.8		10.0	
10	4D	24/9	10.0 - 12.0	4-15-14-12	29	29				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	5D	1/0	13.7 - 13.8	50/1"	R			569.0		Auger refusal at 13.7' bgs. Split spoon refusal at 13.8' bgs; possible bedrock.	
15										13.8 **Bottom of Exploration at 13.80 feet below ground surface.**	
20											
25											

Remarks:

1. Moved to Sta. 7333 +65.
2. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-323

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	561.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/15/15-04/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007847.6, E2273847.9	**Casing ID/OD:**	--	**Water Level*:**	4.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-2-3-4	5	5	HSA			Dark brown, moist, loose, silty fine to coarse SAND, trace Gravel. -TOPSOIL- (SM)	
	2D	24/10	2.0 - 4.0	4-5-7-7	12	12		558.8		2.3 Brown, moist, medium dense, fine to coarse SAND, little Silt, little Gravel. -GLACIAL TILL (REWORKED)- (GM)	
	3D	24/8	4.5 - 6.5	4-5-3-42	8	8		556.6		4.5 Brown, wet, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#123 A-2, GM WC=13.4
5											
	4D	2/2	9.5 - 9.7	50/2"	R			551.4		Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 9.7' bgs; possible bedrock. 9.7 **Bottom of Exploration at 9.70 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-324

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	527.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15-4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008202.9, E2273838.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-2-5-30	6	6	HSA	527.2		Top 6": -FOREST MAT-	
										0.5	
										Bottom 8": Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	2D	1/1	3.0 - 3.1	50/1"	R					Gray, dry, very dense GRAVEL, little fine to coarse Sand. -GLACIAL TILL - (GP) Split spoon refusal at 3.1' bgs. Augered to 5.8' bgs, auger refusal; possible bedrock.	
5								521.9		5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-325

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	518.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15 - 4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008419, E2273843.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-3-4	5	5	HSA	517.8		Top 6": -FOREST MAT- 0.5	
										Bottom 10": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	19/14	2.0 - 3.6	8-16-36-50/1"	52	52				Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 3.6' bgs.	
5								512.1		Auger refusal at 6.2' bgs; possible bedrock. 6.2	
										Bottom of Exploration at 6.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-326

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	525.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008941.6, E2274002.9	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	1-5-3-4	8	8	HSA	524.8		Top 3": -FOREST MAT-	
										0.3	
										Bottom 1": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	11/6	2.0 - 2.9	5-60/5"	R			522.2		Brown, moist, medium dense, fine to medium SAND, little Silt, trace Gravel. -GLACIAL TILL- (SM)	
										Split spoon refusal at 2.9' bgs; possible Bedrock. Auger refusal at 2.9' bgs.	
5										2.9	
										Bottom of Exploration at 2.90 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Rock outcropping observed near boring hole.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-327

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	569.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009147.7, E2274097.2	**Casing ID/OD:**		**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1d	24/10	0.0 - 2.0	1-3-7-10	10	10	HSA	567.2		Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM) 2.0	
5	2D	24/19	5.0 - 7.0	8-18-22-29	40	40				Brown, moist, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	WC=12.7
10	3D	24/11	9.0 - 11.0	21-20-22-24	42	42				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
15	4D	24/14	14.0 - 16.0	32-27-25-42	52	52				Brown, wet, hard, SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML)	G#125 A-4/A-6, ML WC=10.8
20	5D	24/12	19.0 - 21.0	49-78-109-122	>100			548.2		Brown, wet, very dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM) 21.0 **Bottom of Exploration at 21.00 feet below ground surface.**	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-328

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009172.7, E2274070.4	**Casing ID/OD:**		**Water Level*:**	17.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	3-5-4-8	9	9	HSA			Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/12	2.0 - 4.0	11-8-9-6	17	17				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								571.1		4.0	
5	3D	24/12	5.0 - 7.0	2-12-19-20	31	31				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	WC=15.4
10	4D	24/24	10.0 - 12.0	36-38-41-47	79	79				Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
15	5D	24/24	15.0 - 17.0	34-39-42-95	81	81				Gray-brown, moist, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
20	6D	11/11	20.0 - 20.9	27-100/5"	R					Brown, wet, hard, SILT, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (SM-SC)	G#127 A-4/A-6, SM-SC WC=7.9
25											

Remarks:

1. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-328

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009172.7, E2274070.4	**Casing ID/OD:**		**Water Level*:**	17.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/18	25.0 - 27.0	54-84-106-111	>100					Brown, wet, hard, SILT, some Gravel, some fine to coarse Sand. -GLACIAL TILL- (SM-SC)	
	8D	1/0	28.7 - 28.8	50/1"	R			546.3		Auger refusal at 28.7' bgs; split spoon refusal at 28.7' bgs; possible bedrock. 28.8 **Bottom of Exploration at 28.80 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-329

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	578.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009190.8, E2274015.7	**Casing ID/OD:**	4" ID	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	WOR-2-8-4	F	0	SSA	578.1		Top 3": -TOPSOIL-	
										0.3	
										Bottom 6": Brown, moist, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/16	2.0 - 4.0	2-3-4-4	7	7				Brown, moist, medium stiff, sandy SILT little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								574.4		4.0	
5	3D	24/14	5.0 - 7.0	6-9-10-13	19	19	29			Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	WC=10.4
							36				
							71				
							126				
							169				
10	4D	24/0	10.0 - 12.0	18-16-23-32	39	39	34			No recovery.	
							29				
							28				
							29				
							39				
15	5D	24/10	15.0 - 17.0	37-34-33-41	67	67	27			Gray, wet, hard, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
20	6D	20/6	20.0 - 21.7	61-80-59-73/2"	>100		28			Gray, wet, hard, gravelly SILT, some fine to medium Sand. -GLACIAL TILL- (ML)	
							34				
							44				
							33				
25							70				

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Switched from SSA to roller cone after drilling to 7.0' bgs.
3. Well installed in boring to 34.0' bgs, 10.0' of 2" ID PVC screen, 25' of 2" ID PVC riser, sand backfill up to 15.0' bgs, bentonite chips from 15.0' bgs to 11.0' bgs, sand backfill from 11.0' bgs to 35.2' bgs. 2' standpipe with lock installed at 35.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-329

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	578.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009190.8, E2274015.7	**Casing ID/OD:**	4" ID	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	10/6	25.0 - 25.8	62-70/4"	R		RC			Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#129 A-1-b, GM WC=8.0
30	8D	4/3	30.0 - 30.3	84/4"	R					Brown, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM) Split spoon refusal at 30.3' bgs.	
35	9D	12/7	35.0 - 36.0	20-107/6"	R			542.4		Gray, wet, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 36.0' bgs; possible bedrock. 36.0 **Bottom of Exploration at 36.00 feet below ground surface.**	
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Switched from SSA to roller cone after drilling to 7.0' bgs.
3. Well installed in boring to 34.0' bgs, 10.0' of 2" ID PVC screen, 25' of 2" ID PVC riser, sand backfill up to 15.0' bgs, bentonite chips from 15.0' bgs to 11.0' bgs, sand backfill from 11.0' bgs to 35.2' bgs. 2' standpipe with lock installed at 35.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-330

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009381.5, E2274215.8	**Casing ID/OD:**	4" ID	**Water Level*:**	5.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	1-4-4-4	F	0	SSA	573.0		Top 3": -TOPSOIL- 0.3 Bottom 12": Brown, moist, silty fine to medium SAND, trace Gravel.	
								571.3		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/10	2.0 - 4.0	3-4-6-8	10	10				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	4-4-2-3	6	6	6			Brown, wet, medium stiff, SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
							5				
							28				
							36				
							37				
10	4D	24/4	10.0 - 12.0	8-8-4-4	12	12	29			Brown, wet, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
							23				
							11				
							10				
							14				
15	5D	24/3	15.0 - 17.0	8-4-7-10	11	11	16			Brown, wet, stiff, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
							17				
							30				
							20				
							19				
20	6D	24/8	20.0 - 22.0	15-15-20-29	35	35	RC			Brown, wet, dense, GRAVEL, some Sand, some Silt. -GLACIAL TILL- (GM)	G#130 A-1-b, GM WC=9.1
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-330

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009381.5, E2274215.8	**Casing ID/OD:**	4" ID	**Water Level*:**	5.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	7/7	25.0 - 25.6	64-50/1"	R			547.7		Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 25.6' bgs; possible bedrock. 25.6 **Bottom of Exploration at 25.60 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-331

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009425.7, E2274110.5	**Casing ID/OD:**	4" ID	**Water Level*:**	17.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	WOH-4-7-5	11	11	HSA	583.7		Top 2": -TOPSOIL- 0.2 Bottom 4": Brown, moist, medium dense, fine to medium SAND, some Silt. -GLACIAL TILL (REWORKED)- (SM)	WC=16.9
	2D	24/8	2.0 - 4.0	5-5-5-13	10	10				Brown, moist, loose, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								579.9		4.0	
5	3D	24/6	5.0 - 7.0	14-61-40-44	>100					Brown, moist, very dense, sandy GRAVEL little Silt. -GLACIAL TILL- (GM)	
	4D	1/0	8.2 - 8.3	50/1"	R					No recovery. Split spoon refusal at 8.3' bgs.	
10	5D	24/11	10.0 - 12.0	17-30-30-34	60	60				Brown, moist, very dense, gravelly fine to medium SAND, trace Silt. -GLACIAL TILL- (SP)	
15	6D	4/2	15.0 - 15.3	73/4"	R					Brown/gray, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
20	7D	24/14	20.0 - 22.0	41-54-52-63	>100					Brown/gray, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#132 A-1-b, GM WC=10.8
25											

Remarks:

1. After auger and split spoon refusal at 8.3' bgs, moved 5' south and augered to 10.0' bgs and continued to sample.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-331

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009425.7, E2274110.5	**Casing ID/OD:**	4" ID	**Water Level*:**	17.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	8D	4/2	25.0 - 25.3	84/4"	R			558.6		Gray, wet, very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM) Split spoon refusal at 25.3' bgs; possible bedrock. 25.3 **Bottom of Exploration at 25.30 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. After auger and split spoon refusal at 8.3' bgs, moved 5' south and augered to 10.0' bgs and continued to sample.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-332

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009616.7, E2274307.5	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	WOH-3-6-6	9	9	HSA	589.9		Top 3": -TOPSOIL- 0.3 Bottom 8": Brown, moist, loose, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/8	2.0 - 4.0	9-12-9-7	21	21		588.2		2.0 Brown, moist, medium dense, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL- (SM)	
5	3B	24/9	5.0 - 7.0	10-23-53-39	76	76				Brown, moist, dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/9	10.0 - 12.0	25-33-32-97	65	65				Brown, dry, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#133 A-1-b, GM WC=6.2
15	5D	11/0	15.0 - 15.9	23-79/5"	R			574.3		No recovery. Split spoon refusal at 15.9' bgs; possible bedrock. 15.9 **Bottom of Exploration at 15.90 feet below ground surface.**	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-333

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/28/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1009655.8, E2274215.2	**Casing ID/OD:**	5" ID	**Water Level*:**	11.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	WOH-WOH-9-7	9	9	HSA	589.8		Top 3": -TOPSOIL- 0.3	
										Bottom 7": Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel.	
								588.1		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	5-5-8-11	13	13				2.0	
										Brown, moist, medium dense, gravelly fine to medium SAND, little Silt.	
										-GLACIAL TILL- (SM)	
5	3D	24/11	5.0 - 7.0	9-9-9-18	18	18				Brown, moist, medium dense, fine to medium SAND, some Gravel, little Silt.	WC=19.6
										-GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R		HQ	580.0		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1	
	R1	52/48	10.2 - 14.5	RQD = 15%						Advanced roller cone to 10.2' bgs and set-up to core. R1: Hard, fresh to slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, smooth, fresh to discolored, tight to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.75, 3.75, 4. 5, 5.0, 1.5	
	R2	60/60	14.5 - 19.5	RQD = 22%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 4.75, 5.75, 3. 25, 3.25, 3.75	
15											
	R3	48/48	19.5 - 23.5	RQD = 27%						R3: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.75, 2.5, 2.25	
20											
	R4	38/38	23.5 - 26.7	RQD = 47%						R4: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored,	
25											

Remarks:

1. Installed 4" PVC pipe to 11.0' bgs with 2' of stick-up to allow for geophysical testing. The hole was measured "open" to 36.0' bgs immediately after completion of drilling.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-333

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/28/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1009655.8, E2274215.2	**Casing ID/OD:**	5" ID	**Water Level*:**	11.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.25, 3.75, 2. 25, 1.75	
	R5	30/30	26.7 - 29.2	RQD = 27%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, tight to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.75, 3.25, 4. 75	
	R6	38/38	29.2 - 32.4	RQD = 22%						R6: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5, 3.5, 3.0, 1.5	
30	R7	48/47	32.4 - 36.4	RQD = 42%						R7: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to moderately close, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.0, 2.25, 4.25, 3.75	
35								553.7		36.4 **Bottom of Exploration at 36.40 feet below ground surface.**	
40											
45											
50											

Remarks:

1. Installed 4" PVC pipe to 11.0' bgs with 2' of stick-up to allow for geophysical testing. The hole was measured "open" to 36.0' bgs immediately after completion of drilling.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-334

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	595.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/28/15-4/28/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1009846.7, E2274407.7	**Casing ID/OD:**	4" ID	**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	WOH-1-8-11	9	9	SSA	595.6		Top 2": -TOPSOIL-	
										0.2	
										Bottom 9": Brown, moist, loose, silty fine to medium SAND, little Gravel.	
								593.8		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	11-20-17-17	37	37				2.0	
										Brown, moist, dense, silty fine to medium SAND, some Gravel.	
										-GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	4-3-8-10	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel.	
										-GLACIAL TILL- (SM)	
10	4D	24/16	10.0 - 12.0	18-48-37-40	85	85				Brown/blue, dry, very dense, fine to medium, sandy GRAVEL, trace Silt.	
										-GLACIAL TILL- (SP)	
15	5D	24/12	15.0 - 17.0	12-20-30-50/1"	50	50				Brown, wet, dense, SAND, some Gravel, some Silt.	WC=10.2
										-GLACIAL TILL- (SM)	
							NQ			Split spoon refusal at 16.6' bgs; possible bedrock.	
								579.2		16.6	
	R1	24/18	17.0 - 19.0	RQD = 0%						R1: Hard, moderately weathered, fine grained, blue, METAPELITE, highly fractured.	
										Rock Mass Quality = Very Poor	
	R2	10/10	19.0 - 19.8	RQD = 0%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very closely spaced, high angle, planar, rough, discolored, partially open to open.	
20	R3	26/24	19.8 - 22.0	RQD = 31%						Rock Mass Quality = Very Poor	
										Rock Core Times (min/ft): 3.75	
								573.8		R3: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, undulating, rough, discolored, open.	
										Rock Mass Quality = Poor	
										Rock Core Times (min/ft): 3.25, 4.25, 4. 0	
25										22.0	

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-334

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	595.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/28/15-4/28/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1009846.7, E2274407.7	**Casing ID/OD:**	4" ID	**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										**Bottom of Exploration at 22.00 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-335

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/27/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009886, E2274312.2	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	WOH-1-8-5	9	9	HSA	600.4		Top 5": -TOPSOIL- 0.3 Bottom 7": Brown, moist, loose, silty fine to coarse SAND, little Gravel.	WC=35.2
								598.7		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/14	2.0 - 4.0	4-8-11-18	19	19				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/17	5.0 - 7.0	37-34-35-46	69	69				Brown, moist, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/15	10.0 - 12.0	38-35-22-32	57	57				Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#137 A-2, GM WC=8.8
15	5D	1/0	14.7 - 14.8	50/1"	R			585.9		Split spoon refusal at 14.8' bgs; possible bedrock. Auger refusal at 14.7' bgs. 14.8 **Bottom of Exploration at 14.80 feet below ground surface.**	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-336

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010076.8, E2274502.5	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	1-1-12-16	F	0	SSA	590.9		Top 2": -TOPSOIL- (0.2) Bottom 18": Brown, moist, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/20	2.0 - 4.0	11-10-7-6	17	17		589.1		(2.0) Brown, moist, medium dense, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/15	5.0 - 7.0	7-15-20-21	35	35				Brown, moist, dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
10	4D	24/16	10.0 - 12.0	7-11-11-15	22	22				Brown, moist, medium dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#138 A-2, GM WC=8.4
15	5D	1/0	15.0 - 15.1	50/1"	R			576.0		Split spoon refusal at 15.1' bgs; possible bedrock. (15.1) **Bottom of Exploration at 15.10 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Possible Rock at 14.0' bgs from auger observation and return.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-337

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010095.4, E2274456.2	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-4-2-3	6	6	SSA	590.0		Top 2": -TOPSOIL- 0.2 Bottom 14": Brown, moist, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL (REWORKED)- (GP-GM)	
	2D	24/11	2.0 - 4.0	6-11-9-9	20	20				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL (REWORKED)- (GP-GM)	G#139 A-1-a, GP-GM WC=14.0
								586.2		4.0	
5	3D	24/17	5.0 - 7.0	4-5-7-6	12	12				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP-GM)	
10	4D	24/9	10.0 - 12.0	20-20-12-11	32	32				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	WC=10.5
15	5D	1/0	15.5 - 15.6	50/1"	R			574.6		Split spoon refusal at 15.6' bgs; possible bedrock. 15.6 **Bottom of Exploration at 15.60 feet below ground surface.**	
20											
25											

Remarks:

1. Possible Rock at 13.6' bgs from auger observation and return.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-338

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1010115.8, E2274411.1	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	3-4-6-7	F	0	SSA	592.2		Top 1": -TOPSOIL- 0.1 Bottom 9": Brown, moist, silty fine to medium SAND, trace Gravel.	
								590.3		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/12	2.0 - 4.0	3-3-3-6	6	6				Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	10-8-11-26	19	19				Brown, moist, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	WC=8.8
10	R1	17/15	10.0 - 11.4	RQD = 25%			NQ	582.3		Auger refusal at 10.0' bgs. 10.0 Advance casing to 10.0' and set up to core. R1: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, undulating, smooth to rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 5.25, 3.25	
	R2	43/36	11.4 - 15.0	RQD = 23%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 4.0, 3.5, 4.25	
15	R3	40/40	15.0 - 18.3	RQD = 40%						R3: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored, partially open to open. Sand infilling at 18.5' bgs. Rock Mass Quality = Poor Rock Core Times (min/ft): 4.0, 2.75, 3.25	
	R4	38/38	18.4 - 21.6	RQD = 66%						R4: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, high angle, planar, smooth, discolored, partially open to open. Rock Mass Quality = Fair Rock Core Times (min/ft): 3.5, 4.0	
20	R5	57/54	21.6 - 26.4	RQD = 37%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, high angle, planar, smooth, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.25, 2.75, 2.75, 2.25	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 26.0' bgs; 10' of 2" ID screen, 16' of 2" ID riser, and backfill up to 9.5' bgs, bentonite chips from 9.5'-6.0' bgs, sand backfill up to 6.0' bgs to ground surface. 2' stand pipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-338

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1010115.8, E2274411.1	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25								565.9		26.4 **Bottom of Exploration at 26.40 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 26.0' bgs; 10' of 2" ID screen, 16' of 2" ID riser, and backfill up to 9.5' bgs, bentonite chips from 9.5'-6.0' bgs, sand backfill up to 6.0' bgs to ground surface. 2' stand pipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-339

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	574.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010267, E2274535.9	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-1	2	2	SSA	574.6		Top 3": -FOREST MAT-	
										0.3	
	2D	24/0	1.0 - 3.0	6-5-4-4	9	9				Bottom 3": Brown, moist, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM) No recovery.	
	3D	24/13	3.0 - 5.0	3-4-4-11	8	8				Brown, moist, loose, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM)	
5	4D	10/5	5.0 - 5.8	24-76/4"	R			569.1		Brown to gray, dry, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 5.8' bgs; possible bedrock.	
										5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-340

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/27/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1010561.4, E2274654.6	**Casing ID/OD:**		**Water Level*:**	7.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/0	0.0 - 2.0	6-3-3-8	6	6	HSA	575.2		Top 3": -FOREST MAT- 0.3 No recovery.	
	2D	24/18	2.0 - 4.0	11-9-7-9	16	16				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/10	5.0 - 7.0	26-25-27-34	52	52				Brown, moist, hard, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
10	4D	24/20	10.0 - 12.0	32-39-34-73	73	73				Brown, wet, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
15	5D	8/8	15.0 - 15.7	98-84/2"	R			559.8		Brown, wet, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 15.7' bgs; possible bedrock. 15.7 **Bottom of Exploration at 15.70 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-341

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	582.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1010780.4, E2274741.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
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U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-3-5-6	F	0	HSA	582.6		Top 2": -FOREST MAT- (0.2)	
										Bottom 8": Brown, frozen, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/12	2.0 - 4.0	6-6-6-6	12	12				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/4	4.0 - 6.0	6-8-6-6	14	14				Brown, moist, medium dense, silty GRAVEL, trace fine to coarse Sand. -GLACIAL TILL- (GM)	
5	4D	24/6	6.0 - 8.0	13-11-10-7	21	21				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								574.8		(8.0) **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-342

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	589.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011017.2, E2274844.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-3-3-5	F	0	HSA	589.1		Top 3": -FOREST MAT- 0.3 Bottom 5": Brown, frozen, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#142 A-2, GM WC=16.7
	2D	24/16	2.0 - 4.0	5-3-4-4	7	7				Brown, moist, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	
	3D	24/8	4.0 - 6.0	4-4-6-11	10	10				Brown, moist, loose, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5	4D	24/10	6.0 - 8.0	17-25-18-18	43	43				Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								581.4		8.0 **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-343

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	588.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011240.7, E2274928.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	2D	24/20	0.0 - 2.0	2-2-4-7	F	0	HSA	588.5		Top 4": -FOREST MAT-	G#143 A-4/A-6, SM-SC WC=13.0
										0.3	
										Bottom 16": Brown, frozen, SILT, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (SM-SC)	
	2D	24/17	2.0 - 4.0	6-19-10-11	29	29				Brown, moist, medium dense, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	3D	24/21	4.0 - 6.0	15-17-17-26	34	34				Brown, moist, dense, fine to coarse, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
5								582.8		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-344

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011473.2, E2275018.3	**Casing ID/OD:**	--	**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	2-3-3-4	F	0	HSA	590.8		Top 4": -FOREST MAT- 0.3	WC=18.3
										Bottom 8": Brown, frozen, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	2D	24/19	2.0 - 4.0	4-2-3-2	5	5				Brown, wet, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/13	4.0 - 6.0	5-12-17-22	29	29				Brown, wet, medium dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								585.1		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-345

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	597.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011706.5, E2275113.9	**Casing ID/OD:**	--	**Water Level*:**	4.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	1-3-3-2	F	0	HSA			Brown, frozen, silty SAND. -FOREST MAT-	
								595.1		2.0	
	2D	24/10	2.0 - 4.0	7-10-7-7	17	17				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#145 A-4, SM WC=12.0
	3D	24/19	4.0 - 6.0	4-4-3-4	7	7				Brown, wet, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5	4D	24/11	6.0 - 8.0	2-3-8-9	11	11				Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
								589.1		8.0	
										Bottom of Exploration at 8.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-346

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011951.5, E2275203.3	**Casing ID/OD:**	--	**Water Level*:**	9.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-1-8-10	F	0	HSA	598.6		Top 3": -FOREST MAT- 0.3 Bottom 11": Brown, frozen, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#146 A-2, SM WC=16.6
	2D	24/16	2.0 - 4.0	5-7-10-24	17	17				Brown, moist, medium dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/2	4.0 - 6.0	16-10-7-4	17	17				Gray-brown, moist, medium dense, GRAVEL, trace Sand, trace Silt. -GLACIAL TILL- (GP)	
5	4D	24/6	6.0 - 8.0	5-8-8-10	16	16				No recovery.	
	5D	24/15	8.0 - 10.0	10-8-19-20	27	27				Brown, wet, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10								588.9		10.0 **Bottom of Exploration at 10.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-347

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012185.1, E2275286.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	1-2-3-5	5	5	HSA	601.0		Top 4": -FOREST MAT- 0.3 Bottom 7": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/10	2.0 - 4.0	5-8-7-8	15	15				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel -GLACIAL TILL- (SM)	G#147 A-4, SM WC=10.8
	3D	24/9	4.0 - 6.0	18-18-10-20	28	28				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								595.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-348

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012422.3, E2275378.4	**Casing ID/OD:**	--	**Water Level*:**	7.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/21	0.0 - 2.0	5-2-2-3	4	4	HSA	601.4		Top 5": -FOREST MAT-	
										0.4	
										Bottom 16": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	8-8-35-19	43	43				Brown, moist, dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#148 A-2, SM WC=12.8
	3D	24/2	4.0 - 6.0	20-19-18-22	37	37				Gray, moist, dense, GRAVEL, trace fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP)	
5											
	4D	24/20	8.0 - 10.0	19-19-19-35	38	38				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10								591.8		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-349

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	599.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012632.9, E2275512.8	**Casing ID/OD:**	--	**Water Level*:**	4.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	1-1-2-8	3	3	HSA	598.8		Top 3": -FOREST MAT-	WC=30.7
										0.3	
										Bottom 21": Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/14	2.0 - 4.0	5-6-6-8	12	12				Brown, moist, stiff, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/4	4.0 - 6.0	6-7-8-9	15	15				Brown, wet, stiff, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM-GC)	G#150 A-4/A-6, GM-GC WC=16.6
5											
	4D	1/1	9.0 - 9.1	50/1"	R			590.0		Gray, wet, very dense GRAVEL, some Sand, trace Silt. -GLACIAL TILL- (GP) Auger refusal at 9.0' bgs; split spoon refusal at 9.1' bgs; possible bedrock.	
10										9.1	
										Bottom of Exploration at 9.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-350

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/4/15-4/4/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1012668.5, E2275423.8	**Casing ID/OD:**	4" ID	**Water Level*:**	19.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	2-3-3-3	F	0	HSA	605.8		Top 1": -TOPSOIL-	
										0.1	
										Bottom 4": Brown, moist, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/8	2.0 - 4.0	3-2-9-10	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								601.9		4.0	
5	3D	24/6	5.0 - 7.0	11-6-5-5	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	4D	24/12	9.0 - 11.0	11-14-10-16	24	24				Brown, moist, medium dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#151 A-2, SM WC=10.6
10											
15	R1	43/43	15.0 - 18.6	RQD = 28%			NQ	590.9		15.0	
										Hard, slightly to moderately weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are extremely close to close, moderately dipping, undulating, rough, open, very close to 18.0' bgs. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.75	
	R2	16/16	18.7 - 20.0	RQD = 100%						Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close, high angle, undulating, rough, discolored, partially open to open. Rock Mass Quality = Excellent Rock Core Times (min/ft): 2.5	
20								585.9		20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 20.0' bgs; 10.0' of 2" ID screen, 12.2' of 2" ID riser, sand backfill up to 11.0' bgs, bentonite chips from 11.0'-9.0' bgs. Sand backfill from 9.0' bgs to ground surface. 2.2' standpipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-351

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	614.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012871.8, E2275604.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-3-2-2	F	0	HSA			Dark brown, frozen, silty SAND, some organics. -FOREST MAT- (SM)	
								612.5		2.0	
	2D	24/3	2.0 - 4.0	3-6-6-10	12	12				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/9	4.0 - 6.0	20-21-30-29	51	51				Brown, dry, dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP-GM)	G#152 A-1-a, GP-GM WC=2.4
5											
	4D	1/0	7.7 - 7.8	50/1"	R			606.7		Auger refusal at 7.7' bgs; split spoon refusal at 7.8' bgs; possible bedrock.	
										7.8	
										Bottom of Exploration at 7.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-352

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	615.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012892.4, E2275550.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	3-3-3-3	F	0	HSA			Brown, frozen, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	6-5-4-4	9	9				Brown, moist, loose, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	WC=25.2
	3D	24/8	4.0 - 6.0	6-7-12-19	19	19				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5	4D	24/3	6.0 - 8.0	26-46-47-47	93	93				Brown/gray, moist, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	5D	24/19	13.0 - 15.0	26-46-48-60	94	94				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	G#154 A-1-a, GM WC=3.3
15	6D	1/0	16.1 - 16.2	50/1"	R			599.0		Auger refusal at 16.1' bgs; split spoon refusal at 16.2' bgs; possible bedrock. 16.2 **Bottom of Exploration at 16.20 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-353

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	613.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/21/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1012905.5, E2275520.3	**Casing ID/OD:**	5" ID	**Water Level*:**	18.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	3-3-3-3	6	6	SSA	613.1		Top 1": -TOPSOIL- 0.1 Bottom 7": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	2-3-4-7	7	7		611.2		2.0 Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/16	5.0 - 7.0	9-18-26-22	44	44				Brown, dry, dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	WC=6.3
10	4D	9/6	10.0 - 10.8	50-74/3"	R		HQ	602.4		Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 10.8' bgs; possible bedrock. 10.8	
	R1	60/19	11.0 - 16.0	RQD = 7%						R1: Hard, moderately weathered, fine grained, blue, METAPELITE, highly fractured. Joints are extremely close to close, moderately dipping, undulating, rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.25, 2.75, 2. 25, 2.25, 3.25	
15	R2	19/10	16.0 - 17.6	RQD = 0%						R2: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5	
	R3	24/18	17.6 - 19.6	RQD = 0%						R3: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.75, 2.25	
20	R4	37/17	19.6 - 22.7	RQD = 0%						R4: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.0, 1.75, 1.75	
	R5	28/41	22.7 - 25.0	RQD = 100%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to moderately close, high angle, planar, rough, discolored, open, slight coarse Sand infilling. Rock Mass Quality = Excellent	
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Installed 4" PVC pipe to 20.2' bgs with 2' of stick-up to allow for geophysical testing. Rock in core hole was caving-in during PVC pipe installation. The hole was measured open to 21.0' bgs (0.8' below bottom of casing) immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-353

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	613.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/21/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1012905.5, E2275520.3	**Casing ID/OD:**	5" ID	**Water Level*:**	18.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	R6	53/48	25.0 - 29.4	RQD = 79%						Rock Core Times (min/ft): 4.5, 5.0 R6: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, moderately dipping, planar, rough, open. Rock Mass Quality = Good Rock Core Times (min/ft): 7.75, 3.25, 4. 25, 3.0, 2.75	
	R7	12/10	29.4 - 30.4	RQD = 83%						R7: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are moderately close, high angle, planar, rough, fresh, partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 2.5	
30								582.8		30.4 **Bottom of Exploration at 30.40 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Installed 4" PVC pipe to 20.2' bgs with 2' of stick-up to allow for geophysical testing. Rock in core hole was caving-in during PVC pipe installation. The hole was measured open to 21.0' bgs (0.8' below bottom of casing) immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-354

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.0	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013126, E2275631.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-2-3-6	5	5	HSA			Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/11	2.0 - 4.0	3-4-9-4	13	13				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/14	4.0 - 6.0	1-2-1-2	3	3				Brown, moist, very loose, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	G#156 A-2, SM WC=28.7
5	4D	24/17	6.0 - 8.0	2-4-7-7	11	11				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
								583.0		8.0 **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-355

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	574.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013361.1, E2275693.8	**Casing ID/OD:**	--	**Water Level*:**	2.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	3-5-1-2	F	0	HSA			Dark brown, frozen, SAND and organics, some Silt. -FOREST MAT-	
								573.1		1.8	
	2D	24/10	2.0 - 4.0	1-2-3-3	5	5				Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	G#157 A-4, SM WC=24.6
	3D	24/10	4.0 - 6.0	2-3-5-9	8	8				Brown, wet, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	4D	24/11	6.0 - 8.0	6-15-44-23	59	59				Gray-brown, wet, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								566.9		8.0	
										Bottom of Exploration at 8.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-357

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	577.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013829, E2275826.3	**Casing ID/OD:**	--	**Water Level*:**	5.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-3-5-14	8	8	HSA	576.8		Top 4": -FOREST MAT-	
										0.4	
										Bottom 10": Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	20-21-22-25	43	43				Brown, moist, dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/7	4.0 - 6.0	16-15-13-12	28	28				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
5								571.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-358

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014152.3, E2275894.7	**Casing ID/OD:**	--	**Water Level*:**	5.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-3-4	5	5	HSA	583.2		Top 2": -FOREST MAT- 0.2 Bottom 8": Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SP-SM)	G#232 A-1-a, SP-SM
	2D	24/8	2.0 - 4.0	3-5-24-20	29	29				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/15	4.0 - 6.0	7-8-14-14	22	22				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								577.4		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-359

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	586.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014387, E2275918.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-5-10	7	7	HSA	586.7		Top 2": -FOREST MAT-	
										0.2	
										Bottom 8": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/5	2.0 - 4.0	11-12-6-7	18	18				Brown, moist, medium dense, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	3D	24/12	4.0 - 6.0	3-3-4-12	7	7				Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5								580.9		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-360

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	588.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014629.4, E2275981.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-2-2-3	4	4	HSA	588.0		Top 2": -FOREST MAT-	
										0.2	
										Bottom 12": Brown, moist, soft, sandy SILT. -GLACIAL TILL- (ML)	
	2D	24/11	2.0 - 4.0	3-2-2-3	4	4				Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	3D	24/10	4.0 - 6.0	7-22-30-31	52	52				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
5								582.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-361

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014875.8, E2276006.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	3-6-6-13	12	12	HSA	593.7		Top 2": -FOREST MAT- (0.2)	
										Bottom 7": Brown, moist, medium dense, fine to coarse SAND, some Silt, trace Gravel. -GLACIAL TILL- (SM)	G#234 A-1-b, GM
	2D	24/8	2.0 - 4.0	8-6-8-12	14	14				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
5	3D	24/16	6.0 - 8.0	22-27-23-20	50	50				Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	4D	24/17	8.0 - 10.0	28-34-49-31	83	83				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
10								583.9		(10.0) **Bottom of Exploration at 10.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-362

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015084.8, E2276034.7	**Casing ID/OD:**	--	**Water Level*:**	8.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	1-5-7-12	12	12	HSA			Brown, moist, medium dense, gravelly SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
								598.1		2.0	
	2D	7/2	2.0 - 2.6	25-50/1"	R					Brown, moist, very dense, gravelly SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	24/11	5.0 - 7.0	15-17-20-21	37	37				Brown, moist, dense, gravelly SAND, little Silt. -GLACIAL TILL- (SM)	G#158 A-1-b, SM WC=8.4
10	4D	24/13	10.0 - 12.0	14-12-12-16	24	24				Brown, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								588.1		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Boulder from 2.6'-3.2' bgs.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-363

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015329.3, E2276053.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-5-5-2	10	10	HSA			Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#159 A-2, SM WC=24.8
	2D	24/12	2.0 - 4.0	5-10-17-28	27	27				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/13	4.0 - 6.0	8-24-23-13	47	47		590.8		4.0 Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								588.8		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-364

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015580, E2276069.7	**Casing ID/OD:**	--	**Water Level*:**	5.5
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-5-4-1	9	9	HSA			Brown, moist, loose, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
	2D	24/13	2.0 - 4.0	6-5-11-24	16	16				Brown, moist, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL (REWORKED)- (GP)	
	3D	24/15	4.0 - 6.0	10-20-25-28	45	45		586.8		4.0 Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								584.8		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-365

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015825.7, E2276081	**Casing ID/OD:**	--	**Water Level*:**	1.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	5-1-12-11	13	13	HSA			Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/6	2.0 - 4.0	4-4-10-14	14	14				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	19/7	4.0 - 5.6	14-11-9-50/1"	20	20		586.1		4.0	
5								584.5		Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 5.6' bgs; possible bedrock. 5.6	
										Bottom of Exploration at 5.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-366

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/22/15-04/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016080.5, E2276080.9	**Casing ID/OD:**	--	**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	1-2-4-7	6	6	HSA	588.9		Dark brown, moist, loose, silty fine to coarse SAND, trace Gravel. -TOPSOIL- (SM)	
										1.2	
	2D	24/13	2.0 - 4.0	6-4-4-5	8	8				Brown, wet, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=38.8
								586.1		4.0	
5	3D	24/7	5.0 - 7.0	13-16-18-17	34	34				Brown, wet, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/17	10.0 - 12.0	20-44-58-35	102	102				Brown, wet, very dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
								578.1		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-367

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/22/15-04/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016330.2, E2276077.6	**Casing ID/OD:**	--	**Water Level*:**	1.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	6-6-4-4	F	0	HSA			Brown, frozen, SILT, fine to coarse Sand, trace Gravel. -TOPSOIL- (SM)	
								590.7		2.0	
	2D	24/10	2.0 - 4.0	3-2-10-10	12	12				Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
5	3D	24/11	5.0 - 7.0	4-5-10-16	15	15				Brown, wet, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL (REWORKED)- (GP)	
	4D	1/0	9.3 - 9.4	50/1"	R			583.3		Auger refusal at 9.3' bgs. Split spoon refusal at 9.4' bgs; possible bedrock.	
10										9.4	
										Bottom of Exploration at 9.40 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-368

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/21/15-04/21/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016580.3, E2276067.1	**Casing ID/OD:**	--	**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	4-3-2-2	5	5	HSA	592.9		Top 13": -TOPSOIL-	
										1.2	
	2D	24/16	2.0 - 4.0	1-4-8-9	12	12				Bottom 5": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM) Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
5	3D	24/5	5.0 - 7.0	13-20-30-27	50	50		589.1		5.0 Brown, wet, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	4D	4/4	10.0 - 10.3	74/4"	R			583.2		Brown, wet, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 10.3' bgs. Auger refusal at 10.9' bgs; possible bedrock.	
										10.9 **Bottom of Exploration at 10.90 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-369

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017326.1, E2275998.0	**Casing ID/OD:**	--	**Water Level*:**	0.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	2-1-3-2	F	0	HSA			Brown, frozen, silty SAND, trace Gravel, trace roots. -TOPSOIL- (SM)	
								599.9		2.0	
	2D	24/9	2.0 - 4.0	2-4-7-11	11	11				Brown, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	3D	24/3	4.0 - 6.0	14-21-11-10	32	32				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	WC=10.7
5											
	4D	24/16	9.0 - 11.0	76-51-41-47	92	92				Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10											
15	5D	1/1	15.0 - 15.1	50/1"	R			586.8		Brown/gray, wet, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 15.1' bgs; possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-370

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	599.6	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017573.5, E2275962.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-3-4-4	F	0	HSA			Brown, frozen, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								597.6		2.0	
	2D	24/12	2.0 - 4.0	2-5-10-17	15	15				Brown, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	3D	24/13	4.0 - 6.0	16-15-16-15	31	31				Brown, dry, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5											
	4D	14/14	8.0 - 9.2	41-60-60/2"	R					Brown-gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								590.4		Split spoon refusal at 9.2' bgs; possible bedrock.	
10										9.2	
										Bottom of Exploration at 9.20 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-371

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017820.6, E2275919.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
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U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	9-8-5-4	F	0	HSA			Brown, frozen, gravelly SILT, little Sand. -GLACIAL TILL (REWORKED)- (GM)	
	2D	24/9	2.0 - 4.0	3-2-2-2	4	4				Brown, moist, very loose, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/12	4.0 - 6.0	3-10-12-13	22	22		596.5		4.0	
5										Brown-gray, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								594.5		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-372

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018065.6, E2275871.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/21	0.0 - 2.0	5-4-5-6	F	0	HSA			Brown, frozen, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#162 A-2, SM WC=32.4
	2D	24/10	2.0 - 4.0	4-5-3-3	8	8				Brown, moist, loose, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/13	4.0 - 6.0	2-5-8-11	13	13		599.3		4.0 Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								597.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-373

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018313.9, E2275837.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	5-5-9-14	F	0	HSA			Brown, frozen, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=19.4
								596.4		2.0	
	2D	24/9	2.0 - 4.0	17-16-18-22	34	34				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	3D	24/15	4.0 - 6.0	19-14-27-50	41	41				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
5								592.4		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-374

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018552.6, E2275756.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	8-10-14-16	F	0	HSA			Brown, frozen, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	2D	24/18	2.0 - 4.0	16-20-19-21	39	39				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	3D	24/17	4.0 - 6.0	21-25-20-22	45	45				Brown, dry, dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
5								597.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-375

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018795, E2275698.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-1-2-7	3	3	HSA			Brown, moist, soft, gravelly SILT, trace Sand. -GLACIAL TILL- (ML)	
	2D	24/14	2.0 - 4.0	5-6-8-10	14	14				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
	3D	15/9	4.0 - 5.3	12-12-60/3"	R					Brown-gray, moist, very dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
5								600.6		Split spoon refusal at 5.3' bgs; possible bedrock. 5.3 **Bottom of Exploration at 5.30 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-376

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	608.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019032.1, E2275618	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	2-2-2-2	4	4	HSA			Brown, moist, soft, sandy SILT, trace Gravel. -TOPSOIL-	
								606.8		2.0	
	2D	24/10	2.0 - 4.0	2-2-3-4	5	5				Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								604.8		4.0	
	3D	24/12	4.0 - 6.0	7-12-18-15	30	30				Brown, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5											
	4D	24/13	9.0 - 11.0	13-13-49-25	62	62				Brown, moist, very dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM)	
10								597.8		11.0	
										Bottom of Exploration at 11.00 feet below ground surface.	
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-377

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019272.8, E2275542.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	2-3-3-2	6	6	HSA			Brown, moist, medium stiff, sandy SILT, trace Gravel. -TOPSOIL- (ML)	
								601.3		2.0	WC=27.1
	2D	24/10	2.0 - 4.0	3-2-3-6	5	5				Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								599.3		4.0	
	3D	24/15	4.0 - 6.0	11-14-12-31	26	26				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
5											
	4D	7/7	7.0 - 7.6	29-50/1"	R					Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 8.6' bgs; augered to 8.9' bgs. Auger refusal; possible bedrock.	
								594.4		8.9	
10										**Bottom of Exploration at 8.90 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-378

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	606.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019507.1, E2275453	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	2-2-3-3	5	5	HSA	606.5		Top 4": -FOREST MAT-	
										0.3	
										Bottom 13": Brown, moist, medium stiff, gravelly SILT, trace Sand.	
								604.8		-GLACIAL TILL (REWORKED)- (ML)	
	2D	24/14	2.0 - 4.0	2-6-3-3	9	9				2.0	
										Brown, moist, very stiff SILT, trace Sand.	
										-GLACIAL TILL- (ML)	
	3D	24/11	4.0 - 6.0	4-9-11-15	23	23				Brown, moist, medium dense, silty GRAVEL, little Sand.	
5										-GLACIAL TILL- (GM)	
	4D	24/14	8.0 - 10.0	18-25-31-20	56	56				Brown, moist, very dense, sandy GRAVEL, little Silt.	
										-GLACIAL TILL- (GM)	
10								596.8		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-379

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	611.7	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019746.3, E2275385.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-3-3-2	F	0	HSA			Brown, frozen, SILT, some Gravel, little Sand. -GLACIAL TILL (REWORKED)- (ML)	WC=6.8
								609.7		2.0	
	2D	24/13	2.0 - 4.0	4-10-12-26	27	27				Brown, moist, medium dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM)	
	3D	24/12	4.0 - 6.0	28-21-18-26	49	49				Brown, moist, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
5											
	4D	7/3	9.0 - 9.6	20-50/1"	R					Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10								601.8		Split spoon refusal at 9.6' bgs; augered to 9.9' bgs. Auger refusal; possible bedrock.	
										9.9	
										Bottom of Exploration at 9.90 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-380

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019939.3, E2275331.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	4-4-2-3	F	0	HSA			Brown, frozen, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/6	2.0 - 4.0	3-3-3-4	6	6				Brown, moist, loose, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	8/4	4.0 - 4.7	14-57/2"	R			601.1		4.0	
5								600.4		Brown-gray, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM) Split spoon refusal at 4.7' bgs; possible bedrock. 4.7	
										Bottom of Exploration at 4.70 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-381

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	606.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020128.2, E2275270.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	3-5-8-4	F	0	HSA	606.5		Top 4": -FOREST MAT- 0.3	
										Bottom 9": Brown, frozen, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	2D	24/8	2.0 - 4.0	5-9-9-12	18	18				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/10	4.0 - 6.0	20-14-16-11	30	30				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5	4D	1/0	6.4 - 6.5	50/1"	R			600.3		Auger refusal at 6.4' bgs; split spoon refusal at 6.5' bgs; possible bedrock. 6.5	
										Bottom of Exploration at 6.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-382

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020717.6, E2275139.6	**Casing ID/OD:**	--	**Water Level*:**	17.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	4-2-2-6	4	4	HSA	605.0		Top 2": -FOREST MAT-	
										0.2	
										Bottom 12": Brown, moist, very loose, silty fine to medium SAND, trace Gravel, trace roots and organic Silt. -SUBSOIL- (SM)	
	2D	24/12	2.0 - 4.0	5-6-7-17	13	13		603.2		2.0	WC=18.3
										Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	13-23-26-32	49	49				Brown, moist, dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/12	10.0 - 12.0	26-23-24-18	47	47				Brown/Gray, dry, dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
15	5D	8/6	15.0 - 15.7	68-64/2"	R					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	6D	0/0	19.9 - 19.9	50/0"							
20								585.2		Split spoon refusal at 20.0' bgs; possible bedrock.	
										20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-383

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020959.3, E2275094.7	**Casing ID/OD:**	--	**Water Level*:**	4.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-3-4	4	4	HSA	592.2		Top 4": -FOREST MAT- 0.3	
										Bottom 2": Brown, moist, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	3-11-11-12	22	22				Brown, wet, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/6	4.5 - 6.5	4-6-7-9	13	13				Brown, wet, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5											
	4D	24/18	9.5 - 11.5	21-15-26-33	41	41				Top 6": Brown, wet, dense, medium to coarse SAND, trace Silt. -GLACIAL TILL- (SP) Bottom 12": Brown/gray, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10											
	5D	1/0	13.0 - 13.1	50/1"	R			579.4		Auger refusal at 13.0' bgs, split spoon refusal at 13.1' bgs; possible bedrock. 13.1	
										Bottom of Exploration at 13.10 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-384

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021206.3, E2275058.6	**Casing ID/OD:**	--	**Water Level*:**	6.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	WOH-WOH-1-2	1	1	HSA			Brown/black, moist, very loose, organic SILT, roots. -FOREST MAT-	
	2D	24/10	2.0 - 4.0	2-8-13-6	21	21		589.1		Top 6": Brown/black, moist, very loose, organic SILT, roots. 2.5	
	3D	24/10	4.5 - 6.5	5-8-11-10	19	19				Bottom 4": Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
5										Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	24/8	9.5 - 11.5	19-30-28-6	58	58				Brown, wet, very dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10								580.1		11.5 **Bottom of Exploration at 11.50 feet below ground surface.**	
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-385

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	597.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021455.2, E2275024.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	1-1-1-1	2	2	HSA			Black, moist, very loose, organic SILT & Sand, roots, wood. -FOREST MAT/SUBSOIL-	
								595.2		2.0	
	2D	24/12	2.0 - 4.0	3-3-6-7	9	9				Brown/tan, moist, loose, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/12	4.0 - 6.0	9-11-11-13	22	22				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5							▽				
								591.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-386

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021700.0, E2274986.1	**Casing ID/OD:**	--	**Water Level*:**	G.S.
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-4	2	2	HSA	598.2		Top 4": Organic Silt & Sand, roots, leaves. -FOREST MAT- 0.3	
										Bottom 2": Brown, wet, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM)	A-4, CL LL=25 PL=15 PI=8 WC=17.5
	2D	24/16	2.0 - 4.0	1-3-4-3	7	7				Brown, wet, very loose, sandy CLAY, little Gravel. -GLACIAL TILL- (CL)	
	3D	19/16	4.0 - 5.6	3-7-39-50/1"	46	46				Brown, wet, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5								592.9		Split spoon refusal at 5.6' bgs; possible bedrock. 5.6	
										Bottom of Exploration at 5.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured at ground surface prior to drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-387

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021951.6, E2274957.8	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-3-5-5	8	8	HSA	603.6		Top 4": Organic Silt & Sand, roots, leaves. -FOREST MAT- 0.3	
										Bottom 10": Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#168 A-4, SM WC=13.9
	2D	24/12	2.0 - 4.0	5-8-8-10	16	16				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/18	4.0 - 6.0	7-11-13-14	24	24				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								597.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-388

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	611.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022198.0, E2274928.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-7-3-5	10	10	HSA	611.0		Top 5": Organic Silt & Sand, roots. -FOREST MAT-	
										0.4	
	2D	24/10	2.0 - 4.0	4-7-8-7	15	15				Bottom 9": Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM) Brown, moist, medium dense, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL- (SM)	WC=20.2
	3D	24/10	4.0 - 6.0	8-13-20-24	33	33				Brown, moist, dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
5								605.4		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-389

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	614.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022449.8, E2274892.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-1-5-6	6	6	HSA	613.6		Top 6": Organic Silt & Sand, roots and leaves. -FOREST MAT-	
										0.5	
										Bottom 8": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/12	2.0 - 4.0	5-31-28-13	59	59				Brown, moist, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#170 A-4, SM WC=11.8
	3D	24/10	4.0 - 6.0	17-12-9-11	21	21				Brown, wet, medium dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
5								608.1		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-390

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	616.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022694.6, E2274853.4	**Casing ID/OD:**	--	**Water Level*:**	6.4'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-1-2-4	3	3	HSA	616.5		Top 2": Organic SILT and roots. -FOREST MAT- 0.2 Bottom 6": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	G#171 A-4, ML WC=22.6
	2D	24/14	2.0 - 4.0	10-16-7-7	23	23				Brown, wet, very stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
5	3D	24/8	5.0 - 7.0	7-14-6-5	20	20				Brown, wet, medium dense, fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
	4D	1/0	7.5 - 7.6	50/1"	R			609.1		Auger refusal at 7.5' bgs. Split spoon refusal at 7.6' bgs; possible bedrock. 7.6 **Bottom of Exploration at 7.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-391

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	621.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022943.6, E2274828	**Casing ID/OD:**	--	**Water Level*:**	9.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	2-3-3-5	6	6	HSA	620.7		Top 4": Organic SILT with roots and leaves. -FOREST MAT- 0.3	
	2D	24/12	2.0 - 4.0	6-5-7-12	12	12				Bottom 8": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM) Brown, moist, stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
5	3D	24/18	5.0 - 7.0	9-10-10-12	20	20				Brown, moist, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	G#172 A-2, SM WC=9.0
10	4D	24/6	10.0 - 12.0	5-7-11-9	18	18				Brown, wet, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
								609.0		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-392

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	624.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023189.7, E2274791.2	**Casing ID/OD:**	--	**Water Level*:**	9.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-2-5	4	4	HSA	623.9		Top 6": Organic SILT, pieces of roots, leaves. -FOREST MAT- 0.5 Bottom 10": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/4	2.0 - 4.0	5-6-7-9	13	13				Brown, moist, medium dense, fine to medium SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
5	3D	24/19	5.0 - 7.0	6-11-50-51	61	61				Top 10": Brown, moist, fine to medium SAND, some Gravel, some Silt. -GLACIAL TILL- (SM) Bottom 9": Brown/gray, dry, very dense sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#173 A-2, SM WC=8.8
10	4D	1/0	10.0 - 10.1	50/1"	R			614.3		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-393

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	630.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023437.1, E2274760.2	**Casing ID/OD:**	--	**Water Level*:**	10.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-4-6-9	10	10	HSA	629.5		Top 6": Black, organic, Silt, roots. -FOREST MAT- 0.5 Bottom 4": Brown, moist, medium dense, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/10	2.0 - 4.0	5-6-15-14	21	21				Brown, moist, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
5	3D	24/20	5.0 - 7.0	3-4-6-9	10	10				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#174 A-4, SM WC=9.0
10	4D	11/11	10.0 - 10.9	29-103/5"	R			619.1		Top 6": Brown, moist, very dense, silty GRAVEL, little fine to medium Sand. -GLACIAL TILL- (GM) Bottom 5": Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 10.9' bgs; possible bedrock. 10.9 **Bottom of Exploration at 10.90 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured immediately after drilling boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-394

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	633.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023687.1, E2274727.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	7-4-2-11	6	6	HSA	632.4		Top 8": Brown to black, organic SILT, roots. -FOREST MAT- 0.7	
	2D	24/16	2.0 - 4.0	7-8-14-10	22	22				Bottom 8": Brown, moist, medium dense, silty fine to medium SAND, little Gravel. (SM) -GLACIAL TILL- Brown, moist, very stiff, lean CLAY, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (CL)	G#175 A-6, CL WC=17.1
5	3D	24/12	5.0 - 7.0	8-6-8-9	14	14				Brown, moist, medium dense, fine to coarse sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
10	4D	1/0	10.0 - 10.1	51/1"	R			623.0		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-395

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	641.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023939.3, E2274743.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	3-3-4-5	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								639.0		2.0	
	2D	24/0	2.0 - 4.0	6-7-6-8	13	13				No recovery.	
5	3D	24/11	5.0 - 7.0	9-12-12-27	24	24				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#176 A-1-a, GM WC=8.1
10	4D	14/8	10.0 - 11.2	33-50-67/2"	R					Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 11.2' bgs. Auger refusal at 11.5' bgs; possible bedrock.	
								629.5		11.5	
										Bottom of Exploration at 11.50 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Rock in tip of split spoon in sample 4D.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-396

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	640.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023936.1, E2274691.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	3-4-4-6	F	0	HSA			Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=19.0
								638.5		2.0	
	2D	24/6	2.0 - 4.0	9-19-64-95	83	83				Brown, fine to moist, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	7/2	5.0 - 5.6	90-50/1"	R					Gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GP-GM)	G#178 A-1-a, GP-GM
10	4D	1/0	10.0 - 10.1	50/1"	R					Split spoon refusal at 10.1' bgs.	
										Auger refusal at 12.7' bgs; possible bedrock.	
								627.8		12.7	
										Bottom of Exploration at 12.70 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-397

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	639.9	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash/SSA	**Core Barrel:**	NQ
Boring Location:	N1023924.9, E2274644.6	**Casing ID/OD:**	3" ID	**Water Level*:**	8.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-1-3-4	4	4	SSA			Brown, moist, SILT, little Sand, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	WC=27.7
	2D	24/14	2.0 - 4.0	12-6-8-7	14	14				Brown, moist, medium dense, silty GRAVEL, some Sand. -GLACIAL TILL (REWORKED)- (GM)	
								635.9		4.0	
	3D	24/19	4.0 - 6.0	7-6-28-41	34	34				Brown, moist, dense, silty GRAVEL, some Sand. -GLACIAL TILL- (GM)	G#180 A-2, GM WC=16.7
5											
							46				
	4D	1/0	8.3 - 8.4	50/1"	R		104	631.5		Split spoon refusal at 8.4' bgs. Casing refusal at 8.5' bgs. Washed ahead to 8.8' bgs and set up to 8.8' bgs.	
	~~R1~~	~~30/30~~	~~8.8 - 11.3~~	~~RQD = 43%~~			~~NQ~~			8.4	
10										R1: Hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are close to moderately close, moderately dipping, undulating, rough, fresh to discolored. Some calcite stringers. Rock Mass Quality = Poor Rock Core Times (min/ft): 4.25, 2.5, 2.5/6"	
	R2	30/23	11.3 - 13.8	RQD = 37%						R2: Hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, low angle to moderately dipping, undulating, fresh to discolored. Some calcite stringers. Rock Mass Quality = Poor Rock Core Times (min/ft): 1.5/3", 2.5, 2.5	
								626.1		13.8	
15										**Bottom of Exploration at 13.80 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Groundwater measured 10 minutes after drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-398

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	644.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024180.9, E2274660.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	9-12-9-7	F	0	HSA			Brown, frozen, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#181 A-4, SM WC-34.3
	2D	3/2	2.0 - 2.3	70/3"	R			642.2		2.0	
								641.7		Brown, moist, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 2.3' bgs. Auger refusal at 2.5' bgs; possible bedrock.	
5										2.5 **Bottom of Exploration at 2.50 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-399

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	647.9	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	--
Boring Location:	N1024434.9, E2274677.0	**Casing ID/OD:**	3" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	4-10-7-5	F	0	SSA	647.7		Top 2": -TOPSOIL-	
										0.2	
										Brown, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/12	2.0 - 4.0	5-8-6-6	14	14				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL (REWORKED)- (GM)	WC=23.4
								643.9		4.0	
	3D	24/18	4.0 - 6.0	6-10-13-13	23	23				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#183 A-4, SM WC=9.6
5											
								638.8		9.1	
	4D R1	1/0 30/29	9.0 - 9.1 9.1 - 11.6	50/1" RQD = 0%			NQ			SSA refusal at 9.1' bgs, split spoon refusal at 9.1' bgs. Spun casing to 9.5' bgs and set up for core. R1: Hard to medium hard, slight to moderately weathered, fine grained, gray, METAPELITE. Joint spacing is close to moderately close, low to high angle, dipping, undulating, rough and fresh, some calcite stringers. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 2.0, 3.0/5"	
10	R2	36/32	11.6 - 14.6	RQD = 25%						R2: Hard to medium hard, fresh to moderately weathered, fine grained, gray, METAPELITE. Joints are close to moderately close, low to high angle, dipping, undulating, rough, fresh to discolored. Some calcite stringers. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 1.75, 2.0	
								633.3		14.6	
15										**Bottom of Exploration at 14.60 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 14.1' bgs, 5.0' of 1.5" ID screen, 12.0' of 1.5" ID riser, sand backfill to 6.6', bentonite chips from 5.5'-3.5', sand backfill to surface, 3' stand pipe with lock.
3. Groundwater measured in observation well 3 hours after installation.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-400

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	645.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024422.0, E2274577.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	8-13-17-13	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								643.8		2.0	
	2D	24/10	2.0 - 4.0	5-14-16-21	30	30				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	20/12	5.0 - 6.7	5-4-4-100/2"	8	8				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#189 A-4, SM WC=19.3
	4D	1/0	7.6 - 7.7	50/1"	R			638.2		Auger refusal at 7.5' bgs. Split spoon refusal at 7.6' bgs; possible bedrock.	
										7.6	
										Bottom of Exploration at 7.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-401

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	649.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024675.4, E2274593.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	17-15-15-14	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								647.9		2.0	
	2D	24/10	2.0 - 4.0	11-11-10-10	21	21				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#185 A-4, SM WC=12.7
5	3D	1/1	5.0 - 5.1	62/1"	R					Gray, dry, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	6.5 - 6.6	50/1"	R			643.3		Auger refusal at 6.5' bgs. Split spoon refusal at 6.6' bgs; possible bedrock.	
										6.6	
10										**Bottom of Exploration at 6.60 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-402

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	658.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024930.6, E2274609.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	14-14-13-8	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	WC=27.6
								656.4		2.0	
	2D	24/16	2.0 - 4.0	13-19-17-19	36	36				Brown, moist, dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	7-15-18-16	33	33				Brown, moist, dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
10	4D	19/14	10.0 - 11.6	7-6-15-50/1"	21	21				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	G#187 A-1-a, SM WC=18.2
	5D	1/0	13.6 - 13.7	50/1"	R			644.8		Auger refusal at 13.5' bgs. Split spoon refusal at 13.6' bgs; possible bedrock. 13.6	
										Bottom of Exploration at 13.60 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-403

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	656.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024924.6, E2274560.8	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	10-24-54-22	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								654.4		2.0	
	2D	24/14	2.0 - 4.0	19-22-17-13	39	39				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	16/12	5.0 - 6.3	8-14-74/4"	R					Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM) Auger refusal at 7.2' bgs. Split spoon refusal at 7.3' bgs; possible bedrock.	G#188 A-1-b, GM WC=8.1
	4D	1/0	7.2 - 7.3	50/1"	R			649.1		7.3	
10										**Bottom of Exploration at 7.30 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-404

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	653.0	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	--
Boring Location:	N1024917.3, E2274511.5	**Casing ID/OD:**	3" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	7-10-10-13	F	0	SSA			Brown, moist, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=21.4
	2D	24/13	2.0 - 4.0	6-8-13-8	21	21				Brown, moist, medium dense, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/16	4.0 - 6.0	6-13-14-12	27	27				Brown, moist, very stiff, SILT, some Sand, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	G#190 A-4, ML WC=18.8
5								647.0		6.0	
10	4D	24/19	10.0 - 12.0	48-58-50-26	>100		108 99 92 52			Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
15	5D	13/5	15.0 - 16.1	28-37-50/1"	R		OPEN	636.9		Gray-brown, wet, very dense, silty GRAVEL, trace Sand. Rock in spoon tip. -GLACIAL TILL- (GM) Split spoon refusal at 16.1' bgs; possible bedrock. 16.1 **Bottom of Exploration at 16.10 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. SSA to 10.0' bgs, then installed casing to 14.0' bgs.
3. Water level taken approximately 15 minutes after completion of boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-405

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	659.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025172.2, E2274529.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	12-26-28-21	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								657.2		2.0	
	2D	24/12	2.0 - 4.0	24-20-29-45	49	49				Brown, moist, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
5	3D	16/6	5.0 - 6.3	56-99-121/4"	R					Gray-brown, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP-GM)	G#191 A-1-a, GP-GM WC=6.1
10	4D	1/0	10.0 - 10.1	50/1"	R			649.1		Split spoon refusal at 10.1' bgs; possible bedrock.	
										10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-406

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	659.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025420.3, E2274504.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	17-15-30-36	F	0	HSA			Brown, frozen, silty fine to medium SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								657.7		2.0	
	2D	24/10	2.0 - 4.0	19-31-28-61	59	59				Brown, moist, very dense GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#192 A-1-b, GM WC=10.6
5	3D	1/0	5.3 - 5.4	50/1"	R			654.3		Auger refusal at 5.3' bgs. Split spoon refusal at 5.4' bgs; possible bedrock.	
										5.4	
										Bottom of Exploration at 5.40 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-407

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	660.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025669.7, E2274485.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	7-13-20-15	F	0	HSA			Brown, frozen, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#193 A-4, SM WC=29.5
								658.9		2.0	
	2D	24/18	2.0 - 4.0	15-28-22-19	50	50				Brown, moist, very dense, fine to coarse, gravelly SAND, some Silt. -GLACIAL TILL- (SM)	
	3D	24/11	4.0 - 6.0	18-15-53-48	68	68				Brown, moist, very dense, fine to coarse, gravelly SAND, some Silt. -GLACIAL TILL- (SM)	
5								654.9		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-408

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	662.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025919.5, E2274473.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	18-18-18-24	F	0	HSA			Brown, frozen, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (SM)	G#194 A-4, GM WC=43.3
	2D	4/1	2.0 - 2.3	95/4"	R			660.3		Gray, dry, very dense GRAVEL, some Sand, little Silt. -GLACIAL TILL- (SM)	
										Split spoon refusal at 2.3' bgs. Auger refusal at 2.5' bgs; possible bedrock.	
5										2.5 **Bottom of Exploration at 2.50 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-409

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	664.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026168.7, E2274467.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	18-25-23-18	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace organics, roots. -GLACIAL TILL (REWORKED)- (SM)	
								662.6		2.0	
	2D	11/6	2.0 - 2.9	12-62/5"	R					Brown, moist, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								661.1		Split spoon refusal at 2.9' bgs. Auger refusal at 3.5' bgs; possible bedrock.	
5										3.5	
										Bottom of Exploration at 3.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-410

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026419.4, E2274466.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	9-14-16-15	F	0	HSA			Light brown, frozen, silty fine to medium SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								664.8		2.0	
	2D	24/15	2.0 - 4.0	7-15-20-16	35	35				Light brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/12	4.0 - 6.0	11-22-23-25	45	45				Light brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5											
								660.8		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-411

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026670.9, E2274472.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	9-2-4-5	F	0	HSA	666.3		Top 5": Organics, SILT, roots. -TOPSOIL- 0.4	
								664.7		Bottom 13" silty fine : Light brown, frozen to medium SAND, little Gravel, trace root fibers. -GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/18	2.0 - 4.0	4-5-6-11	11	11				Brown, moist, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	10/8	5.0 - 5.8	36-110/4"	R					Gray, dry, very dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
10	4D	1/0	10.0 - 10.1	50/1"	R			656.6		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-412

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	670.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026868.2, E2274472.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	2-3-2-3	5	5	HSA	670.0		Top 3": -TOPSOIL-	
										0.3	
										Bottom 5": Brown, silty fine to coarse SAND, little Gravel, trace organics with Silt and roots.	
								668.3		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/9	2.0 - 4.0	2-3-2-3	5	5				2.0	
										Brown, dry, loose, silty fine to medium SAND, trace Gravel.	
										-GLACIAL TILL- (SM)	
5	3D	24/14	5.0 - 7.0	5-6-5-13	11	11				Brown, dry, medium dense, silty fine to medium SAND, little Gravel.	WC=16.6
										-GLACIAL TILL- (SM)	
10	4D	2/1	10.5 - 10.7	150/2"	R			659.6		Brown, dry, very dense, silty fine to medium SAND, little Gravel.	
										-GLACIAL TILL- (SM)	
										Split spoon refusal at 10.7' bgs; possible bedrock.	
										10.7	
										Bottom of Exploration at 10.70 feet below ground surface.	
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-413

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	670.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027169.6, E2274483.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	4-14-15-7	F	0	HSA	670.2		Top 1": Trace root fibers. -TOPSOIL-	
										0.1	
								668.3		Bottom 18": Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/15	2.0 - 4.0	5-13-14-15	27	27				2.0	
										Brown, moist, medium dense, silty fine to medium SAND. -GLACIAL TILL- (SM)	
5	3D	10/4	5.0 - 5.8	18-113/4"	R					Brown/gray, dry, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	8.1 - 8.2	60/1"	R			662.1		Auger refusal at 8.1' bgs. Split spoon refusal at 8.2' bgs; possible bedrock.	
										8.2	
										Bottom of Exploration at 8.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-414

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	674.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027419.5, E2274488.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	10-23-18-19	41	41	HSA	674.2		Top 2": -TOPSOIL- 0.2 Bottom 18": Brown, silty fine to medium SAND, some Gravel, trace root fibers. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/13	2.0 - 4.0	11-16-15-31	31	31		672.4		2.0 Brown, moist, dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	1/0	5.0 - 5.1	50/1"	R			669.3		Split spoon refusal at 5.1' bgs; possible bedrock. 5.1 **Bottom of Exploration at 5.10 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-415

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	672.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027669.9, E2274495.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	5-10-20-13	F	0	HSA	672.4		Top 4": Roots. -TOPSOIL-	
										0.3	
										Bottom 5": Brown, frozen, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								670.7		2.0	
	2D	19/12	2.0 - 3.6	16-69-83-50/1"	>100					Brown, dry, hard, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
5	3D	9/6	5.0 - 5.8	83-100/2"	R					Gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	4D	1/1	9.5 - 9.6	50/1"	R			663.1		Gray, dry, hard, sandy SILT, trace Gravel. -GLACIAL TILL- (ML) Split spoon refusal at 9.6' bgs; possible bedrock.	
10										9.6	
										Bottom of Exploration at 9.60 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-416

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	673.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027920.0, E2274500.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-3-7-4	F	0	HSA	673.0		Top 2": -TOPSOIL-	
										0.2	
										Bottom 8": Brown, frozen, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	7-9-6-10	15	15				Brown, damp, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/10	5.0 - 7.0	4-4-5-6	9	9				Brown, damp, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								666.2		7.0	
10	4D	13/8	10.0 - 11.1	12-28-74-50/1"	>100					Brown, damp, very dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
15	5D	1/1	15.0 - 15.1	50/1"	R			658.1		Gray, dry, hard, sandy SILT, trace Gravel. -GLACIAL TILL- (ML) Split spoon refusal at 15.1' bgs; possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-417

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	680.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028169.6, E2274505.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	7-9-10-8	F	0	HSA	680.6		Top 2": -TOPSOIL- 0.2 Bottom 18": Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/16	2.0 - 4.0	12-20-15-32	35	35		678.8		2.0 Brown, dry, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	2/2	5.0 - 5.2	77/2"	R					Brown, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	6/3	10.0 - 10.5	150/6"	R			670.3		Brown/gray, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 10.5' bgs; possible bedrock. 10.5 **Bottom of Exploration at 10.50 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-418

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	694.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028418.6, E2274511.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	9-13-17-8	F	0	HSA	694.4		Top 1": -TOPSOIL- (0.1)	
										Bottom 19": Light brown, frozen, silty SAND, little Gravel, trace organics. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	3-6-8-7	14	14		692.5		(2.0) Gray/brown, dry, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	WC=20.7
5	3D	13/6	5.0 - 6.1	13-57-50/1"	R					Gray/brown, dry, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R			684.4		Split spoon refusal at 10.1' bgs; possible bedrock. (10.1)	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-419

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	701.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028669.4, E2274517.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	9-17-13-21	F	0	HSA	701.2		Top 3": Organic SILT, root fibers. -TOPSOIL-	
										0.3	
								699.5		Bottom 15": Brown, frozen, silty fine to medium SAND, some Gravel, trace roots. Petroleum odor. -GLACIAL TILL (REWORKED)- (SM)	
	2D	3/2	2.0 - 2.3	71/3"	R					2.0	
	3D	24/20	3.0 - 5.0	50-71-51-92	>100					Gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5										Brown/gray, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R			691.4		Split spoon refusal at 10.1 bgs; possible bedrock.	
										10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-420

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	697.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029169.3, E2274527.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	3-4-5-6	F	0	HSA	697.1		Top 3": -FOREST MAT-	
										0.3	
										Bottom 2": Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/18	2.0 - 4.0	6-7-7-5	14	14				Brown, moist, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	34-31-24-28	55	55				Brown/gray, moist, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	4D	1/0	8.7 - 8.8	50/1"	R			688.6		Auger refusal at 8.7' bgs. Split spoon refusal at 8.8' bgs; possible bedrock.	
										8.8	
10										**Bottom of Exploration at 8.80 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-421

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	716.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029421.9, E2274533.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-1-4-6	5	5	HSA			Brown, moist, loose, silty fine to medium SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/0	2.0 - 4.0	6-4-4-4	8	8					
	3D	24/8	4.5 - 6.5	8-7-8-15	15	15		712.0		4.5 Brown, moist, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
5											
	4D	1/0	9.0 - 9.1	50/1"	R			707.4		Auger refusal at 9.1' bgs. Split spoon refusal at 9.1' bgs; possible bedrock. 9.1 **Bottom of Exploration at 9.10 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-422

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	725.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029682.4, E2274540.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	7-10-22-14	32	32	HSA	724.5		Brown, moist, dense, silty GRAVEL, some Sand. -GLACIAL TILL (REWORKED)- (GM) — 1.0	G#197 A-4, GM WC=16.0
	2D	24/10	2.0 - 4.0	10-11-11-26	22	22				Brown, moist, medium dense, fine to medium SAND, little Gravel. -GLACIAL TILL- (SP)	
	3D	19/16	4.0 - 5.6	32-39-79-50/1"	>100			719.9		Brown, moist, very dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 5.6' bgs; possible bedrock. — 5.6	
5										**Bottom of Exploration at 5.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-423

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	719.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029919.8, E2274544.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	6-6-10-5	F	0	HSA			Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								717.6		2.0	
	2D	24/8	2.0 - 4.0	3-3-3-3	6	6				Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	G#198 A-4, SM WC=22.0
5	3D	24/13	5.0 - 7.0	3-3-13-17	16	16				Brown, moist, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	8.8 - 8.9	50/1"				710.7		Auger refusal at 8.8' bgs, split spoon refusal at 8.9' bgs; possible bedrock.	
10										8.9 **Bottom of Exploration at 8.90 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. At 6.0' bgs, possible transition to Weathered Rock.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-424

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	705.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030169.4, E2274549.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	1-3-4-3	7	7	HSA			Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								703.5		2.0	
	2D	24/6	2.0 - 4.0	6-9-17-16	26	26				Brown, moist, medium dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
	3D	22/10	4.0 - 5.8	18-22-36-74/4"	58	58				Brown/gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5										Split spoon refusal at 5.8' bgs; possible bedrock.	
								699.7		5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Possible transition to Weathered Rock at 3.0' bgs.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-425

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	703.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030425.4, E2274557.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	3-3-3-7	F	0		703.1		Top 1": Organic SILT, grass. -TOPSOIL-	
										0.1	
								701.2		Bottom 16": Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#199 A-4, SM WC=23.8
	2D	24/16	2.0 - 4.0	9-5-6-8	11	11				2.0	
										Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/6	4.0 - 6.0	1-5-9-20	14	14				Brown/gray, moist, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
5								697.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-426

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030670.6, E2274561.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	6-8-3-5	F	0	HSA	698.4		Top 3": -FOREST MAT- 0.3	
										Bottom 16": Brown, frozen, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	13-32-47-17	79	79				Brown, moist, very dense, sandy GRAVEL, trace Silt, -GLACIAL TILL- (GP-GM)	
5	3D	11/7	5.0 - 5.9	51-83/5"	R					Brown/gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP-GM)	G#200 A-1-a, GP-GM WC=3.7
10	4D	1/0	10.0 - 10.1	50/1"	R			688.6		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-427

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	685.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030918.6, E2274566.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	3-4-7-16	10	10	HSA	685.4		Top 4": -FOREST MAT- 0.3	G#201 A-1-b, SM WC=13.0
										Bottom 14": Brown, moist, loose, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	47-51-77-65	>100					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	3D	14/6	4.0 - 5.2	76-89-72/2"	R					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5								680.5		Split spoon refusal at 5.2' bgs; possible bedrock. 5.2	
										Bottom of Exploration at 5.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-428

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	678.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031170.9, E2274563.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	2-6-9-10	15	15	HSA	678.0		Top 3": -FOREST MAT-	
										0.3	
										Bottom 15": Brown, moist, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/14	2.0 - 4.0	6-7-7-10	14	14				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/8	4.0 - 6.0	8-14-17-14	31	31				Brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5								672.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-429

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	669.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031414.3, E2274567.6	**Casing ID/OD:**	--	**Water Level*:**	0' Ground
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	1-1-3-5	4	4	HSA	669.0		Top 3": -TOPSOIL-	
										0.3	
										Bottom 9": Brown, wet, soft, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/15	2.0 - 4.0	5-7-9-6	16	16				Brown, wet, very stiff, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	
	3D	24/15	4.0 - 6.0	5-7-12-13	19	19				Brown, wet, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5								663.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level observed at ground surface after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-430

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	665.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031669.3, E2274569.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	1-1-3-6	4	4	HSA	665.2		Top 1": -TOPSOIL- 0.1	
										Bottom 23": Brown, moist, soft, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	WC=16.8
	2D	24/12	2.0 - 4.0	4-5-10-11	15	15				Brown, moist, stiff, sandy, Clayey SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/7	4.0 - 6.0	5-9-12-19	21	21				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5								659.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-431

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	661.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031916.2, E2274578.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	1-2-3-7	5	5	HSA	661.2		Top 2": -TOPSOIL- (0.2)	
										Bottom 15": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/4	2.0 - 4.0	5-7-8-11	15	15				Brown, moist, stiff, gravelly SILT, little fine to coarse Sand. -GLACIAL TILL- (ML)	
5	3D	24/15	5.0 - 7.0	15-15-20-22	35	35				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	24/22	10.0 - 12.0	8-13-14-20	27	27				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								649.4		(12.0) **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-432

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	656.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032168.0, E2274592.0	**Casing ID/OD:**	--	**Water Level*:**	GS
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-2-3-12	5	5	HSA	656.5		Top 3": -TOPSOIL- (0.3)	
										Bottom 5": Brown, wet, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/6	2.0 - 4.0	6-10-20-11	30	30				Brown, wet, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/10	4.0 - 6.0	7-12-11-9	23	23				Brown, wet, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5								650.8		(6.0) **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level observed at ground surface prior to drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-433

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	655.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032419.7, E2274592.9	**Casing ID/OD:**	--	**Water Level*:**	Not measured
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	WOH-2-5-4	7	7	HSA	655.1		Top 6": Organic SILT, pieces of roots. -TOPSOIL-	
										0.5	
	2D	24/12	2.0 - 4.0	7-5-8-10	13	13				Bottom 8": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM) Brown, moist, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
5	3D	24/10	5.0 - 7.0	9-9-10-12	19	19				Brown/tan, moist, very stiff, Silty CLAY, little Gravel, some fine to coarse Sand. -GLACIAL TILL- (CL)	G#203 A-4/A-6, CL WC=13.0
10	4D	24/20	10.0 - 12.0	8-9-13-15	22	22				Brown/tan, moist, very stiff, Clayey SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML)	
								643.6		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-434

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	655.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032668.0, E2274576.1	**Casing ID/OD:**	--	**Water Level*:**	1.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-4-5	6	6				Brown, moist, medium stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	2D	24/8	2.0 - 4.0	11-8-7-10	15	15				Brown, wet, stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	3D	24/10	4.0 - 6.0	8-9-19-13	28	28				Brown, wet, very stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
5								649.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-435

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	654.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032914.2, E2274543.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	1-2-3-5	5	5				Brown, moist, medium stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	G#204 A-4, CL LL=28 PL=17 PI=11 WC=17.9
	2D	24/6	2.0 - 4.0	6-9-5-7	14	14				Brown, moist, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
	3D	24/12	4.0 - 6.0	8-14-13-16	27	27				Brown, moist, very stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
5								648.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-436

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	652.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033160.7, E2274491.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-1-2-4	F	0		651.5		Top 12": -TOPSOIL- 1.0 Bottom 2": Brown/tan, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL (REWORKED)- (CL-ML)	G#205 A-4, CL-ML WC=14.2
	2D	24/14	2.0 - 4.0	5-4-8-7	12	12		650.5		2.0 Brown/tan, moist, stiff, lean CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	3D	24/18	4.0 - 6.0	19-11-13-18	24	24				Brown/tan, moist, very stiff, lean CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
5								646.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-437

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	651.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033400.5, E2274424.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	12/12	0.0 - 1.0	5-2	F	0		650.6		Brown/black, sandy organic SILT, trace roots. -TOPSOIL- (OL)	
	2D	24/16	1.0 - 3.0	3-5-5-4	10	10				1.0 Brown/tan, moist, stiff, Clayey SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/10	4.0 - 6.0	9-12-11-14	23	23				Brown/tan, moist, medium dense, GRAVEL, some Silt, little fine to coarse Sand. -GLACIAL TILL- (GM)	G#206 A-1-b, GM WC=5.0
5											
	4D	24/22	9.5 - 11.5	11-16-18-26	34	34				Brown/tan, moist, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
10								640.1		11.5 **Bottom of Exploration at 11.50 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Sample 1D was driven through 1.0' of soil, only 1.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-438

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	650.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033629.3, E2274352.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	5-3-2-3	F	0		649.5		Top 6": -TOPSOIL-	
										0.5	
										Bottom 9": Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#207 A-4/A-6, CL WC=12.8
	2D	24/14	2.0 - 4.0	3-6-6-4	12	12				Brown, moist, stiff, lean CLAY, some fine to coarse Sand, some Gravel. -GLACIAL TILL (REWORKED)- (CL)	
5	3D	24/17	5.0 - 7.0	7-7-10-8	17	17		645.0		5.0 Brown, moist, very stiff, fine to medium, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
10	4D	24/22	10.0 - 12.0	6-8-8-10	16	16				Brown, moist, very stiff, Clayey SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
								638.0		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-301

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	547.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008732.2, E2273136.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	11-17-31-28	48	48	HSA	547.4		Top 4": Pavement.	
										0.3	
										Bottom 15": Brown, dry, dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/24	2.0 - 4.0	26-20-36-32	56	56				Brown, moist, very dense, fine to coarse SAND, some Silt, some Gravel. -FILL- (SM)	G#94 A-2, SM WC=12.4
5	3D	24/15	5.0 - 7.0	12-8-8-9	16	16				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -FILL- (SM)	
10	4D	24/8	10.0 - 12.0	8-8-10-9	18	18				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -FILL- (SM)	
								535.7		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-302

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	539.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008522.1, E2273264.3	**Casing ID/OD:**	--	**Water Level*:**	5.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	15-20-23-18	54	54	HSA	539.6		Top 2": Pavement. (0.2)	
										Brown, dry, very dense, fine to coarse SAND, some Gravel, little Silt. -FILL- (SM)	G#95 A-2, SM WC=14.0
	2D	24/19	2.0 - 4.0	22-28-27-32	55	55				Brown, moist, very dense, fine to coarse SAND, some Silt, some Gravel. -FILL- (GM)	
	3D	24/11	4.0 - 6.0	26-22-16-14	38	38				Brown, wet, dense, fine to coarse SAND, some Gravel, little Silt. -FILL- (SM)	
5								533.8		(6.0) **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-303

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	515.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008785.7, E2273962	**Casing ID/OD:**		**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/0	0.0 - 2.0	2-3-6-5	9	9	HSA	515.0		Top 2": -FOREST MAT-	
										0.2	
										No recovery.	
	2D	23/11	2.0 - 3.9	6-6-6-84/5"	12	12				Brown, wet, medium dense to very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	G#96 A-2, SM WC=35.4
5	3D	11/5	5.0 - 5.9	23-65/5"	R			509.3		Brown, wet, very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
										Split spoon refusal at 5.9'; possible bedrock.	
										5.9	
										Bottom of Exploration at 5.90 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Rock outcropping 5.0' east of boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-304

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	542.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008858, E2273711.2	**Casing ID/OD:**		**Water Level*:**	7.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-3-5	4	4	HSA	542.4		Top 2": -FOREST MAT- 0.2	
										Bottom 4": Brown, moist, very loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	6-5-7-5	12	12				Brown, wet, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	WC=25.6
5	3D	24/6	5.0 - 7.0	3-3-3-4	6	6				Brown, wet, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
10	4D	24/7	10.0 - 12.0	4-12-11-8	23	23				Brown, wet, medium dense, sandy GRAVEL little Silt. -GLACIAL TILL- (GM)	G#98 A-1-b, GM WC=11.2
								530.6		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Ground water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-305

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008933.5, E2273578.9	**Casing ID/OD:**	4" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	1-2-4-2	6	6	SSA	573.7		Top 2": -TOPSOIL-	
								572.9		0.2	
										Bottom 18": Brown, moist, loose, silty fine to medium SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/15	2.0 - 4.0	3-6-11-16	17	17				1.0 -GLACIAL TILL- Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/10	5.0 - 7.0	13-17-20-19	37	37				Brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	24/8	10.0 - 12.0	19-30-38-24	68	68				Brown, moist, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
15	5D	24/11	15.0 - 17.0	11-23-29-32	52	52	RC			Brown, wet, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	WC=9.8
20	6D	24/8	20.0 - 22.0	22-31-29-32	60	60				Brown, wet, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-305

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008933.5, E2273578.9	**Casing ID/OD:**	4" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/19	25.0 - 27.0	19-19-23-28	42	42				Gray, wet, dense, fine to coarse SAND some Gravel, little Silt. -GLACIAL TILL- (SM)	
30	8D	24/18	30.0 - 32.0	30-40-59-75	99	99				Gray and brown, wet, hard, sandy SILT & CLAY, some Gravel. -GLACIAL TILL- (SM-SC)	G#100 A-4, SM-SC WC=9.8
35	9D	21/6	35.0 - 36.8	27-29-43-72/3"	72	72				Gray, wet, very dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
40	10D	1/1	40.0 - 40.1	100/1"	R			533.8		Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 40.1' bgs, possible bedrock. 40.1 **Bottom of Exploration at 40.10 feet below ground surface.**	
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-306

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	528.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008764.9, E2273552.6	**Casing ID/OD:**		**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	3-9-5-4	14	14	HSA	528.5		Top 3": -FOREST MAT-	
										0.3	
										Bottom 1": Brown, moist, medium dense, fine to medium SAND, some Silt, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/6	2.0 - 4.0	4-5-8-11	13	13				Brown, wet, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	24/0	5.0 - 7.0	9-10-10-11	20	20				No recovery.	
10	4D	24/16	10.0 - 12.0	9-16-16-25	32	32				Brown, wet, hard, CLAY, some fine to coarse Sand, trace Gravel. -GLACIAL TILL- (CL)	G#101 A-6, CL WC=12.4
15	5D	1/0	15.0 - 15.1	50/1"	R			513.7		Split spoon refusal at 15.1' bgs, possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. Moved to bottom of slope.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-307

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008994, E2273336.1	**Casing ID/OD:**		**Water Level*:**	16.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-2-6	4	4	HSA			Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/9	2.0 - 4.0	3-3-4-4	7	7				Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/13	5.0 - 7.0	11-13-23-44	36	36		578.1		5.0 Brown, moist, hard, CLAY, some fine to coarse Sand, trace Gravel. -GLACIAL TILL- (CL)	G#102 A-6, CL WC=11.8
10	4D	24/15	10.0 - 12.0	23-26-34-53	60	60				Brown, moist, very dense, sandy GRAVEL, little Clay. -GLACIAL TILL- (GC)	
15	5D	24/24	15.0 - 17.0	22-32-61-62	93	93				Brown, moist, very dense, sandy GRAVEL, little Clay. -GLACIAL TILL- (GC)	
20	6D	24/15	20.0 - 22.0	13-18-29-36	47	47				Brown, wet, dense, clayey fine SAND, trace Gravel. -GLACIAL TILL- (SC)	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-307

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008994, E2273336.1	**Casing ID/OD:**		**Water Level*:**	16.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/12	25.0 - 27.0	29-61-35-39	96	96				Brown, wet, very dense, gravelly fine to coarse SAND, trace Clay. -GLACIAL TILL- (SP)	
30	8D	24/11	30.0 - 32.0	19-25-30-35	55	55				Brown, wet, very dense, gravelly fine to coarse SAND, little Clay. -GLACIAL TILL- (SC)	
35	9D	24/13	35.0 - 37.0	18-37-51-139	88	88				Gray-brown, wet, very dense, sandy GRAVEL, some Clay. -GLACIAL TILL- (GC)	G#103 A-2, GC WC=7.7
40	10D	24/24	40.0 - 42.0	26-33-54-70	87	87				Gray-brown, moist, very dense, sandy GRAVEL, some Clay. -GLACIAL TILL- (GC)	
								541.1		42.0 **Bottom of Exploration at 42.00 feet below ground surface.**	
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-308

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	580.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008932, E2273306.8	**Casing ID/OD:**	4" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-3-2-4	F	0	SSA	580.4		-TOPSOIL- (0.1)	
										Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	4-3-4-6	7	7				Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								576.5		(4.0)	
	3D	24/16	4.0 - 6.0	3-3-3-6	6	6				Brown, wet, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5											
10	4D	24/17	10.0 - 12.0	19-34-27-38	61	61				Brown, wet, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	WC=9.7
15	5D	24/12	15.0 - 17.0	14-11-15-27	26	26	RC			Brown, wet, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
20	6D	24/14	20.0 - 22.0	17-20-23-27	43	43				Brown, wet, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Casing installed to 15.0' bgs.
3. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-308

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	580.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1008932, E2273306.8	**Casing ID/OD:**	4" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/8	25.0 - 27.0	24-38-31-21	69	69				Gray-brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	G#105 A-1-a, SM WC=8.2
30	8D	24/9	30.0 - 32.0	29-25-23-34	48	48				Brown, wet, dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
35	9D	24/4	34.0 - 36.0	24-29-47-47	76	76		544.5		Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) 36.0 **Bottom of Exploration at 36.00 feet below ground surface.**	
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Casing installed to 15.0' bgs.
3. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-309

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	585.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009077.3, E2273113.1	**Casing ID/OD:**	4" ID	**Water Level*:**	20.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-3-7	F	0	SSA	585.2		Top 3": -TOPSOIL- 0.3 Bottom 7": Brown, moist, sandy SILT, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (ML)	WC=24.9
	2D	24/10	2.0 - 4.0	3-4-5-4	9	9				Brown, moist, loose, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	3D	24/8	4.0 - 6.0	18-14-25-22	39	39		581.5		4.0 Brown, moist, dense, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
5											
10	4D	24/4	10.0 - 12.0	14-17-36-39	53	53				Brown, moist, very dense, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
15	5D	24/16	15.0 - 17.0	34-32-33-26	65	65	RC			Brown, moist, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
20	6D	24/12	20.0 - 22.0	22-41-32-40	73	73				Gray-brown, wet, very dense, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	G#107 A-1-b, SM WC=10.0
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Solid stem to 15.0' bgs; switched to casing and roller cone.
3. Well installed to 30.0' bgs, 5' of 2" ID PVC screen, 27' of 2" ID PVC riser, sand backfill up to 14.5' bgs, bentonite chips from 14.5' bgs to 7.5' bgs, sand backfill from 7.5' bgs to ground surface. 3' standpipe with lock installed at ground surface.
4. Water level measured immediately after installation of observation well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-309

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	585.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009077.3, E2273113.1	**Casing ID/OD:**	4" ID	**Water Level*:**	20.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/10	25.0 - 27.0	30-65-50-61	>100					Brown, wet, very dense, fine to coarse SAND, little Gravel, some Silt. -GLACIAL TILL- (SM)	
30	8D	24/15	30.0 - 32.0	17-36-65-72	>100					Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
								553.5		32.0 **Bottom of Exploration at 32.00 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Solid stem to 15.0' bgs; switched to casing and roller cone.
3. Well installed to 30.0' bgs, 5' of 2" ID PVC screen, 27' of 2" ID PVC riser, sand backfill up to 14.5' bgs, bentonite chips from 14.5' bgs to 7.5' bgs, sand backfill from 7.5' bgs to ground surface. 3' standpipe with lock installed at ground surface.
4. Water level measured immediately after installation of observation well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-310

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	563.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008961.8, E2273061.1	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	8-10-11-12	21	21	HSA			Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -FILL- (SM)	
	2D	24/7	2.0 - 4.0	6-5-5-23	10	10				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -FILL- (SM)	G#108 A-4/A-6, SM WC=33.9
5								558.8		5.0	
	3D	24/13	5.0 - 7.0	4-4-4-6	8	8				Brown-orange, moist, medium stiff, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	G#109 A-4, ML LC=35 PL=26 PI=9 WC=28.1
10	4D	24/8	10.0 - 12.0	5-9-7-7	16	16				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
								551.8		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-311

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1009132.8, E2272869.2	**Casing ID/OD:**	--	**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	4-10-20-17	30	30	HSA			Brown, moist, medium dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/16	2.0 - 4.0	39-28-44-36	72	72				Brown, wet, very dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	3D	24/16	4.0 - 6.0	29-33-25-15	58	58				Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
5								569.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-312

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1009335.1, E2272718.8	**Casing ID/OD:**	--	**Water Level*:**	0.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	4-11-11-15	22	22	HSA			Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	8/8	2.5 - 3.2	23-60/2"	R					Brown, wet, very dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
	3D	24/18	4.0 - 6.0	5-7-13-14	20	20				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -FILL- (SM)	
5							▽	584.7		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Boulder from 2.0'-2.5' bgs, and 3.2'-3.6' bgs; augered to 4.0' bgs.
2. Water level measured immediately after completion of drilling.
3. Boring moved to 4.0' east of EOP.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-313

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006252.6, E2274201.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	2-6-25-16	31	31	HSA			Brown, moist, dense, gravelly fine to coarse SAND, trace Silt. -FILL- (SP)	
	2D	24/19	2.0 - 4.0	17-16-19-13	35	35				Brown, moist, dense, silty GRAVEL, little fine to coarse Sand. -FILL- (GM)	WC=18.4
	3D	24/14	4.0 - 6.0	6-6-6-6	12	12				Brown, moist, medium dense, fine to coarse SAND, some Silt, trace Gravel. -FILL- (SM)	
5								660.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-314

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	654.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006488, E2274116.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	6-8-12-15	20	20	HSA			Brown, moist, medium dense, fine to coarse sandy GRAVEL, some Silt. -FILL- (GM)	
	2D	24/14	2.0 - 4.0	17-16-16-10	32	32				Gray-brown, moist, hard, SILT, some fine to coarse Sand, some Gravel. -FILL- (SM)	G#111 A-4/A-6, SM WC=10.9
	3D	7/5	4.0 - 4.6	16-50/1"	R			649.4		Brown, moist, very dense, gravelly fine to coarse SAND, some Silt. -FILL- (SM) Split spoon refusal at 4.6' bgs; possible bedrock.	
5										4.6 **Bottom of Exploration at 4.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-315

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	638.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006722.9, E2274032.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	11-14-14-14	28	28	HSA			Brown, moist, medium dense, sandy GRAVEL, trace Silt. -FILL- (GP)	
	2D	21/10	2.0 - 3.8	13-16-50-50/4"	R					Brown-gray, moist, very dense, sandy GRAVEL, trace Silt. -FILL- (GP)	WC=9.7
								634.6		Split spoon refusal at 3.8' bgs; augered to 3.8' bgs. Auger refusal; possible bedrock.	
										3.8	
5										**Bottom of Exploration at 3.80 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Boring moved from road to 1.5' east of EOP.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-316

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	621.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/14/15-04/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1006957.4, E2273949.8	**Casing ID/OD:**	--	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.4 - 2.4	3-8-11-14	19	19	HSA	620.9		Top 5": -TOPSOIL- 0.4	
										Bottom 9": Brown, moist, medium dense, sandy GRAVEL, trace Silt. -FILL- (GM)	G#113 A-1-b, GM WC=14.0
	2D	24/20	2.0 - 4.0	23-22-40-45	62	62				Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -FILL- (GM)	
	3D	18/10	4.0 - 5.5	51-66-51-50/1"	R					Brown, wet, very dense, GRAVEL, some fine to coarse Sand, little Silt. -FILL- (GM)	
5								615.8		Split spoon refusal at 5.5' bgs; possible bedrock. 5.5	
										Bottom of Exploration at 5.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-317

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	607.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1007198.0, E2273909.0	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	18-38-37-42	F	0	HSA			Brown, moist, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/16	2.0 - 4.0	40-32-25-26	57	57				Brown, moist, hard, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#114 A-4/A-6, SM WC=25.9
								603.6		4.0	
5	3D	24/14	5.0 - 7.0	13-16-27-36	43	43				Brown, dry, dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
								600.6		7.0	
										Bottom of Exploration at 7.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-318

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/13/15-04/13/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007443, E2273805.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-2-3-2	5	5	HSA			Brown, moist, loose, sandy GRAVEL, some organics. -TOPSOIL- (GM)	
								588.0		2.0	
	2D	24/12	2.0 - 4.0	3-4-4-4	8	8				Brown, moist, loose, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	WC=12.2
5	3D	24/17	5.0 - 7.0	10-20-14-65	34	34				Gray-brown, dry, dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	G#116 A-1-a, GM WC=4.1
	4D	1/0	9.1 - 9.2	50/1"	R			580.8		Auger refusal at 9.1' bgs; split spoon refusal at 9.2' bgs; possible bedrock.	
10										9.2	
										Bottom of Exploration at 9.20 feet below ground surface.	
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-319

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/13/15-04/13/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007456, E2273929.5	**Casing ID/OD:**	--	**Water Level*:**	7.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-7-10-11	17	17	HSA			Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -TOPSOIL- (SM)	
								592.6		2.0	
	2D	24/0	2.0 - 4.0	7-6-5-5	11	11					
5	3D	24/18	5.0 - 7.0	5-8-13-35	21	21				Brown, moist, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	4D	14/13	10.0 - 11.2	54-29-60/2"	R					Gray-brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GP-GM)	G#117 A-1-a, GP-GM WC=8.7
								583.4		Split spoon refusal at 11.2' bgs; possible bedrock. 11.2	
										Bottom of Exploration at 11.20 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-320

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	586.0	**Auger ID/OD:**	4" OD SSA
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15 - 4/15/15	**Drilling Method:**	Drive & Wash/SSA	**Core Barrel:**	NQ
Boring Location:	N1007617.6, E2273911.8	**Casing ID/OD:**	3" ID	**Water Level*:**	3.4'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-2-3-5	5	5	SSA	585.7		Top 3": -TOPSOIL-	
										0.3	
										Bottom 10" Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/24	2.0 - 4.0	4-4-4-5	8	8				Brown, wet, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=14.7
								582.0		4.0	
5	3D	24/15	5.0 - 7.0	3-5-7-12	12	12	5			Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
							30				
							46				
							24				
							34				
10	4D	24/10	10.0 - 12.0	16-54-18-26	72	72	43			Brown, wet, hard, sandy SILT, some Gravel. -GLACIAL TILL- (SM-SC)	G#119 A-4/A-6, SM-SC WC=10.4
							40				
							42				
	R1	37/37	13.5 - 16.6	RQD = 54%			NQ	572.8		13.2	
										Casing refusal at 13.2' bgs. Roller cone ahead to 13.5' bgs and set up to core. R1: Hard, fresh to slightly weathered, fine grained to aphanitic, gray, METAPELITE. Joints are very to moderately close, undulating, rough, fresh, low angle to moderately dipping. Rock Mass Quality = Fair Rock Core Times (min/ft): 2.5, 1.75, 1.75	
15											
	R2	41/41	16.6 - 20.0	RQD = 76%						R2: Hard, fresh to slightly weathered, fine grained to aphanitic, gray, METAPELITE. Joints are very close to moderately close, dipping, moderately to high angle, fresh, tight to open. Rock Mass Quality = Good Rock Core Times (min/ft): 1.75, 2.0, 2.0, 0.75/.4'	
20								566.0		20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

1. Water level determined 15 minutes after drilling.
2. Well installed in boring to 20.0' bgs, 10.0' of 2" ID screen, 10' of 2" to riser, sand backfill up to 8.0' bgs, bentonite chips from 8.0'-6.0' bgs, sand backfill from 6.0' bgs to ground surface, then 3.0' stand pipe with lock installed at ground surface.
3. Water level measured in completed well immediately after well installation.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-321

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/14/15-4/14/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007614.4, E2273852.3	**Casing ID/OD:**	--	**Water Level*:**	0.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	1-1-2-13	3	3	HSA	583.2		Top 6": -TOPSOIL- 0.5 Bottom 3": Brown, wet, very loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=18.8
	2D	24/6	2.0 - 4.0	18-6-6-12	12	12				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
								579.7		4.0	
5	3D	24/12	5.0 - 7.0	8-10-15-16	25	25				Brown, wet, medium dense, silty SAND, some Gravel. -GLACIAL TILL-(SM-SC)	
10	4D	24/24	10.0 - 12.0	28-20-27-25	47	47				Brown, wet, dense, silty SAND, some Gravel. -GLACIAL TILL- (SM-SC)	G#121 A-4/A-6, SM-SC WC=8.4
15	5D	9/6	15.0 - 15.8	16-65/3"	R			567.9		Brown, wet, very dense, silty SAND, some Gravel. -GLACIAL TILL- (SM-SC) Split spoon refusal at 15.8' bgs; possible bedrock. 15.8 **Bottom of Exploration at 15.80 feet below ground surface.**	
20											
25											

Remarks:

1. Moved to Sta. 7333 +65.
2. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-322

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	582.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15-4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007610.8, E2273803.3	**Casing ID/OD:**	--	**Water Level*:**	2.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	1-2-2-1	4	4	HSA			Brown, moist, very loose, silty fine to coarse SAND, some roots. -TOPSOIL- (SM)	
								580.8		2.0	
	2D	24/13	2.0 - 4.0	2-8-8-6	16	16				Brown, wet, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/14	5.0 - 7.0	4-3-5-7	8	8				B rown, wet, loose, fine to coarse SAND some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#122 A-2, SM WC=12.0
								572.8		10.0	
10	4D	24/9	10.0 - 12.0	4-15-14-12	29	29				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	5D	1/0	13.7 - 13.8	50/1"	R			569.0		Auger refusal at 13.7' bgs. Split spoon refusal at 13.8' bgs; possible bedrock.	
15										13.8 **Bottom of Exploration at 13.80 feet below ground surface.**	
20											
25											

Remarks:

1. Moved to Sta. 7333 +65.
2. Water level taken immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-323

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	561.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/15/15-04/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1007847.6, E2273847.9	**Casing ID/OD:**	--	**Water Level*:**	4.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-2-3-4	5	5	HSA			Dark brown, moist, loose, silty fine to coarse SAND, trace Gravel. -TOPSOIL- (SM)	
	2D	24/10	2.0 - 4.0	4-5-7-7	12	12		558.8		2.3 Brown, moist, medium dense, fine to coarse SAND, little Silt, little Gravel. -GLACIAL TILL (REWORKED)- (GM)	
	3D	24/8	4.5 - 6.5	4-5-3-42	8	8		556.6		4.5 Brown, wet, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#123 A-2, GM WC=13.4
5											
	4D	2/2	9.5 - 9.7	50/2"	R			551.4		Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 9.7' bgs; possible bedrock. 9.7 **Bottom of Exploration at 9.70 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level taken immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-324

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	527.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15-4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008202.9, E2273838.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-2-5-30	6	6	HSA	527.2		Top 6": -FOREST MAT-	
										0.5	
										Bottom 8": Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	2D	1/1	3.0 - 3.1	50/1"	R					Gray, dry, very dense GRAVEL, little fine to coarse Sand. -GLACIAL TILL - (GP) Split spoon refusal at 3.1' bgs. Augered to 5.8' bgs, auger refusal; possible bedrock.	
5								521.9		5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-325

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	518.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/15/15 - 4/15/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1008419, E2273843.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-3-4	5	5	HSA	517.8		Top 6": -FOREST MAT- 0.5	
										Bottom 10": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	19/14	2.0 - 3.6	8-16-36-50/1"	52	52				Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 3.6' bgs.	
5								512.1		Auger refusal at 6.2' bgs; possible bedrock. 6.2	
										Bottom of Exploration at 6.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-326

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	525.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1008941.6, E2274002.9	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/4	0.0 - 2.0	1-5-3-4	8	8	HSA	524.8		Top 3": -FOREST MAT-	
										0.3	
										Bottom 1": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	11/6	2.0 - 2.9	5-60/5"	R			522.2		Brown, moist, medium dense, fine to medium SAND, little Silt, trace Gravel. -GLACIAL TILL- (SM)	
										Split spoon refusal at 2.9' bgs; possible Bedrock. Auger refusal at 2.9' bgs.	
5										2.9	
										Bottom of Exploration at 2.90 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Rock outcropping observed near boring hole.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-327

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	569.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009147.7, E2274097.2	**Casing ID/OD:**		**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1d	24/10	0.0 - 2.0	1-3-7-10	10	10	HSA	567.2		Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM) 2.0	
5	2D	24/19	5.0 - 7.0	8-18-22-29	40	40				Brown, moist, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	WC=12.7
10	3D	24/11	9.0 - 11.0	21-20-22-24	42	42				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
15	4D	24/14	14.0 - 16.0	32-27-25-42	52	52				Brown, wet, hard, SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML)	G#125 A-4/A-6, ML WC=10.8
20	5D	24/12	19.0 - 21.0	49-78-109-122	>100			548.2		Brown, wet, very dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM) 21.0 **Bottom of Exploration at 21.00 feet below ground surface.**	
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-328

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009172.7, E2274070.4	**Casing ID/OD:**		**Water Level*:**	17.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	3-5-4-8	9	9	HSA			Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/12	2.0 - 4.0	11-8-9-6	17	17				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								571.1		4.0	
5	3D	24/12	5.0 - 7.0	2-12-19-20	31	31				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	WC=15.4
10	4D	24/24	10.0 - 12.0	36-38-41-47	79	79				Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
15	5D	24/24	15.0 - 17.0	34-39-42-95	81	81				Gray-brown, moist, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
20	6D	11/11	20.0 - 20.9	27-100/5"	R					Brown, wet, hard, SILT, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (SM-SC)	G#127 A-4/A-6, SM-SC WC=7.9
25											

Remarks:

1. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-328

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009172.7, E2274070.4	**Casing ID/OD:**		**Water Level*:**	17.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	24/18	25.0 - 27.0	54-84-106-111	>100					Brown, wet, hard, SILT, some Gravel, some fine to coarse Sand. -GLACIAL TILL- (SM-SC)	
	8D	1/0	28.7 - 28.8	50/1"	R			546.3		Auger refusal at 28.7' bgs; split spoon refusal at 28.7' bgs; possible bedrock. 28.8 **Bottom of Exploration at 28.80 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-329

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	578.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009190.8, E2274015.7	**Casing ID/OD:**	4" ID	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	WOR-2-8-4	F	0	SSA	578.1		Top 3": -TOPSOIL-	
										0.3	
										Bottom 6": Brown, moist, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/16	2.0 - 4.0	2-3-4-4	7	7				Brown, moist, medium stiff, sandy SILT little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								574.4		4.0	
5	3D	24/14	5.0 - 7.0	6-9-10-13	19	19	29			Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	WC=10.4
							36				
							71				
							126				
							169				
10	4D	24/0	10.0 - 12.0	18-16-23-32	39	39	34			No recovery.	
							29				
							28				
							29				
							39				
15	5D	24/10	15.0 - 17.0	37-34-33-41	67	67	27			Gray, wet, hard, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
20	6D	20/6	20.0 - 21.7	61-80-59-73/2"	>100		28			Gray, wet, hard, gravelly SILT, some fine to medium Sand. -GLACIAL TILL- (ML)	
							34				
							44				
							33				
25							70				

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Switched from SSA to roller cone after drilling to 7.0' bgs.
3. Well installed in boring to 34.0' bgs, 10.0' of 2" ID PVC screen, 25' of 2" ID PVC riser, sand backfill up to 15.0' bgs, bentonite chips from 15.0' bgs to 11.0' bgs, sand backfill from 11.0' bgs to 35.2' bgs. 2' standpipe with lock installed at 35.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-329

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	578.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009190.8, E2274015.7	**Casing ID/OD:**	4" ID	**Water Level*:**	5.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	10/6	25.0 - 25.8	62-70/4"	R		RC			Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#129 A-1-b, GM WC=8.0
30	8D	4/3	30.0 - 30.3	84/4"	R					Brown, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM) Split spoon refusal at 30.3' bgs.	
35	9D	12/7	35.0 - 36.0	20-107/6"	R			542.4		Gray, wet, very dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 36.0' bgs; possible bedrock. 36.0 **Bottom of Exploration at 36.00 feet below ground surface.**	
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Switched from SSA to roller cone after drilling to 7.0' bgs.
3. Well installed in boring to 34.0' bgs, 10.0' of 2" ID PVC screen, 25' of 2" ID PVC riser, sand backfill up to 15.0' bgs, bentonite chips from 15.0' bgs to 11.0' bgs, sand backfill from 11.0' bgs to 35.2' bgs. 2' standpipe with lock installed at 35.0' bgs.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-330

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009381.5, E2274215.8	**Casing ID/OD:**	4" ID	**Water Level*:**	5.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
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N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	1-4-4-4	F	0	SSA	573.0		Top 3": -TOPSOIL- 0.3 Bottom 12": Brown, moist, silty fine to medium SAND, trace Gravel.	
								571.3		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/10	2.0 - 4.0	3-4-6-8	10	10				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	4-4-2-3	6	6	6			Brown, wet, medium stiff, SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
							5				
							28				
							36				
							37				
10	4D	24/4	10.0 - 12.0	8-8-4-4	12	12	29			Brown, wet, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
							23				
							11				
							10				
							14				
15	5D	24/3	15.0 - 17.0	8-4-7-10	11	11	16			Brown, wet, stiff, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
							17				
							30				
							20				
							19				
20	6D	24/8	20.0 - 22.0	15-15-20-29	35	35	RC			Brown, wet, dense, GRAVEL, some Sand, some Silt. -GLACIAL TILL- (GM)	G#130 A-1-b, GM WC=9.1
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-330

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	573.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	
Boring Location:	N1009381.5, E2274215.8	**Casing ID/OD:**	4" ID	**Water Level*:**	5.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	7D	7/7	25.0 - 25.6	64-50/1"	R			547.7		Gray, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 25.6' bgs; possible bedrock. 25.6 **Bottom of Exploration at 25.60 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-331

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009425.7, E2274110.5	**Casing ID/OD:**	4" ID	**Water Level*:**	17.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	WOH-4-7-5	11	11	HSA	583.7		Top 2": -TOPSOIL- 0.2 Bottom 4": Brown, moist, medium dense, fine to medium SAND, some Silt. -GLACIAL TILL (REWORKED)- (SM)	WC=16.9
	2D	24/8	2.0 - 4.0	5-5-5-13	10	10				Brown, moist, loose, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								579.9		4.0	
5	3D	24/6	5.0 - 7.0	14-61-40-44	>100					Brown, moist, very dense, sandy GRAVEL little Silt. -GLACIAL TILL- (GM)	
	4D	1/0	8.2 - 8.3	50/1"	R					No recovery. Split spoon refusal at 8.3' bgs.	
10	5D	24/11	10.0 - 12.0	17-30-30-34	60	60				Brown, moist, very dense, gravelly fine to medium SAND, trace Silt. -GLACIAL TILL- (SP)	
15	6D	4/2	15.0 - 15.3	73/4"	R					Brown/gray, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
20	7D	24/14	20.0 - 22.0	41-54-52-63	>100					Brown/gray, wet, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#132 A-1-b, GM WC=10.8
25											

Remarks:

1. After auger and split spoon refusal at 8.3' bgs, moved 5' south and augered to 10.0' bgs and continued to sample.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-331

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009425.7, E2274110.5	**Casing ID/OD:**	4" ID	**Water Level*:**	17.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	8D	4/2	25.0 - 25.3	84/4"	R			558.6		Gray, wet, very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM) Split spoon refusal at 25.3' bgs; possible bedrock. 25.3 **Bottom of Exploration at 25.30 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. After auger and split spoon refusal at 8.3' bgs, moved 5' south and augered to 10.0' bgs and continued to sample.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-332

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/29/15-4/29/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009616.7, E2274307.5	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	WOH-3-6-6	9	9	HSA	589.9		Top 3": -TOPSOIL- 0.3 Bottom 8": Brown, moist, loose, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/8	2.0 - 4.0	9-12-9-7	21	21		588.2		2.0 Brown, moist, medium dense, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL- (SM)	
5	3B	24/9	5.0 - 7.0	10-23-53-39	76	76				Brown, moist, dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/9	10.0 - 12.0	25-33-32-97	65	65				Brown, dry, very dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#133 A-1-b, GM WC=6.2
15	5D	11/0	15.0 - 15.9	23-79/5"	R			574.3		No recovery. Split spoon refusal at 15.9' bgs; possible bedrock. 15.9 **Bottom of Exploration at 15.90 feet below ground surface.**	
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-333

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/28/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1009655.8, E2274215.2	**Casing ID/OD:**	5" ID	**Water Level*:**	11.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	WOH-WOH-9-7	9	9	HSA	589.8		Top 3": -TOPSOIL- 0.3	
										Bottom 7": Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel.	
								588.1		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	5-5-8-11	13	13				2.0	
										Brown, moist, medium dense, gravelly fine to medium SAND, little Silt.	
										-GLACIAL TILL- (SM)	
5	3D	24/11	5.0 - 7.0	9-9-9-18	18	18				Brown, moist, medium dense, fine to medium SAND, some Gravel, little Silt.	WC=19.6
										-GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R		HQ	580.0		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1	
	R1	52/48	10.2 - 14.5	RQD = 15%						Advanced roller cone to 10.2' bgs and set-up to core. R1: Hard, fresh to slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, smooth, fresh to discolored, tight to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.75, 3.75, 4. 5, 5.0, 1.5	
	R2	60/60	14.5 - 19.5	RQD = 22%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 4.75, 5.75, 3. 25, 3.25, 3.75	
15											
	R3	48/48	19.5 - 23.5	RQD = 27%						R3: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.75, 2.5, 2.25	
20											
	R4	38/38	23.5 - 26.7	RQD = 47%						R4: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored,	
25											

Remarks:

1. Installed 4" PVC pipe to 11.0' bgs with 2' of stick-up to allow for geophysical testing. The hole was measured "open" to 36.0' bgs immediately after completion of drilling.
2. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-333

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/28/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1009655.8, E2274215.2	**Casing ID/OD:**	5" ID	**Water Level*:**	11.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.25, 3.75, 2. 25, 1.75	
	R5	30/30	26.7 - 29.2	RQD = 27%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, tight to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.75, 3.25, 4. 75	
	R6	38/38	29.2 - 32.4	RQD = 22%						R6: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5, 3.5, 3.0, 1.5	
30	R7	48/47	32.4 - 36.4	RQD = 42%						R7: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to moderately close, high angle, planar, rough, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 3.0, 2.25, 4.25, 3.75	
35								553.7		36.4 **Bottom of Exploration at 36.40 feet below ground surface.**	
40											
45											
50											

Remarks:

1. Installed 4" PVC pipe to 11.0' bgs with 2' of stick-up to allow for geophysical testing. The hole was measured "open" to 36.0' bgs immediately after completion of drilling.
2. Water level measured immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-334

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	595.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/28/15-4/28/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1009846.7, E2274407.7	**Casing ID/OD:**	4" ID	**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	WOH-1-8-11	9	9	SSA	595.6		Top 2": -TOPSOIL-	
										0.2	
										Bottom 9": Brown, moist, loose, silty fine to medium SAND, little Gravel.	
								593.8		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	11-20-17-17	37	37				2.0	
										Brown, moist, dense, silty fine to medium SAND, some Gravel.	
										-GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	4-3-8-10	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel.	
										-GLACIAL TILL- (SM)	
10	4D	24/16	10.0 - 12.0	18-48-37-40	85	85				Brown/blue, dry, very dense, fine to medium, sandy GRAVEL, trace Silt.	
										-GLACIAL TILL- (SP)	
15	5D	24/12	15.0 - 17.0	12-20-30-50/1"	50	50				Brown, wet, dense, SAND, some Gravel, some Silt.	WC=10.2
										-GLACIAL TILL- (SM)	
							NQ			Split spoon refusal at 16.6' bgs; possible bedrock.	
								579.2		16.6	
	R1	24/18	17.0 - 19.0	RQD = 0%						R1: Hard, moderately weathered, fine grained, blue, METAPELITE, highly fractured.	
										Rock Mass Quality = Very Poor	
	R2	10/10	19.0 - 19.8	RQD = 0%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very closely spaced, high angle, planar, rough, discolored, partially open to open.	
20	R3	26/24	19.8 - 22.0	RQD = 31%						Rock Mass Quality = Very Poor	
										Rock Core Times (min/ft): 3.75	
								573.8		R3: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to closely spaced, high angle, undulating, rough, discolored, open.	
										Rock Mass Quality = Poor	
										Rock Core Times (min/ft): 3.25, 4.25, 4. 0	
25										22.0	

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-334

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	595.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/28/15-4/28/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1009846.7, E2274407.7	**Casing ID/OD:**	4" ID	**Water Level*:**	15.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25										**Bottom of Exploration at 22.00 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-335

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/27/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1009886, E2274312.2	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	WOH-1-8-5	9	9	HSA	600.4		Top 5": -TOPSOIL- 0.3 Bottom 7": Brown, moist, loose, silty fine to coarse SAND, little Gravel.	WC=35.2
								598.7		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/14	2.0 - 4.0	4-8-11-18	19	19				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/17	5.0 - 7.0	37-34-35-46	69	69				Brown, moist, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/15	10.0 - 12.0	38-35-22-32	57	57				Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#137 A-2, GM WC=8.8
15	5D	1/0	14.7 - 14.8	50/1"	R			585.9		Split spoon refusal at 14.8' bgs; possible bedrock. Auger refusal at 14.7' bgs. 14.8 **Bottom of Exploration at 14.80 feet below ground surface.**	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-336

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010076.8, E2274502.5	**Casing ID/OD:**		**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	1-1-12-16	F	0	SSA	590.9		Top 2": -TOPSOIL- (0.2) Bottom 18": Brown, moist, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/20	2.0 - 4.0	11-10-7-6	17	17		589.1		(2.0) Brown, moist, medium dense, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/15	5.0 - 7.0	7-15-20-21	35	35				Brown, moist, dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
10	4D	24/16	10.0 - 12.0	7-11-11-15	22	22				Brown, moist, medium dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	G#138 A-2, GM WC=8.4
15	5D	1/0	15.0 - 15.1	50/1"	R			576.0		Split spoon refusal at 15.1' bgs; possible bedrock. (15.1) **Bottom of Exploration at 15.10 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Possible Rock at 14.0' bgs from auger observation and return.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-337

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010095.4, E2274456.2	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-4-2-3	6	6	SSA	590.0		Top 2": -TOPSOIL- 0.2 Bottom 14": Brown, moist, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL (REWORKED)- (GP-GM)	
	2D	24/11	2.0 - 4.0	6-11-9-9	20	20				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL (REWORKED)- (GP-GM)	G#139 A-1-a, GP-GM WC=14.0
								586.2		4.0	
5	3D	24/17	5.0 - 7.0	4-5-7-6	12	12				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP-GM)	
10	4D	24/9	10.0 - 12.0	20-20-12-11	32	32				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	WC=10.5
15	5D	1/0	15.5 - 15.6	50/1"	R			574.6		Split spoon refusal at 15.6' bgs; possible bedrock. 15.6 **Bottom of Exploration at 15.60 feet below ground surface.**	
20											
25											

Remarks:

1. Possible Rock at 13.6' bgs from auger observation and return.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-338

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1010115.8, E2274411.1	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	3-4-6-7	F	0	SSA	592.2		Top 1": -TOPSOIL- 0.1 Bottom 9": Brown, moist, silty fine to medium SAND, trace Gravel.	
								590.3		-GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/12	2.0 - 4.0	3-3-3-6	6	6				Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	10-8-11-26	19	19				Brown, moist, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	WC=8.8
10	R1	17/15	10.0 - 11.4	RQD = 25%			NQ	582.3		Auger refusal at 10.0' bgs. 10.0 Advance casing to 10.0' and set up to core. R1: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, undulating, smooth to rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 5.25, 3.25	
	R2	43/36	11.4 - 15.0	RQD = 23%						R2: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 4.0, 3.5, 4.25	
15	R3	40/40	15.0 - 18.3	RQD = 40%						R3: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to close, high angle, planar, rough, discolored, partially open to open. Sand infilling at 18.5' bgs. Rock Mass Quality = Poor Rock Core Times (min/ft): 4.0, 2.75, 3.25	
	R4	38/38	18.4 - 21.6	RQD = 66%						R4: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, high angle, planar, smooth, discolored, partially open to open. Rock Mass Quality = Fair Rock Core Times (min/ft): 3.5, 4.0	
20	R5	57/54	21.6 - 26.4	RQD = 37%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, high angle, planar, smooth, discolored, partially open to open. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.25, 2.75, 2.75, 2.25	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 26.0' bgs; 10' of 2" ID screen, 16' of 2" ID riser, and backfill up to 9.5' bgs, bentonite chips from 9.5'-6.0' bgs, sand backfill up to 6.0' bgs to ground surface. 2' stand pipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-338

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1010115.8, E2274411.1	**Casing ID/OD:**	4" ID	**Water Level*:**	9.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25								565.9		26.4 **Bottom of Exploration at 26.40 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 26.0' bgs; 10' of 2" ID screen, 16' of 2" ID riser, and backfill up to 9.5' bgs, bentonite chips from 9.5'-6.0' bgs, sand backfill up to 6.0' bgs to ground surface. 2' stand pipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-339

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	574.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/24/15-4/24/15	**Drilling Method:**	SSA	**Core Barrel:**	
Boring Location:	N1010267, E2274535.9	**Casing ID/OD:**	4" ID	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-1	2	2	SSA	574.6		Top 3": -FOREST MAT-	
										0.3	
	2D	24/0	1.0 - 3.0	6-5-4-4	9	9				Bottom 3": Brown, moist, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM) No recovery.	
	3D	24/13	3.0 - 5.0	3-4-4-11	8	8				Brown, moist, loose, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM)	
5	4D	10/5	5.0 - 5.8	24-76/4"	R			569.1		Brown to gray, dry, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 5.8' bgs; possible bedrock.	
										5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-340

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	575.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/27/15-4/27/15	**Drilling Method:**	HSA	**Core Barrel:**	
Boring Location:	N1010561.4, E2274654.6	**Casing ID/OD:**		**Water Level*:**	7.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/0	0.0 - 2.0	6-3-3-8	6	6	HSA	575.2		Top 3": -FOREST MAT- 0.3 No recovery.	
	2D	24/18	2.0 - 4.0	11-9-7-9	16	16				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/10	5.0 - 7.0	26-25-27-34	52	52				Brown, moist, hard, sandy SILT, some Gravel. -GLACIAL TILL- (ML)	
10	4D	24/20	10.0 - 12.0	32-39-34-73	73	73				Brown, wet, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
15	5D	8/8	15.0 - 15.7	98-84/2"	R			559.8		Brown, wet, very dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 15.7' bgs; possible bedrock. 15.7 **Bottom of Exploration at 15.70 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-341

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	582.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1010780.4, E2274741.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-3-5-6	F	0	HSA	582.6		Top 2": -FOREST MAT- (0.2)	
										Bottom 8": Brown, frozen, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/12	2.0 - 4.0	6-6-6-6	12	12				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/4	4.0 - 6.0	6-8-6-6	14	14				Brown, moist, medium dense, silty GRAVEL, trace fine to coarse Sand. -GLACIAL TILL- (GM)	
5	4D	24/6	6.0 - 8.0	13-11-10-7	21	21				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								574.8		(8.0) **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-342

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	589.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011017.2, E2274844.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-3-3-5	F	0	HSA	589.1		Top 3": -FOREST MAT- 0.3 Bottom 5": Brown, frozen, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#142 A-2, GM WC=16.7
	2D	24/16	2.0 - 4.0	5-3-4-4	7	7				Brown, moist, loose, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	
	3D	24/8	4.0 - 6.0	4-4-6-11	10	10				Brown, moist, loose, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5	4D	24/10	6.0 - 8.0	17-25-18-18	43	43				Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								581.4		8.0 **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-343

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	588.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011240.7, E2274928.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	2D	24/20	0.0 - 2.0	2-2-4-7	F	0	HSA	588.5		Top 4": -FOREST MAT-	G#143 A-4/A-6, SM-SC WC=13.0
										0.3	
										Bottom 16": Brown, frozen, SILT, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (SM-SC)	
	2D	24/17	2.0 - 4.0	6-19-10-11	29	29				Brown, moist, medium dense, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	3D	24/21	4.0 - 6.0	15-17-17-26	34	34				Brown, moist, dense, fine to coarse, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
5								582.8		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-344

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011473.2, E2275018.3	**Casing ID/OD:**	--	**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	2-3-3-4	F	0	HSA	590.8		Top 4": -FOREST MAT- 0.3	WC=18.3
										Bottom 8": Brown, frozen, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	2D	24/19	2.0 - 4.0	4-2-3-2	5	5				Brown, wet, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/13	4.0 - 6.0	5-12-17-22	29	29				Brown, wet, medium dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								585.1		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-345

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	597.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011706.5, E2275113.9	**Casing ID/OD:**	--	**Water Level*:**	4.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	1-3-3-2	F	0	HSA			Brown, frozen, silty SAND. -FOREST MAT-	
								595.1		2.0	
	2D	24/10	2.0 - 4.0	7-10-7-7	17	17				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#145 A-4, SM WC=12.0
	3D	24/19	4.0 - 6.0	4-4-3-4	7	7				Brown, wet, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5	4D	24/11	6.0 - 8.0	2-3-8-9	11	11				Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
								589.1		8.0	
										Bottom of Exploration at 8.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-346

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1011951.5, E2275203.3	**Casing ID/OD:**	--	**Water Level*:**	9.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-1-8-10	F	0	HSA	598.6		Top 3": -FOREST MAT- 0.3 Bottom 11": Brown, frozen, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#146 A-2, SM WC=16.6
	2D	24/16	2.0 - 4.0	5-7-10-24	17	17				Brown, moist, medium dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/2	4.0 - 6.0	16-10-7-4	17	17				Gray-brown, moist, medium dense, GRAVEL, trace Sand, trace Silt. -GLACIAL TILL- (GP)	
5	4D	24/6	6.0 - 8.0	5-8-8-10	16	16				No recovery.	
	5D	24/15	8.0 - 10.0	10-8-19-20	27	27				Brown, wet, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10								588.9		10.0 **Bottom of Exploration at 10.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-347

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012185.1, E2275286.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	1-2-3-5	5	5	HSA	601.0		Top 4": -FOREST MAT- 0.3 Bottom 7": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/10	2.0 - 4.0	5-8-7-8	15	15				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel -GLACIAL TILL- (SM)	G#147 A-4, SM WC=10.8
	3D	24/9	4.0 - 6.0	18-18-10-20	28	28				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								595.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-348

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/09/15-04/09/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012422.3, E2275378.4	**Casing ID/OD:**	--	**Water Level*:**	7.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/21	0.0 - 2.0	5-2-2-3	4	4	HSA	601.4		Top 5": -FOREST MAT-	
										0.4	
										Bottom 16": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	8-8-35-19	43	43				Brown, moist, dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#148 A-2, SM WC=12.8
	3D	24/2	4.0 - 6.0	20-19-18-22	37	37				Gray, moist, dense, GRAVEL, trace fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP)	
5											
	4D	24/20	8.0 - 10.0	19-19-19-35	38	38				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10								591.8		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-349

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	599.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012632.9, E2275512.8	**Casing ID/OD:**	--	**Water Level*:**	4.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	1-1-2-8	3	3	HSA	598.8		Top 3": -FOREST MAT-	WC=30.7
										0.3	
										Bottom 21": Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/14	2.0 - 4.0	5-6-6-8	12	12				Brown, moist, stiff, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/4	4.0 - 6.0	6-7-8-9	15	15				Brown, wet, stiff, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM-GC)	G#150 A-4/A-6, GM-GC WC=16.6
5											
	4D	1/1	9.0 - 9.1	50/1"	R			590.0		Gray, wet, very dense GRAVEL, some Sand, trace Silt. -GLACIAL TILL- (GP) Auger refusal at 9.0' bgs; split spoon refusal at 9.1' bgs; possible bedrock.	
10										9.1	
										Bottom of Exploration at 9.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-350

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/4/15-4/4/15	**Drilling Method:**	HSA/Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N1012668.5, E2275423.8	**Casing ID/OD:**	4" ID	**Water Level*:**	19.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	2-3-3-3	F	0	HSA	605.8		Top 1": -TOPSOIL-	
										0.1	
										Bottom 4": Brown, moist, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/8	2.0 - 4.0	3-2-9-10	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								601.9		4.0	
5	3D	24/6	5.0 - 7.0	11-6-5-5	11	11				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	4D	24/12	9.0 - 11.0	11-14-10-16	24	24				Brown, moist, medium dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	G#151 A-2, SM WC=10.6
10											
15	R1	43/43	15.0 - 18.6	RQD = 28%			NQ	590.9		15.0	
										Hard, slightly to moderately weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are extremely close to close, moderately dipping, undulating, rough, open, very close to 18.0' bgs. Rock Mass Quality = Poor Rock Core Times (min/ft): 2.5, 2.75	
	R2	16/16	18.7 - 20.0	RQD = 100%						Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are close, high angle, undulating, rough, discolored, partially open to open. Rock Mass Quality = Excellent Rock Core Times (min/ft): 2.5	
20								585.9		20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 20.0' bgs; 10.0' of 2" ID screen, 12.2' of 2" ID riser, sand backfill up to 11.0' bgs, bentonite chips from 11.0'-9.0' bgs. Sand backfill from 9.0' bgs to ground surface. 2.2' standpipe with lock installed at ground surface.
3. Water level measured immediately after installation of well.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-351

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	614.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012871.8, E2275604.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-3-2-2	F	0	HSA			Dark brown, frozen, silty SAND, some organics. -FOREST MAT- (SM)	
								612.5		2.0	
	2D	24/3	2.0 - 4.0	3-6-6-10	12	12				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/9	4.0 - 6.0	20-21-30-29	51	51				Brown, dry, dense, GRAVEL, some fine to coarse Sand, trace Silt. -GLACIAL TILL- (GP-GM)	G#152 A-1-a, GP-GM WC=2.4
5											
	4D	1/0	7.7 - 7.8	50/1"	R			606.7		Auger refusal at 7.7' bgs; split spoon refusal at 7.8' bgs; possible bedrock.	
										7.8	
										Bottom of Exploration at 7.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-352

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	615.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1012892.4, E2275550.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	3-3-3-3	F	0	HSA			Brown, frozen, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	6-5-4-4	9	9				Brown, moist, loose, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	WC=25.2
	3D	24/8	4.0 - 6.0	6-7-12-19	19	19				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5	4D	24/3	6.0 - 8.0	26-46-47-47	93	93				Brown/gray, moist, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	5D	24/19	13.0 - 15.0	26-46-48-60	94	94				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	G#154 A-1-a, GM WC=3.3
15	6D	1/0	16.1 - 16.2	50/1"	R			599.0		Auger refusal at 16.1' bgs; split spoon refusal at 16.2' bgs; possible bedrock. 16.2 **Bottom of Exploration at 16.20 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-353

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	613.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/21/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1012905.5, E2275520.3	**Casing ID/OD:**	5" ID	**Water Level*:**	18.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
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U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	3-3-3-3	6	6	SSA	613.1		Top 1": -TOPSOIL- 0.1 Bottom 7": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	2-3-4-7	7	7		611.2		2.0 Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/16	5.0 - 7.0	9-18-26-22	44	44				Brown, dry, dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	WC=6.3
10	4D	9/6	10.0 - 10.8	50-74/3"	R		HQ	602.4		Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 10.8' bgs; possible bedrock. 10.8	
	R1	60/19	11.0 - 16.0	RQD = 7%						R1: Hard, moderately weathered, fine grained, blue, METAPELITE, highly fractured. Joints are extremely close to close, moderately dipping, undulating, rough, discolored, open. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.25, 2.75, 2. 25, 2.25, 3.25	
15	R2	19/10	16.0 - 17.6	RQD = 0%						R2: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.5	
	R3	24/18	17.6 - 19.6	RQD = 0%						R3: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 2.75, 2.25	
20	R4	37/17	19.6 - 22.7	RQD = 0%						R4: Hard, moderately weathered, highly fractured, blue, METAPELITE. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 3.0, 1.75, 1.75	
	R5	28/41	22.7 - 25.0	RQD = 100%						R5: Hard, slightly weathered, fine grained, blue, METAPELITE with calcite stringers. Joints are very close to moderately close, high angle, planar, rough, discolored, open, slight coarse Sand infilling. Rock Mass Quality = Excellent	
25											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Installed 4" PVC pipe to 20.2' bgs with 2' of stick-up to allow for geophysical testing. Rock in core hole was caving-in during PVC pipe installation. The hole was measured open to 21.0' bgs (0.8' below bottom of casing) immediately after completion of drilling.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-353

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	613.2	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/20/15-4/21/15	**Drilling Method:**	SSA/Drive & Wash	**Core Barrel:**	HQ
Boring Location:	N1012905.5, E2275520.3	**Casing ID/OD:**	5" ID	**Water Level*:**	18.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	R6	53/48	25.0 - 29.4	RQD = 79%						Rock Core Times (min/ft): 4.5, 5.0 R6: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are close to moderately close, moderately dipping, planar, rough, open. Rock Mass Quality = Good Rock Core Times (min/ft): 7.75, 3.25, 4. 25, 3.0, 2.75	
	R7	12/10	29.4 - 30.4	RQD = 83%						R7: Hard, fresh, fine grained, blue, METAPELITE with calcite stringers. Joints are moderately close, high angle, planar, rough, fresh, partially open. Rock Mass Quality = Good Rock Core Times (min/ft): 2.5	
30								582.8		30.4 **Bottom of Exploration at 30.40 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. Water level measured immediately after completion of drilling.
2. Installed 4" PVC pipe to 20.2' bgs with 2' of stick-up to allow for geophysical testing. Rock in core hole was caving-in during PVC pipe installation. The hole was measured open to 21.0' bgs (0.8' below bottom of casing) immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-354

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.0	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013126, E2275631.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-2-3-6	5	5	HSA			Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/11	2.0 - 4.0	3-4-9-4	13	13				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/14	4.0 - 6.0	1-2-1-2	3	3				Brown, moist, very loose, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	G#156 A-2, SM WC=28.7
5	4D	24/17	6.0 - 8.0	2-4-7-7	11	11				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
								583.0		8.0 **Bottom of Exploration at 8.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-355

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	574.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/15-4/10/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013361.1, E2275693.8	**Casing ID/OD:**	--	**Water Level*:**	2.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	3-5-1-2	F	0	HSA			Dark brown, frozen, SAND and organics, some Silt. -FOREST MAT-	
								573.1		1.8	
	2D	24/10	2.0 - 4.0	1-2-3-3	5	5				Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	G#157 A-4, SM WC=24.6
	3D	24/10	4.0 - 6.0	2-3-5-9	8	8				Brown, wet, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	4D	24/11	6.0 - 8.0	6-15-44-23	59	59				Gray-brown, wet, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								566.9		8.0	
										Bottom of Exploration at 8.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-357

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	577.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1013829, E2275826.3	**Casing ID/OD:**	--	**Water Level*:**	5.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-3-5-14	8	8	HSA	576.8		Top 4": -FOREST MAT-	
										0.4	
										Bottom 10": Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	20-21-22-25	43	43				Brown, moist, dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/7	4.0 - 6.0	16-15-13-12	28	28				Brown, moist, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
5								571.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-358

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	583.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014152.3, E2275894.7	**Casing ID/OD:**	--	**Water Level*:**	5.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-3-4	5	5	HSA	583.2		Top 2": -FOREST MAT- 0.2 Bottom 8": Brown, moist, loose, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SP-SM)	G#232 A-1-a, SP-SM
	2D	24/8	2.0 - 4.0	3-5-24-20	29	29				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/15	4.0 - 6.0	7-8-14-14	22	22				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								577.4		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-359

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	586.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014387, E2275918.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-2-5-10	7	7	HSA	586.7		Top 2": -FOREST MAT-	
										0.2	
										Bottom 8": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/5	2.0 - 4.0	11-12-6-7	18	18				Brown, moist, medium dense, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM)	
	3D	24/12	4.0 - 6.0	3-3-4-12	7	7				Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5								580.9		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-360

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	588.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014629.4, E2275981.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-2-2-3	4	4	HSA	588.0		Top 2": -FOREST MAT-	
										0.2	
										Bottom 12": Brown, moist, soft, sandy SILT. -GLACIAL TILL- (ML)	
	2D	24/11	2.0 - 4.0	3-2-2-3	4	4				Brown, moist, soft, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	3D	24/10	4.0 - 6.0	7-22-30-31	52	52				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
5								582.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-361

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	593.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	Mobile Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	8/24/15-8/24/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1014875.8, E2276006.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	3-6-6-13	12	12	HSA	593.7		Top 2": -FOREST MAT- (0.2)	
										Bottom 7": Brown, moist, medium dense, fine to coarse SAND, some Silt, trace Gravel. -GLACIAL TILL- (SM)	G#234 A-1-b, GM
	2D	24/8	2.0 - 4.0	8-6-8-12	14	14				Brown, moist, medium dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
5	3D	24/16	6.0 - 8.0	22-27-23-20	50	50				Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	4D	24/17	8.0 - 10.0	28-34-49-31	83	83				Brown/gray, moist, very dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL- (GM)	
10								583.9		(10.0) **Bottom of Exploration at 10.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-362

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015084.8, E2276034.7	**Casing ID/OD:**	--	**Water Level*:**	8.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/3	0.0 - 2.0	1-5-7-12	12	12	HSA			Brown, moist, medium dense, gravelly SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
								598.1		2.0	
	2D	7/2	2.0 - 2.6	25-50/1"	R					Brown, moist, very dense, gravelly SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	24/11	5.0 - 7.0	15-17-20-21	37	37				Brown, moist, dense, gravelly SAND, little Silt. -GLACIAL TILL- (SM)	G#158 A-1-b, SM WC=8.4
10	4D	24/13	10.0 - 12.0	14-12-12-16	24	24				Brown, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								588.1		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Boulder from 2.6'-3.2' bgs.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-363

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015329.3, E2276053.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-5-5-2	10	10	HSA			Brown, moist, loose, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#159 A-2, SM WC=24.8
	2D	24/12	2.0 - 4.0	5-10-17-28	27	27				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/13	4.0 - 6.0	8-24-23-13	47	47		590.8		4.0 Brown, moist, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								588.8		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-364

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015580, E2276069.7	**Casing ID/OD:**	--	**Water Level*:**	5.5
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-5-4-1	9	9	HSA			Brown, moist, loose, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
	2D	24/13	2.0 - 4.0	6-5-11-24	16	16				Brown, moist, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL (REWORKED)- (GP)	
	3D	24/15	4.0 - 6.0	10-20-25-28	45	45		586.8		4.0 Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								584.8		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-365

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/22/15-4/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1015825.7, E2276081	**Casing ID/OD:**	--	**Water Level*:**	1.8'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	5-1-12-11	13	13	HSA			Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/6	2.0 - 4.0	4-4-10-14	14	14				Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	19/7	4.0 - 5.6	14-11-9-50/1"	20	20		586.1		4.0	
5								584.5		Brown, wet, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 5.6' bgs; possible bedrock. 5.6	
										Bottom of Exploration at 5.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-366

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	590.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/22/15-04/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016080.5, E2276080.9	**Casing ID/OD:**	--	**Water Level*:**	1.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	1-2-4-7	6	6	HSA	588.9		Dark brown, moist, loose, silty fine to coarse SAND, trace Gravel. -TOPSOIL- (SM)	
										1.2	
	2D	24/13	2.0 - 4.0	6-4-4-5	8	8				Brown, wet, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=38.8
								586.1		4.0	
5	3D	24/7	5.0 - 7.0	13-16-18-17	34	34				Brown, wet, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/17	10.0 - 12.0	20-44-58-35	102	102				Brown, wet, very dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
								578.1		12.0	
										Bottom of Exploration at 12.00 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-367

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/22/15-04/22/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016330.2, E2276077.6	**Casing ID/OD:**	--	**Water Level*:**	1.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	6-6-4-4	F	0	HSA			Brown, frozen, SILT, fine to coarse Sand, trace Gravel. -TOPSOIL- (SM)	
								590.7		2.0	
	2D	24/10	2.0 - 4.0	3-2-10-10	12	12				Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
5	3D	24/11	5.0 - 7.0	4-5-10-16	15	15				Brown, wet, medium dense, sandy GRAVEL, trace Silt. -GLACIAL TILL (REWORKED)- (GP)	
	4D	1/0	9.3 - 9.4	50/1"	R			583.3		Auger refusal at 9.3' bgs. Split spoon refusal at 9.4' bgs; possible bedrock.	
10										9.4	
										Bottom of Exploration at 9.40 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-368

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	594.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	04/21/15-04/21/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1016580.3, E2276067.1	**Casing ID/OD:**	--	**Water Level*:**	2.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	4-3-2-2	5	5	HSA	592.9		Top 13": -TOPSOIL-	
										1.2	
	2D	24/16	2.0 - 4.0	1-4-8-9	12	12				Bottom 5": Brown, moist, loose, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL (REWORKED)- (SM) Brown, wet, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL (REWORKED)- (SP)	
5	3D	24/5	5.0 - 7.0	13-20-30-27	50	50		589.1		5.0 Brown, wet, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10	4D	4/4	10.0 - 10.3	74/4"	R			583.2		Brown, wet, dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM) Split spoon refusal at 10.3' bgs. Auger refusal at 10.9' bgs; possible bedrock.	
										10.9 **Bottom of Exploration at 10.90 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-369

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	601.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017326.1, E2275998.0	**Casing ID/OD:**	--	**Water Level*:**	0.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	2-1-3-2	F	0	HSA			Brown, frozen, silty SAND, trace Gravel, trace roots. -TOPSOIL- (SM)	
								599.9		2.0	
	2D	24/9	2.0 - 4.0	2-4-7-11	11	11				Brown, wet, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	3D	24/3	4.0 - 6.0	14-21-11-10	32	32				Brown, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	WC=10.7
5											
	4D	24/16	9.0 - 11.0	76-51-41-47	92	92				Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10											
15	5D	1/1	15.0 - 15.1	50/1"	R			586.8		Brown/gray, wet, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 15.1' bgs; possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Water level measured immediately after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-370

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	599.6	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15-4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017573.5, E2275962.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-3-4-4	F	0	HSA			Brown, frozen, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								597.6		2.0	
	2D	24/12	2.0 - 4.0	2-5-10-17	15	15				Brown, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
	3D	24/13	4.0 - 6.0	16-15-16-15	31	31				Brown, dry, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5											
	4D	14/14	8.0 - 9.2	41-60-60/2"	R					Brown-gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								590.4		Split spoon refusal at 9.2' bgs; possible bedrock.	
10										9.2	
										Bottom of Exploration at 9.20 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-371

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	600.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1017820.6, E2275919.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	9-8-5-4	F	0	HSA			Brown, frozen, gravelly SILT, little Sand. -GLACIAL TILL (REWORKED)- (GM)	
	2D	24/9	2.0 - 4.0	3-2-2-2	4	4				Brown, moist, very loose, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/12	4.0 - 6.0	3-10-12-13	22	22		596.5		4.0	
5										Brown-gray, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
								594.5		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-372

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018065.6, E2275871.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/21	0.0 - 2.0	5-4-5-6	F	0	HSA			Brown, frozen, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#162 A-2, SM WC=32.4
	2D	24/10	2.0 - 4.0	4-5-3-3	8	8				Brown, moist, loose, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/13	4.0 - 6.0	2-5-8-11	13	13		599.3		4.0 Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5								597.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-373

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.4	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018313.9, E2275837.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	5-5-9-14	F	0	HSA			Brown, frozen, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=19.4
								596.4		2.0	
	2D	24/9	2.0 - 4.0	17-16-18-22	34	34				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	3D	24/15	4.0 - 6.0	19-14-27-50	41	41				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
5								592.4		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-374

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.5	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018552.6, E2275756.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	8-10-14-16	F	0	HSA			Brown, frozen, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	2D	24/18	2.0 - 4.0	16-20-19-21	39	39				Brown, dry, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
	3D	24/17	4.0 - 6.0	21-25-20-22	45	45				Brown, dry, dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
5								597.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-375

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.9	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1018795, E2275698.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-1-2-7	3	3	HSA			Brown, moist, soft, gravelly SILT, trace Sand. -GLACIAL TILL- (ML)	
	2D	24/14	2.0 - 4.0	5-6-8-10	14	14				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
	3D	15/9	4.0 - 5.3	12-12-60/3"	R					Brown-gray, moist, very dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
5								600.6		Split spoon refusal at 5.3' bgs; possible bedrock. 5.3 **Bottom of Exploration at 5.30 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-376

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	608.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019032.1, E2275618	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	2-2-2-2	4	4	HSA			Brown, moist, soft, sandy SILT, trace Gravel. -TOPSOIL-	
								606.8		2.0	
	2D	24/10	2.0 - 4.0	2-2-3-4	5	5				Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								604.8		4.0	
	3D	24/12	4.0 - 6.0	7-12-18-15	30	30				Brown, dry, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5											
	4D	24/13	9.0 - 11.0	13-13-49-25	62	62				Brown, moist, very dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM)	
10								597.8		11.0	
										Bottom of Exploration at 11.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-377

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.3	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019272.8, E2275542.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/11	0.0 - 2.0	2-3-3-2	6	6	HSA			Brown, moist, medium stiff, sandy SILT, trace Gravel. -TOPSOIL- (ML)	
								601.3		2.0	WC=27.1
	2D	24/10	2.0 - 4.0	3-2-3-6	5	5				Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								599.3		4.0	
	3D	24/15	4.0 - 6.0	11-14-12-31	26	26				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL- (GM)	
5											
	4D	7/7	7.0 - 7.6	29-50/1"	R					Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 8.6' bgs; augered to 8.9' bgs. Auger refusal; possible bedrock.	
								594.4		8.9	
10										**Bottom of Exploration at 8.90 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-378

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	606.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019507.1, E2275453	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	2-2-3-3	5	5	HSA	606.5		Top 4": -FOREST MAT-	
										0.3	
										Bottom 13": Brown, moist, medium stiff, gravelly SILT, trace Sand.	
								604.8		-GLACIAL TILL (REWORKED)- (ML)	
	2D	24/14	2.0 - 4.0	2-6-3-3	9	9				2.0	
										Brown, moist, very stiff SILT, trace Sand.	
										-GLACIAL TILL- (ML)	
	3D	24/11	4.0 - 6.0	4-9-11-15	23	23				Brown, moist, medium dense, silty GRAVEL, little Sand.	
5										-GLACIAL TILL- (GM)	
	4D	24/14	8.0 - 10.0	18-25-31-20	56	56				Brown, moist, very dense, sandy GRAVEL, little Silt.	
										-GLACIAL TILL- (GM)	
10								596.8		10.0	
										Bottom of Exploration at 10.00 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-379

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	611.7	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019746.3, E2275385.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-3-3-2	F	0	HSA			Brown, frozen, SILT, some Gravel, little Sand. -GLACIAL TILL (REWORKED)- (ML)	WC=6.8
								609.7		2.0	
	2D	24/13	2.0 - 4.0	4-10-12-26	27	27				Brown, moist, medium dense, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM)	
	3D	24/12	4.0 - 6.0	28-21-18-26	49	49				Brown, moist, dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
5											
	4D	7/3	9.0 - 9.6	20-50/1"	R					Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP)	
10								601.8		Split spoon refusal at 9.6' bgs; augered to 9.9' bgs. Auger refusal; possible bedrock.	
										9.9	
										Bottom of Exploration at 9.90 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-380

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.1	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1019939.3, E2275331.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	4-4-2-3	F	0	HSA			Brown, frozen, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/6	2.0 - 4.0	3-3-3-4	6	6				Brown, moist, loose, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	8/4	4.0 - 4.7	14-57/2"	R			601.1		4.0	
5								600.4		Brown-gray, silty GRAVEL, trace Sand. -GLACIAL TILL- (GM) Split spoon refusal at 4.7' bgs; possible bedrock. 4.7	
										Bottom of Exploration at 4.70 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-381

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	606.8	**Auger ID/OD:**	2.25" ID
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15-4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020128.2, E2275270.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	3-5-8-4	F	0	HSA	606.5		Top 4": -FOREST MAT- 0.3	
										Bottom 9": Brown, frozen, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	2D	24/8	2.0 - 4.0	5-9-9-12	18	18				Brown, moist, medium dense, silty SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/10	4.0 - 6.0	20-14-16-11	30	30				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5	4D	1/0	6.4 - 6.5	50/1"	R			600.3		Auger refusal at 6.4' bgs; split spoon refusal at 6.5' bgs; possible bedrock. 6.5	
										Bottom of Exploration at 6.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-382

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	605.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020717.6, E2275139.6	**Casing ID/OD:**	--	**Water Level*:**	17.7'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	4-2-2-6	4	4	HSA	605.0		Top 2": -FOREST MAT-	
										0.2	
										Bottom 12": Brown, moist, very loose, silty fine to medium SAND, trace Gravel, trace roots and organic Silt. -SUBSOIL- (SM)	
	2D	24/12	2.0 - 4.0	5-6-7-17	13	13		603.2		2.0	WC=18.3
										Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	24/18	5.0 - 7.0	13-23-26-32	49	49				Brown, moist, dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
10	4D	24/12	10.0 - 12.0	26-23-24-18	47	47				Brown/Gray, dry, dense, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
15	5D	8/6	15.0 - 15.7	68-64/2"	R					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	6D	0/0	19.9 - 19.9	50/0"							
20								585.2		Split spoon refusal at 20.0' bgs; possible bedrock.	
										20.0	
										Bottom of Exploration at 20.00 feet below ground surface.	
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-383

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	592.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1020959.3, E2275094.7	**Casing ID/OD:**	--	**Water Level*:**	4.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-3-4	4	4	HSA	592.2		Top 4": -FOREST MAT- 0.3	
										Bottom 2": Brown, moist, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/8	2.0 - 4.0	3-11-11-12	22	22				Brown, wet, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/6	4.5 - 6.5	4-6-7-9	13	13				Brown, wet, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5											
	4D	24/18	9.5 - 11.5	21-15-26-33	41	41				Top 6": Brown, wet, dense, medium to coarse SAND, trace Silt. -GLACIAL TILL- (SP) Bottom 12": Brown/gray, wet, dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10											
	5D	1/0	13.0 - 13.1	50/1"	R			579.4		Auger refusal at 13.0' bgs, split spoon refusal at 13.1' bgs; possible bedrock. 13.1	
										Bottom of Exploration at 13.10 feet below ground surface.	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-384

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	591.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021206.3, E2275058.6	**Casing ID/OD:**	--	**Water Level*:**	6.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	WOH-WOH-1-2	1	1	HSA			Brown/black, moist, very loose, organic SILT, roots. -FOREST MAT-	
	2D	24/10	2.0 - 4.0	2-8-13-6	21	21		589.1		Top 6": Brown/black, moist, very loose, organic SILT, roots. 2.5	
	3D	24/10	4.5 - 6.5	5-8-11-10	19	19				Bottom 4": Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
5										Brown, wet, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	24/8	9.5 - 11.5	19-30-28-6	58	58				Brown, wet, very dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
10								580.1		11.5 **Bottom of Exploration at 11.50 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-385

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	597.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021455.2, E2275024.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	1-1-1-1	2	2	HSA			Black, moist, very loose, organic SILT & Sand, roots, wood. -FOREST MAT/SUBSOIL-	
								595.2		2.0	
	2D	24/12	2.0 - 4.0	3-3-6-7	9	9				Brown/tan, moist, loose, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/12	4.0 - 6.0	9-11-11-13	22	22				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5							▽				
								591.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-386

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	598.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021700.0, E2274986.1	**Casing ID/OD:**	--	**Water Level*:**	G.S.
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-1-4	2	2	HSA	598.2		Top 4": Organic Silt & Sand, roots, leaves. -FOREST MAT- 0.3	
										Bottom 2": Brown, wet, fine to medium SAND, little Silt, little Gravel. -GLACIAL TILL- (SM)	A-4, CL LL=25 PL=15 PI=8 WC=17.5
	2D	24/16	2.0 - 4.0	1-3-4-3	7	7				Brown, wet, very loose, sandy CLAY, little Gravel. -GLACIAL TILL- (CL)	
	3D	19/16	4.0 - 5.6	3-7-39-50/1"	46	46				Brown, wet, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5								592.9		Split spoon refusal at 5.6' bgs; possible bedrock. 5.6	
										Bottom of Exploration at 5.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured at ground surface prior to drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-387

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	603.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1021951.6, E2274957.8	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-3-5-5	8	8	HSA	603.6		Top 4": Organic Silt & Sand, roots, leaves. -FOREST MAT- 0.3	
										Bottom 10": Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#168 A-4, SM WC=13.9
	2D	24/12	2.0 - 4.0	5-8-8-10	16	16				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/18	4.0 - 6.0	7-11-13-14	24	24				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5								597.9		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-388

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	611.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022198.0, E2274928.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-7-3-5	10	10	HSA	611.0		Top 5": Organic Silt & Sand, roots. -FOREST MAT-	
										0.4	
	2D	24/10	2.0 - 4.0	4-7-8-7	15	15				Bottom 9": Brown, moist, loose, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM) Brown, moist, medium dense, fine to medium SAND, little Gravel, little Silt. -GLACIAL TILL- (SM)	WC=20.2
	3D	24/10	4.0 - 6.0	8-13-20-24	33	33				Brown, moist, dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
5								605.4		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-389

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	614.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022449.8, E2274892.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	2-1-5-6	6	6	HSA	613.6		Top 6": Organic Silt & Sand, roots and leaves. -FOREST MAT-	
										0.5	
										Bottom 8": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/12	2.0 - 4.0	5-31-28-13	59	59				Brown, moist, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#170 A-4, SM WC=11.8
	3D	24/10	4.0 - 6.0	17-12-9-11	21	21				Brown, wet, medium dense, gravelly fine to medium SAND, some Silt. -GLACIAL TILL- (SM)	
5								608.1		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-390

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	616.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022694.6, E2274853.4	**Casing ID/OD:**	--	**Water Level*:**	6.4'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-1-2-4	3	3	HSA	616.5		Top 2": Organic SILT and roots. -FOREST MAT- 0.2 Bottom 6": Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	G#171 A-4, ML WC=22.6
	2D	24/14	2.0 - 4.0	10-16-7-7	23	23				Brown, wet, very stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
5	3D	24/8	5.0 - 7.0	7-14-6-5	20	20				Brown, wet, medium dense, fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
	4D	1/0	7.5 - 7.6	50/1"	R			609.1		Auger refusal at 7.5' bgs. Split spoon refusal at 7.6' bgs; possible bedrock. 7.6 **Bottom of Exploration at 7.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-391

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	621.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1022943.6, E2274828	**Casing ID/OD:**	--	**Water Level*:**	9.9'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	2-3-3-5	6	6	HSA	620.7		Top 4": Organic SILT with roots and leaves. -FOREST MAT- 0.3	
	2D	24/12	2.0 - 4.0	6-5-7-12	12	12				Bottom 8": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM) Brown, moist, stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
5	3D	24/18	5.0 - 7.0	9-10-10-12	20	20				Brown, moist, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	G#172 A-2, SM WC=9.0
10	4D	24/6	10.0 - 12.0	5-7-11-9	18	18				Brown, wet, medium dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL- (SM)	
								609.0		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-392

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	624.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/6/15 - 4/6/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023189.7, E2274791.2	**Casing ID/OD:**	--	**Water Level*:**	9.1'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-2-5	4	4	HSA	623.9		Top 6": Organic SILT, pieces of roots, leaves. -FOREST MAT- 0.5 Bottom 10": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/4	2.0 - 4.0	5-6-7-9	13	13				Brown, moist, medium dense, fine to medium SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
5	3D	24/19	5.0 - 7.0	6-11-50-51	61	61				Top 10": Brown, moist, fine to medium SAND, some Gravel, some Silt. -GLACIAL TILL- (SM) Bottom 9": Brown/gray, dry, very dense sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#173 A-2, SM WC=8.8
10	4D	1/0	10.0 - 10.1	50/1"	R			614.3		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-393

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	630.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023437.1, E2274760.2	**Casing ID/OD:**	--	**Water Level*:**	10.3'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-4-6-9	10	10	HSA	629.5		Top 6": Black, organic, Silt, roots. -FOREST MAT- 0.5 Bottom 4": Brown, moist, medium dense, fine to medium SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/10	2.0 - 4.0	5-6-15-14	21	21				Brown, moist, medium dense, fine to coarse SAND, some Gravel, some Silt. -GLACIAL TILL- (SM)	
5	3D	24/20	5.0 - 7.0	3-4-6-9	10	10				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#174 A-4, SM WC=9.0
10	4D	11/11	10.0 - 10.9	29-103/5"	R			619.1		Top 6": Brown, moist, very dense, silty GRAVEL, little fine to medium Sand. -GLACIAL TILL- (GM) Bottom 5": Gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP) Split spoon refusal at 10.9' bgs; possible bedrock. 10.9 **Bottom of Exploration at 10.90 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Water level measured immediately after drilling boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-394

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	633.1	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023687.1, E2274727.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	7-4-2-11	6	6	HSA	632.4		Top 8": Brown to black, organic SILT, roots. -FOREST MAT- 0.7	
	2D	24/16	2.0 - 4.0	7-8-14-10	22	22				Bottom 8": Brown, moist, medium dense, silty fine to medium SAND, little Gravel. (SM) -GLACIAL TILL- Brown, moist, very stiff, lean CLAY, some fine to coarse Sand, some Gravel. -GLACIAL TILL- (CL)	G#175 A-6, CL WC=17.1
5	3D	24/12	5.0 - 7.0	8-6-8-9	14	14				Brown, moist, medium dense, fine to coarse sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
10	4D	1/0	10.0 - 10.1	51/1"	R			623.0		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-395

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	641.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023939.3, E2274743.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	3-3-4-5	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								639.0		2.0	
	2D	24/0	2.0 - 4.0	6-7-6-8	13	13				No recovery.	
5	3D	24/11	5.0 - 7.0	9-12-12-27	24	24				Brown, moist, medium dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	G#176 A-1-a, GM WC=8.1
10	4D	14/8	10.0 - 11.2	33-50-67/2"	R					Brown, moist, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 11.2' bgs. Auger refusal at 11.5' bgs; possible bedrock.	
								629.5		11.5	
										Bottom of Exploration at 11.50 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Rock in tip of split spoon in sample 4D.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-396

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	640.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1023936.1, E2274691.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	3-4-4-6	F	0	HSA			Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=19.0
								638.5		2.0	
	2D	24/6	2.0 - 4.0	9-19-64-95	83	83				Brown, fine to moist, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5	3D	7/2	5.0 - 5.6	90-50/1"	R					Gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GP-GM)	G#178 A-1-a, GP-GM
10	4D	1/0	10.0 - 10.1	50/1"	R					Split spoon refusal at 10.1' bgs.	
										Auger refusal at 12.7' bgs; possible bedrock.	
								627.8		12.7	
										Bottom of Exploration at 12.70 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-397

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	639.9	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash/SSA	**Core Barrel:**	NQ
Boring Location:	N1023924.9, E2274644.6	**Casing ID/OD:**	3" ID	**Water Level*:**	8.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	1-1-3-4	4	4	SSA			Brown, moist, SILT, little Sand, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	WC=27.7
	2D	24/14	2.0 - 4.0	12-6-8-7	14	14				Brown, moist, medium dense, silty GRAVEL, some Sand. -GLACIAL TILL (REWORKED)- (GM)	
								635.9		4.0	
	3D	24/19	4.0 - 6.0	7-6-28-41	34	34				Brown, moist, dense, silty GRAVEL, some Sand. -GLACIAL TILL- (GM)	G#180 A-2, GM WC=16.7
5											
							46				
	4D	1/0	8.3 - 8.4	50/1"	R		104	631.5		Split spoon refusal at 8.4' bgs. Casing refusal at 8.5' bgs. Washed ahead to 8.8' bgs and set up to 8.8' bgs.	
	~~R1~~	~~30/30~~	~~8.8 - 11.3~~	~~RQD = 43%~~			~~NQ~~			8.4	
10										R1: Hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are close to moderately close, moderately dipping, undulating, rough, fresh to discolored. Some calcite stringers. Rock Mass Quality = Poor Rock Core Times (min/ft): 4.25, 2.5, 2.5/6"	
	R2	30/23	11.3 - 13.8	RQD = 37%						R2: Hard, fresh to slightly weathered, fine grained, gray, METAPELITE. Joints are extremely close to close, low angle to moderately dipping, undulating, fresh to discolored. Some calcite stringers. Rock Mass Quality = Poor Rock Core Times (min/ft): 1.5/3", 2.5, 2.5	
								626.1		13.8	
15										**Bottom of Exploration at 13.80 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Groundwater measured 10 minutes after drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-398

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	644.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024180.9, E2274660.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	9-12-9-7	F	0	HSA			Brown, frozen, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#181 A-4, SM WC-34.3
	2D	3/2	2.0 - 2.3	70/3"	R			642.2		2.0	
								641.7		Brown, moist, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 2.3' bgs. Auger refusal at 2.5' bgs; possible bedrock.	
5										2.5 **Bottom of Exploration at 2.50 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-399

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	647.9	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	--
Boring Location:	N1024434.9, E2274677.0	**Casing ID/OD:**	3" ID	**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	4-10-7-5	F	0	SSA	647.7		Top 2": -TOPSOIL-	
										0.2	
										Brown, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/12	2.0 - 4.0	5-8-6-6	14	14				Brown, moist, medium dense, silty GRAVEL, little Sand. -GLACIAL TILL (REWORKED)- (GM)	WC=23.4
								643.9		4.0	
	3D	24/18	4.0 - 6.0	6-10-13-13	23	23				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#183 A-4, SM WC=9.6
5											
								638.8		9.1	
	4D R1	1/0 30/29	9.0 - 9.1 9.1 - 11.6	50/1" RQD = 0%			NQ			SSA refusal at 9.1' bgs, split spoon refusal at 9.1' bgs. Spun casing to 9.5' bgs and set up for core. R1: Hard to medium hard, slight to moderately weathered, fine grained, gray, METAPELITE. Joint spacing is close to moderately close, low to high angle, dipping, undulating, rough and fresh, some calcite stringers. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 2.0, 3.0/5"	
10	R2	36/32	11.6 - 14.6	RQD = 25%						R2: Hard to medium hard, fresh to moderately weathered, fine grained, gray, METAPELITE. Joints are close to moderately close, low to high angle, dipping, undulating, rough, fresh to discolored. Some calcite stringers. Rock Mass Quality = Very Poor Rock Core Times (min/ft): 1.75, 1.75, 2.0	
								633.3		14.6	
15										**Bottom of Exploration at 14.60 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Well installed in boring to 14.1' bgs, 5.0' of 1.5" ID screen, 12.0' of 1.5" ID riser, sand backfill to 6.6', bentonite chips from 5.5'-3.5', sand backfill to surface, 3' stand pipe with lock.
3. Groundwater measured in observation well 3 hours after installation.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-400

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	645.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/15 - 4/2/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024422.0, E2274577.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	8-13-17-13	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								643.8		2.0	
	2D	24/10	2.0 - 4.0	5-14-16-21	30	30				Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	20/12	5.0 - 6.7	5-4-4-100/2"	8	8				Brown, moist, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#189 A-4, SM WC=19.3
	4D	1/0	7.6 - 7.7	50/1"	R			638.2		Auger refusal at 7.5' bgs. Split spoon refusal at 7.6' bgs; possible bedrock.	
										7.6	
										Bottom of Exploration at 7.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-401

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	649.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024675.4, E2274593.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	17-15-15-14	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								647.9		2.0	
	2D	24/10	2.0 - 4.0	11-11-10-10	21	21				Brown, moist, medium dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#185 A-4, SM WC=12.7
5	3D	1/1	5.0 - 5.1	62/1"	R					Gray, dry, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	6.5 - 6.6	50/1"	R			643.3		Auger refusal at 6.5' bgs. Split spoon refusal at 6.6' bgs; possible bedrock.	
										6.6	
10										**Bottom of Exploration at 6.60 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-402

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	658.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024930.6, E2274609.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	14-14-13-8	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	WC=27.6
								656.4		2.0	
	2D	24/16	2.0 - 4.0	13-19-17-19	36	36				Brown, moist, dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	7-15-18-16	33	33				Brown, moist, dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
10	4D	19/14	10.0 - 11.6	7-6-15-50/1"	21	21				Brown, moist, medium dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	G#187 A-1-a, SM WC=18.2
	5D	1/0	13.6 - 13.7	50/1"	R			644.8		Auger refusal at 13.5' bgs. Split spoon refusal at 13.6' bgs; possible bedrock. 13.6	
										Bottom of Exploration at 13.60 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-403

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	656.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1024924.6, E2274560.8	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	10-24-54-22	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								654.4		2.0	
	2D	24/14	2.0 - 4.0	19-22-17-13	39	39				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	16/12	5.0 - 6.3	8-14-74/4"	R					Brown, moist, very dense, GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM) Auger refusal at 7.2' bgs. Split spoon refusal at 7.3' bgs; possible bedrock.	G#188 A-1-b, GM WC=8.1
	4D	1/0	7.2 - 7.3	50/1"	R			649.1		7.3	
10										**Bottom of Exploration at 7.30 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-404

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	653.0	**Auger ID/OD:**	4" OD
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	Drive & Wash	**Core Barrel:**	--
Boring Location:	N1024917.3, E2274511.5	**Casing ID/OD:**	3" ID	**Water Level*:**	10.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	7-10-10-13	F	0	SSA			Brown, moist, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	WC=21.4
	2D	24/13	2.0 - 4.0	6-8-13-8	21	21				Brown, moist, medium dense, silty SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	3D	24/16	4.0 - 6.0	6-13-14-12	27	27				Brown, moist, very stiff, SILT, some Sand, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	G#190 A-4, ML WC=18.8
5								647.0		6.0	
10	4D	24/19	10.0 - 12.0	48-58-50-26	>100		108 99 92 52			Brown, wet, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
15	5D	13/5	15.0 - 16.1	28-37-50/1"	R		OPEN	636.9		Gray-brown, wet, very dense, silty GRAVEL, trace Sand. Rock in spoon tip. -GLACIAL TILL- (GM) Split spoon refusal at 16.1' bgs; possible bedrock. 16.1 **Bottom of Exploration at 16.10 feet below ground surface.**	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. SSA to 10.0' bgs, then installed casing to 14.0' bgs.
3. Water level taken approximately 15 minutes after completion of boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-405

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	659.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025172.2, E2274529.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	12-26-28-21	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								657.2		2.0	
	2D	24/12	2.0 - 4.0	24-20-29-45	49	49				Brown, moist, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
5	3D	16/6	5.0 - 6.3	56-99-121/4"	R					Gray-brown, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP-GM)	G#191 A-1-a, GP-GM WC=6.1
10	4D	1/0	10.0 - 10.1	50/1"	R			649.1		Split spoon refusal at 10.1' bgs; possible bedrock.	
										10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-406

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	659.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025420.3, E2274504.6	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	17-15-30-36	F	0	HSA			Brown, frozen, silty fine to medium SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								657.7		2.0	
	2D	24/10	2.0 - 4.0	19-31-28-61	59	59				Brown, moist, very dense GRAVEL, some fine to coarse Sand, some Silt. -GLACIAL TILL- (GM)	G#192 A-1-b, GM WC=10.6
5	3D	1/0	5.3 - 5.4	50/1"	R			654.3		Auger refusal at 5.3' bgs. Split spoon refusal at 5.4' bgs; possible bedrock.	
										5.4	
										Bottom of Exploration at 5.40 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-407

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	660.9	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025669.7, E2274485.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	7-13-20-15	F	0	HSA			Brown, frozen, silty fine to coarse SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#193 A-4, SM WC=29.5
								658.9		2.0	
	2D	24/18	2.0 - 4.0	15-28-22-19	50	50				Brown, moist, very dense, fine to coarse, gravelly SAND, some Silt. -GLACIAL TILL- (SM)	
	3D	24/11	4.0 - 6.0	18-15-53-48	68	68				Brown, moist, very dense, fine to coarse, gravelly SAND, some Silt. -GLACIAL TILL- (SM)	
5								654.9		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-408

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	662.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1025919.5, E2274473.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	18-18-18-24	F	0	HSA			Brown, frozen, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (SM)	G#194 A-4, GM WC=43.3
	2D	4/1	2.0 - 2.3	95/4"	R			660.3		Gray, dry, very dense GRAVEL, some Sand, little Silt. -GLACIAL TILL- (SM)	
										Split spoon refusal at 2.3' bgs. Auger refusal at 2.5' bgs; possible bedrock.	
5										2.5 **Bottom of Exploration at 2.50 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-409

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	664.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026168.7, E2274467.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	18-25-23-18	F	0	HSA			Brown, frozen, silty fine to coarse SAND, little Gravel, trace organics, roots. -GLACIAL TILL (REWORKED)- (SM)	
								662.6		2.0	
	2D	11/6	2.0 - 2.9	12-62/5"	R					Brown, moist, very dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								661.1		Split spoon refusal at 2.9' bgs. Auger refusal at 3.5' bgs; possible bedrock.	
5										3.5	
										Bottom of Exploration at 3.50 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-410

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026419.4, E2274466.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	9-14-16-15	F	0	HSA			Light brown, frozen, silty fine to medium SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
								664.8		2.0	
	2D	24/15	2.0 - 4.0	7-15-20-16	35	35				Light brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/12	4.0 - 6.0	11-22-23-25	45	45				Light brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5											
								660.8		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-411

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	666.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/1/15 - 4/1/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026670.9, E2274472.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	9-2-4-5	F	0	HSA	666.3		Top 5": Organics, SILT, roots. -TOPSOIL- 0.4	
								664.7		Bottom 13" silty fine : Light brown, frozen to medium SAND, little Gravel, trace root fibers. -GLACIAL TILL (REWORKED)- (SM) 2.0	
	2D	24/18	2.0 - 4.0	4-5-6-11	11	11				Brown, moist, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	10/8	5.0 - 5.8	36-110/4"	R					Gray, dry, very dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
10	4D	1/0	10.0 - 10.1	50/1"	R			656.6		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1 **Bottom of Exploration at 10.10 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-412

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	670.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1026868.2, E2274472.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	2-3-2-3	5	5	HSA	670.0		Top 3": -TOPSOIL-	
										0.3	
										Bottom 5": Brown, silty fine to coarse SAND, little Gravel, trace organics with Silt and roots.	
								668.3		-GLACIAL TILL (REWORKED)- (SM)	
	2D	24/9	2.0 - 4.0	2-3-2-3	5	5				2.0	
										Brown, dry, loose, silty fine to medium SAND, trace Gravel.	
										-GLACIAL TILL- (SM)	
5	3D	24/14	5.0 - 7.0	5-6-5-13	11	11				Brown, dry, medium dense, silty fine to medium SAND, little Gravel.	WC=16.6
										-GLACIAL TILL- (SM)	
10	4D	2/1	10.5 - 10.7	150/2"	R			659.6		Brown, dry, very dense, silty fine to medium SAND, little Gravel.	
										-GLACIAL TILL- (SM)	
										Split spoon refusal at 10.7' bgs; possible bedrock.	
										10.7	
										Bottom of Exploration at 10.70 feet below ground surface.	
15											
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-413

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	670.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027169.6, E2274483.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	4-14-15-7	F	0	HSA	670.2		Top 1": Trace root fibers. -TOPSOIL-	
										0.1	
								668.3		Bottom 18": Brown, frozen, silty fine to coarse SAND, little Gravel, trace roots. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/15	2.0 - 4.0	5-13-14-15	27	27				2.0	
										Brown, moist, medium dense, silty fine to medium SAND. -GLACIAL TILL- (SM)	
5	3D	10/4	5.0 - 5.8	18-113/4"	R					Brown/gray, dry, very dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	8.1 - 8.2	60/1"	R			662.1		Auger refusal at 8.1' bgs. Split spoon refusal at 8.2' bgs; possible bedrock.	
										8.2	
										Bottom of Exploration at 8.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-414

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	674.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027419.5, E2274488.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	10-23-18-19	41	41	HSA	674.2		Top 2": -TOPSOIL- 0.2 Bottom 18": Brown, silty fine to medium SAND, some Gravel, trace root fibers. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/13	2.0 - 4.0	11-16-15-31	31	31		672.4		2.0 Brown, moist, dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	1/0	5.0 - 5.1	50/1"	R			669.3		Split spoon refusal at 5.1' bgs; possible bedrock. 5.1 **Bottom of Exploration at 5.10 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-415

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	672.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/31/15 - 3/31/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027669.9, E2274495.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	5-10-20-13	F	0	HSA	672.4		Top 4": Roots. -TOPSOIL-	
										0.3	
										Bottom 5": Brown, frozen, sandy SILT, little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								670.7		2.0	
	2D	19/12	2.0 - 3.6	16-69-83-50/1"	>100					Brown, dry, hard, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
5	3D	9/6	5.0 - 5.8	83-100/2"	R					Gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	4D	1/1	9.5 - 9.6	50/1"	R			663.1		Gray, dry, hard, sandy SILT, trace Gravel. -GLACIAL TILL- (ML) Split spoon refusal at 9.6' bgs; possible bedrock.	
10										9.6	
										Bottom of Exploration at 9.60 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-416

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	673.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1027920.0, E2274500.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	2-3-7-4	F	0	HSA	673.0		Top 2": -TOPSOIL-	
										0.2	
										Bottom 8": Brown, frozen, silty SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/11	2.0 - 4.0	7-9-6-10	15	15				Brown, damp, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
5	3D	24/10	5.0 - 7.0	4-4-5-6	9	9				Brown, damp, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								666.2		7.0	
10	4D	13/8	10.0 - 11.1	12-28-74-50/1"	>100					Brown, damp, very dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
15	5D	1/1	15.0 - 15.1	50/1"	R			658.1		Gray, dry, hard, sandy SILT, trace Gravel. -GLACIAL TILL- (ML) Split spoon refusal at 15.1' bgs; possible bedrock.	
										15.1	
										Bottom of Exploration at 15.10 feet below ground surface.	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-417

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	680.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028169.6, E2274505.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	7-9-10-8	F	0	HSA	680.6		Top 2": -TOPSOIL- 0.2 Bottom 18": Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/16	2.0 - 4.0	12-20-15-32	35	35		678.8		2.0 Brown, dry, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5	3D	2/2	5.0 - 5.2	77/2"	R					Brown, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	6/3	10.0 - 10.5	150/6"	R			670.3		Brown/gray, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM) Split spoon refusal at 10.5' bgs; possible bedrock. 10.5 **Bottom of Exploration at 10.50 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-418

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	694.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028418.6, E2274511.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/20	0.0 - 2.0	9-13-17-8	F	0	HSA	694.4		Top 1": -TOPSOIL- (0.1)	
										Bottom 19": Light brown, frozen, silty SAND, little Gravel, trace organics. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/10	2.0 - 4.0	3-6-8-7	14	14		692.5		(2.0) Gray/brown, dry, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	WC=20.7
5	3D	13/6	5.0 - 6.1	13-57-50/1"	R					Gray/brown, dry, medium dense, silty SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R			684.4		Split spoon refusal at 10.1' bgs; possible bedrock. (10.1)	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-419

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	701.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	3/30/15 - 3/30/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1028669.4, E2274517.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	9-17-13-21	F	0	HSA	701.2		Top 3": Organic SILT, root fibers. -TOPSOIL-	
										0.3	
								699.5		Bottom 15": Brown, frozen, silty fine to medium SAND, some Gravel, trace roots. Petroleum odor. -GLACIAL TILL (REWORKED)- (SM)	
	2D	3/2	2.0 - 2.3	71/3"	R					2.0	
	3D	24/20	3.0 - 5.0	50-71-51-92	>100					Gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5										Brown/gray, dry, very dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	1/0	10.0 - 10.1	50/1"	R			691.4		Split spoon refusal at 10.1 bgs; possible bedrock.	
										10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-420

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	697.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029169.3, E2274527.1	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	3-4-5-6	F	0	HSA	697.1		Top 3": -FOREST MAT-	
										0.3	
										Bottom 2": Brown, frozen, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/18	2.0 - 4.0	6-7-7-5	14	14				Brown, moist, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
5	3D	24/12	5.0 - 7.0	34-31-24-28	55	55				Brown/gray, moist, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	4D	1/0	8.7 - 8.8	50/1"	R			688.6		Auger refusal at 8.7' bgs. Split spoon refusal at 8.8' bgs; possible bedrock.	
										8.8	
10										**Bottom of Exploration at 8.80 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-421

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	716.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/7/15 - 4/7/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029421.9, E2274533.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-1-4-6	5	5	HSA			Brown, moist, loose, silty fine to medium SAND, some Gravel. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/0	2.0 - 4.0	6-4-4-4	8	8					
	3D	24/8	4.5 - 6.5	8-7-8-15	15	15		712.0		4.5 Brown, moist, medium dense, gravelly fine to coarse SAND, trace Silt. -GLACIAL TILL- (SP)	
5											
	4D	1/0	9.0 - 9.1	50/1"	R			707.4		Auger refusal at 9.1' bgs. Split spoon refusal at 9.1' bgs; possible bedrock. 9.1 **Bottom of Exploration at 9.10 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-422

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	725.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029682.4, E2274540.4	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	7-10-22-14	32	32	HSA	724.5		Brown, moist, dense, silty GRAVEL, some Sand. -GLACIAL TILL (REWORKED)- (GM) — 1.0	G#197 A-4, GM WC=16.0
	2D	24/10	2.0 - 4.0	10-11-11-26	22	22				Brown, moist, medium dense, fine to medium SAND, little Gravel. -GLACIAL TILL- (SP)	
	3D	19/16	4.0 - 5.6	32-39-79-50/1"	>100			719.9		Brown, moist, very dense, fine to coarse, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM) Split spoon refusal at 5.6' bgs; possible bedrock. — 5.6	
5										**Bottom of Exploration at 5.60 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-423

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	719.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1029919.8, E2274544.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	6-6-10-5	F	0	HSA			Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								717.6		2.0	
	2D	24/8	2.0 - 4.0	3-3-3-3	6	6				Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	G#198 A-4, SM WC=22.0
5	3D	24/13	5.0 - 7.0	3-3-13-17	16	16				Brown, moist, medium dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
	4D	1/0	8.8 - 8.9	50/1"				710.7		Auger refusal at 8.8' bgs, split spoon refusal at 8.9' bgs; possible bedrock.	
10										8.9 **Bottom of Exploration at 8.90 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. At 6.0' bgs, possible transition to Weathered Rock.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-424

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	705.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030169.4, E2274549.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/5	0.0 - 2.0	1-3-4-3	7	7	HSA			Brown, moist, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	
								703.5		2.0	
	2D	24/6	2.0 - 4.0	6-9-17-16	26	26				Brown, moist, medium dense, sandy GRAVEL, some Silt. -GLACIAL TILL- (GM)	
	3D	22/10	4.0 - 5.8	18-22-36-74/4"	58	58				Brown/gray, dry, very dense, sandy GRAVEL, little Silt. -GLACIAL TILL- (GM)	
5										Split spoon refusal at 5.8' bgs; possible bedrock.	
								699.7		5.8	
										Bottom of Exploration at 5.80 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Possible transition to Weathered Rock at 3.0' bgs.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-425

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	703.2	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030425.4, E2274557.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	3-3-3-7	F	0		703.1		Top 1": Organic SILT, grass. -TOPSOIL-	
										0.1	
								701.2		Bottom 16": Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#199 A-4, SM WC=23.8
	2D	24/16	2.0 - 4.0	9-5-6-8	11	11				2.0	
										Brown, moist, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/6	4.0 - 6.0	1-5-9-20	14	14				Brown/gray, moist, medium dense, gravelly fine to medium SAND, little Silt. -GLACIAL TILL- (SM)	
5								697.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-426

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	698.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030670.6, E2274561.9	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	6-8-3-5	F	0	HSA	698.4		Top 3": -FOREST MAT- 0.3	
										Bottom 16": Brown, frozen, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	13-32-47-17	79	79				Brown, moist, very dense, sandy GRAVEL, trace Silt, -GLACIAL TILL- (GP-GM)	
5	3D	11/7	5.0 - 5.9	51-83/5"	R					Brown/gray, dry, very dense, sandy GRAVEL, trace Silt. -GLACIAL TILL- (GP-GM)	G#200 A-1-a, GP-GM WC=3.7
10	4D	1/0	10.0 - 10.1	50/1"	R			688.6		Split spoon refusal at 10.1' bgs; possible bedrock. 10.1	
										Bottom of Exploration at 10.10 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-427

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	685.7	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1030918.6, E2274566.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	3-4-7-16	10	10	HSA	685.4		Top 4": -FOREST MAT- 0.3	G#201 A-1-b, SM WC=13.0
										Bottom 14": Brown, moist, loose, fine to coarse SAND, some Gravel, little Silt. -GLACIAL TILL- (SM)	
	2D	24/15	2.0 - 4.0	47-51-77-65	>100					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
	3D	14/6	4.0 - 5.2	76-89-72/2"	R					Brown/gray, dry, very dense, gravelly fine to coarse SAND, little Silt. -GLACIAL TILL- (SM)	
5								680.5		Split spoon refusal at 5.2' bgs; possible bedrock. 5.2	
										Bottom of Exploration at 5.20 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-428

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	678.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/15 - 4/8/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031170.9, E2274563.5	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	2-6-9-10	15	15	HSA	678.0		Top 3": -FOREST MAT-	
										0.3	
										Bottom 15": Brown, moist, medium dense, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM)	
	2D	24/14	2.0 - 4.0	6-7-7-10	14	14				Brown, moist, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/8	4.0 - 6.0	8-14-17-14	31	31				Brown, moist, dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
5								672.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-429

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	669.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031414.3, E2274567.6	**Casing ID/OD:**	--	**Water Level*:**	0' Ground
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	1-1-3-5	4	4	HSA	669.0		Top 3": -TOPSOIL-	
										0.3	
										Bottom 9": Brown, wet, soft, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/15	2.0 - 4.0	5-7-9-6	16	16				Brown, wet, very stiff, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	
	3D	24/15	4.0 - 6.0	5-7-12-13	19	19				Brown, wet, medium dense, silty fine to coarse SAND, trace Gravel. -GLACIAL TILL- (SM)	
5								663.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level observed at ground surface after completion of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-430

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	665.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031669.3, E2274569.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	1-1-3-6	4	4	HSA	665.2		Top 1": -TOPSOIL- 0.1	
										Bottom 23": Brown, moist, soft, sandy, Clayey SILT, trace Gravel. -GLACIAL TILL- (ML)	WC=16.8
	2D	24/12	2.0 - 4.0	4-5-10-11	15	15				Brown, moist, stiff, sandy, Clayey SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/7	4.0 - 6.0	5-9-12-19	21	21				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5								659.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-431

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	661.4	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Blaine Cardali	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/23/15-4/23/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1031916.2, E2274578.2	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	1-2-3-7	5	5	HSA	661.2		Top 2": -TOPSOIL- (0.2)	
										Bottom 15": Brown, moist, medium stiff, sandy SILT, trace Gravel. -GLACIAL TILL- (ML)	
	2D	24/4	2.0 - 4.0	5-7-8-11	15	15				Brown, moist, stiff, gravelly SILT, little fine to coarse Sand. -GLACIAL TILL- (ML)	
5	3D	24/15	5.0 - 7.0	15-15-20-22	35	35				Brown, moist, dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
10	4D	24/22	10.0 - 12.0	8-13-14-20	27	27				Brown, moist, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
								649.4		(12.0) **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-432

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	656.8	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032168.0, E2274592.0	**Casing ID/OD:**	--	**Water Level*:**	GS
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-2-3-12	5	5	HSA	656.5		Top 3": -TOPSOIL- (0.3)	
										Bottom 5": Brown, wet, loose, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/6	2.0 - 4.0	6-10-20-11	30	30				Brown, wet, medium dense, silty fine to medium SAND, little Gravel. -GLACIAL TILL- (SM)	
	3D	24/10	4.0 - 6.0	7-12-11-9	23	23				Brown, wet, medium dense, silty fine to coarse SAND, little Gravel. -GLACIAL TILL- (SM)	
5								650.8		(6.0) **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level observed at ground surface prior to drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-433

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	655.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032419.7, E2274592.9	**Casing ID/OD:**	--	**Water Level*:**	Not measured
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	WOH-2-5-4	7	7	HSA	655.1		Top 6": Organic SILT, pieces of roots. -TOPSOIL-	
										0.5	
	2D	24/12	2.0 - 4.0	7-5-8-10	13	13				Bottom 8": Brown, moist, loose, silty fine to medium SAND, trace Gravel. -GLACIAL TILL- (SM) Brown, moist, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
5	3D	24/10	5.0 - 7.0	9-9-10-12	19	19				Brown/tan, moist, very stiff, Silty CLAY, little Gravel, some fine to coarse Sand. -GLACIAL TILL- (CL)	G#203 A-4/A-6, CL WC=13.0
10	4D	24/20	10.0 - 12.0	8-9-13-15	22	22				Brown/tan, moist, very stiff, Clayey SILT, some fine to coarse Sand, little Gravel. -GLACIAL TILL- (ML)	
								643.6		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-434

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	655.3	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032668.0, E2274576.1	**Casing ID/OD:**	--	**Water Level*:**	1.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-4-5	6	6				Brown, moist, medium stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	2D	24/8	2.0 - 4.0	11-8-7-10	15	15				Brown, wet, stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	3D	24/10	4.0 - 6.0	8-9-19-13	28	28				Brown, wet, very stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
5								649.3		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Water level measured immediately after boring.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-435

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	654.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1032914.2, E2274543.7	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/17	0.0 - 2.0	1-2-3-5	5	5				Brown, moist, medium stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	G#204 A-4, CL LL=28 PL=17 PI=11 WC=17.9
	2D	24/6	2.0 - 4.0	6-9-5-7	14	14				Brown, moist, stiff, Silty CLAY, some Gravel, little fine to medium Sand. -GLACIAL TILL- (CL)	
	3D	24/12	4.0 - 6.0	8-14-13-16	27	27				Brown, moist, very stiff, Silty CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
5								648.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-436

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	652.5	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033160.7, E2274491.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	1-1-2-4	F	0		651.5		Top 12": -TOPSOIL- 1.0 Bottom 2": Brown/tan, lean CLAY, some fine to coarse Sand, little Gravel. -GLACIAL TILL (REWORKED)- (CL-ML)	G#205 A-4, CL-ML WC=14.2
	2D	24/14	2.0 - 4.0	5-4-8-7	12	12		650.5		2.0 Brown/tan, moist, stiff, lean CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
	3D	24/18	4.0 - 6.0	19-11-13-18	24	24				Brown/tan, moist, very stiff, lean CLAY, some fine to medium Sand, little Gravel. -GLACIAL TILL- (CL)	
5								646.5		6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-437

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	651.6	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033400.5, E2274424.0	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	12/12	0.0 - 1.0	5-2	F	0		650.6		Brown/black, sandy organic SILT, trace roots. -TOPSOIL- (OL)	
	2D	24/16	1.0 - 3.0	3-5-5-4	10	10				1.0 Brown/tan, moist, stiff, Clayey SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/10	4.0 - 6.0	9-12-11-14	23	23				Brown/tan, moist, medium dense, GRAVEL, some Silt, little fine to coarse Sand. -GLACIAL TILL- (GM)	G#206 A-1-b, GM WC=5.0
5											
	4D	24/22	9.5 - 11.5	11-16-18-26	34	34				Brown/tan, moist, dense, silty fine to medium SAND, some Gravel. -GLACIAL TILL- (SM)	
10								640.1		11.5 **Bottom of Exploration at 11.50 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Sample 1D was driven through 1.0' of soil, only 1.0' bgs.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass - Segment 1
09.0025832.03
Location: Presque Isle, Maine

Boring No.: HB-PB-438

PIN: 6462.92

Driller:	New England Boring	**Elevation (ft.)**	650.0	**Auger ID/OD:**	2.25" ID
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Nicholas Williams	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/15 - 4/9/15	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	N1033629.3, E2274352.3	**Casing ID/OD:**	--	**Water Level*:**	Dry
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	5-3-2-3	F	0		649.5		Top 6": -TOPSOIL-	
										0.5	
										Bottom 9": Brown, silty fine to medium SAND, little Gravel. -GLACIAL TILL (REWORKED)- (SM)	G#207 A-4/A-6, CL WC=12.8
	2D	24/14	2.0 - 4.0	3-6-6-4	12	12				Brown, moist, stiff, lean CLAY, some fine to coarse Sand, some Gravel. -GLACIAL TILL (REWORKED)- (CL)	
5	3D	24/17	5.0 - 7.0	7-7-10-8	17	17		645.0		5.0 Brown, moist, very stiff, fine to medium, sandy SILT, little Gravel. -GLACIAL TILL- (ML)	
10	4D	24/22	10.0 - 12.0	6-8-8-10	16	16				Brown, moist, very stiff, Clayey SILT, some fine to medium Sand, little Gravel. -GLACIAL TILL- (ML)	
								638.0		12.0 **Bottom of Exploration at 12.00 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-601

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	612.6	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV Mounted Mobile Drill B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-05-23/10-05-23	**Drilling Method:**	SSA	**Core Barrel:**	NQ
Boring Location:	7329+14, 148.7' Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			SAND and Gravel observed on auger flights.	
5								607.4		5.2	
								606.5		Increase in auger resistance at 5.2', probable fractured bedrock; auger refusal at 6.1' on probable bedrock.	
										6.1	
										Bottom of Exploration at 6.1 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1007193.4, E2274052.8).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-602

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	610.7	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV Mounted Mobile Drill B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-05-23/10-05-23	**Drilling Method:**	SSA	**Core Barrel:**	NQ
Boring Location:	7329+71, 80.0' Rt.	**Casing ID/OD:**	3/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	6-5-5-7	10	12	SSA			Loose, brown, GRAVEL, some fine to coarse sand, little silt, dry, (Fill).	G#23-S-5167 A-1-b, GM WC=8.0%
								607.1		3.6	
										Auger refusal at 4.7', probable fractured rock.	
								606.0		4.7	
5										**Bottom of Exploration at 4.7 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1007236.2, E2273975.6).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-602A

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	610.7	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-05-23/10-05-23	**Drilling Method:**	SSA	**Core Barrel:**	NQ
Boring Location:	7329+76, 80.0', Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0										SSA Advanced to 5.0'.	
5	1D	9/9	5.0 - 5.8	22-50/3"	R		SSA	605.7		5.0 Grey, dry, sandy GRAVEL, (Probable Fractured Bedrock). Auger refusal at 7.3' on probable bedrock.	
								603.4		7.3 **Bottom of Exploration at 7.3 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1007241.2, E2273975.6).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-603

WIN: 006462.92

Driller:	New England Boring Contractor	**Elevation (ft.)**	609.6	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-12-23/10-12-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7330+16.8, 150.3' Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Sand and Gravel observed in auger flights.	
5								604.7		4.9	
								604.4		Increase in auger resistance at 4.9', probable fractured bedrock. Auger refusal at 5.2' on probable bedrock.	
										5.2	
										Bottom of Exploration at 5.2 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1007291.2, E2274038.0).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-604

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	572.2	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-17-23/10-17-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7364+29.5, 112.2'Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-7.5': Olive-brown, moist, SILT, some gravel.	
5											
								564.7		7.5 Increase in auger resistance at 7.5', probable fractured bedrock.	
								562.9		Auger refusal at 9.3' on probable bedrock. 9.3	
10										**Bottom of Exploration at 9.3 feet below ground surface.**	
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1010494.0, E2274747.1).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-605

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	576.3	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-18-23/10-18-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7364+94.3, 115.8' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-13.5': Olive, moist, gravelly SILT, some fine to coarse sand observed.	
5											
10											
								562.8		13.5	
										Increased auger resistance at 13.5', probable fractured bedrock.	
15								561.3		Auger refusal at 15.0' on probable bedrock. 15.0	
										Bottom of Exploration at 15.0 feet below ground surface.	
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1010641.7, E2274561.7).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-606

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	578.6	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-17-23/10-17-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7365+04.5, 67.5' Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-7.5': Olive, moist, gravelly SILT, some fine to coarse sand.	
5											
								571.1		7.5	
										Increase in auger resistance at 7.5', probable fractured rock.	
10										Auger refusal at 10.5' on probable bedrock.	
								568.1		10.5	
										Bottom of Exploration at 10.5 feet below ground surface.	
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1010580.6, E2274734.8).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-607

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	576.3	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-18-23/10-18-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7365+67.0, 74.9' Lt.	**Casing ID/OD:**	--	**Water Level*:**	9.9'
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-10': Olive, moist, Silty GRAVEL, some fine to coarse sand.	
10								566.3		Increase in auger resistance at 10.0', probable fractured bedrock. Auger refusal at 11.6' on probable bedrock. (10.0)	
								564.7		**Bottom of Exploration at 11.6 feet below ground surface.** (11.6)	

Remarks:

1. Water level measured immediately after auger removal.
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1010692.9, E2274627.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-608

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	581.5	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-17-23/10-17-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7365+77.8, 114.8' Rt.	**Casing ID/OD:**	--	**Water Level*:**	11.4'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/15	0.0 - 2.0	WOH-1-1-2	2	2	SSA	581.2		1D (Top 3"): Dark brown, moist, SILT, trace fine sand, with roots, (Topsoil).	
										0.3	
										1D (Bottom 12"): Olive, moist, soft, SILT, little fine to coarse sand, trace gravel, (Glacial Till).	
5	2D	24/9	5.0 - 7.0	6-16-18-12	34	42				Olive, moist, hard, gravelly SILT, little fine to coarse sand, (Glacial Till).	
10	3D	24/18	10.0 - 12.0	8-21-22-26	43	53				3D (Top 16"): Olive, wet, hard, gravelly SILT, some fine to coarse sand, (Glacial Till).	
								570.2		11.3	
										3D (Bottom 2"): Grey, GRAVEL, (Fractured Bedrock).	
								568.1		Auger refusal at 13.4' on probable bedrock.	
										13.4	
15										**Bottom of Exploration at 13.4 feet below ground surface.**	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1010630.3, E2274806.7).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-609

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	578.0	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-18-23/10-18-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7365+39.3, 113.3' Lt.	**Casing ID/OD:**	--	**Water Level*:**	10.4'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	WOH-WOH-1-2	1	1	SSA			Olive. moist, very soft, SILT, little gravel, little fine to coarse sand, (Glacial Till).	
5	2D	24/11	5.0 - 7.0	11-17-17-17	34	42				Olive, moist, dense, GRAVEL, some silt, little fine to coarse sand, coarse gravel piece stuck in spoon tip, (Glacial Till).	G#23-S-5168 A-2-4(0), GM WC=9.6%
10	3D	24/13	10.0 - 12.0	16-13-16-33	29	36				Olive/grey, wet, dense, GRAVEL, some silt, some fine to coarse sand, (Glacial Till).	
15	4D	9/9	15.0 - 15.8	30-50/3"	R			562.2		Olive, wet, Silty GRAVEL, some fine to coarse sand, (Glacial Till). 15.8 **Bottom of Exploration at 15.8 feet below ground surface.**	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1010774.3, E2274619.3).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-610

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	598.8	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-05-23/10-05-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7390+49.1, 104.3' Rt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Olive-brown, Gravelly fine to coarse SAND, some silt, observed in auger flight.	
5										Intermittent auger resistance during advancement from 5.0'-6.0', 7.0'-8.0', and 9.5'-10.0' indicates probable cobble/boulders.	
10											
15								583.8		No refusal at 15.0', auger probe terminated. 15.0 **Bottom of Exploration at 15.0 feet below ground surface.**	
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1012949.4, E2275682.0).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-611

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	588.0	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-06-23/10-06-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7391+22.7, 56.0' Rt.	**Casing ID/OD:**	--	**Water Level*:**	9.3'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-5.0': Olive-brown, Silty fine to coarse SAND, little gravel.	
5											
10											
								576.8		11.2	
										Increase in auger resistance during advancement at 11.2', probable fractured rock.	
								575.2		Auger refusal at 12.8' on probable bedrock.	
										12.8	
										Bottom of Exploration at 12.8 feet below ground surface.	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal. Hole caved at 10.4'.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1013035.0, E2275659.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-612

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	575.3	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-06-23/10-06-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7392+17.7, 126.2' Rt.	**Casing ID/OD:**	--	**Water Level*:**	3.4'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
	Sample Information										
0	1D	24/10	0.0 - 2.0	WOH-WOH-3-3	3	4	SSA	575.0		1D (Top 3"): Dark brown, moist, SILT, fine sand, with roots, (Topsoil).	G#23-S-5179 A-1-b, SM WC=11.1%
										0.3	
										1D (Bottom 7"): Olive, moist, loose, fine to coarse SAND, some gravel, some silt, (Glacial Till).	
5	2D	24/3	5.0 - 7.0	4-3-4-5	7	9				Olive, wet, loose, Silty fine to coarse SAND, some gravel, (Glacial Till).	
								566.7		8.6	
								565.9		Increase in auger resistance at 8.6', probable fractured bedrock. Auger refusal at 9.4' on probable bedrock.	
10										9.4	
										Bottom of Exploration at 9.4 feet below ground surface.	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1013105.0, E2275755.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-613

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	587.0	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-06-23/10-06-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7392+29.6, 107.0' Lt.	**Casing ID/OD:**	--	**Water Level*:**	5.7'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	WOH-WOH-3-4	3	4	SSA	586.9		1D (Top 1"): Dark brown, moist, SILT, trace fine sand, with roots, (Topsoil).	
										0.1	
										1D (Bottom 5"): Brown, moist, soft, SILT, little fine to coarse sand, little gravel, (Glacial Till).	
5	2D	24/16	5.0 - 7.0	4-11-13-11	24	30				2D (Top 6"): Olive-brown, wet, dense, GRAVEL, some fine to coarse sand, little silt, (Glacial Till).	G#23-S-5169 A-1-b, GM WC=11.4%
								581.0		6.0	
										2D (Bottom 10"): Grey, wet, dense, GRAVEL, little fine to coarse sand, (Fractured Bedrock).	
10	3D	24/8	10.0 - 12.0	16-31-18-22	49	61				Grey, wet, very dense, GRAVEL, little sand, little silt, (Fractured Bedrock).	
										Increase in auger resistance during advancement at 12.7'.	
								573.2		Auger refusal at 13.8' on probable bedrock.	
										13.8	
15										**Bottom of Exploration at 13.8 feet below ground surface.**	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1013185.9, E2275536.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-614

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	584.5	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-06-23/10-06-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7392+95.8, 77.2' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Measured
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-10': Olive, Silty Gravelly fine to coarse SAND.	
5											
10											
15								569.5		No refusal at 15.0', auger probe terminated. 15.0 **Bottom of Exploration at 15.0 feet below ground surface.**	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Hole caved after auger removal at 4.0', unable to measure water level.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1013239.8, E2275584.0).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-615

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	584.0	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-06-23/10-06-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7393+71.3, 118.0' Lt.	**Casing ID/OD:**	--	**Water Level*:**	7.6'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-11.7': Olive, wet, Silty Gravelly fine to coarse SAND.	
572.3										11.7	
										Increase in auger resistance at 11.7', probable fractured bedrock.	
571.4										Auger refusal at 12.6' on probable bedrock.	
										12.6	
										Bottom of Exploration at 12.6 feet below ground surface.	

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal. Hole caved at 8.0'.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1013323.2, E2275566.4).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-616

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	690.2	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-09-23/10-09-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7569+36.9, 106.1' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-8.2': Brown/grey, dry, gravelly fine to coarse SAND, little Silt.	
5											
								682.0		8.2	
								681.1		Increased auger resistance at 8.2', probable fractured bedrock. Auger refusal at 9.1' on probable bedrock. 9.1	
10										**Bottom of Exploration at 9.1 feet below ground surface.**	
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1030657.9, E2274454.4).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-617

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	689.4	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-09-23/10-09-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7569+97.9, 70.6' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor: 0.742		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	2-2-2-3	4	5	SSA	689.3		1D (Top 1"): Dark brown, moist, Sandy SILT, with roots, (Topsoil).	G#23-S-5180 A-4(0), SM WC=25.0%
										0.1	
										1D (Bottom 12"): Olive-brown, moist, soft, sandy SILT, some gravel, (Glacial Till).	
5	2D	14/14	5.0 - 6.2	16-47-50/2"	R					2D (Top 2"): Olive-brown, moist, gravelly SILT, some fine to coarse sand, (Glacial Till).	
								683.2		6.2	
								682.2		2D (Bottom 12)": Grey, dry, GRAVEL, little fine to coarse sand, little silt, (Fractured Bedrock).	
										Auger refusal at 7.2' on probable bedrock.	
										7.2	
										Bottom of Exploration at 7.2 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1030718.1, E2274491.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-618

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	682.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	
Date Start/Finish:	10-09-23/10-09-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7570+75.6, 117.2' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-5.5': Brown/olive, dry, Gravelly, fine to coarse SAND, little silt.	
5								676.6		5.5 Increase in auger resistance at 5.5', probable fractured bedrock.	
								674.5		Auger refusal at 7.6 on probable bedrock. 7.6 **Bottom of Exploration at 7.6 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1030796.9, E2274446.3).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-619

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	632.4	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-10-23/10-10-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7608+55.1, 108.2' Lt.	**Casing ID/OD:**	--	**Water Level*:**	4.4'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample; MD = Unsuccessful Split Spoon Sample Attempt; U = Thin Wall Tube Sample; MU = Unsuccessful Thin Wall Tube Sample Attempt; V = Field Vane Shear Test, PP = Pocket Penetrometer; MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample; SSA = Solid Stem Auger; HSA = Hollow Stem Auger; RC = Roller Cone; WOH = Weight of 140lb. Hammer; WOR/C = Weight of Rods or Casing; WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf); $S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf); q_p = Unconfined Compressive Strength (ksf); N-uncorrected = Raw Field SPT N-value; Hammer Efficiency Factor = Rig Specific Annual Calibration Value; N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency; N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf); WC = Water Content, percent; LL = Liquid Limit; PL = Plastic Limit; PI = Plasticity Index; G = Grain Size Analysis; C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	WOH-WOH-2-2	2	2	SSA 1	632.1		1D (Top 3"): Olive, wet, sandy SILT, some gravel, with roots/wood pieces, (Topsoil). 0.3 1D (Bottom 6"): Olive, wet, sandy SILT, some gravel, (Glacial Till).	
5	2D	24/7	5.0 - 7.0	6-11-11-14	22	27				Olive, wet, very stiff, Clayey SILT, some gravel, some fine to coarse sand, (Glacial Till).	G#23-S-5181 A-4(0), SM WC=12.8%
10	3D	17/13	10.0 - 11.4	32-43-50/5"	R			621.0		Grey/olive, wet, GRAVEL, some silt, some fine to coarse sand, (Glacial Till). 11.4 Splitspoon refusal at 11.4', probable fractured rock. Auger refusal at 13.3' on probable bedrock.	
								619.1		13.3 **Bottom of Exploration at 13.3 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1034387.0, E2273852.7).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-620

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	631.2	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	
Date Start/Finish:	10-10-23/10-10-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7609+31.0, 67.2' Lt.	**Casing ID/OD:**	--	**Water Level*:**	3.3'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-9.1': Olive, wet, sandy SILT, some gravel.	
5											
								622.1		9.1	
								621.4		Increase in auger resistance at 9.1', probable fractured bedrock.	
10										Auger refusal at 9.8' on probable bedrock. 9.8	
										Bottom of Exploration at 9.8 feet below ground surface.	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1034471.5, E2273845.6).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-621

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	626.9	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	
Date Start/Finish:	10-10-23/10-10-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7610+12.8, 107.3' Lt.	**Casing ID/OD:**	--	**Water Level*:**	6.2'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0 to 10.9': Olive, wet, gravelly SILT, some fine to coarse sand.	
10								616.0		10.9	
								615.3		Increase in resistance of auger at 10.9', probable fractured bedrock. Auger refusal at 11.6' on probable bedrock.	
										11.6	
										Bottom of Exploration at 11.6 feet below ground surface.	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1034514.3, E2273767.0).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-622

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	598.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-16-23/10-16-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	--
Boring Location:	328+28.6, 42.0' Rt.	**Casing ID/OD:**	3"/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			0'-0.8': Asphalt	
								597.3		0.8	
	1D	24/12	1.0 - 3.0	22-26-14-33	40	49				Grey, dry, dense, GRAVEL, some fine to coarse sand, trace silt, (Fill).	
5	2D	24/18	5.0 - 7.0	23-17-12-6	29	36				Olive, wet, hard, SILT, some fine to coarse sand, some gravel, (Fill).	G#23-S-5170 A-4(0), SM WC=11.2%
								589.6		8.5	
10	3D	24/12	10.0 - 12.0	22-11-6-4	17	21				Olive-brown, wet, medium dense, Silty CLAY, some gravel, some fine to coarse sand, (Glacial Till).	G#23-S-5183 A-6(1), GC WC=21.9%
15	4D	24/13	15.0 - 17.0	3-7-5-17	12	15				4D (Top 8"): Olive-brown, wet, very stiff, SILT, some fine to coarse sand, little gravel, (Glacial Till). 4D (Bottom 5"): Blue-grey, wet, gravelly SILT, some fine to coarse sand, (Glacial Till).	
	5D	24/5	18.5 - 20.5	11-20-32-30	52	64	R/C			Olive, wet, hard, SILT, some fine to coarse sand, some gravel, (Glacial Till).	G#23-S-5171 A-4(0), SM WC=8.8%
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036043.8, E2273141.4).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-622

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	598.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-16-23/10-16-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	--
Boring Location:	328+28.6, 42.0' Rt.	**Casing ID/OD:**	3"/3.5"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor: 0.742		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	6D	24/14	25.0 - 27.0	9-15-16-20	31	38				Olive, wet, dense, silty GRAVEL, some fine to coarse sand, (Glacial Till).	
30								566.1		32.0 Increase in roller cone resistance at 32.0', probable fractured bedrock. Roller cone refusal at 34.5'.	
								564.1		34.0 **Bottom of Exploration at 34.0 feet below ground surface.**	
35											
40											
45											
50											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036043.8, E2273141.4).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-623

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	600.4	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	SSA / Spin & Wash	**Core Barrel:**	N/A
Boring Location:	327+88.6, 44.6' Lt.	**Casing ID/OD:**	3"/3.5"	**Water Level*:**	6.8'
Hammer Efficiency Factor: 0.742		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/10	0.0 - 2.0	1-3-6-5	9	11	SSA	600.1		1D (Top 3"): Brown, moist, SILT, trace fine to coarse sand, with roots, (Topsoil).	
										0.3	
										1D (Bottom 7"): Brown/grey, moist, medium dense, GRAVEL, some silt, some fine to coarse sand, (Fill).	
										Intermittent increases in auger resistance indicate probable cobbles throughout.	
5	2D	24/6	5.5 - 7.5	5-50-19-12	69	85				Grey, wet, very dense, sandy GRAVEL, trace Silt,(Fill).	G#23-S-5172 A-1-a, GW-GM WC=7.4%
								592.4		8.0	
							R/C				
10	3D	24/6	10.0 - 12.0	2-3-3-4	6	7				Grey, wet, loose, GRAVEL, little silt, little fine to coarse sand, (Glacial Till).	G#23-S-5182 A-6(1), GM WC=21.9%
15	4D	24/9	15.0 - 17.0	7-8-8-12	16	20				Olive, wet, very stiff, gravelly SILT, little fine to coarse sand, (Glacial Till).	
								583.4		17.0	
										Bottom of Exploration at 17.0 feet below ground surface.	
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036128.5, E2273097.6).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-624

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	650.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-13-23/10-13-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7628+31.5, 164.5' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flights from 0'-2.5': Olive, SILT, some gravel, some sand.	
								647.6		2.5	
										Increase in auger resistance at 2.5', probable fractured bedrock.	
										Auger refusal at 5.2' on probable bedrock.	
5								644.9		5.2	
										Bottom of Exploration at 5.2 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1035795.1, E2272502.5).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-625

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	650.1	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-13-23/10-13-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7628+55.1, 107.6' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	1-4-7-10	11	14	SSA			Olive, moist, medium dense, sandy GRAVEL, little silt, (Glacial Till).	G#23-S-5173 A-1-b, GM WC=19.0%
								646.9		3.2	
										Increase in auger resistance at 3.2', probable fractured bedrock. Auger refusal at 4.6' on probable bedrock.	
								645.5		4.6	
5										**Bottom of Exploration at 4.6 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1035851.6, E2272526.8).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-626

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	650.5	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-13-23/10-13-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	7628+88.5, 158.4' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0										Material observed on auger flights from 0'-3.2': Olive, SILT, some gravel, some sand.	
								647.3		3.2	
										Increase in auger resistance at 3.2', probable fractured bedrock. Auger refusal at 4.6' on probable bedrock.	
								645.9		4.6	
5										**Bottom of Exploration at 4.6 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1035840.1, E2272467.1).

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-627

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	612.8	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	324+19.7, 117.4' Lt.	**Casing ID/OD:**	--	**Water Level*:**	6.1'
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/15	0.0 - 2.0	WOH-2-2-3	4	5	SSA			Brown/olive, moist, medium stiff, SILT, trace fine to coarse sand, trace gravel, roots in top 4", (Glacial Till).	
5	2D	24/12	5.0 - 7.0	14-13-10-15	23	28				Grey/olive, moist, medium dense, GRAVEL, some fine to coarse sand, some silt, (Glacial Till).	G#23-S-5174 A-2-4(0),GM WC=7.8%
								605.3		7.5	
								604.3		Increase in auger resistance at 7.5', probable fractured bedrock. Auger refusal at 8.5' on probable bedrock. 8.5	
10										**Bottom of Exploration at 8.5 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. Water level measured immediately after auger removal.
3. As-drilled boring locations were surveyed by MaineDOT in the field (N1036191.4, E2272729.4).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-628

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	625.8	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	--	**Core Barrel:**	--
Boring Location:	323+43.5, 76.9' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flight from 0'-5.9': Brown, dry, Sandy SILT, some gravel.	
5											
								619.9		5.9	
								619.0		Increase in auger resistance at 5.9', probable fractured bedrock. Auger refusal at 6.8' on probable bedrock. 6.8	
										Bottom of Exploration at 6.8 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036150.3, E2272654.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-629

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	615.9	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	--	**Core Barrel:**	--
Boring Location:	323+54.3, 164.4' Lt.	**Casing ID/OD:**	--	**Water Level*:**	8.2'
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
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MD = Unsuccessful Split Spoon Sample Attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample Attempt
V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flight from 0'-9.0': Brown, moist, SILT, some fine to coarse sand, some gravel.	
5											
								606.9		9.0	
10										Increase in auger resistance at 9.0', probable fractured bedrock. Auger refusal at 11.2' on probable bedrock.	
								604.7		11.2	
										Bottom of Exploration at 11.2 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured immediately after auger removal.
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036237.9, E2272664.3).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-630

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	663.9	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	316+89.2, 56.2' Lt.	**Casing ID/OD:**	3.0"	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	0.742	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	22/18	0.0 - 1.8	1-4-18-20/4"	22	27	SSA	661.7		Grey, dry, medium dense, GRAVEL, some fine to coarse sand, trace silt, (Fractured Bedrock). Auger refusal at 2.2' on probable bedrock.	
										2.2 **Bottom of Exploration at 2.2 feet below ground surface.**	
5											
10											
15											
20											
25											

Remarks:

1. Automatic hammer NEBC #D20 with an energy transfer ratio = 0.742
2. As-drilled boring locations were surveyed by MaineDOT in the field (N1036144.0, E2272003.2).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-631

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	666.6	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	--	**Core Barrel:**	--
Boring Location:	317+39.4, 119.9' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☐		

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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt

R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person

S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected

T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flight from 0'-2.5': Brown, dry, Silty fine to coarse SAND, some gravel.	
								664.1		2.5	
										Increase in auger resistance at 2.5', probable fractured bedrock.	
								662.0		Auger refusal at 4.6' on probable bedrock.	
5										4.6	
										Bottom of Exploration at 4.6 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1036205.3, E2272056.0).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass, Phase 2

Location: Presque Isle, Maine

Boring No.: HB-PB-632

WIN: 006462.92

Driller:	New England Boring Contractors	**Elevation (ft.)**	667.6	**Auger ID/OD:**	4.5"
Operator:	T. Schaefer	**Datum:**	NAVD88	**Sampler:**	--
Logged By:	E. Tome	**Rig Type:**	ATV-Mounted Mobile Drill Rig B53	**Hammer Wt./Fall:**	--
Date Start/Finish:	10-11-23/10-11-23	**Drilling Method:**	--	**Core Barrel:**	--
Boring Location:	316+48.9, 119.5' Lt.	**Casing ID/OD:**	--	**Water Level*:**	Not Encountered
Hammer Efficiency Factor:	N/A	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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V = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0							SSA			Material observed on auger flight from 0'-2.5': Brown, dry, Silty fine to coarse SAND, some gravel.	
								665.1		2.5	
										Increase in auger resistance at 2.5', probable fractured bedrock.	
										Auger refusal at 5.0' on probable bedrock.	
5								662.6		5.0	
										Bottom of Exploration at 5.0 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. As-drilled boring locations were surveyed by MaineDOT in the field (N1036209.3, E2271966.6).

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.

* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

RB-PB TEST BORING LOGS

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-111
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	605.6	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035243.7, N2273327.2	**Casing ID/OD:**		**Water Level*:**	+/- 1.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/8	0.0 - 2.0	WOR-1-2-3	3	3	HSA			Dark brown ORGANICS grading to moist, very loose, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL (REWORKED)- (GM)	
								603.6		2.0	
	2D	24/5	2.0 - 4.0	6-9-8-8	17	17				Brown, wet, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
	3D	24/17	4.0 - 6.0	4-9-11-16	20	20				Tan, damp, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL- (GM)	
5								599.6		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Boring location moved approximately 10.0' west of original location due to stream, downed trees, stumps, and risk of rig becoming stuck.
2. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-112
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	608.2	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035642.5, N2273069.9	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

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V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/13	0.0 - 2.0	2-2-3-4	5	5	HSA			Brown, damp, medium stiff, SILT with little Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/11	2.0 - 4.0	7-11-11-12	22	22				Brown, damp, medium dense, GRAVEL, some fine to coarse Sand, little Silt. -GLACIAL TILL (REWORKED)- (GM)	G#79 A-1-b, GM WC=13.5
								604.2		4.0	
	3D	24/12	4.0 - 6.0	12-9-7-6	16	16				Brown/gray, damp, medium dense, GRAVEL, some Silt. -GLACIAL TILL- (GM)	
5											
	4D	24/9	9.0 - 11.0	15-14-16-17	30	30				Brown/gray, damp, medium dense, GRAVEL, some Silt. -GLACIAL TILL- (GM)	
10											
	5D	24/15	14.0 - 16.0	17-17-16-22	33	33				Gray, damp, dense, silty GRAVEL, little fine to medium Sand. -GLACIAL TILL- (GM)	
15								592.2		16.0	
										Bottom of Exploration at 16.00 feet below ground surface.	
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-113
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	606.5	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035865.6, N2272961.6	**Casing ID/OD:**		**Water Level*:**	3.0'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/7	0.0 - 2.0	1-1-1-4	2	2	HSA			Brown, wet, loose, SILT, little Gravel, trace fine to medium Sand. -GLACIAL TILL- (ML)	
	2D	24/4	2.0 - 4.0	8-7-4-4	11	11				Brown, wet, medium dense, silty GRAVEL, some fine to medium Sand. -GLACIAL TILL- (GM)	
	3D	24/16	4.0 - 6.0	2-2-4-8	6	6				Brown, wet, loose, silty SAND, little Gravel. -GLACIAL TILL- (SM)	G#69 A-4, SM LL=22 PL=14 PI=8 WC=17.1
5											
	4D	24/10	9.0 - 11.0	14-16-16-20	32	32				Brown, damp, dense, GRAVEL, some Silt, some fine to coarse Sand. -GLACIAL TILL- (GM)	G#70 A-2-4, GM WC=7.5
10											
	5D	24/12	14.0 - 16.0	31-27-34-28	61	61				Brown, damp, very dense, silty GRAVEL, trace fine to medium Sand. -GLACIAL TILL- (GM)	
15								590.5		16.0 **Bottom of Exploration at 16.00 feet below ground surface.**	
20											
25											

Remarks:

1. Water level measured at completion of drilling; measured at 3.0' bgs and rising.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-121
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	610.0	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036098.2, N2272897.4	**Casing ID/OD:**		**Water Level*:**	4.6'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	4-24-30-35	54	54	HSA			Brown, damp, very dense, silty GRAVEL, trace fine Sand. -GLACIAL TILL (REWORKED)- (GM)	
	2D	24/23	2.0 - 4.0	23-34-36-25	70	70				Brown, damp, very dense, gravelly fine to coarse SAND, some Silt. -GLACIAL TILL (REWORKED)- (SM)	G#80 A-1-b, SM WC=13.0
								606.0		4.0	
	3D	24/11	4.0 - 6.0	14-10-13-17	23	23				Brown/gray, moist/wet, medium dense, silty GRAVEL, trace fine to coarse Sand. -GLACIAL TILL- (GM)	
5								604.0		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-122
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	604.1	**Auger ID/OD:**	3-1/2"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036245.5, N2272855.3	**Casing ID/OD:**		**Water Level*:**	4.5'
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-3-4-5	7	7	SSA			Top 4": Topsoil Brown, wet, loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#81 A-4, SM WC=20.0
	2D	24/13	2.0 - 4.0	1-3-4-6	7	7				Brown, wet, medium stiff, gravelly SILT. -GLACIAL TILL- (ML)	
	3D	24/9	4.0 - 6.0	4-12-16-15	28	28				Brown, moist, medium dense, silty GRAVEL, trace fine to medium Sand. -GLACIAL TILL- (GM)	
5											
								595.1		9.0	
	4D	5/9	9.0 - 9.4	75/5"	R			594.7		Brown, wet, very dense, silty GRAVEL. -WEATHERED/FRACTURED BEDROCK- (GM)	G#83 A-4, SM WC=8.8
10										9.4	
								593.4		Split spoon refusal at 9.4' (El. 594.7), possible bedrock. Drilled with auger to 10.7'; practical refusal.	
										10.7	
										Bottom of Exploration at 10.70 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling inside of augers.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-123
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	610.4	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036438.9, N2272699.4	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	4-1-3-3	4	4	HSA			Dark brown, damp, soft, SILT, trace Gravel and Organics (fine roots). -GLACIAL TILL (REWORKED)- (ML)	
								608.4		2.0	
	2D	24/11	2.0 - 4.0	4-5-9-5	14	14				Brown, moist, medium dense, silty GRAVEL, trace fine Sand. -GLACIAL TILL- (GM)	
	3D	24/16	4.0 - 6.0	4-6-10-8	16	16				Brown, moist/damp, medium dense, silty GRAVEL, trace fine to medium Sand. -GLACIAL TILL- (GM)	
5								604.4		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-124
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	625.2	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/9/14 - 4/9/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036496.6, N2272462.0	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	1-2-3-4	5	5	HSA	625.2		Top 4": Topsoil Brown, damp, medium stiff, SILT, trace Gravel. -GLACIAL TILL (REWORKED)- (ML)	
								623.2		2.0	
	2D	24/15	2.0 - 4.0	3-3-2-7	5	5				Brown, damp, medium stiff, SILT, little Gravel. -GLACIAL TILL- (ML)	
	3D	24/18	4.0 - 6.0	7-6-7-7	13	13				Brown, damp/moist, stiff, SILT, little Gravel, trace Sand. -GLACIAL TILL- (ML)	
5											
	4D	24/22	9.0 - 11.0	14-14-20-20	34	34				Brown, damp, dense, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	G#83 A-5, SM WC=8.8
10											
	5D	24/22	14.0 - 16.0	23-24-27-74	51	51				Brown, damp, very dense, silty GRAVEL. -GLACIAL TILL- (GM)	
15								609.2		16.0	
										Bottom of Exploration at 16.00 feet below ground surface.	
20											
25											

Remarks:

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-125
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	651.7	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/14 - 4/8/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036538.8, N2272216.5	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/16	0.0 - 2.0	6-5-4-8	9	9	HSA			Brown, damp, stiff, SILT, some Gravel. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/9	2.0 - 4.0	7-9-10-10	19	19				Brown, damp, medium dense, silty GRAVEL, some fine to coarse Sand. -GLACIAL TILL (REWORKED)- (GM)	
	3D	13/10	4.0 - 5.1	12-17-50/1"	67	67		647.7		4.0	
5								646.6		Brown/gray, damp, very dense, silty GRAVEL, little fine to coarse Sand. -GLACIAL TILL- (GM) Split spoon refusal at 5.1' (El. 646.6), possible bedrock. 5.1	
										Bottom of Exploration at 5.10 feet below ground surface.	
10											
15											
20											
25											

Remarks:

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-126
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	658.8	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/8/14 - 4/8/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036667.3, N2272007.6	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/19	0.0 - 2.0	6-9-5-5	F	0	HSA			Brown, frozen, gravelly SILT, little fine to coarse Sand. -GLACIAL TILL (REWORKED)- (ML)	
	2D	24/10	2.0 - 4.0	3-10-17-16	27	27				Reddish-brown, damp, medium dense, silty GRAVEL. Weathered Rock in tip of spoon. -GLACIAL TILL (REWORKED)- (GM)	
	3D	24/12	4.0 - 6.0	6-6-7-7	13	13		654.8		4.0	
5								652.8		Gray, damp, medium dense, sandy GRAVEL, trace Silt. -WEATHERED/FRACTURED BEDROCK- (GW-GM) 6.0 **Bottom of Exploration at 6.00 feet below ground surface.**	G#82 A-1-a, GW-GM WC=9.2
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

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Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-127
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	662.0	**Auger ID/OD:**	2.25"/6.0"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1036868.0, N2271859.3	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor:	0.6	**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	11-11-11-8	F	0	HSA			Olive-brown, moist, fine to coarse SAND, some Silt, little Gravel, poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/6	2.0 - 4.0	5-5-4-5	9	9		659.7		Top 3": Olive-brown, moist, fine to coarse SAND, some Silt, little Gravel, poorly graded, frozen.	
										2.3	
	3D	24/14	4.0 - 6.0	5-7-6-16	13	13				Bottom 3": Brown-gray, moist, loose, silty fine to coarse SAND, little Gravel, poorly graded, vertical bedding (highly weathered). -WEATHERED/FRACTURED BEDROCK- (SM)	G#71 A-1-b, GM WC=16.2
5								656.0		Top 5": Olive-brown, moist, fine to coarse SAND, some Silt, little Gravel, poorly graded, frozen. Bottom 9": Gray, moist, GRAVEL, some fine to coarse Sand, little Silt, poorly graded, vertical bedding (moderately weathered). -WEATHERED/FRACTURED BEDROCK- (GM)	
								653.8		6.0	
										Possible bedrock. Increased auger resistance at 6.8', increasing resistance to 8.2' practical refusal.	
10										8.2	
										Bottom of Exploration at 8.20 feet below ground surface.	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 36" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-131
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	633.6	**Auger ID/OD:**	2.25"/6.0"
Operator:	Brad Enos	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Brad Tirone	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/10/14 - 4/10/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035361.5, N2273123.6	**Casing ID/OD:**		**Water Level*:**	8.5'
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/6	0.0 - 2.0	1-1-2-6	3	3	HSA			Leaf litter, brown, moist, very loose, silty fine to coarse SAND, some Gravel. -GLACIAL TILL- (SM)	
	2D	24/12	2.0 - 4.0	7-5-8-11	13	13				Brown, moist, medium dense, silty GRAVEL, little fine to medium Sand. -GLACIAL TILL- (GM)	
	3D	24/9	4.0 - 6.0	2-3-4-10	7	7				Brown, wet, loose, silty SAND, some Gravel. -GLACIAL TILL- (SM)	G#72 A-4, SM WC=16.1
5											
	4D	2/2	9.0 - 9.2	75/3"	R			624.6		9.0	
								624.4		Gray, dry, slightly weathered ROCK fragments. -POSSIBLE WEATHERED/FRACTURED BEDROCK- Split spoon refusal at 9.2' (El. 624.4), possible bedrock.	
10										9.2	
								622.1		Drilled with auger to 11.5'; practical refusal.	
										11.5	
										Bottom of Exploration at 11.50 feet below ground surface.	
15											
20											
25											

Remarks:

1. Water level measured at completion of drilling; augers were removed. Hole open to 9.0'.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-132
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	635.4	**Auger ID/OD:**	2.25"/6.0"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/14 - 4/2/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035668.4, N2272729.8	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/18	0.0 - 2.0	1-2-2-4	4	4	HSA			Top 4": Topsoil Olive, moist, loose, fine to coarse SAND, some Silt, little Gravel. -GLACIAL TILL- (SM)	
	2D	24/13	2.0 - 4.0	6-7-7-7	14	14				Olive, moist, medium dense, fine to coarse SAND, some Silt, some Gravel. -GLACIAL TILL- (SM)	
	3D	24/16	4.0 - 6.0	7-11-11-10	22	22				3D same as sample 2D.	
5											
	4D	24/16	8.5 - 10.5	13-13-11-14	24	24				Olive, moist, medium dense, silty SAND, some Gravel. -GLACIAL TILL- (SM)	G#73 A-4, SM WC=9.7
10											
	5D	1/0.5	13.5 - 13.6	100/1"	R			621.9 621.8		13.5 Split spoon refusal at 13.6' (El. 621.8). Possible bedrock. Rock fragments and pulverized Rock. -POSSIBLE BEDROCK- 13.6 **Bottom of Exploration at 13.60 feet below ground surface.**	
15											
20											
25											

Remarks:

1. Approximately 40" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-133
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	650.5	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/2/14 - 4/2/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1035709.3, N2272497.4	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
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MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	15-18-20-17	F	0	SSA			Frozen, olive, fine to coarse SAND, some Silt, trace Gravel. -GLACIAL TILL (REWORKED)- (GM)	
								648.5		2.0	
	2D	24/13	2.0 - 4.0	17-15-12-12	27	27				Olive, moist, medium dense, fine to coarse SAND, some Silt, trace Gravel. -GLACIAL TILL- (SM)	
	3D	24/18	4.0 - 6.0	11-11-23-37	34	34		646.2		Top 4": Same as sample 2D.	
5										4.3 Middle 10": Brown, SILT, little fine to medium Sand, little Gravel. (Weathered Rock) Bottom 4": Gray, fractured Rock. -WEATHERED/FRACTURED BEDROCK-	
								644.5		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. Approximately 26" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-134
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	652.8	**Auger ID/OD:**	2.25"/6.0"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	HSA	**Core Barrel:**	--
Boring Location:	E1035700.1, N2272246.8	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	11-18-11-14	F	0	HSA	650.8		Olive-brown, fine to coarse SAND, some Silt, little Gravel, frozen, poorly graded. -GLACIAL TILL (REWORKED)- (GM)	
										2.0	
	2D	24/18	2.0 - 4.0	11-10-7-8	F	0				Olive-brown, fine to coarse SAND, some Gravel, little Silt, moist, top 4" frozen, poorly graded. -GLACIAL TILL- (SM)	
	3D	24/20	4.0 - 6.0	10-7-13-16	20	20				Brown-olive, moist, very stiff, lean CLAY, some fine to coarse Sand, little Gravel, poorly graded. -GLACIAL TILL- (CL)	G#74 A-4, CL LL=23 PL=14 PI=9 WC=12.9
5											
	4D	24/13	9.5 - 11.5	16-13-10-11	23	23				Brown, moist, medium dense, fine to coarse, sandy GRAVEL, some Silt, poorly graded. -GLACIAL TILL- (GM)	
10											
	5D	24/12	14.5 - 16.5	15-12-15-42	27	27		638.3		14.5	
15										Brown-gray, medium dense, GRAVEL, some fine to coarse Sand, little Silt, poorly graded. (Highly Weathered Bedrock) -WEATHERED/FRACTURED BEDROCK-(GP)	
								636.3		16.5	
										Bottom of Exploration at 16.50 feet below ground surface.	
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-135
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	664.4	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1035804.1, N2272032.4	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	12-25-24-20	F	0	SSA	663.4		Top 12": Brown-olive, fine to coarse SAND, some Silt, little Gravel, frozen, poorly graded. -GLACIAL TILL- (SM)	
										1.0	
	2D	24/17	2.0 - 4.0	15-21-37-56	58	58				Bottom 12": Completely Weathered BEDROCK, with vertical foliation. -WEATHERED/FRACTURED BEDROCK- (GP)	
								660.2		Top 4": Completely Weathered BEDROCK, with vertical foliation. Bottom: Gray, Weathered BEDROCK, vertical foliation with occasional white bands. -WEATHERED/FRACTURED BEDROCK- (GP)	
	3D	2/0	4.0 - 4.2	100/2"	R					4.2	
5										**Bottom of Exploration at 4.20 feet below ground surface.**	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 18" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-136
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	670.3	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036024.4, N2271908.0	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
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R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/24	0.0 - 2.0	18-26-33-25	F	0	SSA			Top 21": Brown-olive, fine to coarse SAND, some Silt, some Gravel, poorly graded, frozen. -GLACIAL TILL- (SM)	
								668.6		1.7	
	2D	24/18	2.0 - 4.0	17-17-19-28	36	36				Bottom 3": Gray, weathered BEDROCK.	G#75 A-1-a, GM WC=19.3
										Interbedded, brown-gray, highly weathered BEDROCK, weathered to completely Silt in intermittent layers. -WEATHERED/FRACTURED BEDROCK-	
	3D	24/15	4.0 - 6.0	23-41-70-53	>100					Top 6": Same as sample 2D. Bottom 9": Gray, weathered BEDROCK, vertical foliation with intermittent, white partings. -WEATHERED/FRACTURED BEDROCK-	
5								664.3		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 14" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-141
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	671.2	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036344.5, N2271842.2	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/12	0.0 - 2.0	22-27-23-19	F	0	SSA			Brown, fine to coarse SAND, some Gravel, little Silt, frozen. -GLACIAL TILL (REWORKED)- (SP)	
								669.2		2.0	
	2D	24/14	2.0 - 4.0	9-17-12-11	F	0				2D same as sample 1D, top 8" frozen, bottom moist. -GLACIAL TILL- (SP)	
	3D	24/4	4.0 - 6.0	3-5-3-4	8	8				Brown, moist, loose, gravelly fine to coarse SAND, little Silt, poorly graded. -GLACIAL TILL- (SM)	
5								665.2		6.0	
										Bottom of Exploration at 6.00 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 63" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-142
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	669.5	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036567.8, N2271791.9	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/22	0.0 - 2.0	11-12-11-13	F	0	SSA			Olive-brown, silty SAND, some Gravel, organic fibers in upper 12", poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	
	2D	24/16	2.0 - 4.0	12-11-12-25	F	0		666.9		Top 7": Olive-brown, silty SAND, some Gravel, organic fibers in upper 12", poorly graded, frozen.	G#76 A-4, SM WC=22.8
										2.6	
	3D	19/8	4.0 - 5.6	34-30-58-50/1"	88	88				Bottom 9": Gray-brown, moist, fine to coarse SAND, some Gravel, some Silt, poorly graded, top 6" frozen (highly weathered). -WEATHERED/FRACTURED BEDROCK- (SM)	
5								663.9		Top 2": same as sample 2D. Bottom 6": Gray, moist, GRAVEL, little fine to coarse Sand, trace Silt, poorly graded (moderately weathered). -WEATHERED/FRACTURED BEDROCK- (GP)	
										5.6	
										Bottom of Exploration at 5.60 feet below ground surface.	
10											
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 14" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Presque Isle Bypass Segment 2
Location: Presque Isle, Maine

Boring No.: RB-PB-143
PIN: 6462.91

Driller:	Maine Test Boring	**Elevation (ft.)**	664.1	**Auger ID/OD:**	3-1/2"
Operator:	Mike Porter	**Datum:**	NAVD 88	**Sampler:**	Split Spoon
Logged By:	Eric Baron	**Rig Type:**	Mobile B53 Track	**Hammer Wt./Fall:**	140/30
Date Start/Finish:	4/3/14 - 4/3/14	**Drilling Method:**	SSA	**Core Barrel:**	--
Boring Location:	E1036814.0, N2271740.4	**Casing ID/OD:**		**Water Level*:**	None Observed
Hammer Efficiency Factor: 0.6		**Hammer Type:**	Automatic ☐ Hydraulic ☐ Rope & Cathead ☒		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (psf)
WC = water content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/23	0.0 - 2.0	10-11-9-7	F	0				Olive-brown, fine to coarse SAND, some Silt, little Gravel, poorly graded, frozen. -GLACIAL TILL (REWORKED)- (SM)	
								662.1		2.0	
	2D	24/19	2.0 - 4.0	27-31-25-24	56	56				Gray, moist, very dense, GRAVEL, some fine to coarse Sand, trace Silt, well graded (moderately weathered). -WEATHERED/FRACTURED BEDROCK- (GP-GM)	G#77 A-1-a, GP-GM WC=7.4
	3D	24/16	4.0 - 6.0	30-28-31-46	59	59				Top 3": same as sample 2D.	G#78 A-2-4, SM WC=18.8
5	4D	1/0	6.0 - 6.1	50/1"	R			658.0		Middle 11": Gray-grown, moist, very dense, fine to coarse SAND, some Gravel, some Silt, poorly graded, horizontal bedding (highly weathered). -WEATHERED/FRACTURED BEDROCK- (SM)	
										Bottom 2": Gray Bedrock piece (moderately weathered). -WEATHERED BEDROCK- (GP)	
										6.1	
10										**Bottom of Exploration at 6.10 feet below ground surface.**	
15											
20											
25											

Remarks:

1. "F" indicates frozen soil sampled; blow counts not necessarily representative of penetration resistance.
2. Approximately 27" of snow at boring location at time of drilling.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been made at times and under conditions stated. Groundwater fluctuations may occur due to conditions other than those present at the time measurements were made.

APPENDIX C – HIGHWAY BORING LOCATION PLANS (BY OTHERS)

Usernam: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

STA. 7320+00
BEGIN APPROACH
MATCH EXISTING
LIMIT OF WORK

STA. 7320+50
END APPROACH
BEGIN PROJECT NO. 6462.92
BEGIN FULL CONSTRUCTION

REMOVE (7) TREES
REMOVE (2) TREES
REMOVE POLE
(BY OTHERS)
REMOVE FIELD ENTRANCE
REMOVE
INSTALL OPT-I
24" X 39'
RELOCATE
REMOVE EXISTING PAVEMENT,
LOAM AND SEED (TYP.)
REMOVE
INSTALL OPT-I
18" X 50'
REMOVE
RELOCATE
REMOVE
INSTALL OPT-III
18" X 88'
INSTALL
OPT-I
18" X 54'
RELOCATE
REMOVE
INSTALL OPT-I
18" X 50'
RELOCATE
REMOVE
INSTALL OPT-I
18" X 50'
RELOCATE
INSTALL OPT-I
18" X 50'
INSTALL OPT-I
24" X 63'

U.S. ROUTE 1
U.S. U.S. ROUTE 1
U.S. ROUTE 1 BYPASS
MATCH LINE

HB-PB-313
HB-PB-314
HB-PB-315
HB-PB-316
HB-PB-317
HB-PB-318
HB-PB-319
HB-PB-320(OW)
HB-PB-601
HB-PB-602
HB-PB-602A
HB-PB-603

N19°31'17.88"W
S55°49'05"W 21+00

PC = STA. 7322+83.39

POB = STA. 20+00.00
STA. 7333+00.00

POLE REMOVED
(BY OTHERS)

BYPASS
CURVE DATA #1
PI = 7338+02.81
D = 1°28'08.8"
Δ = 42°34'16.3" Rt.
R = 3900.00'
L = 2897.73'
T = 1519.42'
E = 285.53'

NOTE: REFUSALS AND GROUNDWATER ARE SHOWN ON PROFILE FOR REVIEW PURPOSES ONLY AND WILL BE DELETED PRIOR TO PS&E.

STA. 7320+00
BEGIN APPROACH
LIMIT OF WORK
MATCH EXISTING PAVEMENT

G = -4.51%

PVC = STA. 7320+00.00
ELEV. = 665.61'

STA. 7320+50
END APPROACH
BEGIN FULL DEPTH
CONSTRUCTION

PVI = STA. 7322+00.00
ELEV. = 656.59'

HB-PB-314
STA. 7322+01.00
OFF. 22.39' RT.
APPROX. EL. 649.40

HB-PB-315
STA. 7324+51.32
OFF. 18.09' RT.
APPROX. EL. 634.60

PVT = STA. 7324+00.00
ELEV. = 642.76'

V.C.L. = 400'
SSD = 648'
E = -1.204'

G = -6.92%

HB-PB-316
STA. 7326+99.98
OFF. -0.47' LT.
APPROX. EL. 615.80

PROFILE GRADE
EXISTING GROUND

HB-PB-601
STA. 7329+13.99
OFF. 148.73' RT.
APPROX. EL. 606.50

HB-PB-602A
STA. 7329+76.01
OFF. 80.85' RT.
APPROX. EL. 605.70

HB-PB-602
STA. 7329+70.97
OFF. 80.04' RT.
APPROX. EL. 607.10

HB-PB-603
STA. 7330+16.78
OFF. 150.30' RT.
APPROX. EL. 604.70

G = -6.92%

HB-PB-319
STA. 7331+99.23
OFF. 63.88' RT.
APPROX. EL. 583.40

HB-PB-318
STA. 7331+99.44
OFF. -60.73' LT.
APPROX. EL. 580.80

PROFILE

7319+00	EL. 669.70
7320+00	EL. 667.67
7321+00	EL. 665.61 / EL. 665.61
7322+00	EL. 663.48 / EL. 663.28
7323+00	EL. 661.23 / EL. 660.80
7324+00	EL. 658.55 / EL. 658.17
7325+00	EL. 655.71 / EL. 655.39
7326+00	EL. 652.75 / EL. 652.46
7327+00	EL. 649.70 / EL. 649.38
7328+00	EL. 646.50 / EL. 646.14
7329+00	EL. 643.19 / EL. 642.76
7330+00	EL. 639.83 / EL. 639.30
7331+00	EL. 636.29 / EL. 635.84
7332+00	EL. 632.67 / EL. 632.39
7333+00	EL. 629.16 / EL. 628.93
	EL. 625.55 / EL. 625.47
	EL. 621.68 / EL. 622.01
	EL. 617.39 / EL. 618.55
	EL. 612.00 / EL. 615.10
	EL. 610.04 / EL. 611.64
	EL. 609.84 / EL. 608.18
	EL. 607.12 / EL. 604.72
	EL. 606.09 / EL. 601.26
	EL. 605.60 / EL. 597.80
	EL. 597.34 / EL. 594.35
	EL. 594.86 / EL. 590.89
	EL. 593.28 / EL. 587.43
	EL. 590.96 / EL. 583.97
	EL. 589.11 / EL. 580.51

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-2
109
OF 717

Usernname: jomesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

CLEAN EXISTING PIPE

REMOVE

BEGIN C.O.A.

CURB

CLL

CLARK BROOK

STA. 405+28.
STA. 103+50.0

MATCH 12.0' 103+00

404+00

SOUTHERN CONNECTOR

102+00

MATCH LINE

101+00

403+00

CB-PB-501

CB-PB-311

CB-PB-312

CB-PB-313

CB-PB-314

CB-PB-504

HB-PB-303

HB-PB-324

HB-PB-325

HB-PB-326

HB-PB-323

HB-PB-322

HB-PB-321

HB-PB-320(OW)

STA. 400+00.00
STA. 7341+43.98

400+00

401+00

402+00

N7°48'45.84"E

MATCH LINE

PI-BYPASS

FLUSH CONCRETE

COMPOST FILTER (TYP.)

INSTALL OPT-I
18" X 50'

INSTALL OPT-I
63'

INSTALL RCP
30" X 156'

INSTALL ARCH CULVERT
30' S X 17.3' R X 160' L
(SEE ARCH CULVERT
DETAIL SHEET)

POB = STA. 20+00.00
STA. 7333+00.00

POB = STA. 101+00.00
STA. 7345+50.00

BYPASS
CURVE DATA #1
PI = 7338+02.81
D = 1°28'08.8"
Δ = 42°34'16.3" Rt.
R = 3900.00'
L = 2897.73'
T = 1519.42'
E = 285.53'

7333+00 7334+00 7335+00 7336+00 7337+00 7338+00 7339+00 7340+00 7341+00 7342+00 7343+00 7344+00 7345+00 7346+00 7347+00

590 585 580 575 570 565 560 555 550 545 540 535 530 525 520 515 510 505 500

PVC = STA. 7334+35.00
ELEV. = 571.18

V.C.L. = 1200'
HLSD = 540'
E = 14.124'

G = -6.92%

PVT = STA. 7346+35.00
ELEV. = 544.68

G = 2.50%

PROFILE GRADE

LOW POINT = STA. 7343+16.44
ELEV. = 540.70

EXISTING GROUND

PVI = STA. 7340+35.00
ELEV. = 529.68

HB-PB-320(OW)
STA. 7333+64.43
OFF. 60.00 RT.
APPROX. EL. 572.80

HB-PB-322
STA. 7333+64.55
OFF. -48.77 LT.
APPROX. EL. 569.00

HB-PB-321
STA. 7333+64.97
OFF. 0.40 RT.
APPROX. EL. 567.90

HB-PB-323
STA. 7335+98.39
OFF. 3.78 RT.
APPROX. EL. 551.40

HB-PB-324
STA. 7339+52.33
OFF. -20.49 LT.
APPROX. EL. 521.90

HB-PB-325
STA. 7341+66.02
OFF. -40.04 LT.
APPROX. EL. 512.10

CB-PB-501
STA. 7343+49.40
OFF. -82.94 LT.
APPROX. EL. 504.70

CB-PB-311
STA. 7343+92.67
OFF. -93.33 LT.
APPROX. EL. 511.00

CB-PB-312
STA. 7343+80.27
OFF. -35.59 LT.
APPROX. EL. 507.20

CB-PB-503
STA. 7344+31.73
OFF. 21.18 RT.
APPROX. EL. 503.90

CB-PB-502
STA. 7344+37.15
OFF. -61.39 LT.
APPROX. EL. 504.90

HB-PB-306
STA. 7344+40.21
OFF. -387.80 LT.
APPROX. EL. 513.70

CB-PB-504
STA. 7344+48.65
OFF. 79.67 RT.
APPROX. EL. 508.10

CB-PB-313
STA. 7344+79.52
OFF. 9.49 RT.
APPROX. EL. 508.00

CB-PB-314
STA. 7345+38.44
OFF. 73.77 RT.
APPROX. EL. 506.60

HP-PB-502
STA. 7345+83.14
OFF. -515.57 LT.
APPROX. EL. 553.10

HB-PB-303
STA. 7345+47.00
OFF. 6.63 RT.
APPROX. EL. 509.30

HB-PB-305
STA. 7345+94.70
OFF. -400.97 LT.
APPROX. EL. 533.80

EL. 589.11 EL. 580.51
EL. 585.23 EL. 577.06
EL. 582.65 EL. 573.60
EL. 579.71 EL. 570.15
EL. 574.39 EL. 566.85
EL. 567.84 EL. 563.74
EL. 561.17 EL. 560.83
EL. 552.84 EL. 558.12
EL. 547.96 EL. 555.60
EL. 540.09 EL. 553.28
EL. 536.48 EL. 551.16
EL. 532.73 EL. 549.23
EL. 529.68 EL. 547.50
EL. 530.28 EL. 545.96
EL. 527.28 EL. 544.62
EL. 521.71 EL. 543.48
EL. 520.37 EL. 542.53
EL. 520.12 EL. 541.78
EL. 522.79 EL. 541.23
EL. 518.67 EL. 540.87
EL. 516.26 EL. 540.71
EL. 514.07 EL. 540.74
EL. 512.28 EL. 540.97
EL. 509.30 EL. 541.40
EL. 514.86 EL. 542.02
EL. 514.96 EL. 542.84
EL. 514.32 EL. 543.85
EL. 517.76 EL. 545.05
EL. 524.41 EL. 546.30

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

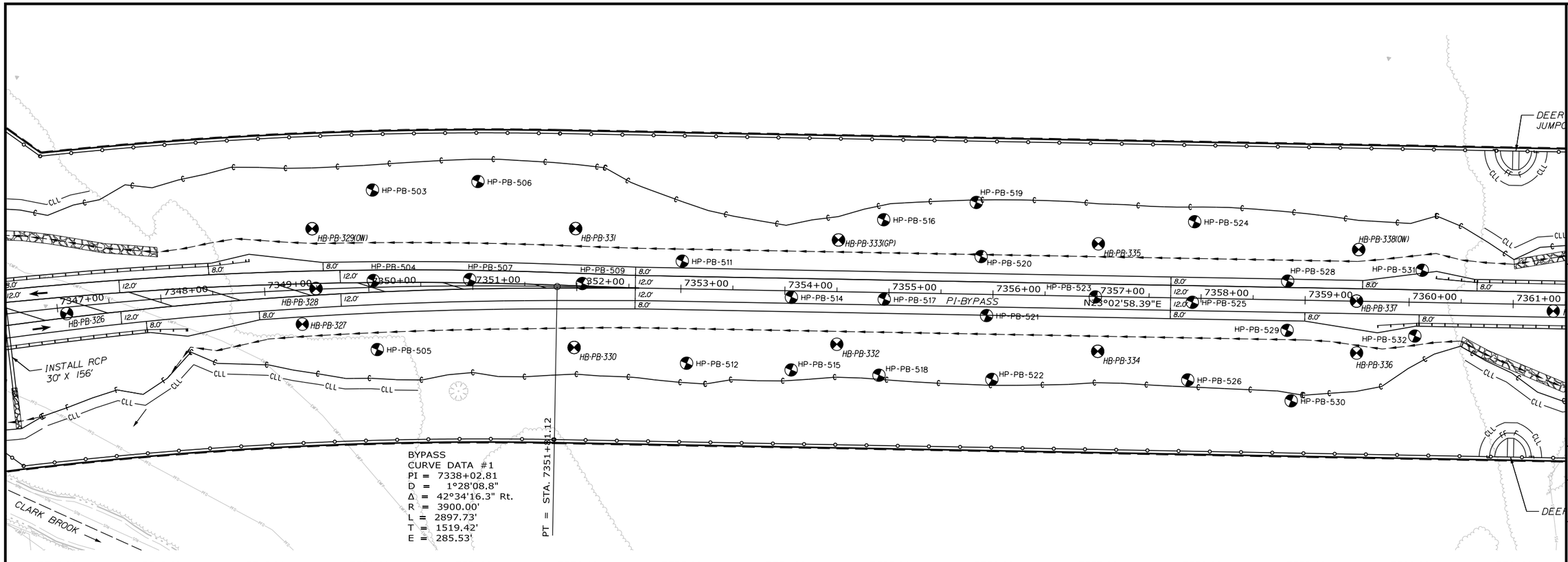
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DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

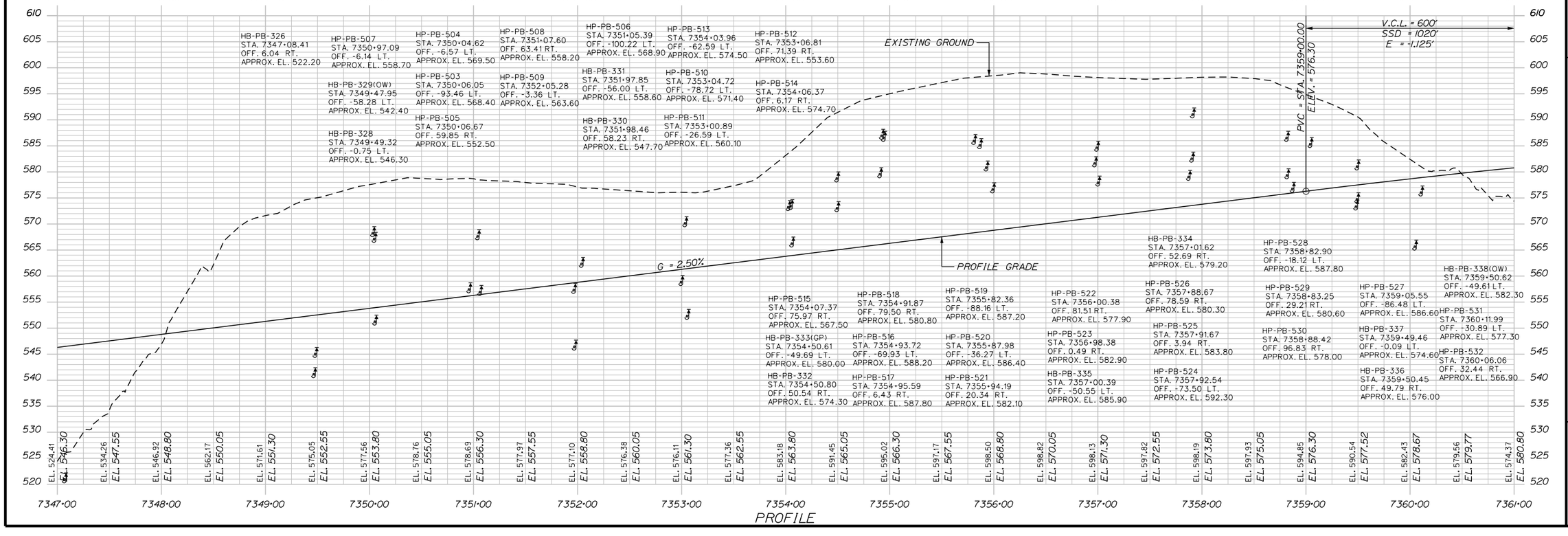
PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-3
110
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.	
DESIGN-DETAILED	ZBW	JBD
CHECKED-REVIEWED	ECF	AG
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

DATE
7/15/2025
7/15/2025

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-4
111
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

DEER ESCAPE JUMPOUT

PC = STA. 7361+93.78

DRAINAGE TREATMENT AREA

HB-PB-605

HB-PB-609

CB-PB-321

HB-PB-607

B1

INSTALL RCP 24" X 92' (EQUALIZATION CULVERT)

BYPASS
CURVE DATA #2
PI = 7370+69.73
D = 0°08'35.7"
Δ = 2°30'32.5" Lt.
R = 40000.00'
L = 1751.62'
T = 875.95'
E = 9.59'

8.0' / 12.0' / 8.0'

7361+00 HB-PB-339 | 7362+00 | 7363+00 | 7364+00 HB-PB-340 | 7365+00 | 7366+00 HB-PB-341 | 7367+00 | 7368+00 | 7369+00 | 7370+00 P1-BYPASS | 7371+00 | 7372+00 HB-PB-343 | 7373+00 | 7374+00 HB-PB-344 | 7375+00

CB-PB-322

HB-PB-606

B2

HB-PB-604

HB-PB-608

DRAINAGE TREATMENT AREA

PROPOSED 12' S X 10' R X 120' L PRECAST CONCRETE 3-SIDED CULVERT (SEE CULVERT DETAIL SHEET)

DEER ESCAPE JUMPOUT

7361+00 7362+00 7363+00 7364+00 7365+00 7366+00 7367+00 7368+00 7369+00 7370+00 7371+00 7372+00 7373+00 7374+00 7375+00

V.C.L. = 600'
SSD = 1020'
E = -1.125'

PVI = STA. 7362+00.00
ELEV. = 583.80

PVT = STA. 7365+00.00
ELEV. = 586.80

HB-PB-604
STA. 7364+29.51
OFF. 112.17 RT.
APPROX. EL. 564.70

HB-PB-605
STA. 7364+94.31
OFF. -115.77 LT.
APPROX. EL. 562.80

HB-PB-340
STA. 7364+55.91
OFF. 0.86 RT.
APPROX. EL. 559.80

HB-PB-606
STA. 7365+04.53
OFF. 67.55 RT.
APPROX. EL. 571.10

PROFILE GRADE

G = 1.00%

EXISTING GROUND

CB-PB-322
STA. 7362+07.00
OFF. 56.55 RT.
APPROX. EL. 553.20

CB-PB-321
STA. 7362+58.07
OFF. -87.23 LT.
APPROX. EL. 553.30

HB-PB-339
STA. 7361+38.62
OFF. 6.06 RT.
APPROX. EL. 569.10

HB-PB-607
STA. 7365+66.96
OFF. -74.94 LT.
APPROX. EL. 566.30

HB-PB-608
STA. 7365+77.82
OFF. 114.82 RT.
APPROX. EL. 570.20

635 630 625 620 615 610 605 600 595 590 585 580 575 570 565 560 555 550 545

EL. 574.37	EL. 573.85	EL. 561.63	EL. 557.51	EL. 557.96	EL. 563.08	EL. 569.01	EL. 573.80	EL. 576.96	EL. 579.77	EL. 577.17	EL. 582.00	EL. 584.66	EL. 584.06	EL. 585.05
EL. 580.80	EL. 581.77	EL. 582.67	EL. 583.62	EL. 584.30	EL. 585.02	EL. 585.67	EL. 586.27	EL. 586.80	EL. 587.30	EL. 587.80	EL. 588.30	EL. 588.80	EL. 589.30	EL. 589.80

EL. 586.27	EL. 588.33	EL. 590.19	EL. 591.39	EL. 591.52	EL. 591.94	EL. 590.59	EL. 589.32	EL. 588.57	EL. 590.07	EL. 589.55	EL. 590.21	EL. 591.50	EL. 593.22
EL. 590.30	EL. 590.80	EL. 591.30	EL. 591.80	EL. 592.30	EL. 592.80	EL. 593.30	EL. 593.80	EL. 594.30	EL. 594.80	EL. 595.30	EL. 595.80	EL. 596.30	EL. 596.80

7361+00 7362+00 7363+00 7364+00 7365+00 7366+00 7367+00 7368+00 7369+00 7370+00 7371+00 7372+00 7373+00 7374+00 7375+00

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-5
112
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

BYPASS
CURVE DATA #2
PI = 7370+69.73
D = 0°08'35.7"
Δ = 2°30'32.5" Lt.
R = 40000.00'
L = 1751.62'
T = 875.95'
E = 9.59'

PT = STA. 7379+45.41

BYPASS
CURVE DATA #3
PI = 7422+26.31
D = 0°35'15.5"
Δ = 39°56'50.9" Lt.
R = 9750.00'
L = 6797.84'
T = 3543.65'
E = 624.00'

PC = STA. 7386+82.67

DEER ESCAPE JUMPOUT

DEER ESCAPE JUMPOUT

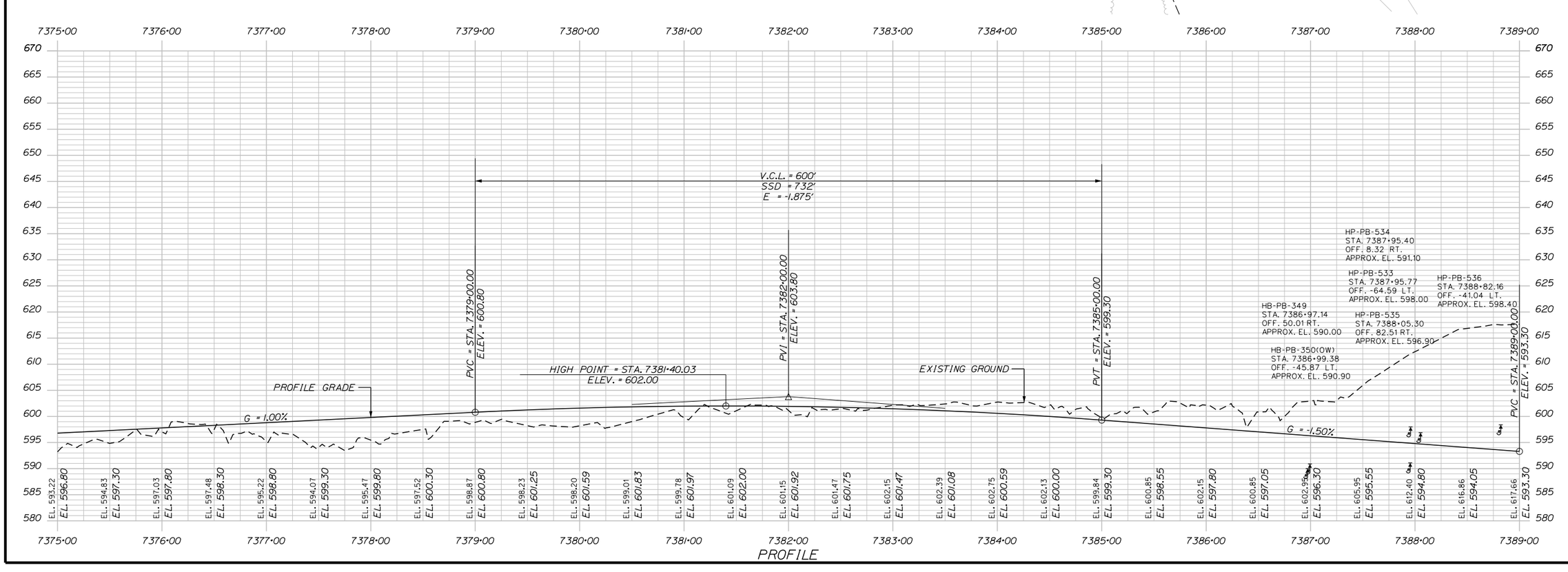
HB-PB-344
HB-PB-345
HB-PB-346
HB-PB-347
HB-PB-348
HB-PB-349
HB-PB-350(OW)
HP-PB-533
HP-PB-534
HP-PB-535
HP-PB-536

BYPASS
N20°32'25.94"E

7375+00 7376+00 7377+00 7378+00 7379+00 7380+00 7381+00 7382+00 7383+00 7384+00 7385+00 7386+00 7387+00 7388+00 7389+00

8.0' 12.0' 8.0'

CL CLL



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-6
113
OF 717

Usernam: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

BYPASS
CURVE DATA #3
PI = 7422+26.31
D = 0°35'15.5"
Δ = 39°56'50.9" Lt.
R = 9750.00'
L = 6797.84'
T = 3543.65'
E = 624.00'

DRAINAGE TREATMENT AREA

REMOVE

REMOVE

INSTALL RCP
24" X 132'
(EQUALIZATION CULVERT)

COMPOST FILTER (TYP.)

PI-BYPASS

INSTALL RCP
24" X 144'
(WETLANDS CONNECTIVITY)

INSTALL BOX CULVERT
20' S X 10' R X 104' L
(SEE BOX CULVERT DETAIL SHEET)

DRAINAGE TREATMENT AREA

HP-PB-537
STA. 7389+03.23
OFF. 43.79 RT.
APPROX. EL. 605.90

HB-PB-352
STA. 7389+53.66
OFF. -1.67 LT.
APPROX. EL. 599.00

HP-PB-538
STA. 7389+94.53
OFF. -54.08 LT.
APPROX. EL. 586.70

HB-PB-351
STA. 7389+51.57
OFF. 55.86 RT.
APPROX. EL. 606.70

HP-PB-540
STA. 7389+93.54
OFF. 57.81 RT.
APPROX. EL. 591.90

HP-PB-539
STA. 7390+03.12
OFF. -1.53 LT.
APPROX. EL. 603.90

V.C.L. = 1600'
HLSD = 3264'
E = 4.799'

HB-PB-353(GP)
STA. 7389+56.13
OFF. -34.87 LT.
APPROX. EL. 602.40

HP-PB-541
STA. 7390+81.84
OFF. -48.96 LT.
APPROX. EL. 592.00

HP-PB-543
STA. 7391+30.72
OFF. 4.45 RT.
APPROX. EL. 586.50

HB-PB-612
STA. 7392+17.71
OFF. 126.16 RT.
APPROX. EL. 566.70

HP-PB-542
STA. 7391+04.50
OFF. 54.98 RT.
APPROX. EL. 578.40

HP-PB-544
STA. 7391+84.61
OFF. -48.62 LT.
APPROX. EL. 586.60

HB-PB-613
STA. 7392+29.57
OFF. -106.95 LT.
APPROX. EL. 581.00

HB-PB-611
STA. 7391+22.72
OFF. 55.96 RT.
APPROX. EL. 576.80

HP-PB-545
STA. 7392+04.56
OFF. 39.35 RT.
APPROX. EL. 576.30

PVC = STA. 7389+00.00
ELEV. = 593.30

G = -1.50%

HB-PB-615
STA. 7393+71.31
OFF. -118.00 LT.
APPROX. EL. 572.30

PVI = STA. 7397+00.00
ELEV. = 581.30

LOW POINT = STA. 7399+00.23
ELEV. = 585.80

G = 0.90%

PROFILE GRADE

CB-PB-331
STA. 7396+60.52
OFF. -63.92 LT.
APPROX. EL. 561.90

EXISTING GROUND

EL. 617.66 EL. 593.30
EL. 615.81 EL. 592.57
EL. 609.50 EL. 591.87
EL. 600.89 EL. 591.22
EL. 596.40 EL. 590.60
EL. 593.89 EL. 590.02
EL. 591.87 EL. 589.47
EL. 588.39 EL. 588.97
EL. 587.70 EL. 588.50
EL. 586.05 EL. 588.07
EL. 581.85 EL. 587.67
EL. 574.71 EL. 587.32
EL. 573.07 EL. 587.00
EL. 573.69 EL. 586.72
EL. 574.18 EL. 586.47
EL. 574.16 EL. 586.27
EL. 574.08 EL. 586.10
EL. 574.51 EL. 585.97
EL. 576.18 EL. 585.87
EL. 576.99 EL. 585.82
EL. 577.79 EL. 585.80
EL. 576.55 EL. 585.82
EL. 578.71 EL. 585.87
EL. 578.84 EL. 585.97
EL. 581.15 EL. 586.10
EL. 585.22 EL. 586.27
EL. 584.93 EL. 586.47
EL. 582.91 EL. 586.72
EL. 580.65 EL. 587.00

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-7
114
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

BYPASS
CURVE DATA #3
PI = 7422+26.31
D = 0°35'15.5"
Δ = 39°56'50.9" Lt.
R = 9750.00'
L = 6797.84'
T = 3543.65'
E = 624.00'

DEER ESCAPE JUMPOUT

INSTALL RCP
24" x 96'
(EQUALIZATION CULVERT)

INSTALL RCP
24" x 96'

7403+00 7404+00 7405+00 7406+00 7407+00 7408+00 7409+00 7410+00 7411+00 7412+00 7413+00 7414+00 7415+00 7416+00 7417+00

8.0' 12.0' 12.0' 8.0'

PI-BYPASS

HB-PB-362 HB-PB-363 HB-PB-364

DEER ESCAPE JUMPOUT

7403+00 7404+00 7405+00 7406+00 7407+00 7408+00 7409+00 7410+00 7411+00 7412+00 7413+00 7414+00 7415+00 7416+00 7417+00

655 650 645 640 635 630 625 620 615 610 605 600 595 590 585 580 575 570 565

V.C.L. = 1600'
HLSD = 3264'
E = 4.799'

PVT = STA. 7405+00.00
ELEV. = 588.50

EXISTING GROUND

G = 0.90%

PVC = STA. 7414+48.68
ELEV. = 597.03

V.C.L. = 600'
HLSD = 219'
E = 0.756'

PROFILE GRADE

EL. 580.65 EL. 587.00
EL. 580.82 EL. 587.32
EL. 580.73 EL. 587.67
EL. 586.17 EL. 588.06
EL. 587.33 EL. 588.50
EL. 586.68 EL. 588.95
EL. 585.57 EL. 589.40
EL. 588.40 EL. 589.84
EL. 588.51 EL. 590.29
EL. 589.23 EL. 590.74
EL. 590.52 EL. 591.19
EL. 592.44 EL. 591.64
EL. 594.72 EL. 592.09
EL. 594.97 EL. 592.54
EL. 594.37 EL. 592.99
EL. 593.50 EL. 593.44
EL. 597.13 EL. 593.89
EL. 598.43 EL. 594.34
EL. 600.69 EL. 594.79
EL. 602.56 EL. 595.24
EL. 601.50 EL. 595.69
EL. 599.14 EL. 596.14
EL. 597.41 EL. 596.59
EL. 595.83 EL. 597.04
EL. 593.76 EL. 597.51
EL. 592.41 EL. 598.03
EL. 591.72 EL. 598.58
EL. 591.41 EL. 599.18
EL. 591.57 EL. 599.82

7403+00 7404+00 7405+00 7406+00 7407+00 7408+00 7409+00 7410+00 7411+00 7412+00 7413+00 7414+00 7415+00 7416+00 7417+00

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

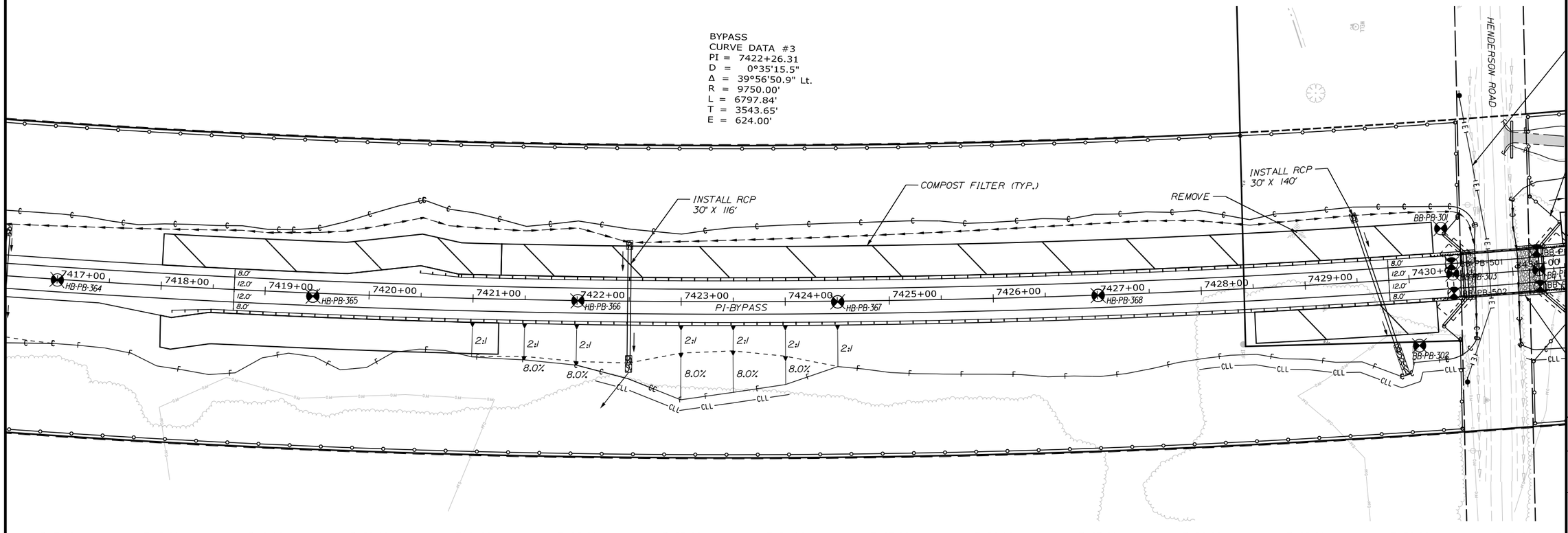
PRESQUE ISLE
PRESQUE ISLE BYPASS

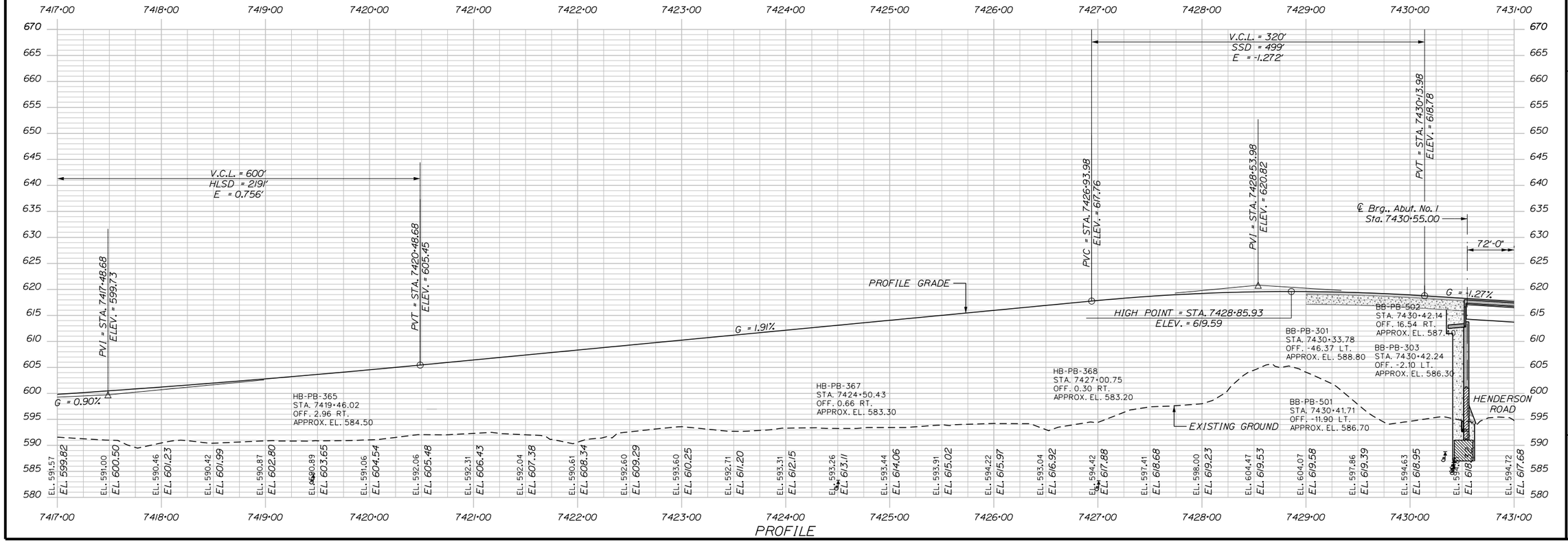
PLAN & PROFILE

SHEET NUMBER
H-8
115
OF 717

Username: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

BYPASS
CURVE DATA #3
PI = 7422+26.31
D = 0°35'15.5"
Δ = 39°56'50.9" Lt.
R = 9750.00'
L = 6797.84'
T = 3543.65'
E = 624.00'





PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

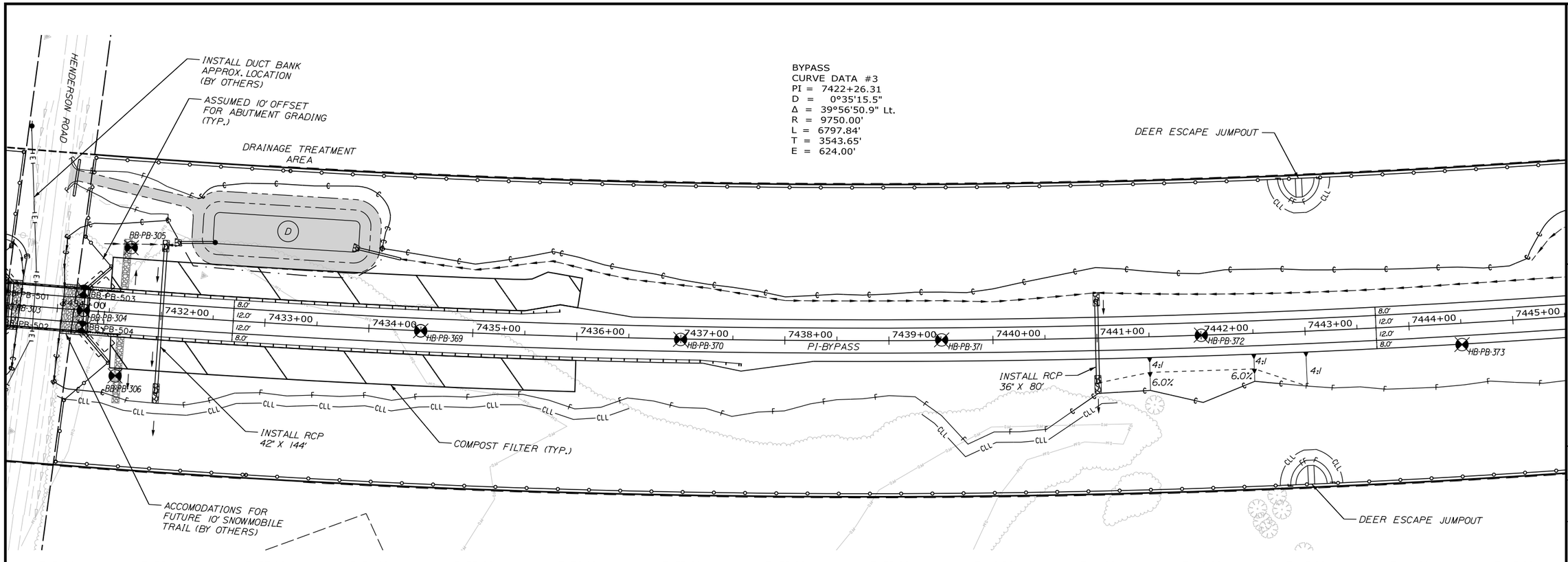
	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

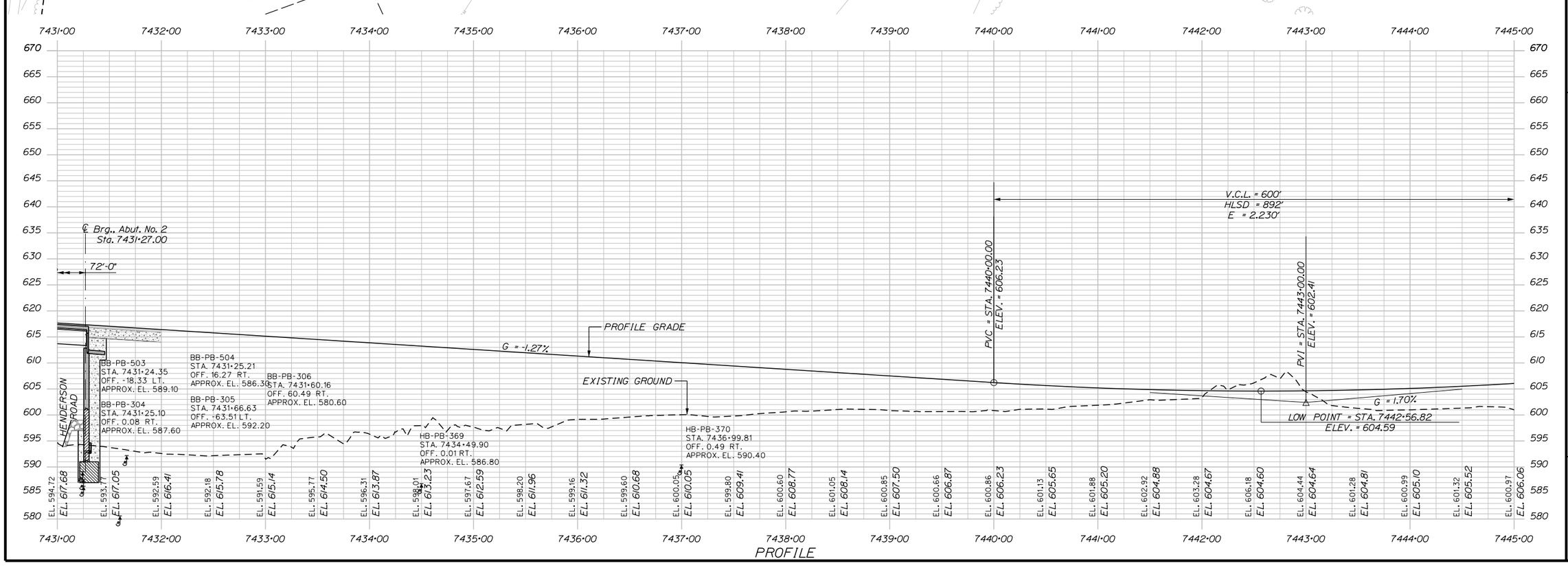
PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-9
116
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn





PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-10
117
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

BYPASS
CURVE DATA #3
PI = 7422+26.31
D = 0°35'15.5"
Δ = 39°56'50.9" Lt.
R = 9750.00'
L = 6797.84'
T = 3543.65'
E = 624.00'

BYPASS
CURVE DATA #4
PI = 7465+11.04
D = 0°34'22.6"
Δ = 11°46'03.0" Rt.
R = 10000.00'
L = 2053.82'
T = 1030.53'
E = 52.96'

CROSS ROAD

REMOVE (4) TREES

REMOVE (2) TREES

INSTALL RCP 36" X 132'

PRC = STA. 7454+80.51

COMPOST FILTER (TYP.)

PI-BYPASS

HB-PB-373 HB-PB-374 HB-PB-375 HB-PB-376 HB-PB-377 HB-PB-378

7445+00 7446+00 7447+00 7448+00 7449+00 7450+00 7451+00 7452+00 7453+00 7454+00 7455+00 7456+00 7457+00 7458+00 7459+00

8.0' 12.0' 12.0' 8.0'

4:1 8.0%

CLL C F E CL

7445·00 7446·00 7447·00 7448·00 7449·00 7450·00 7451·00 7452·00 7453·00 7454·00 7455·00 7456·00 7457·00 7458·00 7459·00

680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605 600 595 590

V.C.L. = 600'
HLSD = 892'
E = 2.230'

PVT = STA. 7446+00.00
ELEV. = 607.51

V.C.L. = 1325'
SSD = 803'
E = -7.346'

PVC = STA. 7457+87.50
ELEV. = 627.71

PROFILE GRADE
G = 1.70%

EXISTING GROUND

HB-PB-375
STA. 7449+49.65
OFF. 9.81 RT.
APPROX. EL. 600.60

HB-PB-377
STA. 7454+52.11
OFF. 6.30 RT.
APPROX. EL. 594.40

EL. 600.97 EL. 606.06' | EL. 602.41 EL. 606.72 | EL. 605.00 EL. 607.51 | EL. 604.87 EL. 608.36 | EL. 603.89 EL. 609.21 | EL. 607.00 EL. 610.06 | EL. 609.15 EL. 610.91 | EL. 608.82 EL. 611.77 | EL. 609.00 EL. 612.62 | EL. 608.26 EL. 613.47 | EL. 602.13 EL. 614.32 | EL. 602.28 EL. 615.17 | EL. 605.09 EL. 616.02 | EL. 607.38 EL. 616.87 | EL. 609.17 EL. 617.72 | EL. 612.50 EL. 618.57 | EL. 608.41 EL. 619.42 | EL. 608.36 EL. 620.27 | EL. 604.50 EL. 621.12 | EL. 604.08 EL. 621.97 | EL. 604.08 EL. 622.82 | EL. 604.81 EL. 623.67 | EL. 606.14 EL. 624.52 | EL. 607.44 EL. 625.37 | EL. 606.86 EL. 626.22 | EL. 608.85 EL. 627.07 | EL. 610.43 EL. 627.92 | EL. 611.10 EL. 628.71 | EL. 611.58 EL. 629.41

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-11
118
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

DEER ESCAPE JUMPOUT

CAP & ABANDON EXISTING PIPE

MAINE NORTHERN RAILROAD

EXISTING CULVERT (APROX. LOC.)

INSTALL (2) RCP 36" X 68' EMBEDDED 1' WITH INTEGRAL STEEL CASING

INSTALL RCP 18" X 72' EMBEDDED 1.5' WITH INTEGRAL STEEL CASING

DEER ESCAPE JUMPOUT

INSTA 22' S (SEE

PI-BYPASS

BYPASS
CURVE DATA #4
PI = 7465+11.04
D = 0°34'22.6"
Δ = 11°46'03.0" Rt.
R = 10000.00'
L = 2053.82'
T = 1030.53'
E = 52.96'

HB-PB-379 HB-PB-380 HB-PB-381 HB-PB-382 HB-PB-383
BB-PB-311 BB-PB-312 BB-PB-313 BB-PB-314 BB-PB-315 BB-PB-316
CB-PB-342 CB-PB-343

7459+00 7460+00 7461+00 7462+00 7463+00 7464+00 7465+00 7466+00 7467+00 7468+00 7469+00 7470+00 7471+00 7472+00 7473+00

8.0' 12.0' 12.0' 8.0'

4:1 2:1 2:1 8.0% 8.0%

2109+00 2110+00 2111+00 2112+00 2113+00 2114+00 2115+00

V.C.L. = 1325'
SSD = 803'
E = -7.346'

PVI = STA. 7464+50.00
ELEV. = 638.98

℄ Brg., Abut. No. 1
Sta. 7465+39.00

℄ Brg., Abut. No. 2
Sta. 7466+71.00

132'-0"

PVT = STA. 7471+12.50
ELEV. = 620.87

HIGH POINT = STA. 7462+95.66
ELEV. = 632.03

PROFILE GRADE

G = -2.73%

EXISTING GROUND

FORT FAIRFIELD SUBDIVISION (MAINE NORTHERN RAILWAY)

BB-PB-312
STA. 7464+49.38
OFF. 50.34 RT.
APPROX. EL. 602.10

BB-PB-313
STA. 7465+35.15
OFF. 1.12 RT.
APPROX. EL. 589.80

BB-PB-316
STA. 7466+25.32
OFF. 58.17 RT.
APPROX. EL. 588.50

BB-PB-314
STA. 7466+46.53
OFF. 0.91 RT.
APPROX. EL. 586.30

BB-PB-311
STA. 7465+58.58
OFF. -45.22 LT.
APPROX. EL. 587.40

BB-PB-315
STA. 7467+34.93
OFF. -49.44 LT.
APPROX. EL. 586.80

HB-PB-379
STA. 7459+51.13
OFF. 5.00 RT.
APPROX. EL. 601.80

HB-PB-380
STA. 7461+51.71
OFF. 6.49 RT.
APPROX. EL. 600.40

HB-PB-381
STA. 7463+50.05
OFF. -3.74 LT.
APPROX. EL. 600.30

HB-PB-382
STA. 7469+53.70
OFF. -1.63 LT.
APPROX. EL. 585.20

HB-PB-383
STA. 7471+99.44
OFF. -2.77 LT.
APPROX. EL. 579.40

CB-PB-343
STA. 7472+19.19
OFF. 39.41 RT.
APPROX. EL. 580.40

CB-PB-342
STA. 7472+39.46
OFF. -6.06 LT.
APPROX. EL. 580.00

EL. 611.58 EL. 629.41
EL. 613.22 EL. 630.03
EL. 611.71 EL. 630.57
EL. 609.50 EL. 631.02
EL. 608.21 EL. 631.39
EL. 606.39 EL. 631.68
EL. 602.35 EL. 631.88
EL. 600.46 EL. 632.00
EL. 601.41 EL. 632.03
EL. 605.12 EL. 631.98
EL. 604.35 EL. 631.85
EL. 599.24 EL. 631.63
EL. 595.94 EL. 631.33
EL. 595.38 EL. 630.95
EL. 598.84 EL. 630.48
EL. 595.27 EL. 629.93
EL. 594.26 EL. 629.30
EL. 594.98 EL. 628.58
EL. 594.31 EL. 627.78
EL. 598.58 EL. 626.89
EL. 603.44 EL. 625.92
EL. 603.98 EL. 624.87
EL. 606.03 EL. 623.73
EL. 604.94 EL. 622.51
EL. 600.66 EL. 621.21
EL. 596.82 EL. 619.84
EL. 592.60 EL. 618.47
EL. 590.74 EL. 617.11
EL. 588.34 EL. 615.74

665 660 655 650 645 640 635 630 625 620 615 610 605 600 595 590 585 580 575

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.		
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-12
119
OF 717

BYPASS
CURVE DATA #4
PI = 7465+11.04
D = 0°34'22.6"
Δ = 11°46'03.0" Rt.
R = 10000.00'
L = 2053.82'
T = 1030.53'
E = 52.96'

INSTALL RCP
24" X 140'
(EQUALIZATION CULVERT)

INSTALL RCP
24" X 144'
(EQUALIZATION CULVERT)

CB-PB-341

CB-PB-342

HB-PB-384

HB-PB-385

HB-PB-386

PI-BYPASS

HB-PB-387

HB-PB-388

HB-PB-389

COMPOST FILTER (TYP.)

INSTALL BOX CULVERT
22' S X 18" R X 92' L
(SEE BOX CULVERT DETAIL SHEET)

PT = STA. 7475+24.33

7473+00 7474+00 7475+00 7476+00 7477+00 7478+00 7479+00 7480+00 7481+00 7482+00 7483+00 7484+00 7485+00 7486+00 7487+00

8.0' 12.0' 8.0'

PROFILE GRADE

G = -2.73%

PVC = STA. 7475+69.22
ELEV. = 608.38

V.C.L. = 800'
HLSD = 745'
E = 4.334'

PVI = STA. 7479+69.22
ELEV. = 597.44

PVT = STA. 7483+69.22
ELEV. = 603.84

EXISTING GROUND

G = 1.60%

LOW POINT = STA. 7480+73.89
ELEV. = 601.48

CB-PB-341
STA. 7473+20.74
OFF. -102.74' LT.
APPROX. EL. 581.60

HB-PB-386
STA. 7479+47.97
OFF. -6.33' LT.
APPROX. EL. 592.90

665 660 655 650 645 640 635 630 625 620 615 610 605 600 595 590 585 580 575

EL. 588.34 EL. 615.74
EL. 589.34 EL. 614.37
EL. 591.17 EL. 613.01
EL. 592.33 EL. 611.64
EL. 593.10 EL. 610.27
EL. 594.45 EL. 608.90
EL. 595.84 EL. 607.56
EL. 596.86 EL. 606.35
EL. 598.00 EL. 605.27
EL. 598.07 EL. 604.32
EL. 598.11 EL. 603.51
EL. 599.04 EL. 602.84
EL. 599.32 EL. 602.30
EL. 599.68 EL. 601.90
EL. 600.65 EL. 601.63
EL. 599.47 EL. 601.50
EL. 600.58 EL. 601.50
EL. 603.51 EL. 601.64
EL. 605.51 EL. 601.91
EL. 606.26 EL. 602.32
EL. 607.24 EL. 602.86
EL. 608.77 EL. 603.55
EL. 610.61 EL. 604.33
EL. 611.88 EL. 605.13
EL. 611.02 EL. 605.93
EL. 611.31 EL. 606.73
EL. 608.91 EL. 607.53
EL. 611.60 EL. 608.33
EL. 612.93 EL. 609.13

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-13
120
OF 717

Username: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

DEER ESCAPE JUMPOUT

DRAINAGE TREATMENT AREA

UD

J

7487+00 | 7488+00 | 7489+00 | 7490+00 | 7491+00 | 7492+00 | 7493+00 | 7494+00 | 7495+00 | 7496+00 | 7497+00 | 7498+00 | 7499+00 | 7500+00 | 7501+00

HB-PB-389 HB-PB-390 HB-PB-391 N7°38'21.92"W HB-PB-392 PI-BYPASS HB-PB-393 HB-PB-394

8.0' | 12.0' | 12.0' | 8.0'

DEER ESCAPE JUMPOUT

7487+00 7488+00 7489+00 7490+00 7491+00 7492+00 7493+00 7494+00 7495+00 7496+00 7497+00 7498+00 7499+00 7500+00 7501+00

690 685 680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605 600

EXISTING GROUND

PROFILE GRADE

G = 1.60%

HB-PB-390
STA. 7489+51.39
OFF. -5.68 LT.
APPROX. EL. 609.10

HB-PB-392
STA. 7494+50.36
OFF. -1.53 LT.
APPROX. EL. 614.30

HB-PB-393
STA. 7496+99.70
OFF. 0.65 RT.
APPROX. EL. 619.10

HB-PB-394
STA. 7499+51.82
OFF. 1.22 RT.
APPROX. EL. 623.00

EL. 612.93 EL. 609.13 | EL. 612.45 EL. 609.93 | EL. 611.80 EL. 610.73 | EL. 614.11 EL. 611.53 | EL. 614.01 EL. 612.33 | EL. 614.68 EL. 613.13 | EL. 619.90 EL. 613.93 | EL. 617.98 EL. 614.73 | EL. 620.82 EL. 615.53 | EL. 621.33 EL. 616.33 | EL. 621.94 EL. 617.13 | EL. 623.26 EL. 617.93 | EL. 623.87 EL. 618.73 | EL. 622.85 EL. 619.53 | EL. 623.54 EL. 620.33 | EL. 623.00 EL. 621.13 | EL. 624.58 EL. 621.93 | EL. 625.68 EL. 622.73 | EL. 627.51 EL. 623.53 | EL. 629.51 EL. 624.33 | EL. 628.67 EL. 625.13 | EL. 630.13 EL. 625.93 | EL. 630.20 EL. 626.73 | EL. 631.07 EL. 627.53 | EL. 630.98 EL. 628.33 | EL. 633.31 EL. 629.13 | EL. 632.61 EL. 629.93 | EL. 632.70 EL. 630.73 | EL. 636.71 EL. 631.53

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

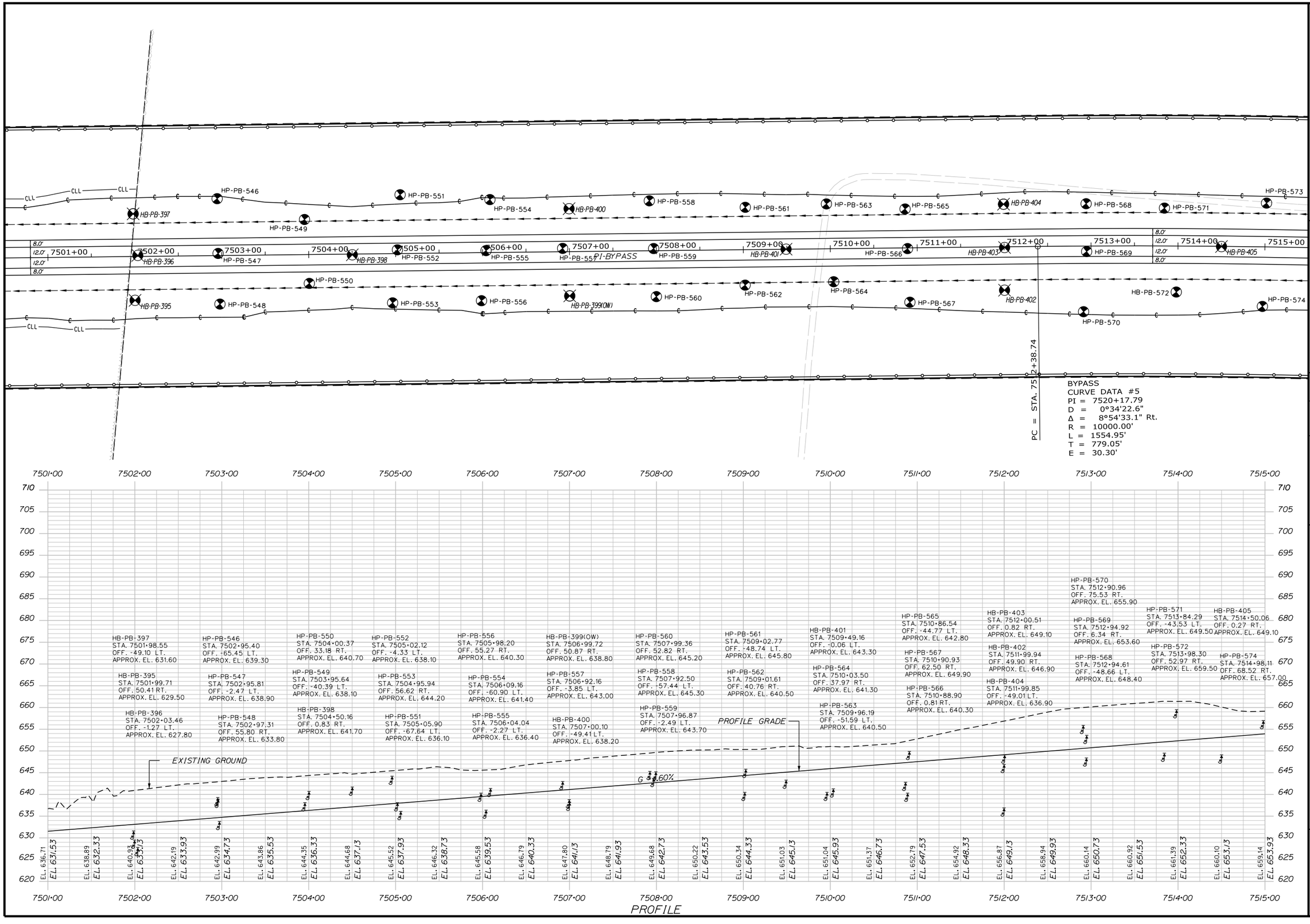
	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-14
121
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

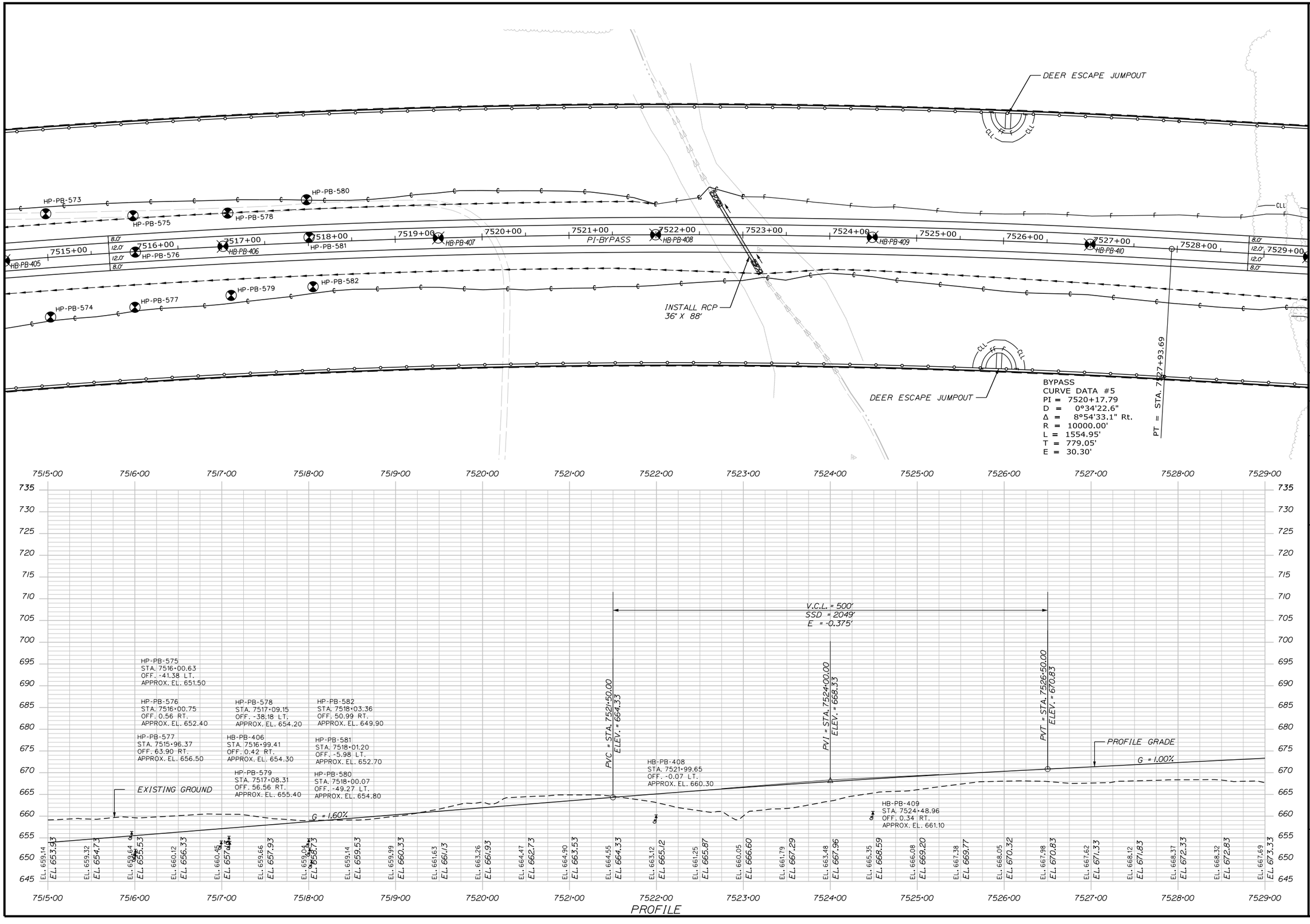
	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-15
122
OF 717

Usernam: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

	R.M.	DATE
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

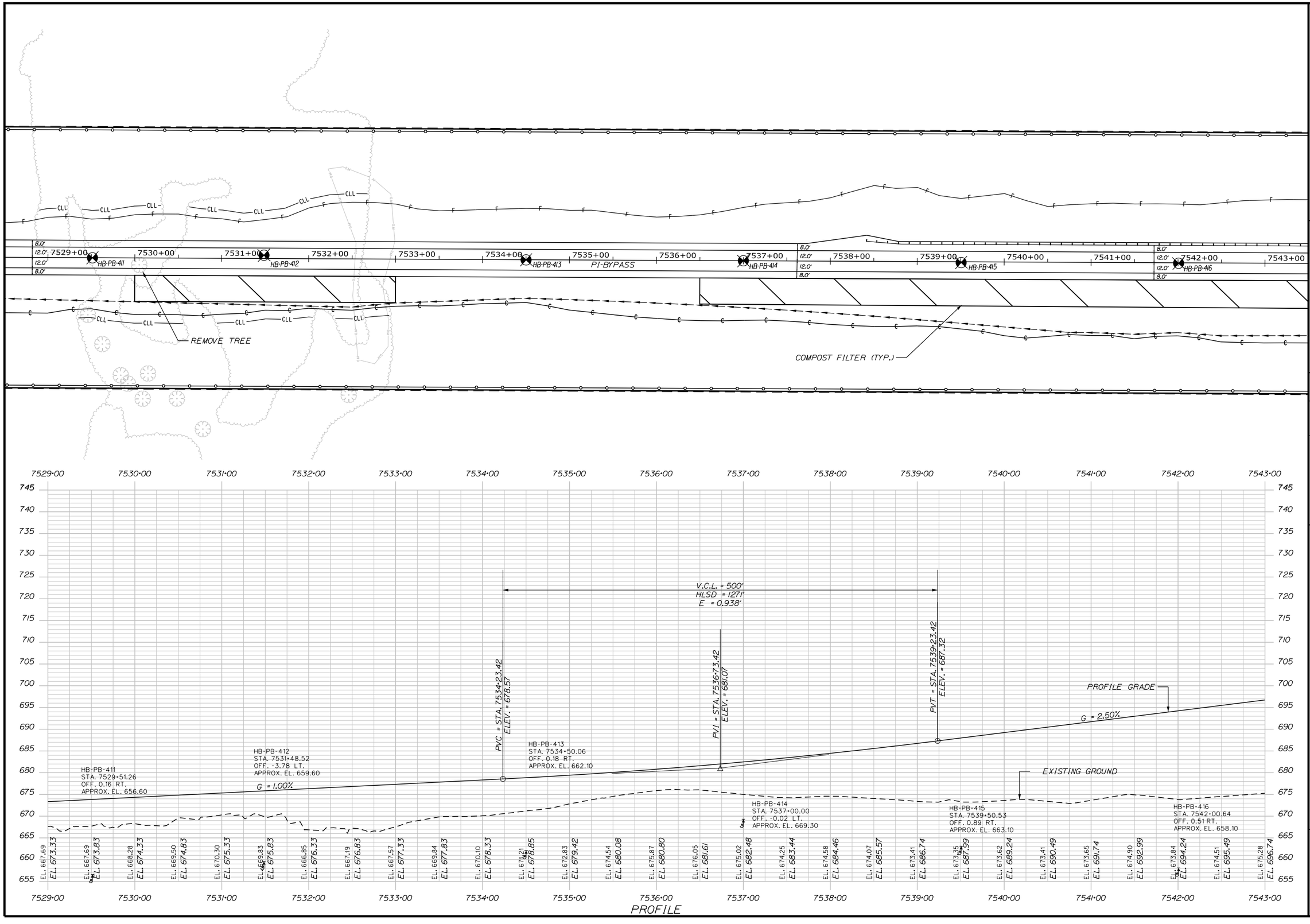
PROJ. MANAGER: JBD
AG

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-16
123
OF 717

Username: jamesdavis
Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-17
124
OF 717

Usernname: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

REMOVE EXISING CULVERT AND REGRADE DITCH

REMOVE (7) TREES

REMOVAL OF BUILDING (BY OTHERS)

INSTALL DUCT BANK APPROX. LOCATION (BY OTHERS)

INSTALL RCP 30" X 164'

EASTON ROAD

BB-PB-321 BB-PB-325 BB-PB-515 BB-PB-513 BB-PB-323 BB-PB-324 BB-PB-512 BB-PB-514 BB-PB-322 BB-PB-326

HB-PB-417 HB-PB-418 HB-PB-419 HB-PB-420 HB-PB-421

7543+00 7544+00 7545+00 7546+00 7547+00 7548+00 7549+00 7550+00 7551+00 7552+00 7553+00 7554+00 7555+00 7556+00 7557+00

8.0' 12.0' 12.0' 8.0' 12.0' 8.0'

BYPASS

N1°16'11.22"E

COMPOST FILTER (TYP.)

REMOVAL OF BUILDING (BY OTHERS)

7543·00 7544·00 7545·00 7546·00 7547·00 7548·00 7549·00 7550·00 7551·00 7552·00 7553·00 7554·00 7555·00 7556·00 7557·00

755 750 745 740 735 730 725 720 715 710 705 700 695 690 685 680 675 670 665

V.C.L. = 800'
SSD = 560'
E = -5.50'

℄ Brg., Abut. No. 1
Sta. 7551·23.00

℄ Brg., Abut. No. 2
Sta. 7552·08.00

PVC = STA. 7552·98.19
ELEV. = 721.70

PVI = STA. 7556·98.19
ELEV. = 731.70

85'-0"

HIGH POINT = STA. 7556·61.87
ELEV. = 726.24

PROFILE GRADE

G = 2.50%

EXISTING GROUND

EASTON ROAD

BB-PB-511
STA. 7550·97.61
OFF. -26.16 LT.
APPROX. EL. 691.70

BB-PB-321
STA. 7550·95.42
OFF. -46.23 LT.
APPROX. EL. 689.90

BB-PB-512
STA. 7551·05.23
OFF. 5.72 RT.
APPROX. EL. 689.80

BB-PB-322
STA. 7551·04.00
OFF. 34.71 RT.
APPROX. EL. 688.70

BB-PB-511 A
STA. 7550·99.03
OFF. -21.89 LT.
APPROX. EL. 686.70

BB-PB-323
STA. 7551·20.33
OFF. -2.86 LT.
APPROX. EL. 682.30

BB-PB-513
STA. 7552·15.88
OFF. -17.01 LT.
APPROX. EL. 684.90

BB-PB-325
STA. 7552·23.74
OFF. -49.62 LT.
APPROX. EL. 684.10

BB-PB-324
STA. 7552·02.18
OFF. -0.79 LT.
APPROX. EL. 685.80

BB-PB-326
STA. 7552·32.33
OFF. 54.30 RT.
APPROX. EL. 685.20

BB-PB-514
STA. 7552·11.24
OFF. 12.42 RT.
APPROX. EL. 684.10

HB-PB-417
STA. 7544·50.34
OFF. -0.32 LT.
APPROX. EL. 670.30

HB-PB-418
STA. 7546·99.38
OFF. 0.80 RT.
APPROX. EL. 684.40

HB-PB-419
STA. 7549·50.27
OFF. 0.57 RT.
APPROX. EL. 691.40

HB-PB-420
STA. 7554·50.25
OFF. -0.40 LT.
APPROX. EL. 688.60

EL. 675.28 EL. 696.74 | EL. 676.55 EL. 697.99 | EL. 678.37 EL. 699.24 | EL. 681.46 EL. 700.49 | EL. 684.60 EL. 701.74 | EL. 687.45 EL. 702.99 | EL. 690.13 EL. 704.24 | EL. 692.53 EL. 705.49 | EL. 694.99 EL. 706.74 | EL. 697.42 EL. 707.99 | EL. 699.17 EL. 709.24 | EL. 699.31 EL. 710.49 | EL. 700.51 EL. 711.74 | EL. 701.37 EL. 712.99 | EL. 699.02 EL. 714.24 | EL. 698.67 EL. 715.49 | EL. 698.52 EL. 716.74 | EL. 695.17 EL. 717.99 | EL. 692.16 EL. 719.24 | EL. 693.09 EL. 720.49 | EL. 692.00 EL. 721.74 | EL. 689.72 EL. 722.90 | EL. 692.71 EL. 723.89 | EL. 696.35 EL. 724.70 | EL. 701.49 EL. 725.34 | EL. 706.43 EL. 725.81 | EL. 710.19 EL. 726.11 | EL. 714.38 EL. 726.24 | EL. 716.90 EL. 726.19

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

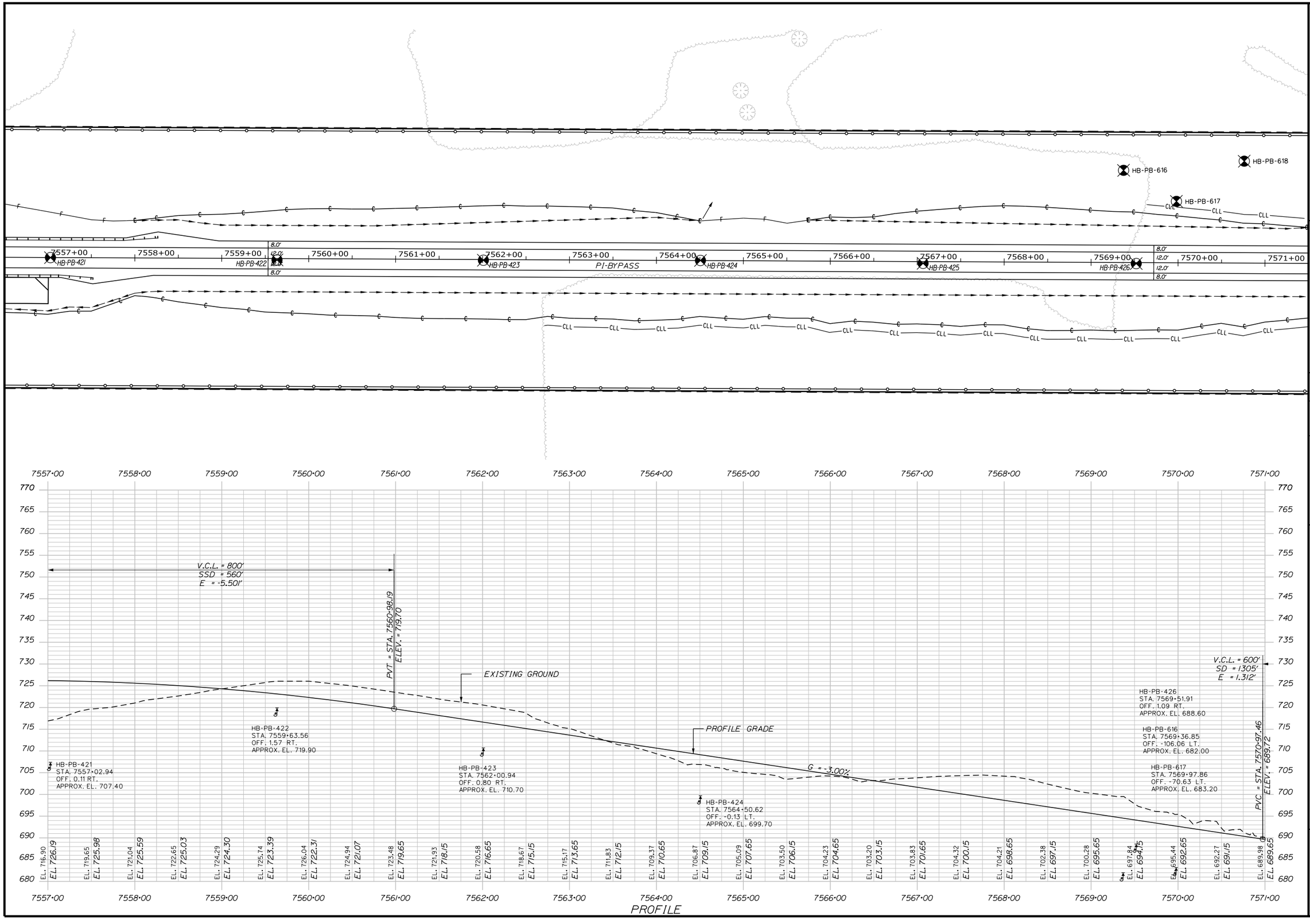
	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-18
125
OF 717

Username: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-19
126
OF 717

Usernam: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

BYPASS
CURVE DATA #6
PI = 7601+30.75
D = 1°25'56.6"
Δ = 45°33'42.7" Lt.
R = 4000.00'
L = 3180.82'
T = 1679.88'
E = 338.43'

DEER ESCAPE JUMPOUT

HB-PB-618

PC STA. 7584+50.87

BEGIN C.O.A.

C.O.A.

8.0%

4:1

HB-PB-428

HB-PB-429

HB-PB-430

HB-PB-431

HB-PB-427

HB-PB-432

7571+00 7572+00 7573+00 7574+00 7575+00 7576+00 7577+00 7578+00 7579+00 7580+00 7581+00 7582+00 7583+00 7584+00 7585+00

8.0'
12.0'
12.0'
8.0'

PI-BYPASS

COMPOST FILTER (TYP.)

DEER ESCAPE JUMPOUT

BEGIN C.O.A.

C.O.A.

7571·00 7572·00 7573·00 7574·00 7575·00 7576·00 7577·00 7578·00 7579·00 7580·00 7581·00 7582·00 7583·00 7584·00 7585·00

735 730 725 720 715 710 705 700 695 690 685 680 675 670 665 660 655 650 645

V.C.L. = 600'
HLSD = 1305'
E = 1.312'

PVI = STA. 7573+97.46
ELEV. = 680.72

PVT = STA. 7576+97.46
ELEV. = 676.97

HB-PB-427
STA. 7571+99.97
OFF. 0.04 RT.
APPROX. EL. 680.50

G = -1.25%

PROFILE GRADE

EXISTING GROUND

EL. 689.38 EL. 689.65
EL. 685.76 EL. 688.19
EL. 683.28 EL. 686.80
EL. 681.37 EL. 685.48
EL. 681.50 EL. 684.24
EL. 678.91 EL. 683.08
EL. 678.29 EL. 681.98
EL. 677.42 EL. 680.96
EL. 675.82 EL. 680.01
EL. 674.19 EL. 679.13
EL. 671.37 EL. 678.33
EL. 669.58 EL. 677.60
EL. 667.66 EL. 676.94
EL. 669.53 EL. 676.32
EL. 666.25 EL. 675.69
EL. 668.46 EL. 675.06
EL. 667.09 EL. 674.44
EL. 665.51 EL. 673.82
EL. 665.45 EL. 673.19
EL. 661.99 EL. 672.56
EL. 661.39 EL. 671.94
EL. 661.90 EL. 671.31
EL. 659.68 EL. 670.69
EL. 659.65 EL. 670.06
EL. 658.93 EL. 669.44
EL. 658.07 EL. 668.82
EL. 658.03 EL. 668.19
EL. 658.06 EL. 667.57
EL. 657.14 EL. 666.94

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-20
127
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

BYPASS
CURVE DATA #6
PI = 7601+30.75
D = 1°25'56.6"
Δ = 45°33'42.7" Lt.
R = 4000.00'
L = 3180.82'
T = 1679.88'
E = 338.43'

PC STA. 7584+50.87

HB-PB-432 HB-PB-433 HB-PB-434 HB-PB-435 HB-PB-436 HB-PB-437 HB-PB-438

PI-BYPASS

INSTALL RCP 30" X 112'

COMPOST FILTER (TYP.)

REMOVE (5) TREES

PROFILE GRADE

G = -1.25%

EXISTING GROUND

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-21
128
OF 717

Username: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

BYPASS
CURVE DATA #6
PI = 7601+30.75
D = 1°25'56.6"
Δ = 45°33'42.7" Lt.
R = 4000.00'
L = 3180.82'
T = 1679.88'
E = 338.43'

DEER ESCAPE JUMPOUT

DRAINAGE TREATMENT AREA

HB-PB-619
HB-PB-620
HB-PB-621

7599+00 7600+00 7601+00 7602+00 7603+00 7604+00 7605+00 7606+00 7607+00 7608+00 7609+00 7610+00 7611+00 7612+00 7613+00

HB-PB-438
HB-PB-111
HB-PB-112
HB-PB-113
PI-BYPASS
HB-PB-114
HB-PB-115

8.0' 12.0' 12.0' 8.0'

NB OFF RAMP
CURVE DATA #1
PI = 701+88.51
D = 1°25'25.9"
Δ = 5°10'49.1" Lt.
R = 4024.00'
L = 363.82'
T = 182.04'
E = 4.12'

DEER ESCAPE JUMPOUT

7599+00 7600+00 7601+00 7602+00 7603+00 7604+00 7605+00 7606+00 7607+00 7608+00 7609+00 7610+00 7611+00 7612+00 7613+00

695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605

EXISTING GROUND

G = -1.25%

PROFILE GRADE

HB-PB-111
STA. 7602+03.54
OFF. -3.80 LT.
APPROX. EL. 641.70

HB-PB-112
STA. 7604+41.66
OFF. -5.20 LT.
APPROX. EL. 637.80

HB-PB-113
STA. 7607+01.50
OFF. 0.37 RT.
APPROX. EL. 636.20

HB-PB-619
STA. 7608+55.07
OFF. -108.16 LT.
APPROX. EL. 621.00

HB-PB-114
STA. 7609+47.37
OFF. -3.65 LT.
APPROX. EL. 628.10

HB-PB-620
STA. 7609+30.97
OFF. -67.19 LT.
APPROX. EL. 622.10

HB-PB-621
STA. 7610+12.83
OFF. -107.26 LT.
APPROX. EL. 616.00

HB-PB-115
STA. 7612+04.16
OFF. 1.64 RT.
APPROX. EL. 617.90

PVC = STA. 7612+50.00
ELEV. = 632.57
V.C.L. = 700'
HLSD = 709'
E = 3.513'

EL. 650.96 EL. 649.44
EL. 651.33 EL. 648.81
EL. 650.55 EL. 648.19
EL. 650.43 EL. 647.57
EL. 650.49 EL. 646.94
EL. 649.28 EL. 646.32
EL. 648.96 EL. 645.69
EL. 648.25 EL. 645.07
EL. 647.63 EL. 644.44
EL. 647.83 EL. 643.82
EL. 647.90 EL. 643.19
EL. 647.09 EL. 642.57
EL. 646.08 EL. 641.94
EL. 645.86 EL. 641.32
EL. 646.03 EL. 640.69
EL. 645.63 EL. 640.06
EL. 644.85 EL. 639.44
EL. 644.04 EL. 638.81
EL. 640.72 EL. 638.19
EL. 640.10 EL. 637.56
EL. 637.69 EL. 636.94
EL. 634.61 EL. 636.31
EL. 632.47 EL. 635.69
EL. 628.97 EL. 635.06
EL. 628.47 EL. 634.44
EL. 627.74 EL. 633.81
EL. 625.04 EL. 633.19
EL. 623.26 EL. 632.56
EL. 619.55 EL. 632.01

7599+00 7600+00 7601+00 7602+00 7603+00 7604+00 7605+00 7606+00 7607+00 7608+00 7609+00 7610+00 7611+00 7612+00 7613+00

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

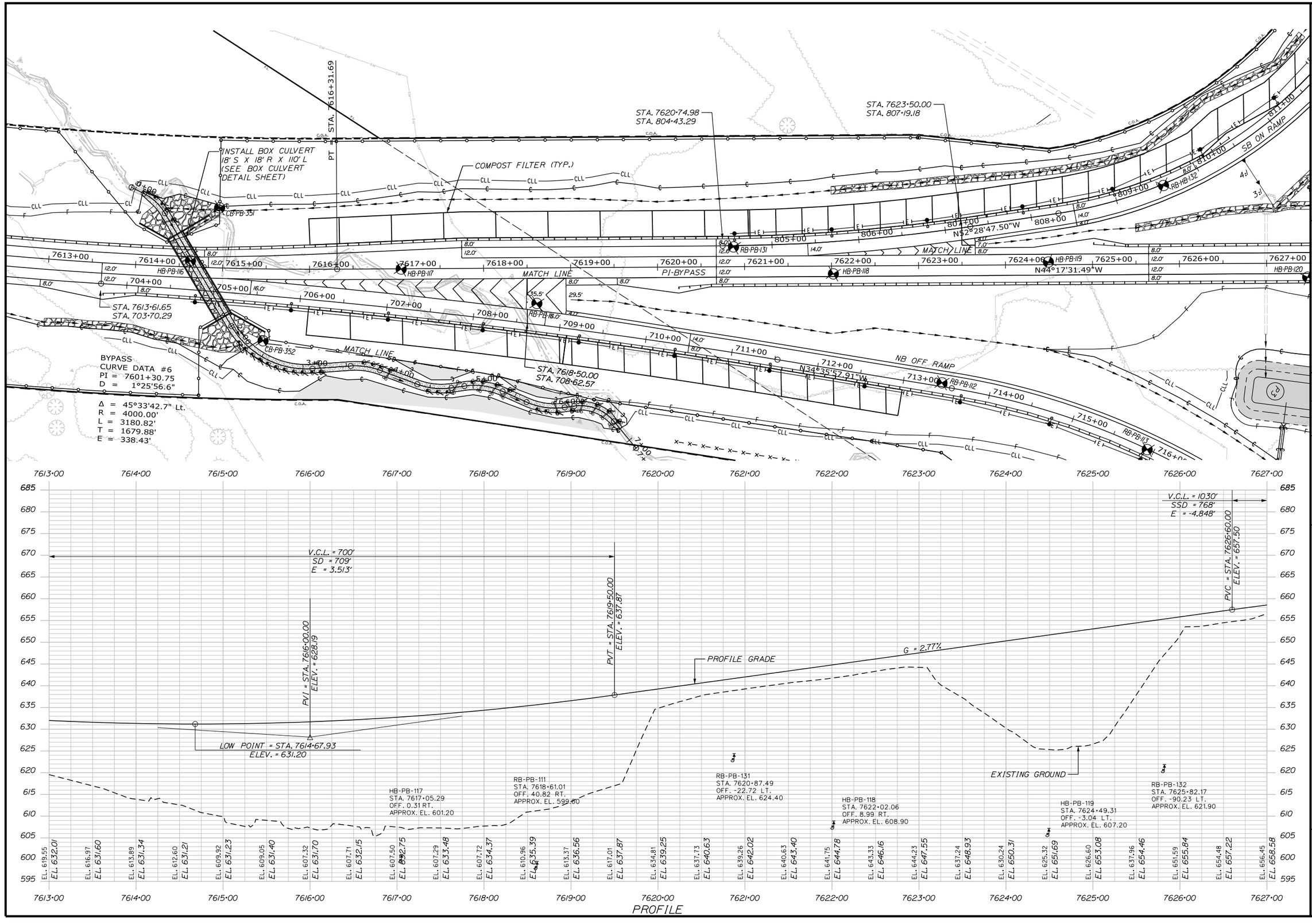
vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-22
129
OF 717



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.		
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-23
130
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

Username: jamesdavis Division: HIGHWAY Date:7/15/2025
Filename: ...\H4_Plans and Profiles.dgn

DRAINAGE TREATMENT AREA

SB ON RAMP

CONANT ROAD

PI-BYPASS

PC = STA. 7633+92.71

BYPASS
CURVE DATA #7
PI = 7642+94.84
D = 2°23'14.4"
Δ = 41°12'04.4" Rt.
R = 2400.00'
L = 1725.83'
T = 902.13'
E = 163.95'

SB OFF RAMP

MATCHLINE

STA. 7640+00.00
STA. 613+79.69

NB ON RAMP

N35°34'55.03"W

HB-PB-120 STA. 7627+73.76 OFF. -228.01 LT. APPROX. EL. 644.50
HB-PB-624 STA. 7628+31.53 OFF. -164.47 LT. APPROX. EL. 647.60
HB-PB-625 STA. 7628+55.05 OFF. -107.57 LT. APPROX. EL. 646.90
HB-PB-626 STA. 7628+88.54 OFF. -158.42 LT. APPROX. EL. 647.30
BB-PB-601 STA. 7629+43.94 OFF. 27.23 RT. APPROX. EL. 640.90
BB-PB-134 STA. 7629+42.18 OFF. -413.87 LT. APPROX. EL. 636.30
BB-PB-101 STA. 7629+26.38 OFF. 48.69 RT. APPROX. EL. 640.10
BB-PB-602 STA. 7629+82.38 OFF. 17.82 RT. APPROX. EL. 637.10
BB-PB-603 STA. 7629+80.32 OFF. -35.64 LT. APPROX. EL. 635.00
BB-PB-103 STA. 7629+98.58 OFF. -6.82 LT. APPROX. EL. 632.10
BB-PB-102 STA. 7629+99.70 OFF. -63.14 LT. APPROX. EL. 624.00
℄ Brg., Abut. No. 1 Sta. 7629+88.00
℄ Brg., Abut. No. 2 Sta. 7631+38.00
150'-0"
PVI = STA. 7631+75.00 ELEV. = 671.74
BB-PB-604 STA. 7631+49.66 OFF. 25.71 RT. APPROX. EL. 625.80
BB-PB-105 STA. 7631+33.21 OFF. -3.98 LT. APPROX. EL. 621.60
HB-PB-630 STA. 7634+26.09 OFF. -278.47 LT. APPROX. EL. 663.90
RB-PB-135 STA. 7631+66.31 OFF. -494.62 LT. APPROX. EL. 660.20
BB-PB-106 STA. 7632+13.95 OFF. -47.29 LT. APPROX. EL. 635.30
HB-PB-631 STA. 7634+33.62 OFF. -198.00 LT. APPROX. EL. 664.10
BB-PB-605 STA. 7631+77.70 OFF. -46.11 LT. APPROX. EL. 634.20
RB-PB-136 STA. 7634+08.12 OFF. -429.95 LT. APPROX. EL. 664.30
HB-PB-121 STA. 7634+57.84 OFF. -11.13 LT. APPROX. EL. 654.30
HB-PB-632 STA. 7634+91.59 OFF. -261.12 LT. APPROX. EL. 665.10
V.C.L. = 1030'
SSD = 768'
E = -4.848'
HIGH POINT = STA. 7634+16.43
ELEV. = 667.96
PVT = STA. 7636+90.00
ELEV. = 666.59
G = 2.77%
G = -1.00%
PROFILE GRADE
EXISTING GROUND
CONANT ROAD
RB-PB-141 STA. 7636+56.85 OFF. -269.61 LT. APPROX. EL. 665.20
RB-PB-125 STA. 7635+74.72 OFF. 143.67 RT. APPROX. EL. 646.60
HB-PB-122 STA. 7637+02.51 OFF. -0.87 LT. APPROX. EL. 659.70
RB-PB-126 STA. 7638+13.12 OFF. 54.45 RT. APPROX. EL. 652.80
RB-PB-142 STA. 7638+49.62 OFF. -180.14 LT. APPROX. EL. 663.90
RB-PB-127 STA. 7640+66.35 OFF. 31.67 RT. APPROX. EL. 656.00
RB-PB-143 STA. 7640+74.53 OFF. -98.60 LT. APPROX. EL. 658.00

EL. 656.45 EL. 658.58
EL. 657.46 EL. 659.84
EL. 657.98 EL. 661.01
EL. 655.59 EL. 662.09
EL. 646.15 EL. 663.08
EL. 644.50 EL. 663.98
EL. 642.91 EL. 664.79
EL. 637.41 EL. 665.50
EL. 639.24 EL. 666.13
EL. 639.55 EL. 666.66
EL. 650.26 EL. 667.10
EL. 665.15 EL. 667.45
EL. 670.61 EL. 667.71
EL. 672.65 EL. 667.88
EL. 672.94 EL. 667.95
EL. 673.43 EL. 667.94
EL. 671.62 EL. 667.83
EL. 670.91 EL. 667.63
EL. 669.48 EL. 667.34
EL. 668.57 EL. 666.96
EL. 667.72 EL. 666.49
EL. 670.06 EL. 665.99
EL. 665.31 EL. 665.49
EL. 663.64 EL. 664.99
EL. 662.53 EL. 664.49
EL. 662.31 EL. 663.99
EL. 663.25 EL. 663.49
EL. 664.23 EL. 662.99
EL. 663.64 EL. 662.49

7627+00 7628+00 7629+00 7630+00 7631+00 7632+00 7633+00 7634+00 7635+00 7636+00 7637+00 7638+00 7639+00 7640+00 7641+00

710 705 700 695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN 6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.	BY	DATE
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-24
131
OF 717

BYPASS
CURVE DATA #7
PI = 7642+94.84
D = 2°23'14.4"
Δ = 41°12'04.4" Rt.
R = 2400.00'
L = 1725.83'
T = 902.13'
E = 163.95'

DRAINAGE TREATMENT AREA

STA. 7645+45.64
STA. 912+34.21

STA. 7641+50.00
STA. 908+26.98 KC.

STA. 7647+00
END APPROACH
BEGIN 1.5" OVERLAY

CLEAN CULVERT

STA. 7654+10
END 1.5" OVERLAY
MATCH EXISTING
LIMIT OF WORK

PI-BYPASS (PHASE I)

PI-BYPASS

MATCHLINE

STA. 7643+97.96
STA. 617+73.23

STA. 7646+50
END FULL CONSTRUCTION
END PROJECT NO. 6462.92
BEGIN APPROACH

MATCH INTO EXISTING ROW FENCE (TYP.)

PT = STA. 7651+18.55

HB-PB-123
HB-PB-124
HB-PB-125
HB-PB-126
HB-PB-127
HB-PB-128
RB-PB-143
RB-PB-127

PROFILE

PROFILE GRADE

STA. 7647+00
END APPROACH
BEGIN 1.5" OVERLAY

G = -1.00%

STA. 7654+10
END 1.5" OVERLAY
MATCH EXISTING
LIMIT OF WORK

PHASE I FINISH GRADE

EXISTING GROUND

HB-PB-123
STA. 7641+96.13
OFF. -1.55 LT.
APPROX. EL. 654.90

HB-PB-124
STA. 7644+39.30
OFF. 2.91 RT.
APPROX. EL. 647.20

HB-PB-125
STA. 7646+86.37
OFF. 1.09 RT.
APPROX. EL. 642.10

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

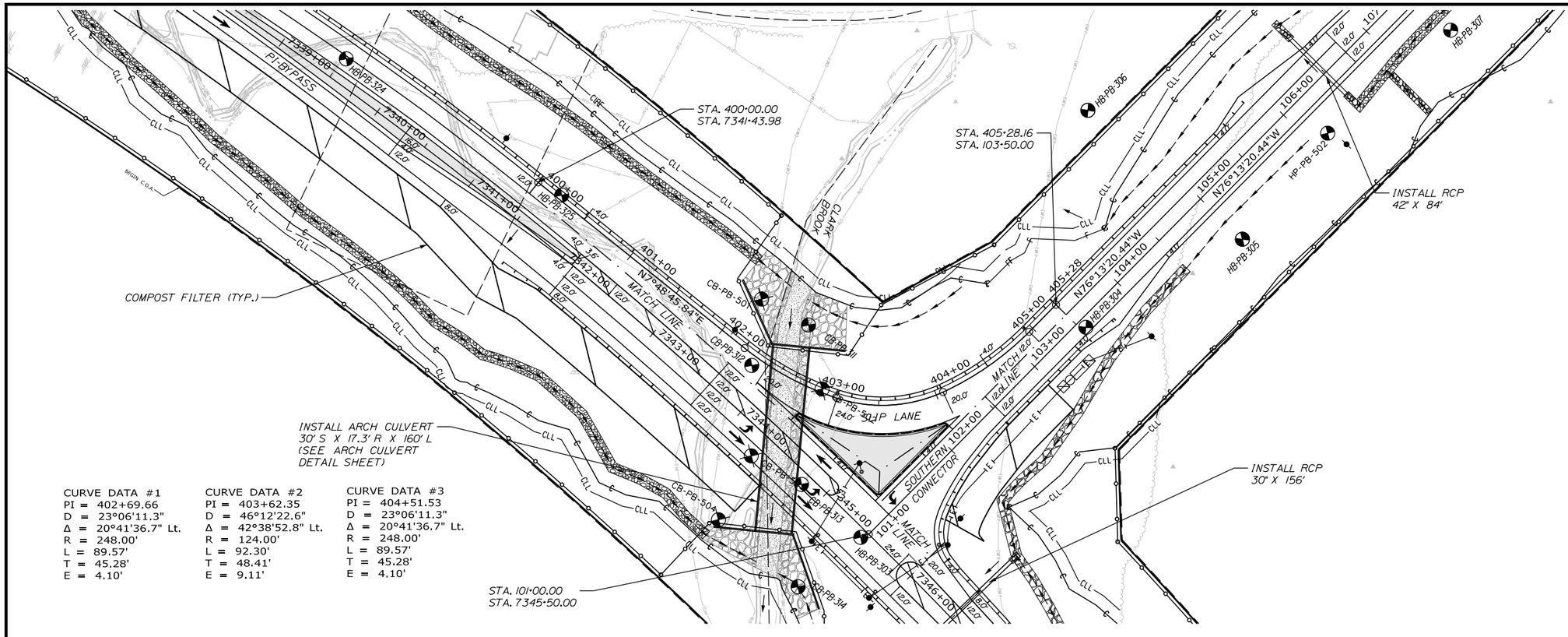
PRESQUE ISLE
PRESQUE ISLE BYPASS

PLAN & PROFILE

SHEET NUMBER
H-25
132
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

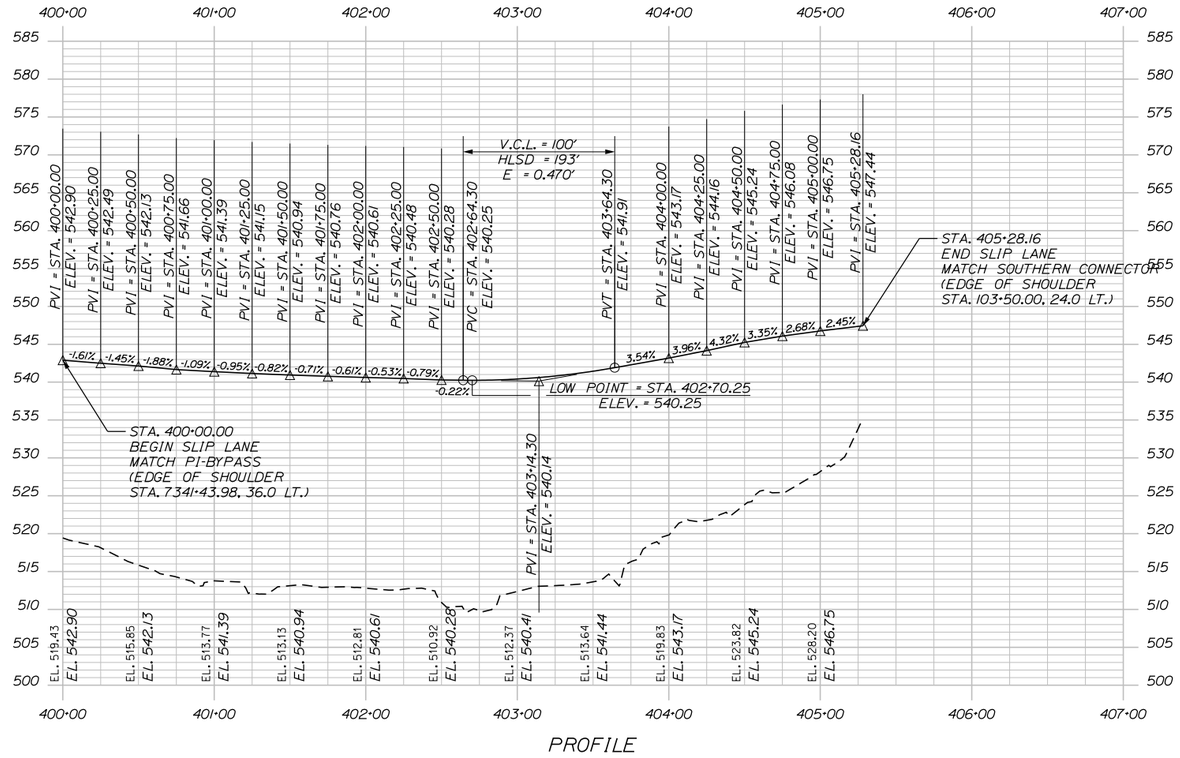
Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025



CURVE DATA #1
PI = 402+69.66
D = 23°06'11.3"
Δ = 20°41'36.7" Lt.
R = 248.00'
L = 89.57'
T = 45.28'
E = 4.10'

CURVE DATA #2
PI = 403+62.35
D = 46°12'22.6"
Δ = 42°38'52.8" Lt.
R = 124.00'
L = 92.30'
T = 48.41'
E = 9.11'

CURVE DATA #3
PI = 404+51.53
D = 23°06'11.3"
Δ = 20°41'36.7" Lt.
R = 248.00'
L = 89.57'
T = 45.28'
E = 4.10'



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

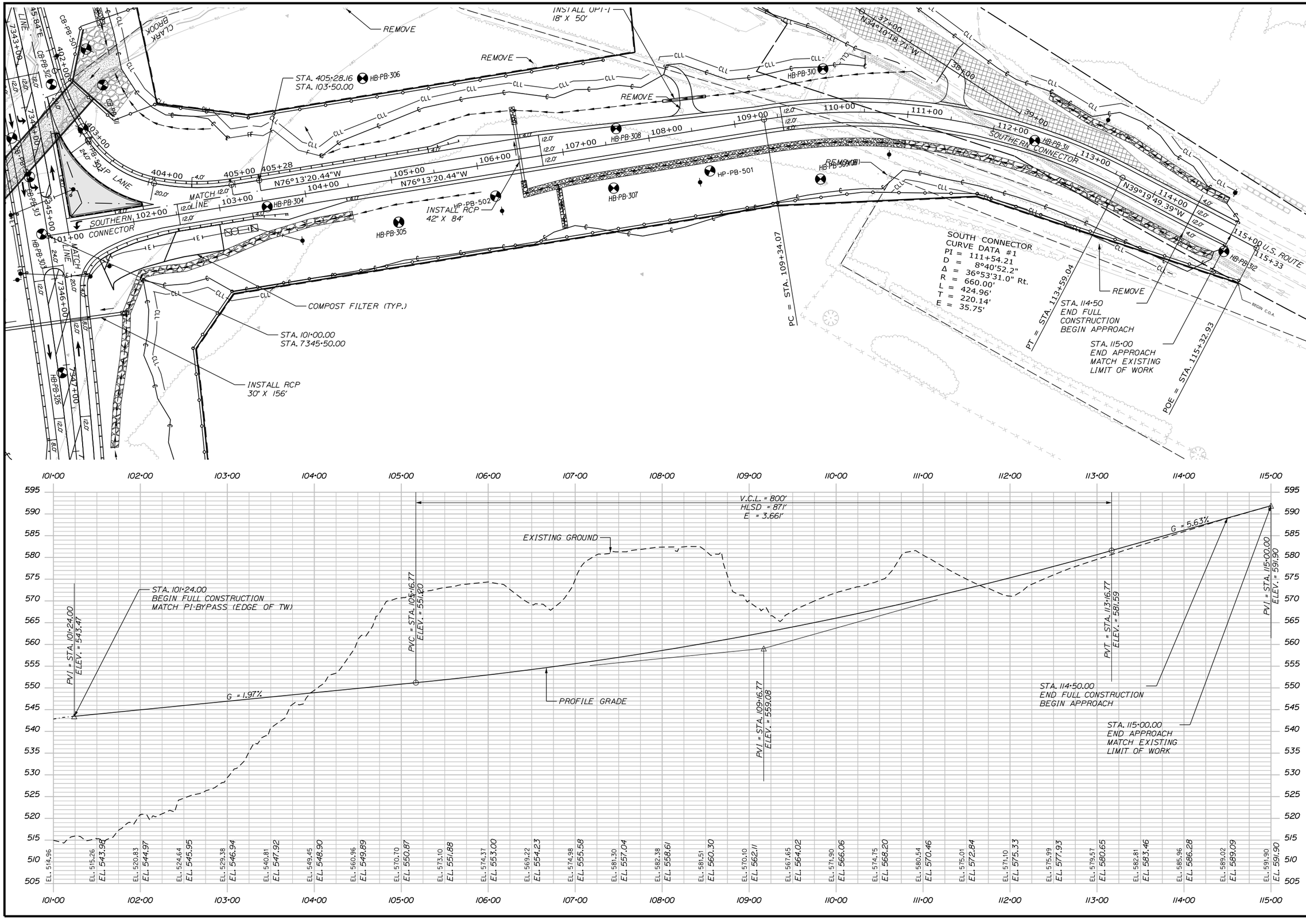
	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
SLIP LANE

PLAN & PROFILE

SHEET NUMBER
H-26
133
OF 717

Username: jamesdavis
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn
Date:7/15/2025



STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE SOUTHERN CONNECTOR

PLAN & PROFILE

SHEET NUMBER
H-27
134
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

DRIVE
CURVE DATA #1
PI = 21+38.41
D = 70°44'07.9"
Δ = 72°52'50.2" Rt.
R = 81.00'
L = 103.03'
T = 59.81'
E = 19.69'

PRC = STA. 21+81.64

CLEAN EXISTING PIPE

STA. 23+00
BEGIN APPROACH
END FULL CONSTRUCTION

STA. 23+50
END APPROACH
MATCH EXISTING

STA. 20+00.00
STA. 7333+00.00

INSTALL
OPT-I
24" X 63'

CLEAN EXISTING PIPE

REMOVE AND DISPOSE EXISTING GUARDRAIL

DRIVE
CURVE DATA #2
PI = 29+35.65
D = 0°49'47.7"
Δ = 12°27'57.9" Lt.
R = 6903.69'
L = 1502.07'
T = 754.01'
E = 41.05'

PROPOSED STREAM CHANNEL (REFER TO STREAM RELOCATION SHEETS)

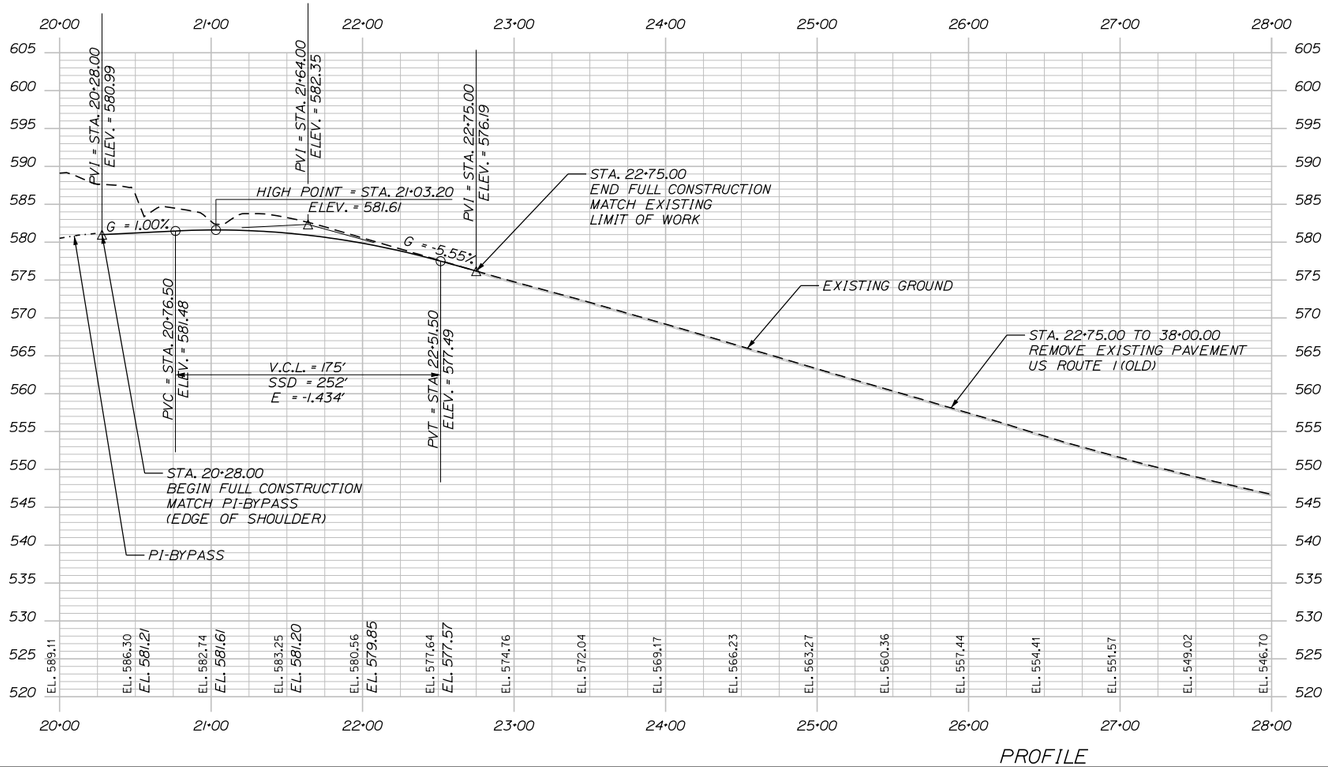
REMOVE EXISTING PAVEMENT, LOAM AND SEED (TYP.)

REM

U.S. ROUTE 1

MATCH LINE

HB-PB-318
HB-PB-319
HB-PB-320(OM)
HB-PB-321
HB-PB-322
HB-PB-302



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.		
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
ROUTE 1 - DRIVE SOUTH

PLAN & PROFILE

SHEET NUMBER
H-28
135
OF 717

Username: jamesdavis Division: HIGHWAY Filename: ...\H4_Plans and Profiles.dgn Date:7/15/2025

DRIVE
CURVE DATA #2
PI = 29+35.65
D = 0°49'47.7"
Δ = 12°27'57.9" Lt.
R = 6903.69'
L = 1502.07'
T = 754.01'
E = 41.05'

PROPOSED STREAM CHANNEL (REFER TO STREAM RELOCATION SHEETS)

REMOVE AND DISPOSE EXISTING GUARDRAIL

REMOVE EXISTING PAVEMENT, LOAM AND SEED (TYP.)

REMOVE

REMOVE PIPE

REMOVE EXISTING PAVEMENT, LOAM AND SEED (TYP.)

REMOVE

PT = STA. 36+83.70

N34°10'18.71"W

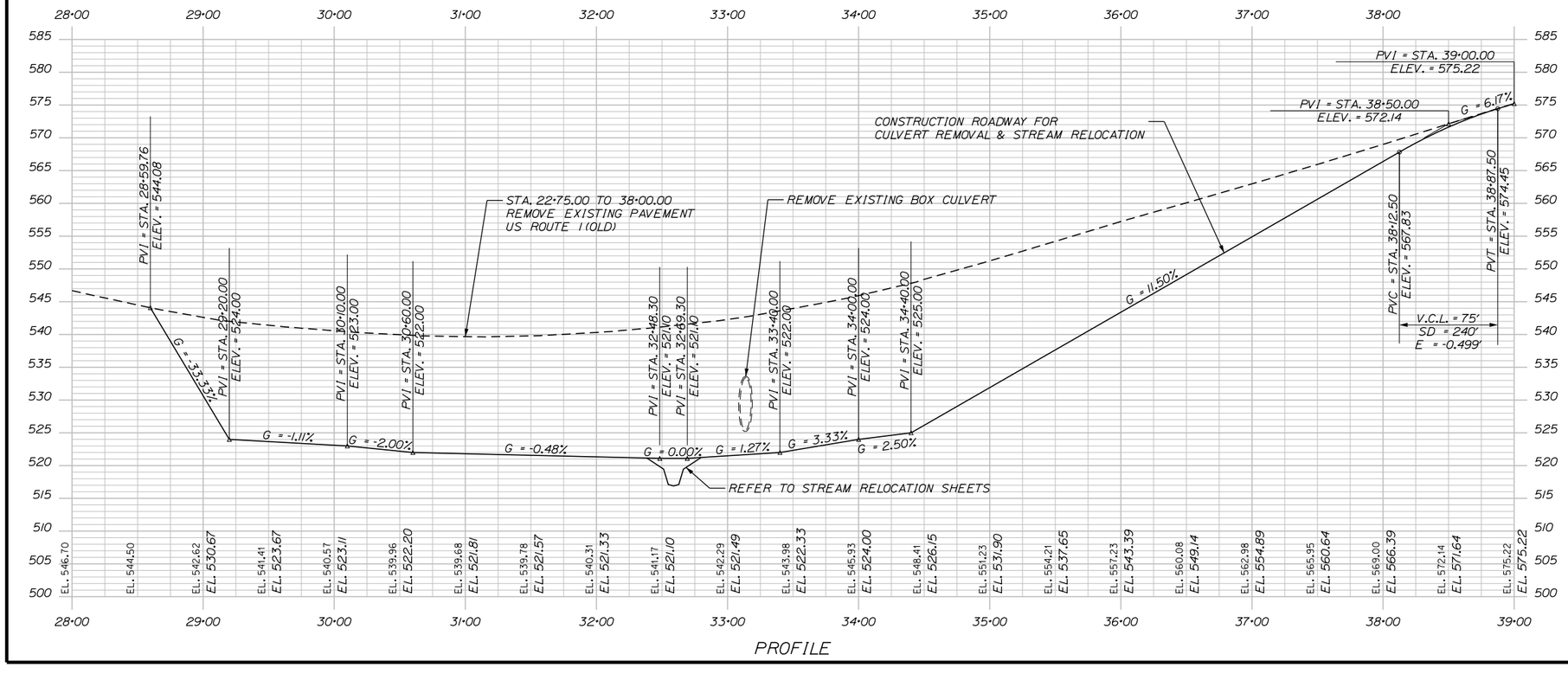
N39°19'49.39"W

U.S. ROUTE 1

SOUTHERN CONNECTOR

HB-PB-301 HB-PB-302 HB-PB-303(OH) HB-PB-310 HB-PB-311 HB-PB-312

EXISTING DRAINAGE EASE., S.H.C. FILE NO. 2-450 (1996)



PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
ROUTE 1 - REMOVE CULVERT

PLAN & PROFILE

SHEET NUMBER
H-29
136
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
CONANT ROAD

PLAN & PROFILE

SHEET NUMBER
H-30
137
OF 717

STA. 312+50
BEGIN APPROACH
MATCH EXISTING
LIMIT OF WORK

STA. 313+00
END APPROACH
BEGIN FULL CONSTRUCTION

INSTALL OPT-I
18" X 27'

INSTALL OPT-I
18" X 25'

RELOCATE

REMOVE

MATCHLINE

HB-PB-630

HB-PB-631

HB-PB-632

PI = STA. 315+30.94

PI = STA. 312+50.00

PC = STA. 316+46.75

STA. 315+82.24
STA. 820+22.49
STA. 900+10.00

INSTALL
DUCT BANK
APPROX.
LOCATION
(BY OTHERS)

CONANT ROAD

PI = 312+50.00
Δ = 0°27'28.9" Rt.

CURVE DATA #1
PI = 315+30.94
Δ = 0°24'14.9" Lt.

PROFILE

EXISTING GROUND

PROFILE GRADE

PVC = STA. 312+50.00
ELEV. = 679.74

PVI = STA. 313+25.00
ELEV. = 677.78

PVT = STA. 314+00.00
ELEV. = 676.22

PVC = STA. 314+50.00
ELEV. = 675.17

PVI = STA. 316+50.00
ELEV. = 671.00

PVT = STA. 318+50.00
ELEV. = 658.16

PVC = STA. 322+00.00
ELEV. = 635.68

G = -2.09%

G = -6.42%

V.C.L. = 150'
SD = 1099'
E = 0.099'

V.C.L. = 400'
SSD = 449'
E = -2.167'

V.C.L. = 600'
HLSD = 451'
E = 4.376'

STA. 312+50
BEGIN APPROACH
MATCH EXISTING
LIMIT OF WORK

STA. 313+00
END APPROACH
BEGIN FULL DEPTH CONSTRUCTION

EL. 693.78 EL. 691.75 EL. 689.79 EL. 687.70 EL. 685.43 EL. 683.19 EL. 681.30 EL. 679.74 EL. 679.74 EL. 678.41 EL. 678.48 EL. 677.31 EL. 677.30 EL. 676.20 EL. 676.22 EL. 675.15 EL. 675.17 EL. 674.09 EL. 673.99 EL. 673.11 EL. 672.54 EL. 672.00 EL. 670.82 EL. 670.09 EL. 668.83 EL. 667.75 EL. 666.57 EL. 665.29 EL. 664.04 EL. 662.41 EL. 661.23 EL. 659.13 EL. 658.16 EL. 655.72 EL. 654.95 EL. 652.24 EL. 651.74 EL. 648.84 EL. 648.53 EL. 645.39 EL. 645.32 EL. 641.84 EL. 642.11 EL. 638.44 EL. 638.89 EL. 634.88 EL. 635.68 EL. 631.39 EL. 632.60 EL. 628.04 EL. 629.75

Usernam: jomesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

CONANT RD
CURVE DATA #1
PI = 323+39.44
D = 0°28'38.9"
Δ = 6°36'26.7" Lt.
R = 12000.00'
L = 1383.85'
T = 692.69'
E = 19.98'

MATCHLINE
STA. 326+00.01
STA. 718+10.41
STA. 600+15.00

INSTALL BOX CULVERT
12' S x 14' R x 92' L
(SEE BOX CULVERT DETAIL SHEET)

PT = STA. 330+30.60

DRAINAGE TREATMENT AREA
HB-PB-625
HB-PB-627
HB-PB-628
P4
P3
REMOVE
EXISTING SLOPE EASEMENT
EXISTING DRAINAGE OUTLET R.O.T. FILE NO. 2-497
EXISTING DRAINAGE EASEMENT R.O.T. FILE NO. 2-497
SEE D.O.T. FILE NO. 2-497
HB-PB-623
HB-PB-622
CONANT ROAD
MATCHLINE
BEGIN C.O.A. P.T. STA. 330+30.59
STA. 334+00
END APPROACH
MATCH EXISTING
LIMIT OF WORK
STA. 333+50
END FULL CONSTRUCTION
BEGIN APPROACH
INSTALL OPT-I
18" X 44'
N86°25'25.07"E
PC = STA. 333+19.48

CONANT RD
CURVE DATA #2
PI = 335+59.75
D = 0°13'45.1"
Δ = 1°06'04.7" Rt.
R = 25000.00'
L = 480.53'
T = 240.27'
E = 1.15'

V.C.L. = 600'
HLSD = 451'
E = 4.376'

PVI = STA. 325+00.00
ELEV. = 616.42

PROFILE GRADE

PVT = STA. 328+00.00
ELEV. = 614.66

G = -0.59%

V.C.L. = 200'
HLSD = 772'
E = 0.577'

PVC = STA. 329+00.00
ELEV. = 614.08

PVI = STA. 330+00.00
ELEV. = 613.49

PVT = STA. 331+00.00
ELEV. = 615.21

LOW POINT = STA. 329+50.76
ELEV. = 613.93

G = 1.72%

PVI = STA. 334+00.00
ELEV. = 620.38

EXISTING GROUND

EL. 628.04 EL. 629.75
EL. 624.72 EL. 627.15
EL. 621.29 EL. 624.79
EL. 617.95 EL. 622.67
EL. 615.21 EL. 620.80
EL. 612.83 EL. 619.17
EL. 610.91 EL. 617.78
EL. 609.35 EL. 616.64
EL. 608.36 EL. 615.74
EL. 607.62 EL. 615.08
EL. 607.14 EL. 614.66
EL. 607.35 EL. 614.37
EL. 607.88 EL. 614.08
EL. 608.78 EL. 613.93
EL. 610.33 EL. 614.07
EL. 612.07 EL. 614.50
EL. 613.73 EL. 615.21
EL. 615.38 EL. 616.08
EL. 616.82 EL. 616.94
EL. 617.85 EL. 617.80
EL. 618.69 EL. 618.66
EL. 619.57 EL. 619.52
EL. 620.38 EL. 620.38
EL. 621.75
EL. 623.63
EL. 625.64
EL. 627.80
EL. 630.69
EL. 634.01

323+00 324+00 325+00 326+00 327+00 328+00 329+00 330+00 331+00 332+00 333+00 334+00 335+00 336+00 337+00

685 680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605 600 595

PROFILE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	BY	DATE
PROJ. MANAGER	R.M.	
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
CONANT ROAD

PLAN & PROFILE

SHEET NUMBER
H-31
138
OF 717

INSTALL BOX CULVERT
18' S x 18' R x 110' L
(SEE BOX CULVERT
DETAIL SHEET)

CB-PB-351

CB-PB-352

HB-PB-116

HB-PB-117

RB-PB-118

RB-PB-131

RB-PB-112

RB-PB-113

RB-PB-121

HB-PB-623

P3

PI-BYPASS

MATCH LINE

NB OFF RAMP

N34°35'57.91"W

N44°17'31.49"

N11°31'13.59"W

N15°29'50.5

REFER TO MERRIT
BROOK STREAM
RESTORATION PLAN

STA. 7613+61.65
STA. 703+70.29

STA. 7618+50.00
STA. 708+62.57

PT = STA. 711+53.07

PC = STA. 713+56.08

COMPOST FILTER (TYP.)

INSTALL RCP
24" X 84"

PT = STA. 716+98.47

STA. 326+00.01
STA. 718+10.41
STA. 600+15.00

MATCHLINE

INSTALL BOX CULVERT
12' S x 14' R x 92' L
(SEE BOX CULVERT DETAIL SHEET)

I-60-SEC

OTOW INVING

NB OFF RAMP
CURVE DATA #1
PI = 707+62.02
D = 0°44'38.8"
Δ = 5°49'28.7" Rt.
R = 7700.00'
L = 782.78'
T = 391.73'
E = 9.96'

NB OFF RAMP
CURVE DATA #2
PI = 715+29.63
D = 6°44'26.4"
Δ = 23°04'44.3" Rt.
R = 850.00'
L = 342.38'
T = 173.54'
E = 17.54'

V.C.L. = 214'
SSD = 349'
E = -1.194'

PVI = STA. 708+62.57
ELEV. = 634.12

PVC = STA. 708+83.86
ELEV. = 634.54

PVI = STA. 709+91.03
ELEV. = 636.69

PVT = STA. 710+98.20
ELEV. = 634.07

PVI = STA. 717+88.08
ELEV. = 617.17

SUPER TRANSITION
FROM -0.8% TO -2%
(SEE PI-BPYASS CROSS SECTIONS
STA. 7616+00 TO 7618+00)

BYPASS EDGE OF TW

G = 2.0%

STA. 708+62.57
BEGIN NOUTHBOUND OFF RAMP
MATCH PI-BYPASS STA. 7618+50.00

HIGH POINT = STA. 709+80.41
ELEV. = 635.51

PROFILE GRADE

G = -2.45%

STA. 717+88.08
END NORTHBOUND OFF RAMP
MATCH CONANT ROAD
EDGE OF SHOULDER

CONANT ROAD ℄

EXISTING GROUND

EL. 616.27 EL. 613.22 EL. 610.89 EL. 609.48 EL. 608.54 EL. 607.88 EL. 607.40 EL. 606.59 EL. 606.05 EL. 604.33 EL. 606.73 EL. 634.84 EL. 607.01 EL. 635.42 EL. 608.91 EL. 635.47 EL. 608.02 EL. 635.01 EL. 608.46 EL. 634.03 EL. 609.84 EL. 632.80 EL. 610.94 EL. 631.58 EL. 610.30 EL. 630.35 EL. 609.29 EL. 629.13 EL. 608.96 EL. 627.90 EL. 609.36 EL. 626.68 EL. 609.34 EL. 625.45 EL. 609.01 EL. 624.23 EL. 608.27 EL. 623.00 EL. 607.22 EL. 621.78 EL. 607.37 EL. 620.55 EL. 607.42 EL. 619.33 EL. 607.82 EL. 618.10 EL. 611.02 EL. 610.90

704+00 705+00 706+00 707+00 708+00 709+00 710+00 711+00 712+00 713+00 714+00 715+00 716+00 717+00 718+10 718+00

680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605 600 595 590

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	JBD 7/15/2025
CHECKED-REVIEWED	EOF	AG 7/15/2025
DESIGN2-DETAILED2		
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

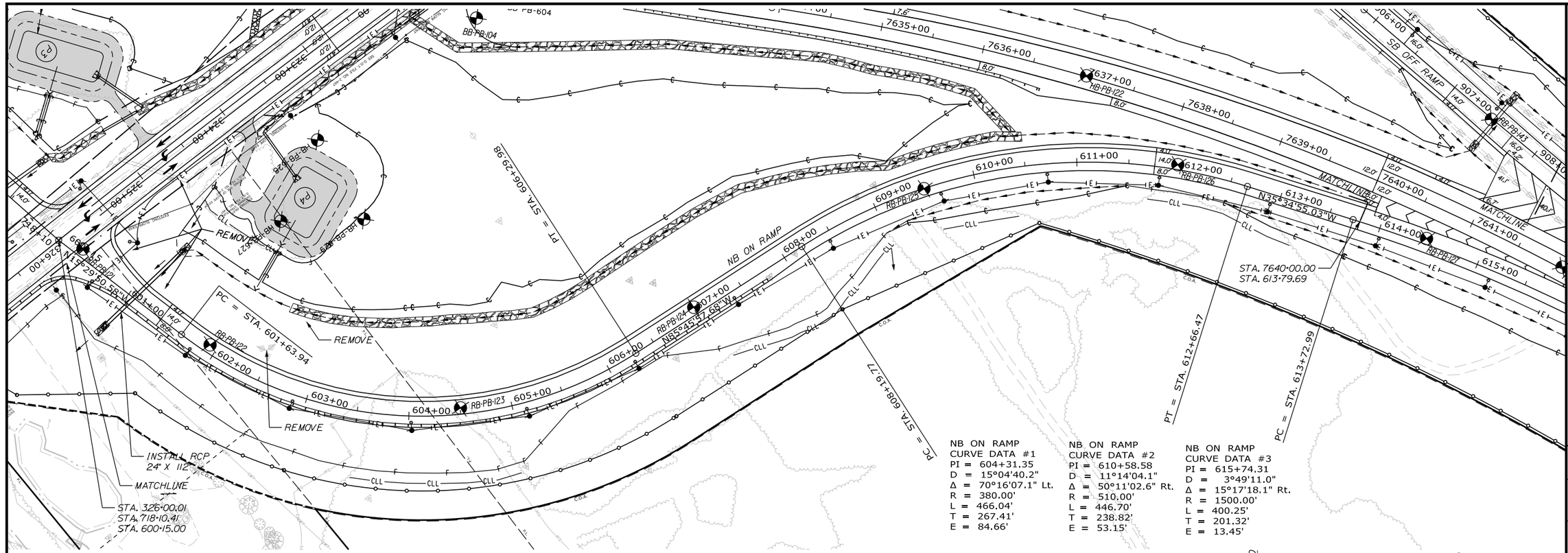
PRESQUE ISLE
NB OFF RAMP

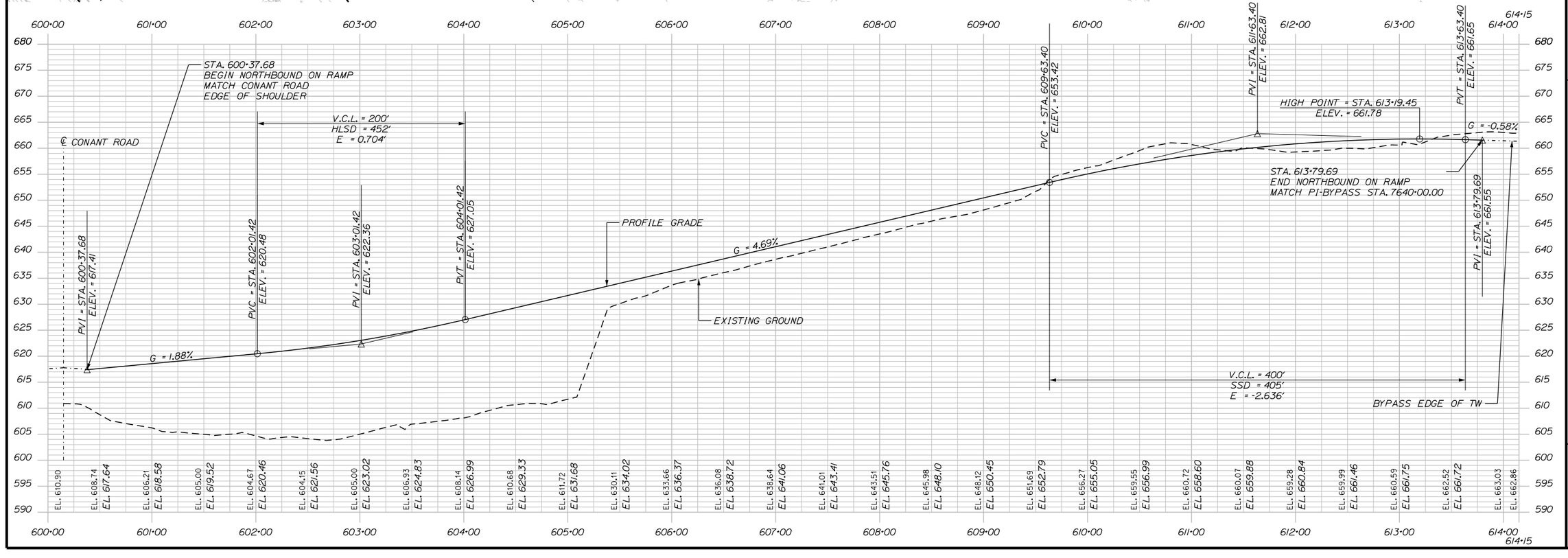
PLAN & PROFILE

SHEET NUMBER
H-32
139
OF 717

Filename: ...\H4_Plans and Profiles.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

Usernam: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn





STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	BY	DATE
R.M.	JBD	7/15/2025
	AG	7/15/2025

PROJ. MANAGER	ZBW
DESIGN-DETAILED	ECF
CHECKED-REVIEWED	D2
DESIGN2-DETAILED2	D3
DESIGN3-DETAILED3	
REVISIONS 1	
REVISIONS 2	
REVISIONS 3	
REVISIONS 4	
FIELD CHANGES	

PRESQUE ISLE
NB ON RAMP

PLAN & PROFILE

SHEET NUMBER
H-33
140
OF 717

SB OFF RAMP
CURVE DATA #1
PI = 909+09.82
D = 0°44'38.8"
Δ = 4°49'49.3" Lt.
R = 7700.00'
L = 649.15'
T = 324.77'
E = 6.85'

SB OFF RAMP
CURVE DATA #2
PI = 915+26.35
D = 2°21'07.4"
Δ = 13°40'38.1" Rt.
R = 2436.00'
L = 581.50'
T = 292.14'
E = 17.46'

STA. 315+82.24
STA. 820+22.49
STA. 900+10.00

PC = STA. 905+85.05

STA. 7641+50.00
STA. 908+26.98

INSTALL RCP
18" X 60"

MATCHLINE

SB OFF RAMP

PI-BYPASS

MATCHLINE

MATCHLINE

CLL

HB-PB-630
HB-PB-631
HB-PB-632
HB-PB-122
HB-PB-123
HB-PB-124
HB-PB-125
HB-PB-126
HB-PB-127
HB-PB-136
RB-PB-141
RB-PB-142
RB-PB-143

N11°56'15.66"W
N35°34'55.03"W
N 20°-14'-02.4" W

22.665 AC.

C.O.A.

900+10
820+00
901+00
902+00
903+00
904+00
905+00
906+00
907+00
908+00
909+00
910+00
911+00
912+00
7637+00
7638+00
7639+00
7640+00
7641+00
7642+00
7643+00
7644+00
7645+00
7646+00
7647+00
612+00
613+00
614+00
615+00
616+00
617+00

16.0'
14.0'
12.0'
8.0'
4.0'
6.7'
9.2'
41.1'
40.1'

900·00 901·00 902·00 903·00 904·00 905·00 906·00 907·00 908·00 909·00 910·00 911·00 912·00 913·00 914·00

705 700 695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620 615

℄ CONANT ROAD

PVI = STA. 900·32.61
ELEV. = 671.12

STA 900·32.61
BEGIN SOUTHBOUND OFF RAMP
BEGIN FULL CONSTRUCTION
MATCH CONANT ROAD
(EDGE OF SHOULDER)

PROFILE GRADE

G = -1.51%

STA. 902·50.00
END TRANSITION
BEGIN 1.5" OVERLAY

STA. 902·00.00
END FULL CONSTRUCTION
BEGIN TRANSITION

V.C.L. = 200'
HLSD = 745'
E = 0.27'

PVC = STA. 904·97.84
ELEV. = 664.12

PVI = STA. 905·97.84
ELEV. = 662.61

PVT = STA. 906·97.84
ELEV. = 662.19

PVI = STA. 908·26.98
ELEV. = 661.64

G = -0.42%

STA. 906·50.00
END 1.5" OVERLAY
BEGIN 4" HMA WITH VARIABLE DEPTH GRAVEL

STA 908·26.98
END SOUTHBOUND OFF RAMP
END 4" HMA WITH VARIABLE DEPTH GRAVEL
MATCH PI-BYPASS STA. 7641·50.00

BYPASS EDGE OF TW

EXISTING GROUND

EL. 671.72 EL. 670.86
EL. 670.76 EL. 670.11
EL. 669.76 EL. 669.36
EL. 668.78 EL. 668.60
EL. 667.83 EL. 667.85
EL. 666.98 EL. 667.10
EL. 666.19 EL. 666.34
EL. 665.49 EL. 665.59
EL. 664.79 EL. 664.84
EL. 664.03 EL. 664.08
EL. 663.36 EL. 663.40
EL. 662.85 EL. 662.86
EL. 662.44 EL. 662.45
EL. 662.10 EL. 662.18
EL. 661.87 EL. 661.97
EL. 661.64 EL. 661.76
EL. 661.40
EL. 661.02
EL. 660.61
EL. 660.14
EL. 659.56
EL. 658.99
EL. 658.24
EL. 657.28
EL. 656.03
EL. 653.61
EL. 650.60
EL. 646.82

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

	R.M.	BY	DATE
PROJ. MANAGER			
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
SB OFF RAMP

PLAN & PROFILE

SHEET NUMBER
H-34
141
OF 717

Username: jamesdavis Date:7/15/2025
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

SB ON RAMP
CURVE DATA #1
PI = 805+86.43
D = 2°51'53.2"
Δ = 8°11'16.0" Lt.
R = 2000.00'
L = 285.81'
T = 143.15'
E = 5.12'

SB ON RAMP
CURVE DATA #2
PI = 810+23.31
D = 11°14'04.1"
Δ = 41°12'32.4" Lt.
R = 510.00'
L = 366.81'
T = 191.74'
E = 34.85'

SB ON RAMP
CURVE DATA #3
PI = 817+10.53
D = 15°04'40.2"
Δ = 81°45'04.3" Rt.
R = 380.00'
L = 542.19'
T = 328.88'
E = 122.56'

PT = STA. 807+29.09
PT = STA. 808+31.57
PC = STA. 813+81.65
PT = STA. 819+23.84
COMPOST FILTER (TYP.)
INSTALL RCP 18" X 60'
MATCHLINE
STA. 7623+50.00
STA. 807+19.18
STA. 315+82.24
STA. 820+22.49
STA. 900+10.00
MATCH LINE
NB OFF RAMP
SB ON RAMP
CONANT ROAD
N52°28'47.50"W
N44°17'31.49"W
S86°18'40.06"W
N11°56'15.66"W
RB-PB-134
RB-PB-135
RB-PB-136
RB-HB-132
HB-PB-118
HB-PB-119
HB-PB-112
HB-PB-120
HB-PB-624
HB-PB-625
HB-PB-626
HB-PB-630
HB-PB-631
HB-PB-632
BB-PB-603
BB-PB-602
BB-PB-601
P2

V.C.L. = 300'
SSD = 280.7'
E = -0.152'

PVI = STA. 807+19.18
ELEV. = 647.32
PVC = STA. 809+43.71
ELEV. = 652.07
PVI = STA. 810+93.71
ELEV. = 655.24
PVT = STA. 812+43.71
ELEV. = 657.80
PVI = STA. 819+99.80
ELEV. = 670.72
PROFILE GRADE
EXISTING GROUND
G = 2.11%
G = 1.71%
© CONANT ROAD
SB OFF RAMP

STA. 807+19.18
BEGIN SOUTHBOUND ON RAMP
MATCH PI-BYPASS STA. 7623+50.00
PI-BYPASS FINISH GRADE

STA. 819+99.80
END SOUTHBOUND ON RAMP
MATCH CONANT ROAD
(EDGE OF SHOULDER)
CONANT ROAD FINISH GRADE
SB OFF RAMP FINISH GRADE

EL. 644.30 EL. 645.56 EL. 647.98 EL. 646.71 EL. 649.03 EL. 647.49 EL. 650.09 EL. 648.19 EL. 651.15 EL. 649.40 EL. 652.20 EL. 650.37 EL. 653.24 EL. 651.41 EL. 654.24 EL. 652.34 EL. 655.21 EL. 653.35 EL. 656.14 EL. 654.33 EL. 657.04 EL. 654.95 EL. 657.91 EL. 655.73 EL. 658.77 EL. 656.49 EL. 659.62 EL. 657.40 EL. 660.47 EL. 658.58 EL. 661.33 EL. 659.58 EL. 662.18 EL. 660.49 EL. 663.04 EL. 661.38 EL. 663.89 EL. 662.95 EL. 664.74 EL. 664.95 EL. 665.60 EL. 666.71 EL. 666.45 EL. 668.25 EL. 667.30 EL. 669.39 EL. 668.16 EL. 669.94 EL. 669.01 EL. 670.62 EL. 669.87 EL. 669.74

807+00 808+00 809+00 810+00 811+00 812+00 813+00 814+00 815+00 816+00 817+00 818+00 819+00 820+00 821+00

695 690 685 680 675 670 665 660 655 650 645 640 635 630 625 620 615 610 605

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
CAPITAL PROJECTS
WIN 6462.92
HIGHWAY PLANS

vhb

	R.M.	DATE
PROJ. MANAGER		
DESIGN-DETAILED	ZBW	7/15/2025
CHECKED-REVIEWED	ECF	7/15/2025
DESIGN2-DETAILED2	AG	
DESIGN3-DETAILED3		
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

PRESQUE ISLE
SB ON RAMP

PLAN & PROFILE

SHEET NUMBER
H-35
142
OF 717

Date:7/15/2025
Username: jamesdavis
Division: HIGHWAY
Filename: ...\H4_Plans and Profiles.dgn

Filename: ...\H4_02_Plan_Bridge_Culvert_Removal.dgn Division: HIGHWAY Username: jamesdavis Date:7/15/2025

TEMPORARY ACCESS ROAD TO REGRADE

REMOVE EXISTING MULTIPLATE ARCH CULVERT

EXISTING STREAM CHANNEL

INSTALL ARCH CULVERT 30' S X 17.3' R X 160' L (SEE ARCH CULVERT DETAIL SHEET)

CLARK BROOK

PROTECT IN PLACE EXISTING OLD ROUTE 1 BRIDGE DECK, ABUTMENTS AND WINGWALLS

PROPOSED STREAM CHANNEL (SEE STREAM RELOCATION SHEETS)

AREA TO PRESERVE EXISTING FORESTED FLOODPLAIN VEGATATION AND GRADING

REMOVE EXISTING PAVEMENT, LOAM AND SEED (TYP.)

REMOVE

SOUTHERN CONNECTOR

MATCH LINE

MATCH LINE

N76°13'20.44"W

N7°48'45.84"E

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

CAPITAL PROJECTS

WIN
6462.92

HIGHWAY PLANS

vhb

PROJ. MANAGER	R.M.	BY	DATE
DESIGN-DETAILED	ZBW	JBD	7/15/2025
CHECKED-REVIEWED	ECF	AG	7/15/2025
DESIGN2-DETAILED2			
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

PRESQUE ISLE
BRIDGE & CULVERT REMOVAL

PLAN

SHEET NUMBER
H-36
143
OF 717

APPENDIX D – BOREHOLE GEOPHYSICAL TEST REPORT

GEOPHYSICAL LOG RESULTS OF
BOREHOLE HB-PB-333
PRESQUE ISLE BYPASS SITE
IN PRESQUE ISLE, ME

Northeast Geophysical Services
Bangor, Maine
November, 2015

GEOPHYSICAL LOG RESULTS OF BOREHOLE HB-PB-333 PRESQUE ISLE BYPASS SITE IN PRESQUE ISLE, ME

Introduction

At the request of the GZA, a bedrock borehole named HB-PB-333 located at the Presque Isle Bypass Site in Presque Isle, Maine was geophysically logged on October 28, 2015 by Rudy Rawcliffe of Northeast Geophysical Services (NGS), Inc. The purpose of the geophysical logging was to determine the location and orientation of fractures, joints and cracks in the boreholes. Acoustic televiewer (ATV) and optical televiewer (OTV) were run on the borehole.

Summary of Results

Geophysical logs for the borehole are attached to this report in a series of logs (Plates 1-3) that show the results of the geophysical measurements. A table that provides the depth and calculated strike and dip of each identified feature are also presented in the attachment.

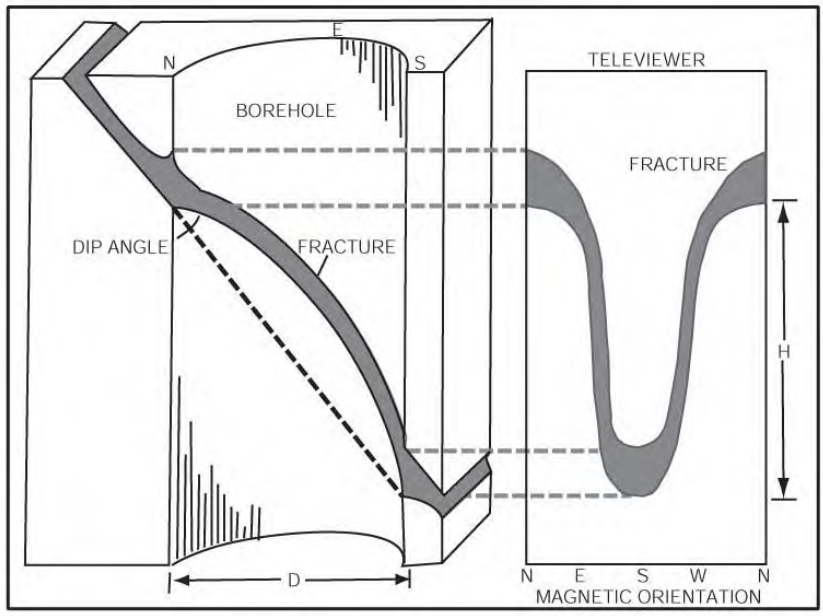
Methods and Instrumentation

The borehole was logged with a Mount Sopris Matrix digital logger. The borehole was first logged with an optical televiewer. The optical log provides a digital image of the borehole walls that is oriented to magnetic north. Planar features such as fractures, bedding surfaces, and joints can be identified with the optical tool and the strike, dip direction and dip angle of these features can often be determined.

The borehole was then logged with an acoustic televiewer. The ATV log provides an acoustical image of the borehole walls. The ATV works by scanning the borehole wall with an acoustic beam that is produced by a rapidly rotating piezoelectric source. Similar to the optical televiewer, planar features such as fractures, bedding surfaces and joints can be identified with the ATV tool and the strike, dip direction and dip angle of these features can often be determined. The ATV (and OTV) data are presented as "unwrapped" images of the borehole wall that are oriented to magnetic north. The dip angle and dip direction of any planar feature that intersects the borehole can be measured from this image. Figure 1, on the following page, illustrates this.

The optical and acoustical televiewer logs are somewhat duplicative in that they both can provide similar information. However, there are advantages and disadvantages to both tools. The ATV requires the borehole to be water filled and will not provide information above the water level. The OTV can work in air or water but is not effective in cloudy, turbid water whereas the ATV will work fine in cloudy water. The ATV can be better at discerning voids, cracks and fractures whereas the OTV can be better at discerning lithology. Also, sometimes water-bearing fractures are rust stained, which can be seen by the OTV.

Borehole Televiewer Data



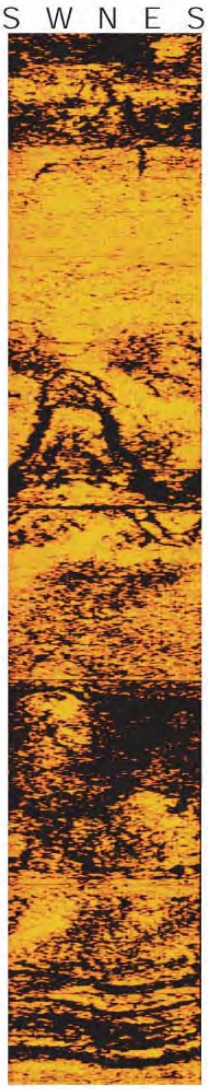


Figure 1 - ATV Unwrapped Image

Geophysical Log Results

	HB-PB-333:
Total Depth (from ground):	35.84 feet
Casing Depth:	11 feet
Casing stick up:	2.0 feet
Water Level:	25.60 feet

Plate 1 in the attachment shows the OTV and ATV logs for the borehole. The ATV and OTV logs provide the strike and dip of planar features that intersect the borehole. These planar features may be fractures, joints, cracks or may represent cleavage or bedding planes. All of the depths on the logs are referenced from the ground surface.

Also shown on Plate 1 is a 3-D "virtual core" image of the borehole that is derived from the optical televiewer.

The two columns on the right side of Plate 1 present the interpreted structure of the planar features that intersect the borehole. The column titled, "Structure" is a projection of the interpreted structure in the borehole. It was obtained by digitizing the planar features from the ATV and OTV logs. The dip direction and dip amount (corrected for the deviation of the borehole) was obtained from this log and tabulated in the attachments. The relative aperture width of the fractures is indicated by the line width of the digitized planar features.

The log in the far right column entitled, "Tadpole Plot" presents the structural data as a tadpole plot. The head of the tadpole indicates the dip amount (from 0 to 90 degrees) and the tail of the tadpole indicates the dip direction.

Plate 2 is a Rose plot of the strike and dip direction of all the interpreted planar features in the borehole.

Plate 3 is a polar plot (lower hemisphere) showing the dip amount and dip direction of all the interpreted planar features in the borehole.

Table 1 in the attachment is a tabulation of the planar features (possible fractures, joints, bedding, foliation, etc) that were identified in the borehole. Table 1 provides the depth and calculated strike and dip of the planar features in the borehole that have been interpreted from the televiewer logs. The results in Table 1 have been categorized and also have been color-coded on the logs to provide an interpretative range of what the associated feature represents as follows:

- Black symbol (category 100) - bedrock planar feature with aperture less than 1 mm interpreted to represent bedding, foliation or veins and less likely to be discontinuities such as fractures, joints, cracks or mechanical breaks in the rock matrix due to drilling advancement.
- Light blue symbol (category 108) - bedrock feature with aperture width between 1 and 10 mm interpreted to more likely represent discontinuities such as fractures, joints, cracks or mechanical breaks in the rock matrix due to drilling advancement.
- Dark blue symbol (category 107) - bedrock feature with aperture width greater than 10 mm interpreted to most likely represent discontinuities such as fractures, joints, cracks or mechanical breaks in the rock matrix due to drilling advancement.

Discussion of Geophysical Log Results

The objective of the televiewer logging was to map the discontinuities (fractures, joints and cracks) in the boreholes. A total of 36 planar features (bedding, foliation, joints, fractures, cracks, etc.) were measured in the borehole. Of these, seven were estimated to have an aperture of over 1 mm and one of these was estimated to have an aperture of over 10 mm. The features that have wider apertures are more likely to represent planes of weakness in the bedrock such as joints or fractures.

Plate 1 shows that the majority of the wider aperture fractures occur in the upper 16 feet in the borehole. The borehole has numerous white (calcite) veins most that conform to bedding and a smaller number that are cross cutting.

The Rose plot (Plate 2) shows that the predominant strike in HB-PB-333 is to the north-northwest (median 349° true) and the dip is steeply (median 72°) to the east. This most likely represents the foliation or bedding of the bedrock.

ATTACHMENTS

BOREHOLE TELEVIEWER LOGS AND GRAPHS

Northeast Geophysical Services
4 Union Street Bangor, Maine 04401
Tel. 207-942-2700
email: ngsinc@negeophysical.com

Log: Plate 1 Televiewer Logs

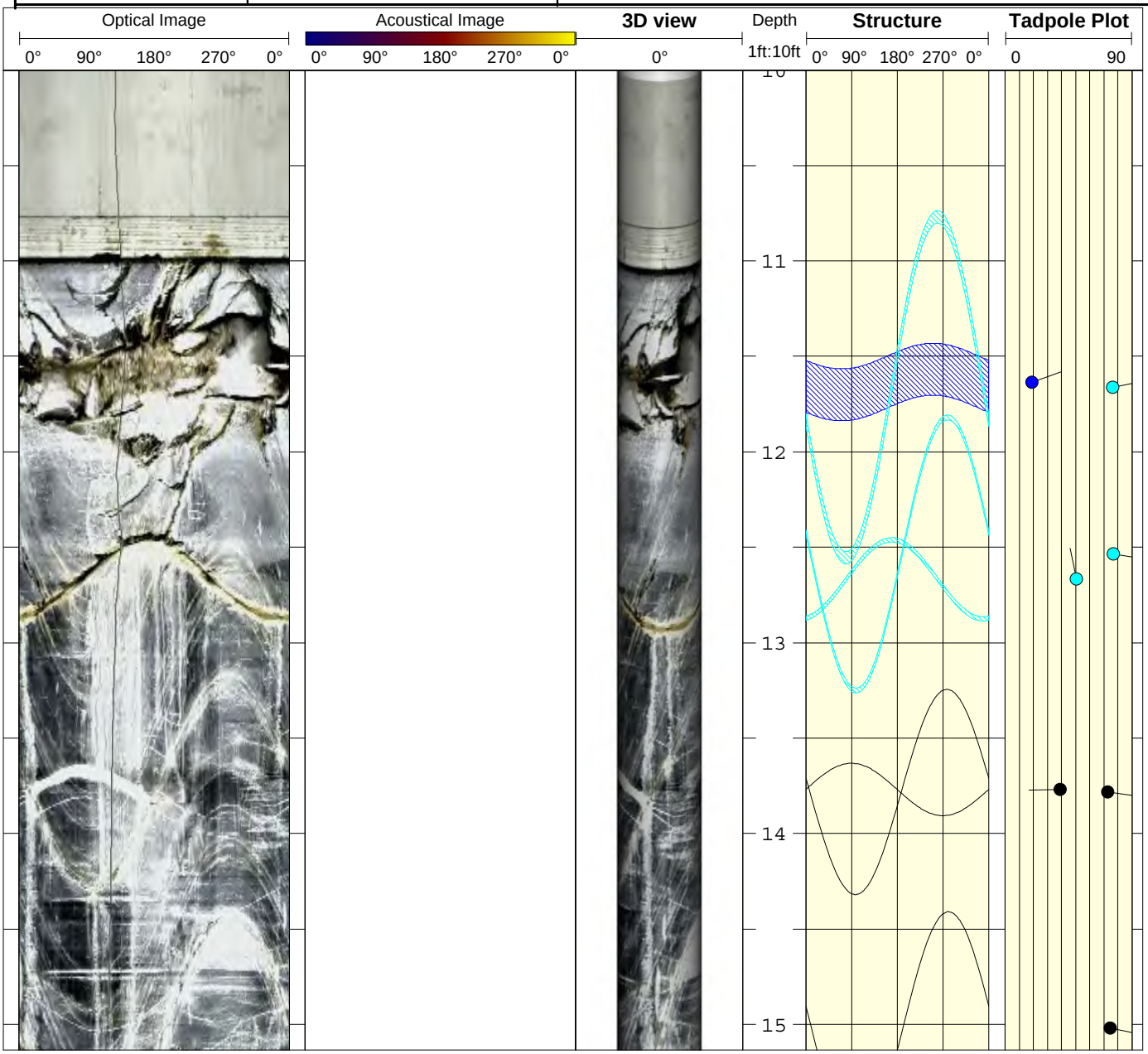
Well: **HP-PB-333**

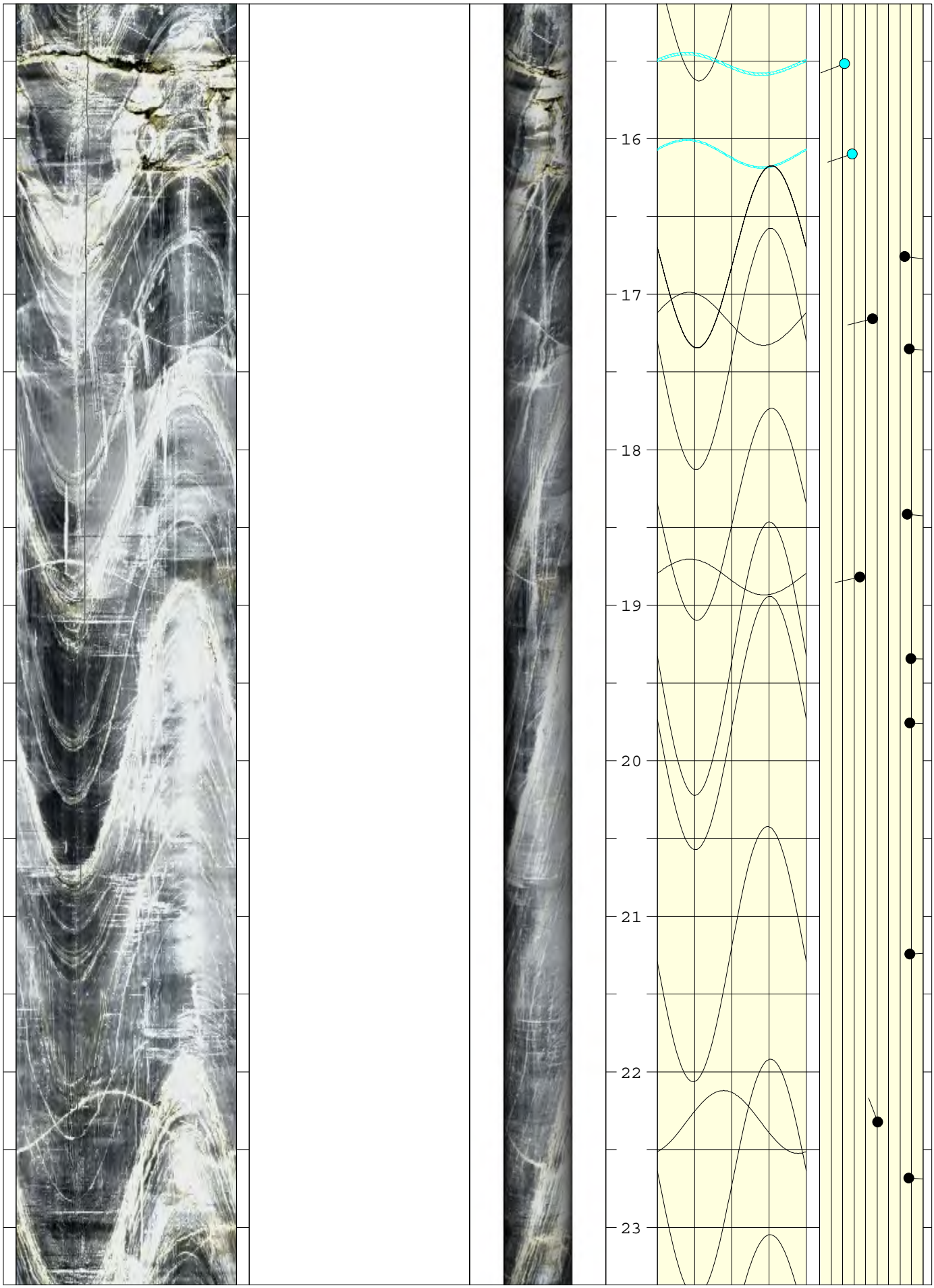
Site: Presque Isle By-Pass

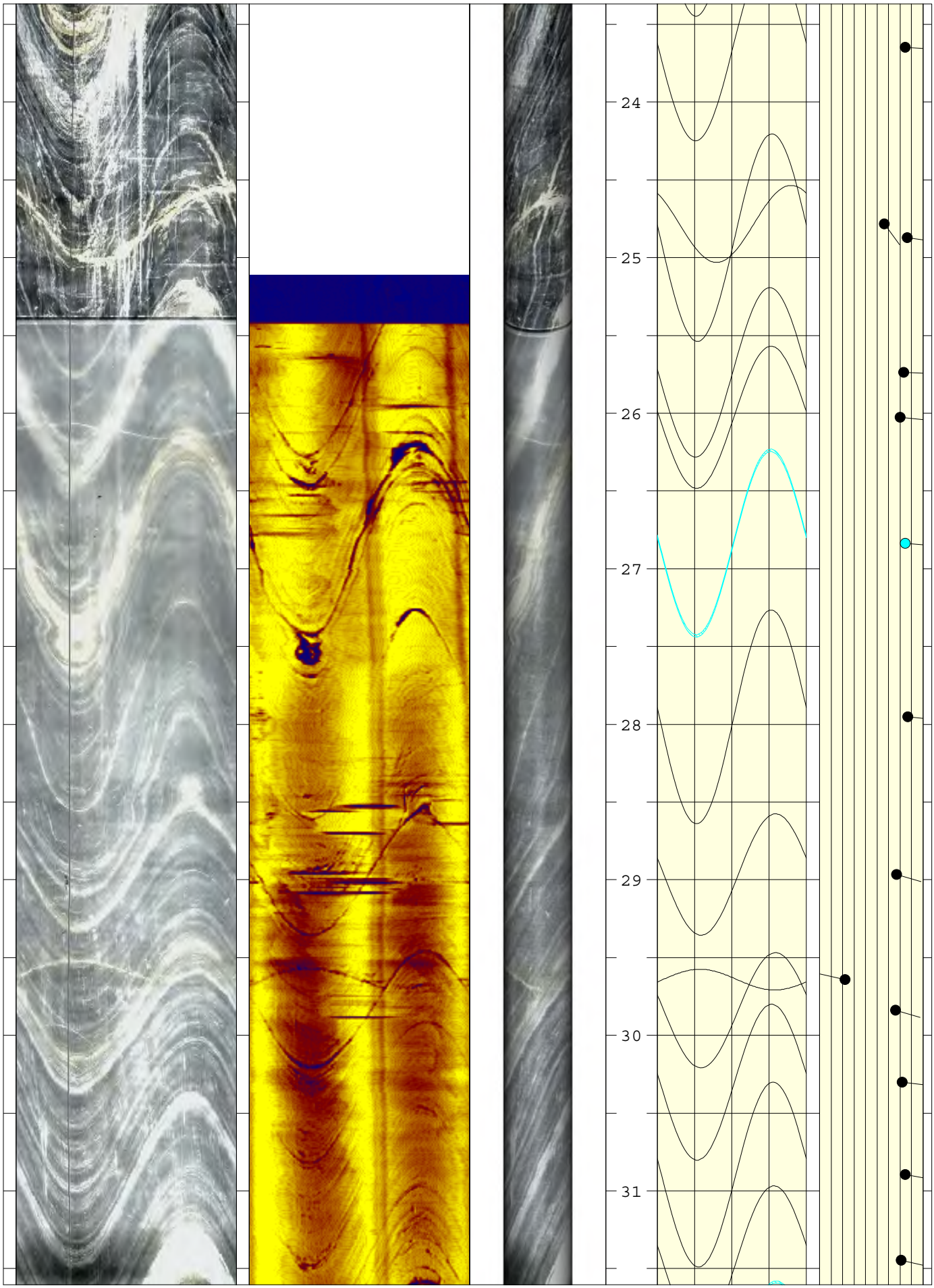
Date:	10/28/2015	**Location:**	Presque Isle, ME
Casing Depth:	11 ft.	**For:**	GZA
Casing Type:	PVC	**Logged by:**	R. Rawcliffe
Boring Depth:	35.84 ft	**Orientation:**	magnetic
Meas. From:	ground		
Stickup:	2.00 ft		
Water Level:	25.60 ft.		

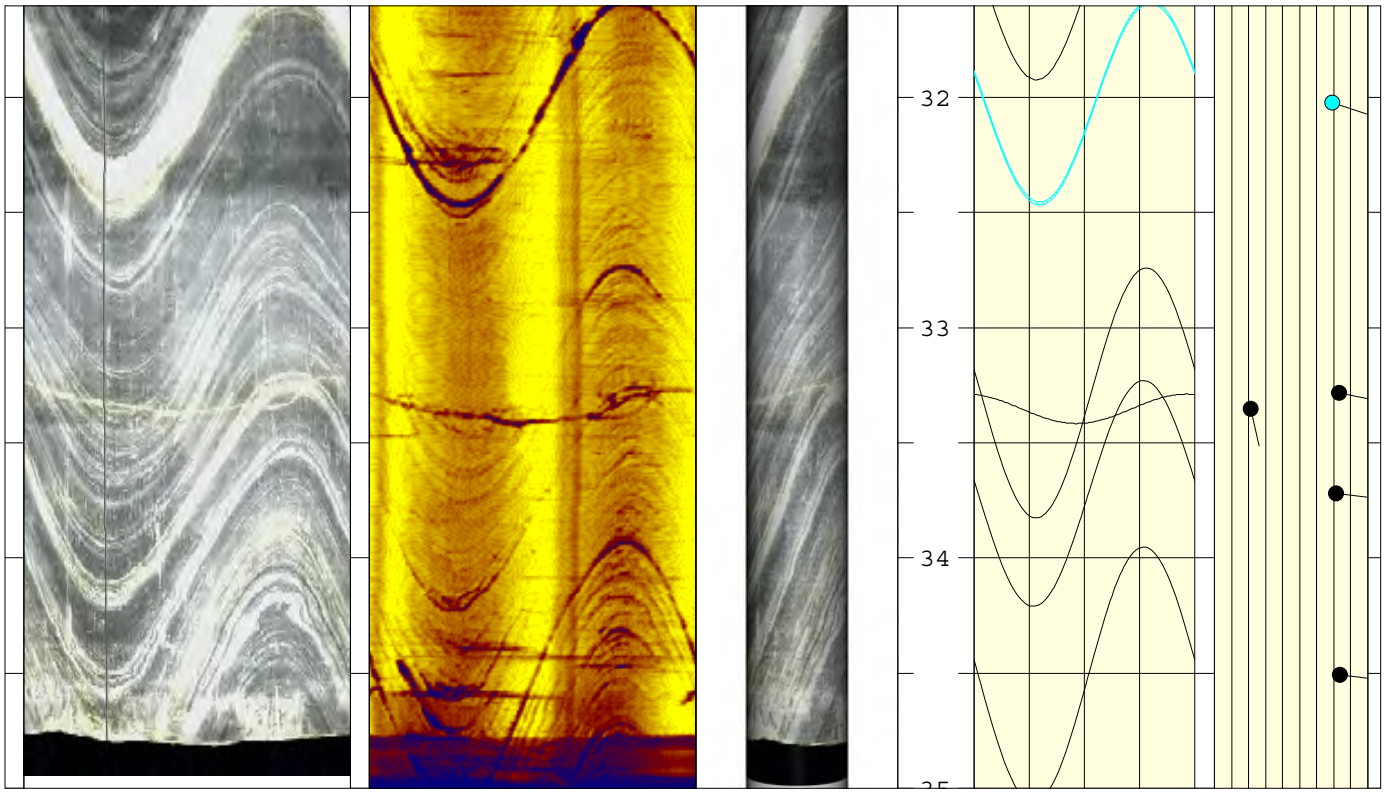
Structure Plots:

black = planar feature (bedding, foliation, fracture, joint) < 1 mm
light blue = fracure with aperture between 1 and 10 mm
dark blue = fracture with aperute > 10 mm




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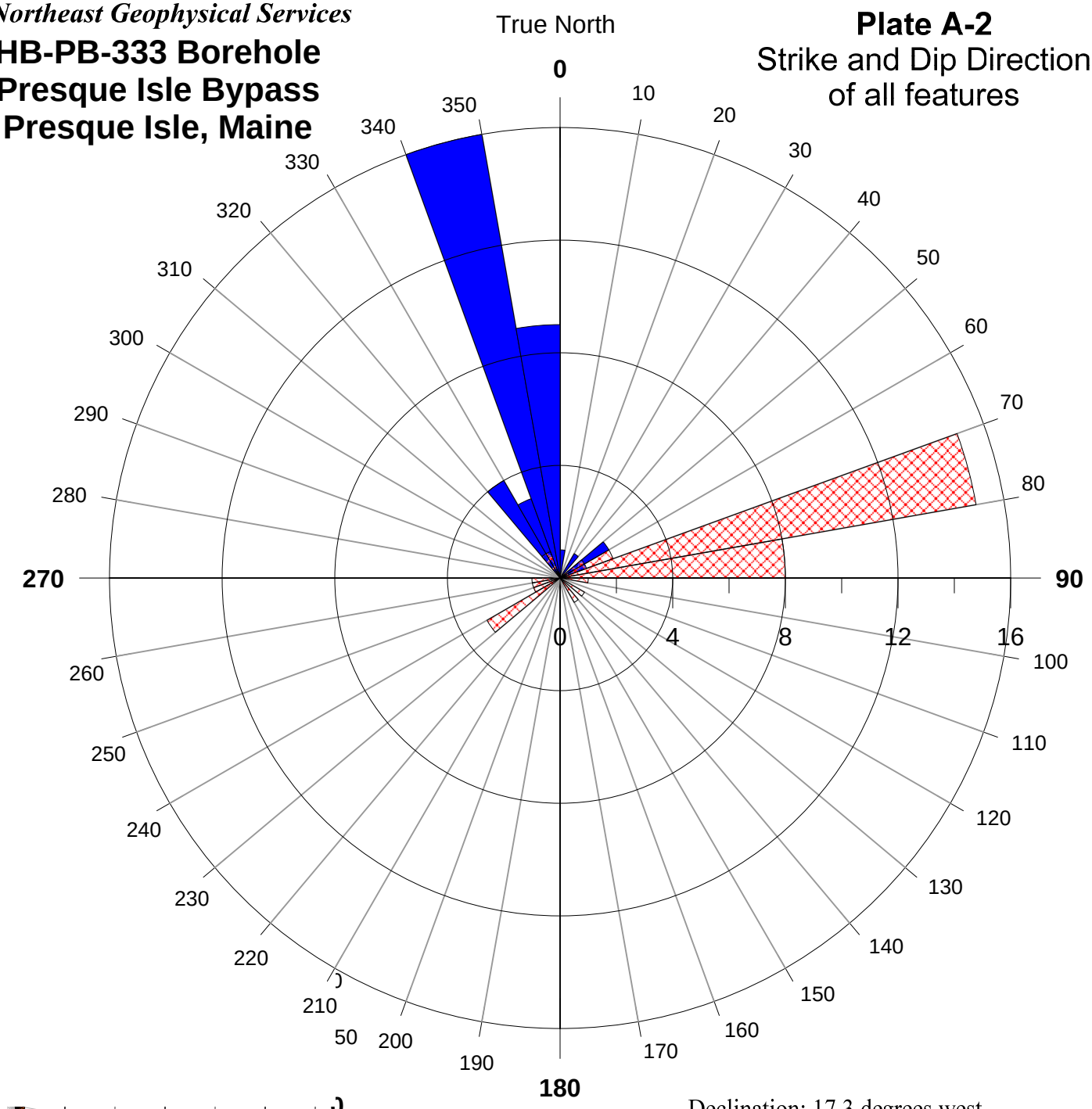

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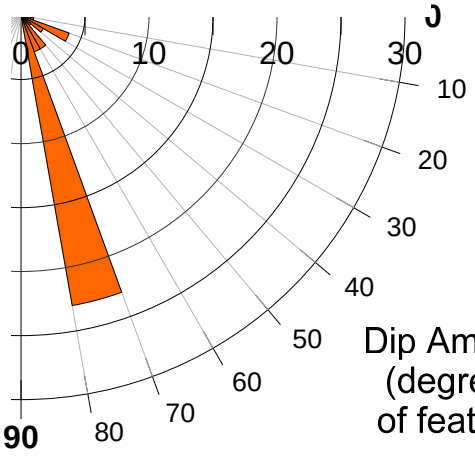

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Northeast Geophysical Services

HB-PB-333 Borehole
Presque Isle Bypass
Presque Isle, Maine

Plate A-2
Strike and Dip Direction of all features





Dip Amount (degrees) of features

Declination: 17.3 degrees west

Explanation

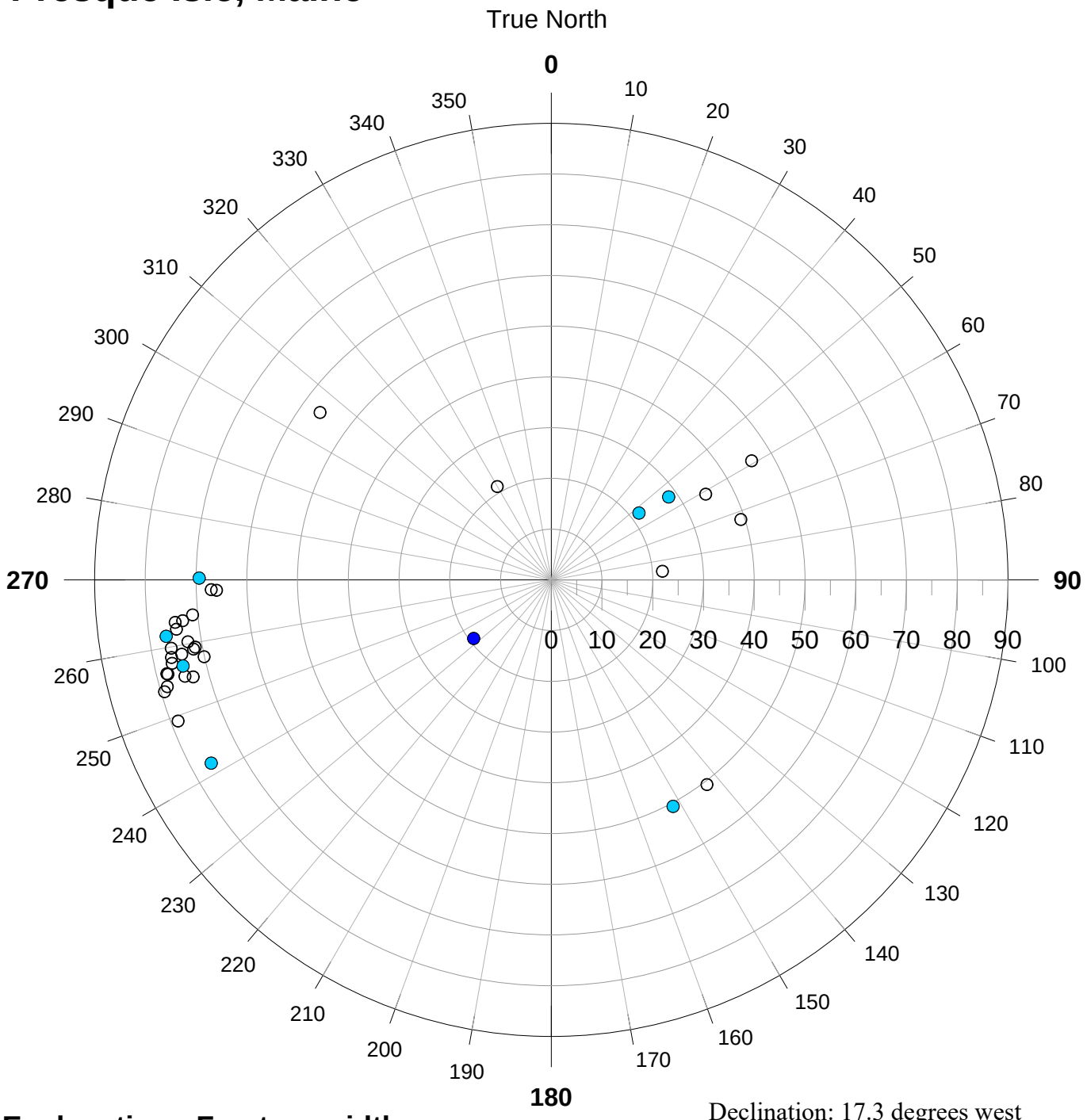
- Dip direction of feature
- Strike of feature
- Dip Amount (Tilt)

Based on 37 measurements

Northeast Geophysical Services

HB-PB-333 Borehole
Presque Isle Bypass
Presque Isle, Maine

PLATE 3
Dip Amount and Dip Azimuth of planar features (lower hemisphere plot)



Explanation - Fracture widths

- ○ Aperture < 1 mm
- ● Aperture width 1 to 10 mm
- ● Aperture > 10 mm

Declination: 17.3 degrees west

Based on 37 measurements

TABLE 1 Planar features interpreted from acoustical and optical televiewers
HB-PB-333 - Presque Isle Bypass Site - Presque Isle, ME **Logged: 10/28/2015**

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Aperture width (mm)	Category
HP-PB-333	1	11.6	19	70	340	53	323	78	107
HP-PB-333	2	11.7	76	79	349	62	332	5	108
HP-PB-333	3	12.5	77	99	9	82	352	2	108
HP-PB-333	4	12.7	51	349	79	332	62	4	108
HP-PB-333	5	13.8	39	270	360	252	342	<1 mm	100
HP-PB-333	6	13.8	73	98	8	80	350	<1 mm	100
HP-PB-333	7	15.0	75	101	11	84	354	<1 mm	100
HP-PB-333	8	15.5	22	250	340	233	323	5	108
HP-PB-333	9	16.1	28	252	342	235	325	3	108
HP-PB-333	10	16.8	74	96	6	79	349	<1 mm	100
HP-PB-333	11	17.2	46	257	347	239	329	<1 mm	100
HP-PB-333	12	17.4	78	94	4	76	346	<1 mm	100
HP-PB-333	13	18.4	76	96	6	78	348	<1 mm	100
HP-PB-333	14	18.8	35	258	348	241	331	<1 mm	100
HP-PB-333	15	19.3	79	91	1	74	344	<1 mm	100
HP-PB-333	16	19.8	79	92	2	74	344	<1 mm	100
HP-PB-333	17	21.2	79	87	357	69	339	<1 mm	100
HP-PB-333	18	22.3	51	340	70	323	53	<1 mm	100
HP-PB-333	19	22.7	78	93	3	76	346	<1 mm	100
HP-PB-333	20	23.7	75	92	2	75	345	<1 mm	100
HP-PB-333	21	24.8	56	143	53	126	36	<1 mm	100
HP-PB-333	22	24.9	76	97	7	80	350	<1 mm	100
HP-PB-333	23	25.7	73	92	2	75	345	<1 mm	100
HP-PB-333	24	26.0	70	95	5	78	348	<1 mm	100
HP-PB-333	25	26.8	75	94	4	77	347	1	108
HP-PB-333	26	28.0	77	95	5	78	348	<1 mm	100
HP-PB-333	27	29.0	67	106	16	88	358	<1 mm	100
HP-PB-333	28	29.6	22	283	13	266	356	<1 mm	100
HP-PB-333	29	29.8	66	105	15	88	358	<1 mm	100

Borehole	Feature # Number	Feature depth Feet	Dip Degrees	Dip Azimuth magnetic	Strike magnetic	Dip Azimuth True	Strike True	Aperture width (mm)	Category
HP-PB-333	30	30.3	72	96	6	79	349	<1 mm	100
HP-PB-333	31	30.9	75	100	10	82	352	<1 mm	100
HP-PB-333	32	31.5	71	102	12	84	354	<1 mm	100
HP-PB-333	33	32.0	69	108	18	90	0	1	108
HP-PB-333	34	33.3	73	101	11	84	354	<1 mm	100
HP-PB-333	35	33.4	21	167	77	150	60	<1 mm	100
HP-PB-333	36	33.7	71	97	7	79	349	<1 mm	100
HP-PB-333	37	34.5	73	97		80	343	<1 mm	100

Category Explanation:

	100	planar feature such as foliation, bedding, joint, fracture, etc. with aperture < 1 mm
	108	planar feature - possible joint, fracture or crack with aperture width 1 to 10 mm
	107	planar feature - likely joint, fracture or crack with aperture width > 10 mm

APPENDIX E – LABORATORY TEST RESULTS

THIELSCH ENGINEERING

State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 2

MDOT Project Number: 6462.91

GZA Project Number: 09.0025832.01

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-111		3D	4-6	1		10.1			SM	A-4	II
HB-PB-112		2D	2-4	2		18.5	27	11	CL	A-6	IV
HB-PB-113		2D	2-4	3		27.5			SM	A-4	II
HB-PB-114		3D	4-6	4		12.2			SM	A-4	II
HB-PB-115		3D	4-6	5		17.7			SM	A-2	II
HB-PB-116		5D	14-16	6		6.7			GM	A-1-b	I
HB-PB-117		3D	4-6	7		10.2	21	7	GC	A-4	III
HB-PB-118		3D	4-6	8		12.4	22	7	SC-SM	A-4	II
HB-PB-119		4D	9-11	9		8.6			SM	A-2	II
HB-PB-120		1D	4-6	16		14.9			CL	A-6	IV
HB-PB-121		3D/4D	4-8	17		20.0			SM	A-1-b	II
HB-PB-122		1D	0-2	18		18.9			SM	A-2	II
HB-PB-122		3D	4-6	19		14.1			CL	A-6	IV
HB-PB-123		1D	0-2	20		58.1			CL	A-6	IV
HB-PB-123		3D	4-6	21		12.8			SM	A-1-a	II
HB-PB-124		3D	4-6	22		3.4			GP-GM	A-1-a	0
HB-PB-125		1D	0-2	23		40.4			SM	A-4	II

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

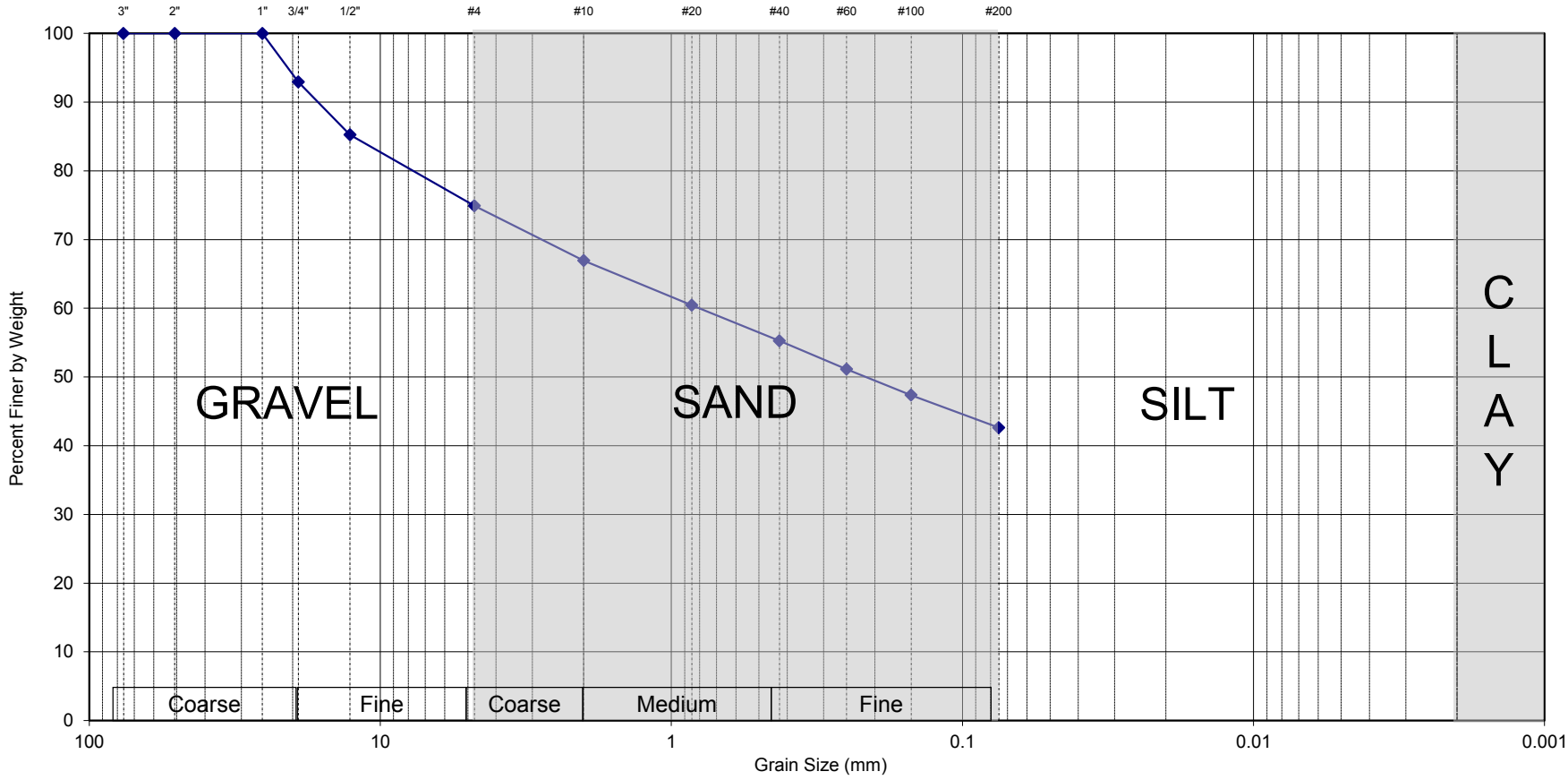
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
25.1%	32.3%	42.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
1	HB-PB-111	3D	4-6'	Brown Silty Sand, some f-c Gravel (SM)	10.1			

Sieve Size	% Passing
¾"	92.9
½"	85.2
#4	74.9
#10	66.9
#20	60.4
#40	55.3
#60	51.1
#100	47.3
#200	42.6

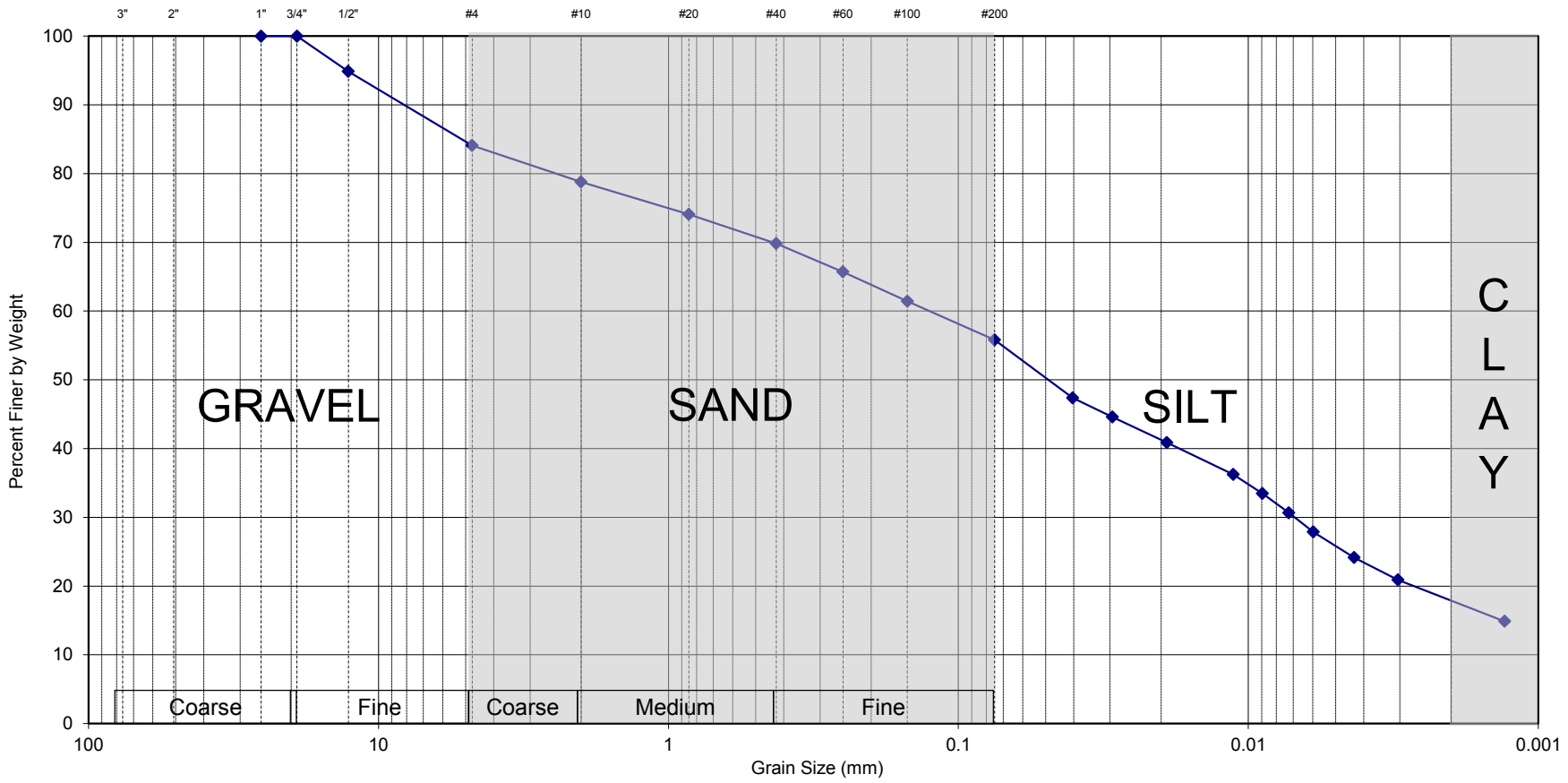
THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02910
401-467-6454

CTS-74-14-0003
Presque Isle Bypass Segment 2
Presque Isle, ME
GZA File # 09.0025832.01

Tested by: GG Date: 5/14/14
Reviewed by: MBP Date: 5/17/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
15.9%	28.3%	55.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
2	HB-PB-112	2D	2-4'	Brown Lean Clay, some f-c Sand, little fine Gravel (CL)	18.5			

Sieve Size	% Passing
¾"	100.0
½"	94.9
#4	84.1
#10	78.8
#20	74.1
#40	69.8
#60	65.7
#100	61.4
#200	55.8

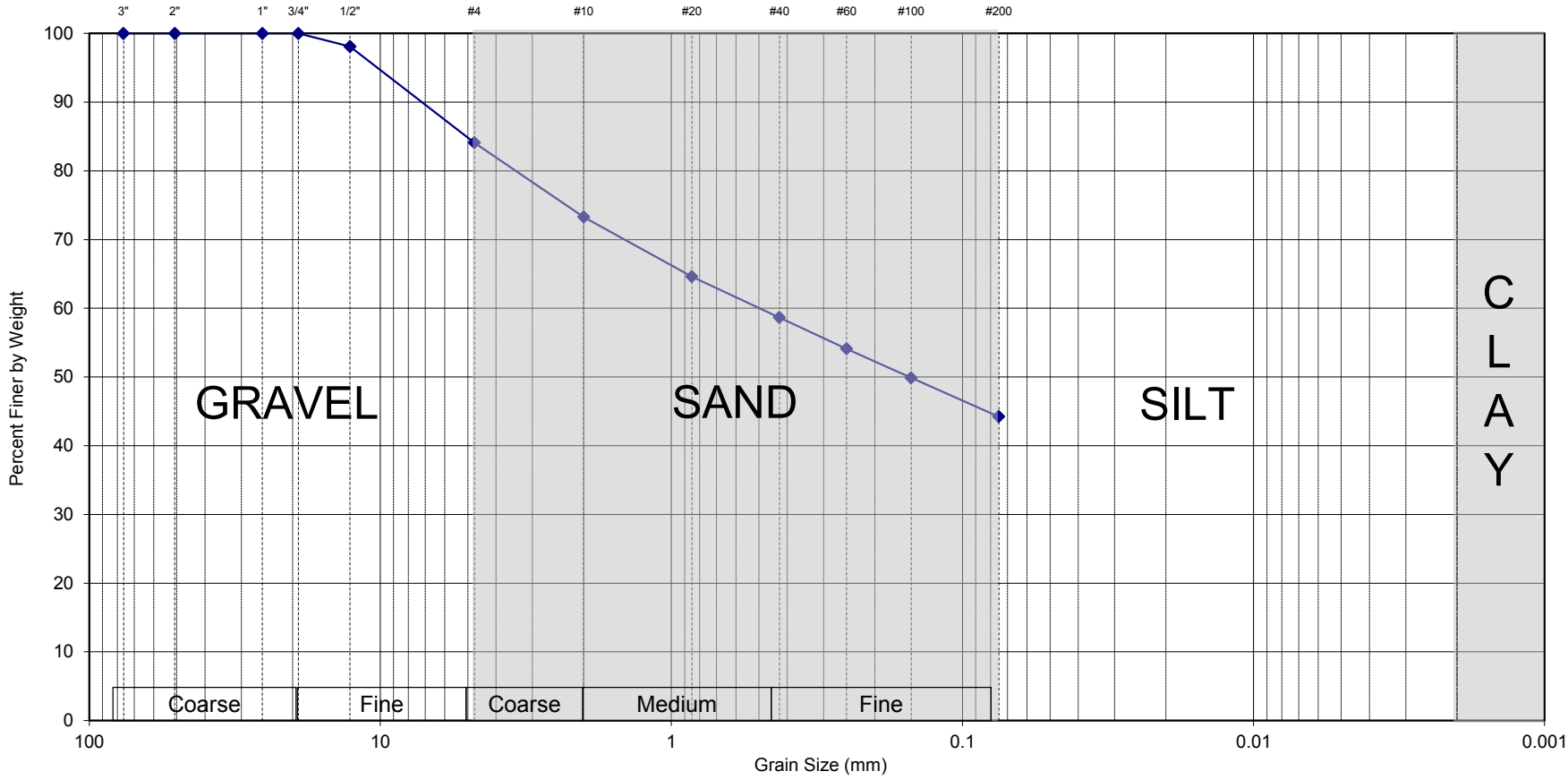
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
15.9%	39.9%	44.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
3	HB-PB-113	2D	2-4'	Brown Silty Sand, little fine Gravel (SM)	27.5			

Sieve Size	% Passing
¾"	100.0
½"	98.1
#4	84.1
#10	73.3
#20	64.6
#40	58.7
#60	54.1
#100	49.9
#200	44.2

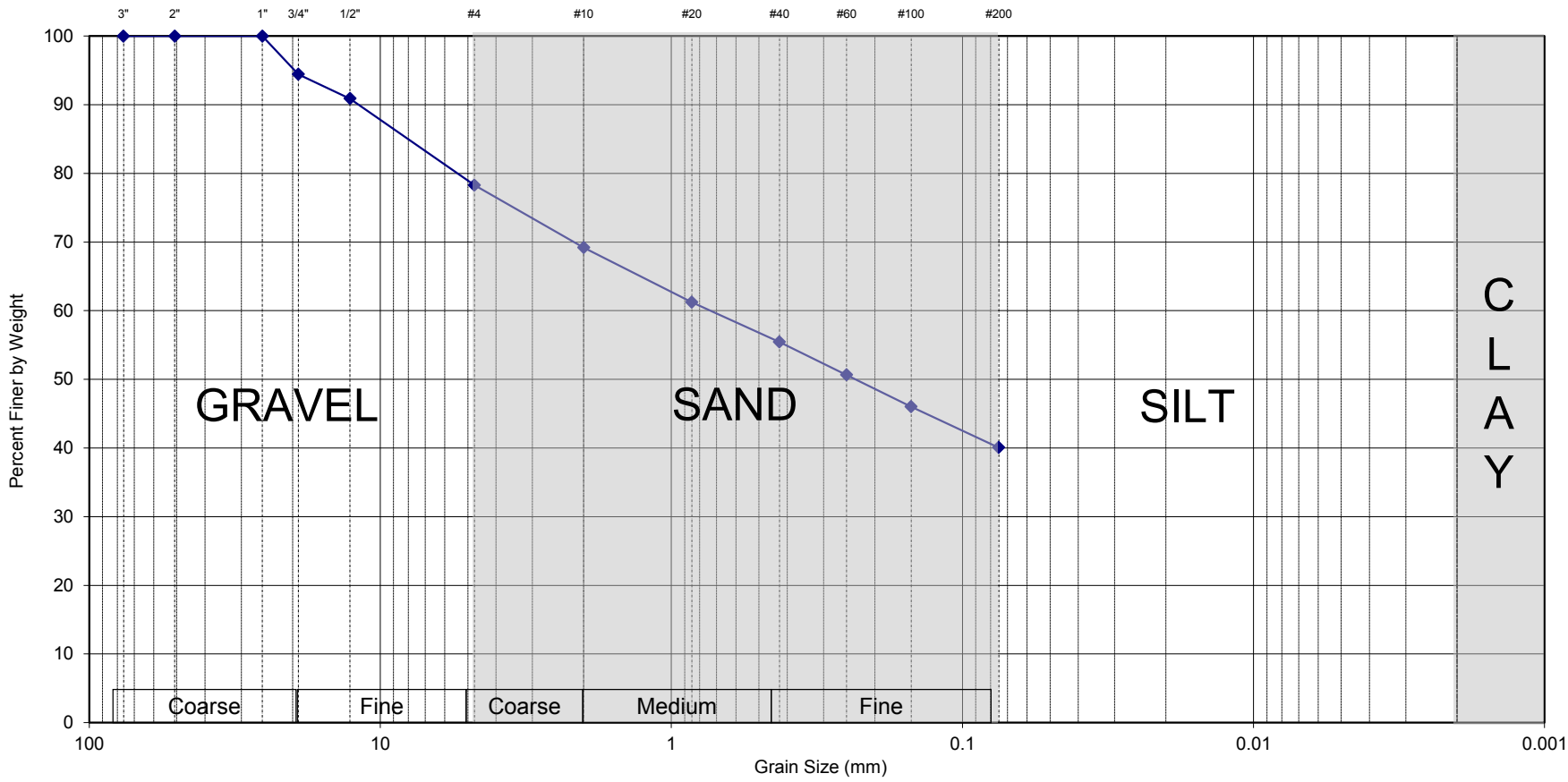
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
21.7%	38.2%	40.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
4	HB-PB-114	3D	4-6'	Brown Silty Sand, some f-c Gravel (SM)	12.2			

Sieve Size	% Passing
¾"	94.4
½"	90.9
#4	78.3
#10	69.2
#20	61.2
#40	55.4
#60	50.6
#100	46.0
#200	40.1

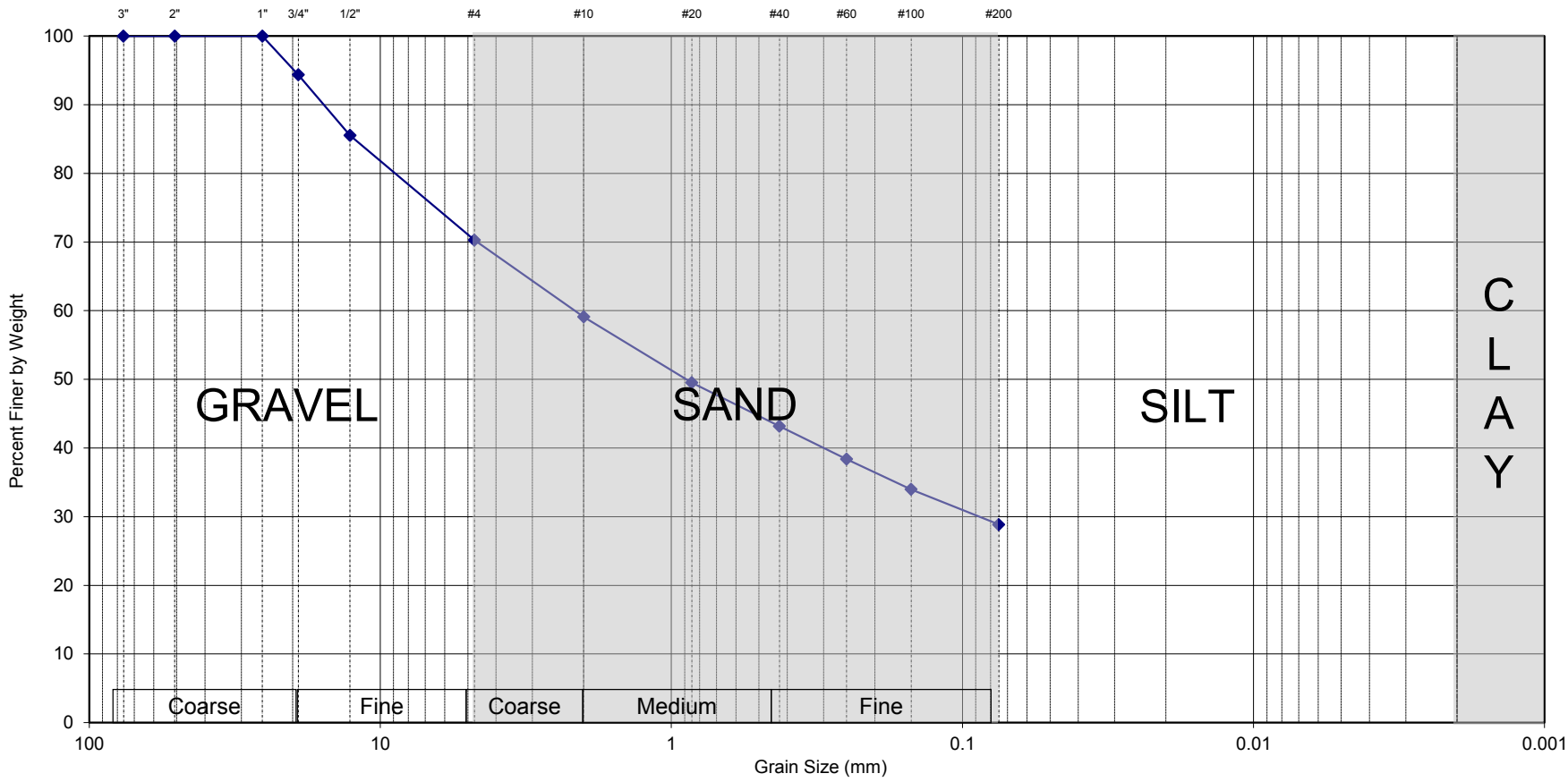
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.7%	41.4%	28.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
5	HB-PB-115	3D	4-6'	Brown f-c Sand, some Silt, some f-c Gravel (SM)	17.7			

Sieve Size	% Passing
¾"	94.3
½"	85.5
#4	70.3
#10	59.1
#20	49.5
#40	43.2
#60	38.4
#100	34.0
#200	28.8

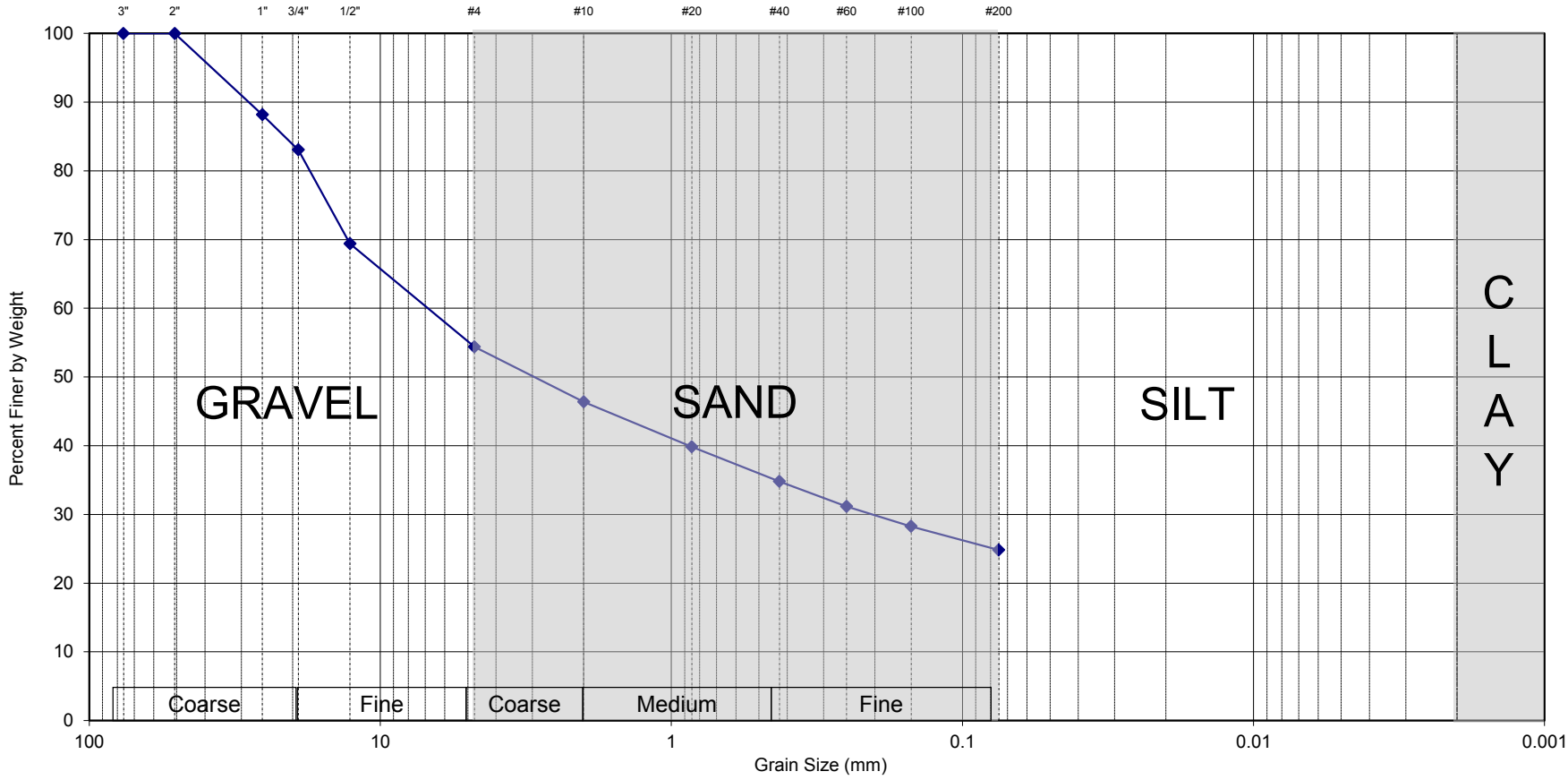
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
45.6%	29.6%	24.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
6	HB-PB-116	5D	14-16'	Brown f-c Gravel, some f-c Sand, some Silt (GM)	6.7			

Sieve Size	% Passing
¾"	83.1
½"	69.4
#4	54.4
#10	46.4
#20	39.8
#40	34.8
#60	31.1
#100	28.3
#200	24.8

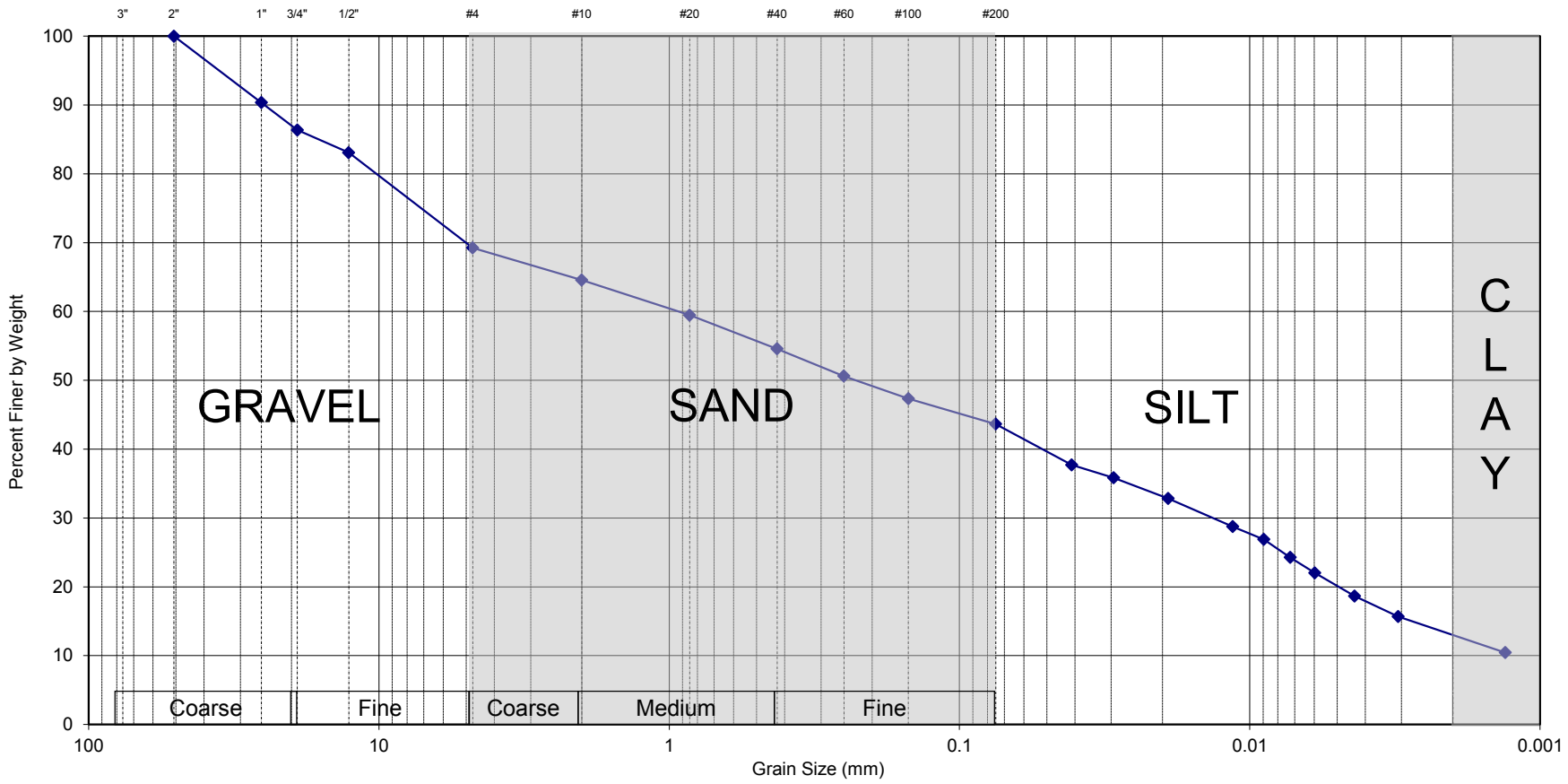
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
30.7%	25.6%	43.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
7	HB-PB-117	3D	4-6'	Gray Clayey Gravel, some f-c Sand (GC)	10.2			

Sieve Size	% Passing
¾"	86.4
½"	83.1
#4	69.3
#10	64.6
#20	59.5
#40	54.6
#60	50.6
#100	47.3
#200	43.6

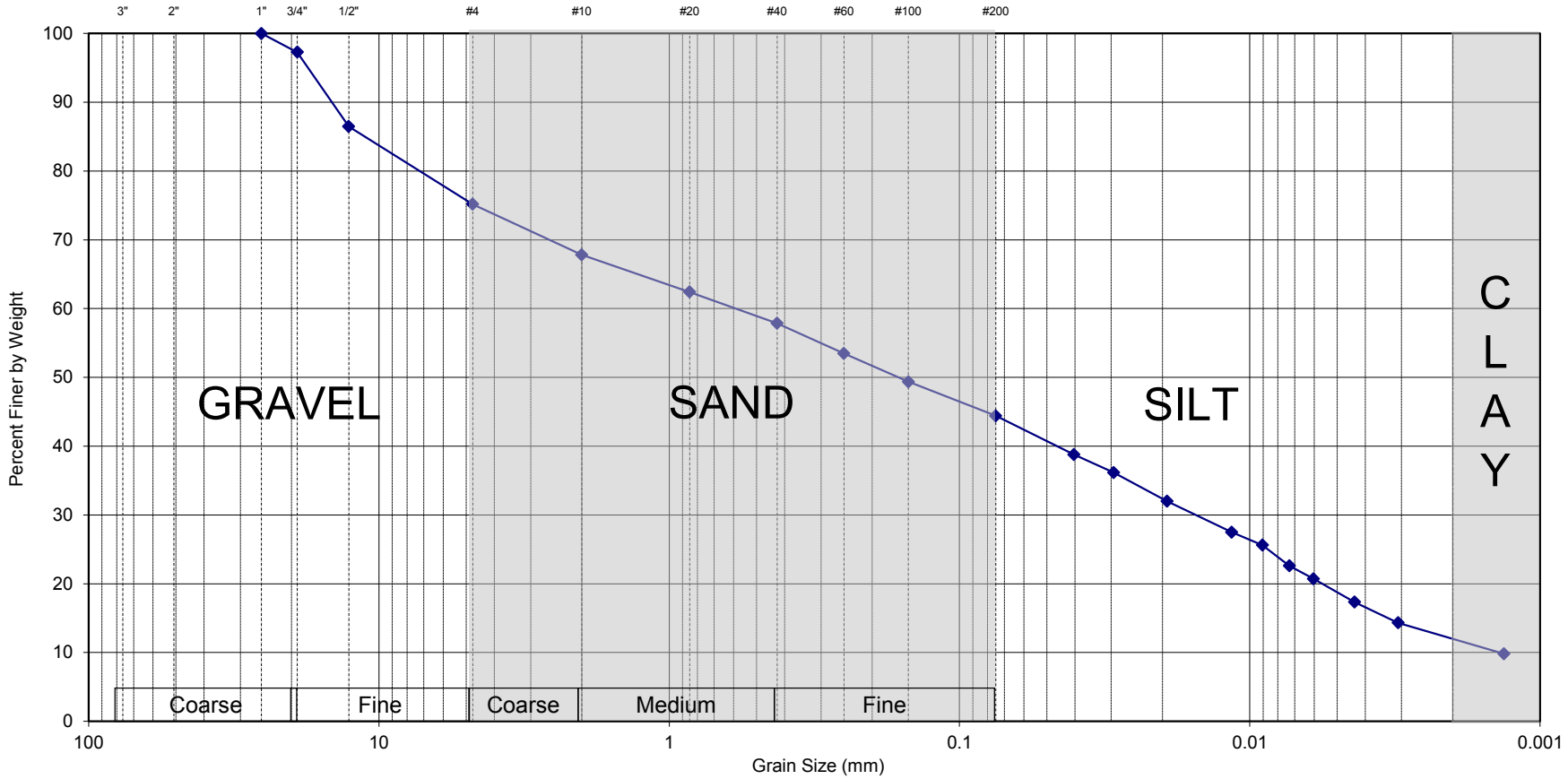
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
24.8%	30.8%	44.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
8	HB-PB-118	3D	4-6'	Brown Silty Sand, some f-c Gravel (SC-SM)	12.4			

Sieve Size	% Passing
¾"	97.3
½"	86.5
#4	75.2
#10	67.8
#20	62.4
#40	57.8
#60	53.5
#100	49.4
#200	44.4

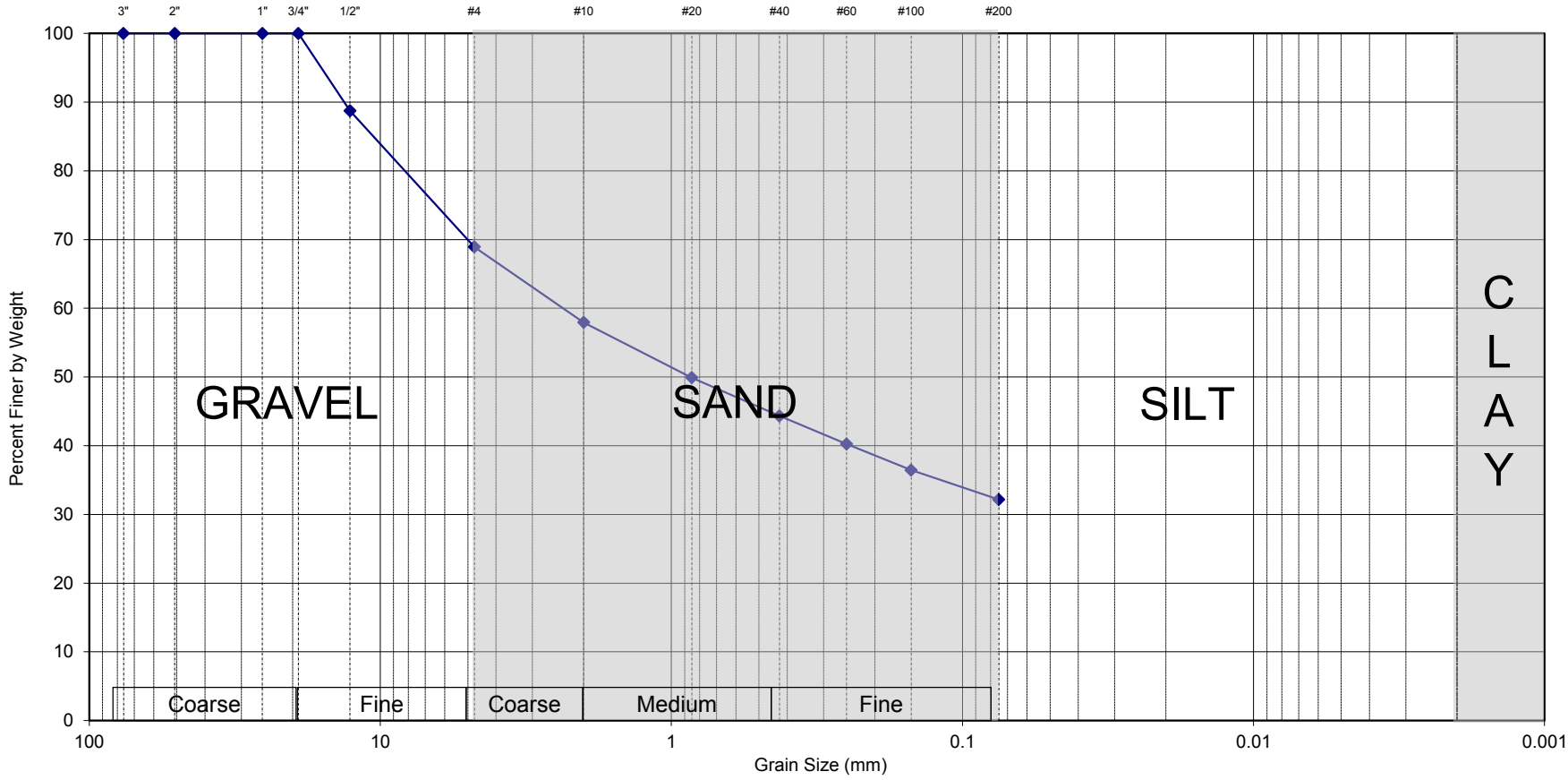
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
31.1%	36.8%	32.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
9	HB-PB-119	4D	9-11'	Brown f-c Sand, some Silt, some fine Gravel (SM)	8.6			

Sieve Size	% Passing
¾"	100.0
½"	88.7
#4	68.9
#10	57.9
#20	49.9
#40	44.3
#60	40.2
#100	36.4
#200	32.2

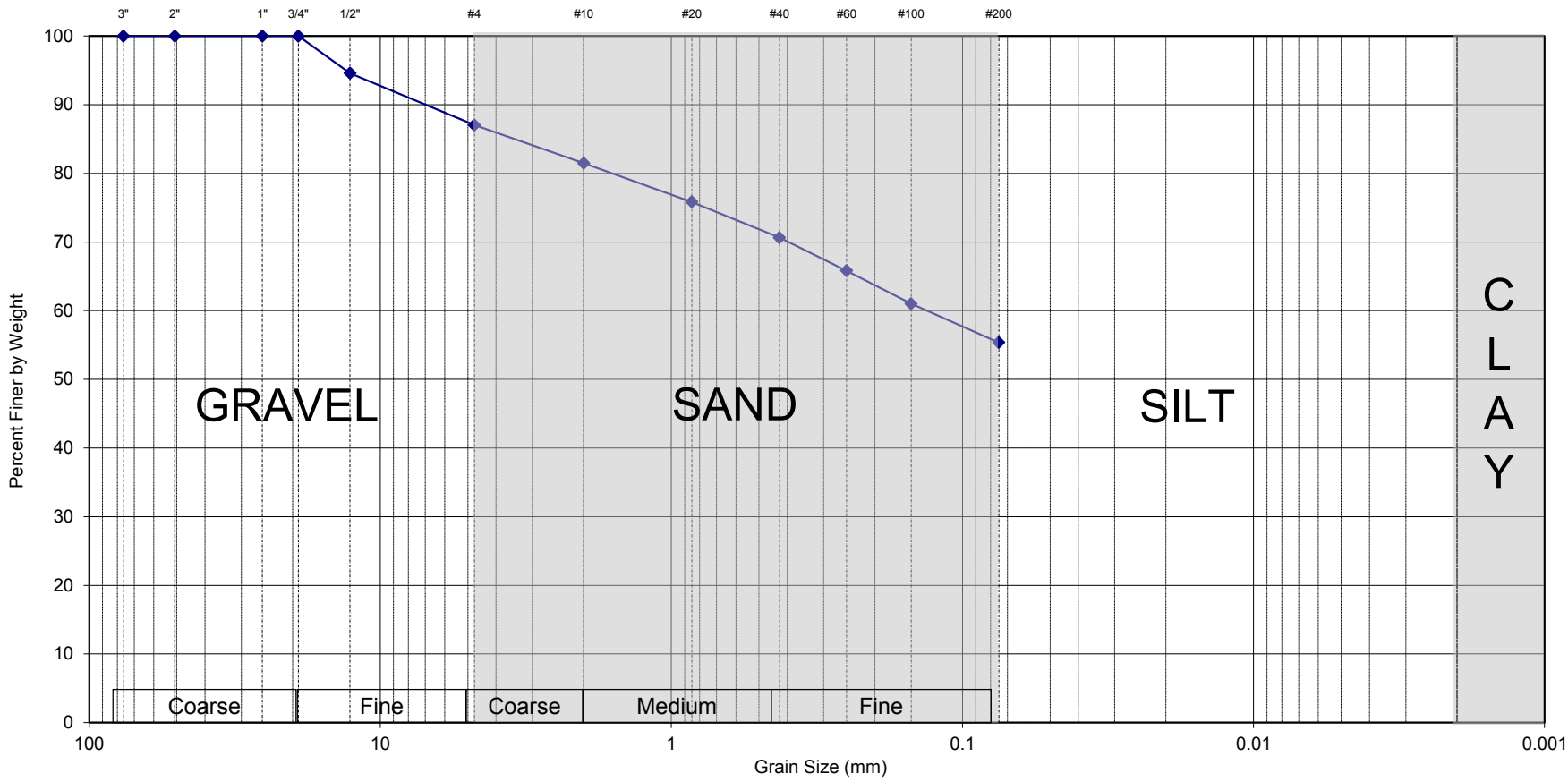
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
13.0%	31.7%	55.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
16	HB-PB-120	3D	4-6'	Brown Lean Clay, some f-c Sand, little fine Gravel (CL)	14.9			

Sieve Size	% Passing
¾"	100.0
½"	94.6
#4	87.0
#10	81.5
#20	75.8
#40	70.6
#60	65.8
#100	61.0
#200	55.4

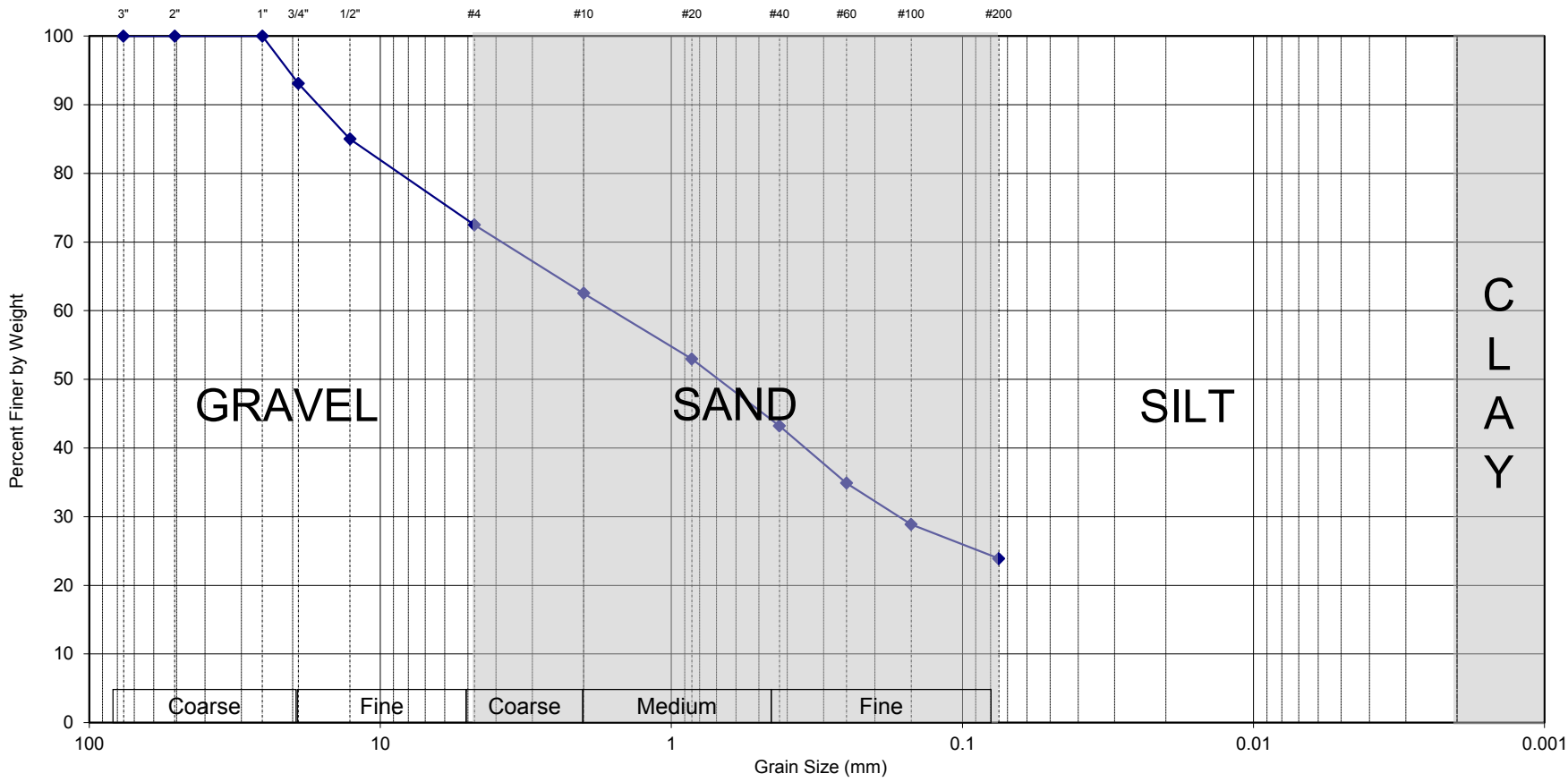
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
27.5%	48.6%	23.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
17	HB-PB-121	3D/4D	4-8'	Brown f-c Sand, some f-c Gravel, some Silt (SM)	20.0			

Sieve Size	% Passing
¾"	93.1
½"	85.0
#4	72.5
#10	62.5
#20	53.0
#40	43.2
#60	34.9
#100	28.9
#200	23.9

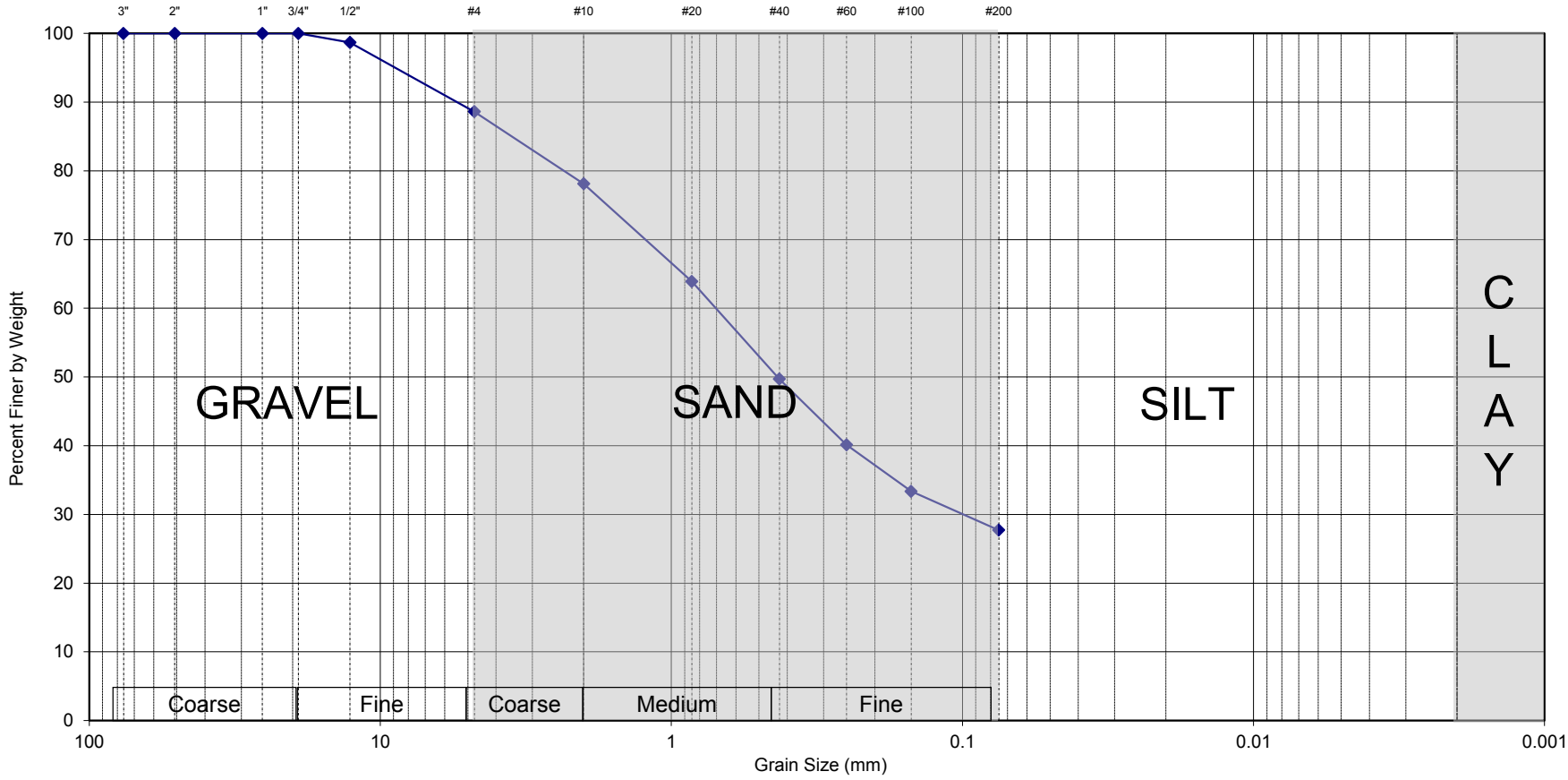
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Presque Isle, ME
GZA File # 09.0025832.01

Tested by: GG Date: 5/14/14
Reviewed by: MBP Date: 5/17/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
11.4%	60.9%	27.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
18	HB-PB-122	1D	0-2'	Brown f-c Sand, some Silt, little fine Gravel (SM)	18.9			

Sieve Size	% Passing
¾"	100.0
½"	98.7
#4	88.6
#10	78.1
#20	63.9
#40	49.7
#60	40.1
#100	33.3
#200	27.7

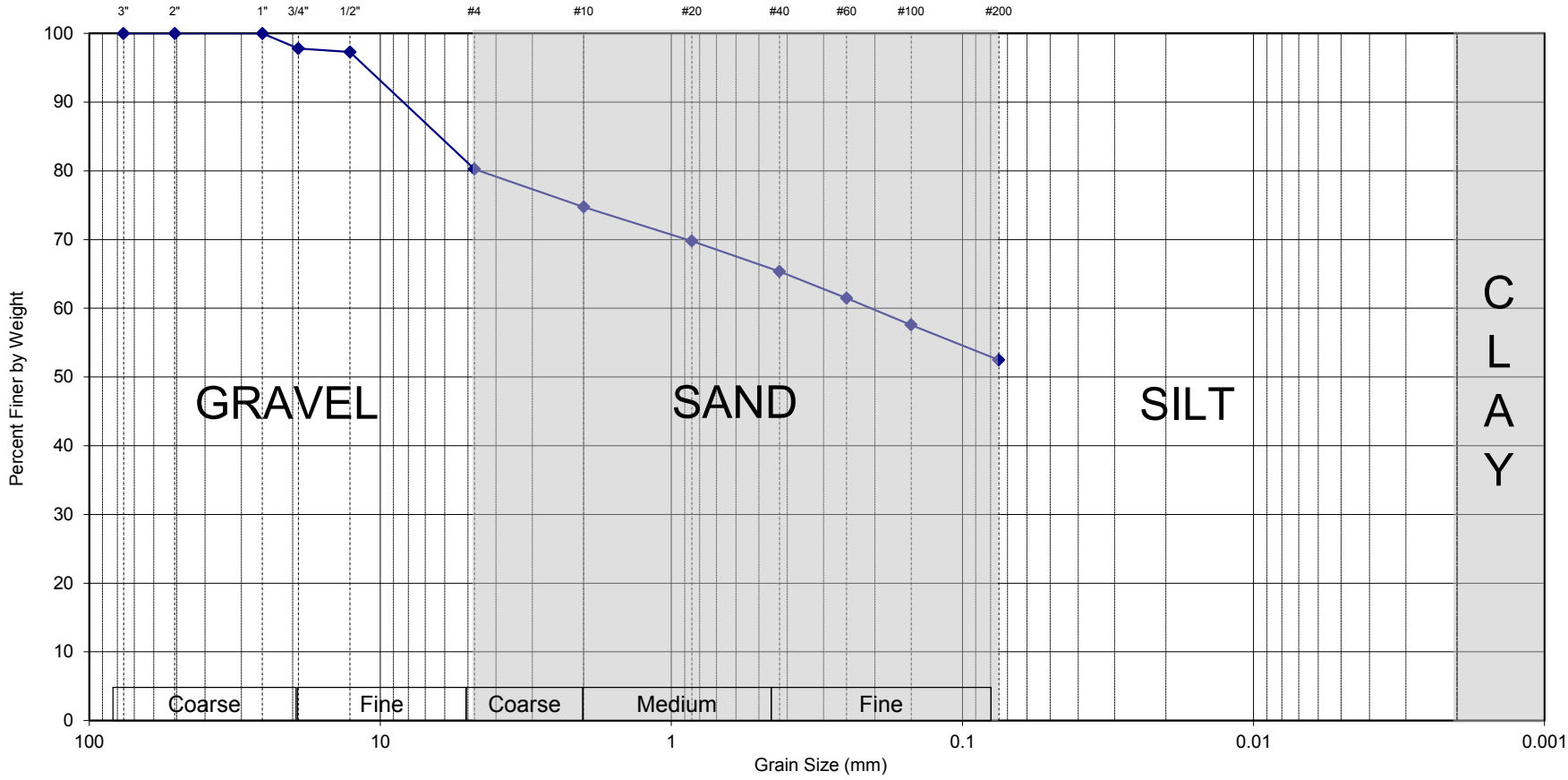
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
19.7%	27.8%	52.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
19	HB-PB-122	3D	4-6'	Brown Sandy Lean Clay, little Gravel (CL)	14.1			

Sieve Size	% Passing
¾"	97.8
½"	97.3
#4	80.3
#10	74.7
#20	69.8
#40	65.4
#60	61.5
#100	57.6
#200	52.5

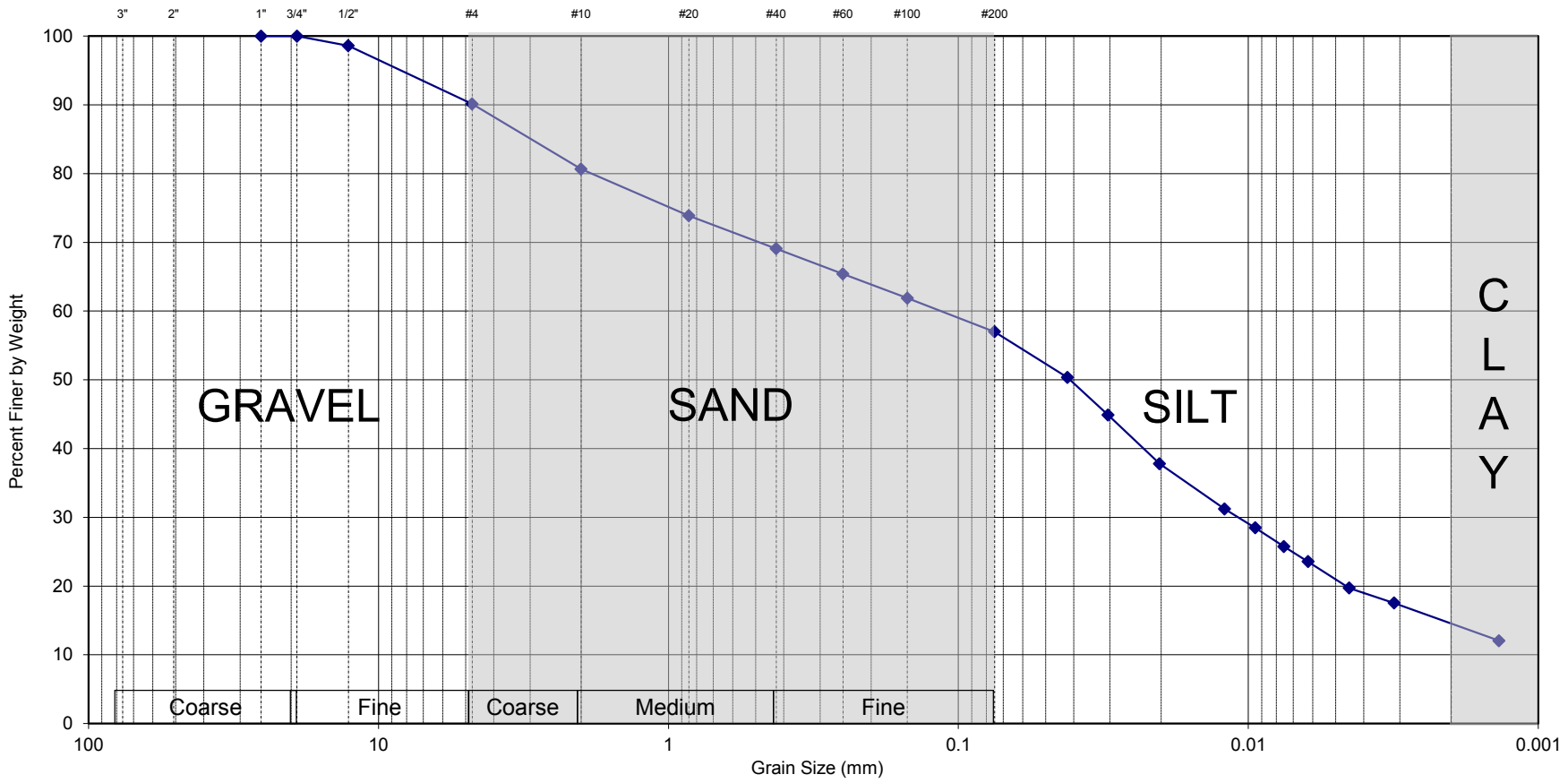
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
9.9%	33.1%	57.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
20	HB-PB-123	1D	0-2'	Brown Lean Clay, some f-c Sand, trace Gravel (CL)	58.1			

Sieve Size	% Passing
¾"	100.0
½"	98.6
#4	90.1
#10	80.6
#20	73.9
#40	69.1
#60	65.4
#100	61.9
#200	57.0

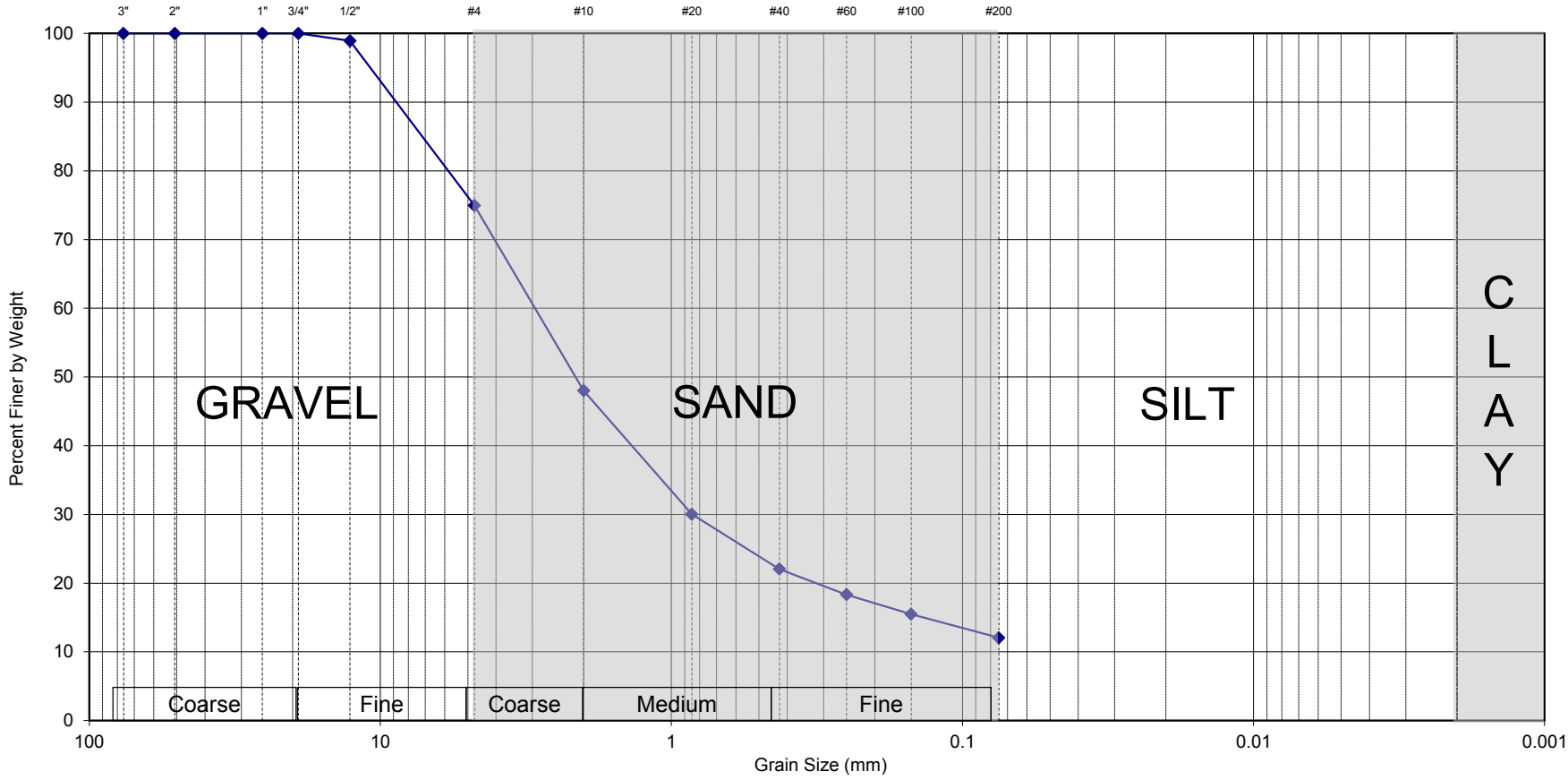
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
25.1%	62.9%	12.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
21	HB-PB-123	3D	4-6'	Brown f-c Sand, some fine Gravel, little Silt (SM)	12.8			

Sieve Size	% Passing
¾"	100.0
½"	98.9
#4	74.9
#10	48.0
#20	30.0
#40	22.0
#60	18.3
#100	15.5
#200	12.0

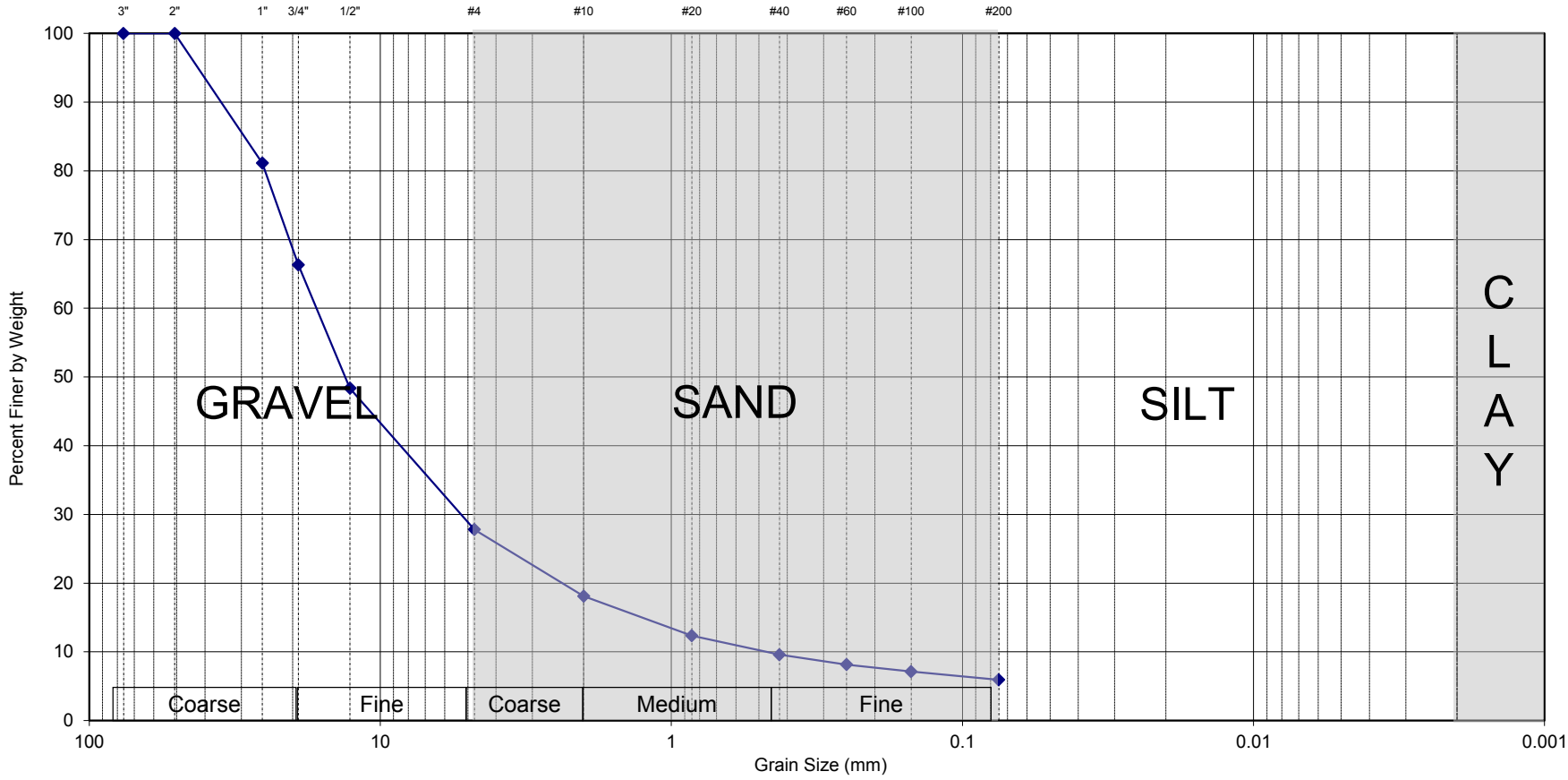
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
72.2%	21.9%	5.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
22	HB-PB-124	3D	4-6'	Brown f-c Gravel, some f-c Sand, trace Silt (GP-GM)	3.4			

Sieve Size	% Passing
¾"	66.3
½"	48.4
#4	27.8
#10	18.1
#20	12.3
#40	9.6
#60	8.1
#100	7.1
#200	5.9

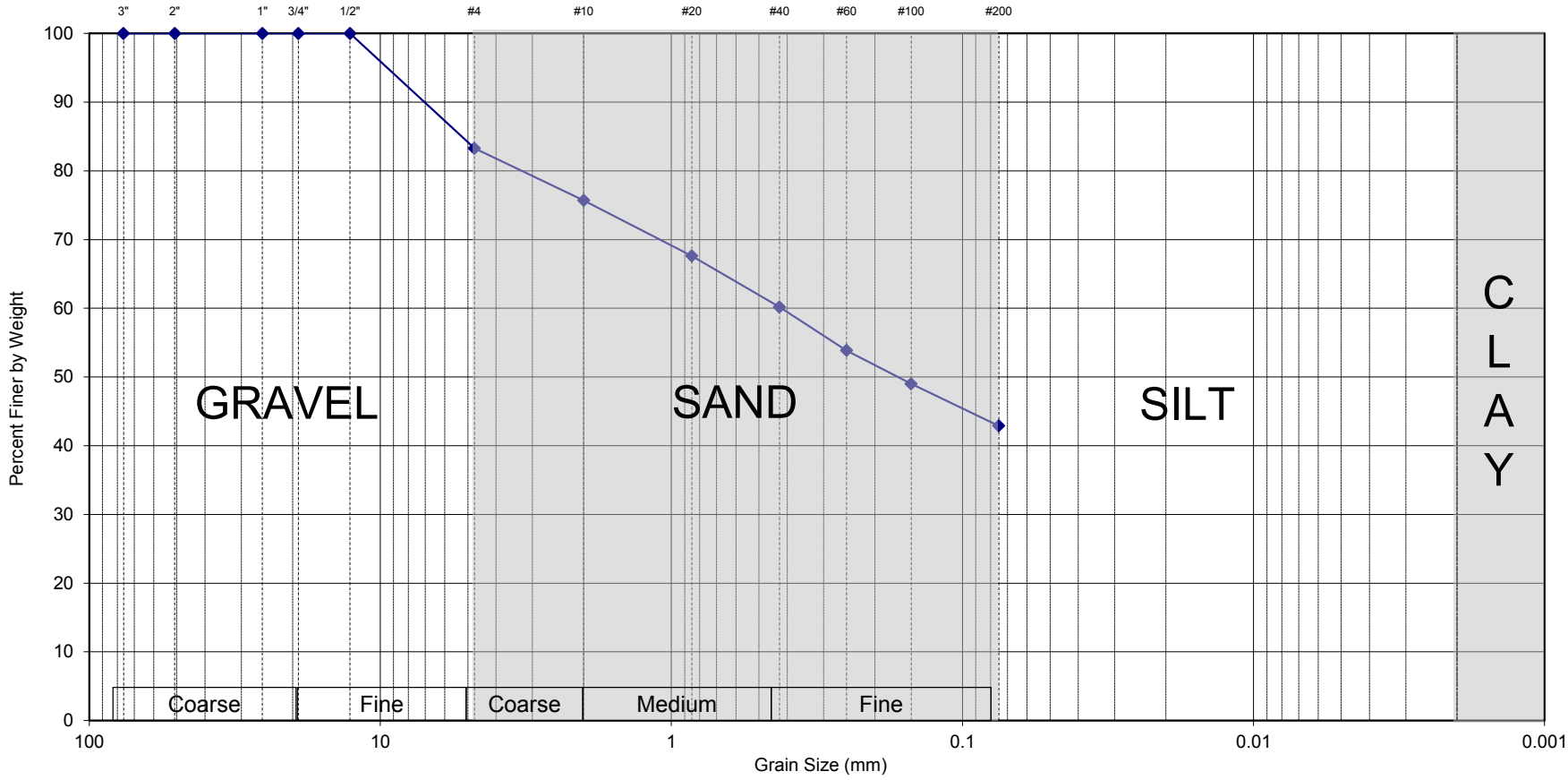
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
16.7%	40.4%	42.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
23	HB-PB-125	1D	0-2'	Brown Silty Sand, little fine Gravel (SM)	40.4			

Sieve Size	% Passing
¾"	100.0
½"	100.0
#4	83.3
#10	75.7
#20	67.6
#40	60.2
#60	53.8
#100	49.0
#200	42.9

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State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 2

MDOT Project Number: 6462.91

GZA Project Number: 09.0025832.01

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
BB-PB-102		1D	1-3	65		23.5			SM	A-2-4	II
BB-PB-102		3D	10-12	66		10.8			CL	A-6	IV
BB-PB-103		1D	0-2	67		25.5			SM	A-1-b	II
BB-PB-103		3D	4-6	68		9.2			GM	A-1-b	0
BB-PB-104		1D	1-3	61		25.8			SM	A-2-4	II
BB-PB-104		3D	10-12	62		20.4			SM	A-2-4	II
BB-PB-105		1D	1-3	63		19.6			SM	A-4	II
BB-PB-105		4D	15-17	64							
BB-PB-111		2D	2-4	55		16.5			CL	A-6	IV
BB-PB-111		6D	20-21.9	56		10.0			SM	A-4	II
BB-PB-113		2D	5-7	53		11.2			SM	A-2-4	II
BB-PB-113		4D	15-17	54		9.1			SM	A-4	II
BB-PB-115		4D	9-11	57		14.5			SM	A-4	II
BB-PB-115		7D	24-26	58		7.0			GP-GM	A-1-a	0
BB-PB-117		2D	2-4	59		13.8			ML	A-4	IV
BB-PB-117		5D	15-17	60		12.3			CL	A-6	IV

lance with AASHTO Classification System M-145-40. This classification
from zero (non-frost susceptible) to Class IV (highly frost susceptible).
upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

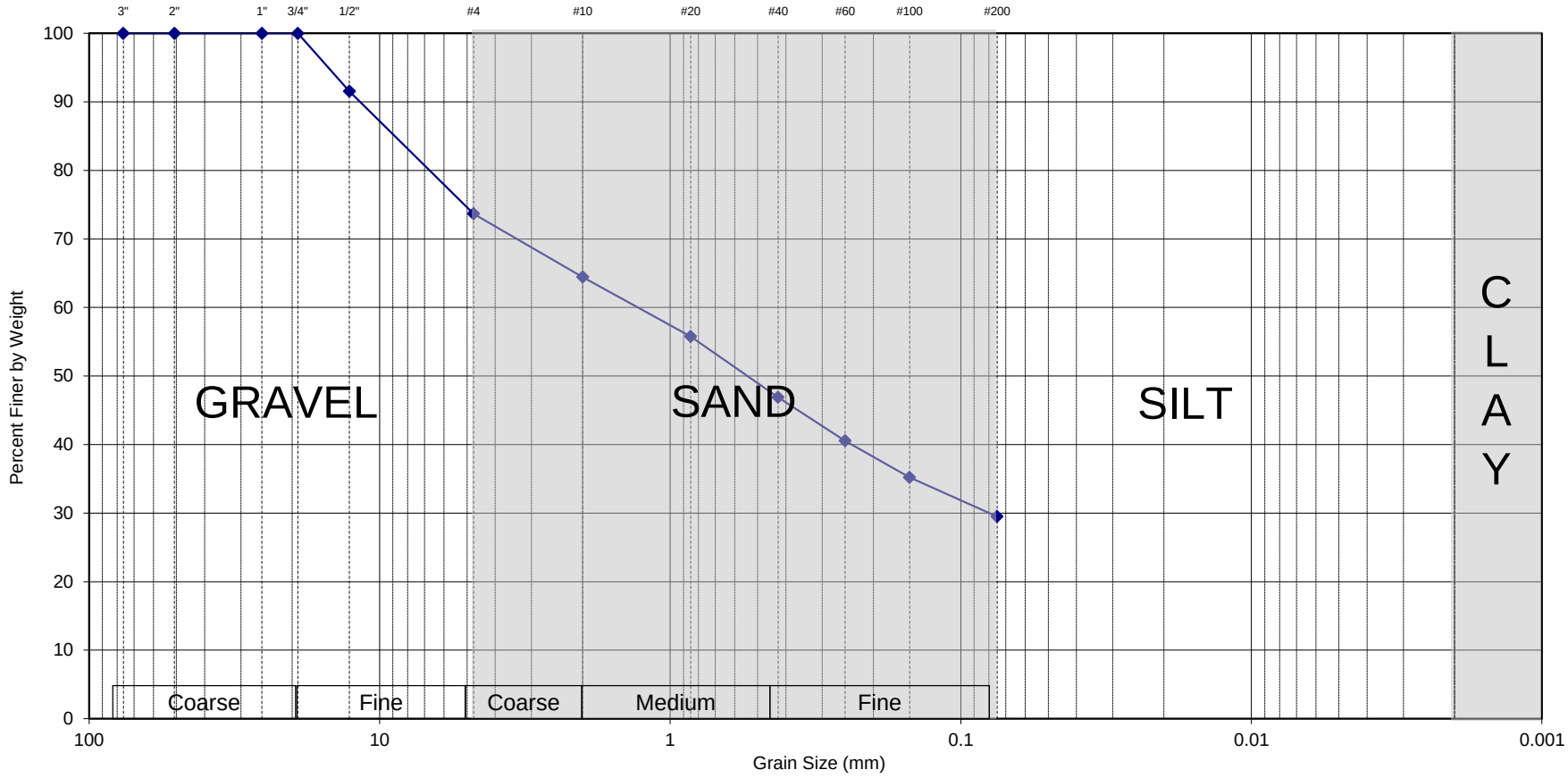
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
26.3%	44.2%	29.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
65	BB-PB-102	1D	1-3'	Brown f-c Sand, some Silt, some fine Gravel (SM)	23.5			

Sieve Size	% Passing
¾"	100.0
½"	91.5
#4	73.7
#10	64.4
#20	55.8
#40	46.9
#60	40.5
#100	35.2
#200	29.5

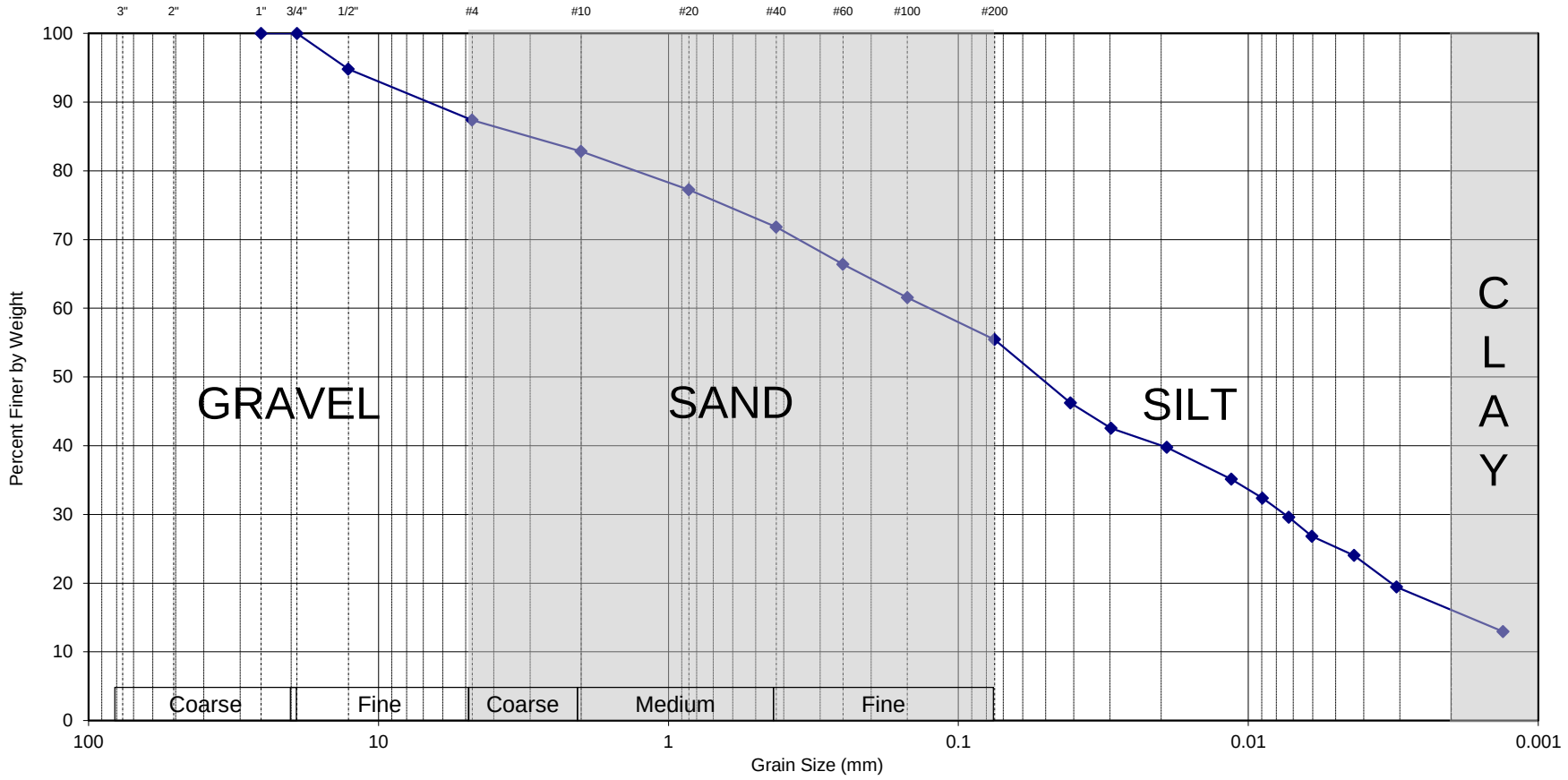
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
12.6%	31.9%	55.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
66	BB-PB-102	3D	10-12'	Brown lean Clay some f-c Sand, little fine Gravel (CL)	10.8			

Sieve Size	% Passing
¾"	100.0
½"	94.8
#4	87.4
#10	82.8
#20	77.3
#40	71.8
#60	66.4
#100	61.6
#200	55.4

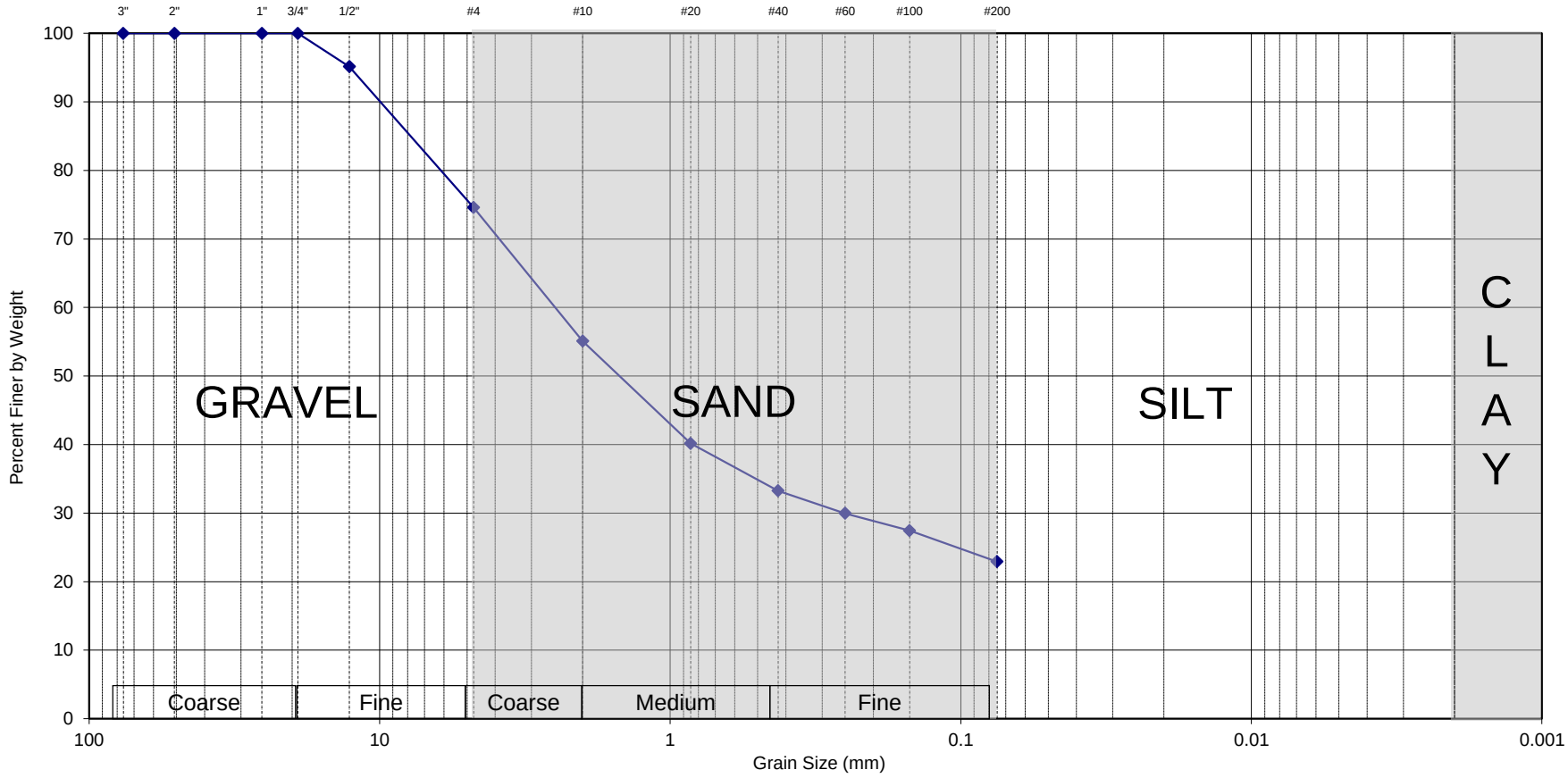
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
25.4%	51.7%	22.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
67	BB-PB-103	1D	0-2'	Brown f-c Sand, some Silt, some fine Gravel (SM)	25.5			

Sieve Size	% Passing
¾"	100.0
½"	95.1
#4	74.6
#10	55.1
#20	40.2
#40	33.2
#60	30.0
#100	27.5
#200	22.9

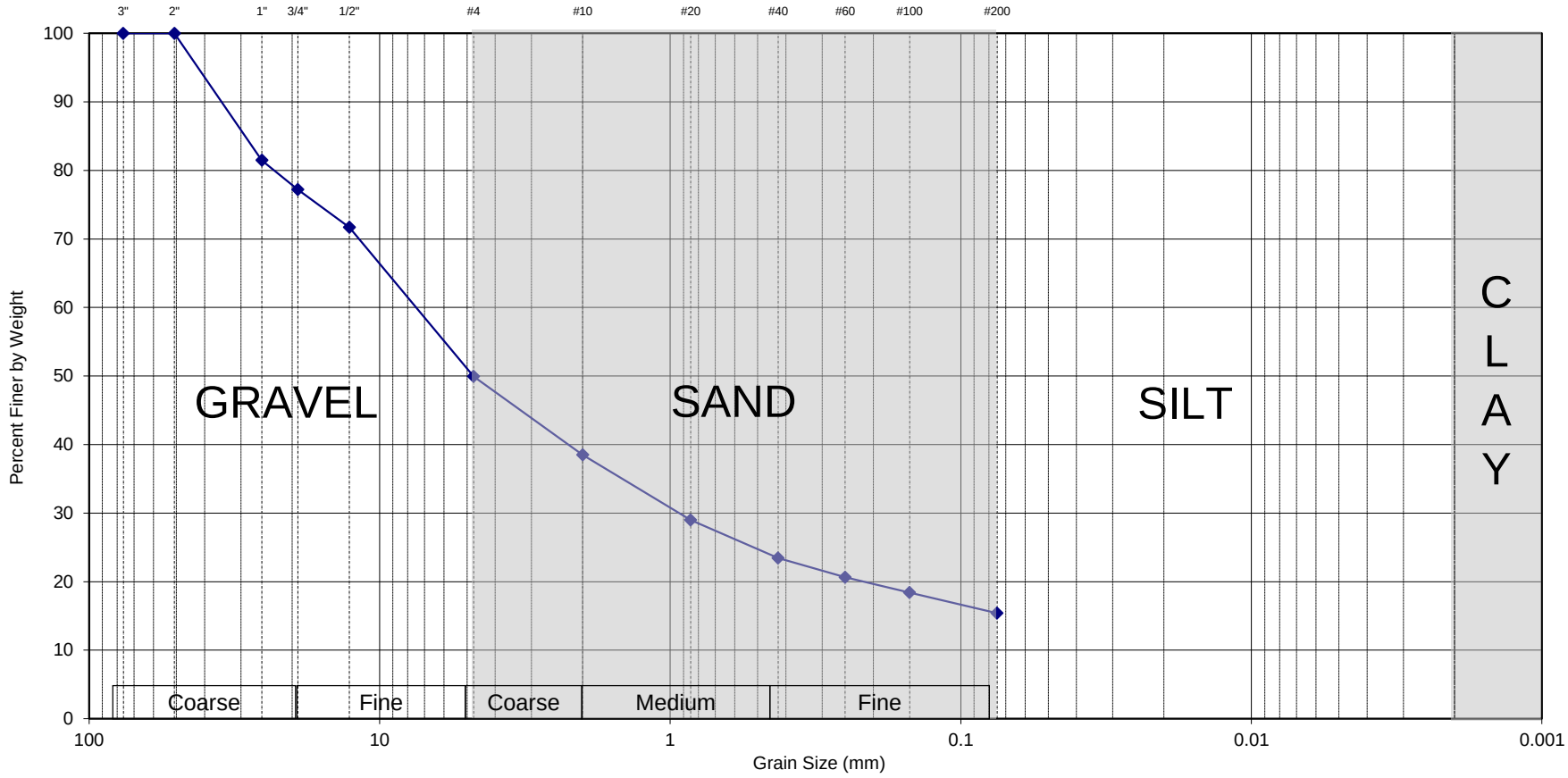
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
50.1%	34.5%	15.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
68	BB-PB-103	3D	4-6'	Brown f-c Gravel, some f-c Sand, little Silt (GM)	9.2			

Sieve Size	% Passing
¾"	77.2
½"	71.7
#4	49.9
#10	38.5
#20	29.0
#40	23.4
#60	20.6
#100	18.4
#200	15.4

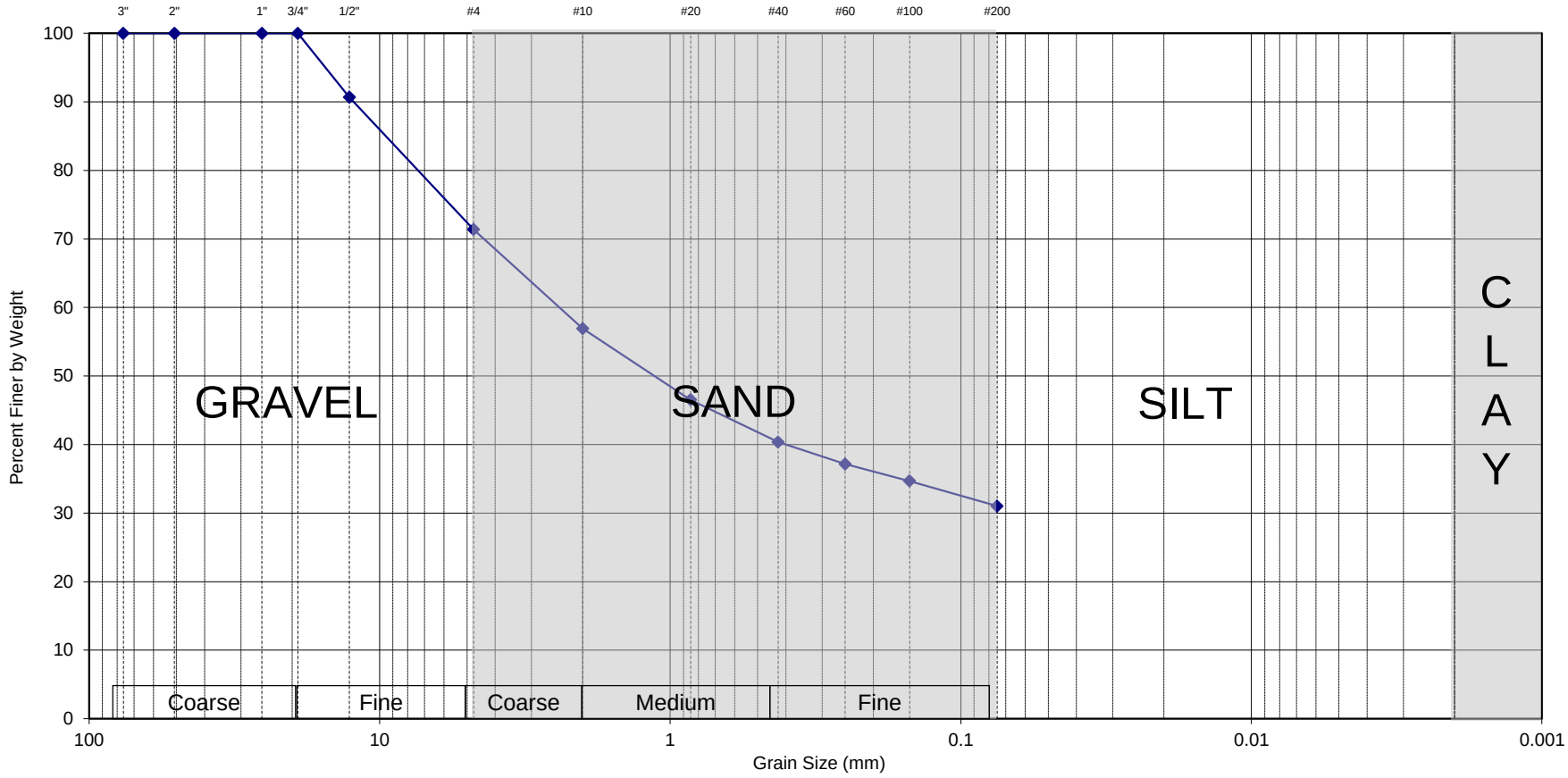
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Gravel	Sand	Fines
28.6%	40.4%	31.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
61	BB-PB-104	1D	1-3'	Brown f-c Sand, some Silt, some fine Gravel (SM)	25.8			

Sieve Size	% Passing
¾"	100.0
½"	90.7
#4	71.4
#10	56.9
#20	46.5
#40	40.4
#60	37.2
#100	34.7
#200	31.0

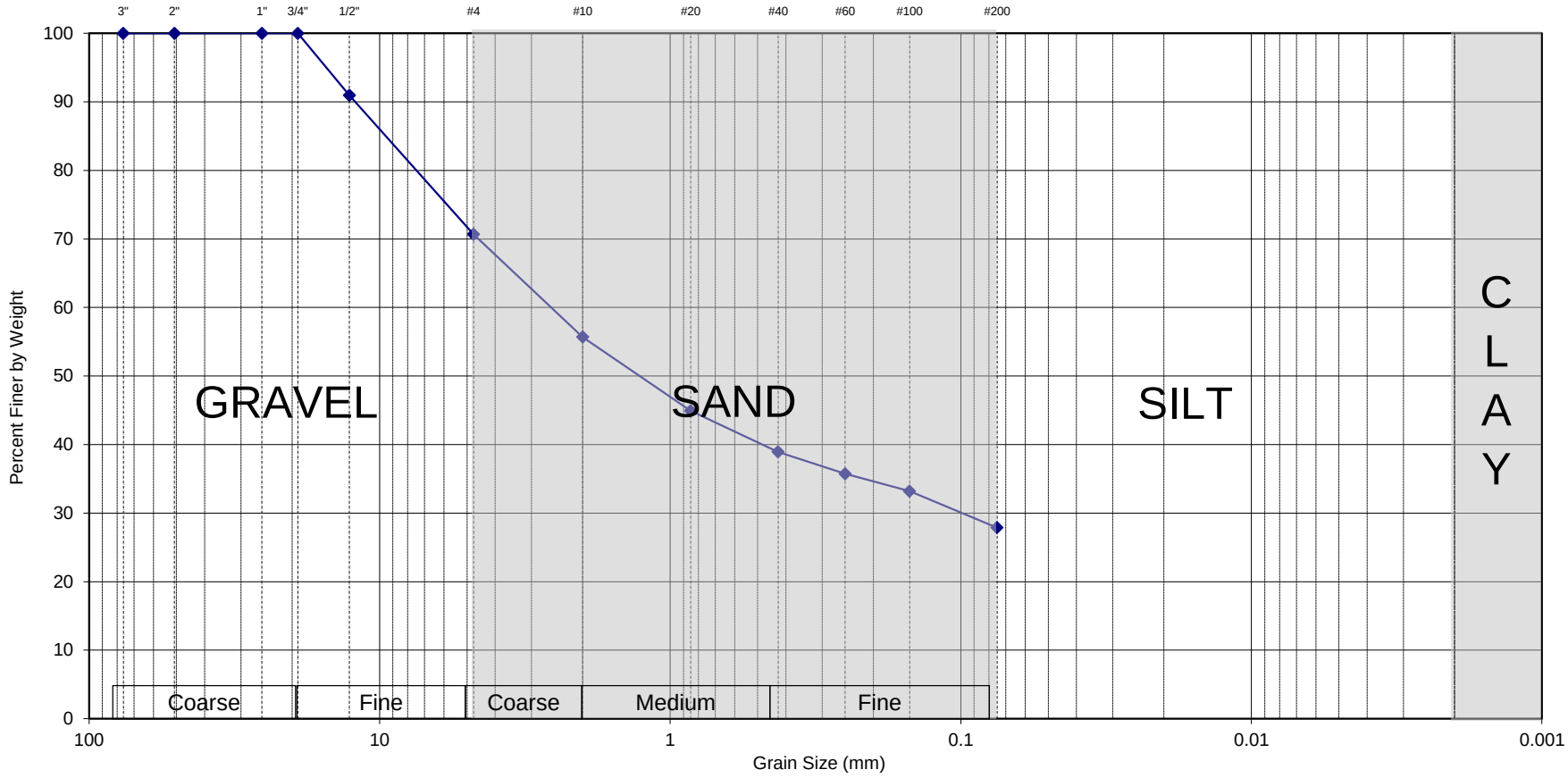
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.3%	42.8%	27.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
62	BB-PB-104	3D	10-12'	Brown f-c Sand, some fine Gravel, some Silt (SM)	20.4			

Sieve Size	% Passing
¾"	100.0
½"	91.0
#4	70.7
#10	55.7
#20	44.9
#40	38.9
#60	35.7
#100	33.2
#200	27.9

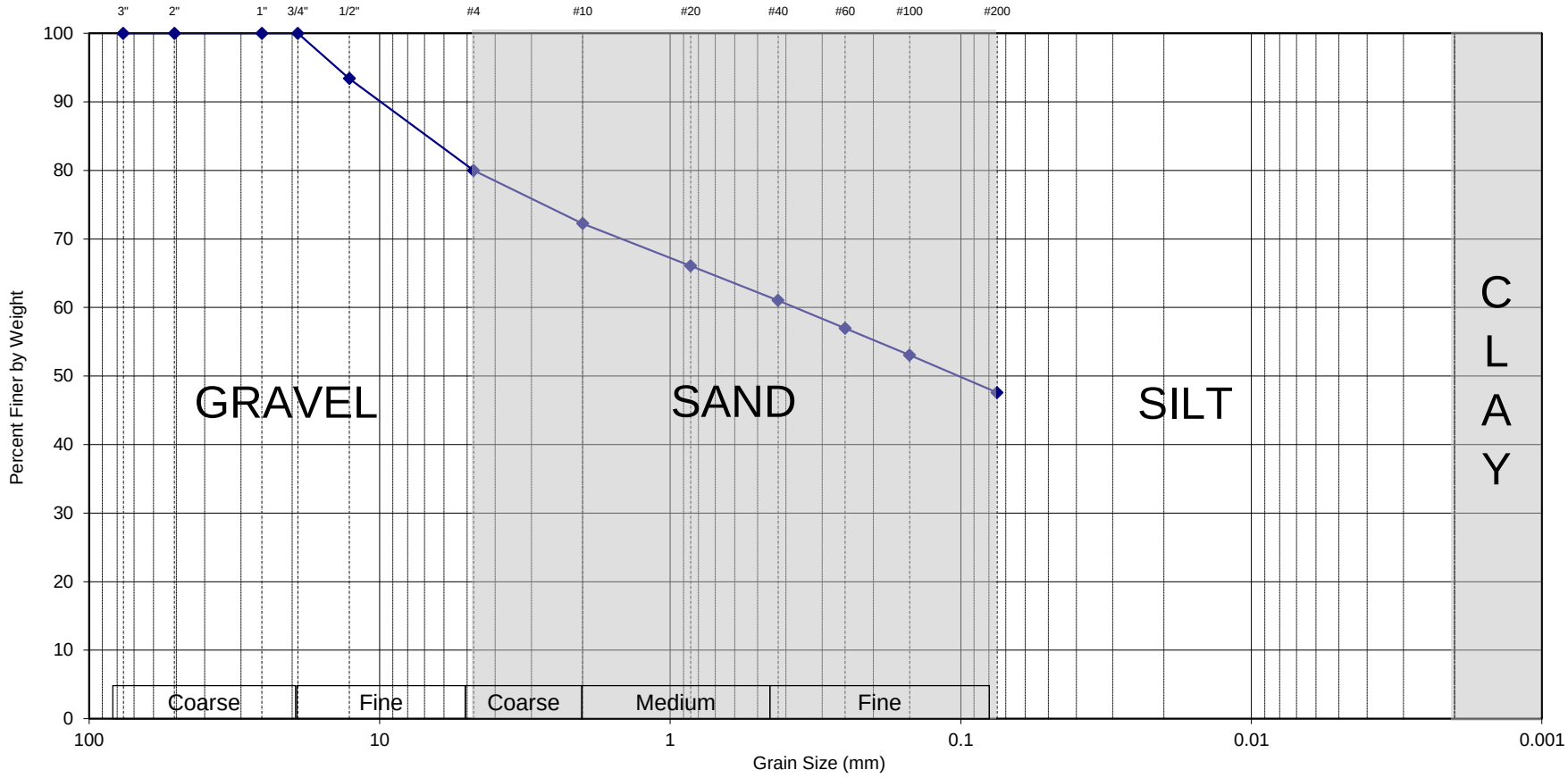
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.0%	32.4%	47.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
63	BB-PB-105	1D	1-3'	Brown Silty sand, some fine Gravel (SM)	19.6			

Sieve Size	% Passing
¾"	100.0
½"	93.4
#4	80.0
#10	72.2
#20	66.1
#40	61.0
#60	57.0
#100	53.0
#200	47.6

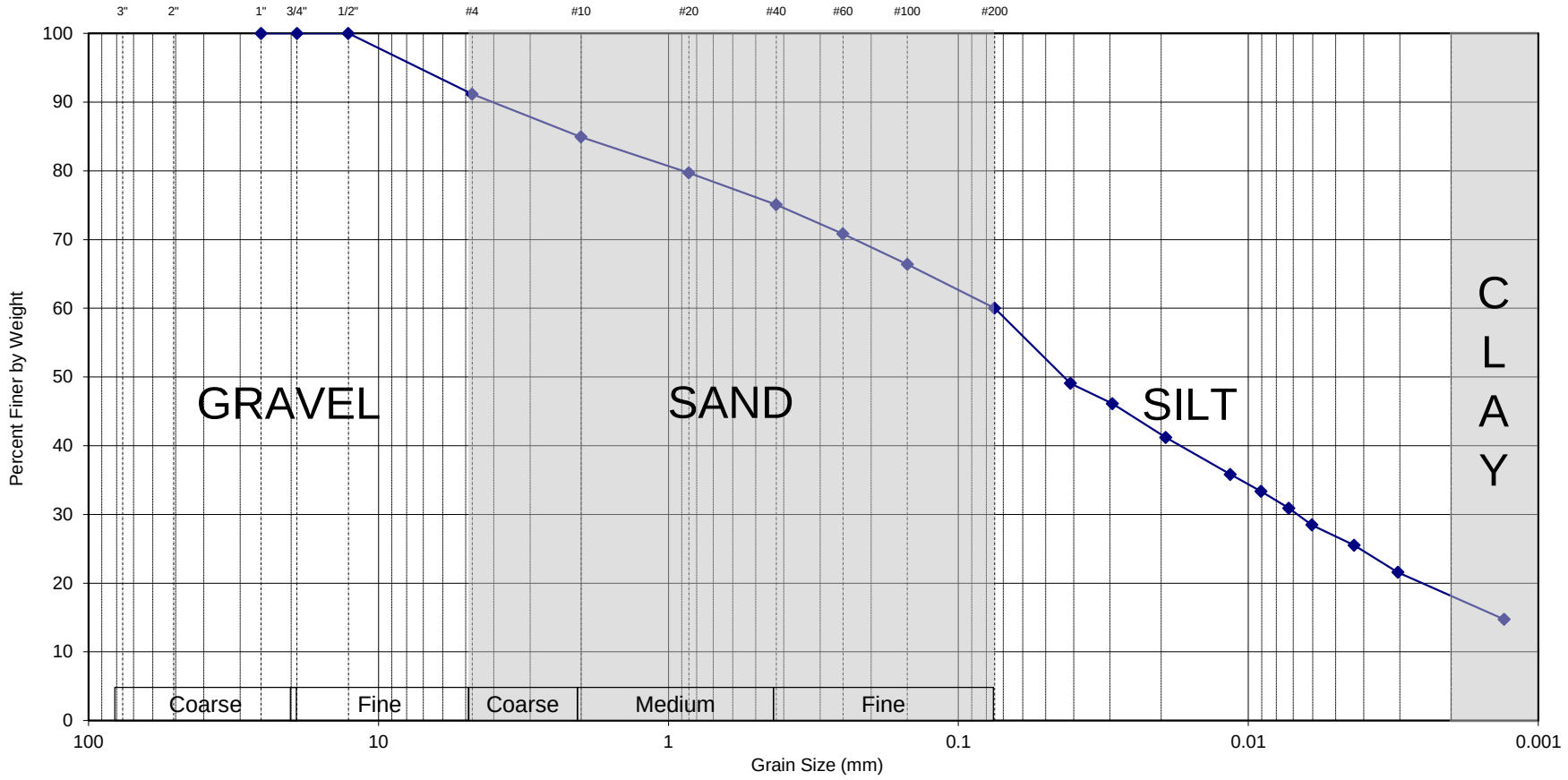
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Gravel	Sand	Fines
8.8%	31.1%	60.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
55	BB-PB-111	2D	2-4'	Brown lean Clay some f-c Sand, trace Gravel (CL)	16.5			

Sieve Size	% Passing
¾"	100.0
½"	100.0
#4	91.2
#10	84.9
#20	79.7
#40	75.1
#60	70.8
#100	66.4
#200	60.0

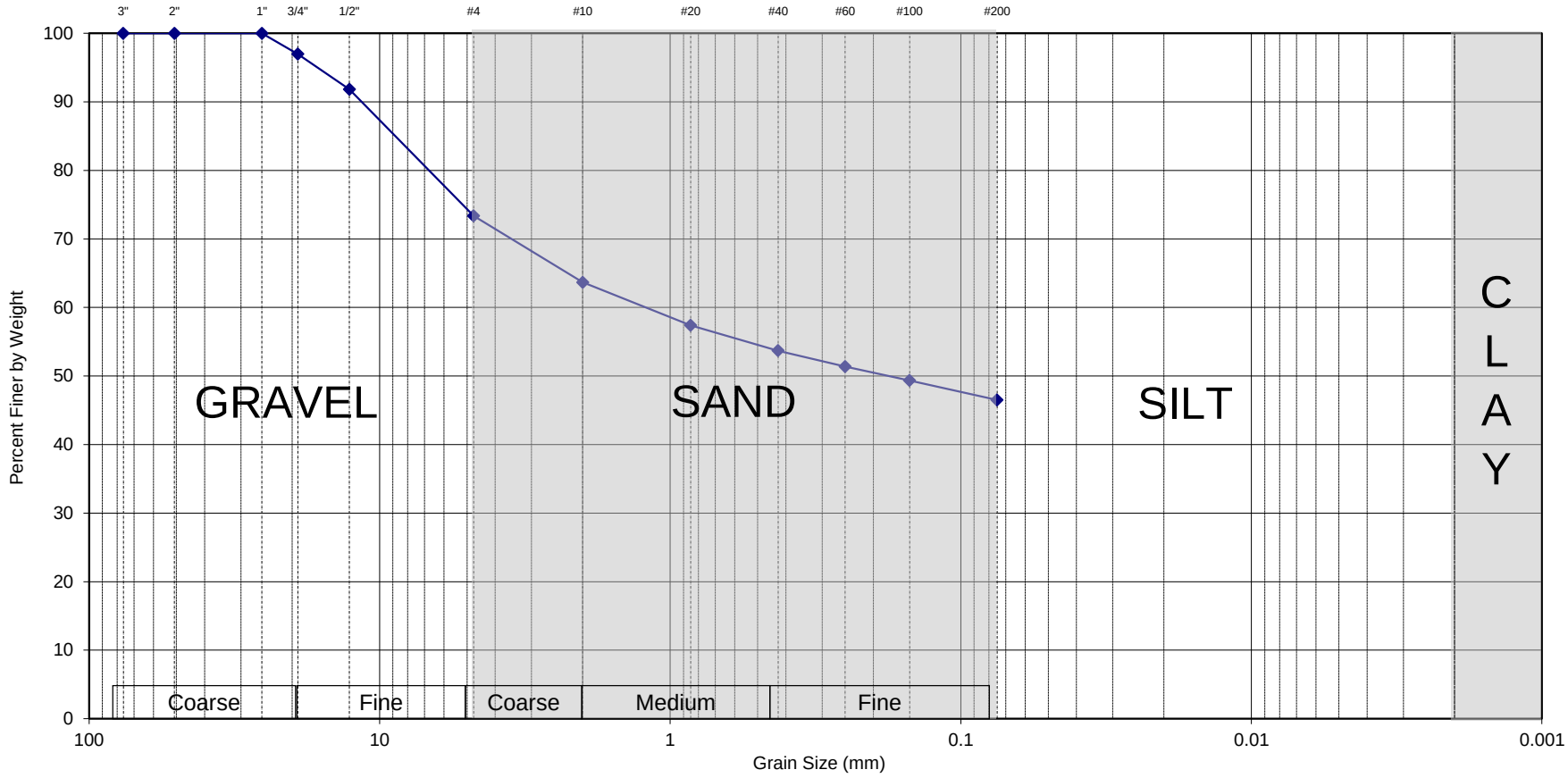
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
26.6%	26.8%	46.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
56	BB-PB-111	6D	20-21.9'	Brown Silty Sand, some f-c Gravel (SM)	10.0			

Sieve Size	% Passing
¾"	97.0
½"	91.8
#4	73.4
#10	63.7
#20	57.4
#40	53.7
#60	51.4
#100	49.4
#200	46.5

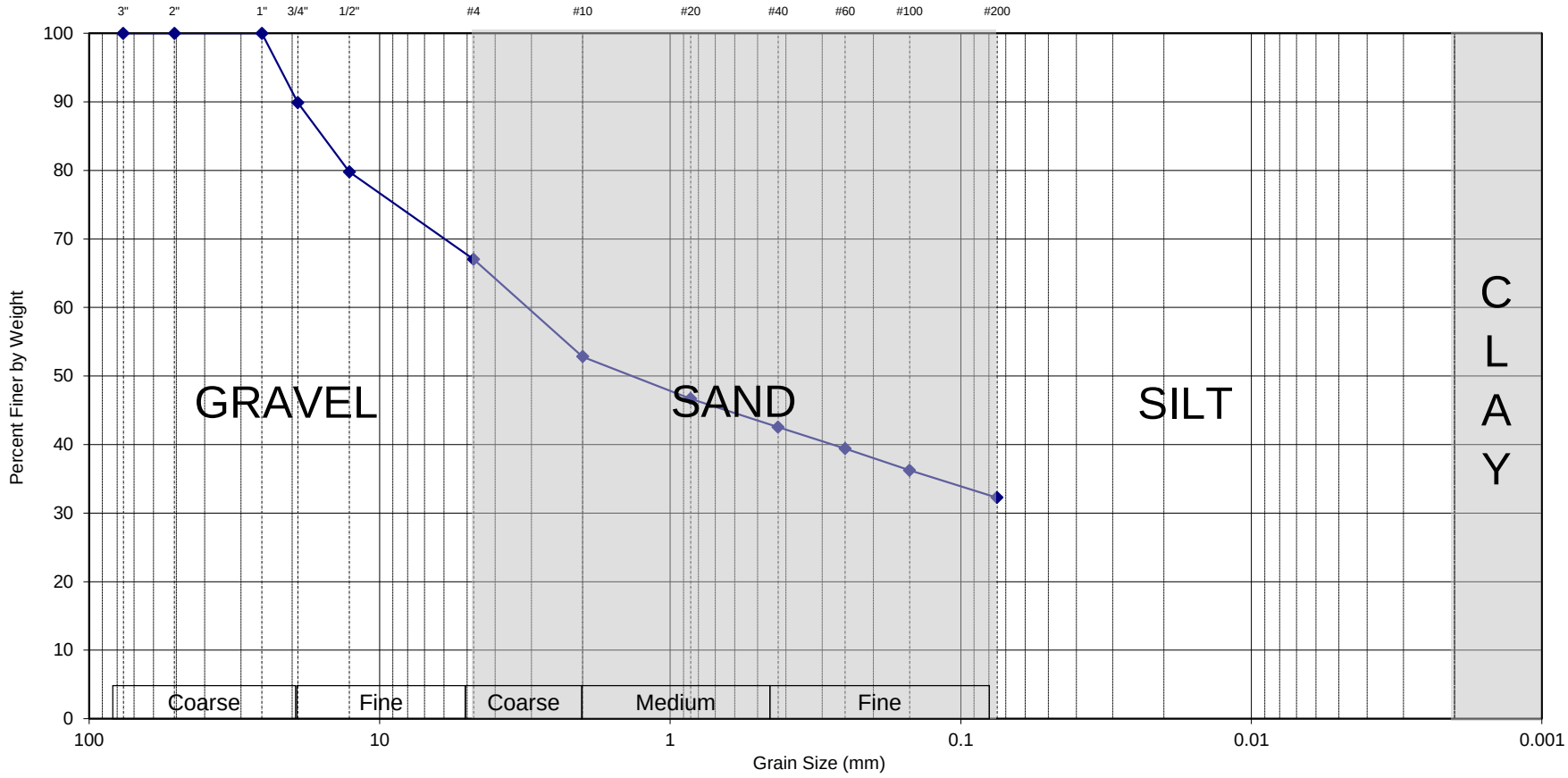
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
33.0%	34.8%	32.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
53	BB-PB-113	2D	5-7'	Brown f-c Sand, some f-c Gravel, some Silt (SM)	11.2			

Sieve Size	% Passing
¾"	89.9
½"	79.8
#4	67.0
#10	52.8
#20	46.7
#40	42.5
#60	39.4
#100	36.2
#200	32.3

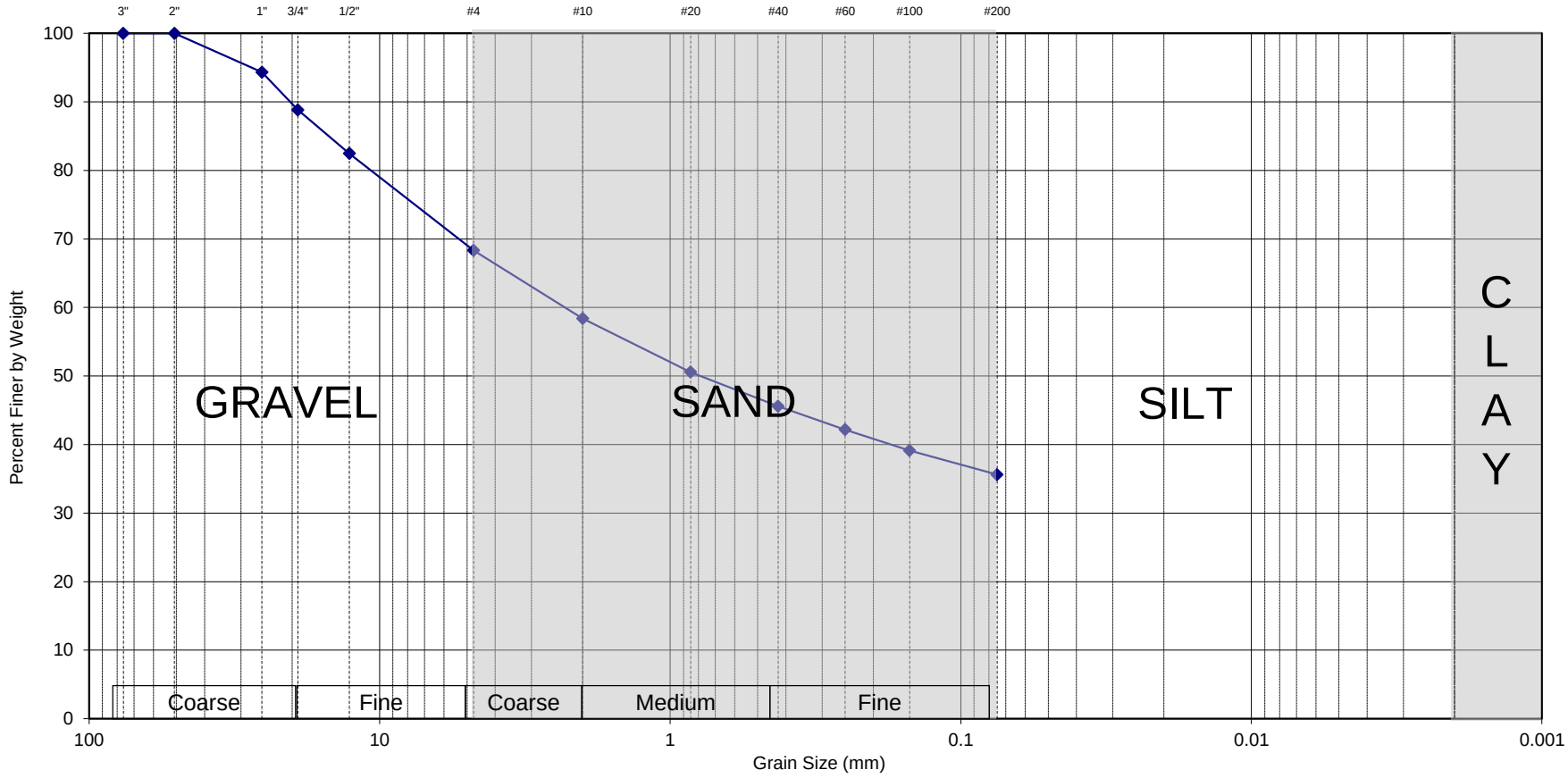
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
31.7%	32.7%	35.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
54	BB-PB-113	4D	15-17'	Brown Silty Sand, some f-c Gravel (SM)	9.1			

Sieve Size	% Passing
¾"	88.8
½"	82.5
#4	68.3
#10	58.4
#20	50.6
#40	45.6
#60	42.2
#100	39.1
#200	35.6

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CTS-74-14-0003
Presque Isle Bypass Segment 2
Presque Isle, ME
GZA File # 09.0025832.01

Tested by: PC Date: 5/18/14
Reviewed by: MBP Date: 5/21/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
22.5%	38.4%	39.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
57	BB-PB-115	4D	9-11'	Brown Silty Sand, some f-c Gravel (SM)	14.5			

Sieve Size	% Passing
¾"	95.1
½"	92.0
#4	77.5
#10	67.5
#20	57.9
#40	51.4
#60	47.0
#100	43.2
#200	39.1

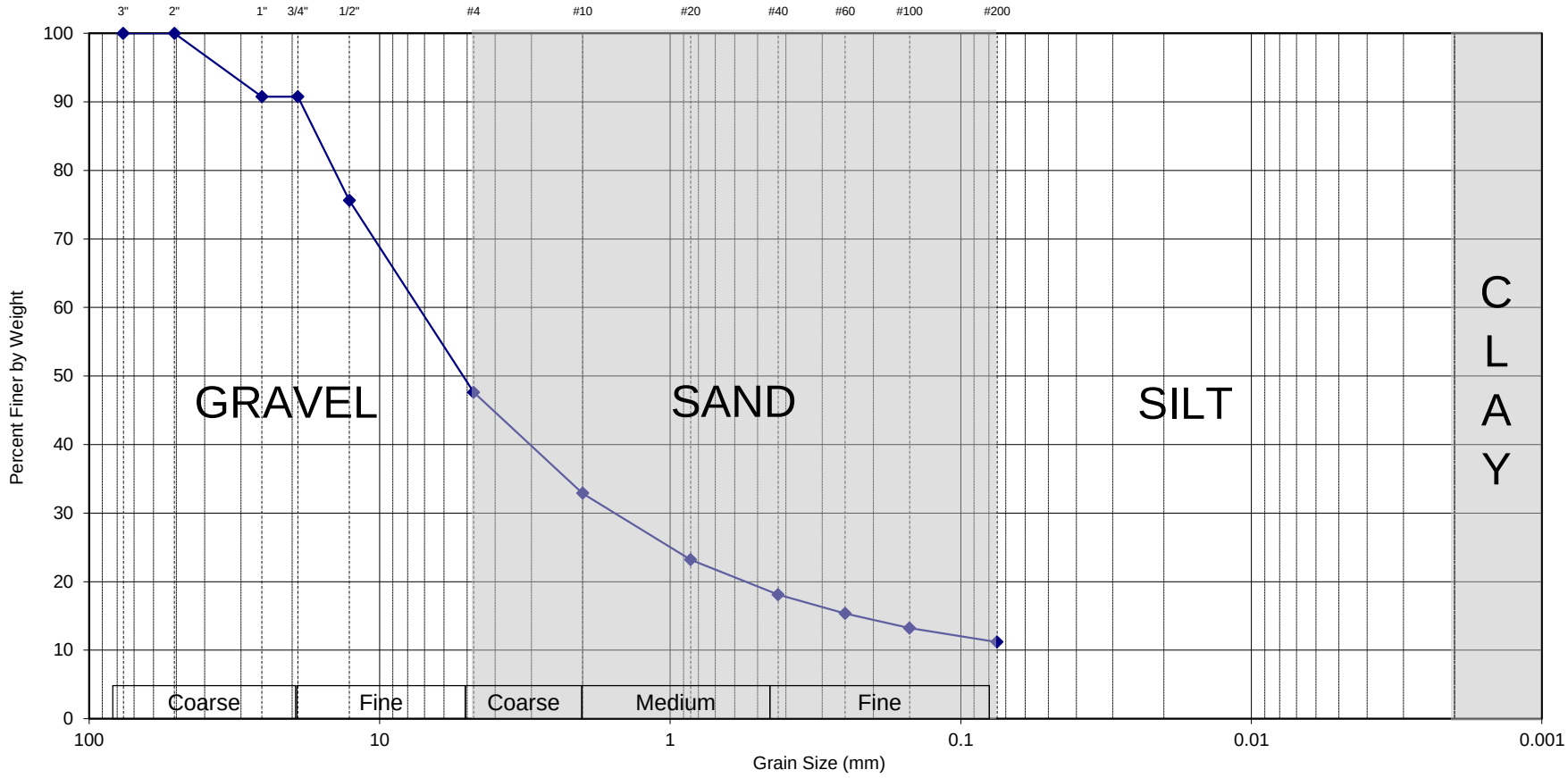
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
52.4%	36.4%	11.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
58	BB-PB-115	7D	24-26'	Gray Sandy f-c Gravel, little Silt (GP-GM)	7.0			

Sieve Size	% Passing
¾"	90.8
½"	75.6
#4	47.6
#10	32.9
#20	23.2
#40	18.1
#60	15.4
#100	13.2
#200	11.2

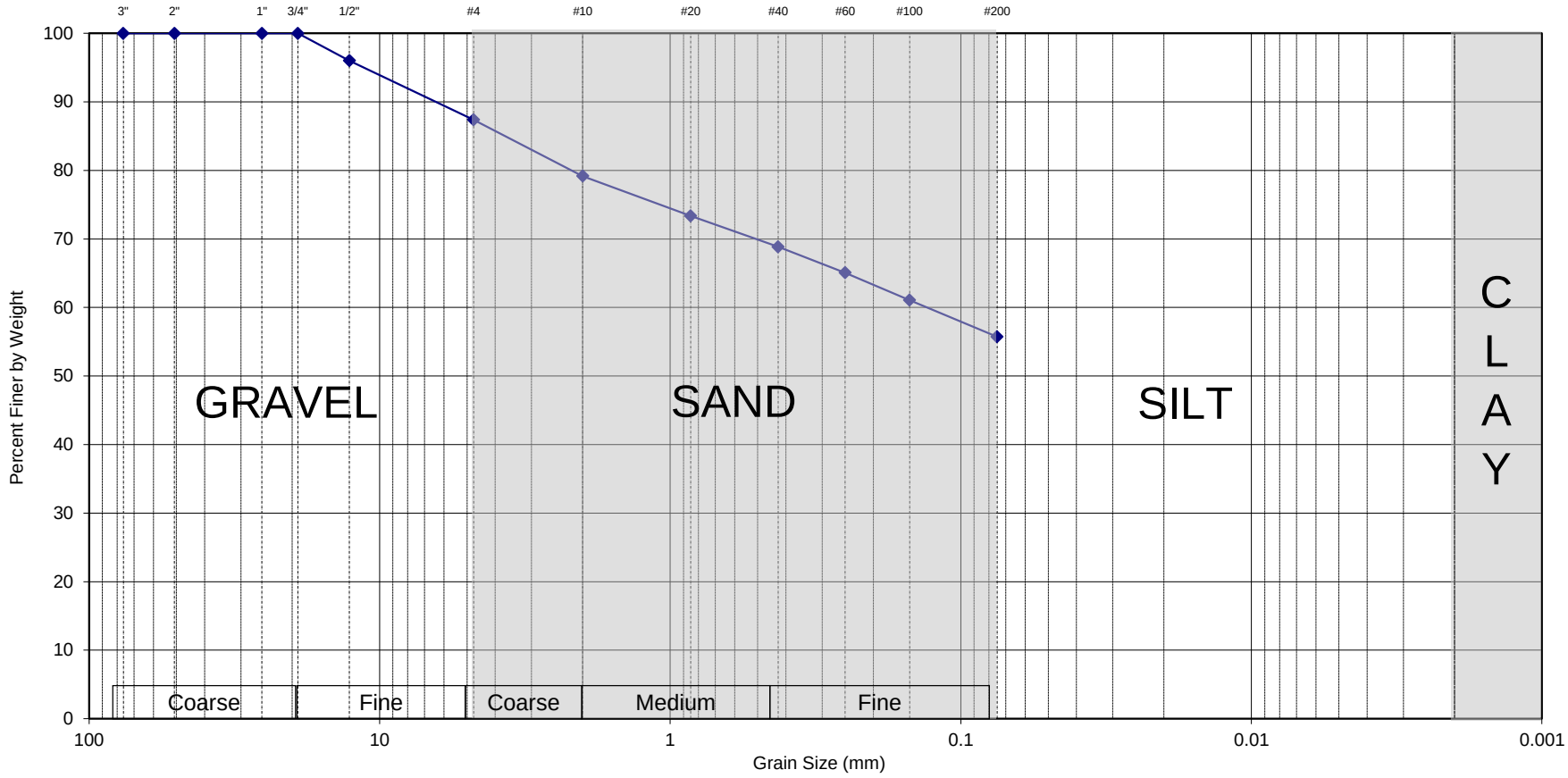
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
12.6%	31.6%	55.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
59	BB-PB-117	2D	2-4'	Brown Silt, some f-c Sand, little fine Gravel (ML)	13.8			

Sieve Size	% Passing
¾"	100.0
½"	96.0
#4	87.4
#10	79.2
#20	73.3
#40	68.9
#60	65.1
#100	61.1
#200	55.7

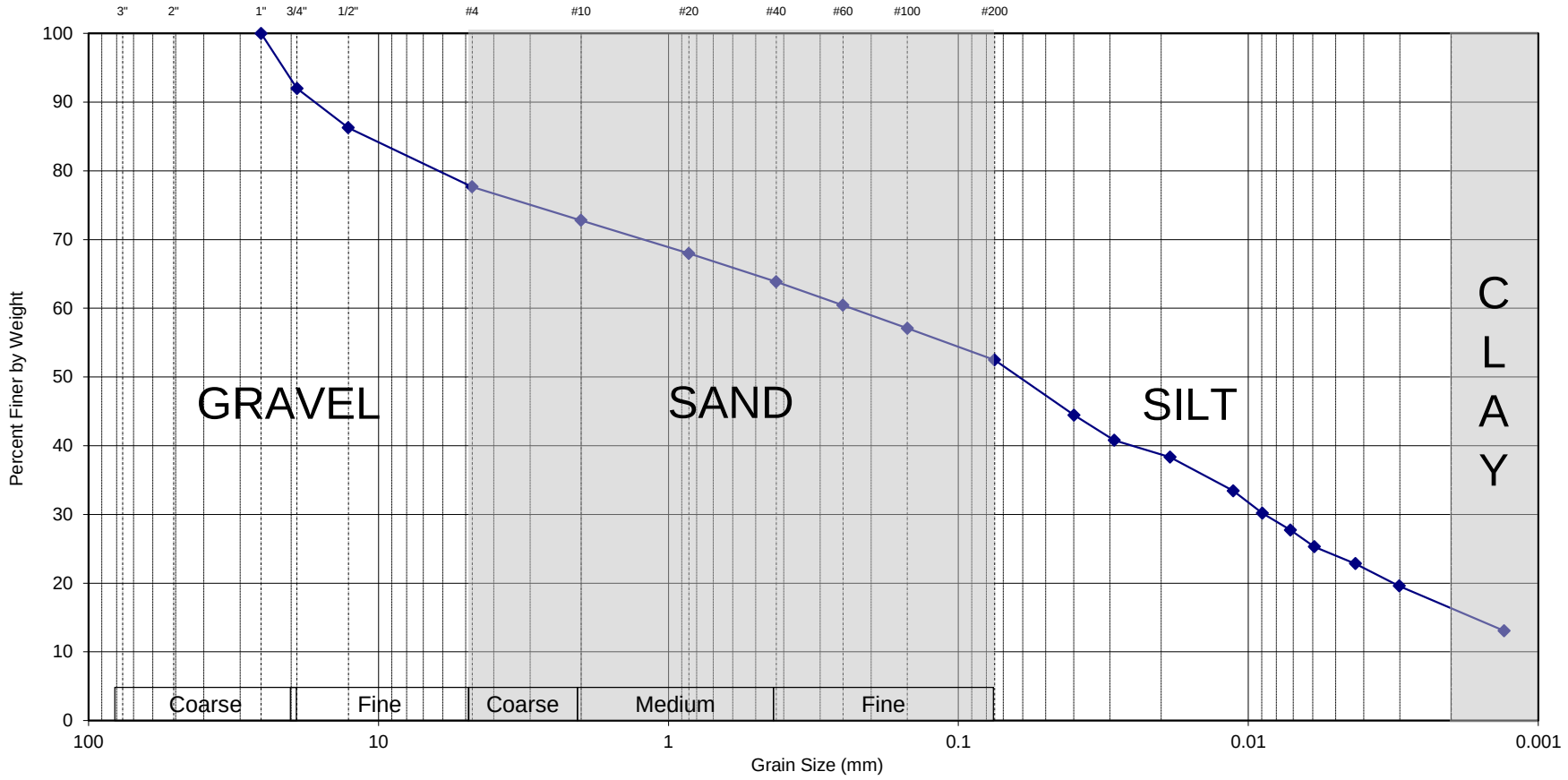
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
22.3%	25.2%	52.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
60	BB-PB-117	5D	15-17'	Brown lean Clay some f-c Sand, some f-c Gravel (CL)	12.3			

Sieve Size	% Passing
¾"	92.0
½"	86.3
#4	77.7
#10	72.8
#20	68.0
#40	63.9
#60	60.5
#100	57.1
#200	52.5

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State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 2

MDOT Project Number: 6462.91

GZA Project Number: 09.0025832.01

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
RB-PB-112		2D	2-4	79		13.5			GM	A-1-b	0
RB-PB-113		3D	4-6	69		17.1			SM	A-4	II
RB-PB-113		5D	14-16	70		7.5			GM	A-2-4	II
RB-PB-121		2D	2-4	80		13.0			SM	A-1-b	II
RB-PB-122		1D	0-2	81		20.0			SM	A-4	II
RB-PB-124		4D	9-11	83		8.8			SM	A-5	II
RB-PB-126		3D	4-6	82		9.2			GW-GM	A-1-a	0
RB-PB-127		3D	4-6	71		16.2			GM	A-1-b	I
RB-PB-131		3D	4-6	72		16.1			SM	A-4	II
RB-PB-132		4D	8.5-10.5	73		9.7			SM	A-4	II
RB-PB-134		3D	4-6	74		12.9			CL	A-6	IV
RB-PB-136		2D	2-4	75		19.3			GM	A-1-a	0
RB-PB-142		2D	2-4	76		22.8			SM	A-4	II
RB-PB-143		2D	2-4	77		7.4			GP-GM	A-1-a	0
RB-PB-143		3D	4-6	78		18.8			SM	A-2-4	II

lance with AASHTO Classification System M-145-40. This classification
from zero (non-frost susceptible) to Class IV (highly frost susceptible).
upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

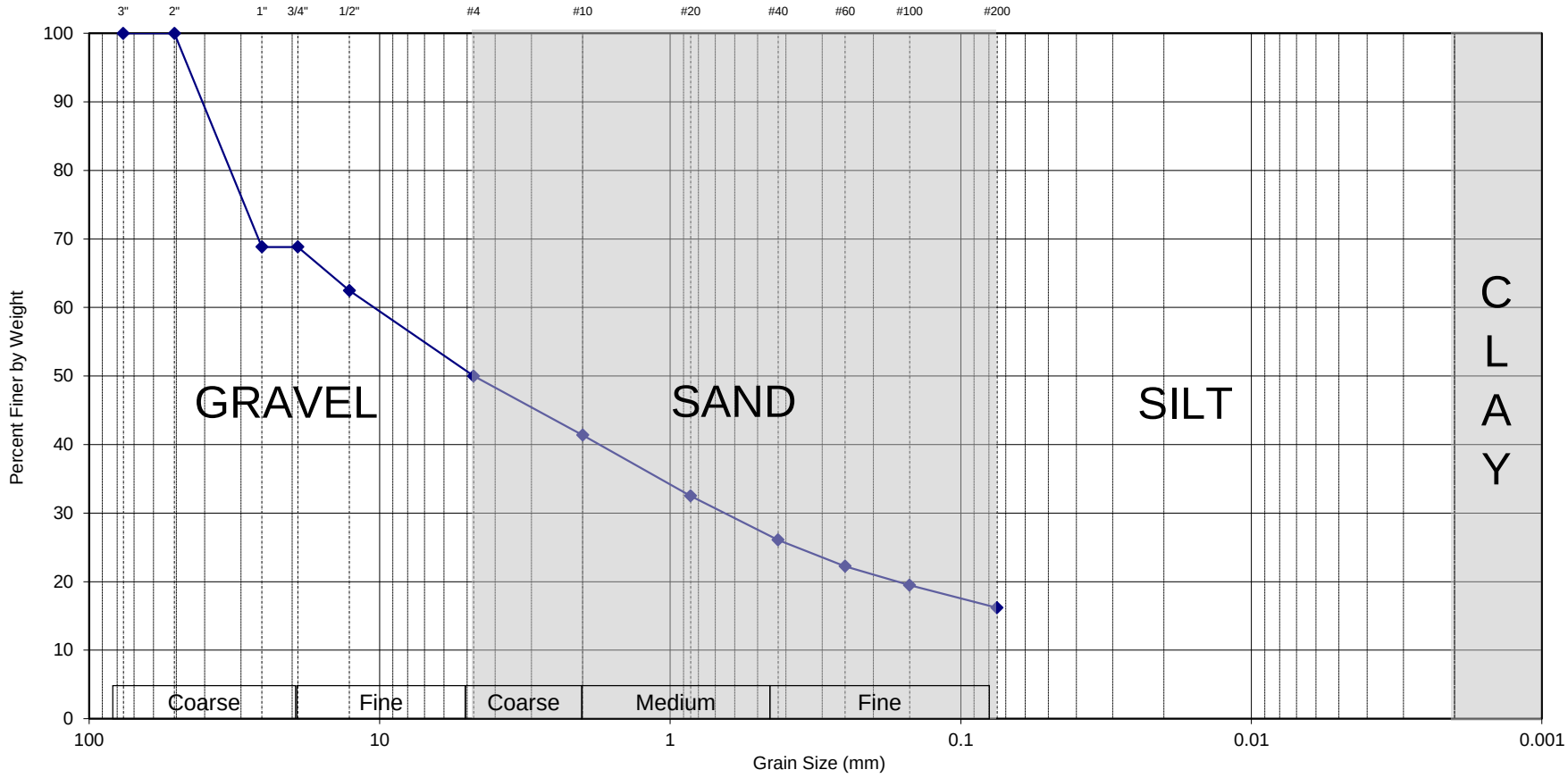
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
50.0%	33.8%	16.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
79	RB-PB-112	2D	2-4'	Brown f-c Gravel, some f-c Sand, little Silt (GM)	13.5			

Sieve Size	% Passing
¾"	68.8
½"	62.5
#4	50.0
#10	41.4
#20	32.5
#40	26.1
#60	22.2
#100	19.5
#200	16.2

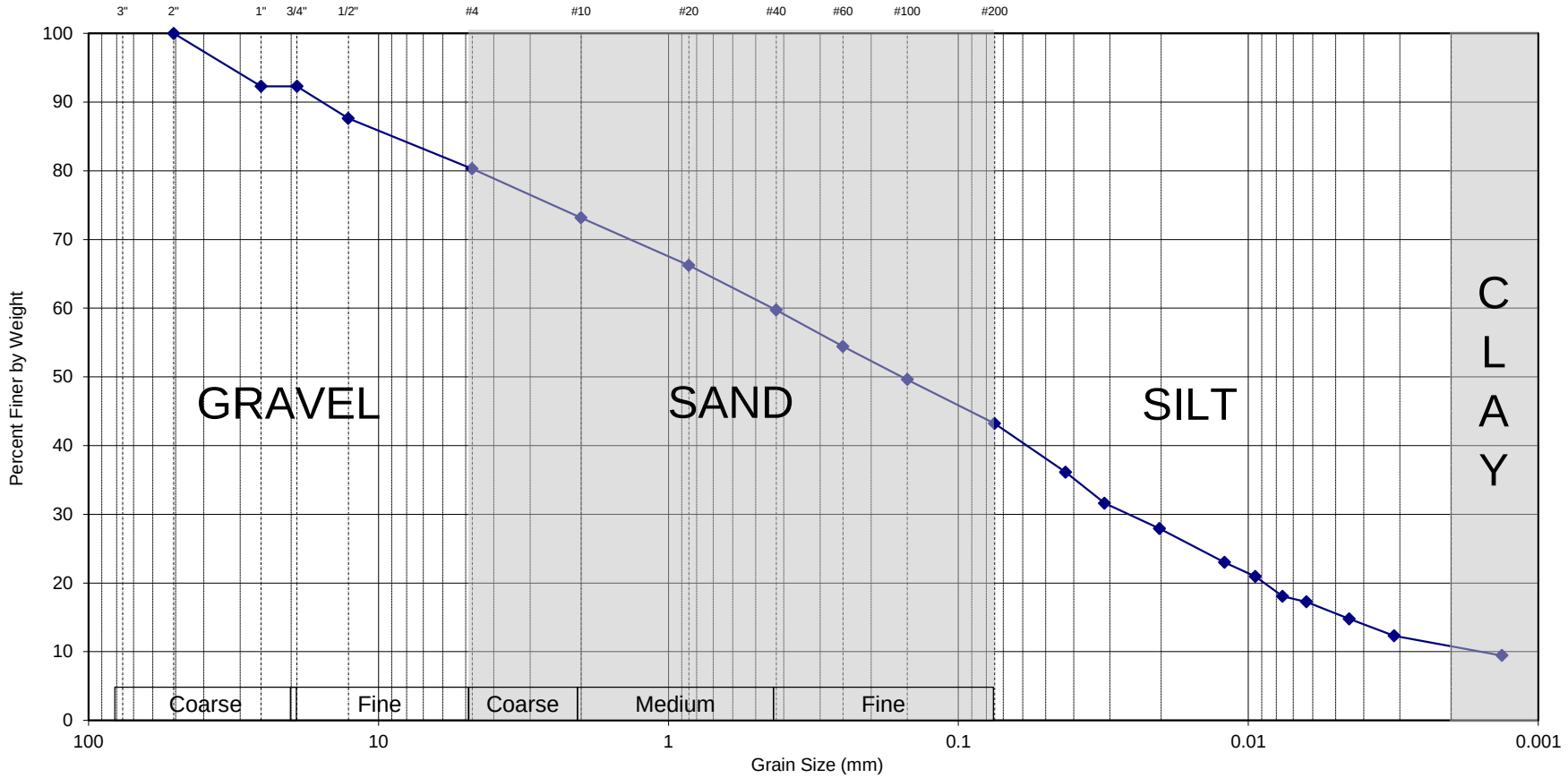
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
19.7%	37.1%	43.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
69	RB-PB-113	3D	4-6'	Brown Silty Sand, little f-c Gravel (SM)	17.1			

Sieve Size	% Passing
¾"	92.3
½"	87.6
#4	80.3
#10	73.1
#20	66.2
#40	59.7
#60	54.4
#100	49.6
#200	43.2

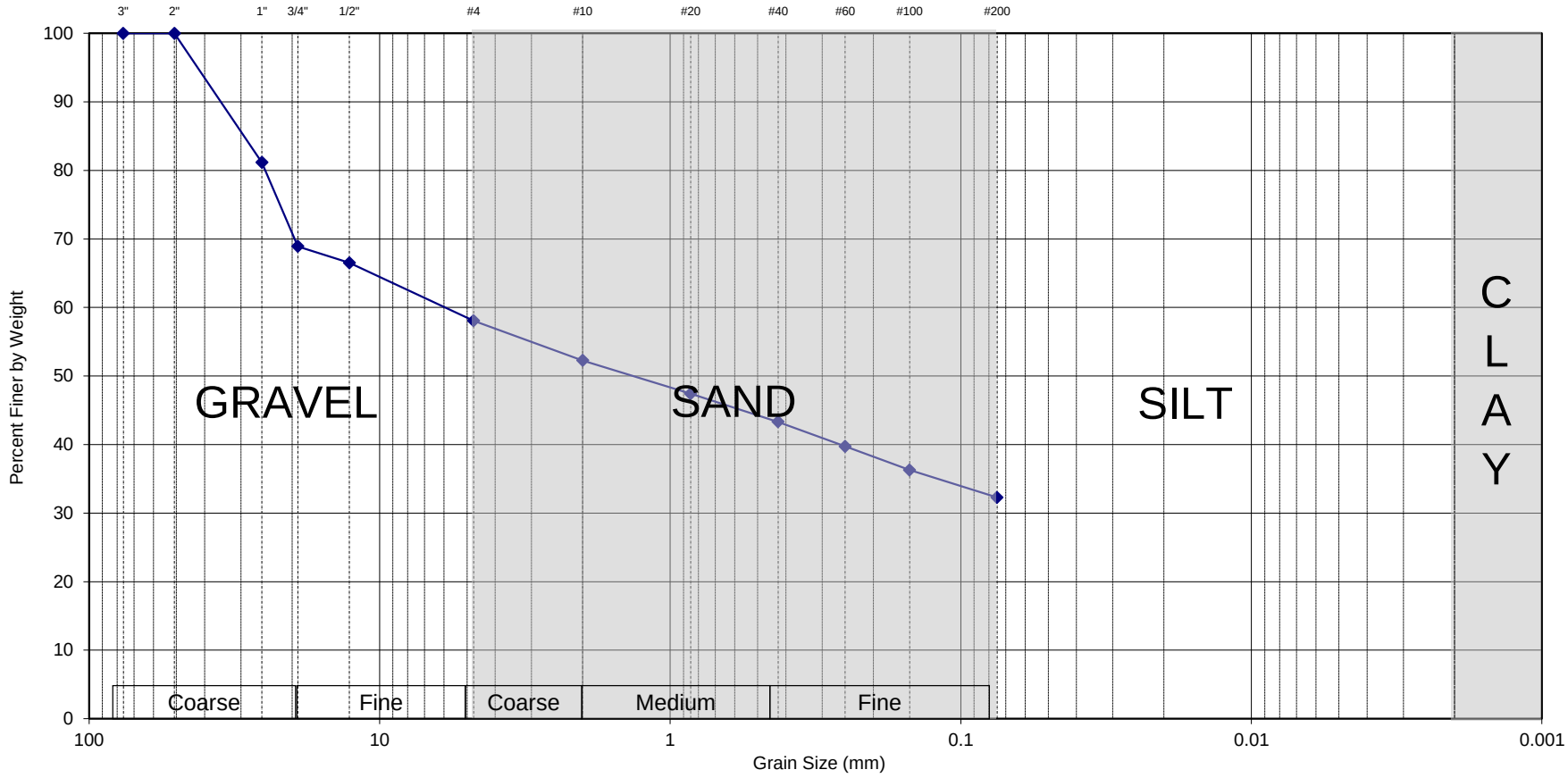
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
42.0%	25.8%	32.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
70	RB-PB-113	5D	14-16'	Brown f-c Gravel, some Silt, some f-c Sand (GM)	7.5			

Sieve Size	% Passing
¾"	68.9
½"	66.5
#4	58.0
#10	52.3
#20	47.4
#40	43.3
#60	39.7
#100	36.3
#200	32.3

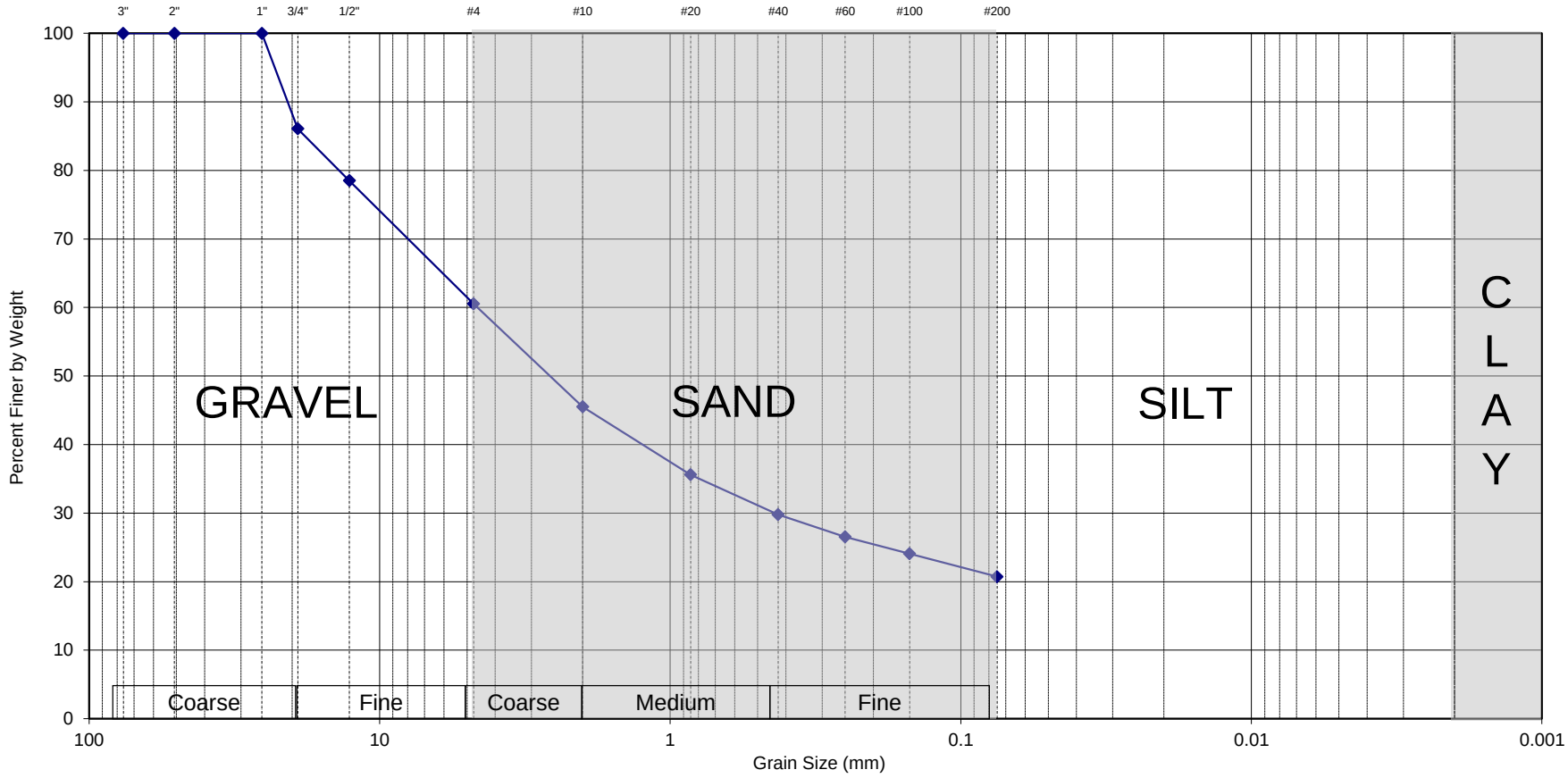
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
39.5%	39.8%	20.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
80	RB-PB-121	2D	2-4'	Brown Gravelly f-c Sand, some Silt (SM)	13.0			

Sieve Size	% Passing
¾"	86.1
½"	78.5
#4	60.5
#10	45.5
#20	35.6
#40	29.8
#60	26.5
#100	24.1
#200	20.7

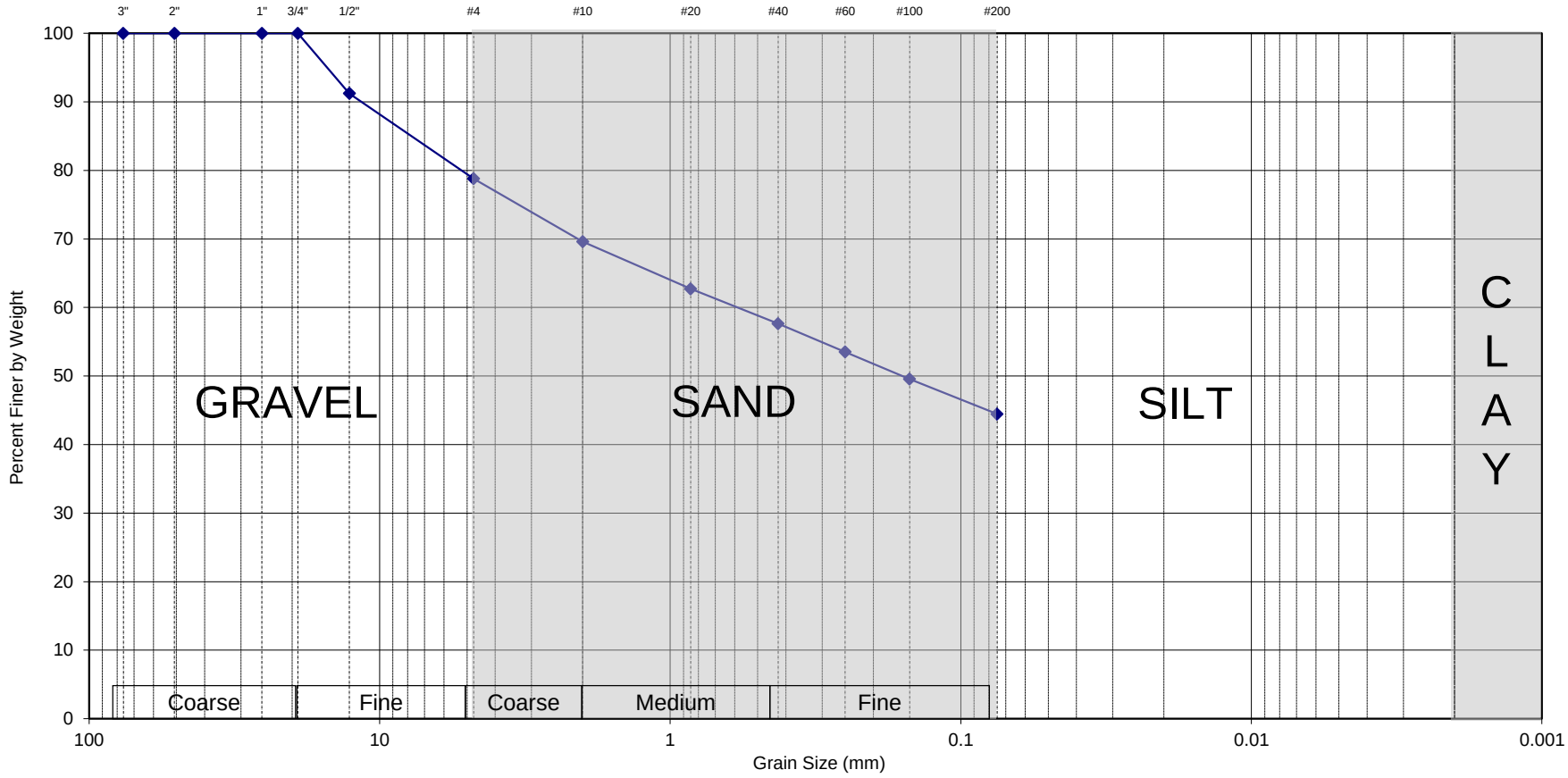
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
21.2%	34.3%	44.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
81	RB-PB-122	1D	0-2'	Brown Silty f-c Sand, some fine Gravel (SM)	20.0			

Sieve Size	% Passing
¾"	100.0
½"	91.2
#4	78.8
#10	69.6
#20	62.7
#40	57.6
#60	53.5
#100	49.5
#200	44.4

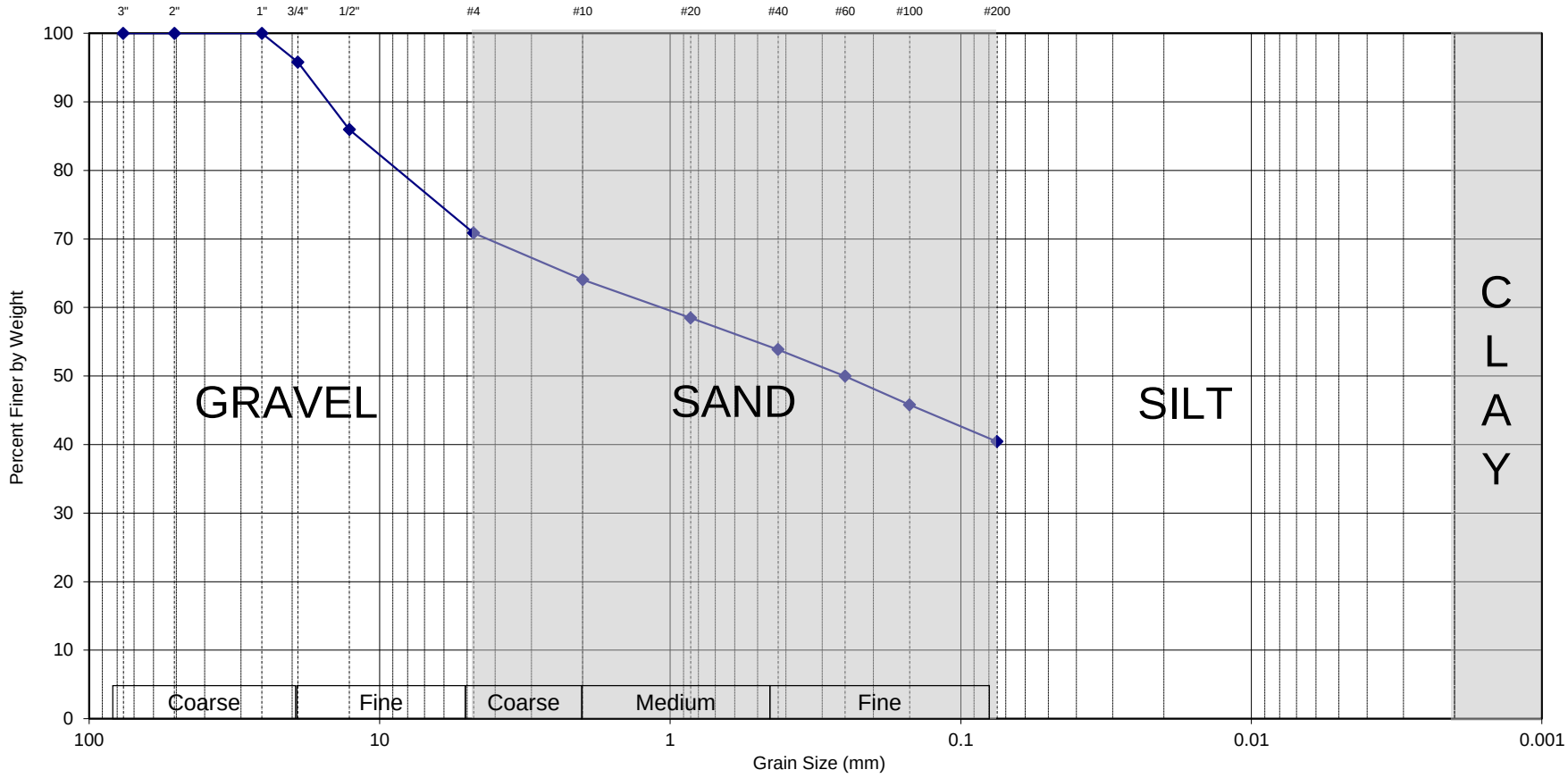
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.1%	30.4%	40.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
83	RB-PB-124	4D	9-11'	Brown Silty f-c Sand, some f-c Gravel (SM)	8.8			

Sieve Size	% Passing
¾"	95.8
½"	86.0
#4	70.9
#10	64.0
#20	58.5
#40	53.9
#60	50.0
#100	45.8
#200	40.4

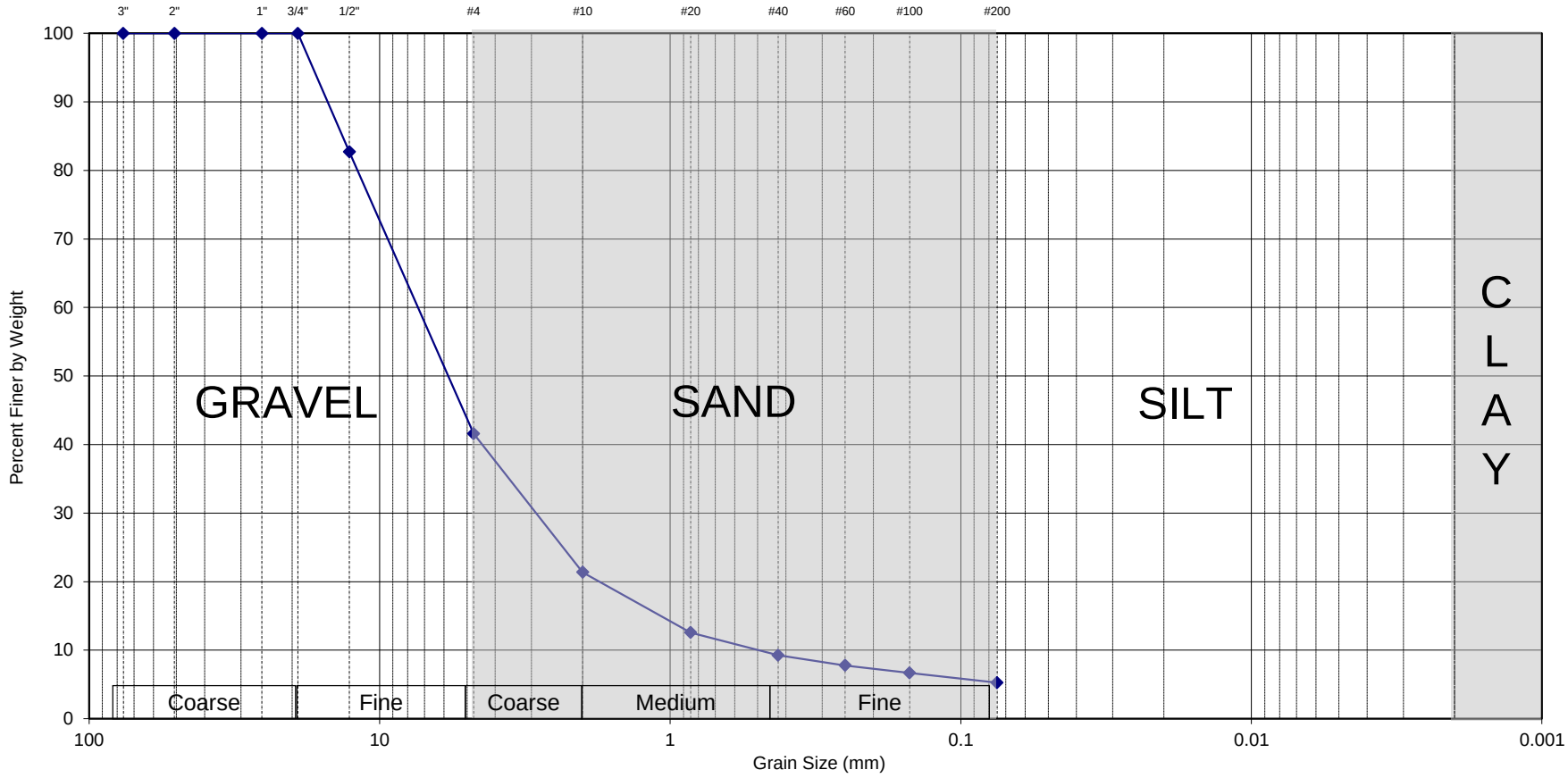
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
58.4%	36.3%	5.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
82	RB-PB-126	3D	4-6'	Brown Sandy fine Gravel, trace Silt (GW-GM)	9.2			

Sieve Size	% Passing
¾"	100.0
½"	82.7
#4	41.6
#10	21.4
#20	12.6
#40	9.3
#60	7.8
#100	6.7
#200	5.3

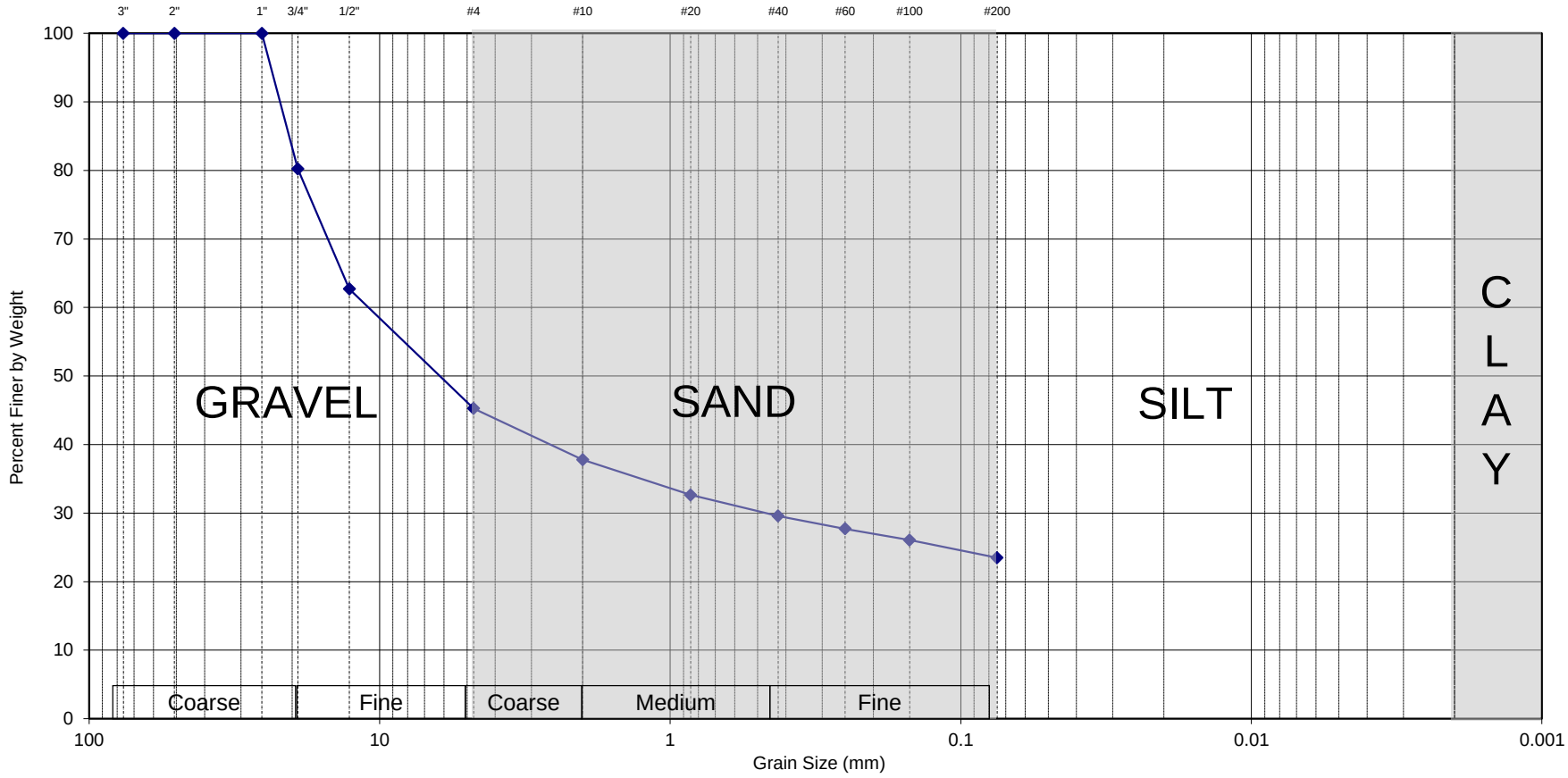
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
54.7%	21.8%	23.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
71	RB-PB-127	3D	4-6'	Brown f-c Gravel, some Silt, some f-c Sand (GM)	16.2			

Sieve Size	% Passing
¾"	80.2
½"	62.7
#4	45.3
#10	37.8
#20	32.6
#40	29.6
#60	27.7
#100	26.1
#200	23.5

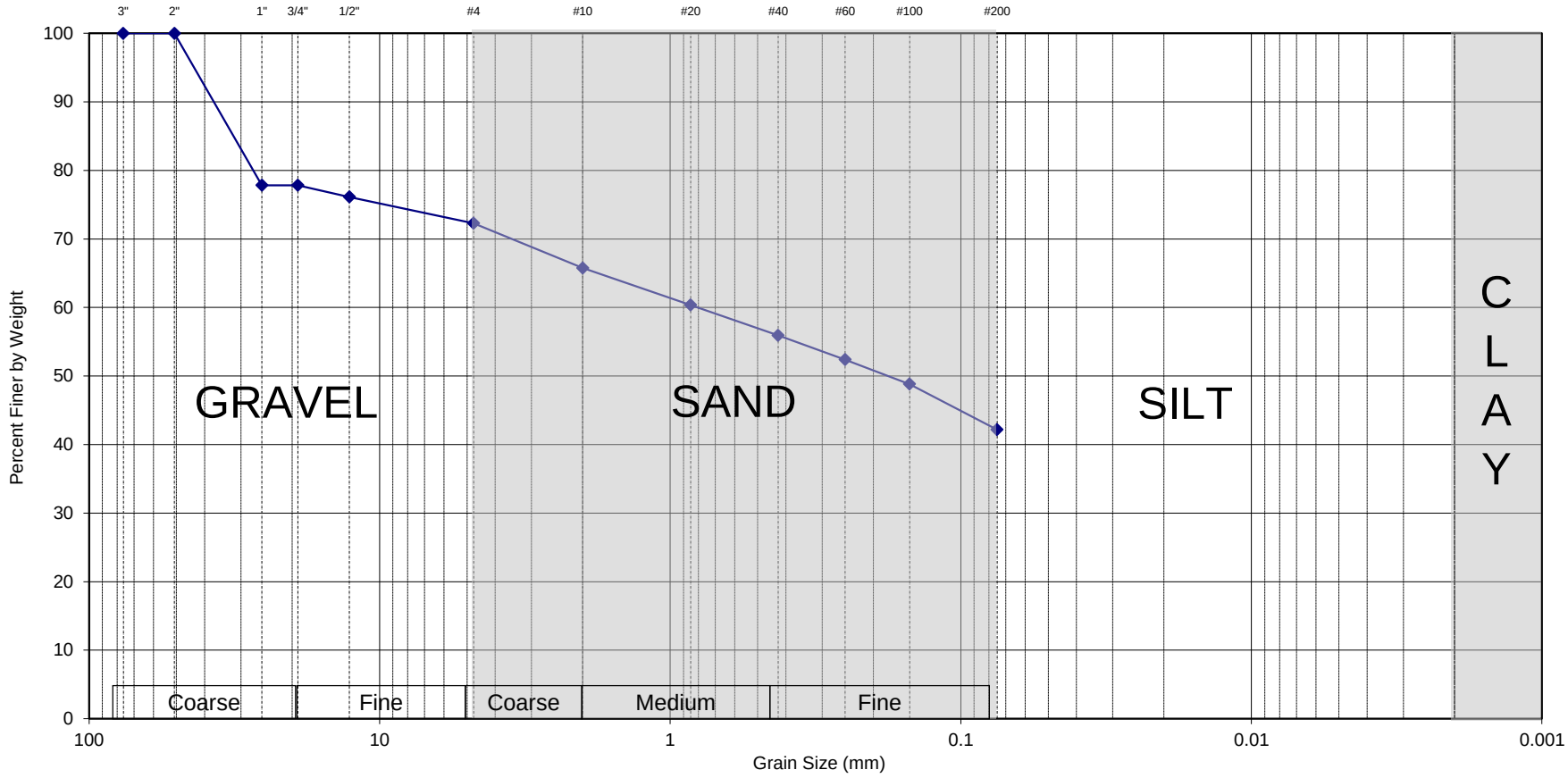
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
27.7%	30.1%	42.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
72	RB-PB-131	3D	4-6'	Brown Silty Sand, some f-c Gravel (SM)	16.1			

Sieve Size	% Passing
¾"	77.8
½"	76.1
#4	72.3
#10	65.8
#20	60.4
#40	55.9
#60	52.4
#100	48.8
#200	42.2

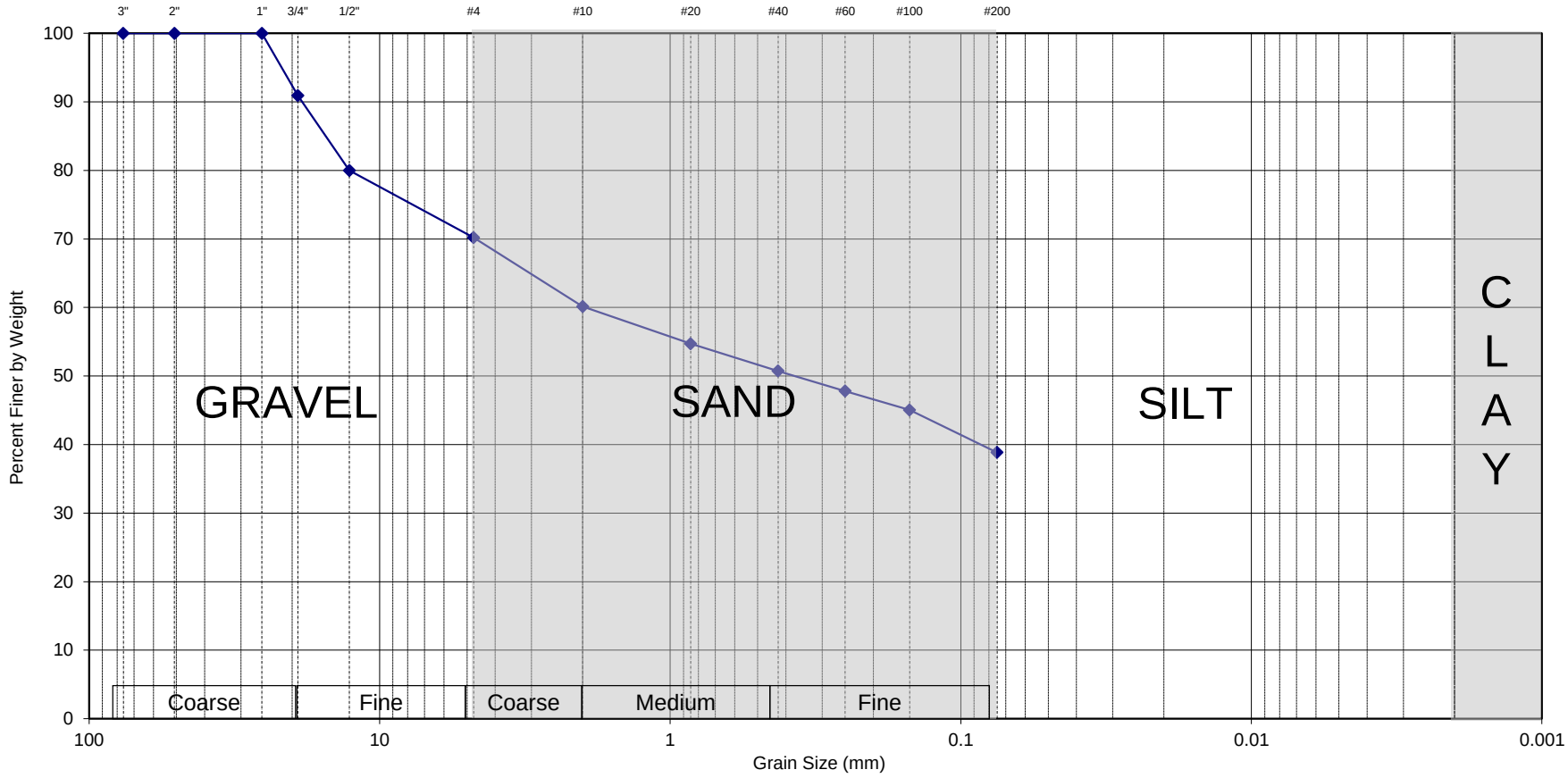
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.8%	31.3%	38.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
73	RB-PB-132	4D	8.5-10.5'	Brown Silty Sand, some f-c Gravel (SM)	9.7			

Sieve Size	% Passing
¾"	90.9
½"	80.0
#4	70.2
#10	60.1
#20	54.7
#40	50.7
#60	47.8
#100	45.0
#200	38.8

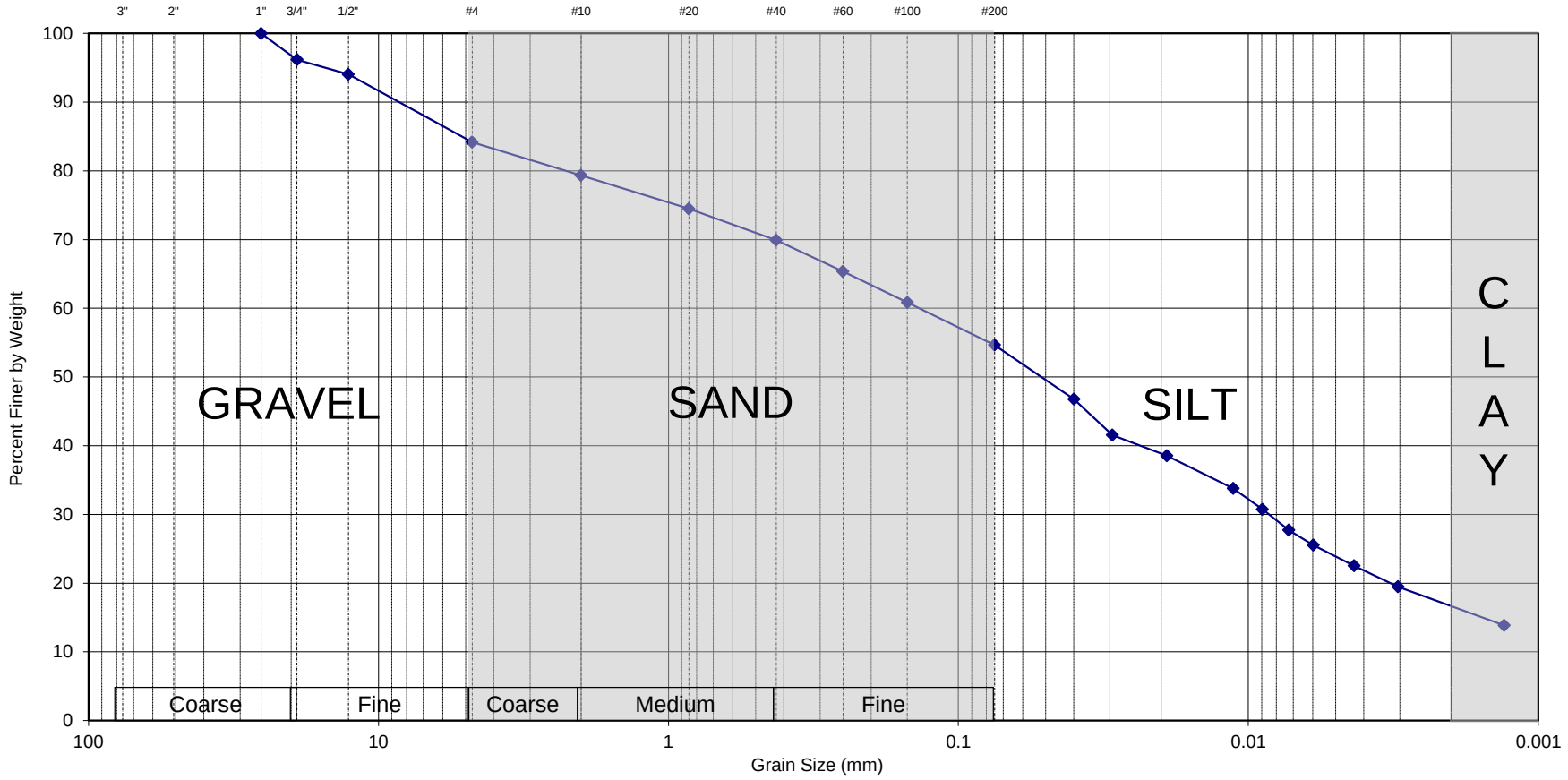
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
15.8%	29.5%	54.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
74	RB-PB-134	3D	4-6'	Brown Lean Clay, some f-c Sand, little f-c Gravel (CL)	12.9			

Sieve Size	% Passing
¾"	96.2
½"	94.1
#4	84.2
#10	79.3
#20	74.5
#40	69.9
#60	65.4
#100	60.9
#200	54.7

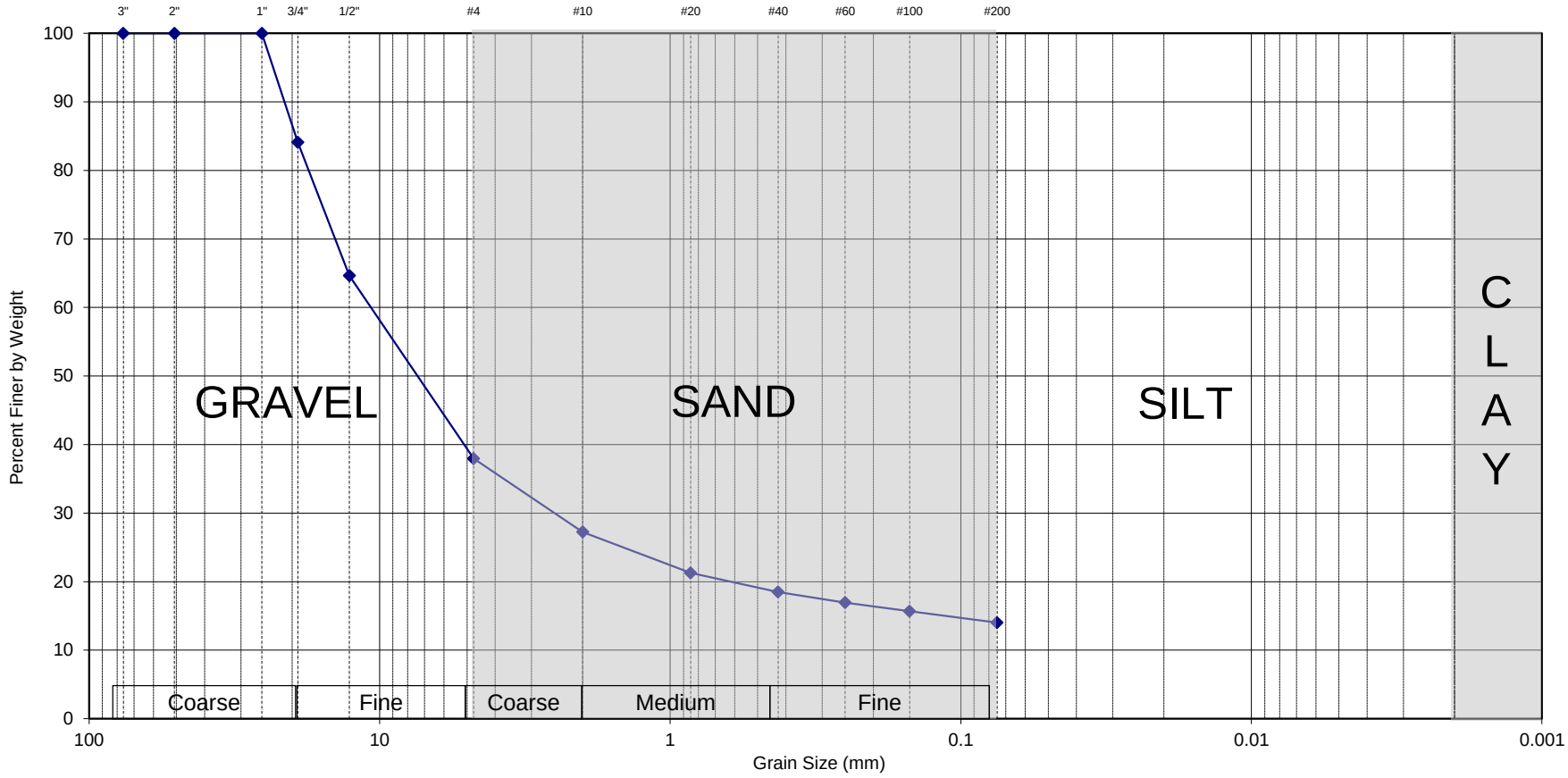
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
62.1%	23.9%	14.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
75	RB-PB-136	2D	2-4'	Brown f-c Gravel, some f-c Sand, little Silt (GM)	19.3			

Sieve Size	% Passing
¾"	84.1
½"	64.6
#4	37.9
#10	27.3
#20	21.3
#40	18.5
#60	16.9
#100	15.7
#200	14.0

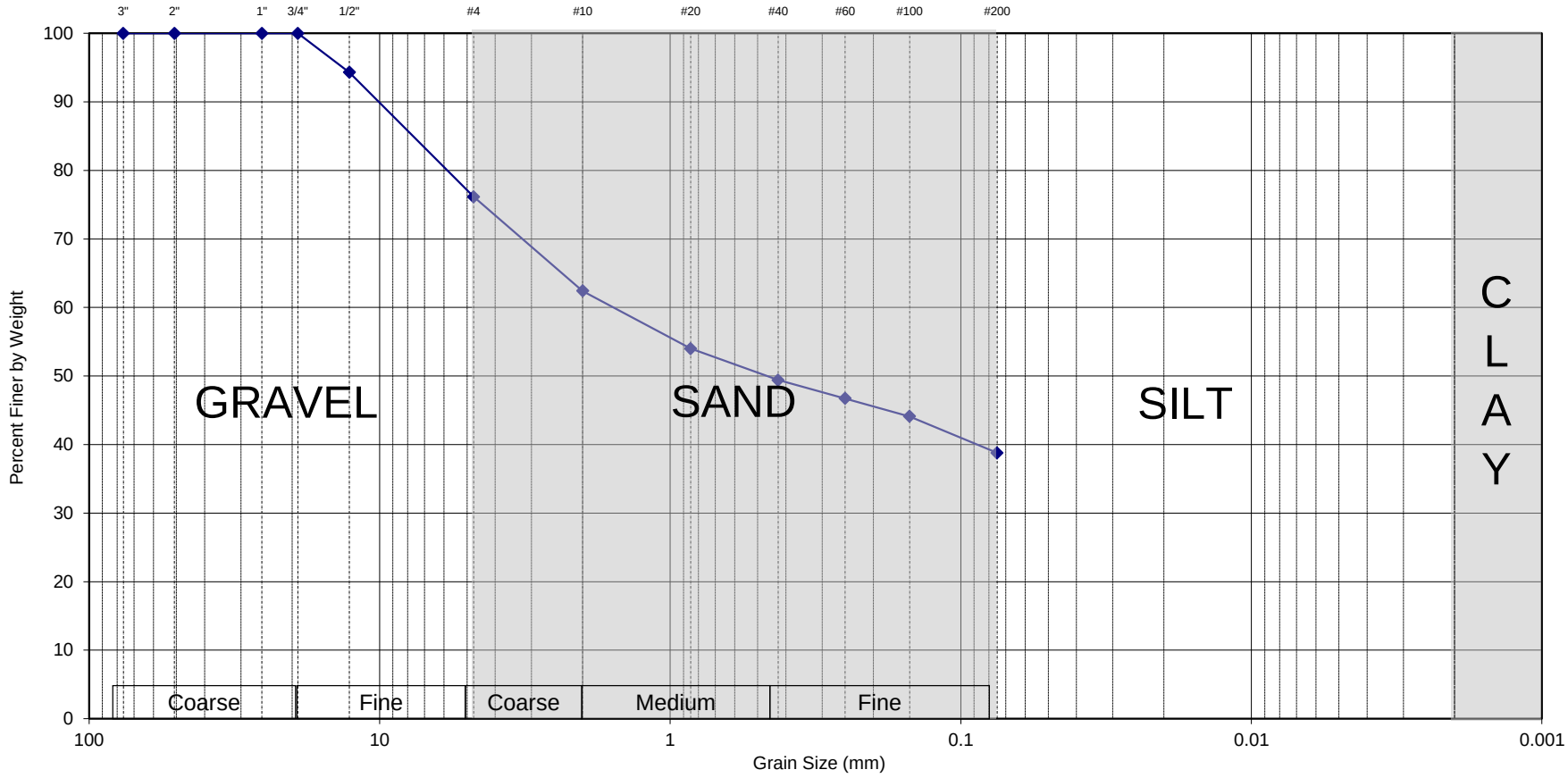
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.9%	37.4%	38.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
76	RB-PB-142	2D	2-4'	Brown Silty Sand, some fine Gravel (SM)	22.8			

Sieve Size	% Passing
¾"	100.0
½"	94.3
#4	76.1
#10	62.4
#20	54.0
#40	49.4
#60	46.7
#100	44.1
#200	38.8

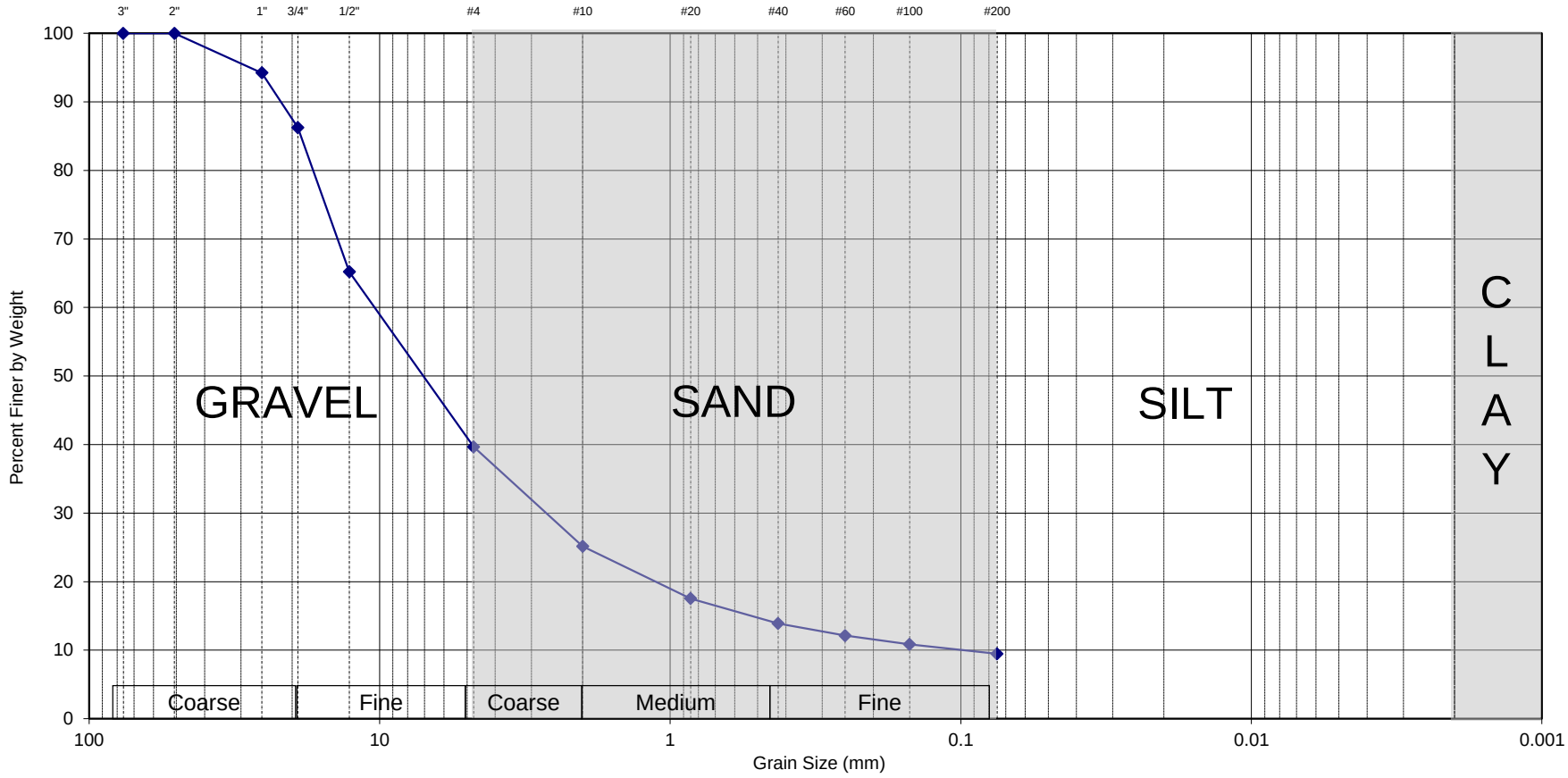
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CTS-74-14-0003
Presque Isle Bypass Segment 2
Presque Isle, ME
GZA File # 09.0025832.01

Tested by: PC Date: 5/18/14
Reviewed by: MBP Date: 5/22/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
60.3%	30.2%	9.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
77	RB-PB-143	2D	2-4'	Brown f-c Gravel, some f-c Sand, trace Silt (GP-GM)	7.4			

Sieve Size	% Passing
¾"	86.3
½"	65.2
#4	39.7
#10	25.1
#20	17.5
#40	13.9
#60	12.1
#100	10.8
#200	9.5

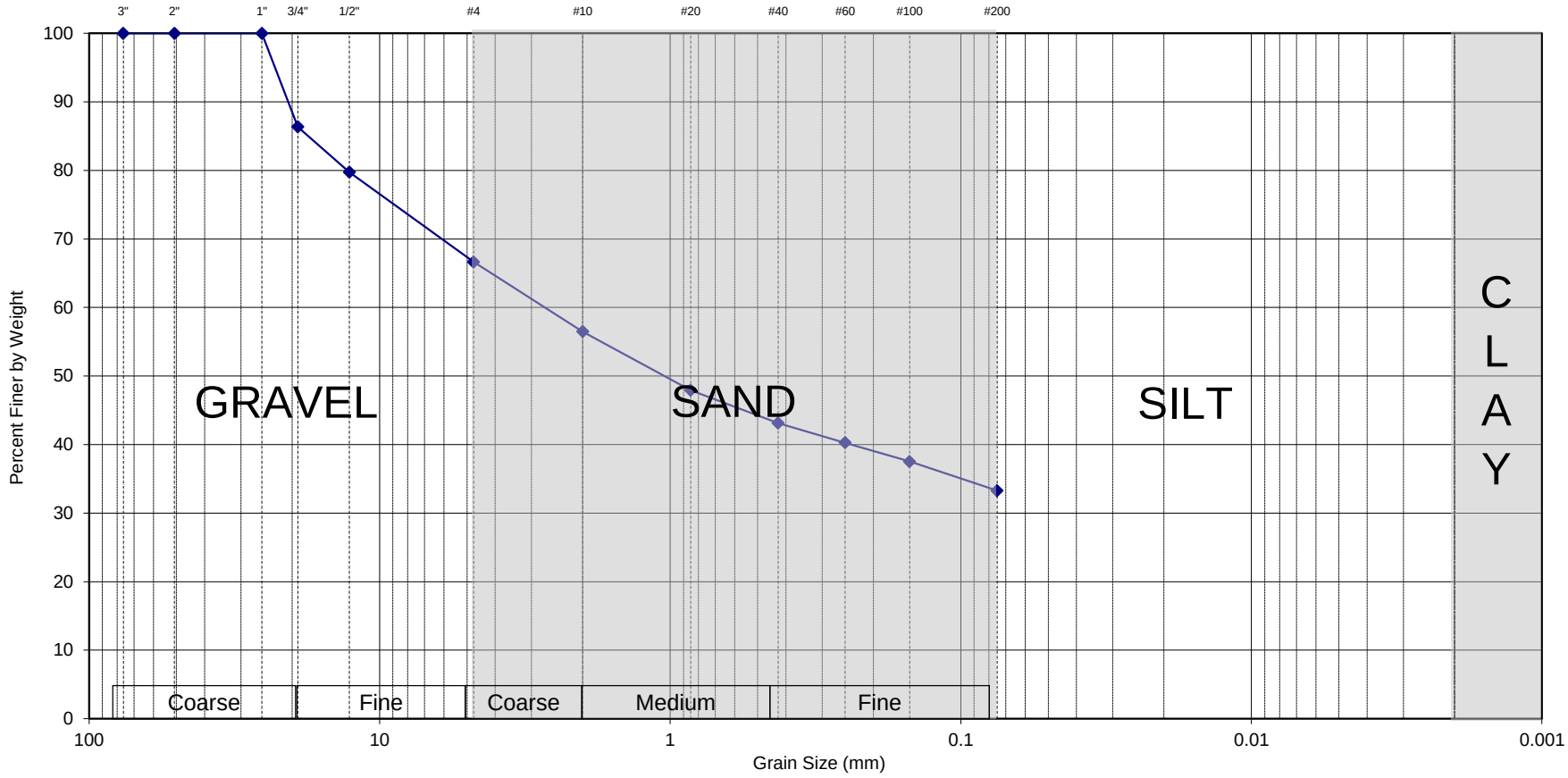
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401-467-6454

CTS-74-14-0003
Presque Isle Bypass Segment 2
Presque Isle, ME
GZA File # 09.0025832.01

Tested by: PC Date: 5/18/14
Reviewed by: MBP Date: 5/22/14

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
33.4%	33.4%	33.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
78	RB-PB-143	3D	4-6'	Brown f-c Sand, some f-c Gravel, some Silt (SM)	18.8			

Sieve Size	% Passing
¾"	86.3
½"	79.7
#4	66.6
#10	56.5
#20	47.9
#40	43.1
#60	40.3
#100	37.5
#200	33.3

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CTS-74-14-0003
Presque Isle Bypass Segment 2
Presque Isle, ME
GZA File # 09.0025832.01

Tested by: PC Date: 5/18/14
Reviewed by: MBP Date: 5/22/14

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State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Presque Isle Bypass

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s):

Boring & Sample Identification Number	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
								Unified	AASHTO	Frost
HB-PB-301	2D	2-4	94		12.4			SM	A-2	II
HB-PB-302	2D	2-4	95		14.0			SM	A-2	II
HB-PB-303	2D	2-4	96		35.4			SM	A-2	II
HB-PB-304	2D	2-4	97		25.6					
HB-PB-304	4D	10-12	98		11.2			GM	A-1-b	II
HB-PB-305	5D	15-17	99		9.8					
HB-PB-305	8D	30-32	100		9.8			SM/SC	A-4	II/IV
HB-PB-306	4D	10-12	101		12.4			CL	A-6	IV
HB-PB-307	3D	5-7	102		11.8			CL	A-6	IV
HB-PB-307	9D	35-37	103		7.7			GC	A-2	III
HB-PB-308	4D	10-12	104		9.7					
HB-PB-308	7D	25-27	105		8.2			SM	A-1-a	0

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

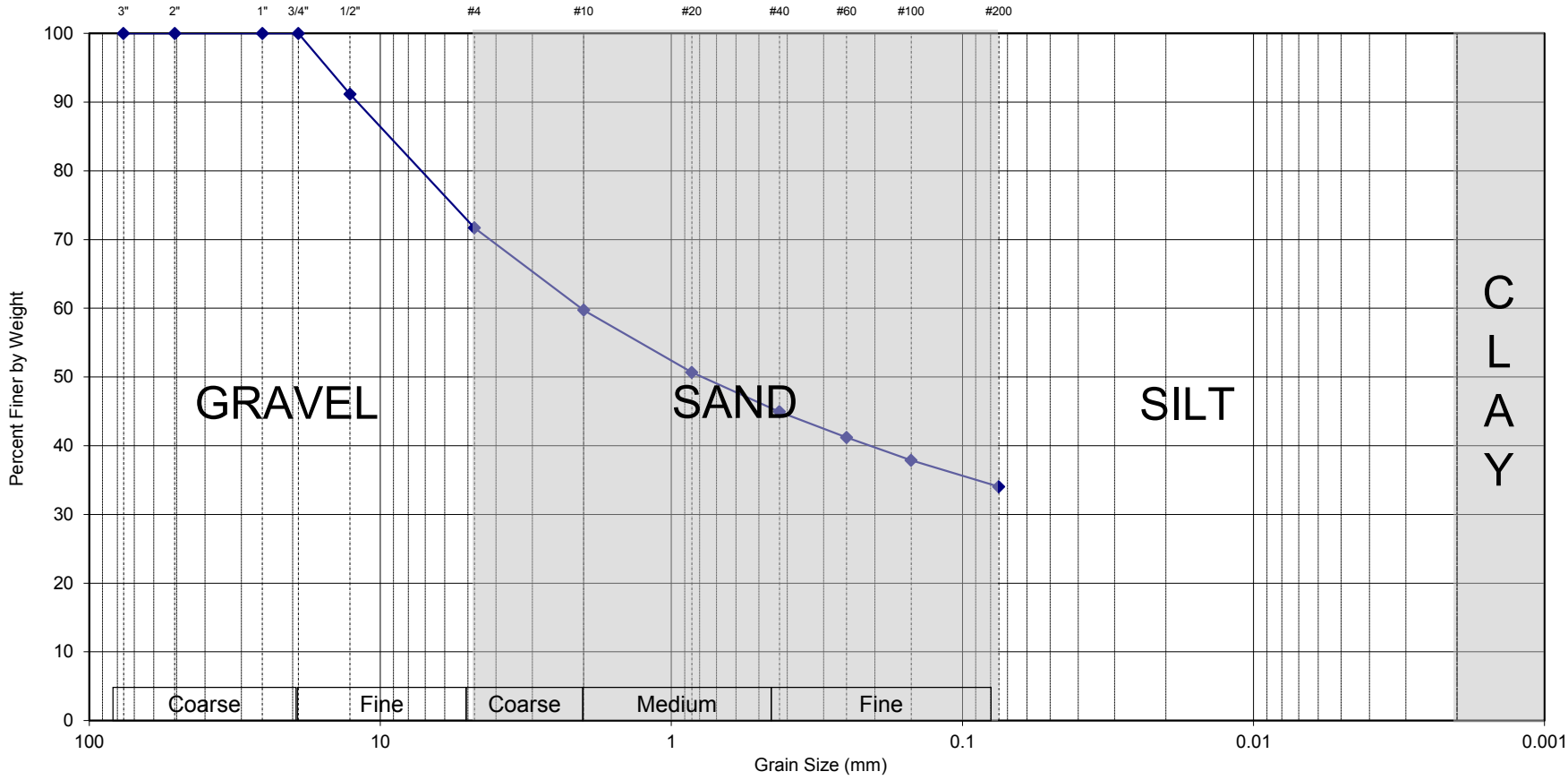
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
28.3%	37.7%	34.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
94	HB-PB-301	2D	2-4'	Brown f-c SAND, some Silt, some fine Gravel (SM)	12.4			

Sieve Size	% Passing
¾"	100.0
½"	91.2
#4	71.7
#10	59.7
#20	50.7
#40	44.9
#60	41.2
#100	37.9
#200	34.0

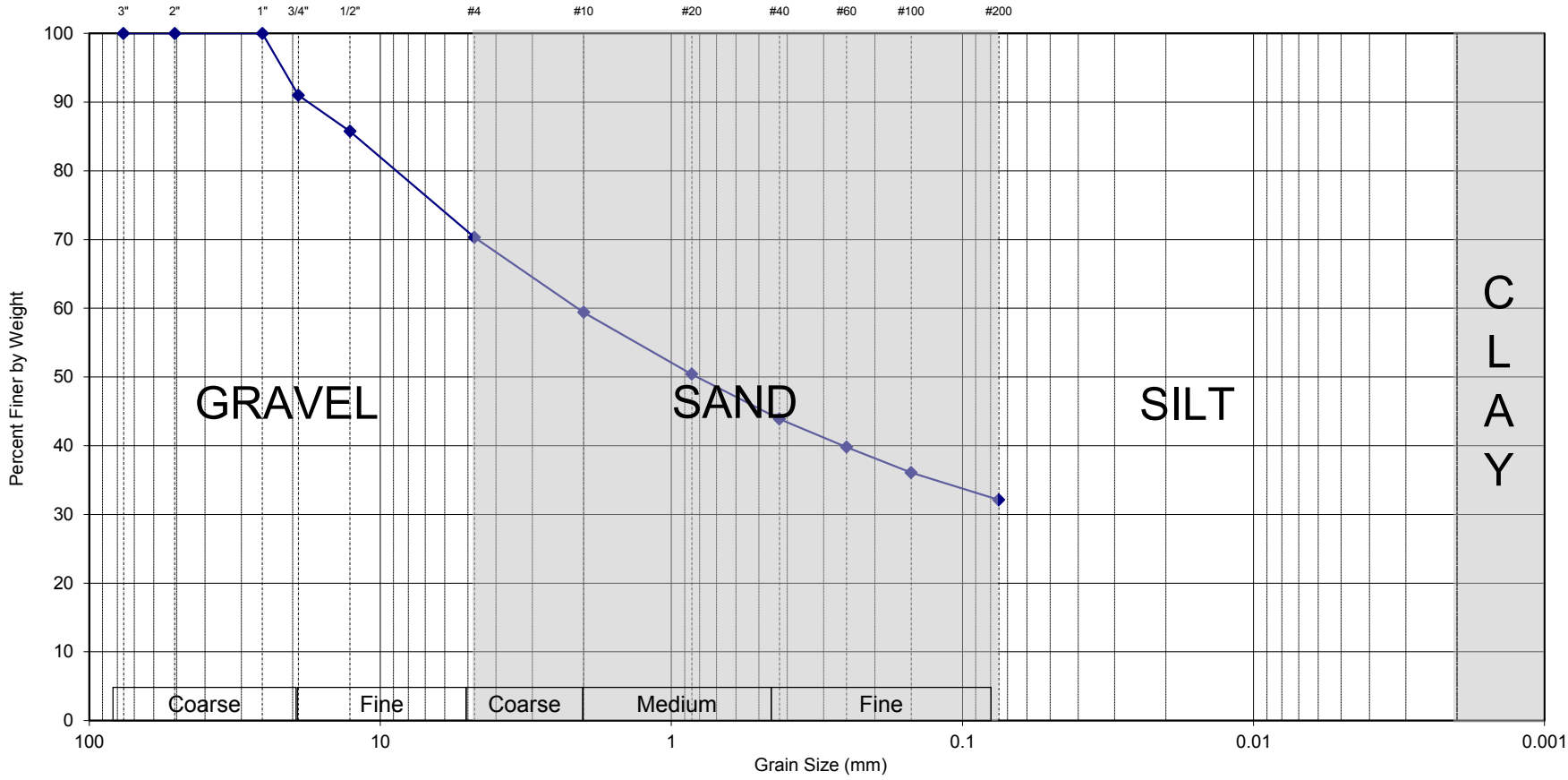
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195 Frances Ave., Cranston, RI 02910
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.7%	38.2%	32.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
95	HB-PB-302	2D	2-4'	Brown f-c SAND, some Silt, some fine Gravel (SM)	14.0			

Sieve Size	% Passing
¾"	91.0
½"	85.8
#4	70.3
#10	59.4
#20	50.4
#40	43.9
#60	39.8
#100	36.1
#200	32.1

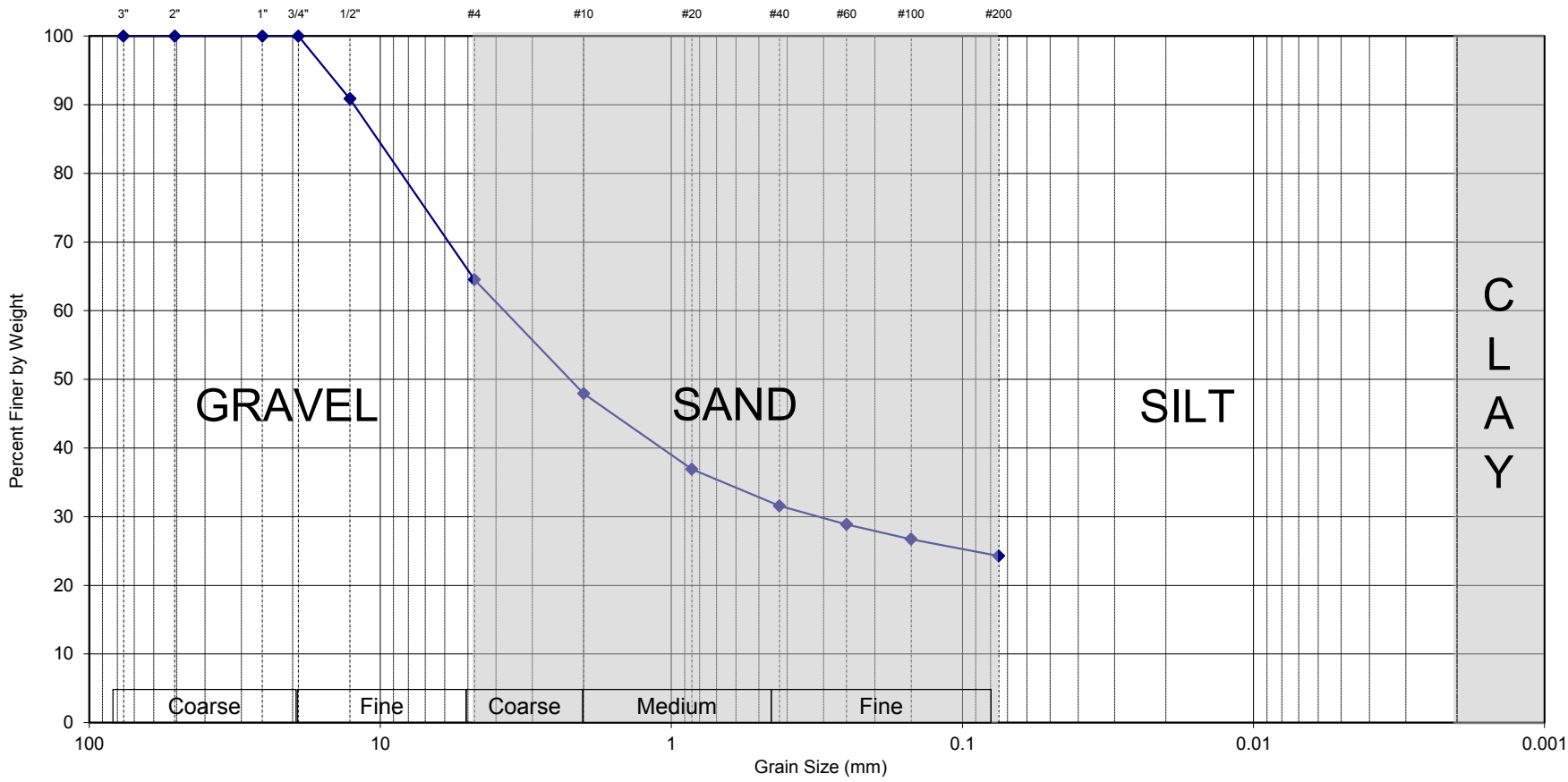
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Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
35.5%	40.3%	24.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
96	HB-PB-303	2D	2-4'	Brown Gravelly f-c SAND, some Silt (SM)	25.6			

Sieve Size	% Passing
¾"	100.0
½"	90.9
#4	64.5
#10	47.9
#20	36.9
#40	31.6
#60	28.9
#100	26.7
#200	24.3

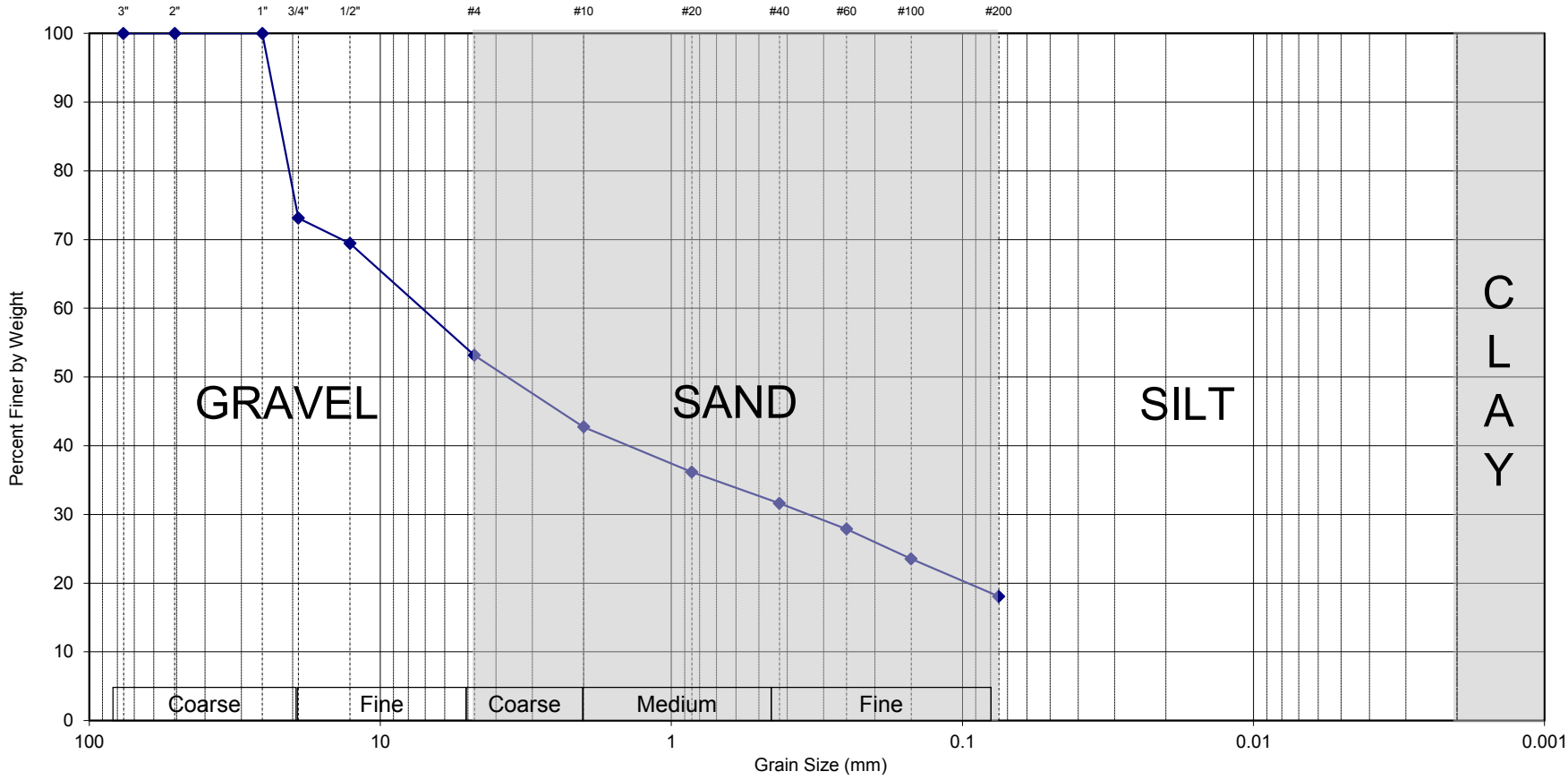
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Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
46.9%	35.1%	18.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
98	HB-PB-304	4D	10-12'	Brown Sandy f-c GRAVEL, little Silt (GM)	11.2			

Sieve Size	% Passing
¾"	73.1
½"	69.4
#4	53.1
#10	42.7
#20	36.2
#40	31.6
#60	27.9
#100	23.5
#200	18.1

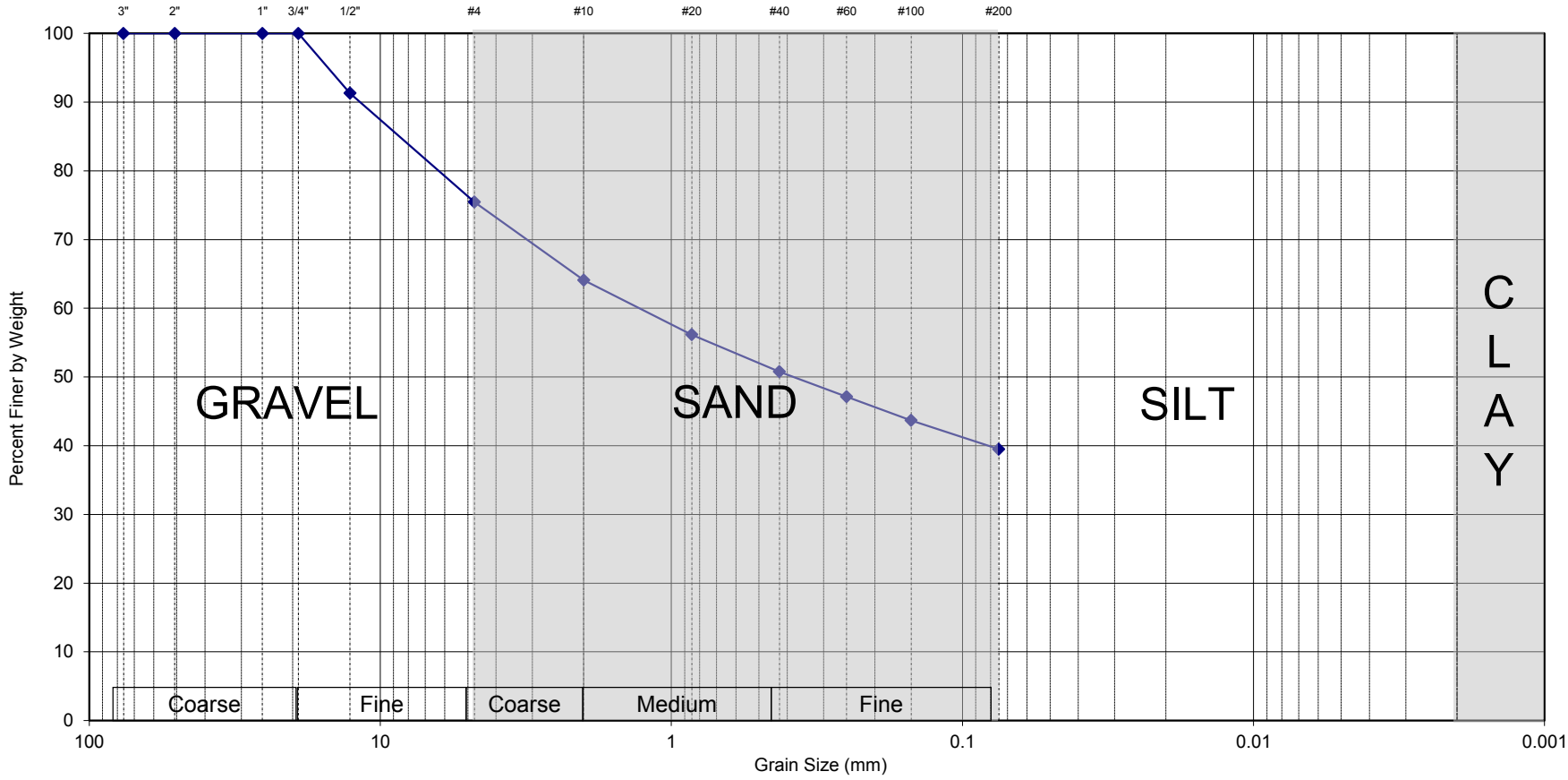
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
24.5%	36.0%	39.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
100	HB-PB-305	8D	30-32'	Gray & Brown Sandy SILT/CLAY, some fine Gravel (SM/SC)	9.8			

Sieve Size	% Passing
¾"	100.0
½"	91.3
#4	75.5
#10	64.1
#20	56.2
#40	50.8
#60	47.1
#100	43.7
#200	39.5

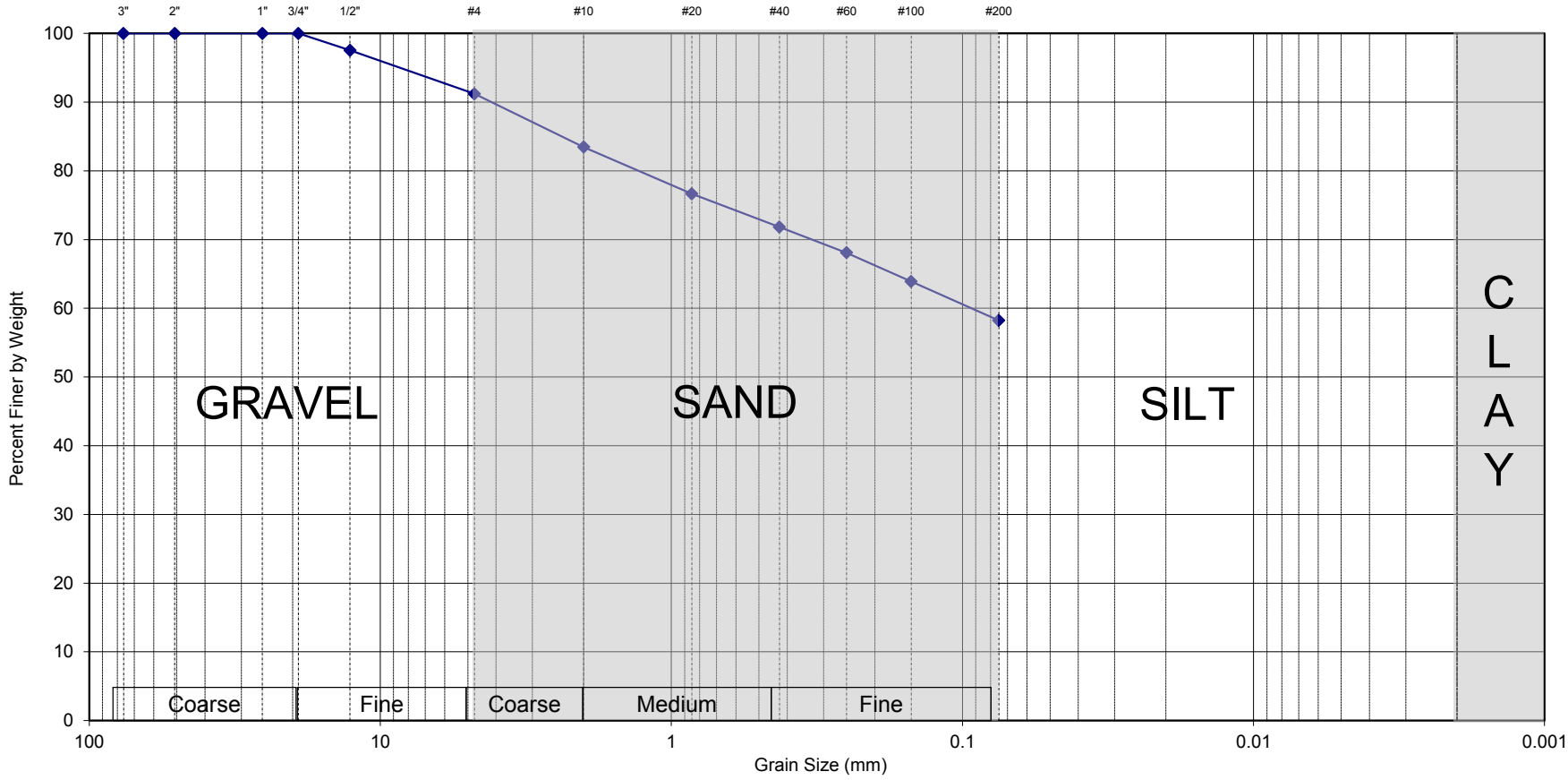
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74-15-0003
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GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
8.8%	33.0%	58.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
101	HB-PB-306	4D	10-12'	Brown CLAY, some f-c Sand, trace Gravel (CL)	12.4			

Sieve Size	% Passing
¾"	100.0
½"	97.5
#4	91.2
#10	83.5
#20	76.6
#40	71.8
#60	68.1
#100	63.9
#200	58.2

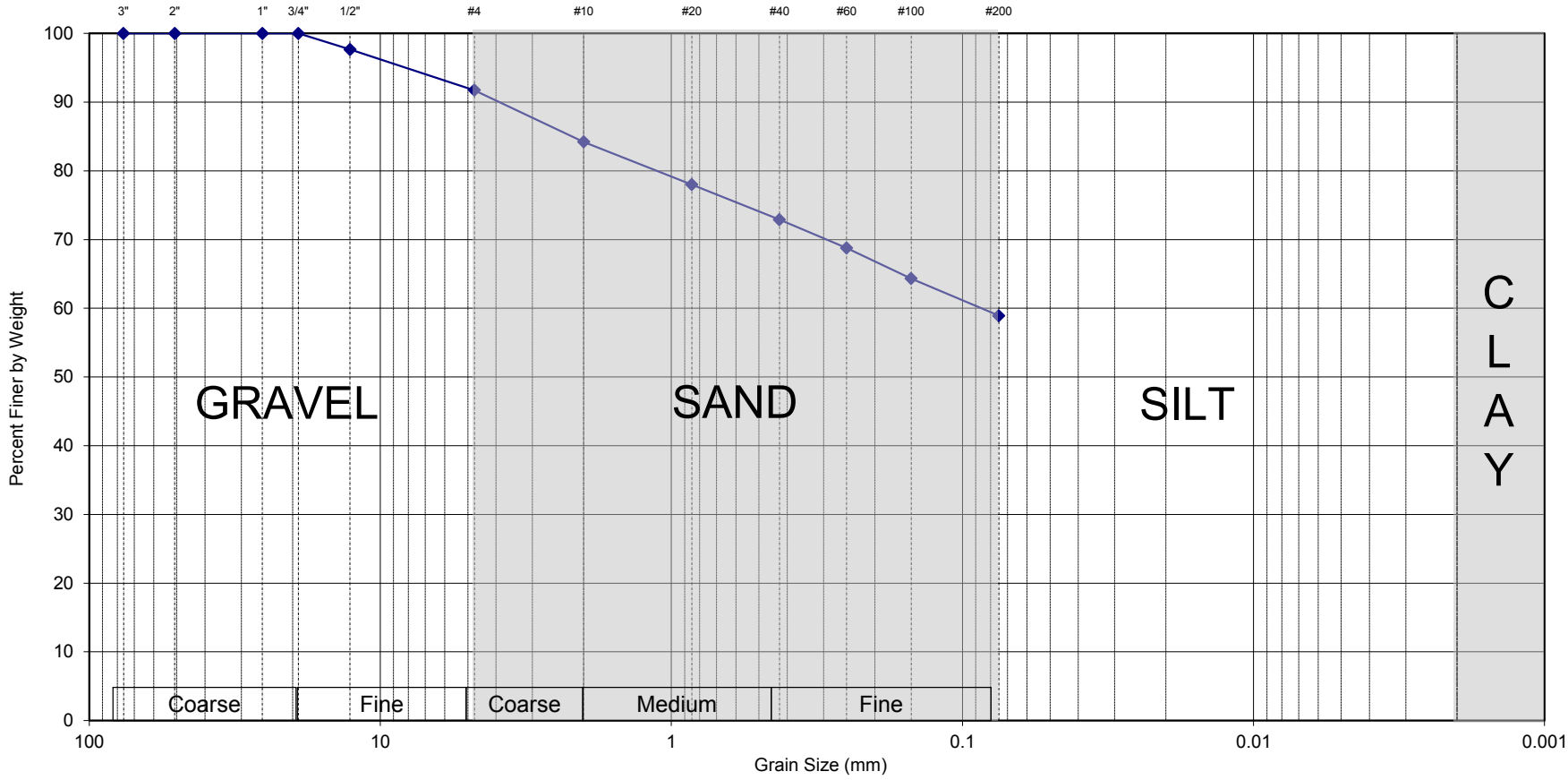
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74-15-0003
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Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
8.3%	32.8%	58.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
102	HB-PB-307	3D	5-7'	Brown CLAY, some f-c Sand, trace Gravel (CL)	11.8			

Sieve Size	% Passing
¾"	100.0
½"	97.7
#4	91.7
#10	84.2
#20	78.0
#40	72.9
#60	68.8
#100	64.3
#200	58.9

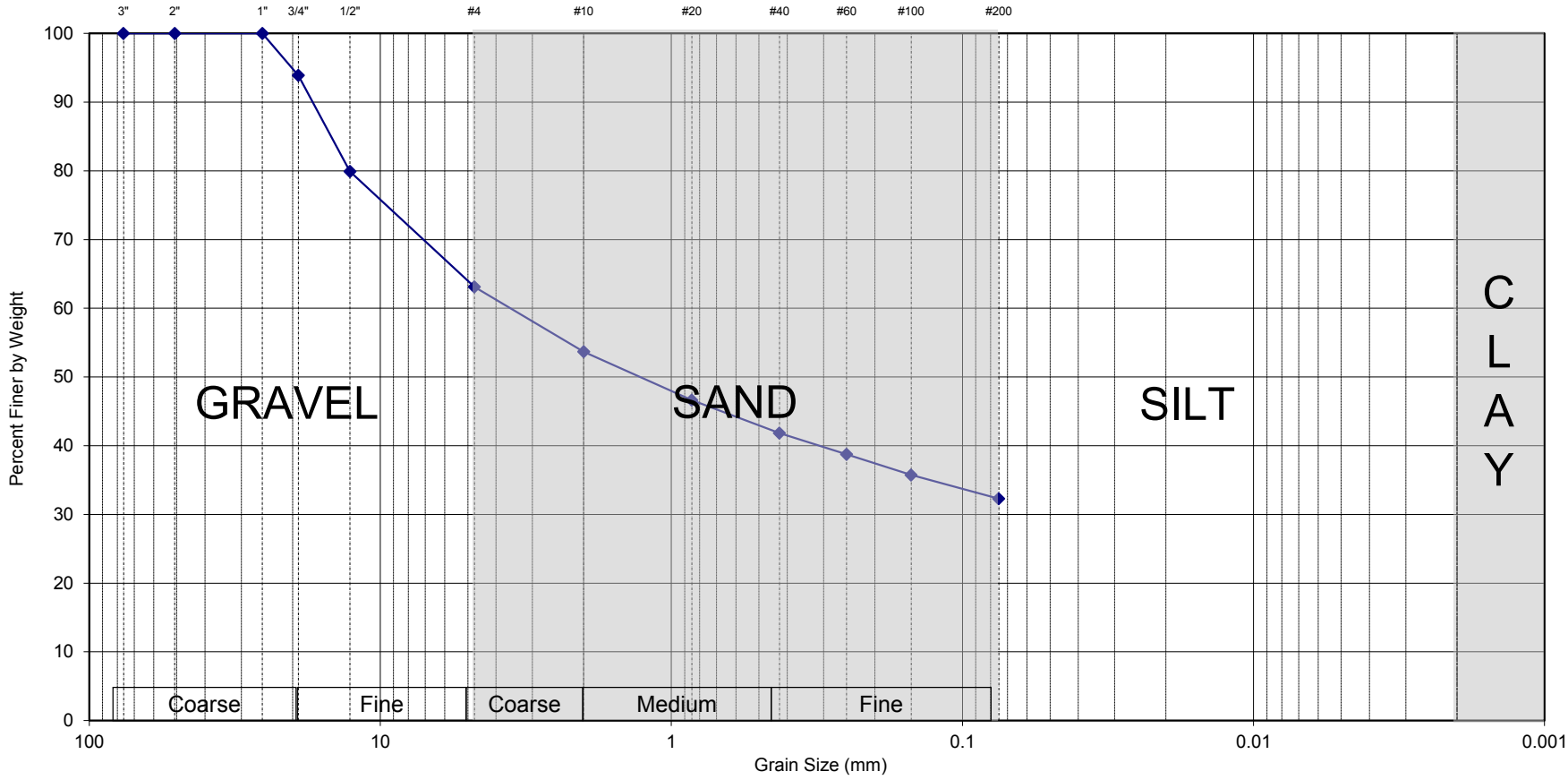
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Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
36.9%	30.8%	32.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
103	HB-PB-307	9D	35-37'	Gray-brown f-c GRAVEL, some Clay, some f-c Sand (GC)	7.7			

Sieve Size	% Passing
¾"	93.9
½"	79.9
#4	63.1
#10	53.7
#20	46.6
#40	41.8
#60	38.7
#100	35.7
#200	32.3

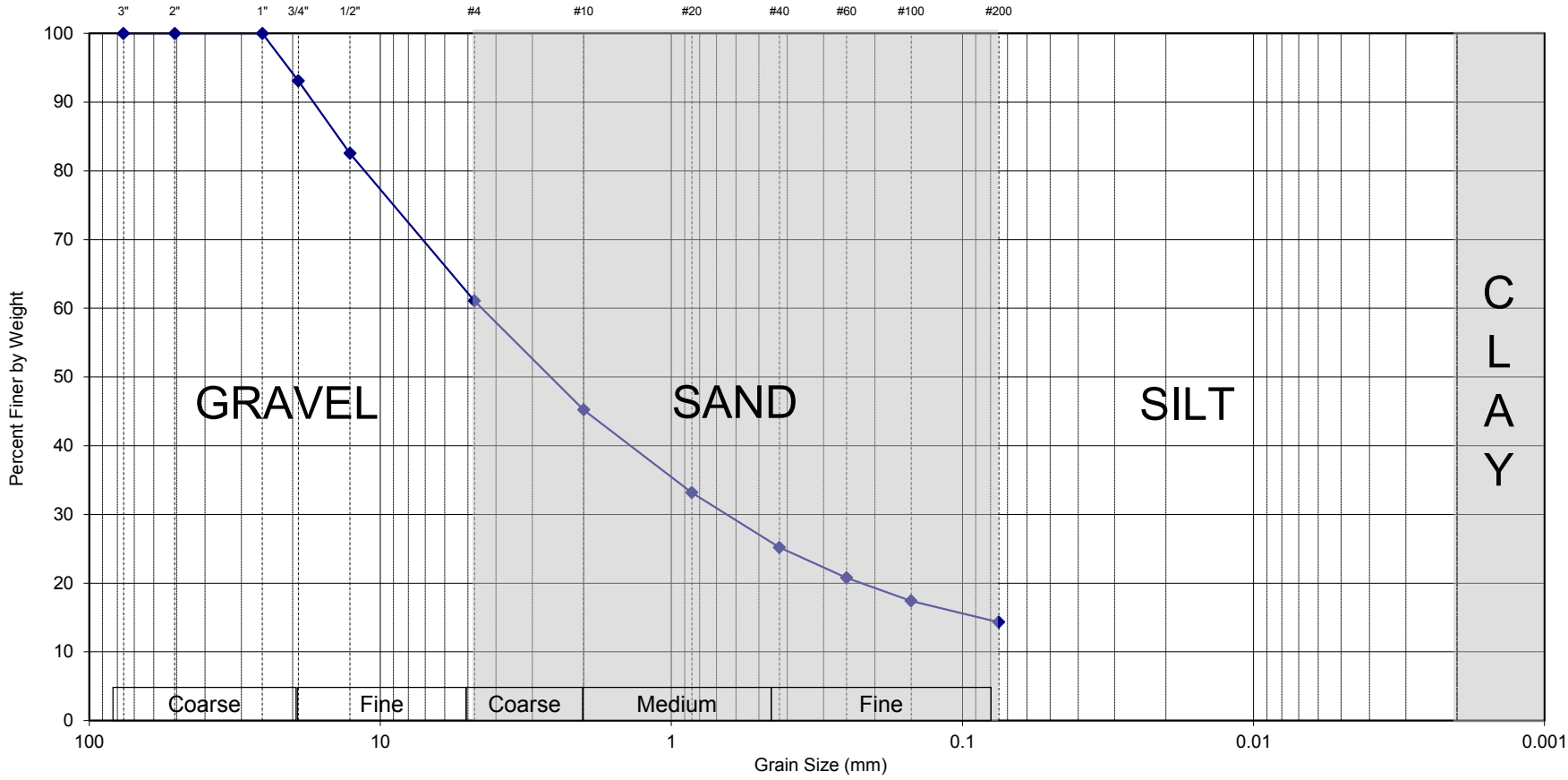
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Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
38.9%	46.8%	14.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
105	HB-PB-308	7D	25-27'	Gray-brown Gravelly f-c SAND, little Silt (SM)	8.2			

Sieve Size	% Passing
¾"	93.1
½"	82.6
#4	61.1
#10	45.2
#20	33.2
#40	25.2
#60	20.8
#100	17.4
#200	14.3

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/26/15
Reviewed by: MBP Date: 5/27/15

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State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-309		1D	0-2	106		24.9					
HB-PB-309		6D	20-22	107		10.0			SM	A-1-b	II
HB-PB-310		2D	2-3	108		33.9			SM	A-4/A-6	II/IV
HB-PB-310		3D	5-7	109		28.1	35	9	ML	A-4	IV
HB-PB-313		2D	2-4	110		18.4					
HB-PB-314		2D	2-4	111		10.9			SM	A-4/A-6	II/IV
HB-PB-315		2D	2-4	112		9.7					
HB-PB-316		2D	2-4	113		14.0			GM	A-1-b	II
HB-PB-317		2D	2-4	114		25.9			SM	A-4/A-6	II/IV
HB-PB-318		2D	2-4	115		12.2					
HB-PB-318		3D	5-7	116		4.1			GM	A-1-a	0
HB-PB-319		4D	10-11.2	117		8.7			GP-GM	A-1-a	0

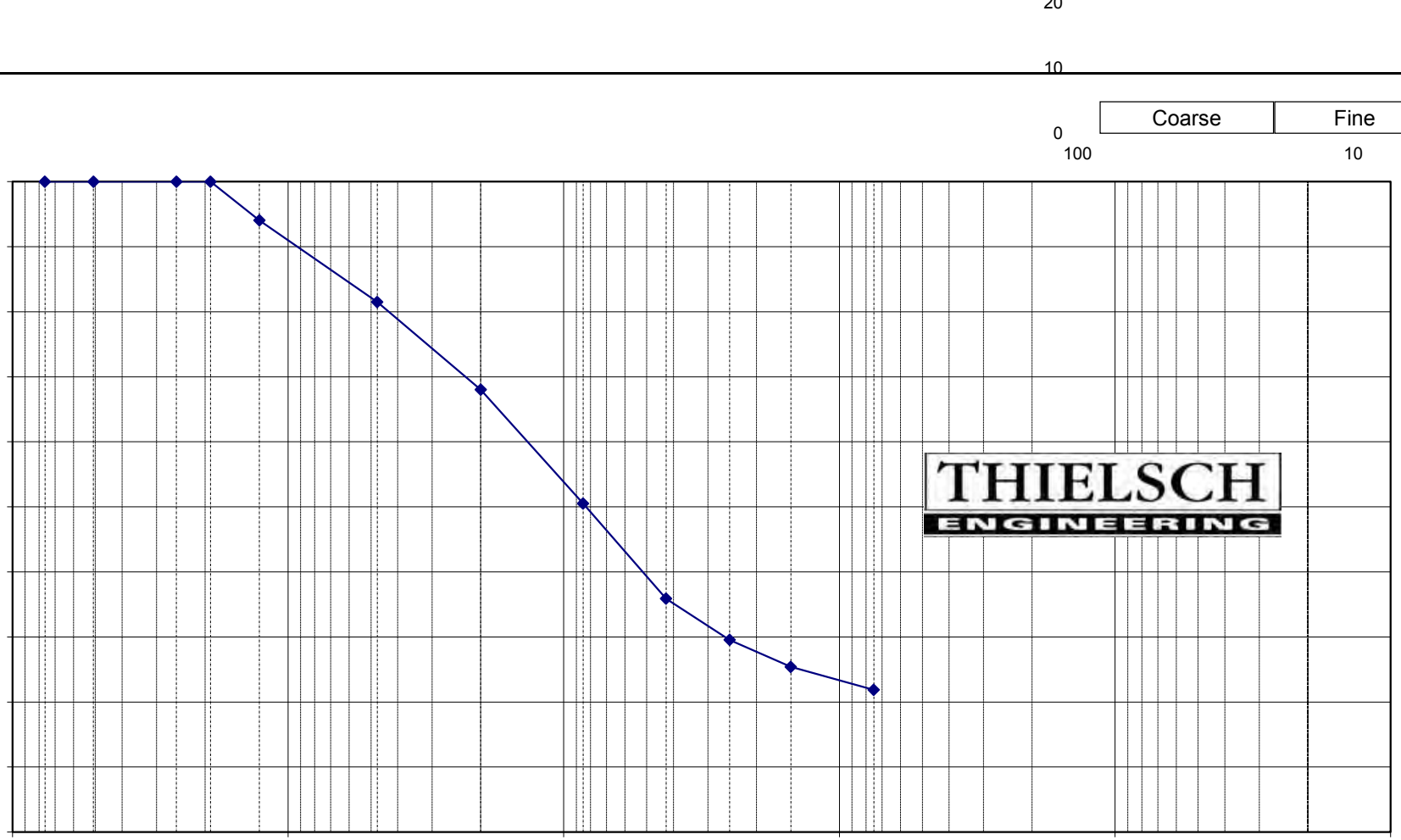
Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98



Gravel	Sand	Fines
18.5%	59.6%	21.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
107	HB-PB-309	6D	20-22'	Gray-brown f-c SAND, some Silt, little fine Gravel (SM)	10.0			

Sieve Size	% Passing
¾"	100.0
½"	94.0
#4	81.5
#10	68.0
#20	50.5
#40	35.9
#60	29.5
#100	25.4
#200	21.9

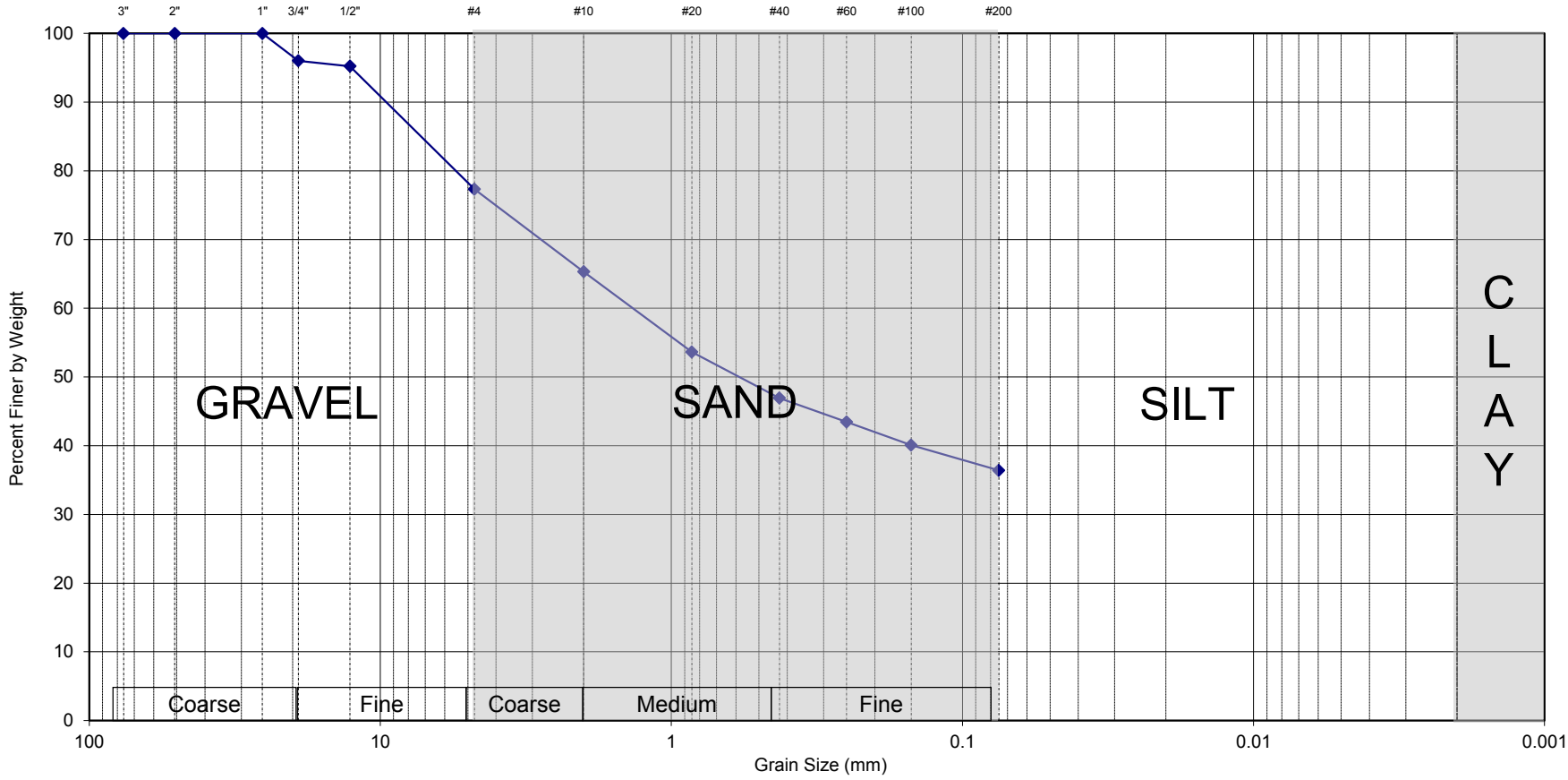
74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/28/15

195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
22.7%	40.9%	36.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
108	HB-PB-310	2D	2-3'	Light brown Silty f-c SAND, some f-c Gravel (SM)	33.9			

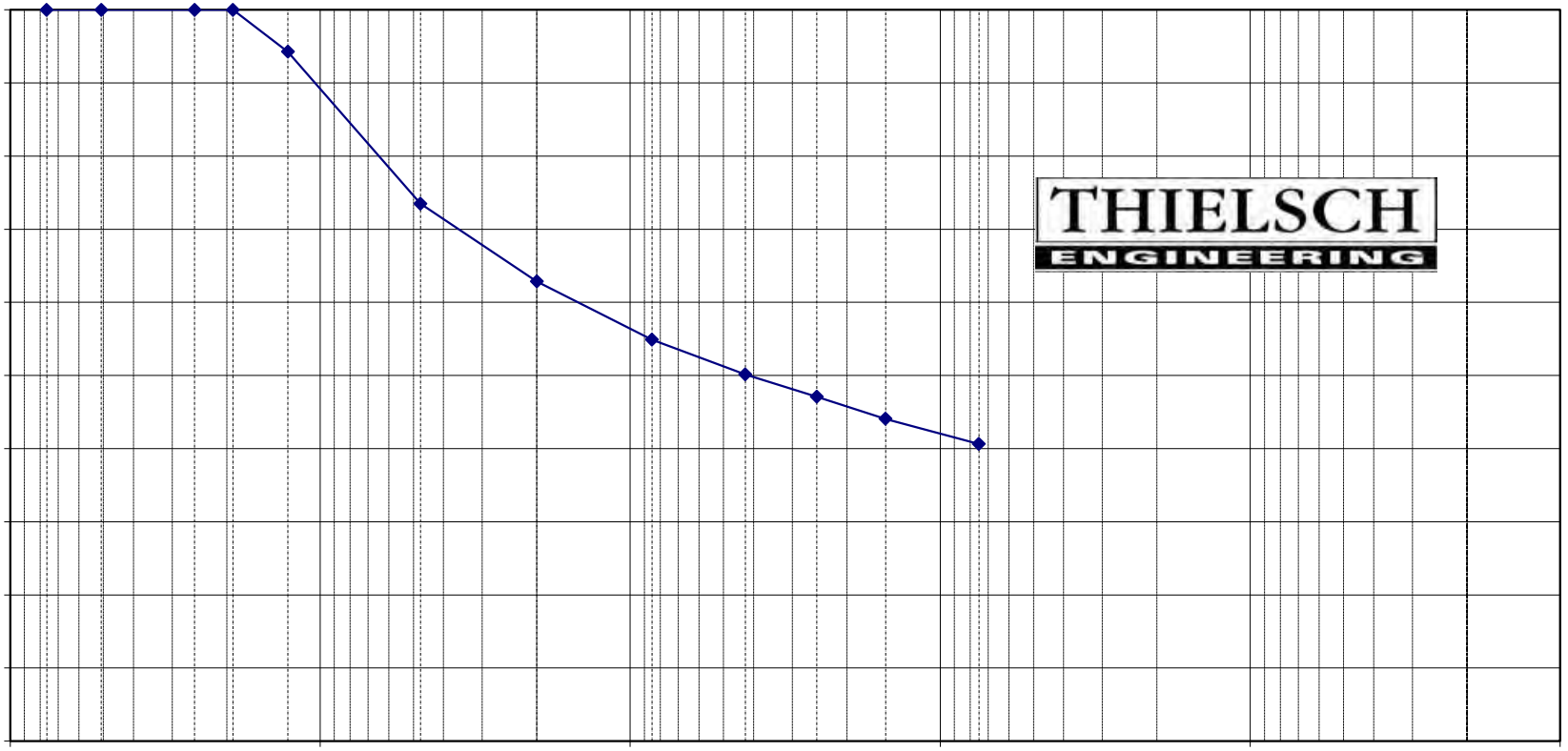
Sieve Size	% Passing
¾"	96.0
½"	95.2
#4	77.3
#10	65.3
#20	53.6
#40	46.9
#60	43.5
#100	40.1
#200	36.4

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401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/27/15
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ASTM D422



Gravel	Sand	Fines
26.5%	32.9%	40.6%

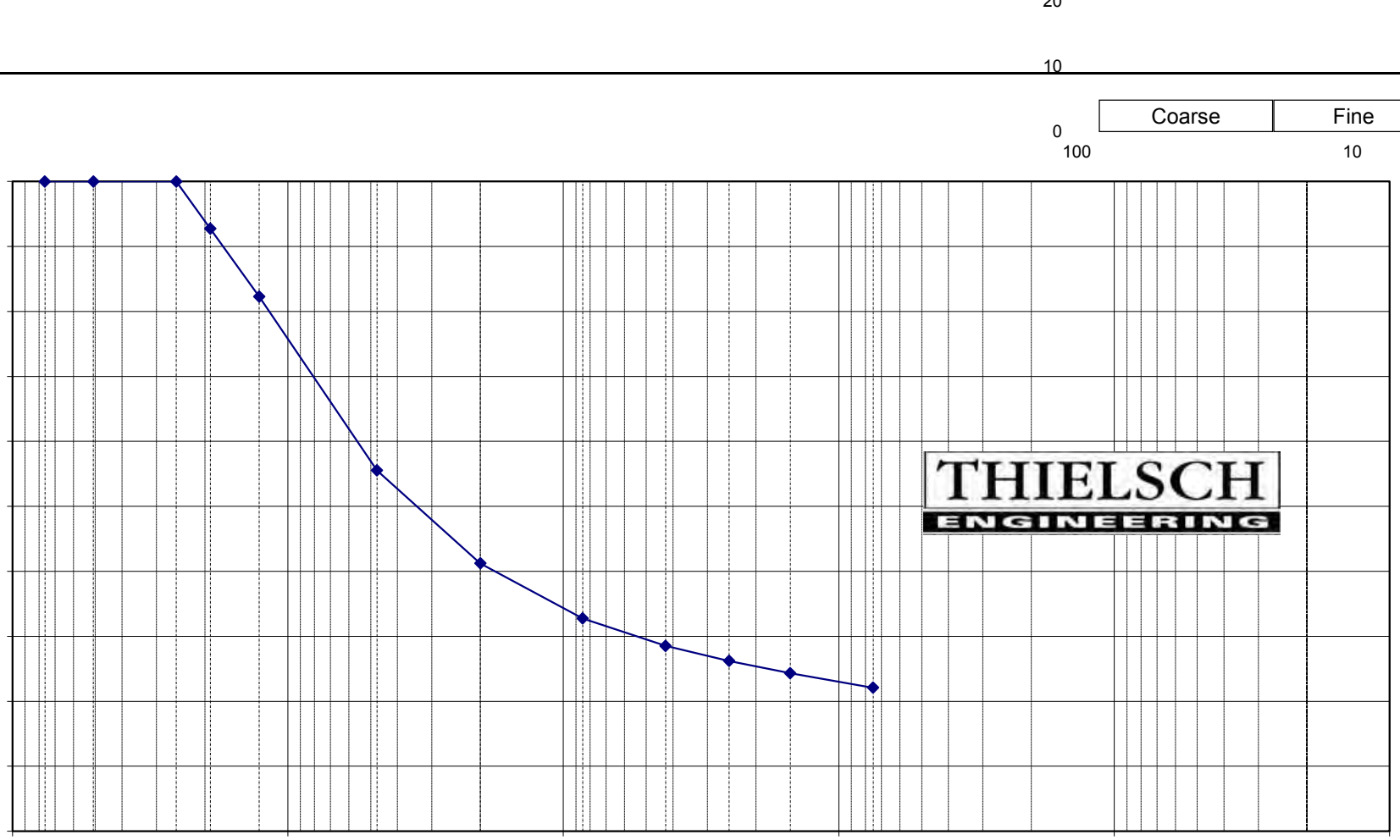
Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
111	HB-PB-314	2D	2-4'	Gray-brown SILT, some f-c Sand, some fine Gravel (SM)	10.9			

Sieve Size	% Passing
¾"	100.0
½"	94.3
#4	73.5
#10	62.9
#20	54.9
#40	50.1
#60	47.1
#100	44.1
#200	40.6

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/27/15
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195 Frances Ave., Cranston, RI 02910
401-467-6454



Gravel	Sand	Fines
44.5%	33.5%	22.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
113	HB-PB-316	2D	2-4'	Gray-brown f-c GRAVEL, some f-c Sand, some Silt (GM)	14.0			

Sieve Size	% Passing
¾"	92.7
½"	82.3
#4	55.5
#10	41.2
#20	32.7
#40	28.5
#60	26.2
#100	24.3
#200	22.1

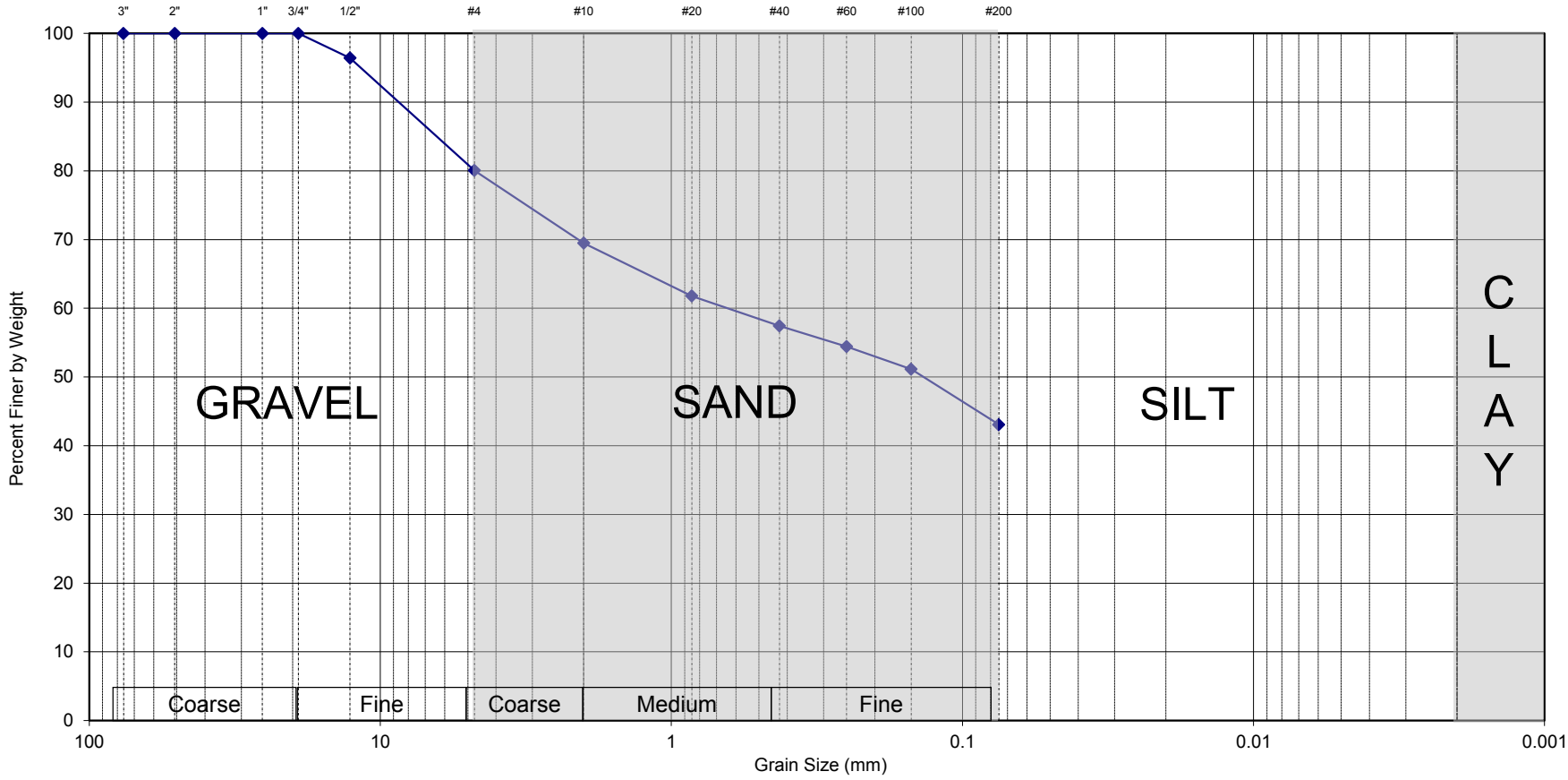
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Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
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195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.0%	37.0%	43.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
114	HB-PB-317	2D	2-4'	Light brown Sandy SILT, little fine Gravel (SM)	25.9			

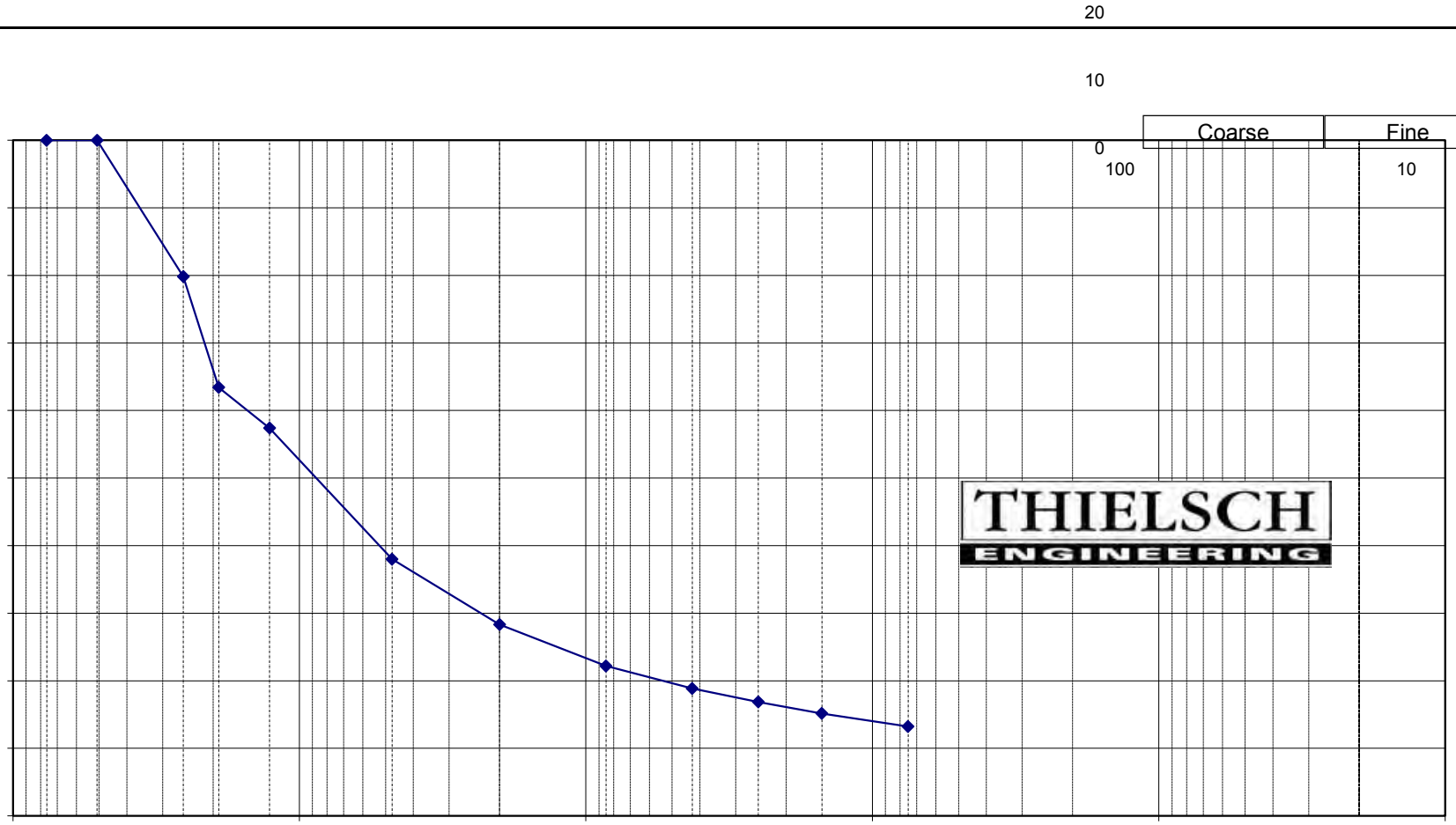
Sieve Size	% Passing
¾"	100.0
½"	96.4
#4	80.0
#10	69.5
#20	61.8
#40	57.4
#60	54.4
#100	51.1
#200	43.1

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/27/15
Reviewed by: MBP Date: 5/28/15

ASTM D422



Gravel	Sand	Fines
62.0%	24.8%	13.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
116	HB-PB-318	3D	5-7'	Gray-brown f-c GRAVEL, some f-c Sand, little Silt (GM)	4.1			

Sieve Size	% Passing
¾"	63.4
½"	57.4
#4	38.0
#10	28.3
#20	22.2
#40	18.8
#60	16.9
#100	15.1
#200	13.2

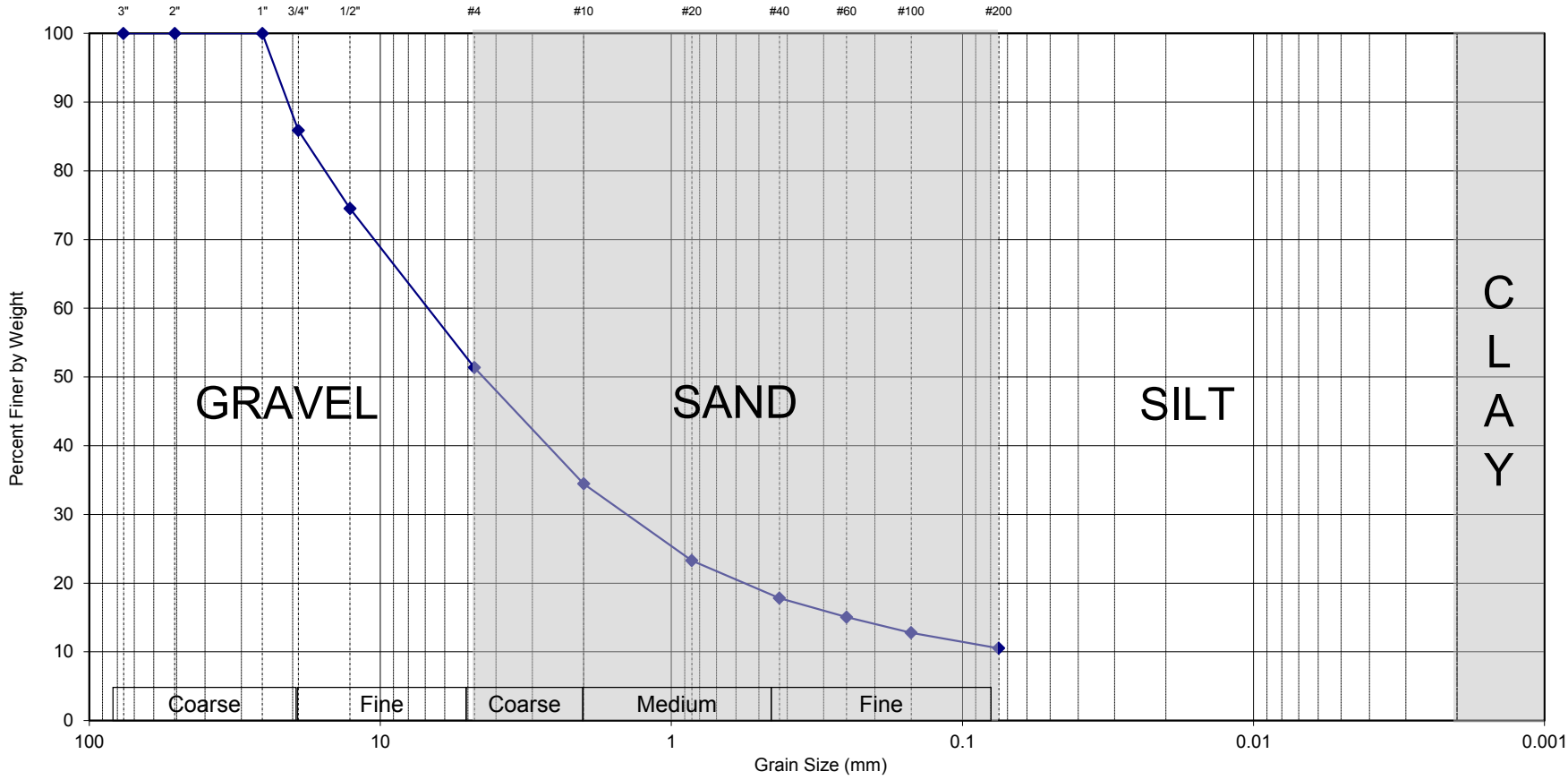
74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/28/15

195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
48.6%	40.8%	10.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
117	HB-PB-319	4D	10-11.2'	Gray-brown Sandy f-c GRAVEL, little Silt (GP-GM)	8.7			

Sieve Size	% Passing
¾"	85.9
½"	74.5
#4	51.4
#10	34.5
#20	23.3
#40	17.8
#60	15.0
#100	12.8
#200	10.5

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/28/15

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State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-320		2D	2-4	118		14.7					
HB-PB-320		4D	10-12	119		10.4			SM/SC	A-4/A-6	II/IV
HB-PB-321		1D	0-2	120		18.8					
HB-PB-321		4D	10-12	121		8.4			SM/SC	A-4/A-6	II/IV
HB-PB-322		3D	5-7	122		12.0			SM	A-2	III
HB-PB-323		3D	4.5-6.5	123		13.4			GM	A-2	II
HB-PB-327		2D	5-7	124		12.7					
HB-PB-327		4D	14-16	125		10.8			ML	A-4/A-6	IV
HB-PB-328		3D	5-7	126		15.4					
HB-PB-328		6D	20-20.9	127		7.9			SM/SC	A-4/A-6	IV
HB-PB-329		3D	5-7	128		10.4					
HB-PB-329		7D	25-25.8	129		8.0			GM	A-1-b	I
HB-PB-330		6D	20-22	130		9.1			GM	A-1-b	I

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

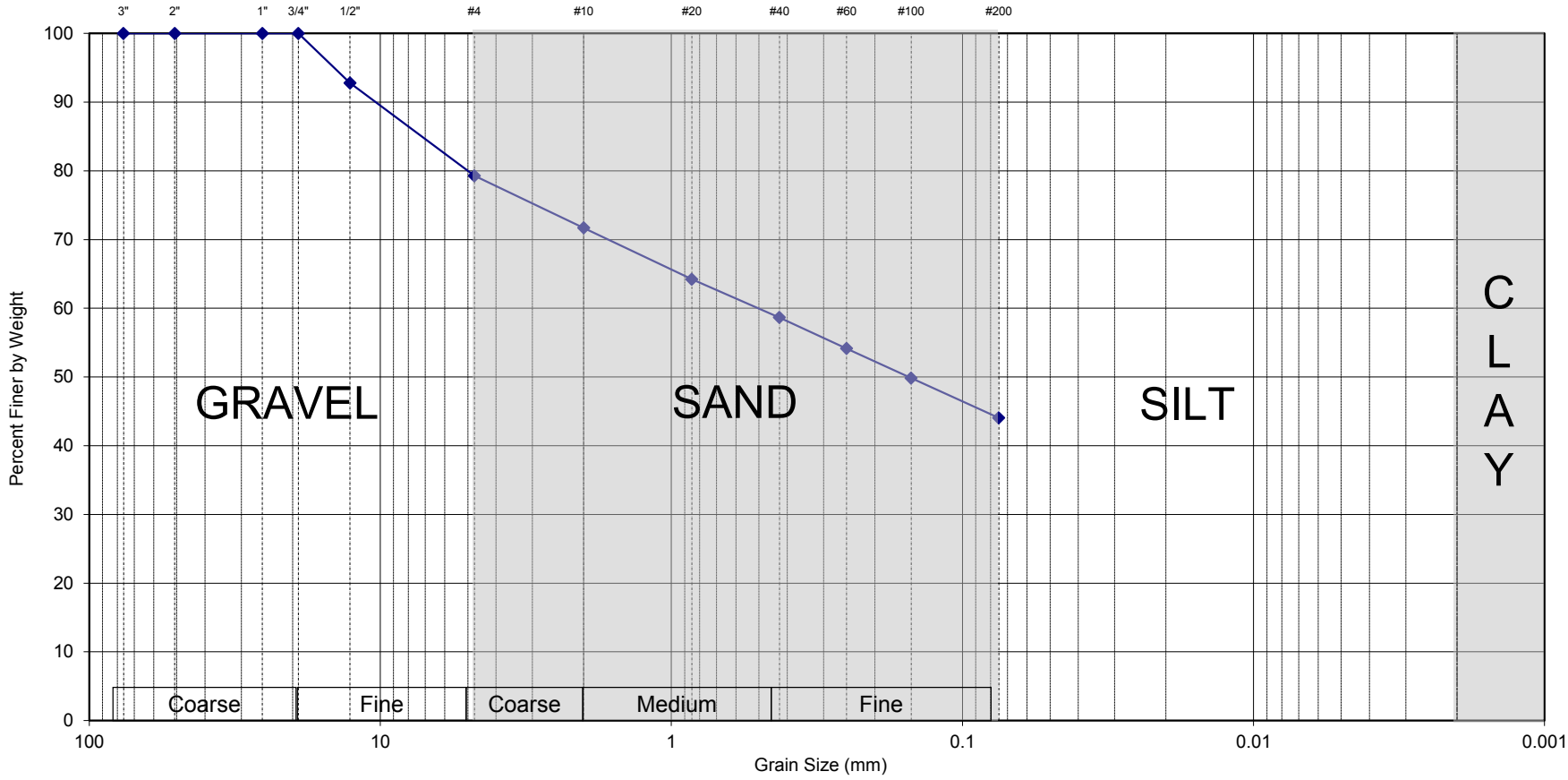
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.7%	35.2%	44.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
119	HB-PB-320	4D	10-12'	Brown Sandy SILT, some fine Gravel (SM/SC)	10.4			

Sieve Size	% Passing
¾"	100.0
½"	92.8
#4	79.3
#10	71.7
#20	64.2
#40	58.6
#60	54.1
#100	49.8
#200	44.0

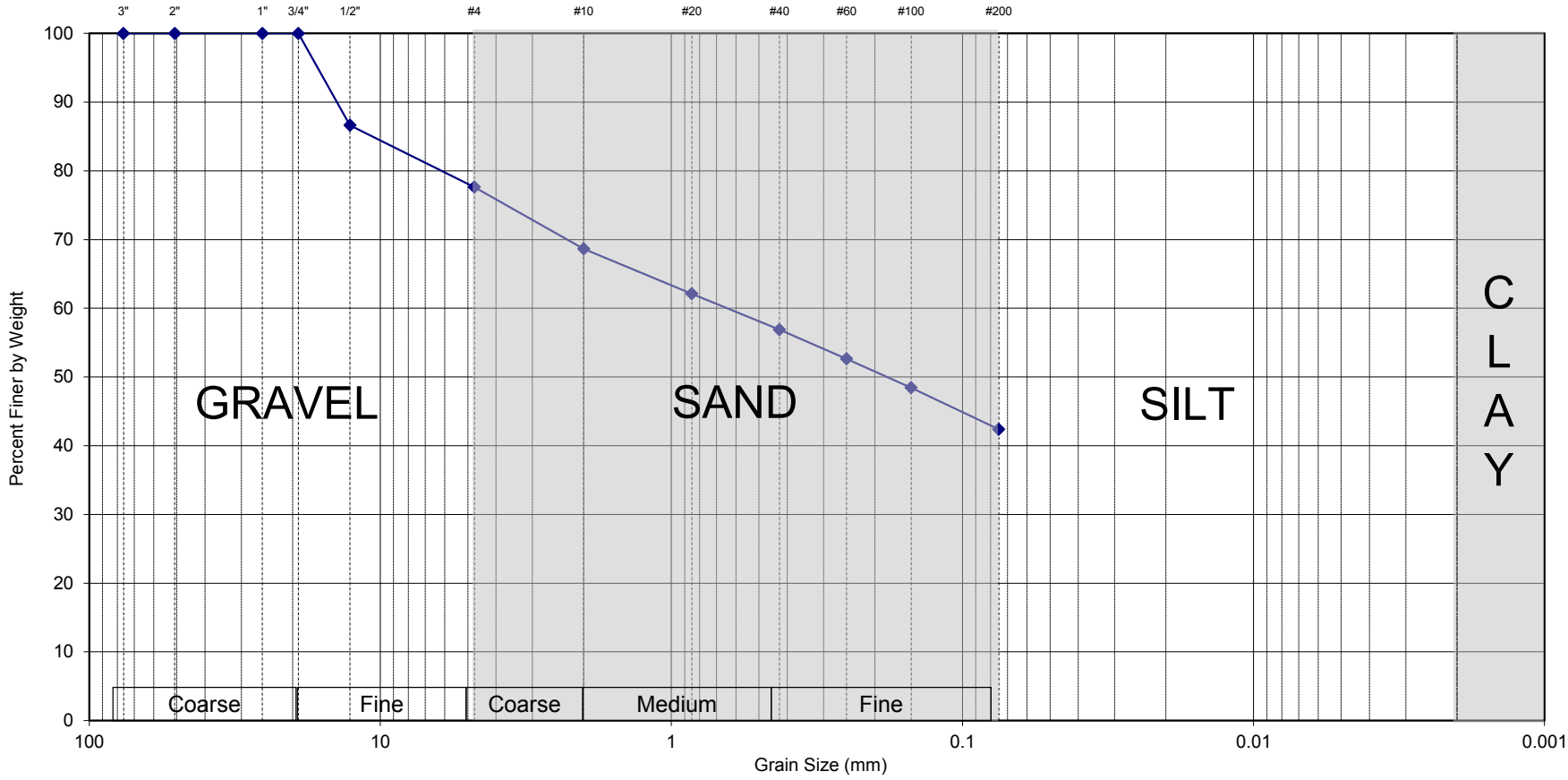
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
22.4%	35.3%	42.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
121	HB-PB-321	4D	10-12'	Brown Sandy SILT, some fine Gravel (SM/SC)	8.4			

Sieve Size	% Passing
¾"	100.0
½"	86.6
#4	77.6
#10	68.6
#20	62.1
#40	56.9
#60	52.6
#100	48.4
#200	42.4

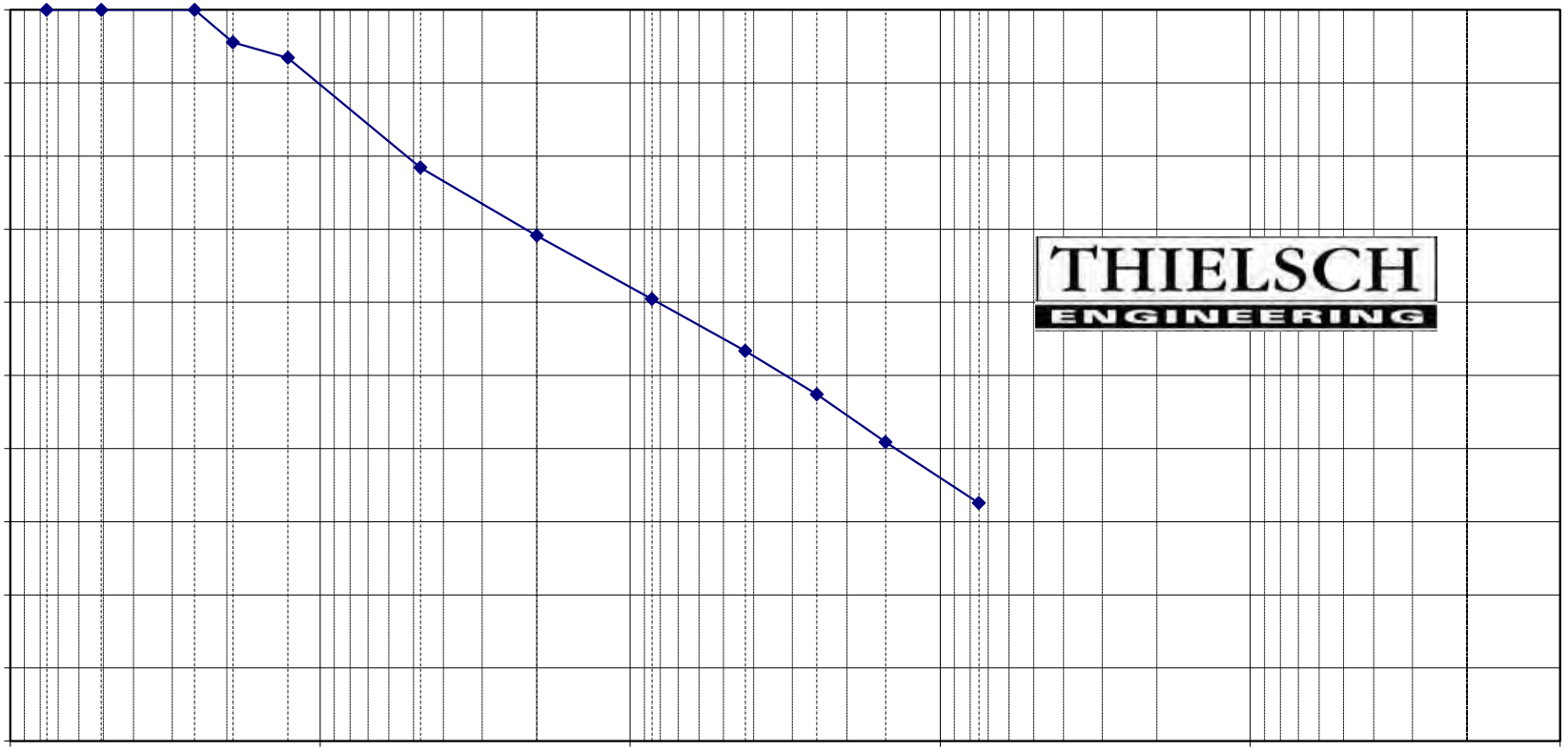
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

Coarse	Fine	Coarse
100	10	

ASTM D422



Gravel	Sand	Fines
21.6%	45.9%	32.5%

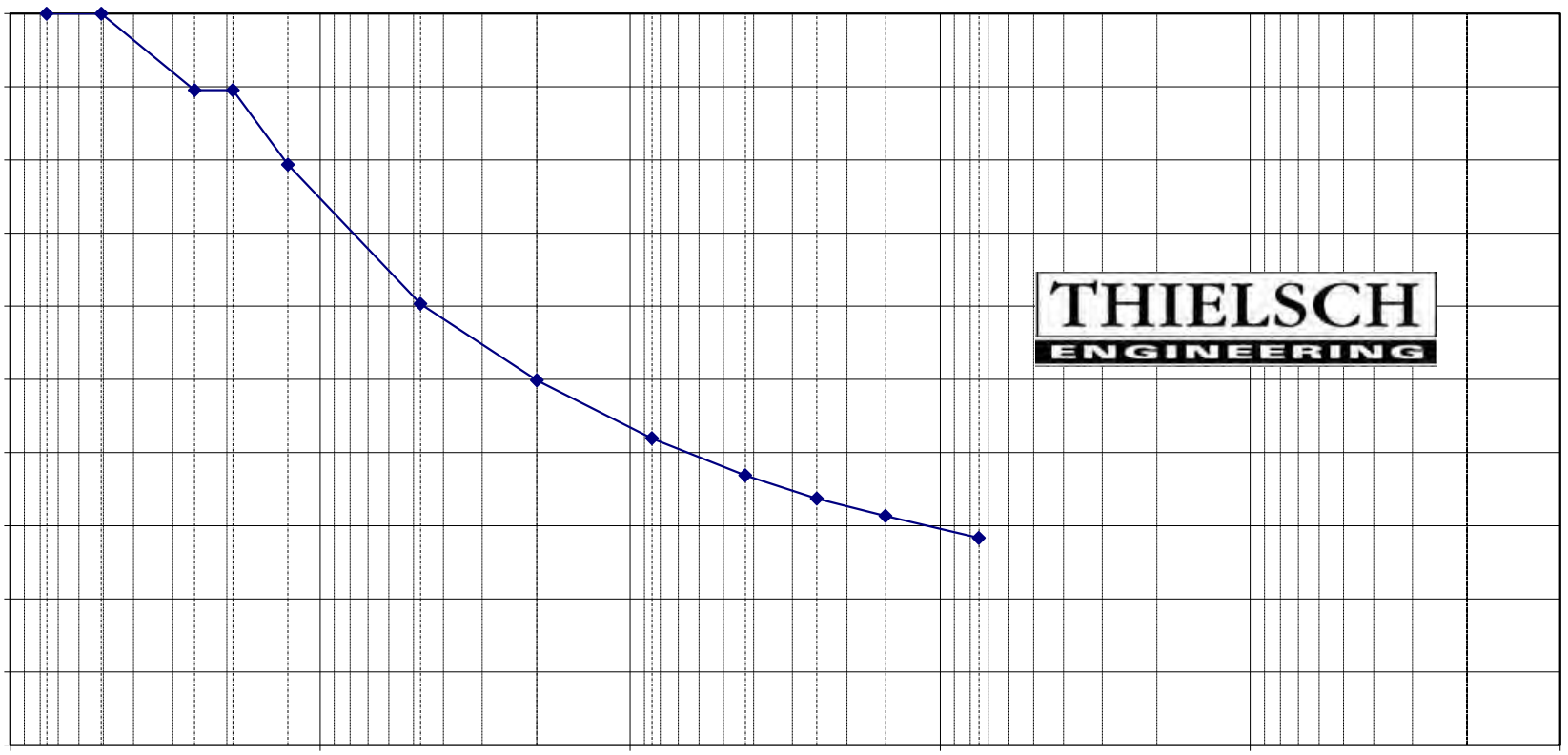
Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
122	HB-PB-322	3D	5-7'	Brown f-c SAND, some Silt, some f-c Gravel (SM)	12.0			

Sieve Size	% Passing
¾"	95.5
½"	93.4
#4	78.4
#10	69.1
#20	60.4
#40	53.3
#60	47.4
#100	40.9
#200	32.5

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

195 Frances Ave., Cranston, RI 02910
401-467-6454



Gravel	Sand	Fines
39.7%	32.0%	28.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
123	HB-PB-323	3D	4.5-6.5'	Brown f-c GRAVEL, some f-c Sand, some Silt (GM)	13.4			

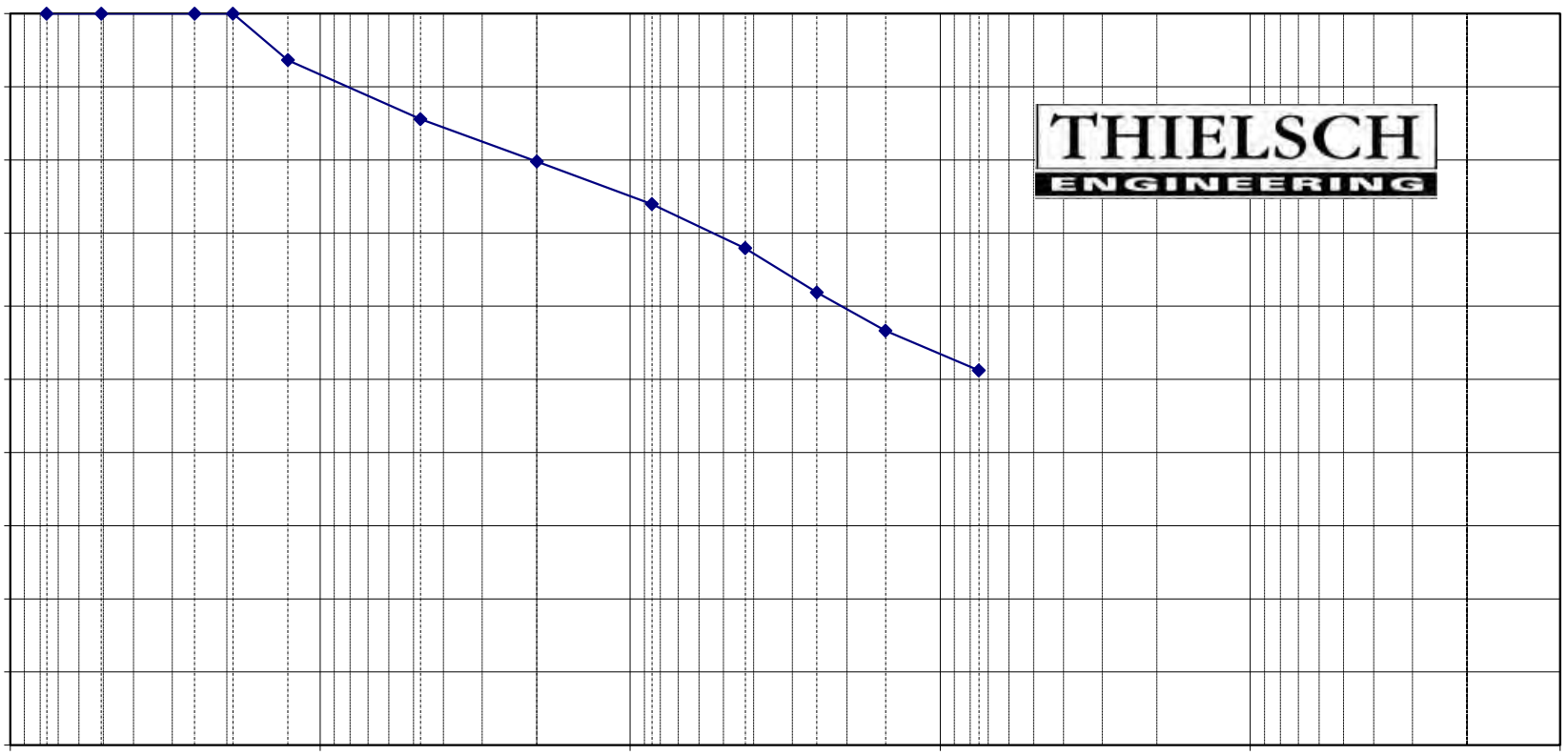
Sieve Size	% Passing
¾"	89.5
½"	79.4
#4	60.3
#10	49.9
#20	41.9
#40	36.9
#60	33.7
#100	31.3
#200	28.3

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

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195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422



Gravel	Sand	Fines
14.4%	34.4%	51.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
125	HB-PB-327	4D	14-16'	Brown SILT, some f-c Sand, little fine Gravel (ML)	10.8			

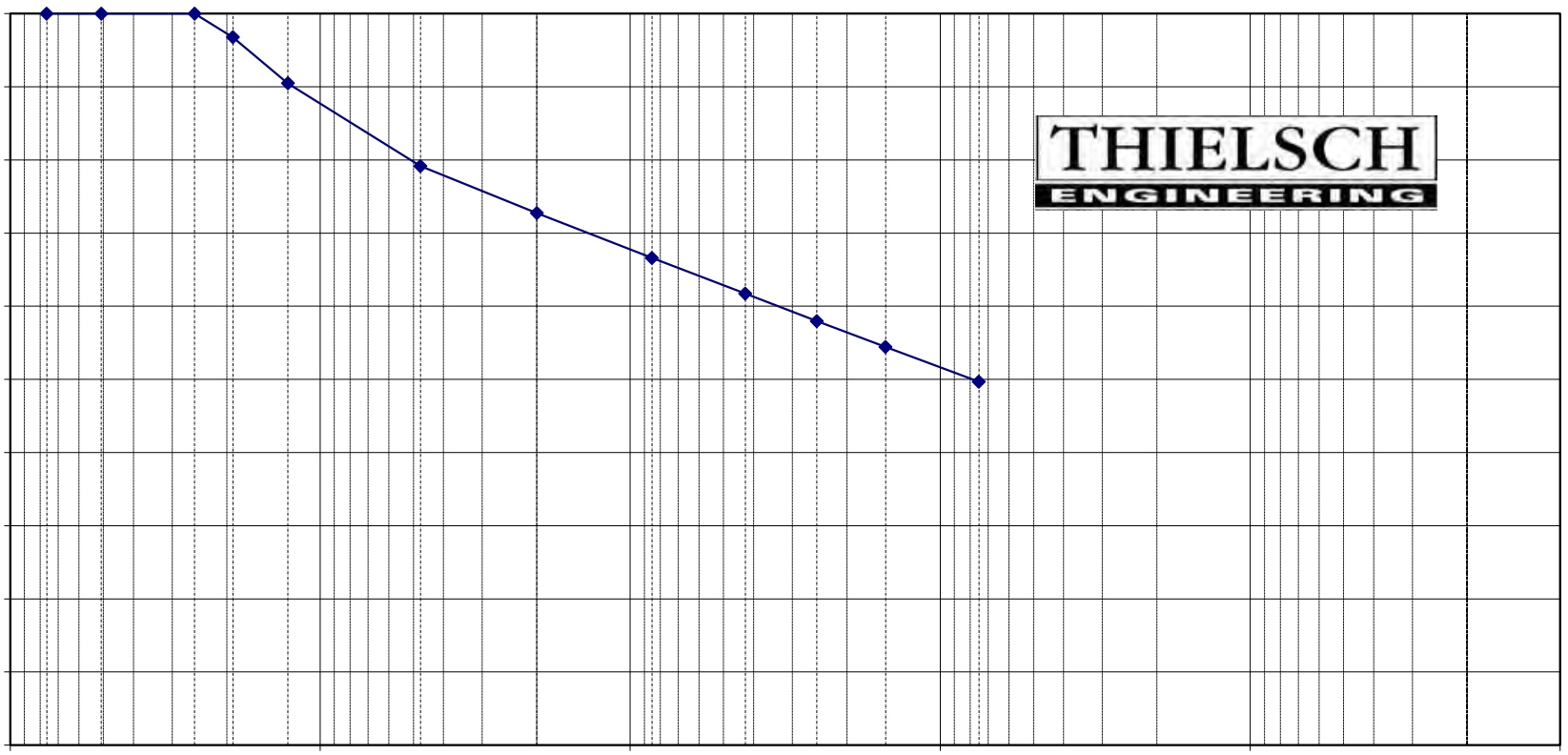
Sieve Size	% Passing
¾"	100.0
½"	93.6
#4	85.6
#10	79.8
#20	73.9
#40	67.9
#60	61.9
#100	56.7
#200	51.2

74-15-0003
Presque Isle Bypass Segment 1
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195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422



Gravel	Sand	Fines
20.8%	29.5%	49.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
127	HB-PB-328	6D	20-20.9'	Brown SILT, some f-c Sand, some f-c Gravel (SM/SC)	7.9			

Sieve Size	% Passing
¾"	96.8
½"	90.5
#4	79.2
#10	72.7
#20	66.6
#40	61.7
#60	58.0
#100	54.4
#200	49.7

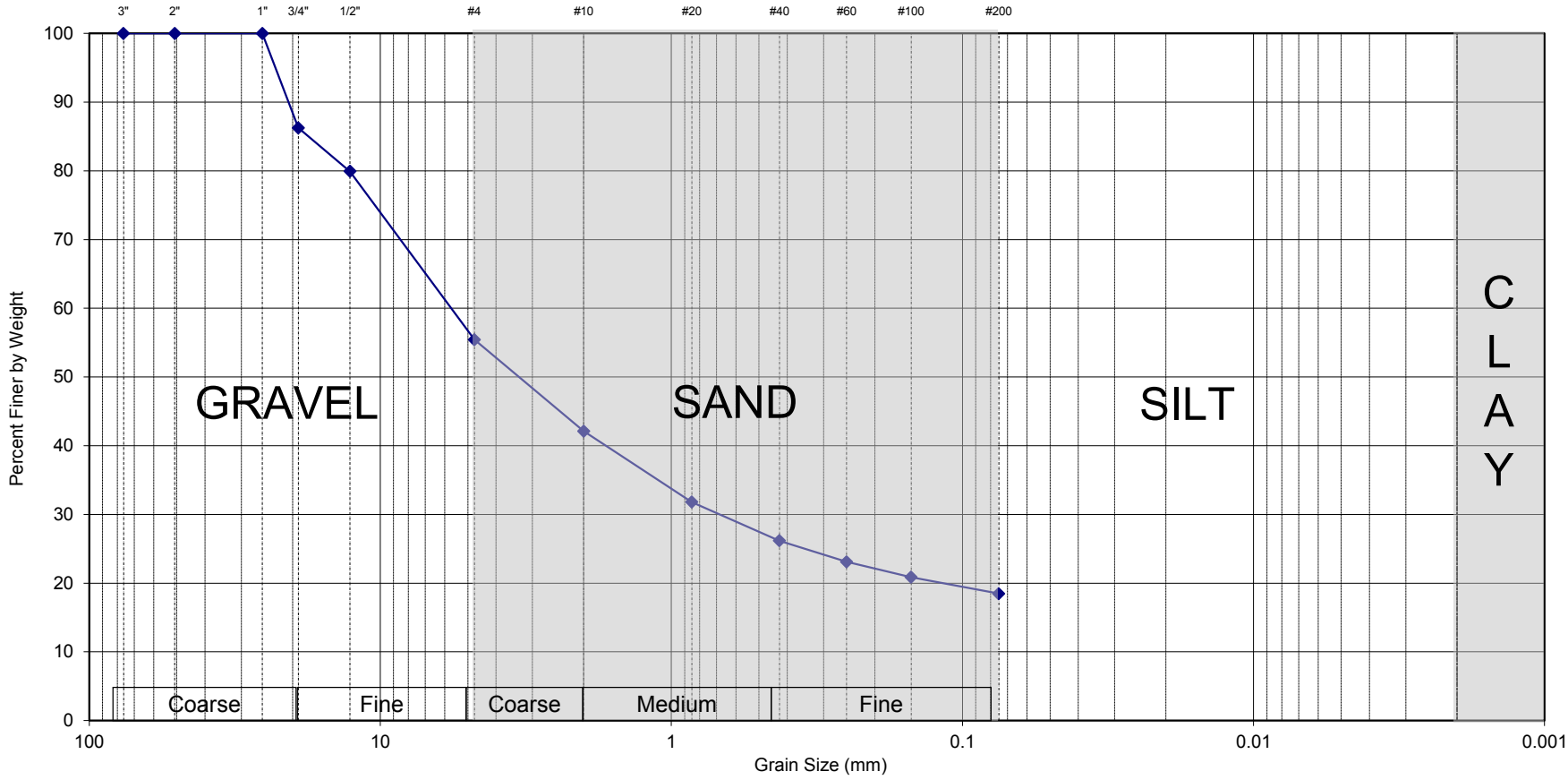
74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
44.6%	37.0%	18.5%

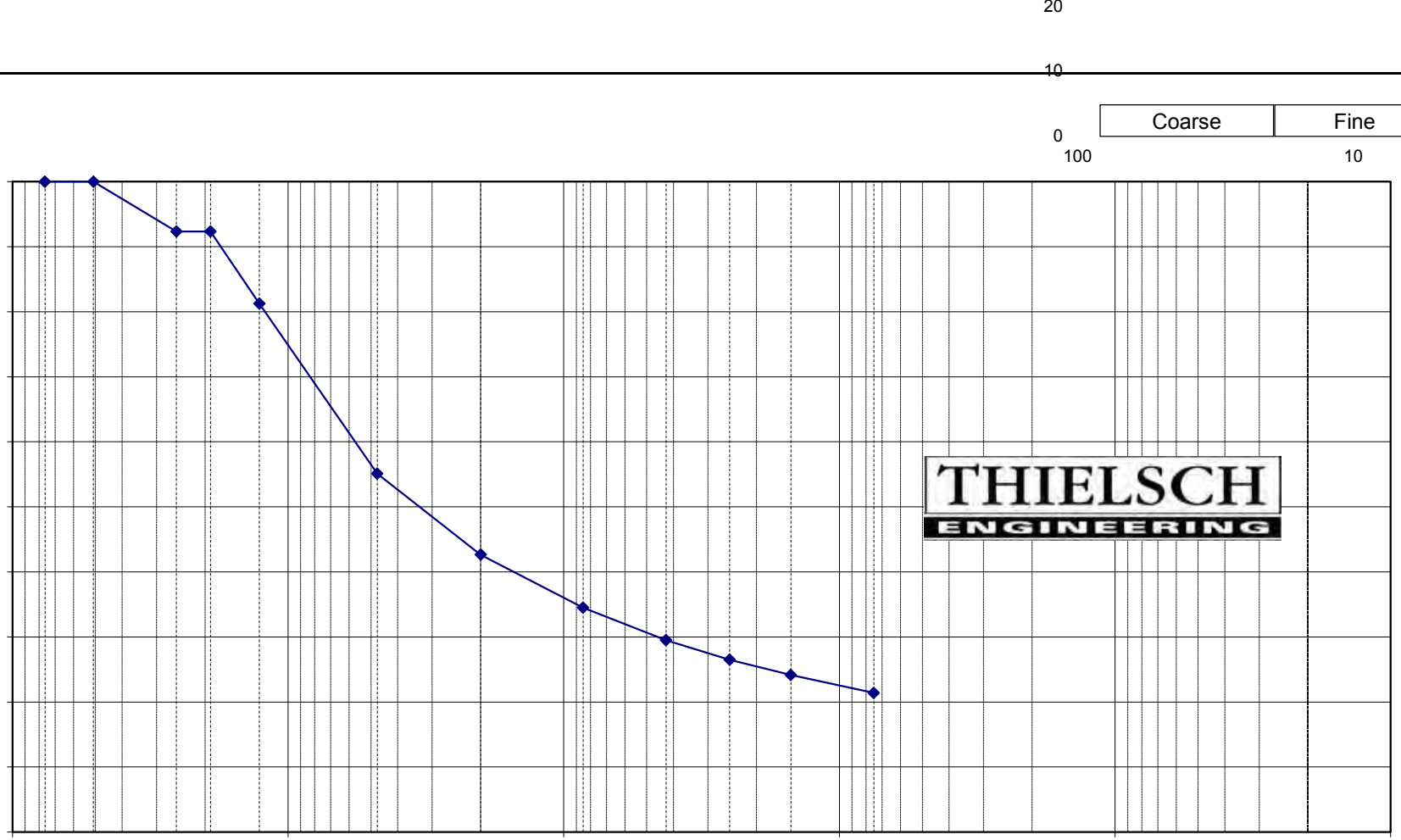
Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
129	HB-PB-329	7D	25-25.8'	Brown Sandy f-c GRAVEL, little Silt (GM)	8.0			

Sieve Size	% Passing
¾"	86.2
½"	79.9
#4	55.4
#10	42.1
#20	31.8
#40	26.2
#60	23.1
#100	20.9
#200	18.5

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401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
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Gravel	Sand	Fines
44.9%	33.7%	21.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
130	HB-PB-330	6D	20-22'	Brown f-c GRAVEL, some f-c Sand, some Silt (GM)	9.1			

Sieve Size	% Passing
¾"	92.4
½"	81.2
#4	55.1
#10	42.6
#20	34.5
#40	29.5
#60	26.5
#100	24.1
#200	21.4

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
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195 Frances Ave., Cranston, RI 02910
401-467-6454

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State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-331		2D	2-4	131		16.9					
HB-PB-331		7D	20-22	132		10.8			GM	A-1-b	I
HB-PB-332		4D	10-12	133		6.2			GM	A-1-b	I
HB-PB-333		3D	5-7	134		19.6					
HB-PB-334		5D	15-16.6	135		10.2					
HB-PB-335		1D	0-2	136		35.2					
HB-PB-335		4D	10-12	137		8.8			GM	A-2	II
HB-PB-336		4D	10-12	138		8.4			GM	A-2	II
HB-PB-337		2D	2-4	139		14.0			GP-GM	A-1-a	0
HB-PB-337		4D	10-12	140		10.5					
HB-PB-338		3D	5-7	141		8.8					
HB-PB-342		1D	0-2	142		16.7			GM	A-2	II
HB-PB-343		1D	0-2	143		13.0			SM/SC	A-4/A-6	IV

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

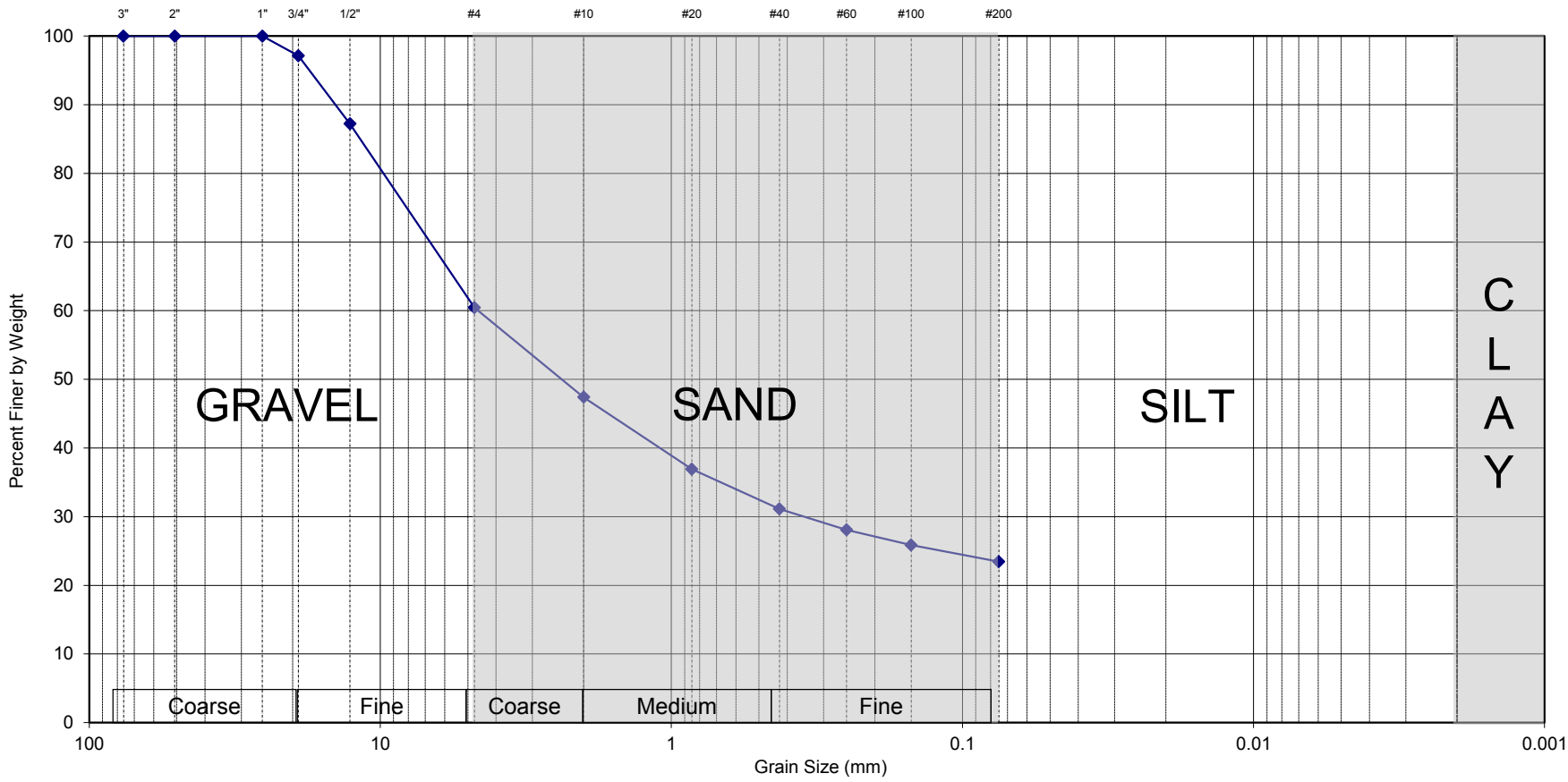
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
39.6%	37.0%	23.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
132	HB-PB-331	7D	20-22'	Brown Sandy f-c GRAVEL, some Silt (GM)	10.8			

Sieve Size	% Passing
¾"	97.1
½"	87.2
#4	60.4
#10	47.4
#20	36.9
#40	31.1
#60	28.1
#100	25.9
#200	23.4

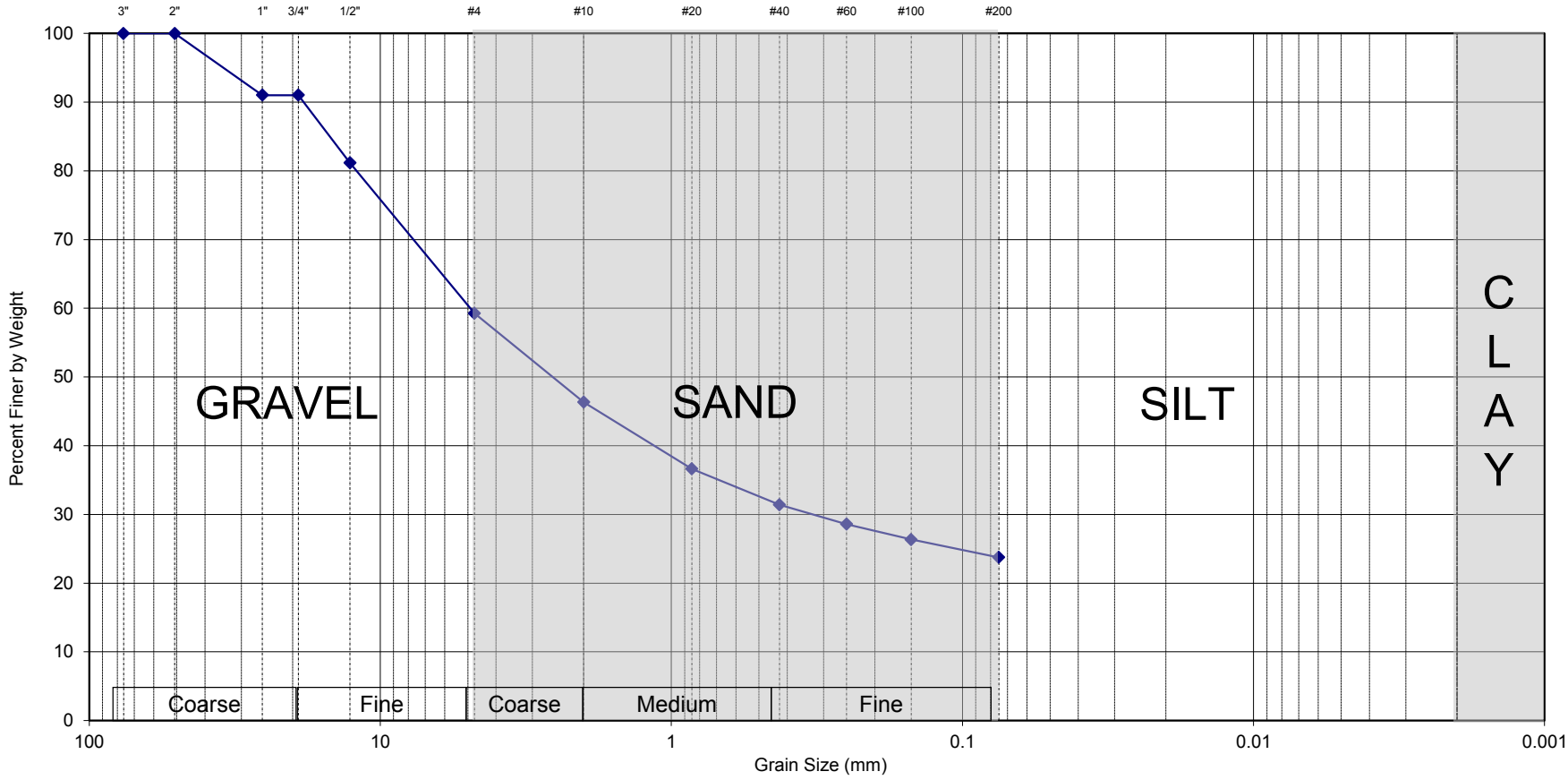
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
40.7%	35.5%	23.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
133	HB-PB-332	4D	10-12'	Dark Brown Sandy f-c GRAVEL, some Silt (GM)	6.2			

Sieve Size	% Passing
¾"	91.0
½"	81.2
#4	59.3
#10	46.3
#20	36.6
#40	31.4
#60	28.6
#100	26.3
#200	23.7

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401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15



Gravel	Sand	Fines
37.6%	34.0%	28.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
137	HB-PB-335	4D	10-12'	Brown f-c GRAVEL, some f-c Sand, some Silt (GM)	8.8			

Sieve Size	% Passing
¾"	100.0
½"	86.1
#4	62.4
#10	51.5
#20	42.0
#40	36.8
#60	34.1
#100	31.9
#200	28.5

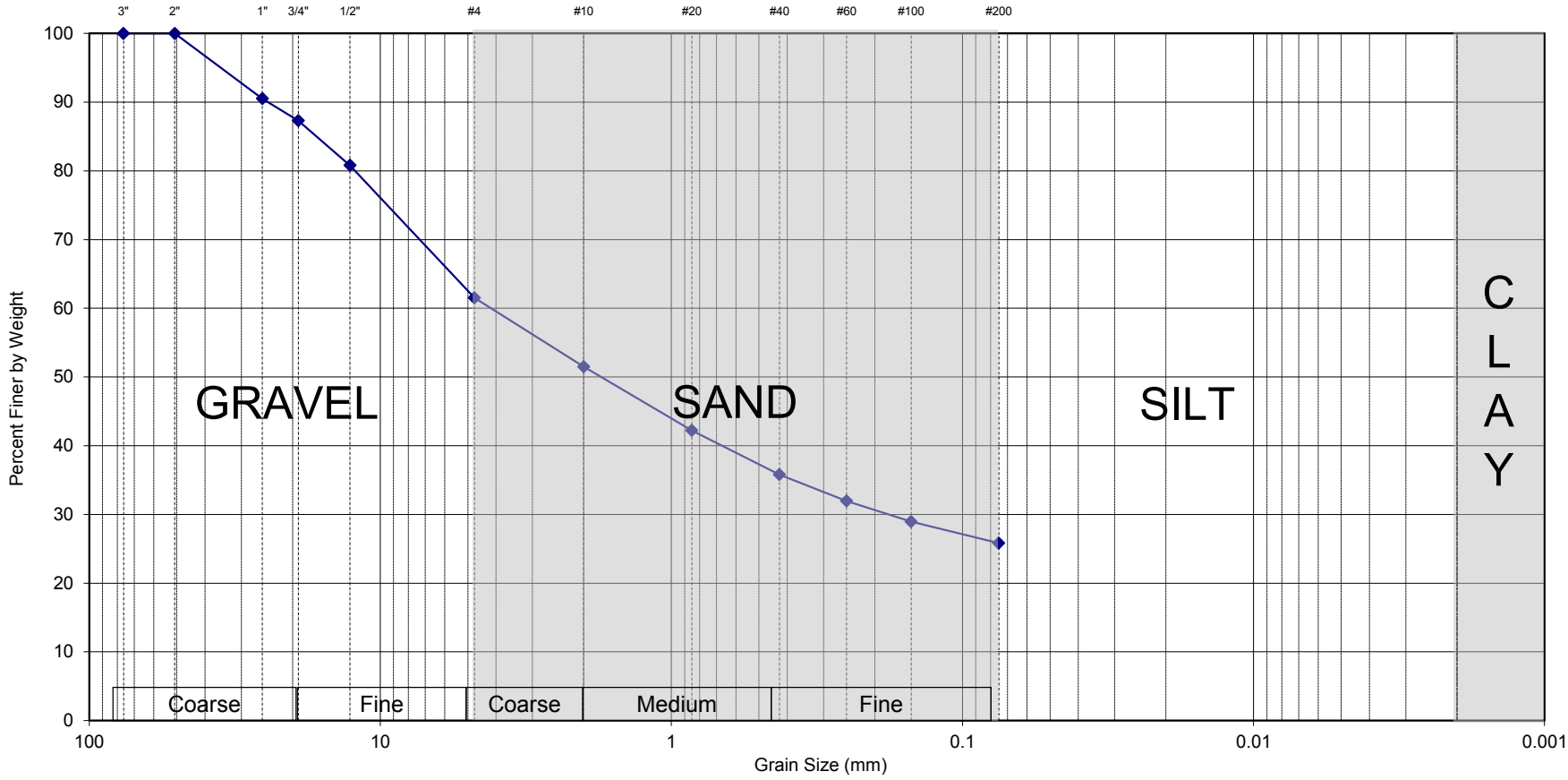
74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
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195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
38.5%	35.7%	25.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
138	HB-PB-336	4D	10-12'	Brown Sandy f-c GRAVEL, some Silt (GM)	8.4			

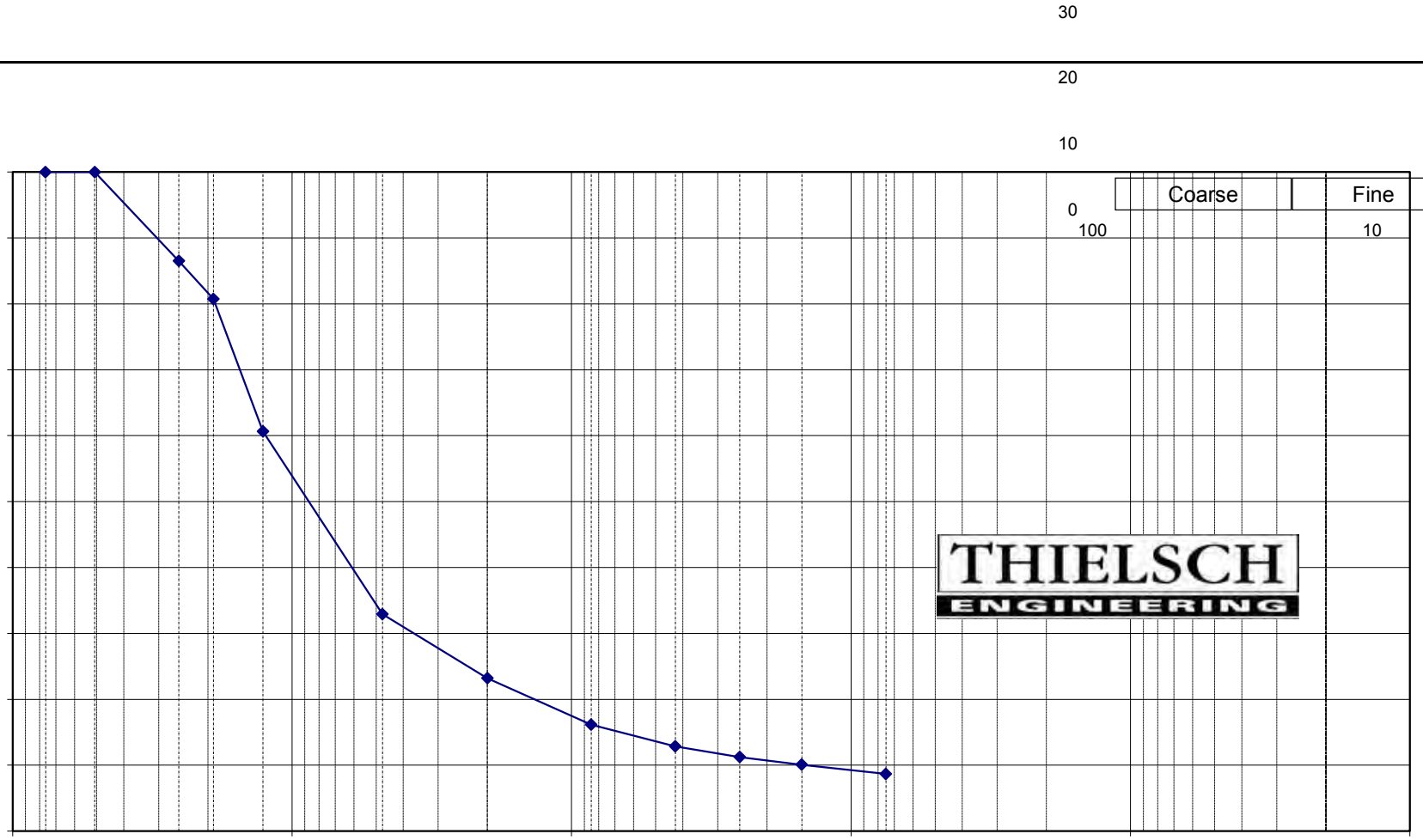
Sieve Size	% Passing
¾"	87.3
½"	80.8
#4	61.5
#10	51.5
#20	42.2
#40	35.8
#60	32.0
#100	29.0
#200	25.8

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401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

ASTM D422



Gravel	Sand	Fines
67.1%	24.2%	8.7%

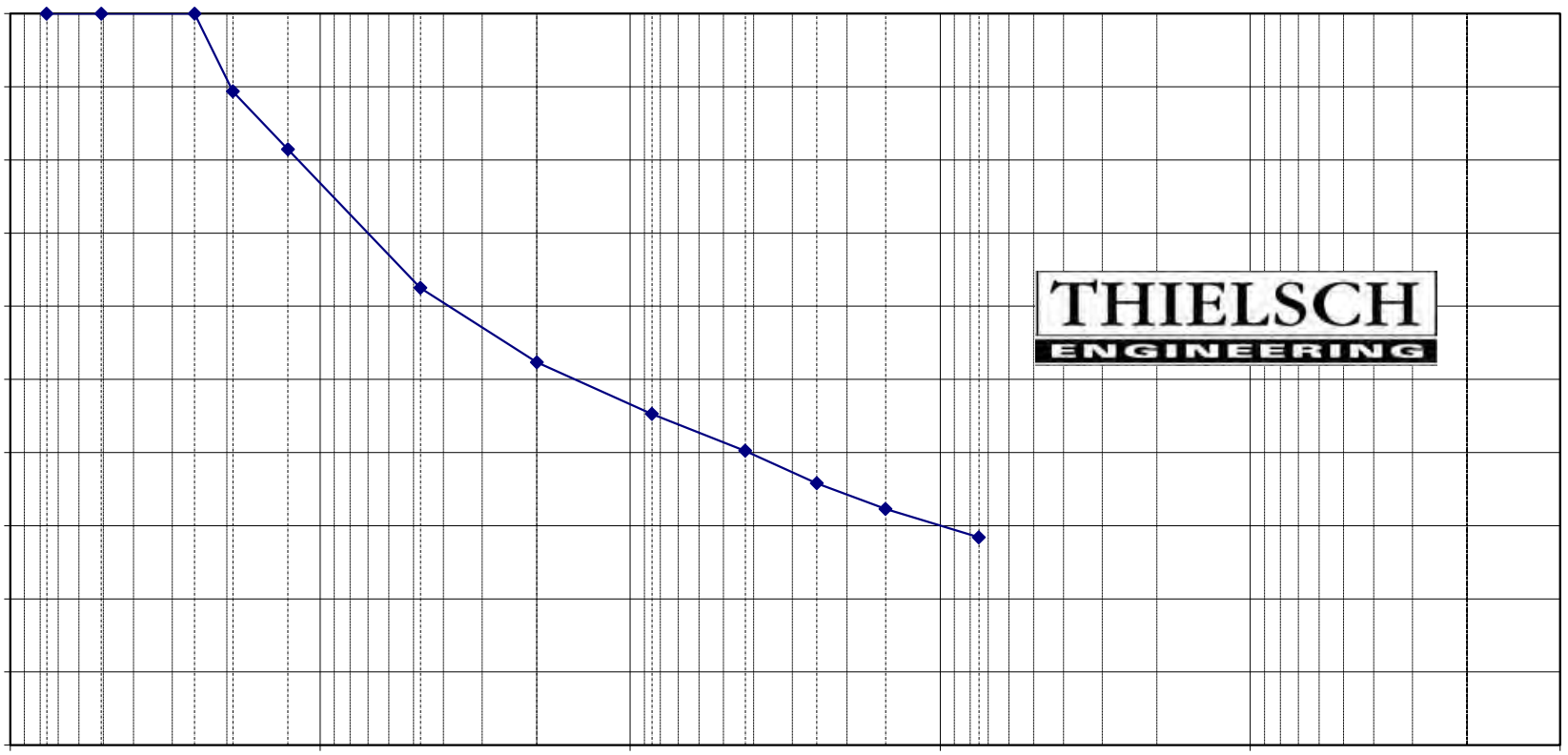
Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
140	HB-PB-337	4D	10-12'	Brown f-c GRAVEL, some f-c Sand, trace Silt (GP-GM)	14.0			

Sieve Size	% Passing
¾"	80.7
½"	60.6
#4	32.9
#10	23.2
#20	16.2
#40	12.9
#60	11.2
#100	10.1
#200	8.7

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

195 Frances Ave., Cranston, RI 02910
401-467-6454



Gravel	Sand	Fines
37.5%	34.1%	28.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
142	HB-PB-342	1D	0-2'	Brown f-c GRAVEL, some f-c Sand, some Silt (GM)	16.7			

Sieve Size	% Passing
¾"	89.4
½"	81.4
#4	62.5
#10	52.3
#20	45.3
#40	40.2
#60	35.8
#100	32.3
#200	28.4

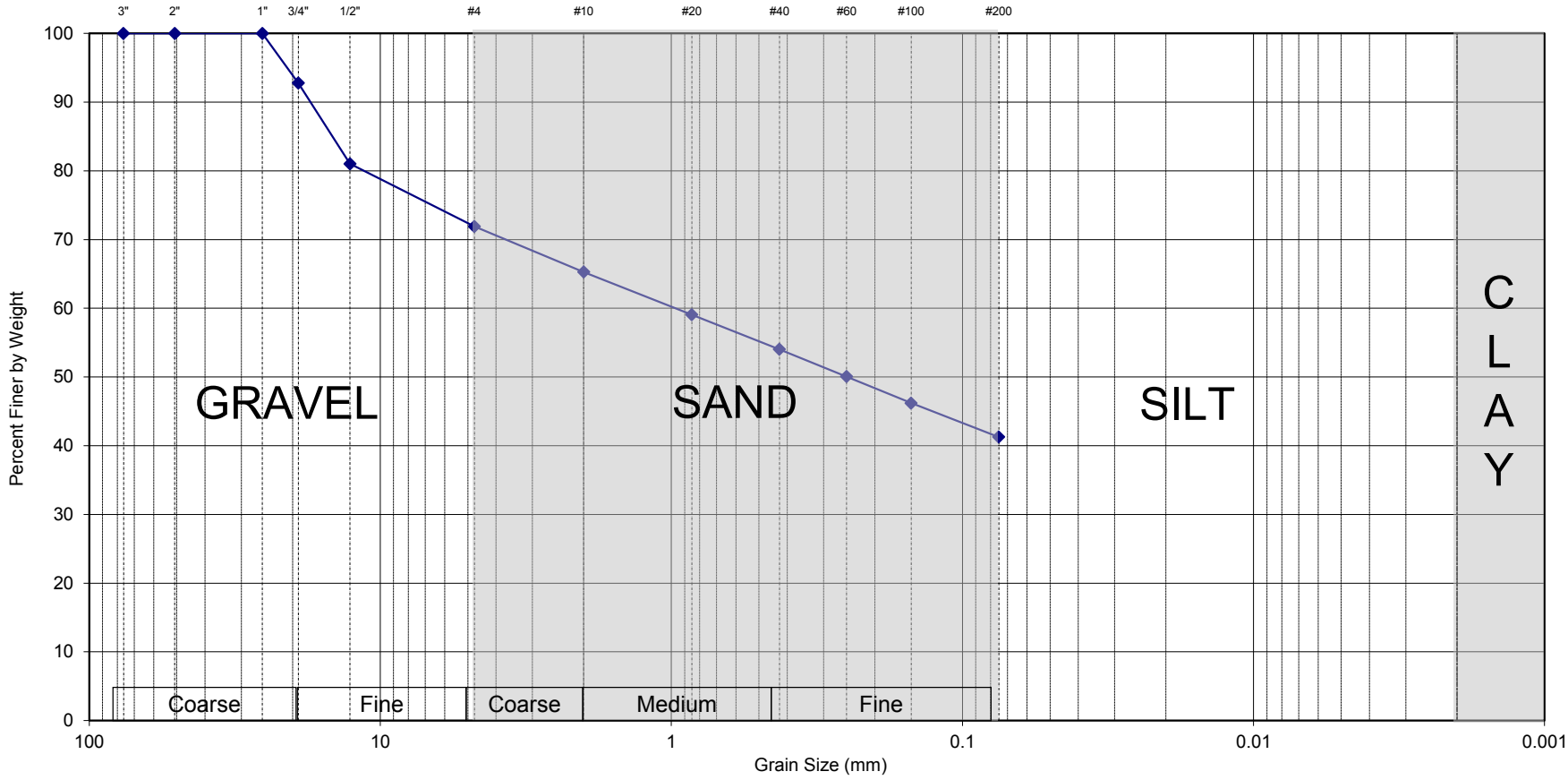
74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

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195 Frances Ave., Cranston, RI 02910
401-467-6454

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
28.1%	30.6%	41.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
143	HB-PB-343	1D	0-2'	Brown SILT, some f-c Sand, some f-c Gravel (SM/SC)	13.0			

Sieve Size	% Passing
¾"	92.8
½"	81.0
#4	71.9
#10	65.3
#20	59.1
#40	54.0
#60	50.1
#100	46.2
#200	41.3

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195 Frances Ave., Cranston, RI 02910
401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 5/28/15
Reviewed by: MBP Date: 5/29/15

THIELSCH ENGINEERING

State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-344		1D	0-2	144		18.3					
HB-PB-345		2D	2-4	145		12.0			SM	A-4	II
HB-PB-346		1D	0-2	146		16.6			SM	A-2	III
HB-PB-347		2D	0-2	147		10.8			SM	A-4	II
HB-PB-348		2D	2-4	148		12.8			SM	A-2	III
HB-PB-349		1D	0-2	149		30.7					
HB-PB-349		3D	4-6	150		16.6			GM/GC	A-4/A-6	III
HB-PB-350		4D	9-11	151		10.6			SM	A-2	II
HB-PB-351		3D	4-6	152		2.4			GP-GM	A-1-a	0
HB-PB-352		2D	2-4	153		25.2					
HB-PB-352		5D	13-15	154		3.3			GM	A-1-a	0
HB-PB-353		3D	5-7	155		6.3					
HB-PB-354		3D	4-6	156		28.7			SM	A-2	II

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

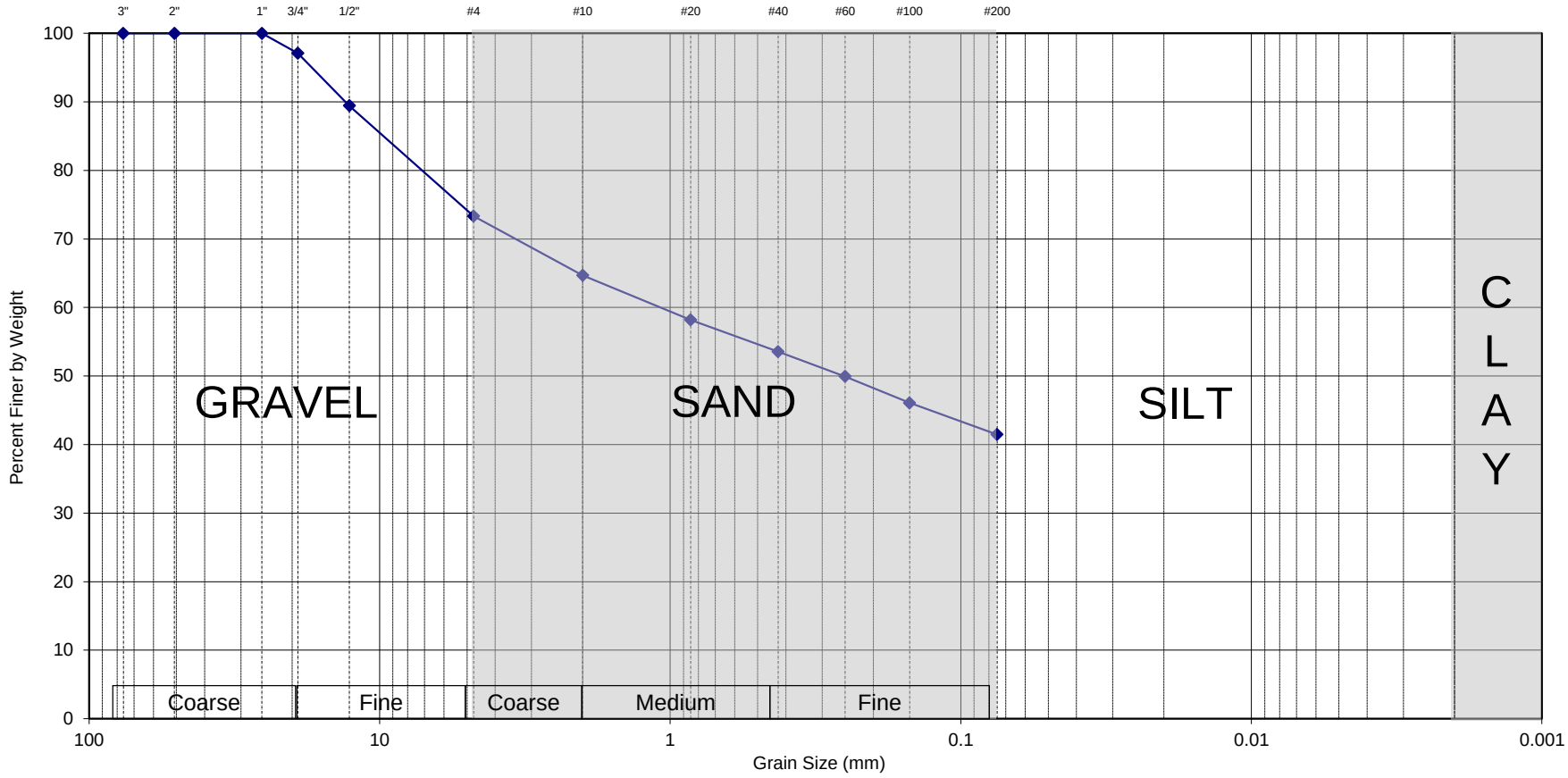
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
26.7%	31.8%	41.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
145	HB-PB-345	2D	2-4'	Brown Silty f-c SAND, some f-c Gravel (SM)	12.0			

Sieve Size	% Passing
¾"	97.1
½"	89.4
#4	73.3
#10	64.7
#20	58.2
#40	53.6
#60	49.9
#100	46.1
#200	41.5

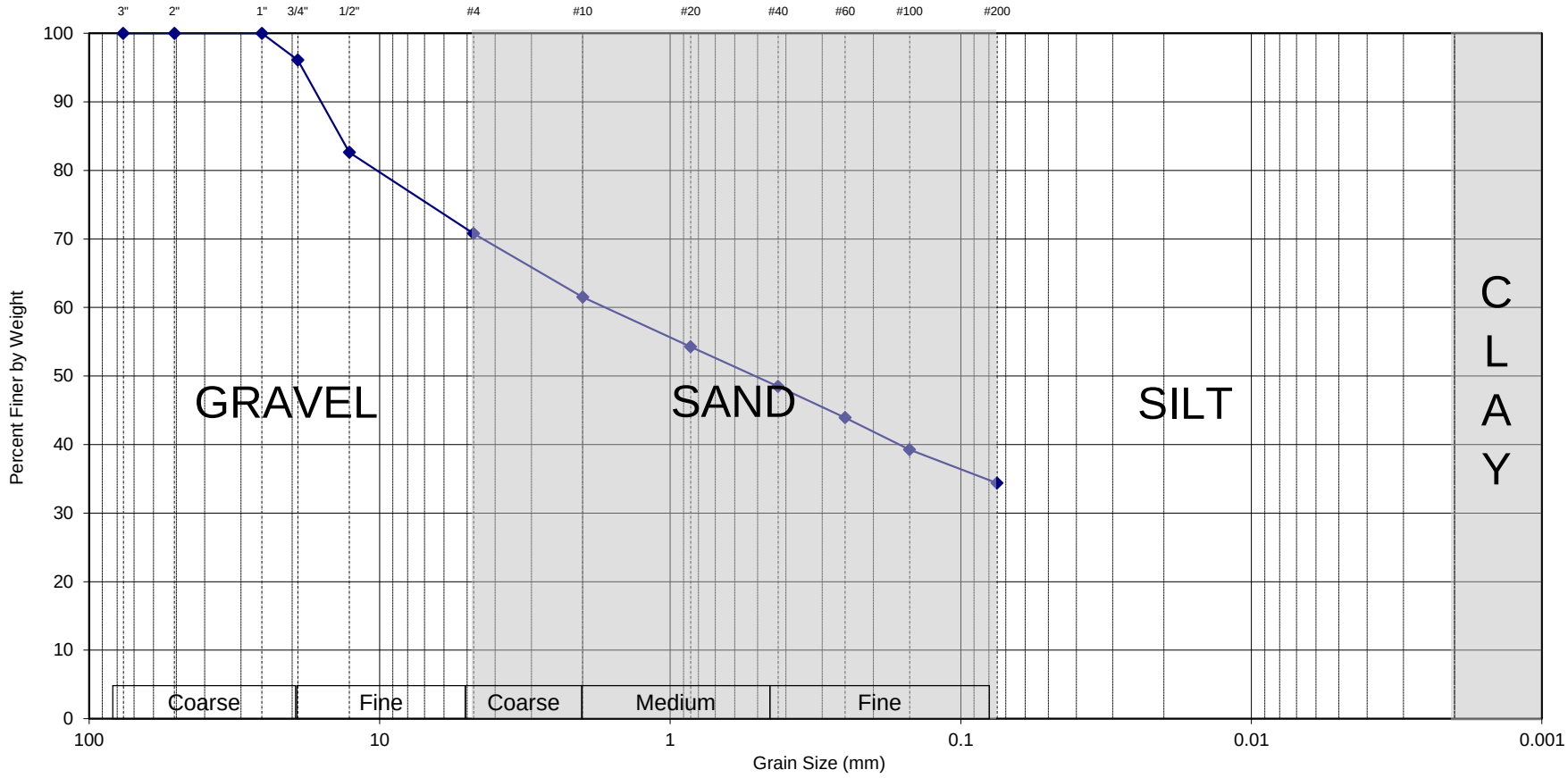
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/3/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.2%	36.4%	34.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
146	HB-PB-346	1d	0-2'	Brown f-c SAND, some Silt, some f-c Gravel (SM)	16.6			

Sieve Size	% Passing
¾"	96.1
½"	82.6
#4	70.8
#10	61.5
#20	54.2
#40	48.5
#60	43.9
#100	39.2
#200	34.4

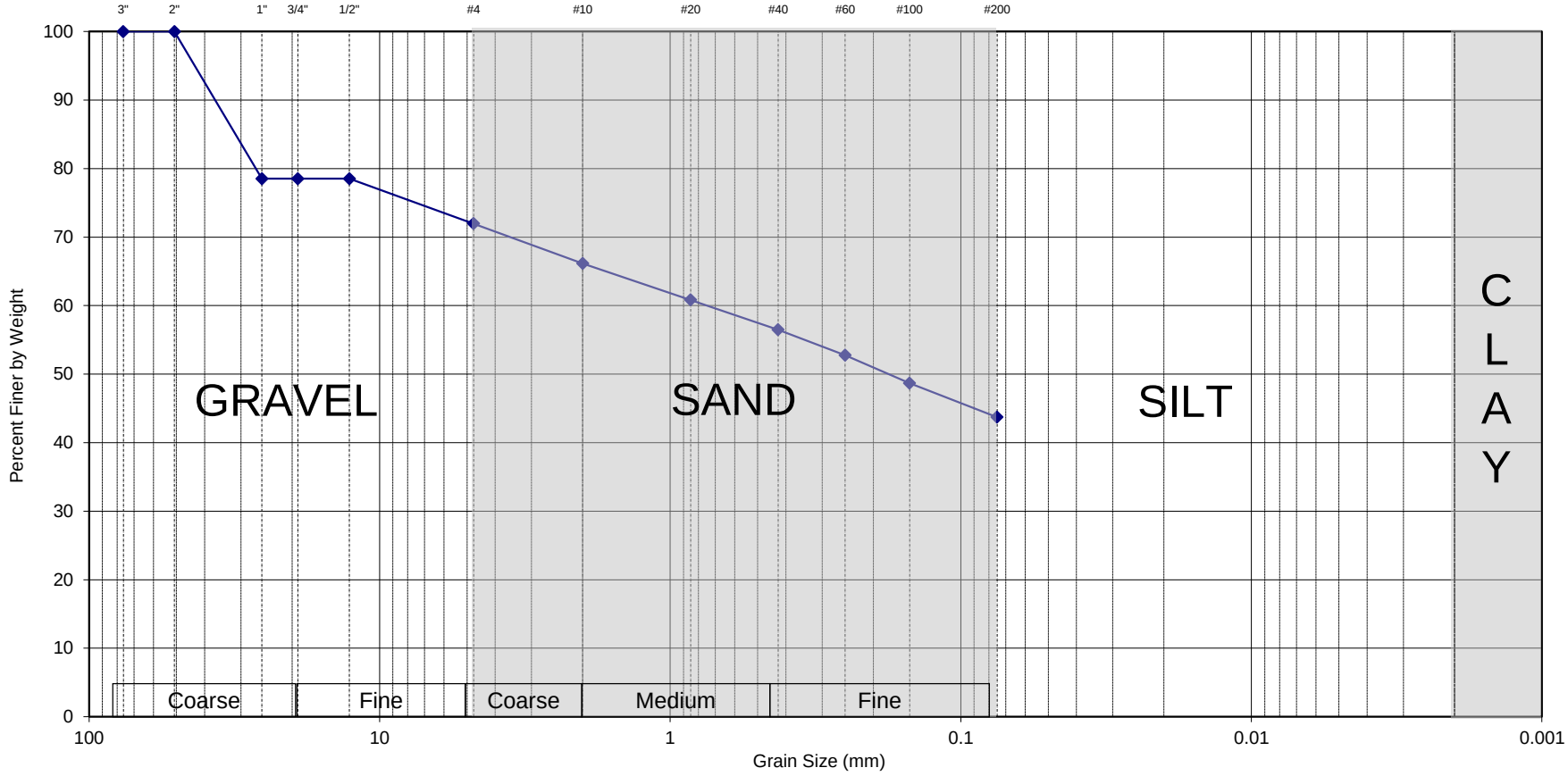
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/4/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
28.0%	28.2%	43.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
147	HB-PB-347	2D	0-2'	Brown Silty f-c SAND, some f-c Gravel (SM)	10.8			

Sieve Size	% Passing
¾"	78.5
½"	78.5
#4	72.0
#10	66.1
#20	60.8
#40	56.5
#60	52.8
#100	48.7
#200	43.7

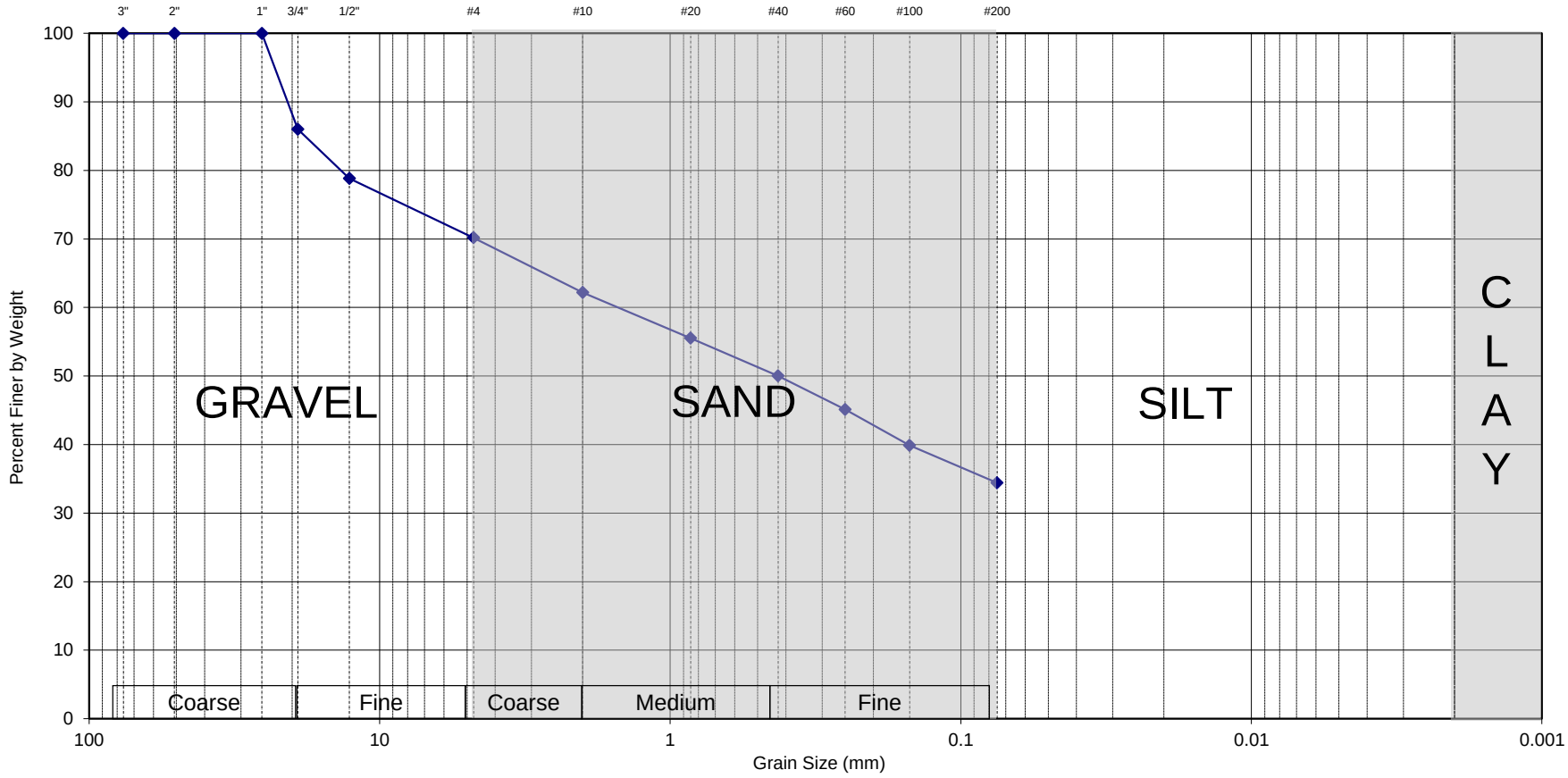
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Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/4/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.8%	35.8%	34.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
148	HB-PB-348	2D	2-4'	Brown f-c SAND, some Silt, some f-c Gravel (SM)	12.8			

Sieve Size	% Passing
¾"	86.0
½"	78.8
#4	70.2
#10	62.2
#20	55.5
#40	50.0
#60	45.1
#100	39.9
#200	34.4

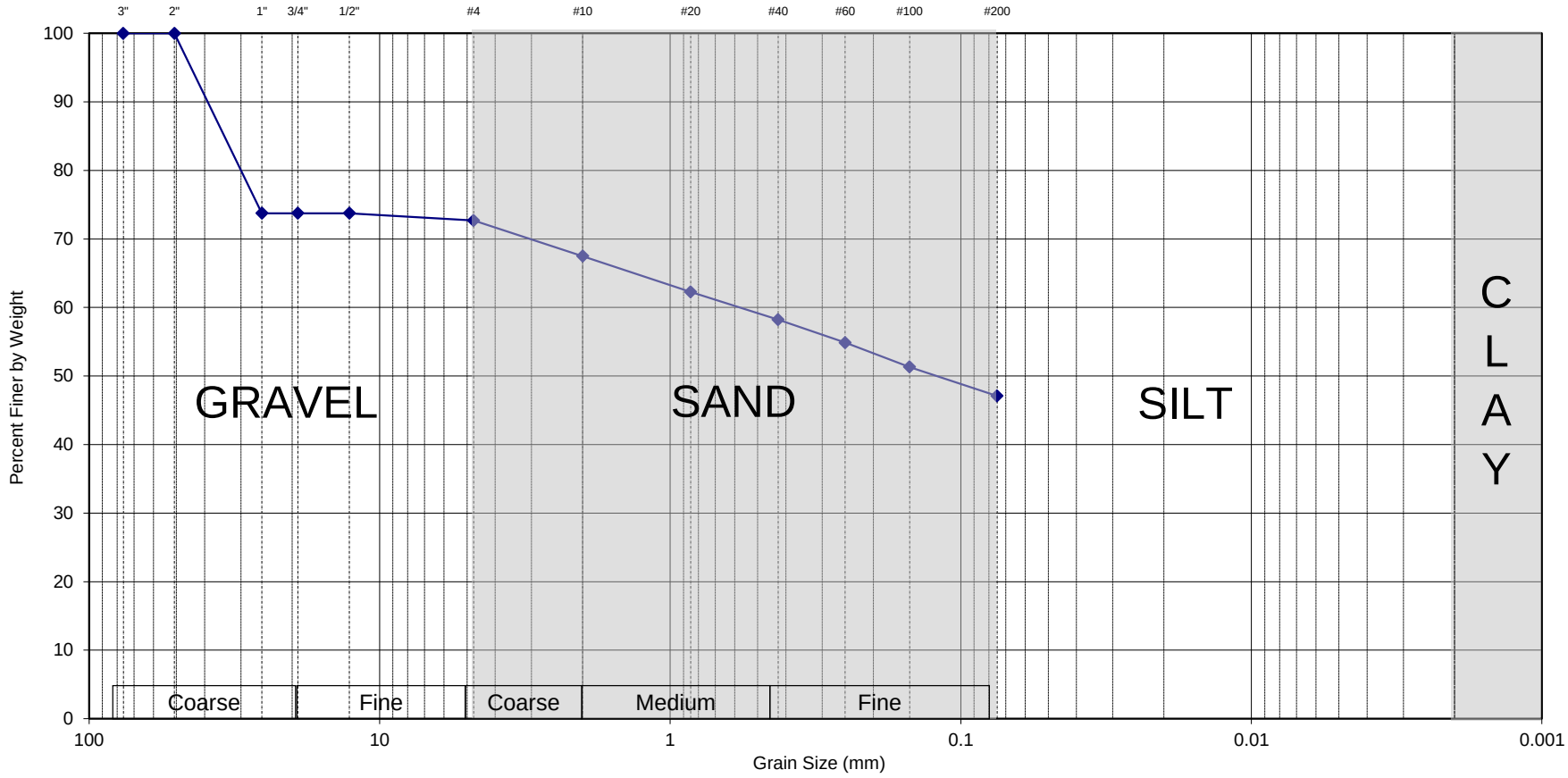
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Tested by: GG/MS Date: 6/2/15
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
27.3%	25.6%	47.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
150	HB-PB-349	3D	4-6'	Brown Silty f-c GRAVEL, some f-c Sand (GM/GC)	16.6			

Sieve Size	% Passing
¾"	73.8
½"	73.8
#4	72.7
#10	67.5
#20	62.3
#40	58.2
#60	54.9
#100	51.3
#200	47.1

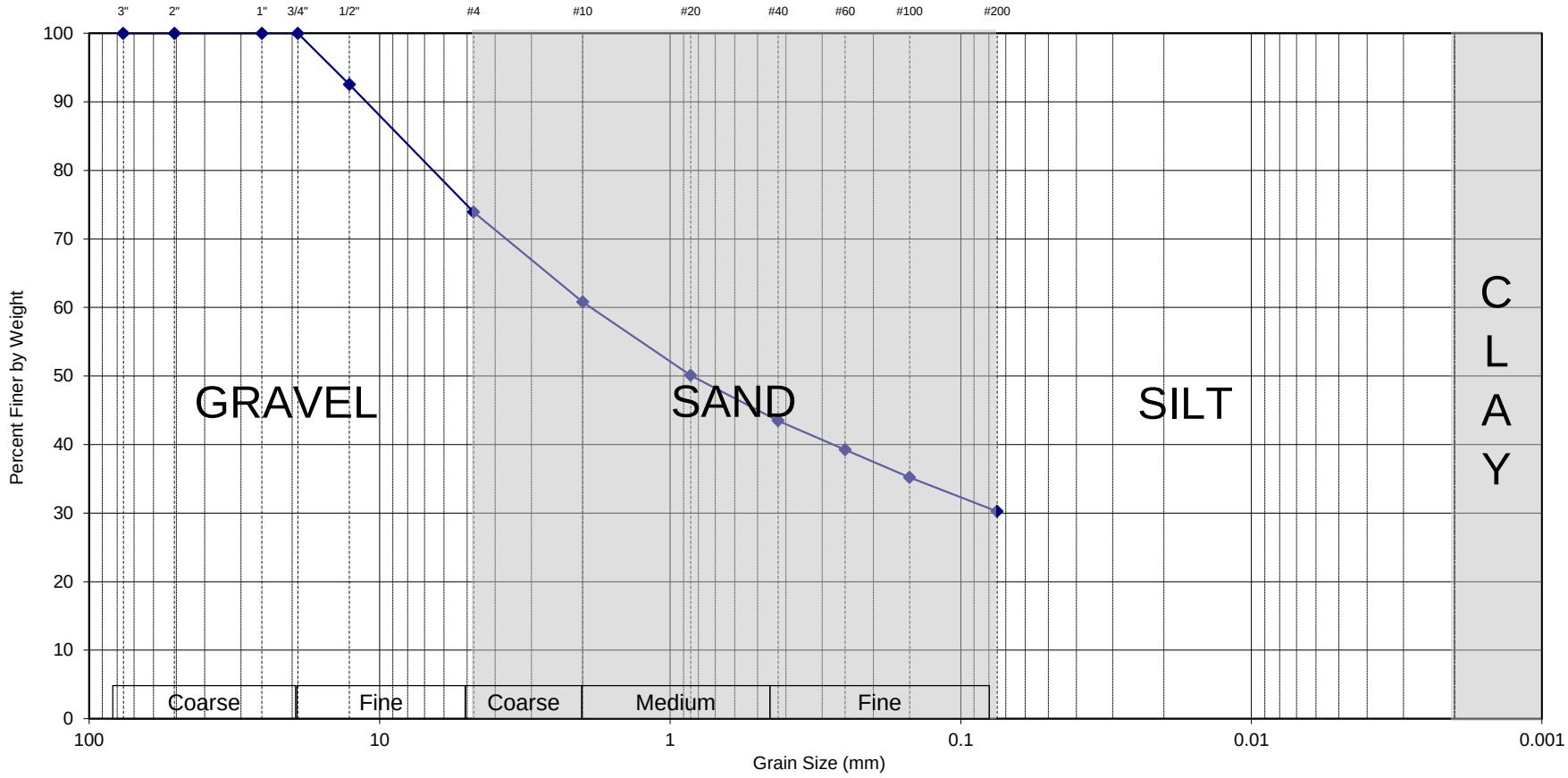
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Reviewed by: MBP Date: 6/4/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
26.1%	43.7%	30.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
151	HB-PB-350	4D	9-11'	Brown f-c SAND, some Silt, some fine Gravel (SM)	10.6			

Sieve Size	% Passing
¾"	100.0
½"	92.5
#4	73.9
#10	60.8
#20	50.1
#40	43.5
#60	39.2
#100	35.2
#200	30.3

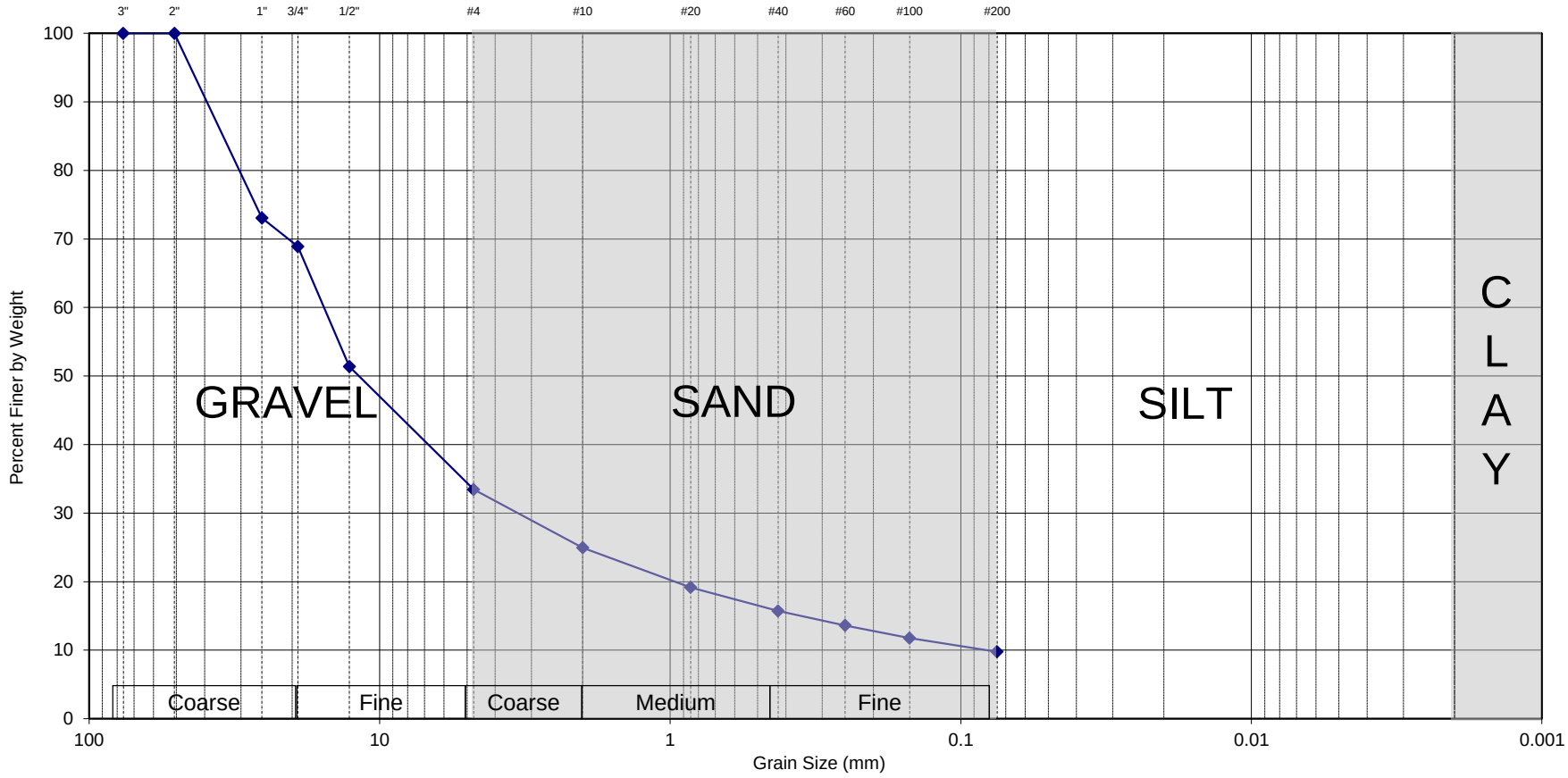
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
66.6%	23.7%	9.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
152	HB-PB-351	3D	4-6'	Brown f-c GRAVEL, some f-c Sand, trace Silt (GP-GM)	2.4			

Sieve Size	% Passing
¾"	68.9
½"	51.4
#4	33.4
#10	24.9
#20	19.2
#40	15.7
#60	13.6
#100	11.8
#200	9.8

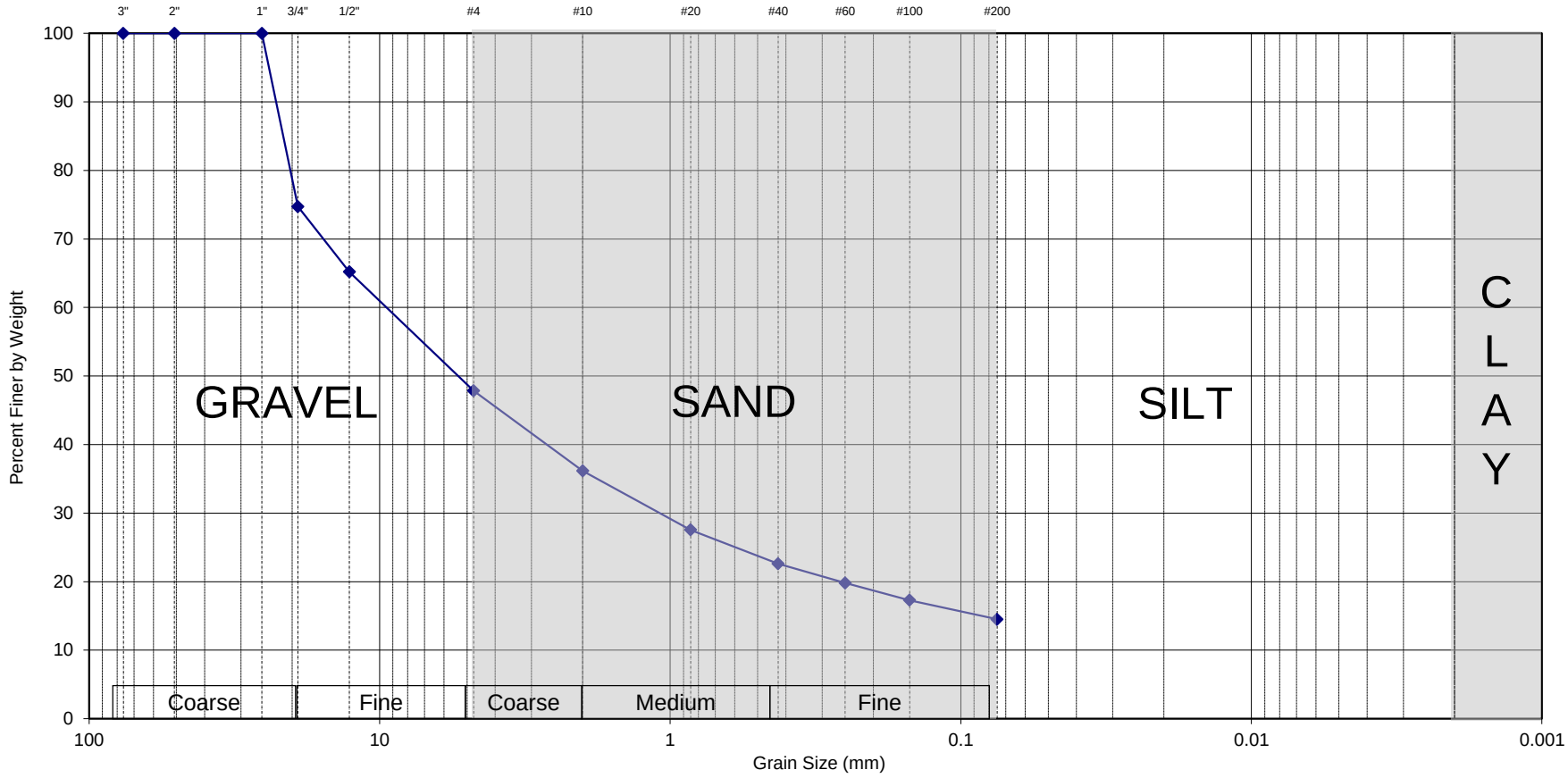
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Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/4/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
52.2%	33.3%	14.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
154	HB-PB-352	3D	5-7'	Gray f-c GRAVEL, some f-c Sand, little Silt (GM)	3.3			

Sieve Size	% Passing
¾"	74.7
½"	65.2
#4	47.8
#10	36.2
#20	27.5
#40	22.6
#60	19.8
#100	17.3
#200	14.5

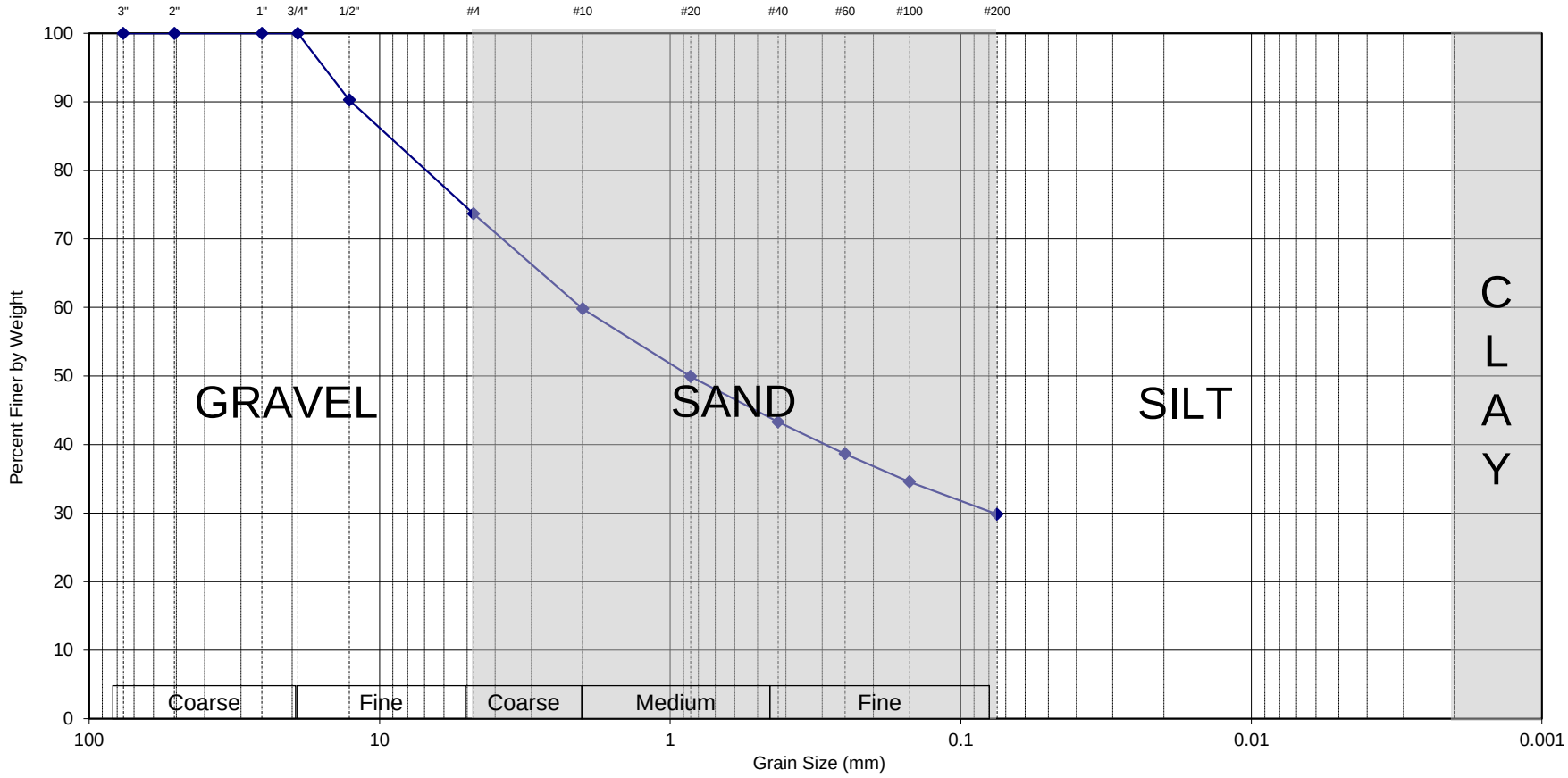
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Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/4/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
26.3%	43.8%	29.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
156	HB-PB-354	3D	4-6'	Light brown f-c SAND, some Silt, some fine Gravel (SM)	28.7			

Sieve Size	% Passing
¾"	100.0
½"	90.3
#4	73.7
#10	59.8
#20	49.9
#40	43.3
#60	38.6
#100	34.6
#200	29.8

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/4/15

THIELSCH ENGINEERING

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-355		2D	2-4	157		24.6			SM	A-4	III
HB-PB-362		3D	5-7	158		8.4			SM	A-1-b	II
HB-PB-363		1D	0-2	159		24.8			SM	A-2	II
HB-PB-366		2D	2-4	160		38.8					
HB-PB-369		3D	4-6	161		10.7					
HB-PB-372		1D	0-2	162		32.4			SM	A-2	II
HB-PB-373		1D	0-2	163		19.4					
HB-PB-377		2D	2-4	164		27.1					
HB-PB-379		3D	4-6	165		6.8					
HB-PB-382		2D	2-4	166		18.3					
HB-PB-386		2D	2-4	167		17.5	23	8	CL	A-4	IV
HB-PB-387		2D	2-4	168		13.9			SM	A-4	II
HB-PB-388		2D	2-4	169		20.2					

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

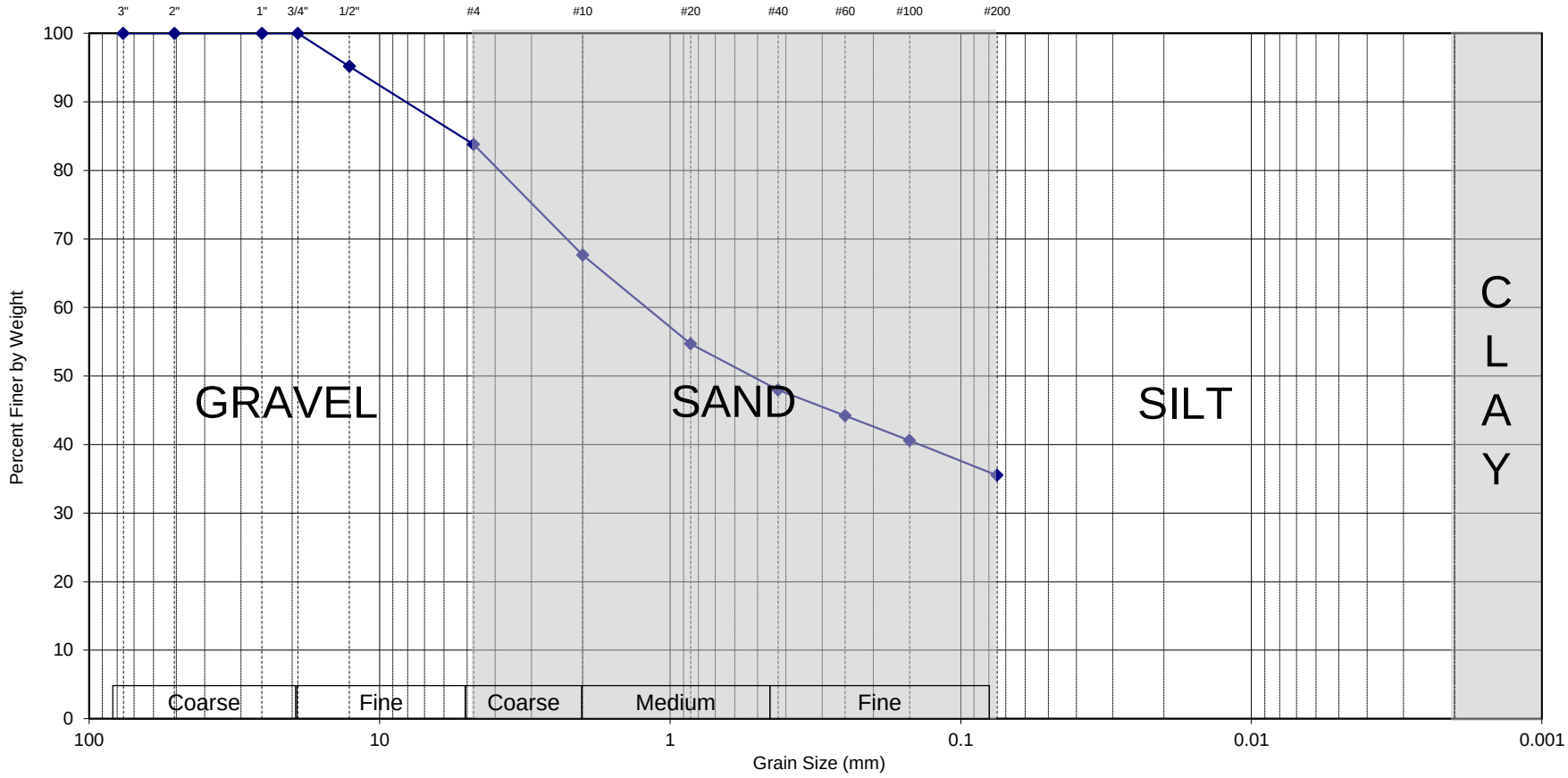
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
16.2%	48.3%	35.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
157	HB-PB-355	2D	2-4'	Brown silty f-c SAND, little fine Gravel (SM)	24.6			

Sieve Size	% Passing
¾"	100.0
½"	95.2
#4	83.8
#10	67.6
#20	54.7
#40	48.0
#60	44.2
#100	40.6
#200	35.5

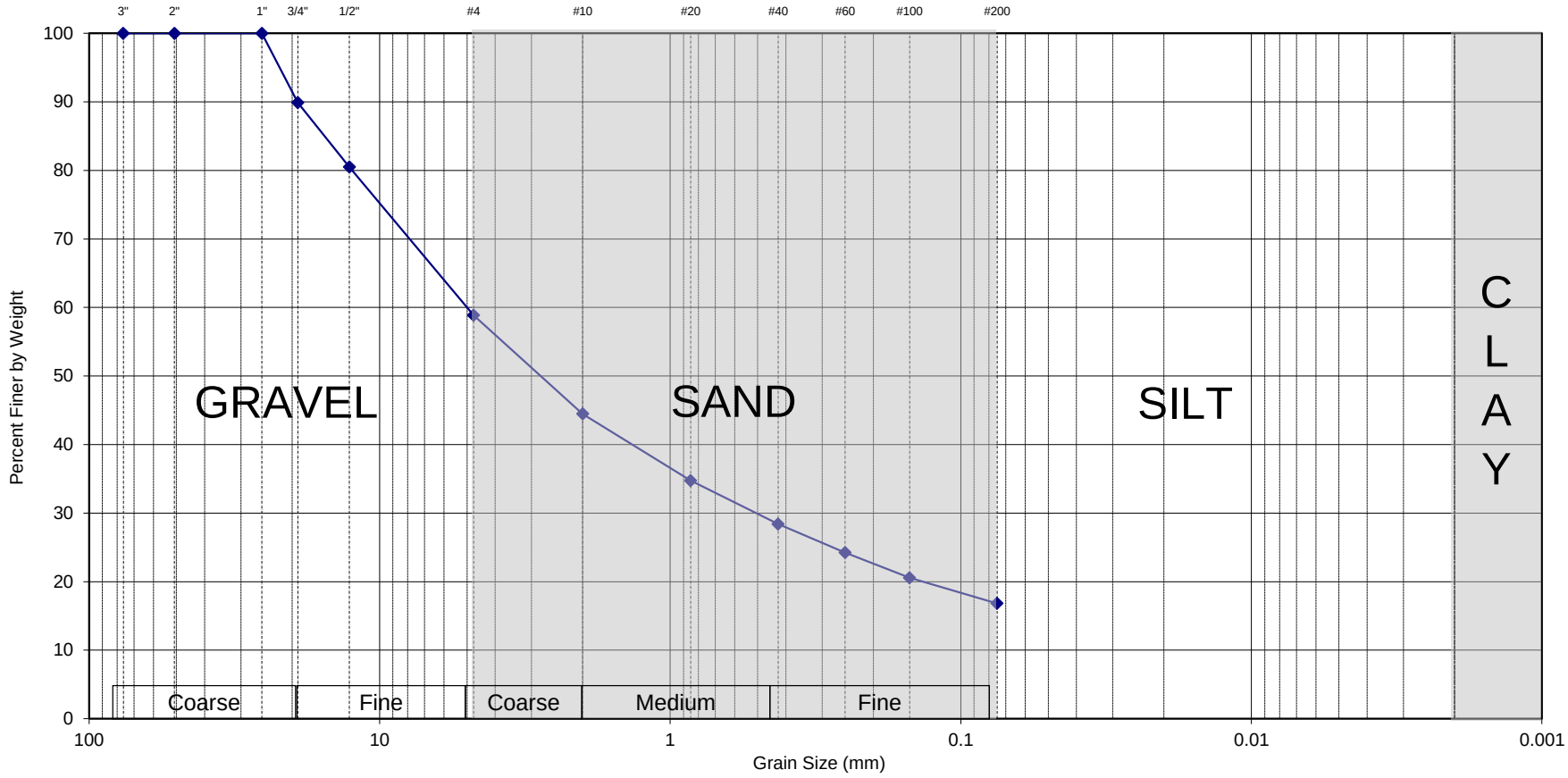
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/11/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
41.2%	42.0%	16.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
158	HB-PB-362	3D	5-7'	Brown gravelly f-c SAND, little silt (SM)	8.4			

Sieve Size	% Passing
¾"	89.9
½"	80.5
#4	58.8
#10	44.5
#20	34.7
#40	28.4
#60	24.2
#100	20.6
#200	16.8

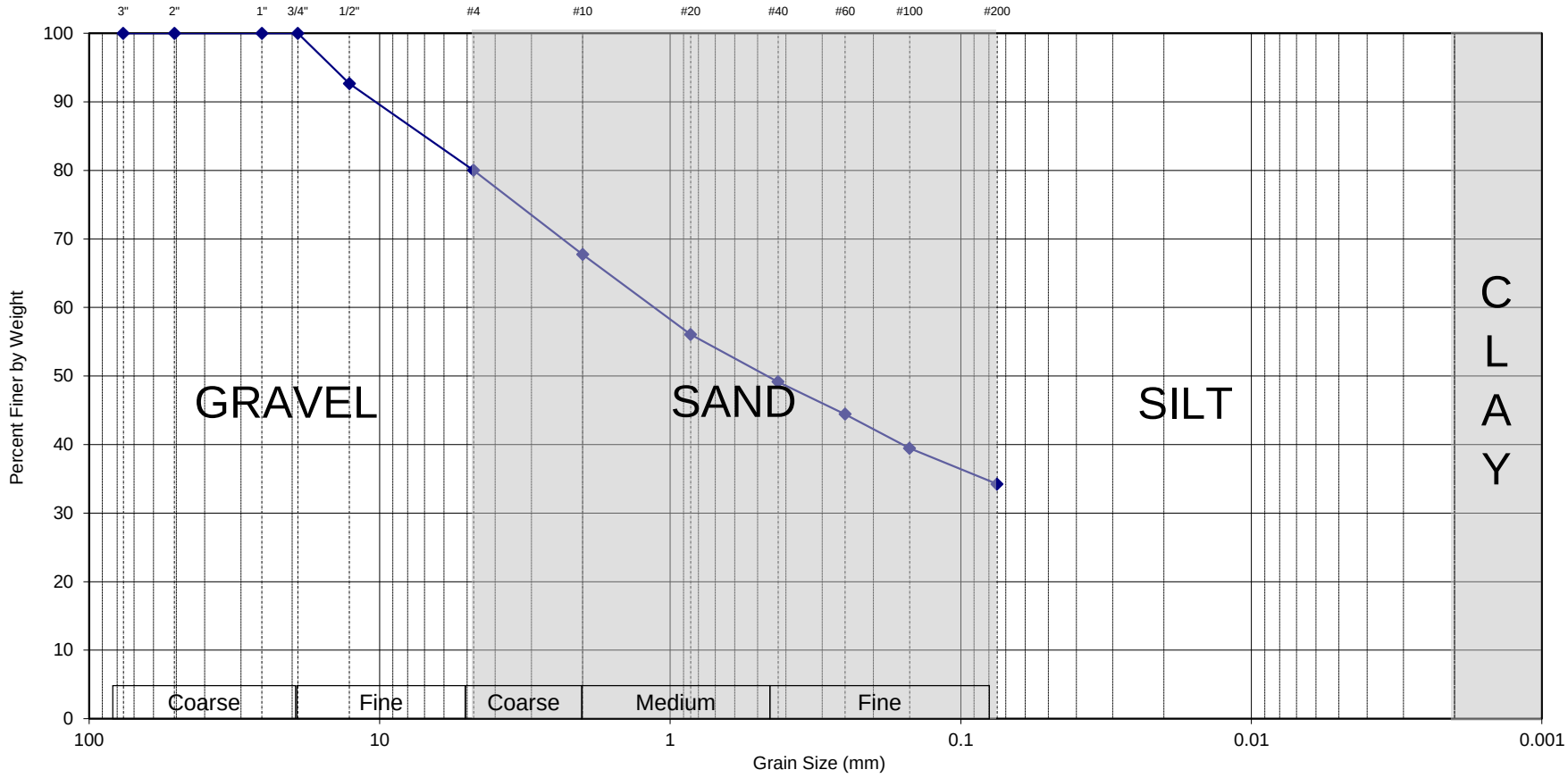
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Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/11/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.0%	45.8%	34.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
159	HB-PB-363	1D	0-2'	Brown f-c SAND, some Silt, little fine Gravel (SM)	24.8			

Sieve Size	% Passing
¾"	100.0
½"	92.7
#4	80.0
#10	67.7
#20	56.1
#40	49.1
#60	44.4
#100	39.5
#200	34.2

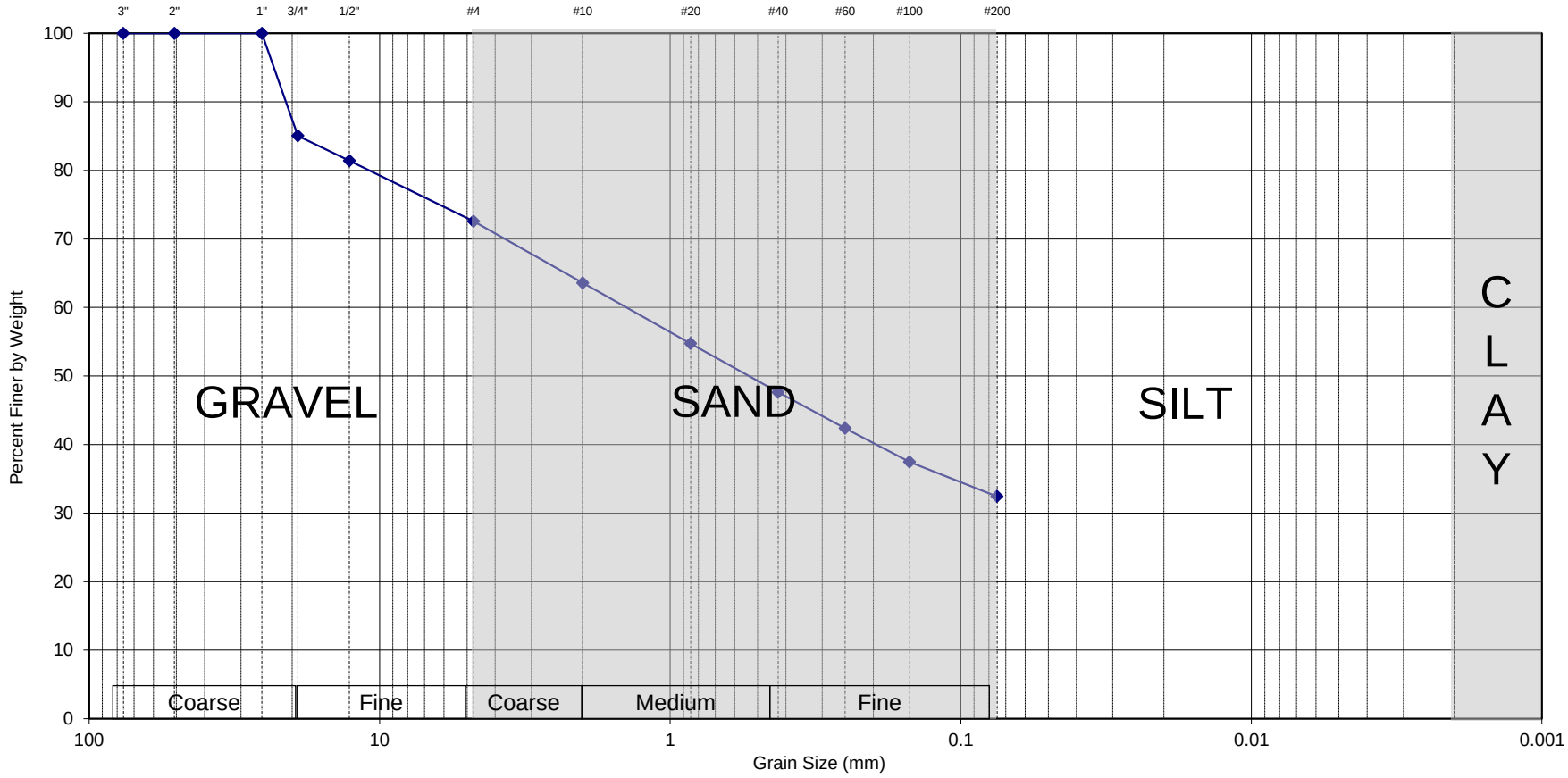
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Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/11/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
27.4%	40.1%	32.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
162	HB-PB-372	1D	0-2'	Brown f-c SAND, some Silt, some f-c Gravel (SM)	32.4			

Sieve Size	% Passing
¾"	85.0
½"	81.4
#4	72.6
#10	63.6
#20	54.7
#40	47.6
#60	42.4
#100	37.5
#200	32.4

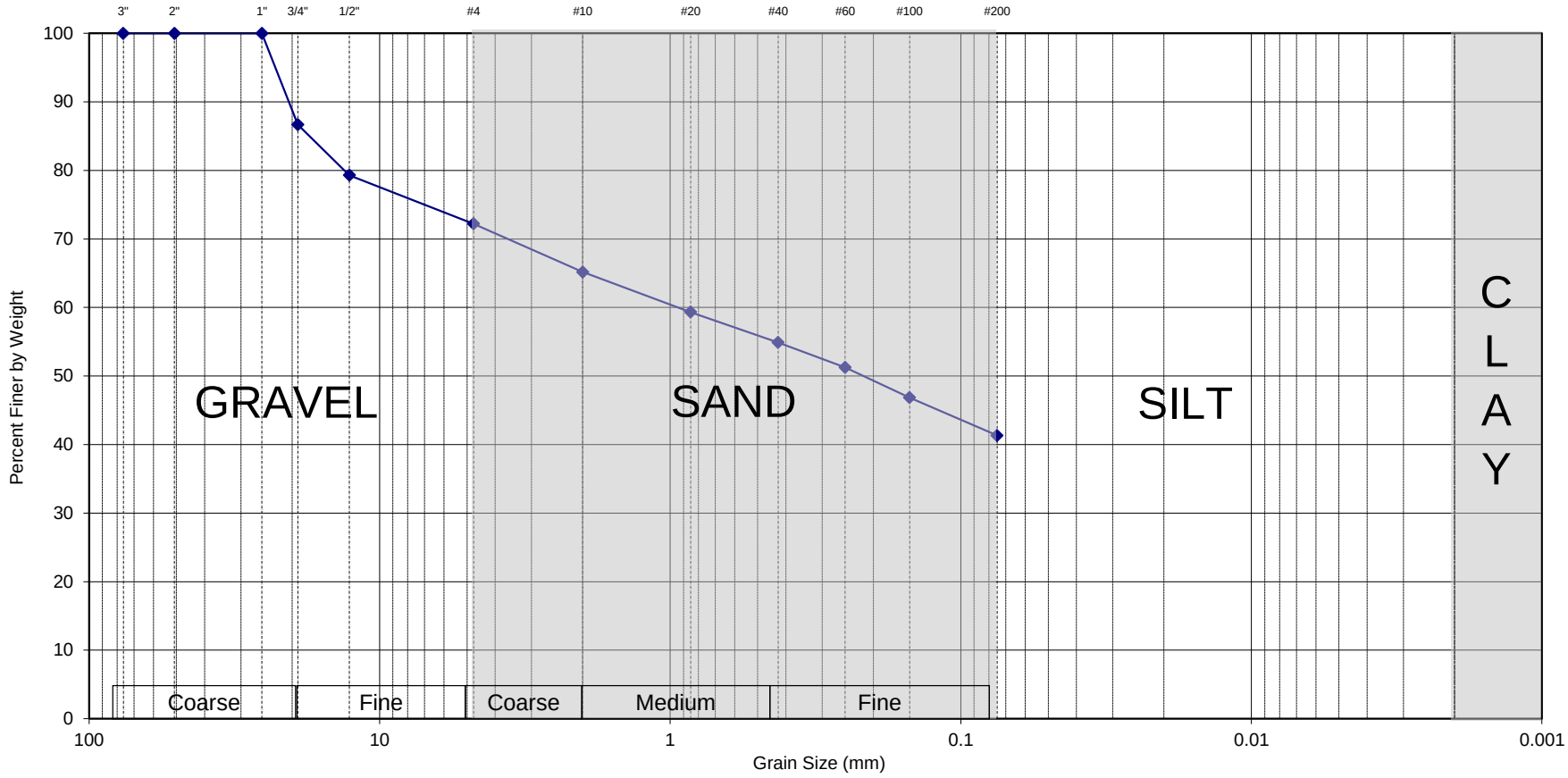
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
27.8%	30.9%	41.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
168	HB-PB-387	2D	2-4'	Brown silty f-c SAND, some f-c Gravel (SM)	13.9			

Sieve Size	% Passing
¾"	86.7
½"	79.3
#4	72.2
#10	65.2
#20	59.3
#40	54.9
#60	51.2
#100	46.9
#200	41.3

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Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/11/15

THIELSCH ENGINEERING

State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-389		2D	2-4	170		11.8			SM	A-4	II
HB-PB-390		2D	2-4	171		22.6			ML	A-4	IV
HB-PB-391		3D	5-7	172		9.0			SM	A-2	III
HB-PB-392		3D	5-6	173		8.8			SM	A-2	III
HB-PB-393		3D	5-7	174		9.0			SM	A-4	IV
HB-PB-394		2D	2-4	175		17.1			CL	A-6	IV
HB-PB-395		3D	5-7	176		8.1			GM	A-1-a	0
HB-PB-396		1D	0-2	177		19.0					
HB-PB-396		3D	5-5.6	178		2.9			GP-GM	A-1-a	0
HB-PB-397		1D	0-2	179		27.7					
HB-PB-397		3D	4-6	180		16.7			GM	A-2	III
HB-PB-398		1D	0-2	181		34.3			SM	A-4	II

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

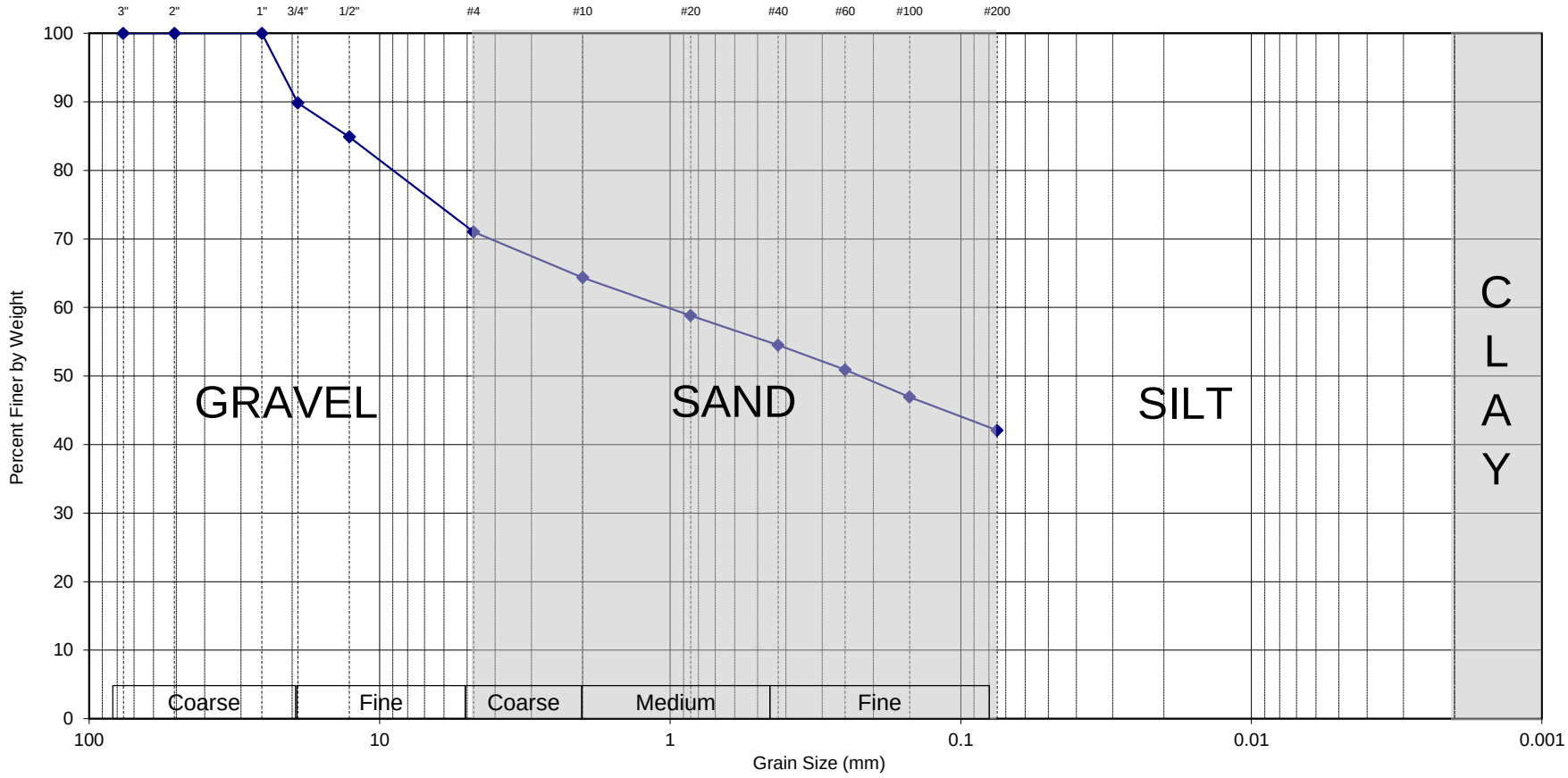
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
29.0%	29.0%	42.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
170	HB-PB-389	2D	2-4'	Brown silty f-c SAND, some f-c Gravel (SM)	11.8			

Sieve Size	% Passing
¾"	89.8
½"	84.9
#4	71.0
#10	64.4
#20	58.8
#40	54.5
#60	50.9
#100	46.9
#200	42.1

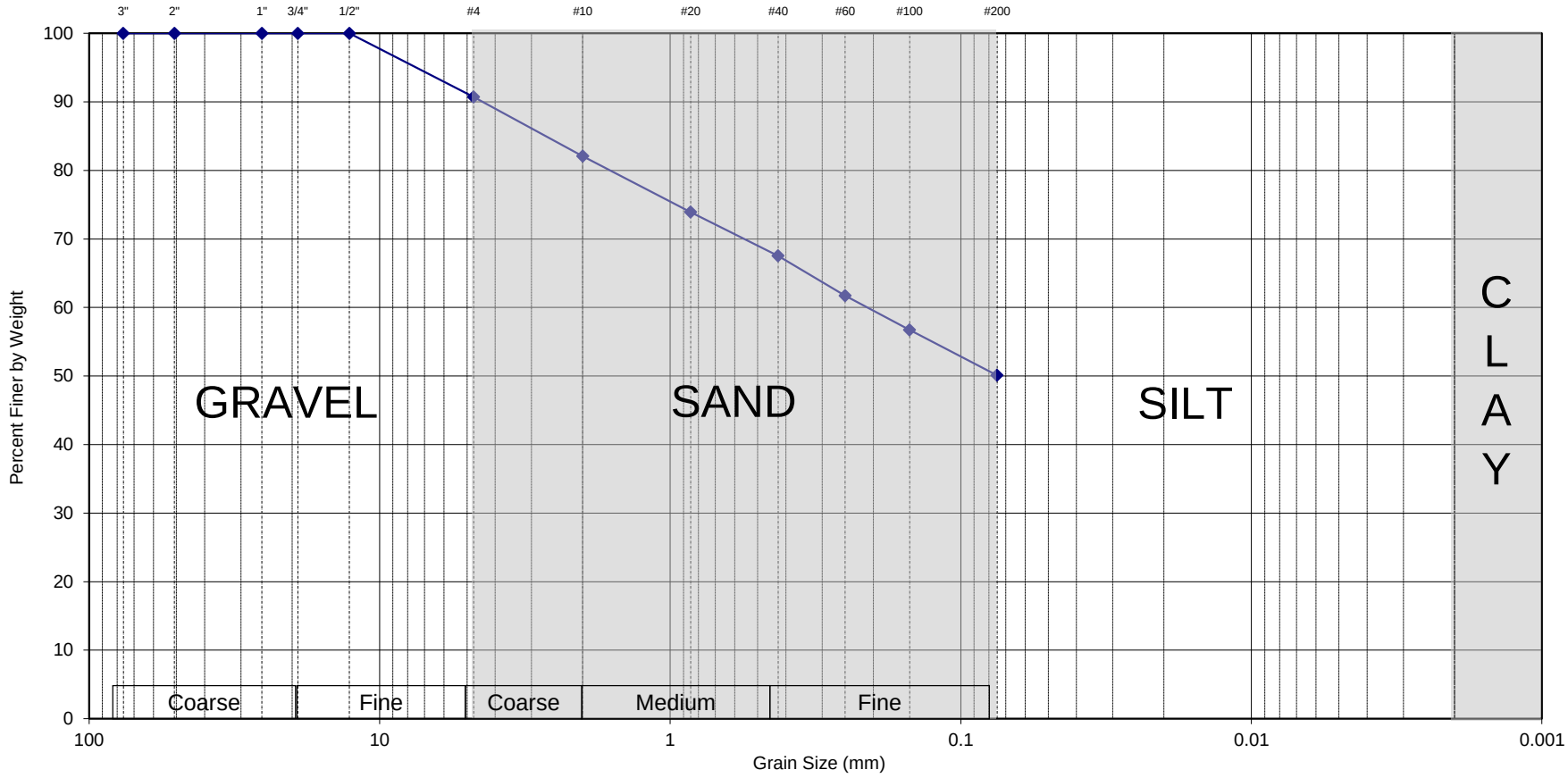
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401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/12/15
Reviewed by: MBP Date: 6/17/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
9.3%	40.6%	50.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
171	HB-PB-390	2D	2-4'	Brown sandy SILT, trace Gravel (ML)	22.6			

Sieve Size	% Passing
¾"	100.0
½"	100.0
#4	90.7
#10	82.1
#20	73.9
#40	67.5
#60	61.7
#100	56.7
#200	50.1

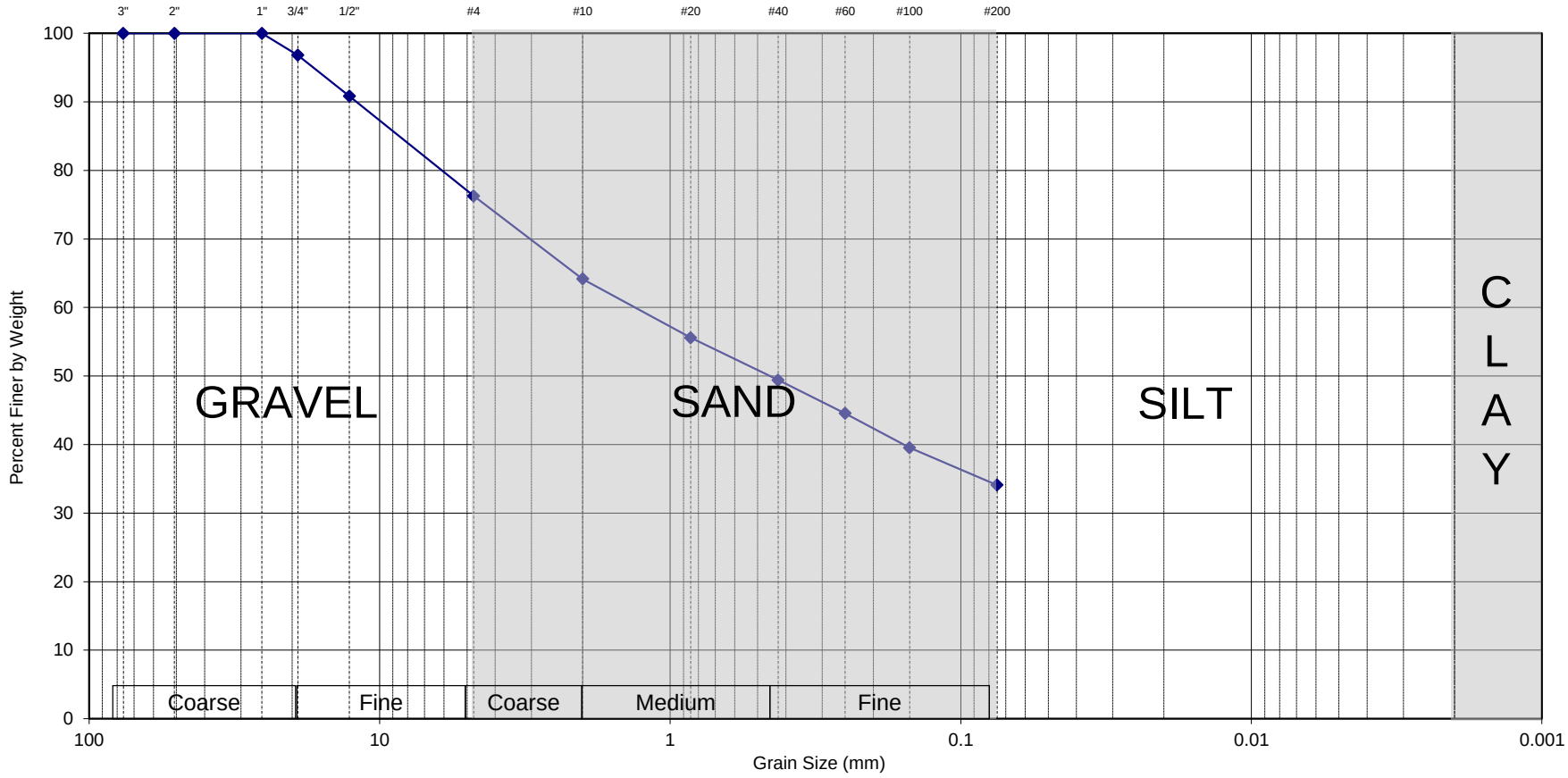
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.7%	42.2%	34.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
172	HB-PB-391	3D	5-7'	Brown f-c SAND, some Silt, some f-c Gravel (SM)	9.0			

Sieve Size	% Passing
¾"	96.8
½"	90.8
#4	76.3
#10	64.2
#20	55.6
#40	49.4
#60	44.5
#100	39.5
#200	34.1

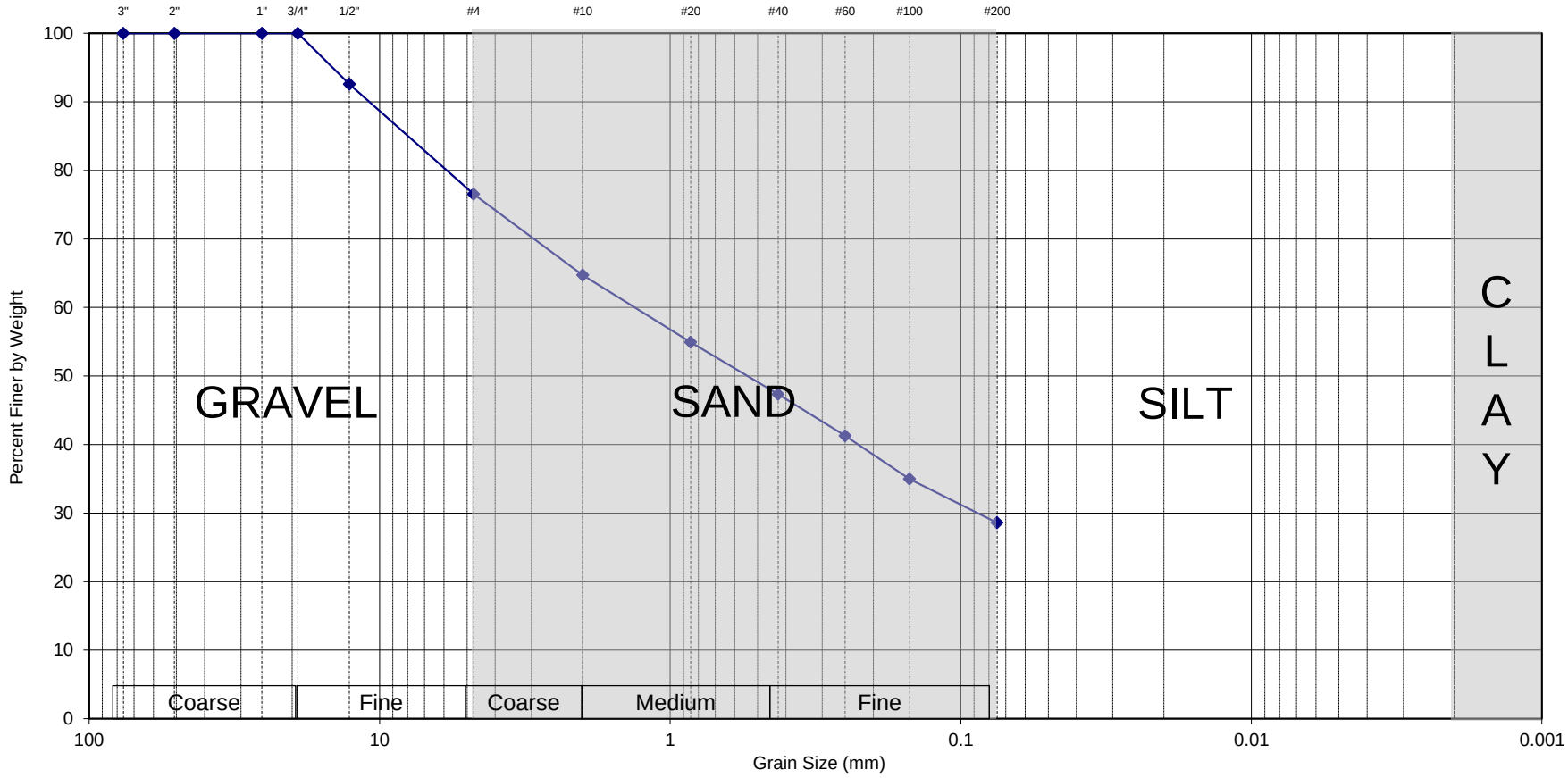
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.5%	48.0%	28.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
173	HB-PB-392	3D	5-6'	Brown f-c SAND, some Silt, some fine Gravel (SM)	8.8			

Sieve Size	% Passing
¾"	100.0
½"	92.6
#4	76.5
#10	64.7
#20	54.9
#40	47.3
#60	41.3
#100	34.9
#200	28.6

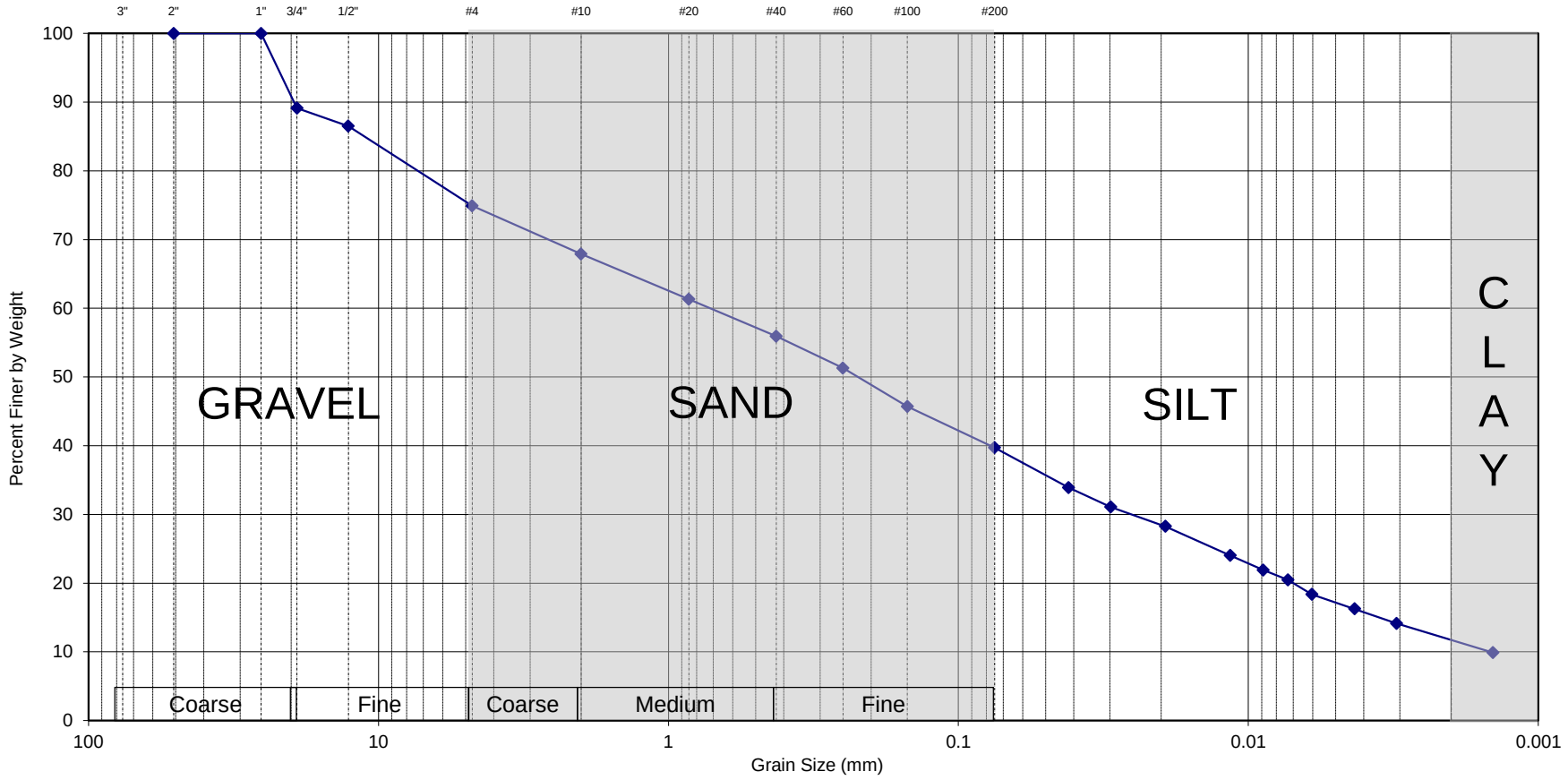
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
25.1%	35.2%	39.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
174	HB-PB-393	3D	5-7'	Brown silty f-c SAND, some f-c Gravel (SM)	9.0			

Sieve Size	% Passing
¾"	89.1
½"	86.5
#4	74.9
#10	67.9
#20	61.3
#40	55.9
#60	51.3
#100	45.7
#200	39.7

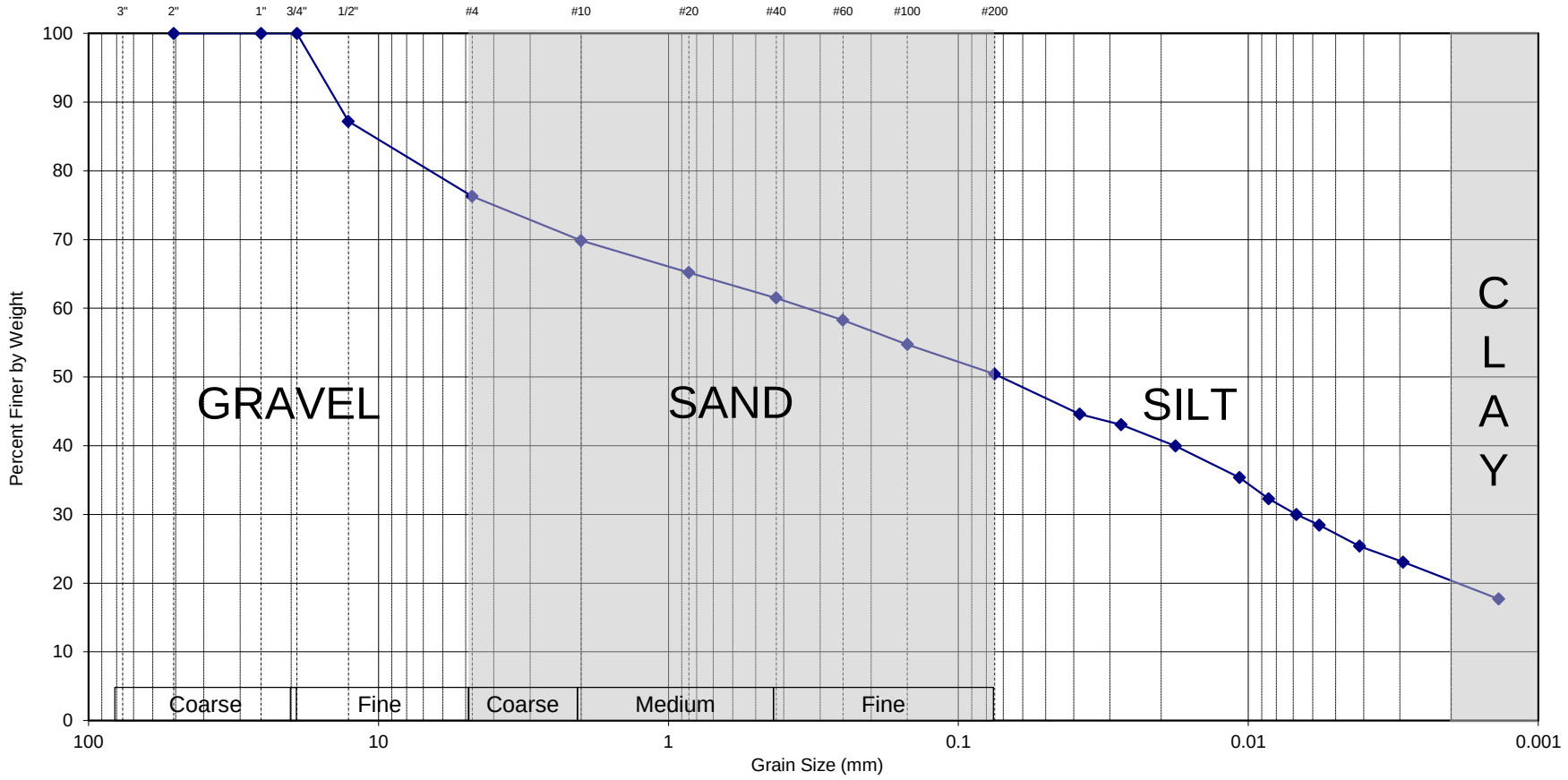
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.7%	25.8%	50.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
175	HB-PB-394	2D	2-4'	Brown lean CLAY, some f-c Sand, some fine Gravel (CL)	17.1			

Sieve Size	% Passing
¾"	100.0
½"	87.2
#4	76.3
#10	69.8
#20	65.2
#40	61.5
#60	58.3
#100	54.7
#200	50.4

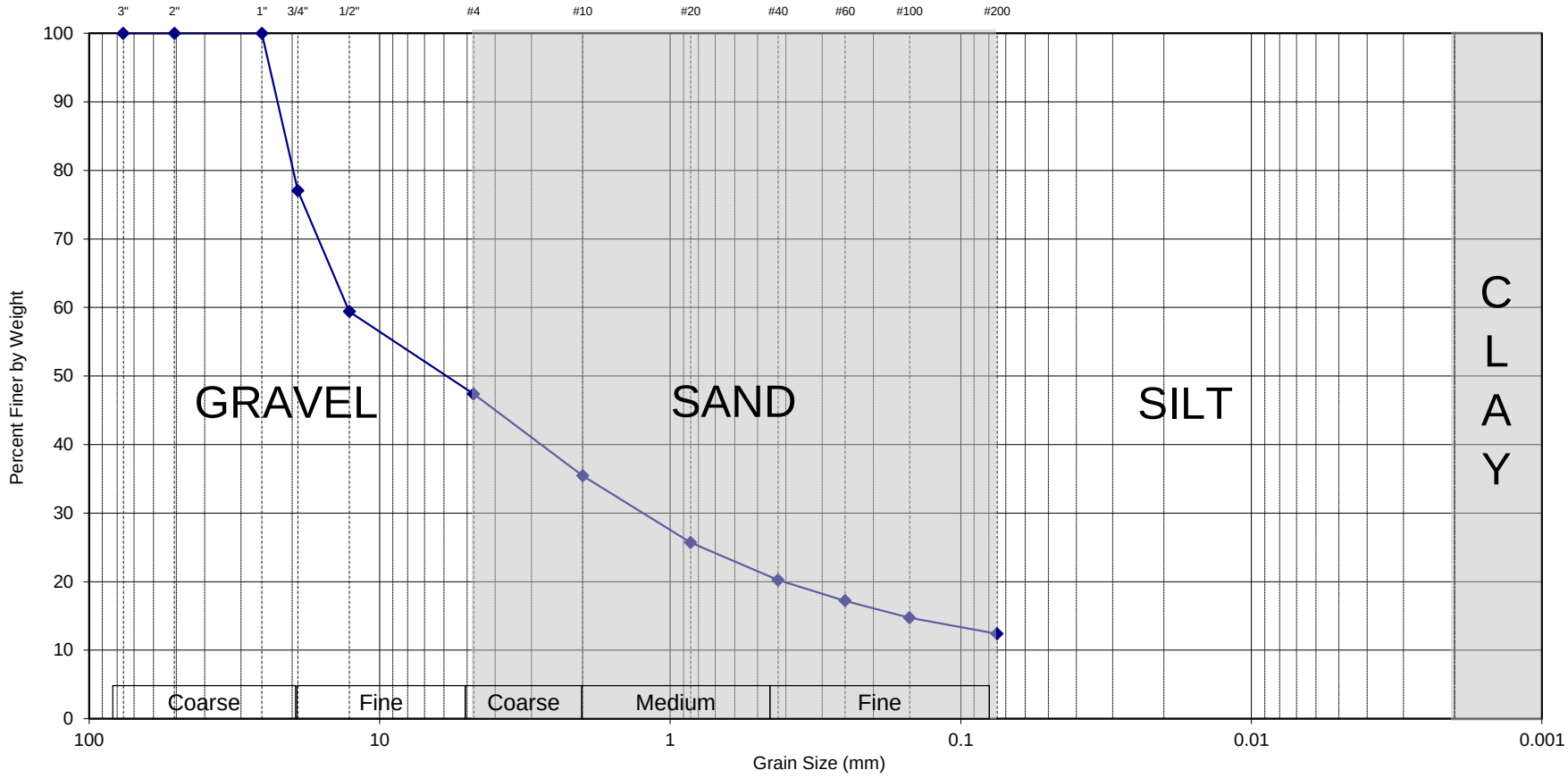
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
52.6%	35.0%	12.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
176	HB-PB-395	3D	5-7'	Dark brown sandy f-c GRAVEL, little Silt (GM)	8.1			

Sieve Size	% Passing
¾"	77.0
½"	59.4
#4	47.4
#10	35.5
#20	25.7
#40	20.2
#60	17.2
#100	14.7
#200	12.4

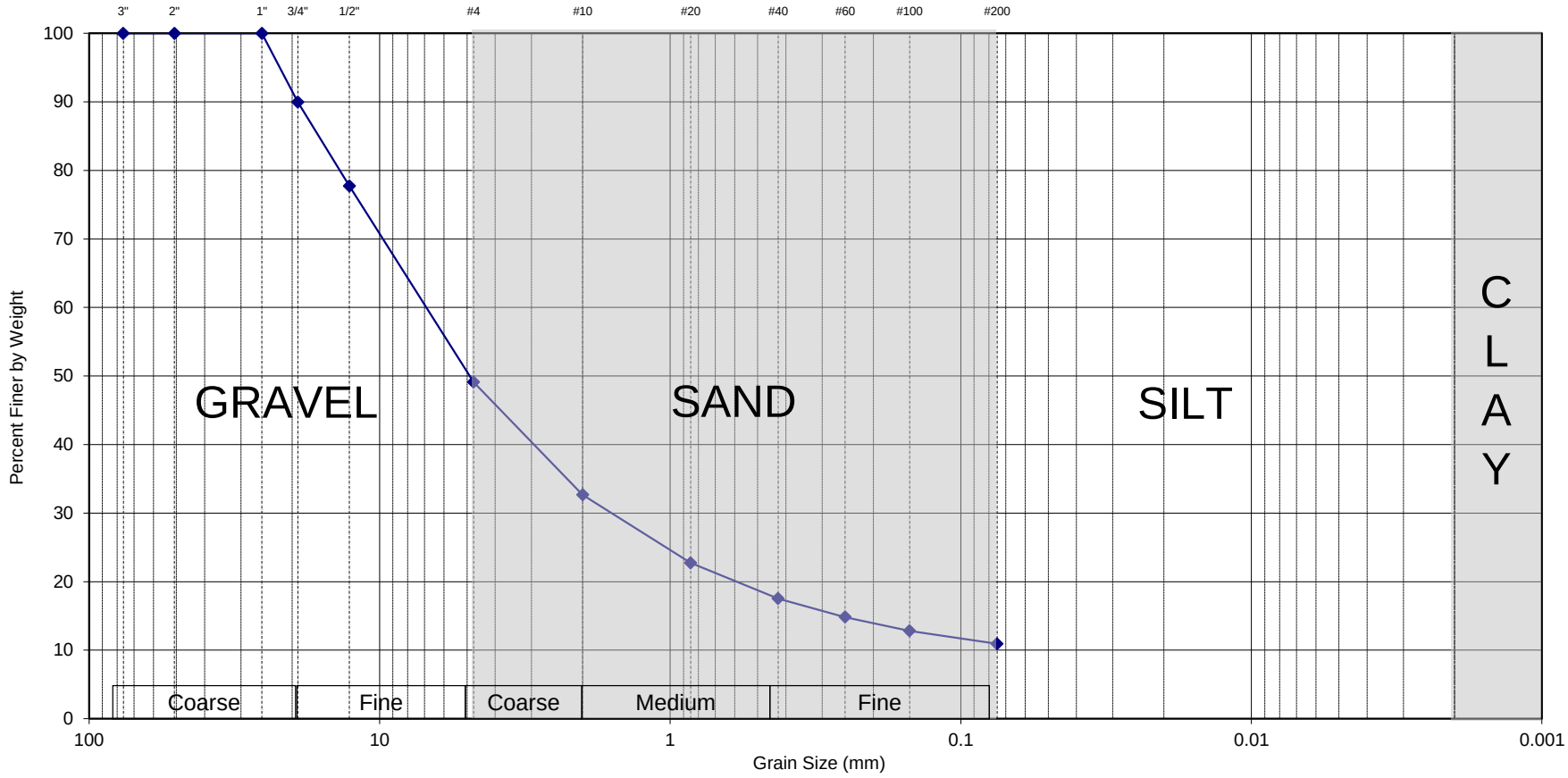
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
50.9%	38.2%	10.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
178	HB-PB-396	3D	5-5.6'	Gray sandy f-c GRAVEL, little Silt (GP-GM)	2.9			

Sieve Size	% Passing
¾"	90.0
½"	77.7
#4	49.1
#10	32.7
#20	22.7
#40	17.5
#60	14.8
#100	12.8
#200	10.9

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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
35.1%	29.8%	35.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
180	HB-PB-397	3D	4-6'	Brown silty f-c GRAVEL, some f-c Sand (GM)	16.7			

Sieve Size	% Passing
¾"	93.1
½"	81.0
#4	64.9
#10	56.3
#20	49.3
#40	44.8
#60	41.8
#100	38.8
#200	35.2

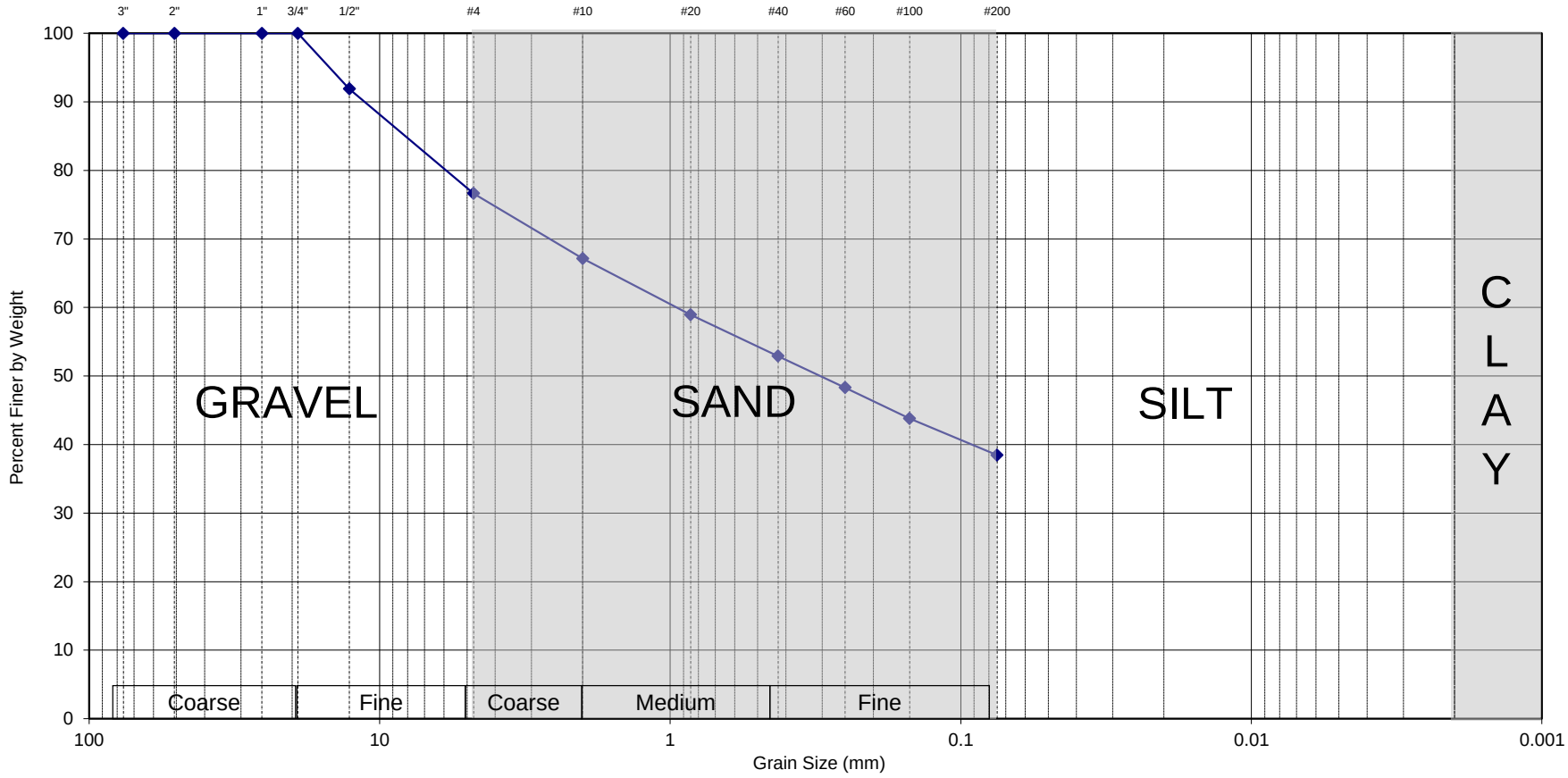
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.4%	38.2%	38.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
181	HB-PB-398	1D	0-2'	Brown silty f-c SAND, some fine Gravel (SM)	34.3			

Sieve Size	% Passing
¾"	100.0
½"	91.9
#4	76.6
#10	67.2
#20	58.9
#40	52.9
#60	48.3
#100	43.8
#200	38.5

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State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-399		2D	2-4	182		23.4					
HB-PB-399		3D	4-6	183		9.6			SM	A-4	IV
HB-PB-400		3D	5-6.7	184		19.3			SM	A-4	IV
HB-PB-401		2D	2-4	185		12.7			SM	A-4	IV
HB-PB-402		1D	0-2	186		27.6					
HB-PB-402		4D	10-11.6	187		18.2			SM	A-1-a	II
HB-PB-403		3D	5-6.3	188		8.1			SM	A-1-b	II
HB-PB-404		1D	0-2	189		21.4					
HB-PB-404		3D	4-6	190		18.8			ML	A-4	IV
HB-PB-405		3D	5-6.3	191		6.1			GP-GM	A-1-a	0
HB-PB-406		2D	2-4	192		10.6			GM	A-1-b	I
HB-PB-407		1D	0-2	193		29.5			SM	A-4	IV
HB-PB-408		1D	0-2	194		43.3			GM	A-4	III

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

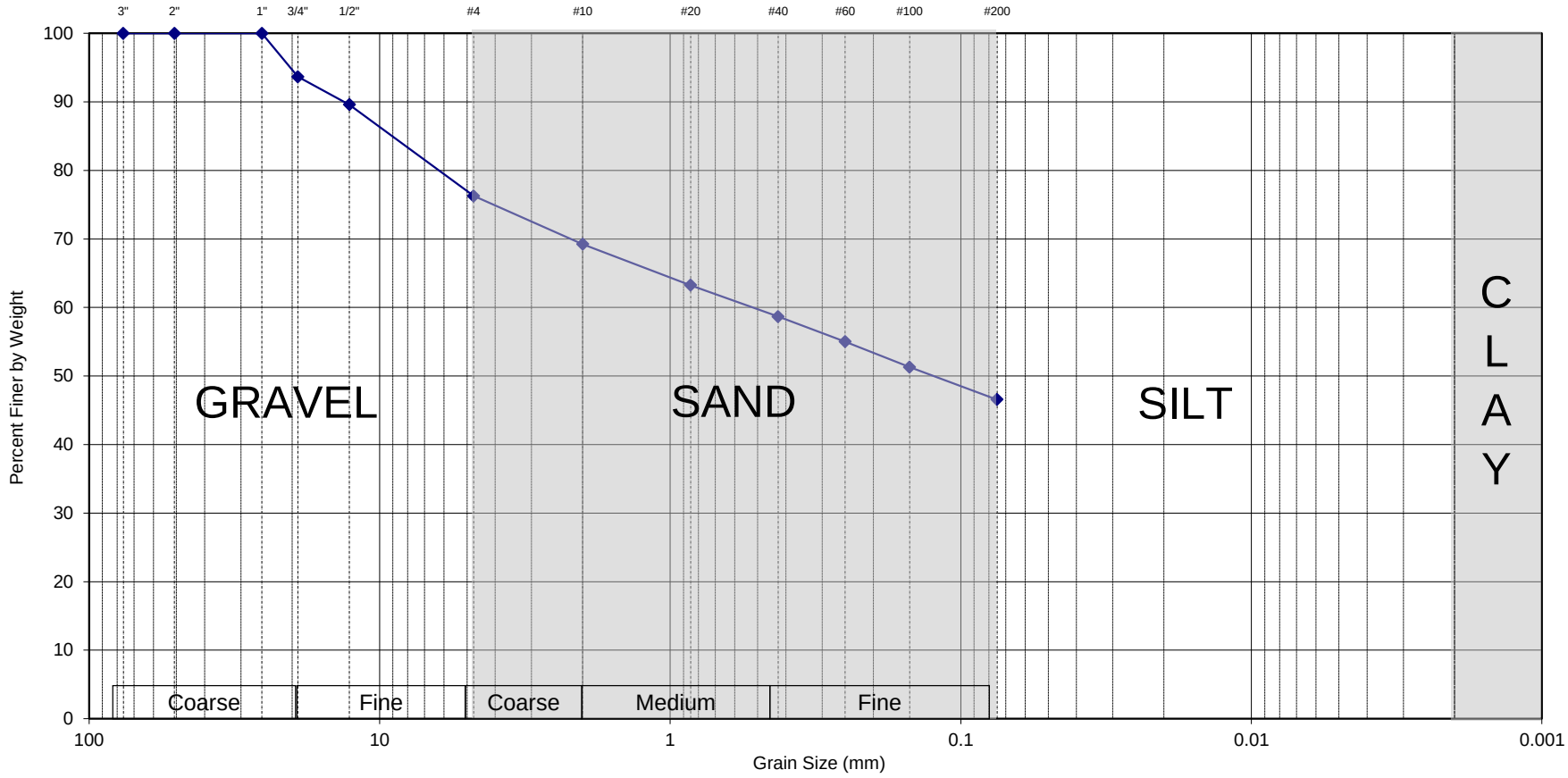
WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
23.7%	29.7%	46.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
183	HB-PB-399	3D	4-6'	Brown silty f-c SAND, some f-c Gravel (SM)	9.6			

Sieve Size	% Passing
¾"	93.7
½"	89.6
#4	76.3
#10	69.2
#20	63.2
#40	58.7
#60	55.0
#100	51.3
#200	46.6

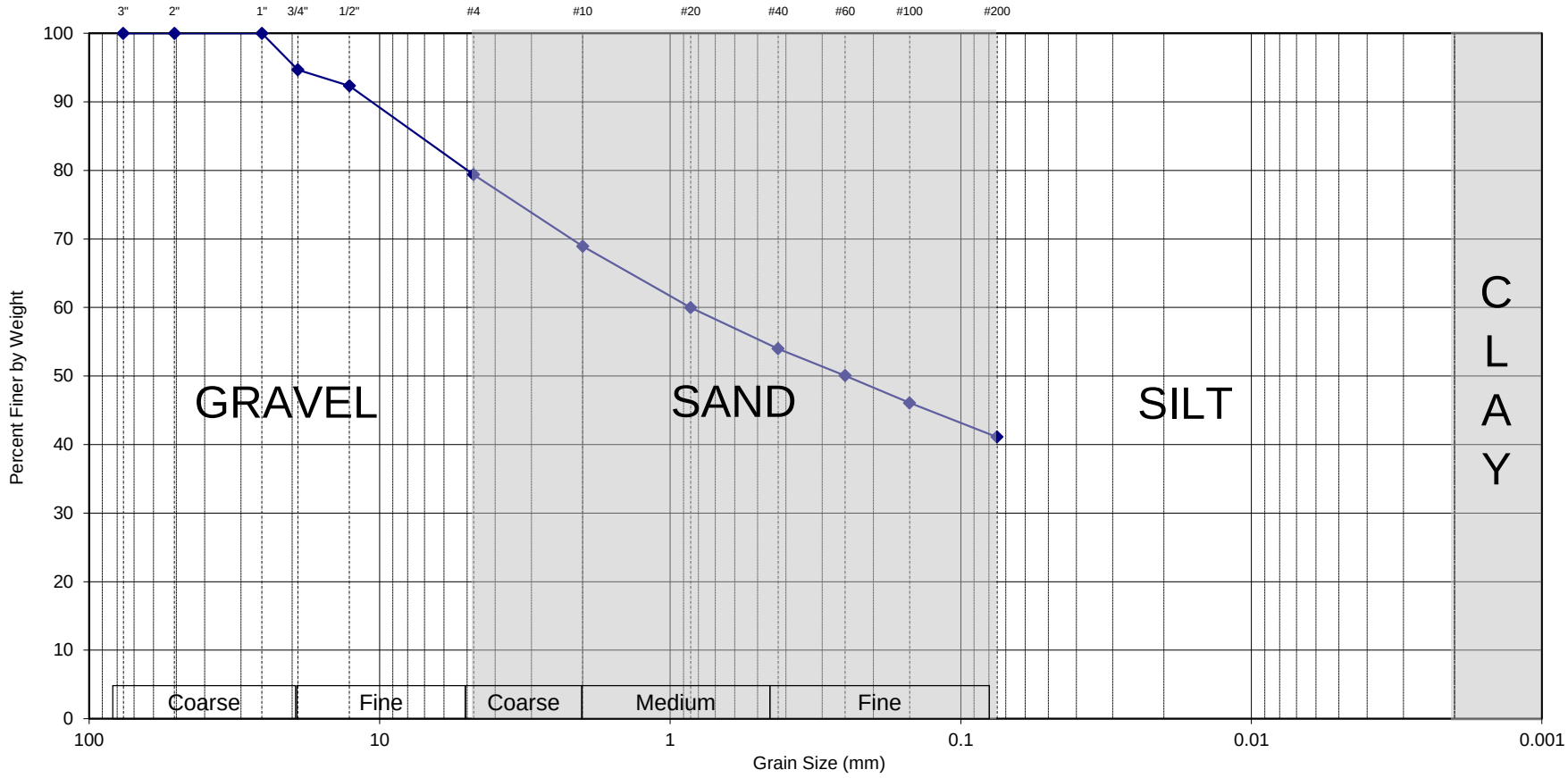
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.6%	38.3%	41.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
184	HB-PB-400	3D	5-6.7'	Brown silty f-c SAND, some f-c Gravel (SM)	19.3			

Sieve Size	% Passing
¾"	94.7
½"	92.3
#4	79.4
#10	68.9
#20	60.0
#40	54.0
#60	50.0
#100	46.1
#200	41.1

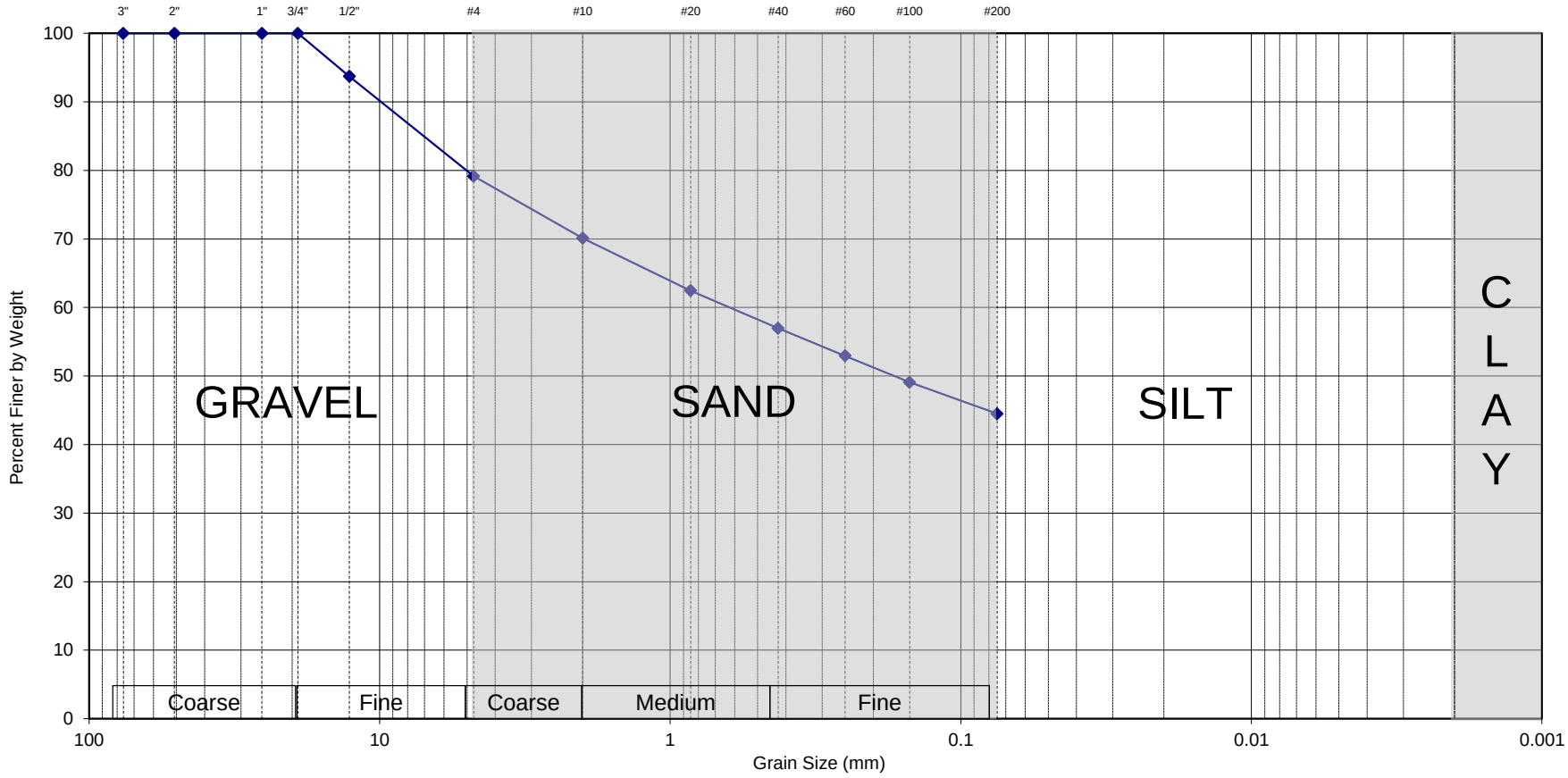
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.8%	34.7%	44.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
185	HB-PB-401	2D	2-4'	Brown silty f-c SAND, some fine Gravel (SM)	12.7			

Sieve Size	% Passing
¾"	100.0
½"	93.7
#4	79.2
#10	70.1
#20	62.4
#40	57.0
#60	52.9
#100	49.1
#200	44.5

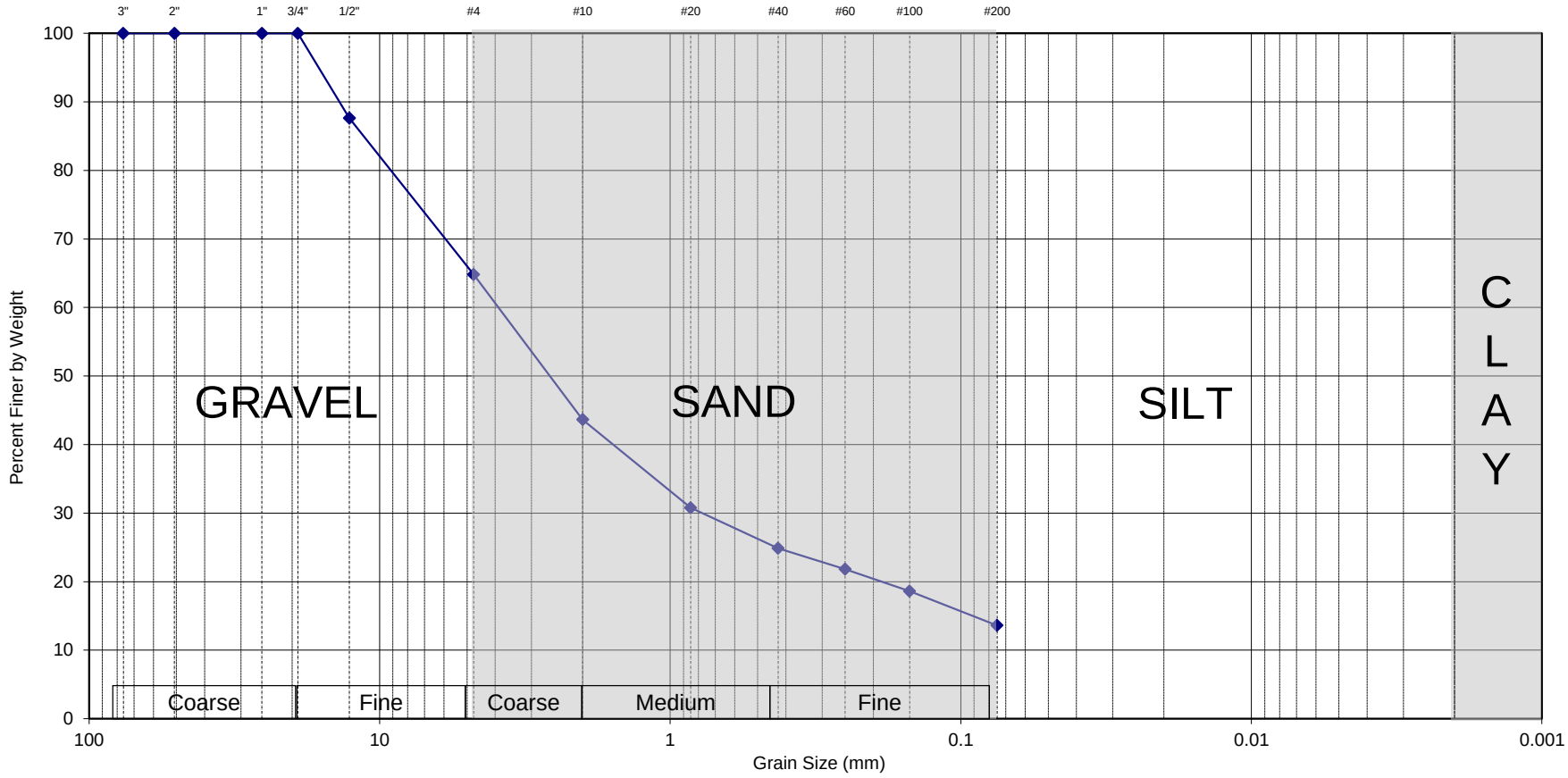
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
35.2%	51.2%	13.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
187	HB-PB-402	D4	10-11.6'	Gray-brown gravelly f-c SAND, little Silt (SM)	18.2			

Sieve Size	% Passing
¾"	100.0
½"	87.6
#4	64.8
#10	43.6
#20	30.8
#40	24.9
#60	21.8
#100	18.6
#200	13.6

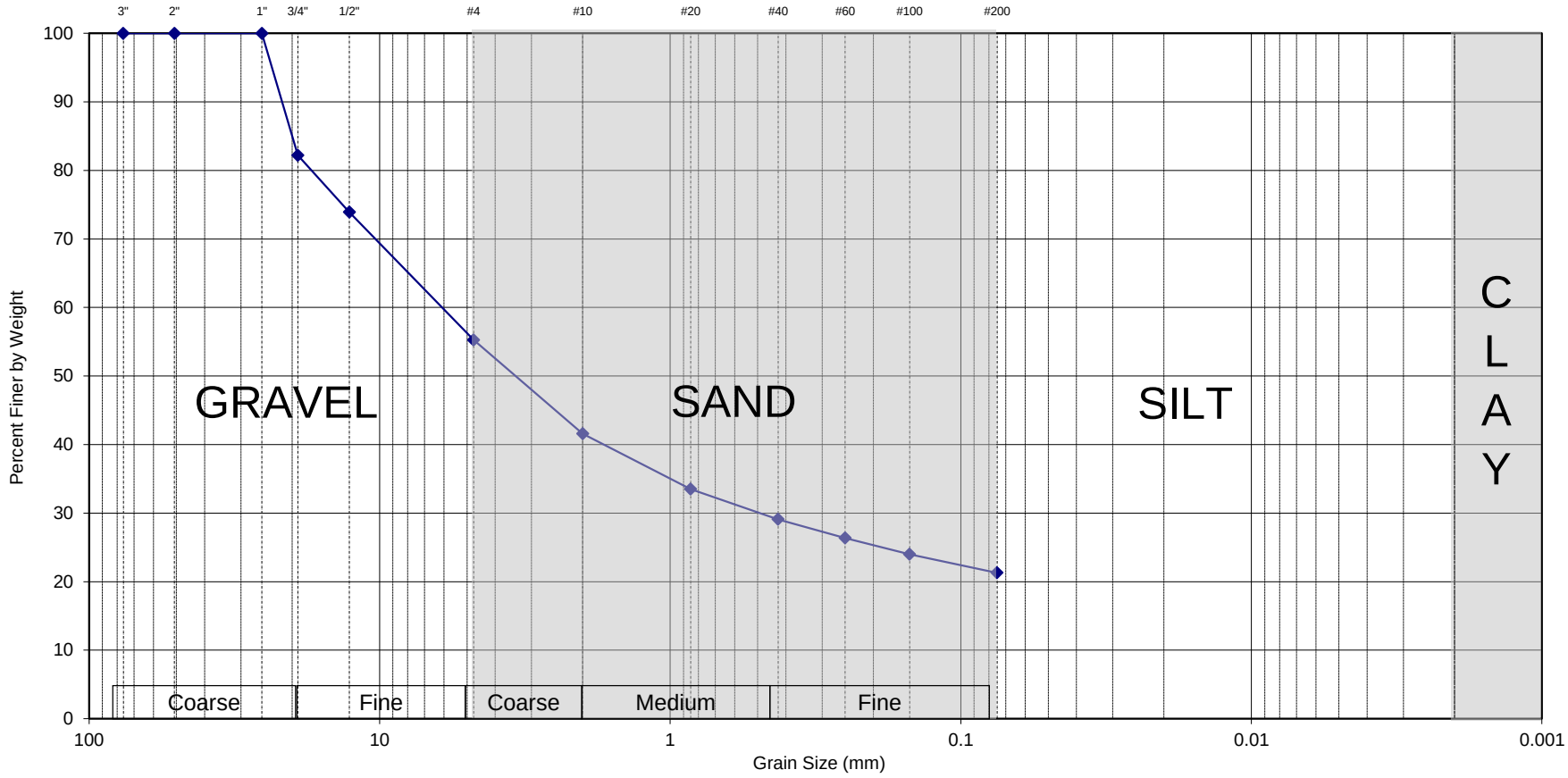
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U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
44.7%	34.0%	21.3%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
188	HB-PB-403	D3	5-6.3'	Brown f-c GRAVEL, some f-c Sand, some Silt (SM)	8.1			

Sieve Size	% Passing
¾"	82.2
½"	73.9
#4	55.3
#10	41.6
#20	33.5
#40	29.1
#60	26.4
#100	24.0
#200	21.3

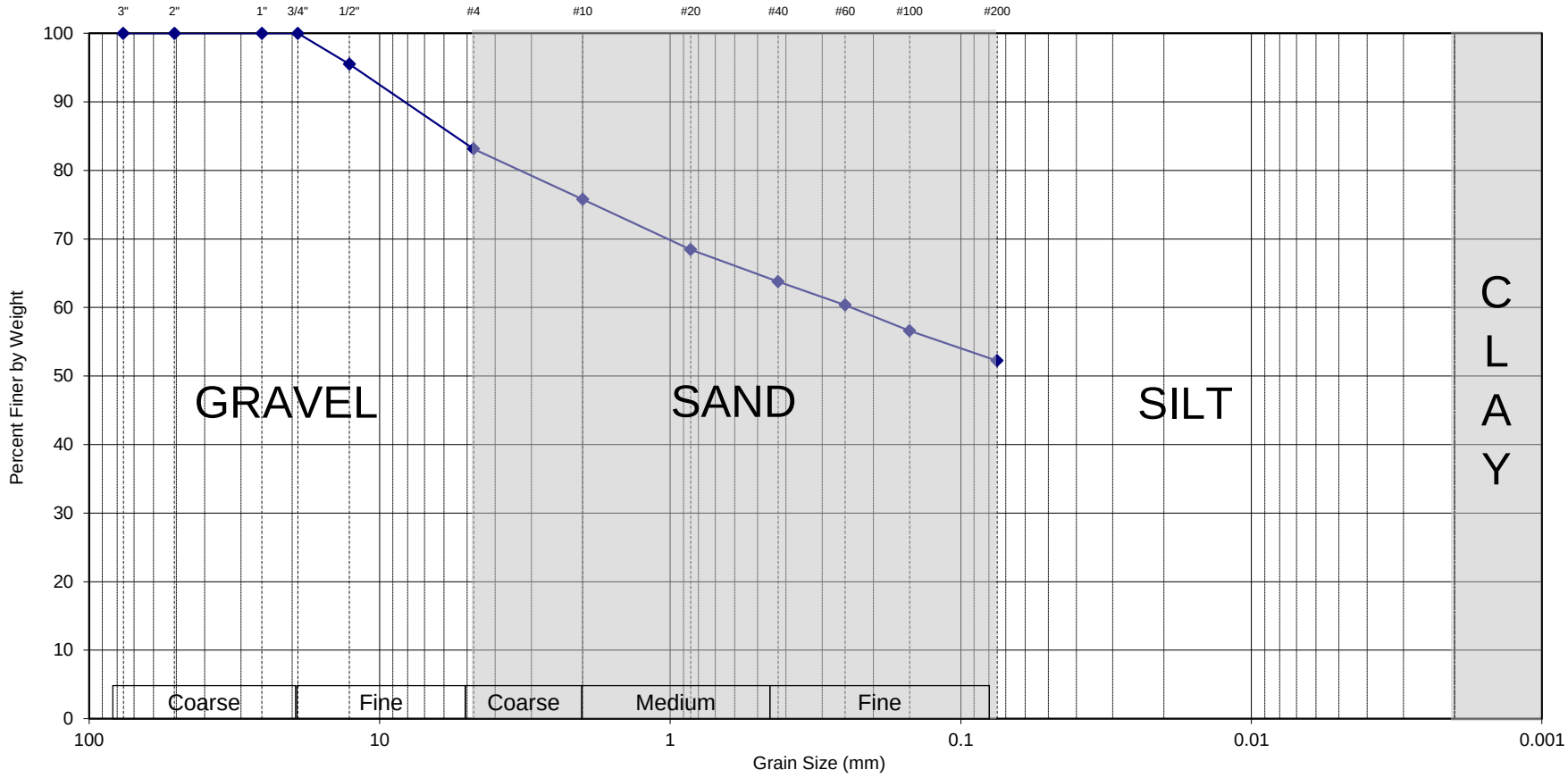
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
16.9%	30.9%	52.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
190	HB-PB-404	D3	4-6'	Brown SILT, some f-c Sand, little fine Gravel (ML)	18.8			

Sieve Size	% Passing
¾"	100.0
½"	95.5
#4	83.1
#10	75.8
#20	68.4
#40	63.8
#60	60.3
#100	56.6
#200	52.2

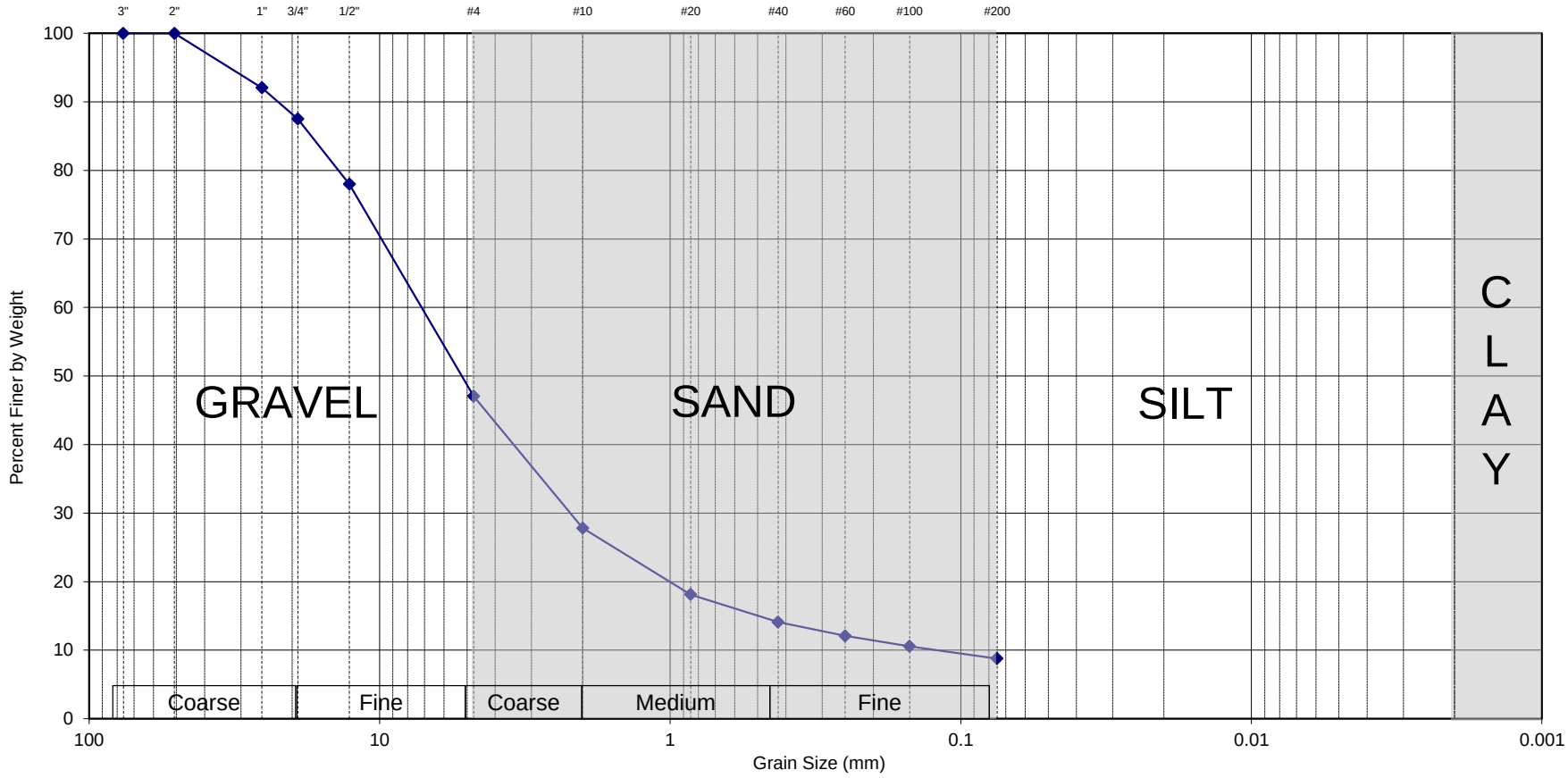
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ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
53.0%	38.3%	8.8%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
191	HB-PB-405	D3	5-6.3'	Gray-brown sandy f-c GRAVEL, trace Silt (GP-GM)	6.1			

Sieve Size	% Passing
¾"	87.5
½"	78.0
#4	47.0
#10	27.8
#20	18.1
#40	14.1
#60	12.1
#100	10.5
#200	8.8

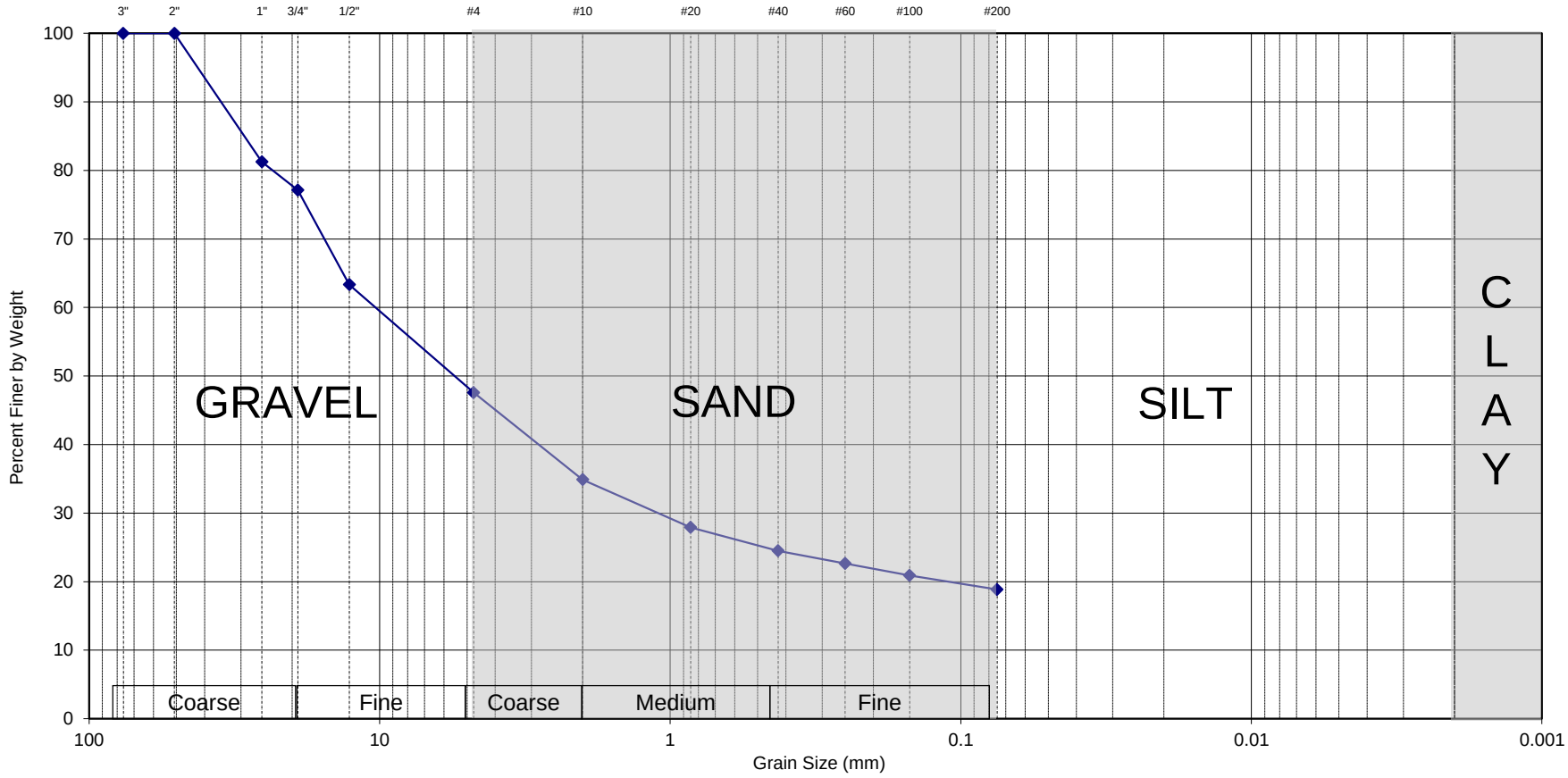
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/22/15
Reviewed by: MBP Date: 6/22/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
52.4%	28.7%	18.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
192	HB-PB-406	D2	2-4'	Gray-brown f-c GRAVEL, some f-c Sand, little Silt (GM)	10.6			

Sieve Size	% Passing
¾"	77.1
½"	63.3
#4	47.6
#10	34.9
#20	27.9
#40	24.5
#60	22.6
#100	20.9
#200	18.9

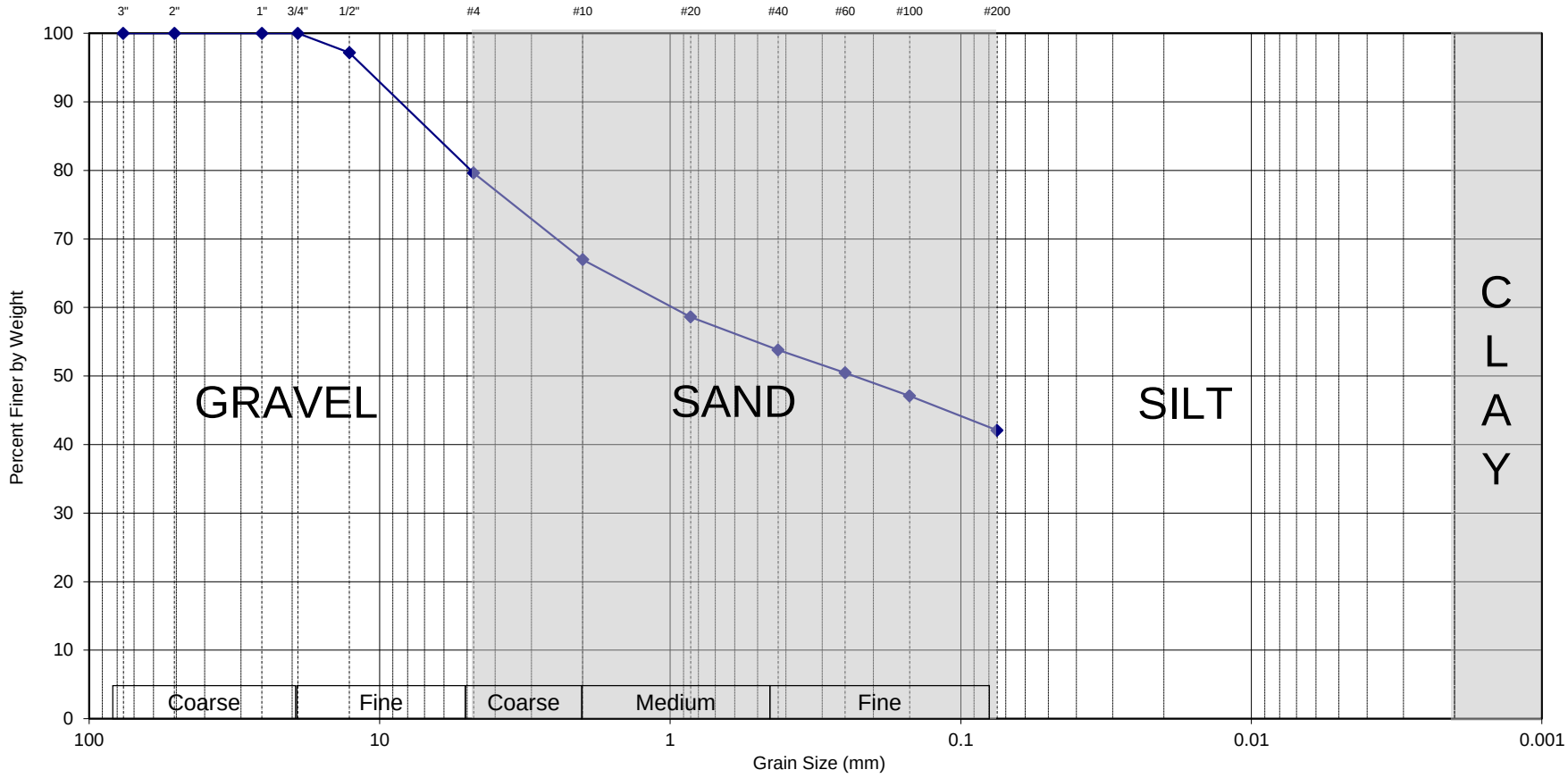
THIELSCH ENGINEERING
195 Frances Ave., Cranston, RI 02910
401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/22/15
Reviewed by: MBP Date: 6/22/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
20.4%	37.6%	42.1%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
193	HB-PB-407	D1	0-2'	Brown silty f-c SAND, some fine Gravel (SM)	29.5			

Sieve Size	% Passing
¾"	100.0
½"	97.2
#4	79.6
#10	67.0
#20	58.6
#40	53.8
#60	50.4
#100	47.1
#200	42.1

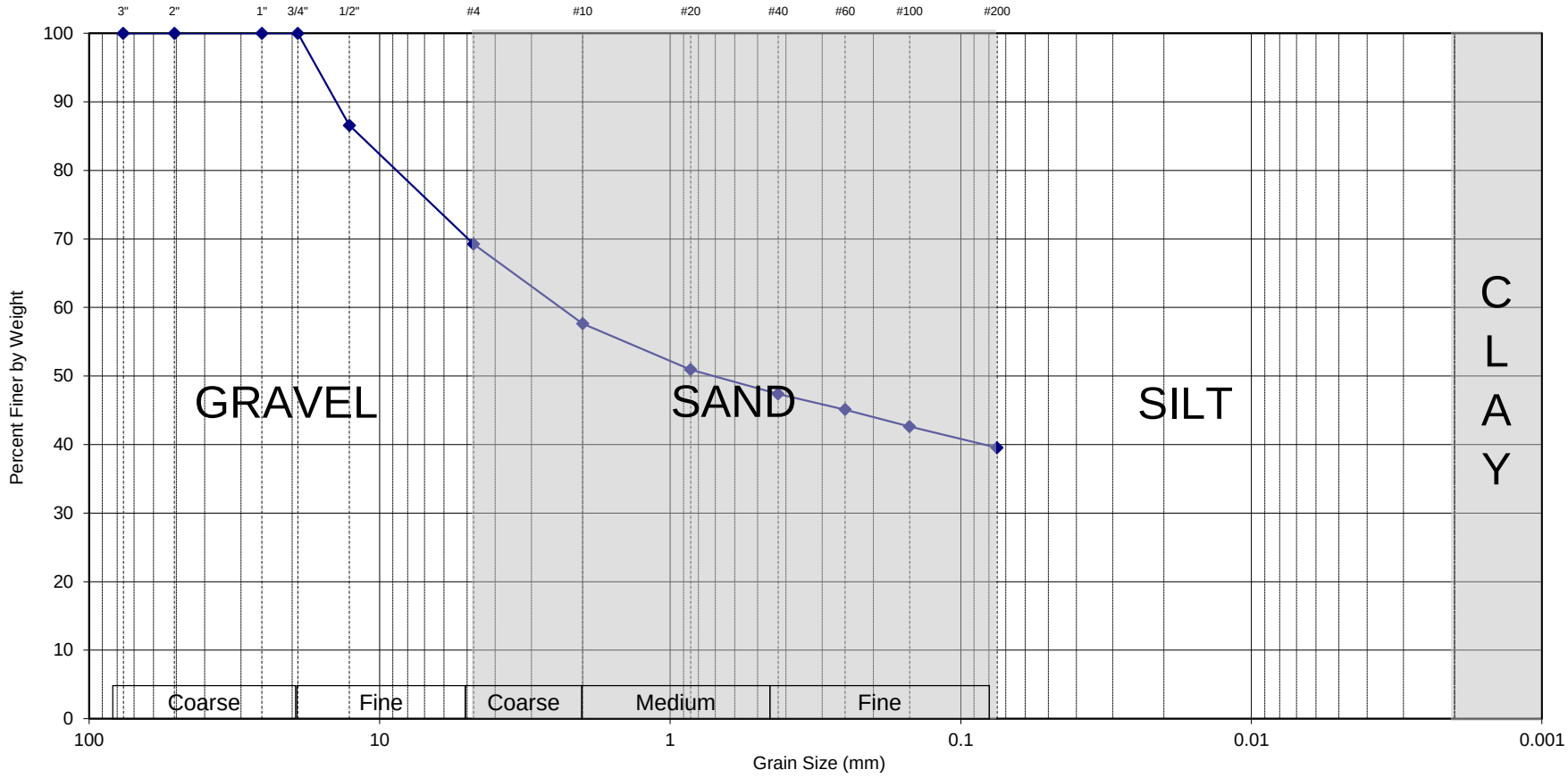
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/22/15
Reviewed by: MBP Date: 6/22/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
30.8%	29.7%	39.5%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
194	HB-PB-408	D1	0-2'	Brown silty fine GRAVEL, some f-c Sand (GM)	43.3			

Sieve Size	% Passing
¾"	100.0
½"	86.6
#4	69.2
#10	57.6
#20	50.9
#40	47.4
#60	45.1
#100	42.6
#200	39.5

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/22/15
Reviewed by: MBP Date: 6/22/15

THIELSCH ENGINEERING

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-PB-412		3D	5-7	195		16.6					
HB-PB-418		2D	2-4	196		20.7					
HB-PB-422		1D	0-2	197		16.0			GM	A-4	III
HB-PB-423		2D	2-4	198		22.0			SM	A-4	II
HB-PB-425		2D	2-4	199		23.8			SM	A-4	II
HB-PB-426		3D	5-5.9	200		3.7			GP-GM	A-1-a	0
HB-PB-427		1D	0-2	201		13.0			SM	A-1-b	II
HB-PB-430		2D	2-4	202		16.8					
HB-PB-433		3D	5-7	203		13.0			CL	A-4/A-6	IV
HB-PB-435		1D	0-2	204		17.9	28	11	CL	A-4	IV
HB-PB-436		1D	0-2	205		14.2			CL-ML	A-4	IV
HB-PB-437		3D	4-6	206		5.0			GM	A-1-b	II
HB-PB-438		2D	2-4	207		12.8			CL	A-4/A-6	IV

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
37.0%	25.7%	37.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
197	HB-PB-422	D1	0-2'	Brown silty f-c GRAVEL, some f-c Sand (GM)	16.0			

Sieve Size	% Passing
¾"	87.9
½"	76.0
#4	63.0
#10	55.6
#20	50.8
#40	47.3
#60	44.2
#100	41.0
#200	37.2

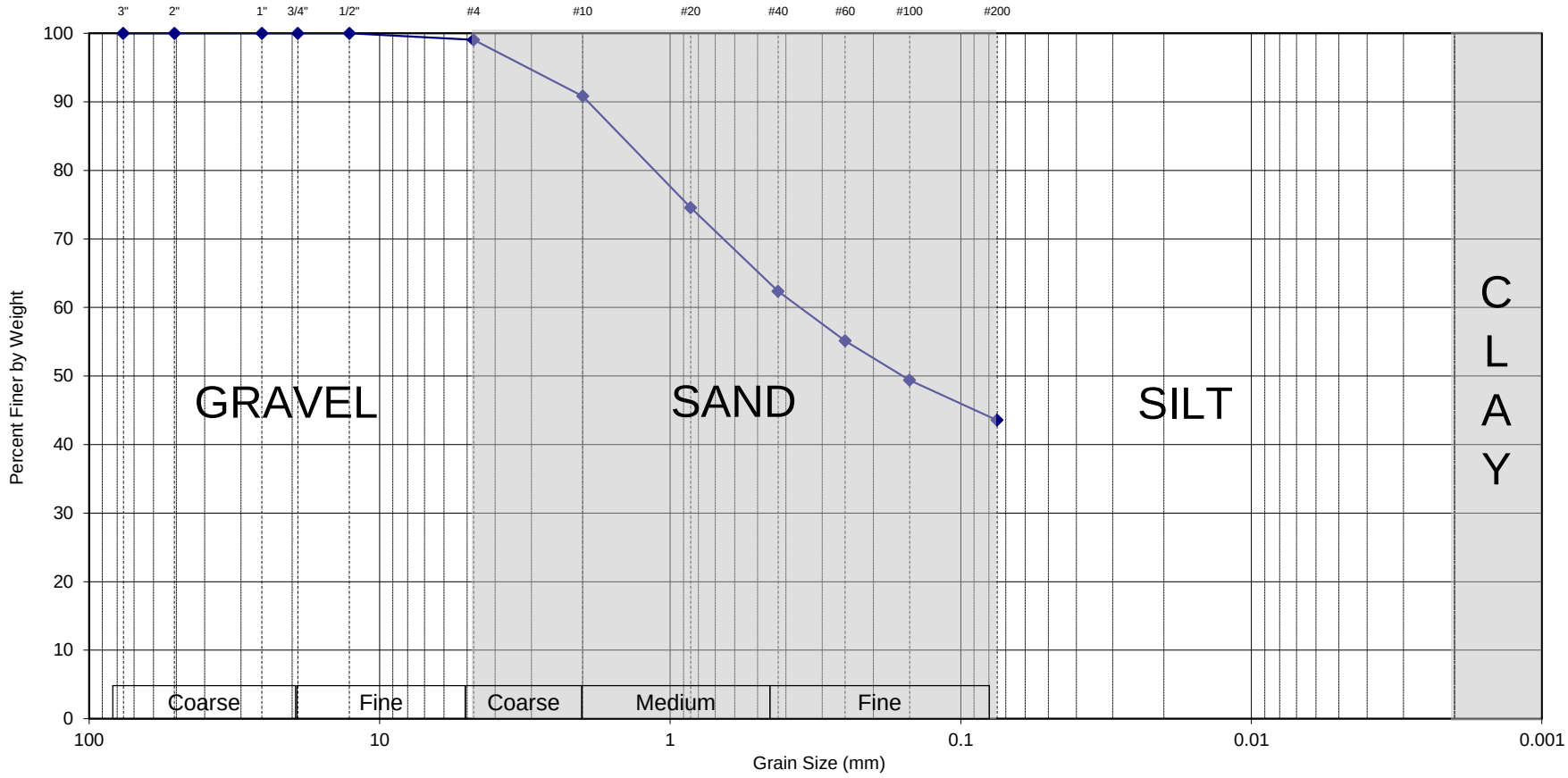
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195 Frances Ave., Cranston, RI 02910
401-467-6454

74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
1.0%	55.5%	43.6%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
198	HB-PB-423	2D	2-4'	Brown silty f-m SAND, trace Gravel (SM)	22.0			

Sieve Size	% Passing
¾"	100.0
½"	100.0
#4	99.0
#10	90.8
#20	74.6
#40	62.4
#60	55.1
#100	49.4
#200	43.6

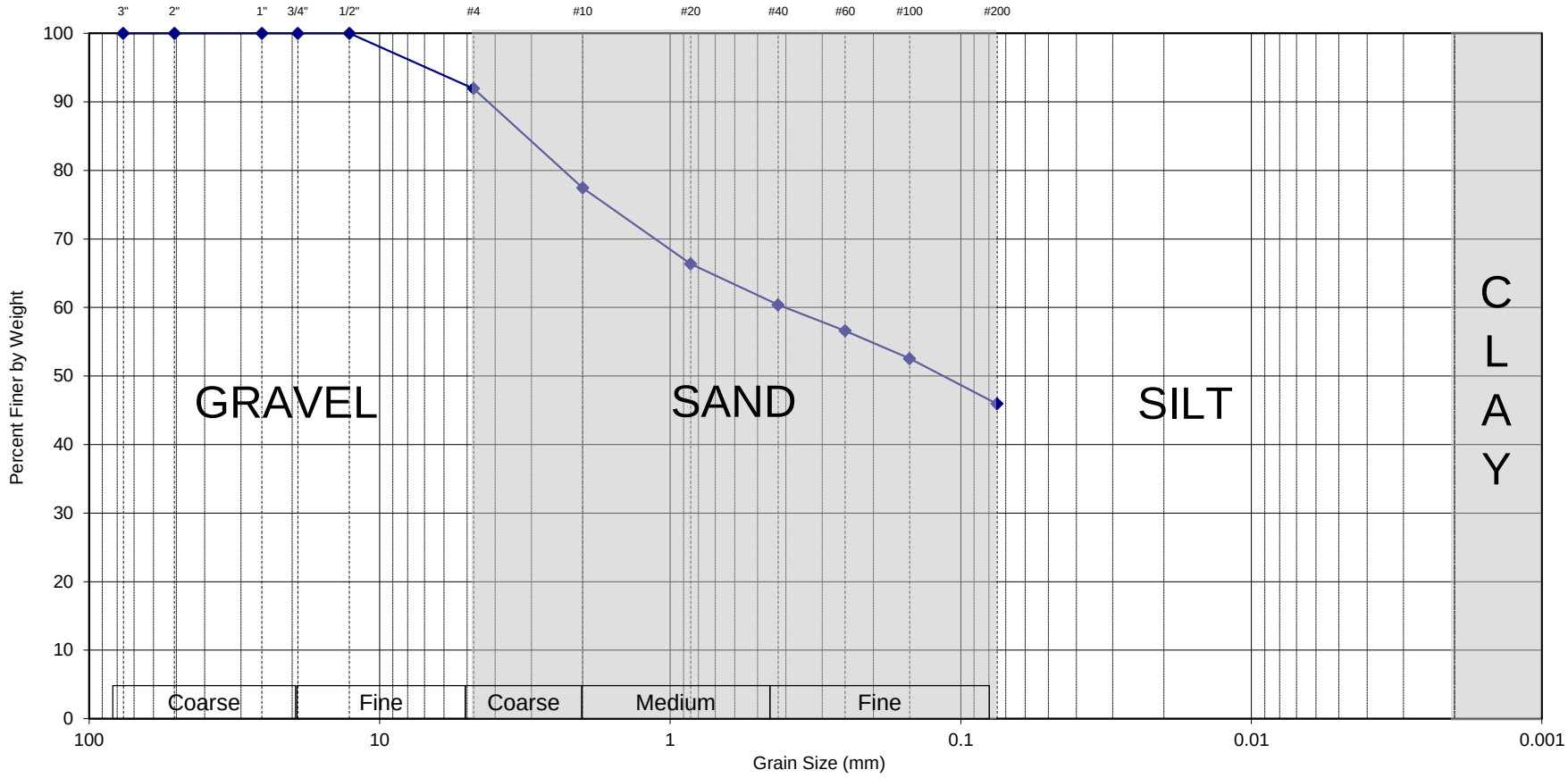
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
8.1%	46.0%	45.9%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
199	HB-PB-425	2D	2-4'	Brown silty f-c SAND, trace Gravel (SM)	23.8			

Sieve Size	% Passing
¾"	100.0
½"	100.0
#4	91.9
#10	77.5
#20	66.4
#40	60.4
#60	56.6
#100	52.5
#200	45.9

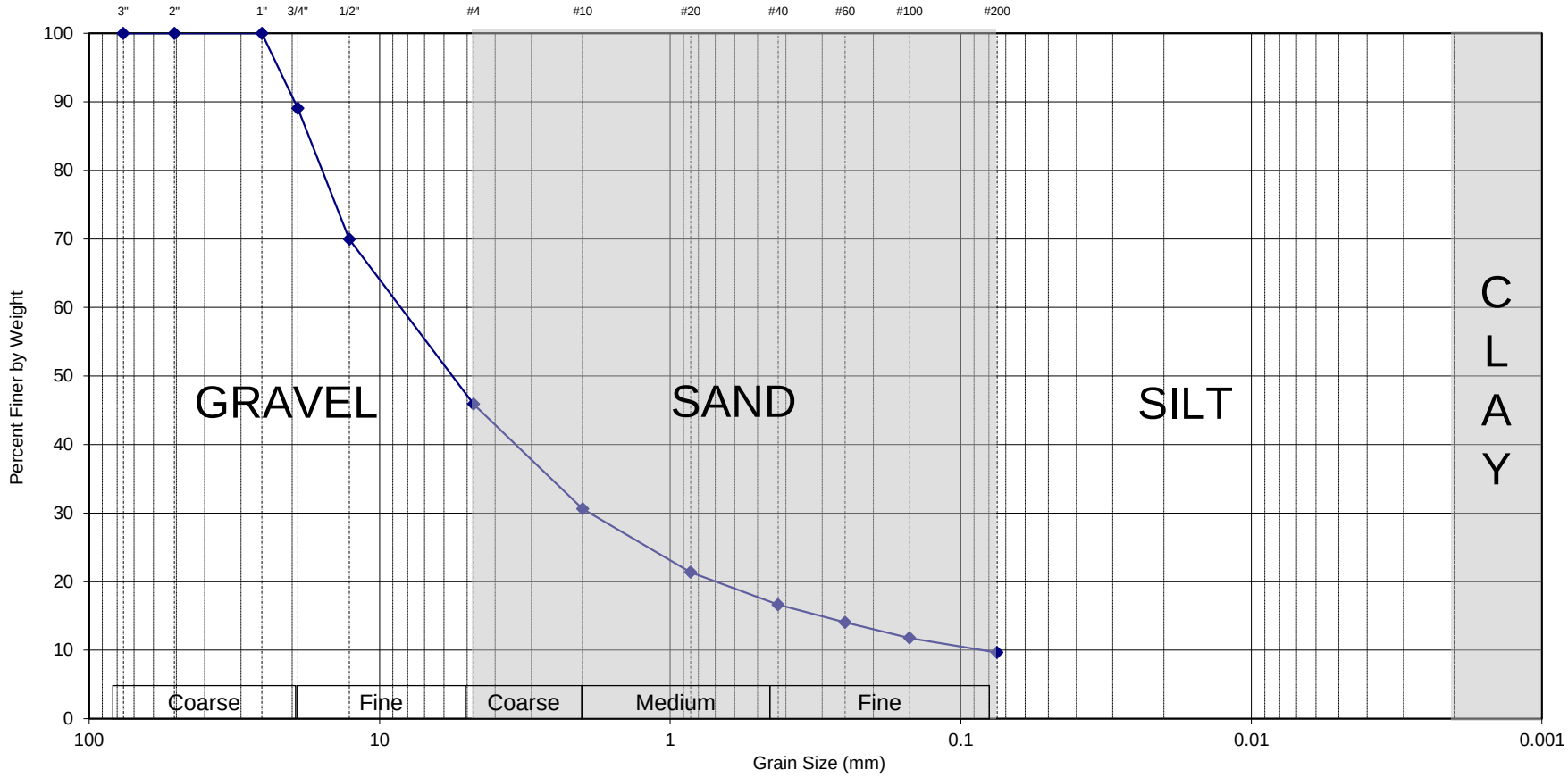
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
54.1%	36.2%	9.7%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
200	HB-PB-426	3D	5-5.9'	Gray-brown Sandy f-c GRAVEL, trace Silt (GP-GM)	3.7			

Sieve Size	% Passing
¾"	89.0
½"	70.0
#4	45.9
#10	30.6
#20	21.4
#40	16.6
#60	14.0
#100	11.8
#200	9.7

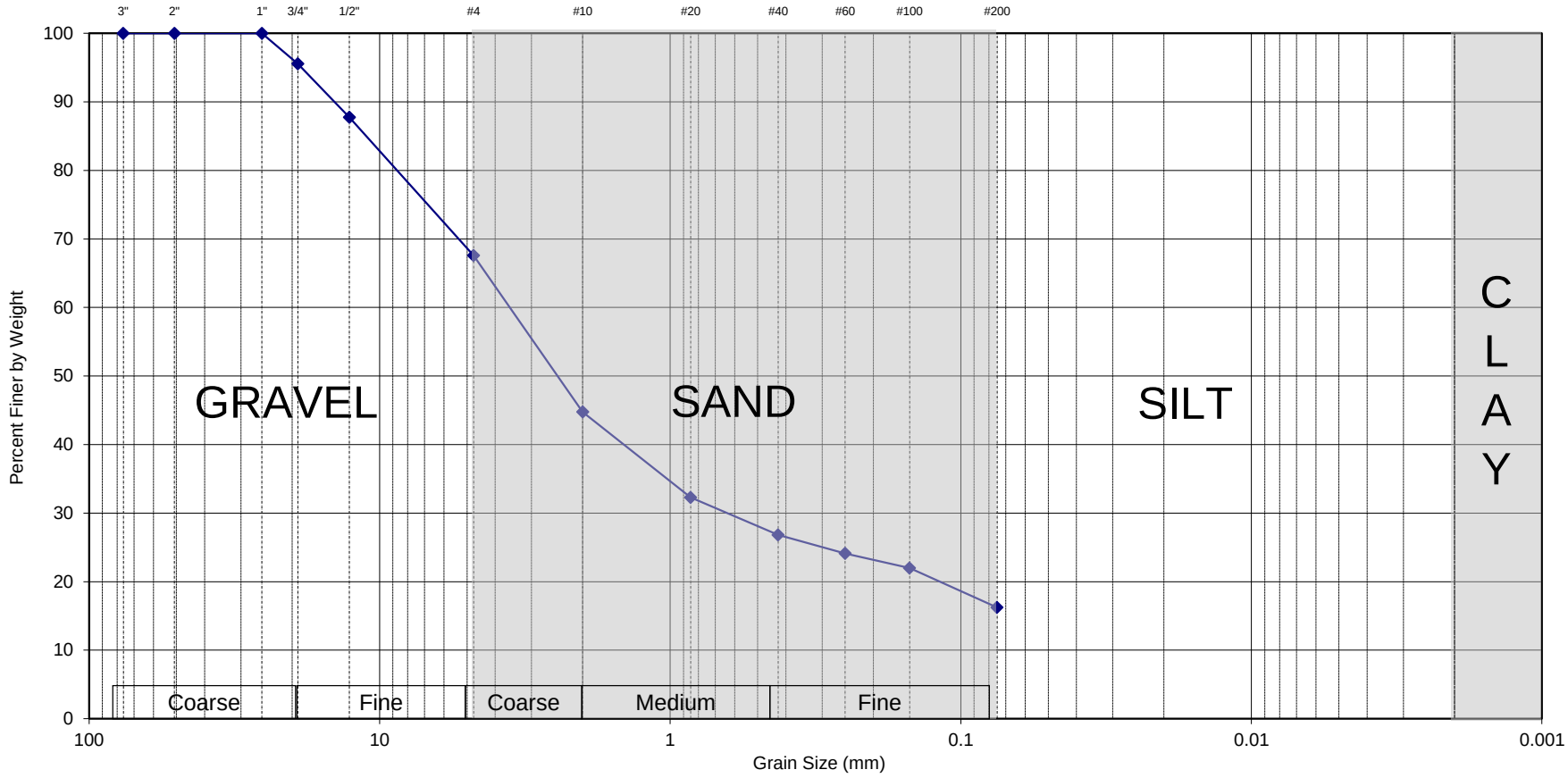
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
32.4%	51.4%	16.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
201	HB-PB-427	1D	0-2'	Brown f-c SAND, some f-c Gravel, little Silt (SM)	13.0			

Sieve Size	% Passing
¾"	95.5
½"	87.7
#4	67.6
#10	44.7
#20	32.3
#40	26.8
#60	24.1
#100	22.0
#200	16.2

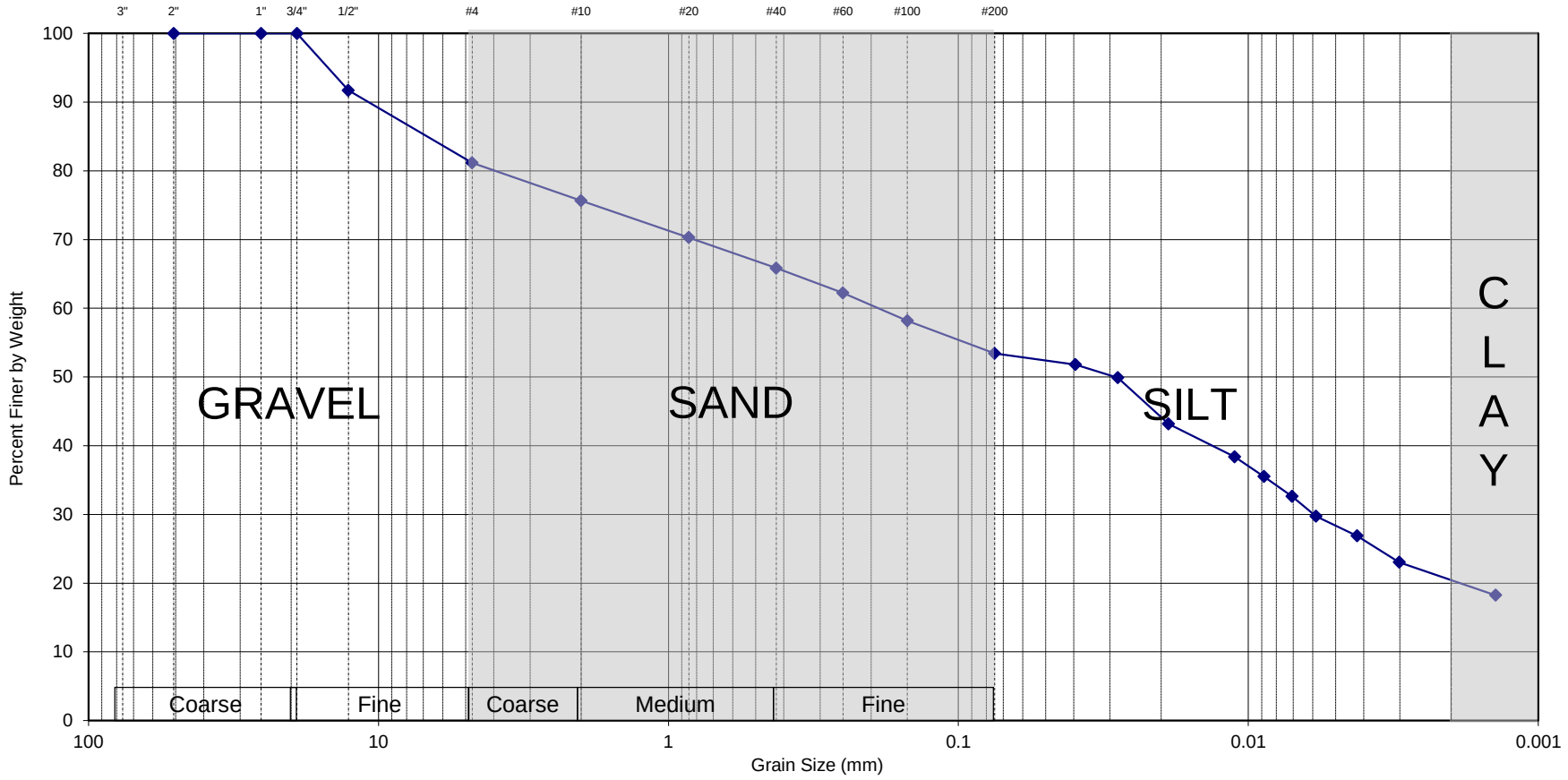
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
18.8%	27.7%	53.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
203	HB-PB-433	3D	5-7'	Brown lean CLAY, some f-c Sand, little fine Gravel (CL)	13.0			

Sieve Size	% Passing
¾"	100.0
½"	91.7
#4	81.2
#10	75.7
#20	70.3
#40	65.8
#60	62.2
#100	58.2
#200	53.4

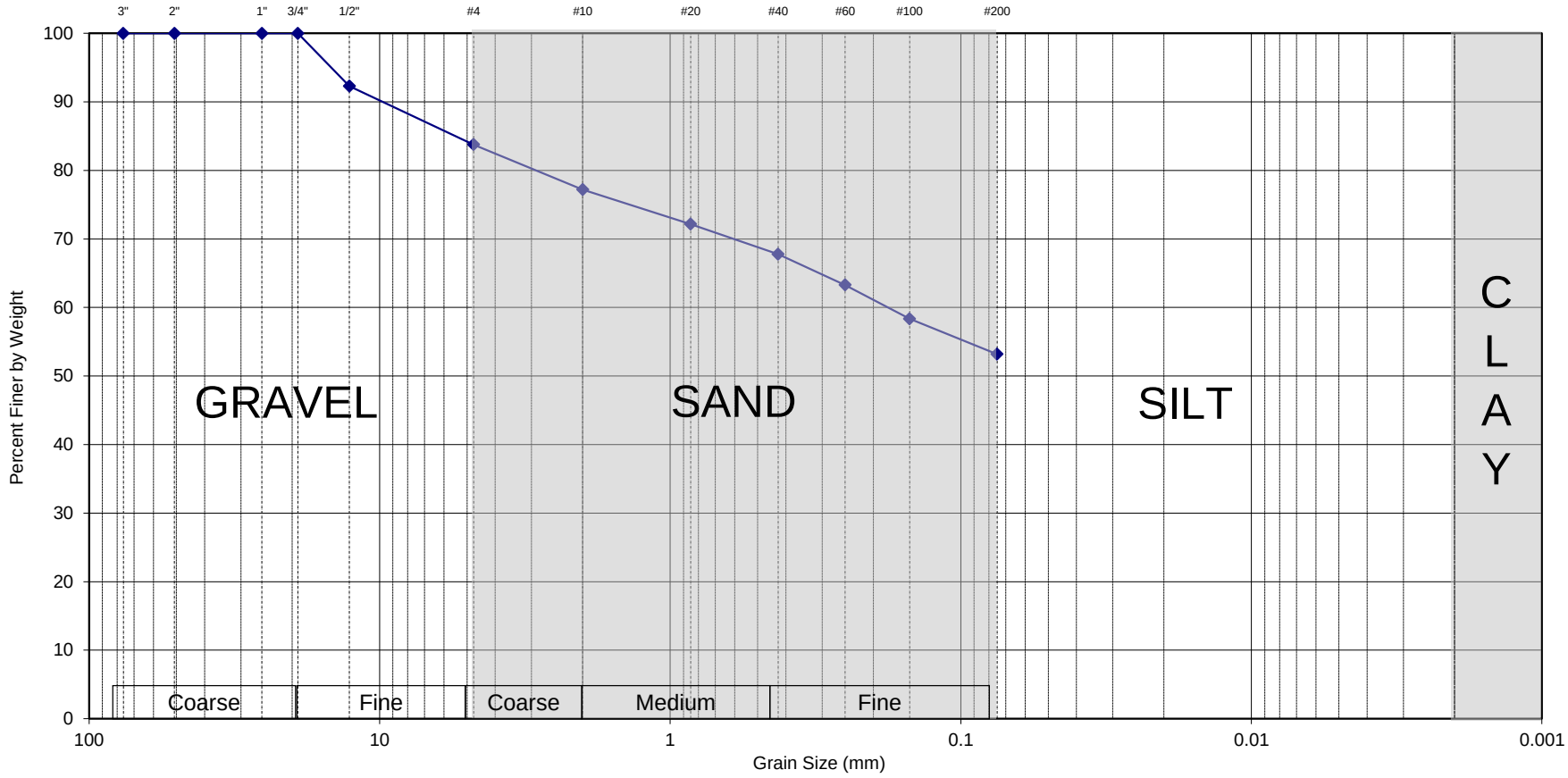
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/17/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
16.2%	30.6%	53.2%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
205	HB-PB-436	1D	0-2'	Gray-brown Lean CLAY, some f-c Sand, little fine Gravel (CL-ML)	14.2			

Sieve Size	% Passing
¾"	100.0
½"	92.3
#4	83.8
#10	77.2
#20	72.2
#40	67.8
#60	63.3
#100	58.3
#200	53.2

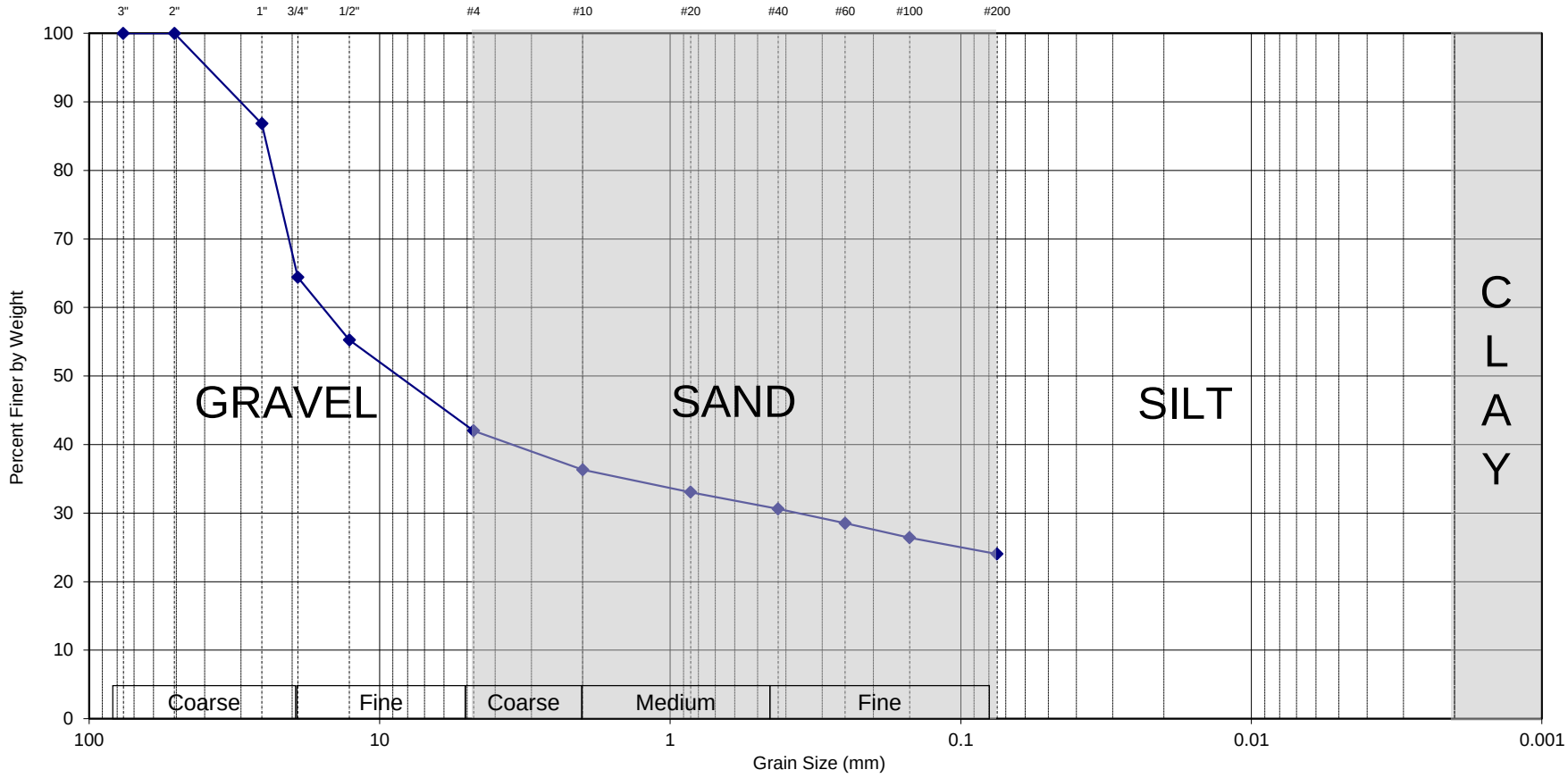
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
58.0%	18.0%	24.0%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
206	HB-PB-437	3D	4-6'	Gray-brown f-c GRAVEL, soe Silt, little f-c Sand (GM)	5.0			

Sieve Size	% Passing
¾"	64.4
½"	55.3
#4	42.0
#10	36.3
#20	33.1
#40	30.6
#60	28.5
#100	26.4
#200	24.0

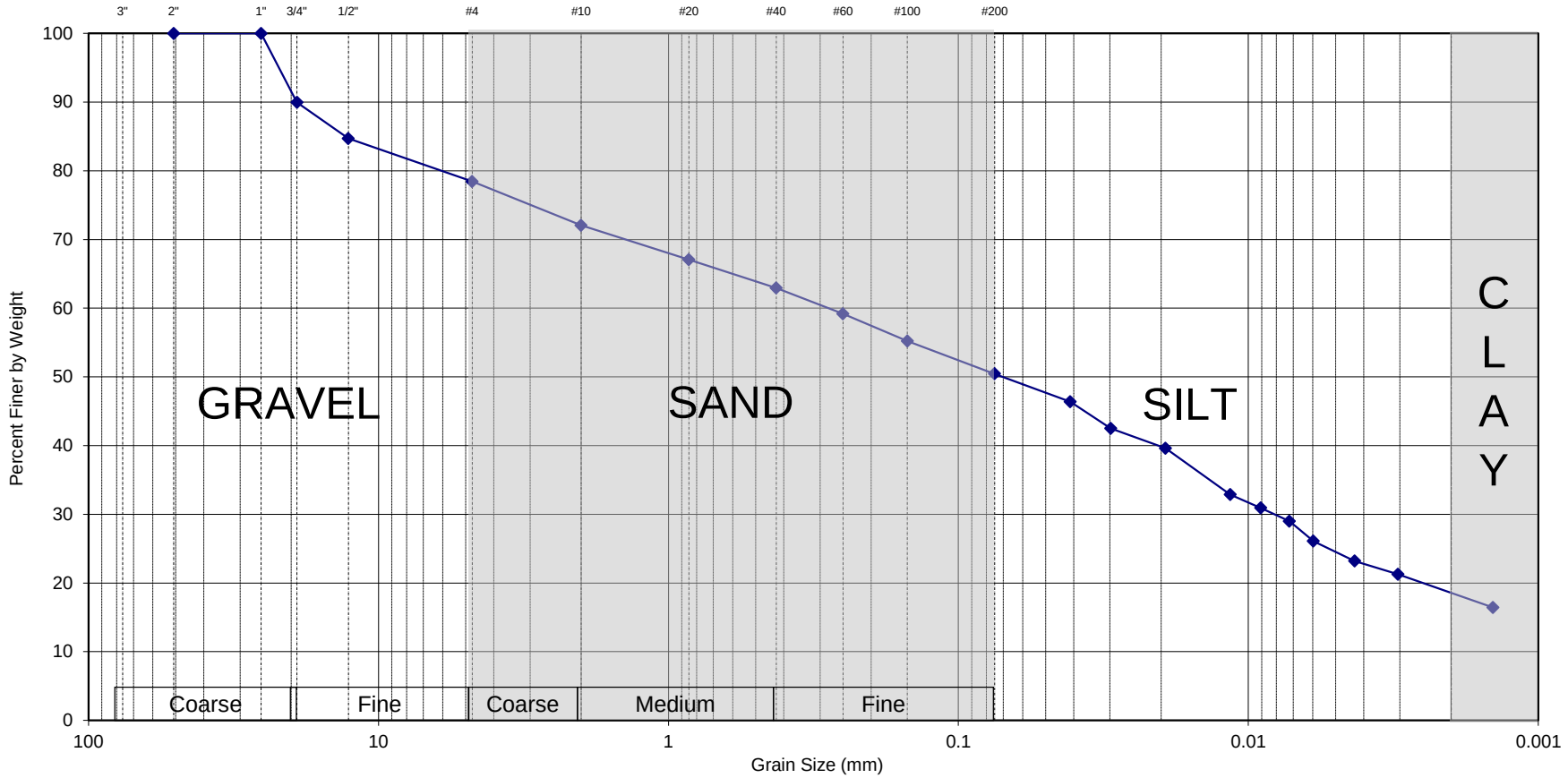
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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: AS/MS Date: 6/23/15
Reviewed by: MBP Date: 6/24/15

ASTM D422

U.S. STANDARD SIEVE AND HYDROMETER



Gravel	Sand	Fines
21.6%	28.0%	50.4%

Lab #	Exploration	Sample	Depth	Description	WC	LL	PL	PI
207	HB-PB-438	2D	2-4'	Brown lean CLAY, some f-c Sand, some f-c Gravel (CL)	12.8			

Sieve Size	% Passing
¾"	90.0
½"	84.7
#4	78.4
#10	72.1
#20	67.1
#40	62.9
#60	59.2
#100	55.2
#200	50.4

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74-15-0003
Presque Isle Bypass Segment 1
Presque Isle, ME
GZA Project # 09.0025832.03

Tested by: GG/MS Date: 6/2/15
Reviewed by: MBP Date: 6/17/15

THIELSCH ENGINEERING

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
BB-PB-301		3D	5-7	208		18.3			GM	A-2-4	II
BB-PB-302		2D	2-4	209		16.8			GM	A-1-b	I
BB-PB-305		2D	2-4	210		29.4			SM	A-4	II
BB-PB-306		3D	5-7	211		7.0			GM	A-1-a	0
BB-PB-311		3D	5-7	212		10.9			GM	A-1-b	I
BB-PB-312		2D	2-3.3	213		12.2			SM	A-1-b	II
BB-PB-313		2D	2-4	214		16.7			GM	A-4	III
BB-PB-314		1D	0-2	215		32.0			GM	A-1-b	II
BB-PB-315		2D	2-4	216		17.1			ML	A-4	IV
BB-PB-321		3D	5-7	217		8.9			SM	A-1-b	II
BB-PB-323		1D	0-2	218		24.3			SM	A-4	IV
BB-PB-325		2D	2-4	219		11.8			GP-GM	A-1-a	0

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

THIELSCH ENGINEERING

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Presque Isle Bypass Segment 1

MDOT Project Number: 6462.92

GZA Project Number: 09.0025832.03

Town(s): Presque Isle, ME

Boring & Sample Identification Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
CB-PB-311		1D	0-2	220		33.0			SM	A-1-b	II
CB-PB-313		2D	2-3.8	221		12.7			GP-GM	A-1-a	0
CB-PB-314		2D	2-3.6	222		16.4			GM	A-1-b	I
CB-PB-321		2D	2-3.6	223		10.1			SP-SM	A-1-a	II
CB-PB-322		1D	0-2	224		43.9					IV
CB-PB-331		3D	5-7	225		9.1			SM	A-1-b	II
CB-PB-332		3D	5-7	226		8.6			SM	A-2-4	II
CB-PB-333		5D	15-16.1	227		8.9			SM	A-1-b	II
CB-PB-341		3D	5-7	228		9.0			GM	A-1-b	I
CB-PB-343		2D	2-4	229		18.8			SM	A-1-b	II
CB-PB-351		4D	10-12	230		10.7					II
CB-PB-352		3D	5-7	231		9.6					II

Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

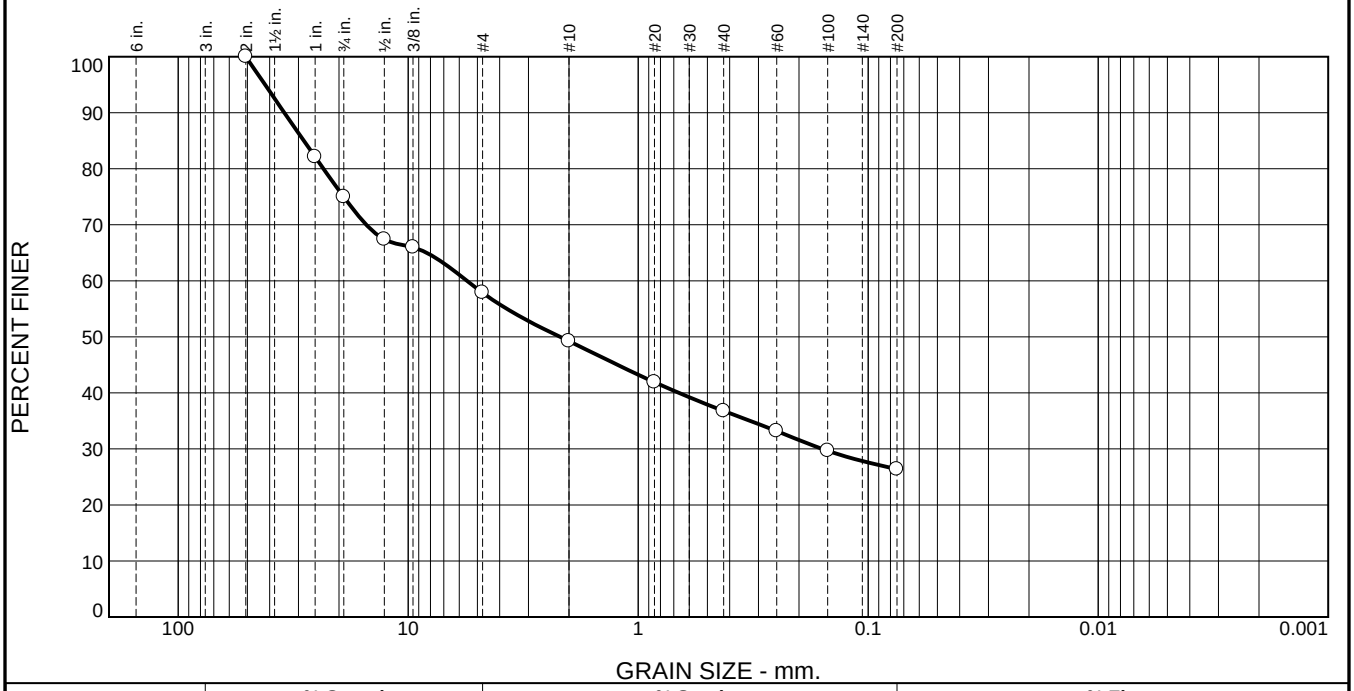
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.0	17.1	8.7	12.4	10.4	26.4	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	82.1		
0.75"	75.0		
.5"	67.4		
.375"	66.0		
#4	57.9		
#10	49.2		
#20	41.9		
#40	36.8		
#60	33.2		
#100	29.7		
#200	26.4		

* (no specification provided)

Material Description

Brown f-c GRAVEL, some f-c Sand, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 34.5350 D_{85}= 28.4237 D_{60}= 5.5482
D_{50}= 2.1855 D_{30}= 0.1583 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: BB-PB-301: 3D

Thielsch Engineering Inc.

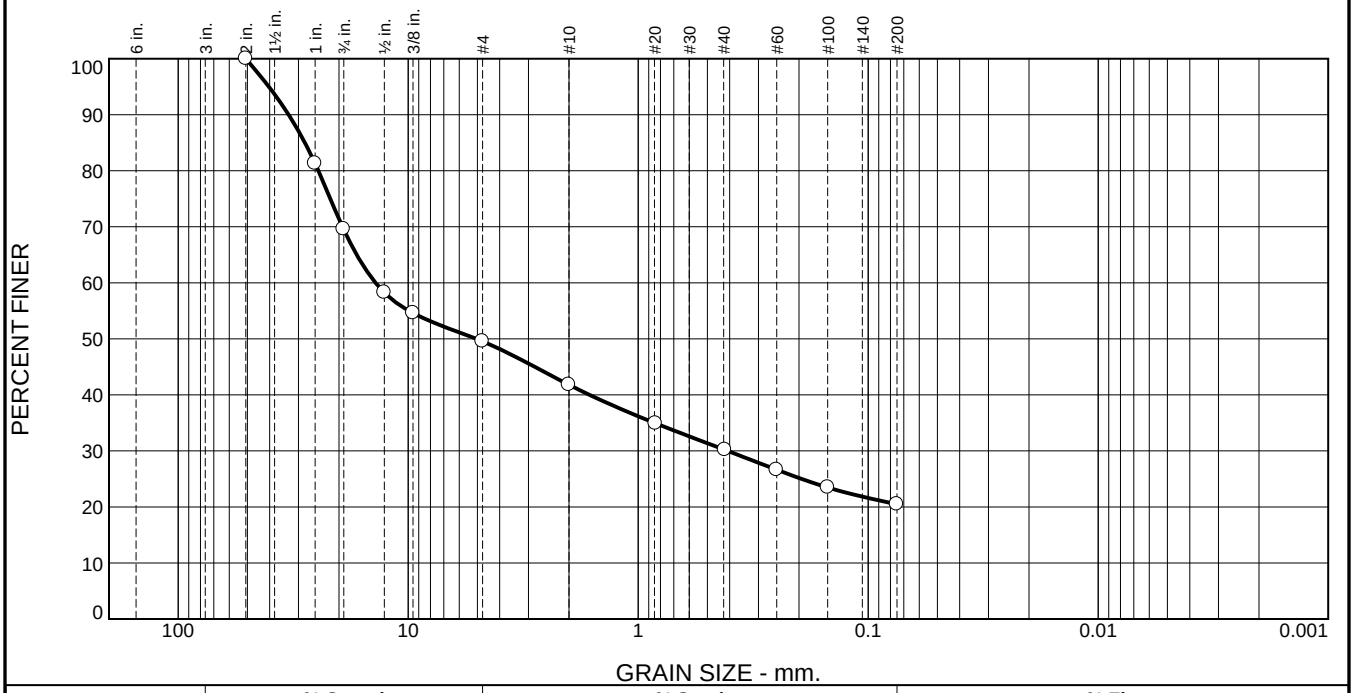
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 208

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	30.5	19.9	7.8	11.5	9.8	20.5	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	81.3		
0.75"	69.6		
.5"	58.3		
.375"	54.6		
#4	49.6		
#10	41.8		
#20	34.9		
#40	30.2		
#60	26.6		
#100	23.5		
#200	20.5		

* (no specification provided)

Material Description

Brown f-c GRAVEL, some f-c Sand, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 33.0835 D_{85}= 28.1176 D_{60}= 13.8564
D_{50}= 5.0526 D_{30}= 0.4083 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-4' **Date Sampled:**

Sample Number: BB-PB-302: 2D

Thielsch Engineering Inc.

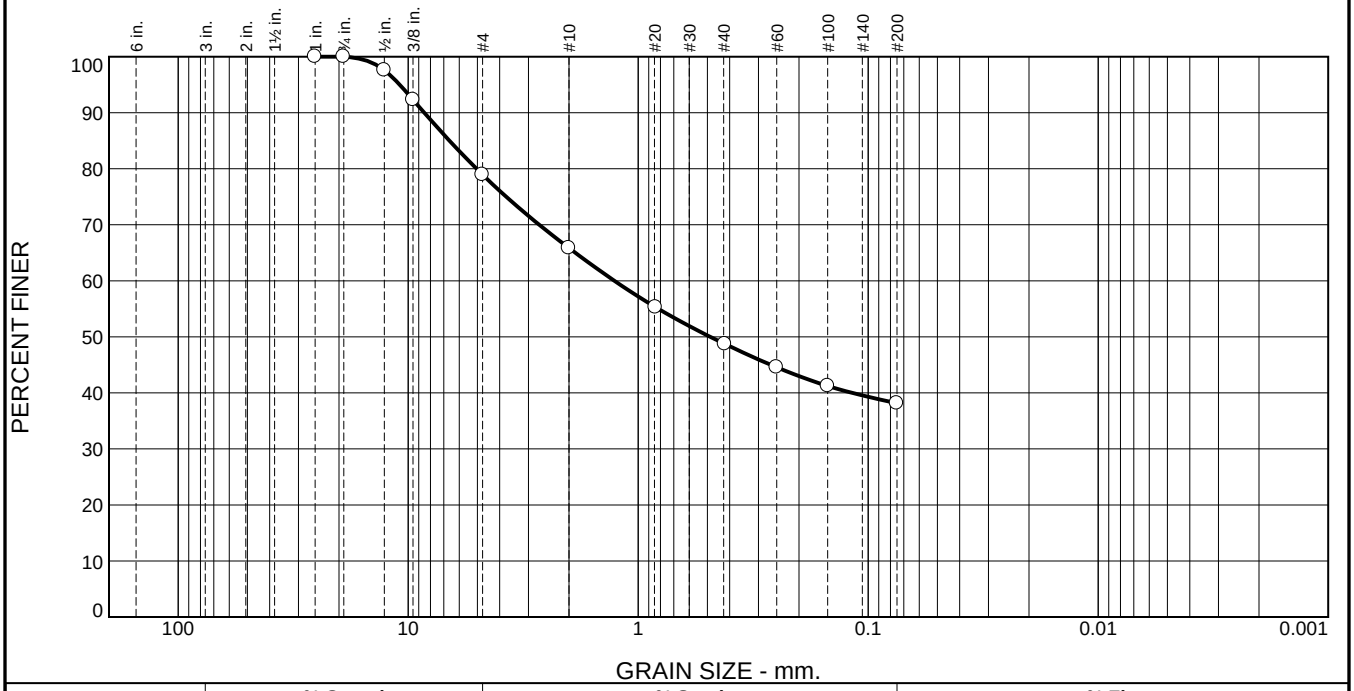
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 209

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	21.0	13.1	17.1	10.6	38.2	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	100.0		
.5"	97.6		
.375"	92.3		
#4	79.0		
#10	65.9		
#20	55.3		
#40	48.7		
#60	44.6		
#100	41.2		
#200	38.2		

* (no specification provided)

Material Description

Brown silty f-c SAND, some fine Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 8.5140 D_{85}= 6.6088 D_{60}= 1.2681
D_{50}= 0.4856 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-4' **Date Sampled:**

Sample Number: BB-PB-305: 2D

Thielsch Engineering Inc.

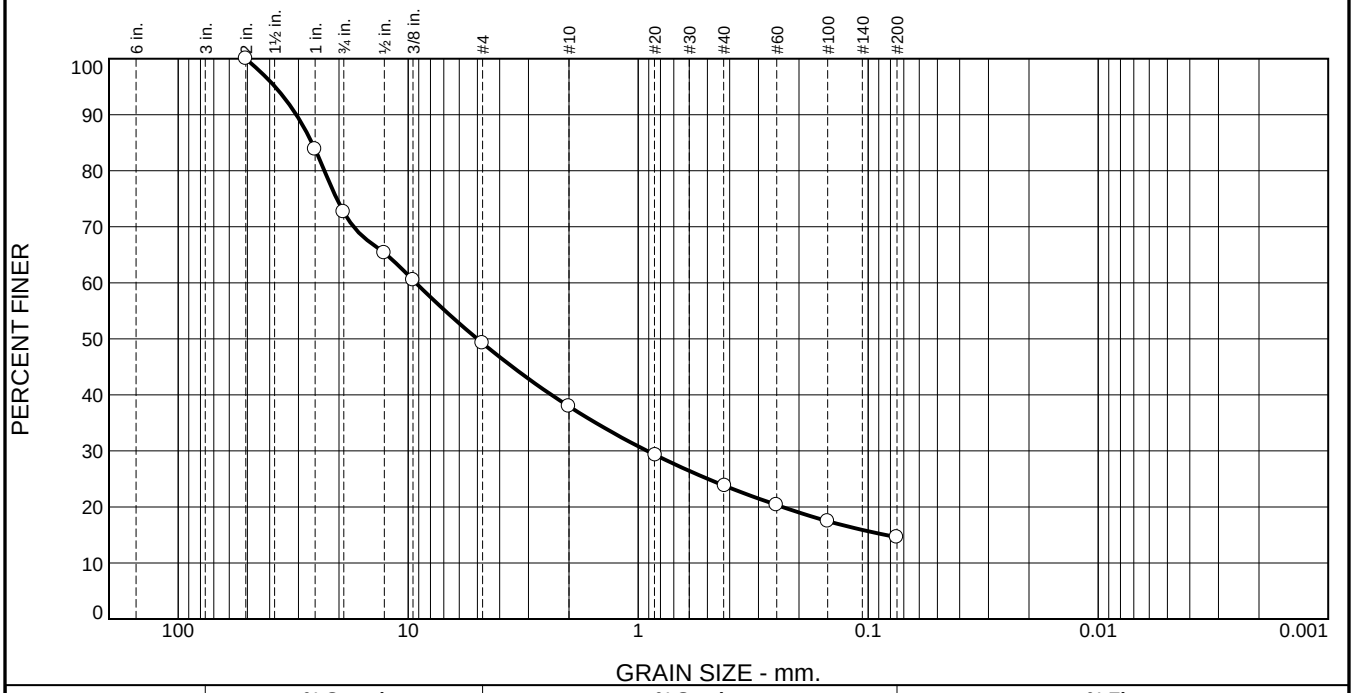
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 210

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	27.4	23.4	11.3	14.1	9.2	14.6	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	83.8		
0.75"	72.6		
.5"	65.3		
.375"	60.5		
#4	49.2		
#10	37.9		
#20	29.3		
#40	23.8		
#60	20.4		
#100	17.5		
#200	14.6		

* (no specification provided)

Material Description

Brown f-c Gravel, some f-c Sand, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 30.6307 D_{85}= 26.1972 D_{60}= 9.2655
D_{50}= 5.0034 D_{30}= 0.9130 D_{15}= 0.0839
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: BB-PB-306: 3D

Thielsch Engineering Inc.

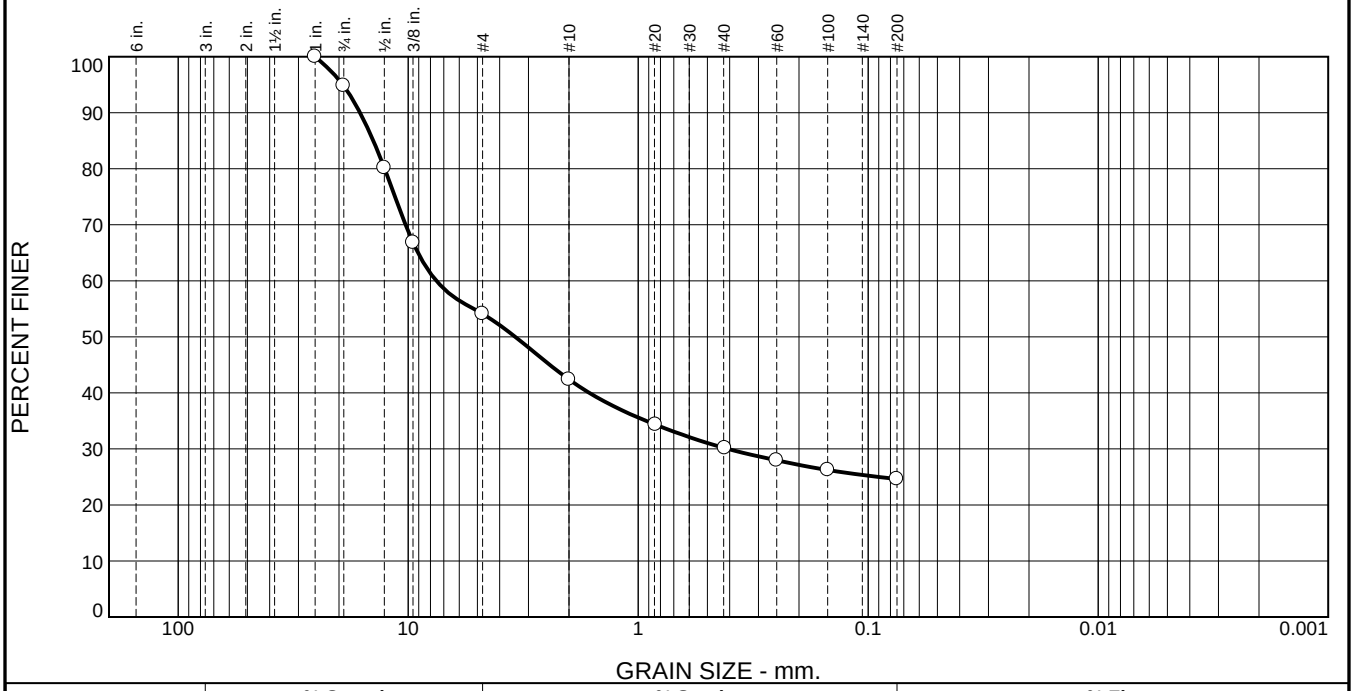
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 211

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.2	40.7	11.7	12.2	5.6	24.6	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	94.8		
.5"	80.2		
.375"	66.8		
#4	54.1		
#10	42.4		
#20	34.3		
#40	30.2		
#60	28.0		
#100	26.2		
#200	24.6		

* (no specification provided)

Material Description

Brown f-c GRAVEL, some f-c Sand, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 16.1813 D_{85}= 14.1718 D_{60}= 7.5454
D_{50}= 3.4225 D_{30}= 0.4070 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: BB-PB-311: 3D

Thielsch Engineering Inc.

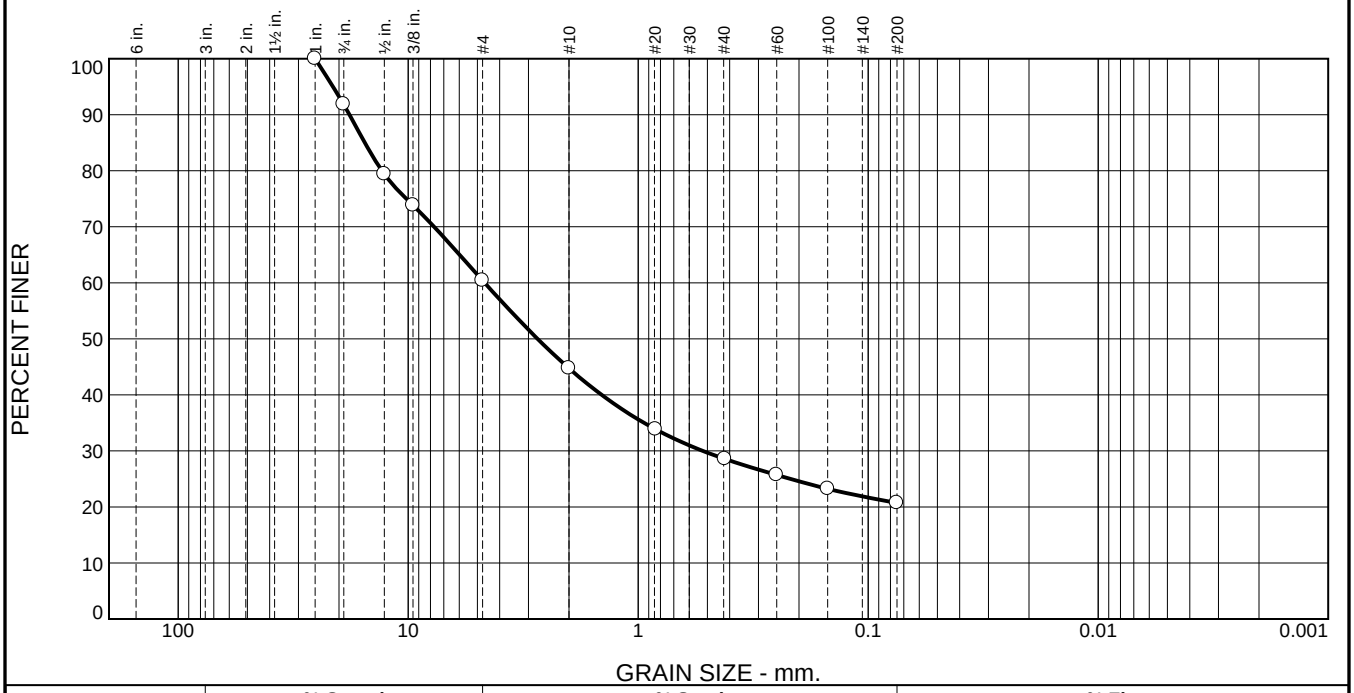
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 212

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.2	31.4	15.6	16.2	7.9	20.7	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	91.9		
.5"	79.4		
.375"	73.8		
#4	60.4		
#10	44.8		
#20	33.9		
#40	28.6		
#60	25.7		
#100	23.2		
#200	20.7		

* (no specification provided)

Material Description

Brown Gravelly f-c SAND, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 17.9959 D_{85}= 15.4247 D_{60}= 4.6507
D_{50}= 2.7376 D_{30}= 0.5232 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-3.3' **Date Sampled:**

Sample Number: BB-PB-312: 2D

Thielsch Engineering Inc.

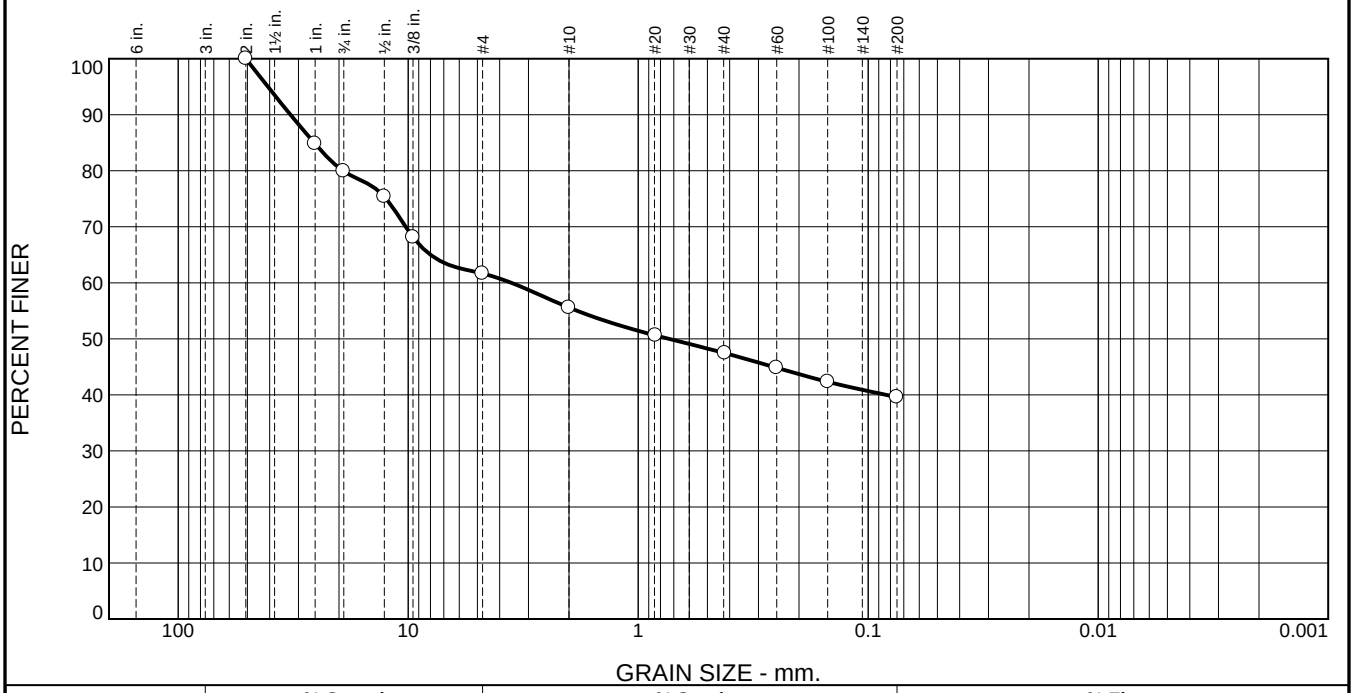
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 213

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.1	18.2	6.1	8.1	7.9	39.6	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	84.8		
0.75"	79.9		
.5"	75.4		
.375"	68.1		
#4	61.7		
#10	55.6		
#20	50.6		
#40	47.5		
#60	44.8		
#100	42.3		
#200	39.6		

* (no specification provided)

Material Description

Brown silty GRAVEL, some f-c sand

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 32.4871 D_{85}= 25.6205 D_{60}= 3.5600
D_{50}= 0.7361 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-4' **Date Sampled:**

Sample Number: BB-PB-313: 2D

Thielsch Engineering Inc.

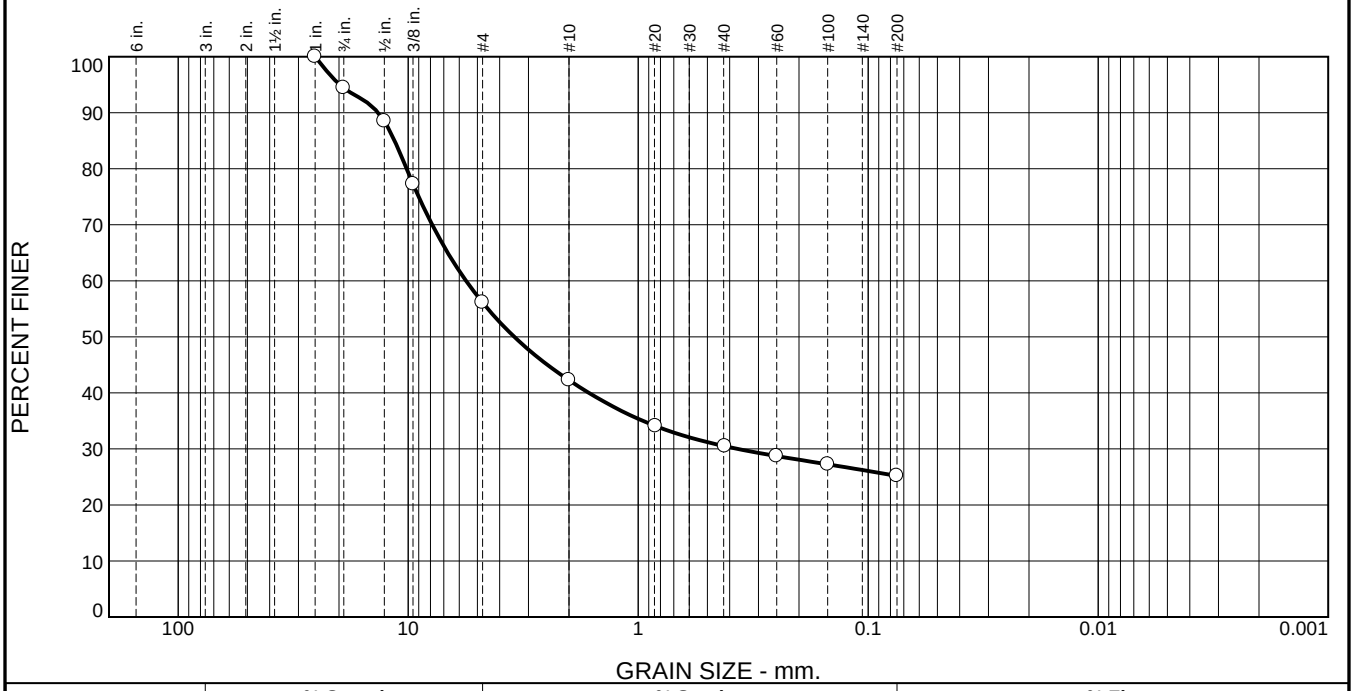
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 214

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.6	38.3	13.8	11.8	5.3	25.2	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	94.4		
.5"	88.5		
.375"	77.3		
#4	56.1		
#10	42.3		
#20	34.1		
#40	30.5		
#60	28.7		
#100	27.3		
#200	25.2		

* (no specification provided)

Material Description

Brown f-c Gravel, some f-c Sand, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 13.5022 D_{85}= 11.4596 D_{60}= 5.6022
D_{50}= 3.4553 D_{30}= 0.3694 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 0-2' **Date Sampled:**

Sample Number: BB-PB-314: 1D

Thielsch Engineering Inc.

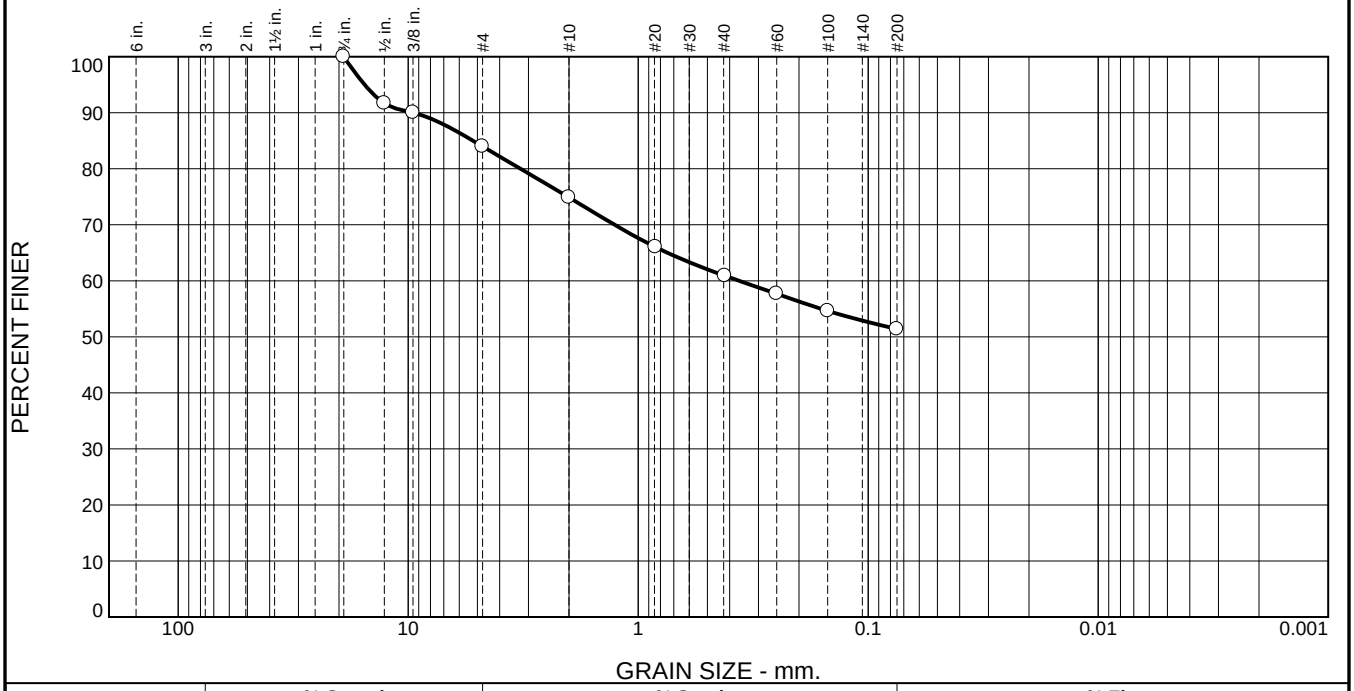
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 215

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.1	15.9	9.1	13.9	9.6	51.4	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
.5"	91.7		
.375"	90.0		
#4	84.0		
#10	74.9		
#20	66.0		
#40	60.9		
#60	57.7		
#100	54.6		
#200	51.4		

* (no specification provided)

Material Description

Gray-brown SILT, some f-c Sand, little fine Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= ML **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 9.4993 D_{85}= 5.2255 D_{60}= 0.3639
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-4' **Date Sampled:**

Sample Number: BB-PB-315: 2D

Thielsch Engineering Inc.

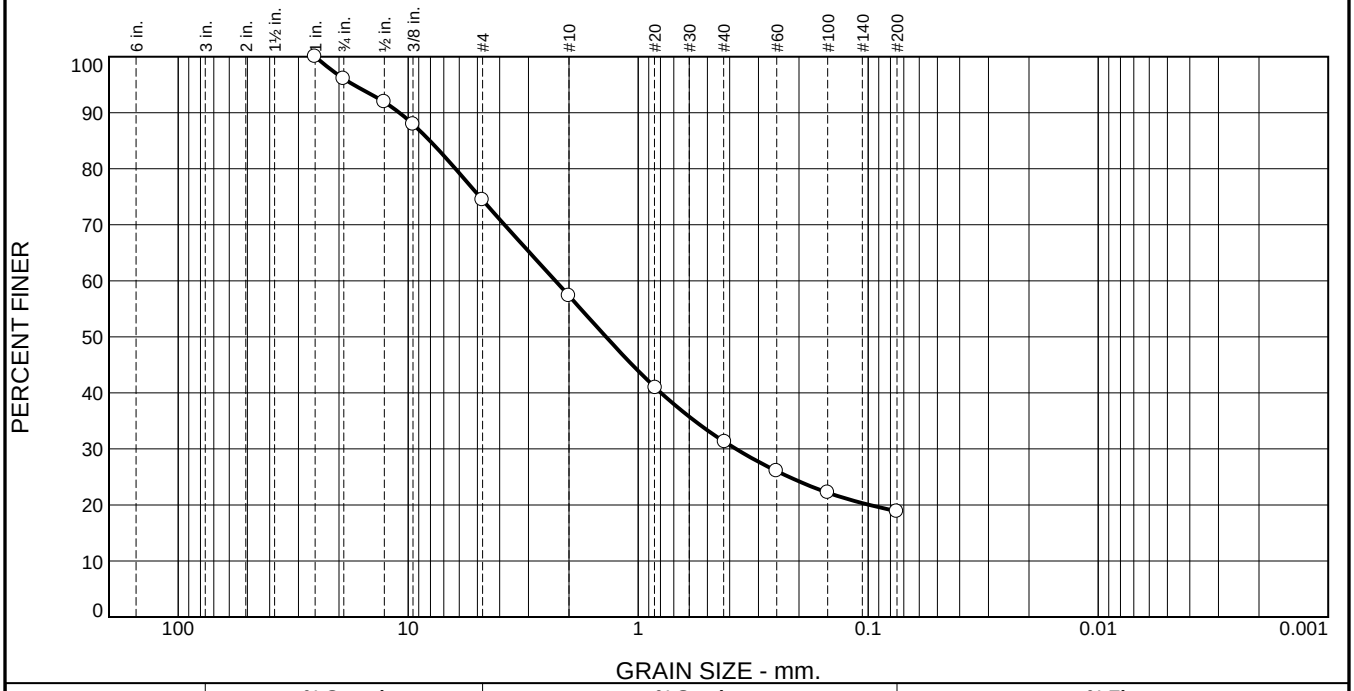
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 216

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.9	21.7	17.1	25.9	12.6	18.8	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	96.1		
.5"	91.9		
.375"	87.9		
#4	74.4		
#10	57.3		
#20	40.9		
#40	31.2		
#60	26.0		
#100	22.2		
#200	18.8		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some f-c Gravel, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 10.9252 D_{85}= 8.0469 D_{60}= 2.2896
D_{50}= 1.3795 D_{30}= 0.3759 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: BB-PB-321: 3D

Thielsch Engineering Inc.

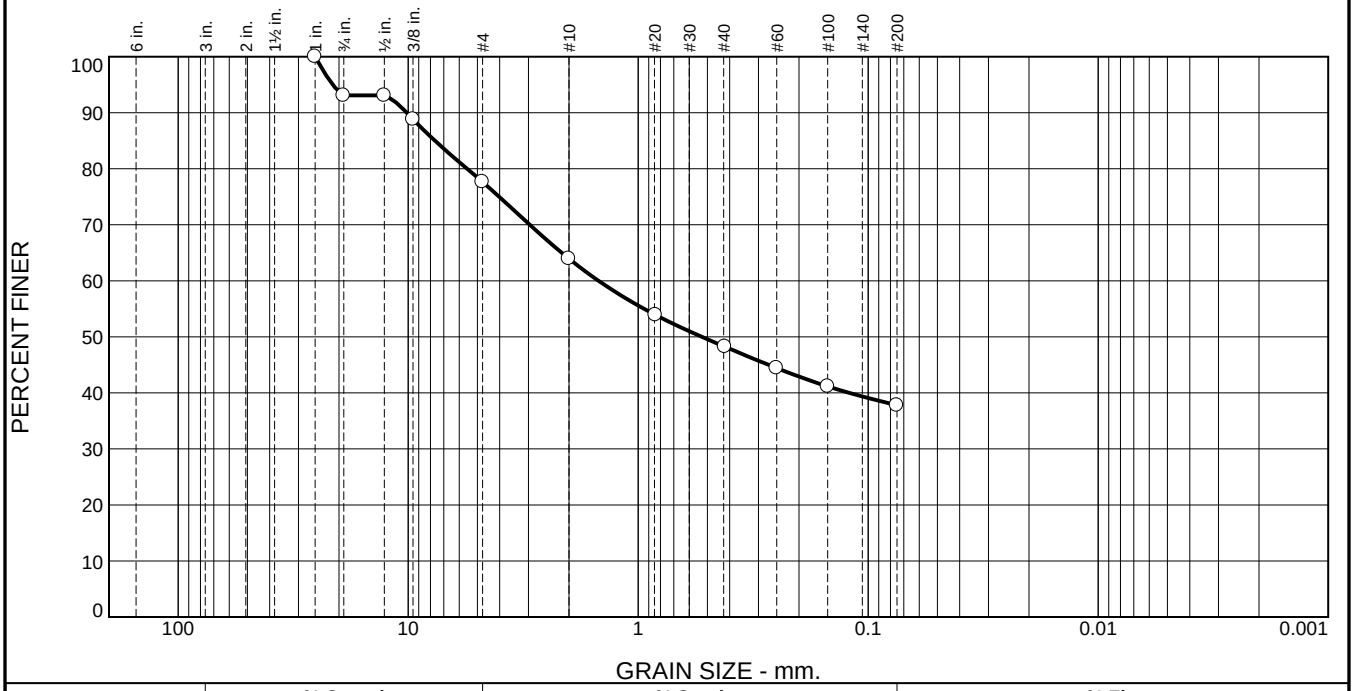
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 217

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.9	15.5	13.7	15.6	10.5	37.8	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	93.1		
.5"	93.1		
.375"	88.8		
#4	77.6		
#10	63.9		
#20	53.9		
#40	48.2		
#60	44.4		
#100	41.2		
#200	37.8		

* (no specification provided)

Material Description

Gray-brown silty f-c SAND, some f-c Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-4(0)

Coefficients

D_{90}= 10.1469 D_{85}= 7.6501 D_{60}= 1.4866
D_{50}= 0.5283 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 0-2' **Date Sampled:**

Sample Number: BB-PB-323: 1D

Thielsch Engineering Inc.

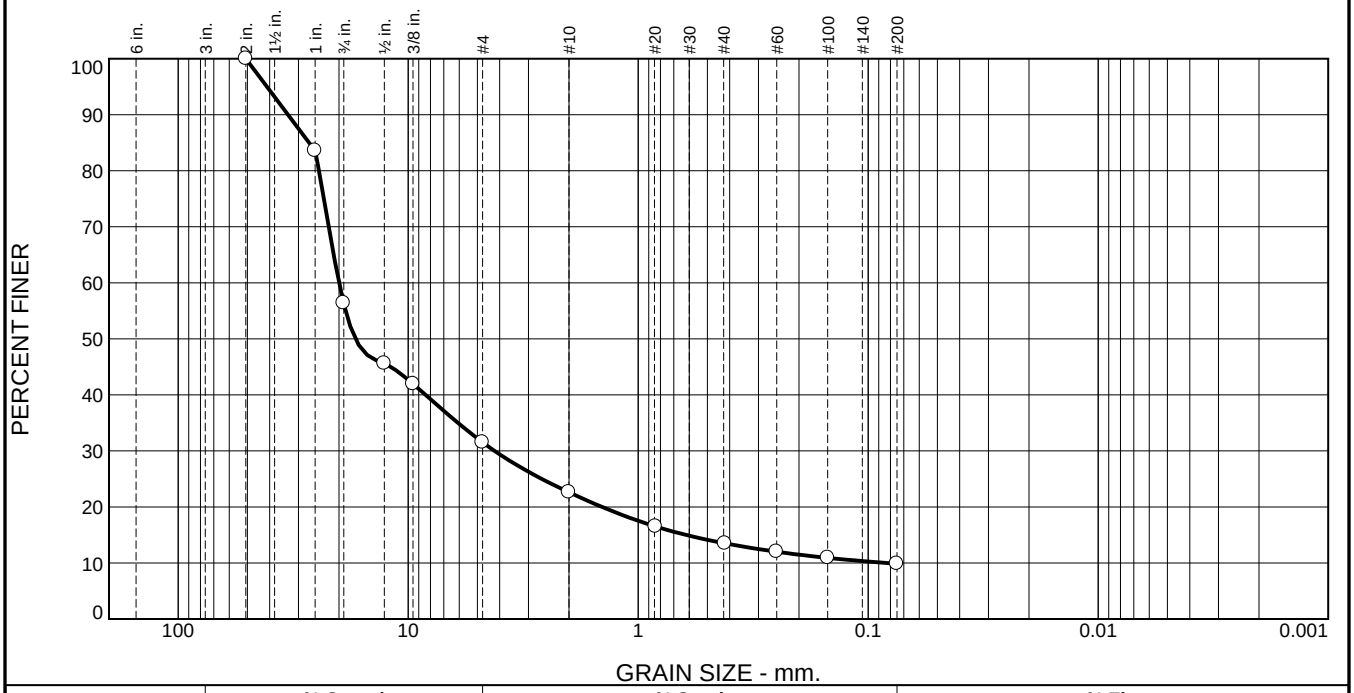
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 218

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	43.8	24.7	8.9	9.0	3.7	9.9	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	83.6		
0.75"	56.4		
.5"	45.6		
.375"	41.9		
#4	31.5		
#10	22.6		
#20	16.5		
#40	13.5		
#60	12.0		
#100	10.9		
#200	9.9		

* (no specification provided)

Material Description

Gray-brown f-c GRAVEL, some f-c Sand, trace Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GP-GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 33.2993 D_{85}= 26.9600 D_{60}= 19.9702
D_{50}= 16.9558 D_{30}= 4.2078 D_{15}= 0.6171
D_{10}= 0.0824 C_u= 242.25 C_c= 10.75

Remarks

Date Received: 9/30/15 **Date Tested:** 10/2/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: BB Borings **Depth:** 2-4' **Date Sampled:**

Sample Number: BB-PB-325: 2D

Thielsch Engineering Inc.

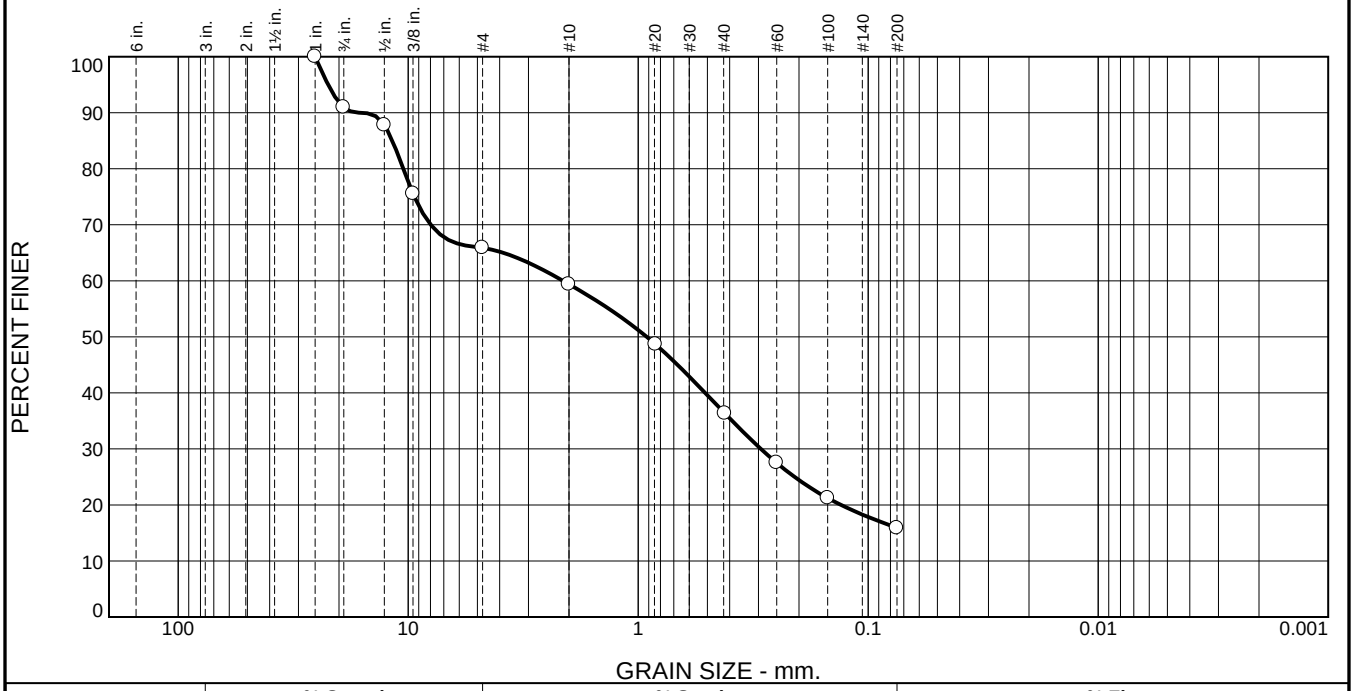
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 219

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.1	25.0	6.5	22.8	20.7	15.9	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	91.0		
.5"	87.8		
.375"	75.5		
#4	65.9		
#10	59.4		
#20	48.7		
#40	36.4		
#60	27.5		
#100	21.2		
#200	15.9		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some f-c Gravel, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 16.4269 D_{85}= 11.7164 D_{60}= 2.1221
D_{50}= 0.9180 D_{30}= 0.2927 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 0-2' **Date Sampled:**

Sample Number: CB-PB-311: 1D

Thielsch Engineering Inc.

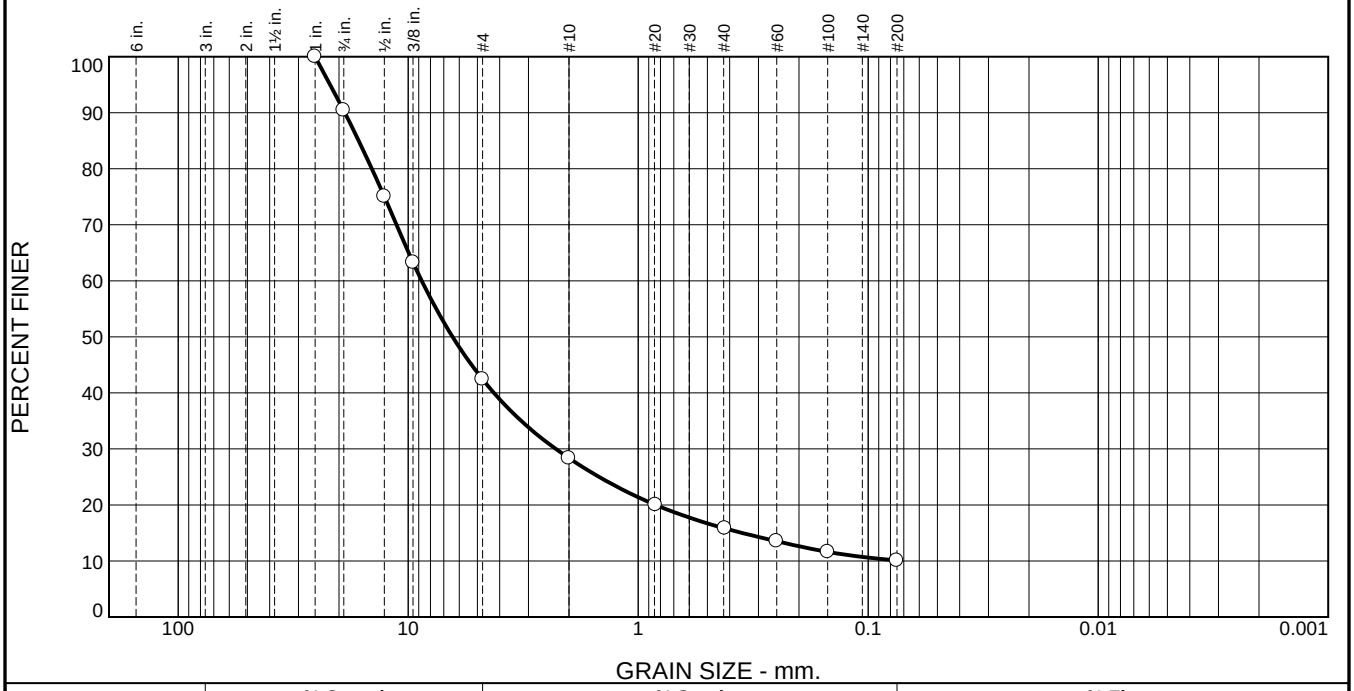
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 220

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.7	47.9	14.0	12.5	5.8	10.1	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	90.4		
.5"	75.1		
.375"	63.3		
#4	42.4		
#10	28.4		
#20	20.0		
#40	15.8		
#60	13.5		
#100	11.6		
#200	10.1		

* (no specification provided)

Material Description

Gray-brown f-c GRAVEL, some f-c Sand, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GP-GM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 18.8609 D_{85}= 16.4093 D_{60}= 8.7310
D_{50}= 6.4078 D_{30}= 2.2816 D_{15}= 0.3528
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 2-3.8' **Date Sampled:**

Sample Number: CB-PB-313: 2D

Thielsch Engineering Inc.

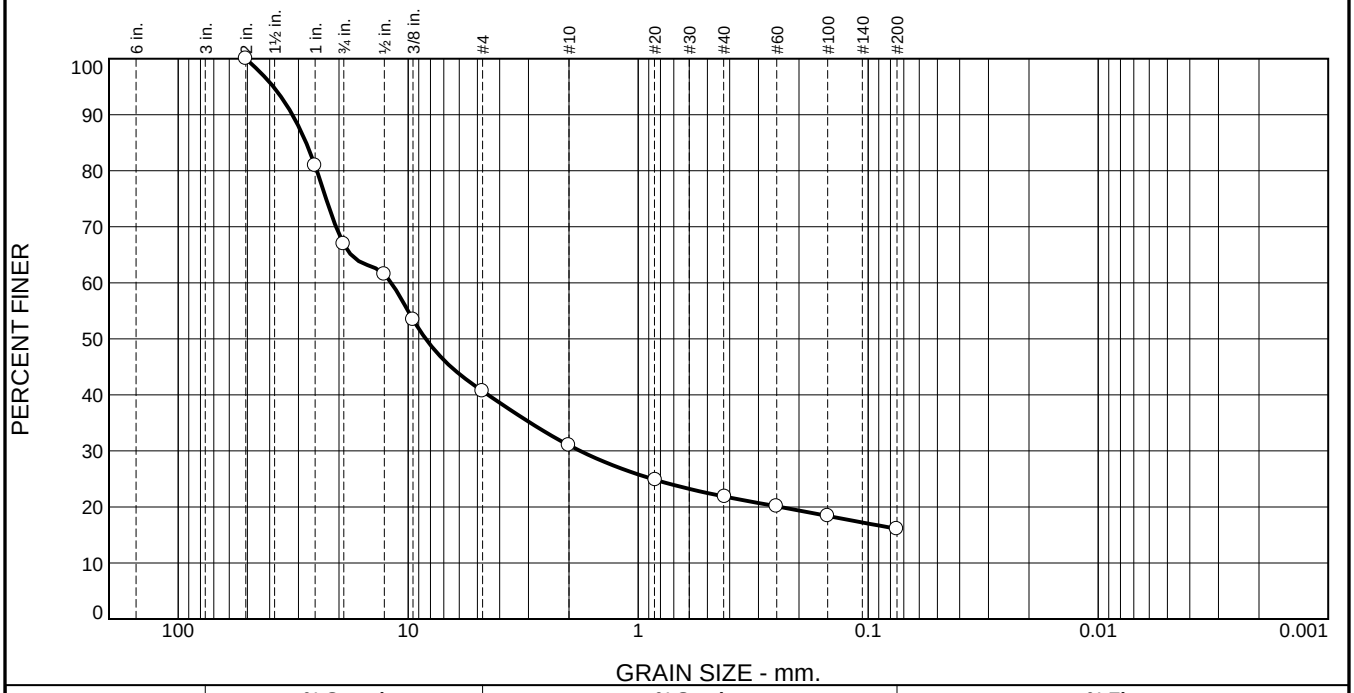
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 221

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	33.1	26.2	9.7	9.1	5.8	16.1	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	80.9		
0.75"	67.0		
.5"	61.5		
.375"	53.4		
#4	40.7		
#10	31.0		
#20	24.8		
#40	21.8		
#60	20.1		
#100	18.4		
#200	16.1		

* (no specification provided)

Material Description

Gray-brown f-c GRAVEL, some f-c Sand, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 31.8503 D_{85}= 27.7709 D_{60}= 11.8456
D_{50}= 8.3865 D_{30}= 1.7876 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 2-3.6' **Date Sampled:**

Sample Number: CB-PB-314: 2D

Thielsch Engineering Inc.

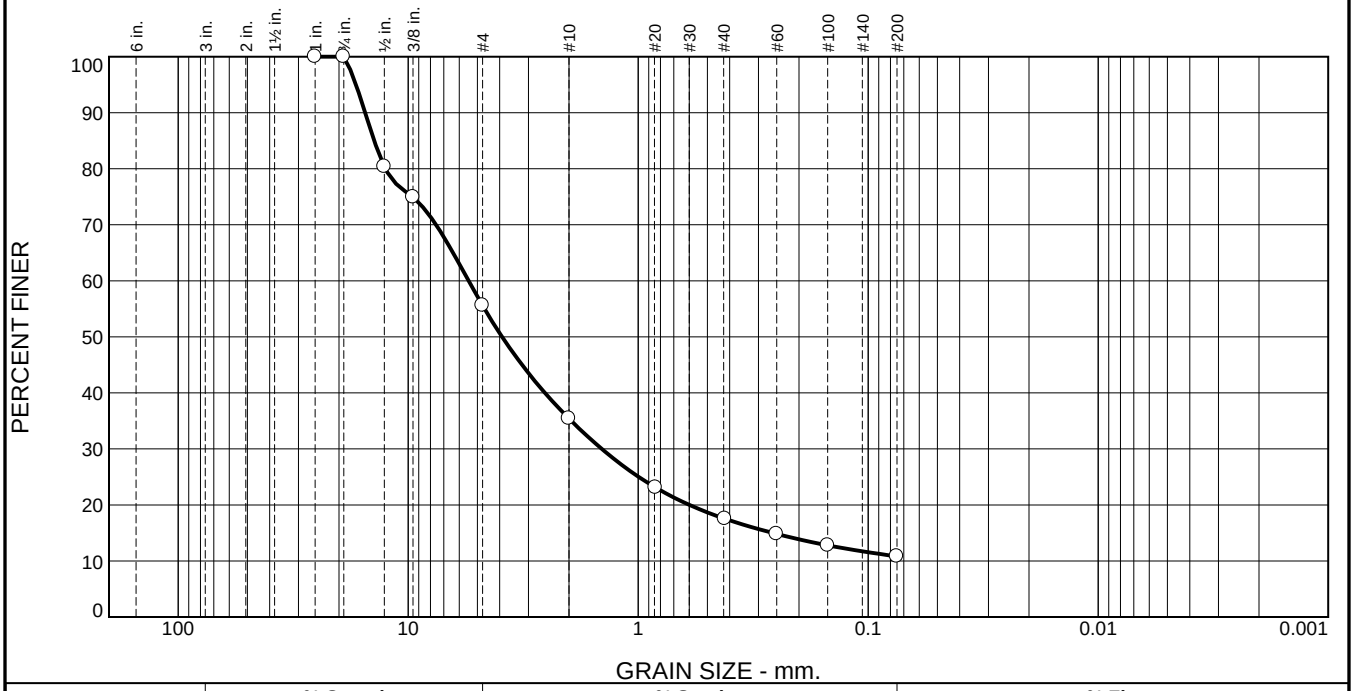
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 222

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.1	44.3	20.2	17.8	6.8	10.8	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	100.0		
.5"	80.4		
.375"	74.9		
#4	55.6		
#10	35.4		
#20	23.1		
#40	17.5		
#60	14.8		
#100	12.8		
#200	10.8		

* (no specification provided)

Material Description

Gray-brown gravelly f-c SAND, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SP-SM **AASHTO (M 145)=** A-1-a

Coefficients

D_{90}= 15.3692 D_{85}= 14.0457 D_{60}= 5.4565
D_{50}= 3.9037 D_{30}= 1.4391 D_{15}= 0.2594
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 2-3.6' **Date Sampled:**

Sample Number: CB-PB-321: 2D

Thielsch Engineering Inc.

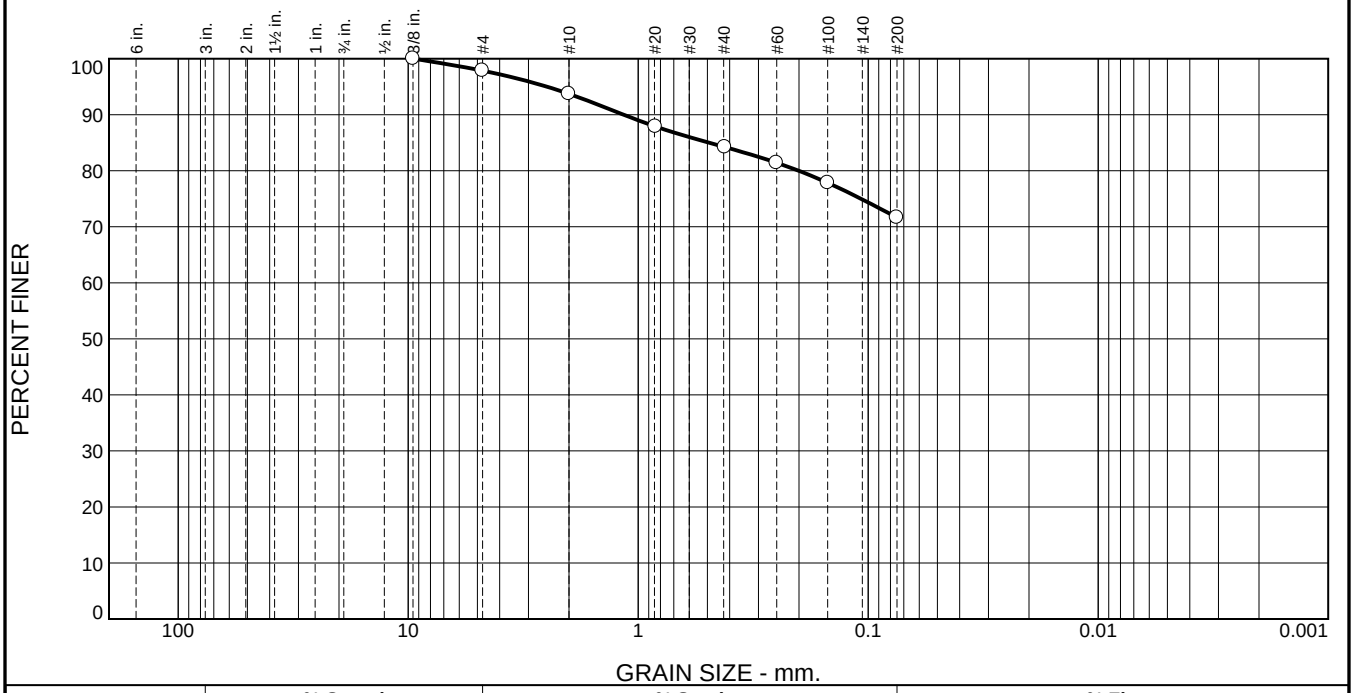
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 223

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.1	4.2	9.4	12.6	71.7	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
.375"	100.0		
#4	97.9		
#10	93.7		
#20	87.9		
#40	84.2		
#60	81.4		
#100	77.8		
#200	71.7		

* (no specification provided)

Material Description

Gray-brown

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

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

Coefficients

D_{90}= 1.1558 D_{85}= 0.4908 D_{60}=
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 0-2' **Date Sampled:**

Sample Number: CB-PB-322: 1D

Thielsch Engineering Inc.

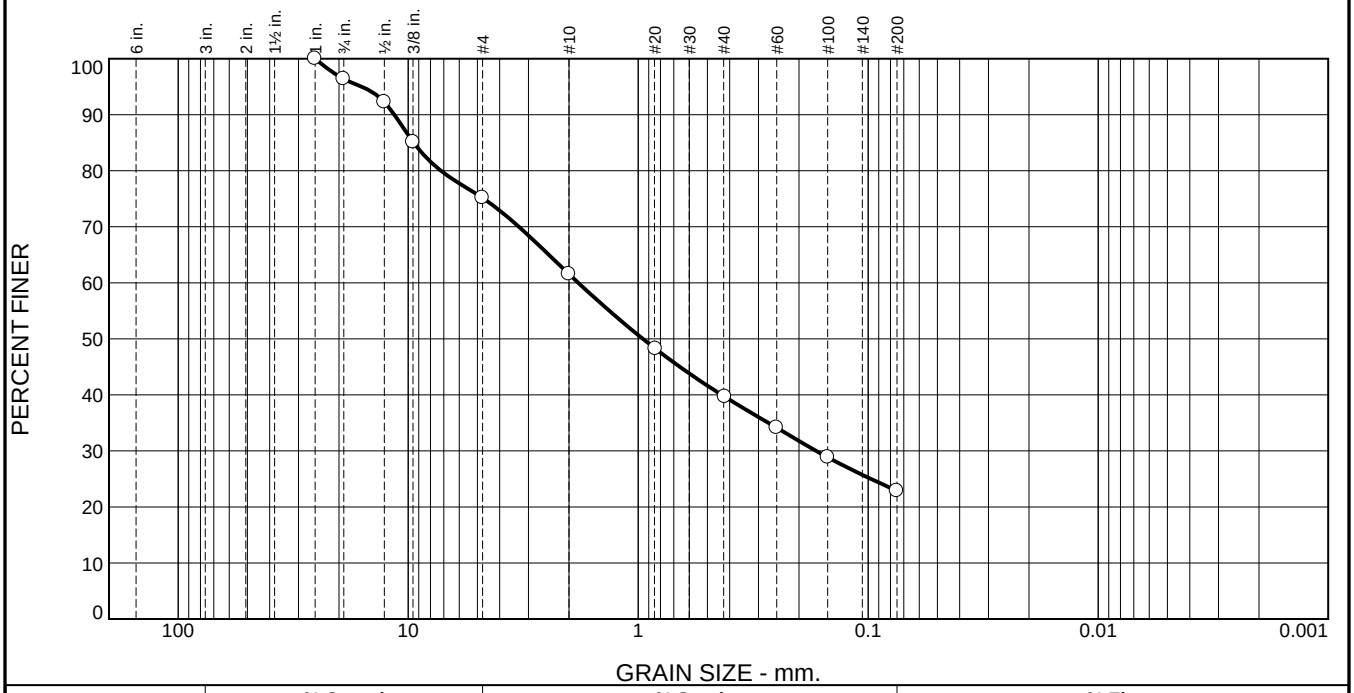
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 224

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.6	21.2	13.6	21.8	16.9	22.9	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	96.4		
.5"	92.3		
.375"	85.1		
#4	75.2		
#10	61.6		
#20	48.2		
#40	39.7		
#60	34.1		
#100	28.9		
#200	22.9		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some f-c Gravel, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 11.4827 D_{85}= 9.4694 D_{60}= 1.8211
D_{50}= 0.9540 D_{30}= 0.1682 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: CB-PB-331: 3D

Thielsch Engineering Inc.

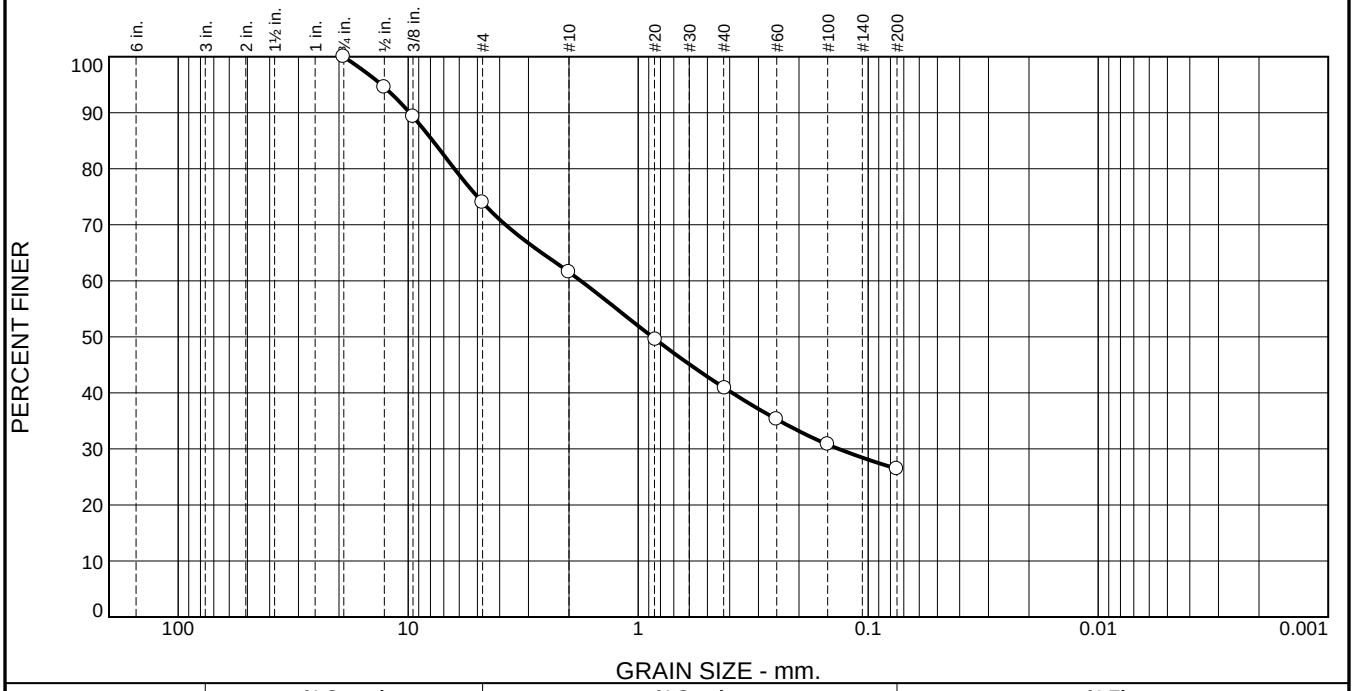
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 225

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	26.0	12.4	20.6	14.6	26.4	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
.5"	94.6		
.375"	89.3		
#4	74.0		
#10	61.6		
#20	49.5		
#40	40.8		
#60	35.3		
#100	30.8		
#200	26.4		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some Silt, some f-c Gravel

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-2-4(0)

Coefficients

D_{90}= 9.8542 D_{85}= 7.8216 D_{60}= 1.7765
D_{50}= 0.8690 D_{30}= 0.1344 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: CB-PB-332: 3D

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 226

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	15.4	13.3	11.9	18.2	17.7	23.5	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
1"	100.0		
0.75"	84.6		
.5"	84.6		
.375"	81.1		
#4	71.3		
#10	59.4		
#20	48.8		
#40	41.1		
#60	35.5		
#100	29.9		
#200	23.5		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some f-c Gravel, some Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 21.6824 D_{85}= 19.3830 D_{60}= 2.0984
D_{50}= 0.9357 D_{30}= 0.1521 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 15-16.1' **Date Sampled:**

Sample Number: CB-PB-333: 5D

Thielsch Engineering Inc.

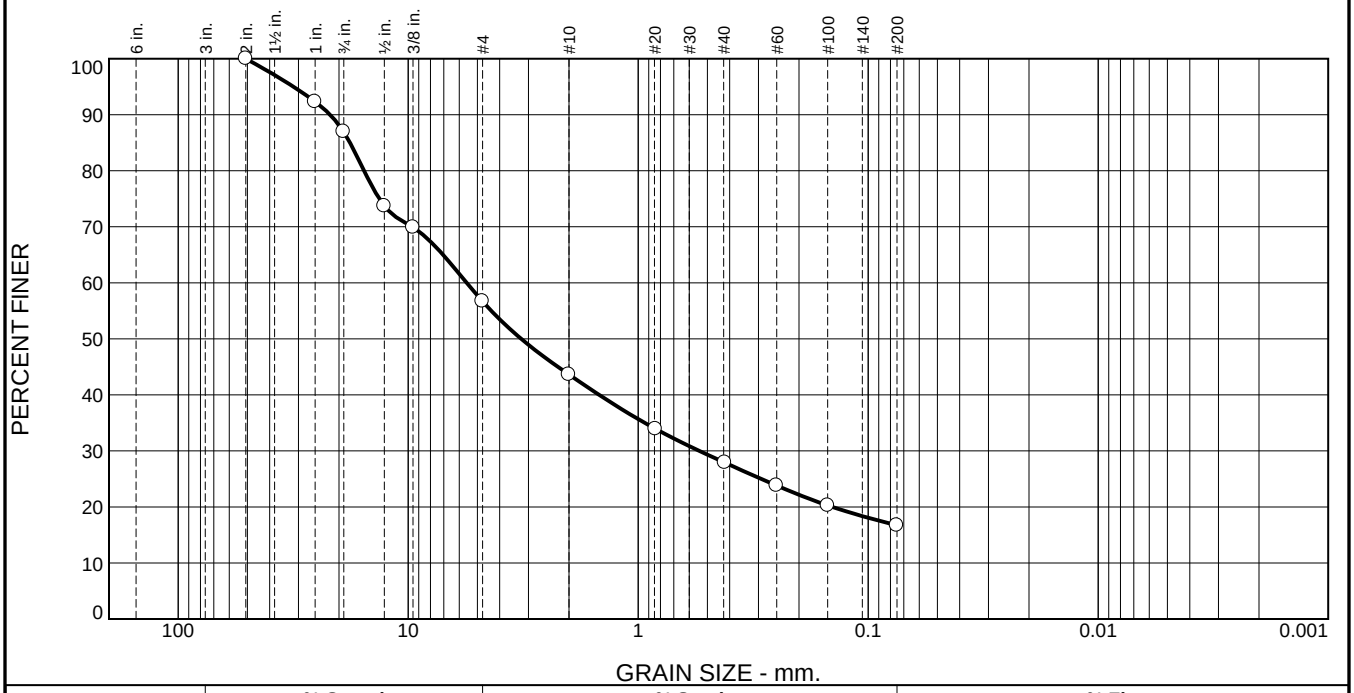
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 227

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	13.1	30.2	13.1	15.6	11.3	16.7	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	92.3		
0.75"	87.0		
.5"	73.7		
.375"	69.9		
#4	56.7		
#10	43.6		
#20	33.9		
#40	27.9		
#60	23.8		
#100	20.3		
#200	16.7		

* (no specification provided)

Material Description

Gray-brown Sandy f-c GRAVEL, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= GM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 21.8275 D_{85}= 17.9056 D_{60}= 5.5646
D_{50}= 3.2244 D_{30}= 0.5421 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: CB-PB-341: 3D

Thielsch Engineering Inc.

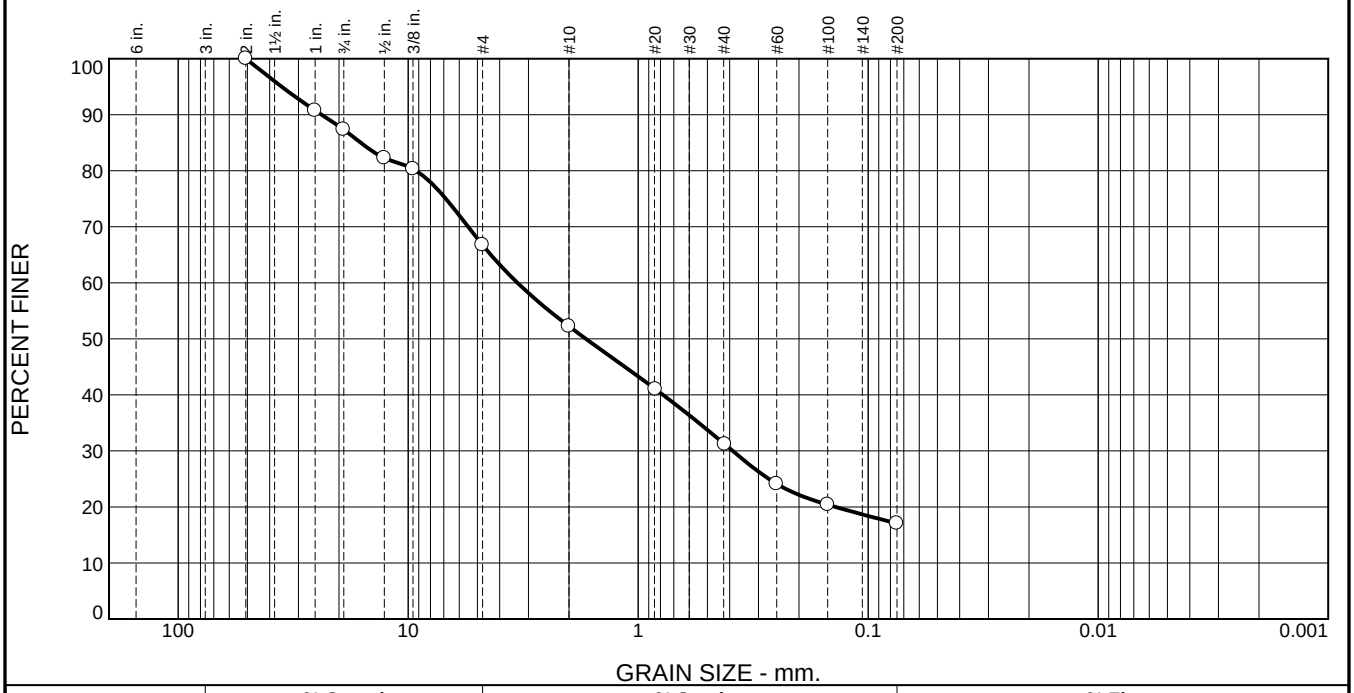
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 228

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.7	20.5	14.5	20.9	14.3	17.1	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	90.8		
0.75"	87.4		
.5"	82.3		
.375"	80.3		
#4	66.8		
#10	52.3		
#20	41.0		
#40	31.2		
#60	24.1		
#100	20.4		
#200	17.1		

* (no specification provided)

Material Description

Gray-brown f-c SAND, some f-c Gravel, little Silt

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=** A-1-b

Coefficients

D_{90}= 23.7960 D_{85}= 16.0732 D_{60}= 3.3477
D_{50}= 1.6882 D_{30}= 0.3881 D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

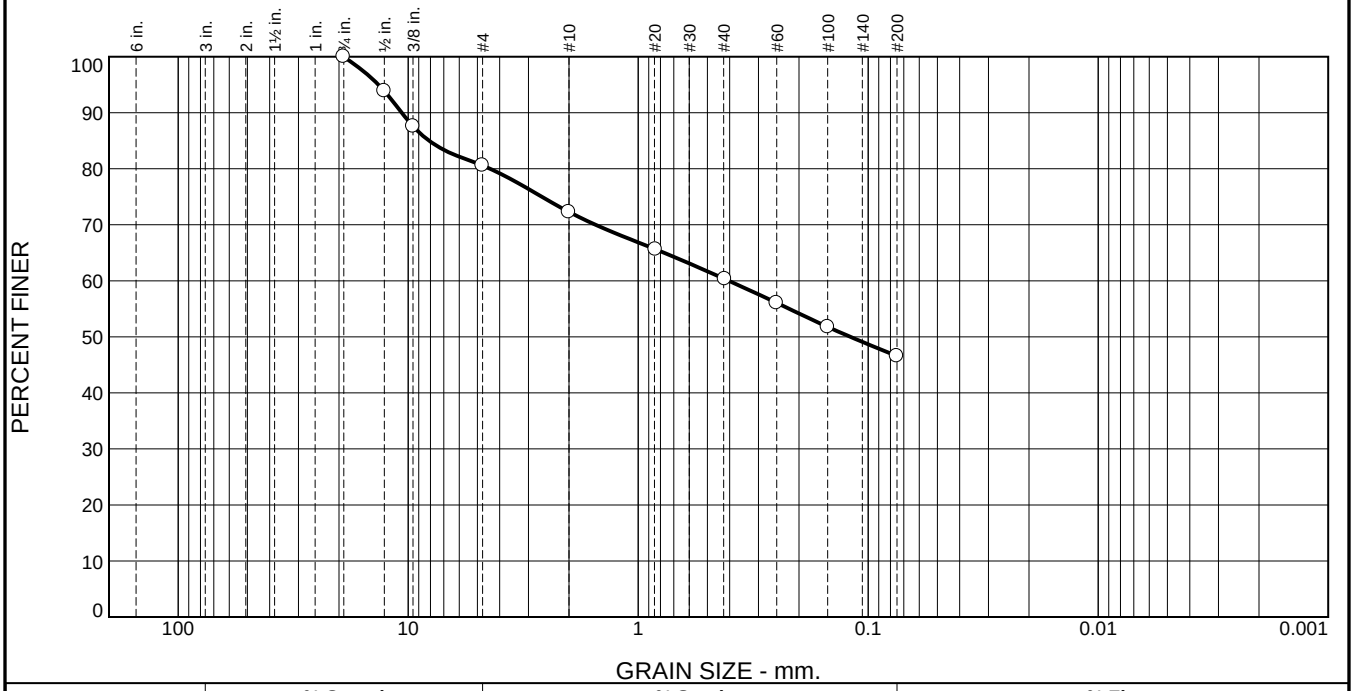
Source of Sample: CB Borings **Depth:** 2-4'
Sample Number: CB-PB-343: 2D **Date Sampled:**

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental, Inc.
Project: Presque Isle Bypass Segment 1
Presque Isle, ME
Project No: 09.0025832.03 **Figure** 229

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	19.4	8.3	11.9	13.8	46.6	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
0.75"	100.0		
.5"	93.9		
.375"	87.6		
#4	80.6		
#10	72.3		
#20	65.6		
#40	60.3		
#60	56.1		
#100	51.8		
#200	46.6		

* (no specification provided)

Material Description

Gray-brown

Atterberg Limits (ASTM D 4318)

PL= LL= PI= 0

Classification

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

Coefficients

D_{90}= 10.6719 D_{85}= 8.1172 D_{60}= 0.4035
D_{50}= 0.1195 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 10-12' **Date Sampled:**

Sample Number: CB-PB-351: 4D

Thielsch Engineering Inc.

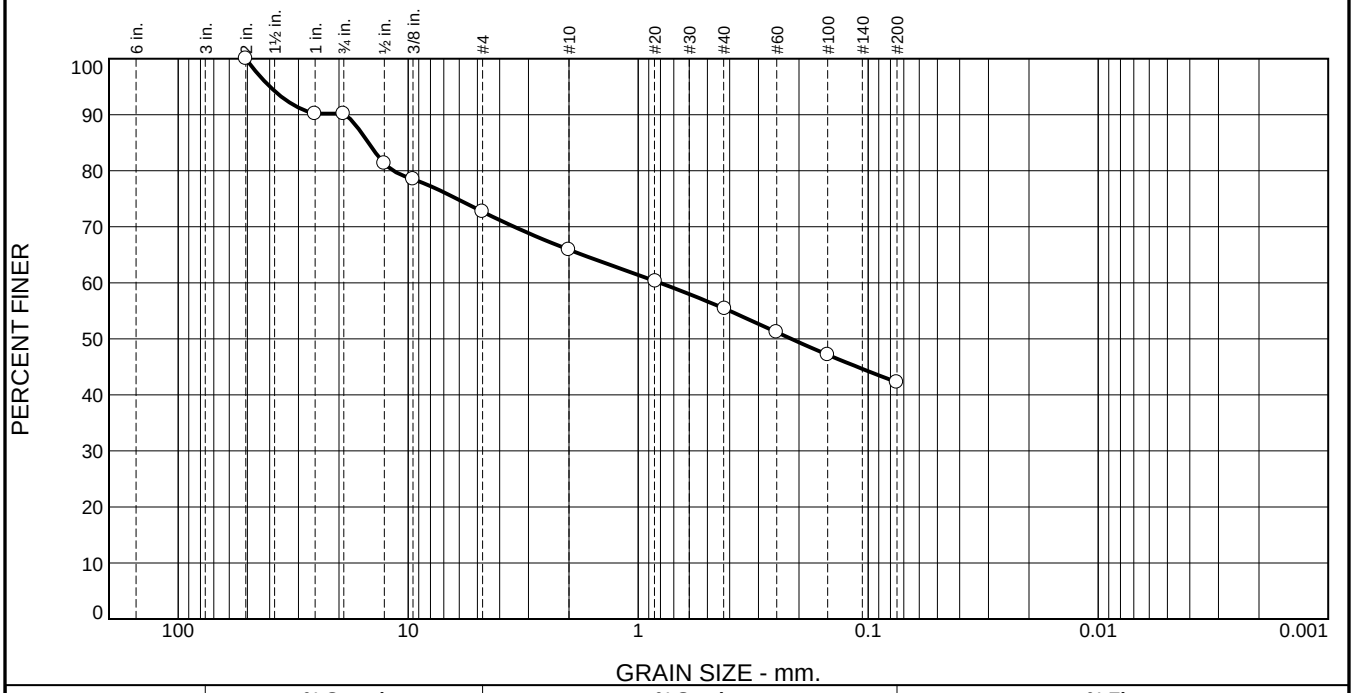
Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 230

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.8	17.5	6.8	10.4	13.3	42.2	

TEST RESULTS (D422)

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
2"	100.0		
1"	90.2		
0.75"	90.2		
.5"	81.3		
.375"	78.5		
#4	72.7		
#10	65.9		
#20	60.3		
#40	55.4		
#60	51.2		
#100	47.2		
#200	42.2		

* (no specification provided)

Material Description

Gray-brown

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=** 0

Classification

USCS (D 2487)= **AASHTO (M 145)=**

Coefficients

D_{90}= 18.7795 D_{85}= 14.8780 D_{60}= 0.8051
D_{50}= 0.2160 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

Date Received: 9/30/15 **Date Tested:** 10/5/15

Tested By: GG/JE

Checked By: Matthew Polsky

Title: Laboratory Manager

Source of Sample: CB Borings **Depth:** 5-7' **Date Sampled:**

Sample Number: CB-PB-352: 3D

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental, Inc.

Project: Presque Isle Bypass Segment 1
Presque Isle, ME

Project No: 09.0025832.03 **Figure** 231

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:		Project Information:	
GZA GeoEnvironmental		**Presque Isle Bypass, MEDOT WIN 6462.00**	
Sourth Portland, ME		**Presque Isle, ME**	
Project Manager:	Blaine Cardali	Project Number:	09.0025832.06
Assigned By:	Blaine Cardali	Summary Page:	1 of 1
Collected By:	Blaine Cardali	Report Date:	01.02.24

LABORATORY TESTING DATA SHEET, Report No.: 7423-M-196

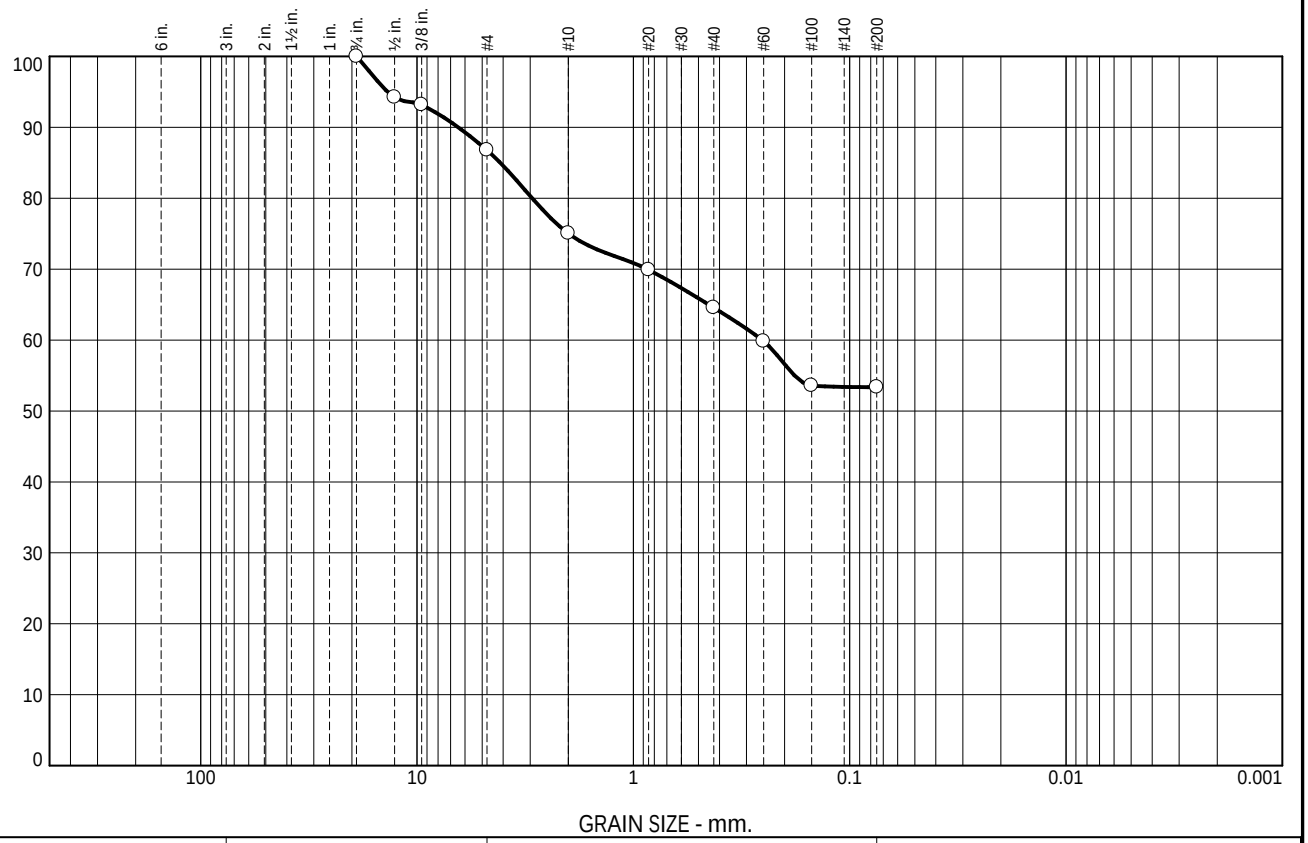
Boring No.	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
BB-PB-605	2D	5-7	23-S-5166	11.0				13.2	33.4	53.4											Brown CLAYEY SILT, some f-c Sand, little fine Gravel
HB-PB-602	1D	0-2	23-S-5167	8.0				50.7	31.5	17.8											Dark Brown f-c GRAVEL, some f-c Sand, little Silt
HB-PB-609	2D	5-7	23-S-5168	9.6				54.8	15.4	29.8											Brown f-c GRAVEL, some Silt & Clay, little f-c Sand
HB-PB-613	2D	5-7 (top)	23-S-5169	11.4				49.0	32.8	18.2											Brown f-c GRAVEL, some f-c Sand, little Clayey Silt
HB-PB-622	2D	5-7	23-S-5170	11.2				31.3	32.7	36.0											Brown SILT & CLAY, some f-c Sand, some f-c Gravel
HB-PB-622	5D	18.5-20.5	23-S-5171	8.8				28.5	33.1	38.4											Gray SILT & CLAY, some f-c Sand, some f-c Gravel
HB-PB-623	2D	5-7	23-S-5172	7.4				51.9	38.7	9.4											Dark Brown f-c GRAVEL and f-c SAND, trace Silt
HB-PB-625	1D	0-2	23-S-5173	19.0				41.9	38.4	19.7											Brown fine GRAVEL and f-c SAND, little Clayey Silt
HB-PB-627	2D	5-7	23-S-5174	7.8				45.8	27.4	26.8											Brown f-c GRAVEL, some f-c Sand, some Silt & Clay

Date Received: **12.21.23** Reviewed By: Date Reviewed: **01.02.24**

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These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	13.2	11.8	10.4	11.2	53.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	94.2		
3/8"	93.2		
#4	86.8		
#10	75.0		
#20	69.9		
#40	64.6		
#60	59.8		
#100	53.6		
#200	53.4		

* (no specification provided)

Soil Description

Brown CLAYEY SILT, some f-c Sand, little fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 6.4426 D_{85}= 4.1205 D_{60}= 0.2540
D_{50}= D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 5-7'
Sample Number: BB-PB-605 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

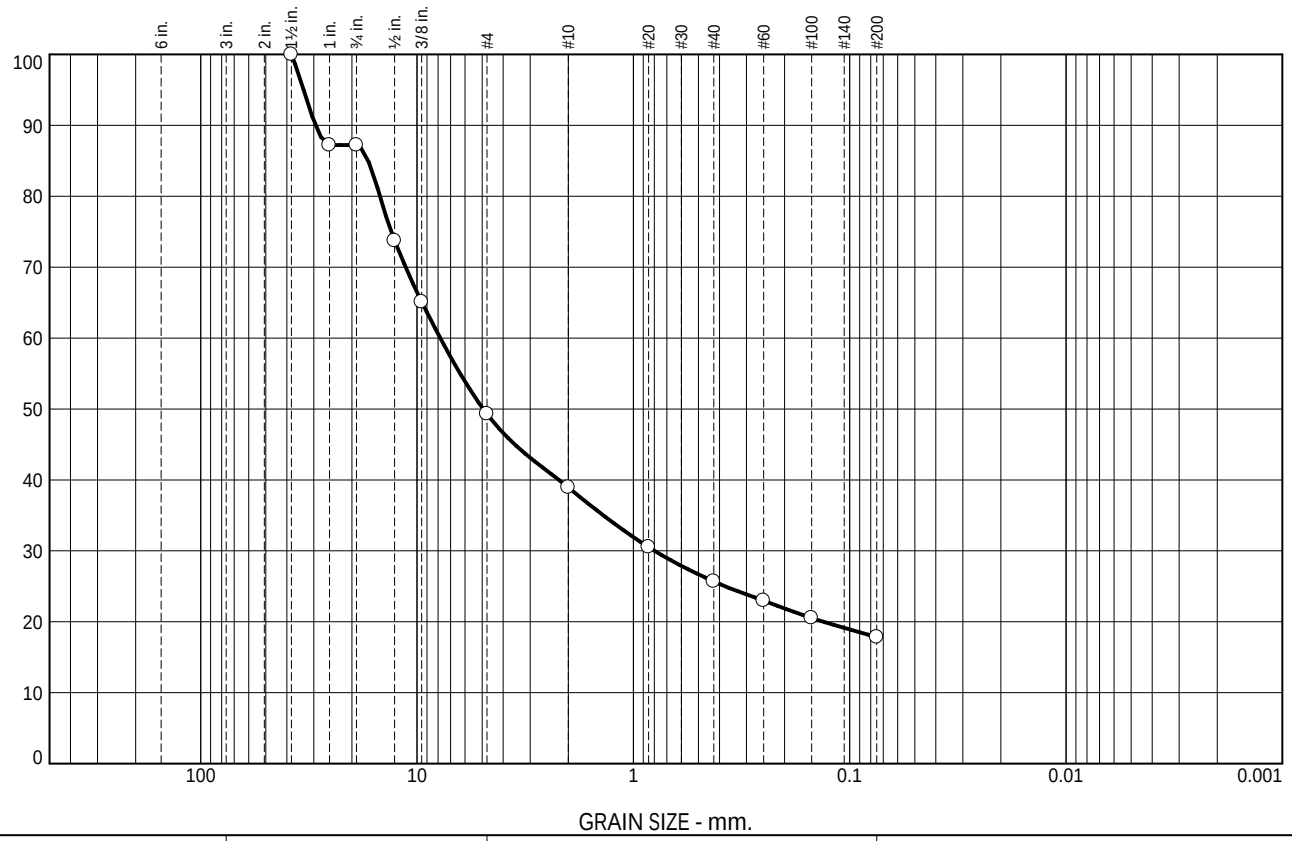
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5166

Tested By: AV / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.8	37.9	10.4	13.2	7.9	17.8	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	87.2		
3/4"	87.2		
1/2"	73.7		
3/8"	65.1		
#4	49.3		
#10	38.9		
#20	30.5		
#40	25.7		
#60	23.0		
#100	20.5		
#200	17.8		

* (no specification provided)

Soil Description

Dark Brown f-c GRAVEL, some f-c Sand, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 29.4496 D_{85}= 16.8096 D_{60}= 7.8053
D_{50}= 4.9407 D_{30}= 0.7980 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-b

Remarks

Source of Sample: Boring Depth: 0-2'
Sample Number: HB-PB-602 / 1D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

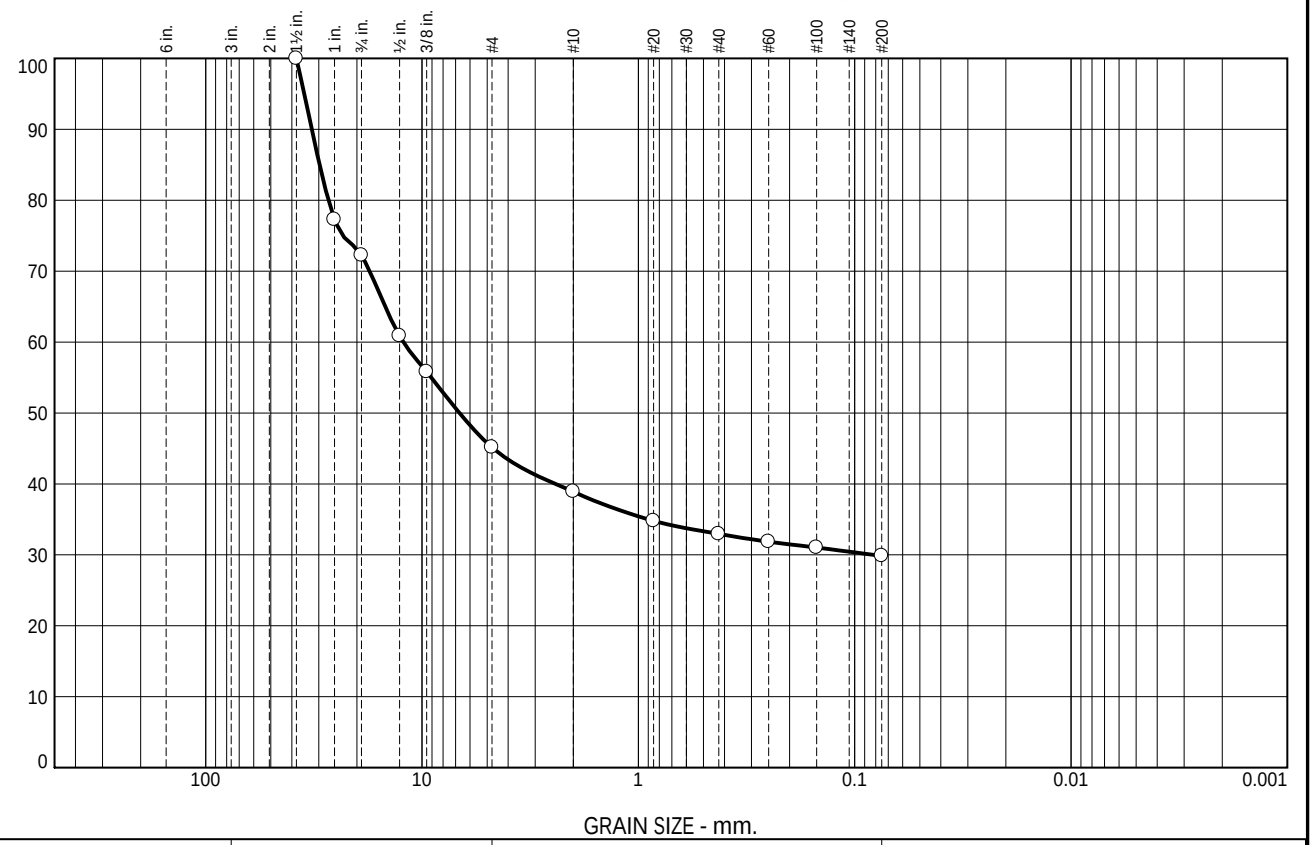
Fig. 23-S-5167

Tested By: AV / JB

Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	27.8	27.0	6.3	5.9	3.2	29.8	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	77.3		
3/4"	72.2		
1/2"	60.9		
3/8"	55.8		
#4	45.2		
#10	38.9		
#20	34.8		
#40	33.0		
#60	31.8		
#100	31.0		
#200	29.8		

* (no specification provided)

Soil Description

Brown f-c GRAVEL, some Silt & Clay, little f-c Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 32.3110 D_{85}= 29.7472 D_{60}= 12.2005
D_{50}= 6.7099 D_{30}= 0.0819 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-2-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 5-7'
Sample Number: HB-PB-609 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

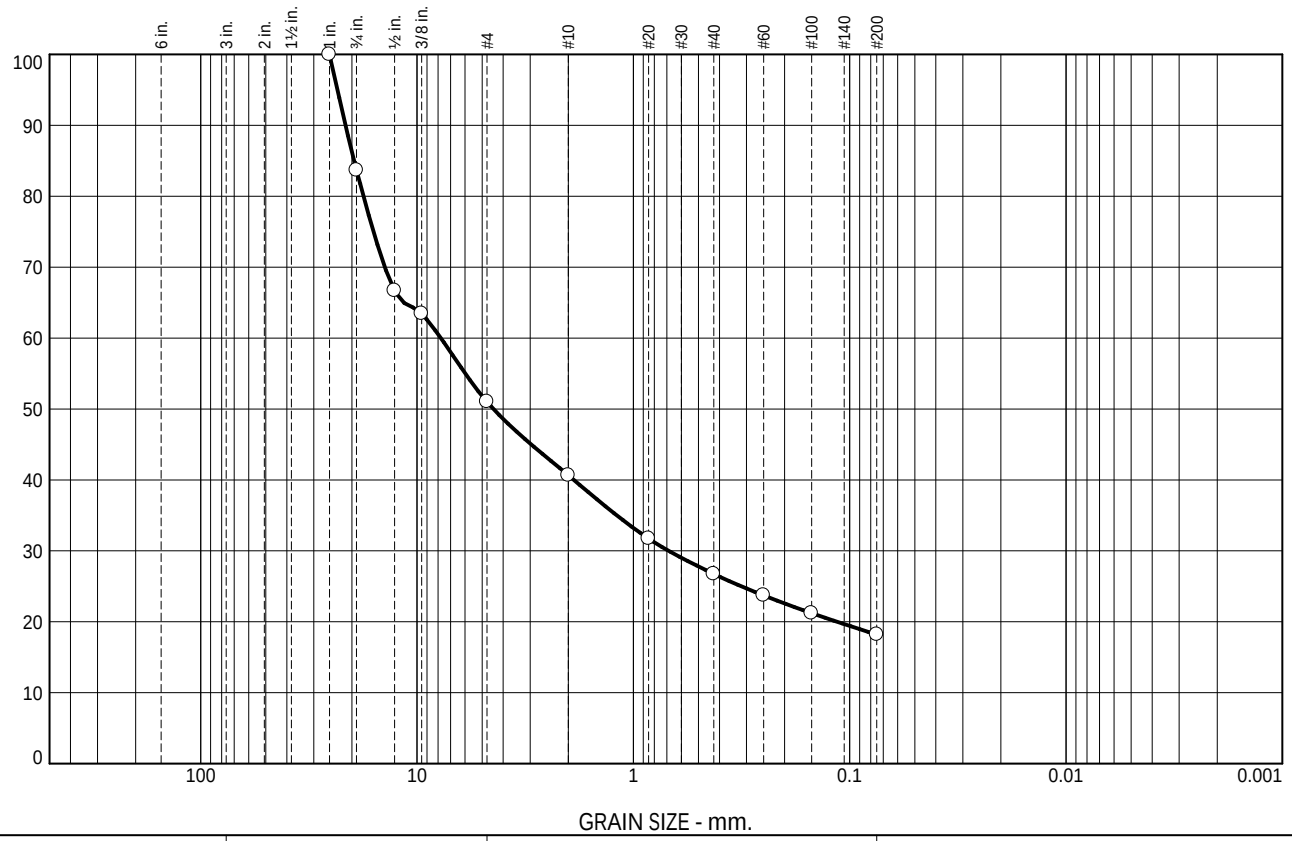
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5168

Tested By: AV / JB Checked By: Kris Roland

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.3	32.7	10.3	14.0	8.5	18.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	83.7		
1/2"	66.7		
3/8"	63.5		
#4	51.0		
#10	40.7		
#20	31.7		
#40	26.7		
#60	23.7		
#100	21.2		
#200	18.2		

* (no specification provided)

Soil Description

Brown f-c GRAVEL, some f-c Sand, little Clayey Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 21.4145 D_{85}= 19.5596 D_{60}= 7.7579
D_{50}= 4.4291 D_{30}= 0.6875 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-b

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 5-7' (top)
Sample Number: HB-PB-613 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

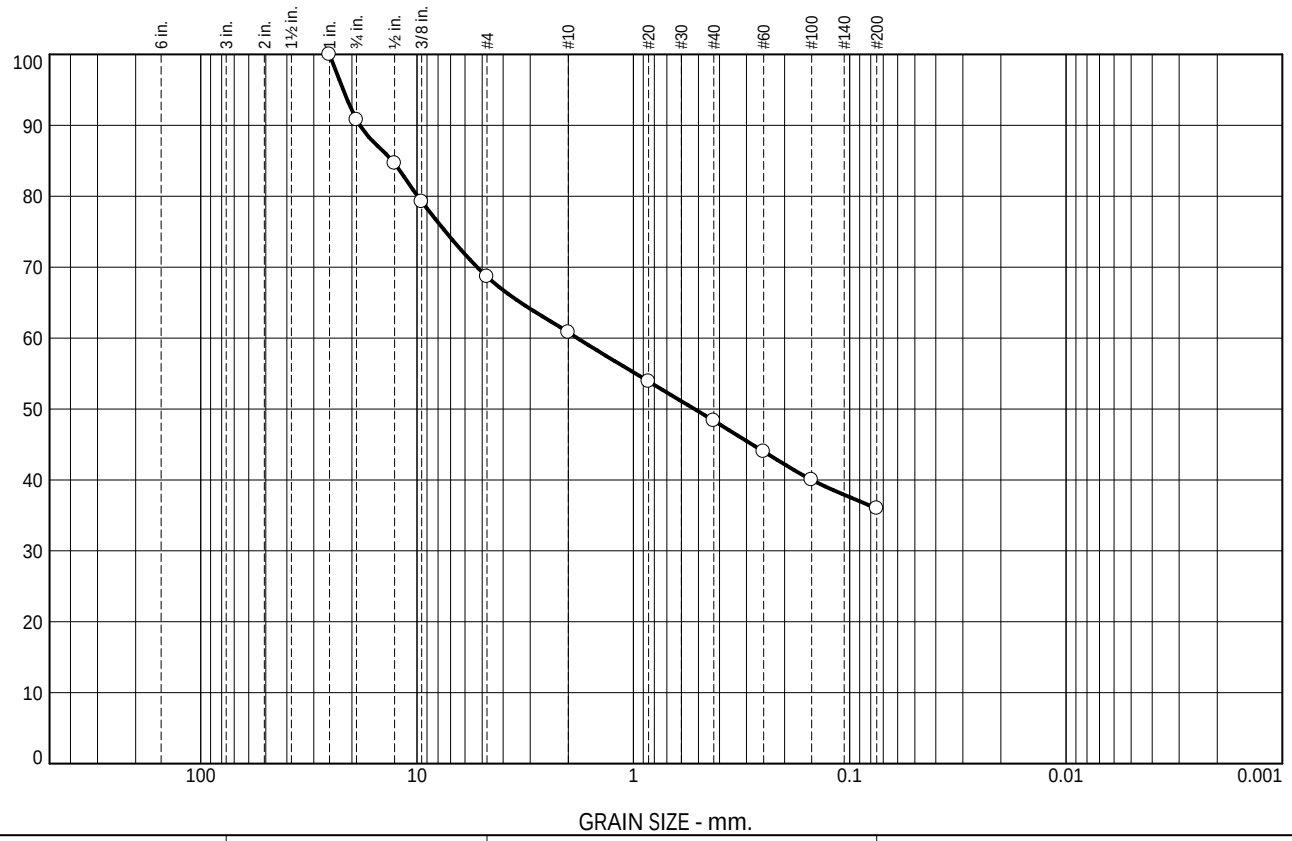
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5169

Tested By: AV / JB Checked By: Kris Roland

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.2	22.1	7.9	12.5	12.3	36.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	90.8		
1/2"	84.6		
3/8"	79.2		
#4	68.7		
#10	60.8		
#20	53.9		
#40	48.3		
#60	44.0		
#100	40.0		
#200	36.0		

* (no specification provided)

Soil Description

Brown SILT & CLAY, some f-c Sand, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 18.3803 D_{85}= 12.9881 D_{60}= 1.8166
D_{50}= 0.5222 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 5-7'
Sample Number: HB-PB-622 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

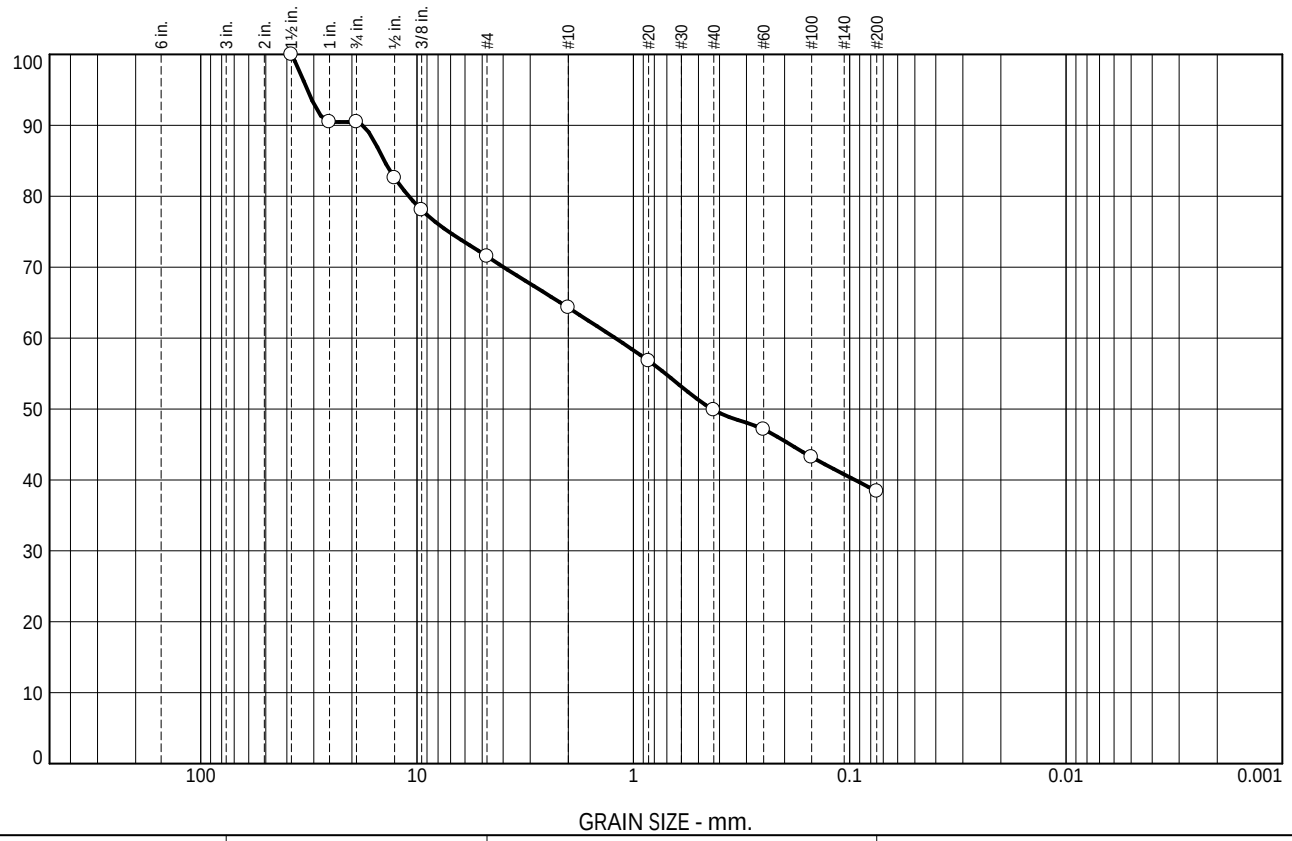
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5170

Tested By: AV / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.5	19.0	7.2	14.4	11.5	38.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	90.5		
3/4"	90.5		
1/2"	82.6		
3/8"	78.1		
#4	71.5		
#10	64.3		
#20	56.8		
#40	49.9		
#60	47.1		
#100	43.2		
#200	38.4		

* (no specification provided)

Soil Description

Gray SILT & CLAY, some f-c Sand, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 17.7349 D_{85}= 14.1634 D_{60}= 1.2126
D_{50}= 0.4328 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 18.5-20.5'
Sample Number: HB-PB-622 / 5D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

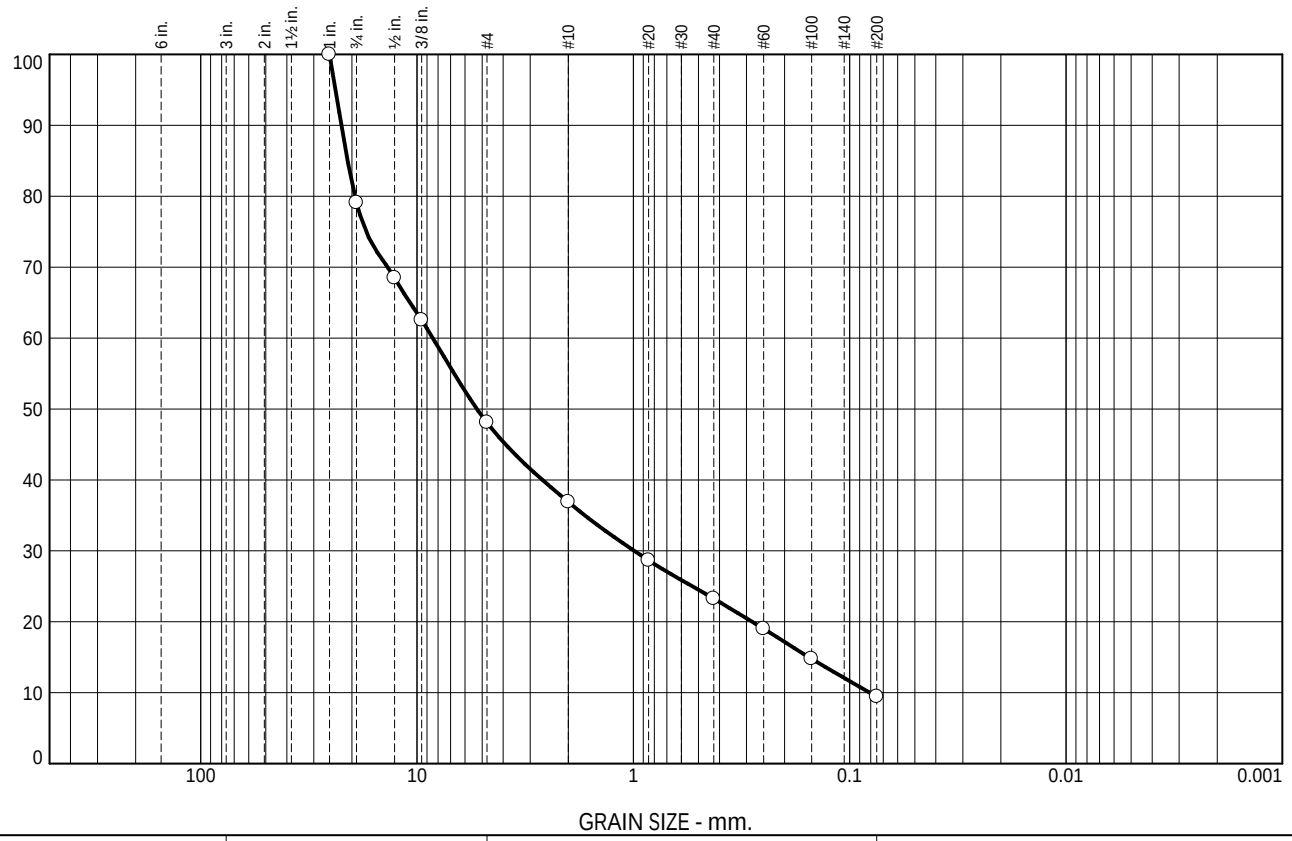
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5171

Tested By: AV / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	20.9	31.0	11.2	13.6	13.9	9.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	79.1		
1/2"	68.5		
3/8"	62.5		
#4	48.1		
#10	36.9		
#20	28.7		
#40	23.3		
#60	19.0		
#100	14.8		
#200	9.4		

* (no specification provided)

Soil Description

Dark Brown f-c GRAVEL and f-c SAND, trace Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 22.3618 D_{85}= 20.9514 D_{60}= 8.4561
D_{50}= 5.2856 D_{30}= 0.9897 D_{15}= 0.1543
D_{10}= 0.0808 C_u= 104.60 C_c= 1.43

Classification

USCS= GW-GM AASHTO= A-1-a

Remarks

Source of Sample: Boring Depth: 5-7'
Sample Number: HB-PB-623 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

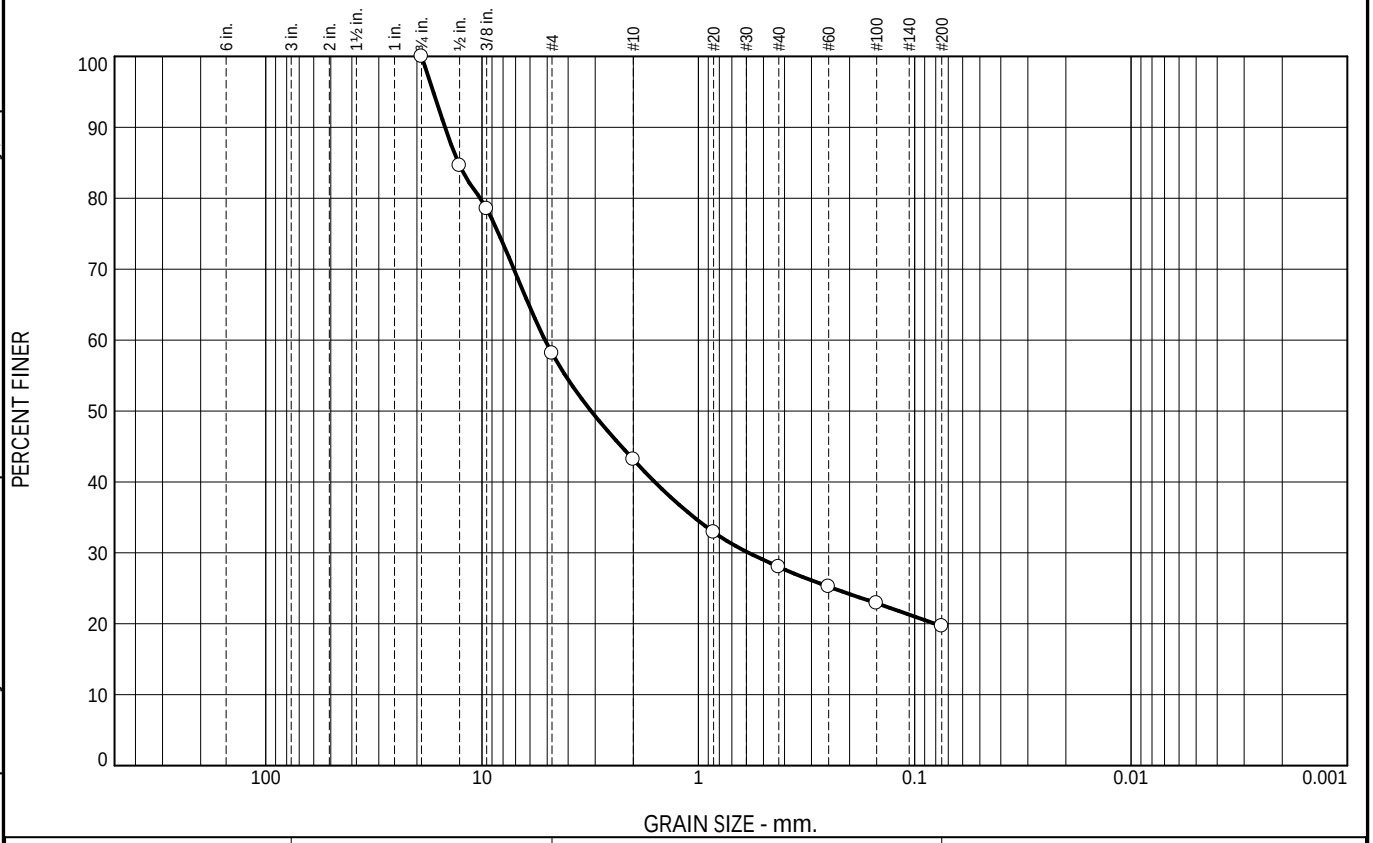
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5172

Tested By: AV / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	41.9	14.9	15.2	8.3	19.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	84.6		
3/8"	78.5		
#4	58.1		
#10	43.2		
#20	32.9		
#40	28.0		
#60	25.2		
#100	22.9		
#200	19.7		

* (no specification provided)

Soil Description

Brown fine GRAVEL and f-c SAND, little Clayey Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 14.8276 D_{85}= 12.8610 D_{60}= 5.1166
D_{50}= 3.1340 D_{30}= 0.5854 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-b

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 0-2'
Sample Number: HB-PB-625 / 1D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

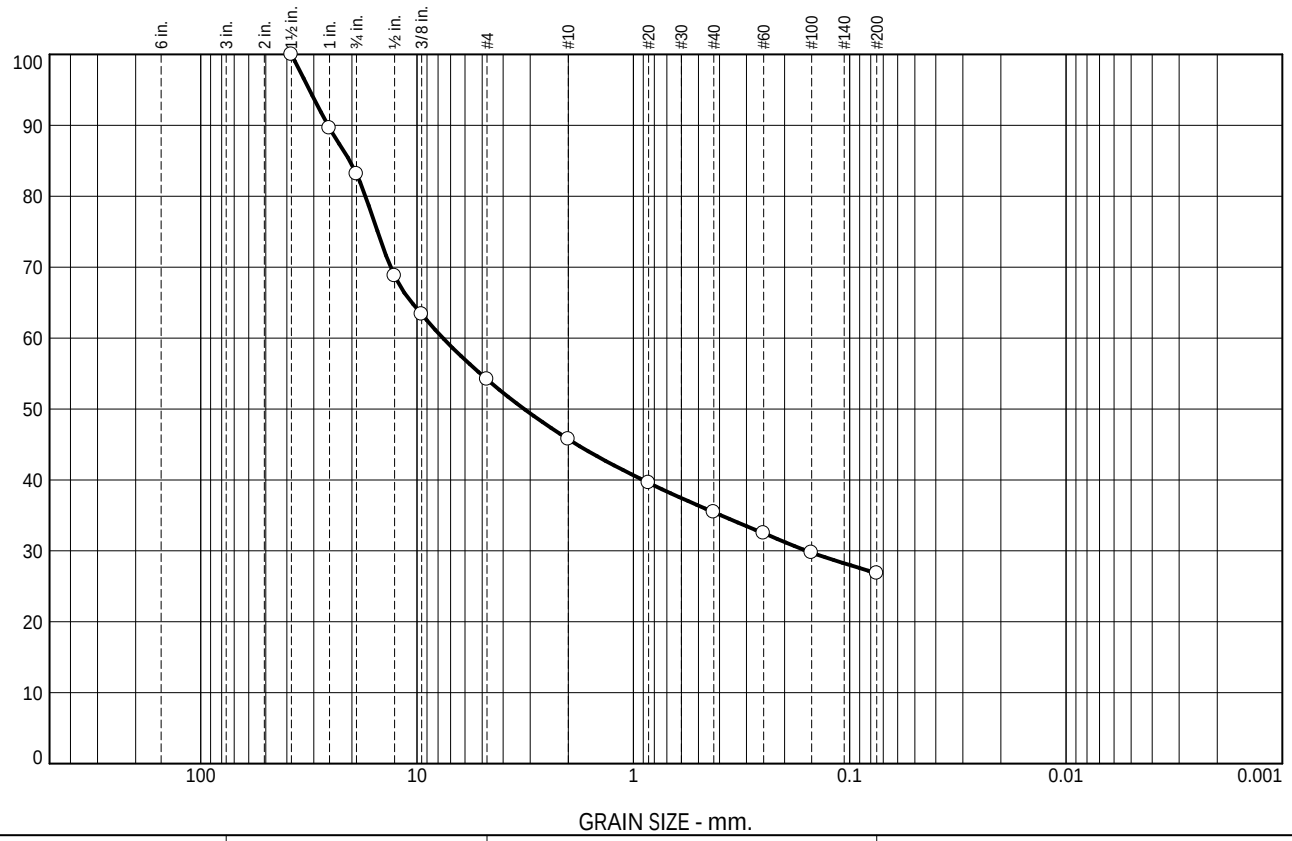
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5173

Tested By: AV / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.8	29.0	8.5	10.3	8.6	26.8	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	89.6		
3/4"	83.2		
1/2"	68.8		
3/8"	63.4		
#4	54.2		
#10	45.7		
#20	39.6		
#40	35.4		
#60	32.5		
#100	29.7		
#200	26.8		

* (no specification provided)

Soil Description

Brown f-c GRAVEL, some f-c Sand, some Silt & Clay

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 25.8006 D_{85}= 20.4568 D_{60}= 7.5894
D_{50}= 3.1992 D_{30}= 0.1579 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-2-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 5-7'
Sample Number: HB-PB-627 / 2D

Date: 12.29.23

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5174

Tested By: AV / JB Checked By: Kris Roland

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
cts.thielsch.com
Let's Build a Solid Foundation

Client Information:		Project Information:	
GZA GeoEnvironmental		**Presque Isle Bypass, MEDOT WIN 6462.00**	
Sourth Portland, ME		**Presque Isle, ME**	
Project Manager:	Blaine Cardali	Project Number:	09.0025832.06
Assigned By:	Blaine Cardali	Summary Page:	1 of 1
Collected By:	Blaine Cardali	Report Date:	01.10.24

LABORATORY TESTING DATA SHEET, Report No.: 7423-M-197

Boring No.	Sample ID	Depth (ft)	Laboratory No.	Identification Tests									Proctor / CBR / Permeability Tests								Laboratory Log and Soil Description
				As Rcvd Moisture Content %	LL %	PL %	OD LL	Gravel %	Sand %	Fines %	Org. %	pH	g_d MAX (pcf) W_{opt} (%)	g_d MAX (pcf) W_{opt} (%) (Corr.)	Dry unit wt. (pcf)	Test Moisture Content %	Target Test Setup as % of Proctor	CBR @ 0.1"	CBR @ 0.2"	Permeability cm/sec	
				D2216	D4318			D6913			D2974	D4792	D1557								
BB-PB-601	1D	0-2	23-S-5175	13.6				25.5	27.0	47.5											Brown CLAYEY SILT, some f-c Sand, some f-c Gravel
BB-PB-602	1D	0-2	23-S-5176	20.4				39.4	40.2	20.4											Brown f-c SAND and f-c GRAVEL, some Clayey Silt
BB-PB-603	2D	5-7	23-S-5177	14.4				21.9	29.3	48.8											Brown CLAYEY SILT, some f-c Sand, some f-c Gravel
BB-PB-604	2D	5-7	23-S-5178	13.8				13.7	29.9	56.4											Brown SILT & CLAY, some f-c Sand, little fine Gravel
HB-PB-612	1D	0-2	23-S-5179	11.1				31.5	47.5	21.0											Brown f-c SAND, some fine Gravel, some Clayey Silt
HB-PB-617	1D	0-2 (bot)	23-S-5180	25.0				26.4	36.1	37.5											Brown CLAYEY SILT and f-c SAND, some f-c Gravel
HB-PB-619	2D	5-7	23-S-5181	12.8				28.6	29.1	42.3											Brown CLAYEY SILT, some f-c Sand, some fine Gravel
HB-PB-623	3D	10-12	23-S-5182	66.9				44.4	16.1	39.5											Brown f-c GRAVEL, little Clayey Silt, little f-c Sand
HB-PB-622	3D	10-12	23-S-5183	21.9	34	23		33.9	24.1	42.0											Brown CLAY & SILT, some f-c Gravel, some f-c Sand

Date Received: **12.21.23** Reviewed By: Date Reviewed: **01.10.24**

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Thielsch
DIVISION OF THE RISE GROUP

CTS Laboratory
195 Frances Ave, Cranston RI 02910
401.467.6454 | cts.thielsch.com

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Project ID: Presque Isle Bypass

MEDOT Project Number: 6462.00

Town(s): Presque Isle

GZA Project Number: 09.0025832.06

Boring & Sample ID Number	Station (Feet)	Sample No.	Depth (Feet)	Lab Number	Organic %	W.C.	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
BB-PB-601		1D	0-2	S-5175		13.6			SM	A-4(0)	III
BB-PB-602		1D	0-2	S-5176		20.4			SM	A-1-b	III
BB-PB-603		2D	5-7	S-5177		14.4			SM	A-4(0)	III
BB-PB-604		2D	5-7	S-5178		13.8			ML	A-4(0)	IV
HB-PB-612		1D	0-2	S-5179		11.1			SM	A-1-b	III
HB-PB-617		1D	0-2 (bot)	S-5180		25.0			SM	A-4(0)	III
HB-PB-619		2D	5-7	S-5181		12.8			SM	A-4(0)	III
HB-PB-623		3D	10-12	S-5182		66.9			GM	A-4(0)	III
HB-PB-622		3D	10-12	S-5183		21.9	34	11	GC	A-6(1)	III

Classification of these soil samples is in accordance with AASHTO Classification System M-145-95. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-19 and/or ASTM D 7928-21e1 (Last Updated June 2021)

WC = water content as determined by AASHTO T 265-19 and/or ASTM D 2216-19

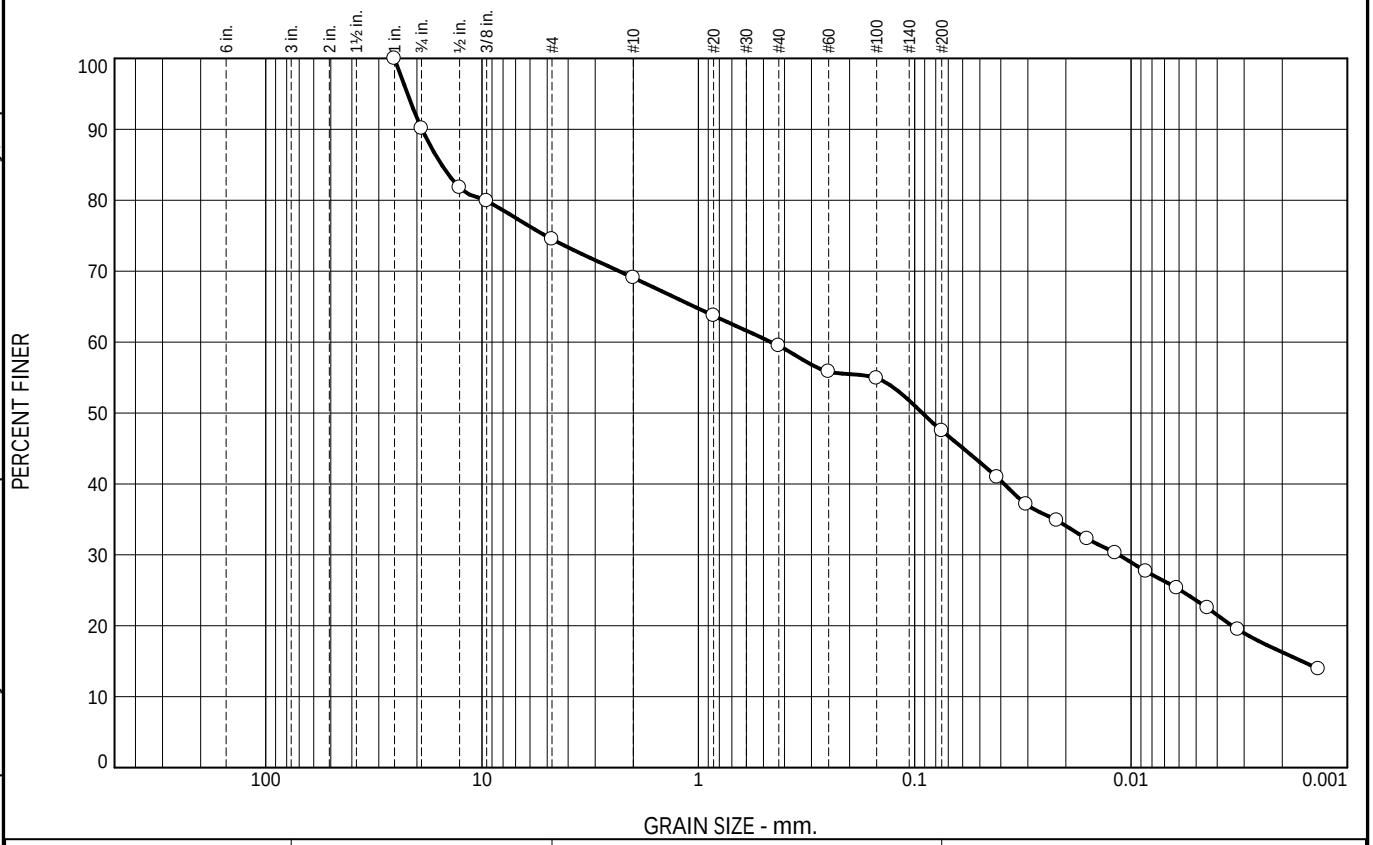
LL = Liquid limit as determined by AASHTO T 89-17 and/or ASTM D 4318-17E01

PI = Plasticity Index as determined by AASHTO 90-16 and/or ASTM D4318-17E01

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	9.9	15.6	5.4	9.6	12.0	31.2	16.3

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	90.1		
1/2"	81.8		
3/8"	79.9		
#4	74.5		
#10	69.1		
#20	63.7		
#40	59.5		
#60	55.8		
#100	54.9		
#200	47.5		
0.0416 mm.	40.9		
0.0305 mm.	37.1		
0.0220 mm.	34.8		
0.0159 mm.	32.2		
0.0118 mm.	30.3		
0.0085 mm.	27.7		
0.0061 mm.	25.3		
0.0044 mm.	22.5		
0.0032 mm.	19.5		
0.0014 mm.	13.9		

* (no specification provided)

Soil Description

Brown CLAYEY SILT, some f-c Sand, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 18.9573 D_{85}= 15.3665 D_{60}= 0.4613
D_{50}= 0.0922 D_{30}= 0.0114 D_{15}= 0.0016
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 0-2'
Sample Number: BB-PB-601 / 1D

Date: 01.04.24

Thielsch Engineering Inc.

Cranston, RI

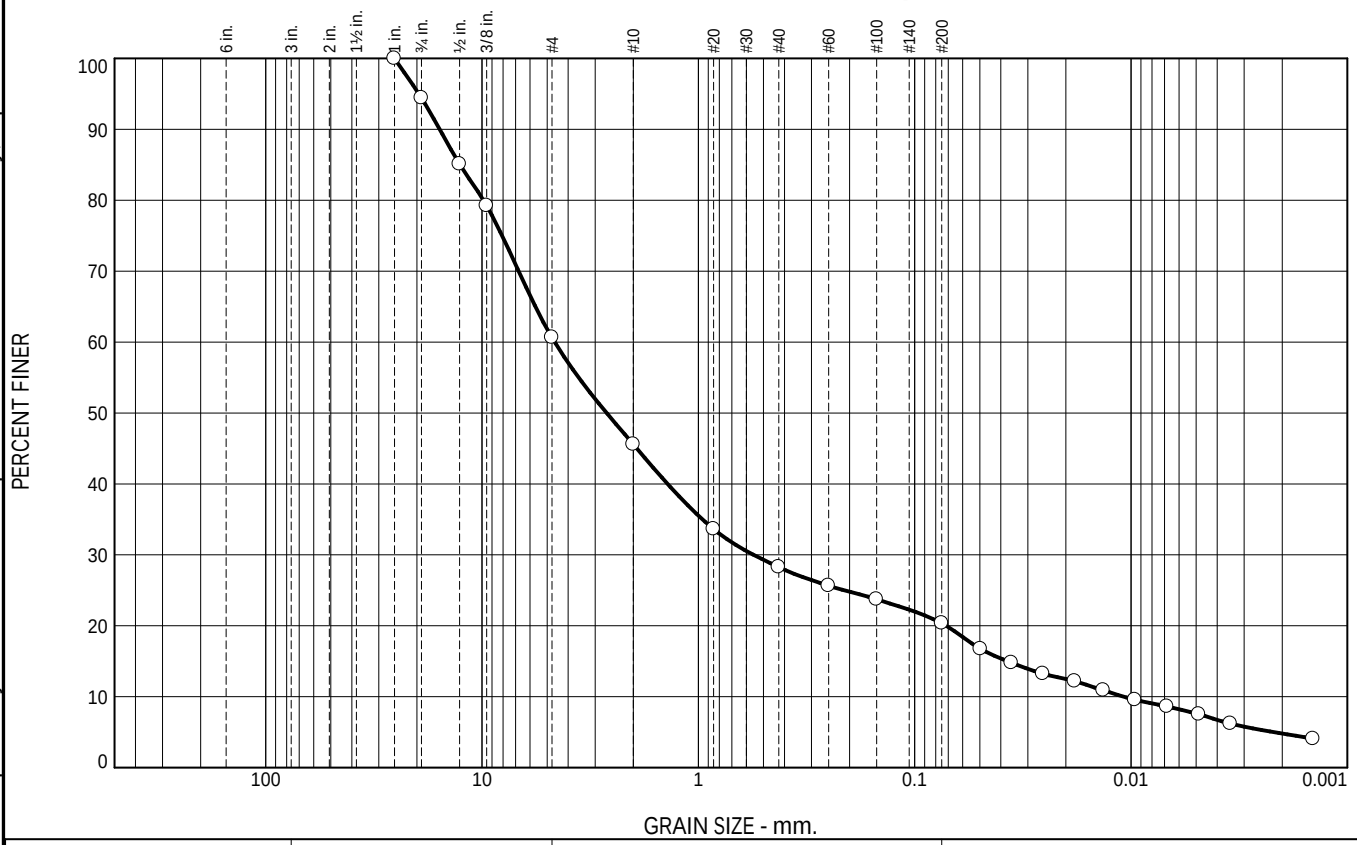
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5175

Tested By: RB / JB Checked By: Kris Roland

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.6	33.8	15.0	17.3	7.9	15.6	4.8

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	94.4		
1/2"	85.1		
3/8"	79.2		
#4	60.6		
#10	45.6		
#20	33.6		
#40	28.3		
#60	25.6		
#100	23.7		
#200	20.4		
0.0497 mm.	16.7		
0.0357 mm.	14.8		
0.0255 mm.	13.2		
0.0182 mm.	12.2		
0.0134 mm.	10.9		
0.0096 mm.	9.6		
0.0068 mm.	8.6		
0.0049 mm.	7.5		
0.0035 mm.	6.2		
0.0014 mm.	4.1		

* (no specification provided)

Soil Description

Brown f-c SAND and f-c GRAVEL, some Clayey Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 15.7005 D_{85}= 12.6420 D_{60}= 4.6125
D_{50}= 2.6537 D_{30}= 0.5556 D_{15}= 0.0372
D_{10}= 0.0108 C_u= 426.29 C_c= 6.19

Classification

USCS= SM AASHTO= A-1-b

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 0-2'
Sample Number: BB-PB-602 / 1D

Date: 01.04.24

Thielsch Engineering Inc.

Cranston, RI

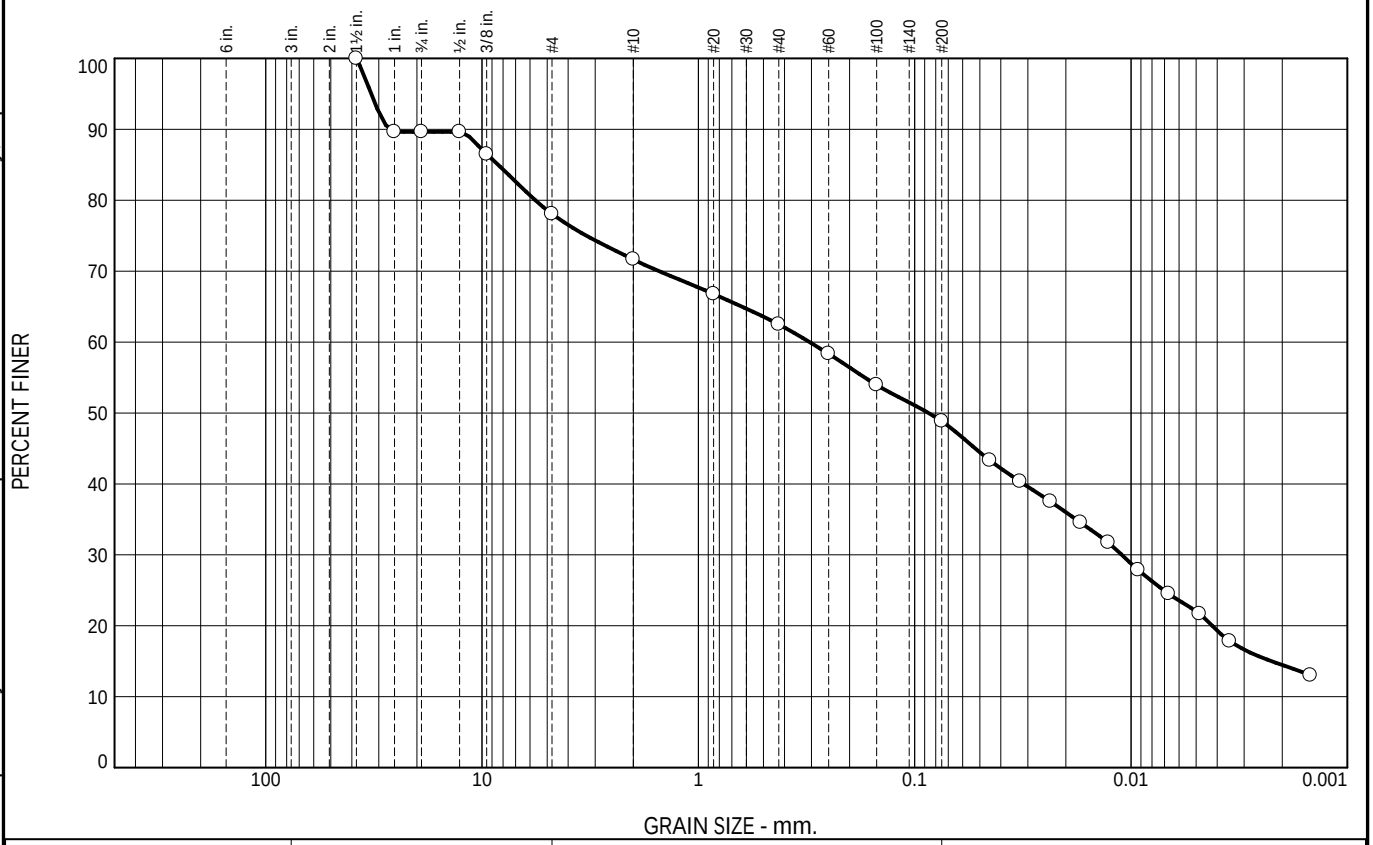
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5176

Tested By: RB / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.4	11.5	6.4	9.2	13.7	34.3	14.5

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	89.6		
3/4"	89.6		
1/2"	89.6		
3/8"	86.5		
#4	78.1		
#10	71.7		
#20	66.8		
#40	62.5		
#60	58.4		
#100	54.0		
#200	48.8		
0.0450 mm.	43.3		
0.0326 mm.	40.4		
0.0236 mm.	37.5		
0.0171 mm.	34.6		
0.0128 mm.	31.7		
0.0093 mm.	27.9		
0.0067 mm.	24.5		
0.0048 mm.	21.7		
0.0035 mm.	17.8		
0.0015 mm.	13.0		

* (no specification provided)

Soil Description

Brown CLAYEY SILT, some f-c Sand, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 26.8412 D_{85}= 8.4226 D_{60}= 0.3062
D_{50}= 0.0862 D_{30}= 0.0110 D_{15}= 0.0022
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 5-7'
Sample Number: BB-PB-603 / 2D

Date: 01.04.24

Thielsch Engineering Inc.

Cranston, RI

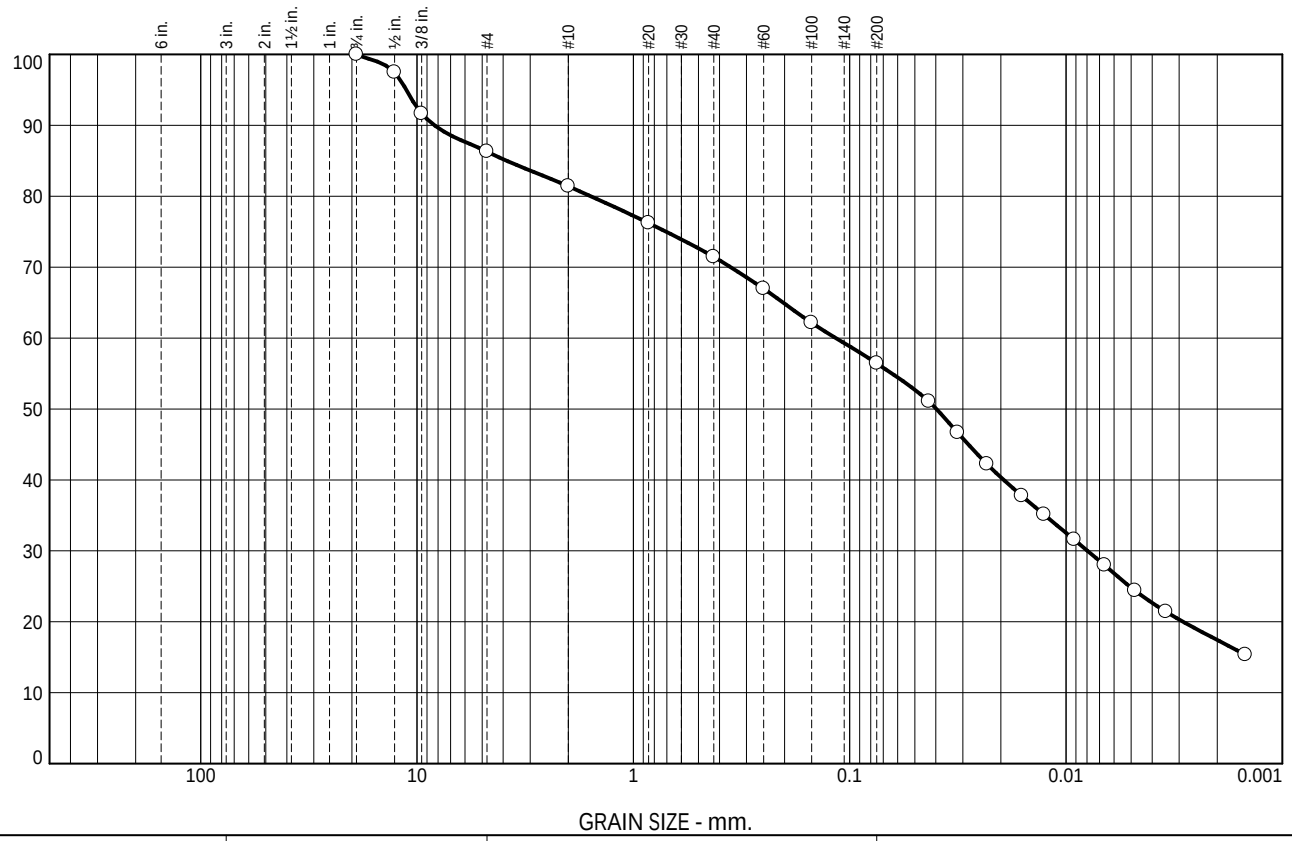
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5177

Tested By: RB / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	13.7	4.9	10.0	15.0	39.0	17.4

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	97.5		
3/8"	91.6		
#4	86.3		
#10	81.4		
#20	76.2		
#40	71.4		
#60	67.0		
#100	62.1		
#200	56.4		
0.0431 mm.	51.1		
0.0317 mm.	46.6		
0.0232 mm.	42.2		
0.0160 mm.	37.8		
0.0126 mm.	35.1		
0.0092 mm.	31.6		
0.0066 mm.	28.0		
0.0048 mm.	24.4		
0.0035 mm.	21.4		
0.0015 mm.	15.3		

* (no specification provided)

Soil Description

Brown SILT & CLAY, some f-c Sand, little fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 8.2992 D_{85}= 3.8464 D_{60}= 0.1159
D_{50}= 0.0397 D_{30}= 0.0080 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 5-7'
Sample Number: BB-PB-604 / 2D

Date: 01.04.24

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

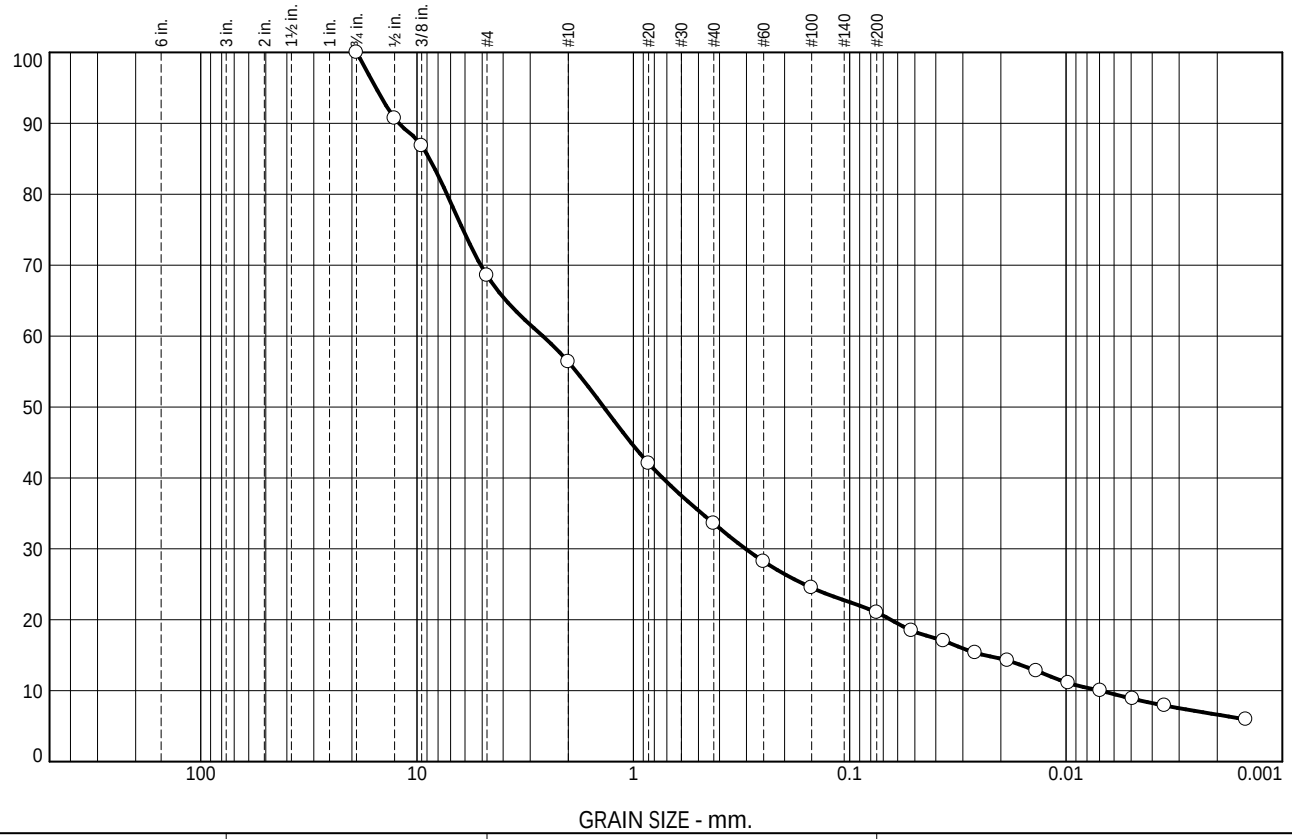
Fig. 23-S-5178

Tested By: RB / JB

Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	31.5	12.1	22.8	12.6	14.4	6.6

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	90.7		
3/8"	86.8		
#4	68.5		
#10	56.4		
#20	42.0		
#40	33.6		
#60	28.2		
#100	24.5		
#200	21.0		
0.0518 mm.	18.5		
0.0368 mm.	17.0		
0.0263 mm.	15.3		
0.0187 mm.	14.2		
0.0137 mm.	12.8		
0.0098 mm.	11.1		
0.0069 mm.	10.0		
0.0049 mm.	8.9		
0.0035 mm.	7.9		
0.0015 mm.	5.9		

* (no specification provided)

Soil Description

Brown f-c SAND, some fine Gravel, some Clayey Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 12.1598 D_{85}= 8.7591 D_{60}= 2.6229
D_{50}= 1.3712 D_{30}= 0.3030 D_{15}= 0.0238
D_{10}= 0.0070 C_u= 376.78 C_c= 5.03

Classification

USCS= SM AASHTO= A-1-b

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 0-2'
Sample Number: HB-PB-612 / 1D

Date: 01.04.24

Thielsch Engineering Inc.

Cranston, RI

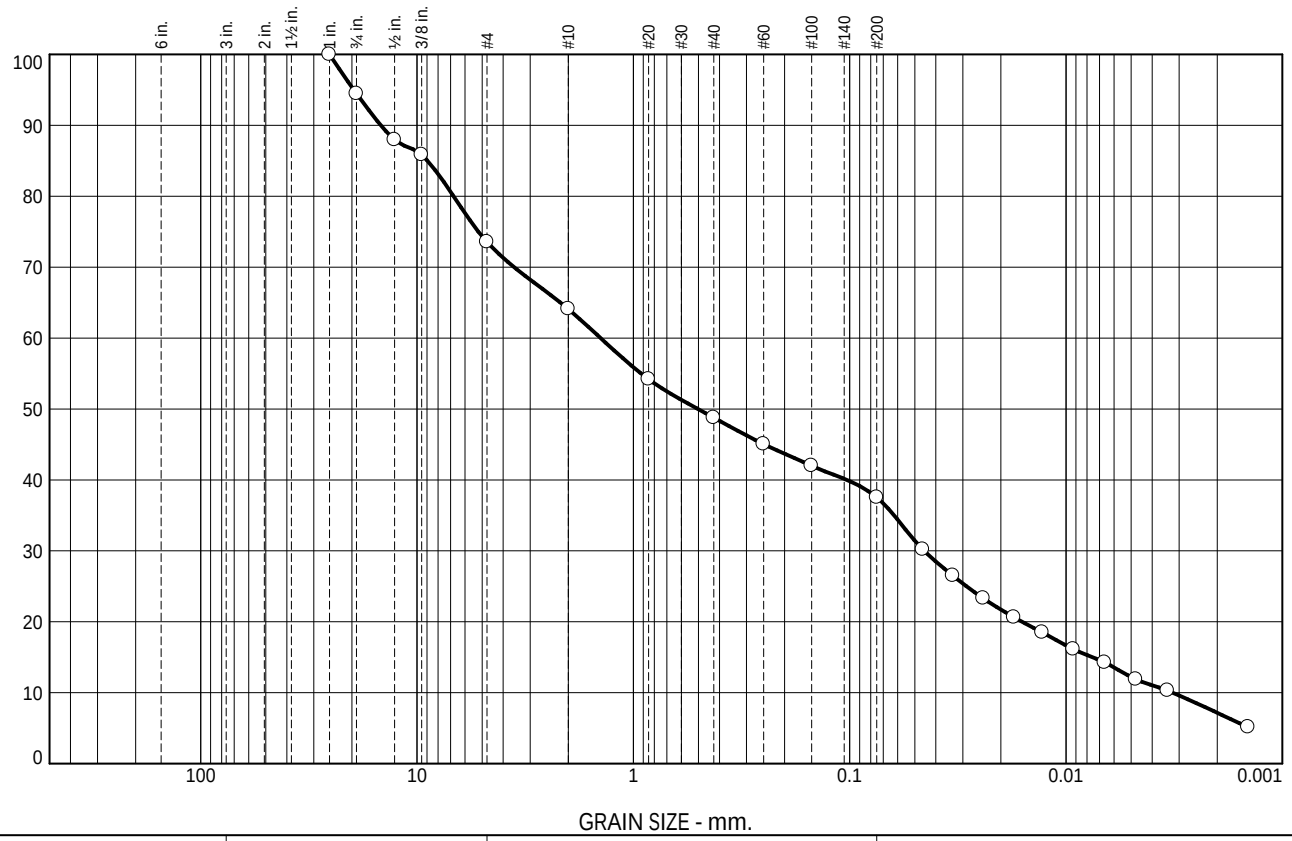
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5179

Tested By: RB / JB Checked By: Kris Roland

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	5.5	20.9	9.5	15.3	11.3	30.3	7.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	94.5		
1/2"	88.0		
3/8"	85.8		
#4	73.6		
#10	64.1		
#20	54.2		
#40	48.8		
#60	45.1		
#100	42.0		
#200	37.5		
0.0459 mm.	30.2		
0.0334 mm.	26.5		
0.0242 mm.	23.3		
0.0174 mm.	20.6		
0.0129 mm.	18.5		
0.0093 mm.	16.1		
0.0066 mm.	14.3		
0.0048 mm.	11.9		
0.0034 mm.	10.3		
0.0014 mm.	5.1		

* (no specification provided)

Soil Description

Brown CLAYEY SILT and f-c SAND, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 14.7030 D_{85}= 8.9565 D_{60}= 1.4173
D_{50}= 0.5024 D_{30}= 0.0453 D_{15}= 0.0075
D_{10}= 0.0032 C_u= 439.83 C_c= 0.45

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 0-2' (bottom)
Sample Number: HB-PB-617 / 1D

Date: 01.05.24

Thielsch Engineering Inc.

Cranston, RI

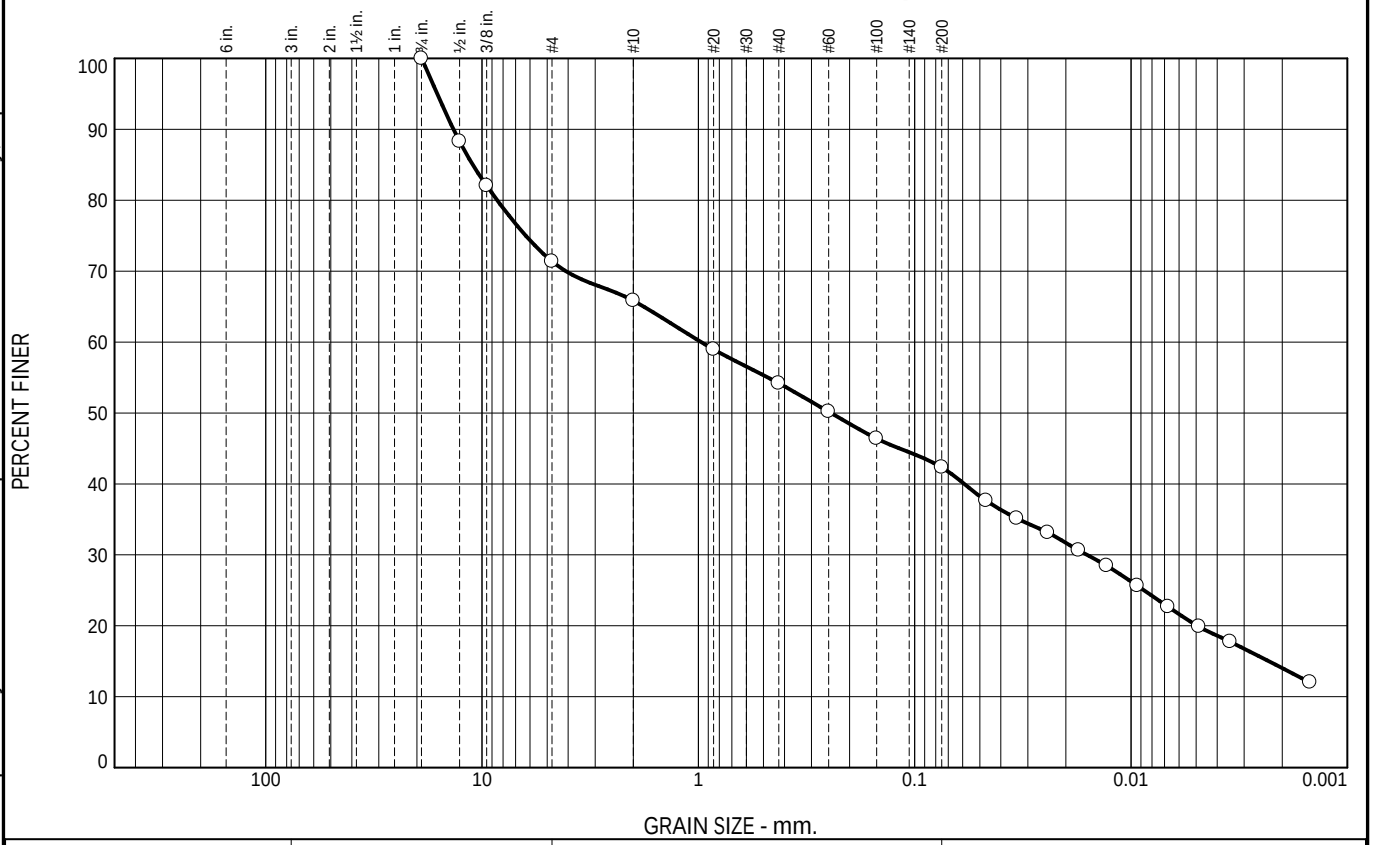
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5180

Tested By: JB / RB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	28.6	5.6	11.6	11.9	28.3	14.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	88.3		
3/8"	82.1		
#4	71.4		
#10	65.8		
#20	59.0		
#40	54.2		
#60	50.2		
#100	46.4		
#200	42.3		
0.0468 mm.	37.6		
0.0338 mm.	35.1		
0.0242 mm.	33.1		
0.0175 mm.	30.6		
0.0130 mm.	28.5		
0.0094 mm.	25.6		
0.0067 mm.	22.7		
0.0049 mm.	19.9		
0.0035 mm.	17.7		
0.0015 mm.	12.0		

* (no specification provided)

Soil Description

Brown CLAYEY SILT, some f-c Sand, some fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 13.5488 D_{85}= 11.0334 D_{60}= 0.9712
D_{50}= 0.2438 D_{30}= 0.0160 D_{15}= 0.0023
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: Boring Depth: 5-7'
Sample Number: HB-PB-619 / 2D

Date: 01.05.24

Thielsch Engineering Inc.

Cranston, RI

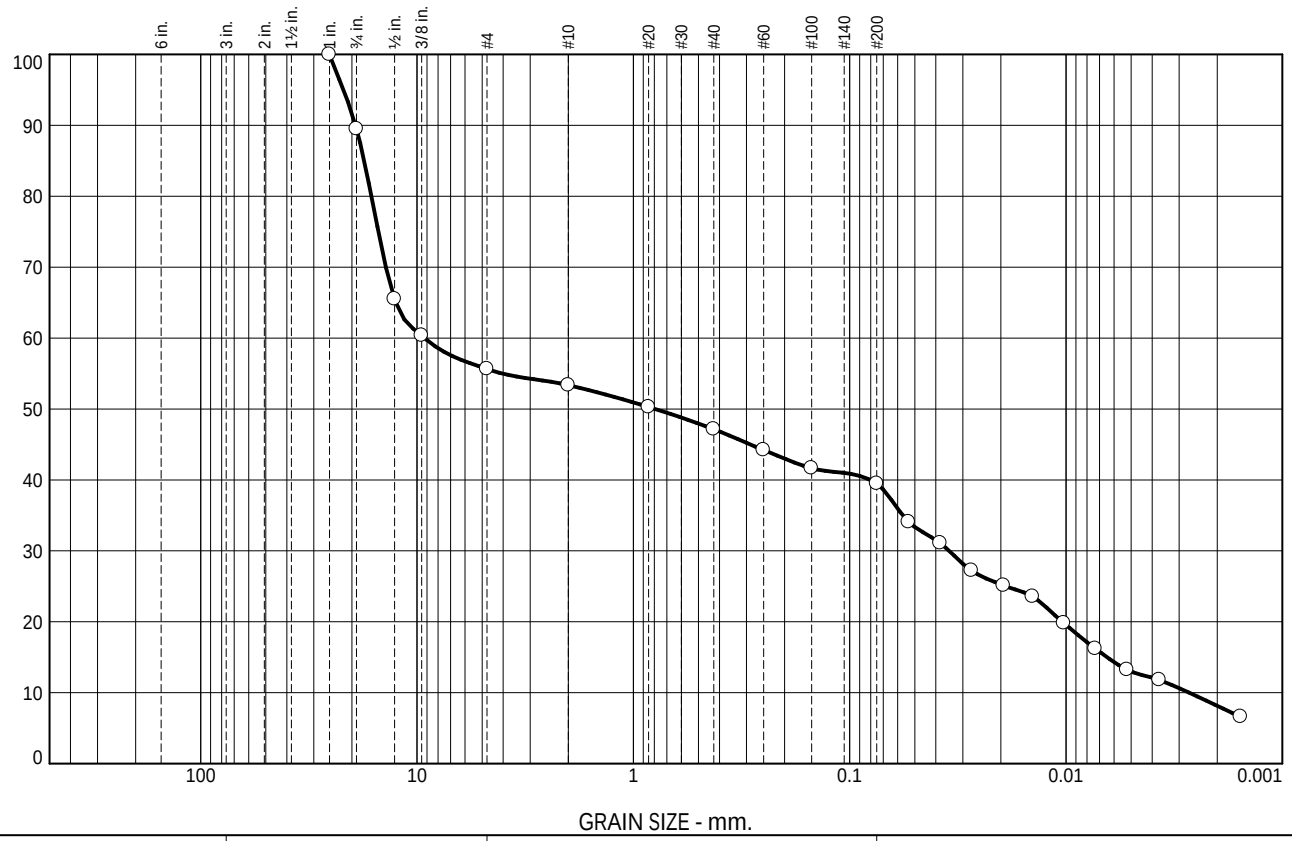
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5181

Tested By: RB / JB Checked By: Kris Roland

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Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.5	33.9	2.2	6.2	7.7	31.4	8.1

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	89.5		
1/2"	65.5		
3/8"	60.4		
#4	55.6		
#10	53.4		
#20	50.3		
#40	47.2		
#60	44.2		
#100	41.6		
#200	39.5		
0.0534 mm.	34.1		
0.0382 mm.	31.1		
0.0273 mm.	27.2		
0.0195 mm.	25.1		
0.0143 mm.	23.5		
0.0102 mm.	19.8		
0.0073 mm.	16.2		
0.0052 mm.	13.2		
0.0037 mm.	11.8		
0.0016 mm.	6.6		

* (no specification provided)

Source of Sample: Boring Depth: 10-12'
Sample Number: HB-PB-623 / 3D

Date: 01.05.24

Soil Description

Brown f-c GRAVEL, little Clayey Silt, little f-c Sand

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.2539 D_{85}= 17.5608 D_{60}= 9.2302
D_{50}= 0.7926 D_{30}= 0.0347 D_{15}= 0.0065
D_{10}= 0.0027 C_u= 3422.60 C_c= 0.05

Classification

USCS= GM AASHTO= A-4(0)

Remarks

Sample consisted of Organic material larger than the #200, little to none is considered mineral. Sample visually classified as plastic. Sample rolled to 1/4".

Thielsch Engineering Inc.

Cranston, RI

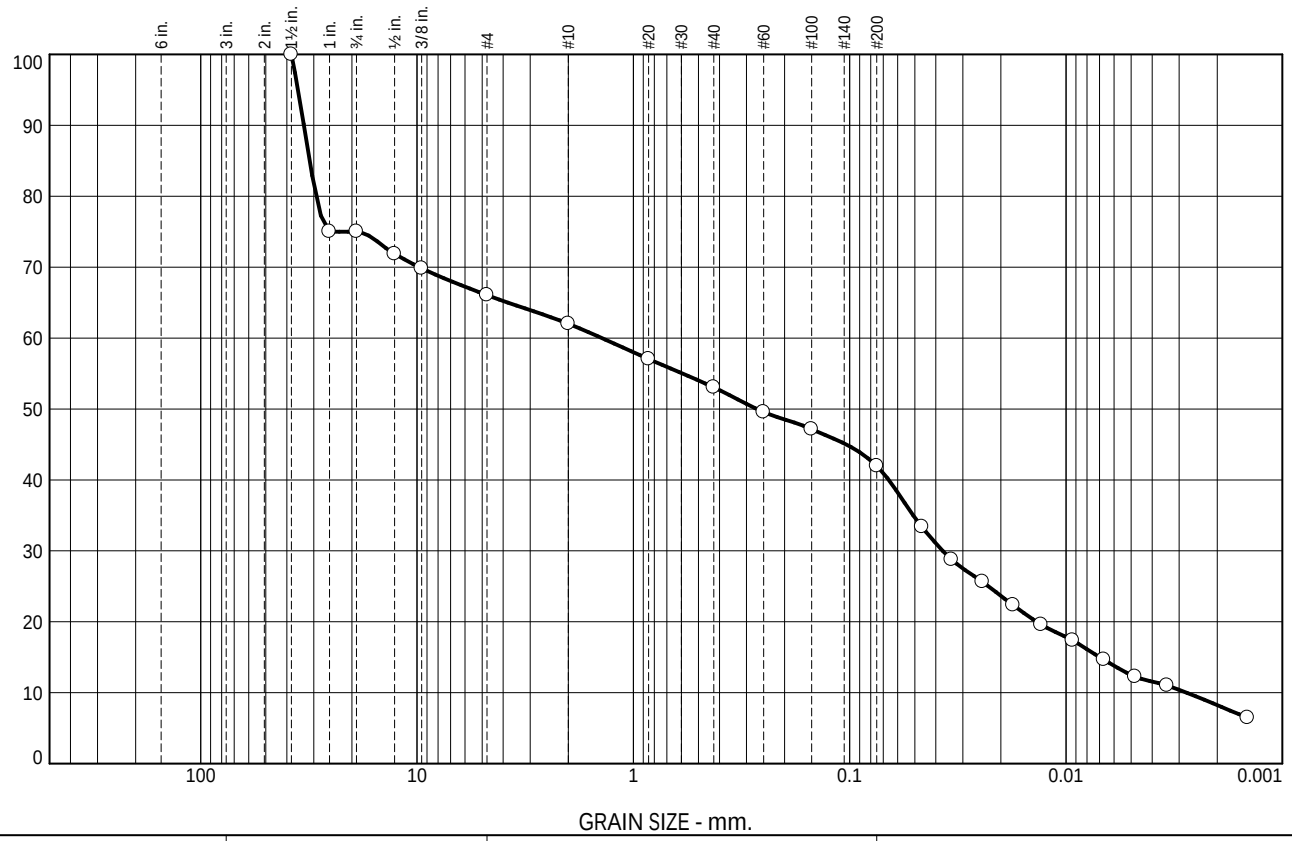
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5182

Tested By: RB / JB Checked By: Kris Roland

These results are for the exclusive use of the client for whom they were obtained. This report only relates to items inspect and/or tested. No warranty, expressed or implied, is made.

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	25.0	8.9	4.1	8.9	11.1	33.8	8.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	75.0		
3/4"	75.0		
1/2"	71.9		
3/8"	69.8		
#4	66.1		
#10	62.0		
#20	57.0		
#40	53.1		
#60	49.6		
#100	47.2		
#200	42.0		
0.0464 mm.	33.4		
0.0338 mm.	28.8		
0.0244 mm.	25.6		
0.0176 mm.	22.4		
0.0130 mm.	19.6		
0.0093 mm.	17.4		
0.0067 mm.	14.7		
0.0048 mm.	12.3		
0.0034 mm.	11.0		
0.0015 mm.	6.5		

* (no specification provided)

Soil Description

Brown CLAY & SILT, some f-c Gravel, some f-c Sand

Atterberg Limits

PL= 23 LL= 34 PI= 11

Coefficients

D_{90}= 33.3576 D_{85}= 31.3586 D_{60}= 1.3958
D_{50}= 0.2688 D_{30}= 0.0372 D_{15}= 0.0070
D_{10}= 0.0028 C_u= 503.44 C_c= 0.36

Classification

USCS= GC AASHTO= A-6(1)

Remarks

Sample visually classified as plastic. Sample rolled to 1/8".

Source of Sample: Boring Depth: 10-12'
Sample Number: HB-PB-622 / 3D

Date: 01.05.24

Thielsch Engineering Inc.

Cranston, RI

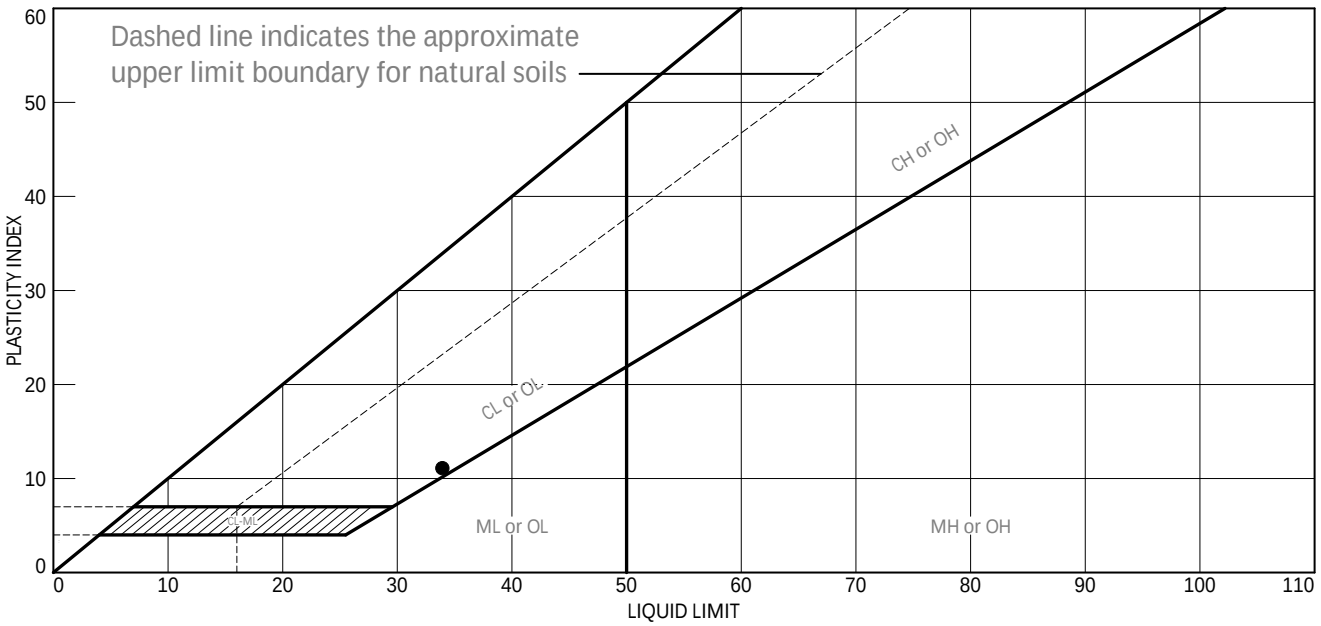
Client: GZA GeoEnvironmental
Project: Presque Isle Bypass
MEDOT WIN 6462.00
Project No: 09.0025832.06

Fig. 23-S-5183

Tested By: RB / JB Checked By: Kris Roland

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LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown CLAY & SILT, some f-c Gravel, some f-c Sand	34	23	11	53.1	42.0	GC

Project No. 09.0025832.06 Client: GZA GeoEnvironmental

Project: Presque Isle Bypass

MEDOT WIN 6462.00

Source of Sample: Boring Depth: 10-12'

Sample Number: HB-PB-622 / 3D

Remarks:

Thielsch Engineering Inc.

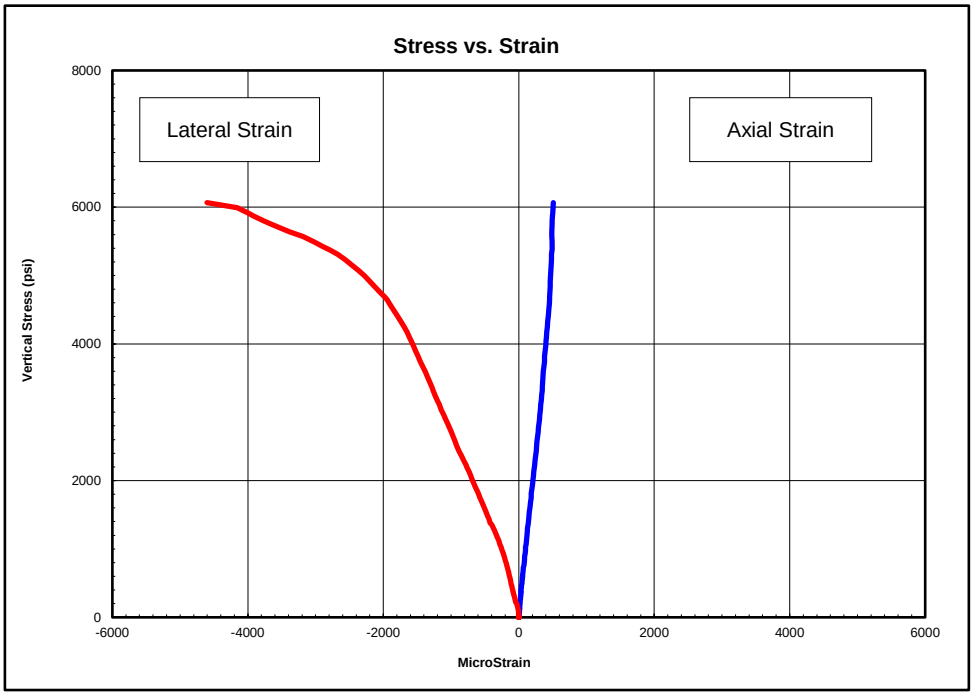
Cranston, RI

Fig. 23-L-5183

Tested By: RB Checked By: Kris Roland

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-105, R2
Sample ID:	2
Depth, ft:	22.05-22.44
Sample Type:	rock core
Sample Description:	See photographs Intact material failure

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 9,546 psi

The graph above does not include values up to the peak stress value. The strain gauges failed before the peak value was attained. The lateral strain values recorded for this test produce values of Poisson's Ratio that exceed maximum values found in rocks.

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
600-2300	9,170,000	---
2300-3900	11,000,000	---
3900-5600	15,600,000	---

Notes:
Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

Client:	GZA GeoEnvironmental, Inc.	Test Date:	10/18/2016
Project Name:	Presque Isle Bypass Segment 1	Tested By:	daa/rlc
Project Location:	Presque Isle, ME	Checked By:	jsc
GTX #:	305448		
Boring ID:	BB-PB-105, R2		
Sample ID:	2		
Depth:	22.05-22.44 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.27	4.27	4.27
Specimen Diameter, in:	1.98	1.98	1.98
Specimen Mass, g:	577.64		
Bulk Density, lb/ft^3	167	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.2	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

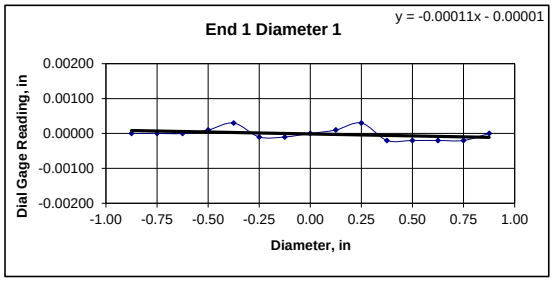
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	0.00000	0.00000	0.00010	0.00030	-0.00010	-0.00010	0.00000	0.00010	0.00030	-0.00020	-0.00020	-0.00020	-0.00020	0.00000
Diameter 2, in (rotated 90°)	-0.00010	-0.00020	-0.00020	-0.00020	-0.00020	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00030	0.00010	0.00010	0.00000

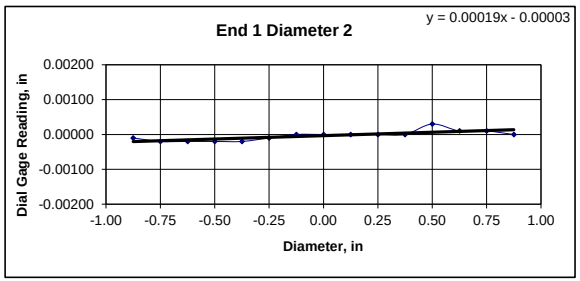
Difference between max and min readings, in:
0° = 0.00050 90° = 0.00050

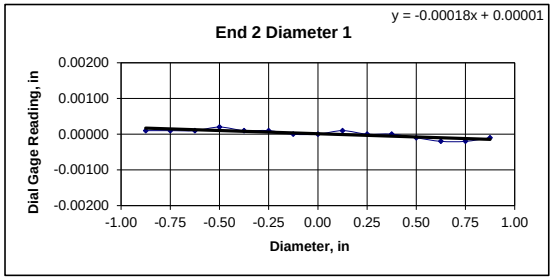
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00010	0.00010	0.00010	0.00020	0.00010	0.00010	0.00000	0.00000	0.00010	0.00000	0.00000	-0.00010	-0.00020	-0.00020	-0.00010
Diameter 2, in (rotated 90°)	-0.00020	-0.00020	-0.00020	-0.00020	-0.00020	-0.00020	-0.00010	0.00000	0.00000	0.00010	0.00010	0.00010	0.00000	-0.00010	-0.00010

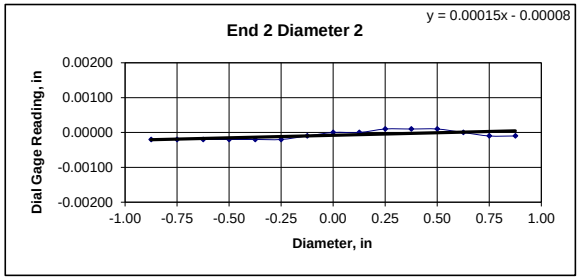
Difference between max and min readings, in:
0° = 0.0004 90° = 0.0003

Maximum difference must be < 0.0020 in. Difference = ± 0.00025
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line -0.00011
Angle of Best Fit Line: -0.00630

End 2:
Slope of Best Fit Line -0.00018
Angle of Best Fit Line: -0.01031

Maximum Angular Difference: 0.00401

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00019
Angle of Best Fit Line: 0.01089

End 2:
Slope of Best Fit Line 0.00015
Angle of Best Fit Line: 0.00859

Maximum Angular Difference: 0.00229

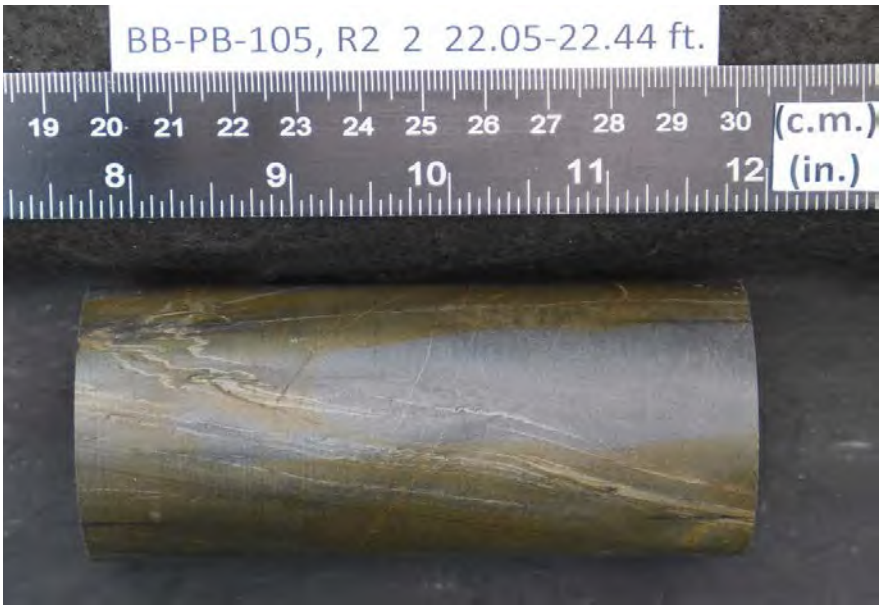
Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00050	1.980	0.00025	0.014	YES
Diameter 2, in (rotated 90°)	0.00050	1.980	0.00025	0.014	YES
END 2					
Diameter 1, in	0.00040	1.980	0.00020	0.012	YES
Diameter 2, in (rotated 90°)	0.00030	1.980	0.00015	0.009	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-105, R2
Sample ID:	2
Depth, ft:	22.05-22.44



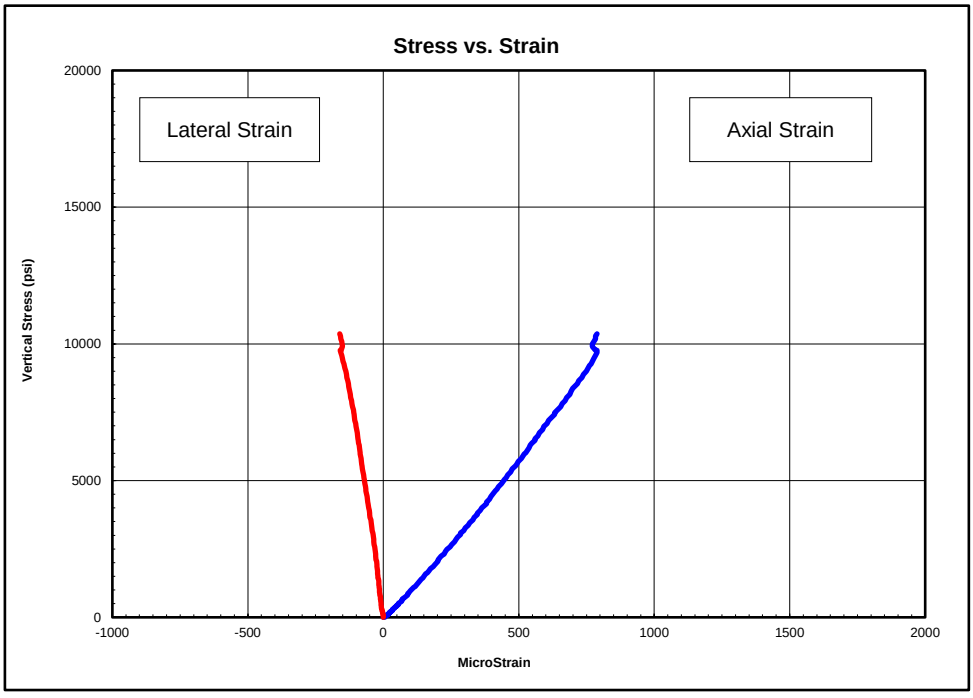
After cutting and grinding



After break

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-301, R2
Sample ID:	2
Depth, ft:	15.95-16.30
Sample Type:	rock core
Sample Description:	See photographs Intact material and Discontinuity failure

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 10,367 psi

One axial and one lateral strain gauge failed to record meaningful data. Young's Modulus and Poisson's Ratio reported based on results of a single axial and lateral strain gauge.

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
1000-3800	11,500,000	0.15
3800-6600	12,800,000	0.20
6600-9300	13,200,000	0.25

Notes:
Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

Client:	GZA GeoEnvironmental, Inc.	Test Date:	10/18/2016
Project Name:	Presque Isle Bypass Segment 1	Tested By:	daa/rlc
Project Location:	Presque Isle, ME	Checked By:	jsc
GTX #:	305448		
Boring ID:	BB-PB-301, R2		
Sample ID:	2		
Depth:	15.95-16.30 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.11	4.11	4.11
Specimen Diameter, in:	1.98	1.98	1.98
Specimen Mass, g:	554.93		
Bulk Density, lb/ft^3	167	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.1	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

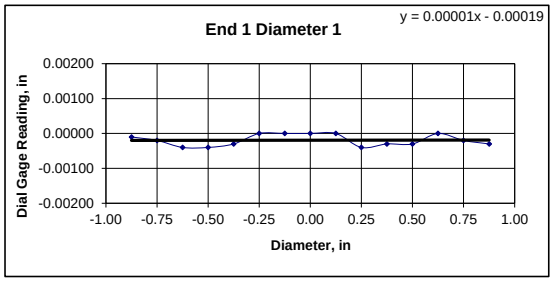
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00010	-0.00020	-0.00040	-0.00040	-0.00030	0.00000	0.00000	0.00000	0.00000	-0.00040	-0.00030	-0.00030	0.00000	-0.00020	-0.00030
Diameter 2, in (rotated 90°)	-0.00010	0.00000	0.00000	-0.00010	-0.00010	-0.00020	-0.00020	0.00000	0.00000	0.00000	0.00030	0.00030	0.00020	0.00010	0.00000

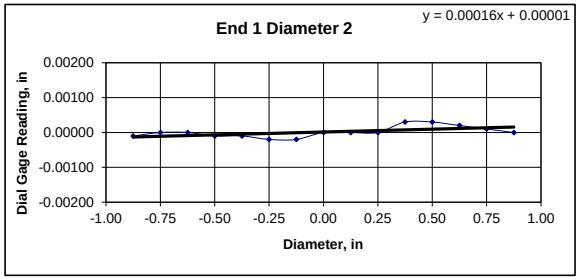
Difference between max and min readings, in:
0° = 0.00040 90° = 0.00050

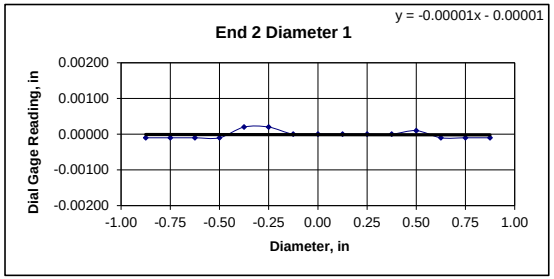
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00010	-0.00010	-0.00010	-0.00010	0.00020	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	-0.00010	-0.00010	-0.00010
Diameter 2, in (rotated 90°)	-0.00010	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00020	0.00020	0.00030

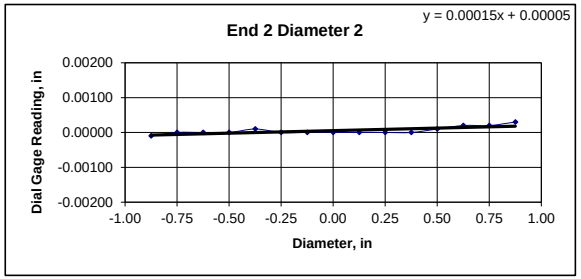
Difference between max and min readings, in:
0° = 0.0003 90° = 0.0004

Maximum difference must be < 0.0020 in. Difference = ± 0.00025
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00001
Angle of Best Fit Line: 0.00057

End 2:
Slope of Best Fit Line -0.00001
Angle of Best Fit Line: -0.00057

Maximum Angular Difference: 0.00115

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00016
Angle of Best Fit Line: 0.00917

End 2:
Slope of Best Fit Line 0.00015
Angle of Best Fit Line: 0.00859

Maximum Angular Difference: 0.00057

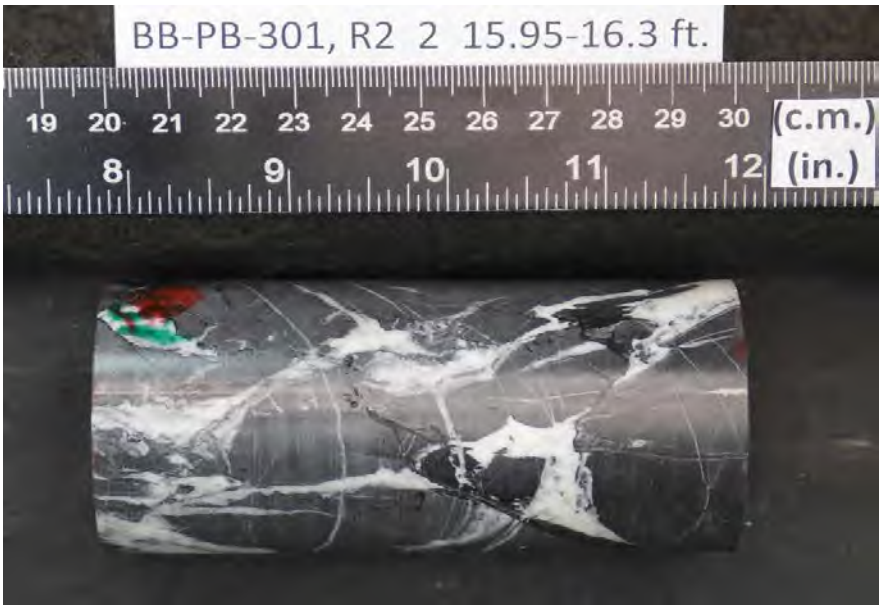
Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00040	1.980	0.00020	0.012	YES
Diameter 2, in (rotated 90°)	0.00050	1.980	0.00025	0.014	YES
END 2					
Diameter 1, in	0.00030	1.980	0.00015	0.009	YES
Diameter 2, in (rotated 90°)	0.00040	1.980	0.00020	0.012	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-301, R2
Sample ID:	2
Depth, ft:	15.95-16.30



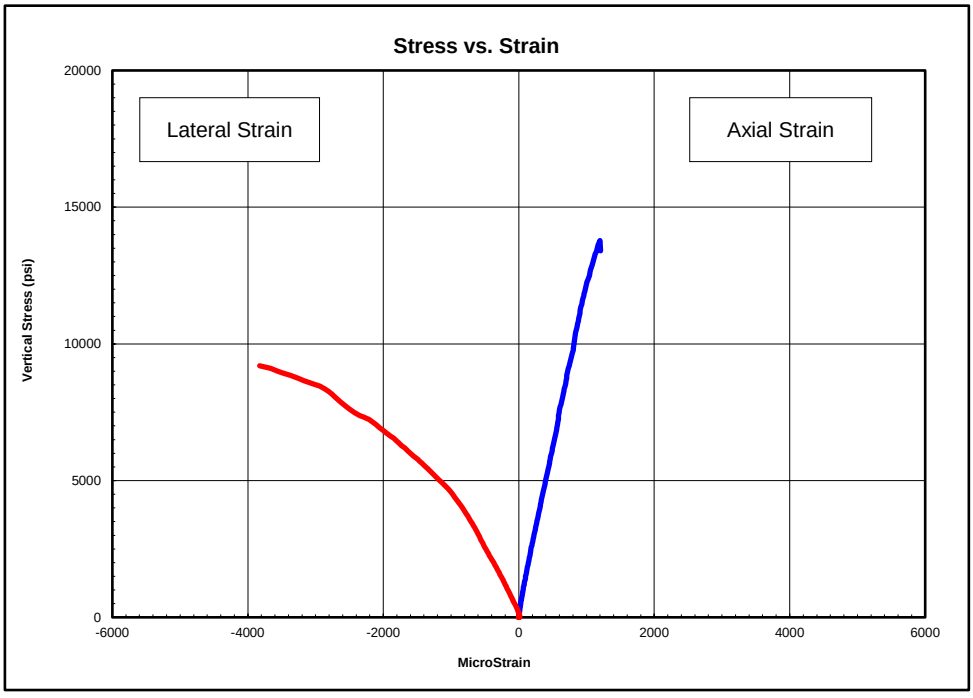
After cutting and grinding



After break

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-314, R1
Sample ID:	1
Depth, ft:	10.75-11.13
Sample Type:	rock core
Sample Description:	See photographs Intact material failure

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 14,404 psi

The lateral strain values recorded for this test produce values of Poisson's Ratio that exceed maximum values found in rocks. The graph above does not include values up to the peak stress value. The lateral strain gauges failed before the peak value was attained.

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
1400-5300	11,800,000	---
5300-9100	12,400,000	---
9100-13000	11,300,000	---

Notes:
Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

Client:	GZA GeoEnvironmental, Inc.	Test Date:	10/18/2016
Project Name:	Presque Isle Bypass Segment 1	Tested By:	daa/rlc
Project Location:	Presque Isle, ME	Checked By:	jsc
GTX #:	305448		
Boring ID:	BB-PB-314, R1		
Sample ID:	1		
Depth:	10.75-11.13 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.37	4.37	4.37
Specimen Diameter, in:	1.98	1.98	1.98
Specimen Mass, g:	604.99		
Bulk Density, lb/ft^3	171	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.2	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

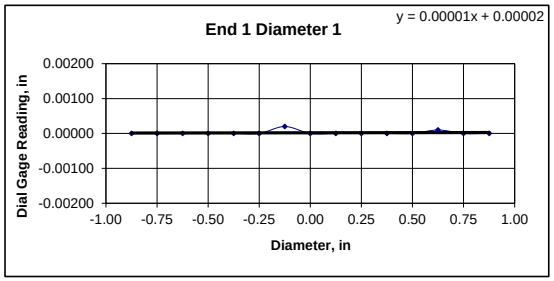
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00020	0.00000	0.00000	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000
Diameter 2, in (rotated 90°)	-0.00010	0.00000	0.00010	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00020	0.00030	0.00030	0.00030	0.00020	0.00000

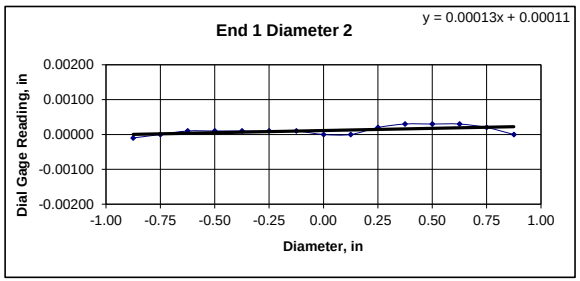
Difference between max and min readings, in:
0° = 0.00020 90° = 0.00040

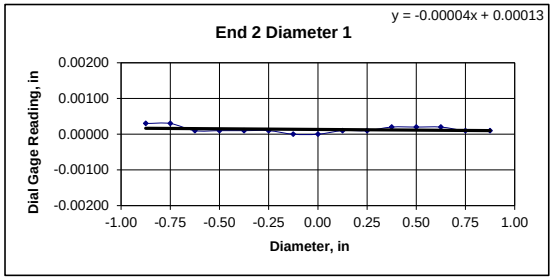
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00030	0.00030	0.00010	0.00010	0.00010	0.00010	0.00000	0.00000	0.00010	0.00010	0.00020	0.00020	0.00020	0.00010	0.00010
Diameter 2, in (rotated 90°)	-0.00030	-0.00030	-0.00030	-0.00020	-0.00020	-0.00020	0.00000	0.00000	-0.00010	-0.00020	-0.00010	-0.00010	-0.00010	-0.00010	0.00020

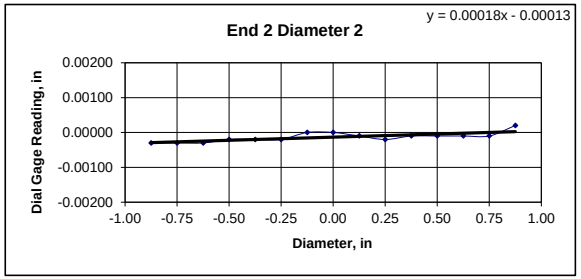
Difference between max and min readings, in:
0° = 0.0003 90° = 0.0005

Maximum difference must be < 0.0020 in. Difference = ± 0.00025
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00001
Angle of Best Fit Line: 0.00057

End 2:
Slope of Best Fit Line -0.00004
Angle of Best Fit Line: -0.00229

Maximum Angular Difference: 0.00286

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00013
Angle of Best Fit Line: 0.00745

End 2:
Slope of Best Fit Line 0.00018
Angle of Best Fit Line: 0.01031

Maximum Angular Difference: 0.00286

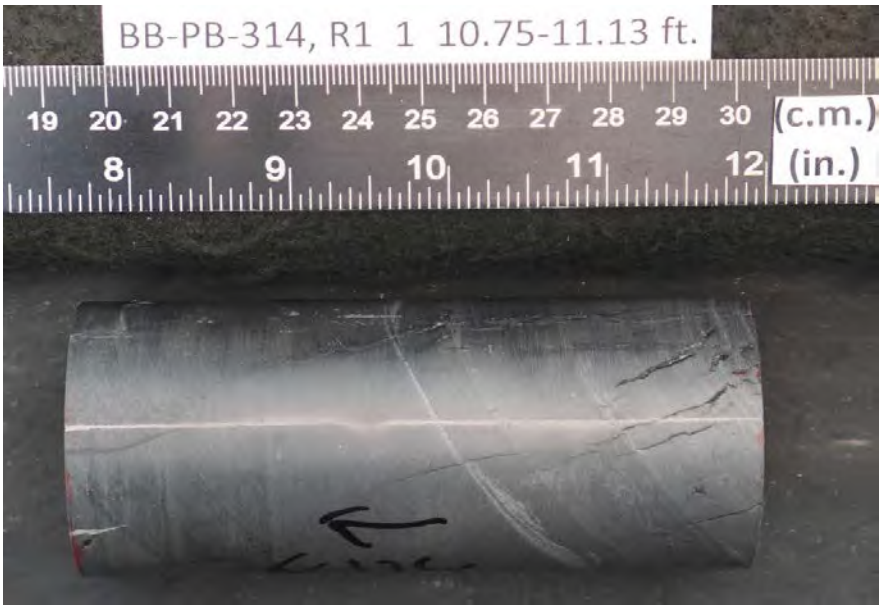
Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00020	1.980	0.00010	0.006	YES
Diameter 2, in (rotated 90°)	0.00040	1.980	0.00020	0.012	YES
END 2					
Diameter 1, in	0.00030	1.980	0.00015	0.009	YES
Diameter 2, in (rotated 90°)	0.00050	1.980	0.00025	0.014	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-314, R1
Sample ID:	1
Depth, ft:	10.75-11.13



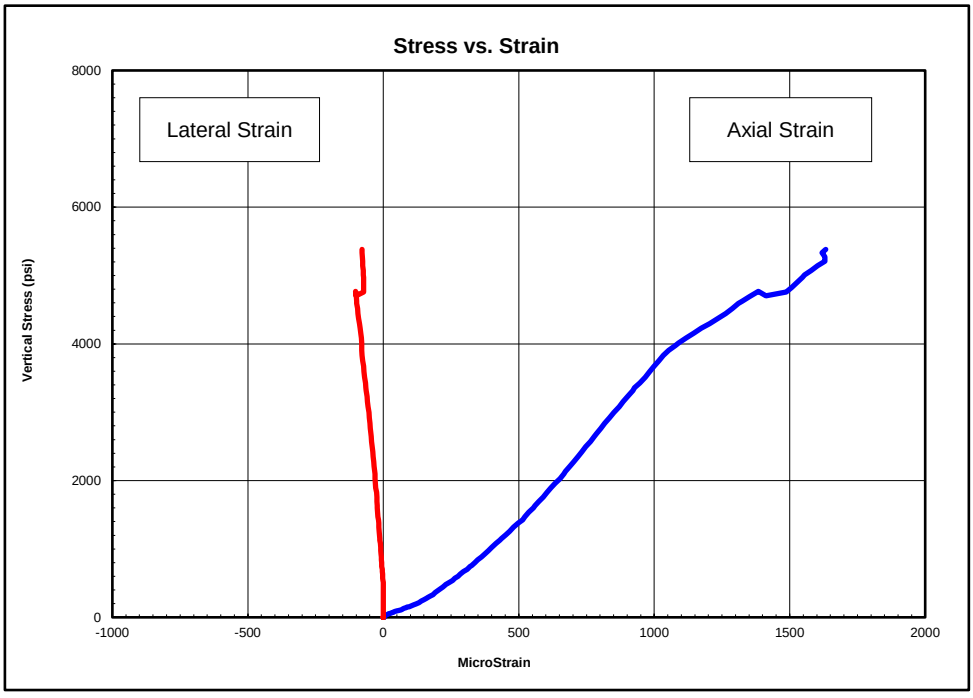
After cutting and grinding



After break

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-322, R1
Sample ID:	1
Depth, ft:	12.60-12.98
Sample Type:	rock core
Sample Description:	See photographs Discontinuity failure

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 5,396 psi

One lateral strain gauge failed to record meaningful data. Poisson's Ratio reported based on results of a single lateral strain gauge.

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
500-2000	3,770,000	0.07
2000-3400	4,700,000	0.11
3400-4700	2,960,000	0.08

Notes:
Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

Client:	GZA GeoEnvironmental, Inc.	Test Date:	10/18/2016
Project Name:	Presque Isle Bypass Segment 1	Tested By:	daa/rlc
Project Location:	Presque Isle, ME	Checked By:	jsc
GTX #:	305448		
Boring ID:	BB-PB-322, R1		
Sample ID:	1		
Depth:	12.60-12.98 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.49	4.49	4.49
Specimen Diameter, in:	1.98	1.98	1.98
Specimen Mass, g:	610.34		
Bulk Density, lb/ft^3	168	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.3	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? YES

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? YES

END FLATNESS AND PARALLELISM (Procedure FP1)

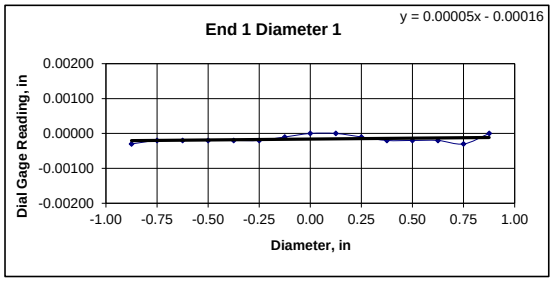
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00030	-0.00020	-0.00020	-0.00020	-0.00020	-0.00020	-0.00010	0.00000	0.00000	-0.00010	-0.00020	-0.00020	-0.00020	-0.00030	0.00000
Diameter 2, in (rotated 90°)	0.00000	0.00000	0.00000	0.00010	0.00010	0.00000	0.00000	0.00000	0.00000	0.00010	0.00000	0.00000	0.00010	0.00000	0.00000

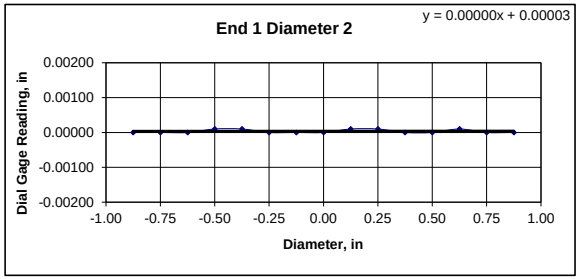
Difference between max and min readings, in:
0° = 0.00030 90° = 0.00010

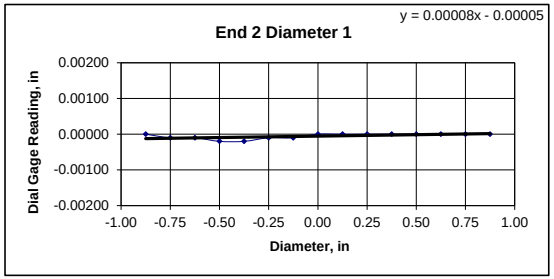
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	-0.00010	-0.00010	-0.00020	-0.00020	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Diameter 2, in (rotated 90°)	0.00000	0.00000	0.00000	-0.00010	-0.00010	-0.00010	-0.00010	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

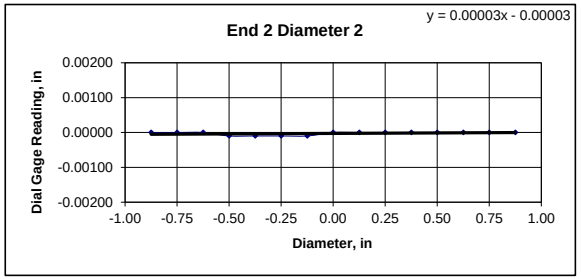
Difference between max and min readings, in:
0° = 0.0002 90° = 0.0001

Maximum difference must be < 0.0020 in. Difference = ± 0.00015
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00005
Angle of Best Fit Line: 0.00286

End 2:
Slope of Best Fit Line 0.00008
Angle of Best Fit Line: 0.00458

Maximum Angular Difference: 0.00172

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line 0.00000
Angle of Best Fit Line: 0.00000

End 2:
Slope of Best Fit Line 0.00003
Angle of Best Fit Line: 0.00172

Maximum Angular Difference: 0.00172

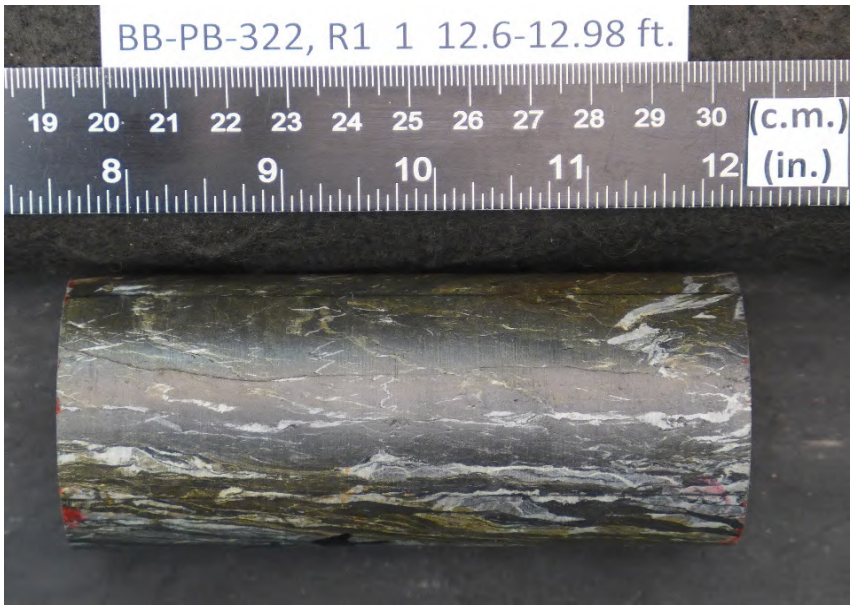
Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00030	1.980	0.00015	0.009	YES
Diameter 2, in (rotated 90°)	0.00010	1.980	0.00005	0.003	YES
END 2					
Diameter 1, in	0.00020	1.980	0.00010	0.006	YES
Diameter 2, in (rotated 90°)	0.00010	1.980	0.00005	0.003	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-322, R1
Sample ID:	1
Depth, ft:	12.60-12.98



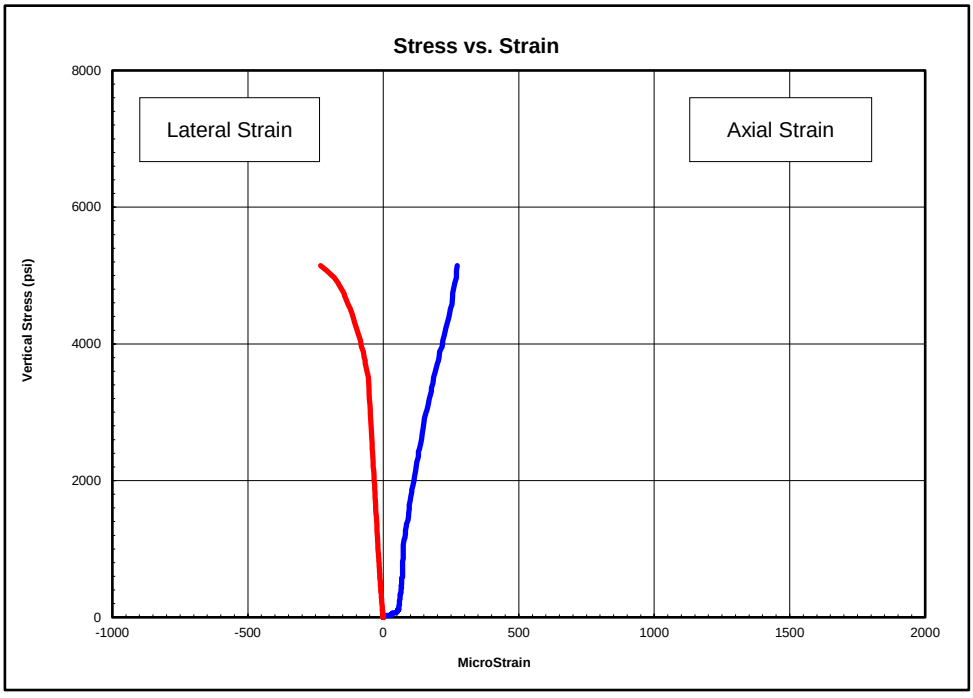
After cutting and grinding



After break

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-325, R1
Sample ID:	1
Depth, ft:	5.20-5.58
Sample Type:	rock core
Sample Description:	See photographs Discontinuity failure

Compressive Strength and Elastic Moduli of Rock by ASTM D7012 - Method D



Peak Compressive Stress: 5,204 psi

Stress Range, psi	Young's Modulus, psi	Poisson's Ratio
500-1900	34,300,000	---
1900-3300	21,400,000	0.31
3300-4600	16,300,000	---

Notes:
Test specimen tested at the approximate as-received moisture content and at standard laboratory temperature.
The axial load was applied continuously at a stress rate that produced failure in a test time between 2 and 15 minutes.
Young's Modulus and Poisson's Ratio calculated using the tangent to the line in the stress range listed.
Calculations assume samples are isotropic, which is not necessarily the case.

Client:	GZA GeoEnvironmental, Inc.	Test Date:	10/18/2016
Project Name:	Presque Isle Bypass Segment 1	Tested By:	daa/rlc
Project Location:	Presque Isle, ME	Checked By:	jsc
GTX #:	305448		
Boring ID:	BB-PB-325, R1		
Sample ID:	1		
Depth:	5.20-5.58 ft		
Visual Description:	See photographs		

UNIT WEIGHT DETERMINATION AND DIMENSIONAL AND SHAPE TOLERANCES OF ROCK CORE SPECIMENS BY ASTM D4543

BULK DENSITY

	1	2	Average
Specimen Length, in:	4.47	4.47	4.47
Specimen Diameter, in:	1.97	1.98	1.98
Specimen Mass, g:	603.18		
Bulk Density, lb/ft^3	167	**Minimum Diameter Tolerence Met?**	YES
Length to Diameter Ratio:	2.3	**Length to Diameter Ratio Tolerance Met?**	YES

DEVIATION FROM STRAIGHTNESS (Procedure S1)

Maximum gap between side of core and reference surface plate:
Is the maximum gap ≤ 0.02 in.? NO

Maximum difference must be < 0.020 in.
Straightness Tolerance Met? NO

END FLATNESS AND PARALLELISM (Procedure FP1)

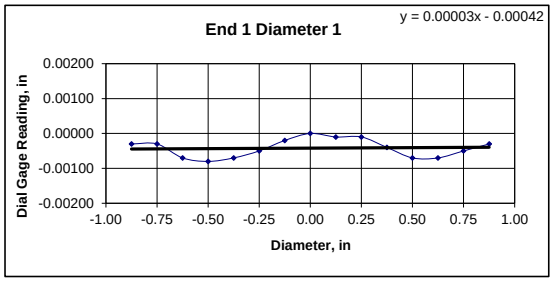
END 1	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	-0.00030	-0.00030	-0.00070	-0.00080	-0.00070	-0.00050	-0.00020	0.00000	-0.00010	-0.00010	-0.00040	-0.00070	-0.00070	-0.00050	-0.00030
Diameter 2, in (rotated 90°)	0.00000	-0.00010	-0.00020	-0.00020	-0.00040	-0.00040	-0.00010	0.00000	0.00000	0.00000	-0.00010	-0.00030	-0.00040	-0.00040	-0.00050

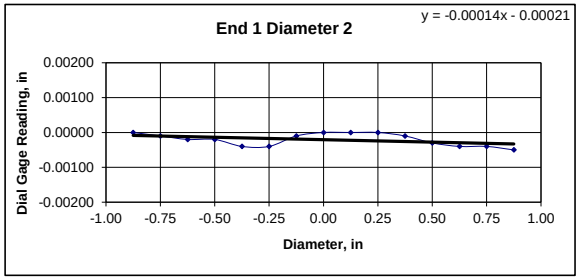
Difference between max and min readings, in:
0° = 0.00080 90° = 0.00050

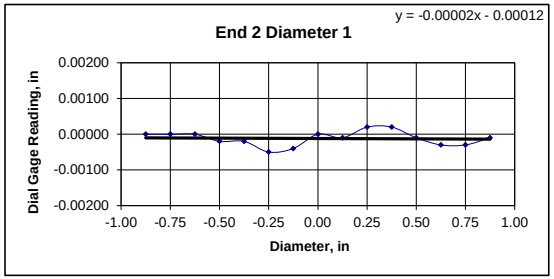
END 2	-0.875	-0.750	-0.625	-0.500	-0.375	-0.250	-0.125	0.000	0.125	0.250	0.375	0.500	0.625	0.750	0.875
Diameter 1, in	0.00000	0.00000	0.00000	-0.00020	-0.00020	-0.00050	-0.00040	0.00000	-0.00010	0.00020	0.00020	-0.00010	-0.00030	-0.00030	-0.00010
Diameter 2, in (rotated 90°)	-0.00050	-0.00060	-0.00060	-0.00060	-0.00060	-0.00020	-0.00020	0.00000	0.00000	-0.00030	-0.00040	-0.00080	-0.00080	-0.00070	-0.00060

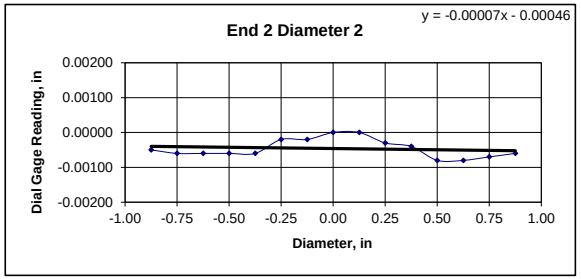
Difference between max and min readings, in:
0° = 0.0007 90° = 0.0008

Maximum difference must be < 0.0020 in. Difference = ± 0.00040
Flatness Tolerance Met? YES









DIAMETER 1

End 1:
Slope of Best Fit Line 0.00003
Angle of Best Fit Line: 0.00172

End 2:
Slope of Best Fit Line -0.00002
Angle of Best Fit Line: -0.00115

Maximum Angular Difference: 0.00286

Parallelism Tolerance Met? YES
Spherically Seated

DIAMETER 2

End 1:
Slope of Best Fit Line -0.00014
Angle of Best Fit Line: -0.00802

End 2:
Slope of Best Fit Line -0.00007
Angle of Best Fit Line: -0.00401

Maximum Angular Difference: 0.00401

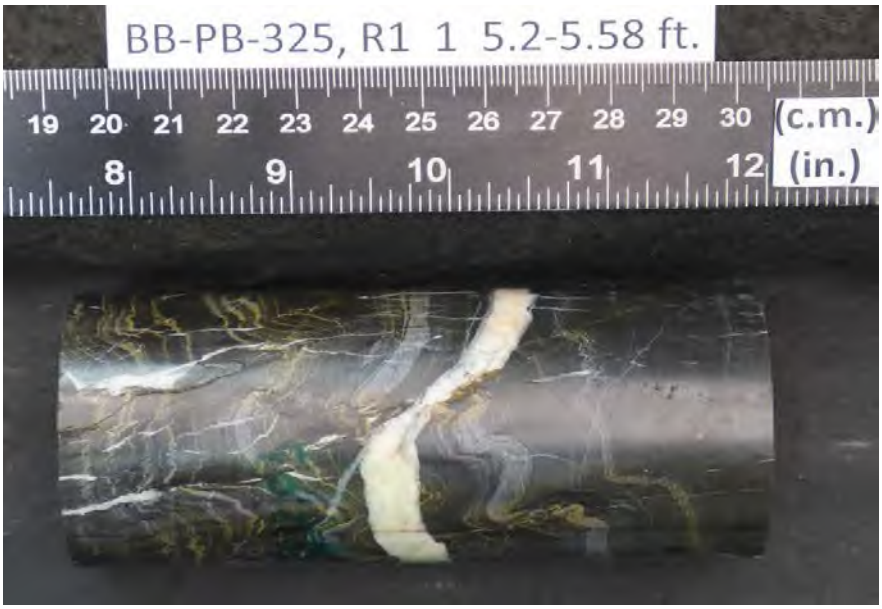
Parallelism Tolerance Met? YES
Spherically Seated

PERPENDICULARITY (Procedure P1) (Calculated from End Flatness and Parallelism measurements above)

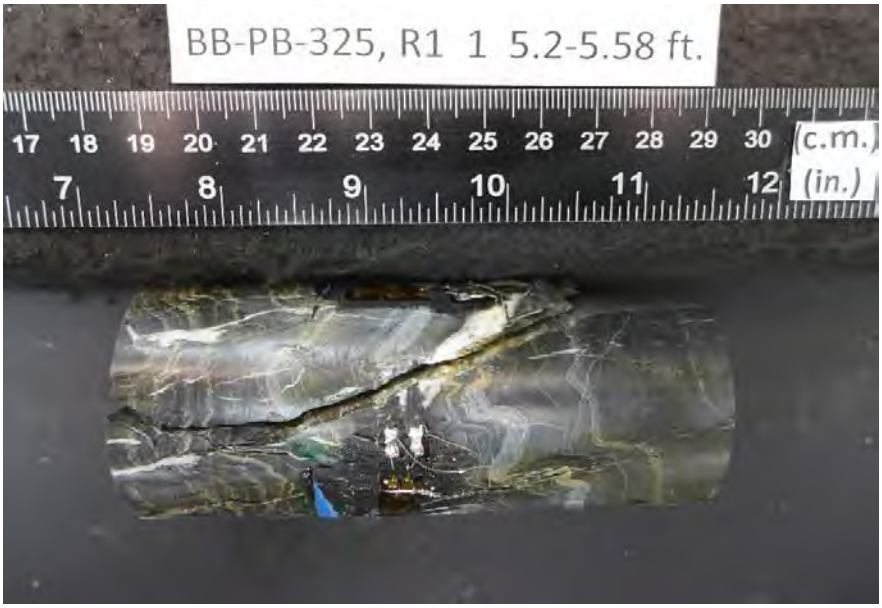
END 1	Difference, Maximum and Minimum (in.)	Diameter (in.)	Slope	Angle°	Perpendicularity Tolerance Met?
Diameter 1, in	0.00080	1.975	0.00041	0.023	YES
Diameter 2, in (rotated 90°)	0.00050	1.975	0.00025	0.015	YES
END 2					
Diameter 1, in	0.00070	1.975	0.00035	0.020	YES
Diameter 2, in (rotated 90°)	0.00080	1.975	0.00041	0.023	YES

Maximum angle of departure must be ≤ 0.25°
Perpendicularity Tolerance Met? YES

Client:	GZA GeoEnvironmental, Inc.
Project Name:	Presque Isle Bypass Segment 1
Project Location:	Presque Isle, ME
GTX #:	305448
Test Date:	10/21/2016
Tested By:	daa/rlc
Checked By:	jsc
Boring ID:	BB-PB-325, R1
Sample ID:	1
Depth, ft:	5.20-5.58



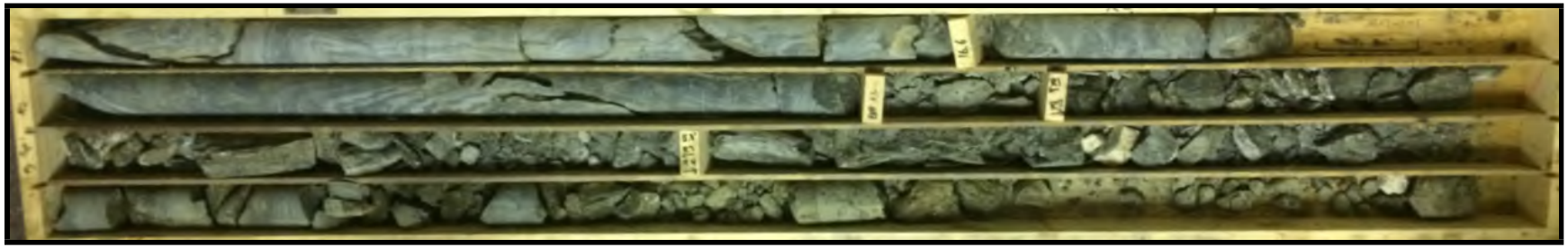
After cutting and grinding

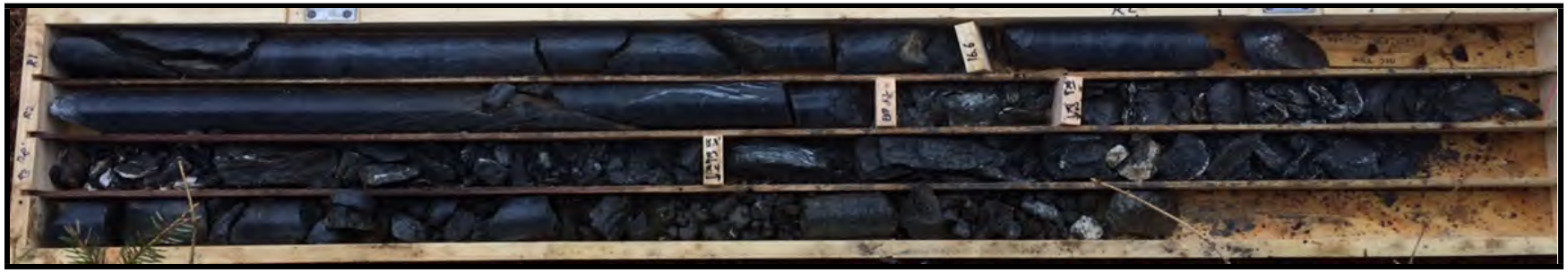


After break

APPENDIX F – ROCK CORE PHOTOGRAPHS

Boring No.	Run	Depth (ft)	Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-399	R1	9.1 - 11.6	29	97	0	0	METAPELITE	1
HB-PB-399	R2	11.6 - 14.6	32	89	9	25	METAPELITE	1, 2
HB-PB-397	R1	8.8 - 11.3	30	100	13	43	METAPELITE	2
HB-PB-397	R2	11.3 - 13.8	23	77	11	37	METAPELITE	3





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 3=Bottom.
2. Top photo is dry, bottom photo is wet.

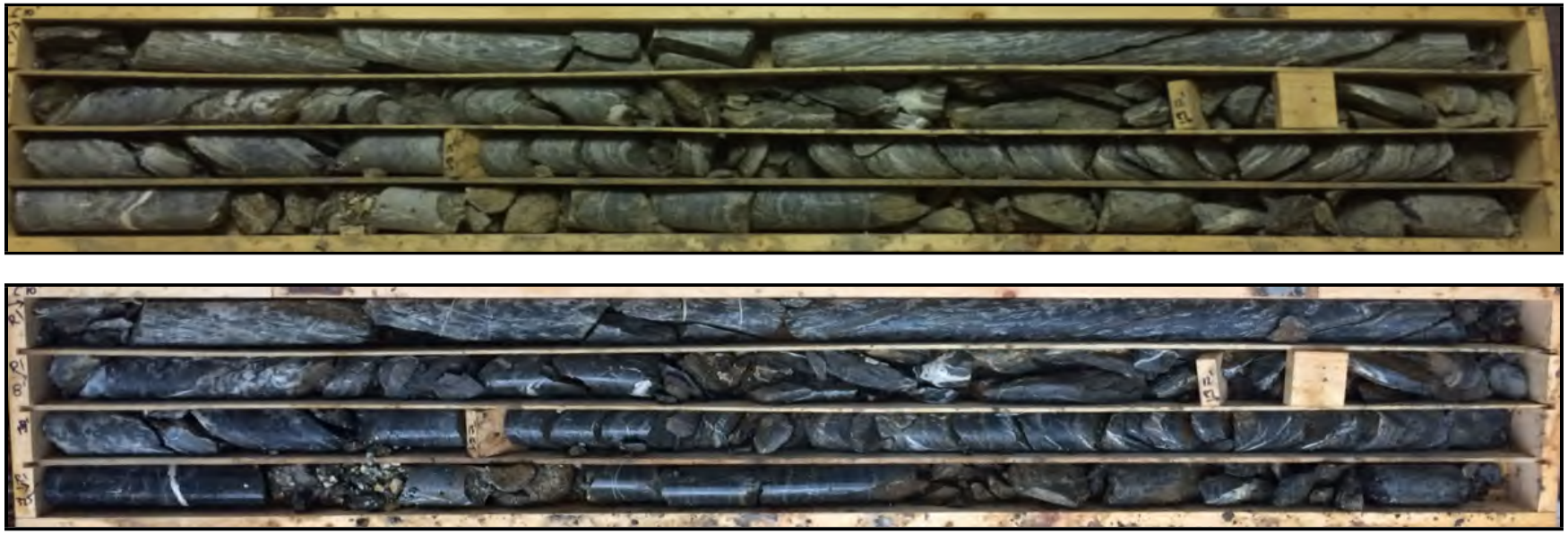
Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-304	R1	8.4	-	13.4	60	100	29	48	METAPELITE	1
BB-PB-304	R2	13.4	-	18.4	57	95	13	22	METAPELITE	2





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-322	R1	10.0	-	15.0	57	95	31	52	METAPELITE	1
BB-PB-324	R1	8.0	-	12.0	36	75	4	8	METAPELITE	2
BB-PB-324	R2	12.0	-	15.0	30	83	8	22	METAPELITE	2, 3
BB-PB-324	R3	15.0	-	18.0	36	100	0	0	METAPELITE	3
BB-PB-325	R1	5	-	10	57	95	12	20	METAPELITE	4



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-326	R1	12.0	-	17.0	48	80	14	23	METAPELITE	1





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

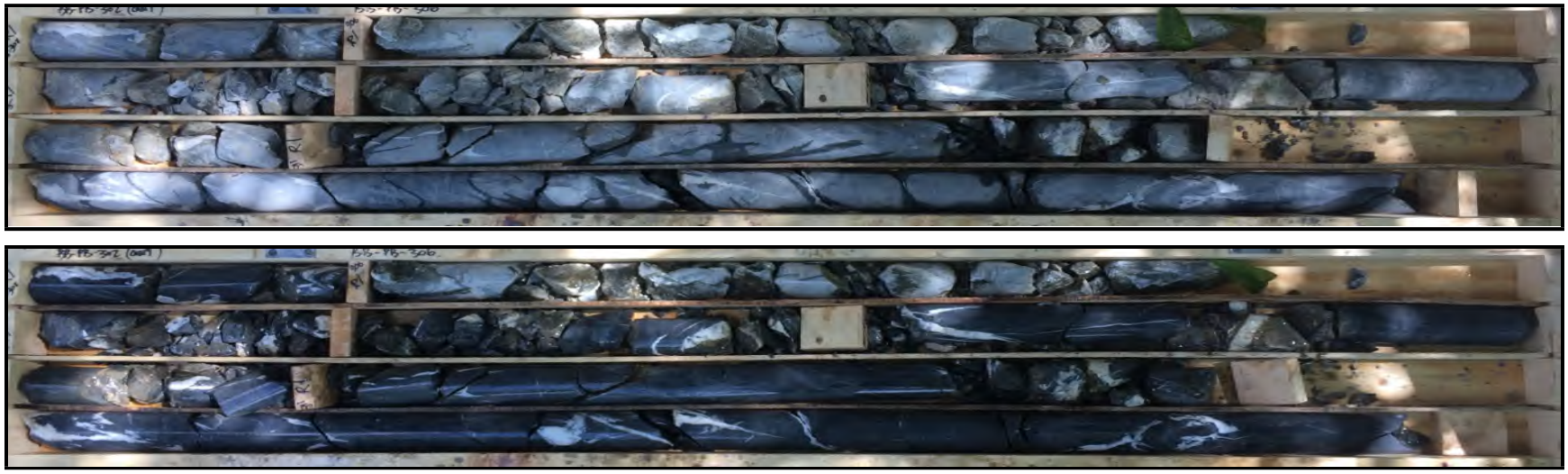
Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-301	R1	12.0	-	15.1	37	99	15	41	METAPELITE	1
BB-PB-301	R2	15.1	-	18.5	40	98	31	76	METAPELITE	1, 2
BB-PB-301	R3	18.5	-	22.0	41	98	30	71	METAPELITE	2
BB-PB-303	R1	9.3	-	11.3	18	75	0	0	METAPELITE	3
BB-PB-303	R2	11.3	-	13.3	30	125	0	0	METAPELITE	3
BB-PB-303	R3	13.3	-	15.9	22	71	0	0	METAPELITE	3, 4
BB-PB-302	R1	13.0	-	18.0	60	100	43	72	METAPELITE	4





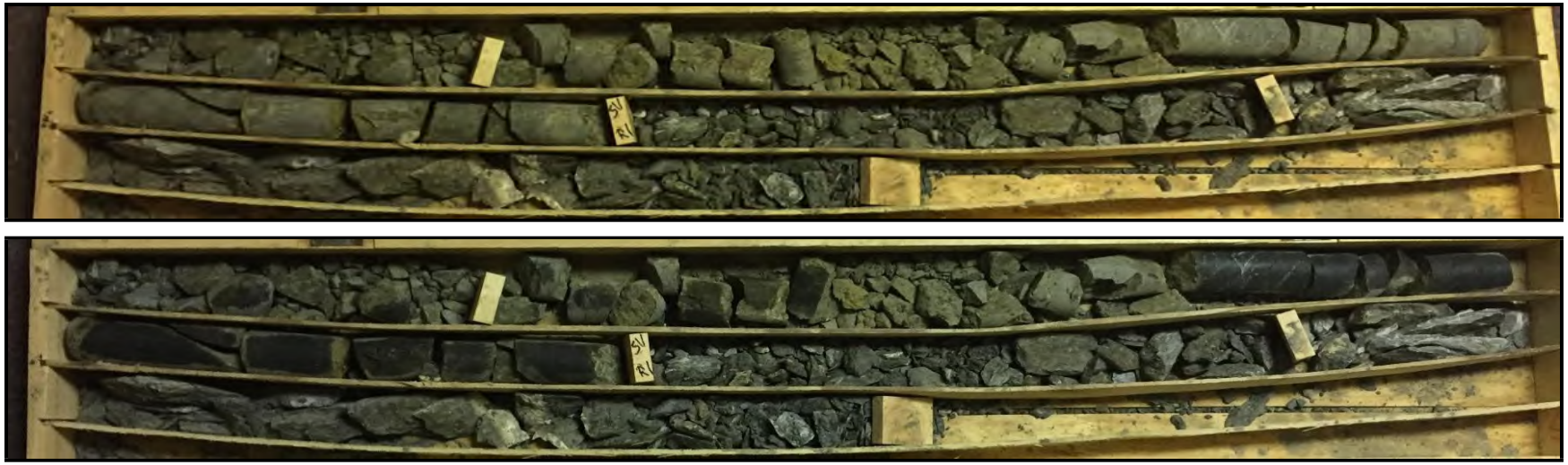
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-302	R1	13.0	-	18.0	60	100	43	72	METAPELITE	1
BB-PB-306	R1	9.3	-	14.3	30	50	0	0	METAPELITE	1
BB-PB-305	R1	8.3	-	10.9	12	38	0	0	METAPELITE	2
BB-PB-305	R2	10.9	-	13.1	21	80	4	15	METAPELITE	2
BB-PB-305	R3	13.1	-	15.1	35	146	8	34	METAPELITE	2, 3
BB-PB-311	R1	8.7	-	11.7	36	100	17	47	METAPELITE	3
BB-PB-311	R2	11.7	-	16.3	55	100	48	87	METAPELITE	4



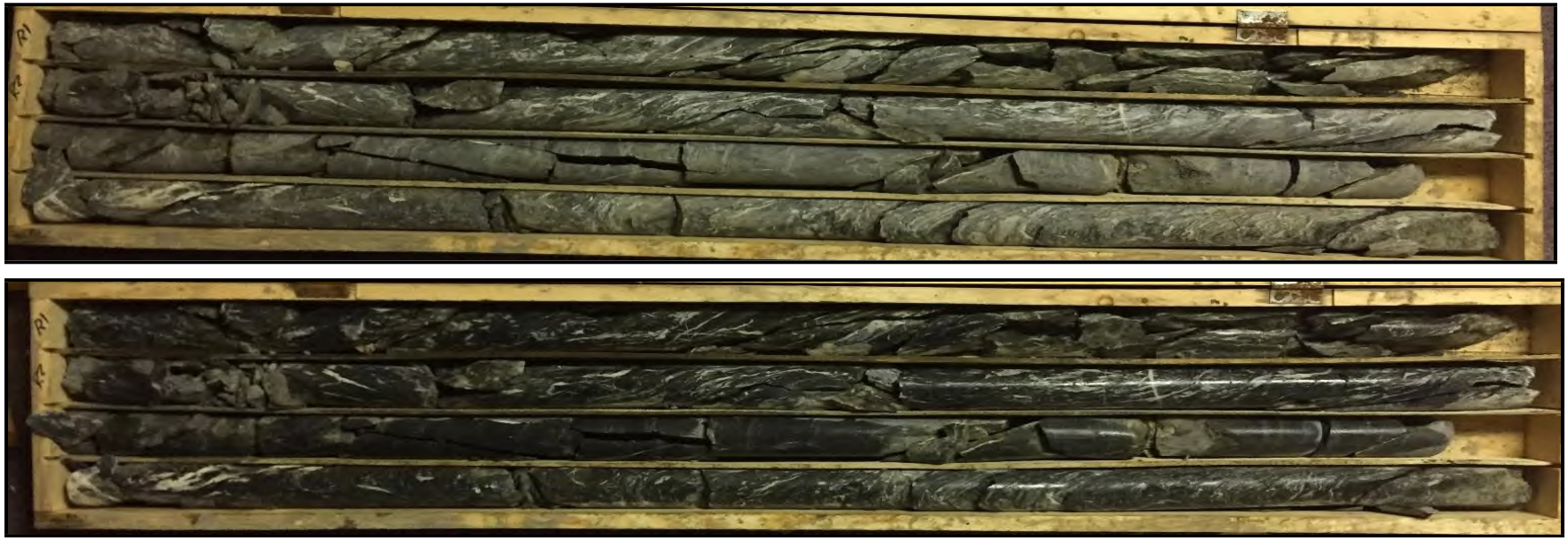
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 3=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-501	R1	9.5	-	12.4	35	40	0	0	METAPELITE	1
BB-PB-501	R2	12.4	-	17.4	60	100	4	7	METAPELITE	1, 2
BB-PB-511	R1	6.6	-	10.5	46	65	0	0	METAPELITE	2
BB-PB-511	R2	10.5	-	13.0	30	75	0	0	METAPELITE	2, 3



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-512	R1	15.0	-	20.0	60	100	9	15	METAPELITE	1
BB-PB-512	R2	20.0	-	25.0	60	100	24	40	METAPELITE	2
BB-PB-513	R1	8.0	-	12.7	56	56	17	30	METAPELITE	3
BB-PB-511A	R1	16.0	-	21.0	60	100	26	43	METAPELITE	4



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-602	R1	6.0	-	11.0	60	100	7	12	METAPELITE	1, 2
BB-PB-601	R1	5.0	-	9.5	54	100	0	0	METAPELITE	2, 3
BB-PB-603	R1	10.3	-	12.8	30	100	0	0	METAPELITE	3
BB-PB-603	R2	13.0	-	16.0	36	100	4	11	METAPELITE	3, 4





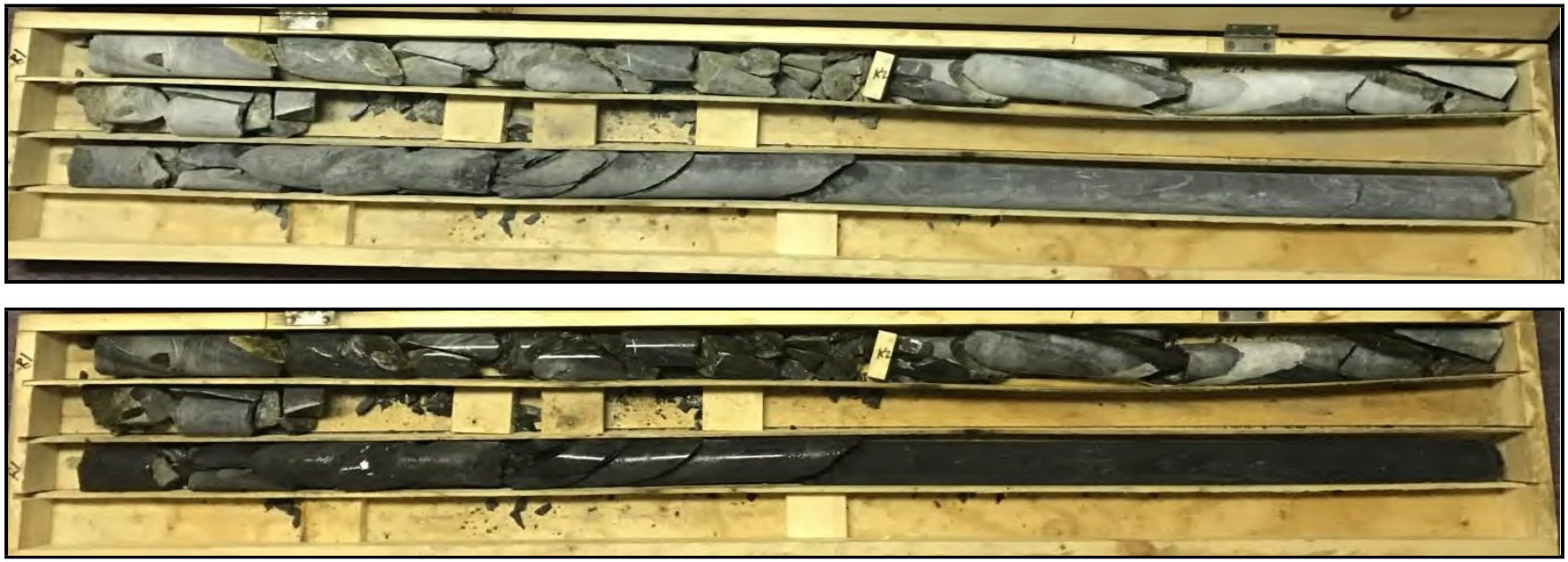
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-605	R1	15.5	-	17.3	22	100	0	0	METAPELITE	1
BB-PB-605	R2	17.3	-	20.5	38	100	18	47	METAPELITE	1



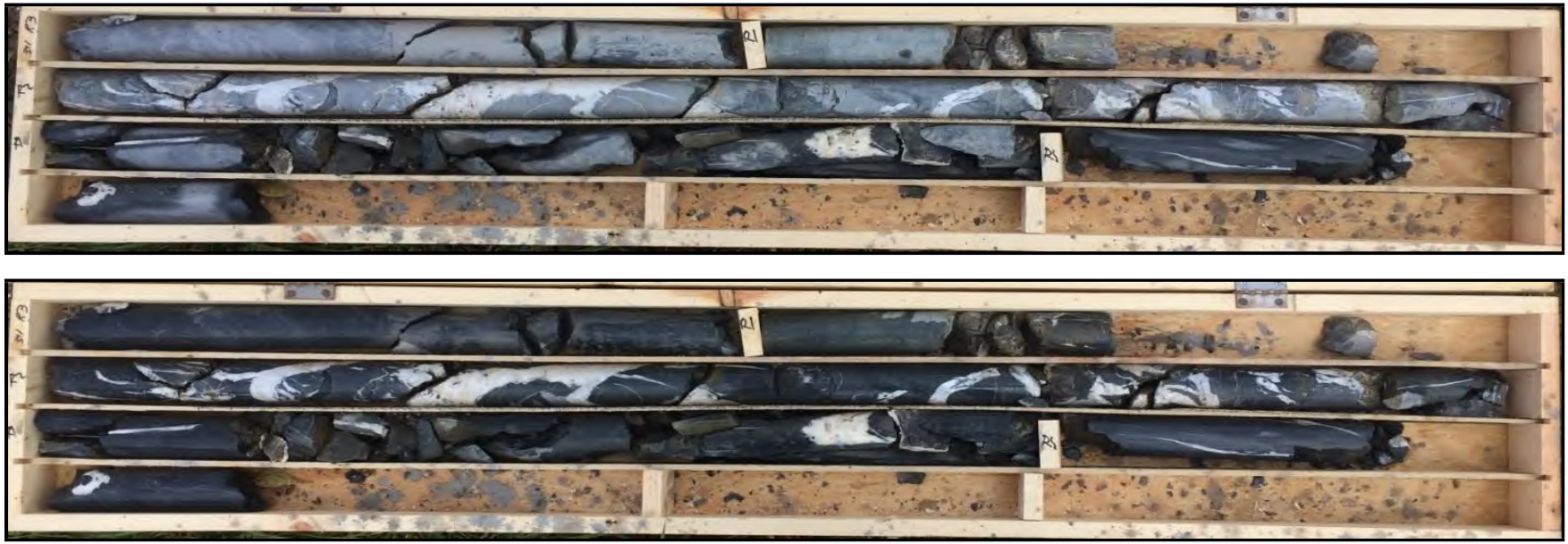
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-502	R1	8.0	-	10.8	34	101	0	0	METAPELITE	1
BB-PB-502	R2	10.8	-	14.0	38	99	10	26	METAPELITE	1, 2
CB-PB-504	R1	4.0	-	9.0	60	100	27	45	METAPELITE	3



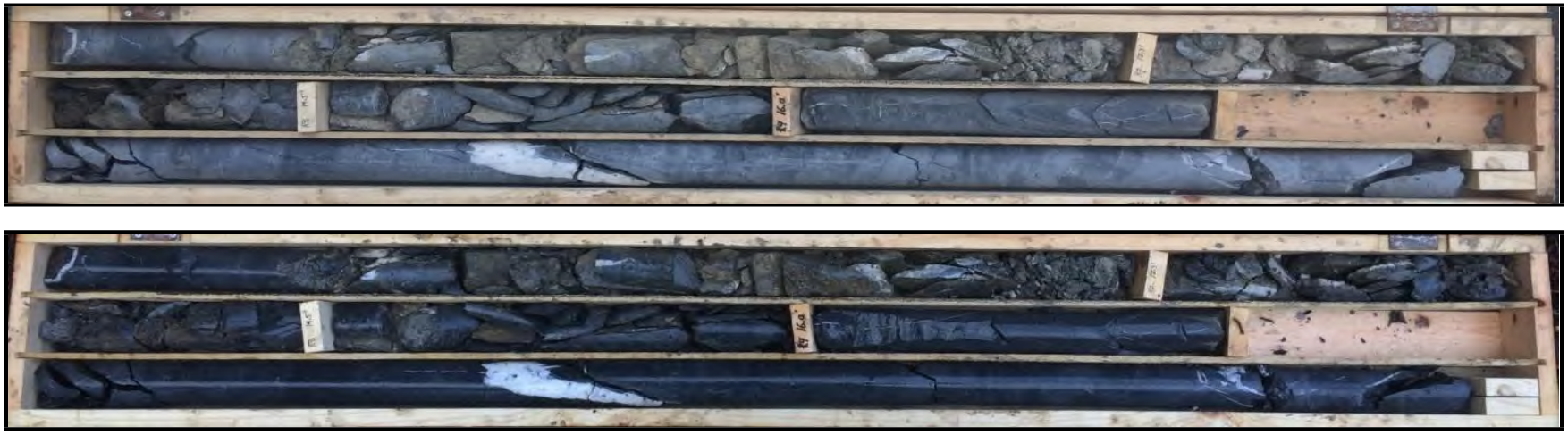
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-311	R3	16.3	-	18.7	29	101	24	83	METAPELITE	1
BB-PB-313	R1	4.5	-	6.0	12	67	0	0	METAPELITE	1
BB-PB-313	R2	6.0	-	11.0	60	100	42	70	METAPELITE	2
BB-PB-312	R1	3.7	-	7.1	41	100	10	24	METAPELITE	3
BB-PB-312	R2	7.1	-	8.7	19	99	17	89	METAPELITE	4



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-315	R1	7.3	-	12.3	46	77	10	17	METAPELITE	1
BB-PB-315	R2	12.3	-	14.5	26	98	0	0	METAPELITE	1, 2
BB-PB-315	R3	14.5	-	16.0	18	100	0	0	METAPELITE	2
BB-PB-315	R4	16.0	-	17.3	15	96	11	73	METAPELITE	2
BB-PB-314	R1	7.6	-	12.6	58	97	49	82	METAPELITE	3



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-PB-316	R1	4.0	-	8.8	58	101	14	24	METAPELITE	1
CB-PB-342	R1	10.8	-	12.2	17	101	6	35	METAPELITE	2
CB-PB-342	R2	12.2	-	15.8	40	93	26	60	METAPELITE	2





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

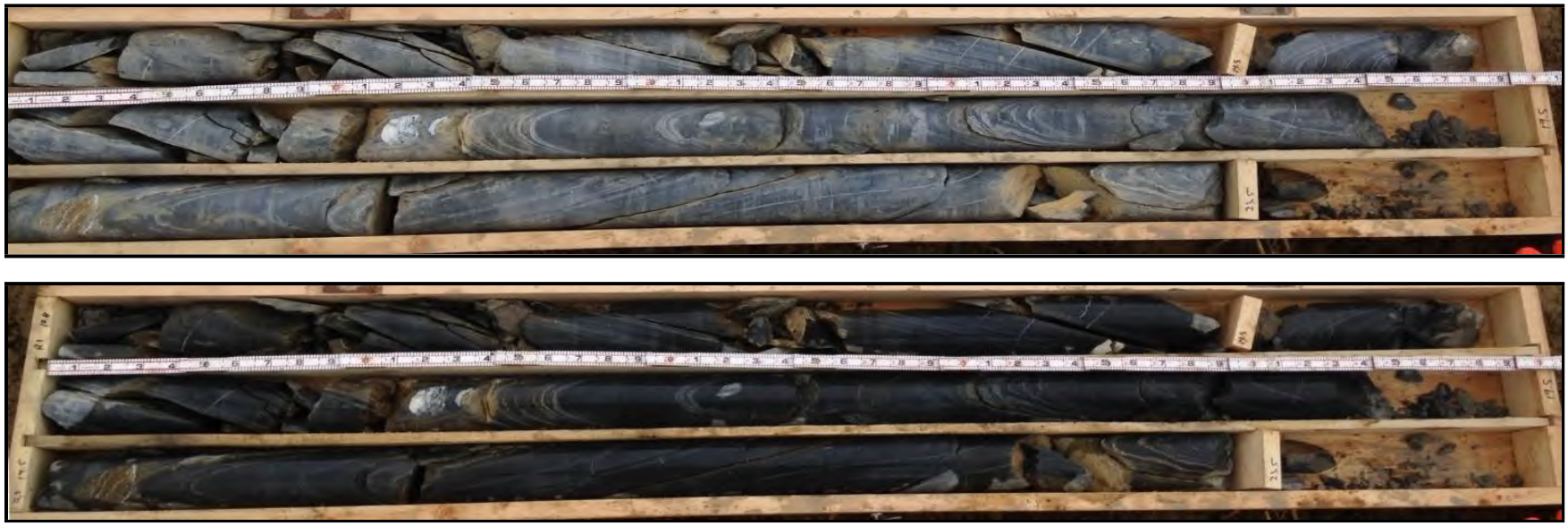
Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
CB-PB-311	R1	3.0	-	7.4	53	100	15	28	METAPELITE	1
CB-PB-313	R1	4.0	-	6.4	29	101	8	28	METAPELITE	2
CB-PB-313	R2	6.4	-	8.6	27	98	9	33	METAPELITE	3





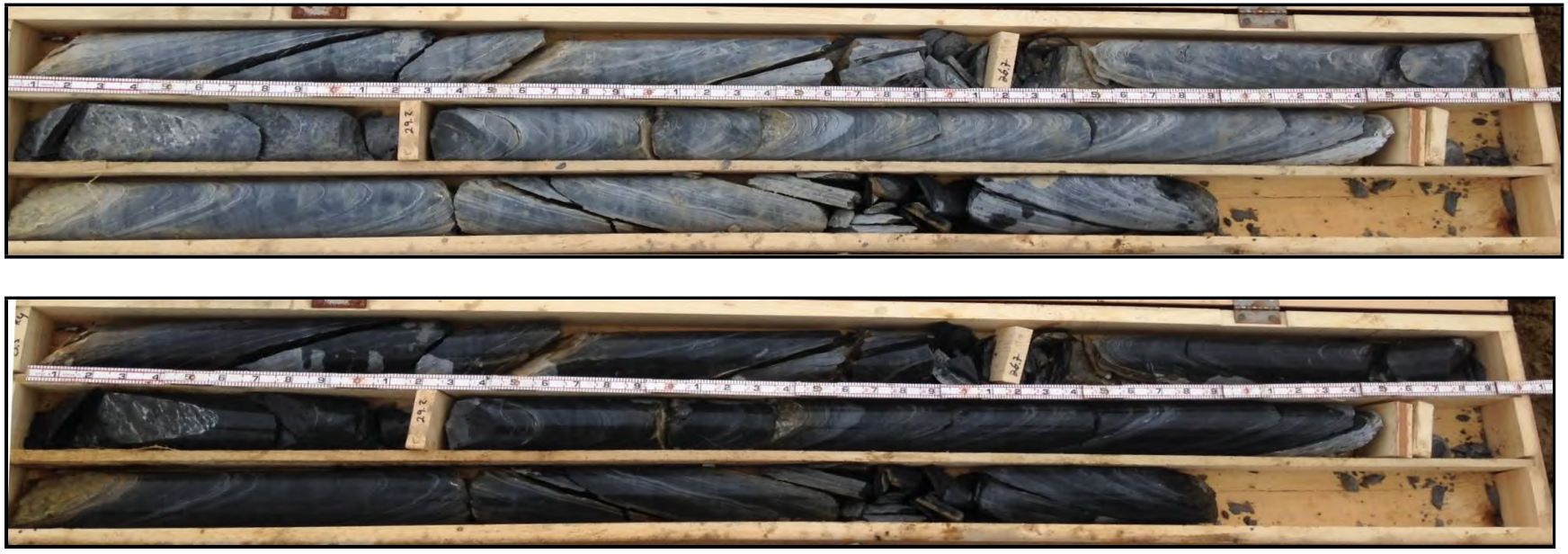
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-333	R1	10.8	-	14.5	48	100	7	15	METAPELITE	1
HB-PB-333	R2	14.5	-	19.5	60	100	13	22	METAPELITE	1, 2
HB-PB-333	R3	19.5	-	23.5	48	100	13	27	METAPELITE	3



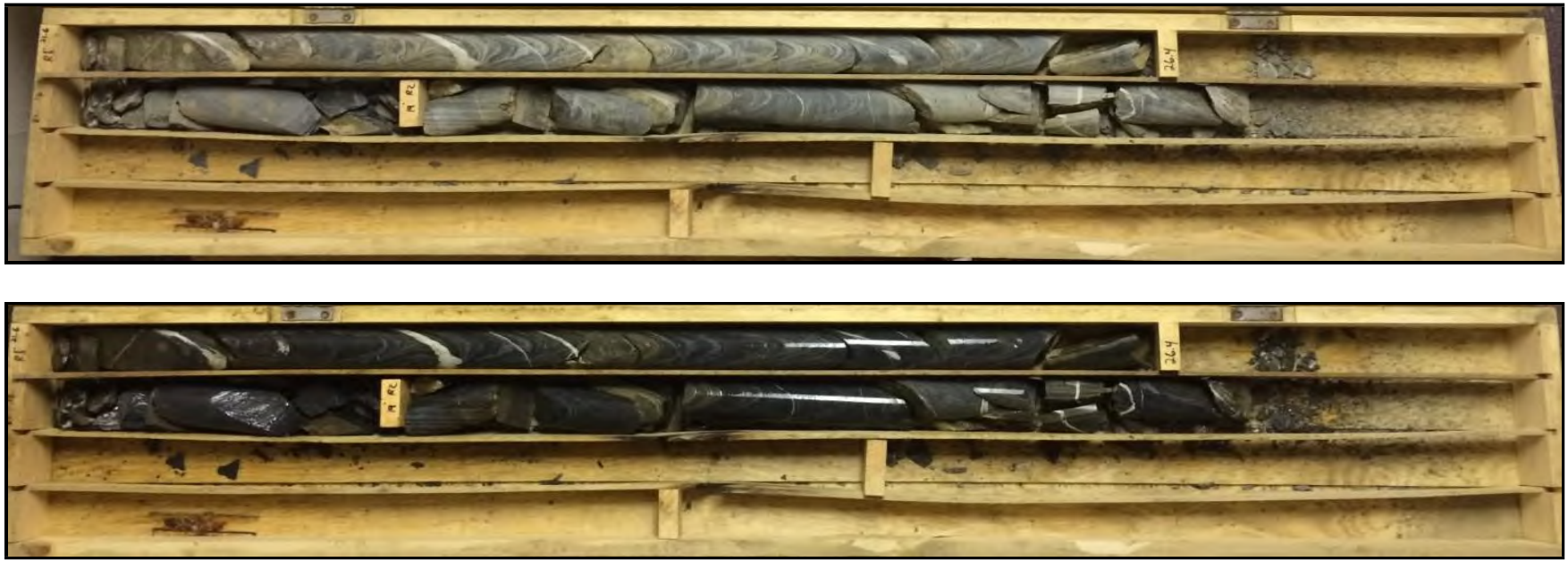
Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 3=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-333	R4	23.5	-	26.7	38	99	18	47	METAPELITE	1
HB-PB-333	R5	26.7	-	29.2	30	100	8	27	METAPELITE	1, 2
HB-PB-333	R6	29.2	-	32.4	38	99	12	32	METAPELITE	2
HB-PB-333	R7	32.4	-	36.4	47	98	20	42	METAPELITE	3



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

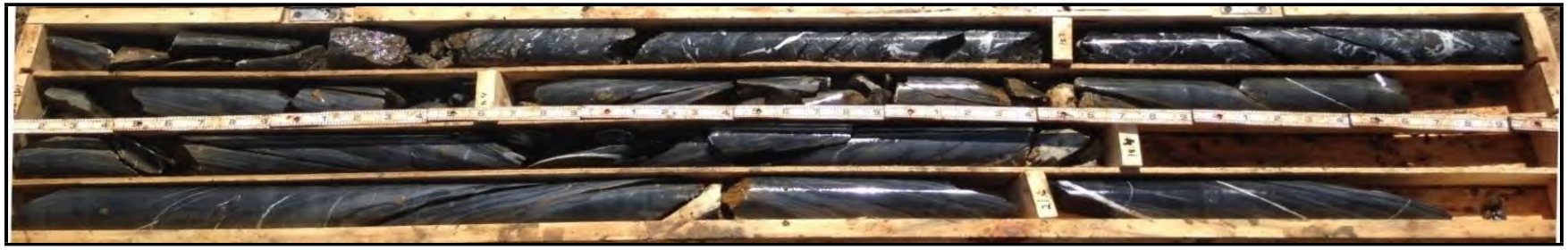
Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-338	R5	21.6	-	26.4	54	94	21	37	METAPELITE	1
HB-PB-334	R1	17.0	-	19.0	18	75	0	0	METAPELITE	2
HB-PB-334	R2	19.0	-	19.8	10	104	0	0	METAPELITE	2
HB-PB-334	R3	19.8	-	22.0	24	91	8	31	METAPELITE	2



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

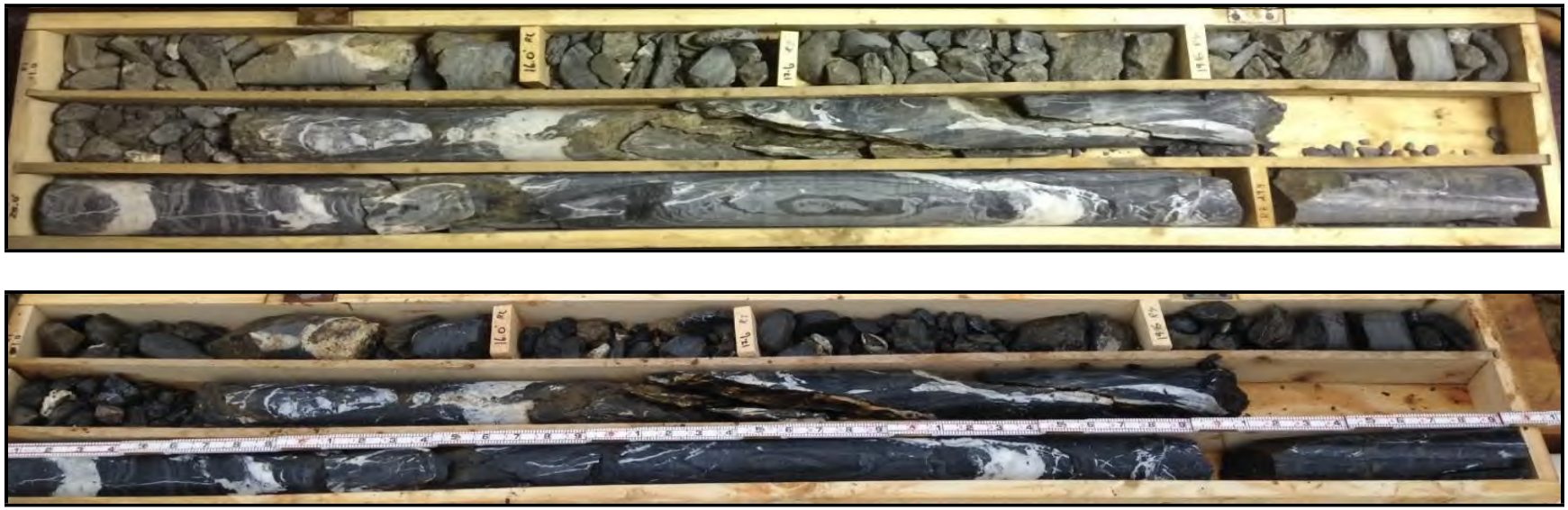
Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-350	R1	15.0	-	18.7	43	97	12	28	METAPELITE	1
HB-PB-350	R2	18.7	-	20.0	17	109	17	100	METAPELITE	1
HB-PB-338	R1	10.0	-	11.4	15	89	4	25	METAPELITE	2
HB-PB-338	R2	11.4	-	15.0	40	83	10	23	METAPELITE	2
HB-PB-338	R3	15.0	-	18.4	38	98	16	40	METAPELITE	3
HB-PB-338	R4	18.4	-	21.6	38	99	25	66	METAPELITE	4
HB-PB-338	R5	21.6	-	26.4	54	94	21	37	METAPELITE	4





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-353	R1	11.0	-	16.0	19	32	4	7	METAPELITE	1
HB-PB-353	R2	16.0	-	17.6	10	52	0	0	METAPELITE	1
HB-PB-353	R3	17.6	-	19.6	18	75	0	0	METAPELITE	1
HB-PB-353	R4	19.6	-	22.7	17	46	0	0	METAPELITE	1
HB-PB-353	R5	22.7	-	25.0	19	68	28	100	METAPELITE	2
HB-PB-353	R6	25.0	-	29.4	48	91	42	79	METAPELITE	3
HB-PB-353	R7	29.4	-	30.4	10	83	10	83	METAPELITE	3



Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

Boring No.	Run	Depth (ft)			Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
HB-PB-399	R1	9.1	-	11.6	29	97	0	0	METAPELITE	1
HB-PB-399	R2	11.6	-	14.6	32	89	9	25	METAPELITE	1, 2
HB-PB-397	R1	8.8	-	11.3	30	100	13	43	METAPELITE	2
HB-PB-397	R2	11.3	-	13.8	23	77	11	37	METAPELITE	3





Notes: 1. Box row corresponds to the core box section in which the rock core sample is contained; Row 1=Top, Row 4=Bottom.
2. Top photo is dry, bottom photo is wet.

APPENDIX G – ENGINEERING CALCULATIONS

APPENDIX G.1 – SOIL BEARING RESISTANCE

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Engineers and Scientists

JOB: 09.0025832.05 PI Bypass
SUBJECT: Footings bearing on glacial till
SHEET: 1 OF 10
CALCULATED BY B. Cardali 5/1/2023
CHECKED BY A. Blaisdell 5/xx/2023
REMARK:

Objective

Calculate soil bearing resistance for bridge foundations bearing on soils with a friction angle equal to 35 degrees using the Theoretical method (Munfakh et al., 2001) in sand using SPT data. Evaluate strength and service limit bearing resistance for a range ofeffective footing widths and lengths.

References

1. American Association of State Highway and Transportation Officials, AASHTO LRFD Bridge Design Specifications: Customary U.S. Units, 9th edition, 2020, (AASHTO LRFD), Articles 10.5.5.2.2 and 10.6.3.1.
2. Terzaghi, Peck & Mesri, Soil Mechanics in Engineering Practice, Third Edition, 1996.

Soil Properties and Geotechnical Inputs

$\phi_f := 35deg$ Internal friction angle of soil

$\phi_b := 0.45$ Bearing resistance factor as specified in Table 10.5.5.2.2-1 (Theoretical Method, SPT Data, Strength Limit)

$c := 0ksf$ Cohesion, taken as undrained shear strength

$\gamma := 125pcf$ Unit weight of soil above or below the bearing depth of the footing

$N_c := 46.1$ Cohesion term bearing capacity factor as specified in Table 10.6.3.1.2a-1

$N_q := 33.3$ Surcharge term bearing capacity factor as specified in Table 10.6.3.1.2a-1

$N_\gamma := 48.0$ Total unit weight term bearing capacity factor as specified in Table 10.6.3.1.2a-1

C_{wq}, $C_{w\gamma}$:= Correction factors to account for the location of the groundwater table as specified in Table 10.6.3.1.2a-2

Depth to water table at or below depth of footing (D_f) $C_{wq} := 0.5$ $C_{w\gamma} := 0.5$

d_q:= Correction factor to account for the shearing resistance along the failure surface passing through cohesionless material above the bearing elevation as specified in Table 10.6.3.1.2a-4

s_c, s_γ, s_q:= Footing shape correction factors as specified in Table 10.6.3.1.2a-2

$S_c := 1in$ Allowable settlement

q_s= Service limit bearing resistance for allowable settlement

$N_{60} := 30$ Average N_{60} values from SPT below footing

Load inclination factors are omitted considering modest embedment of footing per C10.6.3.1.2a.

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CHECKED BY A. Blaisdell 5/xx/2023
REMARK:

Footing Dimensions

$B_{1.max} := 24 \cdot ft$ Maximum Footing Width

$B_1 := 6 \cdot ft, 8 \cdot ft .. B_{1.max}$ Range of effective footing widths considered (includes eccentricity)

$L_1 := 50ft$ Length of footing

$D_f := 6ft$ Footing embedment depth

Strength Limit Design

$q_n = cN_{cm} + \gamma D_f N_{qm} C_{wq} + 0.5 \gamma B N_{\gamma m} C_{w\gamma}$ Nominal Bearing Resistance Formula

$q.D = \phi_b \times q_n$ Factored Bearing Resistance Formula

Correction Factors

$d_{qtable}(B_1) := \frac{D_f}{B_1}$

$d_{qtable}(B_1) =$ Using Table 10.6.3.1.2a-4

1
0.75
0.6
0.5
0.43
0.38
0.33
0.3
0.27
0.25

$d_q := 1$ dq assumed soil above footing less competent than soil below footing.

$s_c(B_1) := 1 + \left(\frac{B_1}{L_1}\right)\left(\frac{N_q}{N_c}\right)$ $s_q(B_1) := 1 + \left(\frac{B_1}{L_1}\tan(\phi_f)\right)$ $s_\gamma(B_1) := 1 - 0.4\left(\frac{B_1}{L_1}\right)$

$s_c(B_1) =$

1.09
1.12
1.14
1.17
1.2
1.23
1.26
1.29
1.32
1.35

$s_q(B_1) =$

1.08
1.11
1.14
1.17
1.2
1.22
1.25
1.28
1.31
1.34

$s_\gamma(B_1) =$

0.95
0.94
0.92
0.9
0.89
0.87
0.86
0.84
0.82
0.81

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REMARK:

Bearing Capacity Factors

$N_{cm}(B_1) := N_c \cdot s_c(B_1)$ $N_{cm}(B_1) =$

50.1
51.43
52.76
54.09
55.42
56.76
58.09
59.42
60.75
62.08

$N_{qm}(B_1) := N_q \cdot s_q(B_1) \cdot d_q$ $N_{qm}(B_1) =$

36.1
37
38
38.9
39.8
40.8
41.7
42.6
43.6
44.5

$N_{\gamma m}(B_1) := N_\gamma \cdot s_\gamma(B_1)$ $N_{\gamma m}(B_1) =$

45.7
44.9
44.2
43.4
42.6
41.9
41.1
40.3
39.6
38.8

Nominal Bearing Resistance

$$q_n(B_1) := \overrightarrow{\left(c \cdot N_{cm}(B_1) + \gamma \cdot D_f \cdot N_{qm}(B_1) \cdot C_{wq} + 0.5 \cdot \gamma \cdot B_1 \cdot N_{\gamma m}(B_1) \cdot C_{w\gamma}\right)}$$

$q_n(B_1) =$

22.1	·ksf
25.1	
28	for
30.9	
33.6	
36.2	
38.7	
41.2	
43.5	
45.8	

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SHEET: 4 OF 10
CALCULATED BY B. Cardali 5/1/2023
CHECKED BY A. Blaisdell 5/xx/2023
REMARK:

Factored Bearing Resistance - Strength Limit State

$q_D(B_1) := \phi_b \cdot q_n(B_1)$

$q_D(B_1) =$

9.9	·ksf
11.3	
12.6	
13.9	
15.1	
16.3	
17.4	
18.5	
19.6	
20.6	

$B_1 =$

6	·ft
8	
10	
12	
14	
16	
18	
20	
22	
24	

Service Limit Design

Evaluate service limit bearing resistance for the specified allowable settlement using the semi-empirical SPT Method by Burland and Burbidge (1985) provided in Terzaghi, Peck & Mesri, 96.

$S_{cm} := S_c \cdot \frac{1}{1mm}$ $\quad S_{cm} = 25.4$ Allowable settlement in millimeters and unitless

$B_{1m}(B_1) := B_1 \cdot \frac{1}{1m}$ $\quad B_{1m}(B_1) =$ Effective footing width in meters and unitless

1.8
2.4
3
3.7
4.3
4.9
5.5
6.1
6.7
7.3

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SHEET: 5 OF 10
CALCULATED BY B. Cardali 5/1/2023
CHECKED BY A. Blaisdell 5/xx/2023
REMARK:

Correction formula for rectangular footings (Terzaghi EQ 50.14)

$$S_{cmr}(B_1) := S_{cm}\cdot\left[\frac{\left[1.25\cdot\left(\frac{L_1}{B_1}\right)\right]}{\left(\frac{L_1}{B_1}\right)+0.25}\right]^2$$

$S_{cmr}(B_1) =$

37.41
36.69
36
35.32
34.66
34.03
33.4
32.8
32.21
31.64

$$EQ_1(B_1) := S_{cm}\cdot\left(\frac{S_{cm}}{S_{cmr}(B_1)}\right)$$

$EQ_1(B_1) =$

17.25
17.58
17.92
18.27
18.61
18.96
19.31
19.67
20.03
20.39

$$EQ_2(B_1) := \frac{N_{60}^{1.4}}{1.7\cdot B_{1m}(B_1)^{0.75}}$$

$EQ_2(B_1) =$

43.74
35.25
29.82
26.01
23.17
20.96
19.19
17.73
16.51
15.47

$$q_{snc}(B_1) := \overrightarrow{\left(EQ_1(B_1)\cdot EQ_2(B_1)\right)}$$

$q_{snc}(B_1) =$

754.4
619.8
534.4
475.1
431.2
397.4
370.6
348.8
330.6
315.4

Formula results are in kPa (Terzaghi EQ 50.28). Results represent normally consolidated soil.

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REMARK:

$q_s(B_1) := 1.33\, q_{snc}(B_1)$ $q_s(B_1) =$

1003
824
711
632
574
529
493
464
440
419

Assumes sand is at least 1/3 overconsolidated at current effective stress (likely conservative)

$q_{sm}(B_1) := q_s(B_1) \cdot 1\,kPa$ $q_{sm}(B_1) =$

1003
824
711
632
574
529
493
464
440
419

$\cdot kPa$

Service limit bearing resistance for allowable settlement (metric units)

$q_{se}(B_1) := q_{sm}(B_1)$ $q_{se}(B_1) =$

21
17.2
14.8
13.2
12
11
10.3
9.7
9.2
8.8

$\cdot ksf$

Service limit bearing resistance for allowable settlement (English units)

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REMARK:

$$q_{se.c}(B_1) := q_{se}(B_1)\cdot m^{.75}$$

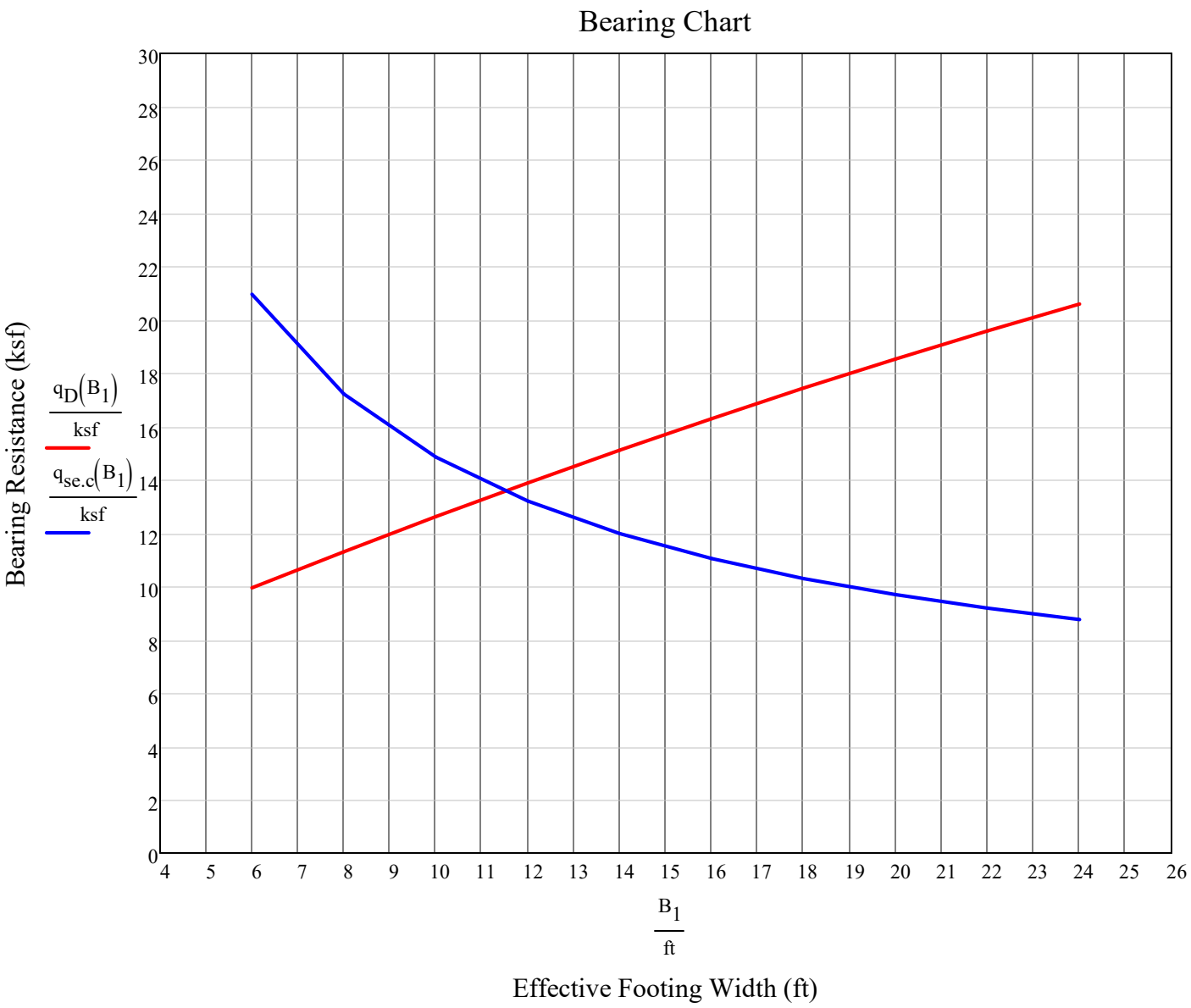
Correct Units

$q_{se.c}(B_1)$ =		B_1 =	
21	$m^{0.8}\cdot ksf$	6	$\cdot ft$
17.2		8	
14.8		10	
13.2		12	
12		14	
11		16	
10.3		18	
9.7		20	
9.2		22	
8.8		24	

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SHEET: 8 OF 10
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REMARK:



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SHEET: 9 OF 10
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REMARK:

Table 10.6.3.1.2a-1—Bearing Capacity Factors N_c (Prandtl, 1921), N_q (Reissner, 1924), and N_γ (Vesic, 1975)

ϕ_f	N_c	N_q	N_γ	ϕ_f	N_c	N_q	N_γ
0	5.14	1.0	0.0	23	18.1	8.7	8.2
1	5.4	1.1	0.1	24	19.3	9.6	9.4
2	5.6	1.2	0.2	25	20.7	10.7	10.9
3	5.9	1.3	0.2	26	22.3	11.9	12.5
4	6.2	1.4	0.3	27	23.9	13.2	14.5
5	6.5	1.6	0.5	28	25.8	14.7	16.7
6	6.8	1.7	0.6	29	27.9	16.4	19.3
7	7.2	1.9	0.7	30	30.1	18.4	22.4
8	7.5	2.1	0.9	31	32.7	20.6	26.0
9	7.9	2.3	1.0	32	35.5	23.2	30.2
10	8.4	2.5	1.2	33	38.6	26.1	35.2
11	8.8	2.7	1.4	34	42.2	29.4	41.1
12	9.3	3.0	1.7	35	46.1	33.3	48.0
13	9.8	3.3	2.0	36	50.6	37.8	56.3
14	10.4	3.6	2.3	37	55.6	42.9	66.2
15	11.0	3.9	2.7	38	61.4	48.9	78.0
16	11.6	4.3	3.1	39	67.9	56.0	92.3
17	12.3	4.8	3.5	40	75.3	64.2	109.4
18	13.1	5.3	4.1	41	83.9	73.9	130.2
19	13.9	5.8	4.7	42	93.7	85.4	155.6
20	14.8	6.4	5.4	43	105.1	99.0	186.5
21	15.8	7.1	6.2	44	118.4	115.3	224.6
22	16.9	7.8	7.1	45	133.9	134.9	271.8

Table 10.6.3.1.2a-2—Coefficients C_{wq} and $C_{w\gamma}$ for Various Groundwater Depths

D_w	C_{wq}	$C_{w\gamma}$
0.0	0.5	0.5
D_f	1.0	0.5
$>1.5B + D_f$	1.0	1.0

Where the position of groundwater is at a depth less than 1.5 times the footing width below the footing base, the bearing resistance is affected. The highest anticipated groundwater level should be used in design.

Table 10.6.3.1.2a-3—Shape Correction Factors s_c, s_γ, s_q

Factor	Friction Angle	Cohesion Term (s_c)	Unit Weight Term (s_γ)	Surcharge Term (s_q)
Shape Factors s_c, s_γ, s_q	$\phi_f = 0$	$1+\left(\frac{B}{5L}\right)$	1.0	1.0
	$\phi_f > 0$	$1+\left(\frac{B}{L}\right)\left(\frac{N_q}{N_c}\right)$	$1-0.4\left(\frac{B}{L}\right)$	$1+\left(\frac{B}{L}\tan\phi_f\right)$

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Engineers and Scientists

JOB: 09.0025832.05 PI Bypass
SUBJECT: Footings bearing on glacial till
SHEET: 10 OF 10
CALCULATED BY B. Cardali 5/1/2023
CHECKED BY A. Blaisdell 5/xx/2023
REMARK:

Table 10.6.3.1.2a-4—Depth Correction Factor d_q

Friction Angle, ϕ_f (degrees)	D_f/B	d_q
32	1	1.20
	2	1.30
	4	1.35
	8	1.40
37	1	1.20
	2	1.25
	4	1.30
	8	1.35
42	1	1.15
	2	1.20
	4	1.25
	8	1.30

The depth correction factor should be used only when the soils above the footing bearing elevation are as competent as the soils beneath the footing level; otherwise, the depth correction factor should be taken as 1.0.

Linear interpolations may be made for friction angles in between those values shown in Table 10.6.3.1.2a-4.

APPENDIX G.2a – LATERAL EARTH PRESSURES FOR BRIDGES

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Engineers and Scientists

JOB: 09.0025832.06 PI Bypass, Segment 1
SUBJECT: Lateral Earth Pressures
SHEET: 1 OF 1
CALCULATED BY B. Cardali 8/8/25
CHECKED BY A. Blaisdell 8/8/25

Subject:

Evaluate lateral earth pressure coefficients for proposed cast-in-place abutment with a semi-integral backwall

References:

1. MaineDOT Bridge Design Guide, Chapter 3 and 5 (BDG)
2. AASHTO LRFD Bridge Design Specifications, 9th Edition (2020)

Input Parameters:

$\phi := 32\text{deg}$ — Effective angle of internal friction *(Granular borrow, Soil Type 4, BDG Table 3-3)*

$\delta_f := 19.5\text{deg}$ — Average value, precast concrete against clean sand/silty sand-gravel mixture *(AASHTO LRFD Table 3.11.5.3-1)*

$\beta := 0\text{deg}$ — Angle of backfill to the horizontal

$\theta := 90 \cdot \text{deg}$ — Angle of back face of wall to the horizontal

$H_b := 23\text{ft}$ — Shortest abutment height of the four bridges

Earth Pressure Coefficients:

The bridge abutments and wingwalls will be free to rotate and therefore should be designed for active earth pressure. Additionally, considering the significant backfill height over the toe of the wingwall footings for the MNR bridge and Easton Road Bridge, we anticipate it is unlikely that an excavation would occur that would extend down to the footing elevation. Therefore, we suggest that passive soil resistance be considered against the footing only for wingwall design.

Active Earth Pressure (Abutments and Wingwalls)

Article 3.6.4 of the BDG states that abutments with a height of 5 feet or more should be assumed to experience sufficient horizontal movement of the top of the wall to develop active conditions due to structural deformation of the stem and rotation of the foundation. The four Bypass bridges have minimum abutment heights of 26, 31, 25, and 23 feet and heels of 9, 13, 13, and 9 feet.

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Engineers and Scientists

JOB: 09.0025832.06 PI Bypass, Segment 1
SUBJECT: Lateral Earth Pressures
SHEET: 2 OF 1
CALCULATED BY B. Cardali 8/8/25
CHECKED BY A. Blaisdell 8/8/25

$$\alpha := \frac{(90\cdot\text{deg} + \beta - \phi)}{2} = 29\cdot\text{deg}$$

$$\text{heel} := 9\text{ft}$$

$$\text{Intersection}_{\text{height}} := \tan(90\text{deg} - \alpha)\cdot\text{heel} = 16\cdot\text{ft}$$

The abutment heights range from 23 to 31 feet. Based on Figure C3.11.5.3-1 of LRFD, the abutment is considered to be a short-heeled wall. Therefore, Coulomb theory should be used to calculate active earth pressures.

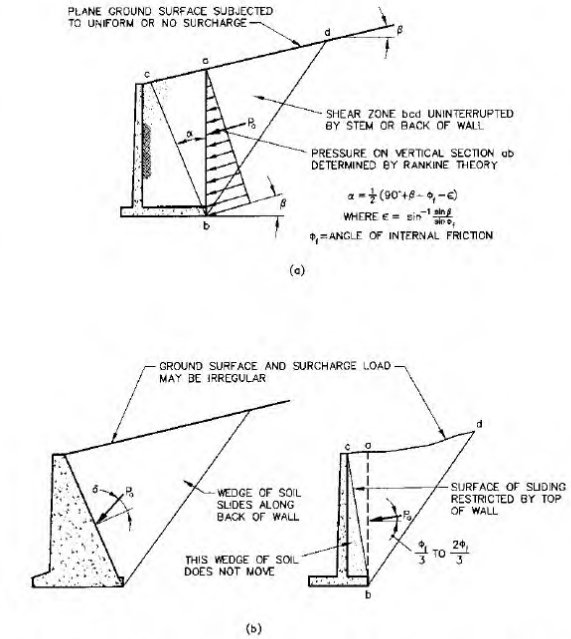


Figure C3.11.5.3-1—Application of (a) Rankine and (b) Coulomb Earth Pressure Theories in Retaining Wall Design

Coloumb Active Earth Pressure Coefficient (Short-Heeled Wall)

$$\Gamma := \left[1 + \sqrt{\left[\frac{\sin(\phi + \delta_f)\cdot(\sin(\phi - \beta))}{\sin(\theta - \delta_f)\cdot\sin(\theta + \beta)}\right]}\right]^2 = 2.77$$

$$K_{ac} := \frac{(\sin(\theta + \phi))^2}{\Gamma\cdot\left[(\sin(\theta))^2\cdot\sin(\theta - \delta_f)\right]} \qquad K_{ac} = 0.28$$

Passive Earth Pressure (MNR and Easton Road Bridge Wingwalls only)

Use Rankine earth pressure:

Rankine Passive Earth Pressure Coefficient

$$K_{pr} := \frac{1 + \sin(\phi)}{1 - \sin(\phi)} \qquad K_{pr} = 3.25$$

APPENDIX G.2b – LATERAL EARTH PRESSURES FOR CULVERTS

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Engineers and Scientists

JOB: 09.0025832.06 PI Bypass, Segment 1
SUBJECT: Lateral Earth Pressures
SHEET: 1 OF 1
CALCULATED BY B.Cardali 8/8/25
CHECKED BY A. Blaisdell 8/8/25

Subject:

Evaluate lateral earth pressure coefficients for a precast box culvert walls, inlet and outlet walls.

References:

1. MaineDOT Bridge Design Guide, Chapter 3
2. AASHTO LRFD Bridge Design Specifications, 9th Edition (2020)
3. U.S. Army Corps of Engineers Engineer Manual 1110-2-2502, Retaining and Flood Walls

Input Parameters:

$\phi := 32deg$ — Effective angle of internal friction *(Granular borrow, Soil Type 4, BDG Table 3-3)*

$\delta_f := 19.5deg$ — Average value, precast concrete against clean sand/silty sand-gravel mixture *(AASHTO LRFD Table 3.11.5.3-1)*

$\beta := 26.6deg$ — Angle of backfill to the horizontal

$\theta := 90 \cdot deg$ — Angle of back face of wall to the horizontal

Earth Pressure Coefficients:

Outlet Walls Fixed to Box Culvert:

Assume translation and rotation of culvert with inlet and outlet walls is inadequate to achieve active earth pressure. Therefore, design for at-rest earth pressure.

$K_o := 1 - \sin(\phi) = 0.47$ — At-rest Earth Pressure Coefficient, Level Ground

Outlet Walls free to rotate:

The earth pressure is applied to a plane extedning vertically up from the heel of the wall base, and the weight of the soil on the inside of the vertical plane is considereed as part of the wall weight. The failure sliding surface is not restricted by the top of the wall or back face of wall. Use Rankine theory for active earth pressure.

For unsupported culvert walls extending beyond the box, with horizontal backslope:

$$K_{ar} := \tan\left(45deg - \frac{\phi}{2}\right)^2 \qquad K_{ar} = 0.31$$

For a sloped 2H:1V backfill:

$$K_{ar.s} := \cos(\beta) \cdot \frac{\left[\cos(\beta) - \sqrt{(\cos(\beta))^2 - (\cos(\phi))^2}\right]}{\left[\cos(\beta) + \sqrt{(\cos(\beta))^2 - (\cos(\phi))^2}\right]} \qquad K_{ar.s} = 0.46$$

APPENDIX G.3 – SEISMIC BRIDGE DESIGN

Seismic Site Class Summary

Project: Presque Isle Bypass, Segment 1 **Project No.:** 09.0025832.06

Location: Presque Isle, ME

Evaluated By/Date: B.Cardali **Date** 8/8/2025

Checked By/Date: A. Blaisdell **Date** 8/8/2025

Objective: Determine seismic site class by performing calculations in accordance with the MaineDOT Bridge Manual 2003 Edition with updates in 2018, which references the AASHTO LRFD Seismic Bridge Design Specifications, 9th Edition 2020.

Subsurface Data: BB-100, -300, -500, and -600 series borings were completed in multiple phases by New England Boring Contractors between 2014 and 2023 and were observed by GZA. The bridge abutments are anticipated to bear directly on glacial till and/or fractured/intact bedrock. For the purposes of design, all foundations are presumed to be bearing on medium dense to dense glacial till. This corresponds to an average SPT-N value between 15 and 50 in the vicinity of the bridges. Refer to the boring logs for additional details.

Approach:

1) Evaluate if the procedure in AASHTO LRFD Seismic Section 3.10.2.1 for classifying a site is appropriate for the site. Sites with highly variable subsurface conditions or very large sites may require multiple site class determinations or a site-specific seismic response analysis. Furthermore, classifying a site based on the 100 feet of soil and rock beneath the ground surface may be inappropriate if deep deposits of weak soils are present below 100 feet, or if foundation structures are supported on firm soil or rock below soft soils which can be justified as having little effect on the structure's seismic response.

2) Evaluate if soil properties are known in sufficient detail to determine site class. If data is not known in sufficient detail, AASHTO permits the use of Site Class D, unless conditions for Site Class E or Site Class F are likely to be present.

3) Check for the four categories of Site Class F requiring site-specific evaluation:
- Soils vulnerable to potential failure (liquefiable soils, sensitive clays, weakly cemented soils)
- Peats or highly organic clays greater than 10 feet in thickness
- Thick layers (greater than 25 feet) of highly plastic clay (PI > 75)
- Very thick soft/medium stiff clays (greater than 125 feet)

4) Check for existence of greater than 10 feet of soft clay (where s_u < 500 psf, w > 40%, and PI > 20). If these conditions are met, classify as Site Class E.

5) Categorize the site using one of the following three methods in AASHTO C3.10.3.1-1:
- $\overline{v}_s$ (Method A) - $\overline{N}$ (Method B) - $\overline{N}_{ch}$ *and* $\overline{s}_u$ (Method C)

If shear wave velocity data are available, they should be used to classify the site. The N and s_u methods should only be used if shear wave velocity data is not available, as the correlation between site amplification and these geotechnical parameters is more uncertain (and therefore more conservative) than the correlation with $\overline{v}_s$. If bedrock is encountered above a depth of 100 feet, 100 blow per foot should be taken as Ni.

Conclusions: The subsurface profile for seismic design includes the proposed approach Fills (including backfill behind abutments), Glacial Till and bedrock. Seismic site class was determined in general accordance with LRFD Table C3.10.3.1 using the average SPT N-value from the soil materials encountered in the borings and assumed values for proposed Fill above (i.e., below the proposed roadway surface). On this basis, the average SPT N-value fell between 15 and 50 blows per foot, therefore, the bridges are assigned to Site Class D.

USGS Design Maps Detailed Report

2009 AASHTO Guide Specifications for LRFD Seismic Bridge Design (46.65528°N, 67.95996°W)

Site Class D – "Stiff Soil"

Article 3.4.1 — Design Spectra Based on General Procedure

Note: Maps in the 2009 AASHTO Specifications are provided by AASHTO for Site Class B. Adjustments for other Site Classes are made, as needed, in Article 3.4.2.3.

From Figure 3.4.1-2 [1]	PGA = 0.076 g
From Figure 3.4.1-3 [2]	S_S = 0.174 g
From Figure 3.4.1-4 [3]	S_1 = 0.052 g

Article 3.4.2.1 — Site Class Definitions

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Article 3.4.2.

Table 3.4.2.1–1 Site Class Definitions

SITE CLASS	SOIL PROFILE NAME	Soil shear wave velocity, $\overline{v}_s$, (ft/s)	Standard penetration resistance, $\overline{N}$	Soil undrained shear strength, $\overline{s}_u$, (psf)
A	Hard rock	$\overline{v}_s > 5{,}000$	N/A	N/A
B	Rock	$2{,}500 < \overline{v}_s \leq 5{,}000$	N/A	N/A
C	Very dense soil and soft rock	$1{,}200 < \overline{v}_s \leq 2{,}500$	$\overline{N} > 50$	>2,000 psf
D	Stiff soil profile	$600 \leq \overline{v}_s < 1{,}200$	$15 \leq \overline{N} \leq 50$	1,000 to 2,000 psf
E	Stiff soil profile	$\overline{v}_s < 600$	$\overline{N} < 15$	<1,000 psf
E	—	Any profile with more than 10 ft of soil having the characteristics: 1. Plasticity index $PI > 20$, 2. Moisture content $w \geq 40\%$, and 3. Undrained shear strength $\overline{s}_u < 500$ psf		
F	—	Any profile containing soils having one or more of the following characteristics: 1. Soils vulnerable to potential failure or collapse under seismic loading such as liquefiable soils, quick and highly sensitive clays, collapsible weakly cemented soils. 2. Peats and/or highly organic clays ($H > 10$ feet of peat and/or highly organic clay where H = thickness of soil) 3. Very high plasticity clays ($H > 25$ feet with plasticity index $PI > 75$) 4. Very thick soft/medium stiff clays ($H > 120$ feet)		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Article 3.4.2.3 — Site Coefficients

Table 3.4.2.3-1 (for F_{pga})—Values of F_{pga} as a Function of Site Class and Mapped Peak Ground Acceleration Coefficient

Site Class	Mapped Peak Ground Acceleration				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See AASHTO Article 3.4.3				

Note: Use straight–line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.076 g, F_{PGA} = 1.600

Table 3.4.2.3-1 (for F_a)—Values of F_a as a Function of Site Class and Mapped Short-Period Spectral Acceleration Coefficient

Site Class	Spectral Response Acceleration Parameter at Short Periods				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See AASHTO Article 3.4.3				

Note: Use straight–line interpolation for intermediate values of S_S

For Site Class = D and S_S = 0.174 g, F_a = 1.600

Table 3.4.2.3-2—Values of F_v as a Function of Site Class and Mapped 1-sec Period Spectral Acceleration Coefficient

Site Class	Mapped Spectral Response Acceleration Coefficient at 1-sec Periods				
	$S_1 \le 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \ge 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See AASHTO Article 3.4.3				

Note: Use straight–line interpolation for intermediate values of S_1

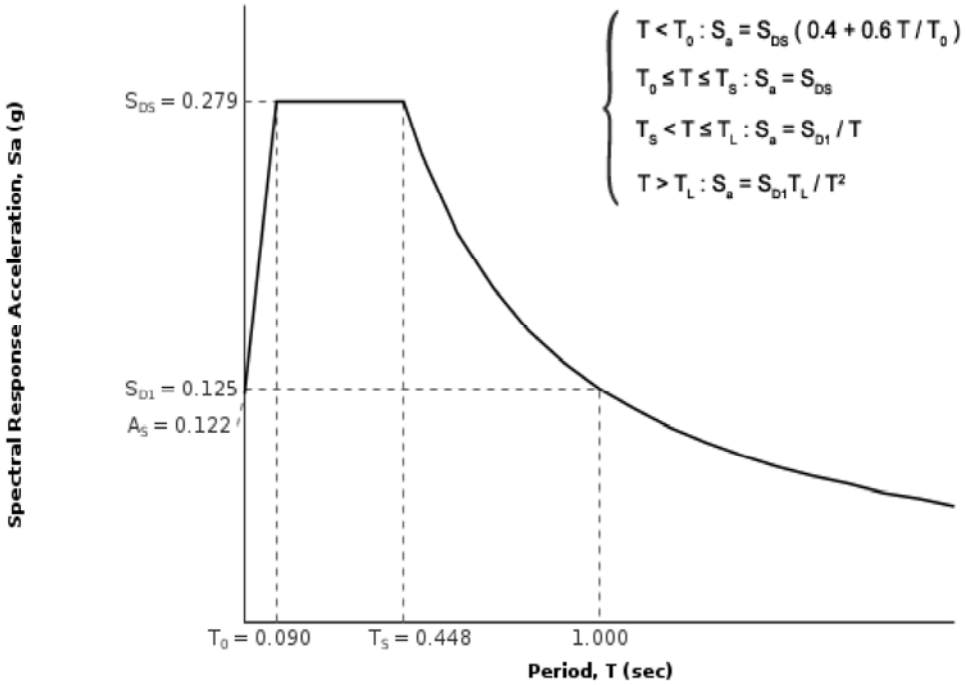
For Site Class = D and S_1 = 0.052 g, F_v = 2.400

Equation (3.4.1-1): $A_S = F_{PGA}\ PGA = 1.600 \times 0.076 = 0.122$ g

Equation (3.4.1-2): $S_{DS} = F_a\ S_S = 1.600 \times 0.174 = 0.279$ g

Equation (3.4.1-3): $S_{D1} = F_v\ S_1 = 2.400 \times 0.052 = 0.125$ g

Figure 3.4.1-1: Design Response Spectrum



Article 3.5 - Selection of Seismic Design Category (SDC)

Table 3.5-1—Partitions for Seismic Design Categories A, B, C, and D

VALUE OF S_{D1}	SDC
S_{D1} < 0.15g	A
0.15g ≤ S_{D1} < 0.30g	B
0.30g ≤ S_{D1} < 0.50g	C
0.50g ≤ S_{D1}	D

For S_{D1} = 0.125 g, Seismic Design Category = A

Seismic Design Category ≡ "the design category in accordance with Table 3.5-1" = A

References

1. *Figure 3.4.1-2*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/AASHTO-2009-Figure-3.4.1-2.pdf
2. *Figure 3.4.1-3*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/AASHTO-2009-Figure-3.4.1-3.pdf
3. *Figure 3.4.1-4*: http://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/AASHTO-2009-Figure-3.4.1-4.pdf

APPENDIX G. – 4 - FROST PENETRATION

March 2014

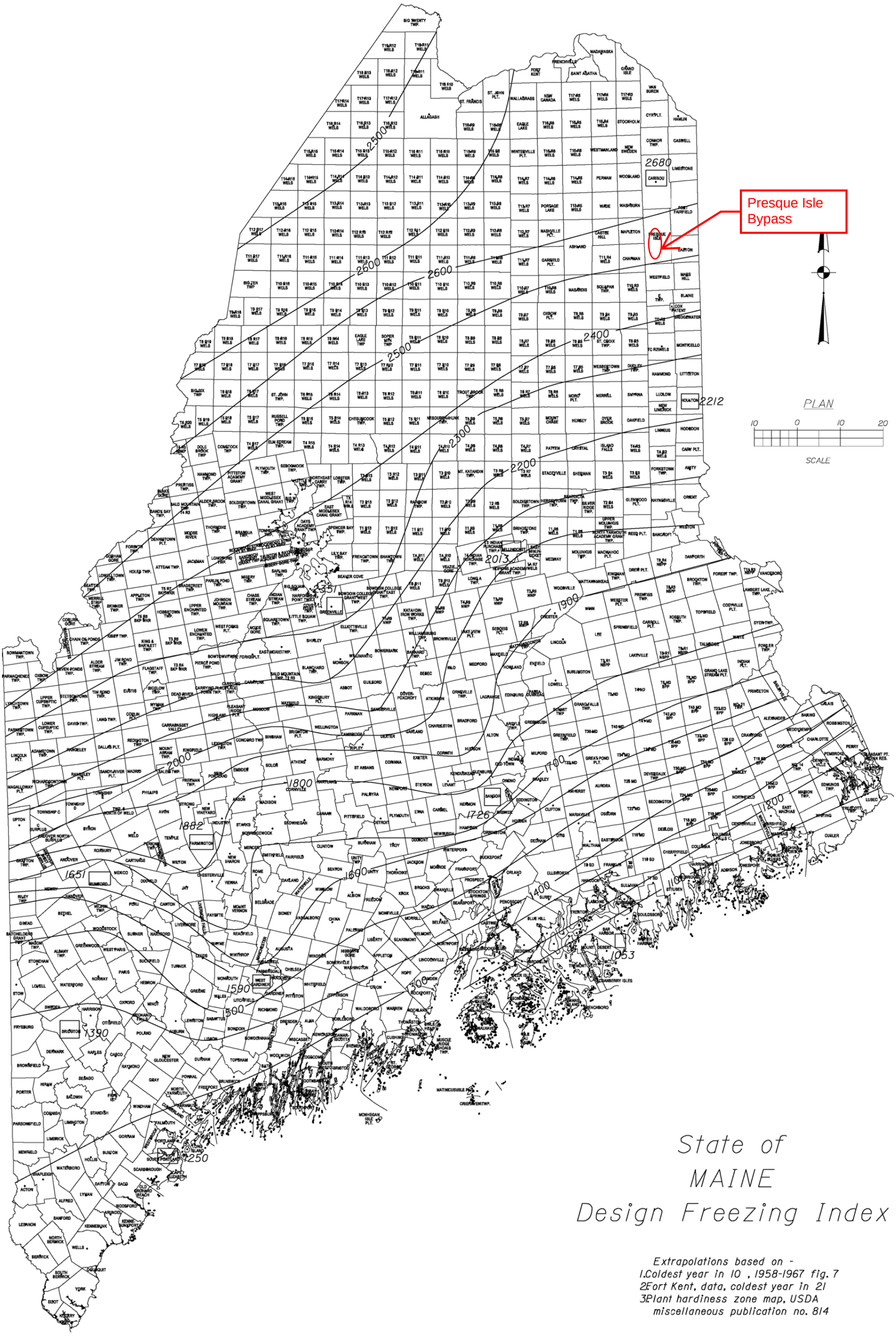


Figure 5-1 Maine Design Freezing Index Map

Table 5-1 Depth of Frost Penetration

Design Freezing Index	Frost Penetration (in)					
	Coarse Grained			Fine Grained		
	w=10%	w=20%	w=30%	w=10%	w=20%	w=30%
1000	66.3	55.0	47.5	47.1	40.7	36.9
1100	69.8	57.8	49.8	49.6	42.7	38.7
1200	73.1	60.4	52.0	51.9	44.7	40.5
1300	76.3	63.0	54.3	54.2	46.6	42.2
1400	79.2	65.5	56.4	56.3	48.5	43.9
1500	82.1	67.9	58.4	58.3	50.2	45.4
1600	84.8	70.2	60.3	60.2	51.9	46.9
1700	87.5	72.4	62.2	62.2	53.5	48.4
1800	90.1	74.5	64.0	64.0	55.1	49.8
1900	92.6	76.6	65.7	65.8	56.7	51.1
2000	95.1	78.7	67.5	67.6	58.2	52.5
2100	97.6	80.7	69.2	69.3	59.7	53.8
2200	100.0	82.6	70.8	71.0	61.1	55.1
2300	102.3	84.5	72.4	72.7	62.5	56.4
2400	104.6	86.4	74.0	74.3	63.9	57.6
2500	106.9	88.2	75.6	75.9	65.2	58.8
2600	109.1	89.9	77.1	77.5	66.5	60.0

85" = 7.1'

2550

108 89 76.7 65.9

98.5 85 71.3

Notes: 1. w = water content
2. Where the Freezing Index and/or water content is between the presented values, linear interpretation may be used to determine the frost penetration.

Glacial Till is anticipated near the Conant Road, Easton Road, MNR Railroad, and Henderson Road bridge abutment bearing elevations and is generally described as ranging from Sandy Gravel, some Silt to Silty Sand, some Gravel and has an average water content of 15 percent. Based on the MaineDOT BDG, Section 5.2.1 and a Freezing index of 2,550 the estimated depth of frost penetration is 85 inches (7.1 feet).

APPENDIX G. APPENDIX G. 4a - FROST PENETRATION FOR HIGHWAY SUBGRADES

March 2014

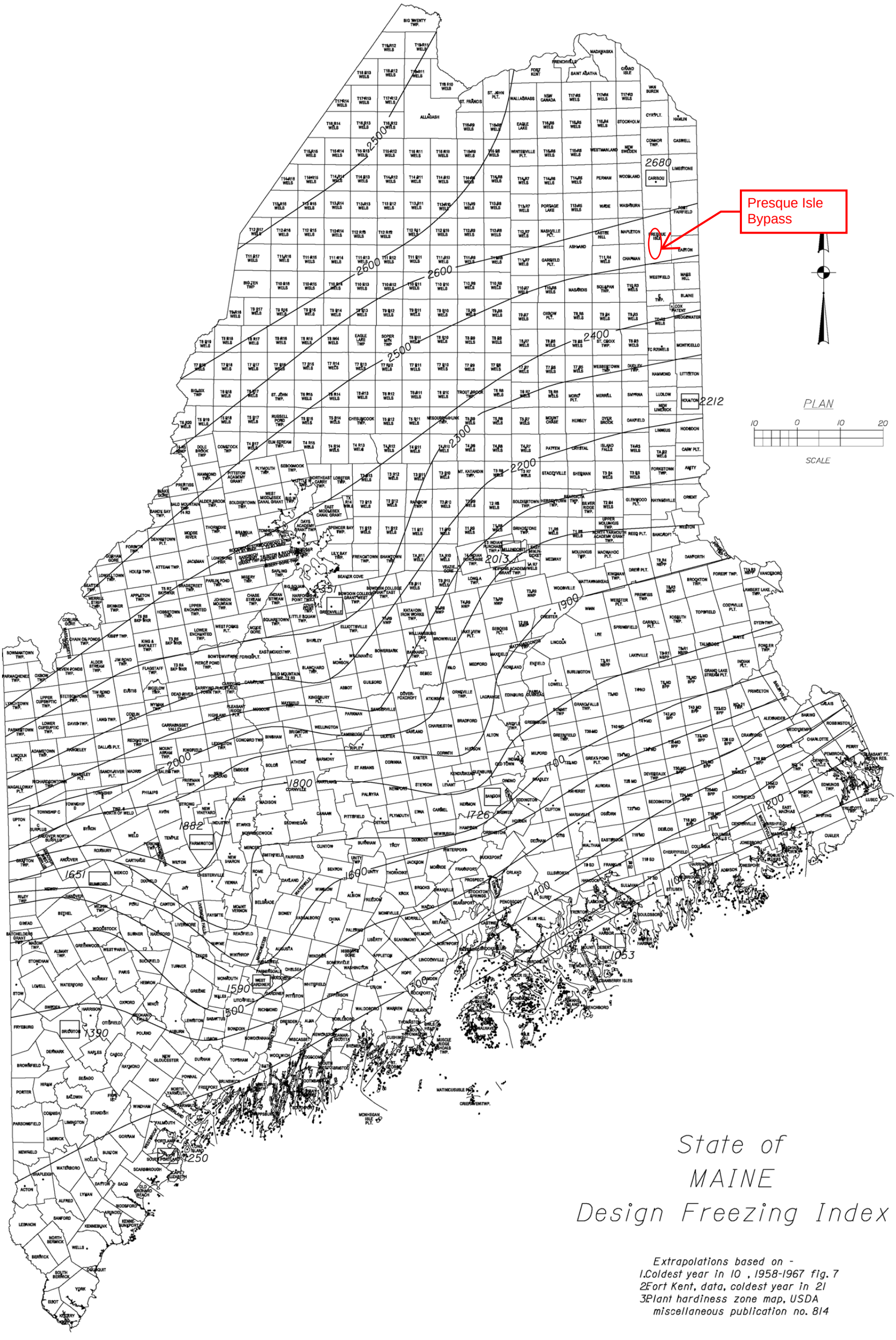


Figure 5-1 Maine Design Freezing Index Map

Table 5-1 Depth of Frost Penetration

Design Freezing Index	Frost Penetration (in)					
	Coarse Grained			Fine Grained		
	w=10%	w=20%	w=30%	w=10%	w=20%	w=30%
1000	66.3	55.0	47.5	47.1	40.7	36.9
1100	69.8	57.8	49.8	49.6	42.7	38.7
1200	73.1	60.4	52.0	51.9	44.7	40.5
1300	76.3	63.0	54.3	54.2	46.6	42.2
1400	79.2	65.5	56.4	56.3	48.5	43.9
1500	82.1	67.9	58.4	58.3	50.2	45.4
1600	84.8	70.2	60.3	60.2	51.9	46.9
1700	87.5	72.4	62.2	62.2	53.5	48.4
1800	90.1	74.5	64.0	64.0	55.1	49.8
1900	92.6	76.6	65.7	65.8	56.7	51.1
2000	95.1	78.7	67.5	67.6	58.2	52.5
2100	97.6	80.7	69.2	69.3	59.7	53.8
2200	100.0	82.6	70.8	71.0	61.1	55.1
2300	102.3	84.5	72.4	72.7	62.5	56.4
2400	104.6	86.4	74.0	74.3	63.9	57.6
2500	106.9	88.2	75.6	75.9	65.2	58.8
2600	109.1	89.9	77.1	77.5	66.5	60.0

66" = 5.5'

2550

65.9

Notes: 1. w = water content
2. Where the Freezing Index and/or water content is between the presented values, linear interpretation may be used to determine the frost penetration.

Fill soils within the new hgihway are anticipated to have an average water content of 20 percent and be fine grained. Based on the MaineDOT BDG, Section 5.2.1 and a Freezing index of 2,550 the estimated depth of frost penetration is 66 inches for the highway subgrades.To limit frost heaving, materials with low susceptibility to frost-heaving should be provided in the upper 66 inches beneath the paved surface in new embankments. Where this is not possible, the pavement design should allow for the presence of frost-susceptible material within the depth of freezing.

APPENDIX G. 5 - EPS Insulation

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JOB: 09.0025832.06
SUBJECT: Presque Isle Bypass Geofoam Insulation
SHEET: 1
CALCULATED BY: E. Tome, 1/17/24
CHECKED BY: A. Blaisdell 1/17/24

OBJECTIVE

The Engineering consideration for the proposed insulation detail is to gain adequate thickness and lateral extent to result in a frost penetration path at least as long as the design frost penetration depth. The thickness is evaluated based on the thermal resistane (R-value) of the geofoam compared to the design frost embedment depth. The lateral extent is evaluated to provide similar or greater frost penetration distance as the design depth.

REFERENCES

1. Horvath (1995), "Geofoam Geosynthetic." 2. Transportation Research Board (2004), "National Cooperative Highway Research Program, NCHRP Report 529, Guideline and Recommended Standard for Geofoam Applications in Highway Embankments."
3. ASTM (2007), "ASTM D6817-07, Standard Specification for Rigid Cellular Polystyrene Geofoam." (attached Sheets 14 and 15)
4. Phukan (1985), "Frozen Ground Engineering."

PROCEDURE AND ASSUMPTIONS

1. Geofoam will consist of expanded polystyrene (EPS). Use ASTM D6817 EPS29 material or higher grade for durability.
2. Insulation properties will be compared to existing soil using thermal properties from references 1 and 4 above.

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JOB: 09.0025832.06
SUBJECT: Presque Isle Bypass Geofoam Insulation
SHEET: 2
CALCULATED BY: E. Tome, 1/17/24
CHECKED BY: A. Blaisdell 1/17/24

INSULATION PROPERTIES OF EPS

GZA reviewed Fig. 3.23 of reference 4 to assess the coefficient of thermal conductivity (K) of frozen soil and reference 1 (pg. 62-65) to assess K for EPS geofoam to evaluate the required thickness. Use the following K values from references for assessment:

Soil: K = 18.0 BTU/(ft^2)(hr)(°F)/in. (For frozen coarse-grained soil (Granular Borrow), w=10%, dry density=115 pcf)

EPS: K = 0.41 BTU/(ft^2)(hr)(°F)/in. (highest recommended value for condition where significant water absorption may occur, increases k so conservative for comparison)

The thermal resistance (R) is equal to the thickness of the material divided by the thermal conductivity:

R = **x** (Thickness in inches) / **K** (units above)

The thermal resistance of 4 inches of EPS geofoam is compared to existing on-site soil in the table below:

Material	**K** [BTU/ (ft^2)(hr)(°F)/in]	**Thickness, x** (in)	**R** [(ft^2)(hr) (°F)/ BTU]
Soil	18	85	4.7
EPS	0.41	2	4.9

Thermal resistance of 4" of EPS geofoam alone is more than what is required by the Design Frost Depth. Geofoam will be embedded approximately 2.5 feet below grade, which will add to the R-value.

GEOFOAM GEOMETRY AND FROST PATH

The sketch on the following page shows the proposed geofoam details. Geofoam will be placed over the footing horizontally from the abutment wall and then extend an additional distance at a 2H:1V downward inclination until the frost penetration path (from the ground to the bottom of abutment) is at least 7.1 feet.

Based on the planned detail, the shortest frost path is from the exterior grade at the edge of the geofoam in front of the abutment. As illustrated, this frost path distance is longer than 7.1'. All other frost paths extend through the EPS, which provides greater frost protection than 7.1' of soil alone.

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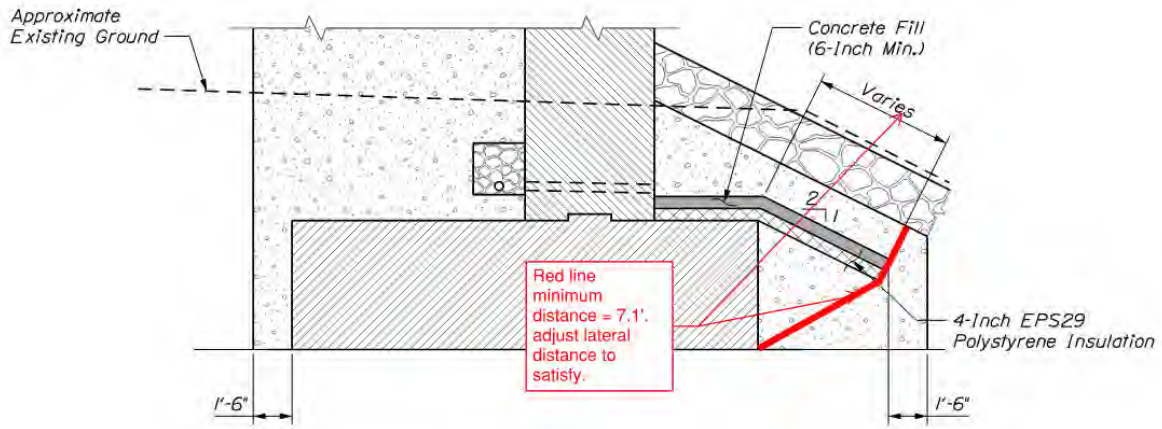
JOB: 09.0025832.06
SUBJECT: Presque Isle Bypass Geofoam Insulation
SHEET: 3
CALCULATED BY: E. Tome, 1/17/24
CHECKED BY: A. Blaisdell 1/17/24

CONCLUSIONS

1. The thermal resistance (R-value) provided by 4 inches of EPS geofoam subject to a high moisture content condition is greater than that provided by the design 7.1-foot frost embedment depth.

2. The proposed details shown below provide suitable protection from frost penetration around the edges of the geofoam.

3. EPS geofoam should be placed directly on structural concrete or on a granular soil subgrade surface that is relatively free of irregular gravel and should be protected by a minimum of 6 inches of Concrete Fill.



FOOTING INSULATION DETAIL
(Footing on Glacial Till Shown. Footing on Bedrock Similar)