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GEOTECHNICAL DATA REPORT
DINSMORE ROAD BRIDGE NO. 5782 OVER INTERSTATE 95
MAINE DOT WIN 29486.00 (LEGACY WIN 25473.00)
SIDNEY, MAINE

June 2025
09.0026242.00

Prepared for:
Maine Department of Transportation
Augusta, Maine

Prepared by:
GZA GeoEnvironmental, Inc.
707 Sable Oaks Drive | Suite 150 | South Portland, Maine 04106
207.879.9190

31 Offices Nationwide
www.gza.com

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1.0 INTRODUCTION

We are pleased to provide this Geotechnical Data Report, which includes geotechnical data related to the replacement of Maine Department of Transportation (MaineDOT) Dinsmore Road Bridge No. 5782 in Sidney, Maine. Our work was completed in accordance with GZA GeoEnvironmental, Inc.'s Project Contract for the above referenced project dated July 22, 2024, and our Proposal No. 09.P000130.24c, dated December 18, 2023, and the Limitations included in **Appendix A** of this report.

1.1 BACKGROUND

The existing Dinsmore Road Bridge No. 5782 was constructed circa 1958 and spans west to east, carrying Dinsmore Road over Interstate 95 (I-95), as shown in **Figure 1**. Bridge No. 5782 consists of a 364-foot-long, six-span, continuous bridge with steel beams and a reinforced concrete deck. The bridge is 29 feet wide and supported by concrete piers and concrete stub abutments.

The 1958 as-built plans indicate that Abutment 1 is supported by nine, HP 10x42 piles driven to bedrock and are either plumb or battered at 2.5:12. The piles notes indicate a maximum design load of 37 tons and an estimated length of 40 feet. Piers 1 and 2 are each supported by twelve, HP 10x42 piles and are either plumb or battered at 2:12 depending on the location. The piles have a maximum design load of 37 tons and an estimated length of 18 feet. Abutment 2 and Piers 3, 4, and 5 are supported by spread footings on bedrock. The piers are cast-in-place concrete columns bearing on spread footings with a maximum footing bearing pressures of 3 tons per square foot (tsf) shown on the 1958 plans. The existing approach embankments are approximately 14 to 25 feet above original grades. The available historic foundation drawings are attached in **Appendix B**.

Elevations referenced in this report are in feet and refer to the North American Vertical Datum of 1988 (NAVD88) unless noted otherwise. Elevations shown on the 1958 drawings are in feet and refer to the National Geodetic Vertical Datum of 1929 (NGVD29). Stantec indicated that a datum shift of approximately -0.7 feet can be used to convert from NGVD29 to NAVD88.

It is GZA's understanding that a full bridge replacement is planned for this project. The bridge will be designed and constructed as part of a Design-Build bundle. Requirements for on- or off-alignment bridge replacement alternatives will be specified in the MaineDOT Design-Build Request for Proposals (RFP).

1.2 OBJECTIVES AND SCOPE OF SERVICES

The objectives of our work were to collect data on the subsurface conditions as the Owner's Geotechnical Consultant to be provided to prospective Design-Build teams in the MaineDOT Design-Build Request for Proposals (RFP). To meet these objectives, GZA completed the following Scope of Services:

- Conducted a site visit to observe surficial conditions and reviewed existing bridge plans, historical topography, historical geotechnical reports, and mapped surficial and bedrock geology of the site;
- Coordinated and observed a subsurface exploration program, consisting of five test borings, to evaluate subsurface conditions for the bridge;
- Conducted a laboratory testing program to evaluate engineering and index properties of the site soils and rock; and
- Prepared this report summarizing our findings.

2.0 SUBSURFACE EXPLORATIONS

Details of the previous and current subsurface explorations are provided in the following sections.

2.1 PREVIOUS (1958) BORINGS

In 1958, MaineDOT conducted sixteen test borings, designated Boring #1 through #16, to explore subsurface conditions for bridge construction. These borings were drilled prior to construction of I-95. At the time, the grades were 14 to 25 feet lower than Dinsmore Road is today. Each boring was drilled through the overburden and to bedrock, and approximately 5 feet of core was collected from each boring.

The boring log sheets from the 1958 geotechnical report are included in **Appendix B**.

2.2 PRELIMINARY DESIGN BORINGS

GZA completed a preliminary subsurface exploration program consisting of five (5) test borings designated as BB-SDER-101 through BB-SDER-104, and BB-SDER-104A. The locations and designations are shown on the attached **Boring Location Plan, Figure 2**. Borings BB-SDER-101, -104, and 104A were completed about 15 to 20 feet behind the face of each abutment. Boring BB-SDER-102 was drilled through the bridge adjacent to Pier 2, and boring BB-SDER-103 was drilled through the bridge adjacent to Pier 4. All five borings were drilled from Dinsmore Road. The as-drilled boring locations and elevations were surveyed by MaineDOT, provided to GZA, and are shown on the logs and **Figure 2**.

The borings were drilled to depths of approximately 18 to 49 feet below ground surface (bgs) and terminated approximately 10 to 11 feet into bedrock, other than boring BB-SDER-104, which was terminated at 12 feet bgs due to broken casing. Seaboard Drilling of Bangor, Maine provided drilling services and coordinated utility clearance. The drilling was completed from July 11 through July 15, 2024. GZA personnel monitored the drilling work and prepared logs of each boring, included in **Appendix C**.

The borings were drilled using solid stem augers followed by 3-inch or 4-inch casing and drive-and-wash techniques through the overburden and coring equipment in the bedrock. Standard Penetration Testing (SPT) and split-spoon sampling were performed at 5-foot typical intervals in overburden soils. SPTs were conducted according to MaineDOT requirements using an automatic hammer system calibrated in

accordance with ASTM D4633-05 and MaineDOT procedures. SPTs were conducted using automatic hammer Seaboard SN367, which had a rated hammer energy transfer ratio of 1.066 at the time of drilling. The drilling subcontractor backfilled the approach boreholes with cuttings or sand and topped them with asphalt cold patch upon completion. The bridge deck was patched with quick-set concrete. Rock core was taken from each boring using NQ (2.0-inch diameter) coring equipment.

3.0 LABORATORY TESTING

GZA retained Thielsch Engineering's Geotechnical Laboratory in Cranston, Rhode Island to complete a laboratory testing program to assess the gradation and index properties of the soil and the strength and elastic modulus of bedrock. The testing program is summarized in the table below:

COMPLETED LABORATORY TESTS		
Laboratory Test	**ASTM Standard**	**Number of Tests**
Grain Size Analysis	D6913	8
Hydrometer	D7928	5
Atterberg Limits	D4318	2
Moisture Content	D2216	14
Unconfined Compressive Strength (with axial and lateral strain)	D7012 Method D	3

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

4.0 SUBSURFACE CONDITIONS

4.1 SURFICIAL AND BEDROCK GEOLOGY

Based on available surficial geologic mapping[1], the surficial unit at the site is mapped as Glacial Till, which consists of a poorly sorted mixture of clay, silt, and sand and can include cobbles and boulders. Thin Drift Glacial Till, usually around 10 feet thick or less with bedrock outcroppings, is mapped on the eastern side of the site. The Presumpscot Formation, which consists of marine silt, clay, and local sand beds is mapped to the east and west of the site.

Bedrock in the vicinity of the site is mapped[2] as the Waterville Formation. The Waterville formation is characterized as fine to medium grained siltstone and claystone metapelite and fine grained to very fine grained, non-foliated, quartz-plagioclase and metasandstone.

[1] Thompson, W.B., 2009. Surficial Geologic of the Augusta quadrangle, Maine: Maine Geological Survey, map 09-7, scale 1:24,000.

[2] Osberg, Philip H., 1968, Stratigraphy, structural geology, and metamorphism of the Waterville-Vassalboro area, Maine: Maine Geological Survey (Department of Economic Development), Bulletin 20, 64 p. report, color map, cross section, scale 1:62,500. Maine Geological Survey Maps. 80. http://digitalmaine.com/mgs_maps/80

4.2 SUBSURFACE PROFILE

Three soil units, Fill, Marine Clay, and Glacial Till were encountered in the test borings underlying approximately 5 to 7 inches of asphalt pavement (in Dinsmore Road approaches) or 3 inches of topsoil and overlying bedrock. The thicknesses and generalized descriptions of the soil units are presented in the following table, in descending order from existing ground surface. Detailed descriptions of the materials encountered at specific locations are provided in the boring logs in **Appendix C**.

INTERPRETED SUBSURFACE CONDITIONS		
Soil Unit	**Approximate Encountered Thickness (ft)**	**Generalized Description and Summary of Laboratory Test Results**
Fill	3 to 23	Varies from: Brown to black, dry, medium dense to dense, GRAVEL, some sand, little silt to: fine to coarse SAND, some gravel, some silt Typical MaineDOT Frost Classification Range= I to III Results of 8 Grain Size, 2 Hydrometer and 10 Moisture Content Analyses: • AASHTO Classification: A-1-a, A-1-b, A-2-4(0) • USCS Classifications: SP-SM, SM, GP-GM, GM • Moisture Content: 3 to 8.9% *Encountered in all borings.*
Marine Clay	5 to 13	Brown-grey, wet, very stiff to hard, Silty CLAY to Clayey SILT, trace to some sand, trace gravel. Typical MaineDOT Frost Classification Range = III to IV Results of 2 Hydrometer, 2 Atterberg Limits, and 3 Moisture Content Analyses: • AASHTO Classification: A-4, A-6 • USCS Classifications: CL, CL-ML, ML • Moisture Content: 28.8 to 31.5% • Liquid Limit: 36 to 37 • Plastic Limit: 19 to 20 • Plasticity Index: 16 to 18 *Encountered in BB-SDER-101 and BB- SDER-102.*
Glacial Till	2 to 6	Varies from: Brown, wet, very dense, fine SAND, some silt, some gravel to: SILT, some sand, little gravel. Typical MaineDOT Frost Classification = III to IV Results of 1 Hydrometer and 1 Moisture Content Analyses: • AASHTO Classification: A-4(0) • USCS Classifications: SP-SM, SM, ML • Moisture Content: 12.9% *Encountered in BB-SDER-101 and BB- SDER-102.*
Estimated Top of Bedrock	Approx. El. 225.5 to 259.8 (7 to 39 feet bgs)	
*Note: Estimated top of bedrock is based on recent borings. Depths to bedrock refer to ground surface at either Dinsmore Road (approach/abutment borings) or I-95 (pier borings).		

4.2.1 Bedrock

Bedrock was encountered beneath the glacial till stratum in borings BB-SDER-101 and -102 and below fill in BB-SDER-103 and -104A. Bedrock was cored in each test boring other than BB-SDER-104 and was described as Pelite of the Waterville Formation. Pelite was generally described as medium hard, slightly weathered, medium grained, and grey to blue. Joints in the Pelite were generally characterized as very close to closely spaced, moderate to high angle, rough, undulating, discolored, and partially open. The RQD ranged from 20 to 82 percent, indicating a Rock Quality of Very Poor to Good. The bedrock core data are summarized in **Table 2**. Wet and dry photographs of the collected rock core are included in **Appendix E**.

Unconfined compressive strength and elastic modulus tests were conducted on three rock specimens, the results of which are summarized in the following table.

SUMMARY OF BEDROCK STRENGTH TEST RESULTS						
Boring	**Depth below Existing Ground (ft)**	**Depth below Top of Rock (ft)**	**Unconfined Compressive Strength (psi)**	**Secant Modulus @ 50% of Failure Stress (ksi)**	**Unit Weight (pcf)**	**Rock Type**
BB-SDER-102	17.2	2.1	6,148	4,510	175.7	Pelite
BB-SDER-103	11.6	4.9	7,428	5,830	176.7	Pelite
BB-SDER-104A	18.9	3.6	6,252	330	178.3	Pelite

4.2.3 Groundwater

The groundwater depth was measured in all borings. Groundwater depths ranged from approximately 0 to 16.2 feet, corresponding to approximately El. 244.1 to El. 259.4. Groundwater levels in the borings were measured during or immediately after drilling and were likely affected by cased drilling procedures, which included introduction of water for drilling purposes.

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, 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.

SIGNATURE PAGE

This report has been prepared and reviewed by:

GZA GEOENVIRONMENTAL, INC.

Blaine Cardali
Senior Project Manager

Christopher L. Snow, P.E.
Consultant/Reviewer

Andrew R. Blaisdell, P.E.
Associate Principal

BMC/ARB/CLS:cc

TABLES

TABLE 1
Summary of Subsurface Explorations
Dinsmore Road Bridge #5782 over I-95
Sidney, ME
WIN 25473.00

Boring ID	Northing	Easting	Ground Surface El. (ft)	Top of Stratum Elevation						Stratum Thickness					Depth to Bedrock (ft)	Bottom of Boring Depth (ft)	Bottom of Boring El. (ft)	Groundwater	
				Asphalt	Topsoil	Fill	Marine Clay	Glacial Till	Bedrock	Asphalt	Topsoil	Fill	Marine Clay	Glacial Till				El. (ft)	Depth (ft)
BB-SDER-101	579950.3	1149797.6	269.6	269.6	NE	269.0	246.1	233.2	230.7	0.6	NE	22.9	12.9	2.5	38.9	49.0	220.6	253.4	16.2
BB-SDER-102	579926.3	1149925.9	248.9	NE	248.9	248.6	245.4	240.4	234.1	NE	0.3	3.2	5.0	6.3	14.8	25.1	223.8	248.9	0.0
BB-SDER-103	579886.7	1150049.7	251.5	NE	NE	251.5	NE	NE	244.8	NE	NE	6.7	NE	NE	6.7	18.4	233.1	244.1	7.4
BB-SDER-104	579859.8	1150186.9	274.2	274.2	NE	273.8	NE	NE	NE	0.4	NE	>12.0	NE	NE	NE	12.0	262.2	NM	NM
BB-SDER-104A	579859.6	1150189.5	274.2	274.2	NE	273.8	--	--	258.5	0.4	NE	15.3	NE	NE	15.3	25.5	248.7	259.4	14.8

NE = Not Encountered, NM = Not Measured

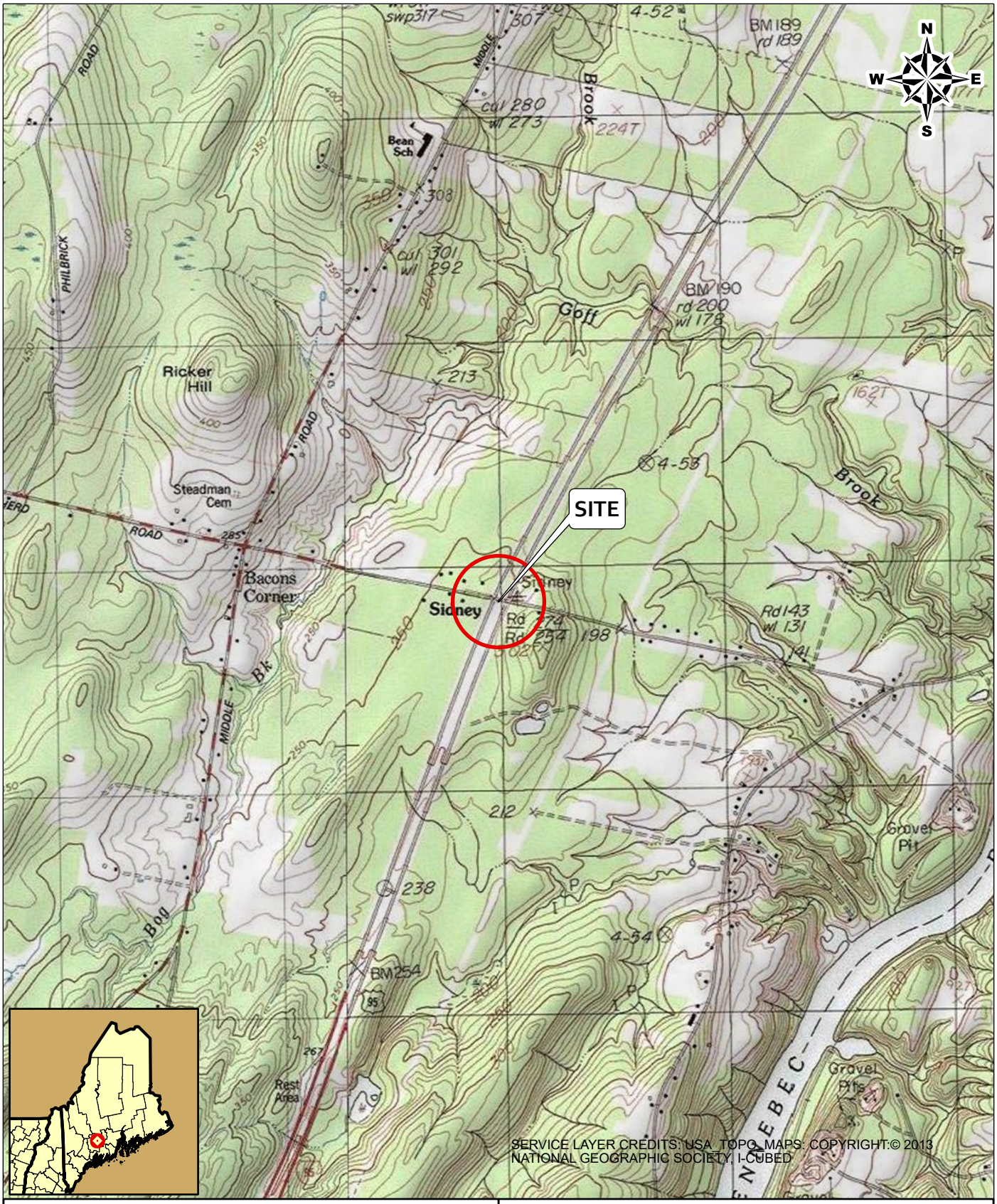
Notes:
1. Refer to the boring logs in Appendix C for additional information.
2. Project elevation datum is North American Vertical Datum (NAVD 88), unless noted otherwise.
3. Project coordinates are in survey feet and reference the North American Datum of 1983 (NAD83) Maine Coordinate System 2000 West, unless noted otherwise.
4. As-drilled locations were surveyed by MaineDOT and provided to GZA.
5. Stratum depths, thickness and elevations are rounded to the nearest 0.1 foot as interpreted on the boring logs, but this does not represent the precision of the data.

TABLE 2
Summary of Bedrock Data
Dinsmore Road Bridge #5782 Over I-95
Sidney, ME
WIN 25473.00

Boring ID	Core Run	Ground Surface El. (ft)	Depth of Core Run below GS (ft)			Depth to Rock (ft)	Depth Below Top of Rock (ft)			Length of Core Run (in)	Rec (in)	Rec (%)	RQD (in)	RQD %	Joint Spacing (in)	Joint Aperture (in)	Elev. (ft)		LAB							Rock Type
			Top		Bottom		Top		Bottom								Top	Bottom	Depth of Sample (ft)	Depth of Sample into Rock (ft)	Elev Top of Sample (ft)	UCS (psi)	Poissons Ratio	Modulus (ksi)	Unit Wt (pcf)	
BB-SDER-101	R1	269.6	39.4	-	44.4	38.9	0.5	-	5.5	60.0	53	88%	42	70%	0.75-2.5	0.01-0.02	230.2	225.2								PELITE
BB-SDER-101	R2	269.6	44.4	-	49.4	38.9	5.5	-	10.5	60.0	60	100%	49	82%	0.75-2.5	0.01-0.02	225.2	220.2								PELITE
BB-SDER-102	R1	248.9	15.1	-	20.1	14.8	0.3	-	5.3	60.0	60	100%	17	28%	0.75-2.5	0.01-0.02	233.8	228.8	17.2	2.4	231.4	6,148	0.20	4,510	175.7	PELITE
BB-SDER-102	R2	248.9	20.1	-	25.1	14.8	5.3	-	10.3	60.0	57	95%	12	20%	0.75-2.5	0.01-0.02	228.8	223.8								PELITE
BB-SDER-103	R1	251.5	8.4	-	13.4	6.7	1.7	-	6.7	60.0	60	100%	36	60%	0.75-2.5	0.01-0.02	243.1	238.1	11.6	4.9	238.2	7,428	1.03	5,830	176.7	PELITE
BB-SDER-103	R2	251.5	13.4	-	18.4	6.7	6.7	-	11.7	60.0	59	98%	29	48%	0.75-2.5	0.01-0.02	238.1	233.1								PELITE
BB-SDER-104A	R1	274.2	15.5	-	20.5	15.3	0.2	-	5.2	60.0	55	92%	32	53%	0.75-2.5	0.01-0.02	258.7	253.7	18.9	3.6	255.1	6,252	0.22	330	178.3	PELITE
BB-SDER-104A	R2	274.2	20.5	-	25.5	15.3	5.2	-	10.2	60.0	54	90%	26	43%	0.75-2.5	0.01-0.02	253.7	248.7								PELITE

Notes:
1. Refer to boring logs in Appendix C for additional information.
2. Project elevation datum is North American Vertical Datum (NAVD 88), unless noted otherwise.
3. As-drilled locations and elevations were surveyed by MaineDOT and provided to GZA.

FIGURES



0 1,000 2,000 4,000
SCALE IN FEET

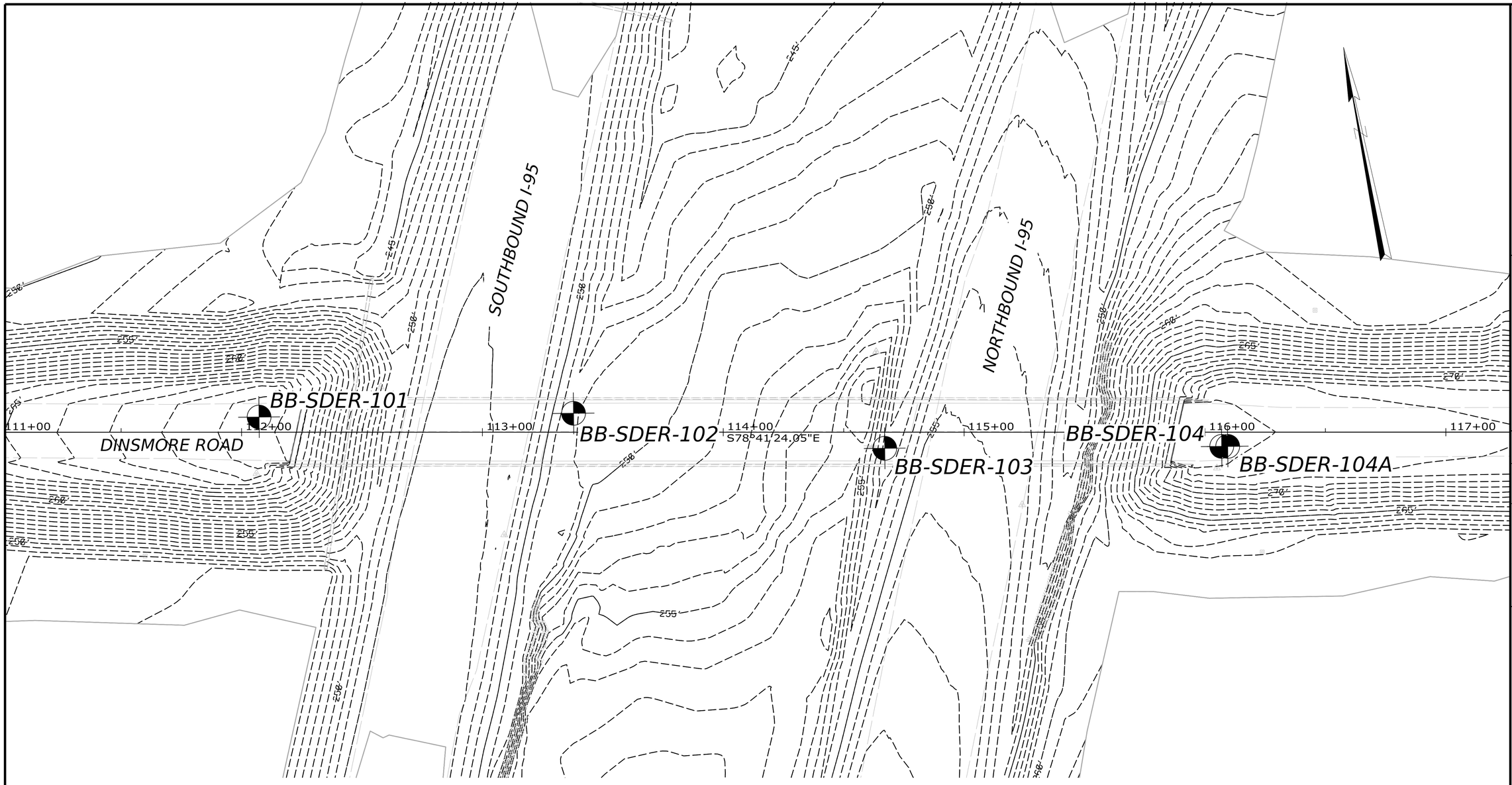
DINSMORE ROAD BRIDGE #5782 OVER I-95
SIDNEY, ME

LOCUS PLAN

PREPARED BY:
GZA GeoEnvironmental, Inc.
www.gza.com

PREPARED FOR:
STANTEC

PROJ MGR: BMC	REVIEWED BY: CLS	CHECKED BY: ARB	FIGURE 1
DESIGNED BY: EAF	DRAWN BY: EAF	SCALE: 1 in = 2,000 ft	
DATE: APRIL 2025	PROJECT NO: 09.0026242.00	REVISION NO:	



NOTES

1) Base map developed from the Work Set electronic files provided by Stantec on April 7, 2025.

2) The as-drilled locations of the test borings were surveyed by Maine DOT and provided by Stantec in an electronic file (Topo.dgn) on April 7, 2025.

BORING LOCATION PLAN LEGEND

BB-SDER-104A

PLAN

25 0 25 50

Scale of Feet

Location and designation of BB-SDER-100 series borings performed by Seaboard Drilling, LLC of Bangor, Maine and observed by GZA personnel between July 11 and 15, 2024.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

25473.00

WIN 25473.00

BRIDGE NO. 5782

HIGHWAY PLANS

PROJ. MANAGER	J. BRASK		
DESIGN-DETAILED	NVW	5/15/2025	
CHECKED-REVIEWED	ABB	5/16/2025	
DESIGN2-DETAILED2	CLS		
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

P.E. NUMBER

SIGNATURE

DATE

DINSMORE ROAD BRIDGE
SIDNEY, MAINE

BORING LOCATION PLAN

SHEET NUMBER

2

OF 2

Username: nicholas.williams Date: 5/15/2025

Filename: P:\09 Jobs\MEDOT_ORD\WIN\25473_00\GEOTECH\Boring_Location_Plan.dgn

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

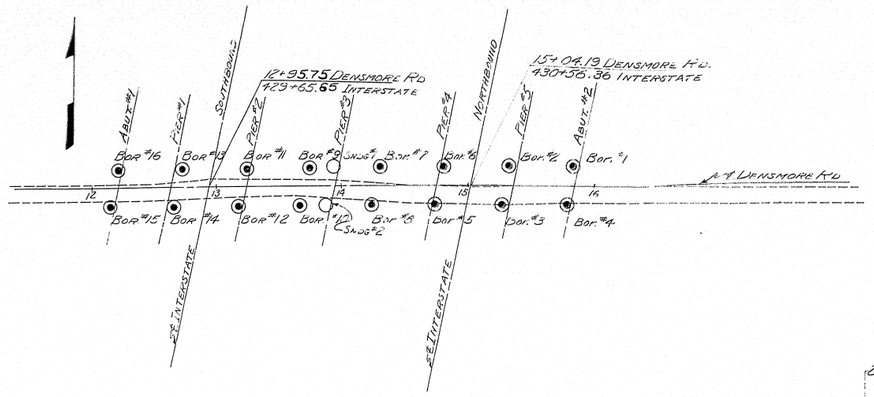
11. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual 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.

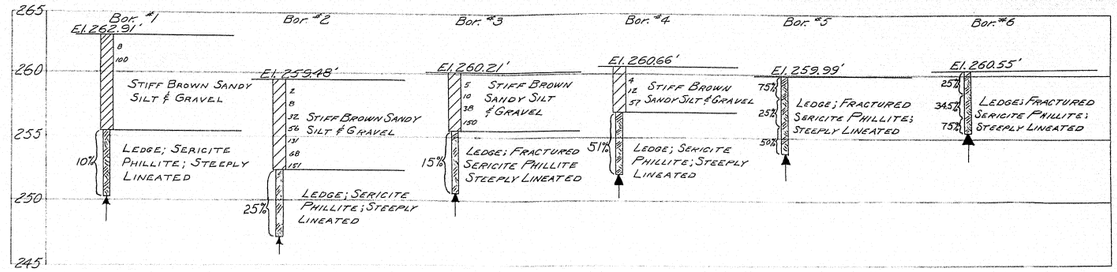
APPENDIX B – HISTORIC GEOTECHNICAL DATA AND FOUNDATION DRAWINGS

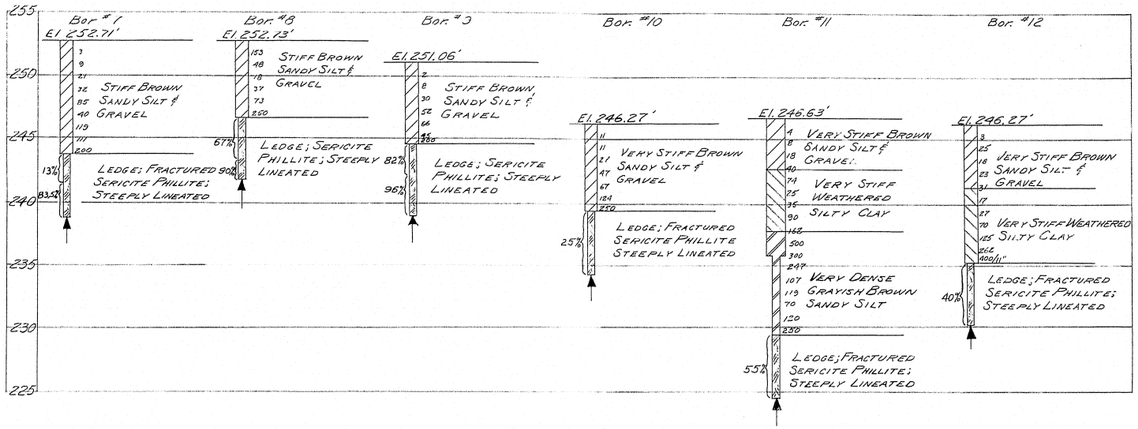
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(12)	4	22



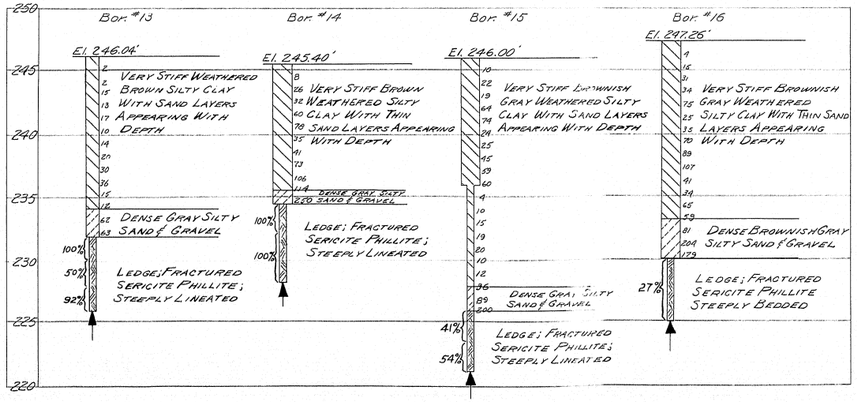
Sounding #1 Refusal at El. 242.5
Sounding #2 Refusal at El. 241.3

PLAN
Scale: 1" = 50'

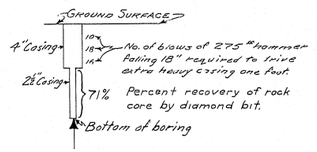




PROFILE AT ℄ DENSMORE RD.
Scale: Hor. 1" = 50'; Vert. 1" = 5'



BORING LOGS
Scale: Vert. 1" = 5'



LEGEND

DESIGN — TRACE — HICKS
CHECK — A.B.P.
BRIDGE NO.
SURVEY — SOILS LAB
PLOT —

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

DENSMORE ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY

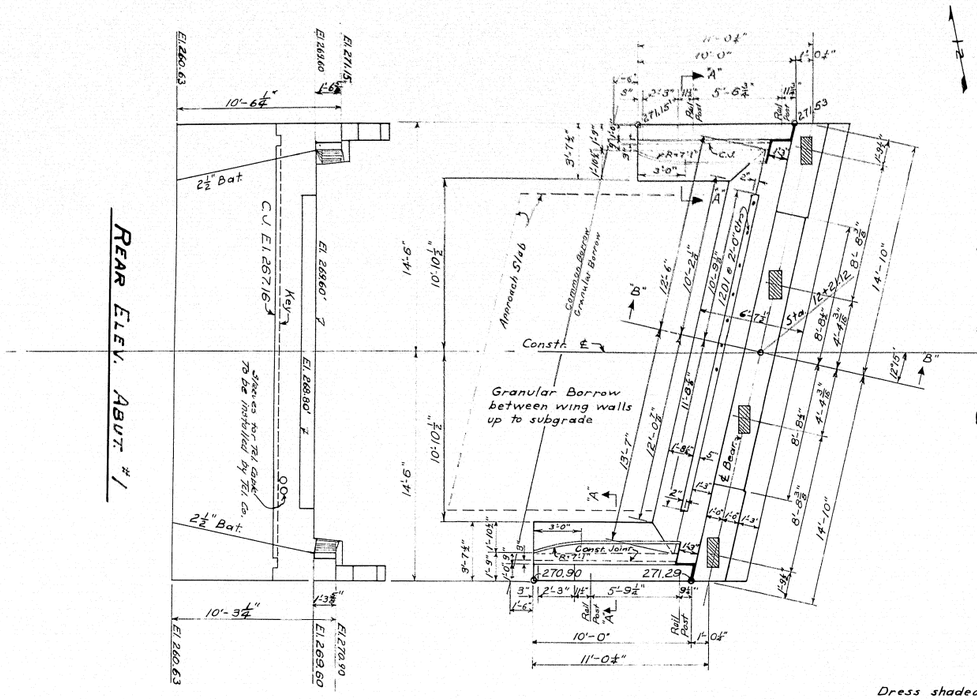
FOUNDATION SURVEY

SHEET 4 OF 22 AUGUSTA, MAINE MAY 1958

71-4

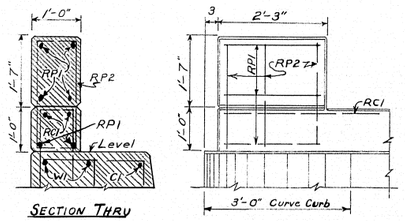
0 1 2 3 4 5 INCHES

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(12)	11	22



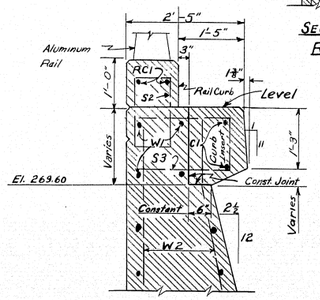
NOTES

Dress shaded areas 1" larger all around than size of masonry plate to exact bridge seat elevations shown.
All chamfers to be ¾" and V Grooves 1".
Place reinforcing steel in bridge seats to clear anchor bolts.
Wing steel to be at 1'-0" centers vertically & horizontally and to have 3" cover. All bars "W" front & back unless noted.
Concrete rail posts, rail curbs, and curb inserts to be Class A concrete and to be paid for as Item 701-33, P.C.C. abutments and retaining walls.
Backwall to be built after structural steel is erected.
½ Preformed expansion Joint Filler to be used on all vertical joints between Abutment Curbs & Superstructure Curbs.



SECTION THRU RAIL POST

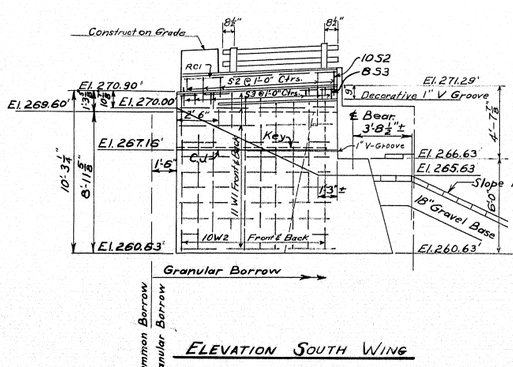
ELEVATION RAIL POST

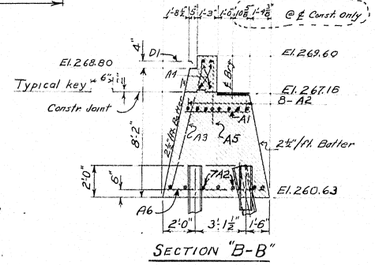


SECTION "A-A"

PILE NOTES

10"x10"x42# steel H Piles.
All piles driven to ledge.
Max. Pile Load 37 Tons.
Piles marked thus ⊢ batter 2½"/ft in direction of arrow.
Abutment #1 9 Piles.
Estimated length = 40'.
Pile cut off Elevation = 262.63'.





References

Rail	Sheet 20
Approach Slab	Sheet 20

DESIGN – S. DETAIL – McDOUGAL
TRACE – MESERVE
CHECK – R.P.C. & Wentworth
BRIDGE NO.
SURVEY –
P. OT –

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

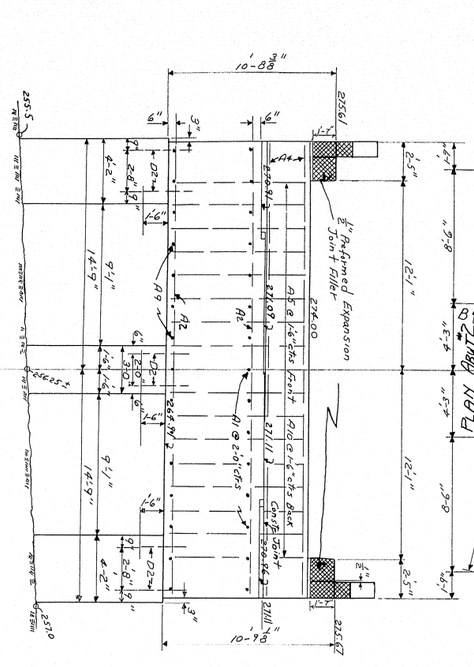
DENSMORE ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY
ABUTMENT # 1

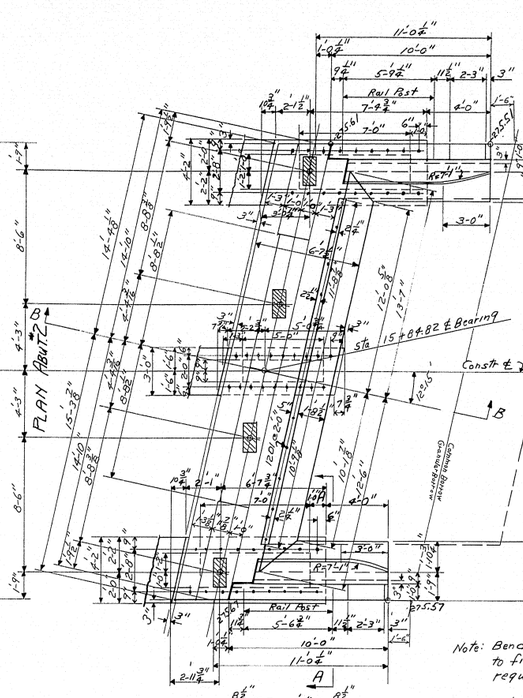
SHEET 11 OF 22 AUGUSTA, MAINE APRIL 1958

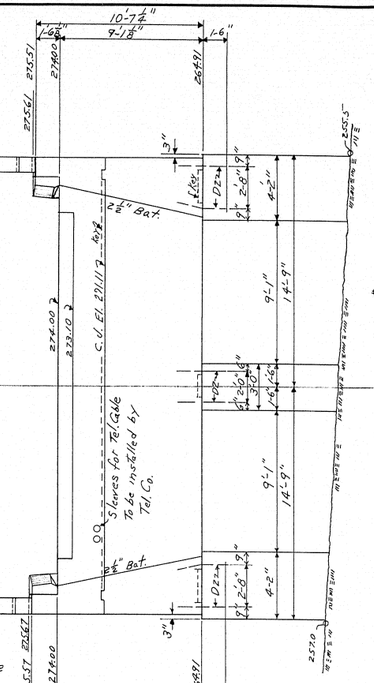
71-12

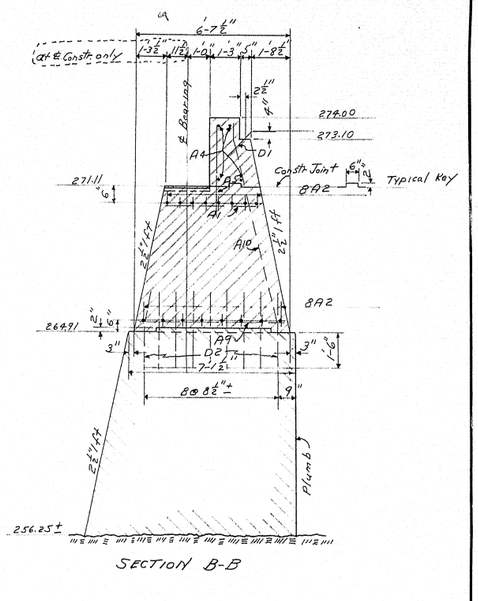
0 1 2 3 4 5 INCHES

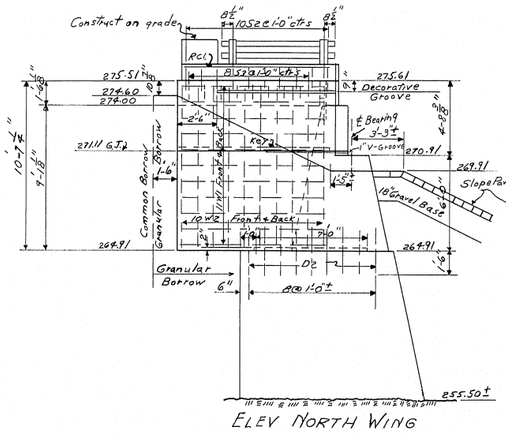
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(12)	12	22

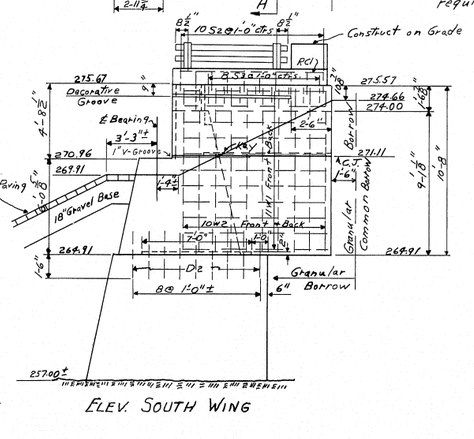


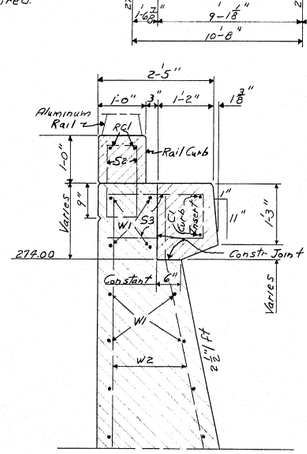


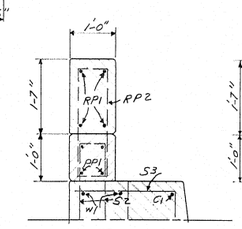


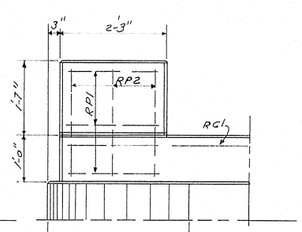












References
Rail ---------- Sh. 20
Approach slab --- Sh. 20

Notes:

Dress shaded areas 1" larger all around than size of masonry plate to exact bridge seat elevations shown.

All chamfers to be ½" and V grooves 1."

Place reinforcing steel in bridge seats to clear anchor bolts.

Wing steel to be at 1'-0" centers vertically and horizontally and to have 3" cover. All bars "W" front and back unless noted.

Concrete rail posts, rail curbs and curb inserts to be Class A concrete and to be paid for as Item 701-33 P.C.C. abutments and retaining walls. Backwall to be built after structural steel is erected.

½" Preformed expansion joint filler to be used on all vertical joints between abutment curbs and superstructure Curbs.

DESIGN – PORTER	BRIDGE NO.
TRACE – BLANCHARD	SURVEY
CHECK –	PLOT –

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

DENSMORE ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY

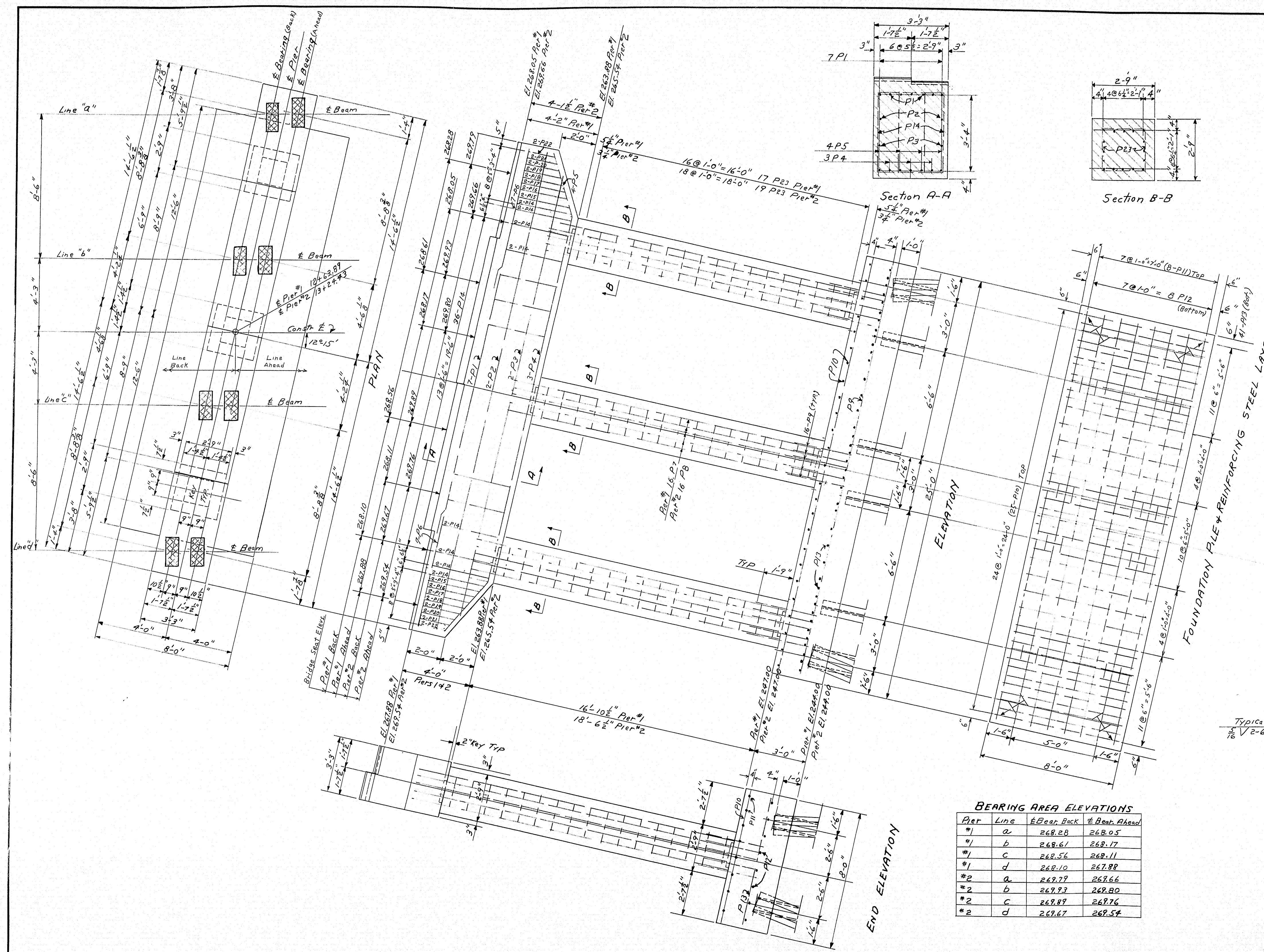
ABUTMENT NO. 2

SHEET 12 OF 22 AUGUSTA, MAINE 1958

71-13

0 1 2 3 4 5 INCHES

B.P.R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(12)	13	22

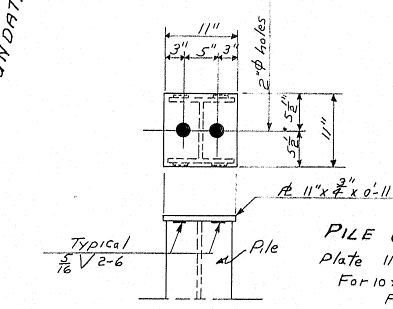


NOTES:

Dress bearing areas 1" larger all around than bearing plates, to exact elevation.

Place reinforcing steel in bridge seats to clear anchor bolts.

10"x10"x42# steel H-Piles
Pier #1 - 12 reqd Est length - 18'
Pier #2 - 12 reqd " " - 18'
Pile cut-off elevation = 245.00
Max Pile load - 37 Tons
Piles shown thus: H→ to be battered 2" per foot in the direction indicated by the arrow.



PILE CAP DETAIL
Plate 11" x 3/4" x 0'-11" - 24 Reqd.
For 10 x 10 x 42# steel H Piles
For Piers #1 & #2 only

BEARING AREA ELEVATIONS

Pier	Line	℄ Bear. Back	℄ Bear. Ahead
#1	a	268.28	268.05
#1	b	268.61	268.17
#1	c	268.56	268.11
#1	d	268.10	267.88
#2	a	269.79	269.66
#2	b	269.93	269.80
#2	c	269.89	269.76
#2	d	269.67	269.54

DESIGN - PORTER
TRACE - BLANCHARD
CHECK - Hamilton

BRIDGE NO.
SURVEY -
PLOT -

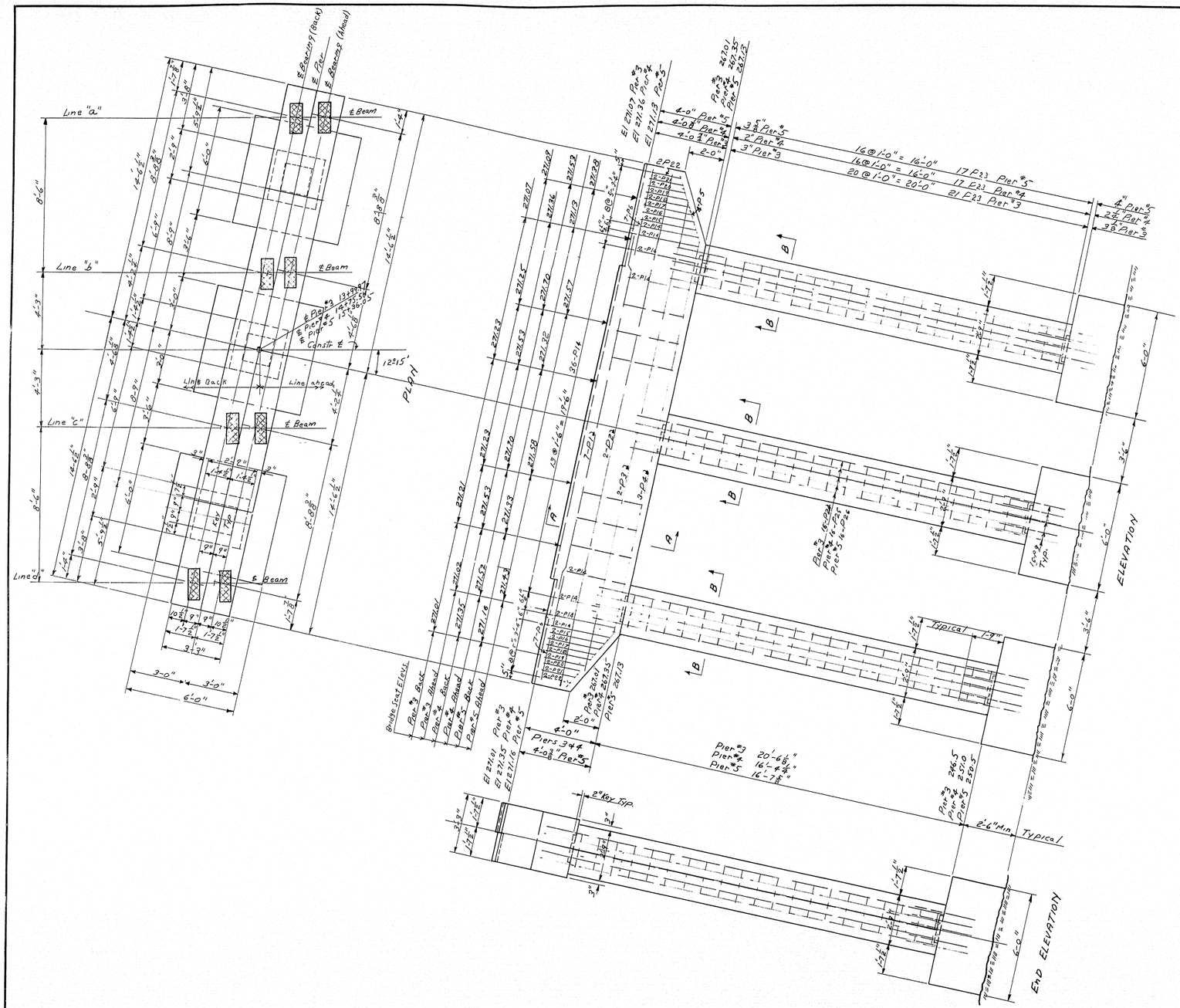
STATE HIGHWAY COMMISSION
BRIDGE DIVISION

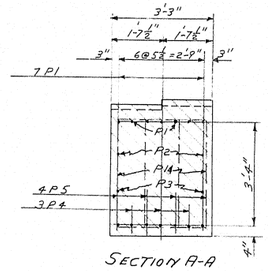
DENSMORE ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY
PIERS 1 & 2
SHEET 13 OF 22 AUGUSTA, MAINE 1958

71-14

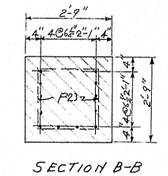
0 1 2 3 4 5 INCHES

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(12)	14	22





SECTION A-A



SECTION B-B

Bearing Area Elevations

Pier	Line	℄ Bear. Back	℄ Bear. Ahead
#3	a	271.07	271.07
#3	b	271.23	271.25
#3	c	271.21	271.23
#3	d	271.01	271.02
#4	a	271.36	271.53
#4	b	271.53	271.70
#4	c	271.53	271.70
#4	d	271.35	271.52
#5	a	271.13	271.38
#5	b	271.32	271.57
#5	c	271.33	271.58
#5	d	271.16	271.43

Notes:

Dress bearings area's 1" larger all around than bearing plates to exact elevation.

When the difference in elevation between two bearing area's is .02' or less build bridge seat to the higher elevation and bush concrete down for the lower bearing area.

Place reinforcing steel in bridge seats to clear anchor bolts.

footing pressure 3± tons per sq. foot

DESIGN – PORTER
TRACE – BLANCHARD
CHECK – [illegible]

BRIDGE NO.
SURVEY –
PLOT

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

DENSMORE ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY

PIERS 3, 4, & 5

SHEET 14 OF 22 AUGUSTA, MAINE 1958

71-15

0 1 2 3 4 5 INCHES

APPENDIX C – 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):

$$RQD\ (\%) = \frac{\text{sum of the lengths of intact pieces of core* > 4 inches}}{\text{length of core advance}}$$

*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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-101

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	269.6	**Auger ID/OD:**	4.25" OD
Operator:	E. Baron	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-15-24/7-15-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579950.3 Easting: 1149797.6	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	16.2'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) 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	269.0		0'-0.6': Asphalt 0.6	
	1D	24/14	1.0 - 3.0	16-12-8-6	20	36				Brown, dry, dense, Sandy GRAVEL, little silt, (Fill).	G#24-S-3620 A-1-a, GM WC = 3.3%
	2D	24/11	3.0 - 5.0	5-4-3-2	7	12				Brown, moist, medium dense, fine to coarse SAND, some gravel, some silt, (Fill).	G#24-S-3621 A-2-4(0), SM WC = 8.9%
5	3D	24/12	5.0 - 7.0	4-3-3-3	6	11				Brown, moist, medium dense, Silty fine SAND, some gravel, (Fill).	
10	4D	24/12	10.0 - 12.0	26-18-20-23	38	68				Brown, dry, very dense, Gravelly fine to coarse SAND, little silt, (Fill).	G#24-S-3622 A-1-b, SM WC = 4.9%
15	5D	24/14	15.0 - 17.0	8-9-13-14	21	37	68			Brown, dry, dense, fine to medium SAND, some gravel, some silt, (Fill).	
							76				
							95				
							119				
							125				
20	6D	24/12	20.0 - 22.0	20-18-15-11	33	59	R/C			Brown, wet, very dense, GRAVEL, some fine to coarse sand, little silt, (Fill).	G#24-S-3623 A-1-a, GM WC = 9.8%
								246.1		23.5	
25											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after the removal of casing.

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

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782
Location: Sidney, Maine

Boring No.: BB-SDER-101
WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	269.6	**Auger ID/OD:**	4.25" OD
Operator:	E. Baron	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-15-24/7-15-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579950.3 Easting: 1149797.6	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	16.2'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (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	24/22	25.0 - 27.0	9-9-12-13	21	37				Brown-grey, wet, hard, Silty CLAY, trace fine to medium sand, (Marine Clay).	G#24-S-3624 A-6, CL LL = 36 PL = 20 PI = 16 WC = 28.8%
30	8D	24/10	30.0 - 32.0	11-9-8-8	17	30				Brown, wet, very stiff, Silty CLAY, some sand, some gravel, (Marine Clay).	G#24-S-3625 CL LL = 37 PL = 19 PI = 18 WC = 31.5%
35	9D	24/24	35.0 - 37.0	10-18-27-32	45	80				(Top 17"): Brown, wet, hard, Silty CLAY, some sand, some gravel, (Marine Clay).	
								233.2		36.4	
										(Bottom 7"): Brown, wet, very dense, fine SAND, some silt, some gravel, (Glacial Till).	
								230.7		38.9	
40	R1	60/53	39.0 - 44.0	RQD = 70%			NQ			Increase in roller cone resistance at 38.9', probable top of rock at 38.9'. Advanced roller cone to 39.0' and set up to core. R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderately dipping, moderate to high angle, undulating, rough, discolored, partially open. Recovery = 88% Rock Quality = Fair Rock Core Times (min:sec): 39.0-40.0' (1:42), 40.0-41.0' (1:23), 41.0-42.0' (1:27), 42.0-43.0' (1:36), 43.0-44.0' (1:41)	
45	R2	60/60	44.0 - 49.0	RQD = 82%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderately dipping, moderate to high angle, undulating, rough, discolored, partially open. Recovery = 100% Rock Quality = Good Rock Core Times (min:sec): 44.0-45.0' (1:27), 45.0-46.0' (1:25), 46.0-47.0' (1:39), 47.0-48.0' (1:30), 48.0-49.0' (1:07)	
								220.6		49.0	
50										**Bottom of Exploration at 49.0 feet below ground**	

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after the removal of casing.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-101

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	269.6	**Auger ID/OD:**	4.25" OD
Operator:	E. Baron	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-15-24/7-15-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579950.3 Easting: 1149797.6	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	16.2'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (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.
50										**surface.**	
55											
60											
65											
70											
75											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after the removal of casing.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-102

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	248.9	**Auger ID/OD:**	4"/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-11-24/7-11-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579926.3 Easting: 1149925.9	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	0
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐	Rope & Cathead ☐	

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	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	4-2-3-4	5	9	23	248.6		(Top 3"): Brown, moist, fine to coarse SAND, some organics, trace silt, (Topsoil).	G#24-S-3626 A-1-b, SW-SM WC = 14.6%
							20			0.3 (Bottom 3"): Black, dry, loose, GRAVEL, (Fill).	
							27				
							15	245.4		3.5	
							28				
5	2D	24/23	5.0 - 7.0	3-5-6-7	11	20	31			Brown, wet, very stiff, Clayey SILT, little fine to medium sand, (Marine Clay).	G#24-S-3627 A-4(0), ML WC = 26.0%
							52				
							76				
							80	240.4		8.5	
							73				
10	3D	24/19	10.0 - 12.0	16-24-18-18	42	75	R/C			Brown, wet, very dense, SILT, little fine to coarse sand, (Glacial Till).	G#24-S-3628 A-4(0), ML WC = 12.9%
15	R1	60/60	15.1 - 20.1	RQD = 28%			NQ	234.1		14.8 Increase in roller cone resistance at 14.8', rock chips in wash return, probable top of rock at 14.8'. Advanced roller cone to 15.1' and set up to core. R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderate to high angle, undulating, rough, discolored, partially open. Recovery = 100% Rock Quality = Poor Rock Core Times (min:sec): 15.1-16.1' (1:49), 16.1-17.1' (2:06), 17.1-18.1' (2:37), 18.1-19.1' (1:49), 19.1-20.1' (2:07)	q_p=885 ksf
20	R2	60/57	20.1 - 25.1	RQD = 20%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderate to high angle, undulating, rough, partially open. Recovery = 95% Rock Quality = Very Poor Rock Core Times (min:sec): 20.1-21.1' (2:12), 21.1-22.1' (1:45), 22.1-23.1' (2:23), 23.1-24.1' (2:47), 24.1-25.1' (1:54)	
25											

Remarks:

1.Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2.Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after removal of casing.
4. 3" asphalt, 6" concrete, 24.7' measured from bridge deck 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: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-102

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	248.9	**Auger ID/OD:**	4"/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-11-24/7-11-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579926.3 Easting: 1149925.9	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	0
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (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								223.8		25.1	
										Bottom of Exploration at 25.1 feet below ground surface.	
30											
35											
40											
45											
50											

Remarks:

1.Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2.Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after removal of casing.
4. 3" asphalt, 6" concrete, 24.7' measured from bridge deck 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: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-103

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	251.5	**Auger ID/OD:**	4.0/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-12-24/7-12-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579886.7 Easting: 1150049.7	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	7.4'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	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	10-4-2-6	6	11	36			Brown, dry, medium dense, Gravelly SAND, little silt, (Fill).	G#24-S-3629 A-1-a, SP-SM WC = 3.0%
							19				
							22				
							19				
							21				
5	2D	20/8	5.0 - 6.7	7-8-15-50/2"	23	41	32			Grey, wet, dense, GRAVEL, some fine to coarse sand, little silt, (Fill).	G#24-S-3630 A-1-b, GM WC = 8.3%
								244.8		6.7	
										Splitspoon refusal at 6.7', increase in roller cone resistance. Probable top of rock at 6.7'. Advanced roller cone to 8.4' and set up to core.	
	R1	60/60	8.4 - 13.4	RQD = 60%			NQ			R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, low to high angle, undulating, rough, discolored, partially open. Recovery = 100% Rock Quality = Fair Rock Core Times (min:sec): 8.4-9.4' (2:03), 9.4-10.4' (1:50), 10.4-11.4' (2:48), 11.4-12.4' (1:39), 12.4-13.4' (1:35)	q_p=1070 ksf
10											
	R2	60/59	13.4 - 18.4	RQD = 48%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, low to high angle, undulating, rough, discolored, partially open. Recovery = 98% Rock Quality = Poor Rock Core Times (min:sec): 13.4-14.4' (1:37),14.4-15.4' (1:42), 15.4-16.4' (2:12), 16.4-17.4' (1:47), 17.4-18.4' (2:40)	
15											
								233.1		18.4	
										Bottom of Exploration at 18.4 feet below ground surface.	
20											
25											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after removal of casing.
4. Measured 23.8 feet from bridge deck 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: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-104

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	274.2	**Auger ID/OD:**	4.0/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-12-24/7-12-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579859.8 Easting: 1150186.9	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	not measured
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	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	13-16-16-13	32	57	SSA	273.8		0'-0.4': Asphalt (0.4)	
										Brown, dry, very dense, fine to coarse SAND, some gravel, some silt, (Fill).	G#24-S-3631 A-1-b, SM WC = 6.7%
5	2D	24/12	5.0 - 7.0	10-9-6-5	15	27				Dark brown, dry, medium dense, fine to coarse SAND, trace gravel, some silt, (Fill).	G#24-S-3632 A-2-4(0), SM WC = 6.9%
10	3D	24/22	10.0 - 12.0	3-1-2-3	3	5				Brown, moist, medium stiff to stiff, Silty CLAY, some fine to medium sand, trace gravel, (Fill).	G#24-S-3633 A-4(0), ML WC = 24.8%
								262.2		Hole drilled at an angle, 4" casing broke when advancing. Boring was terminated and offset 2.7', see boring BB-SDER-104A. (12.0)	
										Bottom of Exploration at 12.0 feet below ground surface.	
15											
20											
25											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.

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

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-104A

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	274.2	**Auger ID/OD:**	4.0/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-12-24/7-12-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579859.6 Easting: 1150189.5	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	14.8'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) 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			See boring log BB-SDER-104 for information between 0 and 10'.	
10							21				
							24				
							30				
							67				
15							74				
	1D	4/4	15.0 - 15.3	50/4"			NQ	259.2		15.0 Brown, wet, dense, Silty, GRAVEL, some sand, (Fill).	
	R1	60/55	15.5 - 20.5	RQD = 53%				258.9		15.3 Splitspoon refusal at 15.3'. Increased resistance of roller cone, probable top of rock at 15.3'. Set up to core at 15.5'. R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderate to high angle, undulating, rough, partially open. Recovery = 92% Rock Quality = Fair Rock Core Times (min:sec): 15.5-16.5' (1:08), 16.5-17.5' (1:20), 17.5-18.5' (1:51), 18.5-19.5' (1:35), 19.5-20.5' (2:27)	q=885 ksf
20	R2	60/54	20.5 - 25.5	RQD = 43%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderate to high angle, undulating, rough, discolored, partially open. Recovery = 90% Rock Quality = Poor Rock Core Times (min:sec): 20.5-21.5' (2:10), 21.5-22.5' (2:21), 22.5-23.5' (1:45), 23.5-24.5' (1:50), 24.5-25.5' (2:12)	
25											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after removal of casing.

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

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Dinsmore Road Bridge #5782

Location: Sidney, Maine

Boring No.: BB-SDER-104A

WIN: 25473.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	274.2	**Auger ID/OD:**	4.0/4.5"
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard
Logged By:	L. Hailey	**Rig Type:**	ATV	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-12-24/7-12-24	**Drilling Method:**	Solid Stem Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	Northing: 579859.6 Easting: 1150189.5	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	14.8'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = weight of 140lb. hammer
WOR = weight of rods
WO1P = Weight of one person
S_u = Insitu Field Vane Shear Strength (psf)
T_v = Pocket Torvane Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw field SPT N-value
Hammer Efficiency Factor = Annual Calibration Value
N_{60} = SPT N-uncorrected corrected for hammer efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
$S_{u(lab)}$ = Lab Vane Shear Strength (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 25.5 feet below ground surface.**	
30											
35											
40											
45											
50											

Remarks:

1. Fine Grained Soil Descriptions on this log are based on plasticity estimated using visual manual classification techniques of laboratory Atterberg Limit Tests if available, rather than the MaineDot Standard based percentages passing specific grain sizes.
2. Automatic hammer Seaboard Drilling #D50 Energy Transfer Ratio = 1.066.
3. Water level measured after removal of casing.

Stratification lines represent approximate boundaries between soil types; transitions may be gradual.
* Water level readings have been 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 D – LABORATORY TESTING RESULTS

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:
GZA GeoEnvironmental, Inc.
South Portland, ME
Project Manager: Logan Hailey
Assigned By: Logan Hailey
Collected By: GZA

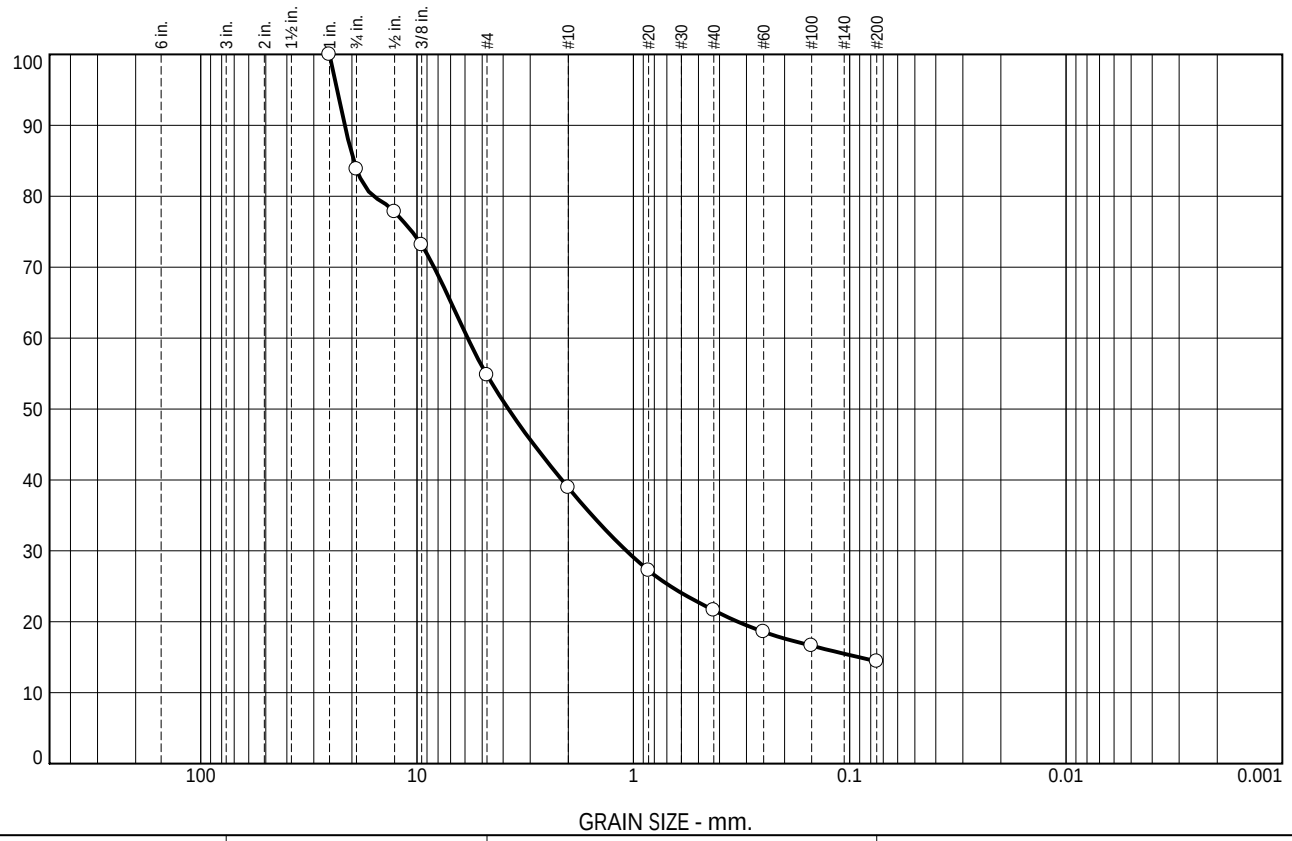
Project Information:
Dinsmore Road Bridge #5782
Sidney, Maine
Project Number: 09.0026242.00 Task 4
Summary Page: 1 of 1
Report Date: 9/23/2024

LABORATORY TESTING DATA SHEET, Report No.: 7424-J-165

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-SDER-101	1D	0-2	24-S-3620	3.3				45.2	40.4	14.4											Brown SANDY GRAVEL, little Silt
BB-SDER-101	2D	3-5	24-S-3621	8.9				24.9	47.1	28.0											Brown f-c SAND, some Silt, some fine Gravel
BB-SDER-101	4D	10-12	24-S-3622	4.9				40.4	42.0	17.6											Brown f-c GRAVELLY SAND, little Silt
BB-SDER-101	6D	20-22	24-S-3623	9.8	NV	NP		56.4	30.4	13.2											Brown f-c GRAVEL, some f-c Sand, little Silt
BB-SDER-101	7D	25-27	24-S-3624	28.8	36	20		0.0	8.9	91.1											Brown CLAY & SILT, trace f-m Sand
BB-SDER-101	8D	30-32	24-S-3625	31.5	37	19															Olive CLAY & SILT
BB-SDER-102	1D	0-2	24-S-3626	14.6				22.6	68.2	9.2											Dark Brown f-c SAND, some fine Gravel, trace Silt
BB-SDER-102	2D	5-7	24-S-3627	26.0				0.0	12.8	87.2											Olive CLAYEY SILT
BB-SDER-102	3D	10-12	24-S-3628	12.9				12.2	33.7	54.1											Brown CLAYEY SILT, some f-c Sand, little f-c Gravel

Date Received: **9/10/2024** Reviewed By: Date Reviewed: **9/23/2024**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.2	29.0	15.9	17.3	7.2	14.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	83.8		
1/2"	77.8		
3/8"	73.1		
#4	54.8		
#10	38.9		
#20	27.2		
#40	21.6		
#60	18.6		
#100	16.6		
#200	14.4		

* (no specification provided)

Soil Description

Brown SANDY GRAVEL, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 21.5809 D_{85}= 19.6306 D_{60}= 5.8318
D_{50}= 3.7817 D_{30}= 1.0765 D_{15}= 0.0906
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-a

Remarks

Source of Sample: BB-SDER-101 Depth: 0-2'
Sample Number: 1D

Date: 9.12.24

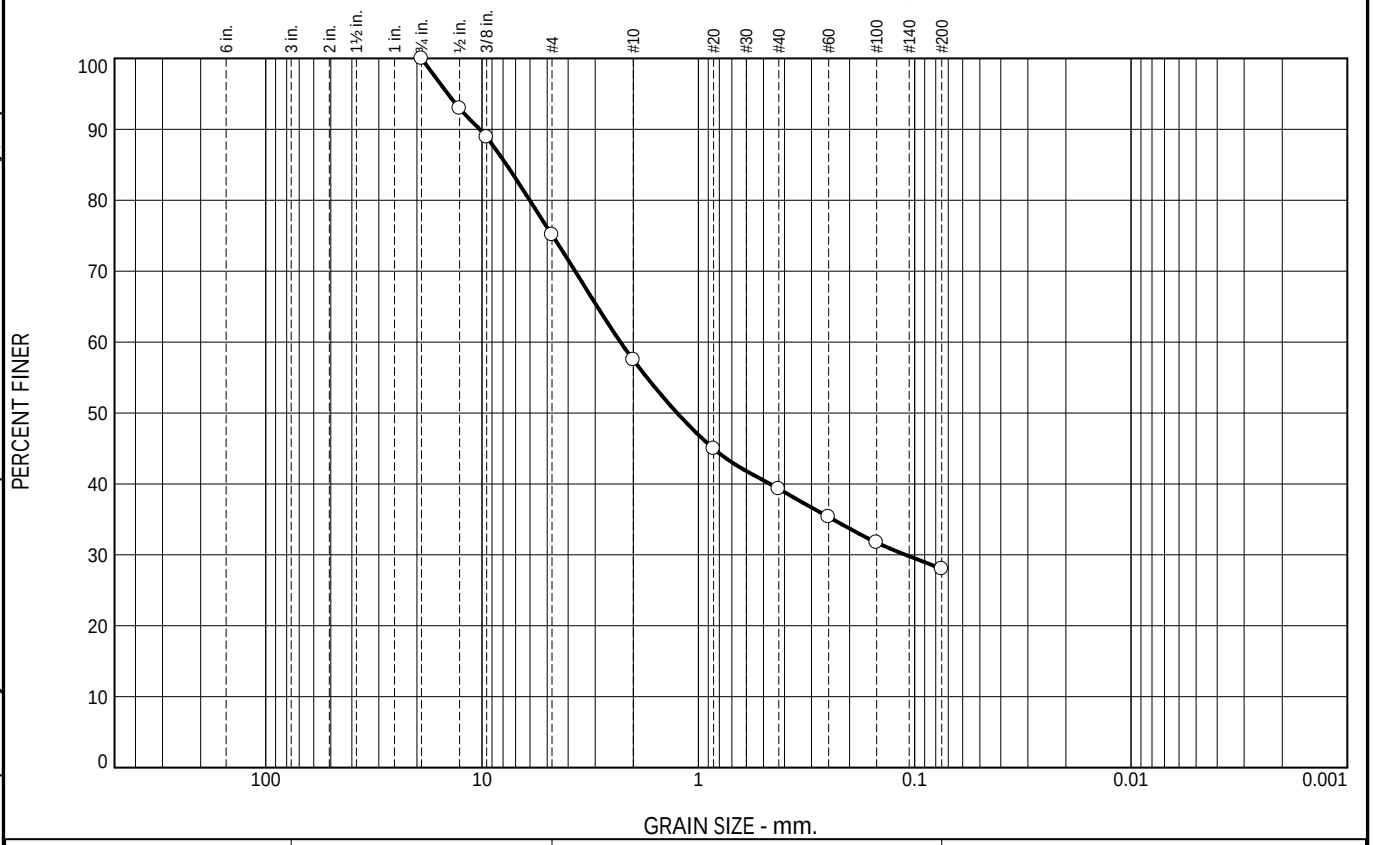
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3620

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	24.9	17.6	18.2	11.3	28.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	92.9		
3/8"	88.9		
#4	75.1		
#10	57.5		
#20	45.0		
#40	39.3		
#60	35.3		
#100	31.7		
#200	28.0		

* (no specification provided)

Source of Sample: BB-SDER-101 Depth: 3-5'
Sample Number: 2D

Date: 9.12.24

Soil Description

Brown f-c SAND, some Silt, some fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 10.2351 D_{85}= 7.7024 D_{60}= 2.2920
D_{50}= 1.2533 D_{30}= 0.1102 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

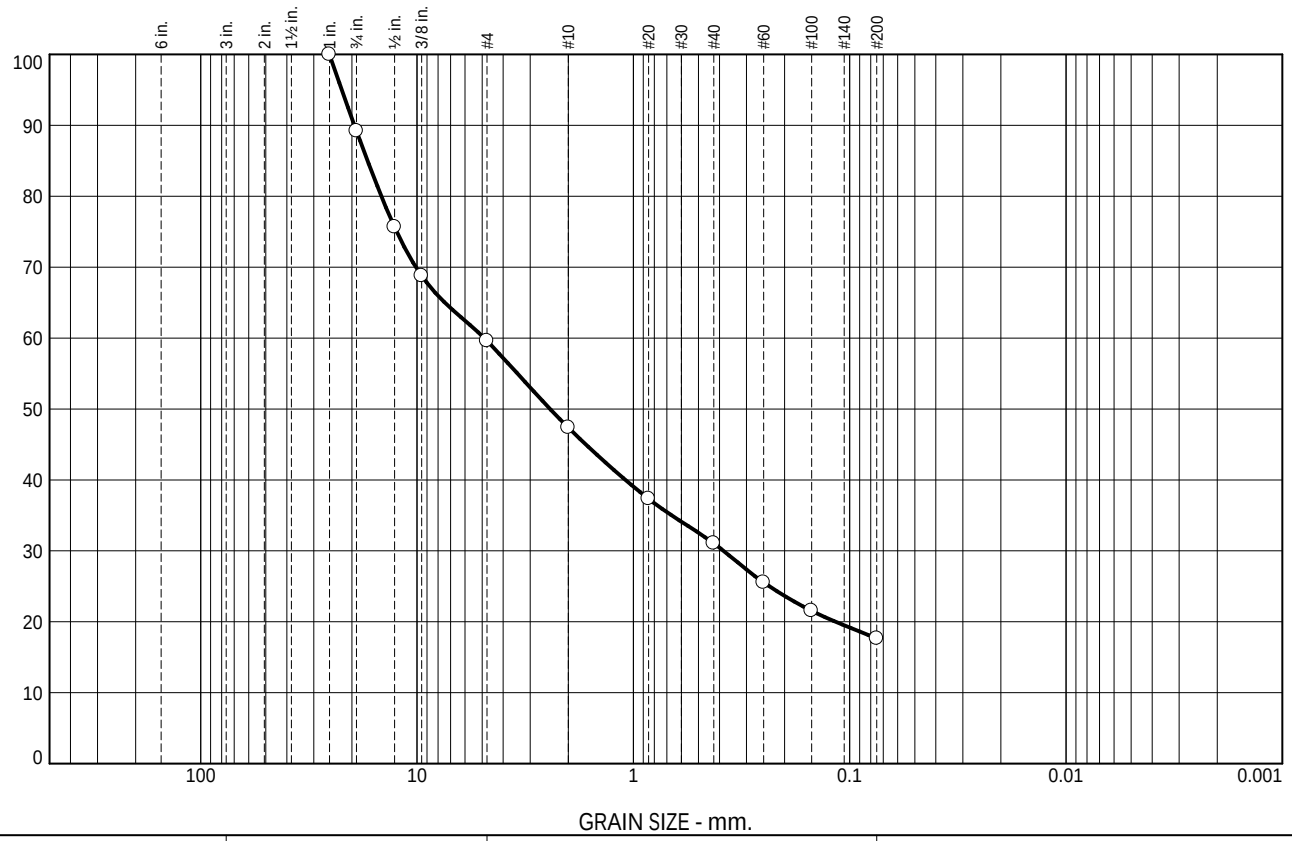
Remarks

Thielsch Engineering Inc.
Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3621

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.8	29.6	12.2	16.3	13.5	17.6	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	89.2		
1/2"	75.7		
3/8"	68.8		
#4	59.6		
#10	47.4		
#20	37.3		
#40	31.1		
#60	25.5		
#100	21.5		
#200	17.6		

* (no specification provided)

Soil Description

Brown f-c GRAVELLY SAND, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.4900 D_{85}= 16.9257 D_{60}= 4.8897
D_{50}= 2.4272 D_{30}= 0.3832 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Source of Sample: BB-SDER-101 Depth: 10-12'
Sample Number: 4D

Date: 9.12.24

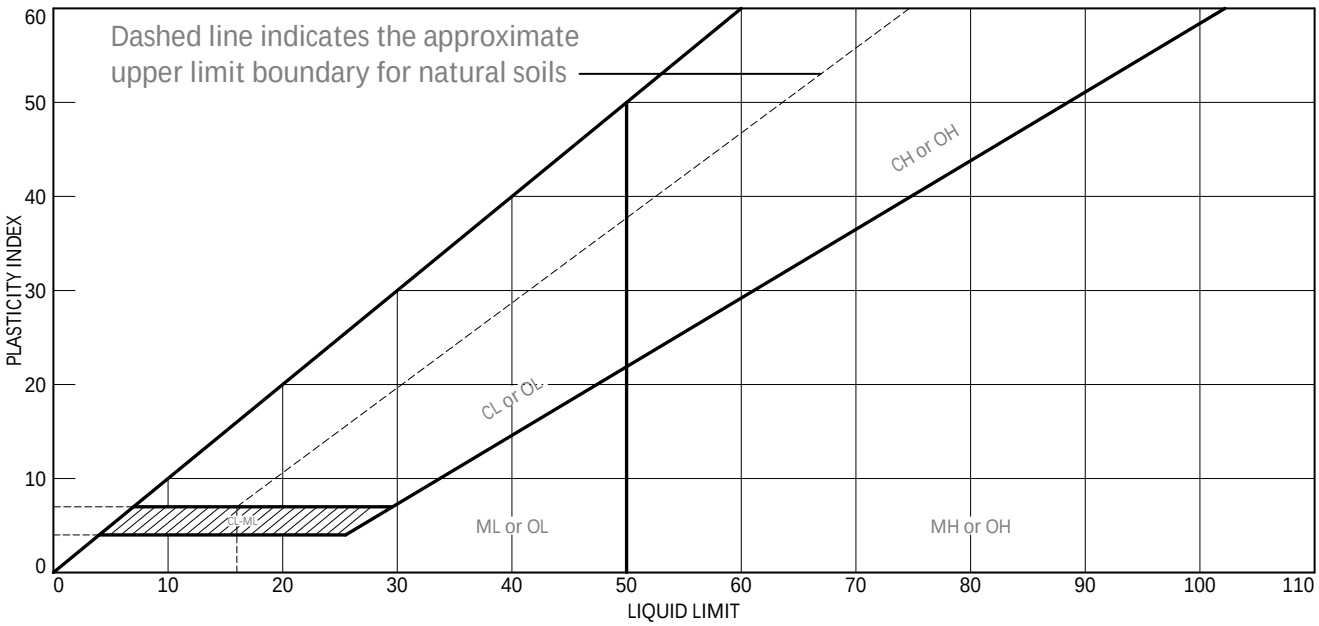
Thielsch Engineering Inc.

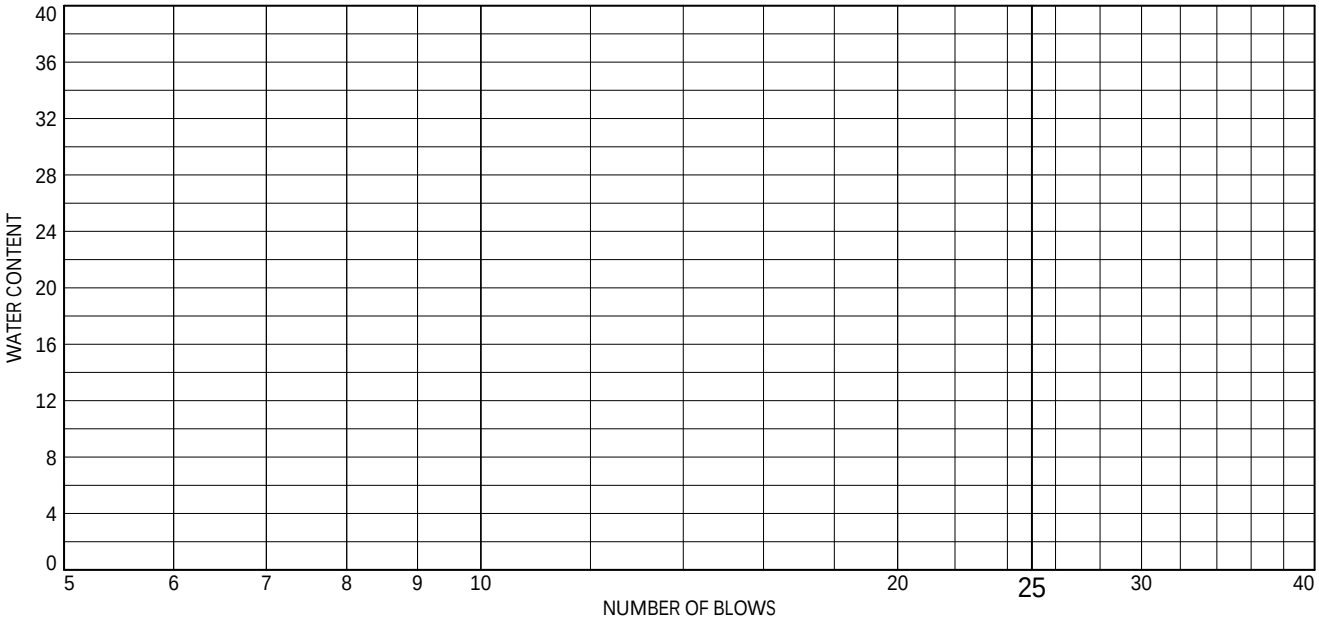
Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3622

Tested By: MCS Checked By: Kris Roland

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown f-c GRAVEL, some f-c Sand, little Silt	NV	NP	NP	18.2	13.2	GM

Project No. 09.0026242.00 Task 4 Client: GZA GeoEnvironmental

Project: Densmore Road Bridge #5782

Sidney, ME

Source of Sample: BB-SDER-101 Depth: 20-22'

Sample Number: 6D

Thielsch Engineering Inc.

Cranston, RI

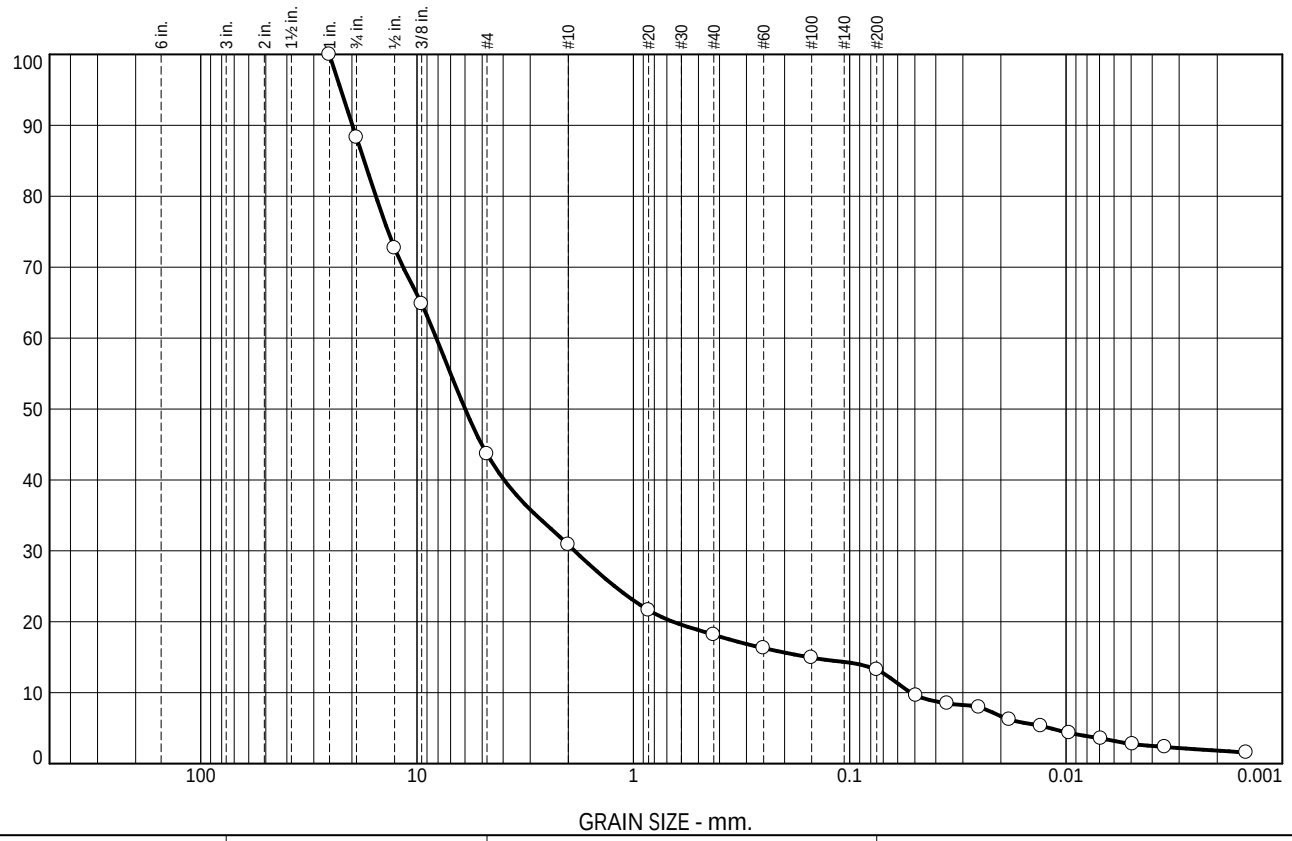
Remarks:

● Sample classified as non-plastic and non-viscous. Sample could not roll past 1/4" and could not achieve more than 25 blows.

Fig. 24-L-3623

Tested By: RB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.7	44.7	12.7	12.7	5.0	11.4	1.8

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	88.3		
1/2"	72.7		
3/8"	64.8		
#4	43.6		
#10	30.9		
#20	21.6		
#40	18.2		
#60	16.3		
#100	14.9		
#200	13.2		
0.0493 mm.	9.6		
0.0354 mm.	8.5		
0.0252 mm.	7.9		
0.0183 mm.	6.2		
0.0131 mm.	5.3		
0.0097 mm.	4.3		
0.0069 mm.	3.5		
0.0049 mm.	2.7		
0.0035 mm.	2.3		
0.0015 mm.	1.6		

* (no specification provided)

Soil Description

Brown f-c GRAVEL, some f-c Sand, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.8878 D_{85}= 17.5531 D_{60}= 8.1455
D_{50}= 5.9935 D_{30}= 1.8696 D_{15}= 0.1545
D_{10}= 0.0522 C_u= 156.17 C_c= 8.23

Classification

USCS= GM AASHTO= A-1-a

Remarks

Source of Sample: BB-SDER-101 Depth: 20-22'
Sample Number: 6D

Date: 9.18.24

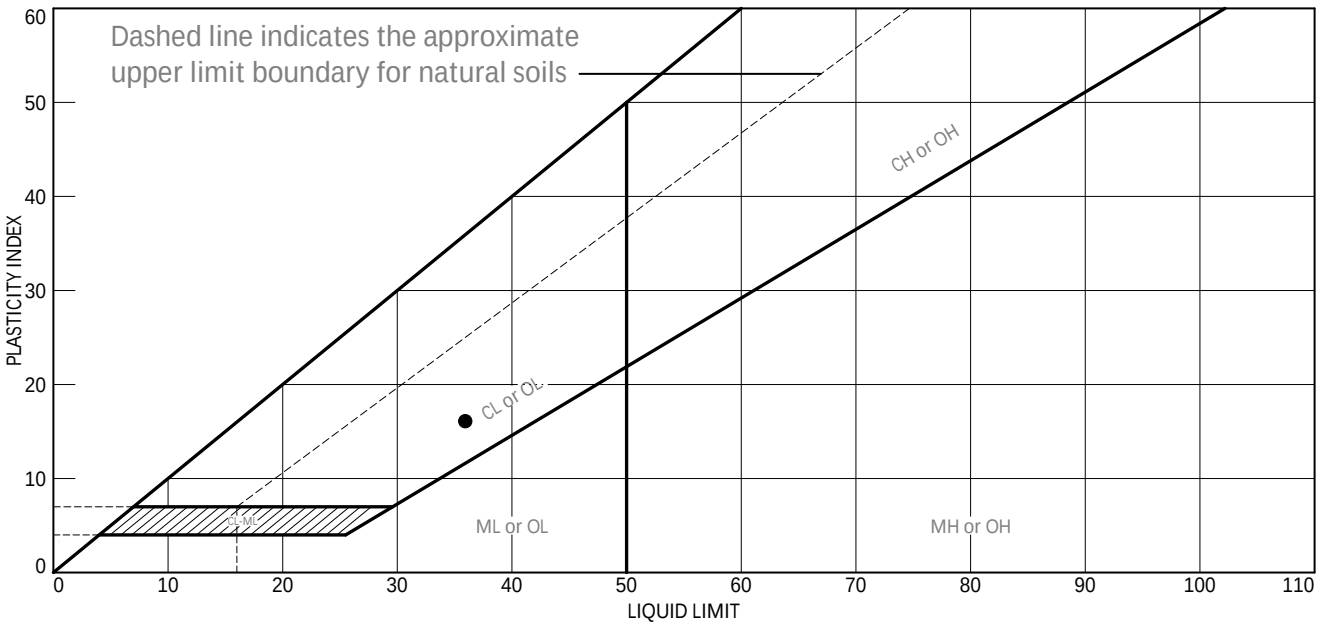
Thielsch Engineering Inc.

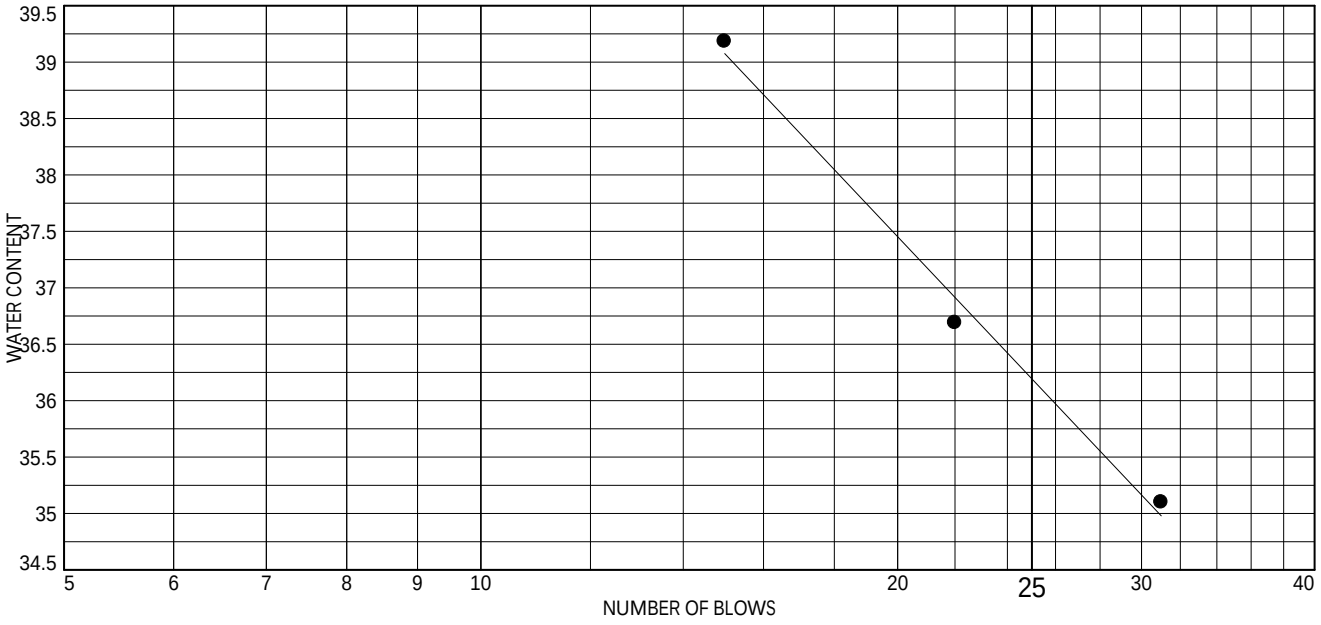
Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3623

Tested By: RB/SBR Checked By: Kris Roland

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown CLAY & SILT, trace f-m Sand	36	20	16	94.7	91.1	CL

Project No. 09.0026242.00 Task 4 Client: GZA GeoEnvironmental

Project: Densmore Road Bridge #5782

Sidney, ME

Source of Sample: BB-SDER-101 Depth: 25-27'

Sample Number: 7D

Thielsch Engineering Inc.

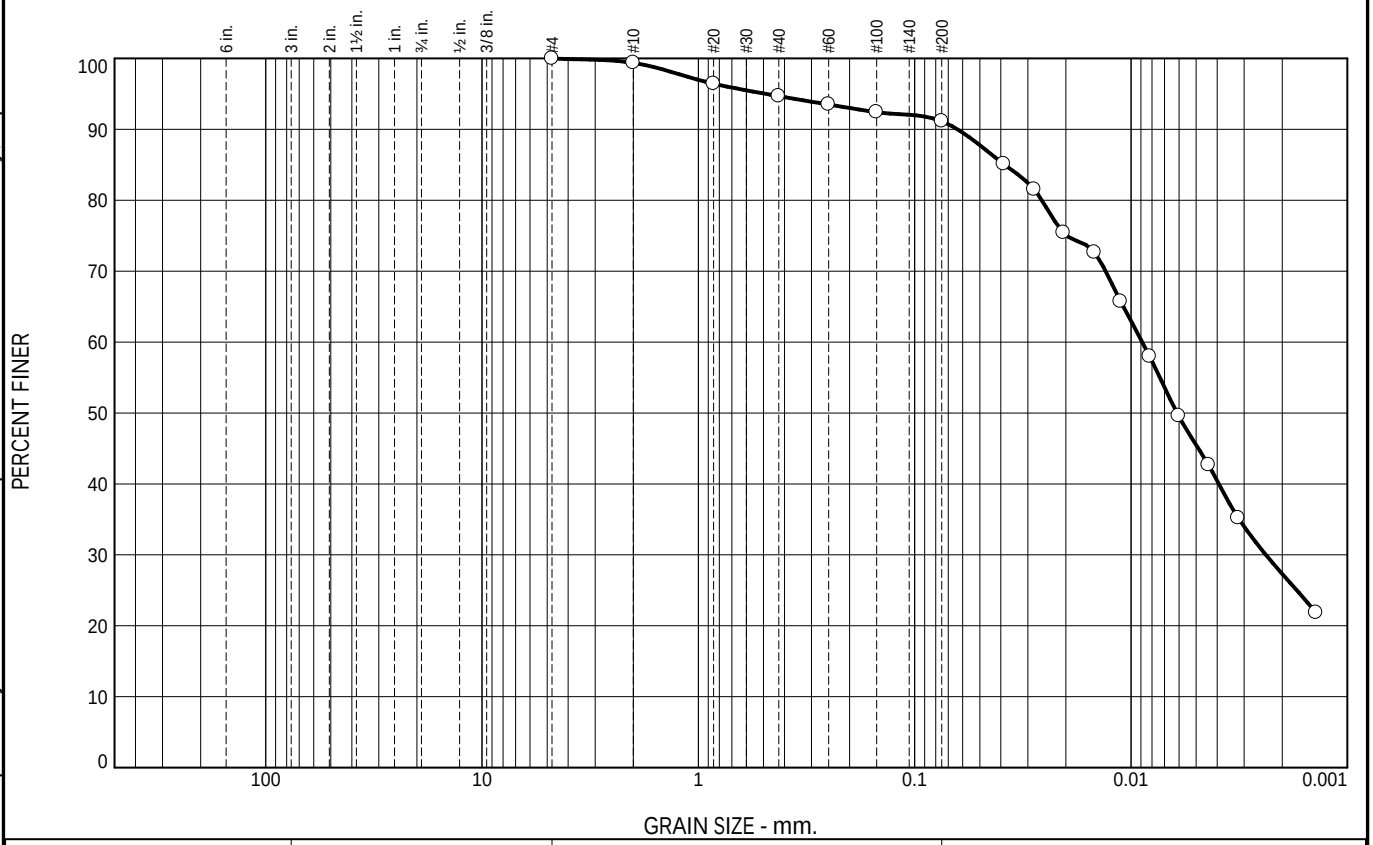
Cranston, RI

Remarks:

Fig. 24-L-3624

Tested By: AB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.6	4.7	3.6	63.8	27.3

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#20	96.4		
#40	94.7		
#60	93.5		
#100	92.4		
#200	91.1		
0.0388 mm.	85.1		
0.0280 mm.	81.5		
0.0205 mm.	75.4		
0.0148 mm.	72.7		
0.0112 mm.	65.7		
0.0082 mm.	58.0		
0.0060 mm.	49.6		
0.0044 mm.	42.7		
0.0032 mm.	35.2		
0.0014 mm.	21.8		

* (no specification provided)

Soil Description

Brown CLAY & SILT, trace f-m Sand

Atterberg Limits

PL= 20 LL= 36 PI= 16

Coefficients

D_{90}= 0.0634 D_{85}= 0.0383 D_{60}= 0.0089
D_{50}= 0.0061 D_{30}= 0.0024 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(15)

Remarks

Source of Sample: BB-SDER-101 Depth: 25-27'
Sample Number: 7D

Date: 9.19.24

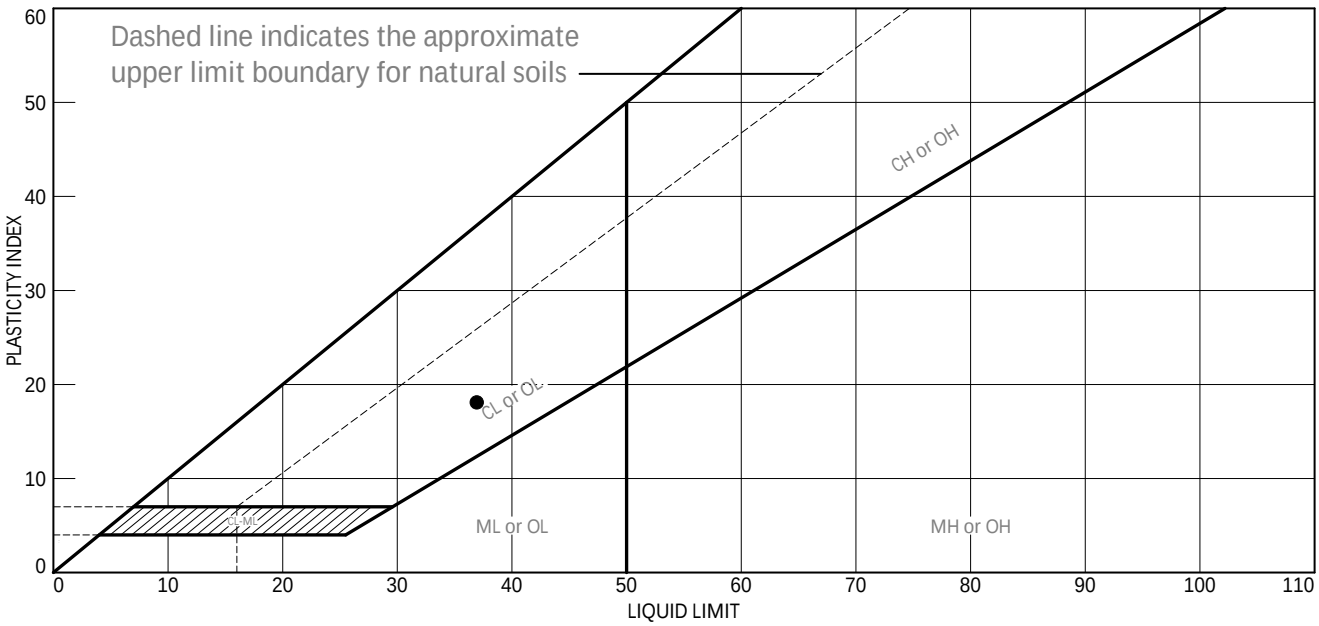
Thielsch Engineering Inc.

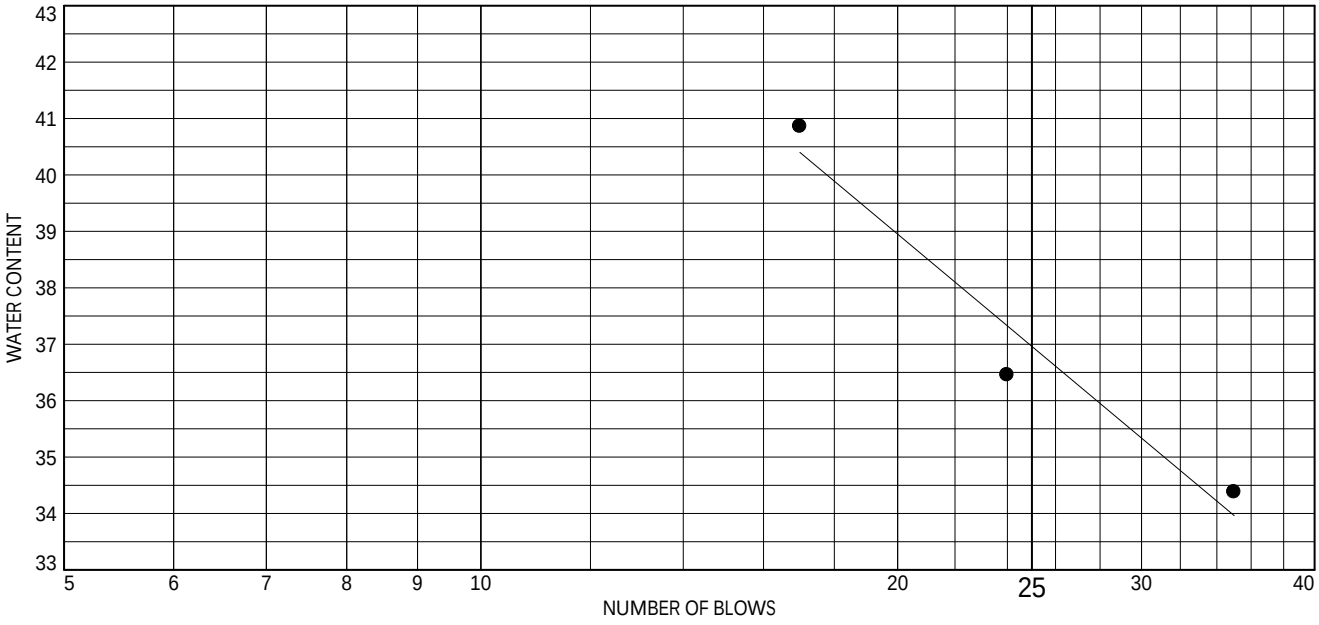
Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3624

Tested By: RB/SBR Checked By: Kris Roland

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive CLAY & SILT	37	19	18			

Project No. 09.0026242.00 Task 4 Client: GZA GeoEnvironmental

Project: Densmore Road Bridge #5782

Sidney, ME

Source of Sample: BB-SDER-101 Depth: 30-32'

Sample Number: 8D

Thielsch Engineering Inc.

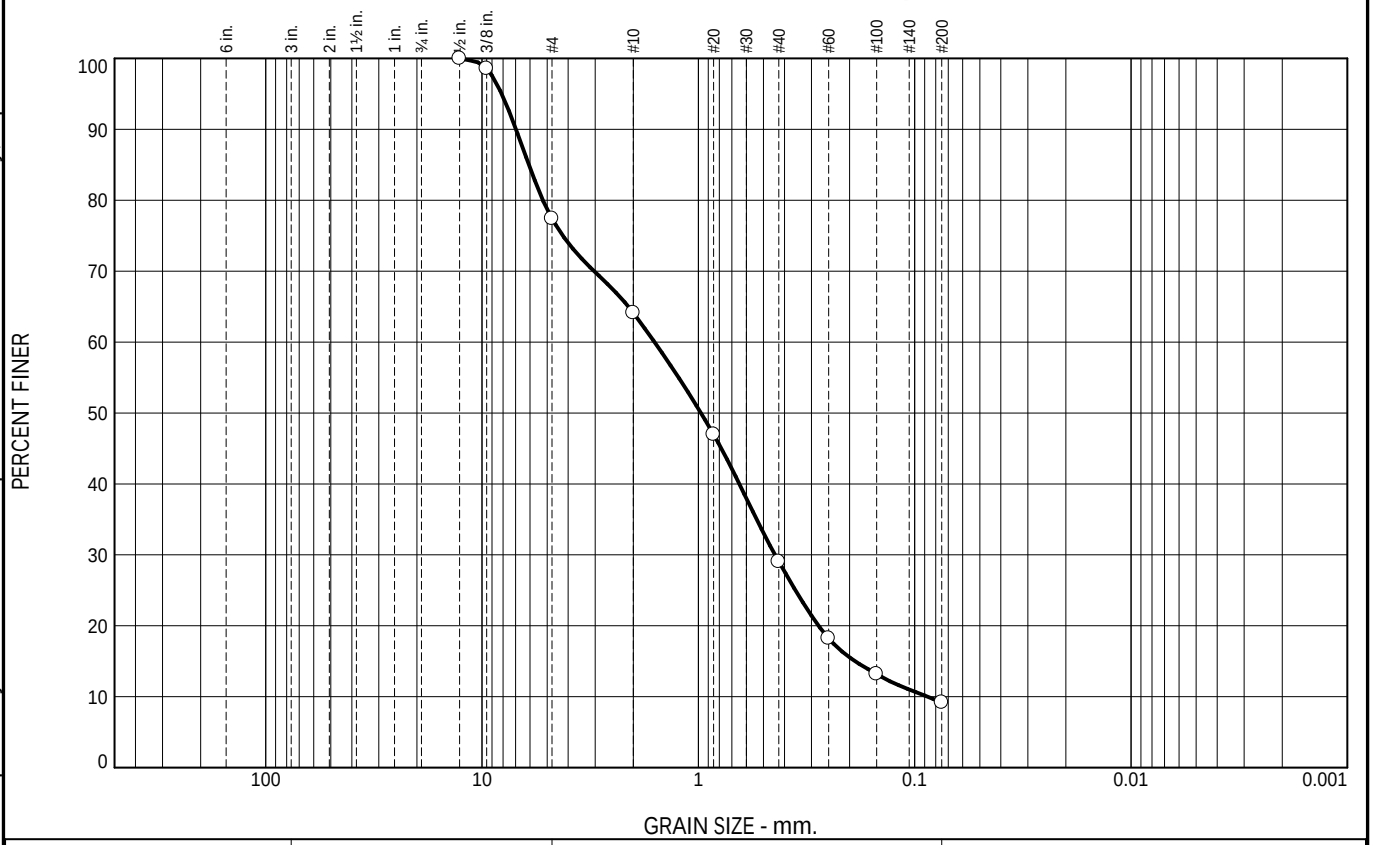
Cranston, RI

Remarks:

Fig. 24-L-3625

Tested By: AB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	22.6	13.3	35.1	19.8	9.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100.0		
3/8"	98.6		
#4	77.4		
#10	64.1		
#20	47.0		
#40	29.0		
#60	18.2		
#100	13.2		
#200	9.2		

* (no specification provided)

Soil Description

Dark Brown f-c SAND, some fine Gravel, trace Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 6.9662 D_{85}= 6.0708 D_{60}= 1.5948
D_{50}= 0.9734 D_{30}= 0.4426 D_{15}= 0.1887
D_{10}= 0.0872 C_u= 18.28 C_c= 1.41

Classification

USCS= SW-SM AASHTO= A-1-b

Remarks

Source of Sample: BB-SDER-102 Depth: 0-2'
Sample Number: 1D

Date: 9.12.24

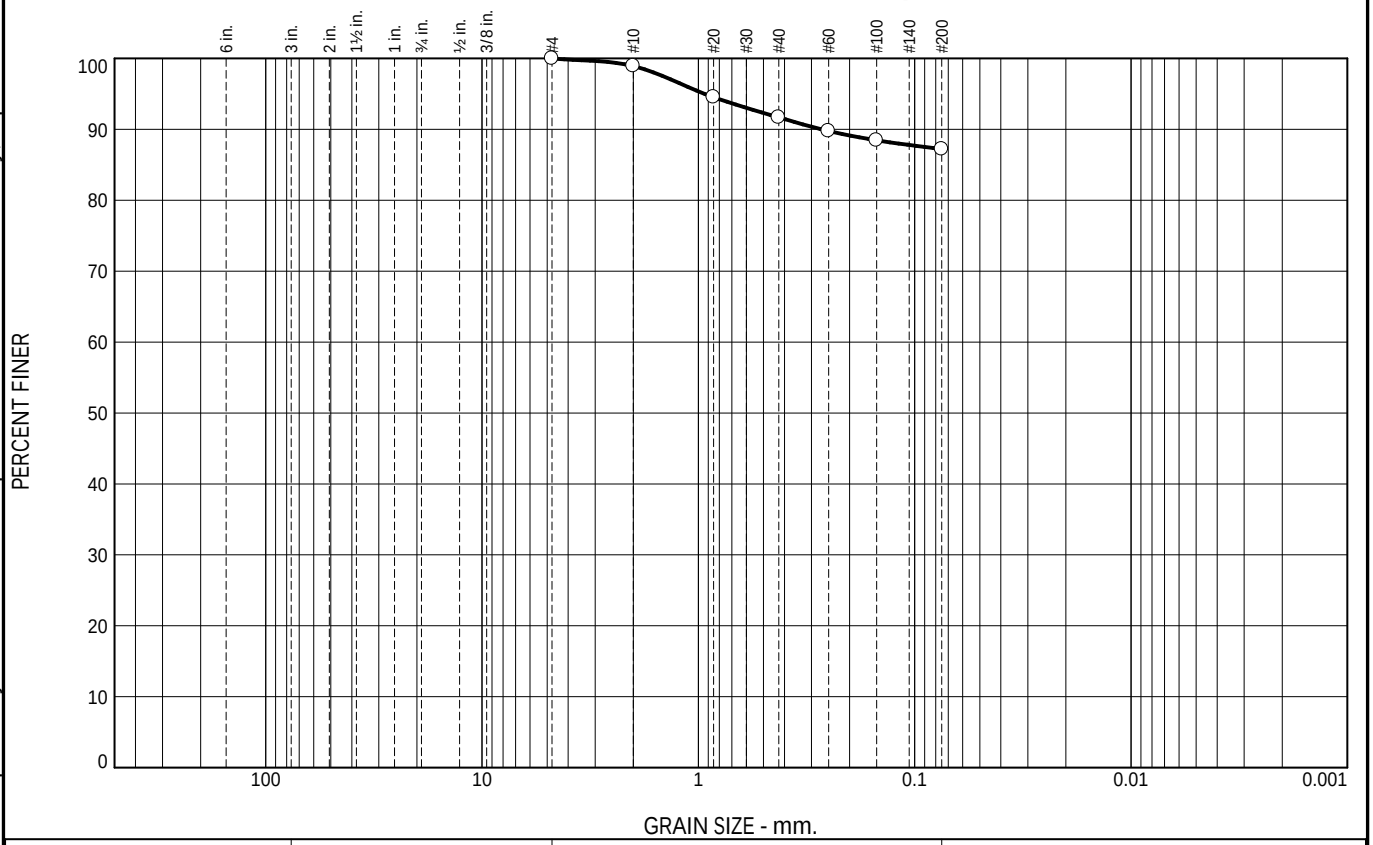
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3626

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	1.1	7.2	4.5	87.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	98.9		
#20	94.5		
#40	91.7		
#60	89.8		
#100	88.5		
#200	87.2		

* (no specification provided)

Soil Description

Olive CLAYEY SILT

Atterberg Limits

PL= 0 LL= 0 PI= 0

Coefficients

D_{90}= 0.2694 D_{85}= D_{60}=
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: BB-SDER-102 Depth: 5-7'
Sample Number: 2D

Date: 9.12.24

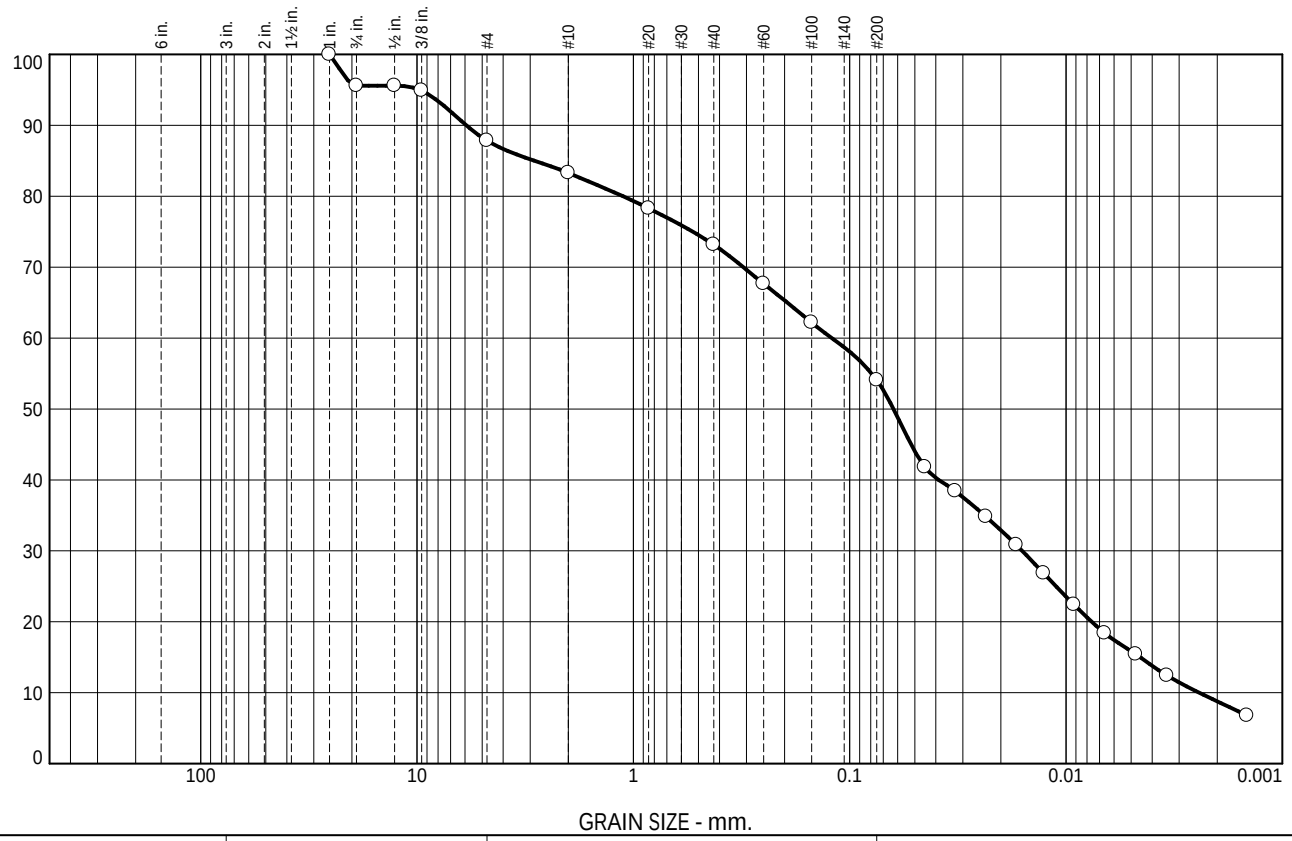
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3627

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	4.4	7.8	4.5	10.1	19.1	45.3	8.8

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	95.6		
1/2"	95.6		
3/8"	94.9		
#4	87.8		
#10	83.3		
#20	78.3		
#40	73.2		
#60	67.7		
#100	62.2		
#200	54.1		
0.0450 mm.	41.8		
0.0325 mm.	38.4		
0.0235 mm.	34.8		
0.0170 mm.	30.8		
0.0127 mm.	26.8		
0.0092 mm.	22.4		
0.0066 mm.	18.4		
0.0048 mm.	15.4		
0.0034 mm.	12.4		
0.0015 mm.	6.8		

* (no specification provided)

Soil Description

Brown CLAYEY SILT, some f-c Sand, little f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 5.9146 D_{85}= 2.8595 D_{60}= 0.1209
D_{50}= 0.0627 D_{30}= 0.0160 D_{15}= 0.0046
D_{10}= 0.0024 C_u= 49.84 C_c= 0.87

Classification

USCS= ML AASHTO= A-4(0)

Remarks

Sample visually classified as plastic. Sample rolled to 1/4"

Source of Sample: BB-SDER-102 Depth: 10-12'
Sample Number: 3D

Date: 9.19.24

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3628

Tested By: RB/SBR Checked By: Kris Roland

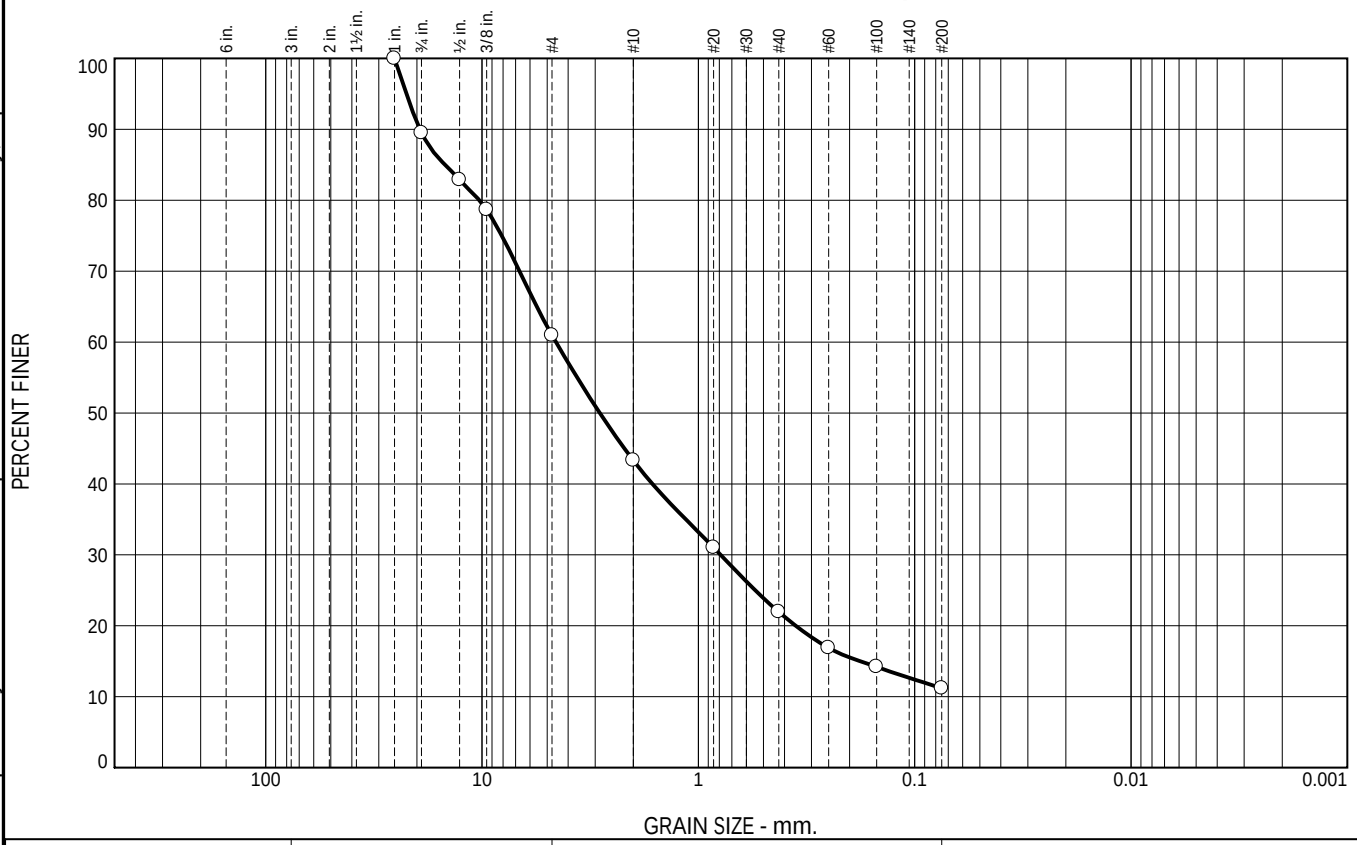
Thielsch DIVISION OF THE RISE GROUP	195 Frances Avenue Cranston RI, 02910 Phone: (401)-467-6454 Fax: (401)-467-2398 cts.thielsch.com *Let's Build a Solid Foundation*	Client Information: GZA GeoEnvironmental, Inc. South Portland, ME Project Manager: Logan Hailey Assigned By: Logan Hailey Collected By: GZA	Project Information: **Densmore Road Bridge #5782** **Sidney, Maine** Project Number: 09.0026242.00 Task 4 Summary Page: 1 of 1 Report Date: 9/23/2024

LABORATORY TESTING DATA SHEET, Report No.: 7424-J-166

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-SDER-103	1D	0-2	24-S-3629	3.0				39.0	49.8	11.2											Dark Brown GRAVELLY SAND, little Silt
BB-SDER-103	2D	5-6.7	24-S-3630	8.3				53.0	30.0	17.0											Olive f-c GRAVEL, some f-c Sand, little Silt
BB-SDER-104	1D	0-2	24-S-3631	6.7				33.1	44.5	22.4											Brown f-c SAND, some fine Gravel, some Silt
BB-SDER-104	2D	5-7	24-S-3632	6.9				17.6	56.7	25.7											Brown f-c SAND, some Silt, little f-c Gravel
BB-SDER-104	3D	10-12	24-S-3633	24.8				2.9	23.7	73.4											Brown SILT & CLAY, some f-m Sand, trace fine Gravel

Date Received: **9/10/2024** Reviewed By: Date Reviewed: **9/23/2024**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.5	28.5	17.7	21.4	10.7	11.2	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	89.5		
1/2"	82.9		
3/8"	78.7		
#4	61.0		
#10	43.3		
#20	31.0		
#40	21.9		
#60	16.9		
#100	14.2		
#200	11.2		

* (no specification provided)

Soil Description

Dark Brown GRAVELLY SAND, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.3963 D_{85}= 14.8248 D_{60}= 4.5519
D_{50}= 2.8550 D_{30}= 0.7892 D_{15}= 0.1787
D_{10}= C_u= C_c=

Classification

USCS= SP-SM AASHTO= A-1-a

Remarks

Source of Sample: BB-SDER-103 Depth: 0-2'
Sample Number: 1D

Date: 9.12.24

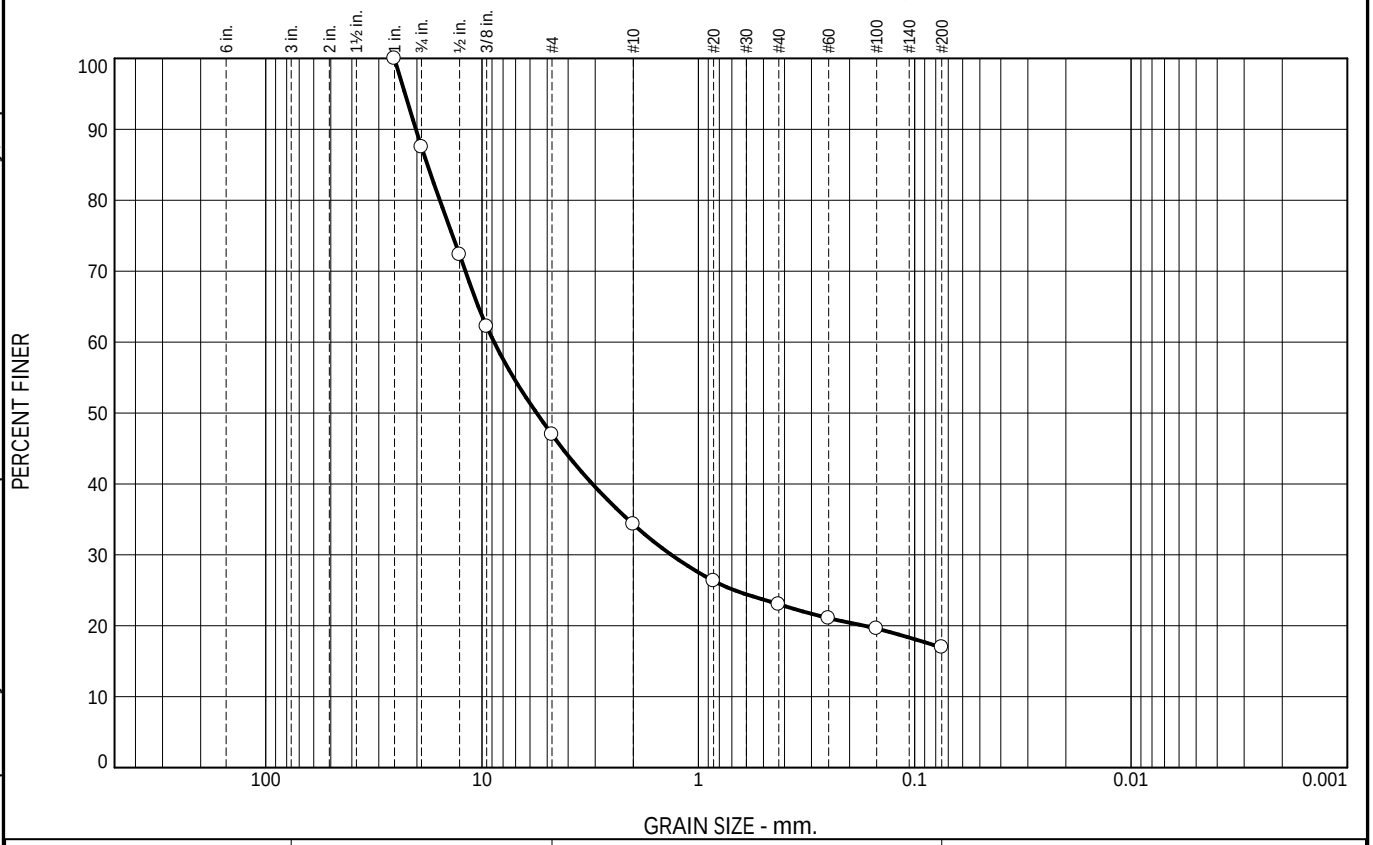
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3629

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.5	40.5	12.7	11.3	6.0	17.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	87.5		
1/2"	72.3		
3/8"	62.2		
#4	47.0		
#10	34.3		
#20	26.3		
#40	23.0		
#60	21.1		
#100	19.6		
#200	17.0		

* (no specification provided)

Soil Description

Olive f-c GRAVEL, some f-c Sand, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 20.2307 D_{85}= 17.8871 D_{60}= 8.7981
D_{50}= 5.5938 D_{30}= 1.3339 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-b

Remarks

Source of Sample: BB-SDER-103 Depth: 5-6.7'
Sample Number: 2D

Date: 9.12.24

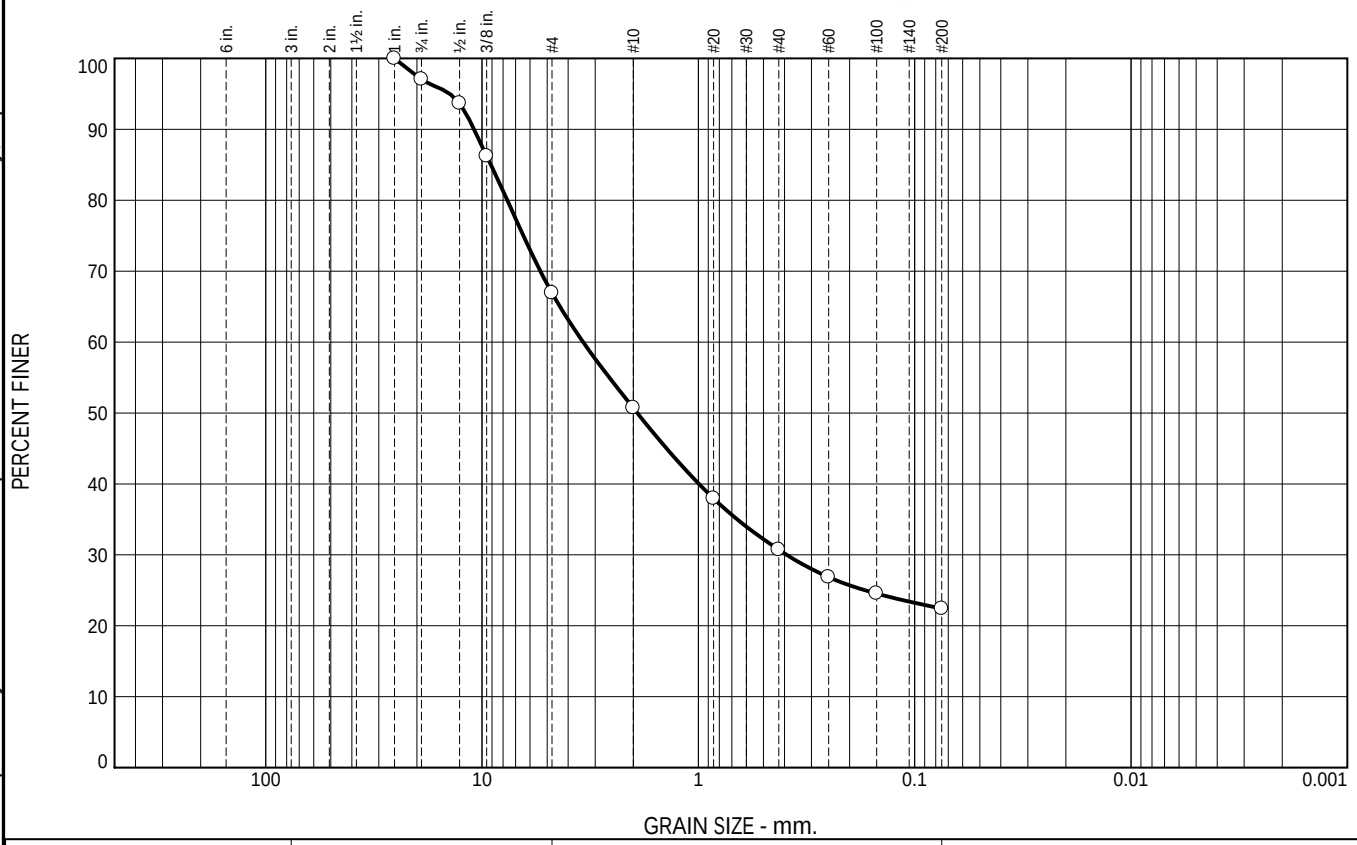
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3630

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.9	30.2	16.2	20.0	8.3	22.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	97.1		
1/2"	93.7		
3/8"	86.2		
#4	66.9		
#10	50.7		
#20	37.9		
#40	30.7		
#60	26.8		
#100	24.5		
#200	22.4		

* (no specification provided)

Soil Description

Brown f-c SAND, some fine Gravel, some Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 10.8837 D_{85}= 9.1038 D_{60}= 3.4102
D_{50}= 1.9162 D_{30}= 0.3906 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Source of Sample: BB-SDER-104 Depth: 0-2'
Sample Number: 1D

Date: 9.12.24

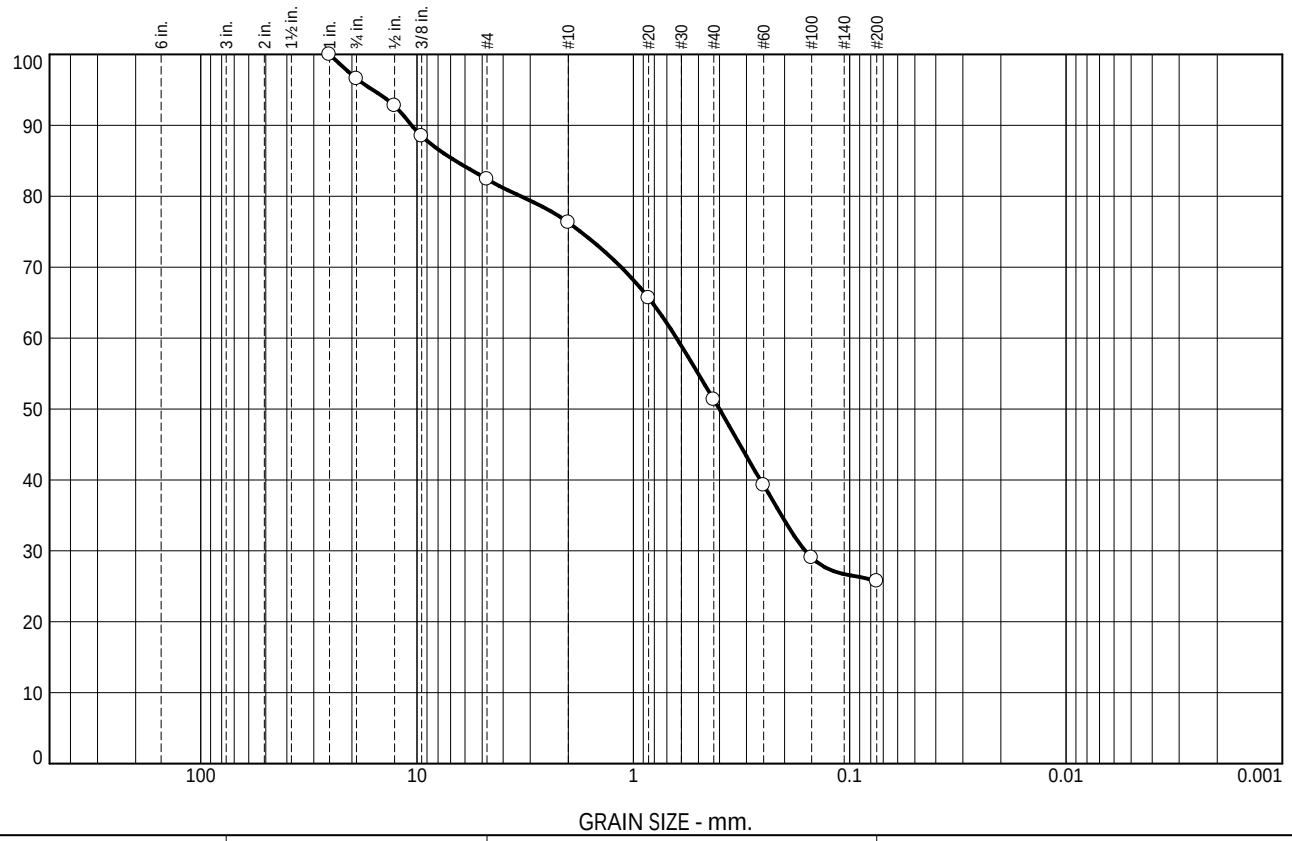
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3631

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.4	14.2	6.1	25.0	25.6	25.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	96.6		
1/2"	92.8		
3/8"	88.5		
#4	82.4		
#10	76.3		
#20	65.7		
#40	51.3		
#60	39.2		
#100	29.0		
#200	25.7		

* (no specification provided)

Soil Description

Brown f-c SAND, some Silt, little f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 10.5915 D_{85}= 6.6418 D_{60}= 0.6316
D_{50}= 0.4002 D_{30}= 0.1606 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-2-4(0)

Remarks

Source of Sample: BB-SDER-104 Depth: 5-7'
Sample Number: 2D

Date: 9.12.24

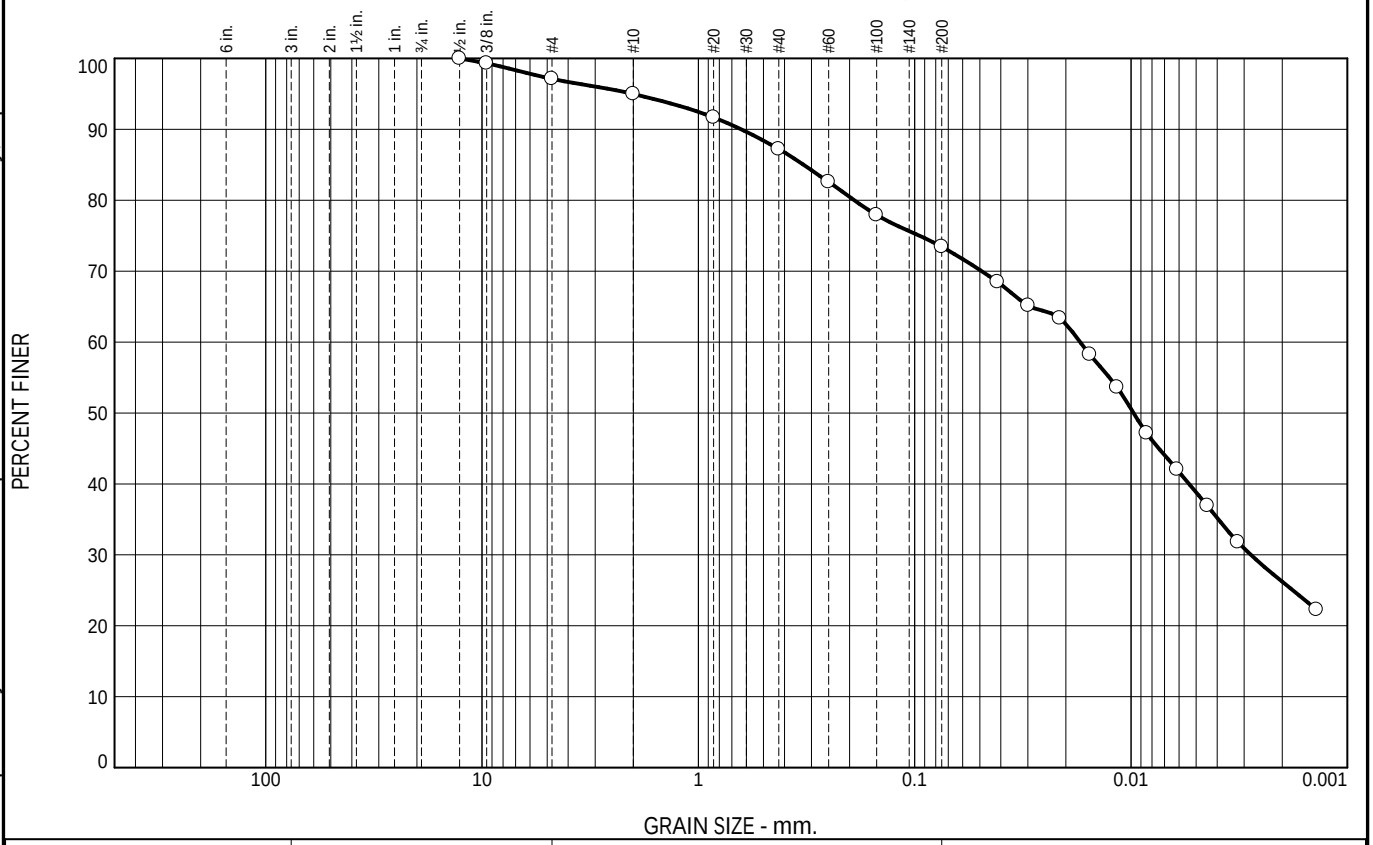
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3632

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	2.9	2.1	7.8	13.8	47.2	26.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1/2"	100.0		
3/8"	99.3		
#4	97.1		
#10	95.0		
#20	91.7		
#40	87.2		
#60	82.6		
#100	77.9		
#200	73.4		
0.0414 mm.	68.5		
0.0299 mm.	65.1		
0.0213 mm.	63.3		
0.0155 mm.	58.2		
0.0116 mm.	53.6		
0.0085 mm.	47.2		
0.0061 mm.	42.0		
0.0044 mm.	36.9		
0.0032 mm.	31.8		
0.0014 mm.	22.3		

* (no specification provided)

Soil Description

Brown SILT & CLAY, some f-m Sand, trace fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 0.6337 D_{85}= 0.3262 D_{60}= 0.0172
D_{50}= 0.0097 D_{30}= 0.0028 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: BB-SDER-104 Depth: 10-12'
Sample Number: 3D

Date: 9.19.24

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Densmore Road Bridge #5782
Sidney, ME
Project No: 09.0026242.00 Task 4 Fig. 24-S-3633

Tested By: RB/SBR Checked By: Kris Roland

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston RI, 02910
Phone: (401)-467-6454
Fax: (401)-467-2398
thielsch.com
Let's Build a Solid Foundation

Client Information:		Project Information:	
GZA GeoEnvironmental		**Sidney Bridges**	
South Portland, ME		**Dinsmore Road, Sidney, ME**	
(207) 879-9190		Project Number:	09.0026242.00 Task 4
Project Contact:	Blaine Cardali	Summary Page:	2 of 3
Collected By:	B. Cardali	Report Date:	5/21/2025

LABORATORY TESTING DATA SHEET, Interim Report No.: 7425-E-142

Boring No.	Sample No.	Depth (ft)	Laboratory No.	Specimen Data						Compressive Strength Tests								Rock Formation or Description or Remarks
				Mohs Hard-ness	Diameter (in)	Length (in)	(1) Unit Weight (PCF)	(2) Wet Density (PCF)	Bulk G_s	(3) Other Tests	(4) Strength PSI	(5) Strain %	(6) E sec PSI EE+06	(7) Poisson's Ratio	st PSI	Is_{50} PSI	(8) s_c PSI	
BB-SDER-103	R1	11.6-13.2	25-S-1717		4.971	4.478	176.7			U	7428	0.243	5.83	1.03				Grey Slate
Fresh Break along foliation, minor break at about 4000 psi																		
BB-SDER-104A	R1	18.9-19.7	25-S-1718		1.963	4.250	178.3			U	6252	1.351	0.33	0.22				Grey Slate
Broke along foliation, evidence of weathering																		
BB-SDER-102	R1	17.2-18.4	25-S-1719		1.983	4.610	175.7			U	6148	0.147	4.51	0.20				Grey Slate
Fresh Break along foliation, minor break at 4500 psi																		

(1) Volume Determined By Measuring Dimensions

(2) Determined by Measuring Dimensions and Weight of Saturated Sample

Notes

(3) PLD=Point Load (diametrical), PLA= Point Load (Axial) ST= Splitting Tensile U= Unconfined Compressive Strength

(4) Taken at Peak Deviator Stress

Notes

(5) Strain at Peak Deviator Stress

(6) Represents Secant Modulus at 50% of Total Failure Stress

(7) Represents Secant Poisson's Ratio at 50% of Total Failure Stress

(8) Estimated UCS from Table 1 of ASTM D5731 for NX cores (Is x 24)

Date Received: **5/13/2025** Reviewed By: Date Review **5/21/2025**

Thielsch
DIVISION OF THE RISE GROUP

195 Frances Avenue
Cranston, Rhode Island 02910
Phone: (401) 467-6454
Fax: (401) 467-2398
www.thielsch.com
Let's Build a Solid Foundation

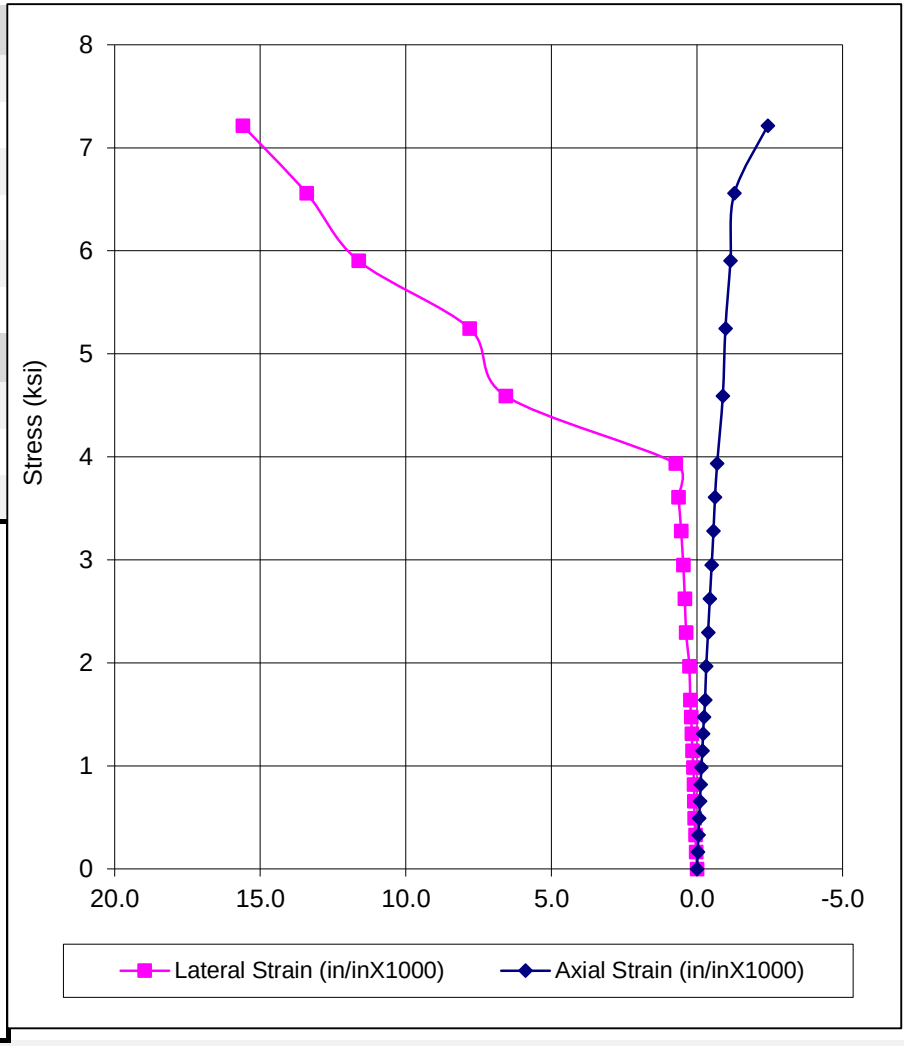
Client Information:	
GZA GeoEnvironmental	
S. Portland, ME	
Project Manager:	B. Cardali
Assigned by:	B. Cardali
Collected by:	B. Cardali

Project Information:	
Sidney Bridges	
Sidney, ME	
Project Number:	09.0026242.00 Task 1/2/4
Technician:	SBR
Report Date:	5.19.25

ASTM D7012 Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

Sample Information		**Compressive Test Information**	
Boring ID:	BB-SDER-103	**Unit Weight (pcf):**	176.7
Sample #:	R1	**Failure Stress (psi):**	7,428
Depth (ft):	11.6-13.2	**Failure Mode:**	Fresh
Tested Depth (ft):	11.8-12.2	**Time to Failure (min)**	4.78
Rock Type:	Grey Slate		
Features:	Fresh Break along foliation		

Test Specimen Information		**Elastic Moduli Test Information**	
Diameter, D (in):	1.971	**Poisson's Ratio @ 50%:**	1.03
Length, L (in):	4.478	**Strain %:**	0.243
L:D Ratio:	2.27	**E sec PSI @ 50%:**	5.83E+06

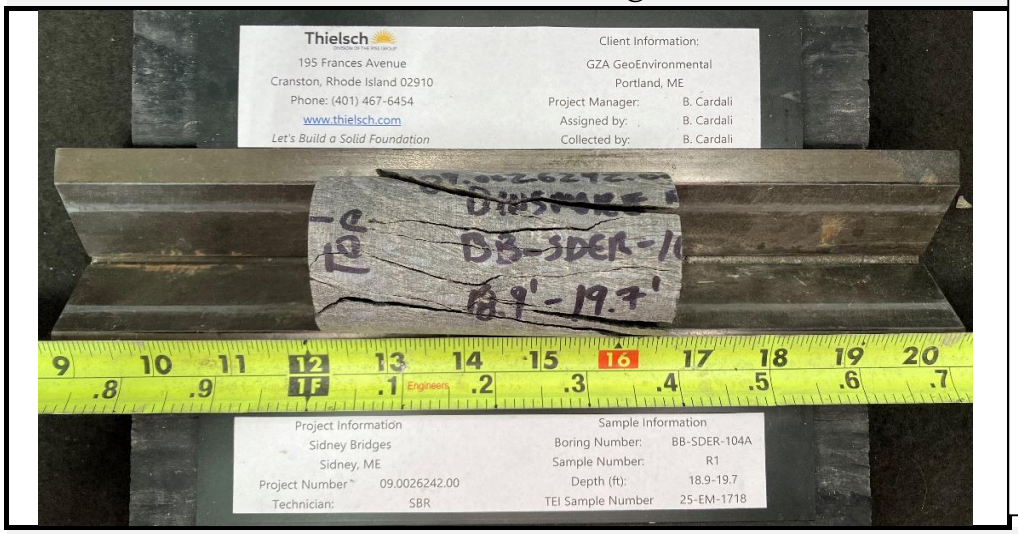


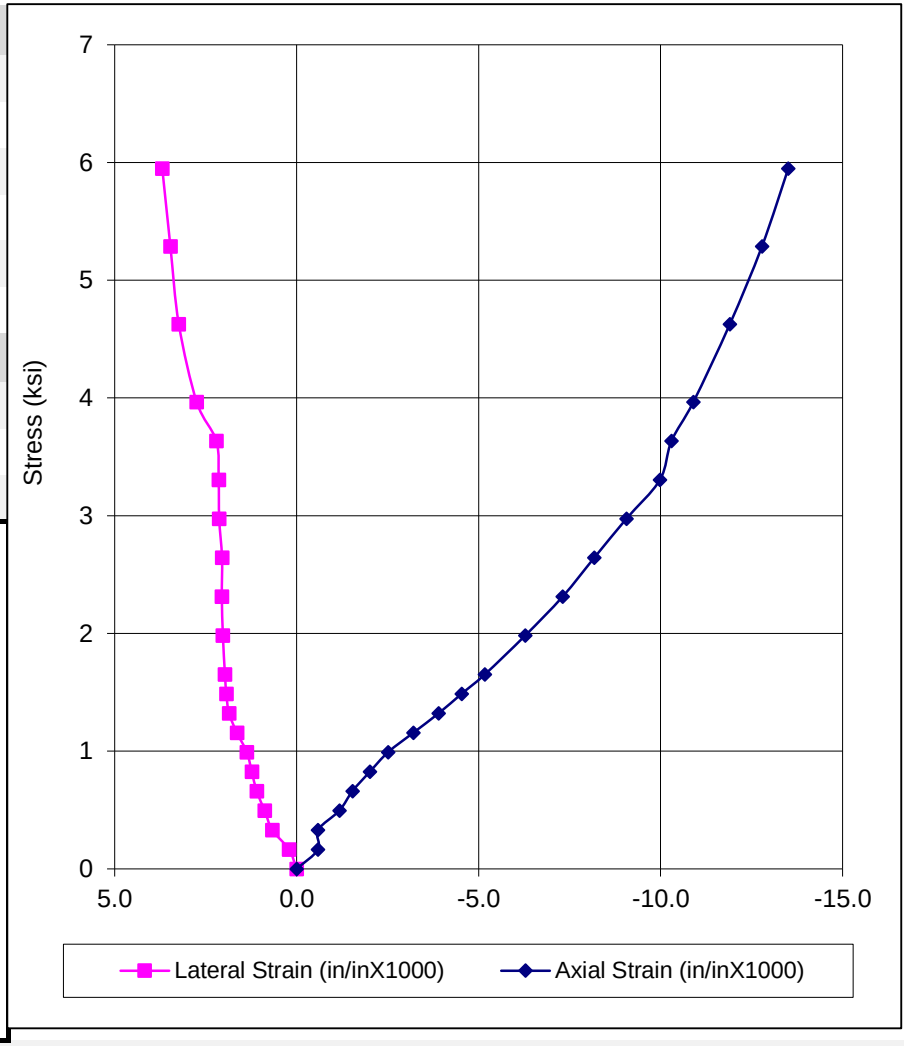
Testing Notes: Partial break around 12000 pounds, 4000 psi.

Thielsch DIVISION OF THE RISE GROUP	195 Frances Avenue Cranston, Rhode Island 02910 Phone: (401) 467-6454 Fax: (401) 467-2398 www.thielsch.com *Let's Build a Solid Foundation*	**Client Information:** GZA GeoEnvironmental S. Portland, ME Project Manager: B. Cardali Assigned by: B. Cardali Collected by: B. Cardali	**Project Information:** Sidney Bridges Sidney, ME Project Number: 09.0026242.00 Task 1/2/4 Technician: SBR Report Date: 5.19.25

ASTM D7012 Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

Sample Information		Compressive Test Information	
Boring ID:	BB-SDER-104A	**Unit Weight (pcf):**	178.3
Sample #:	R1	**Failure Stress (psi):**	6,252
Depth (ft):	18.9-19.7	**Failure Mode:**	Fresh
Tested Depth (ft):	19.0-19.4	**Time to Failure (min)**	4.02
Rock Type:	Grey Slate		
Features:	Fresh Break along foliation, evidence of weathering		
Test Specimen Information		**Elastic Moduli Test Information**	
Diameter, D (in):	1.963	**Poisson's Ratio @ 50%:**	0.22
Length, L (in):	4.250	**Strain %:**	1.351
L:D Ratio:	2.17	**E sec PSI @ 50%:**	3.30E+05





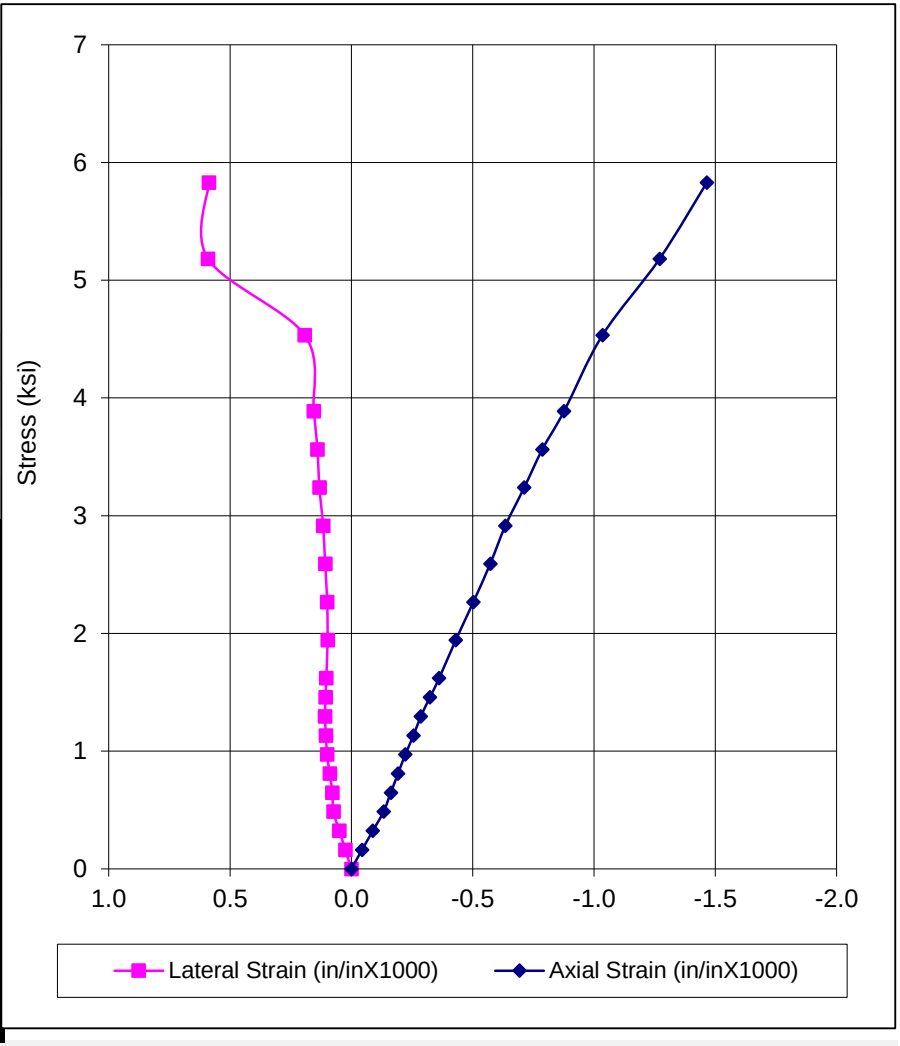
Testing Notes:

Thielsch DIVISION OF THE RISE GROUP	195 Frances Avenue Cranston, Rhode Island 02910 Phone: (401) 467-6454 Fax: (401) 467-2398 www.thielsch.com *Let's Build a Solid Foundation*	**Client Information:** GZA GeoEnvironmental S. Portland, ME Project Manager: B. Cardali Assigned by: B. Cardali Collected by: B. Cardali	**Project Information:** Sidney Bridges Sidney, ME Project Number: 09.0026242.00 Task 1/2/4 Technician: SBR Report Date: 5.20.25

ASTM D7012 Compressive Strength and Elastic Moduli of Intact Rock Core Specimens

Sample Information		Compressive Test Information	
Boring ID:	BB-SDER-102	**Unit Weight (pcf):**	175.7
Sample #:	R1	**Failure Stress (psi):**	6,148
Depth (ft):	17.2-18.4	**Failure Mode:**	Fresh
Tested Depth (ft):	17.7-18.1	**Time to Failure (min)**	3.93
Rock Type:	Grey Slate		
Features:	Breaks along weathered plane and foliation		

Test Specimen Information		Elastic Moduli Test Information	
Diameter, D (in):	1.983	**Poisson's Ratio @ 50%:**	0.20
Length, L (in):	4.610	**Strain %:**	0.147
L:D Ratio:	2.33	**E sec PSI @ 50%:**	4.51E+06



Testing Notes: Minor break at 14000 pounds (4500 psi)

APPENDIX E – ROCK CORE PHOTOGRAPHS

MaineDOT Densmore Bridge No. 5782
Dinsmore Road over Interstate 95
Sidney, ME
WIN 25473.00
Rock Core Photographs

Boring No.	Run	Depth (ft)	Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-SDER-102	R1	15.1 - 20.1	60	100%	17	28%	PELITE	1
BB-SDER-102	R2	20.1 - 25.1	57	95%	12	20%	PELITE	2
BB-SDER-103	R1	8.4 - 13.4	60	100%	36	60%	PELITE	3
BB-SDER-103	R2	13.4 - 18.4	59	98%	29	48%	PELITE	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.

MaineDOT Densmore Bridge No. 5782
Dinsmore Road over Interstate 95
Sidney, ME
WIN 25473.00
Rock Core Photographs

Boring No.	Run	Depth (ft)	Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-SDER-104A	R1	15.5 - 20.5	55	92%	32	53%	PELITE	1
BB-SDER-104A	R2	20.5 - 25.5	54	90%	26	43%	PELITE	2
BB-SDER-101	R1	39.0 - 44.0	53	88%	42	70%	PELITE	3
BB-SDER-101	R2	44.0 - 49.0	60	100%	49	82%	PELITE	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