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GEOTECHNICAL DATA REPORT
LYONS ROAD BRIDGES NO. 1463 AND 5783 OVER INTERSTATE 95
MAINE DOT WIN нфпус.лл ółEDA/ ¸ ² Ib 25465.00ú
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) Lyons Road Bridge Nos. 1463 and 5783 in Sidney, Maine. Our work was completed in accordance with GZA GeoEnvironmental, Inc.'s (GZA's) Project Contract for the above referenced project dated July 22, 2024, and our Proposal No. 09.P000130.24b, dated December 18, 2023, and the Limitations included in **Appendix A** of this report.

1.1 BACKGROUND

The existing Lyons Road Bridges No. 1463 and No. 5783 were constructed circa 1958 and both span east to west, carrying Lyons Road over Interstate 95 (I-95), as shown in **Figure 1**. Bridge No. 1463 is a 154-foot-long, three-span, continuous bridge with steel beams and a reinforced concrete deck. Bridge No. 5783 is a 162-foot-long, three-span, continuous bridge with steel beams and a reinforced concrete deck. The bridges are both 31 feet wide and supported by concrete piers and concrete stub abutments.

The 1958 as-built plans indicate that the four stub abutments are supported by HP 10x42 piles that are either plumb or battered at 2.5H:12V. Abutments 1 and 4 are supported by 12 piles with a maximum design load of 56 kips and estimated lengths of approximately 30 feet. Abutments 2 and 3 are supported by 11 piles with a maximum design load of 66 kips and estimated lengths of approximately 25 feet. The two pairs of pier stems are shown to be supported by spread footings bearing on bedrock roughly 5 to 10 feet below the existing ground surface. The piers are cast-in-place concrete columns. The foundations are 6-foot-square spread footings with maximum footing bearing pressures indicated on the 1958 plans to be 11.2 ksf. The available historic foundation drawings are included 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 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 four 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
- 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 twelve test borings, designated BOR #1 through #12, and four rod soundings, designated as SNDG #1, #2, #4, and #5. These borings were drilled prior to construction of I-95. At the time the grades were 17 to 22 feet lower than Lyons 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 RECENT BORINGS

GZA completed a subsurface exploration program consisting of four (4) test borings designated as BB-SLR-101 through BB-SLR-104. The locations and designations are shown on the attached **Boring Location Plan, Figure 2**. Borings BB-SLR-101, -102, -103, and -104 were completed about 20 feet behind the face of each existing abutment and were drilled from Lyons Road. The as-drilled boring locations and elevations were surveyed by MaineDOT, provided to GZA, and are shown on the logs. The surveyed as-drilled locations are shown on **Figure 2**.

The borings were drilled to depths of approximately 37 to 50 feet below ground surface (bgs) and terminated approximately 10 to 11 feet into bedrock. Seaboard Drilling of Bangor, Maine provided drilling services and coordinated utility clearance. The drilling was completed from July 22 to July 23, 2024. GZA personnel monitored the drilling work and prepared logs of each boring, which are 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. Approximately 10 feet of 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	15
Hydrometer	D7928	5
Atterberg Limits	D4318	2
Moisture Content	D2216	15
Unconfined Compressive Strength (with axial and lateral strain)	D7012 Method D	1

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 the Presumpscot Formation, which consists of a marine silt, clay, and local sand beds deposited on the late-glacial sea floor. Glacial Till is mapped to the west of the site and consists of a poorly sorted mixture of clay, silt, and sand and can include cobbles and boulders. Thin drifts of Glacial Till, usually around 10 feet thick or less with bedrock outcropping, are mapped to the northwest 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

Four soil units, including Fill, Marine Clay, Marine Sand, and Glacial Till were encountered in the test borings underlying approximately 6 to 7 inches of asphalt pavement 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 B**.

INTERPRETED SUBSURFACE CONDITIONS		
Soil Unit	**Approximate Encountered Thickness (ft)**	**Generalized Description and Summary of Laboratory Test Results**
Fill	17 to 24	Variable from: Brown, dry to wet, loose to very dense, fine to coarse SAND, trace to some silt, trace to some gravel, to: Sandy GRAVEL, little to some silt. Typical MaineDOT Frost Classification Range = I to III • A 2-foot layer of apparent cobbles/boulders was encountered in boring BB-SLR-102 at 22.1 to 24.1 feet bgs. Results of 9 Grain Size, 3 Hydrometer and 12 Moisture Content Analyses: • AASHTO Classifications: A-1-a, A-1-b, A-2-4(0), A-4(0), • USCS Classifications: SP-SM, SM, GW-GM, GP-GM, GM • Moisture Content: 0.3 to 17.9% *Encountered in all borings.*
Marine Clay	5	Brown, wet, stiff to very stiff, Silty CLAY, some fine sand. Typical MaineDOT Frost Classification Range = III to IV Results of 1 Hydrometer, 2 Atterberg Limits, and 2 Moisture Content Analyses: • AASHTO Classifications: A-4, A-6 • USCS Classifications: CL, CL-ML • Liquid Limit: 23 to 36 • Plastic Limit: 16 to 19 • Plasticity Index: 7 to 17 • Moisture Content: 21.3 to 23.7% *Encountered BB-SLR-103, BB-SLR-104.*
Marine Sand	10	Brown to grey, wet, medium dense to dense, Silty fine SAND, trace to some gravel. Typical MaineDOT Frost Classification Range = I to III Results of 1 Grain Size and 1 Moisture Content Analyses: • AASHTO Classification: A-4(0) • USCS Classification: SM • Moisture Content: 15.1% *Encountered in boring BB-SLR-101.*
Glacial Till	3 to 11	Variable from: Brown to grey, wet, medium stiff to very stiff, Sandy SILT, trace to some gravel to: very dense, Silty SAND, Gravelly to some gravel. Typical MaineDOT Frost Classification = III to IV Results of 1 Grain Size, 1 Hydrometer and 2 Moisture Content Analyses: • AASHTO Classification: A-4(0) • USCS Classifications: SP-SM, SM, ML • Moisture Content: 11.0 to 18.0% *Encountered in all borings.*
Estimated Top of Bedrock*	Bridge No. 1463: Approx. El. 184 to 192 (27 to 37 feet bgs) Bridge No. 5783: Approx. El. 175 to 190 (35 to 40 feet bgs)	

INTERPRETED SUBSURFACE CONDITIONS		
Soil Unit	**Approximate Encountered Thickness (ft)**	**Generalized Description and Summary of Laboratory Test Results**
*Note: Estimated top of bedrock is based on recent borings. Depths to bedrock refer to either Lyons Road or I-95 level elevations, depending on where the boring was drilled.		

4.2.1 Bedrock

Bedrock was cored in each test boring and was interpreted to be Pelite of the Waterville Formation. Pelite was generally described as medium hard, slightly weathered, aphanitic to medium grained, and grey to blue, with occasional quartzite laminae or intrusions. Joints were generally characterized as very close to closely spaced, moderately dipping to high angle, rough, undulating, discolored, and tight to partially open. The RQD ranged from 48 to 93 percent, indicating Rock Quality of Poor to Excellent. The bedrock core data are summarized in **Table 2**. Wet and dry photographs of the collected rock core are included in **Appendix E**.

The borings indicate bedrock is shallowest below I-95 southbound, and bedrock slopes steeply downward to the east and west from this high point. It should be noted that the recent boring and historic borings in the vicinity of the existing Abutment 3 show a discrepancy in the bedrock elevation of approximately 10 feet, indicating possible very localized variations of the bedrock surface may be present.

Unconfined compressive strength and elastic modulus tests were conducted on two 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)**	**Elevation (ft NAVD 88)**	**Unconfined Compressive Strength (psi)**	**Secant Modulus @ 50% of Failure Stress (ksi)**	**Unit Weight (pcf)**	**Rock Type**
BB-SLR-102	29.1	1.9	190.6	8,877	6,440	175.8	Pelite

4.2.3 Groundwater

Groundwater depth was measured in all borings. Groundwater depths ranged from approximately 17.9 to 21.5 feet, corresponding to approximately El. 190.9 to El. 205.3. 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
Lyons Road Bridges #1463 and #5783 over I-95
Sidney, ME
WIN 25465.00

Boring ID	Northing (ft)	Easting (ft)	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	Fill	Marine Clay	Marine Sand	Glacial Till	Bedrock	Asphalt	Fill	Marine Clay	Marine Sand	Glacial Till				El. (ft)	Depth (ft)
BB-SLR-101	591162.8	1156052.9	223.2	223.2	222.6	NE	204.7	194.7	187.6	0.6	17.9	NE	10.0	7.1	35.6	46.0	177.2	205.3	17.9
BB-SLR-102	591124.0	1156240.0	219.7	219.7	219.1	NE	NE	195.6	192.5	0.6	23.5	NE	NE	3.1	27.2	37.5	182.2	198.2	21.5
BB-SLR-103	591099.3	1156291.2	218.2	218.2	217.6	194.7	NE	189.7	179.1	0.6	22.9	5.0	NE	10.6	39.1	49.9	168.3	198.9	19.3
BB-SLR-104	591058.7	1156492.3	210.2	210.2	209.7	186.7	NE	181.7	175.0	0.5	23.0	5.0	NE	6.7	35.2	45.5	164.7	190.9	19.3

Notes:
1. Refer to the boring logs in Appendix B 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.

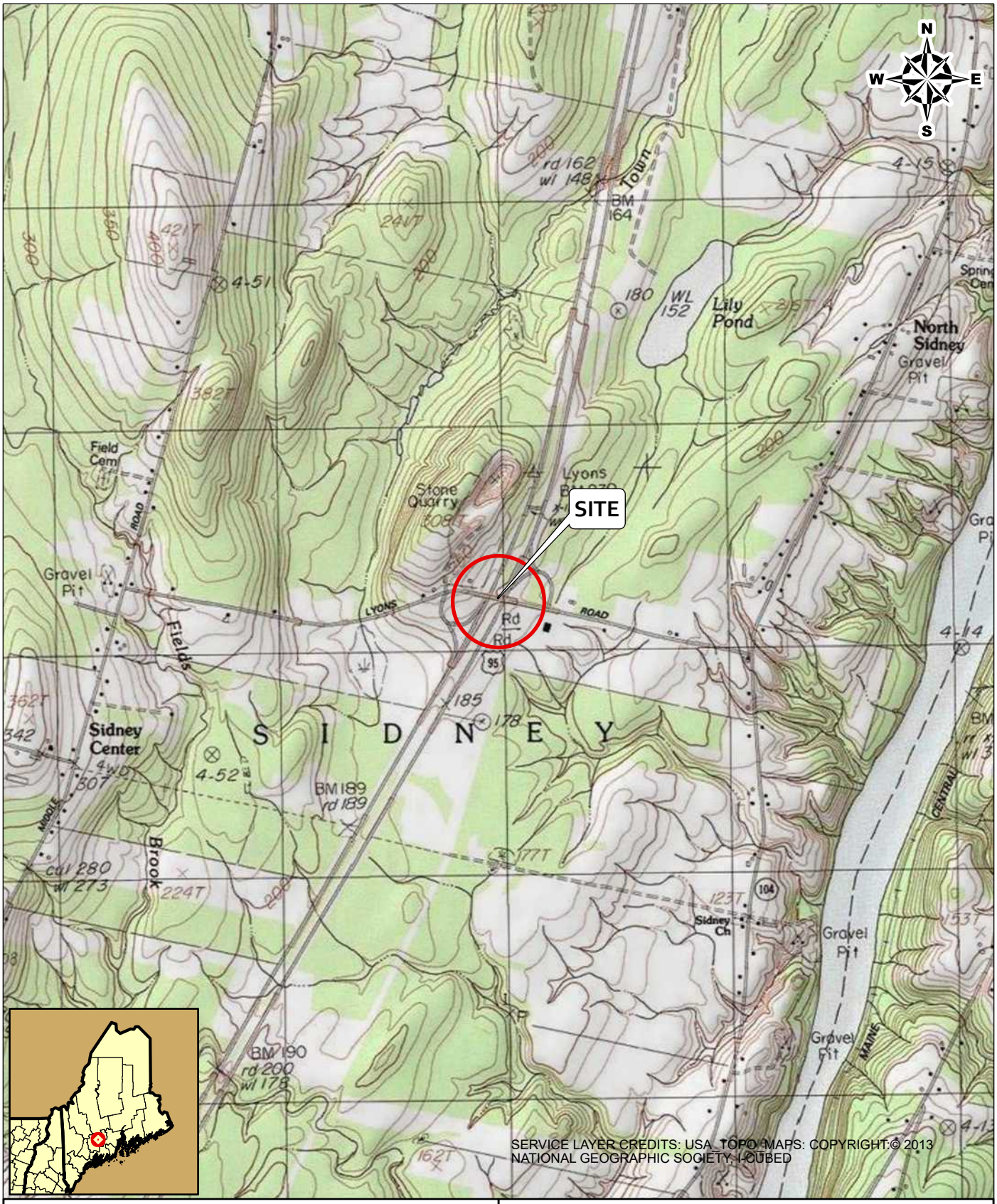
TABLE 2
Summary of Bedrock Data
Lyons Road Bridge #5783 Over I-95
Sidney, ME
WIN 25465.00

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 Desc.	Joint Spacing (in)	Aperture Desc.	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-SLR-101	R1	223.2	36.0	-	41.0	35.6	0.4	-	5.4	60.0	57	95%	41	68%	Close	0.75-2.5	Partially Open	0.004-0.02	187.2	182.2								PELITE
BB-SLR-101	R2	223.2	41.0	-	46.0	35.6	5.4	-	10.4	60.0	60	100%	46	77%	Moderately Spaced	0.75-8	Partially Open	0.004-0.02	182.2	177.2								PELITE
BB-SLR-102	R1	219.7	27.5	-	32.5	27.2	0.3	-	5.3	60.0	56	93%	44	73%	Close	0.75-2.5	Partially Open	0.004-0.02	192.2	187.2	29.1	1.9	190.6	8,877	0.29	6,440	175.8	PELITE
BB-SLR-102	R2	219.7	32.5	-	37.5	27.2	5.3	-	10.3	60.0	60	100%	56	93%	Moderately Spaced	2.5-8	Partially Open	0.004-0.02	187.2	182.2								PELITE
BB-SLR-103	R1	218.2	39.9	-	44.9	39.1	0.8	-	5.8	60.0	54	90%	43	72%	Close	0.75-2.5		0.01-0.02	178.3	173.3								PELITE
BB-SLR-103	R2	218.2	44.9	-	49.9	39.1	5.8	-	10.8	60.0	55	92%	32	53%	Close	0.75-2.5		0.01-0.02	173.3	168.3								PELITE
BB-SLR-104	R1	210.2	35.5	-	40.5	35.2	0.3	-	5.3	60.0	43	72%	29	48%	Close	0.75-2.5	Partially Open	0.004-0.02	174.7	169.7								PELITE
BB-SLR-104	R2	210.2	40.5	-	45.5	35.2	5.3	-	10.3	60.0	56	93%	48	86%	Moderately Spaced	2.5-8	Partially Open	0.004-0.02	169.7	164.7								PELITE

Notes:

1. Refer to boring logs in Appendix B 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

LYONS ROAD BRIDGES #1463/5783 OVER I-95

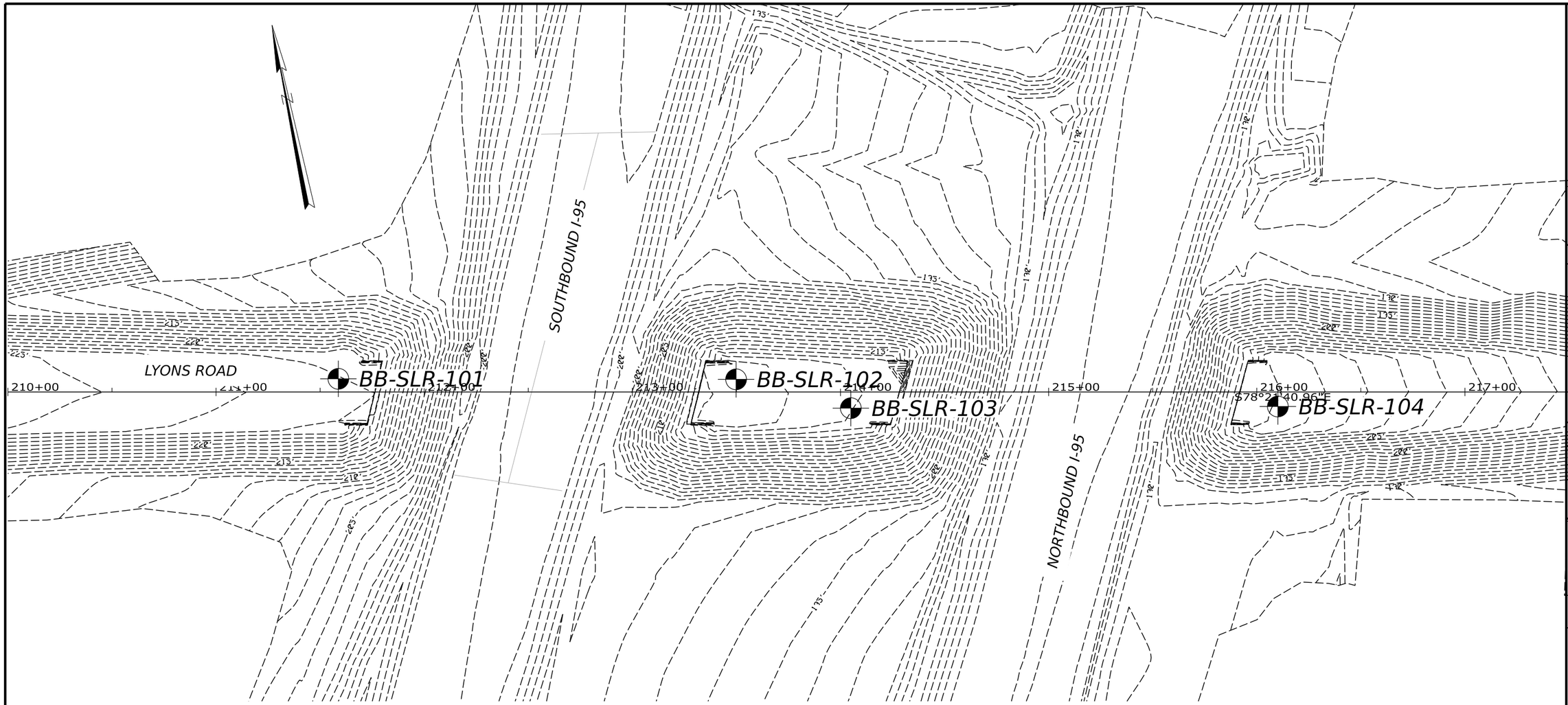
SIDNEY, ME

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 MaineDOT and provided by Stantec in an electronic file (Topo.dgn) on April 7, 2025

BORING LOCATION PLAN LEGEND

BB-SLR-104

PLAN

25 0 25 50

Scale of Feet

Location and designation of BB-SLR-100 series borings performed by Seaboard Drilling, LLC of Bangor, Maine and observed by GZA personnel between July 22 and 23, 2024.

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

25465.00

WIN 25465.00

HIGHWAY PLANS

Bridge Nos. 1463 and 5783

P.E. NUMBER

DATE

SIGNATURE

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

LYONS 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\25465_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

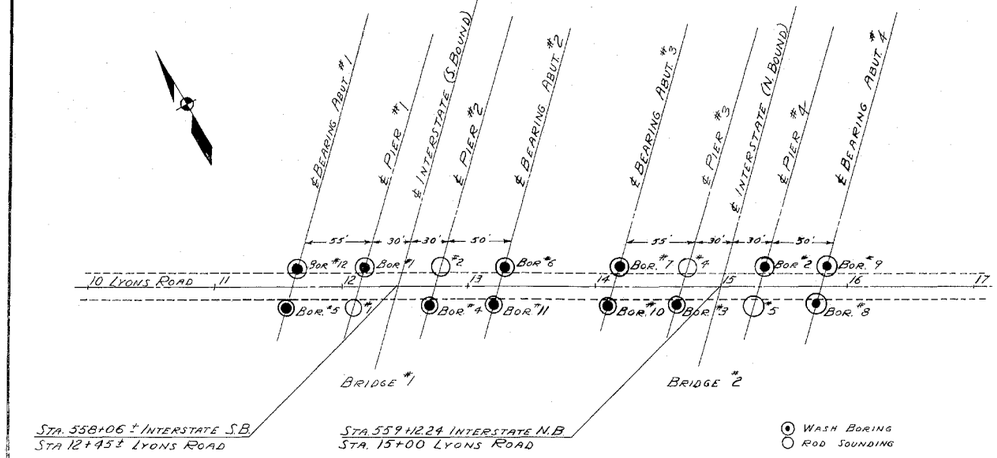
11. Unless otherwise stated, our cost estimates are only for comparative and general planning purposes. These estimates may involve approximate quantity evaluations. Note that these quantity estimates are not intended to be sufficiently accurate to develop construction bids, or to predict the actual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

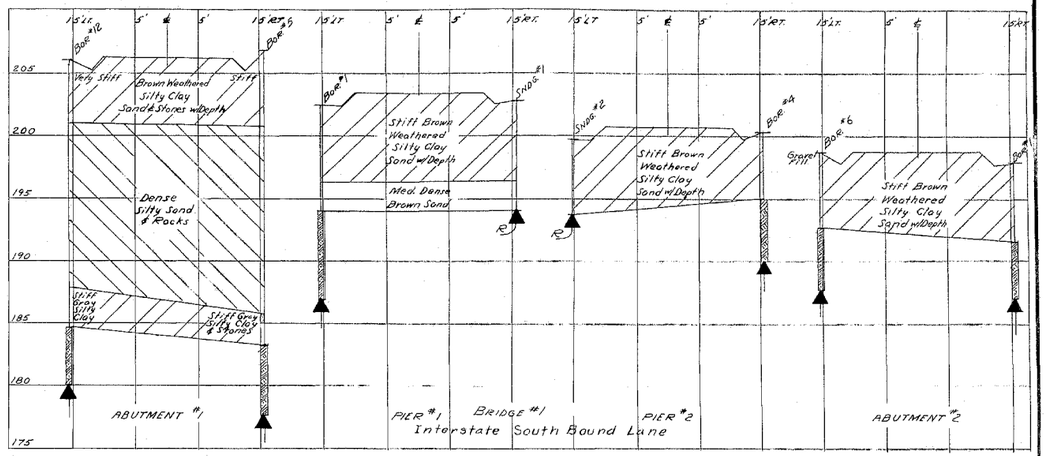
Additional Services

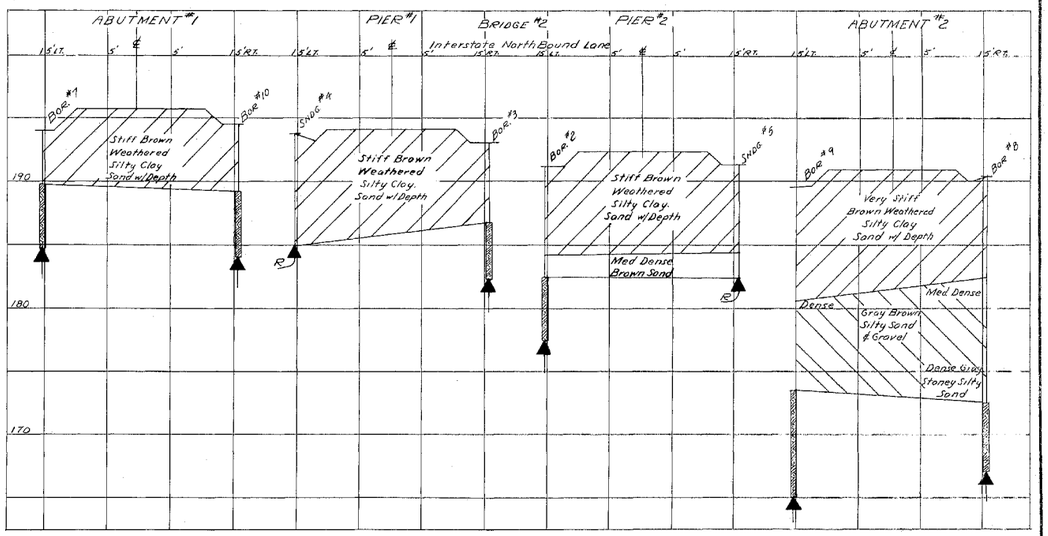
12. GZA recommends that we be retained to provide services during any future: site observations, design, implementation activities, construction and/or property development/redevelopment. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; 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.

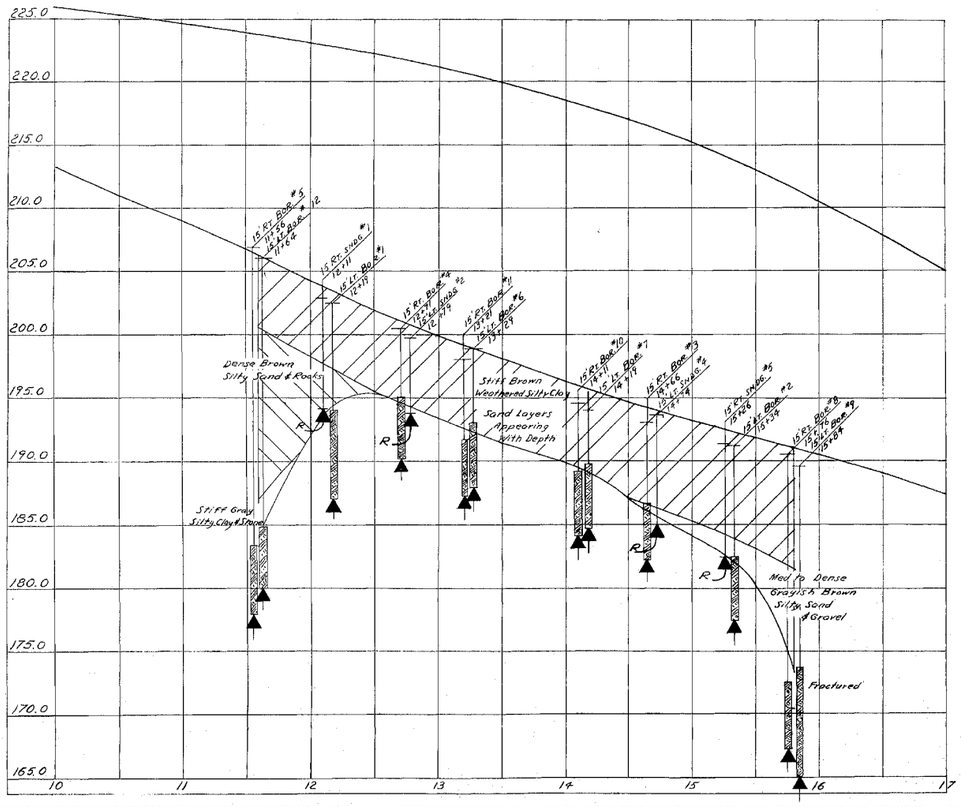
APPENDIX B – HISTORIC GEOTECHNICAL DATA AND FOUNDATION DRAWINGS

B. P. R. DIV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(19)	3	22









DESIGN –
TRACE – V. SMITH
CHECK – C. S. H.

BRIDGE NO.
SURVEY –
PLOT –

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

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

SOILS PROFILE

SHEET 3 OF 22 AUGUSTA, MAINE MAY 1958

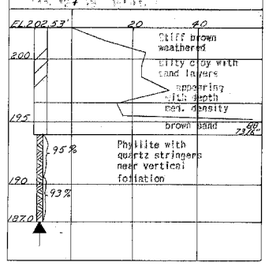
71-26

0 1 2 3 4 5 INCHES

B. P. R. DIV. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6 (19)	4	22

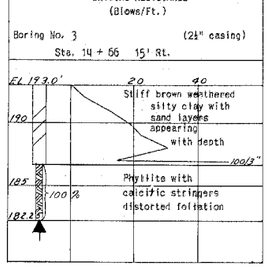
DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 1 (2½" casing)
Sta. 10 + 45 15' Lt.



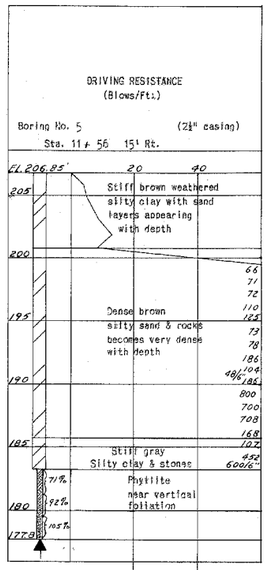
DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 3 (2½" casing)
Sta. 14 + 66 15' Rt.

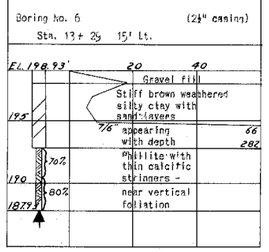


DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 5 (2½" casing)
Sta. 11 + 56 15' Rt.

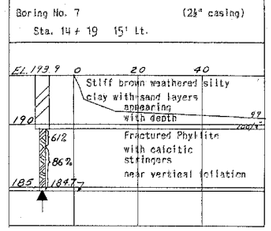


Boring No. 6 (2½" casing)
Sta. 13 + 25 15' Lt.

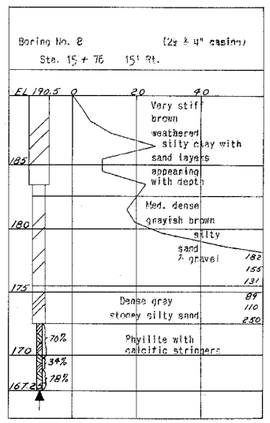


DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 7 (2½" casing)
Sta. 14 + 19 15' Lt.

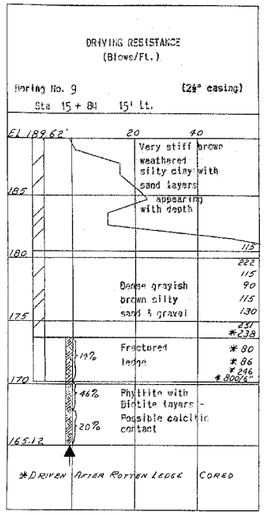


Boring No. 8 (2½ & 4" casing)
Sta. 15 + 76 15' Rt.

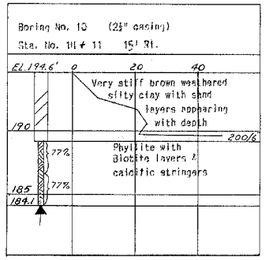


DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 9 (2½" casing)
Sta. 15 + 84 15' Lt.

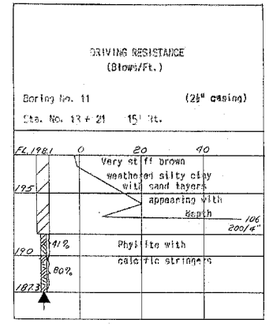


Boring No. 10 (2½" casing)
Sta. No. 14 + 11 15' Rt.

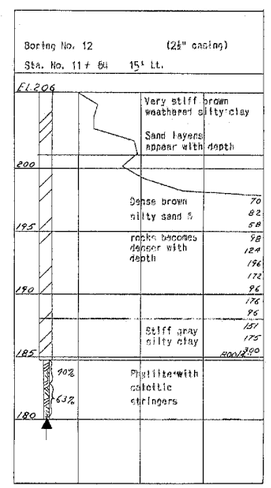


DRIVING RESISTANCE
(Blows/Ft.)

Boring No. 11 (2½" casing)
Sta. No. 13 + 21 15' Rt.



Boring No. 12 (2½" casing)
Sta. No. 11 + 84 15' Lt.



BORING NOTES

Number of blows of 275# hammer falling 18 inches required to drive extra heavy casing one foot thus: 11

Bottom of boring indicated thus:

Percent recovery of rock core by diamond bit thus: 71%

0 1 2 3 4 5 INCHES

DESIGN - V.SMITH
TRACE - V.SMITH
CHECK - C.S.A.

BRIDGE NO.
SURVEY -
PLOT -

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

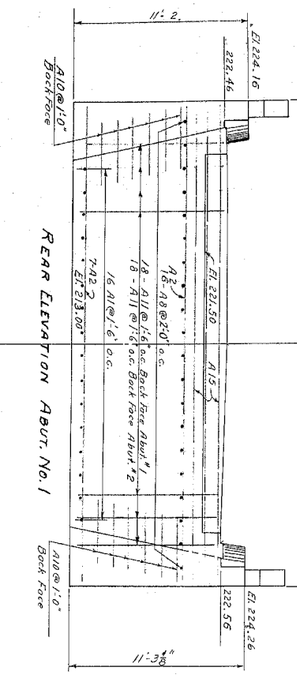
LYONS ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY

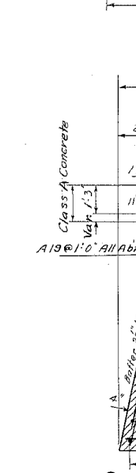
BORINGS

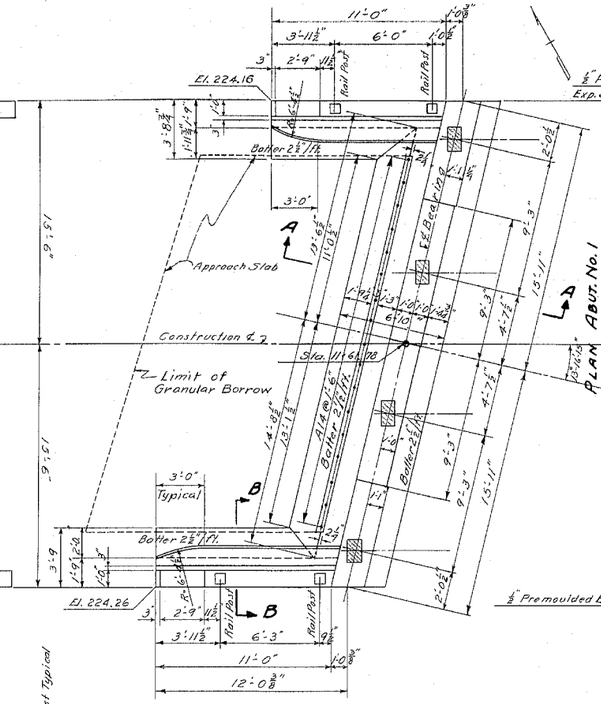
SHEET 4 OF 22 AUGUSTA, MAINE MAY 1958

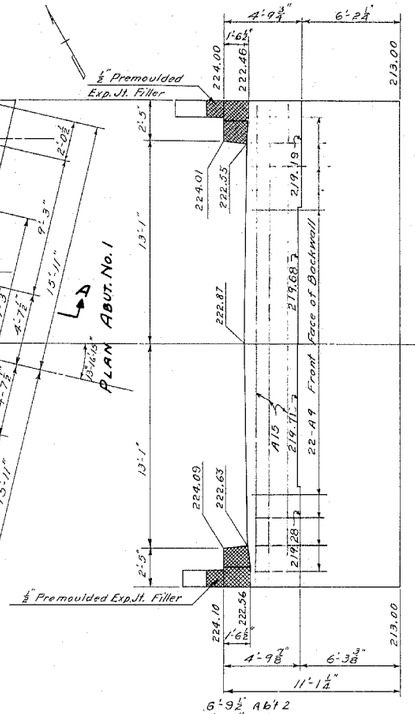
7/-27

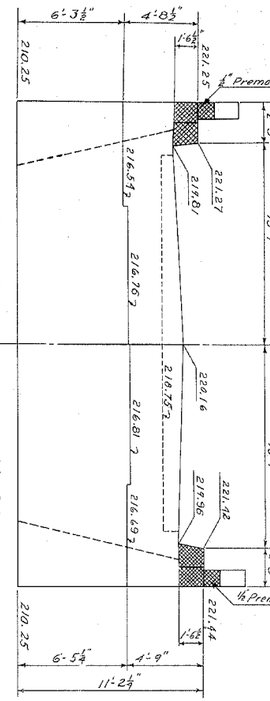
B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(18)	11	22

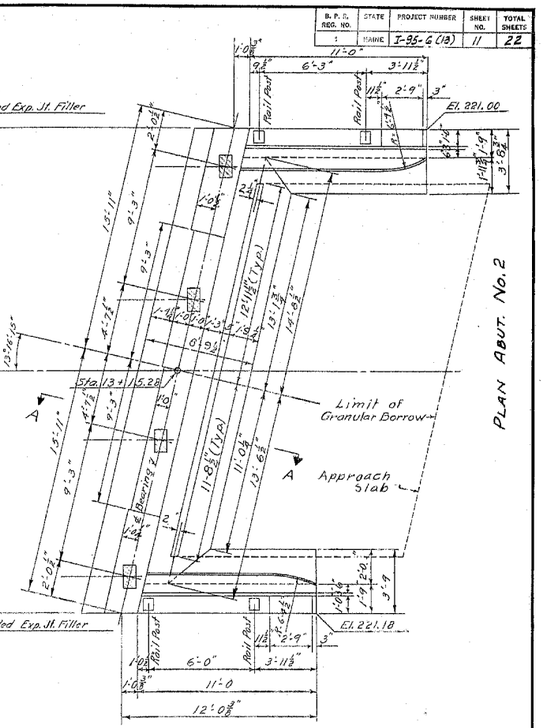


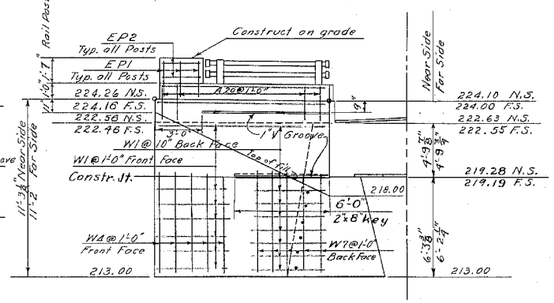


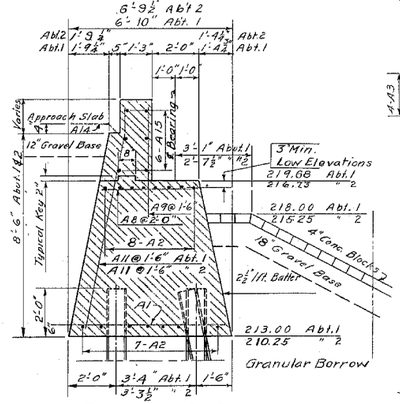


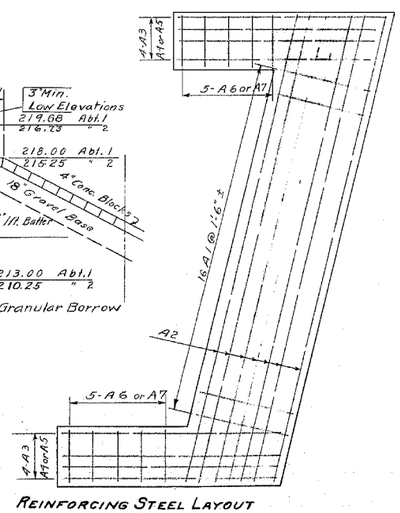




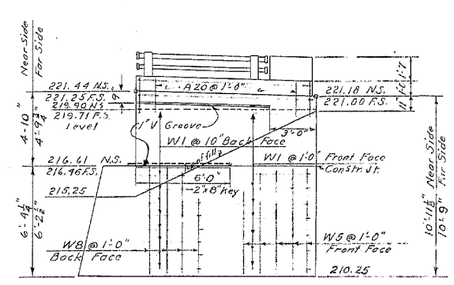








REINFORCING STEEL LAYOUT
ALL ABUTMENTS



GENERAL NOTES

Dress shaded areas on bridge seats 1" larger all around than the size of the masonry plates to the exact elevations shown.

All chamfers to be ¾" unless otherwise noted and "V" grooves 1".

Reinforcing steel in bridge seats to be spaced to clear anchor bolts and in bottom of abutments to clear piles.

Backwalls are to be placed after structural steel is in place.

Concrete end posts, curb inserts and rail parapets on abutments shall be Class A Concrete and will be paid as Item 701-33.

Curb inserts to be placed, after bridge curbs have been placed.

DESIGN – WISWELL
TRACE – BAYADE
CHECK – C.S.A.

BRIDGE NO.
SURVEY –
PLOT –

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

LYONS ROAD BRIDGE

OVER

INTERSTATE HIGHWAY

IN THE TOWN OF

SIDNEY
KENNEBEC COUNTY

ABUTMENTS NO. 1 & 2

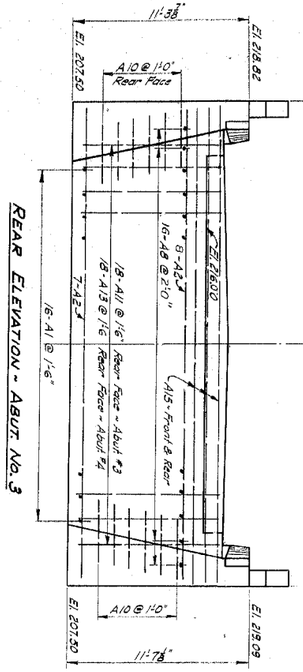
SHEET 11 OF 22 AUGUSTA, MAINE MAY 1958

71-34

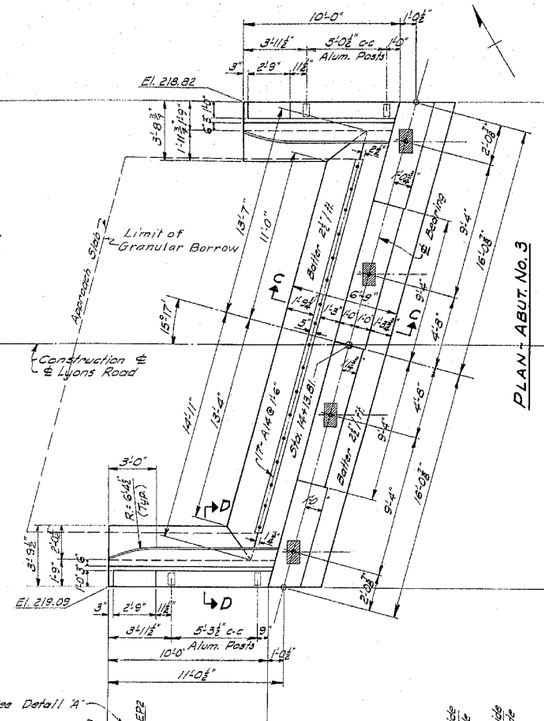
0 1 2 3 4 5 INCHES

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

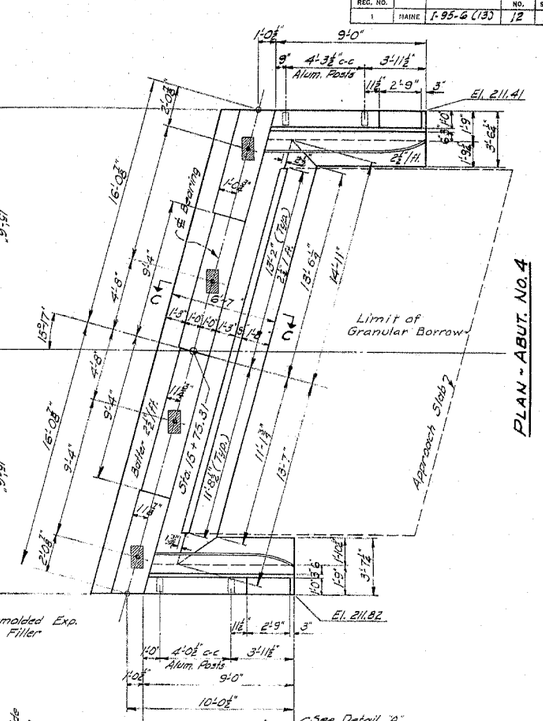
REAR ELEVATION - ABUT. No. 3



PLAN - ABUT. No. 3

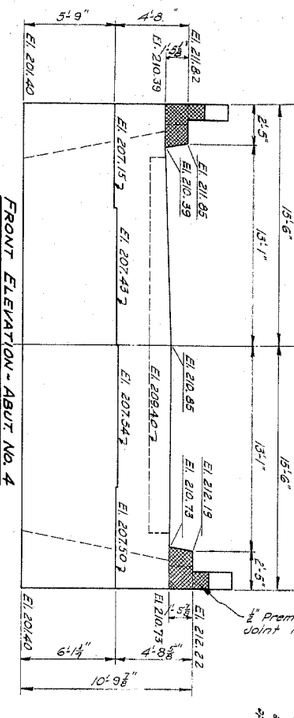


PLAN - ABUT. No. 4

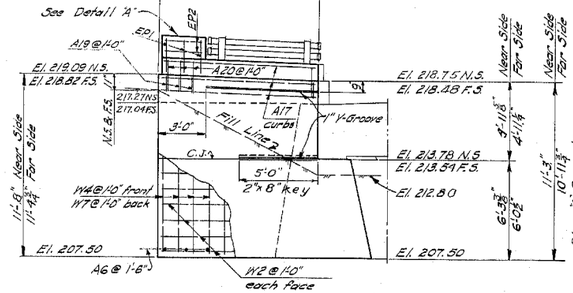


FRONT ELEVATION - ABUT. No. 3

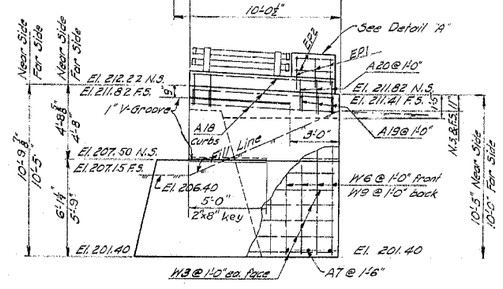
FRONT ELEVATION - ABUT. No. 4



ELEVATION - WINGS
Abut. No. 3

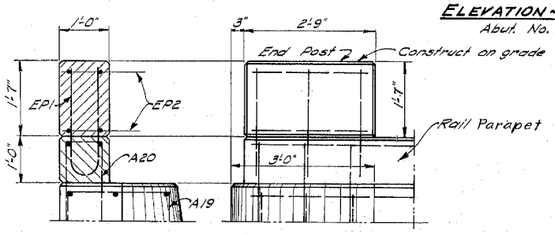


ELEVATION - WINGS
Abut. No. 4

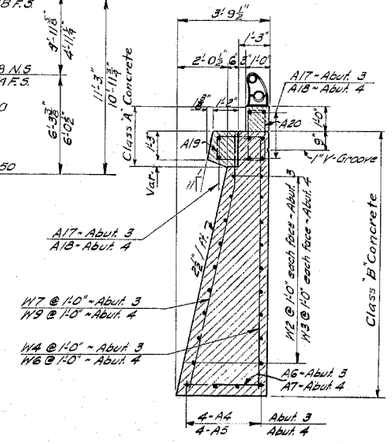


NOTE: For "General Notes" see sh. # 11

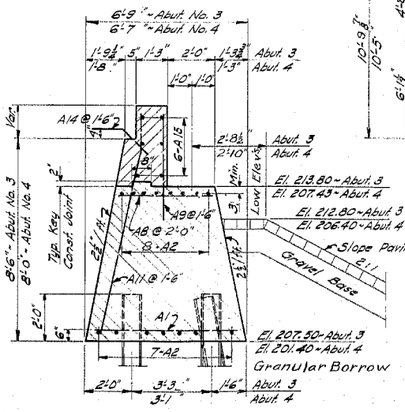
DETAIL "A"



SECTION D-D
Other Wings Similar



SECTION C-C



DESIGN - WISWELL	BRIDGE NO.
TRACE - CLARK	SURVEY -
CHECK - C.S.A.	PLOT -

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

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

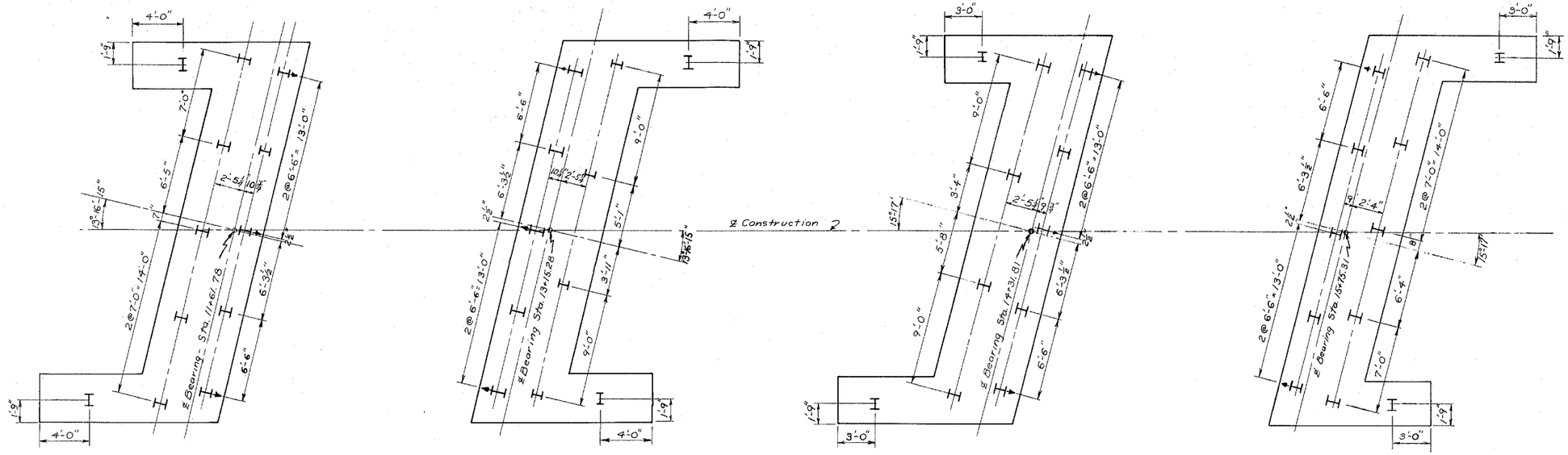
ABUTMENTS NO. 3 & 4

SHEET 12 OF 22 AUGUSTA, MAINE MAY 1958

71-35

0 1 2 3 4 5 INCHES

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



ABUTMENT PILE PLANS

NOTES:
10"x 10" x 42# H-Piles
Abut. No 1 12 Req'd Estimated Length = 30'
Abut. No 2 11 " " " 25'
Abut. No 3 11 " " " 25'
Abut. No 4 12 " " " 30'
Max. Pile loads - Abut. No 1 & 4 28 Tons
" " 2 & 3 33 Tons
See Sections A-A & C-C for pile cut-off elevations
Fill to be placed up to elevation of bottom of Abutments before piles are driven
Piles shown thus ⊢⊢ to be battered 2½" per foot in the direction indicated.

DESIGN WISWELL	BRIDGE NO.
TRACE - HOKIE	SIDNEY -
CHECK C.S.A.	5101

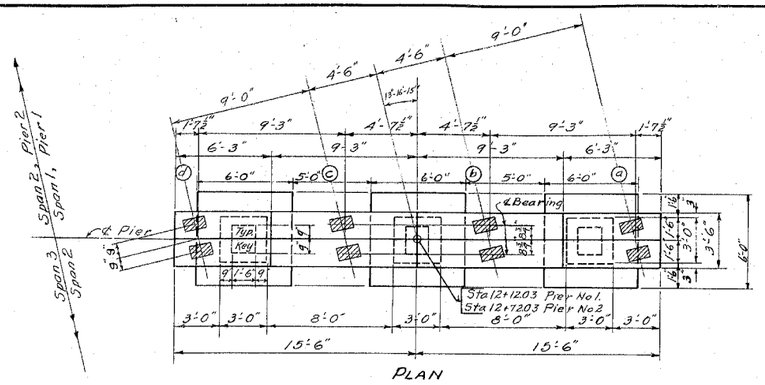
STATE HIGHWAY COMMISSION
BRIDGE DIVISION

LYONS ROAD BRIDGE
OVER
INTERSTATE HIGHWAY
IN THE TOWN OF
SIDNEY
KENNEBEC COUNTY
PILE PLANS - ABUTMENTS
SHEET 13 OF 22 AUGUSTA, MAINE MAY 1958

71-36

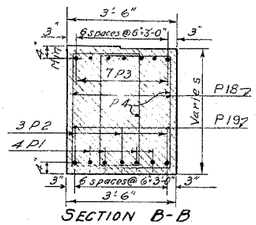
0 1 2 3 4 5 INCHES

B. P. R. REG. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-96-6 (13)	14	22

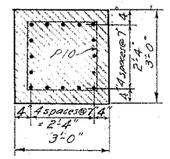


PLAN

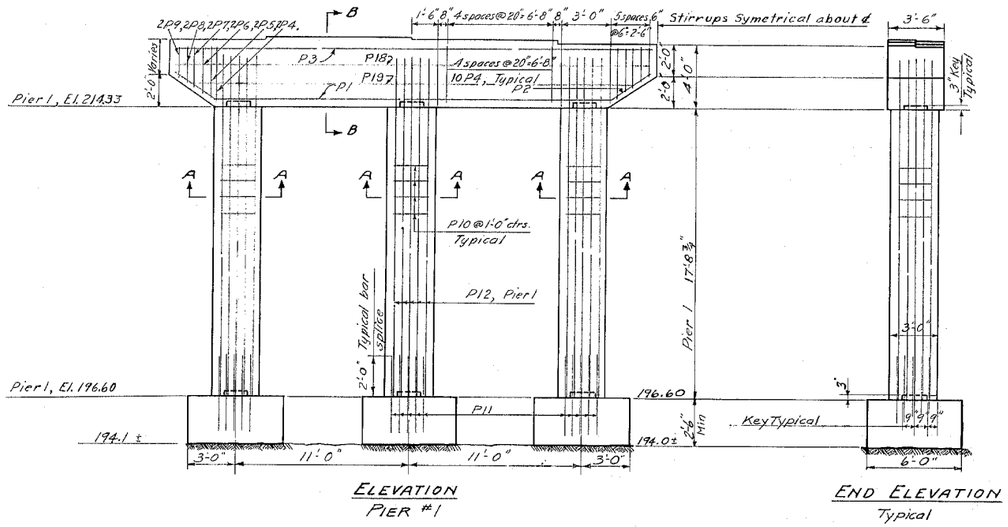
Bearing Area Elevations					
	Location	d	c	b	a
Pier 1	Span 1	218.49	218.92	218.89	218.40
	Span 2	218.42	218.58	218.55	218.33
Pier 2	Span 2	217.26	217.41	217.37	217.14
	Span 3	217.52	217.65	217.61	217.39



SECTION B-B
Typical All Pier Caps



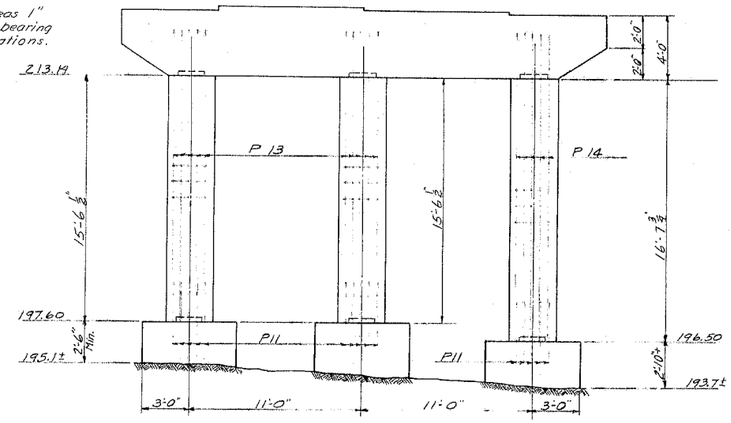
SECTION A-A
Typical All Pier Columns



ELEVATION
PIER #1

END ELEVATION
Typical

NOTE:- Dress bearing areas 1" larger all around than bearing plates and to exact elevations.



ELEVATION
PIER #2

Foundation Pressures, 5 Tons/sq.ft. ~ Max. for all Piers.

DESIGN – C.R.W.
TRACE – SAVAGE
CHECK – C.S.A.

BRIDGE NO.
SURVEY –
PLOT –

STATE HIGHWAY COMMISSION
BRIDGE DIVISION

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

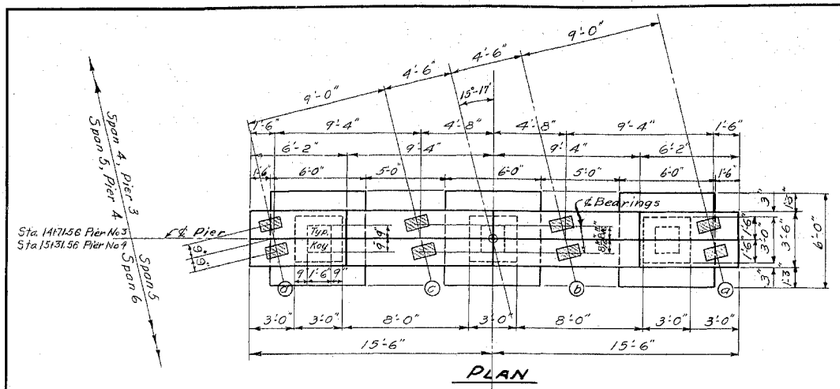
PIERS NO. 1 & 2

SHEET 14 OF 22 AUGUSTA, MAINE MAY 1958

71-37

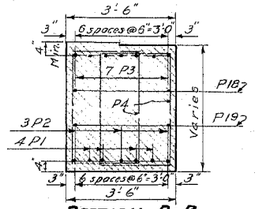
0 1 2 3 4 5 INCHES

B. P. R. SDS. NO.	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
1	MAINE	I-95-6(13)	15	22

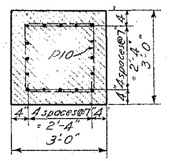


PLAN

Bearing Area Elevations					
	Location	d	c	b	a
Pier 3	Span 4	211.59	211.69	211.59	211.31
	Span 5	211.72	211.82	211.72	211.44
Pier 4	Span 5	209.16	209.24	209.13	208.84
	Span 6	209.37	209.43	209.32	209.05

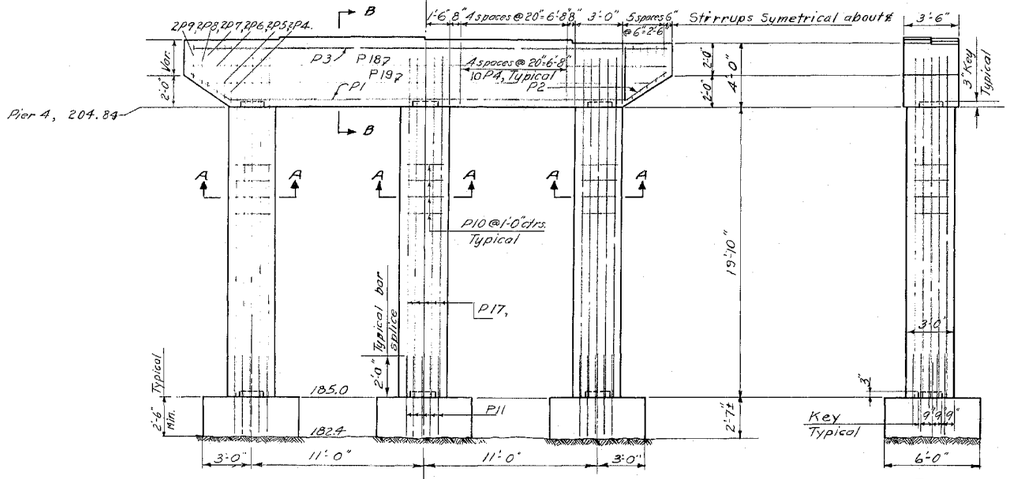


SECTION B-B
Typical All Pier Caps



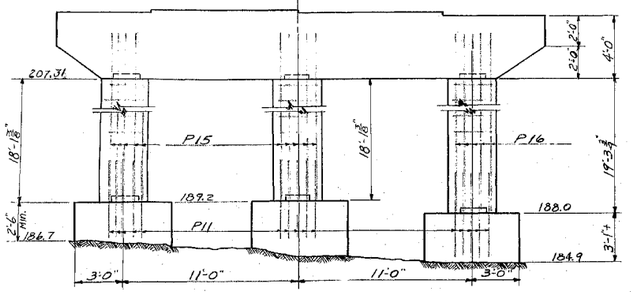
SECTION A-A
Typical All Pier Columns

NOTE:- Dress bearing areas 1" larger all around than bearing plates and to exact elevations.



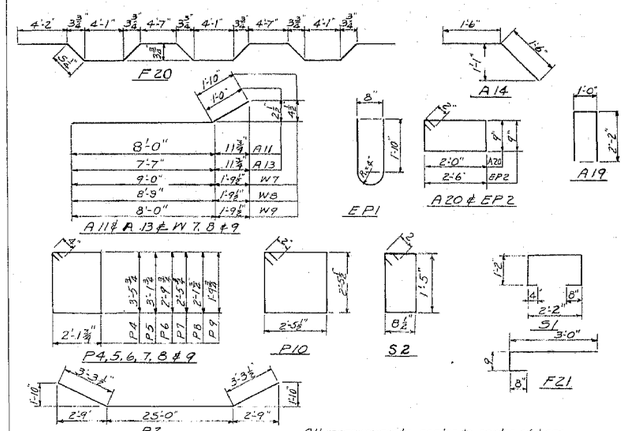
ELEVATION
PIER #4

END ELEVATION



ELEVATION
PIER #3

REINFORCING STEEL SCHEDULE



All measurements center to center of bars.

STRAIGHT BARS

Mark	Size	No.	Length	Location
F1	#5	780	31'-8"	Transverse All Spans.
F2	#5	24	26'-7"	" over backwalls.
F3	#4	39	23'-0"	Longitudinal Slab Span #1
F4	↑	8	21'-10"	" " " 1
F5		133	30'-6"	" " " 2,4&5
F6		39	16'-0"	" " " 3
F7		8	13'-10"	" " " 3
F9		39	16'-6"	" " " 6
F10		8	15'-9"	" " " 6
F11	#4	8	29'-9"	" " " 4
F12	5	68	3'-6"	Over Backwalls.
F14	#4	282	30'-0"	Longidudinal all spans
A51	#6	376	14'-6"	Longitudinal Approach Slab
A52	#5	120	24'-5"	Transverse " "

STRAIGHT BARS

Mark	Size	No.	Length	Location
A1	#6	64	6'-0"	Abutments.
A2	↑	60	31'-6"	"
A3		16	13'-4"	Abutments #1 & 2
A4		8	12'-6"	" #3
A5		8	11'-6"	" #4
A6	↓	30	3'-5"	" 1, 2 & 3
A7	#6	10	3'-2"	" #4
A8	#4	64	3'-10"	"
A9	#6	88	4'-6"	"
A10	#6	48	5'-0"	"
A15	#4	24	31'-0"	Abutment back walls
A16	↑	32	10'-3"	Curbs, Abuts. 1 & 2
A17		16	9'-3"	" " #3
A18	↓	16	8'-3"	" " #4
W1	#5	80	10'-3"	Wings, Abuts. #1 & 2
W2	↑	36	9'-3"	" " #3
W3		36	8'-3"	" " #4
W4		42	10'-9"	" " #1 & 3
W5		22	10'-6"	" " #2
W6	#5	18	9'-3"	" " #4
P1	#7	16	25'-0"	Pier Caps.
P3	#9	28	30'-6"	" "
P11	#8	192	4'-0"	Pier Footings.
P12	↑	48	19'-9"	Pier #1 - 3 Columns.
P13		32	17'-6"	" #2 - 2 "
P14		16	16'-6"	" #2 - 1 "
P15		32	20'-0"	" 3 - 2 "
P16	↓	16	21'-3"	" 3 - 1 "
P17	#8	48	21'-6"	" #4 - 3 "
P18	#5	8	30'6"	Pier Caps
P19	#5	8	28'0"	" "
C1	#4	40	16'3"	Curbs, Spans 1 & 4
C2	↑	50	18'3"	" - 2 & 5
C3	↓	60	21'0"	" " 2, 3, 4 & 5
C4	#4	10	22'6"	" " 4.
F13	#5	72	6'8"	Diaphragms

BENT BARS

Mark	Size	No.	Length	Location
A11	#6	54	9'-0"	Abutments #1, 2 & 3
A13	#6	18	8'-7"	" " #4
A14	#6	68	3'-0"	Dowels-Approach Slabs.
A19	#4	82	5'-4"	Curb Inserts.
A20	#4	82	5'-10"	Rail Parapets
W7	#5	42	10'-10"	" Abuts #1 & 3
W8	#5	22	10'-7"	" " #2
W9	#5	18	9'-10"	" " #4
EP1	#6	24	4'-8"	End Posts
EP2	#4	16	6'-10"	" "
P2	#7	12	31'-7"	Pier Caps.
P4	#5	96	11'-11"	Pier Caps
P5	↑	16	11'-3"	" "
P6		16	10'-7"	" "
P7		16	9'-11"	" "
P8		16	9'-3"	" "
P9	↓	16	8'-7"	" "
P10	#4	218	10'-2"	Pier Columns.
S1	#4	436	5'-6"	Stirrups, Curbs.
S2	#4	436	4'-7"	" "
FZ0	#5	381	32'-5"	Transverse, All Slabs.
FZ1	#5	120	4'-5"	Diaphragms.

DESIGN – WILSWALL
TRACE – SAVAGE
CHECK – E.S.A.

BRIDGE NO.
SURVEY –
PLOT –

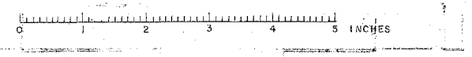
STATE HIGHWAY COMMISSION
BRIDGE DIVISION

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

REINFORCING STEEL & PIERS NO. 3 & 4

SHEET 15 OF 22 AUGUSTA, MAINE MAY 1958

71-38



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: Lyons Rd. Bridge #1463 & #5783
Location: Sidney, Maine

Boring No.: BB-SLR-101
WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	223.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-22-24/7-22-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591162.8 E: 1156052.9	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	17.9'
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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.6 - 2.6	16-15-16-13	31	55	SSA	222.6		0'-0.6': Asphalt	
										0.6'	
										Brown, dry, very dense, Sandy GRAVEL, little silt, (Fill).	G#24-S-3604 A-1-a, GM WC = 3.8%
5	2D	24/8	5.0 - 7.0	6-4-4-3	8	14				Brown, dry, medium dense, fine to medium SAND, some gravel, some silt, (Fill).	
10	3D	24/17	10.0 - 12.0	5-4-5-4	9	16	33			Brown, dry, medium dense, fine to medium SAND, some gravel, some silt, (Fill).	
							37				
							42				
							86				
							59				
15	4D	24/17	15.0 - 17.0	7-10-8-15	18	32	28			Brown, wet, medium dense, silty fine to medium SAND, (Fill).	G#24-S-3605 A-4(0), SM WC = 16.2%
							63				
							129				
							115	204.7		18.5'	
							83				
20	5D	24/11	20.0 - 22.0	6-4-4-4	8	14	42			Brown, wet, medium dense, Silty SAND, some gravel, (Marine Sand).	G#24-S-3606 A-4(0), SM WC = 15.1%
							43				
							50				
							59				
25							39				

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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/22/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-101

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	223.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-22-24/7-22-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591162.8 E: 1156052.9	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	17.9'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	6D	24/12	25.0 - 27.0	8-8-16-17	24	43	RC			Brown, wet, dense, silty fine SAND, trace gravel, (Marine Sand).	
								194.7		28.5	
30	7D	24/13	30.0 - 32.0	23-24-27-29	51	91				Grey, wet, very dense, silty SAND, some gravel, (Glacial Till).	G#24-S-3607 A-4(0), SM WC = 11.0%
35	8D	7/6	35.0 - 35.6	46-44/1"	R					No recovery.	
								187.6		35.6	
	R1	60/57	36.0 - 41.0	RQD = 68%			NQ			Casing refusal at 35.6'. Increased roller cone resistance, probable top of rock at 35.6'. advanced roller cone to 36.0' and set up to core. R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 95% Rock Quality = Fair Rock Core Times (min:sec): 36.0-37.0' (1:57), 37.0-38.0' (1:50), 38.0-39.0' (1:53), 39.0-40.0' (2:54), 40.0-41.0' (1:52)	
40	R2	60/60	41.0 - 46.0	RQD = 77%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to moderately spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 100% Rock Quality = Good Rock Core Times (min:sec): 41.0-42.0' (1:49), 42.0-43.0' (1:50), 43.0-44.0' (1:38), 44.0-45.0' (2:26), 44.0-45.0' (2:42)	
45								177.2		46.0	
										Bottom of Exploration at 46.0 feet below ground surface.	
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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/22/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-102

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	219.7	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-22-24/7-22-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591124.0 E: 1156240.0	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	21.5'
Hammer Efficiency Factor: 1.066		**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/9	0.0 - 2.0	14-13-13-19	26	46	SSA	219.1		0'-0.6': Asphalt	
										0.6'	
										Brown, dry, dense, Gravelly SAND, some silt, (Fill).	G#24-S-3608 A-1-b, SM WC = 3.5%
5	2D	24/10	5.0 - 7.0	9-7-6-7	13	23				Brown, dry, medium dense, GRAVEL, some fine to coarse sand, some silt, (Fill).	G#24-S-3609 A-1-b, GM WC = 0.3%
10	3D	24/17	10.0 - 12.0	6-6-6-6	12	21	46			Brown, dry, medium dense, fine to medium SAND, some gravel, trace silt, (Fill).	
							61				
							93				
							144				
							105				
15	4D	24/12	15.0 - 17.0	13-13-9-8	22	39	45			Brown, dry, dense, fine to medium SAND, some gravel, trace silt, (Fill).	
							59				
							68				
							109				
							80				
20	5D	24/16	20.0 - 22.0	10-13-14-34	27	48	RC			Brown, wet, dense, fine to medium SAND, some gravel, trace silt, (Fill).	
										Increased resistance from 22.1'-24.1', probable cobbles.	
								195.6		24.1'	
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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/22/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-102

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	219.7	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-22-24/7-22-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591124.0 E: 1156240.0	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	21.5'
Hammer Efficiency Factor:	1.066	**Hammer Type:**	Automatic ☒ Hydraulic ☐ Rope & Cathead ☐		

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

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	6D	24/11	25.0 - 27.0	6-4-8-7	12	21	54			Brown, wet, very stiff, Sandy SILT, trace gravel, (Glacial Till).	G#24-S-3610 A-4(0), ML WC = 18.0%
							81				
	R1	60/56	27.5 - 32.5	RQD = 73%			35	192.5		27.2 Increased resistance at 27.2', probable top of rock. Roller cone to 27.5'. Set up to core.	qp=1278 ksf
							NQ			R1: Medium hard, slightly weathered, medium grained, grey, PELITE with occasional quartzite laminae or intrusions. Joints are very close to closely spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 93% Rock Quality = Fair Rock Core Times (min:sec): 27.5-28.5' (4:08), 28.5-29.5' (6:08), 29.5-30.5' (2:26), 30.5-31.5' (2:23), 31.5-32.5' (2:31)	
30											
	R2	60/60	32.5 - 37.5	RQD = 93%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE with occasional quartzite laminae or intrusions. Joints are close to moderately spaced, moderately dipping, undulating, rough, discolored, partially open. Recovery = 100% Rock Quality = Good Rock Core Times (min:sec): 32.5-33.5' (1:58), 33.5-34.5' (1:54), 34.5-35.5' (1:59), 35.5-36.5' (2:03), 36.5-37.5' (1:33)	
35								182.2		37.5 **Bottom of Exploration at 37.5 feet below ground surface.**	
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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/22/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-103

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	218.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-23-24/7-23-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591099.3 E: 1156291.2	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	19.3'
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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
0	1D	24/14	0.0 - 2.0	13-14-13-12	27	48	SSA	217.6		0'-0.6': Asphalt (0.6')	
										Brown, dry, dense, Sandy GRAVEL, trace silt, (Fill).	G#24-S-3611 A-1-a, GW-GM WC = 1.6%
5	2D	24/6	5.0 - 7.0	5-3-2-2	5	9				Brown, dry, loose, fine to coarse SAND, some gravel, some silt, (Fill).	G#24-S-3612 A-2-4(0), SM WC = 5.9%
10	3D	24/11	10.0 - 12.0	6-7-9-7	16	28	26			Brown, dry, medium dense, fine to medium SAND, some gravel, (Fill).	
							47				
							55				
							48				
							52				
15	4D	24/9	15.0 - 17.0	4-6-9-9	15	27	49			Brown, wet, medium dense, fine to coarse SAND, little silt, little gravel, (Fill).	G#24-S-3613 A-1-b, SM WC = 12.2%
							60				
							73				
							114				
							52				
20	5D	24/15	20.0 - 22.0	9-14-15-17	29	52	RC			Brown, wet, dense, fine to medium SAND, some silt, trace gravel, (Fill).	G#24-S-3614 A-2-4(0), SM WC = 17.9%
								194.7		(23.5')	
25											

Remarks:

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2. Automatic hammer SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/23/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-103

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	218.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-23-24/7-23-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591099.3 E: 1156291.2	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	19.3'
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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	6D	24/16	25.0 - 27.0	6-6-7-6	13	23	RC			Brown, wet, very stiff, Silty CLAY, some fine sand, (Marine Clay).	G#24-S-3615 CL-ML LL = 23 PL = 16 PI = 7 WC = 21.3%
								189.7		28.5	
30	7D	24/17	30.0 - 32.0	24-49-40-68	89	158				Brown-grey, very dense, Silty fine SAND, some gravel, (Glacial Till).	
35	8D	24/16	35.0 - 37.0	15-23-23-23	46	82	NQ			Grey, wet, hard, Sandy SILT, some gravel, (Glacial Till).	
								179.1		39.1	
40	R1	60/54	39.9 - 44.9	RQD = 72%						Increased roller cone resistance, probable top of rock at 39.1'. Advanced to 39.9' and set up to core. R1: Medium hard, slightly weathered, medium grained, grey, PELITE with occasional quartzite laminae or intrusions. Joints are very close to closely spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 90% Rock Quality = Fair Rock Core Times (min:sec): 39.9-40.9' (2:37), 40.9-41.9' (3:30), 41.9-42.9' (2:48), 42.9-43.9' (2:44), 43.9-44.9' (2:55)	
45	R2	60/55	44.9 - 49.9	RQD = 53%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE with occasional quartzite laminae or intrusions. Joints are very close to closely spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 92% Rock Quality = Poor Rock Core Times (min:sec): 44.9-45.9' (5:14), 45.9-46.9' (3:33), 46.9-47.9' (3:59), 47.9-48.9' (3:22), 48.9-49.9' (3:45)	
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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/23/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-103

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	218.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-23-24/7-23-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591099.3 E: 1156291.2	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	19.3'
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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
R = Rock Core Sample
SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample Information: Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
50								168.3		49.9 **Bottom of Exploration at 49.9 feet below ground 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 SN367, with an energy transfer ratio = 1.066.
3. Water level taken before 4.0" casing was removed on 7/23/24.

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

Maine Department of Transportation

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-104

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	210.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-23-24/7-23-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591058.7 E: 1156492.3	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	19.3'
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
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MV = Unsuccessful Field Vane Shear Test Attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
Hammer Efficiency Factor = Rig Specific Annual Calibration Value
N_{60} = SPT N-uncorrected Corrected for Hammer Efficiency
N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
T_v = Pocket Torvane Shear Strength (psf)
WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
				Sample Information							
0	1D	24/12	0.0 - 2.0	16-17-16-14	33	59	SSA	209.7		0'-0.5': Asphalt.	
										0.5	G#24-S-3616 A-1-a, SM WC = 2.1%
										Brown, dry, very dense, Gravelly SAND, little silt,(Fill).	
5	2D	24/8	5.0 - 7.0	4-3-2-4	5	9				Brown, dry, loose, Sandy GRAVEL, little silt, (Fill).	G#24-S-3617 A-1-a, GM WC = 3.7%
10	3D	24/11	10.0 - 12.0	3-2-2-3	4	7	28			Brown, dry, loose, fine to coarse SAND, some silt, little gravel, (Fill).	G#24-S-3618 A-1-b, SM WC = 9.0%
							24				
							31				
							33				
							21				
15	4D	24/9	15.0 - 17.0	4-3-3-3	6	11	17			Brown, dry, loose, fine to medium SAND, some gravel, some silt, (Fill).	
							23				
							26				
							49				
							45				
20	5D	24/8	20.0 - 22.0	10-32-37-28	69	123	RC			Brown, wet, very dense, fine to medium SAND, some gravel, some silt, (Fill).	
								186.7		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 SN367, with an energy transfer ratio = 1.066
3. Water level taken before 4.0" casing was removed on 7/23/24.

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

Soil/Rock Exploration Log
US CUSTOMARY UNITS

Project: Lyons Rd. Bridge #1463 & #5783

Location: Sidney, Maine

Boring No.: BB-SLR-104

WIN: 025465.00

Driller:	Seaboard Drilling	**Elevation (ft.)**	210.2	**Auger ID/OD:**	4.25" OD
Operator:	K. Hanscom	**Datum:**	NAVD88	**Sampler:**	Standard Splitspoon
Logged By:	L. Hailey	**Rig Type:**	Diedrich D-50	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	7-23-24/7-23-24	**Drilling Method:**	Solid Auger, Drive & Wash	**Core Barrel:**	NQ
Boring Location:	N: 591058.7 E: 1156492.3	**Casing ID/OD:**	4.0/4.5", 3.0/3.5"	**Water Level*:**	19.3'
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 = Field Vane Shear Test, PP = Pocket Penetrometer
MV = Unsuccessful Field Vane Shear Test Attempt
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SSA = Solid Stem Auger
HSA = Hollow Stem Auger
RC = Roller Cone
WOH = Weight of 140 lb. Hammer
WOR/C = Weight of Rods or Casing
WO1P = Weight of One Person
S_u = Peak/Remolded Field Vane Undrained Shear Strength (psf)
$S_{u(lab)}$ = Lab Vane Undrained Shear Strength (psf)
q_p = Unconfined Compressive Strength (ksf)
N-uncorrected = Raw Field SPT N-value
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N_{60} = (Hammer Efficiency Factor/60%)*N-uncorrected
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WC = Water Content, percent
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
G = Grain Size Analysis
C = Consolidation Test

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N_{60}	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/ AASHTO and Unified Class.
25	6D	24/24	25.0 - 27.0	4-4-6-6	10	18	30			Brown, wet, stiff, Silty CLAY, some sand, (Marine Clay).	G#24-S-3619 CL LL = 36 PL = 19 PI = 17 WC = 23.7%
							51				
							46				
							50	181.7		28.5	
							34				
30	7D	24/13	30.0 - 32.0	21-25-20-19	45	80	R/C			Brown, wet, dense, Gravelly SAND, some silt, (Glacial Till).	
35	8D	3/0	35.0 - 35.3	50/2"	R		NQ	175.0		No recovery.	
	R1	60/43	35.5 - 40.5	RQD = 48%						35.2	
										Casing refusal at 35.2'; increased roller cone resistance at 35.2', probable top of rock at 35.2'. Set up to core at 35.5'. R1: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are very close to closely spaced, moderately dipping to high angle, undulating, rough, discolored, partially open. Recovery = 72% Rock Quality = Poor Rock Core Times (min:sec): 35.5-36.5' (2:05), 36.5-37.5' (2:15), 37.5-38.5' (2:09), 38.5-39.5' (1:54), 39.5-40.5' (2:37)	
40	R2	60/56	40.5 - 45.5	RQD = 86%						R2: Medium hard, slightly weathered, medium grained, grey, PELITE. Joints are close to moderately spaced, moderately dipping, undulating, rough, discolored, tight. Recovery = 93% Rock Quality = Good Rock Core Times (min:sec): 40.5-41.5' (2:46), 41.5-42.5' (2:55), 42.5-43.5' (2:44), 43.5-44.5' (2:21), 44.5-45.5' (2:42)	
45								164.7		45.5	
										Bottom of Exploration at 45.5 feet below ground surface.	
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 SN367, with an energy transfer ratio = 1.066
3. Water level taken before 4.0" casing was removed on 7/23/24.

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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:	
Lyons Road Bridge #1463	
Sidney, Maine	
Project Number:	09.0026242.00 Task 2
Summary Page:	1 of 1
Report Date:	9/23/2024

LABORATORY TESTING DATA SHEET, Report No.: 7424-J-163

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-SLR-101	1D	0-2	24-S-3604	3.8				43.2	41.4	15.4											Brown SANDY GRAVEL, little Silt
BB-SLR-101	4D	15-17	24-S-3605	16.2				0.0	63.2	36.8											Brown CLAYEY SILTY f-m SAND
BB-SLR-101	5D	20-22	24-S-3606	15.1				21.0	36.3	42.7											Brown SANDY SILT, some fine Gravel
BB-SLR-101	7D	30-32	24-S-3607	11.0				29.7	34.4	35.9											Brown SANDY SILT, some f-c Gravel
BB-SLR-102	1D	0-2	24-S-3608	3.5				35.3	43.8	20.9											Brown GRAVELLY SAND, some Silt
BB-SLR-102	2D	5-7	24-S-3609	0.3				45.4	33.5	21.1											Brown f-c GRAVEL, some f-c Sand, some Silt
BB-SLR-102	6D	25-27	24-S-3610	18.0				7.2	40.8	52.0											Brown SANDY CLAYEY SILT, trace fine Gravel

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

CTS Laboratory
195 Frances Ave, Cranston RI 02910
401.467.6454 | cts.thielsch.com

State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Project ID: Lyons Road Bridge #1463 and #5783 **MDOT Project Number:**

Town(s): Sidney, ME **GZA Project Number:** 09.0026242.00 Task 02

Boring & Sample	Station	Sample	Depth	Lab	Organic	WC	LL	PI	Classification		
ID Number	(Feet)	No.	(Feet)	Number	%	%			Unified	AASHTO	Frost
BB-SLR-101		1D	0-2	S-3604		3.8	NV	NP	GM	A-1-a	I
BB-SLR-101		4D	15-17	S-3605		16.2			SM	A-4(0)	III
BB-SLR-101		5D	20-22	S-3606		15.1	NV	NP	SM	A-4(0)	IV
BB-SLR-101		7D	30-32	S-3607		11.0	NV	NP	SM	A-4(0)	IV
BB-SLR-102		1D	0-2	S-3608		3.5	NV	NP	SM	A-1-b	III
BB-SLR-102		2D	5-7	S-3609		5.2	NV	NP	GM	A-1-b	I
BB-SLR-102		6D	25-27	S-3610		18.0			ML	A-4(0)	IV

Classification of these soil samples is in accordance with AASHTO Classification System M-145-95. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

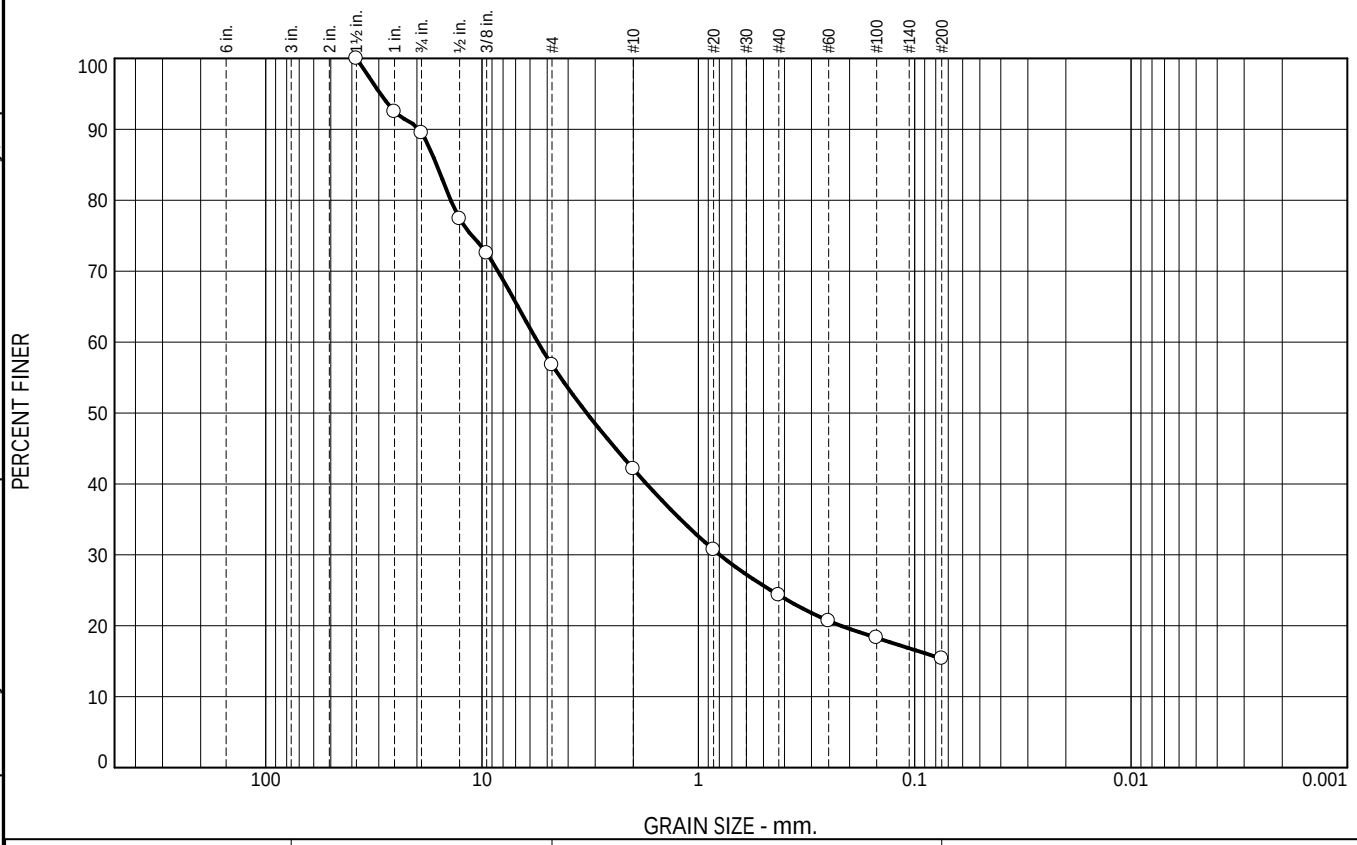
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-19 and/or ASTM D 7928-21e1 (Last Updated June 2021)

WC = water content as determined by AASHTO T 265-19 and/or ASTM D 2216-19

LL = Liquid limit as determined by AASHTO T 89-17 and/or ASTM D 4318-17E01

PI = Plasticity Index as determined by AASHTO 90-16 and/or ASTM D4318-17E01

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.5	32.7	14.7	17.8	8.9	15.4	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	92.5		
3/4"	89.5		
1/2"	77.4		
3/8"	72.5		
#4	56.8		
#10	42.1		
#20	30.7		
#40	24.3		
#60	20.7		
#100	18.3		
#200	15.4		

* (no specification provided)

Soil Description

Brown SANDY GRAVEL, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 19.5913 D_{85}= 16.2134 D_{60}= 5.5216
D_{50}= 3.2817 D_{30}= 0.7965 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= GM AASHTO= A-1-a

Remarks

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

Date: 9.11.24

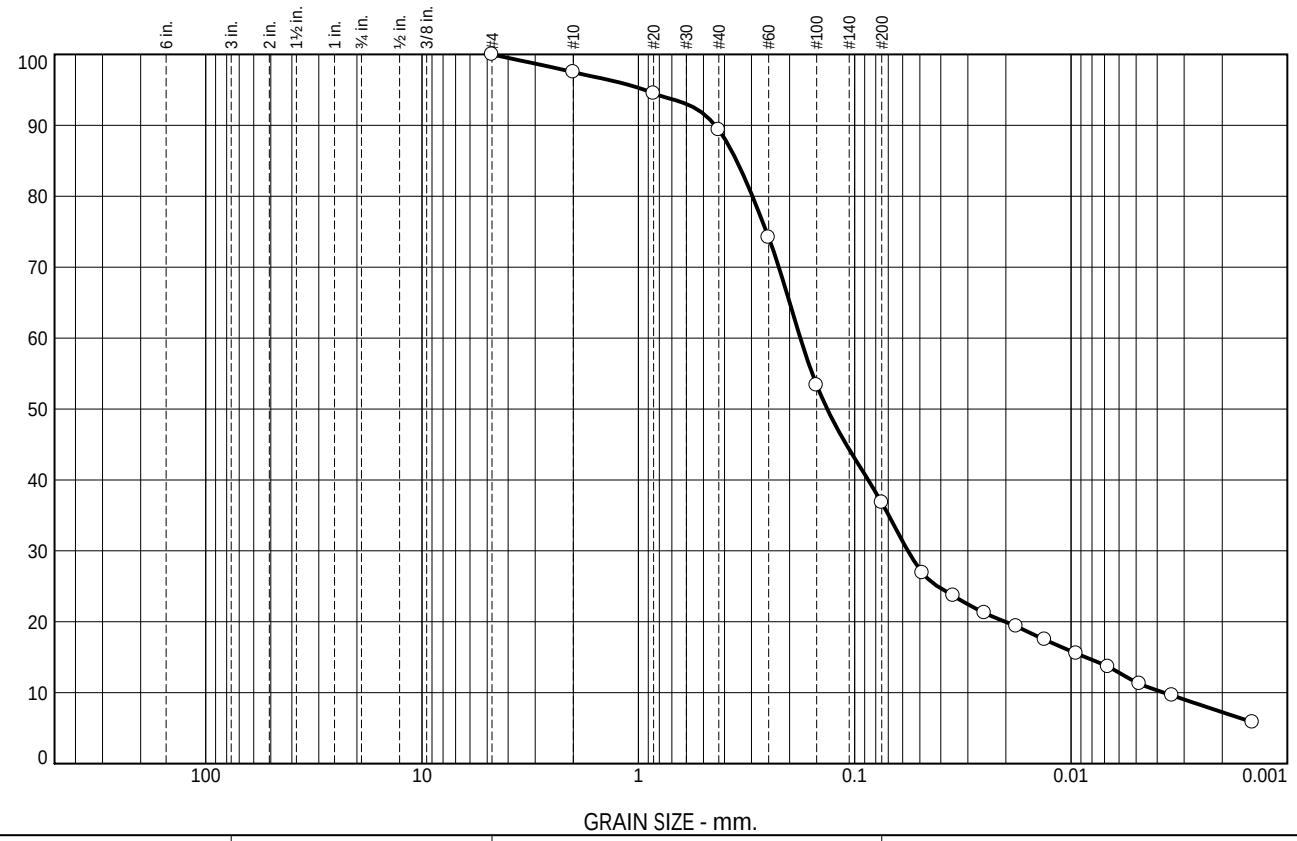
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3604

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	2.5	8.1	52.6	29.6	7.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	97.5		
#20	94.5		
#40	89.4		
#60	74.2		
#100	53.4		
#200	36.8		
0.0486 mm.	26.9		
0.0350 mm.	23.7		
0.0251 mm.	21.2		
0.0179 mm.	19.4		
0.0132 mm.	17.5		
0.0095 mm.	15.5		
0.0067 mm.	13.7		
0.0048 mm.	11.3		
0.0034 mm.	9.6		
0.0014 mm.	5.8		

* (no specification provided)

Soil Description

Brown CLAYEY SILTY f-m SAND

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 0.4411 D_{85}= 0.3511 D_{60}= 0.1783
D_{50}= 0.1340 D_{30}= 0.0568 D_{15}= 0.0086
D_{10}= 0.0037 C_u= 47.99 C_c= 4.87

Classification

USCS= SM AASHTO= A-4(0)

Remarks

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

Source of Sample: BB-SLR-101 Depth: 15-17'
Sample Number: 4D

Date: 9.18.24

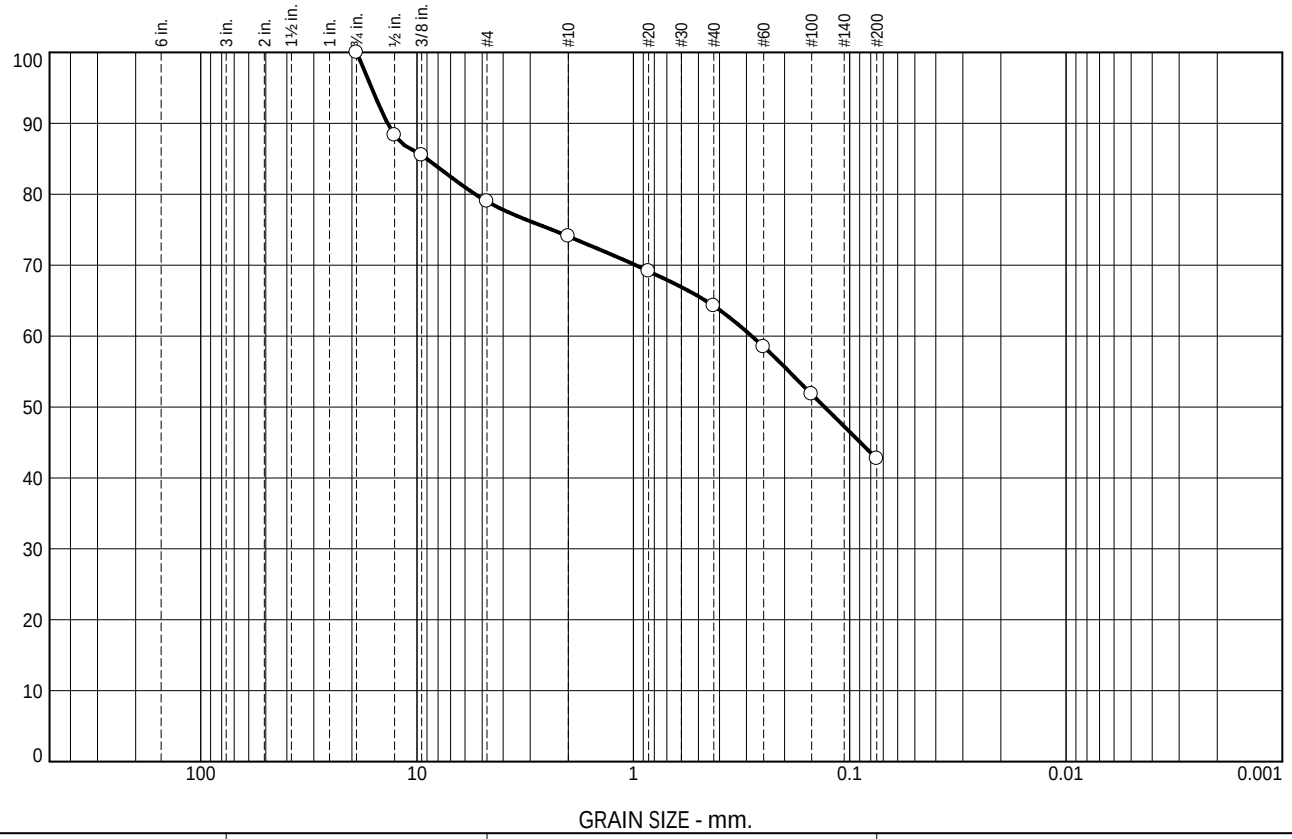
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3605

Tested By: MCS / RB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	21.0	4.9	9.8	21.6	42.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	88.3		
3/8"	85.5		
#4	79.0		
#10	74.1		
#20	69.1		
#40	64.3		
#60	58.5		
#100	51.8		
#200	42.7		

* (no specification provided)

Soil Description

Brown SANDY SILT, some fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 13.6753 D_{85}= 9.0222 D_{60}= 0.2840
D_{50}= 0.1307 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Sample visually classified as non-plastic. Sample could not be rolled to 1/4".

Source of Sample: BB-SLR-101 Depth: 20-22'
Sample Number: 5D

Date: 9.11.24

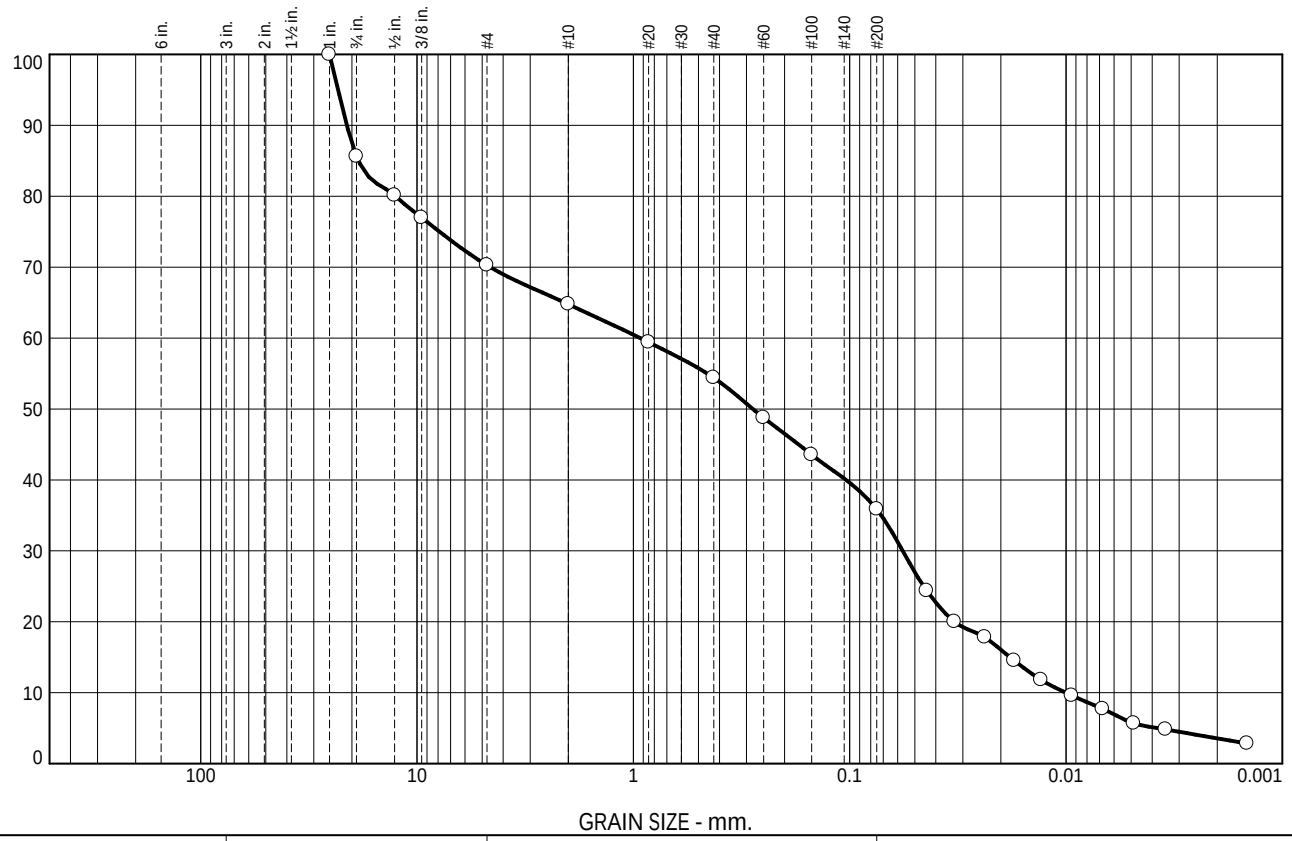
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3606

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.4	15.3	5.5	10.4	18.5	32.3	3.6

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	85.6		
1/2"	80.1		
3/8"	77.0		
#4	70.3		
#10	64.8		
#20	59.4		
#40	54.4		
#60	48.8		
#100	43.6		
#200	35.9		
0.0441 mm.	24.4		
0.0328 mm.	20.0		
0.0238 mm.	17.8		
0.0174 mm.	14.5		
0.0130 mm.	11.8		
0.0094 mm.	9.6		
0.0068 mm.	7.7		
0.0049 mm.	5.7		
0.0035 mm.	4.8		
0.0015 mm.	2.8		

* (no specification provided)

Soil Description

Brown SANDY SILT, some f-c Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 21.1135 D_{85}= 18.6488 D_{60}= 0.9281
D_{50}= 0.2802 D_{30}= 0.0569 D_{15}= 0.0182
D_{10}= 0.0100 C_u= 92.51 C_c= 0.35

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Source of Sample: BB-SLR-101 Depth: 30-32'
Sample Number: 7D

Date: 9.18.24

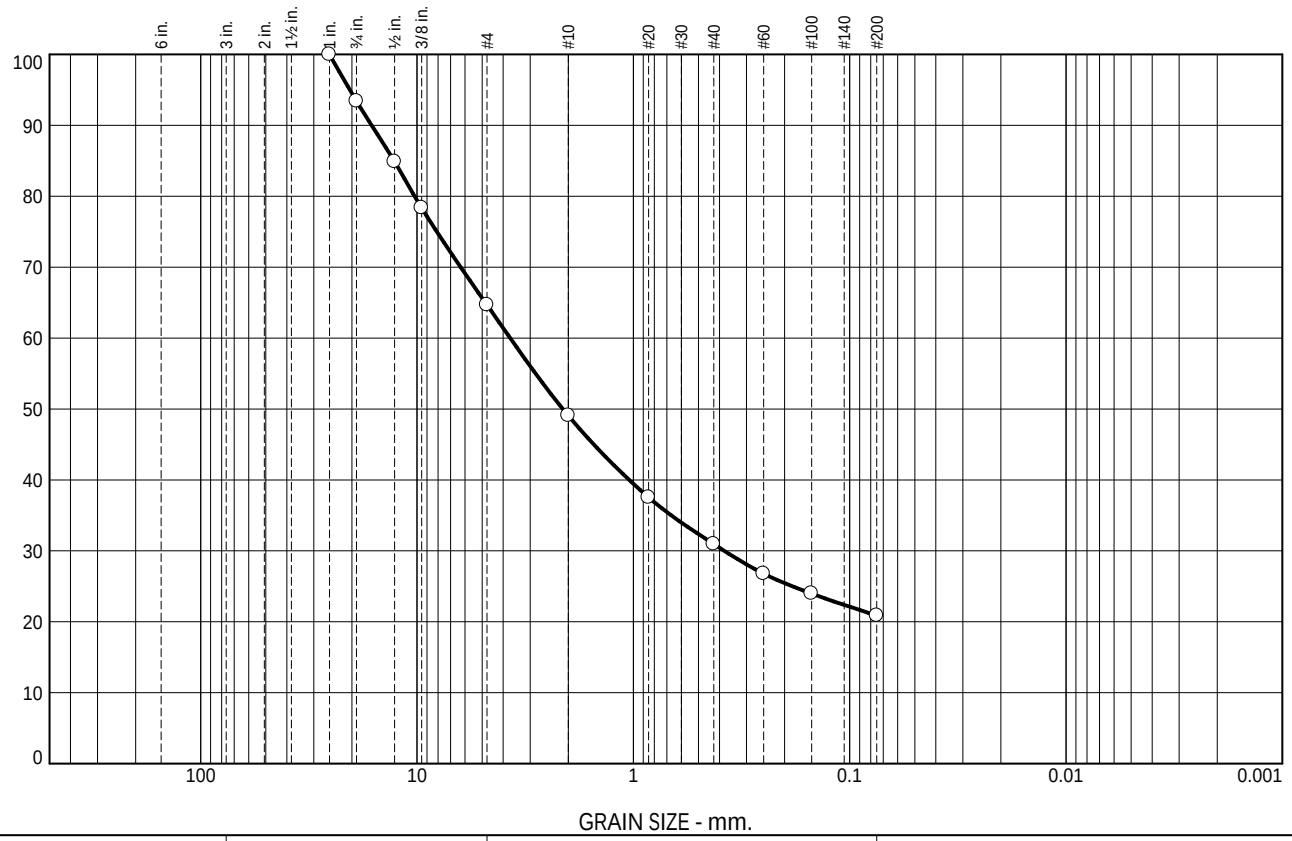
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3607

Tested By: MCS / RB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.6	28.7	15.6	18.1	10.1	20.9	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	93.4		
1/2"	84.9		
3/8"	78.4		
#4	64.7		
#10	49.1		
#20	37.5		
#40	31.0		
#60	26.8		
#100	24.0		
#200	20.9		

* (no specification provided)

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

Soil Description

Brown GRAVELLY SAND, some Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 16.2159 D_{85}= 12.7667 D_{60}= 3.7083
D_{50}= 2.1196 D_{30}= 0.3803 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Date: 9.11.23

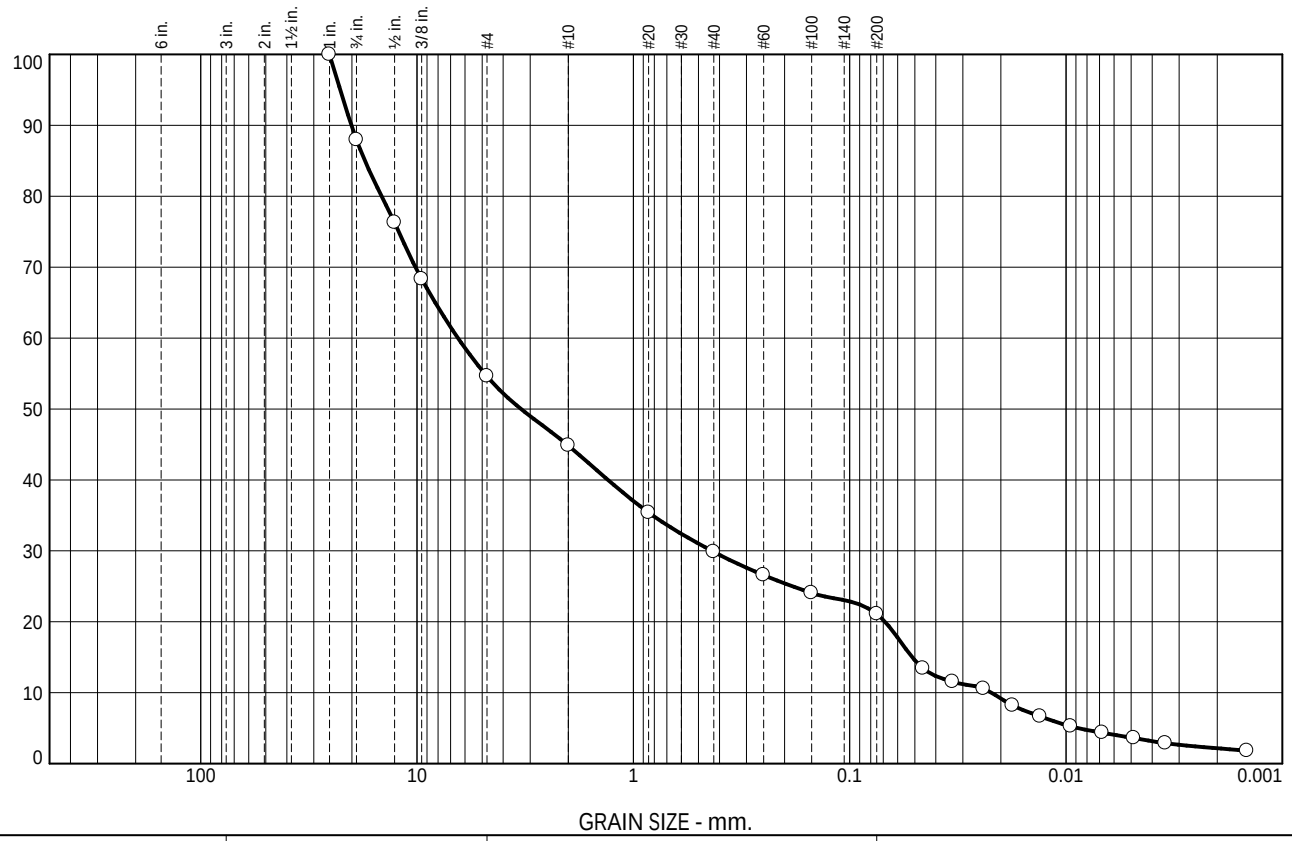
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3608

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	12.1	33.3	9.8	14.9	8.8	18.9	2.2

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	87.9		
1/2"	76.3		
3/8"	68.3		
#4	54.6		
#10	44.8		
#20	35.4		
#40	29.9		
#60	26.6		
#100	24.1		
#200	21.1		
0.0458 mm.	13.4		
0.0335 mm.	11.5		
0.0241 mm.	10.6		
0.0177 mm.	8.2		
0.0132 mm.	6.7		
0.0095 mm.	5.3		
0.0068 mm.	4.3		
0.0049 mm.	3.6		
0.0035 mm.	2.9		
0.0015 mm.	1.8		

* (no specification provided)

Soil Description

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

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 20.1206 D_{85}= 17.4164 D_{60}= 6.4683
D_{50}= 3.3051 D_{30}= 0.4339 D_{15}= 0.0514
D_{10}= 0.0221 C_u= 292.56 C_c= 1.32

Classification

USCS= GM AASHTO= A-1-b

Remarks

Source of Sample: BB-SLR-102 Depth: 5-7'
Sample Number: 2D

Date: 9.18.24

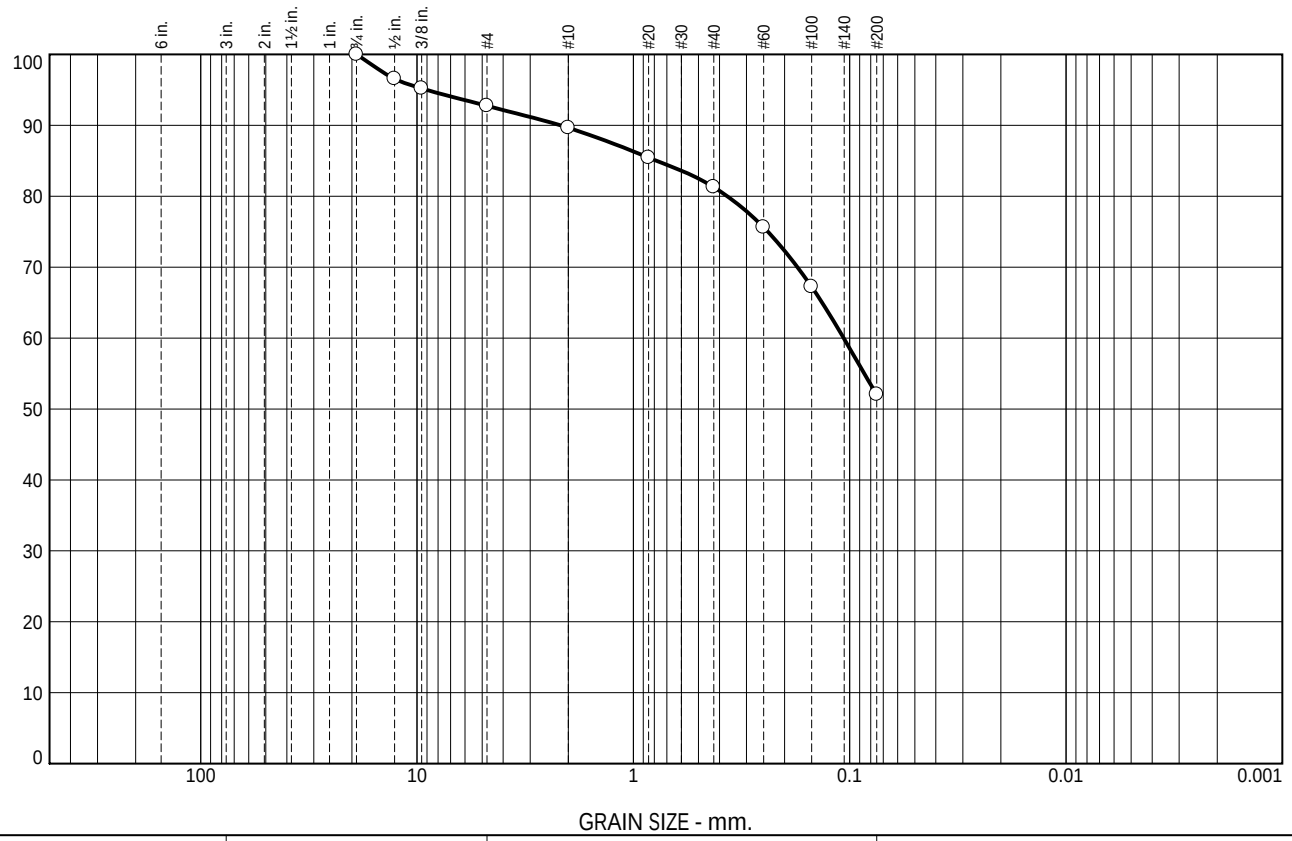
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3609

Tested By: SBR / RB Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	7.2	3.1	8.4	29.3	52.0	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	96.6		
3/8"	95.2		
#4	92.8		
#10	89.7		
#20	85.5		
#40	81.3		
#60	75.6		
#100	67.2		
#200	52.0		

* (no specification provided)

Soil Description

Brown SANDY CLAYEY SILT, trace fine Gravel

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 2.1720 D_{85}= 0.7808 D_{60}= 0.1066
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-SLR-102 Depth: 25-27'
Sample Number: 6D

Date: 9.11.24

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3610

Tested By: MCS 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:	
Lyons Road Bridge #1463	
Sidney, Maine	
Project Number:	09.0026242.00 Task 2
Summary Page:	1 of 1
Report Date:	9/23/2024

LABORATORY TESTING DATA SHEET, Report No.: 7424-J-164

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-SLR-103	1D	0-2	24-S-3611	1.6				55.7	35.2	9.1											Brown f-c GRAVEL and f-c SAND, trace Silt
BB-SLR-103	2D	5-7	24-S-3612	5.9				25.2	45.0	29.8											Brown f-c SAND, some Silt, some fine Gravel
BB-SLR-103	4D	15-17	24-S-3613	12.2				13.0	67.7	19.3											Brown f-c SAND, little Silt, little fine Gravel
BB-SLR-103	5D	20-22	24-S-3614	17.9				7.0	64.0	29.0											Brown f-m SAND, some Silt, trace fine Gravel
BB-SLR-103	6D	25-27	24-S-3615	21.3	23	16		0.0	29.0	71.0											Brown SILT & CLAY, some fine Sand
BB-SLR-104	1D	0-2	24-S-3616	2.1				37.5	47.9	14.6											Brown GRAVELLY SAND, little Silt
BB-SLR-104	2D	5-7	24-S-3617	3.7				44.2	42.2	13.6											Brown SANDY GRAVEL, little Silt
BB-SLR-104	3D	10-12	24-S-3618	9.0				19.8	56.5	23.7											Brown f-c SAND, some Silt, little f-c Gravel
BB-SLR-104	6D	25-27	24-S-3619	23.7	36	19															Olive CLAY & SILT

Date Received: **9/10/2024**

Reviewed By:

Date Reviewed: **9/23/2024**

Thielsch
DIVISION OF THE R SE GROUP

CTS Laboratory
195 Frances Ave, Cranston RI 02910
401.467.6454 | cts.thielsch.com

State of Maine - Department of Transportation
Laboratory Testing Summary Sheet

Project ID: Lyons Road Bridge #1463 and #5783 **MDOT Project Number:**

Town(s): Sidney, ME **GZA Project Number:** 09.0026242.00 Task 02

Boring & Sample	Station	Sample	Depth	Lab	Organic	WC	LL	PI	Classification		
ID Number	(Feet)	No.	(Feet)	Number	%	%			Unified	AASHTO	Frost
BB-SLR-103		1D	0-2	S-3611		1.6	NV	NP	GW-GM	A-1-a	0
BB-SLR-103		2D	5-7	S-3612		5.9	NV	NP	SM	A-2-4(0)	III
BB-SLR-103		4D	15-17	S-3613		12.2	NV	NP	SM	A-1-b	II
BB-SLR-103		5D	20-22	S-3614		17.9	NV	NP	SM	A-2-4(0)	II
BB-SLR-103		6D	25-27	S-3615		21.3	23	7	CL-ML	A-4(2)	IV
BB-SLR-104		1D	0-2	S-3616		2.1	NV	NP	SM	A-1-a	II
BB-SLR-104		2D	5-7	S-3617		3.7	NV	NP	GM	A-1-a	I
BB-SLR-104		3D	10-12	S-3618		9.0	NV	NP	SM	A-1-b	II
BB-SLR-104		6D	25-27	S-3619		23.7	36	17	CL		III

Classification of these soil samples is in accordance with AASHTO Classification System M-145-95. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible). The "Frost Susceptibility Rating" is based upon the MDOT and Corps of Engineers Classification Systems.

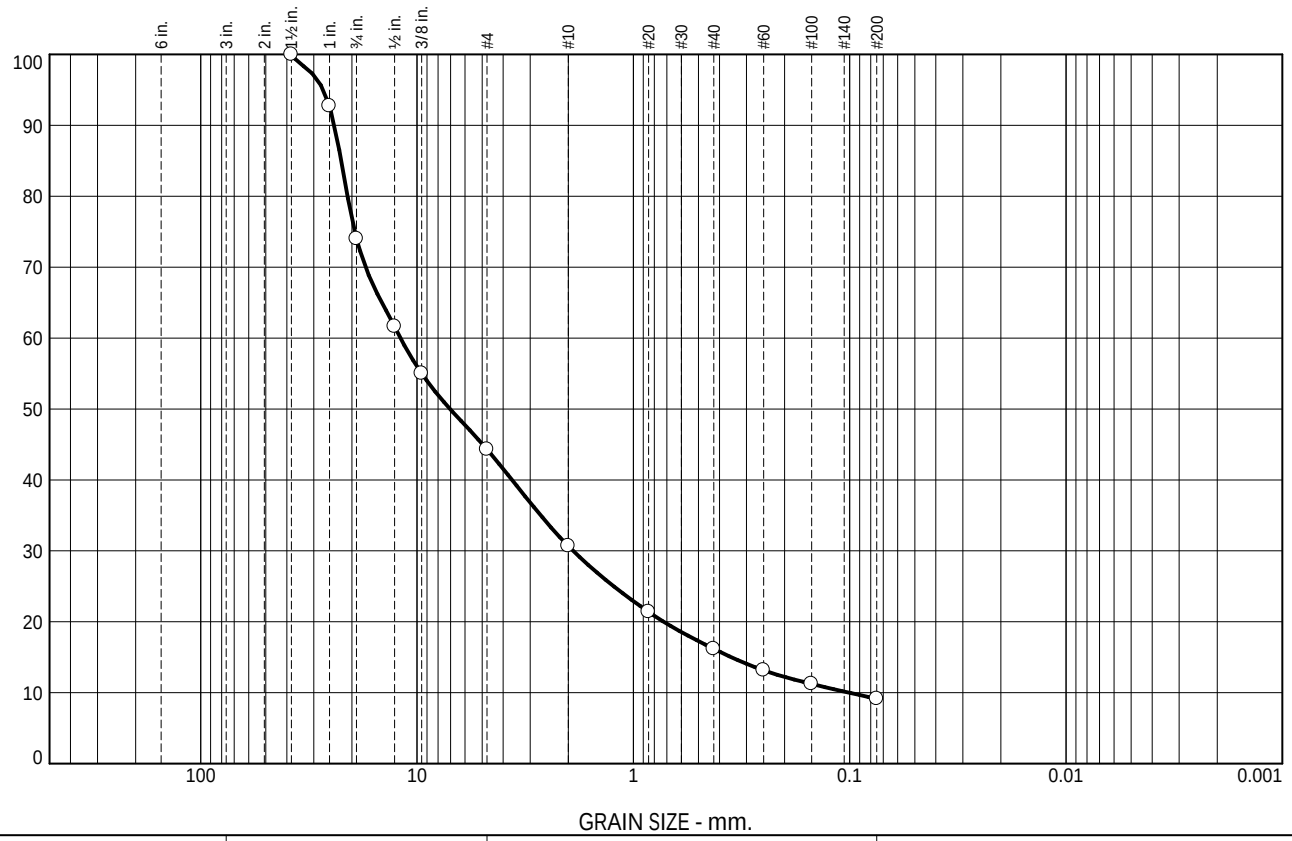
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-19 and/or ASTM D 7928-21e1 (Last Updated June 2021)

WC = water content as determined by AASHTO T 265-19 and/or ASTM D 2216-19

LL = Liquid limit as determined by AASHTO T 89-17 and/or ASTM D 4318-17E01

PI = Plasticity Index as determined by AASHTO 90-16 and/or ASTM D4318-17E01

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	26.0	29.7	13.6	14.5	7.1	9.1	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1 1/2"	100.0		
1"	92.7		
3/4"	74.0		
1/2"	61.6		
3/8"	55.0		
#4	44.3		
#10	30.7		
#20	21.4		
#40	16.2		
#60	13.1		
#100	11.2		
#200	9.1		

* (no specification provided)

Soil Description

Brown f-c GRAVEL and f-c SAND, trace Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 24.0992 D_{85}= 22.4155 D_{60}= 11.9277
D_{50}= 7.0348 D_{30}= 1.8985 D_{15}= 0.3526
D_{10}= 0.1008 C_u= 118.35 C_c= 3.00

Classification

USCS= GW-GM AASHTO= A-1-a

Remarks

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

Date: 9.12.24

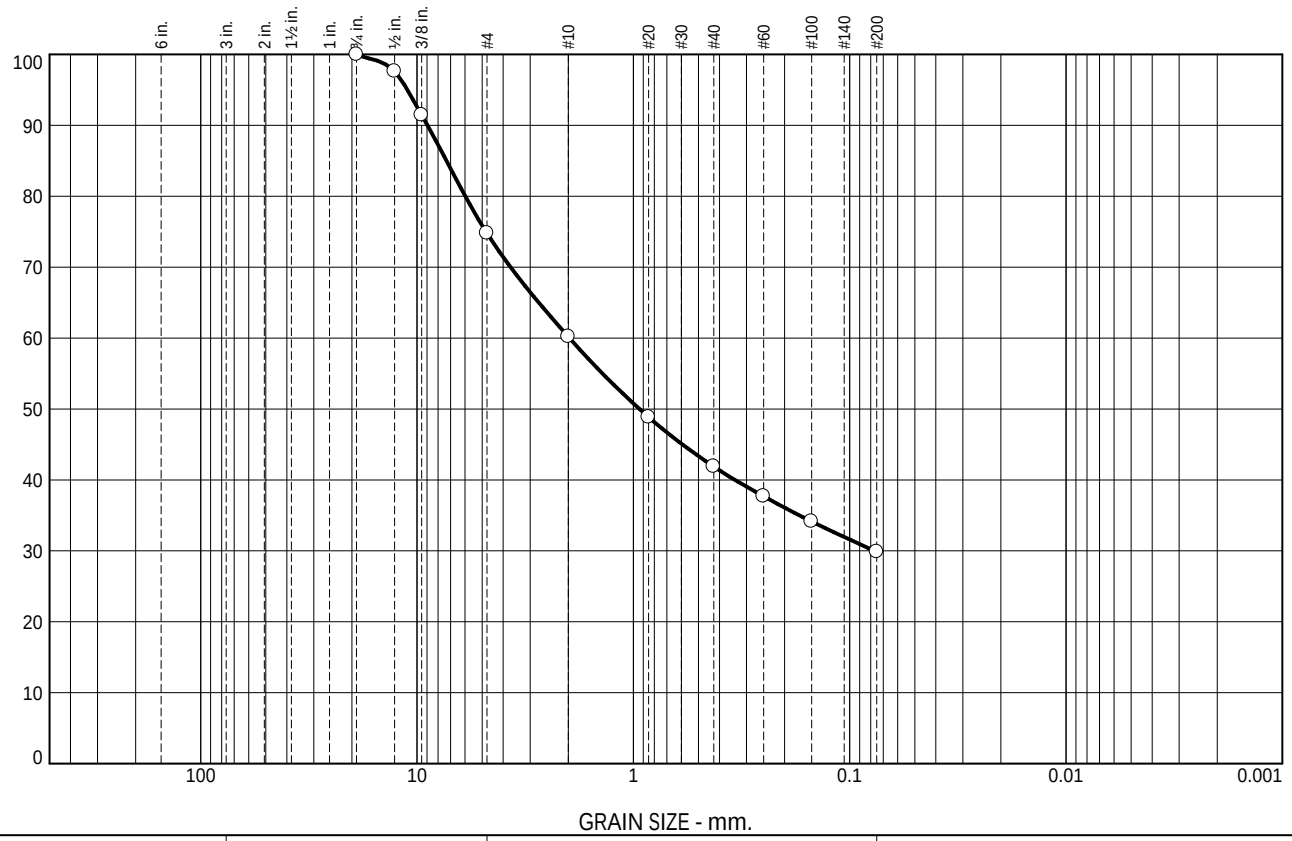
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3611

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	25.2	14.6	18.3	12.1	29.8	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	97.6		
3/8"	91.4		
#4	74.8		
#10	60.2		
#20	48.8		
#40	41.9		
#60	37.7		
#100	34.1		
#200	29.8		

* (no specification provided)

Soil Description

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

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 8.9493 D_{85}= 7.3058 D_{60}= 1.9734
D_{50}= 0.9370 D_{30}= 0.0770 D_{15}=
D_{10}= C_u= C_c=

Classification

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

Remarks

Source of Sample: BB-SLR-103 Depth: 5-7'
Sample Number: 2D

Date: 9.12.24

Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3612

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	13.0	9.6	30.4	27.7	19.3	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	93.5		
3/8"	93.5		
#4	87.0		
#10	77.4		
#20	63.4		
#40	47.0		
#60	34.0		
#100	25.5		
#200	19.3		

* (no specification provided)

Source of Sample: BB-SLR-103 Depth: 15-17'
Sample Number: 4D

Date: 9.12.24

Soil Description

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

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 6.0992 D_{85}= 3.8862 D_{60}= 0.7239
D_{50}= 0.4801 D_{30}= 0.2027 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

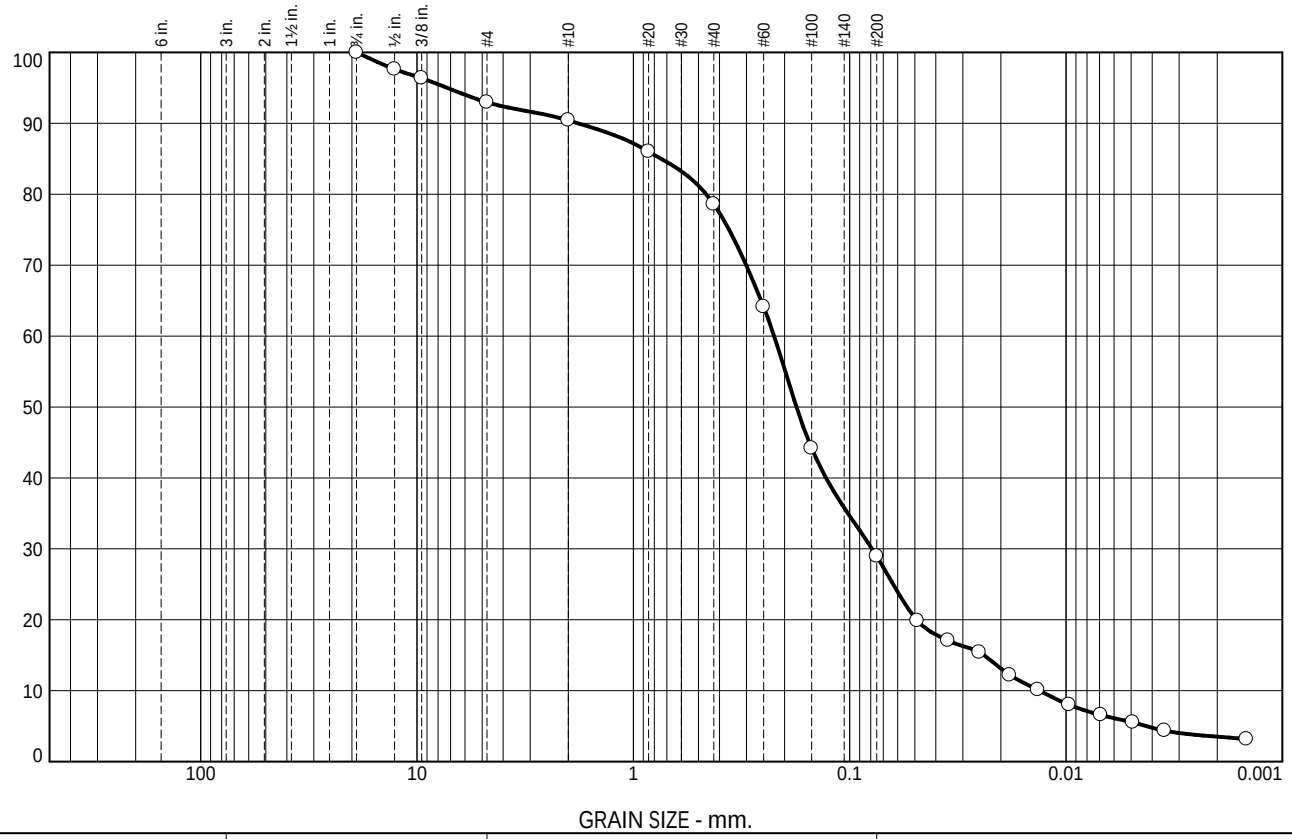
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3613

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	7.0	2.6	11.8	49.6	25.5	3.5

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	97.6		
3/8"	96.4		
#4	93.0		
#10	90.4		
#20	86.0		
#40	78.6		
#60	64.1		
#100	44.2		
#200	29.0		
0.0486 mm.	19.9		
0.0351 mm.	17.1		
0.0252 mm.	15.4		
0.0182 mm.	12.2		
0.0135 mm.	10.1		
0.0097 mm.	8.0		
0.0069 mm.	6.6		
0.0049 mm.	5.5		
0.0035 mm.	4.4		
0.0015 mm.	3.2		

* (no specification provided)

Soil Description

Brown f-m SAND, some Silt, trace fine Gravel

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 1.7995 D_{85}= 0.7432 D_{60}= 0.2235
D_{50}= 0.1761 D_{30}= 0.0788 D_{15}= 0.0240
D_{10}= 0.0133 C_u= 16.84 C_c= 2.09

Classification

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

Remarks

Source of Sample: BB-SLR-103 Depth: 20-22'
Sample Number: 5D

Date: 9.18.24

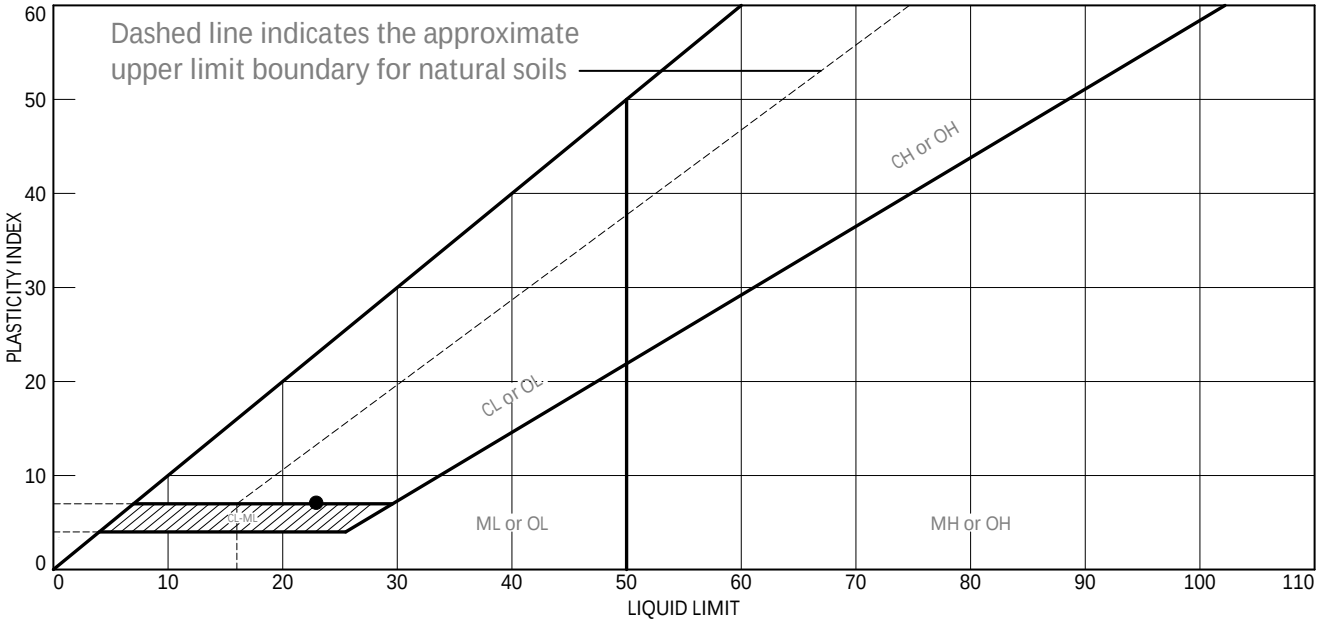
Thielsch Engineering Inc.

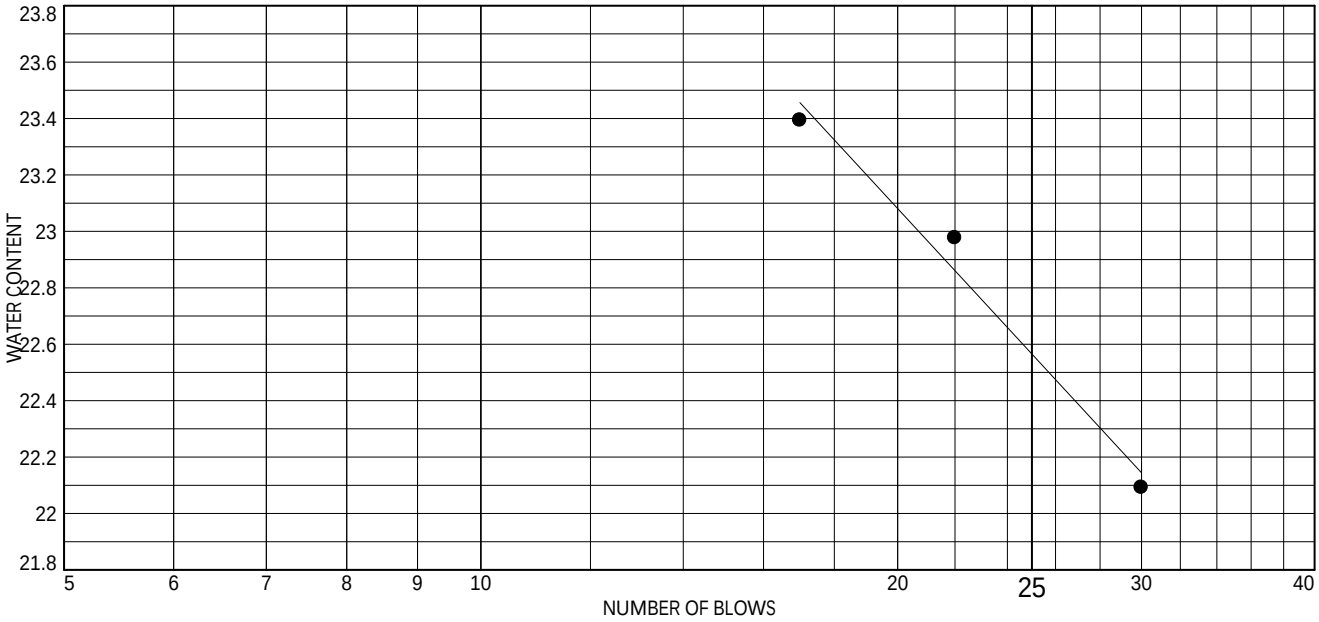
Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3614

Tested By: SBR / RB Checked By: Kris Roland

LIQUID AND PLASTIC LIMITS TEST REPORT





	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown SILT & CLAY, some fine Sand	23	16	7	96.7	71.0	CL-ML

Project No. 09.0026242.00 Task 2 Client: GZA GeoEnvironmental

Project: Lyons Road Bridge #1463 and #5783

Sidney, ME

Source of Sample: BB-SLR-103 Depth: 25-27'

Sample Number: 6D

Remarks:

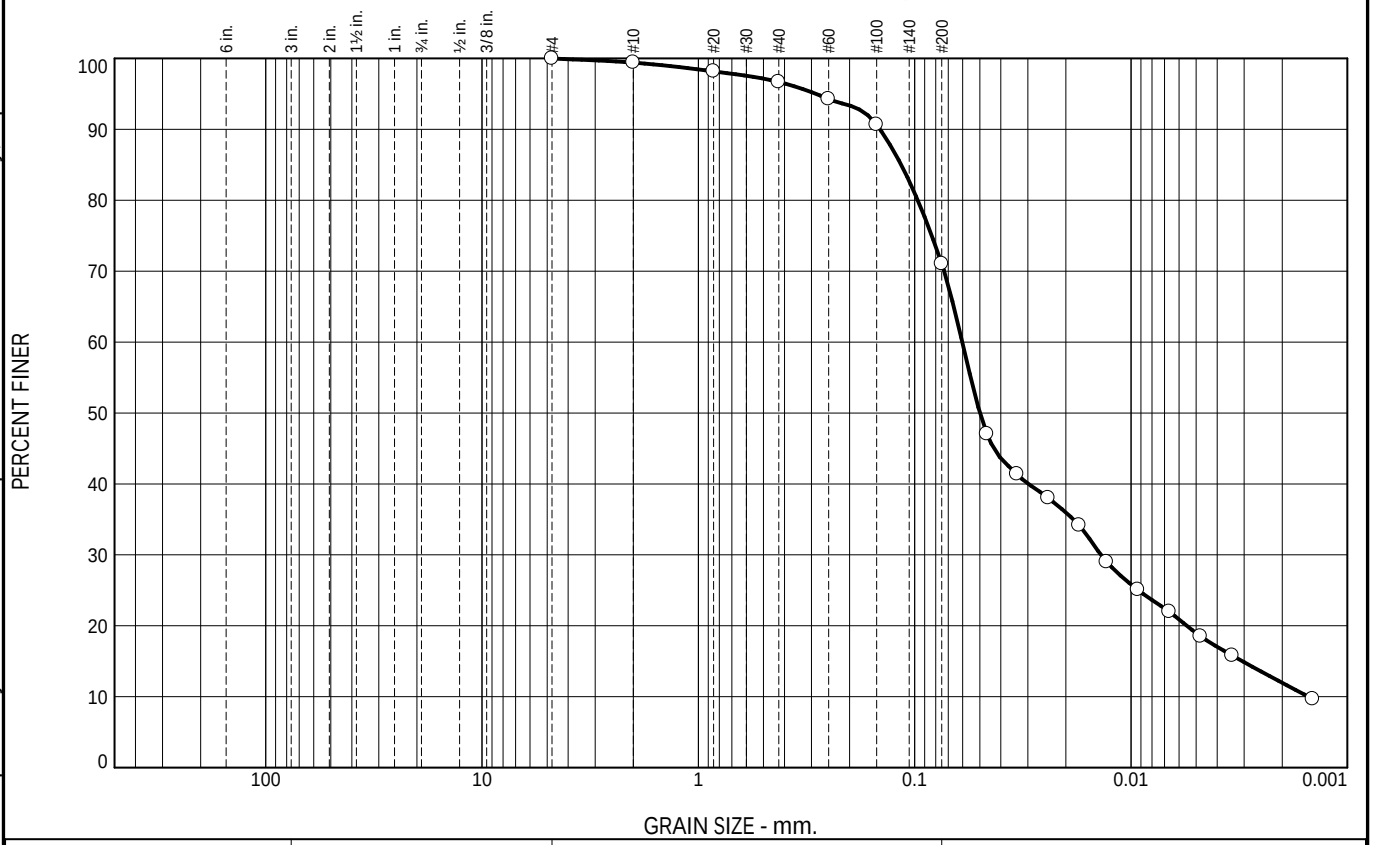
Thielsch Engineering Inc.

Cranston, RI

Fig. 24-L-3615

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	2.7	25.7	59.0	12.0

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.4		
#20	98.2		
#40	96.7		
#60	94.3		
#100	90.7		
#200	71.0		
0.0464 mm.	47.1		
0.0337 mm.	41.4		
0.0242 mm.	38.0		
0.0174 mm.	34.2		
0.0130 mm.	29.0		
0.0093 mm.	25.1		
0.0067 mm.	22.0		
0.0048 mm.	18.5		
0.0034 mm.	15.8		
0.0014 mm.	9.7		

* (no specification provided)

Soil Description

Brown SILT & CLAY, some fine Sand

Atterberg Limits

PL= 16 LL= 23 PI= 7

Coefficients

D_{90}= 0.1447 D_{85}= 0.1155 D_{60}= 0.0603
D_{50}= 0.0499 D_{30}= 0.0138 D_{15}= 0.0031
D_{10}= 0.0015 C_u= 39.77 C_c= 2.08

Classification

USCS= CL-ML AASHTO= A-4(2)

Remarks

Source of Sample: BB-SLR-103 Depth: 25-27'
Sample Number: 6D

Date: 9.18.24

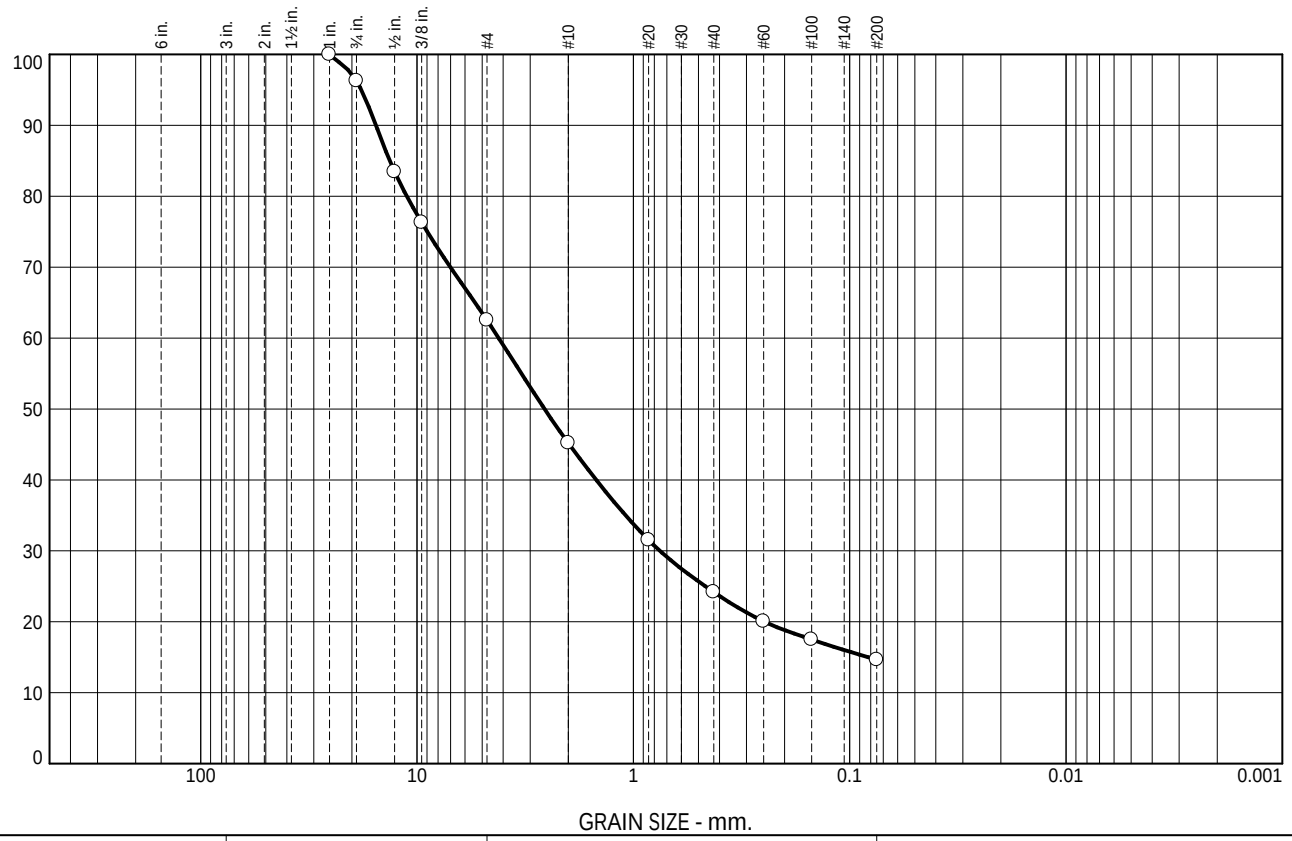
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3615

Tested By: RB/SBR Checked By: Kris Roland

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	3.7	33.8	17.3	21.0	9.6	14.6	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	96.3		
1/2"	83.5		
3/8"	76.3		
#4	62.5		
#10	45.2		
#20	31.5		
#40	24.2		
#60	20.1		
#100	17.5		
#200	14.6		

* (no specification provided)

Soil Description

Brown GRAVELLY SAND, little Silt

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 15.4830 D_{85}= 13.3714 D_{60}= 4.1934
D_{50}= 2.5738 D_{30}= 0.7539 D_{15}= 0.0823
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-a

Remarks

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

Date: 9.12.24

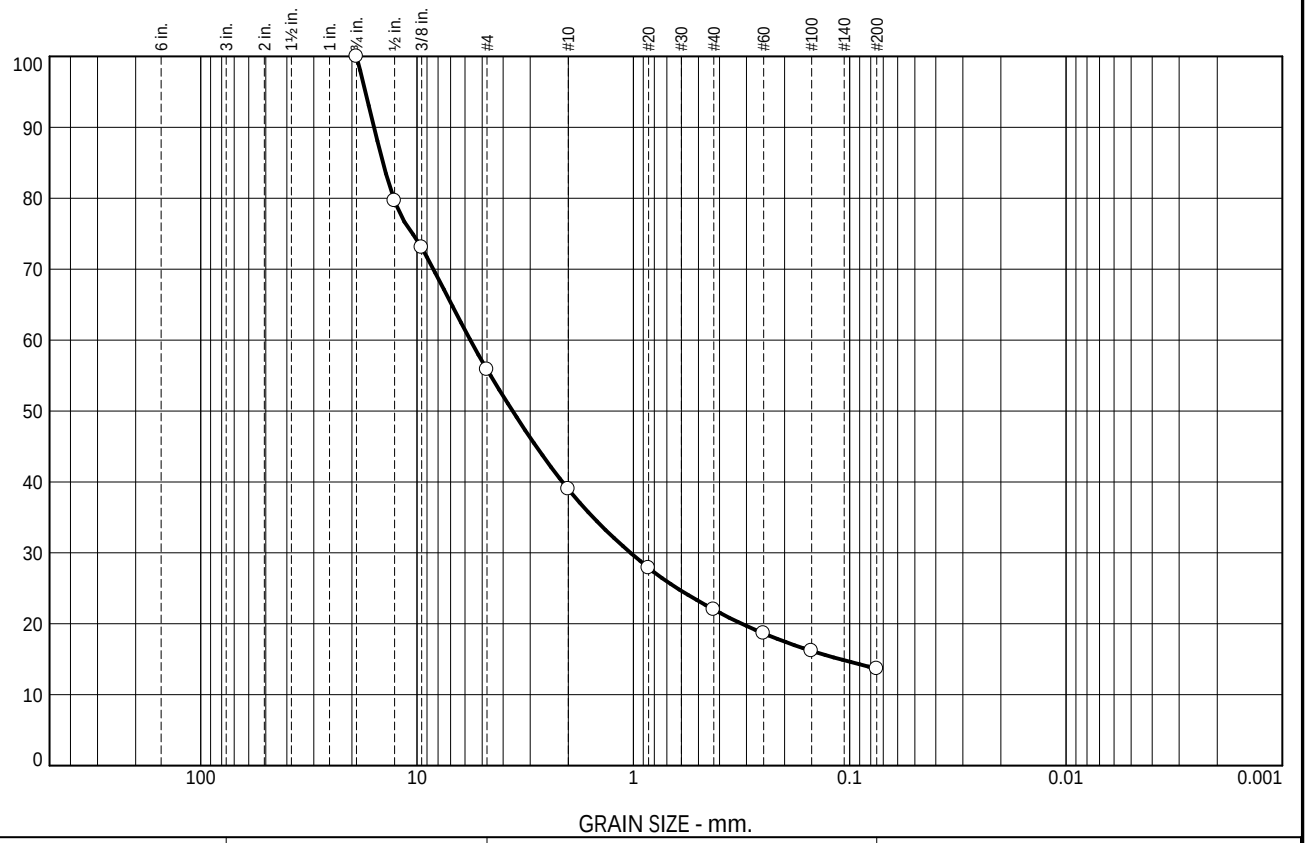
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3616

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	44.2	16.8	17.0	8.4	13.6	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/4"	100.0		
1/2"	79.6		
3/8"	73.1		
#4	55.8		
#10	39.0		
#20	27.9		
#40	22.0		
#60	18.6		
#100	16.2		
#200	13.6		

* (no specification provided)

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

Soil Description
Brown SANDY GRAVEL, little Silt

Atterberg Limits
PL= NP LL= NV PI= NP

Coefficients
D_{90}= 15.8092 D_{85}= 14.3636 D_{60}= 5.6703
D_{50}= 3.6157 D_{30}= 1.0303 D_{15}= 0.1105
D_{10}= C_u= C_c=

Classification
USCS= GM AASHTO= A-1-a

Remarks

Date: 9.12.24

Thielsch Engineering Inc.
Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3617

Tested By: MCS Checked By: Kris Roland

Particle Size Distribution Report

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	10.6	9.2	9.9	22.0	24.6	23.7	

SIEVE SIZE OR DIAMETER	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1"	100.0		
3/4"	89.4		
1/2"	89.4		
3/8"	86.5		
#4	80.2		
#10	70.3		
#20	58.9		
#40	48.3		
#60	38.0		
#100	29.4		
#200	23.7		

* (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}= 19.9989 D_{85}= 8.0755 D_{60}= 0.9166
D_{50}= 0.4712 D_{30}= 0.1567 D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-1-b

Remarks

Source of Sample: BB-SLR-104 Depth: 10-12'
Sample Number: 3D

Date: 9.12.24

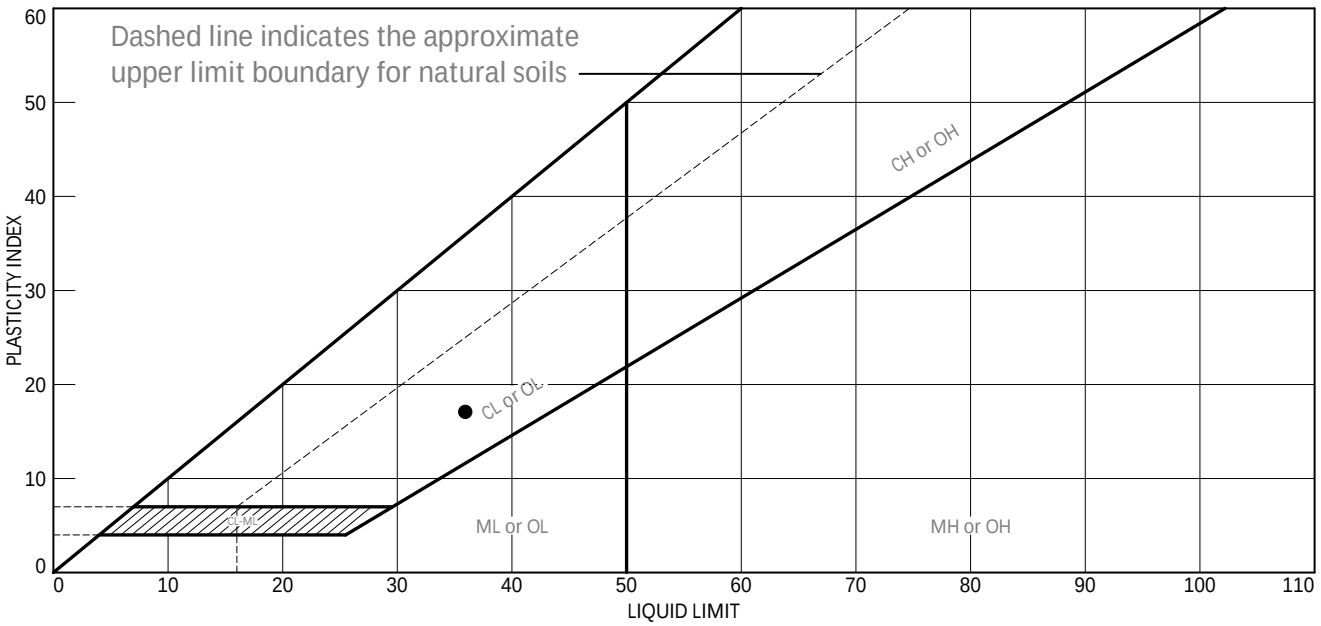
Thielsch Engineering Inc.

Cranston, RI

Client: GZA GeoEnvironmental
Project: Lyons Road Bridge #1463 and #5783
Sidney, ME
Project No: 09.0026242.00 Task 2 Fig. 24-S-3618

Tested By: MCS Checked By: Kris Roland

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Olive CLAY & SILT	36	19	17			

Project No. 09.0026242.00 Task 2 Client: GZA GeoEnvironmental

Project: Lyons Road Bridge #1463 and #5783

Sidney, ME

Source of Sample: BB-SLR-104 Depth: 25-27'

Sample Number: 6D

Thielsch Engineering Inc.

Cranston, RI

Remarks:

Fig. 24-L-3619

Tested By: AB 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		**Lyons Road, Sidney, ME**	
(207) 879-9190		Project Number:	09.0026242.00 Task 2
Project Contact:	Blaine Cardali	Summary Page:	1 of 3
Collected By:	B. Cardali	Report Date:	5/19/2025

LABORATORY TESTING DATA SHEET, 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-SLR-102	R1	29.1-30.0	25-S-1716		1.980	4.456	175.8			U	8877	0.166	6.44	0.29				Grey Gneiss
Fresh Break along foliation																		

(1) Volume Determined By Measuring Dimensions	Notes	(3) PLD=Point Load (diametrical),	Notes	(5) Strain at Peak Deviator Stress
(2) Determined by Measuring Dimensions and Weight of Saturated Sample		PLA= Point Load (Axial) ST= Splitting Tensile		(6) Represents Secant Modulus at 50% of Total Failure Stress
		U= Unconfined Compressive Strength		(7) Represents Secant Poisson's Ratio at 50% of Total Failure Stress
		(4) Taken at Peak Deviator 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 **5/19/2025**

Thielsch
DIVISION OF THE RISE GROUP

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Phone: (401) 467-6454
Fax: (401) 467-2398
www.thielsch.com
Let's Build a Solid Foundation

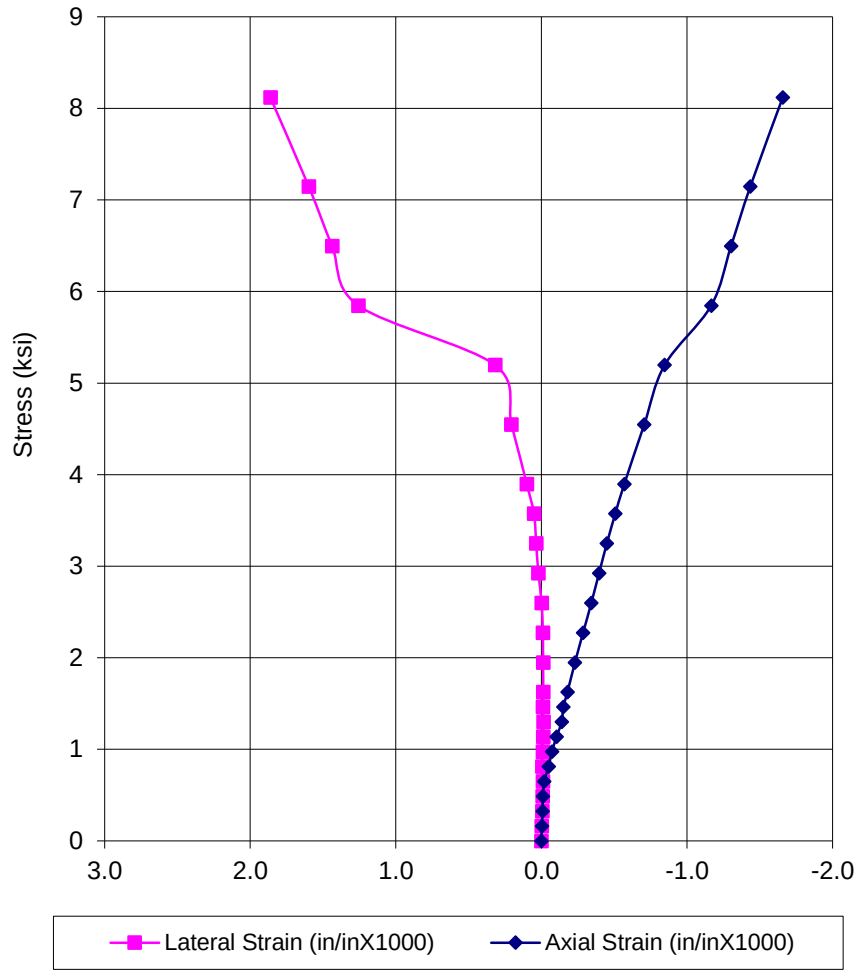
Client Information:	
GZA GeoEnvironmental	
S. Portland, ME	
Project Manager:	B. Cardali
Assigned by:	B. Cardali
Collected by:	B. Cardali

Project Information:	
Sidney Bridges	
Sidney, ME	
Project Number:	09.0026242.00 Task 2
Technician:	SBR
Report Date:	5.16.25

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

Sample Information		**Compressive Test Information**	
Boring ID:	BB-SLR-102	**Unit Weight (pcf):**	175.8
Sample #:	R1	**Failure Stress (psi):**	8,877
Depth (ft):	29.1-30.0	**Failure Mode:**	Fresh
Tested Depth (ft):	29.1-29.5	**Time to Failure (min)**	5.78
Rock Type:	Grey Gneiss		
Features:	Fresh Break along foliation		

Test Specimen Information		**Elastic Moduli Test Information**	
Diameter, D (in):	1.980	**Poisson's Ratio @ 50%:**	0.29
Length, L (in):	4.456	**Strain %:**	0.166
L:D Ratio:	2.25	**E sec PSI @ 50%:**	6.44E+06



Testing Notes: Partial break around 16000 pounds 5000 psi.

APPENDIX E – ROCK CORE PHOTOGRAPHS

MaineDOT Bridge No. 1463 and 5783
Lyons Rd over 95
Sidney, ME
WIN 25465.00
Rock Core Photographs

Boring No.	Run	Depth (ft)	Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-SLR-102	R1	27.5 - 32.5	56	93%	44	73%	PELITE	1
BB-SLR-102	R2	32.5 - 37.5	60	100%	56	93%	PELITE	2
BB-SLR-101	R1	36.0 - 41.0	57	95%	41	68%	PELITE	3
BB-SLR-101	R2	41.0 - 46.0	60	100%	46	77%	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.
3. BB-SLR-101 and -102 correspond to Bridge No. 1463

MaineDOT Bridge No. 1463 and 5783
Lyons Rd over 95
Sidney, ME
WIN 25465.00
Rock Core Photographs

Boring No.	Run	Depth (ft)	Recovery (in)	Recovery (%)	RQD (in)	RQD (%)	Rock Type	Box Row
BB-SLR-104	R1	35.5 - 40.5	43	72%	29	48%	PELITE	1
BB-SLR-104	R2	40.5 - 45.5	56	93%	48	86%	PELITE	2
BB-SLR-103	R1	39.9 - 44.9	54	90%	43	72%	PELITE	3
BB-SLR-103	R2	44.9 - 49.9	55	92%	32	53%	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.
3. BB-SLR-103 and 104 correspond to Bridge No. 5783.