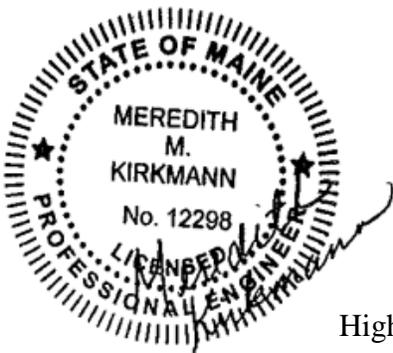


**MAINE DEPARTMENT OF TRANSPORTATION  
HIGHWAY/BRIDGE PROGRAM  
GEOTECHNICAL SECTION  
AUGUSTA, MAINE**

**GEOTECHNICAL DESIGN REPORT**

*For the Construction of:*

**A NEW ROAD CONNECTING  
COUNTY ROAD AND BARRON ROAD IN  
EASTPORT, MAINE**



*Prepared by:*

Meredith Kirkmann, P.E.  
Geotechnical Design Engineer

*Reviewed by:*

Christopher L. Helstrom, P.E.  
Highway Designer/Geotechnical Engineer

WIN 19194.00  
Federal Aid Project No. AC-STP-1919(400)X  
February 13, 2015

## **Design Summary**

Proposed new construction of a 0.38 mile road joining the County Road and the Barron Road in Eastport includes two embankment fills and a section of cut into bedrock. The following is a summary of the design and construction recommendations for the project. A complete analysis of the geotechnical engineering recommendations follows.

Subsurface investigation found clayey silt soils in the embankment fill areas. Settlement in the two deepest fill sections' Station 105+50 15-ft left and at Station 110+00 8-ft left, was calculated at approximately 3.6 inches

Due to settlement over time in the clayey silt soils I recommend that construction be phased in order to allow settlement to occur before final grading and paving. If possible embankment construction should be completed and left to settle during the construction season before final grading and base pavement are placed. It is my recommendation that final pavement not occur during the construction season of the embankment fills, instead final paving should be conducted during the following construction season. It may be necessary to complete an overlay of sections of the new construction at the interface between embankment fills and rock cuts in a year or two as settlement continues.

Settlement should be monitored during construction in order to determine whether conditions match theoretical calculations. Two settlement platforms should be installed, one at the maximum fill for each embankment section. These should be read once per week, and communicated with the Geotechnical Engineer to determine in field conditions match expectations.

Care should be taken to avoid conditions that could lead to differential settlement in the cut sections, as bedrock excavation may be present on only half of the roadway. All bedrock excavation areas should maintain proper drainage, ensuring that no undrained pockets remain. Areas of blasted rock subgrade must extend to a depth of 4 feet below subgrade as stated in the specification.

### **1.0 Introduction**

MaineDOT has proposed to construct a new 0.38 mile roadway connecting the County Road and the Barron Road. Construction of this section of roadway will include both ledge cuts and embankment fills over compressible soils.

This new construction will connect the port with the County Road, bypassing parts of Barron Road to remove heavy trucks from a residential area. This new

construction will be done in concert with rehabilitation work on the County Road and on Barron Road in Eastport.

## **2.0 Background Information**

A separate Eastport Geotechnical Series 100 Report discusses the rehabilitation portions of the project on the County Road, and pavement and subgrade conditions for that portion of the project.

### **2.1 Mapped Soil and Bedrock**

Surficial Geology mapping by the Maine Geologic Survey shows Glacial Marine deposits of the Presumpscot Formation at the location of the proposed roadway between the County Road and the Barron Road. Soils of the Presumpscot Formation generally consist of clays and silts of low permeability and poor drainage. In the northern section of new construction surficial bedrock is shown.

NRCS mapping indicates the large majority of new construction will be in areas of “Lamoine-Scantic complex (LmB)”, with smaller areas on “Rawsonville-Hogback-Abram complex (RmC)”, and “Dixfield-Colonel complex (DgB)” soils. The LmB soils are silty clays or silty clay loams, and the RmC and DgB soils are made of sandy loams. These soils NRCS mapping includes only soils within the upper 5 or 6 feet below the ground surface.

### **2.2 Subsurface Investigation**

The subsurface investigation for areas of geotechnical concern was conducted on November 4-7, 2014 by Northern Test Borings under the supervision of Bruce Wilder of MaineDOT. Twenty two hollow stem auger borings were completed with split spoon tests to obtain soil samples and density values. Vane shear tests were attempted in four of the test borings, however, only one vane shear test was successfully completed. Results from these tests are summarized in the subsurface conditions section below. Due to soil conditions it was not possible to obtain Shelby tube samples for consolidation testing. In general failed vane shear tests and failed undisturbed sample attempts were due to the stiff and somewhat granular nature of the deposits encountered. Additional hollow stem auger probes were done without testing to help determine depth to bedrock. The Boring Logs are included as an attachment to this report.

### 2.3 Laboratory Testing

Geotechnical laboratory testing included grain size and water content testing on samples, as well as Atterberg Limit and hydrometer tests on many fine-grained samples. Test results are included as an attachment to this report.

### 3.0 Subsurface Conditions

#### 3.1 Embankment Fill

Embankment fills in the areas of station 102+00 to 107 and 108+70 to 116+50 includes medium dense granular soils to a depth of approximately 9-feet maximum. Settlement calculations for these fills have been

Station	Cut/Fill	Approximate Cut/Fill Amount	Reference Test Borings (Not all inclusive list – see attached Boring log for all borings)	Existing Subsurface Material
102+00 to 107+00	Fill	0 to 8.5 ft	HB-EAST-207,-208,-209,-210	Sands, clayey silts
107+00 to 108+70	Cut	0 to 11.5 ft	HB-EAST-211, -212	Bedrock,
108+70 to 116+50	Fill	0 to 9 ft	HB-EAST-236,-237	Sands, clayey silts

conducted at the maximum fill in each fill section. Calculations are attached, and settlement values reported below.

A boring at Station 105+50 15-feet left, the maximum fill in the first embankment section, encountered no refusal to a depth of 22 feet bgs (below ground surface). Soils consisted of clayey silts of the Presumpscot Formation, underlain by sand. Groundwater depth of 2 feet bgs was encountered in this boring. The hole was not left open to investigate an undisturbed groundwater level, however, groundwater depths in nearby borings were observed at similar levels.

A boring at Station 111+00 8-feet left, the maximum fill in the second embankment section, encountered refusal at 23.9 feet bgs. Soils consist of clayey silts and sandy silts of the Presumpscot Formation, underlain by sand above bedrock. Groundwater depth was observed at 1.9 feet bgs.

### 3.2 Bedrock

Bedrock outcrops are visible in the area of stations 106 to 108+50. One boring was taken in this area in order to aid in determining the slope on the existing bedrock to aid in estimating quantities. At Station 106+50 borings were taken at 15- and 30-feet left. At 15-feet left refusal was encountered at 21.9 feet bgs. At 30-feet left no refusal was experienced to a depth of 17 feet bgs. These findings suggest that bedrock slopes steeply away from the visible bedrock outcrops on the right side of the planned roadway.

### 3.3 In-Situ Testing

Vane shear testing was attempted five times in four borings. Only one test was successful, giving virgin and remolded undrained shear strength of 3301/629 psf at Station 104+50. The failures and the successful testing show that this material has undrained shear strength consistent with very stiff or hard cohesive soils.

Boring	Station	Depth (ft)	Vane Dimensions (mm)	Su (psf) virgin/remolded
HB-EAST-204	104+50	10.29-10.4	16x32	3301/629
HB-EAST-204	104+50	15.63-16.00	55x110	Failed attempt, $\geq 1964$ (virgin)
HB-EAST-206	104+50	10.00	16x32	Failed attempt, $\geq 4715$ (virgin)
HB-EAST-208	105+50	10.29-10.4	16x32	Failed attempt, $\geq 4715$ (virgin)
HB-EAST-208	105+50	15.29-15.4	16x32	Failed attempt, $\geq 4715$ (virgin)

## 4.0 Settlement and Construction Recommendations

### 4.1 Embankment Fill

Settlement at Station 105+50 15-ft left and at Station 110+00 8-ft left was calculated at approximately 3.6 inches, according to granular settlement analysis using a Modified Hough analysis from the FHWA Soils and Foundations Reference Manual. Because this soil is a clayey silt it has been analyzed as a granular material. However, the material exhibits plasticity according to Atterberg Limits testing. This means that settlement will likely happen over a long period of time, similar to cohesive soils.

Due to soil conditions it was not possible to obtain samples and laboratory results needed to conduct cohesive settlement analysis. Therefore it is assumed that based upon similar Presumpscot Formation soils approximately 90% of primary settlement will occur in the first year after embankment construction, and that this is approximately equivalent with the approximately 3.6 inches of settlement calculated through granular analysis at the maximum embankment fill. Further settlement will occur over time in the clayey silt layer.

Due to settlement over time in the clayey silt soils I recommend that construction be phased in order to allow settlement to occur before final grading and paving. If possible embankment construction should be completed and left to settle during the construction season before final grading and base pavement are placed. It is my recommendation that final pavement not occur during the construction season of the embankment fills, instead final paving should be conducted during the following construction season. It may be necessary to complete an overlay of sections of the new construction at the interface between embankment fills and rock cuts in a year or two as settlement continues.

Settlement should be monitored during construction in order to determine whether conditions match theoretical calculations. Two settlement platforms should be installed, one at the maximum fill for each embankment section. These should be read once per week, and communicated with the Geotechnical Engineer to determine in field conditions match expectations.

Calculations are attached to this report, both of the modified Hough analysis, and of an alternate cohesive settlement analysis included as a check on settlement numbers.

## **4.2 Bedrock**

Excavation in areas of bedrock removal shall be in accordance with Standard Specification 203.042 Rock Excavation and Blasting, 203.05 Roadway Excavation, and 203.051 Drilling and Blasting of Solid Rock Subgrade.

Care should be taken to avoid conditions that could lead to differential settlement, as bedrock excavation may be present on only half of the roadway. All bedrock excavation areas should maintain proper drainage, ensuring that no undrained pockets remain. Areas of blasted rock subgrade must extend to a depth of 4 feet below subgrade as stated in the specification.

**References:**

Please refer to the Eastport Geotechnical Series 100 Report, PIN 19194.00, for information regarding the rehabilitation of the County Road and Barron Road.

**Attachments:**

Location Map  
Laboratory Testing Summary Sheet  
Grain Size Distribution Curves  
Boring Log  
Geotechnical Test Data  
GeoPlans and GeoCross Sections  
Calculations



Map Scale 1:24000

The Maine Department of Transportation provides this publication for information only. Reliance upon this information is at user risk. It is subject to revision and may be incomplete depending upon changing conditions. The Department assumes no liability if injuries or damages result from this information. This map is not intended to support emergency dispatch. Road names used on this map may not match official road names.

**State of Maine - Department of Transportation  
Laboratory Testing Summary Sheet**

**Town(s): Eastport**

**Work Number: 19194.00**

Boring & Sample Identification Number	Station (Feet)	Offset (Feet)	Depth (Feet)	Reference Number	G.S.D.C. Sheet	W.C. %	L.L.	P.I.	Classification		
									Unified	AASHTO	Frost
HB-EAST-202, 1D	101+50	CL	5.0-7.0	263451	1	24.0	36	14	CL	A-6	III
HB-EAST-202, 2D	101+50	CL	10.0-12.0	263452	1	24.6	34	15	CL	A-6	III
HB-EAST-203, S1	103+00	CL	1.0-3.0	263453	1	14.9			SM	A-1-b	II
HB-EAST-203, 1D	103+00	CL	5.0-7.0	263454	1	21.7	29	12	CL	A-6	III
HB-EAST-204, S1	104+50	15.0 Lt.	0.42-3.0	263455	2	16.8			SW-SM	A-1-b	0
HB-EAST-204, 1D	104+50	15.0 Lt.	5.0-7.0	263456	2	23.2	33	11	CL	A-6	IV
HB-EAST-204, 2D	104+50	15.0 Lt.	10.0-12.0	263457	2	26.3	32	14	CL	A-6	III
HB-EAST-204, 3D	104+50	15.0 Lt.	15.0-17.0	263458	2	24.9	29	9	CL	A-4	IV
HB-EAST-205, 1D	104+50	30.0 Lt.	5.0-7.0	263459	2	22.8	35	13	CL	A-6	III
HB-EAST-206, 2D	104+50	15.0 Rt.	10.0-12.0	263460	2	19.2	24	7	CL-ML	A-4	IV
HB-EAST-208, 1D	105+50	CL	5.0-7.0	263461	3	21.7	30	9	CL	A-4	IV
HB-EAST-208, 2D	105+50	CL	10.6-12.0	263462	3	21.4	27	10	CL	A-4	IV
HB-EAST-208, 3D	105+50	CL	15.5-17.0	263463	3	22.8	-N	P-	ML	A-4	IV
HB-EAST-209, 1D	105+50	30.0 Lt.	5.0-7.0	263464	3	21.3	29	10	CL	A-4	IV
HB-EAST-209, 2D	105+50	30.0 Lt.	10.6-12.0	263465	3	24.2	29	10	CL	A-4	IV
HB-EAST-209, 3D	105+50	30.0 Lt.	15.3-17.0	263466	3	21.5	29	12	CL	A-6	III
HB-EAST-210, 2D	105+50	15.0 Lt.	10.0-12.0	263467	4	20.1	29	11	CL	A-6	IV
HB-EAST-210, 3D	105+50	15.0 Lt.	15.0-17.0	263468	4	23.8	26	9	CL	A-4	IV
HB-EAST-210, 4D	105+50	15.0 Lt.	20.0-22.0	263469	4	25.4			SM	A-4	III
HB-EAST-212, 1D	106+50	15.0 Lt.	5.0-7.0	263470	4	20.9	33	14	CL	A-6	III
HB-EAST-212, 2D	106+50	15.0 Lt.	10.0-12.0	263471	4	25.4	36	14	CL	A-6	III
HB-EAST-212, 3D	106+50	15.0 Lt.	16.0-17.0	263472	4	14.6			SM	A-4	III
HB-EAST-236, S1	111+00	30.0 Lt.	0.42-2.0	263473	5	16.2			SM	A-1-b	II
HB-EAST-236, 1D	111+00	30.0 Lt.	5.0-7.0	263474	5	20.5	26	9	CL	A-4	IV
HB-EAST-236, 2D	111+00	30.0 Lt.	10.0-12.0	263475	5	26.7	-N	P-	ML	A-4	IV
HB-EAST-237, 1D	111+00	8.0 Lt.	5.0-7.0	263351	6	21.5	33	13	CL	A-6	III
HB-EAST-237, 2D	111+00	8.0 Lt.	10.5-12.0	263352	6	26.2	-N	P-	ML	A-4	IV
HB-EAST-237, 3D	111+00	8.0 Lt.	15.5-17.0	263353	6	24.7	-N	P-	CL	A-4	IV
HB-EAST-237, 4D	111+00	8.0 Lt.	21.0-22.0	263354	6	8.7			SM	A-1-b	II
HB-EAST-238, 1D	113+00	30.0 Rt.	5.0-7.0	263355	6	19.7	26	8	CL	A-4	IV
HB-EAST-239, 1D	113+00	15.0 Rt.	5.0-7.0	263356	6	25.0			CL	A-4	IV
HB-EAST-240, 1D	113+00	CL	5.0-7.0	263357	7	13.4	24	7	CL-ML	A-4	IV
HB-EAST-240, 2D	113+00	CL	10.0-12.0	263358	7	15.4	22	7	CL-ML	A-4	IV
HB-EAST-241, 1D	113+00	15.0 Lt.	5.0-7.0	263359	7	24.2	-N	P-	CL	A-4	IV
HB-EAST-241, 2D	113+00	15.0 Lt.	10.0-12.0	263360	7	25.1	-N	P-	CL	A-4	IV
HB-EAST-241, 3D	113+00	15.0 Lt.	15.0-16.6	263361	7	6.9			SM	A-2-4	II
HB-EAST-244, 1D	115+00	CL	5.0-7.0	263362	7	11.6			SM	A-4	III
HB-EAST-246, S1	116+80	30.0 Rt.	4.0-10.0	263363	8	14.6			SM	A-4	IV
HB-EAST-247, S1	117+00	5.0 Rt.	0.0-2.8	263364	8	5.1			SW-SM	A-1-b	0
HB-EAST-248, S1	117+00	30.0 Lt.	0.25-2.0	263365	8	2.7			SM	A-1-a	II
HB-EAST-248, S2	117+00	30.0 Lt.	3.0-10.0	263366	8	12.8			SM	A-4	III
HB-EAST-250, S1	119+00	3.0 Lt.	2.0-7.2	263367	8	14.9			ML	A-4	IV

**Classification of these soil samples is in accordance with AASHTO Classification System M-145-40. This classification is followed by the "Frost Susceptibility Rating" from zero (non-frost susceptible) to Class IV (highly frost susceptible).  
The "Frost Susceptibility Rating" is based upon the MaineDOT and Corps of Engineers Classification Systems.**

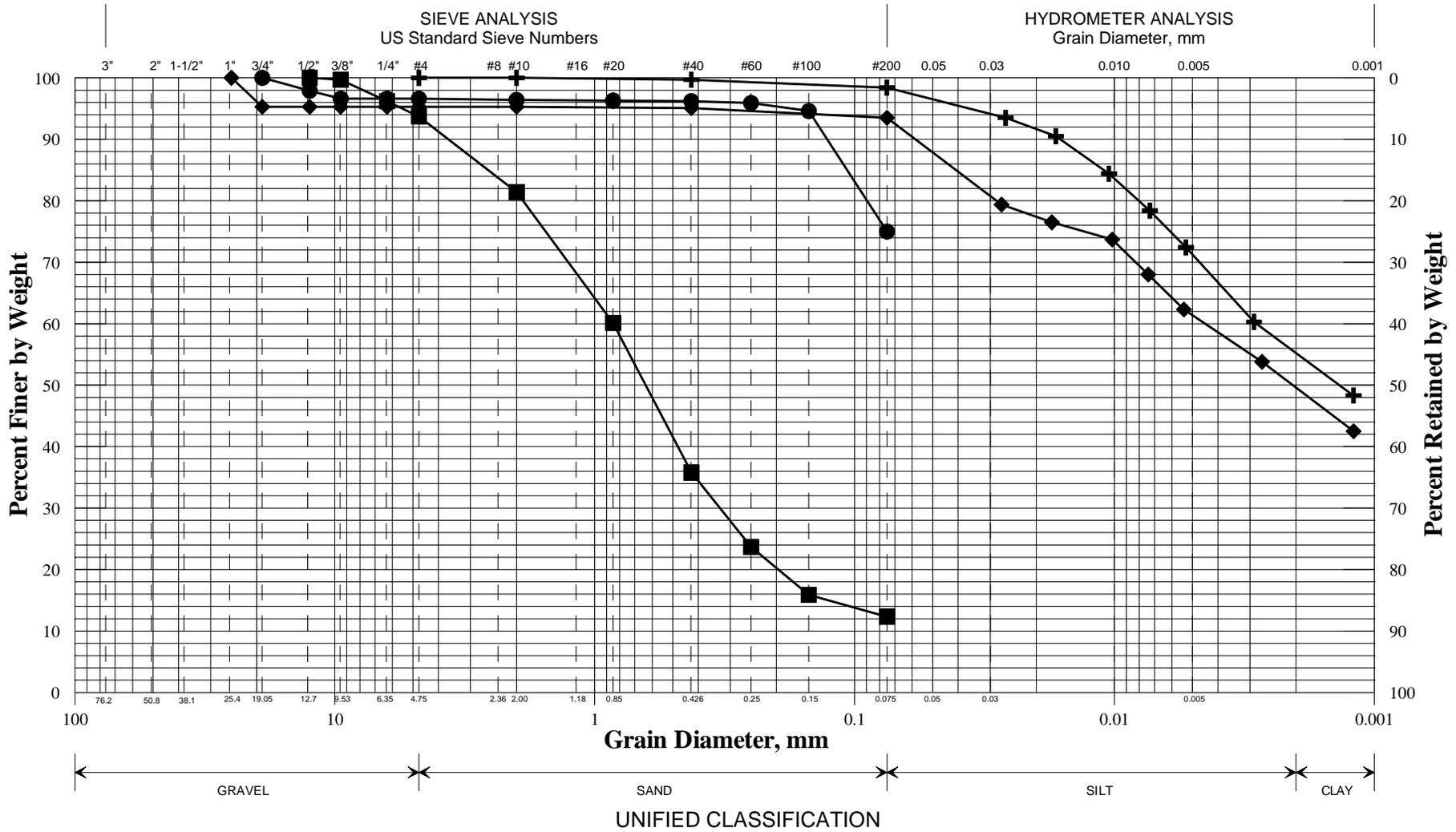
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

WC = water content as determined by AASHTO T 265-93 and/or ASTM D 2216-98

LL = Liquid limit as determined by AASHTO T 89-96 and/or ASTM D 4318-98      NP = Non Plastic

PI = Plasticity Index as determined by AASHTO 90-96 and/or ASTM D4318-98

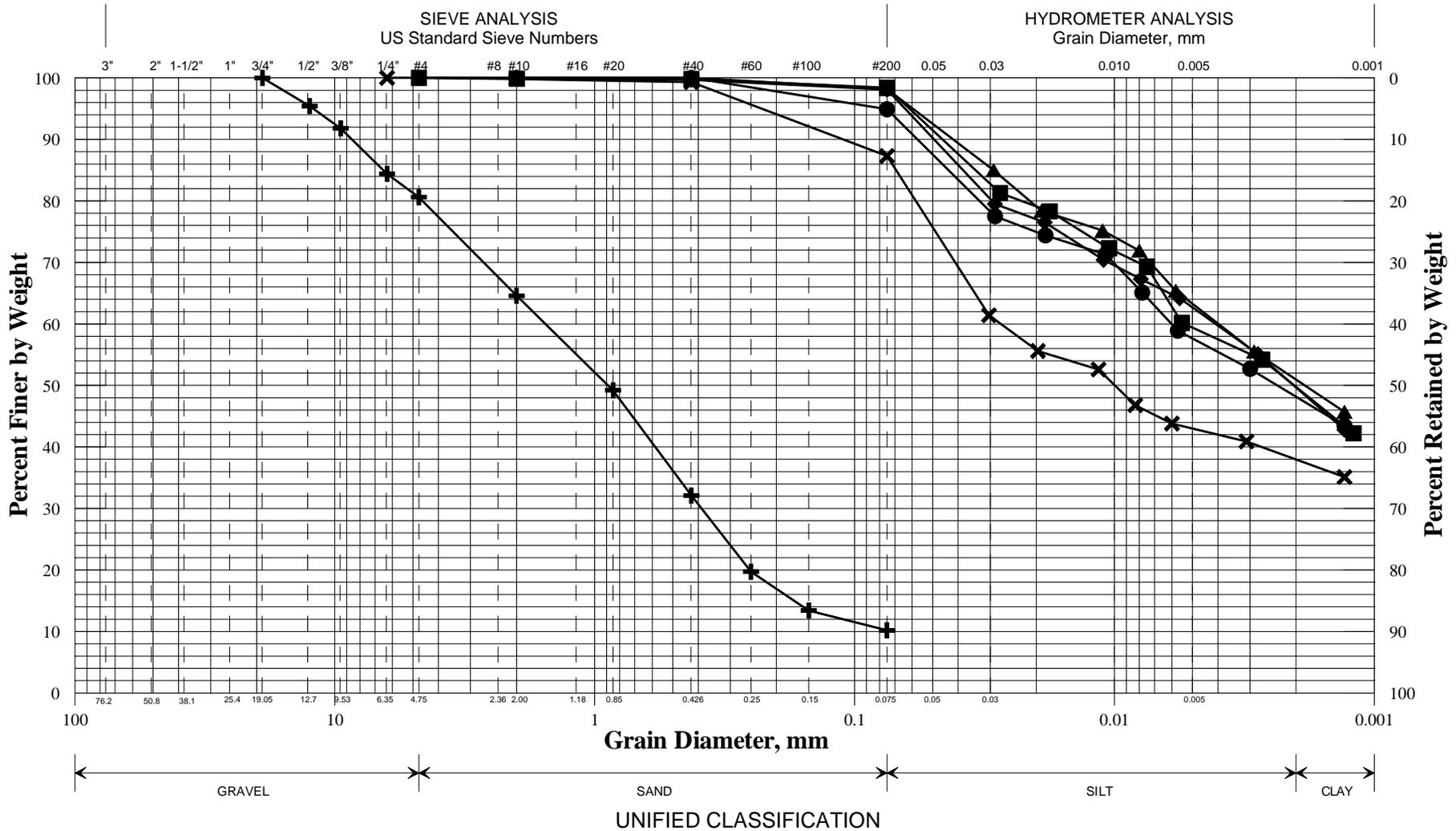
**State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-202/1D	101+50	CL	5.0-7.0	Silty CLAY, trace sand.	24.0	36	22	14
◆	HB-EAST-202/2D	101+50	CL	10.0-12.0	Silty CLAY, trace gravel, trace sand.	24.6	34	19	15
■	HB-EAST-203/S1	103+00	CL	1.0-3.0	SAND, little silt, trace gravel.	14.9			
●	HB-EAST-203/1D	103+00	CL	5.0-7.0	SILT, some sand, trace gravel.	21.7	29	17	12
▲									
×									

WIN
019194.00
Town
Eastport
Reported by/Date
WHITE, TERRY A      12/23/2014

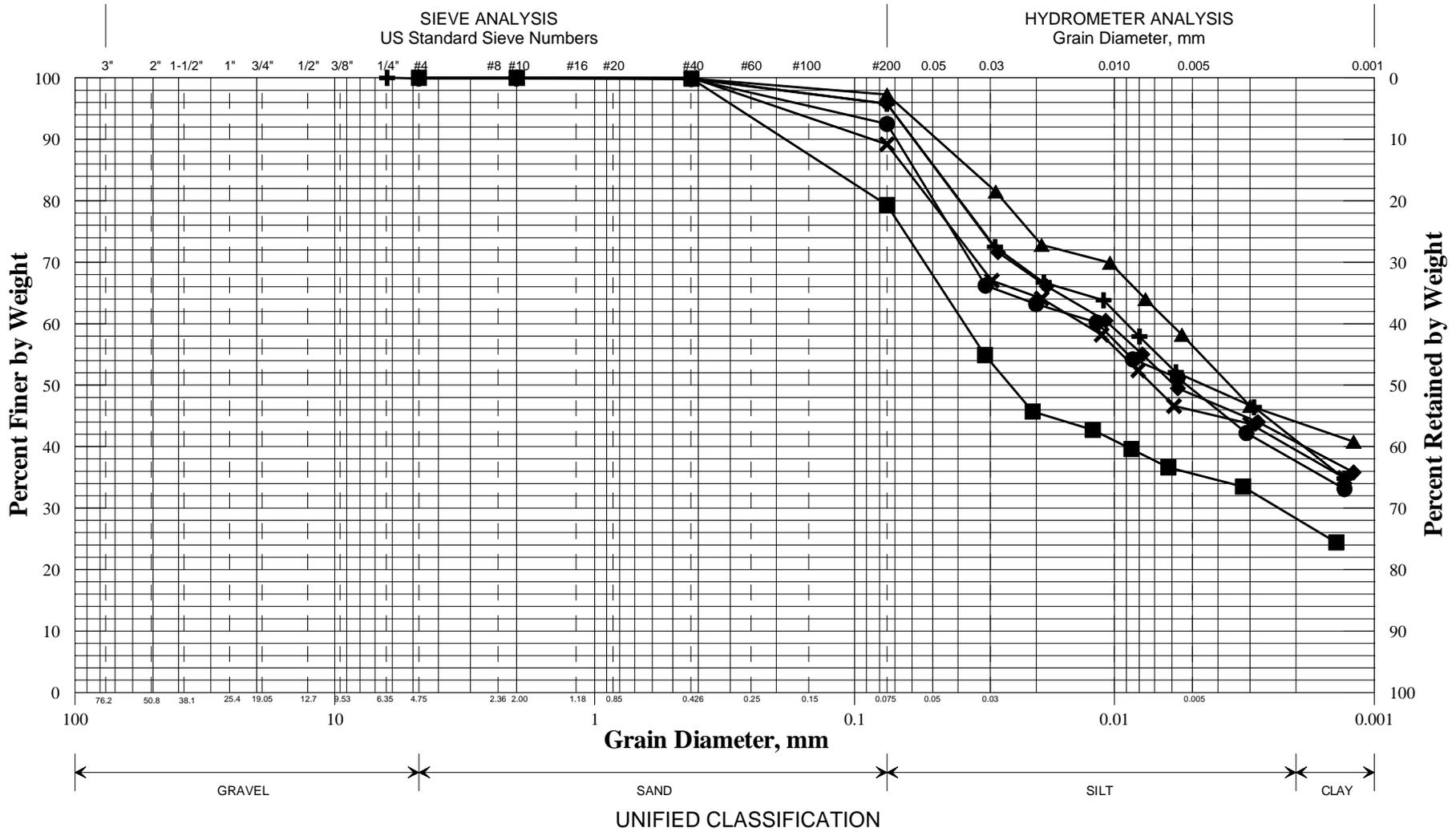
**State of Maine Department of Transportation  
GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-204/S1	104+50	15.0 LT	0.42-3.0	SAND, little gravel, trace silt.	16.8			
◆	HB-EAST-204/1D	104+50	15.0 LT	5.0-7.0	Silty CLAY, trace sand.	23.2	33	22	11
■	HB-EAST-204/2D	104+50	15.0 LT	10.0-12.0	Silty CLAY, trace sand.	26.3	32	18	14
●	HB-EAST-204/3D	104+50	15.0 LT	15.0-17.0	Silty CLAY, trace sand.	24.9	29	20	9
▲	HB-EAST-205/1D	104+50	30.0 LT	5.0-7.0	Silty CLAY, trace sand.	22.8	35	22	13
×	HB-EAST-106/2D	104+50	15.0 RT	10.0-12.0	Clayey SILT, little sand.	19.2	24	17	7

WIN	
019194.00	
Town	
Eastport	
Reported by/Date	
WHITE, TERRY A	12/23/2014

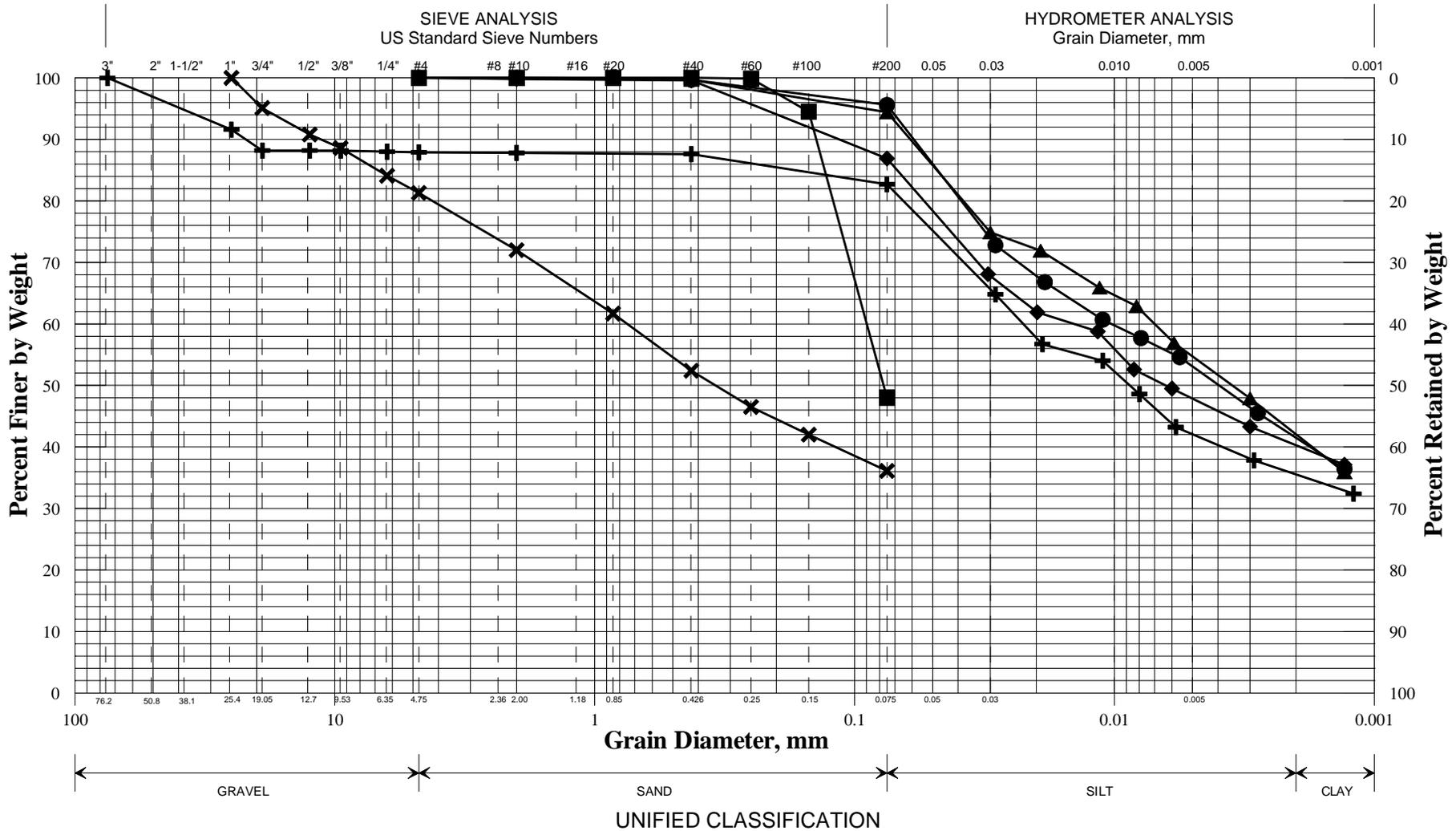
**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-208/1D	105+50	CL	5.0-7.0	Clayey SILT, trace sand, trace gravel.	21.7	30	21	9
◆	HB-EAST-208/2D	105+50	CL	10.6-12.0	Clayey SILT, trace sand.	21.4	27	17	10
■	HB-EAST-208/3D	105+50	CL	15.5-17.0	SILT, some clay, some sand.	22.8			NP
●	HB-EAST-209/1D	105+50	30.0 LT	5.0-7.0	Clayey SILT, trace sand.	21.3	29	19	10
▲	HB-EAST-209/2D	105+50	30.0 LT	10.6-12.0	Clayey SILT, trace sand.	24.2	29	19	10
×	HB-EAST-209/3D	105+50	30.0 LT	15.3-17.0	Clayey SILT, little sand.	21.5	29	17	12

WIN
019194.00
Town
Eastport
Reported by/Date
WHITE, TERRY A      12/23/2014

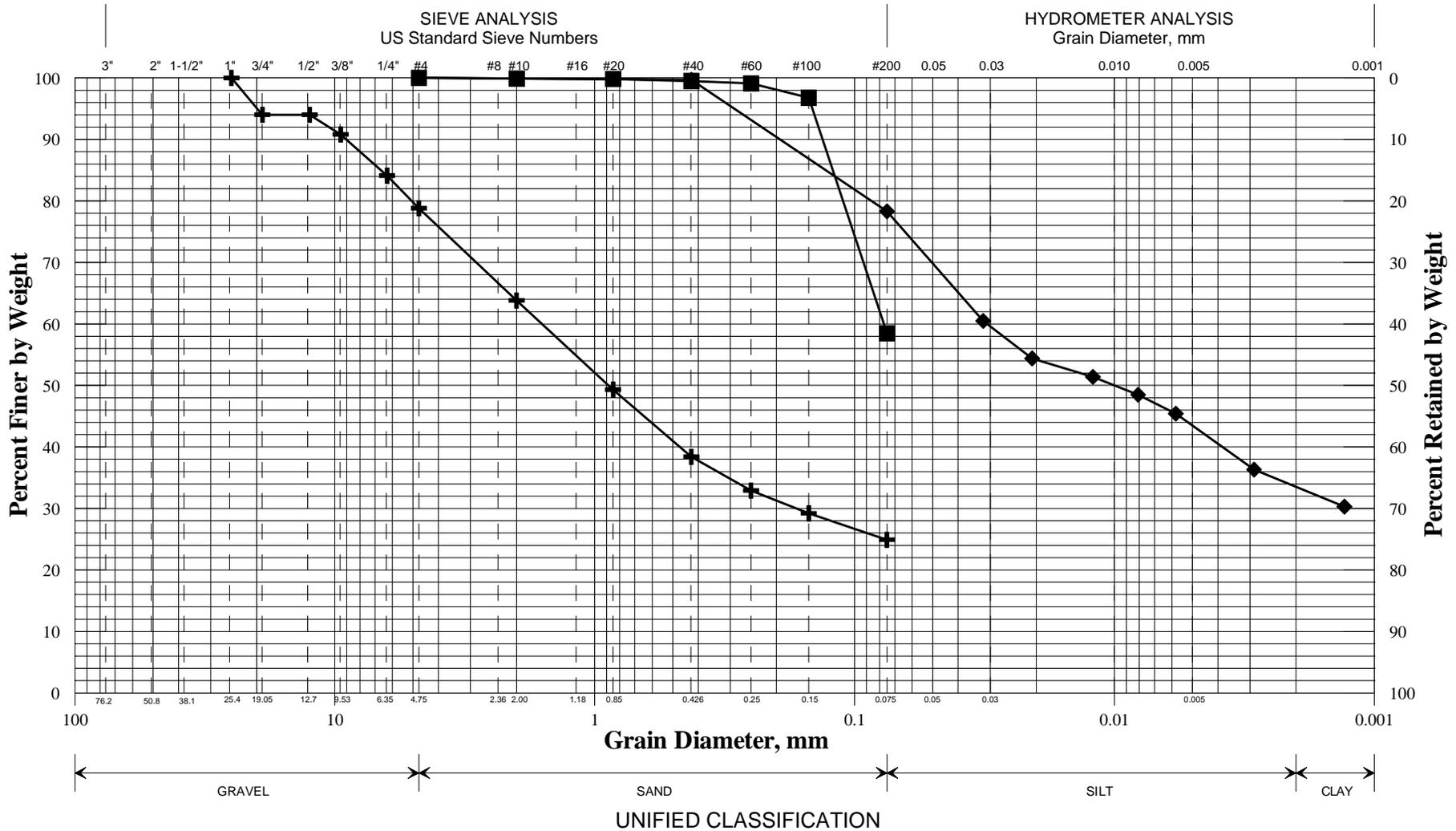
**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-210/2D	105+50	15.0 LT	10.0-12.0	SILT, some clay, little gravel, trace sand.	20.1	29	18	11
◆	HB-EAST-210/3D	105+50	15.0 LT	15.0-17.0	Clayey SILT, little sand.	23.8	26	17	9
■	HB-EAST-210/4D	105+50	15.0 LT	20.0-22.0	Silty SAND.	25.4			
●	HB-EAST-212/1D	106+50	15.0 LT	5.0-7.0	Clayey SILT, trace sand.	20.9	33	19	14
▲	HB-EAST-212/2D	106+50	15.0 LT	10.0-12.0	Clayey SILT, trace sand.	25.4	36	22	14
×	HB-EAST-212/3D	106+50	15.0 LT	16.0-17.0	Silty SAND, little gravel.	14.6			

WIN	
019194.00	
Town	
Eastport	
Reported by/Date	
WHITE, TERRY A	12/23/2014

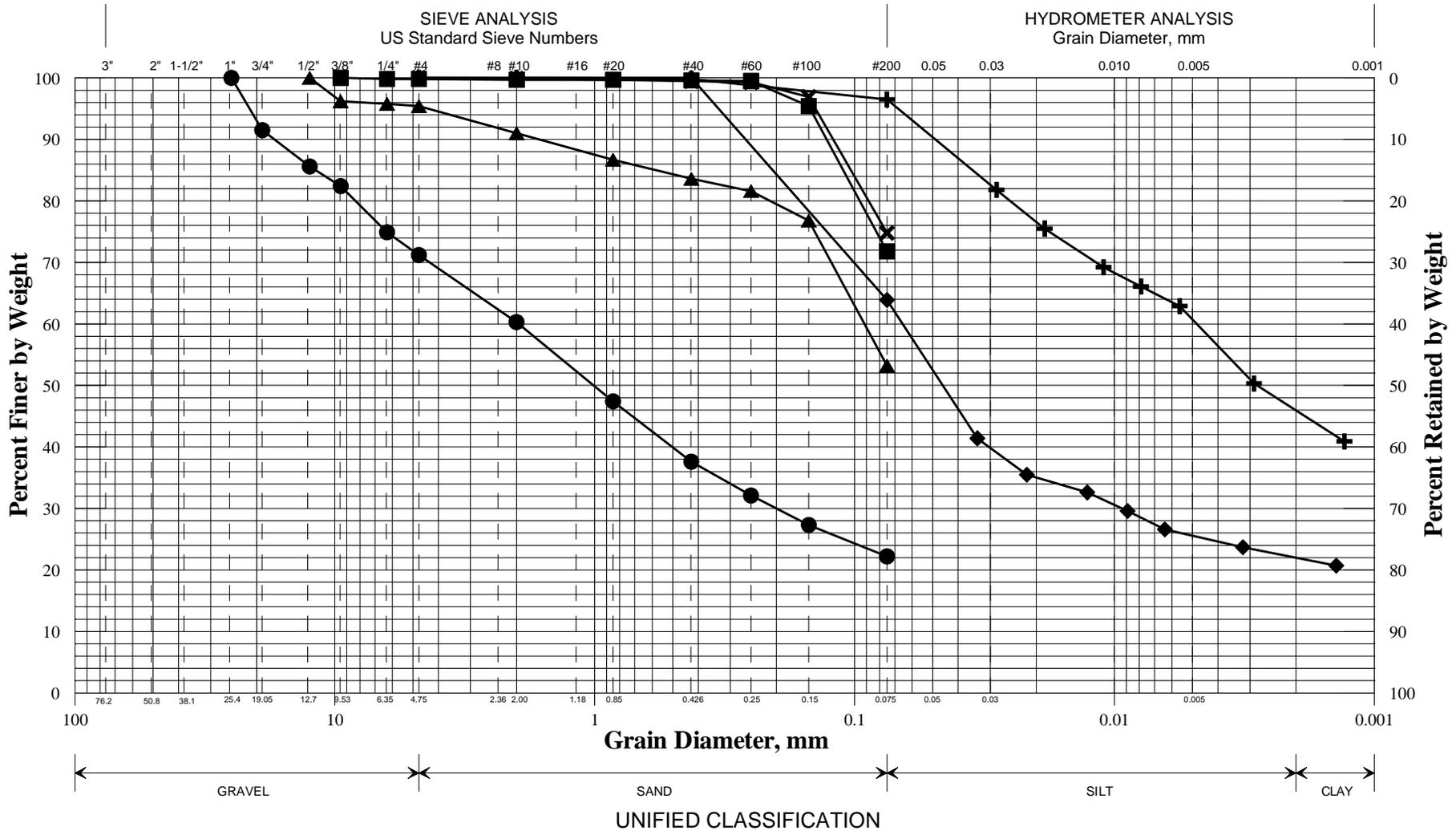
**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-236/S1	111+00	30.0 LT	0.42-2.0	SAND, some silt, some gravel.	16.2			
◆	HB-EAST-236/1D	111+00	30.0 LT	5.0-7.0	SILT, some clay, some sand.	20.5	26	17	9
■	HB-EAST-236/2D	111+00	30.0 LT	10.0-12.0	Sandy SILT.	26.7			NP
●									
▲									
×									

WIN	
019194.00	
Town	
Eastport	
Reported by/Date	
WHITE, TERRY A	12/23/2014

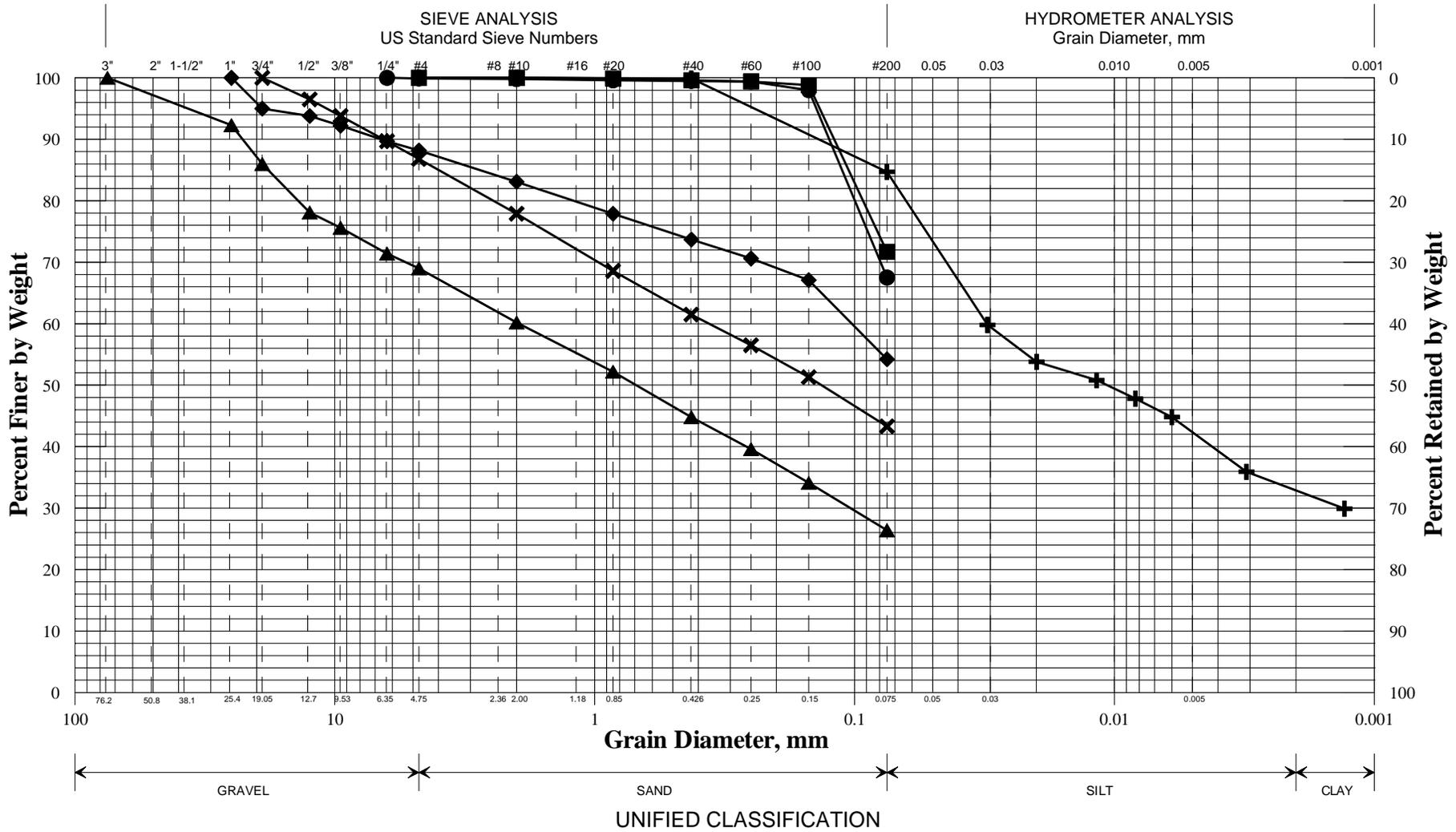
**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-237/1D	111+00	8.0 LT	5.0-7.0	Clayey SILT, trace sand.	21.5	33	20	13
◆	HB-EAST-237/2D	111+00	8.0 LT	10.5-12.0	Sandy SILT, some clay.	26.2			NP
■	HB-EAST-237/3D	111+00	8.0 LT	15.0-17.0	SILT, some sand, trace gravel.	24.7			NP
●	HB-EAST-237/4D	111+00	8.0 LT	21.0-22.0	SAND, some gravel, some silt.	8.7			
▲	HB-EAST-238/1D	113+00	30.0 RT	5.0-7.0	Sandy SILT, trace gravel.	19.7	26	18	8
×	HB-EAST-239/1D	113+00	15.0 RT	16.0-17.0	SILT, some sand.	25.0			

WIN	
019194.00	
Town	
Eastport	
Reported by/Date	
WHITE, TERRY A	12/23/2014

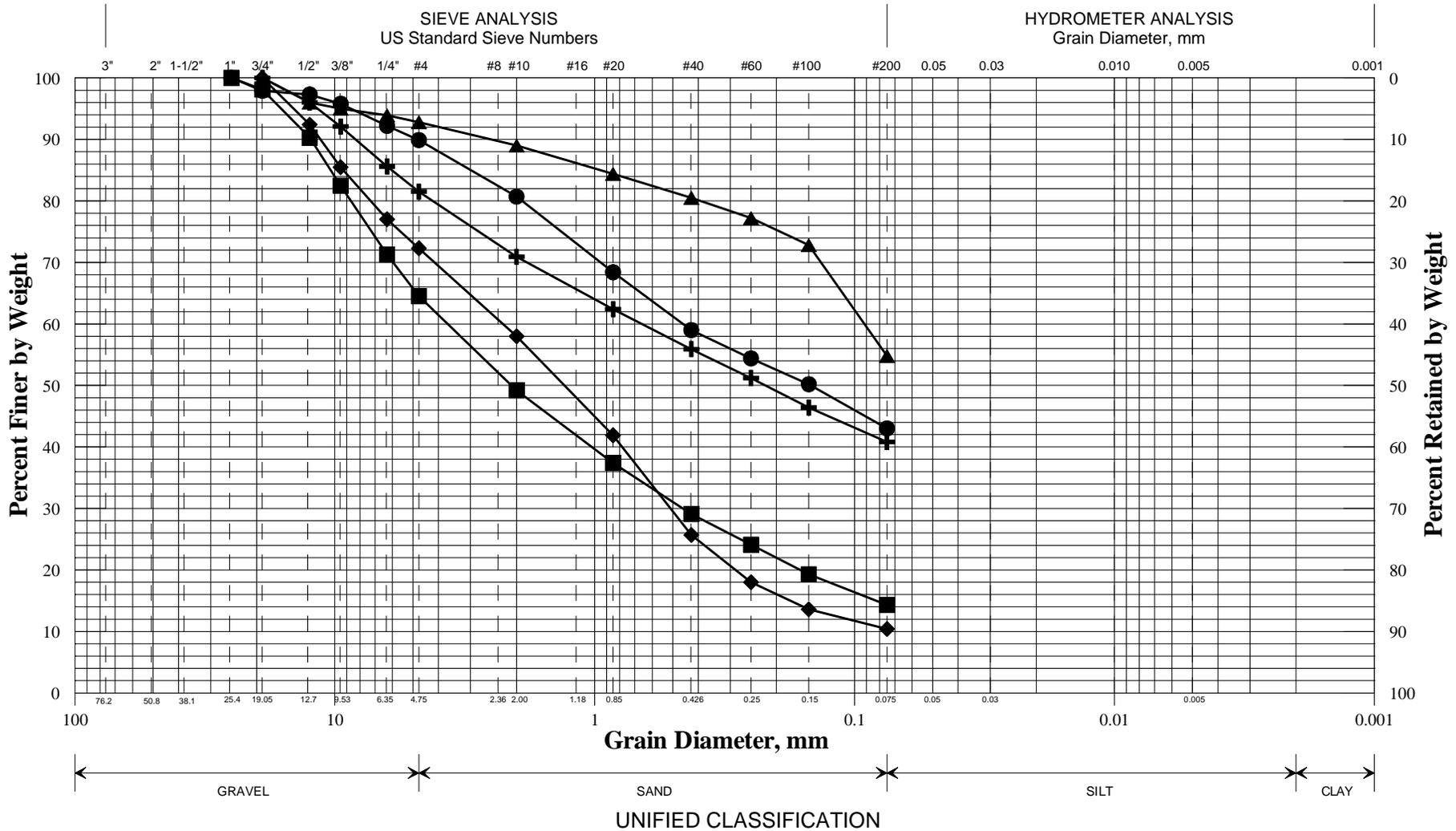
**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-240/1D	113+00	CL	5.0-7.0	SILT, some clay, little sand.	13.4	24	17	7
◆	HB-EAST-240/2D	113+00	CL	10.0-12.0	SILT, some sand, little gravel.	15.4	22	15	7
■	HB-EAST-241/1D	113+00	15.0 LT	5.0-7.0	SILT, some sand.	24.2			NP
●	HB-EAST-241/2D	113+00	15.0 LT	10.0-12.0	SILT, some sand, trace gravel.	25.1			NP
▲	HB-EAST-241/3D	113+00	15.0 LT	15.0-16.6	SAND, some gravel, some silt.	6.9			
×	HB-EAST-244/1D	115+00	CL	5.0-7.0	Silty SAND, little gravel.	11.6			

WIN	
019194.00	
Town	
Eastport	
Reported by/Date	
WHITE, TERRY A	12/23/2014

**State of Maine Department of Transportation**  
**GRAIN SIZE DISTRIBUTION CURVE**



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
+	HB-EAST-246/S1	116+80	30.0 RT	4.0-10.0	Silty SAND, little gravel.	14.6			
◆	HB-EAST-247/S1	117+00	5.0 RT	0.0-2.8	SAND, some gravel, little silt.	5.1			
■	HB-EAST-248/S1	117+00	30.0 LT	0.25-2.0	SAND, some gravel, little silt.	2.7			
●	HB-EAST-248/S2	117+00	30.0 LT	3.0-10.0	Silty SAND, trace gravel.	12.8			
▲	HB-EAST-250/S1	119+00	3.0 LT	2.0-7.2	Sandy SILT, trace gravel.	14.9			
×									

WIN
019194.00
Town
Eastport
Reported by/Date
WHITE, TERRY A      12/23/2014

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 101+00, 25.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 9.0 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)      LL = Liquid Limit  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value      PL = Plastic Limit  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value      PI = Plasticity Index  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency      G = Grain Size Analysis  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.33	HSA	4" TOPSOIL, (Sod, grass).	
5	1D	24/20	5.00 - 7.00	5/5/6/6	11	15					Olive-brown, wet, stiff, clayey SILT, little fine sand.	
10	2D	24/20	10.00 - 12.00	2/3/2/3	5	7			-9.00		Olive-grey, wet, medium stiff, clayey SILT, little fine sand.	
15	3D	24/19	15.00 - 17.00	2/2/5/5	7	9			-15.50		Brown, wet, loose, silty fine to medium SAND.	
17.00									-17.00		<b>Bottom of Exploration at 17.00 feet below ground surface. NO REFUSAL</b>	
20												
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 101+50, CL	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead

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

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.42	5" TOPSOIL, (Sod, grass).		
5	1D	24/16	5.00 - 7.00	2/3/5/5	8	11			-8.00	Olive-brown, moist, medium stiff, silty CLAY, trace sand.	G#263451 A-6, CL WC=24.0 LL=36 PL=22 PI=14	
10	2D	24/20	10.00 - 12.00	2/2/2/3	4	5			-17.00	Olive-grey, wet, soft, silty CLAY, trace gravel, trace sand.	G#263452 A-6, CL WC=24.6 LL=34 PL=19 PI=15	
15	3D	24/22	15.00 - 17.00	2/2/2/3	4	5			-17.00	Similar to above.		
20									-17.00	<b>Bottom of Exploration at 17.00 feet below ground surface. NO REFUSAL</b>		
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 103+00, CL	Casing ID/OD: N/A	Water Level*: 0.9 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 LL = Liquid Limit      PL = Plasticity Index      G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.42	5" TOPSOIL, (Sod, grass).		
	S1		1.00 - 3.00							Brown, wet, fine to coarse SAND, little silt, trace gravel.	G#263453 A-1-b, SM WC=14.9%	
5									-4.00	Brown, wet, loose, SILT, some sand, trace gravel.		
	1D	24/18	5.00 - 7.00	4/4/4/6	8	11			-7.00	<b>Bottom of Exploration at 7.00 feet below ground surface.</b> NO REFUSAL	G#263454 A-6, CL WC=21.7% LL=29 PL=17 PI=12	
10												
15												
20												
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 104+50, 15.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.0 ft bgs.

Hammer Efficiency Factor: 0.801      Hammer Type: Automatic  Hydraulic  Rope & Cathead

Definitions:  
D = Split Spoon Sample      R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
MD = Unsuccessful Split Spoon Sample attempt      SSA = Solid Stern Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (ksf)      WC = water content, percent  
U = Thin Wall Tube Sample      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
MU = Unsuccessful Thin Wall Tube Sample attempt      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
MV = Unsuccessful Insitu Vane Shear Test attempt      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.42		5" TOPSOIL, (Sod, grass).	
	S1		1.00 - 3.00							Brown, wet, fine to coarse SAND, little gravel, trace silt.	G#263455 A-1-b, SW-SM WC=16.8%
5	1D	24/18	5.00 - 7.00	2/4/5/6	9	12				Brown, wet, stiff, silty CLAY, trace sand.	G#263456 A-6, CL WC=23.2% LL=33 PL=22 PI=11
10	2D V1	24/22	10.00 - 12.00 10.29 - 10.40	1/2/2/2 Su=3301/629 psf	4	5				Grey, wet, soft, silty CLAY, trace sand. 16x32 mm vane raw torque readings: V1: 24.0/4.0 in-lbs	G#263457 A-6, CL WC=26.3% LL=32 PL=18 PI=14
15	3D V2	24/24	15.00 - 17.00 15.63 - 16.00	2/2/3/3 Su=>1964 psf	5	7				Similar to above. 55x110 mm vane raw torque readings: V2: +44 ft-lbs, failed attempt.	G#263458 A-4, CL WC=24.9% LL=29 PL=20 PI=9
								-17.00		<b>Bottom of Exploration at 17.00 feet below ground surface.</b> NO REFUSAL	

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 104+50, 30.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.8 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 LL = Liquid Limit      PL = Plasticity Index  
 G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.42	5" TOPSOIL, (Sod, grass).		
										Brown, wet, fine to coarse SAND, little gravel, trace silt. ≈104		
									-2.60			
5	1D	24/10	5.00 - 7.00	3/5/5/5	10	13			-7.00	Brown, wet, stiff, silty CLAY, trace sand.	G#263459 A-6, CL WC=22.8 LL=35 PL=22 PI=13	
										<b>Bottom of Exploration at 7.00 feet below ground surface.</b> NO REFUSAL		
10												
15												
20												
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 104+50, 15.0 ft Rt.	Casing ID/OD: N/A	Water Level*: 1.2 ft bgs.

Hammer Efficiency Factor: 0.801      Hammer Type: Automatic  Hydraulic  Rope & Cathead

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

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.33		4" TOPSOIL, (Sod, grass). Brown, wet, fine to coarse SAND, little gravel, trace silt. ≈104	
5	1D	24/18	5.00 - 7.00	3/4/6/6	10	13		-4.20		Brown, wet, stiff, clayey SILT, some fine sand.	
10	2D V1	24/20	10.00 - 12.00	2/3/3/3 S <sub>u</sub> > 4715 psf	6	8		-12.00		Grey, wet, loose, clayey SILT, little sand. 16x32 mm vane raw torque readings: V1: +30.0 in-lbs	G#263460 A-4, CL-ML WC=19.2% LL=24 PL=17 PI=7
15										<b>Bottom of Exploration at 12.00 feet below ground surface.</b> NO REFUSAL	
20											
25											

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 105+50, 15.0 ft Rt.	Casing ID/OD: N/A	Water Level*: 1.8 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)      LL = Liquid Limit  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value      PL = Plastic Limit  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value      PI = Plasticity Index  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency      G = Grain Size Analysis  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.42		5" TOPSOIL, (Sod, grass).	
	S1		1.00 - 4.00								Brown, wet, fine to coarse SAND, little gravel, trace silt.	
5									-4.60		Brown, wet, stiff, clayey SILT, little fine sand.	
	1D	24/22	5.00 - 7.00	4/5/7/8	12	16						
10											Similar to above, except medium stiff.	
	2D	24/20	10.00 - 12.00	3/4/3/4	7	9						
									-12.00		<b>Bottom of Exploration at 12.00 feet below ground surface. NO REFUSAL</b>	
15												
20												
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 105+50, CL	Casing ID/OD: N/A	Water Level*: 2.0 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stern Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value      LL = Liquid Limit  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value      PL = Plastic Limit  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency      G = Grain Size Analysis  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.42	5" TOPSOIL, (Sod, grass).		
			1.00 - 3.00						Brown, wet, fine to coarse SAND, little gravel, trace silt. ≈107		
								-3.50			
5	1D	24/22	5.00 - 7.00	4/6/7/7	13	17			Brown, wet, stiff, clayey SILT, trace sand, trace gravel.	G#263461 A-4, CL WC=21.7% LL=30 PL=21 PI=9	
10	2D V1	24/24	10.00 - 12.00 10.29 - 10.40	3/3/3/4 Su=>4715 pdk	6	8		-10.60	16x32 mm vane raw torque readings: V1: +30.0 in-lbs, failed attempt	G#263462 A-4, CL WC=21.4% LL=27 PL=17 PI=10	
									Grey, wet, medium stiff, clayey SILT, trace sand.		
15	3D V2	24/23	15.00 - 17.00 15.29 - 15.40	2/3/4/4 Su=>4715 psf	7	9		-15.50	16x32 mm vane raw torque readings: V2: +30.0 in-lbs, failed attempt.	G#263463 A-4, ML WC=22.8% Non-PLastic	
									Grey, wet, medium stiff, SILT, some clay, some sand.		
								-17.00	<b>Bottom of Exploration at 17.00 feet below ground surface.</b> NO REFUSAL		
20											
25											

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 105+50, 30.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.8 ft bgs.

Hammer Efficiency Factor: 0.801      Hammer Type: Automatic  Hydraulic  Rope & Cathead

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

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.42		5" TOPSOIL, (Sod, grass).	
										Brown, wet, fine to coarse SAND, little gravel, trace silt. ≈107	
								-3.20			
5	1D	24/18	5.00 - 7.00	3/4/6/6	10	13				Brown, wet, stiff, clayey SILT, trace sand.	G#263464 A-4, CL WC=21.3% ll=29 pl=19 pi=10
10	2D	24/24	10.00 - 12.00	3/3/2/3	5	7		-10.60		Grey, wet, medium stiff, clayey SILT, trace sand.	G#263465 A-4, CL WC=24.2% LL=29 PL=19 PI=10
15	3D/MV	24/24	15.00 - 17.00	2/2/2/3	4	5		-15.30		Failed 55x110 mm vane failed vane attempt, would not push.	G#263466 A-6, CL WC=21.5% LL=29 PL=17 PI=12
										Grey, wet, soft, clayey SILT, little sand.	
								-17.00		<b>Bottom of Exploration at 17.00 feet below ground surface.</b> NO REFUSAL	
20											
25											

**Remarks:**

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

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 105+50, 15.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.8 ft bgs.

Hammer Efficiency Factor: 0.801      Hammer Type: Automatic  Hydraulic  Rope & Cathead

Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
LL = Liquid Limit      PL = Plastic Limit  
G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.42		5" TOPSOIL, (Sod, grass).	
										Brown, wet, fine to coarse SAND, little gravel, trace silt. ≈107	
5	1D	24/20	5.00 - 7.00	5/7/7/9	14	19		-5.00		Brown, wet, stiff, clayey SILT, some fine sand.	
10	2D	24/16	10.00 - 12.00	5/4/5/4	9	12				Brown, wet, stiff, SILT, some clay, little gravel, trace sand.	G#263467 A-6, CL WC=20.1% LL=29 PL=18 PI=11
15	3D	24/17	15.00 - 17.00	2/2/1/2	3	4		-14.00		Grey, wet, soft, clayey SILT, little sand.	G#263468 A-4, CL WC=23.8% LL=26 PL=17 PI=9
20	4D	24/18	20.00 - 22.00	3/3/4/5	7	9		-18.50		Brown, wet, loose, silty SAND.	G#263469 A-4, SM WC=25.4%
22.00								-22.00		Bottom of Exploration at 22.00 feet below ground surface. NO REFUSAL	

Remarks:

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

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 106+50, 30.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.8 ft bgs.

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 LL = Liquid Limit      PL = Plasticity Index  
 G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.33	4" TOPSOIL, (Sod, grass).	-0.33	
	S1		1.00 - 3.00						Brown, wet, clayey SILT, little fine sand.		
								-3.00		-3.00	
5									Brown, moist, stiff, clayey SILT, little fine sand.		
	1D	24/20	5.00 - 7.00	5/7/7/7	14	19					
								-8.50		-8.50	
10									Grey, wet, soft, clayey SILT, little fine sand.		
	2D	24/24	10.00 - 12.00	2/2/2/2	4	5					
								-15.50		-15.50	
15									Grey, wet, soft, clayey SILT, some fine sand.		
	3D	24/22	15.00 - 17.00	3/2/2/2	4	5					
								-17.00		-17.00	
									<b>Bottom of Exploration at 17.00 feet below ground surface.</b> NO REFUSAL		
20											
25											

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/4/2014-11/4/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 106+50, 15.0 ft Lt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.42	5" TOPSOIL, (Sod, grass).		
									Brown, wet, clayey SILT, little fine sand. ≈111		
5	1D	24/20	5.00 - 7.00	3/5/6/7	11	15		-5.00	Brown, moist, stiff, clayey SILT, trace sand.	G#263470 A-6, CL WC=20.9% LL=33 PL=19 PI=14	
									Olive-brown, wet, stiff, clayey SILT, trace sand.	G#263471 A-6, CL WC=25.4% LL=36 PL=22 PI=14	
10	2D	24/24	10.00 - 12.00	3/4/5/5	9	12		-8.50	Olive-brown, wet, stiff, clayey SILT, trace sand.		
									Brown, wet, medium dense silty SAND, little gravel (Till).	G#263472 A-4, SM WC=14.6%	
15	3D	24/16	15.00 - 17.00	5/7/19/20	26	35		-16.00	Brown, wet, medium dense silty SAND, little gravel (Till).		
									Similar to above, except dense.		
20	4D	22.8/18	20.00 - 21.90	12/18/16/50(4.8)	34	45		-21.90	Similar to above, except dense.		
									<b>Bottom of Exploration at 21.90 feet below ground surface. REFUSAL</b>		
25											

**Remarks:**

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







Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/6/2014-11/6/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 113+00, 30.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 LL = Liquid Limit      PL = Plasticity Index      G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0	S1		0.42 - 1.50						-0.42	5" TOPSOIL, (Sod, grass).		
									-1.50	Brown, wet, silty fine to coarse SAND, little gravel.		
5	1D	24/18	5.00 - 7.00	5/7/7/12	14	19			-7.00	Brown, wet, medium dense, silty fine to medium SAND, trace clay.	G#263355 A-4, CL WC=19.7% LL=26 PL=18 PI=8	
										<b>Bottom of Exploration at 7.00 feet below ground surface.</b> NO REFUSAL		
10												
15												
20												
25												

**Remarks:**

Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/6/2014-11/6/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 113+00, 15.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = In situ Field Vane Shear Strength (psf)      S<sub>u</sub>(lab) = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value  
 V = In situ Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected  
 LL = Liquid Limit      PL = Plasticity Index      G = Grain Size Analysis      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.33	4" TOPSOIL, (Sod, grass).		
									-2.00	Brown, wet, silty fine to coarse SAND, little gravel. ≈138		
5	1D	24/19	5.00 - 7.00	3/4/5/8	9	12				Brown, wet, loose, silty fine to medium SAND.	G#263356 A-4, CL WC=25.0%	
10	2D	21.6/16	10.00 - 11.80	3/3/11/30(3.6")	14	19			-11.00	Grey, wet, medium dense, silty fine to medium SAND, little gravel, trace clay.		
									-11.80	<b>Bottom of Exploration at 11.80 feet below ground surface. REFUSAL</b>		
15												
20												
25												

**Remarks:**



Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/6/2014-11/6/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 113+00, 15.0 ft Lt.	Casing ID/OD: N/A	Water Level*: 1.1 ft bgs.

Hammer Efficiency Factor: 0.801      Hammer Type: Automatic  Hydraulic  Rope & Cathead

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

Depth (ft.)	Sample Information							Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows				
0								-0.33		4" TOPSOIL, (Sod, grass).	
								-2.20		Brown, wet, silty fine to coarse SAND, little gravel. ±138	
5	1D	24/20	5.00 - 7.00	4/4/4/4	8	11				Brown, wet, medium stiff, SILT, some sand.	G#263359 A-4, CL WC=24.2% Non-Plastic
10	2D	24/20	10.00 - 12.00	2/3/3/3	6	8				Grey, wet, medium stiff, SILT, some sand, trace gravel.	G#263360 A-4, CL WC=25.1% Non-Plastic
15	3D	19.2/15	15.00 - 16.60	11/15/15/20(1.2)	30	40				Grey, wet, dense, SAND, some gravel, some silt (Till).	G#263361 A-2-4, SM WC=6.9%
								-16.60		<b>Bottom of Exploration at 16.60 feet below ground surface. REFUSAL</b>	
20											
25											

**Remarks:**



Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/6/2014-11/6/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 115+00, CL	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)      LL = Liquid Limit  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value      PL = Plastic Limit  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value      PI = Plasticity Index  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency      G = Grain Size Analysis  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0									-0.42	HSA	5" TOPSOIL, (Sod, grass).	
5	1D	24/18	5.00 - 7.00	7/7/15/18	22	29					Brown, moist, medium dense, silty fine to coarse SAND, little gravel.	G#263362 A-4, SM WC=11.6%
									-7.90		<b>Bottom of Exploration at 7.90 feet below ground surface. REFUSAL</b>	
10												
15												
20												
25												

**Remarks:**



Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/6/2014-11/6/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 116+80, 30.0 ft Rt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   

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

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0										Ledge Stock Pile, (Rubble-Fill).		
5	S1		4.00 - 10.00							Brown, wet, silty SAND, little gravel.	G#263363 A-4, SM WC=14.6%	
10										<b>Bottom of Exploration at 10.00 feet below ground surface. NO REFUSAL</b>		
15												
20												
25												

**Remarks:**



Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/7/2014-11/7/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 117+00, 30.0 ft Lt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD = Unsuccessful Split Spoon Sample attempt      HSA = Hollow Stem Auger      q<sub>p</sub> = Unconfined Compressive Strength (ksf)      LL = Liquid Limit  
 U = Thin Wall Tube Sample      RC = Roller Cone      N-uncorrected = Raw field SPT N-value      PL = Plastic Limit  
 MU = Unsuccessful Thin Wall Tube Sample attempt      WOH = weight of 140lb. hammer      Hammer Efficiency Factor = Annual Calibration Value      PI = Plasticity Index  
 V = Insitu Vane Shear Test, PP = Pocket Penetrometer      WOR/C = weight of rods or casing      N<sub>60</sub> = SPT N-uncorrected corrected for hammer efficiency      G = Grain Size Analysis  
 MV = Unsuccessful Insitu Vane Shear Test attempt      WO1P = Weight of one person      N<sub>60</sub> = (Hammer Efficiency Factor/60%)\*N-uncorrected      C = Consolidation Test

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0	S1		0.25 - 2.00						-0.25		3" PAVEMENT.	G#263365 A-1-a, SM WC=2.7%
									-2.50		Brown, gravelly fine to coarse SAND, some gravel, little silt.	
	S2		3.00 - 10.00									G#263366 A-4, SM WC=12.8%
5												
10									-10.00		<b>Bottom of Exploration at 10.00 feet below ground surface.</b> NO REFUSAL	
15												
20												
25												

**Remarks:**





Driller: Northern Test Boring	Elevation (ft.):	Auger ID/OD: 4.25"-6.25"
Operator: Mike/Adam	Datum: NAVD88	Sampler: Standard Split Spoon
Logged By: B. Wilder	Rig Type: Diedrich D-50 Track	Hammer Wt./Fall: 140#/30"
Date Start/Finish: 11/7/2014-11/7/2014	Drilling Method: Hollow Stem Auger	Core Barrel: N/A
Boring Location: 119+00, 16.5 ft Lt.	Casing ID/OD: N/A	Water Level*: None Observed

**Hammer Efficiency Factor:** 0.801      **Hammer Type:** Automatic  Hydraulic  Rope & Cathead   

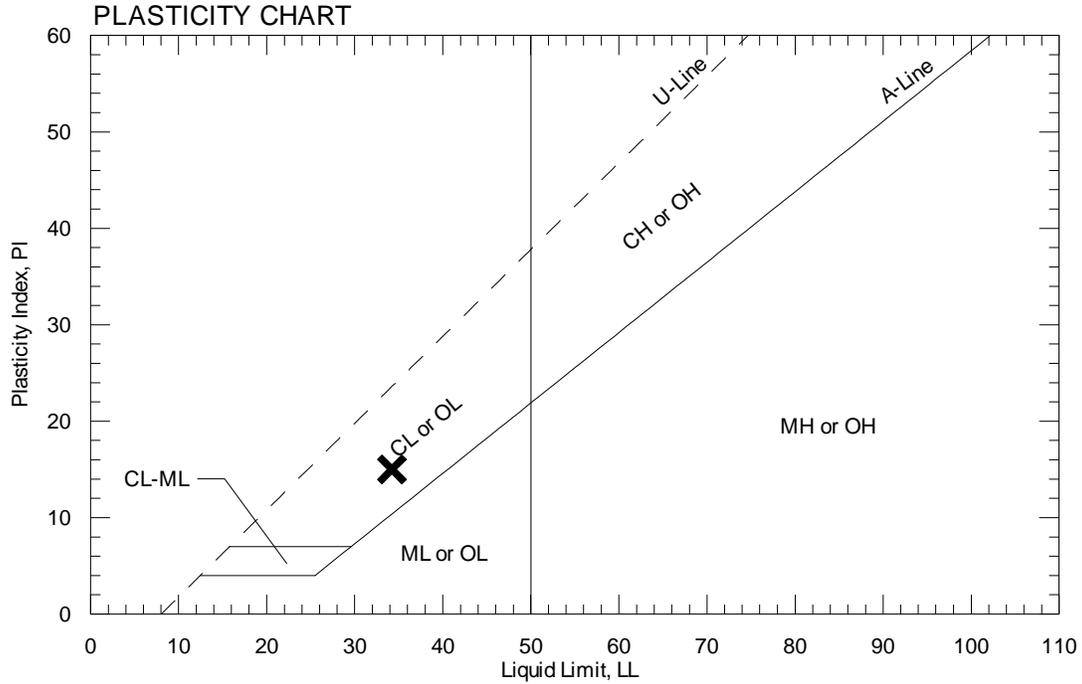
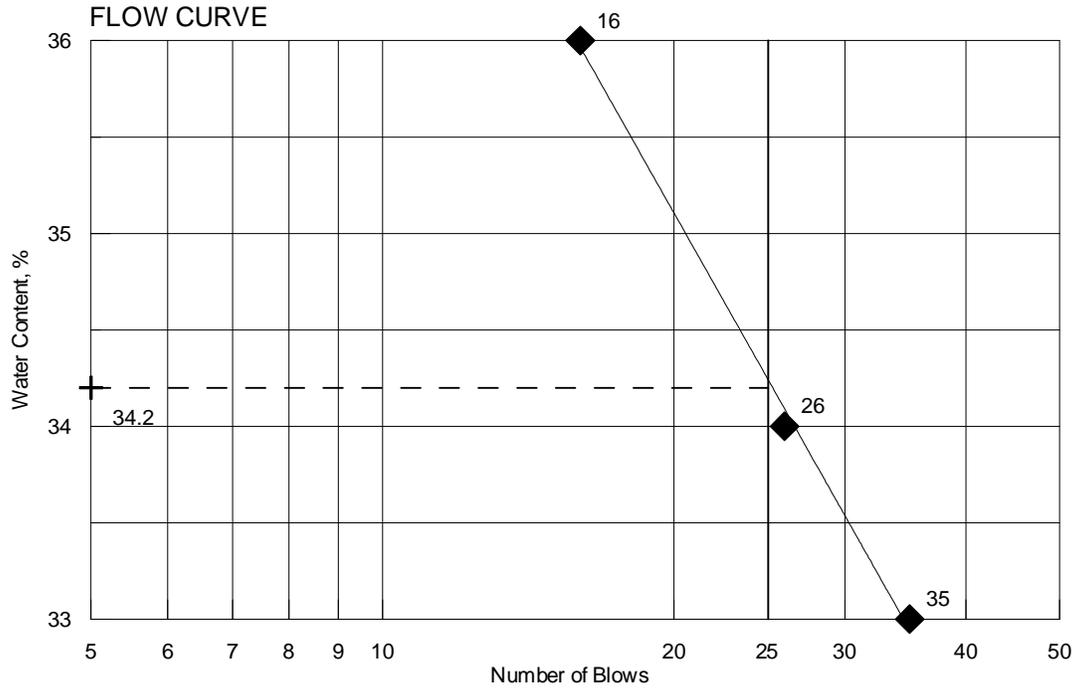
 Definitions: R = Rock Core Sample      S<sub>u</sub> = Insitu Field Vane Shear Strength (psf)      S<sub>u(lab)</sub> = Lab Vane Shear Strength (psf)  
 D = Split Spoon Sample      SSA = Solid Stem Auger      T<sub>v</sub> = Pocket Torvane Shear Strength (psf)      WC = water content, percent  
 MD =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

Depth (ft.)	Sample Information								Elevation (ft.)	Graphic Log	Visual Description and Remarks	Laboratory Testing Results/AASHTO and Unified Class.
	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (6 in.) Shear Strength (psf) or RQD (%)	N-uncorrected	N <sub>60</sub>	Casing Blows					
0	S1		0.42 - 3.00						-0.42	5" PAVEMENT.		
										Brown, damp, fine to coarse SAND, some gravel, little silt.		
									-3.00	Brown, damp, fine to coarse SAND, some gravel, little silt. ≈150		
5									-5.50	<b>Bottom of Exploration at 5.50 feet below ground surface.</b> NO REFUSAL, stopped at 5.5 ft bgs, styrofoam come up in auger.		
10												
15												
20												
25												

**Remarks:**



TOWN	Eastport	Reference No.	263452
WIN	019194.00	Water Content, %	24.6
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	34
Boring No./Sample No.	HB-EAST-202/2D	Plastic Limit (T 90), %	19
Station	101+50	Plasticity Index (T 90), %	15
Depth	10.0-12.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263454</b>	<b>HB-EAST-203/1D</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/4/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b>		Location: <b>ROADWAY</b>	Station: <b>103+00</b>	Offset, ft: <b>CL Dbf, ft: 5.0-7.0</b>
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>97.9</b>
⅜ in. [9.5 mm]	<b>96.6</b>
¼ in. [6.3 mm]	<b>96.6</b>
No. 4 [4.75 mm]	<b>96.6</b>
No. 10 [2.00 mm]	<b>96.4</b>
No. 20 [0.850 mm]	<b>96.3</b>
No. 40 [0.425 mm]	<b>96.2</b>
No. 60 [0.250 mm]	<b>95.9</b>
No. 100 [0.150 mm]	<b>94.6</b>
No. 200 [0.075 mm]	<b>75.0</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>29</b>
Plastic Limit (T 90), %	<b>17</b>
Plasticity Index (T 90), %	<b>12</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>21.7</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

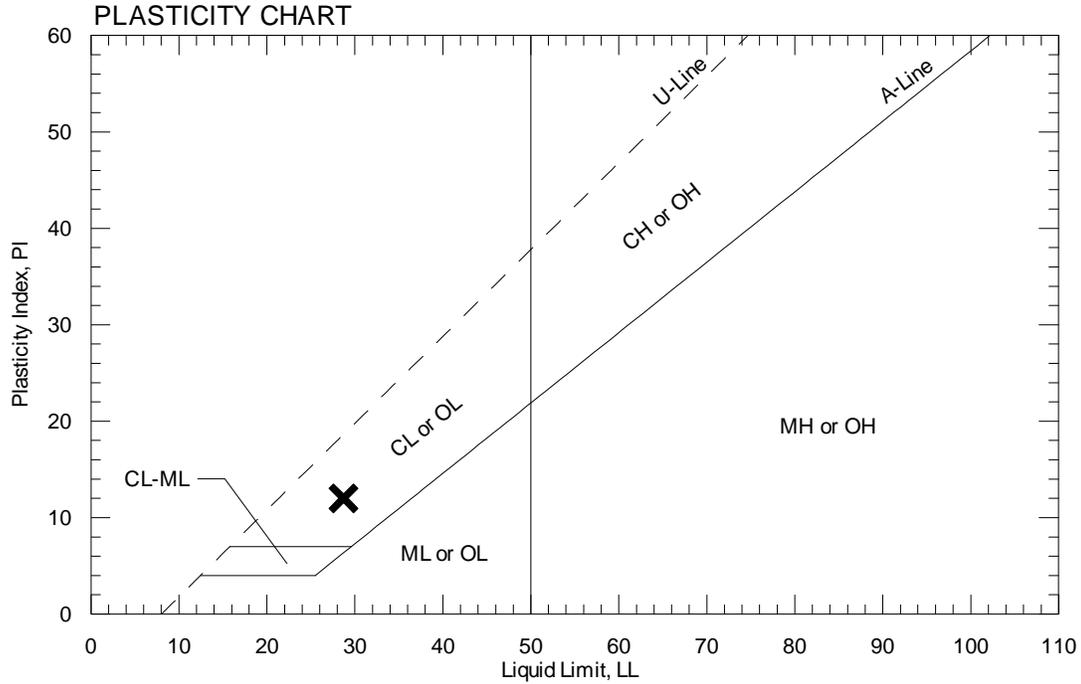
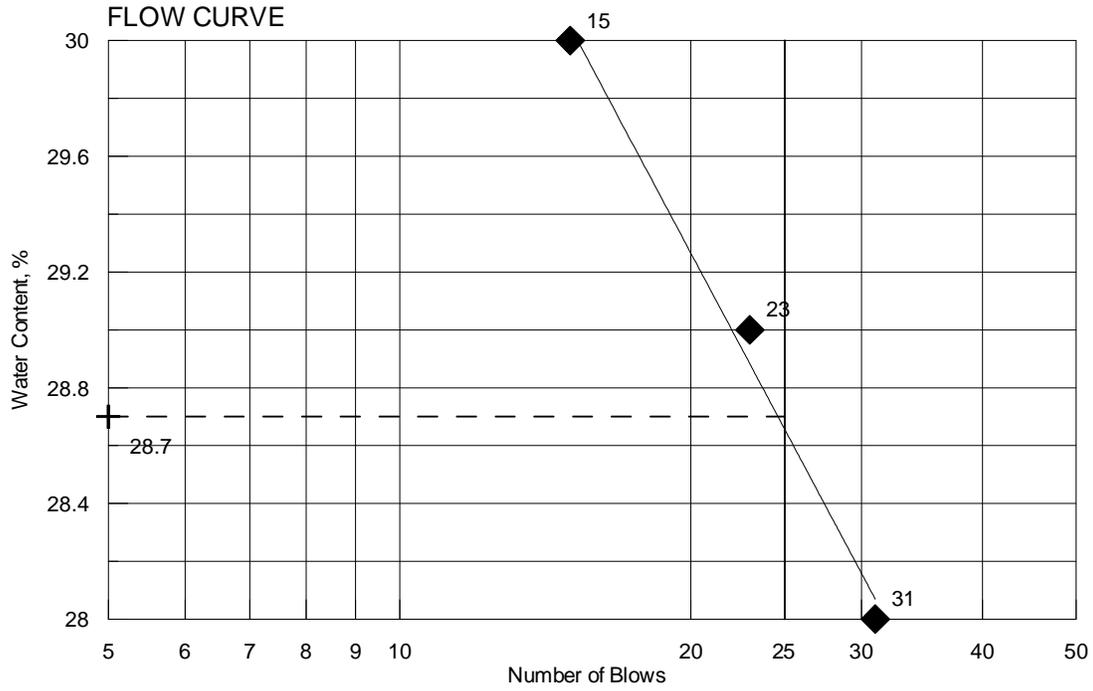
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263454
WIN	019194.00	Water Content, %	21.7
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-203/1D	Plastic Limit (T 90), %	17
Station	103+00	Plasticity Index (T 90), %	12
Depth	5.0-7.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263453** Boring No./Sample No. **HB-EAST-203/S1** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **103+00** Offset, ft: **CL** Dbfg, ft: **1.0-3.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	<b>100.0</b>
⅜ in. [9.5 mm]	<b>99.7</b>
¼ in. [6.3 mm]	<b>96.2</b>
No. 4 [4.75 mm]	<b>93.7</b>
No. 10 [2.00 mm]	<b>81.4</b>
No. 20 [0.850 mm]	<b>60.1</b>
No. 40 [0.425 mm]	<b>35.8</b>
No. 60 [0.250 mm]	<b>23.7</b>
No. 100 [0.150 mm]	<b>15.9</b>
No. 200 [0.075 mm]	<b>12.3</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>14.9</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

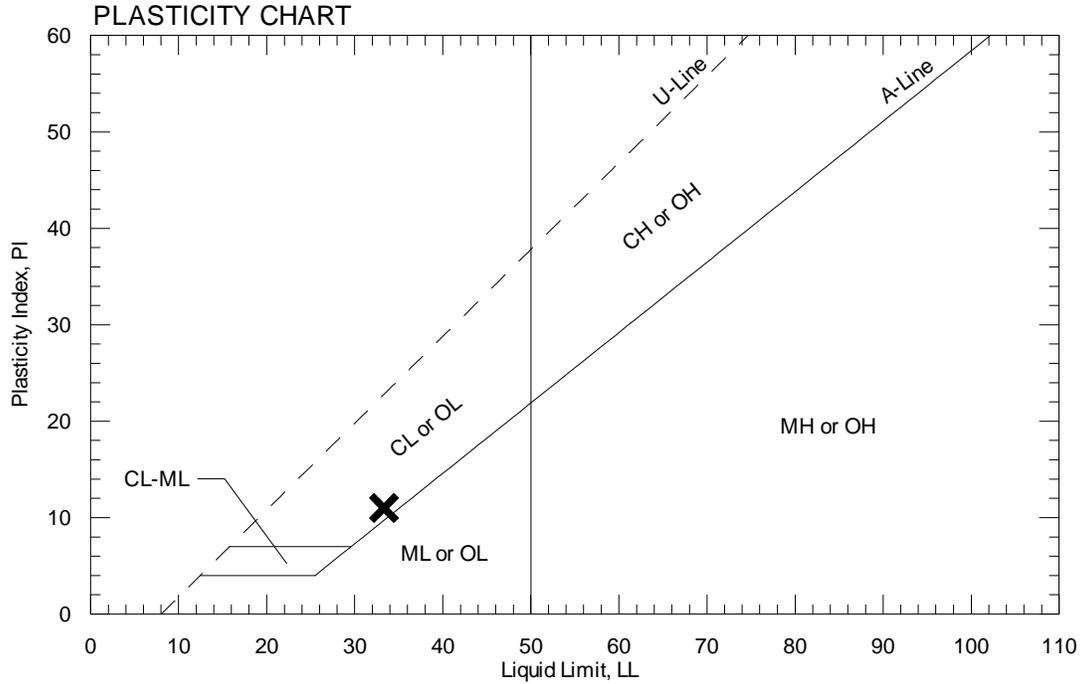
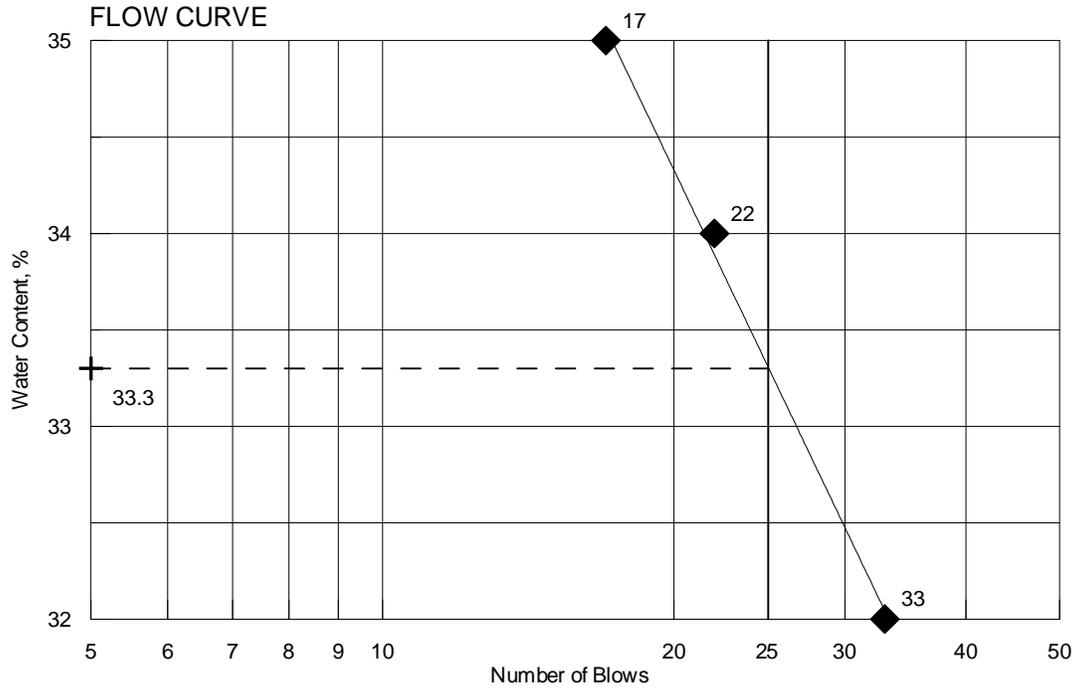
Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File

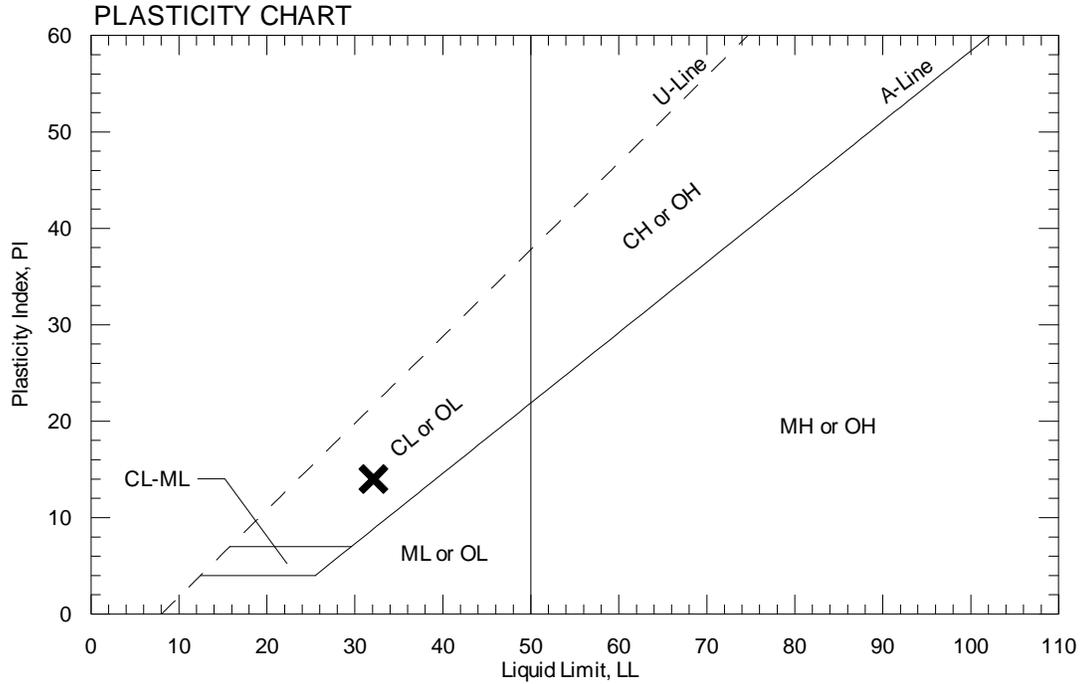
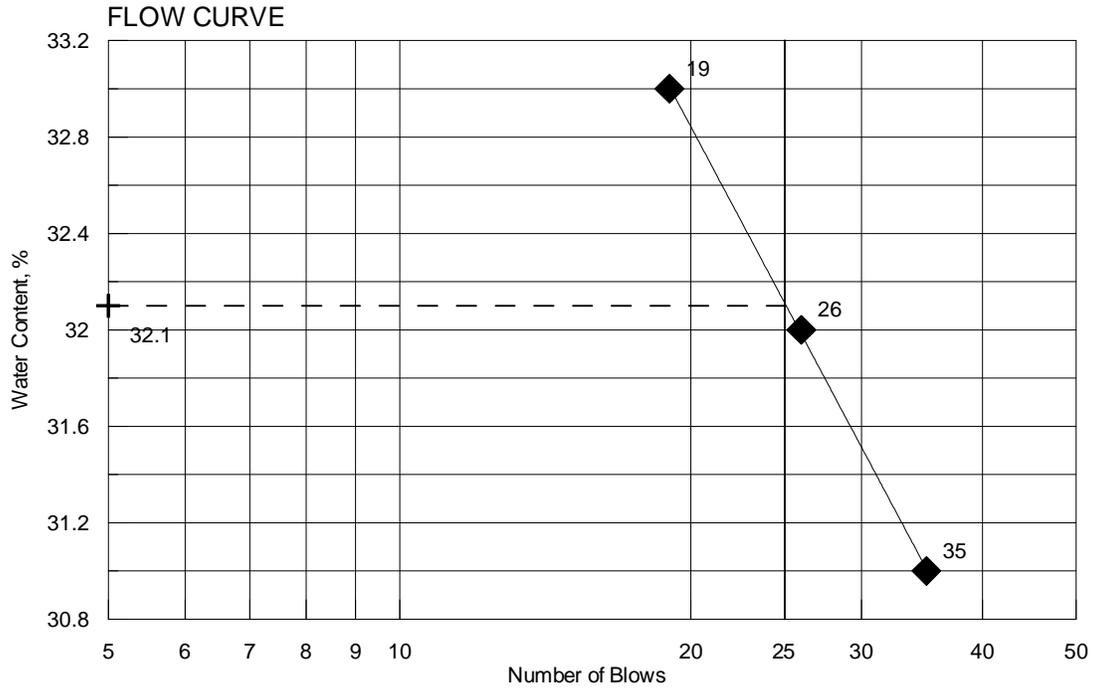


TOWN	Eastport	Reference No.	263456
WIN	019194.00	Water Content, %	23.2
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	33
Boring No./Sample No.	HB-EAST-204/1D	Plastic Limit (T 90), %	22
Station	104+50	Plasticity Index (T 90), %	11
Depth	5.0-7.0	Tested By	BBURR



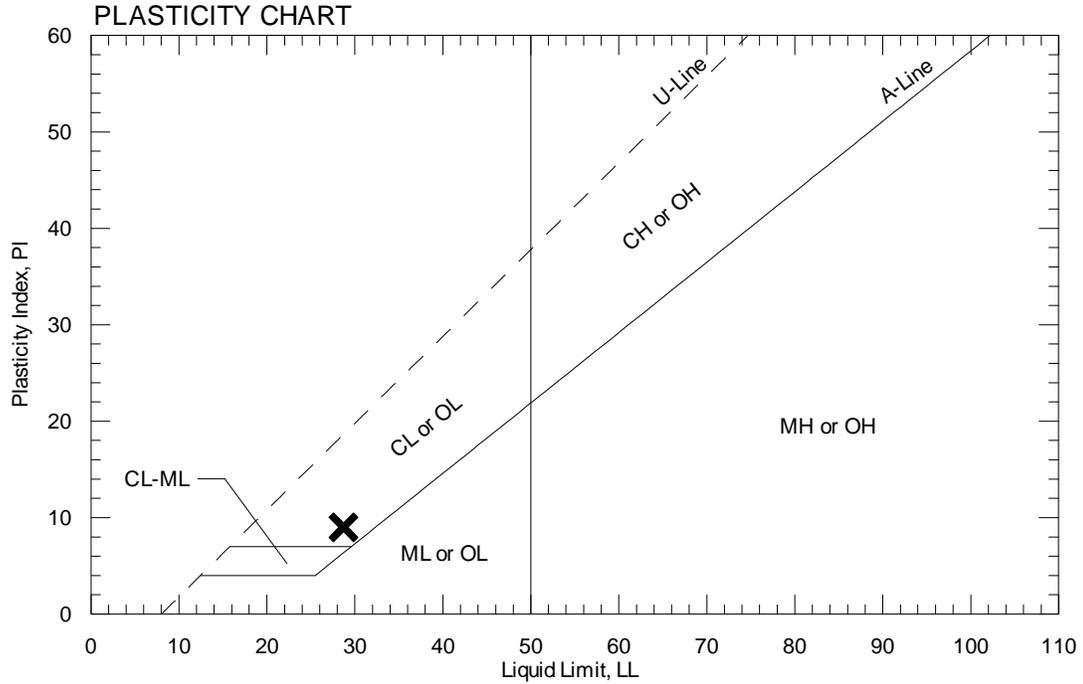
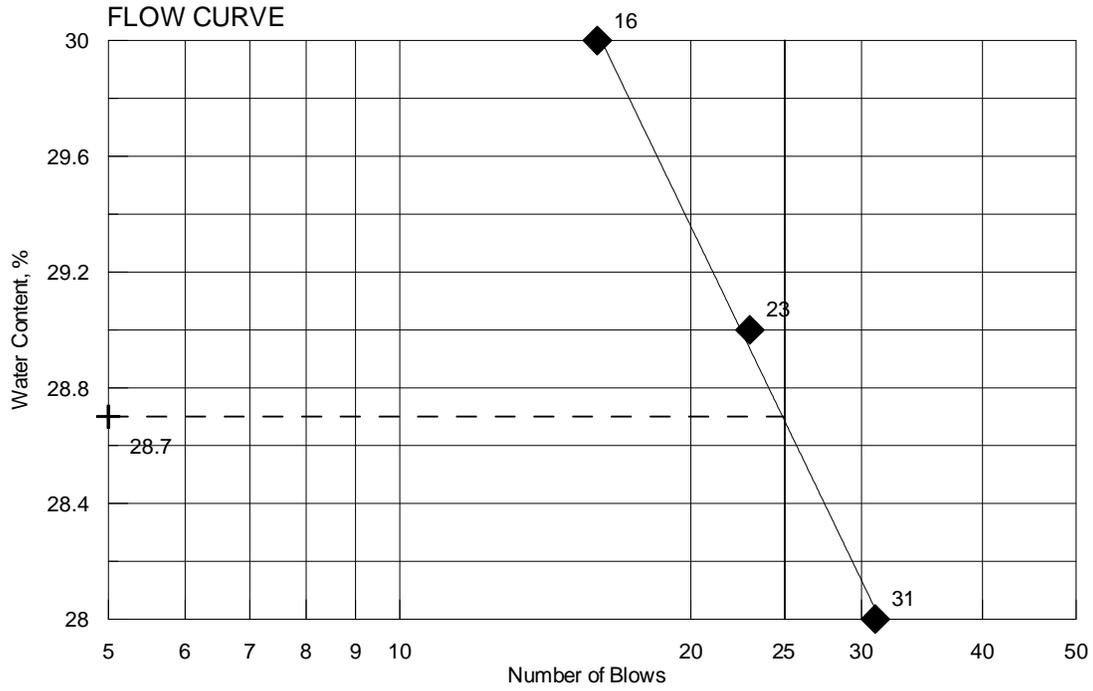


TOWN	Eastport	Reference No.	263457
WIN	019194.00	Water Content, %	26.3
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	32
Boring No./Sample No.	HB-EAST-204/2D	Plastic Limit (T 90), %	18
Station	104+50	Plasticity Index (T 90), %	14
Depth	10.0-12.0	Tested By	BFOGG





TOWN	Eastport	Reference No.	263458
WIN	019194.00	Water Content, %	24.9
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-204/3D	Plastic Limit (T 90), %	20
Station	104+50	Plasticity Index (T 90), %	9
Depth	15.0-17.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263455</b>	<b>HB-EAST-204/S1</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/4/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>104+50</b> Offset, ft: <b>15.0</b> LT Dbfg, ft: <b>0.42-3.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>95.4</b>
⅜ in. [9.5 mm]	<b>91.8</b>
¼ in. [6.3 mm]	<b>84.4</b>
No. 4 [4.75 mm]	<b>80.6</b>
No. 10 [2.00 mm]	<b>64.6</b>
No. 20 [0.850 mm]	<b>49.2</b>
No. 40 [0.425 mm]	<b>32.1</b>
No. 60 [0.250 mm]	<b>19.7</b>
No. 100 [0.150 mm]	<b>13.4</b>
No. 200 [0.075 mm]	<b>10.2</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>16.8</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263459** Boring No./Sample No. **HB-EAST-205/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **104+50** Offset, ft: **30.0** LT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>100.0</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>98.2</b>
[0.0292 mm]	<b>85.0</b>
[0.0190 mm]	<b>78.4</b>
[0.0111 mm]	<b>75.2</b>
[0.0080 mm]	<b>71.9</b>
[0.0058 mm]	<b>65.4</b>
[0.0029 mm]	<b>55.5</b>
[0.0013 mm]	<b>45.7</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>35</b>
Plastic Limit (T 90), %	<b>22</b>
Plasticity Index (T 90), %	<b>13</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.60</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>22.8</b>

#### Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

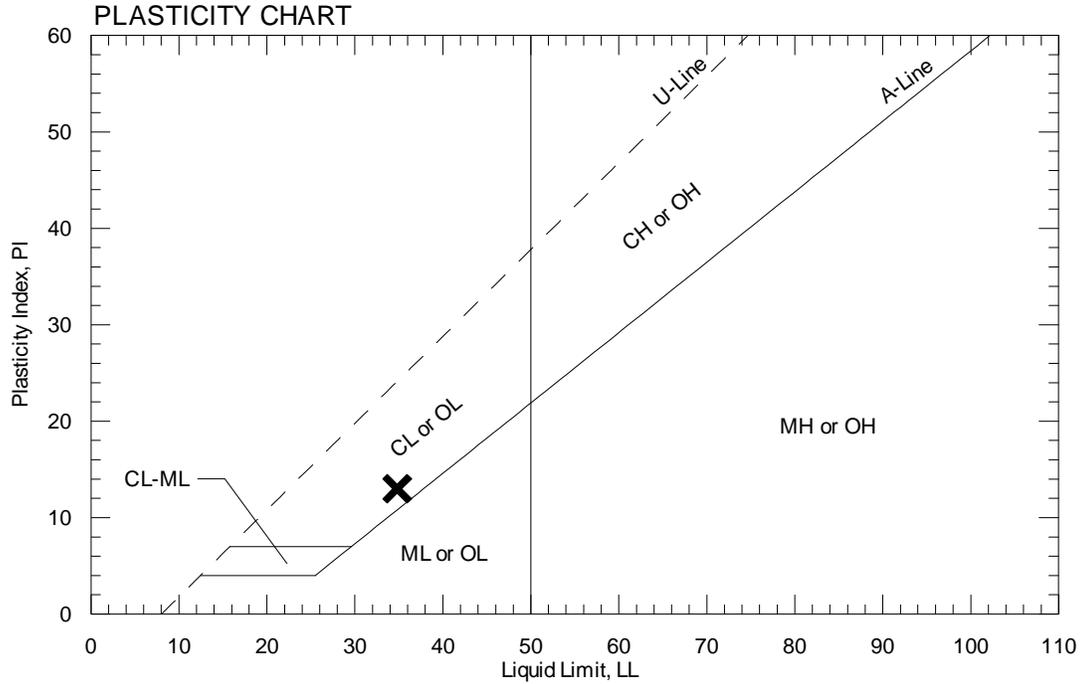
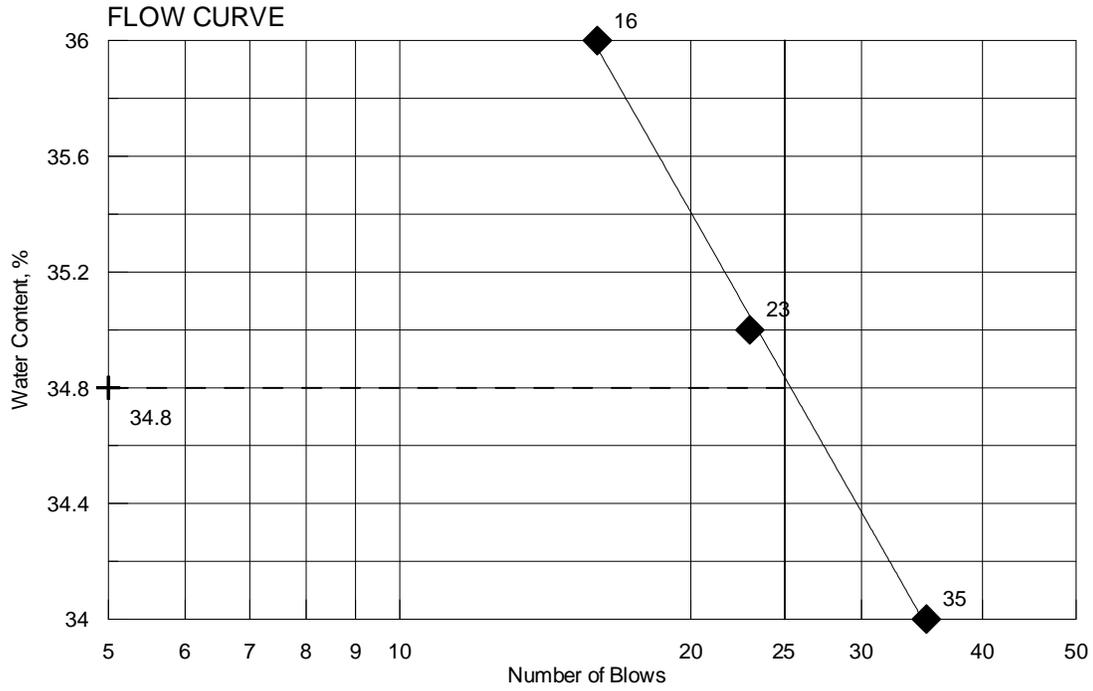
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263459
WIN	019194.00	Water Content, %	22.8
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	35
Boring No./Sample No.	HB-EAST-205/1D	Plastic Limit (T 90), %	22
Station	104+50	Plasticity Index (T 90), %	13
Depth	5.0-7.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263460** Boring No./Sample No. **HB-EAST-106/2D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **104+50** Offset, ft: **15.0** RT Dbfg, ft: **10.0-12.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	<b>100.0</b>
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>99.8</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.3</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>87.3</b>
[0.0304 mm]	<b>61.4</b>
[0.0197 mm]	<b>55.6</b>
[0.0115 mm]	<b>52.6</b>
[0.0083 mm]	<b>46.8</b>
[0.0060 mm]	<b>43.8</b>
[0.0031 mm]	<b>40.9</b>
[0.0013 mm]	<b>35.1</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>24</b>
Plastic Limit (T 90), %	<b>17</b>
Plasticity Index (T 90), %	<b>7</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.68</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>19.2</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

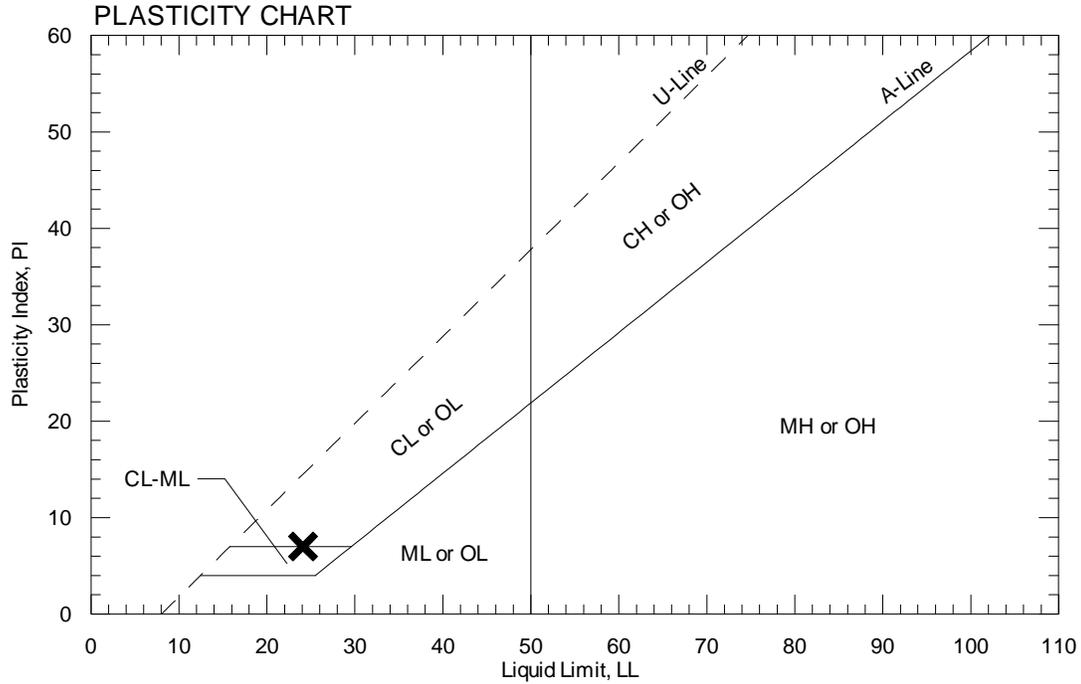
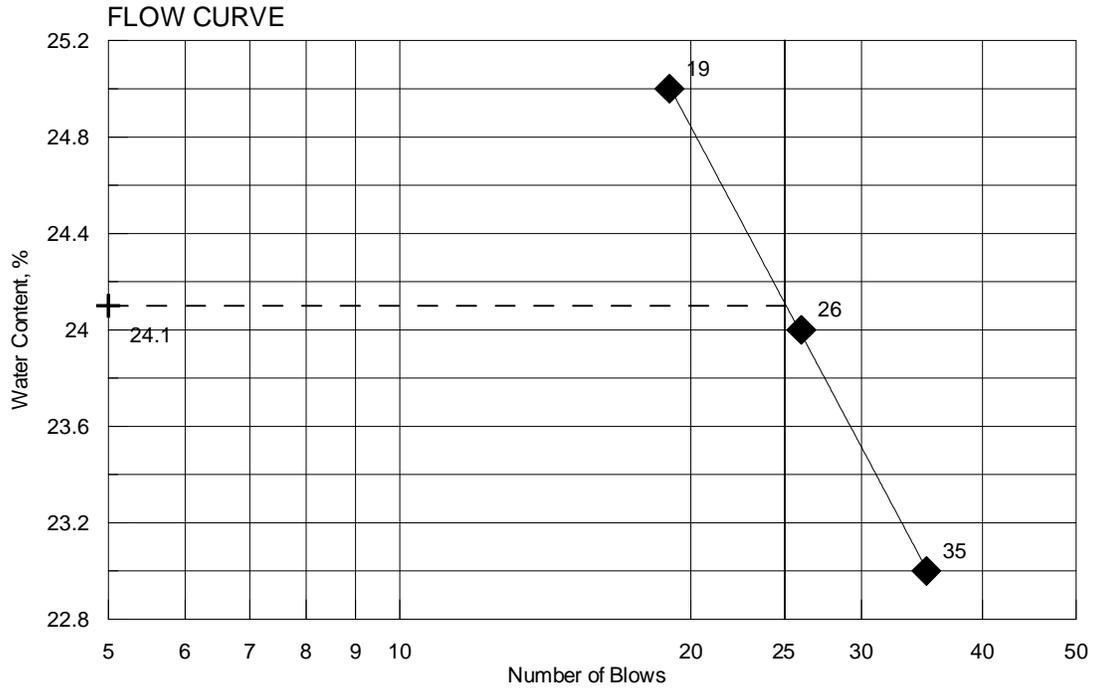
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263460
WIN	019194.00	Water Content, %	19.2
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	24
Boring No./Sample No.	HB-EAST-106/2D	Plastic Limit (T 90), %	17
Station	104+50	Plasticity Index (T 90), %	7
Depth	10.0-12.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263461** Boring No./Sample No. **HB-EAST-208/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **105+50** Offset, ft: **CL** Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	<b>100.0</b>
No. 4 [4.75 mm]	<b>99.9</b>
No. 10 [2.00 mm]	<b>99.9</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.8</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>95.8</b>
[0.0288 mm]	<b>72.5</b>
[0.0187 mm]	<b>66.7</b>
[0.0110 mm]	<b>63.8</b>
[0.0080 mm]	<b>57.9</b>
[0.0058 mm]	<b>52.1</b>
[0.0029 mm]	<b>46.4</b>
[0.0013 mm]	<b>34.8</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>30</b>
Plastic Limit (T 90), %	<b>21</b>
Plasticity Index (T 90), %	<b>9</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.72</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>21.7</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

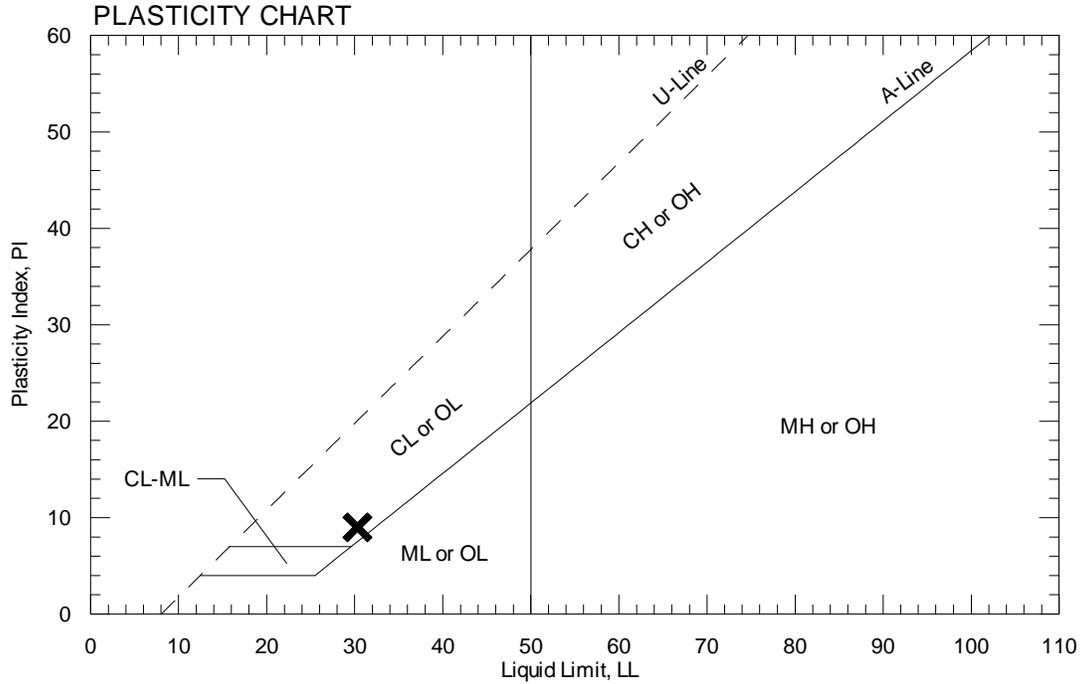
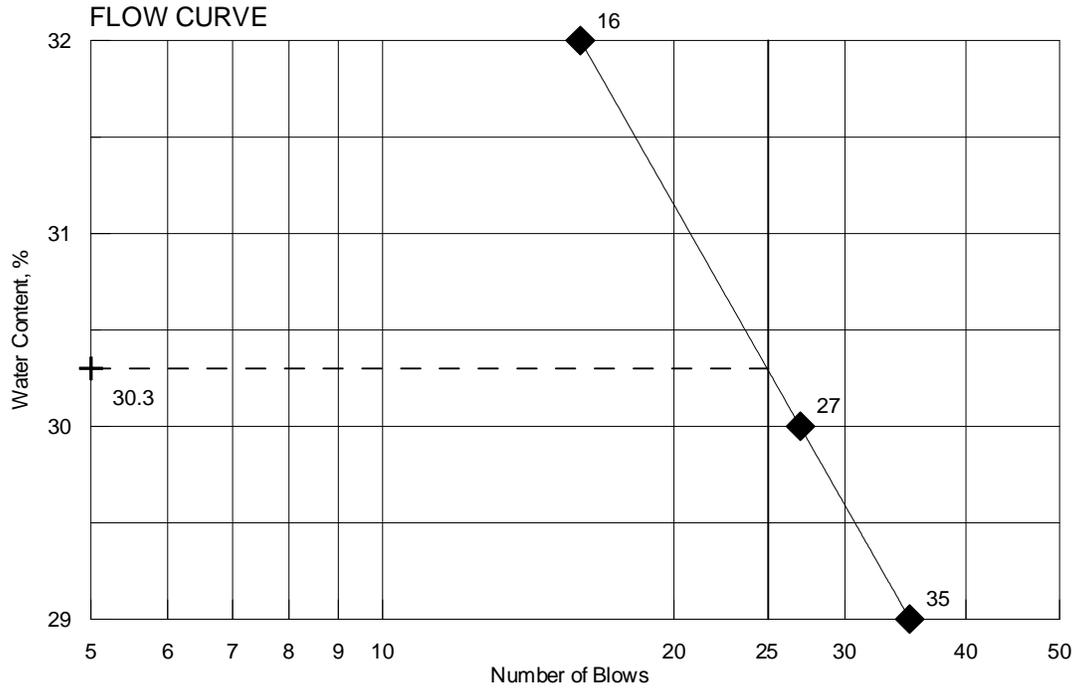
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/16/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263461
WIN	019194.00	Water Content, %	21.7
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	30
Boring No./Sample No.	HB-EAST-208/1D	Plastic Limit (T 90), %	21
Station	105+50	Plasticity Index (T 90), %	9
Depth	5.0-7.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263462** Boring No./Sample No. **HB-EAST-208/2D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **105+50** Offset, ft: **CL** Dbfg, ft: **10.6-12.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.9</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>95.8</b>
[0.0280 mm]	<b>71.6</b>
[0.0182 mm]	<b>66.1</b>
[0.0108 mm]	<b>60.5</b>
[0.0078 mm]	<b>55.0</b>
[0.0057 mm]	<b>49.5</b>
[0.0028 mm]	<b>44.0</b>
[0.0012 mm]	<b>35.8</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>27</b>
Plastic Limit (T 90), %	<b>17</b>
Plasticity Index (T 90), %	<b>10</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.75</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>21.4</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

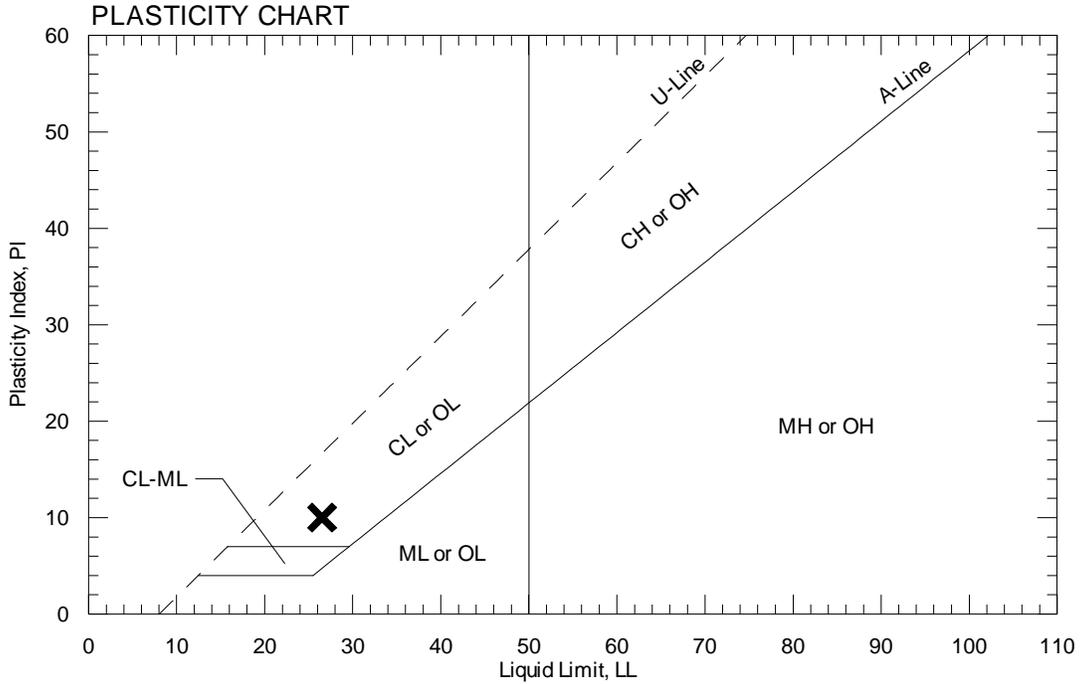
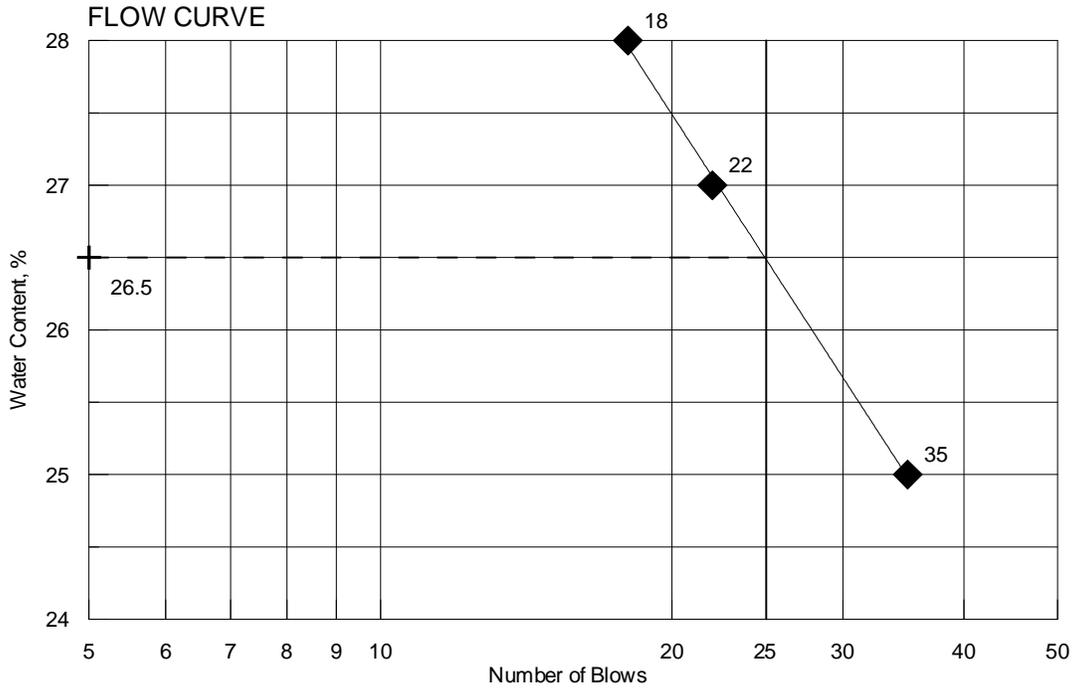
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263462
WIN	019194.00	Water Content, %	21.4
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	27
Boring No./Sample No.	HB-EAST-208/2D	Plastic Limit (T 90), %	17
Station	105+50	Plasticity Index (T 90), %	10
Depth	10.6-12.0	Tested By	BBURR







# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263464** Boring No./Sample No. **HB-EAST-209/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **105+50** Offset, ft: **30.0** LT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.8</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>92.5</b>
[0.0313 mm]	<b>66.2</b>
[0.0200 mm]	<b>63.2</b>
[0.0117 mm]	<b>60.2</b>
[0.0085 mm]	<b>54.2</b>
[0.0057 mm]	<b>51.2</b>
[0.0031 mm]	<b>42.2</b>
[0.0013 mm]	<b>33.1</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>29</b>
Plastic Limit (T 90), %	<b>19</b>
Plasticity Index (T 90), %	<b>10</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.71</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>21.3</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

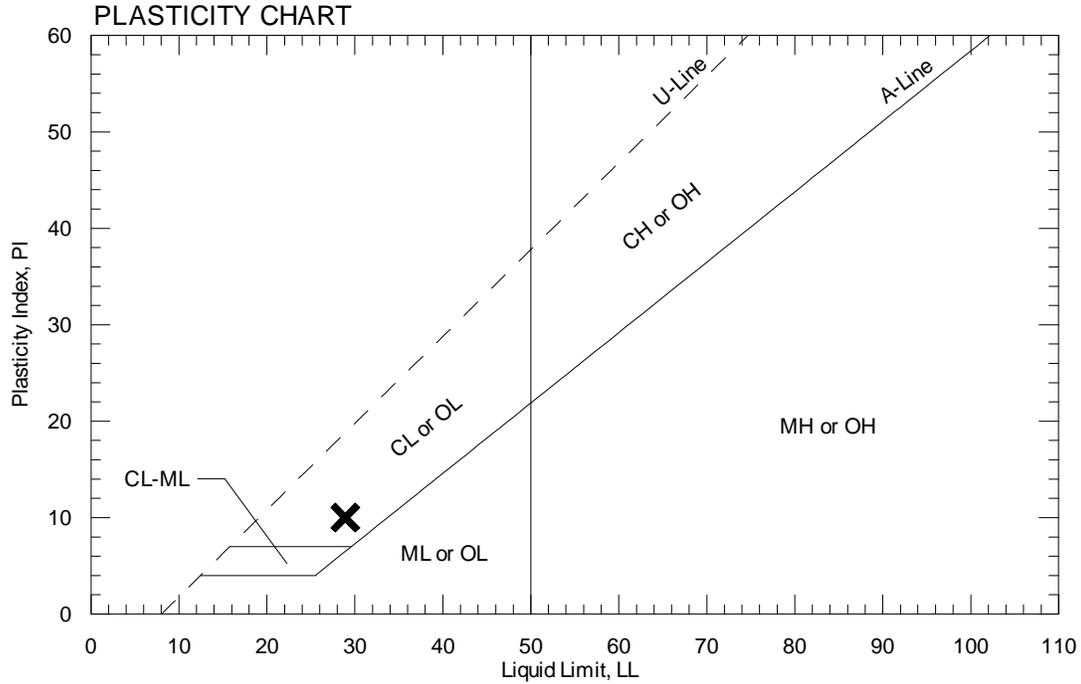
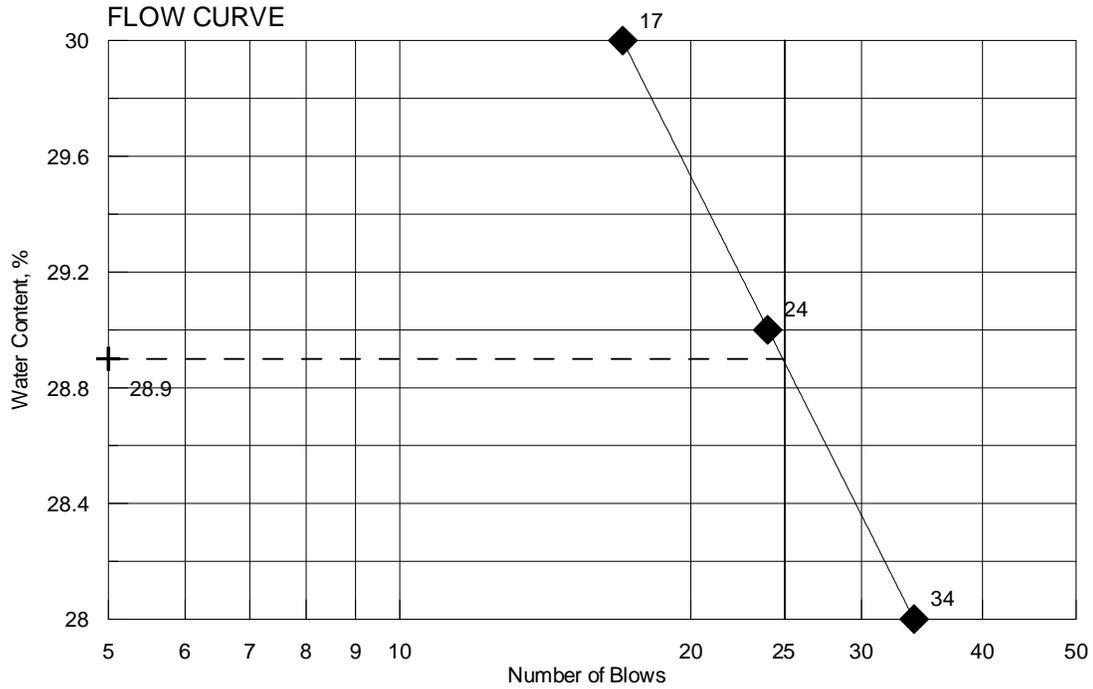
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263464
WIN	019194.00	Water Content, %	21.3
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-209/1D	Plastic Limit (T 90), %	19
Station	105+50	Plasticity Index (T 90), %	10
Depth	5.0-7.0	Tested By	BFOGG





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263465** Boring No./Sample No. **HB-EAST-209/2D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **105+50** Offset, ft: **30.0** LT Dbfg, ft: **10.6-12.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.9</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>97.3</b>
[0.0286 mm]	<b>81.5</b>
[0.0190 mm]	<b>72.8</b>
[0.0104 mm]	<b>69.9</b>
[0.0076 mm]	<b>64.0</b>
[0.0055 mm]	<b>58.2</b>
[0.0030 mm]	<b>46.6</b>
[0.0012 mm]	<b>40.8</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>29</b>
Plastic Limit (T 90), %	<b>19</b>
Plasticity Index (T 90), %	<b>10</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.71</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>24.2</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

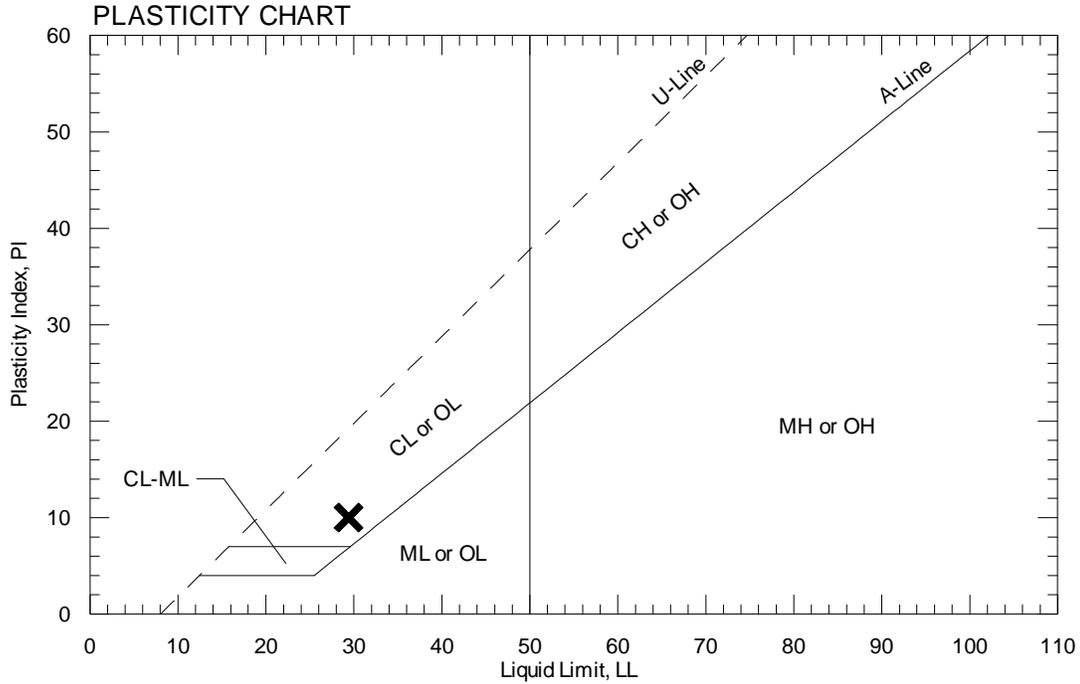
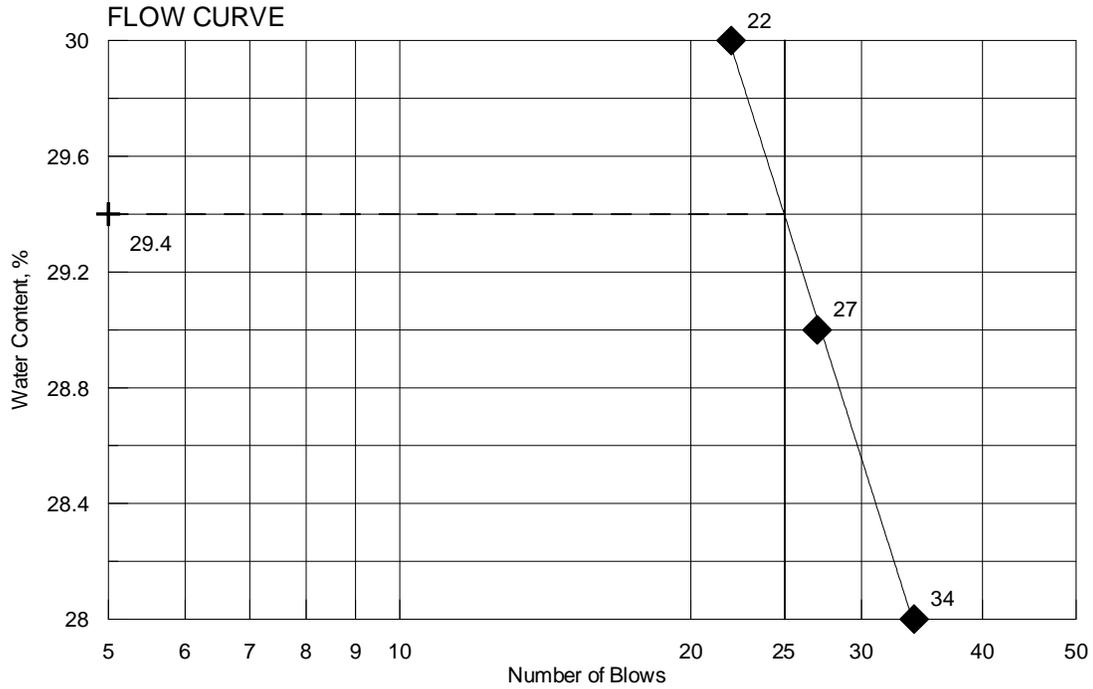
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

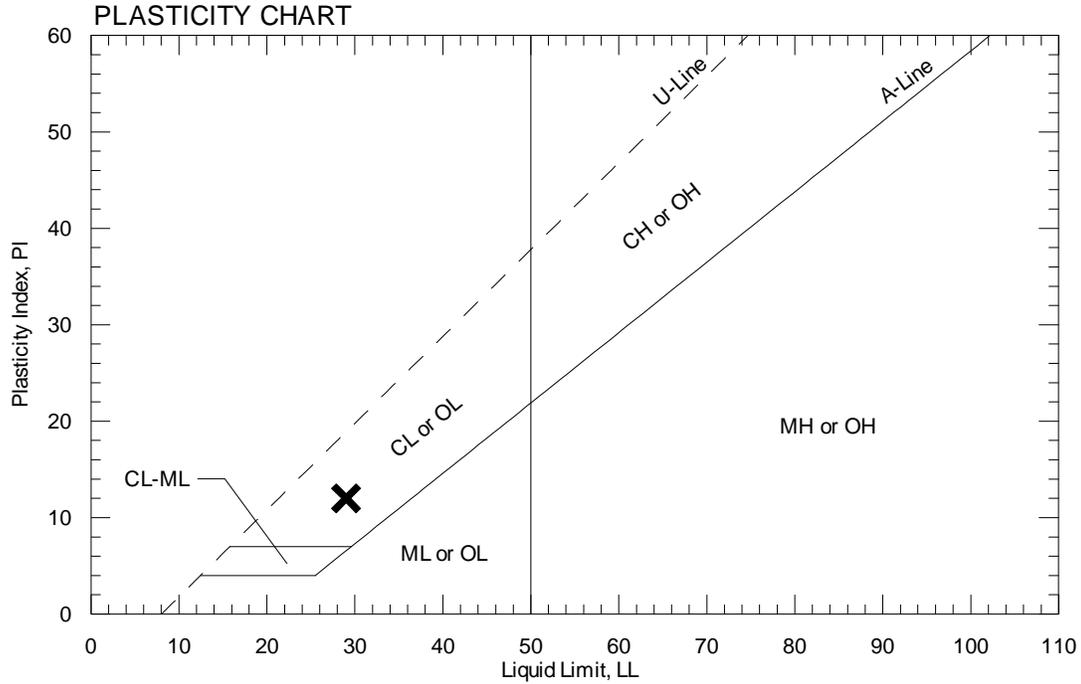
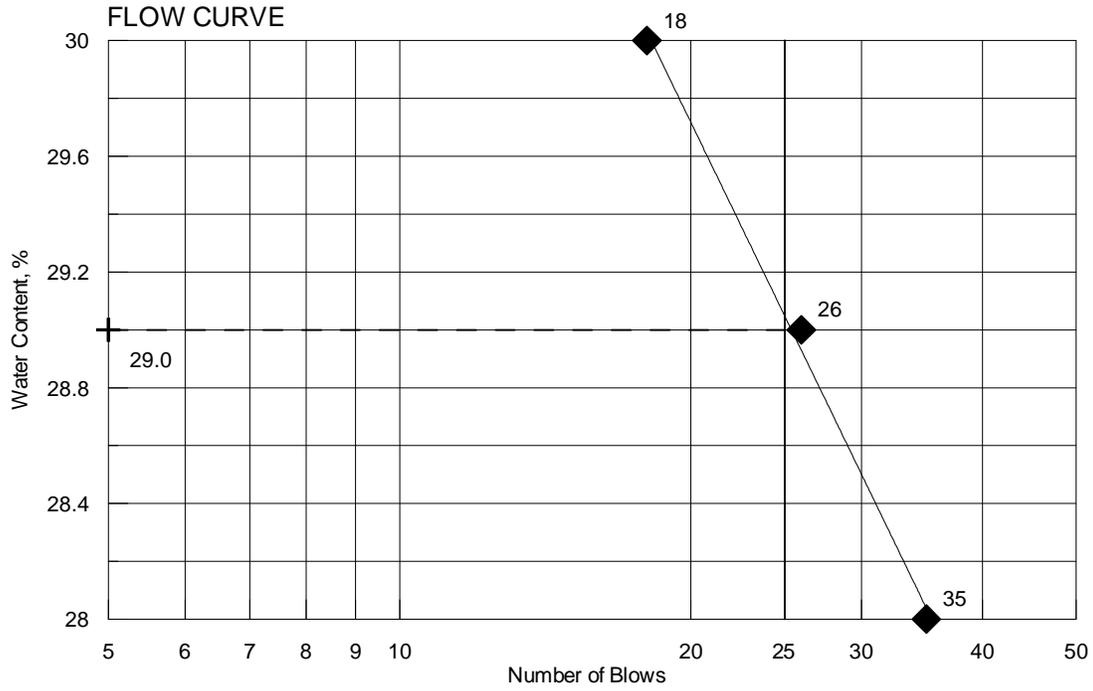
Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263465
WIN	019194.00	Water Content, %	24.2
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-209/2D	Plastic Limit (T 90), %	19
Station	105+50	Plasticity Index (T 90), %	10
Depth	10.6-12.0	Tested By	BBURR



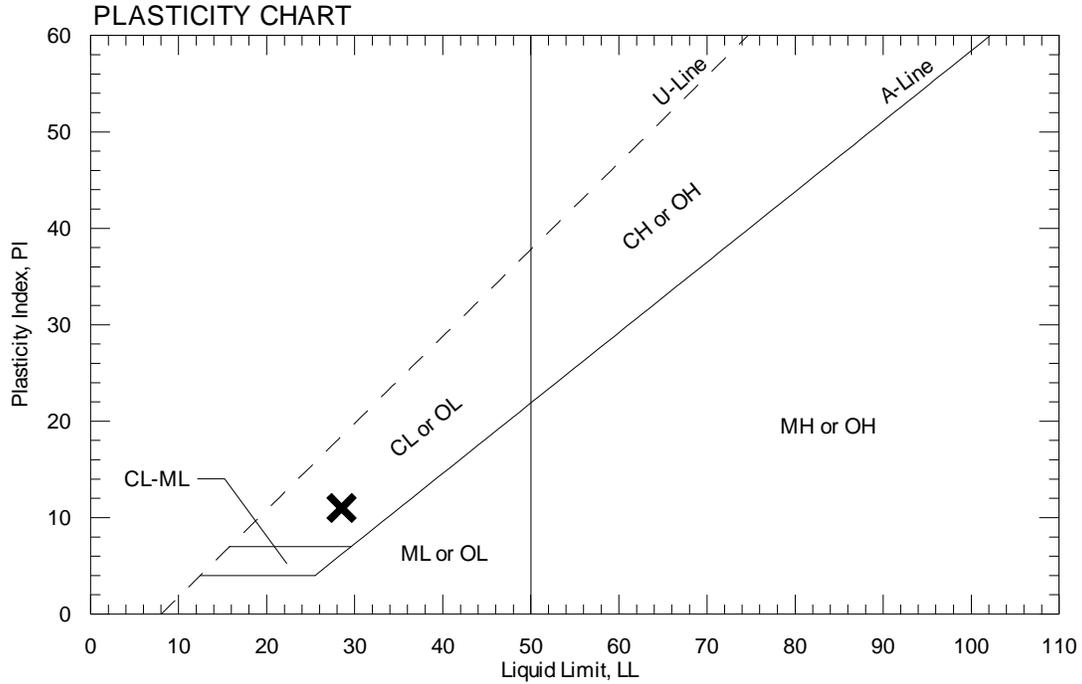
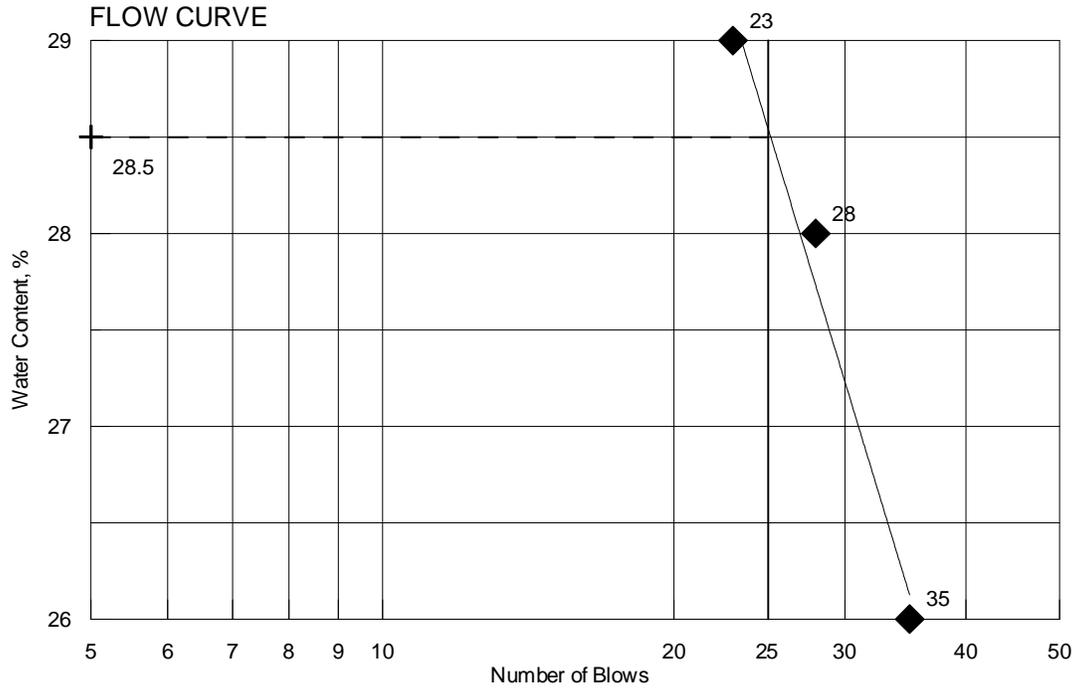


TOWN	Eastport	Reference No.	263466
WIN	019194.00	Water Content, %	21.5
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-209/3D	Plastic Limit (T 90), %	17
Station	105+50	Plasticity Index (T 90), %	12
Depth	15.3-17.0	Tested By	BBURR



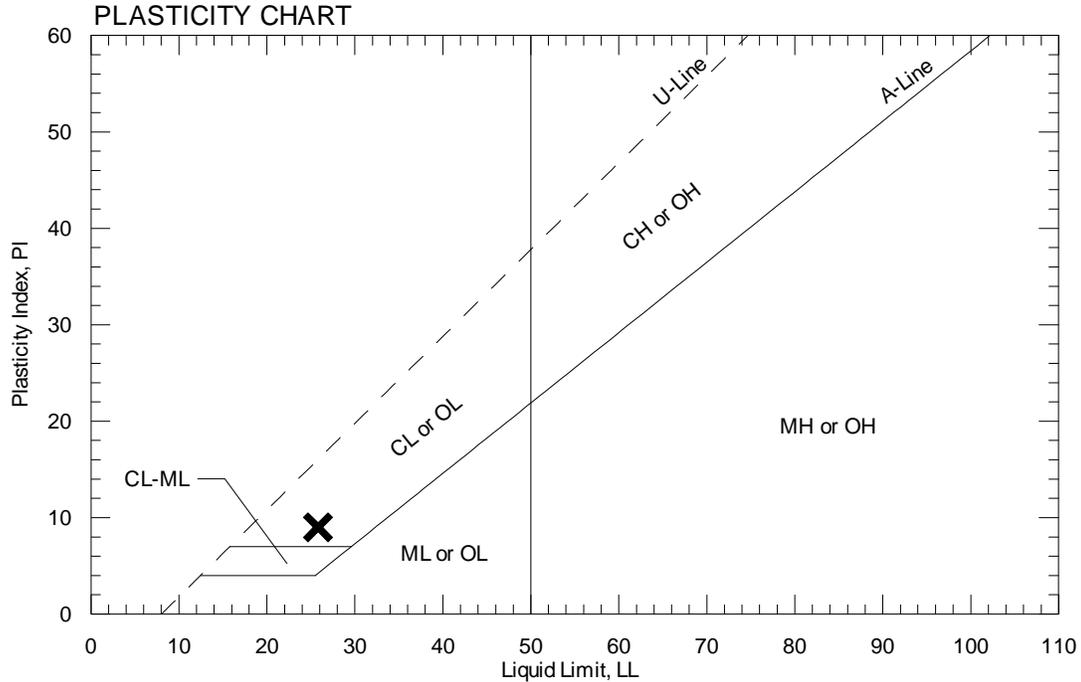
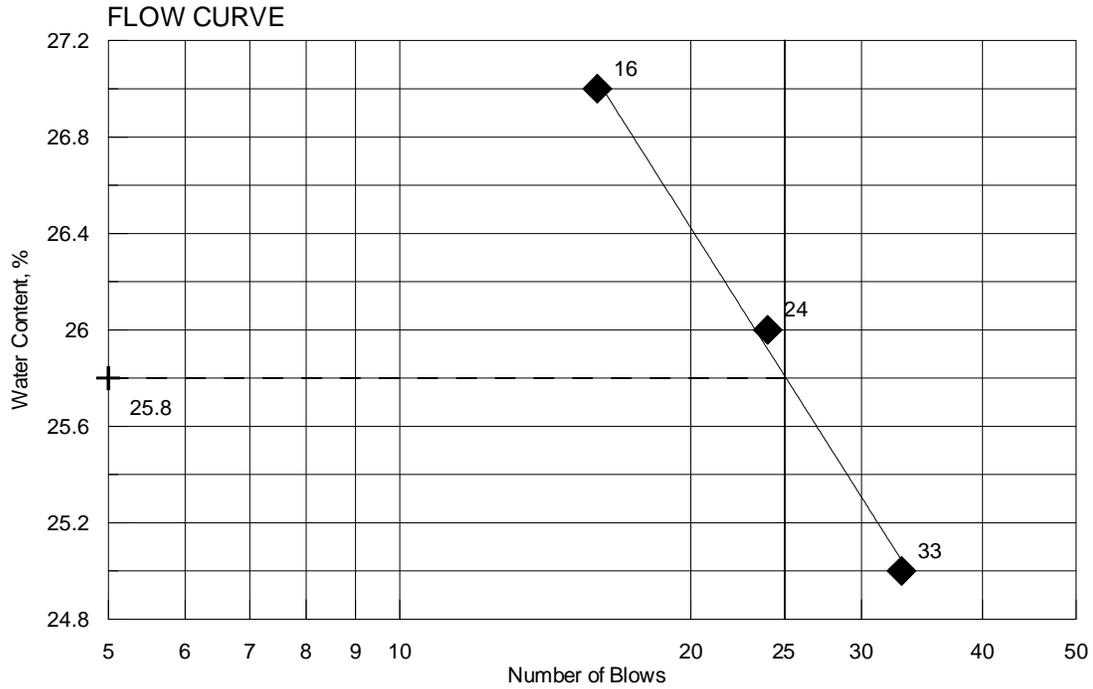


TOWN	Eastport	Reference No.	263467
WIN	019194.00	Water Content, %	20.1
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-EAST-210/2D	Plastic Limit (T 90), %	18
Station	105+50	Plasticity Index (T 90), %	11
Depth	10.0-12.0	Tested By	BBURR





TOWN	Eastport	Reference No.	263468
WIN	019194.00	Water Content, %	23.8
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	26
Boring No./Sample No.	HB-EAST-210/3D	Plastic Limit (T 90), %	17
Station	105+50	Plasticity Index (T 90), %	9
Depth	15.0-17.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263469</b>	<b>HB-EAST-210/4D</b>	<b>GEOTECHNICAL (DISTURBED)</b>	<b>11/4/2014</b>	<b>11/20/2014</b>
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>105+50</b> Offset, ft: <b>15.0</b> LT Dbfg, ft: <b>20.0-22.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	<b>100.0</b>
No. 40 [0.425 mm]	<b>100.0</b>
No. 60 [0.250 mm]	<b>99.9</b>
No. 100 [0.150 mm]	<b>94.5</b>
No. 200 [0.075 mm]	<b>48.0</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>25.4</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

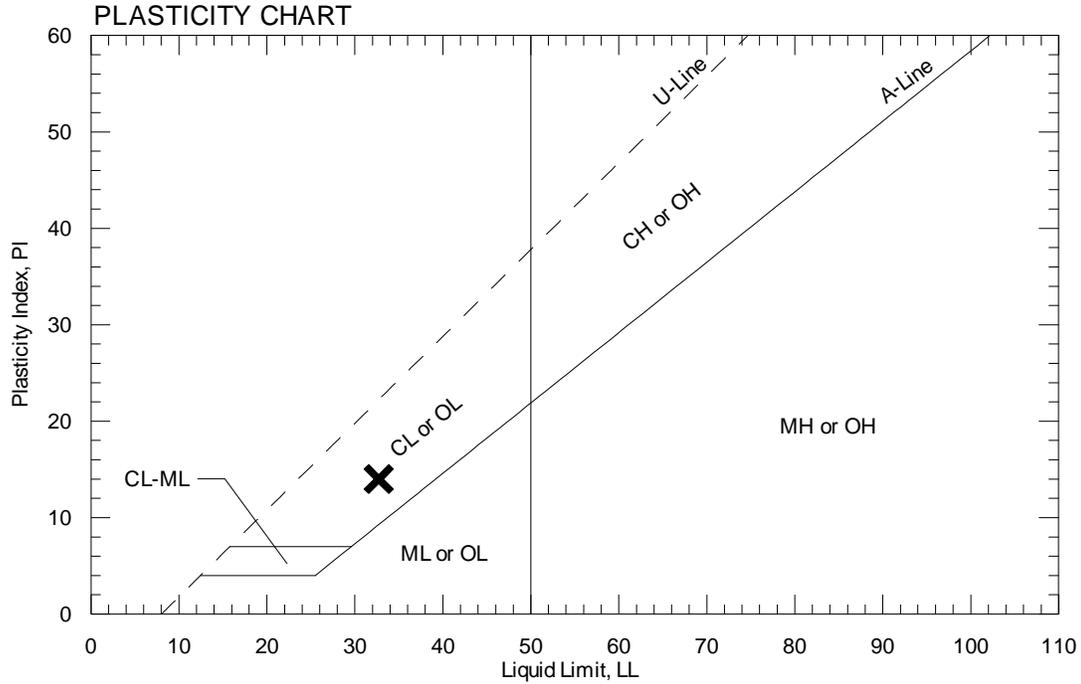
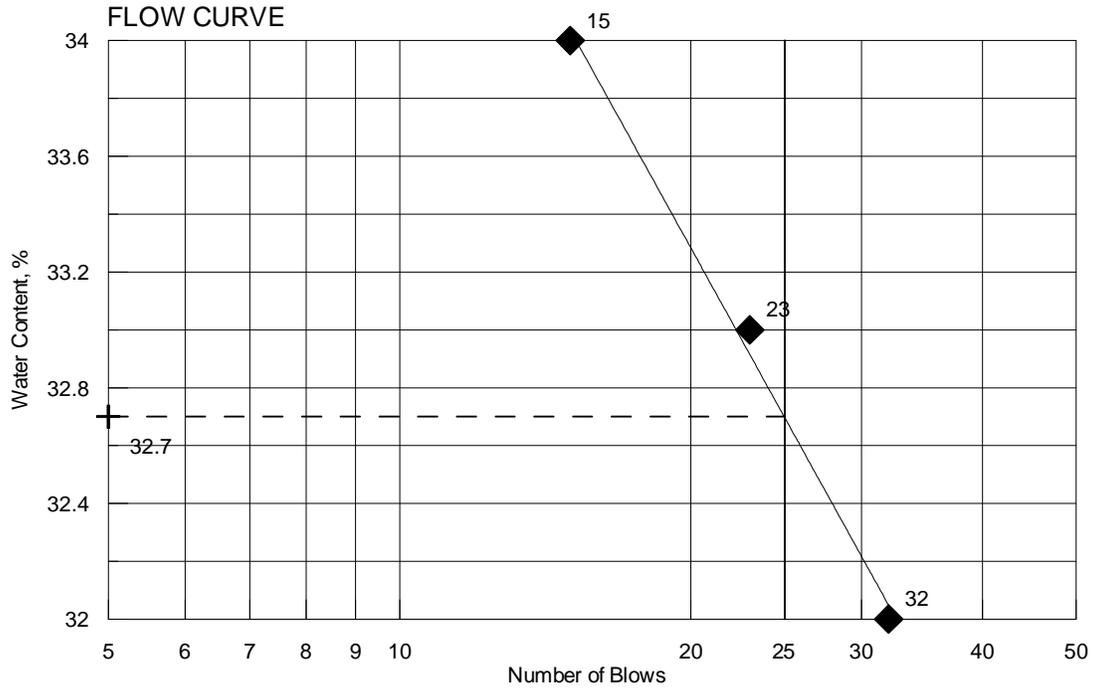
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/8/2014**

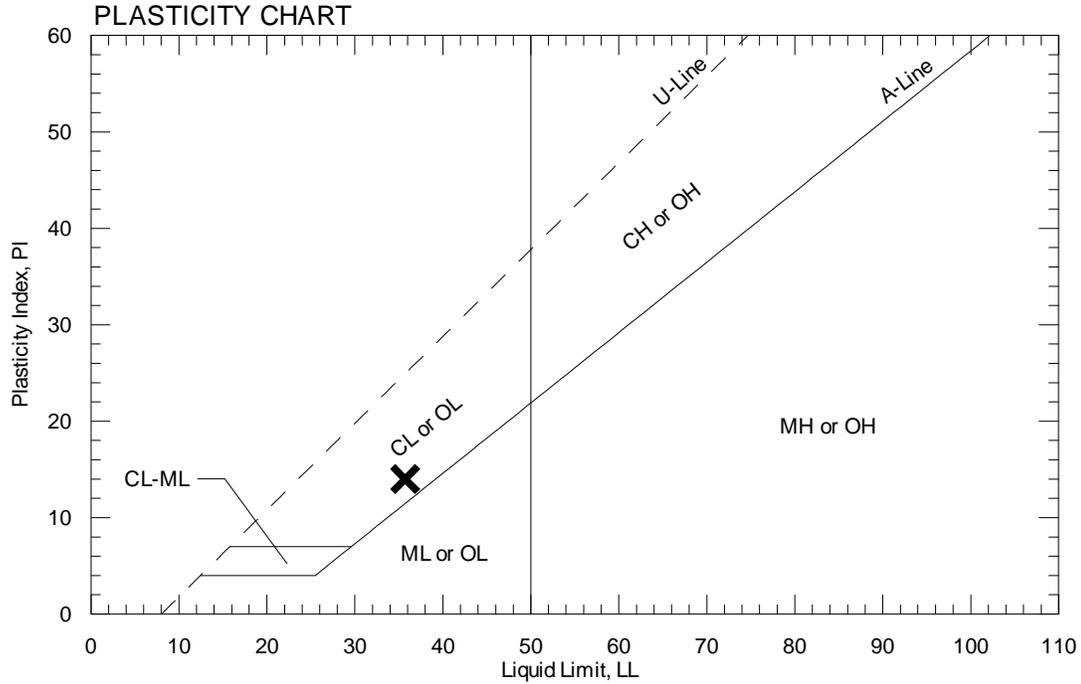
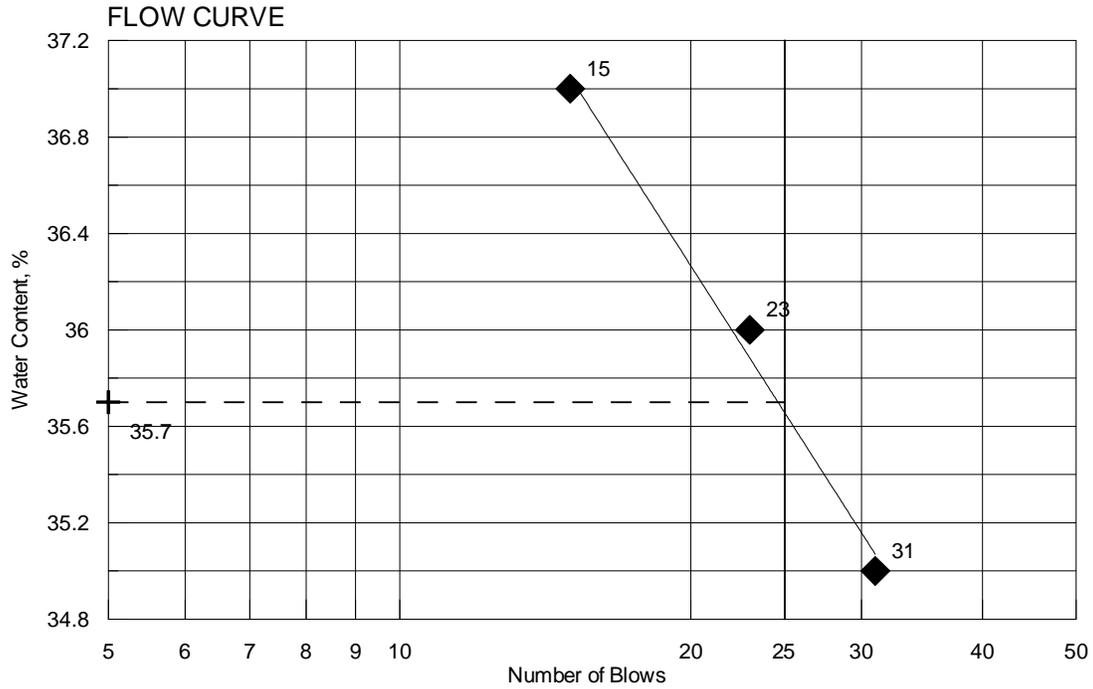


TOWN	Eastport	Reference No.	263470
WIN	019194.00	Water Content, %	20.9
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	33
Boring No./Sample No.	HB-EAST-212/1D	Plastic Limit (T 90), %	19
Station	106+50	Plasticity Index (T 90), %	14
Depth	5.0-7.0	Tested By	BBURR





TOWN	Eastport	Reference No.	263471
WIN	019194.00	Water Content, %	25.4
Sampled	11/4/2014	Liquid Limit @ 25 blows (T 89), %	36
Boring No./Sample No.	HB-EAST-212/2D	Plastic Limit (T 90), %	22
Station	106+50	Plasticity Index (T 90), %	14
Depth	10.0-12.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263472** Boring No./Sample No. **HB-EAST-212/3D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/4/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **106+50** Offset, ft: **15.0** LT Dbfg, ft: **16.0-17.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>95.1</b>
½ in. [12.5 mm]	<b>90.8</b>
⅜ in. [9.5 mm]	<b>88.6</b>
¼ in. [6.3 mm]	<b>84.1</b>
No. 4 [4.75 mm]	<b>81.3</b>
No. 10 [2.00 mm]	<b>72.0</b>
No. 20 [0.850 mm]	<b>61.7</b>
No. 40 [0.425 mm]	<b>52.4</b>
No. 60 [0.250 mm]	<b>46.5</b>
No. 100 [0.150 mm]	<b>42.0</b>
No. 200 [0.075 mm]	<b>36.1</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>14.6</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263474** Boring No./Sample No. **HB-EAST-236/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **111+00** Offset, ft: **30.0** LT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>99.9</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.7</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>78.3</b>
[0.0320 mm]	<b>60.5</b>
[0.0207 mm]	<b>54.4</b>
[0.0121 mm]	<b>51.4</b>
[0.0081 mm]	<b>48.5</b>
[0.0058 mm]	<b>45.4</b>
[0.0029 mm]	<b>36.3</b>
[0.0013 mm]	<b>30.3</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>26</b>
Plastic Limit (T 90), %	<b>17</b>
Plasticity Index (T 90), %	<b>9</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.72</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>20.5</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

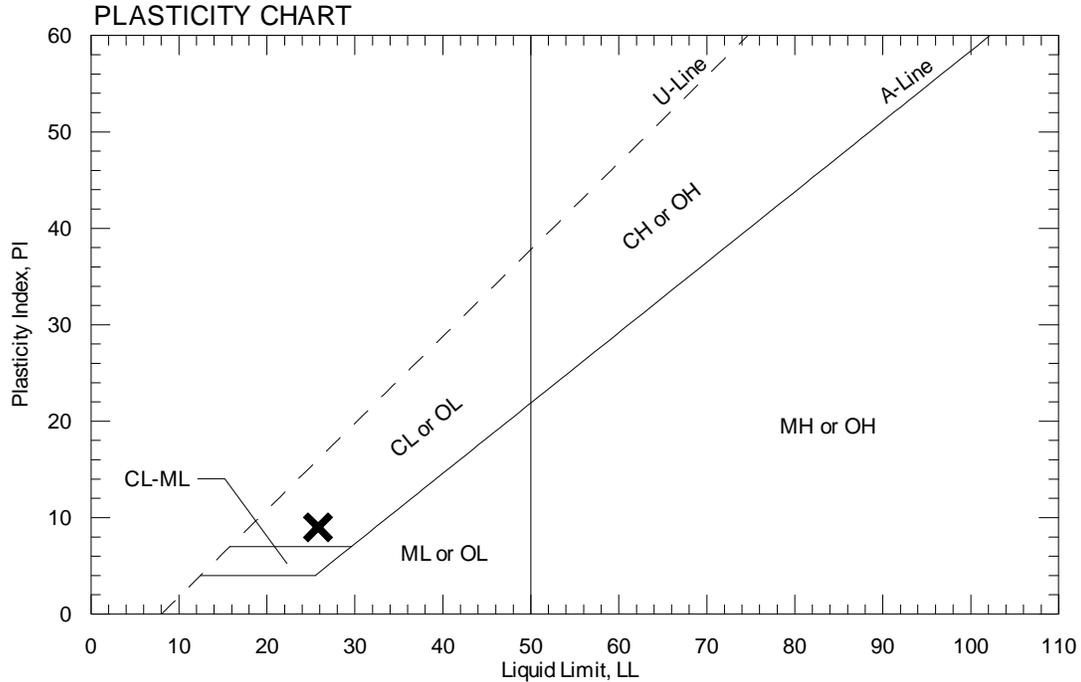
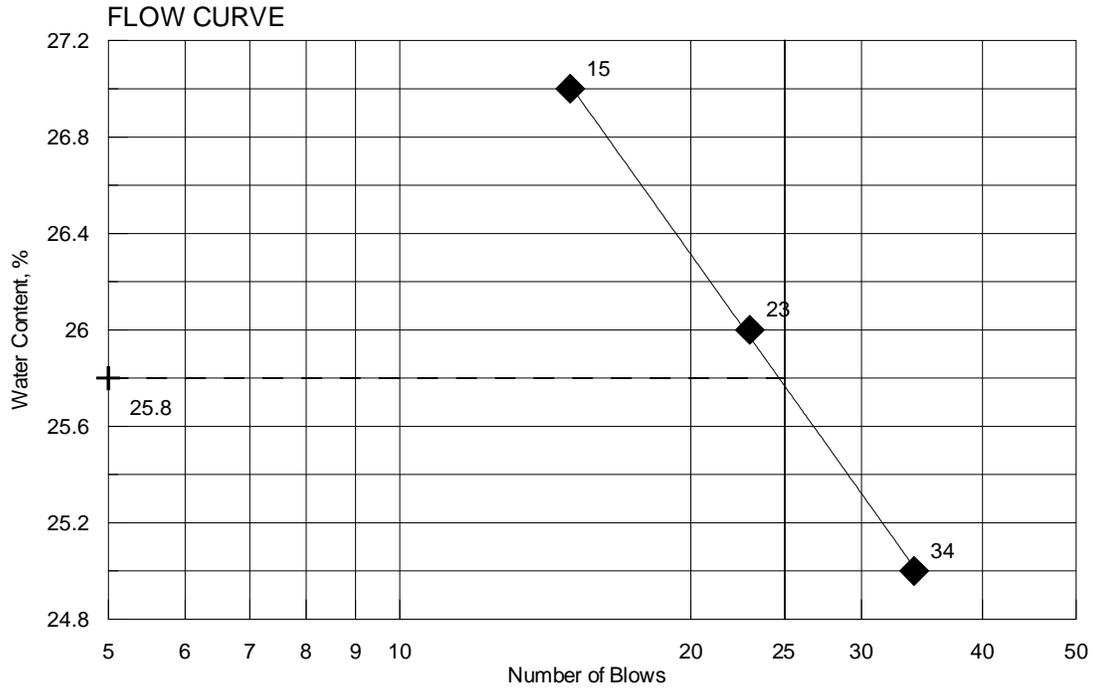
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263474
WIN	019194.00	Water Content, %	20.5
Sampled	11/6/2014	Liquid Limit @ 25 blows (T 89), %	26
Boring No./Sample No.	HB-EAST-236/1D	Plastic Limit (T 90), %	17
Station	111+00	Plasticity Index (T 90), %	9
Depth	5.0-7.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263475** Boring No./Sample No. **HB-EAST-236/2D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **111+00** Offset, ft: **30.0** LT Dbfg, ft: **10.0-12.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>99.9</b>
No. 20 [0.850 mm]	<b>99.8</b>
No. 40 [0.425 mm]	<b>99.5</b>
No. 60 [0.250 mm]	<b>99.1</b>
No. 100 [0.150 mm]	<b>96.8</b>
No. 200 [0.075 mm]	<b>58.5</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	<b>NP</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>26.7</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c'</sub>		

### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/16/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263473** Boring No./Sample No. **HB-EAST-236/S1** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **111+00** Offset, ft: **30.0** LT Dbfg, ft: **0.42-2.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>94.0</b>
½ in. [12.5 mm]	<b>94.0</b>
⅜ in. [9.5 mm]	<b>90.8</b>
¼ in. [6.3 mm]	<b>84.1</b>
No. 4 [4.75 mm]	<b>78.8</b>
No. 10 [2.00 mm]	<b>63.8</b>
No. 20 [0.850 mm]	<b>49.3</b>
No. 40 [0.425 mm]	<b>38.4</b>
No. 60 [0.250 mm]	<b>32.9</b>
No. 100 [0.150 mm]	<b>29.2</b>
No. 200 [0.075 mm]	<b>24.9</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>16.2</b>

#### Consolidation (T 216)

Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263351** Boring No./Sample No. **HB-EAST-237/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **111+00** Offset, ft: **8.0** LT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 88)

##### Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	<b>99.8</b>
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	<b>96.5</b>
[0.0284 mm]	<b>81.8</b>
[0.0185 mm]	<b>75.5</b>
[0.0110 mm]	<b>69.2</b>
[0.0079 mm]	<b>66.1</b>
[0.0056 mm]	<b>62.9</b>
[0.0029 mm]	<b>50.3</b>
[0.0013 mm]	<b>40.9</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>33</b>
Plastic Limit (T 90), %	<b>20</b>
Plasticity Index (T 90), %	<b>13</b>
Specific Gravity, Corrected to 20°C (T 100)	<b>2.63</b>
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>21.5</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>	U. Shear tons/ft <sup>2</sup>	Remold tons/ft <sup>2</sup>		

Comments:

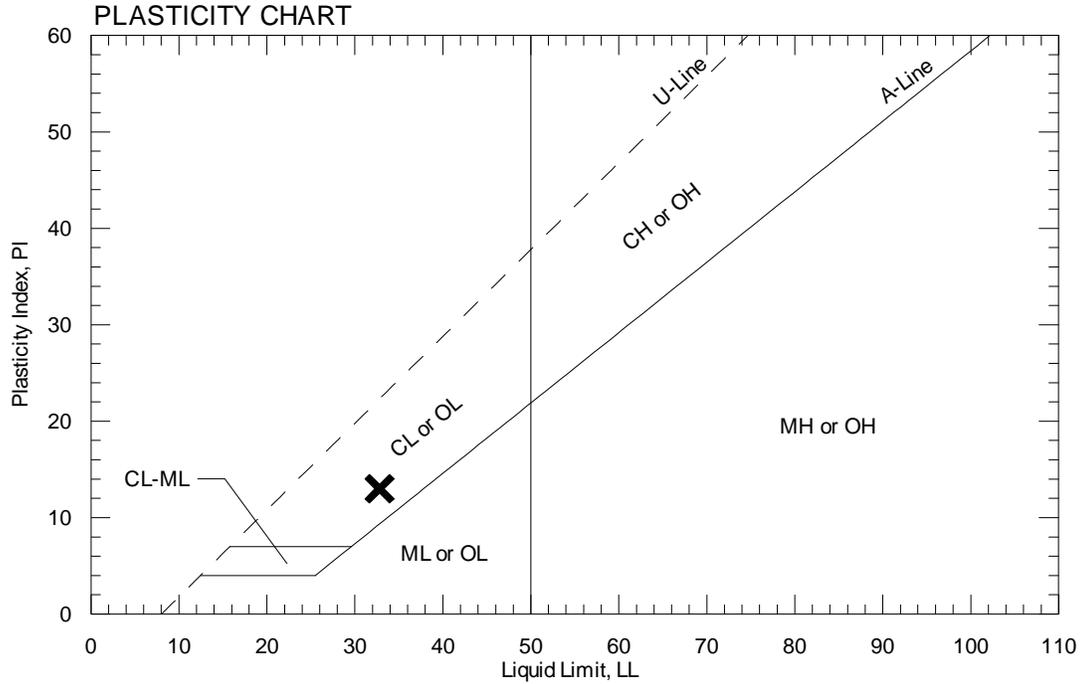
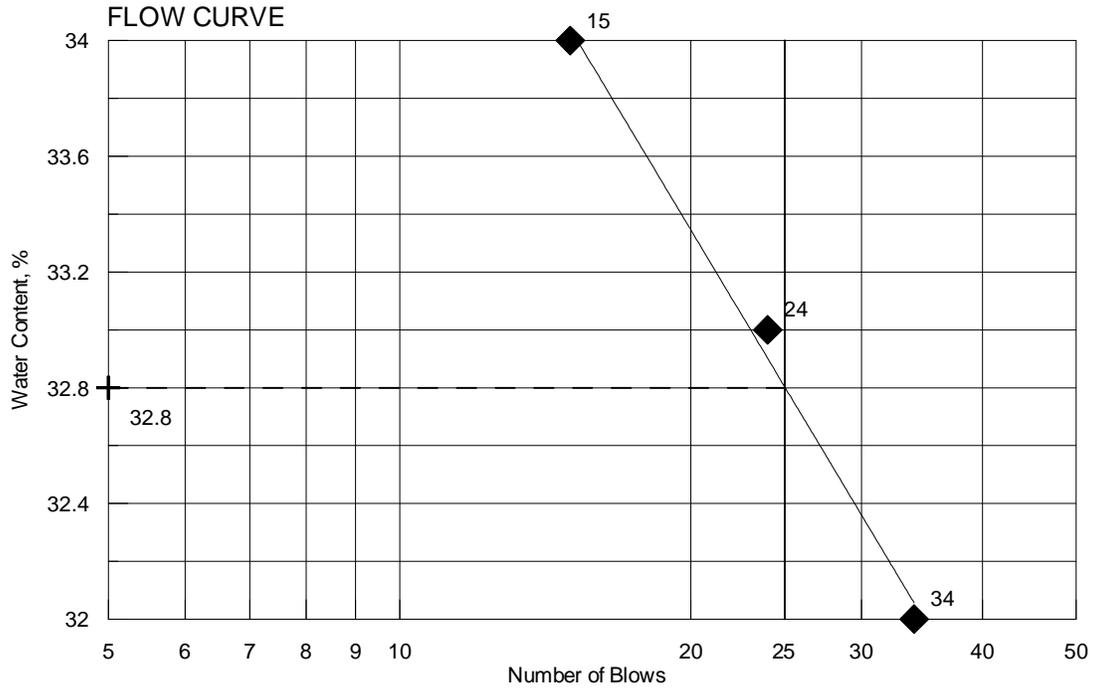
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263351
WIN	019194.00	Water Content, %	21.5
Sampled	11/6/2014	Liquid Limit @ 25 blows (T 89), %	33
Boring No./Sample No.	HB-EAST-237/1D	Plastic Limit (T 90), %	20
Station	111+00	Plasticity Index (T 90), %	13
Depth	5.0-7.0	Tested By	BBURR









# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263354</b>	<b>HB-EAST-237/4D</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/6/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>111+00</b> Offset, ft: <b>8.0</b> LT Dbfg, ft: <b>21.0-22.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>91.5</b>
½ in. [12.5 mm]	<b>85.6</b>
⅜ in. [9.5 mm]	<b>82.4</b>
¼ in. [6.3 mm]	<b>74.9</b>
No. 4 [4.75 mm]	<b>71.2</b>
No. 10 [2.00 mm]	<b>60.3</b>
No. 20 [0.850 mm]	<b>47.4</b>
No. 40 [0.425 mm]	<b>37.6</b>
No. 60 [0.250 mm]	<b>32.1</b>
No. 100 [0.150 mm]	<b>27.3</b>
No. 200 [0.075 mm]	<b>22.2</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>8.7</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/5/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263355** Boring No./Sample No. **HB-EAST-238/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **113+00** Offset, ft: **30.0** RT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	<b>100.0</b>
⅜ in. [9.5 mm]	<b>96.2</b>
¼ in. [6.3 mm]	<b>95.8</b>
No. 4 [4.75 mm]	<b>95.4</b>
No. 10 [2.00 mm]	<b>91.0</b>
No. 20 [0.850 mm]	<b>86.7</b>
No. 40 [0.425 mm]	<b>83.6</b>
No. 60 [0.250 mm]	<b>81.6</b>
No. 100 [0.150 mm]	<b>76.8</b>
No. 200 [0.075 mm]	<b>53.2</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>26</b>
Plastic Limit (T 90), %	<b>18</b>
Plasticity Index (T 90), %	<b>8</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>19.7</b>

#### Consolidation (T 216)

Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

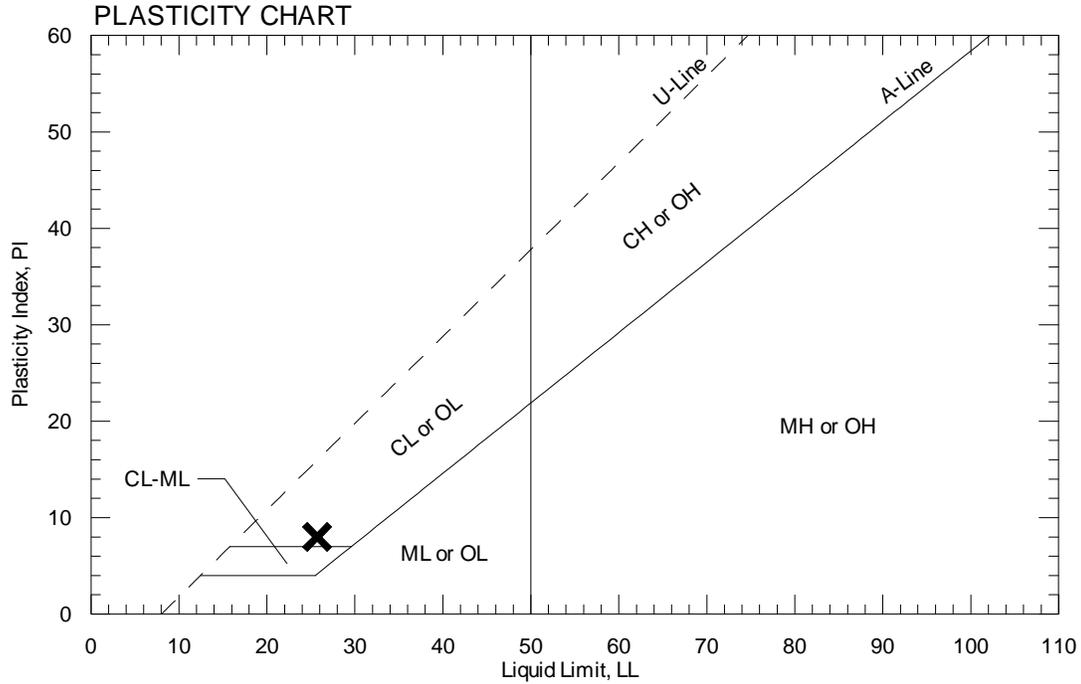
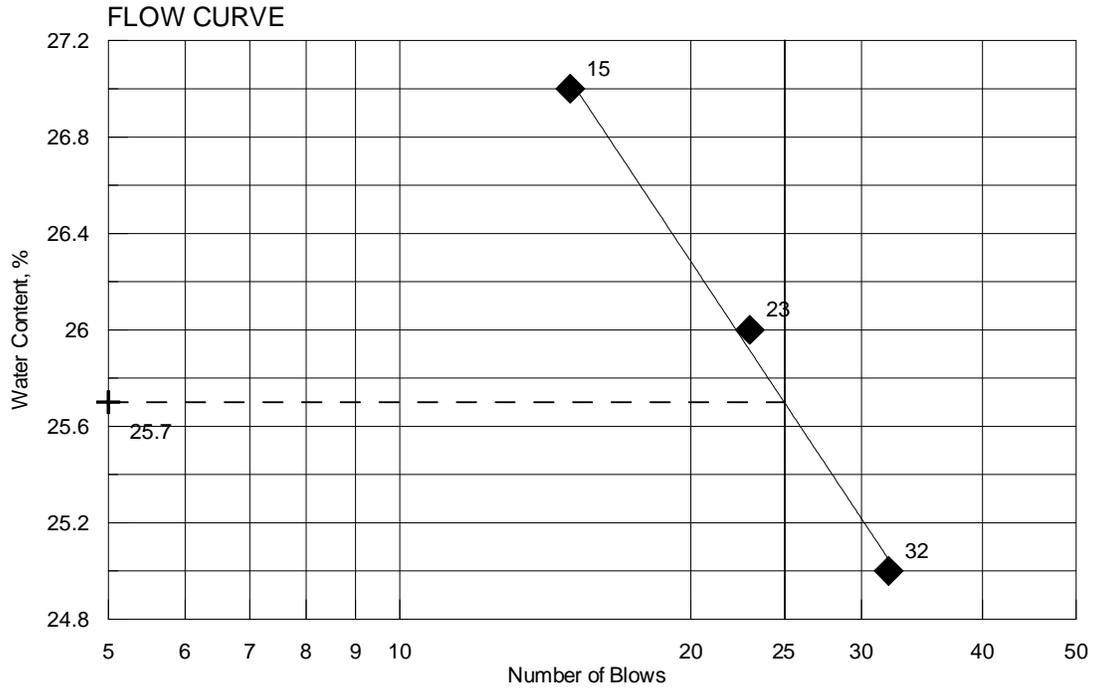
### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263355
WIN	019194.00	Water Content, %	19.7
Sampled	11/6/2014	Liquid Limit @ 25 blows (T 89), %	26
Boring No./Sample No.	HB-EAST-238/1D	Plastic Limit (T 90), %	18
Station	113+00	Plasticity Index (T 90), %	8
Depth	5.0-7.0	Tested By	BFOGG





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263356</b>	<b>HB-EAST-239/1D</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/6/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b>		Location: <b>ROADWAY</b>	Station: <b>113+00</b>	Offset, ft: <b>15.0 RT</b> Dbfg, ft: <b>16.0-17.0</b>
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>99.9</b>
No. 20 [0.850 mm]	<b>99.7</b>
No. 40 [0.425 mm]	<b>99.5</b>
No. 60 [0.250 mm]	<b>99.3</b>
No. 100 [0.150 mm]	<b>96.9</b>
No. 200 [0.075 mm]	<b>74.8</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>25.0</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

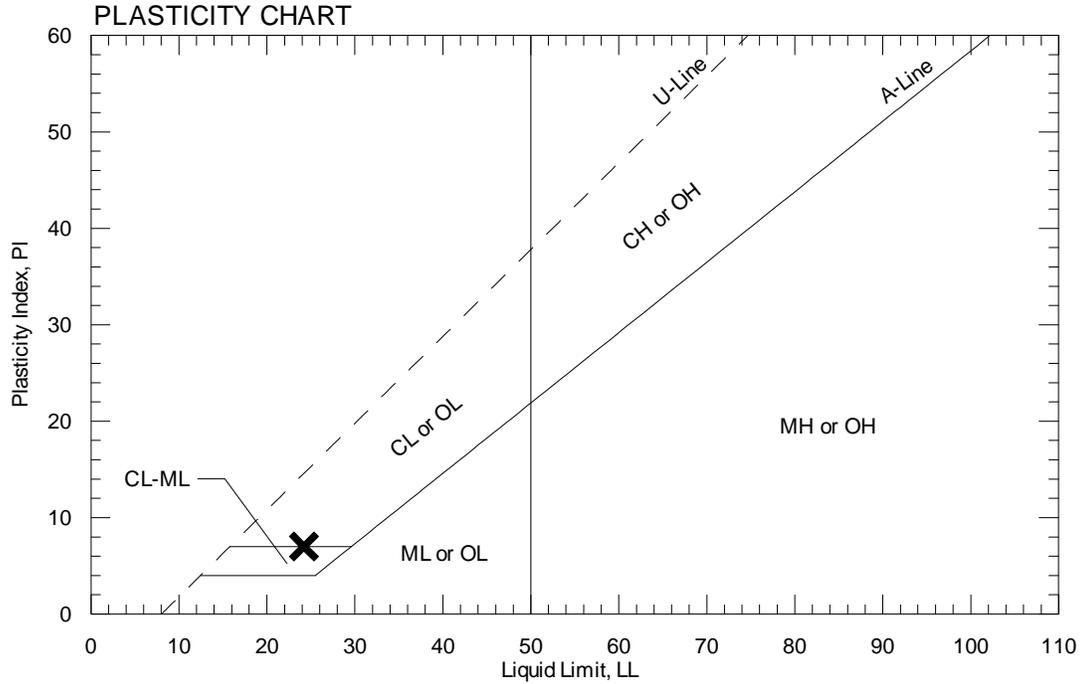
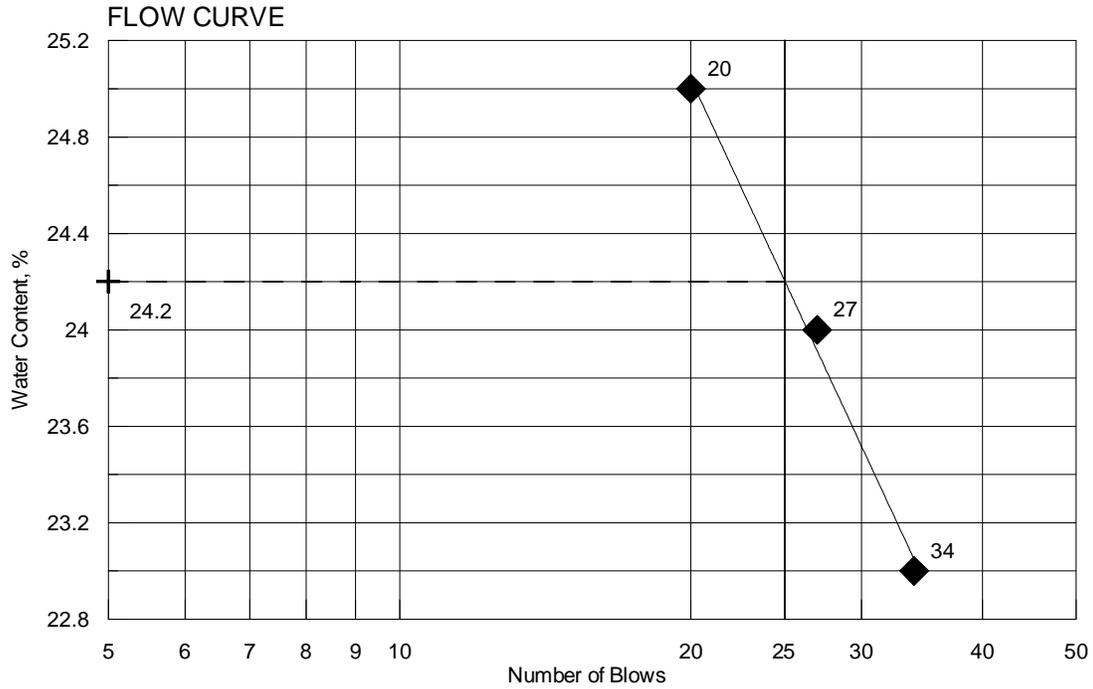
Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File



TOWN	Eastport	Reference No.	263357
WIN	019194.00	Water Content, %	13.4
Sampled	11/6/2014	Liquid Limit @ 25 blows (T 89), %	24
Boring No./Sample No.	HB-EAST-240/1D	Plastic Limit (T 90), %	17
Station	113+00	Plasticity Index (T 90), %	7
Depth	5.0-7.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263358</b>	<b>HB-EAST-240/2D</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/6/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b>		Location: <b>ROADWAY</b>	Station: <b>113+00</b>	Offset, ft: <b>CL</b>
WIN/Town <b>019194.00 - EASTPORT</b>		Sampler: <b>BRUCE WILDER</b>		
		Dbfg, ft: <b>10.0-12.0</b>		

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method

Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>95.0</b>
½ in. [12.5 mm]	<b>93.8</b>
⅜ in. [9.5 mm]	<b>92.2</b>
¼ in. [6.3 mm]	<b>89.7</b>
No. 4 [4.75 mm]	<b>88.2</b>
No. 10 [2.00 mm]	<b>83.1</b>
No. 20 [0.850 mm]	<b>77.9</b>
No. 40 [0.425 mm]	<b>73.7</b>
No. 60 [0.250 mm]	<b>70.6</b>
No. 100 [0.150 mm]	<b>67.1</b>
No. 200 [0.075 mm]	<b>54.2</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	<b>22</b>
Plastic Limit (T 90), %	<b>15</b>
Plasticity Index (T 90), %	<b>7</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>15.4</b>

#### Consolidation (T 216)

Trimming, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

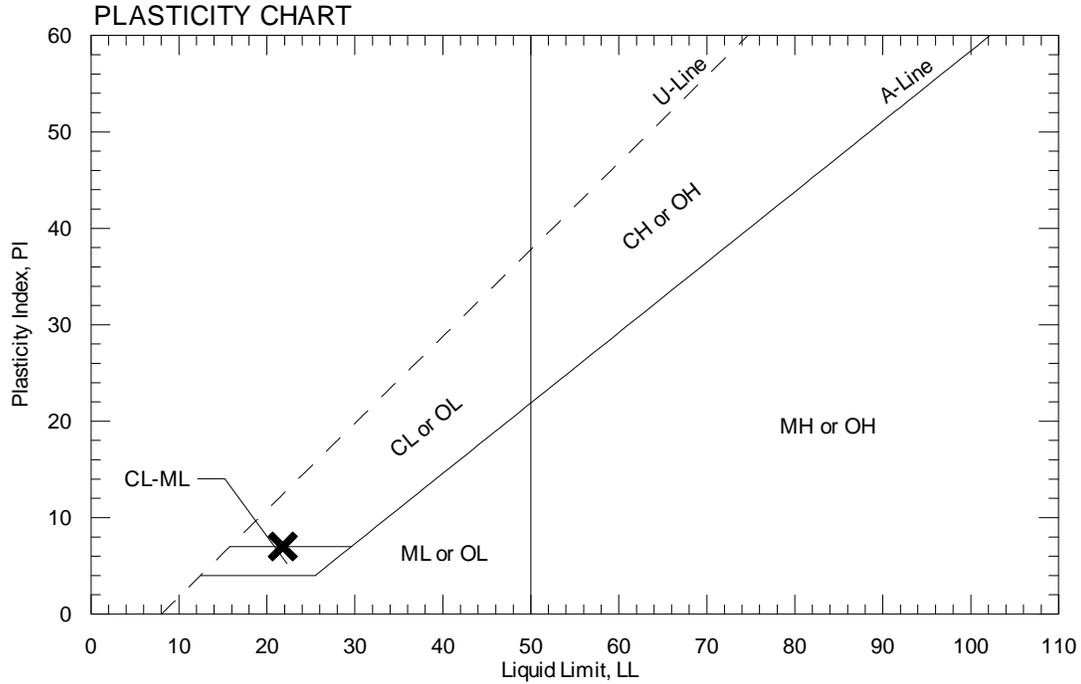
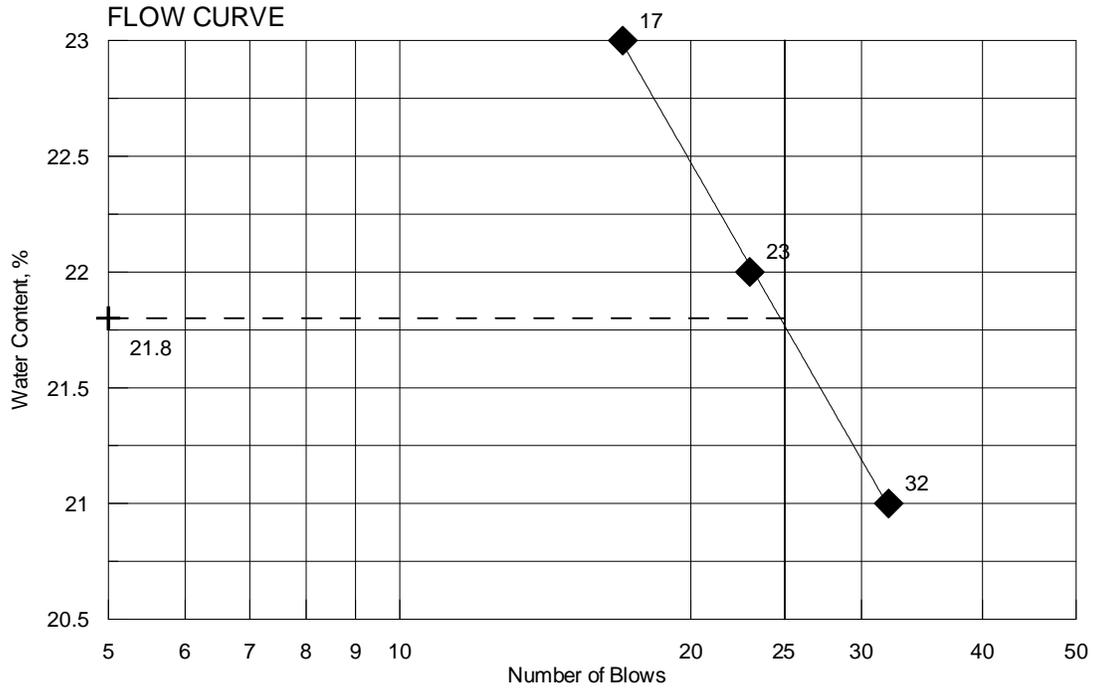
Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**Date Reported: **12/22/2014**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Eastport	Reference No.	263358
WIN	019194.00	Water Content, %	15.4
Sampled	11/6/2014	Liquid Limit @ 25 blows (T 89), %	22
Boring No./Sample No.	HB-EAST-240/2D	Plastic Limit (T 90), %	15
Station	113+00	Plasticity Index (T 90), %	7
Depth	10.0-12.0	Tested By	BBURR





# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263359** Boring No./Sample No. **HB-EAST-241/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **113+00** Offset, ft: **15.0** LT Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	
No. 4 [4.75 mm]	<b>100.0</b>
No. 10 [2.00 mm]	<b>100.0</b>
No. 20 [0.850 mm]	<b>99.9</b>
No. 40 [0.425 mm]	<b>99.6</b>
No. 60 [0.250 mm]	<b>99.4</b>
No. 100 [0.150 mm]	<b>98.8</b>
No. 200 [0.075 mm]	<b>71.7</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	<b>NP</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>24.2</b>

#### Consolidation (T 216)

Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/16/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263360** Boring No./Sample No. **HB-EAST-241/2D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **113+00** Offset, ft: **15.0** LT Dbfg, ft: **10.0-12.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	
½ in. [12.5 mm]	
⅜ in. [9.5 mm]	
¼ in. [6.3 mm]	<b>100.0</b>
No. 4 [4.75 mm]	<b>99.9</b>
No. 10 [2.00 mm]	<b>99.8</b>
No. 20 [0.850 mm]	<b>99.6</b>
No. 40 [0.425 mm]	<b>99.5</b>
No. 60 [0.250 mm]	<b>99.4</b>
No. 100 [0.150 mm]	<b>98.0</b>
No. 200 [0.075 mm]	<b>67.5</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	<b>NP</b>
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>25.1</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C' <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRUCE BURRILL**

Date Reported: **12/16/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263361** Boring No./Sample No. **HB-EAST-241/3D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **113+00** Offset, ft: **15.0** LT Dbfg, ft: **15.0-16.6**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	<b>100.0</b>
1 in. [25.0 mm]	<b>92.3</b>
¾ in. [19.0 mm]	<b>86.0</b>
½ in. [12.5 mm]	<b>78.1</b>
⅜ in. [9.5 mm]	<b>75.6</b>
¼ in. [6.3 mm]	<b>71.4</b>
No. 4 [4.75 mm]	<b>69.0</b>
No. 10 [2.00 mm]	<b>60.2</b>
No. 20 [0.850 mm]	<b>52.2</b>
No. 40 [0.425 mm]	<b>44.8</b>
No. 60 [0.250 mm]	<b>39.6</b>
No. 100 [0.150 mm]	<b>34.1</b>
No. 200 [0.075 mm]	<b>26.4</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>6.9</b>

#### Consolidation (T 216)

Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/5/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263362** Boring No./Sample No. **HB-EAST-244/1D** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **115+00** Offset, ft: **CL** Dbfg, ft: **5.0-7.0**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>96.5</b>
⅜ in. [9.5 mm]	<b>93.8</b>
¼ in. [6.3 mm]	<b>89.7</b>
No. 4 [4.75 mm]	<b>86.8</b>
No. 10 [2.00 mm]	<b>77.9</b>
No. 20 [0.850 mm]	<b>68.6</b>
No. 40 [0.425 mm]	<b>61.5</b>
No. 60 [0.250 mm]	<b>56.5</b>
No. 100 [0.150 mm]	<b>51.3</b>
No. 200 [0.075 mm]	<b>43.3</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>11.6</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263363</b>	<b>HB-EAST-246/S1</b>	<b>GEOTECHNICAL (DISTURBED)</b>	<b>11/6/2014</b>	<b>11/20/2014</b>
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>116+80</b> Offset, ft: <b>30.0 RT</b> Dbfg, ft: <b>4.0-10.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>96.0</b>
⅜ in. [9.5 mm]	<b>92.1</b>
¼ in. [6.3 mm]	<b>85.6</b>
No. 4 [4.75 mm]	<b>81.5</b>
No. 10 [2.00 mm]	<b>70.9</b>
No. 20 [0.850 mm]	<b>62.4</b>
No. 40 [0.425 mm]	<b>55.9</b>
No. 60 [0.250 mm]	<b>51.2</b>
No. 100 [0.150 mm]	<b>46.4</b>
No. 200 [0.075 mm]	<b>40.8</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>14.6</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			Cc/C' <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/5/2014**



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263364</b>	<b>HB-EAST-247/S1</b>	<b>GEOTECHNICAL (DISTURBED)</b>	<b>11/6/2014</b>	<b>11/20/2014</b>
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>117+00</b> Offset, ft: <b>5.0</b> RT Dbfg, ft: <b>0.0-2.8</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>92.4</b>
⅜ in. [9.5 mm]	<b>85.5</b>
¼ in. [6.3 mm]	<b>77.0</b>
No. 4 [4.75 mm]	<b>72.3</b>
No. 10 [2.00 mm]	<b>58.0</b>
No. 20 [0.850 mm]	<b>41.9</b>
No. 40 [0.425 mm]	<b>25.7</b>
No. 60 [0.250 mm]	<b>18.0</b>
No. 100 [0.150 mm]	<b>13.6</b>
No. 200 [0.075 mm]	<b>10.4</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>5.1</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

Paper Copy: Lab File; Project File; Geotech File



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263365</b>	<b>HB-EAST-248/S1</b>	<b>GEOTECHNICAL (DISTURBED)</b>	<b>11/6/2014</b>	<b>11/20/2014</b>
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>117+00</b> Offset, ft: <b>30.0</b> LT Dbfg, ft: <b>0.25-2.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>98.1</b>
½ in. [12.5 mm]	<b>90.3</b>
⅜ in. [9.5 mm]	<b>82.5</b>
¼ in. [6.3 mm]	<b>71.3</b>
No. 4 [4.75 mm]	<b>64.5</b>
No. 10 [2.00 mm]	<b>49.2</b>
No. 20 [0.850 mm]	<b>37.4</b>
No. 40 [0.425 mm]	<b>29.1</b>
No. 60 [0.250 mm]	<b>24.1</b>
No. 100 [0.150 mm]	<b>19.3</b>
No. 200 [0.075 mm]	<b>14.3</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>2.7</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
<b>263366</b>	<b>HB-EAST-248/S2</b>	<b>GEOTECHNICAL (DISTURBED)</b>	11/6/2014	11/20/2014
Sample Type: <b>GEOTECHNICAL</b> Location: <b>ROADWAY</b> Station: <b>117+00</b> Offset, ft: <b>30.0</b> LT Dbfg, ft: <b>3.0-10.0</b>				
WIN/Town <b>019194.00 - EASTPORT</b>			Sampler: <b>BRUCE WILDER</b>	

### TEST RESULTS

Sieve Analysis (T 27, T 11)	
Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	<b>100.0</b>
¾ in. [19.0 mm]	<b>97.9</b>
½ in. [12.5 mm]	<b>97.3</b>
⅜ in. [9.5 mm]	<b>95.8</b>
¼ in. [6.3 mm]	<b>92.2</b>
No. 4 [4.75 mm]	<b>89.9</b>
No. 10 [2.00 mm]	<b>80.7</b>
No. 20 [0.850 mm]	<b>68.4</b>
No. 40 [0.425 mm]	<b>59.0</b>
No. 60 [0.250 mm]	<b>54.4</b>
No. 100 [0.150 mm]	<b>50.2</b>
No. 200 [0.075 mm]	<b>43.0</b>

Miscellaneous Tests	
Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>12.8</b>

Consolidation (T 216)					
Trimming, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			Cc/C' <sub>c</sub>		

Vane Shear Test on Shelby Tubes (Maine DOT)						
Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**



# GEOTECHNICAL TEST REPORT

## Central Laboratory

### SAMPLE INFORMATION

Reference No. **263367** Boring No./Sample No. **HB-EAST-250/S1** Sample Description **GEOTECHNICAL (DISTURBED)** Sampled **11/6/2014** Received **11/20/2014**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **119+00** Offset, ft: **3.0** LT Dbfg, ft: **2.0-7.2**

WIN/Town **019194.00 - EASTPORT** Sampler: **BRUCE WILDER**

### TEST RESULTS

#### Sieve Analysis (T 27, T 11)

Wash Method	
Procedure A	
SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	
¾ in. [19.0 mm]	<b>100.0</b>
½ in. [12.5 mm]	<b>96.0</b>
⅜ in. [9.5 mm]	<b>95.0</b>
¼ in. [6.3 mm]	<b>93.9</b>
No. 4 [4.75 mm]	<b>92.8</b>
No. 10 [2.00 mm]	<b>89.0</b>
No. 20 [0.850 mm]	<b>84.4</b>
No. 40 [0.425 mm]	<b>80.5</b>
No. 60 [0.250 mm]	<b>77.2</b>
No. 100 [0.150 mm]	<b>72.8</b>
No. 200 [0.075 mm]	<b>54.8</b>

#### Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	
Loss on Ignition (T 267)	
Loss, %	
H <sub>2</sub> O, %	
Water Content (T 265), %	<b>14.9</b>

#### Consolidation (T 216)

Trimblings, Water Content, %					
	Initial	Final		Void Ratio	% Strain
Water Content, %			P <sub>min</sub>		
Dry Density, lbs/ft <sup>3</sup>			P <sub>p</sub>		
Void Ratio			P <sub>max</sub>		
Saturation, %			C <sub>c</sub> /C <sub>c</sub>		

#### Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In.		6 In.		Water Content, %	Description of Material Sampled at the Various Tube Depths
	U. Shear	Remold	U. Shear	Remold		
	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>	tons/ft <sup>2</sup>		

Comments:

### AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG**

Date Reported: **12/9/2014**

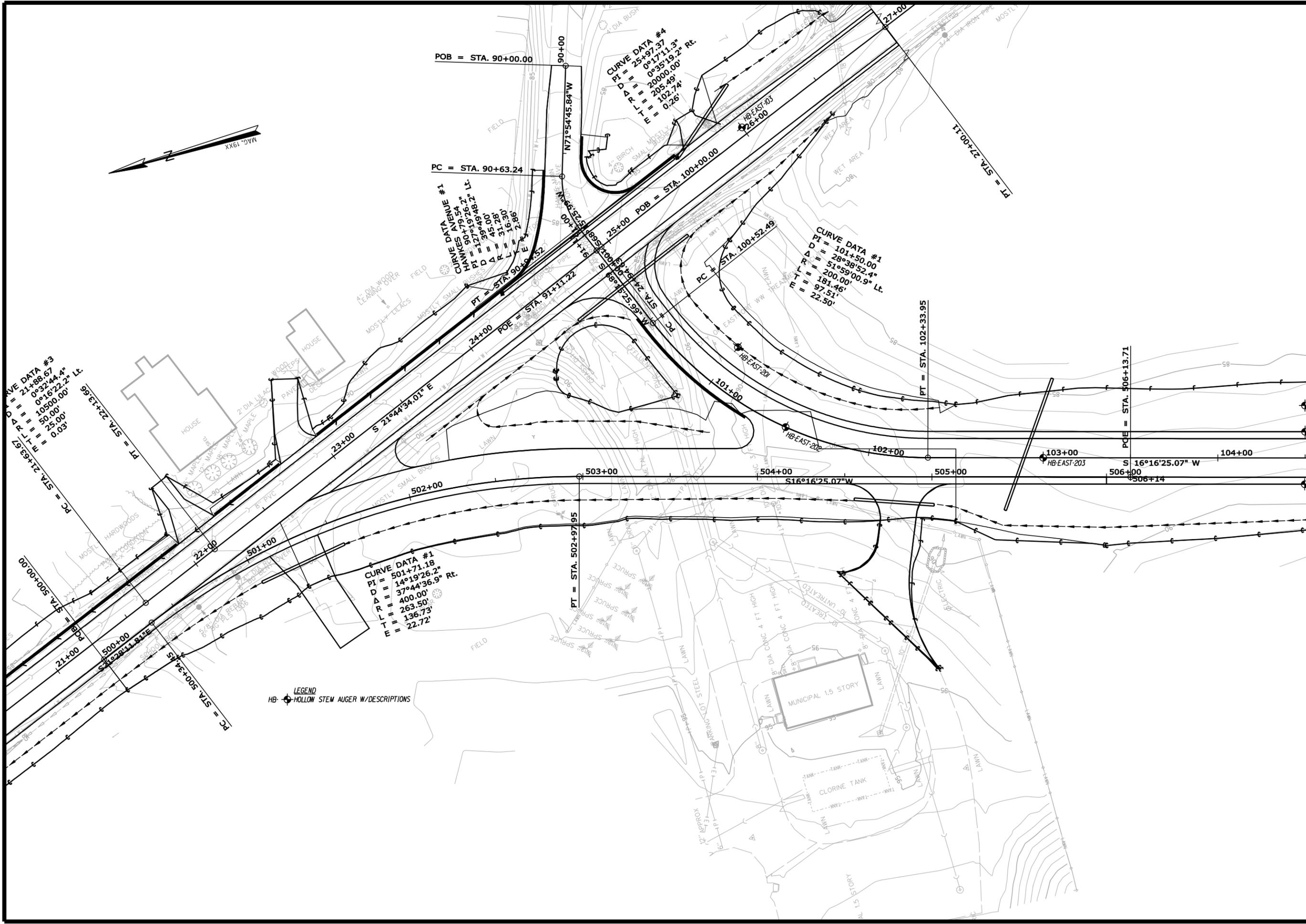
Paper Copy: Lab File; Project File; Geotech File

Date: 2/2/2015

Username: terry.white

Division: GEOTECH

Filename: ... \geotech\msta\001\_Geoplans1.dgn



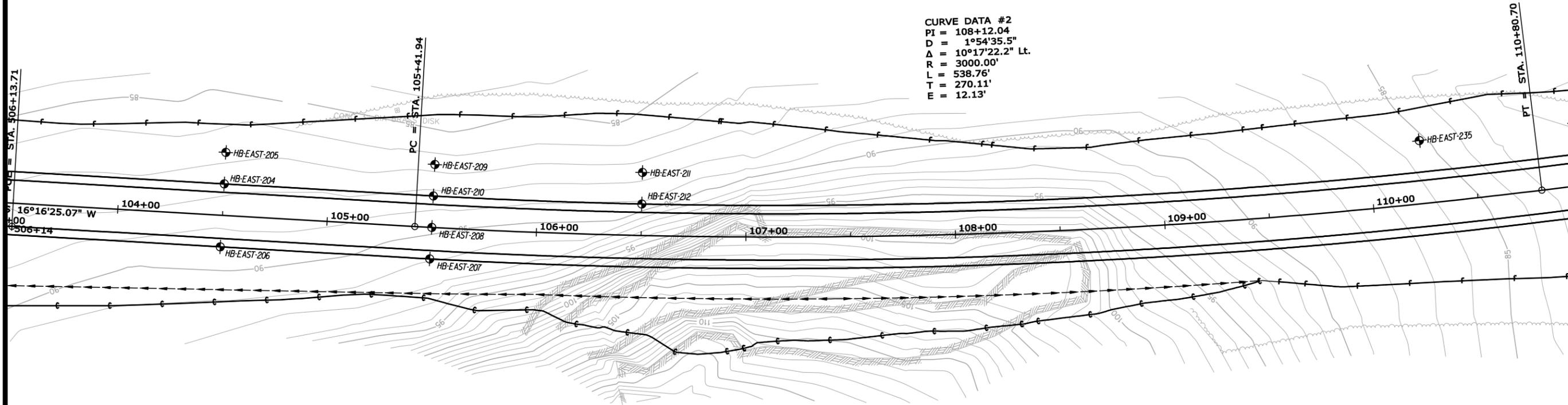
STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 AC-STP-1919(400)X  
 WIN  
 19194.00  
 HIGHWAY PLANS

DESIGN-DETAILED	BY	DATE
CHECKED-REVIEWED	S. DAVIS	
DESIGNS-DETAILED	M. KRKMAN	JAN 2015
DESIGNS-DETAILED	T. WHITE	JAN 2015
REVISIONS 1		
REVISIONS 2		
REVISIONS 3		
REVISIONS 4		
FIELD CHANGES		

SIGNATURE	P.E. NUMBER	DATE

EASTPORT  
 COUNTY ROAD  
 GEOPLANS

SHEET NUMBER  
**1**  
 OF 6



**CURVE DATA #2**  
 PI = 108+12.04  
 D = 1°54'35.5"  
 Δ = 10°17'22.2" Lt.  
 R = 3000.00'  
 L = 538.76'  
 T = 270.11'  
 E = 12.13'

SHEET NUMBER

2

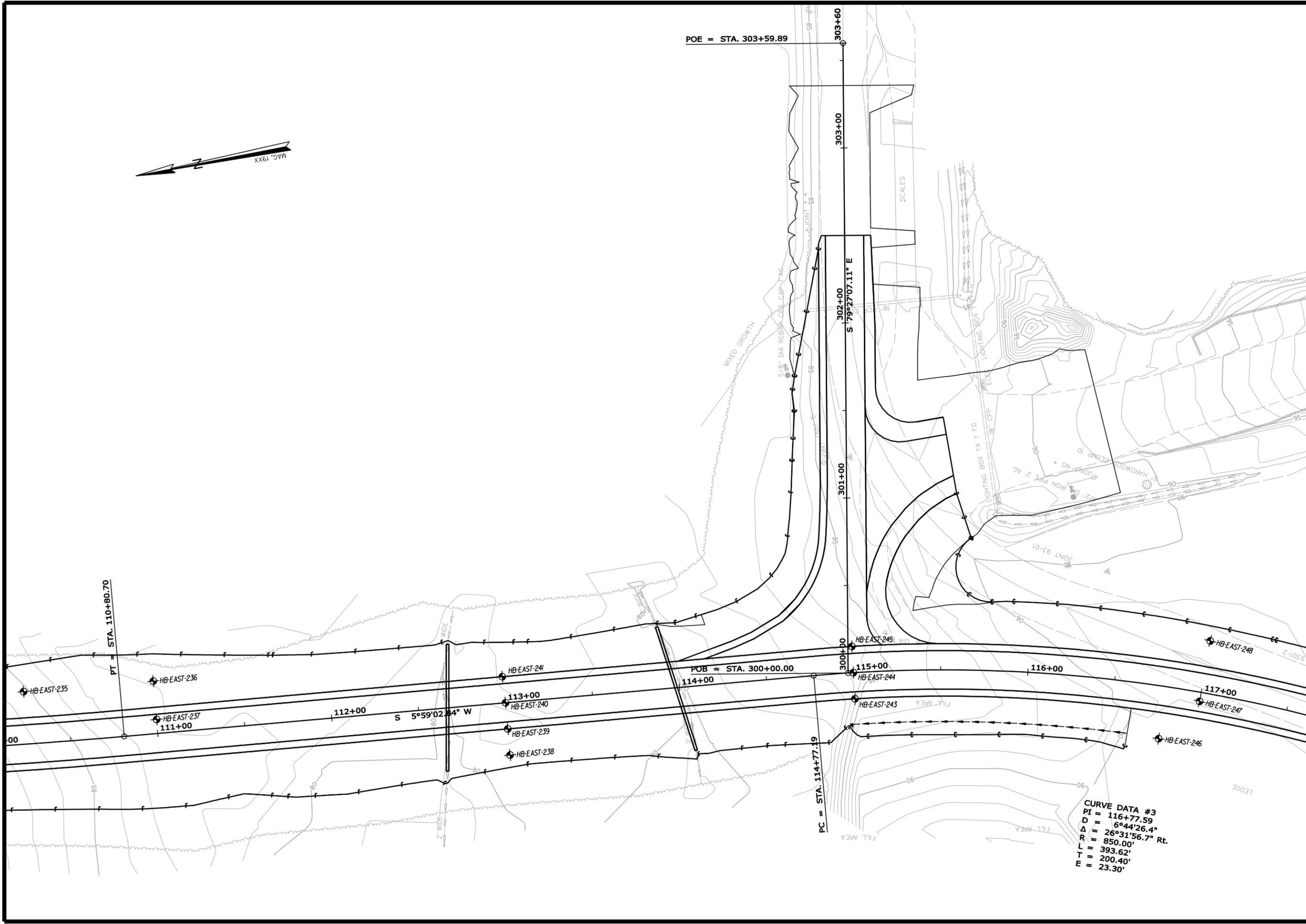
OF 6

EASTPORT  
 COUNTY ROAD  
 GEOPLANS

PROJ. MANAGER	S. DAVIS	BY	DATE
DESIGN DETAILED			
CHECKED-REVIEWED			
DESIGNS DETAILED	M. KRKMAN	T. WHITE	JAN 2015
DESIGNS DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE	P.E. NUMBER	DATE

STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
**AC-STP-1919(400)X**  
 WIN  
 19194.00  
 HIGHWAY PLANS



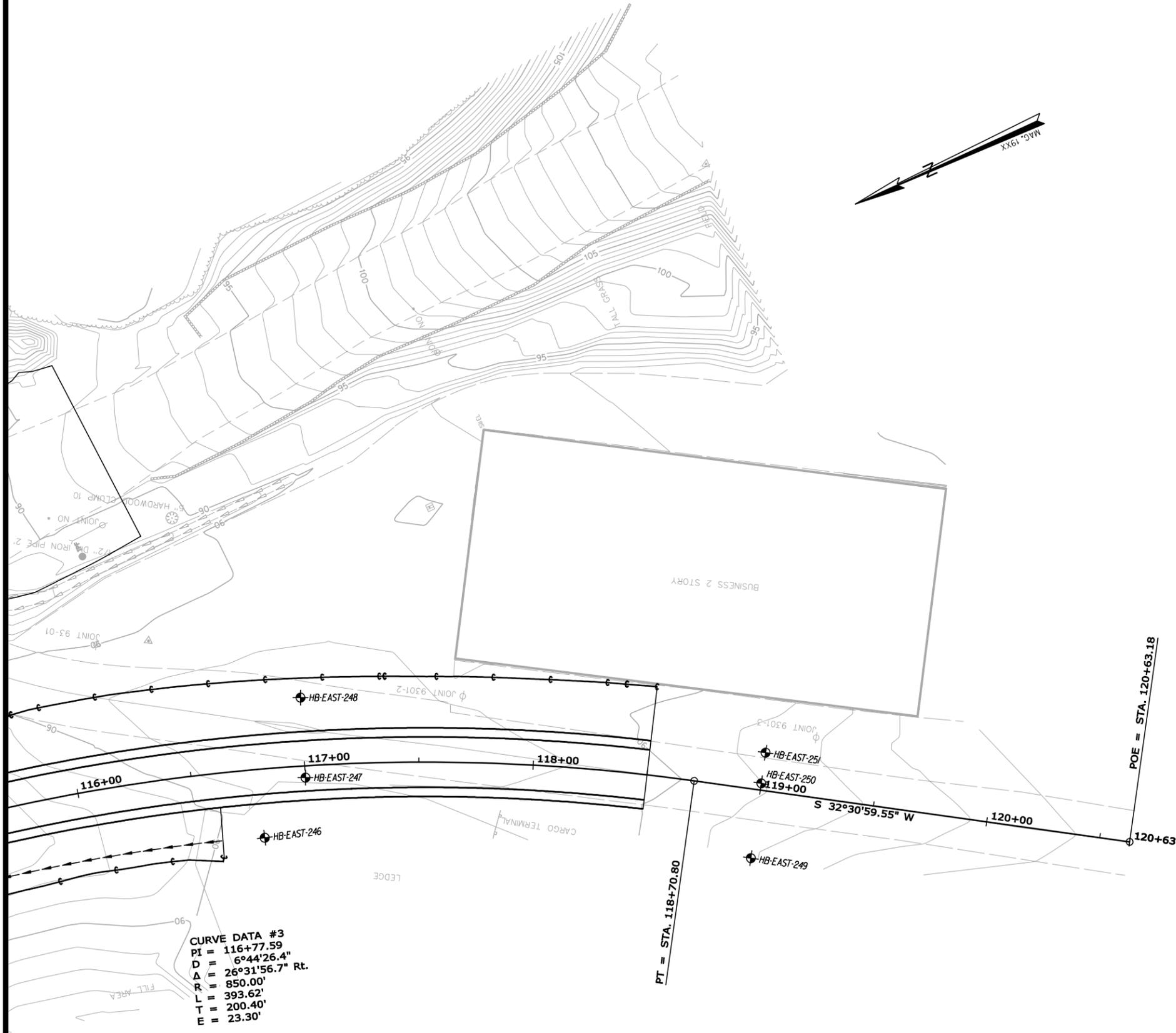
STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 AC-STP-1919(400)X

PROJ. MANAGER	S. DAVIS	BY	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGNS-DETAILED	M. KRKMAN	T. WHITE	JAN 2015
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

EASTPORT  
 COUNTY ROAD  
 GEOPLANS

SHEET NUMBER  
**3**  
 OF 6

WIN  
 19194.00  
 HIGHWAY PLANS



STATE OF MAINE  
 DEPARTMENT OF TRANSPORTATION  
 AC-STP-1919(400)X  
 WIN  
 19194.00  
 HIGHWAY PLANS

PROJ. MANAGER	S. DAVIS	BY	DATE
CHECKED-REVIEWED			
DESIGNS-DETAILED	M. KRKMAN	T. WHITE	JAN 2015
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

EASTPORT  
 COUNTY ROAD  
 GEOPLANS

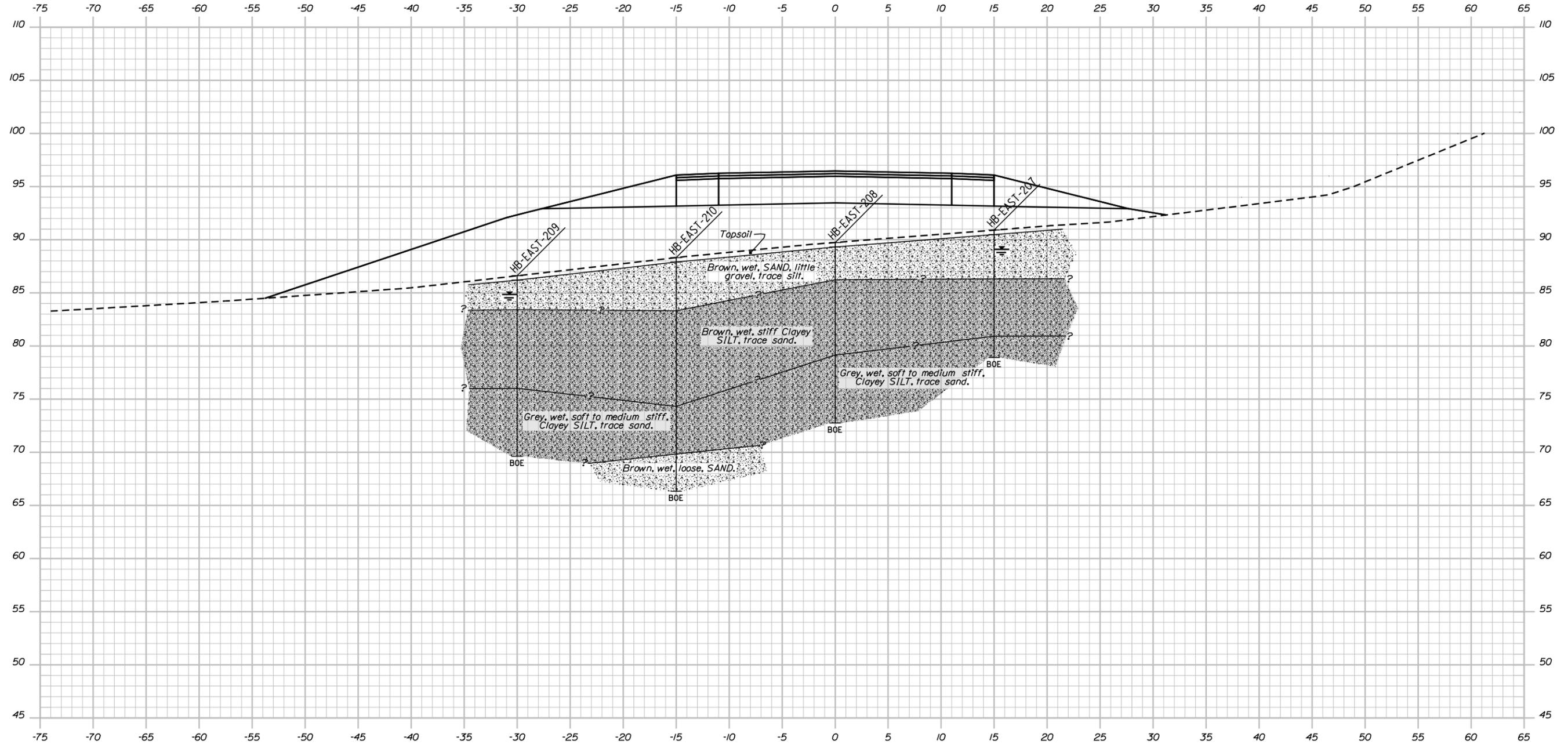
SHEET NUMBER  
**4**  
 OF 6

Date: 2/2/2015

Username: terry.white

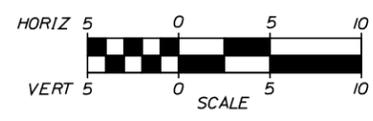
Division: GEOTECH

Filename: ...msto\005\_XSECT\_105+50\_1.dgn



105+50.00

CROSS SECTION



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

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
AC-STP-1919(400)X  
PIN 19194.00  
HIGHWAY PLANS

PROJ. MANAGER	S. DAVIS	BY	DATE
CHECKED-REVIEWED	M. KRKMAN	T. WHITE	JAN 2015
DESIGNS-DETAILED			
DESIGNS-DETAILED			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE	P.E. NUMBER	DATE

EASTPORT  
PORT ROAD  
GEOCROSS SECTIONS

SHEET NUMBER

5

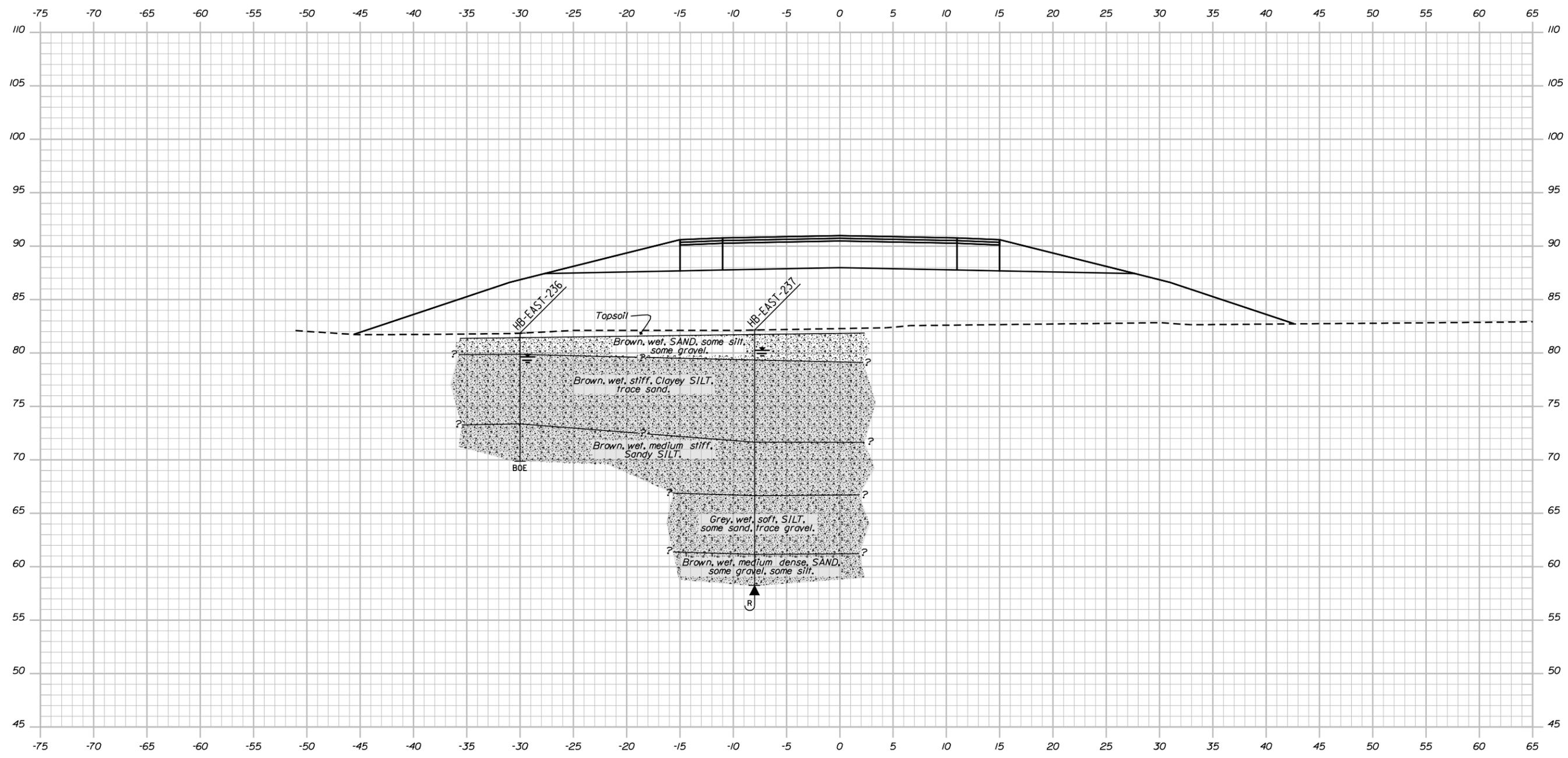
OF 6

Date: 2/2/2015

Username: terry.white

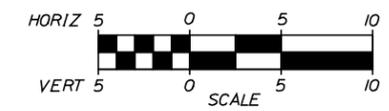
Division: GEOTECH

Filename: ... \MSTA\006\_XSECT\_111+00\_2.dgn



111+00.00

CROSS SECTION



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

STATE OF MAINE  
DEPARTMENT OF TRANSPORTATION  
AC-STP-1919(400)X  
PIN 19194.00  
HIGHWAY PLANS

PROJ. MANAGER	S. DAVIS	BY	S. DAVIS	DATE	
CHECKED-REVIEWED	M. KRKMAN	DATE	T. WHITE	FEB. 2015	SIGNATURE
DESIGNS DETAILED		REVISIONS 1			P.E. NUMBER
REVISIONS 2		REVISIONS 3			DATE
REVISIONS 4		FIELD CHANGES			

EASTPORT  
PORT ROAD  
GEOCROSS SECTIONS

SHEET NUMBER  
**6**  
OF 6

Settlement of new construction between the County Road and the Barron Road in Eastport. Soils are clayey silts that exhibit plasticity bounded by approximately 5' of sandy material at the surface, and silty sand below the clayey silt layer. No tubes were possible due to soil properties.

REFERENCES:

Soil and Foundations  
 Reference Manual - Volume I  
 Publication No. FHWA-NHI-06-088 December 2008

7.4.1 Modified Hough

Physicas Soil Properties as a Means of Predicting the Compression INDEX and Preconsolidation Pressure of Maine Clays. Young, David W. June 1966

Station 105+50

Layer depth	Description	Average N60	sat. unit weight
0-5' bgs	Brown, wet, fine to coarse SAND, little gravel, trace silt.	N60 (5-7')= 16	120 pcf
5-14' bgs	Brown, wet, stiff, clayey SILT, some fine sand, little gravel.	N60 (10-12')= 9	115 pcf
14-18.5' bgs	Grey, wet, soft, clayey SILT, little sand.	N60 (15-17')= 6	115 pcf
18.5-22' bgs	No Refusal Brown, wet, loose, silty SAND.	N60 (20-22')= 5	120 pcf

Granular Settlement Analysis

Calculate C' from Fig 7.7 of Hough using N160.

$$N_{160} := C_N \cdot N_{60} \left( \frac{20}{p_o} \right) \quad \gamma_{wat} := 62.4 \text{ pcf}$$

$$C_N := 0.77 \log \left( \frac{20}{p_o} \right)$$

$$\Delta p := 8 \text{ ft} \cdot 125 \text{ pcf} = 1000 \text{ psf}$$

Boring logs report ground water at approximately 2' bgs. This was not a measured value, but an observed level. Settlement below is calculated with GWT at 2' bgs. As groundwater presence leads to larger settlements it is assumed that the GWT is 2' bgs.

Layer 1 - Split into 1a and 2a, below and above ground water

$$H_{1a} := 2 \text{ ft}$$

$$N_{601} := 16 \quad \gamma_{sat1} := 120 \text{ pcf}$$

$$p_{o1a} := \frac{(2 \text{ ft} - 0 \text{ ft})}{2} \cdot \gamma_{sat1} = 120 \text{ psf}$$

$$C_{N1a} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o1a}} \right) \right| = 0.599$$

$$N_{160} := C_{N1a} \cdot N_{601} = 9.587$$

$$C'_{1a} := 40$$

$$\Delta H_{1a} := H_{1a} \cdot \frac{1}{C'_{1a}} \cdot \log\left(\frac{p_{o1a} + \Delta p}{p_{o1a}}\right) = 0.049 \text{ ft} \quad \Delta H_{1a} = 0.582 \text{ in}$$

$$H_{1b} := 3 \text{ ft}$$

$$N_{601} := 16 \quad \gamma_{sat1} := 120 \text{ pcf}$$

$$p_{o1b} := \frac{(5 \text{ ft} - 2 \text{ ft})}{2} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} = 326.4 \text{ psf}$$

$$C_{N1b} := \left| 0.77 \log\left(\frac{20 \text{ psf}}{p_{o1b}}\right) \right| = 0.934$$

$$N_{160} := C_{N1b} \cdot N_{601} = 14.941$$

$$C'_{1b} := 66$$

$$\Delta H_{1b} := H_{1b} \cdot \frac{1}{C'_{1b}} \cdot \log\left(\frac{p_{o1b} + \Delta p}{p_{o1b}}\right) = 0.028 \text{ ft} \quad \Delta H_{1b} = 0.332 \text{ in}$$

Layer 2

$$H_2 := 9 \text{ ft}$$

$$N_{602} := 9 \quad \gamma_{sat2} := 115 \text{ pcf}$$

$$p_{o2} := \frac{H_2}{2} \cdot (\gamma_{sat2} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) = 649.5 \text{ psf}$$

$$C_{N2} := \left| 0.77 \log\left(\frac{20 \text{ psf}}{p_{o2}}\right) \right| = 1.164$$

$$N_{160} := C_{N2} \cdot N_{602} = 10.475$$

$$C'_2 := 32$$

$$\Delta H_2 := H_2 \cdot \frac{1}{C'_2} \cdot \log\left(\frac{p_{o2} + \Delta p}{p_{o2}}\right) = 0.114 \text{ ft} \quad \Delta H_2 = 1.366 \text{ in}$$

Layer 3

$$H_3 := 4.5 \text{ ft}$$

$$N_{603} := 6 \quad \gamma_{sat3} := 115 \text{ pcf}$$

$$p_{o3} := \frac{H_3}{2} \cdot (\gamma_{sat3} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_2 \cdot (\gamma_{sat2} - \gamma_{wat}) = 1004.55 \text{ psf}$$

$$C_{N3} := \left| 0.77 \log\left(\frac{20 \text{ psf}}{p_{o3}}\right) \right| = 1.31$$

$$v_{160} := C_{N3} \cdot N_{603} = 7.858$$

$$C'_3 := 28$$

$$\Delta H_3 := H_3 \cdot \frac{1}{C'_3} \cdot \log\left(\frac{p_{o3} + \Delta p}{p_{o3}}\right) = 0.048 \text{ ft} \quad \Delta H_3 = 0.579 \text{ in}$$

Layer 4 - Only drilled to 22', assume sandy layer is 10' thick

$$H_4 := 10 \text{ ft}$$

$$N_{604} := 5 \quad \gamma_{sat4} := 120 \text{ pcf}$$

$$p_{o4} := \frac{H_4}{2} \cdot (\gamma_{sat4} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_2 \cdot (\gamma_{sat2} - \gamma_{wat}) + H_3 \cdot (\gamma_{sat3} - \gamma_{wat}) = 1410.9 \text{ psf}$$

$$C_{N4} := \left| 0.77 \log\left(\frac{20 \text{ psf}}{p_{o4}}\right) \right| = 1.423$$

$$N_{160} := C_{N4} \cdot N_{604} = 7.117$$

$$C'_4 := 40$$

$$\Delta H_4 := H_4 \cdot \frac{1}{C'_4} \cdot \log\left(\frac{p_{o4} + \Delta p}{p_{o4}}\right) = 0.058 \text{ ft} \quad \Delta H_4 = 0.698 \text{ in}$$

$$\Delta H_{total} := \Delta H_{1a} + \Delta H_{1b} + \Delta H_2 + \Delta H_3 + \Delta H_4 = 0.296 \text{ ft}$$

$$\Delta H_{total} = 3.557 \text{ in}$$

As no compression testing tubes were possible, no cohesive settlement analysis is possible.

Station 111+00

Layer depth	Description	Average N60	sat. unit weight
0-2.8' bgs	Brown, wet, silty fine to coarse SAND, some gravel.	Use N60=16	120 pcf
2.8-10.5' bgs	Olive-brown, moist, stiff, clayey SILT, trace sand.	N60 (5-7')= 19	115 pcf
10.5-15.5' bgs	Brown, wet, medium stiff, sandy SILT, some clay.	N60 (10-12')= 8	115 pcf
15.5-21' bgs	Grey, wet, soft, SILT, some sand, trace gravel.	N60 (15-17')= 5	115 pcf
21-23.9' bgs	Brown, wet, medium dense, fine to coarse SAND, some gravel, some silt	N60 (20-22')= 25	120 pcf

Granular Settlement Analysis

Calculate C' from Fig 7.7 of Hough using N160.

$$N_{160} := C_N \cdot N_{60} \quad \gamma_{wat} := 62.4 \text{ pcf}$$

$$C_N := 0.77 \log \left( \frac{20}{p_c} \right)$$

$$\Delta p := 9 \text{ ft} \cdot 125 \text{ pcf} = 1125 \text{ psf}$$

Boring logs report ground water at approximately 2' bgs. This was not a measured value, but an observed level. Settlement below is calculated with GWT at 2' bgs.

Layer 1 - Split into 1a and 2a, below and above ground water

$$H_{1a} := 2 \text{ ft}$$

$$N_{601} := 16 \quad \gamma_{sat1} := 120 \text{ pcf}$$

$$p_{o1a} := \frac{(2 \text{ ft} - 0 \text{ ft})}{2} \cdot \gamma_{sat1} = 120 \text{ psf}$$

$$C_{N1a} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o1a}} \right) \right| = 0.599$$

$$N_{160} := C_{N1a} \cdot N_{601} = 9.587$$

$$C'_{1a} := 40$$

$$\Delta H_{1a} := H_{1a} \cdot \frac{1}{C'_{1a}} \cdot \log \left( \frac{p_{o1a} + \Delta p}{p_{o1a}} \right) = 0.051 \text{ ft} \quad \Delta H_{1a} = 0.61 \text{ in}$$

$$H_{1b} := 0.8 \text{ ft}$$

$$N_{601} := 16 \quad \gamma_{sat1} := 120 \text{ pcf}$$

$$p_{o1b} := \frac{(2.8 \text{ ft} - 2 \text{ ft})}{2} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} = 263.04 \text{ psf}$$

$$C_{N1b} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o1b}} \right) \right| = 0.862$$

$$N_{160} := C_{N1b} \cdot N_{601} = 13.786$$

$$C'_{1b} := 37.5$$

$$\Delta H_{1b} := H_{1b} \cdot \frac{1}{C'_{1b}} \cdot \log\left(\frac{p_{o1b} + \Delta p}{p_{o1b}}\right) = 0.015 \text{ ft} \quad \Delta H_{1b} = 0.185 \text{ in}$$

Layer 2

$$H_2 := 7.7 \text{ ft}$$

$$N_{602} := 19 \quad \gamma_{sat2} := 115 \text{ pcf}$$

$$p_{o2} := \frac{H_2}{2} \cdot (\gamma_{sat2} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) = 488.59 \text{ psf}$$

$$C_{N2} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o2}} \right) \right| = 1.069$$

$$N_{160} := C_{N2} \cdot N_{602} = 20.305$$

$$C'_2 := 41$$

$$\Delta H_2 := H_2 \cdot \frac{1}{C'_2} \cdot \log \left( \frac{p_{o2} + \Delta p}{p_{o2}} \right) = 0.097 \text{ ft} \quad \Delta H_2 = 1.169 \text{ in}$$

Layer 3

$$H_3 := 5 \text{ ft}$$

$$N_{603} := 8 \quad \gamma_{sat3} := 115 \text{ pcf}$$

$$p_{o3} := \frac{H_3}{2} \cdot (\gamma_{sat3} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_2 \cdot (\gamma_{sat2} - \gamma_{wat}) = 822.6 \text{ psf}$$

$$C_{N3} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o3}} \right) \right| = 1.243$$

$$N_{160} := C_{N3} \cdot N_{603} = 9.943$$

$$C'_3 := 28$$

$$\Delta H_3 := H_3 \cdot \frac{1}{C'_3} \cdot \log \left( \frac{p_{o3} + \Delta p}{p_{o3}} \right) = 0.067 \text{ ft} \quad \Delta H_3 = 0.802 \text{ in}$$

Layer 4

$$H_4 := 5.5 \text{ ft}$$

$$N_{604} := 5 \quad \gamma_{sat4} := 115 \text{ pcf}$$

$$p_{o4} := \frac{H_4}{2} \cdot (\gamma_{sat4} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_2 \cdot (\gamma_{sat2} - \gamma_{wat}) + H_3 \cdot (\gamma_{sat3} - \gamma_{wat}) = 1098.75 \text{ psf}$$

$$C_{N4} := \left| 0.77 \log \left( \frac{20 \text{ psf}}{p_{o4}} \right) \right| = 1.34$$

$$N1_{60} := C_{N4} \cdot N_{604} = 6.698$$

$$C'_4 := 25$$

$$\Delta H_4 := H_4 \cdot \frac{1}{C'_4} \cdot \log\left(\frac{p_{o4} + \Delta p}{p_{o4}}\right) = 0.067 \text{ ft} \quad \Delta H_4 = 0.808 \text{ in}$$

Layer 5 - Ends in refusal at 23.9'

$$H_5 := 2.9 \text{ ft}$$

$$N_{605} := 25 \quad \gamma_{sat5} := 120 \text{ pcf}$$

$$p_{o5} := \frac{H_5}{2} \cdot (\gamma_{sat5} - \gamma_{wat}) + H_{1a} \cdot \gamma_{sat1} + H_{1b} \cdot (\gamma_{sat1} - \gamma_{wat}) + H_2 \cdot (\gamma_{sat2} - \gamma_{wat}) + H_3 \cdot (\gamma_{sat3} - \gamma_{wat}) + H_4 \cdot (\gamma_{sat4} - \gamma_{wat}) = 1326.92 \text{ psf}$$

$$C_{N5} := \left| 0.77 \log\left(\frac{20 \text{ psf}}{p_{o5}}\right) \right| = 1.403$$

$$N1_{60} := C_{N5} \cdot N_{605} = 35.07$$

$$C'_5 := 130$$

$$\Delta H_5 := H_5 \cdot \frac{1}{C'_5} \cdot \log\left(\frac{p_{o5} + \Delta p}{p_{o5}}\right) = 0.006 \text{ ft} \quad \Delta H_5 = 0.071 \text{ in}$$

$$\Delta H_{total} := \Delta H_{1a} + \Delta H_{1b} + \Delta H_2 + \Delta H_3 + \Delta H_4 + \Delta H_5 = 0.304 \text{ ft}$$

$$\Delta H_{total} = 3.646 \text{ in}$$

STA 105+50

ASSUME SETTLEMENT IN SAND LAYERS IS IMMEDIATE DURING EMBANKMENT CONSTRUCTION. ESTIMATE CONSOLIDATION SETTLEMENT IN SILTY CLAY LAYERS.

BASED ON RESULTS FROM TEST BORINGS AT THIS LOCATION (HB-EAST-207-210), THE UPPER PORTION OF THE SILTY CLAY LAYER IS STIFF AND IN GENERAL STIFFNESS DECREASES WITH DEPTH. THESE TRENDS IN SPT DATA SUGGEST THAT THE UPPER PORTION IS HIGHLY OVERCONSOLIDATED WHEREAS THE LOWER PORTION IS LIKELY TO BE ONLY SLIGHTLY OVERCONSOLIDATED. GIVEN THE OVERALL STIFFNESS OF THE DEPOSIT AND THE PROPOSED EMBANKMENT HEIGHT, THE FILL AT THIS LOCATION IS NOT EXPECTED TO CAUSE VIRGIN COMPRESSION.

ASSUME RECOMPRESSION ONLY ( $\sigma'_v + \Delta\sigma \leq \sigma'_p$ )

SILTY CLAY LAYER IS BELOW GROUNDWATER TABLE. ASSUME FULLY SATURATED ( $S=100\%$ ).

MAX EMBANKMENT HEIGHT = 8 FT. ASSUME 1.5 FT OF GRUBBING. ASSUME FULL  $\Delta\sigma$  WITH DEPTH. SAY  $\Delta\sigma = 9.5 \text{ FT} * 125 \text{ PCF} = 1187.5 \text{ PSF}$ , SAY 1200 PSF.

STIFF UPPER LAYER

AVG. INDEX PROPERTIES:  $W_L = 21$ ,  $W_U = 29$ ,  $W_P = 19$ ,  $I_P = 10$ ,  
 AND  $G_s = 2.72$

ESTIMATE RANGE OF  $C_r$

$C_r = 0.00194 (I_P - 4.6)$   
 NAKASE ET AL. 1988, FROM BOWLES TABLE 2-5.

$C_r = 0.000463 W_L / G_s$   
 NAGARAJ & SRINIVASA MURTHY, 1986 FROM BOWLES TABLE 2-5.

$C_r = 0.00194 (10 - 4.6) = 0.010$

$C_r = 0.000463 (29) (2.72) = 0.037$

ESTIMATE INITIAL VOID RATIO

$$e_0 = \frac{W_c G_s}{S} = \frac{(21)(2.72)}{100} = 0.57$$

ESTIMATE RANGE OF RECOMPRESSION SETTLEMENT USING  $H_0$  AND  $\sigma'_{v0}$  FROM MEREDITH'S CALCULATIONS.

$$S_c = C_r \frac{H_0}{1+e_0} \log \left( \frac{\sigma'_{v0} + \Delta \sigma}{\sigma'_{v0}} \right)$$

$$S_c = 0.010 \left( \frac{9}{1+0.57} \right) \log \left( \frac{650+1200}{650} \right) = 0.03 \text{ FT} \approx 0.4 \text{ IN.}$$

$$S_c = 0.037 \left( \frac{9}{1+0.57} \right) \log \left( \frac{650+1200}{650} \right) = 0.1 \text{ FT} \approx 1.2 \text{ IN.}$$

SAY POTENTIAL SETTLEMENT IN UPPER SILTY CLAY IS 0.5 TO 1.5 IN.

SOFT LOWER LAYER.

AVG. INDEX PROPERTIES:  $W_c = 23$ ,  $W_L = 28$ ,  $W_p = 17$ ,  $I_p = 11$ ,  
 AND  $G_s = 2.66$

$$C_r = 0.00194(11 - 4.6) = 0.012$$

$$C_r = 0.000463(28)(2.66) = 0.034$$

$$S_c = 0.012 \left( \frac{4.5}{1+0.61} \right) \log \left( \frac{1000+1200}{1000} \right) = 0.01 \text{ FT} \approx 0.12 \text{ IN.}$$

$$S_c = 0.034 \left( \frac{4.5}{1+0.61} \right) \log \left( \frac{1000+1200}{1000} \right) = 0.03 \text{ FT} \approx 0.36 \text{ IN.}$$

SAY POTENTIAL SETTLEMENT IN LOWER SILTY CLAY IS 0.1 TO 0.5 IN.

COMBINED RECOMPRESSION OF UPPER AND LOWER SILTY CLAY LAYERS COULD RANGE FROM 0.5 TO 2 IN.