SCHONEWALD
ENGINEERING
ASSOCIATES, INC.

PRELIMINARY GEOTECHNICAL REPORT
INTERSTATE 95
TRAFTON ROAD INTERCHANGE
WATERVILLE, MAINE
MaineDOT WIN 18129.10

PREPARED FOR:

Maine Department of Transportation
Augusta, Maine

PREPARED BY:

Isabel V. (Be) Schonewald, P.E.
Schonewald Engineering Associates, Inc. (SchonewaldEA)
129 Middle Road
Cumberland, Maine 04021
Be@SchonewaldEngineering.com

August 2015

SchonewaldEA Project No. 15-001

SCHONEWALD ENGINEERING ASSOCIATES, INC.
■ www.SchonewaldEngineering.com ■

129 MIDDLE ROAD, CUMBERLAND, MAINE 04021
phone 207/829-5226
cell 207/272-9879

VIA EMAIL

August 17, 2015
Project No. 15-001

Mr. Ernest Martin
Maine Department of Transportation
Highway Program
16 State House Station
Augusta, Maine 04333-0016

Re: Preliminary Geotechnical Report
Proposed Trafton Road Interchange
Waterville, Maine
MaineDOT WIN 18129.10

Dear Ernie:

Schonewald Engineering Associates, Inc. (SchonewaldEA) is pleased to provide the Maine Department of Transportation (MaineDOT) with this preliminary geotechnical report for the proposed Trafton Road interchange on Interstate 95 in Waterville, Maine (MaineDOT WIN 18129.10). The location of the project is depicted on the attached Figure 1. This preliminary geotechnical report summarizes the findings of the geotechnical field and laboratory testing programs completed for the project and provides a discussion of the implications of the subsurface conditions and generalized geotechnical recommendations for the design and construction of the interchange.

This work was completed in accordance with a project specific contract under SchonewaldEA's GCA with MaineDOT. This report is subject to the limitations contained in the Closure section of the report. A quality assurance review of the technical aspects of SchonewaldEA's work was completed by Ms. Meredith Kirkmann, P.E., Geotechnical Engineer, MaineDOT Highway Program.

EXECUTIVE SUMMARY

The purpose of this report is to present subsurface information and make geotechnical recommendations for the design and construction of a new interchange located at the Trafton Road crossing of Interstate 95 in Waterville, Maine. The location of the project is depicted on the attached Figures - Sheet 1-Location Map.

The proposed work includes the construction of northbound (NB) on and off ramps to the east of Interstate 95 and southbound (SB) on and off ramps to the west of Interstate 95. Portions of the SB on and off ramps and much of the SB combined ramp run through the former farm that occupied the site where the foundations of former structures, as well as the old farm pond and manure storage "bunker" remain. Two significant drainage structures will be required; one under the NB off ramp and one under the SB on ramp where they cross a stream. Structural barriers will be required to accommodate the NB on ramp and SB off ramp where they pass in close proximity to existing piers of the Trafton Road bridge. Additionally, approximately 400 feet of the southerly end of Eight Rod Road will be realigned to intersect Trafton Road directly across from Junction Road. Geometric changes will be made to the intersection of Trafton Road and West River Road to better accommodate turning traffic. With the exception of 400- to 500-foot sections of the NB and the SB off ramps and short contiguous sections of the SB on ramp and SB combined ramp, the project is predominantly a fill project.

Subsurface conditions encountered in the project area consist predominantly of medium dense to very dense sandy glacial till or medium stiff to stiff glaciomarine silt-clay (clay crust) over the glacial till. Refusal, believed to be on bedrock, was encountered 8 to 17 feet below the ground surface (BGS) in the preliminary test borings. Rock is exposed in the Interstate 95 SB cut at the Trafton Road underpass. A relatively thin layer of very soft, compressible silt-clay was encountered at depth in two borings located to the east of Interstate 95, but does not appear to present a significant settlement or stability concern because minor cuts and fills are proposed along those portions of the alignment. Organic soils were encountered in one boring located near mapped wetlands and to the southwest of the final alignment of the proposed SB on ramp. Unsuitable miscellaneous fill materials were encountered at the ground surface in three borings completed within the former barnyard. Likewise, unsuitable soils were allowed for the construction of the outer portions of the existing Interstate 95 mainline embankment over which the off ramps cross and the on ramps merge.

The glacial till and the glaciomarine silt-clay should provide adequate support for the proposed fills, though some care will be needed during construction to avoid overworking and disturbing the silt-clay soils. Subsurface conditions that will need to be addressed during the design process include the following:

- Subsurface conditions at subgrade and the associated geotechnical parameters for the design of the two significant drainage structures;
- Possible shallow bedrock at the excavations for the construction of the permanent structural concrete barriers along the existing Trafton Road bridge piers;
- Unsuitable fill materials used to construct the outer slopes of the existing Interstate 95 mainline;
- Unsuitable miscellaneous fill materials and residual farm waste within the footprints of the SB ramps; and
- Possible shallow bedrock in the cut section of the NB off ramp where the final alignment crosses a knoll.

BACKGROUND

Gorrill-Palmer Consulting Engineers, Inc. (GPCEI) completed a permitting feasibility study of the proposed interchange for Maine Tomorrow. Where they cross, Interstate 95 runs south-north and Trafton Road runs west-east. The GPCEI Conceptual Ramp Layout Plan dated May 16, 2014 depicts an interchange concept with the ramps confined to the southeast (northbound on and off ramps) and southwest (southbound on and off ramps) quadrants created by the two roads. The background aerial depicted on the GPCEI conceptual layout plan indicates the proposed ramps cross multiple wet areas and some streams. Note that the selection of the locations of the preliminary test borings was based on the GPCEI conceptual layout plan.

Fay, Spofford & Thorndike (FST) was retained by MaineDOT in early 2015 to complete the final design of the interchange. At the time of this report, FST has prepared the final Horizontal and Vertical Alignments Complete (HVAC) submission. This report is based on the FST HVAC plans dated July 9, 2015. Compared to the GPCEI conceptual layout, the FST design has significantly modified the alignments of the NB ramps to limit stream crossings and related natural resources impacts. Likewise, the FST design modified the alignment of the SB on ramp to limit wetlands impacts. As the design of the project further evolves, such as evaluating hydraulics, items requiring geotechnical input will likely be identified and the related geotechnical analyses completed and recommendations for design and construction developed.

An April 1958 report prepared for the Trafton Road bridge over the then proposed interstate indicates the original ground surface sloped downward from west to east at about a 4 percent slope and that the Trafton Road bridge approaches required significant fills (15 feet for the west side abutment and 23 feet for the east side abutment). Native soils are described in the report as medium dense to dense, silty sand and gravel, with boulders noted in some areas. Poor quality rock, identified as PHYLLITE with high angle structure, was encountered between 5 and 16 feet below original ground at the abutments; more shallow on the west side. Some of the pier borings encountered thin zones of fine sand and of stiff silt-clay. The boring data and the significant approach fills without apparent stability berms suggest the site is not underlain by broad, deep silt-clay deposits. However, the related Interstate reports dated March 1958 (Trafton Road and south) and July 1958 (Trafton Road and north) report that auger borings completed in the vicinity of Trafton Road consisted of firm weathered silts and clays, which is likely the overconsolidated crust of the Presumpscot Formation. The depths of the auger borings are unknown.

GEOLOGIC SETTING

Surficial geology in the vicinity of the Trafton Road crossing of Interstate 95 and underlying much of the project footprint is mapped as glaciomarine silt-clay deposits of the Presumpscot Formation. The westernmost portion of the project footprint is shown to be underlain by glacial till with areas of bedrock outcrops. (Reconnaissance Surficial Geology of the Waterville Quadrangle, Maine; Maine Geological Survey Open File 86-51).

Glacial till soil is characterized by a mixture of gravel to clay sized particles and commonly contains cobbles and boulders, all of which dropped out of the glacier as it melted and retreated. Glacial till soils typically provide good bearing capacity and do not experience long-term post-construction (consolidation) settlement. However, where silt content is high, glacial till soils can exhibit low permeability and care during construction is often needed so as not to overwork (pump) the soil.

The glaciomarine Presumpscot Formation generally consists of clay and silt sized particles, with minor amounts of fine sand and non-plastic silt, that were deposited in deep, quiet marine waters. These fine-grained deposits exhibit varying degrees of plasticity, can become very soft at depth, and are moderately sensitive. Often the upper eight to twelve feet of the deposit is relatively strong, consisting of an overconsolidated stiff crust that is slightly compressible. The crust is typically underlain by very soft, normally consolidated, more plastic and highly compressible material. The Presumpscot Formation is a sensitive clay, meaning it loses strength when disturbed, but it is not considered an expansive clay.

TEST BORING PROGRAM

SchonewaldEA retained New England Boring Contractors (NEBC) of Hermon, Maine to drill twelve test borings within the project area, designated HB-WAT-102 through -109 and HB-WAT-111 through -114. The approximate locations of the test borings are depicted on attached Figures - Sheet 2–Boring Location Plan. Geoplans depicting the locations of the test borings relative to the final HVAC alignments are also included with the attached figures.

Fourteen test borings had been proposed, but field conditions at the time of the drilling program precluded drill rig access to two of the locations. These two test borings, designated HB-WAT-101 and HB-WAT-110 were, therefore, eliminated and other boring locations adjusted to maintain reasonable coverage. The fourteen boring locations were selected by SchonewaldEA based upon the GPCEI conceptual layout plan to provide good overall coverage of the project, with the locations adjusted to obtain subsurface information at features of interest (e.g., potential stream crossings, areas with evidence of potential shallow bedrock, and areas where unsuitable fill materials could be present). Because the final HVAC alignments are significantly modified from the conceptual alignments, some of the test borings are offset a considerable distance from the final alignments.

The following table provides information regarding the locations of the test borings based on the GPCEI conceptual alignments and stationing and the FST July 9, 2015 final HVAC alignments and stationing:

Boring No.	Segment	Approximate Location (based on GPCEI stationing)		Approximate Location (based on FST 7/9/15 stationing)		Ground Surface Elev.
		Station	Offset	Station	Offset	
SOUTHBOUND RAMPS (HB-WAT-102 through -107)						
HB-WAT-102	On ramp	315+52	27 LT	514+01	142 LT	209.3
HB-WAT-103	On ramp	319+50	15 LT	520+10	146 LT	221
HB-WAT-104	Off ramp	403+07	CL	601+37	1 RT	221
HB-WAT-105	Off ramp	406+78	87.5 LT	605+03	87 LT	214.3
HB-WAT-106	Combined	400+37	2 LT	701+40	18 RT	228.9
HB-WAT-107	Combined	602+34	CL	704+15	5 RT	229
NORTHBOUND RAMPS (HB-WAT-108 through -109 and HB-WAT-111 through -113)						
HB-WAT-108	Off ramp	203+10	101 RT	202+17	107 RT	200.7
HB-WAT-109	Off ramp	209+00	CL	207+84	230 RT	188.8
HB-WAT-111	Combined	213+10	CL	400+41	162 RT	179.4
HB-WAT-112	On ramp	105+81	63 RT	303+12	39 LT	198.6
HB-WAT-113	Combined	502+50	CL	402+43	50 RT	181.4
EIGHT ROD ROAD (HB-WAT-114)						
HB-WAT-114	Road Relocation	802+20	CL	802+21	17 RT	173.7

Boring layout was completed by MaineDOT prior to mobilizing the drill rig and the as-drilled locations of the test borings that were relocated in the field were re-surveyed by MaineDOT subsequent to completing the field program.

The drilling work was completed from February 3 to 6, 2015 and was observed and logged by SchonewaldEA. Deep and drifted snowpack at the time of the drilling program obscured most site and survey features and resulted in access challenges even with a track-mounted drill rig and loss of efficiency. Cold temperatures precluded the use of drilling fluid (water). Logs of the test borings are included as Appendix A. The as-drilled coordinates and ground surface elevations based on the MaineDOT survey information are included on the logs.

The test borings were advanced using hollow-stem or solid-stem auger boring techniques to avoid the use of water. Typically Standard Penetration Tests (SPTs) were completed and split-spoon soil samples obtained near the ground surface and at approximately 5-foot intervals thereafter. Subsurface conditions between sample intervals were based on visual examination of auger cuttings, as well as drilling behavior. The test borings were typically terminated at auger refusal, which was encountered between 8 and 17 feet BGS. Obtaining rock core was not feasible since cold temperatures were not conducive to using drilling fluid. The boreholes were backfilled with cuttings, supplemented with sand and gravel upon completion of the explorations.

LABORATORY TESTING PROGRAM

Representative samples of the overburden soils encountered in the test borings were submitted for laboratory index testing. Tests were completed to better define the gradation of the soils, specifically the fines content, and to evaluate the plasticity of the fine grained soils. Laboratory testing was completed by MaineDOT's geotechnical laboratory in Bangor, Maine. The laboratory testing program is summarized in the following table.

Boring No.	Sample No.	Sample Depth (ft. BGS)	Index Tests Performed:
SOUTHBOUND RAMPS (HB-WAT-102 through -107)			
HB-WAT-102	2D	5-7	wash sieve; moisture content
HB-WAT-104	1D	2-4	wash sieve; moisture content
HB-WAT-105	2D	5-7	wash sieve; moisture content
HB-WAT-106	2D	5-7	sieve with hydrometer; moisture content; Atterberg limits
HB-WAT-106	3D	10-12	sieve with hydrometer; moisture content
HB-WAT-107	2D	5-7	sieve with hydrometer; moisture content; Atterberg limits
NORTHBOUND RAMPS (HB-WAT-108 through -109 and HB-WAT-111 through -113)			
HB-WAT-108	2D	5-7	wash sieve; moisture content
HB-WAT-109	1D	2-4	sieve with hydrometer; moisture content; Atterberg limits
HB-WAT-109	2D	5-7	sieve with hydrometer; moisture content
HB-WAT-111	2D	5-7	wash sieve; moisture content
HB-WAT-112	2D	5-7	sieve with hydrometer; moisture content; Atterberg limits
HB-WAT-112	3D	10-12	sieve with hydrometer; moisture content; Atterberg limits
HB-WAT-113	2D	5-7	sieve with hydrometer; moisture content; Atterberg limits
EIGHT ROD ROAD (HB-WAT-114)			
HB-WAT-114	3D	10-12	sieve with hydrometer; moisture content; Atterberg limits

The results of the index testing are summarized in the following sections. Laboratory test results are summarized on the test boring logs included as Appendix A and laboratory test reports are included as Appendix B.

SUBSURFACE CONDITIONS

The following table summarizes the test boring program. The approximate locations of the test borings are depicted on attached Figures - Sheet 2–Boring Location Plan. Geoplans depicting the locations of the test borings relative to the final HVAC alignments are also included with the attached figures.

Boring No.	Approximate Location (based on GPCEI stationing)		Ground Surface Elev.	Comment
	Station	Offset		
SOUTHBOUND RAMPS (HB-WAT-102 through -107)				
HB-WAT-102	514+01	142 LT	209.3	edge of wet area; silty till; refusal at 8.2 ft. BGS
HB-WAT-103	520+10	146 LT	221	interior toe of "manure bunker" berm; barnyard fill w/ manure (?); refusal at 8.8 ft. BGS
HB-WAT-104	601+37	1 RT	220	silty till; refusal at 9.8 ft. BGS
HB-WAT-105	605+03	87 LT	214.3	silty till; refusal at 12.1 ft. BGS
HB-WAT-106	701+40	18 RT	228.9	edge of farm pond; 4.5 ft. gran fill over 4 ft. clay crust over silty till; refusal at 13.8 ft. BGS
HB-WAT-107	704+15	5 RT	229	4.5 ft. barnyard fill over 7.8 ft. clay crust over silty till; refusal at 14.2 ft. BGS
NORTHBOUND RAMPS (HB-WAT-108 through -109 and HB-WAT-111 through -113)				
HB-WAT-108	202+17	107 RT	200.7	silty till; refusal at 12.7 ft. BGS
HB-WAT-109	207+84	230 RT	188.8	3.7 ft. clay crust over silty till; refusal at 14.7 ft. BGS
HB-WAT-111	400+41	162 RT	179.4	4.0 ft. clay crust over silty till; refusal at 9.6 ft. BGS
HB-WAT-112	303+12	39 LT	198.6	8.5 ft. clay crust over 3.5 ft. v. soft silt-clay over silty till; refusal at 16.5 ft. BGS
HB-WAT-113	402+43	50 RT	181.4	6.6 ft. clay crust over silty till; refusal at 13.1 ft. BGS
EIGHT ROD ROAD (HB-WAT-114)				
HB-WAT-114	802+21	17 RT	173.7	8.5 ft. clay crust over 4.5 ft. v. soft silt-clay over silty till; refusal at 16.8 ft. BGS

Overburden Soils: Subsurface conditions encountered to the east of Interstate 95 (NB ramps and Eight Rod Road relocation; HB-WAT-108 through -109 and HB-WAT-111 through -114) consist predominantly of medium dense to very dense sandy glacial till or medium stiff to stiff glaciomarine silt-clay (clay crust) over the glacial till. Refusal, believed to be on bedrock, was encountered 9.6 to 16.8 feet BGS. A 3.5- to 4.5-foot thick layer of very soft silt-clay was encountered at depth in two borings (HB-WAT-112 and -114).

Subsurface conditions encountered to the west of Interstate 95 (SB ramps; HB-WAT-102 through -107) consisted predominantly of medium dense to very dense sandy glacial till or medium stiff to stiff glaciomarine silt-clay (clay crust) over the glacial till. Refusal, believed to be on bedrock, was encountered 8.2 to 14.2 feet BGS. Farm-related fill materials, including sand and gravel, brick, and "residual" manure were encountered in the three test borings located in the vicinity of the former farm structures (HB-WAT-103, -106, and -107). A 3.6-foot thick forest mat / organic surficial soil layer was observed at the ground surface in HB-WAT-102 that is located at the topographical low end of a large wet area mapped on the west side of Interstate 95 (proposed SB on ramp).

The clay crust consists of a Clayey SILT of no to low plasticity and is typically overconsolidated. The very soft silt-clay consists of a SILT & CLAY of low plasticity and appears to be normally consolidated. Detailed descriptions of the soils encountered in the test borings are provided on the logs included in Appendix A.

The results of the laboratory index testing on the representative soil samples obtained in the test borings are summarized in the following table. The results confirmed the field classification of the soil samples.

Boring No.	Sample No.	Sample Depth (ft. BGS)	-#200 sieve (%)	Atterberg Limits & Moisture Content (%)				Lab Classification	
				PL	LL	PI	ω_n	USCS	AASHTO
SOUTHBOUND RAMPS (HB-WAT-102 through -107)									
HB-WAT-102	2D	5-7	26.1	--	--	--	11.9	SM	A-2-4
HB-WAT-104	1D	2-4	47.6	--	--	--	11.8	SM	A-4
HB-WAT-105	2D	5-7	39.6	--	--	--	8.1	SM	A-4
HB-WAT-106	2D	5-7	92.2	22	23	1	24.7	ML	A-4
HB-WAT-106	3D	10-12	37.5	--	--	--	18.1	SC-SM	A-4
HB-WAT-107	2D	5-7	98.1	22	32	10	26.8	CL	A-6
NORTHBOUND RAMPS (HB-WAT-108 through -109 and HB-WAT-111 through -113)									
HB-WAT-108	2D	5-7	17.2	--	--	--	4.3	GM	A-1-b
HB-WAT-109	1D	2-4	75.4	--	--	NP	19.3	CL	A-4
HB-WAT-109	2D	5-7	20.0	--	--	--	12.9	SC-SM	A-1-b
HB-WAT-111	2D	5-7	30.4	--	--	--	11.7	SM	A-2-4
HB-WAT-112	2D	5-7	99.5	22	29	7	26.3	CL	A-4
HB-WAT-112	3D	10-12	98.2	18	23	5	27.0	CL-ML	A-4
HB-WAT-113	2D	5-7	69.1	--	--	NP	17.1	CL	A-4
EIGHT ROD ROAD (HB-WAT-114)									
HB-WAT-114	3D	10-12	98.7	18	22	4	26.6	CL-ML	A-4

Where -#200 sieve is the fines content; -- indicates not tested; PL is plastic limit; LL is liquid limit; PI is plasticity index; NP indicates soil is non-plastic based on Atterberg Limits Test; ω_n is natural moisture content; USCS is Unified Soil Classification System; AASHTO is American Association of State Highway and Transportation Officials.

Laboratory test results are summarized on the test boring logs included as Appendix A and laboratory test reports are included as Appendix B.

Groundwater: Groundwater was observed at depths ranging from 2 to 14 feet BGS in the test borings, with the exception of HB-WAT-103 that is located within the former manure "bunker" and that was dry at the time of drilling. The 2-foot water depth was observed in HB-WAT-102 that is located adjacent to the large wet area mapped on the west side of Interstate 95. Groundwater observations were made during the exploration program and are noted on the logs included in Appendix A. Groundwater fluctuations would be expected to vary over time due to a number of factors, most notably weather and seasonal fluctuations.

SUMMARY OF PROPOSED WORK OF GEOTECHNICAL NOTE

The following paragraphs identify the general geotechnical-related design features of the project organized by each ramp segment. Features of note are highlighted by bold print and are further discussed in the subsequent section.

NB off ramp (Station 200 to 213+80):

- Minor fills where ramp tapers off of mainline (Station 200+00 to 207+00);
- Fills along centerline average about 6 feet where ramp crosses mainline embankment slope;
- Greater fill RT over mainline embankment slope along taper;
- **Three- to 6-foot cuts where the final alignment crosses a knoll (Station 208+00 to 212+00), with potential to encounter shallow bedrock;**
- **Significant drainage structure at about Station 212+80; 7-foot fill. Type, dimensions, and invert not yet determined.**

NB on ramp (Station 300 to 321+30):

- Typically minor cuts and fills proposed;
- Average 4 to 5 feet of fill where ramp climbs up mainline embankment slope;
- Greater fill RT over mainline embankment slope as ramp tapers into mainline;
- **Left toe of slope runs along stream from about Station 301+25 to 302+25;**
- Existing drainage from interstate crosses at about Station 305+75;
- **Existing Trafton Road bridge pier from about Station 307+75 to 308+20.**

NB combined ramp (Station 400 to 405+30):

- Fills average about 3 feet with limited areas requiring 6 feet of fill;
- Culverts for managing broad area of overland drainage.

SB on ramp (Station 500 to 521+20):

- Typically minor fills along centerline, but greater LT where ramp tapers into mainline (Station 500+00 to 514+00);
- One to 4-foot fills where ramp crosses mainline embankment slope and low wet area (Station 514+00 to 518+00);
- **Greater fills and possible cut LT over mainline embankment slope; cut could encounter shallow rock in vicinity of topographic knob around Station 514;**
- **Significant drainage structure at about Station 516+30; potential for organic subgrade soils; 6-foot fill. Type, dimensions, and invert not yet determined;**
- Two- to 4-foot cuts across field (Station 518+00 to 519+75);
- **Former "manure bunker" berms and floor between about Station 520+10 and 520+75; cuts up to about 12 feet;**
- Average 2- to 4-foot cuts to end of SB on ramp (Station 520+75 to 521+20);

SB off ramp (Station 600 to 613+65):

- **Former "manure bunker" berms and floor between about Station 600+25 and 601+10; average 5- to 7-foot cuts; cuts up to about 15 feet;**
- **Significant cuts (average 5 to 7 feet) to Station 605+25;**
- Average 3-foot fills, but up to 6-foot fill, between Station 605+25 and 606+50;
- Minor fills to end of ramp, but greater LT where ramp tapers off of mainline;
- **Existing Trafton Road bridge pier from about Station 608+00 to 608+45.**

SB combined ramp (Station 700 to 707+60):

- **Ramp crosses former "manure bunker;" farm pond; building foundation walls and slabs; and what appears to be the mat foundations for silos;**
- **Up to 6-foot cut through "manure bunker" berm;**
- Average 4- to 8-foot fills between Stations 701+00 and 706+50;
- **Anticipate embankment subgrade to consist of unsuitable materials along much of SB combined ramp**.

Eight Rod Road relocation: (Stations 800 to 803+56):

- Minor cuts and fills;
- No significant structures;
- Cross existing roadside ditch at about Station 801+80.

Trafton Road and West River Road intersection improvements:

- Extend pavement to accommodate turning lanes;
- No traffic signals proposed.

Interchange Signage:

Two exit and six advance guide signs have been identified for the project, all located along Interstate 95. Sign size, structure type, and foundation needs have yet to be determined.

IMPLICATIONS OF THE SUBSURFACE CONDITIONS ON PROPOSED WORK

The glacial till and the glaciomarine clay crust should provide adequate support for the proposed fills, though care will be needed during construction to avoid overworking and disturbing the silty soils.

A relatively thin layer of very soft, compressible silt-clay was encountered at depth in two borings located to the east of Interstate 95. These borings are HB-WAT-112 (NB on ramp) and HB-WAT-114 (Eight Rod Road relocation). This thin soft, compressible soil stratum does not appear to present a significant settlement or stability concern because little to no fill is proposed along those portions of the alignment.

Subsurface conditions that will need to be addressed during the design process include the following:

- Depending on the final type, size and inverts of the two significant drainage structures, additional test borings may be warranted to evaluate the subsurface conditions at structure subgrade in order to develop the associated geotechnical parameters for their design;

- Cuts up to 8 or 9 feet will be required to achieve pavement section subgrade where the final alignment of the NB off ramp crosses a topographic knoll (Station 208+00 to 212+00) that might be bedrock controlled. Additional test borings may be warranted to evaluate the depth to bedrock in this cut section;

- An appropriate permanent concrete barrier or concrete transition barrier (Standard Details 526) should be constructed along the SB off ramp and NB on ramp where they pass in close proximity to the existing Trafton Road bridge piers. The concrete barrier should be designed such that it is structurally tied into a reinforced concrete slab (such as an approach slab (Standard Details 502)) to

provide adequate overturning resistance to vehicular impact. Bedrock is exposed in the existing cut where the SB barrel of the mainline crosses under Trafton Road. It is possible that bedrock may be encountered in the excavations for the construction of the permanent structural concrete barrier and slab systems. The construction documents should address this potential and provide an alternate design if bedrock is exposed during construction.

- Slopes of the ramp embankments should be no steeper than 2 horizontal to 1 vertical (2H:1V). Riprap underlain by non-woven geotextile (separation) fabric should be placed along the toe of the ramp embankments that are in close proximity to streams and significant drainage swales to protect the embankments from erosion during large storm events. Of particular note is the NB on ramp between approximately Stations 301+25 and 302+25.

- A special provision for earthwork (Special Provision 203 - Excavation and Embankment) should be developed to address the construction of the ramps over and along the outer portion of the slopes of the existing Interstate 95 mainline where unsuitable fill materials were allowed to be placed during initial interstate construction. The special earthwork requirements should address subgrade preparation to limit post-construction differential settlement / sinkhole development due to the presence of unsuitable fill materials.

- Organic soils were encountered in one boring located to the southwest of the final alignment of the proposed SB on ramp near mapped wetlands. The special provision for earthwork should also address subgrade preparation in areas underlain by natural organic soils.

- Unsuitable, miscellaneous, farm-related fill materials, including very loose sand and gravel, brick, and “residual” farm waste were encountered in the three test borings located in the vicinity of the former farm structures (HB-WAT-103, -106, and -107). The SB ramps cross through the former “manure bunker” berms and floor, as well as the former farm pond, building foundation walls and slabs, and what appears to be the mat foundations for silos. No test boring could be completed in the former farm pond because it was unsafe to have the drill rig on an unknown thickness of ice over water of an unknown depth. It is likely that organic silt (muck) along with vegetation is present in the farm pond and the pond may have been used to dispose of unsuitable materials or even farm waste when the farm buildings were razed. These past use issues should be addressed in the PS&E documents with the intent of limiting construction changed conditions claims and out of scope work.

- Two exit and six advance guide signs have been identified for the project, all located along Interstate 95. Sign size, structure type, and foundation needs should be identified so that test borings can be drilled, if warranted, and geotechnical design information can be developed and included in the PS&E documents following the intent of the Department’s new overhead sign/signal foundation design process.

FUTURE GEOTECHNICAL WORK

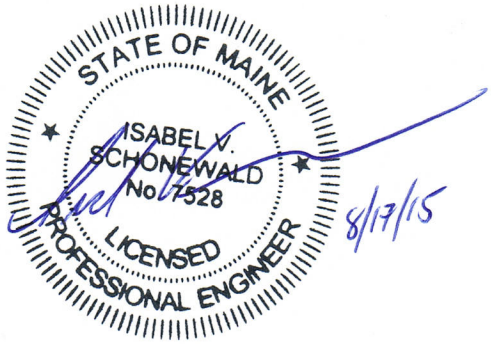
As the project design evolves and details are finalized, additional geotechnical analyses will likely be required and this report should be revisited to provide complete geotechnical design analyses and recommendations for the project, as well as geotechnical-related drawing sheets and special provisions for the PS&E documents. Additional test borings may also be warranted by the type, size, and inverts of the two significant drainage structures, to assess the depth to bedrock where the NB off ramp crosses a topographic knoll, and/or for evaluating foundation needs for significant sign structures.

CLOSURE

This report and its attachments have been prepared for the use of MaineDOT and their design consultant, Fay, Spofford & Thorndike, for specific application to the design of the proposed Trafton Road Interchange on Interstate 95 in Waterville, Maine. No other intended use or warranty is implied. In the event that any changes in the nature, design or location of the proposed project are planned, this report should be reviewed by SchonewaldEA to assess the appropriateness of the conclusions and recommendations and to modify the recommendations as appropriate to reflect the changes in design. Further, the analyses and recommendations are based in part upon limited, widely-spaced soil explorations at discrete locations at the site. If variations from the conditions encountered during the investigation appear evident during construction it may also become necessary to re-evaluate the recommendations made in this memorandum.

SchonewaldEA appreciates the opportunity to assist MaineDOT with the Trafton Road Interchange project. If you have any questions regarding the findings described and recommendations provided in this report, please call me at your convenience.

Sincerely,
Schonewald Engineering Associates, Inc.



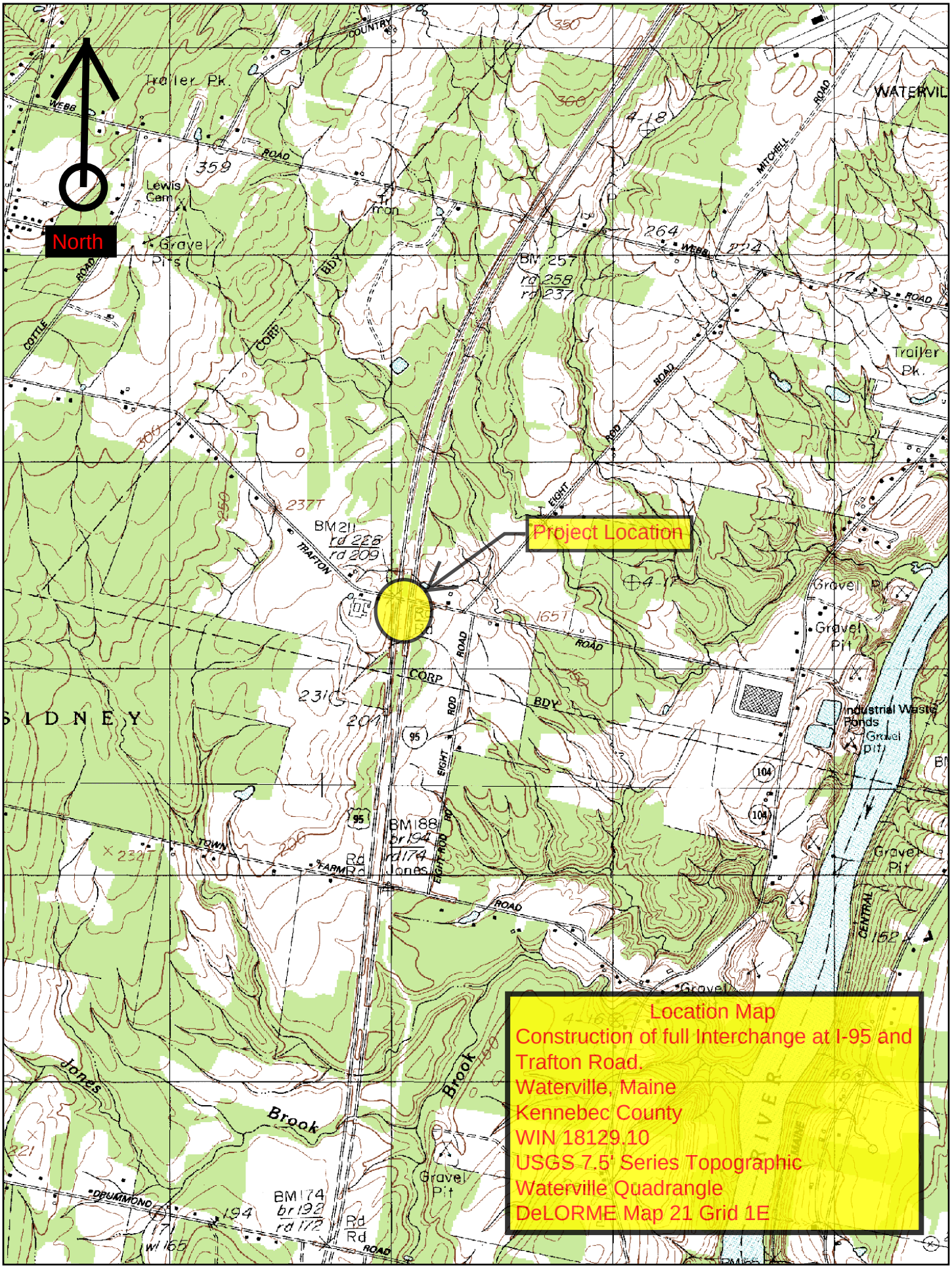
Isabel V. Schonewald, P.E.
President

Cc: Robert Carrell, MaineDOT
Meredith Kirkmann, P.E., MaineDOT
Terry White, MaineDOT
Mark Debowski, P.E., FST
Steve Babalis, P.E., FST

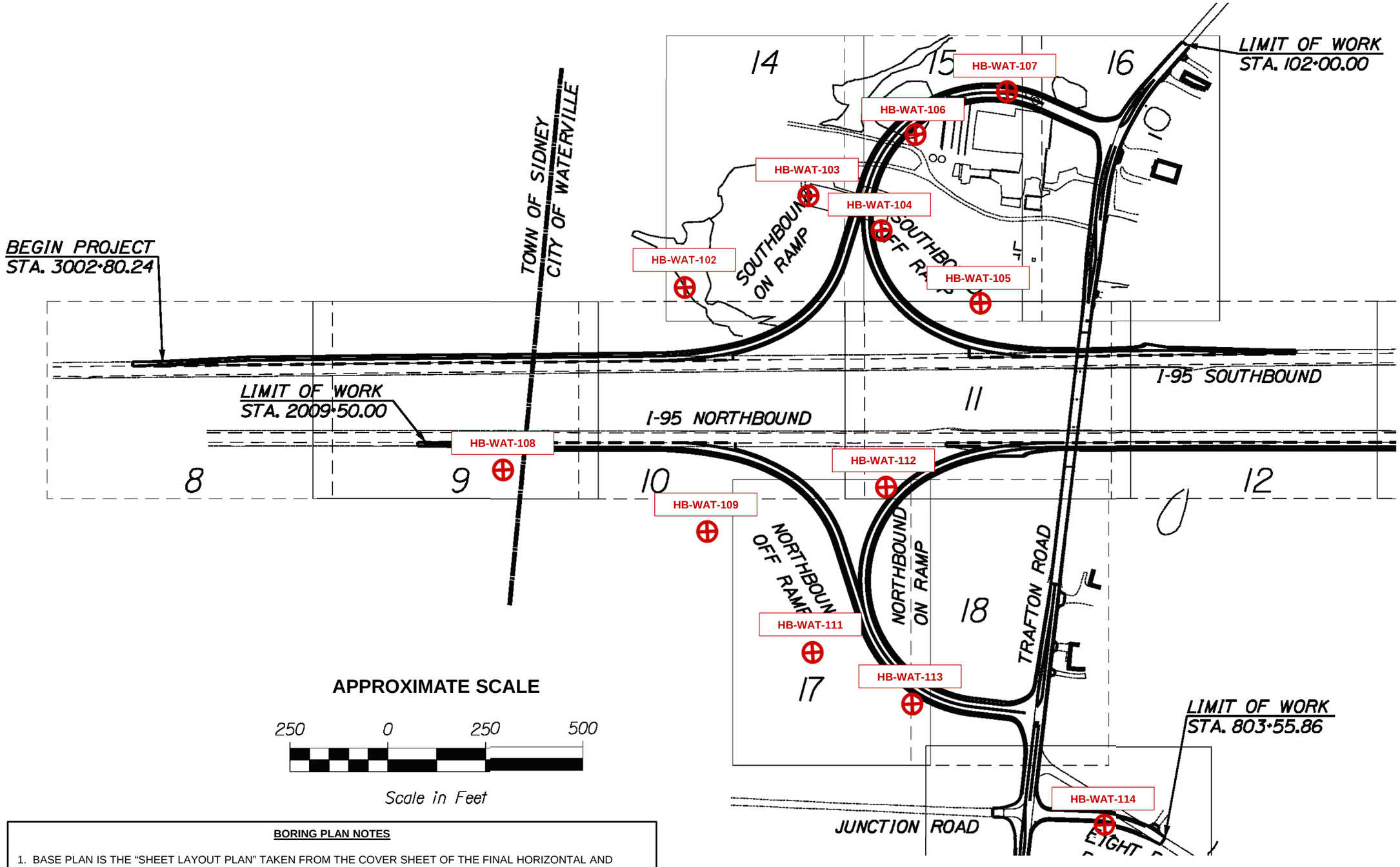
Attachments: Figures
Appendix A: Subsurface Exploration Logs
Appendix B: Laboratory Test Results

SCHONEWALD
ENGINEERING
ASSOCIATES, INC.

FIGURES



Map Scale 1:24000



APPROXIMATE SCALE

250 0 250 500

Scale in Feet

BORING PLAN NOTES

1. BASE PLAN IS THE "SHEET LAYOUT PLAN" TAKEN FROM THE COVER SHEET OF THE FINAL HORIZONTAL AND VERTICAL ALIGNMENTS COMPLETE SUBMISSION PREPARED BY FAY, SPOFFORD & THORNDIKE FOR MAINE-DOT AND DATED JULY 9, 2015.
2. TEST BORINGS WERE COMPLETED BY NEW ENGLAND BORING CONTRACTORS BETWEEN FEBRUARY 3 AND 6, 2015 AND WERE OBSERVED AND LOGGED BY SCHONEWALD-EA. BORING LOGS ARE PROVIDED IN APPENDIX A.

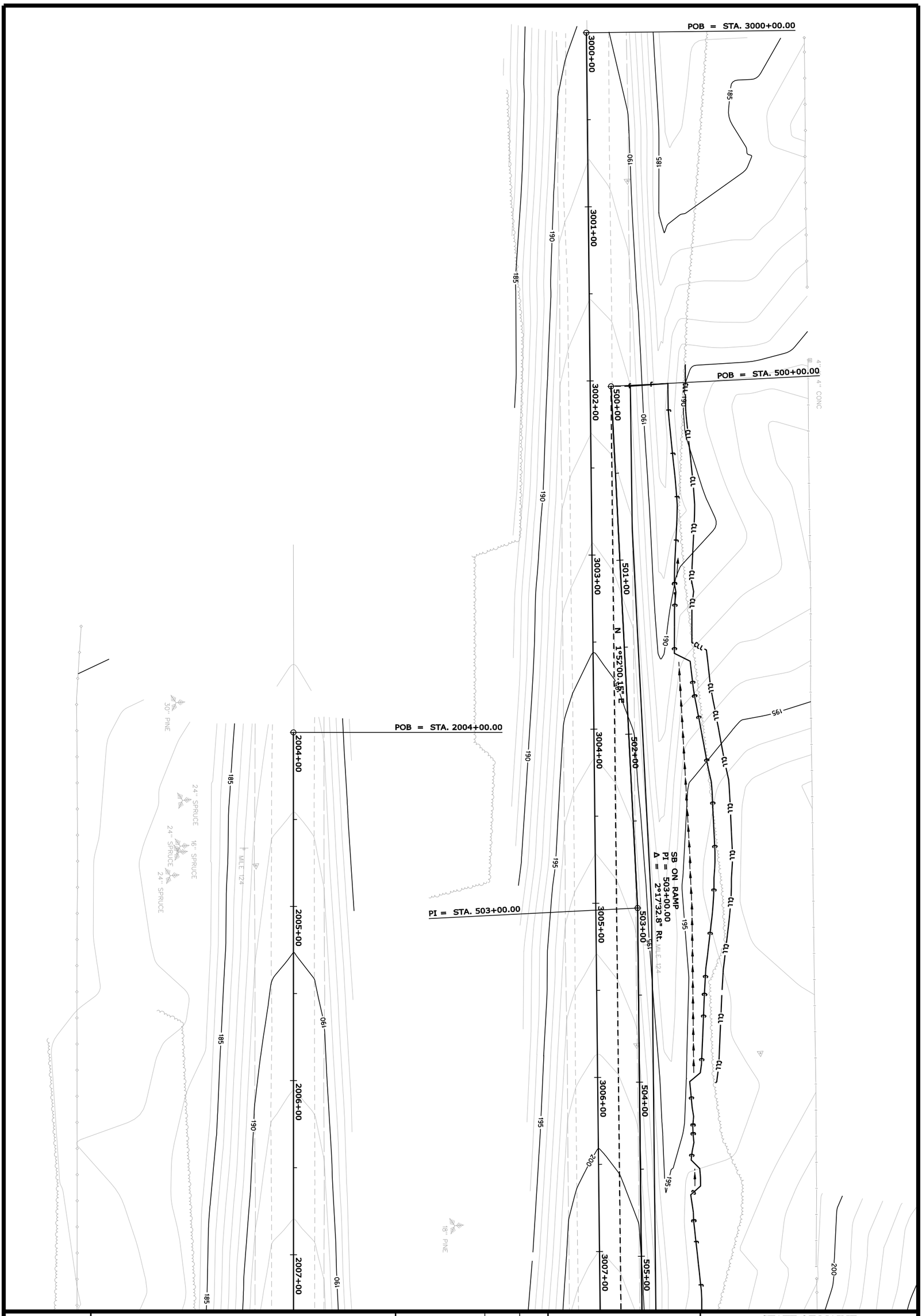
SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT NO.: 15-001
DATE: AUG. 2015
DRAWN BY: IVS
APPROX. SCALE: 1" = 250'

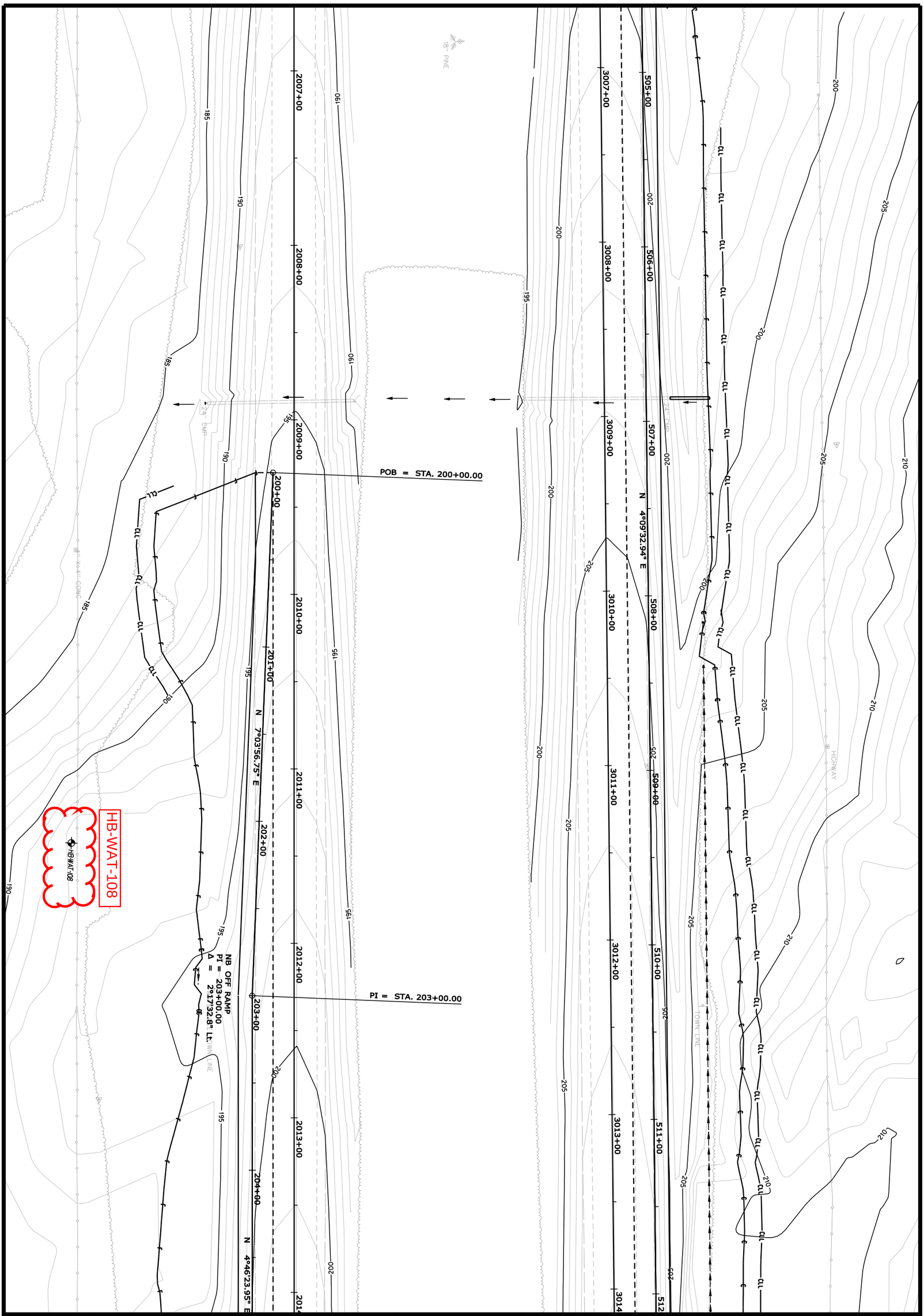
BORING LOCATION PLAN
PROPOSED I-95 INTERCHANGE AT TRAFTON ROAD
WATERVILLE, MAINE
MAINE-DOT WIN 18129.10

Sheet No.:
2

Filename: ...\geotech\msta\001_Geoplan1.dgn Division: GEOTECH Username: terry.white Date:7/24/2015



SHEET NUMBER 1 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C GEOPLANS	PROJ. MANAGER E.MARTIN; DESIGN-DETAILED; CHECKED-REVIEWED; DESIGN2-DETAILED2 SCHONEWALD T.WHITE JUL 2015; DESIGN3-DETAILED3; REVISIONS 1; REVISIONS 2; REVISIONS 3; REVISIONS 4; FIELD CHANGES SIGNATURE P.E. NUMBER DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION 018129.10 WIN 18129.10 HIGHWAY PLANS



PROJ. MANAGER	E.MARTIN	BY	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 2 OF 13

WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS

HB-WAT-102

SB ON RAMP
CURVE #2
PI = 516+00.46
D = 11°27'33.0"
Δ = 16°02'34.1" Lt.
R = 500.00'
L = 140.00'
T = 70.46'
E = 4.94'

PCC = STA. 515+30.00

PCC = STA. 513+30.00

SB ON RAMP
CURVE #1
PI = 514+30.33
D = 5°43'46.5"
Δ = 11°27'33.0" Lt.
R = 1000.00'
L = 200.00'
T = 100.33'
E = 5.02'

N 4°09'32.94" E

N 4°46'23.95" E

NB OFF RAMP
CURVE #1
PI = 206+90.33
D = 5°43'46.5"
Δ = 11°27'33.0" Rt.
R = 1000.00'
L = 200.00'
T = 100.33'
E = 5.02'

PC = STA. 205+90.00

PCC = STA. 207+90.00

NB OFF RAMP
CURVE #2
PI = 208+60.46
D = 11°27'33.0"
Δ = 16°02'34.1" Rt.
R = 500.00'
L = 140.00'
T = 70.46'
E = 4.94'

PCC = STA. 209+30.00

24" CMP

CLEARANCE 14.5

HIGHWAY

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN
18129.10

HIGHWAY PLANS

	BY	DATE
PROJ. MANAGER	E.MARTIN	
DESIGN-DETAILED	-------	------
CHECKED-REVIEWED	-------	------
DESIGN2-DETAILED2	SCHONEWALD	JUL 2015
DESIGN3-DETAILED3	T.WHITE	JUL 2015
REVISIONS 1	-------	------
REVISIONS 2	-------	------
REVISIONS 3	-------	------
REVISIONS 4	-------	------
FIELD CHANGES	-------	------

SIGNATURE

P.E. NUMBER

DATE

WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

SHEET NUMBER
3
OF 13

Filename: ...\geotech\mslo\003_Geoplan3.dgn Division: GEOTECH Username: terry.white Date:7/24/2015

Filename: ...\geotech\mslo\004_Geoplan4.dgn Division: GEOTECH Username: terry.white Date:7/24/2015

HB-WAT-105

HB-WAT-112

SB OFF RAMP
CURVE #2
PI = 604+04.57
D = 11°27'33.0"
Δ = 16°02'34.1" Lt.
R = 500.00'
L = 140.00'
T = 70.46'
E = 4.94'

PCC = STA. 604+34.11

PCC = STA. 605+74.11

SB OFF RAMP
CURVE #3
PI = 606+74.44
D = 5°43'46.5"
Δ = 11°27'33.0" Lt.
R = 1000.00'
L = 200.00'
T = 100.33'
E = 5.02'

PT = STA. 607+74.11

NB ON RAMP
CURVE #2
PI = 305+03.81
D = 11°27'33.0"
Δ = 16°02'34.1" Rt.
R = 500.00'
L = 140.00'
T = 70.46'
E = 4.94'

PCC = STA. 304+33.35

PCC = STA. 305+73.35

NB ON RAMP
CURVE #3
PI = 307+73.68
D = 5°43'46.5"
Δ = 11°27'33.0" Rt.
R = 1000.00'
L = 200.00'
T = 100.33'
E = 5.02'

PT = STA. 307+73.35

HIGHWAY BROKEN LAYING ON GROUND

24" CMP

12" APPLE

12" ASH

6" ASH

20" SPRUCE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10

HIGHWAY PLANS

PROJ. MANAGER	E.MARTIN		
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

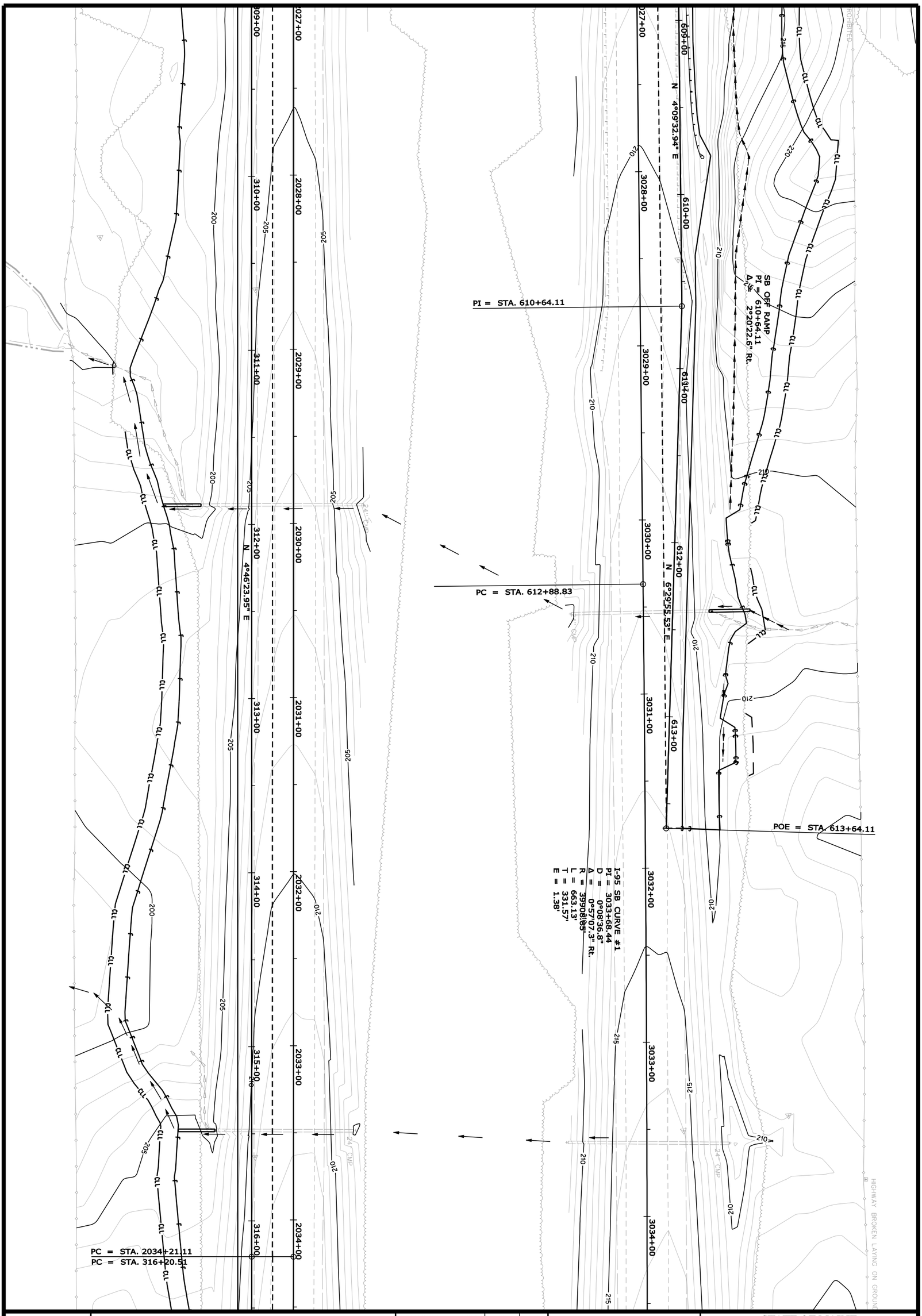
WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

SHEET NUMBER

4

OF 13



SHEET NUMBER 5 OF 13

WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

	PROJ. MANAGER	E.MARTIN	BY	DATE
	DESIGN-DETAILED			
	CHECKED-REVIEWED			
	DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
	DESIGN3-DETAILED3			
	REVISIONS 1			
	REVISIONS 2			
	REVISIONS 3			
	REVISIONS 4			
	FIELD CHANGES			

SIGNATURE

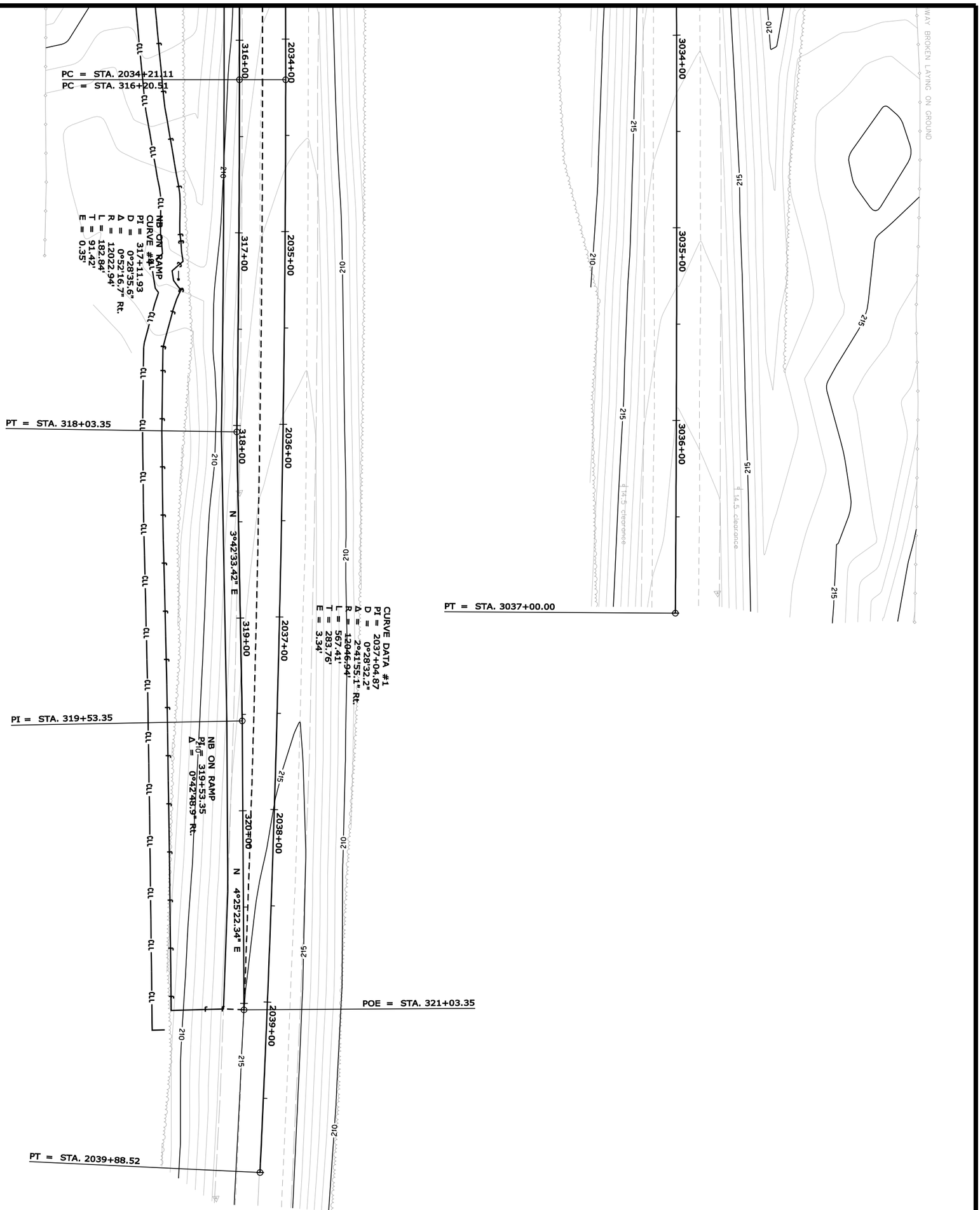
P.E. NUMBER

DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS



PROJ. MANAGER	E.MARTIN	BY	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 6 OF 13

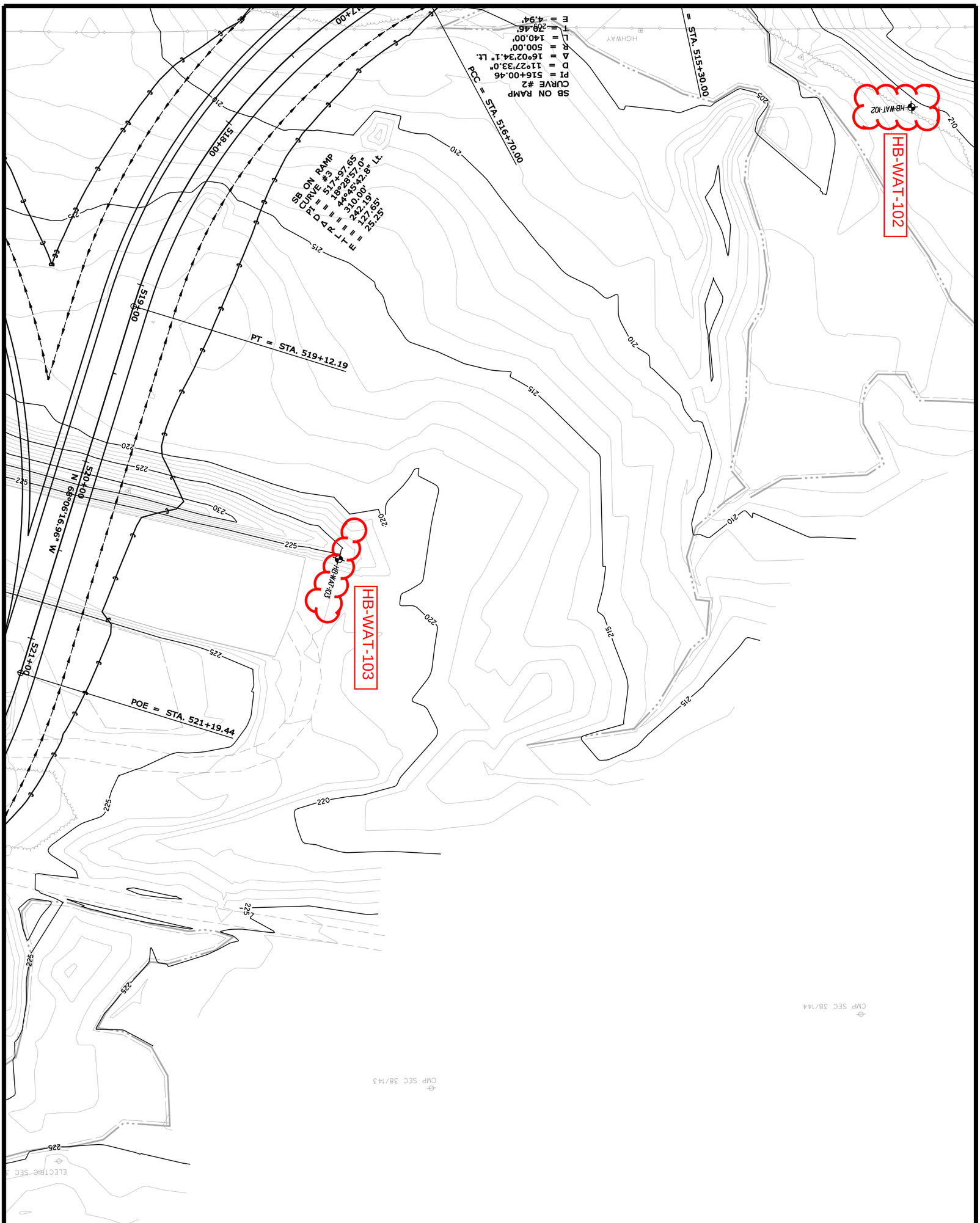
WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS

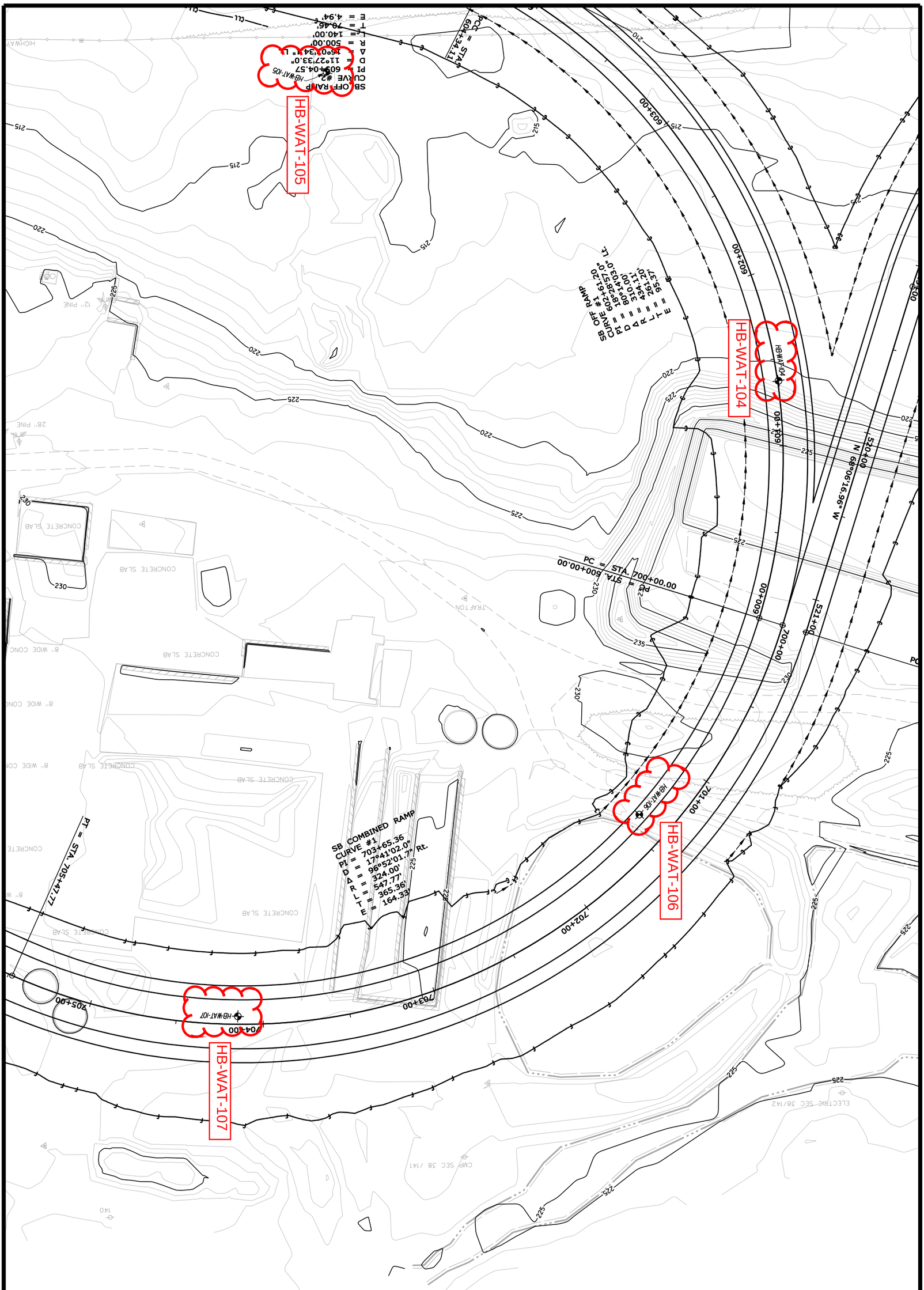


SHEET NUMBER 7 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C	PROJ. MANAGER	E.MARTIN	BY / DATE
		DESIGN-DETAILED		
		CHECKED-REVIEWED		
		DESIGN2-DETAILED2	SCHONEWALD	T.WHITE JUL 2015
		DESIGN3-DETAILED3		
		REVISIONS 1		
		REVISIONS 2		
		REVISIONS 3		
		REVISIONS 4		
		FIELD CHANGES		
	GEOPLANS	SIGNATURE		
		P.E. NUMBER		
		DATE		

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS



SHEET NUMBER 8 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C	PROJ. MANAGER	E.MARTIN	BY	DATE
		DESIGN-DETAILED			
		CHECKED-REVIEWED			
		DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
		DESIGN3-DETAILED3			
		REVISIONS 1			
		REVISIONS 2			
		REVISIONS 3			
		REVISIONS 4			
		FIELD CHANGES			

SIGNATURE

P.E. NUMBER

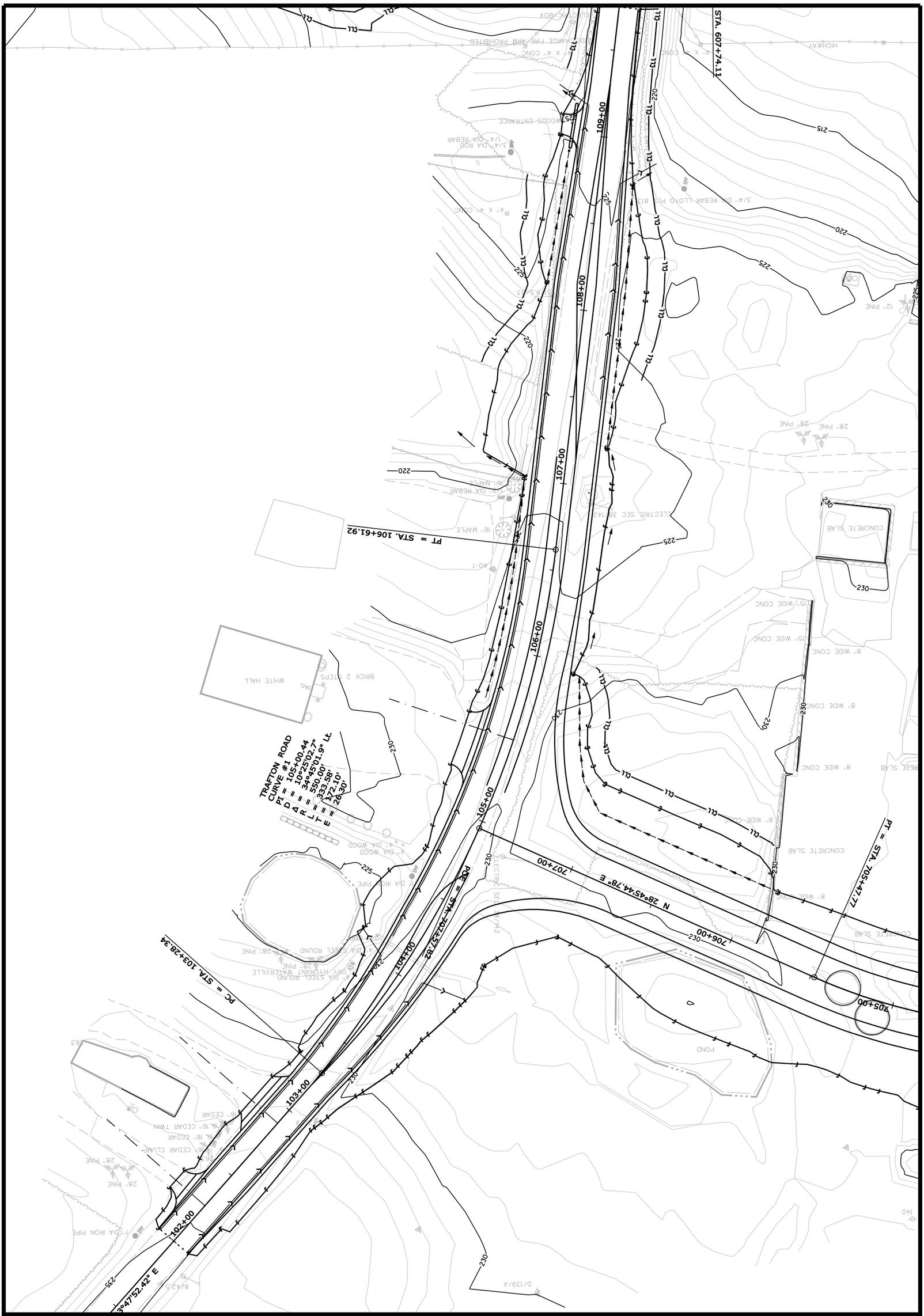
DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS

GEOPLANS



SHEET NUMBER 9 OF 13

WATERVILLE
I-95 & TRAFTON RD. I/C

GEOPLANS

PROJ. MANAGER	E.MARTIN	BY	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

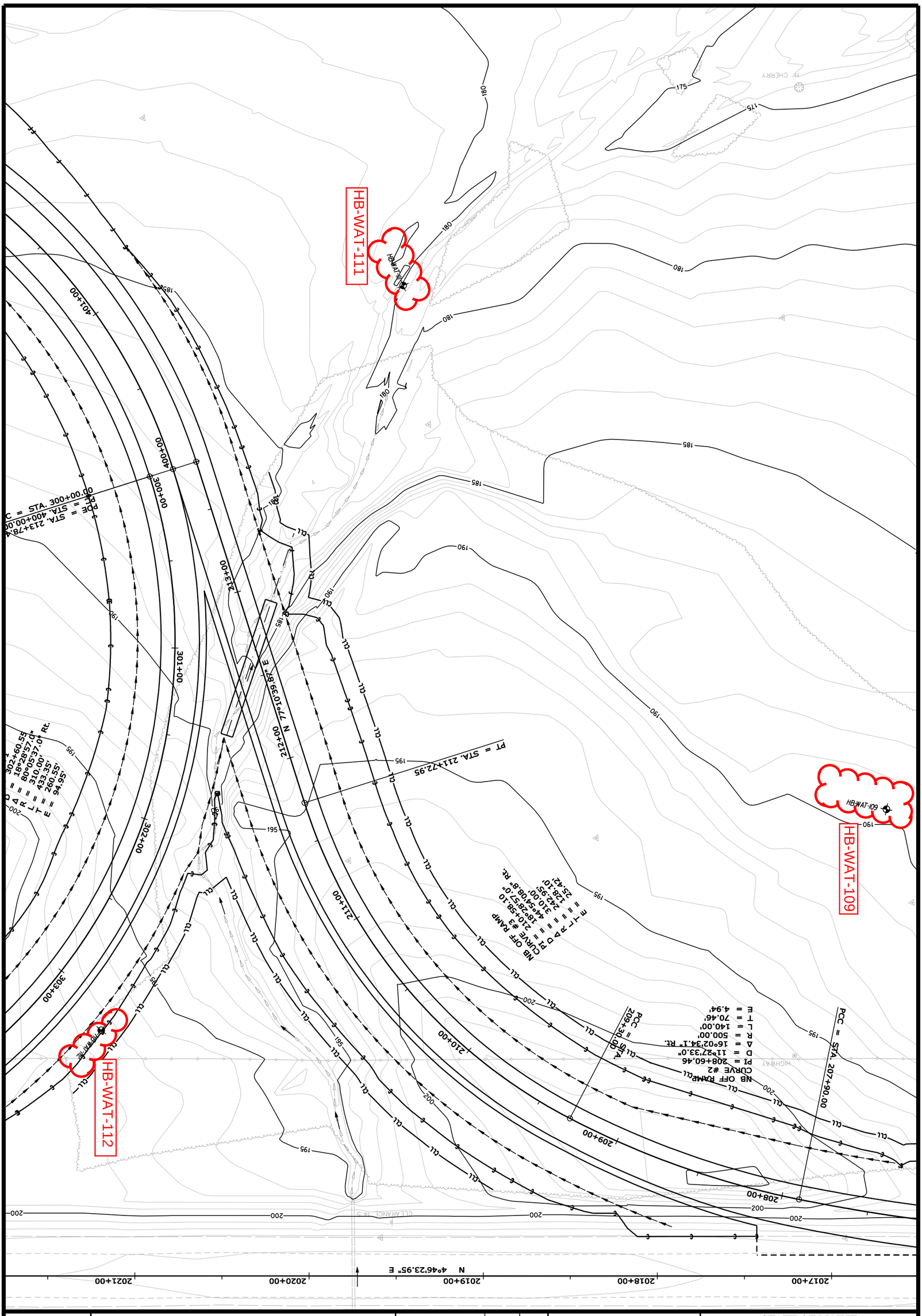
DATE

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

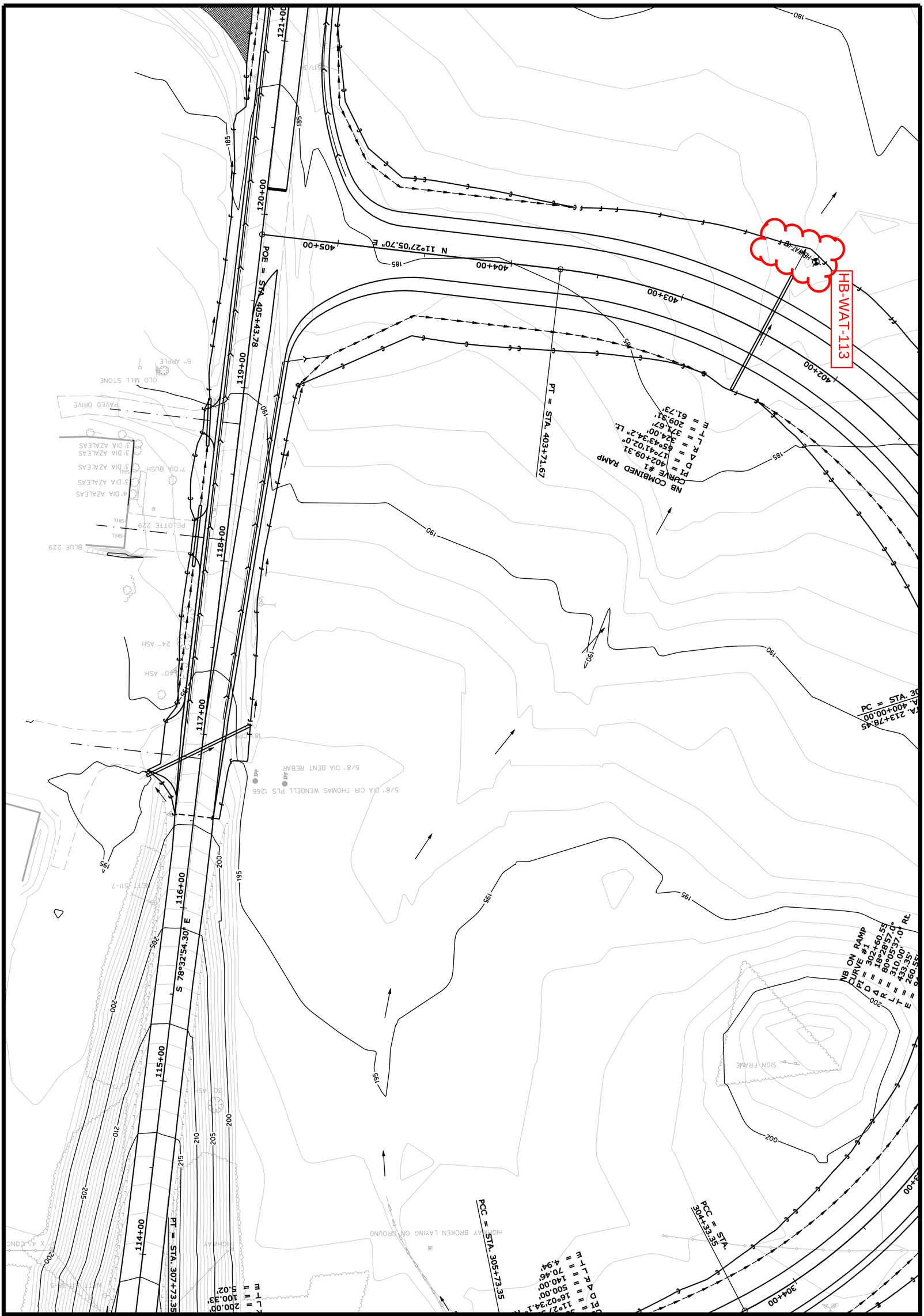
WIN 18129.10 HIGHWAY PLANS

Filename: ...\geotech\msta\010_Geoplan10.dgn Division: GEOTECH Username: terry.white Date:7/24/2015



SHEET NUMBER 10 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C	PROJ. MANAGER E.MARTIN BY DATE		STATE OF MAINE DEPARTMENT OF TRANSPORTATION
		DESIGN-DETAILED		
		CHECKED-REVIEWED		SIGNATURE
		DESIGN2-DETAILED2 SCHONEWALD T.WHITE JUL 2015		
		DESIGN3-DETAILED3		P.E. NUMBER
		REVISIONS 1		
		REVISIONS 2		DATE
		REVISIONS 3		
		REVISIONS 4		
	GEOPLANS	FIELD CHANGES		018129.10
				WIN 18129.10 HIGHWAY PLANS

Filename: ...\geotech\msta\011_Geoplan11.dgn Division: GEOTECH Username: terry.white Date:7/24/2015

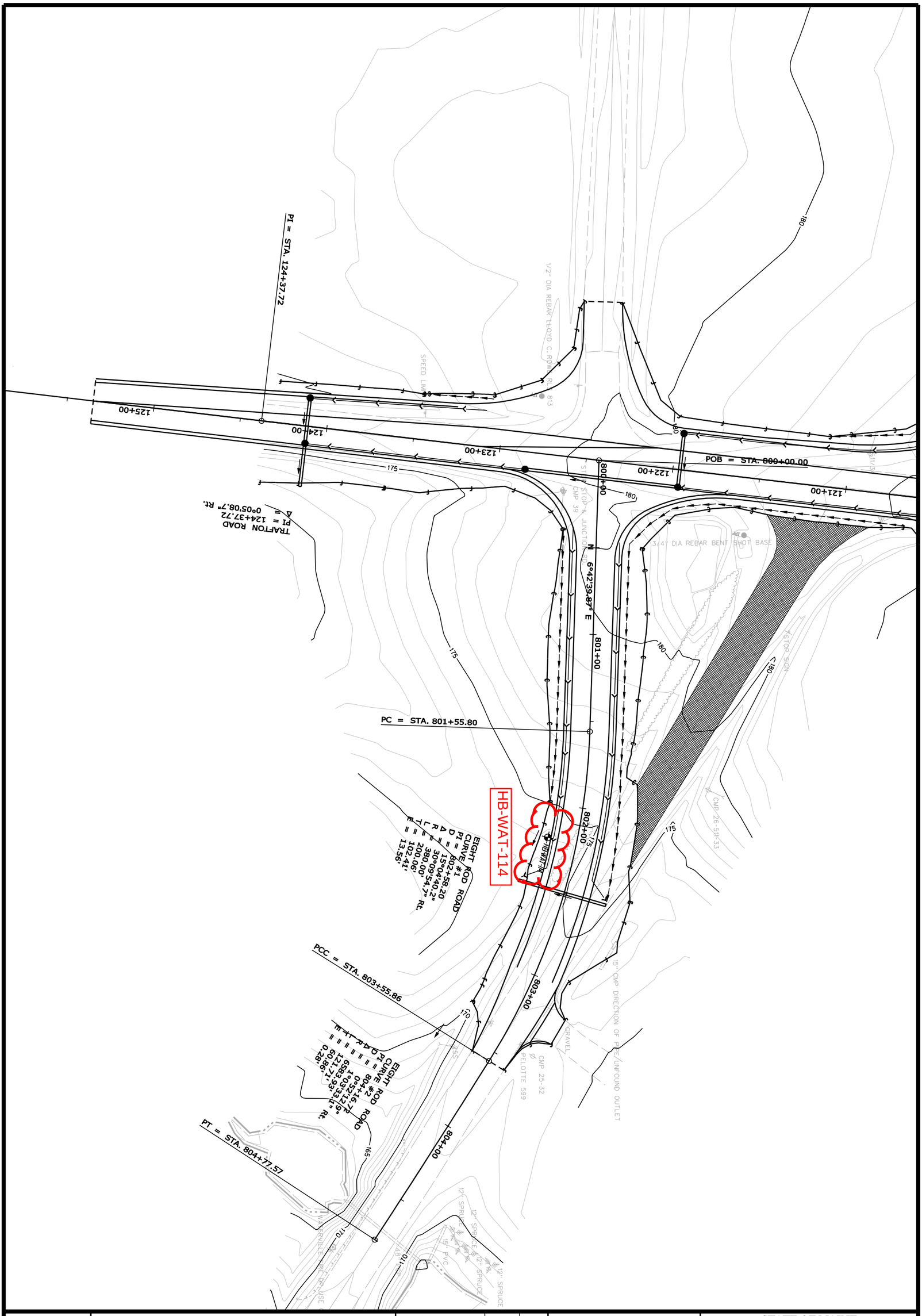


SHEET NUMBER 11 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C	PROJ. MANAGER	E.MARTIN	BY	DATE
		DESIGN-DETAILED			
		CHECKED-REVIEWED			
		DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
		DESIGN3-DETAILED3			
		REVISIONS 1			
		REVISIONS 2			
		REVISIONS 3			
		REVISIONS 4			
		FIELD CHANGES			
	GEOPLANS	SIGNATURE			
		P.E. NUMBER			
		DATE			

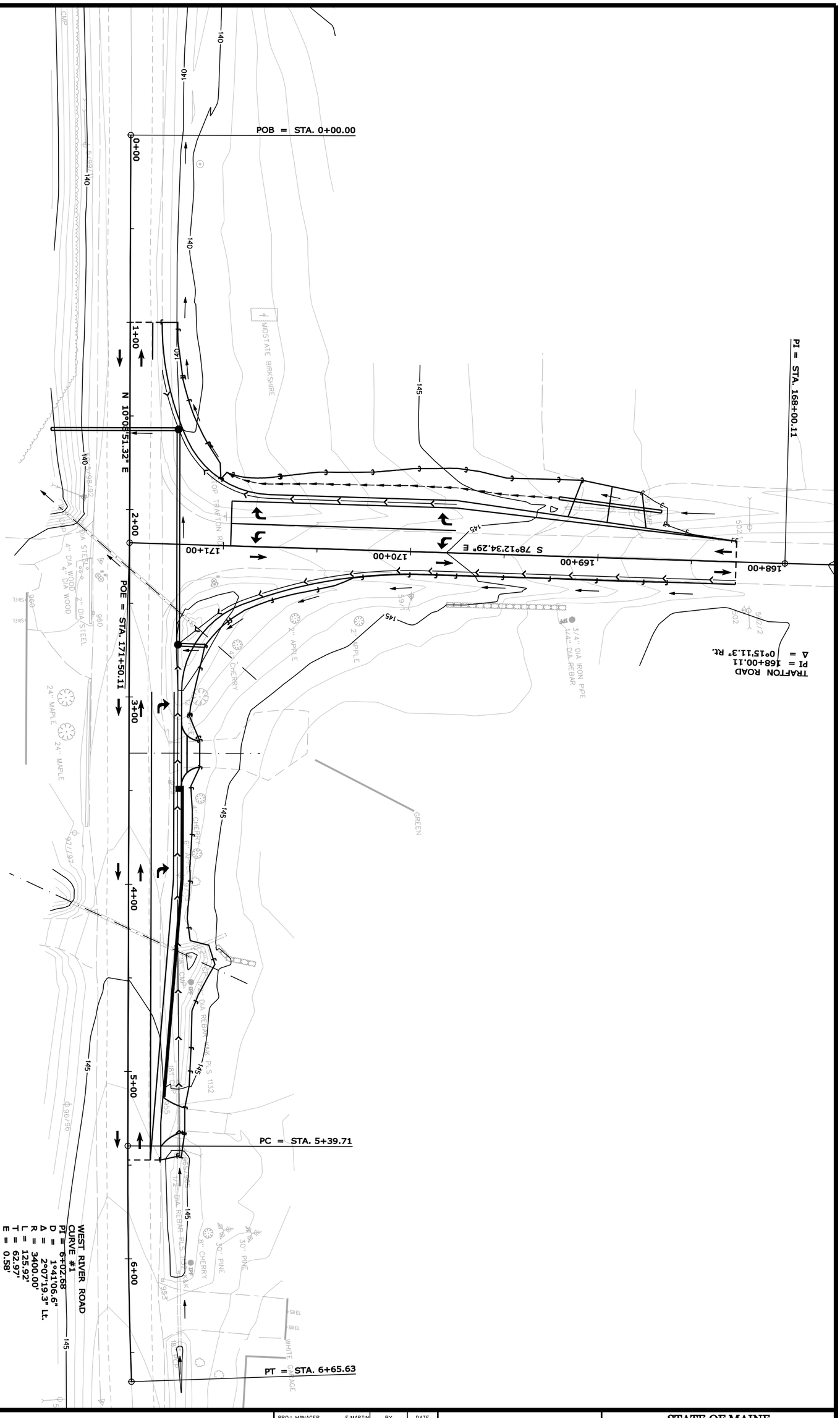
STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS



SHEET NUMBER 12 OF 13	WATERVILLE I-95 & TRAFTON RD. I/C GEOPLANS	PROJ. MANAGER E.MARTIN BY DATE DESIGN-DETAILED CHECKED-REVIEWED DESIGN2-DETAILED2 SCHONEWALD T.WHITE JUL 2015 DESIGN3-DETAILED3 REVISIONS 1 REVISIONS 2 REVISIONS 3 REVISIONS 4 FIELD CHANGES	SIGNATURE P.E. NUMBER DATE	STATE OF MAINE DEPARTMENT OF TRANSPORTATION 018129.10 WIN 18129.10 HIGHWAY PLANS



PROJ. MANAGER	E.MARTIN	BY	DATE
DESIGN-DETAILED			
CHECKED-REVIEWED			
DESIGN2-DETAILED2	SCHONEWALD	T.WHITE	JUL 2015
DESIGN3-DETAILED3			
REVISIONS 1			
REVISIONS 2			
REVISIONS 3			
REVISIONS 4			
FIELD CHANGES			

SIGNATURE

P.E. NUMBER

DATE

SHEET NUMBER 13 OF 13

WATERVILLE
I-95 & TRAFTON RD. I/C
GEOPLANS

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

018129.10

WIN 18129.10 HIGHWAY PLANS

SCHONEWALD
ENGINEERING
ASSOCIATES, INC.

APPENDIX A

TEST BORING LOGS

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-102

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	209.3	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/6/2015; 08:50-09:40	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	514+01, 142 ft Lt.	**Casing ID/OD:**	N/A	**Water Level*:**	2.1 ft bgs (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
									Dark brown, moist, forest mat.	
	1D	24/11	2.0 - 4.0	3/3/9/22	12					
							205.7		3.6	
									1D (3.6-4.0 ft) Brown, damp, Silty fine to medium SAND, some gravel, trace coarse sand. TILL	
5	2D	24/13	5.0 - 7.0	14/19/24/28	43				2D Brown, wet, dense, Silty fine to medium SAND, some gravel, trace coarse sand. TILL	G#263401 A-2-4, SM WC=11.9%
							202.7		6.6	
							202.3		Dark grey, decomposed rock.	
									7.0	
									Apparent Top of Rock at Elev. 202.3 ft.	
							201.1		8.2	
									Bottom of Exploration at 8.2 feet below ground surface. AUGER REFUSAL	
10										
15										
20										
25										

Remarks:

1. Proposed HB-WAT-101 inaccessible; eliminated HB-WAT-101 and relocated HB-WAT-102 approximately 75.0 ft; as-drilled location surveyed.
2. Boring located on edge of large area of ponded water (frozen; unknown depth).

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-103

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	221 (est'd)	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/6/2015; 09:55-10:35	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	520+10, 146 ft Lt.	**Casing ID/OD:**	N/A	**Water Level*:**	Dry (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
				Sample Information						
0						SSA			Residual Manure.	
	1D	24/14	2.0 - 4.0	4/7/13/18	20				1D Dark grey, moist, medium dense, fine Sandy SILT, little to some gravel, trace coarse sand. Smells like residual manure mixed with soil. BARNYARD FILL	
5	2D	24/17	5.0 - 7.0	7/8/8/14	16				2D Same as 1D. BARNYARD FILL	
							214.2		6.8	
							213.5		Possible change to native Till/Weathered Rock at 6.8 ft bgs. 7.5 Apparent Top of Rock at Elev. 213.5 ft.	
							212.2		8.8 **Bottom of Exploration at 8.8 feet below ground surface.** AUGER REFUSAL	
10										
15										
20										
25										

Remarks:

1. Boring offset to interior toe of steep berm; appears to be former location of manure stockpile. As-drilled location taped from layout stake and elevation estimated.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-104

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	221 (est'd)	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/5/2015; 15:00-15:40	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	601+37, 1 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	8.3 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/6	2.0 - 4.0	3/3/5/9	8				1D Brown, damp, loose, fine to medium SAND, some gravel, some silt, trace coarse sand.	G#263402 A-4, SM WC=11.8%
5	2D	4.8/4	5.0 - 5.4	50(4.8")	---				2D Brown, moist, Gravelly fine to medium SAND, some silt, trace coarse sand.	
							215.0		6.0 Weathered/decomposed rock.	
10							211.2		9.8 **Bottom of Exploration at 9.8 feet below ground surface.** AUGER REFUSAL	
15										
20										
25										

Remarks:

1. Boring offset to exterior toe of steep berm. As-drilled location taped from layout stake and elevation estimated.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-105

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	214.3	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/5/2015; 13:40-14:50	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	605+03, 87 ft Lt.	**Casing ID/OD:**	N/A	**Water Level*:**	8.6 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/11	2.0 - 4.0	5/9/12/15	21				1D Brown, damp, medium dense, Silty fine to medium SAND, some gravel, trace coarse sand; gravel easily broken in thin slatey pieces. TILL	
5	2D	24/13	5.0 - 7.0	14/20/32/35	52				2D Brown, damp, very dense, fine to medium Sandy GRAVEL, some silt, trace coarse sand; gravel angular, appears to be broken rock; bottom 4" sample mostly broken rock. TILL	G#263403 A-4, SM WC=8.1%
							207.6		6.7 Weathered/decomposed rock .	
10	3D	3.6/3	10.0 - 10.3	50(3.6")	---				3D Brownish-grey, wet, GRAVEL, some silt, little to some fine to coarse sand; gravel appears to be broken and crushed rock (PHYLLITE).	
							202.2		12.1 **Bottom of Exploration at 12.1 feet below ground surface.** AUGER REFUSAL (solid)	
15										
20										
25										

Remarks:

1. Proposed location inaccessible; as-drilled location surveyed.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-106

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	228.9	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/5/2015; 09:30-10:20	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	701+40, 18 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	5.6 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/10	2.0 - 4.0	2/2/2/2	4				1D Brown, moist, very loose, Silty fine to coarse SAND, some gravel. FILL	
							224.4		4.5	
5	2D	24/20	5.0 - 7.0	2/3/5/5	8				2D Olive-brown, mottled, moist, medium stiff, Clayey SILT, little to some fine sand in numerous partings and lenses. CLAY CRUST	G#263404 A-4, ML WC=24.7% LL=23 PL=22 PI=1
							220.4		8.5	
10	3D	24/13	10.0 - 12.0	14/11/9/9	20				3D Brown, moist to wet, medium dense, Silty fine to medium SAND, little gravel, trace coarse sand; with gravel sized pockets of decomposed rock throughout. TILL	G#263405 A-4, SC-SM WC=18.1%
							216.0		12.9	
									Apparent Top of Rock at Elev. 216.0 ft.	
							215.1		13.8	
15									**Bottom of Exploration at 13.8 feet below ground surface.** AUGER REFUSAL	
20										
25										

Remarks:

1. Boring relocated to edge of pond; as-drilled location surveyed.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-107

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	229 (est'd)	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/5/2015; 11:20-12:30	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	704+15, 5 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	5.5 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/11	2.0 - 4.0	6/6/5/5	11				1D Greyish-brown, damp, medium dense, fine Sandy SILT, trace coarse sand; with brick and organic odor. BARNYARD FILL	
							224.5		4.5	
5	2D	24/19	5.0 - 7.0	3/5/5/7	10				2D Olive-brown, mottled, damp, stiff, Clayey SILT, little to some fine sand as numerous partings and lenses. CLAY CRUST	G#263406 A-6, CL WC=26.8% LL=32 PL=22 PI=10
10	3D	24/20	10.0 - 12.0	3/3/4/4	7				3D Olive-brown, wet, medium stiff, Clayey SILT, trace fine sand as occasional rust partings. CLAY CRUST	
							216.7		12.3	
									Gravelly material; likely TILL.	
							215.5		13.5	
							214.8		Apparent Top of Rock at Elev. 215.5 ft.	
									14.2	
15									**Bottom of Exploration at 14.2 feet below ground surface.** AUGER REFUSAL	
20										
25										

Remarks:

1. Very difficult to access; boring relocated to avoid old foundation wall. As-drilled location taped from layout stake and elevation estimated.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-108

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	200.7	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/4/2015; 11:30-12:45	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	202+17, 107 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	11.8 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/15	2.0 - 4.0	4/9/14/17	23				1D Greyish-brown, damp, medium dense, GRAVEL, some silt, some fine to coarse sand. TILL	
5	2D	24/15	5.0 - 7.0	18/36/50/42	86				2D Greyish-brown, damp, very dense, GRAVEL, some silt, some fine to coarse sand. Gravel angular, appears to be broken rock. TILL	G#263407 A-1-b, GM WC=4.3%
10	3D	10.8/10.8	10.0 - 10.9	48/50(4.8")	---		190.7		10.0 3D Greyish-brown, damp, GRAVEL, some fine to coarse sand, some silt; gravel angular.	
							189.8		10.9 Apparent Top of Rock at Elev. 189.8 ft.	
							188.0		12.7 **Bottom of Exploration at 12.7 feet below ground surface.** AUGER REFUSAL	
15										
20										
25										

Remarks:

1. Proposed location inaccessible; relocated and as-drilled location surveyed.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-109

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	188.8	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/4/2015; 09:30-10:40	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	207+84, 230 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	13.9 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						S|A				
	1D	24/17	2.0 - 4.0	4/5/8/17	13				1D (2.0-3.7 ft bgs) Olive-brown, damp, stiff, Clayey SILT, some fine sand. CLAY CRUST	G#263408 A-4, CL WC=19.3% Non-Plastic
							185.1		3.7	
									Brown, Gravelly fine to medium SAND, some silt, trace coarse sand. TILL	
5	2D	24/20	5.0 - 7.0	17/25/23/23	48				2D Brown, damp to moist, dense, fine to medium Sandy GRAVEL, little to some silt, trace coarse sand. TILL	G#263409 A-1-B, SC-SM WC=12.9%
10	3D	3.6/3	10.0 - 10.3	50(3.6")	---		178.8		10.0	
									3D Broken Rock with Silty fine SAND.	
							174.8		14.0	
							174.1		Apparent Top of Rock at Elev. 174.8 ft. 14.7	
15									**Bottom of Exploration at 14.7 feet below ground surface.** AUGER REFUSAL	
20										
25										

Remarks:

1. Drilled at staked location.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-111

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	179.4	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/3/2015; 14:15-15:50	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	400+40.5, 162 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	8.4 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA			Stream Edge.	
	1D	24/18	2.0 - 4.0	2/3/3/12	6				1D Olive-brown, mottled, damp, medium stiff, Clayey SILT, little fine sand. CLAY CRUST Dark brown-black compressed soil or organics in tip of spoon, (jarred separately).	
							175.4		4.0	
5	2D	24/19	5.0 - 7.0	8/14/15/15	29				2D Brown, mottled, damp to moist, medium dense, GRAVEL, some silt, some fine to coarse sand; gravel angular, appears to be broken rock. TILL	G#263410 A-2-4, SM WC=11.7%
							170.9		8.5	
									Apparent Top of Rock at Elev. 170.9 ft.	
							169.8		9.6	
10									**Bottom of Exploration at 9.6 feet below ground surface.** AUGER REFUSAL	
15										
20										
25										

Remarks:

1. Snow drifted into stream channel; approximately 5.5 ft deep at stake. Layout stake set on ice. Offset boring approximately 10 ft upstation; elevation on stake okay.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-112

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	198.6	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/4/2015; 13:40-15:20	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	303+12, 39 ft Lt.	**Casing ID/OD:**	N/A	**Water Level*:**	4.7 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/22	2.0 - 4.0	5/6/6/8	12				1D Olive-brown, mottled, damp, stiff, Clayey SILT, trace fine sand. CLAY CRUST	
5	2D	24/22	5.0 - 7.0	4/4/5/6	9				2D Olive-brown, mottled, damp, stiff, Clayey SILT, trace fine sand, mostly as partings. CLAY CRUST	G#263411 A-4, CL WC=26.3% LL=29 PL=22 PI=7
							190.1		8.5	
10	3D	24/21	10.0 - 12.0	WOH/WOH/1/5	1				3D Grey, wet, very soft, SILT and CLAY. SOFT CLAY	G#263412 A-4, CL-ML WC=27.0% LL=23 PL=18 PI=5
							186.6		12.0	
									transitioning to TILL in tip of spoon.	
									Cobble at 13.0 ft bgs.	
15	4D	15.6/12	15.0 - 16.3	17/20/50(3.6")	---				4D Greyish-brown, Silty fine to medium SAND, some gravel, trace coarse sand; gravel angular. Large piece gravel in tip of spoon. TILL	
							182.3		16.3	
							182.1		Apparent Top of Rock at Elev. 182.3 ft.	
									16.5	
20									**Bottom of Exploration at 16.5 feet below ground surface.** AUGER REFUSAL	
25										

Remarks:

1. Proposed locations for HB-WAT-110 and HB-WAT-112 inaccessible; eliminated -110 and relocated -112 to split the difference; as-drilled location surveyed.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-113

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	181.4	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/3/2015; 13:05-14:05	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	402+43, 50 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	3.8 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/22	2.0 - 4.0	4/9/10/11	19				1D Olive-brown, mottled, dry to damp, very stiff, Clayey SILT, trace to little fine sand. CLAY CRUST	
5	2D	24/18	5.0 - 7.0	7/9/14/17	23				2D Olive-brown, mottled, dry to damp, very stiff, Clayey SILT, little fine sand. CLAY CRUST	G#263413 A-4, CL WC=17.1% Non-Plastic
							174.8		6.6	
									Bottom 5 inches of sample contains coarse sand pieces of decomposed rock.	
10	3D	24/11	10.0 - 12.0	13/16/21/29	37				3D Brown, wet, dense, GRAVEL, some silt, some fine to coarse sand; gravel appears to be broken rock. TILL	
							168.9		12.5	
							168.3		Apparent Top of Rock at Elev. 168.9 ft.	
									13.1	
15									**Bottom of Exploration at 13.1 feet below ground surface.** AUGER REFUSAL	
20										
25										

Remarks:

1. Drilled at staked location.

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

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

SCHONEWALD ENGINEERING ASSOCIATES, INC.

PROJECT: I-95 Trafton Road Interchange

LOCATION: Waterville, Maine

Boring No.: HB-WAT-114

WIN: 18129.10

Driller:	New England Boring	**Elevation (ft.)**	173.7	**Auger ID/OD:**	4.5" OD
Operator:	Schaefer/Titus	**Datum:**	NAVD88	**Sampler:**	Standard Split Spoon
Logged By:	Be Schonewald	**Rig Type:**	Mobile Drill B-53	**Hammer Wt./Fall:**	140#/30"
Date Start/Finish:	2/3/2015; 11:00-12:40	**Drilling Method:**	Solid Stem Auger	**Core Barrel:**	N/A
Boring Location:	802+21, 17 ft Rt.	**Casing ID/OD:**	N/A	**Water Level*:**	8.5 ft bgs. (open)

Definitions:
D = Split Spoon Sample
MD = Unsuccessful Split Spoon Sample attempt
U = Thin Wall Tube Sample
MU = Unsuccessful Thin Wall Tube Sample attempt
V = Insitu Vane Shear Test
MV = Unsuccessful Insitu Vane Shear Test attempt

Definitions:
S_u = Insitu Field Vane Shear Strength (psf)
R = Rock Core Sample
RQD = Rock Quality Designation (%)
WOH = weight of 140lb. hammer
WOR = weight of rods
-- = not recorded

Definitions:
LL = Liquid Limit
PL = Plastic Limit
PI = Plasticity Index
WC = water content, percent
-#200 = percent fines from grain size analysis
UCT qp = peak compressive strength of rock

Depth (ft.)	Sample No.	Pen./Rec. (in.)	Sample Depth (ft.)	Blows (/6 in.) Shear Strength (psf) or RQD (%)	N-value	Casing Blows	Elevation (ft.)	Graphic Log	Visual Description and Remarks	Lab. Testing Results
0						SSA				
	1D	24/19	2.0 - 4.0	3/4/7/7	11				1D Olive brown, mottled, moist, stiff, Clayey SILT, trace fine sand. CLAY CRUST	
5	2D	24/22	5.0 - 7.0	2/3/3/3	6				2D Olive brown, mottled, wet, medium stiff, Clayey SILT, trace fine sand. CLAY CRUST	
							165.2		8.5 — Grade to grey at 8.5 ft bgs. SOFT CLAY	
10	3D	24/22	10.0 - 12.0	WOR/WOH/WOH/ WOH	---				3D Grey, wet, very soft, SILT and CLAY. SOFT CLAY	G#263414 A-4, CL-ML WC=26.6% LL=22 PL=18 PI=4
							160.7		13.0 — Change to gravelly material. TILL	
15	4D	12/10	15.0 - 16.0	11/79	---				4D Dark grey, wet, Silty GRAVEL, little fine to coarse sand; gravel angular, appears to be broken rock. TILL	
							157.7		16.0 — Apparent Top of Rock at Elev. 157.7 ft.	
20							156.9		16.8 — **Bottom of Exploration at 16.8 feet below ground surface.** AUGER REFUSAL	
25										

Remarks:

1. Drilled at staked location.

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

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

SCHONEWALD
ENGINEERING
ASSOCIATES, INC.

APPENDIX B

LABORATORY TEST RESULTS

State of Maine - Department of Transportation

Laboratory Testing Summary Sheet

Town(s): Waterville Work Number: 18129.10

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-WAT-102, 2D	514+01	141.8 Lt.	5.0-7.0	263401	1	11.9			SM	A-2-4	II
HB-WAT-104, 1D	601+37	0.6 Rt.	2.0-4.0	263402	1	11.8			SM	A-4	III
HB-WAT-105, 2D	605+03	86.5 Lt.	5.0-7.0	263403	1	8.1			SM	A-4	III
HB-WAT-106, 2D	710+40	18.4 Rt.	5.0-7.0	263404	1	24.7	23	1	ML	A-4	IV
HB-WAT-106, 3D	710+40	18.4 Rt.	10.0-12.0	263405	1	18.1			SC-SM	A-4	III
HB-WAT-107, 2D	704+15	4.6 Rt.	5.0-7.0	263406	2	26.8	32	10	CL	A-6	IV
HB-WAT-108, 2D	202+17	107.0 Rt.	5.0-7.0	263407	2	4.3			GM	A-1-b	I
HB-WAT-109, 1D	207+84	229.5 Rt.	2.0-4.0	263408	2	19.3	-N	P-	CL	A-4	IV
HB-WAT-109, 2D	207+84	229.5 Rt.	5.0-7.0	263409	2	12.9			SC-SM	A-1-b	II
HB-WAT-111, 2D	400+40.5	161.6 Rt.	5.0-7.0	263410	2	11.7			SM	A-2-4	II
HB-WAT-112, 2D	303+11.5	39.2 Lt.	5.0-7.0	263411	3	26.3	29	7	CL	A-4	IV
HB-WAT-112, 3D	303+11.5	39.2 Lt.	10.0-12.0	263412	3	27.0	23	5	CL-ML	A-4	IV
HB-WAT-113, 2D	402+43	50.4 Rt.	5.0-7.0	263413	3	17.1	-N	P-	CL	A-4	IV
HB-WAT-114, 3D	802+20.5	16.8 Rt.	10.0-12.0	263414	3	26.6	22	4	CL-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.

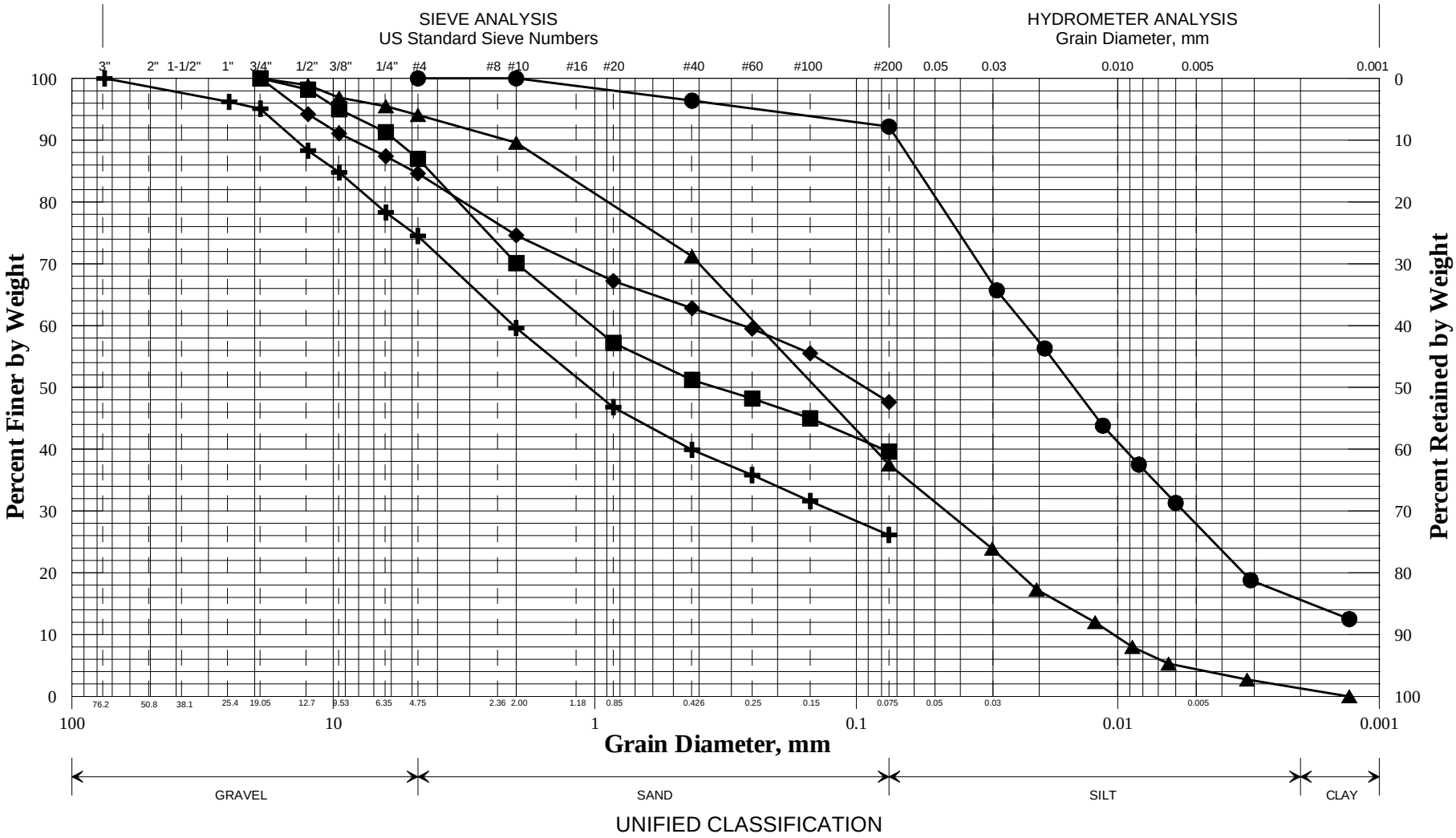
GSDC = Grain Size Distribution Curve as determined by AASHTO T 88-93 (1996) and/or ASTM D 422-63 (Reapproved 1998)

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

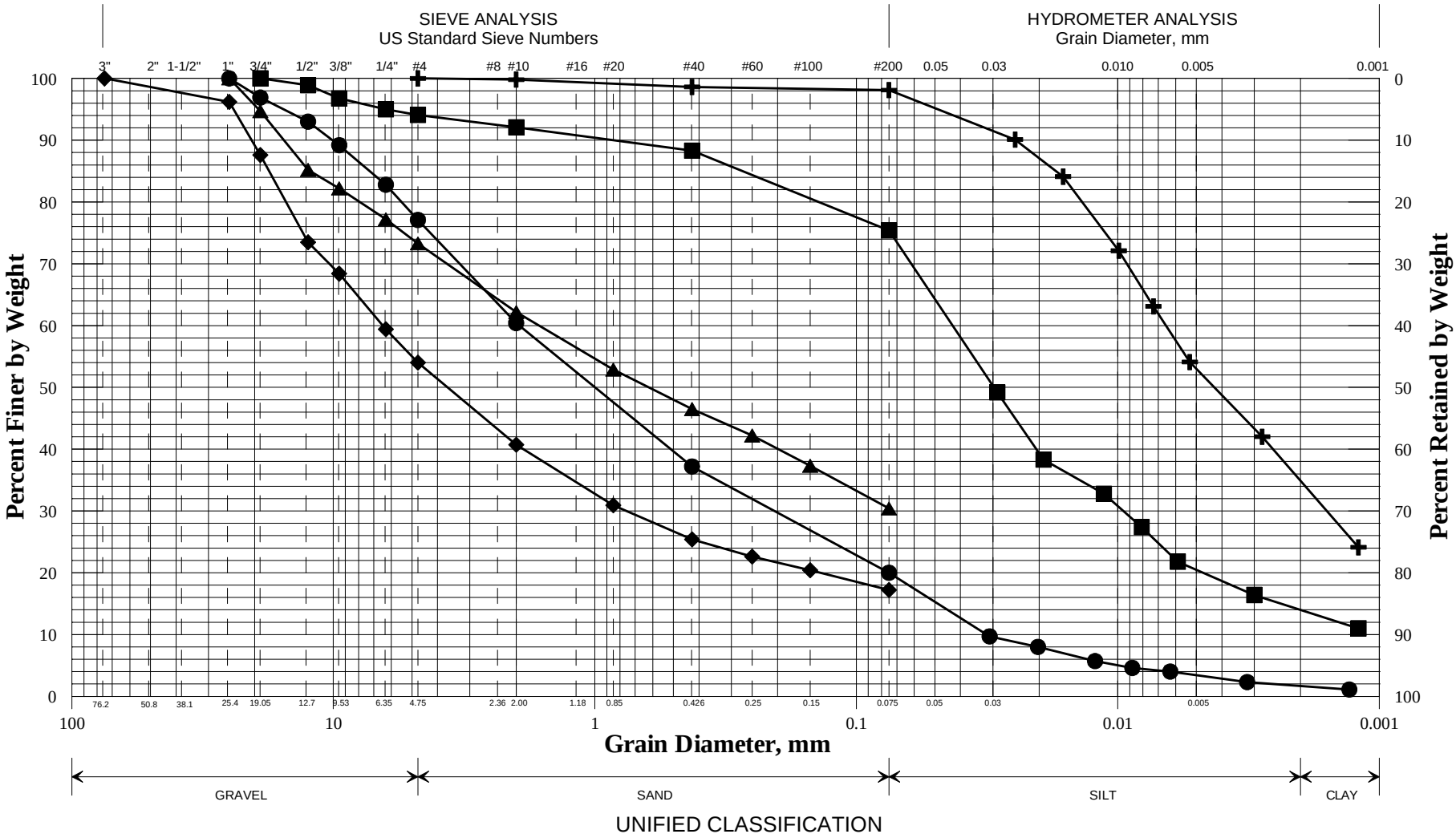
State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
✚	HB-WAT-102/2D	514+01	141.8 LT	5.0-7.0	SAND, some silt, some gravel.	11.9			
◆	HB-WAT-104/1D	601+37	0.6 RT	2.0-4.0	Sandy SILT, little gravel.	11.8			
■	HB-WAT-105/2D	605+03	86.5 LT	5.0-7.0	Silty SAND, trace gravel.	8.1			
●	HB-WAT-106/2D	710+40	18.4 RT	5.0-7.0	SILT, little clay, trace sand.	24.7	23	22	1
▲	HB-WAT-106/3D	710+40	18.4 RT	10.0-12.0	Silty SAND, trace gravel, trace clay.	18.1			
✖									

WIN
018129.10
Town
Waterville
Reported by/Date
WHITE, TERRY A 3/16/2015

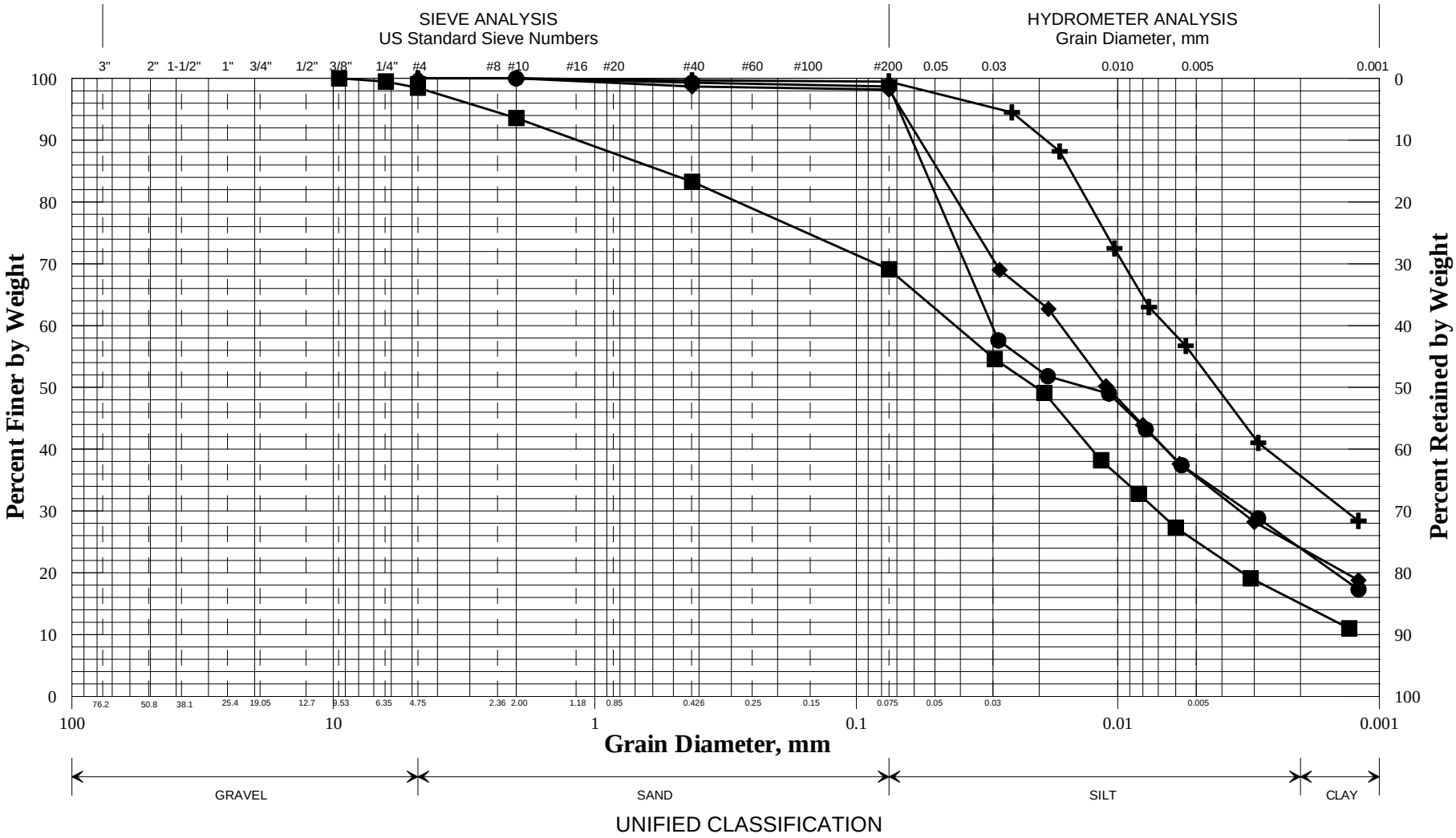
State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
✚	HB-WAT-107/2D	704+15	4.6 RT	5.0-7.0	SILT, some clay, trace sand, trace gravel.	26.8	32	22	10
◆	HB-WAT-108/2D	202+17	107.0 RT	5.0-7.0	Sandy GRAVEL, little silt.	4.3			
■	HB-WAT-109/1D	207+84	229.5 RT	2.0-4.0	SILT, little sand, little clay, trace gravel.	19.3			NP
●	HB-WAT-109/2D	207+84	229.5 RT	5.0-7.0	SAND, some gravel, little silt, trace clay.	12.9			
▲	HB-WAT-111/2D	400+40.5	161.6 RT	5.0-7.0	SAND, some silt, some gravel.	11.7			
✖									

WIN
018129.10
Town
Waterville
Reported by/Date
WHITE, TERRY A 3/16/2015

State of Maine Department of Transportation
GRAIN SIZE DISTRIBUTION CURVE



	Boring/Sample No.	Station	Offset, ft	Depth, ft	Description	W, %	LL	PL	PI
✚	HB-WAT-112/2D	303+11.5	39.2 LT	5.0-7.0	Clayey SILT, trace sand.	26.3	29	22	7
◆	HB-WAT-112/3D	303+11.5	39.2 LT	10.0-12.0	SILT, some clay, trace sand.	27.0	23	18	5
■	HB-WAT-113/2D	402+43	50.4 RT	5.0-7.0	SILT, some sand, little clay, trace gravel.	17.1			NP
●	HB-WAT-114/3D	802+20.5	16.8 RT	10.0-12.0	SILT, some clay, trace sand.	26.6	22	18	4
▲									
✖									

WIN
018129.10
Town
Waterville
Reported by/Date
WHITE, TERRY A 3/16/2015

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263401	**HB-WAT-102/2D**	**GEOTECHNICAL (DISTURBED)**	**2/6/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **514+01** Offset, ft: **141. LT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method: Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	**100.0**
1 in. [25.0 mm]	**96.2**
¾ in. [19.0 mm]	**95.1**
½ in. [12.5 mm]	**88.3**
⅜ in. [9.5 mm]	**84.8**
¼ in. [6.3 mm]	**78.3**
No. 4 [4.75 mm]	**74.5**
No. 10 [2.00 mm]	**59.6**
No. 20 [0.850 mm]	**46.8**
No. 40 [0.425 mm]	**39.9**
No. 60 [0.250 mm]	**35.8**
No. 100 [0.150 mm]	**31.6**
No. 200 [0.075 mm]	**26.1**

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, %	
H2O, %	
Water Content (T 265), %	**11.9**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In. U. Shear tons/ft²	3 In. Remold tons/ft²	6 In. U. Shear tons/ft²	6 In. Remold tons/ft²	Water Content, %	Description of Material Sampled at the Various Tube Depths

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/3/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263402	**HB-WAT-104/1D**	**GEOTECHNICAL (DISTURBED)**	**2/5/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **601+37** Offset, ft: **0.6** **RT** Dbfg, ft: **2.0-4.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
½ in. [12.5 mm]	**94.2**
⅜ in. [9.5 mm]	**91.1**
¼ in. [6.3 mm]	**87.4**
No. 4 [4.75 mm]	**84.6**
No. 10 [2.00 mm]	**74.6**
No. 20 [0.850 mm]	**67.2**
No. 40 [0.425 mm]	**62.8**
No. 60 [0.250 mm]	**59.5**
No. 100 [0.150 mm]	**55.5**
No. 200 [0.075 mm]	**47.6**

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, %	
H2O, %	
Water Content (T 265), %	**11.8**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/3/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263403	**HB-WAT-105/2D**	**GEOTECHNICAL (DISTURBED)**	**2/5/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **605+03** Offset, ft: **86.5 LT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
½ in. [12.5 mm]	**98.2**
⅜ in. [9.5 mm]	**95.0**
¼ in. [6.3 mm]	**91.3**
No. 4 [4.75 mm]	**87.0**
No. 10 [2.00 mm]	**70.1**
No. 20 [0.850 mm]	**57.2**
No. 40 [0.425 mm]	**51.2**
No. 60 [0.250 mm]	**48.2**
No. 100 [0.150 mm]	**45.0**
No. 200 [0.075 mm]	**39.6**

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, %	
H2O, %	
Water Content (T 265), %	**8.1**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/3/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263404	**HB-WAT-106/2D**	**GEOTECHNICAL (DISTURBED)**	**2/5/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **710+40** Offset, ft: **18.4** **RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
No. 10 [2.00 mm]	**100.0**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**96.4**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**92.2**
[0.0290 mm]	**65.7**
[0.0190 mm]	**56.3**
[0.0114 mm]	**43.8**
[0.0083 mm]	**37.5**
[0.0060 mm]	**31.3**
[0.0031 mm]	**18.8**
[0.0013 mm]	**12.5**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	**23**
Plastic Limit (T 90), %	**22**
Plasticity Index (T 90), %	**1**
Specific Gravity, Corrected to 20°C (T 100)	**2.70**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**24.7**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

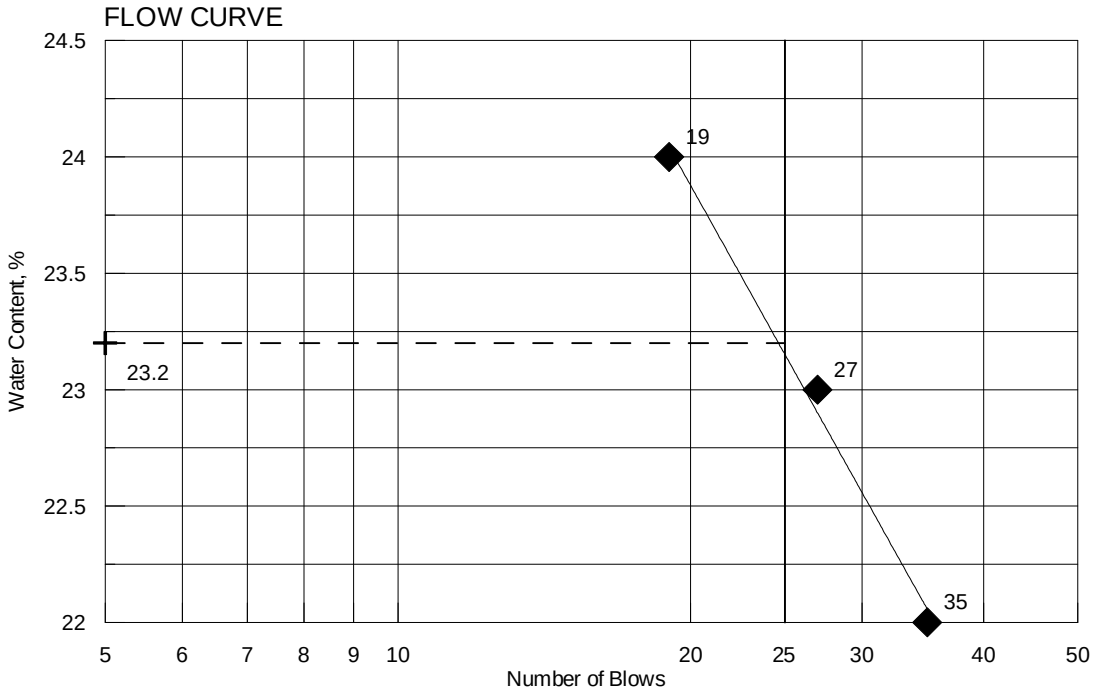
Comments:

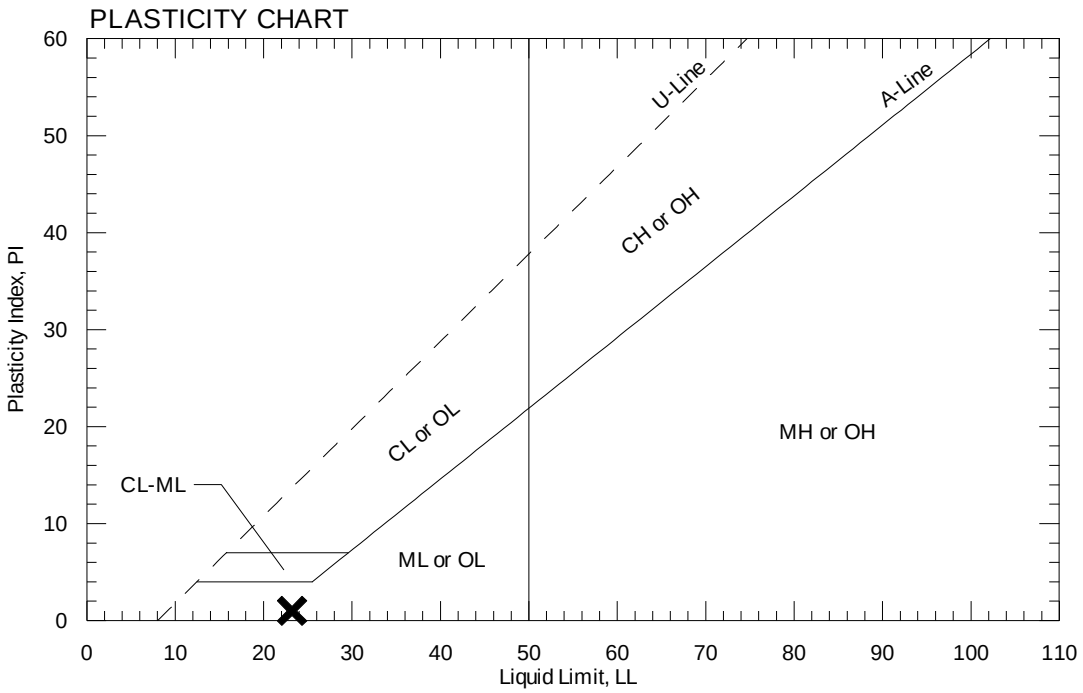
AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/10/2015**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Waterville	Reference No.	263404
WIN	018129.10	Water Content, %	24.7
Sampled	2/5/2015	Liquid Limit @ 25 blows (T 89), %	23
Boring No./Sample No.	HB-WAT-106/2D	Plastic Limit (T 90), %	22
Station	710+40	Plasticity Index (T 90), %	1
Depth	5.0-7.0	Tested By	BBURR





MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263405	**HB-WAT-106/3D**	**GEOTECHNICAL (DISTURBED)**	**2/4/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **710+40** Offset, ft: **18.4** **RT** Dbfg, ft: **10.0-12.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
½ in. [12.5 mm]	**98.9**
⅜ in. [9.5 mm]	**96.9**
¼ in. [6.3 mm]	**95.5**
No. 4 [4.75 mm]	**94.1**
No. 10 [2.00 mm]	**89.6**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**71.2**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**37.5**
[0.0302 mm]	**23.9**
[0.0204 mm]	**17.3**
[0.0122 mm]	**12.0**
[0.0088 mm]	**8.0**
[0.0064 mm]	**5.3**
[0.0032 mm]	**2.7**
[0.0013 mm]	**0.0**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	**2.64**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**18.1**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/9/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263406	**HB-WAT-107/2D**	**GEOTECHNICAL (DISTURBED)**	**2/5/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **704+15** Offset, ft: **4.6** **RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
No. 10 [2.00 mm]	**99.8**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**98.6**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**98.1**
[0.0247 mm]	**90.1**
[0.0162 mm]	**84.1**
[0.0099 mm]	**72.1**
[0.0073 mm]	**63.1**
[0.0053 mm]	**54.1**
[0.0028 mm]	**42.0**
[0.0012 mm]	**24.1**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	**32**
Plastic Limit (T 90), %	**22**
Plasticity Index (T 90), %	**10**
Specific Gravity, Corrected to 20°C (T 100)	**2.77**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**26.8**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

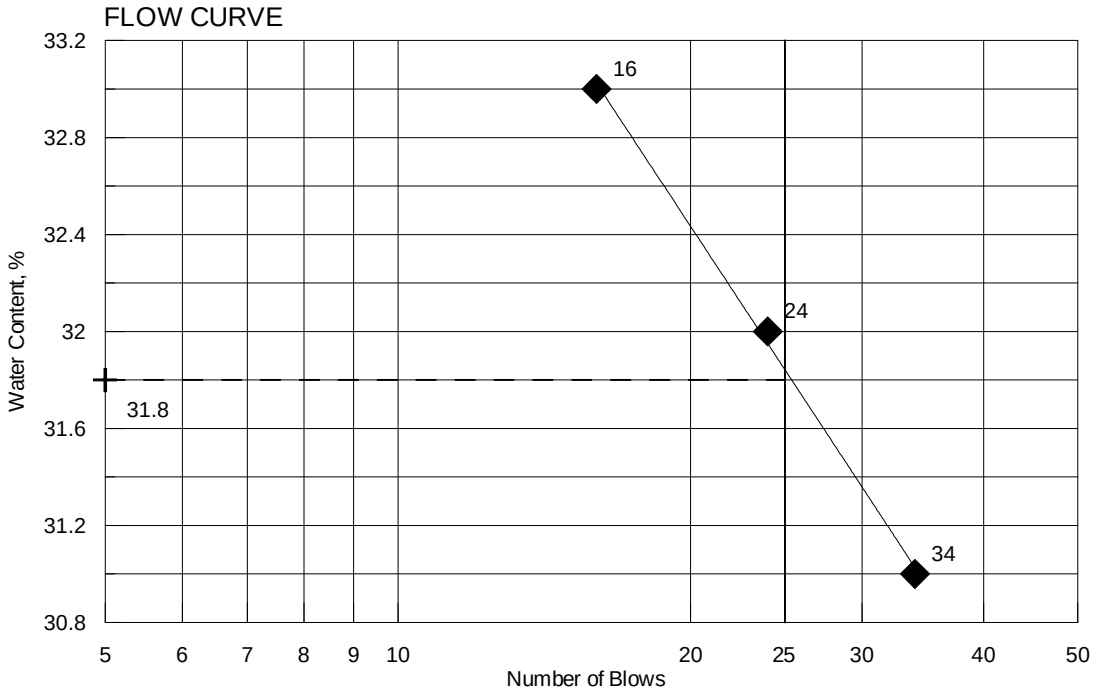
Comments:

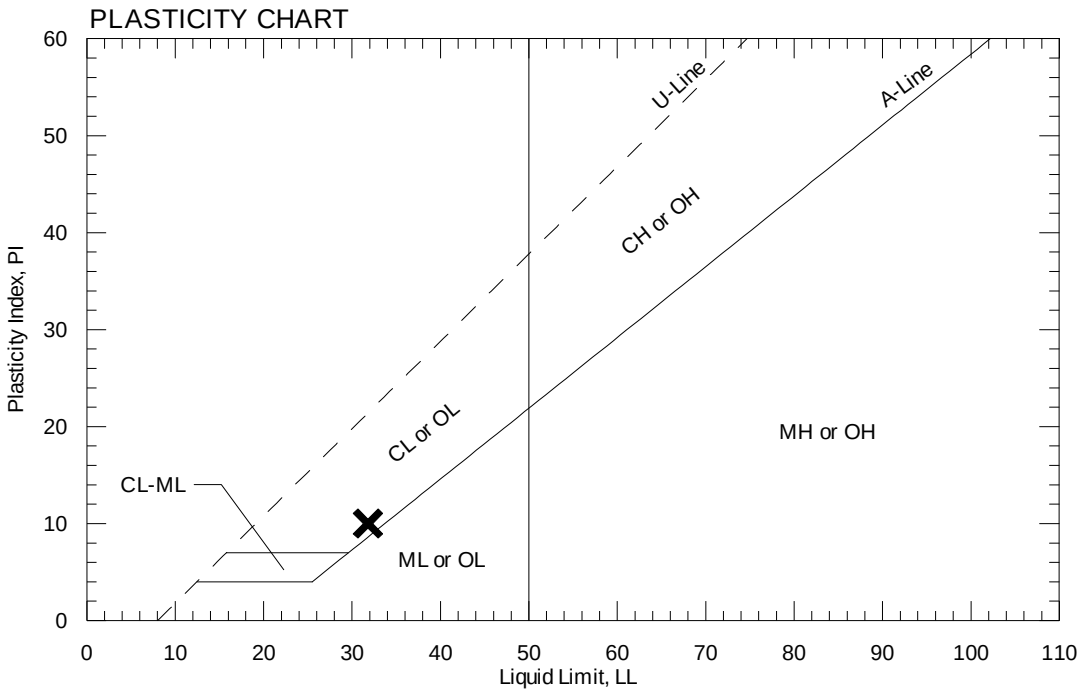
AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/10/2015**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Waterville	Reference No.	263406
WIN	018129.10	Water Content, %	26.8
Sampled	2/5/2015	Liquid Limit @ 25 blows (T 89), %	32
Boring No./Sample No.	HB-WAT-107/2D	Plastic Limit (T 90), %	22
Station	704+15	Plasticity Index (T 90), %	10
Depth	5.0-7.0	Tested By	BBURR





MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263407	HB-WAT-108/2D	GEOTECHNICAL (DISTURBED)	2/4/2015	2/20/2015

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **202+17** Offset, ft: **107. RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

TEST RESULTS

Sieve Analysis (T 27, T 11)

Wash Method: Procedure A

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	**100.0**
1 in. [25.0 mm]	**96.2**
¾ in. [19.0 mm]	**87.6**
½ in. [12.5 mm]	**73.5**
⅜ in. [9.5 mm]	**68.4**
¼ in. [6.3 mm]	**59.4**
No. 4 [4.75 mm]	**54.0**
No. 10 [2.00 mm]	**40.7**
No. 20 [0.850 mm]	**30.9**
No. 40 [0.425 mm]	**25.4**
No. 60 [0.250 mm]	**22.6**
No. 100 [0.150 mm]	**20.4**
No. 200 [0.075 mm]	**17.2**

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, %	
H2O, %	
Water Content (T 265), %	**4.3**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In. U. Shear tons/ft²	3 In. Remold tons/ft²	6 In. U. Shear tons/ft²	6 In. Remold tons/ft²	Water Content, %	Description of Material Sampled at the Various Tube Depths

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/3/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263408	**HB-WAT-109/1D**	**GEOTECHNICAL (DISTURBED)**	**2/4/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **207+84** Offset, ft: **229. RT** Dbfg, ft: **2.0-4.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
½ in. [12.5 mm]	**98.9**
⅜ in. [9.5 mm]	**96.8**
¼ in. [6.3 mm]	**95.0**
No. 4 [4.75 mm]	**94.1**
No. 10 [2.00 mm]	**92.1**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**88.3**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**75.4**
[0.0289 mm]	**49.2**
[0.0192 mm]	**38.3**
[0.0113 mm]	**32.8**
[0.0081 mm]	**27.4**
[0.0059 mm]	**21.8**
[0.0030 mm]	**16.4**
[0.0012 mm]	**11.0**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	**NP**
Specific Gravity, Corrected to 20°C (T 100)	**2.78**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**19.3**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/9/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263409	**HB-WAT-109/2D**	**GEOTECHNICAL (DISTURBED)**	**2/5/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **207+84** Offset, ft: **229. RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

TEST RESULTS

Sieve Analysis (T 88)

Wash Method

SIEVE SIZE U.S. [SI]	% Passing
3 in. [75.0 mm]	
1 in. [25.0 mm]	**100.0**
¾ in. [19.0 mm]	**96.9**
½ in. [12.5 mm]	**93.0**
⅜ in. [9.5 mm]	**89.2**
¼ in. [6.3 mm]	**82.8**
No. 4 [4.75 mm]	**77.1**
No. 10 [2.00 mm]	**60.4**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**37.2**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**20.0**
[0.0309 mm]	**9.7**
[0.0202 mm]	**8.0**
[0.0122 mm]	**5.7**
[0.0088 mm]	**4.6**
[0.0063 mm]	**4.0**
[0.0032 mm]	**2.3**
[0.0013 mm]	**1.1**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	
Specific Gravity, Corrected to 20°C (T 100)	**2.64**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**12.9**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/9/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263410	**HB-WAT-111/2D**	**GEOTECHNICAL (DISTURBED)**	**2/3/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **400+40.5** Offset, ft: **161. RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
¾ in. [19.0 mm]	**94.7**
½ in. [12.5 mm]	**85.2**
⅜ in. [9.5 mm]	**82.2**
¼ in. [6.3 mm]	**77.2**
No. 4 [4.75 mm]	**73.3**
No. 10 [2.00 mm]	**62.2**
No. 20 [0.850 mm]	**52.9**
No. 40 [0.425 mm]	**46.5**
No. 60 [0.250 mm]	**42.2**
No. 100 [0.150 mm]	**37.3**
No. 200 [0.075 mm]	**30.4**

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, %	
H2O, %	
Water Content (T 265), %	**11.7**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

Vane Shear Test on Shelby Tubes (Maine DOT)

Depth taken in tube, ft	3 In. U. Shear tons/ft²	3 In. Remold tons/ft²	6 In. U. Shear tons/ft²	6 In. Remold tons/ft²	Water Content, %	Description of Material Sampled at the Various Tube Depths

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/3/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263411	**HB-WAT-112/2D**	**GEOTECHNICAL (DISTURBED)**	**2/4/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **303+11.5** Offset, ft: **39.2 LT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
No. 10 [2.00 mm]	**100.0**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**99.7**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**99.5**
[0.0254 mm]	**94.5**
[0.0167 mm]	**88.2**
[0.0103 mm]	**72.5**
[0.0076 mm]	**63.0**
[0.0055 mm]	**56.7**
[0.0029 mm]	**41.0**
[0.0012 mm]	**28.4**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	**29**
Plastic Limit (T 90), %	**22**
Plasticity Index (T 90), %	**7**
Specific Gravity, Corrected to 20°C (T 100)	**2.65**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**26.3**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

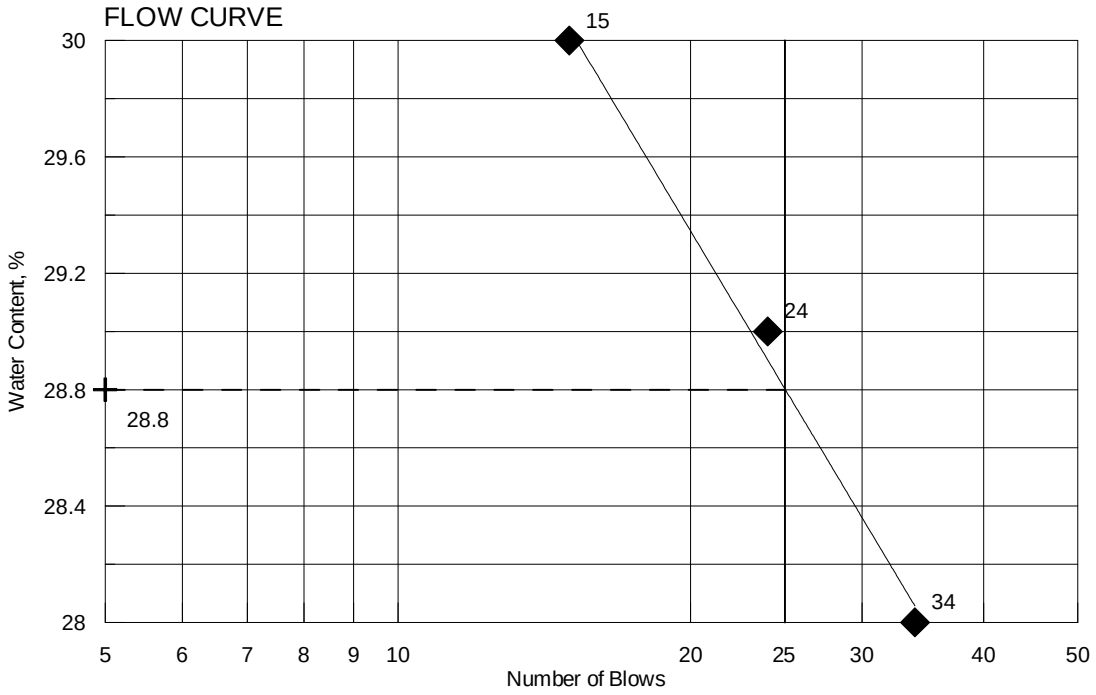
Comments:

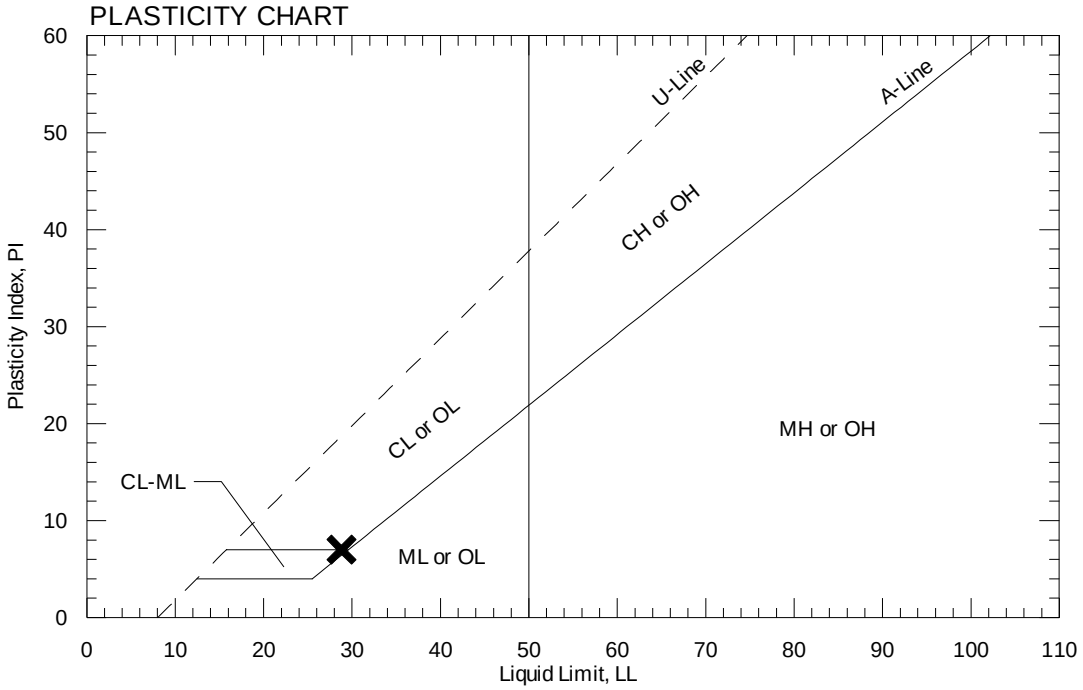
AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/10/2015**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Waterville	Reference No.	263411
WIN	018129.10	Water Content, %	26.3
Sampled	2/4/2015	Liquid Limit @ 25 blows (T 89), %	29
Boring No./Sample No.	HB-WAT-112/2D	Plastic Limit (T 90), %	22
Station	303+11.5	Plasticity Index (T 90), %	7
Depth	5.0-7.0	Tested By	BBURR





MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263412	**HB-WAT-112/3D**	**GEOTECHNICAL (DISTURBED)**	**2/4/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **303+11.5** Offset, ft: **39.2 LT** Dbfg, ft: **10.0-12.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
No. 10 [2.00 mm]	**100.0**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**98.7**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**98.2**
[0.0283 mm]	**69.0**
[0.0184 mm]	**62.7**
[0.0111 mm]	**50.2**
[0.0080 mm]	**43.9**
[0.0058 mm]	**37.6**
[0.0030 mm]	**28.2**
[0.0012 mm]	**18.8**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	**23**
Plastic Limit (T 90), %	**18**
Plasticity Index (T 90), %	**5**
Specific Gravity, Corrected to 20°C (T 100)	**2.68**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**27.0**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

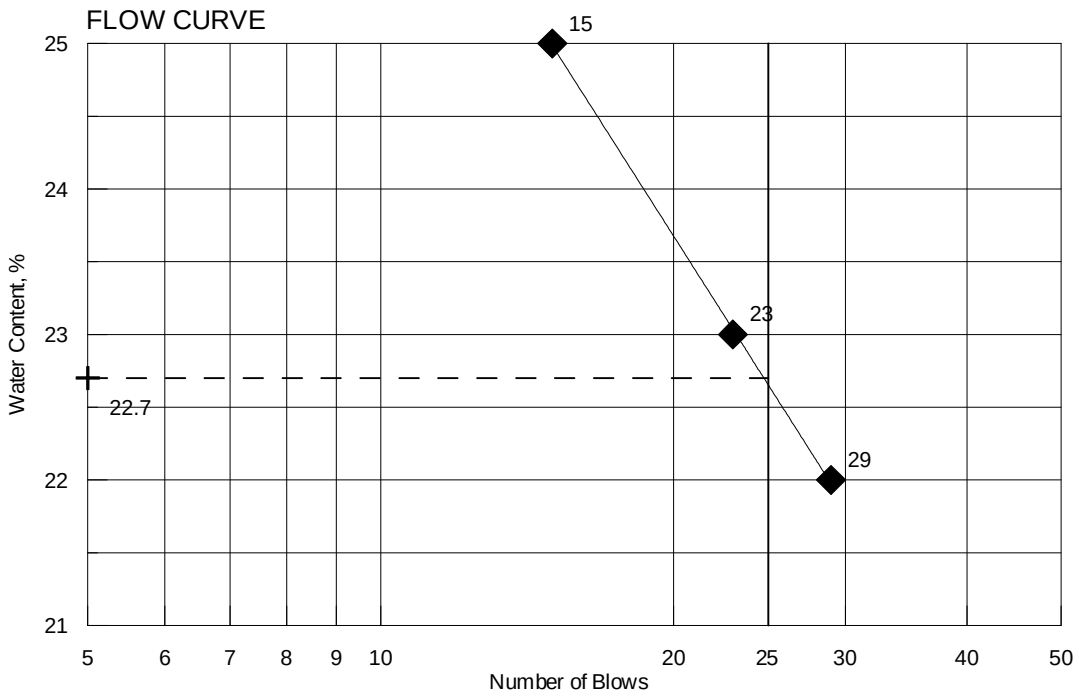
Comments:

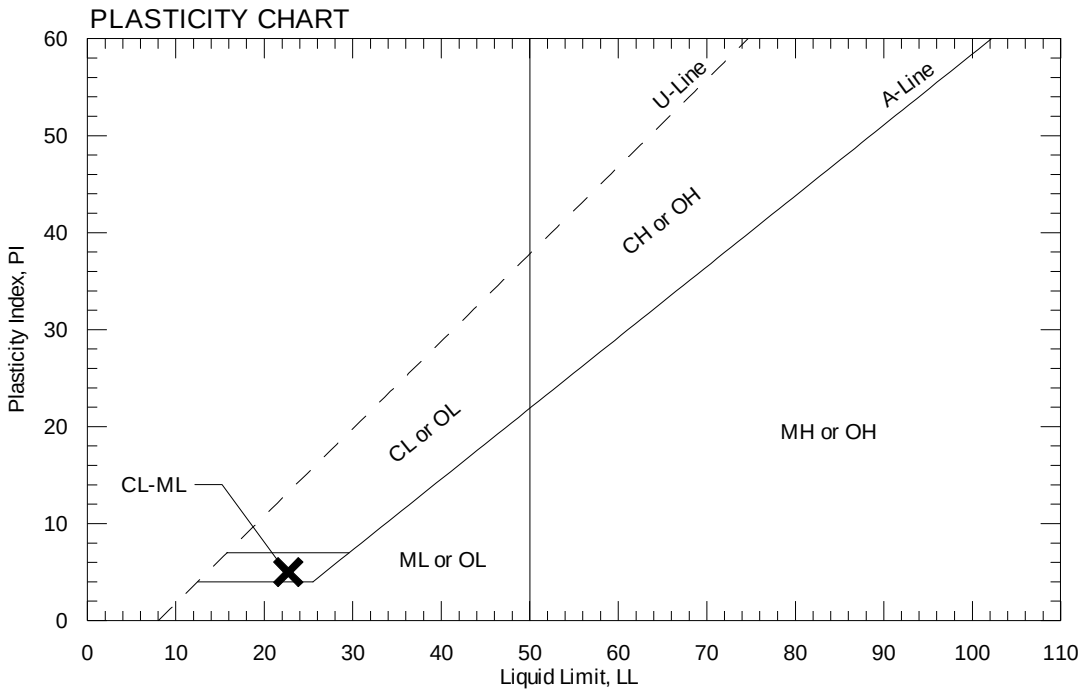
AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/10/2015**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Waterville	Reference No.	263412
WIN	018129.10	Water Content, %	27
Sampled	2/4/2015	Liquid Limit @ 25 blows (T 89), %	23
Boring No./Sample No.	HB-WAT-112/3D	Plastic Limit (T 90), %	18
Station	303+11.5	Plasticity Index (T 90), %	5
Depth	10.0-12.0	Tested By	BBURR





MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263413	**HB-WAT-113/2D**	**GEOTECHNICAL (DISTURBED)**	**2/3/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **402+43** Offset, ft: **50.4 RT** Dbfg, ft: **5.0-7.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
¼ in. [6.3 mm]	**99.5**
No. 4 [4.75 mm]	**98.5**
No. 10 [2.00 mm]	**93.6**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**83.3**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**69.1**
[0.0295 mm]	**54.6**
[0.0191 mm]	**49.1**
[0.0116 mm]	**38.2**
[0.0083 mm]	**32.8**
[0.0060 mm]	**27.3**
[0.0031 mm]	**19.1**
[0.0013 mm]	**11.0**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	
Plastic Limit (T 90), %	
Plasticity Index (T 90), %	**NP**
Specific Gravity, Corrected to 20°C (T 100)	**2.65**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**17.1**

Consolidation (T 216)

Trimmings, Water Content, %	

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/9/2015**

Paper Copy: Lab File; Project File; Geotech File

MaineDOT

GEOTECHNICAL TEST REPORT
Central Laboratory

SAMPLE INFORMATION

Reference No.	Boring No./Sample No.	Sample Description	Sampled	Received
263414	**HB-WAT-114/3D**	**GEOTECHNICAL (DISTURBED)**	**2/3/2015**	**2/20/2015**

Sample Type: **GEOTECHNICAL** Location: **ROADWAY** Station: **802+20.5** Offset, ft: **16.8** **RT** Dbfg, ft: **10.0-12.0**

WIN/Town **018129.10 - WATERVILLE** Sampler: **BE SCHONEWALD**

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]	**100.0**
No. 20 [0.850 mm]	
No. 40 [0.425 mm]	**99.3**
No. 60 [0.250 mm]	
No. 100 [0.150 mm]	
No. 200 [0.075 mm]	**98.7**
[0.0286 mm]	**57.6**
[0.0185 mm]	**51.8**
[0.0108 mm]	**49.0**
[0.0078 mm]	**43.2**
[0.0057 mm]	**37.4**
[0.0029 mm]	**28.8**
[0.0012 mm]	**17.3**

Miscellaneous Tests

Liquid Limit @ 25 blows (T 89), %	**22**
Plastic Limit (T 90), %	**18**
Plasticity Index (T 90), %	**4**
Specific Gravity, Corrected to 20°C (T 100)	**2.74**
Loss on Ignition (T 267)	
Loss, %	
H2O, %	
Water Content (T 265), %	**26.6**

Consolidation (T 216)

Trimmings, Water Content, %

	Initial	Final		Void Ratio	% Strain
Water Content, %			Pmin		
Dry Density, lbs/ft³			Pp		
Void Ratio			Pmax		
Saturation, %			Cc/C'c		

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/ft²	Remold tons/ft²	U. Shear tons/ft²	Remold tons/ft²		

Comments:

AUTHORIZATION AND DISTRIBUTION

Reported by: **BRIAN FOGG** Date Reported: **3/9/2015**

Paper Copy: Lab File; Project File; Geotech File

TOWN	Waterville	Reference No.	263414
WIN	018129.10	Water Content, %	26.6
Sampled	2/3/2015	Liquid Limit @ 25 blows (T 89), %	22
Boring No./Sample No.	HB-WAT-114/3D	Plastic Limit (T 90), %	18
Station	802+20.5	Plasticity Index (T 90), %	4
Depth	10.0-12.0	Tested By	BBURR