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Transmittal

May 19, 2017

Barton & Loguidice, DPC
10 Airline Drive
Suite 200
Albany, New York 12205

Attn: Mr. Christopher M. Hannett, I.E., Engineer III

Re: Ashokan Rail Trail
Ulster County, New York
CME Project No.: 27206-05
B&L Project No.: 369.007.001

Gentlepeople:

Enclosed you will find....

Number of Copies

3

Report Number/Description

27206B-01-0517/Subsurface
Exploration – Test Boring Logs, B-1,
B-4 and B-5 (9 of 9); *General*
Information & Key to Test Boring
Logs (4 of 4)

This report was emailed to Mr. Christopher M. Hannett at channett@bartonandloguidice.com on 05/19/17.

Respectfully submitted,
CME Associates, Inc.

Mark J. Schumacher

Mark J. Schumacher
Drilling Division Manager

MJS.bmf

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SUBSURFACE EXPLORATION – TEST BORING LOG**Project:** Ashokan Rail Trail, Ulster County, New York**Report No.:** 27206B-01-0517**Client:** Barton & Loguidice, DPC**Date Started:** 04-07-17**Finished:** 04-07-17**Location of Boring:** See Exploration Location Plan**Elevation of Surface of Boring:**

METHODS OF INVESTIGATION							GROUND WATER OBSERVATIONS						
Casing: 3-1/4" ID H. Stem Auger		Driller: Beau Fletcher		Date		Time		Depth		Casing At			
Casing Hammer:		Driller: Bill Murphy		04-07-17		While drilling		15.2'		18.0'			
Other:		Inspector:		04-07-17		Before casing removed		25.4'		33.5'			
Soil Sampler: 2" OD Split Barrel		Rod Size: AWJ		04-07-17		After casing removed		17.2'		out			
Sampler Hammer: Wt. 140 lbs./ Auto		Fall: 30 in.		04-07-17		After casing removed		caved @ 17.4'		out			
Make & Model of Drill Rig: CME 550x ATV-Mounted													
LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL						
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine		and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %		SPT "N" or RQD	
			From	To									
0	XXX	1a	0.0	0.5	SS/17	2-6-8-6	0.5	Miscellaneous FILL; black cmf sand, fine gravel, cinders, coal (moist)					
		1b	0.5	2.0		Brown cmf SAND, little cmf GRAVEL, trace SILT (moist, medium compact)				14			
		2	2.0	4.0	SS/15	3-6-5-6		Similar as above (wet, medium compact)					11
		3	4.0	6.0	SS/13	4-2-2-3		Similar as above (wet, loose)					4
		4	6.0	8.0	SS/22	2-2-2-2		Brown fine SAND, some SILT, trace ORGANIC MATTER (wet, loose)					4
5	H	5	8.0	10.0	SS/24	2-1-2-1		Similar as above (wet, very loose)				3	
		6	13.5	15.0	SS/18	2-2-2		Brown cmf SAND, trace SILT (wet, loose)				4	
		7	18.0	18.9	SS/5	9-100@4"		Augered gravelly at 17.5' Grey/Brown cmf GRAVEL and cmf SAND, trace SILT (wet, very compact)				100+	
		Continued on page 2											

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)			SPT “N” or RQD
			From	To				c – coarse m – medium f – fine	and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %	
20	H O L L O W S T E M A U G E R	8a	23.5	24.5	SS/18	19-45-58	24.5	Continued from page 1		103
25								8b	24.5	
		Brown/Red SILT, some CLAY, trace cmf SAND (moist, hard)								
30		9	28.5	30.0	SS/17	14-17-21	Brown/Red SILT and CLAY, trace mf GRAVEL, trace mf SAND (moist, hard)		38	
35		10	33.5	35.0	SS/15	12-14-20	Similar as above (moist, hard)		34	
40		11	38.5	40.0	SS/18	21-48-86	Augered hard at 37.0’		134	
							Brown/Red SILT, little CLAY, little mf GRAVEL, trace mf SAND (moist, hard)			
							Continued on page 3			

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)			SPT “N” or RQD
			From	To				c – coarse m – medium f – fine	and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %	
40	H O L L O W S T E M A U G E R XXX	12	43.5	44.3	SS/8	100-100@3”		Continued from page 2		100+
45								Brown/Red cmf SAND, some cmf GRAVEL, little ROCK FRAGMENTS, trace SILT (moist, very compact)		
50		13	48.5	50.0	SS/18	38-48-63		Brown cmf SAND, trace fine GRAVEL, trace SILT (moist, very compact)		111
55		14	53.5	55.0	SS/18	39-53-52		Drilled boulder from 51.0’ – 53.2’ Brown fine SAND and ROCK FRAGMENTS, trace SILT (wet, very compact)		105
60								Bottom of Boring @ 55.0’		

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

SUBSURFACE EXPLORATION – TEST BORING LOG**Project:** Ashokan Rail Trail, Ulster County, New York**Report No.:** 27206B-01-0517**Client:** Barton & Loguidice, DPC**Date Started:** 04-06-17**Finished:** 04-06-17**Location of Boring:** See Exploration Location Plan**Elevation of Surface of Boring:**

METHODS OF INVESTIGATION							GROUND WATER OBSERVATIONS					
Casing: 3-1/4" ID H. Stem Auger		Driller: Beau Fletcher		Date		Time		Depth		Casing At		
Casing Hammer:		Driller: Bill Murphy										
Other:		Inspector:		04-06-17		While drilling		35.4'		48.5'		
Soil Sampler: 2" OD Split Barrel		Rod Size: AWJ		04-06-17		Before casing removed		48.6'		53.5'		
Sampler Hammer: Wt. 140 lbs./ Auto		Fall: 30 in.		04-06-17		After casing removed		None Noted		out		
Make & Model of Drill Rig:		CME 550x ATV-Mounted		04-06-17		After casing removed		caved @ 17.5'		out		
LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL					
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine		and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %		SPT "N" or RQD
			From	To								
0	XXX	1	0.0	2.0	SS/14	2-2-5-5		Miscellaneous FILL; black cmf sand, cinders, ash, mf gravel (moist)		7		
5	H O L L O W	2	2.0	4.0	SS/19	5-4-3-4	2.0	Brown mf SAND, trace fine GRAVEL, trace SILT (moist, loose)		7		
		3a	4.0	5.0	SS/21	6-4-2-2	4.0	Brown SILT, little CLAY, little mf SAND, trace mf GRAVEL (moist, medium stiff)		6		
		3b	5.0	6.0			5.0	Brown mf SAND, trace fine GRAVEL, trace SILT (moist, loose)		3		
		4	6.0	8.0	SS/23	2-1-2-1		Similar as above (moist, very loose)		4		
10	S T E M	5	8.0	10.0	SS/24	2-2-2-1		Similar as above (moist, loose)		4		
6		13.5	15.0	SS/16	2-2-2		Similar as above (moist, loose)		4			
15	A U G E R	7	18.5	20.0	SS/18	3-2-2		Similar as above (moist, loose)		4		
20		Continued on page 2										

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %		SPT “N” or RQD
			From	To						
20	H O L L O W S T E M A U G E R	8	23.5	25.0	SS/18	3-2-3		Continued from page 1		5
25								Similar as above (moist, loose)		
30		9	28.5	30.0	SS/15	6-5-8		Similar as above (wet, medium compact)		13
		35	10	33.5	35.0	SS/12		13-17-22	<i>Augered gravelly at 31.0’</i>	
Grey fine SAND, trace SILT (moist, compact)										
40		11	38.5	40.0	SS/14	13-13-15		Grey cmf SAND, little fine GRAVEL, trace SILT (wet, medium compact)		28
		Continued on page 3								

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL				
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)			SPT “N” or RQD	
			From	To				c – coarse m – medium f – fine	and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %		
40	H O L L O W	12	43.5	45.0	SS/18	17-22-23		Continued from page 2		45	
45								Drilled hard at 42.0’			
		S T E M	13	48.5	50.0	SS/13	13-26-60		Brown/Grey SILT, little cmf SAND, little mf GRAVEL, little CLAY (moist, hard)		
50									Red/Brown cmf GRAVEL, some SILT, trace mf SAND (moist, very compact)		
	A U G E R	14	53.5	55.0	SS/18	36-57-101		Brown/Grey mf GRAVEL, some SILT, some ROCK FRAGMENTS, little cmf SAND (moist, very compact) See Remark 1		158	
55							XXX		Bottom of Boring @ 55.0’		
60											

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks: 1. Hole is 44.0' from center of culvert.

SUBSURFACE EXPLORATION – TEST BORING LOG**Project:** Ashokan Rail Trail, Ulster County, New York**Report No.:** 27206B-01-0517**Client:** Barton & Loguidice, DPC**Date Started:** 04-05-17**Finished:** 04-05-17**Location of Boring:** See Exploration Location Plan**Elevation of Surface of Boring:**

METHODS OF INVESTIGATION							GROUND WATER OBSERVATIONS					
Casing: 3-1/4" ID H. Stem Auger		Driller: Beau Fletcher		Date		Time		Depth		Casing At		
Casing Hammer:		Driller: Bill Murphy										
Other:		Inspector:		04-05-17		While drilling		31.0'		33.5'		
Soil Sampler: 2" OD Split Barrel		Rod Size: AWJ		04-05-17		Before casing removed		43.2'		48.5'		
Sampler Hammer: Wt. 140 lbs./ Auto		Fall: 30 in.		04-05-17		After casing removed		None Noted		out		
Make & Model of Drill Rig:		CME 550x ATV-Mounted		04-05-17		After casing removed		caved @ 18.4'		out		
LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL					
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine		and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %		SPT "N" or RQD
			From	To								
0	XXX	1	0.0	2.0	SS/5	2-3-4-5	2.5	Miscellaneous FILL; black cmf sand, cinders, mf gravel (moist)		7		
5	H	2	2.0	4.0	SS/18	4-3-2-1		Brown mf SAND, trace SILT (moist, loose)		5		
	O	3	4.0	6.0	SS/12	3-1-1-2		Brown mf SAND, trace fine GRAVEL, trace SILT (moist, very loose) <i>See Remark 1</i>		2		
	L							Brown mf SAND, trace cmf GRAVEL, trace SILT (moist, loose) <i>See Remark 1</i>		5		
	L							Brown mf SAND, trace fine GRAVEL, trace SILT (moist, loose)		4		
10	O	4	6.0	8.0	SS/14	2-3-2-3						
	W	5	8.0	10.0	SS/21	3-2-2-1						
	S	6	13.5	15.0	SS/14	3-1-1		Similar as above (moist, very loose)		2		
T												
E												
15	M	7	18.5	20.0	SS/8	WH-WH-WH	Similar as above (moist, very loose)		WH			
	A											
	U											
20	G											
	E											
	R											
		Continued on page 2										

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks: 1. No recovery with 2" split spoon sampler, therefore a 3" split spoon sampler was utilized.

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL			
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine	and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %	SPT “N” or RQD
			From	To						
20	H O L L O W S T E M A U G E R	8	23.5	25.0	SS/13	3-1-1		Continued from page 1		2
25								Similar as above (moist, very loose)		
30		9	28.5	30.0	SS/18	12-5-6		Augered gravelly at 26.8'		11
		35	Brown cmf SAND and mf GRAVEL, trace SILT (wet, medium compact)							
10			33.5	35.0	SS/11	18-25-23		Brown mf GRAVEL, some cmf SAND, trace SILT (wet, compact)		48
40		11	38.5	40.0	SS/15	8-15-18		Grey fine SAND, little SILT (wet, compact)		
							Continued on page 3			

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks:

LOG OF BORING SAMPLES							CLASSIFICATION OF MATERIAL		
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet)		Sample Type/ Recovery (Inches)	Blows On Sampler Per 6 inches	Depth Of Change (feet)	c – coarse m – medium f – fine and – 35 to 50 % some – 20 to 35 % little – 10 to 20 % trace – 0 to 10 %	SPT “N” or RQD
			From	To					
40	H O L L O W	12	43.5	45.0	SS/13	9-21-45		Continued from page 2	66
45								Brown/Red SILT, some mf GRAVEL, little CLAY, little cmf SAND (moist, hard) <i>Augered hard from 45.0' – 48.5'</i>	
50								Similar as above (moist, hard)	
55	A U G E R	14	53.5	54.3	SS/6	34-100@3"		Grey cmf GRAVEL and ROCK FRAGMENTS, little SILT, trace mf SAND (dry, very compact) <i>See Remark 2</i>	100+
60								Bottom of Boring @ 55.0'	

SS – Split Spoon, U – Undisturbed Tube, C – Core

Remarks: 2. Hole is 41.0' from center of culvert.

GENERAL INFORMATION & KEY TO TEST BORING LOGS

The **Subsurface Exploration - Test Boring Logs** produced by **CME Associates, Inc.** present the observations and mechanical data collected by the driller while at the site, supplemented, at times, by classification of the materials removed from the borings as determined through visual identification by technicians in the laboratory. It is cautioned that the materials removed from the borings represent only a fraction of the total volume of the deposits at the site and may not necessarily be representative of the subsurface conditions between adjacent borings or between the sampled intervals. The data presented on the Exploration Logs together with the recovered samples will provide a basis for evaluating the character of the subsurface conditions relative to the proposed construction. The evaluation must consider all the recorded details and their significance relative to each other. Often, analyses of standard boring data indicate the need for additional testing and sampling procedures to more accurately evaluate the subsurface conditions. Any evaluations of the contents of CME's report and the recovered samples must be performed by Licensed Professionals having experience in Soil Mechanics and Foundation Engineering. The information presented in this Key defines some of the procedures and terms used on the CME Exploration Logs to describe the conditions encountered. Refer to the Log on page 3 for key number.

Key No.

Description

1. The figures in the **DEPTH SCALE** column define the vertical scale of the Boring Log.
2. **CASING BLOWS/FOOT** - shows the number of blows required to advance the casing a distance of 12 inches. The casing size, the hammer weight and the length of drop are noted under the **Methods of Investigation**. If the casing is advanced by means other than driving, the method of advancement will be indicated under **Methods of Investigation** at the top of the Log. If Hollow Stem Augers or Coring is used, it will be so noted in this column.
3. The **SAMPLE I.D.** is used for identification on the sample containers and in the Laboratory Test Report or Summary.
4. The **DEPTH OF SAMPLE** column gives the exact depth range from which a sample was recovered.
5. The **SAMPLE TYPE/RECOVERY** column is used to signify the various type of sample attempt. "SS" is Split Spoon, "P" is piston tube, "U" is Undisturbed tube. For soil samples, the recovered length of the sample is also indicated, in inches. If a rock core sample is taken, the core bit size designation is given here.
6. **BLOWS ON SAMPLER** - shows the results of the "Standard Penetration Test (SPT) ASTM D1586", recording the number of blows required to drive a split spoon sampler into the soil beneath the casing. The number of blows required for each six inches of penetration is recorded. The total number of blows required for the 6 inch to 18 inch interval is summarized in the **SPT "N"** column and represents the "Standard Penetration Number". The outside diameter of the sampler, the hammer weight and the length of drop are noted in the **Methods of Investigation** portion of the log. A "WH" or "WR" in this column indicates that the sample spoon advanced the 6 inch interval under **Weight of Hammer** or **Weight of Rods**, respectively.
7. The **DEPTH OF CHANGE** column designates the depth (in feet) that the driller noted a compactness or stratum change. In soft materials or soil strata exhibiting a consistent relative density, it is difficult for the driller to determine the exact change from one stratum to the next. In addition, a grading or gradual change may exist. In such cases the depth noted is approximate or estimated only and may be represented by a dashed line.
8. **CLASSIFICATION OF MATERIAL** - **Soil materials** encountered and sampled are described by the driller on the original log. Notes of driller observations are also placed in this column. Recovered samples may also be visually classified by a Soil Technician upon receipt in the Laboratory. Visual sample classification is by **Burmister System** and strata may be classified additionally by the **Unified System**. The **Burmister System** is a type of visual-manual textural classification estimated by the Driller or Technician on the basis of weight-fraction of the recovered soil. See Table 1 "**Classification of Materials**". The description of the relative soil compactness or consistency is based upon the standard penetration number as defined in Table 2. The description of the soil moisture condition is described as dry, moist, wet, or saturated. Water used to advance the boring may have affected the in-situ moisture content of the sample. Special terms are used as required to describe materials in greater detail, such terms are listed in ASTM D653. When sampling gravelly soils with a standard two-inch O.D. Split Spoon, the true percentage of gravel is often not recovered due to the relatively small sampler diameter. The presence of boulders, cobbles, and large gravel is sometimes, but not necessarily, detected by an evaluation of the casing and sampler blows or through the "action" of the drill rig as reported by the driller.

CME Associates, Inc.
General Information and Key to the Test Boring Logs

8. CLASSIFICATION OF MATERIAL (continued)

The Description of **Rock** is based upon the recovered rock core. Terms frequently used in the description are included in Table 3. The length of core run is defined as length of penetration between retrievals of the core barrel from the bore hole, expressed in inches. The core recovery expresses the length of core recovered from the core barrel per core run, in percent. The size core barrel used is noted in **Column 5**. The more commonly used sizes of core barrels are denoted "AX" and "NX". An "NX" core, being larger in diameter than "AX" core, often produces better recovery, and is frequently utilized where accurate information regarding the geologic conditions and engineering properties is needed. A better estimate of in-situ rock quality is provided by a *modified core recovery ratio* known as the "**Rock Quality Designation**" (**RQD**). This ratio is determined by considering only pieces of core that are at least 4 inches long and are hard and sound. Breaks obviously caused by drilling are ignored. The diameter of the core should preferably be not less than 2 inches (NX). The percentage ratio between the total length of such core recovered and the length of core drilled on a given run is the RQD. Table 4 gives the rock quality description as related to the **RQD**.

9. The **SPT "N"** or **RQD** is given in this column as applicable to the specific sample taken. In Very Compact coarse grained soils the N-value may be indicated as 50+, and in Hard fine-grained soils the N-value may be indicated as 30+. This typically means that the blow count was achieved prior to driving the sampler the entire 6 inch interval or the sampler refused further penetration. For "NX" rock cores, the RQD is reported here, expressed in percent.

10. **GROUND WATER OBSERVATIONS** and timing noted by the driller are shown in this section. It is important to realize that the reliability of the water level observations depend upon the soil type (water does not readily stabilize in a hole through fine grained soils), and that drill water used to advance the borings may have influenced the observations. Ground water levels typically fluctuate seasonally so those noted on the log are only representative of that exhibited during the period of time noted on the log. One or more perched or trapped water levels may exist in the ground seasonally. All the available readings should be evaluated. If definite conclusions cannot be made, it is often prudent to examine the conditions more thoroughly through test pit excavations or ground water observation well installations.

TABLE 1 - VISUAL CLASSIFICATION OF MATERIALS (BURMISTER)			
GROUP		TEXTURAL CLASSIFICATION SIZES	
BOULDERS		larger than 12" diameter	
COBBLES		12" diameter to 3" sieve	
GRAVEL		3" - coarse - 1" - medium - 1/2" - fine - #4 sieve	
SAND		#4 - coarse - #10 - medium - #40 - fine - #200 sieve	
SILT		#200 sieve (0.074mm) to 0.005mm size (see below *)	
CLAY		0.005mm size to 0.001mm size (see below *)	
ABBREVIATIONS		PERCENT OF TOTAL SAMPLE BY WEIGHT	
f - fine		and	35 to 50%
m - medium		some	20 to 35%
c - coarse		little	10 to 20%
		trace	0 to 10%
*PLASTICITY DESCRIPTIONS			
TERM	PLASTICITY INDEX	DRY STRENGTH	FIELD TEST
Non-plastic	0 - 3	Very low	falls apart easily
Slightly plastic	4 - 15	Slight	easily crushed by fingers
Plastic	15 - 30	Medium	difficult to crush
Highly plastic	31 or more	High	impossible to crush with fingers

TABLE 2 - DESCRIPTION OF SOIL COMPACTNESS OR CONSISTENCY based on SPT "N"*		
Primary Soil Type	Descriptive Term of Compactness	Range of Standard Penetration Resistance (N)
COARSE GRAINED SOILS	Very loose	less than 4 blows per foot
(More than half of Material is larger than No. 200 sieve size.)	Loose	4 to 10
	Medium compact	10 to 30
	Compact	30 to 50
	Very compact	Greater than 50
FINE GRAINED SOILS	Descriptive Term of Consistency	Range of Standard Penetration Resistance (N)
(More than half of material is smaller than No. 200 sieve size.)	Very soft	less than 2 blows per foot
	Soft	2 to 4
	Medium stiff	4 to 8
	Stiff	8 to 15
	Very stiff	15 to 30
	Hard	Greater than 30

*The number of blows of 140 pound weight falling 30 inches to drive 2 inch O.D., 1-3/8 inch I.D. sampler 12 inches is defined as the Standard Penetration Resistance designated "N".

TABLE 3 - ROCK CLASSIFICATION TERMS		
Rock Classification Terms		Field Test or Meaning of Term
Hardness	Soft	Scratched by fingernail
	Medium Hard	Scratched easily by penknife
	Hard	Scratched with difficulty by penknife
	Very Hard	Cannot be scratched by penknife
Weathering	Very Weathered Weathered Sound	Judged from the relative amounts of disintegration, iron staining, core recovery, clay seams, etc.
Bedding (Natural Breaks in Rock Layers)	Laminated Thinly bedded Bedded Thickly bedded Massive	less than 1 inch 1 inch to 4 inches 4 inches to 12 inches 12 inches to 36 inches greater than 36 inches

TABLE 4 Relation of Rock Quality Designation (RQD) and in-situ Rock Quality	
RQD (%)	Rock Quality Term Used
90 to 100	Excellent
75 to 90	Good
50 to 75	Fair
25 to 50	Poor
0 to 25	Very Poor

BORING NO.: B-1

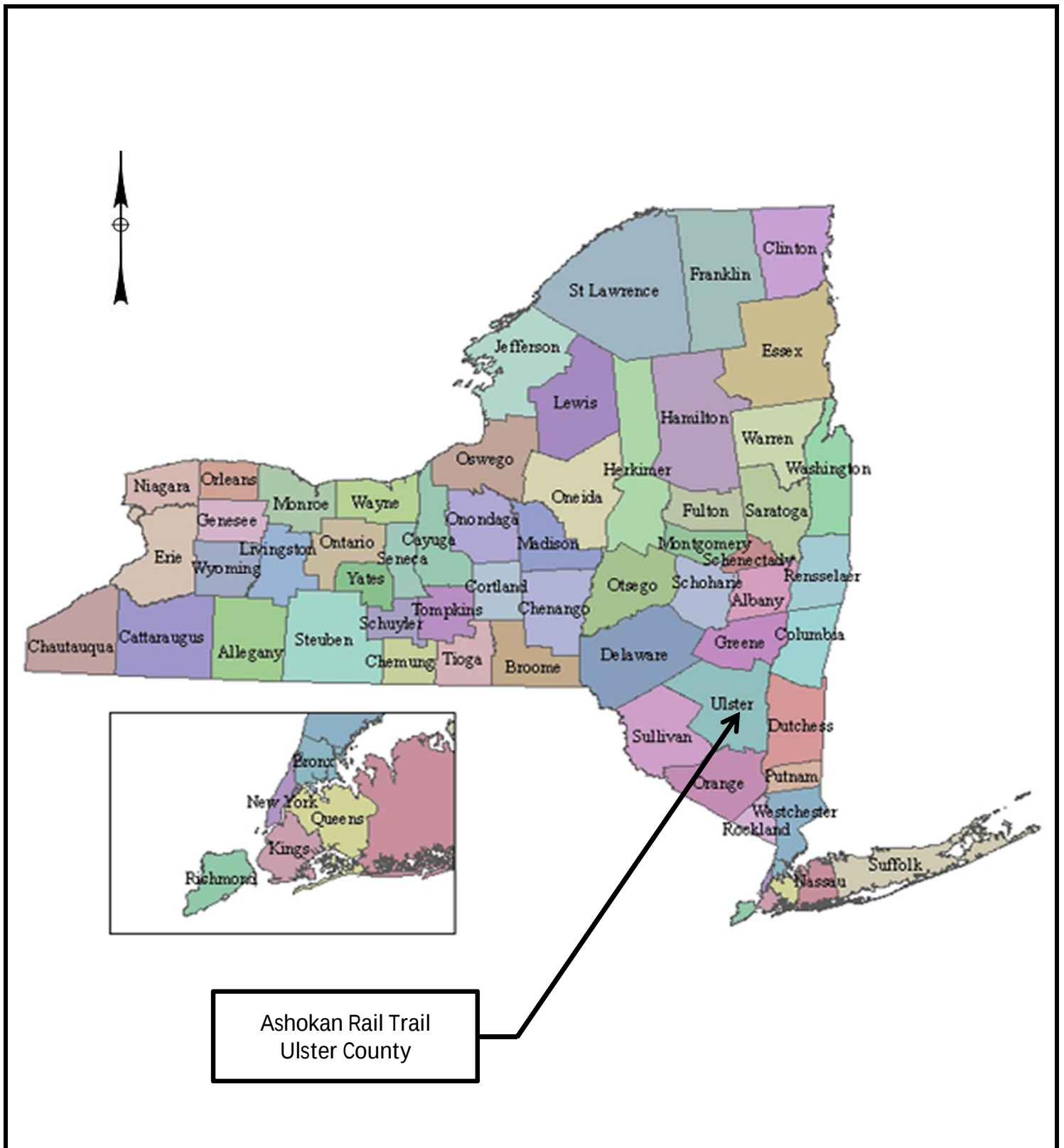
Page 1 of 1

SUBSURFACE EXPLORATION - TEST BORING LOG

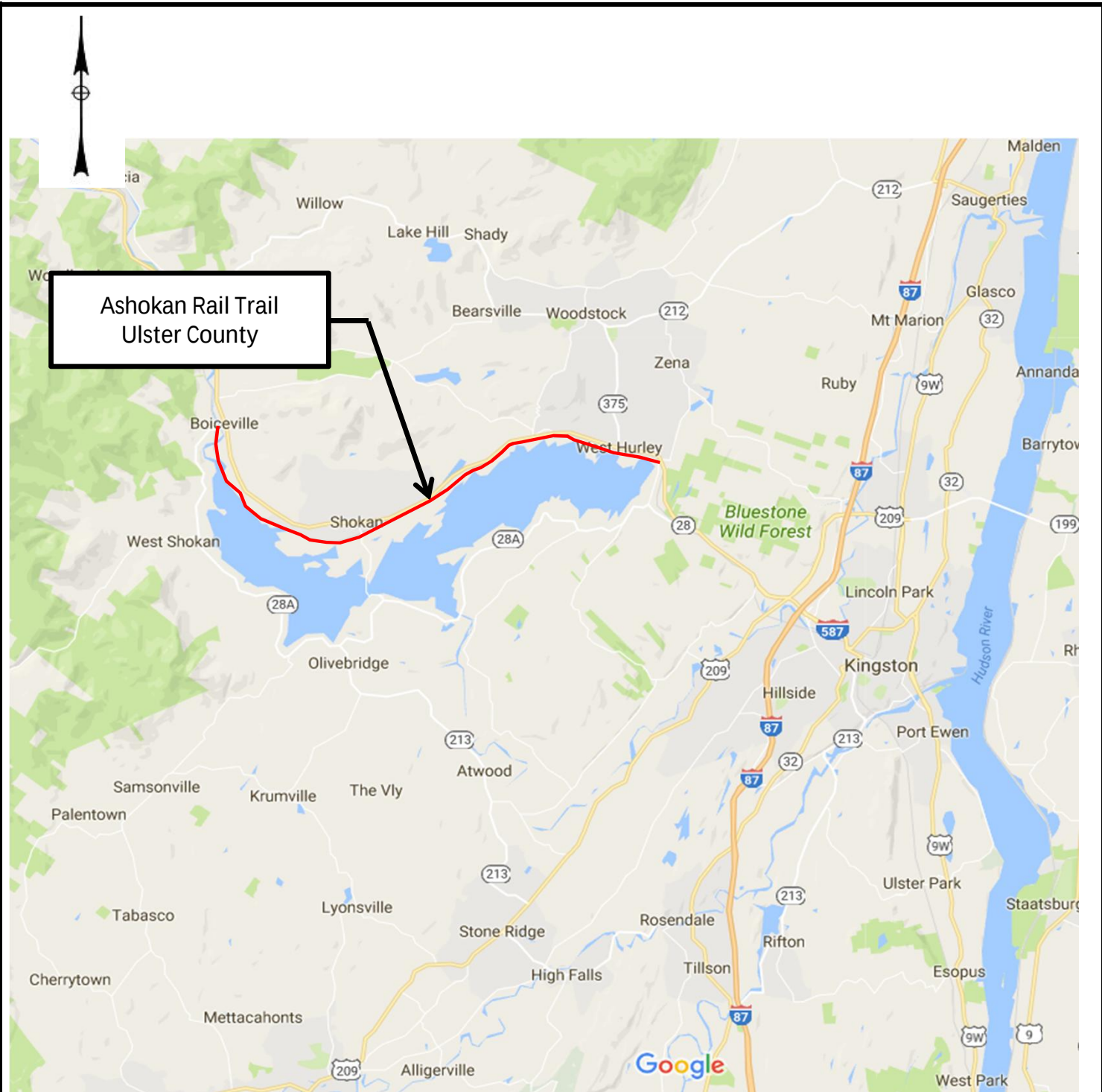
Project:					Report No.:					
Client:					Date Started:			Finished:		
Location of Boring:					Elevation of Surface of Boring:					
METHODS OF INVESTIGATION					GROUND WATER OBSERVATIONS					
Casing: 3-1/4" I.D. Hollow Stem Auger Hammer: Other: Soil Sampler: 2" O.D. Split Barrel Rod Size: Sampler Hammer: Wt. 140 lbs. Fall: 30 in. Make & Model of Drill Rig:					Date	Time	Depth	Casing At		
						While drilling				
						Before casing removed				
						After casing removed				
LOG OF BORING SAMPLES					CLASSIFICATION OF MATERIAL					
Depth Scale (Feet)	Casing Blows/ Foot	Sample I.D.	Depth of Sample (Feet) From	To	Sample Type/ Recovery (inches)	Blows on Sampler Per 6 inches	Depth of Change (feet)	f - fine m - medium c - coarse	and - 35 to 50% some - 20 to 35% little - 10 to 20% trace - 0 to 10%	STP "N" or RQD
1	2	3	4	4	5	6	7	8	9	

Denotes Key Number (see page 1)

Soil Boring Locations



Ashokan Rail Trail
Ulster County

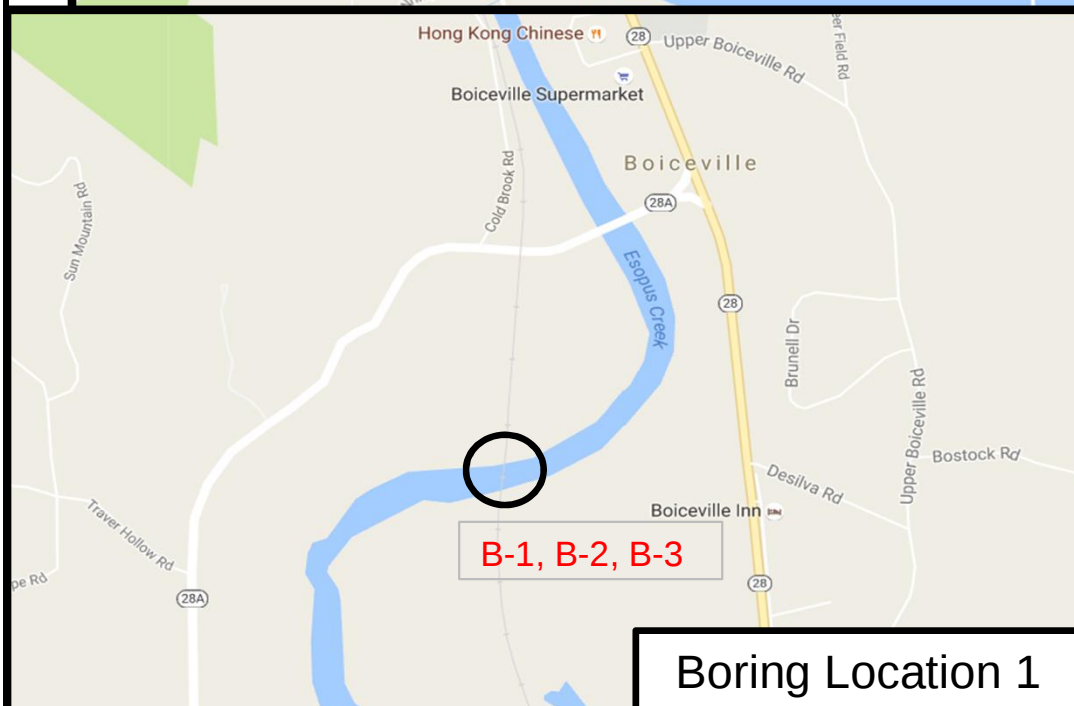
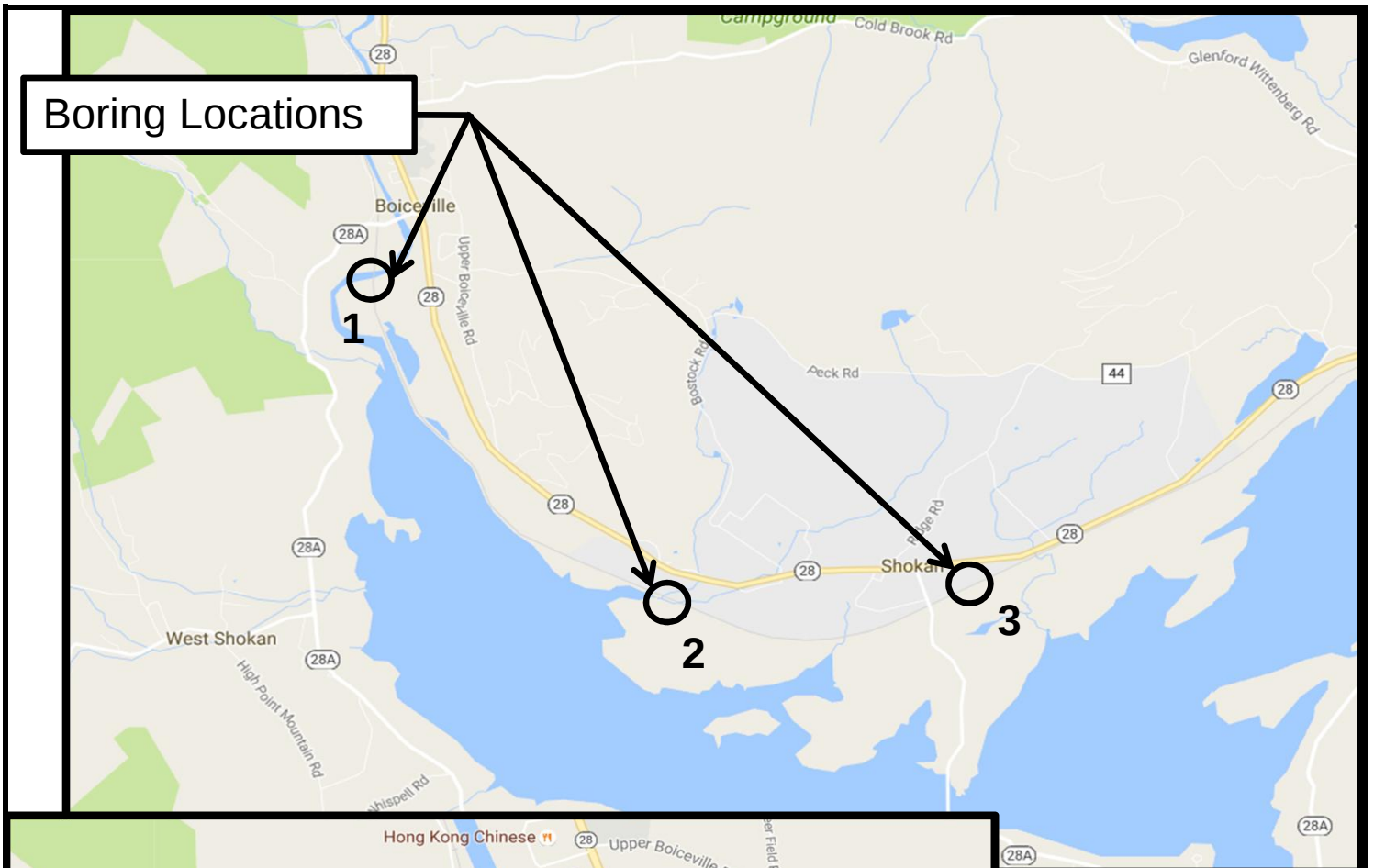


Ulster County

Ashokan Rail Trail

Source: Google Maps

November 2016



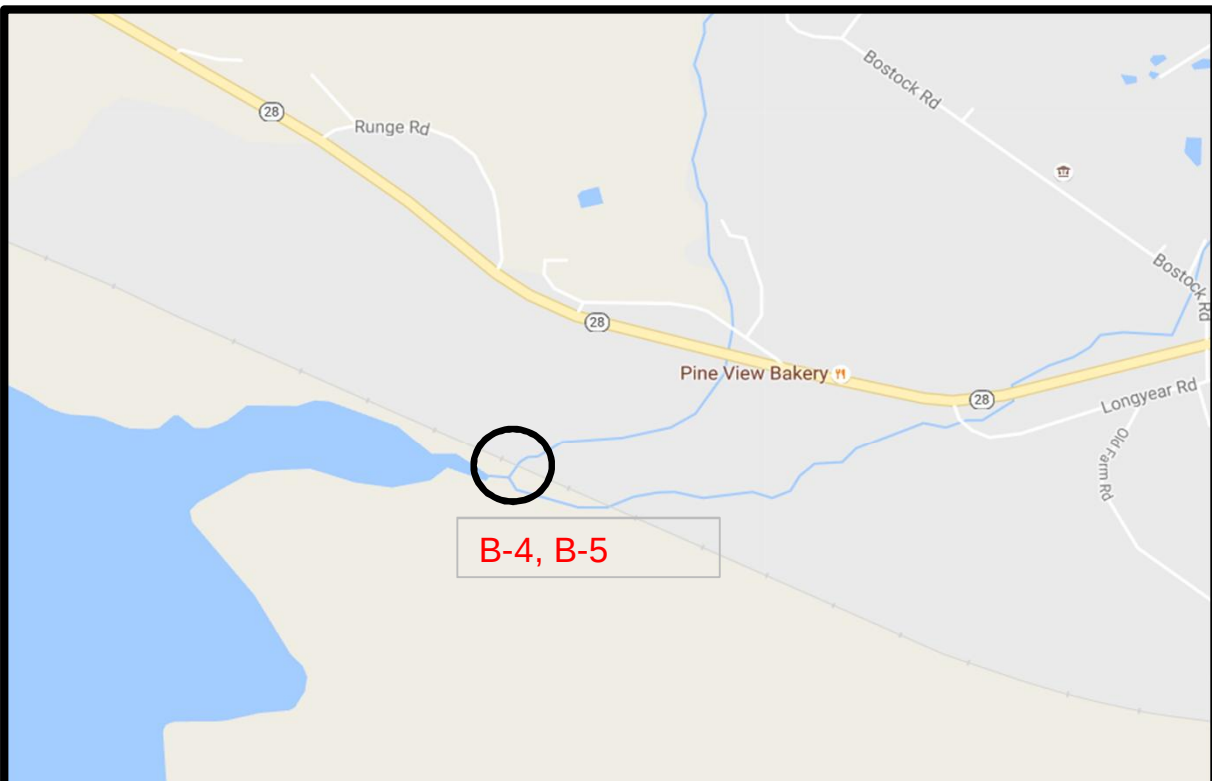
Ulster County

Ashokan Rail Trail

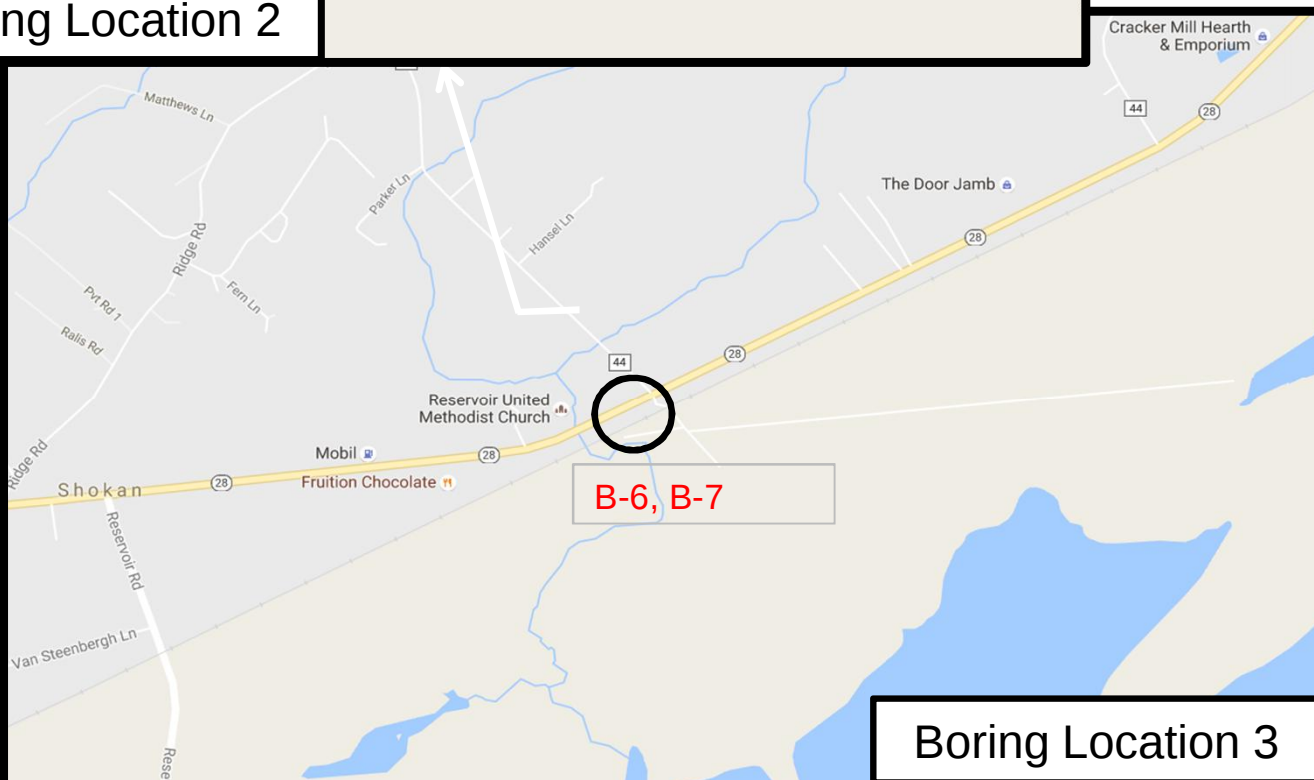
Source: Google Maps

November 2016

Barton & Loguidice, D.P.C.
 Engineers • Environmental Scientists • Planners • Landscape Architects



Boring Location 2



Boring Location 3

Ulster County

Ashokan Rail Trail

Source: Google Maps

November 2016



**Figure 2 –
Soil Boring Locations and Site Access Map**



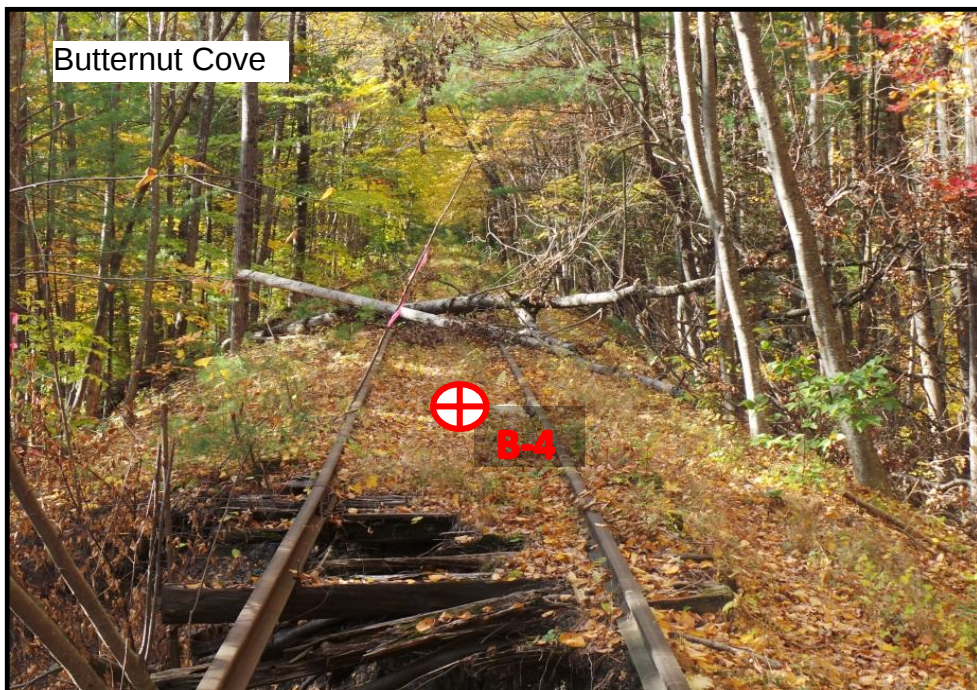
**Figure 3 –
Site Photos**



Boring 1: Boiceville Railroad Trestle West Approach

B-2 Not Completed Due to Access and Weather Conditions

B-3 Not Completed Due to Access and Weather Conditions

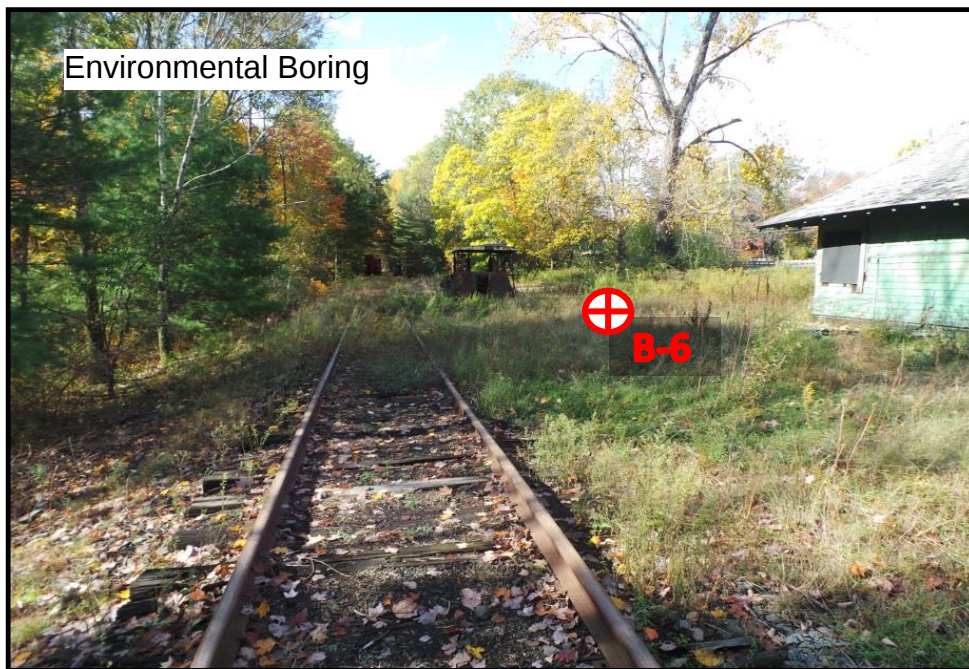


Boring 4: Looking West from Center of Existing Culvert



Butternut Cove

Boring 5: Looking East from Center of Existing Culvert

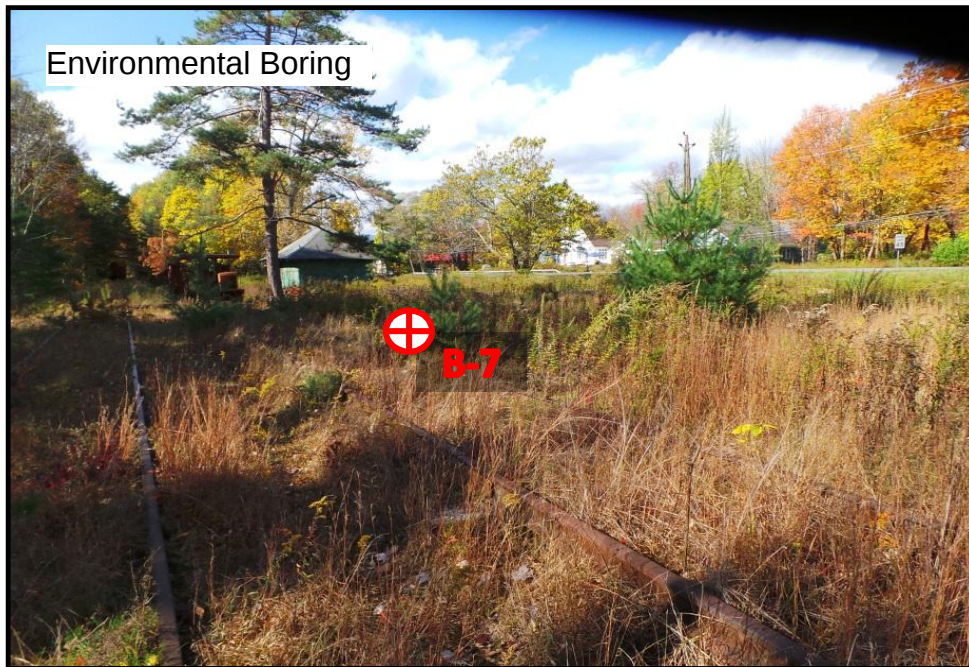


Environmental Boring

Boring 6: Looking west from existing railroad tracks

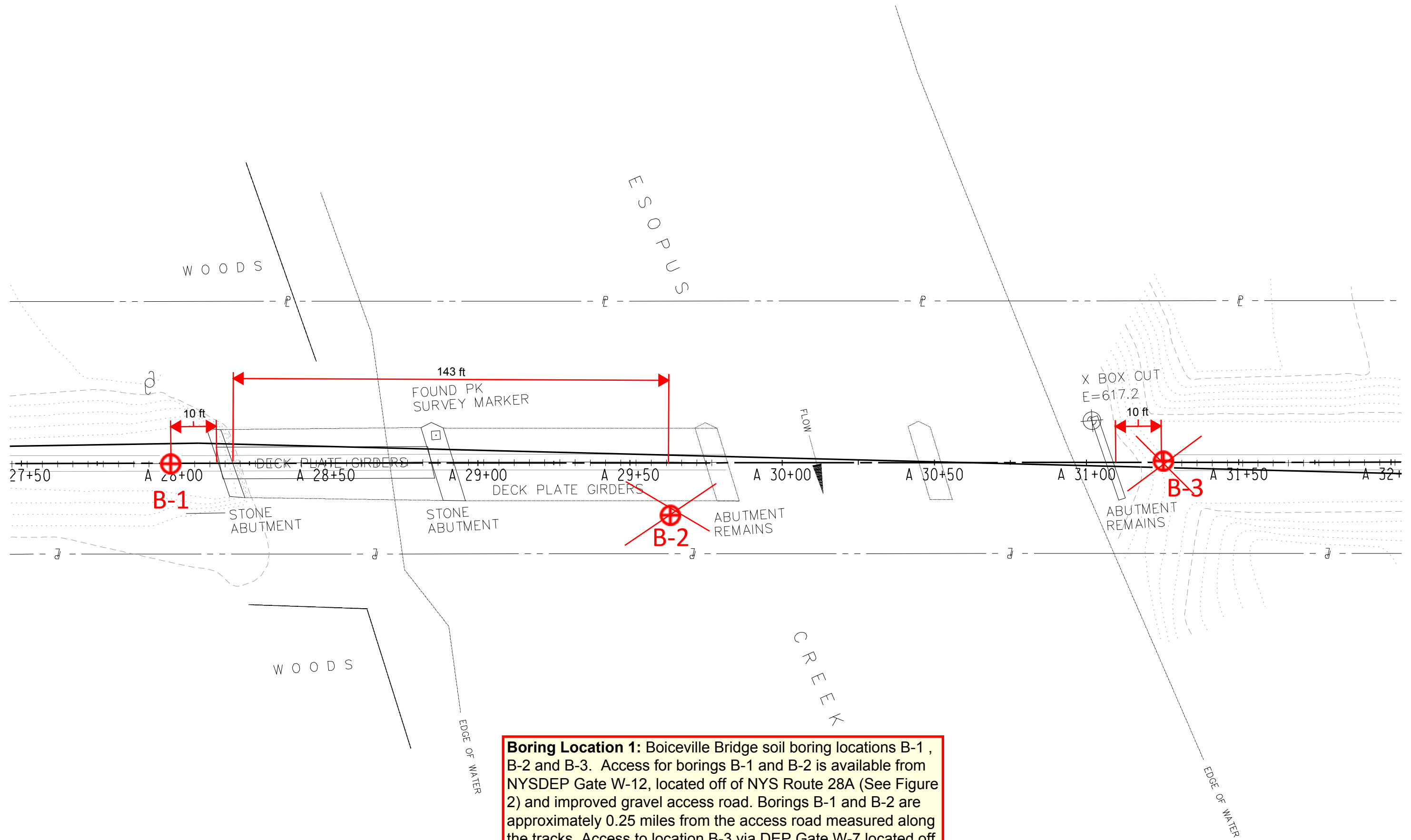


Boring 6: Looking East at proposed trailhead location

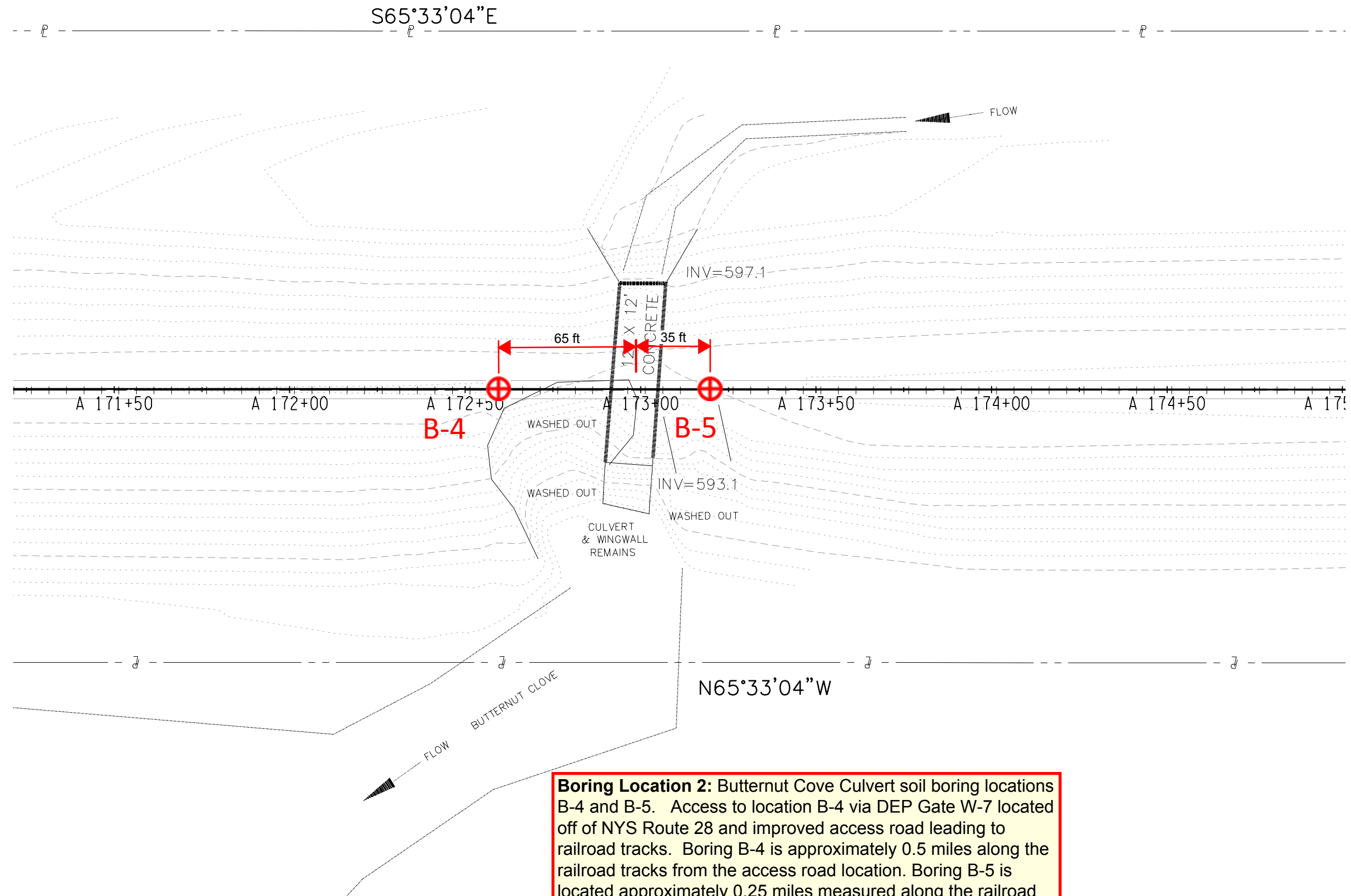


Boring 7: Looking West from existing railroad tracks

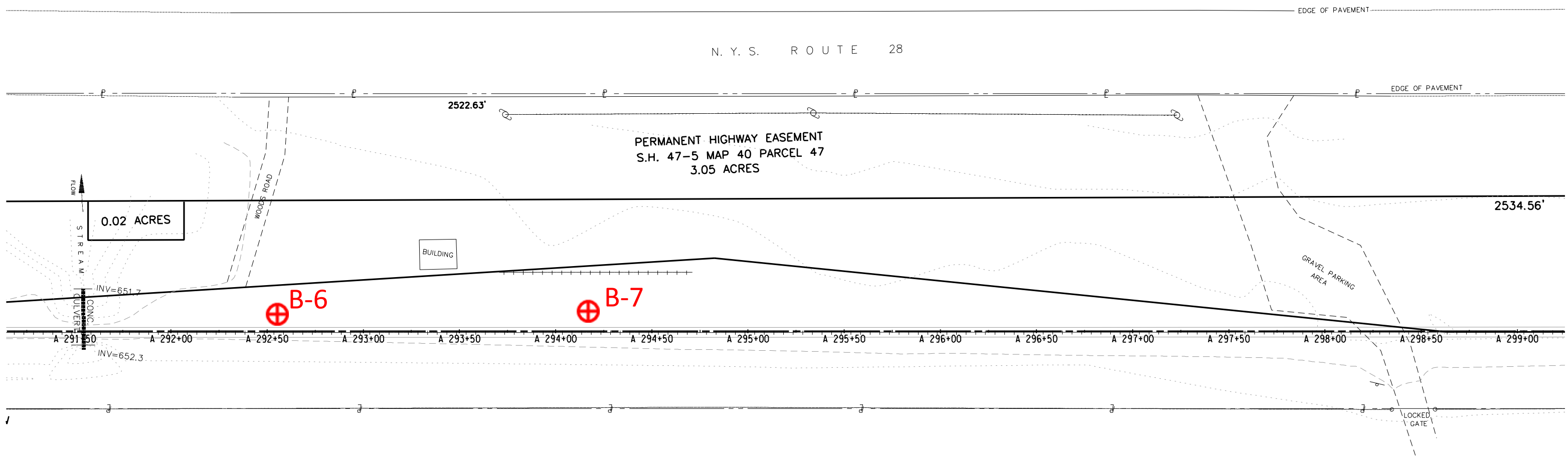
**Figure 4 –
Detailed Soil Boring Locations**



Boring Location 1: Boiceville Bridge soil boring locations B-1 , B-2 and B-3. Access for borings B-1 and B-2 is available from NYSDEP Gate W-12, located off of NYS Route 28A (See Figure 2) and improved gravel access road. Borings B-1 and B-2 are approximately 0.25 miles from the access road measured along the tracks. Access to location B-3 via DEP Gate W-7 located off of NYS Route 28 and improved access road leading to railroad tracks. Boring B-3 is approximately 2 miles along the railroad tracks from the access road location.



Boring Location 2: Butternut Cove Culvert soil boring locations B-4 and B-5. Access to location B-4 via DEP Gate W-7 located off of NYS Route 28 and improved access road leading to railroad tracks. Boring B-4 is approximately 0.5 miles along the railroad tracks from the access road location. Boring B-5 is located approximately 0.25 miles measured along the railroad tracks from the access road. Access road DEP Gate W-5 is located off of Long Year Rd (see figure 2).



Boring Location 3: Trailhead soil boring locations B-6 and B-7. Access available from NYS Route 28. Soil samples will be retained for laboratory sampling. Locations of soil borings are approximate and will be confirmed prior to soil sampling.