

GEOTECHNICAL STUDY

**CONSTRUCTION OF THE
NEW BRITAIN - HARTFORD BUSWAY
ConnDOT Project 171-305**

**Proposed Retaining Wall #103
Busway Sta 168+00 to Sta 176+75 (Left)**

**Prepared for:
Close, Jensen & Miller, P.C.**

**Prepared by:
Dr. Clarence Welti, P. E., P. C.**

April, 2011



GEOTECHNICAL STUDY

**CONSTRUCTION OF THE
NEW BRITAIN - HARTFORD BUSWAY
ConnDOT Project 171-305**

**Proposed Retaining Wall #103
Busway Sta 168+00 to Sta 176+75 (Left)**

**Prepared for:
Close, Jensen & Miller, P.C.**

**Prepared by:
Dr. Clarence Welti, P. E., P. C.**

April, 2011



1.0 Introduction and Background:

1.1 This study addresses the geotechnical requirements for the design of Retaining Wall #103 to be constructed as part of the New Britain to Hartford Busway project. The subject wall will be located along the left (westerly) edge of the Multi-Use Trail from about Sta 168+0 to Sta 176+75. The face of the wall will be located 28.5 feet laterally to the west of the Busway baseline. The wall will retain the embankment beneath the Multi-Use Trail and mitigate fills into wetlands. This study addresses the geotechnical recommendations pertaining to the design and construction of the wall.

1.2 Retaining Wall 103 will consist of a proprietary system to be approved by the Connecticut DOT. The wall will be located laterally about 28.5 feet off the Busway baseline and will support the embankment fills along the edge of the Multi-Use Trail. The fill heights will range up to about 10 feet above the existing grades at the face of the wall. The overall height of the wall from top of backfill to foundation bottom will be up to 12± feet. The foundations will bear on the soils. There do not appear to be any unusual construction considerations pertaining to Wall #103 based on the topographic and test boring information. Careful attention to construction sequence and procedures will be required at the interface with the proposed box culvert to be located at Sta 174+80.

1.3 There will be requirements for temporary shoring to avoid encroaching into the wetland areas. The shoring will be located no more than 3 feet laterally off the wall's exterior face. The sheet pilings will be cut off at ground elevation in front of the wall and left in place to avoid disturbing the new foundations. The sheeting pilings required for this wall construction will fall within the scope of the Standard Specifications Form 816. Temporary Sheet Piling, Sheet Pilings Left in Place and Cofferdam & Pumping are contractor provided items.

1.4 The design of the wall will be completed in U.S. Customary Units and in accordance with the LRFD method. It is presumed that the designs for temporary shoring can be completed with other methods such as Allowable Stress Design (ASD) or Load Factor Design (LFD).

1.5 Field exploration for the proposed wall included five test borings, RW-105-2 through RW-105-6, drilled by Associated Borings Company, Inc. in August, 2007. Eight supplemental boring, RW-103-X-1 through RW-103-X-8, were drilled in March, 2011, by Associated Borings Company. The supplemental borings were required because the retaining wall was relocated substantially from the preliminary design alignment. The borings were drilled with a 2.5" dia. hollow stem auger to a maximum depth of 35 feet below the existing grades. The standard penetration tests and soil sampling was accomplished with a standard 2" dia. split spoon sampler using a 140 pound hammer and a hammer fall of 30 inches. ~~Four~~^{Three} of the test borings drilled by Seaboard Drilling, Inc. in March of 2003 for the pilot subsurface investigation are included herein. Those borings are RB-16, RB-24 and SB-39 and are included in the appendices. Baker Engineering NY performed the inspection services for the pilot program. The August, 2007 borings were drilled for the earlier layout of Wall #105 under the previous design submission. Those borings were taken at the opposite side of the rail line from the location of the currently proposed Wall #103.

2.0 Geology and Soils Cross Section + Soil Properties:

2.1 The **Geologic Origin** of the natural soils (beneath the fills) at the site and environs consist predominantly of glacial lake deposits atop the bedrock or possibly overlying a thin stratum of glacial moraine atop the rock. The glacial lake deposits consist generally of fine to medium sand and gravel, trace silt or clayey fine sand and silt. The bedrock from geologic mapping is Portland Arkose (Sandstone or Siltstone).

2.2 The **Soils/Rock Cross Sections** from the borings are generally as follows:

RW-105-2 (Sta 168+0 R; Elev. 77.4):

FILL: Fine to medium SAND, some Silt and Gravel to 3 feet, medium compact

FILL; Fine SAND, some Silt, trace Gravel to 16 feet, medium compact to dense

Fine to coarse SAND, SOME Gravel, trace Silt to 30+ feet, medium compact

Boring RW-105-3 through RW-105-6 (Sta 170+0 R to Sta 177+0 R; Elev. 76.9 to Elev. 74.8):

FILL; fine to medium SAND, trace to some Gravel and Silt to 9 to 12 feet

Locally (RW-105-4 and -5); Fine SAND and SILT, little Organic Silt layers to 12 to 16 feet, loose to medium compact

Strata of Clayey SILT, little fine to medium Sand or fine SAND, some Silt to 30+ feet, loose to medium compact

RB-16 (Sta 168+40; Elev. 77.5) and SB-39 (Sta 174+70; Elev. 75.2):

FILL; Fine to coarse SAND, SOME Gravel, trace Silt to 4 to 4.5 feet, medium compact to dense

At RB-16 FILL; Fine to medium SAND, little Silt, trace Gravel to 12 feet, medium compact

At SB-39 FILL; Fine to coarse SAND, some Gravel, trace Silt to 10.5 feet, medium compact

At RB-18; stratum of Organic SILT, little fine Sand from 12 feet to 13.5 feet, loose to medium compact

Strata of SILT with trace fine to medium Sand and Clay to 16.5 feet at RB-16 to 44 feet at SB-39, medium compact to dense

TILL; Fine to coarse SAND and GRAVEL, little Silt, trace Rock Fragments to the top of Rock at 45.5 feet below grade at SB-39, dense

RB-24 (Sta 171+20, Elev. 67.7):

FILL; SILT, trace fine Sand, dense

Organic SILT, trace fine Sand to 6 feet, loose to very loose

Fine to medium SAND, little Silt, trace Gravel to 8 feet, medium compact

TILL; Fine to coarse SAND and GRAVEL, little Silt to 10+ feet, dense

RW-103-X-1, (Sta 168+0, Elev. 76.5), RW-103-X-2, (Sta 169+0, Elev. 76.0), RW-103-X-3, (Sta 170+0, Elev. 76.1), RW-103-X-6, (Sta 174+0, Elev. 75.5):

FILL; fine to medium SAND, some Gravel, Silt, Brick and Wood to 7 to 10 feet, loose

Fine to medium SAND, some Silt and Gravel to 14 to 25+ feet, medium compact to dense

SILT to 28 to 30+ feet, loose to medium compact

At boring RW-103-X-6; fine to medium SAND, some Silt and Gravel, little Silt layers to 35+ feet, loose to medium compact

RW-103-X-4, (Sta 172+0, Elev. 68.2), RW-103-X-5, (Sta 173+0, Elev. 75.2), RW-103-X-7, (Sta 176+0, Elev. 69.7), RW-103-X-8, (Sta 176+75, Elev. 74.6):

FILL; fine to medium SAND, some Gravel, Silt, Brick and Wood to 7 to 11 feet, loose to medium compact

At boring RW-103-X-4; Soft PEAT to 6 feet

At boring RW-103-X-4 and X-5; medium stiff CLAY to 7 to 18 feet

SILT to 18 to 28 feet, medium compact to locally loose

Fine to medium SAND or fine to coarse SAND, some Silt to 25+ to 35+ feet, medium compact

The water table was evident at 15 feet below grade on boring completion

2.2.1 Borings RW105-2, RW105-3, RW105-6 and RB-16 were taken to the right of the Busway centerline. The soils below the existing fills are similar to the soils at the proposed wall location.

2.3 The Groundwater was observed in most of the 2007 and 2011 bore holes at depths of 9 to 15 feet below grade, which is generally close to the bottom of the existing fills (Elev. 67.5 to Elev. 60). At boring RB-24 the groundwater was observed at the ground surface Elev. 67.7. At boring RW-103-X-4 the water table was at 1.5 feet below grade just above the shallow Peat layer or about Elev. 68. At boring RW-103-X-7 was observed at 5 feet below grade in the existing fills or about Elev. 64.6.

2.4 Regarding the **Soil Properties** the following will apply:

New Backfill (Material of Section 3.3 below):

Unit Weight (moist)	125 pcf
Water Content	6 to 8%
Angle of Internal Friction	34°

Existing Fills:

Unit Weight	120 to 125 pcf
Submerged Unit Weight:	62 to 65 pcf
Angle of Internal Friction	32° to 34°
Stiffness Modulus	400+ Tons/sf

Natural Sand and Gravel Deposits:

Unit Weight	125 pcf
Submerged Unit Weight	66 pcf
Angle of Internal Friction	34°
Stiffness Modulus	600 to 800+ Tons/sf

Natural Silt Deposits:

Unit Weight	120 pcf
Submerged Unit Weight	60 pcf
Angle of Internal Friction	29° to 30°
Stiffness Modulus	200 tons/sf

Organic Silt

Unit Weight	110 pcf
Submerged Unit Weight	60 pcf
Angle of Internal Friction	20°

Glacial Moraine, Till:

Unit Weight	130 pcf
Submerged Unit Weight	70 pcf
Angle of Internal Friction	36° to 38°
Typical Stiffness Modulus	>1,000 tons/sf

Notes:

The above soil parameters can be used for the design of temporary shoring.

The values of internal friction angle cited are estimated from SPT data

2.5 Some of the natural soils and existing fills will be susceptible to remolding under equipment when wet from ground water or stormwater onto the exposed subgrades.

3.0 Foundations and Design Considerations:

3.1 Regarding **Design of the Wall**, the soil bearing, overturning and sliding must be addressed in the foundations. The **Criteria for Foundation Type and Loading** are assumed as follows:

1. The maximum total settlement shall not exceed 1.5" and the maximum differential settlement shall not exceed ½ of the maximum settlement.
2. The seismic section of the ConnDOT and AASHTO bridge design specifications will not apply to the subject walls with height less than 25 feet.

3.2 The recommended **Foundation Type** is with spread footings. The footings shall be on the inorganic soils at least 3 feet below the existing grades to be below any frost disturbed soils, or on a controlled fill after the removal of any organic deposits from beneath the foundations (see area at RB-24). The removal of organic deposits will probably extend below the water table. The excavations would have to be dewatered to permit placement of the underlay materials. In general, the footings will largely fall below the existing grades at the base of the existing embankment with the footing bottom ranging from estimated Elev. 61 to Elev. 65±. Regarding establishment of an ultimate bearing capacity, the ultimate loading is based on the internal friction angle, which is related to the soil density and overburden weight. Based on the sample blow counts in the fills the angle of internal friction is at least 32°, which indicates an ultimate capacity of at least 20 ksf. The AASHTO LRFD resistance factor based on friction angle estimated from SPT data would be $\phi_R = 0.35$. This indicates a design bearing resistance of about 6 to 7 ksf. Based on review of LRFD programs, particularly as relates to reduction for inclined loading, a significant reduction from ultimate bearing capacity is indicated, based on the ratio of lateral loading to vertical loading. This reduction is almost double the reduction for the ASD procedure. **To address this reduction it is suggested that the more appropriate LRFD value for ϕ be 0.50.** Based on a minimum stiffness modulus of 400 Tons/sf the recommended design bearing resistance is 4 ksf to maintain settlements within the design criteria.

3.2.1 There shall be compacted granular fill conforming to Form 816, section M.02.01, as underlay beneath the wall footings. For footings falling on the natural soils the underlay shall be at least 6" thick, and at least 12" thick for footings on the existing fills. The granular fill shall be compacted to at least 95% of modified optimum density. The compacted granular fill will provide a uniformly stiff surface to receive the footings. Where the subgrades are in saturated silts, the initial 6" layer shall be with No. 8 crushed stone. ***Based on presence of organic deposits and subgrades that will fall in varying conditions of the natural soils and existing fills, Dr. Clarence Welti, P.E., P.C. should perform periodic review of the exposed subgrades to confirm conformance with the above criteria.***

3.3 The required backfill for the walls shall be Pervious Structure Backfill in accordance with ConnDOT Form 816, M.02.05. This material will have a unit weight of 125 pcf and internal friction angle of 34°.

3.4 The ultimate friction angle between the concrete and soil at the footing base is about 30°. This would result in ultimate sliding factor of **0.60**, based on AASHTO criteria. The applicable resistance

factor for sliding of pre-cast concrete on the soil can be $\phi_R = 0.90$ and for cast in place concrete the factor is $\phi_R = 0.80$.

3.5 Regarding Lateral Earth Pressure, design of the free standing walls can be based on active earth pressure using the active pressure coefficient $K_A = 0.28$ (level backfill). The design lateral loads may have to include a live load surcharge (usually up to 2 feet of soil) dependent on the distance of the walls from traffic lanes. The subject wall geometry and soil conditions will be similar to Retaining Wall #104. The maximum height of Wall #103 will be less. The global stability analysis that was carried out for Wall #104 is applicable. *Thus, it is recommended that for proprietary Wall #103 the foundations and backfill shall extend laterally behind the wall for a distance equal to at least 3/4 of the total wall height for heights of 8 feet or greater. This will provide a global safety factor of at least 1.3.*

3.6 Regarding groundwater mitigation, there shall be 6" structure under drains placed at the appropriate height behind the entire wall.

3.7 Summary of Preliminary Foundation Design Parameters for Wall #103:

PARAMETER	LRFD DESIGN VALUE	ULTIMATE RESISTANCE	COMMENTS
Design Bearing Resistance	4 ksf (based on settlement)	20+ ksf	Resistance factor $\phi_R = 0.35$
Backfill Unit Weight *	125 pcf	–	ConnDOT Form 816 M.02.05
Angle of Internal Friction ϕ_1 (Backfill) *	34°	–	Compacted Pervious Backfill 95% of MOD
Sliding Factor, pre-cast concrete on soil	0.54	0.60	Resistance factor $\phi_R = 0.90$
Sliding Factor, cast in place concrete on soil	0.48	0.60	Resistance factor $\phi_R = 0.80$
Interface Friction Angle Concrete to Backfill, δ	21°	30°	Value from AASHTO LRFD Manual
Active Pressure Coefficient, K_A (Backfill)	0.28	–	
Frost Protection Depth	4 feet	–	ConnDOT Bridge Design Guide

* For Backfill conforming to Pervious Structure backfill (section M.02.05)

4.0 Report Conditions: This report has been prepared for specific a application to the subject

project in accordance with generally accepted soil and foundation engineering practices. No other warranty, express or implied, is made. In the event that any changes in the nature, design and location of structures are planned, the conclusions and recommendations contained in this report should not be considered valid unless the changes are reviewed and conclusions of this report modified or verified in writing.

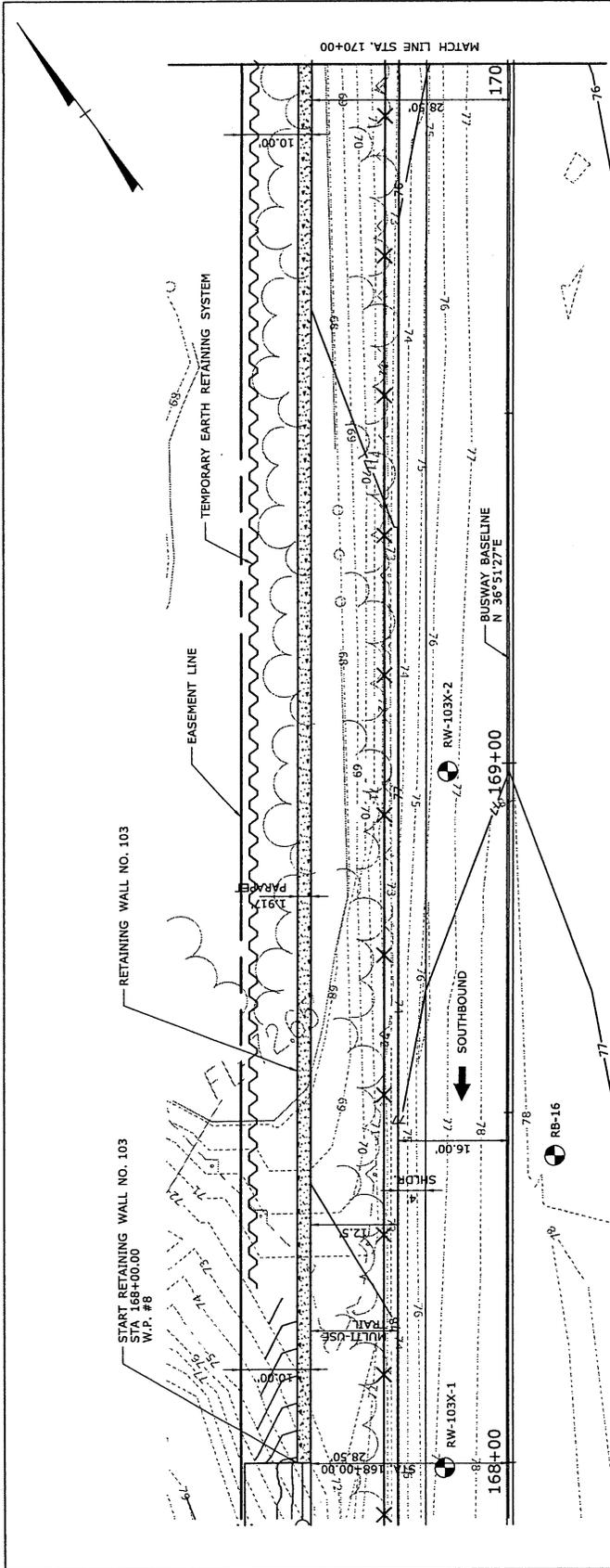
The analyses and recommendations submitted in this report are based in part upon data obtained from referenced explorations. The extent of variations between explorations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations of this report.

Dr. Clarence Welti, P.E., P.C., should perform a general review of the final design and specifications in order that geotechnical design recommendations may be properly interpreted and implemented as they were intended.

APPENDIX 1

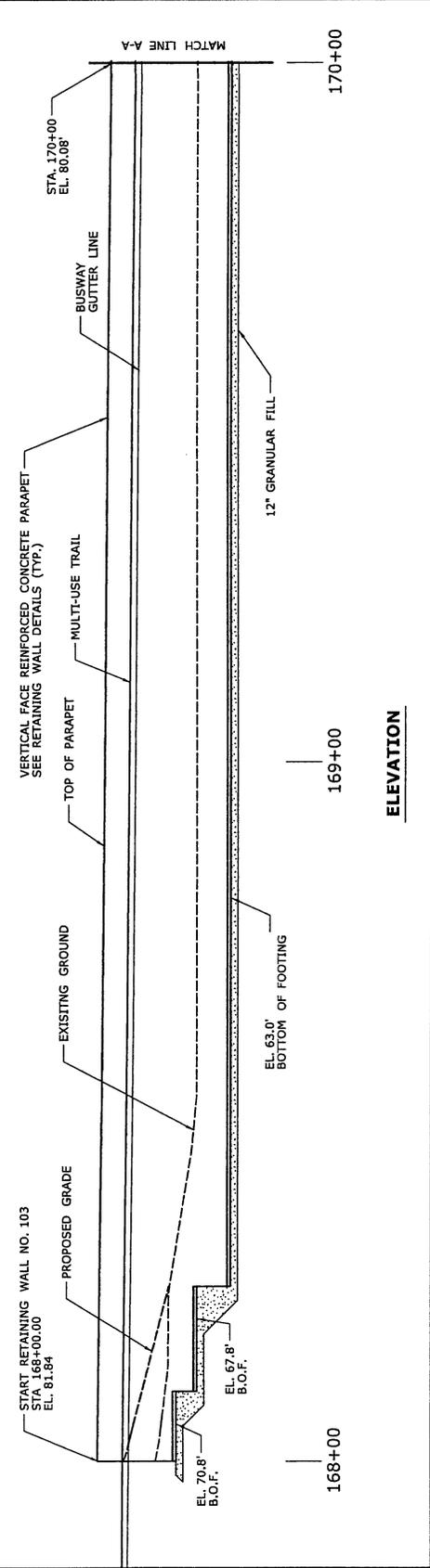
TEST BORING LOGS

BORING LOCATION PLAN

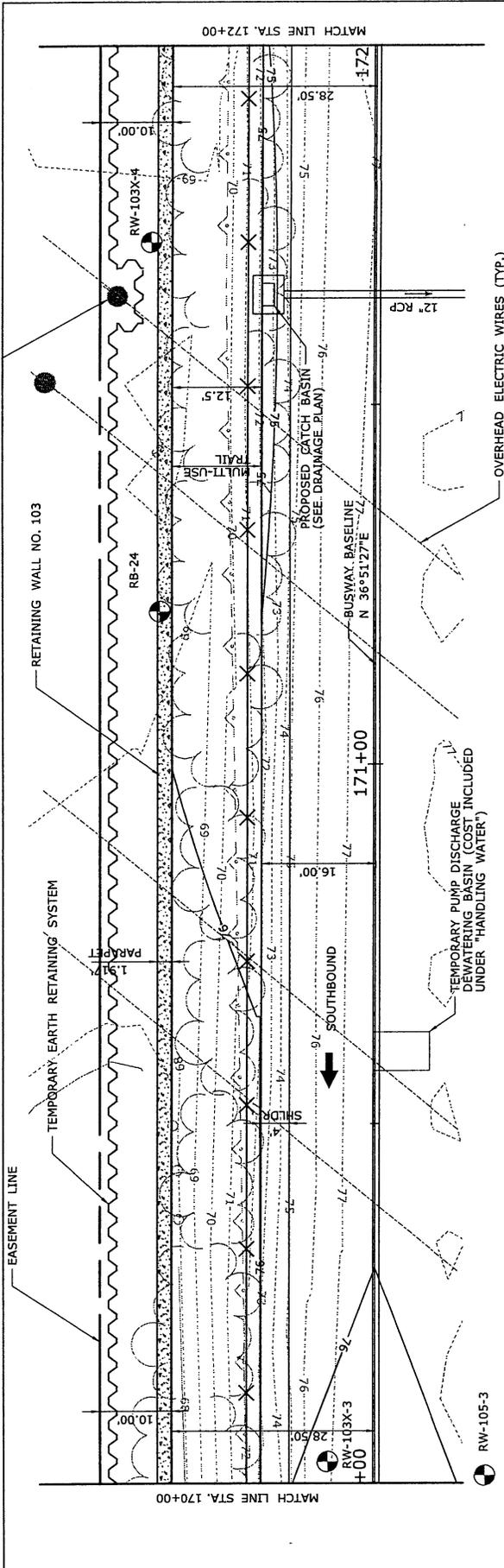


PLAN

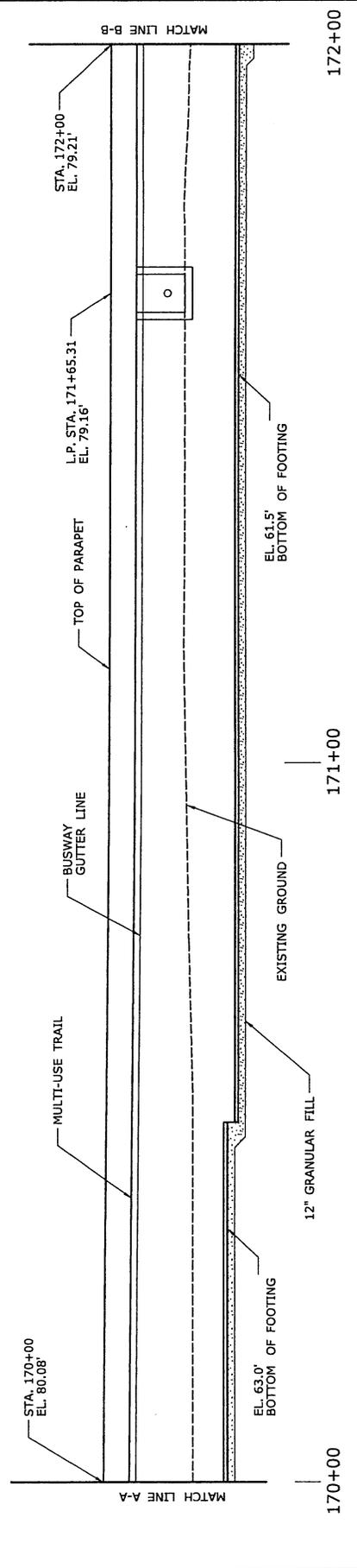
LEGEND
BORING SYMBOL



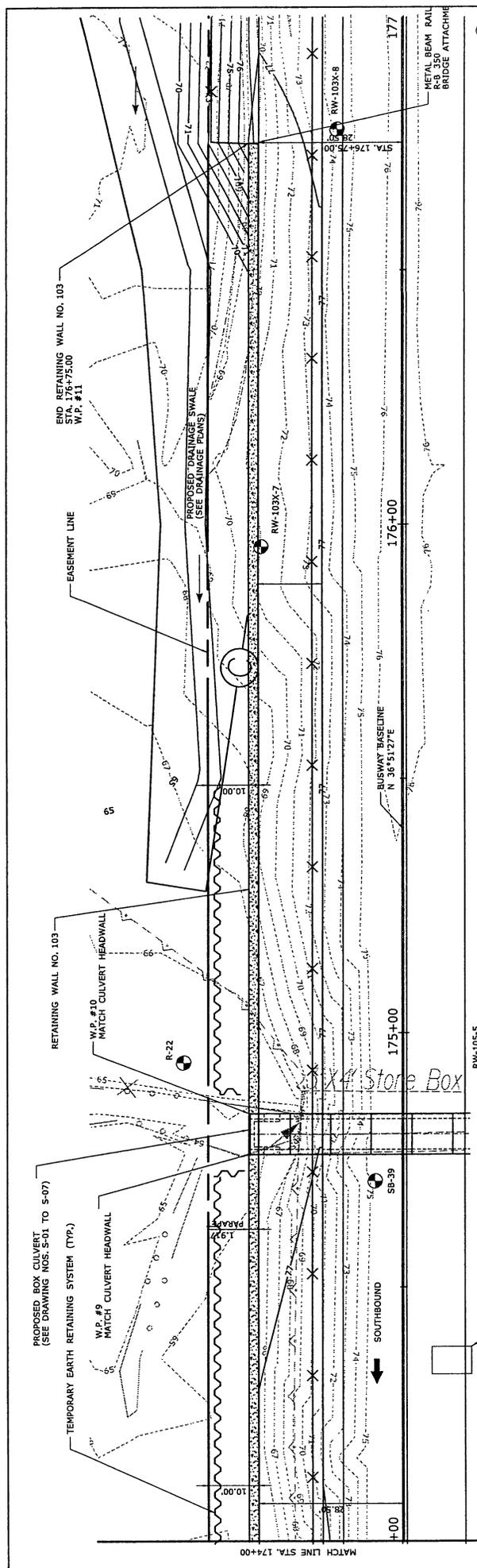
ELEVATION



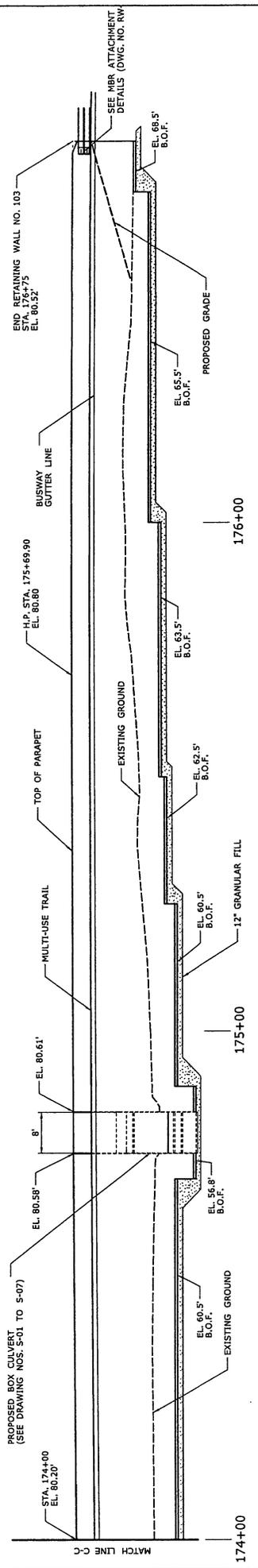
PLAN

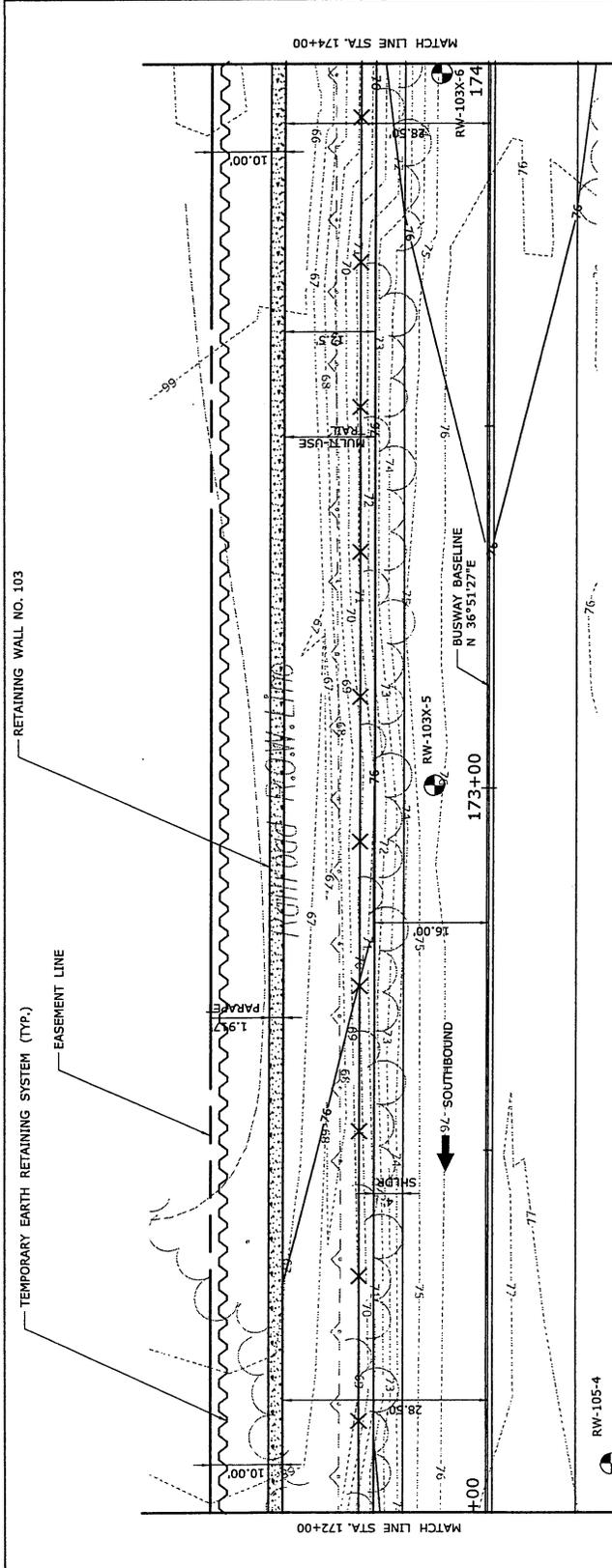


ELEVATION

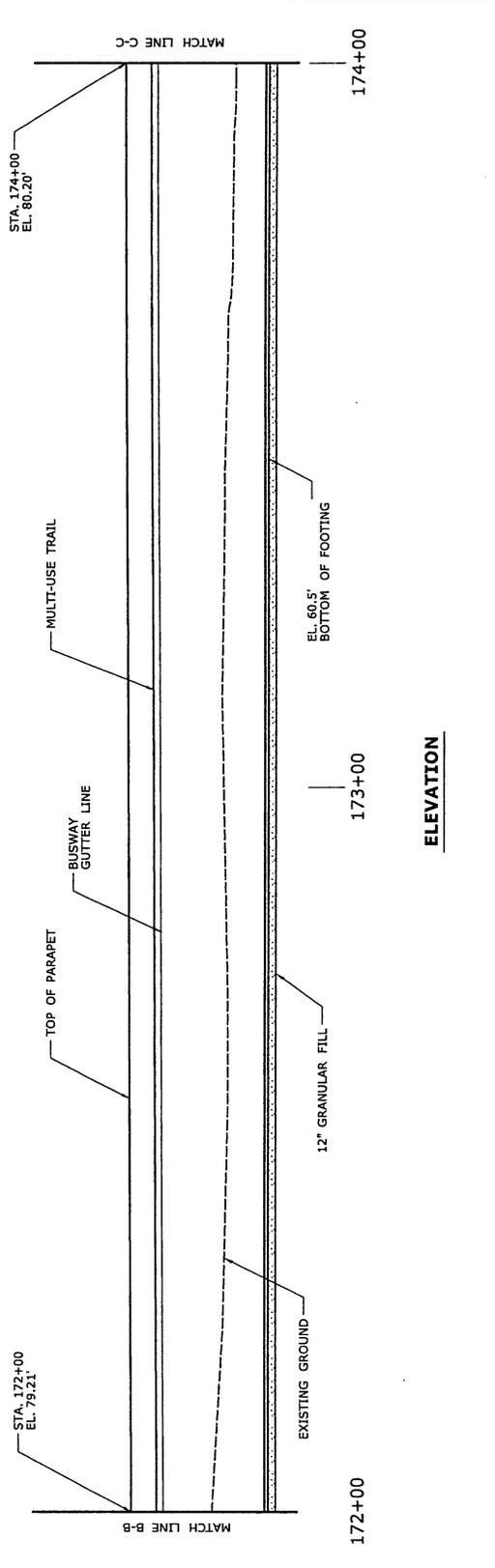


PLAN





PLAN



ELEVATION

Thomas Lloret		SM-001 REV. 10/92		BORING REPORT		SHEET 1 OF 1						
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.						
INSPECTOR Walti & Associates, P.C.		TOWN: New Britain/Newington, CT				BORING CONTRACTOR Close Jensen & Miller, P.C.						
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway				DESIGN ENGINEER						
Surface Elevation: 76.4		LOCATION:										
Date Started: 3/23/2011		Auger		Casing		Sampler		Core Bar		Hole No. RW-103X-1		
Date Finished: 3/23/2011		Type		HSA						Line & Station 167+99		
Groundwater Observations		Size I. D.		2 1/4 in		2 in				Offset 9' LT		
AT 15 ' AFTER 0 HRS		Hammer				140 lb		Bit		N Coordinate 815619.20		
AT ' AFTER HRS		Fall				30 in				E. Coordinate 999534.60		
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	4	D	1	W	W	1	7	Blk. M-F Silty Sand, Tr. Clay Brick, Wood (Fill)
		2.0 - 4.0	2	24	6	D	1	1	2	1		
		4.0 - 6.0	3	24	6	D	2	2	2	2		
10		6.0 - 8.0	4	24	3	D	4	5	4	4	7	Red Br. M-F Silty Sand, Some M-F Gravel
		8.0 - 10.0	5	24	6	D	3	3	2	3		
		10.0 - 12.0	6	24	6	D	2	2	2	3		
15		15.0 - 16.0	7	12	6	D	5	50	X	X	25	End of Boring - 25.0
		20.0 - 22.0	8	24	11	D	5	6	6	6		
		23.0 - 25.0	9	24	16	D	12	16	19	17		
20											25	End of Boring - 25.0
25											25	End of Boring - 25.0
30											25	End of Boring - 25.0
35											25	End of Boring - 25.0
40											25	End of Boring - 25.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 25.0		Footage in Rock 0.0		No. of Samples 9		Hole No. RW-103X-1						
SAMPLE TYPE CODING: D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED: TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Thomas Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT								BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway								DESIGN ENGINEER		
Surface Elevation: 76.04		LOCATION:										
Date Started: 3/23/2011				Auger		Casing		Sampler		Core Bar		
Date Finished: 3/23/2011		Type		HSA						Hole No. RW-103X-2		
Groundwater Observations		Size I. D.		2 1/4 in				2 in		Line & Station 168+99		
AT 15 ' AFTER 0 HRS		Hammer						140 lb		Bit		
AT ' AFTER HRS		Fall						30 in		N Coordinate 815698.61		
										E. Coordinate 999594.60		
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0 - 6	6 - 12	12-18	18-24		
5		0.0 - 2.0	1	24	3	D	1	1	1	2	7	Blk. M-F Silty Sand, Tr. Clay Brick, Wood (Fill)
		2.0 - 4.0	2	24	6	D	2	2	2	2		
		4.0 - 6.0	3	24	8	D	3	4	4	4		
		6.0 - 8.0	4	24	4	D	4	3	4	4		
		8.0 - 10.0	5	24	6	D	3	4	4	4		
10		10.0 - 12.0	6	24	6	D	5	7	19	5	14	Red Br. M-F Silty Sand, Some M-F Gravel
15		15.0 - 17.0	7	24	10	D	10	16	19	12	25	Red Br. Silt
20		20.0 - 22.0	8	24	11	D	5	5	7	7	25	End of Boring - 25.0
		23.0 - 25.0	9	24	16	D	5	6	6	10		
25											25	End of Boring - 25.0
30											25	End of Boring - 25.0
35											25	End of Boring - 25.0
40											25	End of Boring - 25.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 25.0		Footage in Rock 0.0		No. of Samples 9		Hole No. RW-103X-2						
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER		UP = UNDISTURBED PISTON								
PROPORTIONS USED: TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Thomas Lloret		SM-001 REV. 10/92				BORING REPORT				SHEET 1 OF 1							
DRILLER Matt Stark		STATE OF CONNECTICUT				DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.							
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT				BORING CONTRACTOR Close Jensen & Miller, P.C.											
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway				DESIGN ENGINEER											
PROJECT NUMBER: 171-305		LOCATION:															
Surface Elevation: 76.1										Hole No. RW-103X-3							
Date Started: 3/23/2011		Auger				Casing				Sampler				Core Bar			
Date Finished: 3/23/2011		Type				HSA								Line & Station 170+03			
Groundwater Observations		Size I. D.				2 1/4 in				2 in				Offset 7' LT			
AT 15 'AFTER 0 HRS		Hammer								140 lb				Bit			
AT 'AFTER HRS		Fall								30 in				E. Coordinate 999658.87			
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)					
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0 - 6	6 - 12	12-18	18-24							
5		0.0 - 2.0	1	24	4	D	2	2	2	2	10	Blk. M-F Sand, Some C-F Gravel, Brick, Wood (Fill)					
		2.0 - 4.0	2	24	8	D	W	W	2	1							
		4.0 - 6.0	3	24	8	D	W	W	W	4							
		6.0 - 8.0	4	24	6	D	W	2	2	2							
		8.0 - 10.0	5	24	10	D	3	3	3	4							
10		10.0 - 12.0	6	24	12	D	6	6	10	11	19	Red Br. M-F Silty Sand, Some M-F Gravel					
15		15.0 - 16.0	7	12	12	D	6	50	X	X	30	End of Boring - 30.0					
20		20.0 - 22.0	8	24	20	D	3	5	5	6	30	End of Boring - 30.0					
25		25.0 - 27.0	9	24	20	D	4	4	4	4	30	End of Boring - 30.0					
30		28.0 - 30.0	10	24	20	D	4	4	5	4	30	End of Boring - 30.0					
35											30	End of Boring - 30.0					
40											30	End of Boring - 30.0					
From Ground Surface to		Feet Used				Inch Casing Then				Inch Casing For				Feet			
Footage in Earth		30.0				Footage in Rock				0.0				No. of Samples	10	Hole No.	RW-103X-3
SAMPLE TYPE CODING:		D = DRIVEN				C = CORE				A = AUGER				UP = UNDISTURBED PISTON			
PROPORTIONS USED:		TRACE = 1-10%				LITTLE = 10-20%				SOME = 20-35%				AND = 35-50%			

Thomas Lloret		SM-001 REV. 10/92		BORING REPORT				SHEET 1 OF 1				
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION						Associated Borings Co., Inc.				
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT		BORING CONTRACTOR Close Jensen & Miller, P.C.								
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway		DESIGN ENGINEER								
Surface Elevation: 68.2		LOCATION:										
Date Started: 3/18/2011		Auger		Casing		Sampler		Core Bar				
Date Finished: 3/18/2011		Type		HSA				Hole No. RW-103X-4				
Groundwater Observations		Size I. D.		2 1/4 in		2 in		Offset 31' LT				
AT 1.5 'AFTER 0 HRS		Hammer				140 lb		Bit				
AT 'AFTER HRS		Fall				30 in		N Coordinate 815931.22				
								E. Coordinate 999740.77				
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	6	D	3	16	14	5	4	Blk. M-F Silty Sand, Tr. Clay Brick, Wood (Fill)
		2.0 - 4.0	2	24	4	D	5	4	1	W		
		4.0 - 6.0	3	24	10	D	W	W	W	2		
		6.0 - 8.0	4	24	20	D	2	7	19	30		
10											6.5	Blk. Peat
15											7	Gray Clay
20		10.0 - 12.0	5	24	6	D	4	5	5	7	18	Red Br. Silt
25		15.0 - 17.0	6	24	18	D	3	5	5	6	25	Red Br. M-F Silty Sand, Tr. Clay
30		20.0 - 22.0	7	24	20	D	3	5	6	6	End of Boring - 25.0	
35		23.0 - 25.0	8	24	16	D	4	7	7	18		
40												
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 25.0		Footage in Rock 0.0		No. of Samples 8		Hole No. RW-103X-4						
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER UP = UNDISTURBED PISTON		SOME = 20-35%		AND = 35-50%						
PROPORTIONS USED: TRACE = 1-10%		LITTLE = 10-20%										

Thomas Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR Walti & Associates, P.C.		TOWN: New Britain/Newington, CT								BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway								DESIGN ENGINEER		
Surface Elevation: 75.2		PROJECT NUMBER: 171-305								LOCATION:		
Date Started: 3/22/2011		Auger	Casing	Sampler	Core Bar	Hole No.	RW-103X-5					
Date Finished: 3/22/2011		Type	HSA			Line & Station	173+00					
Groundwater Observations		Size I. D.	2 1/4 in			Offset	8' LT					
AT 15 'AFTER 0 HRS		Hammer			140 lb	Bit	N Coordinate	816019.21				
AT 'AFTER HRS		Fall			30 in		E. Coordinate	999836.35				
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	4	D	1	2	2	4	3	Blk. M-F Sand, Some C-F Gravel, Brick, Wood (Fill)
		2.0 - 4.0	2	24	8	D	2	3	4	3		
		4.0 - 6.0	3	24	7	D	4	5	3	4		
		6.0 - 8.0	4	24	12	D	4	4	4	4		
		8.0 - 10.0	5	24	8	D	5	4	3	4		
10		10.0 - 12.0	6	24	10	D	4	4	4	6	11	Dk. Gr. Clay
15		15.0 - 17.0	7	24	8	D	4	4	4	16	18	Red Br. M-F Sand
20		20.0 - 22.0	8	24	20	D	2	3	4	4	20	Red Br. Silt
25		25.0 - 27.0	9	24	20	D	2	3	4	5	28	Red Br. M-F Silty Sand
30		30.0 - 32.0	10	24	11	D	4	4	4	4	35	End of Boring - 35.0
		33.0 - 35.0	11	24	20	D	14	16	13	14		
35											35	
40											35	
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 35.0		Footage in Rock 0.0		No. of Samples 11		Hole No. RW-103X-5						
SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON		PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%										

Thomas Lloret		SM-001 REV. 10/92				BORING REPORT				SHEET 1 OF 1		
DRILLER Matt Stark		STATE OF CONNECTICUT				DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.		
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT				PROJECT NAME: Hartford-New Britain Busway				BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NUMBER: 171-305				DESIGN ENGINEER						
Surface Elevation: 75.5		LOCATION:										
Date Started: 3/22/2011				Auger		Casing		Sampler		Core Bar		
Date Finished: 3/22/2011		Type		HSA						Hole No. RW-103X-6		
Groundwater Observations		Size I. D.		2 1/4 in				2 in		Line & Station 173+99		
AT 15 'AFTER 0 HRS		Hammer						140 lb		Bit		
AT 'AFTER HRS		Fall						30 in		N Coordinate 816097.42		
										E. Coordinate 999895.98		
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	3	D	2	2	3	4	7	Blk. M-F Sand, Some C-F Gravel, Brick, Wood (Fill)
		2.0 - 4.0	2	24	5	D	3	6	6	9		
		4.0 - 6.0	3	24	4	D	7	7	5	5		
		6.0 - 8.0	4	24	8	D	5	4	4	4		
		8.0 - 10.0	5	24	3	D	5	4	3	3		
		10.0 - 12.0	6	24	6	D	5	5	4	3		
10											18	Red Br. M-F Silty Sand, Some M-F Gravel
15		15.0 - 17.0	7	24	10	D	17	20	19	5	28	Red Br. Silt
20		20.0 - 22.0	8	24	12	D	4	5	4	4	35	Red Br. M-F Silty Sand, Some M-F Gravel, Layers of Silt
25		25.0 - 27.0	9	24	20	D	W	W	2	2	35	End of Boring - 35.0
30		30.0 - 32.0	10	24	20	D	W	W	2	3	35	End of Boring - 35.0
35		33.0 - 35.0	11	24	20	D	W	4	6	6	35	End of Boring - 35.0
40											35	End of Boring - 35.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 35.0		Footage in Rock 0.0		No. of Samples 11		Hole No. RW-103X-6						
SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON		PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%										

Thomas Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT								BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway								DESIGN ENGINEER		
PROJECT NUMBER: 171-305		LOCATION:										
Surface Elevation: 69.6		Auger		Casing		Sampler		Core Bar		Hole No. RW-103X-7		
Date Started: 3/18/2011		Type		HSA						Line & Station 175+96		
Date Finished: 3/18/2011		Size I. D.		2 1/4 in		2 in		140 lb		Bit		
Groundwater Observations		Hammer				30 in				Offset 28' LT		
AT 5 'AFTER 0 HRS		Fall								N Coordinate 816267.55		
AT 'AFTER HRS										E. Coordinate 999997.22		
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	2	D	1	W	W	1	2	Topsoil
		2.0 - 4.0	2	24	4	D	2	2	5	5		Red Br. M-F Silty Sand, Tr. Clay, Tr. M-F Gravel, Brick (Fill)
		4.0 - 6.0	3	24	10	D	7	29	36	47		
		6.0 - 8.0	4	24	8	D	40	36	12	14		
10		10.0 - 12.0	5	24	12	D	4	8	7	10	9	
15		15.0 - 17.0	6	24	20	D	3	5	5	4	24	Red Br. C-F Sand
20		20.0 - 22.0	7	24	10	D	3	4	7	7	25	End of Boring - 25.0
		23.0 - 25.0	8	24	20	D	5	11	16	18		
25											25	End of Boring - 25.0
30												
35												
40												
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 25.0		Footage in Rock 0.0		No. of Samples 8		Hole No. RW-103X-7						
SAMPLE TYPE CODING: D = DRIVEN		C = CORE		A = AUGER		UP = UNDISTURBED PISTON						
PROPORTIONS USED: TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Thomas Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER Matt Stark		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR Wolti & Associates, P.C.		TOWN: New Britain/Newington, CT								BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway								DESIGN ENGINEER		
Surface Elevation: 74.6		LOCATION:										
Date Started: 3/21/2011		Auger	Casing	Sampler	Core Bar	Hole No.	RW-103X-8					
Date Finished: 3/21/2011		Type	HSA			Line & Station	176+78					
Groundwater Observations		Size I. D.	2 1/4 in			Offset	13' LT					
AT 15 'AFTER 0 HRS		Hammer			140 lb	Bit	N Coordinate 816324.40					
AT 'AFTER HRS		Fall			30 in		E. Coordinate 1000058.37					
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	12	D	1	2	2	2	7	Blk. M-F Sand, Some C-F Gravel, Brick, Wood (Fill)
		2.0 - 4.0	2	24	14	D	2	3	2	2		
		4.0 - 6.0	3	24	10	D	3	2	2	3		
		6.0 - 8.0	4	24	8	D	3	4	4	9		
		8.0 - 10.0	5	24	14	D	4	7	7	7		
10		10.0 - 12.0	6	24	10	D	8	15	19	17	7	Red Br. Silt
15		15.0 - 17.0	7	24	18	D	5	8	8	10	7	Red Br. M-F Sand, Some Silt
20		20.0 - 22.0	8	24	12	D	7	10	10	11	7	End of Boring - 30.0
25		25.0 - 27.0	9	24	20	D	9	9	10	10	27	End of Boring - 30.0
30		28.0 - 30.0	10	24	11	D	10	16	19	22	30	End of Boring - 30.0
35											35	End of Boring - 30.0
40											40	End of Boring - 30.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 10		Hole No. RW-103X-8						
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER		UP = UNDISTURBED PISTON								
PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%								

Jaime Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER		STATE OF CONNECTICUT										
Don Moodie		DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR		TOWN: New Britain/Newington, CT				PROJECT NAME: Hartford-New Britain Busway				BORING CONTRACTOR		
Welti & Associates, P.C.		PROJECT NUMBER: 171-305								Close Jensen & Miller, P.C.		
SOILS ENGINEER		LOCATION:								DESIGN ENGINEER		
Surface Elevation: 77.7		Date Started: 8/28/2007		Auger		Casing		Sampler		Core Bar		
Date Finished: 8/28/2007		Type		HSA		SS				Hole No. RW-105-1		
Groundwater Observations		Size I. D.		2 1/4 in		2 in				Line & Station 166+0		
AT 14 'AFTER 0 HRS		Hammer				140 lb		Bit		Offset 20' RT		
AT 12 'AFTER 24 HRS		Fall				30 in				N Coordinate 815442.59		
										E. Coordinate 999443.04		
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	12	D	7	10	11	16	3	Blk. M-F Sand, Some C-F Gravel, Some Silt (Fill)
		2.0 - 4.0	2	24	8	D	19	20	22	21		
		4.0 - 6.0	3	24	12	D	11	16	17	17		
		6.0 - 8.0	4	24	12	D	17	21	19	19		
10		10.0 - 12.0	5	24	12	D	17	21	19	21	15	Red Br. F. Sand, Some Silt, Tr. C-F Gravel (Fill)
15		15.0 - 17.0	6	24	12	D	15	11	15	15	30	Red Br. C-F Sand, Some C-F Gravel, Tr. Silt
20		20.0 - 22.0	7	24	12	D	11	10	14	17	30	End of Boring - 30.0
25		25.0 - 27.0	8	24	12	D	14	17	11	10	30	End of Boring - 30.0
30		28.0 - 30.0	9	24	12	D	4	11	14	10	30	End of Boring - 30.0
35											30	End of Boring - 30.0
40											30	End of Boring - 30.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For				Feet		
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 9		Hole No. RW-105-1						
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER		UP = UNDISTURBED PISTON								
PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%								

Jaime Lloret		SM-001 REV. 10/92				BORING REPORT				SHEET 1 OF 1		
DRILLER		STATE OF CONNECTICUT										
Don Moodie		DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR		TOWN: New Britain/Newington, CT								BORING CONTRACTOR		
Wolti & Associates, P.C.		PROJECT NAME: Hartford-New Britain Busway								Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NUMBER: 171-305								DESIGN ENGINEER		
Surface Elevation: 77.36		LOCATION:										
Date Started: 8/28/2007		Auger		Casing		Sampler		Core Bar		Hole No. RW-105-2		
Date Finished: 8/28/2007		HSA				SS				Line & Station 168+0		
Groundwater Observations		Size I. D. 2 1/4 in				2 in				Offset 16' RT		
AT 14 'AFTER 0 HRS		Hammer				140 lb		Bit		N Coordinate 815603.07		
AT 'AFTER HRS		Fall				30 in				E. Coordinate 999555.43		
DEPTH	Casing blows per foot	SAMPLE				BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18			18-24
5		0.0 - 2.0	1	24	8	D	7	11	14	17	3	Blk. M-F Sand, Some C-F Gravel, Some Silt (Fill)
		2.0 - 4.0	2	24	15	D	21	30	29	33		Red Br. F. Sand, Some Silt, Tr. C-F Gravel (Fill)
		4.0 - 6.0	3	24	6	D	30	36	41	31		
		6.0 - 8.0	4	24	16	D	31	28	21	14		
		8.0 - 10.0	5	24	14	D	17	19	21	15	16	Red Br. C-F Sand, Some C-F Gravel, Tr. Silt
10		10.0 - 12.0	6	24	6	D	7	5	7	7		
		12.0 - 14.0	7	24	6	D	5	7	7	5		
	14.0 - 16.0	8	24	10	D	5	7	6	7			
	16.0 - 18.0	9	24	12	D	6	7	5	7			
20		20.0 - 22.0	10	24	12	D	6	9	11	17	30	End of Boring - 30.0
		25.0 - 27.0	11	24	16	D	11	17	21	23		
	28.0 - 30.0	12	24	20	D	7	9	21	30			
35												
40												

From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet	
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 12		Hole No. RW-105-2			
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER		UP = UNDISTURBED PISTON					
PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%					

Jaime Lloret DRILLER Don Moodie INSPECTOR Welti & Associates, P.C.		SM-001 REV. 10/92		BORING REPORT		SHEET 1 OF 1						
SOILS ENGINEER		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.						
PROJECT NAME: Hartford-New Britain Busway		TOWN: New Britain/Newington, CT				BORING CONTRACTOR Close Jensen & Miller, P.C.						
PROJECT NUMBER: 171-305		LOCATION:				DESIGN ENGINEER						
Surface Elevation: 76.91		Auger		Casing		Sampler						
Date Started: 8/29/2007		Type		HSA		SS						
Date Finished: 8/29/2007		Size I. D.		2 1/4 in		2 in						
Groundwater Observations		Hammer		140 lb		Bit						
AT 11 'AFTER 0 HRS		Fall		30 in		Hole No. RW-105-3						
AT 'AFTER HRS						Line & Station 170+0						
						Offset 20' RT						
						N Coordinate 815766.00						
						E. Coordinate 999675.18						
DEPTH	Casing blows per foot	SAMPLE				BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)	
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18			18-24
5		0.0 - 2.0	1	24	12	D	4	7	11	14	8	Blk and Red M-F Sand, Some C-F Gravel, Tr. Silt (Fill)
		2.0 - 4.0	2	24	10	D	11	14	15	15		
		4.0 - 6.0	3	24	12	D	11	15	12	13		
		6.0 - 8.0	4	24	16	D	11	15	17	12		
		8.0 - 10.0	5	24	10	D	6	5	4	4		
10		10.0 - 12.0	6	24	6	D	2	5	4	4	10	Red Br. F. Sand, Some Silt (Possible Fill)
		12.0 - 14.0	7	24	0	D	4	5	4	6	12	Red Br. C-F Sand, Some C-F Gravel
		14.0 - 16.0	8	24	20	D	4	7	11	19		Red Br. F. Sand, Some Silt
15		16.0 - 18.0	9	24	16	D	31	30	17	19		
		20.0 - 22.0	10	24	17	D	6	7	4	4		
25		25.0 - 27.0	11	24	16	D	4	4	5	4		
		28.0 - 30.0	12	24	24	D	6	6	8	9		
30											30	End of Boring - 30.0
35												
40												
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 12		Hole No. RW-105-3						
SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON		PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%										

Jaime Lloret DRILLER		SM-001 REV. 10/92		BORING REPORT		SHEET 1 OF 1						
Don Moodie INSPECTOR		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.						
Welti & Associates, P.C.		TOWN: New Britain/Newington, CT		BORING CONTRACTOR		Close Jensen & Miller, P.C.						
SOILS ENGINEER		PROJECT NAME: Hartford-New Britain Busway		DESIGN ENGINEER								
PROJECT NUMBER: 171-305		LOCATION:										
Surface Elevation: 75.8		Auger		Casing		Sampler						
Date Started: 8/29/2007		Type		HSA		SS						
Date Finished: 8/29/2007		Size I. D.		2 1/4 in		2 in						
Groundwater Observations		Hammer				140 lb						
AT 11 'AFTER 0 HRS		Fall				30 in						
AT 'AFTER HRS						Bit						
						N Coordinate 815929.57						
						E. Coordinate 999799.90						
D E P T H	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	8	D	4	6	14	17	2	Blk. M-F Sand, Some C-F Gravel, Some Silt (Fill)
		2.0 - 4.0	2	24	12	D	19	30	16	15		Red Br. F. Sand and Silt (Fill)
		4.0 - 6.0	3	24	12	D	15	19	20	21	4	Red Br. F. Sand, Little Silt, Little C-F Gravel (Fill)
		6.0 - 8.0	4	24	10	D	11	14	16	14		
		8.0 - 10.0	5	24	10	D	4	3	3	3		
10		10.0 - 12.0	6	24	8	D	4	4	5	3	12	
		12.0 - 14.0	7	24	12	D	6	7	7	6		
		14.0 - 16.0	8	24	16	D	2	2	7	12		Lt. Gr. Br. F. Sand and Silt, W/Organic Layers
15											15	Red Br. Clayey Silt, Little M-F Sand
20		20.0 - 22.0	9	24	12	D	4	4	5	6	30	
25		25.0 - 27.0	10	24	10	D	4	3	4	4	30	
		28.0 - 30.0	11	24	12	D	4	6	4	7		
30											30	End of Boring - 30.0
35											30	
40											30	
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For		Feet				
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 11		Hole No. RW-105-4						
SAMPLE TYPE CODING: D = DRIVEN C = CORE		A = AUGER		UP = UNDISTURBED PISTON								
PROPORTIONS USED: TRACE = 1-10%		LITTLE = 10-20%		SOME = 20-35%		AND = 35-50%						

Jaime Lloret		SM-001 REV. 10/92		BORING REPORT		SHEET 1 OF 1						
DRILLER		STATE OF CONNECTICUT										
Don Moodie		DEPARTMENT OF TRANSPORTATION				Associated Borings Co., Inc.						
INSPECTOR		TOWN:		New Britain/Newington, CT		BORING CONTRACTOR						
Welti & Associates, P.C.		PROJECT NAME:		Hartford-New Britain Busway		Close Jensen & Miller, P.C.						
SOILS ENGINEER		PROJECT NUMBER:		171-305		DESIGN ENGINEER						
Surface Elevation: 75.26		LOCATION:										
Date Started: 8/29/2007		Auger		Casing		Sampler		Core Bar		Hole No. RW-105-5		
Date Finished: 8/29/2007		Type		HSA		SS				Line & Station 174+80		
Groundwater Observations		Size I. D.		2 1/4 in		2 in				Offset 30' RT		
AT 14 'AFTER 0 HRS		Hammer				140 lb		Bit		N Coordinate 816158.91		
AT 'AFTER HRS		Fall				30 in				E. Coordinate 999972.04		
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	7	D	4	6	11	12	3	Blk. M-F Sand, Some C-F Gravel, Some Silt (Fill)
		2.0 - 4.0	2	24	12	D	16	14	7	9		
		4.0 - 6.0	3	24	12	D	16	29	31	40		Red Br. F. Sand, Some Silt, Tr. C-F Gravel (Fill)
		6.0 - 8.0	4	24	14	D	31	46	38	29		
		8.0 - 10.0	5	24	17	D	21	26	40	50		
10		10.0 - 12.0	6	24	14	D	13	17	21	30	12	Blk and Red F. Sand and Silt, W/Organic Layers
		12.0 - 14.0	7	24	10	D	9	7	7	6		
		14.0 - 16.0	8	24	18	D	6	7	7	6		
15		16.0 - 18.0	9	24	18	D	4	6	7	6	16	Red Br. Clayey Silt
20		20.0 - 22.0	10	24	12	D	4	5	6	5	30	End of Boring - 30.0
25		25.0 - 27.0	11	24	10	D	4	3	5	5	30	End of Boring - 30.0
30		28.0 - 30.0	12	24	12	D	4	6	7	7	30	End of Boring - 30.0
35											30	End of Boring - 30.0
40											30	End of Boring - 30.0
From Ground Surface to		Feet Used		Inch Casing Then		Inch Casing For				Feet		
Footage in Earth 30.0		Footage in Rock 0.0		No. of Samples 12		Hole No. RW-105-5						
SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON		TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%										

Thomas Lloret		SM-001 REV. 10/92 BORING REPORT								SHEET 1 OF 1		
DRILLER Don Moodie		STATE OF CONNECTICUT DEPARTMENT OF TRANSPORTATION								Associated Borings Co., Inc.		
INSPECTOR Welti & Associates, P.C.		TOWN: New Britain/Newington, CT				PROJECT NAME: Hartford-New Britain Busway				BORING CONTRACTOR Close Jensen & Miller, P.C.		
SOILS ENGINEER		PROJECT NUMBER: 171-305				DESIGN ENGINEER						
Surface Elevation: 74.81		LOCATION:										
Date Started: 8/31/2007		Auger	Casing	Sampler	Core Bar	Hole No. RW-105-6						
Date Finished: 8/31/2007		Type	HSA	SS	Line & Station 177+0							
Groundwater Observations		Size I. D.	2 1/4 in	2 in	Offset 33' RT							
AT 12 'AFTER 0 HRS		Hammer		140 lb	Bit	N Coordinate 816322.59						
AT 'AFTER HRS		Fall		30 in	E. Coordinate 1000093.07							
DEPTH	Casing blows per foot	SAMPLE					BLOWS PER 6 INCHES ON SAMPLER				STRATA CHANGE: DEPTH, ELEV.	FIELD IDENTIFICATION OF SOIL, REMARKS (INCL. COLOR, LOSS OF WASH WATER, ETC.)
		DEPTH IN FEET FROM - TO	NO.	PEN. INCH	REC. INCH	TYPE	0-6	6-12	12-18	18-24		
5		0.0 - 2.0	1	24	6	D	3	3	4	4	1.5	Blk. M-F Sand, Some C-F Gravel, Some Silt (Fill)
		2.0 - 4.0	2	24	7	D	5	7	7	7		
		4.0 - 6.0	3	24	2	D	10	12	12	13		9
10		10.0 - 12.0	4	24	10	D	10	10	10	12	9	Red Br. Silt
15		15.0 - 17.0	5	24	11	D	5	5	5	5	9	Red Br. Silt
20		20.0 - 22.0	6	24	14	D	5	5	5	7	9	Red Br. Silt
25		25.0 - 27.0	7	24	9	D	6	6	6	6	9	Red Br. Silt
30		28.0 - 30.0	8	24	7	D	10	10	20	26	29 30	Red Br. C-F Sand and C-F Gravel
35											29 30	End of Boring - 30.0
40											29 30	End of Boring - 30.0

From Ground Surface to Feet Used Inch Casing Then Inch Casing For Feet

Footage in Earth 30.0 Footage in Rock 0.0 No. of Samples 8 Hole No. **RW-105-6**

SAMPLE TYPE CODING: D = DRIVEN C = CORE A = AUGER UP = UNDISTURBED PISTON
 PROPORTIONS USED: TRACE = 1-10% LITTLE = 10-20% SOME = 20-35% AND = 35-50%

Driller: J. Galvin/GeoLogic	Connecticut DOT Boring Report	Hole No.: RB-16
Inspector: E. Glisan	Town: New Britain / Newington, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 815645.4
Start Date: 03/11/03	Route No.: New Britain - Hartford	Easting: 999574.0
Finish Date: 03/11/03	Bridge No.:	Surface Elevation: 77.5

Project Description: New Britain - Hartford Busway

Casing Type/Size: HW/4" I.D.	Sampler Type/Size: SS/1-3/8" I.D.	Core Barrel Type: NX/2-1/8" I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 10.0' after: 0 hours, @ 10.0' after: 24 hours, @ 10.0' after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: southern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES						Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)				
0									
1	W-N		1.5				4.5'	POORLY GRADED SAND WITH GRAVEL (SP) - brown and black fine to coarse sand, little medium to coarse gravel, trace silt; moist, medium dense, NP; (FILL).	77
2	S-1	17 9	1.5	1.1		76			
3		11				75			
4	W-N		1.5			74			
5	S-2	8 8	1.5	1.0			12.0'	SILTY SAND (SM) - brown fine to medium sand, little silt, trace medium gravel; wet, medium dense, NP; (FILL).	ELEV. 73.0
6		8				72			
7	W-N		1.5						71
8	S-3	15 11	1.5	0.8			13.5'	SILTY SAND (SM) - brown fine to medium sand, little silt, trace medium gravel; wet, medium dense, NP; (FILL).	70
9		7				69			
10	W-N		1.5						68
11	S-4	5 3	1.5	0.1			12.0'	Sandstone Fragment.	67
12		6				66			
13	S-5	17 7	1.5	1.2			13.5'	ORGANIC SOIL (OL) - black silt, little fine sand; moist, medium dense, NP.	ELEV. 65.5
14		15				65			
15	S-6	11 16	1.5	1.0			16.5'	SILT (ML) - gray-brown silt, some fine sand; moist, dense, NP.	ELEV. 64.0
16		23				64			
17	W-N		1.5						63
18	S-7	24 23	1.5	1.0			19.5'	SILTY GRAVEL (GM) - brown fine to coarse gravel, little silt, trace fine sand; wet, very dense, NP.	ELEV. 61.0
19		35				62			
19	W-N		1.5						61
		9							ELEV. 58.0
									59
									60
									61
									62
									63
									64
									65
									66
									67
									68
									69
									70
									71
									72
									73
									74
									75
									76
									77

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
 Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0'
 No. of Samples: 11

NOTES:

Driller: J. Galvin/GeoLogic	Connecticut DOT Boring Report		Hole No.: RB-16
Inspector: E. Glisan	Town: New Britain / Newington, CT		Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305		Northing: 815645.4
Start Date: 03/11/03	Route No.: New Britain - Hartford		Easting: 999574.0
Finish Date: 03/11/03	Bridge No.:		Surface Elevation: 77.5
Project Description: New Britain - Hartford Busway			
Casing Type/Size: HW/4" I.D.		Sampler Type/Size: SS/1-3/8" I.D.	Core Barrel Type: NX/2-1/8" I.D.
Hammer Wt.: 300 Fall: 24"		Hammer Wt.: 140 Fall: 30"	
Groundwater Obs. @ 10.0' after: 0 hours, @10.0' after: 24 hours, @10.0' after: 48 hours			
Baker Info: S.O. Number: B25624LPDSOIL41802/42002		File: southern	Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES					Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)			
20	S-8	8	1.5	1.1		22.5'	GRAVELLY SILT (ML) - brown silt, some fine to medium gravel, trace clay; moist, very stiff, +PL.	57
21		13						56
22	W-N		1.5				ELEV. 55.0	
23	S-9	7 10	1.5	1.3			ELASTIC SILT (MH) - gray-brown silt, trace clay; moist, very stiff, -PL.	55
24		11						54
25	W-N		1.5				ELASTIC SILT (MH) - gray-brown silt, trace clay; moist, very stiff, -PL.	53
26	S-10	22 12	1.5	1.3				52
27		7					51	
28	W-N		1.5				ELASTIC SILT (MH) - gray-brown silt, trace clay; moist, very stiff, -PL.	50
29	S-11	16 12	1.5	1.2				49
30		10					ELEV. 47.5	
31						End of Boring at 30.0'.	47	
32							46	
33							45	
34							44	
35							43	
36							42	
37							41	
38							40	
39							39	
							38	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 30.0' Rock: 0.0'
No. of Samples: 11

NOTES:

Driller: Rob Ingram/Seaboard	Connecticut DOT Boring Report	Hole No.: RB-24
Inspector: E. Glisan	Town: New Britain / Newington, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 815889.4
Start Date: 03/11/03	Route No.: New Britain - Hartford	Easting: 999711.0
Finish Date: 03/11/03	Bridge No.:	Surface Elevation: 67.7

Project Description: New Britain - Hartford Busway

Casing Type/Size: HW/4" I.D. | Sampler Type/Size: SS/1-3/8" I.D. | Core Barrel Type: NX/2-1/8" I.D.

Hammer Wt.: 300 Fall: 24" | Hammer Wt.: 140 Fall: 30"

Groundwater Obs. @ 0.0' after: 0 hours, @0.0' after: 24 hours, @NA after: hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 | File: southern | Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES					Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)			
0		6						
1	S-1	30	2.0	0.5		2.0'	SILT (ML) - gray silt, trace fine sand; moist, very dense, NP; (FILL).	67
2		26					ORGANIC SOIL (OL) - dark brown to black organic silt, trace fine sand; wet, very loose, NP.	ELEV. 65.7
3	S-2	2	2.0	1.0			ORGANIC SOIL (OL) - dark brown to black organic silt, trace fine sand; wet, very loose, NP.	65
4		1						64
5	S-3	WOH WOH	2.0	0.7				63
6		1				6.0'		ELEV. 61.7
7	S-4	7	2.0	1.3			SILTY SAND (SM) - gray-brown fine to medium sand, little silt, trace fine gravel; moist, medium dense, NP.	61
8		7						60
9	S-5	11	2.0	0.7		8.0'	SILTY GRAVEL (GM) - reddish brown fine to coarse gravel, little silt, trace fine sand; wet, medium dense, NP.	ELEV. 59.7
10		18						59
11		25					Boring Terminated at 10.0'.	ELEV. 57.7
12								57
13								56
14								55
15								54
16								53
17								52
18								51
19								50
								49
								48

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
 Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 10.0' Rock: 0.0'
 No. of Samples: 5

NOTES:

Driller: J. Galvin/Geologic	Connecticut DOT Boring Report	Hole No.: SB-39
Inspector: E. Glisan	Town: New Britain / Newington, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 816154.4
Start Date: 03/05/03	Route No.:	Easting: 999940.2
Finish Date: 03/06/03	Bridge No.:	Surface Elevation: 75.2

Project Description: New Britain - Hartford Busway

Casing Type/Size: HW/4" I.D.	Sampler Type/Size: SS/1-3/8" I.D.	Core Barrel Type: NX/2-1/8" I.D.
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"	

Groundwater Obs. @ 9.2' after: 0 hours, @9.2' after: 24 hours, @8.7' after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002 File: southern Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES						Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)				
0								75	
1	W-N		1.5			10.5'	POORLY GRADED SAND WITH GRAVEL (SP) - black and brown fine to coarse sand, some medium to coarse gravel, trace silt; moist, dense, NP; (FILL).	74	
2	S-1	22 18 22	1.5	1.3				73	
3								72	
4	W-N		1.5					71	
5	S-2	15 16 22	1.5	1.0				70	
6								69	
7	W-N		1.5					68	
8	S-3	8 8 11	1.5	0.2				67	
9								66	
10	W-N		1.5					65	
11	S-4	4 24 16	1.5	1.0		10.5'	ELEV. 64.7	64	
12								63	
13	W-N		1.5					62	
14	S-5	19 19 21	1.5	1.3			SILT (ML) - gray-brown silt, trace coarse gravel; moist, dense, NP.	61	
15								60	
16	W-N		1.5					59	
17	S-6	12 8 8	1.5	1.1		16.5'	ELEV. 58.7	58	
18								57	
19	W-N		1.5					56	
		5					ELASTIC SILT (MH) - gray-brown silt, trace fine to		

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 49.0' Rock: 10.0'

NOTES:

Sheet 1 of 3

Driller: J. Galvin/Geologic	Connecticut DOT Boring Report		Hole No.: SB-39
Inspector: E. Glisan	Town: New Britain / Newington, CT		Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305		Northing: 816154.4
Start Date: 03/05/03	Route No.:		Easting: 999940.2
Finish Date: 03/06/03	Bridge No.:		Surface Elevation: 75.2
Project Description: New Britain - Hartford Busway			
Casing Type/Size: HW/4" I.D.	Sampler Type/Size: SS/1-3/8" I.D.	Core Barrel Type: NX/2-1/8" I.D.	
Hammer Wt.: 300 Fall: 24"	Hammer Wt.: 140 Fall: 30"		
Groundwater Obs. @ 9.2' after: 0 hours, @9.2' after: 24 hours, @8.7' after: 48 hours			
Baker Info: S.O. Number: B25624LPDSOIL41802/42002		File: southern	Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES						Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)				
20	S-7	8	1.5	1.3			medium sand, trace clay; moist, very stiff, +PL.	55	
21		9						54	
22	W-N		1.5				ELASTIC SILT (MH) - gray-brown silt, trace fine to medium sand, trace clay; moist, very stiff, +PL.	53	
23	S-8	7 8	1.5	1.5				52	
24		12					ELASTIC SILT (MH) - gray-brown silt, trace fine to medium sand, trace clay; moist, stiff, +PL.	51	
25	W-N		1.5					50	
26	S-9	7 6	1.5	1.5			ELASTIC SILT (MH) - gray-brown silt, trace fine to medium sand, trace clay; moist, stiff, +PL.	49	
27		7						48	
28	W-N		1.5				ELASTIC SILT (MH) - gray-brown silt, trace fine to medium sand, trace clay; moist, stiff, +PL.	47	
29	S-10	4 4	1.5	1.5				46	
30		5					ELASTIC SILT (MH) - gray-brown silt, trace fine to medium sand, trace clay; moist, stiff, +PL.	45	
31								44	
32	W-N		4.0				ELASTIC SILT (MH) - gray-brown silt, trace medium to coarse gravel, trace fine to medium sand, trace clay; moist, very stiff, +PL.	43	
33								42	
34		17					ELASTIC SILT (MH) - gray-brown silt, trace medium to coarse gravel, trace fine to medium sand, trace clay; moist, very stiff, +PL.	41	
35	S-11	12 9	1.5	0.9				40	
36							ELASTIC SILT (MH) - gray-brown silt, trace medium to coarse gravel, trace fine to medium sand, trace clay; moist, very stiff, +PL.	39	
37	W-N		3.5					38	
38							ELASTIC SILT (MH) - gray-brown silt, trace medium to coarse gravel, trace fine to medium sand, trace clay; moist, very stiff, +PL.	37	
39	S-12	12 24	1.5	0.7				36	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

Total Penetration in Earth: 49.0' Rock: 10.0'
No. of Samples: 12

NOTES:

Driller: J. Galvin/Geologic	Connecticut DOT Boring Report	Hole No.: SB-39
Inspector: E. Glisan	Town: New Britain / Newington, CT	Stat./Offset:
Engineer: Baker Engineering	Project No.: 171-0305	Northing: 816154.4
Start Date: 03/05/03	Route No.:	Easting: 999940.2
Finish Date: 03/06/03	Bridge No.:	Surface Elevation: 75.2

Project Description: New Britain - Hartford Busway

Casing Type/Size: HW/4" I.D. Sampler Type/Size: SS/1-3/8" I.D. Core Barrel Type: NX/2-1/8" I.D.

Hammer Wt.: 300 Fall: 24" Hammer Wt.: 140 Fall: 30"

Groundwater Obs. @ 9.2' after: 0 hours, @9.2' after: 24 hours, @8.7' after: 48 hours

Baker Info: S.O. Number: B25624LPDSOIL41802/42002

File: southern

Template: CDOT E (LD4 1/03)

Depth (ft.)	SAMPLES					Generalized Strata Description	Material Description and Notes	Elevation (ft.)
	Sample Type/No.	Blows on Sampler per 0.5 ft.	Pen. (ft.)	Rec. (ft./%)	RQD (ft./%)			
40		18				moist, hard, +PL.	35	
41							34	
42	W-N		3.5				33	
43							32	
44		71				44.0'	ELEV. 31.2	
45	S-13	67 93	1.5	1.3		45.5'	SILTY GRAVEL (GM) - gray fine to coarse gravel, little silt; moist, very dense, NP; gravel is weathered shale fragments; (DECOMPOSED ROCK). ELEV. 29.7	
46							29	
47	W-N		3.5				28	
48							27	
49				4.5	2.3		SILTSTONE; reddish brown, medium hard to hard, slightly to moderately weathered.	
50							26	
51							25	
52	C-1		5.0				24	
53							23	
54				90%	46%		22	
55				5.0	1.5		SILTSTONE WITH INTERBEDDED SANDSTONE; reddish brown, medium hard to hard, slightly to moderately weathered.	
56							21	
57	C-2		5.0				20	
58							19	
59				100%	30%		18	
							17	
							16	
						End of Boring at 59.0'	ELEV. 16.2	

Sample Type: S=Split Spoon C=Core UP=Undisturbed Piston V=Vane Shear Test A=Auger
Proportions Used: Trace = 1 - 10%, Little = 10 - 20%, Some = 20 - 35%, And = 35 - 50%

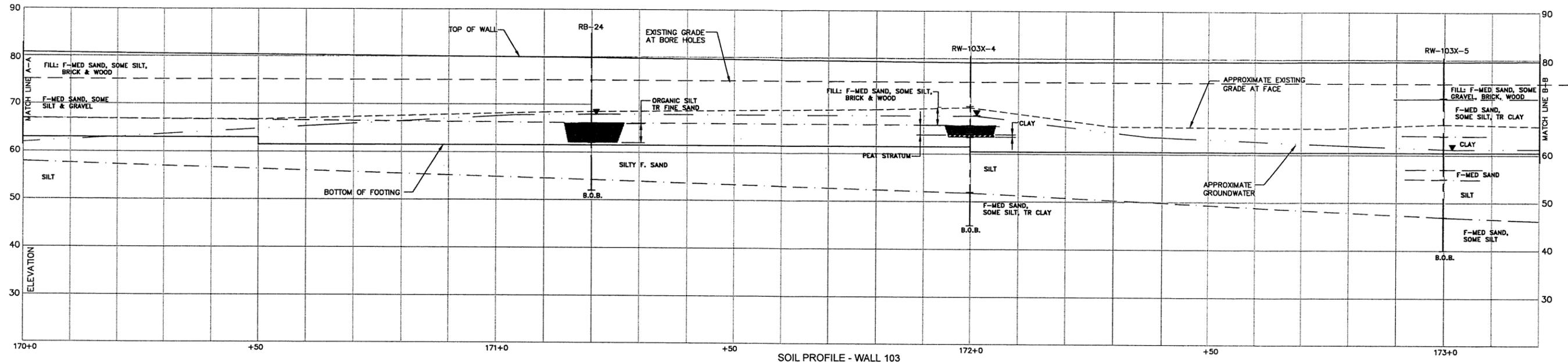
Total Penetration in Earth: 49.0' Rock: 10.0'
No. of Samples: 12

NOTES:

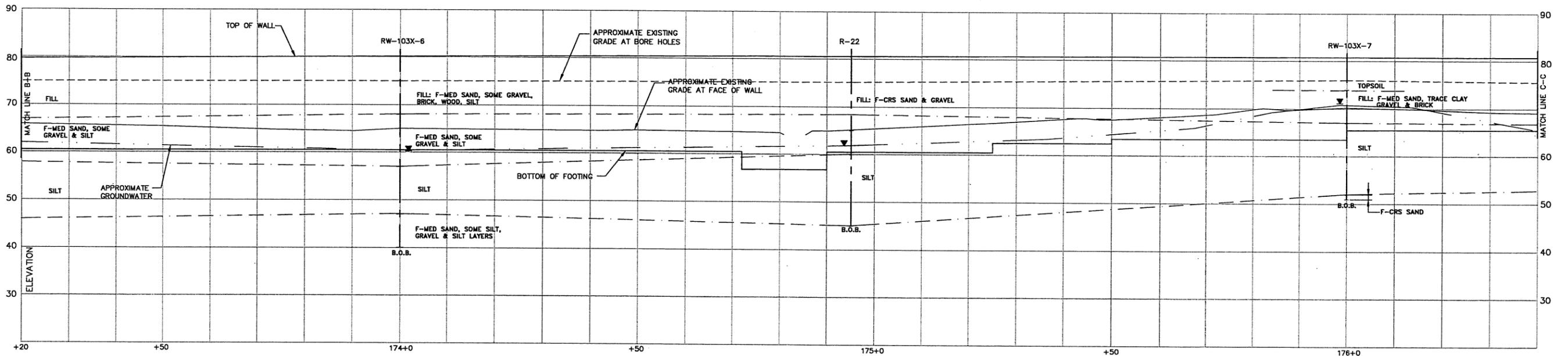
Sheet 3 of 3

APPENDIX 2

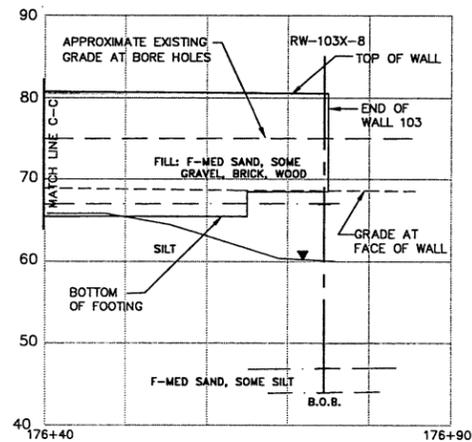
Geologic Sections + Grain Size Gradations (if any)



SOIL PROFILE - WALL 103



SOIL PROFILE - WALL 103



- A. REF. = AUGER REFUSAL
- B.O.B. = BOTTOM OF BORING
- ▼ = OBSERVED GROUNDWATER LEVEL
- = ESTIMATED WATER TABLE
- = STRATUM CHANGE
- = GRADE LINE

REVISIONS		
DATE	NO.	DESCRIPTION

NEW BRITAIN - HARTFORD BUSWAY
NEWINGTON SECTIONS A & B

STRUCTURE GEOTECHNICAL SECTIONS

SCALE: 1" = 10' DATE: MARCH 30, 2011

DR. CLARENCE WELTI, P.E., P.C.
227 WILLIAMS STREET, P.O. BOX 387
GLASTONBURY, CONNECTICUT 06033

SHEET 4