SUBSET 07 - FOR INFORMATION ONLY

INDEX OF DRAWINGS

DRAWING NUMBER	DRAWING TITLE	DRAWING NUMBER	DRAWING TITLE
FIO-01	SUBSURFACE EXPLORATION LOCATION PLAN		
FIO-02	SUBSURFACE EXPLORATION BORING LOGS SHEET 1 OF 2		
FIO-03	SUBSURFACE EXPLORATION BORING LOGS SHEET 2 OF 2		

DESIGNED BY:
STV INCORPORATED
185 PLAINS ROAD, SUITE 208E
MILFORD, CT 06461

FOR INFORMATION ONLY

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/25/2019

DESIGNER/DRAFTER: MC
CHECKED BY: TC
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\Civil\FIX-01_CNS_SHEET.dgn

SIGNATURE/
BLOCK:

PROJECT TITLE:
NETWORK INFRASTRUCTURE UPGRADE FOR SECURITY NEW HAVEN LINE

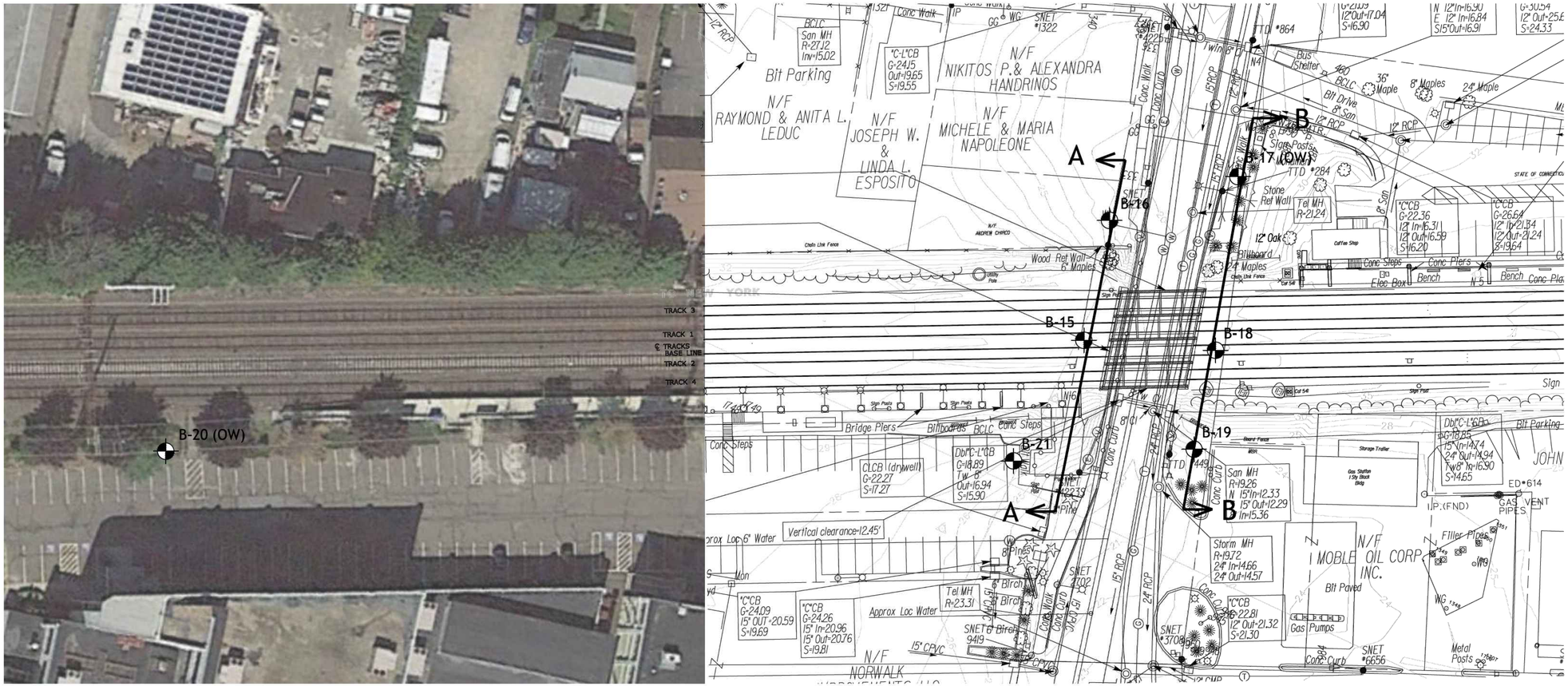
TOWN: **DARIEN**

DRAWING TITLE:
FOR INFORMATION ONLY INDEX OF DRAWINGS

PROJECT NO.

DRAWING NO. **FIX-01**

SHEET NO. **07.01**



NOTES:

1. BASE PLAN PROVIDED BY MCLAREN ENGINEERING GROUP
2. EXPLORATION LOCATIONS WERE TAPED FROM EXISTING SITE FEATURES AND ARE APPROXIMATE
3. REFER TO THE TEXT AND APPENDICES FOR ADDITIONAL INFORMATION

LEGEND:

B-1 — TEST BORINGS

APPROXIMATE LOCATION OF CROSS SECTION

GRAPHIC SCALE

50 25 0 50

SCALE IN FEET

SUBSURFACE EXPLORATION LOCATION PLAN

REPLACEMENT OF METRO-NORTH RAILROAD BRIDGE No. 42.14 OVER EAST AVENUE NORWALK, CONNECTICUT

FREEMAN COMPANIES
LAND DEVELOPMENT | ENGINEERING DESIGN | CONSTRUCTION SERVICES
FREEMAN COMPANIES, LLC
36 JOHN STREET
HARTFORD, CT 06106
WWW.FREEMANCOS.COM
TEL:(860)251-9550
TOLL FREE:(800)634-5141
FAX:(860)986-7161
ELEVATE YOUR EXPECTATIONS

No.	Date	Description
–	–	–

REVISIONS

DRAWN:	T.T.
CHECKED:	A.M.
APPROVED:	A.M.
SCALE:	1"=50'
PROJECT NO.:	2017–0308
DATE:	12/19/2017

SHEET NO.

FIGURE 2

Freeman Companies, LLC R:\2017\2017-0308_MNRR over East Avenue_Norwalk_McLaren\DWG\Figure 2.dwg Mar 26, 2018-10:15am Plotted By: tta

THESE DRAWINGS SHALL NOT BE UTILIZED BY ANY PERSON, FIRM OR CORPORATION WITHOUT THE SPECIFIC WRITTEN PERMISSION OF FREEMAN COMPANIES, LLC

FOR INFORMATION ONLY

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/25/2019

DESIGNER/DRAFTER: JY/MC

CHECKED BY: TC

NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FIO-01_CNS_SHEET_0300-0202.dgn

SIGNATURE/ BLOCK:

PROJECT TITLE:
NETWORK INFRASTRUCTURE UPGRADE FOR SECURITY NEW HAVEN LINE PHASE 3

TOWN: STAMFORD TO WESTPORT

DRAWING TITLE: SUBSURFACE EXPLORATION LOCATION PLAN

PROJECT NO. 0300-0202

DRAWING NO. FIO-01

SHEET NO. 07.02

Connecticut DOT Boring Report

Driller: E. Cardona	Hole No.: B-15		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599274.8	
Start Date: 1-22-18	Route No.: East Avenue	Easting: 819602.5	
Finish Date: 1-24-18	Bridge No.: MNR 42.14	Surface Elevation: 35.0	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @Not encountered			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		35
							Hand excavated coarse ballast changing to c-f SAND at 5 ft	
5	S-1	23 20 10 12	24	14			Brown c-f SAND, little m-f gravel, trace silt	30
	S-2	8 13 21 10	24	14			Brown c-f SAND, little m-f gravel, little silt	
10	S-3	3 2 16 22	24	12		Subsoil	Yellow-brown SILT, little f-sand (subsoil)	25
	S-4	52 56 50/3"	15	15		Glaciofluvial	Mottled brown to gray c-f SAND and c-f GRAVEL, trace silt Mottled brown to gray c-f SAND and c-f GRAVEL, trace silt, trace cobbles	
15	S-5	37 60 58 23	24	18			Gray c-f SAND and c-f GRAVEL, trace silt	20
	S-6	21 42 50/3"	15	15			Gray c-f SAND and c-f GRAVEL, trace silt, with cobbles	
20							END OF BORING 18.3ft	15
25								10
30								5

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

Total Penetration in Earth: 18.3ft Rock: 0ft
No. of Soil Samples: 6 No. of Core Runs: 0
NOTES: Hi-Rail Drilling Rig
Sheet 1 of 1
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-16		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599334.3	
Start Date: 11-30-17	Route No.: East Avenue	Easting: 819600.8	
Finish Date: 12-4-17	Bridge No.: MNR 42.14	Surface Elevation: 23.3	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type: NX	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @21 after 20 hrs			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Pavement	Pavement (8")	
	S-1	7 8 11 12	24	12		Glaciofluvial	Brown c-f SAND and c-f GRAVEL, trace silt	
	S-2	15 15 18 24	24	16			Brown c-f SAND, little c-f gravel, trace silt	20
5	S-3	14 27 25 23	24	12			Brown c-f GRAVEL and c-f SAND, trace silt	
								15
10	S-4	14 22 33 21	24	14			Brown c-f SAND, some c-f gravel, trace silt	
								10
15	S-5	15 20 23 30	24	12			Brown c-f SAND, some c-f gravel, trace silt	
								5
20	S-6	8 8 8 7	24	14			Brown c-f SAND grading to f-SAND, trace gravel, trace silt	
							gravelly layers noted from 20 to 25 feet	0
25	S-7	13 31 26 21	24	14			Brown c-f SAND and c-f GRAVEL, trace silt gravelly layers noted from 25 to 28 feet	
						Glacio Lacustrine		-5
30								

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

Total Penetration in Earth: 45.2ft Rock: 10ft
No. of Soil Samples: 11 No. of Core Runs: 2
NOTES: Automatic hammer used. 4-inch casing to 10 ft, roller bit ahead to 45 ft, spun 3-inch casing to 45 ft.
Sheet 1 of 2
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-16		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599334.3	
Start Date: 11-30-17	Route No.: East Avenue	Easting: 819600.8	
Finish Date: 12-4-17	Bridge No.: MNR 42.14	Surface Elevation: 23.3	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type: NX	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @21 after 20 hrs			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
30	S-8	6 5 5 7	24	8		Glacio Lacustrine (con't)	Brown SILT, trace f sand	
						Glacial Till		-10
35	S-9	14 26 50/4"	16	10			Gray c-f SAND and c-f GRAVEL, little silt	
								-15
40	S-10	17 23 24 30	24	12			Gray c-f SAND and c-f GRAVEL, little silt	
								-20
45	S-11	50/3"	3	1		Bedrock	Gray c-f SAND and c-f GRAVEL, little silt, dark gray decomposed rock at tip	
	C-1		60	60	28		Dark gray GNEISS , extremely fractured, moderate to extremely weathered, fine grained, foliation appears to be moderately dipping	-25
50	C-2		60	60	16		Dark gray GNEISS , extremely fractured, moderate to extremely weathered, fine grained, foliation appears to be moderately dipping, zone from 47.5ft to 54ft is extremely fractured and healed with cream colored quartz	-30
55							END OF BORING 55.3ft	-35
60								

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

Total Penetration in Earth: 45.2ft Rock: 10ft
No. of Soil Samples: 11 No. of Core Runs: 2
NOTES: Automatic hammer used. 4-inch casing to 10 ft, roller bit ahead to 45 ft, spun 3-inch casing to 45 ft.
Sheet 2 of 2
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-17 (OW)		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599386.4	
Start Date: 11-29-17	Route No.: East Avenue	Easting: 819620	
Finish Date: 11-30-17	Bridge No.: MNR 42.14	Surface Elevation: 20.8	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @16.1 after 5 days, @15.9 on 3/6/18, @13.9 on 3/23/18			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		20
							Air excavated from 0 feet to 5 feet	
						Glaciofluvial		
5	S-1	7 12 15 21	24	14			Mottled gray brown to rust brown c-f SAND and c-f GRAVEL, trace silt	15
10	S-2	22 30 31 34	24	14			Mottled gray brown to rust brown c-f GRAVEL and c-f SAND, trace silt	10
15	S-3	24 14 12 50	24	14			Interbedded c-f SAND little c-f gravel and c-f gravel, trace silt	5
20	S-4	17 18 20 22	24	14			Gray brown c-f SAND and c-f GRAVEL, trace silt	0
25	S-5	13 10 9 12	24	12		Glacio Lacustrine	Gray brown c-f SAND and c-f GRAVEL, trace silt	-5
30								

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

Total Penetration in Earth: 45.1ft Rock: 0ft
No. of Soil Samples: 9 No. of Core Runs: 0
NOTES: Installed 2 in. observation well at 28.5 ft, filter sand placed to 8 ft, bentonite seal 6 to 8 ft, roaway box with 9/16 inch bolts at ground surface
Sheet 1 of 2
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-17 (OW)		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599386.4	
Start Date: 11-29-17	Route No.: East Avenue	Easting: 819620	
Finish Date: 11-30-17	Bridge No.: MNR 42.14	Surface Elevation: 20.8	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @16.1 after 5 days, @15.9 on 3/6/18, @13.9 on 3/23/18			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
30	S-6	3 3 2 3	24	18		Glacio Lacustrine (con't)	Gray brown SILT, trace f-sand	-10
35	S-7	2 5 18 12	24	18			Brown to rust brown laminated SILT, little f-sand; to f-SAND, little silt	
						Glacial Till	Gray c-f SAND and c-f GRAVEL, little silt	-15
40	S-8	21 27 26 28	24	14			Gray c-f GRAVEL, some c-f sand, little silt	-20
45	S-9	50/1"	1	1		Weathered Bedrock	Recovered gray SCHIST fragment	-25
50							END OF BORING 45.1ft	-30
55								-35
60								

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

Total Penetration in Earth: 45.1ft Rock: 0ft
No. of Soil Samples: 9 No. of Core Runs: 0
NOTES: Installed 2 in. observation well at 28.5 ft, filter sand placed to 8 ft, bentonite seal 6 to 8 ft, roaway box with 9/16 inch bolts at ground surface
Sheet 2 of 2
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: E. Cardona	Hole No.: B-18		
Inspector: T. Ta	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599310.7	
Start Date: 3-6-18	Route No.: East Avenue	Easting: 819677.8	
Finish Date: 3-6-18	Bridge No.: MNR 42.14	Surface Elevation: 35.8	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @Not encountered			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		35
							Previously hand excavated to 5 feet	
5	S-1	6 11 8 17	24	4			Brown to dark brown c-f SAND, little c-f gravel, little silt	30
	S-2	18 50/3"	9	3			Gray c-f GRAVEL and c-f SAND, trace silt (Encountered boulder from 7.8 feet to 9 feet. Unable to get water return and lost a lot of water)	
10	S-3	10 25 32 32	24	14		Glaciofluvial	Brown c-f SAND, some c-f gravel, some silt	25
							Brown c-f SAND, some m-f gravel, trace silt	
	S-4	40 37 56 55	24	14			Brown to gray c-f SAND and c-f GRAVEL, trace silt	
15	S-5	55 50 60 62	24	12			Brown c-f SAND, some m-f gravel, little silt	20
							END OF BORING 16ft	
20								15
25								10
30								

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

Total Penetration in Earth: Rock:
No. of Soil Samples: --- No. of Core Runs: ---
NOTES:
Sheet 1 of 1
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-19		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599244.4	
Start Date: 11-28-17	Route No.: East Avenue	Easting: 819682.1	
Finish Date: 11-29-17	Bridge No.: MNR 42.14	Surface Elevation: 21.9	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		
							Air excavated from 0 feet to 5 feet	20
5	S-1	12 21 26 27	24	14		Glaciofluvial	Mottled brown to tan rust brown c-f SAND and c-f gravel, trace silt	15
10	S-2	35 39 46	18	14			Mottled brown to tan rust brown c-f SAND and c-f GRAVEL, trace silt	10
15	S-3	7 18 16 15	24	12			Mottled brown to tan rust brown c-f SAND, some c-f gravel, trace silt	5
20	S-4	17 50/4"	10	4			Gray brown c-f SAND and c-f GRAVEL, trace silt	0
							Detected cobbles while roller bitting 21 to 24 feet	
25	S-5	7 12 24 38	24	10		Glacio Lacustrine	Mottled brown to red brown c-f SAND, some c-f gravel, trace silt	-5
30								

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

Total Penetration in Earth: 80.1ft Rock: 0ft
No. of Soil Samples: 16 No. of Core Runs: 0
NOTES: Drove 4 inch casing to 10 ft, roller bitted to 20 ft with mud, advanced 4 inch casing to 25 ft, roller bitted to 80 ft. with mud, drove 3 inch casing to 75 feet
Attempted to core with wireline but broke core barrel, unable to retrieve barrel. Abandoned hole at 80.1 ft
Sheet 1 of 3
SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray	Hole No.: B-19		
Inspector: G. Jacobsen	Town: Norwalk	Stat./Offset:	
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189	Northing: 599244.4	
Start Date: 11-28-17	Route No.: East Avenue	Easting: 819682.1	
Finish Date: 11-29-17	Bridge No.: MNR 42.14	Surface Elevation: 21.9	
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID	Core Barrel Type:	
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
30	S-6	5 3 4 4	24	12		Glacio Lacustrine (con't)	Gray brown f-SAND, some silt	-10
35	S-7	2 3 3 2	24	18			Gray brown f-SAND and SILT, to SILT and f-SAND	-15
40	S-8	5 5 7 10	24	18			Stratified gray to brown f-SAND, some to little silt	-20
45	S-9	2 2 2 2	24	18			Gray SILT	-25
50	S-10	4 5 5 5	24	20			Gray SILT, little f sand, with f sand partings	-30
55	S-11	2 2 3 4	24	18			Gray SILT, little f sand	-35
60								

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

Total Penetration in Earth: 80.1ft Rock: 0ft
No. of Soil Samples: 16 No. of Core Runs: 0
NOTES: Drove 4 inch casing to 10 ft, roller bitted to 20 ft with mud, advanced 4 inch casing to 25 ft, roller bitted to 80 ft. with mud, drove 3 inch casing to 75 feet
Attempted to core with wireline but broke core barrel, unable to retrieve barrel. Abandoned hole at 80.1 ft
Sheet 2 of 3
SM-001-M REV. 1/02

FOR INFORMATION ONLY

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/25/2019

DESIGNER/DRAFTER: MN
CHECKED BY: TC
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FIO-02_CNS_SHEET_0300-0202.dgn

SIGNATURE/
BLOCK:

PROJECT TITLE:
NETWORK INFRASTRUCTURE UPGRADE FOR SECURITY NEW HAVEN LINE PHASE 3

TOWN: STAMFORD TO WESTPORT

DRAWING TITLE: SUBSURFACE EXPLORATION BORING LOGS SHEET 1 OF 2

PROJECT NO. 0300-0202
DRAWING NO. FIO-02
SHEET NO. 07.03

Connecticut DOT Boring Report

Driller: Scott Bray			Hole No.: B-19
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599244.4
Start Date: 11-28-17	Route No.: East Avenue		Easting: 819682.1
Finish Date: 11-29-17	Bridge No.: MNR 42.14		Surface Elevation: 21.9
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations:			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
60	S-12	3 3 2 3	24	20		Glacio Lacustrine *(con't)*	Gray SILT, with layers of trace clay, trace fine sand	-40
65	S-13	2 3 4 5	24	20			Gray SILT	-45
70	S-14	6 7 8 9	24	20			Gray SILT and f-SAND	-50
						Glacial Till		
75	S-15	8 10 13 7	24	18			Gray c-f GRAVEL and c-f SAND, little silt	-55
						Weathered Bedrock		
80	S-16	50/1"	1	1			Gray decomposed SCHIST rock fragments visible	-60
							END OF BORING 80.1ft	
85								-65
90								

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

Total Penetration in Earth: 80.1ft Rock: 0ft	NOTES: Drove 4 inch casing to 10 ft, roller bitted to 20 ft with mud, advanced 4 inch casing to 25 ft, roller bitted to 80 ft. with mud, drove 3 inch casing to 75 feet Attempted to core with wireline but broke core barrel, unable to retrieve barrel. Abandoned hole at 80.1 ft	Sheet 3 of 3
No. of Soil Samples: 16 No. of Core Runs: 0		SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray			Hole No.: B-20 (OW)
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599031.5
Start Date: 12-4-17	Route No.: East Avenue		Easting: 819207.5
Finish Date: 12-5-17	Bridge No.: MNR 42.14		Surface Elevation: 28.4
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @moist at 27 ft, @26.8 on 3/6/18, @25.5 on 3/23/18			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		
						Glaciofluvial	Air excavated from 0 feet to 5 feet	25
5	S-1	6 19 21 31	24	14			Mottled brown c-f SAND and c-f GRAVEL, trace silt	20
10	S-2	19 23 33 31	24	14			Mottled brown c-f SAND and c-f GRAVEL, trace silt	15
15	S-3	41 50/5"	11	10			Mottled brown c-f SAND and c-f GRAVEL, trace silt, cobble fragments	10
20	S-4	31 30 26 24	24	14			Mottled brown c-f GRAVEL and c-f SAND, trace silt	5
25	S-5	14 33 45 50/5"	23	14			Brown to rust brown c-f SAND and c-f GRAVEL, cobble fragments, moist at 27ft	0
30								

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

Total Penetration in Earth: 47ft Rock: 0ft	NOTES: Drove 3 inch casing to 10 ft, roller bit ahead with mud. Install 2 inch PVC observation well with 10 ft. screen at 31 ft, filter sand 20 to 47 ft, bentonite 17 to 20 ft, roadway box with 9/16 inch bolts concreted at ground surface	Sheet 1 of 2
No. of Soil Samples: 9 No. of Core Runs: 0		SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Scott Bray			Hole No.: B-20 (OW)
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599031.5
Start Date: 12-4-17	Route No.: East Avenue		Easting: 819207.5
Finish Date: 12-5-17	Bridge No.: MNR 42.14		Surface Elevation: 28.4
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type:
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @moist at 27 ft, @26.8 on 3/6/18, @25.5 on 3/23/18			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
30	S-6	34 42 35 25	24	14		Glaciofluvial *(con't)*	Brown to rust brown c-f SAND and c-f GRAVEL	-5
						Glacio Lacustrine		
35	S-7	9 10 12 13	24	14			Brown f-SAND, little silt	-10
40	S-8	6 8 8 9	24	12			Brown stratified f-SAND to c-f SAND	-15
45	S-9	6 7 8 10	24	16			Brown SILT, some f sand	-20
							END OF BORING 47ft	
50								-25
55								-30
60								

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

Total Penetration in Earth: 47ft Rock: 0ft	NOTES: Drove 3 inch casing to 10 ft, roller bit ahead with mud. Install 2 inch PVC observation well with 10 ft. screen at 31 ft, filter sand 20 to 47 ft, bentonite 17 to 20 ft, roadway box with 9/16 inch bolts concreted at ground surface	Sheet 2 of 2
No. of Soil Samples: 9 No. of Core Runs: 0		SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Clayton Johnson			Hole No.: B-21
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599207.3
Start Date: 1-23-18	Route No.: East Avenue		Easting: 819595.1
Finish Date: 1-25-18	Bridge No.: MNR 42.14		Surface Elevation: 22.5
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type: NX
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @19			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
0						Fill		
							Hand excavated to 4ft, encountered concerning obstruction. Moved 6ft NE and hand excavated to 5ft	20
						Glaciofluvial		
5	S-1	20 35 46 50	24	18			Brown c-f SAND and c-f GRAVEL, trace silt	15
10	S-2	27 24 25 28	24	14			Brown c-f SAND, some c-f gravel, trace silt	10
15	S-3	20 17 18 16	24	14			Brown c-f SAND, some c-f gravel, trace silt	5
20	S-4	14 15 18 16	24	12			Brown c-f SAND, some c-f gravel, trace silt	0
25	S-5	14 7 11 12	24	10			Brown c-f SAND, trace m-f gravel, trace silt	-5
30								

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

Total Penetration in Earth: 70.1ft Rock: 10ft	NOTES: Solid stem augered 5 to 10 feet, then set 4 inch casing lost drill water return near top of bedrock	Sheet 1 of 3
No. of Soil Samples: 14 No. of Core Runs: 2		SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Clayton Johnson			Hole No.: B-21
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599207.3
Start Date: 1-23-18	Route No.: East Avenue		Easting: 819595.1
Finish Date: 1-25-18	Bridge No.: MNR 42.14		Surface Elevation: 22.5
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type: NX
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @19			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
30	S-6	14 12 20 15	24	12		Glacio Lacustrine *(con't)*	Dark rust brown f-SAND, trace silt, with layers of c-f sand and f-sand, some silt	-10
35	S-7	5 7 9 11	24	14			Brown f-SAND, trace silt	-15
40	S-8	6 7 7 7	24	14			Brown f-SAND, little silt grading to dark gray f-SAND and SILT	-20
45	S-9	WoH/12" 3 3	24	20			Dark gray SILT and f-SAND	-25
50	S-10	1 2 1 4	24	24			Dark gray SILT, with layers of little f-sand	-30
55	S-11	4 6 9 11	24	24			Dark gray SILT, with layers of little f-sand	-35
						Glacial Till	Roller bit ahead starting at 58 ft	
60								

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

Total Penetration in Earth: 70.1ft Rock: 10ft	NOTES: Solid stem augered 5 to 10 feet, then set 4 inch casing lost drill water return near top of bedrock	Sheet 2 of 3
No. of Soil Samples: 14 No. of Core Runs: 2		SM-001-M REV. 1/02

Connecticut DOT Boring Report

Driller: Clayton Johnson			Hole No.: B-21
Inspector: G. Jacobsen	Town: Norwalk		Stat./Offset:
Engineer: N. Whetten	Project No.: 300-033, 301-187, 301-189		Northing: 599207.3
Start Date: 1-23-18	Route No.: East Avenue		Easting: 819595.1
Finish Date: 1-25-18	Bridge No.: MNR 42.14		Surface Elevation: 22.5
Project Description: MNR Bridge No. 42.14 over East Avenue, Norwalk, CT			
Casing Size/Type: 4 in. ID	Sampler Type/Size: 1-3/8 inch ID		Core Barrel Type: NX
Hammer Wt.: 300lb Fall: 24in.	Hammer Wt.: 140lb Fall: 30in.		
Groundwater Observations: @19			

Depth (ft)	Sample Type/No.	Blows on Sampler per 6 inches	Pen. (in.)	Rec. (in.)	RQD %	Generalized Strata Description	Material Description and Notes	Elevation (ft)
60	S-12	17 27 30 25	24	16		Glacial Till *(con't)*	Gray to greenish gray c-f SAND, some c-f gravel, some silt	-40
65	S-13	44 26 33 25/2"	20	14			Gray to greenish gray c-f SAND, some c-f gravel, some silt	-45
70	S-14	50/1"	1	12		Weathered Bedrock	Gray to greenish gray c-f SAND, some c-f gravel, some silt, probable weathered rock	
	C-1		60	59	7	Weathered Bedrock	Medium strong to weak, mod to completely weathered gray to greenish gray medium grained GNEISS. Foliation very thin, mod to steeply dipping. Primary joints mod to steeply dipping, tight to open, parallel to foliation. Several vertical joints open.	-50
75						Bedrock	74.5 to 75 ft. completely weathered rock	
	C-2		60	14	0		Drill behavior suggested inner core barrel may have jammed after approximately 72" and grounded up remaining core. Relatavely soft/weathered bedrock	-55
80							END OF BORING 80.1ft	-60
85								-65
90								

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

Total Penetration in Earth: 70.1ft Rock: 10ft	NOTES: Solid stem augered 5 to 10 feet, then set 4 inch casing lost drill water return near top of bedrock	Sheet 3 of 3
No. of Soil Samples: 14 No. of Core Runs: 2		SM-001-M REV. 1/02

FOR INFORMATION ONLY

REV.	DATE	REVISION DESCRIPTION	SHEET NO.

THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK, SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE STATE AND IS IN NO WAY WARRANTED TO INDICATE THE CONDITIONS OF ACTUAL QUANTITIES OF WORK WHICH WILL BE REQUIRED.

Plotted Date: 6/25/2019

DESIGNER/DRAFTER: MN
CHECKED BY: TC
NOT TO SCALE

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION

Filename: ...\FIO-03_CNS_SHEET_0300-0202.dgn

SIGNATURE/
BLOCK:

PROJECT TITLE:
NETWORK INFRASTRUCTURE UPGRADE FOR SECURITY NEW HAVEN LINE PHASE 3

TOWN: **STAMFORD TO WESTPORT**

DRAWING TITLE: **SUBSURFACE EXPLORATION BORING LOGS SHEET 2 OF 2**

PROJECT NO. **0300-0202**
DRAWING NO. **FIO-03**
SHEET NO. **07.04**