



BORING LOG

ROCHESTER
ER-BRF 0162(18)
VT-73 BR-19

Boring No.: B-102
Page No.: 1 of 2
Pin No.: 11C332
Checked By: CEE

Boring Crew: SALISBURY, GARROW
Date Started: 3/27/12 Date Finished: 3/29/12
VTSPG NAD83: N 497119.90 ft E 1558458.40 ft
Station: 12+96 Offset: 7.00
Ground Elevation: 824.8 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK CE = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
03/28/12	8.0	AM

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (0lp dep.)	Core Rec. (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.5 ft								
		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft, NXDC				6-12-8-10 (20)	8.1	44.9	38.7	16.4
		A-1-a, SaGr, brn, Moist, Rec. = 1.0 ft, NXDC				5-13-13-17 (26)	7.4	54.9	32.4	12.7
		A-1-b, SaGr, grn-brn, Moist, Rec. = 0.8 ft, NXDC				20-15-18-25 (33)	6.8	52.6	32.8	14.6
		Field Note: No Recovery, Rock in sampler.				RØ5.0"				
		Field Note: NXDC, Cobbles								
		A-1-a, SaGr, brn, Moist, Rec. = 1.3 ft, NXDC				12-22-23-18 (45)	9.8	52.4	35.1	12.5
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft, NXDC				3-8-6-4 (14)	13.9	43.1	44.5	12.4
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft, NXDC, Lost water return at 13.0 ft.				4-3-2-5 (5)	15.3	34.8	51.7	13.5
		A-4, SiSa Varved, brn, Moist, Rec. = 1.3 ft, NXDC				3-2-2-4 (4)	33.7	6.2	51.1	42.7
		A-2-4, GrSa Varved, brn, Moist, Rec. = 1.0 ft, NXDC				3-2-2-4 (4)	27.9	43.0	45.9	11.1
		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft, NXDC				7-8-5-4 (13)	12.8	48.5	42.6	8.9
		Field Note: No Recovery, NXDC, Gravel				3-4-4-1 (8)				
		Field Note: No Recovery, Rock in sampler.				5-5-5-6 (10)				
		A-1-a, SaGr, brn, Moist, Rec. = 1.2 ft, NXDC				6-7-8-8 (15)	12.4	52.3	38.3	9.4
		A-2-4, GrSa, brn, Moist, Rec. = 1.1 ft, NXDC				6-4-5-8 (9)	17.2	26.8	54.7	18.5
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft, NXDC				6-6-4-5 (10)	15.1	32.8	57.4	9.8
		A-1-a, SaGr, brn, Moist, Rec. = 0.8 ft, NXDC				3-3-4-9 (7)	15.0	64.7	26.3	9.0
		Field Note: NXDC, Gravel								
		A-4, SiSa, brn, Moist, Rec. = 1.0 ft				6-5-6-7 (11)	25.4	0.2	63.4	36.4
		A-2-4, Sa, brn, Moist, Rec. = 1.0 ft				3-4-4-5 (8)	26.3	7.4	75.7	16.9

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BORING LOG
ROCHESTER
ER-BRF 0162(18)
VT-73 BR-19

Boring No.: B-102
Page No.: 2 of 2
Pin No.: 11C332
Checked By: CEE

Boring Crew: SALISBURY, GARROW
Date Started: 3/27/12 Date Finished: 3/29/12
VTSPG NAD83: N 497119.90 ft E 1558458.40 ft
Station: 12+96 Offset: 7.00
Ground Elevation: 824.8 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK CE = 1.34

Groundwater Observations		
Date	Depth (ft)	Notes
03/28/12	8.0	AM

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (0lp dep.)	Core Rec. (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note: No Recovery				5-5-6-6 (11)				
		Field Note: NXDC, Sand, Used Bentonite.								
		A-2-4, Sa, brn, Moist, Rec. = 1.4 ft				6-7-9-8 (16)	26.4		87.6	12.4
		Field Note: Casing locked up at 55.0 ft., Very fine sand. Sleaved down to 3 inch casing.								
		A-4, SiSa, brn, Moist, Rec. = 1.4 ft				7-8-12-12 (20)	23.3		53.9	46.1
		A-2-4, GrSiSa, brn, Moist, Rec. = 1.0 ft				12-15-13-15 (28)	24.0	20.1	59.6	20.3
		A-4, SiSa, gry, Moist, Rec. = 0.5 ft					27.9		63.3	36.7
		A-2-4, SiSa, brn, Moist, Rec. = 1.4 ft				15-16-16-20 (52)	23.8	7.7	62.6	29.7
		Field Note: BXDC, Very weathered bedrock								
		73.0 ft - 78.0 ft, Pale green, Quartz-sericite Schist, and chloritoid phyllite with quartzite. Moderately soft, Unweathered, Fair rock, BXGDC, Poor RQD may be the result of mechanical breakage. RMR = 49	1 (55)	74 (0)	5					Top of Bedrock @ 73.0 ft
		78.0 ft - 83.0 ft, Pale green, Quartz-sericite Schist, and chloritoid phyllite with quartzite. Moderately soft, Unweathered, Fair rock, BXGDC, Poor RQD may be the result of mechanical breakage. RMR = 49	2 (55)	76 (0)	5					
		Hole stopped @ 83.0 ft								

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
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STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

ROCHESTER
ER-BRF 0162(18)
VT-73 BR-19

Boring No.: B-103

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Pin No.: 11C332

Checked By: CEE

Boring Crew: SALISBURY, GARROW
Date Started: 3/27/12 Date Finished: 3/28/12
VTSPG NAD83: N 497057.50 ft E 1558593.00 ft
Station: 14+43 Offset: -12.50
Ground Elevation: 826.6 ft

Casing: WB Sampler: SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C TRACK CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
03/27/12	7.4	AM

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.3 ft								
5		A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft				5-5-6-10 (11)	10.7	44.3	41.3	14.4
		A-1-b, SaGr, brn, Moist, Rec. = 0.7 ft				2-4-4-3 (8)	15.7	54.7	27.0	18.3
		A-2-4, SiGrSa, brn, Moist, Rec. = 1.0 ft				6-3-2-3 (5)	17.3	29.0	49.8	21.2
10		A-2-4, GrSa, brn, Moist, Rec. = 0.7 ft				3-3-3-3 (6)	12.4	31.8	50.7	17.5
		A-2-4, GrSa, brn, Moist, Rec. = 0.7 ft				3-2-3-2 (5)	12.6	29.2	56.9	13.9
15		A-1-b, GrSa, brn, Moist, Rec. = 0.3 ft, Broken Rock was within sample. Advanced casing. Field Note:, NXMDC, Boulders				R@3.5"	14.1	29.3	56.4	14.3
		Field Note:, Possible Void								
20		Field Note:, NXMDC, Boulders								
		Field Note:, Possible Void								
		A-1-b, Weathered Rock with Sandy Gravel, brn, Moist, Rec. = 0.8 ft				4-5-R@6.0"	11.4	49.0	34.4	16.6
25		24.0 ft - 29.0 ft, Gray, Grading to pale green quartz-sericite Schist, with quartzite. Medium hard, Unweathered, Fair rock, NXMDC, RMR = 59	1 (55)	86 (54)	8 5 6 5 5	Top of Bedrock @ 24.0 ft				
30		29.0 ft - 34.0 ft, Pale green, Quartz-sericite Schist, with quartzite. Moderately hard, Unweathered, Good rock, NXMDC, RMR = 63	2 (55)	94 (86)	5 7 7 7 8					
35		Hole stopped @ 34.0 ft								

Notes:

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BORING LOG

ROCHESTER
 ER-BRF 0162(18)
 VT-73 BR-19

Boring No.: B-104
 Page No.: 1 of 1
 Pin No.: 11C332
 Checked By: CEE

Boring Crew: SALISBURY, GARROW
 Date Started: 3/27/12 Date Finished: 3/27/12
 VTSPG NAD83: N 497038.70 ft E 1558581.80 ft
 Station: 14+44 Offset: 9.50
 Ground Elevation: 826.7 ft

Casing: WB Sampler: SS
 I.D.: 4 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C TRACK CE = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		None Taken.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 1.1 ft								
5		Field Note:, NXDC, Gravel A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft				5-5-4-4 (9)	10.3	34.7	50.9	14.4
10		Field Note:, NXDC, Gr Sa Si A-2-4, GrSa, brn, Moist, Rec. = 0.8 ft				3-2-3-3 (5)	12.9	20.3	61.2	18.5
15		Field Note:, NXDC, Gravel A-1-b, SaGr, brn, Moist, Rec. = 1.0 ft, Broken Rock was within sample.				3-4-14-12 (18)	9.1	57.7	31.8	10.5
20		Field Note:, Possible Void Field Note:, NXDC, Possible Silt Visual Description, Large chunks of Wood with sand & gravel, brn, Moist, Rec. = 0.5 ft				8-3-5-8 (8)				
25		Field Note:, NXDC A-1-a, Weathered Rock with Sand & Gravel, brn, Moist, Rec. = 1.1 ft				10-8-7-17 (15)	8.8	58.5	28.2	13.3
30		25.5 ft - 30.5 ft, Pale green, Quartz-sericite Schist, and chloritoid phyllite with quartzite. Moderately soft to moderately hard, Unweathered, Fair rock, NXMDC, RMR = 54	1 (55)	100 (40)	5 6 8 6 6	Top of Bedrock @ 25.5 ft				
35		30.5 ft - 35.5 ft, Pale green, Quartz-sericite Schist, with quartzite. Moderately hard, Unweathered, Fair rock, NXMDC, Severely weathered vug at 32.7 feet. RMR = 59	2 (55)	100 (64)	5 6 4 5 6					
		Hole stopped @ 35.5 ft								

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BORING LOG 2 ROCHESTER ER-BRF 0162(18).GPJ VERMONT AOT.GDT 6/1/12



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BORING LOG

ROCHESTER
 ER-BRF 0162(18)
 VT-73 BR-19

Boring No.: B-201

Page No.: 1 of 1

Pin No.: 11C332

Checked By: CCB

Boring Crew: GARROW, JUDKINS, DAIGNEAULT

Date Started: 4/11/13 Date Finished: 4/11/13

VTSPG NAD83: N 497024.36 ft E 1558616.44 ft

Station: 236+35.0 Offset: 12.00

Ground Elevation: 827.4 ft

Type: WB SS
 I.D.: 4 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 55 TRACK C = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
04/11/13	9.8	After drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Asphalt Pavement, 0.0 ft - 0.78 ft								
2.5		A-1-b, GrSa, Dk/brn, Moist, Rec. = 1.2 ft				5-8-12-15 (20)	9.8	36.9	44.7	18.4
5.0		Field Note:, NXDC. Appears to be Gravelly Sand								
5.0		A-1-b, SiSaGr, brn, Moist, Rec. = 1.0 ft, Lab Note: Broken Rock was within sample.				16-16-R@5.0" (R)	9.1	43.3	36.2	20.5
7.5		Field Note:, NXDC								
10.0		8.0 ft - 13.0 ft, Pale green, Quartz-sericite Schist, with Quartzite. Moderate weathering along joint surfaces. Moderately hard, Fair rock, NXMDC, RMR = 54	1 (50)	100 (48)	6					
12.5					7					
					9					
					6					
					5					

Hole stopped @ 13.0 ft

15.0
 17.5
 20.0
 22.5

Remarks:
 Hole collapsed at 6.7 ft.
 Northing, Easting, and Elevation are based off stations and offsets attained in the field and a topographic survey.

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BORING LOG 2 ROCHESTER ER-BRF 0162(18).GPJ VERMONT AOT.GDT 5/13/13



STATE OF VERMONT
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BORING LOG

ROCHESTER
 ER-BRF 0162(18)
 VT-73 BR-19

Boring No.: B-202
 Page No.: 1 of 1
 Pin No.: 11C332
 Checked By: CCB

Boring Crew: GARROW, JUDKINS, DAIGNEAULT
 Date Started: 4/11/13 Date Finished: 4/11/13
 VTSPG NAD83: N 497007.06 ft E 1558606.86 ft
 Station: 236+15.0 Offset: 11.40
 Ground Elevation: 827.1 ft

Casing Type: WB Sampler: SS
 I.D.: 4 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 55 TRACK C = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
04/11/13	3.5	While drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RCD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	
0.0 - 0.7		Asphalt Pavement, 0.0 ft - 0.7 ft									
0.7 - 2.9		A-2-4, SiGrSa, brn, Moist, Rec. = 1.0 ft				9-12-13-12 (25)	10.3	30.8	48.5	20.7	
2.9 - 4.0		Field Note: NXDC, Possible Top of Bedrock at 4.0 ft.									
4.0 - 10.0		5.0 ft - 10.0 ft, Pale green, Quartz-sericite Schist, with Quartzite. Moderately hard, Unweathered, Good rock, NXMDC, RMR = 63	1 (35)	100 (88)	7 7 7 5 5						
10.0 - 22.5		Hole stopped @ 10.0 ft									
10.0 - 22.5		Remarks: Hole collapsed at 2.9 ft. Northing, Easting, and Elevation are based off stations and offsets attained in the field and a topographic survey.									

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BORING LOG

ROCHESTER
ER-BRF 0162(18)
VT-73 BR-19

Boring No.: B-203
Page No.: 1 of 1
Pin No.: 11C332
Checked By: CCB

Boring Crew: GARROW, JUDKINS
Date Started: 4/09/13 Date Finished: 4/09/13
VTSPG NAD83: N 497041.91 ft E 1558625.50 ft
Station: 236+55.0 Offset: 11.70
Ground Elevation: 827.5 ft

Casing: WB Sampler: SS
Type: WB SS
I.D.: 4 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 55 TRACK C = 1.46

Groundwater Observations		
Date	Depth (ft)	Notes
04/09/13	3.0	While drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 0.6		Asphalt Pavement, 0.0 ft - 0.6 ft								
2.5		A-1-b, SaGr, Dk/brn, Moist, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				7-11-15-23 (26)	7.7	44.2	38.3	17.5
5.0		A-1-b, SiSaGr, gry-brn, Moist, Rec. = 1.2 ft, Lab Note: Lots of Pulverized Broken Rock was within sample.				18-14-20-25 (34)	10.2	48.5	31.0	20.5
5.0		Field Note: No Recovery. Appears to be Gravely Sand				15-18-18-18 (36)				
7.5		Visual Description: SiSa with large pieces of Broken Rock, gry, MTW, Rec. = 0.4 ft, Insufficient sample for testing.				17-20-25-36 (45)	11.3			
10.0		Visual Description: Broken Rock, gry, MTW				R@2.5"				
9.2 - 14.2		9.2 ft - 14.2 ft, Pale green, Quartz-sericite Schist, with Quartzite. Moderately hard, Unweathered, Fair rock, NXMDC, RMR = 54	1 (75)	96 (46)	5					Top of Bedrock @ 9.2 ft
10.0					5					
12.5					5					
12.5					6					
15.0					10					
14.2 - 19.2		14.2 ft - 19.2 ft, Pale green, Quartz-sericite Schist, with Quartzite. Moderately hard, Unweathered, Good rock, NXMDC, RMR = 66	2 (75)	100 (100)	10					
15.0					9					
17.5					8					
17.5					6					
17.5					6					
20.0		Hole stopped @ 19.2 ft								
22.5		Remarks: Hole collapsed at 6.3 ft. Northing, Easting, and Elevation are based off stations and offsets attained in the field and a topographic survey.								

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
2. N Values have not been corrected for hammer energy. C is the hammer energy correction factor.
3. Water level readings have been made at times and under conditions stated. Fluctuations may occur due to other factors than those present at the time measurements were made.

BORING LOG 2 ROCHESTER ER-BRF 0162(18), GPJ VERMONT AOT.GDT 5/13/13