



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 MATERIALS & RESEARCH SECTION
 SUBSURFACE INFORMATION

BORING LOG

RICHMOND
 STP 0284(17)
 US-2

Boring No.: B-101
 Page No.: 1 of 1
 Pin No.: 97C186
 Checked By: CEE

Boring Crew: PORTER, WHITLOCK, HOLT
 Date Started: 2/15/12 Date Finished: 2/15/12
 VTSPG NAD83: N 701850.10 ft E 1506561.00 ft
 Station: 6+25 Offset: -34.00
 Ground Elevation: 328.6 ft

Casing: H.S.A. Sampler: SS
 I.D.: 3.5 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-a, SaGr, brn, Moist, Taken from auger flight		6.4	59.2	25.4	15.4
5		A-4, SaSi, brn, Moist, Rec. = 1.1 ft, Trace of Clay.	7-4-3-4 (7)	14.3	2.1	28.1	69.8
		A-4, SaSi, brn, Moist, Rec. = 1.7 ft, Trace of Clay.	3-5-6-5 (11)	13.6	0.9	25.2	73.9
		A-4, SaSi, brn, Moist, Rec. = 1.9 ft, Trace of Clay.	8-8-9-9 (17)	14.3	0.9	42.1	57.0
		A-4, SaSi, brn, Moist, Rec. = 1.7 ft	3-5-4-4 (9)	13.4	0.2	32.5	67.3
		A-4, SaSi, brn, Moist, Rec. = 1.7 ft, Trace of Clay.	4-7-8-12 (15)	14.4		29.5	70.5
15		A-4, SaSi, brn, Moist, Rec. = 1.6 ft, Trace of Clay.	8-10-11-15 (21)	17.1		24.5	75.5
20		Field Note:, Cobbles					
		Field Note:, No Recovery. Stone in sampler., Rec. = 0.3 ft					
		Field Note:, Cobbles					
25		A-4, SaSi, brn, Moist, Sample taken from auger flights. Trace of Clay.	8-R@1.0"	17.1	0.4	23.8	75.8
		Field Note:, Cobbles					
		Hole stopped @ 25.6 ft In Cobbles or on Ledge.					
30		Remarks: Lab Note: Samples with "Trace of Clay" had noticeable clay within the sample, but an insufficient amount for testing. The amounts of clay were very small with very thin layers within the sample. It was lean clay with low to medium Limits.					

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



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BORING LOG

RICHMOND
 STP 0284(17)
 US-2

Boring No.: B-102
 Page No.: 1 of 1
 Pin No.: 97C186
 Checked By: CEE

Boring Crew: PORTER, WHITLOCK, HOLT
 Date Started: 2/15/12 Date Finished: 2/15/12
 VTSPG NAD83: N 701801.00 ft E 1506628.80 ft
 Station: 6+86 Offset: 23.00
 Ground Elevation: 326.3 ft

Casing: H.S.A. Sampler: SS
 I.D.: 3.5 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-a, SaGr, brn, Moist, Taken from Auger Flights.		5.2	57.9	31.3	10.8
		A-2-4, Sa, brn, Moist, Rec. = 1.9 ft	9-16-24-23 (40)	9.2	16.3	64.8	18.9
5		A-4, SiSa, brn, Moist, Rec. = 1.3 ft, Trace of Clay.	14-17-27-10 (31)	13.5	11.1	44.8	44.1
		A-4, SaSi, brn, Moist, Rec. = 1.6 ft, Trace of Clay.	7-7-9-10 (16)	18.0	2.5	26.7	70.8
10		A-4, SaSi, brn, Moist, Rec. = 1.2 ft	6-2-3-7 (5)	13.1	4.2	33.8	62.0
		A-4, SaSi, brn, Moist, Rec. = 1.0 ft, Trace of Clay.	5-13-14-17 (27)	11.7	4.1	26.2	69.7
15		A-4, SaSi, brn, Moist, Rec. = 1.9 ft, Trace of Clay.	5-13-12-13 (25)	15.4	1.3	21.1	77.6
		Field Note:, Cobbles					
20		A-4, SaSi, brn, Moist, Rec. = 1.4 ft, Trace of Clay.	3-7-10-11 (17)	15.1	0.8	31.7	67.5
25		A-4, SaSi, brn, Moist, Rec. = 1.7 ft, Trace of Clay.	8-10-11-15 (21)	16.5	0.4	25.3	74.3
		Hole stopped @ 27.0 ft					
30		Remarks: Lab Note: Samples with "Trace of Clay" had noticeable clay within the sample, but an insufficient amount for testing. The amounts of clay were very small with very thin layers within the sample. It was lean clay with low to medium Limits.					

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

BORING LOG 2 RICHMOND STP 0284(17).GPJ VERMONT AOT.GDT 3/28/12



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BORING LOG

RICHMOND
 STP 0284(17)
 US-2

Boring No.: B-103
 Page No.: 1 of 1
 Pin No.: 97C186
 Checked By: CEE

Boring Crew: PORTER, WHITLOCK, HOLT
 Date Started: 2/13/12 Date Finished: 2/13/12
 VTSPG NAD83: N 701412.80 ft E 1507581.40 ft
 Station: 17+44 Offset: -30.00
 Ground Elevation: 304.0 ft

Casing: H.S.A. Sampler: SS
 I.D.: 3.5 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
		None Taken

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SiSa, brn, Moist, Taken from Auger Flights.		11.8	16.8	57.2	26.0
		A-1-b, SiGrSa, brn, Moist, Rec. = 1.2 ft	13-11-8-7 (19)	9.1	31.7	43.4	24.9
5		Rec. = 1.0 ft	7-6-5-7 (11)	25.0	7.1	17.8	75.1
		A-4, Si, brn, Moist, Rec. = 0.7 ft	4-3-4-6 (7)	20.7	2.7	39.3	58.0
		A-2-4, SiSa, brn, Moist, Rec. = 1.7 ft	4-5-5-6 (10)	16.2	0.9	70.8	28.3
10		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	4-7-8-8 (15)	11.9	30.9	58.6	10.5
		A-1-b, GrSa, brn, MTW, Rec. = 0.8 ft	11-6-13-8 (19)	16.5	43.8	45.9	10.3
20		A-1-b, GrSa, gry, MTW, Rec. = 1.0 ft	6-6-6-6 (12)	19.7	28.5	61.2	10.3
25		A-1-b, GrSa, gry, Moist, Rec. = 1.0 ft	7-6-8-7 (14)	14.7	33.2	47.5	19.3

Hole stopped @ 27.0 ft

BORING LOG 2 RICHMOND STP 0284(17).GPJ VERMONT AOT.GDT 3/28/12

Notes: 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
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BORING LOG

RICHMOND
STP 0284(17)
US-2

Boring No.: B-104
Page No.: 1 of 1
Pin No.: 97C186
Checked By: CEE

Boring Crew: PORTER, WHITLOCK, HOLT
Date Started: 2/09/12 Date Finished: 2/09/12
VTSPG NAD83: N 701348.00 ft E 1507551.50 ft
Station: 17+55 Offset: 40.00
Ground Elevation: 302.6 ft

Casing Sampler
Type: H.S.A. SS
I.D.: 3.5 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C SKID CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
02/10/12	5.5	AM

Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		A-2-4, SiGrSa, brn, Moist, Taken from Auger Flights.		15.3	25.3	53.9	20.8		
		A-4, SaSi, brn, Moist, Rec. = 1.5 ft	10-13-9-9 (22)	20.2		21.6	78.4		
5		A-2-4, Sa, brn, Moist, Rec. = 1.4 ft	3-4-5-7 (9)	12.0	3.5	76.9	19.6		
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	4-7-6-7 (13)	3.7	25.3	69.3	5.4		
		A-1-b, GrSa, brn, Moist, Rec. = 1.0 ft	3-7-9-9 (16)	9.5	40.8	50.7	8.5		
10		A-1-b, GrSa, brn, Wet, Rec. = 0.9 ft	7-8-10-8 (18)	15.8	40.4	49.8	9.8		
15		A-1-b, GrSa, brn, Wet, Rec. = 1.5 ft	14-27-24-19 (51)	13.2	35.9	54.2	9.9		
20		A-1-b, GrSa, gry, Wet, Rec. = 1.0 ft	9-11-13-21 (24)	11.7	35.7	53.8	10.5		
25		A-1-b, GrSa, gry, Wet, Rec. = 0.6 ft	9-5-6-6 (11)	14.4	32.0	48.3	19.7		
		A-4, Si, gry, Moist, Rec. = 0.7 ft		26.3	3.1	11.0	85.9	26	4
		Hole stopped @ 27.0 ft							
30									

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BORING LOG 2 RICHMOND STP 0284(17).GPJ VERMONT AOT.GDT 3/28/12



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MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

RICHMOND
STP 0284(17)
US-2

Boring No.: B-105
Page No.: 1 of 1
Pin No.: 97C186
Checked By: CEE

Boring Crew: PORTER, HOLT
Date Started: 2/16/12 Date Finished: 2/16/12
VTSPG NAD83: N 701365.70 ft E 1507636.60 ft
Station: 18+16 Offset: -23.00
Ground Elevation: 304.2 ft

Casing: H.S.A. Sampler: SS
Type: H.S.A. I.D.: 3.5 in 1.5 in
Hammer Wt: N.A. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Auto/AWJ
Rig: CME 45C SKID CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
		None Taken.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
		A-1-b, SaGr, brn, Moist, Taken from Auger flight.		10.2	49.6	32.0	18.4		
		A-4, GrSaSi, brn, Moist, Rec. = 1.1 ft	7-11-14-16 (25)	14.8	23.4	34.0	42.6		
5		Field Note: No Recovery. Stone in sampler.	23-43-37-57 (80)						
		A-2-4, SiSa, brn, Moist, Rec. = 1.4 ft, Also hitting Cobbles.	18-24-21-18 (45)	9.2	18.5	50.7	30.8		
		A-2-4, SiSa, brn, Moist, Rec. = 1.6 ft	4-5-4-5 (9)	13.6	1.2	64.6	34.2		
10		A-1-b, GrSa, brn, MTW, Rec. = 1.2 ft	5-9-11-8 (20)	12.0	43.9	46.2	9.9		
15		A-1-b, GrSa, brn, Wet, Rec. = 1.2 ft	6-7-8-7 (15)	15.1	42.0	47.2	10.8		
20		A-1-b, SaGr, brn, Wet, Rec. = 1.2 ft	5-7-7-8 (14)	13.2	46.6	43.7	9.7		
25		A-1-a, SaGr, brn, Wet, Rec. = 0.6 ft	5-7-9-11 (16)	13.4	56.5	33.9	9.6		
		A-4, Si, gry, Moist, Rec. = 0.5 ft		27.6	2.2	97.8	27	3	
		Hole stopped @ 27.0 ft							

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BORING LOG 2 RICHMOND STP 0284(17).GPJ VERMONT AOT.GDT 3/28/12



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BORING LOG

RICHMOND
 STP 0284(17)
 US-2

Boring No.: B-106

Page No.: 1 of 1

Pin No.: 97C186

Checked By: CEE

Boring Crew: PORTER, WHITLOCK, HOLT
 Date Started: 2/09/12 Date Finished: 2/09/12
 VTSPG NAD83: N 701295.70 ft E 1507627.60 ft
 Station: 18+48 Offset: 40.00
 Ground Elevation: 303.6 ft

Type: H.S.A. SS
 I.D.: 3.5 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID CE = 1.33

Groundwater Observations		
Date	Depth (ft)	Notes
02/09/12	9.2	

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-2-4, SaSiGr, brn, Moist, Sample off auger flight.		13.0	46.5	23.2	30.3
		A-2-4, SiSa, brn, Moist, Rec. = 1.6 ft	31-40-35-38 (75)	9.6	14.6	64.3	21.1
5		A-2-4, SaSiGr, brn, Moist, Rec. = 1.5 ft	16-25-37-24 (62)	8.2	38.0	30.4	31.6
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.5 ft	9-11-17-9 (18)	10.4	25.9	45.5	28.6
		A-2-4, Sa, gry, MTW		17.9	3.1	77.6	19.3
10		A-4, Si with a Trace of Organics (2.6%), gry, Moist, Rec. = 1.3 ft	2-3-5-6 (8)	35.9	0.9	11.5	87.6
		A-4, Si with Little Organics (11.8%), Dk/gry, Moist, Rec. = 2.0 ft	WH-WH-3-2 (3)	62.1		6.9	93.1
20		A-4, Si with a Trace of Organics (2.1%), gry, MTW, Rec. = 2.0 ft	WH-WH-3-3 (3)	36.3	0.1	19.9	80.0
25		A-2-4, Sa, gry, Wet, Rec. = 1.5 ft	5-5-6-7 (11)	19.8	14.0	67.7	18.3
		Hole stopped @ 27.0 ft					
30		Remarks: 1. First sample was off auger flight, due to frost. 2. At 27.0 feet they could not keep wet sand from coming back into auger when trying to sample deeper.					

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BORING LOG 2 RICHMOND STP 0284(17).GPJ VERMONT AOT.GDT 3/28/12



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MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING LOG

RICHMOND
CMG PARK(31)
US-2

Boring No.: B-107
Page No.: 1 of 1
Pin No.: 05K216
Checked By: CEE

Boring Crew: SALISBURY, GARROW
Date Started: 3/22/12 Date Finished: 3/22/12
VTSPG NAD83: N 701520.40 ft E 1507681.70 ft
Station: 72+85 Offset: -56.00
Ground Elevation: 310.3 ft

Casing: H.S.A. Sampler: SS
Type: H.S.A. I.D.: 3 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
03/22/12	17.5	While drilling.

Depth (ft)	Strata (i)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
5		A-4, ClSi, gry, Moist, Rec. = 1.0 ft	2-2-2-3 (4)	23.4		2.6	97.4	30	8
		A-4, Si, gry, Moist, Rec. = 1.2 ft	2-2-4-5 (6)	22.4		5.7	94.3	28	5
10		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft	2-9-19-9 (28)	6.6	27.5	56.2	16.3		
		A-4, Si, brn, Moist, Rec. = 1.2 ft	3-3-4-4 (7)	25.2		9.9	90.1		
		A-4, SiSa, brn, Moist, Rec. = 1.7 ft	2-3-2-3 (5)	16.7		53.3	46.7		
15		A-2-4, Sa, brn, Moist, Rec. = 1.8 ft	2-2-2-2 (4)	15.4		81.0	19.0		
20		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft	6-13-11-11 (24)	14.0	42.0	50.3	7.7		
25		A-1-b, GrSa, gry, Moist, Rec. = 1.0 ft	3-4-4-4 (8)	13.4	45.0	45.9	9.1		
30		Hole stopped @ 27.0 ft							

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BORING LOG 2 RICHMOND CMG PARK(31).GPJ VERMONT AOT.GDT 3/28/12



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BORING LOG

RICHMOND
 CMG PARK(31)
 US-2

Boring No.: B-108

Page No.: 1 of 1

Pin No.: 05K216

Checked By: CEE

Boring Crew: PORTER, EWALD

Date Started: 2/17/12 Date Finished: 2/17/12

VTSPG NAD83: N 701442.30 ft E 1507604.90 ft

Station: 72+33 Offset: 40.00

Ground Elevation: 305.2 ft

Type: H.S.A. SS
 I.D.: 3.5 in 1.5 in
 Hammer Wt: N.A. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Auto/AWJ
 Rig: CME 45C SKID CE = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
02/17/12		Hole collapsed. 6.5'

Depth (ft)	Strata (I)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Field Note: Asphalt Pavement					
		A-1-a, Gr (Crushed Rock Fill), brn, Moist, Taken from Auger Flight.		1.5	87.5	10.0	2.5
		A-2-4, SiSa, brn, Moist, Rec. = 1.5 ft	6-10-9-7 (19)	8.0	1.8	72.8	25.4
5		A-4, SaSi, Dk/brn, Moist, Rec. = 1.4 ft, Trace of Wood.	6-5-6-6 (11)	23.8	7.7	25.7	66.6
		A-4, Si, brn, Moist, Rec. = 1.7 ft	7-9-8-6 (17)	29.9		3.3	96.7
		A-4, SaSi, brn, Moist, Rec. = 1.7 ft	2-3-4-3 (7)	23.0	0.5	24.0	75.5
10		A-2-4, SiSa, brn, Moist, Rec. = 1.6 ft	2-3-4-5 (7)	19.0	0.1	70.7	29.2
15		A-1-a, SaGr, brn, Wet, Rec. = 0.8 ft	8-8-8-7 (16)	11.8	50.6	42.1	7.3
20		A-1-a, SaGr, brn-gry, Wet, Rec. = 0.5 ft	2-1-WH-WH (1)	11.7	52.8	40.3	6.9
25		A-1-b, GrSa, gry, Wet, Rec. = 1.4 ft	7-7-6-5 (13)	14.2	36.0	54.5	9.5
		Hole stopped @ 27.0 ft					
30		Remarks: 1. Used water in hole to prevent sand from coming up into hole starting at 15.0 foot sample.					

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BORING LOG 2 RICHMOND CMG PARK(31).GPJ VERMONT AOT.GDT 3/28/12