



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 CONSTRUCTION AND
 MATERIALS BUREAU
 CENTRAL LABORATORY

BORING LOG

**SANDGATE
 BO 1441(30)
 TH-9 BR-27**

Boring No.: **B-101**
 Page No.: **1 of 1**
 Pin No.: **13J086**
 Checked By: **CEE**

Boring Crew: JUDKINS, HOOK
 Date Started: 5/21/15 Date Finished: 5/21/15
 VTSPG NAD83: N 245417.04 ft E 1442035.54 ft
 Station: 11+68 Offset: -12.00
 Ground Elevation: 889.7 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
05/21/15	13.5	While drilling.
05/27/15	12.5	Prior pulling casing.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Groundwater Observations				
						Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
10		A-1-b, SaGr, brn-grn, Moist, Rec. = 0.8 ft, Lab Note: Broken Rock was within sample.				1-1-2-4 (3)	16.5	48.7	32.5	18.8
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, brn-grn, MTW, Rec. = 1.1 ft, Lab Note: Broken Rock was within sample.				9-20-12-28 (32)	10.7	58.9	29.3	11.8
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, brn-grn, MTW, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.				19-15-14-13 (29)	11.3	58.6	29.7	11.7
		Field Note:, NXDC, Cleaned out casing								
20		A-1-a, SaGr, brn-grn, Moist, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.				14-10-11-16 (21)	10.4	60.6	24.8	14.6
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, Lt/brn-grn, MTW, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.				12-11-9-17 (20)	11.3	61.6	26.7	11.7
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, Lt/brn-grn, MTW, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.				15-17-14-15 (31)	10.7	61.1	27.1	11.8
		Field Note:, NXDC, Cleaned out casing								
30		A-1-a, SaGr, Lt/brn-grn, MTW, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				7-9-9-22 (18)	13.0	59.2	31.5	9.3
		Field Note:, NXDC, Cleaned out casing								
		Visual Description:, Severely Weathered Rock, Lt/brn, Moist, Rec. = 0.1 ft					R@1.0" (R)			
		Field Note:, NXDC, Cleaned out casing								
40		39.5 ft - 44.5 ft, Light green & gray, PHYLLITE, with rare quartz veins. Medium hard, Slightly weathered, Poor rock, NXMDC, Rust staining on joints. RMR = 27	1 (20)	90 (8)	2					
		44.5 ft - 49.5 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Poor rock, NXMDC, Rust and purple staining on joints. RMR = 27	2 (20)	100 (8)	2					
50		Hole stopped @ 49.5 ft								

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 SANDGATE BO 1441(30).GPJ VERMONT AOT.GDT 6/23/15



STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

**SANDGATE
BO 1441(30)
TH-9 BR-27**

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 13J086
Checked By: CEE

Boring Crew: JUDKINS, HOOK
Date Started: 5/20/15 Date Finished: 5/20/15
VTSPG NAD83: N 245399.09 ft E 1442073.85 ft
Station: 11+34.5 Offset: 12.00
Ground Elevation: 888.8 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_s = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
05/20/15	7.5	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 %
0-5		A-1-a, SaGr, Dk/brn, Moist, Rec. = 0.7 ft, Lab Note: Broken Rock was within sample.				3-2-2-2 (4)	13.3	59.9	28.8	11.3
5-10		Field Note: NXDC, Cleaned out casing A-1-a, SaGr, brn-gry, Moist, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.				17-12-13-18 (25)	10.4	59.4	26.4	14.2
10-15		Field Note: NXDC, Cleaned out casing A-1-a, SaGr, Lt/brn, Moist, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				13-18-16-16 (34)	10.4	62.0	25.8	12.2
15-20		Field Note: NXDC, Dense material. Possible Boulders A-1-b, SiSaGr, Lt/brn, Moist, Rec. = 1.0 ft, Lab Note: Broken Rock was within sample.				14-10-10-9 (20)	11.3	51.1	27.0	21.9
20-25		Field Note: NXDC, Cleaned out casing Visual Description: Severely Weathered Rock, Lt/brn, Moist, Rec. = 0.3 ft				R@3.5" (R)	11.2			
25-30		Field Note: NXDC, Cleaned out casing Visual Description: Severely Weathered Rock, Lt/brn, Moist, Rec. = 0.1 ft				R@1.0" (R)	10.8			
30-32.1		27.1 ft - 28.8 ft, Tan, Clay-coated PHYLLITE, Soft, Moderately weathered, NXMDC, Rust and purple staining on joint surfaces throughout.	1 (20)	94 (0)	3					
32.1-37.1		28.8 ft - 29.1 ft, Tan, Disintergrated PHYLLITE, Very soft, Severely weathered 29.1 ft - 32.1 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Very poor rock, RMR = 19 32.1 ft - 37.1 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Poor rock, NXMDC, Rust staining on joints. RMR = 32	2 (20)	100 (34)	3, 3, 3, 4, 4, 5					
37.1-40		Hole stopped @ 37.1 ft								
40-45		Remarks: Hole collapsed at 14.7 ft.								

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_s 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 SANDGATE BO 1441(30)_GPU VERMONT AOT.GDT 6/23/15



STATE OF VERMONT
AGENCY OF TRANSPORTATION
CONSTRUCTION AND
MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

**SANDGATE
BO 1441(30)
TH-9 BR-27**

Boring No.: **B-103**

Page No.: 1 of 1

Pin No.: 13J086

Checked By: CEE

Boring Crew: HOOK, JUDKINS, HULBERT
Date Started: 5/27/15 Date Finished: 5/28/15
VTSPG NAD83: N 245432.76 ft E 1442054.54 ft
Station: 11+71 Offset: 12.50
Ground Elevation: 890.5 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
05/28/15	7.1	Before drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RCD %)	Drill Rate minutes/ft	Groundwater Observations				
						Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-a, SaGr, brn, Moist, Rec. = 1.2 ft				3-3-6-6 (9)	8.2	62.2	26.7	11.1
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, gry-brn, Moist, Rec. = 0.8 ft, Lab Note: Broken Rock was within sample.				6-13-7-11 (20)	10.7	69.1	23.2	7.7
		Field Note:, NXDC, Cleaned out casing								
10		A-1-a, SaGr, brn, Moist, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.				29-17-9-8 (26)	10.1	61.3	27.7	11.0
		Field Note:, NXDC, Cleaned out casing								
		A-1-a, SaGr, brn, Moist, Rec. = 1.4 ft, Lab Note: Broken Rock was within sample.				15-18-18-17 (36)	10.6	56.0	31.0	13.0
20		A-1-a, SaGr, brn, Moist, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.				13-12-10-10 (22)	11.8	59.7	28.8	11.5
		Field Note:, NXDC, Cleaned out casing								
		A-1-b, SaGr, brn, Moist, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				16-15-12-8 (27)	12.6	47.3	37.4	15.3
30		A-1-a, SaGr, brn, Moist, Rec. = 1.2 ft, Lab Note: Broken Rock was within sample.				11-9-12-15 (21)	9.9	64.4	24.9	10.7
		Field Note:, NXDC, Cleaned out casing								
		Visual Description:, Broken Rock & some Weathered Rock, gry, Moist, Rec. = 0.2 ft				R@2.5" (R)	8.3			
40		Field Note:, NXDC, Cleaned out casing. Very hard drilling 37.4 ft - 42.4 ft, Light green & gray, PHYLLITE, with rare quartz veins. Medium hard, Slightly weathered, Poor rock, NXMDC, Rust and purple staining on joint surfaces. Recrystallized calcite on vertical joint at 41.2'-41.5', RMR = 35	1 (20)	100 (26)	3 3 3 3	Top of Bedrock @ 37.4 ft				
		42.4 ft - 47.4 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Poor rock, NXMDC, Rust and brown staining on joint surfaces. RMR = 36	2 (20)	100 (34)	2 2 2 2					
50		Hole stopped @ 47.4 ft								
		Remarks: Hole collapsed at 5.6 ft.								

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 SANDGATE BO 1441(30).GPJ VERMONT AOT.GDT 6/23/15



STATE OF VERMONT
 AGENCY OF TRANSPORTATION
 CONSTRUCTION AND
 MATERIALS BUREAU
 CENTRAL LABORATORY

BORING LOG

**SANDGATE
 BO 1441(30)
 TH-9 BR-27**

Boring No.: **B-104**
 Page No.: 1 of 1
 Pin No.: 13J086
 Checked By: CEE

Boring Crew: HOOK, JUDKINS, HULBERT
 Date Started: 5/28/15 Date Finished: 5/29/15
 VTSPG NAD83: N 245388.40 ft E 1442056.34 ft
 Station: 11+20 Offset: -9.00
 Ground Elevation: 889.8 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_r = 1.46

Groundwater Observations

Date	Depth (ft)	Notes
05/29/15	6.2	Before 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		A-1-a, SaGr, brn, Moist, Rec. = 1.1 ft				1-3-5-4 (8)	8.7	54.3	33.8	11.9
5		Field Note:, NXDC, Cleaned out casing								
5		A-1-a, SaGr, gry-brn, Moist, Rec. = 1.3 ft, Lab Note: Broken Rock was within sample.				10-30-16-13 (46)	10.2	67.3	23.6	9.1
10		Field Note:, Cobbles, NXDC, Cleaned out casing								
10		A-1-a, SaGr, gry-brn, Moist, Rec. = 1.1 ft, Lab Note: Broken Rock was within sample.				17-15-15-15 (30)	10.1	60.0	26.3	13.7
15		Field Note:, NXDC, Cleaned out casing								
15		A-1-a, SaGr, gry-brn, MTW, Rec. = 1.1 ft, Very hard drilling. Lab Note: Broken Rock was within sample.				9-7-9-7 (16)	12.1	62.0	26.5	11.5
20		Field Note:, NXDC, Cleaned out casing. Very hard drilling.								
20		Visual Description:, Severely Weathered Rock, Lt/brn, Moist, Rec. = 0.4 ft				R@5.0" (R)	14.0			
25		Field Note:, NXDC, Cleaned out casing. Very hard drilling.								
25		Visual Description:, Severely Weathered Rock, Lt/brn, Moist, Rec. = 0.2 ft				R@2.5" (R)	12.5			
30		28.5 ft - 28.8 ft, Light tan, PHYLLITE, Soft, Moderately weathered, NXMDC	1 (20)	96 (0)	1	Top of Bedrock @ 28.5 ft				
35		28.8 ft - 33.5 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Poor rock, Rust and brown staining on joint surfaces. RMR = 29			2					
35		33.5 ft - 35.6 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, NXMDC	2 (20)	98 (0)	1					
40		35.6 ft - 37.3 ft, Light tan, PHYLLITE, Soft, Moderately weathered, Rust and purple staining on joints throughout core.			2					
40		37.3 ft - 38.5 ft, Light green & gray, PHYLLITE, Medium hard, Slightly weathered, Poor rock, RMR = 30			2					
40		Hole stopped @ 38.5 ft								
45		Remarks: Hole collapsed at 9.8 ft.								

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 SANDGATE BO 1441(30).GPJ VERMONT AOT.GDT 6/23/15