



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

BORING LOG

DANBY
 BF 0130(3)
 TH-1 BR-9

Boring No.: **B-101**
 Page No.: 1 of 1
 Pin No.: 13J304
 Checked By: TDE

Boring Crew: DAIGNEAULT, JUDKINS, HOOK
 Date Started: 12/03/14 Date Finished: 12/03/14
 VTSPG NAD83: N 306402.06 ft E 1497029.00 ft
 Station: 13+76 Offset: -16.00
 Ground Elevation: 1231.79 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 45C TRACK C_c = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
12/03/14	3.2	While drilling.

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 %
		A-4, GrSaSi, brn-gry, Moist, Rec. = 1.0 ft, Lab Note: Roots & Sticks were within sample.				4-2-2-2 (4)	22.7	22.7	29.1	48.2
2.5		A-2-4, SaSiGr, brn, Moist, Rec. = 0.3 ft, Lab Note: Broken Rock was within sample. Tested as, SiSaGr, gry, MTD, Rec. = 0.5 ft, Lab Note: Sample was mostly small Broken Rock pieces.				30-50-R@5.0" (R)	19.2 3.7	39.1 39.0	30.5 34.5	30.4 26.5
5.0		Visual Description: Weathered Rock, gry, Moist, Rec. = 0.2 ft 4.2 ft - 9.2 ft, Gray, Siliceous shale and Phyllite, Medium hard, Severely weathered, Very poor rock, NXMDC, Core run is very vuggy with iron staining on vug and foliation surfaces. RMR = 20	1 (20)	100 (6)	3	R@2.5" (R)	9.9			
10.0		9.2 ft - 14.2 ft, Gray, Siliceous and limy shale and Phyllite, Medium hard, Moderately weathered, Poor rock, NXMDC, Portions of core run is vuggy with iron staining on vug and foliation surfaces. RMR = 22	2 (20)	100 (17)	3					
15.0		Hole stopped @ 14.2 ft								
		Remarks: Hole collapsed at 2.1 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 DANBY BF 0130(3).GPJ VERMONT AOT.GDT 4/27/15



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BORING LOG

DANBY
BF 0130(3)
TH-1 BR-9

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 13J304
Checked By: TDE

Boring Crew: DAIGNEAULT, HOOK, NIETO
Date Started: 12/08/14 Date Finished: 12/15/14
VTSPG NAD83: N 306380.19 ft E 1497036.86 ft
Station: 13+68.3 Offset: 6.00
Ground Elevation: 1229.85 ft

Type: 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 C = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RGD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		Tested as, SaGr, brn-gry, Moist, Rec. = 1.0 ft, Lab Note: Sample was mostly broken soft flat rock. Field Note: NXDC, Broken Rock				3-4-15-R@3.5" (19)	6.0	51.5	31.7	16.8
5		3.5 ft - 8.5 ft, Gray, Siliceous shale and Phyllite, Medium hard, Moderately severe weathering, Very poor rock, NXMDC, Core run is very vuggy with iron staining on vug and foliation surfaces. RMR = 20	1 (20)	64 (0)	3 2 2 3 3					
10		8.5 ft - 13.5 ft, Gray, Phyllite, Medium hard, Moderately weathered, Very poor rock, NXMDC, Portions of core run is vuggy with iron staining on vug and foliation surfaces. RMR = 20	2 (20)	86 (0)	3 3 3 3					
15		13.5 ft - 18.5 ft, Gray, Phyllite, Medium hard, Slightly weathered to unweathered, Poor rock, NXMDC, Top 2.1 feet of core is slightly vuggy with iron staining on vug and foliation surfaces. RMR = 36	3 (20)	98 (42)	3 3 5 5					
20		18.5 ft - 23.5 ft, Gray, Phyllite, Medium hard, Unweathered, Good rock, NXMDC, RMR = 64	4 (20)	98 (94)	5 4 3 7 4					
25		Hole stopped @ 23.5 ft								
		Remarks: 1. Hole collapsed at 1.0 ft. 2. Boring was drilled through bridge deck. 3. Measurements are referenced from ground surface. Geologist's Note: Water soaked from top of Run #1 through middle of Run #3. Cores remained wet for days after drilling.								

Notes:
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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 DANBY BF 0130(3).GPJ VERMONT AOT.GDT 4/27/15



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BORING LOG

DANBY
BF 0130(3)
TH-1 BR-9

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 13J304
Checked By: TDE

Boring Crew: DAIGNEAULT, JUDKINS, HOOK
Date Started: 12/04/14 Date Finished: 12/05/14
VTSPG NAD83: N 306384.84 ft E 1497045.25 ft
Station: 13+77.6 Offset: 7.70
Ground Elevation: 1241.47 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 45C TRACK C = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

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 - 0.48 ft								
5		A-1-a, SaGr, brn, MTW, Rec. = 0.5 ft				5-7-10-25 (17)	10.6	59.3	31.5	9.2
		A-1-a, SaGr, brn, MTW, Rec. = 0.3 ft, Lab Note: Broken Rock was within sample.				16-17-16-16 (33)	6.8	60.8	24.3	14.9
		A-1-b, SiSaGr, brn, MTW, Rec. = 0.7 ft, Lab Note: Broken Rock was within sample.				25-18-7-3 (25)	15.7	40.3	38.7	21.0
		A-1-b, SiSaGr, brn, MTW, Rec. = 0.6 ft, Lab Note: Broken Rock was within sample.				4-4-4-3 (8)	14.6	47.0	32.0	21.0
10		Field Note:;, Cleaned out with roller cone								
		A-4, SaGrSi, brn-Lt/brn, MTW, Rec. = 0.2 ft, Cleaned out with roller cone.				4-3-3-3 (6)	18.4	27.6	27.0	45.4
		A-1-b, SaGr, gry, Moist, Rec. = 0.2 ft, Lab Note: Mostly small flat Broken Rock pieces. NXDC, Cleaned out casing.				4-2-4-13 (6)	7.7	54.4	29.5	16.1
15		A-1-b, SiSaGr, brn-gry, Moist, Rec. = 0.7 ft, Lab Note: Mostly small flat Broken Rock pieces.				50-R@2.5" (R)	14.3	40.2	35.2	24.6
		Field Note:;, NXDC, Cleaned out casing								
		A-2-4, SiSaGr, gry-rust, Moist, Rec. = 0.1 ft, Lab Note: Mostly small flat Broken soft Rock pieces.	1 (20)	100 (0)	2					
20		15.1 ft - 20.1 ft, Gray, Siliceous and limy shale and Phyllite, with quartz veins. Medium hard, Moderately weathered, Poor rock, NXMDC, Portions of core run is vuggy with iron staining on vug and foliation surfaces. RMR = 23								
		20.1 ft - 25.1 ft, Gray, Phyllite, with quartz veins. Medium hard, Moderately weathered, Poor rock, NXMDC, Portions of core run is vuggy with iron staining on vug and foliation surfaces. RMR = 28	2 (20)	100 (30)	4					
					5					
					4					
25										
					4					
					4					
					4					
Hole stopped @ 25.1 ft										
Remarks: Hole collapsed at 13.0 ft.										

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

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BORING LOG

DANBY
BF 0130(3)
TH-1 BR-9

Boring No.: **B-104**

Page No.: 1 of 1

Pin No.: 13J304

Checked By: TDE

Boring Crew: DAIGNEAULT, HOOK, JUDKINS
Date Started: 12/22/14 Date Finished: 12/30/14
VTSPG NAD83: N 306372.42 ft E 1497051.51 ft
Station: 13.75 Offset: 21.20
Ground Elevation: 1242.21 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 45C SKID C = 1.33

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

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 - 0.42 ft									
5		A-1-b, SiSaGr, blk-brn, MTW, Rec. = 1.2 ft, High low counts were do to frost layer. Lab Note: Broken Rock was within sample.				48-38-38-18 (76)	12.4	43.0	35.9	21.1	
		A-4, SaGrSi, Lt/brn-gry, Moist, Rec. = 0.5 ft, Cleaned out with roller cone. Lab Note: Broken Rock was within sample.				7-6-6-5 (12)	13.9	31.0	29.1	39.9	
		Visual Description: Broken Rock with silty sand, gry, Moist, Rec. = 0.3 ft, Cleaned out with roller cone. Insufficient sample for testing.				7-5-5-7 (10)	13.0				
		Visual Description: Broken Rock with silty sand, brn, Moist, Rec. = 0.3 ft, Cleaned out with roller cone. Insufficient sample for testing.				4-6-5-3 (11)	16.1				
10		Visual Description: Broken Rock with silty sand, gry, Moist, Rec. = 0.1 ft, Cleaned out with roller cone. Insufficient sample for testing.				3-4-2-5 (6)	14.4				
		A-1-b, SaGr, red-brn, Moist, Rec. = 0.6 ft, Lab Note: Broken Rock was within sample.				3-3-4-R@1.0" (7)	14.1	57.3	24.5	18.2	
15		Field Note: NXDC, Concrete									
		14.0 ft - 19.0 ft, Gray, Siliceous shale and Phyllite, Medium hard, Moderately weathered to unweathered, Poor rock, NXMDC, Portions of core run are slightly vuggy with iron staining on vug and foliation surfaces. RMR = 39	1 (25)	86 (30)	3						
20		19.0 ft - 24.0 ft, Gray, Siliceous shale and Phyllite, with quartz vein. Medium hard, Moderately weathered to unweathered, Poor rock, NXMDC, Portions of core run are slightly vuggy with iron staining on vug and foliation surfaces. RMR = 39	2 (25)	84 (30)	2						
					8						
					4						
25		24.0 ft - 29.0 ft, Gray, Siliceous shale and Phyllite, with quartz vein. Medium hard, Moderately weathered to unweathered, Fair rock, NXMDC, Top 1.5 feet of core run is slightly vuggy with iron staining on vug and foliation surfaces. RMR = 39	3 (25)	98 (74)	2						
					3						
					2						
					3						
30		29.0 ft - 34.0 ft, Gray, Siliceous shale and Phyllite, Medium hard, Unweathered, Fair rock, NXMDC, RMR = 58	4 (25)	100 (88)	3						
					4						
					2						
35		Hole stopped @ 34.0 ft									
					3						
					3						

Remarks:
Hole collapsed at 14.0 ft.

- Notes:
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BORING LOG

DANBY
BF 0130(3)
TH-1 BR-9

Boring No.: **B-105**

Page No.: 1 of 1

Pin No.: 13J304

Checked By: TDE

Boring Crew: DAIGNEAULT, JUDKINS, NIETO

Date Started: 1/22/15 Date Finished: 2/11/15

VTSPG NAD83: N 306335.03 ft E 1496981.79 ft

Station: 13+1.6 Offset: 18.50

Ground Elevation: 1244.65 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 45C TRACK C₁ = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
02/11/15	10.9	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 %
5		A-1-b, SiSaGr, Lt/brn, Moist, Rec. = 1.2 ft, High blow counts due to frost. Field Note:, NXDC Visual Description:, Broken Rock with silty sand, gry, Moist, Rec. = 0.4 ft, Insufficient sample for testing. Field Note:, NXDC				52-110 (R) R@6.0" (R)	15.3 10.3	41.0	37.3	21.7
10		A-4, GrSaSi, gry, Moist, Rec. = 0.4 ft, Lab Note: Broken Rock was with sample. NXDC, Cleaned out casing. A-4, GrSaSi, gry, Moist, Rec. = 0.3 ft, NXDC, Cleaned out casing. A-4, GrSaSi, gry, Moist, Rec. = 0.8 ft				28-12-9-9 (21) 8-7-7-8 (14) 5-5-6-12 (11)	15.6 14.0 13.6	30.9 23.9 28.1	31.4 33.5 29.9	37.7 42.6 42.0
15		Field Note:, No Recovery. Appears to be Cobbles and silt. NXDC, Cleaned out casing Visual Description:, Severely Weathered Rock with silty sand, gry, Moist, Rec. = 1.0 ft 14.4 ft - 19.4 ft, Gray, Siliceous shale and Phyllite, with quartz vein. Core run is very vuggy with iron staining on vug and foliation surfaces. Medium hard, Moderately severe weathering, Very poor rock, NXMDC, RMR = 19	1 (20)	64 (0)	2 2 5 4 5		14.6			
20		19.4 ft - 24.4 ft, Gray, Siliceous shale and Phyllite, with quartz vein. Core run is very vuggy with iron staining on vug and foliation surfaces. Medium hard, Moderately severe weathering, Very poor rock, NXMDC, RMR = 19	2 (20)	26 (0)	3 5 5 4 7					
25		24.4 ft - 29.4 ft, Gray, Siliceous shale and Phyllite, Top 3.5 feet of core run is slightly vuggy with some iron staining on foliation surfaces. Medium hard, Slightly weathered, Fair rock, NXMDC, RMR = 36	3 (20)	100 (20)	2 2 2 3 3					
30		29.4 ft - 33.6 ft, Gray, Siliceous shale and Phyllite, Top 1.5 feet of core run is slightly vuggy with some iron staining on foliation surfaces. Medium hard, Slightly weathered, Fair rock, NXMDC, RMR = 46	4 (20)	100 (67)	2 3 3 3 3					
35		Hole stopped @ 33.6 ft			3					
		Remarks: Hole collapsed at 13.3 ft. Geologist's Note: Water soaked from top of Run #1 through middle of Run #3. Cores remained wet for days after drilling.								

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BORING LOG

DANBY
BF 0130(3)
TH-1 BR-9

Boring No.: **B-106**
Page No.: 1 of 1
Pin No.: 13J304
Checked By: TDE

Boring Crew: DAIGNEAULT, JUDKINS, GARROW
Date Started: 12/15/14 Date Finished: 12/19/14
VTSPG NAD83: N 306350.34 ft E 1496982.43 ft
Station: 13+7.6 Offset: 4.60
Ground Elevation: 1230.56 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 45C TRACK C = 1.34

Groundwater Observations

Date	Depth (ft)	Notes
		No water to depth.

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 %
		Tested as, SaGr, brn, Moist, Rec. = 1.1 ft, Lab Note: Sample was mostly small pieces of broken soft flat rock.				8-10-25-R@2.5" (35)	6.2	55.6	29.3	15.1
		Field Note:, No Recovery				R@6.0" (R)				
		Field Note:, Cleaned out casing								
5		4.0 ft - 9.0 ft, Gray, Siliceous shale and Phyllite, Medium hard, Moderately severe weathering, Very poor rock, NXMDC, Core run is very vuggy with iron staining on vug and foliation surfaces. RMR = 20	1 (30)	70 (0)	2	Top of Bedrock @ 4.0 ft				
10		9.0 ft - 14.0 ft, Gray, Siliceous shale and Phyllite, Medium hard, Moderately weathered to unweathered, Fair rock, NXMDC, Portions of core run is vuggy with iron staining on vug and foliation surfaces. RMR = 46	2 (30)	100 (60)	3					
15		14.0 ft - 19.0 ft, Gray, Siliceous shale and Phyllite, Medium hard, Unweathered, Fair rock, NXMDC, RMR = 58	3 (30)	100 (78)	3					
20		Hole stopped @ 19.0 ft								
25		Remarks: 1. Hole collapsed at 1.5 ft. 2. Boring was drilled through bridge deck. 3. Measurements are referenced from ground surface.								

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