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

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-101**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Garrow, Gomes
Date Started: 10/04/16 Date Finished: 10/05/16
VTSPG NAD83: N 394406.50 ft E 1571990.99 ft
Station: 507+65 Offset: -20.00
Ground Elevation: 1253.8 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 SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/05/16	12.5	W.T. 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 %
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft, Lab Note: Plant material was within sample				WH-1-2-1 (3)	10.5	34.8	46.6	18.6
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				2-6-6-5 (12)	6.4	34.3	46.9	18.8
5		A-1-b, SiGrSa, brn, Moist, Rec. = 1.4 ft				8-8-8-8 (16)	7.4	31.7	44.1	24.2
		Field Note:, Rollercone, cleaned out casing								
		A-2-4, SaSiGr, brn, Moist, Rec. = 0.3 ft				7-15-7-7 (22)	12.9	47.1	24.8	28.1
		Field Note:, Rollercone, cleaned out casing								
		A-1-b, SiGrSa, brn, Moist, Rec. = 0.6 ft				5-5-8-9 (13)	13.2	32.1	45.6	22.3
10		Field Note:, No Recovery				12-13-9-6 (22)				
		A-2-4, SiSa, Dk/brn, Moist, Rec. = 0.9 ft, Lab Note: Decomposing wood was within sample				3-1-1-1 (2)	43.1	12.3	53.6	34.1
		A-1-b, SaGr, brn, Moist, Rec. = 0.4 ft, Lab Note: A small amount of decomposing wood was within sample				WH-3-R@3.5" (R)		52.8	34.2	13.0
15		Field Note:, NXDC, cleaned out casing					16.1			
		A-1-b, SiSaGr, brn, Moist, Rec. = 0.7 ft, Lab Note: Broken and weathered rock was within sample				5-17-R@3.5" (R)	13.3	39.7	38.3	22.0
		17.7 ft - 21.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Rust staining along joints. Moderately hard, Slightly weathered, Poor rock, NX, RMR=39	1 (50)	85 (23)	6 4 6 8	Top of Bedrock @ 17.7 ft				
20		21.7 ft - 26.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Faint brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=51	2 (50)	92 (68)	3 4 2 3 4					
25		26.7 ft - 27.7 ft, Gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic laminae and rare pyrite. Rust and brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=44	3 (40-50)	100 (40)	5					
		Hole stopped @ 27.7 ft								
30		Remarks: Hole collapsed at 8.5 feet.								

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_e 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 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

STATE OF VERMONT
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BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-102**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Gomes, Garrow
Date Started: 10/05/16 Date Finished: 10/06/16
VTSPG NAD83: N 394442.36 ft E 1571981.84 ft
Station: 508+00 Offset: -20.00
Ground Elevation: 1252.6 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 SKID	C_E = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/06/16		No W.T. recorded

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 %
		A-2-4, SiGrSa, brn, Moist, Rec. = 0.9 ft, Lab Note: Plant material was within sample				WH-1-2-6 (3)	12.0	25.6	54.2	20.2
		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft				5-9-10-12 (19)	6.4	41.4	41.4	17.2
5		A-1-b, GrSa, brn, Moist, Rec. = 1.6 ft, Lab Note: Broken rock was within sample				12-18-16-11 (34)	5.8	36.1	44.3	19.6
		A-1-a, SaGr, brn, Moist, Rec. = 0.3 ft, Lab Note: Broken rock was within sample Field Note:, NXDC, Cleaned out casing				9-5-3-5 (8)	4.0	59.5	28.1	12.4
		Field Note:, No Recovery Field Note:, NXDC, Cleaned out casing				8-7-5-5 (12)				
10		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft Field Note:, NXDC, Cleaned out casing				5-4-4-3 (8)	13.6	32.9	48.4	18.7
		Field Note:, No Recovery Field Note:, NXDC, Cleaned out casing				5-2-2-1 (4)				
15		A-1-b, SaGr, brn, Moist, Rec. = 0.8 ft Field Note:, NXDC, Cleaned out casing				3-3-14-11 (17)	11.1	49.1	38.4	12.5
		16.0 ft - 21.0 ft, Gray, Muscovite-biotite-quartz PHYLLITE, with dolomitic and quartz laminae and rare pyrite. Rust staining along joints. Moderately hard, Slightly weathered, Poor rock, NX, RMR=36	1 (30-40)	78 (14)	5 5 5 5 5	Top of Bedrock @ 16.0 ft				
20		21.0 ft - 26.0 ft, Gray, Muscovite-biotite-quartz PHYLLITE, with few dolomitic lenses/laminae and rare pyrite. Rust and brown staining along joints. Moderately hard, Slightly weathered, Fair rock, NX, RMR=53	2 (30-40)	100 (76)	5 5 3 4 5					
25		Hole stopped @ 26.0 ft								
30		Remarks: Hole collapsed at 8.8 feet. 1. Stone was stuck in end of sampler in 6 foot to 8 foot sample.								

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_E 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.

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BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-103**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Gomes, Judkins, Emerson
Date Started: 10/07/16 Date Finished: 10/18/16
VTSPG NAD83: N 394452.04 ft E 1572018.82 ft
Station: 508+01 Offset: 20.00
Ground Elevation: 1249.9 ft

	Casing	Sampler
Type:	WB	SS
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:	Diedrich 25	C_e = Unkown

Groundwater Observations

Date	Depth (ft)	Notes
10/18/16	11.7	W.T. 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 %
		A-1-b, GrSa, brn, Dry, Rec. = 0.8 ft, Lab Note: Plant material was within sample				2-3-3-4 (6)	8.7	40.1	43.3	16.6
		A-2-4, GrSa, brn, Dry, Rec. = 1.0 ft				5-5-5-4 (10)	7.3	31.9	51.8	16.3
5		A-1-b, GrSa, brn, Dry, Rec. = 0.8 ft				5-4-5-8 (9)	6.4	42.7	44.0	13.3
		A-2-4, SiGrSa, brn, Dry, Rec. = 0.2 ft, Lab Note: Broken rock was within sample				9-6-5-7 (11)	7.2	33.7	42.2	24.1
		A-1-b, GrSa, brn, Dry, Rec. = 1.5 ft				4-7-9-6 (16)	10.4	39.3	42.1	18.6
10		Field Note:, No Recovery				11-5-2-4 (7)				
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft, Lab Note: Large pieces of wood were within sample Field Note:, NXDC, Cleaned out casing				21-R@3.5" (R)	53.4	36.6	49.5	13.9
		A-2-4, GrSiSa, blk-brn, Moist, Rec. = 0.4 ft, Lab Note: Broken and weathered rock was within sample				18-R@3.5" (R)	15.7	25.1	43.0	31.9
15		14.8 ft - 19.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic lenses/laminae. Yellow and rust staining along joints. Moderately hard, Unweathered, Poor rock, BX, RMR=36 Low RQD could be due to mechanical breakage	1 (50)	56 (0)	7 6 6 8 8					
20		19.8 ft - 23.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic lenses/laminae. Rust and orange staining along joints. Medium to moderately hard, Very slightly weathered, Poor rock, BX, RMR=36 Low RQD could be due to mechanical breakage	2 (40-50)	58 (0)	6 6 5 15					
25		23.8 ft - 28.8 ft, Silvery-gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with few dolomitic lenses/laminae. Faint brown and rust staining along joints. Moderately hard, Very slightly weathered, Poor rock, BX, RMR=39 Low RQD could be due to mechanical breakage	3 (40-50)	40 (0)	5 4 4 10 6					
30		Hole stopped @ 28.8 ft								

Remarks:
Hole collapsed at 10.6 feet.

1. Top of Bedrock 14.8 feet.

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_e 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 PLYMOUTH BF 013-3(13).GPJ VERMONT AOT.GDT 11/2/16

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BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-104**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Garrow, Gomes
Date Started: 10/03/16 Date Finished: 10/04/16
VTSPG NAD83: N 394488.95 ft E 1572000.76 ft
Station: 508+42 Offset: 9.80
Ground Elevation: 1249.2 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 SKID	C_e = 1.42

Groundwater Observations

Date	Depth (ft)	Notes
10/04/16	11.4	W.T. 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 %
		Asphalt Pavement, 0.0 ft - 1.0 ft								
		A-1-b, GrSa, brn, Moist, Rec. = 1.3 ft				8-13-15-14 (28)	7.1	36.2	46.8	17.0
		A-2-4, SiSa, brn, Moist, Rec. = 1.7 ft				12-9-8-9 (17)	8.6	19.0	60.3	20.7
5		A-2-4, SiSa, brn, Moist, Rec. = 1.5 ft				6-6-4-4 (10)	11.1	14.0	64.5	21.5
		Field Note:, Rollercone, cleaned out casing								
		A-1-b, GrSa, brn, Moist, Rec. = 0.3 ft				4-4-4-4 (8)	15.4	34.8	48.4	16.8
		Field Note:, No Recovery				4-2-1-WH (3)				
10		Field Note:, Rollercone, cleaned out casing								
		A-1-a, SaGr, brn-blk, Moist, Rec. = 1.2 ft, Lab Note: Broken rock and a small amount of asphalt pavement was within sample				14-5-13-18 (18)	12.8	54.7	34.4	10.9
		Field Note:, NXDC, cleaned out casing								
		Field Note:, Cobbles and Boulder								
15										
		A-1-b, GrSa, Lt/brn, Moist, Rec. = 0.7 ft, Lab Note: A small amount of broken rock was within sample				13-13-R@3.5" (R)	13.9	39.1	41.3	19.6
		Field Note:, NXDC, cleaned out casing								
20		20.0 ft - 25.0 ft, Gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae. Rust and brown staining along joints. Moderately hard, Very slightly weathered, Fair rock, NX, RMR=46	1 (50)	96 (56)	5 3 3 3 3	Top of Bedrock @ 20.0 ft				
25		25.0 ft - 30.0 ft, Gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae. Faint brown staining along joints. Moderately hard, Unweathered, Fair rock, NX, RMR=54	2 (50)	96 (72)	3 3 3 4 3					
30		Hole stopped @ 30.0 ft								

Remarks:
Hole Collapsed at 7.1 feet.

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_e 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 Z PLYMOUTH BF 013-3(13).GPJ VERMONT AUT.GDT 11/2/16

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MATERIALS BUREAU
CENTRAL LABORATORY

BORING LOG

Plymouth
BF 013-3(13)
VT-100 Culv. 115

Boring No.: **B-105**
Page No.: 1 of 1
Pin No.: 12b596
Checked By: END

Boring Crew: Emerson, Judkins, Gomes
Date Started: 10/18/16 Date Finished: 10/19/16
VTSPG NAD83: N 394422.55 ft E 1571981.50 ft
Station: 507+83 Offset: -24.30
Ground Elevation: 1252.6 ft

	Casing	Sampler
Type:	WB	SS
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:	Diedrich 25	C_E = Unkown

Groundwater Observations

Date	Depth (ft)	Notes
10/19/16		No W.T. observed

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 %
		A-1-b, SaGr, brn, Dry, Rec. = 0.7 ft, Lab Note: Plant material was within sample				3-3-5-8 (8)	6.4	53.7	34.6	11.7
		A-1-b, GrSa, brn, Dry, Rec. = 1.0 ft				4-3-4-7 (7)	7.1	41.2	44.5	14.3
5		A-1-b, GrSa, brn, Dry, Rec. = 1.5 ft				9-9-7-7 (16)	5.8	28.2	53.0	18.8
		A-1-b, GrSa, brn, Dry, Rec. = 1.6 ft				6-7-5-7 (12)	6.3	32.5	47.9	19.6
		A-2-4, SiSa, brn, Dry, Rec. = 0.6 ft				7-7-6-6 (13)	8.3	17.9	56.3	25.8
10		Field Note:, No Recovery				6-9-9-7 (18)				
		Field Note:, BXDC, cleaned out casing								
		A-1-b, SaGr, brn, Moist, Rec. = 0.6 ft				5-3-3-5 (6)	13.4	42.8	39.8	17.4
		Field Note:, Rollercone, cleaned out casing								
		A-1-b, SaGr, gry-brn, Moist, Rec. = 0.9 ft, Lab Note: Sample was rust colored				8-8-19-R@2.5" (27)	12.2	43.0	37.7	19.3
15		Field Note:, BXDC, cleaned out casing				35-R@3.5" (R)	13.5	39.9	36.5	23.6
		A-1-b, SiSaGr, gry-brn, Moist, Rec. = 0.8 ft, Lab Note: Broken rock and a lot of weathered rock was within sample. Sample was rust colored	1 (40-50)	55 (0)	4					
		16.8 ft - 20.8 ft, Silvery-gray to light gray, Carbonaceous muscovite-biotite-quartz-pyrite PHYLLITE, with dolomitic laminae and rare magnetite. Brown staining along joints. Moderately hard, Unweathered, Fair rock, BX, RMR=44 Low RQD could be due to mechanical breakage			3 4 6					
20		20.8 ft - 25.8 ft, Silvery-gray to light gray, Carbonaceous muscovite-biotite-quartz PHYLLITE, with dolomitic lenses/laminae and rare magnetite. Faint rust staining along joints. Moderately hard, Unweathered, Fair rock, BX, RMR=49	2 (30)	80 (42)	3 3 4 4 4					
25		Hole stopped @ 25.8 ft								
		Remarks: Hole collapsed at 12.5 feet.								
30		1. Top of Bedrock 16.8 feet.								

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_E 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.