



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-101
Page No.: 1 of 1
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: M. Misiaszek, K. Owens
Date Started: 3/12/13 Date Finished: 3/12/13
VTSPG NAD83: N 618143.61 ft E 1752700.51 ft
Station: _____ Offset: _____
Ground Elevation: 585.5 ft

Casing: WB
Sampler: SS
Type: _____
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: CME 750 ATV Mounted CE = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/12/13		No gw obs.

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 - 0.4 ft								
	× × ×	Not Sampled								
	× × ×									
	× × ×									
	× × ×									
5	× × ×	Not Sampled, Hard drilling at 4'. Advanced roller bit to 4.5' to obtain sample.				17-18-16-10 (34)				
	× × ×	A-1-a, f.c. GRAVEL, trace silt, trace f.c. sand, compact, gray, Wet, Rec. = 0.2 ft, (FILL)								
	× × ×									
	× × ×									
	× × ×									
10	× × ×	No Recovery, Rec. = 0.0 ft, Coarse gravel in shoe of spoon.				35-11-32-14 (43)				
	× × ×									
	× × ×	A-1-a, f.c. GRAVEL, Some f.c. Sand, trace silt, medium compact, gray, Moist, Rec. = 0.3 ft, (FILL)				15-7-12-13 (19)				
	× × ×									
	× × ×									
15	× × ×	A-1-a, Similar Soil, Rec. = 0.4 ft, (FILL)				21-16-13-18 (29)				
	× × ×									
	× × ×									
	× × ×									
	× × ×									
20	× × ×	A-1-a, Rec. = 0.3 ft, becomes compact (FILL)				17-19-14-12 (33)				
	× × ×									
	× × ×	A-1-a, Rec. = 0.2 ft, becomes very compact (FILL)				18-14-50/0" (R)				
	× × ×									
	× × ×	A-1-a, Very hard drilling 22' to 23' through probable boulder.								
	× × ×									
	× × ×	A-1-a, Casing and rollerbit refusal at 23'. Attempted to advance boring with core barrel. After coring, the lead piece of casing was crimped and would not advance further. NXDC	R-1	40 (0)	2					
25		Hole stopped @ 24.5 ft								
		Remarks: Boring abandoned due to casing refusal and damage to drive shoe at 24.5. Offset 10' south to boring B-101A. Project performed under CHA project No. 25047.								

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 25047_RYEGATE_CULV LOGS.GPJ VERMONT_AOT.GDT 5/6/13



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

BORING LOG

RYEGATE
 IM CULV(28)
 Ryegate, VT

Boring No.: B-101B
 Page No.: 1 of 1
 Pin No.: 11A262
 Checked By: K. Adnams

Boring Crew: M. Misiaszek, K. Owens
 Date Started: 3/13/13 Date Finished: 3/13/13
 VTSPG NAD83: N 618143.61 ft E 1752700.51 ft
 Station: _____ Offset: _____
 Ground Elevation: 585.5 ft

Casing Sampler
 Type: WB SS
 I.D.: 5 in 1.38 in
 Hammer Wt: 300 lb. 140 lb.
 Hammer Fall: N.A. 30 in.
 Hammer/Rod Type: Manual/NW
 Rig: CME 750 ATV Mounted CE = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/13/13		No gw obs.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
5	x x x	Not Sampled, Boring offset from B-101A to B-101 original location. Attempted to advance boring with 5-inch casing and 4-inch roller bit.					
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
10	x x x	Not Sampled, 5-Inch casing advanced to 25'. Attempted to telescope boring with 4-inch casing. 4-Inch casing refusal at 22'. It is believed the 5-inch casing was knocked off of vertical alignment by a large cobble or boulder. Boring abandoned.					
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
15	x x x	Not Sampled, 5-Inch casing advanced to 25'. Attempted to telescope boring with 4-inch casing. 4-Inch casing refusal at 22'. It is believed the 5-inch casing was knocked off of vertical alignment by a large cobble or boulder. Boring abandoned.					
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
20	x x x	Not Sampled, 5-Inch casing advanced to 25'. Attempted to telescope boring with 4-inch casing. 4-Inch casing refusal at 22'. It is believed the 5-inch casing was knocked off of vertical alignment by a large cobble or boulder. Boring abandoned.					
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
25	x x x	Not Sampled, 5-Inch casing advanced to 25'. Attempted to telescope boring with 4-inch casing. 4-Inch casing refusal at 22'. It is believed the 5-inch casing was knocked off of vertical alignment by a large cobble or boulder. Boring abandoned.					
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
	x x x						
		Hole stopped @ 25.0 ft					
		Remarks: Project performed under CHA project No. 25047.					

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 25047_RYEGATE_CULV_LOGS.GPJ VERMONT AOT.GDT 5/6/13



BORING LOG

Boring No.: B-102
Page No.: 1 of 2
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: M. Miasiazek, K. Owens
Date Started: 3/11/13 Date Finished: 3/12/13
VTSPG NAD83: N 618256.88 ft E 1752696.38 ft
Station: Offset:
Ground Elevation: 587.5 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: CME 750 ATV Mounted CE = 1.0

Groundwater Observations		
Date	Depth (ft)	Notes
03/11/13	16.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (lip deg.)	Core Rec. (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-0.8		Asphalt Pavement, 0.0 ft - 0.8 ft, Advance rollerbit through asphalt pavement to obtain sample at 4'. Not Sampled, Difficult rollerbit advancement 3.5 - 5.5'								
0.8-3.5		No Recovery, Rec. = 0.0 ft, Spoon bouncing				50/0" (R)				
3.5-5.5		No Recovery, Rec. = 0.0 ft, Spoon bouncing				50/1" (R)				
5.5-10		Rec. = 0.1 ft A-1-a, f.c. GRAVEL, little f.c. sand, medium compact, gray, Wet, (FILL)				13-4-10-14 (14)				
10-15		A-1-a, Similar Soil, Rec. = 0.1 ft, (FILL)				14-7-8-6 (15)				
15-20		A-1-a, f.c. GRAVEL, little f.c. sand, trace silt, loose, gray, Wet, Rec. = 0.2 ft, (FILL)				3-6-2-7 (8)				
20-25		No Recovery, Rec. = 0.0 ft A-2-4 A-2-4, f.c. SAND, Some Silt, Some f.c. Gravel, loose, brown, Moist to wet, Rec. = 0.8 ft				6-2-2-2 (4)				
25-27.5		A-2-4 A-4, Silt, Some f.c. Sand, little f.c. gravel, very compact, brn-white, Moist, Rec. = 0.5 ft, (GLACIAL TILL)				5-5-5-5 (10)	16.0	22.1	43.0	34.9
27.5-30		A-4, Similar Soil, Rec. = 0.4 ft, (GLACIAL TILL)				22-48-30-25 (78)				
30-33.5		A-4, (GLACIAL TILL) Rollerbit and casing refusal at 27.5'. Advanced core barrel through probable boulder to advance boring, NXDC				45-47-50/2" (R)				
33.5-43.5		Hole stopped @ 43.5 ft								
43.5-50		Remarks: Project performed under CHA project No. 25047.								
50-55										
55-62.8										

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

Boring No.: B-102
Page No.: 2 of 2
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: M. Miasiazek, K. Owens
Date Started: 3/11/13 Date Finished: 3/12/13
VTSPG NAD83: N 618256.88 ft E 1752696.38 ft
Station: Offset:
Ground Elevation: 587.5 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: CME 750 ATV Mounted CE = 1.0

Groundwater Observations		
Date	Depth (ft)	Notes
03/11/13	16.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (lip deg.)	Core Rec. (ROD %)	Drill Rate minutes/ft	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	
0-33.5		A-4, SILT, Some f.c. Sand, little f.c. gravel, very compact, brown, Moist, Rec. = 1.3 ft, (GLACIAL TILL)				22-32-30-31 (62)		17.1	12.4	24.8	62.8
33.5-33.5		A-4, Rec. = 0.3 ft, (GLACIAL TILL)				70/3" (R)					
33.5-33.5		A-4, Very difficult drilling 32.5'-33.5'. Casing and rollerbit refusal at 33.5'.									
33.5-35		33.5 ft - 38.5 ft, Gry-white, Schist, Medium close fracture spacing. Hard, Moderately weathered, NXDC, Good RQD	R-2	98 (84)	4.5						33.5 ft
35-40		38.5 ft - 43.5 ft, Gry-white, Schist, Medium close fracture spacing. Hard, Moderately weathered, NXDC, Fair RQD	R-3	100 (72)	4						
40-45		Hole stopped @ 43.5 ft									
45-50		Remarks: Project performed under CHA project No. 25047.									
50-55											
55-62.8											

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

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-103
Page No.: 1 of 2
Pin No.: 11A262
Checked By: K. Adams

Boring Crew: W. Hoেকেle/M. Misiaszek, K. Owens
Date Started: 2/26/13 Date Finished: 3/05/13
VTSPG NAD83: N 618360.37 ft E 1752491.10 ft
Station: _____ Offset: _____
Ground Elevation: 590.2 ft

Casing Sampler
Type: WB SS
I.D.: 5 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Groundwater Observations		
Date	Depth (ft)	Notes
02/26/13	13.5	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. (RQD %)	Drill Rate (min/ft)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0	x x x	0.0 ft - 0.3 ft, Asphalt								
0.3	x x x	Not Sampled								
5.0	x x x	A-1-a, f.c. GRAVEL. Some f.c. Sand, trace silt, very compact, gray, Moist, Rec. = 0.4 ft, (FILL) Recovery appeared to be pulverized gravel and cobble fragments.				36-100/6" (R)				
10.0	x x x	A-1-a, f.c. GRAVEL. Some f.c. Sand, trace silt, very compact, brn-gry, Moist, Rec. = 0.5 ft, (FILL) Pulverized rock in tip of spoon.				11-18-33-51 (51)	7.4	64.5	26.9	8.6
15.0	x x x	A-1-a, f.c. GRAVEL. Some f.c. Sand, little silt, medium compact, Dark gray, Wet, Rec. = 0.5 ft, (FILL)				20-10-11-7 (21)				
20.0	x x x	A-2-4								
20.0	x x x	A-2-4, f.c. SAND, little silt, little f.c. gravel very compact, brown, Moist, Rec. = 0.7 ft, (FILL) Pulverized rock fragments in shoe of spoon.				4-4-53-40 (57)	13.1	8.0	80.1	11.9
25.0	x x x	No Recovery, Rec. = 0.0 ft				6-8-6-6 (14)				
25.0	x x x	A-2-4, f.c. SAND, trace silt, medium compact, brown, Moist, Rec. = 0.4 ft, (FILL)				20-5-20-50/5 (25)				
25.0	x x x	No Recovery, Rec. = 0.0 ft				93/6" (R)				
25.0	x x x	A-1-a								
25.0	x x x	A-1-a, f.c. GRAVEL. Some f.c. Sand, little silt, compact, gry-brn, Moist, Rec. = 0.4 ft				30-20-15-15	9.2	63.2	24.5	12.3

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

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-103
Page No.: 2 of 2
Pin No.: 11A262
Checked By: K. Adams

Boring Crew: W. Hoেকেle/M. Misiaszek, K. Owens
Date Started: 2/26/13 Date Finished: 3/05/13
VTSPG NAD83: N 618360.37 ft E 1752491.10 ft
Station: _____ Offset: _____
Ground Elevation: 590.2 ft

Casing Sampler
Type: WB SS
I.D.: 5 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. (RQD %)	Drill Rate (min/ft)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
35.0		A-1-a, f.c. GRAVEL, little silt, compact, brn, Wet, Rec. = 0.2 ft				(35)				
35.0		A-1-a, Similar Soil, Rec. = 0.1 ft				13-9-12-13 (21)				
35.0		A-1-a, Drilling difficult increased 37'-39'				5-10-20-20 (30)				
40.0		No Recovery, Rec. = 0.0 ft, Spoon bouncing at 39', coarse gravel fragment recovered in shoe of spoon.				50/5" (R) op				
40.0		40.0 ft - 45.0 ft, Gray, Schist, close fracture spacing. Hard, Slightly weathered, NXDC, good RQD	R-1	90 (86)	7.5					39.3 ft
45.0		Hole stopped @ 45.0 ft								
50.0		Remarks: Project performed under CHA project No. 25047.								

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



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-104
Page No.: 1 of 2
Pin No.: 11A262
Checked By: K. Adams

Boring Crew: W. Hoeckele, K. Owens
Date Started: 2/25/13 Date Finished: 2/26/13
VTSPG NAD83: N 618433.07 ft E 1752472.73 ft
Station: _____ Offset: _____
Ground Elevation: 590.5 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Groundwater Observations
Date Depth Notes
02/25/13 18.0 During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0.0 - 0.3	x x x	Asphalt					
	x x x	Not Sampled					
5	x x x	A-1-a, f.m.c. GRAVEL, Some f.c. Sand, trace silt, compact, gray, Moist, Rec. = 0.8 ft, (FILL) Turns brown at 4.7'	26-19-16-22 (35)	1.8	70.1	22.1	7.8
10	x x x	A-1-a, f.m.c. GRAVEL, little silt, little f.c. sand, very compact, brn, Moist, Rec. = 0.7 ft, (FILL) Turns gray at 9.4'	19-47-25-15 (70)				
15	x x x	A-1-a, f.m.c. GRAVEL, little f.c. sand, trace silt, compact, brn, Wet, Rec. = 0.4 ft, (FILL) Sample appears to be pulverized gravel and cobble fragments.	16-18-15-20 (33)				
	x x x	A-1-a, Rec. = 0.4 ft, becomes medium compact, turns gray. (FILL) Brown sand in tip of sample.	12-13-12-6 (25)				
	x x x	A-2-4, f.c. SAND, little silt, very compact, brn, Wet, Rec. = 0.4 ft, (FILL)	7-2-50/2 (R)				
20	x x x	Not Sampled, Drilling through probable boulder or cobble 19.2-20.5'.					
	x x x	A-2-4, f.c. SAND, little f.c. gravel, little silt, medium compact, gry, Wet, Rec. = 0.4 ft, (FILL) Pulverized rock recovered in sample.	23-13-11 (24)	14.0	18.9	68.1	13.0
	x x x	A-2-4, Rec. = 1.2 ft, becomes loose	7-5-5-11 (10)				
	x x x	A-2-4, f.c. SAND, little f. gravel, trace silt, loose, brn, Moist					
25	x x x	A-2-4, f.c. SAND, Some Silt, little f. gravel, very compact, brn, Moist, Rec. = 0.4 ft, Coarse gravel in shoe of spoon.	12-31-47-78 (78)	12.3	15.6	63.8	20.6
	x x x	A-4					
	x x x	A-4, SILT, little f. sand, very compact, gry, Wet, Rec. = 0.5 ft	17-34-41-47				

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



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-104
Page No.: 2 of 2
Pin No.: 11A262
Checked By: K. Adams

Boring Crew: W. Hoeckele, K. Owens
Date Started: 2/25/13 Date Finished: 2/26/13
VTSPG NAD83: N 618433.07 ft E 1752472.73 ft
Station: _____ Offset: _____
Ground Elevation: 590.5 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Groundwater Observations
Date Depth Notes
02/25/13 18.0 During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
		A-1-b, Hard drilling 33-33.5'					
35		A-1-b, f.m.c. GRAVEL, little clayey silt, little f.c. sand, medium compact, gray, Wet, Rec. = 0.4 ft	7-5-6-9 (11)				
40		A-4					
		A-4, SILT, Some f.m.c. Gravel, little f.c. sand, very compact, gray, Moist, Rec. = 0.7 ft, (GLACIAL TILL) Spoon bouncing at 40.6'.	46-45-53-50/1 (98)				
		Not Sampled, Top of rock estimated from drilling conditions. Very hard drilling starting at 40.7', with small 3-4" zones of easier drilling. Easy drilling zones are likely weathered rock. Casing refusal at 41'.					
		Hole stopped @ 44.0 ft					
		Remarks: Project performed under CHA project No. 25047.					
		Top of Bedrock @ 40.7 ft					

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



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-105
Page No.: 1 of 2
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: W. Hoeckele, K. Owens
Date Started: 2/20/13 Date Finished: 2/21/13
VTSPG NAD83: N 618462.76 ft E 1752381.57 ft
Station: _____ Offset: _____
Ground Elevation: 582.0 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Groundwater Observations
Date Depth Notes
02/20/13 19.0 During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0-4	x x x	Not Sampled, Advanced rollerbit and casing through frost zone to 4'							
4-5	x x x	A-1-a, f.m.c. GRAVEL, Some f.c. Sand, little silt, very compact, gray, Moist, Rec. = 0.3 ft, (FILL) A-4	100/5* (R)						
5-10	x x x	A-4, Clayey SILT, and f.c. GRAVEL, Some f.c. Sand, hard, brn, Moist, Rec. = 0.6 ft, (FILL) Pulverized rock recovered in sample. A-4, Similar Soil, Rec. = 0.1 ft, (FILL) A-1-a	16-25-22-34 (47) 22-36-24-23 (59)	15.0	38.2	24.9	36.9	23	4
10-15	x x x	A-1-a, f.c. SAND, little silt, trace f.c. gravel, medium compact, brn, Moist, Rec. = 0.1 ft, (FILL) A-1-a, Rec. = 0.0 ft	9-8-7-13 (15) 52-30-14-18 (44)						
15-20	x x x	A-1-a, f.m.c. GRAVEL, Some f.c. Sand, little silt, very compact, gry-brn, Moist, Rec. = 1.1 ft A-4	25-80-63-25 (143)	7.5	57.7	30.5	11.8		
20-25	x x x	A-4, SILT, little f. sand, medium compact, gray, Wet, Rec. = 1.2 ft, F. sand bedded in lenses within silt. Very easy drilling 18'-24'. A-4, Rec. = 0.9 ft, grades to little f.c. gravel, becomes very compact.	5-9-11-12 (20) 6-41-29-60 (70)						
25-31	x x x	A-1-b							

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.



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-105
Page No.: 2 of 2
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: W. Hoeckele, K. Owens
Date Started: 2/20/13 Date Finished: 2/21/13
VTSPG NAD83: N 618462.76 ft E 1752381.57 ft
Station: _____ Offset: _____
Ground Elevation: 582.0 ft

Casing Sampler
Type: WB SS
I.D.: 4 in 1.38 in
Hammer Wt: 300 lb. 140 lb.
Hammer Fall: N.A. 30 in.
Hammer/Rod Type: Manual/NW
Rig: D50 TRACK CE = 1.0

Groundwater Observations
Date Depth Notes
02/20/13 19.0 During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Blows/6" (N Value)	Moisture Content %	Gravel %	Sand %	Fines %	LL %	PI %
0-3	hatched	A-2-4, f.c. SAND, little silt, little f. gravel, very compact, brn, Moist, Rec. = 0.2 ft, (GLACIAL TILL)	100/3* (R)						
3-31	hatched	Not Sampled, Top of bedrock estimated from drilling conditions. Very difficult drilling and casing refusal at 31'. Extremely difficult rollerbit advancement from 31-34'. Top of Bedrock @ 31.0 ft							
31-34	hatched	Hole stopped @ 34.0 ft							
34-35		Remarks: Project performed under CHA project No. 25047.							

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 25047_RYEGATE_CULV LOGS.RPJ VERMONT AUT.GDT 5/6/13

BORING LOG 25047_RYEGATE_CULV LOGS.RPJ VERMONT AUT.GDT 5/6/13



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

BORING LOG

RYEGATE
 IM CULV(28)
 Ryegate, VT

Boring No.: B-106

Page No.: 1 of 1

Pin No.: 11A262

Checked By: K. Adnams

Boring Crew: M. Misiaszek, K. Owens
 Date Started: 3/06/13 Date Finished: 3/06/13
 VTSPG NAD83: N 618252.14 ft E 1752621.87 ft
 Station: _____ Offset: _____
 Ground Elevation: 565.5 ft

Type: WB
 I.D.: 4 in
 Hammer Wt: 300 lb.
 Hammer Fall: N.A.
 Hammer/Rod Type: Manual/NW
 Rig: CME 750 ATV Mounted CE = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/06/13	6.0	During 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-4, Clayey SILT, trace organics, hard, brn, Moist, Rec. = 1.5 ft				13-18-20-27 (38)				
	× × ×	A-1-a, f.c. GRAVEL, Some f.c. Sand, trace clayey silt, compact, brn-gry, Moist, (FILL)								
	× × ×	A-1-a, Rec. = 1.0 ft, becomes gry-white, (FILL)				38-19-21-44 (40)				
	× × ×	A-1-a, f.c. SAND, Some f.c. Sand, little silt, compact, brn, Moist, (FILL)								
	× × ×	A-1-a, f.c. GRAVEL, trace clayey silt, compact, brn, Wet, Rec. = 0.2 ft, (FILL)				30-23-18-9 (41)				
	× × ×	A-2-4, f.c. SAND, Some Silt, Some f.c. Gravel, medium compact, brn, Wet, Rec. = 1.1 ft, (GLACIAL TILL)				5-8-7-4 (15)	18.1	24.5	55.4	20.1
	× × ×	A-2-4, f.c. SAND, Some f.c. Gravel, little silt, trace organics, very compact, brn, Wet, Rec. = 0.5 ft, (GLACIAL TILL)				7-8-45-33 (51)				
10		A-2-4, f.c. SAND, little silt, little f.c. gravel, very compact, brn, Wet, Rec. = 0.5 ft, (GLACIAL TILL)				27-41-17-19 (58)				
		A-2-4, Casing and rollerbit refusal at 13'.								
		13.0 ft - 18.0 ft, Gray, Schist, medium close fracture spacing. Hard, Slightly to moderately weathered, NXDC, excellent RQD	R-1	100 (100)	7	Top of Bedrock @ 13.0 ft				
15		18.0 ft - 23.0 ft, Similar Rock. NXDC	R-2	100 (100)	6					
		Hole stopped @ 23.0 ft								
25		Remarks: Project performed under CHA project No. 25047.								

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 25047_RYEGATE_CULV LOGS.GPJ VERMONT AOT.GDT 5/6/13



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

BORING LOG

RYEGATE
IM CULV(28)
Ryegate, VT

Boring No.: B-107
Page No.: 1 of 1
Pin No.: 11A262
Checked By: K. Adnams

Boring Crew: M. Misiaszek, K. Owens
Date Started: 3/05/13 Date Finished: 3/06/13
VTSPG NAD83: N 618258.93 ft E 1752564.29 ft
Station: _____ Offset: _____
Ground Elevation: 568.0 ft

Type: _____
I.D.: _____
Hammer Wt: _____
Hammer Fall: _____
Hammer/Rod Type: _____
Rig: _____

Casing: WB Sampler: SS
4 in 1.38 in
300 lb. 140 lb.
N.A. 30 in.
Manual/NW
CE = 1.0

Groundwater Observations

Date	Depth (ft)	Notes
03/05/13	6.0	During drilling.

Depth (ft)	Strata (1)	CLASSIFICATION OF MATERIALS (Description)	Run (Dip deg.)	Core Rec. % (RQD %)	Drill Rate minutes/ft	Blows/ft (N Value)	Moisture Content %	Gravel %	Sand %	Fines %
0-2.0	X X X	A-4, <u>Clayey SILT</u> , little f.c. gravel, trace f.c. sand, trace organics, very stiff, gry-brn, Moist, Rec. = 2.0 ft, (FILL)				12-12-10-15 (22)				
2.0-2.6	X X X	A-1-a, <u>f.c. GRAVEL</u> , trace clayey silt, very compact, gry, Moist, Rec. = 0.2 ft, (FILL). Roller bit grinding 2'-3.5'. Rec. = 0.6 ft				22-50/4" (R)				
2.6-3.2	X X X	A-1-a, <u>f.c. GRAVEL</u> , Some f.c. Sand, little silt, trace brick, compact, brn, Moist to wet, (FILL)				33-23-18-18 (41)				
3.2-3.6	X X X	A-1-b, <u>f.c. GRAVEL</u> , AND f.c. SAND, little silt, brn, Wet, Rec. = 0.4 ft				1-1-7-8 (8)	10.1	45.9	43.1	11.0
3.6-4.2	X X X	A-1-b, Rec. = 0.7 ft, becomes medium compact				16-12-12-15 (24)				
4.2-4.8	X X X	A-1-b, <u>f.c. GRAVEL</u> , little silt, little f.c. sand, medium compact, brn, Wet, Rec. = 0.4 ft				15-14-13-15 (27)				
4.8-5.4	X X X	Rec. = 0.5 ft				12-8-19-7 (27)				
5.4-6.0	X X X	A-4 A-4, <u>SILT</u> , Some f.c. Sand, little f.c. gravel, medium compact, gry, Wet								
6.0-6.6	X X X	A-2-4								
6.6-7.2	X X X	A-2-4, <u>f.c. SAND</u> , Some Silt, little f.c. gravel, very compact, gray, Wet, Rec. = 0.5 ft, (GLACIAL TILL). Spoon bouncing.				23-24-50/4" (R)				
7.2-23.0	X X X	Not Sampled, Advanced rollerbit to 20.5' to 23'. Core started at 23'. 23.0 ft - 28.0 ft, Gray, Schist, very close fracture spacing. Hard, Severely weathered, NXDC, very poor RQD	R-1	100 (16)	8					
Hole stopped @ 28.0 ft										
Remarks: Project performed under CHA project No. 25047.										

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 25047_RYEGATE_CULV LOGS.GPJ VERMONT AOT.GDT 5/6/13