



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

BORING NUMBER: B-1
 SHEET 1 of 1
 DATE STARTED: 1/30/92
 DATE COMPLETED: 1/31/92

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 390+07.45
 OFFSET: -12.22
 VTSPG: N 489163.25 ft E 1617280.25 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 499.35 ft
 GROUNDWATER DEPTH: 4.3 ft
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: McGLYNN
 DRILLER: WILLIS
 LOGGER: FELCH

BORING RIG:
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
0							
5.0 - 7.0		No Recovery, 5.0 ft - 7.0 ft	2				
10		A-2-4, Sa, gry, Wet, Rec. = 1.2 ft	10	24.7			
16.6		A-2-4, Sa, gry, Wet, Rec. = 1.6 ft	32	27.4			
20		A-2-4, Sa, gry, Wet, Rec. = 1.0 ft	24	11.9			
25.0 - 27.0		Boulders, No recovery, 25.0 ft - 27.0 ft	60				
30		Boulders, No recovery, 30.0 ft - 32.0 ft	49				
34.6		A-1-a, SaGr, gry, Wet, Rec. = 0.5 ft	44	8.1			
40		A-1-a, SaGr, gry, Wet, Rec. = 1.0 ft	57	16.0			
44.6		A-4, GrSiSa, gry, Wet, Rec. = 1.0 ft	24	13.2			
50		Boulders, No Recovery, 50.0 ft - 52.0 ft	R				
55.0 - 55.5		Possible Bedrock, No recovery, 55.0 ft - 55.5 ft	R				
60		Core consists of gray and light gray phyllite and schist. Phyllite is the dominant lithology. The core is moderately soft, unweathered, and competent., BXDC, 60.1 ft - 64.6 ft, Rec. = 4.5 ft	1	100	51	25	
64.6 - 69.6		Same as Run #1, BXMDC, 64.6 ft - 69.6 ft, Rec. = 4.5 ft	2	90	36	25	
70		Hole stopped @ 69.6 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT ADT.GDT 12/13/06



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BORING NUMBER: B-2
 SHEET 1 of 1
 DATE STARTED: 1/30/92
 DATE COMPLETED: 1/31/92

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 390+23.33
 OFFSET: 25.18
 VTSPG: N 489194.90 ft E 1617845.74 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 499.94 ft
 GROUNDWATER DEPTH: 4.2 ft
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: McGLYNN
 DRILLER: WILLIS
 LOGGER: FELCH

BORING RIG:
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
0							
0-10		A-4, SaSi, brn, Moist, Rec. = 1.0 ft	4	51.6			
10-12		Wood, 10.0 ft - 12.0 ft					
12-20		A-2-4, Sa, gry, Wet, Rec. = 0.8 ft	14	21.5			
20-22		A-2-4, SiSa, gry, Wet, Rec. = 0.9 ft	17	29.0			
22-23		A-4, SiSa, gry, Wet, Rec. = 1.0 ft	15	26.6			
23-27		A-2-4, Sa, gry, Wet, Rec. = 1.3 ft	27	19.4			
27-28		A-1-b, Sa, gry, Wet, Rec. = 0.8 ft	27	12.3			
28-34		A-2-4, SiGrSa, gry, Wet, Rec. = 0.6 ft	58	12.9			
34-45		No recovery, 45.0 ft - 47.0 ft	37				
45-50		No recovery, 50.0 ft - 52.0 ft	25				
50-52		A-1-b, Sa, gry, Wet, Rec. = 0.5 ft	28	13.5			
52-60.6		No recovery, 60.0 ft - 60.6 ft	R	Top of Bedrock @ 60.6 ft			
60.6-62.6		Same as Run #2, BX, 60.6 ft - 62.6 ft, Rec. = 1.2 ft	1	60	0	45	
62.6-67.6		Core consists of gray and light gray interbedded phyllite and schist. The rock is moderately soft, slightly weathered on widely spaced fractures and competent overall., BXMDC, 62.6 ft - 67.6 ft, Rec. = 5.0 ft	2	100	65	45	
67.6-71.6		Same as Run #2, BXMDC, 67.6 ft - 71.6 ft, Rec. = 3.2 ft	3	80	38	45	
71.6		Hole stopped @ 71.6 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT ADT.GDT 12/13/06



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-3
 SHEET 1 of 1
 DATE STARTED: 1/24/92
 DATE COMPLETED: 1/28/92

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 391+35.32
 OFFSET: -17.94
 VTSPG: N 489273.33 ft E 1617754.92 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 504.61 ft
 GROUNDWATER DEPTH: 13.1 ft
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: McGLYNN
 DRILLER: WILLIS
 LOGGER: FELCH

BORING RIG:
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
7		A-3, Sa, gry, Moist, Rec. = 1.3 ft	7	31.2			
10		A-3, Sa, gry, Moist, Rec. = 0.8 ft	2	29.5			
17		A-2-4, Sa, gry, Moist, Rec. = 1.4 ft	17	21.6			
20		A-2-4, Sa, gry, Moist, Rec. = 1.0 ft	17	18.6			
22		A-2-4, Sa, gry, Moist, Rec. = 1.2 ft	22	19.9			
30		A-2-4, SiSa, gry, Moist, Rec. = 1.0 ft	32	22.9			
37		A-1-a, SaGr, gry, Moist, Rec. = 0.5 ft	72	9.4			
40		A-1-a, SaGr, gry, Moist, Rec. = 1.0 ft	63	7.5			
45		Boulders, No recovery, 45.0 ft - 47.0 ft	82				
50		A-1-a, Gr, gry, Wet	63	8.2			
51		Field Note: Gravel or soft ledge, BXDC, Rec. = 1.4					
56.0		Top of Bedrock @ 56.0 ft					
56.0		Core consists of gray and light gray interbedded schist and phyllite. The rock is moderately soft, unweathered, and competent overall., BXMDC, 56.0 ft - 61.0 ft, Rec. = 4.8 ft	1	96	39	20	
61.0		Same as Run #1, BXMDC, 61.0 ft - 66.0 ft, Rec. = 4.2 ft	2	84	64	20	
66.0		Hole stopped @ 66.0 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT ADT.GDT 12/13/06



STATE OF VERMONT
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SUBSURFACE INFORMATION

BORING NUMBER: B-4
SHEET 1 of 1
DATE STARTED: 1/17/92
DATE COMPLETED: 1/21/92

PROJECT NAME: ROYALTON
SITE NAME: BR-27 & BR-28
STATION: 391+54.31
OFFSET: 18.02
VTSPG: N 489307.02 ft E 1617777.69 ft

PROJECT NUMBER: BRS 0147(13)
SITE NUMBER: RT 14
GROUND ELEVATION: 505.36 ft
GROUNDWATER DEPTH: 12.6 ft
PROJECT PIN NUMBER: 86E055

BORING CREW
CREW CHIEF: McGLYNN
DRILLER: WILLIS
LOGGER: FELCH

BORING RIG:
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-4, SaSi, brn, Moist, Rec. = 2.0 ft	14	27.8			
		A-2-4, SiSa, brn, Moist, Rec. = 1.5 ft	8	29.2			
		A-4, SiSa, brn, Moist, Rec. = 1.0 ft	8	26.7			
		A-2-4, SiSa, brn, Moist, Rec. = 1.0 ft	4	15.6			
		A-1-b, GrSa, gry, Moist, Rec. = 0.7 ft	8	15.9			
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.0 ft	8	23.8			
		A-4, SaSi, gry, Wet, Rec. = 1.4 ft	9	26.4			
		A-4, SaSi, gry, Wet, Rec. = 1.3 ft	11	26.3			
		A-4, SiSa, gry, Wet, Rec. = 1.0 ft	10	22.5			
		A-4, SiSa, gry, Wet, Rec. = 0.8 ft	11	27.1			
		A-2-4, Sa, gry, Wet, Rec. = 0.9 ft	9	23.3			
		A-2-4, Sa, gry, Wet, Rec. = 0.8 ft	17	24.3			
		A-2-4, SiSa, gry, Wet, Rec. = 1.9 ft	16	19.9			
		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	25	22.2			
		A-2-4, SiSa, gry, Wet, Rec. = 0.9 ft	13	24.3			
		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	13	19.4			
		A-2-4, Sa, gry, Wet, Rec. = 1.0 ft	18	20.3			
		A-2-4, SiSa, gry, Wet, Rec. = 1.0 ft	27	16.6			
		A-2-4, Sa, gry, Wet, Rec. = 1.2 ft	34	20.7			
		A-2-4, Sa, gry, Wet, Rec. = 1.1 ft	28	22.4			
		A-2-4, SiSa, gry, Wet, Rec. = 1.5 ft	9	19.0			
		A-2-4, Sa, gry, Wet, Rec. = 1.3 ft	48	12.4			
		A-1-a, Gr, gry, Wet, Rec. = 0.8 ft	32	3.6			
		A-1-a, SaGr, gry, Wet, Rec. = 0.4 ft	22	8.4			
		Core consists of interbedded gray and light gray phyllite and schist. The rock is moderately soft, slightly weathered, and competent overall., BXDC, 59.0 ft - 64.0 ft, Rec. = 2.8 ft	1	56	0	20	
		Same as Run #1, AXDC, 64.0 ft - 69.0 ft, Rec. = 1.9 ft	2	38	0	20	
		Same as Run #1, AXDC, 69.0 ft - 74.0 ft, Rec. = 3.0 ft	3	60	0	20	
		Hole stopped @ 74.0 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06

Top of Bedrock @ 59.0 ft



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BORING NUMBER: B-201
 SHEET 1 of 1
 DATE STARTED: 7/27/06
 DATE COMPLETED: 8/02/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 415+53.00
 OFFSET: -34.00
 VTSPG: N 491586.66 ft E 1617138.75 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 526.81 ft
 GROUNDWATER DEPTH: 7.5 ft 8/02/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: RUSSELL
 LOGGER: WERNER

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
0.0 - 2.5		A-4, SiSa, brn, Moist, Rec. = 0.2 ft Field Class: Boulder 0.3'-1.8', Cleaned out casing.	R	17.8	14.6	47.7	37.7
2.5 - 5.0							
5.0 - 7.5		A-4, SaSi, brn, Moist, Rec. = 0.8 ft	5	25.1	10.3	38.2	51.5
7.5 - 10.0							
10.0 - 11.0		A-8, Organic Soil (20.4%), Dk/brn, MTW, Rec. = 0.6 ft	2	106.6			
11.0 - 12.5		A-4, SaSi, gry, Moist, Rec. = 0.3 ft		40.2	0.2	28.6	71.2
12.5 - 13.9							
13.9 - 15.0		Gray, Meta-Limestone, with thin quartz veins, Competent, Moderately hard, Unweathered, NXMDC, 13.9 ft - 18.9 ft, Rec. = 4.6 ft	1	92	87	30	11
15.0 - 16.0							9
16.0 - 17.0							14
17.0 - 17.5							16
17.5 - 18.9							15
18.9 - 18.9		Hole stopped @ 18.9 ft					

LOG OF BORING - ROYALTON BRS 0147(13).GPJ - VT AOT.GDT 12/13/06



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-202
 SHEET 1 of 1
 DATE STARTED: 7/19/06
 DATE COMPLETED: 7/24/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 415+65.00
 OFFSET: -34.00
 VTSPG: N 491599.88 ft E 1617142.84 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 526.81 ft
 GROUNDWATER DEPTH: 12.8 ft 7/24/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: LARGE SKID RIG w/AUTO HAMMER
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
2.5		A-4, SiSa, brn, Moist, Rec. = 0.6 ft	2	13.0	16.2	46.9	36.9
5.0		A-4, SaSi, brn, Moist, Rec. = 0.8 ft	6	36.6	10.2	25.0	64.8
7.5		NXCDC, Concrete, 7.2 ft - 8.6 ft					
10.0		Field Note:, After six inches the sampler dropped in a void. trace of Si Sa in sampler.	2				
12.5		Field Note:, Advanced casing. Hit a Boulder from 12.8'-14.3', NXMDC.					
15.0		Field Note:, Rock break from 14.3'-15.3'					
15.3		Top of Bedrock @ 15.3 ft					
15.3		Gray, Meta-Limestone, Competent. Core barrel got caught in rock. Could not advance drilling., Moderately hard, Unweathered, NXMDC, 15.3 ft - 17.8 ft, Rec. = 2.3 ft	1	92	47	50	
17.5		Hole stopped @ 17.8 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06



STATE OF VERMONT
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 MATERIALS & RESEARCH SECTION
 SUBSURFACE INFORMATION

BORING NUMBER: B-203
 SHEET 1 of 1
 DATE STARTED: 6/14/06
 DATE COMPLETED: 6/15/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 415+29.00
 OFFSET: 17.00
 VTSPG: N 491551.14 ft E 1617182.96 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 515.44 ft
 GROUNDWATER DEPTH: 1.8 ft 6/15/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
0.0 - 0.5		A-2-4, SaSiGr, brn, Moist, Rec. = 0.5 ft	3	21.4	34.4	31.6	34.0
0.5 - 2.5		A-4, SaSi, brn-gry, Moist, Rec. = 1.6 ft	8	28.3	5.6	25.8	68.6
2.5 - 5.0		A-4, SaSi, brn, Moist, Rec. = 0.4 ft	R	24.0	14.2	35.4	50.4
5.0 - 10.2		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 5.2 ft - 10.2 ft, Rec. = 5.0 ft	1	100	78	30	21
10.2 - 15.2		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 10.2 ft - 15.2 ft, Rec. = 5.0 ft	2	100	93	30	8
15.2 - 15.2		Hole stopped @ 15.2 ft					

LOG OF BORING - ROYALTON BRS 0147(13).GPJ - VT AOT.GDT - 12/13/06

Top of Bedrock @ 5.2 ft



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-204
 SHEET 1 of 1
 DATE STARTED: 6/19/06
 DATE COMPLETED: 6/20/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 415+51.00
 OFFSET: 11.00
 VTSPG: N 491572.74 ft E 1617181.61 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 516.02 ft
 GROUNDWATER DEPTH: No Water Found 6/22/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
	[Diagonal Hatching]	A-4, SiSa, brn, Moist, Rec. = 1.0 ft	6	16.0	17.0	43.4	39.6
2.5		A-4, SiSa, brn, Moist, Rec. = 0.3 ft, Sample had Concrete material that was removed before testing.	3	16.6	18.5	40.8	40.7
5.0		Visual Class; SiSa with broken rock (possible bedrock) material., brn, Moist, Rec. = 1.3 ft	13	22.5			
	[Brick Pattern]	Gray, Meta-Limestone, Upper portion of core run contains zones of punky weathered limestone, Competent below 7.0', Moderately hard, NXMDC, 5.7 ft - 10.7 ft, Rec. = 4.2 ft	1	84	44	50	8
7.5						7	
						9	
10.0						10	
						9	
	[Diagonal Hatching]	Gray, Phyllite, Competent, Moderately hard, Unweathered, NXMDC, 10.7 ft - 13.2 ft, Rec. = 4.4 ft	2	88	88	50	6
12.5						7	
	[Brick Pattern]	Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, 13.2 ft - 15.7 ft					9
15.0						10	
						8	
17.5		Hole stopped @ 15.7 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06

Top of Bedrock @ 5.7 ft



STATE OF VERMONT
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BORING NUMBER: B-205
 SHEET 1 of 1
 DATE STARTED: 8/04/06
 DATE COMPLETED: 8/07/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 416+86.00
 OFFSET: -19.50
 VTSPG: N 491707.61 ft E 1617217.07 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 524.51 ft
 GROUNDWATER DEPTH: 14.8 ft 8/07/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: RUSSELL
 LOGGER: WERNER

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft	2	10.8	28.5	56.2	15.3
5		Field Class., Wood 4.0'-5.0', NXGDC	5				
		No recovery, Wood in end of sampler., 5.0 ft - 7.0 ft					
10		A-4, Si, brn, Moist, Rec. = 0.8 ft	4	33.8	1.1	14.6	84.3
15		A-4, SaSi, brn, Moist, Rec. = 0.3 ft	5	35.4	0.5	44.0	55.5
		A-4, SaSi with a trace of organics (2.4%), Dk/brn-gry, Moist, Rec. = 1.0 ft		42.8	0.0	48.4	51.6
		Top of Bedrock @ 17.2 ft					
		Gray, Meta-Limestone, Competent, Moderately hard, Unweathered, NXMDC, 17.2 ft - 18.9 ft, Rec. = 4.7 ft	1	94	90	15	13
20		Gray, Phyllite, Competent, Moderately hard, Unweathered, 18.9 ft - 22.2 ft					12 13 16 18
		Hole stopped @ 22.2 ft					
25							

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT ADT.GDT 12/13/06



STATE OF VERMONT
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 MATERIALS & RESEARCH SECTION
 SUBSURFACE INFORMATION

BORING NUMBER: B-206
 SHEET 1 of 1
 DATE STARTED: 8/06/06
 DATE COMPLETED: 8/11/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 417+19.51
 OFFSET: -18.00
 VTSPG: N 491732.35 ft E 1617241.83 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 524.42 ft
 GROUNDWATER DEPTH: 15.0 ft 8/11/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: RUSSELL
 LOGGER: WERNER

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	4	18.9	31.9	51.5	16.6
5		Field Note: Cleaned out casing 4.2'-5.0' with NXDC. No recovery, 5.0 ft - 7.0 ft	6				
10		A-4, SaSi, brn, Moist, Rec. = 1.3 ft	7	37.1	2.3	22.0	75.7
15		A-2-4, SiSa, brn, Moist, Rec. = 1.0 ft	2	37.5	1.8	63.3	34.9
20		A-4, Si, gry, Moist, Rec. = 1.6 ft	5	33.2	0.8	17.1	82.1
		Top of Bedrock @ 23.5 ft					
25		Gray, Meta-Limestone, grading to phyllite, Competent., Moderately hard, Unweathered, NXMDC, 23.5 ft - 26.5 ft, Rec. = 3.0 ft	1	100	83	30	22
							18
							26
		Alternating gray, Meta-Limestone and Phyllite, Competent., Moderately hard, Unweathered, NXMDC, 26.5 ft - 28.5 ft, Rec. = 2.0 ft	2	100	95	30	14
							18
		Hole stopped @ 28.5 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT AOT.GDT 12/13/06



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

BORING NUMBER: B-207
 SHEET 1 of 1
 DATE STARTED: 8/08/06
 DATE COMPLETED: 8/09/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 417+50.00
 OFFSET: -15.50
 VTSPG: N 491751.73 ft E 1617267.58 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 524.55 ft
 GROUNDWATER DEPTH: 18.5 ft 8/09/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-1-b, GrSa, brn, Moist, Rec. = 0.6 ft	4	4.9	34.7	51.5	13.8
5		No recovery, Stone in end of sampler., 5.0 ft - 7.0 ft	3				
10		A-4, SaSi, brn, Moist, Rec. = 1.1 ft	8	25.6	4.0	29.4	66.6
15		No recovery, 15.0 ft - 17.0 ft	11				
20		A-4, SaSi, gry, Moist, Rec. = 1.2 ft	4	31.0	4.1	28.3	67.6
				Top of Bedrock @ 22.2 ft			
25		Gray, Meta-Limestone, with thin quartz veins, Competent. Part of rock recovery remained in hole., Moderately hard, Unweathered, NXMDC, 22.2 ft - 27.2 ft, Rec. = 2.7 ft	1	54	40	30	9
							7
							13
							15
							14
		Hole stopped @ 27.2 ft					

LOG OF BORING ROYALTON BRS 0147(13).GPJ VT ADT.GDT 12/13/06



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

BORING NUMBER: B-208
 SHEET 1 of 1
 DATE STARTED: 6/22/06
 DATE COMPLETED: 6/23/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 416+81.00
 OFFSET: 12.00
 VTSPG: N 491683.23 ft E 1617237.85 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 523.03 ft
 GROUNDWATER DEPTH: 14.0 ft 6/27/06
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
0		A-1-b, GrSa, brn, Moist, Rec. = 0.3 ft	2	7.7	24.0	60.1	15.9
5		A-4, SaSi, gry, Moist, Rec. = 1.0 ft	4	25.6	2.2	20.0	77.8
10		A-4, SaSi, gry-brn, Moist, Rec. = 1.2 ft	3	30.7	1.7	30.5	67.8
15		Gray, Phyllite, Competent, Moderately hard, Unweathered, NXGDC, 15.0 ft - 17.0 ft, Rec. = 2.0 ft	1	100	67	30	9
		Gray, Garnet phyllite and meta-limestone, Competent., Moderately hard, Unweathered, NXMDC, 17.0 ft - 22.0 ft, Rec. = 5.0 ft	2	100	76	30	9
20							8
							10
							9
							7
		Gray, Garnet phyllite and meta-limestone, Competent., Moderately hard, Unweathered, NXMDC, 22.0 ft - 25.0 ft, Rec. = 2.5 ft	3	83	80	30	19
							8
25		Hole stopped @ 25.0 ft					8

LOG OF BORING - ROYALTON BRS 0147(13).GPJ - VT.ADT.GDT - 12/13/06

Top of Bedrock @ 15.0 ft



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

BORING NUMBER: B-209
 SHEET 1 of 1
 DATE STARTED: 7/12/06
 DATE COMPLETED: 7/13/06

PROJECT NAME: ROYALTON
 SITE NAME: BR-27 & BR-28
 STATION: 417+16.00
 OFFSET: 15.00
 VTSPG: N 491706.37 ft E 1617262.54 ft

PROJECT NUMBER: BRS 0147(13)
 SITE NUMBER: RT 14
 GROUND ELEVATION: 521.52 ft
 GROUNDWATER DEPTH: See Driller's Notes.
 PROJECT PIN NUMBER: 86E055

BORING CREW
 CREW CHIEF: GARROW
 DRILLER: GARROW
 LOGGER: RUSSELL

BORING RIG: SMALL SKID RIG
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: CCB

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		A-1-b, GrSa, brn, Moist, Rec. = 0.4 ft	2	4.4	21.9	63.6	14.5
5		A-4, Si, gry, Moist, Rec. = 1.1 ft	3	32.8	3.7	11.3	85.0
10		A-4, Si, gry-brn, Moist, Rec. = 0.8 ft	4	34.4	2.8	15.8	81.4
15		A-4, Si, gry, Moist, Rec. = 0.8 ft, Sample was tested for Limits.	5	38.9	0.7	11.4	87.9
		Field Class: Wood					
		Gray, meta-limestone and garnet phyllite, Competent., Moderately hard, Unweathered, NXMDC, 18.0 ft - 23.0 ft, Rec. = 4.6 ft	1	92	90	50	10
20							13
							15
							9
							12
		Hole stopped @ 23.0 ft					
25		DRILLER'S NOTES: 1. Groundwater Elevation was 10.0' on 07/13/06. 2. No Groundwater Elevation was found on 07/14/06.					

LOG OF BORING - ROYALTON BRS 0147(13).GPJ - VT AOT.GDT - 12/13/06

Top of Bedrock @ 18.0 ft



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

BORING LOG

ROYALTON
BRS 0147(13)
VT-14 BR-28

Boring No.: B-301
Page No.: 1 of 1
Pin No.: 86E055
Checked By: CEE

Boring Crew: GARROW, WERNER, PORTER
Date Started: 8/24/10 Date Finished: 8/24/10
VTSPG NAD83: N 491733.36 ft E 1617282.29 ft
Station: 417+50.00 Offset: 8.00
Ground Elevation: 523.3 ft

Casing Type: WB
Sampler Type: SS
I.D.: 2.5 in 1.25 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
08/24/10		None taken. (Road)

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, Rec. = 1.5 ft, 0.0 ft - 1.5 ft								
		A-4, SaSi, brn, Wet, Rec. = 0.5 ft				14-9-6-8 (15)	22.5	19.4	29.7	50.9
5		Field Note: No Recovery, Advanced with rollercone to 6 feet.				13-8-4-5 (12)				
		A-4, SaSi, brn, Wet, Rec. = 1.4 ft				2-1-1-1 (2)	29.6	5.7	38.7	55.6
		A-2-4, SiSa, brn, Wet, Rec. = 0.6 ft				WH-WH-3-4 (3)	22.4	15.8	51.3	32.9
10		A-4, SiSa, brn, Wet, Rec. = 1.0 ft				9-12-6-6 (18)	23.3	8.5	47.6	43.9
		A-4, SaSi, brn, Wet, Rec. = 0.8 ft				7-4-5-2 (9)	28.5	8.7	20.0	71.3
15		A-4, Si, brn, Wet, Rec. = 1.2 ft, A small amount of wood was within sample.				WH-WH-2-3 (2)	40.1	1.6	17.2	81.2
		A-4, Si, brn, Wet, Rec. = 1.4 ft				WH-WH-2-2 (2)	38.5	0.4	11.1	88.5
		A-4, SaSi, brn, Wet, Rec. = 1.4 ft				1-1-1-1 (2)	33.0	1.9	36.3	61.8
20		Visual Classification, Wood with some sand, brn, Wet, Rec. = 0.9 ft, Rollerconed ahead and advanced casing to 24 feet.				4-13-3-18 (16)				
25		Field Note: No Recovery, Wood pieces in sampler. Rollerconed to 26 feet.				5-4-3-3 (7)				
		A-4, SaSi, gry, Wet, Rec. = 1.3 ft				5-3-5-5 (8)	27.6	1.3	33.0	65.7
		A-4, Si, gry, Wet, Rec. = 0.3 ft				2-16-R	31.5	2.1	11.6	86.3
30		28.6 ft - 29.0 ft, Gray, Meta-Limestone, with quartz veins. Hard, Unweathered, Fair rock, BXMDC	1 (?)	40 (0)	18					
		29.0 ft - 34.0 ft, Gray, Meta-Limestone, with quartz veins. Hard, Unweathered, Fair rock, BXMDC	2 (20)	100 (35)	14					
					8					
					7					
					8					
35		Hole stopped @ 34.0 ft								

BORING LOG 2 ROYALTON BRS 0147(13).GPJ VERMONT AOT.GDT 9/2/10

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.

