



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

BORING NUMBER: B-301
 SHEET 1 of 1
 DATE STARTED: 2/22/07
 DATE COMPLETED: 2/26/07

PROJECT NAME: BETHEL
 SITE NAME: VT-107
 STATION: 124+80.00
 OFFSET: -20.50
 VTSPG: N 483613.40 ft E 1605502.24 ft

PROJECT NUMBER: BRF 022-1(14)
 SITE NUMBER: BR-15
 GROUND ELEVATION: 532.83 ft
 GROUNDWATER DEPTH: Hole Caved In
 PROJECT PIN NUMBER: 78F161

BORING CREW
 CREW CHIEF: PORTER
 DRILLER: PORTER
 LOGGER: WERNER

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

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
10		A-2-4, GrSiSa, brn, Moist, Rec. = 0.7 ft, Broken rock was within sample. Field Note: Cobbles, Cored ahead. Field Note: Cored ahead.	R	20.3	24.4	48.8	26.8
10		A-1-b, GrSa, brn, Wet, Rec. = 0.9 ft, Broken rock was within sample.	13	17.5	32.2	56.6	11.2
20		A-2-4, Sa, brn, Wet, Rec. = 1.1 ft, Added bentonite due to flowing sand.	6	27.1	1.1	82.8	16.1
20		A-2-4, SiSa, brn, Wet, Rec. = 1.3 ft, Added bentonite due to flowing sand.	5	25.0	3.7	70.5	25.8
30		A-4, GrSiSa, gry, Wet, Rec. = 1.3 ft, Broken rock was within sample.	27	16.9	24.6	39.0	36.4
30		Field Note: Cored ahead and cleaned out casing.					
30		A-2-4, SiGrSa, gry, Wet, Rec. = 0.7 ft, Broken rock was within sample.	12	17.3	23.8	54.7	21.5
40		A-4, SiSa, gry, Moist, Rec. = 1.3 ft	75	14.9	18.7	41.1	40.2
40		Field Note: No Recovery	R				
		Top of Bedrock @ 44.7 ft					
50		Dark gray, Amphibolite-Biotite Gneiss, Competent, Dip varies from 60 to 90, Very hard, Unweathered, NXMDC, 44.7 ft - 49.7 ft, Rec. = 4.8 ft	1	96	96		6 6 6 6 8 7 7 6 7 8
50		Dark gray, Amphibolite-Biotite Gneiss, Competent, Dip varies from 60 to 90, Very hard, Unweathered, NXMDC, 49.7 ft - 54.7 ft, Rec. = 5.0 ft	2	100	96		
		Hole stopped @ 54.7 ft					

LOG OF BORING - BETHEL - BRF 022-1(14).GRJ - VT - AOT.GDT - 5/23/07



STATE OF VERMONT
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BORING NUMBER: B-302
SHEET 1 of 1
DATE STARTED: 3/23/07
DATE COMPLETED: 3/28/07

PROJECT NAME: BETHEL
SITE NAME: VT-107
STATION: 124+76.00
OFFSET: 25.00
VTSPG: N 483592.22 ft E 1605543.83 ft

PROJECT NUMBER: BRF 022-1(14)
SITE NUMBER: BR-15
GROUND ELEVATION: 529.19 ft
GROUNDWATER DEPTH: 7.5 ft 3/28/07
PROJECT PIN NUMBER: 78F161

BORING CREW
CREW CHIEF: PORTER
DRILLER: PORTER
LOGGER: WERNER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: DLG

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		No Recovery, 0.0 ft - 2.0 ft	2				
		A-2-4, SiSa, brn, Wet, Rec. = 0.8 ft	4	23.4	10.2	61.5	28.3
		A-1-b, SaGr, brn, Wet, Rec. = 1.0 ft	7	16.7	45.6	42.5	11.9
		Field Class., No Sample, In Cobbles					
		A-1-b, SiGrSa, brn, Wet, Rec. = 1.6 ft	15	15.7	29.1	50.7	20.2
10		A-2-4, SiSa, brn, Wet, Rec. = 0.3 ft, Stone in end of sampler.	25	18.9	19.2	57.1	23.7
		A-4, SaSi, brn, Wet, Rec. = 1.4 ft	20	24.3	2.8	41.7	55.5
		A-4, GrSaSi, brn, Wet, Rec. = 1.7 ft	36	18.4	21.2	37.0	41.8
		A-2-4, SiGrSa, brn, Wet, Rec. = 1.4 ft	28	16.4	33.1	34.6	32.3
		A-2-4, GrSiSa, brn, Wet, Rec. = 1.2 ft	17	20.5	20.2	58.5	21.3
20		A-2-4, GrSiSa, brn, Wet, Rec. = 1.4 ft	34	16.3	27.3	39.6	33.1
		A-1-b, SiSaGr, gry, Wet, Rec. = 1.6 ft	73	12.1	46.1	31.2	22.7
		Field Class., Boulder					
30		Field Note:, Seam					
		Field Class., Boulder					
		A-2-4, SiSaGr, gry, Wet, Rec. = 0.8 ft	R	12.6	36.8	34.7	28.5
			R	9.3	33.9	38.5	27.6
40		A-2-4, SiSaGr, gry, Wet, Rec. = 0.3 ft	1	95	80	60	8
		Gray, Biotite Gneiss, Competent, Very hard, Unweathered, NXMDC, 40.3 ft - 45.3 ft, Rec. = 4.75 ft					9
							7
							7
							7
		Gray, Biotite Gneiss, with occasional amphibolite stringers. Competent. Lost bottom 1.3' of core run in hole. RQD value may be misleading. Drilling rate indicates bottom 1.3' of core run is probably competent., Very hard, Unweathered, NXMDC, 45.3 ft - 50.3 ft, Rec. = 3.6 ft	2	72	70	60	7
50							6
							7
		Drilling break., 46.5 ft - 46.8 ft					20
		Hole stopped @ 50.3 ft					10

LOG OF BORING BETHEL BRF 022-1(14).GRJ VT.AOT.GDT 5/23/07



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BORING NUMBER: B-303
SHEET 1 of 1
DATE STARTED: 2/01/07
DATE COMPLETED: 2/12/07

PROJECT NAME: BETHEL
SITE NAME: VT-107
STATION: 125+50.00
OFFSET: -25.00
VTSPG: N 483680.35 ft E 1605533.39 ft

PROJECT NUMBER: BRF 022-1(14)
SITE NUMBER: BR-15
GROUND ELEVATION: 531.66 ft
GROUNDWATER DEPTH: 16.0 ft 2/17/07
PROJECT PIN NUMBER: 78F161

BORING CREW
CREW CHIEF: HOLT
DRILLER: PORTER
LOGGER: SINGLETON

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

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-2-4, Sa, brn, Moist, Rec. = 1.8 ft	9	18.9	0.6	80.0	19.4
		A-3, Sa, Lt/brn, Moist, Rec. = 1.1 ft	3	16.0	10.4	80.6	9.0
		A-3, Sa, brn, Moist, Rec. = 0.9 ft	R	14.8	8.1	82.8	9.1
		Field Class: Boulder, 7.0 ft - 8.0 ft, Refusal at 7.0 ft, Cored ahead					
		A-3, Sa, brn, Moist, Rec. = 1.1 ft	6	14.5	11.2	78.6	10.2
10		A-1-b, GrSa, brn, Moist, Rec. = 1.2 ft	12	11.0	27.8	63.3	8.9
		A-1-b, SiSaGr, gry-brn, MTW, Rec. = 0.9 ft	31	9.2	45.1	34.7	20.2
		A-1-b, SaGr, Lt/brn, Moist, Rec. = 1.2 ft	44	9.1	47.8	39.8	12.4
		A-2-4, Sa, brn, MTW, Rec. = 1.1 ft	14	24.9	4.7	81.3	14.0
		Field Note: No sample, Trace of Sa Si	6				
20		A-4, SaSi, gry, MTW, Rec. = 1.0 ft	6	23.8	0.8	19.9	79.3
		A-4, SaSi, gry, MTW, Rec. = 1.5 ft	20	19.4	7.5	29.7	62.8
		Field Class: Boulder, 24.0 ft - 26.0 ft, No sample, Cored ahead					
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.4 ft	36	15.2	29.3	37.3	33.4
		A-4, GrSiSa, brn, Wet, Rec. = 1.3 ft	14	17.4	20.0	41.7	38.3
30		A-2-4, SiSa, brn, Wet, Rec. = 1.5 ft	7	23.6	9.6	63.1	27.3
		A-2-4, SiSa, brn, Moist, Rec. = 1.0 ft	42	19.9	3.5	71.2	25.3
		A-4, SiSa, gry, Moist, Rec. = 1.0 ft		16.9	6.6	49.6	43.8
		Classification: A-2-4, Si Sa with Broken Rock, gry, Moist, Rec. = 0.4 ft, Insufficient sample for testing.	R	8.0			
		Field Note: Difficult drilling in flowing sand, Used bentonite mud and continued.					
40		Classification: A-4, Sa Si with Broken Rock, gry, Moist, Rec. = 0.5 ft, Insufficient sample for testing.	R	12.2			
		Top of Bedrock @ 42.3 ft					
		Greenish gray, Biotite Gneiss, with some Amphibolite. Poor RQD., Very hard, Unweathered, NXDC, 42.3 ft - 44.3 ft, Rec. = 1.6 ft	1	80	25	60	9
		Greenish gray, Biotite Gneiss, Competent, Very hard, Unweathered, NXMDC, 44.3 ft - 48.3 ft, Rec. = 3.5 ft	2	88	69	60	12
		Greenish gray, Biotite Gneiss, Competent, Very hard, Unweathered, NXMDC, 48.3 ft - 52.3 ft, Rec. = 4.0 ft	3	100	85	60	5
50							13
							14
							5
							6
							5
							4
							5
		Hole stopped @ 52.3 ft					

LOG OF BORING BETHEL BRF 022-1(14).GRJ VT.AOT.GOT 5/23/07



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-304
 SHEET 1 of 1
 DATE STARTED: 3/29/07
 DATE COMPLETED: 4/02/07

PROJECT NAME: BETHEL
 SITE NAME: VT-107
 STATION: 125+50.00
 OFFSET: 25.00
 VTSPG: N 483653.89 ft E 1605575.81 ft

PROJECT NUMBER: BRF 022-1(14)
 SITE NUMBER: BR-15
 GROUND ELEVATION: 530.45 ft
 GROUNDWATER DEPTH: 10.0 ft 4/02/07
 PROJECT PIN NUMBER: 78F161

BORING CREW
 CREW CHIEF: PORTER
 DRILLER: PORTER
 LOGGER: WERNER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: DLG

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-2-4, Sa, brn, Moist, Rec. = 1.7 ft	6	21.4	11.1	70.0	18.9
		A-2-4, Sa, brn, Moist, Rec. = 1.1 ft	10	16.2	16.9	66.6	16.5
10		A-2-4, GrSiSa, brn, Wet, Rec. = 0.9 ft	27	13.3	25.4	48.7	25.9
		A-2-4, Sa, brn, Wet, Rec. = 1.1 ft	19	18.6	11.6	75.2	13.2
		Field Class: NXDC, Cobbles, Cleaned out casing.					
20		A-1-b, SiGrSa, gry, Wet, Rec. = 0.6 ft Field Note: NXDC, Cleaned out casing.	R	11.9	31.8	47.2	21.0
		A-4, SaSi, gry, Moist, Rec. = 1.7 ft	73	15.8	13.2	37.0	49.8
30		A-4, Si, gry, Moist, Rec. = 1.2 ft	30	21.9	0.9	19.1	80.0
		A-4, SiSa, gry, Moist, Rec. = 1.5 ft	91	18.3	2.1	52.3	45.6
40		A-4, SiSa, gry, Moist, Rec. = 1.0 ft	R	16.2	16.8	44.7	38.5
		Top of Bedrock @ 44.5 ft					
		Field Class: Weathered Rock, Drilled and cored ahead to solid rock.					
		Gray, Biotite Gneiss, Competent, Dip varies from 60 to 85, Very hard, Unweathered, NXMDC, 45.2 ft - 50.2 ft, Rec. = 5.0 ft	1	100	90		8 9 7 7
50		Gray, Biotite Gneiss, Competent, Dip varies from 60 to 85, Very hard, Unweathered, NXMDC, 50.2 ft - 55.2 ft, Rec. = 5.0 ft	2	100	92		7 6 6 5 5 6
		Hole stopped @ 55.2 ft					

LOG OF BORING - BETHEL - BRF 022-1(14).GRJ - VT - AOT.GDT - 5/23/07



STATE OF VERMONT
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 SUBSURFACE INFORMATION

BORING NUMBER: B-305
 SHEET 1 of 1
 DATE STARTED: 4/16/07
 DATE COMPLETED: 4/17/07

PROJECT NAME: BETHEL
 SITE NAME: VT-107
 STATION: 128+02.00
 OFFSET: -34.00
 VTSPG: N 483898.90 ft E 1605659.07 ft

PROJECT NUMBER: BRF 022-1(14)
 SITE NUMBER: BR-15
 GROUND ELEVATION: 526.8 ft
 GROUNDWATER DEPTH: 3.0 ft 4/18/07
 PROJECT PIN NUMBER: 78F161

BORING CREW
 CREW CHIEF: PORTER
 DRILLER: PORTER
 LOGGER: WERNER

BORING RIG: LAG TRACK RIG w/AUTO HAMMER
 BORING TYPE: WASH BORE
 SAMPLE TYPE: SPLIT BARREL
 CHECKED BY: DLG

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
	x x x	Field Note:, Fill material to level sight.					
	x x x	Field Note:, Fill material to level sight.					
		Field Class:, Cobbles & Boulder, NXDC, Cored ahead					
5		A-2-4, SiSa, brn, Wet, Rec. = 0.9 ft	4	22.8	7.7	59.3	33.0
		Field Note:, No recovery, Wet sand in barrel., NXDC, Cored ahead	4				
		A-1-b, SaGr with Wood pieces., brn, Wet, Rec. = 1.0 ft	40	17.7	48.6	35.1	16.3
10		A-1-b, SaGr, brn, Wet, Rec. = 0.9 ft	38	12.2	44.3	37.8	17.9
		A-2-4, SiSa, brn, Wet, Rec. = 1.0 ft	13	23.9	4.9	69.6	25.5
15		A-2-4, SiSa, brn-gry, Wet, Rec. = 2.0 ft	14	22.4	3.5	69.7	26.8
		A-4, Si, gry, Wet, Rec. = 2.0 ft	24	21.7	0.2	18.6	81.2
		A-4, SaGrSi, gry, Wet, Rec. = 1.7 ft	72	14.5	23.6	21.9	54.5
20		A-4, SaGrSi, gry, Wet, Rec. = 0.75 ft	R	13.0	30.8	24.7	44.5
			R	17.2	31.4	30.9	37.7
25		A-4, SaGrSi, gry, Wet, Rec. = 0.2 ft	1	100	67	60	10
		Light gray, Quartz-biotite gneiss, Competent, Very hard, Unweathered, NXMDC, 25.2 ft - 30.2 ft, Rec. = 5.0 ft					10
							7
							7
30		Light gray, Quartz-biotite gneiss, Competent, Very hard, Unweathered, NXMDC, 30.2 ft - 35.2 ft, Rec. = 5.0 ft	2	100	94	60	9
							9
							9
							8
35		Hole stopped @ 35.2 ft					8

LOG OF BORING - BETHEL - BRF 022-1(14).GRJ - VT - AOT.GDT - 5/23/07

