



PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 464+70 GROUND ELEVATION: 405.11 ft
OFFSET: -57.82 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 127276.56 ft E 1619228.67 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-1-b, GrSa, brn, Moist, Rec. = 1.1 ft	5	11.8	42.3	43.2	14.5
		A-1-a, SaGr, brn, Wet, Rec. = 0.6 ft	5	14.0	64.1	30.8	5.1
10		A-1-b, GrSa, brn, MTW, Rec. = 1.2 ft	16	15.1	33.0	50.9	16.1
		A-1-a, SaGr, gry, MTW, Rec. = 1.5 ft, Sample was mostly broken rock.	63	9.1	69.6	21.2	9.2
		A-2-4, SiGrSa, brn, MTW, Rec. = 0.5 ft		12.1	29.7	46.3	24.0
20		A-1-a, Gr, gry-white, MTW, Rec. = 0.5 ft, Sample was broken rock (Granite).	R	6.5	82.0	13.6	4.4
		A-2-4, SiSa, brn, Wet, Rec. = 1.4 ft	54	15.4	11.0	66.7	22.3
30		A-2-4, SiGrSa, gry, Wet, Rec. = 1.1 ft	44	12.9	30.0	49.6	20.4
		A-2-4, SiGrSa, gry, Wet, Rec. = 1.6 ft	36	10.8	31.8	43.0	25.2
40		A-2-4, GrSiSa, gry, Moist, Rec. = 1.2 ft, Small pieces of wood were within sample.	35	9.8	20.7	52.3	27.0
		A-2-4, SiSa, gry, Moist, Rec. = 1.6 ft	36	10.9	16.7	58.0	25.3
50		A-2-4, GrSiSa, gry, Wet, Rec. = 1.1 ft	15	11.6	22.7	53.0	24.3
		A-1-b, Sa, gry, Wet, Rec. = 0.8 ft	22	24.8	17.7	78.3	4.0
60		A-1-b, SiSaGr, gry, Wet, Rec. = 0.6 ft	22	10.2	45.1	29.5	25.4
		Field Note: No Recovery	23				
70		A-1-b, GrSa, gry, Wet, Rec. = 0.7 ft	R	11.8	41.4	42.2	16.4
		Field Note: Pulled casing at 70.0 ft and changed bit.					

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT AOT.GBT 1/21/10



PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 464+70 GROUND ELEVATION: 405.11 ft
OFFSET: -57.82 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 127276.56 ft E 1619228.67 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

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-a, SaGr, gry, MTW, Rec. = 1.0 ft	64	10.0	58.9	32.6	8.5
80		A-1-b, SaGr, gry, MTW, Rec. = 0.9 ft	28	9.8	49.9	32.0	18.1
		A-4, GrSaSi, gry, MTW, Rec. = 1.6 ft	97	12.4	26.0	31.6	42.4
90		A-4, SaSi, gry, MTW, Rec. = 1.5 ft, Lab Note: (HP)	22	9.6	9.7	38.9	51.4
		A-2-4, GrSiSa, gry, MTW, Rec. = 1.1 ft, Lab Note: (HP)	R	11.9	21.3	49.9	28.8
100		A-4, SaSi, gry, Moist, Rec. = 2.0 ft, Lab Note: (HP)	30	9.4	17.6	38.0	44.4
		A-4, GrSaSi, gry, Moist, Rec. = 1.1 ft, Lab Note: (HP)	49	8.6	22.7	35.9	41.4
110		A-3, Sa, gry, MTW, Rec. = 1.9 ft	81	19.2	0.5	95.0	4.5
120		A-1-b, SiGrSa, gry, MTW, Rec. = 0.5 ft	R	12.3	27.8	49.7	22.5
		Top of Bedrock @ 124.5 ft					
		Gray, Meta-Limestone, Not Competent, Hard, Unweathered, NXMDC, 124.5 ft - 125.5 ft, Rec. = 2.0 ft	1	50	0	60	10
		Brown to black, Phyllitic Schist, Not Competent, Moderately to severely weathered, 125.5 ft - 128.5 ft	2	100	32	60	10
130		Gray, Meta-Limestone, Competent, Hard, Unweathered, NXMDC, 128.5 ft - 131.6 ft, Rec. = 5.0 ft					12
		Phyllitic Schist and Massive Quartz, Not Competent, Severely weathered, 131.6 ft - 133.0 ft					12
		Gray, Meta-Limestone, Competent, Hard, Unweathered, 133.0 ft - 133.5 ft					11
		Hole stopped @ 133.5 ft					10
140		DRILLER'S NOTES: 1. Pulled casing at 70.0 ft, changed bit and readvanced casing.					
		GROUND WATER DEPTHS: a. 50.9 ft on 12/02/09 (drilled to 67.0' on 12/01/09) b. 66.0 ft on 12/03/09 (drilled to 80.0' on 12/02/09) c. 67.0 ft on 12/07/09					

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT AOT.GBT 1/21/10



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

BORING NUMBER: B-14
SHEET 1 of 2
DATE STARTED: 11/13/09
DATE COMPLETED: 11/24/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 464+79 GROUND ELEVATION: 401.53 ft
OFFSET: 58.59 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 127329.70 ft E 1619332.54 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-1-b, GrSa, brn, Moist, Rec. = 0.7 ft	10	18.8	21.1	67.0	11.9
		Visual Classification, Sand with possible broken orange clay pipe and broken rock, brn, Wet, Rec. = 0.5 ft, Possible Fill material.	11				
10		A-1-a, Gr, gry, Wet, Rec. = 0.6 ft, Broken rock was within sample.	40	8.9	76.7	19.1	4.2
		A-1-a, SaGr, brn, Wet, Rec. = 0.7 ft, Broken rock was within sample.	16	11.4	50.7	39.1	10.2
20		Field Class:, No Recovery, Appears to be Sandy Gravel	7				
		A-4, SaSi, gry, Wet, Rec. = 1.0 ft	20	20.6	16.0	25.7	58.3
30		Field Note:, NXDC, Cobbles					
		A-4, SiSa, gry, Wet, Rec. = 1.5 ft	34	17.4	12.3	49.9	37.8
40		Field Note:, NXDC, Cobbles					
		A-1-b, SiGrSa, gry, Moist, Rec. = 0.8 ft	8	17.1	32.5	47.4	20.1
50		A-1-a, Gr, gry, Moist, Rec. = 0.7 ft, Lab Note: Sample was mostly broken rock.	67	8.5	76.3	18.0	5.7
		A-2-4, GrSiSa with small pieces of wood, Lt/gry, Moist, Rec. = 1.3 ft, There was some soft/weathered rock within sample.	29	11.2	22.3	50.8	26.9

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT AOT.GBT 1/21/10



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

BORING NUMBER: B-14
SHEET 2 of 2
DATE STARTED: 11/13/09
DATE COMPLETED: 11/24/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 464+79 GROUND ELEVATION: 401.53 ft
OFFSET: 58.59 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 127329.70 ft E 1619332.54 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
		Field Class:, No Recovery, Appears to be Sandy Silt	14				
		A-1-a, SaGr, gry, Moist, Rec. = 1.0 ft, Broken rock was within sample.	41	7.4	68.5	24.9	6.6
70		A-2-4, SiSa, gry, Wet, Rec. = 1.5 ft	WH	15.0	14.6	54.6	30.8
		A-1-b, SiSaGr, gry, Wet, Rec. = 0.9 ft	10	10.6	43.1	32.9	24.0
80		A-4, SaSi, gry, Moist, Rec. = 1.7 ft, Lab Note: (HP)	54	9.3	15.6	34.2	50.2
		A-4, SaSi, gry, Moist, Rec. = 1.9 ft, Lab Note: (HP)	40	9.1	12.7	43.1	44.2
90		Field Note:, NXDC, Cobbles, Pulled casing at 95.0 ft and changed bit.					
		A-1-b, SiGrSa with some weathered rock, gry, Moist, Rec. = 1.0 ft	42	13.2	26.7	52.2	21.1
		Interbedded Meta-Limestone and Phyllitic Meta-Limestone. Stained jointing. Not Competent, Hard, Moderately weathered, NXMDC, 97.1 ft - 102.1 ft, Rec. = 3.8 ft	1	76	14	55	15
		Phyllite grading to Meta-Limestone and Phyllitic Meta-Limestone. Stained jointing. Moderately Competent, Hard, Moderately weathered, NXMDC, 102.1 ft - 107.1 ft, Rec. = 4.5 ft	2	90	36	55	10
		Hole stopped @ 107.1 ft					9
							8
							10
							10
110		DRILLER'S NOTES: GROUND WATER DEPTHS: a. 27.3 ft on 11/16/09 (drilled to 30.0' on 11/13/09) b. No water found on 11/17/09 (drilled to 45.0' on 11/16/09) c. 60.8 ft on 11/18/09 (drilled to 75.0' on 11/17/09) d. 65.5 ft on 11/24/09					

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT AOT.GBT 1/21/10



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

BORING NUMBER: B-15
SHEET 1 of 2
DATE STARTED: 12/14/09
DATE COMPLETED: 12/23/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 463+17 GROUND ELEVATION: 351.3 ft
OFFSET: -55.45 GROUNDWATER DEPTH: 18.6 ft 12/16/09
VTSPG NAD83: N 127134.47 ft E 1619298.70 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		A-1-b, GrSa, brn, Moist, Rec. = 0.9 ft	5	15.5	28.7	53.3	18.0
10		A-2-4, GrSiSa, gry, MTW, Rec. = 1.0 ft	4	14.3	23.1	42.8	34.1
10		Field Note:, NXDC, Cobbles					
20		A-4, GrSiSa, gry, MTW, Rec. = 1.5 ft	21	10.4	25.4	38.0	36.6
20		A-2-4, SiGrSa, gry, MTW, Rec. = 1.6 ft	47	9.1	32.0	36.2	31.8
30		A-4, SaSi, gry, MTW, Rec. = 1.6 ft	20	13.1	17.7	34.6	47.7
30		A-4, Si, gry, MTW, Rec. = 1.5 ft	32	15.2	5.9	18.5	75.6
40		A-4, GrSaSi, gry, MTW, Rec. = 1.4 ft	32	13.9	24.4	26.6	49.0
40		Field Note:, No Recovery	50				
50		A-4, SaGrSi, gry, MTW, Rec. = 1.2 ft, Lab Note: (HP)	77	11.7	28.3	27.5	44.2
50		A-4, SaSi, gry, MTW, Rec. = 1.9 ft	39	12.2	14.4	28.3	57.3
60		A-4, SaSi, gry, MTW, Rec. = 2.0 ft	34	10.7	15.5	28.3	56.2
60		A-1-b, SiGrSa, gry, MTW, Rec. = 0.6 ft, Lab Note: Sample was mostly broken rock with sand.	R	12.2	38.9	39.7	21.4
70		A-2-4, SiSa, gry, MTW, Rec. = 1.7 ft	53	16.0	3.7	67.5	28.8
70		Field Note:, No Recovery	68				

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT_AOT.GOT 1/21/10



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

BORING NUMBER: B-15
SHEET 2 of 2
DATE STARTED: 12/14/09
DATE COMPLETED: 12/23/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 463+17 GROUND ELEVATION: 351.3 ft
OFFSET: -55.45 GROUNDWATER DEPTH: 18.6 ft 12/16/09
VTSPG NAD83: N 127134.47 ft E 1619298.70 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)
80		A-1-b, GrSa, gry, MTW, Rec. = 1.1 ft Field Note:, Cored ahead, Boulder & Cobbles	77	11.7	40.4	43.7	15.9
90		A-1-b, SiGrSa, gry, MTW, Rec. = 1.3 ft	72	13.8	21.6	57.2	21.2
90		A-4, SaSi, gry-brn, Wet, Rec. = 0.4 ft A-2-4, SiSa, brn, Rec. = 1.2 ft	41	29.4 21.7	1.8 6.1	25.2 63.1	73.0 30.8
100		A-2-4, SiGrSa, gry, Wet, Rec. = 0.8 ft, Lab Note: Some broken rock was within sample.	82	15.4	33.0	42.0	25.0
100		Field Note:, NXMDC, Cobbles					
105.0		Top of Bedrock @ 105.0 ft					
110		Gray, Meta-Limestone, Not Competent, Hard, Unweathered, NXMDC, 105.0 ft - 107.0 ft, Rec. = 0.8 ft	1	40	0	?	6
110		Gray, Meta-Limestone, Not Competent, Hard, Slightly weathered, NXMDC, 107.0 ft - 110.0 ft, Rec. = 1.6 ft	2	53	0	60	10
110		Gray, Interbedded Meta-Limestone and Phyllite, Not Competent, Moderately hard, Moderately weathered, NXMDC, 110.0 ft - 112.0 ft, Rec. = 1.8 ft	3	90	0	55	10
110		Gray, Interbedded Quartz rich Meta-Limestone and Phyllite, Not Competent, Moderately hard, Moderately to severely weathered, NXMDC, 112.0 ft - 115.0 ft, Rec. = 2.1 ft	4	70	0	55	10
120		Gray, Interbedded Quartz rich Meta-Limestone and Phyllite, Quartz vein from 117.6 ft to 118.4 ft, Not Competent, Moderately hard to hard, Moderately to severely weathered, NXMDC, 115.0 ft - 120.0 ft, Rec. = 4.2 ft	5	84	0	70	10
120		Gray, Interbedded Quartz rich Meta-Limestone and Phyllite, Quartz vein from 123.7 ft to 124.0 ft, Fair Competency, Hard, Moderately to severely weathered, NXMDC, 120.0 ft - 125.0 ft, Rec. = 4.9 ft	6	98	44	50	10
120		Hole stopped @ 125.0 ft					12
130							14
130							14
140							16
140							14

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT_AOT.GOT 1/21/10



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

BORING NUMBER: B-16
SHEET 1 of 2
DATE STARTED: 12/29/09
DATE COMPLETED: 1/11/10

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 463+13
OFFSET: 52.38
VTPG NAD83: N 127181.42 ft E 1619395.86 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 346.03 ft
GROUNDWATER DEPTH: 14.7 ft 1/12/10
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	WELL DIAGRAM	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-1-b, GrSa, brn, Moist, Rec. = 0.8 ft		7	10.8	31.0	53.0	16.0
		A-1-a, SaGr, brn, MTW, Rec. = 0.6 ft		17	10.4	49.9	34.5	15.6
10		A-1-b, SaGr, gry, MTW, Rec. = 0.5 ft		13	10.6	52.6	32.2	15.2
		A-2-4, GrSiSa, gry, MTW, Rec. = 0.8 ft		10	13.2	20.4	47.7	31.9
20		NXDC, Cobbles, 19.5 ft - 21.0 ft, Cleaned out casing.						
		NXDC, Cobbles, 24.3 ft - 25.0 ft, Cleaned out casing.		43	13.8	25.9	29.6	44.5
		A-4, GrSaSi, gry, MTW, Rec. = 0.6 ft						
30		A-4, SaSi, gry, MTW, Rec. = 1.9 ft		34	12.5	11.0	33.3	55.7
		Field Note: NXDC, Cleaned out casing						
		A-4, SaSi, gry, MTW, Rec. = 1.6 ft		43	12.5	8.3	37.6	54.1
40		A-2-4, SiSaGr, gry, MTW, Rec. = 1.1 ft, Broken rock (Granite) was within sample.		R	11.0	41.0	31.0	28.0
		A-1-b, SiSaGr, gry, MTW, Rec. = 0.6 ft, Broken rock was within sample.		R	8.5	56.0	23.8	20.2
50		A-1-a, SaGr, gry, MTW, Rec. = 1.0 ft, Broken rock was within sample.		R	11.5	52.8	34.1	13.1
		A-2-4, SiGrSa, gry, MTW, Rec. = 1.6 ft		42	16.6	25.6	51.3	23.1
60		A-2-4, SiGrSa, gry, MTW, Rec. = 1.8 ft		68	18.2	24.8	51.7	23.5
		A-4, SaSi, gry, MTW, Rec. = 1.5 ft		49	24.2	1.2	22.9	75.9

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT AOT.GOT 1/21/10



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

BORING NUMBER: B-16
SHEET 2 of 2
DATE STARTED: 12/29/09
DATE COMPLETED: 1/11/10

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 463+13
OFFSET: 52.38
VTPG NAD83: N 127181.42 ft E 1619395.86 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 346.03 ft
GROUNDWATER DEPTH: 14.7 ft 1/12/10
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	WELL DIAGRAM	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		A-2-4, GrSiSa, gry, MTW, Rec. = 0.7 ft, Broken rock was within sample.		R	19.1	25.9	46.5	27.6
		A-1-a, SaGr, gry, MTW, Rec. = 0.6 ft		R	8.6	54.3	33.8	11.9
80		NXDC, Cobbles, 79.4 ft - 81.0 ft, Cleaned out casing.						
		A-4, SaSi, gry, MTW, Rec. = 1.0 ft		36	29.0	0.0	32.1	67.9
		A-4, SiSa, brn, MTW, Rec. = 0.6 ft			25.6	2.0	54.1	43.9
90		A-2-4, SiSa, brn, MTW, Rec. = 1.7 ft		49	26.4	2.0	65.8	32.2
		A-2-4, SiSa, brn, MTW, Rec. = 1.8 ft		48	20.4	2.7	73.9	23.4
100		Visual Classification, Broken Rock, gry, Rec. = 0.3 ft		R				
		NXMDC, Boulder & part of Run #1, 101.0 ft - 102.3 ft						
		Gray, Phyllitic Schist, Not Competent, Soft, Moderately to severely weathered, NXMDC, 102.3 ft - 106.0 ft, Rec. = 2.7 ft		1	73	0	?	10 15 15 17
		Gray, Meta-Limestone, Hard, Unweathered, NXMDC, 106.0 ft - 107.7 ft, Rec. = 3.9 ft		2	78	0	80	10 10 10 10
		Dark gray, Phyllitic Schist, with massive Quartz vein. Fair competency, Unweathered, 107.7 ft - 111.0 ft						
		Continuation of Quartz vein. Core barrel plugged, resulting in a short run., NXMDC, 111.0 ft - 112.0 ft, Rec. = 0.5 ft		3	50	0	?	10 15
		Massive Quartz, with phyllitic schist. Low RQD may be due to mechanical breakage during core retrieval. Competent, Very hard, Unweathered, NXMDC, 112.0 ft - 115.0 ft, Rec. = 2.7 ft		4	90	0	80	20 20 20
		Massive Quartz, with phyllitic schist grading to meta-limestone and phyllite. Competent, Hard to moderately hard, Unweathered, NXMDC, 115.0 ft - 119.0 ft, Rec. = 3.8 ft		5	95	50	75	15 15 15 16
		Hole stopped @ 119.0 ft						
		DRILLER'S NOTES: 1. Installed Monitoring well to 22.7 ft. 2. There is 1.9 ft. of well casing above ground level.						
		GROUND WATER DEPTHS: a. 18.1 ft on 12/30/09 (drilled to 60.0' on 12/29/09) b. 17.6 ft on 01/04/10 (hole depth at 60.0') c. 16.6 ft. on 01/12/10, measured from top of well casing.						
130								

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT AOT.GOT 1/21/10



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

BORING NUMBER: B-17
SHEET 1 of 1
DATE STARTED: 10/14/09
DATE COMPLETED: 10/20/09

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 461+60
OFFSET: 1.71
VTSPG NAD83: N 127026.15 ft E 1619427.36 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 356.73 ft
GROUNDWATER DEPTH: 39.5 ft 10/16/09
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	LL (%)	PI (%)
			RUN	REC (%)	RQD (%)	Dip (deg)	Drill Rate (min/ft)		
		A-1-b, GrSa, brn, MTW, Rec. = 0.7 ft	4	12.3	39.8	46.1	14.1		
		A-4, GrSaSi, gry, MTW, Rec. = 1.0 ft	19	13.6	25.2	36.3	38.5		
10		A-4, SaSi, gry, MTW, Rec. = 1.6 ft	19	12.4	15.3				
		Field Note: No Recovery	24						
20		A-6, SiCl with GrSa, gry, MTW, Rec. = 1.4 ft	28	16.8	24.9	29.1	46.0	31	12
		A-4, ClSi (HP), gry, Moist, Rec. = 1.8 ft	35	13.3	2.2	30.4	67.4	25	9
30		A-4, ClSi (HP), gry, Moist, Rec. = 2.0 ft, Particles smaller than 0.002 mm = 22.4%	34	14.6	7.0	23.3	69.7	27	10
		Field Class: NXDC, Cobbles							
40		Field Note: No Recovery	R						
		Field Class: NXDC, Cobbles							
		Field Class: NXDC, Cobbles							
50		Probable Cobbles, Gray siliceous meta-limestone and gray meta-limestone with thin quartz veins, Hard, Slightly weathered, NXMDC, 47.5 ft - 49.5 ft, Rec. = 1.2 ft	1	60	0		11		
		Probable Cobbles, Gray meta-limestone with quartz veins; Siliceous meta-limestone; Feilspathic quartz schist, Hard, Slightly weathered, NXMDC, 49.5 ft - 54.5 ft, Rec. = 2.1 ft	2	42	18		17		
		Gray, Meta-Limestone, with closely spaced stained jointing. Poor competency. Possible top of bedrock at 54.5 ft., Hard, Unweathered, NXMDC, 54.5 ft - 57.5 ft, Rec. = 1.5 ft	3	50	0	15	11		
60		Hole stopped @ 57.5 ft					12		
							10		

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT.AOT.GOT 1/21/10



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AGENCY OF TRANSPORTATION
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BORING NUMBER: B-18
SHEET 1 of 2
DATE STARTED: 10/21/09
DATE COMPLETED: 10/27/09

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 460+45
OFFSET: -58.89
VTSPG NAD83: N 126895.50 ft E 1619442.72 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 418.21 ft
GROUNDWATER DEPTH: 52.5 ft 10/27/09
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
5		A-1-b, GrSa, brn, Moist, Rec. = 1.0 ft, Lost water. Returned at 3.0 ft.	5	8.8	31.1	51.4	17.5
		Field Note:, NXDC, Cobbles					
		Visual Classification, Broken Rock with sand, brn, Moist, Rec. = 0.4 ft	54				
10		A-2-4, SiSa, brn, MTW, Rec. = 0.5 ft	22	13.3	19.6	51.1	29.3
		Field Note:, NXDC, Cobbles					
15		A-1-b, GrSa, brn, MTW, Rec. = 1.0 ft	22	9.8	27.5	59.3	13.2
		Field Note:, NXDC, Cobbles					
20		A-2-4, GrSiSa, gry, Wet, Rec. = 0.9 ft	WH	12.0	24.3	45.4	30.3
		Field Note:, NXDC, Cobbles					
25		A-2-4, SiSa, gry, Wet, Rec. = 0.3 ft	1	13.9	13.4	57.3	29.3
30		A-2-4, SiSa, gry, Wet, Rec. = 0.8 ft	20	13.1	14.7	56.2	29.1
35		A-4, SaSi, gry, Moist, Rec. = 1.3 ft	19	13.4	16.3	39.0	44.7
		Field Note:, NXDC, Cobbles					
40		A-2-4, SiSaGr, gry, Moist, Rec. = 1.4 ft	34	9.5	43.7	28.4	27.9
45		A-4, SaSi (HP), gry, Moist, Rec. = 1.5 ft	30	9.5	18.2	38.2	43.6

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT_AOT.GOT 1/21/10



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

BORING NUMBER: B-18
SHEET 2 of 2
DATE STARTED: 10/21/09
DATE COMPLETED: 10/27/09

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 460+45
OFFSET: -58.89
VTSPG NAD83: N 126895.50 ft E 1619442.72 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 418.21 ft
GROUNDWATER DEPTH: 52.5 ft 10/27/09
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

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, SiSaGr (HP), gry-white, Moist, Rec. = 0.9 ft	78	7.3	44.7	29.7	25.6
55		Field Note:, NXDC, Cobbles					
		A-2-4, GrSiSa (HP), gry, Moist, Rec. = 1.6 ft	64	8.6	28.6	36.1	35.3
60		Visual Classification, GrSa, gry, Moist, Rec. = 0.4 ft, Insufficient sample for testing.	58				
65		A-1-b, GrSa, gry, Wet, Rec. = 0.6 ft	62	21.1	34.9	62.6	2.5
		Field Note:, NXDC, Cobbles					
70		A-4, GrSaSi (HP), gry, Moist, Rec. = 1.4 ft	45	9.1	24.1	32.2	43.7
75		Visual Classification, Broken Rock, Rec. = 0.2 ft	R				
		Gray, Meta-Limestone, with quartz veins. Fair competency, Moderately hard, Unweathered, NXMDC, 75.2 ft - 78.4 ft, Rec. = 4.6 ft	1	92	68	50	22
		Gray, Siliceous meta-limestone, Stained at top of run and before/after drilling break, Hard, 78.8 ft - 80.2 ft					20
		Gray, Siliceous meta-limestone, Some staining along joint surfaces. Competent, Hard, Unweathered, NXMDC, 80.2 ft - 85.2 ft, Rec. = 4.7 ft	2	94	52	50	15
							12
							8
							8
							12
							10
							10
		Hole stopped @ 85.2 ft					

LOG OF BORING BRATTLEBORO IM 091-1(50).GPI VT_AOT.GOT 1/21/10

Top of Bedrock @ 75.2 ft



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AGENCY OF TRANSPORTATION
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BORING NUMBER: B-19
SHEET 1 of 2
DATE STARTED: 10/29/09
DATE COMPLETED: 11/05/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 460+25 GROUND ELEVATION: 416.79 ft
OFFSET: 58.10 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 126951.24 ft E 1619546.56 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
		Visual Classification, SiSaGr, brn, Moist, Rec. = 0.7 ft, insufficient sample for testing.	5	12.4			
		Field Note: NXDC, Cobbles					
		Field Note: No Recovery	18				
10		Field Note: NXDC, Cobbles and Gravel					
		A-4, SiSa, Lt/brn, Moist, Rec. = 1.3 ft	33	11.0	13.8	49.9	36.3
		A-4, SiSa, gry, Moist, Rec. = 1.7 ft	31	10.8	12.7	50.8	36.5
20		Field Note: NXDC, Cleaned out casing.					
		A-2-4, SiSa, gry-brn, Moist, Rec. = 1.7 ft	40	8.9	19.2	50.1	30.7
		Visual Classification, Broken Rock, gry, Dry, Rec. = 0.3 ft	R				
30		Field Note: NXDC, Cobbles					
		A-2-4, SiSa (HP), gry, Moist, Rec. = 1.7 ft	55	9.3	15.8	50.5	33.7
		Field Note: NXDC, Cobbles and Gravel					
		A-4, SiSa (HP), gry, Moist, Rec. = 0.5 ft	88	9.2	17.8	43.8	38.4
40		Field Note: NXDC, Cobbles					
		A-2-4, GrSiSa (HP), gry, Moist, Rec. = 1.3 ft	35	9.4	29.4	39.7	30.9
		A-2-4, GrSiSa, gry, Moist, Rec. = 1.5 ft, Broken Granite chips were within sample.	21	9.6	32.0	35.0	33.0
50		Field Note: NXDC, Cobbles					
		Field Note: NXDC, Cored ahead					
		Field Note: NXDC, Cobbles					
		A-4, SaSi, gry, Moist, Rec. = 0.3 ft	26	15.8	9.3	38.9	51.8

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT AOT.GBT 1/21/10



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

BORING NUMBER: B-19
SHEET 2 of 2
DATE STARTED: 10/29/09
DATE COMPLETED: 11/05/09

PROJECT NAME: BRATTLEBORO PROJECT NUMBER: IM 091-1(50)
SITE NAME: I-91 SITE NUMBER: BR 6 N&S
STATION: 460+25 GROUND ELEVATION: 416.79 ft
OFFSET: 58.10 GROUNDWATER DEPTH: SEE NOTES
VTSPG NAD83: N 126951.24 ft E 1619546.56 ft PROJECT PIN NUMBER: 02A014

BORING CREW BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
CREW CHIEF: GARROW BORING TYPE: WASH BORE
DRILLER: GARROW SAMPLE TYPE: SPLIT BARREL
LOGGER: MAHMUTOVIC CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
60		Field Note: NXDC, Cobbles and 2 inch stone, Cleaned out casing					
		A-4, SaSi, gry, Moist, Rec. = 1.5 ft	19	13.6	18.1	35.4	46.5
		A-4, GrSaSi (HP), gry, Moist, Rec. = 1.6 ft	64	9.1	20.6	38.6	40.8
70		Visual Classification, Broken Rock with sand, gry, Moist, Rec. = 0.5 ft	R	7.2			
		Field Note: NXDC, Cleaned out casing.					
		A-2-4, SiSa, gry-brn, Moist, Rec. = 1.3 ft	82	13.9	6.4	72.8	20.8
80		A-2-4, SiGrSa, gry, Moist, Rec. = 0.9 ft	R	11.9	27.6	47.0	25.4
		A-4, SaGrSi, gry, Moist, Rec. = 0.8 ft	R	16.3	25.4	22.8	51.8
90		Field Note: NXDC, Cobbles					
		Hole stopped @ 92.0 ft					
		DRILLER'S NOTES: Four inch bit worn out at 92.0 ft.; Sleaved down with 3.0 inch casing, but found out that the 4 inch casing was broke off at 87.0 ft.; Pulled casing and started drilling B-19a.					
		GROUND WATER DEPTHS: a. 11.5 ft on 10/30/09 b. 25.4 ft on 11/02/09 c. 24.4 ft on 11/03/09 d. 48.4 ft on 11/04/09 e. 6.2 ft on 11/06/09, Hole collapsed around 20.0 ft.					
100							
110							

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT AOT.GBT 1/21/10



STATE OF VERMONT
AGENCY OF TRANSPORTATION
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SUBSURFACE INFORMATION

BORING NUMBER: B-19A
SHEET 1 of 2
DATE STARTED: 11/05/09
DATE COMPLETED: 11/11/09

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 460+35
OFFSET: 60.00
VTSPG NAD83: N 126948.25 ft E 1619549.28 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 417.1 ft
GROUNDWATER DEPTH: 91.0 ft 11/09/09
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	WELL DIAGRAM	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)	
									BLOWS PER FOOT RUN
Top of Well Elevation: 419.7 ft									
10		Field Class:, Appears to be Cobbles and coarse gravel, Cleaned out casing.							
20		Field Class:, NXDC, Cobbles, Cleaned out casing.							
		Field Class:, Appears to be sandy silt, Cleaned out casing.							
		Field Class:, NXDC, Cobbles, Cleaned out casing.							
		Field Note:, Started to use drillers mud.							
		Field Class:, NXDC, Cobbles, Cleaned out casing.							
40		Field Note:, NXDC, Cleaned out casing							
50		Field Note:, Appears to be Hard Pan							
		Field Class:, NXDC, Cleaned out casing, Appears to be Hard Pan							

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT_AOT.GDT 1/21/10



STATE OF VERMONT
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SUBSURFACE INFORMATION

BORING NUMBER: B-19A
SHEET 2 of 2
DATE STARTED: 11/05/09
DATE COMPLETED: 11/11/09

PROJECT NAME: BRATTLEBORO
SITE NAME: I-91
STATION: 460+35
OFFSET: 60.00
VTSPG NAD83: N 126948.25 ft E 1619549.28 ft

PROJECT NUMBER: IM 091-1(50)
SITE NUMBER: BR 6 N&S
GROUND ELEVATION: 417.1 ft
GROUNDWATER DEPTH: 91.0 ft 11/09/09
PROJECT PIN NUMBER: 02A014

BORING CREW
CREW CHIEF: GARROW
DRILLER: GARROW
LOGGER: MAHMUTOVIC

BORING RIG: LAG TRACK RIG #09 w/AUTO HAMMER
BORING TYPE: WASH BORE
SAMPLE TYPE: SPLIT BARREL
CHECKED BY: TDE

DEPTH (ft)	SYMBOL	CLASSIFICATION OF MATERIALS (Description)	WELL DIAGRAM	BLOWS PER FOOT	M.C. (%)	GRAVEL (%)	SAND (%)	FINES (%)
				BLOWS PER FOOT RUN	M.C. (%) REC (%)	GRAVEL (%) RQD (%)	SAND (%) Dip (deg)	FINES (%) Drill Rate (min/ft)
60								
		Field Class:, NXDC, Cleaned out casing, Appears to be Hard Pan						
80								
90								
		Visual Classification, Weathered rock with sand, gry, Moist, Rec. = 0.7 ft						
		Gray, Phyllitic Meta-limestone, Stained jointing, Not Competent, Hard, Moderately weathered, NXMDC, 96.0 ft - 99.0 ft, Rec. = 2.0 ft						
100		Gray, Phyllitic Meta-limestone, Stained jointing, Not Competent, Hard, Moderately weathered, NXMDC, 99.0 ft - 101.0 ft, Rec. = 2.0 ft						
		Hole stopped @ 101.0 ft						
		DRILLER'S NOTES: 1. Installed Monitoring well to 94.1 ft. 2. There is 2.7 ft. of well casing above ground level. 3. Ground water depth on 11/20/09 was 93.8 ft. measured from top of casing.						

LOG OF BORING BRATTLEBORO IM 091-1(50).GPJ VT_AOT.GDT 1/21/10