



Geotechnical Engineers/Environmental Consultants/Construction Engineers
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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: A-1

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: June 24, 2003 Date Finished: June 24, 2003
 N. Coordinates: E. Coordinates:
 Ground Surface Elevation (feet): 510.7
 Station: 10+79.30 Offset: 32.5 ft RT

Casing:		Sampler:		Groundwater Observations			
Type	LD:	Type	LD:	Date	Depth (ft)	Elev. (ft)	Notes
FJ	3.0 in.	SS	1.38 in.	6/24/03, 11:45			None
	300 lbs		140 lbs				
	30 in.		30 in.				
	B-47 Mobile Drill Track						
	BX-size Core Barrel						

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch interval				Coring Time (min./ft)				Moisture Content (%)		
							0 - 6	6 - 12	12 - 18	18 - 24							
		S1	SS	24	8	0	5	6	5	6							
		S2	SS	16	14	2	9	12	25/4"								
5		S3	SS	1	1	4.2	25/1"										
		C1	C	66	46	6.5					14						
											19						
10											2						
											7						
											21						
											5						
											8						
		C2	C	12	10	11					16						
15																	
20																	
25																	
30																	

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD.GDT 12/17/09

Remarks:

- Ground surface elevation measured in the field by GeoDesign using a hand level.
- Split spoon sampler refusal at 3.3' deep on possible cobble, boulder, or bedrock.
- Hard solid stem auger resistance observed between 3' and 4.2' depth through boulders estimated between 6" - 12" diameter. Boulder observed near surface (+/- 16" diameter).
- Solid stem auger refusal at 4.2' deep on possible boulder or bedrock. Used 3" L.D. casing with cutting shoe to advance hole to 6.5' deep. Began coring using BX core barrel.
- Light gray-brown wash water return observed during coring. No wash water return observed below 7.2' deep (estimated loss down hole at approximately 3-4 gpm).
- Observed lower resistance between 8.3' to 8.8' deep and 10.2' to 11' deep during coring through probable soil between boulders.

Notes:

- Stratification lines represent approximate boundary between material types, transitions may be gradual.
- 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.
- ALC = After casing RL = Not Recorded.
- Sample Type: Casing-A-Augers-C-Cores-I-Drivers-O-Grate-P-Platform Samplers-SS-Split Barrel-Split Spoon-SI-Shelby Tube-Geo-Grab-Probe-Y-Holes
- Wt./ft = Weight of Rod/Hammer
- Preparation: Leads Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
- Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: A-1



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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: A-3

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: June 24, 2003 Date Finished: June 24, 2003
 N. Coordinates: E. Coordinates:
 Ground Surface Elevation (feet): 520.8
 Station: 12+00.00 Offset: 19.9 ft RT

Type	Casing		Sampler		Groundwater Observations			
	None	SS			Date	Depth (ft)	Elev. (ft)	Notes
LD:	N/A in.	1.38 in.						
Hammer Wt.:	N/A	140 lbs	6/24/03, 10:55	5.5	515.3		Moist Soil	
Hammer Fall:	N/A	30 in.						
Rig Type:	B-47 Mobile Drill Track							
Other:								

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)		
							0 - 6	6 - 12	12 - 18	18 - 24							
	S1	SS	24	11	0	2	2	3	6								
	S2	SS	24	7	2	8	8	23	8								
5	S3	SS	10	6	4.7	3	45/4"										
10																	
15																	
20																	
25																	
30																	

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD.GDT 12/17/09

Remarks

- Ground surface elevation estimated in the field by GeoDesign using a hand level.
- Spill spoon sampler possibly pushing cobble at 3' deep. Spoon observed "walking" to the north.
- Cobbles and boulders estimated between 4" to 10" nominal diameter during solid stem auger advance.
- Spill spoon sampler refusal on possible boulder or bedrock at 5.5' deep. Solid stem auger refusal at 6.5' deep.

Notes

- Stratification lines represent approximate boundary between material types, transitions may be gradist.
- 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.
- ALC = After casing N/A = Not Recorded.
- Sample Type: Casing-Augers-C-Cores; B-Drivers; O-Grate; PS-Platton Samplers; SS-Split; Borral(Split) Spoon; SI-Shelby Tube; Geo-GadProbe; Y-Holes
- Wt./ft = Weight of Rod/Hammer
- Preparation: Leads Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%
- Stratification lines represent approximate boundary between material types, transitions may be gradist.

Boring No.: A-3



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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: A-5

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: July 8, 2003 Date Finished: July 8, 2003
 N. Coordinates: E. Coordinates:
 Ground Surface Elevation (feet): 582.9
 Station: 18+17.40 Offset: 16.5 ft LT

Type	Casing		Sampler		Groundwater Observations			
	None	SS			Date	Depth (ft)	Elev. (ft)	Notes
LD:	N/A in.	1.38 in.						
Hammer Wt.:	N/A	140 lbs			7/8/03, 14:30			None
Hammer Fall:	N/A	30 in.						
Rig Type:	B-47 Mobile Drill Track							
Other:								

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch interval				Coring Time (min./ft)				Moisture Content (%)		
							0 - 6	6 - 12	12 - 18	18 - 24							
	S1	SS	24	10	0	1	2	WR	WR							SAND and GRAVEL FILL	S1): Loose, gray-brown, fine to coarse SAND, little Silt, trace Gravel with roots, dry.
	S2	SS	24	3	3	2	8	4	2								S2): Medium dense, similar to S1.
5	S3	SS	24	4	5	1	3	2	7								S3): Loose, similar to S1 except moist, with brick pieces. Piece of coarse Gravel stuck in spoon tip.
	S4	SS	24	3	7	5	3	3	4								S4): Loose, similar to S3 with piece of Gravel stuck in spoon tip.
10	S5	SS	24	5	9	6	4	5	5								S5): Loose. Top 4": Similar to S1. Bottom 1": Light orange-brown, fine SAND, some SILT, little Gravel, moist.
	S6	SS	24	4	11	6	5	9	13								S6): Medium dense, similar to bottom of S5.
	S7	SS	24	0	13	14	8	9	10								S7): Medium dense, no recovery.
15	S8	SS	24	12	15	10	25	23	26								S8): Dense, beige-brown, fine to medium SAND, little Gravel, trace Silt, piece of pulverized quartzite in center of spoon.
20	S9	SS	24	14	20	28	39	22	28								S9) Very dense, olive brown, similar to S8 except with little Silt.
25																	
30																	

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD.GDT 12/17/09

Remarks:

- Ground surface elevation estimated in the field by GeoDesign using a hand level.
- Void noted during split spoon sampling between 1' to 3' deep, (i.e., split spoon sampler dropped).
- Cobbles and boulders (estimated up to 8" diameter) inferred between 3' to 9' deep during solid stem auger advance.
- Possibly pushing cobble during split spoon sampling between 13' to 14.8' deep
- Harder drilling resistance observed below 13' deep. Very dense soils inferred between 15' to 20' deep containing coarse gravel and cobbles up to 6" diameter. Split spoon sample attempted at 20' deep.

Notes:

- Stratification lines represent approximate boundary between material types, transitions may be gradual.
- 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.
- ALC = After casing RL = Not Recorded.
- Sample Type: Casing-Augers-C-Cores; B-Drivers; O-Grate; PS-Platton Samplers; SS-Split; Barrel (Split) Spoon; SI-Shelby Tube; Geo-Grab Probe; Y-Hole
- WR/R=Weight of Rod/Hammer
- Preparation: Leads Trace = 1-10%; L/H = 10-20%; Sand = 20-35%; And = 35-50%
- Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: A-5



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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: A-6Page No.: 1 of 1File No.: 750-04.1Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: July 8, 2003 Date Finished: July 8, 2003
 N. Coordinates: _____ E. Coordinates: _____
 Ground Surface Elevation (feet): 592
 Station: 18+73.10 Offset: 13.3 ft LT

Type	Casing		Sampler		Groundwater Observations			
	ID#	None	SS	Date	Depth (ft)	Elev. (ft)	Notes	
Hammer Wt.:	N/A	140 lbs	7/8/03, 13:20	17.0	575.0	Wet Soil		
Hammer Falls:	N/A	30 in.						
Rig Type:	B-47 Mobile Drill Track							
Other:								

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)		
							0 - 6	6 - 12	12 - 18	18 - 24							
		S1	SS	24	6	0	2	3	3	2					SAND and GRAVEL FILL	S1): Loose, dark brown, fine to coarse SAND, some Silt, trace fine Gravel with roots and pine needles.	
		S2	SS	24	6	2	3	4	11	11						S2): Medium dense, similar to S1 with piece of fractured Cobble in spoon tip.	
5		S3	SS	24	10	4	6	3	6	11						S3): Loose, light brown to orange, fine to medium SAND, some Silt, little Gravel, moist.	
		S4	SS	24	12	6	33	10	5	4						S4): Medium dense, similar to S3 except with coarse Sand, little Gravel and tree roots.	
		S5	SS	24	0	8	9	7	4	3						S5): Medium dense. No recovery.	
10		S6	SS	24	16	10	9	10	14	16						S6): Medium dense, light brown, fine to medium SAND, some Silt, little Gravel.	
		S7	SS	12	8	12	38	45								GLACIAL TILL (with Cobbles)	Bottom 4": gray-brown with pulverized rock fragments.
		S8	SS	24	14	15	15	29	31	36						S7): Refusal. Similar to S6 except beige-brown with little Silt.	
		S9	SS	3	1	17	50/3"									S8): Very dense, olive-brown, fine to medium SAND, some Silt, little fine to coarse Gravel, wetter than S7.	
		S10	SS	24	16	20	22	32	40	35						S9): Very dense/Refusal. Similar to S8 with green schistose piece of Gravel in spoon tip.	
20															S10): Very dense, brown, fine to coarse SAND, some Gravel, little Silt, moist.		
															Bottom of Exploration at 22.0 ft		
25																	
30																	

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ - GEODESIGN STANDARD.GDT 12/17/09

Remarks

- Ground surface elevation estimated in the field by GeoDesign using a hand level.
- Possibly pushing tree root at 6' deep during split spoon sampling.
- Cobbles estimated during solid stem auger advance between 6' and 7' deep.
- Split-spoon refusal on probable boulder at 13' deep. Cobbles/coarse Gravel inferred from drilling distances between 10' and 15' deep.
- Harder drilling resistance observed below 15' deep through denser soils. Solid stem auger advanced borehole to 20' deep. Attempted split spoon sample.

Notes

- Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual.
- 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. A.C. = After casing is set in place.
- Sample Type: Casing - Inauger; C-Core; D-Drill; O-Grabs; P5-Platen Sampler; SS-Split Barrel; SPS-Spoon; S1-Shelby Tube; Geo-Grabs; V-Vane
- WSP/Height of Rod/hammer
- Proportions Used: Trace = 1:100; L/H = 1:200; S/S = 20:30; And = 35:50
- Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: A-6



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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: B-1A

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: June 30, 2003 Date Finished: June 30, 2003
 N. Coordinates: E. Coordinates:
 Ground Surface Elevation (feet): 530
 Station: 13+48.70 Offset: 18.2 ft RT

Type	Casing		Sampler		Groundwater Observations			
	None	SS			Date	Depth (ft)	Elev. (ft)	Notes
LD:	N/A in.	1.38 in.			6/30/03, 13:45			None
Hammer Wt.:	N/A	140 lbs						
Hammer Fall:	N/A	30 in.						
Rig Type:	B-47 Mobile Drill Track							
Other:								

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description		
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval				Coring Time (min./ft)				Moisture Content (%)	
							0 - 6	6 - 12	12 - 18	18 - 24						
		S1	SS	24	12	1	11	11	12	17			529.6	Bituminous CONCRETE		Classification System: Burmister
		S2	SS	24	4	3	17	15	18	24				SAND and GRAVEL FILL (with Cobbles and Boulders)		S1): Medium dense, light brown, fine to medium SAND, little Gravel, trace to little Silt, dry. S2): Medium dense, similar to S1, except darker brown, with coarse Sand and little Silt.
5		S3	SS	8	6	5.5	8	50/2"					6.2	Bottom of Exploration at 6.2 ft		S3): Very dense / refusal. Top 4": Similar to S1. Bottom 2": Similar to S2, except dark brown to black, moist. Piece of coarse Gravel in spoon tip.
10																
15																
20																
25																
30																

Remarks:
 1) Ground surface elevation estimated in the field by GeoDesign using a hand level.
 2) Coarse Gravel and Cobbles estimated during solid stem auger advance between 3' and 5.5' deep.
 3) Split spoon refusal on possible Cobble, Boulder, or Bedrock at 6' deep. Solid stem auger used to advance hole to 6.2' deep prior to refusal. Borehole location moved 2.5' north - see boring log B-1.

Notes:
 1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual.
 2) 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.
 A.C. = After casing N.L. = Not Recorded.
 3) Sample Type: Casing-Augers-C-Cores; B-Drivers; O-Grate; PS-Platform Samplers; SS-Split; Borral Split; Spoon; SI-Shelby Tube; Geo-Grab Probe; Y-Holes
 Wt./ft = Weight of Rod/Hammer
 4) Proportions Used: Trace = 1-10%; Little = 10-20%; Some = 20-35%; And = 35-50%.
 5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-1A

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD.GDT 12/17/09



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BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: B-2

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: June 26, 2003 Date Finished: June 27, 2003
 N. Coordinates: _____ E. Coordinates: _____
 Ground Surface Elevation (feet): 530
 Station: 13+34.15 Offset: 23.2 ft LT

Type	Casing		Sampler		Groundwater Observations			
	Flush	SS			Date	Depth (ft)	Elev. (ft)	Notes
LD:	4.0 in.	1.38 in.						
Hammer Wt.:	140 lbs	140 lbs			6/27/03, 14:25			None
Hammer Fall:	30 in.	30 in.						
Rig Type:	B-47 Mobile Drill Track							
Other:	NX/BX-size Core Barrels							

Depth (ft)	Casing Blows/ft	Sample Information										Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch interval				Coring Time (min./ft)				Moisture Content (%)		
							0 - 6	6 - 12	12 - 18	18 - 24							
		S1	SS	24	4	0	1	2	8	5							
		S2	SS	24	3	2	7	5	5	3							
5		S3	SS	24	4	4	11	9	7	6							
		S4	SS	24	6	6	29	14	6	5							
		S5	SS	24	10	8	9	7	27	6							
10		S6	SS	6	6	10	15	30/0"									
		C1	C	69	69	10.5					6						
											5						
15											10						
											3						
											12						
		C2	C	35	35	16.3					23						
											18						
											10						
											25						
20											42						
25																	
30																	

REMARKS: 750-03.10 (EDITED TO IMPERICAL).GPI GEODESIGN STANDARD .GDT 12/17/09

1) Ground surface elevation estimated in the field by GeoDesign using a hand level.
 2) Observed increased drilling resistance through possible cobbles/small boulders between 5' and 8' deep during solid stem auger advance. Harder drilling resistance observed at 9.5' deep.
 3) Split spoon refusal at 10.6' deep on possible boulder or bedrock. Installed 4" I.D. casing to 10.3' and used 2.9" O.D. roller bit to flush borehole prior to coring.
 4) Penetrated probable Sand and Gravel below 10.8' deep using core barrel. Loose Sand and Gravel soils estimated between 12.7' to 13.8' deep. Probable boulder between 13.8' to 14.7' deep.
 5) No wash water return observed during coring. Water loss probably occurring below casing starting at 10.5' deep.
 6) Switched from NX-size to BX-size core barrel at 16.8' deep.
 7) Possible bedrock seam (~1.5" thick) encountered during coring at 17.5' to 17.7' deep.

NOTES:
 1) Stratification lines represent approximate boundary between material types, transitions may be gradual.
 2) 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.
 A.C. = After coring N.L. = Not Recorded.
 3) Sample Type: Casing-Augers-C-Cores-I-Drillers-O-Grate-P5-Platton Samplers-SS-Split Barrel-Split Spoon-SI-Shelby Tubes-Geo-Grab-Probe-Y-Holes
 Wt./ft = Weight of Rod/Hammer
 4) Proportion Used Trace = 1-10%; L/H = 10-20%; S = 20-35%; And = 35-50%.
 5) Stratification lines represent approximate boundary between material types, transitions may be gradual.

Boring No.: B-2



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BORING LOG

Project Name

Route 125 Bridge
RS 0174 (8)
Middlebury, VT

Boring No.: B-3

Page No.: 1 of 2

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
Foreman: Myron Domingue
GeoDesign Rep.: Jason Gaudette
Date Started: July 8, 2003 Date Finished: July 1, 2003
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 536.9
Station: 14+36.20 Offset: 15.1 ft RT

Table with columns: Casings, Samplers, Groundwater Observations, Type, FJ, SS, Date, Depth (ft), Elev. (ft), Notes. Includes data for hammer weight, hammer fall, rig type, and other details.

Sample Information table with columns: Depth (ft), Casing Blows/ft, Number, Type, Penetration (inches), Recovery (inches), Depth (ft), Blows / 6 inch Interval (0-6, 6-12, 12-18, 18-24), Coring Time (min./ft), Moisture Content (%).

Strata Description and Sample Description table. Includes columns for Depth & Elevation (feet), Symbol, and Classification Systems (Burmister). Describes layers like Bituminous Concrete, Sand and Gravel Fill, and Bedrock (Quartzite).

Remarks: 1) Ground surface elevation estimated in the field by GeoDesign using a hand level. 2) Split spoon refusal at 9.7' deep on possible boulder or bedrock. Cobble estimated in fill up to 6" diameter during solid stem auger advance between 8' to 11.5' deep.

Notes: 1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual. 2) 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 No.: B-3



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BORING LOG

Project Name

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RS 0174 (8)
Middlebury, VT

Boring No.: B-3

Page No.: 2 of 2

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
Foreman: Myron Domingue
GeoDesign Rep.: Jason Gaudette
Date Started: July 8, 2003 Date Finished: July 1, 2003
N. Coordinate: E. Coordinate:
Ground Surface Elevation (feet): 536.9
Station: 14+36.20 Offset: 15.1 ft RT

Table with columns: Casings, Samplers, Groundwater Observations, Type, FJ, SS, Date, Depth (ft), Elev. (ft), Notes. Includes data for hammer weight, hammer fall, rig type, and other details.

Sample Information table with columns: Depth (ft), Casing Blows/ft, Number, Type, Penetration (inches), Recovery (inches), Depth (ft), Blows / 6 inch Interval (0-6, 6-12, 12-18, 18-24), Coring Time (min./ft), Moisture Content (%).

Strata Description and Sample Description table. Includes columns for Depth & Elevation (feet), Symbol, and Classification Systems (Burmister). Describes layers like Bedrock (Quartzite) and SAND and GRAVEL FILL.

Remarks: 1) Ground surface elevation estimated in the field by GeoDesign using a hand level. 2) Split spoon refusal at 9.7' deep on possible boulder or bedrock. Cobble estimated in fill up to 6" diameter during solid stem auger advance between 8' to 11.5' deep.

Notes: 1) Stratification Lines Represent Approximate Boundary Between Material Types, Transitions May Be Gradual. 2) 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 No.: B-3

Vertical text on the left margin: RTE. 125 BRIDGE CONVERSION 750-04.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD .GDT 12/17/09



Geotechnical Engineers/Environmental Consultants/Construction Engineers
 P.O. Box 699 Windsor, VT 05089
 Phone: 802-674-2033/Fax: 802-674-5943
 1233 Shelburne Rd., Suite 360 So. Burlington, VT 05403
 Phone: 802-652-5140

BORING LOG

Project Name

Route 125 Bridge
 RS 0174 (8)
 Middlebury, VT

Boring No.: B-4B

Page No.: 1 of 1

File No.: 750-04.1

Checked By: JEL

Boring Company: M & W Soils Engineering, Inc.
 Foreman: Myron Domingue
 GeoDesign Rep.: Jason Gaudette
 Date Started: July 8, 2003 Date Finished: July 8, 2003
 N. Coordinates: E. Coordinates:
 Ground Surface Elevation (feet): 538.9
 Station: 14+62.60 Offset: 22 ft RT

Casing:		Sampler:		Groundwater Observations			
Type	LD:	Type	LD:	Date	Depth (ft)	Elev. (ft)	Notes
S.S.A	4.0 in.	N/A	In.	7/8/03, 15:45			None
Hammer Wt.:	NA	Hammer Fall:	NA				
Rig Type:	B-47 Mobile Drill Track	Other:	108mm O.D. Flight Auger				

Depth (ft)	Casing Blows/ft	Sample Information								Strata Description	Symbol	Sample Description			
		Number	Type	Penetration (inches)	Recovery (inches)	Depth (ft)	Blows / 6 inch Interval						Coring Time (min./ft)	Moisture Content (%)	
							0 - 6	6 - 12	12 - 18						18 - 24
												Bituminous CONCRETE 538.5			
												Silty SAND and GRAVEL			
5		S1	SS	13	13	5.5	5	32	15/1.2"			Silty SAND and GRAVEL (with Cobbles and Boulders) 534.4		S1): Very dense / Refusal. Top 6": Gray fine SAND and Silt.	
												Bottom 7.2		Bottom 7": Brown, layered fine to medium SAND, little Silt, with roots and root fibers. Oxidized orange to dark red. Pieces of fractured gravel/cobbles in spoon tip.	
10												Bottom of Exploration at 7.2 ft 531.7			
15															
20															
25															
30															

Remarks:
 1) Ground surface elevation estimated in the field by GeoDesign using a hand level.
 2) 4.25" O.D. solid stem auger used to advance borehole. Harder resistance observed between 4.5' to 5' deep and 6' to 7.2' through possible cobbles and small boulders.
 3) Solid stem auger refusal at 7.2' on possible large boulder or bedrock.

Notes:
 1) Stratification lines represent approximate boundary between material types, transitions may be gradal.
 2) 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.
 A.C. = After casing N.L. = Not Recorded.
 3) Sample Type: Casing-Augers-C-Cores; B-Drivers; O-Grate; PS-Platton Samplers; SS-Split; Borral Split; Spoon; S1-Shelby Tube; Geo-Gad Probe; Y-Hone
 Wt./ft = Weight of Rod/Hammer
 4) Proportion Used Trace = 1-10%; L1-Hc = 10-20%; Some = 20-35%; And = 35-50%.
 5) Stratification lines represent approximate boundary between material types, transitions may be gradal.

Boring No.: B-4B

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL).GPJ GEODESIGN STANDARD.GDT 12/17/09

RTE. 125 BRIDGE CONVERSION 750-03.10 (EDITED TO IMPERICAL) GPJ GEODESIGN STANDARD .GDT 12/17/09

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Large Quartzite boulders (18" to 24" diameter) observed approximately 1' below ground surface during solid stem auger advance. 3) 3" I.D. casing set to 3.8' deep. Used 2.9" O.D. diameter roller bit to flush hole prior to coring. 4) Bedrock seam noted at 8.9' deep (<3/4" thick). Observed temporary change in wash water color to darker gray.	
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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Depth (ft)</th> <th colspan="2">Casing Blows/ft</th> <th colspan="4">Blows / 6 Inch Interval</th> <th rowspan="2">Coring Time (min./ft)</th> <th rowspan="2">Moisture Content (%)</th> <th rowspan="2">Strata Description</th> <th rowspan="2">Symbol</th> <th rowspan="2">Sample Description</th> </tr> <tr> <th>Number</th> <th>Type</th> <th>0 - 6</th> <th>6 - 12</th> <th>12 - 18</th> <th>18 - 24</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>35</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>40</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>45</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>50</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>55</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>60</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>		Depth (ft)	Casing Blows/ft		Blows / 6 Inch Interval				Coring Time (min./ft)	Moisture Content (%)	Strata Description	Symbol	Sample Description	Number	Type	0 - 6	6 - 12	12 - 18	18 - 24																									35																								40																								45																								50																								55																								60												Remarks: Notes: 1) Stratification lines represent approximate boundary between material types, transitions may be gradual. 2) 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. A.C. = After coring; N.A. = Not Recorded. 3) Sample Type: Casing Inaugers; C-Cores; D-Drivers; G-Grabs; P5-Platen Samplers; SS-Split Barrel Split Spoon; ST-Shelby Tube; Geo-Grabs; V-Vials; RW/Height of Rod/Reamer 4) Proper Hole Head Trace = I-100; L/H = 10-200; S = 20-350; A = 35-500 5) Stratification lines represent approximate boundary between material types, transitions may be gradual.		Boring No.: <u>B-5</u>	
Depth (ft)	Casing Blows/ft		Blows / 6 Inch Interval				Coring Time (min./ft)	Moisture Content (%)						Strata Description	Symbol	Sample Description																																																																																																																																																																			
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STATE OF VERMONT
AGENCY OF TRANSPORTATION
MATERIALS & RESEARCH SECTION
SUBSURFACE INFORMATION

BORING NUMBER: B-201
SHEET 1 of 1
DATE STARTED: 4/08/10
DATE COMPLETED: 4/16/10

PROJECT NAME: MIDDLEBURY
SITE NAME: VT-125
STATION: 14+19
OFFSET: 11.00
VTSPG NAD83: N 536378.30 ft E 1486218.87 ft

PROJECT NUMBER: RS 0174(8)
SITE NUMBER: BR-13
GROUND ELEVATION: 536.57 ft
GROUNDWATER DEPTH: 18.1 ft 4/14/10
PROJECT PIN NUMBER: 78F217

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

BORING RIG: CME 45C SKID AUTO
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)
		Asphalt pavement, 0.0 ft - 0.5 ft					
		A-2-4, SISa, brn, Moist, Rec. = 1.3 ft	22	9.5	11.3	65.4	23.3
5		Cobbles, 4.0 ft - 7.0 ft, Cleaned out casing.					
		NXDC, Boulder, 7.2 ft - 10.2 ft, Rec. = 1.8 ft.					
10		NXDC, Cobbles, 10.2 ft - 11.2 ft, Rec. = 0.9 ft.					
		NXMDC, Cobbles, 11.2 ft - 13.2 ft, Rec. = 1.5 ft.					
15		13.2 ft - 15.0 ft, Advanced casing 13.2'-15.0'. Cleaned out casing to 15.0 ft.					
		NXDC, Cobbles, 15.0 ft - 17.0 ft, Rec. = 1.5 ft.					
		NXDC, Cobbles, 17.0 ft - 19.0 ft, Advanced casing.					
20		NXDC, Cobbles, 19.0 ft - 21.0 ft, Cleaned out casing.					
		Top of Bedrock @ 21.0 ft					
		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Fair Rock, Very hard, Fresh Weathering, NXMDC, 21.0 ft - 24.0 ft, Rec. = 2.9 ft	1	97	60	10	10 13 14
25		Same as Run #1, NXMDC, 24.0 ft - 25.0 ft, Rec. = 0.4 ft	2	40	0	10	17
		Same as Run #1, NXMDC, 25.0 ft - 26.0 ft, Rec. = 0.2 ft	3	20	0	10	19
		Same as Run #1, NXMDC, 26.0 ft - 27.0 ft, Rec. = 1.0 ft	4	100	0	10	16
		Same as Run #1, NXMDC, 27.0 ft - 27.5 ft, Rec. = 0.4 ft	5	80	0	10	25
		Same as Run #1, NXMDC, 27.5 ft - 28.5 ft, Rec. = 1.0 ft	6	100	0	10	30
30		Same as Run #1, NXMDC, 28.5 ft - 31.5 ft, Rec. = 2.4 ft	7	80	33	10	10 17 20
		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Thin Phyllitic zone at 32.3 feet. Fair Rock, Very hard, Fresh Weathering, NXMDC, 31.5 ft - 33.0 ft, Rec. = 1.5 ft	8	100	67	10	18 20
35		Same as Run #1, NXMDC, 33.0 ft - 36.0 ft, Rec. = 2.4 ft	9	80	56	10	13 17 30
		Same as Run #1, NXMDC, 36.0 ft - 37.0 ft, Rec. = 0.7 ft	10	70	0	10	15
		Same as Run #1, NXMDC, 37.0 ft - 38.5 ft, Rec. = 1.0 ft	11	67	0	10	20 20
40		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Thin Phyllitic zone at 39.5 feet. Fair Rock, Very hard, Fresh Weathering, NXMDC, 38.5 ft - 40.5 ft, Rec. = 1.7 ft	12	85	55	10	17 10
		Hole stopped @ 40.5 ft					
45		DRILLER'S NOTES: 1. From 31.5 to 38.5 feet, the bit was changed five times.					

LOG OF BORING MIDDLEBURY RS 0174(8).GPJ VT AOT.GDT 5/6/10



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

BORING NUMBER: B-202
SHEET 1 of 1
DATE STARTED: 3/31/10
DATE COMPLETED: 4/06/10

PROJECT NAME: MIDDLEBURY PROJECT NUMBER: RS 0174(8)
SITE NAME: VT-125 SITE NUMBER: BR-13
STATION: 13+59 GROUND ELEVATION: 532.53 ft
OFFSET: 11.00 GROUNDWATER DEPTH:
VTSPG NAD83: N 536431.30 ft E 1486190.93 ft PROJECT PIN NUMBER: 78F217

BORING CREW BORING RIG: CME 45C SKID AUTO
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)
		Asphalt Pavement, 0.0 ft - 0.5 ft					
		A-2-4, GrSa, brn, Moist, Rec. = 1.3 ft	28	8.2	21.1	59.2	19.7
5		A-2-4, GrSa, brn, MTW, Rec. = 0.9 ft	13	12.5	28.4	53.1	18.5
10		Field Note: Started coring at 10.0 feet. Run #1 starts at 10.0 feet Lab Note, Boulder Backfill, NXMDC, 10.0 ft, Rec. = 0.8 ft	1	80			26
		Lab Note, Boulder Backfill & Concrete NXMDC, Rec. = 4.0 ft	2	80			20
15							20
		Lab Note, Boulder Backfill & Concrete NXMDC, Rec. = 3.0 ft	3	100	0	10	20
		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Fair Rock, Very hard, Fresh Weathering, 17.3 ft - 19.0 ft			0	17.3 ft	20
20		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Fair Rock, Very hard, Fresh Weathering, NXMDC, 19.0 ft - 21.0 ft, Rec. = 2.0 ft	4	100	0	10	15
		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Thin Phyllitic zone at 23.4 feet. Fair Rock, Very hard, Fresh Weathering, NXMDC, 21.0 ft - 24.0 ft, Rec. = 2.8 ft	5	93	11	10	14
25		Same as Run #4, NXMDC, 24.0 ft - 25.0 ft, Rec. = 1.0 ft	6	100	0	10	26
		Same as Run #4, NXMDC, 25.0 ft - 27.0 ft, Rec. = 1.5 ft	7	75	21	10	25
		White to buff, Vitreous Quartzite, with closely spaced iron stained jointing. Thin Phyllitic zone at 28.6 feet. Fair Rock, Very hard, Fresh Weathering, NXMDC, 27.0 ft - 29.0 ft, Rec. = 1.6 ft	8	80	48	10	12
30		Same as Run #4, NXMDC, 29.0 ft - 31.0 ft, Rec. = 1.4 ft	9	70	50	10	14
		Hole stopped @ 31.0 ft					
35		DRILLER'S NOTES: 1. From 25.0 to 29.0 feet, the bit was changed three times. 3. No water return after 7.0 feet.					

LOG OF BORING MIDDLEBURY RS 0174(8), GPJ VT AOT.GBT 5/6/10