GZA GeoEnvironmental, Inc. — Engineers and Scientists

Harford RS 0113(40) — Hartford, Vermont

Boring No.: B-15 (OW) Page: 1 of 1 File No.: 22721.5 Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: J. Hodkinson
Date Start/Finish: 3-18-02 / 3-18-02
Boring Location: 35+95.1, 50.9 ft. RT
GS Elev.: 488.0 ft Datum: NGVD 1929

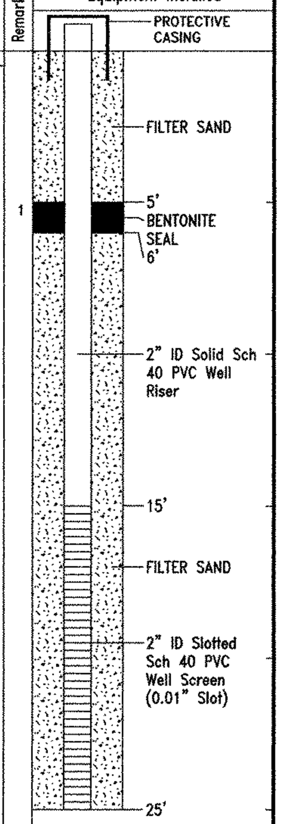
	Auger/Casing	Sampler
Type:	HSA	SS
I.D.:	4-1/4"	1-3/8"
Hammer Wt.:		140#
Hammer Fall:		30"
Rig Type:	CME 550 ATV	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab
	NOT ENCOUNTERED			

Depth (ft)	No.	Pen./Rec. (in)	Depth (ft)	Blows (/6")	N Value	Sample Description & Classification	Stratum Desc.	Remarks
	S-1A-B	24/14	0.0-2.0	1-2 2-2	4	S-1A: 0'-0.5': Very loose, dark brown, fine SAND, some Silt with organics and roots. (A-3) S-1B: 0.5'-2': Very loose, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b)	TOPSOIL 0.5 ft	
5	S-2	24/21	5.0-7.0	1-1 2-2	3	Very loose, light brown, fine SAND, trace Gravel, trace Silt. (A-3)		1
10	S-3	24/20	10.0-12.0	1-2 3-2	5	Loose, light brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b)		
15	S-4	24/16	15.0-17.0	2-4 3-4	7	Loose, light brown, fine SAND, trace Silt. (A-3)	SAND	
20	S-5	24/19	20.0-22.0	4-5 5-2	10	Loose, light brown, fine to coarse SAND, little Gravel, trace Silt. (A-1-b)		
25	S-6	24/20	25.0-27.0	5-8 10-10	18	Medium dense, light brown, fine SAND, trace Silt. (A-3)		
						Bottom of boring at 27 feet below ground surface. No refusal.	27.0 ft	

Equipment Installed



REMARKS
1. Laboratory sieve analysis performed on S-2.

All depth measurements are approximate. Stratification lines represent approximate boundary between soil 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.

Boring No.: B-15 (OW)

SOIL BL WELL LOGS.GPJ GZA_NH.GDT 1/10/06

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Harford RS 0113(40) — Hartford, Vermont

Boring No.: B-16 Page: 1 of 1 File No.: 22721.5 Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: J. Hodkinson
Date Start/Finish: 3-18-02 / 3-18-02
Boring Location: 35+96.3, 67.8 ft. RT
GS Elev.: 488.2 ft Datum: NGVD 1929

	Auger/Casing	Sampler
Type:	HSA	SS
I.D.:	2-1/4"	1-3/8"
Hammer Wt.:		140#
Hammer Fall:		30"
Rig Type:	CME 550 ATV	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	No.	Pen./Rec. (in)	Depth (ft)	Blows (/6")	N Value	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1A-B	24/18	0.0-2.0	1-1 2-3	3	S-1A: 0'-0.5': Very loose, dark brown, fine SAND, some Silt with organics. (A-3) S-1B: 0.5'-2': Very loose, brown, fine to medium SAND, little Gravel, little Silt. (A-2-4)	TOPSOIL 0.5 ft		No Equipment Installed
5	S-2	24/20	5.0-7.0	3-2 3-2	5	Loose, brown, fine SAND, trace Gravel, trace Silt. (A-3)			
10	S-3	24/19	10.0-12.0	1-2 3-2	5	Loose, brown, fine to medium SAND, trace Silt. (A-1-b)	SAND		
15	S-4	24/16	15.0-17.0	2-4 3-5	7	Loose, light brown, fine SAND, trace Silt with alternating layers of fine Sand and Silt. (A-3)			
20	S-5	24/15	20.0-22.0	2-3 3-4	6	Loose, brown, fine SAND, trace Silt. (A-3)			
						Bottom of boring at 22 feet below ground surface. No refusal.	22.0 ft		
25									

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil 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.

Boring No.: B-16

SOIL BL WELL LOGS.GPJ GZA_NH.GDT 1/10/06

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Harford RS 0113(40) — Hartford, Vermont

Boring No.: B-17 Page: 1 of 2 File No.: 22721.5 Check: TAD

Contractor: New Hampshire Boring
Foreman: Bob Thompson
Logged by: S. Currier
Date Start/Finish: 4-8-02 / 4-8-02
Boring Location: 34+69.7, 74.4 ft. RT
GS Elev.: 488.2 ft Datum: NGVD 1929

	Auger/Casing	Sampler
Type:	HSA	SS
I.D.:	4-1/4"	1-3/8"
Hammer Wt.:		140#
Hammer Fall:		30"
Rig Type:	CME 550 ATV	

GROUNDWATER READINGS

Date	Time	Depth	Casing	Stab

Depth (ft)	No.	Pen./Rec. (in)	Depth (ft)	Blows (/6")	N Value	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-1	24/20	0.0-2.0	2-1 2-1	3	Very loose, brown, fine SAND, little Silt, trace organics and roots. (A-3)	TOPSOIL 0.3 ft		No Equipment Installed
5	S-2	24/16	5.0-7.0	2-1 2-2	3	Very loose, brown, fine to medium SAND, trace Gravel, trace Silt. (A-1-b)	SAND		
10	S-3	24/15	10.0-12.0	2-2 2-2	4	Very loose, brown, fine to medium SAND, trace coarse Sand, trace Gravel, trace Silt. (A-1-b)			
15	S-4A-B	24/20	15.0-17.0	2-3 3-4	6	S-4A: 15'-16': Loose, brown, fine SAND, little Silt. (A-3) S-4B: 16'-17': Medium stiff, gray, SILT, little fine Sand. (A-4)	16.0 ft		
20	S-5	24/22	20.0-22.0	3-4 6-5	10	Stiff, gray, SILT, little Clay. (A-4)	SILT AND CLAY		
25	S-6	24/21	25.0-27.0	2-4 4-5	8	Stiff, gray, SILT, some Clay. (A-4)			

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil 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.

Boring No.: B-17

SOIL BL WELL LOGS.GPJ GZA_NH.GDT 1/10/06

GZA GeoEnvironmental, Inc. — Engineers and Scientists

Harford RS 0113(40) — Hartford, Vermont

Boring No.: B-17 Page: 2 of 2 File No.: 22721.5 Check: TAD

Depth (ft)	No.	Pen./Rec. (in)	Depth (ft)	Blows (/6")	N Value	Sample Description & Classification	Stratum Desc.	Remarks	Equipment Installed
	S-7	24/24	30.0-32.0	2-3 3-4	6	Medium stiff, gray, Clayey SILT. (A-4)			
35	S-8	24/23	35.0-37.0	2-4 4-5	8	Stiff, gray, Clayey SILT. (A-4)	SILT AND CLAY		
40	S-9	24/24	40.0-42.0	2-3 5-7	8	Stiff, gray, Clayey SILT. (A-4)			
45	S-10A-B	24/21	45.0-47.0	4-7 13-13	20	S-10A: 45'-46': Very stiff, gray, Clayey SILT. (A-4) S-10B: 46'-47': Very stiff, gray, SILT, some fine Sand. (A-4)			
						Bottom of boring at 47 feet below ground surface. No refusal.	47.0 ft		
50									
55									
60									

REMARKS

All depth measurements are approximate. Stratification lines represent approximate boundary between soil 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.

Boring No.: B-17

SOIL BL WELL LOGS.GPJ GZA_NH.GDT 1/10/06

GZA GeoEnvironmental, Inc.
Engineers/Scientists
380 Harvey Road
Manchester, New Hampshire 03103

Hartford RS 0113(40)
Hartford, Vermont

Test Pit No.: TP-1 Page No. 1 of 1 File No. 22721.50 Checked By: DGL

GZA Rep.: Trey Dykstra
Weather: Cloudy 50's

Excavation Equipment
Contractor: VTrans
Operator: Lenny
Make: John Deere Model: 110
Capacity: 0.25 cy Reach: 25 ft.

Date: 4/8/2002
Ground Elev.: 468.26
Time Started: 8:00
Time Completed: 8:30

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	FOREST MAT					
1'	Brown, fine to medium SAND, little Silt with roots. FILL	1		E	0	
2'–3'	Light brown, fine to medium SAND, trace Silt. / Topsoil					
4'–6'	Light brown, fine to medium SAND, trace Silt. / Brown, fine to medium SAND, little Silt.					
6'	Bottom of test pit at 6 feet below ground surface.					

Notes:
1. At 2 to 3 feet below ground surface, 3-inch layer of topsoil.
2. Location = 35+25.0, 22.0 ft. RT.

Test Pit Plan: 20' × 17'; NORTH; Volume = 38 cu. yd.

Boulder Class — Letter Designation / Size Range Classification: A 6" - 17"; B 18" - 36"; C 36" and Larger
Excavation Effort: E-----Easy; M-----Moderate; D-----Difficult

Proportions Used: TRACE (TR.) 0 - 10%; LITTLE (LI.) 10 - 20%; SOME (SO.) 20 - 35%; AND 35 - 50%

Abbreviations: F = Fine; M = Medium; C = Coarse; V = Very; F/M = Fine to medium; F/C = Fine to coarse; GR = Gray; BN = Brown; YEL = Yellow

GROUNDWATER: ( ) Encountered; (X) Not Encountered; Elapsed Time to Reading (Hours); Depth to Ground-water

GZA GeoEnvironmental, Inc. 22721.5 /tps/tp1-2.xls

GZA GeoEnvironmental, Inc.
Engineers/Scientists
380 Harvey Road
Manchester, New Hampshire 03103

Hartford RS 0113(40)
Hartford, Vermont

Test Pit No.: TP-2 Page No. 1 of 1 File No. 22721.50 Checked By: DGL

GZA Rep.: Trey Dykstra
Weather: Cloudy 50's

Excavation Equipment
Contractor: VTrans
Operator: Lenny
Make: John Deere Model: 110
Capacity: 0.25 cy Reach: 25 ft.

Date: 4/8/2002
Ground Elev.: 420.73
Time Started: 8:45
Time Completed: 9:30

Depth	Soil Description	Sample No.	PID Reading (ppm)	Excav. Effort	Boulders: Count/Class	Note No.
0	FOREST MAT					
1'–6'	Gray, stiff, Clayey SILT, layers of fine Sand at 1.5', 3.0' and 4.5' below ground surface approximately 2" thick.			E	0	
6'	Bottom of test pit at 6 feet below ground surface.					

Notes:
1. Location: 30+68.0, 22.0 ft. RT

Test Pit Plan: 20' × 6'; NORTH; Volume = 13 cu. yd.

Boulder Class — Letter Designation / Size Range Classification: A 6" - 17"; B 18" - 36"; C 36" and Larger
Excavation Effort: E-----Easy; M-----Moderate; D-----Difficult

Proportions Used: TRACE (TR.) 0 - 10%; LITTLE (LI.) 10 - 20%; SOME (SO.) 20 - 35%; AND 35 - 50%

Abbreviations: F = Fine; M = Medium; C = Coarse; V = Very; F/M = Fine to medium; F/C = Fine to coarse; GR = Gray; BN = Brown; YEL = Yellow

GROUNDWATER: ( ) Encountered; (X) Not Encountered; Elapsed Time to Reading (Hours); Depth to Ground-water

GZA GeoEnvironmental, Inc. 22721.5 /tps/tp1-2.xls

BORING LOG SHEET 5

PROJECT NAME: HARTFORD
PROJECT NUMBER: RS 0113(40)

FILE NAME: z86c027borlog.DGN
PROJECT LEADER: KEN UPMAL
DESIGNED BY: K.ISHIKURA/E.ATKINS
PLOT DATE: 1/6/2007
DRAWN BY: P. MILEWSKI
CHECKED BY: K. ISHIKURA
SHEET 155 OF 239