

BORING INFORMATION SHEET

SOIL CLASSIFICATION

AASHTO

A1	Gravel and Sand
A3	Fine Sand
A2	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

ROCK QUALITY DESIGNATION

R.Q.D. (%)	ROCK DESCRIPTION
<25	Very Poor
25 to 50	Poor
51 to 75	Fair
76 to 90	Good
>90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF "N" TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)		CONSISTENCY (COHESIVE SOILS)	
N	DESCRIPTIVE TERM	N	DESCRIPTIVE TERM
<5	Very Loose	<2	Very Soft
5-10	Loose	2-4	Soft
11-24	Med. Dense	5-8	Med. Stiff
25-50	Dense	9-15	Stiff
>50	Very Dense	16-30	Very Stiff
		31-60	Hard
		>60	Very Hard

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
bm	Brown	rd	Red
dk	Dark	tn	Tan
gry	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mltc	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.
BOLDER - A rock fragment with an average dimension of > 12 inches.
COBBLE - Rock fragments with an average dimension between 3 and 12 inches.
GRAVEL - Rounded particles of rock <3" and > 0.075" (#10 sieve).
SAND - Particles of rock < 0.075" (#10 sieve) and > 0.0029" (#200 sieve).
SILT - Soil < 0.0029" (#200 sieve), non or slightly plastic and exhibits no strength when air-dried.
CLAY - Fine graded soil, exhibits plasticity when moist and considerable strength when air-dried.
VARVED - Alternate layers of silt and clay.
HARDPAN - Extremely dense soil, cemented layer, not softened when wet.
MUCK - Soft organic soil (containing > 10% organic material).
MOISTURE CONTENT - Weight of water divided by dry weight of soil.
FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.
STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.
DIP - Inclination of bed with a horizontal plane.

COMMONLY USED SYMBOLS

▼	Water Elevation
⊕	Standard Penetration Boring
⊗	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O. D. Sampler
	1 3/8" I. D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 5/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Si	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	Top of Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than
R	Refusal (N > 100)
VTSPG	NAD83 - See Note 7

BORING LOG		BORING NO.: B-101	
STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		Page No.: 1 of 1	
BERLIN STPG SGNL(40) VT-62		Pin No.: 11B358	
Checked By: MLM			
Boring Crew: GARROW, JUDKINS, WHITLOCK		Casing Sampler	
Date Started: 10/02/12 Date Finished: 10/02/12		Type: H.S.A. SS	
VTSPG NAD83: N 626330.00 ft E 1624668.00 ft		I.D.: 3.25 in 1.5 in	
Station: 72+70 Offset: -60.00		Hammer Wt: N.A. 140 lb.	
Ground Elevation: 964.0 ft		Hammer Fall: N.A. 30 in.	
		Hammer/Rod Type: Auto/AWJ	
		Rig: CME 55 TRACK C _e = 1.46	
CLASSIFICATION OF MATERIALS (Description)		Groundwater Observations	
Depth (ft)	Strata (1)	Date	Depth (ft)
	Visual Description: SaGr, brn, Moist, Rec. = 0.4 ft, Insufficient sample for testing.	10/02/12	7.0
	A-4, GrSi, gry-brn, Moist, Rec. = 1.1 ft, Broken Rock & Asphalt Pavement were within sample.		While drilling.
5	A-3, Sa, brn, Wet, Rec. = 0.8 ft, Small amounts of Asphalt Pavement were within sample.		
	A-4, SiSa, gry, Wet, Rec. = 1.5 ft, Broken Rock was within sample.		
	A-4, Si, gry, Moist, Rec. = 1.4 ft		
10	A-4, Si, gry, Moist, Rec. = 1.6 ft		
	Visual Description: Si with some Broken Rock, gry, Wet, Rec. = 1.6 ft, Material similar to 10-12 ft.		
15	Field Note: Possible Boulder		
	A-4, Si, gry, Moist, Rec. = 1.4 ft		
20	A-4, Si, gry, Moist, Rec. = 1.8 ft		
	A-4, Si, gry, MTW, Rec. = 1.3 ft		
25	Hole stopped @ 26.0 ft		
30	Remarks: 1. Hole Collapsed around 2.0 ft.		

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. C_e 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.

BORING LOG		BORING NO.: B-102	
STATE OF VERMONT AGENCY OF TRANSPORTATION MATERIALS & RESEARCH SECTION SUBSURFACE INFORMATION		Page No.: 1 of 1	
BERLIN STPG SGNL(40) VT-62		Pin No.: 11B358	
Checked By: MLM			
Boring Crew: GARROW, JUDKINS		Casing Sampler	
Date Started: 10/05/12 Date Finished: 10/05/12		Type: H.S.A. SS	
VTSPG NAD83: N 626347.00 ft E 1624799.00 ft		I.D.: 3.25 in 1.5 in	
Station: 73+53 Offset: 55.00		Hammer Wt: N.A. 140 lb.	
Ground Elevation: 962.0 ft		Hammer Fall: N.A. 30 in.	
		Hammer/Rod Type: Auto/AWJ	
		Rig: CME 55 TRACK C _e = 1.46	
CLASSIFICATION OF MATERIALS (Description)		Groundwater Observations	
Depth (ft)	Strata (1)	Date	Depth (ft)
	A-1-b, SaGr, brn, Moist, Rec. = 0.9 ft	10/05/12	No water to depth.
	A-4, GrSaSi (NP), brn, Moist, Rec. = 0.9 ft		
5	A-6, SiCl, brn-gry, Moist, Rec. = 1.8 ft, Shelby Tube sample U1		
	A-4, Si, gry, Moist, Rec. = 2.0 ft		
	A-4, Si, gry-brn, Moist, Rec. = 1.7 ft		
10	Visual Description: Si, gry, Moist, Rec. = 1.6 ft, Material similar to 8-10 ft.		
	A-4, Si (NP), gry, Moist, Rec. = 1.7 ft		
15	A-4, Si (NP), gry, Moist, Rec. = 1.7 ft		
	A-4, Si, gry, Moist, Rec. = 1.8 ft		
20	A-4, Si, gry, Moist, Rec. = 1.8 ft		
	Visual Description: Si, gry, Moist, Rec. = 1.6 ft, Material similar to 20-22 ft.		
25	Hole stopped @ 27.0 ft		
30	Remarks: 1. Hole Collapsed around 3.0 ft.		

Notes:
 1. Stratification lines represent approximate boundary between material types. Transition may be gradual.
 2. N Values have not been corrected for hammer energy. C_e 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.

GENERAL NOTES

- The subsurface explorations shown herein were made by the Agency of Transportation.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgment by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profiles are for illustrative purposes only and may not accurately portray final contract details.
- Terminology used on the boring logs to describe the hardness, degree of weathering, and spacing of fractures, joints and other discontinuities in the bedrock is defined in the AASHTO Manual on Subsurface Investigations, 1988.
- Northing and Easting coordinates are shown in Vermont State Plan Grid North American Datum 1983 in meters and survey feet

PROJECT NAME:	BERLIN
PROJECT NUMBER:	STPG SGNL(40)
FILE NAME:	bor01.dgn
PROJECT LEADER:	P. COBURN
DESIGNED BY:	T. SISSON
BORING LOG SHEET I	
PLOT DATE:	10/20/2014
DRAWN BY:	T. SISSON
CHECKED BY:	M. LACROIX
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