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

UNIFIED SOIL SYSTEM

GW/GP	Clean Gravels (Few Fines)
GM/GC	Gravels (Appreciable Fines)
SW/SP	Clean Sands (Few Fines)
SM/SC	Sand (Appreciable Fines)
ML/CL	Low Plastic Silts & Clays
OL	Low Plastic Organic Silt
MH/CH	High Plastic Silts & Clays
OH	High Plastic Organic Silt
Pt	Highly Organic Soils

MOISTURE

DESCRIPTIVE TERM	OBSERVED IN FIELD	% ± BY ANALYSIS
Dry	No Visible Water	<10
Moist	Damp	10-20
Moist to Wet	Moist to Wet	21-50
Wet	Visible Water	51-70
Saturated		>70

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

COMMONLY USED SYMBOLS

▼	Water Elevation
S	Standard Penetration Boring
⊕	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test Blow Count Per Foot For: 2" O.D. Sampler 1⅜" 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 1⅛"
BX	Core Size 1⅝"
NX	Core Size 2 ⅛"
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
Sd	Sand
Si	Silt
Cl	Clay
Hp	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
RQD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gr	Gray	wh	White
gn	Green	ye	Yellow
lt	Light	mlti	Multicolored
or	Orange		

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.0787" (#10 sieve).

SAND - Particles of rock < 0.0787" (#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 grained 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.

HOLE NO. B-1 STA. 23+36 OFFSET 21' LT
DRILLER Green Mountain Boring Co. Inc.
LOG APPROVED BY WLR
DATE: START 7/10/86 FINISH 7/10/86
SURFACE ELEVATION 557.5±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		4			D		Silty sand w/stone
		25			W		Sandy silt w/small stones
10		23			W		Sandy silt w/stone
		11			M		Silt w/fine sand
20		25			M		Silt w/fine sand
30							

HOLE NO. B-2 STA. 23+36 OFFSET 28' RT
DRILLER Green Mountain Boring Co. Inc.
LOG APPROVED BY WLR
DATE: START 7/22/86 FINISH 7/22/86
SURFACE ELEVATION 557.0±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		10			M		Fine silty sand w/ organic material
		15			W		Small gravel
10		8			W		Fine sand
		24			W		Fine sand
20		12			W		Fine sand
30							

HOLE NO. B-4 STA. 47+19 OFFSET 18' RT
DRILLER Green Mountain Boring Co. Inc.
LOG APPROVED BY WLR
DATE: START 7/9/86 FINISH 7/9/86
SURFACE ELEVATION 545.0±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		11			D		Silty sand w/stone
		8			M		Brown-gray silt w/ trace of sand & organic w/small stones
10		15			M		Silty sand w/stones and trace of clay and organic matter
		6			M-W		Varied silty sand interlayered w/ gravel & organics
20							
30							

HOLE NO. B-5 STA. 47+34 OFFSET 18' LT
DRILLER Green Mountain Boring Co. Inc.
LOG APPROVED BY WLR
DATE: START 7/9/86 FINISH 7/9/86
SURFACE ELEVATION 545.0±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		5			D		Silty sand w/stone
		7			M		silt w/trace of fine sand & stone
10		26			M		Interlayered sand & silt & trace of clay & stone
		18			W		Sandy gravel
20		13			W		Sandy gravel grading into varied gray-brown silt
30							

GENERAL NOTES

1. The subsurface explorations shown herein were made between 7-8-86 and 8-4-87 by the Consultant.
2. 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.
3. 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.
4. 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 judgement by the Contractor.
5. Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.

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STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of POWNAL	Bridge No. 1 & 7A
Highway No. ROUTE 346	Log Sta. / Surv. Sta.
BORING INFORMATION SHEET	
FOR BRIDGES 1 AND 7A	
Designed By G.F.	Drawn By K.B.
Checked By P.D.M. Date 2/10/87	Bridge Design Supervisor Date
PROJECT POWNAL	PROJECT NO. RS0107(7)
I.G.C. Info. OSAH[30,25]BORINGSTD.DGN / R. S. HAUPT 2-85	
Bridge Sheet No.	Sheet 134 of 319

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