

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
⊙	Standard Penetration Boring
⊕	Auger Boring
⊖	Rod Sounding
⊙	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 3/8"
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	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	yel	Yellow
lt	Light	mlto	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 > 0.075" (#10 sieve).

SAND - Particles of rock < 0.075" (#10 sieve) and > 0.0025" (#200 sieve).

SILT - Soil < 0.0025" (#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.

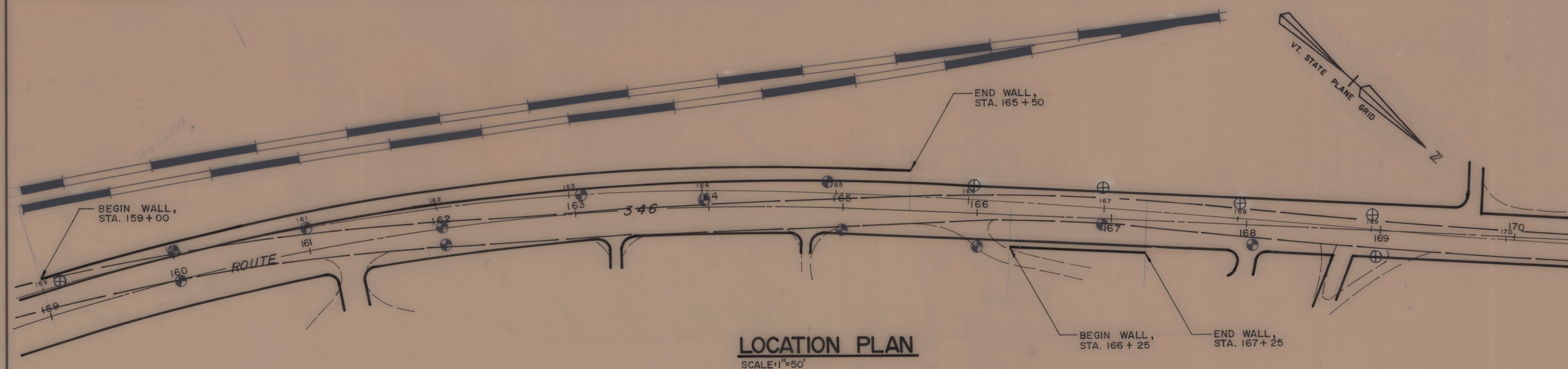
MUCK - Soft organic soil (containing > 10% organic material).

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.



LOCATION PLAN

SCALE 1"=50'

NOTE: AUGER BORING INFORMATION SHOWN ON X-SECTIONS.

HOLE NO. STA. 160+00 OFFSET 3' LT
DRILLER Green Mountain Boring
LOG APPROVED BY WLR
DATE: START 7-29-86 FINISH 7-29-86
SURFACE ELEVATION 567.5 ±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		17				M	Silty sand w/crushed stone
		21				M	Silty sand with stone
10		44					Silty sand w/stone into soft ledge rock (phyllite @ 9')
20							
30							

HOLE NO. STA. 160+00 OFFSET 22' RT
DRILLER Green Mountain Boring
LOG APPROVED BY WLR
DATE: START 7-29-86 FINISH 7-29-86
SURFACE ELEVATION 568.0 ±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		23				M	Silt w/fine sand & small stone
		100 for 6"				D	Drilled with augers to 5' split spoon sample from 5-5.5' w/refusal in stone
10		100 for 6"				D	Drilled w/augers from 5'-10' then split spoon from 10'-10.5' with refusal on badly fractured-soft rock St. Catherine formation
20							Drilled with augers to 13' through same rock material
30							

HOLE NO. STA. 161+00 OFFSET 5' RT
DRILLER Green Mountain Boring
LOG APPROVED BY WLR
DATE: START 7-25-86 FINISH 7-25-86
SURFACE ELEVATION 567.0 ±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		20				D	Silty sand w/broken stone
		13				D	Silt w/trace of fine sand & stone
10		50 for 3"				M	5'-8.5' Drilled through silty sand w/stone From 8.5'-10' Drilled through rock w/augers
		100 for 0"					Drilled w/augers to 14' through soft rock
20							FLN #1 14.0'-19.0' Recovery 42.0'
							Badly fractured St. Catherine Fm. Purple-gray slate & phyllite with Qtz. filled fractures
30							

HOLE NO. STA. 162+00 OFFSET 13' RT
DRILLER Green Mountain Boring
LOG APPROVED BY WLR
DATE: START 7-24-86 FINISH 7-24-86
SURFACE ELEVATION 564.0 ±

DEPTH	BLOWS ON CASING	STANDARD PENETRATION	LIQUID LIMIT	PLASTICITY INDEX	MOISTURE	COLOR	CLASSIFICATION AND PROPERTIES OF SOIL AND ROCK
		27				D	Silty sand w/broken stone
		10				M	Silt w/trace of fine sand & small stones
10		59				M	Silt w/trace of fine sand into apparent ledge @ 11'
		100 for 0"					Refusal on ledge at 15'
							Drilled w/augers to 15' through soft rock
20							FLN #1 15.0'-20.0' Recovery 60.0'
							Badly fractured St. Catherine formation Purple-gray slate & phyllite
30							

GENERAL NOTES

- The subsurface explorations shown herein were made between _____ and _____ by the Agency.
- 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.

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.

- 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.

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	POWNA	Bridge No.	
Highway No.	ROUTE 346	Log Sta.	
		Surv. Sta.	

BORING INFORMATION SHEET

Designed By	J.S.J.	Drawn By	F.F.
Checked By	Date	Bridge Design Supervisor	Date

PROJECT	POWNA	PROJECT NO.	RS0107(7)
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LOG. INFO.	QSAH30,25BORINGSTD.DGN	R. S. HAUPT	2-85
Bridge Sheet No.		Sheet 168 of 319	

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