

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 KPa	CONSISTENCY
<12	VERY SOFT
12-24	SOFT
24-48	MED. STIFF
48-96	STIFF
96-192	VERY STIFF
>192	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
- S SAMPLE
- N STANDARD PENETRATION TEST
- BLow COUNT PER FOOT FOR:
 - 50.8 mm O.D. SAMPLER
 - 35.0 mm I.D. SAMPLER
 - HAMMER WEIGHT OF 63.5 kg
 - HAMMER FALL OF 762 mm
- VS FIELD VANE SHEAR TEST
- US UNDISTURBED SOIL SAMPLE
- B BLAST
- DC DIAMOND CORE
- MD MUD DRILL
- WA WASH AHEAD
- HSA HOLLOW STEAM AUGER
- AX CORE SIZE 28.5 mm
- BX CORE SIZE 41.2 mm
- NX CORE SIZE 52.1 mm
- 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
- XREC PERCENT RECOVERY
- RQD ROCK QUALITY DESIGNATION
- CBR CALIFORNIA BEARING RATIO
- < LESS THAN
- > GREATER THAN
- R REFUSAL (N>100)

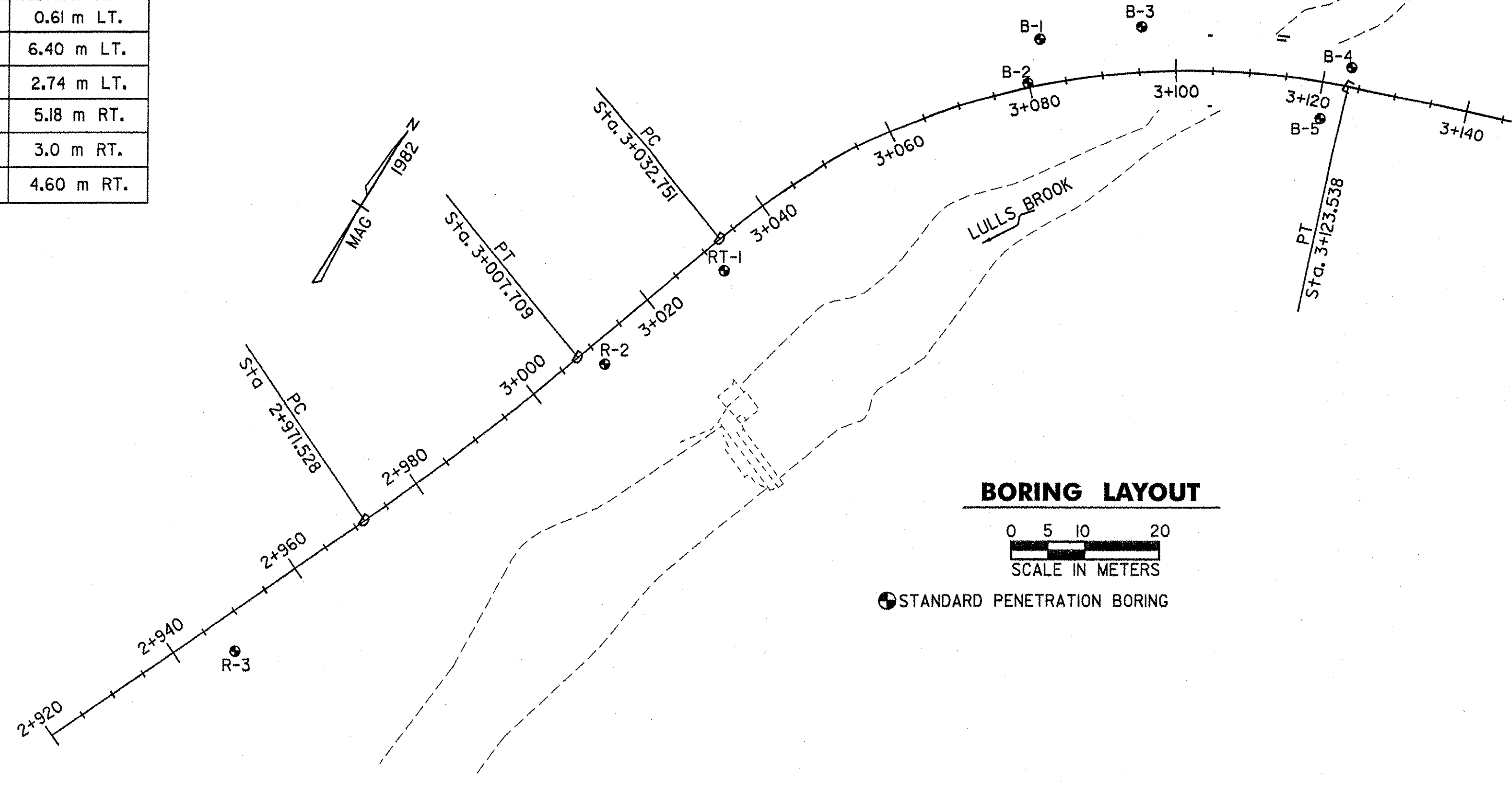
COLOR

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	MLTC	MULTICOLORED
OR	ORANGE		

DEFINITIONS (AASHTO)

- BEDROCK (LEDGE)** - ROCK IN ITS NATIVE LOCATION OF INDEFINITE THICKNESS.
- BOULDER** - A ROCK FRAGMENT WITH AN AVERAGE DIMENSION > 304.8 mm.
- COBBLE** - ROCK FRAGMENTS WITH AN AVERAGE DIMENSION BETWEEN 76.2 AND 304.8 mm.
- GRAVEL** - ROUNDED PARTICLES OF ROCK < 76.2 mm AND > 2 mm. (#10 SIEVE)
- SAND** - PARTICLES OF ROCK < 2 mm (#10 SIEVE) AND > 75 mm. (#200 SIEVE)
- SILT** - SOIL < 75 mm (#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 MATERIALS).
- 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.
- REFUSAL** - RATE OF 100 OR MORE BLOWS PER FOOT PENETRATION DURING STANDARD PENETRATION TEST.

STANDARD PENETRATION BORINGS		
BORING NO.	STATION	OFFSET
RT-1	3+030.48	3.66 m RT.
B-1	3+082.60	6.40 m LT.
B-2	3+079.86	0.61 m LT.
B-3	3+095.71	6.40 m LT.
B-4	3+123.44	2.74 m LT.
B-5	3+120.70	5.18 m RT.
R-2	3+010.00	3.0 m RT.
R-3	2+947.00	4.60 m RT.



AUGER BORINGS AND ROD SOUNDINGS			
BORING NO.	STATION	OFFSET	LEDGE ELEVATION
AB-4	3+070.00	0	173.965
AB-4A	3+070.00	4.0 m RT.	172.851
AB-4B	3+070.00	6.0 m RT.	171.228
AB-5	3+125.00	5.0 m RT.	174.260
AB-6	3+126.00	3.0 m LT.	173.120
AB-7	3+136.00	3.0 m LT.	172.745
AB-8	3+140.00	10.0 m RT.	177.565
AB-9	3+140.00	11.5 m RT.	177.900
TB-1	3+110.00	18.0 m LT.	176.270
TB-1A	3+110.00	15.0 m LT.	175.950
TB-1B	3+110.00	21.0 m LT.	176.675
TB-2	3+143.00	9.5 m LT.	172.690

AUGER BORINGS AND ROD SOUNDINGS			
BORING NO.	STATION	OFFSET	LEDGE ELEVATION
AB-1	3+041.00	3.0 m RT.	172.600
AB-1A	3+041.00	5.0 m RT.	170.745
AB-1B	3+041.00	8.0 m RT.	170.780
AB-2	3+050.00	2.0 m RT.	172.950
AB-2A	3+050.00	4.5 m RT.	172.885
AB-2B	3+050.00	7.0 m RT.	172.975
AB-2C	3+050.00	9.0 m RT.	172.255
AB-3	3+060.00	1.5 m RT.	173.620
AB-3A	3+060.00	5.0 m RT.	174.012
AB-3B	3+060.00	7.0 m RT.	173.081
AB-3C	3+060.00	8.5 m RT.	171.958

GENERAL NOTES

- THE SUBSURFACE EXPLORATIONS SHOWN HEREIN WERE MADE BETWEEN 8/1/94 AND 2/2/96 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.
- 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 INFORMATION IS PRESENTED IN GOOD FAITH AND IS NOT INTENDED AS A SUBSTITUTE FOR PERSONAL INVESTIGATION, INDEPENDENT INTERPRETATION OR JUDGEMENT BY THE CONTRACTOR.
- TERMINOLOGY USED ON BORING LOGS TO DESCRIBE THE HARDNESS DEGREE OF WEATHER AND SPACING OF FRACTURES, JOINTS AND OTHER DISCONTINUITIES IN THE BEDROCK IS DEFINED IN THE AASHTO MANUAL SUBSURFACE INVESTIGATIONS, 1988.
- 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	HARTLAND	Bridge No.	60
Highway No.	U.S. ROUTE 5	Log Sta.	
		Surv. Sta.	
U.S. ROUTE 5 OVER LULLS BROOK			
BORING INFORMATION SHT. - 1			
Designed By	S. BAKI 12/98	Drawn By	W. GAYNOR 12/98
Checked By	S. BAKI 12/98	Bridge Design Supervisor	J. MIECZKOWSKI Date 12/98
PROJECT	HARTLAND	PROJECT NO.	BRS No. 0113(22)
I.G.C. Info. M:\1456201\VAOT Hartland\struc\z\z204bpl.dgn			
Bridge Sheet No.	BRI05	Sheet	40 of 86