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5404 B REFERENCE **CONTENTS** 

**DESCRIPTION** 

TITLE SHEET LEGEND

SITE PLAN

CROSS SECTION(S) BORE LOGS

SHEET NO.

46119

### STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS** GEOTECHNICAL ENGINEERING UNIT

## **STRUCTURE** SUBSURFACE INVESTIGATION

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SITE	DES	CRIF	TION							

STATE	STATE PROJECT	REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5404	46119	1	7

### **CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION GEOTECHNICAL ENGINEERING UNIT AT 1999 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

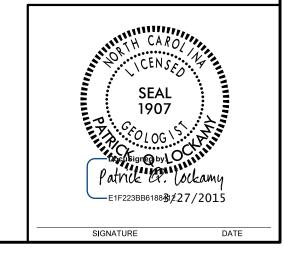
GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MAY VARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS MEDICATED RECORDS. INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS AND ON ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT, FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISTY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS FOOD THE FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS FOR THE SUBSURFACE INFORMATION.

- TES:
  THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT
  OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS
  OR CONTRACT FOR THE PROJECT.
  BY HAVING REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS
  FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE
  CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

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INVESTIGATED BY PQ LOCKAMY
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SUBMITTED BY JC KUHNE

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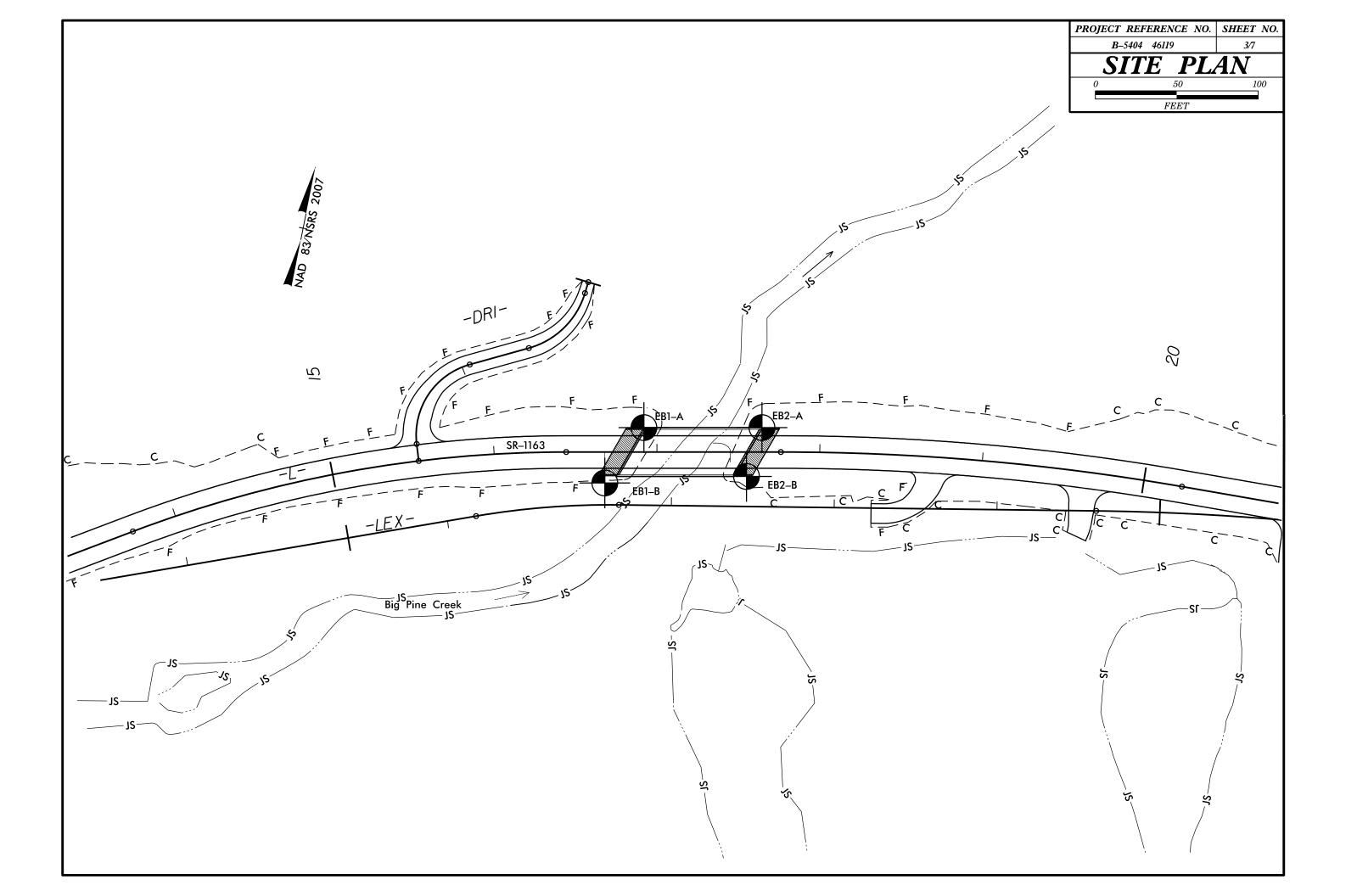
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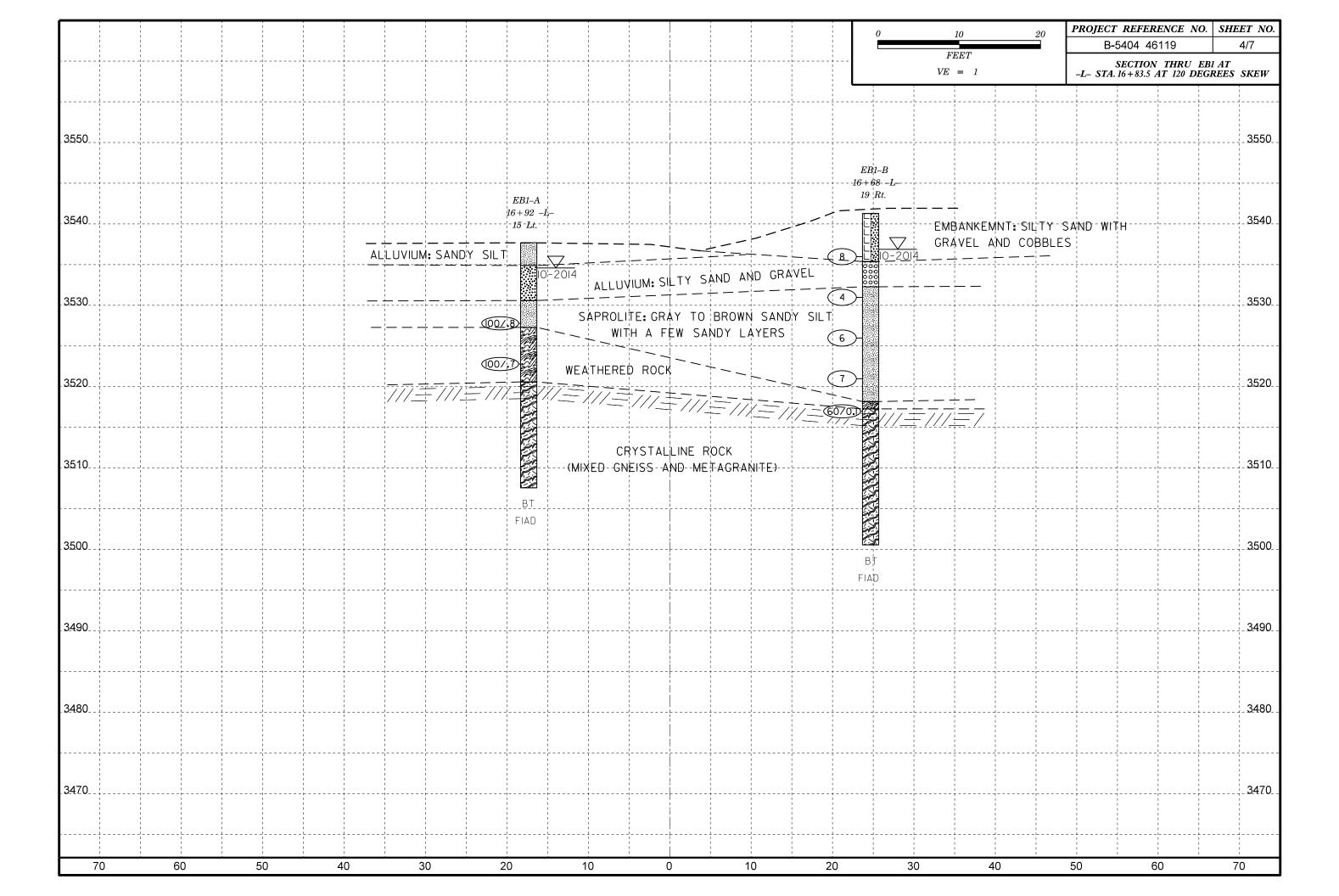
# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

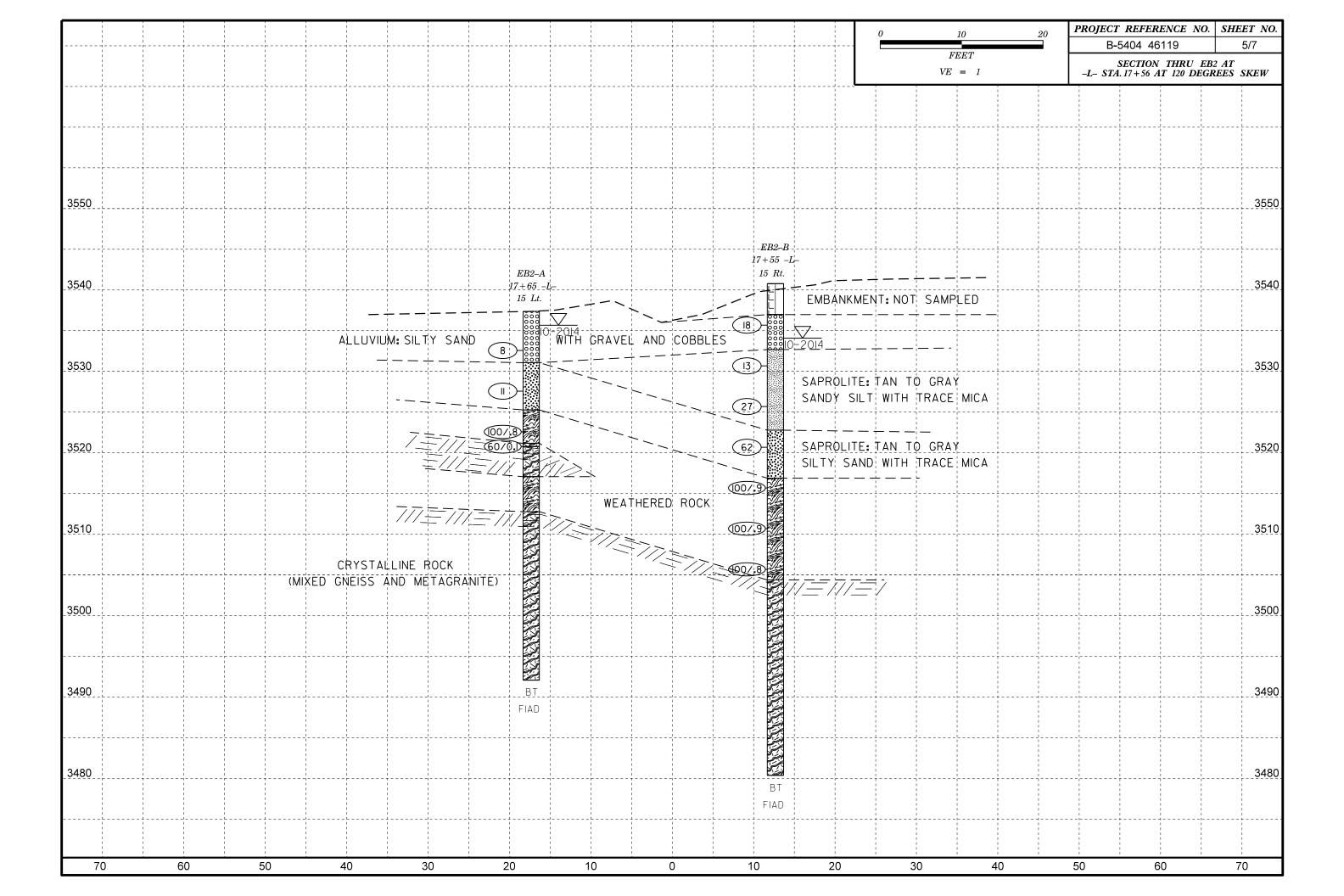
# SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DISBAS, SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING, CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SLITY CLAY, MOIST WITH INTERBEDOED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6  SOIL LEGEND AND AASHTO CLASSIFICATION  GENNERA MATERIALS	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.  UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.  GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.  ANGULARITY OF GRAINS  THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS;  ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.  MINERALOGICAL COMPOSITION	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN Ø.1 FOOT PER 6Ø BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:  WEATHERED ROCK (WR)  NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.  AQUIFER - A WATER BEARING FORMATION OR STRATA.  ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.  ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.  ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS.	MINERAL NAMES SUCH AS GUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.  ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.  COMPRESSIBLE  SLIGHTLY COMPRESSIBLE  MODERATELY COMPRESSIBLE  LL = 31 - 50  LL = 31 - 50  LL + 31 - 50  LL = 31 - 50  HIGHLY COMPRESSIBLE  LL > 50  PERCENTAGE OF MATERIAL  ORGANIC MATERIAL  GRANULAR SILT - CLAY SOILS SULS OTHER MATERIAL  TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 18%  LITTLE ORGANIC MATTER 3 - 5% 5 - 12%  LITTLE 10 - 20%  MODERATELY ORGANIC > 18% > 20% SOME 20 - 35%  HIGHLY ORGANIC > 18% > 20% HIGHLY 35% AND ABOVE  GROUND WATER  WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING  TABLE OF THE MATERIAL STATE AND ASSOCIATED STRATA  PW  PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA  PW  SPRING OR SEEP	CRYSTALLINE ROCK (CR)  WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, SOURCE, COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN ROCK (NCR)  NON-CRYSTALLINE ROCK (NCR)  FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.  COASTAL PLAIN SEDIMENTARY ROCK SEDIMENTARY ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED (CP)  WEATHERING  FRESH ROCK FRESH, CRYSTALL SINGENT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.  VERY SLIGHT (VSLI) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.  SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (VSL.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SING UNDER HAMMER BLOWS.  MODERATE (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORATION AND WEATHERING EFFECTS. IN OULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	SURFACE.  CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.  COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.  CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.  DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.  DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.  DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.  FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.  FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.  FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.  FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM, FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
COMPACTNESS OR CONSISTENCY   COMPACTNESS OR CONSISTENCY   COMPACTNESS OR CONSISTENCY   COMPACTNESS OR CONSISTENCY   RANGE OF STANDARD   COMPRESSIVE STRENGTH (TONS/FT²)	MISCELLANEOUS SYMBOLS  ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION  SOIL SYMBOL  ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT  INFERRED SOIL BOUNDARY  INFERRED ROCK LINE  MISCELLANEOUS SYMBOLS  OF ROCK STRUCTURES  OF ROCK STRUCTURES  SLOPE INDICATOR INSTALLATION  AUGER BORING  CONE PENETROMETER TEST  TEST  MONITORING WELL  TEST BORING WITH CORE WITH CORE  PIEZOMETER INSTALLATION  SPT N-VALUE	MODERATELY SEVERE (MOD. SEV.)  AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.  IF TESTED, WOULD YIELD SYT REFUSAL  SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT, SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.  IF TESTED, WOULD YIELD SYT IN YALUES > 100 BPF  VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK (V SEV.)  ROMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SYT N VALUES < 100 BPF  COMPLETE  ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, ONLY IN SMALL AND SCATTERED CONCENTRATIONS, QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS, SAPROLITE IS ALSO AN EXAMPLE.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.   LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.   LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.   MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.   PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.   RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.   ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK OUALLITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE  4 10 40 60 200 270  OPENING (MM)  4.76 2.00 0.42 0.25 0.075 0.053  BOULDER (COB.) (GR.) (GR.) SAND SAND (SL.) (CL.)  GRAIN MM 305 75 2.0 0.25 0.05 0.005  SIZE IN. 12 3  SOIL MOISTURE - CORRELATION OF TERMS  SOIL MOISTURE SCALE (ATTERBERG LIMITS)  SOIL MOISTURE DESCRIPTION  - SATURATED - USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE  PLASTIC SEMISOLID; REQUIRES DRYING TO	UNDERCUT UNSUITABLE WASTE  UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE  UNDERCUT UNDE UNDE UNDE UNDE UNDE UNDE UNDE UNDE	VERY HARD  CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.  HARD  CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.  MODERATELY HARD  MODERATELY HARD  CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.  MEDIUM  CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.  SOFT  CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.  VERY  CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERMAIL.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.  SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.  STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REDUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.  STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.  STRATA ROCK OUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.  TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
(PI) PL PLASTIC LIMIT ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS	FRACTURE SPACING BEDDING  TERM SPACING TERM THICKNESS	BENCH MARK: BL-2 BL STA. 9+98.6I
OM OPTIMUM MOISTURE SL SHRINKAGE LIMIT  - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE  - DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE  PLASTICITY	EQUIPMENT USED ON SUBJECT PROJECT  DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:  CME-45C CLAY BITS X AUTOMATIC MANUAL  CME-55 8*HOLLOW AUGERS CORE SIZE:  CME-550 HARD FACED FINGER BITS	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.0008 - 0.03 FEET THINLY LAMINATED 0.0008 FEET  INDURATION  FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	ELEVATION: 3541.34 FEET  NOTES:
PLASTICITY INDEX (PI)  NON PLASTIC SLIGHTLY PLASTIC SLIGHTLY PLASTIC G-15 MODERATELY PLASTIC HIGHLY PLASTIC 26 OR MORE HIGH  COLOR  DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CME-550	FRIABLE  RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.  MODERATELY INDURATED  GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.  INDURATED  GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLDE-DRAY).  MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	The such is	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-1







SHEET

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ELEV	DRIVE	DEPTH		ow co					BLOWS		FOOT			_	MP.	<b>V</b> /	11	SURFACE WATER DEFTH IVA
(ft)	ELEV (ft)	(ft)	0.5ft	_		0		25		50		75	100		10.	MOI	O G	SOIL AND ROCK DESCRIPTION  ELEV. (ft) DEPTH (
																<u> </u>	J	DEF III (
3545		L			,													
	-	-															E	•
F40		<u></u>				<u> </u>		1.		· .				$\perp$				3,541.3 GROUND SURFACE 0
540	-	ļ				╟┈	<del>.   .</del>	+-	·	+-		<del> </del> -						EMBANKMENT: GRAY SILTY SAND WITH GRAVEL AND COBBLES, MOI.
		‡			ľ	:	.   .	:		-	 						LÆ	
535	3,536 0 -	5.3	6	7	8	-	. j <b>≙</b> 15						• •				-[::[ 	3,535.4 5.
	-	-					./:	· :		:		: :	::				0000	ALLUVIUM: SILTY SAND AND GRAVEL
*00	3,531.0	10.3			<u> </u>	7	 	1:				: :						3,532.3 9. SAPROLITE: GRAY TO BROWN SANDY
530		-	1	2	2	4-		+-		<del> </del>		<del> </del>					Ŀ	SILT WITH FEW SANDY LAYERS, WET
	-	-		Ì				:					: :				E	
25	3,526.0	15.3 	2	3	3	6	·	1:		٠.		<u>  · · · </u>		ĺ			Ł	
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20	3,521.0	20.3						:		.	 	: :	::					
20	-	- -	3	3	4	<b>+</b> 7		+-	<u> </u>	<del>                                     </del>		<del> </del>						-
	3,517.0	24.3	0014	1		. <u>-</u> .	<del>-</del>	- -:-		+=	 	+					477	3,518.2 23 3,517.3 WEATHERED ROCK 24 3,516.5 24
15		- -	60/.1					<u>  · </u>	•	<u>  · </u>		· ·	60/.1					3.516.8 CRYSTALLINE ROCK 24 3.515.6 CRYSTALLINE ROCK (METAGRANITE)
	1	- -				: :	: :	:	· · ·	:	 				Ì			CRYSTALLINE ROCK (METAGRANITE)
٠,,		-				: :		•		:	<i>.</i>	: :	::					3,510.6 30.
10	+	- - i						١.		+		<del> </del>					7	CRYSTALLINE ROCK (METAGRANITE AND GNEISS)
	‡	•				: :	::	:		:		: :	::[		ı			7415 (112,00)
05	+	- -					• •	<u>  -</u>	- · ·			• •	<u> </u>					3.505.6 CRYSTALLINE ROCK (METAGRANITE
	‡					::		:	: : :	: :		::	:: }					AND GNEISS)
								:				: :	::		ŀ	9		3,500.6 40.7
	-							,									F	Boring Terminated at Elevation 3,500.6 ft IN     CRYSTALLINE ROCK
	7															ŀ	ļ.	
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WBS	46119	.1.1			TI	P B5404	COUNT	Y JACKSO	N			GEOLOGIST Cheek D.O.	
SITE	DESCRI	PTION	I JAC	KSO	N COU	INTY BRIDGE NO. 13	6 ON SF	R-1163 OVE	R PINE	CREE	K	<u></u>	GROUND WTR (f
BOR	NG NO.	EB2-	A		S	TATION 17+65		OFFSET	15 ft LT			ALIGNMENT L	0 HR. 1.7 FIAI
COLI	AR ELE	V. 3,	537.4	ft	TC	OTAL DEPTH 45.3 ft		NORTHING	548,	270		<b>EASTING</b> 750,854	24 HR. N//
DRILL	RIG/HAN	MER E	FF./DA	TE A	FO9394	CME-45C 88% 05/14/201	4		DRILL	METHO	D NV	V Casing W/SPT & Core HAMM	MER TYPE Automatic
DRIL	LER Co	offey, c	Jr., C.		S	TART DATE 10/16/14	1	COMP. DA	TE 10	16/14		SURFACE WATER DEPTH N	I/A
LEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT	BLOWS F	ER FOOT	· <del>-</del>	SAMP	V	L	SOIL AND ROCK DES	CRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 5	0	75 100	NO.	МОІ		ELEV. (ft)	DEPTH
3540	-	-									-	-	
	†										-	3,537.4 GROUND SURF	
3535	‡	•									000	ALLUVIUM: TAN TO GRA GRAVEL WITH COBBLES	
	7	-									000	-	
	3,532.6	- 4.8 -	3	4	4	8						3,531.1	
530	‡	-				17	• • • •	- · · · ·				SAPROLITE: BROWN ANI SAND WITH TRACE N	D GRAY SILTY
	3,527.6	9.8	<u> </u>									OARD WITH HOLE N	, o, o, c, .
525	‡		5	5	6	1 10 1 1 1 1 1						3,525.3	1
	7	•	-									WEATHERED ROCK (SCI WITH A FEW GRANITIC	
	3,522.6		28	36	64/.3						4	3,521.2 .3.520.80 CRYSTALLINE R	
520	3,520.8-	- 1.6.65 -	60/.1				• • • • •	· · 100/.8 60/.1-	5		<b>7</b>	CRYSTALLINE R CRYSTALLINE ROCK (SCI	OCK /
	Ŧ											3,517.1	2
515	‡									ĺ		WEATHERED R	OCK
	7	•										3 512 8	2
	Ŧ									i		3,512.8 3,512.1 CRYSTALLINE ROCK	(GNEISS) /2
510	• ‡	•						1				CRYSTALLINE ROCK - WEATHERED GN	
	1	•											
505	Ŧ						: : : :					-3,504.7	
	7											CRYSTALLINE ROCK	(GNEISS)
	Ŧ					.  : : : :   : : : :						3,502.1 CRYSTALLINE ROCK	(GNEISS)
500	Ŧ	-					· · · · ·	+				•	
	$\pm$									,		3,497.1	4
495	Ξ											CRYSTALLINE ROCK	(GNEISS)
	1				Ì								
}		······			$\vdash$				1			3,492.1 Boring Terminated at Elevat	ion 3,492.1 ft IN
	+	-									E	. CRYSTALLINE R	OCK
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SHEET

WBS	46119	9.1.1			TI	P B54	04		C	COUNT	Y JA	CKSO	N			GEOLOGIST Cheek D.C		
SITE	DESCR	IPTION	I JA	CKSO	N COU	NTY BE	RIDG	E NO.	136	ON SE	R-1163	OVE	RPINE	CREE	K	· · · · · · · · · · · · · · · · · · ·	GROU	ND WTR (ft
BOR	ING NO.	EB2-	В		SI	TATION	17-	+55			OFFS	SET 1	5 ft RT			ALIGNMENT L	0 HR.	4.4 FIAD
COLI	LAR ELI	<b>≡V</b> . 3,	540.8	ft	TO	OTAL D	EPTH	1 60.	4 ft		NOR	THING	548,2	239		<b>EASTING</b> 750,850	24 HR.	N/A
ORILL	RIG/HA	MMER E	FF./DA	TE A							L	1	_		D NV	<u> </u>	AMMER TYPE	Automatic
ORIL	LER C	offey, J	lr., C.		S	ΓART D	ATE	10/18	5/14		сом	P. DA1	ΓE 10/			SURFACE WATER DEPTH		
LEV	DRIVE	DEPTH		ow co						R FOOT			SAMP.		L			
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	i	50		75	100	NO.	мог	O G	SOIL AND ROCK ELEV. (ft)	DESCRIPTION	l DEPTH (:
545																		
<u> </u>	-	ļ											İ		-	-		
	-	‡			i i											and the second	UDEAGE	
540	_			+	<del>                                     </del>		П		$\neg$							3,540.8 GROUND S - EMBANBKMENT:		
		<u> </u>				1	1.				: :	::			HE			
	3 535 7-	51					-   -		•						္စ္တတ္ဆ	3,537.0 ALLUVIUM: GRAY SIL	TY SAND AND	SUB 3
535	<u> </u>	- 3.	7	9	9		 <b>●</b> 18		-		+			,		ROUNDED GRAVELS MOI. TO	WITH TRACE N	
		-					<i>i</i>	: : :			: :	::				3,532.7		
530	3,530.7-	- 10.1				1 : : /	! :			 	: :	::				SAPROLITE: TAN TO WITH TRACE		SILT
000	-		5	5	8		13		-		<del> </del>				-	-		
	-							·		 		: :						
525	3,525.7-	- 15.1	9	13	14		V		•						-	_		
	-						•	27	•						9.000 	3,522.8		18
	-					: : :					: :				, n , n , n , n , n , n , n , n , n , n	SAPROLITE: TAN TO		
520	3,520.7- -	- 20.1 -	16	32	30		-		•	62	+				Ļ	WITH TRACE	VIICA, SAT.	
	-		2					: : :	:		<b>+</b> ÷:							
	3.515.7-	- - 25.1				:		: : :		 . <i></i> .	: :	7.			77	3,516.9 WEATHERE	D ROCK	23.
515			35	37	63/.4		$\pm$		_		+	100/.9				•		-
	· <u>-</u>	-					-		-			1007.91						
510	3,510.7-	- 30.1	46	54/.4	]							::						
	-	-	40	547.4					7			100/.9				•		
	-	-				: : :		: : :	: .	 	::							
505	3,505.7-	- 35.1 -	48	52/.3	-		$\perp$		•		<u> </u>					3,504.4		36.
	-	-				: : :				 	::	100/.8	İ			3.504.1∕\ CRYSTALLINE RO		36_
	-	-				· · ·					1::					CRYSTALLINE RO	ick (Gneiss)	
500	_	-					+		+		1				2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	3,500.4 CRYSTALLINE RO	CK (GNEISS)	40.
	-	-														•		
495	-	-				: : :		: : :		 	: :	::				3,495.4		45.
700	-	-				<u> </u>			-		1					CRYSTALLINE RO	CK (GNEISS)	
	-	-				: : :	:			 	: :	: ;						
490	-	_					•		•   •		<u> </u>					3,490.4 CRYSTALLINE RO	ACK (CNICIOS)	50.
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485	_	-		İ			-	· · ·	_	· · · ·	<u> </u>					3,485.4 GNEISS - VERY HARD	ANBD FRESH	- NO
	-	- -				: : :				· · · ·		::				FRACTL	RES	i.
	-	-						: : :	: :	· · · ·	· ·					3,480.4		60.
-		-														Boring Terminated at I	levation 3,480.	.4 ft
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