CONTENTS SHEET NO. 5 6,7

97003

REFERENCE

DESCRIPTION

TITLE SHEET LEGEND (SOIL & ROCK)

CROSS SECTIONS

SITE PLAN

BORE LOGS SOIL TEST RESULTS

PROFILE

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY WILSON

PROJECT DESCRIPTION BRIDGE NO. 37 ON -L-(SR 1195) OVER LITTLE BUFFALO CREEK **AT STATION 15+14.5**

800 R 4 BP. て PROJEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.4.R.88	1	8

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 SOLI TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (1991 707-6850, THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOCS, ROCK CORES AND SOLI TEST DATA A RE 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-FLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLL MOISTURE CONDITIONS MAY YARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OF CONTRACTOR IS CALIFORMUM AND MIDIL AS DUFILE AS OFMICH NOW CLIMATING CLIMATING AND IN MANY CASES THE FINAL DESIGN IDETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN INFORMATION ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR CUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPHION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONJITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY 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 ACUAL ENDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. 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. 2. BY HAIVING 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.

PERSONNEL

A.N. KINTNER D.G. PINTER R.E. CLARKE

N.O. MOORE

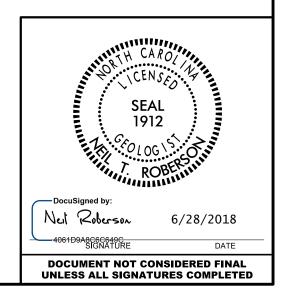
INVESTIGATED BY ____. MOORE

DRAWN BY __N.O. MOORE

CHECKED BY _J.L. LOVE

SUBMITTED BY <u>N.T. ROBERSON</u>

DATE **JUNE 2018**



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION **DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT** SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

		SOIL DESC	RIPTION			GRADATION				ROCK DES	SCRIPTION
				EARTH MATERIALS THAT CAN SS THAN 100 BLOWS PER FOOT		ATES A GOOD REPRESENTATION OF PAR					OULD YIELD SPT REFUSAL IF TESTED. AN INFERRE STAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.
ACCORDING TO) THE STANDARD PENET	RATION TEST (AA	GHTO T 206, ASTM	D1586). SOIL CLASSIFICATION		INDICATES THAT SOIL PARTICLES ARE TES A MIXTURE OF UNIFORM PARTICLE	ALL APPROXIMATELY THE SAME SIZE.	SPT REFUSA	L IS PENETRATION E	BY A SPLIT SPOON SA	MPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60
				INCLUDE THE FOLLOWING: HER PERTINENT FACTORS SUCH		ANGULARITY OF GR		REPRESENTE	D BY A ZONE OF WE	ATHERED ROCK.	NSITION BETWEEN SOIL AND ROCK IS OFTEN
	ERALOGICAL COMPOSITI STIFF.GRAY.SILTY CLAY.MON					ITY OR ROUNDNESS OF SOIL GRAINS IS	S DESIGNATED BY THE TERMS:		TALS ARE TYPICALLY	(DIVIDED AS FOLLOW	
VENT 5			TO CLASSIF		ANGULAR, SUBA	ANGULAR, SUBROUNDED, OR ROUNDED.		WEATHERED ROCK (WR)		NON-COASTAL PLAI	N MATERIAL THAT WOULD YIELD SPT N VALUES > OT IF TESTED.
GENERAL	GRANULAR MATERIAL	5 SI	LT-CLAY MATERIALS	ORGANIC MATERIALS		MINERALOGICAL COMPO		CRYSTALLINE	- 7.7.	FINE TO COARSE G	RAIN IGNEOUS AND METAMORPHIC ROCK THAT
CLASS.	(≤ 35% PASSING #200		35% PASSING #200)			AMES SUCH AS QUARTZ, FELDSPAR, MIC IN DESCRIPTIONS WHEN THEY ARE CON		ROCK (CR)		WOULD YIELD SPT	REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANIT
GROUP A-1 CLASS. A-1-a		-2 A-4 A-2-6 A-2-7	A-5 A-6 A-7	A-1, A-2 A-4, A-5 A-3 A-6, A-7		COMPRESSIBILIT		NON-CRYSTA			RAIN METAMORPHIC AND NON-COASTAL PLAIN THAT WOULD YEILD SPT REFUSAL IF TESTED.
SYMBOL 000000						GHTLY COMPRESSIBLE	LL < 31	ROCK (NCR)		ROCK TYPE INCLUD	ES PHYLLITE, SLATE, SANDSTONE, ETC.
% PASSING						DERATELY COMPRESSIBLE HLY COMPRESSIBLE	LL = 31 - 50 LL > 50	COASTAL PL SEDIMENTAR		SPT REFUSAL, ROCK	DIMENTS CEMENTED INTO ROCK,BUT MAY NOT YIELI K TYPE INCLUDES LIMESTONE,SANDSTONE,CEMENTEI
*10 50 MX				GRANULAR SILT- MUCK, CLAY		PERCENTAGE OF MAT	ERIAL	(CP)		SHELL BEDS, ETC.	IERING
	50 MX 51 MN 25 MX 10 MX 35 MX 35 M)	35 MX 35 MX 36 M	N 36 MN 36 MN 36 MN	SOILS SOILS PEAT	ORGANIC MATERIA	GRANULAR SILT - CLAY <u>SOILS</u> SOILS	OTHER MATERIAL	50500			
MATERIAL					TRACE OF ORGANIC		TRACE 1 - 10%	FRESH	HAMMER IF CRYSTAL		S MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER
PASSING #40				SOILS WITH	LITTLE ORGANIC MA MODERATELY ORGANI		LITTLE 10 - 20% SOME 20 - 35%	VERY SLIGHT			SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN
LL – PI 6 M			X 41 MN 40 MX 41 MN K 10 MX 11 MN 11 MN	LITTLE OR HIGHLY	HIGHLY ORGANIC	> 10% > 20%	HIGHLY 35% AND ABOVE	(V SLI.)	CRYSTALS ON A BRI OF A CRYSTALLINE		HINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF
GROUP INDEX Ø	0 0	4 MX 8 M)	12 MX 16 MX NO MX	MODERATE ORGANI		GROUND WATER	2	SLIGHT			AND DISCOLORATION EXTENDS INTO ROCK UP TO
USUAL TYPES STONE F	FRAGS. FINE SILTY C	R CLAYEY S	ILTY CLAYEY	ORGANIC SOILS	∇	WATER LEVEL IN BORE HOLE IMME	EDIATELY AFTER DRILLING	(SLI.)			IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR
OF MAJOR GRAVEL MATERIALS SAN	ANU SAND GRAVEL		OILS SOILS	MATTEN	▼	STATIC WATER LEVEL AFTER 24	1_ HOURS	MODERATE			YSTALLINE ROCKS RING UNDER HAMMER BLOWS. COLORATION AND WEATHERING EFFECTS. IN
GEN, RATING				FAIR TO DOOD UNCUTTOR		PERCHED WATER, SATURATED ZONE	, OR WATER BEARING STRATA	(MOD.)	GRANITOID ROCKS, M	IOST FELDSPARS ARE D	ULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS
AS SUBGRADE	EXCELLENT TO GOOD		FAIR TO POOR	POOR POOR UNSUITAE	LE	SPRING OR SEEP			DULL SOUND UNDER WITH FRESH ROCK.	HAMMER BLOWS AND S	HOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED
			OF A-7-6 SUBGROUP IS					MODERATELY		DUARTZ DISCOLORED OR	STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL
	CONS		DENSENESS			MISCELLANEOUS SYM	1BOLS	SEVERE (MOD. SEV.)	AND DISCOLORED AN	ND A MAJORITY SHOW K	AOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGT
PRIMARY SOIL T	COMPACTNE		NGE OF STANDARD TRATION RESISTENCE	RANGE OF UNCONFINED COMPRESSIVE STRENGTH		IBANKMENT (RE) 25/025 DIP & DIP	DIRECTION	(MOD. SEV.)	IF TESTED, WOULD		T'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK.
	CONSISTE	NCY	(N-VALUE)	(TONS/FT ²)	WITH SOIL D		TRUCTURES	SEVERE			STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT
GENERALLY	VERY LO		< 4 4 TO 10		SOIL SYMBOL		BORING SLOPE INDICATOR INSTALLATION	(SEV.)			N GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED RONG ROCK USUALLY REMAIN.
GRANULAR MATERIAL	MEDIUM D	ENSE	10 TO 30	N/A			_			YIELD SPT N VALUES >	
(NON-COHESIVE	E) DENSE VERY DE		30 TO 50 > 50		THAN ROADW		ING CONE PENETROMETE	VERY SEVERE			STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE OIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK
	VERY SC		< 2	< 0.25	INFERRED SC	OIL BOUNDARY -	NG SOUNDING ROD	(V SEV.)	REMAINING. SAPROLI	ITE IS AN EXAMPLE OF	ROCK WEATHERED TO A DEGREE THAT ONLY MINOR
GENERALLY	SOFT		2 TO 4	0.25 TO 0.5							NN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BP</u>
SILT-CLAY MATERIAL	MEDIUM S STIFF		4 TO 8 8 TO 15	Ø.5 TO 1.0 1 TO 2	INFERRED RO	OCK LINE MONITORING	WITH CORE	COMPLETE			DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS
(COHESIVE)	VERY ST HARD	IFF	15 TO 30 > 30	2 TO 4	TTTTT ALLUVIAL SC	DIL BOUNDARY 🛆 PIEZOMETER INSTALLATI	R OF SPT N-VALUE		ALSO AN EXAMPLE.		
				/ 1		RECOMMENDATION SY	MBOLS	_		ROCK HA	ARDNESS
U.S. STD. SIEVE SI		10 4		0 270	ז וצצו	UNCLASSIFIED EXCAVATION -	[조고적] UNCLASSIFIED EXCAVATION -	VERY HARD		HED BY KNIFE OR SHAR WS OF THE GEOLOGIST"	P PICK. BREAKING OF HAND SPECIMENS REQUIRES
OPENING (MM)	4.7					UNSUITABLE WASTE	ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF	HARD			LY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED
BOULDER	COBBLE GRAV	COA			SHALLOW UNDERCUT	UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK	EMBANKMENT OR BACKFILL		TO DETACH HAND S		
(BLDR.)	(COB.) (GF					ABBREVIATIONS		MODERATELY HARD			DUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE ST'S PICK. HAND SPECIMENS CAN BE DETACHED
GRAIN MM 30	05 75	2.0	0.25	0.05 0.005	AR - AUGER REFUSAL	MED MEDIUM	VST - VANE SHEAR TEST		BY MODERATE BLOW		ST ST TER, HAND ST EETHENS CHIN DE DETROILED
SIZE IN. 1	2 3				BT - BORING TERMINATE	ED MICA MICACEOUS MOD MODERATELY	WEA WEATHERED γ - UNIT WEIGHT	MEDIUM			DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.
	SOIL MOIST	JRE - CORF	ELATION OF	TERMS	CL CLAY CPT - CONE PENETRATIO		$\gamma_{\rm d}$ - DRY UNIT WEIGHT	HARD	POINT OF A GEOLOG		EICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE
SOIL MOIST (ATTERBER		FIELD MOISTUR DESCRIPTION	E GUIDE FOR	FIELD MOISTURE DESCRIPTIO	CSE COARSE DMT - DILATOMETER TE	ORG ORGANIC ST PMT - PRESSUREMETER	-	SOFT			NIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS
HITERBEN	NO E141137				DPT - DYNAMIC PENETR	ATION TEST SAP SAPROLITIC	S - BULK			VERAL INCHES IN SIZE)KEN BY FINGER PRESSI	BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN URE.
		- SATURATED - (SAT.)		IQUID: VERY WET, USUALLY WW THE GROUND WATER TABLE	e - VOID RATIO F - FINE	SD SAND, SANDY SL SILT, SILTY	SS - SPLIT SPOON ST - SHELBY TUBE	VERY	CAN BE CARVED WIT	TH KNIFE. CAN BE EXCA	AVATED READILY WITH POINT OF PICK. PIECES 1 INCH
	IQUID LIMIT				FOSS FOSSILIFEROUS		RS - ROCK	SOFT	OR MORE IN THICKN FINGERNAIL.	iess can be broken b	Y FINGER PRESSURE. CAN BE SCRATCHED READILY BY
PLASTIC RANGE <		- WET - (W)		REQUIRES DRYING TO	FRAC FRACTURED, FRA FRAGS FRAGMENTS	ACTURES TCR - TRICONE REFUS w - MOISTURE CONTEN			FRACTURE SP		BEDDING
(DI)	LASTIC LIMIT		ATTAIN UP	TIMUM MOISTURE	HI HIGHLY	V - VERY	RATIO	TERM	THETONE ST	SPACING	TERM THICKNESS
		- MOIST - (M)		OR NEAR OPTIMUM MOISTURE	EC	DUIPMENT USED ON SUBJE	ECT PROJECT	VERY WIC		THAN 10 FEET	VERY THICKLY BEDDED 4 FEET
	PTIMUM MOISTURE HRINKAGE LIMIT	- MUISI - (M)	SULID; AT U	UR NEAR UPTIMUM MUISTURE	DRILL UNITS:	ADVANCING TOOLS:	HAMMER TYPE:	WIDE MODERATI		TO 10 FEET TO 3 FEET	THICKLY BEDDED 1.5 - 4 FEET THINLY BEDDED 0.16 - 1.5 FEET
			REQUIRES	ADDITIONAL WATER TO	CME-45C	CLAY BITS	X AUTOMATIC MANUAL	CLOSE VERY CLO		16 TO 1 FOOT THAN 0.16 FEET	VERY THINLY BEDDED 0.03 - 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET
		- DRY - (D)		TIMUM MOISTURE	X CME-55	6" CONTINUOUS FLIGHT AUGER	CORE SIZE:		552 2255	THAN BITO FEET	THINKET EARNINATED C.000 FEET
		PLASTI				X 8" HOLLOW AUGERS				INDUR	ATION
		PLASTICITY		DRY STRENGTH	CME-550	HARD FACED FINGER BITS	□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	FOR SEDIME	NTARY ROCKS, INDURA		ING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, E
NON PLAS		0-5		VERY LOW		TUNGCARBIDE INSERTS		FRIAB	LE		FINGER FREES NUMEROUS GRAINS: BY HAMMER DISINTEGRATES SAMPLE.
SLIGHTLY MODERATE	PLASTIC ELY PLASTIC	6-15 16-2		SLIGHT MEDIUM	VANE SHEAR TEST	CASING W/ ADVANCER	HAND TOOLS:				SEPARATED FROM SAMPLE WITH STEEL PROBE:
HIGHLY PL		26 OR 1		HIGH	PORTABLE HOIST			MODEI	RATELY INDURATED		WHEN HIT WITH HAMMER.
		COLO	R					INDUF			FFICULT TO SEPARATE WITH STEEL PROBE;
DESCRIPTIONS	MAY INCLUDE COLOR	OR COLOR COMBI	NATIONS (TAN. RED	, YELLOW-BROWN, BLUE-GRAY).				INDUP			BREAK WITH HAMMER.
				DESCRIBE APPEARANCE.				EXTR	EMELY INDURATED		BLOWS REQUIRED TO BREAK SAMPLE; S ACROSS GRAINS.
-											

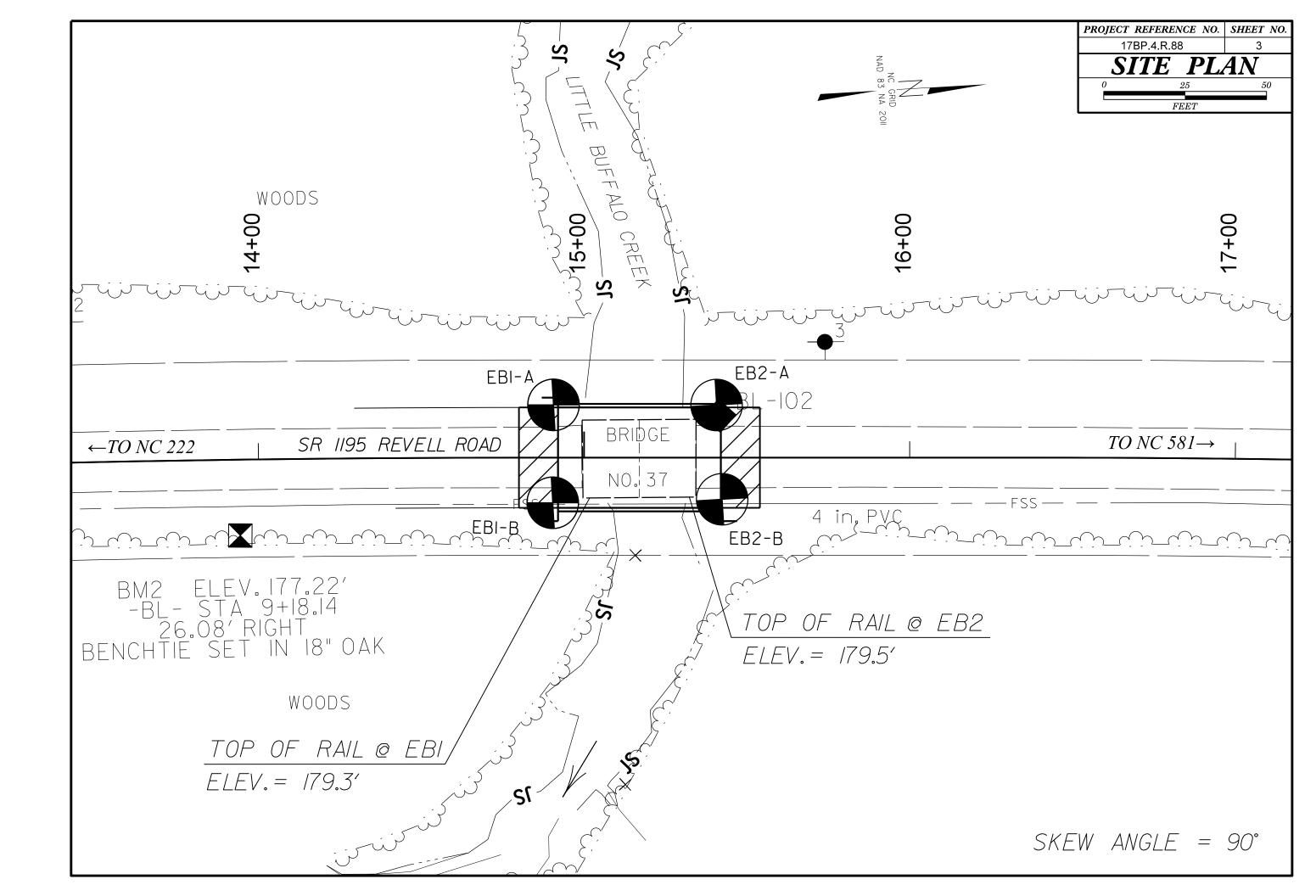
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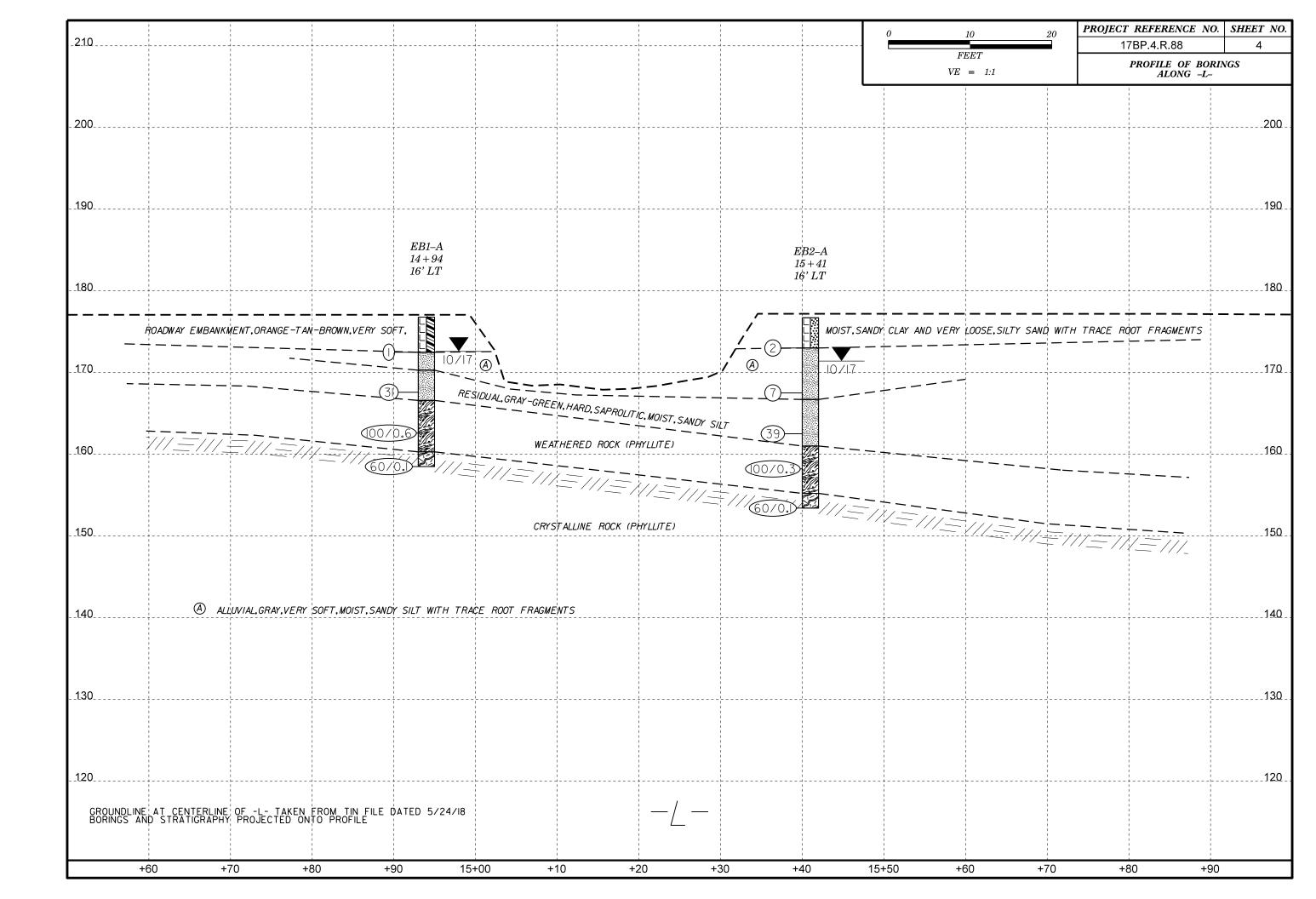
ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
AQUIFER - A WATER BEARING FORMATION OR STRATA.
ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION 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 SURFACE.
CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
$\underline{\text{Colluvium}}$ - 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.
$\underline{\text{DIKE}}$ - 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.
\underline{FLOAT} - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.

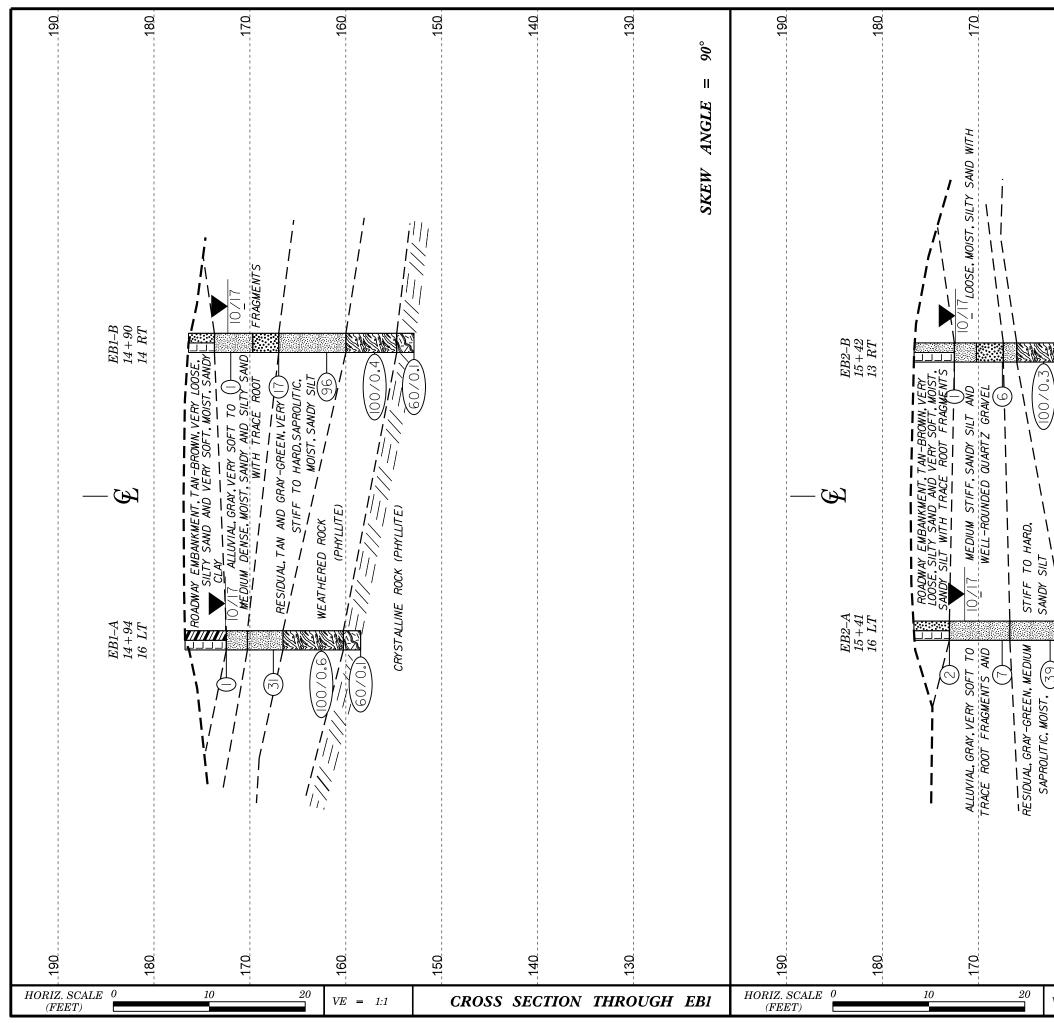
TERMS AND DEFINITIONS

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 FIELD. FELDSPARS DULL OSS OF STRENGTH WHEN STRUCK. 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. VIDENT BUT ARE KAOLINIZED LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. RE DISCERNIBLE PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. ONLY MINOR ALUES < 100 BPF RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. IN SMALL AND ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE S. SAPROLITE IS RUN AND EXPRESSED AS A PERCENTAGE. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. IS REQUIRES <u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO LOWS REQUIRED THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT EEP CAN BE OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL OR PICK POINT. WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL BLOWS OF THE 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. FRAGMENTS IT. SMALL, THIN STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. PIECES 1 INCH ED READILY BY TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK: BL-102 REBAR WITH CAP AT -L- STA. 15+4114LT THICKNESS 4 FEET 1.5 - 4 FEET ELEVATION: 176.63 FEET 16 - 1.5 FEET NOTES: 13 - 0.16 FEET 18 - 0.03 FEET TOP OF RAIL AT EBISTA. 15+02, 12'RT ELEV.= 179.3 0.008 FEET TOP OF RAIL AT EB2 STA. 15+33, 12'RT ELEV.= 179.5 AT. PRESSURE, ETC. TEEL PROBE: PROBE:







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GEOTECHNICAL BORING REPORT BORE LOG

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				DGE	-		•	,	ER LITT	LE BUFFAL						GROUND W	. ,					DGE			•	195) O\	/ER LIT	_
	ing No.					TATION				OFFSET				_	NMENT -L-	0 HR.	4.7		ING NO					TATION				OF
	LAR ELE					OTAL DE				NORTHIN					FING 2,259,125	24 HR.	4.2		LAR EL							23.5 f		NO
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DRIL	LER P	inter, D	-							COMP. DA			, 		FACE WATER DEPTH N	/A		DRIL	LER P	inter, [-					10/10/1		CO
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft		0	25		PER FOOT 50 1	75 100	SAMP. NO.	1.7		ELEV. (SOIL AND ROCK DESC		EPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	· — —	0.5ft	UNT 0.5ft	0	25	BLOWS F	PER FOO 50	T 75
180		-												-				180		-								
175		- - -												176.8	GROUND SURF/ ROADWAY EMBAN ORANGE-BROWN, SA	KMENT	0.0	175							•••	••••		· ·
	173.6 -	3.2	1	0	1		· ·				SS-5	_ <u>_</u> M_		172.5			4.3		173.0	3.4	1	1	0			· · · · · · · ·	· · · · · ·	· ·
170	-	+					· ·			. .				- - 170.3	ALLUVIAL GRAY, SANDY SILI	r with	6.5	170		ŧ	'	'		N. I		· · · · ·	· · · ·	
170	168.6 -	8.2		10	01	`								-	TRACE ROOT FRAG			170	168.0	8.4								
	-	÷	2	10	21		. 9	31		<u></u> .		M		- 166.6	GRAY-GREEN, SAPF	ROLITIC,	10.2		100.0	- 0.4 -	3	5	12	`	€17			
165		È.				· · ·									WEATHERED RO	оск	/	165		ŧ						~~~~		· ·
	163.6 -	- 13.2 -	75	25/0.1			. .								(PHYLLITE)				163.0	13.4	30	33	63					:- -:
160	-	t t												160.3			16.5	160		ŧ						· · · · ·	· · · ·	
	158.6 -	18.2	60/0.1							60/0.1			S	- 158.5	CRYSTALLINE R (PHYLLITE)		18.3		158.0	18.4								
	-	F	60/0. I							00/0.1				F	Boring Terminated with Penetration Test Refusal at	Standard Flevation 158 5	,			+10.∓_ †	100/0.4	1				· · · · ·		. .
	_	F												F	ft IN CRYSTALLINE ROCK	(PHYLLITE)		155		Ŧ						· · · · ·		
	-	F												F					153.0	23.4	60/0.1							

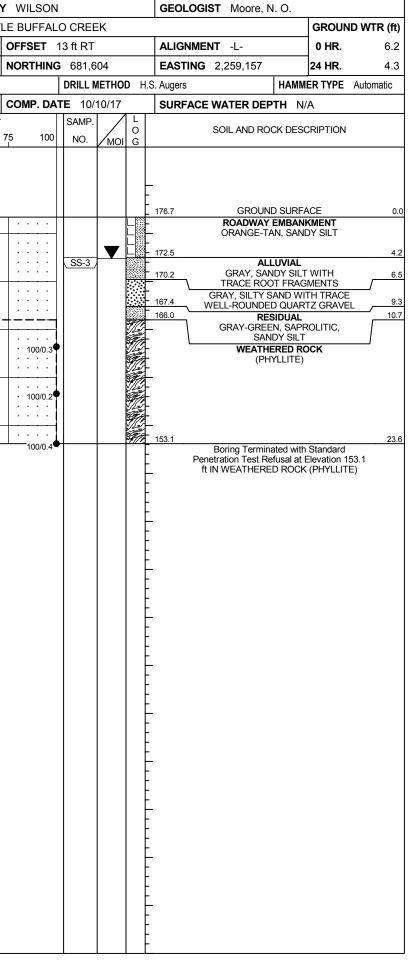
SHEET 6

JNT	r W	ILSON	1				GEOL	OGI	ST Moore, N	. 0.		
ITTI	LE B	UFFAI	_C) CREE	K						GROUN	D WTR (ft)
	OFF	SET	1	4 ft RT			ALIGN	IME	NT -L-		0 HR.	4.4
	NOF	RTHIN	G	681,5	52		EAST	ING	2,259,155		24 HR.	4.1
1			Τ	DRILL N	IETHO	DH	I.S. Augers			HAMM	ER TYPE	Automatic
	CO	NP. DA	Ť	E 10/	10/17		SURF	ACE	WATER DEP	TH N/	A	
оот				SAMP.		L						
	75	100		NO.	мог	O G			SOIL AND ROO	CK DESC	RIPTION	
							- - 176.4		GROUNE		CE	0.0
• •	·		┢				- 170.4		ROADWAY	EMBAN	KMENT	0.0
	1.		1		_		173.7		TAN-BROW		' SAND	2.7
· · · ·	:	· · · · · ·		SS-4	—м—		-		GRAY, SAN			
• •	· ·						- 		TRACE ROO			6.7
· ·	·	· · ·					-		LIGHT GRA	Y, SILTY	SAND	
•••					м		167.0		RES			9.4
	+-	· · ·					-		TAN AND C	GRAY-GR		
` .`:							-		SAFROLING	J, SAND	T SILT	
· · · ·		· · •99	96 		М		-					
	+:	· · · ·				977 g	160.0		WEATHE		СК	16.4
						-	-		(PH)	YLLITE)		
•••		100/0.4					-					04.7
	1.						154.7 152.9		CRYSTAL		оск	21.7 23.5
		60/0.1	•			<u>ر ز</u> انگھی	- 152.9		(PH) Boring Termina	YLLITE)	Standard	
							-		etration Test Re	fusal at E	Elevation 1	
							_	π	N CRYSTALLIN	E RUCK	(PHYLLII	E)
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GEOTECHNICAL BORING REPORT BORE LOG

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	5 17BF					IP SF-					WILSON				GEOL	OGIST Moore, N. O.	1		3 17BP					P SF-97		COUNTY
SITE	DESCR	RIPTION	N BRI	DGE	NO. 3	7 ON -L	- (SR	1195) (VER LI	TTLE	BUFFAL	O CREE	ΞK				GROUND WTR (ft)	SITE	DESCR	RIPTIO	N BRI	DGE I	NO. 37	7 ON -L- (SR1195) O\	VER LITTL
BOF	ING NO	. EB2-	-A		s	TATION	N 15	+41		OF	FFSET	16 ft LT			ALIG	IMENT -L-	0 HR. N/A	BOR	RING NO	. EB2	-В		S	TATION	15+42	
COL	LAR EL	EV. 17	76.7 ft		Т		DEPTI	H 23.3	ft	NC	ORTHING	681,6	604		EAST	NG 2,259,128	24 HR. 5.3	COL	LAR EL	EV. 1	76.7 ft		Т	OTAL DEP	PTH 23.6 f	t I
DRIL	l Rig/Ha	MMER E	FF./DA	TE R	FO0074	4 CME-55	5 90%	07/12/20	16			DRILL N	NETHO	OD I	H.S. Augers	НАММ	ER TYPE Automatic	DRIL	L RIG/HA	MMER E	EFF./DA	TE R	FO0074	CME-55 90	0% 07/12/201	6
DRII	LER F	Pinter, D). G.		S		DATE	10/10	/17	co	omp. da [.]	TE 10/	10/17	7	SURF	ACE WATER DEPTH N/	A	DRIL	LER P	Pinter, D). G.		S		FE 10/10/1	7
ELEV	DRIVE ELEV		BLC	w co	UNT			BLOWS	S PER FO	ОТ		SAMP.				SOIL AND ROCK DESC	RIPTION	ELEV	DRIVE ELEV		·	ow co	-		BLOWS I	PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	50	75	100	NO.	Имс				DEPTH (ft	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50 7
180		ļ													L			180		Ļ						
		ł													Ł					ŧ						
		<u> </u>				H_{1}									_ 176.7 ≎∟	GROUND SURFA		1		<u> </u>						
175	470 -	$\frac{1}{1}$				 			<u> </u>					Ľ		TAN-BROWN, SILTY WITH TRACE ROOT FR	SAND	175	470 5	<u>+</u>						+
	1/3.5	+ <u>3.2</u> +	1	1	1	q 2 ·			.			SS-1	M		173.0		AGMENTS 3.7		1/3.5	+ 3.2 +	1	1	0	• · · ·		
170		Ŧ						· · · · · ·							F	GRAY, SANDY SILT TRACE ROOT FRAG		170		Ŧ						· · · · ·
	168.5	+ 8.2													-		MENTO		168.5	8.2				1 1		
		ŧ	6	3	4	.•		· · · ·			· · · ·		M		166.7		10.0			ŧ	3	2	4	6	· · · · · ·	
165		‡					<u>``</u>	· · ·	• • •	· ·					-	RESIDUAL GRAY-GREEN AND E		165		‡				- ``		+
	163.5	+ 13.2 +	10	13	26							SS-2	м		-	SAPROLITIC, SAND	Y SILT		163.5	+ 13.2 +	100/0.3	3				
100		‡						· · • • • • • • • • • • • • • • • • • •	! - _	· · ·		002		100	161.0		15.7			ŧ					. .	· · · · ·
160	158 5	+ + 18.2														WEATHERED RC (PHYLLITE)	JCK	160	158.5	+						
	1.00.0	- 10.2	100/0.3					· · ·			· 100/0.3	,							100.0	- 10.2 -	100/0.2	2				
155		ł													155.2		21.5	155		ŧ						
	153.5	23.2	60/0.1								<u></u> 60/0.1	,		Ść	153.4	CRYSTALLINE RO (PHYLLITE)	DCK		153.5	23.2	100/0.4	1				
l		Ŧ	00/0.1	1							00/0.1				F	Boring Terminated with Penetration Test Refusal at E	Standard Elevation 153.4			Ŧ	100/0.4	3				
l	-	Ŧ													F	ft IN CRYSTALLINE ROCK	(PHYLLITE)		-	Ŧ						
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SHEET 7



PROJ. NO. - 17BP.4.R.88 ID NO. - 970037 COUNTY - WILSON

EB1-A

			S	OIL 7	TE:	S <i>T</i>	RE	SUL	TS						
SAMPLE			DEPTH	AASHTO				% BY W	/EIGHT		% PAS	SING (S	SIEVES)	%	%
NO.	OFFSET	STATION	INTERVAL	CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-5	16' LT	14+94	3.2-4.3	A-6(4)	33	15	9.5	50.5	9.7	30.3	100	98	48	-	-

<u>EB1-B</u>

			S	OIL T	TE:	ST	RE	SUI	LTS						
SAMPLE			DEPTH	AASHTO				% BY V	VEIGHT		% PAS	SING (S	SIEVES)	%	%
NO.	OFFSET	STATION	INTERVAL	CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-4	14' RT	14+90	3.4-4.9	A-4(0)	22	6	13.5	45.7	18.6	22.2	100	97	47	-	-

EB2-A

			C	OIL 1		CT	DE	CII	TC						
	-		<u>ວ</u>	• - <u>-</u> -)]	K <i>L</i> ,	SUL	10					-	-
SAMPLE			DEPTH	AASHTO		%	BY WEIG	HT		% PAS	SING (S	IEVES)		%	%
NO.	OFFSET	STATION	INTERVAL	CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-1	16' LT	15+41	3.7-4.7	A-4(0)	20	4	10.3	47.1	18.4	24.2	100	97	52	-	•
SS-2	16' LT	15+41	13.2-14.7	A-4(0)		NP	13.1	24.2	52.5	10.1	100	92	72	•	-

<u>EB2-B</u>

			S	OIL 7	TE:	ST	RE	SUL	TS						
SAMPLE			DEPTH	AASHTO				% BY W	/EIGHT		% PAS	SING (S	IEVES)	%	%
NO.	OFFSET	STATION	INTERVAL	CLASS.	L.L.	P.I.	C.SAND	F.SAND	SILT	CLAY	10	40	200	MOISTURE	ORGANIC
SS-3	13' RT	15+42	4.2-4.7	A-4(0)	18	3	9.1	50.5	22.2	18.2	100	98	48	-	-