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REFERENCE

SHEET	NO.
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DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY _WAYNE

PROJECT DESCRIPTION BRIDGE NO. 93 ON -L- (SR 1009) OVER FALLING CREEK AT -L- STA. 16+42.50

96 R 4 BP. PROJEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-950093	1	6

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 REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-680. 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 UNPELACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLI MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLI 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 OR CONTRACTOR IS CAUTONED THAT DETAILS SHOWN 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 DOS NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPNION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONSTROST TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY IMINSELF 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 CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- 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 REDUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR SITEMENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. 2.

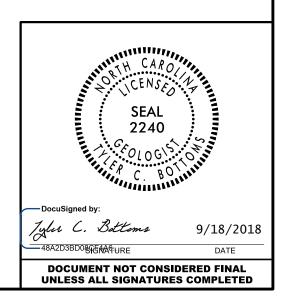
PERSONNEL

S.N. ZIMARINO

R.E. SMITH

J.M. EDMONDSON

INVESTIGATED BY _____. BOTTOMS DRAWN BY _____C.J. CORNETTE CHECKED BY ______. D.N. ARGENBRIGHT SUBMITTED BY ______. ARGENBRIGHT DATE AUGUST 2018



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

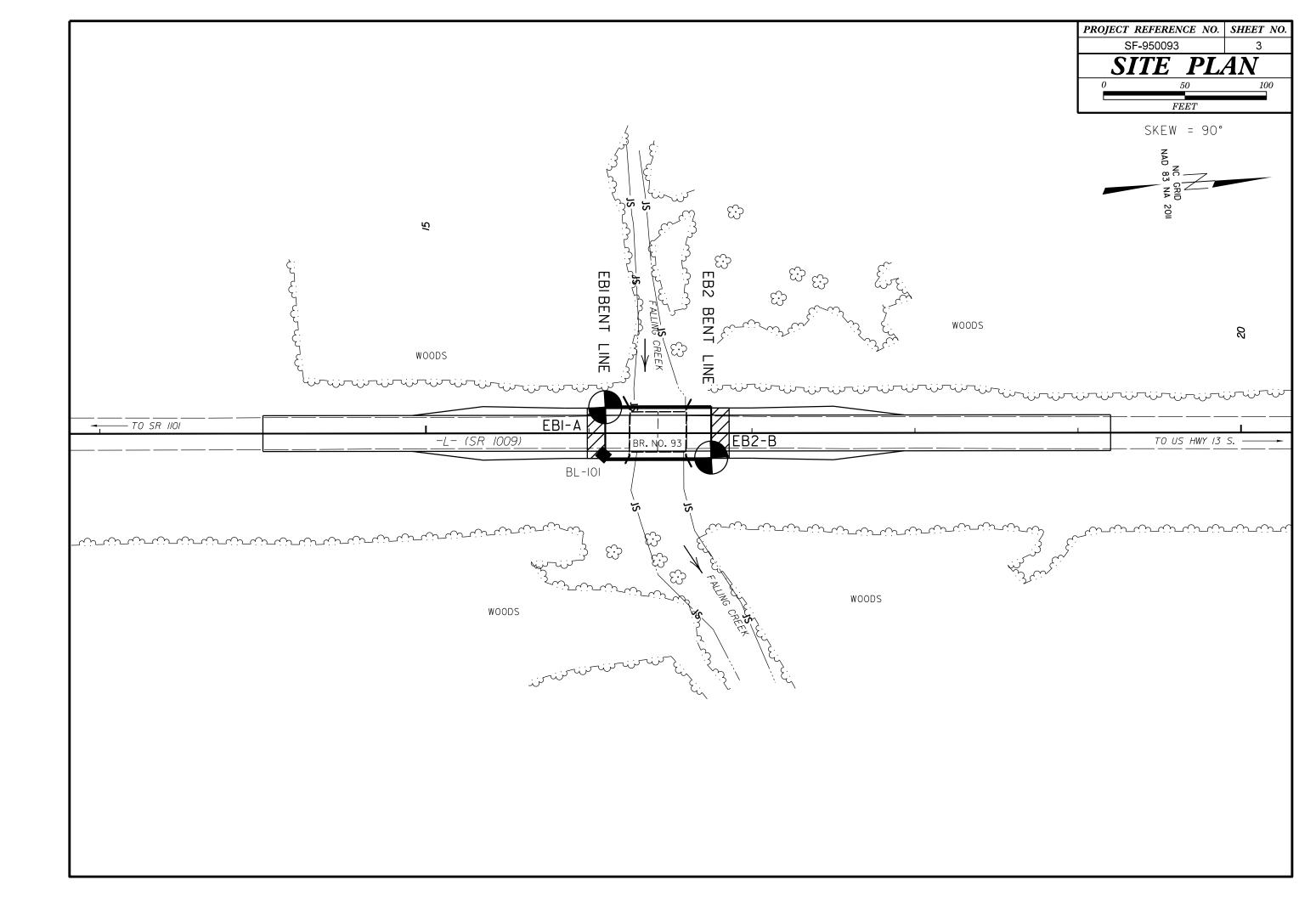
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

			SOIL C	ESCRIPT	ION						G	RADATION		ROCK DESCRIPTION								
BE PENETRA ACCORDING IS BAS CONSISTENC	TED WITH TO THE SED ON TH CY, COLOR,	A CONTINUC STANDARD PE E AASHTO S TEXTURE, MO	ATED, SEMI-CON US FLIGHT POV NETRATION TE (STEM, BASIC (ISTURE, AASHTO	VER AUGER AN ST (AASHTO 1 DESCRIPTIONS CLASSIFICA1	ND YIELD LESS 206, ASTM DI GENERALLY IN ION, AND OTHE	THAN 100 586), SOIL ICLUDE TH R PERTINE	0 BLOWS PE _ CLASSIFI E FOLLOWI ENT FACTOF	ER FOOT CATION NG: RS SUCH	<u>WELL GRADED</u> - INDICAT <u>UNIFORMLY GRADED</u> - IN <u>GAP-GRADED</u> - INDICATE	NDICATE	ES THAT SOIL IXTURE OF UN	PARTICLES ARE AL	L APPROXIMA ZES OF TWO	TELY THE SAME SIZE.	ROCK LINE IN SPT REFUSAL BLOWS IN NO REPRESENTED	NDICATES IS PEN DN-COAS BY A Z	S THE LEVE NETRATION B TAL PLAIN ZONE OF WE	L AT WHICH NON-COA BY A SPLIT SPOON SA MATERIAL, THE TRA ATHERED ROCK.	WOULD YIELD SPT REFUSAL IF TEST STAL PLAIN MATERIAL WOULD YIELD MPLER EQUAL TO OR LESS THAN Ø. NSITION BETWEEN SOIL AND ROCK			
			SITION, ANGULAR MOIST WITH INT					•				SOIL GRAINS IS D	SIGNATED B	Y THE TERMS:	WEATHERED	ALS ARE	TYPICALLY	DIVIDED AS FOLLOW	/S: IN MATERIAL THAT WOULD YIELD SP			
			END AND						ANGULAR, SUBAN						ROCK (WR)			100 BLOWS PER FO				
GENERAL CLASS		Granular Mate ≤ 35% Passing			MATERIALS	OR	GANIC MATER	IALS	MINERAL NAT			Z, FELDSPAR, MICA, T		ETC.	CRYSTALLINE		P.P.		RAIN IGNEOUS AND METAMORPHIC RC REFUSAL IF TESTED. ROCK TYPE IN			
GROUP		A-3	A-2		A-6 A-7	A-1, A-2	A-4, A-5				RIPTIONS WHE	IN THEY ARE CONSID			ROCK (CR)		<u>ZCZC</u>	GNEISS, GABBRO, SC				
	I-a A-1-b	A-2-4	-2-5 A-2-6 A-2-		A-7-5. A-7-6	A-3	A-6, A-7		C. 10		COMP OMPRESSIBLE	RESSIBILITY	LL < 31		NON-CRYSTAL ROCK (NCR)	LINE		SEDIMENTARY ROCH	K THAT WOULD YEILD SPT REFUSAL			
SYMBOL 000				• • • •					MODE	RATELY	Y COMPRESSIBLE	BLE	LL = 31 - LL > 50	50	COASTAL PLA SEDIMENTARY		==	COASTAL PLAIN SE	DIMENTS CEMENTED INTO ROCK, BUT K TYPE INCLUDES LIMESTONE, SANDS			
7. PASSING 10 50	мх					GRANULAR	SILT-	MUCK.	HIGHL			GE OF MATER			(CP)	NOCK		SHELL BEDS, ETC.				
	MX 50 MX 9		5 MX 35 MX 35 M	1X 36 MN 36 M	1 36 MN 36 MN	SOILS	CLAY SOILS	PEAT	ORGANIC MATERIAL		GRANULAR SOILS	SILT - CLAY SOILS		R MATERIAL	FRESH				HERING			
MATERIAL PASSING #40 LL	-	- 40 MX -	11 MN 40 MX 41 M	IN 40 MX 41 MM	i 40 MX 41 MN		I S WITH LE OR		TRACE OF ORGANIC MAT LITTLE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	ATTER TER	2 - 3% 3 - 5% 5 - 10% > 10%	3 - 5% 5 - 12% 12 - 20% > 20%	TRACE LITTLE SOME HIGHLY	1 - 10% 10 - 20% 20 - 35% 35% AND ABOVE		HAMMER ROCK GI CRYSTAI	R IF CRYSTAL ENERALLY FF LS ON A BRO	LLINE. RESH, JOINTS STAINED, DKEN SPECIMEN FACE :	IS MAY SHOW SLIGHT STAINING, ROCK SOME JOINTS MAY SHOW THIN CLAY C SHINE BRIGHTLY. ROCK RINGS UNDER H			
PI GROUP INDEX	6 MX Ø	NP 10 MX 1	0 MX 11 MN 11 M 4 MX		(11 MN 11 MN (16 MX NO MX	MODE	ERATE NTS OF	HIGHLY ORGANIC				UND WATER		33% HIND HOUVE	SLIGHT		RYSTALLINE					
USUAL TYPES STO OF MAJOR GR	STORE FRAGS. GRAVEL, AND SAND								WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING							ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INT 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCAS CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAI 5 SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFF						
MATERIALS GEN. RATING						FAIR TO			 ₽₩			SATURATED ZONE, OF		RING STRATA	MODERATE (MOD.)	GRANITO	DID ROCKS, M	OST FELDSPARS ARE D	OULL AND DISCOLORED, SOME SHOW CLA			
AS SUBGRADE		XCELLENT TO			to poor	POOR	POOR	UNSUITABLE			ING OR SEEP						OUND UNDER RESH ROCK.	HAMMER BLOWS AND S	CHOWS SIGNIFICANT LOSS OF STRENGTH			
	PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS										MISCELLA	ANEOUS SYMBO	<u></u>		MODERATELY SEVERE							
	COMPACTNESS OF RANGE OF STANDARD RANGE OF UNCONFINE							ONFINED			25.4	225		(MOD. SEV.)	AND CA	N BE EXCAVA		ST'S PICK. ROCK GIVES "CLUNK" SOUND				
GENERALL	INT SUIL ITTE CONSISTENCY PENEITRAILUM RESISTENCE CUMPRESSIVE STREA (N-VALUE) (TONS/FT2) (TONS/FT2)								L ROADWAY EMB WITH SOIL DE SOIL SYMBOL		DIP & DIP DIF DF ROCK STRU		SEVERE (SEV.)	R STAINED. ROCK FABRIC CLEAR AND E IN GRANITOID ROCKS ALL FELDSPARS / TRONG ROCK USUALLY REMAIN.								
GRANULAR	GRANULAR LUUS 4 10 10											- 131 (111		INSTALLATION CONE PENETROMETER				VIELD SPT N VALUES				
	MATERIAL (NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50 VERY SOFT < 2							j	THAN ROADWA	AY EMBA		AUGER BORING	•	TEST SOUNDING ROD	VERY SEVERE (V SEV.)	BUT MA REMAINI	ISS IS EFFEC	TIVELY REDUCED TO S TE IS AN EXAMPLE OF	R STAINED. ROCK FABRIC ELEMENTS AF SOIL STATUS, WITH ONLY FRAGMENTS O ROCK WEATHERED TO A DEGREE THAT			
GENERALL SILT-CLAY MATERIAL	,	MEDIU	DFT M STIFF IFF STIFF	4 8	TO 4 TO 8 TO 15 TO 30		0.25 TO 0.5 TO 1 1 TO 2	1.0 ?				-	ill 🔶	TEST BORING WITH CORE	COMPLETE	ROCK RI SCATTEI	EDUCED TO S RED CONCENT	SOIL. ROCK FABRIC NO	AIN. <u>IF TESTED, WOULD YIELD SPT N N</u> T DISCERNIBLE, OR DISCERNIBLE ONLY Y BE PRESENT AS DIKES OR STRINGERS			
(COHESIVE)	,		ARD		30		2 TO 4	•	ALLUVIAL SOI					- SPT N-VALUE		ALSU A	N EXAMPLE.	воск н				
			TEXTURE	OR GRAI	N SIZE							NDATION SYMB			ROCK HARDNESS							
U.S. STD. SIEVE OPENING (MM)	E SIZE		4 10 4.76 2.00	40 0.42	60 200 0.25 0.075	270 0.053					NCLASSIFIED E NSUITABLE WA		¥‴ ¥ ACCEPT	SIFIED EXCAVATION - ABLE, BUT NOT TO BE	HARD			NS OF THE GEOLOGIST	'S PICK. WITH DIFFICULTY. HARD HAMMER B			
BOULDER	COR	BLE	GRAVEL	COARSE	FINE		SILT	CLAY	SHALLOW UNDERCUT			EXCAVATION - GRADABLE ROCK		N THE TOP 3 FEET OF MENT OR BACKFILL	пно		ACH HAND SF		ICT WITH DIFFICULTT. HHND HHMMEN B			
(BLDR.)		75	(GR.)	SAND (CSE. SD.)	SAND (F SD. 0.25		(SL.) 0.005	(CL.)	AR - AUGER REFUSAL			REVIATIONS	vst ·	· VANE SHEAR TEST	MODERATELY HARD	EXCAVA		D BLOW OF A GEOLOGI	DUGES OR GROOVES TO 0.25 INCHES D ST'S PICK. HAND SPECIMENS CAN BE D			
SIZE IN.	12	3							BT - BORING TERMINATED	D		- MICACEOUS - MODERATELY		- WEATHERED UNIT WEIGHT	MEDIUM HARD				DEEP BY FIRM PRESSURE OF KNIFE OP PEICES 1 INCH MAXIMUM SIZE BY HARD			
SOIL MO			FIELD M						CPT - CONE PENETRATION CSE COARSE	N TEST	NP -	NON PLASTIC ORGANIC		DRY UNIT WEIGHT	SOFT	POINT C	OF A GEOLOG	SIST'S PICK.	NIFE OR PICK. CAN BE EXCAVATED IN			
	SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) FIELD MOISTURE DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPT - SATURATED - USUALLY LIQUID: VERY WET, USUALLY							DMT - DILATOMETER TES DPT - DYNAMIC PENETRA e - VOID RATIO		EST SAP	- PRESSUREMETER TI - SAPROLITIC SAND, SANDY	S - B	MPLE ABBREVIATIONS WLK SPLIT SPOON		FROM C PIECES	CAN BE BRO	/ERAL INCHES IN SIZE IKEN BY FINGER PRESS	BY MODERATE BLOWS OF A PICK POIN SURE.				
LL – – PLASTIC	STIC SEMICOLID. REQUIRES DRVING TO								F - FINE FOSS FOSSILIFEROUS FRAC FRACTURED, FRAC	TURES	SLI	SILT, SILTY SLIGHTLY • TRICONE REFUSAL	RS -	SHELBY TUBE ROCK RECOMPACTED TRIAXIAL	VERY SOFT	OR MOR	E IN THICKN NAIL.	ESS CAN BE BROKEN E	AVATED READILY WITH POINT OF PICK. BY FINGER PRESSURE. CAN BE SCRATCH			
RANGE <			- WET -	(W)	ATTAIN OPTI				FRAGS FRAGMENTS HI HIGHLY		w - N V - V	10ISTURE CONTENT ERY	CBR -	CALIFORNIA BEARING	F TERM	RACT	URE SPA	ACING SPACING	BEDDING TERM			
ом	_ OPTIMUN	1 MOISTURE	- MOIST	- (M)	SOLID; AT OF	NEAR OF	PTIMUM MC	DISTURE	EQU DRILL UNITS:		ENT USE	D ON SUBJECT			VERY WIDE WIDE MODERATE		3	THAN 10 FEET TO 10 FEET TO 3 FEET	VERY THICKLY BEDDED THICKLY BEDDED 1 THINLY BEDDED 0.			
SL _			- DRY -	(D)	REQUIRES AD			D	X CME-45C		CLAY BITS 6" CONTINUOL	JS FLIGHT AUGER	CORE SIZ		CLOSE VERY CLO		0.	16 TO 1 FOOT THAN 0.16 FEET	VERY THINLY BEDDED 0.0 THICKLY LAMINATED 0.00 THINLY LAMINATED <			
			PLA	STICITY							8 HOLLOW A		в_					ATION				
			PLAST	ICITY INDEX	(PI)	DF	RY STRENG		CME-550			FINGER BITS	□-N _				ICKS, INDURA		IING OF MATERIAL BY CEMENTING, HE FINGER FREES NUMEROUS GRAINS:			
SLIGH	NON PLASTIC Ø-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT MODERATELY PLASTIC 16-25 MEDIUM						1	VANE SHEAR TEST			DE INSERTS	HAND TOO		FRIABL	-E		GENTLE BLOW	BY HAMMER DISINTEGRATES SAMPLE.				
	MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH						PORTABLE HOIST			<u>2 ¹⁵//6</u> •STEEL TEETH		IT HOLE DIGGER	MODER	ATELY I	NDURATED	BREAKS EASIL	E SEPARATED FROM SAMPLE WITH ST WHEN HIT WITH HAMMER.					
											TRICONE	* TUNGCARB.		INDING ROD	INDURA	ATED			FFICULT TO SEPARATE WITH STEEL BREAK WITH HAMMER.			
			OR OR COLOR I, DARK, STREA								CURE BII			E SHEAR TEST	EXTRE	MELY IN	IDURATED		BLOWS REQUIRED TO BREAK SAMPLE S ACROSS GRAINS.			

project reference no.



ED. AN INFERRED	
) SPT REFUSAL.	<u>ALLUVIUM (ALLUV.)</u> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA.
1 FOOT PER 60 IS OFTEN	
	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
T N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
DCK THAT NCLUDES GRANITE,	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.
AL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED. C.	$\underline{\text{Colluyium}}$ - Rock fragments mixed with soil deposited by gravity on slope or at bottom of slope.
MAY NOT YIELD STONE, CEMENTED	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.
RINGS UNDER	$\overline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
COATINGS IF OPEN. HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
DCK UP TO AL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN AY. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
H AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FELDSPARS DULL LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
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 OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
T ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
<u>VALUES < 100 BPF</u> IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
S. SAPROLITE IS	<u>ROCK QUALITY DESIGNATION (ROD)</u> - 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 RUN AND EXPRESSED AS A PERCENTAGE.
IS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
BLOWS REQUIRED	<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 THE BEODING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE DETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
OR PICK POINT. BLOWS OF THE	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 WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
I FRAGMENTS NT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
. PIECES 1 INCH HED READILY BY	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.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: BL-101
THICKNESS	N=557344.7050 E=2221619.1490
4 FEET 1.5 - 4 FEET	ELEVATION: 137.39 FEET
.16 - 1.5 FEET 03 - 0.16 FEET	NOTES:
08 - 0.03 FEET < 0.008 FEET	
EAT, PRESSURE, ETC.	
TEEL PROBE;	
PROBE;	
E;	
	DATE: 8-15-14



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GEOTECHNICAL BORING REPORT BORE LOG

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			BBID						FALLING CF					GROUND WTR (ft)							MBER 93 ON -L- (SR 1009) OVE				
	ING NO.				_	ATION 16			OFFSET				ALIGNMENT -L-	0 HR. N/A		ING NO.						,			
	LAR ELE				_	DTAL DEPT		t	NORTHING				EASTING 2,221,590	24 HR. 3.2		LAR EL						PTH 89.6 f	4	NO	
				CEO		ME-45C 84%		ι		1		пм		ER TYPE Automatic								1% 08/21/2017			
					_			0	COMP. DA													TE 03/19/2		cc	
-	LER Ed			W. COL	_			PER FOO				1 L		A	-	LER E			W CO				PER FOO		
ELEV (ft)	DRIVE ELEV (ft)	(ft)	0.5ft			0 2		50	7 <u>5</u> 100		MO	0	SOIL AND ROCK DES		ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft		0.5ft	0		50	75	
	(11)						1	1	1				ELEV. (ft)	DEPTH (ft)		(11)						1	1		
140																						Mot	ch Line		
140		-												ACE	_60_	59.7	78.1	12	13	15					
	137.8 -	- 0.0	2	3	3	6							L 137.8 GROUND SURF	KMENT			‡				· · · ·			. .	
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	133.8	- 4.0	1	1	1	<i>j</i>						Ľ	₽ ₽				ŧ	10	13	13	· · ·	₽26		. .	
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130	129.7	- 8.1	2	1	2		<u> </u>	<u> </u>	<u> </u>				BROWN AND GRAY SAND FRAGMENTS, SATU		50	49.7 -	88.1	9	10	13	· · ·	· / · · · · ·		+	
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120	119.7	- 18.1	3	5	5								<u>_</u>			-	Ŧ								
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	114.7	- 23.1	11	10	8		3						SATURATED (BLACK	K CREEK		-	ŧ								
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110	109.7	- 28.1							· · · · · ·				₩ 			-	ŧ								
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105	104.7	- 33.1	7	9	11				<u> </u>				1 1			-	ŧ								
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100	99.7	- 38 1				· · / ·							GRAY SANDY CLAY, W			_	ŧ								
		-	4	5	7	<u>12</u>	· · · ·						CREEK FORMAT				ŧ								
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95	94.7	- 43.1	6	8	8			<u> </u>		-			GREEN-GRAY CLAYEY (BLACK CREEK FOR			-	ŧ								
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SHEET 5 OF 6

NORTHING 557,348 EASTING 2,221,590 24 HR. 3 DRILL METHOD Mud Rotary HAMMER TYPE Automatic COMP. DATE 03/19/18 SURFACE WATER DEPTH N/A FOOT SAMP. L SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G ne 56.8 COASTAL PLAIN S SOIL SATURATED (BLACK CREEK FORMATION) S	UNT	Y WAYNE				GEOLOGIST Zimarino, S. N.										
NORTHING 557,348 EASTING 2,221,590 24 HR. 3 DRILL METHOD Mud Rotary HAMMER TYPE Automatic COMP. DATE 03/19/18 SURFACE WATER DEPTH N/A FOOT SAMP. 0 SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G ne 56.8 COASTAL PLAIN SOIL AND, SATURATED (BLACK CREEK FORMATION) 48.2 48.2	/ER F	ALLING CF	REEK							GROUN	ND WTR (ft)					
DRILL METHOD Mud Rotary HAMMER TYPE Automatic COMP. DATE 03/19/18 SURFACE WATER DEPTH N/A FOOT SAMP. L SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G SOIL AND ROCK DESCRIPTION ne 56.8 COASTAL PLAIN SOIL AND, SATURATED (BLACK CREEK FORMATION) 48.2 48.2		OFFSET	16 ft LT			ALIGNMEN	Т-	L-		0 HR.	N/A					
COMP. DATE 03/19/18 SURFACE WATER DEPTH N/A FOOT SAMP. 0 SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G ne 56.8 COASTAL PLAIN SGRAY SAND, SATURATED (BLACK CREEK FORMATION) </th <th></th> <th>NORTHIN</th> <th>G 557,34</th> <th>48</th> <th></th> <th>EASTING</th> <th>2,22</th> <th>1,590</th> <th></th> <th>24 HR.</th> <th>3.2</th>		NORTHIN	G 557,34	48		EASTING	2,22	1,590		24 HR.	3.2					
FOOT SAMP. L SOIL AND ROCK DESCRIPTION 75 100 NO. MOI G ne 56.8 COASTAL PLAIN SOIL AND ROCK DESCRIPTION		-	DRILL M	ethod	Mud	Rotary			HAMME	R TYPE	Automatic					
NO. NO. MOI G 75 100 NO. MOI G NO. MOI G SOIL AND ROCK DESCRIPTION		COMP. DA	ATE 03/	19/18		SURFACE \	NAT	ER DEP	TH N/A	4						
ne	FOOT			моі	0	SOIL AND ROCK DESCRIPTION										
	ne	75 100	SAMP.			<u>56.8</u> GF	SOIL	AND ROC	AL PLAI	RIPTION	<u>81.0</u>					
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GEOTECHNICAL BORING REPORT BORE LOG

WRC																									
WDS	17BP.	4.R.96			Т	IP SF-9500				Ģ	EOLOGIST Zimarino, S. N.	.	w	BS 17BP	.4.R.96			TIF	TIP SF-950093 COUNT						
SITE	DESCR	IPTION	BRID	DGE N	JMBE	ER 93 ON -L-	- (SR 100	9) OVER F		EEK				GROUND WTR (ft) SI	TE DESCR	RIPTION	BRID	GE NL	JMBEF	MBER 93 ON -L- (SR 1009) OVER				
BORI	NG NO.	EB2-E	3		s	TATION 16	6+75		OFFSET	15 ft RT		A	-IGNMENT -L-	0 HR. N/A	В	DRING NO	. EB2-	В		ST	STATION 16+75				
COLL	AR ELE	EV. 13	7.3 ft		т	OTAL DEPT	FH 94.51	ft	NORTHING	3 557,4	11	E	ASTING 2,221,625	24 HR. 7.5	5 0	OLLAR EL	EV. 1:	37.3 ft		то	TAL DEPT	H 94.5 ft		N	
DRILL	RIG/HAM	IMER EF	F./DATI	E GFC	0075 (CME-45C 84%	08/21/2017		1	DRILL	VETHOD	Mud Ro	ary HAMM	IER TYPE Automatic	DF	ILL RIG/HA	MMER EI	F./DATE	GFO	0075 CN	ME-45C 84%	08/21/2017			
DRILL	LER Sr	mith. R.	E.		s	TART DATE	E 03/20/*	18	COMP. DA				SURFACE WATER DEPTH N/A			RILLER	Smith. R	. E.		ST	ART DATE	03/20/18	3	С	
	DRIVE	,		W COL				PER FOOT		SAMP.					EL		,		w cou	_		BLOWS F			
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0 2	25	50	75 100	NO.		O G FI	SOIL AND ROCK DES	CRIPTION DEPTH ((f	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 5	60	75	
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