CONTENTS

5987B

REFERENCE

<u>SHEET NO.</u>	DESCRIPTION
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STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY_ROBESON

PROJECT DESCRIPTION 1-95 IMPROVEMENTS FROM US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE ON -Y7- (SR 1723-(PARKTON TOBEMORY RD.) OVER -L- (I-95) AT -L-STA. 883 + 36.60

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–5987B	1	11

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 1999 107-6860. 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 BORNICS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-FLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE ONSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS MOLATED IN THE SUBSURFACE RELIVESTIGATIONS AND REAS RECORDED AT THE TIME OF THE INVESTIGATION. THES WATER LEVELS OR SOL MOISTURE CONDITIONS MAY LARY CONSIDERABLY WITH THE ACCORDING TO CLIMATIC CONDITIONS NICLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OF CONTRACTOR IS CAUTIONED 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 DOES NOT WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION 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 INVESTIGATION AS HE DEEMS NECESSARY TO SATISY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDENTIONS OF CONTANT THE SIDE 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 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. 2.

PERSONNEL

F&R, INC.	
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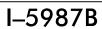


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

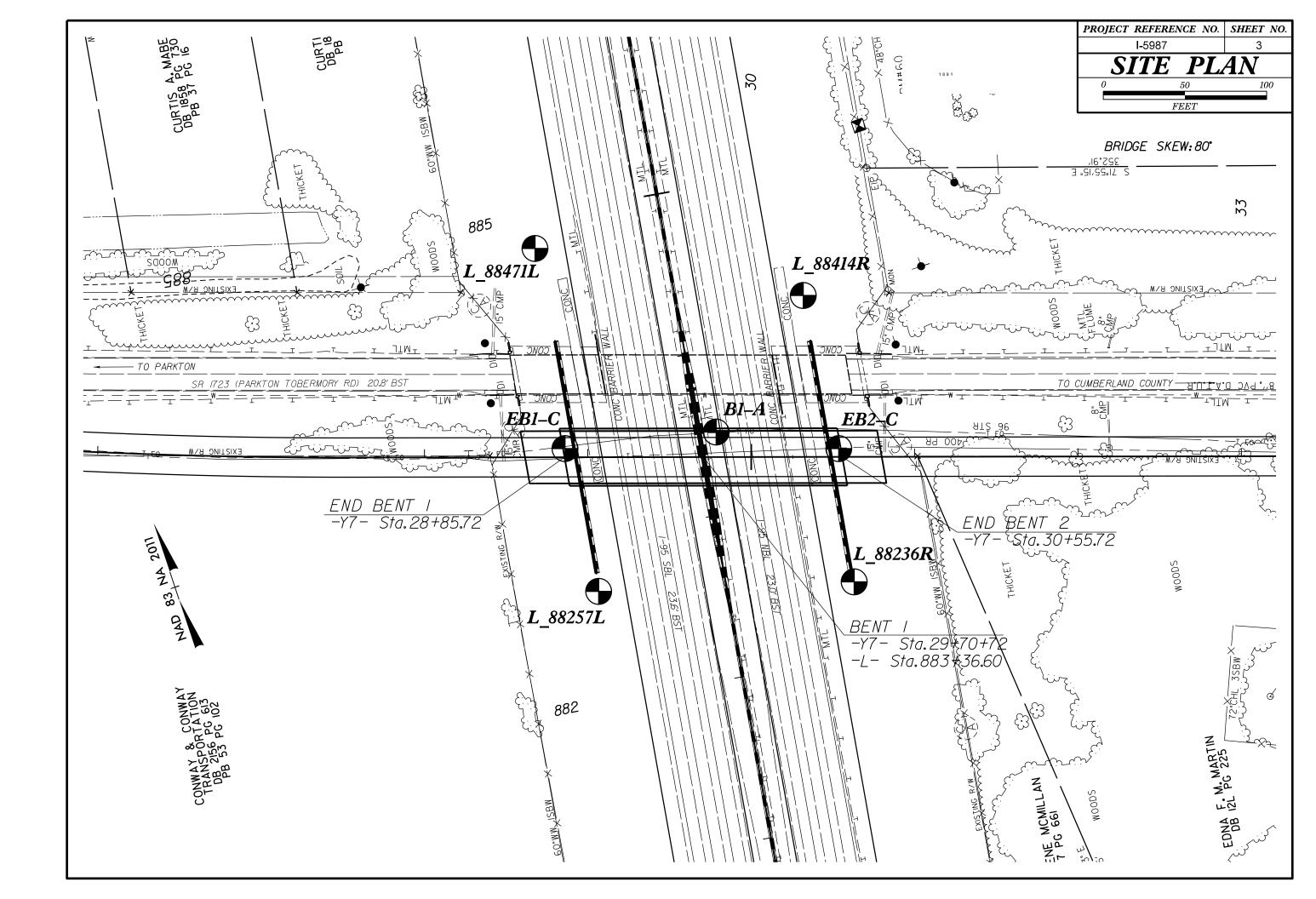
			SOIL	DESCI	RIPTI	<u>on</u>						G	RADATION						ROCK D	ESCRIPTION
BE PENETI ACCORDIN IS BA CONSISTE	RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLIDA A CONTINUOL STANDARD PEI HE AASHTO SY TEXTURE, MOI CLOAL COMPOSI	S FLIGHT PC ETRATION TE STEM. BASIC STURE, AASHT	DWER AUG EST (AAS DESCRIP O CLASS	GER AND SHTO T 2 PTIONS G SIFICATIO) YIELD LE 206, ASTM GENERALLY DN, AND OT	SS THAN 10 D1586). SO INCLUDE T HER PERTIN	00 BLOWS PI IL CLASSIFI HE FOLLOWI IENT FACTOF	ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATE	NDICATE	ES THAT SOIL IXTURE OF UN	PARTICLES ARE AL	LL APPROXI IZES OF TW	MATELY THE SAME SIZE.	ROCK LINE I SPT REFUSAI BLOWS IN N REPRESENTEI	INDICATE NL IS PE NON-COA D BY A	ES THE LEVE ENETRATION E ASTAL PLAIN ZONE OF WE	AIN MATERIAL THAT L AT WHICH NON-C BY A SPLIT SPOON	WOULD YIELD SPT REFUSAL IF TEST OASTAL PLAIN MATERIAL WOULD YIELD SAMPLER EQUAL TO OR LESS THAN Ø. RANSITION BETWEEN SOIL AND ROCK
AS V	S MINERALO	GICAL COMPOS RAY.SILTY CLAY.	TION, ANGULA NOIST WITH IN	TERBEDD	TRUCTURE DED FINE	SAND LAYE	ITY,ETC. FO RS.HIGHLY PL	JR EXAMPLE .ASTIC.A-7-6	•				F SOIL GRAINS IS D	ESIGNATED	BY THE TERMS:	WEATHERED	IHLS HE		3	UWS: AIN MATERIAL THAT WOULD YIELD SP1
		OIL LEGE		AASH	HTO C	LASSIF	ICATIO	N		ANGULAR, SUBAN			ICAL COMPOS			ROCK (WR)				FOOT IF TESTED.
GENERAL CLASS.	(GRANULAR MATER ≤ 35% PASSING 4 A-3	200)	(>	> 35% PASS	MATERIALS SING #200) A-6 A-7		RGANIC MATER	IALS		MES SU	ICH AS QUART	Z, FELDSPAR, MICA, 1	TALC, KAOLI		CRYSTALLINE ROCK (CR)	Ξ			GRAIN IGNEOUS AND METAMORPHIC RC PT REFUSAL IF TESTED. ROCK TYPE IN SCHIST.ETC.
	A-1-a A-1-b		A-2 2-5 A-2-6 A-2		6-H	A-0 A-7-5 A-7-6		A-4, A-5 A-6, A-7					PRESSIBILITY			NON-CRYSTAL	LLINE			: GRAIN METAMORPHIC AND NON-COASTA OCK THAT WOULD YEILD SPT REFUSAL
SYMBOL				3	474					SLIG+	HTLY C	OMPRESSIBLE Y COMPRESSIB	3LE	LL < 3 LL = 3		COASTAL PL	AIN			UDES PHYLLITE, SLATE, SANDSTONE, ET(SEDIMENTS CEMENTED INTO ROCK, BUT
% PASSING	000000000	000000000000000000000000000000000000000		- energiesene				SILT-			LY COM	IPRESSIBLE		LL > 5		SEDIMENTARY (CP)				OCK TYPE INCLUDES LIMESTONE, SANDS
*40 3	0 MX 0 MX 50 MX	51 MN					GRANULAR SOILS	CLAY SOILS	MUCK, PEAT			GRANULAR	AGE OF MATER	THL					WEA	THERING
MATERIAL PASSING •40 LL	_		MN 40 MX 41	MN 40 M)	x 41 MN	40 MX 41 MM	SOIL	S WITH		ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MATT MODERATELY ORGANIC	ATTER TER	<u>SOILS</u> 2 - 3% 3 - 5% 5 - 10%	SILT - CLAY <u>SOILS</u> 3 - 5% 5 - 12% 12 - 20%	TRACE LITTLI SOME	E 10 - 20% 20 - 35%	FRESH VERY SLIGHT (V SLI.)	HAMME ROCK	ER IF CRYSTAL GENERALLY FF	_LINE. RESH, JOINTS STAINE	INTS MAY SHOW SLIGHT STAINING. ROCK 2D, SOME JOINTS MAY SHOW THIN CLAY C E SHINE BRIGHTLY. ROCK RINGS UNDER H
PI GROUP INDEX USUAL TYPES S	6 MX Ø TONE FRAGS.	0 0	MX 11 MN 11 4 MX	8 MX	(12 MX	16 MX NO M	MOL X AMOL OR	Derate JNTS of Ganic	HIGHLY ORGANIC SOILS				> 20% JUND WATER BORE HOLE IMMEDIA			SLIGHT (SLI.)	of a Rock 1 Inch	CRYSTALLINE GENERALLY FF H. OPEN JOINT	NATURE. RESH, JOINTS STAINE S MAY CONTAIN CLA	D AND DISCOLORATION EXTENDS INTO RO Y. IN GRANITOID ROCKS SOME OCCASIONA
	GRAVEL, AND SAND		y or clayey El and sand		GILTY GILS	CLAYEY SOILS	M	ATTER					EVEL AFTER 24			MODERATE				CRYSTALLINE ROCKS RING UNDER HAMMEF DISCOLORATION AND WEATHERING EFFECT
GEN. RATING AS SUBGRADE		EXCELLENT TO G	000		FAIR TO	POOR	FAIR TO POOR	POOR	UNSUITABLE	 	PERC		SATURATED ZONE, OF		EARING STRATA	(MOD.)	GRANI [.] DULL	TOID ROCKS, M	IOST FELDSPARS ARE	E DULL AND DISCOLORED, SOME SHOW CLA SHOWS SIGNIFICANT LOSS OF STRENGTH
		PI OF A-7-5 SUB												<u></u>		MODERATELY	ALL R	ROCK EXCEPT (OR STAINED. IN GRANITOID ROCKS, ALL F
			ISISTENC	1		STANDARD		IGE OF UNC		+			ANEOUS SYMB	JLS		SEVERE (MOD. SEV.)	AND C	CAN BE EXCAV	ATED WITH A GEOLO	W KAOLINIZATION. ROCK SHOWS SEVERE L GIST'S PICK. ROCK GIVES "CLUNK" SOUND
PRIMARY SI		COMPACT CONSIS	TENCY	PENE	TRATION (N-VA)		E COM	PRESSIVE S (TONS/F1	STRENGTH	L ROADWAY EMBI			OF ROCK STRL	UCTURES	SLOPE INDICATOR	SEVERE (SEV.)	ALL R REDUC	ROCK EXCEPT (CED IN STRENC	STH TO STRONG SOLL	OR STAINED. ROCK FABRIC CLEAR AND E . IN GRANITOID ROCKS ALL FELDSPARS (
GRANULA	R	LOC			4 TO 10 TO			N/A					- 131 PM		/ INSTALLATION CONE PENETROMETER				SUME FRAGMENTS OF YIELD SPT N VALUES	STRONG ROCK USUALLY REMAIN. 5 > 100 BPF
	HESIVE)	DEN VERY VERY	DENSE SOF T	<u> </u>	30 TC > 5 < ;	50 2		< 0.25		THAN ROADWAY	Y EMBA		AUGER BORING	•	SOUNDING ROD	VERY SEVERE (V SEV.)	BUT M REMAII	MASS IS EFFEC	CTIVELY REDUCED TO TE IS AN EXAMPLE	OR STAINED. ROCK FABRIC ELEMENTS AF O SOIL STATUS, WITH ONLY FRAGMENTS OI OF ROCK WEATHERED TO A DEGREE THAT EMAIN. <u>IF TESTED, WOULD YIELD SPT N</u>
GENERAL SILT-CLA MATERIA (COHESIV	ΑY L	SO MEDIUM ST VERY	STIFF FF STIFF		2 TC 4 TC 8 TO 15 TC	08)15)30		0.25 TO 0.5 TO 1 1 TO 2 2 TO 4	1.0 ?				' MONITORING W △ PIEZOMETER INSTALLATION	4	TEST BORING WITH CORE SPT N-VALUE	COMPLETE	ROCK SCATT	REDUCED TO S	SOIL. ROCK FABRIC	NOT DISCERNIBLE, OR DISCERNIBLE ONLY IAY BE PRESENT AS DIKES OR STRINGER
		HA						> 4					NDATION SYME		-				ROCK	HARDNESS
U.S. STD. SIE	VE 0175	1	4 10			60 20	0 270					CLASSIFIED E			ASSIFIED EXCAVATION -	VERY HARD			HED BY KNIFE OR SI WS OF THE GEOLOGI	HARP PICK. BREAKING OF HAND SPECIMEN
OPENING (MM	1)		4.76 2.00		42 Ø	0.25 0.0	75 0.053				2 UN 1 UN	NSUITABLE WA	STE È EXCAVATION -	ACCEI ا <u>مگنداً</u> USED	PTABLE, BUT NOT TO BE IN THE TOP 3 FEET OF NKMENT OR BACKFILL	HARD	CAN B		BY KNIFE OR PICK	ONLY WITH DIFFICULTY. HARD HAMMER B
BOULDER (BLDR.)	(C	:0B.)	GR.)	SAI (CSE.	ND . SD.)	SAI (F S	ND 50.)	SILT (SL.)	CLAY (CL.)		AL	ABB	GRADABLE ROCK REVIATIONS - MEDIUM		- VANE SHEAR TEST	MODERATELY HARD	EXCAV		D BLOW OF A GEOLO	GOUGES OR GROOVES TO 0.25 INCHES DE GIST'S PICK. HAND SPECIMENS CAN BE D
GRAIN MM SIZE IN.	12	75 3 SOIL MOIS	2.0			ION OF	0.05	0.005 S) 	BT - BORING TERMINATED CL CLAY CPT - CONE PENETRATION		MICA. MOD	- MICACEOUS - MODERATELY NON PLASTIC	γ^{WE4}	- WEATHERED - UNIT WEIGHT - DRY UNIT WEIGHT	MEDIUM HARD	can B Can B	BE GROOVED OF	R GOUGED 0.05 INCH IN SMALL CHIPS TO	ES DEEP BY FIRM PRESSURE OF KNIFE C) PEICES 1 INCH MAXIMUM SIZE BY HARD
	MOISTURE ERBERG LIN	SCALE	FIELD M DESCR	10ISTURE	c l			ISTURE DES	SCRIPTION	CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAT	ST	ORG PMT -	- ORGANIC - PRESSUREMETER TI - SAPROLITIC	EST S	SAMPLE ABBREVIATIONS	SOF T	CAN B FROM	BE GROVED OR CHIPS TO SEV	GOUGED READILY B	Y KNIFE OR PICK. CAN BE EXCAVATED IN ZE BY MODERATE BLOWS OF A PICK POIN
		LIMIT	- SATUR (SAT					Y WET,USU ROUND WATE		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS		SD SL	SAND, SANDY SILT, SILTY SLIGHTLY	SS ST	- SPLIT SPOON - SHELBY TUBE - ROCK	VERY SOF T	CAN B	BE CARVED WIT DRE IN THICKN	TH KNIFE. CAN BE E	XCAVATED READILY WITH POINT OF PICK. N BY FINGER PRESSURE. CAN BE SCRATCH
PLASTIC RANGE <			- WET -	· (w)				DRYING TO)	FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES		- TRICONE REFUSAL MOISTURE CONTENT	RT	- RECOMPACTED TRIAXIAL R - CALIFORNIA BEARING			TURE SP		BEDDING
(PI) PL	PLASTI	C LIMIT			•		TIMUM MOI	STURE		HI HIGHLY		v - v	ERY		RATIO	TERM			SPACING	TERM
		M MOISTURE AGE LIMIT	- MOIST	- (M)	S	SOLID; AT	or near (PTIMUM MC	DISTURE	DRILL UNITS:	ADVA	ENT USEE ANCING TOOLS: CLAY BITS	ON SUBJEC :	HAMME	ECT R TYPE: NUTOMATIC MANUAL	VERY WID WIDE MODERATE		3 0SE 1	E THAN 10 FEET TO 10 FEET I TO 3 FEET 16 TO 1 FOOT	VERY THICKLY BEDDED THICKLY BEDDED 1 THINLY BEDDED 0. VERY THINLY BEDDED 0.0
			- DRY -	(D)			ADDITIONAI TIMUM MOI	_ WATER TO	D	Х СМЕ-45С		6" CONTINUOL	JS FLIGHT AUGER	CORE S		CLOSE VERY CLC	JSE		THAN 0.16 FEET	THICKLY LAMINATED 0.00 THINLY LAMINATED <
			PL	ASTIC	CITY						님	8" HOLLOW A		-в	□-н					JRATION
	PLASTIC	STIC	PLAS1	<u>TICITY I</u> Ø-5 6-15		<u>·D</u>	Ē	DRY STRENC VERY LOW SLIGHT		CME-550		TUNGCARBI	_			FOR SEDIMEN		UUKS, INDURA	RUBBING WIT	ENING OF MATERIAL BY CEMENTING.HE H FINGER FREES NUMEROUS GRAINS; W BY HAMMER DISINTEGRATES SAMPLE.
	ERATELY PI			16-25 26 OR M	MORE			MEDIUM HIGH		PORTABLE HOIST			∫ w∕ ADVANCER <u>2 ¹⁵∕16</u> •STEEL TEETH		OST HOLE DIGGER	MODEF	RATELY	INDURATED	BREAKS EAS	BE SEPARATED FROM SAMPLE WITH ST ILY WHEN HIT WITH HAMMER.
				COLO						1	□	TRICONE	• TUNGCARB.		OUNDING ROD	INDUR	≀ATED			DIFFICULT TO SEPARATE WITH STEEL O BREAK WITH HAMMER.
		INCLUDE COLO ICH AS LIGHT										CORE BIT			ANE SHEAR TEST	EXTRE	EMELY I	INDURATED		ER BLOWS REQUIRED TO BREAK SAMPLE AKS ACROSS GRAINS.

PROJECT REFERENCE NO.

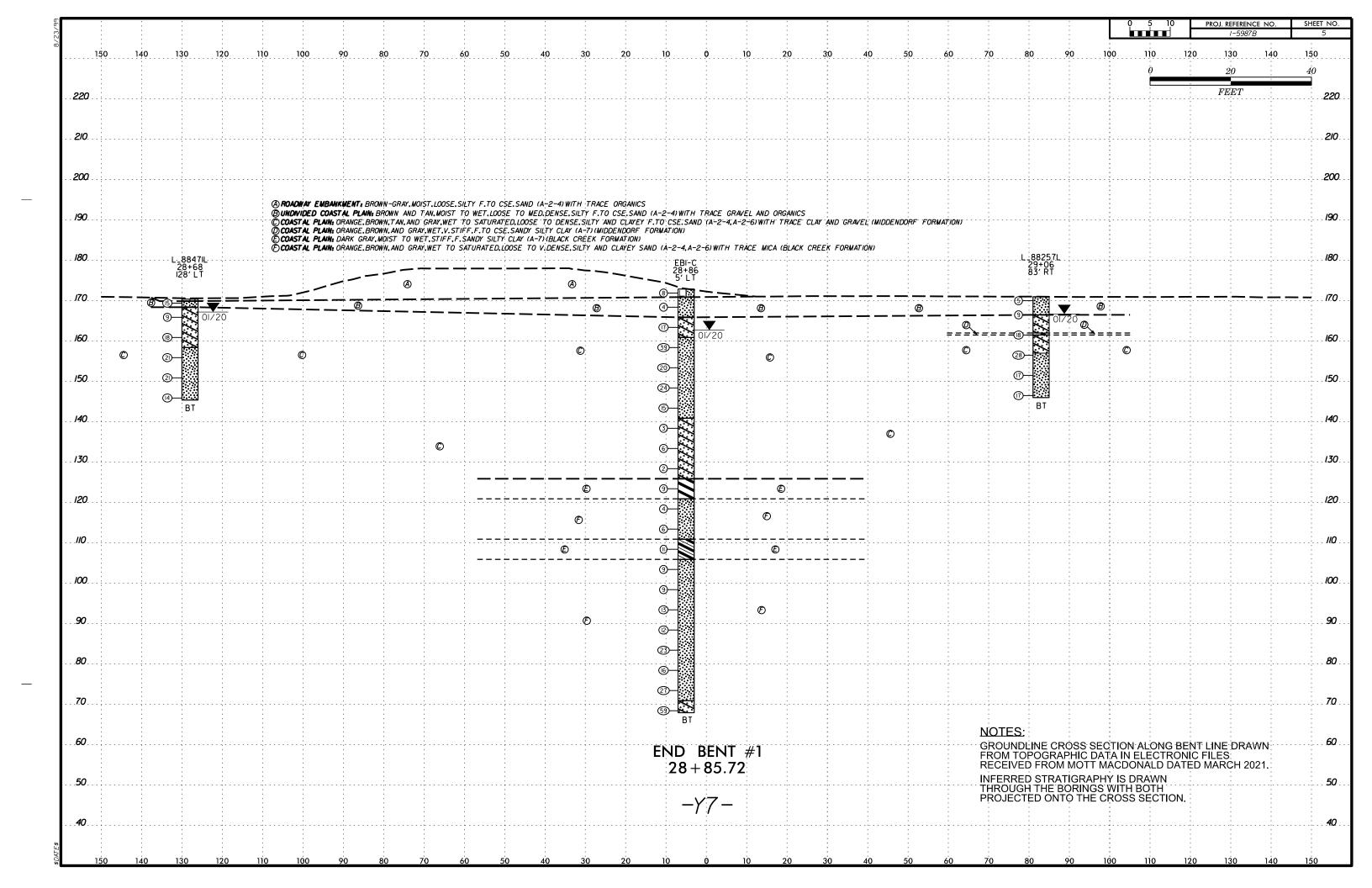


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	TERMS AND DEFINITIONS
D. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
N VALUES >	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
ICK THAT CLUDES GRANITE,	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN IF TESTED.	
C.	OF SLOPE.
MAY NOT YIELD	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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
	HORIZONTAL.
OATINGS IF OPEN, AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
СК ИР ТО	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN NY. ROCK HAS	<u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIG⊾NAL POSITION AND DISLODGED FROM PARENT MATERIAL.
AS COMPARED	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
ELDSPARS DULL OSS OF STRENGTH	FIELD.
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
VIDENT BUT	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
E DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
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
S. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF
	RUN AND EXPRESSED AS A PERCENTAGE.
	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
S 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.
EEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
ETACHED	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
R PICK POINT. BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF I FOUT INTO SUIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
520#5 0. IIIE	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
T. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
PIECES 1 INCU	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH IED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
-	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TIN3.TIN
THICKNESS	DATED 05/2I
4 FEET .5 - 4 FEET	ELEVATION: FEET
16 - 1.5 FEET	
3 - 0.16 FEET	
08 - 0.03 FEET 0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
AT, PRESSURE, ETC,	
EEL PROBE;	
PROBE:	
	DATE: 8-15-14



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				A 29+10/2 L 883 + 36.60			VE = 2.5		BRIDGI TOBEN	E ON -Y7- (SR 10RY RD.) OVE -L- STA. 883	1723 - PAI $R -L - (I - I)$	ККТС -95) А
	AY ENBANKNENT: BROWN AND GRAY, MOIST TO WET, LOOSE TO N	<u>BEGIN BRIDGE</u> 	2	883 883	END BRIDGE -Y7- STA 30+55.72	<u>-</u> L				–L– STA. 883	+36.60	
	AT ENBANKMENTS BROWN AND GRAF, MOIST TO WEI, LOOSE TO N DED COASTAL PLAINS RED, BROWN, AND TAN, MOIST TO WEI, LOOSE			STA								
	AL PLAIN: RED-BROWN, WET.V.STIFF.F.TO CSE.SANDY SILTY CLA AL PLAIN: RED, BROWN, ORANGE, WHITE, AND GRAY, SATURATED, LOO F.TO CSE.SAND (A-2-4, A-2-6) (MIDDENDORF FORMA)									1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
(E)COAST A	F.TO CSE.SAND (A-2-4,A-2-6) (MIDDENDORF FORMA) AL PLAIN: DARK GRAY AND BLACK MOIST TO WET STIFF TO V.S WITH TRACE MICA AND LITTLE WOOD FRAGMENTS (B	ION) TIFF, F, TO CSE, SANDY SILTY CLAY (A-6, A-7)						- - - -		1 1 1 1 1 1 1 1 1		
00 (F)coast a	AL PLAN, DARK GRAY, ORANGE, BROWN, AND BLACK, MOIST TO SAT SILTY AND CLAYEY F.TO CSE.SAND (A-2-4, A-2-6) (BL	URATED.LOOSE TO V.DENSE, ACK CREEK FORMATION)								· · · · · · · · · · · · · · · · · · ·		
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80		510 FB1	<u>-</u> C		SID FB2-C		PROPOSED GRADE					
		28+86 5' LT	5	SIO_BI-A 29+79 15′ I T	30+54 5' L T							-
70 — — -			₩ ,~-			<u> </u>	EXISTING GROUND			· · · · · · · · · · · · · · · · · · ·		
									~			_
60		() -										
		3	29	5								
50		Ø @-	- 0 ₂₉		0					1 1 1 1 1 1 1 1 1 1 1		
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210						
. 200		BUNDWIDED COASTAL PL COCOASTAL PLAN: RED.OR DCOASTAL PLAN: BLACK	AND DARK GRAY,WET,V.STIFF,F.SANDY SI	ET,LOOSE.SILTY F.TO CSE.SAND (A TURATED,LOOSE TO DENSE,SILTY LTY CLAY (A-7)WITH TRACE MICA	AND CLAYEY F.TO CSE.SAND (A-2-4.A-2-6) WITH TRACE CL AND LITTLE WOOD FRAGMENTS (BLACK CREEK FORMATION)	
			BROWN, AND DARK GRAY, SATURATED, LOOS	E TO V.DENSE.SILTY F.TO CSE.S	AND 1A-2-49 WITH TRACE MICA AND LITTLE CLAY IBLACK CI EB2-C 30+54	REEK FORMATION)
. 180		L_88414R 30+32 99' LT		<u>⊗</u>		30+63 76' RT
. 170	@	0 0 02/20				
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40					-77-	INFERRED STRATIGRA THROUGH THE BORIN PROJECTED ONTO TH
150 140	130 120 1	10 100 90	80 70 40 54) 40 20 0	0 10 0 10 20 20	40 50 40 70 80 00
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			0 5	5 10		EFERENCE NO 1-5987B	D. S⊦	ieet no. 6
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NOTES: GROUNDL	INE CRO	SS SEC	TION AL	ONG BE	: NT LINE	DRAWN		60
FROM TO	FROM	ΜΟΤΤ Μ	ACDONA	LD DATE	ED MARC	CH 2021.		
INFERRED THROUGH PROJECT	I THE BC	RINGS	VITH BO	тн				
FRUJEUI			1033 SE	UTION.				6
70 8	0 9	0 10	00 11	0 12	20 13	30 14	0 15	50

WBS	47533	3.1.1			Т	P I-5987B COUN	ITY ROBESC	N		GEOLOGIST W. Pesl	
			Bride	ge on -	Y7- (P	arkton Tobermory Road) over	-L- (I-95) at -L-	Sta. 883	+36.60		GROUND WTR (ff
	NG NO.			_		TATION 28+86	OFFSET			ALIGNMENT -Y7-	0 HR. N//
	AR EL				_	DTAL DEPTH 105,0 ft	NORTHING	-	q	EASTING 2,011,378	24 HR. 10,7
						CME-55 84% 03/01/2019				1	IMER TYPE Automatic
			n./DAT	L FAP							
	LER S			w co		TART DATE 01/06/20	COMP. DA	SAMP.		SURFACE WATER DEPTH	N/A
LEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft		-	0 25 50	75 100	NO.			ESCRIPTION
175											
	. 172.9									172.9 GROUND SUF	
		ŧ	1	3	5				мЦ	ROADWAY EMBA	
170	169.4	3.5	2	2	2					(A-2-4) with Trace	
		Ŧ	2						W	Brown-Tan, Silty Fine to	o Coarse SAND
165		Ŧ				:\. : : : : : : : :				(A-2-4) with Tra	
	164.4	- 8.5 -	11	8	9					Red-Brown-Gray, Silty	Clayey Fine to
		ŧ								Coarse SAND (A-2-6) (FORMATIC	DN)
160	159 / -	- - 13.5					· · · · · ·			Tan-Light Gray, Silty Fine	to Coarse SAND
ľ		+ '0.0	14	17	22	39			Sat	(A-2-4) with Trace Clay	
		t				. /					
155	154.4	18.5	7	9	11						
		ł	'	9		• 20	-		Sat		
150		Ŧ									
	149.4	+ 23.5 -	6	11	13				Sat		
		‡				· · · · / ²⁴ , · · · · · ·					
145	144 4-	-								¥4-	
ľ	<u>. 144.4</u>	1 <u>20.5</u>	10	8	7	15			Sat	81_ 31_	
		ł				. /				140.9	32
140	139.4	33.5				_/			<i></i>	Maroon-Brown-Light Gray	, Silty Clayey Fine
	•	Ŧ	3	1	2	$\left \left \mathbf{\Phi}_{3}^{*} \cdots \right \cdot \cdots \right \cdot \cdots \right \cdot $			Sat.	(MIDDENDORF FC	RMATION)
135		Ŧ				 				2 2 2	
	134.4	38.5	1	3	3				Sat.	× → → +	
		‡							Jul //	40 40 40 40 40 40 40 40 40 40 40 40 40 4	
130	100 4-	1 40 5								2 2 2	
1	129.4	<u>† 43.5</u>	2	1	1				Sat.	، ما	
		f				\				125.9	4
125	124.4	48.5			_					Dark Gray, Fine to Coa CLAY (A-7) with Trace	rse Sandy Silty
	•	Ŧ	3	4	5	∶∳9			w	CREEK FORM	
120		‡				:/: : :				120.9	5
120	119.4	53.5	2	2	2				Sot	Brown-Tan-Light Gray, (A-2-4) with Trace Clay a	and Coarse Sand
		‡	-	-		¶4			Sat	ÉLACK CREEK FC	RMATION)
115		<u> </u>					· · · · ·				
-	114.4	<u> </u>	2	3	3				Sat		
		Ŧ								110.9	62
110	109.4	63.5								Dark Gray, Fine Sandy	Silty CLAY (A-6)
Ī		‡	4	5	6	: ∳11 : : : : : : : :			w	with Trace Mica and Coal CREEK FORM	
105		‡				: : :: ::: :::					67
105	104.4	68.5	3	4	5					Dark Gray, Clayey Silty SAND (A-2-4) with Trac	Fine to Coarse e Mica and Clay
		ł		*		.•9			Sat	BLACK CREEK FC	
100		f									
	99.4 -	<u>† 73.5</u> †	3	4	5				Sat		
	•	‡								4	
95		<u>t</u>								×	

	47500														
	4753		<u> </u>			P I-5987B		(ROBESO			0	GEOLOGIST W. Pesl			
				_		arkton Tobermory Roa	u) over -L-			+36.6	U				•
		S10				TATION 28+86	<i>c</i> ,	OFFSET 5				ALIGNMENT -Y7-		HR.	N/.
		EV. 17				OTAL DEPTH 105.0	nt	NORTHING				EASTING 2,011,378		HR.	10.
			F./DATI	E F&F	-	CME-55 84% 03/01/2019	-		DRILL M) Mu		HAMMER T	YPE Aut	omatic
	LER S			W CO		TART DATE 01/06/2		COMP. DA	SAMP.)//20	1 L T	SURFACE WATER DEPTH	H N/A		
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft			4	PER FOOT	75 100	NO.	моі	0	SOIL AND ROCK	K DESCRIF		DEPTH
95	94.4	78.5		6			h Line	<u> </u>	_		-	Dark Gray, Clayey S	Silty Fine to	o Coarse	
90	89.4 -	+ + + 83.5						· · · · ·				SAND (A-2-4) with T (BLACK CREEK FOR)	race Mica MATION)	and Clay (continued	I)
85			4	5	7			· · · · · · · · · · · · · · · · · · ·		Sat.					
	84.4 -	+ 88.5 + + + +	10	11	12			· · · · ·		Sat.		-			
80	79.4 -	+ 93.5 + +	6	7	9			· · · · ·		Sat.		_			
75	74.4 -	- 98.5 -	11	11	16	27		· · · · · · · · · · · · · · · · · · ·		Sat.		-			
70	69.4 -	- 103.5	20	26	33		59			М		Gray, Silty Clayey Fir (A-2-6) with Trace Mi 67.9 FORMA	lica (BLAC	se SAND K CREEK	1010
	-											- (BLACK CREEK Not 1. Surficial Organ	es:		

GEOTECHNICAL BORING REPORT

SHEET 7

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												UG				
WBS	47533	.1.1			T	P I -5987	3		COUNT	Y RO	BESO	N			GEOLOGIST B. Painter	
SITE	DESCR	PTION	Bridg	je on -Y	7- (P	arkton Tob	ermory	Road	over -L	- (l-95)) at -L-	Sta. 883	3+36.6	0		GROUND WTR (ft)
BOR	NG NO.	S10_E	31-A		S	TATION 2	<u>2</u> 9+79			OFF	SET 1	15 ft LT			ALIGNMENT -Y7-	0 HR. N/A
COLI	AR ELE	V. 17	1.3 ft		т	OTAL DEP	TH 9	0.0 ft		NOR	THING	411,4;	39		EASTING 2,011,469	24 HR. 4.0
				E E & D 3		CME-55 82%						DRILL M) Mud		R TYPE Automatic
			JUAN		-					0.014				i Muu		
DRIL	LER D. DRIVE										P. DA	FE 01/2		1 L	SURFACE WATER DEPTH N/A	۸
ELEV (ft)	ELEV	DEPTH (ft)		W COU					ER FOOT		100	SAMP.	▼∕	ō	SOIL AND ROCK DESC	RIPTION
(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50)	75 I	100	NO.	/моі	G	ELEV. (ft)	DEPTH (ft)
175		_														
	-	-												-		
	171.3	0.0													171.3 GROUND SURFA	CE 0.0
170			3	4	9	13.							М	ĿĿ	ROADWAY EMBANK	
	- 167.8 -	- 3.5				• / • •		•••			•••		-	L L	Brown, Clayey Silty Fine to ((A-2-4) with Trace O	
	- 107.0	- 0.0	5	3	4								-w-	L.F		
165	_	-					· · ·							┞╠┖	164.3	7.0
	- 162.8 -	- - 8.5					· ·	•••			•••				UNDIVIDED COASTA	_ PLAIN
		- 0.0	18	17	8		₽ 25 .						W		161.8 Red-Brown, Clayey Silty Fi SAND (A-2-4)	ne to Coarse <u>9.5</u>
160	-						<u> </u>	•••		· · ·	• •			N	COASTAL PLA	N Sandy Silty <u>- 12.0</u>
	- 157.8 -	- - 13.5					1								Red-Brown, Fine to Coarse CLAY (A-7) (MIDDENDORF	
	-	-	13	14	15		\$ 29	•••			•••		W	0000	156.8 Red-Brown, Clayey Silty Fi	ne to Coarse14.5
155	-	-					_ <u>;</u>		· · · ·		· ·			• • • • •	SAND (A-2-4) (MIDDE 154.3 FORMATION)	
	- 152.8 -	- - 18.5						::			::				White, Fine to Coarse S	AND (A-3)
	-	-	7	12	17]	\$ 29						Sat.	-	(MIDDENDORF FORM Orange-White-Gray, Silty F	
150	_	-					1				· ·				ŠAND (A-2-4) (MIDDE	NDORF
	- 147.8 -	- - 23.5					/ ::	::			::				FORMATION)	
	-	-	10	9	11	• • • •	20						Sat.	-		
145	-	-												L		
	- 142.8 -	- - 28.5				:: <i>i</i> :		•••								
	-	_	7	7	7	14		::			::		Sat.	Ŀ		
140	_	-														
	- 137.8 -	- - 33.5	-											-		
	-	-	3	4	3	. ∳ 7 : :		•••					Sat.			
135	_	-								<u> </u>				-		
	132.8 -	- 38.5	2											F		
	-	-	3	5	5			::					Sat.			
130	_	-				⊢-;								-		
	127.8 -	- 43.5	<u> </u>		4									F		
105	-	-	2	2	4	6							W			
125	_	-				$ - \dot{\mathbf{x}} - $	<u> </u>			<u> </u>					<u>124.3</u>	47.0
130 125 120 115 110 105 100 95	122.8 -	- 48.5	5	6	8									\mathbf{N}	Dark Gray, Fine Sandy Silt with Trace Organics and N	
120	-	-	0		5	: : 🕈 14	::	::			::		м		CREEK FORMAT	
	-						+			1.				N	119.3Orange-Brown, Silty Claye	(Fine SAND 52.0
	117.8 -	- 53.5	2	3	4	$ \cdot j \cdot \cdot \cdot$		•••			••		w		(A-2-6) with Trace Mica (BL	ACK CREEK
115	-	-	-		•	• • 7 · · ·	::							<u>///</u>	FORMATION)	
	-	-					1									
	112.8 -	- 58.5 -	2	3	4	. . .		· ·			::		w			
110	-	-						•••			••			\sim		
	-						1							\sim		
	107.8 -	- 63.5 -	3	3	7		: :	::			::		Sat.		106.8	64.5
105	-	-				• 🕇 • •		•••			•••			N	Dark Gray, Fine Sandy Silt	/ CLAY (A-7)
	-	-				$\left \begin{array}{c} \cdot \cdot$	1							N	with Trace Organics and N CREEK FORMAT	
	102.8 -	- 68.5 -	4	6	7	: . <mark> </mark>	: :	::			::		w	N		
100	-	-				· · / · ·					· ·			N		
	-					- ;	1								99.3Orange, Silty Clayey Fine to	72.0 Coarse SAND
	97.8 -	- 73.5 -	3	3	4	./		::			::		Sat.		(A-2-6) (BLACK CREEK F	ORMATION)
95	-	-				. T (• •							\sim		
														اه . سحيد		

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	47533.1.1				P I -5987B		Y ROBESO				GEOLOGIST B. Painter	-		
			ge on -		arkton Tobermory Roa	d) over -L	· ·			60			1	D WTR (f
	NG NO. S10_I				TATION 29+79		OFFSET				ALIGNMENT -Y7-		0 HR.	N/.
	AR ELEV. 17				OTAL DEPTH 90.0 ft		NORTHING				EASTING 2,011,469		24 HR.	4.
			E F&F		CME-55 82% 03/01/2019			DRILL		D Mu	d Rotary			Automatic
DRILI	LER D. Tignor				TART DATE 01/21/2		COMP. DA				SURFACE WATER DEP	TH N/A	4	
ELEV (ft)	DRIVE ELEV (ft) (ft)	BLC 0.5ft	0.5ft		4	PER FOOT 50	Г 7 <u>5</u> 100	SAMP NO.		O G	SOIL AND ROO ELEV. (ft)	CK DESC	CRIPTION	DEPTH
95					Matc	h Line					94.3Grav Clavey Silty			
90	92.8 + 78.5 + + +	6	8	10	1 · · · · · · · · · · · · · · · · · · ·	· · · ·			Sat.		94.3 Gray, Clayey Silty (A-2-4) with Trace FORM	Mica (BL MATION)	ACK CRE	EK
85		4	5	7	• • • • • • • • • • • • • • • • • • •	· · · · ·			w					
	82.8 = 88.5 +	4	7	11	· · · · · · · · · · · · · · · · · · ·			_	w		- Boring Terminated	Lat Floyr	tion 91 21	<u>9</u>
											SILTY SAND (COA CREEK F	STAL PL	LAIN) (BLA	ACK
	+										1. Surficial Org	otes: ganic Soi	il: 0.0-0.2'	
											-			
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GEOTECHNICAL BORING REPORT

BORF I OG

SHEET 8

						B	ORE LOG		
WBS	47533	3.1.1			TI	IP I-5987B COUNT	Y ROBESON	GEOLOGIST W. Pesl	1
SITE	DESCR	IPTION	Bridg	ge on -	Y7- (P	Parkton Tobermory Road) over -L	- (I-95) at -L- Sta. 883+36.60		GROUND WTR (ft)
BORI	NG NO.	S10_	EB2-C	;	S	TATION 30+54	OFFSET 5 ft LT	ALIGNMENT -Y7-	0 HR. N/A
COLL	AR EL	EV. 17	′3.6 ft		Т	OTAL DEPTH 105.0 ft	NORTHING 411,406	EASTING 2,011,537	24 HR. Caved
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F	R2175 (CME-55 84% 03/01/2019	DRILL METHOD	Mud Rotary HAMI	MER TYPE Automatic
DRILL	.ER S	Davis			S	TART DATE 01/14/20	COMP. DATE 01/15/20	SURFACE WATER DEPTH	I/A
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT	BLOWS PER FOO	r SAMP. ▼	- SOIL AND ROCK DE	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50		G ELEV. (ft)	DEPTH (f
175									
_	173.6 ·	0.0	2	2	2			173.6 GROUND SUR	
		Ŧ	2	2				ROADWAY EMBAI	e SAND (A-2-4)2.
170	170.1	3.5	3	3	3			with Trace Gravel an	
	•	ŧ				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$		Brown, Silty Fine to Coars	. ,
165	165.1	8.5						<u>; 166.6</u> COASTAL PL	
100		- 0.0	4	6	8		· · · · · · · · · · · · · · · · · · ·	Red-Orange-Brown, Claye SAND (A-2-6) (MIDE	y Fine to Coarse DENDORF
	•	ŧ				/		FORMATIO	N)
160	160.1	13.5	3	3	2				
		‡				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$	Sat.		
		÷				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$		0range-Brown-Light Gra	v. Silty Fine to 17
155	155.1	18.5	11	12	11		Sat.	Coarse SAND (A-2-4) w (MIDDENDORF FOR	ith Trace Clay
	•	ł				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \end{array} \right \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right $			
150	150.1	23.5				· · · <i> </i> · · · · · · · · ·			
		ł	6	7	9	16	Sat.		
		Ŧ						*** *** ***	
145	145.1	28.5	11	12	13		Sat		
		ŧ							
140	140.1	33.5						Light Gray-Orange-Tan,	Clayey Fine to 32
140	_140.1_	- 33.5	2	2	3	4 5	Sat.	Coarse SAND (A-2-6) (N FORMATIO	
		ŧ.				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c $		↓ ↓ 136.6	, 37.
135	135.1	38.5	F	7				Orange-Brown-Light Gra	iy, Silty Fine to
		ŧ	5	'	'		Sat.	Mica (MIDDENDORF F	ORMATION)
		Ł				: /: : : : : : : : : :			
130	130.1	43.5	4	3	5		Sat.		
		Ł							
125	125.1	48.5] : : : : : : : : : : : :			
		F	3	3	4	● 7 • • • • • • • • • • • • • • • • • • •	Sat.		
	•	Ŧ							
120	120.1	53.5	3	2	5				
	•	ŧ	Ĭ	-			Sat.		
115	115 4 ·							Black-Dark Gray, Fine Sa	
115		58.5	11	13	17			(A-7) with Trace Mica an Fragments (BLACK CREE	nd Little Wood
		‡							62.
110	110.1	63.5	_		<u> </u>			Orange-Brown to Dark Gi Coarse SAND (A-2-4) with	ay, Silty Fine to
		ŧ	5	4	4		Sat.	Little Clay (BLACK CREE	
		ŧ							
105	105.1	68.5	3	3	4				
	•	Ŧ				$\left \left \begin{array}{c} \P' & \cdots \\ \P & \left \begin{array}{c} \cdots \\ \cdots \\ \Pi \end{array} \right \right = \left \begin{array}{c} \cdots \\ \cdots $		••• •• •	
100	100.1	73.5							
100	_100.1_	+ (3.5 -	3	3	4		Sat.	₩ -	
		‡							
95	95.1	78.5] • • • • • • • • • • • •	• • • •		

WBS	47533	.1.1			TI	IP I -5987B		COUNT	Y ROBESC	N			GEOLOGIST W. Pesl			
SITE	DESCR	PTION	Bride	ge on -	Y7- (P	arkton Tobe	ermory Roa	d) over -L	- (I-95) at -L-	Sta. 88	3+36.6	0			GROUND) WTR (ff
	NG NO.			-		TATION 3	-	,	OFFSET				ALIGNMENT -Y7-		0 HR.	N//
	AR ELE				Т	OTAL DEP	FH 105.0	ft	NORTHING	4 11,4	.06		EASTING 2,011,537		24 HR.	Cave
				E F&F		CME-55 84%			I) Mu		НАММ	J ER TYPE /	Automatic
	LER S				-			0	COMP. DA				SURFACE WATER DEF			
LEV	DRIVE ELEV	DEPTH	BLC	w co	UNT		BLOWS	PER FOO	Г	SAMP.		L	SOIL AND RO			
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо		ELEV. (ft)		SKIPTION	DEPTH
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	-	+	-								Sat.	-	. Coarse SAND (A-2	-4) with 1	Frace Mica a	and
90	- 90.1	83.5										-	Little Clay (BLÀCK	ntinued)	FURIMATIC	(N)
			3	4	5	· • • 9 · ·			••••		Sat.		-			
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85	85.1	88.5	5	5	9			+ • • • •			Sat.		- -			
	-	E														
80	80.1	93.5						· · · ·			1		_			
	-	ŧ –	7	13	15		•28· · ·				Sat.					
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75	75.1	98.5	14	15	14	1	●29 · ·	· · · ·			Sat.		-			
	-	Ļ														
70	70.1	103.5	40	44	51			`` `				-	_			
ł		-	40	44	51				••••99	5	Sat.		- 68.6 Boring Terminated	d at Eleva	ation 68.6 ft	10 in
	-	ł											SILTY SAND (COA CREEK F	ASTAL P	LAIN) (BLA	CK
	-	+											-	lotes:	,	
	-	+											1. Surficial Or 2. Boring caved-ir	at 5.5' a	fter 24 hour	s,
	-	t t											probable gr	oundwat	er level	
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GEOTECHNICAL BORING REPORT

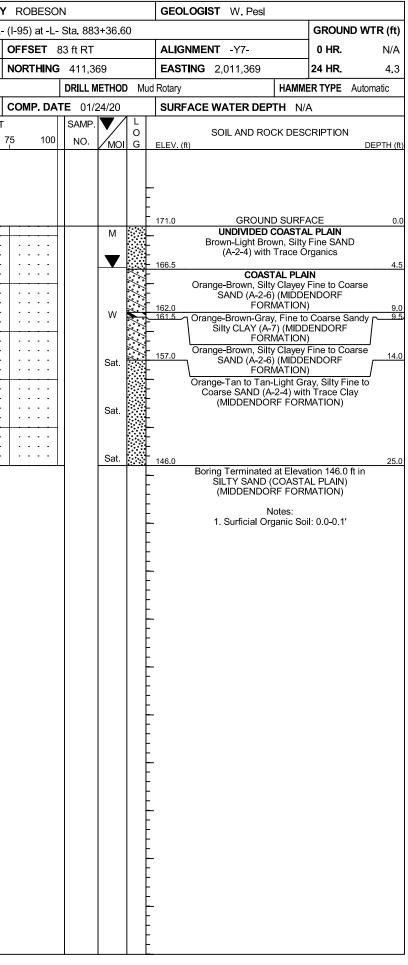
SHEET 9

													L	OG			_				
WBS	47533	.1.1			Т	IP I -59	987B			COUN	ITY F	ROBE	sor	N			GEOLOG	ST W. Pesl			
SITE	DESCR	PTION	Bridg	ge on -	Y7- (F	Parkton	Tober	rmory	Road	l) over	-L- (I-	95) at	-L-	Sta. 883	+36.6	0				GROUN	ND WTR (ft)
BOR	NG NO.	L_884	471L		s		N 28	3+68			OF	FSET	1	28 ft LT			ALIGNME	NT -Y7-		0 HR.	N/A
COLL	AR ELE	EV. 17	'0.4 ft		Т	OTAL I	DEPT	H 25	5.0 ft		N	ORTH	NG	411,58	31		EASTING	2,011,399		24 HR.	3.2
DRILL	RIG/HAM	IMER EF	F./DAT	E F&F	R2175 (CME-55	84% (03/01/2	2019					DRILL M	ETHOD) Mu	d Rotary		HAMM	ER TYPE	Automatic
DRILI	LER S.	.Davis			s	TART	DATE	01/	24/20)	C	OMP. I	DAT	TE 01/2	24/20		SURFACE	E WATER DEP	TH N//	4	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		OW CO 0.5ft	-	0	2	BLO 25	WS P 5	ER FO	OT 75	1	00	SAMP. NO.		L O G	ELEV. (ft)	SOIL AND RO	CK DESC	CRIPTION	l DEPTH (ft
175	-	-															— • •				
170		<u> </u>	2	8	7		9 15	<u></u>					-		М		<u>170.4</u>		EMBAN	MENT	<u>8.6</u>
	166.9	3.5				:;	/:::	· ·	•••		•		•		▼			ark Brown, Silty \-2-4) with Trace	Gravel a	and Orgar	
165		-	3	4	5		9 · · <u>)</u> · ·		· ·	· · · ·		· · ·			W			UNDIVIDED Fan-Light Brown SAND (A-2-4) v	, Silty Fir vith Trac	ie to Coar e Organic	se
	161.9	8.5	13	8	10		۱۰ ۱۰		· · · ·		-	· · ·	:				• O	range-Brown-Gra	TAL PLA ay, Silty (Clayey Fir	ie to
160	-		15				• • 18		· · ·	· · · ·	-	· · ·	•		W		· C - · 158.4	Coarse SAND (A FORI	-2-6) (MI MATION	DDENDO)	RF <u>12.0</u>
	- 156.9 -	- 13.5	10				. l		· · · ·	· · ·	•	· · ·	:				·	Drange-Brown-Li	ght Gray	Silty Fine	e to
155	-	+	12	9	12		· •2	21 • • • •	•••	· · ·	•	· · ·	-		Sat.	-	-	(MIDDENDO	RF FORM	MATION)	
	- - 151.9 -	18.5					:1		· · · ·		-	· · ·	:			-					
150	- 151.9	- 18.5	8	9	12	1	. . . ∳₂	• • 21 • •	· · · ·	· · · ·	-	· · ·	:		Sat.						
	-	F					· į.		•••			· · · ·	•			-					
-	146.9	23.5	7	4	10				•••		-	· · ·	-		Sat.	E	145.4				25.0
																			PLAIN) (ľ MATION lotes:	MIDDEND)	ORF

WBS 47533.1.1 TIP I-5987B COUNT SITE DESCRIPTION Bridge on -Y7- (Parkton Tobermory Road) over -L- BORING NO. L_88257L STATION 29+06 COLLAR ELEV. 171.0 ft TOTAL DEPTH 25.0 ft DRILLER S.Davis START DATE 0.001/2019 DRILLER S.Davis START DATE 01/24/20 ELEV PRIVE (ft) DEPTH BLOW COUNT (0.5ft 0.5ft 0.5ft 0.5ft 0.25 0 25 50 175 BLOW SPER FOOT (0.5ft 0.5ft 0.5ft 0.5ft 0.2ft 0.2												B	5
BORING NO. L_88257L STATION 29+06 COLLAR ELEV. 171.0 ft TOTAL DEPTH 25.0 ft DRILL RIGHAMMER EFFJDATE F&R2175 CME-55 84% 03/01/2019 DRILLER S.Davis START DATE 01/24/20 ELEV DRIVE (ft) DEPTH (ft) BLOW COUNT (ft) BLOWS PER FOOT 175 0.0 1 2 3 176 171.0 0.0 1 2 176 171.0 0.0 1 2 176 171.0 0.0 1 2 3 165 162.5 8.5 10 7 11 166 10 7 11 18 10 155 13.5 10 12 16 12 16 150 147.5 23.5 6 8 9 17 11 160 12.5 18.5 7 10 17 10 150 147.5 23.5	1	WBS	47533	.1.1			Т	P	I-5987B			COUNT	٦
COLLAR ELEV. 171.0 ft TOTAL DEPTH 25.0 ft DRILL RIS/HAMMER EFF/DATE F&R2175 CME-55 84% 03/01/2019 DRILLER S.Davis START DATE 01/24/20 ELEV DEPTH (ft) BLOW COUNT (ft) BLOWS PER FOOT 0 25 50 175 171.0 0.0 1 2 3 45	3	SITE	DESCR	IPTION	Bridg	je on -	Y7- (P	ar	rkton Tobe	rmory	Road	d) over -L	
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DRILLER S.Davis START DATE 01/24/20 ELEV (ft) DRIVE (ft) DEPTH (ft) BLOW COUNT 0.5ft 0.25 50 175 1 2 3 5 1 170 1 2 3 5 1 165 3.5 2 4 5 1 1 165 10 7 11 1 1 1 1 165 10 7 11 1													
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			152.5	18.5	5	7	10						-
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GEOTECHNICAL BORING REPORT

BORE LOG

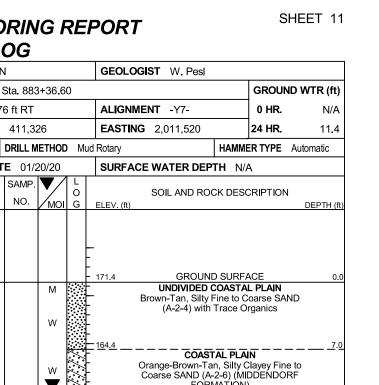


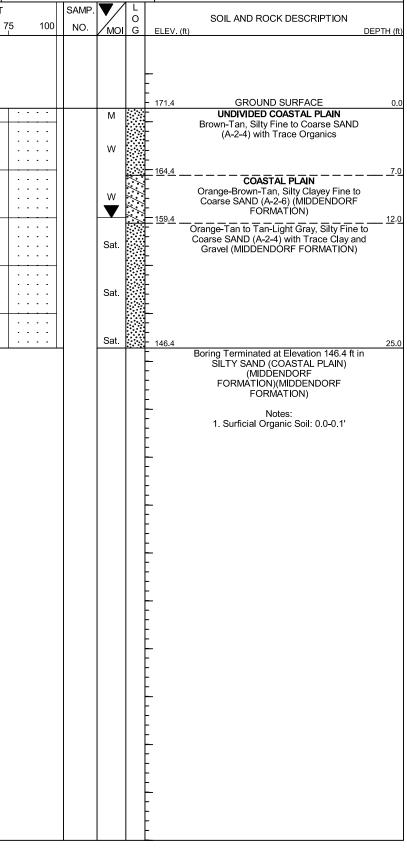
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	47533					P I -5987		COUNT						GEOLOGIST B. Painter		
SITE	DESCR	PTION	Brid	ge on -	-Y7- (P	arkton Tob	ermory Roa	ad) over -L	- (l-95)	at -L-	Sta. 883	+36.6	0) WTR (ft)
BOR	ng no.	L_88	414R		S	TATION :	30+32		OFFS	ET 🤉	99 ft LT			ALIGNMENT -Y7-	0 HR.	N/A
COLL	AR ELE	EV. 17	′1.0 ft		<u>т</u>	OTAL DEF	TH 25.01	ft	NORT	HING	411,50)2		EASTING 2,011,546	24 HR.	4.0
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F	R3495 (CME-55 82%	6 03/01/2019				DRILL M	ETHO	D Mu	d Rotary HAMM	ER TYPE	Automatic
DRILI	L ER R	Clarke) 		S	TART DAT	E 02/04/2	20	COMF	P. DA	TE 02/0	04/20		SURFACE WATER DEPTH N/	A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	·	OW CO 0.5ft	-	0	BLOWS	PER FOO ⁻ 50 1	Г 75	100	SAMP. NO.		L O G	SOIL AND ROCK DES	CRIPTION	DEPTH (ft)
175		-												-		
170	171.0	0.0	1	1	3							М		171.0 GROUND SURF		0.0
	-					Y ⁴						_		Brown-Orange, Clayey Silty SAND (A-2-4	Fine to Coa	rse
ŀ	167.5 -	- 3.5	1	3	6	. .						-M-			/	
165	-	F														7.0
	162.5 -	8.5	15	19	22								///	COASTAL PLA Orange, Clavey Fine to C	JN oarse SAND)
160	-	F	15	19				1				М		Orange, Clayey Fine to C (A-2-6) (MIDDENDORF F	ORMATION	1)
		F					/						//			
ł	157.5 -	† 13.5 	12	15	15							W	\mathbb{N}			
155	-	F											/./	 		17.0
	- 152.5 -	18.5					:) : : :							Orange-White, Silty Fine to (A-2-4) with Trace Gravel (ND
150	-	t t	11	16	16		4 32					W		FORMATION		
	-	F					· · · · · ·			•••				_		
ł	147.5 -	23.5	7	15	17					::		w		146.0		25.0
Ī	-	-												Boring Terminated at Eleva SILTY SAND (COAST		
	-	+												. SILLY SAND (COAST . (MIDDENDORF FOR	MATION)	
	-	+												Notes:		
	-	+												 1. Surficial Organic So 	al: 0.0-0.1'	
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WBS	47533	3.1.1			TI	P I -5987B	COUNT	Y ROBESO	N	
				je on -		arkton Tobermory Roa	d) over -L	- (I-95) at -L-	Sta. 883	3+36.60
BOR	NG NO.	L_882	236R		S	TATION 30+63			76 ft RT	
	_AR ELI					DTAL DEPTH 25.0 ft		NORTHING	411,3	26
			F./DATE	E F&F		CME-55 84% 03/01/2019				IETHOD
DRIL	LER S		1			TART DATE 01/20/2		COMP. DA		
ELEV (ft)	DRIVE ELEV	DEPTH (ft)	BLC 0.5ft	W CO 0.5ft	UNT 0.5ft		PER FOOT 50	75 100	SAMP. NO.	
()	(ft)	()	0.51	0.51	0.51			100	NO.	/мог (
175		ł								
170		<u> </u>	1	2	3	<u></u> 5				м
	167.9 .	3.5								
	-		1	1	5					W
165	-	F								
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155	-	Ł					· · · ·	<u> </u>		
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GEOTECHNICAL BORING REPORT

BORE LOG





CONTENTS

5987B

REFERENCE

<u>SHEET NO.</u>	DESCRIPTION
I	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-8	CROSS SECTIONS
9-19	BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER BIG MARSH SWAMP AT -L- STA. 586+14.00

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	I–5987B	1	19

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 1999 107-6860. 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 BORNICS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-FLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE ONSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS MOLATED IN THE SUBSURFACE RELIVESTIGATIONS AND REAS RECORDED AT THE TIME OF THE INVESTIGATION. THES WATER LEVELS OR SOL MOISTURE CONDITIONS MAY LARY CONSIDERABLY WITH THE ACCORDING TO CLIMATIC CONDITIONS NICLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIODER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBJURFACE 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 OPHION 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 SATISFY INVESTIGATIONS TO CONTINNS TO BE ENCOUNTERED. THE GIDDER OR 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: 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 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. 2.

PERSONNEL

	Μ	.A.D.
	W	'EIS, J.M.
	L	4NE, R.W.
	FE	FR, INC.
D	BY _	GOODNIGHT, D.J.

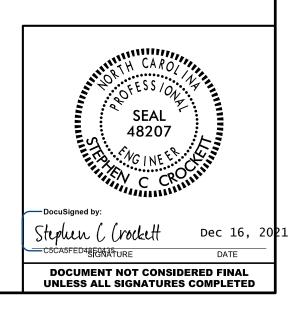
INVESTIGATE

DRAWN BY __CROCKETT, S.C.

CHECKED BY <u>HAMM, J. R.</u>

SUBMITTED BY ______

DATE _____ DECEMBER 2021

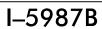


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

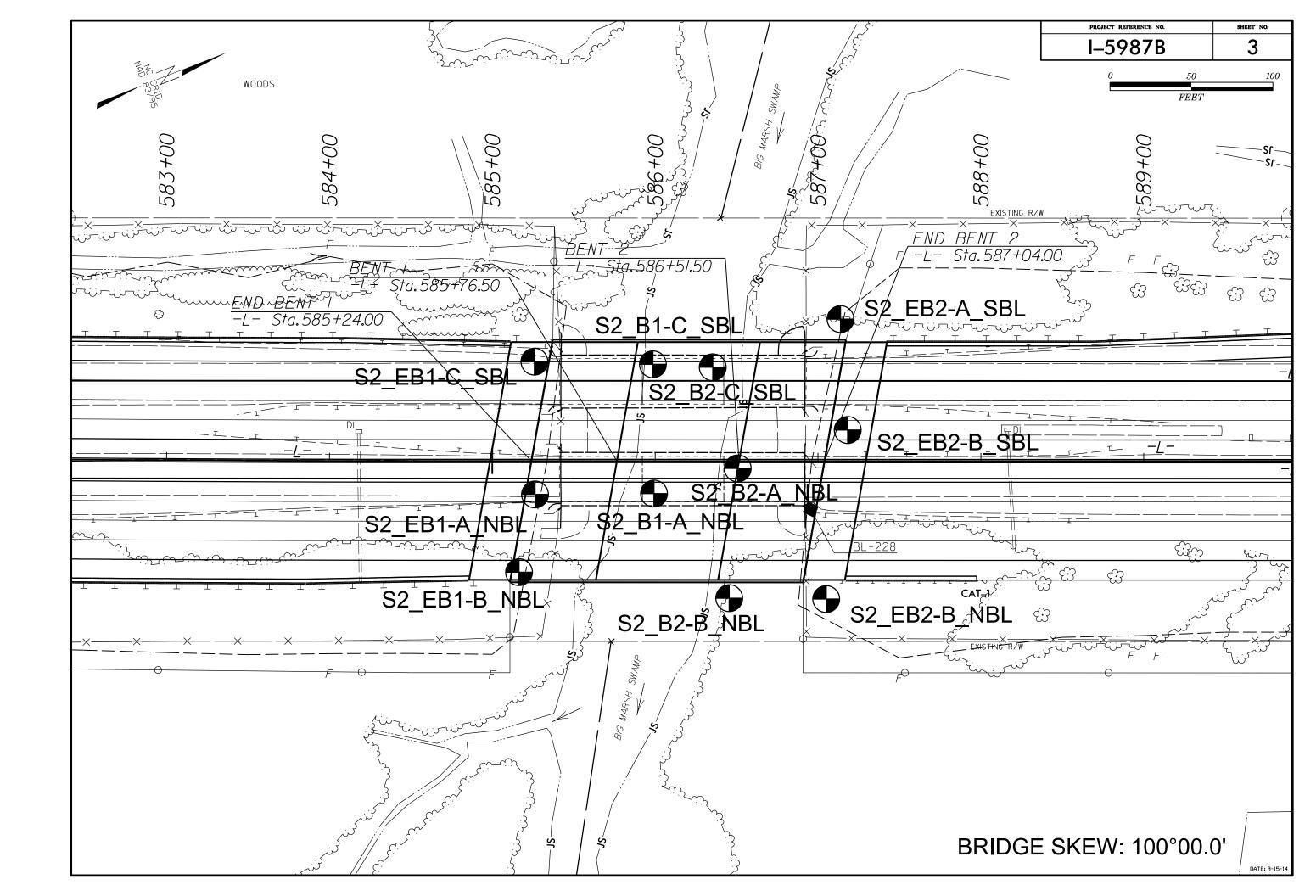
SOI	DESCRIPTION		GRADATION		ROCK DESCRIPTION
BE PENETRATED WITH A CONTINUOUS FLIGHT ACCORDING TO THE STANDARD PENETRATION IS BASED ON THE AASHTO SYSTEM BA	CONSOLIDATED, OR WEATHERED EARTH MATERIALS T POWER AUGER AND YIELD LESS THAN 100 BLOWS I TEST (AASTHO T 206, ASTM DI586), SOIL CLASSIF IC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOW	PER FOOT TCATION /ING:	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROX GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TH	IMATELY THE SAME SIZE.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TE ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIE SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER COULD TO OR LESS THAN BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROC DEDECEMTED BY A JOINT OF MEATURED DOCK.
AS MINERALOGICAL COMPOSITION, AND	HTO CLASSIFICATION, AND OTHER PERTINENT FACTO JLARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLI	Ε,	ANGULARITY OF GRAINS THE ANGULARITY OF ROUNDNESS OF SOIL GRAINS IS DESIGNATED		REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:
	INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	5	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	BI THE TERMS:	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD S ROCK (WR) 100 BLOWS PER FOOT IF TESTED.
GENERAL GRANULAR MATERIALS CLASS. (≤ 35% PASSING ■200)	SILT-CLAY MATERIALS (> 35% PASSING =200) ORGANIC MATE	RIALS	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOL	IN. ETC.	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE
GROUP A-1 A-3 A-2	A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5		ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF		RUCK (CH) CNEISS, GABBRO, SCHIST, ETC.
CLASS. A-1-6 A-1-6 A-2-4 A-2-5 A-2-6	A-2-7 A-7-5 A-3 A-6, A-7				NON-CRYSTALLINE SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSA ROCK (NCR) ROCK THAT WOULD YEILD SPT REFUSA
SYMBOL 000000000			SLIGHTLY COMPRESSIBLE LL < 3 MODERATELY COMPRESSIBLE LL = 3	31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, B
2 PASSING *10 50 MX	GRANULAR SILT-	миск,	HIGHLY COMPRESSIBLE LL > 5 PERCENTAGE OF MATERIAL	00	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SAM
■40 30 MX 50 MX 51 MN ■200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX	SOILS CLAY	PEAT	GRANULAR SILT - CLAY		WEATHERING
MATERIAL PASSING *40 LL 40 MX 41 MN 40 MX	41 MN 48 MX 41 MN 48 MX 41 MN SOILS WITH		ORGANIC MATERIAL SOILS SOILS OTT TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTL MODERATELY ORGANIC 5 - 18% 12 - 28% SOME HIGHLY ORGANIC > 10% > 20% HIGHL	E 10 - 20% 20 - 35%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROC HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER
PI 6 MX NP 10 MX 10 MX 11 MN GROUP INDEX 0 0 0 4	II MN 10 MX 10 MX II MN II MN MODERATE	HIGHLY ORGANIC SOILS		T 35% AND ABOVE	OF A CRYSTALLINE NATURE. SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO
USUAL TYPES STONE FRAGS. OF MAJOR GRAVEL, AND SAND GRAVEL AND SA		50125	WATER LEVEL IN BORE HOLE IMMEDIATELY AFT	ER DRILLING	(SLI.) I INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIC CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAM
MATERIALS SAND	FAIR TO		▼ STATIC WATER LEVEL AFTER 24 HOURS √PW PERCHED WATER, SATURATED ZONE, OR WATER B	EARING STRATA	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFE (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW (C
AS SUBGRADE	FAIR TO POOR POOR POOR	UNSUITABLE	- O-MA- SPRING OR SEEP		DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENC WITH FRESH ROCK.
	LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30		MISCELLANEOUS SYMBOLS		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE
	RANGE OF STANDARD RANGE OF UN				(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUN
PRIMARY SOIL TYPE CONSISTENCY GENERALLY VERY LOOSE CONVERT	PENETRATION RESISTENCE COMPRESSIVE (N-VALUE) (TONS/F (4 4 TO 10)		ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION SOIL SYMBOL SOIL SYMBOL	SLOPE INDICATOR	IF TESTED, WOULD YIELD SPT REFUSAL SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND (SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPAR TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.
MATERIAL MEDIUM DENSE	10 TO 30 N/A 30 TO 50		ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT AUGER BORING	CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF
(NON-COHESIVE) VERY DENSE VERY SOFT GENERALLY SOFT	> 50 < 2 < 0.2 2 TO 4 0.25 TO			SOUNDING ROD	SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS IV SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE TH VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT I</u>
SILT-CLAY MEDIUM STIFF MATERIAL STIFF (COHESIVE) VERY STIFF	4 TO 8 0.5 TO 8 TO 15 1 TO 15 TO 30 2 TO	2 4	TTETTE INFERRED ROCK LINE MONITORING WELL	TEST BORING WITH CORE SPT N-VALUE	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONU SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRING ALSO AN EXAMPLE.
	E OR GRAIN SIZE		RECOMMENDATION SYMBOLS		ROCK HARDNESS
U.S. STD. SIEVE SIZE 4	10 40 60 200 270		UNCLASSIFIED EXCAVATION - T	ASSIFIED EXCAVATION -	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIM SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.
OPENING (MM) 4.76	.00 0.42 0.25 0.075 0.053			PTABLE,BUT NOT TO BE IN THE TOP 3 FEET OF ANKMENT OR BACKFILL	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER TO DETACH HAND SPECIMEN.
BOULDER COBBLE GRAVEL (BLDR.) (COB.) (GR.)	SAND SAND SILT (CSE, SD.) (F SD.)	CLAY (CL.)	ABBREVIATIONS	T - VANE SHEAR TEST	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE BY MODERATE BLOWS.
SIZE IN. 12 3	- CORRELATION OF TERMS	G	BT - BORING TERMINATED MICA MICACEOUS WE CL CLAY MOD MODERATELY γ	A WEATHERED - UNIT WEIGHT	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFF HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HA
SOIL MOISTURE SCALE FIEL	CRIPTION GUIDE FOR FIELD MOISTURE DE	ESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST	- DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK PI
	URATED - USUALLY LIQUID; VERY WET, USU (AT.) FROM BELOW THE GROUND WAT		e - VOID RATIO SD SAND, SANDY SS F - FINE SL SILT, SILTY ST	- BULK - SPLIT SPOON - SHELBY TUBE - ROCK	PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PI SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRA'
PLASTIC - WE	- (W) SEMISOLID; REQUIRES DRYING T ATTAIN OPTIMUM MOISTURE	0	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT	- RECOMPACTED TRIAXIAL R - CALIFORNIA BEARING	FINGERNAIL. FRACTURE SPACING BEDDING
	HTTHIN OF TIMOM MOISTORE		HIHIGHLY V-VERY	RATIO	TERM SPACING TERM
OM _ OPTIMUM MOISTURE - MO SL _ SHRINKAGE LIMIT	ST - (M) SOLID: AT OR NEAR OPTIMUM M	10ISTURE		ECT R TYPE: AUTOMATIC MANUAL	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED WIDE 3 TO 10 FEET THICKLY BEDDED MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED
- DR	 (D) REQUIRES ADDITIONAL WATER 1 ATTAIN OPTIMUM MOISTURE 	го	X CME-55		VERY CLOSE LESS THAN 0.16 FEET THICKY LAMINATED 0
I	PLASTICITY		B* HOLLOW AUGERS		INDURATION
	ASTICITY INDEX (PI) DRY STREN		CME-550 HARD FACED FINGER BITS	l	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING,
NON PLASTIC SLIGHTLY PLASTIC	0-5 VERY LO 6-15 SLIGHT			TOOLS:	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS, GENTLE BLOW BY HAMMER DISINTEGRATES SAMPL
MODERATELY PLASTIC HIGHLY PLASTIC	16-25 MEDIUM 26 OR MORE HIGH			POST HOLE DIGGER HAND AUGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH BREAKS EASILY WHEN HIT WITH HAMMER.
	COLOR			SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEE DIFFICULT TO BREAK WITH HAMMER.
	OR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLU REAKED, ETC. ARE USED TO DESCRIBE APPEARANC			VANE SHEAR TEST	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMI SAMPLE BREAKS ACROSS GRAINS.

PROJECT REFERENCE NO.



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	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
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
N VALUES >	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
CK THAT CLUDES GRANITE,	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN IF TESTED.	
2.	OF SLOPE.
MAY NOT YIELD	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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
OATINGS IF OPEN.	HORIZONTAL.
AMMER BLOWS IF	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
ICK UP TO L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
Y. ROCK HAS AS COMPARED	PARENT MATERIAL.
	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
ELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
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
VIDENT BUT	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
RE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
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
5. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
	RUN AND EXPRESSED AS A PERCENTAGE.
S REQUIRES	<u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
S ACOUNCS	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
LOWS REQUIRED	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
EEP CAN BE ETACHED	<u>SLICKENSIDE</u> - 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
R PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
T. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	<u>STRATA ROCK QUALITY DESIGNATION (SRQD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH IED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
-	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TIN2.TIN
THICKNESS	DATED 05/2I
4 FEET .5 - 4 FEET	ELEVATION: FEET
6 - 1.5 FEET	NOTES:
3 - 0.16 FEET 18 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
0.008 FEET	
AT, PRESSURE, ETC.	
EEL PROBE:	
PROBE:	
	DATE: 8-15-14



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230		K MENT :BROWN RED ORAN	CE TAN AND CE	ANY MOIST TO SA	T LOOSE TO D	ENSE CLAYEY AND	WITY SAND (A-2-4 A	-2-61 (1100 TO	HIGHLY PLASTIC	WITH TRACE C	RAVEI			:	$VE^{FEET} 2.5$		BIG MA	ON -L- (I-95) IRSH SWAMF STA. 586+14.00	P AT
230	BROADWAY EMBANI	KMENT: GRAY. MOIST. STIFF. TAN GRAY AND ORANGE.S	SANDY SILTY CL	AY (A-7-6)(MOD.	TO HIGHLY PLA	STIC)							····· I						
220	Ŭ,	GRAY AND BLACK.WET TO TAL PLAIN: GRAY TAN BROW							AND F.AND CSE	.SAND (A-3.A-1-	: =b)WITH TR.	ACE MICA	ļ		· · · · · · · · · · · · · · · · · · ·			·	220
	DUNDIVIDED COAST	TAL PLAIN: TAN AND GRAY. GRAY ORANGE AND BROWN	MOIST TO SAT.	SOFT TO HARD	SANDY AND SIL	TY CLAY (A-7.A-7-6.	HIGHLY PLASTIC						RAGMENTS (BLAC	K CREEK FOI	RMATION				
.210	<u> </u>	RAY, MOIST TO SAT. SOFT												,		1			
200							SOII	L TES	T RES	ULTS									200
200			SAMPLE	OFFSET	STATION	DEPTH	AASHTO	L.L. P.I.		BY WEIGHT			SING (SIEVES		%				
190			NO. SS-227	21 FT RT	585+26	INTERVAL 3.5'-4.0'	CLASS. A-7-6	48 29	$\begin{array}{c c} C. SAND & F. S. \\ \hline 11 & 3 \end{array}$		CLAY 46	10 100	40 200 93 66		RE ORGANIC				
			SS-228 SS-220	21 FT RT 20 FT RT	585+26 585+99	8.5'-10.0' 3.5'-5.0'	A-2-6	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		7 3	22 26	99	60 26 99 56	12	_				
190			SS-222	20 FT RT	585 + 99	9.7'-10.0'	<u>A-4</u> <u>A-7-6</u>	51 29	13 1	1 18	59	100 99	92 79	26	-				190
180		· · · · · · · · · · · · · · · · · · ·	SS-07 SS-08	20 FT LT 20 FT LT	587 + 18 587 + 18	3.5'-5.0' 13.5'-14.5'	<u>A-2-6</u> A-4	39 21 32 10	$\begin{array}{c c} 50 & 13 \\ \hline 46 & 2 \end{array}$		27 28	99 99	<u>68</u> 33 6936					· · · · · · · · · · · · · · · · · · ·	
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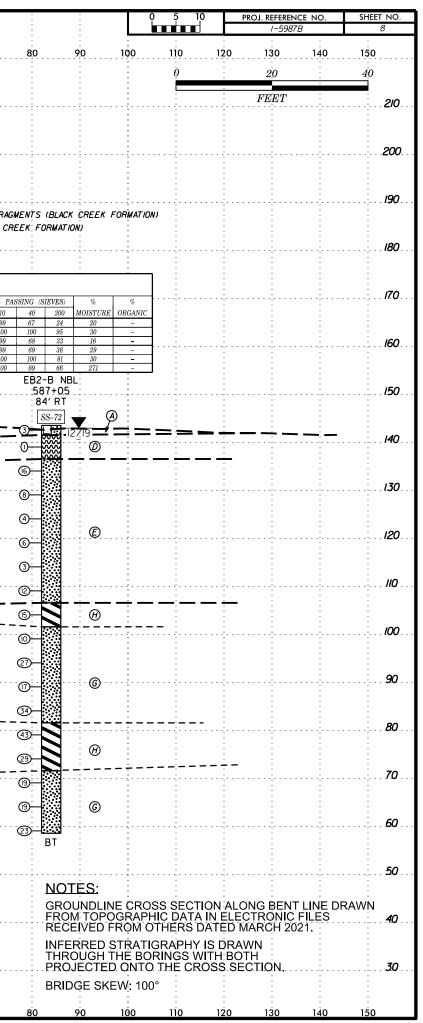
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190			Õ	ALLIVIA	BLACK.SAT	I AND TAN.WE	FT.MUCK	AND PEAT		1	:				:													
			Ē	JUNDNID	ED COASTAL I	PLAIN: ORANGE PLAIN: GRAY, MOI	ST TO WE	T,STIFF	to HARD, SILI	TY AND SAI	NDY CLAY (A	-6, A-7) AND	SANDY SILT	(A-4) WITH TR	ACE TO LIT	TLE MICA	AND TRA	CE ORGANIC	s									
<i>180</i>		· · · · · · · · · · · · · · · · · · ·				WET TO SAT. MOIST TO WET														ACK CREEK	(FORMATION.	· · · · · · · · · · · · · · · · · · ·						
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. 170		· · · · · · · · · · · · · · · · · · ·		SAMPLE NO.	OFFSET STA	TION DEPT INTER 5+26 3.5'-4	VAL	ASHTO CLASS. L A-7-6 4	.L. P.I. C. SAN	% BY WE	SILT CLA	Y 10 4	G (SIEVES) 40 200 M0 93 66	% % DISTURE ORGAN	<u>.</u>	· ·	· · · · · ·											
				SS-228	21 FT RT 588	5+26 5-16 5-16 5-16	0.0'	A-2-6 3 A-4 2	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	17 12	14 40 3 22 20 32		50 00 50 26 76 52	12 – 12 –		-A NBL 35+26												
. 160				F	XISTING GR			I-C SBL 85+26 6I' LT								S-227												
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		SOIL TEST RESULTS	<u> </u>	
	SAMPLE OFFSET STATION DEPTH NO. OFFSET STATION INTERVA.	AASHTO	SIEVES) % % 200 MOISTURE ORGANIC	
	SS-214 59 FT LT 585+99 8.5'-10.0' SS-220 20 FT RT 585+99 3.5'-5.0' SS-222 20 FT RT 585+99 9.7'-10.0'	A-4 52 29 2 22 16 60 100 99 A-4 25 9 4 51 20 26 100 99	<u>83 26 -</u> 56 25 -	
		NGE.MOIST TO SAT.MED.DENSE.SILTY SAND (A-2-4) WITH TRACE CL		
	EUNDIVIDED COAST AL PLAIN: GRAY ORAN	IGE BROWN AND TAN WET TO SAT DENSE TO V.DENSE SILTY SAND T.STIFF TO HARD SILTY SANDY CLAY (A-7-6)(MOD.TO HIGHLY PLAST		
		D ORANGE.SAT.LOOSE TO DENSE.SILTY SAND (A-2-4)WITH TRACE SOFT TO V.STIFF.SILTY CLAY (A-7)WITH TRACE SAND LENSES AND		
	EXISTING GROUN	D BI-C SBL 585+99 59' LT	MICA (BLACK CREEK FORMATION) BI-A NBL 585+99 20'. RT SS-220	
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· · · · · · · · · · · · · · · · · · ·	SAMPLE	DEPTH	SOIL TEST RE		SING (SIEVES) % %						
	NO. OFFSET SS-203 58 FT LT	STATION Diff fill 586+35 8.5'-10.0'	CLASS. L.L. P.I. C. SAND F. A-7-6 43 23 6 6	SAND SILT CLAY 10 11 26 57 100	40 200 MOISTURE ORGANIC 97 87 21 -						÷
0	<u>SS-228 84 FT RT</u> ©ALLUVIALs BLACK (586+45 14.5'-15.0' RAY AND BROWN,WET	A-7-6 57 31 6 TO SATLOOSE TO V.LOOSE.SILT	<u>11 13 70 100 </u> Y AND CLAYEY SAND (A-2-4	98 86 27 A-2-7) WITH TRACE CLAY.ORGANIC	CS AND WOOD FRAGMENTS					
			SANDY CLAYEY SILT (A-5) AND MU		Y SAND (A-2-4) AND F.SAND (A-3	NWITH TRACE CLAY					
0	©undwided coast	AL PLAIN: GRAY. MOIST.	STIFF TO HARD SILTY CLAY (A-7	A-7-6) (MOD.TO HIGHLY PLAS	STIC) WITH TRACE WOOD FRAGMEN	TS AND SAND			,	· · · · · · · · · · · · · · · · · · ·	
					2-4.A-2-6.A-2-7)WITH TRACE CL 5)WITH TRACE MICA SAND AND OR		v B2-B				
2	EXISTING GROUND	B2-C SBL		\$2_B2-4 586+	51 : : :		.586+ 84' F				
		586+35 58'LT		5′ R	T 1		SS-8				
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210				· · · · · · · · · · · · · · · · · · ·			
200	(A) ROADWAY ENBANKWENT ; BROW	IN AND GRAY.MOIST TO	SAT.V.LOOSE TO MED.DENSE	CLAYEY AND SILTY S	AND (A-2-4.A-2-6) WITH TRACE ORGA	vics	
190.		TO WET.V.SOFT TO S RANGE TAN BROWN GRA RAY AND TAN.MOIST TO	SOFT.SANDY SILT (A-4)AND MUC AY AND BROWN-TAN.SAT.V.LOOSI)SAT.SOFT TO V.STIFF.SILTY C	K WITH TRACE GRA TO DENSE.CLAYEY LAY (A-7-6)(MOD.TO	VEL AND SILTY SAND (A-2-4,A-2-6) AND I HIGHLY PLASTIC) WITH TRACE ORGANIC		
180.						TH TRACE TO LITTLE MICA AND TRACE CE TO LITTLE: MICA AND TRACE GRAVEL AND	
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170				S2_EB2-B_SBI 587+18 207+17	SAMPLE OFFSET STATION DEF NO. SS-2043 88 FT LT 587+14 0.0'- SS-2045 88 FT LT 587+14 8.5'-	ATH AASHTO L.L. P.I. % BY W RVAL CLASS. L.L. P.I. C. SAND F. SAND 1.5' A-2-4 NP NP 49 29	TEIGHT
160	EB2-A SBL 587+I4 <u>88' L T</u>	EXISTING	GROUND	20'' L T SS-07 SS-08 ST-04	SS-07 20 FT LT 587+18 3.57 SS-08 20 FT LT 587+18 13.57 SS-08 20 FT LT 587+18 13.57 ST-04 20 FT LT 587+18 13.57 ST-04 20 FT LT 587+18 13.57 SS-72 84 FT T 587+05 3.57		$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
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	47533										GEOLOGIST B. Painter	
					-	(I-95) OVER BIG MAR	on SvvAN					GROUND WTR (ft)
	NG NO.			SBL		TATION 585+26		OFFSET (ALIGNMENT -L-	-
	AR ELI					OTAL DEPTH 80.0 ft		NORTHING	,		EASTING 2,003,012	24 HR. FIAD
				= F&F		CME-55 82% 03/01/2019			DRILL METHO	D Muc	· · · · · · · · · · · · · · · · · · ·	ER TYPE Automatic
	LER D	<u>т</u>									SURFACE WATER DEPTH N/	A
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	0.5ft	4	PER FOOT 50	75 100	NO. MO	O I G	SOIL AND ROCK DES	CRIPTION DEPTH (1
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ł	148.9 .	<u> </u>	4	6	5	· · / · · · · · ·			м		TO COARSE SAND (A-2-6)	WITH TRACE
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	143.9	8.5	3	3	3			· · · ·				
		‡				$\left \begin{array}{c c} \phi_{6} & \cdot & \cdot \\ \uparrow & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array}$	· · · · ·		W			
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ł	128.9 .	23.5	3	6	9				м	N	DARK GRAY, FINE SAND` (A-7), WITH TRACE ORG	
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120	123.9	28.5	6	8	11						GRAY, SILTY FINE SAND WITH LITTLE M	
		‡							м			
120	118.9	33.5										
Ī		- <u>33.5</u> -	12	21	27		48' ' ' '		м			
115	•	Ŧ									115.4	37.
	113.9	38.5	8	3	17					///	ORANGE, SILTY CLAYE	A-2-6) 39.
		Ŧ		ľ	''	$\left \begin{array}{c} \cdot \cdot \cdot \cdot \bullet \mathbf{P}^{20} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \bullet \mathbf{P}^{20} \right \cdot $			W		GRAY, SILTY CLAY (A-7), ORGANICS AND	MICA /
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	103.9	48.5	18	23	25			· · · ·	w	-	ORANGE, SILTY FINE TO C (A-2-4) WITH LITTL	
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100	98.9	53.5						+ • • • • •				
Ī		I	5	7	14	$ \cdot \cdot \cdot \cdot \bullet^{2_1} \cdot \cdot \cdot \cdot$			w		DARK GRAY, FINE TO CO CLAY (A-6) WITH LITTLE	MICA (BLACK
95		Ŧ										57.
	93.9	58.5	7	10	9				w		GRAY, CLAYEY FINE TO C (A-2-6) WITH LITTLE M	CA (BLACK
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Ī		F	6	7	10	· · • ●17 · · · ·			м		87.9 GRAY, SILTY FINE SAND	64. Y CLAY (A-6)
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80	78.9	73.5						+				
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WBS	47533	.1.1			Т	IP I -5987		COUNT	Y ROBESO	N			GEOLOG	ST W. Pesl			
SITE	DESCR	PTION	BRID	DGE O	N -L-	(I -95) OVER	BIG MAR	SH SWAN	/IP AT -L- ST	A. 586+	14.00					GROUN	ND WTR (ft)
Bori	NG NO.	S2_E	B1-A N	NBL	s	TATION 58	5+26		OFFSET 2	21 ft RT			ALIGNME	NT -L-		0 HR.	N/A
COLL	AR ELE	EV. 15	2.4 ft		т	OTAL DEPT	H 80.0 ft	:	NORTHING	383,10	69		EASTING	2,003,089		24 HR.	FIAD
DRILL	RIG/HAM	IMER EF	F./DATI	E F&F	R2175 (CME-55 84% ()3/01/2019			DRILL M	IETHOD) Muc	d Rotary		HAMM	ER TYPE	Automatic
DRILL	LER S.	Davis			S	TART DATE	01/30/2	0	COMP. DA	TE 01/3	31/20		SURFACE	WATER DEI	PTH N/	4	
ELEV (ft)	DRIVE ELEV	DEPTH (ft)		W CO	r —			PER FOOT		SAMP.	▼∕			SOIL AND RO	CK DES	CRIPTION	1
(14)	(ft)	(19	0.5ft	0.5ft	0.5ft	0 2	5	50	75 100	NO.	<u>/ MOI</u>	G	ELEV. (ft)				DEPTH (ft
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155	-	-											-				
	- 151.5	- 0.9				.							152.4 151.5	GROUN ROADWAY			0.0
150	_		19	22	21	1		3			м	L E		AS	SPHALT		Г <u> </u>
	148.9	3.5	3	5	5	- • <u>•</u> • • • • • • • • • • • • • • • • •	· · · · ·			SS-227	23%			D-ORANGE-BI OARSE SAND	(A-2-4) V		
	-						· · · ·						145.4 GR	G AY, FINE TO O			
145	143.9 -	8.5] :/: : :		<u> </u>	· · · · ·				= <u></u>	CLAY (A-7-6) ANGE-TAN, S	, HIGHLY	PLASTIC	<u></u>
	-		2	2	3	• 5	· · · ·			SS-228	12%		i	SAN	ID (A-2-4)	i
140	-	Ł				$ i \cdots$							<u>140.4</u>	BROWN-GRA COARSE			0 / <u>12.</u> 9
	138.9	13.5	woн	1	0						Sat.	E	- <u>·</u>	ROWN-TAN-G	RAY CL	AYEY SIL	J TY
	-										out.	E		FINE TO COA			
135	133.9	L 18.5										F	-				
		- 10.0	5	8	8	· · · • 16					Sat.	F					
130	-	F				j						F					
	128.9	23.5	4	2	7						Sat.	-	- 128.4				24.
	-	F									Sat.	N	DA	UNDIVIDED RK GRAY, FIN			NDY
125		28.5						+				N	-	SILTY	CLAY (A	-7)	
	- 123.9	- 20.5	7	11	13		24 • • •				м	N					
120	-	F										N					
	118.9	33.5	8	11	18		1					N	-				
	-	-					•29 [,] · · ·				М	N					
115		38.5					<u> </u>	+						ANGE-BROW			
		- 30.5	12	16	21		37				Sat.	F	С	OARSE SAND	(A-2-4) V MICA	/ITH TRA	CE
110	-	-										-					
	108.9	43.5	24	30	27			· · · · ·			Set	-	-				
	-	F						• 57 • •			Sat.	F					
105	103.9 -	48.5						+ + + + + + + + + + + + + + + + + + + +	+ • • • •			-	-				
	- 103.9	- 40.5 -	20	26	32			· · · · ;€58• ·			Sat.	-					
100	-	ļ.										-	100.4				52.0
	98.9	53.5	5	11	15		· /· · ·					N	- _{97.9} DA	COAS RK GRAY, FIN	TAL PLA		NDY 54.5
	-	-									W			LTY CLAÝ (A-7 (BLACK CRE	7) WITH ⁻	FRACE M	
95								· · · ·	· · · ·					ARK GRAY, CL	AYEY SI	TY FINE	
ŀ	93.9 -	<u>58.5</u>	10	10	12	/	22				Sat.			OARSE SAND /IICA (BLACK C			
90	-	t F															
	88.9 -	63.5	40	45		$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \right $	\dot{N}	· · · ·	· · · ·				-				
	-	F	13	15	22		• • 37				Sat.						
85	-	F F					· · › › ·		· · · ·			\mathbf{i}	85.4 DA	RK GRAY, FIN			<u> </u>
ŀ	83.9 -	- 68.5 -	14	20	28	: : : :	· · · · · ·	48			м	N		-7) WITH TRA	CE MICA	AND WO	
	-	ł					· · · /					N		FRAGMENT FOF	S (BLACK RMATION		

								E	BORE	<u> L</u>	OG						
WBS	47533	3.1.1			Т	P I -5987		COUNT	ry Robe	ESO	N			GEOLOGIST W. Pesl			
SITE	DESCR	IPTION	BRID	DGE O	N -L- ((I -95) OVE	R BIG MA	RSH SWA	MP AT -L	ST.	A. 586+	14.00		-			ID WTR (1
BOR	NG NO.	S2_E	B1-A N	NBL	S	TATION	585+26		OFFSE	T 2	21 ft RT			ALIGNMENT -L-		0 HR.	N/
COLL	AR EL	EV. 15	52.4 ft		Т	OTAL DE	PTH 80.0	ft	NORTH	ling	383,16	69		EASTING 2,003,089		24 HR.	FIA
DRILL	RIG/HAN	/MER EF	F./DATI	E F&F	R2175 C	CME-55 84	% 03/01/201	9			DRILL M	IETHOI	D Mu	ld Rotary	НАММ	ER TYPE	Automatic
DRIL	L ER S	. Davis			S	TART DA	TE 01/30	/20	COMP.	DAT	FE 01/3	31/20		SURFACE WATER DEI	PTH N/	A	
ELEV	DRIVE ELEV	DEPTH		w co				S PER FOC			SAMP.	▼∕		SOIL AND RO	CK DES	CRIPTION	I
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 	100	NO.	Ио	G	ELEV. (ft)			DEPTH
80	78.9	73.5					- Ma	tch Line			+						
		- / 3.5	7	9	14		• • • • •	· · · · ·	· · · · ·	:		w		(A-7) WITH TRA FRAGMENT	CE MICA	AND WO	
75		‡					:\:::			:				FORMATI			
10	73.9	78.5	9	13	16									-			
		+	3	13			• • • 29			•		W		- 72.4 - Boring Terminate	d at Elev	ation 72.4	8 ft IN
	-	ŧ												CLAY (COASTAL		I)	KEEN
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SITE BORI COLI					TI	P I -5987		COLINTY					0000000	OT 14/ · ·	N /		
BOR COLI		IPTION						COONT	Y ROBESO	N			GEOLOG	ST Weis, J.	IVI.		
COLI			BRIL	DGE O	N -L- (I-95) OVEF	R BIG MARS	SH SWAN	/IP AT -L- ST	A. 586+′	14.00		1		0	ROUND	WTR (ft)
	NG NO.	S2_E	B1-B_	NBL	S	TATION 5	85+16		OFFSET (68 ft RT			ALIGNME	NT -L-	() HR.	1.5
DRILL	AR EL	EV. 14	2.7 ft		Т	OTAL DEP	TH 90.0 ft		NORTHING	383,14	14		EASTING	2,003,131	24	4 HR.	1.2
	RIG/HAM	MMER EF	F./DAT	e Mid	3964 CI	ME-45C 91%	02/21/2019			DRILL M	ETHOD	Mud	Rotary		HAMMER	TYPE A	utomatic
DRIL	LER P	owell, B			S	TART DAT	E 05/24/2 ⁻	1	COMP. DA	FE 05/2	25/21		SURFACE	WATER DEF	PTH N/A		
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	UNT 0.5ft	0		PER FOOT	75 100	SAMP. NO.		L O G	ELEV. (ft)	SOIL AND RO	CK DESCR	IPTION	DEPTH (ft)
145		-										-	- 142.7				0.0
140	141.7 139.2	- <u>1.0</u> - <u>3.5</u>	woн		woн	1 · · · · ·					D				LUVIAL JCK AND PI	EAT	0.0
135	136.7	Ŧ		wон wон	WOH 3				· · · · · · · · · · · · · · · · · · ·		Sat. Sat.		<u>135.7</u>				7.0
100	134.2	<u>+</u> 8.5 -	4	3	4	1 1 1 1 1 1 1 1 1 1	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		- BH	ROWN, SILTY S OF	Sand (a-2-4 Rganic	i), HIGHL	Ŷ
130	129.2	+ 13.5 +	3	7	10		· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · ·	<u>SS-06</u>	12%		128.2	UNDIVIDED	COASTAL -		14.5
125	124.2	- - 18.5		_			· · · · ·	· · · · ·	· · · · ·				<u>. 124.7</u>	GRAY, SA	NDY SILT (/	4-4)	<u> </u>
120		+	4		12						М		<u>120.2</u>			·	<u>22.5</u>
	119.2	<u> </u>	5	7	15		22	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		115.7	GRAY, CLAY	'EY SAND (.	A-2-6)	27.0
115	114.2	28.5	12	15	19				· · · · · · · · · · · · · · · · · · ·		Sat.	**** 0000- 0000- 0000-	- <u></u>	TAN, CSE	. SAND (A-1	I-b)	21.0
110	109.2	- 33.5	16	20	29		· · · · · ·	 49	· · · · · · · · · · · · · · · · · · ·		Sat.	0000 00000 00000 0000					
105	104.2	- - - - - - - - - - - - - - - - - - -	6	10	12		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				. <u>104.7</u>				<u> </u>
100	99.2 -	- - - - 43.5			12				· · · · ·		Μ		100 7	GRAY, SILTY			<u>42.0</u>
95		+ 43.3 - - -	4	6	8				· · · · · · · · · · · · · · · · · · ·		Sat.		98.2	GRAY, CSI	E. SAND (A-	·1-b)	44.5
	94.2	48.5 - -	2	3	5	· / .••*******************************			· · · · · · · · · · · · · · · · · · ·		Sat.						
90	89.2	53.5	6	6	7				· · · · · · · · · · · · · · · · · · ·		Sat.		. 89.7	GRAY, SILT	TY SAND (A	-2-4)	<u>53.0</u>
85	84.2	- 58.5 -	8	12	21	· · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · ·		М		85.2	GRAY, SILTY	SANDY CLA	AY (A-6)	<u> </u>
80	79.2	- - - - - 63.5	8	9	16		1 1 1	· · · · ·			Sat.			GRAY, SILTY F. NTERMITTEN			<u> </u>
75	74.2	- - - - 68.5	9	10	12				· · · · · ·				.74.7	GRAY, CLAY		A-2-6)	<u> </u>
70	oc o ⁻	+	9	12			●24 		· · · · ·		Sat.		<u>70.7</u>	GRAY, CSE. S			72.0
65	69.2	<u>73.5</u>	10	11	12	 		 	· · · · · · · · · · · · · · · · · · ·		Sat.		I	NTERMITTEN	T LENSES (ÓF CLAY	

NBG	47533	11			т	P 1-598	87			ORE				GEOLOGIST Weis, J. M			
										IP AT -L-		14 00				ROUND W	
	NG NO.					TATION				OFFSET				ALIGNMENT -L-		HR.	1.:
	AR ELE			NDL				90.0 ft		NORTHIN				EASTING 2,003,131		HR.	1.
				E MID		ME-45C 9							D Mu	_ _	HAMMER T		
	LER P							05/24/21		COMP. D			- 1110				
EV	DRIVE	DEPTH	1	w co				BLOWS F			SAMP		1 L				
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	0	75 10	0 NO.	мо	O G	SOIL AND ROC ELEV. (ft)	K DESCRIF		EPTH
<u> 55</u>				\lfloor		L		Match	Line								
	64.2	/8.5	9	12	14		· · •	 26	· · · ·			Sat.	0000	GRAY, CSE. SA	LENSES OF	WITH F CLAY	
50		+					:: `	\ \	· · · · ·					-	inued)		
	59.2	83.5	9	14	22			-\ - <u>\</u>			_	Sat.	000	<u>- 59.7</u> GRAY, SILTY	SAND (A-2	<u>-</u>	<u> </u>
	-	+						· • 36 ·	· · · · ·			Jai.		-			
5	- 54 2 -	88.5				· · ·		ļ::			_			-			
			9	14	17		•••	• • • • • • • • • • •				Sat.		- 52.7 - Boring Terminated a		50 7 A INI	9
	-	t t												- SAND (COASTAL PI	_AIN) (BLAC		
	-	F												-	IATION)		
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WBS	47533	3.1.1			T	P I -5987		COUNT	Y ROBESO	N			GEOLOGIST W. Pesl	
SITE	DESCR	IPTION	BRI	DGE O	N -L- ((I-95) OVER	BIG MARS	SH SWAN	/IP AT -L- ST	A. 586+	14.00			
BOR	NG NO.	S2_B	1-C SI	ЗL	S	TATION 58	5+99		OFFSET	59 ft LT			ALIGNMENT -L-	0 HR. N/A
COLI	AR EL	EV. 13	7.3 ft		Т	OTAL DEPT	H 80.0 ft		NORTHING	383,26	64		EASTING 2,003,038	24 HR. FIAD
DRILL	RIG/HAN	IMER EF	F./DAT	E F&R	2175 (CME-55 84% (03/01/2019			DRILL M	ETHO) Muc	Rotary HAMM	ER TYPE Automatic
DRIL	LER S	. Davis			S	TART DATE	01/28/20)	COMP. DA	TE 01/2	29/20		SURFACE WATER DEPTH 4.	1ft
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	JNT 0.5ft	0 2	BLOWS F	PER FOOT	- 75 100	SAMP. NO.		L O G	SOIL AND ROCK DES	CRIPTION DEPTH (1
145		+												
140	- - -										▼		WATER SURFACE (01/28/20)
	137.3												137.3 GROUND SURF	ACE 0.
			WOR	WOR	WOR						Sat.		MUCK	
135	133.8	- <u>3.5</u>	2	5	6	· • 11 ·	· · · · ·	· · · · ·	· · · · ·		Sat.		135.3 ALLUVIAL TAN-GRAY, SILTY FINE WITH TRACE CLAY AND	
130	128.8	8.5					· · · · ·	· · · · ·				V	130.3 UNDIVIDED COASTA GRAY, SILTY FINE SAND	
125	- 123.8	+ - - - 13.5	3	4	/			· · · · ·	· · · · · · · · · · · · · · · · · · ·	SS-214	26%		WITH TRACE MICA, HIG	
120	_	+ + +	9	10	11		1	· · · · ·			М		-	
115	<u>118.8</u>	<u>- 18.5</u> - -	7	12	18		30	· · · · ·	· · · · · · · · · · · · · · · · · · ·		М		115.3	22.
		23.5	16	20	30			50	· · · · · · · · · · · · · · · · · · ·		w		ORANGE-BROWN-TAN, S COARSE SAND (A-2-4) V CLAY	SILTY FINE TO
110		28.5	19	37	53		· · · · ·	· · · · ·	90		w		-	
105	103.8	- - <u>33.5</u>	5	12	21	· · · · · ·	••33		· · · · ·		Sat.		-	
100	98.8	- - - <u>38.5</u>	6	8	11	· · · · · ·			· · · · ·				100.3 COASTAL PLA DARK GRAY, SILTY CLA	Y (A-7) WITH
95	93.8	43.5						· · · · ·	· · · · · ·		М		TRACE FINE SAND AND CREEK FORMAT BROWN-TAN, SILTY FINE	'ION) [`] TO COARSE <u>42</u> .
90		+ + +	4	3	6	· • • · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · ·	· · · · ·		Sat.		SAND (A-2-4) WITH TF (BLACK CREEK FOR -90.3	MATION) 47.
85	88.8	<u>- 48.5</u> - -	1	0	3		· · · · ·		· · · · · · · · · · · · · · · · · · ·		Sat.		87.8 TRACE FINE SAND (BL FORMATION DARK GRAY, CLAYEY SI COARSE SAND (A-2-4) V	ACK CREEK <u>49.</u> I)
	- 83.8 -	53.5	4	5	8	· · · · · · · · · · · · · · · · · · ·		· · · · ·	· · · · ·		w		MICA (BLACK CREEK F DARK GRAY, FINE SAND (A-7) WITH TRACE MICA (ORMATION) Y SILTY CLAY BLACK CREEK
80	78.8	 	4	6	10		· · · · ·		· · · · · · · ·		Sat.		80.3 FORMATION DARK GRAY, CLAYEY SI COARSE SAND (A-2-4) V MICA (BLACK CREEK F	ÎTY FINE TO VITH TRACE
75	73.8	- - 63.5	11	19	20		9 39	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		-	
70	68.8	- <u>68.5</u>	6	11	14		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		w		70.3 DARK GRAY, FINE SAND (A-7) WITH TRACE MICA (FORMATION	BLACK CREEK
65		ł						 	· · · · ·			Ŕ)

WD0	47500					ID 1 5007							
	47533		חחם			IP I-5987 (I-95) OVER BIG MA		Y ROBESO		.14.00		GEOLOGIST W. Pesl	GROUND WTR
						TATION 585+99	10H 5WAI	OFFSET				ALIGNMENT -L-	
	NG NO.			5L	-		<u></u>						
						OTAL DEPTH 80.0		NORTHING	1		– 14	EASTING 2,003,038	
			F./DATI			CME-55 84% 03/01/2019		COMP. DA					MMER TYPE Automatic
	LER S. DRIVE	DEPTH	BIC	w co		11	20 SPER FOO ^T	-	SAMP		1∟	SURFACE WATER DEPTH	4.111
ELEV (ft)	DRIVE ELEV (ft)	(ft)		0.5ft			50	75 100	NO.	мо		SOIL AND ROCK D	ESCRIPTION DEPTH
													<u> </u>
65						Ma	tch Line						
	63.8 -	73.5	7	10	16					$\begin{bmatrix} - \\ w \end{bmatrix}$	R	DARK GRAY, FINE SAI (A-7) WITH TRACE MIC	
	-	E				↓ ↓ ↓ ↓ ● 26				~~		– FORMATION) (i	continued)
60		78.5										GRAY, CLAYEY SILTY F	FINE SAND (A-2-4)
	-	-	9	10	12	$1 \cdots 1^{ }_{22} \cdots$				Sat.		WITH TRACE MICA (یے (ON
	-	L										Boring Terminated at E SAND (COASTAL PLAIN	levation 57.3 ft IN I) (BLACK CREEK
	-	Ļ										- FORMATI	ÓŇ)
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GEOTECHNICAL BORING REPORT

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						<u> </u>	<u>ORE L</u>	OG			
WBS	4 7533.1.1			TI	P I -5987	COUNT	Y ROBESO	N		GEOLOGIST W. Pesl	
SITE	DESCRIPTION	BRI	DGE O	N -L- (I-95) OVER BIG MAR	SH SWAN	/IP AT -L- ST	A. 586+14	4.00		GROUND WTR (ft)
BOR	NG NO. S2_E	31-A N	BL	S	FATION 585+99		OFFSET 2	20 ft RT		ALIGNMENT -L-	0 HR. N/A
COL	LAR ELEV. 1	35.8 ft		т	DTAL DEPTH 80.0 ft		NORTHING	383,238	3	EASTING 2,003,113	24 HR. FIAD
DRILL	RIG/HAMMER EI	F./DAT	E F&R	2175 C	CME-55 84% 03/01/2019			DRILL ME	THOD	Mud Rotary HAI	MMER TYPE Automatic
DRIL	LER S. Davis			S	TART DATE 01/29/2	0	COMP. DA		<u> </u>	SURFACE WATER DEPTH	3.1ft
ELEV (ft)	DRIVE ELEV (ft) (ft)	H BLC 0.5ft	OW CO	UNT 0.5ft		PER FOOT 50	75 100	SAMP. NO.	MOI G		ESCRIPTION DEPTH (ft)
140									▼ .	WATER SURFAC	E (01/29/20)
135	135.8 - 0.0	WOH	- WOH	woн	•0	 			Sat.		NL
	132.3 3.5									AL 133.8 DARK BROWN GRAY, CLAYEY FINE S	
130		WOR	WOH	WOH	•			SS-220 2	25%	- - -	
	127.3 8.5									ORANGE-BROWN, S	
125	-	2	8	3	• • • • • • • • • • • • • • • • • • • •			SS-222	26%	COARSE SAND (A-2-4 <u>126.1</u> GRAVE UNDIVIDED COAS	Ĺ / <u>9./</u>
					· · <mark> </mark> · · · · · ·					GRAY, FINE TO COARS CLAY (A-7-6), HIGH	SE SANDY SILTY
120	- 122.3 - 13.3	3	5	10		· · · · ·					
120											
	117.3 18.5	9	15	27	42				м	116.3 GRAY-ORANGE-BROW	
115						<u> </u>	· · · · ·			FINE TO COARSE SAN	ID (A-2-4) WITH
	112.3 23.5	4	15	19					Sat		
110											
	107.3 28.5	3	9	20	$\left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array}\right \stackrel{j}{\underset{I}} \cdot \cdot \cdot \cdot \\ \stackrel{j}{\underset{I}} \cdot \cdot \\ \stackrel{j}{\underset{I}} \cdot \cdot \\ \stackrel{j}{\underset{I}} \cdot \cdot \\ \stackrel{j}{\underset{I}} \cdot \\ \stackrel{j}{\underset{I} } \cdot \\ \stackrel{i}{\underset{I} } \cdot \\ \stackrel{i}{\underset{I} } \cdot \\ \stackrel{i}{\underset{I}} \cdot \\ \stackrel{j}{\underset{I} } \cdot \\ \stackrel{j}{$						
105			5	20	<u><u> </u></u>				Sat		
	102.3 33.5										
100		18	12	6	· · · • • 18 · · · · ·				Sat		
	97.3 + 38.5				$\begin{vmatrix} & & & \lambda \\ & & & \lambda \end{vmatrix}$					98.8 COASTAL P	
95	97.3 30.5	5	12	12	· · · · · • • • · · · · · · · · · · · ·	· · · · ·			Sat.	DARK GRAY, SILTY C	RSE SAND AND
00					· · · · <u>\</u> . · · ·					GRAY-ORANGE-BROW	N, SILTY FINE TO
	92.3 43.5	9	14	19	· · · · · · · · · · · · · · · · · · ·			:	Sat	COARSE SAND (A-2-4 MICA (BLACK CREEK	
90					<u> . </u> .	· · · ·	· · · · ·				
	87.3 48.5	11	16	19		· · · · ·			Sat		
85					······································					è- 	
	82.3 53.5	9	9	12							
80		9	9	12	│		· · · ·		Sat.		
	77.3 58.5				· · · · · · · · · ·						
75	l I	6	8	14					Sat		
70	72.3 7 63.5	10	13	23					Sat		
10							· · · ·				
	67.3 68.5	10	9	14	••••••••••••••••••••••••••••••••••••••				w	66.8 DARK GRAY, FINE SAN	
65	+					+ • • •				(A-7) WITH TRACE MIC/ FORMATIO	A (BLACK CREEK
	62.3 73.5	7	12	14		· · · · ·			Sat.		
60	<u> </u>				🖓 26					<u>t</u>	

									B	ORE	L	OG						
	47533					P I-5				Y ROBES					GEOLOGIST W. Pesl			
									SH SWAI	MP AT -L- :			14.00		-		4	D WTR (f
BOR	NG NO.	S2_E	1-A N	BL	_		N 585+			OFFSET					ALIGNMENT -L-		0 HR.	N/.
COLL	AR ELI	EV. 13	35.8 ft		то	DTAL	DEPTH	80.0 ft							EASTING 2,003,113		24 HR.	FIA
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F	R2175 C	ME-55	84% 03/0	01/2019		1		DRILL M	IETHOD	D Mu	ud Rotary	HAMM	ER TYPE	Automatic
DRILI	L ER S	. Davis	1			TART	DATE			COMP. D	DAT		30/20		SURFACE WATER DEF	TH 3.1	1ft	
ELEV (ft)	DRIVE ELEV	DEPTH (ft)						BLOWS P				SAMP.			SOIL AND RO	CK DES	CRIPTION	
(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	5	0	75 10		NO.	/моі	G	ELEV. (ft)			DEPTH
_60				+				Match	Line						58.8			7
	57.3	78.5													GRAY, CLAYEY SI WITH TRACE M		E SAND (A	-2-4)
ŀ		Ŧ	9	9	13								Sat.		<u>55.8</u> FOR	MATION)	80
	-	Ŧ													Boring Terminate SAND (COASTAL	PLAIN) (E	BLACK CR	EEK
	-	Ŧ													- FOR	MATIÓN)	
	-	‡													-			
	•	‡													-			
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WBS	47533	3.1.1			TI	P I -5987		COUNT	Y ROBESO	N			GEOLOGIS	T W. Pesl			
SITE	DESCR	IPTION	BRII	DGE ON	√-L- (I-95) OVER	BIG MAR	SH SWAN	/IP AT -L- ST	A. 586+	14.00		1			GROUN	ID WTR (ft)
BOR	NG NO.	S2_B	2-C SI	BL	S	TATION 58	36+35		OFFSET 5	58 ft LT			ALIGNMEN	T -L-		0 HR.	N/A
COLI	LAR ELE	EV. 13	87.0 ft		т	OTAL DEPT	H 85.0 ft		NORTHING	383,29	98		EASTING	2,003,052		24 HR.	FIAD
DRILL	. Rig/han	IMER EF	F./DAT	E F&R2	2175 C	ME-55 84%	03/01/2019			DRILL M	ETHOD) Mu	d Rotary		HAMME	ER TYPE	Automatic
DRIL	LER S.	. Davis			S	FART DATE	E 01/27/2	C	COMP. DAT	FE 01/2	28/20		SURFACE	WATER DEF	PTH 5.4	ft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW COU	JNT 0.5ft	0 2		PER FOOT	- 75 100	SAMP. NO.	моі	L O G	SELEV. (ft)	Soil and RC	OCK DES	CRIPTION	DEPTH (ft
140		-											 -	WATER SUI	<u>RFACE (</u> C	1/27/20)_	
	137.0	00	WOH		0							-	137.0			ACE	0.0
135	-	‡			0	● 1· · · ·					Sat.		<u>135.8</u>	I	LUVIAL MUCK		
	133.5 -	3.5	1	1	1		· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		Sat.		S	CK-GRAY, SI AND (A-2-4) \ GANICS, AND	//ITH TR/	ACE CLAY	ί,
130	128.5	8.5	2	3	6	$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $				SS-203	21%	Z		UNDIVIDED Y-LIGHT GR/	AY, FINE	SANDY S	
125	-	+ + +			-	· ¶ ⁹ · ·	· · · · ·	· · · · ·	· · · · ·	33-203	2170		- CI	_AY (A-7-6) V FRAGMENT			D
120	123.5 - - - -	<u>+ 13.5</u> - -	3	4	8						М						
	118.5	18.5	8	10	11		1 1 1	· · · · ·	· · · · · · · · · · · · · · · · · · ·		м		- <u>118.0</u> O	RANGE-BRO ARSE SAND	WN, SILT		
115	113.5	23.5	8	5	20			· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		-	ANSE SAND	CLAY		OL .
110	-	-				· · · · · ·		· · · · ·	· · · · ·		Jai.		-				
105	108.5 - - - -	- 28.5	5	17	26		43				Sat.	- - -					
	103.5 -	33.5	5	3	8	 	· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		_				
100	98.5	- 38.5	5	6	11		· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · ·		Sat.	Z		K GRAY, FIN		' SILTY C	
95	93.5	43.5					· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·				- GF	WITH TRAC FOF AY-BROWN- ARSE SAND	MATION TAN, SIL) TY FINE ⁻	го
90	-		8	4	2	6	· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · ·		Sat.		-	CLAY AND M	ĊA (BĹAC RMATION)	K CREE	< compared with the second sec
0.5	88.5 -	48.5	5	8	7	· · · • • 15			· · · · · · · · · · · · · · · · · · ·		Sat.						
85	83.5	53.5	7	8	9	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		Sat.		- _ <u>83.0</u> 				VITH 54.
80	78.5	58.5	5	10	15		· · · · ·	· · · · ·			8-4		- 78.0		RMATION		59.
75	-				.0			· · · · ·			Sat.	-		Y, CLAYEY S (A-2-4) WIT CREEK		MICA (BI	
70	73.5 -	<u>+ 63.5</u> -	9	8	13			· · · · ·			Sat.	-	70.0				67.
	68.5	68.5	5	6	11	••••••••••••••••••••••••••••••••••••••	· · · · ·				W		– – – DAR (A-7)	K GRAY, FIN WITH TRAC CA (BLACK C	E COARS	SE SAND	LAY — — — AND
65	63.5	73.5	5	7	10						w		-				
60	-	Ē										N	_				

WBS	47533	11			т	ΊP	-598	37		COLIN	ITY 🛛	OBESO	N			GEOLOGIST W. Pesl			
			RDIL						BIG MAR					-14 00				GROUM	ND WTR (f
	NG NO.											FSET				ALIGNMENT -L-		0 HR.	N/
	AR ELE				_				1 85.0 f	t	-	RTHING				EASTING 2,003,052		24 HR.	FIA
				= F&F					3/01/2019							ud Rotary	НАММ		Automatic
	ER S.		1.00/(11	_ 101					01/27/2			MP. DA							7 latornatio
	DRIVE	DEPTH	BLC	w co					BLOWS				SAMP		1 L				
(ft)	ELEV (ft)	(ft)			0.5ft	10		25	5	50	75	100	NO.	Имо	O G	SOIL AND RC	CK DES	CRIPTION	I DEPTH
										•									
60									Mate	ch Line									
	58.5	78.5	6		14	T		i							N	DARK GRAY, FIN (A-7) WITH TRAC			
	-			'	14			• 21						W			REEK F ntinued)	ORMATIO	N)
55	53.5	-						+										E SAND (A	-2-4) <u>82</u>
		- 83.5	8	8	12			. ●20						Sat.		_ WITH TRACE M	1ICA (BL. MATION	ACK CREI	EK8
	_	-														- Boring Terminate SAND (COASTAL	d at Elev	ation 52.0	
	-	-															MATION		
	-	-														-			
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	47533					P I -5987			Y ROBES				GEOLOGIST Lane, R. W.	
SITE	DESCR	IPTION	BRII	DGE O	N -L- (I-95) OVER	BIG MAR	SH SWAN	/IP AT -L- S	5TA. 586	+14.00		1	
BOR	NG NO.	S2_E	82-A_N	IBL	S	TATION 5	36+49		OFFSET	CL			ALIGNMENT -L-	0 HR. 2.
COLI	AR EL	EV. 14	42.9 ft		те	OTAL DEPT	H 64.9 ft		NORTHIN	G 383,	292		EASTING 2,003,111	24 HR. FIA
DRILL	RIG/HAM	/MER EF	F./DAT	e Mid	636214	CME-45C 86	% 02/21/2019)		DRILL	METHO	D Muo	d Rotary HAMI	MER TYPE Automatic
DRIL	LER S	tricklan	d, T .		S	TART DATE	11/09/2 ⁻	1	COMP. D	ATE 1'	1/09/21		SURFACE WATER DEPTH	J/A
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT		BLOWS F	PER FOOT	_	SAM	P. ▼ ∕		SOIL AND ROCK DE	
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 :	25 E	50	75 10	NO.	Имо		ELEV. (ft)	DEPTH
145														
		Ŧ										F	- 142.9	
		Ŧ									∇	F	ALLUVIAL GRAY, CLAYEY SAI	
140	139.5-	+ 3.4										1	-	ND (A-2-7)
		‡	WOH	woн	WOH WOI			· · · ·			Sat.			
		t												
135	134.5-	8.4	WOH	WOH	2						0.1		- ORGANIĆ	;
		ł									Sat.			
130		Ŧ				<u> - </u>								
100	129.5	+ 13.4 +	2	3	4	····				11	Sat.	-	WHITE AND TAN, SILT	
		‡					· · · · ·	· · · ·					(A-2-4) 126.4	
125	104 5 -	+										N	GRAY, SILTY CL	AY (A-7)
	124.0	10.4	7	12	20		32				М	N		
		Ŧ										N		
120	119.5-	23.4					\					N	-	
		‡	10	17	26		4 3				М	N		
445		‡										N		
115	114.5-	28.4	10	18	19		<u> /</u>		· · · · ·		0-4		<u>114.9</u> TAN, SAND (/	Ā-3) — — — — — —
		+									Sat.	0000		,
110		Ŧ												
	109.5-	<u>+ 33.4</u> +	20	26	30			56		1	Sat.	0000	-	
		‡												
105	104 5-	- 38.4											-	
		1 00.4	16	9	9	: : • 18	3				м		103.4 COASTAL PL	AINI
		t		1								N	COASTAL PL GRAY, SILTY CLAY (A-7) WITH TRACE
100	99.5 -	43.4					+ • • • •							KUREEK /
		Ŧ	5	8	11	:::•	9				Sat.	F	GRAY, CLAYEY SAND (CREEK FORMA	A-2-7) (BLACK
95		‡		1		:/::							95.9	,
35	94.5 -	+ <u>48.4</u>	2	1	1					11	Sat.		GRAY, SILTY CLAY (A-7) FORMATIO	(δίαυκ υκεέκ Ν)
		‡		1										
90	00 F -	+ F3 4		1		· · · · ·	· · · ·						<u></u>	ACK CREEK
	09.5	<u>+ 53.4</u>	8	11	14		•25 · · ·				Sat.		FORMATIO	N)
		Ŧ		1									85.9	
85	84.5 -	- 58.4		<u> </u>			\ <u>```</u>		+				GRAY, FINE SANDY CLA WITH TRACE MICA (BI	YEY SILT (A-5)
		ŧ	8	14	20						М		FORMATIO	
00		‡					<i>į</i> .					N V		
80	79.5 -	63.4	10	10	13		1	· · · ·	+		Sat.		GRAY, SAND (A-3) WITH (BLACK CREEK FOI	RMATION)
		<u>+</u>		+			23	l		4	ડતા.		78.0 Boring Terminated at Ele	vation 78.0 ft IN
		t											SAND (COASTAL PLAIN) FORMATIO	(BLACK CREEK
	-	Ē										E		,
		ł										F		
	-	Ŧ											-	
		‡		1										
		‡		1										
	-	L		1	I									

GEOTECHNICAL BORING REPORT

BORE LOG

								B	ORE L	ÜĞ							
WBS	47533	.1.1			TI	P I -5987		COUNT	Y ROBESO	N			GEOLOG	ST W. Pesl			
SITE	DESCR	PTION	BRII	DGE O	N -L- ((I -95) OVEF	r Big Maf	RSH SWA	MP AT -L- ST	A. 586+	14.00		1				OWTR (ft)
BORI	ng no.	S2_B	2-B N	BL	S	TATION 5	86+45		OFFSET 8	34 ft RT			ALIGNME	NT -L-		0 HR.	N/A
COLL	AR ELE	EV. 14	2.3 ft		те	OTAL DEP	TH 90.0 f	ït	NORTHING	383,20	50		EASTING	2,003,189		24 HR.	0.0
DRILL	RIG/HAN	IMER EF	F./DAT	E RFC	0074 C	ME-55 80%	03/08/2019			DRILL M	IETHOD) Muo	d Rotary		НАММ	ER TYPE	Automatic
DRILL	LER D.	. Pinter			S	TART DAT	E 12/17/1	19	COMP. DA	FE 12/*	18/19		SURFACE	WATER DE	PTH N/	A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW COU 0.5ft		0	BLOWS	PER FOO ⁻ 50	Г 7 <u>5</u> 100	SAMP. NO.	моі	L O G	ELEV. (ft)	SOIL AND RO	OCK DES	CRIPTION	DEPTH (ft
145	-										_		-				
140	142.3		wон	WOH	1	•1					w					E TO COAF	
	- 138.8 - -	- <u>3.5</u> -	1	2	1			· · · · ·			Sat.			FRAGMEN)
135	 	- <u>8.5</u>	1	2	5						Sat.						
130	- - 128.8 -	- 13.5				.¶' . . 	· · · · ·	· · · · ·			Cat	-	.				
125	-		1	с С	3	• • • • • • •	· · · · ·	· · · · ·		<u>SS-82</u>	27%			UNDIVIDED ARK GRAY TC LAY (A-7-6) W	LIGHT	GRAY, SILT	
120	123.8 - - - -	- 18.5 - -	8	14	16		30 · · ·				М			COARSE SÁN (BLACK CRE	d, highl	Y PLASTIC	
120		- <u>23.5</u>	8	12	14		26	· · · · ·			м						
115	- - - - -		1	2	5	• • • • • • • • • • • • • • • • • • •					Sat.		= <u>115.3</u> OR	ANGE-BROW COARSE			то <u>27</u> .
110		33.5	6	3	3		· · · · ·				Sat.						
105	- - - 103.8 -	- 38.5					· · · · ·				Gat.		.				
100	-		4	4	4		· · · · ·	· · · · ·			Sat.	N	102.8 = <u>100.3</u> D/	COAS ARK GRAY, SI TRACE MIC		Y (A-7) WIT	H <u>42</u>
95	<u>98.8</u> - - -	<u>- 43.5</u> - -	3	5	4	. I . ∳9 . I					Sat.			FOF AY TO ORANG NE TO COARS TRACE MIC	E SAND	/́N-ТАЛ, SII (A-2-4) WП	
	93.8 -	48.5	6	4	6						Sat.		-	FOF	RMATION)	
90		- <u>53.5</u>	10	11	14	X- X 	25	· · · · ·			Sat.						
85	- 83.8 -	- - <u>58.5</u>	7	13	16		29				м			RK GRAY, FIN 5) WITH TRAC FOF		BLACK CRE	
80	- 78.8 -	63.5	7	12	14						м	ト ト ト ト ト ト ト ト ト ト ト ト ト ト ト ト ト ト ト					
75	- 73.8 -	- - 68.5			10		120 1 1 1 1 1 1 1 1 1 1 1 1 1	· · · · ·						RAY, SILTY FI A-2-4) WITH T			
70	-		10	20	16		-) 36 -				Sat.		FRA 70.3	AGMÉNTS, AN	D MICA (RMATION	BLACK CRE	EEK 72.
65	<u>68.8</u> - - -	- 73.5 - -	6	13	17	· · · · · · · · · · · · · ·	30				м	Ű) WITH TRAC		BLACK CRE	

WBS	47533.1	.1			Т	P -5987	COUNT	Y ROBESO	N			GEOLOGIST W. Pesl			
SITE	DESCRIP	TION	BRID	GE O		(I-95) OVER BIG MA	RSH SWA	MP AT -L- ST	A. 586+	14.00			GRC		R (f
BORI	NG NO.	S2_B	2-B NE	3L	S	TATION 586+45		OFFSET 8	34 ft RT			ALIGNMENT -L-	0 н	R.	N/
	AR ELE					OTAL DEPTH 90.0) ft	NORTHING				EASTING 2,003,189	24 H	R.	0.
				E REC		ME-55 80% 03/08/201) Mi			E Autom	
	ER D.F				-	TART DATE 12/17		COMP. DA							
		EPTH	BLC	w co			S PER FOO	ļ	SAMP.		L	1			
(ft)	ELEV (ft)	(ft)	0.5ft		0.5ft	0 25	50	75 100	NO.	мо	0 G	SOIL AND ROC ELEV. (ft)	K DESCRIPT		PTH
	(-7										Ū				
65						 	atch Line								
-00-	63.8 -	78.5							+		-	GRAY, SILTY FINE	SAND (A-2-4	WITH -	
	1		4	7	7	● 14				Sat.		TRACE MICA AND (FORMATIO	CLAY (BLACK N) <i>(continued)</i>		
60	±											-			
+		83.5	4	6	8					Sat.		-			
	+					· · · · · · · · · · · · · · · · · ·				out.		-			
55	Ŧ	00 F										-			
F	53.8 +	88.5	6	15	20					Sat.		- - 52.3			ç
Γ	- F											Boring Terminated SAND (COASTAL P	at Elevation 52	2.3 ft IN CREEK	
	+											FORM	IATION)	ONLEEN	
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									B	ORE	: <u>L</u>	OG							
WBS	4753	3.1.1			TI	P I -5987		c	DUNTY	ROB	ESO	N			GEOLOG	IST B. Painte	r		
SITE	DESC	RIPTION	BRI	DGE O	<u>N -L- (</u>	I-95) OVEF	R BIG MA	ARSH	SWAM	1P AT -L	ST	A. 586+1	14.00					GROUN	D WTR (ft)
BOR	NG NO	. S2_E	B2-A	SBL	S	TATION 5	87+14			OFFSE	ET 8	38 ft LT			ALIGNME	NT -L-		0 HR.	N/A
COL	LAR EL	. EV. 14	14.9 ft		т	OTAL DEP	FH 80.0	D ft		NORTH	ING	383,38	32		EASTING	2,003,050		24 HR.	FIAD
DRILL	. RIG/HA	MMER EF	F./DAT	E F&R	85785 C	ME-55 73%	03/01/20	19				DRILL M	ETHO) Muc	d Rotary		HAMM	ER TYPE	Automatic
DRIL	LER [D. Tignoi	-		ST	FART DATI	E 01/08	3/20		COMP	DA	TE 01/0)9/20		SURFACE	E WATER DEF	TH N/	Ą	
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT		BLOW	'S PER	FOOT			SAMP.	▼∕			SOIL AND RO	CK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50		75	100	NO.	Имо		ELEV. (ft)				DEPTH (ft)
155		+													-				
		‡																	
150		‡																	
130		‡													-				
		‡																	
145	144.9	<u>+ 00</u>													_144.9	GROUN		ACE	0.0
		‡	I WOH	WOH	WOH	•0····		: :	: : :		: :	SS-2043	20%	<u>s</u>		OWN-BLACK, C			
140	141.4	+ 3.5	 woн	WOH	1		· · · · · ·	: :	· · ·				Sat.		OR	OARSE SAND	DERÁT	ELY ORG/	ANIC
140	'	‡				N							001.		ìc	ORGANIC CON ORGANIC CON			.0')
	136.4	+ 8.5				$\begin{pmatrix} \mathbf{v} & \dots & \dots \\ \mathbf{v} & \dots & \dots \end{pmatrix}$	· · · · · ·	: :	· · · · · ·					N	<u>137.9</u>				7.0
135		1	2	3	5		· · ·	· ·		· · ·		SS-2045	30%	N	- т	GHT GRAY, SIL RACE ORGANI	CS, TRA	ČE GRÁV	EL
		1				:: <i>†</i> ::		: :	:::					N	F	FROM 23.5'-25.	0', HIGHL	Y PLAST	С
130	131.4	13.5	3	6	7		· · · · · ·	: :	· · · · · ·				w	N					
130	'	‡				$\begin{bmatrix} & & & \\ & & & & \\ & & & & & \\ & & & & $: :		· · ·			**		-				
	126.4	+ + 18.5				· · · \ · · · · \		: :	: : :		: :			N					
125	120.4	-	6	12	15		27						М		_				
		‡					j:::	· ·	· · ·					N					
100	121.4	23.5	6	12	14			: :	:::				м	N					
120	-	‡					<u></u>						IVI	N	-				
	116.4	+ 28.5					[: · · ·	: :	· · · · · ·							ORANGE, CLA			
115		<u> </u>	15	16	13		29	· ·	· · ·		• •		Sat.		- C	OARSE SAND	(A-2-4) V VICA	/ITH TRA	CE
		‡				· · · · ·	1:::	: :	· · · · · ·					ļ					
110	111.4	33.5	3	4	3		· · · · · ·	: :	· · · · · ·				Sat.						
110		‡				-¶(- ,							Oat.		-				07.0
	106.4	+ 38.5				I I XI I		: :	:::		: :			Ň	<u>107.9</u>	COAS		IN	<u> 37.0</u>
105		+	3	7	9	<u> </u>		• •		· · ·			М	N	_ DA	ARK GRAY, FIN -7), WITH TRA	CE ORG	ANICS, MI	LAY CA,
		‡				$\begin{vmatrix} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{vmatrix}$: :	: : :							AND GRAVE FOR	L (BLACH MATION		
100	101.4	43.5	4	9	11	· · · i·		: :	· · · · · ·				м	\bowtie					
100		‡					<u></u>			+ • • •			111	N	-				
	96.4	+ 48.5						· ·	· · · · · ·							ANGE-BROWN			
95		+	2	7	12	<u>· · ·</u>	9 <u> </u>	- -		· · ·			Sat.		FI -	NE TO COARS	A (BLACK	CREÉK	ΠΗ
		‡				:::;		: :	· · · · · ·					 		FOR	MATION)	
90	91.4	+ <u>53.5</u>	8	12	10	• • • • • •		· ·	· · · · · ·		•••		Sat.						
30		+				7		- -	· · ·	+ • • •			Jui.		-				
	86.4	+ + 58.5				::;/:		: :	· · · · · ·		:			-					
85		+	4	5	9	• • • • • • • • • • • • • • • • • • •	+ • • •	• •	• • •	· · ·	•••		Sat.		-				
		‡				$\left \left \begin{array}{c} \cdot \cdot \mathbf{i} \\ \cdot \cdot \mathbf{i} \\ \cdot \cdot \mathbf{i} \end{array} \right $: :	· · · · · ·						_ <u>82.9</u>				<u>62.0</u>
80	81.4	<u>+</u> 63.5	3	7	11			: :	· · · · · ·		:		w		G N	RAY, SILTY FIN WITH LITTLE M	IICA (BLA	ACK CREE	к-о) К
00	-	‡					•••			· · ·					-	FOR	MATION)	
	76.4	+ 68.5				'	\	: :	· · · · · ·										
75		1	7	10	20		30	• •			-		W		75.4				69.5

							1	ORE L				1			
	47533					P I -5987		Y ROBESO				GEOLOGIST B. Painte	r		
					N -L- (I-95) OVER BIG MAP	RSH SWAI	MP AT -L- ST	A. 586+	14.00				4	ID WTR (ft)
BOR	NG NO.	S2_E	B2-A S	SBL	S	TATION 587+14		OFFSET	88 ft LT			ALIGNMENT -L-		0 HR.	N/A
COLL	AR ELE	E V. 14	4.9 ft		те	OTAL DEPTH 80.0	ť	NORTHING	383,3	82		EASTING 2,003,050		24 HR.	FIAD
DRILL	RIG/HAN	IMER EF	F./DATE	E F&R	85785 C	CME-55 73% 03/01/2019			DRILL N	IETHO) Mu	id Rotary	HAMM	ER TYPE	Automatic
DRILI	LER D.	. Tignor			S	TART DATE 01/08/2	20	COMP. DA	TE 01/0	09/20		SURFACE WATER DEF	TH N/	A	
ELEV	DRIVE ELEV	DEPTH	BLC	W CO	UNT	BLOWS	PER FOO	Г	SAMP.	▼∕	L	SOIL AND RC			1
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	мо		ELEV. (ft)	ONDLO		DEPTH (f
75						Mat	ch Line			L					
	-					: : : : /: : : :						GRAY, CLAYEY SI	IICA (BLA	ACK CREE	A-2-4) EK <u>72</u> .
ļ	71.4	73.5			14						N	FORMATI DARK GRAY, FIN	ON) (con	tinued)	
70	-	F	6	8	14	22				W	N	— SILTY CLAY (A-7)	') WITH I	LITTLE M	CA
	-					· · · <i>p</i> · · · ·						- (BLACK ĈRE 67.9 - GRAY, CLAYEY SI			<u> </u>
65	66.4	78.5	5	5	8					Sat.		_ SAND (A-2-4) (BLACk	CREEK	
05	-	-								- Out.		- Boring Terminate	MATION d at Eleva	ation 64.9	
	-											- SAND (COASTAL	PLAIN) (E MATION	BLACK CF	REEK
	-	L)	
	-	-										-			
	-	F										-			
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GEOTECHNICAL BORING REPORT

PODEIOC

SITE D BORIN COLL		BRIDGE		FIP I -5987	COUNTY	ROBESO	N			GEOLOGIST Weis, J. M	1.	
BORIN COLL		BRIDGE					•				••	
COLL		BIGBOL	ON -L-	(I-95) OVER BIG MAF	SH SWAN	/IP AT -L- ST	A. 586+	14.00			GROUI	ND WTR (ft)
	NG NO. S2_E	B2-B_SBL	. 8	STATION 587+18		OFFSET 2	20 ft LT			ALIGNMENT -L-	0 HR.	11.9
	AR ELEV. 15	1.5 ft	1	OTAL DEPTH 100.0	ft	NORTHING	383,36	53		EASTING 2,003,116	24 HR.	9.4
DRILL F	RIG/HAMMER EF	F./DATE	VID3964 (CME-45C 91% 02/21/2019			DRILL M	ETHOD	Mud	Rotary	HAMMER TYPE	Automatic
	ER Powell, B		5	START DATE 05/27/2	21	COMP. DAT	FE 05/2	28/21		SURFACE WATER DEPT	TH N/A	
ELEV (ft)	DRIVE ELEV (ft) DEPTH (ft)	BLOW 0.5ft 0.5		-4	PER FOOT 50	- 75 100	SAMP. NO.	моі	L O G	SOIL AND ROC ELEV. (ft)	K DESCRIPTION	l DEPTH (ft)
155									-			
				 	· · · · ·				Ē	151.5 BOADWAY F	MBANKMENT	0.0
150 -	150.5 + 1.0	12 7	4					м			EY SAND (A-2-6)
	148.0 3.5	6 5	5 6	-			SS-07	16%				
145 -	145.5 _ 6.0	3 5	5 5	_ . T '.' .				W		<u>146.0</u> BROWN, CLAY	EY SAND (A-2-6	<u> </u>
Ľ	143.0 1 8.5			• • • • • • • • • • • • • • • • •				Sat.				
	+	6 8	3 7									
140	+											
	138.0 13.5	woн wo	он 4	- ./			SS-08	29%				<u> </u>
135	+									BROWN, SANDY SIL GR	_T (A-4) WITH T AVEL	RACE
Ľ	133.0 I 18.5			_ {:::: ::::					<u>-</u>	. <u>133.5</u>		<u> </u>
	1	WOH WO	DH 3	$\left \left \phi_{3} \cdot \cdot \cdot \right \cdot \cdot \cdot \cdot \cdot \right \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot$				30% Sat.	St		CLAY (A-7-6)	
130	$\frac{1}{2}$									129.5 TAN, SILTY CLA		<u> 22.0</u>
, F	128.0 23.5	1 '	2					Sat.		TAN, SILTT CLA	TET SAND (A-2-	0)
125	Ŧ							out.	\mathbb{N}^{-}			
	123.0 28.5			1						<u>123.5</u>	SAND (A-3)	
	+	2 4	4					Sat.	0 0 0 0 0 0 0 0 0 0 0 0	TAN, F. C	SAND (A-3)	
120	-											22.0
. -	118.0 33.5	2 3	3 3					Sat.		- <u>118.5</u> TAN, CLAYEY	F. SAND (A-2-6)	<u> </u>
115	Ŧ							out.	\sim			
	113.0 38.5							i i				
	+	1	2					Sat.	\sim			
110	$\frac{1}{2}$							i i		- 108.5		12.0
. -	108.0 43.5	4 1	4 14					Sat.			CSE. SAND (A-1	-b) <u>43.0</u>
105	-								0000	- 104.5		47.0
	103.0 48.5			_ · · · /· · · · ·						GRAY, CLAYE	Y SAND (A-2-6)	<u>+1.0</u>
	+	5 5	5 6					Sat.				
100	+			$\left \left \frac{1}{2} \right \frac{1}{2} \left \frac{1}{2} \left \frac{1}{2} \right \frac{1}{2} \left \frac{1}{2} \right \frac{1}{2} \left \frac{1}{2} \right \frac{1}{2} \left \frac{1}{2} \left \frac{1}{2} \left \frac{1}{2} \right \frac{1}{2} \left \frac{1}{2} \left 1$	· · · · ·	· · · · ·				- 98.5		53.0
. -	98.0 53.5	5 8	3 8	$ \begin{vmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \bullet^{16} \end{vmatrix} $				Sat.		- <u>56.5</u> GRAY, F.	SAND (A-3)	<u>55.0</u>
95	+								· · · · ·			
	93.0 58.5			_ : <i>/</i> :: ::::					<u></u>	93.5 BROWN TO GRAY		$\frac{58.0}{1}$
	+	6 6	5 1					Sat.		BROWNTO GRAT	, COL. OAND (A	(-6)
90	+				+	+						
,	88.0 63.5	8 1	2 16					Sat.	000			
85	<u>+</u>									- 84.5		67.0
	83.0 68.5								N I E	GRAY, CLAY	(EY SILT (A-5)	<u>07.0</u>
_ Γ	±	7 1	1 16	4 27 · · ·				w	N V			
80	Ŧ				+ • • • •	+			" v [
,	78.0 73.5	5 1	0 11	$ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot $				Sat.		. 77.0		74.5
75	Ŧ					· · · ·			Ø-	GRAY, SAN	DY SILT (A-4)	

									B	ORI
[WBS	47533	.1.1			T	Ρ	-5987	COUNT	Y ROE
	SITE	DESCR	IPTION	BRID	GE O	N -L- (1-	95) OVER BIG MAR	SH SWAN	/IP AT -
	BOR	NG NO.	S2_E	B2-B_	SBL	S	T/	TION 587+18		OFFS
	COL	LAR ELE	EV. 15	1.5 ft		Т	0.	TAL DEPTH 100.0	ft	NORT
	DRILL	. RIG/HAM	IMER EF	F./DATI	E MID	3964 C	MI	E-45C 91% 02/21/2019		
	DRIL	LER Po	owell, B				T/	ART DATE 05/27/2		COMF
	ELEV (ft)	DRIVE ELEV	DEPTH (ft)						PER FOOT 50	
	(14)	(ft)	(19	0.5ft	0.5ft	0.5ft	\vdash	0 25	1	75
	75							Mat	ch Line	
	13						t	· · · · · · · · · · · · · · · · · · ·	· · · ·	T
		73.0	78.5	5	8	13		· · · · · · · · · · · · · · · · · · ·		
	70	-	-					····		· ·
		68.0	83.5	5	11	15				
	65	-	F							
		63.0	88.5					· · · ·/ · · · ·		
		- 00.0	- 00.0	7	10	10				
	60	-						····		
		58.0	93.5	10	12	18				
	55	-	-					$\begin{array}{c c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \qquad \begin{array}{c} \bullet & 30 \\ \bullet & \cdot \cdot \end{array}$		
		53.0	98.5					/		
			-	7	12	13				
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R SII		-	F							
T BOF		-	F							
NCDOT BORE SINGLE B02_15987_GEO_BRDG_L61712.GPJ NC_DOT.GDT 12/10/21		-	F							
ź			L				L			

UNT	Y ROBESO	N		GEOLOGIST Weis, J. M.	
SWA	MP AT -L- ST	A. 586+14.00)	GROUND WT	R (ft)
	OFFSET 2	20 ft LT		ALIGNMENT -L- 0 HR.	11.9
	NORTHING	383,363		EASTING 2,003,116 24 HR.	9.4
	1	DRILL METHO	D Mu	ud Rotary HAMMER TYPE Automa	atic
	COMP. DAT	TE 05/28/21		SURFACE WATER DEPTH N/A	
FOO	r	SAMP.	1 L		
	75 100	NO. MO	0 0 G	SOIL AND ROCK DESCRIPTION ELEV. (ft) DEI	PTH (ft
ne					
				GRAY, SANDY SILT (A-4) (continued) GRAY, SANDY CLAY (A-6)	78.0
		W		GRAY, SANDY CLAY (A-6)	
		Sat		68.5 GRAY, CLAYEY SAND (A-2-6) WITH	<u> </u>
		- Sat	///	CEMENTED SAND FRAGMÉNTS	
			//		<u> 88.0</u>
· · ·		Sat	000	GRAY, CSE. SAND (A-1-b) WITH TRACE CEMENTED SANDS	
	· · · · · ·		000 000 000	► ━	
				-	
		Sat			
					98.0
		Sat	\sim	GRAY, CLAYEY F. SAND (A-2-6)	100.0
			-••>	 Boring Terminated at Elevation 51.5 ft IN 	100.0
				SAND (COASTAL PLAIN) (BLACK CREEK	
				- <u>Other Samples:</u>	
				ST-04 (18.0 - 20.0)	
				-	
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BORING NO. S2_EB2- COLLAR ELEV. 143.6 DRILL RIG/HAMMER EFF./D DRILLER R. Smith ELEV DRIVE ELEV (ft) DEPTH 145 143.6 0.0	-B NBL 5 ft DATE RF0007 BLOW COUN* 5ft 0.5ft 0.	L- (I-95) OVER BIG MARSH SWA STATION 587+05 TOTAL DEPTH 85.0 ft 74 CME-55 80% 03/08/2019 START DATE 12/12/19	OFFSET 84 ft RT NORTHING 383,316 DRILL METHOD Mud COMP. DATE 12/12/19 SAMP. L V V	GEOLOGIST W. Pesi ALIGNMENT -L- EASTING 2,003,209 Rotary HAMM SURFACE WATER DEPTH N/ SOIL AND ROCK DESC ELEV. (ft)	GROUND WTR (ft) 0 HR. N/A 24 HR. 0.6 ER TYPE Automatic A
BORING NO. S2_EB2- COLLAR ELEV. 143.6 DRILL RIG/HAMMER EFF./D DRILLER R. Smith ELEV DRIVE ELEV (ft) DEPTH 145 143.6 0.0	-B NBL 5 ft DATE RF0007 BLOW COUN* 5ft 0.5ft 0.	STATION 587+05 TOTAL DEPTH 85.0 ft 74 CME-55 80% 03/08/2019 START DATE 12/12/19 T BLOWS PER FOO	OFFSET 84 ft RT NORTHING 383,316 DRILL METHOD Mud COMP. DATE 12/12/19 SAMP. L	EASTING 2,003,209 Rotary HAMM SURFACE WATER DEPTH N// SOIL AND ROCK DESC	0 HR. N/A 24 HR. 0.6 ER TYPE Automatic
COLLAR ELEV. 143.6 DRILL RIG/HAMMER EFF./D DRILLER R. Smith DRILLER R. Smith ELEV DEPTH E (ft) DRIVE (ft) DEPTH (ft) 0. 145 143.6 0.0 0.0 0.0	6 ft DATE RF0007 BLOW COUN .5ft 0.5ft 0.	TOTAL DEPTH 85.0 ft 74 CME-55 80% 03/08/2019 START DATE 12/12/19 T BLOWS PER FOO	NORTHING 383,316 DRILL METHOD Mud COMP. DATE 12/12/19 F SAMP. ZE 100	EASTING 2,003,209 Rotary HAMM SURFACE WATER DEPTH N// SOIL AND ROCK DESC	24 HR. 0.6 ER TYPE Automatic
DRILL RIG/HAMMER EFF_JD DRILLER R. Smith ELEV DRIVE ELEV DEPTH (ft) 0. 145 143.6 0.0	BLOW COUN 5ft 0.5ft 0.	Image: 100 minipage 12/12/19 START DATE 12/12/19 T BLOWS PER FOO	DRILL METHOD Mud COMP. DATE 12/12/19 F SAMP. L O O	Rotary HAMMI SURFACE WATER DEPTH N/ SOIL AND ROCK DESC	ER TYPE Automatic
DRILLER R. Smith ELEV DRIVE ELEV DEPTH (ft) 145 143.6	BLOW COUN .5ft 0.5ft 0.	START DATE 12/12/19 T BLOWS PER FOO	COMP. DATE 12/12/19	SURFACE WATER DEPTH N/	
ELEV (ft) DRIVE ELEV (ft) DEPTH (ft) I 145	.5ft 0.5ft 0.	T BLOWS PER FOO		SOIL AND ROCK DES	Α
LEV (ft) ELEV (ft) DEPTH (ft) 0. 145	.5ft 0.5ft 0.		75 100 115 7 0		i
143.6 - 0.0	1 1 :				CRIPTION DEPTH (ft)
		2		143.6 GROUND SURF, ROADWAY EMBANI	
140 140.1 3.5 W	он мон	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	SS-72 271%	141.6 BROWN-GRAY, CLAYEY S COARSE SAND (A-2-4) W ORGANICS ALLUVIAL	VITH TRACE
135 135.1 8.5	7 7 9	9		- <u>136.6</u> - <u>(ORGANIC CONTEN)</u> - <u>UNDIVIDED COASTA</u> GRAY AND BROWN-TAN, (Γ=29.6%) Ι. ΡΙΑΙΝ CLAYEY SILTY
	2 4 4	4	Sat.	FINE SAND (A-2	
<u>25 125.1 18.5</u>	1 2 2	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Sat		
20 120.1 23.5					
	1 2 4	4 • 6•••••••••••••••••••••••••••••••••••	Sat. Sat.		
<u>15 115.1 28.5</u>	1 1 :	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Sat. Sat.		
10 110.1 33.5	2 5	7	Sat.	- 106.6	37.0
05 105.1 38.5	7 7	8		COASTAL PLA DARK GRAY, FINE SANDY (A-7) (BLACK CREEK FC	IN Y SILTY CLAY
00 100.1 43.5	3 5 9	5 (10 · · · · · · · · · · · · · · · · · · ·	Sat.	101.6 GRAY AND ORANGE-BR FINE TO COARSE SAND TRACE CLAY AND MICA (E	(A-2-4) WITH
95 95.1 48.5	10 14 1	3	Sat.	FORMATION)
90 90.1 53.5	11 9 8	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$			
35 85 1 58 5			Sat. Sat.		
	13 18 1	16 	Sat.		Y SILTY CLAY 62.0
	10 19 2	24		(A-7) WITH TRACE MICA (I FORMATION	BLACK CREEK
75 75.1 68.5	5 12 1	17 9 29			72.0
70 70.1 73.5	3 7 1	12 · · · · · · · · · · · · · · · · · · ·	Sat.	GRAY, SILTY FINE TO CC (A-2-4) WITH TRACE MI CREEK FORMAT	CA (BLACK

	47500					, al	5007					1					
	47533						5987			Y ROBES		14.00		GEOLOGIST W. Pesl			ITD (1
									sun sana	MP AT -L- S							•
	NG NO.			NBL	_	STATION 587+05 TOTAL DEPTH 85.0 ft				OFFSET				ALIGNMENT -L-		0 HR.	N//
	AR ELE								ft	NORTHIN				EASTING 2,003,209		24 HR.	0.0
				E RFC				3/08/2019				. METHO	D Mu				matic
DRILI							DATE	12/12/		COMP. DA			1∟1	SURFACE WATER DEPTH	H N/A		
ELEV (ft)	ELEV	DEPTH (ft)	0.5ft	W CO	0.5ft	0	25		PER FOO 50	7 <u>5</u> 100	SAM		0	SOIL AND ROCK	DESCF		
(7	(ft)	(/	0.51	0.51	0.51		I	,	1				I G	ELEV. (ft)		C	DEPTH
								•••									
65	· — — —	<u>+</u>	5	- 9 -	-10-	+ -	19	Mat	ch Line		+ +	 		GRAY, SILTY FINE		RSE SAND	
	-	ŧ				:								_ (A-2-4) WITH TRA _ CREEK FORMAT	CE MIC/	A (BLACK	
60	60.1	83.5]].								-	, (
		Ŧ	7	11	12	ļĽ.		<u>3</u>			1	Sat.		– <u>58.6</u> – Boring Terminated at	4 F Laura 41	50 6 4 101	85
	-	Ŧ												 SAND (COASTAL PLA 	AIN) (BL	ACK CREEK	
	-	Ŧ												- FORMA	ATION)		
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GEOTECHNICAL BORING REPORT

CONTENTS

5987B

REFERENCE

<u>SHEET NO.</u>	DESCRIPTION						
I	TITLE SHEET						
2	LEGEND (SOIL & ROCK)						
3	SITE PLAN						
4	PROFILE						
5-7	CROSS SECTIONS						
8-16	BORE LOGS						

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER LITTLE MARSH SWAMP AT -L- STA. 803 + 15.00

\mathbf{m} m ら 4 PROIEC

STATE STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C. I–5987B	1	16

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 1999 107-6860. 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 BORNICS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-FLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE ONSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS MOLATED IN THE SUBSURFACE RELIVESTIGATIONS AND REAS RECORDED AT THE TIME OF THE INVESTIGATION. THES WATER LEVELS OR SOL MOISTURE CONDITIONS MAY LARY CONSIDERABLY WITH THE ACCORDING TO CLIMATIC CONDITIONS NICLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

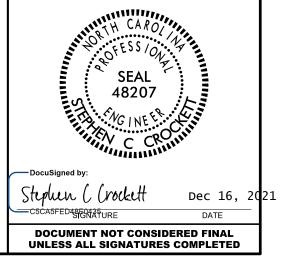
THE BIDDER OF CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT, FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE OEPATTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION OF THE DEPARTMENT AS TO THE TYPE OF MATERNALS AND COCUMPTERED. OR 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 OF FOR ANY REXTENSION OF TIME FORM ANY CASON RESULTING FROM THE ACTUAL CONDENSATION. OR FOR AN 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 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. 2.

SI D

PERSONNEL

F	&R, INC.
G	OODNIGHT, D.J.
INVESTIGATED BY .	F&R /FALCON
DRAWN BYCRO	OCKETT, S.C.
CHECKED BY	<i>MM, J. R</i> .
SUBMITTED BY	FALCON
DATE DECEM	

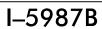


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

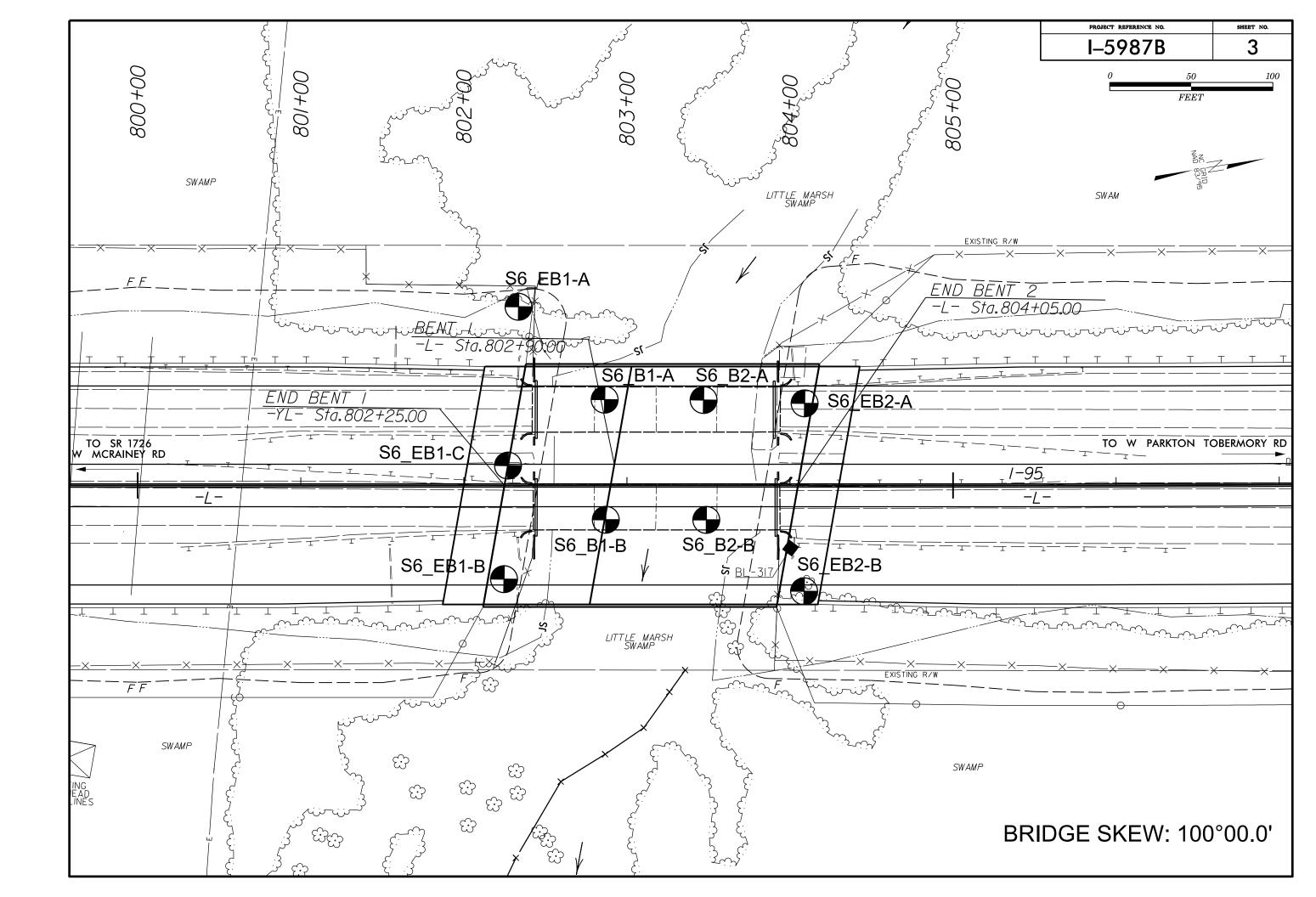
			SOIL	DESCI	RIPTI	<u>on</u>						G	RADATION						ROCK	DESCRIP	TION
BE PENETI ACCORDIN IS BA CONSISTE	RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLIDA A CONTINUOL STANDARD PEI HE AASHTO SY TEXTURE, MOI CLOB	S FLIGHT PC ETRATION TE STEM. BASIC STURE, AASHT	DWER AUG EST (AAS DESCRIP O CLASS	GER AND SHTO T 2 PTIONS G SIFICATIO) YIELD LE 206, ASTM GENERALLY DN, AND OT	SS THAN 10 D1586). SO INCLUDE T HER PERTIN	00 BLOWS PI IL CLASSIFI HE FOLLOWI IENT FACTOF	ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATE	NDICATE	ES THAT SOIL IXTURE OF UN	PARTICLES ARE AL	L APPROXIM ZES OF TWO	MATELY THE SAME SIZE.	ROCK LINE I SPT REFUSAI BLOWS IN N REPRESENTEI	NDICATE L IS PE ON-COAS D BY A	ES THE LEVE ENETRATION E STAL PLAIN ZONE OF WE	AIN MATERIAL THA L AT WHICH NON- BY A SPLIT SPOOM	AT WOULD Y -COASTAL PI N SAMPLER TRANSITIO	YIELD SPT REFUSAL IF TEST LAIN MATERIAL WOULD YIELU EQUAL TO OR LESS THAN Ø NN BETWEEN SOIL AND ROCK
AS V	S MINERALO	GICAL COMPOS RAY.SILTY CLAY.	TION, ANGULA NOIST WITH IN	TERBEDD	TRUCTURE DED FINE	SAND LAYE	ITY,ETC. FO RS.HIGHLY PL	JR EXAMPLE .ASTIC.A-7-6	•				SOIL GRAINS IS D	SIGNATED	BY THE TERMS:	WEATHERED	HLS HR		a		RIAL THAT WOULD YIELD SP
		OIL LEGE		AASH	HTO C	LASSIF	ICATIO	N		ANGULAR, SUBAN			ICAL COMPOS			ROCK (WR)			100 BLOWS PER		
GENERAL CLASS.	(GRANULAR MATER ≤ 35% PASSING 4 A-3	200)	(>	> 35% PASS	MATERIALS SING #200) A-6 A-7		RGANIC MATER	IALS		MES SU	ICH AS QUART	Z, FELDSPAR, MICA, T	ALC, KAOLIN		CRYSTALLINE ROCK (CR)				SPT REFUSA	GNEOUS AND METAMORPHIC R AL IF TESTED. ROCK TYPE II TC.
	A-1-a A-1-b		A-2 2-5 A-2-6 A-2		6-H	A-0 A-7-5 A-7-6		A-4, A-5 A-6, A-7					PRESSIBILITY			NON-CRYSTAL	LINE				IETAMORPHIC AND NON-COAST WOULD YEILD SPT REFUSAL
SYMBOL				3	171					SLIG+	HTLY C	OMPRESSIBLE Y COMPRESSIB	3LE	LL < 31 LL = 31	- 50	COASTAL PL	AIN				LLITE, SLATE, SANDSTONE, ET S CEMENTED INTO ROCK, BUT
% PASSING	000000000	000000000000000000000000000000000000000		- energiesene				SILT-			LY COM	IPRESSIBLE		LL > 50		SEDIMENTARY (CP)				ROCK TYPE	INCLUDES LIMESTONE, SAND
*40 3	0 MX 0 MX 50 MX	51 MN					GRANULAR SOILS	CLAY SOILS	MUCK, PEAT			GRANULAR	STUT - CLAY	IAL					WE	ATHERIN	IG
MATERIAL PASSING •40 LL	_		MN 40 MX 41	MN 40 M)	x 41 MN	40 MX 41 MM	SOIL	S WITH		ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MATT MODERATELY ORGANIC	ATTER TER	<u>SOILS</u> 2 - 3% 3 - 5% 5 - 10%	SILT - CLAY <u>SOILS</u> 3 - 5% 5 - 12% 12 - 20%	TRACE LITTLE SOME	20 - 35%	FRESH VERY SLIGHT (V SLI.)	HAMME ROCK (ER IF CRYSTAL GENERALLY FF	LLINE. RESH, JOINTS STAI	NED, SOME J	SHOW SLIGHT STAINING. ROCK IOINTS MAY SHOW THIN CLAY (RIGHTLY. ROCK RINGS UNDER (
PI GROUP INDEX USUAL TYPES S	6 MX Ø TONE FRAGS.	0 0	MX 11 MN 11 4 MX	8 MX	(12 MX	16 MX NO M	MOL X AMOL OR	Derate JNTS of Ganic	HIGHLY ORGANIC SOILS				> 20% IUND WATER BORE HOLE IMMEDIA	HIGHLY		SLIGHT (SLI.)	OF A (ROCK (1 INCH.	CRYSTALLINE GENERALLY FF . OPEN JOINT	NATURE. RESH, JOINTS STAI S MAY CONTAIN CL	NED AND DIS _AY. IN GRAM	SCOLORATION EXTENDS INTO R NITOID ROCKS SOME OCCASION
	GRAVEL, AND SAND		y or clayey El and sand		GILTY GILS	CLAYEY SOILS	M	ATTER					EVEL AFTER 24			MODERATE					INE ROCKS RING UNDER HAMME TION AND WEATHERING EFFECT
GEN. RATING AS SUBGRADE		EXCELLENT TO G	000		FAIR TO	POOR	FAIR TO POOR	POOR	UNSUITABLE	 	PERC		SATURATED ZONE, OF		ARING STRATA	(MOD.)	GRANIT DULL S	TOID ROCKS, M	10ST FELDSPARS A	RE DULL AND	ID DISCOLORED, SOME SHOW CL SIGNIFICANT LOSS OF STRENGT
		PI OF A-7-5 SUB												<u> </u>		MODERATELY	ALL R	OCK EXCEPT (ED. IN GRANITOID ROCKS, ALL
			ISISTENC	1		STANDARD		IGE OF UNC		+			ANEOUS SYMBO	11.5		SEVERE (MOD. SEV.)	AND C	AN BE EXCAV	ATED WITH A GEOL	OGIST'S PIC	ZATION. ROCK SHOWS SEVERE I CK. ROCK GIVES "CLUNK" SOUND
PRIMARY SI		COMPACT CONSIS	TENCY	PENE	TRATION (N-VA)		E COM	PRESSIVE S (TONS/F1	STRENGTH	L ROADWAY EMBI			DIP & DIP DIF DIP & DIP DIF OF ROCK STRU		SLOPE INDICATOR	SEVERE (SEV.)	ALL RO	ROCK EXCEPT (ED IN STRENC	GTH TO STRONG SO	— ED OR STAINE DIL. IN GRAN	ED. ROCK FABRIC CLEAR AND NITOID ROCKS ALL FELDSPARS
GRANULA	R	LOC			4 TO 10 TO			N/A					- 131 PM		INSTALLATION CONE PENETROMETER				SUME FRAGMENTS L YIELD SPT N VALU		ROCK USUALLY REMAIN. P <u>F</u>
	HESIVE)	DEN VERY VERY	DENSE SOF T	<u> </u>	30 TC > 5 < ;	50 2		< 0.25		THAN ROADWAY	Y EMBA		AUGER BORING	<u>م</u>	SOUNDING ROD	VERY SEVERE (V SEV.)	BUT M REMAIN	MASS IS EFFEC	CTIVELY REDUCED ITE IS AN EXAMPLI	TO SOIL STA E OF ROCK N	ED. ROCK FABRIC ELEMENTS A ATUS, WITH ONLY FRAGMENTS (WEATHERED TO A DEGREE THA TESTED, WOULD YIELD SPT N
GENERAL SILT-CLA MATERIA (COHESIV	ΑY L	SO MEDIUM ST VERY	STIFF FF STIFF		2 TC 4 TC 8 TO 15 TC	08)15)30		0.25 TO 0.5 TO 1 1 TO 2 2 TO 4	1.0 ?				' MONITORING WI △ PIEZOMETER INSTALLATION	ш ф	← TEST BORING WITH CORE)— SPT N-VALUE	COMPLETE	ROCK F	REDUCED TO S	SOIL. ROCK FABRIC	NOT DISCER	ERNIBLE, OR DISCERNIBLE ONLY ESENT AS DIKES OR STRINGER
		HA						> 4					DATION SYMB						ROCK	HARDNE	ESS
U.S. STD. SIE	VE 0175	1	4 10			60 20	0 270					CLASSIFIED E			SSIFIED EXCAVATION -	VERY HARD			HED BY KNIFE OR WS OF THE GEOLOO		. BREAKING OF HAND SPECIMEN
OPENING (MM	1)		4.76 2.00		42 Ø	0.25 0.0	75 0.053				2 UN 1 UN	NSUITABLE WA	ISTE L EXCAVATION -	ACCEP	TABLE, BUT NOT TO BE IN THE TOP 3 FEET OF IKMENT OR BACKFILL	HARD	CAN BE		BY KNIFE OR PIC		H DIFFICULTY. HARD HAMMER E
BOULDER (BLDR.)	(C	:0B.)	GR.)	SAI (CSE.	ND . SD.)	SAI (F S	ND 50.)	SILT (SL.)	CLAY (CL.)		AL	ABB	GRADABLE ROCK REVIATIONS MEDIUM		- VANE SHEAR TEST	MODERATELY HARD	EXCAV		D BLOW OF A GEOU		DR GROOVES TO 0.25 INCHES D CK. HAND SPECIMENS CAN BE I
GRAIN MM SIZE IN.	12	75 3 SOIL MOIS	2.0			ION OF	0.05	0.005 S) 	BT - BORING TERMINATED CL CLAY CPT - CONE PENETRATION		MICA. MOD	- MICACEOUS - MODERATELY NON PLASTIC	wea. γ -	- WHATHERED - WEATHERED UNIT WEIGHT DRY UNIT WEIGHT	MEDIUM HARD	can Be Can Be	E GROOVED OF	R GOUGED 0.05 INC IN SMALL CHIPS		BY FIRM PRESSURE OF KNIFE 1 INCH MAXIMUM SIZE BY HARE
	MOISTURE ERBERG LIN	SCALE	FIELD M DESCR	10ISTURE	c l			ISTURE DES	SCRIPTION	CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAT	ST	ORG PMT -	· ORGANIC - PRESSUREMETER TI · SAPROLITIC	EST <u>S</u>	AMPLE ABBREVIATIONS BULK	SOFT	can Be From	E GROVED OR CHIPS TO SEV	GOUGED READILY	SIZE BY MOD	R PICK. CAN BE EXCAVATED IN DERATE BLOWS OF A PICK POI
		LIMIT	- SATUR (SAT					Y WET,USU ROUND WATE		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS		SD SL	SAND, SANDY SILT, SILTY SLIGHTLY	SS - ST -	- SPLIT SPOON - SHELBY TUBE - ROCK	VERY SOFT	CAN B	E CARVED WIT DRE IN THICKN	TH KNIFE. CAN BE	EXCAVATED	READILY WITH POINT OF PICK ER PRESSURE. CAN BE SCRATC
PLASTIC RANGE <			- WET -	· (w)				DRYING TO)	FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES		TRICONE REFUSAL	RT · CBR	- RECOMPACTED TRIAXIAL - CALIFORNIA BEARING						BEDDING
(PI) PL	PLASTI	C LIMIT			•		TIMUM MOI	STURE		HI HIGHLY		v - v	ERY		RATIO	TERM			SPACING		TERM
		M MOISTURE AGE LIMIT	- MOIST	- (M)	S	SOLID; AT	or near (PTIMUM MC	DISTURE	DRILL UNITS:	ADVA	ENT USEE ANCING TOOLS: CLAY BITS	ON SUBJECT	HAMMER		VERY WID WIDE MODERATE		3 DSE 1	E THAN 10 FEET 3 TO 10 FEET 1 TO 3 FEET .16 TO 1 FOOT	TH TH	ERY THICKLY BEDDED HICKLY BEDDED HINLY BEDDED Ø ERY THINLY BEDDED Ø.
			- DRY -	(D)			ADDITIONAI TIMUM MOI	_ WATER TO	D	Х СМЕ-45С		6" CONTINUOL	JS FLIGHT AUGER	CORE SI		CLOSE VERY CLC	SE		THAN 0.16 FEET	TH TH	HICKLY LAMINATED 0.0 HINLY LAMINATED
			PL	ASTIC	CITY						님	8" HOLLOW A		□-в _	П-н					DURATIO	
	PLASTIC	STIC	PLAS1	<u>TICITY I</u> Ø-5 6-15		<u>·D</u>	Ē	DRY STRENC VERY LOW SLIGHT		CME-550		TUNGCARBI	-			FOR SEDIMEN		IULKS, INDURA	RUBBING W	ITH FINGER	MATERIAL BY CEMENTING,H FREES NUMEROUS GRAINS; IMER DISINTEGRATES SAMPLE
	ERATELY PI			16-25 26 OR M	MORE			MEDIUM HIGH		PORTABLE HOIST			W∕ ADVANCER <u>2 ¹⁵∕16</u> •STEEL TEETH	PC	DST HOLE DIGGER	MODEF	ATELY	INDURATED	BREAKS EA	SILY WHEN	RATED FROM SAMPLE WITH S HIT WITH HAMMER.
				COLO						1	□	TRICONE	TUNGCARB.		DUNDING ROD	INDUR	ATED				T TO SEPARATE WITH STEEL WITH HAMMER.
		INCLUDE COLO ICH AS LIGHT										CORE BIT			NE SHEAR TEST	EXTRE	MELY I	INDURATED		MER BLOWS	REQUIRED TO BREAK SAMPL

PROJECT REFERENCE NO.

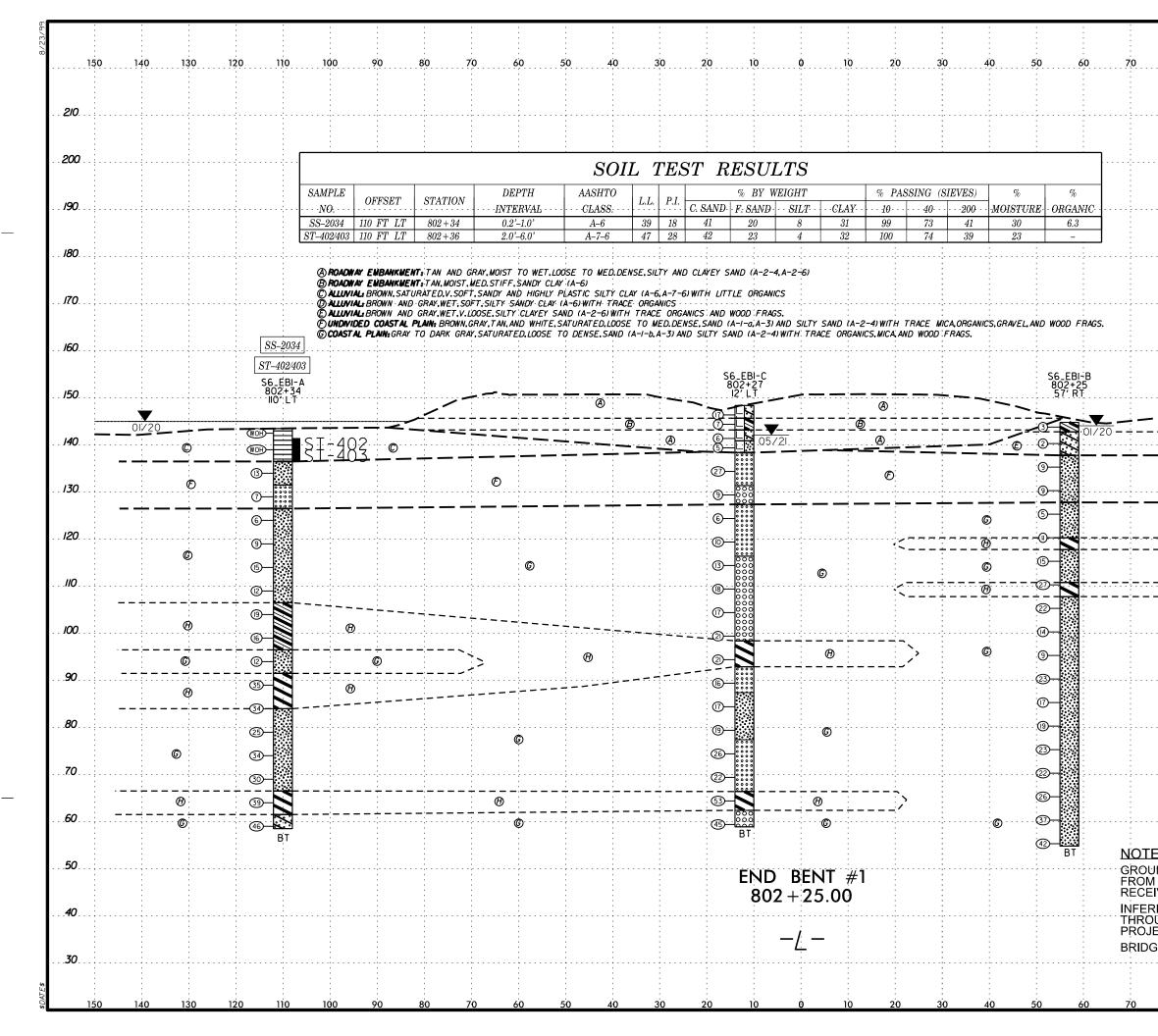


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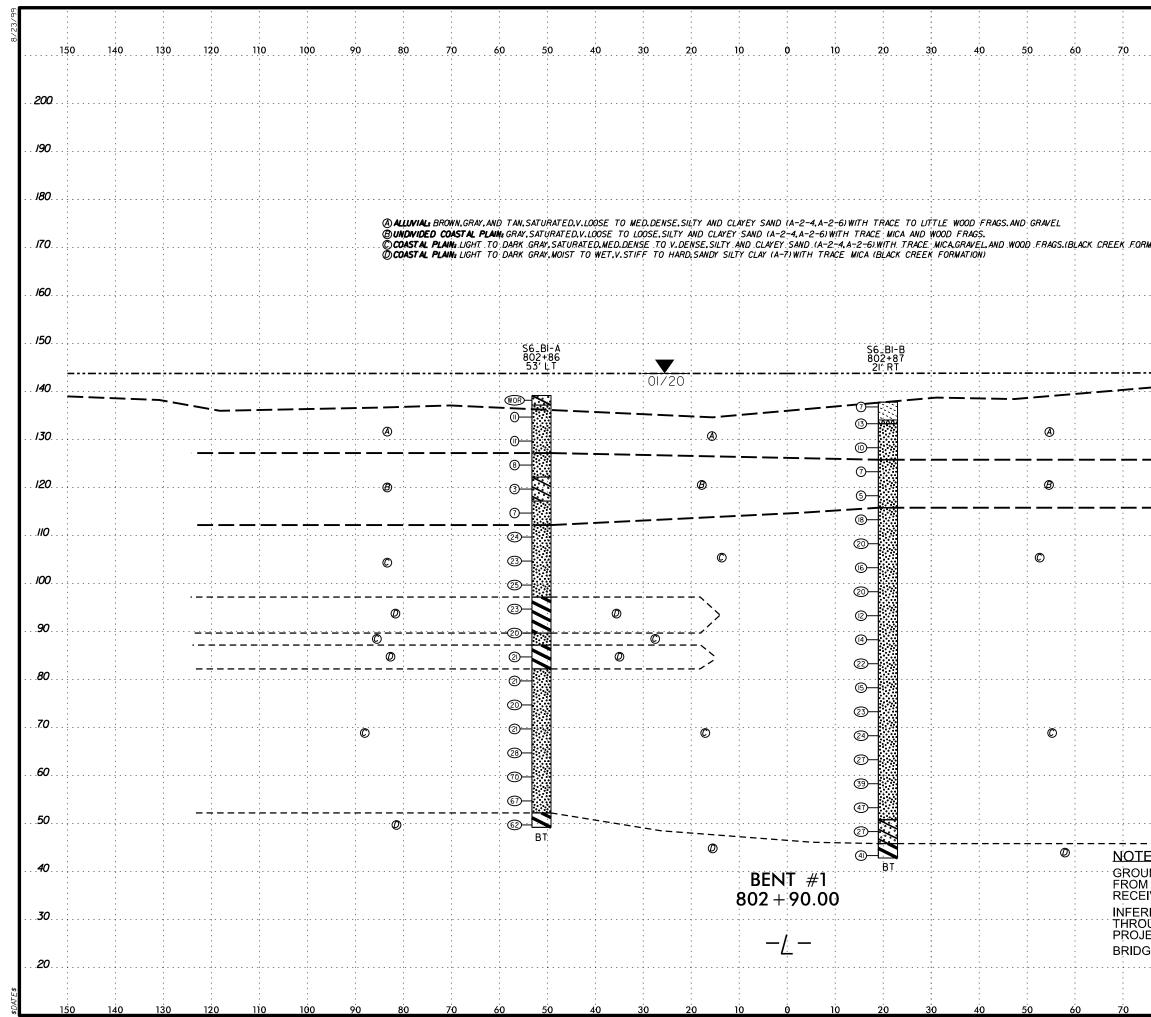
	TERMS AND DEFINITIONS
D. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
N VALUES >	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
ICK THAT CLUDES GRANITE,	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
C.	OF SLOPE.
MAY NOT YIELD	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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
ATINGS IF ODD	HORIZONTAL.
OATINGS IF OPEN, AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
СК ИР ТО	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN NY. ROCK HAS	<u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIG⊾NAL POSITION AND DISLODGED FROM PARENT MATERIAL.
AS COMPARED	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
ELDSPARS DULL OSS OF STRENGTH	FIELD.
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
VIDENT BUT	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
E DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
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
S. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF
	RUN AND EXPRESSED AS A PERCENTAGE.
	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
S 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.
EEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
ETACHED	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
R PICK POINT. BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF I FOUT INTO SUIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
520#5 0. IIIE	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
T. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
PIECES 1 INCU	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH IED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
-	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TIN3.TIN
THICKNESS	DATED 05/2I
4 FEET .5 - 4 FEET	ELEVATION: FEET
16 - 1.5 FEET	
3 - 0.16 FEET	
08 - 0.03 FEET 0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
AT, PRESSURE, ETC,	
EEL PROBE;	
PROBE:	
	DATE: 8-15-14



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20 (A) ROADWAY ENBANKUENT: TAW AND GRAY, MOIST TO	NET LOOSE TO WED DENSE SUTY AND	CLAYEY CAND (A-2-4 A-2-6				·····		I	-L- SIA. 803 +15.	.00
BROADWAY ENBANKMENT: TAN AND GRAF, MUIST TO BROADWAY ENBANKMENT: TAN, MOIST, MED. STIFF, SAN		CLATET SAND (A-2-4,A-2-6	,							
210 CARTIFICIAL FILL: GRAY. SATURATED. V. LOOSE. F. TO C.		4) WITH TRACE ORGANICS, LITT	LE GRAVEL.AND LITT	LE WOOD FRAGS.						
EUNDIVIDED COASTAL PLAIN: BROWN, TAN, AND GRAY, S										
COASTAL PLAIN: GRAY, SATURATED, MED. DENSE TO 00 ©COASTAL PLAIN: GRAY, WET TO SATURATED, V.STIFF					ID WOOD FRAGS.(BLACK CRE	EEK FORMATION)				
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a a	SAMPLI NO.	E OFFSET STATION	DEPTH INTERVAL	AASHTO CLASS. L.L. P.I	% BY WEIGHT C. SAND F. SAND SILT	% PASSING (SIEV) CLAY 10 40 2	ES) % % 200 MOISTURE ORGANIC			
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WBS	47533	3.1.1			т	P I-5987B	COU	NTY ROBES	ON			GEOLOGIST B. Painter		
SITE	DESCR	IPTION	Brid	ge on -	L- (I -9	5) over Little N	larsh Swamp at	-L- Sta. 803+	15				GROUN	D WTR (ft
BOR	NG NO.	S6_E	B1-A		s	TATION 802	+34	OFFSET	110 ft LT	-		ALIGNMENT -L-	0 HR.	N/A
COLL	AR EL	E V. 14	13.5 ft		т	OTAL DEPTH	85.0 ft	NORTHIN	G 403,4	24		EASTING 2,010,186	24 HR.	N/A
DRILL	. RIG/HAN	IMER EF	F./DAT	E F&F	R5785 (CME-55 73% 03	3/01/2019		DRILL	IETHOD	Muc	d Rotary HAMN	IER TYPE	Automatic
DRIL	LER D	. Tignoi	-		S	TART DATE	01/07/20	COMP. D/	TE 01/	07/20		SURFACE WATER DEPTH 0.	3ft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	DW CO	UNT 0.5ft	0 25	BLOWS PER FC 50	OT 75 100	SAMP. NO.	моі	L O G	SOIL AND ROCK DES	CRIPTION	DEPTH (
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145	- - 143.5 -									▼	- - -	WATER SURFACE (01/07/20)	0
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135	- 135.0	85					· · · · · · · · · · · ·	· · · · · · ·			-			7
100			3	6	7	· ·••13- · ·/ · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · ·		Sat.	- - -	- BROWN-TAN, SILTY FINE MICACEOU: 131.5		!-4), <u>12</u>
130	130.0	13.5	3	4	3		· · · · · ·					TAN-WHITE, FINE TO C (A-3) WITH TRACE WOOI		ND
	-	ŧ		4			· · · · · ·			Sat.	• • • • • - • • • • • • -			
25	- 125.0	18.5					· · · · · · ·	· · · · · · ·			<u></u>	COASTAL PL		<u>1</u> 7
20	- 125.0	- 10.5	3	3	3	• • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	· · · · · · ·		Sat.		- GRAY, CLAYEY SILTY FIN SAND (A-2-4), MICACEOU ORGANICS (BLACK	S WITH TR. CREEK	
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110	110.0	33.5	5	6	6		· · · · · ·		-		-	-		
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	- 105.0	- 38.5	4	8	11		· · · · · ·			Sat.		- SANDY CLAY (A-6), MICA(CREEK FORMA		ACK
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100	100.0	43.5	5	6	10		· · · · · ·		-	Sat.		-		
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95	95.0	T L 48.5										DARK GRAY, SILTY FINE		
	-	E	4	6	6	· •12·				Sat.	E	- SAND (A-2-4), MICACE(CREEK FORMA		^
	-	Ł									<u> </u>	<u>91.5</u> DARK GRAY, FINE TO CO		<u> </u>
90	90.0	53.5	8	15	20	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \right \right\rangle$			$\left\{ \right\}$	Sat.	1	- SILTY CLAY (A-7), MICAC CREEK FORMA	EOUS (BLA	
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85	85.0	58.5	8	16	18	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \right \right $	· ŀ · · · · - ŀ · · · ·		41		S	84.0		59
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80	- 80.0	63.5					<i>[</i> ::: ::				-	(A-2-4), MICACEOUS W ORGANICS (BLACH FORMATION	CREEK	-
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70	70.0	T 73.5									F			

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SITE	DESCR	PTION	Bridg	ge on -	L- (I -9	5) ov	er Little	Marsh Sw	ı /amp at -L	- Sta. 803+1	5				GROUND	WTR (f
BOR	NG NO.	S6_E	B1-A	-	S	TAT	ON 80	2+34		OFFSET	110 ft LT	-		ALIGNMENT -L-	0 HR.	N/
COLL	AR ELE	EV . 14	3.5 ft		Т	ΟΤΑ	L DEPT	H 85.0 ft		NORTHING	4 03,4	24		EASTING 2,010,186	24 HR.	N
RILL	RIG/HAN	IMER EF	F./DATE	E F&F	, 15785 (CME-	55 73% (03/01/2019			DRILL	IETHO	D Mu	ld Rotary	HAMMER TYPE A	utomatic
DRIL	LER D.	. Tignor			S	TAR	T DATE	01/07/2	0	COMP. DA	TE 01/0	07/20		SURFACE WATER DEP	FH 0.3ft	
LEV	DRIVE ELEV	DEPTH	BLC	w co	UNT			BLOWS	PER FOOT		SAMP.	▼∕			K DESCRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25 5	50	75 100	NO.	Имо		ELEV. (ft)		DEPTH
70	·		-10 -	15	15	-			h Line			 				· _
		ŧ.				:	· · · · · ·	4 30 · · ·				Sal.		-		_
65	65.0	78.5				:							N	- 66.5 - DARK GRAY, FINE	TO COARSE SAND	$\frac{1}{2}$ $\frac{7}{2}$
		-	10	17	22	1 🗔		• • • 39				w		- SILTY CLAY (A-7), - CREEK F	MICACEOUS (BLAC ORMATION)	Ж
	-	E														<u> </u>
60	60.0	83.5	9	19	27			· · · · ·	46 • • • •			Sat.	///	 COARSE SAND () 	A-2-6), MICACEOUS	3
	-	<u>t</u>					-	· • •	10	1				- Boring Terminated	EK FORMATION) at Elevation 58.5 ft I	N 8
	-	Ļ												_ CLAYEY SAND (BLACK CREE	(COASTAL PLAIN) EK FORMATION)	
	-	ŧ													otes:	~
	-	+												- 802+26, 93' Lt; ST-4		g 3:
	-	+												-	th Lab Tested	
	-	ŧ												- <u>Other Samples:</u> - ST-402 (2.0 - 4.0)		
	-	F												- ST-403 (4.0 - 6.0) -		
	-	E												-		
	-	F												-		
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								ORE L					
	47533							ROBESO				GEOLOGIST W. Pesl	
				je on -		5) over Little Marsh Swamp							
BOR	NG NO.	S6_E	B1-B		S	FATION 802+25		OFFSET 5				ALIGNMENT -L-	0 HR. N/A
COLL	AR ELE	V. 14	4.8 ft		то	OTAL DEPTH 90.0 ft		NORTHING	403,39)1		EASTING 2,010,350	24 HR. 0.7
DRILL	RIG/HAM	MER EF	F./DATE	F&R	R2175 C	CME-55 84% 03/01/2019			DRILL M	ETHOD) Muc	Rotary	MER TYPE Automatic
DRIL	LER S.	Davis			S	TART DATE 01/08/20		COMP. DAT	TE 01/0	8/20		SURFACE WATER DEPTH	I/A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	W CO 0.5ft	UNT 0.5ft	BLOWS PER F 0 25 50		75 100	SAMP. NO.		L O G	SOIL AND ROCK DES	SCRIPTION DEPTH (
145										_		144.8 GROUND SURI	FACE 0
	144.8	- 0.0	2	1	2	•3 • • • • • • • •			-			ALLUVIAL	
	- 141.3	- 3.5				· · · · · · · · · ·						BROWN-GRAY, SILTY FIN SANDY CLAY (A-6) W	ITH TRACE
140		- 0.0	1	1	1		· · ·			W	\sim	BROWN-GRAY, SILTY CL	
	-	-				$\left \begin{array}{cccc} \lambda & \ldots & \ldots & \vdots \\ \lambda & \ldots & \ldots & \vdots \\ \lambda & \lambda$					///	COARSE SAND (A-2-6)	WITH TRACE -
	136.3	8.5	-			\ .					-		FRAGINEINTS
135	-	-	3	4	5	9				Sat.	F	. GRAY-BROWN, SILTY FI SAND (A-2-4) WITH TRA	
	-	-					· · ·					AND (A-2-4) WITH TRA	
	131.3	13.5	4	4	5	. <mark>.</mark>	· · ·						
130	_	-	4	4	5	• 9				Sat.	-		
	-	-										<u>127.8</u>	<u> </u>
105	126.3	18.5	3	2	3	<u>;</u>	· · ·			Cat	Ľ	COASTAL PL DARK GRAY, CLAYEY S	SILTY FINE TO
125	-	-		_						Sat.		COARSE SAND (A-2-4) MICA (BLACK CREEK F	
	-	-									-		
120	121.3	23.5	3	5	6					Sat.	F	120.3	24
120	-	-								W	N	DARK GRAY, FINE TO CO 117.8 SILTY CLAY (A-7) WITH	
	-	-											RMATION)
115	116.3	28.5	5	7	8					Sat.	-	GRAY, SILTY FINE TO C (A-2-4) (BLACK CREEK	
	-	-									-		
	- 111.3 ⁻	-				: : : Ŋ : : : : : :	· · ·						
110		- 33.5	9	10	17	27	· · ·			Sat. W	×t	DARK GRAY, FINE TO CO	34 DARSE SANDY
	-	-								vv	N	SILTY CLAY (A-7) WITH	TRACE MICA
	106.3	38.5									-	CREEK FORMA	
105	-	_	7	10	12		· · ·			Sat.		GRAY, SILTY FINE TO C (A-2-4) WITH TRACE MIC	
	-	-				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \left \left \right \\ \cdot \cdot \cdot \cdot \right \\ \cdot \cdot \cdot \cdot \left \cdot \right \\ \cdot \cdot \cdot \cdot \cdot \cdot \left \right \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \left \right \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \left \right \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \left \right \\ \cdot \left \right \\ \cdot $					Ŀ	WOÓD FRAGMENTS (E	BLACK CREEK
	101.3	43.5				/.						FORMATIO	N)
100	-	-	'		′	1 4		+		Sat.	F		
	-	-									-		
	96.3	48.5	2	4	5	:::::::::::::::::::::::::::::::::::::	· · ·			<u> </u>			
95	-	L	_	-				+ • • • • •		Sat.			
	-	L				X.		• • • •			F		
90	91.3	53.5	8	10	13					Sat.	F		
	-	F				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c $				Jul.	li I		
	-	-				:::!!	· · ·						
85	86.3	58.5	6	7	10	●17 · · · · · · · · ·				Sat.			
	-	F									F		
	- 81.3	- - 63.5				· · · · · · · · · ·					 		
80	- 0.10	-	9	10	9	19	 	· · · ·		Sat.	l:::L		
	-	L				· · · \ · · · · · ·							
	76.3	68.5				• • • • • • • • • • • •					F		
75	_	_	9	10	13		· · ·	· · · ·		Sat.	l I		
	-	<u>t</u>				: : : : : : : : : :	· · ·						
_	71.3	73.5	40		40	• • • • • • • • •				_			
70	-	F	10	9	13	\$ 22		+		Sat.	⊫ F		
	-	-				:::: ::					 		
	66.3	78.5	7	12	14		· · ·			Sat.			

WBS	47533	.1.1			Т	IP I -5987B		Y ROBESC				GEOLOGIST W. Pesl			
			Bride	ge on -		5) over Little Marsh S						•	G	ROUND W	TR (f
	NG NO.			-		, TATION 802+25	·	OFFSET				ALIGNMENT -L-		HR.	N//
	LAR ELE					OTAL DEPTH 90.0	ft	NORTHING				EASTING 2,010,350		HR.	0.
				F F&F		CME-55 84% 03/01/2019			DRILL) Mu			TYPE Auto	
	LER S.		1.07(1)		-	TART DATE 01/08/		COMP. DA			- 110				matro
		DEPTH	BLC	w co			DER FOO		SAMP.		1 L				
(ft)	ELEV (ft)	(ft)		0.5ft		0 25	50	75 100	NO.	мо	0	SOIL AND RO	CK DESCRI) EPTH
	(/						I				Ŭ				
65						Ma	tch Line								
				+					+						
	- 61.3	83.5										. (A-2-4) WITH TRA WOOD FRAGME	NTS (BLAC	K CREEK	
60		- 00.0	15	16	21	1	· · · · ·			Sat.		- FORMATIO	ON) (continu	ed)	
	-					· · · · · · ·									
	56.3	88.5	13	19	23	\				_					
55			13	19	23	<u> </u>	12			Sat.		_54.8 Boring Terminated	t at Elevation	n 54 8 ft IN	9
	-	F										- SILTY SAND (COA	STAL PLAI	N) (BLACK	
	-	F										- CREENT	ORMATION	N)	
	-	-										_ ·			
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GEOTECHNICAL BORING REPORT

DODEIOC

SITE D BORIN COLL/ DRILL F DRILL	47533. DESCRIF IG NO. AR ELE RIG/HAMM ER PO DRIVE	PTION S6_EE V . 144	B1-C	ge on -L	(I -9	5) o	I-598 over L		Mars	sh Sv		o at -I							GEOLOGIS	T Goodni	ght, D.		
BORIN COLLA DRILL F DRILL ELEV (ft)	IG NO. AR ELE RIG/HAMM ER Por DRIVE	S6_EE V. 14	B1-C	ge on -L			over L	ittle	Mars	sh Sv	vamr	n at -I	C+	~ ~									
COLL/ DRILL F DRILL ELEV (ft)	AR ELE ^Y RIG/HAMM ER Po ^y DRIVE	V . 14											Sli	a. 80	<u>3+15</u>	<u> </u>							/TR (ft)
DRILL F DRILL ELEV (ft)	RIG/HAMM ER Por DRIVE		0 / #		S	TAT	ION	80	2+27	7			OF	FSE	T 1	2 ft LT			ALIGNMEN	IT -L-		0 HR.	8.7
DRILL ELEV (ft)	ER Po		0.4 IL		Т	ΟΤΑ	AL D	EPT	H 8	89.5 fi	t		NC	ORTH	ING	403,40	03		EASTING	2,010,281		24 HR.	6.3
DRILL ELEV (ft)	ER Po	//FK FF/		= MID3												DRILL M		Мис	d Rotary		НАММ	IER TYPE Auto	matic
ELEV (ft)					_					5/17/2						E 05/		Wide	SURFACE				matio
(ft)							XI D	AIE				5001		JIVIE.		E US/		L	SURFACE			/A	
150	ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	0.5ft	0	I	2	5		50	FOOT	75		100	NO.		O G	ELEV. (ft)	SOIL AND F	OCK DES		DEPTH (f
150																			_				
	147.4 +	10				+	• •	• • •							•			-	148.4	ROADWA	YEMBAN	KMENT	0.
	145.4		7	11	6	1	 ,	1 7	· ·	· · ·		: : :		· · ·	:		мL		145.7	TAN, CLA	YEY SANI	D (A-2-6)	2.
145 –			2	3	4	1⊢	9 7				+ :				-		м		-	TAN, SA	NDY CLA	Y (A-6)	
	142.4	6.0					· ·	•••							-					AND GRAY	, CLAYEY	/ SAND (A-2-6)	5.
140	140.4	8.0	2	3	3		4 6	· ·						· · ·				-/-	140.9 TAN			Y SAND (A-2-5)	7.
110	+		4	3	2		Q 5.				1:						W	-	138.4	GRAT, CLA		1 SAND (A-2-3)	10.
	t						$\frac{1}{2}$	•••	· ·	· · ·		· · ·		· · ·	:		0		ł				
135	135.4	13.0	10	13	14		• •	\cdot	L		-		· ·		-				_	LIGHT GRA	AT, FINE S	(A-3)	
	Ŧ		10		14		• •)	•27 .						-		Sat.						
	Ŧ						· ·	/ ./.							:		000		131.4				17
130 –	130.4 +	18.0	4	4	5	┨┝	· · /	· ·	• •		<u> </u> :				·		Sat.		- Т,		e sand (/ Ce pebbl	A-1-a) WITH ES	
	1		-		-		· ? ⁹		· ·						:				127.4	1101			21.
	+						·¦·						. .		:		000	-000	1		STAL PLA		
125 –	125.4 +	23.0	2	3	3		<u> </u>	· ·	· · ·		<u> </u> .				·		Sat.		- GRA	Y, SLIGHTL (BLACK CF	Y SILTY F REEK FOF	INE SAND (A-3) MATION))
	‡						∀ °. • •			· · ·	1	: : :		· · ·	:		0000			(
							:i:		· ·		1:			· · ·	:		000						
120 –	120.4 +	28.0	3	4	6	1⊢		0							-		Sat.		-				
	‡						- 1	• •		· · ·		· · · ·		· · ·	:		0						
	115 1	22.0					: :				1:	· · ·			:				116.4			TY FINE TO	32.
<u>115</u>	115.4 +	. 33.0	4	6	7	1⊢		13				<u> </u>			-		Sat.		-	COARSE S	Sand (a-1	-b) WITH	
	Ŧ						1												INT	ERMITTEN	T LENSES SAND	S OF CLAYEY	
110	110.4	38.0					•••	4 · -1 ·	· · ·	· · ·				· · ·									
	1		6	9	9	1⊢		• 18			1.						Sat.		-				
	t						•••	:l:	· ·	• • •				•••	-								
105	105.4	43.0						. .															
100	1		6	8	9		• •	• 17			1:						Sat.		-				
	ŧ						· ·	: <u>i</u> :	: :		1:	· · ·			:								
100	100.4 +	48.0			40		• •	. \			•		. .		•								
	Ŧ		6	9	12			• 2	1.						•				98.4				50
	‡						· ·	: 1		· · ·		:::		· · ·	:			V				Y SILTY CLAY	
95	95.4	53.0	6	11	10			:j	· ·		ŀ				•			N				RACE MICA	
	Ŧ		0	''	10		• •	• • • • • • • • • • • • • • • • • • •	1.	•••	•				:		м		92.9				55
	Ŧ							· [·			:				-		000	0000	1	GRA	Y, SAND (A	A-3)	
90 -	90.4 +	58.0	5	8	8	┨┝	•••	·/·			<u> </u> .		<u> </u>		-		Sat.		-				
	t		-		-		· · '	♥16		· · ·	:	· · ·		· · ·	:				87.4				61
	+						•••	•	• •	•••	•				:					GRAY, SILT	Y FINE SA	ND (A-2-4)	01
85 -	85.4 +	63.0	5	8	9	┨┝			· · ·		1.						Sat.		-				
	‡						•••	<u>ו</u> וין:	: :		:	:::			:			-					
	••• ‡	69.0					· ·		· · ·		· · ·		· · ·	:								
80 -	80.4 1	68.0	6	9	10	1⊢		1 9	<u> </u>		+ :				-		Sat.	-	-				
	Ŧ							ן ו ו			-				:			-	77.4				71.
75	75.4 +	73.0						: :\	: :		1:	· · ·			:		000		GF	RAY, SLIGH	TLY. SILT	Y SAND (A-3)	
75 -			8	11	15	1⊢			26		+:		+				Sat.		-				
	Ŧ						•••	· ·			•		• •		•		0	000					
70	70.4	78.0					· ·	: :j	: :		:	:::		· · ·	:								

	D	ORE LOG		
WBS 47533.1.1	TIP I-5987B COUNTY	/ ROBESON	GEOLOGIST Goodnight, D.	.
SITE DESCRIPTION Bridge on -L- (I-	-95) over Little Marsh Swamp at -L		I	GROUND WTR (ft)
BORING NO. S6_EB1-C	STATION 802+27	OFFSET 12 ft LT	ALIGNMENT -L-	0 HR. 8.7
COLLAR ELEV. 148.4 ft	TOTAL DEPTH 89.5 ft	NORTHING 403,403	EASTING 2,010,281	24 HR. 6.3
DRILL RIG/HAMMER EFF./DATE MID3964	CME-45C 91% 02/21/2019	DRILL METHOD Mu	d Rotary HAMM	IER TYPE Automatic
	START DATE 05/17/21	COMP. DATE 05/17/21	SURFACE WATER DEPTH N	/A
ELEV (ft) DEPTH BLOW COUNT (ft) 0.5ft 0.5ft 0.5ft		75 100 NO. MOI G	SOIL AND ROCK DES	CRIPTION DEPTH (ft
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		ELEV. (ft) GRAY, SLIGHTLY. SILTY (continued) 66.4 GRAY, SANDY SILTY CLA INTERMITTENT LENSES SAND AND A LITTL 62.4 GRAY, SLIGHTLY SILT COARSE SAND	DEPTH (ft Y SAND (A-3) 82.0 AY (A-7) WITH 80.0 S OF COARSE 86.0 E MICA 86.0 FY FINE TO 89.5 A-1-b) 89.5 Pation 58.9 ft IN 89.5 BLACK CREEK 89.5

								ORE L				1		
	47533					IP I -5987B		Y ROBESO				GEOLOGIST W. Pesl		
SITEC	DESCR	PTION	Bridg	ge on -	L- (I -9	5) over Little Marsh	Swamp at -L	- Sta. 803+1	5			I	GROUN	ID WTR (ft)
BORIN	ig no.	S6_B	1-A		S	TATION 802+86		OFFSET 5	53 ft LT			ALIGNMENT -L-	0 HR.	N/A
COLL	AR ELE	V. 13	89.2 ft		T	OTAL DEPTH 90.	0 ft	NORTHING	403,46	68		EASTING 2,010,250	24 HR.	FIAD
DRILL F	rig/ham	MER EF	F./DAT	E F&F	R2175 (CME-55 84% 03/01/20	19		DRILL M	ETHOD) Muc	HA Rotary	MMER TYPE	Automatic
DRILL	ER S.	Davis			S	TART DATE 01/1	5/20	COMP. DAT	TE 01/1	16/20		SURFACE WATER DEPTH	4.5ft	
	DRIVE	DEPTH (ft)	BLC	0.5ft	1	BLOV	VS PER FOOT 50	Г 75 100	SAMP.			SOIL AND ROCK I	DESCRIPTION	I
(,	(ft)	()	0.511	0.51	0.5ft			15 100	NO.		G 	ELEV. (ft) WATER SURFAC	CE (01/15/20)_	DEPTH (f
140	139.2	- 00									-	- 139.2 GROUND SI	JRFACE	0.
	-	-	WOR	WOR	WOR					Sat.		ALLUV <u>137.2</u> BROWN-GRAY, SILTY		ΞΤΟ <u>2</u> .
135	- 135.7	- - 3.5			_						-	COARSE SAM	ID (A-2-6)	i
135	-	-	4	6	5					Sat.		- GRAY-TAN, SILTY FI WITH TRACE WOO		
	-	-									Ŀ			
130 -	130.7 -	- 8.5	5	5	6						F			
	-	-	5							Sat.	-	-		
	-	-				::::::::::	· · · · · ·	· · · · · · · · · ·						<u> </u>
125	125.7 -	- 13.5	3	3	5					Sat.	Ŀ	GRAY, SILTY FINE TO	COARSE SA	ND
	-	-	Ű		ľ					Sal.	F	(A-2-4) WITH T	RACE MICA	
	-	-												RSF 17
120	120.7 -	- 18.5 -	1	1	2					Sat.		SAND (A-2-6) WITH		
	-	-				$\left \left \underbrace{v}_{i} \right \right = \left \underbrace{v}_{i} \right $				out.	\sim			
		-									\sim	<u>GRAY, SILTY FINE TO</u>		<u></u> <u></u> <u>22</u>
115	- 115.7	- 23.5 -	3	3	4					Sat.	-	(A-2-4) WITH T	RACE MICA	
	-	-										440.0		07
	- 110.7 -	- - 28.5										- <u>112.2</u> COASTAL		27.
110		- 20.0	7	10	14	24				Sat.	-	_ DARK GRAY, SILTY F SAND (A-2-4) WITH T		
	-	-									-	CLAY (BLACK CREE	K FORMATIO	N)
	- 105.7 -	- - 33.5				:::i :::								
105		-	7	10	13	23				Sat.	-	-		
	-	-									F			
100 -	- 100.7	- - 38.5	_								-			
100	-	-	7	11	14	• • • • • • • • • • • • • • • • • • •	<u> </u>			Sat.		-		
	-	-									-	97.2		<u> </u>
95	95.7 -	- 43.5	6	9	14						N	DARK GRAY, FINE SA (A-7) WITH TRACE CO		
	-	-	0	9	14	4 23				М	N	MICA (BLACK CREE		
	-	-									N			
90	90.7 -	- 48.5	6	8	12					Sat.		- 89.7		49.
	-	-				$ \cdot \cdot \cdot \cdot \bullet^{\oplus 20}$		$\cdot \mid \cdot \cdot \cdot \cdot \mid$		Jai.	- -	GRAY, SILTY FINE SA		ITH
		-				::: ! :::					×	FORMAT	ÍOŇ)	I <u>52</u>
85	85.7 -	- 53.5 -	6	8	13			· · · · ·		w	N	DARK GRAY, FINE SA (A-7) WITH TRACE CO		
	-	-				$ \cdot \cdot \cdot \mathbf{\tilde{f}} \cdot \cdot \cdot$		· · · · ·			N	MÍCA (BLACK CREE		N)
	- 80.7	- - 58.5										GRAY, SILTY FINE TO		
80		-	8	10	11	│ ↓ 21 · · · ·		+		Sat.	⊡-	(A-2-4) WITH TRACE AND MICA (BLACK CR		
	-	-				::::					-			,
75	- 75.7	- - 63.5				<u> :::i ::</u> :	• • • • •	.						
75	-	-	7	9	11			+ • • • • • • • •		Sat.		-		
	-	-					-	.			F			
70	- 70.7	- - 68.5		40		_ ::: : { :::					F			
	-	-	9	10	11					Sat.		-		
	-	-				::::\	-							
65	65.7 -	- 73.5	8	14	14	4 · · · · <u> </u> · · ·		.			F			
-	-	-		'4	'*	•28				Sat.	-	-		
	-	-					X	.						
60	60.7 -	- 78.5				• • • • • • •	· · · • • •	.	1		⊡ -			

NBS	47533	211			т	P I -5987E		1	ORE L				GEOLOGIST W. Pesl			
			Bride						- Sta. 803+1					6	ROUND W	/TR /f
	NG NO.		-	<u>, , , , , , , , , , , , , , , , , , , </u>		TATION 8		anp at -L	OFFSET				ALIGNMENT -L-		HR.	N/.
											60					
									NORTHING				EASTING 2,010,250		HR.	FIA
			r./DAT	E F&F		CME-55 84%						J Mu		HAMMER 1	TPE Auto	ornatic
	LER S								COMP. DA		·	1 L T	SURFACE WATER DEPT	H 4.5ft		
LEV (ft)	ELEV	DEPTH (ft)		0.5ft	0.5ft			PER FOO ⁻ 50	75 100	SAMP.	17	0	SOIL AND ROC	K DESCRI		
. ,	(ft)		0.51	0.51	0.51		1			NO.	/мо	G	ELEV. (ft)			DEPTH
60		±	-25	31-	-39 -	+	Mate	h Line	70	+	Sat.		GRAY, SILTY FINE			
		Ŧ						1:::/					(A-2-4) WITH TRA AND MICA (BLACK	CE CLAY, O CREEK FO	GRAVEL, RMATION)	
55	55.7	83.5	14	25	42			· · · · · · · · · · · ·			Sat.		(con	tinued)		
		ł						· · · •			Sat.					
	50.7	- - 88.5										N	 	SANDY SI		8
50	- 50.7	- 00.3	16	26	36	1		62			w	N	(A-7) WITH TRACE 	MICA (BLA) 1ATION)	CK CREEK	<u>g</u>
		Ŧ											Boring Terminated SILTY CLAY (COAS	at Elevation	1 49.2 ft IN	<i>.</i>
		Ŧ											- CREEK F	ORMATION		
	-	ŧ											-			
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GEOTECHNICAL BORING REPORT

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14/P	1									
	4753						Y ROBESO		GEOLOGIST W. Pesl	
				ge on -		5) over Little Marsh Swamp at -L				GROUND WTR (ft)
		. S6_B			_	TATION 802+87	OFFSET 2		ALIGNMENT -L-	0 HR. N/A
COLI	AR EL	EV. 13	87.8 ft		<u> </u> T0	OTAL DEPTH 95.0 ft	NORTHING	403,458	EASTING 2,010,323	24 HR. FIAD
DRILL	RIG/HAI	MMER EF	F./DAT	E F&F	R2175 C	CME-55 84% 03/01/2019		DRILL METHOD	lud Rotary HAMM	ER TYPE Automatic
DRIL		5. Davis	1			TART DATE 01/21/20	COMP. DA	TE 01/22/20	SURFACE WATER DEPTH 4.0	6ft
	DRIVE ELEV					BLOWS PER FOO			SOIL AND ROCK DES	CRIPTION
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO. MOI G	ELEV. (ft)	
										01/21/20)
140		+							-	
	137.8	<u>† 00</u>	2	3	4				137.8 GROUND SURF	ACE 0
135		ŧ	2		4			Sat.	- ALLUVIAL - BROWN-TAN, SILTY FINE	SAND (A-2-4)
100	134.3	3.5	7	6	7			Sat.	WITH LITTLE WOOD FI	RAGMENTS 3.
		‡							TAN-BROWN, SILTY FINE	TO COARSE
130	129.3	+							– SAND (A-2-4) WITH LITTLE TRACE WOOD FRA	
	129.5	+ 0.5 +	6	5	5			Sat.	4_ 4_	
		ŧ							125 <u>.8</u>	12
125	124.3	13.5	2	4	3				UNDIVIDED COASTA GRAY, SILTY FINE TO CO	
		ŧ	2	4		 		Sat.	- (A-2-4) WITH TRACE CLA FRAGMENTS	Y AND WOOD
120		±								-
	119.3	<u>† 18.5</u> 1	2	2	3			Sat		
		Ŧ							_ _ 115.8	22
115	114.3	T 23.5	_						GRAY, SILTY FINE TO CO	NN
		Ŧ	6	8	10			Sat.	(A-2-4) WITH TRACE TO	LITTLE CLAY,
110		Ŧ							TRACE WOOD FRAGMEN (BLACK CREEK FOR	
110	109.3	<u>+</u> 28.5	6	8	12			Sat		
		‡	_			$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$		Jac.	↓ • •	
105	104.3	+ 33.5				· · · · · · · · · · · · · · · · · · ·			}_ 	
	104.5	+ 33.5	6	7	9			Sat.		
100		ŧ				$\left \left \begin{array}{cccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \end{array} \right \left \begin{array}{cccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \end{array} \right \left \begin{array}{cccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \end{array} \right \left \begin{array}{cccc} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \end{array} \right $			₽ ₽	
100	99.3	38.5	5	9	11				9 9	
		ŧ				$ \begin{vmatrix} & . & . & . & \bullet 20 & . & . & . & . & . & . \\ & . & . & . &$		Sat	1_ 1_	
95		±							1	
	94.3	<u> </u>	6	6	6			Sat	1	
		Ŧ								
90	89.3	<u> </u>							1 	
		ŧ	6	7	7			Sat.	1	
85		Ŧ				<u></u>			<u>1</u>	
	84.3	<u> </u>	6	9	13			Sat	1	
		£				$\left \left \begin{array}{c} \dots \\ \dots \\ \dots \\ n \end{array} \right \left \begin{array}{c} \dots \\ n \end{array} \right $				
80	79.3	58.5				<i>i</i> -	+ • • • •			
		Ŧ	5	6	9	•15		Sat		
75		Ŧ								
	74.3	+ 63.5	7	10	13			Sat	+	
		ŧ				$\left \left \begin{array}{cccccccccccccccccccccccccccccccccccc$			+	
70	69.3	+ + 68.5							F	
		+	12	11	13	1 • 24		Sat.		
GE		‡								
65	64.3	+ 73.5	10	11	16	$ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot $			<u>-</u>	
		t				$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$		Sat.	′ <u>↓</u> ↓	
60		+				$\left[\left[\begin{array}{c} \cdot \cdot \cdot \cdot \cdot \right] \right] \left[\begin{array}{c} \lambda_{1} \cdot \cdot \cdot \\ \lambda_{2} \end{array} \right] \left[\begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right]$			<u>-</u>	

								<u> </u>	ORE L	.OG						
WBS	47533	.1.1			T	P I -59878	3	COUNT	Y ROBESC	N			GEOLOGIST W. Pesl			
SITE	DESCR	PTION	Bridg	ge on -	L- (I-9	5) over Littl	e Marsh Sv	vamp at -L	- Sta. 803+1				1		GROUND	WTR (ft)
BOR	NG NO.	S6_B	1-B		S	TATION 8	802+87		OFFSET	21 ft RT			ALIGNMENT -L-		0 HR.	N/A
COLI	AR ELE	EV. 13	87.8 ft		те	OTAL DEP	TH 95.0 f	t	NORTHING	4 03,4	58		EASTING 2,010,323		24 HR.	FIAD
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F	R2175 C	CME-55 84%	03/01/2019		-	DRILL	IETHO	D Mu	id Rotary	HAMM	ER TYPE 🛛 A	utomatic
DRIL	LER S.	. Davis			S	TART DAT	E 01/21/2	:0	COMP. DA	TE 01/:	22/20		SURFACE WATER DEP	TH 4.6	Sft	
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT		BLOWS	PER FOOT	-	SAMP.	▼/		SOIL AND RO			
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо		ELEV. (ft)			DEPTH (ft
60	-593-	78.5		↓			Mate	h Line			<u> </u>					
	-	F	6	16	23]	39				Sat.		GRAY, SILTY FIN	E TO CO	DARSE SAN	D
55	-	+											_ (A-2-4) WITH TRA _ TRACE WOOD FF	RAGMEN	TS AND MI	CA
- 55	54.3	83.5	23	22	25		+ · · · · · · ·	+			Cat		(BLACK CREEK FC -	ORMATIC	DN) (continu	ed)
	-	t i	20					47			Sat.		-			
50	-	Ł					/					$\overline{\mathbf{N}}$				<u> </u>
	49.3	88.5	9	12	15	1	27				Sat.	\langle / \rangle	- COARSE SAND	(A-2-6) V	VITH TRACI	Ξ
	-	ŧ					$\left \begin{array}{c} \mathbf{\nabla}^{2l} \cdot \cdot \cdot \cdot \\ \mathbf{\nabla}^{2l} \cdot \cdot \cdot \end{array} \right $					/./.	- MICA (BLACK C	REEK F(JRIVIATION)	
45	-	93.5					\	· · · ·					<u>45.8</u>	OARSE	SANDY SIL	<u>пу — 92.0</u> ГҮ
	-++.0	33.5	11	18	23	<u> · · · ·</u>	• 41	<u> </u>	· · · · ·		w	N	- CLAY (A-7) WITH - 42.8 CREEK F	TRACE ORMAT	MICA (BLAC ION)	CK
	-	ŧ.											Boring Terminated			
	-	+											– CRÈEK F			
	-	Ł											-			
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GEOTECHNICAL BORING REPORT

									D			<u>OG</u>					
WBS	47533	.1.1			TI	P I -5987	В	c	OUNT	Y RO	BESO	N			GEOLOGIST W. Pesl		
SITE	DESCR	PTION	Bridg	ge on -L	(I -98	5) over Litt	e Marsh	n Swan	np at -L	- Sta. 8	303+1	5				GROUND W	/TR (ft)
BOR	NG NO.	S6_B	2-A		S	ration a	303+47			OFFS	SET (52 ft LT			ALIGNMENT -L-	0 HR.	N/A
COLI	LAR ELI	EV. 13	4.4 ft		Т	OTAL DEF	TH 85	.0 ft		NOR	THING	403,52	28		EASTING 2,010,259	24 HR.	FIAD
DRILL	. Rig/han	IMER EF	F./DATI	E F&R2	2175 C	ME-55 84%	5 03/01/2	019				DRILL M	ethod	Mud	d Rotary HAM	MER TYPE Auto	omatic
DRIL	LER S.	Davis	-		S	FART DAT	E 01/ ⁻	16/20		СОМ	P. DA	FE 01/1	7/20		SURFACE WATER DEPTH	9.6ft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft		0	BLOV 25	NS PEI 50	R FOOT	75 	100	SAMP. NO.	моі	L O G	SOIL AND ROCK DE ELEV. (ft)		DEPTH (ft)
<u>155</u>		-												-	-		
150	-													-	-		
145	-												▼		WATER SURFACE	(01/16/20)	
140		+												-	-		
135	- - - 134.4														- 134.4 GROUND SUR		0.0
130	130.9	3.5	WOR	WOR V	WOR			 	· · · · ·	· · · · ·	· · · · · ·		Sat. Sat.		ARTIFICIAL GRAY, FINE TO COAI (A-1-a)		
	- - - 125.9 -	8.5				$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		 	· · · · ·		· · · · · ·		Jai.		- <u>127.4</u>		7.0
125	-		3	1	2	•3 		 	· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		GRAY-TAN, SILTY FINE WITH LITTLE G	RAVEL	
120		- 13.5 - -	4	2	2	•4		· · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · ·		Sat.		- COASTAL PL - COASTAL PL DARK GRAY, SILTY FIN WITH TRACE CLAY ANI	E SAND (A-2-4) D MICA (BLACK	14.0
115	115.9	18.5	3	3	2	• • • •		· · ·	· · · · ·		· · ·		Sat.		CREEK FORMA	(TION)	
110	110.9	23.5	3	5	8	· · · ·			· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · ·		Sat.	 -	-		
105	105.9	28.5	3	6	9	l l		· · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		-		
100	100.9	33.5	5	6	9		 5	 	· · · · ·	· · · · ·	· · · · ·		Sat.				
95	- - 95.9	38.5	10	10	13			· · ·	· · · · ·	· · · · · ·	· · · · · · ·		Sat.				
		43.5					♥23 	 	· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · ·				-		
90	- - - 85.9 -	48.5	6	10	12		¢22	 	· · · · ·	· · · · · · ·	 		Sat.	 	-		
35	-		9	12	14			· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·		Sat.		-		
80	<u> 80.9 </u>	<u>53.5</u>	11	12	17		29-	 	· · · · ·	· · ·	 		Sat.		-		
75	75.9	- 58.5	12	15	14				· · · · ·		· · · ·						

							B	ORE L	UG							
	47533					IP I-5987B		ROBESO				GEOLOGIST W	. Pesl			
				je on -	L- (I-9	5) over Little Marsh Sw	amp at -L-	- Sta. 803+1	5			I			GROUNI	D WTR (fi
BOR	NG NO.	S6_B	2 - A			TATION 803+47		OFFSET				ALIGNMENT -L			0 HR.	N/A
	LAR ELI	EV. 13	4.4 ft		т	OTAL DEPTH 85.0 ft		NORTHING	403,5	28		EASTING 2,010),259		24 HR.	FIAD
DRILL	. Rig/han	IMER EF	F./DATE	E F&F	R2175 (CME-55 84% 03/01/2019			DRILL N	IETHO	D Muo	d Rotary		НАММ	ER TYPE	Automatic
DRIL	LER S	. Davis	_		S	TART DATE 01/16/2	o l	COMP. DA	TE 01/ ⁻	17/20		SURFACE WATE	ER DEP	TH 9.6	Sft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	W CO 0.5ft	UNT 0.5ft	4	PER FOOT	75 100	SAMP. NO.	моі	L O G	SOIL A	ND RO	CK DES	CRIPTION	DEPTH (
75 _ 70	70.9	 	12		16	Matc	h Line	· · · · · · · · · · · · · · · · · · ·		-Sat		WITH TRA	AY, SIL ⁻ ACE CL/	ay and	IN SAND (A-2 MICA (BLA (continued)	
65	65.9 	- - - 68.5 -	12	17	20					м		- <u>67.4</u> DARK GR (A-7) WITH	TRACE			
60	60.9 	73.5	9	23	28	· · · · · · · · · · · · · · · · · · ·	51 	· · · · · · · · · · · · · · · · · · ·		Sat.		GRAY, SII (A-2-4) \	NITH TI	E TO CO RACE MI ORMAT	DARSE SAN CA (BLACK ION)	1D
55	55.9	78.5	10	17	27		 	· · · · · · · · · · · · · · · · · · ·		м		GRAY, FIN CLAY (A-7) WITH		MICA (BLA	TY
50	50.9	83.5	13	16	29	· · · · · · · · · · · · · · · · · · ·	 5 <u></u>	· · · · ·	_	Sat.		GRAY, SI (A-2-4) W -49.4 (BLAG	ITH TR/ CK CRE	ACE CLA EK FOR	DARSE SAN Y AND MIC MATION) ation 49.4 ft	A
												-				

GEOTECHNICAL BORING REPORT

BORF I OG

								D	ORE	L	UG			1		
WBS	47533	3.1.1			Т	P I -5987B		COUNT	Y ROBES	SOI	N			GEOLOGIST W. Pesl		
SITE	DESCR	IPTION	Brid	ge on -l	L- (I -9	5) over Little	Marsh Sw	amp at -L	- Sta. 803	+1	5				GROUND WT	R (ft)
BOR	NG NO.	S6_B	2-B		S	TATION 80)3+49		OFFSET	2	21 ft RT			ALIGNMENT -L-	0 HR.	N/A
COLI	LAR ELI	EV. 13	36.9 ft		т е	OTAL DEPT	H 90.0 ft		NORTH	١G	403,51	9		EASTING 2,010,332	24 HR.	FIAD
DRILL	. Rig/han	IMER EF	F./DAT	ΈF&R	2175 (CME-55 84%	03/01/2019				DRILL M	ethod) Mua	d Rotary HAMM	ER TYPE Autom	atic
DRIL	LER S	. Davis			S	TART DATE	01/20/2	0	COMP. D	DAT	FE 01/2	21/20		SURFACE WATER DEPTH 6.9	Əft	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW COU 0.5ft		0 2		PER FOOT		00	SAMP. NO.		L O G	SOIL AND ROCK DES		PTH (ft)
<u>155</u>	-	+												-		
150	- - -													-		
145	- - -	+ + +										▼		WATER SURFACE ((01/20/20)	
140														-		
	136.9 .	0.0		R WOH	1			1		_		0 /		136.9 GROUND SURF.		0.0
135	-	ŧ			'	 			· · · ·	•		Sat.	ا‡	_ GRAY, FINE TO COARS		
130	133.4	<u>3.5</u>	1	2	1					-		Sat.		(A-1-a)		
100	- 128.4 ⁻	- 8.5				$\left \begin{array}{c}1&\cdots\\ b&\cdots\\ b&\cdots\end{array}\right $							×:	-		
	-	ŧ	7	4	1	∮ 5				:	SS-158	27%		127.4 ALLUVIAL		9.5
125		+							· · ·	-			-	DARK GRAY, CLAYEY SI COARSE SAND (A-2-4) V		
	123.4	13.5	1	1	4			· · · · ·		:	SS-159	30%	-	MICA AND WOOD FRA		
120	-	ŧ				¶ ³ ····				:			-	_ 119.9		17.0
120	- 118.4	- 18.5											-	DARK GRAY, SILTY FINE		<u>17.0</u>
	-		2	3	6		· · · · ·	· · · · ·	· · · ·	•		Sat.		SAND (A-2-4) WITH TRAC AND WOOD FRAGMEN	E CLAY, MICA.	
115							<u> </u>	· · · · ·	<u> </u>	-				- CREEK FORMAT	ION)	
	113.4	23.5	5	8	13		21			-		Sat.				
110		Ł				$ \dots $								_		
	108.4	28.5	4	5	10					:		. .				
	-	ŧ	4		10	↓ ● 15				-		Sat.				
105	-	- 22 5					<u></u>	· · · · ·	+ • • •					-		
	103.4	<u> 33.5 </u>	6	6	7					:		Sat.				
100		ł								-				_		
	98.4	38.5	5	6	8					:		0.1				
		ł				••••••••••••••••••••••••••••••••••••••				:		Sat.				
95		40 5						· · · ·						-		
	93.4	<u> 43.5 </u>	6	7	10					:		Sat.				
90		ŧ				``				•				-		
	88.4	48.5	7	11	20		NEEE			:		0-4				
	-	ŧ					9 ³¹ · ·		· · · ·	:		Sat.				
85		- 52 5					/	· · · ·	<u> </u>	-				-		
	83.4	53.5	12	9	11	: : : i : : : i i	 0			:		Sat.				
80		ŧ				$ \dots \rangle$			· · ·	-				_		
	78.4	58.5	10	12	13					:		0-1				
	-	ŧ				'	25			:		Sat.				
75	-												l I			

							1	ORE L				1			
	47533					IP I-5987B		ROBESO				GEOLOGIST W. Pesl			
				ge on -		5) over Little Marsh S	wamp at -L-							GROUNE	
BOR	NG NO.	S6_B	2-B		S	TATION 803+49		OFFSET 2				ALIGNMENT -L-		0 HR.	N//
COLI	AR EL	EV. 13	6.9 ft		T	OTAL DEPTH 90.01	ft	NORTHING	403,5	19		EASTING 2,010,332	:	24 HR.	FIA
DRILL	RIG/HAN	IMER EF	F./DAT	E F&F	R2175 (CME-55 84% 03/01/2019			DRILL N	IETHO	D Mu	d Rotary	HAMME	R TYPE /	Automatic
DRIL	LER S.	. Davis			S	TART DATE 01/20/2	20	COMP. DA	TE 01/	21/20		SURFACE WATER DEPT	FH 6.9f	ť	
LEV	DRIVE ELEV	DEPTH		ow co	UNT	4	PER FOOT		SAMP.	▼∕		SOIL AND ROC	K DESC	RIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	Имо		ELEV. (ft)			DEPTH
75		_		↓		Mat	ch Line		+	L					
	73.4	63.5	11	11	14	 				Sat.		DARK GRAY, SILT	Y FINE T	O COARS	
70	-	ŧ								Jai.		. SAND (A-2-4) WITH AND WOOD FR/	AGMENT	S (BLACK	
70	- 68.4	- - 68.5				 	· · · · ·	· · · · ·				CREEK FORMA	TION) (c	ontinued)	
	- 00.4		9	11	18					Sat.		GRAY, FINE TO CO			6
65	-	Ł										GLAY (A-7) WITH 1	FRACE M	IICA (BLAC	
	63.4	73.5													_
	-	Ŧ	21	28	31		59			Sat.		(A-2-4) WITH TRA (BLACK CREE	CE CLAY	' and Mic	Ā
60	-	‡												ATION)	
	58.4	78.5	16	25	32		 			Sat.					
	-	ŧ					9 57			Jai.					
55	-	+					/ 	+ · · · · ·			\sim	 GRAY, SILTY CLAY			
	53.4	<u>† 83.5</u> 	10	12	21					Sat.	///	SAND (A-2-6) WITH	TRACE	MICA (BLA	
50	-	Ŧ												511)	
	48.4	- 88.5										_			
		<u> </u>	12	16	21	37				Sat.	\sim	46.9		40.0.6	9
	-	‡										Boring Terminated	(COASTA	AL PLAIN)	IN
	-	t										BLACK CREE	K FORM	ATION)	
	-	ł													
	-	ł									-	-			
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GEOTECHNICAL BORING REPORT

POPEIOC

									<u>ORE L</u>	UG						
WBS	47533	.1.1			TI	P I -5987B		COUNTY	/ ROBESOI	N			GEOLOGIST B. Paint	er		
SITE	DESCR	IPTION	Bridg	je on -	L- (I -9	5) over Little Mar	sh Sw	amp at -L-	Sta. 803+1	5					GROUN	ID WTR (ft)
BOR	NG NO.	S6_E	B2-A		S	FATION 804+0	9		OFFSET 5	50 ft LT			ALIGNMENT -L-		0 HR.	N/A
COLI	LAR ELE	EV. 15	0.6 ft		Т	OTAL DEPTH	85.0 ft		NORTHING	403,58	39		EASTING 2,010,270		24 HR.	FIAD
DRILL	. RIG/HAN	IMER EF	F./DATI	F&R	3495 0	CME-55 82% 03/01	/2019			DRILL M	ETHO) Muc	d Rotary	HAMM	ER TYPE	Automatic
DRIL	LER D.	. Tignor			S	TART DATE 0	1/15/20)	COMP. DAT	FE 01/*	17/20		SURFACE WATER DE	PTH N/	Ą	
ELEV	DRIVE ELEV	DEPTH	BLC	W CO	UNT	BL	OWS F	PER FOOT		SAMP.	▼/		SOIL AND R			
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	5	50	75 100	NO.	моі		ELEV. (ft)	DONDLO		DEPTH (ft)
155													_			
	-	-										ΙĿ				
	-											Ŀ	150.6 GROU	ND SURF.	ACE	0.0
150	150.0	0.6	20	18	24		· · · · · ·		+		D		150.0 ROADWA			0.6
	147.1	3.5					42				_		BROWN, FINE	TO COA	RSE SAN	
145	-	F	3	2	4	•6				SS-2067	20%		(A-1-B) WIT BROWN-ORAN	H TRACE GE. FINE	GRAVEL	4.2 SE
	-	F										<u>EN</u>		ND (A-3)		7.0
	142.1	8.5	3	4	4						Sat.	-	SANDY CLAY	-7-6), HIG	HLY PLAS	
140		F									out.	-	BROWN, SILTY F	INE TO C	OARSE S	AND
	- 137.1	13.5										-	(A-2-4) WIT FR/	H TRACE		
135	-	- 10.0	1	3	6	$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$					Sat.	-				
100	-	F											- _ <u>133.6</u>			<u>17.0</u>
	132.1	18.5	5	4	6		· · ·						TAN-GRAY, FIN	IE TO CO (A-3)	ARSE SA	ND
130	-	-	0	-			· · ·				Sat.		-	. ,		
	-	-				$\left \begin{array}{cccc} . \ / . & . & . \\ . \ . \ . & . & . \end{array} \right $	· · ·	· · · · ·				***			TOCOA	RSE <u>22.0</u>
105	127.1	23.5	1	2	3	$\left \begin{array}{c c} 1 \cdot \cdot \cdot \\ 0 \\$	· · ·				Sat.	///	SAND (A-2-6) W	TH TRAC	E ORGAN	lics
125									· · · · ·				-			
	122.1	28.5				$\left \begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	· · ·	· · · ·								
120	-		2	3	6	. • 9					Sat.		_			
	-					• • • • •						<u></u>	<u></u>			<u> 32.0</u>
	117.1	33.5	3	4	6					SS-2070	31%	F	GRAY, CLAYEY	FINE SAN	DY SILT (
115	-	F									0.70	E F	WITH TRACE - FOI	NICA (BL/ RMATION		
		38.5										<u></u>				
110	-	-	5	6	9	• 15					Sat.		SAND (A-2-6), CREEK	FORMAT		ж
110	-	-										\sim	- <u>108.6</u>			42.0
	107.1	43.5	6	8	14						w	N	DARK GRAY, FIN SILTY CLAY (A-			
105		-	Ű	Ŭ		↓ · · · • • • • 22 ·	· · ·				vv	N	- (BLACK CR	EEK FOR	MATION)	
	- 102.1	48.5				:::!!	· · ·					N				
100		- 40.0 -	6	9	10	· · · ↓ · · · · •19 ·		· · · · ·			Sat.	///	SAND (A-2-6) W AND MICA (BLAC			
100	-	ŧ				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \right \right \cdot$			· · · ·			<u>///</u>				52.0
	97.1	53.5	9	11	13	::: i :	· · ·	· · · ·			0-1		GRAY, CLAYEY S SAND (A-2-4) W			
95	-	÷	9			· · · · • • • 24			· · · ·		Sat.		AND MICA (BLAC			
		-				$ \cdot \cdot \cdot \cdot \cdot \cdot$		· · · ·								RSE <u>57.0</u>
	92.1	58.5	7	9	11	$\begin{vmatrix} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \bullet_{20} \end{vmatrix}$		· · · ·			Sat.	<u>///</u>	SAND (A-2-6) W AND MICA (BLAC	TH TRAC	E ORGAN	IICS
90	-	F				$\left \frac{1}{1} + \frac{1}{1} + \frac{1}{1} \right $			+							,
	87.1	63.5						 				~~~				
85	-	Ł	6	12	13	• • • • • • 25					Sat.		_			
	-	L														
	82.1	68.5	10	13	16	· · · · .	 				Sat.					
80	-	F				 	· · ·		+ · · · ·		- Jul.		-			
	77.1	73.5				::::/:						\sim				
75			7	9	13		· · ·				Sat.					

WBS 4753	3.1.1			ТІ	P I-:	5987B		COUNT	Y ROBES	ON			GEOLOGIST B. Painte	r		
SITE DESCR		Bridg	e on -												GROUN	D WTR (f
BORING NO				-		DN 80			OFFSET		-		ALIGNMENT -L-		0 HR.	N/
COLLAR EL							H 85.0	ft	NORTHIN				EASTING 2,010,270		24 HR.	FIA
RILL RIG/HA			E F&R							1		D Mu	Id Rotary	1		
DRILLER							E 01/15/	20	COMP. D							
	-		W CO					PER FOO		SAM		11				
(ft) ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25	50	75 10	0 NO.	мо	0 G	SOIL AND RO ELEV. (ft)	CK DESC	CRIPTION	DEPTH
75							Mat	ch Line								
	ł					· · · `							GRAY, SILTY CLA' SAND (A-2-6) WIT			
72.1	78.5	7	12	16			\ ●28				Sat.		_ AND MÌCA (BĹACK			
70	ŧ						1			-			-	,		
67.1	83.5						1::::						-			
	<u>+</u>	9	12	12	.		24 • • •				Sat.	\sim	- 65.6 - Boring Terminated	t at Fleva	ation 65.6 ft	8 1N
													- CLAYEY SAND (BLACK CRE 	EKFOR	AL PLAN) MATION)	

							<u> </u>	<u>ORE L</u>	OG						
WBS	47533	3.1.1			Т	IP I-5987B	COUNT	Y ROBESO	N		GEOLOGIS	T W. Pesl			
SITE	DESCR	IPTION	Brid	ge on -l		95) over Little Marsh S	Swamp at -L	- Sta. 803+1	5					GROUN	D WTR (ft)
BOR	NG NO.	S6_E	B2-B		s	TATION 804+09		OFFSET 6	65 ft RT		ALIGNMEN	IT -L-		0 HR.	N/A
COLL	AR EL	EV. 14	43.7 ft		т	OTAL DEPTH 100.	0 ft	NORTHING	403,572		EASTING	2,010,384		24 HR.	0.9
DRILL	RIG/HAN	IMER EF	F./DAT	E F&R	2175 (CME-55 84% 03/01/201	9		DRILL MET	HOD M	ud Rotary		HAMM	ER TYPE	Automatic
DRIL	LER S	. Davis			s	TART DATE 01/08	/20	COMP. DAT	FE 01/08/2	20	SURFACE	WATER DEF	PTH N/	A	
ELEV	DRIVE ELEV	DEPTH	BLC	w col	UNT		S PER FOOT		SAMP.			SOIL AND RC	OCK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.		ELEV. (ft)				DEPTH (f
145		Ļ										0001			
	143.7 ·	<u>+_0.0</u> +	WOH	1	0						_ 143.7 -	AL	ID SURF		0.
140	140.2	3.5					· · · · · ·					DWN-TAN, SII ID (A-2-4) WI			
140	140.2	- 3.5	1	1	1				s	at	-	· · ·			
		÷				$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	· · · · ·				_ 136 <u>.7</u>				7.
135	135.2	8.5	3	3	4						GRA	UNDIVIDED Y-BROWN, S			RSE
		ŧ.			4		· · · · · ·		S	at		D (A-2-4) WI1		E ORGAN	
		+ 									-	GIVIL	2,7000	2,11	
130		13.5	6	7	8				s	at	-				
		ŧ									-				
125	125.2	18.5				./					-				
		Ł	1		3	4			S	at.	_				
		F									<u>121.7</u>			<u> </u>	22.
120	120.2	23.5	2	3	3				s	at		RK GRAY, CL DARSE SAND	.AYEY SI	_TY FINE "	
		Ŧ										AVEL (BLACK			
115	115.2	28.5													
		-	2	4	4				S	at	-				
	•	ŧ									-				
110	110.2	33.5	3	8	11					at	- 109.7		- +0 00		34.
		ŧ					· · · · · ·			$^{\scriptscriptstyle N}$	– SIL	K GRAY, FIN TY CLAY (A-7	7) WITH ⁻	FRACE MI	CA
105	105.2	1 38 5					· · · · · ·				- \		FORMAT	ION)	i
100		-	2	4	6				s	at		AY, SILTY FIN -4) WITH TR			
		ŧ									- wo	DOD FRAGME	ENTS (BL	ACK CRE	EK
100	100.2	43.5	6	6	6	. J 	· · · · ·				-	101		/	
		ŧ	Ű	Ŭ	Ŭ	· • 12. · · ·			3	at	-				
05	95.2	405					· · · · ·				-				
95	35.2	48.5	6	7	8	· · • • 15 · · ·			s	at	-				
		‡					· · · · ·				-				
90	90.2	53.5	7	7	11					_	-				
		ŧ	'			· · · · ·			at	-				
<u> </u>		t					· · · · ·				-				
85	85.2	58.5	7	9	10			<u> </u>	s	at	-				
		‡				::::	· · · · ·				-				
80	80.2	63.5	10		11	· · · \ · · · ·					-				
		ŧ		11	11	1 1 1 1 1 1 1 1 1 1			S	at	-				
		+				::::					-				
75	75.2	<u>68.5</u>	10	10	11			<u> </u>	s	at	-				
		ŧ													
70	70.2	73.5									-				
		Ē	9	11	11				S	at					
		f.									_				
65	65.2	78.5					<u> </u>								

NBS	47533	.1.1			Т	IP I-5987	В	COUNTY	ROBESC	N			GEOLC	OGIST W. Pesl				
SITE	DESCR	IPTION	Bride	ge on -			le Marsh Sv	vamp at -L·	- Sta. 803+1	5						GROUN	D WTR	(f
	NG NO.					TATION			OFFSET				ALIGN	MENT -L-		0 HR.		N//
	AR ELI						PTH 100.0	ft	NORTHING					IG 2,010,384		24 HR.		0.
				E F&F			6 03/01/2019) Mu	d Rotary	_,,		JIER TYPE		
	LER S						FE 01/08/2	n	COMP. DA					CE WATER DE				-
LEV	DRIVE	DEPTH	BLC	w co				PER FOOT		SAMP		1 L	100.07					
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	мо	0 G	ELEV. (ft)	SOIL AND RO	OCK DES	SCRIPTION	DEPT	гн
65							Mato	h Line										
		E	9	10	12		4 22				Sat.							
	-	F											<u>61.7</u>	DARK GRAY, SI			<u>г. </u>	82
50	60.2	83.5	8	12	22						м	N	_	TRACE FINE TO MICA (BLACK (COARS	SE SAND AN	٧D	
	-	E											. <u>56.7</u>			ORMATION	,	8
55	55.2	88.5												GRAY, SILTY FI			ND	<u>.</u>
	-	F	24	37	25			. 62.		1	Sat.			CREEK	FORMA	FION)	IX.	
	-	F						/										
50	50.2	93.5	10	15	20		• 35 .	+	+		Sat.		-					
	-	F																
.5	45.2	98.5											•					
		-	11	16	23		39			L	Sat.		43.7	Boring Terminate				10
	-	F												SILTY SAND (CO	ASTAL F	PLAIN) (BLA	CK	
	-	F												CREEK	FURIMA	HON)		
	-	ŧ																
	-	t t										F						
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CONTENTS

5987B

REFERENCE

SHEET NO.	DESCRIPTION
I.	TITLE SHEET
2	LEGEND (SOIL & ROC
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-13	BORE LOGS

(SOIL & ROCK)

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY_ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE NO. 100 ON -YIB- (US 301) **OVER** -L- (I-95) AT -L- STA. 702 + 75.43

m v 5 4 PROIEC

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	N O .	SHEETS
N.C. I–5987B	1	13

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 SOLT TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (1991) 707-8050. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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THE BIODER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBJURFACE 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 OPHION 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 SATISFY INVESTIGATIONS TO CONTINNS TO BE ENCOUNTERED. THE GIDDER OR 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: 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 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.

PERSONNEL

F&R, INC.

GOODNIGHT, D.J.

WEIS, J.M.

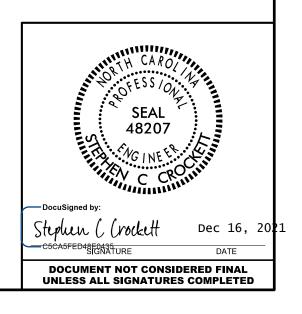
INVESTIGATED BY _____ EALCON ENG..

DRAWN BY _ CROCKETT, S.C.

CHECKED BY <u>HAMM</u>, J. R.

SUBMITTED BY _____

DATE _____ DECEMBER 2021

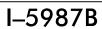


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

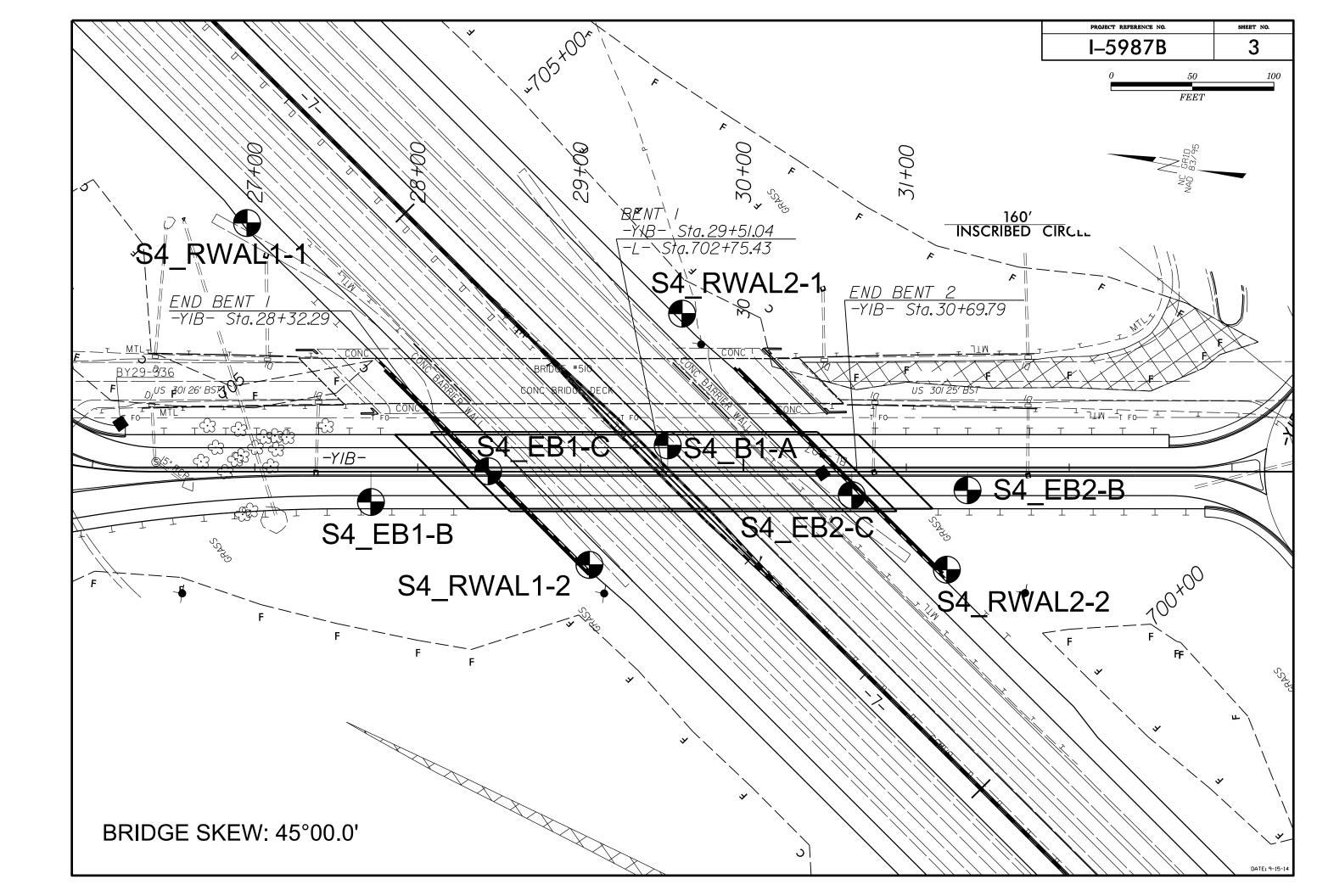
			SOIL	DESCI	RIPTI	<u>on</u>						G	RADATION						ROCK D	ESCRIPTION
BE PENETI ACCORDIN IS BA CONSISTE	RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLIDA A CONTINUOL STANDARD PEI HE AASHTO SY TEXTURE, MOI CLOAL COMPOSI	S FLIGHT PC ETRATION TE STEM. BASIC STURE, AASHT	DWER AUG EST (AAS DESCRIP O CLASS	GER AND SHTO T 2 PTIONS G SIFICATIO) YIELD LE 206, ASTM GENERALLY DN, AND OT	SS THAN 10 D1586). SO INCLUDE T HER PERTIN	00 BLOWS PI IL CLASSIFI HE FOLLOWI IENT FACTOF	ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATE	NDICATE	ES THAT SOIL IXTURE OF UN	PARTICLES ARE AL	LL APPROXI IZES OF TW	MATELY THE SAME SIZE.	ROCK LINE I SPT REFUSAI BLOWS IN N REPRESENTEI	INDICATE NL IS PE NON-COA D BY A	ES THE LEVE ENETRATION E ASTAL PLAIN ZONE OF WE	AIN MATERIAL THAT L AT WHICH NON-C BY A SPLIT SPOON	WOULD YIELD SPT REFUSAL IF TEST OASTAL PLAIN MATERIAL WOULD YIELD SAMPLER EQUAL TO OR LESS THAN Ø. RANSITION BETWEEN SOIL AND ROCK
AS V	S MINERALO	GICAL COMPOS RAY.SILTY CLAY.	TION, ANGULA NOIST WITH IN	TERBEDD	TRUCTURE DED FINE	SAND LAYE	ITY,ETC. FO RS.HIGHLY PL	JR EXAMPLE .ASTIC.A-7-6	•				F SOIL GRAINS IS D	ESIGNATED	BY THE TERMS:	WEATHERED	IHLS HE		3	UWS: AIN MATERIAL THAT WOULD YIELD SP1
		OIL LEGE		AASH	HTO C	LASSIF	ICATIO	N		ANGULAR, SUBAN			ICAL COMPOS			ROCK (WR)				FOOT IF TESTED.
GENERAL CLASS.	(GRANULAR MATER ≤ 35% PASSING 4 A-3	200)	(>	> 35% PASS	MATERIALS SING #200) A-6 A-7		RGANIC MATER	IALS		MES SU	ICH AS QUART	Z, FELDSPAR, MICA, 1	TALC, KAOLI		CRYSTALLINE ROCK (CR)	Ξ			GRAIN IGNEOUS AND METAMORPHIC RC PT REFUSAL IF TESTED. ROCK TYPE IN SCHIST.ETC.
	A-1-a A-1-b		A-2 2-5 A-2-6 A-2		6-H	A-0 A-7-5 A-7-6		A-4, A-5 A-6, A-7					PRESSIBILITY			NON-CRYSTAL	LLINE			: GRAIN METAMORPHIC AND NON-COASTA OCK THAT WOULD YEILD SPT REFUSAL
SYMBOL				3	474					SLIG+	HTLY C	OMPRESSIBLE Y COMPRESSIB	3LE	LL < 3 LL = 3		COASTAL PL	AIN			UDES PHYLLITE, SLATE, SANDSTONE, ET(SEDIMENTS CEMENTED INTO ROCK, BUT
% PASSING	000000000	000000000000000000000000000000000000000		- energiesene				SILT-			LY COM	IPRESSIBLE		LL > 5		SEDIMENTARY (CP)				OCK TYPE INCLUDES LIMESTONE, SANDS
*40 3	0 MX 0 MX 50 MX	51 MN					GRANULAR SOILS	CLAY SOILS	MUCK, PEAT			GRANULAR	AGE OF MATER	THL					WEA	THERING
MATERIAL PASSING •40 LL	_		MN 40 MX 41	MN 40 M)	x 41 MN	40 MX 41 MM	SOIL	S WITH		ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MATT MODERATELY ORGANIC	ATTER TER	<u>SOILS</u> 2 - 3% 3 - 5% 5 - 10%	SILT - CLAY <u>SOILS</u> 3 - 5% 5 - 12% 12 - 20%	TRACE LITTLI SOME	E 10 - 20% 20 - 35%	FRESH VERY SLIGHT (V SLI.)	HAMME ROCK	ER IF CRYSTAL GENERALLY FF	_LINE. RESH, JOINTS STAINE	INTS MAY SHOW SLIGHT STAINING. ROCK 2D, SOME JOINTS MAY SHOW THIN CLAY C E SHINE BRIGHTLY. ROCK RINGS UNDER H
PI GROUP INDEX USUAL TYPES S	6 MX Ø TONE FRAGS.	0 0	MX 11 MN 11 4 MX	8 MX	(12 MX	16 MX NO M	MOL X AMOL OR	Derate JNTS of Ganic	HIGHLY ORGANIC SOILS				> 20% JUND WATER BORE HOLE IMMEDIA			SLIGHT (SLI.)	of a Rock 1 Inch	CRYSTALLINE GENERALLY FF H. OPEN JOINT	NATURE. RESH, JOINTS STAINE S MAY CONTAIN CLA	D AND DISCOLORATION EXTENDS INTO RO Y. IN GRANITOID ROCKS SOME OCCASIONA
	GRAVEL, AND SAND		y or clayey El and sand		GILTY GILS	CLAYEY SOILS	M	ATTER					EVEL AFTER 24			MODERATE				CRYSTALLINE ROCKS RING UNDER HAMMEF DISCOLORATION AND WEATHERING EFFECT
GEN. RATING AS SUBGRADE		EXCELLENT TO G	000		FAIR TO	POOR	FAIR TO POOR	POOR	UNSUITABLE	 	PERC		SATURATED ZONE, OF		EARING STRATA	(MOD.)	GRANI [.] DULL	TOID ROCKS, M	IOST FELDSPARS ARE	E DULL AND DISCOLORED, SOME SHOW CLA SHOWS SIGNIFICANT LOSS OF STRENGTH
		PI OF A-7-5 SUB												<u></u>		MODERATELY	ALL R	ROCK EXCEPT (OR STAINED. IN GRANITOID ROCKS, ALL F
			ISISTENC	1		STANDARD		IGE OF UNC		+			ANEOUS SYMB	JLS		SEVERE (MOD. SEV.)	AND C	CAN BE EXCAV	ATED WITH A GEOLO	W KAOLINIZATION. ROCK SHOWS SEVERE L GIST'S PICK. ROCK GIVES "CLUNK" SOUND
PRIMARY SI		COMPACT CONSIS	TENCY	PENE	TRATION (N-VA)		E COM	PRESSIVE S (TONS/F1	STRENGTH	L ROADWAY EMBI			OF ROCK STRU	UCTURES	SLOPE INDICATOR	SEVERE (SEV.)	ALL R REDUC	ROCK EXCEPT (CED IN STRENC	STH TO STRONG SOLL	OR STAINED. ROCK FABRIC CLEAR AND E . IN GRANITOID ROCKS ALL FELDSPARS (
GRANULA	R	LOC			4 TO 10 TO			N/A					- 131 PM		/ INSTALLATION CONE PENETROMETER				SUME FRAGMENTS OF YIELD SPT N VALUES	STRONG ROCK USUALLY REMAIN. 5 > 100 BPF
	HESIVE)	DEN VERY VERY	DENSE SOF T	<u> </u>	30 TC > 5 < ;	50 2		< 0.25		THAN ROADWAY	Y EMBA		AUGER BORING	•	SOUNDING ROD	VERY SEVERE (V SEV.)	BUT M REMAII	MASS IS EFFEC	CTIVELY REDUCED TO TE IS AN EXAMPLE	OR STAINED. ROCK FABRIC ELEMENTS AF O SOIL STATUS, WITH ONLY FRAGMENTS OI OF ROCK WEATHERED TO A DEGREE THAT EMAIN. <u>IF TESTED, WOULD YIELD SPT N</u>
GENERAL SILT-CLA MATERIA (COHESIV	ΑY L	SO MEDIUM ST VERY	STIFF FF STIFF		2 TC 4 TC 8 TO 15 TC	08)15)30		0.25 TO 0.5 TO 1 1 TO 2 2 TO 4	1.0 ?				' MONITORING W △ PIEZOMETER INSTALLATION	4	TEST BORING WITH CORE SPT N-VALUE	COMPLETE	ROCK SCATT	REDUCED TO S	SOIL. ROCK FABRIC	NOT DISCERNIBLE, OR DISCERNIBLE ONLY IAY BE PRESENT AS DIKES OR STRINGER
		HA						> 4					NDATION SYME		-				ROCK	HARDNESS
U.S. STD. SIE	VE 0175	1	4 10			60 20	0 270					CLASSIFIED E			ASSIFIED EXCAVATION -	VERY HARD			HED BY KNIFE OR SI WS OF THE GEOLOGI	HARP PICK. BREAKING OF HAND SPECIMEN
OPENING (MM	1)		4.76 2.00		42 Ø	0.25 0.0	75 0.053				2 UN 1 UN	NSUITABLE WA	STE È EXCAVATION -	ACCEI ا <u>مگنداً</u> USED	PTABLE, BUT NOT TO BE IN THE TOP 3 FEET OF NKMENT OR BACKFILL	HARD	CAN B		BY KNIFE OR PICK	ONLY WITH DIFFICULTY. HARD HAMMER B
BOULDER (BLDR.)	(C	:0B.)	GR.)	SAI (CSE.	ND . SD.)	SAI (F S	ND 50.)	SILT (SL.)	CLAY (CL.)		AL	ABB	GRADABLE ROCK REVIATIONS - MEDIUM		- VANE SHEAR TEST	MODERATELY HARD	EXCAV		D BLOW OF A GEOLO	GOUGES OR GROOVES TO 0.25 INCHES DE GIST'S PICK. HAND SPECIMENS CAN BE D
GRAIN MM SIZE IN.	12	75 3 SOIL MOIS	2.0			ION OF	0.05	0.005 S) 	BT - BORING TERMINATED CL CLAY CPT - CONE PENETRATION		MICA. MOD	- MICACEOUS - MODERATELY NON PLASTIC	γ^{WE4}	- WEATHERED - UNIT WEIGHT - DRY UNIT WEIGHT	MEDIUM HARD	CAN B CAN B	BE GROOVED OF	R GOUGED 0.05 INCH IN SMALL CHIPS TO	ES DEEP BY FIRM PRESSURE OF KNIFE C) PEICES 1 INCH MAXIMUM SIZE BY HARD
	MOISTURE ERBERG LIN	SCALE	FIELD M DESCR	10ISTURE	c l			ISTURE DES	SCRIPTION	CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAT	ST	ORG PMT -	- ORGANIC - PRESSUREMETER TI - SAPROLITIC	EST S	SAMPLE ABBREVIATIONS	SOF T	CAN B FROM	BE GROVED OR CHIPS TO SEV	GOUGED READILY B	Y KNIFE OR PICK. CAN BE EXCAVATED IN ZE BY MODERATE BLOWS OF A PICK POIN
		LIMIT	- SATUR (SAT					Y WET,USU ROUND WATE		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS		SD SL	SAND, SANDY SILT, SILTY SLIGHTLY	SS ST	- SPLIT SPOON - SHELBY TUBE - ROCK	VERY SOF T	CAN B	BE CARVED WIT DRE IN THICKN	TH KNIFE. CAN BE E	XCAVATED READILY WITH POINT OF PICK. N BY FINGER PRESSURE. CAN BE SCRATCH
PLASTIC RANGE <			- WET -	· (w)				DRYING TO)	FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES		- TRICONE REFUSAL MOISTURE CONTENT	RT	- RECOMPACTED TRIAXIAL R - CALIFORNIA BEARING			TURE SP		BEDDING
(PI) PL	PLASTI	C LIMIT			•		TIMUM MOI	STURE		HI HIGHLY		v - v	ERY		RATIO	<u>TERM</u>			SPACING	TERM
		M MOISTURE AGE LIMIT	- MOIST	- (M)	S	SOLID; AT	or near (PTIMUM MC	DISTURE	DRILL UNITS:	ADVA	ENT USEE ANCING TOOLS: CLAY BITS	ON SUBJEC :	HAMME	ECT R TYPE: NUTOMATIC MANUAL	VERY WID WIDE MODERATE		3 0SE 1	E THAN 10 FEET TO 10 FEET I TO 3 FEET 16 TO 1 FOOT	VERY THICKLY BEDDED THICKLY BEDDED 1 THINLY BEDDED 0. VERY THINLY BEDDED 0.0
			- DRY -	(D)			ADDITIONAI TIMUM MOI	_ WATER TO	D	Х СМЕ-45С		6" CONTINUOL	JS FLIGHT AUGER	CORE S		CLOSE VERY CLC	JSE		THAN 0.16 FEET	THICKLY LAMINATED 0.00 THINLY LAMINATED <
			PL	ASTIC	CITY						님	8" HOLLOW A		-в	н					JRATION
	PLASTIC	STIC	PLAS1	<u>TICITY I</u> Ø-5 6-15		<u>·D</u>	Ē	DRY STRENC VERY LOW SLIGHT		CME-550		TUNGCARBI	_			FOR SEDIMEN		UUKS, INDURA	RUBBING WIT	ENING OF MATERIAL BY CEMENTING.HE H FINGER FREES NUMEROUS GRAINS; W BY HAMMER DISINTEGRATES SAMPLE.
	ERATELY PI			16-25 26 OR M	MORE			MEDIUM HIGH		PORTABLE HOIST			∫ w∕ ADVANCER <u>2 ¹⁵∕16</u> •STEEL TEETH		OST HOLE DIGGER	MODEF	RATELY	INDURATED	BREAKS EAS	BE SEPARATED FROM SAMPLE WITH ST ILY WHEN HIT WITH HAMMER.
				COLO						1	□	TRICONE	• TUNGCARB.		OUNDING ROD	INDUR	≀ATED			DIFFICULT TO SEPARATE WITH STEEL O BREAK WITH HAMMER.
		INCLUDE COLO ICH AS LIGHT										CORE BIT			ANE SHEAR TEST	EXTRE	EMELY I	INDURATED		ER BLOWS REQUIRED TO BREAK SAMPLE AKS ACROSS GRAINS.

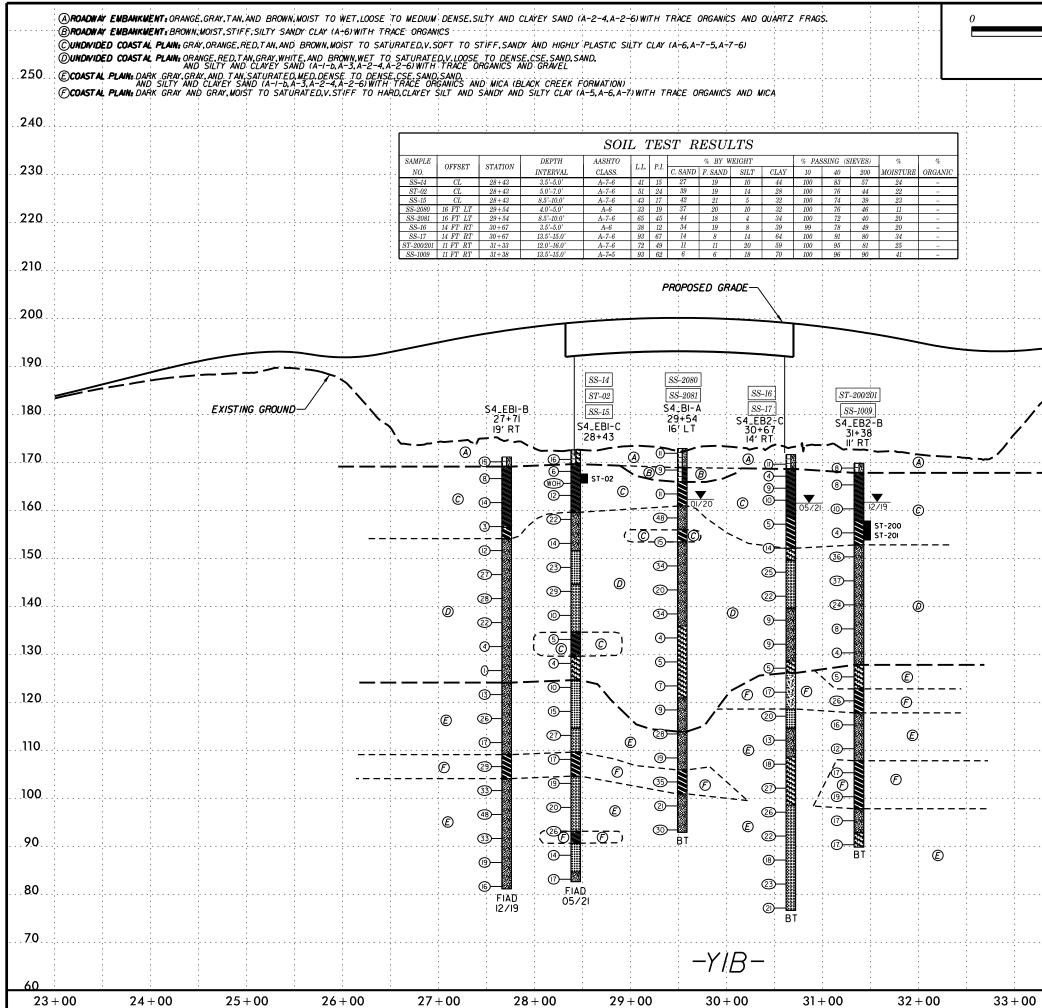
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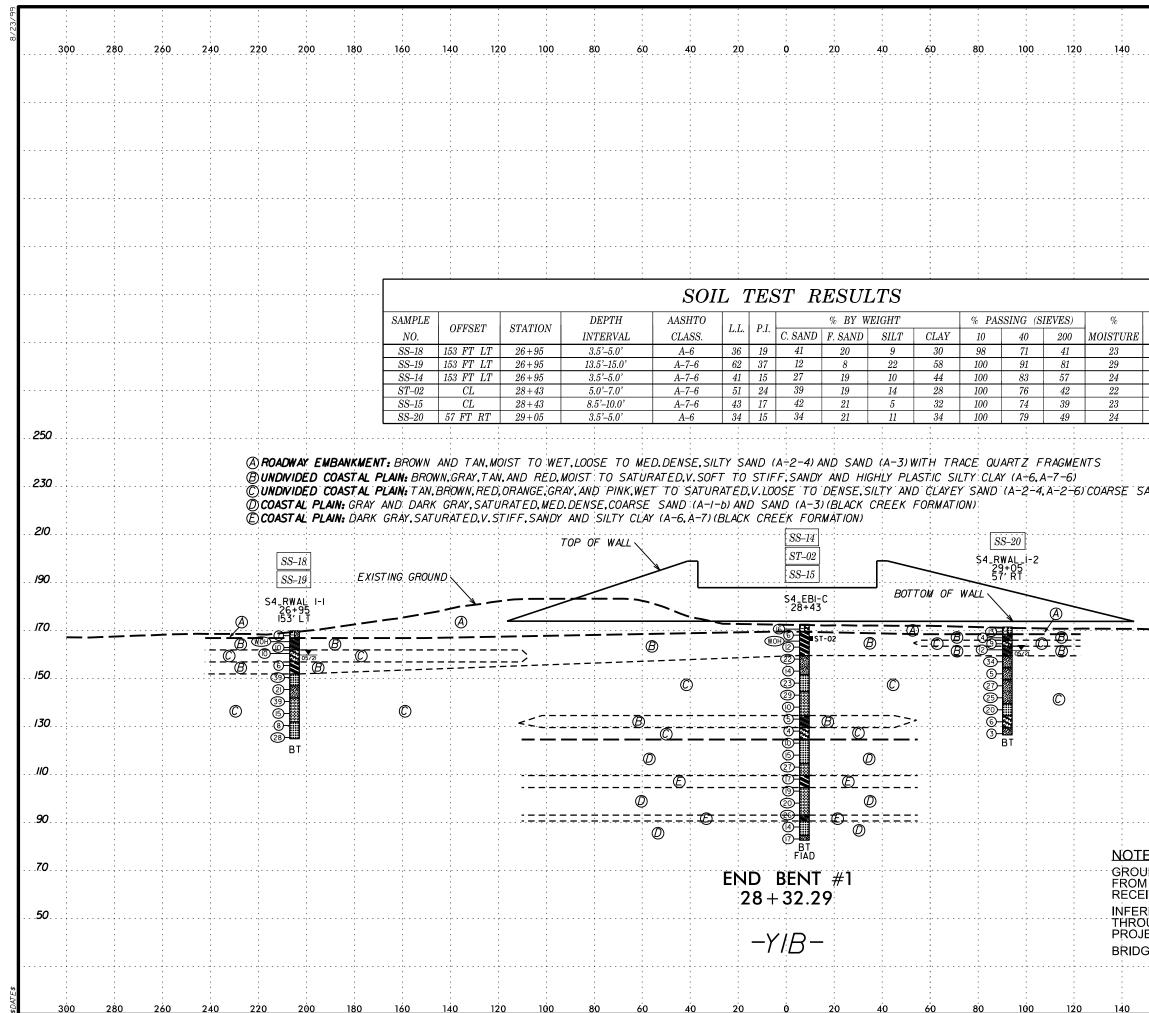
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	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
N VALUES >	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
CK THAT CLUDES GRANITE,	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN IF TESTED.	
2.	OF SLOPE.
MAY NOT YIELD	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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
OATINGS IF OPEN.	HORIZONTAL.
AMMER BLOWS IF	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
ICK UP TO L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
Y. ROCK HAS AS COMPARED	PARENT MATERIAL.
	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
ELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
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
VIDENT BUT	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
RE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
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
5. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
	RUN AND EXPRESSED AS A PERCENTAGE.
S REQUIRES	<u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
S ACOUNCS	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
LOWS REQUIRED	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
EEP CAN BE ETACHED	<u>SLICKENSIDE</u> - 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
R PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
T. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	<u>STRATA ROCK QUALITY DESIGNATION (SRQD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH IED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
-	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TIN2.TIN
THICKNESS	DATED 05/2I
4 FEET .5 - 4 FEET	ELEVATION: FEET
6 - 1.5 FEET	NOTES:
3 - 0.16 FEET 18 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
0.008 FEET	
AT, PRESSURE, ETC.	
EEL PROBE:	
PROBE:	
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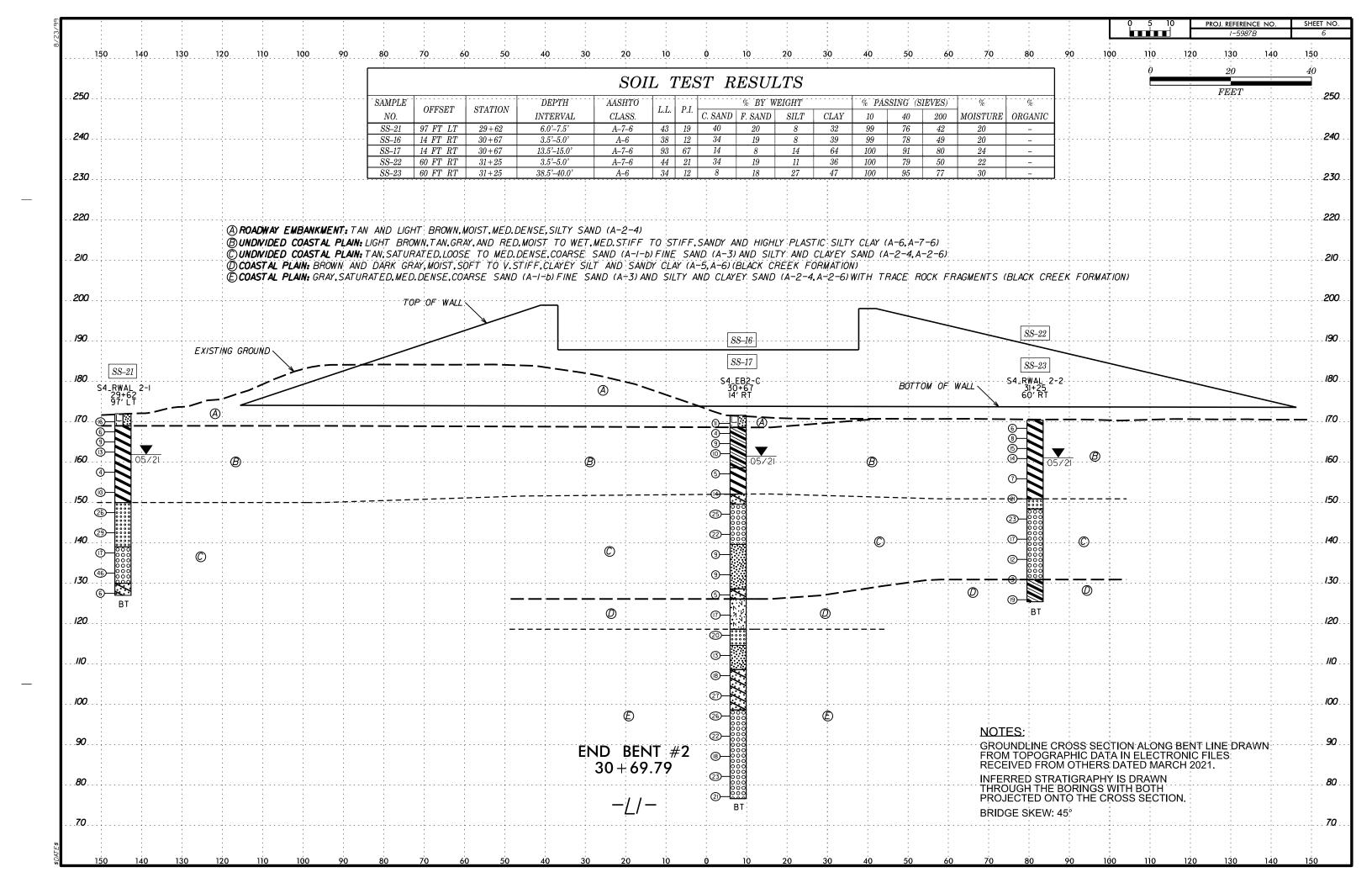


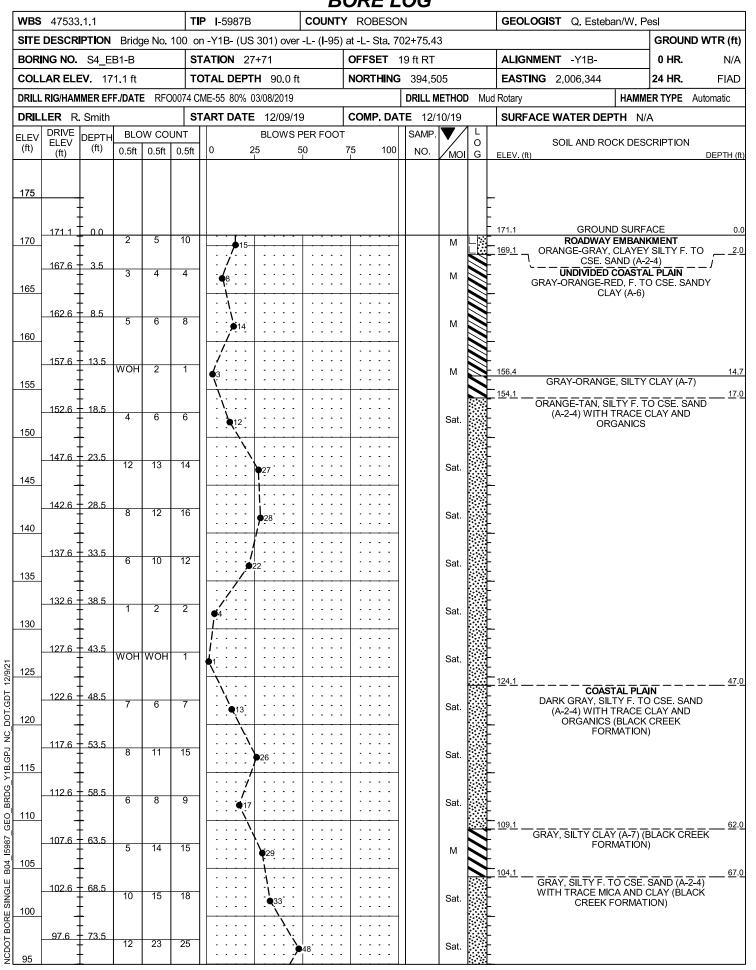


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SITE	DESCR	IPTION	Bridg	ge No.	100 c	n -Y1B- (U	6 301) over	-L- (I -95)	at -L- Sta. 7	02+75.4	3			GROUND WTR (ff
BORI	NG NO.	S4_E	B1-B		S	TATION 2	7+71		OFFSET	19 ft RT			ALIGNMENT -Y1B-	0 HR. N//
	AR ELI					OTAL DEP			NORTHING		05		EASTING 2,006,344	24 HR. FIAD
				E RFC		ME-55 80%		I				D Mu	d Rotary HAMN	IER TYPE Automatic
	ER R					TART DAT		a	COMP. DA				SURFACE WATER DEPTH N	
	DRIVE		BLC	w co				PER FOOT		SAMP.		1 L T	1	
(ft)	ELEV (ft)	(ft)	0.5ft			0			75 100	NO.	мо	O G	SOIL AND ROCK DES	CRIPTION DEPTH
<u>95</u> 90	92.6	 - - 78.5	 15	17	16		Matc	h Line			 Sat.		GRAY, SILTY F. TO CSE. WITH TRACE MICA AND CREEK FORMATION)	CLAY (BLACK
85	- 87.6 - -	- - - - - -	5	8	11	· · · · ·					Sat.		-	
	82.6 - -	- <u>88.5</u>	6	8	8	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·		Sat.		81.1 Boring Terminated at Elev	90 ation 81 1 ft IN
	-	+ + +											COAŠTAL PLAIN: SILTY CREEK FORMA	SAND (BLACK
	-	+ +											. Notes: _ 1. Surficial Organic So	oil: 0.0-0.1'
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GEOTECHNICAL BORING REPORT

BORE LOG

GEOTECHNICAL BORING REPORT BORE LOG

										ORE L				1	
WBS	47533	.1.1			Т	IP I	-5987B		COUNT	Y ROBESC	N			GEOLOGIST Weis, J. M.	
SITE	DESCR	PTION	Bride	ge No.	100 d	on -Y	1B- (US	5 301) over	-L- (l-95)	at -L- Sta. 7	702+75.4	3			GROUND WTR (ft)
BOR	NG NO.	S4_E	B1-C		s	TAT	ON 2	8+43		OFFSET	CL			ALIGNMENT -Y1B-	0 HR. 13.0
COLI	AR ELE	EV . 17	2.6 ft		Т	ота	L DEP	FH 90.0 ft		NORTHING	G 394.4	38		EASTING 2,006,376	24 HR. FIAD
								02/21/2019					η Μια	1	ER TYPE Automatic
									4					, , , , , , , , , , , , , , , , , , , ,	
	LER PO DRIVE	,		W CO			IDAI	E 05/18/2		COMP. DA	SAMP.	18/21	1 L T	SURFACE WATER DEPTH N/	A
ELEV (ft)	ELEV	DEPTH (ft)	0.5ft			$\left\ \right\ _{0}$			PER FOOT 50	75 100		▼∕	0	SOIL AND ROCK DES	CRIPTION
(,	(ft)	()	0.51	0.51	0.51			2.5		15 100	NO.	/мо	G	ELEV. (ft)	DEPTH (ft)
175		_												-	
	-												ΙĿ	172.6 GROUND SURF.	ACE 0.0
	171.6 -	- 1.0	11	8	8	<u> </u>	• • •						LN-	ROADWAY EMBAN	KMENT
170	- 169.1	3.5		°			1 6	+ • • • •			-	W		BROWN, CLAYEY SAND <u>169.6</u> TRACE QUARTZ FRA	
	- 109.1	- 0.0	3	3	3		/ 6				SS-14	24%	N	UNDIVIDED COASTA BROWN, SANDY SILTY (
	166.6 -	6.0	WOH	WOH	WOH	- / /:	· · ·					22%	N	BROWN, SANDT SILT T	JLAT (A-7-0)
165	164.1	8.5						+ • • • • •	<u> </u>		-	W	N	-	
	-	-	4	6	6	7 :	•12				SS-15	23%	N		
100	-					:	· \ · \ .						N		
160	159.1	13.5						<u> </u>	<u> </u>		1			- <u>159.6</u> TAN, SILTY SAND (A-2	2-4) WITH 13.0
	-	-	4	10	12	.	· · •	22				Sat.	-	INTERMITTENT CLAY	
155	-	F					:: <i> </i> .						F		
100	154.1	18.5	2	6	8	11	. 1.				1			-	
	-		2			:	- 6 14					Sat.		151.6	21.0
150	-	-				.	· • • • • •						0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	TAN, SAND (A	-3)
	149.1	23.5	8	11	12	$+\Box$					1	Sat.	0000	-	
	-	Ļ				:						Jai.			
145	-					1L:		<u>\</u>	· · · ·	· · · ·			0000	- 144.6	28.0
	144.1	_ 28.5	8	11	18	- ·		29				Sat.	000		A-1-b)
	-	F				:									
140							· · /				-			-	
	139.1	33.5	3	5	5	11:	•/ ●10 •					Sat.	0000		
	-	-				.	j						000		
135	134.1	38.5					$\frac{1}{1}$				-		000	- <u>134.6</u>	38.0
	- 134	- 00.0	2	4	1	1	, 15					Sat.		DARK GRAY, SANDY (CLAY (A-6)
	-	L I					· · ·								
130	129.1	43.5				_l ⊢i					-			- 129.6 LIGHT BROWN, CLAYEY	
	-	\mathbf{F}	2	2	2	•	4 • • •					Sat.	<u>///</u>	LIGHT BROWN, CLATET	UNID (7-2-0)
125	-	F)							<u>//</u>		
125 120 115 110	124.1	48.5	4	4	6	11	$\frac{1}{1}$	· · · ·	<u> </u>	· · · ·	11			<u>- 124.6</u> COASTAL PLA	<u>IN</u> <u>48.0</u>
	-	t l	4	4		:	• 10 -					Sat.	0000	DARK GRAY, F. SAND INTERMITTENT CLAY LEI	(A-3) WITH
120	-	ŀ					·\						0000	CREEK FORMAT	
	119.1	53.5	4	5	10		· <u>\</u> .		· · · ·		11	Sat.		-	
	-	‡				:	• q 15 • • \ •					ંગ્ય.	0000		
115	-	L					· · ``\			· · · ·				- 114.6	58.0
	114.1	58.5	8	8	19	┤ │ ·		27				Sat.	000	DARK GRAY, CSE. SAND	(A-1-b) WITH
	-	F				:	· · ·	7 ² ' · · · ·						INTERMITTENT CLAY LEI CREEK FORMAT	
110	100 4						· · · · ·							- 109.6	<u> </u>
	109.1	63.5	3	7	10	11:	/ . . é 17	,	: : : :			Sat.	N	DARK GRAY, SILTY CLAY CREEK FORMAT	(A-7) (BLACK
	-	Ł				·	· · · · ·						N	CALERT ORMAT	
105	- 104.1	68.5						+	+	+	+				
	- 1.70		1	6	13	1 :	¦ i	9				Sat.		GRAY, CSE. SAND (A-1 CREEK FORMAT	
	-	t				:	· · ŀ		: : : :				0000		,
<u>100</u> 95	99.1	73.5						+	+				ŏŏŏ	-	
	-		6	9	11	11:		20				Sat.	0000		
	-	ţ				:									
95		L						N					R00		

									<u>URE L</u>	UG				
WBS	47533	.1.1			Т	P I-5987B		COUNTY	/ ROBESO	N			GEOLOGIST Weis, J. M.	
SITE	DESCR	PTION	Bridg	ge No.	100 o	n -Y1B- (US	301) over	-L- (I -95)	at -L- Sta. 70)2+75.4	3			GROUND WTR (ft)
	NG NO.					TATION 28			OFFSET				ALIGNMENT -Y1B-	0 HR. 13.0
									NORTHING		20		EASTING 2,006,376	
	AR ELE					OTAL DEPT			NUKIHING					
				e Mic	03964 CI	ME-45C 91% 0	2/21/2019			DRILL M	ETHO	D Mu		IER TYPE Automatic
DRIL	LER Po	owell, B			S	TART DATE	05/18/2	1	COMP. DA	FE 05/*	18/21		SURFACE WATER DEPTH	/A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	-	OW CO	0.5ft	0 2		PER FOOT	75 100	SAMP. NO.	моі	L O G	SOIL AND ROCK DES	SCRIPTION DEPTH (ft)
95				 11 7	9		Matc	h Line			Sat. Sat.		93.1 90.6 CREK FORMA GRAY, F. SAND (A-3) (È FORMATIO 84.6 82.6 (BLACK CREEK FOI Boring Terminated at Ele COASTAL PLAIN: SILTY CREEK FORMA <u>Other Samples:</u> ST-02 (5.0 - 7.0)	TION) 82.0 LACK CREEK 82.0 N) SAND (A-2-4) 88.0 RMATION 90.0 ration 82.6 ft IN SAND (BLACK

GEOTECHNICAL BORING REPORT

BORE LOG

GEOTECHNICAL BORING REPORT BUDEIUC

SHEET 9

GEOTECHNICAL BORING REPORT BORE LOG

								<u> </u>	<u>ORE L</u>	<u>UG</u>							
WBS	47533.	1.1			TI	P I -5987B		COUNT	Y ROBESO	N			GEOLOG	IST B. Painte	er		
SITE	DESCRIP	PTION	Brid	ge No.	100 o	n -Y1B- (US	301) ove	r -L- (l -95)	at -L- Sta. 7)2+75.43	3					GROUN	D WTR (ft)
BOR	NG NO.	S4_B	1-A		S	TATION 29	+54		OFFSET [·]	6 ft LT			ALIGNME	NT -Y1B-		0 HR.	N/A
COLI		V . 17	2.9 ft		т	OTAL DEPT	H 80.0 f	t	NORTHING	394,33	32		EASTING	2,006,411		24 HR.	10.6
DRILL	. RIG/HAMM	IER EF	F./DAT	E F&F		ME-55 82%0	3/01/2019			DRILL M	ETHOD	Muc	d Rotary		НАММ	ER TYPE	Automatic
DRIL	LER D.1	Fignor			ST	TART DATE	01/20/2	20	COMP. DA	FE 01/2	21/20		SURFACE	WATER DE	- •TH N/	A	
ELEV	DRIVE	DEPTH	BLC	ow co	UNT		BLOWS	PER FOOT	-	SAMP.	▼/	L					
(ft)	ELEV	(ft)	0.5ft	0.5ft	0.5ft	0 2	5	50	75 100	NO.	мо	O G	ELEV. (ft)	SOIL AND RC	OCK DES	CRIPTION	DEPTH (ft)
								•									
180																	
100	+												-				
	‡																
175	_												-				
	172.9	0.0										-	172.9		ID SURF		0.0
			2	4	7	. ∳ 11 -	· · · ·				М		D	ROADWAY ARK GRAY-BR			ND
170	169.4	3.5	7	4	5				+ · · · · ·				168.9	(A-2-4) WITH	TRACE (ORGANICS	4.0
	+			4		. •9				SS-2080	11%		BRO	OWN, SILTY F. (A-6) WITH T			CLAY
165	Ŧ												<u>165.9</u>				7.0
	164.4	8.5	3	4	7					SS-2081	20%	N		D-BROWN-GF	RAY, SILT	Y F. TO C	
	‡											N		INDI CLAT (A-	7-0), FIG	ILT FLAS	<u>12.0</u>
160	159.4	13.5												ROWN-PINK,			
			12	22	26		L i j	●48			W	-		USE. S	and (a-:	2-4)	
455	‡					· · · · ·	· · / · ·						155.9				<u>17.0</u>
155	154.4	18.5	5	9	6		/	· · · · ·	· · · · ·		W	N	_ Pl 153.4	NK-ORANGE, I	=. SAND` (A-7)	SILTY CL	.AY 19.5
			Ű		Ŭ	Q 15	· · · ·				vv		WH	ITE-GRAY-BR			TY F.
150												Ŀ		O CSE. SAND GRAVEL F			
	149.4	23.5	13	14	20		∖ ●34				w	-	_				
	ĮŦ						1					-					
145	144.4	28.5	_				/ /	+ • • • •	+ • • • •			F	-				
			7	9	11	· · · • • • • • • • • • • • • • • • • •)				W	-					
140	‡						<u>,</u>					-					
	139.4 -	33.5	16	17	17						Sat.	-	-				
	‡						· · · · ·						135.9				37.0
135	134.4	38.5				· · · /	· · · ·		· · · ·					OWN-GRAY-F			Y F. — — — -
		00.0	4	2	2	•4 · · ·	· · · · ·				Sat.	/./.	I	O CSE. SAND G	(A-2-6) V RAVEL	VITH TRAC	Έ
100	‡					· · · · · · · ·	· · · ·					/./.					
130	129.4	43.5	3	3	2			· · · · ·			0-4		-				
	1		Ű				· · · ·				Sat.	//					
125		40 5				1						/./	_				
	124.4	48.5	3	3	4						Sat.	//					
												\sim	120.9				52.0
120	119.4	53.5							+ • • • •					RANGE-GRAY-I SAND (A-2-			
	‡		3	4	5						Sat.	-			-+), IVIIO/-	02000	
115	‡					· · · · · · · ·	· · · ·					ļ					
110	114.4	58.5	7	12	16		<u> </u>				Sat.		113.9	0045			59.0
	‡						P ²⁸				500		D	ARK GRAY, SIL		O CSE. SAI	ND
110	109.4	63.5				/		· · · ·	· · · ·				-	(A-2-4) WITH ORGANICS	(BLACK	CREEK	
			5	8	11	: : • • • • •	· · · · ·				W			FOF	RMATION)	
	1					::::							105.9				67.0
105	104.4	68.5	6	15	20		<u>\</u>	· · · ·	+ • • • • •			N	GF	RAY, SILTY CLA	λΥ (Α-7), .VEL (BL	WITH TRA ACK CREE	ACE
]						. •35				М	N			MATION		
100	Ŧ						/						<u> 100.9 </u>				<u>72.0</u>

						1	ORE L				1		
	47533.1.1				P I -5987B		Y ROBESO				GEOLOGIST B. Painte		
			ge No.		on -Y1B- (US 301) ove	r -L- (l-95)	1		3		1		IND WTR (ft
	NG NO. S4_				TATION 29+54		OFFSET				ALIGNMENT -Y1B-	0 HR.	
	AR ELEV.				OTAL DEPTH 80.01	<u>t</u>	NORTHING				EASTING 2,006,411	24 HR.	
			Έ F&F		CME-55 82% 03/01/2019			DRILL N) Mu	1	HAMMER TYPE	Automatic
	LER D.Tigno	1			TART DATE 01/20/2		COMP. DA			1. 1	SURFACE WATER DEP	TH N/A	
ELEV (ft)	DRIVE ELEV (ft) (ft)	· ·	OW CO		4	PER FOO ⁻ 50	T 75 100	SAMP. NO.				CK DESCRIPTIO	
(,	(ft) (it)	0.51	0.51	0.51			100	NO.	<u>/ MOI</u>	G	ELEV. (ft)		DEPTH
						- I. Line -							
100	99.4 73.9		$\frac{+}{7}$	- <u> </u>		ch Line		+	<u> </u>		GRAY, SILTY F. T	O CSE. SAND (A	- <u></u>
	ŧ			'4	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \bullet \bullet^{21} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \right \cdot \cdot \cdot \cdot \cdot \right \right $				W		WITH TRACE M FORMATIO	ICA (BLACK CRE DN) <i>(continued)</i>	EK
95	<u> </u>					· · · ·					_		
t	<u>94.4 + 78.</u> 	10	15	15	30				w		92.9		80
Γ	t										Boring Terminated COASTAL PLAIN:	at Elevation 92.9 SILTY SAND (BL	9 ft IN _ACK
	+											ORMATION)	
	Ŧ											lotes: ganic Soil: 0.0-0.3	יב
	Ŧ											ganie 001. 0.0-0.0	J
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							В	ORE L	ÛĠ					
WBS	47533	3.1.1			T	IP I -5987B	COUNT	Y ROBESO	N			GEOLOGIST R. French		
SITE	DESCR	IPTION	Bridg	ge No. ′	100 o	on -Y1B- (US 301) ove	r -L- (I -95)	at -L- Sta. 7	02+75.43	3			GROUND	WTR (ft)
BOR	NG NO.	S4_E	B2-B		S	TATION 31+38		OFFSET	11 ft RT			ALIGNMENT -Y1B-	0 HR.	N/A
COL	LAR EL	EV. 16	9.8 ft		Т	OTAL DEPTH 80.0 f	t	NORTHING	394,14	16		EASTING 2,006,417	24 HR.	8.1
DRILL	. RIG/HAN	/MER EF	F./DAT	E F&R	2175 (CME-55 84% 03/01/2019			DRILL M	ethod	Muc	d Rotary HAMM	ER TYPE A	utomatic
DRIL	LER S	. Davis			S	TART DATE 12/09/1	9	COMP. DA	TE 12/1	0/19		SURFACE WATER DEPTH N/	A	
ELEV	DRIVE ELEV	DEPTH	BLC	ow cor	JNT	BLOWS	PER FOO	г	SAMP.	▼∕	L O	SOIL AND ROCK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	/мот	Ğ	ELEV. (ft)		DEPTH (ft
185		÷									-	-		
		ŧ									F			
180		Ŧ									F			
	-	Ŧ									-	-		
		Ŧ									F			
175	-	Ŧ									E	-		
		I									E			
170	169.8-										E	_ 169.8 GROUND SURF	ACE	0.
		1	2	3	5	·• <u>8</u> · · · · · ·				M		ROADWAY EMBAN		-4)2.0
	166.3	3.5	2	3	5								ANICS	
165	-	ŧ	2		5		<u> </u>			м		ORANGE-BROWN-GRAY CSE. SANDY CLA	, SILTY F. T	0
	161.3	- - _{8.5}				. l . l					Ì		r (/0)	
160		+ ^{0.0}	4	4	6					м		-		
		‡				: <i>j</i> : : : : : : :						<u>157.8</u>		<u>12.</u>
155	156.3	13.5	2	1	3				SS-1009	41%	N	RED-GRAY, F. TO CSE. S CLAY (A-7-5), HIGHLY		Y
155	-	ŧ			-				00-1003	4170		-		
	151.3	+ T 18.5										RED-GRAY-BROWN, SIL		
150	-	ŧ	14	17	19	☐ · · · · · · · · · · · · · · · · · · ·				Sat.	Ļ	(A-2-4) WITH TRACE GR - 38.5'-40.0'	AVEL FROM	Л
		Ŧ									F			
145	146.3	<u>† 23.5</u> 	11	16	21	$- \begin{vmatrix} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \end{vmatrix} + \begin{vmatrix} \cdot \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ $				Sat.	Ē			
] -	Ŧ									E	-		
	141.3	28.5	11	12	12	/					Ē			
140	-	ŧ		12	12	24	· · · · ·			Sat.	_	-		
	100.0	- - - 33.5									-			
135	136.3	- 33.5	2	2	6					Sat.	Ľ	-		
		‡				:/::: ::::		· · · · ·			-			
130	131.3	38.5	2	1	3					Sat.	-			
150	-	ŧ				4 4 <u></u>				Jat.	-	-		40.4
	126.3	+ - 43.5				(/ - //	\sim			<u> </u>
125	-	Ŧ	3	2	3	4 5 	+			Sat.		- GRAY, SILTY CLAYEY F. WITH TRACE ORGANIC	S AND MICA	o) A
		Ŧ										(BLACK CREEK FOR <u>122.8</u> DARK GRAY, F. SANDY SIL		47.0
120	121.3	<u>† 48.5</u> I	7	10	16					Sat.	S	WITH TRACE MICA (BL/ FORMATION	ACK CREEK	
		Ŧ									S	- FORMATION	,	52.0
	116.3	53.5		_	0							DARK GRAY, SILTY F. TO (A-2-4), MICACEOUS WITH		D
115	-	ŧ	4	7	9	16	· · · ·			Sat.		- AND ORGANICS (BLAC FORMATION	CK CREEK	
	1110	+				::¦::::							,	
110	111.3	<u> </u>	3	5	7	/				Sat.	Ŀ	-		
		‡										107.8		62.0
105	106.3	63.5	4	7	10	4 :: <u>)</u> : ::::					Y			
105	-	⊥	4	· /	10	<u> </u> 17 <u> </u>	1			Sat.				

								B	_
WBS					T	_		COUNT	
				ge No.	_		-Y1B- (US 301) ov	er -L- (I -95	T
	NG NO.						ATION 31+38		1
	AR ELE		9.8 ft				FAL DEPTH 80.0		
			F./DATE	E F&F			IE-55 84% 03/01/2019		-
	LER S.					T/	ART DATE 12/09/		0
ELEV (ft)	DRIVE ELEV	DEPTH (ft)	0.5ft	0.5ft	0.5ft		0 25	50 PER FOO	
	(ft)	()	0.51	0.51	0.51				7
105							Ma	tch Line	
	-	-							-
100	101.3	68.5	4	7	12				-
100	-	t F					¶19 · · ·]· · · ·		
	- 96.3	- 73.5					: : : ! : : : :		-
95			10	7	10	1	•••• • 17		-
	-	t F							- -
90	91.3	78.5	4	7	10				-
30		-				┞	@ 17		_
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GEOTECHNICAL BORING REPORT

ORE LOG

GEOLOGIST R. French ROBESON GROUND WTR (ft) at -L- Sta. 702+75.43 OFFSET 11 ft RT ALIGNMENT -Y1B-0 HR. N/A **NORTHING** 394,146 **EASTING** 2,006,417 24 HR. 8.1 DRILL METHOD Mud Rotary HAMMER TYPE Automatic **COMP. DATE** 12/10/19 SURFACE WATER DEPTH N/A SAMP. 0 SOIL AND ROCK DESCRIPTION 100 75 NO. MOI G ELEV. (ft) DEPTH (ft DARK GRAY, F. SANDY SILTY CLAY (A-7), MICACEOUS (BLACK CREEK FORMATION) (continued) Sat GRAY, SILTY F. TO CSE. SAND (A-2-4) <u>97.8</u> WITH TRACE MICA AND GRAVEL Sat. 92.8 · · · · · ____ 77.0 DARK GRAY, SILTY CLAYEY SAND (A-2-6), MICACEOUS WITH TRACE GRAVEL (BLACK CREEK FORMATION) Sat. 80.0 .89.8 Boring Terminated at Elevation 89.8 ft IN COASTAL PLAIN: CLAYEY SAND (BLACK CREEK FORMATION) Notes: 1. Surficial Organic Soil: 0.0-0.2' 2. Shelby Tubes pushed in Offset Boring 31+33, 11' RT; ST-200: 12.0'-14.0', ST-201: 14.0'-16.0', Both Lab Tested <u>Other Samples:</u> ST-200 (12.0 - 14.0) ST-201 (14.0 - 16.0)

BORING NO. S4_EB2-C STATION 30+67 OFFSET 14 ft RT ALIGNMENT -Y1B- 0 COLLAR ELEV. 171.6 ft TOTAL DEPTH 95.0 ft NORTHING 394,215 EASTING 2,006,401 24	
BORING NO. S4_EB2-C STATION 30+67 OFFSET 14 ft RT ALIGNMENT -Y1B- 0 COLLAR ELEV. 171.6 ft TOTAL DEPTH 95.0 ft NORTHING 394.215 EASTING 2,006,401 24 DRIL RICHAMMER EF.DATE ID0340 CME-45C 91% (021/2019 DRILL METHOD Mod Roary HAMMENT DRILLER DEPTH BLOW COUNT ELOW SPER FOOT SAMP SUBFACE WATER DEPTH NA (10) 0.51 0.58 0.58 0 25 50 75 100 NO. MOI 0 ELEV, fth SOIL AND ROCK DESCRIP 175 100 10.51 0.58 0.58 0 25 50 75 100 NO. MOI 0 ELEV, fth SOIL AND ROCK DESCRIP 170 170.0 150.5 0.58 0.57 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
COLLAR ELEV. 171.6 ft TOTAL DEPTH 95.0 ft NORTHING 394.215 EASTING 2.006.401 24 DRILL RK-PARE MID3844 CME-45C 91% 0221/2019 DRILL METHOD Mud Rotary HAMMER T DRILL RK-PARE BLOW COUNT BLOW COUNT BLOW COUNT Solid AND ROCK DESCRIP (10) (10) 0.58 0.58 0.58 0.58 0.25 50 75 100 SAMP. Solid AND ROCK DESCRIP 175 0.0 0.58 0.58 0.58 0.58 0.25 50 75 100 NO. SAMP. Solid AND ROCK DESCRIP 176 1.0 0.58 0.58 0.58 0.25 50 75 100 NO. SAMP. MOI C ELEV. (m) 176 1.0	ROUND WTR (ft)
DRILL RIGHAMMER EFF.DATE MID384 CME-45C 91% 022/12/19 DRILL METHOD Muc Rolary HAMMER T DRILL RE Powell, B. START DATE 05/19/21 COMP. DATE 05/19/21 SURFACE WATER DEPTH N/A ELEW DEFTH BLOW COUNT 0.5ft 0.5ft 0.5ft 0.2ft 50 75 100 SAMP V/A SOIL AND ROCK DESCRIP 175 100 10.3 5 6 10 25 50 75 100 SAMP V/A 10 10 SOIL AND ROCK DESCRIP 170 170.6 1.0 3 5 6 10 25 50 75 100 SAMP V/A 10	HR. 12.4
DRILLER Powell, B. START DATE 05/19/21 COMP. DATE 05/19/21 SURFACE WATER DEPTH N/A ELEV DRIVE (II) DEPTH (II) BLOW COUNT (III) BLOWS PER FOOT 0.51 SAMP NO. SAMP NO. SOIL AND ROCK DESCRIP 175	HR. 10.1
ELC) DRMC (N) DEP/L (N) BLOW COUNT (N) BLOW SPER FOOT (N) SAMP Lo SAMP Lo Solit AND ROCK DESCRIP 175	YPE Automatic
Lick Lev DP D D Z S0 T TO NO. MO G PLEV. (B) SOL AND ROCK DESCRIPTION 175 1 </td <td></td>	
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1851 3.5 2 2 2 165 165.6 6.0 4 4 5 165 165.1 13.5 4 4 6 165 158.1 13.5 1 2 3 155 153.1 18.5 1 5 9 1 160 158.1 13.5 1 5 9 1 1 160 148.1 2.3.5 1 5 9 1	
165 465.6 6.0 4 5 160 131.1 8.5 4 4 6 160 158.1 132.1 135 1 5 9 155 153.1 185.1 5 9 148.1 2.35 7 10 15 145 148.1 2.35 7 10 15 155 155 143.1 2.85 7 10 15 145 143.1 2.85 7 10 15 15 150 160 160 160 160 160 160 160 150 160 160 160 160 160 160 160 160 160 160 160 160 160	_ain
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155 153.1 18.5 1 5 9 5 4 1	<u>Y (A-7-6) 13.0</u>
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IAB 2.1.3 7 10 15 145 - <	22.0
145 143.1 28.5 10 12 11 12 12 12 12 13 12	b)
143.1 28.5 8 10 12 140 138.1 33.5 9 5 4 122 136 139.5 128.1 148.5 148.5 148.5 148.5 148.5 148.5 148.5 148.5 128.1	
140 8 10 12 138.1 33.5 9 5 4 135 9 5 4 5 136 133.1 38.5 6 4 5 130 128.1 43.5 - - - - 123 128.1 43.5 - - - - - 128.1 43.5 - - - - - - - 128.1 43.5 -	
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138.1 33.5 9 5 4	
135 9 5 4 6 1	<u>-4)32.0</u>
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130 128.1 43.5 4 2 3 125 128.1 43.5 4 2 3 125 123.1 48.5 4 6 11 120 118.1 53.5 5 5 8 115 113.1 58.5 5 5 8 12 114.6 GRAY, SILTY SAND (A-2-4) T GRAYEL (BLACK CREEK FORMATION) 110 108.1 63.5 9 8 10 118.1 58.5 5 5 110 108.1 63.5 9 8 10 108.6 GRAY, CLAYEY SAND (A-2-4) T GRAYEL (BLACK CREEK FORMATION)	
128.1 43.5	
1281 43.5 4 2 3 125 4 2 3 (A-2-6) 1231 48.5 (A-2-6) (A-2-6) 120 118.1 53.5 (A-2-6) 115 118.1 53.5 (A-2-6) 115 (A-2-6) (A-2-6) 116 (A-2-6) (A-2-6) 117 (A-2-6) (A-2-6) (A-2-6) (A-2-6) (A-2-6) (A-1) (A-1) (A-1) (A-1) (A-1)	42.0
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120 4 6 11 17 <td>5) (BLACK</td>	5) (BLACK
118.1 53.5 4 8 12 115 - - - - - 115 - - - - - 115 - - - - - 115 - - - - - 113.1 58.5 - - - - - 110 - - - - - - - 110 - - - - - - - - 110 - <t< td=""><td>)</td></t<>)
118.1 53.5 4 8 12 TAN, F. SAND (A-3) (BLACK OF FORMATION) 115 115 113.1 58.5 5 5 8 12 114.6 GRAY, SILTY SAND (A-2.4) T 110 108.1 63.5 9 8 10 118 10 118 10 118 10 108.6 GRAY, CLAYEY SAND (A-2.6) 108.1 63.5 9 8 10 118 10 10 108.6 GRAY, CLAYEY SAND (A-2.6)	
115	CREEK 53.0
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110 113 5 5 8	<u></u> <u>57.0</u>
110 <td></td>	
108.1 63.5 9 8 10	
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5 9 18 927 Sat.	
	70.0
98.1 73.5 9.6 GRAY, CSE, SAND (A-1-b) TRA	
95 T T T T T T T T T T T T T T T T T T T	MATION)

WBS	47533	3.1.1			T	IP I-	5987B			ORE L				GEOLOGIST Weis, J. I	И.		
			Bridg	ge No.				301) over		at -L- Sta. 7		3		· · · ·		GROUN	ID WTR (ff
BOR	NG NO.	S4_E	B2-C		S	TAT	ON 30+	·67		OFFSET	14 ft RT			ALIGNMENT -Y1B-		0 HR.	12.4
COLI	AR ELI	EV . 17	′1.6 ft		т	OTAL	_ DEPTH	95.0 ft		NORTHING	394,2	15		EASTING 2,006,401		24 HR.	10.
ORILL	RIG/HAN	MER EF	F./DATE	E MID	3964 CI	ME-45	5C 91% 02	/21/2019			DRILL	IETHOD) Mu	d Rotary	НАММ	LER TYPE	Automatic
DRIL	LER P	owell, B			S	TART	DATE	05/19/21		COMP. DA	TE 05/	19/21		SURFACE WATER DEP	TH N/	Ά	
LEV	DRIVE ELEV	DEPTH	1	w co	UNT			BLOWS F	ER FOOT		SAMP.	▼/		SOIL AND RO			1
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	0	75 100	NO.	мо	O G	ELEV. (ft)	SK DES	CRIPTION	DEPTH
95		_		\lfloor		L		Match	Line		L	L					
	93.1	78.5	10	11	11	:	:::/	· · · · ·	· · · · ·					GRAY, CSE. SAND FRAGS. (BLACK	CREEK		
	-	ŧ				:	· · • • 22		· · · · ·			Sat.	000	. (COI	ntinued)		
90	-	+					· · ; ; ;										
	88.1	83.5	6	9	9	11:	· · · · ·	· · · · ·	· · · ·			Sat.					
35	-	‡					· · h							—			
	83.1	88.5	6	10	13	:		· · · ·	· · · ·								
	•	ŧ	0		13	:	· · · • • 23	3	· · · ·			Sat.					
80	-					-											
	78.1	93.5	9	11	10		· · · · · • •21	· · · ·	· · · ·	· · · ·		Sat.		76.6			9
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SITE	DESCR	PTION	Brid	ge No.				r -L- (I -95)	at -L- Sta. 70							GROUN	ND WTR (ft)
BOR	NG NO.	S4_R	RWAL	1-1	S	TATION 2	6+95		OFFSET 1	53 ft LT			ALIGNME	ENT -Y1B-		0 HR.	10.0
COLL	AR ELE	EV . 16	69.9 ft		<u> </u>	OTAL DEP	TH 45.0 ft	t	NORTHING	394,6′	11		EASTING	2,006,499		24 HR.	10.1
DRILL	RIG/HAM	IMER EF	F./DAT	e Mic	3964 C	ME-45C 91%	02/21/2019			DRILL M	ETHO	D Mu	d Rotary		HAMM	ER TYPE	Automatic
DRIL	L ER Po	owell, E	3.		S	TART DAT	E 05/18/2	:1	COMP. DAT		18/21		SURFAC	E WATER DE	PTH N/	A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW CO 0.5ft	-	0		PER FOOT 50	75 100	SAMP. NO.		Ϋ́L Ο G	ELEV. (ft)	SOIL AND RC	OCK DES	CRIPTION	l DEPTH (f
170								T					_ 169.9				0.
	168.9 -	- 1.0 -	6	5	2	. 7					М		166.9	ROADWAY BROWN, SII	TY SAN	KMENT D (A-2-4)	3.
165		-	wон	wон	wон					SS-18	23%			GHT BROWN 1			
		- <u>6.0</u>	3	4	6		 				w				(A-6)		0
160	161.4	8.5 -	5	5	5		· · · · ·	· · · · ·	· · · · ·		₩ r		_ <u>161.9</u> E _	BROWN-RED, C	LAYEY S	SAND (A-2	<u>6)</u> <u>-8</u> .
	-	-				:/: : :							156.9				13.
155	156.4	<u>13.5</u>	2	2	4				· · · · ·	SS-19	29%	I	- F	RED AND GRAY	, SILTY (CLAY (A-7	-6)
	- - 151.4	-											. <u>151.9</u>				<u>18</u> .
150	= 		8	16	23	1	39	· · · ·	· · · · ·		Sat.			TAN, F	. SAND (/	4-3)	
	- 146.4 ⁻	- 23.5			10								<u>146.9</u>	TAN, SILT		(A-2-4)	<u>23</u> .
145	-		10	11	10						Sat.					(/(2-1)	
140	- 141.4	28.5	15	19	20				· · · · · · · · · · · · · · · · · · ·		Sat.	000	. <u>141.9</u>		, CSE. S/	AND (A-1-	<u></u>
140	-		10				3939	· · · · ·	· · · · ·		Sat.		<u>-</u>				
135	136.4	33.5	7	8	7						Sat.	000					
	-	Ē											- . 121 0				38.
130	131.4	<u>38.5</u>	3	3	5		· · · · ·	· · · · ·	· · · · ·		Sat.	000	_ <u>131.9</u> - _	TAN, F. SA			
	-																
125	126.4	43.5	8	13	15		28				Sat.		124.9	oring Terminated		tion 124.0	45.
	-													DAŠTAL PLAIN:		BLACK CR	
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	47533					IP I-5987B		' ROBESO				GEOLOGIST Goodnigh			
				-	_	on -Y1B- (US 301) over	L- (I -95)			3					•
	NG NO.			1-2	_	TATION 29+05		OFFSET 5				ALIGNMENT -Y1B-	0 HF		8.4
COLL	AR ELE	EV. 17	'1.5 ft		<u> </u>	OTAL DEPTH 45.0 f	:	NORTHING	,			EASTING 2,006,330	24 HF	ર.	9.8
DRILL	RIG/HAM	IMER EF	F./DAT	e Mid	3964 C	ME-45C 91% 02/21/2019			DRILL M	ETHO	D Mu	d Rotary	HAMMER TYP	E Automati	ic
DRILI	ER Po	owell, B	-		S	TART DATE 05/17/2	.1	COMP. DAT	FE 05/*	17/21		SURFACE WATER DEP	TH N/A		
	DRIVE ELEV	DEPTH				4	PER FOOT		SAMP.	▼∕		SOIL AND RO	CK DESCRIPTI	ON	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	∕мо		ELEV. (ft)		DEPT	<u>TH (</u> '
175												_			
	-														
	470 5 -							1			00	- 171.5 BOADWAX			0
170	170.5 -	<u> </u>	5	6	7		+	+		м		- TAN, SLI. SI	EMBANKMENT LTY SAND (A-3		
	168.0	3.5	wон	2	2				<u> </u>	240/			COASTAL PLAI	<u>n</u> — — —	3.
165	- 165.5 -	60				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$			SS-20	24%			DY CLAY (A-6)	<u></u>	5
165	-		2	3	6	1				М	\sim	TAN, CLAYE	Y SAND (A-2-6)	8
-	163.0	8.5	3	5	7					M		GRAY AND TAN	SANDY CLAY	(A-6)	
160	-														
	158.0	 										<u>– 159.5</u> ORANGE-TAN, SIL		SAND	12
	- 156.0	- 13.5	13	16	18					w		· (/	2- 4)		
155	-						· · · ·					<u>-</u> 154.5			17
	153.0	18.5										· RED-TAN, SILTY		CSE.	
	-	-	6	2	3	6 .				Sat.		. 340	D (A-2-5)		
150	_	F					+ • • • •					<u>– 149.5</u>			22
	148.0	23.5	10	12	15	: : :`: : : : :						TAN, SILTY	SAND (A-2-4)		
4.45	-	-	10	12	15	••••••••••••••••••••••••••••••••••••••				Sat.					
145	-	E					+					_			
ŀ	143.0	28.5	11	12	13					Sat.					
140	-	F .		·-		· · · · · • • 25 · · · ·				Sal.	-				
140	-	-					· · · ·				0000	<u>139.5</u>	F. SAND (A-3)		32
ŀ	138.0	33.5	6	8	12	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				w					
135	-	-													27
	133.0	- 38.5									~~~	<u>- 134.5</u> ORANGE-TAN, C	LAYEY SAND (A-2-6)	37
	- 100.0		wон	2	4	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$				Sat.	/./.				
130	-						· · · ·				///	<u>- 129.5 _ </u>			42
	128.0	43.5			_]						TAN, SILTY	SAND (A-2-4)		. —
-			1	1	2		· · · ·			Sat.		126.5	at Elevation 100		45
	-	F									I F	- Boring Terminated - COASTAL PLAIN:	SILTY SAND (E	BLACK	
	-											CREEK F	ORMATION)		
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WBS	47533.1.1				TI	P I -5987B		COUNT	Y ROBESO	N			GEOLOG	IST Weis, J.	Μ.		
SITE	DESCRIPTIC	ON	Bridg	ge No.	100 o	n -Y1B- (US	6 301) over	-L- (I -95)	at -L- Sta. 7	02+75.4	3					GROUN	ID WTR (ft)
BOR	ING NO. S4	1_RV	VAL 2	2-1	S	TATION 2	9+62		OFFSET 9	97 ft LT			ALIGNME	NT -Y1B-		0 HR.	8.9
COL	LAR ELEV.	172	2.0 ft		т	OTAL DEPT	TH 45.0 ft		NORTHING	394,3	38		EASTING	2,006,492		24 HR.	10.1
DRILL	RIG/HAMMER	REFF	./DAT	E MID	3964 CI	ME-45C 91%	02/21/2019		1	DRILL M	ETHO) Muc	d Rotary		НАММ	ER TYPE	Automatic
DRIL	LER Powel	I. B.			S		E 05/19/2 ⁻	1	COMP. DA					WATER DE			
ELEV		1	BLC	w co				PER FOOT		SAMP.	_	1 L					
(ft)	ELEV DEP (ft) (ft	F	0.5ft	0.5ft	0.5ft	0 :	25 5	50	75 100	NO.	мо	O G	ELEV. (ft)	SOIL AND RO	DCK DES	CRIPTION	DEPTH (ft)
							1		-								<u> </u>
175																	
175													-				
	 	-					1	1				-	172.0		IES TOPS		0.0
170	171.0 1.	.0	4	8	8						м	LE	. L	ROADWA) IGHT BROWN			-4)
	168.5 - 3.	5	3	3	3								<u> 169.0 </u>		COASTA	L PLAIN	<u>3.0</u>
	166.0 6.	0	0			¶6 <u>.</u>					М	N	L	IGHT BROWN	I, SILTY C	LAY (A-7-	-6)
165			3	4	5	9				SS-21	20%	N	-				
	163.5 + 8.	5	4	5	8	· · · · · · · · · · · · · · · · · · ·					M	N					
160	‡											N					
100	158.5 - 13	3.5											-				
	ļ ļ		2	2	2	4		· · · ·			М						
155												N	_				
	153.5 18	3.5	7	5	5							N					
	+		1			. •10					М	N					
150													150.0		SAND (/	<u></u>	<u>22.0</u>
	148.5 + 23	3.5	10	14	12		26				Sat.			.,	. 0/ 110 (/	(0)	
145	‡						1										
145	143.5 - 28	5					$ \cdot \cdot \cdot \cdot \cdot $						-				
	Ţ		10	12	17		6 29				Sat.						
140							/					0000	_				
	138.5 - 33	1.5	7	8	9	/						000	<u>139.0</u> TAN	N, CSE. SAND	(A-1-b) T		AVEL 33.0
	ļŦ		1	0	9	17					Sat.				· · ·		
135	+ +												-				
	133.5 + 38	1.5	12	20	26						Sat.						
130	‡												120.0				42.0
130	128.5 + 43	5				· · · · ·							<u>130.0</u> LIGI				AND 42.0
			1	3	3	4 6					Sat.		127.0	(A-2-6) T			45.0
														ring Terminate ASTAL PLAIN:			
														CREEK	FORMAT	ION)	
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WBS	47533	.1.1			T	P I -5987B	COUNTY
SITE	DESCR	PTION	Bridg	ge No.	100 o	n -Y1B- (US 301) over	·-L- (I-95) at
BOR	NG NO.	S4_R	WAL 2	2-2	S	TATION 31+25	C
COL	LAR ELE	EV. 17	0.4 ft		те	OTAL DEPTH 45.0 ft	t N
DRILL	. RIG/HAN	IMER EF	F./DATI	E MID	3964 C	ME-45C 91% 02/21/2019	
DRIL	LER P	owell, B	•		S	TART DATE 05/19/2	1 C
ELEV	DRIVE	DEPTH		w co			PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50 75
175	-	-					
	-	-					
170	-						
	169.4	<u> 1.0 </u>	7	3	3		
	166.9	3.5	3	3	5		
165	164.4	6.0	4	7	8		
	161.9	- 8.5				↓ ● 15 ↓	
160			4	7	7	•••14	
	-					:/:: ::::	
	156.9 -	- 13.5	2	3	4	. <i> </i>	
155	-	-					· · · ·
	- 151.9 -	- 18.5	-				
150	-	-	6	8	13	· · · • • • • • • • • • • • • • • • • •	
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145	146.9 -	- <u>23.5</u> -	5	10	13	· · · · · · · · · · ·	
145	-	-					
	141.9	28.5	6	10	7	::: <i>ț</i> : ::::	· · · · ·
140	-	-	0				
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135	136.9 -	- 33.5 -	5	5	7	12 · · · · · · · · · · · · · · · · · · ·	
	-	F					
	131.9	- 38.5	3	1	2	/	
130	-	Ē	_				
	126.9	43.5					
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NCDO1 BORE SINGLE BU4_19987_GE0_BKD6_Y1B.GPJ_NC_D01.GD1_12/9/21	-	F					
z	-	t					

GEOTECHNICAL BORING REPORT

BORE LOG

GEOLOGIST Weis, J. M. ROBESON GROUND WTR (ft) at -L- Sta. 702+75.43 ALIGNMENT -Y1B-OFFSET 60 ft RT 0 HR. 10.0 **NORTHING** 394,150 EASTING 2,006,367 24 HR. 9.3 DRILL METHOD Mud Rotary HAMMER TYPE Automatic COMP. DATE 05/19/21 SURFACE WATER DEPTH N/A SAMP. SOIL AND ROCK DESCRIPTION 0 100 NO. 75 ELEV. (ft) DEPTH (ft 170.4 **3 INCHES TOPSOIL** UNDIVIDED COASTAL PLAIN LIGHT BROWN, GRAY, AND RED, SILTY М CLAY (A-7-6) SS-22 22% -----. . . . Μ · · · · · М Sat. 150.9 TAN, F. SAND (A-3) 148.4 COD TAN, CSE. SAND (A-1-b) 22.0 COD · · · · . . . · · · · · Sat. ----. Sat. SS-23 30% 130.9 COASTAL PLAIN BROWN AND DARK GRAY, SANDY CLAY (A-6) (BLACK CREEK FORMATION) \sim · · · · · Μ 125.4 45. Boring Terminated at Elevation 125.4 ft IN COASTAL PLAIN: SANDY CLAY (BLACK CREEK FORMATION)

CONTENTS

5987B

REFERENCE

<u>SHEET NO.</u>	DESCRIPTION
I.	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-6	CROSS SECTIONS
7-11	BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY_ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE ON -Y4- (SR 1006-GREAT MARSH CHURCH ROAD) OVER -L- (I-95) AT *-L- STA*. 573+67.87

\sim m ら 4 PROJEC

	NO.	SHEETS
N.C. I–5987B	1	11

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 1999 107-6860. 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 BORNICS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-FLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE ONSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS MOLATED IN THE SUBSURFACE RELIVESTIGATIONS AND REAS RECORDED AT THE TIME OF THE INVESTIGATION. THES WATER LEVELS OR SOL MOISTURE CONDITIONS MAY LARY CONSIDERABLY WITH THE ACCORDING TO CLIMATIC CONDITIONS NICLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

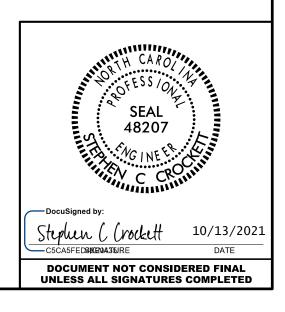
THE BIDDER OF CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION 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 INVESTIGATION AS HE DEEMS NECESSARY TO SATISY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDENTIONS OF CONTANT THE SIDE 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 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. 2.

PERSONNEL

<i>M.A.D</i> .
GOODNIGHT, D.J.
F&R, INC.
INVESTIGATED BYGOODNIGHT, D
DRAWN BYCROCKETT, S.C.
CHECKED BY HAMM, J. R.
SUBMITTED BYFALCON

DATE	OCTOBER	202

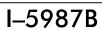


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

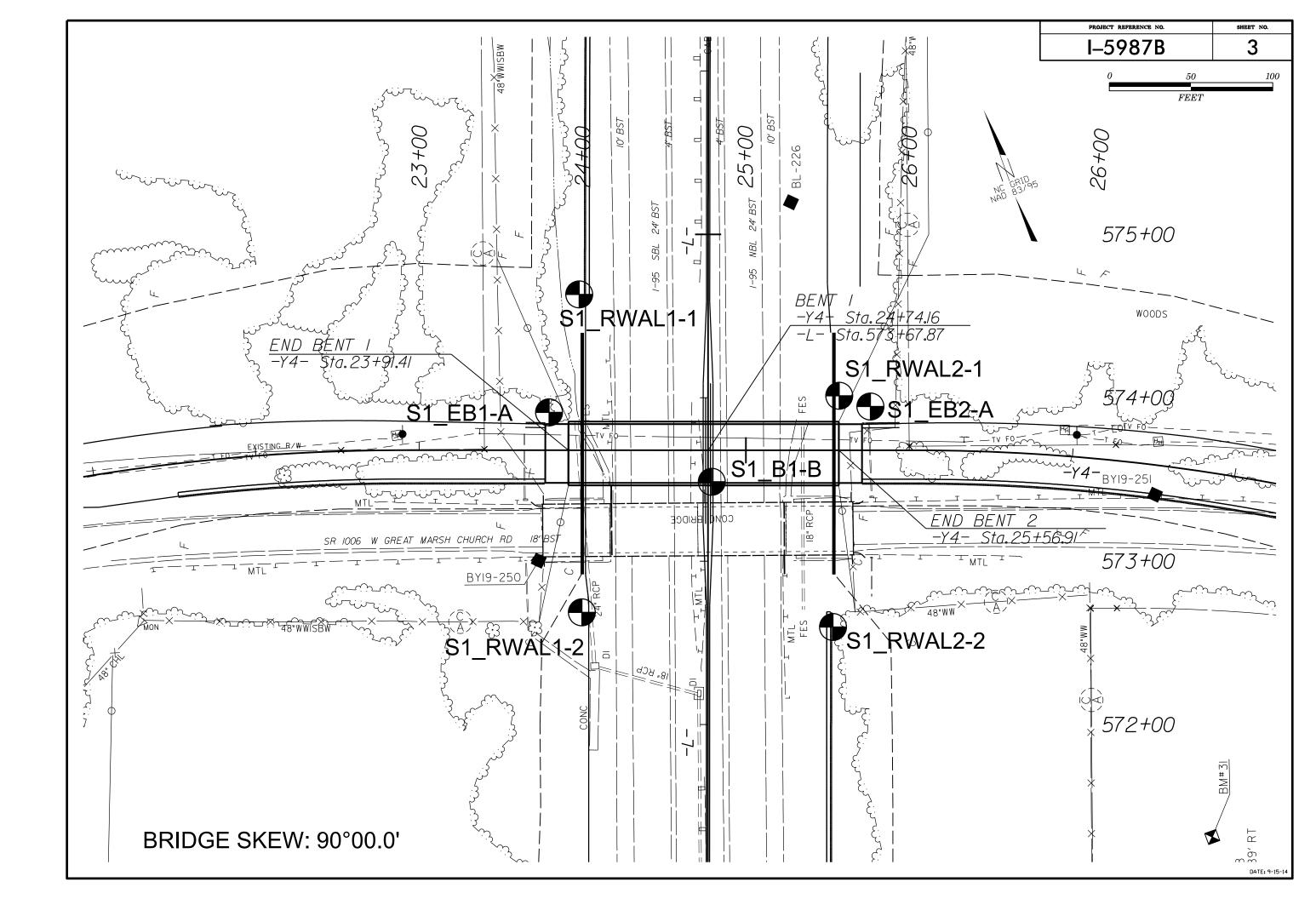
			SOIL (DESCI	RIPTIC	<u>NC</u>				T		GI	RADATION			1			ROCK D	DESCRIPTION
BE PENETH ACCORDIN IS BA CONSISTEN	RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLIDA A CONTINUOL STANDARD PER HE AASHTO SY: TEXTURE, MOIS	IS FLIGHT PO NETRATION TE STEM. BASIC STURE, AASHTO	DWER AU EST (AAS DESCRIF O CLASS	GER AND SHTO T 2 PTIONS G SIFICATIC	YIELD LES 206, ASTM GENERALLY DN, AND OTH	SS THAN 10 D1586).SOI INCLUDE TH HER PERTIN	Ø BLOWS PE L CLASSIFI HE FOLLOWI ENT FACTOF	ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATES	NDICATE	ES THAT SOIL	PARTICLES ARE AL	L APPROXIM	MATELY THE SAME SIZE.	ROCK LINE II SPT REFUSAL BLOWS IN NO REPRESENTED	NDICATE IS PE DN-COAS BY A	ES THE LEVE ENETRATION E STAL PLAIN ZONE OF WE	AIN MATERIAL THA L AT WHICH NON-(BY A SPLIT SPOON	T WOULD YIELD SPT REFUSAL IF TEST COASTAL PLAIN MATERIAL WOULD YIELD SAMPLER EQUAL TO OR LESS THAN Ø. IRANSITION BETWEEN SOIL AND ROCK
AS V	ERY STIFF.G	GICAL COMPOS	IUN, ANGULA	TERBEDD	DED FINE	SAND LAYEF	IY, ETC. FU RS, HIGHLY PL	ASTIC, A-7-6	,	THE ANGULARITY ANGULAR, SUBAN			SOIL GRAINS IS D	SIGNATED	BY THE TERMS:	WEATHERED	-L3 HN		a	LAIN MATERIAL THAT WOULD YIELD SPI
		OIL LEGE					ICATIO	N		- <u>HNOOLHR</u> , <u>SOBHN</u>			ICAL COMPOSI			ROCK (WR)			100 BLOWS PER	FOOT IF TESTED.
GENERAL CLASS.	(GRANULAR MATER ≤ 35% PASSING	200)	(>	> 35% PASS	MATERIALS SING =200)		RGANIC MATER	IALS		MES SU	ICH AS QUART	Z, FELDSPAR, MICA, T N THEY ARE CONSID	ALC, KAOLIN		CRYSTALLINE ROCK (CR)				E GRAIN IGNEOUS AND METAMORPHIC RC PT REFUSAL IF TESTED. ROCK TYPE IN ,SCHIST,ETC.
	A-1-a A-1-b	A-3 A-2-4 A-	A-2 2-5 A-2-6 A-2	_	6-9	A-6 A-7 A-7-5. A-7-6	A-1, A-2 A-3	A-4, A-5 A-6, A-7					RESSIBILITY			NON-CRYSTAL	LINE			E GRAIN METAMORPHIC AND NON-COASTA OCK THAT WOULD YEILD SPT REFUSAL
SYMBOL 00				S						SLIGP	ATLY C	OMPRESSIBLE	LE	LL < 31 LL = 31		ROCK (NCR)	IN			LUDES PHYLLITE, SLATE, SANDSTONE, ET SEDIMENTS CEMENTED INTO ROCK, BUT
% PASSING							CD4188 4D	SILT-			LY COM	PRESSIBLE	GE OF MATER	LL > 50		SEDIMENTARY (CP)			SPT REFUSAL. I SHELL BEDS, ET	ROCK TYPE INCLUDES LIMESTONE, SANDS C.
*40 3i	0 MX 0 MX 50 MX	51 MN					GRANULAR SOILS	CLAY SOILS	MUCK, PEAT			GRANULAR							WEA	THERING
#200 15 MATERIAL PASSING #40 LL PI	5 MX 25 MX		MX 35 MX 35	MN 40 M	x 41 MN	40 MX 41 MN	LIT	s with Fle or	HIGHLY	ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	ATTER TER	<u>SOILS</u> 2 - 3% 3 - 5% 5 - 10% > 10%	SILT - CLAY <u>SOILS</u> 3 - 5% 5 - 12% 12 - 20% > 20%	<u>OTHE</u> TRACE LITTLE SOME HIGHLY	10 - 20% 20 - 35%	FRESH VERY SLIGHT (V SLI.)	HAMME ROCK (CRYST	ER IF CRYSTAL GENERALLY FF	LLINE. RESH, JOINTS STAIN OKEN SPECIMEN FAO	DINTS MAY SHOW SLIGHT STAINING. ROCK ED, SOME JOINTS MAY SHOW THIN CLAY C LE SHINE BRIGHTLY. ROCK RINGS UNDER H
GROUP INDEX USUAL TYPES S	Ø TONE FRAGS. GRAVEL, AND	Ø Ø	Y OR CLAYEY EL AND SAND	8 MX	-	IG MX NO MX CLAYEY SOILS	AMOL OR	ierate Ints of Ganic Itter	ORGANIC			ER LEVEL IN	UND WATER		R DRILLING	SLIGHT (SLI.)	ROCK (1 INCH.	GENERALLY F	RESH, JOINTS STAIN 'S MAY CONTAIN CLA	ED AND DISCOLORATION EXTENDS INTO RO YY. IN GRANITOID ROCKS SOME OCCASIONA CRYSTALLINE ROCKS RING UNDER HAMMEF
MATERIALS GEN. RATING AS SUBGRADE		EXCELLENT TO G	000		FAIR TO	POOR	Fair to Poor	POOR	UNSUITABLE	ע בו עייע רוווייייייייייייייייייייייייייייייי	PERC		EVEL AFTER <u>24</u> SATURATED ZONE, OR		ARING STRATA	MODERATE (MOD.)	GRANIT	TOID ROCKS, M	10ST FELDSPARS AR	DISCOLORATION AND WEATHERING EFFECT E DULL AND DISCOLORED, SOME SHOW CLA D SHOWS SIGNIFICANT LOSS OF STRENGTH
		PIOF A-7-5 SUBC	ROUP IS ≤ LL										NEOUS SYMBO			MODERATEL Y SEVERE) OR STAINED. IN GRANITOID ROCKS,ALL F W KAOLINIZATION. ROCK SHOWS SEVERE L
PRIMARY SU		COMPACT	NESS OR	RA	NGE OF	STANDARD RESISTENCE	RAN	IGE OF UNC								(MOD. SEV.)	AND C	AN BE EXCAV		GIST'S PICK. ROCK GIVES "CLUNK" SOUND
GENERALI	LY	VERY LOC	LOOSE DSE		(N-VAL < 4 4 TO	LUE) 4) 10		(TONS/F1		U WITH SOIL DE			OF ROCK STRU OF OF ROCK STRU OF OMT TEST BOP VST PMT		SLOPE INDICATOR	SEVERE (SEV.)	REDUCE TO SO	ED IN STREND	GTH TO STRONG SOI SOME FRAGMENTS OF) OR STAINED. ROCK FABRIC CLEAR AND E L. IN GRANITOID ROCKS ALL FELDSPARS & 5 STRONG ROCK USUALLY REMAIN.
MATERIAL (NON-COH	L HESIVE)	MEDIUM DEN VERY VERY	NSE DENSE SOF T		10 TO 30 TO > 5	2 50 2 50		N/A < 0.25		ARTIFICIAL FI THAN ROADWAY	Y EMBA		AUGER BORING	<u>ک</u>	CONE PENETROMETER TEST SOUNDING ROD	VERY SEVERE (V SEV.)	all Ro But M Remain	ROCK EXCEPT (MASS IS EFFEC NING, SAPROLI	CTIVELY REDUCED T ITE IS AN EXAMPLE) OR STAINED. ROCK FABRIC ELEMENTS AF O SOIL STATUS, WITH ONLY FRAGMENTS OI OF ROCK WEATHERED TO A DEGREE THAT EMAIN. IF TESTED, WOULD YIELD SPT N V
GENERALI SILT-CLA MATERIAL (COHESIV	ΑY L	SO MEDIUM STI VERY	STIFF IFF STIFF		2 TC 4 TC 8 TO 15 TO) 8) 15) 30		0.25 TO 0.5 TO 1 1 TO 2 2 TO 4	.0	INFERRED ROC			│ MONITORING WE │ PIEZOMETER │ INSTALLATION	:il - 🔶 C	TEST BORING WITH CORE SPT N-VALUE	COMPLETE	ROCK F	REDUCED TO S	SOIL. ROCK FABRIC	NOT DISCERNIBLE, OR DISCERNIBLE ONLY MAY BE PRESENT AS DIKES OR STRINGERS
		HA T						> 4			F		DATION SYMB						ROCK	HARDNESS
U.S. STD. SIE	VE SIZE		4 10			60 200	0 270					ICLASSIFIED E			SSIFIED EXCAVATION -	VERY HARD			HED BY KNIFE OR S WS OF THE GEOLOG	HARP PICK. BREAKING OF HAND SPECIMEN SI'S PICK.
OPENING (MM	1)		4.76 2.00		42 Ø	1.25 0.07	5 0.053				UN 🖂	ISUITABLE WA	STE L EXCAVATION -	USED	TABLE,BUT NOT TO BE IN THE TOP 3 FEET OF KKMENT OR BACKFILL	HARD	CAN B		BY KNIFE OR PICK	ONLY WITH DIFFICULTY. HARD HAMMER B
BOULDER (BLDR.) GRAIN MM	(C		RAVEL (GR.) 2.0	SAI (CSE.	ND . SD.)	SAN (F S	D	SILT (SL.) 0.005	CLAY (CL.)		AL	ABB	GRADABLE ROCK REVIATIONS MEDIUM		- VANE SHEAR TEST	MODERATELY HARD	EXCAV		D BLOW OF A GEOL	. GOUGES OR GROOVES TO 0.25 INCHES DE DGIST'S PICK. HAND SPECIMENS CAN BE D
SIZE IN.	12	3 SOIL MOIS								BT - BORING TERMINATED - CL CLAY CPT - CONE PENETRATION		MICA. MOD	- MICACEOUS MODERATELY NON PLASTIC	wea. γ -	- WEATHERED UNIT WEIGHT DRY UNIT WEIGHT	MEDIUM HARD	CAN B		IN SMALL CHIPS T	HES DEEP BY FIRM PRESSURE OF KNIFE O O PEICES 1 INCH MAXIMUM SIZE BY HARD
	MOISTURE ERBERG LIM		FIELD M DESCR	RIPTION				ISTURE DES		CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAI		PMT -	ORGANIC PRESSUREMETER TE SAPROLITIC	EST <u>S</u>	AMPLE ABBREVIATIONS BULK	SOF T	FROM	CHIPS TO SEV		Y KNIFE OR PICK. CAN BE EXCAVATED IN IZE BY MODERATE BLOWS OF A PICK POIN ESSURE.
		LIMIT	- SATUR (SAT.					Y WET.USU OUND WATE		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS		SL SLI	SAND, SANDY SILT, SILTY SLIGHTLY	ST · RS ·	- SPLIT SPOON - SHELBY TUBE - ROCK	VERY SOF T		DRE IN THICKN		EXCAVATED READILY WITH POINT OF PICK. N BY FINGER PRESSURE. CAN BE SCRATCH
RANGE <			- WET -	(W)		SEMISOLID: ATTAIN OP		DRYING TO STURE	l	FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES	w - M	TRICONE REFUSAL 10ISTURE CONTENT	CBR	- RECOMPACTED TRIAXIAL - CALIFORNIA BEARING	F	RAC	TURE SP	ACING	BEDDING
	PLASTI	C LIMIT	- MOIST					РТІМИМ МС		HI HIGHLY	UIPM	V - VI ENT USED	ON SUBJECT	PROJE	RATIO CT	TERM VERY WID	£		<u>SPACING</u> E THAN 10 FEET	TERM VERY THICKLY BEDDED
		M MOISTURE AGE LIMIT						. WATER TO		DRILL UNITS:		ANCING TOOLS: CLAY BITS		HAMMER X AL	TYPE: JTOMATIC MANUAL	WIDE MODERATE CLOSE VERY CLO		DSE 1 Ø.	8 TO 10 FEET 1 TO 3 FEET .16 TO 1 FOOT THAN 0.16 FEET	THICKLY BEDDED 1 THINLY BEDDED 0.1 VERY THINLY BEDDED 0.0 THICKLY LAMINATED 0.00
			- DRY -	(D)		ATTAIN OP				X CME-55			IS FLIGHT AUGER	CORE SI	IZE:		~			THINLY LAMINATED <
			PL	ASTIC	CITY						ㅣ님	8" HOLLOW A		□-в _	П-н					URATION
	PLASTIC	STIC	PLAST	<u>TICITY I</u> 0-5 6-15		<u>D</u>	<u>[</u>	VERY LOW SLIGHT		CME-550		TUNGCARBI	FINGER BITS DE INSERTS			FOR SEDIMEN		IUUKS, INDURA	RUBBING WI	DENING OF MATERIAL BY CEMENTING.HE TH FINGER FREES NUMEROUS GRAINS; W BY HAMMER DISINTEGRATES SAMPLE.
MODE	ERATELY PLASTI	LASTIC	-	16-25 26 OR N	5 MORE			MEDIUM			X		₩7 ADVANCER <u>2 ¹⁵/16</u> •STEEL TEETH	PC	DST HOLE DIGGER	MODER	ATELY	INDURATED	GRAINS CAN	BE SEPARATED FROM SAMPLE WITH ST ILY WHEN HIT WITH HAMMER.
				COLO	R								' TUNGCARB.		DUNDING ROD	INDUR	ATED			DIFFICULT TO SEPARATE WITH STEEL TO BREAK WITH HAMMER.
		INCLUDE COLO ICH AS LIGHT,										CORE BIT			ANE SHEAR TEST	EXTRE	MELY I	INDURATED	SHARP HAM	IU BREAK WITH HAMMER. MER BLOWS REQUIRED TO BREAK SAMPLE MAKS ACROSS GRAINS.

PROJECT REFERENCE NO.



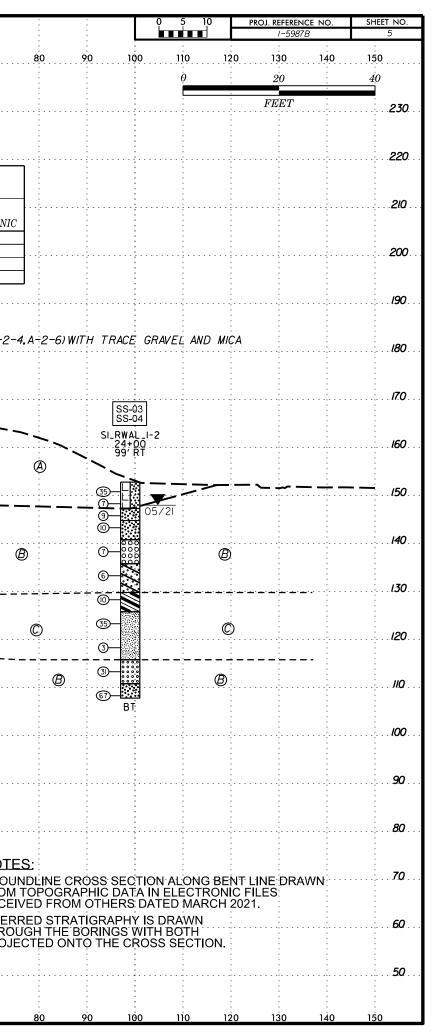
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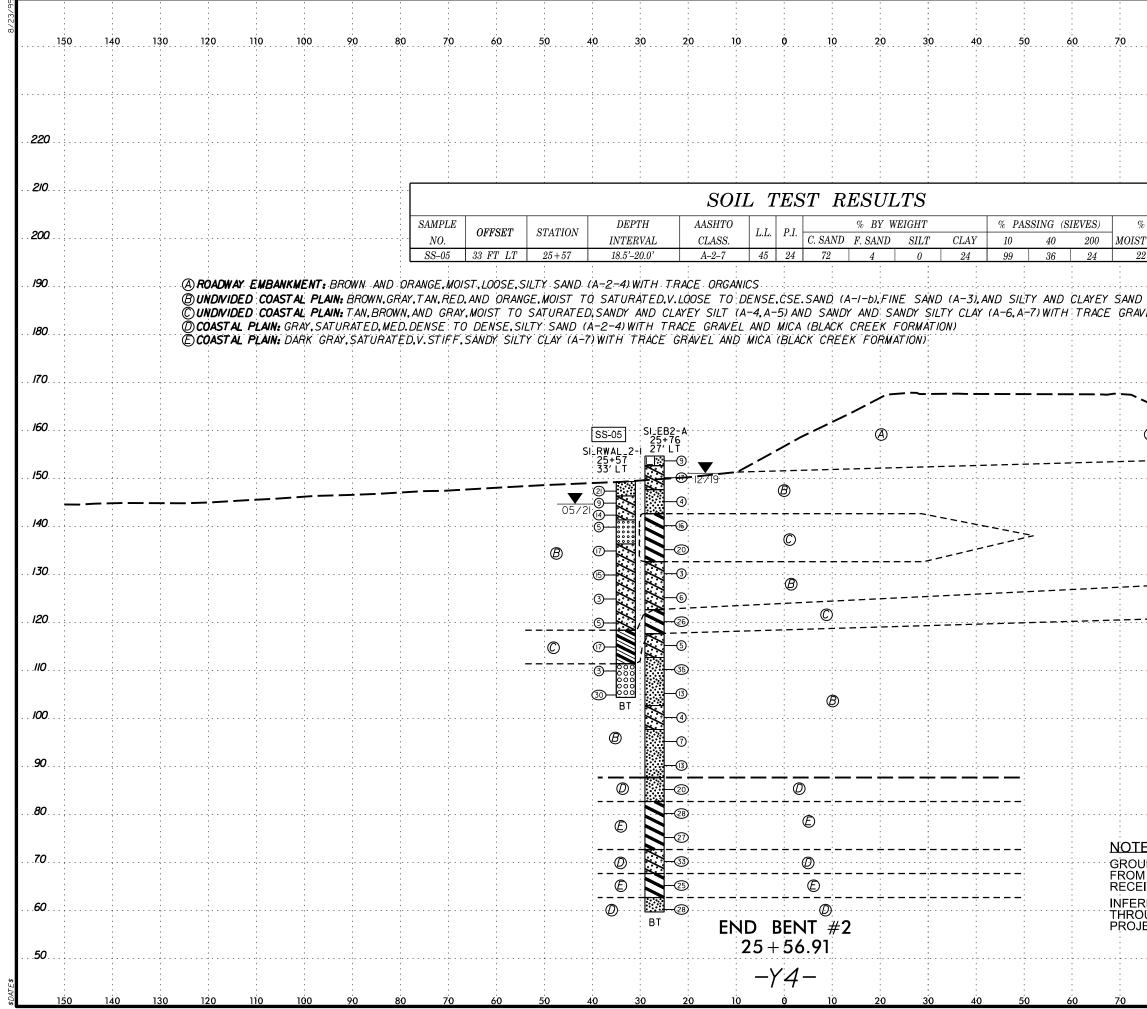
	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
N VALUES >	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
СК ТНАТ	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLUDES GRANITE.	SURFACE.
AL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
MAY NOT YIELD	OF SLOPE.
TONE, 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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
ONTINCO IE ODEN	HORIZONTAL.
OATINGS IF OPEN, AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
Sector Sector I	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
ICK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN NY. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
AS COMPARED	
	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
OSS OF STRENGTH WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
WHEN STRUCK.	
VIDENT 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
RE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
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
5. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
	RUN AND EXPRESSED AS A PERCENTAGE.
	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
S REQUIRES	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
LOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
ETACHED	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. BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
520#5 6/ III2	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
IT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH ED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
THICKNESS	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TINI.TIN DATED 05/21
4 FEET	ELEVATION: FEET
.5 - 4 FEET 16 - 1.5 FEET	
3 - 0.16 FEET	NOTES:
08 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
0.008 FEET	
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SITE	DESC	RIPTIO	N Bric	dge on	-Y4- (	SR1006-Gi	reat Mars	sh Church	Road) over -l	(I-95) a	at -L-	Sta. 5	573+67.87	GROUND WTR (ft)
BOR	ING NO	<b>d.</b> S1_	EB1-A		S	<b>FATION</b> 2	3+80		OFFSET 2	23 ft LT			ALIGNMENT -Y4-	0 HR. N/A
COLI	LAR EI	L <b>EV.</b> 1	57.6 ft		т	OTAL DEP	<b>FH</b> 100.	0 ft	NORTHING	i 382,14	44		EASTING 2,002,586	<b>24 HR.</b> 2.5
DRILL	L RIG/H	AMMER E	FF./DA	TE F	&R5785	CME-55 73	% 03/01/2	019		DRILL M	etho	D Mu	Id Rotary HAMM	<b>ER TYPE</b> Automatic
DRIL	LER	R. Clark	е		S	FART DATI	E 01/09	/20	COMP. DA	<b>FE</b> 01/1	0/20		SURFACE WATER DEPTH N	/A
ELEV (ft)	DRIVE ELEV (ft)		BLC 0.5ft	OW CO 0.5ft		0 :	BLOWS	50 50	Г 75 100	SAMP. NO.		L O G	SOIL AND ROCK DES	CRIPTION DEPTH (ft)
170													-	
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	157.6	<u> </u>	1		1		1						157.6 GROUND SURF. ALLUVIAL	ACE 0.0
155	154.1	3.5	7	10	16	•2			· · · · · ·	-	₩ ▼		BLACK-BROWN, CLAYEN SAND (A-2-4) WITH TRAC	
150		+ + + -				· · · · · · · · · · · · · · · · · · ·		· · · · · ·	· · · · · ·		Sat.			<u> </u>
	149.1	8.5 -	4	5	6	· · / · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·	  		Sat.		ORANGE-GRAY, SILTY FIN	E SAND (A-2-4)
145	144.1	<u> </u>	4	4	5	· · · · · · · · · · · · · · · · · · ·		· · · · ·	· · · · · ·		Sat.		GRAY-ORANGE-PINK, SI FINE TO COARSE SAN MICACEOUS WITH TRA	LTY CLAYEY ND (A-2-6),
140	139.1	18.5	2	2	2	$\left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot &$	· · · · ·	· · · · ·	· · · · · · ·					
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	134.1	23.5	2	2	4		· · · · · · ·	  	  		Sat.			
130	129.1	28.5	5	9	14		23	· · · · · · · · · · · · · · · · · · ·	· · · · · · ·		Sat.		- <u>128.1</u> GRAY-ORANGE-RED, SILT	29.5 Y FINE SANDY
125	124.1	33.5	WOH	1	2		· · · ·	· · · · ·	· · · · · ·				125.6 CLAY (A-6) GRAY-ORANGE, SILTY CL COARSE SAND (A-2-6), MIC	
120		+ + +				•3 · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · ·	· · · · · ·		Sat.		-	EL
445	119.1	38.5	13	13	7	$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	 20   	   	  		Sat.			
115	114.1	+ 43.5	7	6	7			  			Sat.		-	
110	109.1	48.5	2	2	3	• / · · ·	· · · ·	.     	· · · · · ·		Sat.			
105	104.1	↓ + _{53.5}						·   · · · ·	· · · · · · ·					
100		- - - -	4	8	7	· · · • 15		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		W		103.1 DARK GRAY, SILTY FINE SANDY CLAY (A-6), MICA TRACE ORGANICS (BL/ FORMATION	CEOUS WITH CEOUS WITH
	99.1	<u>+</u> 58.5 + +	6	2	3	•/•••• •/••••	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		ORANGE-RED-BROWN CLAYEY SILTY FINE TO C (A-2-4), MICACEOUS W GRAVEL (BLACK CREEK	OARSE SAND ITH TRACE
95	94.1	+ 63.5	4	7	9	· · · · · · · · · · · · · · · · · · ·	· · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		-	
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SITE	DESCR		l Bric	lge on	-Y4- (	S	R1006-Gr	eat Mars	sh Church	۱Ro
BOR	ING NO.	. S1_E	EB1-A		S	T/	ATION 2	3+80		
COL	LAR ELE	<b>EV.</b> 15	57.6 ft		<u>т</u>	0	TAL DEPT	<b>H</b> 100.	0 ft	
DRILL	RIG/HA	MMER E	FF./DA	TE F8	R5785	(	CME-55 73%	6 03/01/20	019	
DRIL	LER R	. Clarke	e		S	T/	ART DATE	01/09	/20	0
ELEV	DRIVE ELEV	DEPTH	BLC	w co	UNT			BLOWS	S PER FOO	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft		0 2	25	50 I	7
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# **GEOTECHNICAL BORING REPORT**

### ORE LOG

#### ROBESON **GEOLOGIST** B. Painter Road) over -L- (I-95) at -L- Sta. 573+67.87 GROUND WTR (ft) OFFSET 23 ft LT ALIGNMENT -Y4-0 HR. N/A **NORTHING** 382,144 **EASTING** 2,002,586 24 HR. 2.5 **DRILL METHOD** Mud Rotary HAMMER TYPE Automatic **COMP. DATE** 01/10/20 SURFACE WATER DEPTH N/A SAMP. SOIL AND ROCK DESCRIPTION 75 100 NO. ELEV. (ft) DEPTH (ft) CRANGE-RED-BROWN TO GRAY, CLAYEY SILTY FINE TO COARSE SAND (A-2-4), MICACEOUS WITH TRACE GRAVEL (BLACK CREEK FORMATION) . . . Sat. . . . . . . . . . (continued) . . . . Sat. . . . . . . . DARK GRAY, FINE SANDY SILTY CLAY (A-7), MICACEOUS (BLACK CREEK FORMATION) . . . . 80.6 . . . . W . . . . . . . . . . . . . . . W . . . . . . . . . . . . . . . . W . . . . . . . . 65.6 <u>92.0</u> . . . . GRAY, CLAYEY SILTY FINE TO COARSE SAND (A-2-4), MICACEOUS (BLACK CREEK FORMATION) . . . . Sat. . . . . . . . . . . . . . . . . Sat. 57.6 100.0 . . Boring Terminated at Elevation 57.6 ft IN SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION) Notes: 1. Surficial Organic Soil: 0.0-0.1'

SORING N         COLLAR E         RILL RIG/H         RILLER         DRIVE         LEV       DRIVE         160       149.4         145       144.4         140       139.4         135       134.4         130       129.4         125       124.4         120       119.4         121       119.4         135       124.4         120       119.4         121       119.4         122       119.4	CRIPTION IO. S1_I ELEV. 11 HAMMER E D.Tigno V DEPTH (ft) 9 0.0	B1-B 52.9 ft FF,/DATE r BLOW 0.5ft (	e on -Y4		Marsh Church F 9 80.0 ft 01/2019 1/28/20 -OWS PER FOOT	OFFSET 1 NORTHING	(I-95) at -L- 9 ft RT	DD Mu	ALIGNMENT -Y4- EASTING 2,002,665	GROUND WTR (ft) 0 HR. N/A 24 HR. 3.9 IER TYPE Automatic
SORING N         COLLAR E         RILL RIG/H         RILLER         DRIVE         LEV       DRIVE         160       149.4         145       144.4         140       139.4         135       134.4         130       129.4         125       124.4         120       119.4         121       119.4         135       124.4         120       119.4         121       119.4         122       119.4	IO. S1_1 ELEV. 1: IAMMER E D.Tigno ( ⁷ / _V DEPTH (ft) 9 0.0	B1-B 52.9 ft FF,/DATE r BLOW 0.5ft (	F&R34	STATION 24+79 TOTAL DEPTH 95 CME-55 82% 03/ START DATE 0 BL	9 80.0 ft 01/2019 1/28/20 LOWS PER FOOT	OFFSET 1 NORTHING COMP. DAT	9 ft RT 382,070 DRILL METHO TE 01/29/20 SAMP.	0 <b>D</b> Mu	ALIGNMENT -Y4- EASTING 2,002,665 d Rotary HAMM	0 HR. N/A 24 HR. 3.9 MER TYPE Automatic
COLLAR E         RILL RIG/H         ORILLER         DRIVE         DRIVE         160         155         150         155         150         149.4         140         139.4         130        129.4         120       119.4         121         122         119.4         119.4	ELEV. 1: IAMMER E D.Tigno TE DEPTH (ft) 9 0.0 	52.9 ft <b>FF /DATE</b> r <u>1</u> BLOW 0.5ft (	F&R34	TOTAL DEPTH 35 CME-55 82% 03/ START DATE 0 BL	80.0 ft 01/2019 1/28/20 LOWS PER FOOT	NORTHING	382,070 DRILL METHO E 01/29/20 SAMP.	1 - 1	EASTING 2,002,665 d Rotary HAMN	24 HR. 3.9 MER TYPE Automatic
Imilian Rig/H       DRILLER       DRIVE       LEV     DRIVE       LEV     DRIVE       160	AMMER E D.Tigno ^{(E} DEPT⊢ (ft) 9 0.0	r BLOW 0.5ft	F&R34	25 CME-55 82% 03/ START DATE 0 BL	01/2019 1/28/20 LOWS PER FOOT	COMP. DAT	DRILL METHO	1 - 1	d Rotary HAMN	IER TYPE Automatic
Image: New Sector of the se	D.Tigno TE DEPTH (ft) 9 0.0	r H BLOW 0.5ft (	/ COUNT		1/28/20 LOWS PER FOOT		E 01/29/20 SAMP.	1 - 1	· · · · ·	
LEV DRIVE ELEV (ft) 160 155 150 149.4 145 144.4 140 139.4 135 134.4 130 129.4 129.4 129.4	9 0.0	U.5ft (	/ COUNT	BL	OWS PER FOOT		SAMP.	1 - 1	SURFACE WATER DEPTH N	/A
LEV ELEV (ft) ELEV (ft) 160 155 152.9 150 149.4 145 144.4 140 139.4 135 134.4 130 129.4 125 124.4 120 119.4	9 0.0	0.5ft (				75 100				·
$ \begin{array}{c} 155 \\ -152.5 \\ 150 \\ 149.4 \\ 145 \\ 144.4 \\ 140 \\ 139.4 \\ 135 \\ 134.4 \\ 130 \\ 129.4 \\ 125 \\ 124.4 \\ 120 \\ 119.4 \\ 115 \\ \end{array} $	+								SOIL AND ROCK DES	CRIPTION DEPTH (1
$ \begin{array}{c} -152.9 \\ 150 \\ -149.4 \\ 145 \\ -144.4 \\ 140 \\ -139.4 \\ 135 \\ -134.4 \\ 130 \\ -129.4 \\ 125 \\ -124.4 \\ 120 \\ -119.4 \\ 115 \\ \end{array} $	+			11						
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	+								152.9 GROUND SURF	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4 <u>- 3.5</u>	3	4 9	· · • • 13· ·			М		152.0 <b>ROADWAY EMBAN</b> 150.9 ORANGE-BROWN, SILTY	
144.4 140 139.4 135 134.4 130 129.4 125 124.4 120 119.4 115	Ŧ									) (A-2-6)
144.4 140 139.4 135 134.4 130 129.4 125 124.4 120 119.4 115	‡	4	4 4		· · · · · · · · · · · · · · · · · · ·		M		BROWN, SILTY FINE TO C (A-2-4) ORANGE, CLAYEY FINE 145.9	TO COARSE 7
	4 + 8.5	6	6 6	$- \left  \begin{array}{c} 1 \\ \cdot \\$		· · · · ·			SAND (A-2-6 UNDIVIDED COASTA	
	t	l i l	Ů ľ	<b>1</b> 2.	· · ·   · · · ·		W	-	ORANGE, SILTY FINE TO ( (A-2-4) WITH TRAC	
135     134.4       130     129.4       125     124.4       120     119.4       115     119.4	4 4 12 5			/						
134.4 130 129.4 125 124.4 120 119.4 115	4 <u>13.5</u> -	2	1 1	$- \begin{vmatrix} \cdot & \cdot & \cdot \\ \bullet^2 & \cdot & \cdot \\ \cdot & \cdot $	· · ·   · · · ·		Sat.		138.7 ORANGE-LIGHT GRAY, CL	AYEY FINE TO
134.4 130 129.4 125 124.4 120 119.4 115	±								COARSE SAND (	
129.4 125 124.4 120 119.4	4 + 18.5									
129.4 125 124.4 120 119.4	Ŧ	2	3 2	<b>5</b>			W			
129.4 125 124.4 120 119.4	Ŧ									
124.4 120 119.4	4 <u>+</u> 23.5 +	2	2 2				Sat.		128.6	24
124.4 120 119.4	Ŧ							-	ORANGE, SILTY FINE S	AND (A-2-4)
119.4	4 + 28.5				· · · · · · · · · · · · · · · · · · ·					
119.4	Ŧ	2	2 7	9			Sat.		123.4 GRAY, FINE TO COARSE	29 SANDY SILTY
119.4	Ŧ				· · ·   · · · · ·				120.9 CLAY (A-7) WITH TRA	52
115	4 + 33.5	9	22 24	-			Sat.		(A-2-4), MICACE	
115	‡						out.	-	115.0	27
114 4	4 + 38.5				· · · · · · · · · · · · · · · · · · ·				ORANGE, SILTY CLAY	
		8	7 9		· · · · · · · · ·		Sat.		COARSE SAND (	A-2-6)
110	‡				· · · · · · · · · · · · · · · · · · ·				110.9	42
109.4	$\frac{4+43.5}{4}$	12	15 22	$    \dots   $		<u> </u>	Sat.		ORANGE, CLAYEY SIL COARSE SAND (A-2-4),	MICACEOUS
	‡				$ \begin{array}{c c} \bullet \bullet \circ & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet$					
105	4 + 48.5				•1• •   • • • • • •1• •   • • • • •	· · · ·				
	+ +	18	20 18	$\left  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \right  \right  \right  \cdot \cdot \cdot \cdot \cdot \left  \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \right  \cdot $	38		Sat.	-		
	1				· · ·   · · · · ·					
99.4	1 + 53.5	2	1 1				Cat			
	t		·   ·		· · ·   · · · ·		Sat.	-		
95 94.4	+ 1 + 58.5				· · ·   · · · ·					
94.4	+ + 58.5	1	1 3	$\neg     4 \cdot \cdot \cdot \cdot   \cdot  $	· · ·   · · · · ·		Sat.			
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84.4		3	4 4				Sat.			
	<u>1 + 68.5</u> I							F		

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	47533			ac cr			P 1-5987	
	ING NO.			iye on		-	R1006-Great Mars	
	LAR ELE		51-В 52.9 ft		_		TAL DEPTH 80.0	
				TE FA			CME-55 82% 03/01/20	
	LER D						<b>ART DATE</b> 01/28	
ELEV	DRIVE	DEPTH		w co		Γ		S PER FOOT
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft		0 25	50 7
80				L		L	Ma	tch Line
		73.5	11	13	15	1	28	· · · · · ·
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75	74.4 -	78.5	8	13	21		· · · · · · · · · · · ·	
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# **GEOTECHNICAL BORING REPORT**

#### BORE LOG TY ROBESON **GEOLOGIST** B. Painter Road) over -L- (I-95) at -L- Sta. 573+67.87 GROUND WTR (ft) OFFSET 19 ft RT ALIGNMENT -Y4-0 HR. N/A **NORTHING** 382,070 **EASTING** 2,002,665 24 HR. 3.9 DRILL METHOD Mud Rotary HAMMER TYPE Automatic **COMP. DATE** 01/29/20 SURFACE WATER DEPTH N/A SAMP. L MOI G ELEV. (ft) SOIL AND ROCK DESCRIPTION 75 100 NO. DEPTH (ft) Sat. 78.4 . . . . 74.5 · · · · COASTAL PLAIN GRAY, SILTY FINE TO COARSE SAND (A-2-4), MICACEOUS (BLACK CREEK / 77.0 FORMATION) GRAY, SILTY CLAY (A-6), MICACEOUS 80.0 (BLACK CREEK FORMATION) 7<u>5.9</u> 72.9 . . . . . . . . М Boring Terminated at Elevation 72.9 ft IN SILTY CLAY (COASTAL PLAIN) (BLACK CREEK FORMATION) Notes: 1. Surficial Organic Soil: 0.0-0.3'

SHEET 8

#### **GEOTECHNICAL BORING REPORT** RORF I OG

								B	<u>ORE L</u>	OG						
WBS	47533	3.1.1			T	<b>P</b> I-5987		COUNT	Y ROBESC	ON		GEOLOG	IST R. Fren	ch		
SITE	DESCR	IPTION	Bric	lge on	-Y4- (	SR1006-Gr	eat Marsh	Church F	Road) over -	L- (I-95)	at -L- Sta	. 573+67.87			GROUN	D WTR (ft)
BOR	NG NO.	S1_E	EB2-A		S	TATION 25	i+76		OFFSET	27 ft LT		ALIGNME	NT -Y4-		0 HR.	N/A
COLL	AR ELE	<b>EV.</b> 15	54.7 ft		т	OTAL DEPT	<b>H</b> 95.0 ft		NORTHING	<b>3</b> 82,0	80	EASTING	2,002,772		24 HR.	3.6
DRILL	. RIG/HAI	MMER E	FF./DA	TE F8	R2175	CME-55 84%	03/01/2019			DRILL M	IETHOD	Mud Rotary		НАММЕ	ER TYPE	Automatic
DRIL	<b>LER</b> S	. Davis			S	TART DATE	12/06/19	)	COMP. DA	<b>TE</b> 12/0	09/19	SURFACE	E WATER DE	PTH N//	4	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW COU 0.5ft		0 2	BLOWS P 5 5		75 100	SAMP. NO.	MOI G	ELEV. (ft)	SOIL AND RO	DCK DESC	RIPTION	DEPTH (1
155	154.7	- 0.0	1	3	6	· •					м Ц	154.7	ROADWA		MENT	0.
150		3.5	4	8	9		· · · · · · · · · · · · · · · · · · ·	· · · · ·			<b>▼</b> M	; (		(A-2-4) W RGANICS COASTAI	ITH TRAC	E   /
145	- 146.2 -	- 8.5	1	2	2	· / · · ·/· · · ·/· · ·	· · · · ·	· · · · ·	· · · · ·		Sat.		OWN-RED-GR COARSE SAN G BROWN, SILT	ID (A-2-6) BRAVEL	WITH TRA	∧CE /— –′
140	- - 141.2	- 13.5	3	6	10		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	<u>142.7</u> GI	RAY, FINE TO C CLAY (A-7) WI			
135	136.2	- - - 18.5	8	9	11		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.					
		23.5	3		2		,   	· · · · ·	· · · · · · · · · · · · · · · · · · ·				RAY-BROWN, S COARSE SAND			
130	- - 126.2	28.5	3		2		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	<del>، ا، ا، ا، ا، ا</del>		BRAVEL		_
125	-	-	1	3	3		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	* - - - - -	RAY, FINE SAI			<u></u>
120		<u>33.5</u>	6	12	14		26 <u></u>	· · · · ·	· · · · ·		Sat.	- 117.7	WITH TRA	ACE ORGA	ANICS `	3
115	116.2	38.5 -	5	2	3	• • • • • • • • • • • • • • • • • • •	· · · · ·	· · · · ·	· · · · ·		Sat.	BF	ROWN-GRAY, S COARSE	SILTY CLA' E SAND (A		
110		43.5	11	14	21		35	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	BR	OWN-GRAY, S SAND (A-2-4) W			
105	106.2	- 48.5	6	7	6	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat					
100	101.2	- - - 53.5	3	1	3		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		ED-BROWN-OF INE TO COARS TRAC		A-2-6) WI	
95	96.2	- - - 58.5	3	4	3		· · · · ·	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat	∮9 <u>7.7_</u> ↓	RAY-BROWN, S			RSE 5
	- - - 91.2	- - - 63.5	40	E				· · · · ·								
90	- - 86.2	- - - 68.5	10	5	8	••13 \ - \ - \.	· · · · · · · · · · · · · · · · · · ·	· · · · ·			Sat.					<u>6</u>
85	- - 81.2		6	9	11			· · · · ·			Sat.	A- 82.7D	RAY, SILTY FII 2-4) WITH TRA (BLACK CRI ARK GRAY, FIN	CE MICA EEK FORM	AND GRA' 1ATION) SILTY CL	VEL
80	  	73.5	7	10	18		• • • • • • 28 • • • • •	· · · · ·	· · · · · ·		Sat.		(BLACK CRI			EL
75	76.2	78.5	7	10	17		• · · · · • · · · ·	· · · ·			_Sat.					

SITE DESCRIPTION         Bridge on -Y4- (SR1006-Great Marsh Church           BORING NO.         \$1_EB2-A         STATION         25+76           COLLAR ELEV.         154.7 ft         TOTAL DEPTH         95.0 ft           DRILLER S. Davis         START DATE         12/06/19           DRILLER S. Davis         START DATE         12/06/19           CUM PRIMER EFF JOATE         BLOW COUNT 0.5ft         0         25         50           75                 76                  76                  77                 76                  66                 66                 66	WBS	47533	3.1.1			T	<b>IP</b> I-5987	
OCILAR ELEV. 154.7 ft       TOTAL DEPTH 95.0 ft         DRILL RIG/HAMMER EFF./DATE F&R2175 CME-55 84% 03/01/2019         DRILLER S. Davis       START DATE 12/06/19         DRILLER S. Davis       START DATE 12/06/19         DRIVE ELEV (ft)       DEPTH (ft)       BLOW COUNT 0.5ft       0.5ft <th>SITE</th> <th>DESCR</th> <th></th> <th>l Brid</th> <th>ge on</th> <th>-Y4- (</th> <th>SR1006-Great Ma</th> <th>arsh Church R</th>	SITE	DESCR		l Brid	ge on	-Y4- (	SR1006-Great Ma	arsh Church R
DRILL RIG/HAMMER EFF./DATE         F&R2175         CME-55         84%         03/01/2019           DRILLER         S. Davis         START DATE         12/06/19           ELEV (ft)         DEPTH ELEV (ft)         BLOW COUNT 0.5ft         0.5ft         0.5ft         0         25         50           75            Match Line           76	BOR	NG NO.	. S1_E	B2-A		S	<b>TATION</b> 25+76	
SIDAVIS     START DATE 12/06/19       ELEV (ft)     DEPTH (ft)     BLOW COUNT     BLOWS PER FOR       75     0     25     50       75     -     -     -     Match Line       75     -     -     -     -       76     -     -     -     -       70     -     11     16     17       65     -     88.5     8     10     15       65     -     -     -     -       61.2     93.5     10     14     14	COLL	AR ELE	<b>EV.</b> 15	64.7 ft		Т	OTAL DEPTH 95	5.0 ft
ELEV (ft)         DRIVE ELEV (ft)         DEPTH (ft)         BLOW COUNT         BLOWS PER FOR 0           75         0         25         50           75         -         -         -         -         Match Line           71.2         83.5         -         -         -         -         -           70         -         11         16         17         -         -         -           65         -         88.5         8         10         15         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -<	DRILL	RIG/HAI	MMER E	FF./DA	TE F8	R2175	CME-55 84% 03/01	/2019
ELEV (ft)         ELEV (ft)         DEPT II (ft)         Dept III 0.5ft         0.5ft         0.5ft         0         25         50           75	DRILI		. Davis			S	TART DATE 12/	06/19
75     Match Line       75     11     16     17       70     11     16     17       66.2     88.5     10     15       66.2     93.5     10     14							4	
70     71.2     83.5     11     16     17       65     66.2     88.5     10     15       65     61.2     93.5     10     14	(π)		(π)	0.5ft	0.5ft	0.5ft	0 25	50 7
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	75						N	Natch Line
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$60   T   10   14   14   \cdots   10   10   10   10   10   10   10 $	65		88.5	8	10	15	1 · · · · · · · · · · · · · · · · · · ·	
$60   T   10   14   14   \cdots   10   10   10   10   10   10   10 $		-	ŧ					
EU     IU     IU     I4     I4     IA       I     I     I     IA     IA       I     I     IA     IA       I     IA     IA		61.2	93.5	40		4.4		
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#### GEOLOGIST R. French ROBESON Road) over -L- (I-95) at -L- Sta. 573+67.87 GROUND WTR (ft) OFFSET 27 ft LT ALIGNMENT -Y4-0 HR. N/A **NORTHING** 382,080 **EASTING** 2,002,772 24 HR. 3.6 DRILL METHOD Mud Rotary HAMMER TYPE Automatic **COMP. DATE** 12/09/19 SURFACE WATER DEPTH N/A SAMP. L MOI G SOIL AND ROCK DESCRIPTION 75 100 NO. ELEV. (ft) DEPTH (ft) . . . . GRAY, SILTY CLAYEY FINE TO COARSE SAND (A-2-6) WITH TRACE MICA AND GRAVEL (BLACK CREEK FORMATION) 72.7 · · · · . . . . Sat. . . . . DARK GRAY, FINE SANDY SILTY CLAY (A-7) WITH TRACE MICA (BLACK CREEK FORMATION) . . . . . . . . . . . Sat. . . . . · · · · · 62.7 GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (BLACK CREEK FORMATION) Sat. - 59 7 Boring Terminated at Elevation 59.7 ft IN SILTY SAND (COASTAL PLAIN) (BLACK CREEK FORMATION) Notes: 1. Surficial Organic Soil: 0.0-0.1'

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	47533					IP I-5987		Y ROBESC				GEOLOGIST Weis, J. M		
				-		SR1006-Great Mars	sh Church I			at -L-	Sta.			
	NG NO					<b>TATION</b> 23+98		OFFSET				ALIGNMENT -Y4-		HR. 6.
COLL	LAR ELI	E <b>V.</b> 14	16.9 ft		<b>T</b>	OTAL DEPTH 45.0	ft	NORTHING	382,2	06		EASTING 2,002,628	24	HR. 5.
DRILL	. RIG/HA	MMER E	FF./DA	TE M	ID3964	CME-45C 91% 02/21/20	19		DRILL N	IETHO	<b>D</b> M	ud Rotary	HAMMER	TYPE Automatic
DRIL	LER P	owell, E	3.		S	TART DATE 05/25	/21	COMP. DA	TE 05/2	25/21		SURFACE WATER DEPT	TH N/A	
LEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW CO 0.5ft	-	BLOWS	50 50	75 100	SAMP. NO.		L O G	SOIL AND ROCI	K DESCRIF	PTION DEPTH
50	145.9	- 1.0									-	- 146.9 3 INCHES UNDIVIDED CO	STOPSOIL	AIN
45		+	1	2	2		· · · · · · ·	· · · · · ·	SS-01	22%		_ BROWN, ORANGE, A		
40	140.9	6.0	6	4	7	• • • • 14 • • • • • • • • • • • • • • • • • • •	· · · · · ·	· · · · ·		Sat.		- - 		
35	<u>138.4</u> - -	<u>+ 8.5</u> -	3	2	2	<b>4</b> 4	· · · · · ·		SS-02	25%			E, SANDY	CLAY (A-6)
30		<u>13.5</u>	2	3	4					Sat.		-		
25	128.4	18.5	1	1	1	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.			AYEY SANI	D (A-2-6) 1
20		23.5	3	3	10		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		 		<u> </u>
		- <u>28.5</u>	6	11	13	24	· · · · · · · · · · · · · · · · · · ·			М		GRAY, SILT	Y CLAY (A-	
15	- 113.4	- 33.5	1	8	15		· · · · · · · · · · · · · · · · · · ·			Sat.	0000 000000000000000000000000000000000		ARSE SAND	D (A-1-b) 3
10	- 108.4 -	- 38.5	11	21	24		• • • • • • • • • • • • • • • • • • •	· · · · ·		Sat.				
05	103.4	43.5	5	2	1	• • • • • • • •	· · · · · ·			Sat.	0000 0000 0000 0000	 - 		4
												TAN AND GRAY, SILT CREEK FC Boring Terminated a SILTY CLAY (COAS	DRMATION	)

VBS	47533	.1.1			TI	P I-5	987				DUNT	YF	ROBES	SON				GEOLOGIST God	dnight, D	i	
SITE	DESCR	PTION	l Brid	lge on	-Y4- (	SR10	06-Gr	eat l	Marsh	n Ch	urch F	Road	d) over	-L- (I-9	95) (	at -L-	Sta.	573+67.87		GROUN	ID WTR (
BORI	NG NO.	S1_F	RWAL	1-2	S	ΓΑΤΙΟ	N 24	4+00	)			OF	FSET	99 ft I	RT			ALIGNMENT -Y4-		0 HR.	5.
OLL	AR ELE	<b>IV.</b> 15	52.8 ft		т	DTAL	DEPT	ГН -	45.0 f	ft		NO	RTHIN	<b>IG</b> 38	2,02	22		EASTING 2,002,5	63	24 HR.	4.
RILL	RIG/HAM	/MER E	FF./DA	TE M	D3964	CME-4	5C 91%	% 02/2	21/201	9		•		DRIL	L M	ETHO	D Mi	Jd Rotary	HAN	IMER TYPE	Automatic
RILI	ER Po	owell, E	3.		S	TART	DATE	E 0	5/21/2	21		со	MP. D	ATE (	)5/2	1/21		SURFACE WATER	DEPTH	N/A	
LEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT			BL	.OWS	PER	FOOT			SAN	1P.	▼/		SOIL AN		SCRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25		50		75	10	D NO	).	Лог		ELEV. (ft)			DEPTH
155		-																_			
	-	-																152.8			
50	151.8 -	- 1.0 -	18	20	15		•••	·	• 35 ·		· · · · · ·	-	· · · · · ·			М		TAN ORANG		AY, SILTY SA	
50	149.3	- 3.5	3	4	3		1.	<u> </u> .		1.		1.				•		– (A-2-4) W	ITH TRACE	EORGANICS	
	- 146.8 -	- - 6.0				.¶7	· · ·		· · ·	:	· · ·	:	· · · · · ·		-						
45	- 144.3	- - 8.5	2	4	5	∣∟∙∳	9 · ·	•	• • •	·		·		41		Μ		LIGHT TAN		CLAYEY SIL	.TY
f	- 144.3	- 0.5 -	5	5	5	:	 10 .		· · ·	:	· · ·	:	· · · · · ·			Sat.	-		RAY, FINE		
	-	-				: į	•••	·	· · ·		· · ·	:	· · ·					140 <u>.8</u>			
40	139.3	13.5	4	4	3	-		1.		+:		+:					000	LIGHT TAN	FINE TO ( (A-1-a)	COARSE SAN	۱D
	-	-	4	4		. <b>•</b> 7	· . 		· · ·	1:	· · ·					Sat.	000		( )		
35	-	-					•••	•	•••	ŀ											RSE
ŀ		18.5	3	3	3	.   .   .	•••	·		:	· · ·	:				W	$\sim$	,	SAND (A-2		
	-	_				. <b>i</b> .	•••		· · ·			·					$\sim$				
30	129.3	23.5				+				+-										CLAY (A-6)	
	-	-	1	1	9	:4	10			.		.		SS-	03	19%			(1, 0, 10)		
25	-	-					·\. · ·			.		.								IDY SILT (A-2	<u></u>
	124.3	28.5	6	14	21			Ì.,	••••• ••35	1.						М			JRAT, JAN		+)
	-	-						//	• • • •	:		-									
20	119.3	- - 33.5					/		•••	·	· · ·	·	· · ·	-				_			
Γ	-	-	WOH	1	2	<b>.</b>	•••	:	· · ·	1:	· · ·	-	· · · · · ·	SS	04	25%	-				
15	-	-							· · · · · ·	:	· · · · · ·	:	· · · · · ·					<u>115.8</u>			<u> </u>
	114.3	- <u>38.5</u>	10	13	18			<u>ار ا</u>		1.		1.				Sat.	0000	– IAN, SLIC	HILYSILI	Y SAND (A-3	)
	-	-					•••		· · ·	:	· · · · · ·	:	· · · · · ·			Jai.	0000				
10	109.3	- - 135						·	· · ·	+	· · ·	<u> </u>	•••	41							RSE
Ē	109.5	-	15	28	39		•••	•	· · ·			7	· · ·			W		107.8	SAND (A-2	,	
	-	-																Boring Termin SILTY SAND			
	-	-																	ÈEK FORM		
	-	-																			
	-	-																-			
	-	-																			
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	47533					<b>P</b> I-5987		Y ROBESC				GEOLOGIST Weis, J. M.	
SITE	DESCR	IPTION	l Brid	dge on		SR1006-Great N		Road) over -l	(I-95)	at -L-	Sta. 5	573+67.87	GROUND WTR (ft
	NG NO					TATION 25+57		OFFSET 3				ALIGNMENT -Y4-	0 HR. 8.9
	LAR ELI					OTAL DEPTH 4						EASTING 2,002,756	<b>24 HR</b> . 4.7
				TE M		CME-45C 91% 02/2			DRILL N		<b>D</b> Mu	· · · · · · · · · · · · · · · · · · ·	AMMER TYPE Automatic
DRIL	LER P	owell, I				TART DATE 05		COMP. DA	-	24/21	1.1	SURFACE WATER DEPTH	N/A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	OW CO	UNT 0.5ft	BL0 0 25	OWS PER FOO 50	Г 75 100	SAMP. NO.	моі	L O G	SOIL AND ROCK ELEV. (ft)	DESCRIPTION DEPTH (
150												- 149.4 2 INCHES T	
	148.4	† <u>1.0</u> †	5	10	11			·   · · · ·		м	-	UNDIVIDED COA BROWN, SILTY	SAND (A-2-4)
145	145.9 . - 143.4 ⁻	<u>3.5</u> 6.0	3	4	5	9		· · · · · ·		V			3
		‡	5	7	7			.     .		w	~~	141.4	8
140		8.5	3	2	3	• • • • • • • • • • • • • • • • • • •	· · · · · · · · · · · · · · · · · · ·	· · · · · ·		Sat.	• • • • • • • • • • • • • • • • • • •	TAN, FINE S.	AND (A-3)
135	135.9	13.5	3	7	10			· · · · · ·		м		<u>- 136.4</u>	
	- 130.9	18.5					· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·				, , , , , , , , , , , , , , , , , , ,	,
130		+ + +	4	7	8		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	SS-05	22%			
125	125.9	23.5	1	2	1	• • • •		· · · · · ·		Sat.			
20	120.9	28.5	3	2	3			· · · · · ·		Sat.			
	- - 115.9 -	33.5				$\left \begin{array}{c c} \mathbf{X} & \mathbf{x} \\ \mathbf{x} \\ \mathbf{X} & \mathbf{x} \\ \mathbf{x} $		  				- <u>118.4</u> TAN, SANDY	$\overline{CLAY}$ (A-6) — — — $\frac{31}{}$
15	-	+	6	8	9		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.			
10		38.5	4	2	1	· /· · · · · · · · · · · · · · · · · ·		· · · · · ·		Sat.			SAND (A-1-b) <u>38</u>
105	105.9	43.5	7	13	17		· · · · · · · · · · · · · · · · · · ·	· · · · · ·		Sat.	0000- 0000- 0000- 0000-	- 104.4	45
		-										Boring Terminated at E SAND (COASTAL PLA	levation 104.4 ft IN
	- - - - - - - - - - - - - 	+ + + + + + +										FORMA	
		+ + + +										-	
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	. -												
		- -											

#### **WBS** 47533.1.1 **TIP** I-5987 COUNTY SITE DESCRIPTION Bridge on -Y4- (SR1006-Great Marsh Church Ro **STATION** 25+53 BORING NO. S1_RWAL 2-2 COLLAR ELEV. 153.1 ft TOTAL DEPTH 45.0 ft DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 91% 02/21/2019 DRILLER Powell, B. **START DATE** 05/24/21 ELEV DRIVE ELEV (ft) DEPTH BLOW COUNT BLOWS PER FOOT (ft) 0.5ft 0.5ft 0.5ft 25 50 7 152.1 1.0 . . . . . . 9 616 . . . . . . . 149.6 3.5 . . . . 6 . . . **(**10 . . 147.1 60 . . . . 10 - 🍎1 . . . . . . . 144.6 8 5 12 . . . . . . . . . . . . . . 139.6 + 13.5 . . . . 2 2 1 . . . 6 . . . . . . 135 134.6 18.5 . . . . . WOH 1 WOH . . . . . . . . . . 130 129.6 23.5 . . 28 47 125 124.6 28.5 14 23 . . . . **•**37 • • 120 119.6 33.5 . . . . 16 26 . . . 42 . . . . 115 114.6 38.5 . . 13 21 28 . . . . . . 109.6 - 43.5 9 13 9 . . . ·**6**22

155

150

145

140

ন্থ 110

# **GEOTECHNICAL BORING REPORT**

#### **BORE LOG**

				GEOLOGI	ST Weis, J.	M		
oad) over -L		at J -	Sta		<b>JI</b> Weis, J.	171.	GROUNI	O WTR (ft)
	08 ft R1		Jia.		NT -Y4-		0 HR.	7.5
NORTHING					2,002,704	1	24 HR.	6.6
	DRILL N		D M	ud Rotary				Automatic
COMP. DAT		24/21		SURFACE	WATER DEP	TH N/	A	
75 400	SAMP.		L O		SOIL AND ROO	CK DESC	RIPTION	
75 100	NO.	∕мог	G	ELEV. (ft)				DEPTH (ft)
			_					
				153.1		S TOPS		0.0
		м		-	UNDIVIDED O BROWN, SIL			
				_			. ,	
		W		- <u>147.6</u>				5.5
		—w—	<u>/.</u> /.	- Ll -	GHT BROWN, S	SILTY CL 4-2-6)	AYEY SAN	D
		w	//	-	,	,		
		**	~~~	-				
			///					
		Sat.	/~/~	-				
			<u>/./.</u>	- -				
			$\langle \cdot \rangle$					
		Sat.	/./					
				-				
			/~/	129.1				24.0
•75		М		т.	AN, SANDY SIL	T (A-4) W	ITH TRACI	E
				- 125 1				28.0
		М	, , , , , , , , , , , , , , , , , , ,	<u>125.1</u>	GRAY, CLA	YEY SIL	T (A-5)	28.0
		IVI	л V V	- - <u>121.6</u>				<u>31.5</u>
				- <u>121.0</u>	TAN, COARS	SE SAND	(A-1-b) —	
		w	000	-				
				- -				
			000	-				
		W		-				
				-				
+				-				
		Sat.	000	108.1 Bo	ring Terminated	at Floyet	ion 109 1 #	45.0
					ND (COASTAL F	PLAIN) (B	LACK CRE	
				-	FORM	MATION)		
				-				
				- -				
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			-	-				
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#### **CONTENTS**

5987B

h

REFERENCE

<u>SHEET NO.</u>	<b>DESCRIPTION</b>
I	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	CROSS SECTIONS
8-18	BORE LOGS

#### STATE OF NORTH CAROLINA

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

# **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY ROBESON

PROJECT DESCRIPTION <u>I-95 IMPROVEMENTS FROM</u> US 301 (EXIT 22) IN ROBESON COUNTY TO NC 59 (EXIT 41) IN CUMBERLAND COUNTY SITE DESCRIPTION BRIDGE ON -L- (I-95) OVER -Y5- (NC 20) AT -L- STA. 617 + 12.20

# $\sim$ m ら 5 4 PROIEC

STATE STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C. I–5987B	1	18

#### 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 1999 107-6860. 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 BORNICS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU UN-FLACED TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE ONSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS MOLATED IN THE SUBSURFACE RELIVESTIGATIONS AND REAS RECORDED AT THE TIME OF THE INVESTIGATION. THES WATER LEVELS OR SOL MOISTURE CONDITIONS MAY LARY CONSIDERABLY WITH THE ACCORDING TO CLIMATIC CONDITIONS NICLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

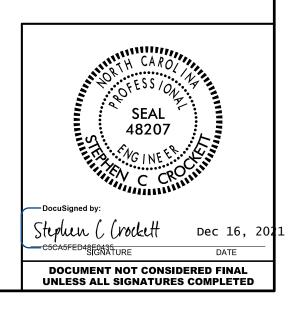
THE BIDDER OF CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPHION 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 INVESTIGATION AS HE DEEMS NECESSARY TO SATISY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDENTIONS OF CONTANT THE SIDE 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 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. 2.

PERSONNEL

<i>M.A.D</i> .
GOODNIGHT, D.J.
WEIS, J.M.
F&R, INC.
INVESTIGATED BY GOODNIGHT, D.J.
INVESTIGATED BY
DRAWN BYCROCKETT, S.C.
CHECKED BY HAMM, J. R.
EALCON

SUBMITTED BY FALCON DATE _____ DECEMBER 2021

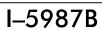


## NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

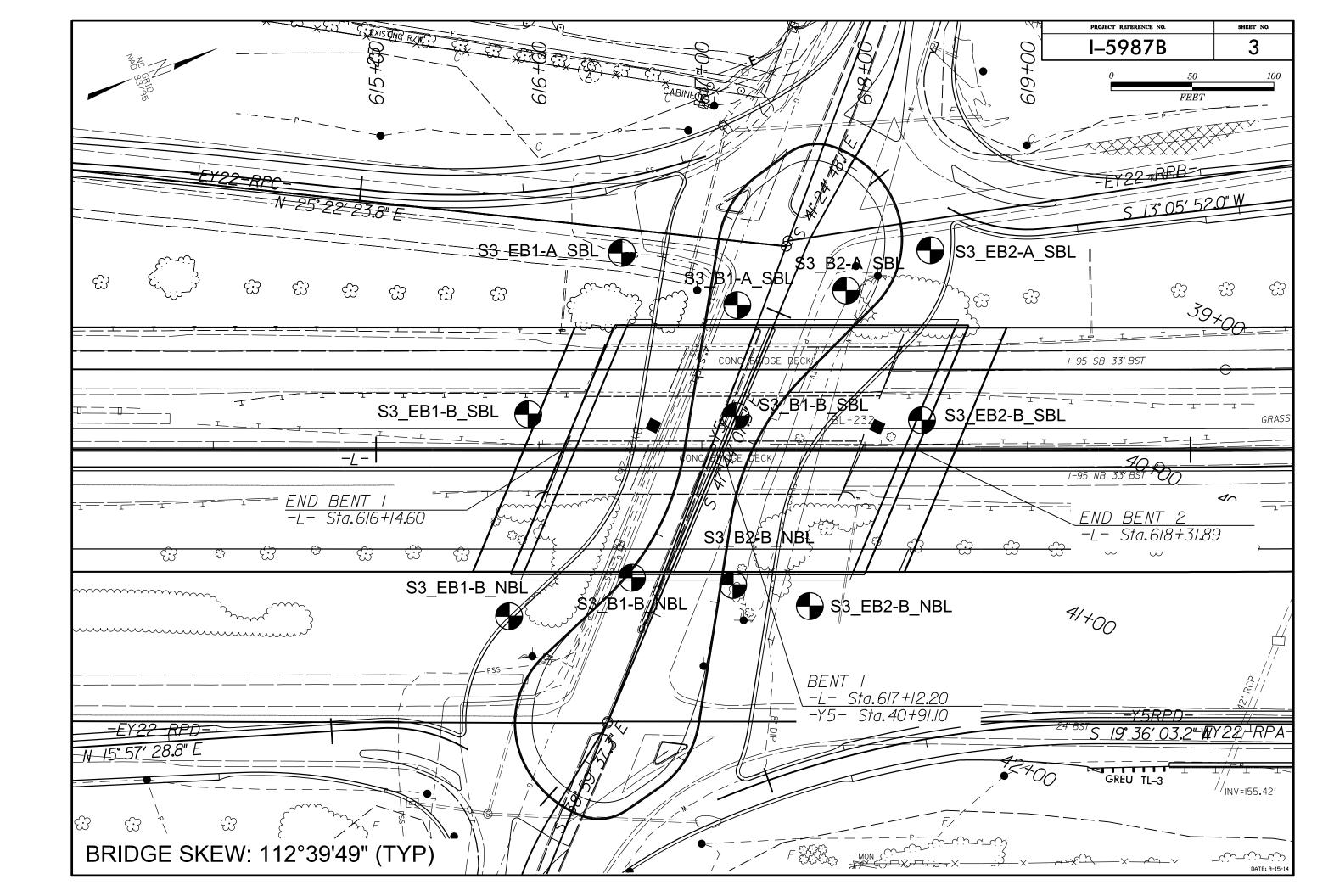
			SOIL (	DESC	RIPTIC					GRADATION							ROCK DESCRIPTION				
BE PENETH ACCORDIN IS BA CONSISTEN	RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLIDA A CONTINUOL STANDARD PEI HE AASHTO SY TEXTURE, MOIS CICAL COMPOSI	IS FLIGHT PO NETRATION TE STEM. BASIC STURE, AASHTO	WER AU EST (AAS DESCRIF O CLASS	GER AND SHTO T 2 PTIONS G SIFICATIO	YIELD LES 206, ASTM ( ENERALLY DN, AND OTH	S THAN 10 D1586).SOI INCLUDE TH ER PERTIN	Ø BLOWS PE L CLASSIFI HE FOLLOWI ENT FACTOF	ER FOOT CATION NG: RS SUCH	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							HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTE ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL IS PERTRATION BY A SPLIT SPONS SAMPLER EQUAL TO OR LESS THAN 0.1 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:				
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF.GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS; ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.						WEATHERED	-L3 HN		a	LAIN MATERIAL THAT WOULD YIELD SPI	
SOIL LEGEND AND AASHTO CLASSIFICATION										MINERALOGICAL COMPOSITION						ROCK (WR)			100 BLOWS PER	FOOT IF TESTED.	
GENERAL CLASS.	(	GRANUL AR MATERIALS         SILT-CLAY MATERIALS         ORGANIC MATERIALS           (≤ 352, PASSING = 200)         (> 352, PASSING = 200)         ORGANIC MATERIALS           A-1         A-3         A-2         A-4         A-5         A-6         A-7         A-1, A-2         A-4, A-5							IALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.						CRYSTALLINE ROCK (CR)			WOULD YIELD S		
	CLASS. A-1-0 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7			н-5	A-7-5. A-7 <u>-</u> 6	A-1, A-2 A-3			COMPRESSIBILITY						NON-CRYSTAL ROCK (NCR)	LINE			SE GRAIN METAMORPHIC AND NON-COASTA ROCK THAT WOULD YEILD SPT REFUSAL		
SYMBOL 0						SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50							IN			LUDES PHYLLITE, SLATE, SANDSTONE, ET SEDIMENTS CEMENTED INTO ROCK, BUT					
% PASSING 10 5						MUCK	HIGHLY COMPRESSIBLE LL > 50 PERCENTAGE OF MATERIAL							SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SAN							
*40 30 MX 50 MX 51 MN					GRANULAR SOILS		MUCK, PEAT			GRANULAR	SILT - CLAY SOILS						WEA	THERING			
#200 15 MATERIAL PASSING #40 LL PI	5 MX 25 MX	- 40 MX 41	MN 40 MX 41 1 MX 11 MN 11 M	MN 40 M	x 41 MN 4	40 MX 41 MN	LIT	s with Fle or	HIGHLY	ORGANIC MATERIAL TRACE OF ORGANIC MAT LITTLE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	TER	<u>SOILS</u> 2 - 3% 3 - 5% 5 - 10% > 10%	<u>SOILS</u> 3 - 5% 5 - 12% 12 - 20% > 20%	<u>OTHER MATERIAL</u> TRACE 1 - 10% LITTLE 10 - 20% SOME 20 - 35% HIGHLY 35% AND ABOVE	FRESH VERY SLIGHT (V SLI.)	HAMME ROCK ( CRYST	ER IF CRYSTAL GENERALLY FF ALS ON A BRI	LLINE. RESH, JOINTS STAIN OKEN SPECIMEN FAO	JINTS MAY SHOW SLIGHT STAINING, ROCK ED, SOME JOINTS MAY SHOW THIN CLAY C EE SHINE BRIGHTLY, ROCK RINGS UNDER H		
GROUP INDEX USUAL TYPES S	Ø TONE FRAGS. GRAVEL, AND	Ø Ø	4 MX	8 MX	MX         12         MX         16         MX         N0         MX         MUDERATE AMOUNTS OF ORGANIC         ORGANIC           SILTY         CLAYEY         MATTER         ORGANIC					GROUND WATER							OF A CRYSTALLINE NATURE. ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO RO I INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONA CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMEF				
MATERIALS GEN. RATING AS SUBGRADE	MATERIALS SAND SAND GRAVEL AND SAND S				oils Fair to	SOILS POOR	Fair to Poor	FAIR TO POOR UNSUIT		▼     STATIC WATER LEVEL AFTER <u>24</u> HOURS       ▽Pw     PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA       ○-\\\\\\\\-     SPRING OR SEEP						MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING E GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHO DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STF WITH FRESH ROCK.			E DULL AND DISCOLORED, SOME SHOW CLA	
	1	PI OF A-7-5 SUBC	ROUP IS ≤ LL							0.00.			NEOUS SYMBO			MODERATELY				OR STAINED. IN GRANITOID ROCKS, ALL F	
				RA	NGE OF S	STANDARD	RAN	IGE OF UNC	ONFINED				325			(MOD. SEV.) AND		AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE L AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES 'CLUNK'SOUND IF TESTED, WOULD YIELD SPT REFUSAL			
GENERAL	CONSISTEN GENERALLY VERY LOOS			PENETRATION RESISTENCE (N-VALUE) < 4 4 TO 10				PRESSIVE S (TONS/F1		ROADWAY EMBANKMENT (RE) 25025 DIP & DIP OIRECTION WITH SOIL DESCRIPTION FOR ROCK STRUCTURES SOIL SYMBOL SYMBOL STRUCTURES OF THE TEST BORING SLOPE INDICATOR INSTALLATION					SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND E REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ( TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.					
GRANULAR MEDIUM ( MATERIAL DENS (NON-COHESIVE) VERY DE VERY S			ISE DENSE	10 TO 30 30 TO 50 > 50 < 2				N/A < 0.25		ARTIFICIAL FI THAN ROADWAY	Y EMBA		AUGER BORING	<b>(</b>	CONE PENETROMETER TEST SOUNDING ROD	VERY SEVERE (V SEV.)	all Ro But Mi Remain	ROCK EXCEPT ( MASS IS EFFEC NING, SAPROLI	CTIVELY REDUCED T ITE IS AN EXAMPLE	OR STAINED. ROCK FABRIC ELEMENTS AF O SOIL STATUS, WITH ONLY FRAGMENTS O OF ROCK WEATHERED TO A DEGREE THAT	
GENERALI SILT-CLA MATERIAL (COHESIV	ΑY L	SO MEDIUM STI VERY	FT STIFF IFF	2 TO 4 4 TO 8 8 TO 15 15 TO 30				0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4		TIET BORING TIET BORING WIND MONITORING WELL TEST BORING WIND CORE TEST BORING WIND CORE TEST BORING WIND CORE TEST BORING WIND CORE TEST BORING WIND CORE TEST BORING WIND CORE SPT - SPT N-VALUE					COMPLETE	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N</u> ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONL SCATTERED CONCENTRATIONS. OUARTZ MAY BE PRESENT AS DIKES OR STRINGE ALSO AN EXAMPLE.					
		HA	RD		> 3	30		> 4											ROCK	HARDNESS	
TEXTURE OR GRAIN SIZE							RECOMMENDATION SYMBOLS										HARP PICK. BREAKING OF HAND SPECIMEN				
U.S. STD. SIEVE SIZE 4 10 40 DPENING (MM) 4.76 2.00 0.42					42 Ø	60 200 .25 0.07	5 0.053									HARD	CAN BE			ONLY WITH DIFFICULTY. HARD HAMMER B	
BOULDER COBBLE GRAVEL COARSE FINE SILT (BLDR,) (COB,) (GR,) (GR,) (CSE, SD,) (F SD,)				(SL.)	CLAY (CL.)	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL ABBREVIATIONS						MODERATELY HARD									
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3 SOIL MOISTURE - CORRELATION OF TERMS							AR - AUGER REFUSAL     MED MEDIUM     VST - VANE SHEAR TEST       BT - BORING TERMINATED     MICA MICACEOUS     WEA WEATHERED       CL CLAY     MODE. MODERATELY     2 - UNIT WEIGHT       CPT - CONE PENETRATION TEST     NP - NON PLASTIC     2 - DRY UNIT WEIGHT							can be Can be	E GROOVED OF	R GOUGED 0.05 INC IN SMALL CHIPS T	HES DEEP BY FIRM PRESSURE OF KNIFE O O PEICES 1 INCH MAXIMUM SIZE BY HARD				
SOIL MOISTURE SCALE FIELD MOI (ATTERBERG LIMITS) DESCRIP					-			ISTURE DES	SCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u> DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK						SOF T	CAN BE	E GROVED OR CHIPS TO SEV	GOUGED READILY E	Y KNIFE OR PICK. CAN BE EXCAVATED IN IZE BY MODERATE BLOWS OF A PICK POIN ESCIPE	
LL PLASTIC RANGE { (PI) PL		LIMIT	- SATUR (SAT,			USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE				e - VOID RATIO F - FINE FOSS FOSSILIFEROUS		SD SL	SAND, SANDY SILT, SILTY SLIGHTLY	SS ST	- SPLIT SPOON - SHELBY TUBE - ROCK	VERY SOF T	CAN BE	E CARVED WIT DRE IN THICKN	TH KNIFE. CAN BE E	EXCAVATED READILY WITH POINT OF PICK. N BY FINGER PRESSURE. CAN BE SCRATCH	
			- WET -	(W)				DUIRES DRYING TO IM MOISTURE		FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES		TRICONE REFUSAL 10ISTURE CONTENT	RT CBR	- RECOMPACTED TRIAXIAL - CALIFORNIA BEARING	F			ACING	BEDDING	
		C LIMIT								HI HIGHLY					RATIO	TERM VERY WID	_	MOD	<u>SPACING</u> E THAN 10 FEET	TERM VERY THICKLY BEDDED	
		M MOISTURE AGE LIMIT	- MOIST	(ST - (M) SOLID; AT OR			DR NEAR O	PTIMUM MC	ISTURE	DRILL UNITS:	JIPMENT USED ON SUBJEC ADVANCING TOOLS: CLAY BITS		HAMMER	HAMMER TYPE:		LY CLO	3 DSE 1	3 TO 10 FEET 1 TO 3 FEET .16 TO 1 FOOT	THICKLY BEDDED 1. THINLY BEDDED 0.1 VERY THINLY BEDDED 0.0		
						REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE			X CME-55			IS FLIGHT AUGER	CORE S		VERY CLO	3E	LESS	THAN 0.16 FEET	THICKLY LAMINATED 0.00 THINLY LAMINATED <		
PLASTICITY						X         UME-55         8" HOLLOW AUGERS							INDURATION								
PLASTICITY INDEX (PI)         DRY STRENGTH           NON PLASTIC         Ø-5         VERY LOW           SLIGHTLY PLASTIC         6-15         SLIGHT						CME-550		HARD FACED	FINGER BITS DE INSERTS			FOR SEDIMEN		IOCKS, INDURA	RUBBING WI	DENING OF MATERIAL BY CEMENTING,HE TH FINGER FREES NUMEROUS GRAINS; W BY HAMMER DISINTEGRATES SAMPLE.					
MODE	ERATELY PLAS	LASTIC		6-15 16-2 26 OR N	5	SLIGHT MEDIUM HIGH					X		₩/ ADVANCER <u>2 ⁵/16</u> •STEEL TEETH		UULS: DST HOLE DIGGER AND AUGER	MODER	ATELY	INDURATED	GRAINS CAN	BE SEPARATED FROM SAMPLE WITH ST ILY WHEN HIT WITH HAMMER.	
				COLO	R								' TUNGCARB.		DUNDING ROD	INDUR	TED			DIFFICULT TO SEPARATE WITH STEEL TO BREAK WITH HAMMER.	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC, ARE USED TO DESCRIBE APPEARANCE.										CORE BIT			ANE SHEAR TEST	EXTRE	MELY I	INDURATED	SHARP HAM	TU BREAK WITH HAMMER. MER BLOWS REQUIRED TO BREAK SAMPLE MAKS ACROSS GRAINS.			

#### PROJECT REFERENCE NO.

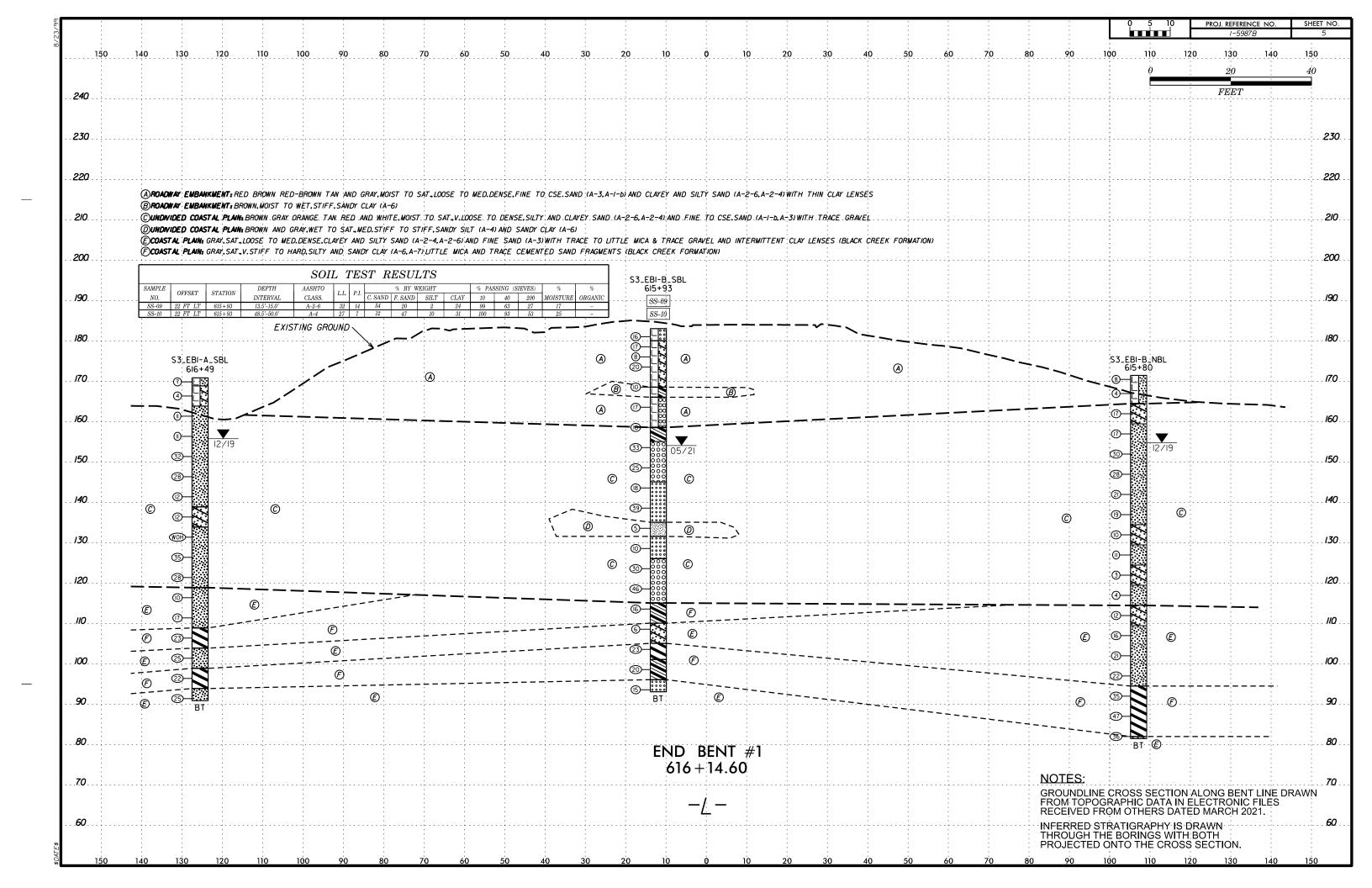


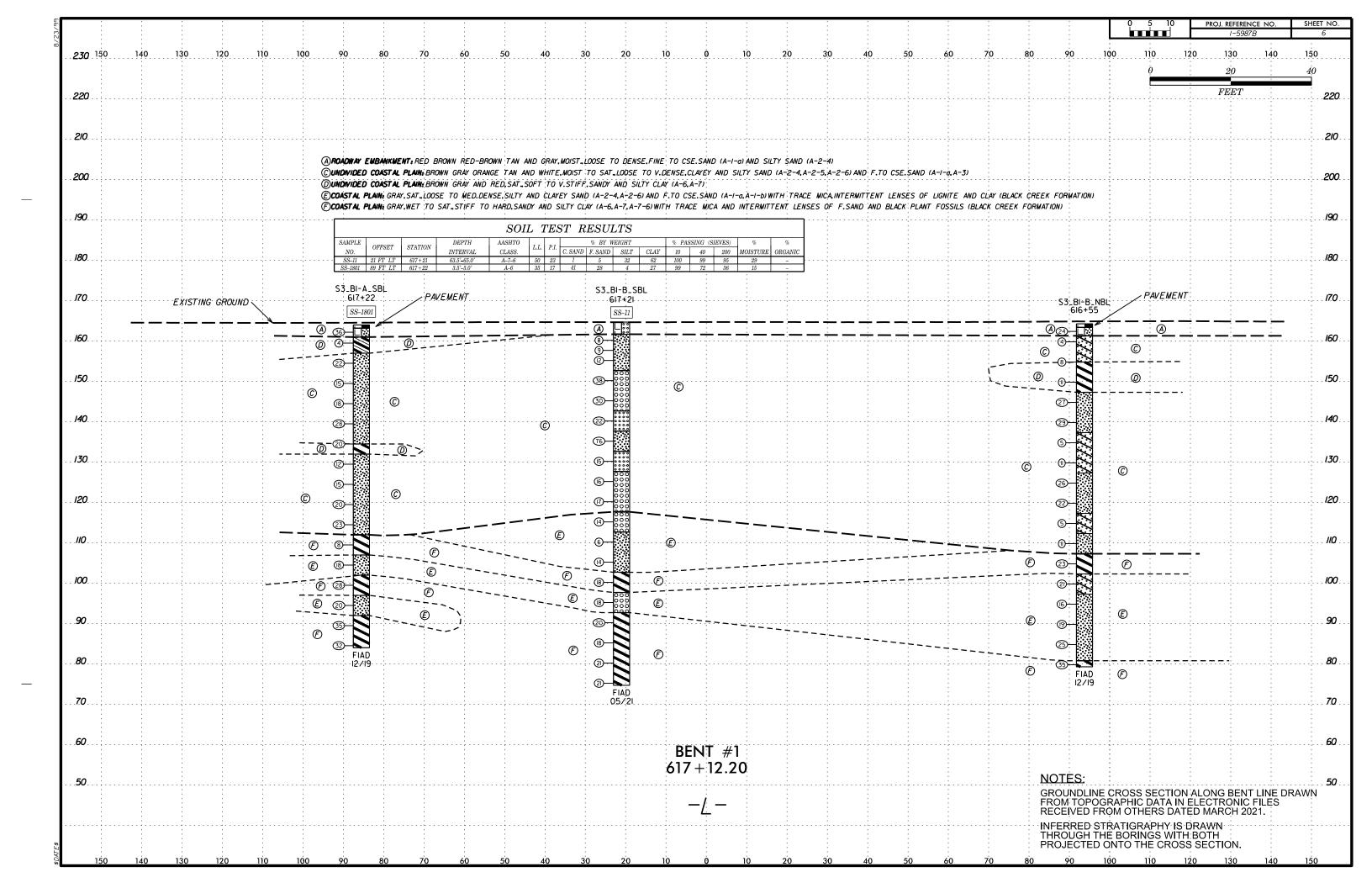
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	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
N VALUES >	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
ОСК ТНАТ	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLUDES GRANITE.	SURFACE.
AL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
MAY NOT YIELD	OF SLOPE.
TONE, 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	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
ONTINCO IE ODENI	HORIZONTAL.
OATINGS IF OPEN, AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
Sector Sector In	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
СК ИР ТО	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
L FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN NY. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
AS COMPARED	
	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
ELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
OSS OF STRENGTH WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
WHEN STRUCK.	
VIDENT 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
RE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
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
5. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
	RUN AND EXPRESSED AS A PERCENTAGE.
	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
S REQUIRES	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
LOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
ETACHED	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. BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
DECKS OF THE	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
IT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
	<u>STRATA ROCK QUALITY DESIGNATION (SROD)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
PIECES 1 INCH ED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
THICKNESS	BENCH MARK: ELEVATIONS TAKEN FROM 15987_LS_TINI.TIN DATED 05/21
4 FEET	ELEVATION: FEET
.5 - 4 FEET 16 - 1.5 FEET	
3 - 0.16 FEET	NOTES:
08 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
0.008 FEET	
AT, PRESSURE, ETC.	
EEL PROBE;	
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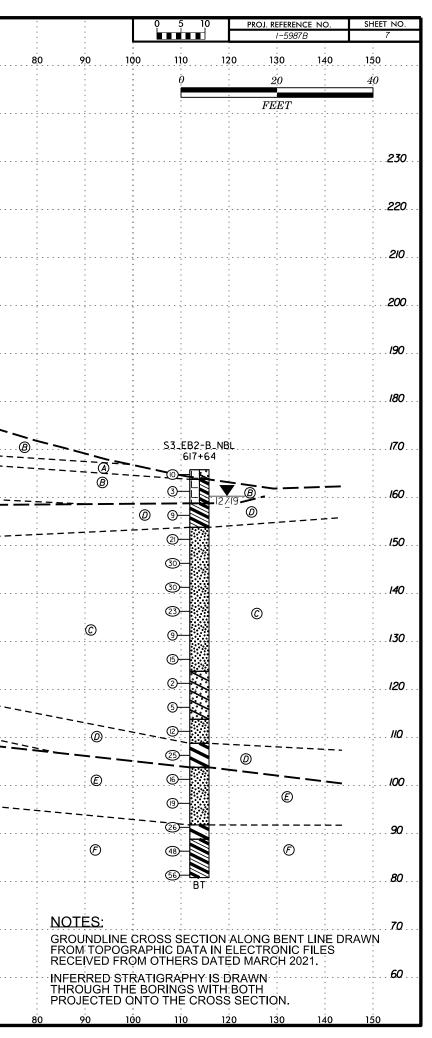


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50								<u>.</u>			VE = 0.1		-Y5-(NC 20) A	T -L - STA. 61	7+12.20
240	(A) ROADWAY E	ENBANKNENT: RED BROWN	RED-BROWN TAN AND GRAY.MOIS	T TO SAT.LOOSE TO	DENSE.FINE TO	CSE.SAND (A-3.A-	I-a.A-I-b) AND CLAYEY	AND SILTY SAND (A-	2-6, A-2-5, A-2-4) WITH	THIN CLAY LENSES	· · · · ·				24
240	BROADWAY E	WBANKWENT & BROWN, MOIST	TO WET, MED. STIFF TO V. STIFF	SANDY AND SANDY S	SILTY CLAY (A-6,A	-7-6)				,	· · · · · · · · · · · · · · · · · · ·				
			BROWN RED GRAY AND TAN MOIST DWN BROWN AND GRAY WET TO S						I-b A-3) WITH INTERMITT	ENT CLAY LENSES					
230	ECOASTAL PL	LAIN: GRAY SAT LOOSE TO	MED.DENSE, SILTY AND CLAYEY S	AND (A-2-4,A-2-6) A	ND F.CSE.SAND	(A-3,A-1-0,A-1-0)W	ITH INTERMITTENT LE	NSES OF LIGNITE AN				MATION)			230
	(E) COASTAL PL	PLAIN: GRAY, MOIST TO SAT.	.V.STIFF.SANDY SILTY CLAY (A-6.)	A-7.A-7-6) WITH TRAC	CE MICA, INTERMIT	TENT LENSES OF	SAND AND BLACK PLA	NT FOSSILS AND CEM	ENTED SAND FRAGMENT	S (BLACK CREEK FORM	(AT ION)				
220						SC	OIL TEST RES	SULTS			· · · · · · · · · · · · · · · · · · ·				
				SAMPLE NO. OFFSET		DEPTH AASHTC NTERVAL CLASS.	L.L. P.I. % C. SAND F.		PASSING (SIEVES)         %           10         40         200         MOISTU	% JRE ORGANIC					
010					T 615+93 1	3.5'-15.0' A-2-6 8.5'-50.0' A-4			10         40         200         MOISIC           99         63         27         17           100         93         53         25	-					010
210				SS-10 22 FT E SS-11 21 FT L SS-12 18 FT L	T 617+21 6	3.5'-65.0' A-7-6 8.5'-10.0' A-7-6	50 23 1		$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	<u> </u>					
				ST-03 18 FT L SS-13 18 FT L	T 618+35 2	8.0'-30.0' A-7-6 8.5'-50.0' A-4	58         40         0           26         5         5	21 33 46 56 13 26	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	-					
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			EXISTING GROUND-/		A	0 <b>-1</b> 1 <b>\</b>									
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				AY EMBANKM	ENT. RED B	ROWN RED-E	ROWN TA	W AND GRA	Y MOIST TO	SAT 100SF TO	MED.DENS	F.FINF T	O CSE.SAND	(A-3) AND (	AYFY AND	SILTY SAND ()	A-2-6 A-2	-4)		
230			BROADW	AY ENBANKN	ENT & BROWN.	MOIST TO W	ET.SOFT	TO MED.ST	IFF.SANDY A	ND SILTY CLAY	(A-6.A-7-6	ς,								<u>.</u>
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			, ,						r resu	1				<u> </u>						-
210			SAMPLE	OFFSET S	TATION I	DEPTH	AASHTO		% BY 1	WEIGHT		G (SIEVES)	%	%		:				
			NO. SS-12 ST-03	18 FT LT	618+35	NTERVAL 8.5'-10.0' 28.0'-30.0'	CLASS. A-7-6 A-7-6	45 20 58 40	5. SAND F. SAND 43 18 0 21	SILT         CLAY           5         34           33         46	99	40         200           71         42           00         79	22	RGANIC						
200			SS-13	18 FT LT 0	618+35 4	48.5'-50.0' 3.5'-5.0'	A-4 A-6	26 5 30 17	5 56 33 27	33         13         26           7         33	99	96 48 82 44	27	-						-
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			0								 @ 35-		 @							
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							<u> </u>	<u>ORE L</u>	UG				
WBS	47533	1.1			Т	<b>IP I</b> -5987B		Y ROBESO	N			GEOLOGIST R. French	
SITE	DESCR	PTION	BRI	DGE O	N -L- (	( <b>I</b> -95) OVER -Y5- (NC	20) AT -L	STA. 617+1	2.20				GROUND WTR (ft)
BOR	NG NO.	S3_E	31-A \$	SBL	S	<b>TATION</b> 616+51		OFFSET	121 ft LT			ALIGNMENT -L-	0 HR. N/A
COLL	AR ELE	<b>V</b> . 17	0.9 ft		Т	OTAL DEPTH 80.0 f	t	NORTHING	386,16	60		EASTING 2,004,004	24 HR. 15.1
DRILL	RIG/HAM	MER EF	F./DAT	E F&F	2175 (	CME-55 84% 03/01/2019			DRILL M	ETHOD	Muc	Rotary HAMM	ER TYPE Automatic
DRILI	ER S.	Davis			S	TART DATE 12/12/1	9	COMP. DA	TE 12/1	2/19		SURFACE WATER DEPTH N/	A
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT	BLOWS	PER FOOT	-	SAMP.	▼/	L O	SOIL AND ROCK DES	
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	моі	G	ELEV. (ft)	DEPTH (ft)
175													
	-	-									F	•	
	170.9	- 00									F	170.9 GROUND SURF.	ACE 0.0
170		- 0.0	3	3	4	<b>-•</b> 7				М	-	ROADWAY EMBAN	KMENT
	- 167.4	- - 3.5								l		COARSE SAND (A-2-4) V	VITH TRACE
165	-	-	1	2	2	$\left  \left  \begin{array}{c} 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 4 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5 \\ 5$				м	-	ORANGE-BROWN, SILTY	CLAYEY FINE
100	-	-										TO COARSE SAND	1.0
	162.4	- 8.5	7	5	6	. /				м		BROWN-ORANGE TO W	HITE-GRAY,
160	-	-									-	SILTY FINE TO COARSE	SAND (A-2-4)
	- 157.4	- - 13.5				: <u> </u> : .   :					-		
155	-	-	6	6	5	]  . <b>.</b>		· · · · ·			-		
155	-	-				- · · · · · · · · · · ·	· · · ·			•	+	-	
-	152.4	18.5	11	14	18					Sat.	ļ		
150	-	-				· · · · ·				Sat.	t		
	-	-									t		
f	147.4	- 23.5	8	11	17					Sat.	Ŀ		
145	-	-					· · · ·				ŀ		
	142.4	28.5	10	5	7						-		
140	-	-	10	5	'	<b>●</b> 12				Sat.	F		
	-	-										BROWN-GRAY, SILTY CL	
ŀ		- 33.5	4	8	4					Sat.	$\sim$	COARSE SAND (A	
135	-	-								5	$\sim$	133.9	37.0
	132.4	- 38.5									-	WHITE-GRAY, SILTY FINE SAND (A-2-4	TO COARSE
130	-	-	1	WOH	IMOH	$  \phi \cdot \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot \cdot \cdot \cdot $				Sat.	F	0/110 (//24	)
	-	-									F	•	
ł	127.4	43.5	11	15	20	<b>3</b> 5				Sat.	-		
125	-	-				<b>1 . . . . . . . . .</b>					Ļ	-	
	- 122.4	- - 48.5				] ::::  <i>i</i> /:::					- 1		
120	-	-	15	14	14					Sat.	-		
0	-	-						· · · · ·		•	-		<u>52.0</u>
ŀ	117.4	- <u>53.5</u> -	4	4	6					Sat.	-	COASTAL PLA DARK GRAY, SILTY FINE	TO COARSE
115	-	-					+ • • • •				-	SAND (A-2-4) (BLACH FORMATION	
	- 112.4	- 585				::;y: ::::					+		
110		-	4	6	11	]   <b>\</b> . • 17	· · · · ·			Sat.	1		
110	-	-					+ • • • •	+ • • • • •			Ľ	108.9	<u>62.0</u>
ŀ	107.4	63.5	6	9	14	::: <b>i</b> [::::				Sat	Z	DARK GRAY, SILTY CLA TRACE MICA	
105	-	-	v							Sat.	Y	•	
	- 102.4 ⁻	- 60 -									$\ge$	DARK GRAY, SILTY FINE	
	-102.4	<u>68.5</u>	7	11	14	25				Sat.	Ł	SAND (A-2-4	
100	_	-					· · · ·	<u> </u>				98.9	72.0
ļ	97.4	- 73.5	7								Y	DARK GRAY, SANDY SILT	Y CLAY (A-7)
95	-	-	7	8	14	•    •    •				Sat.	N		

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										ORE L		;		- 1			
	47533						5987B			Y ROBES				GEOLOGIST R. Frenc	h		
									)) AT -L	STA. 617+						-	
BOR	NG NO.	S3_E	B1-A S	SBL	S	ΓΑΤΙΟ	<b>N</b> 616+5	51		OFFSET				ALIGNMENT -L-		0 HR.	Ν
COLL	AR ELE	<b>V.</b> 17	'0.9 ft		T(	OTAL	DEPTH	80.0 ft			3 386	,160		<b>EASTING</b> 2,004,004		24 HR.	1:
			F./DATI	E F&F			84% 03/0							ud Rotary		ER TYPE	Automatio
DRILI	LER S.					TART	DATE 1			COMP. DA			-	SURFACE WATER DEF	TH N/	A	
ELEV (ft)		DEPT⊢ (ft)	0.5ft	0.5ft		0	BL 25	LOWS PE 50		T 7 <u>5</u> 100	SAN NC			SOIL AND RO	CK DES	CRIPTION	
. ,	(ft)	,	0.51	0.51	0.51		1					• /мс	<u>IG</u>	ELEV. (ft)			DEPTI
								Matab	Lina								
_95				+			<u></u>	Match	Line		++		5	93.9			
-	92.4	78.5	9	9	16	·   .			· · ·			Set		DARK GRAY, SIL SAND (A-2-4)	TY FINE NITH LI	TO COAF	4
ŀ		-				<u> </u>  .	<u>•</u> 25	l			Ц	Sat.		90.9 Boring Terminated	d at Elev	ation 90.9	ft IN
	-	-												_ SAND (COASTAL   - FOR	PLAIN) ( MATION	BLACK CF I)	REEK
	-	_												-			
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## GEOTECHNICAL BORING REPORT

						B	ORE L	UG			
WBS	47533	.1.1			ד	IP I-5987B COUNT	Y ROBESO	N		GEOLOGIST Weis, J. M.	
SITE	DESCR	PTION	BRID	DGE OI	N -L- (	(I-95) OVER -Y5- (NC 20) AT -L	- STA. 617+1	2.20			GROUND WTR (ft)
BOR	NG NO.	S3 E	B1-B	SBL	s	<b>TATION</b> 615+93	OFFSET 2	22 ft LT		ALIGNMENT -L-	0 HR. 15.5
	LAR ELE					OTAL DEPTH 90.0 ft	NORTHING		73	EASTING 2,004,078	<b>24 HR.</b> 29.0
				E MID		CME-45C 91% 02/21/2019		DRILL M		· · · · · · · · · · · · · · · · · · ·	ER TYPE Automatic
DRIL	LER Po	owell, B				TART DATE 05/27/21	COMP. DA	<b>FE</b> 05/2	27/21	SURFACE WATER DEPTH N/	A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	0.5ft	JNT 0.5ft	BLOWS PER FOO 0 25 50	T 75 100	SAMP. NO.	MOI G	SOIL AND ROCK DES	CRIPTION DEPTH (ft)
185		-								_	
	400.4	-				    · · · · · · · · · · · · · · · · ·			00	183.1 GROUND SURF ROADWAY EMBAN	
180		<u>    1.0</u> - - 3.5	3	6	10	↓ · · • • 16 · · · · · · · · · · · · · · · · · ·	· · · · · ·		M	RED AND BROWN, FINE	E SAND (A-3) ENSES <u>3.0</u>
		-	4	8	9		·   · · · ·   ·   · · · ·		W L	- RED-BROWN TO BROV - SAND (A-2-6	
. –		<u>    6.0    </u>	5	5	3	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	.		w L	- -	
175	174.6-	- 8.5	8	11	9		+			_	
		-	0	''	9					=	
170		-				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \\ \cdot \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \\$	.			-	
170	169.6	- 13.5	8	5	5		+	SS-09		_ 	
	-	-	U		Ū	$\left  \left  \cdot \P^{10} \cdot \right  \cdot \cdot \cdot \cdot \left  \cdot \cdot \cdot \right  \right  \cdot \cdot \cdot \cdot \left  \cdot \cdot \cdot \cdot \right  \cdot \cdot \cdot \cdot \cdot \left  \cdot \cdot \cdot \cdot \cdot \right  \cdot \cdot \cdot \cdot \cdot \left  \cdot \cdot \cdot \cdot \cdot \right  \cdot \cdot \cdot \cdot \cdot \left  \cdot \cdot \cdot \cdot \cdot \right  \cdot \cdot$	.	33-09		BROWN, SANDY CL	
165		-									17.0
.00	164.6-	- 18.5 -	6	9	8				Sat.		
						$\left \left \begin{array}{c} \cdot \cdot \cdot 7^{!'}\right  \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array}\right  \cdot \cdot \cdot \cdot \right $	.			-	
160		-				$  \cdot\cdot\underline{j}\cdot\cdot \cdot\cdot\cdot\cdot \cdot\cdot\cdot\cdot \cdot\cdot\cdot$	•   • • • •			-	
	159.6-	<del>-</del> 23.5 -	4	4	6	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$			w L		24.5
		-					.			- UNDIVIDED COASTA - BROWN, SANDY CL	
155	4540									- 155 1	28.0
-	154.6-	<del>-</del> 28.5 -	13	15	18				-Sat000	TAN AND BROWN, CSE.	SAND (A-1-b)
		-				$\left  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right  \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right  \left  \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot $	•   • • • •		000	-	
150	-	-				<u>  · · · ·   <i>j</i>. · · ·  </u> · · · ·			000	-	
	149.6-	- <u>33.5</u> -	9	13	12	$  $ $\dots$ $ $ $ $ $1$ $\dots$ $ $ $1$ $1$ $\dots$ $ $ $1$ $1$ $\dots$ $ $ $1$ $1$ $\dots$ $ $ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$ $1$			Sat. 000		
		-					.		000	-	
145	- 144.6-	- - 38.5					·   · · · ·		000	<u>145.1</u>	38.0
			8	9	9	$  \cdots   \cdot \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot \cdot \cdot $	•   • • • • ]		Sat.	TAN TO RED, F. SA	ND (A-3)
		-				$   = \cdots = N_1 = \cdots =    = \cdots =   $	.		0000	-	
140	- 139.6	- - 43.5					•   • • • •		0000	-	
		-	10	18	21	]   · · · ·   · 🎾 39   · · · ·	.		Sat.	-	
	1	-					.		0000	-	
135	- 134.6	- - 48.5					-		0000		48.0
			1	3	2	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$	.	SS-10	25%	- GRAY, SANDY SIL	i ( <del>/1-4</del> )
		-					-		0000	- <u>131.6</u>	<u>51.5</u>
130	129.6-	- - 53.5	_			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			0000	– IAN, F. SAND (. –	<del>~-</del> 3)
		-	2	5	5		·   · · · ·		Sat.	-	
	-	-				$   \cdots \rangle \langle   \cdots     \cdots     \cdots     \cdots                $	.		0000	126.1	57.0
125	124.6-	- - 58.5	10		- 40				000	LIGHT GRAY TO TAN, CSE	E. SAND (A-1-b)
		-	10	14	16		.		Sat. ŏŏŏ	-	
105							.		000	-	
120	119.6-	- 63.5	18	22	24	↓ <b>├ `ヽ</b> . <b>  `</b> ヽ.				_	
	1	-	10		24	46	.		Sat. 000 000	-	
145		-					·   · · · ·		000		
115	114.6-	<del>-</del> 68.5	3	6	10		+		🕅	<u>115.1</u> COASTAL PLA	<u> </u>
	1	-	5		10		.		Sat.	GRAY, F. SANDY CL	AY (A-6)
140		-					.			- 110 1	70.0
110	109.6-	- 73.5	3	3	3						SAND (A-2-6) 73.0
	-	-			2		.		Sat.	-	
105		-								- - 105.1	78.0
105		_				<u> </u>		1			<u> </u>

								B	ORE	LC	<i>JG</i>						
<b>WBS</b> 47533	3.1.1			Т	P I-5	987B		COUNT	ROBE	SON				GEOLOGIST Weis, J. M.			
SITE DESCR	RIPTION	BRID	GE O	N -L- (	I-95) (	OVER	-Y5- (NC	20) AT -L-	STA. 617	'+12 <b>.</b>	20					GROUNE	) WTR (fi
Boring No.	. S3_E	B1-B_	SBL	S	ΤΑΤΙΟ	<b>N</b> 61	15+93		OFFSET	22	ft LT			ALIGNMENT -L-		0 HR.	15.
COLLAR EL	<b>EV.</b> 18	3.1 ft		т	OTAL	DEPT	<b>H</b> 90.0 ft	:	NORTH	١G	386,07	'3		EASTING 2,004,078	:	24 HR.	29.
DRILL RIG/HAM	MMER EF	F./DATE	MID	3964 CI	ME-450	01%	)2/21/2019			D	RILL M	ETHO	D Mu	id Rotary H	AMME	R TYPE	Automatic
DRILLER P	owell, B	Ĩ		S	TART	DATE	05/27/2	1	COMP.	DATE	05/2	7/21		SURFACE WATER DEPTH	N/A		
ELEV DRIVE (ft) CRIVE ELEV (ft)	DEPTH (ft)		W COU 0.5ft	UNT 0.5ft	0	2		PER FOOT 50			Samp. No.	моі	L O G	SOIL AND ROCK	DESC	RIPTION	DEPTH
100	78.5 - - - - - - - - - -	<u> </u>	<u></u> 10	<u> </u>	- · ·		Matc	h Line	· · · · · · · · · · · · · · · · · · ·	 - - -	·	— <u>—</u> — M		GRAY, SILTY CLAY	( <del>A</del> -6) V	WITH TRA	8
95	+ + +	6	9	11				· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · ·	- - -		Sat.		CEMENTED SANI 	D FRA		8
94.6 -	<u>+ 88.5</u> +	6	7	8		• <b>1</b> 15						Sat.	0000	INTERMITTENT	CLAY I	LENSES	9
														Boring Terminated at SAND (COASTAL PLA FORMA)	JN) (Bl	ion 93.1 ft LACK CRE	IN EK

## GEOTECHNICAL BORING REPORT

### BORFIOG

						BORE LOG	
WBS	47533	.1.1			т	P I-5987B COUNTY ROBESON GEOLOGIST R. French	
SITE	DESCR	PTION	BRI	DGE OI	N -L-	95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20	GROUND WTR (ft)
BORI	NG NO.	S3_E	B1-B I	NBL	s	ATION 615+82 OFFSET 102 ft RT ALIGNMENT -L-	0 HR. N/A
	AR ELE				Т	TAL DEPTH         90.0 ft         NORTHING         386,020         EASTING         2,004,191	24 HR. 16.7
				F F&R			ER TYPE Automatic
	LER S					ART DATE 12/11/19 COMP. DATE 12/11/19 SURFACE WATER DEPTH N/	
	DRIVE					BLOWS PER FOOT	4
LEV (ft)	ELEV	DEPTH (ft)	0.5ft				
· /	(ft)	( )	0.51	0.51	0.51	0 25 50 75 100 NO. MOI G ELEV. (ft)	DEPTH (fl
180		-					
	-	ŧ.					
	-	ŧ.					
175	-	-					
	-	ŧ.					
170	171.5	0.0	2	3	5	International Contraction International Contractional Contractica Contractica Contractiona Contractica Contractica Co	
170	-	F					
-	168.0	3.5	2	2	2		ATTI TRAGE
165	-	F				$ \overline{\chi}$ · · ·   · · · ·   · · · ·   · · · ·     $ $	
	-	- -					<b></b>
İ	163.0	8.5	5	7	10	· · · · · · · · · · · · · · · · · · ·	
160	-	Ł					12.
	158.0	13.5					SILTY FINE TO
Ī	- 100.0	- 10.0	7	7	10	· · · · · · · · · · · · · · · · · · ·	/ITH TRACE
155	-	t.					
	153.0	18.5					
	-	+	11	12	18	· · · ·   ▶ ₃₀ · ·   · · · ·   · · · ·   Sat.	
150	-	F					
	148.0	23.5	10	10	45		
	-	t i	10	13	15	· · · ·   ∲28· · ·   · · · ·     Sat. Sat.	
145	-	+					
-	143.0	28.5	6	9	12	/	
140	-	ŧ					
	-	<b>-</b>					
ŀ	138.0 -	33.5	6	10	9	· · · ↓   · · · · ·   · · · · ·	
135	-	+				$  \cdot \cdot \cdot \overline{f}   \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot     \cdot \cdot \cdot \cdot     =        $	
	 133.0	38.5					LTY CLAYEY 37
ŀ	- 100.0	- 30.0	7	5	5	$\begin{vmatrix} \cdot & \cdot & \cdot & \cdot \\ \cdot & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \cdot & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet & \bullet & \bullet & \bullet \\ \bullet & \bullet &$	ND (A-2-6)
130	-	ţ.					42
	128.0	43.5	<b>.</b>			│ · ↓ · · · · · · · · · · · · · · · · ·	ILTY FINE TO
	-	Ł	4	4	7	Sat. Sat.	~~- <del>~</del> )
125	-	ł					47.
-	123.0	48.5	2		2	1     -     -     -     WHITE-LIGHT GRAY, SIL       1     -     -     -     WHITE-LIGHT GRAY, SIL       1     -     -     -     -       1     -     -     -     -       1     -     -     -     -       1     -     -     -     -       1     -     -     -     -	TY CLAYEY ND (A-2-6)
	-	ţ		'	2	●3 · · ·   · · · ·   · · · ·       Sat.   Sat.       Sat.	、
120	-	ŧ					
ŀ	118.0	53.5	3	2	2	L	
115	-	F				$ \overline{\chi} \cdots   \cdots   \cdots   \cdots   \cdots   \cdots     =            $	
	-	<b>†</b>					IN <u>57</u> .
ŀ	113.0	58.5	2	4	8		EY FINE TO
110	-	Ł					ACK CREEK
	 - 108.0	63.5					
ŀ	108.0 -	- 03.5	6	6	10	· · · • • • • • · · · · · · · · · · ·	
105	-	t.					
]	103.0	[ 68.5					
Ī			7	10	11	$  \cdot \cdot \cdot \bullet_{21} \cdot \cdot \cdot \cdot   \cdot \cdot \cdot \cdot   $ Sat. Sat.	
100	-	t					

<b></b>	<b>1--</b> -					<b>B</b> 1 505-5	BC
	47533					P I-5987B	
						I-95) OVER -Y5- (N	C 20) AT -L- : T
	NG NO.			NBL		<b>FATION</b> 615+82	
						DTAL DEPTH 90.0	
			F./DATI	= F&F	-	CME-55 84% 03/01/201	
	LER S. DRIVE		BLC	W CO		TART DATE 12/11	S PER FOOT
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft		0.5ft	0 25	50 7
	(11)						
100						Ma	tch Line
	98.0	73.5	8	10	12		
95	-	E				· · · • • 22 · · · ·	
	93.0	78.5					
	-	-	8	13	22	· · · · · • • • • • • • • • •	
90	-	F					
	88.0	83.5	9	16	31		
85	-	Ł					7
	83.0	88.5				· · · · /	
	-	+	10	17	19	· · · · · • • •	
	-	F					
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## **GEOTECHNICAL BORING REPORT**

### ORE LOG

### GEOLOGIST R. French ROBESON - STA. 617+12.20 GROUND WTR (ft) OFFSET 102 ft RT ALIGNMENT -L-0 HR. N/A **NORTHING** 386,020 **EASTING** 2,004,191 24 HR. 16.7 DRILL METHOD Mud Rotary HAMMER TYPE Automatic **COMP. DATE** 12/11/19 SURFACE WATER DEPTH N/A SAMP. 0 SOIL AND ROCK DESCRIPTION 100 75 NO. MOI G ELEV. (ft) DEPTH (ft DARK GRAY-GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA (continued) . . . . . . . Sat. . . . . <u> 77.0</u> DARK GRAY, SILTY CLAY (A-7) WITH TRACE MICA . . . . . . . . Sat . . . . . . . . . . . . . . . . Sat · · · · · . . . . Sat. DARK GRAY, SILTY FINE TO COARSE SAND (A-2-4) WITH TRACE MICA Boring Terminated at Elevation 81.5 ft IN SAND (COASTAL PLAIN) (BLACK CREEK FORMATION)

								B	<u>ORE L</u>	OG							
WBS	4753	3.1.1			Т	<b>P</b> I-5987B		COUNTY	ROBESO	N			GEOLOG	ST W. Ham	rick		
SITE	DESCR	<b>IPTION</b>	BRI	DGE O	N -L- (	(I-95) OVER -1	75- (NC 2	20) AT -L-	STA. 617+1	2.20					G	ROUN	O WTR (ft)
BOR	ing no.	. S3_B	1-A SE	3L	S	TATION 617	+22		OFFSET 8	9 ft LT			ALIGNME	NT -L-	c	HR.	N/A
COL	LAR EL	<b>EV.</b> 16	4.0 ft		т	OTAL DEPTH	80.0 ft		NORTHING	386,2 ⁻	16		EASTING	2,004,058	24	HR.	FIAD
DRILL	RIG/HA	MMER EF	F./DAT	E F&F	R3495 C	CME-55 82% 03/	01/2019			DRILL M	ETHOD	Muc	d Rotary		HAMMER	TYPE	Automatic
DRIL	.LER C	. Tignor			S	TART DATE	12/18/19	9	COMP. DAT	<b>E</b> 12/ ⁻	18/19		SURFACE	WATER DEI	PTH N/A		
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		W CO 0.5ft	UNT 0.5ft	0 25		PER FOOT	75 100	SAMP NO	MOI	L O G	ELEV. (ft)	SOIL AND RO	DCK DESCRI	PTION	DEPTH (ft)
165		<u>+</u>										_	164.0		ND SURFACE		0.0
	163.2	0.8	17	16	20		 ●36 .				м		163.2		( EMBANKMI SPHALT	ENT	0.8
160	160.5	3.5	1	2	2						4.50		<u>161.0</u> _	ORANGE-BRO	WN, SILTY F E SAND (A-2-		-3.0
		Ŧ	'			•				SS-1801	15%		`		COASTAL P	LAIN	
		Ŧ											<u>157.0</u> – E	BROWN, FINE CL	TO COARSE .AY (A-6)	SAND	Y <u>7.0</u>
155	155.5	+ 8.5 +	9	11	11						Sat.	ļ	-		NGE, SILTY I E SAND (A-2-		$\overline{)}$
		‡					· · · · ·	· · · · ·				ļ		COARSE	- SAND (A-2-	4)	
150	150.5	+ + 13.5				:::;/:	· · · ·	· · · ·			•	-					
150		+	4	8	7	•1 <u>5</u>					Sat.	-	-				
		‡					· · · ·	· · · ·				Ļ					
145	145.5	18.5	5	10	8		• • • •				Sat.	Ļ	_				
		ŧ	-								Sat.	Ľ					
	440 5	1										Ŀ					
140	140.5	+ 23.5 +	12	15	13		28				Sat.	F	-				
		Ŧ				$  $ $\cdots$ $ '$						-					
135	135.5	+ + 28.5										-					
100	-	ŧ	7	7	13	• • 20	 				Sat.		<u>- 134.5</u> GR	AY-BROWN, F	INE SANDY	CLAY (/	29.5 4-7)
		‡					· · · · ·	· · · · ·					132.0	ROWN-ORAN			<u>32.0</u>
130	130.5	- 33.5	5	6	6		 				Sat.	Ļ		LTY FINE TO (			
		ŧ					 				Cat.	t					
	125.5	+ 38.5										Ľ					
125	- 120.0	1 30.5	2	7	8	1	<u> </u>	· · · ·	<u> </u>		Sat.	E	-				
		ł				· · · .						-					
120	120.5	43.5										F					
	'	Ŧ	3	9	11	• 20					Sat.	F	-				
		‡										ļ					
115	115.5	<u>+ 48.5</u>	14	11	12		 				Sat.	L	_				
		‡				· · · ·		· · · ·			Jai.		1 1 0 -				
	110 5	+ 53 5									6	S	112.0				. <u> </u>
110	110.5	<u>+ 53.5</u> _	1	3	5				+		Sat.	N	_ GF	RAY, FINE TO ( A-7) (BLACK C	COARSE SAI	NDY CL //ATION	AY )
		f										Y	107.0				57.0
105	105.5	+ - 58.5										-	G	RAY, SILTY FI	NE TO COAF (A-2-4)	SE SAI	ND
	1 -	Ŧ	2	7	11						Sat.	F	-	,	, , <b>, ,</b> ,		
		ŧ				::: <u>`</u>	· · · · ·						<u>102.0</u>	RAY, FINE TO			<u>62.0</u>
100	100.5	63.5	8	11	17	<u>  · · · · \                          </u>	• • • •		· · · ·		Sat.	X	- GF	VAT, FINE TO C	(A-7)	JUTUL	AI
		‡				::::/	28	· · · ·			Sut.	$\mathbf{X}$	07.0				
~-	95.5	- - 68.5				::::/		· · · ·				$\ge$	- <u>97.0</u> G	RAY, SILTY FI		SE SAI	ND <u>67.0</u>
95	- 35.5	1 00.5	4	9	11		<u> </u>		+		Sat.	$\left  \right $	-	(	(A-2-4)		
		Ŧ				::::\							92.0				72.0
90	90.5	+ + 73.5_				] :::: ` <b>`</b>	$\langle \cdot \cdot \cdot \cdot \rangle$					V		RAY, FINE TO	COARSE SAI (A-7)	NDYCL	AY
	1 -	Ŧ	12	15	20		<b>0</b> 35		· · · ·		Sat.	5	-		(~~')		
		‡					.   .	· · · · ·				3					
85	85.5	78.5					· [· · ·	· · · ·									

							BO									
	47533.1.1				P I-5987B			ROBESO				GEOLOGIS	ST W. Hamr	ick		
	DESCRIPTION			<u> </u>	,	. ,									4	ID WTR (
	<b>NG NO.</b> S3_B		3L	_	TATION 617+			FSET 8							0 HR.	N
	LAR ELEV. 16				OTAL DEPTH			RTHING				EASTING	2,004,058	1	24 HR.	FIA
	RIG/HAMMER EF		E F&R								) Mu	ud Rotary				Automatic
	LER D. Tignor							MP. DA	SAMP.		1 L 1	SURFACE	WATER DEF	PTH N/	A	
ELEV (ft)	DRIVE ELEV (ft) (ft)		W CO		0 25	BLOWS PER F 50	75	100	NO.		0		SOIL AND RO	CK DES	CRIPTION	
. ,	(ft) (it)	0.51	0.011	0.511			1	100	NO.	/моі	G	ELEV. (ft)				DEPTH
05						Matab Lia										
85		- <u>14</u> -	17	-15		Match Lin	e			Sat.		84.0				
												Bor	ing Terminated Y (COASTAL I FOR	d at Eleva PLAIN) (E MATION	BLACK CF	ft IN

## **GEOTECHNICAL BORING REPORT**

### BUDEIUC

# GEOTECHNICAL BORING REPORT

WBS	47533	.1.1			т	Γ <b>I</b> P	-5987B	COUNT	Y ROBESO	N			GEOLOGIST Goodnight, D.		_
			BRID	GE O	N -L-	( <b>I</b> -9	95) OVER -Y5- (NO	 20) AT -L	- STA. 617+1	2.20					۲ (f
	NG NO.						ATION 617+21		OFFSET				ALIGNMENT -L-	-	10.0
				JC	_			<u>с</u>			00		EASTING 2,004,122	-	
							<b>TAL DEPTH</b> 90.0		NORTHING	· <u> </u>			1		-IAI
				: MID3	-		E-45C 91% 02/21/2019			DRILL N		Mu	· · · · · · · · · · · · · · · · · · ·	IER TYPE Automa	tic
DRIL	LER P	owell, B				STA	ART DATE 05/20/		COMP. DA	1	20/21		SURFACE WATER DEPTH N	/A	
ELEV	DRIVE ELEV	DEPTH		W COL				PER FOOT		SAMP.			SOIL AND ROCK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	t i	0 25	50	75 100	NO.	Имог		ELEV. (ft)	DEP	'TH
165													_164.7 7 INCHES ASPH	HALT	
	-	-											ROADWAY EMBAN	IKMENT	
	- 161.2	- 3.5											TAN, SANDY GRAVE		
160		- 0.0	9	5	3	┨┟					М		UNDIVIDED COAST/ TAN AND GRAY, SILTY C		
	158.7 -	- 6.0	2	4	5			.			м		(A-2-5)		
	156.2	8.5					.¶	.			IVI	F			
155	-	-	4	5	7		12-	+			М		-		
	-	Ì						.							_ 1
	151.2	13.5	40	47	04		: : : : <b>                            </b>	·   · · · ·					ORANGE AND LIGHT GR. SAND (A-1-a		
150		-	10	17	21	┨┝					Sat.	000 000	-	^)	
	-	-													
4.45	146.2	18.5	9	12	18	_	:::: :/::	.   .							
145		_	5	12	10		<b>•••••</b> 30				Sat.		-		
	-	-					· · · · <i>  i</i> · · ·	.				000			_ 2
140	141.2	23.5	8	9	13	-					Sat.	0 0 0 0 0 0 0 0 0 0	LIGHT GRAT, F. SA	IND (A-3)	
140		[		-							Jai.	0 0 0 0 0 0 0 0 0 0 0 0	-		
	-	-											LIGHT GRAY, CLAYEY		_ 2
135	136.2	28.5	21	25	51	-11					Sat.	-	(A-2-5)	0,211 0, 110	
	-	-									0	-	-		
	-						· · · · · · · · · · ·							ID (A-3)	_ 3
130	131.2	33.5	4	7	8		15				Sat.	0 0 0 0 0 0 0 0 0 0 0 0		<b>X Y</b>	
	-	-										0 0 0 0 0 0 0 0 0 0 0 0	127.7		2
	126.2	- 38.5											LIGHT GRAY AND TAN		_ 3
125		- 00.0	5	7	9						Sat.	000-	SAND (A-1-a	a)	
	-	-										0000			
	121.2	43.5										000 000-			
120	_		6	6	11	┨┝	••••••17				Sat.		-		
	-	-					::!:	.					_ 117.7		_ 4
	116.2	48.5						.					COASTAL PLA LIGHT GRAY, F. TO CSE		
115	_	F	2	1	1		<b>•••</b> 14		+		Sat.		- WITH INTERMITTENT	LENSES OF	
	-	-						.					LIGNITE AND CLAY (BL	(۱	_ 5
110	111.2	53.5	3	2	4			.			Sat		LIGHT GRAY, SLIGHTLY CSE. SAND (A-2-4) (BL		
110	-	-		-	ſ						Sat.		FORMATION		
	-						$\begin{vmatrix} \cdot \mathbf{v} \cdot \cdot \cdot \\ \cdot \cdot \mathbf{v} \end{vmatrix}$	.							
105	106.2	58.5	2	6	8			.			Sat.	ŀ			
	-	F					···					-	-		
	-							·   · · · ·				X	 DARK GRAY, F. SANDY		_ 6
100	101.2	63.5	4	8	10		· · · · · · · · ·			SS-11	29%	N	(A-7-6) WITH TRACE M CREEK FORMA	1ICA (BLACK	
	-	F					· · ·  ·   · · ·	.	· · · · · ·		1	N	97.7		_ 6
	- 96.2	- 68.5						.					GRAY, SLIGHTLY SILTY		_ 0
95			3	7	11	1	••••••18	•   • • • •			Sat.		– SAND (A-1-b) WITH INT – LENSES OF CLAY (BLA		
	-	L						.				000	92.7		_ 7
	91.2	73.5						.				N	DARK GREY, F. SANDY SI		
90	_	_	6	9	11	]	20		+ • • • • •		М	N	WITH TRACE MICA, INT - LENSES OF F. SAND AND	BLACK PLANT	
	-	ļ					· · · <b> </b>   · · · ·	·   · · · · ·				N	FOSSILS (BLACK CREEK	FORMATION)	
	86.2 -	78.5					· · · <b>i</b> ·   · · · ·	.				N			
85		-	3	6	12						W				

												DRE					-					
WBS	47533	.1.1			Т	ΡI	-5987B			COUN	VTY	ROBES	SON				GEOLOG	<b>ST</b> Goodnig	nt, D.			
SITE	DESCR	PTION	BRID	DGE O	N -L- (	( <b>I</b> -95	) OVEF	R -Y5-	(NC 2	20) AT	-L- 8	STA. 617	+12	2.20			-			GROUN	ND WTF	R (ft
BORI	ng no.	S3_B	1-B_S	BL	S	TAT	<b>ION</b> 6	17+21				OFFSET	2′	1 ft LT			ALIGNME	NT -L-		0 HR.		10.0
COLL	AR ELE	<b>EV.</b> 16	4.7 ft		<u>т</u>	ΟΤΑ	L DEP	<b>FH</b> 90	0.0 ft			NORTHI	١G	386,19	92		EASTING	2,004,122		24 HR.	F	FIAD
DRILL	RIG/HAN	IMER EF	F./DATE	e Mid	3964 C	ME-4	5C 91%	02/21/2	019					DRILL M	ethod	D Mu	ud Rotary		HAMM	ER TYPE	Automa	atic
DRILI	L <b>ER</b> Po	owell, B	-		S	TAR	T DATI	E 05/	20/21		0	COMP. D	DAT	E 05/2	20/21		SURFACE	WATER DEF	<b>PTH</b> N/	A		
	DRIVE ELEV	DEPTH		w co						PER FO				SAMP.	▼∕			SOIL AND RC	CK DES	CRIPTION	1	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0		25	5	0	1	5 10	00	NO.	/моі	G	ELEV. (ft)				DEP	PTH (
85						+ -			Match	<u>n Line</u>								K GREY, F. S			(A-7) —	
	-	F							•••		•••	•••				$\square$	_ V	/ITH TRACE M ISES OF F. SA	ICA, INT	ERMITTE	NT	
80	81.2	83.5	5	9	12	:		21	•••						W	$\mathbf{N}$	FO	SSILS (BLACK	CREEK ntinued)	FORMAT	ON)	
	-	F				-	· · · 1	• •	•••							$\square$	-	(00	minuouj			
	76.2	88.5							•••							$\mathbf{N}$	-					
75		F	5	9	12			21							W	$\mathbf{N}$		ring Terminate	d at Elov	ation 74.7	ft IN	90
	-	F															- 60 - CLA	Y (COASTAL	PLAIN) (I	BLACK CF	REEK	
	-	ŧ															-	FOF	MATION	)		
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## GEOTECHNICAL BORING REPORT

### BORFIOG

						BURE LUG		
WBS	47533	.1.1			TI	I-5987B COUNTY ROBESON	GEOLOGIST R. French	
SITE	DESCR	<b>IPTION</b>	BRID	DGE O	N -L- (	5) OVER -Y5- (NC 20) AT -L- STA. 617+12.20		GROUND WTR (ft)
BOR	NG NO.	S3_B	1-B NE	3L	S	TION         616+57         OFFSET         79 ft RT	ALIGNMENT -L-	0 HR. N/A
COLI	AR ELE	<b>EV.</b> 16	64.3 ft		Т	AL DEPTH 85.0 ft NORTHING 386,099	EASTING 2,004,194	24 HR. FIAD
ORILL	RIG/HAN	IMER EF	F./DATI	E F&R	2175 (			ER TYPE Automatic
DRIL	LER S.	Davis			s	<b>RT DATE</b> 12/18/19 <b>COMP. DATE</b> 12/18/19	· · · · · · · · · · · · · · · · · · ·	
	DRIVE	DEPTH	BLC	w co		BLOWS PER FOOT	<u> </u>	
(ft)	ELEV (ft)	(ft)	0.5ft			0 25 50 75 100 NO.	O SOIL AND ROCK DES	CRIPTION DEPTH (f
	(11)							
405								
165	163.4	- 0.9				· · · · · <b>I</b> · · · · · <b>I</b> · · · · · <b>I</b> · · · · · · · · · · · · · · · · · · ·	GROUND SURF	
	- 103.4	0.9	11	13	11		ASPHALT	
160	160.8 -	- 3.5	2	2	2	· · · · · · · · · · · · · · · · · · ·	RED-GRAY-BROWN, SI	
	-	F				$\begin{array}{c c c c c c c c c c c c c c c c c c c $		
	-						BROWN, SILTY CLAYE	
155	155.8 -	- 8.5	5	4	4		<b>1</b> 54.8	9
	-					· [· · ·   · · · ·   · · · ·   · · · ·	RED-BROWN-GRAY, FINE SANDY SILTY CLA	
	- 150.8	- 13.5						. ,
150			1	1	10	Sa		
	-	-						
145	- 145.8	18.5	7	11	16		WHITE-GRAY TO BROW	
	-	F	'			P27		· · /
	-	-						
140	140.8 -	- 23.5	9	13	16	····		
	-							27
	- 135.8	- 28.5				· · / ·   · · · ·   · · · · ·	WHITE-GRAY, SILTY CLA	
135		- 20.0	4	3	2	¶5 Sa	COARSE SAND (	4-2-6)
	-	F				A = A = A = A = A = A = A = A = A = A =		
130	- 130.8 -	33.5			_	· /· · ·   · · · ·   · · · ·   · · · ·		
130	-		5	6	5			
	-							
125	125.8 -	- 38.5	7	12	14			
	-	F				$\cdots$		
	- 120.8 -	- 43.5						
120	- 120.8	- 43.5	14	10	12	22Sa		
	-	-						47
	- 115.8 -	- 48.5					WHITE-GRAY, SILTY CLA COARSE SAND (	YEY FINE TO
115	-		2	3	2	¶5 Sa		4-2-0)
	-					$\begin{array}{c c c c c c c c c c c c c c c c c c c $		<u> </u>
110	110.8 -	- 53.5	3	5	6	· · · · · · · · · · · · · · · · · · ·	WHITE-GRAY, SILTY FINE SAND (A-2-4	
	-	F				$\begin{array}{c c c c c c c c c c c c c c c c c c c $		
	-							<u> </u>
105	- 105.8	- <u>58.5</u>	6	9	14		L DARK GRAY, SILTY FINE (A-7) (BLACK CREEK FO	
	-	-						62
400	- 100.8 -	- 63.5				· · · · · · · · · · · · · · · · · · ·	DARK GRAY, SILTY CLA	YEY FINE TO
100	-		7	9	12	21Sa	t COARSE SAND (A-2-6) V MICA	VITH TRACE
	-	Ł						<u> </u>
95	- 95.8 -	- 68.5	5	7	9		DARK GRAY, SILTY FINE	
	-	F			9	••••••••••••••••••••••••••••••••••••••		-
	-	t F						
90	90.8 -	- 73.5	7	8	11	····		
	-	L				$\cdots$		
	- 85.8 -	- 78.5				$\cdots$		
85	00.0 -		10	11	14			

										BORE	: L	UG							
WBS	47533	3.1.1			Т	IP	I-5987B		COUNT	r <b>y</b> Robe	ESO	١			GEOLOG	ST R. Frenc	h		
SITE	DESCR	IPTION	BRID	DGE O	N -L- (	( <b>I</b> -9	5) OVER	-Y5- (N	C 20) AT -I	STA. 6′	17+1:	2.20						GROUI	ND WTR (f
BOR	NG NO.	S3_B	1-B NE	3L	S	TA	TION 6	16+57		OFFSE	<b>T</b> 7	9 ft RT			ALIGNME	NT -L-		0 HR.	N/.
COLI	LAR EL	<b>EV.</b> 16	64.3 ft		<u>т</u>	ОТ	AL DEPT	<b>H</b> 85.0	ft	NORTH	ING	386,09	99		EASTING	2,004,194		24 HR.	FIA
DRILL	. Rig/hai	IMER EF	F./DATE	E F&R	2175 (	CME	E-55 84%	03/01/201	9			DRILL M	ETHO	<b>)</b> Mi	ud Rotary		HAM	IER TYPE	Automatic
DRIL	LER S					TA	RT DATE	12/18	/19	COMP.	DAT	E 12/1			SURFACE	WATER DE	PTH N	/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPT⊢ (ft)	· · · · · · · · · · · · · · · · · · ·	0.5ft			0 2	BLOW 25	S PER FOC 50		100	SAMP. NO.		C C C	ELEV. (ft)	SOIL AND RO	OCK DES	SCRIPTION	N DEPTH
85		 - - -				+-		€25 1 1	atch Line				-Sat		-	ARK GRAY, SIL SAND (A-2-4) (cc	TY FINE WITH T	RACE MIC	A
80	<u>808</u> - - - - - - - - -		9	13	22			35					Sat.		- 80.8 - 79.3 DA - Bo	cc RK GRAY, SIL ring Terminate Y (COASTAL	TY FINE (A-7) d at Elev	E SANDY C vation 79.3 (BLACK CF	ELAY 85
	-																		
	-	+ + + + + + + + + + + + + + + + + + + +																	

## GEOTECHNICAL BORING REPORT

### BORE LOG

								B	<u>ORE L</u>	OG							
WBS	47533.1	1.1			Т	<b>P I</b> -5987B		COUNTY	ROBESO	N			GEOLOG	I <b>ST</b> W. Pesl			
SITE	DESCRIP	TION	BRI	DGE O	N -L- (	I-95) OVER	-Y5- (NC 2	20) AT -L-	STA. 617+1	2.20						GROU	ND WTR (ft)
BOR	NG NO.	S3_B	2-A SE	3L	S	TATION 61	7+89		OFFSET 9	98 ft LT			ALIGNME	NT -L-		0 HR.	N/A
COLI	LAR ELE	<b>/</b> . 16	3.5 ft		Т	OTAL DEPT	H 80.0 ft		NORTHING	386,28	82		EASTING	2,004,072		24 HR.	7.9
DRILL	. RIG/HAMN	IER EF	F./DAT	E F&R	2175 (	ME-55 84%	03/01/2019			DRILL M	IETHO	) Mu	ud Rotary		HAMM	ER TYPE	Automatic
DRIL	LER S.I	Davis			S	TART DATE	01/07/2	о —	COMP. DAT	<b>FE</b> 01/0	07/20		SURFACE	WATER DE	PTH N/	A	
ELEV		)EPTH	BLC	w co	UNT		BLOWS	PER FOOT	· .	SAMP.	▼/	1 L					
(ft)	ELEV	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 £	50	75 100	NO.	мо	O G	ELEV. (ft)	SOIL AND R	UCK DES	CRIPTION	N DEPTH (ft)
170																	
	-												-				
													-				
165	-												-	0001			
	163.5 +	0.0	2	4	7	·					w		- 163.5 -	ROADWA		KMENT	0.0
160	160.0	3.5											- <u>161.5</u> – OR, -	ANGE-BROW	N-GRAY, ) (A-2-4) V	SILTY FIN VITH TRA	IE TO <u>2.0</u> CE /
100	- 160.0 -	_3.5	1	2	2	4					w	$\langle \cdot \rangle$	- !		ICS AND	CLAY	′
	‡						· · · · ·	· · · ·			_	///		AY-BROWN,	SILTY CL	AYEY FIN	
155	155.0	8.5	5		8										RĠANIĆS		
	1		5	6	0	· · • • 14					Sat.			TAN-LIGHT G			
150	1							· · · ·					-		ĊLAY ′		
150	150.0	13.5	10	11	10		1				Sat.		-				
	1					• • • • • •							-				
145	145.0	18.5					$\left[ \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \right]$						-				
	1		12	16	16		<b>●</b> 32 · ·				Sat.		-				
	1						····						-				
140	140.0	23.5	8	9	10						Sat.						
											Oat.		-				
135	135.0	28.5											<u>- 136.5</u> — <u> </u>	RAY, FINE SA			A-7) <u>27.0</u>
	- 135.0 -	20.0	5	9	10		)				м		-	WITH TRAC	CE COAR	SE SAND	
	‡					· · · · Ì							- - <u>131.5</u>				<u>32.0</u>
130	130.0	33.5	3	11	11						0.1	$\langle \cdot \rangle$	- GR - 129.5	AY, SILTY CL SA	AYEY FIN ND (A-2-6		ARSE
	1					:::?	22				Sat.		T/	N-LIGHT GR TO COAR	AY-WHITE	É, SILTY F	INE
125	‡	~~ =				· · · /.   · · ·/.	· · · · ·						-	TO COAN		(/-2-4)	
125	125.0	38.5	10	6	8	· · • • 14	· · · · ·				Sat.		-				
	1												-				
120	120.0	43.5											-				
	1		23	31	23			•54			Sat.		-				
	1						///						- <u>116.5</u> G	RAY, SILTY FI		DARSES	AND 47.0
115	115.0	48.5	6	7	6	· · • • 13·	· · · · ·	· · · ·	+		Sat.			-2-4) WITH TI			
	<u>†</u>							· · · ·					-				
110	110.0	53.5						 	· · · ·				-				
			3	3	5	••8 • •			]		Sat.		-				
													- <u>106.5</u>				<u>57.0</u>
105	105.0	58.5	6	8	11				+		Sat.			RAY, SILTY FI		DARSE SA	
	Ŧ												-	(A-2-4) WITH CREEK	FORMAT		
100	100.0	63.5					$\mathbf{N}$					$\mathbf{N}$				ARSE SA	
	+	00.0	10	18	20		- · <b>•</b> 38-				w		- S	LTY CLAY (A- AND WO			ICA
	‡						/						- - <u>96.5</u>				67.0
95	95.0	68.5	8	11	14		<i>i</i> · · · ·		· · · ·				- Ĝi (A-	RAY, SILTY FI -2-4) WITH TF	NE TO CO RACE MIC	DARSE ŠA A, CLAY.	AND AND
	‡				14	• • • • •	25	· · · ·			Sat.			(	GRAVEL	, .	
00	1												-				
90	90.0	73.5					1	L	1			[·····	_				

<b>WBS</b> 47533.1.1		ORE LOG		GEOLOGIST W. Pesl	
SITE DESCRIPTION BRIDGE ON -L				I	GROUND WTR (ft)
	<b>STATION</b> 617+89	OFFSET 98 ft LT		ALIGNMENT -L-	0 HR. N/A
	TOTAL DEPTH 80.0 ft	<b>NORTHING</b> 386,282	2	EASTING 2,004,072	<b>24 HR.</b> 7.9
DRILL RIG/HAMMER EFF./DATE F&R2175		1	THOD Mud	1	MMER TYPE Automatic
	<b>START DATE</b> 01/07/20	COMP. DATE 01/07		SURFACE WATER DEPTH	
	1.1	=			
ELEV (ft)         ELEV (ft)         O.5ft         0.5ft         0.5ft	ift 0 25 50	75 100 NO.	MOI G	SOIL AND ROCK DI ELEV. (ft)	ESCRIPTION DEPTH (f
	2 Match Line		Sat.	GRAY, SILTY FINE TO (A-2-4) WITH TRACE M 86.5GRAVEL (con	1ICA, CLAY, AND
85 85.0 78.5 14 21 33	3 · · · · · · · • • • • • • • • • • • •			DARK GRAY TO LIGH SANDY SILTY CLAY (A- 83.5 MICA Boring Terminated at El	IT GRAY, FINE -7) WITH TRACE <u>80.0</u>

## GEOTECHNICAL BORING REPORT

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						B	ORE L	ÜĞ			
<b>WBS</b> 4753	33.1.1			TIF	P I-5987B	COUNTY	ROBESO	N		GEOLOGIST R. French/W.	Hamrick
SITE DESC	RIPTION	BRIDO	GE ON	-L- (I	-95) OVER -Y5- (NC 2	0) AT -L-	STA. 617+1	2.20			GROUND WTR (ft)
BORING NO	<b>).</b> S3_B	2-B NBL	-	ST	<b>ATION</b> 617+19		OFFSET 8	3 ft RT		ALIGNMENT -L-	0 HR. N/A
COLLAR E	<b>LEV.</b> 16	3.1 ft		ТС	DTAL DEPTH 105.0 ft		NORTHING	386,15	56	EASTING 2,004,219	<b>24 HR.</b> 2.8
DRILL RIG/HA	AMMER EF	F./DATE	F&R21	75 C	ME-55 84% 03/01/2019			DRILL M	ETHOD M	ud Rotary HA	MMER TYPE Automatic
DRILLER	S. Davis			ST	ART DATE 12/12/19		COMP. DAT	<b>E</b> 12/1	6/19	SURFACE WATER DEPTH	N/A
ELEV (ft) DRIVI ELEV (ft)	E / DEPTH (ft)		/ COUN 0.5ft 0		BLOWS P 0 25 50		75 100	SAMP. NO.	MOI G	SOIL AND ROCK D	ESCRIPTION DEPTH (ft
165	1 0 0										RFACE 0.0
160 159.6	Ŧ	2	2	6		· · · · ·	· · · · · ·	SS-1036	M ▼ 17%	Roadway EMB <u>161.1</u> Gray-Brown, Silty I Sand (A-2-4) with th UNDIVIDED COAS	FINE TO COARSE ,
	+ + - 				$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · ·	· · · · ·	55-1030		BROWN-ORANGE, FI <u>156.1</u> SANDY CLA GRAY, SILTY FINE TO (A-2-4	Y (A-6)7.0
150 149.6	+ + + 3+ 13.5	6	6	4		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		12.0 ILTY FINE SANDY
	, <u>13.5</u> + + + +	2	2	1	<b>4</b> 3	· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	CLAY (A 146.1 ORANGE-BROWN-GRA	17.0
<u>145</u> 144.6	<u>5 + 18.5</u> + + +	8	12	14		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	COARSE SAN	
140 139.6	<u>5 – 23.5</u> –	7	7	10	••••••••••••••••••••••••••••••••••••••	· · · · ·	· · · · ·		Sat.	- - - - - 136.1	27.
135 134.6	5 <u>+</u> 28.5 + +	2	1	2	•         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •         •	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.	WHITE-BROWN-GRAY	, SILTY CLAYEY
130 129.6	<u>3 - 33.5</u>	3	4	4	• • • • • • • • • • • • • • • • • • •	· · · · ·	· · · · · · · · · · · · · · · · · · ·		Sat.		
125 124.6	<u>3 - 38.5</u>	3	6	9		· · · · ·	· · · · ·		Sat.		
120 119.6	5 <del>−</del> 43.5 + +	3	2	3	•5	· · · · ·	· · · · ·		Sat.	T 121.1 WHITE-GRAY, SILTY F SAND (A-	
115 114.6	+ 5-+ 48.5 +	2	1	3	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · ·			Sat.	116.1	
	<u>+</u> 5 <u>+</u> 53.5 +	2	2	3	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	· · · · ·	· · · · · ·		Sat.	111.1 COASTAL F DARK GRAY, SILTY FI SAND (A-2-4) (BL	NE TO COARSE
105104.6	5 <u></u>	1	2	4		· · · · · · · · · · · · · · · · · · ·			Sat.	FORMATI	
100 99.6	+ + + -+ 63.5	5	8	12		· · · · ·			Sat	- <u>101.1</u> DARK GRAY, FINE S	LTYCLAY (A-7) 62.
<u>95</u> <u>94.6</u>	+ + - 	6	7	9		· · · · · · · · · · · · · · · · · · ·			Sat.	9 <u>6.1</u> GRAY, SILTY FINE TO GRAY, SILTY FINE TO (A-2-4	
9089.6	- - - 73.5	-		14		· · · · ·				9 <u>1.1</u> DARK GRAY, FINE TO CLAY (A-7) WITH T	COARSE SANDY 72.
85	Ţ		0	14	22	· · · · · · · · · · · · · · · · · · ·			Sat.	FRAGMEI	NTS

WBS	47533	.1.1			T	<b>IP I</b> -5987B		COUNTY	ROBESC	N			GEOLOGIST R. French/	W. Ham	rick	
SITE	DESCR	PTION	BRID	DGE O	N -L- (	(I-95) OVER	-Y5- (NC 2	0) AT -L-	STA. 617+1	2.20					GROUND	WTR (fi
BORI	NG NO.	S3_B	2-B NE	3L	S	TATION 61	7+19		OFFSET	83 ft RT			ALIGNMENT -L-		0 HR.	N//
COLL	AR ELE	<b>V</b> . 16	3.1 ft		Т	OTAL DEPT	H 105.0 f	t	NORTHING	386,1	56		EASTING 2,004,219	2	24 HR.	2.
ORILL	RIG/HAM	MER EF	F./DATE	E F&R	2175 (	CME-55 84% (	03/01/2019	I		DRILL M	IETHOD	) Mu	Id Rotary	HAMMER	RTYPE AU	utomatic
DRILI	ER S.	Davis			S	TART DATE	12/12/19		COMP. DA	TE 12/ [.]	16/19		SURFACE WATER DEPT	H N/A		
LEV	DRIVE ELEV	DEPTH		w co	UNT		BLOWS P			SAMP.	▼∕	L O	SOIL AND ROC	K DESCF	RIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	0	75 100	NO.	/моі		ELEV. (ft)			DEPTH
85	84.6	78.5	 6	<u> </u>	 20	+	Match	Line	T	· <del> </del> ·			DARK GRAY, FINE		RSE SAND	<u>_</u>
	-	-	Ū		20		●31 /				Sat.	$\mathbb{N}$	CLAY (A-7) WIT	H TRACE	E WOOD	
80	- 79.6	-					/					N	-	·	,	
		- - -	5	8	12			· · · ·			Sat.	$\square$	-			
	-	-					· · · · ·	· · · ·					-			
<u>'5</u>	74.6 -	- 88.5 -	7	12	16						Sat.		-			
	-	_					<b>P</b> ²⁸	· · · · ·	· · · ·		out.		-			0
0	- 69.6	- - 93.5				· · · /							GRAY, SILTY FINE			<u> </u>
	-	-	7	8	8		· · · ·	· · · · ·	· · · · ·		Sat.		- TRACE	GRAVEL	-	
55	-	-					· · · · · · · ·	· · · · ·	· · · · ·				-			
<u>,,</u>	64.6 -	<del>-</del> 98.5 -	6	9	13	<u>`</u>	2				Sat.		-			
	-	-											- 			10
50	- 59.6 -	- - 103.5	8	11	16		$\mathbf{h}$	· · · · ·					GRAY, SILTY FINE	Т <u>о со</u> а ( (А-7)	RSE SILT	Y
-		-	8	11	16		<b>•</b> 27				Sat.		58.1 Boring Terminated		on 58 1 ft II	10 N

## GEOTECHNICAL BORING REPORT

							<b>D</b>	<u>ORE L</u>	00			
WBS	47533	.1.1			Т	<b>IP I</b> -5987B	COUNT	ROBESO	N		GEOLOGIST B. Painter/W. Ha	amrick
SITE	DESCR	PTION	BRID	DGE O	N -L- (	(I-95) OVER -Y5- (NC	20) AT -L-	STA 617+1	2.20			GROUND WTR (ft)
BORI	NG NO.	S3_E	B2-A S	SBL	S	TATION 618+40		OFFSET 1	123 ft LT		ALIGNMENT -L-	<b>0 HR.</b> N/A
	AR ELE				Т	OTAL DEPTH 85.0 f	t	NORTHING	386,33	9	EASTING 2,004,066	<b>24 HR.</b> 4.9
	RIG/HAN	MER EF	F./DATI	E F&R	3495 (	CME-55 82% 03/01/2019			DRILL MI	ETHOD Mu	1	J
	ER D					<b>TART DATE</b> 12/12/1	a	COMP. DA				
				w co			PER FOOT		SAMP.			~
ELEV (ft)	ELEV	DEPTH (ft)	0.5ft			4	50	75 100	NO		SOIL AND ROCK DES	
. ,	(ft)	. ,	0.010	0.011	0.011		<u> </u>		110.	<u>/MOIG</u>	ELEV. (ft)	DEPTH (
175		-									_	
	- 172.8 -	_ 0.0					1				172.8 GROUND SURF	
170	-	-	2	4	5	: <b>/</b> •• :   : : : :				M	SURFICIAL ORGAN	
-170	169.3	3.5	WOH	WOH	1				00.4504		- ORANGE-BROWN, SILTY TO COARSE SANE	
	-	-							SS-1534	17%	UNDIVIDED COAST	AL PLAIN
165	-	-				.`					BROWN, FINE TO COA	RSE SANDY
	164.3	8.5	7	11	13					w	LIGHT BROWN, CLAYE SAND (A-2-4	
	-	-										
160	- 159.3	-										
Ī	-103.0	-	WOH	2	2					Sat.	CLAY (A-7) WITH TRAC	EORGANICS
	-	-									155.8	17
155	154.3	18.5		10	10		+				ORANGE-GRAY-BROWN, FINE SAND (A-	
	-	-	11	16	19	35				Sat		)
150	-	-										
	149.3	23.5	2	3	4					Sat.	-	
	-	-	_	_						Jai j		
145	-	-										INE SANDY
ŀ	144.3	28.5	9	9	9					w 🕅	CLAY (A-6) WITH LIT	
	-	-										
140	139.3	- - 33.5					+				_	
	-	-	2	2	4	6				~ N		
105	-	-									135.8	37
135	134.3	38.5	5	7	8	<del>- <u>`</u></del>	· · · · ·	<u> </u>			WHITE, SILTY FINE TO C (A-2-4)	OARSE SAND
	-	_	5		0					Sat		
130	-	-										
	129.3	43.5	5	7	11					Sat.	COARSE SAND (	
	-	-										
125	- 124.3	- - 48.5						· · · ·			-	
F		-	7	9	5	]   : :∳14.   : : : :				Sat.		
	-	ŀ				::k: ::::					120.8	52
120	119.3	53.5		-			· · · ·				GRAY, SILTY FINE TO C	<u> </u>
	-	-	3	5	7					Sat	(A-2-4) (BLACK CREEK I	FORMATION)
115	-	-				$   :: {r :   :: : : : : : : : : : : : : : : : :$						
- 13	114.3	58.5	6	7	10	$\left  \begin{array}{c c c c c c c c c c c c c c c c c c c $	<u> </u>			Sat	GRAY, FINE SANDY SILT	T ULAY (A-1)
	-	ŀ				$\left  \begin{array}{cccc} \cdot & \cdot & \cdot & \bullet \\ \cdot & \cdot & \cdot & \bullet \\ \cdot & \cdot & \cdot & \bullet \\ \cdot & \cdot & \cdot & \bullet \end{array} \right  \cdot \left  \begin{array}{cccc} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \bullet \\ \cdot & \cdot & \cdot & \bullet \end{array} \right $						
110	-										_	
ŀ	109.3	63.5	5	7	11	<b> </b>		]		Sat.		
	-	-									105.8	67
105	- 104.3	- 68 5				]   · · · · <b>·</b>   · · · · ·		· · · ·			DARK GRAY, SILTY FINE	TO COARSE
Ē			4	10	15	]   <b> .</b>				Sat.	SAND (A-2-4	+)
100	-	-				:::: \::::						
100	99.3	73.5			47		· · · ·				-	
	-	-	9	11	17	<b>•</b> 28				Sat		
95	-	Ľ				: : : :  !: : : :						

									1	ORE							
	47533.						-5987B			Y ROBES				GEOLOGIST B. Painte	r/W. Ha		
									20) AT -L	- STA. 617+							) WTR (ft
BOR	NG NO.	S3_E	B2-A S	SBL			<b>ION</b> 6			OFFSET	123 ft L1	Γ		ALIGNMENT -L-		0 HR.	N/A
COLL	AR ELE	<b>V.</b> 17	2.8 ft		<u> </u> T	ΟΤΑ	L DEPT	<b>FH</b> 85.0 f	t	NORTHIN	<b>G</b> 386,3	39		EASTING 2,004,066		24 HR.	4.9
DRILL	rig/hami	MER EF	F./DATE	E F&F	R3495 (	CME-	-55 82%	03/01/2019			DRILL N	IETHO	D Mu	ud Rotary	HAMM	ER TYPE	Automatic
DRIL	LER D.	Tignor			S	TAF		E 12/12/1	9	COMP. D	<b>ATE</b> 12/	16/19		SURFACE WATER DEF	TH N/	Ά	
LEV	DRIVE ELEV	DEPTH		w co	-				PER FOO		SAMP.	▼∕		SOIL AND RC	CK DES	CRIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0		25	50	75 100	NO.	Имо	I G	ELEV. (ft)			DEPTH (
95	94.3	78.5		<b>├</b>				Mato	h Line	· <del></del> ·	++	<u> </u>	- - -	DARK GRAY, SIL			<u></u>
			8	12	15		· · · · ·	<b>●</b> 27				Sat.		SAND (A-			
90	ļ	-												- 90.8	= =		<u> 82</u>
30	89.3	83.5	9	22	37	┨┝╴					-	Sat.		DARK GRAY, FIN	= 10 CC 4Y (A-6)	ARSE SAN	
			-			$\square$	<u></u>		. • 59			Jai.		_ 87.8 _ Boring Terminate	d at Elev	ation 87.8 ft	85 IN
	4	-												– CLAY (COASTAL – FOR	PLAIN) (I MATION	BLACK CRE I)	EK
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## GEOTECHNICAL BORING REPORT

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								ORE L	UG		1	
WBS	47533.	1.1			TI	<b>P I</b> -5987B	COUNTY	<b>Y</b> ROBESO	N		GEOLOGIST Weis, J. M.	
SITE	DESCRI	PTION	BRID	DGE ON	I-L- (	I-95) OVER -Y5- (NC	20) AT -L-	STA. 617+1	2.20			
Bori	ng no.	S3_E	B2-B_	SBL	S	FATION 618+35		OFFSET [~]	18 ft LT		ALIGNMENT -L-	0 HR. 14.
COLL	AR ELE	<b>V.</b> 18	0.8 ft		Т	DTAL DEPTH 90.0	ť	NORTHING	386,29	99	EASTING 2,004,163	24 HR. 25.
DRILL	RIG/HAMM	MER EF	F./DATE	E MID3	964 CI	ME-45C 91% 02/21/2019			DRILL M	ETHOD M	ud Rotary HAN	IMER TYPE Automatic
DRILI	LER Po	well, B			S	<b>FART DATE</b> 05/26/2	21	COMP. DA	TE 05/2	27/21	SURFACE WATER DEPTH	N/A
ELEV	DRIVE	DEPTH		w cou	NT	BLOWS	PER FOOT	-	SAMP.			
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	MOI G	SOIL AND ROCK DE	ESCRIPTION DEPTH
							1					
405												
185		-									-	
	ł										-	
180	179.8	- 1.0						1			180.8 GROUND SUF	
		• ·	8	8	10	· · · •				мЦ	LIGHT BROWN, SLI. SIL	TY SAND (A-2-4)
-	177.3	3.5	3	4	3					w	<u>177.8</u>	DY CLAY (A-6)
175	174.8	- 6.0	-		-						- 174.9	
	+		4	6	3	· <b>•</b> 9 · ·   · · · ·				w L	T 174.3 172.8 RED AND LIGHT BROWI	
-	172.3	8.5	3	2	3				SS-12	22%	LIGHT BROWN, SAND	
170	‡	-						····			(A-7-6)	
	167.3	. 10 5				: :X, :   : : : :			1		<u>167.8</u>	1
ŀ		13.5	3	6	16					w H	LIGHT BROWN, SANI	DY CLAY (A-6)
165	Ŧ	-				<b>\</b>	+ • • • •				 163.8	1
	162.3	18.5										SAND (A-3)
400	102.0		13	21	14					Sat.	+ +	
160	+	-					<u> </u>				<b>1</b>	
	157.3	23.5				<b>/</b> .						
155	Ŧ		1	3	3	<b>•</b> 6				Sat.	- GRAY, CLAYEY SA	
133	+	-									<b>⊨</b> ₽	
	152.3	28.5										$\frac{2}{(CLAY(A-7-6))} - \frac{2}{(A-7-6)}$
150	+		2	4	5	. <b>\</b> 9				25% W		
	1											
ŀ		33.5	11	15	19					Cot 0000	LIGHT GRAY TO BROW	
145	1				10	· · · · · • • • • • • • • • • • • • • •				Sat.	- WITH INTERMITTENT (43.0'-47.0	
	+					.				0000		~ )
ŀ	142.3	38.5	13	17	19					Sat.		
140	1									0000	- -	
	407.0									0000	-	
ŀ		43.5	3	4	8					Sat.	<b>–</b>	
135	Ŧ	-					+ • • • •	+	1		133.8	4
	132.3	48.5				:/: : :   : : : :				000		GILT (A-4) 4
130	+		1	2	3				SS-13	27%	F F	
100	+	-				$\left  \left  \begin{array}{c c c c c c c c c c c c c c c c c c c $	· · · · ·	· · · ·	1		 128.3	5
	127.3	53.5				;  : : :   : : : :			1		<u>128.3</u> TAN, CLAYEY SA	$\overline{ND}$ (A-2-6) — — — 5
125	Ŧ		3	3	4				1	Sat 🔨		
	+	•				· <b> </b> · · ·   · · · ·		· · · ·	1		100.0	-
ŀ	122.3	58.5	6	6	5	: <u></u> :: ::::			1	Sot 200	<u>122.8</u>	AND (A-3)5
120	1		Ĭ		5				1	Sat.	⊢ ━	
]	Ŧ					.		· · · ]	1		_ 117.8	6
ŀ	117.3	63.5	2	4	6				1	Sat.		
115	‡	-				. •10		· · · ·	1		- GRAY, CLAYEY SAND TRACE CEMENTED SAN	ND FRAGMENTS
	1					. I      . I			1	000	<u>113.8</u> (BLACK CREEK FC GRAY, CSE. SAN	
-		68.5	3	4	6			• • • •	1	000 000 Sat. 000	GRAY, USE. SAN	νω (A-1-0)
110	4	-					+	+ • • • • •	1		F	
	107.3	70 F				:: <b>i</b> :: ::::			1		Ę	
ŀ			4	6	9	<b>\</b>			1	Sat. 000		
105	1								1			

WBS	47533	3.1.1			т	IP I	-5987B			со			BESO	.0G N				GEOLOGIST Weis, J.	И.		
	DESCR		BRII	DGE C					(NC :									1		GROU	
	NG NO.						, <b>ION</b> 6 [,]							18 ft LT				ALIGNMENT -L-		0 HR.	14
COLI	LAR EL	<b>EV.</b> 18	80.8 ft		т	ΟΤΑ	L DEPT	<b>FH</b> 90	0.0 ft			NOR	THING	386,	299			EASTING 2,004,163		24 HR.	25
DRILL	. RIG/HAN	/MER EF	F./DAT	E MIC	03964 C	ME-4	5C 91% (	02/21/2	019		I			DRILL	METHO	DD	Mud	d Rotary		IER TYPE	Automatic
DRIL	LER P	owell, E			s	TAR		E 05/	26/2	1		сом	P. DA	TE 05	/27/21	1		SURFACE WATER DEF	TH N	/A	
ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT			BLO	WSF	PERF	-оот			SAMF	^p . 💙		L O	SOIL AND RO			4
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25	Ę	50		75	100	NO.	Л		G	ELEV. (ft)			DEPTH
105		<u> </u>		<u> </u>		$\downarrow \mid$			Matc	<u>h Lin</u>				<u> </u>			00				
	102.3	+ - 78.5					ΞΫ́		::				· · · ·								
100		+	5	10	12	1 :	· · · A	  22	::				· · · ·		w		Ì	INTERMITTEN	II SANI	DLENSES	5
100	-	Ŧ										· ·	•••					-			
	97.3	<del> </del> 83.5	8	9	11	-  :	∷.į		· · · ·	-			•••		Sat		Ì				
95	-	ŧ						+				· ·			Cut		Ì	-			
	92.3	+ - <u>88.5</u>							· ·		· · ·		•••				Ì				
		-	8	11	15			26			· · ·		•••		М		Ľ	90.8 - Boring Terminated	Let Flou	ration 00.9	9
	-	Ŧ															-	CLAY (COASTAL F	PLAIN) ( MATION	BLACK C	REEK
		Ŧ															F		VIATION	N)	
	-	Ŧ															F	- <u>Other Samples:</u> - ST-03 (28.0 - 30.	D)		
		Ŧ															F				
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## GEOTECHNICAL BORING REPORT

### PODEIOC

						BORE LOG	
WBS	47533	.1.1			Т	P I-5987B COUNTY ROBESON GEOLOGIST B. Painter	
SITE	DESCR	PTION	BRID	DGE C	)N -L- (	-95) OVER -Y5- (NC 20) AT -L- STA. 617+12.20	GROUND WTR (ft
BORI	NG NO.	S3_E	B2-B N	NBL	S	ATION 617+66 OFFSET 96 ft RT ALIGNMENT -L-	0 HR. N/A
COLL	AR EL	<b>EV.</b> 16	67.8 ft		т	TAL DEPTH         85.0 ft         NORTHING         386,196         EASTING         2,004,247	24 HR. 5.6
DRILL	RIG/HAN	IMER EF	F./DATI	E F&F	R3495 (	ME-55 82% 03/01/2019 DRILL METHOD Mud Rotary HAMM	R TYPE Automatic
DRILI	<b>ER</b> D	. Tignor			S	ART DATE 12/11/19 COMP. DATE 12/11/19 SURFACE WATER DEPTH N/	4
LEV	DRIVE ELEV	DEPTH	BLC	w co	UNT	BLOWS PER FOOT SAMP.	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50 75 100 NO. MOI G ELEV. (ft)	DEPTH (
180		Ļ					
	-	ł					
475	-	÷					
175	-	F.					
	-	ł					
170	-	Ļ					
	- 167.8 -	0.0				GROUND SURF/	
165	-	+	1	3	7	Image: Market State     Image: Market St	
105	164.3	3.5	WOH		2		
	-	t t				$\left \begin{array}{c} \P^3 \cdot \cdot \cdot \\ \uparrow \cdot \cdot \cdot \\ \uparrow \cdot \cdot \cdot \\ \bullet \cdot \cdot \\ \bullet \cdot \cdot \\ \bullet \cdot \cdot \\ \bullet \\ \bullet$	
160	- 159.3	85					
Ī	-153.5	0.5	2	4	5	· · · · · · · · · · · · · · · · · · ·	
155	-	ł				$\begin{vmatrix} \cdot \cdot \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \\ \cdot \\ \\ \\ \cdot \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	
155	154.3	13.5	12	11	10	WHITE-GRAY-ORANGE, S COARSE SAND (A Sat.	
	-	ł					
150	149.3	185					
Ī	-140.0	- 10.0	11	14	16	Sat. Sat.	
145	-	+					
145	144.3	23.5	9	12	18		
	-	+				$\begin{bmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ / \cdot & \cdot & \cdot \\ \end{pmatrix} \begin{bmatrix} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot &$	
140	139.3	28.5					
Ī		-	8	11	12	Sat.	
135	-	+					
100	134.3	33.5	2	4	5	Sat.	
	-	+					
130	- 129.3	38.5					
[	-	-	9	7	8	Sat.	
125	-	t t					
120	124.3	43.5	2	1	1	WHITE GRAY, CLAYEN       Sat.	
	-	t t				$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
120	-	48.5					
	-	-	2	2	3	●5	
115	-	t t					
	114.3	53.5	4	6	6	GRAY AND BROWN, SIL	
	-	ŧ					57
110	- 109.3	58.5					N
	-	‡	7	11	14	U CREEK FORMAT	(A-7) (BLACK ION)
105	-	ŧ					
	104.3	63.5	6	8	8	│ · · · · · │ · · · · · │ · · · · · │ │ │ │ │ <b>│ ○ │ └ · · · </b> COARSE SAND (A-2-4) W	/ITH LITTLE
	-	ŧ				●16	
100	-	t					

WBS	47533	3.1.1			т	IΡ	I-5987B		ORE L				GEOLOGIST B. Painter			
			BRI	DGE O	N -L- (	( <b>I</b> -9	95) OVER -Y5- (NC						1		GROUND W	TR (f
	NG NO.				-		TION 617+66		OFFSET				ALIGNMENT -L-		0 HR.	N/.
	AR EL						AL DEPTH 85.0 f		NORTHING		96		EASTING 2,004,247		24 HR.	5.
				E F&F			E-55 82% 03/01/2019	-		1		D Mi	ud Rotary		ER TYPE Autor	
	LER D						<b>RT DATE</b> 12/11/1	9	COMP. DA				SURFACE WATER DEP			
ELEV	DRIVE	-		w co		Π				SAMP.	· ·	1 L				
(ft)	ELEV (ft)	(ft)	0.5ft			10	0 25	50	75 100	NO.	мо	O G	SOIL AND ROO ELEV. (ft)	CK DESC		EPTH
100							Mato	h Line								
	99.3	68.5	7	9	10	ŦГ		T	T		Sat.		DARK GRAY, CLA COARSE SAND (	YEY SIL		
	-	Ŧ												continue	d)	
95	94.3 -	+ 73.5														-
		-	7	11	15	1	· · · · · · · · · · · · · · · · · · ·				Sat.		_ 93.8 - DARK GRAY, SIL	TY CLAY	( (A-7) WITH	74
90	-	ŧ											- TRACE ORGAN			77
90	89.3	78.5	9	20	28	┨┝	· · · · · · · · · · · ·				\A/		GRAY, SILTY FIN			
		t						48			W		-			
85		1						1					-			
	84.3	<u> </u>	10	23	33	11		56			w		- 82.8			85
		t											<ul> <li>Boring Terminated</li> <li>CLAY (COASTAL P</li> </ul>			
	-	+												ΛΑΤΙÓŇ)		
		Ŧ											-			
		‡											-			
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## GEOTECHNICAL BORING REPORT