CONTENTS OUTET NO

320088

SF-

REFERENCE

SHEET	NO.
1	
2	
3	
4	
5-6	

DESCRIPTION

LEGEND (SOIL & ROCK)

TITLE SHEET

SITE PLAN

PROFILE BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY EDGECOMBE

PROJECT DESCRIPTION BRIDGE NO. 88 ON -L-(SR 1608) OVER MITCHELL SWAMP CANAL AT *STA*. *15* + *53*

P4.R022R PROJEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-320088	1	6

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6800. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS CALIFORED THAT DAMAGE AS NOWN 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 MARRANT 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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- TES: THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. BY HAVING REDUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAVES ANY CLAIMS FOR INCREASED COMPENSATION OR STETNSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. 2.

PERSONNEL

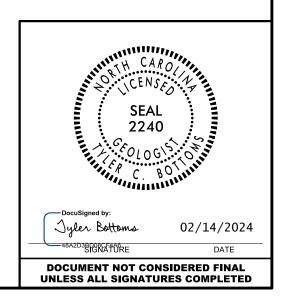
S.N. ZIMARINO

T.W. MILLER

C.M. WALKER

J.M. EDMONDSON

INVESTIGATED BY _____. BOTTOMS DRAWN BY _S.N. ZIMARINO CHECKED BY ____. ARGENBRIGHT SUBMITTED BY ______. ARGENBRIGHT DATE JUNE 2023



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

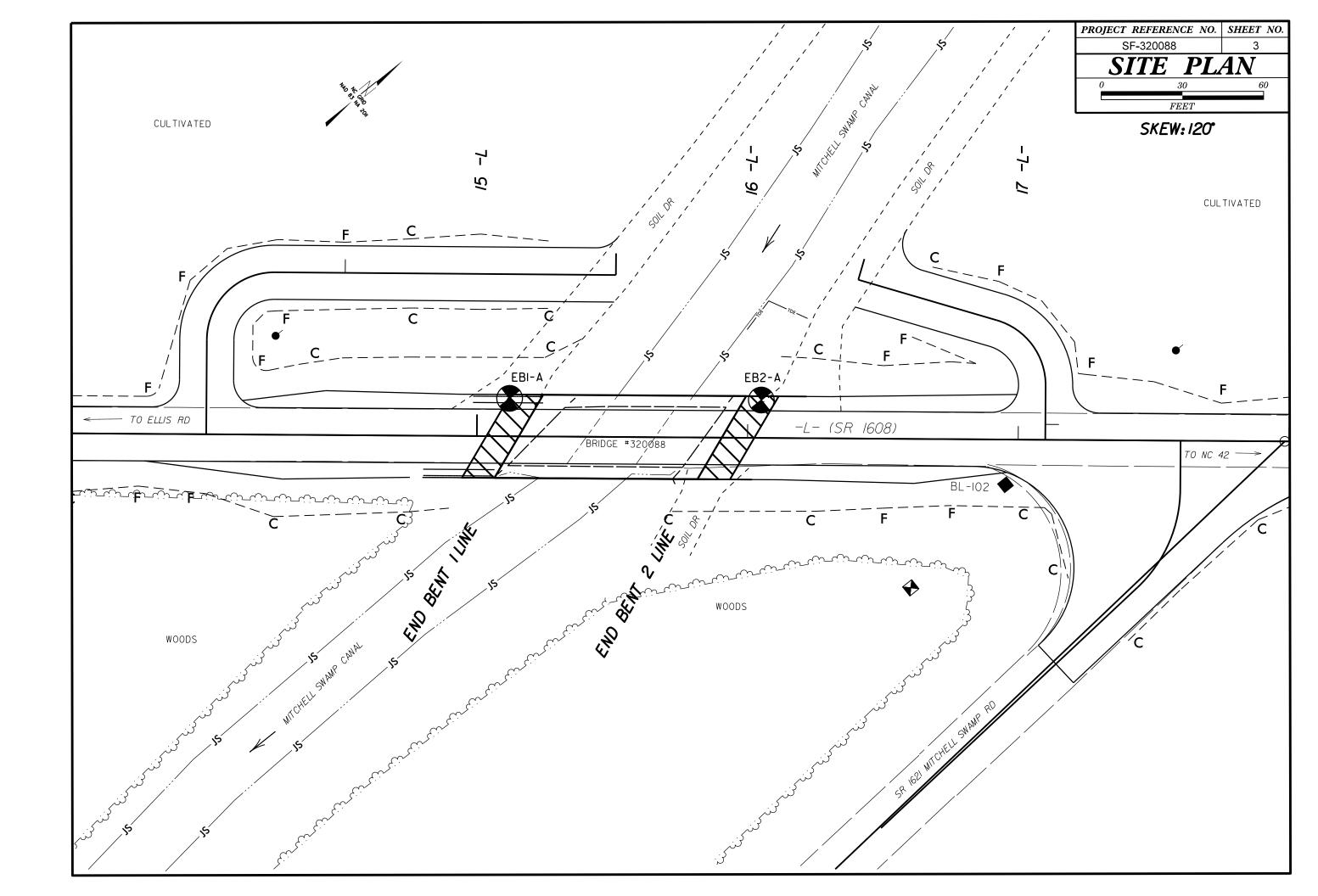
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

	CDADATION		
SOIL DESCRIPTION SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLICHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM DI586). SOIL CLASSIFICATION	GRADATION <u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORMLY GRADED</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK DESCRIPTION HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EDUAL TO OR LESS THAN 0.1 FOOT PER 60	TERMS AND DEFINITIONS <u>ALLUVIUM (ALLUV.)</u> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <u>AQUIFER</u> - A WATER BEARING FORMATION OR STRATA.
IS BASED ON THE AASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
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:	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
GENERAL GRANULAR MATERIALS SILT-CLAY MATERIALS ORGANIC MATERIALS CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) (> 35% PASSING *200) (> 35% PASSING *200)	MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRAINTE,	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
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 SIGNIFICANCE.		CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-b A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NON-CRYSTALLINE SEDIMENTARY ROCK THAT WOLLD SPT REFUSAL IF TESTED. ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
SYMBOL 000000000000000000000000000000000000	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SANDSTONE, 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.
* 18 50 MX SILT- MUCK, *18 50 MX SI MN SI MN SILT- MUCK, *40 30 MX 50 MX 51 MN	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC. WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
- 200 I 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY <u>ORGANIC MATERIAL</u> SOILS <u>OTHER MATERIAL</u> TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
PASSING *40 LL – – 40 MX 41 MN 501LS WITH	LITLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35% HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF	HORIZONTAL. <u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
PI 6 MX NP 18 MX 11 MN 11 MN 10 MX 10 MX 11 MN 10 MX 10 MX 11 MN 11 MN 11 MN 10 MX 10 MX 11 MN 10 MX 11 MN 11 MN<	GROUND WATER	OF A CRYSTALLINE NATURE. SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OF FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STORE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
Materials Sand Sand Gravel and Sand Suils Suils	STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN (MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
GEN. RATING AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABL	\bigcirc 000	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS < LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH (MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH CONSISTENCY (N-VALUE) (TONS/FT ²)	L ROADWAY EMBANKMENT (RE) ^{25/025} DIP & DIP DIRECTION WITH SOIL DESCRIPTION → OF ROCK STRUCTURES	IF TESTED, WOULD YIELD SPT REFUSAL SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
GENERALLY VERY LOOSE < 4 CONNILAD LOOSE 4 TO 10	SOIL SYMBOL	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL, IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR EDUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50 N/A		IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) VERY DENSE > 50 VERY SOFT <2 <0.25	THAN ROADWAY EMBANKMENT HOULK BURING TEST	VERY ALL ROCK EXCEPT QUARIZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK (V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0		VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	TTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTTT	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DISCUMBLE ONE IN STRENGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK QUALITY DESIGNATION (RDD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
HARD > 30 > 4 TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNCLASSIFIED EXCAVATION - UNCLASSIFIED EXCAVATION -	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053 BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	WALLOW UNSUITABLE WASTE WSED ACCEPTABLE BUT NOT TO BE SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) SANU SANU (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTCOME DIAMETER SOILT SPOND SAMPLES PERTPATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CLCLAY MODMODERATELY γ -UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_d -DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u> DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE - WET - (W) SUBJUCTION MOISTURE	FRAGS FRAGMENTS w - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING	BENCH MARK: BL-102 N: 745308.9500
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	E: 2448426.1300 ELEVATION: 38.67 FEET
OM _ OPTIMUM MOISTURE _ HUIST - UN _ SOLIDENT OK NEHK OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE: X CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE		VERY CLOSE 0.18 TO TFOOT VERT THICK BODD 0.008 - 0.03 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET THINLY LAMINATED < 0.008 FEET	
PLASTICITY	CME-55 8" HOLLOW AUGERSBH		
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT		FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH		MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASLY WHEN HIT WITH HAMMER.	
COLOR		CRAINS ARE DISEISUNT TO SERARATE WITH STEEL PROPE.	
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.		INDURATED DIFFICULT TO BREAK WITH HAMMER. SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
The second is closely shared and the second is become a realized in the second and the realized is the second and the second a		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

PROJECT REFERENCE NO.

SF-320088

SHEET NO. 2



		 +	 			+				 	 	ROADWAY ENGIN		SHEET N 4 YDRAULICS ENGINEER
		PROFIL	E	THROUG	H BOR	ING	s along	<u> </u>						
			' 			- 						UNLESS	MENT NOT CONSIDE	COMPL
_50			EBI-A 15+12 14' L T			ÉB2-А 16+05 14′LT				 	 +	-VE	= 2.0	
_40					/ 7@									
	MEDIUM DENSE TAN SILTY SAND MOIST (ROADWA	I I)6/23	<u>/</u>		LOOSE TAN S	LTY SAND. MOIST	TO SATURATED (ROA	WAY EN	MBANK MEI	NT)		
30	LODSE TAN AND GRAY SAND AND S MOIST TO SATURATED (UNDIVIDED CO	ASTAL_PLAIN)	<u>o</u>			L(DOSE_GRAY_SAND	_SATURATED_CUND_	LVIDED_COASTAL_PLA		1 1 1 1 	 _	 	
	SOFT_GRAY_SIL	TY AND SANDY	0	CLAY WITH			RAGMENTS. WET	UND IVIDED COAS						
_20		- 	0-0-0			+							 	
10	LOOSE TO DENSE GRAY SA	ND AND SILTY	©—	SAND WITH	WOOD (0)	- 0000	FRAGMENTS, SATL	JRATED (UNDIVIDE	D COASTAL PLAIN)					
		· · · · · · · · · · · · · · · · · · ·	9-1-1- 7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-							. I I	1 			
0	STIFF TO VERY STIFF GRAY, TAN	AND GREEN		MOTTLED SIL			WITH MICA. WET	(CAPE FEAR FORM	ATION)	- - - - - -				
			29-				++							
_10	MEDIUM DENSE B	LUE AND GRAY	20-0-	MICACEOUS SI	LTY SAND,	- S	ATURATED (CAPE	FEAR FORMATION)		; ; ; ; ;			· · · · · · · · · · · · · · · · · · ·	
			30-1		-									
20	VERY STIFF TO HARD GRA	f• RED• TAN•	20-8	AND BLUE	MOTTLED \$\$		SILTY CLAY. WET	(CAPE FEAR FOR	/ATION)		i 			
			2	·	@4		+	+ + _						
30		MICACEOUS	- + +	SILTY SAND	¦ `	-	+ + +	PE_FEAR_FORMATIC	· – – + – – – + –	 	1 1 1 1			
	VERY STIFF GRAY.	;;		MOTTLED	¦	8-	++	PE FEAR FORMATIC	· – – + – – – + –					
40	MEDIUM DENSE BL VERY \$TIFF GRAY, GF				<u>:</u> ·		+++	APE FEAR FORMAT		· -	+		i i i i i i i i i i i i i i i i i	
_50	VERY STIFF GRAY, G	(EEN• AND BLUE)		MOTTLED	@ 			APE FEAR FORMATI	UN)	- 				
	MEDIUM DENSE TO	VERY DENSE	27	GRAY MICACEO	υς ςτι τγ		SAND. SATURATED	(CAPE FEAR FOR	MATION)	· • • • • • • • • • • • • • • • • • • •	1 			
_60			0-			-						, , , , ,		
		(22-		25									
70		· · · · · · · · · · · · · · · · · ·	30-2			-				 				
			1 1 1											
80	· · · · · · · · · · · · · · · · · · ·	, , , , , , , , , , , , , , , , , , ,			 L							 		
		, , , , , , , , , , , , , , , , , , ,	, , , , ,			· 	·		NOTE: PROFI	LE ALONG	GROUNDL	.INE		·
			1 1 1 1						NOTE: PROFI TAKEN FROM BRID REPORT	DATED 4	Y AND HY 13/23			
			1 1 1 1			+			NOTE: INFERR THROUGH THE BOR	ED STRAT L'NGS WIT	IGRAPHY H BOTH F	DRAWN PROJECTEI	, ,	·
			 		 				ONTO	THE PR	¢FILE			
		1 	1 							1 1 1				

GEOTECHNICAL BORING REPORT BORE LOG

												_																		
	BP4.F	-				IP SF-320				EDGEC	OMBE				GEOL	OGIST Zimarin	o, S. N.			WBS	BP4.R	022.1			TI	P SF-3	320088	3	COUN	ΓY
SITE	DESCR	IPTION	Bridg	je No. 8	88 on	-L- (SR 16	608) over	r Mitch	ell Swa	mp Canal								GROUND W	TR (ft)	SITE	DESCRI	PTION	Bridg	ge No.	88 on -	L- (SR	1608)	over Mit	itchell Sw	/amp
BORI	NG NO.	EB1-A	4		S	TATION	15+12			OFFSET	14 ft l	т.			ALIG	IMENT -L-		0 HR.	N/A	BORI	NG NO.	EB1-	A		SI	TATION	15+1	12		0
COLL	AR ELI	EV. 39	.8 ft		T	OTAL DEF	PTH 10)9.5 ft		NORTHIN	G 74	5,186	6		EAST	NG 2,448,287		24 HR.	4.7	COLL	AR ELE	V. 39	9.8 ft		т	OTAL DI	EPTH	109.5	ft	N
DRILL	RIG/HAN	IMER EF	F./DAT	E GFC	0075 0	DME-45C 909	%11/21/2	022			DRIL	LME	ethod) Mu	ud Rotary		HAMM	ER TYPE Auto	matic	DRILL	DRILL RIG/HAMIMER EFF/DATE G				3F00075 OME-45C 90% 11/21/2022					
DRIL	LER W	/alker, C	C. M.		S	TART DAT	FE 06/ [*]	14/23		COMP. D	ATE (06/14	4/23		SURF	ACE WATER DE	PTH N//	4		DRIL	DRILLER Walker, C. M.				ST	FART D	ATE	06/14/2	23	С
ELEV	DRIVE	DEPTH	BLC	w col	JNT		BLO\	WS PE	R FOOT		SAM	ИР.	▼∕	L O	-1					ELEV	DRIVE ELEV	DEPTH	BLO	w co			E	BLOWS	PER FOO	т
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	50		75 10	0 NO	р.	моі		ELEV. (ft	SOIL AND RO	JCK DES		EPTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25		50	75
40															39.8	GROU	ND SURF	ACE	0.0	-40								Mato	ch Line	
	39.8	0.0	4	5	6	• • 11 •		• •							-	ROADWA	Y EMBAN	MENT							11				T	·
		ŧ													36.8				<u>3.0</u>		-43.2	- 83.0	7		10		· · · ·	· · · · ·		•
35	35.8 -	4.0	5	4	5		• • • •				_		▼	0000		GRAY AND TAN	SAND AND	SILTY SAND,		-45	-	-	7	9	13		•22 ••••	· · · ·	· · · ·	·
	-	ŧ							· · · ·					<u></u>	_ 33.8 _	MOIST T	O SATUR	ATED	6.0		-	-								:
	31.8	8.0	4	3	6	:							-		-					-	-48.2 -	- 88.0	13	26	31		-		·	:
30	-	+				<u> </u>									28.8				11.0	-50	-	-				, 			57 -	-+
	26.8					;									-	GRAY SANDY					-53.2 -	- 93.0					•••	/ .		
25	26.8	13.0	1	2	2										-	FRAGI	MENTS, W	/E1		-55	-53.2 -	- 93.0	10	15	12			· / · · ·		
25	-	ŧ.													23.8				<u>16.0</u>	-55	-	-					ť		<u> </u>	
	21.8	18.0													-	GRAY SILTY FRAGMEN					-58.2 -	- - 98.0					· · / ·	· · · ·		:
20	-		2	1	3	4 • • •									_		,			-60	-	-	7	9	12	· · · ·	6 21			-
	-	F						•••	• • • •						-						-	-								
	16.8	23.0	3	2	3] [:::									_					-	-63.2 -	- 103.0	10	11	11			· · · · ·		
15	-	ŧ.		2	3	• <u>5</u>					_		•		-					-65	_	-							· · ·	<u> </u>
	-	ŧ.						•••	· · · · · · · ·						-						-	-					::\`	· · · ·		:
	11.8	28.0	11	15	16		-						•		-						-68.2 -	- 108.0	12	14	16		:: ` }			
10	-	F								+ • • • •					_							-								
	6.8	33.0													_						-	-								
5	0.0 -	- 33.0	8	10	14		¢24								-						-	-								
	-	ŧ.													3.8				36.0		-	-								
	1.8	38.0					i : :	•••	· · · · · · · ·					J	-	GRAY SILTY CL	STAL PLA AY, WET	(CAPE FEAR			-	-								
0	-	Ł	6	9	10		19								-	FO	RMATION	Ĵ			-	-								
	-	Ł					1								<u>-1.2</u>				<u> 41.0</u>		-	-								
	-3.2	43.0	9	9	15										_	GRAY MICAC SA	TURATED				-	-								
-5	-	F		Ŭ	10		9 24			+					_						-	-								
		†					·/ · · ·		· · · ·						-						-	-								
10	-8.2 -	48.0	7	9	11										_						-	-								
-10	-	F					<u>, 1</u>								-11.2				51.0		_	-								
	-13.2	53.0					: \.::							Y	-	GRAY, RED, AND	O TAN MO AY, WET	TTLED SILTY			-	-								
-15 -20 -25 -30	-10.2		9	12	18	1	●30							\Box	_	01	<i>,</i>				-	-								
	-	F									11			\square	-						-	-								
	-18.2	58.0		10	10		: <u>;</u> : :		· · · · ·					N	_						-	-								
-20	-	t.	7	10	16		26							J	-						-	-								
	-	Ł					· · ·	•••	· · · ·						-						-	-								
	-23.2 -	63.0	8	8	16									N	_						_	-								
-25	-	F					Q 24							\Box	-26.2				66.0		-	-								
		F							· · · ·							GRAY MICAC			00.0		-	-								
-30	-28.2 -	68.0	13	17	19		· · \.	 36 ⁻	· · · · ·						-	SA	TURATED				-	-								
	-	ŧ								· · · ·			•						<u>71.0</u>		-	-								
	-33.2 -	73.0					: 17:	::	· · · ·					N	-	GRAY, TAN, AND CL	ORED MO AY, WET	TTLED SILTY			-	-								
-35			9	11	17		- 6 28-							3	-	01	,				-	-								
-35	-	F						• •			71			\geq	<u>-36.2</u>				<u> 76.0</u>		-	-								
	-38.2	78.0		_			·/ · ·		· · · · ·						-		EOUS SIL				-	-								
-40	-	ł	4	7	14	• • • •	\$ 21								-						_	-								

SHEET 5 OF 6

EDGECOMBE		GEOLOGIST Zimarino,	S. N.		
mp Canal				GROUN	D WTR (ft)
OFFSET 14 ft LT		ALIGNMENT -L-		0 HR.	N/A
NORTHING 745,186		EASTING 2,448,287		24 HR.	4.7
DRILL METHOD	Mud	Rotary	HAMME	RTYPE	Automatic
COMP. DATE 06/14/23		SURFACE WATER DEPT	TH N/A	4	
75 100 NO. MOI	L O G	SOIL AND ROC	K DESC	RIPTION	I
COMP. DATE 06/14/23		SOIL AND ROC SOIL AND ROC 41.2 GRAY AND GREE CLAY	CK DESC	A RIPTION FLED SIL	<u>81.0</u> TY88.6
	F				
	F				
	F				

GEOTECHNICAL BORING REPORT BORE LOG

WDO DDI DOGO /																		_			
WBS BP4.R022.1		TIP	SF-320088	8	COUNTY	EDGECC	MBE			GEOLOGIST Zim	arino, S. N.	-	WBS	BP4.F	R022.1			TIP	SF-320088	COUNT	Y
SITE DESCRIPTION	Bridge No. 88	3 on -L	L- (SR 1608)	over Mite	chell Swa	mp Canal						GROUND WTR (ft)	SITE	DESCR	RIPTION	Bridg	ge No. 88	3 on -L-	- (SR 1608) over	Mitchell Swa	amp
BORING NO. EB2-A		ST	ATION 16+0	05		OFFSET	14 ft LT			ALIGNMENT -L-		0 HR. N/A	BOR	ring no.	. EB2-	A		STA	TION 16+05		0
COLLAR ELEV. 39.8	ft	ТО	TAL DEPTH	109.5 f	ft	NORTHING	7 45,2	58		EASTING 2,448,3	46	24 HR. 4.7	COL	LAR EL	EV. 39	9.8 ft		тот	AL DEPTH 109	.5 ft	N
DRILL RIG/HAMMER EFF./	DATE GFOOD	075 CIV	/E-45C90%11 /	/21/2022			DRILL	VIETHOD	Mud	Rotary	HAMIN	FRETYPE Automatic	DRIL	l Rig/Hai	VIMER EF	-F./DATE	E GFOOD)75 CM	E-45C90%11/21/202	22	
DRILLER Edmondson	n, J. M.	ST	ART DATE	06/13/23	3	COMP. DA	TE 06/	13/23		SURFACE WATER	DEPTH N	/A	DRIL	LER E	dmonds	son, J. I	M.	STA	RT DATE 06/13	3/23	C
	BLOW COUN	IT	E	BLOWS F	PER FOOT		SAMP.		L O		D ROCK DES		ELEV		DEPTH	BLO	W COUN	IT	BLOW	'S PER FOO	T
(ft) (ft) (ft) 0	0.5ft 0.5ft 0).5ft	0 25	5	50	75 100	NO.	моі		ELEV. (ft)	J ROCK DES	DEPTH (1	(ft)	(ft)	(ft)	0.5ft	0.5ft 0).5ft	0 25	50	75
40										39.8 GF	OUND SURF	ACE 0	-40						M	atch Line	
<u>39.8</u> 0.0	4 4	4							-		WAY EMBAN TY SAND, M		1		ł						·
35.8 + 4.0										1711 01	SATURATE			-43.1	<u> </u>	8	11	15			
35 35.8 4.0	4 2	3	4 5						-	33.8		6.	-45		Ŧ						
31.9 7.9			<u> </u>								DED COAST	AL PLAIN		-48.1	87.9						:
30	3 2	5	•7 • •					0		GRAT	SAND, SATU	JRATED	-50	-40.1	+ 0/.9 +	10	15	15	• • • • • • • • • • • • • • • • • • •		:
								0		<u>28.8</u>		<u>11</u> .			ŧ				· · · · · · ·		
26.9 12.9	и и и и и и и и и и и и и и и и и и и	2	ļ <u>.</u>	· · · · · · · ·					N.		AGMENTS, \			-53.1	<u> </u>	12	12	14	· · · · · · ·	· · · · ·	
25 + "		2	• <u>2</u> · · ·						X				-55		‡	12	12	14	26 * *		·
				· · · · · · · ·	· · · ·	· · · · ·			\ge		TY SAND W				‡				· · · · / · · ·	· · · · ·	:
21.9 _ 17.9	3 3	1		· · · ·						FRAG	IENTS, SATI	URATED		-58.1	<u> </u>	10	8	11	···/ ···		
20			<u> </u>							18.8		21.	-60	-	ŧ				· · · · ·		+
16.9 + 22.9				· · · ·				0						-63.1	102.9				$ \cdot \cdot$:
15	3 4	6	- •10 -										-65		t	10	12	13			·
					· · · ·				000	13.8		26.)		ŧ				· · · · · [\\ · · ·		:
	4 3	5												-68.1	107.9	15	17	17			
			•••							8.8		31.		-	+				• • • • • • • • • • • • • • • • • • • •		
6.9 32.9									SF			AIN EN MOTTLED			Ŧ						
5 7	6 7	10	•17						S	SILTY CLA	WITH MICA	, WET (CAPE			Ŧ						
			· · · · ·						SF	FE	AR FORMAT	ION)		-	Ŧ						
1.9 37.9	3 5	7							St.						Ŧ						
<u> </u>	Ŭ Ŭ Ŭ	ʻ	•12						3	4.0				-	ŧ						
			· · [· ·	· · · · · · · ·		· · · · ·			Ì	- <u>1.2</u>		TY SAND, 41.			ŧ						
-5 -3.1 - 42.9	7 6	9	-	· · · · · · · ·					-		SATURATE	D			‡						
														-	‡						
-8.1 + 47.9			· · ŀ · · · ŀ ·	· · · · · · · ·	· · · ·	· · · · ·									‡						
-10 +	6 6	8	•14											-	‡						
‡				· · · ·	· · · ·	· · · · ·			Ť				2		‡						
	8 15	24		30	 				Y	Ś	LTY CLAY, W	VET			‡						
				·/···					Y					-	ŧ						
-18.1 + 57.9			· · · · /						ł						ŧ						
-20	8 8	11	€ 19						Ł						ŧ						
									Y						Ŧ						
-23.1 - 62.9	7 11	13							S						Ŧ						
-25			Q24	4					3-	26.2		66		-	Ŧ						
-28.1 - 67.9				¥						- <u>26.2</u> — — — — — — — — — — — — — — — — — — —		ILTY SAND,66.	1		Ŧ						
-30 -28.1 - 67.9	12 14	20		• • • 34							SATURATE	U			ŧ						
			· · · ·	<u>;;</u>						-31.2		71.	<u>)</u>	-	‡						
-33.1 + 72.9			:::: <i> i</i>	1 	· · · · · · · ·	· · · · ·		[7	GRAY AND 1	AN MOTTLE WET	D SILTY CLAY,			‡						
-35	10 12	14	· · · · • • • 2	26					Y					-	‡						
‡			:::: /	· · · ·	· · · ·				¥				2		‡						
	9 8	12									SAND, WET				ŧ						
-40			₹20	· · · · ·		1								_	1						

SHEET 6 OF 6

EDGECOMBE		GEOLOGIST Zimarino,	S. N.		
mp Canal				GROUN	ID WTR (ft)
OFFSET 14 ft LT		ALIGNMENT -L-		0 HR.	N/A
NORTHING 745,25		EASTING 2,448,346		24 HR.	4.7
DRILL M	ETHOD Mud	Rotary	HAMME	RTYPE	Automatic
COMP. DATE 06/1	3/23	SURFACE WATER DEPT	TH N/A	Ą	
75 100 NO.	MOI G	SOIL AND ROC	K DESC	RIPTION	
SAMP.		1			<u>81.0</u> <u>86.0</u> 86.0