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SHEET NO. 709 Å Ŕ

REFERENCE

DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORE LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY BEAUFORT

PROJECT DESCRIPTION BRIDGE NO. 14 ON -L- (SR 1932) OVER TAN SWAMP AT STA. 16+80.00

95 2 **^** A N PROJEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4709	1	7

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLI TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 707-6860. THE SUBSIFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR 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 WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSART TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS OF OGR AN THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

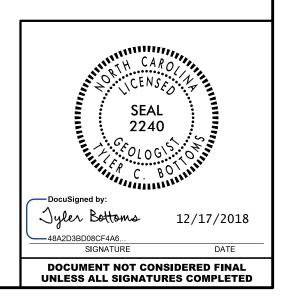
- TES: THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT. BY HAVING REDUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED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

PERSONNEL

C.J. CORNETTE S.N. ZIMARINO

R.E. SMITH

INVESTIGATED BY _____. BOTTOMS DRAWN BY ______ BOTTOMS CHECKED BY _____. ARGENBRIGHT SUBMITTED BY _____. ARGENBRIGHT DATE ______ DECEMBER 2018



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

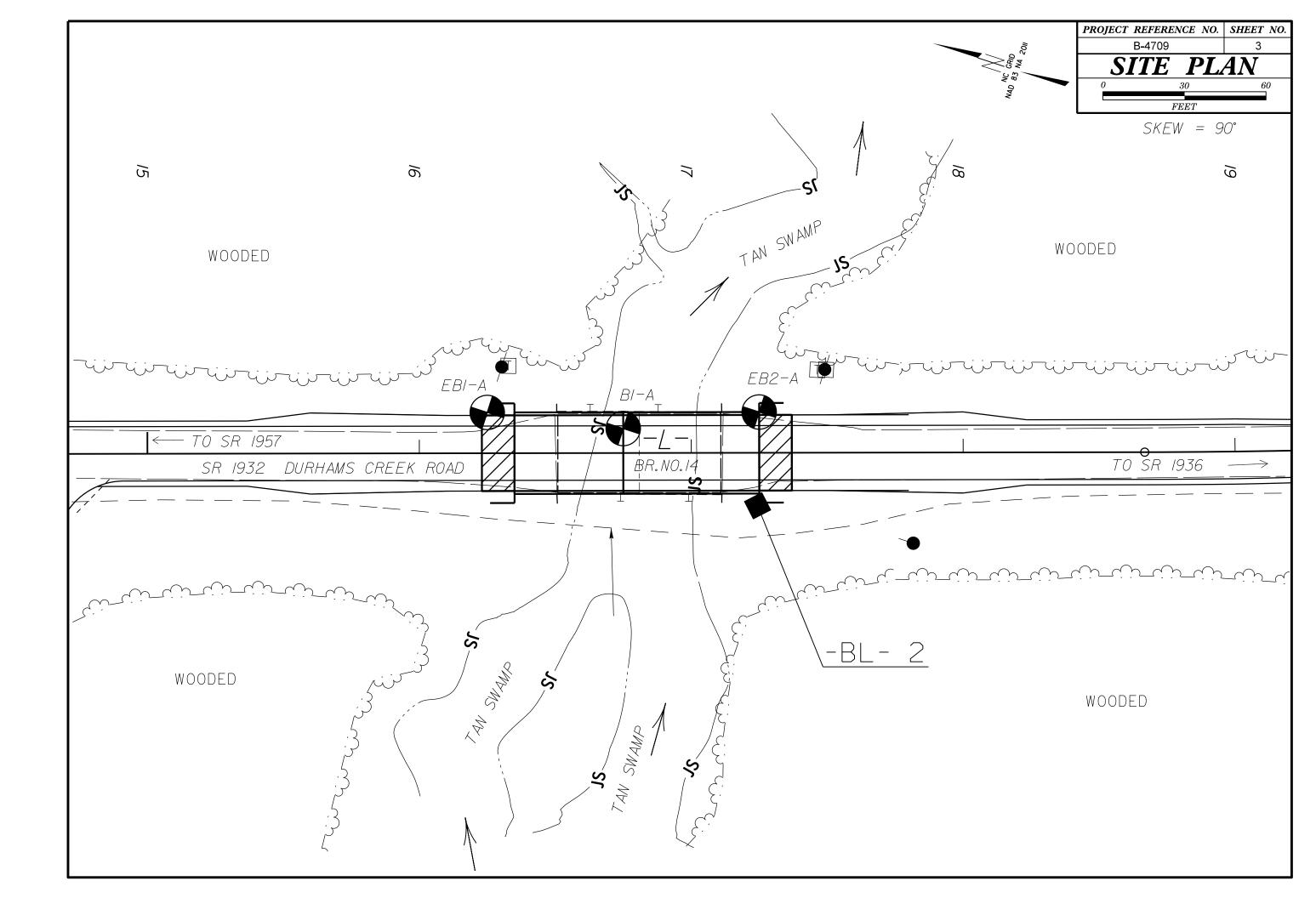
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

	SOIL D	ESCRIPTION				GRA	DATION		ROCK DESCRIPTION						
BE PENETRATED WITH A ACCORDING TO THE ST IS BASED ON THE CONSISTENCY, COLOR, TE	A CONTINUOUS FLIGHT POW FANDARD PENETRATION TES AASHTO SYSTEM. BASIC D EXTURE, MOISTURE, AASHTO	SOLIDATED, OR WEATHERED E ER AUGER AND YIELD LESS IT (AASHTO T 206, ASTM DI ESCRIPTIONS GENERALLY IN CLASSIFICATION, AND OTHEF	THAN 100 BLOWS PER F 586). SOIL CLASSIFICATIO CLUDE THE FOLLOWING: PERTINENT FACTORS SU	00T ON	UNIFORMLY GRADED - IN	DICATES THAT SOIL PA S A MIXTURE OF UNIFO	ARTICLES ARE ALL	LE SIZES FROM FINE TO COARSE. . APPROXIMATELY THE SAME SIZE. ES OF TWO OR MORE SIZES.	ROCK LINE I SPT REFUSA BLOWS IN N REPRESENTE	INDICATES THE LEVEL A L IS PENETRATION BY 4	T WHICH NON-COAS SPLIT SPOON SAM ERIAL, THE TRAN ERED ROCK.	ULD YIELD SPT REFUSAL IF TEST IAL PLAIN MATERIAL WOULD YIELD PLER EQUAL TO OR LESS THAN 0. SITION BETWEEN SOIL AND ROCK			
VERY STIFF, GRAY	AL COMPOSITION, ANGULAR Y, SILTY CLAY, MOIST WITH INTE	ITY, STRUCTURE, PLASTICITY RBEDDED FINE SAND LAYERS,	HIGHLY PLASTIC, A-7-6			Y OR ROUNDNESS OF SO IGULAR, <u>SUBROUNDED</u> , OR		SIGNATED BY THE TERMS:	WEATHERED		ON-COASTAL PLAIN	MATERIAL THAT WOULD YIELD SPI			
		ASHTO CLASSIFIC	CATION		- <u>HNOOLHIN, SOBHIN</u>	MINERALOGIC		TION	ROCK (WR)	1	00 BLOWS PER FOO	T IF TESTED.			
	ANULAR MATERIALS 35% PASSING =200) -3 A-2	SILT-CLAY MATERIALS (> 35% PASSING #200) A-4 A-5 A-6 A-7	ORGANIC MATERIALS			MES SUCH AS QUARTZ, F	FELDSPAR, MICA, TA	ALC, KAOLIN, ETC.	CRYSTALLINE ROCK (CR)		OULD YIELD SPT R NEISS, GABBRO, SCH				
CLASS. A-1-a A-1-b	A-2-4 A-2-5 A-2-6 A-2-1	7 4-7-5	A-1, A-2 A-4, A-5 A-3 A-6, A-7			COMPRE	ESSIBILITY		NON-CRYSTAL ROCK (NCR)		EDIMENTARY ROCK	AIN METAMORPHIC AND NON-COASTA THAT WOULD YEILD SPT REFUSAL			
SYMBOL SYMBOL					MODE	HTLY COMPRESSIBLE RATELY COMPRESSIBLE		LL < 31 LL = 31 - 50	COASTAL PL		OASTAL PLAIN SED	S PHYLLITE, SLATE, SANDSTONE, ET IMENTS CEMENTED INTO ROCK, BUT			
2 PASSING *10 50 MX			GRANULAR SILT-	MUCK,	HIGHL		E OF MATER	LL > 50	SEDIMENTAR (CP)		PT REFUSAL. ROCK HELL BEDS, ETC.	TYPE INCLUDES LIMESTONE, SANDS			
*40 30 MX 50 MX 51				PEAT			SILT - CLAY				WEATH				
MATERIAL PASSING *40 LL PI 6 MX N		A 36 MM 36 MM 36 MM 36 MM 4 40 MX 41 MN 40 MX 41 MN 4 10 MX 10 MX 11 MN 11 MN	SOILS WITH	11GHL Y	ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MATT MODERATELY ORGANIC HIGHLY ORGANIC	ATTER 2 - 3%. TER 3 - 5%	<u>50125</u> 3 - 5% 5 - 12% 12 - 20% > 20%	OTHER MATERIAL TRACE 1 - 10% LITTLE 10 - 20% SOME 20 - 35% HIGHLY 35%	FRESH VERY SLIGHT (V SLI.)	HAMMER IF CRYSTALLIN ROCK GENERALLY FRESH	E. 1, JOINTS STAINED, S 1 SPECIMEN FACE SH	MAY SHOW SLIGHT STAINING. ROCK DME JOINTS MAY SHOW THIN CLAY C INE BRIGHTLY. ROCK RINGS UNDER H			
GROUP INDEX 0 0		8 MX 12 MX 16 MX NO MX SILTY CLAYEY SOILS SOILS		RGANIC		WATER LEVEL IN BOR		TELY AFTER DRILLING	SLIGHT (SLI.)	ROCK GENERALLY FRESH 1 INCH. OPEN JOINTS M CRYSTALS ARE DULL AN	A, JOINTS STAINED A AY CONTAIN CLAY. II ND DISCOLORED, CRY	ND DISCOLORATION EXTENDS INTO RO N GRANITOID ROCKS SOME OCCASIONA STALLINE ROCKS RING UNDER HAMMEI			
MATERIALS SANU	CELLENT TO GOOD	FAIR TO POOR	FAIR TO POOR UNS	SUITABLE	▼	STATIC WATER LEVEL PERCHED WATER, SATI SPRING OR SEEP		WATER BEARING STRATA	MODERATE (MOD.)	GRANITOID ROCKS, MOST	FELDSPARS ARE DU	OLORATION AND WEATHERING EFFECT LL AND DISCOLORED, SOME SHOW CLA DWS SIGNIFICANT LOSS OF STRENGTH			
PI 0		30 ; PI OF A-7-6 SUBGROUP IS >	· LL - 30						MODERATELY	ALL ROCK EXCEPT QUAR		STAINED. IN GRANITOID ROCKS.ALL			
		Y OR DENSENESS RANGE OF STANDARD	RANGE OF UNCONFI	INED			EOUS SYMBO	LS	SEVERE (MOD, SEV.)	AND CAN BE EXCAVATED	WITH A GEOLOGIST	OLINIZATION. ROCK SHOWS SEVERE L 'S PICK. ROCK GIVES *CLUNK* SOUND			
PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY VERY LOOSE LOOSE	PENETRATION RESISTENCE (N-VALUE) < 4 4 TO 10	COMPRESSIVE STREI (TONS/FT ²)	NGTH	ROADWAY EMBA WITH SOIL DE SOIL SYMBOL		DIF & DIF DIRE		SEVERE (SEV.)	REDUCED IN STRENGTH	TZ DISCOLORED OR TO STRONG SOIL. IN	STAINED. ROCK FABRIC CLEAR AND E GRANITOID ROCKS ALL FELDSPARS (RONG ROCK USUALLY REMAIN.			
GRANULAR MATERIAL (NON-COHESIVE)	MEDIUM DENSE DENSE VERY DENSE	10 TO 30 30 TO 50 > 50	N/A		THAN ROADWAY		AUGER BORING	CONE PENETROMETER	VERY SEVERE (V SEV.)	BUT MASS IS EFFECTIV	RTZ DISCOLORED OR ELY REDUCED TO SO	1 <u>00 BPF</u> STAINED. ROCK FABRIC ELEMENTS AF IL STATUS, WITH ONLY FRAGMENTS O ROCK WEATHERED TO A DEGREE THAT			
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4		INFERRED SOIL		 CORE BORING MONITORING WEI PIEZOMETER 	SOUNDING ROD TEST BORING WITH CORE SPT N-VALUE	COMPLETE	VESTIGES OF ORIGINAL ROCK REDUCED TO SOIL	ROCK FABRIC REMAI . ROCK FABRIC NOT	N. <u>IF TESTED, WOULD YIELD SPT N N</u> DISCERNIBLE, OR DISCERNIBLE ONLY BE PRESENT AS DIKES OR STRINGERS			
		> 30 DR GRAIN SIZE	> 4				INSTALLATION)	_		ROCK HA	RDNESS			
U.S. STD. SIEVE SIZE	4 10	40 60 200	270						VERY HARD	CANNOT BE SCRATCHED SEVERAL HARD BLOWS (PICK. BREAKING OF HAND SPECIMEN			
OPENING (MM)	4.76 2.00	0.42 0.25 0.075 COARSE FINE	0.053			UNSUITABLE WASTE	E Læi CAVATION -	ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD		KNIFE OR PICK ONL	Y WITH DIFFICULTY. HARD HAMMER B			
BOULDER COBBL (BLDR.) (COB		SAND SAND (CSE. SD.) (F SD.) 0.25		.AY 'L.)		ACCEPTABLE DEGRA ABBRE MED ME	EVIATIONS	VST - VANE SHEAR TEST	MODERATELY HARD			GES OR GROOVES TO 0.25 INCHES D 'S PICK. HAND SPECIMENS CAN BE D			
SIZE IN. 12	3	CORRELATION OF			BT - BORING TERMINATED - CL CLAY CPT - CONE PENETRATION	D MICA M MOD MO	MICACEOUS IODERATELY N PLASTIC	WEA WEATHERED γ - UNIT WEIGHT γ_{1} - DRY UNIT WEIGHT	MEDIUM HARD		SMALL CHIPS TO PE	DEEP BY FIRM PRESSURE OF KNIFE (ICES 1 INCH MAXIMUM SIZE BY HARD			
SOIL MOISTURE SC (ATTERBERG LIMIT	TS) DESCRIF	TION GUIDE FOR F	IELD MOISTURE DESCRIF		CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAT	ORG OR T PMT - PR	RGANIC RESSUREMETER TE APROLITIC		SOFT		L INCHES IN SIZE E	IFE OR PICK. CAN BE EXCAVATED IN YY MODERATE BLOWS OF A PICK POIN RE.			
	- SATURA (SAT.) IMIT		UID: VERY WET, USUALLY THE GROUND WATER TA		e - VOID RATIO F - FINE - FOSS FOSSILIFEROUS	SD SAN SL SIL SLI SL	_T,SILTY _IGHTLY	SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK	VERY SOFT			ATED READILY WITH POINT OF PICK. FINGER PRESSURE. CAN BE SCRATCH			
PLASTIC RANGE <	- WET - (EQUIRES DRYING TO MUM MOISTURE		FRAC FRACTURED, FRAC FRAGS FRAGMENTS		RICONE REFUSAL STURE CONTENT	RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING		FRACTURE SPACE	NG	BEDDING			
	- MOICT		NEAR OPTIMUM MOISTL	JRE		V - VERY			VERY WID WIDE	DE MORE TH	ACING AN 10 FEET 10 FEET	TERM VERY THICKLY BEDDED THICKLY BEDDED 1			
			DITIONAL WATER TO		DRILL UNITS:	ADVANCING TOOLS:	FLIGHT AUGER		MODERATI CLOSE VERY CLO	Ø.16	3 FEET TO 1 FOOT AN 0.16 FEET	THINLY BEDDED 0. VERY THINLY BEDDED 0.0 THICKLY LAMINATED 0.00 THINLY LAMINATED <			
	ΡΙ Δ	STICITY			CME-55	8" HOLLOW AUGE		СОRE SIZE:			INDURA				
		CITY INDEX (PI)	DRY STRENGTH		CME-550	HARD FACED FIN	NGER BITS		FOR SEDIME	NTARY ROCKS, INDURATIO		NG OF MATERIAL BY CEMENTING, HE			
NON PLASTIC SLIGHTLY PLASTIC MODERATELY PLAS		Ø-5 6-15 16-25	VERY LOW SLIGHT MEDIUM		VANE SHEAR TEST	TUNGCARBIDE I		HAND TOOLS:	FRIAB	BLE	GENTLE BLOW B	INGER FREES NUMEROUS GRAINS: Y HAMMER DISINTEGRATES SAMPLE.			
HIGHLY PLASTIC	26	OLOR	HIGH		PORTABLE HOIST		15/16'STEEL TEETH	POST HOLE DIGGER	MODE	RATELY INDURATED	BREAKS EASILY	SEPARATED FROM SAMPLE WITH ST WHEN HIT WITH HAMMER. FICULT TO SEPARATE WITH STEEL			
						CORE BIT	TUNGCARB.	SOUNDING ROD	INDUR	ATED		FICULT TO SEPARATE WITH STEEL REAK WITH HAMMER.			
		COMBINATIONS (TAN, RED,) (ED, ETC, ARE USED TO DE		ΑΥ).					EXTRE	EMELY INDURATED	SHARP HAMMER I SAMPLE BREAKS	BLOWS REQUIRED TO BREAK SAMPLI ACROSS GRAINS.			

PROJECT REFERENCE NO.



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AVALUES : APPLIED TO ALL RECKOUND GROUP THAT PARKS EXPOLED THAT CAN THERE LETU: APPLIED TO ALL ROCKS OF BIGSTON THAT PARKS EXPOLES IN THE LETU: APPLIED TO ALL ROCKS OF BIGSTON THAT PARKS EXPOLES IN THE LETU: A TRISIN - GROUP ANTER THAT IS UNDER SUFFICIENT PASSINGE TO ALL CAN THERE LETU: A TRISIN - GROUP ANTER THAT IS UNDER SUFFICIENT PASSINGET ON THE LETU: A TRAIN CELLARGON COLC: SOLIS THAT CONTAIN APPRECIABLE MANING TO CALON CARBONTE. COLLINGER - GROUP PARKETS IN THE UTI AS INCOMPRECIABLE MANING TO SUFFICIENT OF ALL CARDON TO SUFFICIENT COLLINGER - GROUP PARKETS INTED UTI AS INCOMPRECIABLE MANING OF ALL CARDON TO SUFFICIENT OF ALL CARDON TO COLOR RECOVERY INCC. COLLINGER - GROUP PARKETS INTED UTI AND APPRECIABLE MANING TO SUFFICIENT OF ALL CARDON THE COLOR RECOVERY INCC. COLLINGER - GROUP PARKETS INTED UTI AND ALL MARTING, RECOVERED IN THE CORE BARREL DIVIDED DISC - A TRUEL AS TOTAL LEARTH OF ALL MARTERIA, RECOVERED IN THE CORE BARREL DIVIDED DISC - A TRUEL AS TOTAL LEARTH OF ALL MARTERIA, RECOVERED IN THE CORE BARREL DIVIDED DISC - A TRUEL AS TOTAL LEARTH OF ALL MARTERIA, RECOVERED IN THE CORE BARREL DIVIDED DISC - A TRUEL AS TOTAL LEARTH OF ALL MARTERIA, RECOVERED IN THE CORE BARREL DISC - A TRUEL AS TOTAL LEARTH OF ALL MARTERIA PROJECTION OF REAL MARTERIA SUBST BELOTING. DISC - A TRUEL AS TOTAL LINE OF CORE MARTERIA DISC - A TRUEL AS TOTAL THAT CAN BE RECOVER. THAT CAN BE RECOVER THE SUBST BELOTING. SUBST BELOTING OF REALTER AS ANTER PARKELL OF THE FRACTURE. SUBST BELOTING OF REAL MARTERIA BELOTING AND THE FRACTURE. SUBST BELOTING OF REAL MARTERIA BELOTING AND THE FRACTURE. SUBST BELOTING ADD TRUE ALL MARTER AS BULC THAT CAN BE RECOVERED AND THE FRACTURE. SUBST BELOTING ADD THE CODE CONTER AND THAT THAT AND RECOVERED AND THE SUBST BELOTING ADD THE ADD THAT THAT AND ADD THAT ADD THA	FOOT PER 60	
N YALUES > A NOTALE PROPORTION OF CLAY IN THEIR COMPOSITION SUCH AS SMALL SLAFE, LTC. ATESIAN- DADA WATER THAT IS UNDER SUFFICIENT PRESSUE TO BREADY THE LEVEL AT WIGHT ITS ENCOMPERED BUT WHICH DOES NOT NECESSARILY RISE TO DR ADAVE THE ORDUND SUPPORT. LTRAINE, CARLED - SULLS THAT CONTAIN APPRECIABLE MAURIS OF CALCUM CARDONTE. CALUES GRANTE, LTRAINE, CALUES CONTAINED, LTRAINED, LTRAINED, LTRAINED, LTRAINED, NO SLOPE OR AT BOTTOM OF SLOPE. CALUES CONTAILED. CO	IS OFTEN	
Anterson - Groups Anter That is under Sufficient Pressure to Rise Abor the Level At ULCOSE GRANTE, LERSON - GROUPS COLOREDGE DU VIEWO DOES NOT ACCESSARUE TO SEE ON ADJONE THE GROUPS SUFFICIENT OF A CONTRACT OF CORE AND AND RECOVERED AND AND SUPER OR AT BOTTOM DESCRETE THE TESTED. COLLARISON CALL, SOLUTION OF ICACUUS ROLL THAT CONTAIN APPRECIABLE AND/ATS OF CALCUM CARBONATE. COLLARISON CALL, SOLUTION OF ICACUUS ROLL THAT CONTAIN APPRECIABLE AND/ATS OF CALCUM CARBONATE. COLLARISON CALL TO CORE AND AND EXPRESSION AS A PRECENTAGE. THAT NOT VIEWD DIVEL CONTAINED TO CORE AND AND EXPRESSION AS A PRECENTAGE. THAT NOT VIEWD DIVEL CONTAINED TO CORE AND AND EXPRESSION AS A PRECENTAGE. THE ANALL A RANGE OF ICACUUS ROLL THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS AND AND AND AND AND PRACED CONCENTION OF BRAINED OF THE ADJACENT ROCKS OR CUTS AND	N VALUES >	
CLUESE CRANTE, PLAIN PLANN PLAIN PLANN PLAIN PLANN PLAIN PLANN	OCK THAT	
L PLAN TESTED. TESTED. TESTED. TESTED. TESTED. TESTED. TOTAL CENTRA DEC. TESTED. TOTAL CENTRA DEC. TESTED. TE	CLUDES GRANITE,	SURFACE.
TONE, CENENTED BY DISCONSIDE, DOING, LEWING PROCE THAT CUTS ACCOSS THE STRUCTURE OF ADJACENT MOOS DO CHIS MASSINE ROOK. DIKE - A TABLUAR BOOY OF TOREOUS ROOK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT MOOK DO CUTS MASSINE ROOK. DIKE - A TABLUAR BOOY OF TOREOUS ROOK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT MOOK DO CUTS MASSINE ROOK ONTO: ELEUSARS DIKE - TRANCLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE INDEX FOR DOWN IF DIKE - A TABLUAR BOOY OF TOREOUS ROOK ONTO: ELEUSARS DIKE - TRANCLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE INDEX FOR DOWN IF DIKE - A TABLUAR BOOY OF TOREUS ROOK ONTO: ELEUSARS DIKE - TRANCLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE INDEX FOR PARAMENT OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. S. IN Y. ROCK HAS S. IN Y. ROCK HAS IN COMPARED ELEUSARS COMPARIED ELEUSARS ELEUSARS ELEUSARS RELEGARD FERENTIAL ELEUSARS ELEUSARS RELEGARD A WAPPABEL ROCK OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO THE LEUSARS VIDENT BUT REFERENTIAL ELEUSARS REGURARD A WERPABEL ROCK OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO THE LEUSARS LEUSARS ELEUSARS RELEGARD A WERPABEL ROCK OR PROJECTION OF ROCK WHICH HAS OCCURED AND THACKNES LEUSARDOLL ELEUSARS	AL PLAIN IF TESTED. C.	<u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
RINGS UNDER ROCKS OR CUTS MASSIVE ROCK. DIP_THE WALL TA WHICH A STATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE MARKER BLOWS IF DIP_DIFFECTION OR ADJURTS - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE ISLOSS ENGLISTING TO BE ADJURTS - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE SIDES RELINE TO OR ADJURTS - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE SIDES RELINE TO OR CHARGE OF REACIVE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELINE TO OR CHARGE OF RAMELED TO THE FRACTURE. RELONS. FLADIT - NOCE FRACMENTS ON SUFFACE NEAR THEIR ORIGONAL POSITION AND DISLOGED FROM PARENT MATERIAL. N, NGCK NAKS AS COMPARED FLADIT - NOCE FRACMENTS ON SUFFACE NEAR THEIR ORIGONAL POSITION AND DISLOGED FROM PARENT MATERIAL. HELDSPARS DULL OSS OF STRENT HELDSPARS DULL OSS OF STRENT HER STRUCK. FARCTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT BEPOSITED BY THE STREAM. FRAMENT MATERIAL. VIDENT BUT HER KADLINZED - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THEOREXTED SON TITS LATERAL EXTENT. VIDENT BUT HER KADLINZED - A SHELF-LIKE RIDGE OR ROLK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTITED DIAL EXTENT. - AN INTERVENING IMERVIOUS STRATUM. NUMENT ROLK - AN INTERVENING IMERVIOUS STRATUM. NUMENT SOLUTION TO STRATUM AND LARCE OF THE WALTHERING OF ROCK. SECURES SINCH CONC SECURITY ESTIMETING OF ADREND AND LARCE OF THE WALTHERING OF ROCK. SECURAL RESIDIAL - NO INTERVENTION CONC AND ARAPTELE VELL BY THE PRACEMENT OF CONCE ROLK MERSES DANA TRACEMENT OF THE INTERCORE PRACEMENT OF THAL LENGTH OF CORE ROLK MERSES DIAL TO OR GREATER THAN 4	MAY NOT YIELD STONE, CEMENTED	
DATINGS IF OPEN, MAMER BLOWS IF IP IP <td></td> <td></td>		
DATING IF DEEL, MAREE BLOWS IF DIP DIRECTION ON AZIMUTH - THE DIRECTION OR BLARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP. REASURED CLOCKVISE FROM NORTH. CK UP TO IFELDSPAR BLOWS. FARLITLE TO DIE FRACTURE ZOE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DIE ANDTHE PRACLURE ZOE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DIE ANDTHE PRACLURE ZOE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DIE ANDTHE PRACLURE ZOE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DIE ANDTHE PRACLURE ZOE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO DIE ANDTHE PRACLURE ZOE SIDE SIDE AND TRACED IN THE FIELDSPARES DULL SIDES OF STRENT. SI NO KARDY TRUE. FIELDLATING AND FRACE GEOLOGIC UNIT THAT CAN BE RECORVIZED AND TRACED IN THE FIELDSPARES DULL SIDES OF STRENT. DIP DIRECTION DIP ALTER IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. FEDDO FIELD AN AMPERALE GEOLOGIC UNIT THAT CAN BE RECORVIZED AND TRACED IN THE FIELDSPARES DULL BEELOSA BEDUTE - STRENT AND LACK OF GOOD DRAINGEL LEDDE AS BELF-LIKE RIDDE OR PROJECTION OF ROCK WHOSE THECKNESS IS SMALL COMPARED TO THE KARLINZED VIDENT BUT HIE KARLINZED VIDENT BUT HIE KARLINZED VIDENT BUT HIE KARLINZED STREND ROCK DALK MINOR ALEX STRENT AND LEAK AND HARDE ADARY HIE NOT AN CORVER AND LEAK BY THE PRESENCE ONLY MINOR ALEX STRENT ANTER MAINTAINEDE ADARY HIE NOT AL CREWT HAS DEEN BEAL AND HIE STRENT BUT HERVENTING MAINABLE ADARY AND LACK OF COOL DRAINGE. DIP ALEX STRENT AND LEAK BY THAN AND LACK OF COOL DRAINGE. SAMALL CHARTE ANTER MAINTAINED ADARY AN AND LACK OF COOL DRAINGE AND LACK OF COOL DRAINGE HIELDSPARES DIAL THAN AND LACK OF COOL DRAINGE HIELE STRENT AND LACK OF COOL DRAINGE HIELSPARE AND AND LACK OF GOOL DRAI	RINGS UNDER	
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STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GRATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER. BENCH MARK: BEA-54 GEODETIC SURVEY LONG: 076 52 13. W 4 FEET 15 - 4 FEET 6 - 1.5 FEET 3 - 0.16 FEET B 0.03 FEET AT, PRESSURE, ETC. EEL PROBE: **		STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
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Imigram BENCH MARK: BEA-54 GEODETIC SURVEY 1 LONG: 076 52 13. W 4 FEET 16 -1.5 FEET 3 - 0.03 FEET NOTES: 8<-0.03 FEET	PIECES 1 INCH IED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
THICKNESS 4 FEET 4 FEET LONG: 076 52 13. W 4 FEET LAT: 35 2147. N 16 - 1.5 FEET NOTES: 7 - 0.6 FEET NOTES: 8 - 0.03 FEET FIAD = FILLED IMMEDIATELY AFTER DRILLING 0.006 FEET FIAD = FILLED IMMEDIATELY AFTER DRILLING at, PRESSURE, ETC. EEL PROBE; PROBE; ::		
4 FEET LAT: 35 21 47. N ELEVATION: 5.41 FEET .5 - 4 FET LAT: 35 21 47. N ELEVATION: 5.41 FEET .6 - 1.5 FEET NOTES: NOTES: FILED IMMEDIATELY AFTER DRILLING .0008 FEET FILED IMMEDIATELY AFTER DRILLING FILED IMMEDIATELY AFTER DRILLING	THICKNESS	
AT. PRESSURE.ETC. EEL PROBE: PROBE: ::	4 FEET	
3 - 0.16 FEET NUTES: 18 - 0.03 FEET FIAD = FILLED IMMEDIATELY AFTER DRILLING 0.008 FEET AT, PRESSURE, ETC. EEL PROBE; PROBE; ::	16 - 1.5 FEET	
0.008 FEET THE THE CONCENT OF THE CONCENTS	13 - 0.16 FEET 08 - 0.03 FEET	
EEL PROBE; PROBE;	0.008 FEET	FILLE MATELE AFTEN DINELING
EEL PROBE; PROBE;		
PROBE:	AT, PRESSURE, ETC.	
PROBE:		
	EEL PROBE:	
	PROBE:	
	5	
		DATE: 8-15-14



		+	· · · · · · · · · · · · · · · · · · ·		B-4709	4
					ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
	PROFILE THROUGH	I BORINGS PROJE	ECTED ALONG -L-		INCOMP	LETE PLANS
					DO NOT USE 1	OR R/W ACQUISITION
				· - · · · · · · · · · · · · · · · · · ·		
						T CONSIDERED FIN
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	I I I I					+
	EBI-A 16+25 15/ LT	BI-A I6+75 9′ L T	EB2-A 17+25 15' LT			
_10¦		, 9°LI, , 				<u>+</u>
0	LOOSE TAN SAND, MOIST (ROADWAY EMBANKMENT) 6		U LOOSE TAN SAND, MOIST TO LOOSE TAN SAND, MOIST TO SATURATED (ROADWAY EMBANKMENT)			
.–10	LOOSE TO MEDIUM DENSE	ND WITH	D-+			
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50	\bigcirc	®—————————————————————————————————————	SAND AND SILTY SAND WITH SHELL FRAGMENTS			
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60			3-+			
	© +	[™]	© ⊣			
-70			© 			
	$\bigcirc +$	®—&				
-80						
						<u>+</u> <i>J</i>
			5 -			
	®+		BAND WITH SHELL AND LIMESTONE FRAGMENTS.			
	32-	40 -	SATURATED (PUNGO RIVER FORMATION)			
-100						
	FIAD	I J				
-110						
				TAKEN FROM B	LINE PROFILE ALONG -L- RIDGE SURVEY AND SIGN REPORT DATED 10/3	
–120	Q#n11	M-DENSE - GRAY SAND - SATURATED -				
(A) VERY SOFT BROWN MUCK, WET (ALLUVIAL)		M DENSE GRAY		NOTE: INFERR	ED STRATIGRAPHY IS DRAN BORINGS WITH BOTH TO THE PROFILE	/N
B STIFF GREEN SANDY SILT. WET (YORKTOWN FORMATION -130)			PROJECTED ON	TOTHE PROFILE	
		 I I I I I I I I I I I I I I I I I				
<u>–140 ¦ ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; ; </u>	16	17	18			

GEOTECHNICAL BORING REPORT BORE LOG

							<u> </u>	<u>ORE L</u>	OG			1											-	
WBS	17BP	.2.R.95									GEOLOGIST Zimarino, S. N	۷.		WBS	17BP	.2.R.95			ТІ	P B-4709	COUNT	DUNTY		
SITE	DESCR	IPTION	BRI	DGE N	10.1	4 ON -L- (SR 1932) O	VER TAN	SWAMP A	T STA.	16+80		- I		GROUND WTR (ft)	SITE	DESCR	IPTION	BRI	DGE I	NO. 14	· ON -L- (S	SR 1932) C	VER TA	N S
BOR	ING NO.	. EB1-	A		s	TATION 16+25		OFFSET	15 ft LT	•		ALIGNMENT -L-		0 HR. N/A	BOR	ING NO.	. EB1-	A		S	TATION 1	16+25		OF
COL	LAR ELI	EV. 5.	0 ft		TOTAL DEPTH 104.5 ft NORTHING 593,947						EASTING 2,635,048	2	24 HR. FIAD	COL	LAR ELI	EV. 5.	0 ft		т	JTAL DEP	TH 104.5	i ft	NC	
DRIL	_ RIG/HA	MMER E	FF./DA	TE GF	-0007	5 CME-45C 84% 08/21/201	7		DRILL	METHOD	M	Aud Rotary HAN	MME	RTYPE Automatic	DRIL	l rig/ha	MMER E	FF./DA	TE G	FO0075	CME-45C 8	4%08/21/20	17	
DRIL	LER S	mith, R	. E.		S	TART DATE 12/04/1	/04/18 COMP. DATE 12/04/18 SURFACE WATER DEPTH N/A								DRILLER Smith, R. E. START DATE 12/04/18								18	C
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		W COL 0.5ft		4	PER FOOT	75 100	SAMP. NO.	MOI	L O G	Soil and rock de Elev. (ft)	ESCI	RIPTION DEPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft	UNT 0.5ft	0		PER FOO 50	0T 75
5	5.0	0.0	2	2	<u> </u>		1					5.0 GROUND SUF			-75		 				 	Mate	ch Line	
	1.0	4.0	3	3	3			· · · · · ·				BROWN AND TAN S		D, MOIST		-78.0	83.0	2	3	4			· · · · · · · · · · · · · · · · · · ·	
0	-3.0	8.0	WOH	2	2			· · · · · ·				GRAY SILTY CLAY \FRAGMENTS, FRAGMENTS, ALLUVIA		<u>IST 6.0</u>	-80	-83.0	88.0					· · · · ·	· · · ·	-
-5	-0.0		5	6	7	$1 \xrightarrow{1}_{13} $	· · · ·	· · · · · ·				- GRAY SAND WITH WOO - SATURAT		RAGMENTS,	-85	-05.0		2	3	4		· · · · ·	· · · ·	· · ·
-10	-8.0	13.0	4	3	4	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	· · · · ·	· · · · · ·		0 0 0 0 0 0 0 0 0 0	000000000000000000000000000000000000000	-			-90	-88.0	93.0	5	6	11		7	· · · · · · · · · · · · · · · · · · ·	• •
	-13.0	18.0	3	4	7		· · · · ·	· · · · · ·		00****	<u> </u>	11.0 - -		16.0		-93.0	98.0	13	15	17			· · · · · · · · · · · · · · · · · · ·	
-15	-18.0	23.0				$\left \begin{array}{c c} \cdot & \P 1 1 \cdot & \cdot \cdot \cdot \cdot \\ \hline \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot &$		· · · · · ·		,	-			<u>21.0</u>	-95	-98.0	103.0	-	-			• 32 · · ·	· · · ·	
-20	- 10.0	- 23.0	9	10	11	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$	· · · ·	· · · · · ·		• • • • • • • • • • •		_ GRAY SAND WITH SHEI _ SATURATED (YORKTOV 				-90.0	-	12	6	9	· · · /· · · • •15		•••	
-25	-23.0	28.0	8	7	9	1 · · · · · · · · · · · · · · · · · · ·		· · · · · ·		9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9		- - -					+ + +							
	-28.0	33.0	3	3	3	/ . / 		 		9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		-					+							
-30	-33.0	38.0					· · · ·	· · · · · · · · · · · · · · · · · · ·			-						+							
-35		+ + +	3	2	4		· · · ·	· · · · · ·		6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-	- - -					+ + +							
-40	-38.0	43.0	3	4	5							- - -				-								
-45	-43.0	48.0	3	4	4	$ \begin{bmatrix} & & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & & & \\ & & & \\ & & & & \\ & & & \\ & & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ &$		 		6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8		-												
-50	-48.0	53.0	3	3	4							-					+							
	-53.0	58.0						· · · · · · ·			-	- - -					I I I							
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-55 -60	-58.0	63.0	3	3	6	$ \begin{bmatrix} \cdot & \cdot & \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot &$						- - - -												
-65	-63.0	68.0	3	2	4	$ \begin{vmatrix} & \cdot & \cdot & \cdot & \cdot \\ & \cdot & \cdot & \cdot & \cdot \\ & \cdot & \cdot$	· · · · ·	· · · · · ·		,		- - -				-								
	-68.0	73.0	3	3	4	· · · · · · · · · · · · · · · · · · ·	· · · · ·	· · · · · ·																
-70	-73.0	78.0					· · · · ·	· · · · · · ·				- - -												
-75	-	+	3	3	4	↓ 7 · · · · · ·											ł							

SHEET 5 OF 7

BEAUFORT	GEOLOGIST Zimarino, S.	. N.									
SWAMP AT STA. 16+80			GROUN	D WTR (ft)							
OFFSET 15 ft LT	ALIGNMENT -L-		0 HR.	N/A							
NORTHING 593,947	EASTING 2,635,048		24 HR.	FIAD							
DRILL METHOD Muc	d Rotary HJ	AMME	RTYPE	Automatic							
COMP. DATE 12/04/18	SURFACE WATER DEPTH	N/A	4								
75 100 NO. MOL G	SOIL AND ROCK DESCRIPTION										
75 100 NO. MOI G											
╷╴╴╴┤┝╺╺┝╺╶┤╦┟╴											
	GRAY SAND WITH SH SATURATED (YORKTO	JWN I	RAGMEN FORMATI	TS, ON)							
	(continu	ued)									
	- <u>86.0</u>		<u></u>	91.0							
	GRAY SAND WITH SH	IELL F	RAGMEN	TS,							
	SATURATED (PU FORMAT	JNGO FION)	RIVER								
	-99.5 Boring Terminated at E	Elevati	on -99.5 f	104.5 t in							
	Medium Der	nse Sa	ind								
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GEOTECHNICAL BORING REPORT BORE LOG

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	17BP					TIP B-4					f BEAUF				GEOLOGIST Zimarino, S. N.	1		17BP					B-4709	COUNTY
				IDGE			•) OVE		SWAMP		16+80)	-	GROUND WTR (ft)	I ———						OVER TAN S	
BOR	NG NO.	. B1-A	۱ <u> </u>		s	STATIO	N 16	6+75			OFFSET	9 ft LT			ALIGNMENT -L-	0 HR. N/A	BOR	ING NO	. B1-A	۹		STAT	ION 16+75	(
COLI	AR ELI	EV. -4	.7 ft		Т	OTAL	DEPT	H 119	9.2 ft		NORTHIN					24 HR. N/A	COL	LAR EL	EV 4	.7 ft		ΤΟΤΑ	L DEPTH 119.	.2 ft 🛛 🛚
DRILL	. RIG/HA	MMER E	FF./D/	ATE (GFO007	'5 CME-4	45C 849	% 08/21/	/2017			DRILL	METHO	DD M	Aud Rotary HAMM	ER TYPE Automatic	DRIL	l rig/ha	MMER E	FF./DAT	E GFOO	075 CME	E-45C 84% 08/21/2	.017
DRIL	LER S				S	START	DATE	11/2	7/18		COMP. D	ATE 11	/27/18		SURFACE WATER DEPTH 5.0	Oft	DRIL	.LER S	Smith, F	R. E.		STAR	T DATE 11/27	7/18 (
ELEV	DRIVE ELEV	DEPTH	BL	ow co	_			BLOV	VS PEF	R FOOT		SAMP	P. 🔨		SOIL AND ROCK DESC	CRIPTION	ELEV	DRIVE ELEV	DEPTH	BLO\	N COUNT		BLOWS	S PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5f	0.5ft	0	2	25	50		75 10	NO.	мо	I G	ELEV. (ft)	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft 0.5	Sft 0	25	50 7
1																								
0		Ļ													WATER SURFACE (1	11/27/18)	-80		ـ				Ma	tch Line
	-	ŧ													-			-82.4	+ 77.7				: : : : : : : : : : :	· · · · · ·
		+													- 4.7 GROUND SURFA	ACE 0.0		-02.4	1	3	4 6			· · · · ·
-5	-4.7	<u> </u>	woн	I WOF	I WOF							+1			ALLUVIAL		-00		ŧ				- <u> </u>	+
	-8.4	- 37							·					ini	<u> </u>	/		-87.4	82.7	3	7 7			
-10	-0.4	1 3./	3	4	5	╡ <u></u> [_```	9		•	· · · ·					GRAY SAND, SATUF	RATED	-90		Ŧ	Ĭ	· ′		• <u>14</u>	
	40.4	<u> </u>					<u>\.</u>		•						-				f			[-		
	-12.4 -	<u>+ 7.7</u> T	4	7	10	1 ::	17			· · · · ·					-			-92.4	<u>+ 87.7</u> T	14	18 22		· · · · · · · •	 10
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	-17.4	12.7				_ : :				· · · · ·				0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-			-97.4	92.7			_ :		· · · · · ·
-20	-	ŧ	8	10	11		: . † 2	$\frac{1}{2}$	•	· · · · ·					18.6 - COASTAL PLA		-100		ŧ	33	9 10	. ر . ۱	● 19	· · · · · ·
20	-	ŧ					<i> </i>					1			GRAY AND GREEN SAND FRAGMENTS, SATURATED	WITH SHELL O (YORKTOWN		1 -	ŧ				. <i>j</i> .	
	-22.4 -	<u>+ 17.7</u> +	7	8	6		1 1 1		:	· · · · ·					FORMATION))		-102.4	<u>+ 97.7</u> +	4	6 7	- :		· · · · · ·
-25	-	‡					<u> </u>		•						-		-105		‡				· · · · · · · · · · · · · · · · · · ·	· · · · ·
	-27.4 -	- 22.7					! 		:	· · · ·					-			-107 4	+ + 102.7				∶∶⋭÷⊢∷∹-	÷┾┾╤╤┙
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	-32.4	27.7	2	3	3				·						-			-112.4	107.7	14	14 1 [.]		· · · · · · · ·	
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	-37.4	- 32.7				11 1:			•									117 /	+ + 112.7					· · · · · ·
	-57.4	- 32.7	2	4	4	- -	8		•						-			-117.4	<u>+ 112.7</u>	9	10 12	2	· · · · • • • • • • • • • • • • • • • •	
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	-42.4	37.7	3		1										_			-122.4	<u> </u>	8	6 7			
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	-57.4 -	<u>- 52.7</u>	4	6	8	+ ::			·	· · · · ·					-				‡					
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	-62.4 -	- 57.7] : <i>i</i>	/ 		·	· · · ·					-				‡					
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-75	-	Ŧ							·	· · · ·	+ • • • •				- <u></u>	71.0		-	Ŧ					
	-77.4	72.7		-	F	; ;									GREEN SANDY SILT, WET	(YORKTOWN			Ŧ					
-80	-	Ŧ	2	3	5		8		•	· · · · ·					FORMATION)				Ŧ					
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SHEET 6 OF 7

IT	BEAUFC)F	RT			GEOLOGIST Zim	arino, S. N.		
٩N	SWAMP A	Т	STA. 1	16+80				GROUN	D WTR (ft)
	OFFSET	9	ft LT			ALIGNMENT -L-		0 HR.	N/A
	NORTHING	2	593.8	98		EASTING 2,635,0)57	24 HR.	N/A
			DRILL N		D M	I Rotary		ER TYPE	
		L				-			
	COMP. DA			27/18	L	SURFACE WATER	DEPTH 5.	Jft	
тс	75 100		SAMP.		0	SOIL AN	D ROCK DESC	RIPTION	
	75 100		NO.	/моі	G				
							OASTAL PLA		- — — Z6.0.
•					-	GRAY SAND,	SATURATED FORMATION	(YURKTU	WN
						- <u>85.7</u>			81.0
							OASTAL PLA AND WITH SH		
						LIMESTONE	FRAGMENTS,	SATURAT	ED
	· · · · ·					-90.7 (PUNGC	ORIVER FORM	MATION)	86.0
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<u> </u>	+					-106.6			101.9
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						-115.7			111.0
					Ē	C { GRAY SAND, \$	SATURATED (VER
					Ļ	- ,	FORMATION		
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						<u>-123.9</u> Boring Termir	nated at Elevat	ion -123.9 f	<u>119.2</u> t in
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GEOTECHNICAL BORING REPORT BORE LOG

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	IBS 17BP.2.R.95 TIP B-4709 ITE DESCRIPTION BRIDGE NO. 14 ON -L- (SR 1932) O			Y BEAU				GEC	LOGIST Zimarino, S. N.	T		3 17BP				TIP		COUNTY						
				DGE N			,	VER TAN				-80			GROUND WTR (ft)	·						-	-	VER TAN
BORI	NG NO	. EB2-	-A		S	TATION 1	7+25		OFFSE	T 15	5 ft LT		ALI	SNMENT -L-	0 HR. N/A	BOF	RING NO	. EB2-	A		STA	TION 17	+25	
COLL	AR EL	EV. 4.	6 ft		т	OTAL DEP	TH 104.7	ft	NORTH	IING	593,852		EAS	TING 2,635,079	24 HR. 3.9		LAR EL					AL DEPT		
DRILL	. RIG/HA	MMER E	FF./DA	TE GF	-00075	5 CME-45C 84	1% 08/21/201	7			DRILL MET	HOD	Mud Rota	y HAMIN	NER TYPE Automatic	DRIL	L RIG/HAMMER EFF./DATI			GFO	0075 CN		7	
	LER S				S	TART DATI	E 12/03/1	8	COMP.	DAT	E 12/03/	18	SUF	FACE WATER DEPTH N	/A	DRII	LER S		. E.		STA	RT DATE	12/03/1	8
ELEV	DRIVE ELEV	DEPTH	BLC					PER FOOT			SAMP.			SOIL AND ROCK DES	CRIPTION	ELEV	DRIVE ELEV	DEPTH		COUN				PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25 5	50	75	100	NO.	MOI G	ELEV.	(ft)	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft C	0.5ft 0.).5ft (0 2	5 5	50 7
5	4.6	L 0.0					1						4.6	GROUND SURF.		-75	+	+	+		· _ + -	 _	Matc	h Line
		Ŧ	8	4	3	• 7				.				ROADWAY EMBAN TAN SAND, MOIST TO S				Ŧ				i		
0	0.5	4.1														-80	-78.6	<u>+ 83.2</u> +	3	3	4			
	-	Ŧ	5	2	2	4 4							-1.4_		<u>_6.0</u>		1 -	Ŧ				· ; · ·]		
	-3.6	8.2		_										GRAY SAND, SATU	IRATED		-83.6	88.2		_		E NE E		
-5	-	Ŧ	6	7	6	13_				·					11.0	-85		Ŧ	3	3	12	Ģ 15		
	•	Ŧ								:		000	6.4		11.0			Ŧ				:: ; ;;;	· · · · ·	
-10	-8.6	† 13.2 †	5	4	3							0 0 0 0 0 0 0 0 0				-90	-88.6	<u>+ 93.2</u> +	7	5	7	· · · · · · · · · · · · · · · · · · ·	· · · · ·	
-	-	Ŧ				<u> </u>				-		0 0 0 0 0 0 0 0 0 0 0 0] -	Ŧ						
	-13.6	18.2										0 0 0 0 0 0 0 0 0	• -				-93.6	98.2		_				
-15	-	Ŧ	9	13	13		26		· · · ·	·		0 0 0 0 0 0 0 0 0			04.0	-95		Ŧ	18	21 2	25		`	46 1
		Ŧ								.		000	<u>16.4</u>	COASTAL PLA				Ŧ					/	
-20	-18.6	<u>† 23.2</u> †	10	12	9								-	GRAY SILTY SAND WI FRAGMENTS AND BLACK	PHOSPHATIC	-100		<u>† 103.2</u> †	18	8	6			
	-	Ŧ				<u>[</u>								NODULES, SATURATED FORMATION	(YORKTOWN I)			Ŧ						
-	-23.6	28.2				::: <i>:</i> [:							-					Ŧ						
-25	-	Ŧ	5	7	10	/ 17	7		· · · ·	·							-	Ŧ						
		Ŧ				::/::				.			-					Ŧ						
-30	-28.6	+ <u>33.2</u> +	2	3	4													Ŧ						
	-	Ŧ															-	Ŧ						
	-33.6	38.2																Ŧ						
-35	-	Ŧ	2	3	4	7			· · · ·								-	Ŧ						
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-40	-38.6	+ 43.2 +	4	6	4								-					Ŧ						
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-45	-	Ŧ	3	3	4	− ⁷ −−−	+ • • • •										-	ŧ						
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-50	-48.6	<u>+ 53.2</u> +	3	3	3													Ŧ						
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	-53.6	+ - 58.2				l I I IX I												Ŧ						
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-55 -60 -65 -70		Ŧ				/												ŧ						
-60	-58.6	+ 63.2 +	3	3	5													Ŧ						
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-65	-	Ŧ	2	3	3	••••	+ • • • •			·							-	ŧ						
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-70	-68.6	+ 73.2 +	3	3	3													ŧ						
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	-73.6	78.2]				.								Ŧ						
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