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REFERENCE

LEGEND (SOIL & ROCK) SITE PLAN PROFILE BORE LOGS

DESCRIPTION

TITLE SHEET

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY HALIFAX

PROJECT DESCRIPTION BRIDGE NO. 122 ON -L- (SR 1003) OVER DEEP CREEK TRIBUTARY AT STA. 15+59

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	SF-410122	1	6

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNIKG AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLI TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEICH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-6860. THE SUBSIFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS 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 OPHIONO OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONSTRUCTIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR ANY EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONTENS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

- NOTES: I. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR CUARANTEED 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.

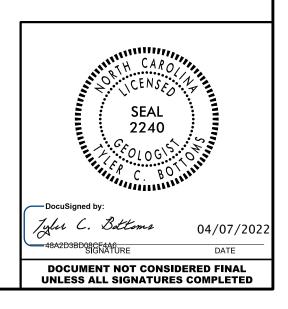
PERSONNEL

S.N. ZIMARINO

R.E. SMITH

C.M. WALKER

INVESTIGATED BY T.C. BOTTOMS
DRAWN BY
CHECKED BY D.N. ARGENBRIGHT
SUBMITTED BY D.N. ARGENBRIGHT
DATE JANUARY 2022



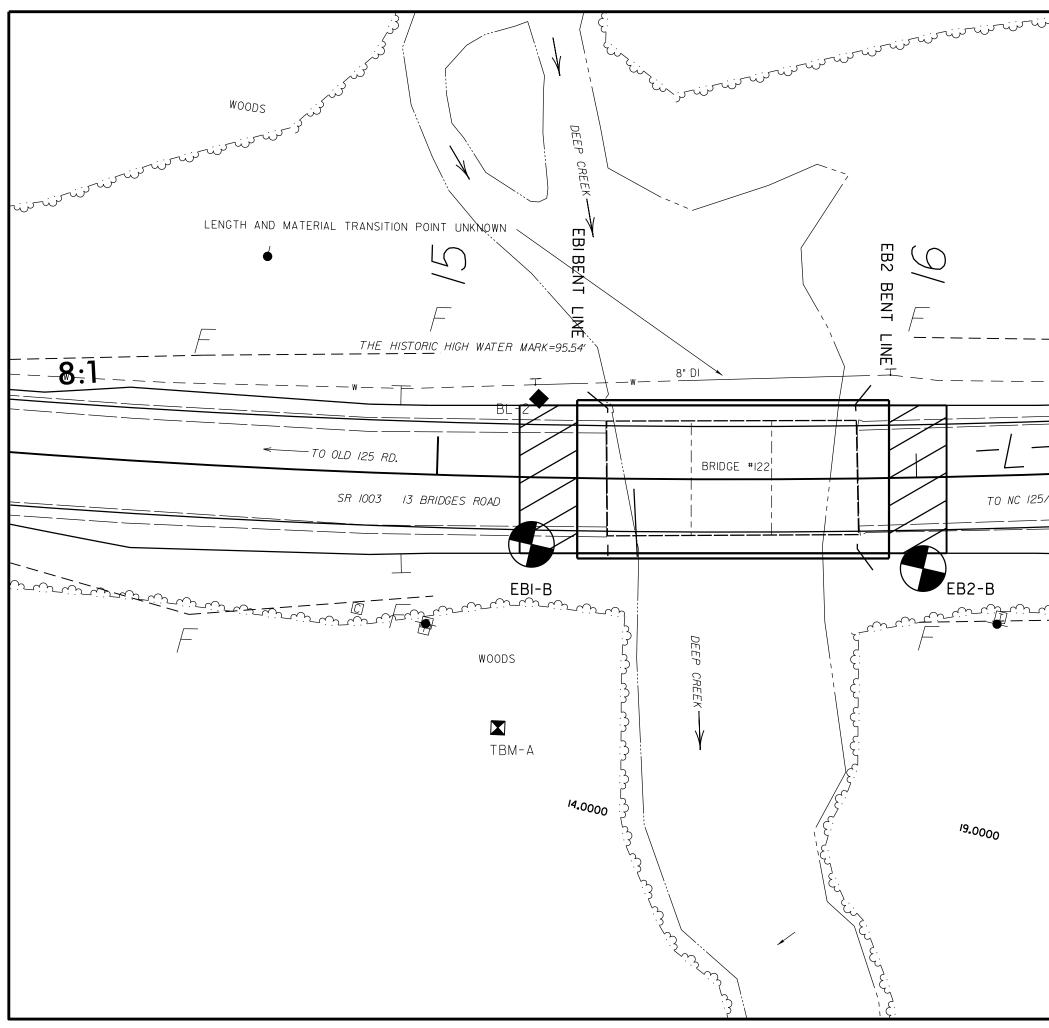
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

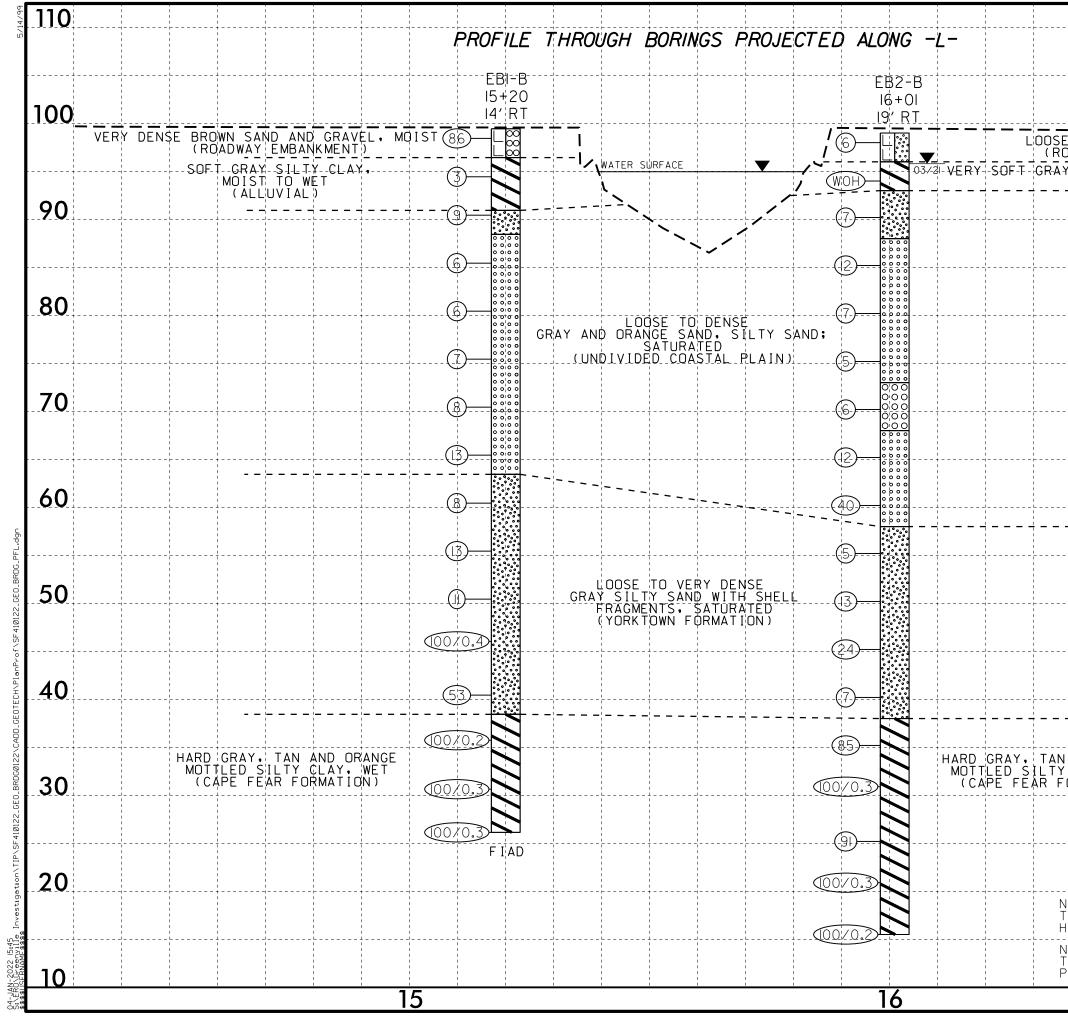
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS			
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL.	ED ALLIVIUM (ALLIV) - SOUS THAT HAVE REEN TRANSPORTED BY WATER			
BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586), SOIL CLASSIFICATION	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.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER COULD TO R LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	AQUIFER - 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	ANGULARITY OF GRAINS	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 H 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		CRYSTALLINE	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.			
CLASS. (< 35% PASSING *200) (> 35% PASSING *280) (> 35% PASSING *280) GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.			
CLASS. A-1-6 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 FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM			
STMBOL	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	ROCK (NCR) SEDIMENTAL INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC. COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	OF SLOPE.			
7 PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED (CP) SHELL BEDS, ETC.	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.			
10 50 MX GRANULAR SILT- MUCK, 40 30 MX 50 MX 51 MN SILT SILT PACK	PERCENTAGE OF MATERIAL		DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT			
*200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	ORGANIC MATERIAL GRANULAR SILT - CLAY <u>ORGANIC MATERIAL</u> SOILS <u>OTHER MATERIAL</u>	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE			
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	HAMMER IF CRYSTALLINE.	UIP - THE ANGLE AT WHICH A STRATOM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.			
PASSING *40 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 10 MX 41 MN 11 MN	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	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	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE			
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE OPENAU		OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE			
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NU MX AMOUNTS UF SOILS	Shoond watch	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO (SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.			
USUAL TYPES ISTORE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.			
MATEMIALS SANU	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 EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITAB		DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	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	- O-M- Spring or Seep	WITH FRESH ROCK. 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			
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.			
PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	(MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES 'CLUNK' SOUND WHEN STRUCK. <u>IF TESTED, WOULD YIELD SPT REFUSAL</u>	<u>JOINT</u> - 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			
CONSISTENCY (N-VALUE) (TONS/FT ²)	WITH SOIL DESCRIPTION - OF ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	ITS LATERAL EXTENT.			
GENERALLY VERY LOOSE < 4 DDUWED LOOSE 4 TO 10	SOIL SYMBOL OF TEST BORING SLOPE INDICATOR	(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.			
MATERIAL MEDIUM DENSE 10 TO 30 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) DENSE 30 TO 50 VERY DENSE > 50		VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE			
VERY SOFT < 2 < 0.25	INFERRED SOIL BOUNDARY CORE BORING • SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	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		SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE			
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4 HARD > 30 > 4	TTTTT ALLUVIAL SOIL BOUNDARY A INSTALLATION SPT N-VALUE	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.			
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS		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		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		HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.			
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN. MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT			
(BLDR.) (COB.) (GR.) Smith Smith (SL.) (CL.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED	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	BY MODERATE BLOWS. 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			
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY γ - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL			
	CPT - CONE PENETRATION TEST NP - NON PLASTIC $\gamma_{\rm d}$ - DRY UNIT WEIGHT CSE COARSE ORG ORGANIC	POINT OF A GEOLOGIST'S PICK. SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY			
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST <u>SAMPLE ABBREVIATIONS</u>	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.			
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE. VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES I INCH	<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			
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL, - SILT, SILTY ST - SHELBY TUBE FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.			
PLASTIC SEMISOLID; REOUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL		TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.			
	FRAGS FRAGMENTS w - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING	BENCH MARK: BL-2			
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	<u>N: 882128.9985 E: 2437918.6474</u> ELEVATION: 98.03 FEET			
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET				
	X CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO I FOOT VERY THINLY BEDDED 0.03 - 0.16 FEET VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	<u>NOTES:</u> FIAD - FILLED IMMEDIATELY AFTER DRILLING			
- DRY - (D) ATTAIN OPTIMUM MOISTURE	CME-55	THINLY LAMINATED < 0.008 FEET	TIAU - FILLEU IMMEUIATELT AFTER UKILLING			
PLASTICITY	■ 8' HOLLOW AUGERS	INDURATION				
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 ARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.				
NON PLASTIC Ø-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT	TUNGCARBIDE INSERTS	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				
MODERATELY PLASTIC 16-25 MEDIUM	CASING W/ ADVANCER POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;				
HIGHLY PLASTIC 26 OR MORE HIGH	PORTABLE HOIST	BREAKS EASILY WHEN HIT WITH HAMMER.				
COLOR	TRICONE' TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.				
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT					
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14			

^{SHEET NO.}

project reference no. SF-410122



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	project reference no. SF -410122	D. SHEET NO. 4				
	ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER				
	INCOMPLE	E PLANS				
	DO NOT USE FOR R	/ W ACQUISITION				
E BROWN SAND, MOIST OADWAY EMBANKMENT)						
Y-SILTY-CLAY-HOIST-TO-W	UNLESS ALL SIGNAT					
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ORMATION)		30				
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NOTE: GROUNDLINE_PROFILE	ALONG -L-					
TĂKĒN FROM BRIDGE SURVĒY TYDRAULIC DESIGN REPORTI	AND Dated 12/9/2	2021				
NOȚE: INFERRED STRATIGRAF Through (The Borings with	PHY IS DRAWN					
PROJECTED ONTO THE PROFIL	E	10				
	1	7				

GEOTECHNICAL BORING REPORT BORE LOG

					BORE LOG	
WBS BF	P4.R013.1			TI	P SF-410122 COUNTY HALIFAX GEOLOGIST Zimarino, S. N.	
SITE DES	SCRIPTION	BRID	GE NC). 122	ON -L- (SR 1003) OVER DEEP CREEK	GROUND WTR (ft)
BORING	NO. EB1-	В		SI	ATION 15+20 OFFSET 14 ft RT ALIGNMENT -L-	0 HR. N/A
	ELEV. 99				TAL DEPTH 73.3 ft NORTHING 882,095 EASTING 2,437,924	24 HR. FIAD
DRILL RIG	HAMMER EF	F./DATE	GFO	0075 C	VE-45C 87%11/23/2021 DRILL METHOD Mud Rotary HAMM	ER TYPE Automatic
DRILLER	R Smith, R	E.		ST	ART DATE 03/30/21 COMP. DATE 03/30/21 SURFACE WATER DEPTH N/	A
ELEV (ft) DRI ELI (ft		BLO 0.5ft	W COU 0.5ft	JNT 0.5ft	BLOWS PER FOOT SAMP. L O SOIL AND ROCK DES 0 25 50 75 100 NO. MOI G ELEV. (ft)	CRIPTION DEPTH (f
10099	9.4 0.0	17	40	46	99.4 GROUND SURF.	KMENT
95 95	5.4 + 4.0	2	2	1		3.
91	+ + 1.4 + 8.0	WOU				8.
90	Ŧ	WOH	5	4	Image: big state of the sta	L PLAIN E SAND, 11
85	<u>6.4 + 13.0</u> +	2	2	4	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	
	+ + 1.4 <u>+</u> 18.0	1	1	5		
80	+			J		
	5.4 <u>+</u> 23.0 <u>+</u>	3	3	4	↓ </td <td></td>	
71	1.4 - 28.0	4	4	4		
65	6.4 - 33.0 +	6	7	6		
	1.4 - 38.0				Image: Constraint of the second sec	FRAGMENTS,
60	+	8	5	3	••• ••• <td>I FORMATION)</td>	I FORMATION)
<u>55</u>	<u>5.4 + 43.0</u> 	6	6	7		
51 	1.4 <u>+</u> 48.0 +	5	5	6		
	5.4 <u>+</u> 5.4 <u>+</u> 53.0	100/0.4				
45	+ + 1.4 + 58.0					
40		8	25	28		<u></u>
<u>36</u>	6.4 <u>+</u> 63.0 + +	45	100/0.2		GRAY, TAN AND ORANG GRAY, TAN AND ORANG SILTY CLAY, WET (C/ FORMATION	E MOTTLED
31 	1.4 <u>+</u> 68.0	64	100/0.3			
26	<u>5.4 -</u> 73.0 <u>-</u>	100/0.3			100/0.3 26.1 Boring Terminated at Eleve	73 ation 26.1 ft in

SHEET 5 OF 6

GEOTECHNICAL BORING REPORT BORE LOG

	BP4.R					P SF-4				r halifa	Х			GEOLO	GIST Zimarino, S. N.	1			BP4.R					SF-4101		COUNT			
SITE	DESCR	IPTION	BRID	GE N	0. 122	ON -L-	(SR 10	003) OV	ER DEEF	CREEK							VTR (ft)	SITE	DESCRI	PTION	BRID	GE NO	O. 122	ON -L- (SF	R 1003) OV	ER DEEF	<u>> ر</u>		
BORI	ing no.	EB2-E	3		SI	TATION	16+0)1		OFFSET	19 ft R	т		ALIGN	MENT -L-	0 HR.	N/A	BOR	NG NO.	EB2-E	3		ST	ATION 16	3+01		c		
COLLAR ELEV. 99.0 ft TOTAL DEPTH 83.5 ft							NORTHING 882,108				EASTI	IG 2,438,004	24 HR.	3.2	2 COLLAR ELEV. 99.0 ft					TOTAL DEPTH 83.5 ft									
DRILL RIGHAMMER EFF./DATE GF00075 CWE-45C 87% 11/23/2021											DRILL	METHO	DD M	ud Rotary	HAMIN	MERTYPE Aut	omatic	DRILL	. RIG/HAM	MEREF	F./DATE	GFC	F00075 CME-45C 87% 11/23/2021						
DRIL	LER Si	mith, R.	E.		ST		ATE	03/29/21	1	COMP. D	ATE 0	3/29/21		SURFA	CE WATER DEPTH N	/A		DRILLER Smith, R. E. START DATE								1	c		
	DRIVE			w co	UNT		E	BLOWS F	PER FOOT		SAM								ELEV	DRIVE ELEV			w col	JNT		BLOWS F	PER FOOT		
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	5	60	75 10	о по	. /мс	O DI G	ELEV. (ft)	SOIL AND ROCK DES		DEPTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 5	50	75		
										•																			
100																		20							Matc	h Line			
100	99.0	0.0	2	3	3							_		99.0	GROUND SURF ROADWAY EMBAN		0.0						+		<u> </u>	· · · ·	.		
	-	‡	2	Ū	Ŭ	1 ⁶ . :	· • ·		· · · ·					96.0	BROWN SAND, N		3.0		16.2	82.8				· · · · ·					
95	95.0	4.0	WOU	WOU	woн	/ /											<u>3.0</u>			- 02.0	67	100/0.2		· · · ·	• • • •		<u> </u>		
	-	‡	0011	WOIT	10000	•0 \	.							93.0	GRAY SILTY CLAY, MO														
	91.2	7.8	7	4	3	l <u>`</u> t : :	.							-	GRAY AND ORANGE SAN	ND AND SILTY			-										
90	-	ŧ	'	-		- 0 7								<u>-</u>	SAND, SATURA	TED				-									
	-	<u>+</u>				· ŀ ·							0000	88.0			11.0		-										
85	86.2	12.8	5	5	7		2.						0 0 0 0 0 0 0 0 0 0 0 0	F					-										
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	81.2	T 17.8					.						0000	F															
80	-	Ŧ	2	3	4	• 7							0000	F					-	-									
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75	76.2	22.8	2	2	3	[]]]	.						0 0 0 0 0 0 0 0 0 0 0 0	F					-										
75	-	‡	_	_		_₽ 5 • •							0000	- 			00.0			-									
	-	+					.							73.0			26.0		-										
70	71.2	27.8	2	3	3	6														-									
	-	t				.\ . \							000	68.0			31.0												
	66.2	32.8				· ` ·	.						0 0 0 0 0 0 0 0 0 0 0 0	L						-									
65		Ŧ	4	6	6		2						0 0 0 0 0 0 0 0 0 0 0 0	-						-									
	-	Ŧ											0000	F															
60	61.2	37.8	5	10	30								0000	F					-										
	-	Ŧ					/	40					0000	58.0			41.0												
	56.2	42.8					1								GRAY SILTY SAND W														
55		+	2	2	3	4 5								-	FRAGMENTS, SATI	URATED				-									
	-	‡				:\: :	.	· · · · · · · ·						+	(YORKTOWN FOR	WATION)			-										
50	51.2	47.8	5	5	8	:\;	.							+															
50 27/	-	‡	Ĭ	v		 @ 1 \	13.							F						-									
L 1/4	-	±				· · · ·	:\ <u>`</u> :							⊧ ⊧						.									
LG 5. 45	46.2	52.8	9	11	13		24							F															
DO	-	t						· · · · -						Ł						.									
2 V	41.2	57.8		~			. .							Ł															
ය <mark>ු</mark> 40	-	F	3	3	4					+ • • • •				╞					-	-									
RDG	-	Ŧ						····					N	38.0		<u></u>	<u> 61</u> .0												
⊡ 0⊒ 35	36.2	62.8	25	32	53				` ` `.					F	GRAY, TAN AND ORANG SILTY CLAY, WET (C	GE MOTTLED				-									
2_GE	-	‡									11			<u>⊢</u> -	FORMATION	APE FEAR V)				-									
1012	210	- 67.8				· · · · · ·			· · · · ·					ŧ						.									
SF 4	31.2		100/0.3				.			100/0.3	<u>}</u>																		
BLE	-	±				 			 		'			<u>t</u>						.									
DOU	26.2	72.8		40		· · · ·	.			· · · <i>j</i> .				Ł						<u> </u>									
1 25	_	+	30	40	51					• 91				L					-	-									
NCDOT BORE DOUBLE SF410122_GEO_BRDG.GPJ_NC_DOT.GDT_14/22 C	-	Ŧ					.				.									-									
20 ACDO	21.2	77.8	100/0.3							- 100/0.3	 			F						-									
2 20		L				· · · · · · ·			L					L															

SHEET 6 OF 6

HALIFAX				GEOLOGIST Zimarino, S	S. N.		
CREEK						GROUN	ID WTR (ft)
OFFSET 19	9 ft RT			ALIGNMENT -L-		0 HR.	N/A
NORTHING	882,10)8		EASTING 2,438,004		24 HR.	3.2
	DRILL M	ethod) Muc	d Rotary	HAMME	RTYPE	Automatic
COMP. DAT	E 03/2	29/21		SURFACE WATER DEPT	'H N/A	١	
75 100	SAMP. NO.	моі	L O G	SOIL AND ROC	K DESC	RIPTION	
· · · · ·				GRAY, TAN AND C SILTY CLAY, W	DRANGE ET (CA	E MOTTL PE FEAR	
100/0.2				15.5 FORMATION - Boring Terminated	at Eleva	tion 15.5	83.5 ft in
			F	Hard S	ilty Clay		
			F				
			F	-			
			F				
			F	-			
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