

REFERENCE: B-5665

PROJECT: 45620

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5665	1	14

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY HALIFAX
PROJECT DESCRIPTION BRIDGE 138 ON SR 1309
(SPRUILL'S BRIDGE RD.) OVER LITTLE
FISHING CREEK

CONTENTS

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1	TITLE SHEET
2, 2A	LEGEND
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14	CORE PHOTOGRAPHS

PERSONNEL

D. G. PINTER

R. E. SMITH

N. T. ROBERSON

INVESTIGATED BY N. T. ROBERSON

DRAWN BY N. T. ROBERSON

CHECKED BY J. L. PEDRO

SUBMITTED BY N. T. ROBERSON

DATE AUGUST 2016

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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 CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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 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 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 NECESSARY 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 ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- 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 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.



DocuSigned by:

Neil Roberson

9/1/2016

4061D9A8C6C649C
SIGNATURE

DATE

**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

B-5665

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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 (PAGE 1 OF 2)

SOIL DESCRIPTION										GRADATION																																																																																																																																																
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN 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 IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH 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										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.																																																																																																																																																
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ABBREVIATIONS										EQUIPMENT USED ON SUBJECT PROJECT																																																																																																																																																
AR - AUGER REFUSAL BT - BORING TERMINATED CL - CLAY CPT - CONE PENETRATION TEST CSE. - COARSE DMT - DILATOMETER TEST OPT - DYNAMIC PENETRATION TEST e - VOID RATIO F - FINE FOSS. - FOSSILIFEROUS FRAC. - FRACTURED, FRACTURES FRAGS. - FRAGMENTS HI. - HIGHLY										MED. - MEDIUM MICA. - MICACEOUS MOD. - MODERATELY NP - NON PLASTIC ORG. - ORGANIC PMT - PRESSUREMETER TEST SAP. - SAPROLITIC SD. - SAND, SANDY SL. - SILT, SILTY SLI. - SLIGHTLY TCR - TRICONE REFUSAL w - MOISTURE CONTENT V - VERY																																																																																																																																																
VST - VANE SHEAR TEST WEA. - WEATHERED γ - UNIT WEIGHT γ _d - DRY UNIT WEIGHT										SAMPLE ABBREVIATIONS S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK RT - RECOMPACT TRIAXIAL CBR - CALIFORNIA BEARING RATIO																																																																																																																																																
DRILL UNITS: ☐ CME-45C ☒ CME-55 ☒ CME-550 ☐ VANE SHEAR TEST ☐ PORTABLE HOIST										ADVANCING TOOLS: ☐ CLAY BITS ☐ 6" CONTINUOUS FLIGHT AUGER ☒ 8" HOLLOW AUGERS ☐ HARD FACED FINGER BITS ☐ TUNG-CARBIDE INSERTS ☒ CASING ☒ W/ ADVANCER ☐ TRICONE * STEEL TEETH ☐ TRICONE * TUNG.-CARB. ☒ CORE BIT																																																																																																																																																
HAMMER TYPE: ☒ AUTOMATIC ☐ MANUAL CORE SIZE: ☐ -B ☐ -H ☒ -N WC3 HAND TOOLS: ☐ POST HOLE DIGGER ☐ HAND AUGER ☐ SOUNDING ROD ☐ VANE SHEAR TEST																																																																																																																																																										

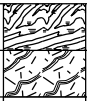
B-5665

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**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
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SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS (PAGE 2 OF 2)

ROCK DESCRIPTION		TERMS AND DEFINITIONS	
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 EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:		ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.	
WEATHERED ROCK (WR)		AQUIFER - A WATER BEARING FORMATION OR STRATA.	
		ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.	
CRYSTALLINE ROCK (CR)		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.	
NON-CRYSTALLINE ROCK (NCR)		ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.	
COASTAL PLAIN SEDIMENTARY ROCK (CP)		CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.	
WEATHERING		COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.	
FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.	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.	
VERY SLIGHT (V SL.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.	
SLIGHT (SL.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.	
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.	
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <u>IF TESTED, WOULD YIELD SPT REFUSAL</u>	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.	
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u>	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.	
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	FLAAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.	
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.	
ROCK HARDNESS		FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.	
VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.	
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.	
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.	
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTILING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.	
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 PIECES CAN BE BROKEN BY FINGER PRESSURE.	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.	
VERY SOFT	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 FINGERNAIL.	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.	
FRACTURE SPACING		ROCK QUALITY DESIGNATION (RQD) - 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.	
TERM	SPACING	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.	
VERY WIDE	MORE THAN 10 FEET	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.	
WIDE	3 TO 10 FEET	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.	
MODERATELY CLOSE	1 TO 3 FEET	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.	
CLOSE	0.16 TO 1 FOOT	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.	
VERY CLOSE	LESS THAN 0.16 FEET	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.	
BEDDING		TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.	
TERM	THICKNESS	BENCH MARK: BL 502	
VERY THICKLY BEDDED	4 FEET	ELEVATION: 176.26 FEET	
THICKLY BEDDED	1.5 - 4 FEET	NOTES:	
THINLY BEDDED	0.16 - 1.5 FEET	TOP OF RAIL AT EXISTING EB1 RT SIDE; ELEVATION 181.6	
VERY THINLY BEDDED	0.03 - 0.16 FEET	TOP OF RAIL AT EXISTING EB2 RT SIDE ; ELEVATION 181.3	
THICKLY LAMINATED	0.008 - 0.03 FEET		
THINLY LAMINATED	< 0.008 FEET		
INDURATION			
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.			
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.		
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.		
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.		
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.		

GEOTECHNICAL BORING REPORT

BORE LOG

SHEET 4

WBS 45620.1.1			TIP B-5665			COUNTY HALIFAX			GEOLOGIST Oti, O. B.			
SITE DESCRIPTION BRIDGE 138 ON SR 1309 (SPRUILL'S BRIDGE RD.) OVER LITTLE FISHING CREEK									GROUND WTR (ft)			
BORING NO. RDWY 1			STATION N/A			OFFSET N/A			ALIGNMENT EL			
COLLAR ELEV. 217.8 ft			TOTAL DEPTH 28.8 ft			NORTHING 942,302			EASTING 2,318,059			
DRILL RIG/HAMMER EFF./DATE RFO0067 CME-550X 86% 02/09/2015									DRILL METHOD H.S. Augers			HAMMER TYPE Automatic
DRILLER Pinter, D. G.			START DATE 08/10/16			COMP. DATE 08/10/16			SURFACE WATER DEPTH N/A			

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
220																
	217.8	0.0	1	2	3										217.8	GROUND SURFACE
215	214.3	3.5	4	6	7											RESIDUAL TAN AND BROWN, SANDY SILT
210	209.3	8.5	3	5	5										210.8	TAN AND GRAY, SAPROLITIC, SILTY SAND
205	204.3	13.5	4	6	8											
200	199.3	18.5	11	18	28											
195	194.3	23.5	38	62/0.4											195.8	WEATHERED ROCK (LINEATED BIOTITE GNEISS)
190	189.3	28.5													189.0	Boring Terminated at Elevation 189.0 ft IN WEATHERED ROCK (LINEATED BIOTITE GNEISS)

NC DOT BORE SINGLE B5665_GEO_BR0138.GPJ NC_DOT.GDT 9/1/16

NC DOT BORE SINGLE B5665_GEO_BR0138.GPJ NC_DOT.GDT 9/1/16

GEOTECHNICAL BORING REPORT

BORE LOG

SHEET 8

WBS 45620.1.1			TIP B-5665			COUNTY HALIFAX			GEOLOGIST Oti, O. B.		
SITE DESCRIPTION BRIDGE 138 ON SR 1309 (SPRUILL'S BRIDGE RD.) OVER LITTLE FISHING CREEK									GROUND WTR (ft)		
BORING NO. RDWY 3			STATION N/A			OFFSET N/A			ALIGNMENT EL		
COLLAR ELEV. 175.4 ft			TOTAL DEPTH 15.8 ft			NORTHING 942,929			EASTING 2,318,455		
DRILL RIG/HAMMER EFF./DATE RFO0067 CME-550X 86% 02/09/2015						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic		
DRILLER Pinter, D. G.			START DATE 08/09/16			COMP. DATE 08/09/16			SURFACE WATER DEPTH N/A		

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
180																
175	175.4	0.0	1	1	2										175.4	GROUND SURFACE
170	172.1	3.3	1	3	3											
	167.1	8.3	1	12	20										168.4	TAN AND BROWN, SILTY SAND
165	162.1	13.3													163.4	WEATHERED ROCK (LINEATED BIOTITE GNEISS)
160	159.6	15.8													159.6	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 159.6 ft ON CRYSTALLINE ROCK (LINEATED BIOTITE GNEISS)

SHEET 10

WBS	45620.1.1						TIP	B-5665	COUNTY	HALIFAX								GEOLOGIST	Roberson, N. T.																																																																																
SITE DESCRIPTION																											BRIDGE 138 ON SR 1309 (SPRUILL'S BRIDGE RD.) OVER LITTLE FISHING CREEK										GROUND WTR (ft)																																																														
BORING NO.										EB1-B old										STATION										N/A										OFFSET										N/A										ALIGNMENT										EL										0 HR.										N/A									
COLLAR ELEV.										176.8 ft										TOTAL DEPTH										11.1 ft										NORTHING										942,943										EASTING										2,318,585										24 HR.										2.3									
DRILL RIG/HAMMER EFF./DATE																				RFO0074 CME-55 89% 02/09/2015																				DRILL METHOD										NW Casing W/SPT & Core										HAMMER TYPE										Automatic																													
DRILLER										Pinter, D. G.										START DATE										02/29/16										COMP. DATE										02/29/16										SURFACE WATER DEPTH										N/A																													
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	L O G	SOIL AND ROCK DESCRIPTION																																																																																					
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)																																																																																				
180																																																																																																			
175																																																																																																			
170	172.8	4.0																																																																																																	

GEOTECHNICAL BORING REPORT

CORE LOG

SHEET 11

WBS 45620.1.1				TIP B-5665		COUNTY HALIFAX				GEOLOGIST Roberson, N. T.				
SITE DESCRIPTION BRIDGE 138 ON SR 1309 (SPRUILL'S BRIDGE RD.) OVER LITTLE FISHING CREEK										GROUND WTR (ft)				
BORING NO. EB1-B old				STATION N/A				OFFSET N/A				ALIGNMENT EL		
COLLAR ELEV. 176.8 ft				TOTAL DEPTH 11.1 ft				NORTHING 942,943				EASTING 2,318,585		
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 89% 02/09/2015						DRILL METHOD NW Casing W/SPT & Core				HAMMER TYPE Automatic				
DRILLER Pinter, D. G.				START DATE 02/29/16				COMP. DATE 02/29/16				SURFACE WATER DEPTH N/A		
CORE SIZE N/A				TOTAL RUN 7.1 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS ELEV. (ft)	DEPTH (ft)		
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %					
172.8														
	172.8	4.0	2.1	N=60/0.0	(1.9)	(1.7)		(6.9)	(6.7)		172.8	4.0		
170	170.7	6.1	5.0	0:20/0.1	90%	81%		97%	94%					
				1:21/1.0										
				3:09/1.0	(5.0)	(5.0)								
				3:15/1.0	100%	100%								
	165.7	11.1		4:01/1.0										
				6:02/1.0										
				9:18/1.0										
				14:18/1.0										
Boring Terminated at Elevation 165.7 ft IN CRYSTALLINE ROCK (LINEATED BIOTITE GNEISS)												11.1		

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GEOTECHNICAL BORING REPORT

BORE LOG

SHEET 12

WBS 45620.1.1			TIP B-5665			COUNTY HALIFAX			GEOLOGIST Roberson, N. T.		
SITE DESCRIPTION BRIDGE 138 ON SR 1309 (SPRUILL'S BRIDGE RD.) OVER LITTLE FISHING CREEK									GROUND WTR (ft)		
BORING NO. EB2-A old			STATION N/A			OFFSET N/A			ALIGNMENT EL		
COLLAR ELEV. 177.9 ft			TOTAL DEPTH 19.0 ft			NORTHING 942,910			EASTING 2,318,534		
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 89% 02/09/2015						DRILL METHOD NW Casing w/ SPT			HAMMER TYPE Automatic		
DRILLER Pinter, D. G.			START DATE 03/01/16			COMP. DATE 03/01/16			SURFACE WATER DEPTH N/A		

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
180																
175	174.0	3.9	WOH	1	0										177.9	GROUND SURFACE
170	169.0	8.9		3	2	3										
165	164.0	13.9		2	2	2									165.4	TAN BROWN, SILTY SAND WITH BOULDERS AND COBBLES
160	159.0	18.9													159.7	
															159.0	
															158.9	
															18.2	
															18.9	
															19.0	

Sat.

Sat.

Sat.

WEATHERED ROCK
(LINEATED BIOTITE GNEISS)

CRYSTALLINE ROCK
(LINEATED BIOTITE GNEISS)

Boring Terminated WITH STANDARD
PENETRATION TEST REFUSAL at
Elevation 158.9 ft IN CRYSTALLINE ROCK
(LINEATED BIOTITE GNEISS)

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CORE PHOTOGRAPHS

EB1-B

BOX 1 of 1: 4.0 - 11.1 FEET

