CONTENTS

2

5794

REFERENCE

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

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON-SALEM BELTWAY FROM US 421 / I-40 BUS TO I-40 SITE DESCRIPTION BRIDGE NO. 725 ON -Y15FLYAC- IN INTERCHANGE CONNECTING WINSTON-SALEM NORTHERN BELTWAY AND I-40 BYPASS

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	32

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 REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (99) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAIL

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOREAL 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-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLL 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 VIOL COMPOSITION THE VIOL THE THE VIOL OF CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE VIOL CAUBSURFACE 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 FMALTER AND CONSTRUCTIONS TO BE ENCOUNTERED. THE DEPARTMENT AS TO FMALTER AND CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISTY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXITENSION OF TIME FOR ANY RESOLATION FOR MATER ACTUAL CONTRENSATION OF FOR ANY RESOLATION FOR THE ACTUAL CONTINIONS FOR CONTRACT OR ANY RESOLATION FOR MATER ACTUAL CONTINIONS FOR CONTRACT ON FOR ANY RESOLATION FOR THE SUBSURFACE INFORMATION.

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

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

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION	GRADATION	RUCK DESCRIPTION	TERMS AND DEFINITIONS
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS ELICHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE.	HARD ROCK IS NON-COASIAL FLAIN MAIERIAL HAI WOULD YIELD SPI REFOSAL IF LESIED. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASIAL PLAIN MATERIAL WOULD YIELD SPI REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES THE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	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		BLOWS IN NUN-LUASIAL PLAIN MATERIAL, THE TRANSITION BETWEEN SUIL AND RUCK 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,	THE ANCH ADITY OF DOWNERS OF SOLL CRAINS 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
VERY STIFF.GRAY,SILTY CLAY,MOIST WITH INTERBEDDED FINE SAND LAYERS,HIGHLY PLASTIC,A-7-6	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION		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	SURFACE.
	ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	ROCK (CR) GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOTUS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5		NON-CRYSTALLINE	COLLUVIUM - ROCK ERAGMENTS MILED WITH SOIL DEPOSITED BY CRAVITY ON SLOPE OR AT BOTTOM
		ROCK (NCR)	OF SLOPE.
	MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
X PASSING SILT-		SEDIMENTARY ROCK	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*10 50 MX GRANULAR CLAY MUCK,	PERCENTAGE OF MATERIAL	WEATHERING	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 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	ERESH BOCK ERESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, BOCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
PASSING #40 SOUIS WITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	
LL – – 40 MX 41 MN LITTLE OR	HIGHLY ORGANIC $> 10\%$ $> 20\%$ HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF	LINE OF DIP. MEASURED CLOCKWISE FROM NORTH.
	GROUND WATER	UF A CRISIALLINE NATURE.	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
CHOUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NU MX AMOUNTS OF SOILS		SLIGHT RUCK GENERALLY FRESH, JUINTS STAINED AND DISCULURATION EXTENDS INTO RUCK OP TO (SLIJ) 1 INCH, OPEN JOINTS MAY CONTAIN CLAY, IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
OF MATOR GRAVELAND FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	✓ 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.
MATERIALS SAND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN, RATING FAIR TO FAIR TO	∇ PW PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOUD FAIR TO POUR POOR ONSULTABLE		DULL SUUND UNDER HAMMER BLUWS AND SHUWS SIGNIFICANT LUSS OF STRENGTH AS CUMPARED WITH ERESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PLOF A-7-5 SUBGROUP IS ≤ LL - 30 PLOF A-7-6 SUBGROUP IS > LL - 30	CPUUS SPRING OR SEEP		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.
COMPACTNESS OF RANGE OF STANDARD RANGE OF UNCONFINED		(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 CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 23/823 DIP & DIP DIRECTION	IT ISSTED, WOULD TIELD SPI REFUSAL	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
		SEVERE ALL ROCK EXCEPT QUARTZ DISCULURED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT (SEV.) REDUCED IN STRENGTH TO STRONG SOLL IN GRANITOID ROCKS ALL FELOSPARS ARE KAOLINIZED	IIS LAIERAL EXTENT.
GENERALLY LOOSE 4 TO 10	SOIL SYMBOL	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BUDY OF SUIL OR RUCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR MEDIUM DENSE 10 TO 30 N/A		<u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u>	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
(NON-COHESIVE) DENSE 30 TO 50	THAN ROADWAY EMBANKMENT 🕁 AUGER BURING 🌄 TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC ELEMENTS ARE DISCERNIBLE	DEDCHER WATER - WATER MAINTAINER ARRIVE THE NORMAL CROININ WATER LEVEL BY THE RECENCE
		(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		VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	TIST BORING WILL TEST BORING	COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
MATERIAL STIFF 8 TO 15 1 TO 2		SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTALLATION	ALSU AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	RUCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES	
OFENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCUT UNSUITABLE WASTE ACCEPTABLE, BUT NOT TO BE	SEVERHE THRU DEUWS OF THE GEOLOGISTS FICK.	<u>SILL</u> - AN INTRUSIVE BUDY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT. THAT HAS BEEN EMPLACED PARALLEL TO
COARSE FINE	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL SAND SAND SILT CLAY		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
(GEDR.) (GED.) (GE.) (CSE. SD.) (F SD.) (CSE.)	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	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	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.	A 140 LB.HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOUT INTO SUIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION FOUND
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC Σ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE CUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION SOLE FOR TILLS HOLSTORE 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	e - VOID RATIO SD SAND, SANDY SS SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
(SAT.) FROM BELOW THE GROUND WATER TABLE	F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY UAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK, PIECES 1 INCH	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE C + WET - (W) SEMISOLID; REQUIRES DRYING TO	FRAGS, - FRAGMENTS W - MOISTURE CONTENT CRR - CALIFORNIA REARING	FRACTURE SPACING BEDDING	DENICH MADIZED - 40 ELEVIATION: 002 07 ET - DL EO ELEVIATION 074.07 ET
	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	DENCH MHRN: DE-49, ELEVATION: 802.83 FT.; DE-30, ELEVATION: 814.33 FT.;
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: VARIES FEET
OM _ OPTIMUM MOISTURE - MOIST - (M) SULID; 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 016 - 15 FEET	
	CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE Ø.16 TO 1 FOOT VERY THINLY BEDDED Ø.Ø3 - Ø.16 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	6' CONTINUOUS FLIGHT AUGER	VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	EXISTING GROUND SURFACE INFORMATION PROVIDED BY NCDOT ON
			APKIL 22, 2019
PLASTICITY			BL-49 (N 847739,IE 1663843.71)
PLASTICITY INDEX (PI) DRY STRENGTH		FOR SEDIMENTIANT KUCKS, INDUKATION IS THE MAKDENING OF MATERIAL BY CEMENTING, MEAT, PRESSURE, ETC.	BL-50 (N 847290.74 E1663706.27)
NUN PLASTIC 0-5 VERY LOW		FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	U-2579AB-5 (N 848190.87 E1664352.70)
MODERATELY PLASTIC 16-25 MEDIUM		GRAINS CAN RE SEPARATED FROM SAMPLE WITH STEEL PROPE.	
HIGHLY PLASTIC 26 OR MORE HIGH		MODERATELY INDURATED BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR		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). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, FTC. ARE USED TO DESCRIBE APPEARANCE		SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE:	
		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

PROJECT REFERENCE NO.

U-2579AB

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the Office of: ECS SOUTHEAST, LLP 812 CENTER PARK DRIVE, SUITE D	0 5 10		PROJ. R	EFERENCE NO.	. S⊦	sheet no. 7	
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035 _	-RESIDUAL-	15								— — — —
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	LOOSE TO MEDIUM DENSE, MOIST, BLACK-TAN-WHITE-BROWN		SIL	- 25-				(A-4), WIIH L		_A
885 _		(16)+	EINE			 				
	STIFF TO VERY STIFF, MOIST, BLACK-WHITE-ORANGE-BROWN-R	ED,		13	SAND	(A-2-	4), ₩ITH	TRACE TO SC	IME MICA	
880 _		23	ARSE					· · · · · · · · · · · · · · · · · · ·		
କ୍ <u></u> 875	MEDIUM DENSE, MOIST, TAN-BROWN-BLACK-WHITE, SILTY FINE T	0 _	COH							875
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				40-		SILT	$(\Delta + 4)$ h	ИТН ИТТТИЕ Т	N SOME N	
	STIFF TO HARD, MOIST, BLACK-RED-WHITE-ORANGE-BROWN, FIN	IE 68	TO COAR	(SE			·			— — –
855 .	<u> </u>			100/0.8		WEATH	ERED RO	CK- (GRANITIC	ROCK)	
- - -	-WEATHERED ROCK- (GRANITIC ROCK)			100/0.7						
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040 . ≋ □	A -ROADWAY EMBANKMENT- MEDIUM STIFF, MOIST, RED-BROW	N.FINE T	Ó COÁRSE	SANDY	SILT ((A-4), \	WITH SO	ME MICA AND	TRACE	
835	GRAVEL	· · · · · · · · · · · · · · · · · · ·		·	·					
2	B -ROADWAY EMBANKMENT- LOOSE, MOIST, RED-BROWN-WHITE	, SILTY F	INE TO C	OARSE S	SAND (A	-2-4),	WITH TI	RACE MICA		
830 -	O -RESIDUAL - MEDIUM DENSE MOIST BLACK-BROWN-WHITE S			ARSE SA	ΝΠ (Δ-2	2-4)	TTH TRA	CF MICA		
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18 1	Ø STIFF TO HARD, MOIST, WHITE-BLACK-ORANGE-	BROWN, FINE TO COARSE 20 SANDY SILT (4
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13520 - U-257	نه	2/19 -CRYSTALLINE ///Ξ///Ξ//
-13900/13500	Ø -RESIDUAL - MEDIUM STIFF TO STIFF, MOIST, I ORGANICS AND LITTLE MICA	BROWN-RED, FINE TO COARSE SANDY SILT (A-4) AND
TS/13000	B -RESIDUAL - LOOSE TO MEDIUM DENSE, MOIST,	ORANGE-WHITE-BROWN-BLACK, SILTY FINE TO COARS
2-2-013 COL3 COL3 COL3 COL3 COL3 COL3 COL3 COL	75 70 65 60 55 50 45 40 35 30 25 20	$-\frac{Y15FLYAC}{DATE} - \frac{Y15FLYAC}{DATE} - \frac{Y15FLYAC}{DATE} - \frac{Y}{5F} - \frac{Y}{5F} - \frac{Y}{5} - \frac$

he Office of: ECS SOUTHEAST, LLP S12 CENTER PARK DRIVE, SUITE D	0	5	10	PROJ. R	EFERENCE NO.	SHEET NO. 9
CHARLOTTE, NC 28217 (704) 525-5152 [PHONE] [704] 357-0023 [FAX] NC REGISTERED ENGINERING FIRM # F-1078			$VF - 1 \cdot 1$		BRIDGE NO. 725 ON _Y15FLY4	BENT 2 AC-
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23/16		Prepared in the Office of: <u>ECS SOLUTION</u> <u>ECS SOLUTION</u> <u>CONTINUES OF</u> <u>CONTINUES OF <u>CONTINUES OF <u>CONTINUES OF <u>C</u></u></u></u>
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ab-de 970		
- 0/0 -	HARD. MOIST, BROWN-BLACK-WHITE, FINE TO	FINE TO COARSE SAND (A-2-4), WITH TRACE MICA
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CADD		BED SANDY SILT (A-4), WITH SOME MICA
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^{≤1,}	DENSE TO VERY DENSE MOIST DIACK WHITE DROWN (56)	
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. 830	A -RESIDUAL- MEDIUM DENSE, MOIST, DRANGE-TAN-WHITE, SI	LTY FINE TO COARSE SAND (A-2-4), WITH LITTLE MICA
5/1300(53 + 01.00
1 825 .		
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CHARLOTT (704) 525-5 (704) 357 NC REC ENGI	E, NC 28217 152 [PHONE] -0023 [FAX] SISTERED NERING					725 BE	INT 4		
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the Office of: ECS SOUTHEAST. LLP 0	5 10	PROJ. REFERENCE NO.	SHEET NO.
CHARLOTTE, MC 28217 (704) 525-512 [PHONE] (704) 357-0023 [FAX] MC REGISTERED ENGINERING FINM #F-1078	VE = 1:1	BRIDGE NO. 725 ON -Y15FLYA	BENT 5 C-
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the Office of: ECS SOUTHEAST, LLP	0	5	10	PROJ. R	FERENCE NO). 	SHEET NO.
S12 CENTER PARK DRIVE, SUITE D CHARLOTTE, NC 28217 (704) 525-5152 [PHONE] [704] 357-0023 [FAX] NC REGISTERED					BRIDGE NO. 7	725 B	ENT 8
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	EXISTING GROUND LINE						FINE TO COARSE SANDY SILT (A-4) AND CLAYEY SILT
860 ($\overline{\mathbb{O}}$	(A-5) WITH TRACE ORGANICS AND MICA
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	SOFT TO VERY STIFF, MO	JIST, ORANGE-TAN-BROWN-		-RIACH			SAND (A-2-4). WITH TRACE MICA
845		6)	-CHCK-W	HITE		
		<u></u>	+	+			FINE TO COARSE SANDY SILT (A+4), WITH LITTLE TO
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GEOTE						8	
. 820	MEDIUM-STIFF-TO	VERY-STIFF, MOIST, TAN-	<u>} </u>	WHITE-BI	ROWN,		FINE TO COARSE SANDY SILT (A+4), WITH SOME MICA
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L 785 . Nove	(A) -RESIDUAL - MEDIUM	DENSE, MOIST, BROWN-BLACK	+WHI	TE, SILTY	FINE	TOCO	OARSE SAND (A-2-4), WITH SOME MICA
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			+	-Y15F			THE BORING, WITH BOTH PROJECTED ON THE CROSS SECTION.
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he Office of: ECS SOUTHEAST, LLP SIZ CENTER PARK DRIVE, SUITE D	0	5	10	SHEET NO.		
CHARLOTTE, NC 28217 (704) 525-5152 (PHONE) [704) 357-0023 (FAX] NC REGISTERED ENGINERING FIRM # F-1078			VF - 1·1	BRI	DGE NO. 725 EN ON -Y15FLY	ND BENT 2 AC-
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101¦SI,L	ЫКАҮ- ¦	WHII	E-RH	⟨UWN,	FINE	
-4), WIT	H LI	TTLE	MIC	A		
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ROADWA	Y DESIG	GN FIL	ES PRC	VIDED	BY	805
D-STRATIG	RAPHY THF C			HROUG N	H	UUU
	5 5	0 5	5 4	0 4	5 70	75
	- 0		- 0	0		

W	BS 3	34839	9.1.7			Т	IP U-2579)AB	COUNT	Y FORSY	TH			GEOL	OGIST A. Suttle)		WB	3 4839	9.1.7	_		TIF	• U-2579	AB	COUNTY
SI	TE DE	ESCR		Brid	lge No	. 725	on -Y15FL	YAC- from	US 311 I	o I-40							GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	lge No	. 725 o	n -Y15FL\	AC- from	US 311 to
В	ORING	g no.	. EB1-	A		S	TATION 4	17+64		OFFSET	35 ft LT			ALIG	NMENT -Y15FLY	AC-	0 HR. N/A	BOF	RING NO	. EB1	-B		ST	ATION 4	7+65	
C	OLLA	RELE	EV. 90)2.4 ft		Т	OTAL DEP	TH 55.0	ft	NORTHIN	G 848,2	206		EAST	ING 1,664,872		24 HR. Dry	COL	LAR ELI	EV. 90	02.2 ft		тс	TAL DEP	FH 59.2 f	t
DF	RILL R	IG/HAI	MMER E	FF./DA	TE M	&W029	Diedrich D-1	20 89% 09/	07/2018		DRILL	METHO	DD H	I.S. Augers	;	HAMM	ER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE M8	&W029 E	Diedrich D-12	0 89% 09/0	07/2018
D	RILLE	R R	. Brock			S	TART DAT	E 05/16/	19	COMP. DA	ATE 05/	/16/19)	SURF	ACE WATER DEF	PTH N/	A	DRI	L LER R	R. Brock	K		ST		E 05/16/1	9
EL	EV D	RIVE	DEPTH	BLC	w co	UNT		BLOWS	PER FOOT	-	SAMP.		L		SOIL AND RO	CK DESC	RIPTION	ELEV	, DRIVE	DEPTH	BLC	w cou	JNT		BLOWS	PER FOOT
(f	t) _	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELEV. (ff	() ()	0110200	DEPTH (f	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 :	25	50
<u>90</u> 90	15 9 10 8 15 8		0.0 3.5 6.0 8.5	2 4 3 5	3 3 3 5	4 3 5 6	· • 7 · · · · · · · · · · · · · · · · ·				-	M M M M		- 902.4 - 902.4 	GROUN RE Medium S Black-White-Orang Sandy SILT (A	ID SURFA SIDUAL tiff to Very e-Brown, -4), with s	ACE 0. y Stiff, Fine to Coarse some mica	905 900 895	902.2 898.7 896.2 893.7	0.0 3.5 6.0 8.5	5 3 2 3	2 3 3 4	4 6 4 5			
89	10 8	- 388.9 - -	- 13.5 -	6	5	6						м						890	<u>_</u>	+ + + 13.5 + +	4	4	6		· · · · · · · · · · · · · · · · · · ·	
88	80	383.9 - - -	18.5	8	7	11	· · · · · · · · · · · · · · · · · · ·	8				м						880	883.7	- 18.5 	4	6	9	· · · · · · · · · · · · · · · · · · ·		
87	<u>8</u> 75 8	378.9 _ - - - 373.9	23.5	3	3	7					-	м		- - - - 874.4 _	Modium Donce Tar	Broum	Vibite Silty Fire 28	875	878.7	23.5	3	3	5	• / • • • • • • • • • • • • • • • • •		
87	<u>o</u>	- - - 368.9	33.5	3	10	13 9		7 23 				м		 <u>869.4</u>	Theolum Dense, Tar to Coarse SAND (A-2-4), wi	ith trace mica	870	868.7	- <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u> - <u>-</u>	3	5	7	· · · · · · · · · · · · · · · · · · ·		
86	6 <u>5</u> 8	- - 363.9	38.5	14	28	37					-	M		864.4 	Sandy SILT (A Very Dense, Tan-Ba Coarse SAND (A	4-4), with rown-Whi 4-2-4), with	little mica <u>38</u> . te, Silty Fine to h trace mica	865		- - - <u>38.5</u>	4	4	7			
86	i08	- - 358.9 - - -	43.5	10	12	21		• • • • •			-	м		8 <u>59.4</u> 859 <u>.4</u> -	Hard, Black-Orange Sandy SILT (A	e-Brown, I -4), with s	Fine to Coarse 43.	860	<u>858.7</u> -	+ - - 43.5	7	17	26		· · · · · · · · · · · · · · · · · · ·	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
DT 6/4/19	i <u>5</u> 8	- 353.9 - - -	48.5	13	18	24						м						855	<u></u>	+ + + 48.5 +	19	24	31			•••••
GPJ NC_DOT.GI	<u>8</u>	348.9 	53.5	18	36	50				• • • • • • • • • • • • • • • • • • •		M			Boring Terminated Residual S	l at Elevat andy SIL1	55. ion 847.4 ft In Γ (A-4)	850	848.7	- 53.5 	63	37/0.1				
NCDOT BORE DOUBLE U-2579AB - BRIDGE 275.		-	+ + + + + + + + + + + + + + + + + + +																	- 28.5 	67	33/0.2		<u> ::::</u>		1::::



W	3S 34	839.1.	7			ТІ	P U-257	'9AB	COUNT	Y FORSYT	ГН			GE	OLOGIST A. Suttle	e		WBS	3 483	9.1.7			ТІ	P U-25794	٨B	COUNTY
SI	E DES	CRIPT	ΓΙΟΝ	Brid	ge No	. 725 (on -Y15FI	LYAC- fror	n US 311 t	o I-40							GROUND WTR (ft)	SITE	DESCR	RIPTIO	N Bric	dge No	b. 725 d	on -Y15FLY	AC- from	US 311 to
BC	RING	NO. E	31-A			S	TATION	48+97		OFFSET	3 ft RT			ALI	GNMENT -Y15FLY	YAC-	0 HR. N/A	BOR	RING NO). B1-I	3		S	TATION 49	9+08	(
cc	LLAR	ELEV.	901	.9 ft		Т	OTAL DEI	PTH 48.5	ft	NORTHING	3 848,′	185		EAS	STING 1,664,736		24 HR. Dry	COL	LAR EL	EV . 9	00.2 ft		Т	DTAL DEPT	H 48.8 f	<u>. </u>
DR	ILL RIG	HAMM	ER EF	F./DAT	E M	&W029	Diedrich D-	120 89% 09	/07/2018		DRILL	METHO	DD H	H.S. Aug	ers	HAMM	ER TYPE Automatic	DRIL	L RIG/HA	MMER	EFF./DA	TE M	&W029	Diedrich D-120	0 89% 09/0	7/2018
DF	ILLER	R. B	rock			S	TART DA	TE 05/15	/19	COMP. DA	TE 05/	/15/19	4	SUI	RFACE WATER DEI	PTH N/	A	DRIL	LER F	R. Broc	k		S		05/16/1	9 0
ELE				BLO	W COL	JNT		BLOWS	PER FOOT	75 400	SAMP.				SOIL AND RC	OCK DESC	CRIPTION	ELEV	DRIVE ELEV	DEPTH					BLOWS	PER FOOT
(11	/ (f	:) '	(11)	0.5ft	0.5ft	0.5ft		25	50	75 100	NO.		I G	ELEV.	(ft)		DEPTH (ft)	(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0 2	5 : 	
90	5	-												F				905		+						
	90,	ι Ŧ												F 901.9	GROUN	ND SURFA	ACE 0.0			Ŧ						
90) <u>- 50</u>	+		2	4	4	·•8 ·			• • • • •		м		-	ROADWAY		KMENT	900	900.2	Ŧ 0.0						
	898	3.4 + 3	3.5				· • • •							898.9	Sandy SILT (A-4), v	with some	mica and trace 3.0		-	Ŧ	2	2	4	6 6		
	801	. Ŧ,	a 0	8	8	7	::,•1	5				м				SIDUAL]		896.7	3.5		6	6	L'in the second		
89	5 09:		5.0	4	4	5						м		÷	Loose to Medium E Silty Fine to Coarse	Dense, Bla SAND (A	ack-Tan-White, -2-4), with trace	895		Ŧ	ľ	0	0	• • • 12 •		
	893	1.4 <u>†</u> 8	8.5	24	11	8						М		÷		mica			893.2	7.0	5	6	7			
89		‡							· · · · · ·									890	891.7	<u>+ 8.5</u> +	5	10	15		25	
	888	3.4 + 1	3.5				!							888.9			<u>13.0</u>		1 -	ŧ						
		Ŧ		19	8	8] ::;∳ı		· · · · ·			м			to Coarse Sandy S	nite-Orang SILT (A-4),	with little mica		886.7	+ 13.5					· · · · ·	
88	5	‡					· · · /			• • • • •							10.0	885		‡	5	6		· · • 13 [·]		
	883	8.4 ‡ 1	8.5	17	11	12						м		<u> </u>	Medium Dense, T	an-Brown	-Black-White,			‡					· · · · ·	
00		‡							. .						Silty Fine to Coarse to se	e SAND (A ome mica	A-2-4), with little	000	881.7	+ 18.5 +	4	5	6		· · · · ·	· · · · ·
00	979	, ±,	35					- <u> </u>										000		ŧ						
	0/(.5.5	7	7	16						м							876 7	+ 23.5						
87	5	1						.						ł				875		‡	3	7	8	• • • 15		
	873	8.4 + 2	8.5	5	0	12		<u>i</u> : : : :												Ŧ						
		ŧ		5	0	15		●21 				M		1					871.7	28.5	4	8	11	· · · · · ·		
87)	. ± .	_					$\frac{1}{1}$						868.9			33.0	870		ł						+
	868		3.5	5	12	21						м		E	Hard, Black-White Coarse Sandy SIL	-Orange-E	Brown, Fine to		966 7	1 22 5					`	
86	5	Ŧ												L				865	000.7	<u> </u>	9	16	24		· · • •40	
	863	1.4 - 3	8.5	_	10	50								F						Ŧ						
		Ŧ		<i>'</i>	16	52				68		M		F					861.7	38.5	8	41	59/0 3			
86	2	Ŧ												F				860		Ŧ			00/0.0			
	858	1.4 <u>† 4</u> †	3.5 1	00/0.2					.	100/0.2				<u>858.4</u>	WEATH	IERED RC	43.5 CK		050 -	Ŧ "_						
85	5	Ŧ							.					Ŧ	Tan-Brown-Whit	te (GRAN	ITIC ROCK)	855	856.7	+ 43.5 +	51	49/0.2				
1/19	853	$\frac{1}{1.5 + 4}$	8.4							<u> </u>				853.5	_		48.4		1 -	Ŧ						
T 6/₂		‡	e	0/0.1						60/0.1				<u>+ 853.4</u> -	- CRYSTA Black-White-Brow	MI (GRAN	DCK (<u>48.5</u> NITIC ROCK)	1	851.7	48.5	100/0 1					
T.GD		+												F	Boring Termin Penetration Test R	nated with efusal at F	Standard Elevation 853 4		-	Ŧ	100/0.3	9				
Ö		‡												F	ft In Crystalline Ro	ock (GRAI	NITIC ROCK)			‡						
N NO		‡												F						‡						
5.GP		+												F					-	ŧ						
E 27!		ŧ												E						ŧ						
RIDG		Ŧ												F						±						
B - B		ł												E						ł						
579AI		Ŧ												F						Ŧ						
U-2		+												F						Ŧ						
JBLE		‡												F						ŧ						
DOL		‡												F						‡						
ORE		+												F					-	‡						
OT B		‡												Ę						‡						
NCD		+												F						+						

NT	Y FORSYT	H			GEOLOGIST A. Suttle	
1 to	o I-40					GROUND WTR (ft)
	OFFSET 2	21 ft RT			ALIGNMENT -Y15FLYAC-	0 HR. N/A
	NORTHING	848.1	97		EASTING 1.664.718	24 HR. Drv
			IETHO	DН	S. Augers	ER TYPE Automatic
		TE 05/	16/19			Δ
<u>от</u>		SAMP	/	L		
	75 100	NO.		0	SOIL AND ROCK DESC	RIPTION
				0		
					_	
					900.2 GROUND SURFA	CE 0.0
			М		ROADWAY EMBAN	KMENT Silty Fine to
· · · ·					897.2 Coarse SAND (A-2-4), with	<u>trace mica3.0</u>
• •			м		- RESIDUAL – Medium Dense, Tan-Brown-V	Vhite, Silty Fine
•••					_ 893.7 to Coarse SAND (A-2-4), wi	th trace mica6.5
			M		Sun, Black-Brown-Red, Fir 891.2 Sandy SILT (A-4), with	little mica 9.0
	+	1	М		Medium Dense, Tan-Brown Silty Fine to Coarse SAND (A	-Black-White,
: :					to little mica	-2- -), with trace
· ·		1	N4			
	+				-	
					-	
· · · ·			М			
					-	
•••					_ <u>877.2</u>	23.0
•••			м		Stiff, Red-Black-Brown, Fir	ne to Coarse little mica
					-	
· ·					872.2	
•••			м		Fine to Coarse SAND (A-2-	n-white, Silty 4), with trace
• •					mica	
•••					867.2 Hard Black-White-Brown F	ine to Coarse 33.0
			M		Sandy SILT (A-4), with	little mica
· ·					-	
 .	 				861.2	39.0
	100/0.8				_ WEATHERED RO Black-White-Brown (GRAN	ICK IITIC ROCK)
		1			· ·	-
· · · ·	· · · · ·					
					-	
· ·		1			- 851 <i>4</i>	10.0
	100/0.3	۲			Boring Terminated at Elevat	40.0 ion 851.4 ft In
				F	vveathered Rock (GRANI	TIC KUCK)
		1			•	
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WBS	3 4839	9.1.7			Т	IP U-2579AB	COUNT	Y FORSY	ГН			GEOL	OGIST A. Suttle		WBS	3 4839	9.1.7			TIF	• U-2579A	Ъ	COUNTY
SITE	DESCR	IPTION	Brid	ge No	. 725	on -Y15FLYAC- from	n US 311	to I-40						GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	lge No.	725 o	n -Y15FLY	AC- from	US 311 to
BOR	ING NO	. B2-A			S	TATION 50+63		OFFSET	19 ft LT			ALIGN	IMENT -Y15FLYAC-	0 HR. N/A	BOF	ING NO	. B2-E	3		ST	ATION 50	+57	
COL	LAR EL	EV. 91	4.9 ft		Т	OTAL DEPTH 58.9	ft	NORTHING	G 848,0	090		EASTI	NG 1,664,599	24 HR. Dry	COL	LAR ELI	EV. 89	97.9 ft		то	TAL DEPT	H 44.7 ft	t
DRIL	l Rig/ha	MMER E	FF./DA	TE Ma	&W029	Diedrich D-120 89% 09	0/07/2018		DRILL I	METHO	DН	.S. Augers	НАММ	ER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE M&	W029 D	iedrich D-120	89% 09/0	7/2018
DRIL	LER F	. Brock			S	TART DATE 05/14	/19	COMP. DA	TE 05/	14/19		SURF	ACE WATER DEPTH N/	/A	DRI	LER R	R. Brock	K		ST	ART DATE	05/15/1	9
ELEV	DRIVE	DEPTH	BLC	w co	JNT	BLOW	6 PER FOO	Т	SAMP.	∇			SOIL AND ROCK DESC	CRIPTION	ELEV	DRIVE	DEPTH	BLC	w cou	NT		BLOWS F	PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	моі	G	ELEV. (ft)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	50
915	914.9	00	3		6							914.9	GROUND SURFA	ACE 0.0	900		Ļ						
		+	5	-	Ŭ			· · · · · ·		M	N N V	- - - 011 0	Stiff, Brown-Red, Clayey SI	ILT (A-5), with		897.9	<u> </u>		2				
910	911.4	+ 3.5 +	4	4	4		· · · · ·	· · · · · ·		м			Medium Stiff, Red-Brown, F	Fine to Coarse	895		‡	'		-	1 6	· · · · · · · ·	
010	908.9	6.0	3		3							- 909.4	Sandy SILT (A-4), with Loose, Orange-White-Brow	little mica5.5 m. Silty Fine to	000	894.4	+ <u>3.5</u>	3	4	7	·) · ·		
	906.4	- 8.5	5	7	5	$ \begin{bmatrix} \bullet 7 & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{bmatrix} = \begin{bmatrix} \bullet 7 & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{bmatrix} = \begin{bmatrix} \bullet 7 & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{bmatrix} $		· · · · · ·		M		906.9	Coarse SAND (A-2-4), with	th trace mica8.0		891.9	6.0	3	5	5	· Y '' · · I · · ·	· · · · ·	
905		+	4	3	3			· · · · ·		м		-	Red-White-Black-Brown, Fi	ine to Coarse	890	889.4	+ 85		5	5	· •10 ·	· · · ·	· · · ·
		‡				: <u>`</u> ;:: :::		· · · · · ·				-	Sandy SILT (A-4), with s	some mica			‡	3	5	5	. • 10	· · · · · · · ·	
000	901.4	13.5	6	6	7	$- \left \begin{array}{c} \cdot & \mathbf{y} \\ \cdot & \cdot \\$	· · · · ·	· · · · · ·		м		-			995	· ·	‡				· · · ·	· · · · · · · ·	
300	-	ŧ										-			000	884.4	13.5	5	5	7			<u> </u>
	896.4	- 18.5						· · · · · ·				-					‡				·	· · · · · · · ·	
895		‡	5	4	7	│ <u> </u>		· · · · ·		м		-			880	879.4	+				· · · · ·	· · · ·	· · · ·
		ŧ						· · · · · ·				-					+	6	9	11			
800	891.4	23.5	6	6	7		· · · · ·	· · · · · ·		м		-			975	· ·	‡						
090	-	ŧ										-			0/5	874.4	23.5	11	15	19		N _i .	1
	886.4	- 28.5				$\left \left \begin{array}{c} \cdot & \cdot & \mathbf{i} \\ \cdot & \cdot & \mathbf{j} \\ \cdot & \cdot & \mathbf{j} \\ \cdot & \cdot & \cdot \end{array} \right \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot &$		· · · · · ·				886.9		28.0			‡				· · · · ·		
885		‡	8	9	10	19 <u></u>		· · · · ·		м		-	Coarse SAND (A-2-4), with	th trace mica	870	869.4	+ 28.5					· · · · ·	, · · · · ·
		ŧ				::;/: :::		· · · · · ·				-					‡	14	23	37	· · · · ·	· · · · ·	. 60
000	881.4	- 33.5	4	6	6	$- \left \begin{array}{c} \cdot & \cdot & I \\ \cdot & \cdot & J \\ \cdot & \cdot & J \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right $	· · · · ·	· · · · · ·		м		<u>881.9</u>	Stiff to Hard, White-Black-C	Drange-Brown, 33.0	965		‡				· · · · ·	· · · · ·	
000	-	ŧ										-	Fine to Coarse Sandy SILT (A some mica	A-4), with little to	005	864.4	33.5	12	36	50			<u> </u>
	876.4	- 38.5						· · · · · ·				-					‡				· · · · ·	· · · · · · · ·	
875		ļ.	6	8	11	19		· · · · ·		м		-			860	859.4	+ 38.5					· · · ·	· · · ·
		ŧ				::::\\:::		· · · · · ·				-					Ŧ	12	42 5	58/0.3	· · · · ·	· · · · · · · ·	
870	871.4	+ 43.5 +	11	11	24		· · · · ·	· · · · · ·		М		-			855		‡				· · · · ·	· · · · · · · ·	
0/0	-	ŧ										-			000	854.4	43.5	100/0.2					
	866.4	+ + 48.5				$\left \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \right $	S	· · · · · ·				866.9		<u>48.0</u>			+	60/0.0					
865		‡ 7	20	20	32		<u>5</u> 2 <u>.</u>	· · · · ·		м		-	Silty Fine to Coarse SAND) (A-2-4), with		-	‡						
6/4/1:		‡										-	some mica				ŧ						
LO 860	861.4	† 53.5 †	23	75	25/0.1	$\left \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right $	· · · · ·				477	860.9		54.0			ŧ						
0.TOC	-	ŧ										-	White-Black-Orange-Brown	n (GRANITIC		-	ŧ						
NC	856.4	- 58.5					· · · · ·	· · · · · ·				- 856.0	RUUK)	58.9			ŧ						
GPJ	-	ŧ	100/0.4					100/0.4				_	Boring Terminated at Elevat	tion 856.0 ft In		-	ŧ						
275.		ŧ										-	Weathered Nock (Grvani	THE ROCK)			ŧ						
IDGE		ŧ										-					ŧ						
- BR	-	ŧ										-				-	ŧ						
579AB		ŧ										-					ŧ						
U-25	-	‡										-				-	‡						
JBLE		‡										-					‡						
DOL		‡										-					‡						
BORE	-	‡										-				-	ŧ						
TOC		‡										-				:	‡						
NCI		t										-					†						



V	VBS	34839	9.1.7			т	IP U-25	79AB	COUNT	Y FORSY	ТН			GEOL	.OGIST A. Sutt	le		WBS	3 483	9.1.7			TI	• U-2579	JAB	COUNT
s	ITE	DESCR		Brid	lge No	. 725	on -Y15F	LYAC- from	US 311	to I-40							GROUND WTR (ft)	SITE	DESCR	RIPTION	Bric	lge No	. 725 o	n -Y15FL	YAC- from	n US 311 to
E	ORII	NG NO	. B3-A			S	TATION	52+98		OFFSET	6 ft LT			ALIG	MENT -Y15FL	YAC-	0 HR. N/A	BOF	RING NO	. B3-E	3		ST	ATION	52+99	
C	OLL	AR ELI	EV. 90	3.9 ft		Т	OTAL DE	PTH 55.0	ft	NORTHIN	G 847,9	983		EAST	ING 1,664,390		24 HR. Dry	COL	LAR EL	EV . 90	04.3 ft		тс	TAL DEP	TH 65.0	ft
D	RILL	RIG/HA	MMER E	FF./DA	TE Ma	&W029	Diedrich D-	120 89% 09	07/2018	1	DRILL	NETHO	DH.	S. Augers		HAMN	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE Ma	&W029 [Diedrich D-1	20 89% 09	/07/2018
C	RILL	.ER R	. Brock			S	TART DA	TE 05/14/	19	COMP. DA	TE 05/	14/19		SURF	ACE WATER DE	PTH N	/A	DRII	LER F	R. Brock	(ST	ART DAT	E 05/14/	19
E	EV	DRIVE	DEPTH	BLC	w co	UNT		BLOWS	PER FOO	г Г	SAMP.	$\mathbf{\nabla}/$	L				CRIPTION	ELEV	DRIVE	DEPTH	BLC	w co	UNT		BLOWS	PER FOOT
((ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	моі	G	ELEV. (ft)	OUNDED	DEPTH (ft	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50
ę	05		+											- 003 0	GROU			905	904 3	1						
		903.9 .	- 0.0	2	3	5	·• <u>*</u> 8 ·					М			R	ESIDUAL				+	3	4	6	. •10 .		
	00	900.4 ⁻	- 3.5					· · · · · ·		· · · · · · ·			1 V	900.9		Brown, Ci	ayey SILT (A-5), ;a3.0	900	900.8	- 3.5		_	7	:]::		
	.00	-	+	4	4	4	. •8 .		· · ·			м		-	Mediu Black-Orange-Br	m Stiff to S own-Red,	Stiff, Fine to Coarse		898.3	+ 60		5		12	· · · · /	
	-	. 897.9	- 0.0 -	3	5	7				· · · · · ·		м			Sandy SILT (A-4), with little	e to some mica			+	2	4	3			
8	95	895.4	8.5	3	3	5		· · · · ·	· · ·	· · · · · ·	-	м		_				895	895.8	<u>+ 8.5</u> +	3	4	5		_ · · · ·	<u> </u>
			ŧ							· · · · · ·										‡						
2	100	890.4	+							· · · · · · ·								800	890.8	+ 13.5						
	.30	-	+	4	4	5	. • 9.					м		-				030		ŧ	8	8	8	• 10		
			ŧ							· · · · · · ·										‡						
8	85	885.4	18.5	4	4	7		· · · · ·	· · ·	· · · · · ·	-	м		_				885	885.8	+ 18.5 +	5	5	7	• • 1 . •	_ · · · ·	<u> </u>
			ŧ				:1"			· · · · · ·										ŧ				:: ::		
5	180	880.4	+ + 23.5							· · · · · ·								880	880.8	23.5			-			
		-	+	4	4	6	. •10					м		-						ŧ	4	0				
			ŧ				: : ` .	· · · · · ·		· · · · · ·							29.0			‡						
8	575	875.4	28.5	7	11	13		24	· · ·		-	м		_ 0/0.9	Medium Dense, C	Drange-Wh	hite-Brown, Silty	875	875.8	<u>+ 28.5</u> +	3	6	8	14		<u> </u>
			ŧ							· · · · · ·					Fine to Coarse a	mica	-4), with trace			‡						
5	70	870.4	+ + 33.5					: : X : :		· · · · · ·				870.9			<u>33.0</u>	870	870.8	33.5	11	10	16			
		-	ŧ	9	17	23	1	•40				м		-	наго, вгожп, гл (А-4), v	with some	mica	0/0		ŧ		13	10		29	
			ŧ					$\begin{vmatrix} & \cdot & \cdot \\ \cdot & \\ \cdot & \cdot \end{vmatrix}$		· · · · · ·				865.0			38.0			‡					/::::	
8	65	865.4	<u>+ 38.5</u>	6	14	21		· · · · · ·	· · ·		-	м		_ 000.9	Dense	to Very De	ense,	865	865.8	<u>+ 38.5</u> +	7	7	9	- · · · /·	,	<u> </u>
			ŧ							· · · · · ·					Coarse SAND	(A-2-4), w	ith little mica			ŧ						
5	160	860.4	+ + 43.5					· · · · · ·		· · · · · ·								860	860.8	43.5		11	17			
	.00	-	ŧ	19	21	34			9 55 .			м	-	-						ŧ	9				P 28	
			ŧ							· · · · · ·										‡						
	55	855.4	† 48.5 	16	26	30		· · · · · ·	656	· · · · · ·		м		_				855	855.8	+ 48.5 +	11	10	22	· · · ·		+ • • • •
6/4/1:			ŧ						· \.											ŧ						
100	50	850.4	+ - 53.5					· · · · · ·		· · · · · ·								850	850.8	53.5	16	31	42			
DOT.(-		ŧ —	18	25	38			• 63		1	М		848.9	Boring Torminate	nd at Elova	55.0		1 -	Ŧ					· · · ·	· · · /·
NC_N			Ŧ												Residual S	Silty SAND) (A-2-4)		045.0							
GPJ		-	ŧ											_				845	- 845.8	+ 58.5 +	11	15	16		• • • • •	
275.			Ŧ																	Ŧ					1	,
RIDGE			Ŧ										F					840	840.8	63.5	25	34	66/0 5		1	
8- BF		-	Ŧ										F	-						†	20	04	00/0.0			
579AE			Ŧ										F							Ŧ						
U-2		-	Ŧ										F	_					-	Ŧ						
JBLE		-	ŧ																	ŧ						
DOI			Ŧ											-						Ŧ						
BOR		-	Ŧ											-					-	Ŧ						
DOT			Ŧ																	Ŧ						
9			T									1								Ť	1					

′ F(ORSYT	Η			GEOLOGIST A. Suttle		
I-40)					GROUN	D WTR (ft)
OFF	SET	12 ft RT			ALIGNMENT -Y15FLYAC-	0 HR.	N/A
NOF	RTHING	847,9	98		EASTING 1,664,379	24 HR.	Dry
		DRILL	IETHO	ΣН	S. Augers HAMME	R TYPE	Automatic
COM	MP. DA	TE 05/	14/19			4	
		SAMP		L		•	
75	100	NO.		0	SOIL AND ROCK DESC	RIPTION	
1		-					
T -					-904.3 GROUND SURFA	CE	0.0
:	· · ·		M	N N V	Stiff, Brown-Red, Clayey SIL	.T (A-5), w	ith
-				N N V	trace organics and littl	e mica	
-			111	× ^	898.8 Medium Stiff to St	<u></u>	5.5
.			М		White-Orange-Brown-Black, F	ine to Coa	arse
· ·			м		- Sandy SILT (A-4), with i	ittle mica	
:	· · ·	1					
:	· · ·				891.3		<u>13.0</u>
+ -		1	м		Fine to Coarse SAND (A-2-4),	with little	mica
:		1			-		10.5
-					Stiff, Black-Tan-Orange-Wi	hite, Fine t	
			IVI		Coarse Sandy SILT (A-4), with mica	trace to s	ome
·			м		-		
:					-		
	· · ·						
			м		_		
-							
.						-White, S	ilty <u>33.0</u>
1.			M		Fine to Coarse SAND (A-2-4	4), with tra	ce
:					866.3		38.0
·			м		Very Stiff, Black-White-Bro	wn, Fine t	0 0
:					Coarse Sandy SiLT (A-4), wi	ui some m	lica
:							
			м		- -		
:		1			•		
:	· · ·	1				Silty Fine t	<u></u>
1.			M		Coarse SAND (A-2-4), with	n little mica	a
	· · ·	1			- 851.3		53.0
		1	м		Hard, Orange-White-Black, F	ine to Coa	arse
	:::				Sandy SILT (A-4), with so	une mica	
.		1					
<u> </u>		1	м		-		
:		1					
	· · ·	1			840.3		64.0
+-	100/1.0	비		977	-839.3 WEATHERED RO		65.0
					Boring Terminated at Elevati	on 839.3 f	t In
					. Weathered Rock (BIOTITE	E GNEISS)
		1					
		1					
		1			_		
		1					
		1					

WB	S 3483	9.1.7			Т	IP U-2579AB	COUNT	Y FORSYT	Ή			GEOL	OGIST A. Suttle				WBS	3 483	9.1.7			TIF	U-2579	9AB	COUNT
SIT	E DESCI	RIPTION	Brid	lge No	. 725	on -Y15FLYAC- from	US 311	to I-40							GROUND	VTR (ft)	SITE	DESC	RIPTION	Bridge	No. 7	⁷ 25 o	n -Y15FL	YAC- fro	m US 311 to
BO	RING NC	. B4-A			S	TATION 55+05		OFFSET	17 ft LT			ALIG	NMENT -Y15FLY	AC-	0 HR.	N/A	BOR	NG NC) . B4-A			ST	ATION :	55+05	
COI	LAR EL	EV. 89	5.6 ft		Т	OTAL DEPTH 74.8	ft	NORTHING	3 847,8	359		EAST	ING 1,664,225		24 HR.	Dry	COL	LAR EL	. EV . 89	5.6 ft		то	TAL DEP	TH 74.8	3 ft
DRI	L RIG/HA	MMER E	FF./DA	TE M	&W029	Diedrich D-120 89% 09/	07/2018	•	DRILL I	METHC	D H	.S. Augers	3	НАММ	ER TYPE Au	tomatic	DRIL	L RIG/HA	MMER E	FF./DATE	M&W	/029 D	iedrich D-1	20 89% 0	9/07/2018
DRI	LLER F	R. Brock			S	TART DATE 05/12/*	19	COMP. DA	TE 05/	12/19		SURF	ACE WATER DEP	TH N	/Α		DRIL	LER F	R. Brock			ST	ART DAT	E 05/12	2/19
ELE\	/ DRIVE	DEPTH	BLC	w co	UNT	BLOWS	PER FOO	Г	SAMP.	▼⁄	L		SOIL AND BOO		CRIPTION		ELEV	DRIVE	DEPTH	BLOW	COUN	Т		BLOW	S PER FOOT
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	Имо	I Ğ	ELEV. (fl	t)			DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft 0	.5ft 0).5ft	0	25	50
900		Ļ										_					820	+	∔	+.		+		<u>M</u> a	atch Line
		ŧ										-							ŧ						
895	895.6	<u>+ 0.0</u>										- 895.6	GROUNE	D SURF	ACE	0.0			ŧ						
		ŧ	2	4	5					M	× 7 7 7	-	RES Stiff, Red-Brown, C	SIDUAL Clayey SI	ILT (A-5), with				ŧ						
	892.1	3.5	4	6	7			· · · · · ·				- <u>892.6</u> -	trace_orgai	nics and	mica Y (A-7-5), with	<u></u>			ŧ						
890	889.6	<u> </u>						· · · · · ·				890.1	trac	e mica	Ded Brown	<u>5.5</u>		.	ŧ						
	887 1	+ 85	3	4	'	: •11 : : : : :		· · · · · ·		M	ト 7 イ 7	-	Clayey SILT (A-	-5), with	trace mica				ŧ						
885	007.1	+ 0.0	4	6	7			· · · · · ·		м	< л л Л Л Л	-							ŧ						
	1.	ŧ				· · · · · · · · · · · ·					< л л Л Л Л	-						· ·	Ŧ						
	882.1	13.5	2	3	3	$\left \begin{array}{c} \cdot & \cdot \\ \cdot & \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\$					х х 7 У	-							Ŧ						
880		Ŧ									с 7 7 7	-						.	Ŧ						
	877 1	† † 18.5									х V Х V	<u>877.6</u>				<u> 18.0</u>			Ŧ						
875		+	2	4	6	↓ · • 10 · · · · · ·				м		-	Orange-White-Brow	to Hard, /n-Black-	-Green, Fine to	1			Ŧ						
		Ŧ										-	Coarse Sandy SIL I	(A-4), v	with trace mica				Ŧ						
	872.1	23.5	3	4	5					М		-							Ŧ						
870		Ŧ										-							Ŧ						
	867.1	28.5										-							Ŧ						
865		Ŧ	3	4	7	· • 11 · · · · ·				M		_							Ŧ						
]	Ŧ										-							Ŧ						
	862.1	33.5	4	6	10					м		-							Ŧ						
860		Ŧ										_						.	Ŧ						
	857.1	38.5				\ \						-							ŧ						
855		ŧ	6	9	13	· · · • • 22 · · · ·				M		-							Ŧ						
		ŧ				:::: ::::		 				-							ŧ						
	852.1	43.5	6	8	12	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		 		м		-							ŧ						
<u>850</u>		ŧ					+					-						.	‡						
6/4/	847.1	48.5		7	12	::::[::::	· · · ·	 				-							‡						
845		ŧ		<i>'</i>						M		-							ŧ						
6 		‡				::::\\:::		· · · · · ·				-							‡						
	842.1	<u> </u>	12	15	17	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · ·	 		м		-							‡						
- 040 9.9		ŧ					· · ·					-						· ·	ŧ						
3E 27	837.1	58.5	36	60	40/0.3	. . <u></u> .	· · · ·	 . <u></u>				- 836.6				59.0			‡						
835		‡	30	00	40/0.3		<u> </u>	100/0.8				-	WEATHE Orange-Grav-Whit	ERED RO	DCK NITIC ROCK)			.	‡						
AB - E	000 4	+						:				832.6			- , 	<u> 63.0</u>			‡						
2579,	832.1	+ 03.5	37	38	33	1 :::: :::		$\mathbf{\Phi}_{71}^{T} \cdot \cdot \cdot \cdot \cdot$		м		-	Dense to Verv Dens	SIDUAL se, White	e-Black-Brown.				‡						
⇒ <mark>_ 830</mark> щ		‡					1.					-	Silty Fine to Coarse S	SAND (A	-2-4), with trac	е		·	‡						
OUBL	827.1	68.5	38	18	18	 /		· · · · · · · · · ·				-		-					‡						
입 		‡				••••••••••••••••••••••••••••••••••••••	+ • • •	· · · · ·		M		-						.	‡						
DT BO	822.1	+ 73 5						· · · · · · · · · ·				-							‡						
NCDC		+ '	25	60	40/0.3	<u> · · · · · ↓</u> 	+	<u></u> 100/0.8		<u> </u>	977	- 821.6 - 820.8	WEATHE	RED RO	оск	74.0			Ŧ						
				-	-				•								-								

FORSYTH	1				GEOLOGIST A. Suttle			
I-40							GROUN	D WTR (ft)
OFFSET 1	7 ft LT				ALIGNMENT -Y15FLYA	.C-	0 HR.	N/A
NORTHING	847,8	59		1	EASTING 1,664,225		24 HR.	Dry
		IETHO	р н	 .S.	Augers	HAMME	R TYPE	Automatic
COMP. DAT	E 05/	12/19		Τ	SURFACE WATER DEPT	Η N//	4	
	SAMP.		L	_				
75 100	NO.	мо	O G		SOIL AND ROCI	K DESC	RIPTION	
			-					
			- +	-	White-Orange-Brow	n (GRAI	NITIC ROO	<u></u>
				-	Weathered Rock (GRANI	on 820.8 f FIC ROCK	t In .)
				-				
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WBS	3483	9.1.7			Т	IP U-2579	AB	COUN	TY FORSY	TH			GEO	LOGIST A. Suttle				WBS	34839	9.1.7			ТІ	P U-2579	AB	COUN	ITY
SITE	DESCF		Brid	lge No	. 725	on -Y15FLY	AC- from	US 311	to I-40							GROUND	WTR (ft)	SITE	DESCR	IPTION	Brid	lge No	. 725 c	on -Y15FL	YAC- from	າ US 311	l to
BOR	ING NO	. B4-B			S	TATION 5	5+00		OFFSET	11 ft RT	-		ALIG	NMENT -Y15FLY	AC-	0 HR.	N/A	BOR	ING NO.	B4-B			SI	TATION 5	5+00		(
COL	LAR EL	EV. 89	6.6 ft		Т	OTAL DEPT	TH 75.0 f	ft	NORTHIN	G 847,	885		EAS	TING 1,664,212		24 HR.	Dry	COL	LAR ELE	EV. 89	6.6 ft		тс	OTAL DEP	TH 75.0	ft	
DRIL	RIG/HA	MMER E	FF./DA	TE Ma	W029	Diedrich D-12	20 89% 09/	07/2018		DRILL	METHO	DD H	I.S. Auger	S	HAMM	ER TYPE A	utomatic	DRILI	RIG/HAI	MMER E	FF./DA	TE Ma	&W029 I	Diedrich D-1	20 89% 09/	/07/2018	
DRIL	LER F	R. Brock			S	TART DATE	E 05/12/1	19	COMP. D	ATE 05	/12/19)	SUR	FACE WATER DEP	TH N/	'A		DRIL	.LER R	. Brock			ST	TART DAT	E 05/12/	19	
ELEV	DRIVE	DEPTH	BLC	w col	JNT		BLOWS	PER FOO	т	SAMP								ELEV	DRIVE	DEPTH	BLC	w col	JNT		BLOWS	PER FOC	тс
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25	50	75 100) NO.	Имо) G	ELEV. (ft)			DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	7
900		Ļ											L					820		L		L			Mat	<u>ch Line</u>	
		ŧ											L						-								
005	896.6	<u>+ 0.0</u>	2	4	6	· •					м	N.	- 896.6 -	GROUNE RES	D SURFA	ACE	0.0		-								
895	-	±				1		<u> </u>				N 7 V 7	- 893.6	Stiff, Red-Brown, C	Clayey SI	LT (A-5), with	3.0		-								
	893.1	3.5	5	6	9			· · ·	· · · · · ·		м		[Soft to Stiff, Red-G	ray-Brow	vn, Silty CLAN	,		-								
890	890.6	6.0	1	1	3								F	(A-7-5), W	ith trace	mica			-								
	888.1	8.5						· · ·					<u>888.6</u>	Stiff Tan-Orange	Fine to (Coarse Sandy	8.0			Ł							
		ŧ	5	5	8	· ·••13·					м			SILT (A-4), v	with trace	e mica			-	Ł							
885		Ŧ											883.6				13.0										
	883.1	13.5	2	5	6						М			Loose to M	ledium D	ense,	<u>13.0</u>		-	E							
880		Ŧ											F	SAND (A-2-4)), with tra	ace mica	e		-	F							
	878.1	T 18.5				· · · · ·]			F						-	F							
		Ŧ	7	7	7						м		F						-	F							
875		ŧ							· · · · · ·				F						-	F							
	873.1	23.5	5	5	5	$\left \begin{array}{c} \cdot \cdot$			· · · · · ·				-						-	+							
870		‡	Ū		Ū	$\begin{vmatrix} \cdot \bullet 10 \\ \cdot \lambda \cdot \cdot \end{vmatrix}$			· · · · · · · · · · · · · · · · · · ·				-						-	+							
0/0	-	‡								1			F						-								
	808.1	- 28.5	4	6	12	- · · · · · · · · · · · · · · · · · ·	8 · · · ·	· · · ·	· · · · · ·		м								-								
865	-	‡						· · ·	· · · · ·	41			F						-								
	863.1	33.5	2	6	0			· · · ·	· · · · · ·				<u>- 863.6</u>	Stiff to Very Stiff. Black	ck-White	Brown. Fine	to <u>33.0</u>		-								
960		‡	5	0	9	· · • • 15		· · · ·	· · · · · ·		M		-	Coarse Sandy SILT	(A-4), w	with trace mica	a		-	+							
000	-	‡						+ · · · ·					-														
	858.1	38.5	5	6	11	- · · · · · · • • 17	,	· · · ·	· · · · · ·		м								-								
855	-	t																	-								
	853.1	43.5	44	10	- 00		N::::		· · · · · ·				<u>853.6</u>	Dense Brown-Wh	nite-Tan	Silty Fine to	<u>43.0</u>		-								
		‡		12	22		• • 34 •		· · · · · ·		M		<u>t</u>	Coarse SAND (A-	2-4), with	h trace mica			-	t l							
<u>୫</u> 50	-	ŧ					+	+					848 6				48 0			t l							
6/4/	848.1	48.5	12	16	22						м		Ē	Hard, Orange-Brown	1-White,	Fine to Coars	se		-	t l							
LGD 845		ŧ					· · · · · ·	<u> </u>					F	Januy SILT (A-	<i>⊣i,</i> witiit				-	Ł							
DOT	843.1	53.5											F						-	Ł							
S		$\frac{1}{1}$	6	12	20		4 32 · ·				м		L						-								
<u>දි</u> 840	-	Ŧ					+	+ • • •					- 820 C				FOO		-	F							
275.	838.1	58.5	19	21	28						М		- <u>030.0</u> -	Dense, Black-White	e-Brown-	Orange, Silty	/		-	F							
		Ŧ						7 ⁴⁹ · · ·					F	Fine to Coarse SAI	ND (A-2- nica	-4), with trace			-	F							
8-B1	833.1	T 63.5					/.			1			F						-								
579AE	000.1	T	6	17	19		• • • • •		· · · · · ·		м		F						-	ŧ I							
5 -5 -6 -5 -6 -5 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6 -6		‡					· · · · · ·	· · ·	· · · · ·				F						-	‡							
JBLE	828.1	68.5	15	21	25				· · · · · ·				F						-								
		‡	10		20			46 • • •	· · · · · · ·		M		F						-	‡							
BN020	-	‡ <u>_</u>					· · · ·	1		11			823.6				73.0		-								
OTE	823.1	/3.5	14	21	28		<u> </u>	• 49 · ·	· · · · · ·		м		821.6	Hard, Black-White- Sandy SII T (A-	Brown, F 4), with t	ine to Coarse	75.0		-	t							
NCD		+					-	- <u>-</u>					-	Boring Terminated	at Elevat	tion 821.6 ft l	1		-	ł							

NT	Y FOR	SYTH	1			GEOLOGIST A. Suttle			
1 to	o I-40							GROUN	D WTR (ft)
	OFFSE	ET 1 ⁻	1 ft RT			ALIGNMENT -Y15FLYA	C-	0 HR.	N/A
	NORT	HING	847.8	85		EASTING 1.664.212		24 HR.	Drv
				IETHO) Н.9	Augers	НАММЯ		Automatic
	COMP		F 05/	12/10				Δ	
	COMP	. DAI	SAMP	/	L	JUNFAUE WATER DEPT	11 IN//	¬	
	75	100	NO		0	SOIL AND ROCH	< DESC	RIPTION	
			110.		6				
						Residual San		(A-4)	
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WBS	34839	0.1.7			Т	ΊP	U-2579/	٨B	COUNT	Y FORSYT	Н			GEOLOGIST A. Suttle			
SITE	DESCR	IPTION	Brid	ge No.	725	on	า -Y15FLY	AC- from	US 311 t	o I-40				ŀ		GROUN	D WTR (ft)
BORI	NG NO.	B5-A			s	STA	ATION 56	6+85		OFFSET 1	17 ft LT			ALIGNMENT -Y15FLY	AC-	0 HR.	N/A
COLL	AR ELE	EV. 88	9.2 ft		Т	01	TAL DEPT	H 73.8 f	ft	NORTHING	i 847,7	52		EASTING 1,664,081		24 HR.	Dry
DRILL	RIG/HAN	MMER E	FF./DA	TE M8	W029	9 Di	iedrich D-120	0 89% 09/	07/2018		DRILL M	IETHO	DH	.S. Augers	HAMME	R TYPE	Automatic
DRIL	LER R.	. Brock			s	STA	ART DATE	05/13/1	19	COMP. DAT	FE 05/	13/19		SURFACE WATER DEP	TH N//	Ą	
ELEV	DRIVE ELEV	DEPTH	BLO	W COL	INT			BLOWS	PER FOOT		SAMP.	▼⁄		SOIL AND ROO	CK DESC	RIPTION	
(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft		0 2	5 I	50	75 100	NO.	/моі	G	ELEV. (ft)			DEPTH (ft)
890	889.2	0.0) SURFA	CE	0.0
	-	-	2	2	5							М		RES Medium Stiff to St	i DUAL	Brown-Blac	k,
885	885.7	3.5	1	4	6								N N V	Clayey SILT (A-5), v trace to	vith trace	organics a	and
	883.2	6.0	-	-	0		•10					IVI	- N	883.7 Medium Sti			
	880 7	85	4	5	9		· · • • 14					М		- Black-Tan-Red-White	-Orange	-Brown, Fi	ne to
880		- 0.5	3	3	7	1	10					м		- Coarse Sandy Si∟r	nica		ome
		E															
875	875.7	13.5	3	4	7							м					
	-			-			9 ¹¹ .							-			
	870 7	- 18.5						· · · ·						-			
870	-	-	3	3	5	1	•8		<u> </u>			М		-			
	-							· · · ·						-			
865	865.7 -	- 23.5	2	3	5	$\left \right $	· [· · ·					м		-			
	-	-						· · · · ·						-			
000	860.7 -	- - 28.5						· · · ·						-			
860	-	-	3	5	9		14					М		_			
	4	-						· · · · ·						-			
855	855.7 -	- 33.5	3	6	10	$\left \right $						м		-			
	4	-						· · · · ·						-			
850	850.7	- 38.5					: : :	· · · · ·						-			
000	-	-	5	ю	9		15					M		-			
		-					· · · · ·	· · · · ·						-			
845	845.7 -	- 43.5	9	9	18	┨┟	· · · · · ·	• • • • •				м		-			
	-	-												-			
840	840.7	48.5	10	13	14									841.2 Medium Dens	e to Very	Dense,	- <u> </u>
]	E	10	10				9 27				IVI		Tan-White-Brown SAND (A-2-4	, Silty Fin) with trac	e to Coars ce mica	e
	835 7	- 53 5												-			
835			5	9	12	1		1	+			М		_			
		L												-			
830	830.7 -	- 58.5	25	30	26	┥╿						м		-			
	-	-					· · · · ·		· · · · ·					-			
005	825.7 -	- - 63.5					· · · · ·							826.2		Eino t	<u>63.0</u>
825	-	-	7	11	19			•30				М		Coarse Sandy SILT	(A-4), wi	ith some m	nica
	4	ŀ					 		· · · · ·					-			
820	820.7 -	- 68.5 -	28	45	55/0.4	4			+	+			977	- 820.2 WFATHF		CK	69.0
	4	ŧ					 			· 100/0.9				Black-White-Gray	(BIOTIT	E GNEISS	6)
	- 815.7 -	- - 73.5	100/0 0				· · · · ·	· · · · ·	· · · · ·	<u> </u>				- - 815.4			73.8
	-	F	100/0.3							100/0.3				Boring Terminated Weathered Rock	at Elevat (BIOTIT	ion 815.4 f E GNEISS	t In)
	1	F												-			
		[-			

NC_DOT.GDT 6/4/19 븠 õ NCDOT BORE

WBS	3483	9.1.7			Т	P U-2579AB COUN	TY FORSY1	ГН			GEOLOGIST A. Suttle		WBS	34839	9.1.7			TI	• U-2579AB	COUNTY
SITE	DESCR	RIPTION	Brid	lge No	. 725	on -Y15FLYAC- from US 311	to I-40					GROUND WTR (ft)	SITE	DESCR		Brid	lge No.	725 o	n -Y15FLYAC- from	US 311 to
BOR	ING NO	. B5-B			S	TATION 56+81	OFFSET	8 ft RT			ALIGNMENT -Y15FLYAC-	0 HR. N/A	BOF	ING NO	. B5-B			ST	ATION 56+81	
COL	LAR EL	EV. 89	1.8 ft		Т	OTAL DEPTH 75.0 ft	NORTHING	G 847,7	774		EASTING 1,664,069	24 HR. Dry	COL	LAR EL	EV. 89	91.8 ft		тс	TAL DEPTH 75.0 f	ft
DRIL	L RIG/HA	MMER E	FF./DA	TE M	&W029	Diedrich D-120 89% 09/07/2018	-	DRILL	METHO	D H	I.S. Augers HAMM	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE M&	W029 [Diedrich D-120 89% 09/0	07/2018
DRIL	LER F	R. Brock			S	TART DATE 05/13/19	COMP. DA	TE 05/	/13/19		SURFACE WATER DEPTH N	/A	DRII	LER R	. Brock			ST	ART DATE 05/13/1	19
ELEV	DRIVE	DEPTH	BLC	w co	UNT	BLOWS PER FOO	 DT	SAMP.		L			ELEV	DRIVE	DEPTH	BLC	W COU	NT	BLOWS	PER FOOT
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	мо	I G	SUIL AND ROCK DESU	DEPTH (ft)	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50
							·													
895													815						Mato	ch Line
		Ŧ									-			T	+			1		
	891.8	<u> </u>	2	2	4						891.8 GROUND SURFA	ACE 0.0			Ŧ					
890		Ŧ	_	-						х х И И	Medium Stiff, Brown-Red, Cla	ayey SILT (A-5),		-	Ŧ					
	888.3	<u>T 3.5</u>	5	5	6				м		Stiff, Black-Brown-Red-Tan,	Fine to Coarse			Ŧ					
885	885.8	<u> </u>	3	4	5						- Sandy SILT (A-4), with trac	e to little mica			Ŧ					
	883.3	8.5									-			-	Ŧ					
		Ŧ	3	5	<i>'</i>				M		-				Ŧ					
880		Ŧ									- 	13.0		-	Ŧ					
	878.3	<u>T 13.5</u> T	3	4	5				м		Loose to Medium D	Dense, / Fine to Coarse			Ŧ					
875		Ŧ									- SAND (A-2-4), with lit	ttle mica			Ŧ					
	873.3	18.5									-				Ŧ					
		Ŧ	6	5	5	• • 10			M		-				Ŧ					
870		Ŧ												-	Ŧ					
	868.3	<u>T 23.5</u> T	10	8	10				м						Ŧ					
865		Ŧ													Ŧ					
	863.3	28.5									-				Ŧ					
		Ŧ	6	6	6				M						Ŧ					
860		±									_			-	ł					
	858.3	33.5	3	5	8		· · · · ·		м						ł					
855		ŧ				· · · · · · · · · · · · · · · · · · ·					-				ł					
	853.3	38.5	5	7	12	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot $	· · · · · ·				853.8 Very Stiff, Black-White-Oran	ge-Brown, Fine 38.0			ŧ					
050		ŧ		'	12	│	· · · · · ·		M		 to Coarse Sandy SILT (A-4), 	, with little mica			ŧ					
850		+ 49 5									-			-	ŧ					
	040.3	+ 43.5	6	10	11		· · · · · ·		м		-				ŧ					
845		‡				· · · <i>l</i> · · · · · · ·	· · · · · ·				-			·	‡					
5/4/15	843.3	48.5	6	6	10		· · · · · · ·		N4		-				‡					
DT 040		‡		ľ		$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	· · · · · · ·				-				‡					
0.10	838.3	+ 53 5				<u> </u>					838.8	53.0		-	ŧ					
NC_N		+	6	9	11	$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$	· · · · · ·		м		 Medium Dense, Tan-Brown-V to Coarse SAND (A-2-4), v 	white, Silty Fine with little mica			‡					
<u>ළ 835</u>		‡					· · · · ·				-	50.0		-	‡					
275.0	833.3	+ <u>58.5</u>	7	11	14		· · · · · · · · · · · · · · · · · · ·		м		Very Stiff, Black-White-Oran	ge-Brown, Fine			ŧ					
UD 00 830		‡				$\begin{bmatrix} & . & . & . & . & . & . & . & . & . & $	· · · · · · · ·				 to Coarse Sandy SILT (A-4), 	, with little mica			‡					
BH - SOO	828.3	+ 63.5] · · · · · · · · · · ·					-				ŧ					
579AE		Ŧ	7	10	13		· · · · · ·		м		-				ŧ					
či 825		Ŧ				 ```	· · · · · ·				823.8	60 0		-	ŧ					
JBLE	823.3	† <u>68.5</u>	20	47	46	· · · · · · · · · · · · · · · ·			м		Dense to Very Dense, Tan-	-White-Brown,			ŧ					
о П 820		Ŧ					· · · · · · · · · · · ·				- Silly Fine to Coarse SAND (A				Ŧ					
BOR	818.3	73.5						1			-				ŧ					
DOT		+	11	16	23			Ц	M		816.8 Boring Terminated at Elever	75.0			Ŧ					
NC		Ť													Ť					

FORSYTH	1				GEOLOGIST A. Suttle			
I-40							GROUN	D WTR (ft)
OFFSET 8	ft RT			Τ	ALIGNMENT -Y15FLYA	AC-	0 HR.	N/A
NORTHING	847.7	74		+	EASTING 1,664,069		24 HR.	Drv
		IETHO	р н	.S.	Augers	HAMME	ER TYPE	Automatic
COMP. DAT	E 05/	13/19			SURFACE WATER DEP	FH N/4	Ą	
	SAMP.		L					
75 100	NO.	мо	O G		SOIL AND ROC	K DESC	RIPTION	
•								
				_	Residual Silty	SAND	(A-2-4)	
				-				
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WBS	3 4839	9.1.7			TI	IP U-2579	AB	COUNT	Y FORSY	TH			GE	OLOGIST A. Suttle	;		WBS	3 4839	9.1.7			TIF	P U-2579/	٩B	COUNTY
SITE	SITE DESCRIPTION Bridge No. 725 on -Y15FLYAC- from BORING NO. B6-A STATION 58+40								o I-40							GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	ge No	. 725 o	on -Y15FLY	AC- from	US 311 to
BOF	RING NO	. B6-A			S	TATION 5	8+40		OFFSET	26 ft LT			ALI	GNMENT -Y15FLY	AC-	0 HR. N/A	BOR	ING NO	. B6-B	3		ST	TATION 58	3+57	
COL	LAR EL	EV. 87	5.7 ft		Т	OTAL DEPT	FH 60.0 f	ť	NORTHIN	G 847,6	647		EA	STING 1,663,968		24 HR. Dry	COL	LAR EL	EV . 87	76.4 ft		тс	DTAL DEPT	H 55.0 f	t
DRIL	L RIG/HA	MMER E	FF./DA	TE Ma	&W029	Diedrich D-12	20 89% 09/0	07/2018		DRILL	METHO	DD I	H.S. Aug	ers	HAMM	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE M	&W029 [Diedrich D-12) 89% 09/0)7/2018
DRI	LER F	R. Brock			S	TART DATE	E 05/17/1	9	COMP. DA	ATE 05/	/17/19)	SU	RFACE WATER DEF	PTH N/	/A	DRIL	LER R	R. Brock	(ST	ART DATE	05/17/1	9
ELEV	DRIVE	DEPTH	BLC	w co	JNT		BLOWS	PER FOOT		SAMP.	. 🔻			SOIL AND RO	CK DES	CRIPTION	ELEV	DRIVE	DEPTH	BLC	W COL	JNT		BLOWS I	PER FOOT
(#)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25	50	75 100) NO.	Имо) G	ELEV	. (ft)		DEPTH (f) (ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	50
880		Ļ											F				880		Ļ						
		‡											F						ŧ						
975	875.7	0.0			-								875.7	GROUN	ID SURF	ACE 0.	075	876.4	+ 0.0	6	3	4	<u></u>	· · · · ·	· · · · ·
0/5	-	ŧ	2	2	3	\$ ⁵				11	м	N N V		RE: Medium	SIDUAL Stiff to S	Stiff,	0/5	-	‡						<u> </u>
	872.2	3.5	4	4	7	$\left \begin{array}{c} \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \end{array} \right $	· · · · ·		· · · · ·			N N V		White-Black-Gree (A-5), wi	en-Brown	i, Clayey SILT mica		872.9	<u> </u>	3	4	6		· · · ·	· · · ·
870	869.7 -	6.0	•		,				· · · ·			× ×	870.2		Stiff to S	5.	870	870.4	6.0	4	7	10	· · · ·	· · · ·	· · · ·
	067.0	+	1	2	6	: • 8 : :			· · · · ·		м		-	Tan-Black-Brown	-White-G	Green, Fine to		867.9	8.5				17 1 · · · •		
005	007.2	- 0.0 -	4	5	9	$\begin{vmatrix} & \cdot & \cdot \\ & \cdot & \cdot & \bullet \\ & \cdot & \cdot & \bullet \\ & \cdot & \cdot & \bullet \\ & \cdot & \bullet & \bullet \\ & \bullet & \bullet & \bullet \\ & \bullet & \bullet & \bullet \\ & \bullet & \bullet$	· · · · ·		· · · · ·		м		-	Coarse Sandy SILT	(A-4), wi mica		005		ŧ	4	5	8	· ·••13·	· · · · ·	· · · · ·
600		ŧ				 <i> </i>				11			-				600	-	ŧ						<u> </u>
	862.2	13.5	5		5	: ! ::	· · · · ·		· · · · ·				ł					862.9	<u> </u>	5	7	12	· · · · · ·	 	
860		± 1	5	4	5	. •9					M		-				860		ŧ				· · · · j ·	· · · ·	<u> </u>
	057.0	+				: : : :							-					857.9	18.5				:: <i>t</i> :		
0.55	857.2	18.5	4	3	4		· · · ·				м								ŧ	7	6	7	· · · · · · · · · · · · · · · · · · ·		
855		ŧ					· · · · ·	+					-				855		ŧ						+
	852.2	23.5			6								<u> </u>	Loose. Brown-Whi	ite. Silty F	Fine to Coarse 23.9	<u>)</u>	852.9	23.5	9	15	15		30	
850		± 1	2	2	0	. • 8					M			SAND (A-2-4	4), with lit	ttle mica	850		ŧ					7	<u> </u>
		+											847.7			28.0		847.9	28.5						
	847.2	28.5	3	5	7	· · · · · · · · · · · · · · · · · · ·		· · · ·			м		E	Stiff, Black-Tan-E Sandy SILT (A	Brown, Fii -4), with s	ne to Coarse]		ŧ	7	18	22		• • • • 40	
845		ŧ				- \ .			· · · · ·						.,,		845	-	ŧ					1.1.	+
	842.2	33.5	4		10	$\left \begin{array}{c} \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right $							<u>842.7</u>	Medium Den	se to Ver	<u>33.9</u>	<u>)</u>	842.9	33.5	5	12	18			
840		±	4	0	12	.	8				М			Tan-Gray-White-Bla SAND (A-2-4) w	ack, Silty	Fine to Coarse	840		ŧ						
	007.0	1					NEEE											837.9	38.5						
	837.2	38.5	14	19	17		. • 36 .				м								ŧ	20	24	28			•52 · · ·
835		ŧ						· · · ·									835		ŧ						
	832.2	43.5	10	24	20		X											832.9	43.5	7	44	56/0.4			$\left \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \right $
830		± 1	10	24	20			•52			M						830		ŧ						<u> </u>
/4/19	007.0	1																827.9	48.5						
DT 00	827.2	48.5	8	18	34		· · · · ·	•52 · · ·	· · · · ·		м							·	ŧ	72	28/0.1				
0 825 TO		ŧ					<u></u>		· · · · ·								825	1 -	ŧ						<u> </u>
Q V	822.2	53.5	26	66	34/0 3		· · · · ·	j · · · ·					821.7			54.0		822.9	<u> </u>	24	30	30		 	
2 2 820		±	20	00	34/0.3			· · · ·	100/0.8	 				WEATH White-Grav-Oran	ERED RO	DCK n (GRANITIC]	-	ŧ					<u> </u>	00
275.G	017.0	±							· · · ·				817.7		ROCK)	58.0)		ŧ						
DGE	817.2	58.5	16	36	47				 . • 83		м		815.7	Very Dense, Black-V	SIDUAL White-Gr	ray, Silty Fine to60.0			ŧ						
BRI	-	ŧ											F	Coarse SAND (A	-2-4), wit	th trace mica		-	ŧ						
79AB		‡											F	Residual Sil	Ity SAND	(A-2-4)			ŧ						
U-257	_	±											Ł						ŧ						
BLE		‡											Ę						ŧ						
DOU		‡											Ę						‡						
ORE	-	+											F					-	ŧ						
OTB		±											Ę						‡						
NCD		+											F						ł						

FORSYTH	4			GEC	DLOGIS	T A. Suttle			
I-40								GROUN	D WTR (ft)
OFFSET 3	ft RT			ALI	GNMEN	T -Y15FLY	AC-	0 HR.	N/A
NORTHING	847,6	58		EAS	STING	1,663,936		24 HR.	Dry
	DRILL M	IETHO	р н	.S. Auge	ers		НАММЕ	ER TYPE	Automatic
COMP. DAT	E 05/1	17/19		SUF		VATER DEP	TH N//	Ą	
	SAMP.		L					•	
5 100	NO.	MOI	O G		ŝ	SOIL AND ROO	CK DESC	RIPTION	
I		/ 10101	0						
				- 076 /				CE.	0.0
		М	, v.	- 0/0.4		RES	SURFA		0.0
			γ V	873.4	Medi	um Stiff, Orang (A-5), wit	ge-Brown h trace m	i, Clayey S nica	ILT
		М		-	Ton P	Loose to M	ledium D	ense,	
		М		-	Coarse	e SAND (A-2-4), with tra	ace to little	mica
		IVI		-					
		М		-					
		М		_					
		IVI		-					
				-					
		М		-					
				-					
				-					
		М		_					
				_					
				- <u>848.4</u>	Harc	I, White-Brown	-Black, F	ine to Coa	rse 28.0
		IVI		-	5	Sandy SILT (A-	4), with s	ome mica	
				- 843.4					33.0
		М			Brov	Mediumn Den	se to Ver	y Dense, Coarse SAI	- — — — — – ND
				-	2.0	(A-2-4), w	ith little n	nica	
				_					
		М		-					
				_					
			-	832.4				01/	44.0
· 100/0.9				-	Та	n-White-Browr	:RED RO 1 (GRANI	ICK TIC ROCK	()
				-					
· 100/0.6				-					
				-					
÷÷÷÷;-			<u>I 1</u>	<u>- 823.4</u>					<u>53.0</u>
• • • •		М		- 821.4 -	Very	Dense, Tan-Wi	hite-Brow	n, Silty Fir	ne to <u>55.0</u>
					Borir	ng Terminated	at Elevat	ion 821.4 1	t In
				_		Residual Silt	y SAND ((A-2-4)	
				-					
				-					
				-					
				-					
				-					
				-					
				-					
				-					

	WBS	34839	9.1.7			Т	P U-2579	9AB	COUNT	Y FORSY	ГН			GEC	LOGIST M. Magno	0		WBS	3 34839	9.1.7			TI	v U-2579	AB	COUNTY
	SITE	DESCR		l Bric	dge No	. 725	on -Y15FL	YAC- from	US 311 t	o I-40							GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	ge No	. 725 o	n -Y15FL	'AC- from	US 311 to
	BOR	NG NO	. B7-A			S	TATION (60+86		OFFSET	6 ft LT			ALIC	SNMENT -Y15FLY	AC-	0 HR. N/A	BOR	RING NO	. B7-E	3		ST	ATION 6	0+72	
	COLL	AR ELI	EV. 85	57.6 ft		Т	OTAL DEP	TH 63.9 f	t	NORTHING	G 847,4	496		EAS	TING 1,663,774		24 HR. 5.0	COL	LAR EL	EV. 8	57.5 ft		ТС	TAL DEP	FH 55.0 f	t
	DRILL	RIG/HA	MMER E	FF./DA	TE M	&W029	Diedrich D-1	20 89% 09/0)7/2018		DRILL	METHO	DD H	I.S. Auge	rs	HAMME	ER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE M8	W029 [Diedrich D-12	0 89% 09/0)7/2018
	DRIL	.ER R	. Brock			S	TART DAT	E 05/18/1	9	COMP. DA	TE 05/	/18/19		SUR	FACE WATER DEP	TH N/A	A	DRIL	LER R	R. Brock	<		ST	ART DATI	<u> </u>	9
		DRIVE ELEV	DEPTH	BLC		UNT		BLOWS	PER FOOT	-	SAMP.	· 🗸			SOIL AND ROC	CK DESC	RIPTION	ELEV	DRIVE ELEV	DEPTH	BLC	W COL	JNT		BLOWS	PER FOOT
-	(11)	(ft)	(it)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELEV.	(ft)		DEPTH (ft)	(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0.	<u></u>	50 7
-	860		ł											-				860		ł						
		857.6	0.0		2	2			1					857.6	GROUNE		CE 0.0		857.5	0.0						
	855		Ŧ		2	3	•5 · · ·					M		9546	Medium Stiff, Orange	e-Brown, I	Fine to Coarse	855		Ŧ		2	4	• 6		
		854.1	3.5	3	3	4								004.0		with trace	e organics and , <u></u>		854.0	3.5	3	4	4	.1		
		851.6 ·	6.0		1	2	7'							852.1	Loose, Brown, Silty (A-2-4), wi	Fine to C ith trace n	Coarse SAND <u>5.5</u> mica /		851.5	6.0						
-	850	. 849.1		'	'	3	•		+			M		F	Soft to Stiff, White-Ta	an-Brown	n-Black, Fine to	850	849.0			1	2	4 3	+	
			- 0.0	2	3	6	. <mark>.</mark>					м		F	n n	nica				+ 0.0	2	3	3	6		
	845		Ŧ				: : : :							F				845		Ŧ						
		844.1	13.5	2	2	5	· <u>·</u> ···							F					844.0	13.5	1	3	7	· [· · ·		
			ŧ											F						Ŧ				$ \cdot \mathbf{Q}_{10} $		
-	840	839.1	† 18.5						+					F				840	830 0	+				· · · \.	+	+
			- 10.0	3	4	7						м		F						+ 10.0	7	10	15		•25 · · ·	
	835		Ŧ											F				835		Ŧ						
		834.1	23.5	3	6	9								F					834.0	23.5	17	33	38			
			Ŧ											F						Ŧ						· · · · · · · · · · · · · · · · · · ·
-	830	829.1	† 28.5											829.6				830	829.0	+						· · · · ·
				11	16	20		. •36 .				м		-	Dense, Gray-Brown SAND (A-2-4)	n, Silty Fii), with trac	ne to Coarse ce mica			+ 20.0	5	9	16		•25 · · ·	
	825		Ŧ														22.2	825		Ŧ						
		824.1	33.5	6	13	26								<u>= 824.6</u>	Hard, Tan-Brown-\	White, Fir			824.0	33.5	7	12	21		<u>.</u>	
			Ŧ					· · • • •						F	Sandy SILT (A-4), w	with trace	to some mica			Ŧ					33	
-	820	819 1	38.5					· · · · · ·						F				820	819.0	1 38 5				/	1	+
			F	5	10	35			15 · · · ·			м		F						+	3	4	10	• • 14		
	815		Ŧ											F				815		Ŧ						
		814.1	43.5	13	18	27						М		F					814.0	43.5	12	17	25			
			Ŧ						+3 · · · · ·					F						Ŧ						
6	810	809.1	T 48.5						+					F				810	809.0	48.5					+ + + + + + + + + + + + + + + + + + +	+
6/4/1		•	Ŧ	12	18	22		•40				м		E						-	18	22	25		4	47
GDT	805		Ŧ											F				805		Ŧ						
DOT.		804.1	53.5	13	16	20						М		E					804.0	53.5	26	34	44			
Ъ			Ī											E						Ī					<u> </u>	
GPJ	800	799.1	58.5											708.6			50.0		-	Ŧ						
E 275			Ŧ	29	67	33/0.2			+	100/0.7			Ĩ	- 730.0	WEATHE					Ŧ						
RIDG	795	_	E											E	DIACK-TATI-DIOWIT	ЮПП	E GINEISS)			Ŧ						
B - BI		794.1	63.5	100/0.4	1					100/0.4			977	793.7	Boring Terminated	at Elevati	63.9			Ŧ						
579A			ŧ											F	Weathered Rock		E GNEISS)			ł						
0.2		-	ł											_					-	ŧ						
JUBLE		-	ŧ											F						t						
KE DC		-	ŧ											F						ŧ						
BOF			ŧ											F						ŧ						
LOGC			ŧ											F						‡						
ź													1													



V	/BS	34839	9.1.7			Т	I P U-257	9AB	COUNT	Y FORSY	ГН			GE	OLOGIST A	. Suttle		WB	S 3483	9.1.7			ТІ	D -2579)AB	COUNTY
S	ITE C	DESCR	RIPTION	Bric	dge No). 725 (on -Y15FL	YAC- from	US 311 1	to I-40							GROUND WTR (ft)	SIT	E DESCI	RIPTION	Brid	ge No	. 725 c	n -Y15FL	YAC- from	1 US 311 to
В	ORIN	IG NO.	. B8-A	1		S	TATION	63+16		OFFSET	11 ft LT			ALI	IGNMENT -	Y15FLYAC-	0 HR. N/A	BOF	ring no) . B8-E	3		ST	ATION	63+19	
С	OLL	AR ELI	EV. 86	62.0 ft		те	OTAL DEF	TH 60.7 f	ť	NORTHIN	G 847,3	327		EA	STING 1,66	3,619	24 HR. Dry	COL	LAR EL	. EV . 8	58.7 ft		ТС	TAL DEP	TH 54.5	ft
D	RILL	RIG/HA	MMER E	FF./DA	TE M	&W029	Diedrich D-	20 89% 09/0	07/2018		DRILL	METHO	D H	I.S. Aug	ers	HAM	MER TYPE Automatic	DRIL	L RIG/HA	AMMER E	FF./DA	TE Ma	&W029	Diedrich D-1	20 89% 09/	07/2018
D	RILL	ER R	R. Brock			S		TE 05/09/1	19	COMP. DA	TE 05	/09/19	. .	SU	RFACE WAT	ER DEPTH	N/A	DRI	LLER F	R. Brock	к Т		ST	ART DAT	E 05/08/	19
EL	EV	DRIVE ELEV	DEPTH	BLC				BLOWS	PER FOOT	Γ	SAMP				SOIL	AND ROCK DE	SCRIPTION	ELE\	/ DRIVE ELEV	DEPTH	BLC	W COL	JNT		BLOWS	PER FOOT
(iii)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50	/5 100	NO.		I G	ELEV	′. (ft)		DEPTH (f) (11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50
8	65		ļ															860		Ļ						
	_	862.0	+ - 0.0	1	1	3			1			M		862.0		GROUND SUR	FACE 0.		858.7	<u>+ 0.0</u> + +	1	2	3	• 5		
8	60		Ŧ										х v х 7	859.0	Soft, Red	-Brown, Clayey	SILT (A-5), with	855	855.2	3.5	3	4	5			
		858.5	<u>+ 3.5</u> +	2	2	3	5					м			Medium Sti	ff, Red-Brown-T	an-White, Fine to		852.7	<u> </u>	3	2	5			
8	55	856.0	6.0	2	1	3				· · · · ·		м		<u>- 850.5</u>				850	850.2	F 8.5		2	0	• 7 · · ·		
		853.1	F 8.9											Ē	Tan-Orange	Loose to Very D -White-Brown-B	Dense, Black, Silty Fine to			Ŧ	2	2	2	•4		
			£	3	3	4	♦ 7 ·					М			Coarse S	AND (A-2-4), wi mica	ith little to some			Ŧ				1 1 1 1 1 1 1 1 1 1		
8	50	-	ŧ					+						-				845	845.2	13.5	3	4	6	1 0		
		847.1	14.9			<u> </u>														ŧ						
8	45	-	ŧ		2	4	• 6 ·	· · · · ·	• • • •			M						840	840.2	18.5		0	10	· · / .	· · · ·	· · · ·
			±				:\:	.						ļ.						‡	°	9	10) .	19 [.] 	
		842.2	+ ^{19.8}	3	7	8	\. \ 1	5		.		м		,					007.6	‡						
8	40	-	‡				 / .		<u> </u>					 -				835	835.2	+ 23.5	4	7	9	10	3	<u> </u>
		837.9 -	<u>+ 24.1</u> +	4	3	6			м		• •						‡						
8	35	-	‡					· · · · ·	· · · ·					Ļ				830	830.2	28.5	12	18	24	· · · ·	<u> </u>	
		832.9	29.1			10	:: ` \	. 		.										‡	'2	10	24		42	2
	30	-	‡	4	11	13		. • 24		. .		M		ļ				005	005.0	+						
8	30		†						1					<u> </u>				625	825.2	+ 33.5	8	22	29	· · · ·	· · · ·	5 1
	╞	827.9 -	+ 34.1 +	13	19	25		: : : `.	· · · · 4 · · · ·			м		÷						‡					: : : ;	
8	25	-	‡					· · · · · · ·						Ļ				820	820.2	+ 38.5	18	14	22	· · · ·	· · · · /·	
	Ļ	822.9	39.1	20	20	33		.						Ļ						‡					- 9 36 -	
R	20	-	ŧ	20	20	33			• • • •			M		÷.				815	815.2	+ 435						
		-	ŧ						<u> </u>					;						+	42	44	56/0.3	· · · ·	<u> </u>	+
	┝	817.6 -	<u>+ 44.4</u> +	12	50	34						м								ŧ						
<u>8</u>	15	-	Ŧ							· · · · · · · ·				i				810	810.2	<u>+</u> 48.5	44	56/0.4		· · · ·		
6/4/1		812.7	49.3	24	64	36/0 2				· · · · ·				812.2			49.8			Ŧ						
8 GDT	10	-	Ŧ	24		0.0			· · · ·	• 100/0.8				E	Tan-W	WEATHERED F /hite-Brown (MIC	ROCK CA SCHIST)	805	805.2	<u> </u>					· · · ·	· · · · ·
DOT.		-	E.											808.0		``````````````````````````````````````	54.0			<u> </u>	30	70/0.5				
NC	F	807.6	<u>T 54.4</u> T	29	65	35/0.2								1	Orange-E	Black-White (BIC	DTITE GNEISS)]		Ŧ						
GPJ	05	-	Ŧ						+											Ŧ						
E 275	F	802.6	59.4	20	64	36/0 3														Ŧ						
RIDG	┢	-	ŧ	20		00,0.0			1	100/0.8	▶		¥777	<u>4 801.3</u> 	Boring Te	rminated at Elev	vation 801.3 ft In	11		Ŧ						
B - B		-	ŧ											F	Weathe	ered Rock (BIOT	IIIE GNEISS)			ŧ						
579A		-	ŧ											F						ŧ						
		-	£											Ē						Ŧ						
UBLE		-	ŧ										1	E						ŧ						
E DC		-	ŧ											F						Ŧ						
BOR		-	ŧ											F						Ŧ						
CDOT		-	ŧ											F						ŧ						
ž												1														



ſ	WBS	34839	9.1.7			Т	IP U-2579AB	COUNT	Y FORSY	ГН			GEOLOGIST A. Suttle		WBS	S 34839	9.1.7		-	TIP U-2579AB	COUNTY
Ī	SITE	DESCR		Brid	ge No	. 725 (on -Y15FLYAC- fror	n US 311	to I-40					GROUND WTR (ft)	SITE	DESCR	IPTION	Bridge	e No. 725	on -Y15FLYAC-	from US 311 to
ſ	BORI	NG NO.	. B9-A			S	TATION 65+13		OFFSET	11 ft LT			ALIGNMENT -Y15FLYAC-	0 HR. N/A	BOF	RING NO	. B9-A		\$	STATION 65+13	
	COLL	AR ELE	EV . 87	1.5 ft		т	OTAL DEPTH 76.0	ft	NORTHING	G 847,′	177		EASTING 1,663,492	24 HR. Dry	COL	LAR ELI	EV . 87	1.5 ft	1	TOTAL DEPTH	'6.0 ft
Ī	DRILL	RIG/HAI	MMER E	FF./DA	TE M&	W029	Diedrich D-120 89% 09	/07/2018		DRILL	METHC)D ⊦	H.S. Augers HAM	MER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DATE	M&W02	9 Diedrich D-120 89%	6 09/07/2018
	DRILI	ER R	. Brock			S	TART DATE 05/09	'19	COMP. DA	TE 05/	/09/19		SURFACE WATER DEPTH	N/A	DRI	L LER R	. Brock		\$	START DATE 05	/09/19
ſ	ELEV	DRIVE FLFV	DEPTH	BLC	W COL	JNT	BLOWS	PER FOO	Г	SAMP.		L	SOIL AND ROCK DES	SCRIPTION	ELEV	, DRIVE	DEPTH	BLOW	COUNT	BL	OWS PER FOOT
_	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	Имо	I G	ELEV. (ft)	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft (0.5ft 0.5f	0 25	50 7
-	875		+ I										-		_7 <u>95</u> _	+		+		+	Match Line
		-	ŧ														ŧ				
	870	871.5 -	<u>+ 0.0</u> +	3	7	12	· · · · · · · · · · · · · · · · · · ·		• • • • • •		м		RESIDUAL	-ACE 0.0			ŧ				
-		- 888	-									N V V	Very Stiff, Red-Brown-Black 868.5 (A-5), with trace organi	ck, Clayey SILT ics and mica <u>3.0</u>		-	Ŧ				
	Ī	- 000.0	+ 0.0	5	8	10					м	///	Medium Dense, Tan-Orang Coarse SAND (A	e, Clayey Fine to A-2-6)			Ŧ				
-	865	865.5 -	† 6.0 †	WOH	5	8		· · · · ·			м	/./.				-	Ŧ				
	_	862.5	9.0				$\left \begin{array}{c} \cdot \cdot \cdot f^{2} \\ \cdot \cdot f \\ \cdot \cdot \cdot \end{array}\right \cdot \cdot$						863.0 Loose Tan-Orange Silty	Fine to Coarse8.5			Ŧ				
	860	-	Ŧ	4	4	5	. • 9 [°]				м		SAND (A-2-4), with t	race mica			Ŧ				
Ī		-	Ŧ				. <u>.</u>									-	Ŧ				
	-	857.0	14.5	3	2	3							Medium Stiff, Orange-Tan-B	Brown-Black, Fine			Ŧ				
-	855	-	Ŧ				•5						to Coarse Sandy SILT (A-4)), with some mica		-	Ŧ				
		852.0	19.5														Ŧ				
	850		-	2	2	4	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c $				м						Ŧ				
		-	Ŧ				· · · · · · · · ·							24.0		-	Ŧ				
	-	847.0	24.5	5	7	7					м		Medium Dense, Brown-Bla	ack-White, Silty			Ŧ				
-	845	-	Ŧ										F Fine to Coarse SAND (A-2	2-4), with some		-	Ŧ				
		- 842 0	29.5														Ŧ				
	840	-	+	4	6	9	$\left \begin{array}{c} \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \bullet \\ 15 \\ \cdot \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot $				м						Ŧ				
		-	Ŧ				· · <i>[</i> · · · · ·							24.0		-	Ŧ				
	-	837.0	34.5	13	8	3					м		Stiff, Tan-White-Brown, F	Fine to Coarse			Ŧ				
-	835	_	F										Sandy SILT (A-4), with	i some mica		-	Ŧ				
		832.0	T 39.5										832.5	39.0			Ŧ				
	830	-	Ł	4	7	8	• • • 15 • • •				м		to Coarse SAND (A-2-4), v	with some mica			Ī				
		-	E										927 5	44.0			Ē				
		827.0	44.5	4	3	7					М		Stiff, Tan-White-Brown, F	Fine to Coarse			ł				
19	825	-	Ł										Sanuy SiLT (A-4), with	i some mica		-	± 1				
6/4/		822.0	49.5										- 822.5 Modium Donso to Vo	<u>49.0</u>			± l				
GDT	820	-	Ł	22	24	34		• • • 58 •			м		Tan-Brown-White-Orange-B	Black, Silty Fine to		· ·					
DOT		-	ŧ										Codise SAIND (A-2-4), With t				ŧ I				
Ŋ		817.0	54.5	10	8	13					м						± l				
5.GPJ	815	-	ŧ													-	ŧ				
E 275		812.0	59.5	_													ŧ I				
RIDG	810	-	Ł	7	5	14	· · · • • 19 · · ·				м					· ·					
\B - B		-	ŧ														ŧ I				
25794	005	807.0	64.5	23	20	15					м						‡				
5	805	-	+				T	+ • • •								-	ŧ				
JUBL.		802.0	69.5	40		40											‡				
ZE DC	800	-	‡	10	16	18	•••••				M						‡				
T BOI			‡													·	‡				
CDO.	ŀ	797.0	- 74.5 -	12	16	18	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$. <u>.</u>		м		795.5	76.0			‡				
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NT	fors	YTF	1			GEOLOGIST A. Suttle			
1 to	o I-40							GROUN	D WTR (ft)
	OFFSET	' 1 [.]	1 ft LT			ALIGNMENT -Y15FLYA	C-	0 HR.	N/A
	NORTH	NG	847 1	77		EASTING 1 663 492		24 HR	Drv
					л но		НАММЕ		Automatic
	COMP			0/10	J 11.0			^	Automatic
	COMP. L			J9/19	1	SURFACE WATER DEPT	H IN//	4	
01	75 1(20	SAMP.		ō	SOIL AND ROCH	< DESC	RIPTION	
		50	NO.	/ MOI	G				
								ion 705 5 f	
					Ę	Residual Silty	SAND	(A-2-4)	
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GEOTECHNICAL BORING REPORT

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WBS	34839	.1.7			ТІ	Pι	U-2579A	В	COUNT	Y FORS	ΥT	Н			GEOLOGIST J. Garrich	ĸ		
SITE	DESCR	IPTION	Brid	ge No.	. 725 c	۰- nc	Y15FLYA	C- from	US 311 t	o I-40							GROUN	D WTR (ft)
BORI	NG NO.	B9-B			S	ΤΑΤ	ION 65-	+17		OFFSET	ˈ 1	3 ft RT			ALIGNMENT -Y15FLY	AC-	0 HR.	N/A
COLL	AR ELE	V . 87	3.7 ft		т	ота		I 75.0 fl	t	NORTHI	NG	847,1	89		EASTING 1,663,471		24 HR.	Dry
DRILL	RIG/HAM	MER E	FF./DA	TE M8	W029	Died	drich D-120	89% 09/0	7/2018			DRILL N	IETHO	DH	.S. Augers	HAMM	ER TYPE	Automatic
DRILI	LER R	. Brock			S	TAR		05/10/1	9	COMP. D		E 05/	10/19		SURFACE WATER DEP	TH N/	A	
ELEV	DRIVE	DEPTH	BLO	W COL	JNT			BLOWS F	PER FOOT			SAMP.	$\mathbf{\nabla}$	L				
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5 5	50	75 10	00	NO.	моі	G	SOIL AND ROU ELEV. (ft)	K DESU	RIPTION	DEPTH (ft)
875																		
-	873.7 -	- 0.0	2	3	5		· I · · · T						N4		<u> </u>	SURFA	CE	0.0
	-	_	_	-	-		•• <u>8</u> • • • • •								- Medium Stiff, Brown - 870.7 SILT (A_4) wi	, Fine to	Coarse Sa	andy 3.0
870	870.2	3.5	7	10	16			26					м	N	Very Soft to Very Si	iff, Red-I	Brown, Cla	iyey
-	867.7 -	- 6.0	1	1	1									N 7 N 7	- SIL	I (A-5)		
865	865.2	- 8.5				•2	$\left \begin{array}{c} 2 & 1 & 1 & 1 \\ 2 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 \end{array} \right $						IVI	ΝV	- <u>865.7</u>			<u></u>
	-	-	5	4	7		. •11 .						М		- (A-4), wit	h trace n	nica	,ı∟ı
	-	-				.												12.0
860	860.2	13.5	4	6	7								м		Loose to Medium D	ense, Ta	n-White, S	Silty 13.0
	-	-				.	· · · · · ·								- Fine to Coars	Se Sand	(A-2-4)	
855	855.2	-					:] : :	· · · · ·							-			
		-	4	3	5		. • 8						м		-			
	-	-					$\left \begin{array}{c} 1 \\ 1 \\ 1 \end{array} \right $								-			00.0
850	850.2	23.5	1	2	2	4	$1 \cdot \cdot \cdot$						м		Soft to Very Stiff, Ta	n-Brown	White, Fir	1e to 23.0
	-	-				•	4	· · · · ·					101		- Coarse Sandy SIL	Г (А-4), v	with little m	ica
845	845.2	- 28.5						· · · · ·			•				-			
0.0	-0-0.2 _		4	6	10		🗭16						м		-			
	-	-					· · /· ·	· · · · ·			•				-			
840	840.2	33.5	3	3	5		$\frac{j}{d}$	· · · ·		· · ·	·				-			
	-	-		-	-	:		· · · · ·							-			
835	835.2	- 385					E E X.	· · · · ·			•				- - <u>835.7</u>			<u>38.0</u>
000	-000.2 _		11	12	11			3					м		– Medium Dense, W - Coarse S	hite-Tan AND (A-3	, Silty Fine 2-4)	to
	-	-						· · · · ·			•				-			
830	830.2	43.5	4	3	5		/	· · · ·		· · ·	·				_ 830.7 — Medium Stiff to Very	Stiff, Tai	n-Brown-W	/hite, 43.0
	-	-		-	-	:	· ¶8 · · ·	· · · · ·							- Fine to Coarse	Sandy S	SILT (A-4)	
825	825.2	- 19.5						· · · · ·			•				-			
020	- 020.2		6	7	11		18						м		-			
	-	-					III N	· · · · ·			•				-			
820	820.2	53.5	8	12	18			· · · ·			•		м		-			
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815	815.2	- 585					::::/	· · · · ·			•				-			
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000	000.2	- 00.5	7	11	18	-		\$ 29		+			м		-			
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800	800.2	73.5	6	11	15		· · · ·		· · · ·	· · ·	·				-			
ŀ		-	U		10	µ .	🏟	26			•	-	M		- 798.7 - Boring Terminated	at Elevat	ion 798.7 f	75.0 ft In
	-														- Residual Sa	ndy SIL1	- (A-4)	
												1	I					

NCDOT BORE DOUBLE U-2579AB - BRIDGE 275.GPJ NC_DOT.GDT 6/4/19

BORE LOG

WBS 34839.1.7 TIP U-2579AB COUN						COUNT	Y FORSYTH G					GEOLOGIST A. Suttle			WBS 34839.1.7					TIF	v U-2579A	COUNTY			
SITE DESCRIPTION Bridge No. 725 on -Y15FLYAC- from US 311							US 311 I	to I-40					GROUND WTR (ft)			SITE DESCRIPTION Bridge No. 7						25 on -Y15FLYAC- from US 311 1			
BORING NO. EB2-A STATION 67+41 OF							OFFSET 5 ft LT				ALIGN	ALIGNMENT -Y15FLYAC- 0 HR. N/A			BORING NO. EB2-B						STATION 67+35				
COLLAR ELEV. 893.9 ft TOTAL DEPTH 73.7 ft						NORTHING 847,000			EAST	EASTING 1,663,350 24 HR. Dry			COLLAR ELEV. 894.1 ft					то	TOTAL DEPTH 75.0 ft						
DRILL RIG/HAMMER EFF./DATE M&W029 Diedrich D-120 89% 09/07/2018								DRILL	METHO	DD H	I.S. Augers	S. Augers HAMMER TYPE Automatic				DRILL RIG/HAMMER EFF./DATE M&W029 Die						89% 09/	J7/2018		
DRIL	LER R	R. Brock			S	TART DAT	E 05/11/	19	COMP. DA	TE 05/	/11/19		SURF	ACE WATER DEPT	H N/.	Ά	DRILLER R. Brock						ART DATE	05/10/	19
ELEV	DRIVE	DEPTH	BLC	W CO			BLOWS	PER FOOT	Г 75 400	SAMP.	· 🗸			SOIL AND ROCK	K DESC	CRIPTION	ELEV	DRIVE ELEV	DEPTH	BLC	W COL	JNT		BLOWS	PER FOOT
(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELEV. (ft))		DEPTH (ft)	(it)	(ft)	(it)	0.5ft	0.5ft	0.5ft	0 2	5	50
895	893.9												893.9	GROUND	SURFA	ACE 0.0	895	894.1	0.0						
		<u> </u>	3	3	5	·••8 · · ·					М	N 7		RESII Medium Stiff to Ver	DUAL	Red-Brown.			Ŧ	2	4	6	- • 10 -		
890	890.4	3.5			11							7 V V V	-	Clayey SILT (A-5), wi	ith trace	e organics and	890	890.6	3.5		6	0			
	887.9		0	0		· ·	19				M	× ×						888.1	6.0	-	Ŭ	3	· · / ¹⁵		
			2	4	4	. • 8					м	× ×	885.9			8.0			I or	3	5	6	· • • 11 ·		
885	885.4	T 8.5	3	3	7		+				м			Medium S Orange-Black-Tan-Bl	Stiff to S	Stiff, Fine to Coarse	885	885.6	T 8.5	2	3	3	• 6		+
		Ŧ				. [-	Sandy SILT (A-4), wi	ith trace	e to little mica			Ŧ						
880	880.4	13.5				: [: : :							-				880	880.6 ·	13.5	2	4	5	· · · ·		
	-	Ŧ	3	3	5	•8				1	M		-] .	Ŧ		7	5			
		Ŧ				• • • •							-						Ŧ						
875	875.4	T 18.5	3	5	6	• • • • • • • • • • • • • • • • • • •					м		_				875	8/5.6	<u>= 18.5</u>	3	3	5		· · · ·	+
		Ŧ											-						Ŧ						
870	870.4	23.5											-				870	870.6 ·	23.5	2	4	5			
	-	Ŧ	4	4	6	•10				1	M		-						Ŧ		4	5	. • ⁹		
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865	865.4	<u>† 28.5</u> 	3	4	6	●10					м		-				865	865.6	<u>+ 28.5</u> 	2	4	7	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	· · · ·	+
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860	860.4	33.5											-				860	860.6	33.5	2	6	- 0			
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		Ŧ											855.9			38.0			Ŧ						
855	855.4	<u>† 38.5</u> 	6	9	10		19				м		_	Medium Dense	to Very Silty Fir	y Dense, ne to Coarse	855	855.6	<u>+ 38.5</u>	5	7	10	••••• •••	· · · ·	+
		Ŧ					1						-	SAND (A-2-4), with	n trace t	to little mica			Ŧ						
850	850.4	43.5	14	10	10		N		· · · · ·				-				850	850.6	43.5	5	8	11	· · · [·		
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6/4/1		ł											-						Ŧ					<u> </u>	
LOD 840	840.4	53.5	1/	20	26		· · · · · ·	· · · ·					_				840	840.6	53.5	15	13	13		<u> · · · ·</u>	· · · ·
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S	005.4	±											_					025.6							
835 0	835.4	<u>T 58.5</u> T	21	25	40			• 6!	5		м		_				835		<u> </u>	8	29	64			+
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ଥିଲି <u>830</u>	830.4	63.5	18	19	52/0 4								829.9			64.0	830	830.6	63.5	8	21	27			
B - B		ŧ	40	40	52/0.4				100/0.9				-	WEATHER Orange-White-Black	RED RO	DCK ITE GNEISS)			ł		-	-			
579A	005.4	<u> </u>											-	<u> </u>	(,		025.6							
<u>3 825</u>	825.4	<u> </u>	67	33/0.3	1				100/0.8	•							825		- 00.5	6	94/0.4		<u> </u>		4
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E DC	820.4	73.5	100/0 2										820.2	Design Total 1	· - · · ·	73.7	820	820.6	73.5	10	25	71	· · · ·		· · · ·
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LOOC		ŧ											-						t						
ž											1								L						





PHOTO 1: VIEW NEAR BENT 7 OF UNNAMED TRIBUTARY OF FIDDLERS CREEK, FACING UPSTATION.



PHOTO 3: VIEW FROM END BENT 1 FACING UPSTATION.



PHOTO 2: VIEW NEAR BENT 7 OF UNNAMED TRIBUTARY OF FIDDLERS CREEK, FACING DOWNSTATION.



PHOTO 4: VIEW FROM END BENT 2, FACING DOWNSTATION.



CONTENTS

<u>SHEET NO.</u>	DESCRIPTION
I.	TITLE SHEET
2-2A	LEGEND (SOIL, ROCK, GSI)
3	SITE PLAN
4-5	PROFILES
6-8	CROSS SECTIONS
9-15	BORE LOGS & CORE PHOTOS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY **FORSYTH**

PROJECT DESCRIPTION **WINSTON-SALEM NORTHERN BELTWAY EASTERN SECTION (FUTURE I-74)** FROM I-40 TO I-40 BUSINESS SITE DESCRIPTION BRIDGE NO. 728 ON SR 2679 (GLENN HI RD.) OVER WINSTON-SALEM NORTHERN BELTWAY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	15

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 SOL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (99) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOL TEST DATA ARE NOT PART OF THE CONTRACT.

GENERAL SOL AND ROLCK 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 BORHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (INPLACE) 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 INCLATED IN THE SUBJURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOLI 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 UBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPNION OF THE DEPARTMENT AS TO THE TYPE TO MATERIAL AND CONTRECT ON THE INVESTIGATION AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO 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 OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS OF CONTANT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

PERSONNEL

P. CARY TERRACON PERSONNEL P. NEUMANN SUMMIT PERSONNEL INVESTIGATED BY **_RK&K, LLP** DRAWN BY _____. CARY/P. NEUMANN CHECKED BY _G. GOINS

DATE _____ DECEMBER 2019



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

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

				SOIL	DESCRIPT	ION					GR	ADATION						ROCK DE	ESCRIPTION
SOIL I	5 CONSIDERE	ED UNCO	NSOLIDATED	, SEMI-CO	NSOLIDATED, OR	WEATHERED	DEARTH MA	TERIALS TH	AT CAN	WELL GRADED - INDICAT	ICLE SIZES FROM	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED.							
BE PEN ACCOR	ETRATED WI DING TO TH	ITH A C HE STAN	DNTINUOUS I DARD PENET	LIGHT P	OWER AUGER AN EST (AASHTO T	ID YIELD LE 206.ASTM	SS THAN 10 D1586). SOI	Ø BLOWS PE L CLASSIFI	ER FOOT CATION	UNIFORMLY GRADED - IN	LL APPROXIMATEL	NUCK LINE INVITATES THE LEVEL AT WHICH NUN-CUASTAL PLAIN MATERIAL WOULD YIELD SP SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FT							
IS	BASED ON	THE AA	SHTO SYSTE	M. BASIC	DESCRIPTIONS	GENERALLY	INCLUDE TH	E FOLLOWI	NG:		INC	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS							
CUNSIS	AS MINERAL	LOGICAL	COMPOSITIO	N, ANGUL	ARITY, STRUCTU	RE, PLASTIC	ITY, ETC. FO	R EXAMPLE,	5 5ULH							RIALS ARE	E TYPICALLY	DIVIDED AS FOLLO	JWS:
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6										ANGULAR, SUBAN	DESIGNATED BY TH	WEATHERED		\$15	NON-COASTAL PL	AIN MATERIAL THAT WOULD YIELD SPT			
		SOIL	LEGEND) AND	AASHTO (CLASSIF	ICATION	1				ROCK (WR)			100 BLOWS PER I	FOOT IF TESTED.			
GENERAL		GRANU	AR MATERIALS		SILT-CLAY	MATERIALS	OF	GANIC MATERI	ALS			SHE COMINS			CRYSTALLIN	E	I. I.	FINE TO COARSE	GRAIN IGNEOUS AND METAMORPHIC ROC
ULASS.		(≤ 35%	PASSING #200) 	(> 35% PA	SSING #200)		1	1	ARE USED IN	LES SUCH AS QUARIZ	I THEY ARE CONSU	IDERED OF SIGNIFI	CANCE	ROCK (CR)		St St	GNEISS, GABBRO, S	SCHIST, ETC.
GROUP	A-1	A-3	A 2 4 A 2 5	-2	A-4 A-5	A-6 A-7 A-7-5,	A-1, A-2	A-4, A-5			СОМРЕ	RESSIBILITY			NON-CRYSTA	ALLINE		FINE TO COARSE	GRAIN METAMORPHIC AND NON-COASTAL
CEM33.	0000000000	D 000000000000000000000000000000000000	H-2-4 H-2-5	H-2-6 H	2-7 CN 000	A-7-6	" 3	H 0, H /	*****	SI TOP		<u></u>	11 < 31		ROCK (NCR)			ROCK TYPE INCL	UDES PHYLLITE, SLATE, SANDSTONE, ETC
SYMBOL	000000000000000000000000000000000000000				17.1					MODE	RATELY COMPRESSIBL	E	LL = 31 - 50		COASTAL PL	AIN		COASTAL PLAIN	SEDIMENTS CEMENTED INTO ROCK, BUT 1
% PASSING								SILT-		HIGHL	Y COMPRESSIBLE		LL > 50		SEDIMENTAR (CP)	RY ROCK		SPT REFUSAL, RO	JCK TYPE INCLUDES LIMESTONE, SANDST
*10 *40	50 MX						GRANULAR	CLAY	MUCK,		PERCENTAL	E UF MATER	RIAL		-			WEAT	THERING
*200	15 MX 25 M	1X 10 MX	35 MX 35 MX	35 MX 35	i MX 36 MN 36 MN	1 36 MN 36 MI	N SOILS	SOILS	I I LAI	ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MA	TERIAL	ERESH	ROCK F	RESH, CRYST	N S BRIGHT.FEW JOI	INTS MAY SHOW SUIGHT STAINING, ROCK F
MATERIAL								1		TRACE OF ORGANIC MA	ATTER 2 - 3%	3 - 5%	TRACE	1 - 10%		HAMMER	IF CRYSTAL	LINE.	
PASSING #40							SOIL	S WITH		LITTLE ORGANIC MATT	ER 3 - 5% 5 - 10%	5 - 12%	LITTLE	10 - 20%	VERY SLIGHT	r ROCK GE	ENERALLY FR	RESH. JOINTS STAINE	D, SOME JOINTS MAY SHOW THIN CLAY CO
LL PI	- 6 MX	NP	40 MX 41 MN 10 MX 10 MX	40 MX 4	MN 40 MX 41 MN	40 MX 41 MN	LITT	LE OR	HIGHLY	HIGHLY ORGANIC	> 10%	> 20%	HIGHLY	35% AND ABOVE	(V SLI.)	CRYSTAL	LS ON A BRO	OKEN SPECIMEN FACE	SHINE BRIGHTLY, ROCK RINGS UNDER HAM
	a .	0	a	4 MY	9 MY 12 MY			ERATE	ORGANIC		GROL	JND WATER			CUTCUT		ENERALLY F	NHIURE.	D AND DISCOLODATION EXTENDS INTO DOG
	CTONE EDACO	c 0	U	1 114	0 114 12 114			GANIC	SOILS	∇					(SLI.)	1 INCH.	OPEN JOINTS	5 MAY CONTAIN CLAY	Y. IN GRANITOID ROCKS SOME OCCASIONAL
OF MAJOR	GRAVEL, AND	D FINE	SILTY O	CLAYEY	SILTY	CLAYEY	MA	TTER			WHICK LEVEL IN E	ORE HOLE IMMEDIA	HIELI HFIER DRI	LLING		CRYSTA	LS ARE DULL	AND DISCOLORED.	CRYSTALLINE ROCKS RING UNDER HAMMER
MATERIALS	SAND	SANU	GRAVEL	ANU SANU	SUILS	SUILS					STATIC WATER LEV	EL AFTER <u>24</u>	HOURS		MODERATE	SIGNIFI	CANT PORTIC	NS OF ROCK SHOW D	JISCOLORATION AND WEATHERING EFFECTS,
GEN. RATING		EXCELL	ENT TO GOOD		FAIR 1	IN POOR	FAIR TO	POOR	UNSUITABLE	<u> </u>	PERCHED WATER, SA	ATURATED ZONE, OF	R WATER BEARING	STRATA	(MOD.)		JID ROCKS,M NUND UNDER	HAMMER BLOWS AND	DULL AND DISCOLORED, SOME SHOW CLAY
AS SUBGRADE		LACEL					POOR	1001			SPRING OR SEEP					WITH FF	RESH ROCK.	DEGINO TIND	
		PI OF #	1-7-5 SUBGROL	PIS ≤ L	L - 30 ; PI OF A-7	-6 SUBGROUP I	S > LL - 30								MODERATELY	ALL ROO	СК ЕХСЕРТ (DUARTZ DISCOLORED	OR STAINED. IN GRANITOID ROCKS, ALL FE
			CONS	ISTEN	<u>CY OR DEI</u>	NSENES	5				MISCELLA	VEOUS SYMB	IOLS		SEVERE	AND DIS	SCOLORED AN	D A MAJORITY SHOW	KAOLINIZATION, ROCK SHOWS SEVERE LO
PDIMADY		- -	COMPACTNES	S OR	RANGE OF	STANDARD	RAN	GE OF UNC			ANKMENT (RE) 25/02		RECTION		(MOD. SEV.)	IF TEST	TED, WOULD	IELD SPT REFUSAL	JIST S PICK. RUCK GIVES CLUNK SOUND W
T INTERNAL	JUIL THE	-	CONSISTE	NCY	(N-V	ALUE)		(TONS/F1	2)	WITH SOIL DE	SCRIPTION	 OF ROCK STRL 	UCTURES		SEVERE	ALL ROO	CK EXCEPT (JUARTZ DISCOLORED	OR STAINED, ROCK FABRIC CLEAR AND EV
CENER	AL 1 V		VERY LOO	ISE	<	4						(SEV.)	REDUCE	D IN STRENG	TH TO STRONG SOIL	. IN GRANITOID ROCKS ALL FELDSPARS AF			
GRANU	GENERALLY LOOSE 4 TO 10				SUL STREEL		VST PMT		NSTALLATION		TO SOM	E EXTENT. S	OME FRAGMENTS OF	STRONG ROCK USUALLY REMAIN.					
MATER	IAL		DENSE	NSE	30	TO 50		N/A		ARTIFICIAL FI		-) AUGER BORING	6 🛆 9	ONE PENETROMETER	VERY		CK EVCEPT (UARTZ DISCOLORED	OR STAINED ROCK EARDIC ELEMENTS ARE
(NON-C	(OHESIVE)		VERY DEM	ISE	>	50							\bigcirc	251	SEVERE	BUT MA	ISS IS EFFEC	TIVELY REDUCED TO	SOIL STATUS, WITH ONLY FRAGMENTS OF
			VERY SO	FT	<	2		< 0.25		INFERRED SOI	L BOUNDARY -)- CORE BORING	• 9	OUNDING ROD	(V SEV.)	REMAINI	ING. SAPROLI	TE IS AN EXAMPLE	OF ROCK WEATHERED TO A DEGREE THAT
GENER	ALLY		SOFT		2	TO 4		0.25 TO	2.5		MW			EST BORING		VESTIGE	S OF ORIGIN	NAL RUCK FABRIC RE	MAIN. IF TESTED, WOULD YIELD SPT N VA
MATER	LAY IAL		MEDIUM S	166	4 8 T	015		1 TO 2	.0	ENTERNED RUL	K LINE	MUNITURING W	VELL 🖵 V	ITH CORE	COMPLETE	ROCK RE	EDUCED TO S	SOIL. ROCK FABRIC N RATIONS, DUARTZ M	AUT DISCERNIBLE, OR DISCERNIBLE ONLY IN MAY BE PRESENT AS DIKES OR STRINGERS.
(COHES	GIVE)		VERY ST	FF	15 1	10 30		2 TO 4		TTTTT ALLUVIAL SOI	L BOUNDARY 🛛 🛆	PIEZOMETER	, <u> </u>	PT N-VALUE		ALSO A	N EXAMPLE.		
			HARD		>	30		> 4					-					ROCK	HARDNESS
			IE>	TURE	OR GRAIN	N SIZE					RECOMMENT	JATION SYME	BOLS		VERY HARD	CANNOT	BE SCRATCH	HED BY KNIEF OR SH	HARP PICK, BREAKING OF HAND SPECIMENS
U.S. STD. S	SIEVE SIZE		4	10	40	60 20	0 270				UNCLASSIFIED E	CAVATION -	UNCLASSIFI	ED EXCAVATION -		SEVERAL	L HARD BLOW	S OF THE GEOLOGIS	JT'S PICK.
OPENING (MM)		4.7	6 2.0	0 0.42	0.25 0.0	75 0.053				UNSUITABLE WAS		USED IN TH	E TOP 3 FEET OF	HARD	CAN BE	SCRATCHED	BY KNIFE OR PICK	ONLY WITH DIFFICULTY. HARD HAMMER BL
BOULD		COBBLE	GRAV	EL	COARSE	FIN	E	SILT	CLAY		ACCEPTABLE DEG	RADABLE ROCK	EMBANKMEN	F OR BACKFILL		TO DET	ACH HAND SF	PECIMEN.	
(BLDF	ພ 🛛	(COB.)	(GR	.)	(CSE, SD.)	(F S	NU 50.)	(SL.)	(CL.)		ARRE	FVIATIONS			MODERATELY	CAN BE	SCRATCHED	BY KNIFE OR PICK.	GOUGES OR GROOVES TO 0.25 INCHES DEE
GRAIN N	1M 3015		75	21	3	Ø 25	0.05	0 005		AR - AUGER REFUSAL	MED		VST - VA	NE SHEAR TEST	THRU	BY MOD	ERATE BLOW	S.	SIST S FICK. HAND SPECIMENS CHN DE DE
SIZE I	N. 12		3	2.0	,	0.25	0.05	0.000		BT - BORING TERMINATED) MICA	MICACEOUS	WEA WE	ATHERED	MEDIUM	CAN BE	GROOVED OF	R GOUGED 0.05 INCHE	ES DEEP BY FIRM PRESSURE OF KNIFE OF
		CUII	мотеті	IDE -			TEDMO			CL CLAY	MOD	MODERATELY	2 - UNIT	WEIGHT	HARD	CAN BE	EXCAVATED	IN SMALL CHIPS TO	PEICES 1 INCH MAXIMUM SIZE BY HARD E
501		SUIL	- 101310			TUN UF	I ERMS			CPT - CONE PENETRATION	NTEST NP - N	JN PLASTIC	'∕d- DRY	UNIT WEIGHT		POINT C	OF A GEOLOG	IST'S PICK.	
(A	TTERBERG L	LIMITS)	-	DESC	RIPTION	GUIDE FOR	FIELD MOI	STURE DES	CRIPTION	DMT - DILATOMETER TES	T PMT -	PRESSUREMETER T	TEST <u>SAMPLE</u>	ABBREVIATIONS	SOFT	CAN BE	GROVED OR	GOUGED READILY BY	KNIFE OR PICK. CAN BE EXCAVATED IN F ZE BY MODERATE BLOWS OF A PICK POINT
										DPT - DYNAMIC PENETRA	TION TEST SAP	SAPROLITIC	S - BULK			PIECES	CAN BE BRO	KEN BY FINGER PRES	SSURE.
				- SATU (SA	RATED -	FROM BEL	JUUID:VERN	Y WEL, USU DUND WATE	ALLY R TABLE	e - VOID RATIO	SD S	AND, SANDY	SS - SPLI	T SPOON	VERY	CAN BE	CARVED WIT	H KNIFE. CAN BE E>	KCAVATED READILY WITH POINT OF PICK.
LL		ID LIMI	r							FOSS - FOSSILIFEROUS	SLI S	SLIGHTLY	RS - ROCH	(SOFT	OR MOR	E IN THICKN	ESS CAN BE BROKEN	BY FINGER PRESSURE, CAN BE SCRATCHE
PLASTIC				NET	0.0	SEMISOLID	REQUIRES	DRYING TO		FRAC FRACTURED, FRAC	TURES TCR -	TRICONE REFUSAL	RT - RECO	OMPACTED TRIAXIAL		FINGERN	VAIL.	0.0.0.0	
(PI)				- WEI	- (w)	ATTAIN OP	TIMUM MOIS	STURE		FRAGS FRAGMENTS	w - MC	ISTURE CONTENT	CBR - CAL	IFORNIA BEARING		FRACT	URE SPA	ACING	BEDDING
PLI	PLASI	HU LIM												10		DE	MORE	SPACING THAN 10 FEET	
		инм мо	ISTURE	- MOIS	Г - (M)	SOLID; AT	OR NEAR O	РТІМИМ МС	ISTURE		JIFMENT USED	UN SUBJEC			WIDE	02	3	TO 10 FEET	THICKLY BEDDED 1.5
s	L I SHRIN	NKAGE L	.IMIT								AUVANCING TUULS:		HAMMER TYPE		MODERAT	ELY CLOS	SE 1	TO 3 FEET	THINLY BEDDED 0.16
				DDV	(D)	REQUIRES	ADDITIONAL	WATER TO)	LME-45C			X AUTUMA	IC MANUAL	VERY CLI	OSE	۵. LESS	THAN 0.16 FEET	THICKLY LAMINATED 0.03
				- DRT	- (0)	ATTAIN OP	TIMUM MOIS	STURE		CME-55	6' CONTINUOUS	FLIGHT AUGER	CORE SIZE:		1				THINLY LAMINATED <
	I			PI	ASTICITY						8" HOLLOW AU	JERS	в					INDL	JRATION
				PLAC	TICITY INDEX	(PI)	-	DV CTOCHO	ты	X CME-550	HARD FACED F	INGER BITS			FOR SEDIME	NTARY RO	DCKS, INDURA	TION IS THE HARDE	ENING OF MATERIAL BY CEMENTING, HEA
N	N PLASTIC			<u>PLH5</u>	0-5	<u></u>	U	VERY LOW				INSERTS			EDIA	BIF		RUBBING WITH	H FINGER FREES NUMEROUS GRAINS;
SL	IGHTLY PL	ASTIC			6-15			SLIGHT		VANE SHEAR TEST			HAND TOOLS:			DEL		GENTLE BLOW	/ BY HAMMER DISINTEGRATES SAMPLE.
М0 нт	JUERATELY GHLY PLAC	PLASTI	Ľ		16-25 26 OR MORE			MEDIUM				N/ HUVHNUER	POST HC	DLE DIGGER	MODE	RATELY I	NDURATED	GRAINS CAN	BE SEPARATED FROM SAMPLE WITH STE
	J LHJ									PORTABLE HOIST		* STEEL TEETH	HAND AL	JGER				BREAKS EASI	LY WHEN HIT WITH HAMMER.
					LULUK							"TUNGCARB.		G ROD	INDUF	RATED		GRAINS ARE I	DIFFICULT TO SEPARATE WITH STEEL P
DESCRI	PTIONS MAY	Y INCLU	DE COLOR	OR COLO	R COMBINATION	S (TAN, RE	D, YELLOW-E	ROWN, BLUE	GRAY).		X CORE BIT		VANE SH	EAR TEST				DIFFICULT IL	J DICHN WITH HHMMER.
۲ I	10DIFIERS 9	SUCH A	S LIGHT.DA	RK, STRE	AKED, ETC. ARE	USED TO	DESCRIBE 4	PPEARANCE			X <u>3¹/4" HO</u> LLO	DW AUGERS	. 🗖		EXTR	EMELY IN	DURATED	SHARP HAMME SAMPLE BRF4	.K BLUWS REQUIRED TO BREAK SAMPLE; AKS ACROSS GRAINS.
															1			JUNCE ONCE	

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	TERMO AND DEFINITIONO
AN INFERRED	IERMS AND DEFINITIONS
T REFUSAL	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
OT PER 60 OFTEN	AQUIFER - A WATER BEARING FORMATION OR STRATA.
	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION SUCH AS SHALE, SLATE, FTC.
VALUES >	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
JDES GRANITE,	SURFACE.
PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
Y NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
NE, CEMENTED	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
IGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
	HORIZONTAL.
INGS IF OPEN, 1ER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE ERACTURE.
LLUSPAR _OWS.	FISSUE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
N	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
ROCK HAS	PARENT MATERIAL.
5 COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
DSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
OF STRENGTH	FIELD.
N STRUCK.	JUINT - FRACTURE IN ROLK ALONG WHICH NU APPRECIABLE MUVEMENT HAS ULCURRED.
ENT BUT	LEDGE - A SHELF-LIKE RIDGE OF PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.
KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
TRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
JES < 100 BPF	RESIDUAL (RESISON - SON FORMED IN PLACE BY THE WEATHERING OF ROCK
SMALL AND	ROCK QUALITY DESIGNATION (BOD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
APROLITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
	RUN AND EXPRESSED AS A PERCENTAGE.
FOUTRES	<u>SAPRULITE (SAP.)</u> - RESIDUAL SUIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
EGOINES	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
S REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO
	THE BEDDING OR SCHISTOSITY OF THE INTRODED RUCKS.
CAN BE CHED	OR SLIP PLANE.
	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
UWS UF THE	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
AGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
FOES 1 INCH	STRATA RULK QUALITY DESIGNATION (SRUD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
READILY BY	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: N/A
ICKNESS FFFT	
- 4 FEET	ELEVATION: N/A FEET
- 1.5 FEET 0.16 FFFT	NOTES:
- 0.03 FEET	FIAD = FILLED IMMEDIATELY AFTER DRILLING
008 FEET	BORING COLLAR ELEVATIONS DETERMINED USING SURVEY-GRADE GPS
PRESSURE, ETC.	
PROBE:	
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DBE;	
	DATE: 0.15.14
	DHTE: 8-15-14

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

SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000) GEOLOGICAL STRENGTH INDEX (GSI) FOR GSI FOR HETEROGENEOUS ROCK MASSES SUCH JOINTED ROCKS (Hoek and Marinos, 2000) aces S O 0 U AS FLYSCH (Marinos. P and Hoek E., 2000) σ red surface fillings Ũ From a description of the lithology, structure and From the lithology, structure and surface ١Q hered surf fillings and surface conditions (particularly of the bedding conditions of the discontinuities, estimate ώ the average value of GSI. Do not try to planes), choose a box in the chart. Locate the be too precise. Quoting a range from 33 еq C position in the box that corresponds to the condition eq to 37 is more realistic than stating that of the discontinuities and estimate the average value ther or weather GSI = 35. Note that the table does not apply to structurally controlled failures. Ð of GSI from the contours. Do not attempt to be too weath(g, ath or precise. Quoting a range from 33 to 37 is more ensided, highly wearsoft clay coatings Where weak planar structural planes are realistic than giving GSI = 35. Note that the present in an unfavorable orientation Ð weath Hoek-Brown criterion does not apply to structurally highly coatin agment with respect to the excavation face, CONDITIONS moderately surfaces these will dominate the rock mass controlled failures. Where unfavourably oriented esh behaviour. The shear strength of surfaces continuous weak planar discontinuities are present, in rocks that are prone to deterioration slıghtly es these will dominate the behaviour of the rock mass. POOR Slickensided,h with compact c or angular fra ت ب as a result of changes in moisture The strength of some rock masses is reduced by the content will be reduced if water is GOOD ^ough, presence of groundwater and this can be allowed for POOR present. When working with rocks in the by a slight shift to the right in the columns for fair, SURFACE fair to very poor categories, a shift to th, ed the right may be made for wet conditions. poor and very poor conditions. Water pressure does fac. FAIR Smoot alter VERY Very GOOD Rough surfa Water pressure is dealt with by effective VERY Slick with not change the value of GSI and it is dealt with by Ę stress analysis. using effective stress analysis. DECREASING SURFACE QUALITY STRUCTURE COMPOSITION AND STRUCTURE INTACT OR MASSIVE - intact A. Thick bedded, very blocky sandstone rock specimens or massive in 90 N/A N/A The effect of pelitic coatings on the bedding planes is minimized by the confinement of situ rock with few widely spaced PIECES discontinuities the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally 80 controlled instability. BLOCKY - well interlocked un-70 disturbed rock mass consisting ROCK of cubical blocks formed by three intersecting discontinuity sets B. Sand-stone wi thin inte D. Siltstone C. Sand-60 or silty shale stone with stone and ЧU thin inter siltstone with sandlayers of in similar stone layers VERY BLOCKY - interlocked, INTERLOCKING amounts siltstone partially disturbed mass with 50 multi-faceted angular blocks formed by 4 or more joint sets 40 C, D, E, and G - may be more or . Tectonically deformed, BLOCKY/DISTURBED/SEAMY less folded than illustrated but Intensively folded/faulted, folded with angular blocks this does not change the strength. sheared clayey shale or siltstone formed by many intersecting Tectonic deformation, faulting and with broken and deformed ASING discontinuity sets. Persistence loss of continuity moves these sandstone layers forming an 30 categories to F and H. of bedding planes or schistosity almost chaotıc structure DECRE DISINTEGRATED - poorly interlocked, heavily broken rock mass 20 G. Undisturbed silty H. Tectonically deformed silty with mixture of angular and or clayey shale with or clayey shale forming a rounded rock pieces or without a few very chaotic structure with pockets of clay. Thin layers of thin sandstone layers sandstone are transformed nto small rock pieces. 10 LAMINATED/SHEARED - Lack of blockiness due to close spacing N/A N/A -> Means deformation after tectonic disturbance of weak schistosity or shear planes




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י י ג ـ ـ ـ	, , , , , , , , , , , , , , , , , , ,	A) RESIDUAL	Red to red-brow	vn,stiff' to very stiff.	silty_sandy_CLAY_	trace mica	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	
-		B RESIDUAL	Red to brown to	orange to red-purple	e,medium stiff to	stiff,clayey fine	şandy SILT and	fine sandy SILT, tra	ce mica, sapr	olitic	
, , , , , , , , , , , , , , , , , , , ,		C RESIDUAL	Orange to white-	-tan-brown to red to	dark grey to blad	ck,loose to very de	nse,silty fine to	coarse SAND, trace t	o little mice,	saprolitic	
-		DWEATHER	RED ROCK: GRANIT	TE :					1		
960			· · · ·						1		
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WB	3 483	9.1.8			ТІ	P U-2579	AB	COUNT	Y FORSY	TH			G	EOLOGIST P. Cary			WBS	3 4839	9.1.8			ТІІ	P U-2579A	В	COUNTY
SIT	DESCR	RIPTION	Bric	lge No	. 3307	28 on SR 2	2679 (Gler	nn Hi Rd)	over Winsto	on-Saler	n Nort	hern	Beltv	<i>l</i> ay		GROUND WTR (ft)	SITE	DESCR	RIPTION	N Brid	lge No	. 3307	28 on SR 26	79 (Glen	n Hi Rd) o
BOF	Ring No). EB1	A		S	TATION 2	1+23		OFFSET	11 ft LT			A	LIGNMENT Y16		0 HR. N/A	BOR	RING NO	. EB1	-В		ST	TATION 20-	+62	
COL	LAR EL	EV. 92	27.4 ft		т	OTAL DEP	FH 59.6 f	t	NORTHING	G 845,2	256		E	ASTING 1,662,428		24 HR. FIAD	COL	LAR EL	EV. 92	27.8 ft		ТС	DTAL DEPTH	1 52.0 ft	:
DRIL	l Rig/Ha	MMER E	FF./DA	TE TE	R373 I	DIEDRICH D-	50 99% 03	/24/2018		DRILL	METHO	DD I	Mud Ro	otary	HAMM	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	EFF./DA	TE TE	R373 D	DIEDRICH D-50	99% 03/2	24/2018
DRI	LLER J	I. Turne	y		S	TART DATI	E 05/13/ 1	9	COMP. DA	TE 05	/13/19		S	JRFACE WATER DEF	PTH N	/A	DRIL	LER J	. Turne	ey .		ST	ART DATE	05/15/1	9
ELE\	, DRIVE ELEV	DEPTH	BLC		JNT		BLOWS	PER FOOT	Г	SAMP	· 🔨			SOIL AND RO	CK DES	CRIPTION	ELEV	DRIVE	DEPTH	H BLC	ow cou	JNT		BLOWS F	PER FOOT
(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELE	:V. (ft)		DEPTH (ft)	(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0 25	5	50
930		\downarrow											L				930		Ļ						
		‡											927	4 GROUN	ID SURF.	ACE 0.0			<u>‡</u>						-
005	926.5	- 0.9	4	5	7						м	K	- 926	5 ROADWAY	EMBAN	KMENT 0.9	005	926.8	+ 1.0 +	8	8	4	·	· · · ·	· · · · ·
925	923.9	3.5						1						RE	SIDUAL		925	924.3	3.5	2	5	- 0			<u> </u>
		ŧ	4	6	9		· · · · ·				M			Red-brown to red,	silty sand mica	dy CLAY, trace			ŧ				•13.	· · · ·	
920		1															920		±] .		
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915	913.9	135						+					L	Orange to red-bro mica	, saproliti	c	915	914.3	13.5						+
	0.010	-	4	6	6	• •12·													Ŧ	4	5	·	12.		
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	908.9	18.5	2	2	3	· · · · ·							F					909.3	<u> 18.5</u>	9	16	17		33	
		Ŧ	-		Ŭ	$\left \begin{array}{cccc} \P^{5} & \cdots \\ 1 & \cdots $							- -						Ŧ						
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	903.9	+ 23.5	3	4	5	 . .							-						ŧ	3	4	7	. •11 .		
900		ŧ							· · · · · ·				901	<u>.4</u> White-tan-brown to	red to br	own-white, silty <u>26.0</u>	900		ŧ					· · · · ·	
500	898.9	28.5		5	5								-	fine to coarse SA	ND, trace aprolitic	e to little mica,		899.3	+ <u>28.5</u>	3	4	7			
		‡		5	5				 				-						‡					· · · · ·	
895		‡				<u>;;</u>			· · · · ·								895	894 3	+ 335						· · · ·
	893.9	<u>+ 33.5</u> +	3	3	3	\bullet_6	· · · · ·	· · · ·	· · · · · ·									034.5	+	5	5	4	•9	· · · · ·	
800		‡					· · · · ·	· · · ·	· · · · · ·								800		‡					· · · ·	· · · · ·
090	888.9	38.5				. \							-				090	889.3	38.5	4	4	5			<u> </u>
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885		±															885		±						· · · ·
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088	878.9	48.5												SAND	, trace mi	ica	880	879.3	48.5		15	95/0 4			
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0 1 875		1																875.8	<u> </u>	60/0.0)				
о С	873.9	53.5	11	12	14														Ŧ						
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0.870 870	868.9	$\frac{1}{1585}$,				869	<u>.4</u>		<u>58.0</u>		-	Ŧ						
ZDG7	867.8	- 59.6	60/0.0						60/0.0	5		Sé	867	<u>.8</u> GF	RANITE	59.6			Ŧ						
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579A		Ŧ											F						Ŧ						
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WBS	34839	9.1.8			Т	P U-2579	AB	COUNT	Y FORS	/TH			GEOL	.OGIST P. Cary			WBS	34839	.1.8			TIP	• U-2579AB	COUNTY
SITE	DESCR	RIPTION	l Brid	ge No	. 3307	28 on SR 2	:679 (Gler	n Hi Rd)	over Winst	on-Saler	n North	hern	Beltway		GROUND W	R (ft)	SITE	DESCR	IPTION	N Brid	ge No. 3	33072	28 on SR 2679 (G	ilenn Hi Rd) c
BOR	ING NO	. B1-A			S	TATION 23	3+70		OFFSET	11 ft LT	-		ALIG	MENT Y16	0 HR.	N/A	BOR	ING NO.	B1-B	3		ST	ATION 23+08	
COL	AR EL	EV . 92	26.5 ft		Т	OTAL DEPT	H 56.6 f	t	NORTHIN	G 845,	337		EAST	ING 1,662,661	24 HR.	FIAD	COL	LAR ELE	EV . 92	26.5 ft		то	TAL DEPTH 52	2 ft
DRIL	RIG/HA	MMER E	FF./DA	TE TE	R373	DIEDRICH D-	50 99% 03	/24/2018		DRILL	METHO	DD N	Mud Rotary	НАММ	IER TYPE Autor	natic	DRIL	RIG/HAN	MMER E	FF./DAT	TE TER	R373 D	IEDRICH D-50 99%	03/24/2018
DRIL	LER J	Turne	y		S	TART DATE	05/13/1	9	COMP. D	ATE 05	/13/19		SURF	ACE WATER DEPTH N	/A		DRIL	LER J.	Turne	y		ST	ART DATE 05/1	5/19
ELEV	DRIVE ELEV	DEPTH	BLC	W CO			BLOWS	PER FOOT		SAMP	. V /			SOIL AND ROCK DES	CRIPTION		ELEV	DRIVE ELEV	DEPTH	BLO	W COUN	NT	BLOW	/S PER FOOT
(#)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25	50	75 100) NO.	И	I G	ELEV. (ft)	DE	PTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft (0.5ft	0 25	50
930		Ļ											L				930		-					
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025	925.6	+ 0.9				· · · • • ·							- 926.5 - 925.6	GROUND SURF	ACE	0.0 0.9	025	926.5 -	- 0.0	4	5	3	· L . · · · · ·	
925	-	+	4	6	8	14					м			0.4' Asphalt, 0.5' AB	C Stone		925	-	-					
	923.0	3.5	6	5	7	· · · · ·	· · · ·				м			Red, sandy CLAY, tra	ace mica			923.0	3.5	4	5	8		· · · · ·
920		t											920.5	Red_clayey fine_sandy SII	T trace mica	<u>6.0</u>	920	-	L					
	918.0	8.5					· · · ·					л. И И						918.0	8.5					
		ŧ	3	4	6	· • 10 ·						N /				11.0		-		4	6	7	· · • • 13· · · ·	
915	-	Ŧ						+					<u> </u>	Orange, silty SAND, tr	race mica	<u> </u>	915	-	F					
	913.0	13.5	2	4	5								-					913.0	13.5	10	20	13		
910		Ŧ											<u>- 910.5</u>				910	-	-					
0.0	-	‡								11			-	Brown-orange to brown to re SILT, trace to little mica	ed-brown, sandy a, saprolitic		0.0						/	
	906.0	+ 10.5	2	3	4		· · · · ·						-					908.0	- 10.5	2	1	2	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	· · · · · ·
905	-	‡											-				905		-					· · · · ·
	903.0	23.5					· · · ·						-					903.0	23.5		_		$ \cdot \langle \cdot \cdot \cdot \cdot \cdot \rangle \cdot \cdot \cdot \cdot \rangle$	· · · · · ·
000		ŧ		2	3	• <u>5</u>	· · · ·						-				000	-	_	3	4	6		· · · · · ·
900	-	ŧ						+	····				_				900	-	L					
	898.0	28.5	3	4	6								L					898.0	28.5	3	3	4	. !	
895		£											L				895	-	L					
	893.0	33.5											F					893.0	33.5					
		Ŧ	3	4	4	• <u>+</u> 8 · ·							F					-	-	3	4	5	$ \cdot $	
890	-	Ŧ						+					F				890	-	-					
	888.0	38.5	4	4	5								-					888.0	38.5	3	4	6		
885		ŧ				· • • 9 · · ·							F				885	-	-	Ů				· · · · · ·
- 500	002.0	† , ₂ -				╽│╶╘╴╤═	 -			1		977 P	<u>884.5</u>	WEATHERED R	оск — — — — — — — — — — — — — — — — — — —	<u> </u>			125				····	
	<u></u>	+ 43.5	100/0.2				· · · · ·		100/0.2	•				GRANITE				- 003.0	- 43.5 -	4	7	32		 39
088 5/10	-	‡					· · · · · · ·	+	+	4			<u>+ 880.5</u> -	RESIDUAL		<u> </u>	880		<u>t</u>					· · · · ·
T 12/	878.0	48.5		10	-∩ <i>⊑</i>		· · · · · · · ·						<u>}-</u>	Dark grey, silty fine to co	arse SAND,			878.0	48.5	25	14			· · · · · ·
0.075	· ·	‡	0	13	25		• • • 38•						875.5	Supromo		51.0	075		F	35	14	9	· · · · · •€23	-:
0 8/5	-	‡]			₽_ <u>``</u> -		оск		8/5	874.3	52.2	60/0.0			<u> </u>	· · · · · ·
NC NC	873.0	53.5	100/0.4						. 100/0.4	∳			871 5			55.0			F	00/0.0				
g. 870	869.9	56.6				· · · ·			<u> </u>			P	869.9		оск	<u> </u>		_	F					
0G72		±	60/0.0						60/0.0				È	Boring Terminated with	Standard				F					
BRC		ŧ											F	Penetration Test Refusal at ft in GRANITE	Elevation 869.9				F					
GEO	-	Ŧ											F					-	F					
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FORSYT	H			GEOLOGIST P. Cary	-	
over Winston	-Salem	North	ern E	Beltway	GROUN	ID WTR (ft)
OFFSET 1	1 ft RT			ALIGNMENT Y16	0 HR.	37.0
NORTHING	845,2	96		EASTING 1,662,610	24 HR.	Dry
	DRILL N	IETHO	D Mi	Id Rotary HAMI	NER TYPE	Automatic
COMP. DAT	E 05/ ²	15/19		SURFACE WATER DEPTH	I/A	
	SAMP.		L			
75 100	NO.	мог	G	SOIL AND ROCK DES	CRIPTION	
	NO.	M		926.5 GROUND SURF 925.5 RESIDUAL Orange, silty S/ Orange to red, silty CA 920.5 Red, clayey fine sandy S 915.5 Red, clayey fine to coarse S fragments 910.5 Orange-black, clayey fine saprolitic 905.5 Orange-black to orange, se mica, saprolit	ACE Y, trace mic LT, little mic AND, trace	$\frac{0.0}{1.0}$
				 Grey-brown to white, sil	y fine SANI	<u> </u>
· · · ·				875.5		51.0
60/0.0				675.5 874.3 CRYSTALLINE F GRANITE Boring Terminated wit Penetration Test Refusal at ft in GRANIT	NOCK	<u>51.0</u> 52.2 74.3

INTERDECURITION Endocy GROUND WILL GROUND WILL STEE DESCRIPTION Didge No. 307/20 nn SR 207 (200m H Re). DOULLER LEV. 0010 ft TOTAL DEPTH 80.0 ft MORTHNO 83.44 PERFECT ALL STEE DESCRIPTION	WB	S 348	39.1.8			Т	IP U-2	579A	В	COU	JNTY	FORSY	TH				GEOLOGIST P. Neuma	ann			WBS	34839	9.1.8			ТІ	P U-25	79AB	(COUNT
DOUCHANCE NO. BL-C ETATION 23-44 OPERT 78 PT ALCAMENT Y10 9.88. No. DORMS DD. BL-C STATION 23-44 DOULAUELEX V. 2001 TOTAL DEPTH 80 PT NORTHING 455/22 JARE 1992 DATA TOTAL DEPTH 80 PT DOULAUELEX V. 2004 TOTAL DEPTH 80 PT NORTHING 452/24 JARE 1992 DATA TOTAL DEPTH 80 PT DELLER M. MONUELEX PT. AND PT NORTHING 452/44 COMPACENT STATION 23-44 DELLER M. MONUELEX PT. AND PT JARE 1993 DELLER M. MONUELEX PT. AND PT DETER M. MONUELEX PT. AN	SIT	E DESC	RIPTIO	N Bri	dge No	o. 330	728 on S	SR 26	79 (Gle	nn Hi F	Rd) o	ver Winsto	on-Salen	n Nort	hern	n Be	tway		GROUND	WTR (ft)	SITE	DESCR	RIPTION	Brid	lge No	. 3307	28 on SI	R 2679 (0	Glenn	Hi Rd)
COLLARELY Dist. Der. Phil. Bes. 1 Monthese AS.312 Last Not Jost All Dist. Der. Der. Beindumer Street	во	RING N	O. B1-0	;		s	TATION	23-	+44		(OFFSET	7 ft RT				ALIGNMENT Y16		0 HR.	N/A	BOR	ING NO	. B1-C	;		ST	TATION	23+44		
DBLL MAMER PF2.0LT SLAMBAUMER EF2.0LT SLAMBAUMER EF2.0LT SLAMBAUMER EF7.0LT	со	LLAR E	L EV. 9	26.0 ft	t	т	OTAL D	EPTH	i 86.9	ft	I	NORTHING	G 845,3	312			EASTING 1,662,642		24 HR.	FIAD	COL	LAR EL	EV . 92	26.0 ft		тс	OTAL DE	PTH 86	5.9 ft	
Directed M. Mosey START DATE OWE OWE, DATE Direct M. Mosey START DATE Direct M. Mosey Direct M. Mosey Direct M. Mosey	DRI	LL RIG/H	AMMER E	FF./DA	ATE S	SUM260	3 CME-55	0X 819	% 04/23/2	2019			DRILL	METHO	DD	H.S.	Augers	HAMM	ER TYPE A	utomatic	DRILI	RIG/HA	MMER E	FF./DA	TE SL	JM2603	CME-550	X 81% 04/2	23/2019)
Like With Ends Basch Herkoll State Stat	DR	ILLER	M. Mose	ely		S	TART D	ATE	10/14/	19	•	COMP. DA	TE 10/	'15/19)		SURFACE WATER DEPT	TH N/	A		DRIL	LER N	/I. Mose	ly		ST	ART DA	TE 10/	14/19	
10 m 00 0.0 </td <td>ELE</td> <td></td> <td></td> <td>BL</td> <td>ow cc</td> <td>DUNT</td> <td></td> <td></td> <td>BLOWS</td> <td>PER F</td> <td>ООТ</td> <td></td> <td>SAMP.</td> <td></td> <td></td> <td></td> <td>SOIL AND ROC</td> <td>K DESC</td> <td>CRIPTION</td> <td></td> <td>ELEV</td> <td>DRIVE FI FV</td> <td>DEPTH</td> <td>BLC</td> <td>w col</td> <td>UNT</td> <td></td> <td>BLO'</td> <td>WS PE</td> <td>R FOOT</td>	ELE			BL	ow cc	DUNT			BLOWS	PER F	ООТ		SAMP.				SOIL AND ROC	K DESC	CRIPTION		ELEV	DRIVE FI FV	DEPTH	BLC	w col	UNT		BLO'	WS PE	R FOOT
390 390 <td>(#)</td> <td>(ft)</td> <td>(ft)</td> <td>0.5ft</td> <td>0.5ft</td> <td>0.5ft</td> <td>0</td> <td>25</td> <td></td> <td>50 I</td> <td>7</td> <td>75 100</td> <td>NO.</td> <td>Имо</td> <td>) G</td> <td>E</td> <td>LEV. (ft)</td> <td></td> <td></td> <td>DEPTH (ft)</td> <td>(ft)</td> <td>(ft)</td> <td>(ft)</td> <td>0.5ft</td> <td>0.5ft</td> <td>0.5ft</td> <td>0</td> <td>25</td> <td>50</td> <td></td>	(#)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25		50 I	7	75 100	NO.	Имо) G	E	LEV. (ft)			DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	
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900 -		912.5	<u>+ 13.5</u> +	6	7	7		 14			•••			м		ļ	Tan-orange, silty fir	ne to me	edium SAND,				ŧ							
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005		907.	+ 18.5] : <i>'</i>				•••					F	Tan-orange, sandy SI	LT, little	mica, saproli	tic			ŧ							
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882.5 33.5 8 6 10 880 887.5 38.5 1000.4 887.5 38.5 880 60/0.0 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 60/0.0 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 882.5 43.5 60/0.0 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4 1000.4			Ŧ													-						-	ŧ							
990 -		892.5	<u>+ 33.5</u> +	8	6	10	$\left\{ \left \begin{array}{c} \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot $				•••			м									Ŧ							
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B80 Crystalline Rock 880 600.0 875 600.0 875 600.0 1000000000000000000000000000000000000		887.5	- 38.5	100/0								· · · · · ·			·a-		37.5			<u>38.5</u>			Ŧ							
882.5 43.5 600.0 880	885		Ŧ	100/0.	4						•••	· 100/0.4	T I				WEATHEF GRA	ANITE	DCK				Ŧ							
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880 -		882.5	<u>+ 43.5</u> +	60/0.0	5						•••	60/0.0					CRYSTAL	LINE R	оск	43.5			Ŧ							
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FORSYTH		GEOLOGIST P. Neuma	ann		
over Winston-Salen	n Northern B	eltway		GROUN	ID WTR (ft)
OFFSET 7 ft RT		ALIGNMENT Y16		0 HR.	N/A
NORTHING 845,3	312	EASTING 1,662,642		24 HR.	FIAD
DRILL	METHOD H.S	S. Augers	HAMME	R TYPE	Automatic
COMP. DATE 10/	/15/19	SURFACE WATER DEP	TH N/	4	
75 100 NO.	MOI G	SOIL AND ROC	K DESC	RIPTION	
				<u></u>	
		BIOTITE SCHIST AN	LINE RC	SS (contin	
		Boring Terminated a Crystalline Rock (B GN	at Elevati IOTITE S EISS)	ion 839.1 1 SCHIST AI	86.9 ft in ND

										<u> </u>					
WBS	34839	9.1.8			TIP	0-257	'9AB	C	OUNT	YI	-ORSYTH	GEOLOGIST P. Neuma	ann		
SITE	DESCR	IPTION	Brid	ge No. 3	30728	on SF	R 2679 (G	lenn F	Hi Rd)	over	Winston-Salem Northern B	eltway		GROUN	ID WTR (ft)
BOR	ING NO.	B1-C	;		STA	TION	23+44			OF	FSET 7 ft RT	ALIGNMENT Y16		0 HR.	N/A
COLI	LAR ELI	EV . 92	26.0 ft		ТОТ	AL DE	PTH 86	.9 ft		NO	RTHING 845,312	EASTING 1,662,642	1	24 HR.	FIAD
DRILL	RIG/HA	MMER E	FF./DA	TE SUM2	2603 CN	1E-550X	(81% 04/2	3/2019			DRILL METHOD H.S	S. Augers	HAMME	R TYPE	Automatic
DRIL	LER N	I. Mose	ly		STA	rt da	TE 10/1	4/19		со	MP. DATE 10/15/19	SURFACE WATER DEP	TH N/A	4	
COR	E SIZE	NQ			тот	AL RU	N 43.41	t							
ELEV	RUN ELEV	DEPTH	RUN	DRILL RATE	REC.	JN RQD	SAMP.	REC.	RQD	L O	[DESCRIPTION AND REMARKS	3		
(π)	(ft)	(π)	(π)	(Min/ft)	(ft) %	(ft) %	NO.	(ft) %	(ft) %	Ğ	ELEV. (ft)				DEPTH (ft)
882.5	882.5	435	10	N-60/0 0	(2.0)	(2.0)		(17.0)	(1 4 1)		- 000 5	Begin Coring @ 43.5 ft			40.5
880	- 002.0		4.0	2:14/1.0	98%	(2.9) 73%		95%	78%		Black-white, mo	derate to very slight to severe w	veathering	g, hard to	43.5
	878.5	47.5		3:51/1.0 2:26/1.0		(1.0)					moderately hard, c	ose to moderately close fractur	e spacing	, GRANI	ΓE
	-	F	4.4	2:36/1.0 3:07/1.0	(4.4)	(4.4) 100%					-				
875	874.1	51.9		2:40/1.0 2:12/1.0							-				
	-	-	5.0	0: <u>43/0.4</u> 3:11/1.0	(5.0)	(4.6)					-				
870	-	ŧ		3:48/1.0		5270					-				
0/0	869.1	56.9	5.0	3:09/1.0	(1.2)	(2.2)					-				
	-	ŧ.	5.0	1:42/1.0	84%	44%				R	-				
865		61.0		2:58/1.0						P	- 				61.6
		01.9	5.0	3:26/1.0	(3.3)	(2.9)		(21.9)	(19.0)	R	- Black-green-white w	CRYSTALLINE ROCK	na hard i	o modera	telv
	-	ŧ		3:03/1.0	66%	58%		07.70	1070		hard, close to wide	e fracture spacing, BIOTITE SC	HIST AN	D GNEIS	S
860	859.1	66.9		3:21/1.0 4:50/1.0							_				
	-	ł	5.0	3:61/1.0 3:14/1.0	(4.8) 96%	(4.1) 82%					-				
855	-	F		3:92/1.0 3:02/1.0							-				
	854.1	71.9	5.0	3:81/1.0 3:24/1.0	(5.0)	(4.6)					-				
	-	ŧ		3:38/1.0	100%	92%					-				
850	- 849.1	76.9		6:17/1.0 4·19/1.0						بتغلج	-				
		-	5.0	4:08/1.0	(3.5)	(2.4)					-				
845	-	ŧ		3:09/1.0		-070				P.	-				
010	844.1	81.9	50	4:14/1.0	(5.0)	(5.0)					-				
	-	t t	0.0	3:45/1.0	100%	100%					-				
840	839.1	86.9		5:19/1.0							- 830 1				86.9
		00.3		5.0771.0							Boring Terminate	d at Elevation 839.1 ft in Crysta	lline Rock	(BIOTITI	E00.9
	-	ŧ									-	SCHIST AND GNEISS)			
	-	F									-				
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SHEET 12 OF 15

CORE PHOTOGRAPHS

B1-C

BOX 1: 43.5-52.9 FEET



52.9

BOX 3: 63.0-74.1 FEET



FEET

BOX 4: 74.1-83.3 FEET



SHEET 13 34839.1.8 (U-2579AB) Bridge No. 330728

BOX 2: 52.9-63.0 FEET



CORE PHOTOGRAPHS

B1-C

BOX 1: 83.3-86.9 FEET





SHEET 14 34839.1.8 (U-2579AB) Bridge No. 330728

WBS	3 4839	9.1.8			Т	IP U	J-2579	AB	COUNT	FORS	′TΗ				GEOLOGIS	T P. Cary				WBS	34839	9.1.8			ТІ	P U-2579	AB	COUNTY
SITE	DESCR	RIPTION	Brid	ge No.	. 3307	728 o	n SR 2	2679 (Glen	n Hi Rd) over Winst	on-Salen	n Nort	thern	Bel	tway			GROUN	OWTR (ft)	SITE	DESCR	IPTION	Bric	lge No	. 3307	28 on SR	2679 (Glei	nn Hi Rd) o
BOR	ING NO	. EB2-	A		S	TATI	ON 2	5+71		OFFSET	11 ft LT			4		T Y16		0 HR.	N/A	BOR	ING NO	. EB2-	·B		S	TATION 2	4+98	
COL	LAR EL	EV. 92	5.0 ft		Т	OTAL	DEP	TH 68.5 f	t	NORTHIN	G 845,4	403		I	EASTING	1,662,851		24 HR.	FIAD	COL	LAR ELI	EV . 92	25.6 ft		т	OTAL DEP	TH 55.11	it
DRIL	l Rig/ha	MMER E	FF./DA	TE TE	R373	DIEDF	RICH D-	50 99% 03/	24/2018		DRILL	METHO	DD N	Mud F	Rotary		HAMM	ER TYPE	Automatic	DRILI	RIG/HA	MMER E	FF./DA	TE TE	R373 I	DIEDRICH D	-50 99% 03	/24/2018
DRIL	LER J	. Turney	/		S	TART	T DATE	E 05/14/1	9	COMP. D	ATE 05/	/14/19)		SURFACE V	WATER DEP	TH N/	A		DRIL	LER J	Turne	у		S	TART DAT	E 05/14/ ⁻	19
ELEV	DRIVE	DEPTH	BLO	W COL	JNT			BLOWS I	PER FOO	Т	SAMP.	· 🔨			S	SOIL AND ROC	CK DESC	CRIPTION		ELEV	DRIVE ELEV	DEPTH	BLC	ow cou	UNT		BLOWS	PER FOOT
(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0		25 5	50 I	75 100	NO.	Имо) G	EI	LEV. (ft)				DEPTH (ft)	(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50 7
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	GEOLOGIST P. Cary	
em Northern	Beltway	GROUND WTR (ft)
RT	ALIGNMENT Y16	0 HR. N/A
5,358	EASTING 1,662,789	24 HR. Dry
L METHOD N	ud Rotary	HAMMER TYPE Automatic
)5/14/19	SURFACE WATER DEP	TH N/A
IP. L O. MOI G	SOIL AND ROO	CK DESCRIPTION
	- - - - 925.6 GROUNE	D SURFACE 0.0
	- Red, silty CL	AY, trace mica
>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>	919.6 Red to orange to br fine sandy clayey SIL	own to orange-brown, T, trace mica, saprolitic
1.145 2.145	884.6Brown-grey, fine_sa Brown-grey, fine_sa sat	andy SILT, trace mica, 41.0 prolitic
	<u> </u>	RED ROCK ANITE
	- - <u>872.6</u> - CRYSTA L	LINE ROCK
	- 870.5 GR Boring Termina Penetration Test Ref ft in G	ANITE 55.1 ted with Standard fusal at Elevation 870.5 GRANITE
	em Northern I RT 5,358 L METHOD M 15/14/19 IP. L 0 M M M M A A A A A A A A A A A A A	OLCLOGION T. Cary em Northern Beltway ALIGNMENT Y16 5,358 EASTING 1,662,789 L METHOD Mud Rotary 15/14/19 SURFACE WATER DEP IP L 0 SOIL AND ROC 925.6 GROUNT 925.6 GROUNT 925.6 GROUNT 925.6 GROUNT 925.6 GROUNT 919.6 Red to orange to bindime sandy clayey SIL 1 919.6 884.6 Brown-grey, fine sa 884.6 Brown-grey, fine sa 884.6 GR 877.6 WEATHE 970.5 GR 970.5 GR

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<u>SHEET NO.</u>	DESCRIPTION
l I	TITLE SHEET
2	LEGEND
3-4	SITE PLAN
5	PROFILE
6-13	CROSS SECTIONS
14-24	BORE AND CORE LOGS
25	SITE PHOTOGRAPHS
26	LABORATORY LAB RESULTS

CONTENTS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON SALEM-NORTHERN **BELTWAY (EASTERN SECTION OF FUTURE I-74)** FROM I-40 BUS /US 421 TO I-40

SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD-(STA. 47+63.62) INTERCHANGE CONNECTING WINSTON-SALEM NORTHERN BELTWAY AND I-40 BYPASS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	26

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 1991 707-6860. THE SUBSIFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CALITORIED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR 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 OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDENSION OR FOR 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

HPC

GOODNIGHT, D.J.

WEIS, J. M.

INVESTIGATED BY _____GOODNIGHT, D.J.

DRAWN BY _____CROCKETT, S.C.

CHECKED BY HAMM, J.R.

SUBMITTED BY ______ FALCON ENG.

DATE NOVEMBER 2019



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 VIELD SPT REFUSAL IF TESTED. AN INFERRED	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
BE PENETRATED WITH A CUNTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FUUT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586), SOTI CLASSIFICATION	UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	SPT REFUSAL IS PENETRATION BY A SPLIT SPON SAMPLER FUMA MITTAINE WOLD THAN 0.1 FOUT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZUNE OF WEATHERED RUCK.	ARCILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS OR HAVING
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:	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD VIELD SPT N VALUES N	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOUL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	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	MINERALOGICAL COMPOSITION	FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (≤ 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	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.	GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-0 A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-75 A-3 A-6, A-7	COMPRESSIBILITY	DON-CRYSTALLINE FILE TO COMPLE GRAIN METHODARATIC HIND NON-CONSTAL FLAIN	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
	SLIGHTLY COMPRESSIBLE LL < 31	RULK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
		COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
2 PASSING		(CP) SHILL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*40 30 MX S1 MN S1		WEATHERING	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 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH BOCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	RUCKS OR LUTS MASSIVE RUCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
PASSING #40 SOTUS VITH	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN,	
LL 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN LITTLE OR	MODERATEL TORGANIC 5 - 10% 12 - 20% SUME 20 - 35% HIGHLY ORGANIC $> 10\% > 20\%$ HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER BLOWS IF	LINE OF DIP MEASURED CLOCKWISE FROM NORTH
PI 6 MX NP 10 MX 10 MX 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE NICONIC		OF A CRYSTALLINE NATURE.	
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX AMOUNTS OF SOILS		SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
USUAL TYPES STONE FRAGS. FINE SILTY OR CLAYEY SILTY CLAYEY MATTER	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLL) I INCH, OPEN JUINTS MAY CUNIAIN CLAY, IN OKANIJUD KUCKS SUME UCCASIONAL FELDSPAR (RYSTALS & RE DILL AND DISCOLORED, CRYSTALINE ROCKS RUG UNDER HAMMER BLOWS	FISSILE - & PROPERTY OF SPLITTING & ONG CLOSELY SPACED PARALLEL PLANES
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	▼ STATIC WATER LEVEL AFTER 24 HOURS	MOREDATE SIGNEFICATE DODING OF DIOCE HUN DISCOLUDENTIAL AND MEATHERING FEELSTS. IN	FLOAT DOCK FRACHENIC ON CUPEACE NEAD THEIR ORIGINAL DOCITION AND DICLODEED FROM
		(MOD) GRANITOID ROCKS, MOST FELDSARS ARE DULL AND DISCUDENCE, SOME SHOW CLAY, ROCK HAS	PARENT MATERIAL.
GEN. RATING EXCELLENT TO GOOD FAIR TO POOR UNSUITABL	E	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING & STREAM BUILT OF SEDIMENTS DEPOSITED BY THE STREAM
	- ()-MM- SPRING OR SEEP	WITH FRESH ROCK.	FORMATION (FM) A MARRARIE CERIOCIC UNIT THAT CAN BE DECONTRED AND TRACED IN THE
PLOF A-7-5 SUBGROUP IS S LL - 30 ;PLOF A-7-6 SUBGROUP IS S LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FURMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOUNTZED AND TRACED IN THE
LUNSISTENLY UR DENSENESS	MISLELLANEUUS SYMBULS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION, ROCK SHOWS SEVERE LOSS OF STRENGTH	TOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED
PRIMARY COLL TYPE COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED		IF TESTED, WOULD YIELD SPT REFUSAL	SOLAT THEORE IN NOCK REDAR WHEN NO REPRESENTED FOR ANY CONTRACT TO CONTRACT ON THE STREET TO
CONSISTENCY (N-VALUE) (TONS/FT ²)	WITH SOIL DESCRIPTION OF ROCK STRUCTURES		ITS LATERAL EXTENT.
VERY LOOSE < 4		(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	
GENERALLY LOOSE 4 TO 10	SOIL SYMBOL UP OF OMT TEST BORING INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODT OF SOLE ON NOCK THAT THINS OUT IN ONE ON MORE DIRECTIONS.
MATERIAL MEDIUM DENSE 10 TO 30 N/A		IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MUTILED (MUT.) - IRREGULARLY MARKED WITH SPUTS OF DIFFERENT CULORS, MUTILING IN SUILS
(NON-COHESIVE) DENSE 30 TO 50	THAN ROADWAY EMBANKMENT THAN ROADWAY EMBANKMENT THAN ROADWAY EMBANKMENT	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	DEDCHED WATER - WATER MAINTAINED APOVE THE NORMAL CROWND WATER LEVEL BY THE RECENCE
		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SUIL STATUS, WITH UNLY FRAGMENTS OF STRUNG RUCK	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25		VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF	RESIDUAL (RES.) SOTI - SOTI FORMED IN PLACE BY THE WEATHERING OF ROCK
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0			RESIDUE (NES) SOLE FORMED IN FERCE OF 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 SEGMENTS FOLIAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4	ALLUVIAL SOIL BOUNDARY ALLUVIAL SOIL BOUNDARY	ALSO AN EXAMPLE.	RUN AND EXPRESSED AS A PERCENTAGE.
		ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	ROCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNCLASSIFIED EXCAVATION -	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	LX_XI EXCAVATION LZ_ZI UNSUITABLE WASTE LX_24 ACCEPTABLE, BUT NOT TO BE	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
ROW DER CORRIE CRAVEL COARSE FINE CULT CLAV	SHALLOW UNCLASSIFIED EXCAVATION - EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR,) (COB,) (GR,) SAND (SL,) (CL,)		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
(CSE, SD.) (F SD.)	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	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MUDERALE BLUWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	BI - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF I FOUT INTO SULL
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC γ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE CHUDE FOR FIELD MOISTURE	CSE COARSE ORG ORGANIC		STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MUISTURE 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.
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SRQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
(SAT,) FROM BELOW THE GROUND WATER TABLE	G - YOLD RHILD SUL - SHIND, SHINDT SS - SPLIT SPOON F - FINE SL - SILT, SILTY ST - SHELRY TURE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
	- FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	TOPCOL (TC), CUPEACE COLIC UCUALIX CONTAINING OPCANIC MATTER
PLASTIC SEMISOLID; REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL		TUPSULE (15.) - SURFACE SULS USUALLY CUNTAINING URGANIC MATTER.
RANGE - WET - (W) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK:BL-50, -L- STA. 795+82, CL, N: 847291 E: 1663706
	HIHIGHLY V-VERY RATIO	TERM SPACING TERM THICKNESS	
- MOIST - (M) SOLID: AT OR NEAR OPTIMUM MOISTURE	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE HAN 10 FEEL VERY HILKEY BEDDED 4 FEEL WIDE 3 TO 10 FEET THICKEY BEDDED 15 - 4 FEFT	ELEVATION: 874.92 FEET
	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	MODERATELY CLOSE 1 TO 3 FEET THINKE BEDDED 0.16 - 1.5 FEET	NOTEC
	X CME-45C X CLAY BITS X AUTOMATIC MANUAL	CLOSE Ø.16 TO 1 FOOT VERY THINLY BEDDED Ø.03 - Ø.16 FEET	NUTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
		I HINLY LAMINA ILU < 0.008 FEET	
PLASTICITY		INDUKATIUN	4
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550X HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC 0-5 VERY LOW		FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS;	
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST	GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MUULKATELY PLASTIC 16-25 MEDIUM		MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	
	_ U PORTABLE HOIST U TRICONE STEEL TEETH U HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR		INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE:	
		DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT DARK, STREAKED, FTC, ARE USED TO DESCRIBE APPEARANCE		SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
The open is clearly share of the best of best to best the hit Ender		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

PROJECT REFERENCE NO.

U-2579AB







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WBS	WBS 34839.1.8 TIP U-2579AB C(SITE DESCRIPTION RPIDGE NO 726 ON X15EL XPD OVE									Y FORS	/TH			GEC	DLOGIST Goodnight, D.			WBS	3483	9.1.8			TIF	P U-2579AB	COUNT	Y FORSYT	Ή		GEO	LOGIST Goodnigh	t, D.	
SITE	DESC	RIPTIO	N BR	DGE	NO. 72	26 ON -Y′	15FLY	YBD- OV	VER -Y1	5REV-, -Y	15FLYC	A-, -Y	′15FL	YAC-, -L	, AND -Y15RPDREV-	GROUND WT	R (ft)	SITE	DESC	RIPTION	BRIDG	GE NO	0.726	6 ON -Y15FLYBD- C	OVER -Y1	5REV-, -Y1	5FLYCA-,	-Y15FI	LYAC-, -L-	, AND -Y15RPDRE	V- GROUN	D WTR (ft)
BOR	BORING NO. EB1-A STATION 39+40 COLLAR ELEV. 878.0 ft TOTAL DEPTH 59.1 ft									OFFSET	25 ft LT	-		ALIC	GNMENT -Y15FLYBD-	0 HR.	31.3	BOR	ING NC) . EB1-B			ST	ATION 39+40		OFFSET	17 ft RT		ALIG	NMENT -Y15FLYE	BD- 0 HR.	26.0
COL	LAR E	LEV. 8	78.0 ft		Т	OTAL DE	РТН	59.1 ft		NORTHI	NG 848,	074		EAS	TING 1,663,391	24 HR.	26.0	COL	LAR EL	EV . 874.	3 ft		то	DTAL DEPTH 48.7 f	ft	NORTHING	3 848,066	3	EAST	FING 1,663,349	24 HR.	27.4
DRIL	RIG/H	AMMER E	FF./DA	TE H	IPC0279	Diedrich D	50 84%	% 01/10/2	2018		DRILL	METH	IOD	H.S. Auge	rs HAM	MER TYPE Autom	natic	DRILL	. RIG/HA	MMER EFF.	/DATE	HPC	0279	Diedrich D50 84% 01/10)/2018		DRILL ME	THOD	H.S. Augers	3	HAMMER TYPE	Automatic
DRIL	LER.	Kiker, Z			S	TART DA	TE 0	06/03/19)	COMP. D	ATE 06	5/03/1	9	SUR	FACE WATER DEPTH	N/A		DRIL	LER 🕴	(iker, Z.			ST	ART DATE 06/03/1	19	COMP. DA	TE 06/03	/19	SURF	ACE WATER DEP	TH N/A	
ELEV	BILLER Kiker, Z. START DATE 06/03 V DRIVE ELEV DEPTH (ft) BLOW COUNT BLOWS 0 0.5ft 0.5ft 0.5ft 0 25 0 - - - - - - 0 - - - - - - - 0 -								ER FOOT	-	SAMF	. V				SCRIPTION		ELEV	DRIVE	DEPTH	BLOW	COUN	NT	BLOWS	PER FOOT	r	SAMP.		;			
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		+	100/0.5	5			: :		· · · · ·	100/0	5				I AN AND GRAY, GRA	INTIC ROCK				‡ 「									Ę	WR: GRAN	IITIC ROCK	
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	019.5) <u> </u>	75	25/0.1	1	<u> </u>				100/0	 ,●		alar s	818.9	Boring Terminated at Elev	vation 818.9 ft IN	59.1			± I									E			
<u>Y</u>		ł								100101				+	WR: GRANITIC	ROCK				+									-			
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WB	S 3483	9.1.8			Т	IP U-2579	9AB	COUNT	Y FORSY	Ή			GEO	OLOGIST Goodnig	ght, D.		WB	S 3483	39.1.8			Т	P U-2	579AB	COUI
SIT	E DESC	RIPTIO	N BR	DGE	NO. 7	26 ON -Y1	5FLYBD-	OVER -Y1	5REV-, -Y	15FLYC/	4-, -Y1	5FLY	′AC-, -I	L-, AND -Y15RPDR	REV-	GROUND WTR (f) SIT	E DESC	RIPTIO	N BR	IDGE	NO. 7	26 ON -	Y15FLYI	BD- OVER -
BOI		D . B1-A	۱		S	TATION 4	41+07		OFFSET	25 ft LT	-		ALI	GNMENT -Y15FLY	YBD-	0 HR. 25.8	BOI	RING N	O. B1-/	4		s	TATION	41+07	,
col	LAR E	LEV. 8 [.]	72.5 ft		т	OTAL DEF	PTH 78.7	ft	NORTHIN	IG 847,	915		EAS	STING 1,663,430		24 HR . 25.6		LAR E	LEV. 8	72.5 ft		т	OTAL D	EPTH 7	78.7 ft
DRIL	L RIG/H	AMMER E	FF./DA	TE B	RI5184	CME-45C 96	5% 03/06/201	19		DRILL	METHO	D H	.S. Auge	ers	НАММІ	ER TYPE Automatic	DRIL	L RIG/H	AMMER E	EFF./DA	TE B	RI5184	CME-45C	96% 03/0)6/2019
DRI	LLER	Ester. G	-		s	TART DA	TE 06/04/	19	COMP. D	ATE 10	/14/19		SUF	RFACE WATER DE	EPTH N/	Ά	DRI	LLER	Ester. G	<u>).</u>		s	TART D	ATE 06	5/04/19
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(ft)	ELEV	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	мо	0 G	FLEV	SOIL AND RO	OCK DES	CRIPTION	(ft)	(ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50
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870		-	4	5	6	• <u>11</u>		· · · ·	· · · ·		М	\square		BROWN, SILTY C	CLAY (A-7) WITH SAND	0		‡						
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	866.5	6.0	6	3	6		۰ 					N N	-	AND TRACE	E ROCK I	RAGS.			ŧ						
865	864.0	8.5	0	Ŭ	Ŭ	<u>●</u> 9	<u> </u>	<u> </u>	<u> </u>	-	M	N V N	_						\pm						
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850		Ŧ											-						Ŧ						
000	849.0	23.5	5	0	0								-						+						
		‡	5	9	3		18				▼	_	-						‡						
845	_	1					· · · ·	· · · ·	· · · ·	_			-						‡						
	844.0	28.5	8	10	10	· · · ·	20				м		-						‡						
		+											-						+						
840	839.0	33.5		= -			<u> </u>	· · · · ·	· · · · ·	-			- 838 5			34	0		+						
		ł	27	50	50/0.3	,			100/0.8			11	-	WEATH		DCK			ł						
835		+						· · · ·				<u>II</u>		TAN, GR		OCK			1						
	834.0	38.5	13	30	70/0.4							<u>II</u>	-						ł						
		ł							100/0.9	•		11	-						ł						
830	829.0	43.5					<u> </u>			$\left \right $		10	_						\pm						
		+	48	52/0.4	4				100/0.9	, •			-						Ŧ						
e 825		Ŧ											-						Ŧ			1			
11/5/	824.0	48.5	43	57	43/0.2								-						Ŧ			1			
GDT		Ŧ							100/0.7	1			-						Ŧ			1			
j <u>820</u>	010.0	+ 52 5					····	<u> </u>	<u> </u>				-						7			1			
	019.0	- 53.5	100/0.4	4					100/0.4	•			-						Ŧ			1			
G 815		‡											-						+						
C. CIO	814.0	58.5	100/0				<u> </u>	<u> </u>				M	_						+						
ORIN		‡	100/0.						100/0.4	Ť		The	-						‡						
0 <u>810</u>		±					· · · ·	· · · ·	· · · ·			-							‡						
0 0	809.0	- 63.5	100/0.4	4					100/0.4	ı		- 	-						‡						
2579A		‡											-						+						
<u>З 805</u> ш	804.0	68.5		0.0 /0			<u> </u>	+	<u> </u>	1			_						+			1			
DUBL		<u>+</u>	/0	30/0.2	2				100/0.7	/ •			-						‡			1			
ਠ ਘ 800		+					· · · ·	· · · ·	<u> </u>										1			1			
BOF	799.0	73.5	100/0.4						100/0.4	ı			-						‡			1			
		+											-						ŧ			1			
<i>≠</i> 795	1	1	1	1	1	11	1			11	1	V/J						1	1	1	1	1	1		

TY FORSYTH	GEOLOGIST Goodnight, D.	
15REV-, -Y15FLYCA-, -Y15FLYA	.C-, -L-, AND -Y15RPDREV-	GROUND WTR (ft)
OFFSET 25 ft LT	ALIGNMENT -Y15FLYBD-	0 HR . 25.8
NORTHING 847,915	EASTING 1,663,430	24 HR . 25.6
DRILL METHOD H.S	. Augers HAMM	ER TYPE Automatic
COMP DATE 10/14/19	SURFACE WATER DEPTH N	/Α
0T SAMP L 75 100 NO. MOU G	SOIL AND ROCK DES	CRIPTION
	793.8 Poring Tormin-4-4-4-5	78.7
	WR: GRANITIC R	00H 793.8 π IN OCK
	NOTE: BORING ORIGINA	
	TO A DEPTH OF 49.7 F1	. UN 6/4/19.
E		

WB	S 3483	9.1.8			Т	IP U-2579A	٨B	COUNT	Y FORSY	тн			GEO	LOGIST Goodnigh	nt, D.		WBS	3 4839	9.1.8			Т	P U-2579A	٨В	COUN
SIT	E DESCI	RIPTIO	N BR	IDGE I	NO. 72	26 ON -Y15F	FLYBD- C	VER -Y1	5REV-, -Y1	5FLYC	4-, -Y′	15FL`	YAC-, -L	, AND -Y15RPDRE	EV-	GROUND WTR (ft)	SITE	DESCR	RIPTIO	NBR	IDGE	NO. 72	26 ON -Y15	-LYBD- (JVER -
BO	RING NC). B1-E	3		S	TATION 41	+07		OFFSET	17 ft R1	Γ		ALIG	NMENT -Y15FLY	BD-	0 HR. 24.4	BOR	ING NO). B2-A	۱		S	TATION 42	:+76	
со	LLAR EL	.EV. 86	69.5 ft		T	OTAL DEPT	FH 48.9 ft	t	NORTHIN	G 847,	902		EAS	TING 1,663,390		24 HR . 23.0	COL	LAR EL	. EV. 86	64.3 ft		т	OTAL DEPT	H 69.11	ť
DRI	L RIG/HA	MMER E	FF./DA	TE HF	PC0279	Diedrich D50	84% 01/10/	/2018		DRILL	METHO	OD ⊦	I.S. Augers	6	HAMM	IER TYPE Automatic	DRILI	L RIG/HAI	MMER E	FF./DA	TE HE	C0279	Diedrich D50	84% 01/10	/2018
DR	LLER K	liker, Z.			S	TART DATE	06/04/1	9	COMP. D	ATE 06	/04/19	9	SUR	FACE WATER DEF	PTH N	/A	DRIL	LER K	iker, Z.			S		05/31/1	9
ELE		DEPTH	BLC	oo wco	UNT		BLOWS F	PER FOOT	Г	SAMP	• V /				יא חבפ		ELEV	DRIVE	DEPTH	BLC	ow co	UNT		BLOWS	PER FO
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 5	50	75 100	NO.	мс	DI G	ELEV. (f	(t)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5	50
870		L											- 869.5	GROUND) SURF	ACE 0.0	865		Ļ						
	868.5	1.0	4	7	9		••••				м		l l	RES RED-BROWN, SAN	IDUAL	TY CLAY (A-7)		863.3	1.0	4	5	6		••••	
965	866.0	3.5	7	6	7		· · · · ·						866.5	RED-BROWN, SA		LAYEY SILT	860	860.8	3.5				• 11		
003	863 5	+ 60	<i>'</i>	0	, í	•13 /				1	м	N N V	864.0	(A-5) WITH		MICA 5.5		858.3	60	4	4	4			<u> </u>
			4	3	5	/ ●8	· · · · ·				М		-	TAN, SILTY SAND	(A-2-4)				-	2	3	4	• 7		
860	861.0	8.5	4	3	4	· · · · · · · · · · · · · · · · · · ·		· · · ·	· · · ·		м		-				855	855.8 -	- 8.5	2	3	3	6	· · · ·	<u> </u>
		+					· · · · ·						-					-	-						
855	856.0	13.5	1	1	5		· · · · ·	· · · · ·					-				850	850.8	13.5	~					
655		ŧ	4	4	5	•9			<u> </u>		м		-				0.50	-	+	3	4	4	•8		+
		±					· · · ·						•					-	ŧ						
850		18.5	4	4	5	9	· · · ·	· · · ·	· · · ·		м		- 				845	845.8 -	18.5	3	3	4	•	· · · ·	· · ·
		+					· · · · ·						-					-	-						
845	846.0	23.5	6	6	5		· · · · ·					_	-				840	840.8	23.5		-				
043		ŧ	0	0	5	• <u>11</u>					М		-				040	-	+	3	3	4	•7		<u> </u>
		+				: : !		·				000	842.5	TAN AND WHITE	, SILTI	27.0 Y F TO CSE			+						
840		- 28.5	15	34	57			· · · ·	9 1	41	м	0000	- 839.5	SAND (A-1-b) TRAC	E MICA 30.0	835	835.8 -	28.5	4	5	7	•12	· · · ·	
		ŧ					· · · · ·	· · · · ·					 }-	TAN, GRA	NITIC F	ROCK		-	+						
835	836.0	33.5	26	12	57/0 2		· · · · ·										830	830.8	33.5		-				
000		÷	50	43	5770.5				100/0.8	•							0.50	-	+	2	5	9	•14	 	<u> </u>
		÷					· · · · ·						-						+						
830	<u>831.0</u>	- 38.5	39	61/0.4		· · · ·		· · · ·	100/0:9	•			-				825	825.8	- 38.5	4	8	11	•••\ •••	· · · ·	· · ·
		‡					· · · ·						-					-	ŧ				\`````````````````````````````````````		
825	826.0	43.5	47	53/0 3	-		· · · ·						-				820	820.8	43.5	0	11	16	· · · · · · · · · · · · · · · · · · ·	 	
020		Ŧ		00/0.0					100/0-8	•			-				020	-	ŧ	0		10		•27	<u> </u>
	001.0	105					••••						-					045.0	t					λ	
61/9	- 021.0	40.5	100/0.4						100/0.4	┥		24777	- 820.6	Boring Terminated a	at Eleva	48.9 ation 820.6 ft IN	815	- 815.8 -	48.5	13	19	22	· · · ·	• 41	<u> · · · ·</u>
		Ŧ											F	WR: GRA	NITIC F	ROCK		-	Ŧ						
19.1		Ŧ											F				810	810.8	53.5	15	21	25			
	-	Ŧ											F					-	Ŧ	10		20		• • • •	46
ž		+											F					905.9	- 						
2	-	Ŧ											F				805		- 56.5	32	63	37/0.2			+
		Ŧ											F					-	ŧ						
		Ŧ											F				800	800.8	63.5	63	37/0.4	-			
	-	Ŧ											F					-	ŧ						.
0/APE		Ŧ											F					795.8	68.5						
		Ŧ											F						- 00.0	72	28/0.1				<u> </u>
UBLE		Ŧ											F					-	É						
	_	ł											F					-	ł						
POR		ł											F					-	ł						
		ł											F					-	ł						
žL													L						Ĺ		1				



WB	S 348	39.1.8			т	P U-2579,	AB	COUNT	Y FORSY	тн			GEOL	OGIST Goodnig	ght, D.		WB	S 34839	9.1.8			TIF	v U-2579A	٩B	COUN
SIT	e desc	RIPTIO	N BR	DGE	NO. 72	26 ON -Y15	FLYBD- (OVER -Y1	15REV-, -Y1	5FLYC	A-, -Y1	5FLY	′AC-, -L-,	AND -Y15RPDR	REV-	GROUND WTR (ft)	SITE	E DESCR	RIPTION	I BRI	DGE N	10.72	6 ON -Y15I	FLYBD-	OVER -Y
во	RING N	O . B2-I	3		S	TATION 4	2+76		OFFSET	17 ft R	Г		ALIGN	MENT -Y15FLY	YBD-	0 HR. 20.0	BOF	RING NC). B3-A			ST	ATION 44	l+45	
со	LLAR E	LEV. 8	63.3 ft		т	OTAL DEP	TH 68.8	ť	NORTHIN	G 847,	743		EAST	NG 1,663,449	:	24 HR. 17.8	COL	LAR EL	. EV. 85	5.9 ft		то	TAL DEPT	FH 83.5	ft
DRI	L RIG/H	AMMER E	FF./DA	TE H	PC0279	Diedrich D50	0 84% 01/10	/2018	•	DRILL	METHO	D H	.S. Augers		HAMME	R TYPE Automatic	DRIL	L RIG/HA	MMER EF	F /DA1	re HP	C0279	Diedrich D50	84% 01/1	0/2018
DR	LLER	Kiker, Z			S	TART DAT	E 06/04/*	9	COMP. D	ATE 06	6/04/19		SURF	ACE WATER DE	EPTH N//	4	DRI	LLER K	liker, Z.			ST		E 05/31/	/19
ELE		DEPTH	H BLC	ow co	UNT		BLOWS	PER FOO	Г	SAMF	P. ▼/	L	•				ELEV		DEPTH	BLO	W COU	INT		BLOWS	PER FOC
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25	50	75 100	NO.	мо	I G	ELEV. (ft)	SOLE AND NO	DER DESC	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5	50
ELEY (ft) 865 860 860 855 850 850 840 840 835 830 825 830 830 830 830 8315 830	 DRIVI ELEV (ft) 862.3 859.6 859.6 859.6 857.3 854.6 849.6 849.6 844.6 839.6 844.6 839.6 844.6 839.6 844.6 PTH (ft) 10 3.5 6.0 3.5 6.0 13.5 14.5 15.5 1</th><th>BLC 0.5ft 0.5ft 2 3 3 3 1 1 1 4 3 1 1 1 1 5 12 25</th><th>W CO 0.5ft 6 6 4 4 4 4 2 5 7 7 13 20 16 34</th><th>UNT 0.5ft 5 4 5 4 5 2 3 7 8 17 27 19 28</th><th>0 11. 11. 11. 11. 11. 11. 11. 11</th><th>BLOWS 25</th><th>PER FOO 50</th><th>T 75 100 75 100 100 100</th><th>SAMF NO.</th><th>M M M M M M W W W W W W W W W W W M M M M M</th><th></th><th>ELEV. (ft)</th><th>GROUNI RES RED-BROWN, SAN TAN, SANDY C TAN-WHITE, SIL WHITE-TAN, S TAN-WHITE, SIL (A C TAN-WHITE, SIL (A-2-4) L</th><th>DCK DESC</th><th>RIPTION DEPTH (ft) CE 0.0 Y CLAY (A-7) 3.0 SILT (A-5) 3.0 CSE. SAND 12.0 ID (A-2-4) 17.0 CSE. SAND 22.0 CSE. SAND 37.0 CSE. SAND 37.0 CSE. SAND 37.0 CSE. SAND 57.0</th><th>ELEV (ft) 860 855 850 845 840 830 830 830 830 830 830 830 830 830 83</th><th>DRIVE ELEV (ft) 852.4 849.9 847.4 849.9 847.4 842.4 847.4 837.4 837.4 837.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 833.4 83</th><th>DEPTH (ft) 1.0 3.5 6.0 8.5 13.5 18.5 23.5 28.5 28.5 33.5 33.5 43.5 43.5</th><th>BLO 0.5ft 6 4 2 1 3 2 4 56 49 9 9 21 31 55</th><th>W COU 0.5ft 7 5 2 1 4 3 9 44/0.2 51/0.4 14 50 8 39 45/0.3</th><th>INT 0.5ft 0.5ft 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</th><th>0 2 0 11 0 15 0 11 0 /th><th>BLOWS 5</th><th>PER FOO</th>	DEPTH (ft) 10 3.5 6.0 3.5 6.0 13.5 14.5 15.5 1	BLC 0.5ft 0.5ft 2 3 3 3 1 1 1 4 3 1 1 1 1 5 12 25	W CO 0.5ft 6 6 4 4 4 4 2 5 7 7 13 20 16 34	UNT 0.5ft 5 4 5 4 5 2 3 7 8 17 27 19 28	0 11. 11. 11. 11. 11. 11. 11. 11	BLOWS 25	PER FOO 50	T 75 100 75 100 100 100	SAMF NO.	M M M M M M W W W W W W W W W W W M M M M M		ELEV. (ft)	GROUNI RES RED-BROWN, SAN TAN, SANDY C TAN-WHITE, SIL WHITE-TAN, S TAN-WHITE, SIL (A C TAN-WHITE, SIL (A-2-4) L	DCK DESC	RIPTION DEPTH (ft) CE 0.0 Y CLAY (A-7) 3.0 SILT (A-5) 3.0 CSE. SAND 12.0 ID (A-2-4) 17.0 CSE. SAND 22.0 CSE. SAND 37.0 CSE. SAND 37.0 CSE. SAND 37.0 CSE. SAND 57.0	ELEV (ft) 860 855 850 845 840 830 830 830 830 830 830 830 830 830 83	DRIVE ELEV (ft) 852.4 849.9 847.4 849.9 847.4 842.4 847.4 837.4 837.4 837.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 837.4 832.4 833.4 83	DEPTH (ft) 1.0 3.5 6.0 8.5 13.5 18.5 23.5 28.5 28.5 33.5 33.5 43.5 43.5	BLO 0.5ft 6 4 2 1 3 2 4 56 49 9 9 21 31 55	W COU 0.5ft 7 5 2 1 4 3 9 44/0.2 51/0.4 14 50 8 39 45/0.3	INT 0.5ft 0.5ft 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 2 0 11 0 15 0 11 0	BLOWS 5	PER FOO
U2579AB_GEO_BORINGS.GF 008 662 262 262 262 262 262 262 262 262 26	804.8 799.8 794.8	58.5 - - - - - - - - - - - - -	43	57/0.3	42/0.2				100/0.8				- - - - - - - - - - - - - - - - - - -	WEATHE TAN, GRA	ERED RO ANITIC RO	СК ЭСК 68.8	800 795 790	797.4	58.5 63.5	20	40 6	60/0.4 56/0.3			
NCDOT BORE DOUBLE			100/0.:						100/0.3				- - - - - - -	Boring Terminated WR: GRA	d at Elevati ANITIC RC	on 794.5 ft IN DCK	785	787.4	68.5 7 73.5	40	60/0.2				



WBS 348	39.1.8			Т	P U-257	9AB	COUN	TY FORSY	ТΗ			GE	OLOGIST Goodni	ght, D.		WBS	3 483	9.1.8			Т	P U-25	79AB	(coui
SITE DES	E DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVE					OVER -Y	15REV-, -Y1	5FLYCA	∖- , -Y1	5FL`	YAC-,	L-, AND -Y15RPDF	REV-	GROUND WTR (ft)	SITE	DESC	riptio	N BR	RIDGE	NO. 72	26 ON -Y	15FLYBI	D- OV	/ER -	
BORING N	ю. вз-4	٩		S		44+45		OFFSET	25 ft LT			AL	GNMENT -Y15FL	YBD-	0 HR. 14.5	BOR	RING NO	Э. ВЗ-Е	3		S	TATION	44+45		
COLLAR I	ELEV. 8	55.9 ft		T	OTAL DEI	PTH 83.5	ft	NORTHIN	I G 847,	610		EA	STING 1,663,561		24 HR . 11.0	COL	LAR EI	L EV. 8	51.7 ft	t	Т	OTAL DE	EPTH 92	2.9 ft	
DRILL RIG/H	IAMMER E	FF./DA	TE HF	PC0279	Diedrich D	50 84% 01/1	0/2018		DRILL	METHO	D H	H.S. Aug	ers	HAM	MER TYPE Automatic	DRIL	L RIG/HA	MMER E	EFF./DA	ATE HI	PC0279	Diedrich I		1/10/2 [,]	.018
DRILLER	Kiker, Z			S	TART DA	TE 05/31/	19	COMP. D	ATE 05	/31/19		SU	RFACE WATER DE	EPTH N	N/A	DRII	LER	Kiker, Z			S	TART DA	\TE 05/:	30/19	1
		BLC	ow co	JNT		BLOWS	PER FOC	т	SAMP	. 🔨 /		T		רא חבי	SCRIPTION	ELEV		DEPTH	H BLO	ow co	UNT		BLO	WS PE	ER FC
(ft) (ft)	v (ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	мо	I G	ELEV	. (ft)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50)
780						Mat	ch Line				VILA					855		1							
	4 70 5					·						777.9			78.0			t							
	+ <u>/0.5</u>	9	10	17		• 27				М			RE ORANGE TO E	SIDUAL	- SILTY SAND		850.7	10					<u></u>		<u> </u>
775	+					·		·				774.4		(A-2-4)	81.5	850		+	5	3	3	•6			
772.	4 83.5	60/0.0						60/0 0			X	772.4	BLAC	K, DIABA	ASE 83.5		848.2	3.5	3	3	4	↓ •7		· ·	÷
	Ŧ	00/0.0										Ŀ	Boring Terminat PENETRATION	ted WITH N TEST	H STANDARD REFUSAL at	845	845.7	6.0	4	6	6	Ň,	. 	•••	• •
	ł											-	Elevation 772.4	4 ft IN C	R: DIABASE		843.2	8.5				•12	· · · ·	•••	•••
	ł											-	NOTE: BORING O TO A DEPTH OF	ORIGINA = 50.0 F	ALLY DRILLED T ON 5/31/19.			ł	2	1	2	• 3		•••	•••
	Ŧ											F	OFFSET BORIN -Y15FLYBD- S	NG PER STA_44+	FORMED AT +56, 32' LT	840		Ŧ						+	
	Ŧ											F	PROBED TO 50' TE	AND RE	ESUMED SPT		838.2	13.5	3	4	6	• • 10			•
	Ŧ											F				835		Ŧ							•
	Ŧ											-					833.2	18.5	-		_				•••
	Ŧ											F						Ŧ	2	4	5	• 9			• •
	Ŧ											F				830		Ŧ							
	Ŧ											F					828.2	23.5	3	5	7				• •
	Ŧ											F				825		Ŧ							• •
	Ŧ											F					823.2	28.5							
	Ŧ											F						Ŧ	26	47	52				• •
	Ŧ											F				820		Ŧ						+	
	Ŧ											F					818.2	33.5	35	31	18				<i>1</i> 0
	Ŧ											F				815		Ŧ							
	Ŧ											F					813.2	38.5							• •
	Ŧ											F						Ŧ	16	79	21/0.2			· · · ·	
	Ŧ											F				810		Ŧ							
	Ŧ											F					808.2	43.5	8	14	18		a 32		• •
2	Ŧ											F				805		Ŧ						•••	
	Ŧ											-					803.2	48.5							
	Ŧ											F						Ŧ	26	29	49				• •
	Ŧ											F				800		Ŧ							
	Ŧ											F					798.2	53.5	38	62/0.4	•				• •
5	Ŧ											F				795		Ŧ							• •
	Ŧ											F					793.2	58.5							•••
	Ŧ											F						Ŧ	25	53	47/0.4				• •
	Ŧ											F				790		Ŧ							<u> </u>
	Ŧ											F					788.2	63.5	100/0.	.2					• •
	Ŧ											F				785		Ŧ							• •
	Ŧ											F					783.2	68.5							• •
	Ŧ											F					781.7	70.0	100/0	.2					•••
	Ŧ											F				780	-	Ŧ	00/0.0	Ĩ			· · · ·		<u> </u>
	Ŧ											F					777.5	74.2	0.5					::	
	‡											F				775		‡	25	29	29			::	• 58



WBS 34839.1.8	TIP U-2579AB COU	NTY FORSYTH	GEOLOGIST Goodnight, D.		WB	S 34839.1.8	TIP	U-2579AB		TY FORSYT		GEOLOGIST Goodnight, D	•	
SITE DESCRIPTION BRIDGE N	0. 726 ON -Y15FLYBD- OVER -	-Y15REV-, -Y15FLYCA-, -Y1	5FLYAC-, -L-, AND -Y15RPDREV-	GROUND WTR (ft)	SITI	E DESCRIPTION	BRIDGE NO. 726	ON -Y15FLYB	D- OVER -Y	15REV-, -Y15	FLYCA-, -Y15FL	YAC-, -L-, AND -Y15RPDREV-	GROUND W	/TR (ft)
BORING NO. B3-B	STATION 44+45	OFFSET 17 ft RT	ALIGNMENT -Y15FLYBD-	0 HR. N/A	BOF	RING NO. B3-B	STA	ATION 44+45		OFFSET 1	7 ft RT	ALIGNMENT -Y15FLYBD-	0 HR.	N/A
COLLAR ELEV. 851.7 ft	TOTAL DEPTH 92.9 ft	NORTHING 847,589	EASTING 1,663,525	24 HR . 9.4	COL	LLAR ELEV. 85	1.7 ft TO	TAL DEPTH 92	2.9 ft	NORTHING	847,589	EASTING 1,663,525	24 HR.	9.4
DRILL RIG/HAMMER EFF./DATE HPC	C0279 Diedrich D50 84% 01/10/2018	DRILL METHO	D H.S. Augers HAMM	IER TYPE Automatic	DRIL	L RIG/HAMMER EF	F./DATE HPC0279 D	Diedrich D50 84% ()1/10/2018		DRILL METHOD	H.S. Augers HA	MMER TYPE Auto	omatic
DRILLER Kiker, Z.	START DATE 05/30/19	COMP. DATE 10/10/19	SURFACE WATER DEPTH	I/A	DRI	LLER Kiker, Z.	STA	ART DATE 10/	10/19	COMP. DA	FE 10/10/19	SURFACE WATER DEPTH	N/A	
ELEV DRIVE DEPTH BLOW COU	NT BLOWS PER FC	DOT SAMP			COF	RE SIZE NQ	тот	TAL RUN 3.2 f	t			·		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.5ft 0 25 50	75 100 NO. MO	I G ELEV. (ft)	DEPTH (ft)	ELEV (ft)	/ RUN ELEV (ft) DEPTH	RUN DRILL F RATE REC. (ft) (Min/ff) (ft)	RUN RQD (ft) NO	STRATA REC. RQD (ft) (ft)),	DESCRIPTION AND REMARKS		
775	Match Line				780.7	7	(((((((((((((((((((((((((((((((((((((((%	% %)	Begin Coring @ 71.0 ft	Di	ΈΡΤΗ (π)
773.8 77.9 75 25/0.1		100/0.6	(NO RECOVE	RY)	700		3.2 1.15/1.0 (0.0) 0.28/1.0 0%) (0.0) 0%	(0.0) 0% 0%			CRYSTALLINE ROCK ND GRAY, GRANITIC ROCK (NO RE	COVERY)	71.0 / <u>72.0</u> /
			TAN AND GRAY, SILTY	SAND (A-2-4)		///.5 + /4.2	0:26/1.0			- 111.1		WEATHERED ROCK ND GRAY, GRANITIC ROCK (NO RE	COVERY)	/4.0
768.8 + 82.9		···	GRAY WHITE AND TA	N, GRANITIC	775	⊣ ∔	N=58			775.2		RESIDUAL FAN AND GRAY, SILTY SAND (A-2-	1)	7 <u>6.5</u>
100/0.2		100/0.2					N=100/0.6				CP		У УСК	,
765 _		· · · · · · · · · · · · · · · · · · ·			770						ON			
763.8 - 87.9 63 37/0.2		100/0 7					N=100/0 2							
							100/0.2							
758.8 + 92.9			758.8	92.9	765									
		60/0.0	Boring Terminated WITH PENETRATION TEST	I STANDARD REFUSAL at		I I	N=100/0.7							
			Elevation 758.8 ft ON C	R: GRANITIC	760	\pm								
			NOTE: BORING ORIGINA			<u>∓</u>	N=60/0 0			758.8	Boring Terminate	d WITH STANDARD PENETRATION	TEST REFUSAL	92.9
			TO A DEPTH OF 59.9 F	T ON 5/30/19. FORMED AT							at Ele	evation 758.8 ft ON CR: GRANITIC F	OCK	
			Y15FLYBD- STA 44-	-59, 15' RT.							NC	OTE: BORING ORIGINALLY DRILLE	D	
			TESTING.									OFFSET BORING PERFORMED AT		
											Р	ROBED TO 60' AND RESUMED SP	Г	
												TESTING.		
+					5/19									
					11									
					1.GD									
					8									
					N N									
					SS.GF									
					UN NO									
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					579AE									
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의 (+))					∠∟	+		1	1 1	1 F				

WBS	34839	39.1.8 TIP U-2579AB						COUNT	Y FORSY	TH	GI	EOLOGIST Goodnight, D		WB	S 34839.1.8	3		TIF	P U-2579	AB (COUNTY	FORSY	тн		GEC	LOGIST Goodnight,	D.	
SITE	DESCR		BRID	GE N	0.72	6 ON -Y	15FLYBD- (OVER -Y1	5REV-, -Y	15FLYCA-, -Y1	5FLYAC-,	-L-, AND -Y15RPDREV-	GROUND WTR (ft) SITI	E DESCRIPT	ION B	RIDGE	NO. 72	6 ON -Y15	5FLYBD- OV	/ER -Y15	REV-, -Y1	5FLYCA-, -	Y15F	LYAC-, -L	-, AND -Y15RPDREV	GROUN	D WTR (ft)
BOR	NG NO	B4-A			ST	ATION	46+15		OFFSET	4 ft RT	AL	LIGNMENT -Y15FLYBD-	0 HR. 10.0	BO	RING NO. B	4 - B		ST	TATION 4	5+90	(OFFSET	17 ft RT		ALIC	GNMENT -Y15FLYBD	- 0 HR.	13.2
COL	AR EL	EV. 855.	1 ft		то	TAL DE	EPTH 63.2	ft	NORTHIN	IG 847,452	EA	ASTING 1,663,627	24 HR. 9.3	COL	LAR ELEV.	858.7	ft	то	OTAL DEP	TH 98.6 ft	1	NORTHIN	G 847,465		EAS	TING 1,663,603	24 HR.	13.0
DRILL	RIG/HAI	IMER EFF.	/DATE	E HPC	0279	Diedrich [⊃50 84% 01/10	0/2018		DRILL METHO	D H.S. Au	igers HAM	MER TYPE Automatic	DRIL	L RIG/HAMME	R EFF./D	DATE HP	PC0279	Diedrich D5	0 84% 01/10/2	018		DRILL MET	HOD	H.S. Auge	rs H.	AMMER TYPE	Automatic
DRIL	ER K	ker, Z.			ST	ART DA	ATE 05/29/ ⁻	19	COMP. D	ATE 05/29/19	รเ	JRFACE WATER DEPTH	N/A	DRI	LLER Kiker	, Z.		ST	ART DAT	E 05/29/19		COMP. DA	ATE 10/10/	19	SUR	FACE WATER DEPT	H N/A	
ELEV	DRIVE	DEPTH	BLOW	/ COUI	NT		BLOWS	PER FOOT	Г	SAMP.			ESCRIPTION	ELE\		этн В	LOW COU	UNT		BLOWS PE	ER FOOT		SAMP.		-		DESCRIPTION	I
(ft)	(ft)	(ft) 0.	.5ft C	0.5ft	0.5ft	0	25	50	75 100	NO. MC	G ELE	:V. (ft)	DEPTH (f	t) (ft)	(ft) (f	t) 0.5	oft 0.5ft	0.5ft	0	25 50) 7	5 100	NO. NO.		3			
860		-												860	<u> </u>												IDEAOE	
	-	-													857.7 - 1	.0			· · · ·						_ 858.7	GROUND S RESID	JRFACE	0.0
955	-	-									855	1 GROUND SU	RFACE 0	0 955	•== · · ·	5 4	4	6	• 10		· · · · ·	· · · · ·	л	N	-	TAN AND GRAY, SII TRACE	.TY SAND (A-2 MICA	2-4)
000	854.1	1.0	2	2	2	 					- N N			000	3	5	4	4	. • 8				1 I I	Ν	- 853 2			5.5
	852.1	3.0	2	1	2	●4 ¦	· · · · · ·			M	N V -	MICA	SILT (A-5) LITTLE		852.7 - 6	.0 3	3	4	7		· · · ·	· · · ·		N N	<u>, , , , , , , , , , , , , , , , , , , </u>	TAN, SANDY CLAYEN	SILT (A-5) TR	ACE
850	-	-	2		2	• 3	· · · · ·	· · · ·	· · · ·		850		5.	0 850	850.2 8	.5	1	3	<i>, , , , , , , , , ,</i>	· · · ·	• • • •	· · · ·		. л 	850.7	TAN AND WHITE, SI	TY SAND (A-2	<u>8.0</u> 2-4)
	849.1	<u> </u>	3	2	3		· · · · · ·			м	•••••	TAN AND WHITE, SILI	11 SAND (A-2-4)					Ŭ	● 4 ¦		· · · ·	· · · ·		VI		TRACE	MICA	
0.45	847.1	- 8.0	4	4	4	` • 8	· · · · ·							045							· · · · ·	· · · · · · · ·				TAN, SANDY CLAYEY	SILT (A-5) TR	ACE <u>12.0</u>
845		-				1					- 040	4	10	845	845.213	1	2	1	• 3				v	V .	·v	MIC	A Č	
	842.1	13.0	2	2	2		· · · · · · · · · · · · · · · · · · ·				<u> </u>	TAN, SANDY CLAYEY	SILT (A-5) LITTLE								· · · · ·	· · · ·		.N.	・ビー ヽヹー841.7			17.0
840	-	-	2	2	2	•4	· · · · ·			W		MICA		840	840.2 18	3.5	2	2						.,		BLACK TAN AND WH (A-2-4) LITT	IITE, SILTY SA LE MICA	ND
	-	-					· · · · · ·				838		<u>17.</u>	0		'	2	2	•4		· · · ·	· · · ·		V		. ,		
0.05	837.1	18.0	2	3	4	67	· · · · · ·			w		SAND (A-2-4) LIT	TLE MICA	0.05							· · · · ·	· · · · · · · ·						
835	-	-									_			835	ZZZ	3	5	4	•9				l v	V				
	832.1	23.0	6	6	4		· · · · · ·														· · · ·	· · · ·						
830	-	-	0	0	4	•10	· · · · ·		· · · ·					830	830.2 28	3.5	5	6			• • • •							
	-	-					· · · · · · · · · · · · · · · · · · ·										5	0	•11 ¦		· · · · ·	· · · ·		V				
005	827.1	28.0	6	9	10	\ \	● 19			w											· · · · ·	· · · ·						
025	-	-									_			025	33	3	5	7	€12				l v	V				
	822.1	33.0	9	10	11	· · · ·					· · · · · · · · ·										· · · · ·	· · · · · · · ·						
820	-	-	0	10			• <u></u> 21			W				820	820.2 38	1.5		15	\`\									
	-	-				· · · ·												10		24	· · · · ·	· · · · · · · ·		VI				
015	817.1	38.0	12	14	14		•28			М				015						└				Ţ	<u>816.7</u>	WEATHERE	D ROCK	42.0
015	_	-					·		<u> </u>		···-			015	43 43	52	2 48/0.2					100/0.7	•		-	TAN AND WHITE, C	RANITIC ROC	к
	812.1	43.0	15	14	14		· · · · · ·														· · · ·	· · · ·			811.7			47.0
<u>6</u> 810	-	-	10	14	14		• 28	· · · ·	· · · ·	_ M	····-			810	810.2 48	3.5	1 23	48	· · · ·	· · · ·	· · · ·	· · · ·				RESID TAN WHITE AND G	JAL RAY, F. TO CS	E.
11/	-	48.0															0				• • • • • • • • • • • • • • • • • • •	1		VI	-	SILTY SAN	D (A-2-4)	
09.805	<u>-007.1</u>	40.0	15	26	27			•		М				805	805 2 52	5					· · · · ·							
	-	-						L			804.		51.			42	2 40	42				€82	1 r	И	···-			
N	802.1	53.0	2/0.3				· · · · · · · · · · · · · · · · · · ·		100/0 3			TAN WHITE GRAY	AND BROWN,		‡						· · · · ·	: <u>L::-</u>		<i>.</i>	<u>802.7</u>	WEATHERE	D ROCK	56.0
800 N	-	-	5,0.0			· · ·	· · · · ·	· · · ·	100/0.0			GRANITIC P	OCK	800	800.2 58	3.5 100/	0.4			· · · ·	· · · ·	100/0 4				TAN WHITE AND G ROC	RAY, GRANITI K	С
RING	707 1	59.0					· · · · · · · · · · · · · · · · · · ·								‡						· · · · ·	100/0.4						
	<u>- 197.1</u> -	- 58.0	58 42	2/0.2			· · · · · ·		100/0.7	•				795	795 2 63	5					· · · · · · · ·	· · · · ·						
GEO	-	-												100		100/	0.3					100/0.3	•		-			
79AB	792.1	63.0)/0 2			<u> </u>	· · · · · ·	· · · · ·	100/0 3	┥	791.	9 Boring Torminated at El-	63.	2	‡						· · · · · · · ·	· · · · ·						
U25	-	-										WR: GRANITIC	C ROCK	790	790.2 68	8.5 8 ⁹	5 15/0.2		· · · ·	· · · ·								
JBLE	-	-													‡						· · · · · · · ·	100/0.7	TI I		j			
	-	-												785	785 2 + 72	15					· · · · · · · ·	· · · · ·			786.7			72.0
BORE	-	-														60/0	0.0			<u> </u>	· · · · ·	60/0.0	T		-			
DOT	-	-													‡						· · · · · · · ·	· · · · ·			-			
NC	-	-												780	780.2 78	8.5			<u> · · · ·</u>			60/0-0						

WBS 34839.1.8 TIP U-2579AB COU								OUNT	Y FORSY	тн				GEOLOGIST Goodnight, D.			WE	S 3483	39.1.8		Т	TIP U-2579AB COUR								
SI	SITE DESCRIPTION BRIDGE NO. 726 ON -Y15FLYBD- OVER									- OVE	ER -Y1	'15REV-, -Y15FLYCA-, -Y15FLYA					AC-, -L-, AND -Y15RPDREV- GROUND WTR (ft)) SIT	E DESC	RIPTIO	N BR	NO. 72) 726 ON -Y15FLYBD- OVER -					
во	BORING NO. B4-B STATION 45+90									OFFSET 17 ft RT					ALIGNMENT -Y15FLYBD-	5FLYBD- 0 HR. 13.2				O. B5-/	4	S	STATION 47+64							
CC)LL	AR EL	EV. 8	58.7 ft		т	OTAL	DEPT	H 98.6	6 ft		NORTHIN	G 847,	465			EASTING 1,663,603	,663,603 24 HR. 13.0					77.2 ft	Т	TOTAL DEPTH 63.5 ft					
DR	ILL I	RIG/HAI	MMER E	FF./DA	TE H	PC0279	Diedric	ch D50	84% 01/	/10/201	18	DRILL METHOD H.S					Augers HAMN	DRI	LL RIG/H/	AMMER E	EFF./DA	PC0279	0279 Diedrich D50 84% 01/10/2018							
DF	RILL	ER K	iker, Z			S	TART	DATE	05/29	9/19		COMP DATE 10/10/19					SURFACE WATER DEPTH N/A				LLER	Kiker, Z	•	S	START DATE 05/28/19					
ELE	EV I		DEPTH	H BLC	ow co	UNT			BLOW	S PEF	R FOOT	SAMP.								ELE		DEPTH	H BLO	ow co	UNT		BLOWS	PER FO		
(ft)	clev (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	5	50		75 100 NO. MOI G E			DI G		ELEV. (ft) DEPTH (ft)				(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50		
78	0								Ma	atch L	.ine									880										
		-	ł	60/0.0)			• •		· ·					N.		GRANITE RO	ROCH DCK	ĸ			ł								
			+					· · · ·	· · ·	: :						-					876.2	1.0	4	F	7					
	5	775.2	83.5	60/0.0	D							60/0:0	•			-	SOFT LAYER FROM	1 77' T	FO 78'	875	873 7	+ 35	4	5	1	•12	<u> </u>			
		-	ł					· · · ·	· · ·	: :						-						+	7	8	9)		· · · · ·		
77	0	770.2	88.5	60/0.0			· ·			· ·						-	SOFT LAYER FROM	I 82' T	TO 83'	870	<u>8/1.2</u>	6.0	5	4	4		· · ·			
		-	ł	60/0.0	,			· · · ·	· · ·	: :		00/0.0				-					868.7	8.5	4	4	6			· · · · ·		
			-					· · · ·	· · ·	: :					2	-	SOFT LAYER FROM 8	87' TC	O 87.3'			ŧ						· · · · ·		
76	5	765.2	93.5	60/0.0	D							60/0.0	•			-			0.02.5	865	863.7	+ 13.5					+	<u> </u>		
		-	ł					• •	· · ·	· · ·						-	SOFT LAYER FROM (continued)	89 TC 1)	0 92.5			+	4	4	5	9		 		
		760.2	98.5	60/0.1			· ·					60/0 1			1.	-	760.1		98.	860		1					· · ·	· · · ·		
		-	ł	00/0.	5							00/0.1				E	Boring Terminated at Eleve CR: GRANITIC F	ation/ ROCK	760.1 ft IN <		858.7	18.5	6	6	6	12		· · · · ·		
		-	╞													E	NOTE: BORING ORIGINA	ALLY	DRILLED			‡						· · · · ·		
		-	+													F	TO A DEPTH OF 63.8 F	T ON	5/19/19.	650	853.7	- 23.5					· · · ·			
		-	+													F						+	4	4	5	9		· · · · ·		
		-	+													L				850		‡					<u> </u>	· · · · ·		
		-	+													F					848.7	- 28.5	4	4	6	●10		· · · · ·		
		-	+													F				84		‡						· · · · ·		
		-	+													F				040	843.7	33.5					· · · ·	· · · · ·		
		-	+ +													F						‡	4	4	6	● 10		· · · · ·		
		-	+													F				840		‡					+ • • •	· · · ·		
		-	+ +													F					838.7	- 38.5	3	3	6	●9		· · · · ·		
		-	+													F				835		‡						· · · · ·		
			+													-					833.7	43.5		1	6		<u></u>			
		-	t t													F						Ŧ	2	4	0	•10		· · · · ·		
/5/19		_	ŧ.													F				830		+				\\	+			
11		-	Ŧ													F					828.7	+ 48.5	6	9	10	` ` ∳1	9			
1.60		-	F													F				825		Ŧ								
		-	F													F					823.7	53.5	16	29	71/0 4					
ž 7		-	F													F						Ŧ	10	20	1.170.1					
SS.GI		-	F													-				820	9197	- - - - - - - - - - - - - - 					+			
NINO		-	F													F					010.7	+ 50.5	60/0.	1						
		-	F													F				815	;	Ŧ								
		-	F													F						-					<u> </u>	<u> </u>		
579AE		-	F													F						Ŧ								
In 125		_	F													E						Ŧ								
OUBLE		-	Ē	1												E						Ŧ								
		-	Ł													E						Ŧ	1	1						
BOR		-	ł													Ē						Ŧ	1	1						
DDD		-	ł													E						Ŧ	1	1						
žL		-																					1	1						



WE	S 348	39.1.8			Т	IP U-2579AB	COUNT	Y FORSY	ТН			GEO	LOGIST Goodnight, D.	WBS	3483	9.1.8		TIF	TIP U-2579AB COUN						
SIT	E DES	CRIPTIO	N BR	IDGE I	NO. 72	26 ON -Y15FLYBD- (OVER -Y1	5REV-, -Y1	5FLYCA	∖-, - Y1	5FLነ	′AC-, -L-	, AND -Y15RPDREV-	GROUND WTR (ft)	SITE	DESC	riptio	N BR	10.72	. 726 ON -Y15FLYBD- OVER -Y					
BO	RING N	ю. в5-е	3		S	TATION 47+64		OFFSET 17 ft RT					NMENT -Y15FLYBD-	0 HR. 17.0	BOR	ING NC) . B5-E	3	ST	STATION 47+64					
СО	LLAR I	LEV. 8	76.0 ft		Т	OTAL DEPTH 103.7	ft	NORTHING 847,327					TING 1,663,711	24 HR.27.0' Caved	COL	LAR EL	EV. 87	76.0 ft	то	TOTAL DEPTH 103.7 ft					
DR	LL RIG/H	AMMER E	FF./DA	TE HF	PC0279	Diedrich D50 84% 01/10	/2018		DRILL METHOD H.S				Augers HAMMER TYPE Automatic			DRILL RIG/HAMMER EFF /DATE HPC0279 Diedrich D50 84% 01/10/20									
DR	ILLER	Kiker, Z			S	TART DATE 05/28/1	19	COMP. DA	ATE 10,	/11/19		SUR	FACE WATER DEPTH N	/A	DRIL	LER K	(iker, Z		ST	START DATE 05/28/19					
ELE			BLC	ow col	JNT	BLOWS	PER FOOT	Г	SAMP	. 🔨	L		SOIL AND BOCK DES		ELEV	DRIVE	DEPTH	BLC	JNT	T BLOWS PER FC					
(ft)	(ft)	′ (ft)	0.5ft	0.5ft	0.5ft	0 25	50	75 100	NO.	мо	G	ELEV. (f	t)	DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	5	50		
880)	_										_			800							Mat	tch Line		
		‡										-				797 5	+ 78.5						· · · · ·		
0.7/		. <u>+</u>					1					876.0	GROUND SURF	ACE 0.0	705		‡	23	77/0.3				· · · · ·		
8/3	<u> </u>) <u> </u>	4	6	6	• • 12 • • • •	<u> </u>			м		- 873.5	TAN-BROWN, SANDY SIL	TY CLAY (A-7) 2.5	795	-	ŧ								
	872.	5 - 3.5	4	5	5					м	N		TAN, SANDY CLAYEY SIL	A		792.5	83.5	87	13/0.0						
870) 870.	0 6.0					· · · ·			101	л <u>Л</u>	870.5		(A-2-4) TRACE	790	-	+				· · · ·	· · · ·			
	867	5 - 85	3	4	4	• • • • • • • • • • • • • • • • • • •				М		_	TO LITTLE MI	(A-2-4) 11(ACE CA		787 5	- 88 5								
		<u> </u>	4	4	4	•8				м		-					T 00.0	100/0.:	2						
865	<u>></u>	+					<u> </u>					_			/85	-	ŧ								
	862.	5 + 13.5	4	5	5							-				782.5	93.5	100/0	2		· · · ·				
860)	1		Ŭ		•10	· · · ·					-			780	_	+]		· · · ·	· · · · ·			
	957	- 10 5					· · · ·				_	-				777 5					· · · ·				
			5	6	7	13	· · · ·			М		-					- 30.5	100/0.:	2		· · · ·				
855	5	\pm					· · · · ·					854.0		22.0	775		ŧ				<u> </u>	<u> </u>	· · · · ·		
	852.	5 - 23.5	3	4	4	:/:: ::::					N N V	-	TAN, SANDY CLAYEY SIL MICA	.T (A-5) LITTLE		772.5	103.5	100/0				<u> </u>	· · · ·		
850)	1	Ũ			●8 ↓				IVI	N V	-				_	+	100/0.	5						
	047										<u> </u>	849.0	TAN, SILTY SAND (A-2-4)) LITTLE MICA			ŧ								
	047.	, <u>20.5</u>	2	3	6	9	· · · ·			М		_					ŧ								
845	5	\pm										844.0		32.0		-	÷								
	842.	5 - 33.5	5	6	10	$\left \left \begin{array}{c} \cdot \cdot i \\ \cdot i \\ \cdot \cdot i \\$	· · · ·				N N V	_	TAN, SANDY CLAYEY SIL MICA	.T (A-5) LITTLE			ł								
840)	1	Ū	0	10	•16	· · · ·			vv	N N V	-				_	<u>+</u>								
	0.27						· · · ·					839.0	TAN AND WHITE, SILTY	SAND (A-2-4) 37.0			ł								
	0.0.7.	1 30.5	6	10	12	● 22	· · · ·			М		_	LITTLE MICA	A			ł								
835	5	\pm										_				-	Ŧ								
	832.	5 43.5	11	17	24							_					ŧ								
<u></u> 830)	<u>+</u>			27	•41				M		-				_	<u>+</u>								
11/5	0.07	- 40 5						-+			<i>977</i>	829.0	WEATHERED R	<u>оск</u> 47 <u>.0</u>			ł								
GDT	027.) 48.5 T	46	54/0.4			· · · ·	100/0.9			Ĩ	_	GRAY AND TAN, GRAM	NITIC ROCK			ł								
825 8	5	\pm									Ì	824.0		52.0		-	Ŧ								
2 S	822.	5 - 53.5	22	22	53							_	RESIDUAL TAN, SILTY SAND (A-2-4)) LITTLE MICA			ŧ								
<u>යි</u> 820)	<u>+</u>	22	22	55		· · · ·	•75		M		_				_	<u>+</u>								
NGS	0.17	- T										_					Ŧ								
BOR	817.	<u>7 58.5</u>	16	25	35		6 0			м		-					Ŧ								
이 815 명	5	Ŧ					{				977	815.0	WEATHERED R	<u>оск</u> 61.0		-	Ŧ								
BAB (812.	5 - 63.5	72	28/0.1									GRAY AND TAN, GRAM	NITIC ROCK			Ŧ								
52 292 810)	Ŧ	12	20/0.1				100/0.6		1	The	L					Ŧ								
]	Ŧ								1	H					-	Ŧ								
DOUE	807.	$\frac{5 + 68.5}{1}$	100/0.4	4				100/0.4	•		M	[BLACK AND WHITE STAI	RTING AT 78.5			I								
1 805 805	5	Ŧ					<u> </u>				M	<u> </u>				-	Ŧ								
DT B(802.	5 73.5	70	22/0 0							M	[I								
ă 800		<u> </u>	78	22/0.2				100/0 7			M		WHITE AND BROWN STA	RTING AT 88.5			Ŧ								

NTY FORSYT	H	<u> </u>		GEOLOGIST Goodnight, D.										
Y15REV-, -Y15	FLYCA	-, -Y15	5FLYA	AC-, -L-, AND -Y15RPDRE	GROUND WTR (ft)									
OFFSET 1	7 ft RT			ALIGNMENT -Y15FLYE	3D-	0 HR. 17.0								
NORTHING	847,3	27		EASTING 1,663,711	24 HR.27.0' Caved									
		IETHO	D H.S	Augers HAMMER TYPE Automatic										
COMP. DA	TE 10/	11/19		SURFACE WATER DEP	TH N/	A								
OT 75 100	SAMP. NO	моі	L O G	SOIL AND ROCK DESCRIPTION										
				WEATHE GRAY AND TAN	RED RC , GRAN	DCK ITIC ROCK								
100/0:5 100/0:2 100/0:2				BLACK AND WHITE STARTING AT 78.5 WHITE AND BROWN STARTING AT 88.5 <i>(continued)</i>										
				772.3 Boring Terminated a WR: GRAN NOTE: BORING OF TO A DEPTH OF	at Elevat	103.7 tion 772.3 ft IN OCK LLY DRILLED 'ON 5/28/29								

WB	3 4839	9.1.8			Т	IP U-2579AB COUN	TY FORSY	ΤΗ			GEOLO	DGIST Goodnight, D	WBS 34839.1.8 TIP U-2579AB (
SITE	E DESCR	RIPTIO	N BR	IDGE I	NO. 72	26 ON -Y15FLYBD- OVER -Y	15REV-, -Y1	5FLYCA	∿-, -Y1	5FLY	′AC-, -L-, /	AND -Y15RPDREV-	GROUND WTR (ft)	SITE DESCRIPTION BRIDGE NO					10.726). 726 ON -Y15FLYBD- OVER -Y					
BOF	RING NO). B6-A	۱.		S	TATION 49+71	OFFSET 25 ft LT				ALIGN	MENT -Y15FLYBD-	0 HR . 30.0	BOR	ING NO.	B6-B		ST.	STATION 49+75						
COL	LAR EL	EV. 89	90.4 ft		Т	OTAL DEPTH 69.8 ft	NORTHING 847,210				EASTI	EASTING 1,663,886 24 HR . 27.0			COLLAR ELEV. 889.8 ft TOTAL DEPTH 73.8 ft										
DRIL	L RIG/HA	MMER E	FF./DA	TE HF	PC0279	Diedrich D50 84% 01/10/2018		DRILL METHOD H.S				S. Augers HAMMER TYPE Automatic			DRILL RIG/HAMMER EFF./DATE HPC0279 Diedrich D50 84% 01/10/2018										
DRI	LER K	liker, Z.			S	TART DATE 05/30/19	COMP. DA	COMP. DATE 05/30/19				CE WATER DEPTH	N/A	DRII	LER Kil	ker, Z.		ST	START DATE 05/24/19						
ELEV	DRIVE	DEPTH	BLC		JNT	BLOWS PER FOC	т	SAMP.				SOIL AND ROCK D	ESCRIPTION	ELEV		DEPTH	BLO	w cou	INT	ER FOC					
(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	/мо	G	ELEV. (ft)		DEPTH (ft	(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0 25	50)			
895		+									_			890											
		ŧ									-				888.8 +	1.0	3	6	18	•24	t	· · · · · ·			
890		+									- 890.4	GROUND SU	RFACE 0.0	885	886.3	3.5	11	5	8			· · · · · ·			
000	889.4	- 1.0 -	5	10	15				м	\overline{II}	-	RESIDU/ RED-TAN, SANDY SI	AL LTY CLAY (A-7)		883.8	6.0	0	0	7	•13.		· · ·			
	886.9	3.5	6	6	6		· · · · · ·				887.4	RED-TAN, SILTY SAN	D (A-2-4) LITTLE	-	881.3	85	9	0	1	•13		· · · · · ·			
885	884.4	6.0	0	0	0	• • • • • • • • • • • • • • • • • • •	· · · · ·		м		884.9			880			4	4	9		· · · · ·	· · ·			
	001.0	-	6	6	7	•13	· · · · · ·		М	ト イ イ イ	-	MICA	SILT (A-5) LITTLE		‡					<i>i</i> .		· · · · · ·			
880	881.9	- 8.5	4	5	7	• • 12 • • • • • • • • • •	· · · · · ·		м	トレ	-			875	876.3	13.5	4	4	4			· · · · · ·			
000	-	ŧ								N V	878.4		12.0												
	876.9	13.5	3	1	5		· · · · · · ·					TAN AND WHITE, SIL	TY SAND (A-2-4) ICA		8713	18.5						· · · · · ·			
875		+	5	4	5	• • 9 · · · · · · · · · · · ·	· · · · · ·		м		-			870			3	5	4	9	· · · · ·	· · ·			
	074.0	+					· · · · · · · · · · · · · · · · · · ·				-				‡							••••			
870	8/1.9.	- 18.5	4	4	4		· · · · · · ·		м		-			865	866.3	23.5	3	5	4			· · · · · ·			
070	1 -	+									-				+		-					· · · ·			
	866.9	23.5	1	5	4		· · · · · · ·				-				8613	28.5						· · · · · ·			
865		+	4	5	4	• • 9 · · · · · · · · · · · · · · · · ·	· · · · · ·		M		-			860			3	4	5	9		· · ·			
		+					· · · · · · ·				-				‡							· · · · · ·			
860	861.9.	- 28.5	4	4	3	- · · · · · · · · · · · · · · · · · · ·	· · · · · · ·		м		-			855	856.3	33.5	4	7	8			· · · · · ·			
000	-	+					· · · · · ·				- 858.4		32.0		+					•15		· · ·			
	856.9	33.5	3	1	7		 			000 000 000	-	TAN AND WHITE, SIL SAND (A-	LTY F. TO CSE. 1-b)		8513	38.5						· · · · · ·			
855		+	3	4	'		· · · · ·	-	м	000 000 000	-			850			6	7	7	14		•••			
		+ 				$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$	· · · · · ·			000	853.4	TAN, SILTY F. TO CSI	E. SAND (A-2-4)	-	‡							· · · · · ·			
850	851.9	- 38.5	5	6	12		· · · · · · ·		м		-	LITTLE M	ICA Ó	845	846.3	43.5	8	7	9			· · · · · ·			
000	1 -	+									- 848.4		42.0	043	+		-			•16 \					
	846.9	43.5	0	12	12	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot $	· · · · · · ·			000 000 000		TAN, SILTY F. TO CSI LITTLE M	E. SAND (A-1-b) ICA		8413	48 5						· · · · · ·			
<u>10</u> 845		+	9	13	13	•26	· · · · ·		w	000 000 000	-			840			7	10	12			· · ·			
T 11/		+ 40 -					· · · · · ·			000	843.4	TAN GRAY AND WH	TE, SILTY F. TO	-	‡					<u>\</u>	×	· · · · · ·			
	. 841.9	48.5	10	10	19	↓ · · · · ↓ · · · · · · · · · · · · · ·	· · · · · ·		w		-	CSE. SAND (A-2-4)	LITTLE MICA	835	836.3	53.5	14	17	26			· · ·			
	-	ŧ					· · · · · ·				-										- #3				
z	836.9	53.5	22	35	51						-				831 3	58 5						~```			
ບ <u>835</u>		ŧ	~~~	00	01		`€86		IVI	977	835.4	WEATHERED	<u>55.0</u> О ROCK	830	+		29	43	36		· · · · ·	<u> </u>			
0 N N O	021.0									-	-	TAN WHITE AND GR ROCK	RAY, GRANITIC		‡										
		- 56.5	40	60/0.3			100/0.8				-			825	826.3	63.5	23	31	35						
	-	+									<u> </u>														
79AB	826.9	63.5	100/0 4				100/0 5				-				821.3	68.5						· · · · · ·			
<u>825</u>		ŧ	100/01	1			100/0.5				-			820	+	. 1	100/0.4					<u> </u>			
UBLE	821 0	- 60 -									-				‡							· · · ·			
		- 00.5	20	38	62/0.3		100/0 0			Gen	820.6		69.8		816.3	73.5	100/0.3				· · · ·	 			
BORI	-	Ŧ					100/0.0				-	Boring Terminated at Ele WR: GRANITIC	evation 820.6 ft IN C ROCK			ľ									
DOT		Ŧ									-				‡										
2		t									-				<u> </u>										



1	WBS	34839	9.1.8			ТІ	р U-2579AB СО	JNTY FORSYT	Ή			GEOLOGIST Goodnight, D.	WBS	34839	.1.8		TIP	TIP U-2579AB COUN						
:	SITE	DESCF	RIPTIO	N BR	DGE I	NO. 72	6 ON -Y15FLYBD- OVER	-Y15REV-, -Y15	FLYCA	, -Y1	5FLY	AC-, -L-, AND -Y15RPDREV-	GROUND WTR (ft)	SITE	DESCF		N BRI	10.726	726 ON -Y15FLYBD- OVER -Y					
	BOR	NG NO). EB2	A		ST	TATION 51+58	OFFSET 2	25 ft LT			ALIGNMENT -Y15FLYBD-	0 HR. N/A	BOR	ING NO	. EB2-	В	ST	STATION 51+58					
(COLL	AR EL	. EV. 8	92.6 ft		т	DTAL DEPTH 68.5 ft	NORTHING	3 847,0)97		EASTING 1,664,032	EASTING 1,664,032 24 HR . 24.4			EV . 89	0.7 ft	то	TAL DEPT	H 64.7 f	t			
ī	DRILL	RIG/HAI	MMER E	FF./DA	TE HF	C0279	Diedrich D50 84% 01/10/2018		DRILL M	NETHO	DН	S. Augers HAMMER TYPE Automatic			. RIG/HAI	MMER EF	FF./DA	C0279 I	J279 Diedrich D50 84% 01/10/2018					
h	DRIL	LER K	liker, Z			ST	ART DATE 05/23/19	COMP. DA	TE 05/	23/19		SURFACE WATER DEPTH N	SURFACE WATER DEPTH N/A			iker, Z.		ST	START DATE 05/23/19					
F	IFV	DRIVE	DEPTH	BLC	ow co	JNT	BLOWS PER F	оот	SAMP.	▼/	L					DEPTH	BLO	NT		BLOWS F	PER FOC			
	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0 25 50	75 100	NO.	мо	O G	SOIL AND ROCK DESC ELEV. (ft)	CRIPTION DEPTH (ft)	(ft)	ELEV	(ft)	0.5ft	0.5ft	0.5ft	0 2	5 9	50		
11/5/19	ELEV (ft) 895 880 880 880 880 880 880 880 880 885 880 885 880 885 880 885 880 885 880 885 880 885 885	DRIVE ELEV (ft) 891.6 889.1 886.6 884.1 886.1 884.1 879.1 874.1 874.1 869.1 874.1 869.1 8869.1 8869.1 8869.1 8869.1 8869.1 8869.1 8869.1	DEPTH (ft) 1.0 3.5 6.0 8.5 13.5 18.5 23.5 28.5 28.5 33.5 38.5 38.5 43.5	BLC 0.5ft 5 4 5 4 4 3 6 6 3 3 4 3 14 5 5	W COU 0.5ft 8 5 6 4 4 6 2 5 7 11 7 12	JNT 0.5ft 8 6 7 5 4 6 4 6 4 7 5 10 10 11	BLOWS PER F 0 25 50 • 16 • 16 • 17 • 12 • 12	75 100 75 100 </th <th>SAMP. NO.</th> <th></th> <th></th> <th>SOIL AND ROCK DESC ELEV. (ft) 892.6 GROUND SURF/ RED AND TAN, SANDY SIL 889.6 TRACE MICA TAN, SILTY SAND (A-2-4) 6880.6 TAN, SANDY CLAYEY SIL MICA 880.6 MICA 880.6 TAN, SANDY CLAYEY SIL MICA 885.6 TAN, SANDY CLAYEY SIL MICA 850.6 TAN, SANDY CLAYEY SIL MICA</th> <th>CRIPTION DEPTH (ft) ACE 0.0 TY CLAY (A-7) LITTLE MICA 3.0 TT (A-5) LITTE 12.0 SAND (A-2-4) 27.0 SAND (A-2-4) 27.0 SAND (A-2-4) 42.0 SAND (A-2-4) 42.0</th> <th>ELEV (ft) 895 880 885 880 875 870 865 860 855 850 845</th> <th>DRIVE ELEV (ft) </th> <th>DEPTH (ft) - 1.0 - 3.5 - 6.0 - 8.5 - 13.5 - 13.5 - 13.5 - 13.5 - 13.5 - 23.5 - 23.5 </th> <th>BLO 0.5ft 6 4 3 3 3 2 2 2 7 7 13</th> <th>W COU 0.5ft 7 4 4 4 4 4 2 2 3 14 11</th> <th>NT 0.5ft 0.5ft 8 5 5 4 5 5 2 3 5 5 11 11 42</th> <th>0 22 • • • • • • • • • • • • • • • • • • •</th> <th>BLOWS F</th> <th>PER FOC 50 </th>	SAMP. NO.			SOIL AND ROCK DESC ELEV. (ft) 892.6 GROUND SURF/ RED AND TAN, SANDY SIL 889.6 TRACE MICA TAN, SILTY SAND (A-2-4) 6880.6 TAN, SANDY CLAYEY SIL MICA 880.6 MICA 880.6 TAN, SANDY CLAYEY SIL MICA 885.6 TAN, SANDY CLAYEY SIL MICA 850.6 TAN, SANDY CLAYEY SIL MICA	CRIPTION DEPTH (ft) ACE 0.0 TY CLAY (A-7) LITTLE MICA 3.0 TT (A-5) LITTE 12.0 SAND (A-2-4) 27.0 SAND (A-2-4) 27.0 SAND (A-2-4) 42.0 SAND (A-2-4) 42.0	ELEV (ft) 895 880 885 880 875 870 865 860 855 850 845	DRIVE ELEV (ft) 	DEPTH (ft) - 1.0 - 3.5 - 6.0 - 8.5 - 13.5 - 13.5 - 13.5 - 13.5 - 13.5 - 23.5 - 23.5 	BLO 0.5ft 6 4 3 3 3 2 2 2 7 7 13	W COU 0.5ft 7 4 4 4 4 4 2 2 3 14 11	NT 0.5ft 0.5ft 8 5 5 4 5 5 2 3 5 5 11 11 42	0 22 • • • • • • • • • • • • • • • • • • •	BLOWS F	PER FOC 50 		
5DT		-	Ŧ				••••••••••••••••••••••••••••••••••••••						50.0		842.2	48.5	79	21/0.1						
). TO	840	839.1	53.5						1		<u>M</u>	WEATHERED RC	DCK	840		-					· · · ·			
	İ	-059.1	- 55.5	40	60/0.3			100/0.8				- TAN AND GRAY, GRAN	ITIC ROCK		837.2	- 53.5								
L L L L	025	-	ŧ.									-		025			28	25	33	· · · · ·	· · · · ·	●58		
GS.G	035	834.1	58.5	100/0	Ā		· · · · · · · · · · · · · · · · · · ·	100/0 2			All	-		035		-						<u> ``</u> `		
ORIN		-	t	100/0.	4			100/0.2			- 	-			832.2	58.5	40	25	50					
	830	-	Ł				· · · · · · · · · · · · · · · · · · ·					830.6	<u>62.0</u>	830	-	-	40	35	50			· · ·		
B	-	829.1	63.5	27	22	35		7		м		- TAN AND WHITE, SILTY	SAND (A-2-4)		-	-								
79AE		-	Ŧ										67.0		827.2	63.5 64.7	27	73/0.3						
U25	825	824 1	68 5				·····		1		<u>M</u>	824.1 WEATHERED RC	DCK 68.5			-	60/0.0			·				
NCDOT BORE DOUBLE				60/0.0				6070.0				Boring Terminated WITH Boring Terminated WITH PENETRATION TEST R Elevation 824.1 ft ON CR ROCK	STANDARD STANDARD EFUSAL at : GRANITIC			- - - - - - - - -								








BENT 3 CROSS SECTION, LOOKING FROM LEFT TO RIGHT



BENT 4 CROSS SECTION, LOOKING FROM LEFT TO RIGHT



FALCON ENGINEERING, INC. 1210 TRINITY ROAD, SUITE 110 RALEIGH, NC 27607

SITE PHOTOGRAPHS

PHONE: 919.871.0800 FAX: 919.871.0803

BRIDGE NO. 726 ON -Y15FLYBD- (STA. 47+63.62) INTERCHANGE CONNECTING WINSTON-SALEM NORTHERN BELTWAY AND I-40 BYPASS FORSYTH COUNTY, NC WBS: 34839 | TIP NO.: U-2579AB



LABORATORY TEST RESULTS U-2579AB | Bridge No. 726 on Y15FLYBD Winston Salem, NC

Falcon Engineering Project No: G19025.00

	SAMPLE	DEPTH	AASHTO	ATTERBE	RG LIMITS		PERCENT	BY WEIGHT		PERCI	ENT PASSING	G SIEVE	MOISTURE	BULK DENSITY	ORGANICS
NO.	LOCATION	INTERVAL	CLASS.	LL	PI	C.SAND	F.SAND	SILT	CLAY	#10	#40	#200	(%)	(pcf)	(%)
SS-176	EB1-A	1.0-2.5	A-7-5(18)	60	25	18	17	17	48	100	89	68	27	N/A	N/A
SS-178	EB1-A	6.0-7.5	A-5(3)	52	7	20	38	22	20	100	94	49	29	N/A	N/A
SS-183	EB1-A	28.5-30.0	A-7-5(5)	50	13	32	22	19	27	99	74	50	46	N/A	N/A
SS-184	EB1-A	33.5-35.0	A-7-5(7)	54	18	32	21	22	25	100	76	52	46	N/A	N/A
SS-01	EB2-B	1.0-2.5	A-7-5(23)	69	30	13	21	16	50	100	94	70	32	N/A	N/A
SS-02	EB2-B	3.5-5.0	A-7-5(12)	66	14	14	27	17	42	100	94	64	33	N/A	N/A
SS-03	EB2-B	6.0-7.5	A-5(0)	51	6	30	39	5	26	100	88	37	24	N/A	N/A
SS-05	EB2-B	13.5-15.0	A-5(1)	44	6	24	38	25	13	99	88	47	32	N/A	N/A
SS-06	EB2-B	18.5-20.0	A-5(2)	42	6	22	31	28	19	99	89	54	31	N/A	N/A
SS-09	EB2-B	33.5-35.0	A-5(0)	45	7	29	39	19	13	100	88	39	44	N/A	N/A

Reviewed By

Patrick Clark

Certification: 105-01-0803

Falcon Engineering, Inc. 1210 Trinity Road, Suite 110, Cary, NC 27513

CONTENTS

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REFERENCE

SHEET NO. **DESCRIPTION** TITLE SHEET LEGEND (SOIL & ROCK) 2 3-4 SITE PLAN 5-6

PROFILES CROSS SECTIONS BORE LOGS, CORE LOGS, CORE PHOTOGRAPHS SITE PHOTOGRAPHS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON-SALEM BELTWAY FROM US 421/I-40 BUS TO I-40

SITE DESCRIPTION BRIDGE NO. 727 ON -Y15FLYCA- IN INTERCHANGE CONNECTING WINSTON-SALEM NORTHERN BELTWAY AND I-40 BYPASS BETWEEN SR 4315 AND SR 2679

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	28

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLT TEST DATA AVAILABLE MAY BE REVEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 707-6850. THE SUBSURFACE 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 CEOTECHNICAL 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 DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOLL MOISTURE CONDITIONS NOICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOL MOISTIGE 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 CALIFORED THAT DETAILS SHOWNED IN THE UBBURFACE 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 DOS NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPNION 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 IMMSELF 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 END OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE SUBSURFACE INFORMATION.

- 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 REGUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. 2.



A. SUTTLE

HPC

TOTAL DEPTH DRILLING

INVESTIGATED BY <u>ECS</u> SOUTHEAST, LLF

DRAWN BY K. DE MONTBRUN, P.E.

CHECKED BY <u>M. WALKO, P.E.</u>

SUBMITTED BY ______ ECS _SOUTHEAST, LLP

DATE _____ 2019



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	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT	UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	RUCK LINE INDICATES THE LEVEL AT WHICH NUN-CUASTAL PLAIN MATERIAL WULLD SPT REFUSAL.	ADUITER - A WATER REARING FORMATION OR STRATA
IS BASED ON THE AGANTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING:	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	BLOWS IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN	ADEMACEQUE - ADEMICE TO DECKO THAT HAVE BEEN BEDIVED EDOM CAND OD THAT CONTAIN CAND
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	ANGULARITY OF GRAINS	REPRESENTED BY A ZONE OF WEATHERED ROCK.	ARENALEOUS - AFFLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE,	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	NULK MAIERIALS ARE ITFILALLY DIVIDED AS FULLOWS:	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
VERI SIIFF, GRAF, SILIT CLAF, MUISI WITH INTERBEDDED FINE SAND LATERS, FIGHLI FLASTIC, A-1-6	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NUTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SUIL LEGEND AND AASHTU CLASSIFICATION		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 CRYSTALLINE	WHICH IT IS ENCOUNTERED, BUT WHICH DUES NOT NECESSARILY RISE TO UK ABOVE THE GROUND
ULASS. (≤ 35% PASSING #200) (> 35% PASSING #200)	ADDE LISED IN DESCRIPTIONS WHEN THEY ADDE CONSIDERED OF SIGNIEICANCE	ROCK (CR) GREISS GARBIEL SPI REFUSAL IF TESTED, ROCK TYPE INCLUDES GRANITE,	
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	HILE OSED IN DESCRIPTIONS WITCH THE CONSIDERED OF STONE TOHICE.	NON CONCTANTING FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	<u>LALLAREOUS (LALL)</u> - SUILS THAT CUNTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-3 A-6 A-7		NUN-UKTSTALLINE SEDIMENTARY ROCK THAT WOULD YEILD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL 000000000000000000000000000000000000	SLIGHTLY COMPRESSIBLE LL < 31	COACTAL PLAN	OF SLOPE.
	MUDERATELT COMPRESSIBLE LL = 31 - 50 HIGHLY_COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SPT REFUSAL ROCK TYPE INCLUDES LIMESTORE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
Z PASSING SILT- MUSY		(CP) SHELL BEDS, ETC.	BY IUTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
*40 30 MX 50 MX 51 MN CLAY PEAT	PERCENTING OF MITERIAL	WEATHERING	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 36 MN 36 MN 36 MN 36 MN	ORGANIC MATERIAL SOLS SOLS OTHER MATERIAL	FRESH BOCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, BOCK RINGS UNDER	RULKS UK LUIS MASSIVE RULK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
PASSING *40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN.	HUKIZUNTAL.
LL – – 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN 40 MX 41 MN	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	(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 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN MODERATE HIGHLY		OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX ND MX AMOUNTS OF	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. ORGANIC SUILS		(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTORE.
OF MAJOR GRAVEL, AND FINE SILTY OR CLAYEY SILTY CLAYEY MATTER		CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
MATERIALS SAND SHNU UKAVEL AND SAND SUILS SUILS	STATIC WATER LEVEL AFTER <u>24</u> HOURS	MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
GEN. RATING	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GUOD FAIR TO POUR POOR POUR UNSUITAE		UULL SUUND UNDER HAMMER BLUWS AND SHUWS SIGNIFICANT LUSS 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		NOPERATELY ALL DOCK CHARTS DISCOLODED OF STATISTIC IN CRANITOR DOCKS ALL SELECTRADE DIVIL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
CONSISTENCY OB DENSENESS		SEVER AND DISCHARTS DULL SEVEN WARDEN AND A MAINTED AVERAGE SEVERE AND DISCHARTS WARD A MAINTED AVERAGE AND A MAINTED AVERAGE AVE	FIELD.
		(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES "CLUNK'S SUND WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT (RE) 25/025 DIP & DIP DIRECTION	IF TESTED, WOULD YIELD SPT REFUSAL	
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.
VERY LOOSE < 4		(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A RODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS
GENERALLY LOOSE 4 TO 10	SUIL SYMBUL TIP DIF DWT IEST BURING INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	
MATERIAL MEDIUM DENSE 10 TO 30 N/A	ARTIFICIAL FILL (AF) OTHER (AUGED DODING CONE PENETROMETER	<u>IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF</u>	MUTTLED (MUT.) - IRREGULARLY MARKED WITH SPUTS OF DIFFERENT CULURS, MUTTLING IN SUILS
(NON-COHESIVE) DENSE 30 TO 50	THAN ROADWAY EMBANKMENT 🕀 AUGER BURING 🕰 TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	DEPONED WATER WATER WANTAMER ADDRE THE NORMAL OPDIMER WATER LEVEL BY THE RECEIPTED
VERT DENSE > 50		SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NURMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	- INFERRED SOLL BOUNDARY CORE BORING • SOUNDING ROD	V SEV.) REMAINING, SAFROLIE IS AN EXAMPLE OF ROLK WEATHERED TO A DEGREE THAT ONLY MINUR VESTICES OF ORIGINAL ROLK FARRIC DEMAIN OF TESTER WOLLD YELD SPT N VALUES (100 PPF	OF HN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5		VESTICES OF ORIGINAL ROCK FRONCE INFORMATION OF DIAGENERGE OF THE STATE AND A DIAGENERGE TO A	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
MATERIAL STIFF 8 TO 15 1 TO 2	ENERNE NOCK LINE O MUNITURING WELL - WITH CORE	CUMPLETE RUCK REDUCED TO SUIL. RUCK FABRIC NUT DISCERNIBLE, UN DISCERNIBLE UNLY IN SMALL AND	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
(COHESIVE) VERY STIFF 15 TO 30 2 TO 4		ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTALLATION CONTRACTOR		KUN ANU EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS		SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT
		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES	RUCK.
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT UNSUITABLE WASTE ACCEPTABLE, BUT NOT TO BE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
UPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	SHALLOW USED IN THE TOP 3 FEET OF	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED	THE RENDING OR SCHISTOSITY OF THE INTRUDED ROCKS
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TU DETACH HAND SPECIMEN.	THE BEBBING ON SCHEDOLT OF THE INTRODED NORMS.
(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	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
		BY MOREPACE PLOWS	
GRAIN MM 305 75 2.0 0.25 0.05 0.005	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	DE HOULARTE DEURS.	A 140 LB HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOL
512L 1N. 12	$1 = 0.1 \pm 0.1$ MOD MODERATELY γ - UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAYIMUM SIZE BY HARD PLOYE OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION FOUND
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC γ - DRY UNIT WEIGHT	POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE CUIDE FOR FIELD MOISTURE	CSE COARSE ORG ORGANIC	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) 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.
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL
- SATURATED - USUALLY LIGUTU; VERY WET, USUALLY (SAT) - FROM RELOW THE GROUND WATER TARE	e - VOID RATIO SU, - SANU, SANUY SS - SPLIT SPOON	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
	- FOSS - FOSSILIFEROUS SLI - SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY	THE TOTHE LENGTH OF STRATH HIND EXFRESSED AS A MERCENIAGE.
PLASTIC SEMISOU ID: REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE C - WET - (W) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	RENCH MARK. BL-50 ELEVATION. 874.93 ET. BL-49 ELEVATION. 882.83 ET.
	HI HIGHLY V - VERY RATIO	TERM SPACING TERM THICKNESS	BI -47 ELEVATION: 904 39 ET : 11-2579AB-5 ELEVATION: 897 13
	EQUIPMENT USED ON SUBJECT PROJECT	VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION: VARIES FEET
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE		WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	
SL SHRINKAGE LIMIT		MUDERATELY CLUSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	NOTES:
REQUIRES ADDITIONAL WATER TO		VERY CLOSE LESS THAN & GEFET THINKIY LAMINATED & 0.03 - 0.03 FEET	
- UKY - (U) ATTAIN OPTIMUM MOISTURE	6' CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED < 0.008 FEET	APRIL 22, 2019
		INDURATION	
FLASIILIIT		EOD CEDIMENTARY DOCKS INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING HEAT DOCCOURS STO	BL-50 (N 84729) E 1663706)
PLASTICITY INDEX (PI) DRY STRENGTH		FOR SEDIMENTARY RUCKS, INDURATION IS THE MARDENING OF MATERIAL BY CEMENTING, MEAT, PRESSURE, ETC.	BL-49 (N 847739 E 1663844)
NON PLASTIC 0-5 VERY LOW	TUNGCARBIDE INSERTS	FRIABLE KUBBING WITH FINGER FREES NUMERUUS GRAINS;	BL-47 (N 848320 E 1664034)
SLIGHTLY PLASTIC 6-15 SLIGHT	HAND TOOLS:	OUNTLE DEOW DI NHMMEN DISINIEUNHIES SHMELE.	U-2579AB-5 (N 848191 E 1664353)
HIGHLY PLASTIC 26 OR MORE HIGH		MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE:	
	- CHARLE HUIST CHILDRE - STEEL TEETH CHARLE HUIST	BREAKS EASILY WHEN HIL WITH HAMMER.	
LULUK		INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
		DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED FTC ARE USED TO DESCRIBE APPEARANCE		SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	
		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14

SHEET NO.

PROJECT REFERENCE NO.









the Office	of:	0	50	100	PROJECT	SHEET NO.	
ECS SOUTH 1812 CENTER PAR OHARLOTTE (704) 525-51 (704) 357-0	HEAST LLP K DRIVE, SUITE D NC 28217 52 (PHONE) 023 [FAX]					2579AB	6
ENGINE FIRM A	-1078			VE = 5:1	-Y15F	LYCA- ALONG E	BRIDGE 727
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Image: Structure of the st	A -RESIDUAL - MEDIUM STIFF TO HARD, MOIST, ORANGE-GRAY	-GRAY-BLACK-BROWN-WHITE,
^{mage} ^{mageg} ^{mage} <td< td=""><td>CLAYEY SILT (A+5) AND FINE TO COARSE SAN</td><td>E SANDY SILT (A-4), WITH</td></td<>	CLAYEY SILT (A+5) AND FINE TO COARSE SAN	E SANDY SILT (A-4), WITH
W-RESIDUAL - MEDIUM UENSE, MUIS I, LAN-URANGE ERUWN-WHITE-UREEN, SILTY FINE TO $-COARSE$ -SAND-(A-2-4), WITH TRACE MICA 61+23.00 61+	DICIDIAN VITATINA DINCT VOICT TAN ODANDI	
$\int_{50}^{50} 45 40 35 30 25 20 15 10 5 0 5 0 25 30 35 40 45 0 0 45 0 0 45 0 0 45 0 0 45 0 0 45 0 0 0 0 0 0 0 0 0 $	(B) - RESIDUAL - MEDIUM DENSE, MUISH, IAN-URANGEFBRUWN-WE COADCE CAND (ALS-A) WITH TRACE MICA	
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895	MEDIUM STIFF TO STIFF, MOIST,		NGE-RED-BF	ROWN-		BLAC	K-PINK-WHI	ITE.CLA	YEY SILT	(A-5) AND	FINE	<i>895</i>
	COARSE SANDY SILT (A-4), WITH TRACE	ТО	SOME MIC	Å i								-
890		12)	¹ I I I I I I I I I I I I I I I I				ùùùùù					890
885	MEDIUM DENSE, MOIST, WHITE-ORANGE-`	BROW	·		(885
000	STIFF TO VERY STIFF. MOIST. BLACK-		REN		(13)		·····				· - †	
880		WHITE	SILTY	<u> </u>								
ь Бр			ORANO	FINE								
875			WGE BA						· _ <mark> </mark>	·		
0 0 0 0		13 —		WN-7		COARS	SE SAND (A	-2-4), WI	TH TRAC	E MICA		
			¹		~~/v (10)							
						FINE	TO COARSE	- SANDY	SILI (A	-4), WIIH S	SOME MI	ICA
								 +	· + +		· - +	<i>8</i> 65
						Θ						
 860	MEDIUM DENSE TO VERY DENSE, MOIST,	ORANG		•						·		860
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833		/0.6		- <u> </u>	$FAN_{,66}$	SILT	Y FINE TO	COARSE	SAND (A	a-2-4).WITH	H TRACI	E MICA
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-	//	BT				-WE	EATHERED R	OCK- (GF	RANITIC F	ROCK)		
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CHARLOTTE, NC 2827 (704) 525-5152 [PHONE] (704) 357-0023 [FAX] NC REGISTERED ENGINERING				BRIDGE N	10. 727 CRC	SS SE		ALONG
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⁶ 890 75 70 65 60 55 50 45 40 35	30 	25 20	15 10	5	0 5 1	0 1	5 20 2	5	(704) 525-5152 (PPiONE) (704) 357-052 (FAC) NCRGISTERED EXCONTING FRM # F-1078	VE=1:1	NO. 727 CROSS SECTION ALONG ND BENT 2 ON -Y15FLYCA-
	EBŹ-A				EB2-B		1 1 1 1 1 1 1 1 1 1 1 1	30	35 40 45	50 55 60	65 70 75
	-69-+60-	 	1 1 1 1 1 1 1 1 1 1		69+-7-0)	 +		<u>E-XIST-</u>	4NGGROUND-LINE	
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875		·	++== +	= = = =				 			
+RESIDUAL-		STIFF, M	DIST, ORA	NGE-		₹ED-0	RAY, SILI	Y CLAY	(A-7-5)		
				 		719 	 				
) 06/1										TTT NATO A 865
EUUSE TU DENSE, MUIST, URANGE-WHIT	E - 1001	ORAY-TAN	-BRUWN,	SILTY	(9)	-11VE	TUTUAR	SE SANU	(A-2-4), WITH	TRACE TUTET	11E-MICA
9)						1 I 1 I 1 I 1 I 1 I 1 I				
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		-A-C-K			33		+	+			
B35 ORANGE-BROWN, FINE TO COARSE	SA	NDY SILT		· · · · · · · · · · · · · · · · · · ·		 	 + 	 			
(A-4), WITH TRACE TO SOME 🧟) — MI	CA			00/0.8	<u> </u>					
830			UTTE SIL	TY	100/0.5		-WEATHER	ED ROCK-		?0СК)	
825 DENSE TO VERY DENSE, MOIST,	TA	N-GRAY-W		/		; ; ; ; ;					
FINE TO COARSE SAND (A-2-4).	I W I	TH TRACE	MICH		00/0.4	1 1 1	1 I 1 I 1 I 1 I 1 I 1 I				
			/	 		 		 	· · · · · · · · · · · · · · · · · · ·		
HARD, MOIST, BLACK-ORANGE, FINE											or
TO COARSE SANDY SILT (A-4), WITH											<i>6/5</i>
BIO TRACE MICA				 	· · · · · · · · · · · · · · · · · · ·	 	· · · · · · · · · · · · · · · · · · ·	, , , , , , , , , , , , , , , , , , ,			<i>8</i> 10
(A) - ARTIFICIAL FILL - MEDIUM STIFF	, MOIST	,BROWN-R	ED, SILTY	CLA	Y (A-7-5)	, WITI	H TRACE	MICA			
B-RESIDUAL-STIFF, MOIST, BLACK		E-BROWN, I	FINE TO	ĊOARS	\$E-SANDY	SIL	(A-4), W	ITH-SOME	MICA		
				69+	72.00						800
$\begin{array}{c} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$				(VIELVOA				
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$					Ľ				2/2019. INFERRED S	TRATIGRAPHY-IS-DRA	WN-THROUGH
5₩ 3₩ 2₩ 7/5 7/0 6/5 6/0 5/5 5/0 4/5 4/0 3/5	30	25 20	15 10	Y:15F	LYCA-	D 1	5 20 2	5 30		50 55 60	65 70 75

WE	3S 34	839.1	.8			ТІ	P U-257	9AB	COU	NTY F	ORSYI	ГН			GE	OLOGIST A. Suttle	:		WBS	34839	9.1.8			TIF	• U-2579	AB	COUNTY
SIT	E DES	CRIP	TION	Brid	ge No	. 727 (on -Y15FL	YCA- in In	terchan	ge Con	ncectir	ig Winst	on-Sa	alem	Northe	ern Beltway and I-40	Bypass	GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	lge No.	727 o	n -Y15FL`	/CA- in Int	erchange (
BC	RING	NO.	EB1-A	4		S	TATION	52+58		OFF	SET	14 ft LT			AL	IGNMENT -Y15FLY	′CA-	0 HR. 35.9	BOR	ING NO.	. EB1	-B		ST	ATION 5	2+50	
CC	LLAR	ELEV	. 880	0.1 ft		т	OTAL DEF	TH 70.0	ft	NO	RTHING	G 847,2	260		EA	STING 1,663,379		24 HR. Dry	COL	LAR ELI	EV. 88	31.0 ft		ТС	TAL DEP	fH 65.0 f	t I
DR	ILL RIG	HAMM	IER EF	F./DA1	E HF	C0279	Diedrich D	50 82% 02/06	6/2019			DRILL	METHC	DD H	H.S. Au	gers	HAMM	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE HP	C0279	Diedrich D5) 82% 02/06/	/2019
DR	ILLER	Z. K	liker			S	FART DAT	E 06/12/	19	CO	MP. DA	TE 06/	12/19	4	su	RFACE WATER DEP	PTH N	/A	DRIL	LER Z	. Kiker			ST		<u>= 06/12/1</u>	9
ELE			EPTH	BLO	W COL	JNT		BLOWS	PER FO	от		SAMP.				SOIL AND RO	CK DES	CRIPTION	ELEV	DRIVE ELEV	DEPTH	BLC		JNT		BLOWS	PER FOOT
(11)) (ft	:)	(11)	0.5ft	0.5ft	0.5ft	0	25	50	/5	100	NO.	Имо	I G	ELE	/. (ft)		DEPTH (ft)	(11)	(ft)	(11)	0.5ft	0.5ft	0.5ft	0	25	50 7
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			0.0	2	3	4	4 7 · ·			.			М		F	RES Medium Stiff to Stiff	SIDUAL Red Si	ltv CLAY (A-7-5)		-	ŧ						
	876	5.6 -	3.5								· · ·				-		,,			877.5 -	+ <u>3.5</u> +	3	4	6	· • • •		
87	5 874	. 1 +	60	3	4	1			· ·	•••			M		874.0	<u> </u>		5.5	875	875.0	6.0	4	5	8	· <u>1</u> .	+ • • • •	
			0.0	3	4	5	. ∳ 9						м	N 1 V	ļ.	Stiff, Black-Orange-	-Red, Cla	ayey SILT (A-5)		872.5	8.5			-	13·		
87	<u>871</u>	.6 +	8.5	3	4	5	· · · ·				· · · · · ·		м	N 1 1	į.				870	-	ŧ	3	3	3	• 6		
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	866	5.6 ⁺	13.5			-	: :::				· · · · · ·			N.	867 <u>.</u>	Medium Dense, Ora	ange-Wh	ite Silty Fine to 13.0		867.5 -	+ 13.5 T	3	3	4			
86	5	Ŧ		4	6	6	•12		···	•••			M		÷	Coarse S	SAND (A	-2-4)	865		ŧ					+ • • • •	
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86	<u>861</u>	<u>.6 + ′</u> +	18.5	5	7	8		, · · · · ·		.	· · · · · ·		м		-	Stiff, Black-Orange	Fine to	Coarse Sandy	860	-	ŧ	2	3	6			
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	856	5.6 + 2	23.5		_					.	· · · · · ·				857.	Medium Dense, Ora	ange-Wh	ite Silty Fine to 23.0		857.5	+ 23.5 +	3	4	5			
85	5	+		3	5	6	• 11		· ·				M			Coarse S	SAND (A	-2-4)	855	-	ŧ				· • • •	+ • • • •	
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85	<u>851</u>	.6 + 2	28.5	3	4	5	· · · ·				· · · · · ·		м		-	Black-White-Brown	Very Sti	iff, Eine to Coarse	850	-	ŧ	3	4	7			
	<u>,</u>	‡							1	.					- -	Sandy SILT (A	-01ange, -4), with	little mica	0.00	-	ŧ					· · · · ·	· · · · ·
	846	5.6 + 3	33.5							.	· · · · · ·				- -					847.5 -	+ 33.5 +	5	8	6		· · · · ·	
84	5	‡		3	4	5	• • 9••		· ·	.	· · ·		M		-				845		ŧ				· · · · · · · · · · · · · · · · · · ·	+ • • • •	· · · ·
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1 10		‡									· · · · · ·				- 832	I		48.0		832.5 -	+ - 48.5					1::::	
	831 1	<u>.6 + 4</u> +	48.5	6	18	23				· · ·	· · · · · ·		м			Medium D	ense to [Dense, Fine to Coarse	830	-	ŧ	7	9	10		9	
	<u> </u>	+						/	·						-	SAN	D (A-2-4)	000	-	ŧ						· · · ·
N L	826	5.6 + 5	53.5							· · ·	· · · · · ·									827.5	+ 53.5 +	41	59/0.4		::: <u>!</u> -	<u> </u>	
5. 82	5	‡		9	14	15	· · · ·	6 29	· ·	.			м		-				825		ŧ					· · · ·	· · · ·
C07		‡						1, 11		· · ·	· · · · · ·				822	1		58.0		822.5 -	- 58.5					· · · · ·	· · · ·
BR	821	.6 + 5	58.5	15	18	19				.	· · · · · ·		М		- 022.	Hard, Brown-White	e-Orange	Black, Fine to	820	-	ţ	13	14	19	· · · · ·	33	
000	5	+							· \						-	Coarse Sa		I (A-4)	020	-	ŧ					· · · · · ·	<u> </u>
9AB	816	5.6 + 6	63.5							· · ·	· · · · · ·				-					817.5	63.5	10	16	36		· · · X	· · · ·
155 U25	5	‡		11	16	61			···		,		M		F					_	ŧ				1		JUL
JBLE		‡								::∦:	· · · · · ·				- -					-	‡						
DOL	811	.6 + 6 +	68.5	24	29	44				· · · · · ·	· · · · · ·		м		810	I		70.0		-	‡						
BORE		+							1	•		ή				Boring Terminated	at Eleva	tion 810.1 ft In		-	ŧ						
00T I		‡													F	Residual Sa	unuy OIL	· (/)			ŧ						
NCI		+													F					-	t						

FORSYTH	1			GEOLOGIST A. Suttle		
Conncecting	Winsto	on-Sal	em N	lorthern Beltway and I-40 Bypass	GROUN	D WTR (ft)
OFFSET 3	6 ft RT			ALIGNMENT -Y15FLYCA-	0 HR.	35.5
NORTHING	847.2	16		EASTING 1.663.399	24 HR.	Drv
		IFTHO	р н	S Augers HAM		Automatic
		12/10	-			/ latornatio
			L	JURFACE WATER DEFTH	/A	
75 100			0	SOIL AND ROCK DES	CRIPTION	
	110.		G			
				_		
				881.0 GROUND SURF	ACE	0.0
		М	\mathbb{N}	_ RESIDUAL Medium Stiff, Red, Silty	CLAY (A-7-5	5)
				_ <u>878.0</u> Stiff, Orange-Red, Clave	V SILT (A-5)
		М	7 1	875.5		
		М		 Medium Stiff to Stiff, Orange to Coarse Sandy SILT (A-4) 	-Red-Black, , with trace r	Fine nica
		м		· · · · · · · · · · · · · · · · · · ·		
· · · ·				_		
		м				
				_		
				863.0 l 2222 White Orange Ta		<u>18.0</u>
		М		Coarse SAND (A	1, Slity Fine -2-4)	to
				-		
					Fine to Coa	<u>23.0</u>
		М		Sandy SILT (A-4), with	trace mica	
				-		
		NA				
		IVI		-		
				848.0		33.0
		М		Medium Dense, Tan-Oran Fine to Coarse SAN	ge-White, Si	ilty
				-	5(((2)))	
				843.0 Ottiff to Marcia		<u></u>
		М		White-Black-Orange-Brown	, Fine to Co	arse
				_ Sandy SILT (A-4), with tra-	ce to little mi	ca
		М				
				-		
		м				
				_		
				- 827.5		53 5
100/0.9			10	WEATHERED R		
				- White-Tan-Brown (GRAf	ALLIC ROCK	.)
·			GH.			<u> </u>
		М		Hard, White-Black-Brown,	Fine to Coa	rse
<u> </u>				_ Sanay SILT (A-4), with -	nittie mica	
				•		
L		IVI	838) 	Boring Terminated at Eleva	ation 816.0 f	65.0 t In
				Residual Sandy SIL	.T (A-4)	
				_		

WB	S 3483	9.1.8			Т	IP U-2579	9AB	COUNT	Y FORSY	ТН			GEO	LOGIST A. Suttle			WBS	3 34839	9.1.8			TIF	• U-2579/	٩B	COUNTY
SIT	e desc	RIPTION	Bric	lge No	. 727	on -Y15FL	YCA- in In	terchange	Conncectir	ng Wins	ton-Sa	lem	Northern	Beltway and I-40 E	Bypass	GROUND WTR (ft)	SITE	DESCR	RIPTION	Brid	ge No.	. 727 o	n -Y15FLY	CA- in Inf	terchange
во	RING NO). B1-A	۱		S	TATION	54+19		OFFSET	17 ft LT			ALIG	NMENT -Y15FLY	CA-	0 HR. 15.1	BOR	RING NO	. B1-B	3		ST	ATION 54	4+35	
со	LLAR EI	. EV. 86	60.5 ft		Т	OTAL DEP	PTH 43.8	ft	NORTHIN	G 847,	356		EAST	ING 1,663,507		24 HR. 15.0	COL	LAR EL	EV. 85	51.5 ft		то	TAL DEPT	H 59.0 f	it
DRI	LL RIG/H	AMMER E	FF./DA	TE HI	PC0279	9 Diedrich D5	50 82% 02/06	6/2019		DRILL	METHO)D ⊦	I.S. Augers	6	HAMM	ER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	re hp	PC0279	Diedrich D50	82% 02/06	/2019
DR	LLER	Z. Kiker			S	TART DAT	E 06/12/	19	COMP. DA	ATE 06	/12/19	_	SURF	ACE WATER DEP	TH N/	A	DRIL	LER Z	. Kiker			ST	ART DATE	06/11/1	19
ELE		DEPTH	BLC	ow co			BLOWS	PER FOOT	-	SAMP	. \\			SOIL AND ROC	CK DESC	CRIPTION	ELEV	DRIVE	DEPTH	BLO	W COL	JNT		BLOWS	PER FOOT
(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	I G	ELEV. (f	t)		DEPTH (ft	(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0 2	:5 I	50
865	;	+											 				855		Ļ						
		‡											F						ŧ						
860	860.5	<u>+ 0.0</u>											- 860.5	GROUNE) SURFA	ACE 0.0	850	851.5	<u>+ 0.0</u> +	1	1	3	<u>.</u>	· · · ·	· · · ·
		‡	2	1	2	4 ³				1	м			RES Very Loose to	IDUAL Medium	n Dense,			+				$\frac{\mathbf{T}}{1 \cdot \cdot \cdot}$		<u> </u>
	857.0	3.5		5	6	·\· · · ·\· ·			· · · · · ·				r r	Gray-Brown-Orange, SANE	, Clayey) (A-2-6)	Fine to Coarse		040.0	- <u>3.5</u> -	4	4	3		· · · · ·	
855	854.5	+ 6.0		J	Ū						M				(-)		845	845.5	+ 6.0 +	2	2	1		· · · ·	· · · ·
	050.0	‡	4	5	5	. ∳ 1ọ .					м		- 852.5			8.0		843.0	8.5	3	2	3			
850	852.0	+ 8.5	4	4	4	- · /· · · . •					м		 -	Medium Brown-Orange-Black	Stiff to S -White.	stiff,	840		ŧ		2	5	•5· · ·	· · · · ·	
	-	‡								11			F	Sandy ŠILT (A-4	4), with s	some mica	040	-	+				· · · · ·		<u> </u>
	847.0	13.5	5		5	. .			· · · · · ·				ŀ					838.0	- 13.5	1	1	2		· · · · ·	
845		‡		⁻		. • • • • •							F				835		‡				λ	· · · ·	· · · ·
	042.0	+ 10 5				:: <u>\</u> ::							- <u>842.5</u>			18.0		833.0	18.5	6	7	6			
840	842.0	+ 18.5	5	8	8	- \ \	6		· · · · · ·		м			Medium Dense, Ora Fine to Coarse SANE	nge-Wh 0 (A-2-4)	ite-Brown, Silty	830		ŧ		1	0	· · • • 13·		
	-	‡				· · · ·				11			-		, ,		0.00	-	+						<u> </u>
	837.0	23.5	7	11	14		N : : : :		· · · · · ·				- <u>837.5</u> _	Very Stiff, Black-V	Vhite-Br	own, Fine to 23.0		828.0	- 23.5	17	36	23	· · · · ·	 	●59
835		‡	'		14		Q 25 · · ·				M		F	Coarse Sandy SILT	(A-4), w	ith some mica	825		‡				· · · ·		/
	0000	1					: ` \.:::						- 832.5			28.0		823.0	28.5		11	14		· · / · ·	
830	832.0	+ 28.5	13	19	17	1	· · · · · · · · · · · · · · · · · · ·				м			Dense, White-Brown (A-2-4), wi	-Black, S th trace	Silty Fine SAND	820		ŧ	Ů		14		25 • • •	
000	<u></u>	‡								11			-				020	-	±					<u> </u>	<u> </u>
	827.0	33.5	85	15/0 1			: <u>j-</u>		· · · · · ·			sen.	827.0			33.5		818.0	<u> </u>	12	13	16	· · · ·	• · · · · · • • • • • • • • • • • • • •	
825		‡		15/0.1					• • 100/0.6	Ţ				Black-Brown-White	e (GRAN	NITIC ROCK)	815		‡					l l	· · · ·
	000.0	‡											+					813.0	38.5	6	10	10		<u>i</u> : : : :	
820	822.0	- 38.5	50	50/0.3						♦							810		ŧ		10	19		•29 · ·	
020		‡								11			<u> </u>						+						<u> </u>
0	817.0	43.5	100/0 3										816.7			43.8		000.0	+ 43.5	14	17	21	· · · · ·	· · · · · · · · · · · · · · · · · · ·	
1/25/1		‡		1					100/0.3				F	Boring Terminated a Weathered Rock	at Eleval (GRANI	TIC ROCK)	805	-	ŧ				····	· / · ·	+ • • • •
11 10		Ŧ											F					803.0	48.5	11	13	12		1	
DT.GL		‡											F				800		ŧ					25 • • •	
о О		Ŧ											F					708 0	+ - 53 5						
Ž C		Ŧ											F					190.0		52	48/0.3				
27.GI		Ŧ											F				795		ŧ						
2G07		Ŧ											F					793.0	58.5	100/0 5					
BR		Ŧ											F						ŧ						
ы Б		Ŧ											F					-	ŧ						
79AB		Ŧ											F						ŧ						
U25		Ŧ											F					-	ŧ						
JBLE		Ŧ											F						Ŧ						
DO		Ŧ											F						Ŧ						
BOR		Ŧ											F					-	Ŧ						
DOT		Ŧ											F						Ŧ						
NC		†	1			1							F					· ·	†						



ſ		04004	24.0				D 11 0570		001111		/=			050				14/80	0.4000	10							,
	SITE	J483		l Brid	ae No	TI 727 (• U-25/9	YCA- in In	erchang	e Conncect	ina Wine	ton-Sa	lem	GEC	n Beltway and I-40 F	Bynase		SITE	5 34839		A Brid	ae No	TIF	- U-2579	YCA- in Int		-
	BORI	NG NO	. B2-A		90 110	s	TATION 5		Sisteriary	OFFSET	7 ft LT			ALIC	SNMENT -Y15FLY	CA-	0 HR. 8.0	BOR		. B2-E	3	JC 110.	ST	ATION 5	<u>5</u> 6+36		-
	COLL	AR EL	EV. 85	52.8 ft		Т	OTAL DEP	TH 59.5 f	t	NORTHIN	IG 847,	490		EAS	TING 1,663,677		24 HR. 6.0	COL	LAR ELI	EV. 8	51.8 ft		тс	TAL DEP	TH 53.8 f	t	1
	DRILL	RIG/HA	MMER E	FF./DA	TE HA	PC0279	Diedrich D5	0 82% 02/06	/2019	1	DRILL	METHO	DD H	I.S. Auge	rs		ER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA1	re hf	2C0279	Diedrich D5	0 82% 02/06/	/2019	-
	DRIL	ER Z	. Kiker			S	TART DAT	E 06/05/1	9	COMP. D	ATE 06	6/05/19)	SUR	FACE WATER DEP	TH N//	A	DRIL	LER Z	. Kiker	,		ST	ART DAT	E 06/10/1	9	(
ĺ	ELEV	DRIVE	DEPTH	BLC	w co	JNT		BLOWS	PER FOO	Т	SAMF	P. 🔨			SOIL AND ROC		RIPTION	ELEV	DRIVE FLEV	DEPTH	BLO	w col	JNT		BLOWS F	PER FOOT	
	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 10	0 NO.	Имо	I G	ELEV.	(ft)		DEPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25 8	50 7	7
	855		Ļ											L				855		Ļ							
		852.8	0.0						1					852.8	GROUND	O SURFA	CE 0.0			‡							
	850		‡	2	4	4	. ∳ 8			· · · · · · ·		M			Medium Stiff, Orange	e-Brown,	Fine to Coarse	850	851.8	<u>+ 0.0</u> +	1	2	1	• <u>3</u> · · ·	· · · ·	· · · ·	٦
		849.3	3.5	3	2	2	<u> </u>	<u> </u>			-11	M	/ /	- 849.8 -	Very Loose to Loose	4), with tr	race mica -Brown Clayey	000	848.3	+				1	<u> </u>		
		846.8	6.0				$\left \begin{array}{cccccccccccccccccccccccccccccccccccc$			· · · · · · · ·		V		\$- \$-	Fine to Coarse SAN	ND (A-2-6 nica	6), with trace			<u> </u>	2	1	1	•2 · · · ·		· · · · ·	
	845	844 3 ⁻	+		1	.1	• <u></u> 2 · · ·	<u> </u>	· · ·	· · · · ·		M		<u>844.8</u>			8.0	845		+ 6.0 +	3	1	0	•1	+	+ • • • •	
			+	3	3	2	∳ 5					м		-	Gray-White-Orange-	to Dense Brown-Ta	e, an, Silty Fine to		843.3	8.5		1					
	840		‡				::::			· · · · · · ·				- -	Coarse SAND (A-2-4)), with tra	ace to little mica	840		ŧ						· · · · ·	
	0-0	839.3	13.5	3	3	4		<u> </u>			-11							040	838.3	+				<u> </u>	<u> </u>	<u> </u>	1
			‡							· · · · · ·				- -						+	4	6	6				
	835	834.3	+					· · · ·		· · · · ·				- -				835		‡			1	· · /· ·		· · · ·	
			+	8	13	17		9 30				м		-					833.3	18.5	7	10	10	1 : : : <u>\</u>			
	830		‡					1.1.1.1	· · · ·	· · · · · · · ·				-				830	-	‡			1		20	· · · · ·	
		829.3	23.5	9	18	19		+ <u>}</u> .			-11							000	828.3	+			1		1	<u> </u>	
			‡					· · · · ·		· · · · · · · ·				-						+	7	10	16		26	· · · · ·	
	825	824 3 ⁻	+				· · · ·	<u> </u>	· · ·	· · · · ·				-				825	-	‡					<u> </u>	+ • • • •	
		<u>.</u>	+	14	15	14		● 29		· · · · · ·		м		-					823.3	28.5	12	11	12				
	820		‡							· · · · · ·							22.0	820		ŧ			1		$\begin{bmatrix} 23. \\ \ddots \\ \ddots \\ \end{bmatrix}$		
	020	819.3	33.5	10	8	11	· · ·]	1			-11			<u>- 819.8</u>	Very Stiff, White-E	Brown-Bla	ack, Fine to	020	818.3	+			1			<u> </u>	
			‡				· · · ¶	9		· · · · · ·				-	Coarse Sandy SILT	(A-4), W	ith trace mica			+	11	18	30			48	
	815	814.3	+					+ • • • •	· · · ·	· · · · ·				-			20.0	815		‡					+ · · · /	+ • • • •	
			ŧ	26	60	40/0.3	· · · Ŀ	•	+	<u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u> <u>·</u>	-		Т.	- 013.0	WEATHE	RED RO			813.3	38.5	15	18	23				
	810		ŧ							· · · · · ·					Black-white-Brown	n (BIOTT	TE GNEISS)	810	-	ŧ					· · • • •		
	010	809.3	43.5	24	54	46/0.2		· · · ·			1			-				010	808.3	+ 43.5						<u> </u>	
6		•	ŧ							. 100/0.7	7									Ŧ	61	39/0.2	1				
1/25/1	805	804.3	48.5					+ • • • •	+				Ħ	804.8			<u>48.0</u>	805		ŧ					+	+ • • • •	
DT 10			ŧ	18	20	26			46			м		F	Hard, Brown-White-	Black, Fi	ine to Coarse		803.3	48.5	100/0.4		1				
DT.GL	800	•	ŧ					• • • • •		· · · · · ·				-	Sandy	SILT (A-4	+)	800	-	ŧ			1				
ы С С		799.3	53.5	23	77/0.4			<u> </u>					977	799.3	WEATHE	RED RO	53.5 ICK		798.3	- 53.5					.	· · · ·	1
ЪЛ			Ŧ								Ť		H		Brown-White-Black	k (BIOTI)	TE GNEISS)			Ŧ	100/0.3			• • • • •	<u></u>	<u> </u>	
'27.G	795	794.3	- 58.5						+ • • •					Ē.					-	ŧ			1				
DG07	-		<u>†</u>	52	48/0.5			<u> </u>		100/1.0	₀∳-			<u>793.3</u>	Boring Terminated a	at Elevati	59.5 ion 793.3 ft In			Ŧ							
BR		•	Ŧ											F	Weathered Rock	(BIOTITI	E GNEISS)			Ŧ							
Э СЕ		-	ŧ											F					-	Ŧ			1				
79AB		•	ŧ											F					-	ŧ							
U25.		-	ŧ											F					-	ŧ							
JBLE			ŧ											F						ŧ							
			ŧ											F						ŧ							
30RE		-	ŧ											F					-	ŧ							
JOT I			ŧ											F						ŧ							
9			t										1	Г					· ·	t			i 1				



																				_								
	WBS	3483	9.1.8			Т	IP U-	2579	AB	COUN	TY FOR	SYT	Ή				GEOLOGIST A. Suttle			WB	S 3483	9.1.8			TIF	D -2579	9AB	COUNTY
	SITE	DESCR	RIPTION	Bric	lge No	o. 727	on -Y1	15FLY	/CA- in In	terchan	e Connce	ecting	g Winst	on-Sa	alem	Nor	rthern Beltway and I-40 E	Bypass	GROUND WTR (ft)	SITE	E DESCR	RIPTION	Brid	lge No.	. 727 o	n -Y15FL	YCA- in l	nterchange
	BORI	NG NO	. B3-А	4		S	TATIC	DN 5	8+53		OFFSE	T 2	21 ft LT				ALIGNMENT -Y15FLY	CA-	0 HR. 21.4	BOF	ring no). B3-E	3		ST	ATION	58+46	
	COLL	AR EL	EV. 87	74.4 ft		Т	OTAL	DEPT	TH 59.3	ft	NORTH	IING	3 847,6	655			EASTING 1,663,817		24 HR. 19.5	COL	LAR EL	. EV. 86	69.2 ft		тс	TAL DEP	TH 59.0	ft
	DRILL	RIG/HA	MMER E	FF./DA	TE HI	PC027	9 Diedri	ch D50	0 82% 02/06	6/2019	_		DRILL I	METHC	DD H	H.S. /	Augers	HAMM	ER TYPE Automatic	DRIL	.L RIG/HA	MMER E	FF./DA	TE HP	PC0279	Diedrich D5	0 82% 02/0	6/2019
	DRIL	_ER Z	Z. Kiker			S	TART	DATE	E 06/06/	19	COMP.	DA	TE 06/	06/19		:	SURFACE WATER DEP	TH N/	A	DRI	LLER Z	Z. Kiker			ST	ART DAT	E 06/05	/19
	ELEV	DRIVE ELEV	DEPTH	BLC	ow co	UNT			BLOWS	PER FOO	т		SAMP.	▼⁄			SOIL AND ROO	K DESC	CRIPTION	ELEV	/ DRIVE	DEPTH	BLC	DW COL	JNT		BLOWS	PER FOOT
-	(#)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25	50	75	100	NO.	Имо	G	E	ELEV. (ft)		DEPTH (ft)	(ff)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50
-	875	874.4							_ <u>_</u>							-87	GROUNE	SURFA	ACE 0.0	870	869.2	+ 00						
			Ŧ	3	4	4	🖣	8						M	N N V	;-	RES Medium Stiff to Stiff,	IDUAL Orange	-Brown, Clayey			Ŧ	2	3	5	. 8		
	870	870.9	3.5	5	6	7		N				•			N N V	; -	SILT (A-5), v	with trac	e mica	865	865.7	3.5		6	6	1111		· · · · · ·
		868.4	+ + 6.0		Ů			••••••••••••••••••••••••••••••••••••••							1	÷ 80	368.9		5.5		863.2	÷ 6.0	4	0	0			
		865.0	+	5	6	9		• 15						M			CLAY	' (A-7-5)	ge-brown, only		000 7	Ŧ	3	4	6			
-	865	-003.9	+ 0.5	5	10	9	1	· · (·	9			·		м						860	- 860.7	+ 8.5 +	4	4	3	↓ 7		
			Ŧ					<i>j</i> .								₹						Ŧ						
	860	860.9	13.5	4	6	7		· / ·								8	Stiff to Hard, White-T	an-Brow	n-Black-Green, <u>13.0</u>	855	855.7	13.5	2	3	3			
		-	Ŧ		Ĵ			• • 13								F	Fine to Coarse Sandy highly n	/ SILT (Α nicaceoι	A-4), with little to us			Ŧ		5	3	• 6		
		855 0	+ + 185													F					050.7	Ŧ				-1		
-	855	-000.9	+ 10.0	4	5	5	1	10								F				850		+ 10.5 +	2	4	4			
			Ŧ											М		F						Ŧ				1.1.		
	850	850.9	23.5	2	4	6										F				845	845.7	23.5	5	5	8	· · · ·		
		-	Ŧ					·\··								F						Ŧ	ľ	Ŭ	Ĩ			
		845.0	T 28 5													F					040 7	Ŧ						
-	845		+ 20.0	6	8	9	1							м		F				840		<u>+ 20.5</u>	12	11	13		24	
			Ŧ					· · · ·								F						Ŧ						
	840	840.9	33.5	6	12	28										F				835	835.7	33.5	9	11	14			
		-	Ŧ			-										F						Ŧ	ľ				C25	
		835.9	T 38 5					• • •								<u>- 8</u>	336.4		38.0		830.7	I 39 5						
	835		Ī	28	33	18				9 51		-		м		E	Very Dense, Tan-Wr Coarse SAND (A-2	11te-Brov 2-4), with	n, Silty Fine to	830		<u> </u>	46	42	29			
			Ŧ													Ē						Ŧ						
	830	830.9	43.5	81	19/0.1					<u> </u>					97	8	330.9 WEATHE	RED RC	43.5 CK	825	825.7	43.5	100/0.3	3				
			ł					 		· · ·		-					Black-Brown-White	e (GRAN	NITIC ROCK)			ŧ						.
19		825.9	48.5					· · ·		+	<u></u>	_:_				82	326.4 		<u> </u>		820.7	48.5						.
10/25	825	-	‡	7	8	17			¢25	+		-		M		-	Very Stiff to Hard, Bl	ack-Whi	te-Brown, Fine	820		+	14	86/0.4			+	
DT			‡					 		· · · · · ·	· · · · · · · · ·	:				\$ -	to coarse Sanuy SIL	• (~~~+),				‡	1					. .
0T.0	820	820.9	<u> </u>	15	18	28			· · · · ·	46		·		м		-				815	815.7	<u> </u>	26	26	22			· +
NC			‡					· · ·			: : : :	:				8 -						‡						.♥ ⁴⁰ .
GPJ		815.9	58.5		07/0.0			 		i	· · · · ·	_:			1000	8	315.9		58.5		810.7	+ - <u>58.5</u>					· · · ·	· [· · · · ·
0727.		•	+		67/0.3				1		100	/0.8				$\frac{1}{1}$	Black-White-Brow	n (GRAN	VITIC ROCK)		-	ŧ	100/0.5			-1		I
RDG(‡													F	Boring Terminated a Weathered Rock	at Elevat (GRANI	tion 815.1 ft In TIC ROCK)			‡						
		-	‡													F					-	‡						
AB_G.			‡													F						‡						
25794			‡													F						‡	1					
Э щ		-	‡													F					-	‡						
OUBL			‡													F						‡	1					
RE D		-	‡													F					-	‡	1					
DT BO			ŧ													F						ŧ						
NCDC			ŧ													F						Ŧ						

′ ⊢(JRSYI	Н			GEOLOGIST A. Suttle	
Con	ncecting	g Winste	on-Sal	em I	Northern Beltway and I-40 Bypass	GROUND WTR (ft)
OFF	SET (6 ft RT			ALIGNMENT -Y15FLYCA-	0 HR. 17.2
NOT		0470	21			24 UD 45 0
NOF	RIHING	047,0	51		EASTING 1,003,833	24 HR. 15.0
		DRILL N	NETHO	рн	.S. Augers HAMM	ER TYPE Automatic
CON	NP. DA	TE 06/	05/19		SURFACE WATER DEPTH N/	A
		SAMP.		L		
75	100	NO		0	SOIL AND ROCK DESC	RIPTION
Ĩ.		110.		G		
· ·			м		- GROUND SURFA	U.U 0.0
1				N N V	Medium Stiff, Orange-Browr	n, Clayey SILT
·				\sim	(A-5), With trace fi Medium Dense, Orange-Brow	$\frac{11ca}{r}$ $\frac{1}{c}$ \frac
			IVI	\sim	_ 863.7 _ Fine to Coarse SAND (A-2-	6), with trace5.5
1	· · ·		м		- <u>N</u> ICa Stiff Brown-Black-Orange E	
-					$=\frac{861.2}{7}$ Sandy SILT (A-4), with	little mica
1.			M		Loose, Tan-Orange-White,	Silty Fine to
·					COarse SAND (A-2-4), with tra	
:					-	
1.		1			-	
.					-	
	· · ·				851.2 Modium Stiff to S	+iff <u>18.0</u>
			М		White-Orange-Black-Brown,	Fine to Coarse
:					Sandy SILT (A-4	4)
	· · ·				-	
			м		_	
1:					-	
•						28.0
·			м		Medium Dense, White-Orang	ge-Brown, Silty
1:	· · ·				Fine to Coarse SAND (A-2- mica	4), with trace
					- 836.2	33.0
·			м		Very Stiff, White-Orange-Bla	ck-Brown, Fine
.					to Coarse Sandy SILT (A-4),	with little mica
1					- 831.2	38.0
·					Very Dense, Tan-White, Silty	Fine to Coarse
71 ·			IVI		SAND (A-2-4), with tra	ice mica
	· · ·				-	
		,		1977		43.5
					- Tan-White-Black-Brown (GR	ANITIC ROCK)
:	· · · ·				-	
.		1		1D	-	
1.	100/0.9	2		97	-	
					-	_
+÷				צעצ		<u> </u>
1.		1	M		Hard, Black-Orange-Brown, I	Fine to Coarse
.	· · ·	1			_ Sandy SILT (A-4), with s	ome mica
<u> </u> .	· · ·				- 810.7	58.5
1	100/0.5	4		54778	WEATHERED RC	
					- Boring Terminated at Elevat	ion 810.2 ft In
		1			- Weathered Rock (GRANI	TIC ROCK)
					_	
		1			-	
		1			-	
		1			_	
		1			-	
					-	
					-	
					-	
		1			-	
					-	

10/1	20 /	24020	1.0			-			COLINT		<u>-</u>			CEO					WPO	3/020	1.0			T 11	D 11.0E	70 A P		
901		54039		l Drid		727	on V15EL			r FURSt		ton So	lom	Northorn	Roltwov and L 40 F	Dunana		f #\	VVD3	DESCR		l Drid		727 0	- U-20	VCA in	Intere	
BC					ige No). 121 e		1±20	erchange		22 ft I T		lem			Dypass		1					ige No	. /2/ U		61±16	Interc	Tange
			D4-/-	NO 2 #				TH 50.24	•		23 IL LI	071				CA-		. I	BOK)) / / H					2.4	
					те ш		Diadrich DE		1 /2010				ם ח		1,003,983			iy					TE UI	000270	Diodrich	50 929/ 02		
		D 7	Kikor	.FF./DA					0	COMP		/07/10						,				.FF./DA		-00279 ET			6/10	
		RIVF		BIC									1 L		FACE WATER DEP		A					BIC						
ELE (ft	=V E	ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	0.5ft		25	50	' 75 100			0		SOIL AND ROO	CK DESC		(4)	ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft	0.5ft	0	25	50	7
		(11)													()		DEFTF	(11)		(11)								
00	0																		805									
- 30	9	083												- 898.3	GROUNI	D SURFA	ACE	0.0	090	894.4	0.0	1	3	4	· 1 : ·		• •	
				2	3	3	• 6			· · · · · ·		м	N N	; -	RES Medium Stiff, Orang	SIDUAL	n Clavev SII T			-	+				.¶′ ·	· · · · ·		••••
89	5 8	- 94.8	- 3.5				<u>-i</u>			· · · · ·			N V	<u>- 895.3</u> -	$\sim -\frac{(A-5)}{2}$, wit	th trace n		<u>3.0</u>	890	890.9 -	3.5	3	3	4			• •	· · ·
	9	-	-	3	4	5	9 · · ·	· · · ·	· · · · · ·	. .		м		-	Stiff, Orange-Gray- Sandy SILT (A	-Brown, F A-4), with	little mica			888.4	6.0	4	4	6	· J	· · · · ·		· · · ·
		92.5 -	- 0.0	5	6	7	13.		· · ·	. .		м		- 890.3				8.0	005	885.9	8.5				· • 10	· · · · ·	• •	· · · ·
- 89	8	89.8 -	- 8.5	6	8	11					-	М			Medium Dense, Ora	ange-Brov	wn-White, Silty	0.0	885	-	÷	2	3		10			
		-	-				:: <i>.</i> 7.		· · ·	. .				1	r life to coarse SA	mica	-+), with trace			-	ł				· · \. · · \.		· ·	· · · ·
88	5 8	- 84.8	- - 13.5											<u> </u>		Ctiff to C		<u>3.0</u>	880	880.9 .	13.5	7	6	10	\		•	
		-	_	4	4	6	. ● 10		· · ·			м		-	Black-Orange-Brown	n-White,	Fine to Coarse			-	ŧ							
		-					::::		· · ·					-	Sandy SILT (A-4), v	with trace	to some mica			875.9	18.5				:: <u>;</u>	· · · · ·	: :	
88	8	379.8 -	- 18.5	4	4	6			<u> </u>			М		-					875	_	F	3	5	7		2		
		-							· · ·	.				L						-	Ł				· · 			
87	5 g		23.5											Ł					870	870.9 .	23.5	9	9	8				
		-		4	4	6				.		м		L						-	Ł				· · ·	V		
		-					$ \cdot i \cdot \cdot$													865.9	28.5					1		
87	8	69.8 -	- 28.5	4	6	7								L					865	_		9	11	12				
		-	F				1							F						-	F							
86	5 9	264.8	33.5											F					860	860.9	33.5	9	13	14				
		- 104.0	- 33.5	3	3	4	•7, • •]	м		-						-	F					· [· · ·		
		-	-											F						855.0	38.5					· · · ·		
86	0 <u>8</u>	-	- 38.5	9	15	30			+					<u>- 860.3</u>	Dense, Black-Oran	nge-Brow	n-White, Silty 3	8.0	855		- 00.0	10	12	16				
		-	-						45 · · · · · · ·						Fine to Coarse SA r	ND (A-2- mica	-4), with trace			-	Ŧ							
85	5	-	42.5											<u> </u>			4	3.0	850	850.9	43.5	10	14	16		· · · · · ·		•••
		- 0.40	- 43.5	14	21	29	1		•50 · ·		1	м		F	Hard, White-Black- Sandy SILT (A-	-Brown, F -4), with s	Fine to Coarse some mica			-	F							
6		-	-											F						- 045 0						: /: : :		•••
85/1	8 0	49.8 -	48.5	20	53	47/0 3												0.5	845		- 40.5	9	11	13				· · · ·
11 10		-	F							. 100/0.8	•		۶D	<u> </u>	WEATHE Disale White Draw			5.5		-	ŧ					: <u>N</u> : : :		
5 84	5	-	-							· · · · · ·					Black-white-Brow	/n (GRAN	NTIC ROCK)		840	840.9	53.5	7	15	17		: X : :		· · · ·
		44.8 -	- 53.5	37	60	40/0.2	2			100/0 7			11	F						-	ŧ	·						
Ž C		-	-								Ĭ									-						· · · · ·		
¹⁰ .27	0 <u>8</u>	-	- 58.5	40	60/0 3	-			· · · ·	· · · · ·	41		1	- 839 0			F	93	835		- 50.5	39	37	35				
JG07		-	-	40	00/0.3					100/0.8	•			-	Boring Terminated	at Elevat	tion 839.0 ft In	0.0		-	ŧ							
BRI		-	-											F	Weathered Rock	GRAM	TIC ROCK)			830.9	63.5		56/0 3					, i i i,
GEO		-	-											-						-	-	 	30/0.3			1		
79AB		-	-											F						-	+							
U257		-	È.											<u> </u> _						-	ŧ							
JBLE		-	F											Ę						-	ŧ							
DOL		-	-											Ę						-	ŧ							
30RE		-	+											F						-	ŧ							
DOTE		-	F											Ę						-	‡							
NCL		-	ŀ											F						-	ł							

FORSYT	Η			GEOLOGIST A. Sut	le		
Conncecting	g Winsto	on-Sal	em N	Iorthern Beltway and I-4	0 Bypass	GROUN	D WTR (ft)
OFFSET 2	2 ft RT			ALIGNMENT -Y15FL	_YCA-	0 HR.	Dry
NORTHING	847,8	34		EASTING 1,664,013		24 HR.	Dry
	DRILL N	IETHO	ЭН	S. Augers	HAMM	ER TYPE	Automatic
COMP. DAT	E 06/0	06/19		SURFACE WATER D	EPTH N/	A	
75 100	SAMP.		0	SOIL AND F	ROCK DESC	RIPTION	
	NO.	/ MOI	G				
· · · ·		M		- 894.4 GROL	JND SURFA	CE	0.0
				Medium Stiff, Ora	nge-Brown, (A-4), with t	Fine to Co race mica	arse
· · · ·		м		Loose, Tan-Oran	ge-Black-W	hite, Silty I	Fine
		м		-	, (, (<u></u> 1), u		
		м		Stiff, Orange-W	hite-Black-E	rown, Fine	to <u>8.0</u>
				Coarse Sandy S	ILT (A-4), w	ith some m	nica
				- 881.4 Madium Danaa			13.0
		м		Fine to Coarse SA	AND (A-2-4)	, with little	mica
				- 876.4			18.0
		м		Stiff, Orange-Grander	ay-Brown, F (A-4), with s	ine to Coa	rse
				-	(,,		
				- 871.4 Medium Dense, (Drange-Brov	wn-White,	<u></u> <u>23.0</u> Silty
		IM		Fine to Coarse	SAND (A-2- mica	4), with tra	ce
				- - <u>866.4</u>			<u> 28.0</u>
		м		Very Stiff, Oran Coarse Sandy S	ge-Brown-V ILT (A-4) wi	Vhite, Fine th some m	to ica
				- 861 /			33.0
		м		Medium Dense, (Drange-Whi	te-Brown,	Silty
				- Fine to Coarse .	mica	+), with SO	ne
		М		-			
				- <u>- 851.4</u>			43.0
		м		- Very Stiff, Black-\ to Coarse Sandy S	Nhite-Brown SILT (A-4), v	n-Orange, with some	Fine mica
				-			
		м		_			
				-			
				- 841.4 Dense to Very De	nse Orange	White-Br	<u>53.0</u>
		М		- Silty Fine to Coars	e SAND (A	-2-4), with	trace
				- -	inica		
72		м		_			
				-			
<u></u>			977	830.9 830.1 WEAT	HERED RC	CK	63.5 64.3
100/0.8				White-Black-Br	own (BIOTI	TE GNEIS	S)
				- Weathered Ro	ock (BIOTIT	E GNEISS)
				-			
				- -			
				- -			
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				-			
	•						

WB	S 3483	9.1.8			T	TIP U-2579AB COUNTY	FORSYT	Ή			GEOLC	GIST A. Suttle			WBS	3483	9.1.8			TIP	U-2579	AB	COUNTY
SIT	E DESCI	RIPTION	Brid	ge No	. 727	on -Y15FLYCA- in Interchange	Conncectin	g Winst	on-Sa	lem	Northern B	eltway and I-40 B	ypass	GROUND WTR (ft)	SITE	DESC	RIPTION	N Brid	lge No. 7	727 oi	ו -Y15FLY	/CA- in In	terchange
BO	ring no	. B4-C			S	STATION 61+23	OFFSET	CL			ALIGN	MENT -Y15FLYC	CA-	0 HR. 38.6	BOR	ING NO). B4-C)		ST	ATION 6	1+23	
CO	LAR EL	EV. 89	7.2 ft		T(OTAL DEPTH 94.2 ft	NORTHING	6 847,8	353			IG 1,663,999		24 HR. 34.0	COL	LAR EL	.EV. 89	97.2 ft		ТО		FH 94.2	ft
DRI	L RIG/HA		FF./DA		D1893	3 CME-550X 88% 07/18/2019				ר טו	I.S. Augers		HAMM	ERIYPE Automatic	DRIL	L RIG/HA		:FF./DA	IE IDD	1893 (ME-550X 8	8% 07/18/2	J19
DRI		. Chami					COMP. DA	IE 10/	08/19	1 L		CE WATER DEPT	TH N/	Ά	DRIL		J. Cham					= 10/07/	
ELEV (ft)		DEPTH (ft)	0.5ft	0.5ft	0.5ft	BLOWS PER FOOT	75 100	NO		Ō		SOIL AND ROC	K DESC		ELEV (ft)	ELEV	DEPTH			0.5ft	0 :	BLOWS 25	50
	(11)		0.011	0.011	0.0.0		1	110.			ΕLEV. (π)			DEPTH (π)		(11)						1	
000															820							Mat	ch l ine
- 900		‡									 -				020	818.7	- 78.5			+			<u> </u>
	897.2	+ 0.0	2	3	4	 <u> </u> :···	· · · · ·				897.2	GROUND RESI	SURFA	ACE 0.0			‡	100/0.4					
895		‡									- 894.2	Medium Stiff, Black-E	Brown, F	Fine to Coarse	815	814.4	+ 82.8				· · · ·		· · · ·
	893.7	+ 3.5 +	3	8	11	$- \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \\ \right + \left \begin{array}{c} \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \\ \bullet \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \\ \bullet \\ \bullet \end{array} \right + \left \begin{array}{c} \cdot \cdot \\ \bullet \\ \bullet \\ + \left \begin{array}{c} \cdot \cdot \\ \bullet \\ + \left \end{array} \right + \left \left \left \left \left \left \left \left \left \left \left \left \right \right + \left \left \left \left \left \left \left \left \left \left \left \left \left $			м		₽¬. +	Medium Dense, Tan	1-Orang	e-Brown, Silty			ŧ	60/0.1					
890		ŧ				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \end{array} \right ^{\cdot} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right $					-	Fine to Coarse	e SAND) (A-2-4)	810		Ŧ						
	888.7	8.5	2	5	6						889.2	Stiff, Tan-White-Br	own, Fir	ne to Coarse8.0			Ŧ						· · · ·
		Ŧ	2	5	0	$\left \left \begin{array}{c} \cdot & \phi_{11} \\ \cdot & I \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right \left \begin{array}{c} \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot \end{array} \right $			M		-	Sandy SILT (A-4), with s	some mica			Ŧ						
885	002 7	Ŧ									_				805	-	Ŧ						+
	00.7	+ 13.5 +	2	4	5	$- \left \begin{array}{c} \cdot & \cdot & \cdot \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\ \bullet \\$			м		F						Ŧ						
880		Ŧ									<u> </u>						Ŧ						
	878.7	18.5	2	6	10						<u>879.2</u>	Medium Dense, Tar	n-Brown	n, Silty Fine to 18.0			Ŧ						
		ŧ				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \right ^{16} \\ \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \cdot \\ \cdot \\ \cdot \cdot \\ \\ \cdot \\ \cdot \\ \\ \cdot \\ \cdot \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \cdot \\ \\ \\ \cdot \\ \\ \\ \\ \\ \cdot \\ \\ \\ \\ \\ \cdot \\$						Coarse SAND (A-2	2-4), witl	h trace mica			ł						
875	873 7	- 23.5									-						+						
		+	6	10	10				м		-						ŧ						
870		ŧ									-			28.0			1						
	868.7	- <u>28.5</u>	2	3	3				М			Medium Stiff, White-	Black-C	Drange-Brown,			‡						
965		‡				$\left \left \begin{array}{c} \mathbf{\pi}^{0} \\ \mathbf{\cdot} \right \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \right \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot} \\ \mathbf{\cdot} \cdot \mathbf{\cdot} \\ \mathbf{\cdot}$						m m	ica	A-4), with some			‡						
005	863.7	- 33.5									864.2			<u>33.0</u>			‡						
		‡	3	5	8				M-		-	White-Tan-Brown,	Silty Fir	ne to Coarse			‡						
860	-	‡									<u>+</u>	0,440 (772 1),	With Ool				Ŧ						
	858.7	+ 38.5 T	6	8	14	$- \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \end{array} \right _{22} \cdot \cdot \cdot \cdot \cdot \cdot \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \cdot \cdot \cdot \cdot $			м		-						Ŧ						
855		ŧ				$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot \cdot \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot \\ \cdot $											Ŧ						
	853.7	43.5	3	7	11	- · · · · · · · · · · · · · · · · · · ·					F						Ŧ						
19		Ŧ	Ū								E						Ŧ						
0/55/	848 7	48 5									_						\pm						
DT 1	0-10.7	±	32	25	51	│ ``	76		м		-						ŧ						
0. 6 845		ŧ									-						1						
	843.7	- 53.5	82	18/0.2			· · · · · · ·			1	<u> </u>	WEATHER	RED RC	53.5 DCK			t						
		ŧ									-	Tan-Brown (GF	RANITIC	C ROCK)			1						
840	838.7	- 58.5									 _						‡						
RDG(‡	100/0.2				. 100/0.2	'			-						‡						
0 835	4.	‡									-						‡						
AB_GI	833.7	+ 63.5 +	100/0.2				. 100/0.2				+						‡						
058 058		‡									F						‡						
<u>э</u>	828.7	68.5	100/0 0							1	F						Ŧ						
OUB		ŧ	100/0.2				. 100/0.2				F						ŧ						
825		‡_ <u>_</u> _					+				F						ŧ						
DT BC	823./	<u> </u>	100/0.4				100/0.4				E						Ŧ						
00 N 820		Ŧ								Ĩ	-						Ŧ						



WE	3S	34839	.1.8			TIP	U-257	'9AB	С	OUNT	ΥF	ORSYTH	1		GEOLOGIST A. Suttle	9		
SI	ΓE	DESCR	IPTION	Brid	ge No. 72	27 on ·	-Y15F	LYCA- in	Interc	hange	e Cor	incecting	Winston-Salem	n No	orthern Beltway and I-40	Bypass	GROUN	ND WTR (ft)
вс	RI	NG NO.	B4-C	;		STA	ΓΙΟΝ	61+23			OF	FSET C	L		ALIGNMENT -Y15FL	/CA-	0 HR.	38.6
cc	DLL	AR ELE	V . 89	97.2 ft		тот	AL DE	PTH 94	2 ft		NO	RTHING	847,853		EASTING 1,663,999		24 HR.	34.0
DR	ILL	RIG/HAI	MMER E	FF./DA	TE TDD1	893 CM	E-550X	88% 07/18	8/2019				DRILL METHOD	H.S.	Augers	HAMM	ER TYPE	Automatic
DR	RILL	ER J.	Cham	bless		STA		TE 10/0	7/19		со	MP. DAT	E 10/08/19		SURFACE WATER DE	PTH N/	A	
cc	RE	SIZE	NQ-2			TOT	AL RU	N 11.3 f	t					I				
ELE	v	RUN	DEPTH	RUN	DRILL	RL	JN BOD	SAMP.	STR		L					<i>(</i>)		
(ft)	ELEV (ft)	(ft)	(ft)	(Min/ft)	(ft) %	(ft) %	NO.	(ft) %	(ft) %	G	ELEV. (ft)	I	DE	ESCRIPTION AND REMARK	3		DEPTH (ft)
814	.3														Begin Coring @ 82.9 ft			
		814.3 - 812.1 ⁻	- 82.9 - 85.1	2.2	3:09/1.0 3:12/1.0	(1.8) 82%	(0.4) 18%		(9.9) 88%	(3.7)	K	814.3	Slightly to Very S with minor GRA	Slightl ANIT	ly Weathered, Hard, White-E	Black BIO close frac	TITE GNEI ture spacii	ISS, 82.9 na
81	۱,			5.0	0:36/0.2	(4.0)	(1.5)				R	-		REC	= 88% ROD = 33% GSI =	30 - 35		
		-	-		1:49/1.0	80%	30%					-	I I I I I I I I I I I I I I I I I I I	RLC	- 00%, NQD - 35%, GSI -	30 - 33		
		807.1	90.1		2:36/1.0	(4.4)	(1.0)				P	-						
80	5	_	_	4.1	2:57/1.0	(4.1)	(1.8) 44%				R	-						
		803.0	94.2		2:01/1.0 2:47/1.1							803.0						94.2
		-	_									-	Boring Termina	ated	at Elevation 803.0 ft In Crys GNEISS)	talline Roo	ck (BIOTIT	Ē
		-	-									_			,			
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Winston-Salem Beltway from US 421/I-40 BUS to I-40 Bridge No. 727 on -Y15FLYCA– WBS: 34839.1.8 TIP NO.: U-2579AB Rock Core Photograph: Boring: B4-C Station: 61+23 Offset: CL



WBS	34839	9.1.8			Т	IP U-2579	AB	COUNT	Y FORSY	ТН			GEO	LOGIST A. Suttle			WBS	34839	9.1.8			ТІ	P U-2579	AB	COUNTY
SITE	DESCR		Brid	ge No	. 727	on -Y15FL	YCA- in Inte	erchange	e Conncectir	ng Wins	ton-Sa	lem	Northern	n Beltway and I-40 Bypa	ss GROUN	D WTR (ft)	SITE	DESCR	RIPTION	Brid	ge No	. 727 c	n -Y15FL	'CA- in Int	erchange (
BOR	ING NO	. B5-A			s	TATION 6	3+64		OFFSET	25 ft LT	-		ALIG	SNMENT -Y15FLYCA-	0 HR.	36.7	BOR	ING NO	. B5-B	3		ST	ATION 6	3+60	
COL	LAR EL	E V. 90	3.0 ft		Т	OTAL DEP	TH 53.5 ft		NORTHIN	G 848,	069		EAS	TING 1,664,104	24 HR.	25.3	COL	LAR ELI	EV. 90	04.0 ft		т	TAL DEP	H 63.8 f	t
DRIL	RIG/HA	MMER E	FF./DA	TE HF	PC0279	9 Diedrich D5	0 82% 02/06/	2019		DRILL	METHC	DD H	H.S. Auger	s HAN	MER TYPE	Automatic	DRIL	RIG/HA	MMER E	FF./DA	TE HP	PC0279	Diedrich D5) 82% 02/06/	/2019
DRIL	LER Z	. Kiker			S	TART DAT	E 06/07/1	9	COMP. DA	ATE 06	/07/19	4	SUR	FACE WATER DEPTH	N/A		DRIL	LER Z	. Kiker			ST	ART DAT	<u> </u>	9
ELEV	DRIVE ELEV	DEPTH	BLC	W COL	JNT		BLOWS F	PER FOOT	Г	SAMP	. V /			SOIL AND ROCK DE	SCRIPTION		ELEV	DRIVE ELEV	DEPTH	BLO	W COL	JNT		BLOWS	PER FOOT
(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0	25 5	50 I	75 100	NO.	Имо	I G	ELEV. (1	ft)		DEPTH (ft)	(π)	(ft)	(π)	0.5ft	0.5ft	0.5ft	0	25	50 7
905		ł											F				905	004.0	+						
	903.0	0.0	2	6	7				<u> </u>				903.0		RFACE	0.0			+ 0.0	2	3	3	6		· · · ·
900		ŧ	_	Ŭ					· · · · · ·		IVI	N 1 N 1	•- 	Stiff, Red, Clayey SILT (A-	5), with trace r	mica	900	900.5 ·	3.5		_				
	899.5-	+ 3.5 +	5	6	8					11	м	N 1 N 1	•—- •-					808 0	÷ "	3	7	8	9 15		
	897.0	6.0	6	7	5	$\left \left \begin{array}{c} \cdot & \cdot \\ \cdot & \cdot \\ \cdot & \cdot \\ \cdot & \cdot \end{array} \right \right $			· · · · · ·			• >	<u>+ 897.5</u> -	Medium Stiff to Stiff, Re	d-Brown, Fine	to <u>5.5</u>			+ 0.0	4	4	5	· • • • • •		
895	894.5-	8.5			_	<u><u><u></u><u></u><u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u></u></u>			· · · · ·		IVI		F	Coarse Sandy SILT (A-4), with little mid	са	895	895.5	+ 8.5 -	3	4	6	• r • •	+ • • • •	
		ŧ	3	3	5	. ∳ 8			· · · · · ·		M		-						ŧ						
890		ŧ							· · · · · ·				- 890 0			13.0	890	890.5 ·	+ - 13.5						
000	889.5	<u>+ 13.5</u> +	6	6	6					11	М		-	Medium Dense, Red-White	e-Brown, Silty	Fine		-	ŧ	4	5	6	•11		<u> </u>
		ŧ				$\begin{vmatrix} & \cdot & \cdot & \uparrow & \cdot \\ & \cdot & \cdot & \cdot & \cdot & \cdot \end{vmatrix}$			· · · · · ·				- -	to coarse sand (A-2-4)		ca			ŧ						
885	884.5-	+ + 18.5			-				· · · · · ·				<u>885.0</u>				885	885.5	<u>+ 18.5</u> +	3	6	7	13		+ • • • •
		ŧ	4	5	6	• 11			· · · · · ·		M		-	Black-White-Orange-Brow	n, Fine to Coa	arse			ŧ						
880		ŧ							· · · · · ·				-	Sanuy SiLT (A-4), wi	IT SOME MICA		880	880.5 ·	+ - 23.5						
	879.5	<u>+ 23.5</u> +	4	4	5					11			-					-	ŧ	4	6	7	•13		<u> </u>
		ŧ							· · · · · ·				F						ŧ						
875	874.5-	28.5			-				· · · · · ·				-				875	875.5	<u>+ 28.5</u> +	4	8	8	16	+ • • • •	+ • • • •
		ŧ	5	5	8	• 13			· · · · · ·		М		-					.	ŧ						
870		ŧ				:: i :			· · · · · ·				-				870	870.5 ·	+ + 33.5						
0/0	869.5 -	- <u>33.5</u>	6	9	10	<u>}</u>	· · · · ·			11	М		-				0/0	<u>-</u>	ŧ	4	4	6	€10	<u> </u>	· · · · ·
		ŧ							 				-						ŧ				· · · · ·		
865	864.5-	+ - 38.5] · · · [· · ·	· · · · ·				865.0			<u> 38.0</u>	865	865.5	+ <u>38.5</u>	5	8	10	· · · · ·		· · · ·
		ŧ	8	10	10		20		· · · · · ·		М		÷.	Tan-Brown-White, Silty	Fine to Coars	e		.	ŧ						
860		ŧ							· · · · · ·				• •	Sand (A-2-4), with	trace mica		860	860.5 ·	+ + 43.5						
000	859.5 -	+ 43.5 +	20	33	64	$\left \left \begin{array}{c} \cdot \cdot \cdot \cdot \end{array} \right \right $				-	М		• •-					-	ŧ	10	12	18		• <u>30</u>	· · · ·
0		ŧ											} -						ŧ						
1/22/	854.5-	+ + 48.5							· · · · · · · · · · · · · · · · · · ·				- 	,		48.5	855	855.5	+ 48.5 +	16	28	38			1
11 10		ŧ	43	57/0.1					100/0.6	•				WEATHERED Black-White-Brown (GF	ROCK ANITIC ROCK	<)		-	ŧ						
び 5 850		ŧ											1	·			850	850.5 ·	53.5						
	849.5	<u>+ 53.5</u> +	60/0.1						60/0.1	•		4771	<u>4 849.6</u> 849.5	CRYSTALLINE	ROCK	53.4		-	ŧ	46	54/0.4				<u> </u>
Ž C		ŧ											F	Black-White-Brown (GF Boring Terminated w	ANITIC ROCK	<)			ŧ						
27.GF	-	‡											-	Penetration Test Refusal	at Elevation 84	49.5 K)	845	845.5	<u>+ 58.5</u> +	100/0.4				· · · ·	· · · ·
2001:		ŧ											F					-	ŧ						
BRI		ŧ											F					840.5 ·	+ + 63.5						
0 EO	-	ŧ											F						ŧ	100/0.3			1		
79AB		ŧ											F						ŧ						
U25;	-	‡											F					-	‡						
JBLE		ŧ											‡						‡						
DOL		ŧ											ŧ						ŧ						
BORE	-	ŧ											F					-	ŧ						
DOT		ŧ											F						‡						
NC	· ·	t											F					•	t						

FORSYT	Ή			GEOLOGIS	T A. Suttle			
Conncectin	g Winsto	on-Sal	em I	Jorthern Beltw	ay and I-40 B	ypass	GROUN	D WTR (ft)
OFFSET	10 ft RT			ALIGNMEN	T -Y15FLY0	CA-	0 HR.	29.3
NORTHING	8 48,0	49		EASTING	1,664,133		24 HR.	Dry
	DRILL N	IETHO	DН	S. Augers		HAMME	R TYPE	Automatic
COMP. DA	TE 06/	10/19				FH N//	4	
75 100	SAMP.	\square	L O	-1	SOIL AND ROC	K DESC	RIPTION	
	NO.	<u>/ MOI</u>	G					
				904.0	GROUND	SURFA	CE	0.0
		м	7 7 7 7	Med	RES ium Stiff to Stiff	IDUAL , Orange	-Red, Clay	/ey
			N N V	-	SILT (A-5), v	vith trace	e mica	
			~ ~	- 898.5	Orange-Brown-	Black-Pir		<u>5.5</u>
		M		to C	coarse Sandy Sl	ILT (A-4) e mica	, with little	to
		м		-	3011	emica		
· · · · ·				-				
		м		-				
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· · · · ·				- -				
		м		-				
· · · · ·				-				
		М		-				
				-				
				876.0Mediu	Im Dense Whit		Brown	<u> 28.0</u>
		м		Fine	e to Coarse SAN	ND (A-2-4	4), with tra	ce
				- 871.0	11	lica		33.0
		м		Stiff	, Black-White-O	range-B	rown, Fine	to nica
				-		(, t i), m		ilou
				866.0 Mediu	m Dense. Black	-White-	Orange-Br	own. <u>38</u> .0
		M		Silty F	ine to Coarse S	AND (A-	2-4), with	trace
				861.0				43.0
		м		Very	Stiff, White-Tan Sandy SILT (A-4	-Brown, I), with s	Fine to Co ome mica	arse
				-	- `	-		
				856.0 Very [Dense, Orange-	Brown-W	/hite, Silty	Fine 48.0
				to C	oarse SAND (A	-2-4), wi	th trace mi	са
				- 850.5				53.5
. 100/0.9				- Rla	WEATHE	RED RO	CK	<)
· · · · ·								-,
100/0.4	•			-				
				- 840.2				63.8
100/0.3	7			Bori	ng Terminated a	at Elevati	on 840.2 f	t In
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١	VBS	34839	9.1.8			Т	IP U-25	579AI	В	COUNT	Y FORSY	ГН			(GEOLOGIST A. Suttle				WBS	3483	9.1.8			TI	P U-25	79AB	COUNT
;	SITE I	DESCR	IPTION	l Brid	lge No	. 727	on -Y15l	FLYC	CA- in Int	erchange	Conncectir	ng Winst	on-Sa	lem	Nor	thern Beltway and I-40 E	Bypass	GROUND WTR	(ft)	SITE	DESCR	RIPTIO	N Brio	dge No	. 727 c	on -Y15F	LYCA- in	Interchange
l	BORI	NG NO.	B6-A			s	TATION	65+	+32		OFFSET	31 ft LT			/	ALIGNMENT -Y15FLY	CA-	0 HR. [Dry	BOR	ING NO). B6-E	3		ST	ATION	65+51	
(COLL	AR ELI	EV. 89	95.2 ft		T	OTAL D	EPTH	1 29.1 f	t	NORTHIN	G 848,2	221		1	EASTING 1,664,173		24 HR.	Dry	COL	LAR EL	EV. 8	95.8 ft		тс)TAL DE	PTH 23.	9 ft
1	RILL	RIG/HA	MMER E	FF./DA	TE HE	PC0279	Diedrich	D50 8	32% 02/06/	2019		DRILL	METHO	DD H	H.S. A	Augers	HAMM	ER TYPE Automati	ic	DRIL	RIG/HA	MMER E	FF./DA	TE H	PC0279	Diedrich [)50 82% 02/	06/2019
1	DRILL	ER Z	. Kiker			S		ATE	06/11/1	9	COMP. DA	TE 06	/11/19	1 .	_ l :	SURFACE WATER DEP	TH N/	'A		DRIL	LER Z	Z. Kiker			ST	ART DA	TE 06/11	1/19
E	LEV	DRIVE ELEV	DEPTH	BLC		JNT		05	BLOWS	PER FOOT		SAMP				SOIL AND ROO	K DESC	CRIPTION		ELEV	DRIVE ELEV	DEPTH	BL(JNT		BLOW	S PER FOOT
_	(14)	(ft)	(11)	0.5π	0.511	0.511		25		1	15 100	NO.	ИМО	I G	EL	LEV. (ft)		DEPTI	H (ft)	(11)	(ft)	(10)	0.5π	0.511	0.5π			50
-	900		F												┢					900		+						
		-	E												E							Ŧ						
	395	895.2	0.0			_									F 89	95.2 GROUNE) SURFA	ACE	0.0	895	895.8	<u> </u>	2	4	5			
		-	E	2	3	5	. •8 .						M		E	ROADWAY I Medium Stiff, Red-I	EMBANI Brown, F	KMENT Fine to Coarse				Ŧ				- 9		
	-	891.7	3.5	3	3	4	. 								<u> </u>	92.2Sandy SILT (A RES	4), with t		3.0		892.3	<u> </u>	10	12	14		26	
_	390	889.2	6.0												<u>88</u>	89.7 Medium Stiff, Blac	k-Red-B	rown, Fine to	5.5	890	889.8-	6.0	4	6	6			
		886 7 -	85	23	29	35				• • • • • • • • • • • • • • • • • • •			M	120	88	87.2 Very Dense, Black-Br	own-Wh	hite, Silty Fine to	8.0		887.3	8.5				. 7 ¹² . 1 .		
L	385			52	48/0.3	1		•••			100/0.8	•				WEATHE	RED RC			885		<u>+</u>	4	5	4	· 🛉 9 .		
		-	L												1	Black-White (G	BRANITI	C ROCK)				±						
	-	881.7	13.5	9	12	16			— — — I					<i>11</i> /		^{82.2} RES		·	<u>13.0</u>		882.3	<u> </u>	3	4	5	. 		
_	380	-	Ľ						28						E	Medium Dense, Bla Fine to Coars	ick-Brow ie SAND	/n-White, Silty) (A-2-4)		880		Ŧ						
		876 7	18.5																		877.3	18.5	26	74/0 4		. 	· · · · ·	·
	375			20	44	56/0.3			. <u></u> .	+ -				T.		76.2 WEATHE	RED RO	оск	19.0	875		Ŧ	20	/4/0.4				
		-	F						· · · ·							Orange-Brown-Wh	iite-Blacl CCK)	k (GRANITIC			070.0	+				· · ·	 	· · · · · ·
	-	871.7 -	23.5	85	15/0.1				· · · ·												872.3	<u>+ 23.5</u>	100/0.	2		<u> </u>		
_	370	-	F								100/0.0										-	ŧ	60/0.1	1				
		866.7 -	- 28.5						· · · ·													ŧ						
	F			57	43/0.1						100/0.6	•		- TA		Boring Terminated	at Elevat	tion 866.1 ft In	29.1		-	1						
		-	ł												F	Weathered Rock	(GRANI	ITIC ROCK)				ŧ						
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w	BS	34839	918			ТІ	P U-2579	9AB	COUNT	Y FORSY	гн			6	GEOLOGIST A Suttle	<u>.</u>		WBS	34839	918			ТІ	P U-2579	AB	COUNT
SI	TE D	ESCR		Bric	lae No	. 727 (on -Y15FL	YCA- in In	terchange	e Conncectir	na Winst	ton-Sa	alem	Nort	thern Beltway and I-40	Bypass		SITE	DESCR		Brid	ae No	. 727 (on -Y15FLY	CA- in Inf	erchange
B	ORIN	G NO	B7-A			s	TATION 6	67+85	<u></u>	OFFSET	24 ft I T				ALIGNMENT -Y15FLY	/CA-	0 HR. Drv	BOF		. B7-F	3	3	s	TATION 6	7+86	<u></u>
C			EV . 89)3 3 ft		Т	OTAL DEP	TH 28.9	ft	NORTHIN	G 848	450		F	EASTING 1 664 271		24 HR . 20.5	COL	LAR EL	EV. 89	92 3 ft		т	OTAL DEP	FH 31.2 f	t
DF			MMER E	FF./DA	TE HE	PC0279	Diedrich D5	50 82% 02/06	5/2019	1		METHO	OD	HS A	Augers	НАМ	IER TYPE Automatic	DRIL	L RIG/HA	MMER E	FF./DA	TE HE		Diedrich D5(0.82% 02/06	/2019
DF	RILLE	ER 7	Kiker			S	TART DAT	E 06/13/	19	COMP. DA	TE 06	/13/19	 7		SURFACE WATER DEF	TH N	I/A	DRI	LER 7	Kiker			s		= 06/13/1	9
FU		DRIVE		BLC		JNT		BLOWS	PER FOOT	Г	SAMP		_ / L					FLEV	DRIVE		BLC	w cou	UNT		BLOWS	PER FOOT
(f	:) E	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	Имс	0 DIG		SOIL AND RO	CK DES	CRIPTION	(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50
CO_BRDG0727.GPJ NC_DOT.GDT 10/25/19	IILL R RILLE EV EV 5	NG/HAI	MMER E Kiker DEPTH (ft) 3.5 6.0 8.5 13.5 13.5 13.5 23.5 28.8 23.5 28.8 23.5 28.8 23.5 28.8 200 200 200 200 200 200 200 200 200 20	FF./DA BLC 0.5ft 2 5 4 6 5 5 5 5 5 60/0.1	TE H	2C0279 JNT 0.5ft 3 5 6 5 4 8 24	Diedrich D5	i0 82% 02/06 E 06/13/ BLOWS 25 	5/2019 19 PER FOOT 50 	COMP. DA	DRILL TE 06, NO.	METHONIC 13/15			Augers SURFACE WATER DEF SOIL AND RO LEV. (ft) A3.3 GROUN RE Medium Stiff, Brown-Orang, SILT (A-4), wit A0.3 Loose to Dense, Wr to Coarse SAND (/ A0.3 Loose to Dense, Wr to Coarse SAND (/ Boring Termin Penetration Test Ra ft In Crystalline Ro	HAMM PTH N CK DES D SURF SIDUAL -Red, Si -Red, Si -Red, Si -Ret, Si	MER TYPE Automatic MA ACRIPTION DEPTH (ft) ACE 0.0 ACE 0.0 ACE 0.0 ACE 0.0 ACE 0.0 ACE 0.0 Coarse Sandy o little mica 3.0 D Coarse Sandy o little mica 13.0 Brown, Silty Fine ith trace to little 28.9 ACK 28.9 A	DRIL ELEV (ft) 895 895 896 885 886 887 887 886 887 886 887 886 887 <t< td=""><td>L RIG/HAI</td><td>MMER E Kiker DEPTH (ft) 0.0 3.5 6.0 3.5 6.0 3.5 6.0 3.5 5 3.5 5 3.5 5 3.5 5 3.5 5 5 5 5 5 5</td><td>FF./DA</td><td>TE HF</td><td>PC0279 ST UNT 0.5ft 3 8 5 5 7 9 21</td><td>Diedrich D50</td><td>0 82% 02/06 E 06/13/1 BLOWS 25 </td><td>/2019 9 PER FOOT 50 </td></t<>	L RIG/HAI	MMER E Kiker DEPTH (ft) 0.0 3.5 6.0 3.5 6.0 3.5 6.0 3.5 5 3.5 5 3.5 5 3.5 5 3.5 5 5 5 5 5 5	FF./DA	TE HF	PC0279 ST UNT 0.5ft 3 8 5 5 7 9 21	Diedrich D50	0 82% 02/06 E 06/13/1 BLOWS 25 	/2019 9 PER FOOT 50
NCDOT BORE DOUBLE U2579AB_GEC			+ + + + + + + + + + + + + + + + + + +																	+ + + + + + + + + + + + + + + + + + +						



WBS	34839	9.1.8			Т	IP U-257	9AB	COUNT	Y FORSY	ТН			GEO	LOGIST A. Suttle			WBS	34839	9.1.8			TI	P U-2579	AB	COUNTY
SITE	DESCR		Brid	dge No	. 727	on -Y15FL	YCA- in In	terchange	e Conncectir	ng Winst	on-Sa	lem I	Northerr	Beltway and I-40	Bypass	GROUND WTR (ft)	SITE	DESCR		Brid	ge No	. 727 c	on -Y15FL	YCA- in In	terchange
BOR	ING NO	. EB2-	A		s	TATION	69+60		OFFSET	30 ft LT			ALIG	SNMENT -Y15FLY	′CA-	0 HR. 11.6	BOR	ING NO	. EB2	-B		ST	TATION (69+70	
COL	LAR ELI	EV. 87	7.3 ft		T	OTAL DEF	PTH 60.0	ft		G 848,6	519		EAS	TING 1,664,313	1	24 HR. 9.8	COL	LAR ELI	EV. 87	77.3 ft		ТС	DTAL DEP	TH 53.91	ft
DRILL	RIG/HA	MMER E	FF./DA	TE H	PC027	9 Diedrich D	50 82% 02/06	/2019	1	DRILL	METHO	DH	I.S. Auger	S	HAMM	ER TYPE Automatic	DRIL	l Rig/Ha	MMER E	FF./DA	TE HF	PC0279	Diedrich D5	0 82% 02/06	5/2019
DRIL	LER Z	. Kiker			S		E 06/13/	19	COMP. DA	TE 06/	13/19		SUR	FACE WATER DEP	TH N	/Α	DRIL	LER Z	. Kiker			ST		E 06/13/	19
ELEV (ff)	ELEV	DEPTH	BLC				BLOWS	PER FOOT	۲ 75 100	SAMP.		0		SOIL AND RO	CK DES	CRIPTION	ELEV	ELEV	DEPTH		W COL	JNT		BLOWS	PER FOOT
(11)	(ft)	(11)	0.5π	0.511	0.511		23	50	15 100	NO.		I G	ELEV. (ft)		DEPTH (ft)	(11)	(ft)	(11)	0.5π	0.5π	0.511		25	50
880		+											-				880		ł						
	877.3	F 0.0				<u> .</u>		_					877.3	GROUN	D SURF	ACE 0.0		877.3	T 0.0						
875		Ŧ	2	3	4						M		F	ARTIF Medium Stiff, Brown-	ICIAL FI	LL ty CLAY (A-7-5),	875		Ŧ	4	6	8	14.		
	873.8	3.5	3	4	6]			$=\frac{874.3}{}$		race mic	a <u>3.0</u>		873.8	3.5	5	5	8	· · [
		6.0											<u>871.8</u>	Stiff, Orange,	Silty CLA	Y (A-7-5) 5.5			6.0		•	0	· · • 13·		
870		†	3	7	13		20			-	M		- 869.3		SAND (A-	-2-6)8.0	870		†	5	6	8	14.		
	. 808.8	+ 8.5 -	3	4	4								-	Loose, White-Tan-C to Coarse SAND (Drange-B (A-2-4), v	rown, Silty Fine vith little mica		. 808.8	+ 8.5 T	4	6	5	. ∮ 11 .		
865		ŧ							· · · · · ·				F	·	. ,,		865	-	ŧ						
	863.8	13.5				 							 -				000	863.8	13.5		4		· · · ·		
		‡	2		2	•5 ⁵			 		М		F						‡		4	5	: ♥ ⁹ : :		
860		‡							· · · · ·	-			-				860		‡				· · · ·	· · · ·	
	858.8	<u>+ 18.5</u> +	2	3	6	: <mark>`</mark> ;::			· · · · · ·		м		ŀ					858.8	<u>+ 18.5</u> +	5	6	9	· · · • 15		
855		ŧ				· h · ·			· · · · · ·				È.				855	-	ŧ				:: <u>j</u> :		
000	853.8	23.5											<u>854.3</u>	Stiff Black-Orange	-Brown	Eine to Coarse 23.0	000	853.8	23.5						
		‡	2	4					· · · · · ·		M		+	Sandy SILT (A-	-4), with s	some mica		-	ŧ		9	12		\mathbf{v}_{1}^{2}	
850		‡							· · · · ·	-			- 849.3			28.0	850		‡					<u> </u>	
	848.8	<u>- 28.5</u> -	7	12	14		26	· · · ·	. .		м			Medium Dense, Whi	ite-Tan-E	Brown, Silty Fine		848.8	- 28.5 -	21	17	20			
045		‡							. .					to coarse same ((//-2- 4), v		045		ŧ						
040	843.8	- 33.5					/						<u>844.3</u>		tiff to Ha	<u>33.0</u>	040	843.8	- 33.5					1.1.	
	-	+	9	9	11		20	· · · ·	. .		M		-	White-Black-Orange	e-Brown,	Fine to Coarse		-	ŧ	15	20	15		. ● 35	
840		ŧ.				· · · ·	<u>`\</u>						L	Sanuy Silli (A-4), V	MITTIACE		840	· -	ŧ					· · · ·	
	838.8	- <u>38.5</u>	9	12	21	::::	33.		. .		м		F					838.8	- <u>38.5</u>	16	17	16			
005		+					I I I I I I I I I I I I I I I I I I I	· · · ·	. .								005	-	ŧ						
835	833.8	43.5					//····	1					-				835	833.8	43.5					+ - 	<u> </u>
_	-	+	9	11	15		•26 · · · ·	· · · ·	. .		M		-					-	ŧ	27	46	54/0.3			
830		ŧ.				· · · ·	<u> </u>						829.3			48.0	830	· -	ŧ						
10/	828.8	+ 48.5 +	11	15	19	::::			 		м			Dense to Very Dens	e, Tan-G	Gray-White, Silty		828.8	+ 48.5 -	100/0.5					
0.5		‡							. .						mica	-+), with trace	005		ŧ						
	823.8	- 53.5											-				020	823.8	- 53.5						
Z		‡	24	26	39			• • • • • • • • •	5		M								ļ	100/0.4					
820		‡						<u> </u>					- 819.3			58.0			‡						
G072	818.8	<u> </u>	19	25	30	::::			. .		м		817.3	Hard, Black-Orange	e, Fine to	Coarse Sandy		-	ŧ						
BRD		1						00		-			-	Boring Terminated	at Eleva	tion 817.3 ft In		-	ŧ						
Ú.	-	ŧ											-	Residual Sa	andy SIL	T (A-4)		-	ŧ						
9AB_		‡											ŧ						‡						
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PHOTO 1: VIEW AT BENT 1 FACING UPSTATION TOWARD B1-A AND AN UNNAMED TRIBUTARY OF FIDDLERS CREEK.



PHOTO 2: VIEW NEAR END BENT 1, FACING UPSTATION.



PHOTO 3: VIEW FROM END BENT 2 FACING DOWNSTATION.



PHOTO 4: VIEW FROM END BENT 2, FACING UPSTATION.



CONTENTS

2

579A

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REFERENCE

SHEET NO.	DESCRIPTION
I	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	CROSS SECTION
5-8	BORING LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON-SALEM BELTWAY FROM US 421 / I-40 BUS TO I-40

SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE I-74 RAMP AT -L- STA. 768+62.23 OVER FIDDLER'S CREEK

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	8

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 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 OF CONTRACTOR IS CALIFORED THAT DETAILS SHOWN ON THE SUBSUPFACE 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 CUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONJITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY IMMSELF 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 ACUAL 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 REQUESTED THIS INFORMATION, THE CONTRACTOR SPECIFICALLY WAIVES ANY CLAIMS FOR INCREASED COMPENSATION OR EXTENSION OF TIME BASED ON DIFFERENCES BETWEEN THE CONDITIONS INDICATED HEREIN AND THE ACTUAL CONDITIONS AT THE PROJECT SITE. 2.

PERSONNEL

J.K. STICKNEY	
C.L. SMITH	
B.E. FOSTER	
C.C.MURRAY	
J.E. ESTEP	
M.R. MOORE	

INVESTIGATED BY C.R. LAVENDER, III
DRAWN BY J.E. BEVERLY
CHECKED BY K.B. MILLER
SUBMITTED BY K.B. MILLER
DATE NOVEMBER 2020



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 BE PENETRATED WITH A CONTINUOUS FLICHT POWER AUGER AND VIELD LESS THAN 100 BLOWS PER FOOT	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.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	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		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,	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
VERT STIFF, GRAF, SILT CLAF, MUIST WITH INTERBEDDED FINE SAND LATERS, HIGHLT PLASTIC, A-1-6	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES >	A NUTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
GENERAL GRANILLAR MATERIALS SILT-CLAY MATERIALS	MINERALOGICAL COMPOSITION		WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE LEVEL AT
CLASS. (≤ 35% PASSING #200) (> 35% PASSING #200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	CRYSTALLINE BOCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE,	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.	FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
CLASS. A-1-6 A-1-6 A-2-4 A-2-5 A-2-6 A-2-7 A-3 A-6, A-7		NON-CRYSTALLINE SEDIMENTARY ROCK THAT WOULD YELD SPT REFUSAL IF TESTED.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL SYMBOL	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD	
X PASSING	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
10 50 MX GRANULAR CLAY MUCK.	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 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10%	HAMMER IF CRYSTALLINE.	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
	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,	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 10 MX 10 MX 11 MN 11 MN	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX ND MX AMOUNTS OF SOLIS	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE
USUAL TYPES STONE FRAGS. EINE CILITY OF CLAYEY SUITY CLAYEY MATTER	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING	(SLI.) 1 INCH. OPEN JOINTS MAY CONTAIN CLAY, IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	SIDES RELATIVE TO UNE ANOTHER PARALLEL TO THE FRACTORE.
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOILS SOILS	STATIC WATER LEVEL AFTER 24 HOURS	URISTALS ARE DULL AND DISCULURED. URISTALLINE RUCKS RING UNDER HAMMER BLUWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLUSELY SPACED PARALLEL PLANES.
	∇PW PERCHED WATER SATURATED ZONE OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	PARENT MATERIAL.
AS SUBGRADE EXCELLENT TO GOOD FAIR TO POOR POOR UNSUITABLE		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	SPRING OR SEEP		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.
COMPACTNESS OR RANGE OF STANDARD RANGE OF UNCONFINED		(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 SUIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (TONS/FT ²)	WITH SOIL DESCRIPTION	SEVERE ALL BOCK EXCEPT QUARTZ DISCOLORED OR STAINED, BOCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
VERY LOOSE C 4		(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED	LENS - A BODY OF SOLL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
GRANULAR LOOSE 4 TO 10		TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IE TESTED WOULD YIELD SPT N VALUES > 100 RPE	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN SOILS
MATERIAL DENSE 30 TO 50		VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
VERY DENSE > 50		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 MINUR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN, <i>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</i>	UF AN INTERVENTING IMPERVIDUS STRATUM.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0		COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL (RES.) SUIL - SUIL FORMED IN FLACE DI 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 SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	INSTALLATION		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
U.S. STD. SIEVE SIZE 4 10 40 60 200 270	UNDERCUT CONCLASSIFIED EXCAVATION - TA UNCLASSIFIED EXCAVATION -	VERY HARD CANNUT BE SCHATCHED 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	UNSUITABLE WASTE USED IN THE TOP 3 FEET OF	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
BOULDER COBBLE GRAVEL COARSE FINE SILT CLAY	UNCLASSIFIED EXCAVATION - EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
(BLDR.) (COB.) (GR.) SAND SAND (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - PULISHED 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	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
SIZE IN. 12 3	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.	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
SOIL MOISTURE - CORRELATION OF TERMS	CPT - CONE PENETRATION TEST NP - NON PLASTIC 2. DRY UNIT WEIGHT	HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.	TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.
SOIL MOISTURE SCALE FIELD MOISTURE GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY
(ATTERBERG LIMITS) DESCRIPTION CODE FOR THEE HORSTONE DESCRIPTION		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	e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIELES LAN BE BRUKEN BY FINDER PRESSURE.	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
	F - FINE SL SILT, SILTY ST - SHELBY TUBE	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: REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
RANGE < - WET - (W) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING	FRACTURE SPACING BEDDING	BENCH MARK: BORING LOCATIONS AND ELEVATIONS SURVEYED
		TERM SPACING TERM THICKNESS	BY NCDOT LOCATIONS AND SURVEYS UNIT OR EXTRACTED FROM TIN
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE		WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	FILE IN ROADWAY INVENTORY DATED 1/2011 ELEVATION: FEET
SL SHRINKAGE LIMIT		MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.16 - 1.5 FEET	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	FIAD - Filled Immediately After Drilling
ATTAIN OPTIMUM MOISTURE		THINLY LAMINATED < 0.008 FEET	
PLASTICITY			4
PLASTICITY INDEX (PI) DRY STRENGTH	Image: Line of the second s	FUR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	
NON PLASTIC Ø-5 VERY LOW SLIGHTLY PLASTIC 6-15 SLIGHT		FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	
MODERATELY PLASTIC 16-25 MEDIUM		GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE:	
HIGHLY PLASTIC 26 OR MORE HIGH		BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR		INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).		DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14
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PROJECT REFERENCE NO.

U-2579AB

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W	BS	34839	9.1.8			TI	I P U-25	579AE	3	COU	NTY	FORSYT	Ή				GEOLO	OGIST	Murray,	C. C.			WBS	S 3483	9.1.8			ТІ	P U-2	579AE	3	COUN	ΓY
S	ITE C	DESCR	IPTION	I CUI	LVERT	NO.	0749 ON	I FUT	TURE V	VINSTO	DN-S	ALEM NC	RTHER	N BE	ELT\	WAY	OVER	FIDDLE	R'S CR	EEK	GROUI	ND WTR (ft)	SITE	DESC	RIPTION	N CU	LVER	T NO.	0749 O	N FUT	URE W	INSTO	1-SA
В	ORIN	IG NO.	L768	00RD	WY	S	TATION	768	3+00		(OFFSET	CL				ALIGN	MENT	-L-		0 HR.	6.0	BOR	RING NO). L768	318		S	TATION	768	+18		
C	OLL	AR ELE	EV. 83	33.9 ft		Т	OTAL DE	EPTH	I 15.5	ft	1	NORTHING	3 850,0)18			EASTI	NG 1,6	64,192		24 HR.	4.0	COL	LAR EL	EV . 8	35.5 ft		т	DTAL D	EPTH	11.5 f	t	
D	RILL	rig/hai	MIMER E	:FF./DA	TE C	VIE-550.	X						DRILL	METH	OD	H.S.	Augers			HAMM	ER TYPE	Automatic	DRIL	L RIG/H/	AMMER E	EFF./DA	ATE H	FO0072	CME-55	0X 89%	b 12/16/2	2019	
D	RILL	ER E	step, J	. E.		S		ATE	09/25/0	08	0	COMP. DA	TE 09/	25/0	8		SURFA	ACE WA	TER DE	PTH N/	/A		DRIL		Smith, C). L.		S		ATE	07/06/2	20	
EL (1	EV ft)	ELEV	DEPTH (ft)	BLC				25	BLOWS	PER FC	00T 7	5 100	SAMP.			5		SOI	L AND RO	OCK DESC	CRIPTION	l	ELEV (ft)		DEPTH				0	25	BLOWS	PER FOO 50	T 75
_	<i>,</i>	(π)		0.51	0.51	0.51					1		NO.	<u>Γ</u> Μ		<u>G</u> E	LEV. (ft)					DEPTH (ft)		(π)		0.51	0.51	0.51					
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	FORSY	H			GEOLOGIST Stickney, J. K.	
ON-	SALEM NC	RTHER	N BEL	TWA	AY OVER FIDDLER'S CREEK GROUND	WTR (ft)
	OFFSET	115 ft LT	-		ALIGNMENT -L- 0 HR.	Dry
	NORTHING	G 849.9	93		EASTING 1.664.306 24 HR.	FIAD
		DRILL	/ETHO	DН	H.S. Augers HAMMER TYPE A	utomatic
			06/20			
:00т			00/20 /	LI	SURFACE WATER DEFTH N/A	
001	75 100	SAIVIE.		0	SOIL AND ROCK DESCRIPTION	
		NO.		G		
			M		B35.5 GROUND SURFACE ALLUVIAL Red, Orange, Clayey Silty SAND, Little to Some Mica B28.6 Red, Orange, Clayey Silty SAND, Little to Some Mica B24.0 WEATHERED ROCK Gray, White (GRANITE)	0.0 6.9 8.2 5 11.5
					(GRANITE) Boring Terminated by Auger Refusal at Elevation 824.0 ft on CRYSTALLINE ROC (GRANITE) (GRANITE	к

SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE WINSTON-SALEM NORTHERN BELTWAY OVER FIDDLER'S CREEK GROUND WTR (t) SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE WINSTON-SALEM NORTHERN BELTWAY OVER FIDDLER'S CREEK GROUND WTR (t) SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE WINSTON-SALEM NORTHERN BELTWAY OVER FIDDLER'S CREEK GROUND WTR (t) SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE WINSTON-SALEM NORTHERN BELTWAY OVER FIDDLER'S CREEK GROUND WTR (t) SITE DESCRIPTION CULVERT NO. 0749 ON FUTURE WINSTON-SALEM NORTHERN BELTWAY OVER FIDDLER'S CREEK COLLAR ELEV. 834.7 (t) TOTAL DEPTH 15.9 ft NORTHING 849.908 EASTING 1.664.163 24 HR, FIAD FIAD DRILL RIGHAMMER EFF.DATE HOOD COLVER TOOL ONE SOURS 88% 12/162/19 DRILL METHOD HS Auges HAMMER TYPE Automatic DRILL RIGHAMMER EFF.DATE HFOOD COLVESCASS 88% 12/162/10 DRILLER Smith, C. L. START DATE 07/06/20 COMP. DATE 07/06/20 SURFACE WATER DEPTH N/A DEPTH HOUS DEPTH HOUS <td< th=""><th>000111</th></td<>	000111
BORING NO. L76911 STATION 769+11 OFFSET 23 ft RT ALIGNMENT -L- 0 HR. 5.0 COLLAR ELEV. 834.7 ft TOTAL DEPTH 15.9 ft NORTHING 849,908 EASTING 1,664,163 24 HR. FIAD DRILL RIGHAMMER EFF./DATE HOOD 72 CME-550X 89% 1216/2019 DRILL METHOD HS Augers HAMMER TYPE Automatic DRILL RIGHAMMER EFF./DATE HOOD 706/20 COMP. DATE O7/06/20 SURFACE WATER DEPTH N/A DRILL RIGHAMMER SetF./DATE MORE OV/OR SAMP No. Soli AND ROCK DESCRIPTION DEPTH (ft) BLOW COUNT	VINSTON
COLLAR ELEV. 834.7 ft TOTAL DEPTH 15.9 ft NORTHING 849,908 EASTING 1,664,163 24 HR. FIAD COLLAR ELEV. 833.7 ft TOTAL DEPTH 20.5 ft DRILL RIGHAMMER EFF./DATE HFC0072 CM-550X 89% 12/16/2019 DRILL METHOD HS. Augers HAMMER TYPE Automatic DRILL RIGHAMMER EFF./DATE HFC0072 CM-550X 89% COMP. DATE 07/06/20 SURFACE WATER DEPTH N/A DRILL RIGHAMMER EFF./DATE HFC0072 CM-550X 89% 12/16/20 DRILL RIGHAMMER EFF./DATE HFC0072 CM-550X 89% COMP. DATE 07/06/20 SURFACE WATER DEPTH N/A DRILL RIGHAMMER EFF./DATE HFC0072 CM-550X 89% 12/16/20 ELEV Ifth 0.5ft 0.5ft 0.25 50 75 100 SOIL AND ROCK DESCRIPTION DEPTH(ft) ELEV HEV DEPTH(ft) ELEV BIOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW COUNT BLOW	
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835 A A A A A A B34.7 GROUND SURFACE 0.0 B35 A A A 830 830.5 4.2 -	
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	+
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Elevation 818.8 ft on CRYSTALLINE ROCK	


WBS	3483	9.1.8			TI	P U-2579/	AB	COUNT	FORSYT	Н			GEOLO	GIST Stickne	y, J. K.			WBS	3 4839	9.1.8			ТІ	P U-25	79AB	COUN	ΤY
SITE	DESCR	RIPTION	CUL	VERT	NO. (0749 ON FI	UTURE W	INSTON-	SALEM NO	RTHER	N BEI	TW	AY OVER F	IDDLER'S CR	EEK		/TR (ft)	SITE	DESCR			VERT	⁻ NO. ()749 ON	FUTURE	WINSTO	۹-S
BOR	ING NO	. L770	66		ST	TATION 7	70+66		OFFSET	297 ft R	Т		ALIGN	ENT -L-		0 HR.	5.0	BOR	ING NO	. Y15	LYBD	_2015	5 S1	ATION	20+15		C
COL	LAR EL	EV. 83	3.4 ft		ТС	OTAL DEPT	FH 20.3 ft		NORTHING	3 849,7	770		EASTIN	G 1,663,880		24 HR.	FIAD	COL	LAR EL	EV. 83	37.8 ft		т)TAL DE	PTH 15.4	ft	N
DRIL	L RIG/HA	MMER E	FF./DA	TE HF	00072	CME-550X 8	39% 12/16/2	019		DRILL	METHO	DD H	H.S. Augers		HAMM	IER TYPE Aut	omatic	DRIL	l Rig/Ha	MMER E	FF./DA		VIE-550)	<			
DRIL	LER S	Smith, C	. L.		ST		E 07/06/20	0	COMP. DA	TE 07/	06/20			E WATER DE	PTH N/	/A		DRIL	LER E	step, J	. E.		S	ART DA	TE 09/25/	/08	C
ELEV (ft)	DRIVE	DEPTH	BLO	W COL	JNT		BLOWS F	PER FOOT	75 100	SAMP.	▼∕	0		SOIL AND RO	OCK DESC	CRIPTION		ELEV (ft)	DRIVE	DEPTH	BLO	W COL	JNT		BLOWS	50 PER FOC	T ا 74
(19	(ft)		υ.5π	U.5IT	U.ST		20 D	l	100	NO.	ИМО	I G	ELEV. (ft)			[DEPTH (ft)	(14)	(ft)	(11)	0.5π	U.STI	0.5π		20	1	
835		ŧ											- 833.4	GROUN	ND SURF4	ACE	0.0	840	-	ŧ							
		ŧ						· · · · ·			1			AL Grav Cla	LUVIAL	SAND			837.8	<u>+ 0.0</u> +	3	4	4	·• <u>8</u> ·			•
830	829.4	+ + 4.0					· · · ·		+ • • • •				<u>+</u>	C. ay, Ob	, c, city t			835	834.8 -	3.0			6	· T. ·	· · · ·	• • • •	·
		‡	1	3	2	∳ 5					⊢`м́_	_								ŧ	4	4	б	. ● 10		: : : :	:
825		ŧ				$ _{I}$ ····												830		ŧ				::X	· · · · ·	· · · · ·	:
220	824.4	<u>† 9.0</u> †	woн	WOH	WOH						w								828.9	8.9	4	5	14				
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820	819.4	<u> </u>		10									818.9				14.5	825	823.9	T 139							
		Ŧ		10	20		¥ 30				M			RE Grav. Wr	SIDUAL	SAND				<u> </u>	4	5	5	<u> </u>			
815	914 4-	+ 10.0							· · · ·					,, - ••	, , .					ŧ							
	014.4	+ 19.0	9	39	61/0.3			┝╌┙┷╺┷			<u> </u>	9777	813.9	WEATH	IERED RO	оск	19.5 20.3			‡							
		‡							100/0.0				ŧ L	Tan, Gı (G	ay and W	/hite				‡							
	-	ŧ											F T	Boring Terminate WEATHERED	d at Elevat ROCK (0	tion 813.1 ft in GRANITE)			-	ŧ				l			
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9AB		ŧ											F							ŧ							
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DOTE		‡											F							‡							
NCI		†											-							†							

SHEET 7 OF 8

IT	Y FORSYI	ГН			GEOL	OGIST	Murray, C	C. C.		
N-	SALEM NO	RTHER	N BEL	TWA	Y OVEF	RFIDDL	ER'S CRE	EK	GROUN	D WTR (ft)
	OFFSET	60 ft RT			ALIGN	MENT	-Y15FLYE	3D-	0 HR.	Dry
	NORTHING	G 849,8	67		EAST	I NG 1,	663,904		24 HR.	Dry
		DRILL	/IETHO	DH	S. Augers			HAMM	ER TYPE	Automatic
	COMP. DA	TE 09/2	25/08		SURF	ACE W/	ATER DEP	TH N/	Ą	
тс	75 (00	SAMP.		L O		SC	IL AND ROC	K DESC	RIPTION	
	75 100 I	NO.	/моі	G						
				-	-					
		00 107			837.8		GROUND		CE	0.0
		33-137			834.8	Red, Ta	an, Med. Stiff	To Stiff	Moist, Sa	ndy 3.0
		SS-138	м				RES			
•				//	830.8	Red, Ta	Micaceous,	Clayey	nse, ivioisi SAND	, SII. 7.0
					-	Tan	& White, Med Micaceous	d. Dense Silty S	, Moist, SI	i.
		SS-139	м				Micabooud	, only of		
					_					
			м		822.4					15.4
					022.4	Boring	Terminated a	at Elevat	ion 822.4	10.4
					-			I SILI I	SAND (A-	2-4)
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WBS	34839	9.1.8			т	IP	U-2579	AB		COL	JNTY	FO	RSYT	Н			GEOLOGIST Murray, C. C.
SITE	DESCR	IPTION	I CUI	VER	ΓNO.	07	49 ON F	υτι	JRE W	INST	ON-S	SALE	M NO	RTHER	N BEL	TW	AY OVER FIDDLER'S CREEK GROUND WTR (
BOR	NG NO.	Y15F	LYCA	_8440	RS	ΤA	TION 8	4+4	0			OFFS	SET 7	75 ft RT			ALIGNMENT -Y15FLYCA- 0 HR. 6
COLI	AR ELE	EV. 83	5.6 ft		Т	от	AL DEP	ГН	15.2 f	t		NOR	THING	850,0	86		EASTING 1,664,370 24 HR. 4
DRILL	RIG/HAI	MMER E	FF./DA	TE C	ME-550	X								DRILL	NETHO	D H	H.S. Augers HAMMER TYPE Automatic
DRIL	LER E	step, J.	E.		S	ΤA		E 0	9/25/0	8		сом	P. DA	TE 09/2	25/08		SURFACE WATER DEPTH N/A
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLC 0.5ft	OW CO 0.5ft	UNT 0.5ft		0 2	BI 25	LOWS	PER F0	ООТ 7	75	100	SAMP. NO.	моі	L O G	SOIL AND ROCK DESCRIPTION
840																	B35.6 GROUND SURFACE
835	835.6 -	<u> </u>	4	5	4	Ħ	. 9							SS-130	м		ALLUVIAL Red Brown Stiff Moist Sitty Sandy CLAY
	- 831 5 -	- 41						.	· · ·		 	 	· ·				
830	-	-	3	2	2	1	<u>4</u>	·		· ·	• •		• •	SS-131			
	-	ł					1 .1		· · · · · ·	· ·	· · · ·	· · ·	· · ·				827.6
825	826.5 -	9.1	4	4	6	$\left\{ \right\}$	· (· · · ·	· ·	· · · · · ·	· · · ·	· · · ·	· · ·	· · ·	SS-132	w		Gray, Loose To Med. Dense, Wet, SAND & GRAVEL
020	-																824.6 1 RESIDUAL 1 Tan & Olive, Med. Dense, Wet, Very 1
	821.5	F 14.1	8	19	60/0.1				<u> </u>				 60/0 1	SS-133	_w_		
																	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 820.4 ft in CRYSTALLINE ROCK

SHEET 8 OF 8

CONTENTS

4 5 - 6

SHEET NO. 2 3

2

2579A

REFERENCE

DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN CROSS SECTION BORING LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON-SALEM BELTWAY FROM US 421 / I-40 BUS TO I-40

SITE DESCRIPTION CULVERT NO. 0750 AT STATION 18+22.67 -Y5B-

34839 PROIEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	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 UNPELACED 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 OF CONTRACTOR IS CALIFORED THAT DETAILS SHOWN ON THE SUBSUPFACE 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 CUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONJITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY IMMSELF 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 ACUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

NOTES:

- FES: 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. 2.

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J.K. STICKNEY
C.L. SMITH

B.E. FOSTER

INVESTIGATED BY	NDDR, III									
DRAWN BY	JEB									
CHECKED BYK.B. MILLER										
SUBMITTED BY										
DATE FEBRUARY 2021										



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

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

	SOIL DESCRIPTION										GI	RADATION						ROCK DE	SCRIPTION
SOIL IS BE PENET ACCORDI IS B CONSISTE	CONSIDERED RATED WITH NG TO THE BASED ON TH NCY, COLOR,	UNCONSOLID H A CONTINUO STANDARD PI HE AASHTO S , TEXTURE, MO	ATED, SEMI-CON IUS FLIGHT POV ENETRATION TES YSTEM, BASIC D ISTURE, AASHTO	SOLIDATED, O VER AUGER AN ST (AASHTO I DESCRIPTIONS CLASSIFICAI	R WEATHERED ID YIELD LESS 206, ASTM DI GENERALLY IN ION, AND OTHE	EARTH MA 5 THAN 100 1586), SOII NCLUDE TH R PERTINE	TERIALS TH Ø BLOWS PI L CLASSIFI HE FOLLOWI ENT FACTOF	HAT CAN ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATE	ies a C Idicate Is a Mi	GOOD REPRESE ES THAT SOIL IXTURE OF UN	ENTATION OF PARTIC PARTICLES ARE AL IFORM PARTICLE SI RITY OF GRAI	CLE SIZES F L APPROXIM ZES OF TWO NS	ROM FINE TO COARSE. ATELY THE SAME SIZE. OR MORE SIZES.	HARD ROCK IS ROCK LINE IN SPT REFUSAL BLOWS IN NO REPRESENTED	S NON-CO NDICATES IS PENE DN-COAST BY A Z	JASTAL PLA THE LEVEL ETRATION B (AL PLAIN CONE OF WE	NIN MATERIAL THAT N L AT WHICH NON-COA Y A SPLIT SPOON SA MATERIAL, THE TRA ATHERED ROCK.	WOULD YIELD SPT REFUSAL IF TEST STAL PLAIN MATERIAL WOULD YIELD AMPLER EQUAL TO OR LESS THAN Ø. INSITION BETWEEN SOIL AND ROCK
AS V	S MINERALO VERY STIFF.G	GICAL COMPO GRAY, SILTY CLAY	SITION, ANGULAR MOIST WITH INTI	RITY, STRUCTU ERBEDDED FIN	RE, PLASTICITY E SAND LAYERS	Y,ETC.FO <i>HIGHLY PLA</i>	R EXAMPLE ASTIC.A-7-6	•	THE ANGULARIT	Y OR R	ROUNDNESS OF	SOIL GRAINS IS D	ESIGNATED E	Y THE TERMS:		HLS HRE	SUTE SUTE	NON-COASTAL PLAT	IN MATERIAL THAT WOLLD YIELD SP
	S	OIL LEG	END AND	AASHTO	CLASSIFI	CATION	1		ANGULAR, SUBAN	150LAR. M1	INFRALOG	ICAL COMPOS			ROCK (WR)			100 BLOWS PER FO	DOT IF TESTED.
GENERAL CLASS.	(GRANULAR MATE ≤ 35% PASSING	RIALS #200)	SILT-CLA	MATERIALS	OR	GANIC MATER	IALS	MINERAL NAM	MES SU	JCH AS QUART	Z, FELDSPAR, MICA, T	ALC, KAOLIN,	ETC.	CRYSTALLINE			FINE TO COARSE (WOULD YIELD SPT	GRAIN IGNEOUS AND METAMORPHIC RC REFUSAL IF TESTED. ROCK TYPE IN
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	I DESCR	RIPTIONS WHE	N THEY ARE CONSID	ERED OF SI	GNIFICANCE.	NOLK (LR)		<u> ZC.ZC.</u>	GNEISS, GABBRO, SO	CHIST,ETC. GRAIN METAMORPHIC AND NON-COAST4
CLASS.	A-1-a A-1-b	A-2-4	A-2-5 A-2-6 A-2-	7	A-7-5 A-7-6	A-3	A-6, A-7		SI IGI			RESSIBILITY	11 (31		ROCK (NCR)			SEDIMENTARY ROCH ROCK TYPE INCLU	<pre>< THAT WOULD YEILD SPT REFUSAL DES PHYLLITE.SLATE.SANDSTONE.ET(</pre>
SYMBOL				X					MODE'	RATELY		LE	LL = 31	50	COASTAL PLA		$\neg \neg$	COASTAL PLAIN SE	DIMENTS CEMENTED INTO ROCK, BUT
7. PASSING 10 E	50 MX					GRANULAR	SILT-	MUCK,		F	PERCENTA	GE OF MATER	IAL		(CP)			SHELL BEDS, ETC.	
■40 3 ■200 1	30 MX 50 MX 15 MX 25 MX	51 MN 10 MX 35 MX 3	85 MX 35 MX 35 M	1X 36 MN 36 MI	N 36 MN 36 MN	SOILS	SOILS	PEAT	ORGANIC MATERIAL	_	GRANULAR SOILS	SILT - CLAY SOILS	OTHE	R MATERIAL	FRESH	BUCK EB			TE MAY SHOW SI IGHT STAINING BOCK
MATERIAL PASSING *40 LL	-	- 40 MX	41 MN 40 MX 41 M	N 40 MX 41 MM	40 MX 41 MN	SOILS LITT	5 WITH LE OR		TRACE OF ORGANIC MU LITTLE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	ATTER TER	2 - 3% 3 - 5% 5 - 10%	3 - 5% 5 - 12% 12 - 20% 20%	TRACE LITTLE SOME HIGHLY	1 - 10% 10 - 20% 20 - 35% 35% AND ABOVE	VERY SLIGHT (V SLI.)	HAMMER ROCK GE CRYSTAL	IF CRYSTAL INERALLY FF S ON A BR(LLINE. RESH, JOINTS STAINED, DKEN SPECIMEN FACE	SOME JOINTS MAY SHOW THIN CLAY C SHINE BRIGHTLY. ROCK RINGS UNDER H
PI GROUP INDEX	вмх	NP 10 MX 1	4 MX 11 MN 11 M	8 MX 12 M		MODE AMOUR	ERATE NTS OF	ORGANIC			GRO	UND WATER				OF A CR	YSTALLINE	NATURE.	
USUAL TYPES S OF MAJOR	GRAVEL, AND	FINE SIL SAND GRA	TY OR CLAYEY	SILTY SOILS	CLAYEY	ORC	GANIC	SOILS	✓	WATE STA	ER LEVEL IN TIC WATER LE	BORE HOLE IMMEDIA	TELY AFTER	DRILLING	(SLI.)	1 INCH. (CRYSTAL	DPEN JOINTS	S MAY CONTAIN CLAY. AND DISCOLORED. CF	IN GRANITOID ROCKS SOME OCCASIONA IYSTALLINE ROCKS RING UNDER HAMMER
GEN. RATING	SHNU	5.05.1 5.17. 10				FAIR TO				PERC	CHED WATER, S	SATURATED ZONE, OF	WATER BEA	RING STRATA	(MOD.)	GRANITO	ID ROCKS, M	OST FELDSPARS ARE I	DULL AND DISCOLORED, SOME SHOW CLA
AS SUBGRADE		EXCELLENT TO	GOOD	FAIR	to poor	POOR	POOR	UNSUITABLE		SPRJ	ING OR SEEP					WITH FR	ESH ROCK.	HAMMER BLUWS AND S	SHOWS SIGNIFICANT LOSS OF STRENGTE
	1	PI OF A-7-5 SU	SCROUP IS ≤ LL	- 30; PI OF A-7	-6 SUBGROUP IS	> LL - 30					MISCELLA		א ר		MODERATELY	ALL ROC		DUARTZ DISCOLORED O	R STAINED. IN GRANITOID ROCKS, ALL F
		СОМРАС		RANGE OF	STANDARD	RAN	GE OF UNC	ONFINED			25/0	1112003 311100			(MOD. SEV.)	AND CAN	A BE EXCAVE	ATED WITH A GEOLOGIS	ST'S PICK. ROCK GIVES "CLUNK" SOUND
GENERAL	SOIL TYPE	CONSI	LOOSE	PENETRATIO	N RESISTENCE (ALUE)	COMP	RESSIVE S	TRENGTH	U ROADWAY EMB	ANKMEN SCRIPT		→ OF ROCK STRU → OF ROCK STRU SPT OPT DMT TEST BOR		SLOPE INDICATOR	SEVERE (SEV.)	ALL ROC REDUCED	CK EXCEPT () IN STRENG	DUARTZ DISCOLORED O TH TO STRONG SOIL.	R STAINED. ROCK FABRIC CLEAR AND E IN GRANITOID ROCKS ALL FELDSPARS (
GRANULA	AR N	LC MEDIU	DOSE M DENSE	4 10	FO 10/ TO 30/		N/A			ÎLI (AF		VST PMT		INSTALLATION		IF TEST	EXTENT. 5	VIELD SPT N VALUES	100 BPF
(NON-CO	HESIVE)	VERY	INSE DENSE SOFT	30	TO 50 50		< 0.25	j	THAN ROADWA	Y EMBA		- CORE BORING	•	TEST SOUNDING ROD	VERY SEVERE (V SEV.)	ALL ROC BUT MAS REMAININ	K EXCEPT G SS IS EFFEC NG. SAPROLI	DUARTZ DISCOLORED O TIVELY REDUCED TO S TE IS AN EXAMPLE OF	R STAINED. ROCK FABRIC ELEMENTS AF SOIL STATUS, WITH ONLY FRAGMENTS O F ROCK WEATHERED TO A DEGREE THAT
GENERAL SILT-CL MATERIA	LLY AY NL	S MEDIU S	OFT M STIFF TIFF	2 4 8	TO 4 TO 8 TO 15		0.25 TO 0.5 TO 1 1 TO 2	0.5 1.0		CK LINE	E ^{MW}	r) MONITORING WI ∖ PIEZOMETER	ELL 🔶	TEST BORING WITH CORE	COMPLETE	ROCK RE	EDUCED TO S	NAL RUCK FABRIC REM SOIL. ROCK FABRIC NO IRATIONS. QUARTZ MAY	T DISCERNIBLE, OR DISCERNIBLE ONLY BE PRESENT AS DIKES OR STRINGERS
CORESIN	VE)	H	ARD		30		> 4	•	ALLUVIAL SUI	L BUUN		INSTALLATION	0	- SPI N-VALUE		ALSU AN	I EXAMPLE.	воск н	
			TEXTURE	OR GRAI	N SIZE					F	RECOMMEN	DATION SYMB	OLS		VERY HARD	CANNOT	BE SCRATCH	HED BY KNIFE OR SHA	RP PICK. BREAKING OF HAND SPECIMEN
U.S. STD. SIE OPENING (MM	EVE SIZE M)		4 10 4.76 2.00	40 0.42	60 200 0.25 0.075	270 0.053					NCLASSIFIED E NSUITABLE WA	STE		SIFIED EXCAVATION - ABLE, BUT NOT TO BE		SEVERAL	. HARD BLOW	NS OF THE GEOLOGIST	'S PICK.
	R CO	BBLE	BAVEL	COARSE	FINE		SUIT	CL AY	SHALLOW UNDERCUT		NCLASSIFIED E	EXCAVATION - GRADABLE ROCK	USED I EMBAN	MENT OR BACKFILL	HHNU	TO DETA	ACH HAND SF	PECIMEN.	ALT WITH DIFFICULTT. HHND HHMMEN B
(BLDR.) GRAIN MM	305	(OB.) 75	(GR.) 2.0	SAND (CSE. SD.)	SAND (F SD. 0.25	.) 0.05	(SL.) 0.005	(CL.)	AR - AUGER REFUSAL		ABB MED	REVIATIONS MEDIUM	VST	- VANE SHEAR TEST	- MODERATELY HARD	CAN BE EXCAVAT BY MODE	SCRATCHED IED BY HARE ERATE BLOW	BY KNIFE OR PICK. G D BLOW OF A GEOLOGI S.	OUGES OR GROOVES TO 0.25 INCHES DI ST'S PICK. HAND SPECIMENS CAN BE D
SIZE IN.	12	3							BT - BORING TERMINATED	C	MICA. MOD	- MICACEOUS	WEA. γ -	- WEATHERED UNIT WEIGHT	MEDIUM HARD	CAN BE	GROOVED OP	R GOUGED 0.05 INCHES	DEEP BY FIRM PRESSURE OF KNIFE OP PEICES 1 INCH MAXIMUM SIZE BY HARD
	S	SOIL MOI	STURE - (CORRELA	TION OF	TERMS			CPT - CONE PENETRATIO	N TEST	NP - I	NON PLASTIC	γ_{d} -	DRY UNIT WEIGHT		POINT O	F A GEOLOG	IST'S PICK.	
(ATT	ERBERG LI	MITS)	DESCRI		GUIDE FOR F	TIELD MOI	STURE DES		DMT - DILATOMETER TES DPT - DYNAMIC PENETRA	TION T	EST SAP	PRESSUREMETER TI SAPROLITIC	EST <u>SA</u> S-E	MPLE ABBREVIATIONS BULK	SOFT	CAN BE FROM CH PIECES	GROVED OR HIPS TO SEV CAN BE BRO	GOUGED READILY BY /ERAL INCHES IN SIZE KEN BY FINGER PRESS	KNIFE OR PICK. CAN BE EXCAVATED IN BY MODERATE BLOWS OF A PICK POIN SURE.
		LIMIT	(SAT.)		FROM BELOW	THE GRO	DUND WATE	R TABLE	F - FINE FOSS FOSSILIFEROUS		SL SL SLI	SHID, SHIDT SILT, SILTY SLIGHTLY	SS - ST - RS -	SHELBY TUBE ROCK	VERY SOFT	CAN BE OR MORE FINGERN	CARVED WIT E IN THICKN	H KNIFE. CAN BE EXC ESS CAN BE BROKEN B	AVATED READILY WITH POINT OF PICK. BY FINGER PRESSURE. CAN BE SCRATCH
RANGE <			- WET -	(W)	SEMISOLID; R ATTAIN OPTI	REQUIRES	DRYING TO STURE)	FRAGS FRAGMENTS	TURES	и - м	INICONE REFUSAL	CBR	CALIFORNIA BEARING	F	RACTI	URE SPF	ACING	BEDDING
(FI) PL L	+ PLASTI	C LIMIT							HI HIGHLY			ERY		RATIO	VERY WID	-	MORE	SPACING THAN 10 FEFT	
OM SL		M MOISTURE AGE LIMIT	- MOIST	- (M)	SOLID; AT OF	r near oi	PTIMUM MC	DISTURE			ANCING TOOLS:	J ON SUBJECT			WIDE MODERATE CLOSE	- LY CLOSI	3 E 1 Ø.	TO 10 FEET TO 3 FEET 16 TO 1 FOOT	THICKLY BEDDED 1 THINLY BEDDED 0. VERY THINLY BEDDED 0.0
			- DRY -	(D)	REQUIRES AD ATTAIN OPTI	DITIONAL	WATER TO STURE	D	CME-55		6" CONTINUOU	IS FLIGHT AUGER	CORE SI	E:	VERY CLO	SE	LESS	THAN 0.16 FEET	THICKLY LAMINATED 0.00 THINLY LAMINATED <
			PLA	STICITY							8" HOLLOW A		∐-в _	∐-н					
NON SLIC	PLASTIC GHTLY PLAS	STIC	PLASTI	0-5 6-15	<u>(P])</u>	Di	RY STRENC VERY LOW SLIGHT	<u>3TH</u> /	VANE SHEAR TEST		TUNGCARBI	FINGER BITS DE INSERTS		DLS:	- FUR SEDIMEN	_E	JKS, INDURA	RUBBING WITH GENTLE BLOW	FINGER FREES NUMEROUS GRAINS; BY HAMMER DISINTEGRATES SAMPLE.
MOD HIGH	ERATELY P HLY PLASTI	LASTIC	2	16-25 6 OR MORE			MEDIUM HIGH		PORTABLE HOIST		CASING	W/ ADVANCER • STEEL TEETH	P0:	T HOLE DIGGER	MODER	ATELY IN	NDURATED	GRAINS CAN BE BREAKS EASIL	E SEPARATED FROM SAMPLE WITH ST Y WHEN HIT WITH HAMMER.
			(JULUR							TRICONE	' TUNGCARB.	X SOI	INDING ROD	INDUR	ATED		GRAINS ARE DI DIFFICULT TO	FFICULT TO SEPARATE WITH STEEL BREAK WITH HAMMER.
DESCRIPT MO	IONS MAY DIFIERS SL	INCLUDE COL JCH AS LIGH	OR OR COLOR T, DARK, STREA	COMBINATIO	NS (TAN, RED, E USED TO DE	YELLOW-B ESCRIBE A	ROWN, BLU	E-GRAY). E.			CORE BIT			E SHEAR TEST	EXTRE	MELY INC	JURATED	SHARP HAMMER SAMPLE BREAK	BLOWS REQUIRED TO BREAK SAMPLE S ACROSS GRAINS.

PROJECT REFERENCE NO.

U-2579AB

2

	TERMS AND DEFINITIONS
ED. AN INFERRED	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARCILLACEDUS - 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.
I N VALUES /	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLUDES GRANITE,	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
AL PLAIN	COLLIVIUM - ROCK ERAGMENTS MIXED WITH SOUL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
C.	OF SLOPE.
MAY NOT YIELD STONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
COATINGS IF OPEN.	HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE
IAMMER BLOWS IF	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
DCK UP TO AL FELDSPAR	FAULT - A FRACTORE OF FRACTORE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTORE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AY. ROCK HAS	PARENT MATERIAL.
H AS LUMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
OSS OF STRENGTH	FIELD.
WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
EVIDENT BUT	ITS LATERAL EXTENT.
ARE KAOLINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
	USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
F STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
T ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
IN SMALL AND	ROCK QUALITY DESIGNATION (RQD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF
S. SAPRULITE IS	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
0.05001050	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
IS REQUIRES	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND
LOWS REQUIRED	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHLISTOSITY OF THE INTRIDED ROCKS.
EEP CAN BE DETACHED	SLICKENSIDE - FOLISHED HND SINIHIED SUNFHCE INHI NESULIS FRUM FRICIUM HEUNG H FHULI OR SLIP PLANE.
	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF
DR PICK POINT. BLOWS OF THE	WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION OF I FOUT INTO SOL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL
EDACMENTS	
T. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
DIECER 1 INCU	STRATA RULK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY
HELES I INCH	THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
THICKNESS	BENCH MARK: BURING ELEVATIONS AND CUURDINATE LUCATIONS
4 FEET	PROVIDED BY DIVISION ID LOCATION AND SURVEYS UNIT IN JAN. 2021
1.5 - 4 FEET	
16 - 1.5 FEET	NOTES:
03 - 0.16 FEET 08 - 0.03 FEFT	
0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
AT PRESSURE ETC	
HI, FRESSURE, ETC.	
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	DHIE: 0-10-14





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s	ITE D	ESCR	IPTION	Culv	vert No	b. 075	0 on Mered	ith Way o	ver Fiddle	er's Creek								GROUND W	VTR (ft)	SITE	DESCR		Cul	vert No	. 0750) on Mered	lith Way ov	ver Fiddle
E	ORIN	g no.	B-1			S	TATION 1	8+53		OFFSET	45 ft LT			ALI	GNMENT	-Y5B-		0 HR.	N/A	BOR	ING NO.	. B-2			S	TATION 1	8+25	
C	OLLA		EV. 84	16.2 ft		т	OTAL DEP	FH 22.0 f	ft	NORTHIN	G 849,4	448		EAS	STING 1	,666,213		24 HR.	FIAD	COL	LAR ELI	EV. 84	46.4 ft		т	OTAL DEP	TH 26.9 f	ť
D	RILL F	rig/hai	MMER E	FF./DA	TE H	-00070	OME-550X 7	79% 12/16/2	2019	1	DRILL	METHO	DD ⊦	I.S. Auge	ers		HAMM	ERTYPE Au	tomatic	DRILL	RIG/HA	MMER E	FF./DA	TE H	-00070	CME-550X	79% 12/16/2	2019
C	RILL	ER S	mith, C	. L.		S	TART DATI	E 01/22/2	21	COMP. DA	TE 01	/22/21		SUF	RFACE W		PTH N/	A		DRIL	LER S	mith, C). L.		S		E 01/22/2	21
E	LEV		DEPTH	BLC	w co	JNT		BLOWS	PER FOOT		SAMP		L							ELEV	DRIVE	DEPTH	BLC	OW CO	UNT	Π	BLOWS	PER FOOT
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SHEET 5 OF 6



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BO	RING NO.	. В-3			S			18+0	06	r ,		OFF	SET 3	35 ft RT			ALIGNMENT -Y5B- 0 HR.	N/A
		EV. 84	6.6 ft FE /DA	теч			. DEP	70%	27.1	tt /2010		NOR	THING	i 849,3		пц	EASTING 1,666,265 24 HR.	FIAD
					- COUNC				12/10/	2013		<u></u>			22/24			
			BLC	W CO			DAI		BLOWS	PER	FOOT	CON	1F. DA	SAMP.	$\mathbf{\nabla}/$	1 L	SURFACE WATER DEPTH N/A	
(ft)	ELEV (ft)	(ft)	0.5ft	0.5ft	0.5ft	0		25		50		75	100	NO.	мо	O G	SOIL AND ROCK DESCRIPTION	N DEPTH (ft)
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SHEET 6 OF 6

CONTENTS

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SHEET NO.

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2579A

REFERENCE

DESCRIPTION TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN CROSS SECTION BORING LOGS

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY FORSYTH

PROJECT DESCRIPTION WINSTON-SALEM BELTWAY FROM US 421 / I-40 BUS TO I-40

SITE DESCRIPTION CULVERT AT Sta. 19+75.11 -Y5B-

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2579AB	1	5

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 UNPELACED 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 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 REVIENT OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTIONS FOR ACTUAL COMPENSATION.

NOTES:

- FES: 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. 2.

PERSONNEL

J.K .	STICKNEY

C.L. SMITH **B.E. FOSTER**

INVESTIGATED BY C.R. LAVEND	ER, III
DRAWN BY	—os JEB
CHECKED BYK.B. MILLER	
SUBMITTED BY	R, <i>III</i>
DATE SEPTEMBER 2020	



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

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

			SOIL C	ESCRIPT	ION				T		G	RADATION		ROCK DESCRIPTION										
SOIL IS C BE PENETF ACCORDIN IS BA CONSISTEM	CONSIDERED RATED WITH NG TO THE ASED ON TH NCY, COLOR,	UNCONSOLID A CONTINUO STANDARD PI E AASHTO S TEXTURE, MO	ATED, SEMI-CON DUS FLIGHT POV ENETRATION TE YSTEM. BASIC (ISTURE, AASHTO	SOLIDATED, O VER AUGER AN ST (AASHTO 1 DESCRIPTIONS CLASSIFICAT	R WEATHERED ND YIELD LESS 206, ASTM DI GENERALLY IN ION, AND OTHE	EARTH MA 5 THAN 10 1586), SOI NCLUDE TH 10 PERTINE	TERIALS TH 0 BLOWS PI L CLASSIFI HE FOLLOWI ENT FACTOP	HAT CAN ER FOOT CATION NG: RS SUCH	WELL GRADED - INDICAT UNIFORMLY GRADED - IN GAP-GRADED - INDICATE	IES A (NDICATE	GOOD REPRES	ENTATION OF PARTIC PARTICLES ARE AL NFORM PARTICLE SI RITY OF GRAI	CLE SIZES F L APPROXIM ZES OF TWO NS	HATD HOUR IS NUN-LUASIAL FLAIN MAIERIAL THAT WOULD YIELD SFT REFUSAL IF TE ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIE SFT REFUSAL IS FENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROU REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:										
AS VI	ERY STIFF.G	GICAL COMPO RAY,SILTY CLAY	SITION, ANGULAN MOIST WITH INT.	ERBEDDED FIN	RE, PLASTICITY E SAND LAYERS	Y,ETC.FO <i>HIGHLY PL</i>	R EXAMPLE ASTIC.A-7-6	•	THE ANGULARIT	Y OR F	ROUNDNESS OF	SOIL GRAINS IS D	ESIGNATED E	WEATHERED	HLS HRE			MAIDED HS FULLUWS:						
	S	DIL LEG	end and	AASHTO	CLASSIFI	CATION	1		ANGULAR, SUBAN	M1	INFRALOG	TCAL COMPOS		ROCK (WR)			100 BLOWS PER F	OOT IF TESTED.						
GENERAL CLASS.	(Granular mate ≤ 35% passing	RIALS =200)	SILT-CLA	MATERIALS	OF	GANIC MATER	IALS	MINERAL NAM	MES SU	ICH AS QUART	Z, FELDSPAR, MICA, 1	ALC, KAOLIN,	CRYSTALLINE	RYSTALLINE									
GROUP	A-1	A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-							ARE USED IN	1 DESCR	RIPTIONS WHE	IN THEY ARE CONSID	ERED OF SI	GNIFICANCE.	NOLK (CR)		<u>20.20.</u>	GNEISS, GABBRO, S	CHIST, ETC. GRAIN METAMORPHIC AND NON-COAST4					
CLASS. A	-1-a A-1-b	A-2-4	A-2-5 A-2-6 A-2-	7	A-7-5 A-7-6	A-3	A-6, A-7		SI IGI			RESSIBILITY	11 < 31		ROCK (NCR)	LINE		SEDIMENTARY ROCK THAT WOULD YEILD SPT RE						
SYMBOL				X					MODE'	RATELY		BLE	LL = 31	50	COASTAL PLA			COASTAL PLAIN S	EDIMENTS CEMENTED INTO ROCK, BUT					
7 PASSING 10 50	50 MX GRANULAR SILT-							MUCK,		F	PERCENTA	AGE OF MATER	IAL		(CP)			SHELL BEDS, ETC.						
*40 30 *200 15	0 MX 50 MX 5 MX 25 MX	51 MN 10/MX 35/MX 3	35 MX 35 MX 35 M	1X 36 MN 36 MI	N 36 MN 36 MN	SOILS	SOILS	PEAT	ORGANIC MATERIAL		GRANULAR SOILS	SILT - CLAY SOILS	OTHE	R MATERIAL	FRESH				TENINU					
MATERIAL PASSING #40 LL	-	- 40 MX	41 MN 40 MX 41 M	N 40 MX 41 M	1 40 MX 41 MN	SOILS	5 WITH LE OR		TRACE OF ORGANIC MULITILE ORGANIC MAT MODERATELY ORGANIC HIGHLY ORGANIC	ATTER TER	2 - 3% 3 - 5% 5 - 10% > 10%	3 - 5% 5 - 12% 12 - 20% > 20%	TRACE LITTLE SOME HIGHLY	1 - 10% 10 - 20% 20 - 35% 35% AND ABOVE	VERY SLIGHT	HAMMER ROCK GI CRYSTA	ENERALLY FI	LLINE. RESH, JOINTS STAINED OKEN SPECIMEN FACE	, SOME JOINTS MAY SHOW THIN CLAY C SHINE BRIGHTLY. ROCK RINGS UNDER H					
PI GROUP INDEX	вмх	a a	4 MX	8 MX 12 M		MODI AMOLII	ERATE NTS OF	ORGANIC			GRO	UND WATER				OF A CF	RYSTALLINE	NATURE.						
USUAL TYPES ST OF MAJOR G	TONE FRAGS.	FINE SIL SAND GRA	TY OR CLAYEY	SILTY	CLAYEY	ORC	GANIC TTER	SOILS								1 INCH. CRYSTAI	OPEN JOINTS	TREST, JUINTS STAINED AND DISCULUKATION EXTENDS INTO RU VIS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL JLL AND DISCOLORED, CRYSTALLINE ROCKS RING UNDER HAMMER						
GEN. RATING	SHIND		c000	CAID	TO 0000	FAIR TO	poop			PER	CHED WATER,	SATURATED ZONE, OF	WATER BEA	RING STRATA	(MOD.)	GRANIT	DID ROCKS, M	10ST FELDSPARS ARE	DULL AND DISCOLORED, SOME SHOW CLA					
AS SUBGRADE			6000	L HIV		POOR	FUUR	UNSULTHOLE		SPRI	ING OR SEEP					WITH FF	RESH ROCK.	HHMMEN BLOWS HND	SHOWS SIGNIFICHNI LUSS OF SINENDIF					
		1 UF A-7-5 SU	NSISTENC	Y OR DE	NSENESS	> LL - 30					MISCELLA	ANEOUS SYMB	DLS		MODERATELY SEVERE	ALL RO	CK EXCEPT (SCOLORED AN	QUARTZ DISCOLORED (ND A MAJORITY SHOW	OR STAINED. IN GRANITOID ROCKS.ALL F KAOLINIZATION. ROCK SHOWS SEVERE L					
		COMPAC	TNESS OR	RANGE OF	STANDARD	RAN	GE OF UNC	ONFINED			UT (DE) 25/1	025 DID 4 DID DIG	CTION		(MOD. SEV.)	AND CAN	N BE EXCAV	ATED WITH A GEOLOGI YIELD SPT REFLISAL	ST'S PICK. ROCK GIVES *CLUNK* SOUND					
GENERALI	VIL ITPE CONSISTENCY PENEIRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) COMPRESSIVE STRENGTH (TONS/FT ²) ULY VERY LOOSE < 4										→ OF ROCK STRL		SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR / REDUCED IN STRENGTH TO STRONG SOLL. IN GRANITOID ROCKS ALL FELDSP TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY RFMAIN.										
GRANULAR MATERIAL	GRANULAR MEDIUM DENSE 10 TO 30 N/A									Ā		<u>IF TEST</u>	F TESTED, WOULD YIELD SPT N VALUES > 100 BPF											
(NON-COH	40N-COHESIVE) UENSE 30/10							i	I HAN ROADWAY EMBANKMENT I HOLL COMMON TEST							ALE HOLE ALECTIVELY REDUCED TO SOLL STATUS, WITH ONLY FRAMENTS BUT MASS IS EFFECTIVELY REDUCED TO SOLL STATUS, WITH ONLY FRAMENTS REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE TH VESTIGES OF DRIGHNAL BOCK FARRIC REMAIN IE TESTED AVUID YTEN SET I								
GENERALI SILT-CLA MATERIAL (COHESIVI	GENERALLY SOFT 2 10 4 0.25 10 0.5 SILT-CLAY MEDIUM STIFF 4 10 8 0.5 10 1.0 MATERIAL STIFF 8 10 15 1 10 2 CONTENTS VEDU CTLF 15 10 20 1 10 2							0.5 1.0 2 4									EDUCED TO S	SOIL. ROCK FABRIC NE TRATIONS. QUARTZ MA	DT DISCERNIBLE, OR DISCERNIBLE ONLY Y BE PRESENT AS DIKES OR STRINGER					
		н	ARD	· >	30		> 4				INSTALLATION	<u> </u>				ROCK H	IARDNESS							
			IEXIURE	OR GRAI	N SIZE						NDATION SYME		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECI											
U.S. STD. SIEV OPENING (MM)	VE SIZE		4 10 4.76 2.00	40 0.42	60 200 0.25 0.075	270 0.053				SUITABLE WA	ISTE		HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMY											
BOULDER	COE	BBLE	GRAVEL	COARSE	FINE		SILT	CLAY	SHALLOW UNDERCUT	NCLASSIFIED E	EXCAVATION - GRADABLE ROCK	EMBAN	TO DETACH HAND SPECIMEN.											
(BLDR.) GRAIN MM	(C 305	0B.) 75	(GR.) 2.0	(CSE. SD.)	0.25	.) 0.05	(SL.) 0.005	(CL.)	AR - AUGER REFUSAL	ABB MED	REVIATIONS	VST	HARD EXCAVERED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENT BY MODERATE BLOWS.											
SIZE IN.	12	3							BT - BORING TERMINATED	MICA. MOD	- MICACEOUS - MODERATELY	WEA. グ・	MEDIUM HARD	can be Can be	S DEEP BY FIRM PRESSURE OF KNIFE O PEICES 1 INCH MAXIMUM SIZE BY HARD									
SOIL N (ATTE	SUIL MUISIURE - LURKELATION OF TERMS SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION									LOPT - CONE PENETRATION TEST NP - NON PLASTIC 𝒜_0^- DRY UNIT WEIGHT CSE COARSE ORG, - ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST								POINT OF A GEOLOGIST'S PICK. CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED ' FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BUDYS OF A PICK PC						
	- SATURATED - USUALLY LIQUID: VERY WET, USUALLY (SAT.) FROM BELOW THE GROUND WATER TABLE								DPT - DYNAMIC PENETRA e - VOID RATIO F - FINE	TION TI	EST SAP SD SL	SAPROLITIC SAND, SANDY SILT, SILTY	S - E SS - ST -	VERY SOF T	PIECES CAN BE OR MOR	CAN BE BRO CARVED WI? TE IN THICKN	DKEN BY FINGER PRES TH KNIFE. CAN BE EX WESS CAN BE BROKEN	SURE. CAVATED READILY WITH POINT OF PICK. BY FINGER PRESSURE. CAN BE SCRATCH						
PLASTIC RANGE <		LIMIT	- WET -	(w)	SEMISOLID; R ATTAIN OPTI	EQUIRES	DRYING TO STURE)	 FOSS FOSSILIFEROUS FRAC FRACTURED, FRAC FRAGS FRAGMENTS 	SLI TCR - <i>w</i> - N	SLIGHTLY • TRICONE REFUSAL 40ISTURE CONTENT	RS - RT - CBR	F	FINGERNALL										
"PLL_	PLASTIC	C LIMIT							HI HIGHLY					RATIO		F	MUBI	SPACING F THAN 10 FEFT						
0M _ SL _	_ OPTIMUI _ SHRINK	M MOISTURE AGE LIMIT	- MOIST	- (M)	SOLID; AT OF	R NEAR O	PTIMUM MC	DISTURE	DRILL UNITS:		ANCING TOOLS:	:		TYPE:	WIDE MODERATE CLOSE	LY CLOS	3 3E 1 Ø.	TO 10 FEET 1 TO 3 FEET .16 TO 1 FOOT	THICKLY BEDDED 1 THINLY BEDDED 0. VERY THINLY BEDDED 0.0					
			- DRY -	(D)	REQUIRES AD	DITIONAL	WATER TO STURE	D			6" CONTINUOL	JS FLIGHT AUGER	CORE SI		VERY CLO	SE	LESS	THAN 0.16 FEET	THICKLY LAMINATED 0.00 THINLY LAMINATED <					
PLASTICITY										X	8'HOLLOW A	UGERS	□-в_	н				INDU	RATION					
PLASTICITY INDEX (PI) DRY STRENGTH							X CME-550		HARD FACED	FINGER BITS	<u> п-м</u>		FOR SEDIMEN	TARY RO	JCKS, INDURA	ATION IS THE HARDE	NING OF MATERIAL BY CEMENTING, HE							
NON SLIG	PLASTIC	TIC		Ø-5 6-15			VERY LOW SLIGHT	1	VANE SHEAR TEST			DE INSERTS	HAND TO	DLS:	FRIABL	.E		GENTLE BLOW	BY HAMMER DISINTEGRATES SAMPLE.					
MODE HIGHL	RATELY PL LY PLASTI	LASTIC C	2	16-25 6 OR MORE			MEDIUM HIGH		PORTABLE HOIST			STEEL TEETH		ST HOLE DIGGER ND AUGER	MODER	ATELY I	NDURATED	GRAINS CAN E BREAKS EASIL	E SEPARATED FROM SAMPLE WITH ST Y WHEN HIT WITH HAMMER.					
050000			00.00.00.00					c. co				UNGCARB.		INDING ROD	INDURA	Y TED		DIFFICULT TO	BREAK WITH HAMMER.					
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.								E-GRAY). E.			CURE BII			NE SHEAR IEST	EXTRE	MELY IN	IDURATED	SHARP HAMMEI SAMPLE BREA	R BLOWS REQUIRED TO BREAK SAMPLE KS ACROSS GRAINS.					

PROJECT REFERENCE NO.

U-2579AB

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	TERMS AND DEFINITIONS
ED. AN INFERRED	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS UFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
T N VALUES >	ARTESIAN - GOUND WATER THAT IS UNIT OF SUFFICIENT PRESSUE TO RISE BARLET SCHEVE THE LEVEL AT
DCK THAT NCLUDES GRANITE.	SURFACE.
	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED. C.	$\underline{\text{COLLUVIUM}}$ - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
MAY NOT YIELD STONE, 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.
	<u>DIRE</u> - A LABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
AMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
DCK UP TO AL FELDSPAR	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
R BLOWS.	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.
S. IN AY. ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
H AS COMPARED	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
.OSS OF STRENGTH WHEN STRUCK.	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO
EVIDENT BUT	ITS LATERAL EXTENT.
ARE KAULINIZED	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS
RE DISCERNIBLE	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
T ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
VALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
IN SMALL AND S. SAPROLITE IS	<u>ROCK QUALITY DESIGNATION (ROD)</u> - 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.
	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
BLOWS REQUIRED	<u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE DETACHED	$\underline{\text{SLICKENSIDE}}$ - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
DR PICK POINT. BLOWS OF THE	STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SP1) - 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.
FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SROD) - 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 EVPERSED AS A PEPFENTAGE
HED READILY BY	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
THICKNESS	BY NCDOT LOCATION AND SURVEYS UNIT
4 FEET	ELEVATION: FEET
16 - 1.5 FEET	NOTEC
03 - 0.16 FEET	
0.008 FEET	FIAD - FIELED IMMEDIATELT AFTER DRIELING
EAT. PRESSURE, ETC.	
TEEL PROBE:	
PROBE;	
E;	DATE: 8-15-14





WBS 34839.1.8 TIP U-2579AB COUNTY F								FORSYTH						GEOLOGIST Stickney, J. K.					WBS	34839	9.1.8		TIP U-2579AB COU										
SITE DESCRIPTION CULVERT ON MEREDITH WAY OVER TRIB								IBUT	ARY TO	FIDDLE	R'S	CRE	EEK	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			GRO	GROUND WTR (ft)			DESCR		I CU		N MEREDITH WAY OVER TRIB								
BORING NO. Y5B1978 STATION 19+78							0	OFFSET 30 ft LT					ALIGNMENT -Y5B- 0 HR. 4.7					BOR	ING NO	. Y5B	1998		S	TATION	19+9	8							
COLLAR ELEV. 844.8 ft TOTAL DEPTH 30.1 ft							N	NORTHING 849,553					EASTING 1,666,283 24 HR. FIAD				COL	LAR EL	EV. 84	45.8 ft	т	TOTAL DEPTH 24.7 ft											
DRILL RIG/HAMMER EFF./DATE HF00072 CME-550X 89% 12/16/2019							- 1		DRILL	DRILL METHOD H.S			S. Auge	rs	H/	AMMER TY	PE Autor	matic	DRIL	l rig/ha	MMER E	FF./D/	ATE H	FO0072	CME-550)	K 89%	12/16/2	019					
DRILLER Smith, C. L. START DATE						E 07/	/08/2	0	C	COMP. DA	ATE 07/08/20				SUR	FACE WATER	DEPTH	N/A			DRIL	DRILLER Smith, C. L. START DATE 07/07/20											
ELE		RIVE L FV	DEPTH	BLC	w co	UNT			BLO	OWS F	PER FO	ОТ		SAMP			L O		SOIL AN) ROCK E	DESCRIPT	ON		ELEV	DRIVE FLEV	DEPTH	BL	ow co	UNT		BI	LOWS F	PER FOOT
(ft) -	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25	5	50 I	7	5 100	NO.		101	G	ELEV.	(ft)			DE	EPTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5	0
84	5																	_ 844.8	GR	OUND SL	JRFACE		0.0	850		Ļ							
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