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STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY _GUILFORD

PROJECT DESCRIPTION GREENSBORO EASTERN LOOP I-85 BYPASS (-L-) FROM US 29 NORTH OF GREENSBORO TO EAST OF LAWNDALE DRIVE

SITE DESCRIPTION SITE NO. 4 (STRUCTURE NO. 6) -BRIDGE NO. 1245 ON SR 2523 (YANCEYVILLE ROAD) (-Y4-) OVER I-85 BYPASS (-L-)

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U–2525C	1	13
	state N.C.	state project reference no. N.C. U–2525C	

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 FILLD 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 (99) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOLI 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 SAMPLED DATA AND THE IN STUI (IN-PLACE) TEST DATA CAN BE RELIED ON ONLY TO THE DEGREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOIL MOISTURE CONDITIONS INDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS AND YARY CONSIDERABLY WITH TIME ACCORDING TO CLIMATIC CONDITIONS INCLUDING SAFE AS ACTORS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT, FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SIDE OFFERING 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.

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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	ROCK DESCRIPTION
SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AGASHTO T 206, ASTM DI586), SOIL CLASSIFICATION IS BASED ON THE AGASHTO SYSTEM, BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING; CONSISTENCY, COLOR, TEXTURE, MONISTURE, AGASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH	WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS	HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTE ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK REPRESENTED BY A ZONE OF WEATHERED ROCK.
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:
VERY STIFF.GRAY.SILTY CLAY.MOIST WITH INTERBEDDED FINE SAND LAYERS,HIGHLY PLASTIC,A-7-6 SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPI ROCK (WR) 100 BLOWS PER FOOT IF TESTED.
CENERAL CRANILLAR MATERIALS SUIT-CLAY MATERIALS	MINERALOGICAL COMPOSITION	CRYCTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC RO
CLASS. (≤ 357, PASSING *200) (> 357, PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.	CRYSTALLINE ROCK (CR) WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE IN GNEISS, GABBRO, SCHIST, ETC.
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5 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	COMPRESSIBILITY	NON-CRYSTALLINE
SYMBOL COCCEDED COCCEDENCE COCCED	SLIGHTLY COMPRESSIBLE LL < 31 MODERATELY COMPRESSIBLE LL = 31 - 50	ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT
	HIGHLY COMPRESSIBLE LL > 50	SEDIMENTARY ROCK SET REFUSAL, ROCK TYPE INCLUDES LIMESTONE, SANDS
1/2 50 MX UHANULAK MULK,	PERCENTAGE OF MATERIAL	WEATHERING
■200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN	GRANULAR SILT - CLAY ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK
MATERIAL PASSING *40 LL – – 40 MX 41 MN	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	HAMMER IF CRYSTALLINE. VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY C
PI 6 MX NP 10 MX 10 MX 11 MN 11 MN 10 MX 10 MX 11 MN 11 MN 11 MN 11 MN HIGHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER H OF A CRYSTALLINE NATURE.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO MX USUAL TYPES STONE FRAGS. EVEN OF THE ON	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO RO (SLI.) 1 INCH, OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL
OF MAJOR GRAVEL, AND SAND GRAVEL AND SAND SOLS SOLS	STATIC WATER LEVEL AFTER <u>24</u> HOURS	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMEF MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS
GEN. RATING EVICELLENT TO COOD EATE TO POOP FAIR TO POOP LINSUITABLE	∇ PW PERCHED WATER SATURATED ZONE OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLA DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH
AS SUBURALLE POUR	- O-M- Spring or Seep	WITH FRESH ROCK.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ;PI OF A-7-6 SUBGROUP IS > LL - 30 CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL F SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE L
COMPACTNESS OF RANGE OF STANDARD RANGE OF UNCONFINED		(MOD.SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND " IF TESTED, WOULD YIELD SPT REFUSAL
PRIMARY SOIL TYPE COMPACTIVESS On CONSISTENCY PENETRATION RESISTENCE (N-VALUE) COMPRESSIVE STRENGTH (TONS/FT ²) CONSISTENCY VERY LOOSE < 4		SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND E (SEV.) REDUCED IN STRENGTH TO STRONG SOLL IN GRANITOLD ROCKS ALL FELDSPARS A
GRANILAR LOOSE 4 TO 10	SOIL SYMBOL	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF
ONRIGENT MEDIUM DENSE 10 TO 30 N/A MATERIAL DENSE 30 TO 50 (NON-COHESIVE) VERY DENSE > 50	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT OF AUGER BORING ON CONE PENETROMETER TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS AR
VERY SOFT < 2 < 0.25	INFERRED SOIL BOUNDARY	SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF (V SEV.) REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT
GENERALLY SOFT 2 TO 4 0.25 TO 0.5 SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0		VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N V</u> COMPLETE ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY
MATERIAL STIFF 8 T0 15 1 T0 2 (COHESIVE) VERY STIFF 15 T0 30 2 T0 4		SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS ALSO AN EXAMPLE.
HARD > 30 > 4	INSTALLATION	ROCK HARDNESS
TEXTURE OR GRAIN SIZE		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMEN
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 DPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCUT UNCLASSIFIED EXCAVATION - UNCLASSIF	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK. HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BI
	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	TO DETACH HAND SPECIMEN.
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DE HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE D
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	AR - AUGER REFUSAL MED MEDIUM VST - VANE SHEAR TEST BT - BORING TERMINATED MICA MICACEOUS WEA WEATHERED	BY MODERATE BLOWS.
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MODE A TELY γ - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC γ_{d} - DRY UNIT WEIGHT	MEDIUM CAN BE GROUVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE O HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES I INCH MAXIMUM SIZE BY HARD POINT OF A GEOLOGIST'S PICK.
SOIL MOISTURE SCALE FIELD MOISTURE (ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	CSE COARSE ORG ORGANIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POIN
	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK	PIECES CAN BE BROKEN BY FINGER PRESSURE.
(SAT.) FROM BELOW THE GROUND WATER TABLE	e VOID RATIO SD SAND, SANDY SS - SPLIT SPOON F - FINE SL SILT, SILTY ST - SHELBY TUBE	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCH
	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL	FINGERNAIL.
(BI) - WEI - (W) ATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS W - MOISTURE CONTENT CBR - CALIFORNIA BEARING HI HIGHLY V - VERY RATIO	FRACTURE SPACING BEDDING
	EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED
OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1. MODERATELY CLOSE 1 TO 3 FEET THINLY BEDDED 0.1
REQUIRES ADDITIONAL WATER TO	CME-45C CLAY BITS X AUTOMATIC MANUAL	CLOSE 0.16 TO 1 FOOT VERY THINLY BEDDED 0.0 VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.00
- DRY - (D) ATTAIN OPTIMUM MOISTURE	CME-55 6' CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED <
PLASTICITY	8* HOLLOW AUGERS	
PLASTICITY INDEX (PJ) DRY STRENGTH NON PLASTIC 0-5 VERY LOW	CME-550	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HE RUBBING WITH FINGER FREES NUMEROUS GRAINS;
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST	FRIABLE GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH		MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH ST BREAKS EASILY WHEN HIT WITH HAMMER.
COLOR		CONTINE ARE DIFFICULT TO SERADATE WITH STEEL
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	X D-50 (TER373) CORE BIT VANE SHEAR TEST	INDURATED DIFFICULT TO BREAK WITH HAMMER.
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC, ARE USED TO DESCRIBE APPEARANCE.	X D-50 (TER346) X 3¼" HOLLOW STEM AUGER	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE SAMPLE BREAKS ACROSS GRAINS.

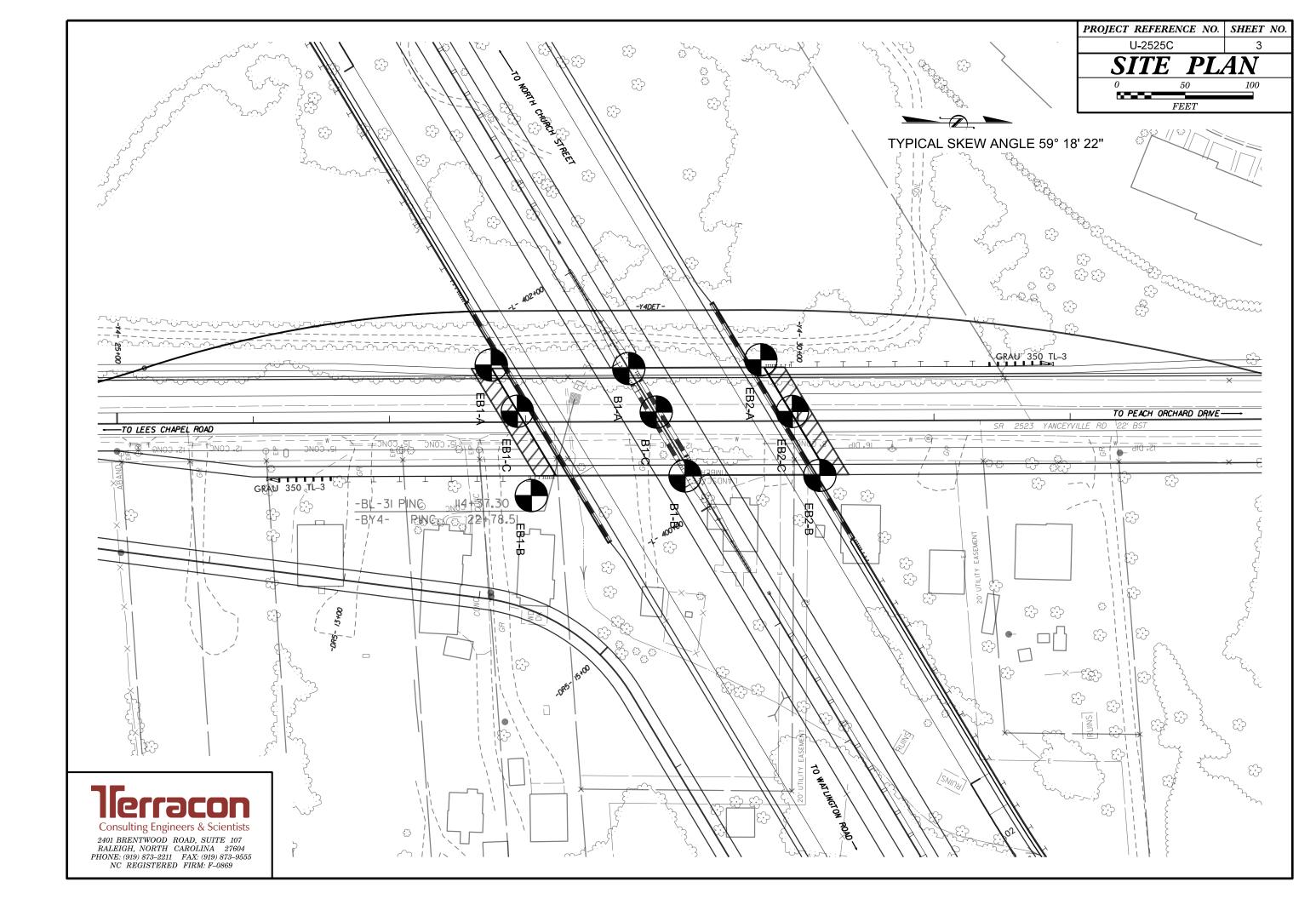
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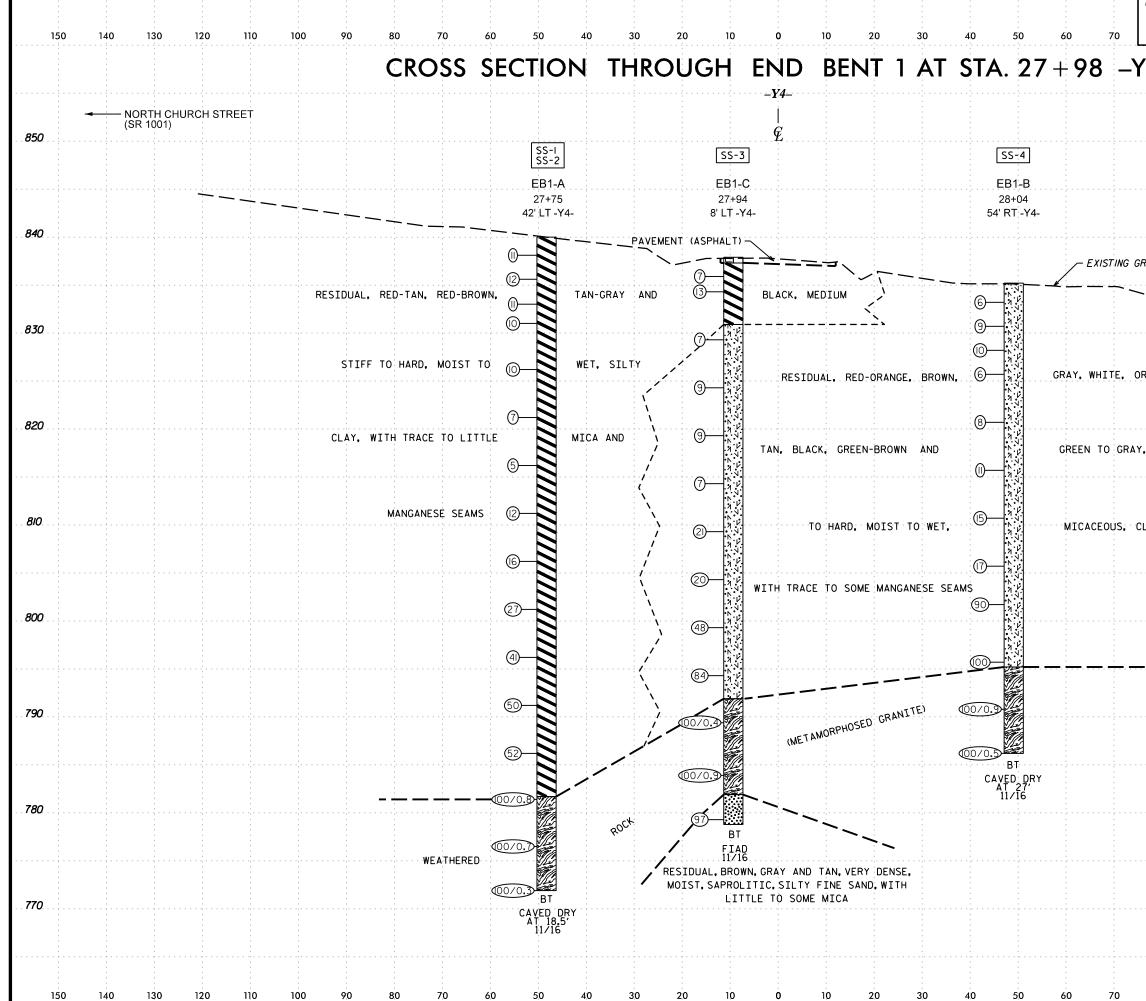
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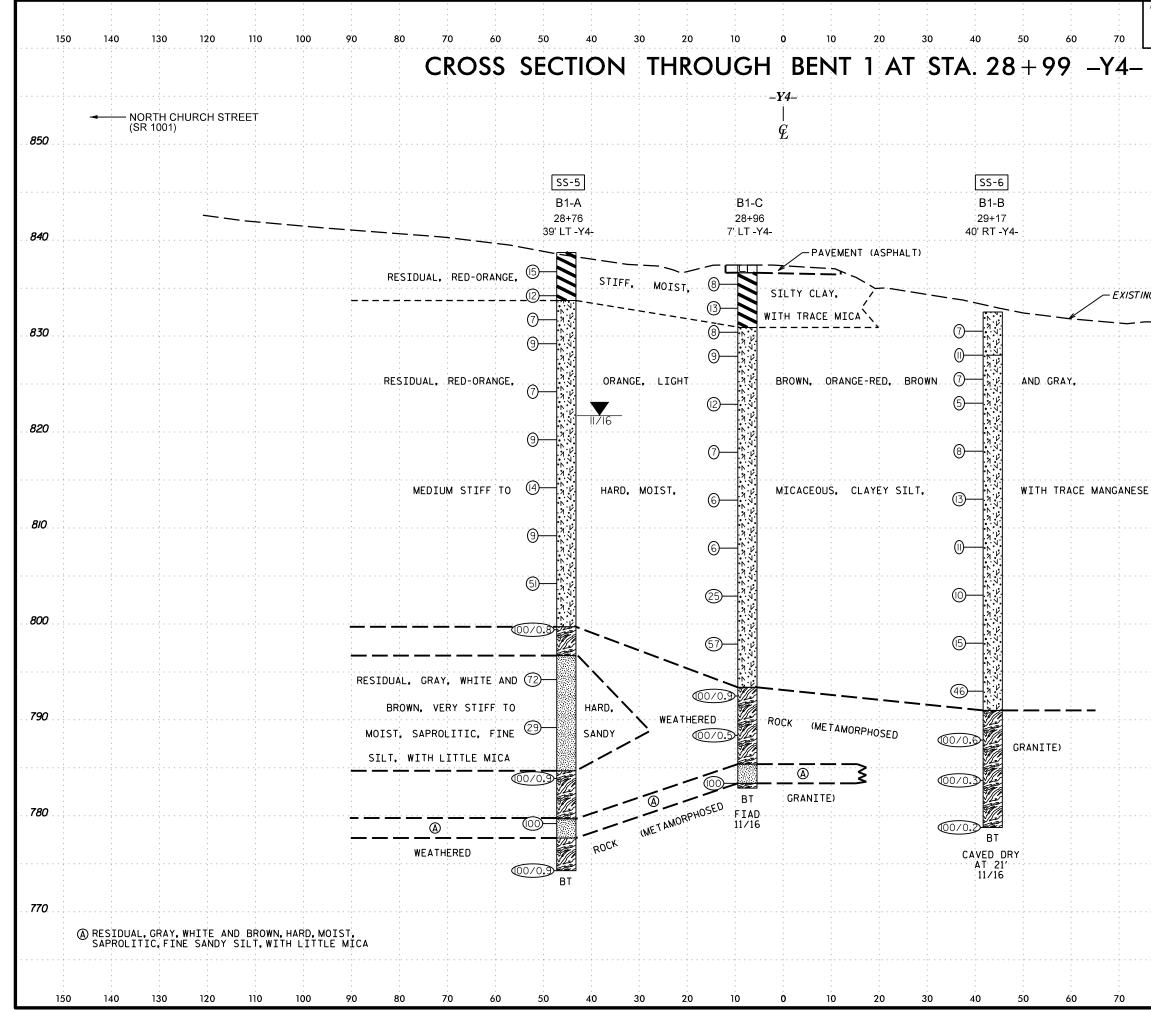
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	TERMS AND DEFINITIONS
ED. AN INFERRED SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING
T N VALUES >	A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. <u>APTERSIAN</u> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT <u>UNDER IN</u> OF UNDERNOTED DUE NUMBER OF UNDERCOMPUTER FOR ADOVE THE LEVEL AT
DCK THAT CLUDES GRANITE.	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.
AL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
IF TESTED. C.	<u>COLLUVIUM</u> - 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. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT
RINGS UNDER	ROCKS OR CUTS MASSIVE ROCK.
OATINGS IF OPEN,	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
AMMER BLOWS IF	<u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
ick up to Il 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	\underline{FLOAT} - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.
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
VIDENT BUT ARE KAOLINIZED	ITS LATERAL EXTENT.
ANE KHOLINIZED	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.
RE DISCERNIBLE F STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
ALUES < 100 BPF	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
IN SMALL AND 5. SAPROLITE IS	ROCK DUALITY DESIGNATION (ROD) - A MEASURE OF ROCK DUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EDUAL 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.
S REQUIRES LOWS REQUIRED	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
EEP CAN BE	<u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
DETACHED	STANDARD PENETRATION TEST (PENETRATION RESISTANCE)(SPT) - NUMBER OF BLOWS (N OR BPF) OF A 140 LB HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL
BLOWS OF THE	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 IT. SMALL, THIN	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 EXPRESSED AS A PERCENTAGE.
HED READILY BY	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: BL-31: N: 873,138; E: 1,770,787 - 36" REBAR WITH ALUMINUM CAP
4 FEET .5 - 4 FEET	ELEVATION: 837.00 FEET
16 - 1.5 FEET 13 - 0.16 FEET	NOTES:
08 - 0.03 FEET 0.008 FEET	FIAD - FILLED IMMEDIATELY AFTER DRILLING
AT, PRESSURE, ETC.	
TEEL PROBE;	
PROBE:	
Ξ;	DATE: 8-15-14

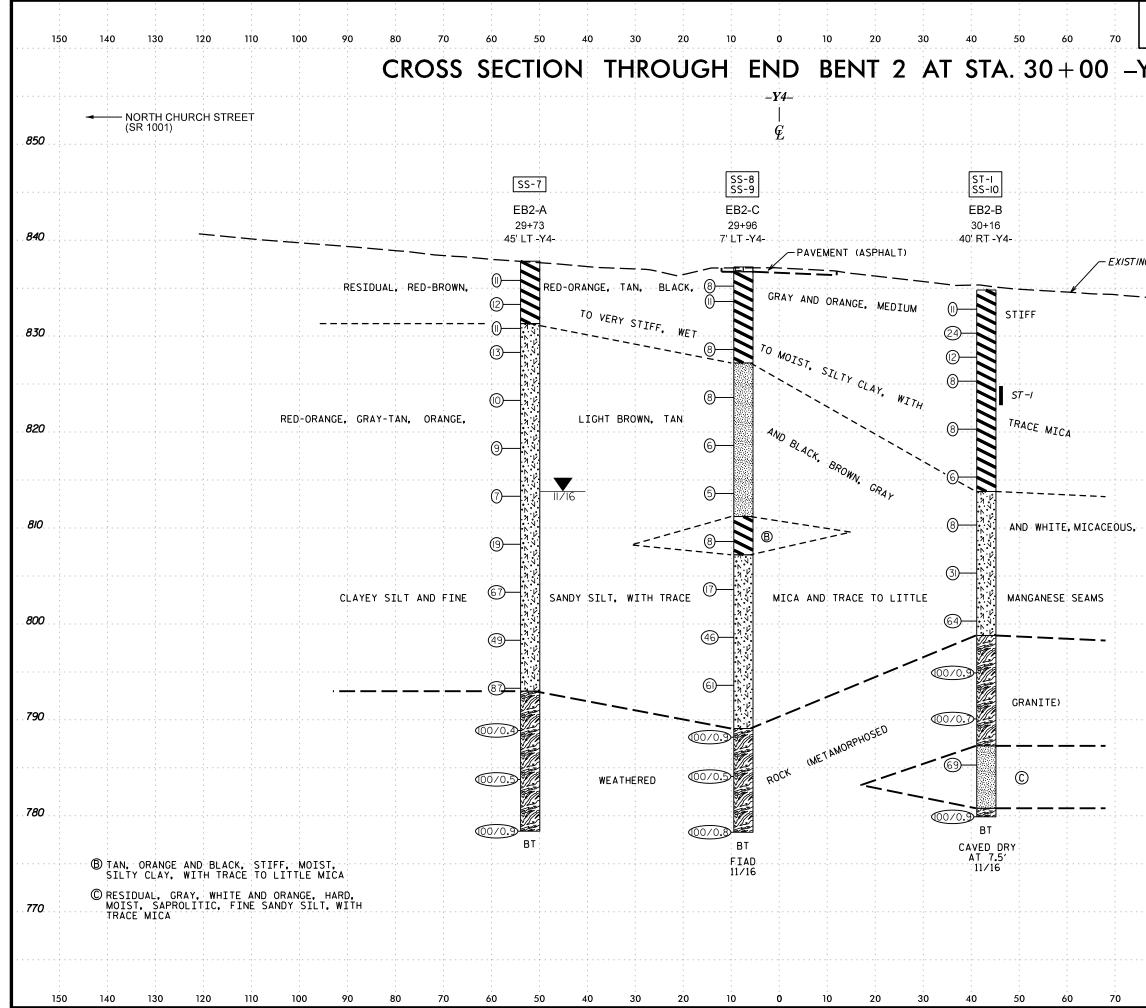




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		FEE1 VE=2	:1		2401 RAL PHON	PCO neers & Scier ROAD, SUITE CAROLINA 2 FAX: (919) 87 D FIRM: F-086	UITE 107 IA 27604 19) 873–9555			
	L	EES CHAP	EL ROAD (SR 2359)							
								850		
			· · · · · · · · · · · · · · · · · · ·							
с с	ROUND S		· · · ·							
								830		
			· · · · ·							
			• • • • • •	· · · · ·				820		
SE	AMS		· · · · ·	· · · ·						
			· · · · ·	· · · · ·				810		
			· · · · · · · · · · · · · · · · · · ·	· · ·						
			· · · ·					800		
			· · · ·							
			· · · ·					790		
			· · · ·							
		-	· · · ·					780		
		SITE NO.	4 (STRUC ⁻	TURE NO.	6) - BRID(GE NO. 12	45			
	NOTE:	INFERRE		GRAPHY	IS DRAW			770		
		BORINGS GROUND u2525c ls	LINE TAP tin.tin (DA	KEN FROI TED 01/2	M PROVIE 0/2016)	DED TIN F	ILE ·····			
8	0	9,0 1	00 1	10 12	20 13	30 14	10 15	υ		



0	20		40		REFERENCE NO.	SH	IEET NO.				
	$\begin{array}{c} FEET \\ VE = 2 \end{array}$	•1					-				
Y4-	VE-2	.1		Consulting Engineers & Scientists 2401 BRENTWOOD ROAD, SUITE 107 RALEIGH, NORTH CAROLINA 27604 PHONE (919) 873-2211 FAX. (919) 873-9555							
LE	ES CHAP	EL ROAD			NC REGISTERE	FAX: (919) 87 D FIRM: F-086	3-9555 9				
		(SR 2359)					850				
NG GROUND SU	RFACE		· · ·								
							070				
		· · · · ·		1							
				· · · · · · · · · · · · · · · · · · ·							
							810				
		· · · · ·		· · · · · ·							
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	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	· · · · · · · · · · · · · · · · · · · ·									
	SITE NO.	4 (STRUC	TURE NO). 6) - BRII	DGE NO. 12	245					
	INFERRI BORING GROUNI	S PROJE D LINE TA	IGRAPH CTED ON KEN FRO	Y IS DRAV TO THE M PROV	WN THRO CROSS SI IDED TIN I	ECTION	770				
	u2525c k	s tin.tin (D	ATED 01/	20/2016)	30 14		0				

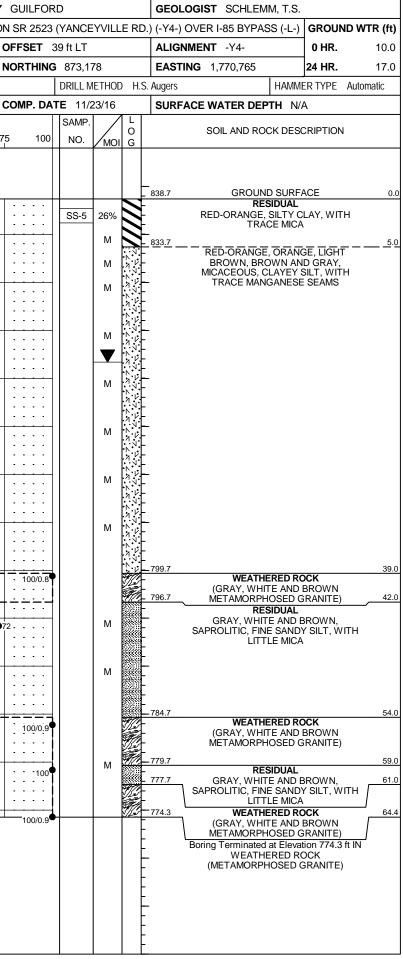


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WBS 34821.1.1		Y GUILFORD	GEOLOGIST RIGGS, A. F.	WBS 34821.1.1	TIP U-2525C COUNTY
SITE DESCRIPTION SITE NO. 4	(STRUC. NO. 6) - BRDG. NO. 1245			SITE DESCRIPTION SITE NO. 4	(STRUC. NO. 6) - BRDG. NO. 1245 ON
BORING NO. EB1-A	STATION 27+75	OFFSET 42 ft LT	ALIGNMENT -Y4- 0 HR. N/A	BORING NO. EB1-C	STATION 27+94 C
COLLAR ELEV. 840.1 ft	TOTAL DEPTH 68.1 ft	NORTHING 873,077	EASTING 1,770,762 24 HR. Caved	COLLAR ELEV. 838.0 ft	TOTAL DEPTH 59.1 ft N
DRILL RIG/HAMMER EFF./DATE TER3	346 DIEDRICH D-50 94% 11/22/2016	DRILL METHOD Wa	AND SAME SAME SAME SAME SAME SAME SAME SAME	DRILL RIG/HAMMER EFF./DATE TERC	01912-0 ACKER RENEGADE 86% 03/21/2016
DRILLER EKLUND, M.A.	START DATE 11/22/16	COMP. DATE 11/22/16	SURFACE WATER DEPTH N/A	DRILLER DUGGINS, W. T.	START DATE 11/22/16
ELEV DRIVE DEPTH BLOW COU			SOIL AND ROCK DESCRIPTION	ELEV DRIVE DEPTH BLOW COU	——————————————————————————————————————
(ft) (ft) (ft) 0.5ft 0.5ft	0.5ft 0 25 50	75 100 NO. MOI G	ELEV. (ft) DEPTH (ft)		0.5ft 0 25 50 75
845			_	840	
				837.0 1.0	
840			- GROUND SURFACE 0.0	835 835.4 2.6 7 3	4
839.2 0.9 6 5	6		RESIDUAL RED-TAN, TAN-BROWN AND		6
836.7 - 3.4 4 5	$- \left \begin{array}{c c} \cdot & \Psi^{11} \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot & \cdot & \cdot & \cdot \\ \cdot & \cdot &$		TAN-GRAY, SILTY CLAY, WITH TRACE MICA AND MANGANESE SEAMS		
835 4 5			-	830 830.4 7.6 3 3	4
832.1 8.0 3 5	6 . •11 · · · · · · · · · · ·				
830 5 5	5 . • 10			825 825.4 12.6	
			-		$5 \qquad \cdot \qquad $
827.3 12.8 3 4		: : : : : M 🗙	-		
825			_	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	5
822.3 17.8					
820 3 3	4	SS-1 41%	-	815 815.4 22.6	5
817.3 22.8 2 2	3	: :::: w 🗙			
815		<u> </u>	-	810 810.4 7 27.6 5 8	13
812.3 27.8 3 5	<u> </u>				
810 3 5			-	805 805.4 32.6 6 9	
					· · · · · · · · · · · · · · · · · · ·
807.3 7 32.8 4 6	10	: :::: w 🗙			
805			-	800 800.4 37.6 10 21	27
802.3 37.8 5 10	$17 \begin{vmatrix} \cdots & \cdots \\ \cdots \\$: :::: 🛛 🗙			
800			-	795 795.4 42.6	51
797.3 42.8	$\left \begin{array}{c c c c c c c c c c c c c c c c c c c$				
11 19	22	: : : : : SS-2 23%		790 790.4 47.6	
795			-		
792.3 47.8 8 14	36	: :::: 🛛			
790		· · · · · " 🛛	-	785 785.4 52.6	44/0.4
787.3 52.8					
	24	: :::: w 🗙	-	780 780.4 57.6	
			-		76
782.3 57.8 46 54/0.3			781.8 58.3 58.3		
780 +		100/0.8	 (GRAY AND TAN, METAMORPHOSED 		
777.3 62.8			GRANITE)		
775 50 50/0.2					
			-		
772.3 67.8		100/0.3	772.0 68.1 Boring Terminated at Elevation 772.0 ft IN	$ \ddagger $	
			WEATHERED ROCK (METAMORPHOSED GRANITE)		
			24 Hr. Ground Water Caved Dry at 18.5 FT		
			- 27 TH. Ground Water Daved Diy at 10.01 1		

GUILFORD	GEOLOGIST ALEXANDER, M.	J.
N SR 2523 (YANCEYVILLE RD.) (-Y4-) OVER I-85 BYPASS (-L-)	GROUND WTR (ft)
OFFSET 8 ft LT	ALIGNMENT -Y4-	0 HR. N/A
NORTHING 873,096	EASTING 1,770,796	24 HR. FIAD
	· · ·	R TYPE Automatic
COMP. DATE 11/22/16	SURFACE WATER DEPTH N/A	
SAMP.	I	
75 100 NO. MOI G	SOIL AND ROCK DESC	RIPTION
	838.0 PAVEMENT 837.4 0.6' ASPHALT	0.0
	RED-BROWN AND BLACK,	
SS-3 45%	WITH TRACE TO LITT	LE MICA
	831.0	7.0
	ORANGE-BROWN, BRO	WN, TAN,
	BLACK, GREEN-BROWN / GRAY, MICACEOUS, CL	
^k [
	792.0 WEATHERED RO	
. 100/0.4	(BLUE-GRAY, GREEN-GR/ BLACK AND WHITE, METAI	
	GRANITE)	
· 100/0.9		
	782.0 RESIDUAL	56.0
	BROWN, GRAY AND TAN,	
	778.9 SILTY FINE SAND, WITH SOME MICA	LITTLE TO 59.1
	Boring Terminated at Elevati RESIDUAL (SILTY S	
	RESIDUAL (SILT TO	SAND)
F		



ſ	WBS	34821	.1.1			ТІ	P U-2525	C	COUNT	TY GUILFO	ORD			GE	OLOGIST SCHLEM	M, T.S.		WBS	3 482	1.1.1			TIF	• U-25250	;	COUNTY
ľ	SITE	DESCR	IPTION	SITE	NO. 4	(STR	UC. NO. 6)	- BRDG. I	NO. 1245	ON SR 2523 (YANCEYVILLE RD.)				D.) (-Y4	4-) OVER I-85 BYPAS	SS (-L-)	GROUND WTR (ft)	SITE	DESCR		I SITE	NO. 4	(STRUC. NO. 6) - BRDG. NO. 1245			IO. 1245 O
ľ	BORI	NG NO.	. EB1-E	3		S	TATION 2	8+04		OFFSET 54 ft RT				ALI	GNMENT -Y4-		0 HR. N/A	BOR	ING NO	. B1-A			ST	ATION 28	3+76	
ľ	COLL	AR ELI	EV. 83	5.3 ft		т	OTAL DEP	FH 49.0 f	t	NORTHING 873,106			EA	STING 1,770,858		24 HR. Caved	COL	LAR EL	EV. 83	88.7 ft		то	TAL DEPT	H 64.4 ft	:	
ľ	DRILL	RIG/HAN	IMER EF	F./DATE	E TER	373 DII	EDRICH D-50	92% 03/21	/2016		DRILL METHOD Wash				ng	HAMM	ER TYPE Automatic	DRIL	DRILL RIG/HAMMER EFF./DATE TER01912-0 ACKER RENEGADE 86% 03/21/2						5 03/21/2016	
ľ			URNAG			S	TART DATI	E 11/22/1	6	COMP. D	DATE 11	/22/16		SU	RFACE WATER DEP	TH N/.	A	DRIL	DRILLER DUGGINS, W. T. START DATE 11/23/16						6	
	ELEV	DRIVE ELEV	DEPTH	BLO	W COL	JNT		BLOWS	PER FOO)T	SAMF	P. ▼ ∕	L		SOIL AND ROO			ELEV	DRIVE	DEPTH	BLO	w col	JNT		BLOWS	PER FOOT
	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	50	75 10	00 NO.	Имо	0 G	ELEV			DEPTH (f) (ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0 2	25 5	50 7
	840		Ļ											L				840		ļ						
		-	Ł											Ł					837 7	+ 1.0				· · · · ·	<u> </u>	
		-	Ł											- 835.3	GROUNI		ACE 0.			ŧ	5	6	9	· · • 15	· · · ·	
-	835	834.3	1.0	4	2	·							N	- 000.0	RES	SIDUAL		835	835.2	<u> </u>	4	5	7	12.	<u> </u>	
		831.8 -	35	4	3	3	•6					M	N V N	i.	RED-ORANGE, E WHITE, MICACE	OUS, CL	LAYEY SILT,		832.7	6.0	3	3	4	· <u>/</u> ::		
	830	-	ł	5	4	5	· • • 9 · · ·					М	N V N	Ŀ	WITH TRACE TO SE	SOME I EAMS	MANGANESE	830	830.2	8.5						
	-	829.3	<u> 6.0 </u>	5	5	5						м	N V N	E						Ŧ	2	4	5	· • 9 · ·		
	ŀ	826.8	8.5	3	3	3						М	N V N	÷						Ŧ						
-	825	-	Ŧ		Ŭ	Ũ						IVI	7 V V	F				825	825.2	<u>T 13.5</u>	2	3	4	↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓		+ • • • •
		- 821.8 -	125										ΝV	F						Ŧ				· · · · ·		
	820	-021.0 -	- 13.5 -	3	3	5	•••				SS-4	35%	1 V V	F				820	820.2	† † 18.5						
		-	Ŧ										1 V V	 -						Ŧ	3	4	5	. • 9		
	ļ	816.8	18.5	4	4	7							N V N N	F						ŧ						
	815	-	ŧ	4	4	'			· · ·			M	л V Л V	<u> </u>				815	815.2	<u>+</u> 23.5	4	6	8	· · · · ·		
		•	‡							· · · · ·			N N V	ŀ						ŧ					· · · · ·	
	810	811.8 -	23.5	5	5	10						м	N N N	ŀ				810	810.2	+ 285						
	010		ŧ										N N N N	 -				010		+ 20.0	2	4	5	. •9		
		806.8 -	28.5				::i:			· · · · ·			N V N V	}- -						‡						
	805	-	ŧ	5	8	9			· · ·			M	N V V	- -				805	805.2	33.5	9	15	36			<u> </u>
		802.8 -	32.5			- 10			 ∻÷↓	· · · · ·			N V V	- 						‡	Ŭ	10		· · · ·		• • • •
	800	-	ŧ	36	44	46						M	N V V	-				000	800.2	+					· · · ·	
F	800	-	ŧ							· · · · ·			N V V	'⊨ '-				000	000.2	+ 30.5	31	69/0.3			· · · ·	<u> </u>
		796.8 -	- 38.5						· · · ·				N V N V	· _ · _						‡					· · · ·	
	795	-	ŧ I	28	53	47				10	<u>io</u>	M	N V	795.3	WEATHE		40.0	795	795.2	43.5	28	42	30		· · · ·	· · · ·
/17		-	‡					· · · · ·	· · · ·						(GRAY, BROV METAMORPH	NN AND) WHITE,			‡		74	50		· · · ·	· · · · •
10/3/17	700	791.8	43.5	33	67/0.4									<u>}</u>		USED G	SINAINITE)	700	700.0	±					· · · ·	· · · · ·
GDT	790	-	ŧ							100/0				<u>}</u>				790	790.2	+ 48.5	8	12	17		\$ 29	· · · ·
DOT		786.8 -	48.5					· · · ·	· · · ·					- 786.3			49.0			‡					<u> : : : :</u>	
Š	Ī	-	ţ	100/0.5				1	1	100/0	.5•		V//-'		Boring Terminated WEATHE	at Eleva	tion 786.3 ft IN	785	785.2	53.5	12	58	42/0.4	· · · ·	I I	<u> </u>
.GPJ		-	ŧ											F	WEATHE (METAMORPH					‡		30	+∠/∪.4			
SITE 6.		-	‡											F	24 Hr. Ground Wate	er Caved	I Dry at 27.0 FT	<u>-</u>		± =						
		-	ŧ											F				780	780.2	58.5	52	48/0.5		· · · · ·		
BRDG0009		-	Ł											Ł						Ŧ						
		-	Ł											F				775	775.2	63.5		70/0 1				
GEO			Ŧ											E						Ŧ	28	72/0.4				
U2525C_		-	Ŧ											E						Ŧ						
: U25		-	F											F					-	Ŧ						
DOUBLE		-	E											E						Ŧ						
Ō		-	Ŧ											F						Ŧ						
BORE		-	Ē											E						Ŧ						
CDOT		-	Ŧ											F						Ŧ						
9		-	Г	1								1		Г				11	1	т	1 1					



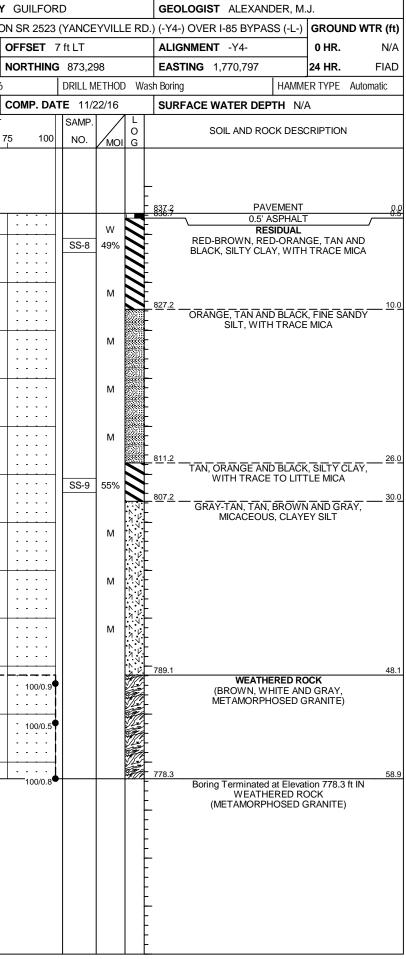


		BURE LUG								
WBS 34821.1.1	TIP U-2525C	COUNTY GUILFORD	GEOLOG	IST SCHLEMM, T.S.		WBS 34	1821.1.1		TIP U-2525C	COUNTY
SITE DESCRIPTION SITE N	O. 4 (STRUC. NO. 6) - BRDG.	NO. 1245 ON SR 2523 (YANCE	EYVILLE RD.) (-Y4-) OV	ER I-85 BYPASS (-L-)	GROUND WTR (ft)	SITE DE	SCRIPTION SI	TE NO. 4 (S	TRUC. NO. 6) - BF	RDG. NO. 1245 ON
BORING NO. B1-C	STATION 28+96	OFFSET 7 ft LT	ALIGNME	ENT -Y4-	0 HR. N/A	BORING	NO. B1-B		STATION 29+1	7 0
COLLAR ELEV. 837.4 ft	TOTAL DEPTH 54.5	ft NORTHING 873,1	98 EASTING	1,770,797	24 HR. FIAD	COLLAR	COLLAR ELEV. 832.5 ft TOTAL DEP		TOTAL DEPTH	53.7 ft N
DRILL RIG/HAMMER EFF./DATE	TER373 DIEDRICH D-50 92% 03/2	1/2016 DRILL M	NETHOD Wash Boring	HAMM	ER TYPE Automatic	DRILL RIG	HAMMER EFF./D	ATE TER373	DIEDRICH D-50 929	% 03/21/2016
DRILLER TURNAGE, J.R.	START DATE 11/30/	16 COMP. DATE 11/3	30/16 SURFAC	E WATER DEPTH N/	Ά	DRILLEF	TURNAGE, J	J.R.	START DATE 1	11/28/16 C
ELEV DRIVE DEPTH BLOW	COUNT BLOWS	PER FOOT SAMP.						LOW COUNT		LOWS PER FOOT
	.5ft 0.5ft 0 25	50 75 100 NO.	MOI G ELEV. (ft)	SOIL AND ROCK DES	CRIPTION DEPTH (ft)	(ft) LL		5ft 0.5ft 0.	5ft 0 25	50 75
840						835				
836.4 1.0	<u> </u>	· · · · · · · · · · · · · · · · · · ·	- 837.4 - 836.6	PAVEMENT 0.8' ASPHAL		83	1.5 = 1.0		I I	· · · · · · · · · · ·
<u>835</u> 833.9 - 3.5	3 5		^ N N	RESIDUAL RED-ORANGE, SILT	Y CLAY	830	$9.0 \frac{1}{1}$ 3.5		3	
- 6	6 7			,,,			4	5 6	\hat{b}	
831.4 + 6.0 3	$3 5 \begin{vmatrix} \cdot \cdot \\ \cdot \\$		M 830.9	RED-ORANGE, RED, G		825	6.5 + 6.0 + 3	3 4 ;	$3 \frac{1}{\sqrt{2}} \frac{1}{\sqrt{2}} $	
828.9 8.5 3	4 5			BROWN AND BROWN, M CLAYEY SILT, WITH	MICACEOUS,		4.0 8.5	2 3 2	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
				MANGANESE SE			Ŧ ¯		$= \left \begin{array}{c} \mathbf{\varphi}_{5} \cdot \cdot \cdot \\ \mathbf{\varphi}_{5} \cdot \\ \mathbf{\varphi}_{5$	
825						820	$\frac{1}{9.0 + 13.5}$			
823.9 - 13.5	5 7 \cdot \bullet \cdot		M N				9.0 1 13.5	3 3	$ \begin{bmatrix} \cdot & \cdot & \cdot & \cdot \\ 5 & \cdot & \bullet_8 \\ \cdot & \bullet_8 \\ \cdot & \bullet_8 \\ \cdot & \cdot \\ \cdot$	· · · · · · ·
820						815	‡			
818.9 18.5	3 4 1 1 1 1 1 1 1 1 1 1						4.0 18.5	5 8	$\frac{1}{3} \begin{array}{ c c } \hline & & & \\ \hline \end{array}$	
	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$						‡]		⁵ · · •●13· ·	· · · · · · ·
815	· ··· · · · ·					810	<u> </u>			
813.9 - 23.5	2 4 6 \cdot \cdot \cdot \cdot \cdot		M M			_80	9.0 23.5	3 5 6	$\left \begin{array}{c} \cdot \cdot \cdot \cdot \cdot \\ \cdot & \bullet \\ \cdot & \bullet \\ \cdot & \bullet \\ 11 \end{array}\right $	· · · · · · ·
						005	‡			
<u>810</u> 808.9 - 28.5	 					805 80	4.0 28.5		- <u>+ -</u>	
2	3 3	· · · · · · · · · · · · · · · · · · ·	M N					2 3		
805		· · · · · · · · · · · · · · · · · · ·				800	±			
803.9 - 33.5 8						79	9.0 33.5 5	5 7 8	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	
							±			
800						795	4.0 38.5			× · · · · · · · · · · · · · · · · · · ·
<u> </u>	19 38	• • 57•• ••• •	M N				$\frac{1}{1}$	4 20 2	86	• • • • • • • • • • • • • • • • • • •
795						790	Ŧ			· · · · ·
793.9 43.5 40	52 48/0.4		793.4		44.0	78	9.0 43.5	8 80 20/	0.1	
		100/0.9		WEATHERED RO (GRAY, WHITE AND	BROWN		Ŧ		.	
790 788.9 48.5				METAMORPHOSED (GRANITE)	785	4.0 48.5			
100/0.5		· · · · 100/0.5					100/	/0.3		
785			785.4		52.0	780	Ŧ			
783.9 53.5	/0.5		M 783.4	RESIDUAL GRAY, WHITE AND I	BROWN, <u>54.0</u>		<u>9.0 53.5</u>	/0.2		
		100₹	M 783.4 782.9 S	APROLITIC, FINE SAND LITTLE MICA			+			
				WEATHERED R((GRAY, WHITE AND METAMORPHOSED (vring Terminated at Eleva WEATHERED R (METAMORPHOSED (OCK BROWN GRANITE) ation 782.9 ft IN OCK					

GUILFOR	D			GEOLOGIST SCHLEMM, T.S.												
N SR 2523	(YANCE	YVILL	E RD	0.) (-Y4-) OVER I-85 BYPASS	GROUND WTR (ft)											
OFFSET 4	0 ft RT			ALIGNMENT -Y4-		0 HR. N/A										
NORTHING	873,2	19		EASTING 1,770,844		24 HR.	Caved									
	DRILL M) Wa	1	R TYPE	Automatic										
COMP. DAT				SURFACE WATER DEPTH			riatornatio									
	SAMP.		L													
75 100	NO.	мо	0	SOIL AND ROCK	SOIL AND ROCK DESCRIPTION											
1			G													
				-												
				- 832.5 GROUND S		CE	0.0									
		м	N V	- RESID ORANGE-RED, LIGH	HT BR	OWN GR	AY									
		101	∧ v	AND ORANGE, MIC.	ACEOI	JS, CLAY	ΈY									
		М	N N	- -			AWO									
		м	NV	-												
			∧ ↓ \													
		M	7 V V	• •												
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	00.0	43%	∧ ↓ \													
	SS-6	43%	7 V V	• •												
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		м	N N V	- -												
			л Л И													
			N N V	-												
		м	N V	•												
						CK	41.5									
				LIGHT BROWN, BR	ROWN	AND GR/	AY,									
100/0.6				METAMORPHOS	SED G	RANITE)										
				-												
100/0.3																
			Ø	-												
· · · · · · · ·				-												
100/0.2			C. St. C.	- 778.8 - Boring Terminated at	Elevat	ion 778.8	53.7 ft IN									
				WEATHER (METAMORPHO												
				- 24 Hr. Ground Water (,	0 FT									
				-	Javea	bry at 21.	011									
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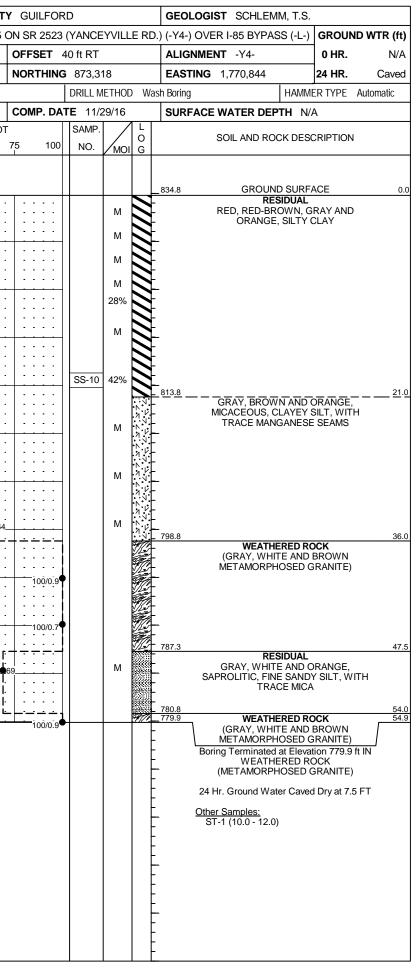


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				Y GUILFORD				GEOLOGIST SCHLEMM, T.S.	-	WBS 34821.1.1						P U-2525	COUNTY								
SITE DESCRIPTION SITE NO. 4 (STRUC. NO. 6) - BRDG. NO. 1245 C			ON SR 2523 (YANCEYVILLE RD.)				D.) (-Y4-) OVER I-85 BYPASS (-L-)	GROUND WTR (ft)							, ,										
BORING NO. EB2-A STATION 29+73			OFFSET 45 ft LT				ALIGNMENT -Y4-	0 HR. 21.0	BORING NO. EB2-C					SI		O									
COLLAR ELEV. 837.8 ft TOTAL DEPTH 59.4 ft			NORTHIN	G 873,2	75		EASTING 1,770,759	24 HR. 24.0	COLLAR ELEV. 837.2 ft					т	ft	N									
DRILL RIG/HAMMER EFF./DATE TER01912-0 ACKER RENEGADE 86% 03/21/2016			6	DRILL N	NETHO	DH.	I.S. Augers HAMIV	IER TYPE Automatic	DRILL RIG/HAMMER EFF./DATE TER01912-0 ACKER RENEGADE 86% 03/2									16							
DRIL	LER D	UGGIN	S, W. ⁻	Т.	S	TART DAT	E 11/23/1	6	COMP. DA	TE 11/2	23/16		SURFACE WATER DEPTH N	/A	DRILLER DUGGINS, W. T. START DATE 11/22/16									C	
ELEV		DEPTH	BLO	w co	UNT		BLOWS	PER FOO	г Г	SAMP.		L			ELEV		DEPTH	BLOV	N COL	лит		BLOWS	PER FOO)Т	
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	50	75 100	NO.	мо	O I G	SOIL AND ROCK DES	DEPTH (ft)	(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	50	75	
840															840										
	_	F											GROUND SURF	-ACE 0.0		-									
	836.8 -	- 1.0	5	5	6	<u> </u>					.		RESIDUAL			836.2	1.0				+ · <u> </u> · · ·	1		•	
835	834.3	35	5	5	6	• • 11 •					M		- RED-ORANGE, SILTY (- TRACE MIC/		835	834.6		3	4	4			· · · · ·	·	
	-	ţ	4	5	7	12				SS-7	33%					+		4	5	6	. ∳ 11 .		· · · ·		
000	831.8 -	6.0	4	5	6						м		RED-ORANGE, ORANGE,		000	+							· · · ·	:	
830	829.3	8.5	4	6	7	$\left \left \begin{array}{c} \cdot & \mathbf{T} \\ \cdot & \mathbf{I} \\ \cdot & \mathbf{I} \end{array} \right \right $						ト イン	BROWN, BROWN, BLACK	K AND WHITE,	830	829.6	7.6	2	3	5				-	
	-	ŧ			'	● 13.					M	N N V	MICACEOUS, CLAYEY											:	
825	-											トレ			825	824.6	126				.			•	
	824.3	13.5	4	5	5						м	トレ					12.0	2	3	5				:	
	-											N N V				+					<u>-</u> - : : :		.	•	
820	819.3	18.5				┧┝╍╁╼╼	+ • • • •	+ • • • •	+ • • • •			N N V	·		820	819.6	17.6	2	3	3	4	+ • • • •		-+-	
	-	F	3	4	5	. •9					M	N N V				Ŧ		2	5	5	● 6			:	
815	-	F				: : : :						N N V			815	Ŧ]			:	
	814.3	23.5	3	2	5							х 1 1				814.6	22.6	WOH	3	2	1			•	
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810	809.3	28.5										л у N У			810	809.6	27.6				.1 .1		· · · · ·	÷	
		20.0	3	6	13	1 :: ``	 9				м	N N	• - • -			+		4	З	5			. .	:	
005	-	ŧ										N N			0.05	1					: <u>\</u> ::			:	
805	804.3	33.5	9	16	51		· · · · ·					N N N	·		805	804.6	32.6	3	7	10	· · · · ·				
	-	Ł							67 		M	N N N	ί∟ •⊢			+							. .		
800	_	<u> </u>						- /							800	799.6	27.6					<u>\.</u>		•	
	799.3	38.5	17	25	24			49			м	N V N N				_/99.0 	-57.0	10	16	30			46	:	
	-	+										N V N N				+								•	
795	794.3	43.5										N V V	;		795	794.6	42.6	15	26	35					
	-	F	24	32	55						M			44.8		Ŧ		15	20	35			• 61	:	
790	-	F											(WHITE, GRAY AND METAMORPHOSED (BROWN,	790	Ŧ								:	
	789.3	48.5	100/0.4	i.					100/0.4							789.6	47.6	28	44	56/0.4					
	-	ŧ														ļ									
785	- 784.3	535													785	784.6	52.6				· · · ·			·	
			100/0.5						100/0 5									100/0.5					.	:	
700	-	ŧ.													700	1									
780	779.3	58.5	22	100/0.4									778.4	59.4	780	779.6	57.6	16	55	45/0.3					
	-	Ł		100/0.4					100/0.9				Boring Terminated at Eleva	ation 778.4 ft IN											
	-	E											WEATHERED R (METAMORPHOSED	GRANITE)		-									
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WBS							U-2525C	COUNT							
				NO. 4			IC. NO. 6) - BRDG.	NO. 1245 (
	ING NO.						ATION 30+16								
	LAR ELE				TOTAL DEPTH 54.9 ft										
					3 DIEDRICH D-50 92% 03/21/2016										
	LER TU DRIVE				START DATE 11/28/16 T BLOWS PER FOC										
ELEV (ft)	ELEV (ft)	DEPTH (ft)	0.5ft	W CO 0.5ft			0 25	50							
835															
	833.8 -	- 1.0	8	6	5	1									
830	831.3	3.5	7	10	14		24								
	828.8 -	-	5	5	7		••••••••••••••••••••••••••••••••••••••								
825	826.3	8.5	4	4	4		• • • • • • • • • • • • • • • • • • •								
	- - 821.3	-					. .								
820		-	3	4	4			· · · · ·							
	- 816.3	18.5					. .								
815	-	-	2	2	4		• • • • • • • • • • • • • • • • •								
010	811.3	23.5	3	4	4										
810	-		Ũ				· · · · · · · · · · · · · · · · · · ·	· · · · ·							
805	806.3	28.5	11	12	19	-									
	-														
800	801.3	33.5	27	25	39			64							
							· · · · · · · ·	· · · · · ·							
795	796.3	38.5	41	54	46/0.4	4	· · · · · · · · · · · · · · · · · · ·								
	- 791.3	43.5													
790	-	-	38	60	40/0.2	2	· · · · · · · · · · · · · · · · · · ·								
	786.3	48.5	23	31	38			· · · · [
_785	-	-	23		30			+ •							
780	781.3	- 53.5	28	47	53/0.4	4		· · · · · · · ·							
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LABORATORY TESTING SUMMARY

PROJECT NUMBER: 34821.1.1

U-2525C TIP:

COUNTY: GUILFORD

DESCRIPTION: SITE NO. 4 (STRUCTURE NO. 6) - BRIDGE NO. 1245 ON SR 2523 (YANCEYVILLE ROAD) (-Y4-) OVER I-85 BYPASS (-L-)

Sample No. Alignment		nt Station	Offset (feet)	Depth Interval (feet)					% by W	%	%	Passing (siev	ves)			Ave. Wet	Shear Strength Values					
	Alignment				AASHTO Class.	L.L.	P.I.	Coarse Sand	Fine Sand	Silt	Clay	Retained #4 Sieve	#10	#40	#200	% Moisture	% Organic	Unit Wt. (pcf)	Total Cohesion (psf)	Total Friction (φ)	Effective Cohesion (psf)	Effective Friction (Φ')
SS-1	-Y4-	27+75	42 LT	17.8-19.3	A-7-5 (10)	52	14	5.0	45.5	36.3	13.2	0	100	99	67	40.6	N/D	N/D	N/D	N/D	N/D	N/D
SS-2	-Y4-	27+75	42 LT	42.8-44.3	A-7-6 (5)	41	12	23.2	32.6	35.2	9.0	0	100	85	54	23.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-3	-Y4-	27+94	8 LT	2.6-4.1	A-7-5 (53)	91	49	1.7	17	29	52.3	0	100	99	88	44.8	N/D	N/D	N/D	N/D	N/D	N/D
SS-4	-Y4-	28+04	54 RT	13.5-15.0	A-5 (7)	51	9	5.5	44.8	40.5	9.2	0	100	97	65	34.8	N/D	N/D	N/D	N/D	N/D	N/D
SS-5	-Y4-	28+76	39 LT	1.0-2.5	A-7-6 (32)	66	36	6.1	17.8	27.9	48.2	0	100	97	81	26.0	N/D	N/D	N/D	N/D	N/D	N/D
SS-6	-Y4-	29+17	40 RT	28.5-30.0	A-5 (6)	44	9	10.2	36.2	41.7	11.9	0	100	95	65	43.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-7	-Y4-	29+73	45 LT	3.5-5.0	A-7-5 (38)	78	37	3.0	18.8	31.2	47.0	1	99	98	84	33.1	N/D	N/D	N/D	N/D	N/D	N/D
SS-8	-Y4-	29+96	7 LT	2.6-4.1	A-7-5 (71)	106	61	1.6	8.4	17.7	72.3	0	100	99	93	49.4	N/D	N/D	N/D	N/D	N/D	N/D
SS-9	-Y4-	29+96	7 LT	27.6-29.1	A-7-6 (29)	65	36	6.3	28.2	49.2	16.3	0	100	97	76	54.9	N/D	N/D	N/D	N/D	N/D	N/D
SS-10	-Y4-	30+16	40 RT	18.5-20.0	A-7-5 (10)	47	12	7.1	34.2	48.2	10.5	0	100	96	73	42.3	N/D	N/D	N/D	N/D	N/D	N/D
ST-1	-Y4-	30+16	40 RT	10.0-12.0	A-7-5 (21)	81	29	1.7	48.6	32.4	17.3	0	100	99	64	28.4	N/D	92.5	534	10°	219	29°
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	ETERMINED										<u> </u>											L

N/D - NOT DETERMINED LABORATORY TESTING OF SHELBY TUBE SAMPLE ST-1 PERFORMED BY GEOTECHNICS

Stephanie H. Huffman

Certified Lab Technician Signature

114-01-1203

Certification Number

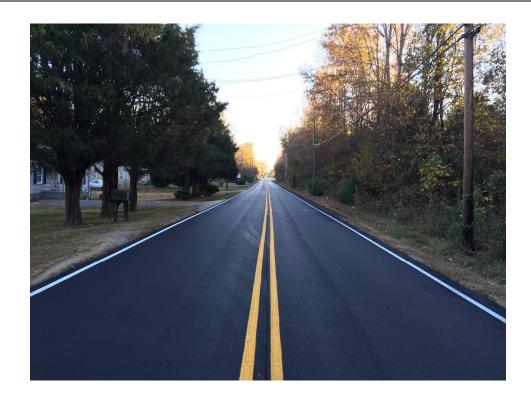
SITE PHOTOGRAPHS SITE NO. 4 (STRUCTURE NO. 6) – BRIDGE NO. 1245 ON SR 2523 (YANCEYVILLE ROAD) (-Y4-) OVER I-85 BYPASS (-L-)





Photograph No. 1: South Approach to End Bent No.1 on Yanceyville Road (-Y4-), looking North.

Photograph No. 3: Left of Yanceyville Road (-Y4-) looking Northeast along the proposed I-85 Bypass (-L-) alignment.





Photograph No. 2: North Approach to End Bent No. 2 on Yanceyville Road (-Y4-), looking South.

Photograph No. 4: Right of Yanceyville Road (-Y4-) looking Southwest along the Proposed I-85 Bypass (-L-) alignment.