9 S X REFERENCE **CONTENTS**

DESCRIPTION

LEGEND (SOIL & ROCK)

SITE PLAN & PROFILE

TITLE SHEET

BORE LOGS(S) SOIL TEST RESULTS

SHEET NO.

4-10

4499 **PROIEC**

STATE OF NORTH CAROLINA

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY _COLUMBUS

PROJECT DESCRIPTION US 74 AT SR 1506 (OLD BOARDMAN ROAD/MACEDONIA CHURCH ROAD)

SITE DESCRIPTION RETAINING WALL 1 ON -WALL 1-FROM 10+00.00 TO 12+46.31 AND RETAINING WALL 2 ON -WALL 2- FROM 17+00 TO 20+00

STATE PROJECT REPERENCE NO. R = 5797

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 NSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1991 707-680. 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 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 (INP-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 NIDICATED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE TOTAL WITH THE ACCORDING TO CLIMATIC CONDITIONS INCLUDING TEMPERATURES, PRECIPITATION AND WIND, AS WELL AS OTHER NON-CLIMATIC FACTORS.

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 1. 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.

M. DURWAY W. PESL D. TIGNOR T. BEARD

INVESTIGATED BY $F \otimes R$, Inc.DRAWN BY _T.T. WALKER

CHECKED BY __P. ALTON, P.E.

SUBMITTED BY <u>C. WANG</u>, P.E.

DATE _SEPTEMBER 2019



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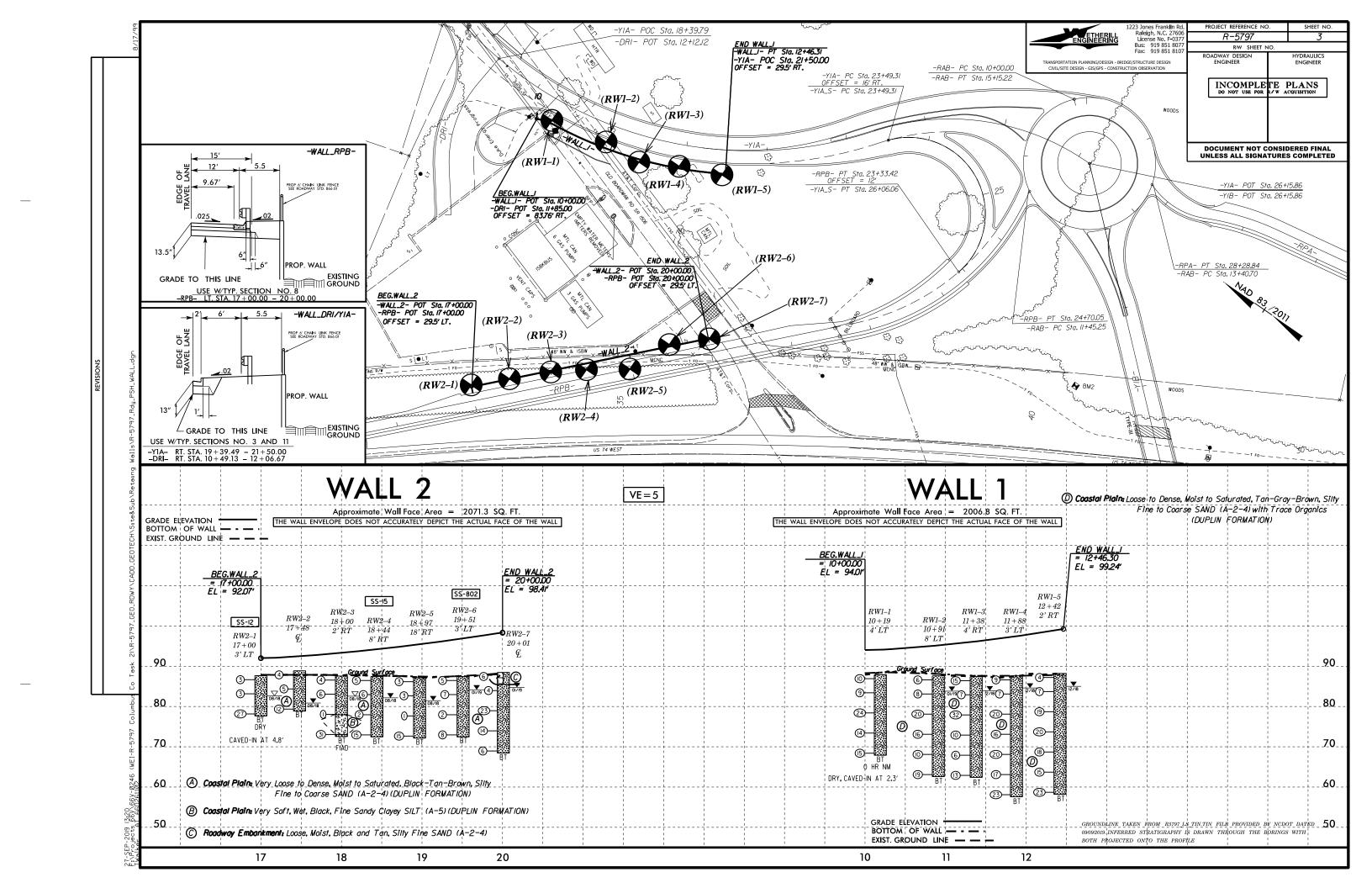
PROJECT REFERENCE NO.	SHEET NO.
R-5797	2

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 ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION	UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE.	ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60	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 ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	
AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:	SI//ASI//A	ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.
SOIL LEGEND AND AASHTO CLASSIFICATION	ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED VIELD SPT N VALUES > ROCK (WR) 100 BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT
CENERAL CRANIII AR MATERIALS SILT-CLAY MATERIALS	MINERALOGICAL COMPOSITION	FINE TO COARSE CRAIN ICNEOUS AND METAMORRHIC POCK THAT	WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND
CLASS. (\leq 35% PASSING *200) (> 35% PASSING *200) ORGANIC MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC.	LOCATSTALLINE 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. FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN	CALCAREOUS (CALC.) - SOILS THAT CONTAIN 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-7-5 A-3 A-6, A-7	COMPRESSIBILITY	NUN-CRYSTALLINE SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED	COLLUYIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM
SYMBOL GOOGGOOGG	SLIGHTLY COMPRESSIBLE LL < 31	ROCK (NCR) ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.
	MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL > 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED
7. PASSING SILT-GRANULAR SILT-MUCK,	PERCENTAGE OF MATERIAL	(CP) SHELL BEDS, ETC.	BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.
#40 38 MX 58 MX 51 MN SOILS SOILS SOILS SOILS		WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
"200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN 36 MN	ORGANIC MATERIAL SOILS SOILS OTHER MATERIAL	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER	<u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE
MATERIAL	TRACE OF ORGANIC MATTER 2 - 3% 3 - 5% TRACE 1 - 10% LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20%	HAMMER IF CRYSTALLINE.	HORIZONTAL.
PASSING *40	LITTLE ORGANIC MATTER 3 - 5% 5 - 12% LITTLE 10 - 20% 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
PT C MY NP 10 MY 10 MY 11 MN 11 MN 10 MY 11 MN 11 MN 11 MN LITTLE OR HICHLY	HIGHLY ORGANIC > 10% > 20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
GROUP INDEX 0 0 0 4 MX 8 MX 12 MX 16 MX NO 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
UICIAI TYPES CTONE EPACS ORGANIC SUILS	✓ 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 ONE ANOTHER PARALLEL TO THE FRACTURE.
■ OF MAIOR CRAVEL AND FINE SILIT OR CLATET SILIT CLATET MAILER		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 24 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 EXCELLENT TO GOOD FAIR TO POOR FAIR TO POOR UNSUITABLE		(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED	PARENT MATERIAL.
AS SUBGRADE POOR POOR ONSOTTHELE	SPRING OR SEEP	WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
PI OF A-7-5 SUBGROUP IS ≤ LL - 30; PI OF A-7-6 SUBGROUP IS > LL - 30	O 00 - 3 - 1110 3 - 322	MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE
CONSISTENCY OR DENSENESS	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FIELD.
RANGE OF STANDARD RANGE OF UNCONFINED	T POADWAY EMPANISMENT (PE) 25/025 DID 0 DID DIDECTION	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.
PRIMARY SOIL TYPE CONSISTENCY PENETRATION RESISTENCE COMPRESSIVE STRENGTH (N-VALUE) (TONS/FT ²)	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION TO ROCK STRUCTURES	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, ROCK FABRIC CLEAR AND EVIDENT BUT	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO 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 GRANULAR	SOIL SYMBOL SOIL SYMBOL SUPE INDICATOR INSTALLATION	TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN.	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.
MATERIAL MEDIUM DENSE 10 TO 30 N/A	ARTIFICIAL FILL (AF) OTHER AUGER BORING CONE PENETROMETER	IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
(NON-COHESIVE) DENSE 30 TO 50 VERY DENSE > 50	THAN ROADWAY EMBANKMENT TEST	VERY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE SEVERE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
VERY SOFT < 2 < 0.25	INFERRED SOIL BOUNDARY _ CORE BORING SOUNDING ROD	(V SEV.) REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR	OF AN INTERVENING IMPERVIOUS STRATUM.
GENERALLY SOFT 2 TO 4 0.25 TO 0.5	Y	VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. <u>IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF</u>	RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	INFERRED ROCK LINE MONITORING WELL TEST BORING WITH CORE	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 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	A DIFTOMETED	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE
HARD > 30 > 4	TTTT ALLUVIAL SOIL BOUNDARY A INSTALLATION SPT N-VALUE		RUN AND EXPRESSED AS A PERCENTAGE.
TEXTURE OR GRAIN SIZE	RECOMMENDATION SYMBOLS	ROCK HARDNESS	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
U.C. CTD. CIEVE. CIZE		VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	
U.S. STD. SIEVE SIZE 4 10 40 60 200 270 OPENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053	UNDERCOI UNSUITABLE WASTE	SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	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
COARSE FINE	SHALLOW UNCLASSIFIED EXCAVATION - USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY, HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.
BOULDER COBBLE GRAVEL SAND SAND SILT CLAY	UNDERCUT ACCEPTABLE DEGRADABLE ROCK EMBANKMENT OR BACKFILL	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT
(BLDR.) (COB.) (GR.) (CSE. SD.) (F SD.) (SL.) (CL.)	ABBREVIATIONS	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	OR SLIP PLANE.
GRAIN MM 305 75 2.0 0.25 0.05 0.005	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 WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL
SOIL MOISTURE - CORRELATION OF TERMS	CL CLAY MOD MODERATELY 7 - UNIT WEIGHT CPT - CONE PENETRATION TEST NP - NON PLASTIC 7- 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	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 GUIDE FOR FIELD MOISTURE DESCRIPTION	DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST SAMPLE ABBREVIATIONS	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN	TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC S - BULK e - VOID RATIO SD SAND, SANDY SS - SPLIT SPOON	PIECES CAN BE BROKEN BY FINGER PRESSURE.	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 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 THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.
LL _ LIOUID LIMIT	FOSS FOSSILIFEROUS SLI SLIGHTLY RS - ROCK	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
PLASTIC SEMISOLID; REQUIRES DRYING TO	FRAC FRACTURED, FRACTURES TCR - TRICONE REFUSAL RT - RECOMPACTED TRIAXIAL FRAGS FRAGMENTS	FRACTURE SPACING BEDDING	
(PI) PLASTIC LIMITATTAIN OPTIMUM MOISTURE	FRAGS FRAGMENTS		BENCH MARK: N/A
	EQUIPMENT USED ON SUBJECT PROJECT	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED 4 FEET	ELEVATION N/A FEET
OMOPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: N/A FEET
SL SHRINKAGE LIMIT	CME-45C CLAY BITS X AUTOMATIC MANUAL	MODERATELY CLOSE	NOTES:
- DRY - (D) REQUIRES ADDITIONAL WATER TO		VERY CLOSE LESS THAN 0.16 FEET THICKLY LAMINATED 0.008 - 0.03 FEET	RETAINING WALL BORING ELEVATIONS OBTAINED USING A SURVEY
ATTAIN OPTIMUM MOISTURE	X CME-55 G* CONTINUOUS FLIGHT AUGER CORE SIZE:	THINLY LAMINATED < 0.008 FEET	
PLASTICITY	X 8' HOLLOW AUGERS	INDURATION	GRADE GPS UNIT.
PLASTICITY INDEX (PI) DRY STRENGTH	CME-550 HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.	FIAD- FILLED MAKEDIATELY AFTED DOWN NO
NON PLASTIC 0-5 VERY LOW	TUNGCARBIDE INSERTS	RUBBING WITH FINGER FREES NUMEROUS GRAINS;	FIAD= FILLED IMMEDIATELY AFTER DRILLING
SLIGHTLY PLASTIC 6-15 SLIGHT	VANE SHEAR TEST CASING W/ ADVANCER HAND TOOLS:	GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.	NM= NOT MEASURED
MODERATELY PLASTIC 16-25 MEDIUM HIGHLY PLASTIC 26 OR MORE HIGH	DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;	The transfer of the transfer o
	PORTABLE HOIST TRICONESTEEL TEETH HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.	
COLOR	X TRICONE 215/6 TUNGCARB. SOUNDING ROD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;	
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	CORE BIT VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.	
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.		SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;	0.75 0.15 1.
		SAMPLE BREAKS ACROSS GRAINS.	DATE: 8-15-14



	В	BORE LOG													
WBS 44997.1.1	TIP R-5797 COUNT	TY COLUMBUS	GEOLOGIST M. Durway		WBS 44997	7.1.1		TII	P R-5797	COU	NTY COLUM	BUS	GE	OLOGIST M. Durway	
SITE DESCRIPTION Ret. Wall 1	on -Wall_1- from 10+00.00 to 12+	-46.31 and Ret. Wall 2 on -Wall_	_2- from 17+00.00 to 20+00.00	GROUND WTR (ft)	SITE DESCR	RIPTION	Ret. Wal	ll 1 on -\	Wall_1- from	10+00.00 to 1	2+46.31 and R	et. Wall 2 on	-Wall_2- fro	m 17+00.00 to 20+00.00	GROUND WTR (ft)
BORING NO. RW1-1	STATION 10+19	OFFSET 4 ft LT	ALIGNMENT -WALL1-	0 HR. NM	BORING NO	. RW1-2		S1	TATION 10	+91	OFFSET	8 ft LT	ALI	GNMENT -WALL1-	0 HR. NM
COLLAR ELEV. 87.9 ft	TOTAL DEPTH 20.0 ft	NORTHING 250,281	EASTING 2,015,122	24 HR. Dry	COLLAR ELI				OTAL DEPT		NORTHIN	G 250,211		STING 2,015,138	24 HR. 3.8
DRILL RIG/HAMMER EFF/DATE F&F	R3495 CME-55 83% 02/05/2018	DRILL METHOD H	I.S. Augers HAMIN	MER TYPE Automatic	DRILL RIG/HA	MMER EFF	/DATE	F&R3495	CME-55 83%	02/05/2018		DRILL METH	HOD H.S. Aug	ers HAM	MER TYPE Automatic
DRILLER D. Tignor	START DATE 01/03/18	COMP. DATE 01/03/19	SURFACE WATER DEPTH N	I/A	DRILLER D				TART DATE	01/03/19	COMP. DA	TE 01/03/1	9 SUI	RFACE WATER DEPTH	N/A
ELEV (ft) DRIVE ELEV (ft) DEPTH BLOW COUL		T SAMP.	SOIL AND ROCK DES	SCRIPTION DEPTH (ft)	ELEV DRIVE ELEV (ft)	DEPTH (ft) 0	.5ft 0.5f		0 2	BLOWS PER FC	OOT 75 100	SAMP. NO.	OI G	SOIL AND ROCK DE	SCRIPTION
90 87.9 - 0.0					87.6	- 00							87.6	GROUND SUR	FACE 0.0
85 84.4 3.5	6 . •10	M M	COASTAL PL Gray-Tan, Silty Fine to Coar with Trace Organics	se SAND (A-2-4) s (Roots)	85		2 3	3	6 6			M	-	COASTAL PL Tan-Brown, Silty Fine to (A-2-4)	Coarse SAND
3.3 4 4	5	Sat. Sat.	- (DUPLIN FÖRMA	TÎON)	84.1	3.5	3 4	4	. 8			Sa	F	(A-2-4) (DUPLIN FORM)	ATION)
79.4 8.5 6 10	14		- - -		80 79.1	8.5	6 8	12	\				- -		
75			- - -		75				· · · • 20 · · · · · · ·			Sa			
74.4 + 13.5 5 7	7 14	Sat.	 - -		74.1	13.5	5 9	7	/ .			Sa	t.		
70 69.4 18.5 5 7	8		<u>-</u>		70 69.1	18.5	1 2	7				-			
	<u> </u>	Sat	67.9 Boring Terminated at Elev SAND (COASTAL	20.0 ration 67.9 ft in PLAIN)	65		1 3	'	10 .			Sa	t.		
			Note:		64.1	23.5	7 9	10			I	- 	t		
			- 24 Hr. =Dry, Caved-	In at 2.3		+			19 ●19				- 62.6	Boring Terminated at Ele	
			<u>-</u> 		-	-							1 F	SAND (COASTAL	. PLAIN)
						<u> </u>							E	Note: Surficial Organic So	il=0.0'-0.1'
			- -		<u> </u>	<u>†</u>							1 <u>L</u>		
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ВО	RE LOG					
WBS 44997.1.1 TIP R-5797 COUNTY	COLUMBUS	GEOLOGIST M. Durway	WBS 44997.1.1	TIP R-5797 COU	NTY COLUMBUS	GEOLOGIST M. Durway
SITE DESCRIPTION Ret. Wall 1 on -Wall_1- from 10+00.00 to 12+46.3	31 and Ret. Wall 2 on -Wall_2- fi	rom 17+00.00 to 20+00.00 GROUND WTR (ft)	SITE DESCRIPTION Ret	Wall 1 on -Wall_1- from 10+00.00 to 1	2+46.31 and Ret. Wall 2 on -Wal	I_2- from 17+00.00 to 20+00.00 GROUND WTR (ft)
BORING NO. RW1-3 STATION 11+38 O	FFSET 4 ft RT	ALIGNMENT -WALL1- 0 HR. NM	BORING NO. RW1-4	STATION 11+88	OFFSET 3 ft LT	ALIGNMENT -WALL1- 0 HR. NM
		EASTING 2,015,141 24 HR. 3.5	COLLAR ELEV. 87.6 ft	TOTAL DEPTH 30.0 ft	NORTHING 250,119	EASTING 2,015,165 24 HR. 3.0
DRILL RIG/HAMMER EFF./DATE F&R3495 CV/E-55 83% 02/05/2018	DRILL METHOD Mud R	totary HAMMER TYPE Automatic		TE F&R3495 CME-55 83% 02/05/2018	DRILL METHOD	H.S. Augers HAMMER TYPE Automatic
		SURFACE WATER DEPTH N/A	DRILLER D. Tignor	START DATE 12/18/18	COMP. DATE 12/18/18	SURFACE WATER DEPTH N/A
ELEV (ft)	SAMP. V L O NO. MOI G ELE	SOIL AND ROCK DESCRIPTION EV. (ft) DEPTH (ft)		0.5ft 0.5ft 0 25 50	75 100 NO. MOI G	
90			90			L 87.6 GROUND SURFACE 0.0
85 /	M	COASTAL PLAIN Orange-Brown-Black, Silty Fine to Coarse	87.6 + 0.0 3 85 84.1 3.5	5 4	M	- COASTAL PLAIN - Orange-Brown-Black, Silty Fine to Coarse SAND (A-2-4) with Trace Organics (Roots)
83.9 3.5 2 3 4	₩ ₩ ₩ ₩	SAND (A-2-4) with Trace Organics (Roots) (DUPLIN FORMATION)]] 3	3 4	:: :::: w	L (DÚPLIN FORMATĬON) ` ´
80 78.9 8.5 7 14 18	Sat.		79.1 8.5	9 11	Sat.	- - - - -
75 73.9 13.5 4 5 5			75	7 9		-
68.9 1 18.5			70 69.1 18.5			- - - -
$\begin{bmatrix} 3 & 4 & 2 & & & & & & & & & & & \\ & \ddots & \ddots & \ddots & \ddots$	Sat.		65 6	9 11 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		-
	Sat. Sat.	4 25.0 Boring Terminated at Elevation 62.4 ft in SAND (COASTAL PLAIN)	64.1 23.5	8 9		
		Note: Surficial Organic Soil=0.0'-0.2'	59.1 28.5	12 11•23	Sat.	
						SAND (COASTAL PLAIN) Note: Surficial Organic Soil=0.0'-0.2'
						Surridai Organic Soii=0.0-0.2
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SHEET 6

									<u> </u>	PRE	L	UG							
	44997					IP R-579				COLUI						ST M. Durv			
				. Wall				00 to 12					2 on -\	Nall_	1	00.00 to 20+0		┥	O WTR (ft)
		. RW1				TATION				DFFSET						NT -WALL1	-	0 HR.	NM
		EV. 88				OTAL DE			ı	NORTHII	NG					2,015,186	1	24 HR.	3.2
				AIE F		CME-55 8			_					D M	ud Rotary			MER TYPE	Automatic
DRILL		. Tignoi				TART DA				COMP. D)AT		18/18	1	SURFACE	WATER DE	PTH N	/A	
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	0.5ft	0.5ft		0	25 	PER FOO	OT 75	5 10	00	SAMP. NO.	MOI	O G	ELEV. (ft)	SOIL AND RO	OCK DES	CRIPTION	DEPTH (f
90															_	ODOLIN.		AOF	
	88.2	0.0	1	2	2	4	: :	 T : : :			+		М		88.2	COAS	ND SURF	AIN	0.
85	84.7 -	3.5				\ \		 	٠				V	_	_ Or	ange-Brown-Bla ND (A-2-4) with	Trace O	rganics (Roc	se its)
			3	3	4	7. :	: :	 	:				Sat.			(DUPLIN	FORMA	TION)	
00		<u> </u>				: \;:		 	:										
80	79.7 -	8.5	4	8	11	 \	5 10	 					Sat.		=				
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75	74.7 -	13.5					<u> </u>	 	·					_	_				
		-	7	9	11		20	 					Sat.	-					
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70	69.7 -	18.5	5	9	9		10 .	 <u> </u>					Sat.		=				
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65	64.7 -	23.5]	<u>: :</u>	 ļ · · ·	•					-	-				
		‡	5	7	8	::•	5 .	 	:				Sat.	-					
60	-	‡				:::'	· :	 						-					
00	59.7 -	28.5	8	11	12	-	. 23	 	-				Sat.		58.2				30.
Ī		-					V 20					1		-		oring Terminate SAND (Co	ed at Elev	ation 58.2 ft	
	_	‡												┆	-	OAND (O		i LAIIV)	
		‡														Surficial Org	Note: ganic Soil	=0.0'-0.2'	
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١	NBS	449	97.1	.1				TIP	R-57	97		(COU	NTY	' C	OLU	IMB	US					GE	OLO	GIS	Г М	. Du	rway	/						WE	3S -	4499	7.1.1					TIP	P F	R-579	7		(COU	YTV	COL	UMB	US				G	EOL	OGI	ST	M. D)urwa	ay					
\$	SITE	DES	CRIP	TION	Ret	t. Wa	ıll 1 c	n -W	all_1-	from	10+0	0.00	to 12	2+46	6.31	and	Re	t. Wa	all 2	on ·	-Wa	all_2	- froi	m 17	' +00	.00 to	o 20	+00.	00	G	RO	JND	WTR	(ft)	SIT	ΓE D	ESCF	RIPT	ION	Ret.	Wa	ll 1 c	n -W	Nall_	_1- fr	om 1	10+0	0.00	to 12	2+46	.31 ar	d Re	t. Wa	II 2 c	on -\	Wall	_2- fı	om 1	17+0	0.00	to 2	0+00	0.00	G	ROUI	ND W	/TR	(ft)
E	30RI	NG N	10.	RW2-	-1			ST	TION	17+	-00				OF	FSE	Г 3	ft L	Γ				ALI	GNN	/IEN	Γ -۷	VAL	L2-		() HR			5.0	BC	RIN	G NO). R	W2-2	2			ST	ATI	ION	17+4	48			(OFFSE	T (CL				Α	LIGN	ME	NT ·	-WAI	LL2-		(HR.		Ę	5.0
				. 87					AL D						NO	RTH	ING	25	0,17	8			EAS	STIN	IG 2	2,014	1,79			- 1	4 HR			Ory			R EL								L DE					1	IORTI	HING	250	,143	3		E	ASTI	ING	2,0	14,82				HR.			8.0
[ORILL	RIG/I	HAMIN	/IER EF	F./DA	TE	F&R3	3495 (ME-55	83%(02/05/2	2018						DRIL	L ME	ΞTΗC	OD	H.S	. Auge	ers					HAM	MER	TYP	E A	utoma	ic	DR	ILL R	IG/HA	MME	REF	F./DA	TE I	F&R3	3495 (CME	E-55 8	3%0	2/05/2	2018					DRIL	ME	THO	D H	I.S. A	ugers					HAN	MER	TYPE	Auto	omati	С
[ORILI	_ER	D. 7	Γignor				ST	RT D	ΥΤΕ	08/0	7/18			СО	MP.	DAT	E (08/07	7/18	3		SUF	RFA	CE V	VATE	R D	EPT	1 H	N/A					DR	RILLE	R [D. Tig	gnor				ST	AR	T DA	TE	08/07	7/18		(OMP	. DA	Γ E 0	8/07/	/18		s	URF/	ACE	WA	TER	DEP	тн	N/A				
	ELEV (ft)	DRIV ELE (ft)	VE D	EPTH (ft)	BL0	0.5		_	0	25	BLOW	/S PE 50			75 	1	00	SAN		/			ELEV.	. (ft)	S	SOIL A	AND I	ROCK	K DES	SCRI	PTIO		DEPT	H (ft)	ELE (ft) D	ORIVE ELEV (ft)	DEF (f	PTH t)	BLC 0.5ft			_	0		25 	BLOW	/S PE 50		OT 7:	5	100	SAM		MOI	L O G				SOIL	_ AND	ROC	CK DE	SCRI	PTION	I		
	90	87.7	7	0.0	1	1		2	1													-	87.7						SURI		≣			0.0	90		87.6	 - - -		A/OLL	0															2000	 - _ 87.0	3					D SUF		<u> </u>			0.0
	85		Ŧ		'	'		2	• 3 ·	- 1							- 1			М					Black	and .	Tan,	Silty F	L PL ine t	o Co	arse	SAND)		85	,		Ŧ		NOH		'	2	•	4					- 1					М		F		Bla	ck and	d Tan	n. Silty	/ Fine	to Co	arse S	AND		
	80		2 -		10	2		1	3 .	:								SS-					77.7			(E	OUPL	(A-2	2-4) ORMA	ATIO	N)	SANE		10.0	80)	79.1	 		2	7		3	1)5 \ \									_	M W		- - - - - - - - - -	2			(DUP	(A PLIN F	A-2-4) FORM	ATIOI	N)			10.0
			Ŧ							• •	<u> </u>	- 1	•			<u> </u>	•		1		1	F			Borir	ng Te	rmina	ated a	t Elev	vatio	n 77.	7 ft in		10.0				Ŧ							▼ 12						-	- 1	1		••	*	- '''	<u>, </u>	Вс	ring T	Termir	nated	at Ele	vatio	n 77.6	ft in		10.0
			+ + + + + + + + + + + + + + + + + + + +																			-			,	1. Sur 2. 24	ficial	Not Orga	tes: nic S	oil=0	.0'-0.	1'						+																			- - - - - - -					, V	Note: anic So		,			
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WBS	44997.1.1		TII	P R-5797	•	COL	JNTY	COLUM	1BUS			GE	OLOG	SIST M	l. Durwa	ıy			V	/BS	44997	1.1			TIP	P R-5797	7	COU	NTY CO	LUMB	US		GEO	LOGIS	r M. Dur	way		
SITE	DESCRIPTION	Ret. Wa	ll 1 on -\	Vall_1- fro	m 10+00	0.00 to 1	12+46.	31 and F	Ret. Wa	ıll 2 on	-Wal	I_2- fror	m 17+	+00.00 t	o 20+00	0.00	GROU	ND WTR (ft) S	ITE D	DESCRI	PTION	Ret. \	Nall 1 c	on -W	Vall_1- fro	m 10+0	0.00 to 12	2+46.31 a	ınd Re	t. Wall 2	on -Wal	I_2- from	า 17+00	.00 to 20+	00.00	GROUND WTF	₹ (ft)
BORII	NG NO. RW2	2-3	ST	ATION 1	8+00		0	FFSET	2 ft R			ALI	IGNME	ENT -V	VALL2-		0 HR.	5	.0 B	ORIN	IG NO.	RW2-	4		STA	ATION	18+44		OFFS	ET 8	ft RT		ALIG	SNMEN	Γ -WALL	2-	0 HR.	9.0
COLL	AR ELEV. 87	7.6 ft	TC	TAL DEP	TH 15.0	0 ft	N	ORTHIN	G 250),106		EAS	STING	3 2,014	4,864		24 HR.	FIA	.D C	OLL/	AR ELE	V. 87.	.5 ft		то	TAL DEP	TH 15.	0 ft	NOR	THING	250,0	71	EAS.	TING :	2,014,892		24 HR.	5.5
DRILL	RIG/HAMMER E	FF./DATE	F&R3495	CME-55 83°	% 02/05/2	2018			DRIL	L METH	HOD	H.S. Auge	jers			HAMME	ER TYPE	Automation	; D	RILL F	RIG/HAN	MER EF	F./DATI	E F&R3	3495 C	CME-55 83	% 02/05/2	2018			DRILL IV	ETHOD	H.S. Auger	rs		HAMIN	ER TYPE Autom	atic
DRILL	.ER D. Tigno	r	ST	ART DATI	E 08/07	7/18	С	OMP. D	ATE 0	8/07/1	8	SUF	RFACI	E WATE	ER DEP	TH N/A	A			RILL	ER D.	Tignor			STA	ART DAT	E 08/0	7/18	СОМ	P. DAT	E 08/0	7/18	SUR	FACE V	VATER DE	PTH N	'A	
ELEV (ft)	DRIVE ELEV (ft) DEPTH (ft)	0.5ft 0.5f		0 :	BLOW 25	/S PER F0	OOT 75	5 100		P. M	0	ELEV.	′. (ft)	SOIL /	AND ROC	CK DESC	CRIPTION	I DEPTH	(π)	EV ft)	DRIVE ELEV (ft)	DEPTH (ft)		0.5ft 0.		0	BLOW 25	/S PER FO	OT 75 1	100	SAMP. NO.	MOI G		8	SOIL AND R	OCK DES	CRIPTION	
	87.6 + 0.0	1 2	2	L ₄ · · ·					#	М	ı	87.6			GROUND	AL PLAI	N		0.0		87.5	· · 0.0	1	2	3	5				• •		M ::	- - 87.5		COA	ND SURFA	IN	0.0
85	84.1 3.5 79.1 8.5	2 3		6						M	7_		BI		Tan, Silty (A- DUPLIN F	-2-4)		AND		30	84.0 	3.5	3	3	3	6						₩		Black (A	and Gray, S -2-4) with Ti (DUPLII	Silty Fine to race Orgai N FORMA	Coarse SAND nics (Roots) TION)	
75	74.1 13.5	1 0		1	• • • • • • • • • • • • • • • • • • •					w w	7 7 7 7 7 7 7 7 7	78.0 73.1 72.6		Gray, Silt	ine Sandy DUPLIN F	Coarse S	SAND (A-2		4.5 5.0	75	74.0	13.5	4	6	9						SS-15	63% W		Borii	ng Terminat	ad at Flav	ation 72.5 ft in	15.0
													\	(I Boring Te SA	OUPLIN F rminated AND (COA	ORMATI at Elevat ASTAL Pl	ION) tion 72.6 t LAIN)																			OASTAL I	PLAIN)	
NCDOT BORE DOUBLE R-5797_GEO_BH_WALL.GPJ NC_DOT.GDT 9/27/19	+ + + + + + + + + + + + + + + + + + +																																					

								<u> 30R</u>		UG																				
WBS	44997.1.	1		TIP	R-5797		COUN	TY CC	DLUMB	US			GEOLOGIST M. Durwa	у		WBS	44997	'.1.1		1	TIP R	-5797	COUN	TY COLUM	BUS		GEOL	OGIST M. Durw	vay	
SITE	DESCRIPT	ION Re	t. Wall 1	on -Wa	II_1- fror	n 10+00	00 to 12	+46.31	and Re	t. Wall 2	2 on -W	/all_2-	from 17+00.00 to 20+00	.00 GROUND W	TR (ft)	SITE	DESCR	IPTION	Ret. \	Wall 1 on	-Wall_	1- from 10+	00.00 to 12			2 on -Wall	_2- from 1	17+00.00 to 20+0	00.00	GROUND WTR (ft)
BORI	NG NO. F	RW2-5		STA	ΓΙΟΝ 18	3+97		OFF:	SET 1	8 ft RT		1	ALIGNMENT -WALL2-	0 HR.	8.8	BORI	ING NO.	RW2	-6		STATIC	ON 19+51		OFFSET	3 ft LT		ALIGN	IMENT -WALL2	<u>?</u> -	0 HR. NM
	AR ELEV.			1	AL DEPT			NOR		250,02			EASTING 2,014,923	24 HR.	5.7		LAR ELI					DEPTH 1		NORTHIN			1	NG 2,014,976		24 HR. 3.3
DRILL	RIG/HAMM	ER EFF./D/	ATE F&R	3495 CN	/IE-55 83%	6 02/05/20	18			DRILL IV	METHOD	H.S. A	Augers	HAMMER TYPE Auto	omatic					E F&R349	95 CME-	-55 83% 02/05	/2018		DRILL	METHOD H	I.S. Augers		HAMME	R TYPE Automatic
	.ER D. Ti				RT DATE					E 08/0			SURFACE WATER DEP	Γ H N/A			LER D				START	DATE 01/		COMP. DA		02/19	SURF	ACE WATER DE	PTH N/	١
ELEV (ft)	DRIVE ELEV (ft)		OW COUN		2	BLOWS	PER FOC 50	75 	100	SAMP. NO.	·/ I	0 I	SOIL AND ROC LEV. (ft)	K DESCRIPTION DI	EPTH (ft)	ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)		V COUNT 0.5ft 0.5ft	ft 0	BLO 25 	WS PER FOO	OT 75 100	SAMP.	MOI G		SOIL AND RO	OCK DESC	RIPTION
	87.2).0 WOF	1 1	2	3			: : :			М	- - - 87	COAST	SURFACE AL PLAIN	0.0		87.5 - -	- 0.0	2	2 3	•5	5 : : : :	· · · · · · · · · · · · · · · · · · ·			M	- - 87.5 -	COAS Black-Brown-Gra	ND SURFA	N e to Coarse
85	78.7 - 8	3.5 1 3.5 2 3.5 7	1 8	0	3 · · · · · · · · · · · · · · · · · · ·						M M W		SAND (DUPLIN F	y, Silty Fine to Coarse (A-2-4) ORMATION)	15.0	85 80 75	79.0 74.0	3.5 - - 8.5 - - - 13.5	4	341144					SS-802	_	 - - - - - - - - 72.5	SAND (A-2-4) with	Trace Gra	rel & Organics ON)
	+ + + + + + + + + + + + + + + + + + + +											-	Boring Terminated SAND (COA	at Elevation 72.2 ft in STAL PLAIN) ote: nic Soil=0.0'-0.1'				-									- - - - - - - - - -	SAND (CO	DASTAL P Note: rganic Soil: empted in c	.AIN) -0.0'-0.2' ffset boring at
E DOUBLE R-5797_GEO_BH_WALL.GPJ NC_DOT.GDT 9/27/19	_++++++++++++++++++++++++++++++++++++++																													
ACDOT BOL	‡											Ė					- - -										- - -			



SHEET 10

	4499	7.1.1				TI	P R-5797	,	COUNT	COLUME	BUS			GEOLOGIST M. Durwa	ay		
SITE	DESC	RIPTI	ON	Ret	Wall	1 on -\	Nall_1- fro	m 10+00.0	0 to 12+4	6.31 and Re	et. Wall 2	2 on -	Wall_	2- from 17+00.00 to 20+00	0.00	GROUN	ID WTR (ft
BOR	ING NO	. R\	W2-	7		S	TATION 2	20+01		OFFSET (CL			ALIGNMENT -WALL2-		0 HR.	NM
COLI	LAR EL	EV.	88.	5 ft		TO	OTAL DEP	TH 20.0 f	t	NORTHING	249,9	67		EASTING 2,015,009		24 HR.	3.7
DRILL	RIG/HA	MME	R EF	F./DA	TE F	3R3495	CME-55 83	% 02/05/201	3		DRILL N	/IETHO	D H	.S. Augers	HAMM	ER TYPE	Automatic
DRIL	LER [). Tig	nor			S	TART DAT	E 01/02/1	9	COMP. DA	TE 01/0	02/19		SURFACE WATER DEP	TH N/	A	
ELEV	DRIVE		$\overline{}$		W CO	UNT		BLOWS	PER FOOT		SAMP.	V /		COUL AND DO	OK DEGG	PUDTION	
(ft)	ELEV (ft)	(ft		0.5ft	0.5ft	0.5ft	0	25	50	75 100	NO.	моі	O G	SOIL AND ROO	JK DESC	RIPTION	DEPTH (
90	88.5	0.0	0	1	3	3	1	1	1			NA.					0
		<u> </u>		·			1 1 1 1 1 1 1 1 1 1					M		Black and Tan, Sil			-4)3.
85_	85.0	3.		2	2	2	4					W		COAST Tan-Brown and Blad	(A-2-4)	ine to Coa	
30	80.0	8.9	5	4	11	12	/	23				w					
'5	75.0	13.	.5	6	7	7	· · • 14					Sat.		- - - -			
70	70.0	18.	.5	2	2	2	: /: : :							- -			
		 	_	2	3	3	6				-	Sat.		- 68.5 Boring Terminated	at Fleva	tion 68 5 f	t in
		\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\															

North Carolina Department of Transportation Division of Highways Materials and Test Unit Soils Laboratory

T.I.P. ID NO.: R-5797

Retaining Wall 1 on -Wall_1- from 10+00.00 to 12+46.31 and Retaining Wall 2 on -Wall_2- from 17+00.00 to 20+00.00 DESCRIPTION:

REPORT ON SAMPLES OF: SOIL FOR QUALITY

3' Lt

3.5

5.0

-WALL2-

20.1

1.5

8' Lt

8.5

10.0

-WALL2-

63.2

NT

3' Lt

8.5

10.0

-WALL2-

123.5

NT

F&R PROJECT #: 66V-0246 COUNTY: Columbus DATE SAMPLED: 8/18 to 1/19 RECEIVED: 8/18 to 1/19 REPORTED: 8/18 to 1/19 SAMPLED FROM: Various SUBMITTED BY: Cheng Wang BY: D. Council

TEST RESULTS

PROJ. SAMPLE NO.	SS-12	SS-15	SS-802									
BORING NO.	RW2_1	RW2_4	RW2_6									
Retained #4 Sieve %	NT	0.0	0.0									
Passing #10 Sieve %	NT	99.9	99.3									
Passing #40 Sieve %	NT	67.2	75.5									
Passing #200 Sieve %	2.7	14.5	34.9									
SOIL MORTAR - 100%												
00U MODTAD 4000/	<u> </u>				1	<u> </u>	1			1	1	
Coarse Sand Ret - #60 %	NT	67.2	47.0									
Fine Sand Ret - #270 %	NT	19.1	20.0									
Silt 0.053 - 0.010 mm %	NT	4.2	17.8									
Clay < 0.010 mm %	NT	9.5	15.2									
L.L.	NT	NP	NP									
P.L.	NT	NP	NP									
P.I.	NT	NP	NP									
AASHTO Classification	A-2-4	A-2-4	A-2-4									
Station	17+00	18+44	19+51									

NP = Not plastic

Offset

Depth (ft)

Alignment

NT = Not tested

CL = Centerline

Moisture Content (%)

Organic Content (%)

to

ND = Not Determined

W.P. Alton, P.E.