

REFERENCE: U-5873

PROJECT: 47085

**CONTENTS**

<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2	LEGEND (SOIL & ROCK)
3	SITE PLAN
4	PROFILE
5-7	BORE LOGS

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY MECKLENBURG  
PROJECT DESCRIPTION NORTH MAIN STREET /  
POTTS STREET INTERSECTION IMPROVEMENTS  
  
SITE DESCRIPTION RETAINING WALL ON -Y2-  
BETWEEN STATIONS 15+96.54 AND 17+92.80  
-RWI- STA. 10+00 TO 12+20

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5873	1	7

**CAUTION NOTICE**

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT (919) 707-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

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

THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION MADE, NOR THE INTERPRETATIONS MADE, OR OPINION OF THE DEPARTMENT AS TO THE TYPE OF MATERIALS AND CONDITIONS TO BE ENCOUNTERED. THE BIDDER OR CONTRACTOR IS CAUTIONED TO MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

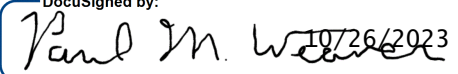
**PERSONNEL**

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AMERIDRILL

INVESTIGATED BY ESP Associates, Inc.  
DRAWN BY C.R. PASTRANA  
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SUBMITTED BY ESP Associates, Inc.  
DATE October 2018

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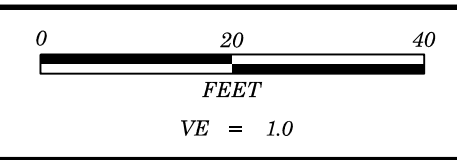
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**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**

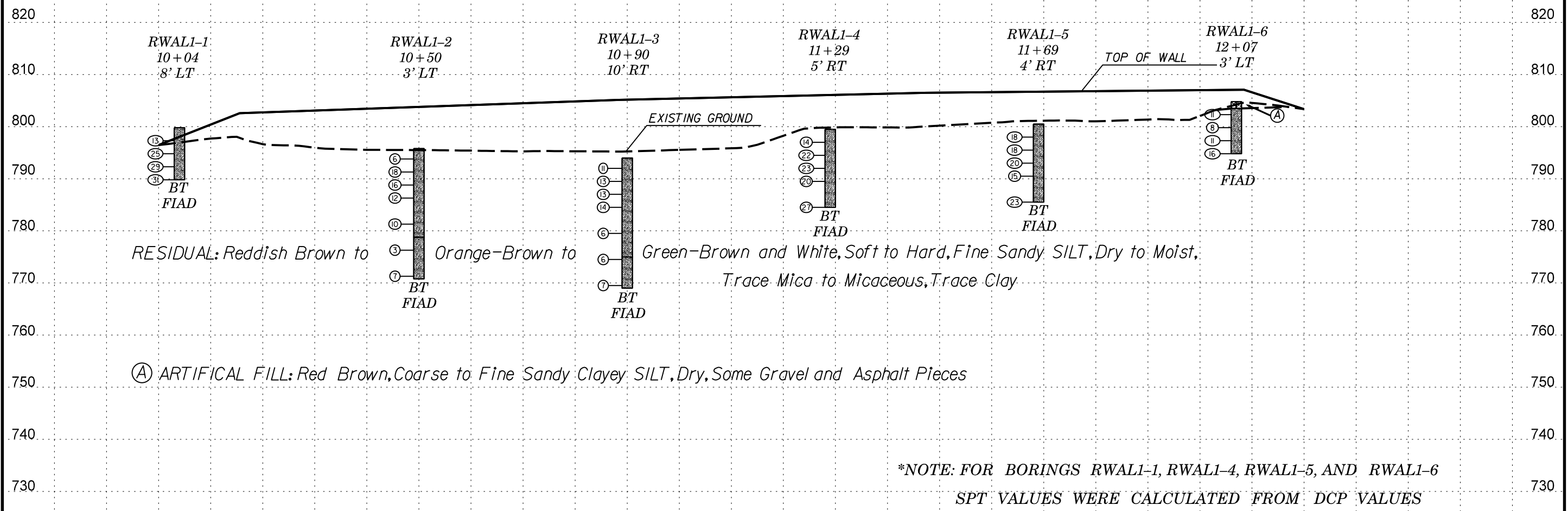
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
**GEOTECHNICAL ENGINEERING UNIT**  
**SUBSURFACE INVESTIGATION**  
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION										GRADATION										ROCK DESCRIPTION										TERMS AND DEFINITIONS																																																												
<p>SOIL IS CONSIDERED UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS THAT CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER AND YIELD LESS THAN 100 BLOWS PER FOOT ACCORDING TO THE STANDARD PENETRATION TEST (AASHTO T 208, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i></p>										<p><b>WELL GRADED</b> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <b>UNIFORMLY GRADED</b> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. <b>GAP-GRADED</b> - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.</p>										<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>										<p><b>ALLUVIUM (ALLUV.)</b> - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. <b>AQUIFER</b> - A WATER BEARING FORMATION OR STRATA. <b>ARENACEOUS</b> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. <b>ARGILLACEOUS</b> - 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. <b>ARTESIAN</b> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE. <b>CALCAREOUS (CALC.)</b> - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. <b>COLLUVIUM</b> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. <b>CORE RECOVERY (REC.)</b> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. <b>DIKE</b> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. <b>DIP</b> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. <b>DIP DIRECTION (DIP AZIMUTH)</b> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. <b>FAULT</b> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. <b>FISSILE</b> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <b>FLOAT</b> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. <b>FLOOD PLAIN (FP)</b> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. <b>FORMATION (FM)</b> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. <b>JOINT</b> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. <b>LEDGE</b> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. <b>LENS</b> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. <b>MOTTLED (MOT.)</b> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. <b>PERCHED WATER</b> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM. <b>RESIDUAL (RES.) SOIL</b> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. <b>ROCK QUALITY DESIGNATION (ROD)</b> - 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. <b>SAPROLITE (SAP.)</b> - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. <b>SILL</b> - 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. <b>SLICKENSIDE</b> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. <b>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</b> - 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. <b>STRATA CORE RECOVERY (SREC.)</b> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. <b>STRATA ROCK QUALITY DESIGNATION (SROD)</b> - 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. <b>TOPSOIL (TS.)</b> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																																												
<b>SOIL LEGEND AND AASHTO CLASSIFICATION</b>										<b>ANGULARITY OF GRAINS</b>										<b>WEATHERED ROCK (WR)</b>										<b>CRYSTALLINE ROCK (CR)</b>																																																												
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<b>MINERALOGICAL COMPOSITION</b>										<b>COMPRESSION</b>										<b>NON-CRYSTALLINE ROCK (NCR)</b>										<b>COASTAL PLAIN SEDIMENTARY ROCK (CP)</b>																																																												
<p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.</p>										<p>SLIGHTLY COMPRESSIBLE LL &lt; 31 MODERATELY COMPRESSIBLE LL = 31 - 50 HIGHLY COMPRESSIBLE LL &gt; 50</p>										<p>FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.</p>										<p>COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.</p>																																																												
<b>PERCENTAGE OF MATERIAL</b>										<b>GROUND WATER</b>										<b>WEATHERING</b>										<b>MISCELLANEOUS SYMBOLS</b>																																																												
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<b>SOIL MOISTURE - CORRELATION OF TERMS</b>										<b>EQUIPMENT USED ON SUBJECT PROJECT</b>										<b>FRACTURE SPACING</b>										<b>BEDDING</b>																																																												
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<p>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.</p>										<p>FRAGILE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p>FRAGILE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p>FRAGILE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE. MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER. INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER. EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>																																																												





PROJECT REFERENCE NO.	SHEET NO.
U-5873	4
RETAINING WALL ON Y2 PROFILE ALONG -RW1-	



- GROUNDLINE AND WALL PROFILE TAKEN FROM "U-5873\_rd\_wall.dgn"
- FILE PROVIDED BY KIMLEY-HORN DATED 10/01/2018.
- INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE WALL PROFILE.
- ALL DIMENSIONS AND STATIONS ARE ALONG FRONT FACE OF WALL.

**-RW1-**

**GEOTECHNICAL BORING REPORT**  
**BORE LOG**

DCP BORE LOGS ESP Associates, Inc.											
Project ID: U-5873- Retaining Wall				County: Mecklenburg				Boring No: RWAL1-1			
Site Description: Retaining Wall on -Y2- Between Stations 15+96.54 and 17+92.80											
Eng./Geo: Pastrana, C.R.				Boring Station: 10+04		Offset: 8' LT		Route:			
Elev.: 799.8'		Northing: 639,449		Easting: 1,447,889		Date Started: 8/26/2018					
Total Depth: 10.0'		Soil Depth: N/A		Total Amount Cored: N/A		Date Completed: 8/26/2018					
Bore Hole Diameter (in): N/A				Core Size: N/A							
Drill Machine: N/A				Drill Method: DCP & Hand Auger		Hammer Type: N/A		Energy Ratio: N/A			
Driller: N/A				Groundwater @ TOB: DRY				Groundwater @ 24 hrs: FIAD			
Top of Strata (feet)	Sample No. NUMBER	Test Depth		Test Increments (bpi)			Average bpi	*N VALUE (bpf)	MOI D/M/S	ORIGIN	SOIL & ROCK DESCRIPTION
		Depth (ft)	Drive Elev. (ft)	1st 1 3/4"	2nd 1 3/4"	3rd 1 3/4"					
799.8		2.5	797.3	14	14	12	13	9.5	D	Residual	Red Brown to Orange Brown, Fine Sandy SILT, Dry, Micaceous, Trace Clay
		5.0	794.8	21	22	31	25	13.8	D		
		7.5	792.3	26	29	33	29	15.3	D		
789.8		10.0	789.8	30	34	28	31		D		
											Boring Terminated at Elevation 789.8' in Residual Soil: Micaceous SILT

WBS 47085.1.1		TIP U-5873		COUNTY MECKLENBURG		GEOLOGIST Pastrana, C.R.										
SITE DESCRIPTION U-5873: Retaining Wall on -Y2- Between Stations 15+96.54 and 17+92.80							GROUND WTR (ft)									
BORING NO. RWAL1-2		STATION 10+50		OFFSET 3 ft LT		ALIGNMENT -RW1-	0 HR. DRY									
COLLAR ELEV. 795.8 ft		TOTAL DEPTH 25.0 ft		NORTHING 639,473		EASTING 1,447,931	24 HR. FIAD									
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER Meatyard, C.		START DATE 08/13/18		COMP. DATE 08/13/18		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)	
800																
795	794.8	1.0	3	3	3	6	6	6	6	6	6	6	6	6	6	6
790	792.3	3.5	6	8	10	12	12	12	12	12	12	12	12	12	12	12
785	789.8	6.0	4	7	9	10	10	10	10	10	10	10	10	10	10	10
780	787.3	8.5	3	5	7	8	8	8	8	8	8	8	8	8	8	8
775	782.3	13.5	4	5	5	6	6	6	6	6	6	6	6	6	6	6
	777.3	18.5	2	1	2	3	3	3	3	3	3	3	3	3	3	3
	772.3	23.5	2	3	4	4	4	4	4	4	4	4	4	4	4	4

\* N-Values are estimated based on curve A - Virgin Piedmont Soils (Reference: Sowers, G.F. and Hedeges, C.S. (1966), Dynamic Cone for Shallow In-Situ Penetration Testing, Figure 3)

NCDOT BORE SINGLE U5873 GEO\_RWAL\_GINTLOGS.GPJ NC\_DOT.GDT 10/23/18

# GEOTECHNICAL BORING REPORT BORE LOG

SHEET

WBS 47085.1.1		TIP U-5873		COUNTY MECKLENBURG		GEOLOGIST Pastrana, C.R.											
SITE DESCRIPTION U-5873: Retaining Wall on -Y2- Between Stations 15+96.54 and 17+92.80							GROUND WTR (ft)										
BORING NO. RWAL1-3		STATION 10+90		OFFSET 10 ft RT		ALIGNMENT -RW1-											
COLLAR ELEV. 794.0 ft		TOTAL DEPTH 25.0 ft		NORTHING 639,476		EASTING 1,447,973											
DRILL RIG/HAMMER EFF./DATE AME9553 CME-550X 80% 12/15/2017			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic											
DRILLER Meatyard, C.		START DATE 08/13/18		COMP. DATE 08/13/18		SURFACE WATER DEPTH N/A											
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	MOI	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
795															794.0	GROUND SURFACE	0.0
	793.0	1.0	4	5	6											<b>RESIDUAL</b> Red Brown, Fine Sandy SILT, Dry to Moist, Trace Clay and Mica	
790	790.5	3.5	3	6	7												
	788.0	6.0	4	5	8												
785	785.5	8.5	5	6	8												
	780.5	13.5	3	3	3												
775	775.5	18.5	2	2	4										775.0	Green Brown and White, Fine Sandy SILT, Moist, Micaceous	19.0
770	770.5	23.5	3	3	4										769.0	Boring Terminated at Elevation 769.0 ft In Residual Soil: Micaceous SILT	25.0

DCP BORE LOGS ESP Associates, Inc.												
Project ID: U-5873- Retaining Wall				County: Mecklenburg				Boring No: RWAL1-4				
Site Description: Retaining Wall on -Y2- Between Stations 15+96.54 and 17+92.80								Route:				
Eng./Geo: Pastrana, C.R.				Boring Station: 11+29		Offset: 5' RT		Alignment: -RW1-				
Elev.: 799.8'		Northing: 639,497			Easting: 1,448,007			Date Started: 8/26/2018				
Total Depth: 15.0'		Soil Depth: N/A			Total Amount Cored: N/A			Date Completed: 8/26/2018				
Bore Hole Diameter (in): N/A				Core Size: N/A								
Drill Machine: N/A				Drill Method: DCP & Hand Auger		Hammer Type: N/A		Energy Ratio: N/A				
Driller: N/A				Groundwater @ TOB: DRY				Groundwater @ 24 hrs: FIAD				
Top of Strata (feet)	Sample No.	Test Depth		Test Increments (bpi)			Average bpi	*N VALUE (bpf)	MOI D/M/S	ORIGIN	SOIL & ROCK DESCRIPTION	
		Depth (ft)	Drive Elev. (ft)	1st	2nd	3rd						
FROM	TO	NUMBER	1 3/4"	1 3/4"	1 3/4"							
799.5			2.5	797.0	12	13	18	14	9.9	M	Residual	Red Brown to Orange Brown, Fine Sandy SILT, Moist to Dry, Micaceous, Trace Clay
			5.0	794.5	27	21	18	22	12.8	M		
			7.5	792.0	23	28	19	23	13.1	M		
			10.0	789.5	18	12	29	20	12.1	D		
	784.5		15.0	784.5	29	28	23	27	14.5	D		
												Boring Terminated at Elevation 784.5' in Residual Soil: Micaceous SILT

\* N-Values are estimated based on curve A - Virgin Piedmont Soils (Reference: Sowers, G.F. and Hedeges, C.S. (1966), Dynamic Cone for Shallow In-Situ Penetration Testing, Figure 3)

