

REFERENCE: R-5963A

PROJECT: 48599

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY CHATHAM  
 PROJECT DESCRIPTION CHATHAM PARK WAY FROM  
US 15-501 TO US 64 BUSINESS  
 SITE DESCRIPTION BRIDGE NO. 180B01 ON SR 2700  
(CHATHAM PARK WAY) OVER UNNAMED  
TRIBUTARY TO ROBESON CREEK -L- STA. 76+49

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5963A	1	

**CAUTION NOTICE**

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

GENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSURFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. THE LABORATORY SAMPLE DATA AND THE IN SITU (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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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

P. PERRY, E.I.T.

T. WENNER, P.G.

CG2 EXPLORATION

INVESTIGATED BY CG2, PLLC

DRAWN BY M. MALISHER, E.I.T.

CHECKED BY M. WALKO, P.E.

SUBMITTED BY CG2, PLLC

DATE DECEMBER 2024

Prepared in the Office of:  
 **CAROLINAS GEOTECHNICAL GROUP**  
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DocuSigned by:  
Matt Brewer 01/13/2025  
 386129C0A4C1462...  
 SIGNATURE DATE

**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.) 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THINLY LAMINATED	< 0.008 FEET																																																																																																																																																																						
<p><b>COLOR</b></p> <p>DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-BROWN). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.</p>										<p><b>INDURATION</b></p> <p>FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.</p> <p><b>FRIABLE</b> - RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.</p> <p><b>MODERATELY INDURATED</b> - GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.</p> <p><b>INDURATED</b> - GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.</p> <p><b>EXTREMELY INDURATED</b> - SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.</p>										<p><b>BENCH MARK:</b></p> <p style="text-align: right;">ELEVATION: FEET</p> <p><b>NOTES:</b></p> <p>ROADWAY DESIGN FILES PROVIDED BY NCDOT DATED 07/18/2024. BRIDGE BORING COLLAR ELEVATIONS OBTAINED USING CARLSON BRX7 (SURVEY GRADE GPS). CT = CORING TERMINATED REF = REFUSAL NM = NOT MEASURED</p>																																																																																																																																																			

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
GEOTECHNICAL ENGINEERING UNIT

**SUBSURFACE INVESTIGATION**

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

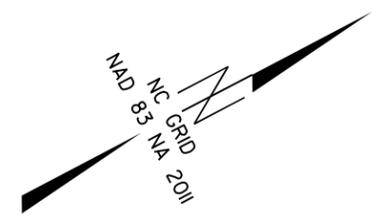
AASHTO LRFD Figure 10.4.6.4-1 — Determination of GSI for Jointed Rock Mass (Marinos and Hoek, 2000)

AASHTO LRFD Figure 10.4.6.4-2 — Determination of GSI for Tectonically Deformed Heterogeneous Rock Masses (Marinos and Hoek, 2000)

GEOLOGICAL STRENGTH INDEX (GSI) FOR JOINTED ROCKS (Hoek and Marinos, 2000)		SURFACE CONDITIONS					GSI FOR HETEROGENEOUS ROCK MASSES SUCH AS FLYSCH (Marinos, P and Hoek E., 2000)		SURFACE CONDITIONS OF DISCONTINUITIES (Predominantly bedding planes)				
From the lithology, structure and surface conditions of the discontinuities, estimate the average value of GSI. Do not try to be too precise. Quoting a range from 33 to 37 is more realistic than stating that GSI = 35. Note that the table does not apply to structurally controlled failures. Where weak planar structural planes are present in an unfavorable orientation with respect to the excavation face, these will dominate the rock mass behaviour. The shear strength of surfaces in rocks that are prone to deterioration as a result of changes in moisture content will be reduced if water is present. When working with rocks in the fair to very poor categories, a shift to the right may be made for wet conditions. Water pressure is dealt with by effective stress analysis.		VERY GOOD Very rough, fresh unweathered surfaces	GOOD Rough, slightly weathered, iron stained surfaces	FAIR Smooth, moderately weathered and altered surfaces	POOR Slickensided, highly weathered surfaces with compact coatings or fillings or angular fragments	VERY POOR Slickensided, highly weathered surfaces with soft clay coatings or fillings	From a description of the lithology, structure and surface conditions (particularly of the bedding planes), choose a box in the chart. Locate the position in the box that corresponds to the condition of the discontinuities and estimate the average value of GSI from the contours. Do not attempt to be too precise. Quoting a range from 33 to 37 is more realistic than giving GSI = 35. Note that the Hoek-Brown criterion does not apply to structurally controlled failures. Where unfavourably oriented continuous weak planar discontinuities are present, these will dominate the behaviour of the rock mass. The strength of some rock masses is reduced by the presence of groundwater and this can be allowed for by a slight shift to the right in the columns for fair, poor and very poor conditions. Water pressure does not change the value of GSI and it is dealt with by using effective stress analysis.		VERY GOOD - Very Rough, fresh unweathered surfaces	GOOD - Rough, slightly weathered surfaces	FAIR - Smooth, moderately weathered and altered surfaces	POOR - Very smooth, occasionally slickensided surfaces with compact coatings or fillings with angular fragments	VERY POOR - Very smooth, slickensided or highly weathered surfaces with soft clay coatings or fillings
STRUCTURE		DECREASING SURFACE QUALITY →					COMPOSITION AND STRUCTURE						
INTACT OR MASSIVE - intact rock specimens or massive in situ rock with few widely spaced discontinuities		90			N/A	N/A	<b>A. Thick bedded, very blocky sandstone</b> The effect of pelitic coatings on the bedding planes is minimized by the confinement of the rock mass. In shallow tunnels or slopes these bedding planes may cause structurally controlled instability.	70					
BLOCKY - well interlocked undisturbed rock mass consisting of cubical blocks formed by three intersecting discontinuity sets		80					<b>B. Sandstone with thin inter-layers of siltstone</b>	60					
VERY BLOCKY - interlocked, partially disturbed mass with multi-faceted angular blocks formed by 4 or more joint sets			70				<b>C. Sandstone and siltstone in similar amounts</b>		50				
BLOCKY/DISTURBED/SEAMY - folded with angular blocks formed by many intersecting discontinuity sets. Persistence of bedding planes or schistosity			60				<b>D. Siltstone or silty shale with sandstone layers</b>			40			
DISINTEGRATED - poorly interlocked, heavily broken rock mass with mixture of angular and rounded rock pieces			50				<b>E. Weak siltstone or clayey shale with sandstone layers</b>				30		
LAMINATED/SHEARED - Lack of blockiness due to close spacing of weak schistosity or shear planes			40				<b>F. Tectonically deformed, intensively folded/faulted, sheared clayey shale or siltstone with broken and deformed sandstone layers forming an almost chaotic structure</b>					20	
			30				<b>G. Undisturbed silty or clayey shale with or without a few very thin sandstone layers</b>						10
			20				<b>H. Tectonically deformed silty or clayey shale forming a chaotic structure with pockets of clay. Thin layers of sandstone are transformed into small rock pieces.</b>						
			10										
		N/A	N/A										

→ Means deformation after tectonic disturbance

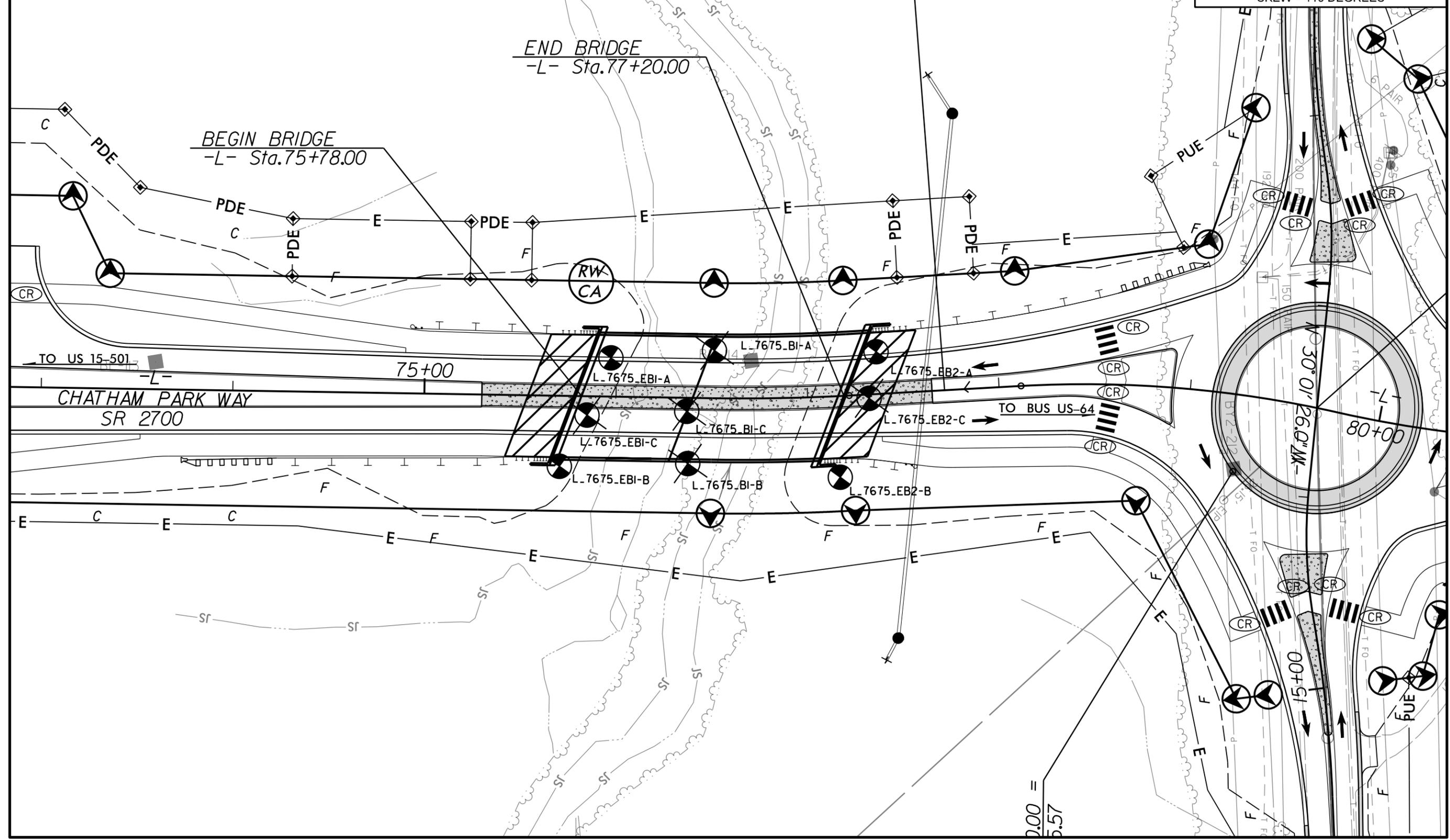
PROJECT REFERENCE NO.	SHEET NO.
R-5963A	3
<b>SITE PLAN</b>	
BRIDGE NO. 180B01 ON SR 2700 (CHATHAM PARK WAY) OVER UNNAMED TRIBUTARY TO ROBESON CREEK -L- STA. 76+49 SKEW = 110 DEGREES	



T Sta. 10+00.00

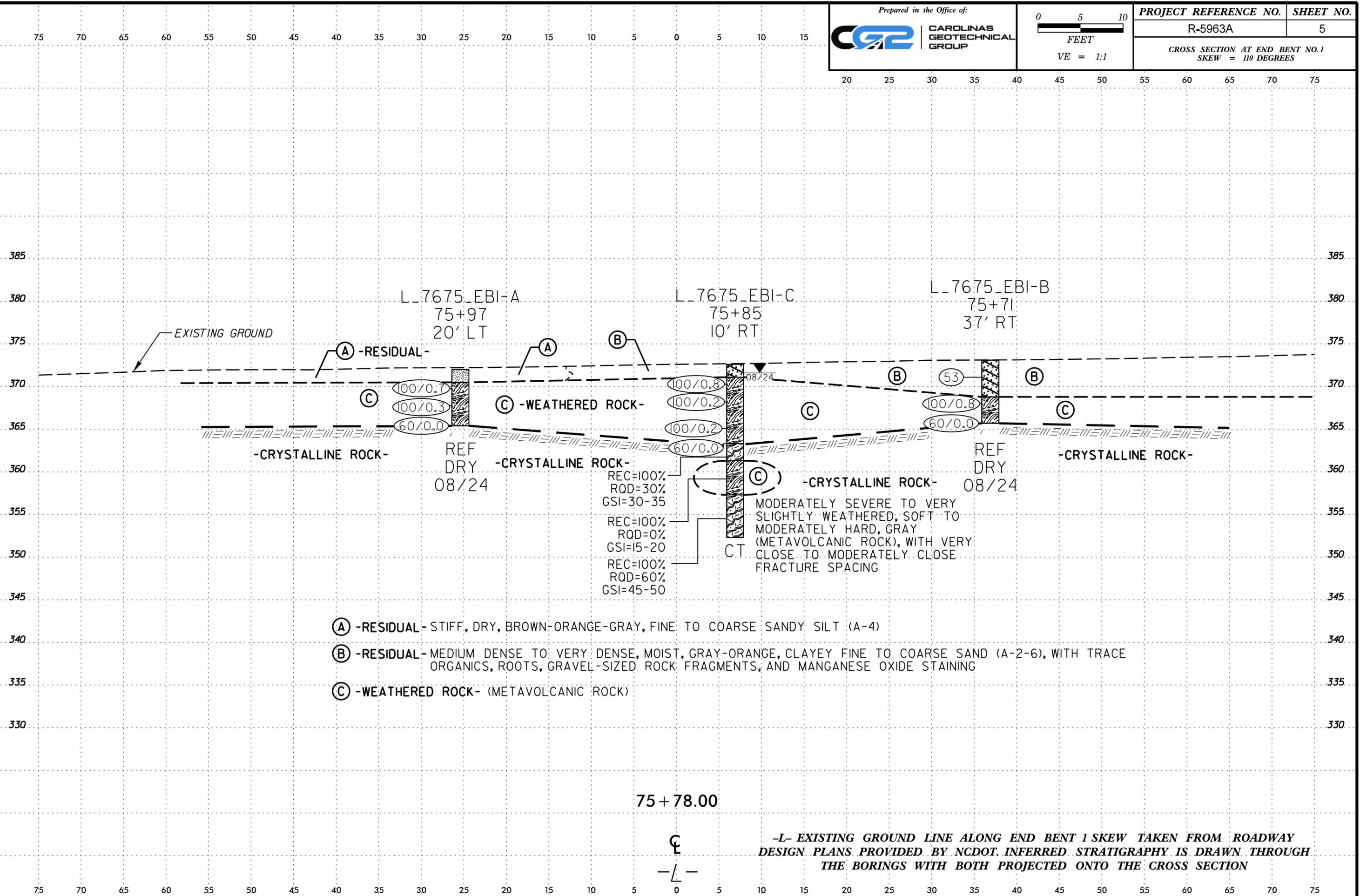
END BRIDGE  
-L- Sta. 77+20.00

BEGIN BRIDGE  
-L- Sta. 75+78.00

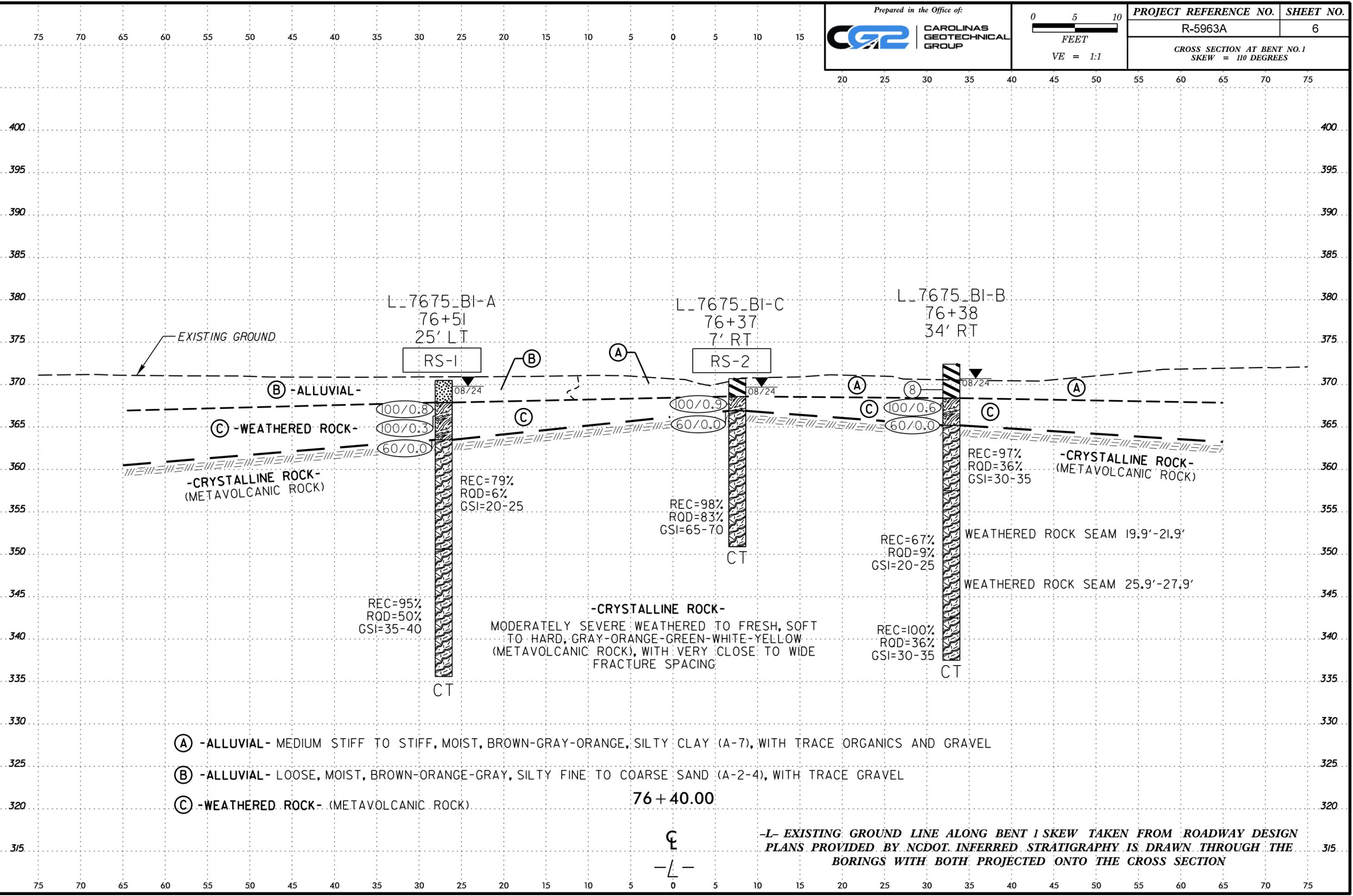




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13-DEC-2024 14:04  
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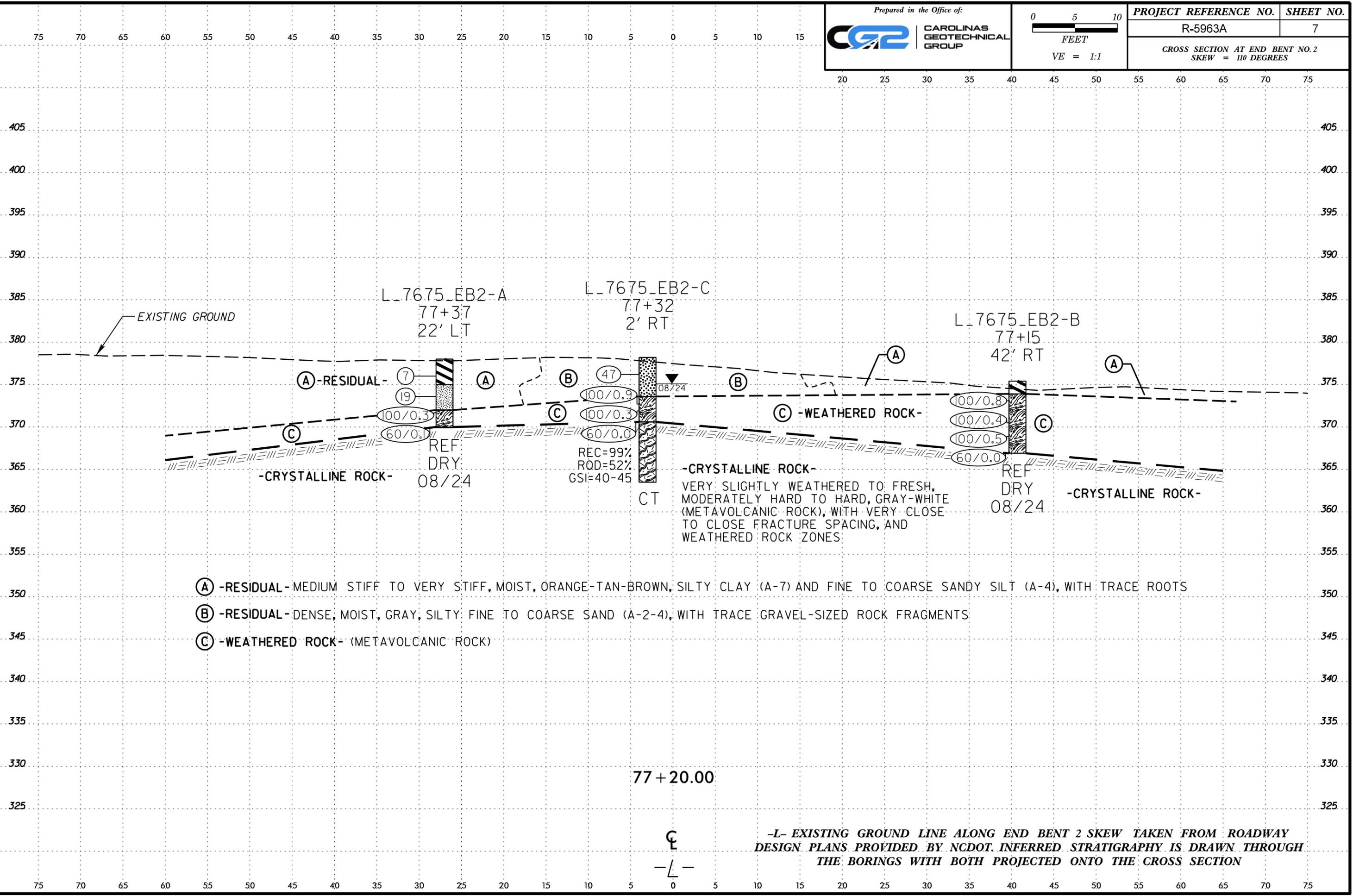


- (A) -ALLUVIAL- MEDIUM STIFF TO STIFF, MOIST, BROWN-GRAY-ORANGE, SILTY CLAY (A-7), WITH TRACE ORGANICS AND GRAVEL
- (B) -ALLUVIAL- LOOSE, MOIST, BROWN-ORANGE-GRAY, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE GRAVEL
- (C) -WEATHERED ROCK- (METAVOLCANIC ROCK)

76 + 40.00

**L- EXISTING GROUND LINE ALONG BENT 1 SKEW TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION**

13-DEC-2024 14:04  
 C:\Users\jmontbrun\Carolinan Geotechnical Group\PLLC\Matt Brewer - Projects\0252 - R-5963A\RDY\_PDI\_NCDOT\_GEO\CADD\GEO\TECH\SSR\963A\_GEO\_BROG.L\_7675.XSI.dgn



- (A) -RESIDUAL- MEDIUM STIFF TO VERY STIFF, MOIST, ORANGE-TAN-BROWN, SILTY CLAY (A-7) AND FINE TO COARSE SANDY SILT (A-4), WITH TRACE ROOTS
- (B) -RESIDUAL- DENSE, MOIST, GRAY, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE GRAVEL-SIZED ROCK FRAGMENTS
- (C) -WEATHERED ROCK- (METAVOLCANIC ROCK)

77 + 20.00

-L- EXISTING GROUND LINE ALONG END BENT 2 SKEW TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

# GEOTECHNICAL BORING REPORT

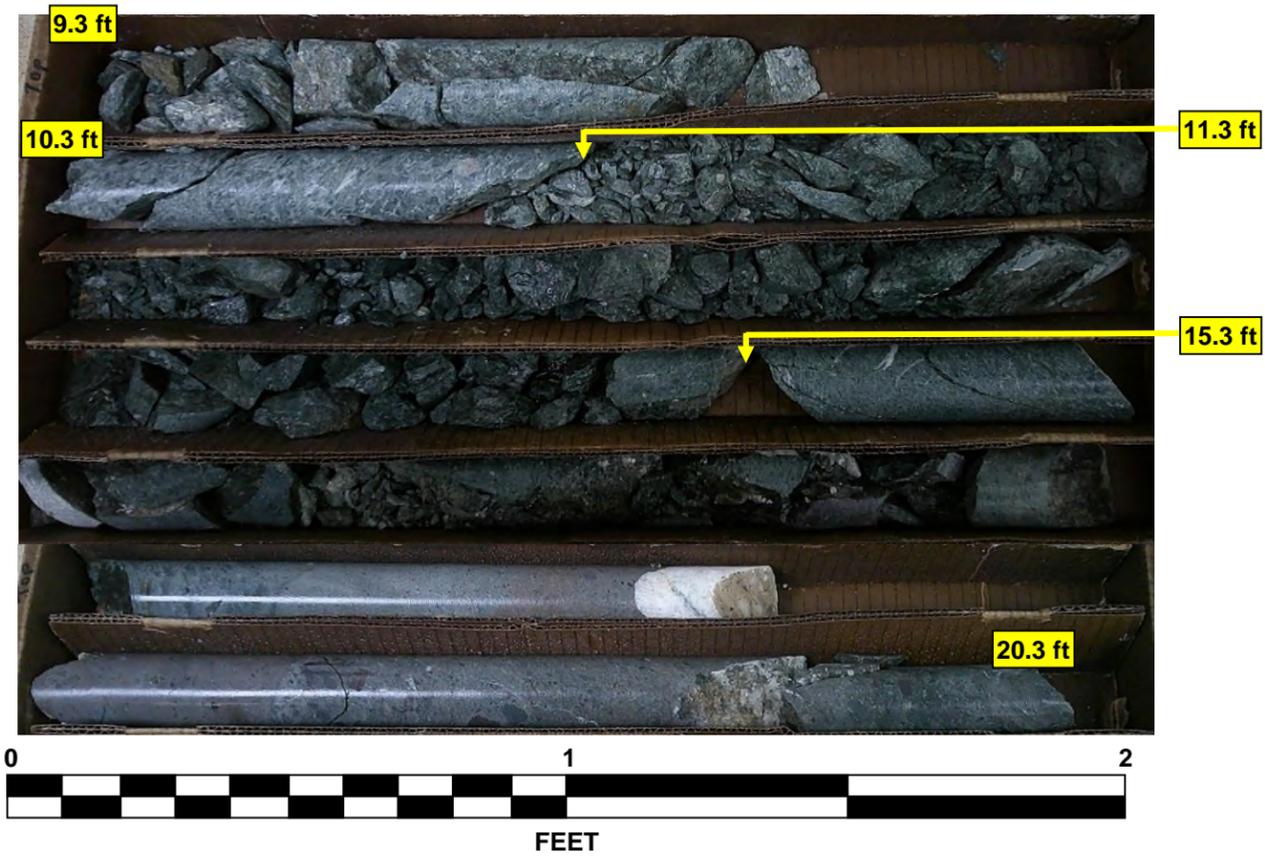
## BORE LOG

WBS 48599.1.1		TIP R-5963A		COUNTY CHATHAM		GEOLOGIST P. Perry										
SITE DESCRIPTION Chatham Parkway from US 15-501 to US 64 Business							GROUND WTR (ft)									
BORING NO. L_7675_EB1-A		STATION 75+97		OFFSET 20 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 372.0 ft		TOTAL DEPTH 6.6 ft		NORTHING 707,284		EASTING 1,953,162										
DRILL RIG/HAMMER EFF./DATE GEO366 Diedrich D-50 96% 07/26/2024				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 08/12/24		COMP. DATE 08/12/24		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
375																
	371.0	1.0	14	42	58/0.2	.....	.....	.....	.....	.....				372.0	GROUND SURFACE	0.0
370	368.1	3.9	100/0.3			.....	.....	.....	.....	100/0.7		D		370.5	<b>RESIDUAL</b> Stiff, Brown-Orange-Gray, Fine to Coarse Sandy SILT (A-4)	1.5
	365.4	6.6	60/0.0			.....	.....	.....	.....	100/0.3				365.4	<b>WEATHERED ROCK</b> Brown-Gray (Metavolcanic Rock)	6.6
										60/0.0					Boring Terminated with Standard Penetration Test Refusal at Elevation 365.4 ft On Crystalline Rock (Metavolcanic Rock)	
															Surficial Organic Soil 0.0 - 0.2'	

NCDOT BORE DOUBLE R5963A\_RDWY\_GEO\_GTM.GPJ NC\_DOT.GDT 10/22/24



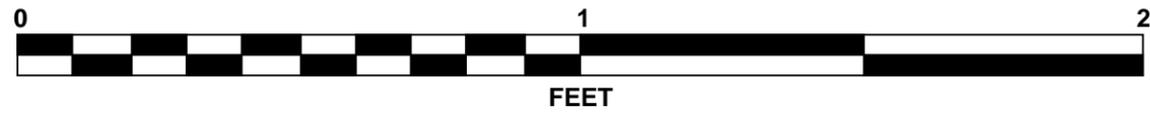
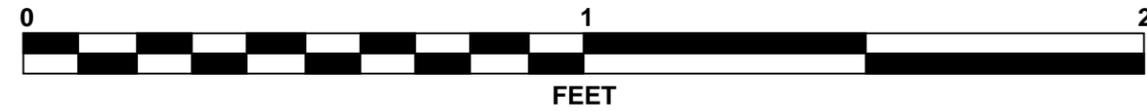
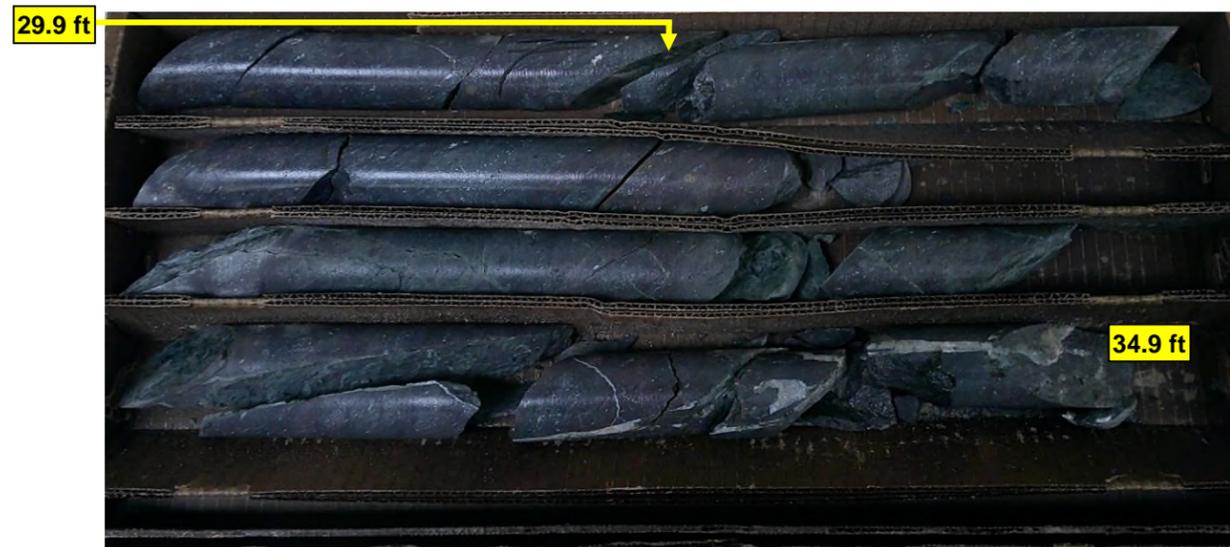
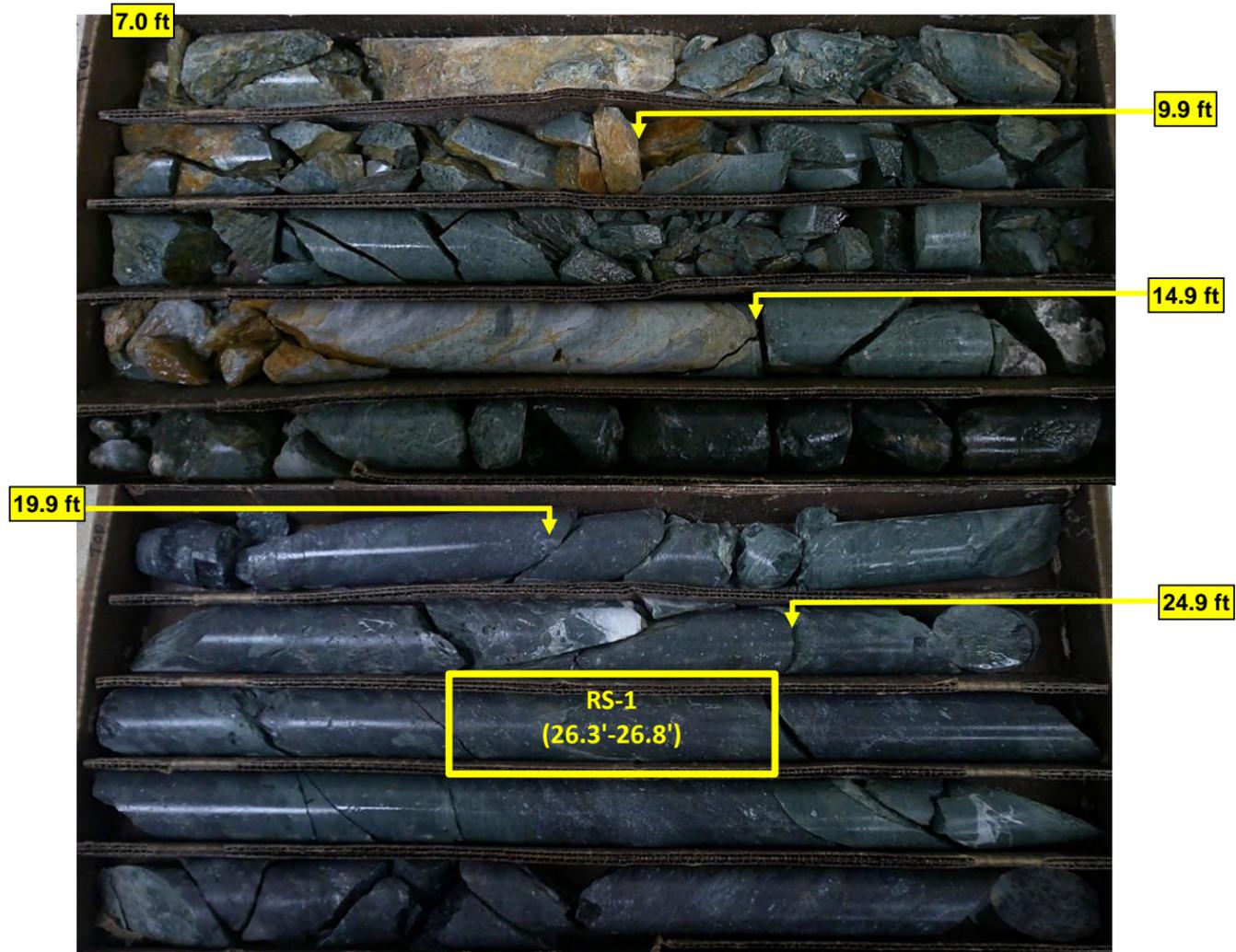
**Chatham Park Way from US 15-501 to US 64 Business**  
**Chatham County, North Carolina**  
**Rock Core Photographs**  
L\_7675\_EB1-C  
9.3 to 20.3 Feet







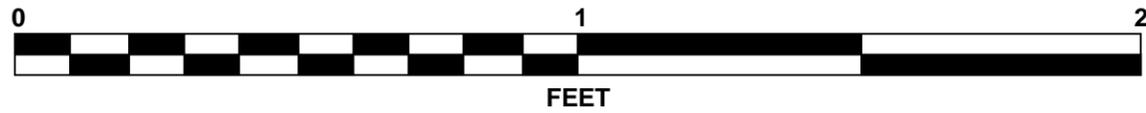
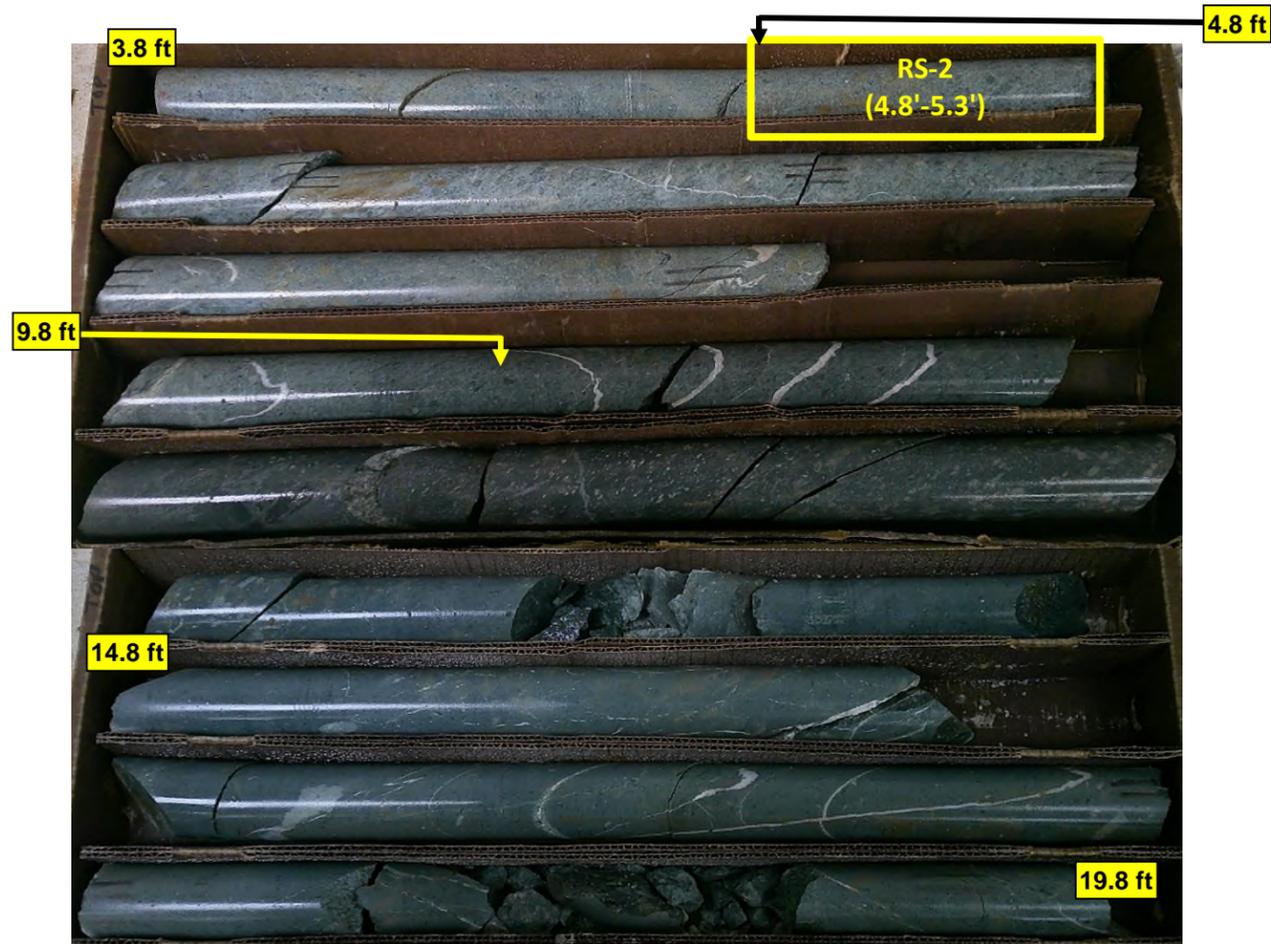
Chatham Park Way from US 15-501 to US 64 Business  
Chatham County, North Carolina  
Rock Core Photographs  
L\_7675\_B1-A  
7.0 to 34.9 Feet





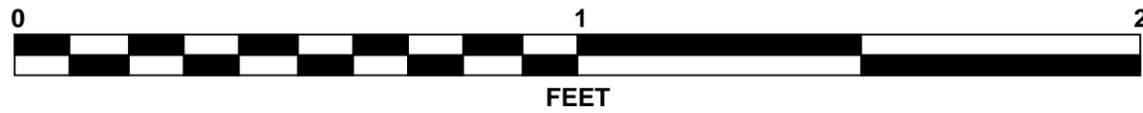
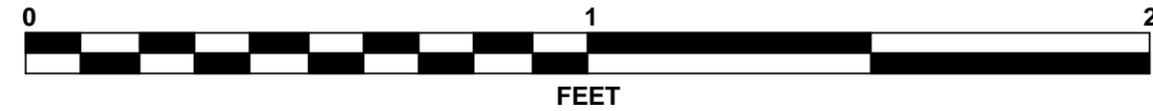
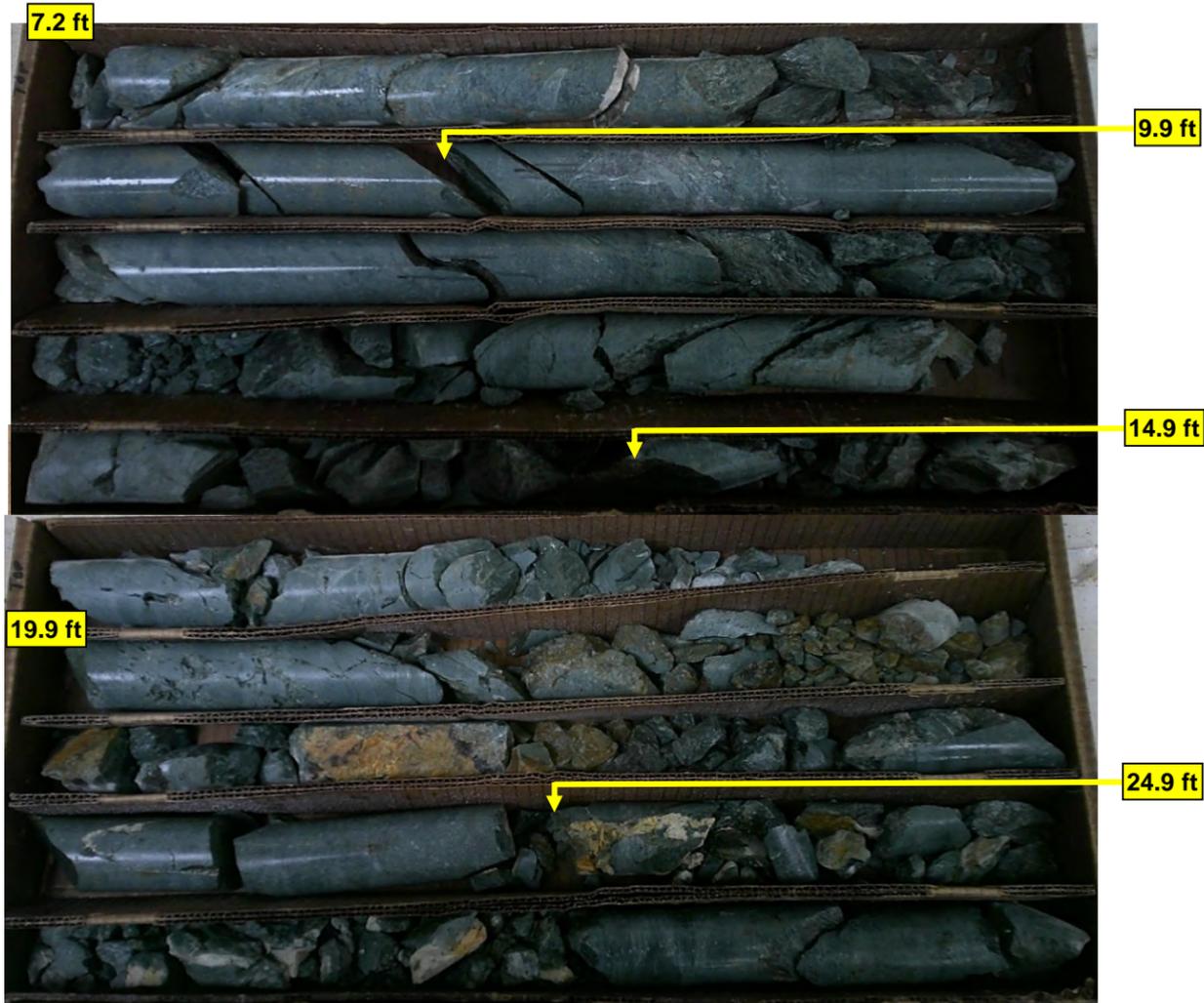


Chatham Park Way from US 15-501 to US 64 Business  
Chatham County, North Carolina  
Rock Core Photographs  
L\_7675\_B1-C  
3.8 to 19.8 Feet





Chatham Park Way from US 15-501 to US 64 Business  
Chatham County, North Carolina  
Rock Core Photographs  
L\_7675\_B1-B  
7.2 to 34.9 Feet



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 48599.1.1		TIP R-5963A		COUNTY CHATHAM		GEOLOGIST T. Wenner										
SITE DESCRIPTION Chatham Parkway from US 15-501 to US 64 Business							GROUND WTR (ft)									
BORING NO. L_7675_EB2-A		STATION 77+37		OFFSET 22 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 378.0 ft		TOTAL DEPTH 8.1 ft		NORTHING 707,368		EASTING 1,953,273										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 78% 05/06/2024				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic										
DRILLER L. Ard		START DATE 08/05/24		COMP. DATE 08/05/24		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100			ELEV. (ft)	DEPTH (ft)		
380														378.0	0.0	GROUND SURFACE
	377.0	1.0	3	3	4	7						M		375.0	3.0	<b>RESIDUAL</b> Medium Stiff, Orange-Tan, Silty CLAY (A-7)
375	374.6	3.4	7	6	13	19						M		372.0	6.0	Very Stiff, Tan, Fine to Coarse Sandy SILT (A-4)
	372.0	6.0	100/0.3											370.0	8.0	<b>WEATHERED ROCK</b> Gray (Metavolcanic Rock)
370	370.0	8.0	60/0.1											369.9	8.1	<b>CRYSTALLINE ROCK</b> (Metavolcanic Rock)
																Boring Terminated with Standard Penetration Test Refusal at Elevation 369.9 ft In Crystalline Rock (Metavolcanic Rock)
																Surficial Organic Soil 0.0 - 0.6'

NCDOT BORE DOUBLE R5963A\_RDWY\_GEO\_GTM.GPJ NC\_DOT.GDT 10/22/24

# GEOTECHNICAL BORING REPORT

## BORE LOG

# GEOTECHNICAL BORING REPORT

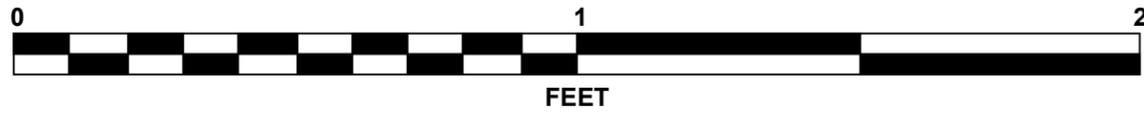
## CORE LOG

WBS 48599.1.1		TIP R-5963A		COUNTY CHATHAM		GEOLOGIST T. Wenner										
SITE DESCRIPTION Chatham Parkway from US 15-501 to US 64 Business							GROUND WTR (ft)									
BORING NO. L_7675_EB2-C		STATION 77+32		OFFSET 2 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 378.2 ft		TOTAL DEPTH 14.7 ft		NORTHING 707,346		EASTING 1,953,284										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 78% 05/06/2024			DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic											
DRILLER L. Ard		START DATE 08/05/24		COMP. DATE 08/22/24		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)	
380																
	377.2	1.0	18	29	18										378.2	GROUND SURFACE
	374.1	4.1	48	52	48/0.4										373.6	RESIDUAL Dense, Gray, Silty Fine to Coarse SAND (A-2-4), with trace gravel-sized rock fragments
	372.2	6.0	100/0.3												370.6	WEATHERED ROCK Gray (Metavolcanic Rock)
	370.6	7.6	60/0.0												370.6	CRYSTALLINE ROCK Gray-White (Metavolcanic Rock)
															363.5	CRYSTALLINE ROCK Gray-White (Metavolcanic Rock) REC=99% RQD=52% GSI=40-45
																Boring Terminated at Elevation 363.5 ft In Crystalline Rock (Metavolcanic Rock)
																Surficial Organic Soil 0.0 - 1.0'

WBS 48599.1.1		TIP R-5963A		COUNTY CHATHAM		GEOLOGIST T. Wenner					
SITE DESCRIPTION Chatham Parkway from US 15-501 to US 64 Business							GROUND WTR (ft)				
BORING NO. L_7675_EB2-C		STATION 77+32		OFFSET 2 ft RT		ALIGNMENT -L-					
COLLAR ELEV. 378.2 ft		TOTAL DEPTH 14.7 ft		NORTHING 707,346		EASTING 1,953,284					
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 78% 05/06/2024			DRILL METHOD SPT Core Boring		HAMMER TYPE Automatic						
DRILLER L. Ard		START DATE 08/05/24		COMP. DATE 08/22/24		SURFACE WATER DEPTH N/A					
CORE SIZE NQ				TOTAL RUN 7.1 ft							
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS
					REC. (%)	RQD (%)		REC. (%)	RQD (%)		
370.6	370.6	7.6	2.1	N=60/0.0 3:13/1.0 2:58/1.0 0:18/0.1	(2.0) 95%	(1.1) 52%		(7.0) 99%	(3.7) 52%		Begin Coring @ 7.6 ft
	368.5	9.7	5.0	3:08/1.0 3:04/1.0 3:37/1.0 4:55/1.0 2:43/1.0	(5.0) 100%	(2.6) 52%					CRYSTALLINE ROCK Very Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White (Metavolcanic Rock), with Very Close to Close Fracture Spacing GSI=40-45
	363.5	14.7									Boring Terminated at Elevation 363.5 ft In Crystalline Rock (Metavolcanic Rock) Surficial Organic Soil 0.0 - 1.0'

NCDOT BORE DOUBLE R5963A\_RDWY\_GEO\_GTM.GPJ NC\_DOT.GDT 10/22/24

**Chatham Park Way from US 15-501 to US 64 Business**  
**Chatham County, North Carolina**  
**Rock Core Photographs**  
L\_7675\_EB2-C  
7.6 to 14.7 Feet





R-5963A

22

## ROCK TEST RESULTS

SAMPLE NO.	BORING	STATION	OFFSET	NORTHING	EASTING	DEPTH INTERVAL	ROCK TYPE	UNIT WEIGHT (PCF)	UNCONFINED COMPRESSIVE STRENGTH
RS-1	L 7675 B1-A	76+51 -L-	25' LT	707319	1953204	26.3 - 26.8'	METAVOLCANIC ROCK	174.0	7,680 psi (1,106 ksf)
RS-2	L 7675 B1-C	76+37 -L-	7' RT	707285	1953211	4.8 - 5.3'	METAVOLCANIC ROCK	170.2	8,280 psi (1,192 ksf)

*Alex M. Atkinson*

\_\_\_\_\_  
 AUTHORIZED SIGNATURE  
 NCDOT CERT NO. 130-04-0212

Prepared in the Office of:  
 F&ME CONSULTANTS, INC.  
 COLUMBIA, SOUTH CAROLINA  
 NCDOT LAB CERT. NO. 130-0212

**SITE PHOTOS**

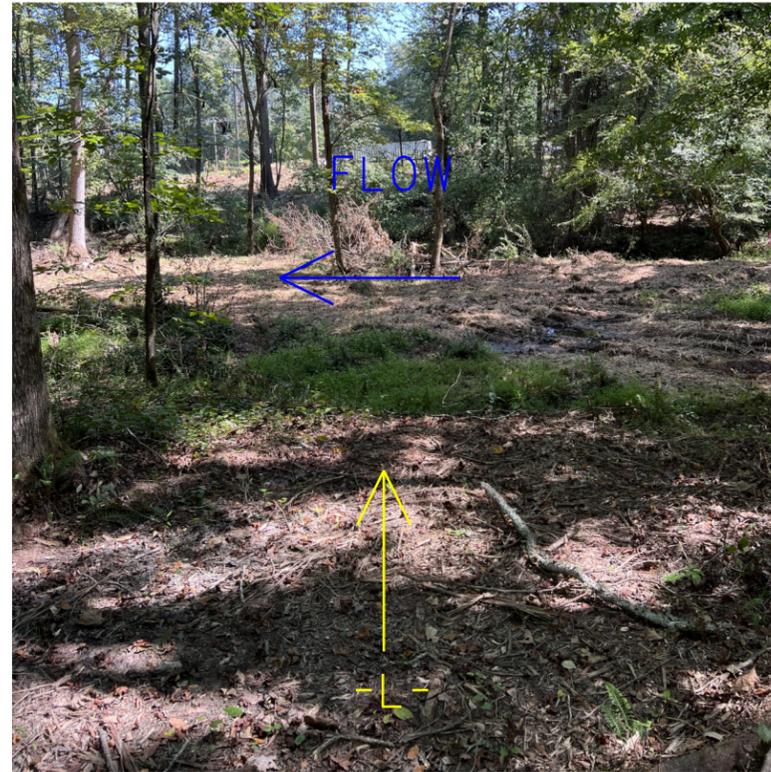


PHOTO #1: VIEW NEAR END BENT NO. 1, FACING UPSTATION



PHOTO #2: VIEW NEAR END BENT NO. 2, FACING DOWNSTATION