

PROJECT: 50178

REFERENCE: U-5765

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

STRUCTURE
SUBSURFACE INVESTIGATION

COUNTY MECKLENBURG

PROJECT DESCRIPTION NC 73 (SAM FURR ROAD)
FROM SR 5544 (WEST CATAWBA AVENUE) TO
SR 2316 (NORTHCROSS DRIVE) WIDENING

SITE DESCRIPTION PEDESTRIAN BRIDGE FOR CITY
OF HUNTERSVILLE

-GW- STA. 15 + 48.22 /-L2- STA. 461 + 63.09

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-5765	1	

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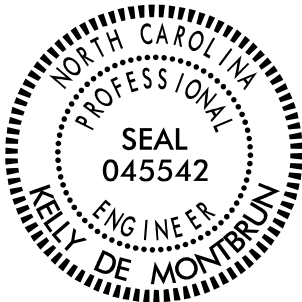
SUBMITTED BY CG2, PLLC

DATE AUGUST 2025

Prepared in the Office of:

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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

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 206, 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, *VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6*

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)						ORGANIC MATERIALS					
GROUP CLASS.	A-1		A-3		A-2		A-4		A-5		A-6		A-7		A-1, A-2		A-4, A-5	
SYMBOL	A-1-a	A-1-b	A-2-4		A-2-5		A-2-6		A-2-7		A-4		A-5		A-6		A-7	
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN	35 MX	35 MX	35 MX	35 MX	35 MX	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP		40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 11 MN	40 MX 10 MX	41 MN 11 MN	40 MX 11 MN	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS		
GROUP INDEX	0		0		0		4 MX		8 MX		12 MX		16 MX		NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND				SILTY SOILS		CLAYEY SOILS							
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR						FAIR TO POOR		POOR		UNSUITABLE	
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30																		

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT ²)
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.75	2.00	0.42	0.25	0.075	0.053
BOULDER (BLDR.)						
COBBLE (COB.)						
GRAVEL (GR.)						
COARSE SAND (CSE. SD.)						
FINE SAND (F SD.)						
SILT (SL.)						
CLAY (CL.)						
GRAIN SIZE	305 IN.	75 IN.	2.0	0.25	0.05	0.005

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL PLASTIC RANGE (PI) PL	- SATURATED - (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	- WET - (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
	- MOIST - (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
OM SL	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

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.

GRADATION

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

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS:
ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

ORGANIC MATERIAL	GRANULAR SOILS	SILT - CLAY SOILS	OTHER MATERIAL
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME
HIGHLY ORGANIC	> 10%	> 20%	HIGHLY

GROUND WATER

▽

WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING

▽

STATIC WATER LEVEL AFTER 24 HOURS

▽PW

PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA

SPRING OR SEEP

MISCELLANEOUS SYMBOLS

ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION

SOIL SYMBOL

ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

INFERRED SOIL BOUNDARY

INFERRED ROCK LINE

ALLUVIAL SOIL BOUNDARY

25/025

DIP & DIP DIRECTION OF ROCK STRUCTURES

SPT DMT VST PMT

AUGER BORING

CORE BORING

MONITORING WELL

PIEZOMETER INSTALLATION

SLOPE INDICATOR INSTALLATION

CONE PENETROMETER TEST

SOUNDING ROD

TEST BORING WITH CORE

SPT N-VALUE

RECOMMENDATION SYMBOLS

UNDERCUT

SHALLOW UNDERCUT

UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE

UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK

UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL
BT - BORING TERMINATED
CL - CLAY
CPT - CONE PENETRATION TEST
CSE - COARSE
DMT - DILATOMETER TEST
DPT - DYNAMIC PENETRATION TEST
e - VOID RATIO
F - FINE
FOSS - FOSSILIFEROUS
FRAC. - FRACTURED, FRACTURES
FRAGS. - FRAGMENTS
HL - HIGHLY

MED. - MEDIUM
MICA - MICACEOUS
MOD. - MODERATELY
NP - NON PLASTIC
ORG. - ORGANIC
PMT - PRESSUREMETER TEST
SAP. - SAPROLITIC
SD. - SAND, SANDY
SL. - SILT, SILTY
SLI. - SLIGHTLY
TCR - TRICONE REFUSAL
w - MOISTURE CONTENT
V - VERY

VST - VANE SHEAR TEST
WEA. - WEATHERED
γ - UNIT WEIGHT
γ_d - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS
S - BULK
SS - SPLIT SPOON
ST - SHELBY TUBE
RS - ROCK
RT - RECOMPACTED TRIAXIAL
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:
☐ CME-45C
☐ CME-55
☒ CME-550X
☐ VANE SHEAR TEST
☐ PORTABLE HOIST
☐ _____
☐ _____

ADVANCING TOOLS:
☐ CLAY BITS
☐ 6" CONTINUOUS FLIGHT AUGER
☐ 8" HOLLOW AUGERS
☐ HARD FACED FINGER BITS
☐ TUNG-CARBIDE INSERTS
☒ CASING ☐ W/ ADVANCER
☐ TRICONE _____ * STEEL TEETH
☐ TRICONE _____ * TUNG.-CARB.
☒ CORE BIT
☐ _____

HAMMER TYPE:
☒ AUTOMATIC ☐ MANUAL

CORE SIZE:
☐ -B _____ ☐ -H _____
☒ -N Q _____

HAND TOOLS:
☐ POST HOLE DIGGER
☐ HAND AUGER
☐ SOUNDING ROD
☐ VANE SHEAR TEST
☐ _____

ROCK DESCRIPTION

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:

WEATHERED ROCK (WR)

CRYSTALLINE ROCK (CR)

NON-CRYSTALLINE ROCK (NCR)

COASTAL PLAIN SEDIMENTARY ROCK (CP)

NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.
FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.
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.
COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.

WEATHERING

FRESH

ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING. ROCK RINGS UNDER HAMMER IF CRYSTALLINE.

VERY SLIGHT (V SLI.)

ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.

SLIGHT (SLI.)

ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.

MODERATE (MOD.)

SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN 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 WITH FRESH ROCK.

MODERATELY SEVERE (MOD. SEV.)

ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. *IF TESTED, WOULD YIELD SPT REFUSAL*

SEVERE (SEV.)

ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES > 100 BPF*

VERY SEVERE (V SEV.)

ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE THAT ONLY MINOR VESTIGES OF ORIGINAL ROCK FABRIC REMAIN. *IF TESTED, WOULD YIELD SPT N VALUES < 100 BPF*

COMPLETE

ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.

ROCK HARDNESS

VERY HARD

CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.

HARD

CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.

MODERATELY HARD

CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.

MEDIUM HARD

CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.

SOFT

CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.

VERY SOFT

CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.

FRACTURE SPACING

TERM

SPACING

VERY WIDE
WIDE
MODERATELY CLOSE
CLOSE
VERY CLOSE

MORE THAN 10 FEET
3 TO 10 FEET
1 TO 3 FEET
0.16 TO 1 FOOT
LESS THAN 0.16 FEET

BEDDING

TERM

THICKNESS

VERY THICKLY BEDDED
THICKLY BEDDED
THINLY BEDDED
VERY THINLY BEDDED
THICKLY LAMINATED
THINLY LAMINATED

4 FEET
1.5 - 4 FEET
0.16 - 1.5 FEET
0.03 - 0.16 FEET
0.008 - 0.03 FEET
< 0.008 FEET

INDURATION

FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.

FRIABLE

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.

TERMS AND DEFINITIONS

ALLUVIUM (ALLUV.)

SOILS THAT HAVE BEEN TRANSPORTED BY WATER.

AQUIFER

A WATER BEARING FORMATION OR STRATA.

ARENACEOUS

APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.

ARGILLACEOUS

APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC.

ARTESIAN

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.

CALCAREOUS (CALC.)

SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.

COLLUVIUM

ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.

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 ROCKS OR CUTS MASSIVE ROCK.

DIP

THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.

DIP DIRECTION (DIP AZIMUTH)

THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.

FAULT

A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.

FISSILE

A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.

FLOAT

ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL.

FLOOD PLAIN (FP)

LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.

FORMATION (FM.)

A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.

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 ITS LATERAL EXTENT.

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.

PERCHED WATER

WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.

RESIDUAL (RES.) SOIL

SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.

ROCK QUALITY DESIGNATION (ROD)

A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.

SAPROLITE (SAP.)

RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.

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.

SLICKENSIDE

POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.

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 WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.

STRATA CORE RECOVERY (SREC.)

TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.

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.

TOPSOIL (TS.)

SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.

BENCH MARK:

ELEVATION: FEET

NOTES:
BORING COLLAR ELEVATIONS OBTAINED USING CARLSON BRX7 (SURVEY GRADE GPS), CORRECT USING NC GNSS CORRS AND REAL-TIME NETWORK.
DESIGN FILES PROVIDED BY NCDOT MARCH 7, 2025
FIAD = FILLED IN AFTER DRILLING
CT = CORING TERMINATED

DATE: 8-15-14

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

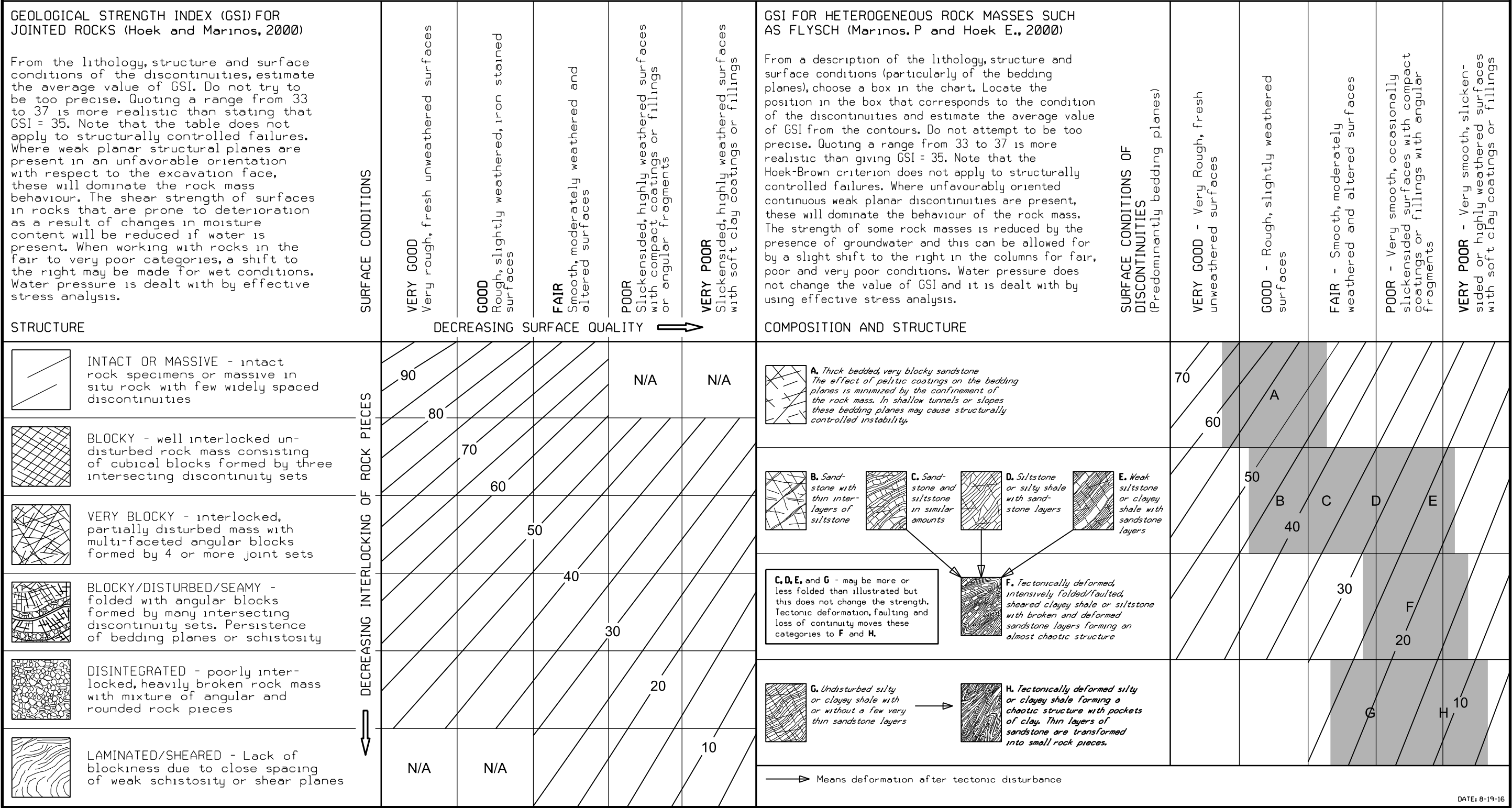
SUBSURFACE INVESTIGATION

SUPPLEMENTAL LEGEND, GEOLOGICAL STRENGTH INDEX (GSI) TABLES

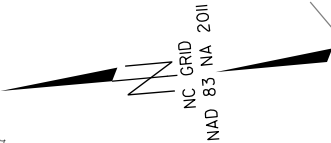
FROM AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

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

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

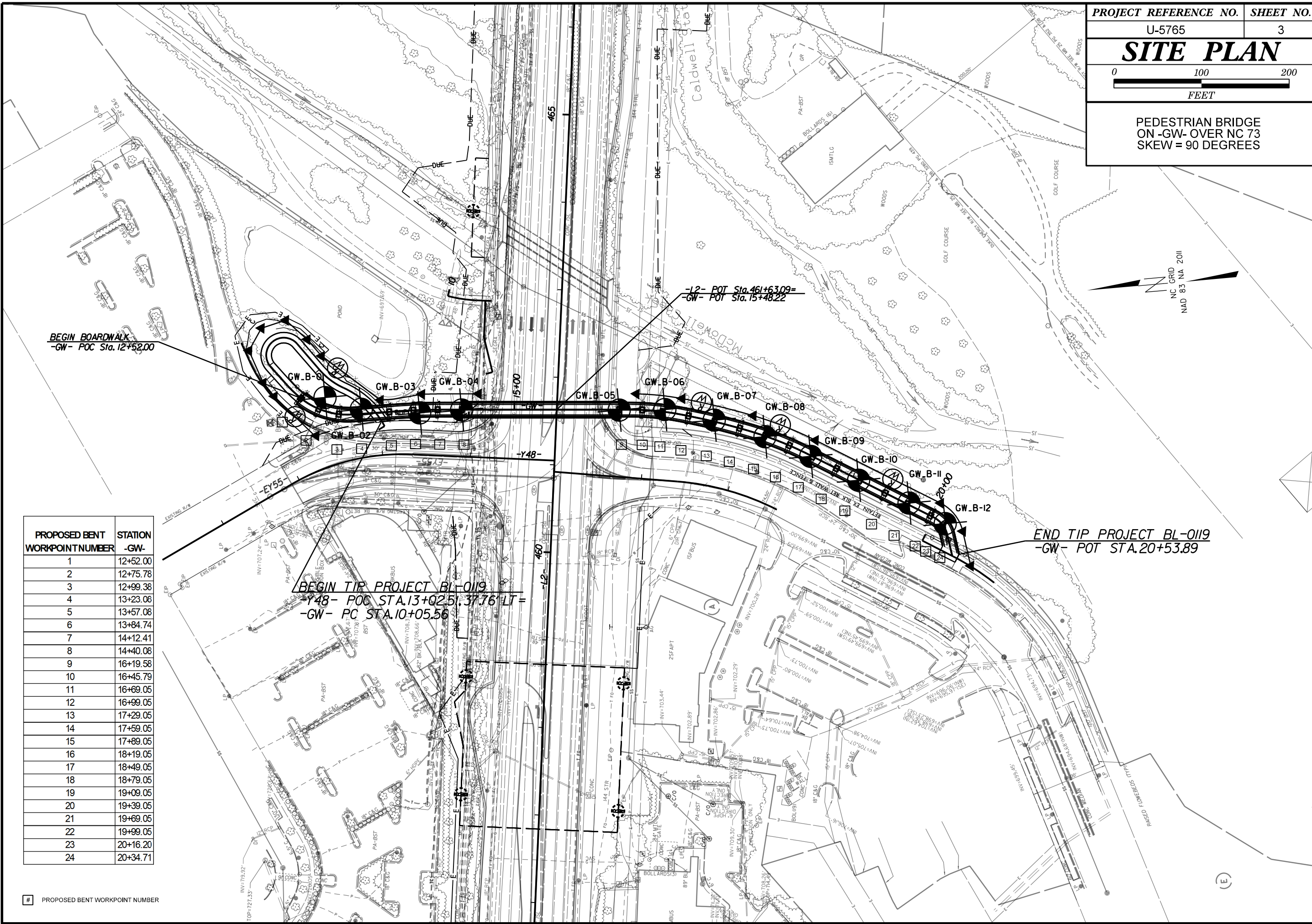


PEDESTRIAN BRIDGE
ON -GW- OVER NC 73
SKEW = 90 DEGREES



PROPOSED BENT WORKPOINT NUMBER	STATION -GW-
1	12+52.00
2	12+75.78
3	12+99.38
4	13+23.08
5	13+57.08
6	13+84.74
7	14+12.41
8	14+40.08
9	16+19.58
10	16+45.79
11	16+69.05
12	16+99.05
13	17+29.05
14	17+59.05
15	17+89.05
16	18+19.05
17	18+49.05
18	18+79.05
19	19+09.05
20	19+39.05
21	19+69.05
22	19+99.05
23	20+16.20
24	20+34.71

 PROPOSED BENT WORKPOINT NUMBER



6/23/16

05-AUG-2025 09:23 C:\Users\j\OneDrive\Carolina Geotechnical Group, PLLC\Matt Brewer - Projects\0320 - U-5765 BRDG_NCDOT_GEO\GEO\XSI.dwg
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75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15

730

725

720

715

710

705

700

695

690

685

680

675

670

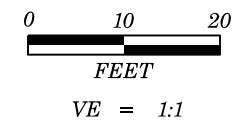
665

75 70 65 60 55 50 45 40 35 30 25 20 15 10 5 0 5 10 15

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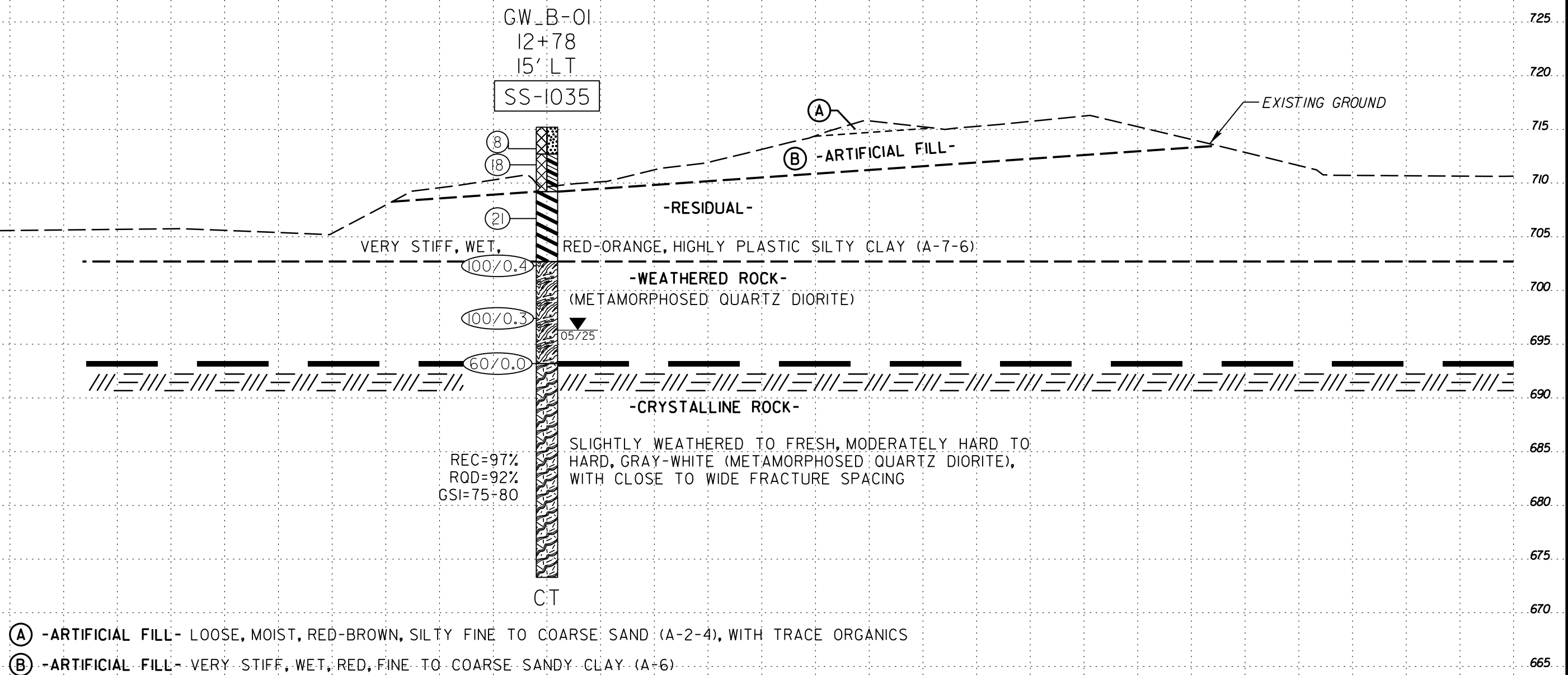


CAROLINAS
GEOTECHNICAL
GROUP



PROJECT REFERENCE NO.	SHEET NO.
U-5765	4
CROSS SECTION AT BENT #2 SKEW = 90 DEGREES	

20 25 30 35 40 45 50 55 60 65 70 75

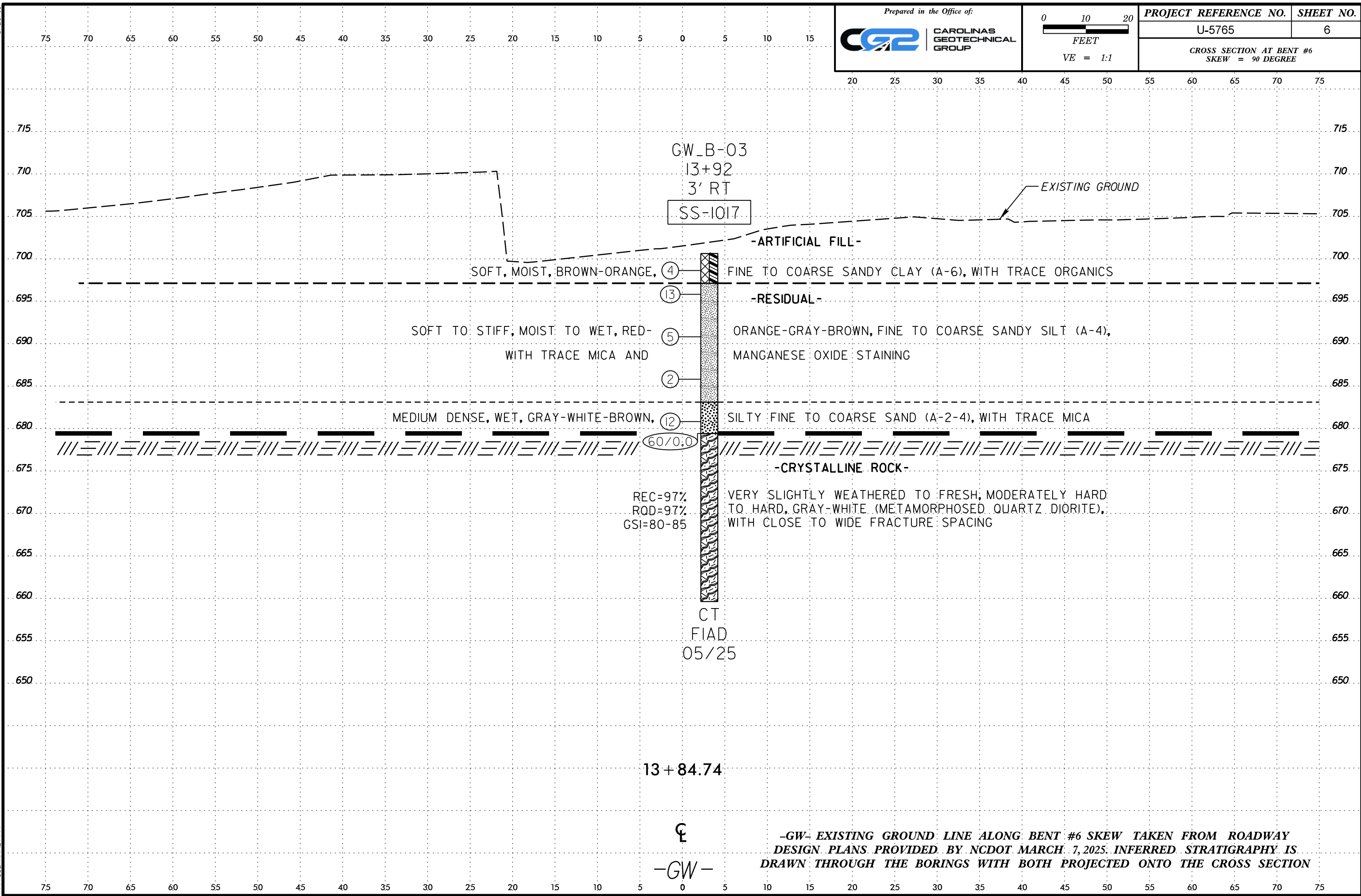


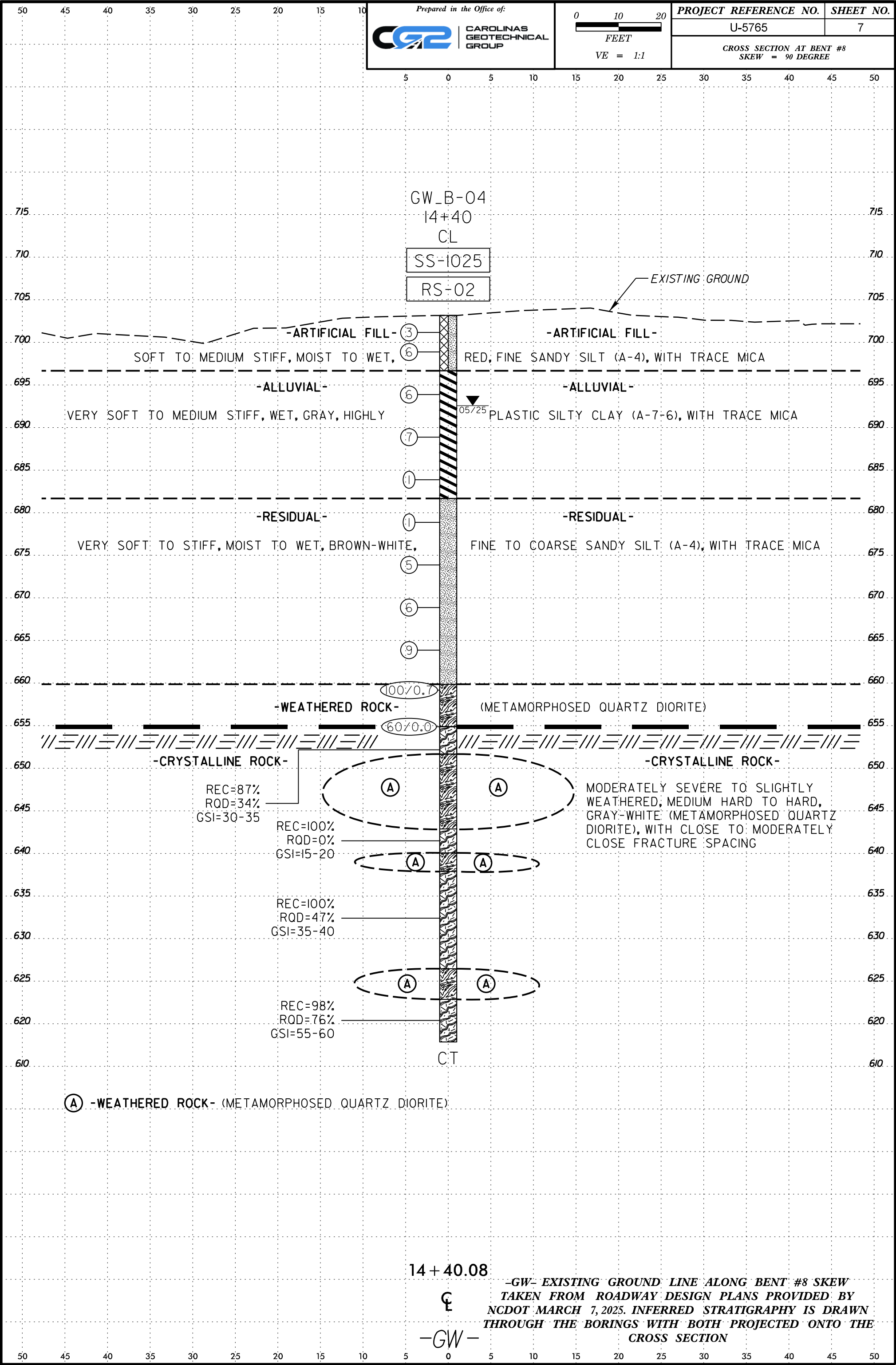
12 + 75.78

¢
-GW-

-GW- EXISTING GROUND LINE ALONG BENT #2 SKEW TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY NCDOT MARCH 7, 2025. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

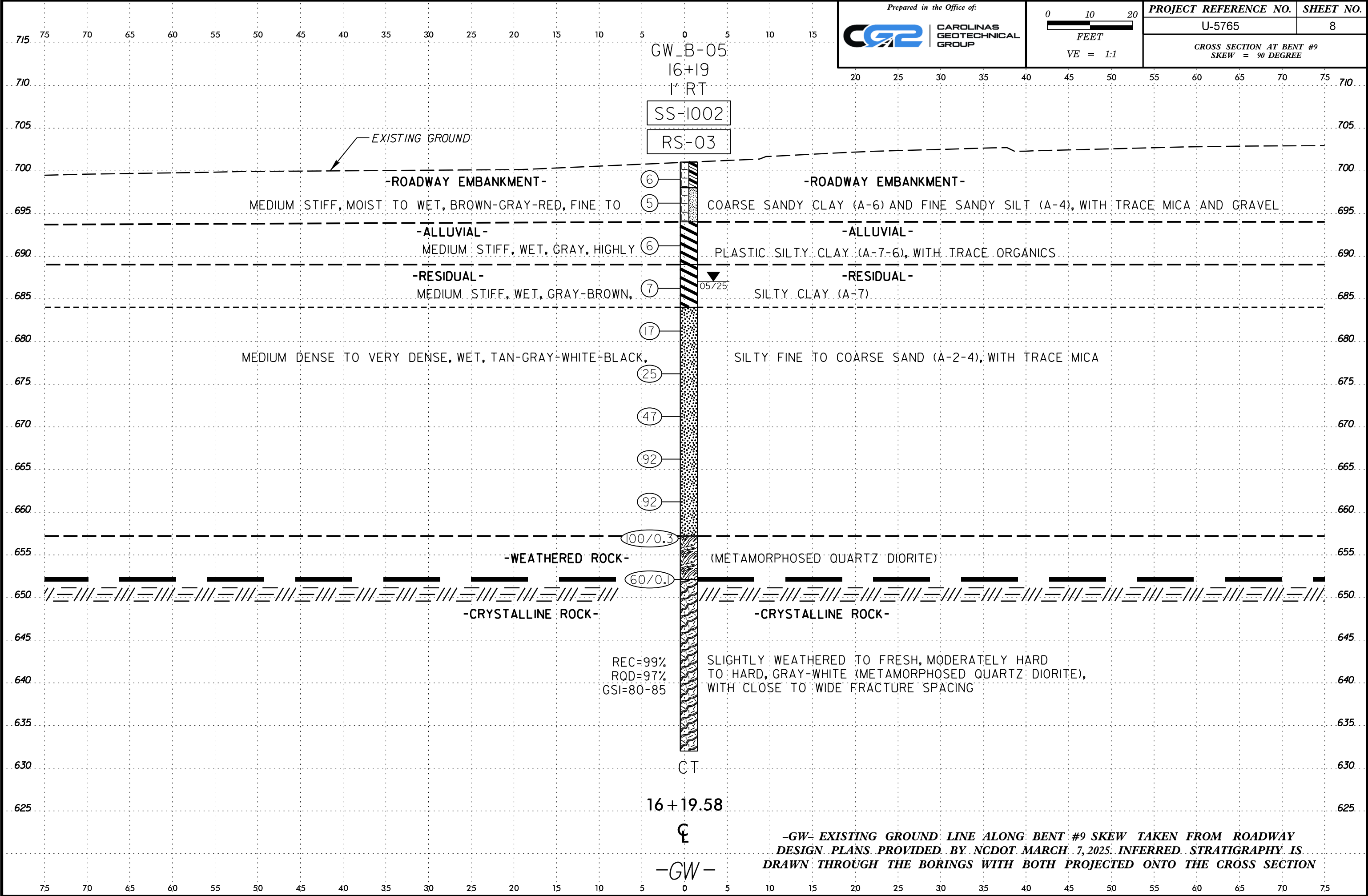






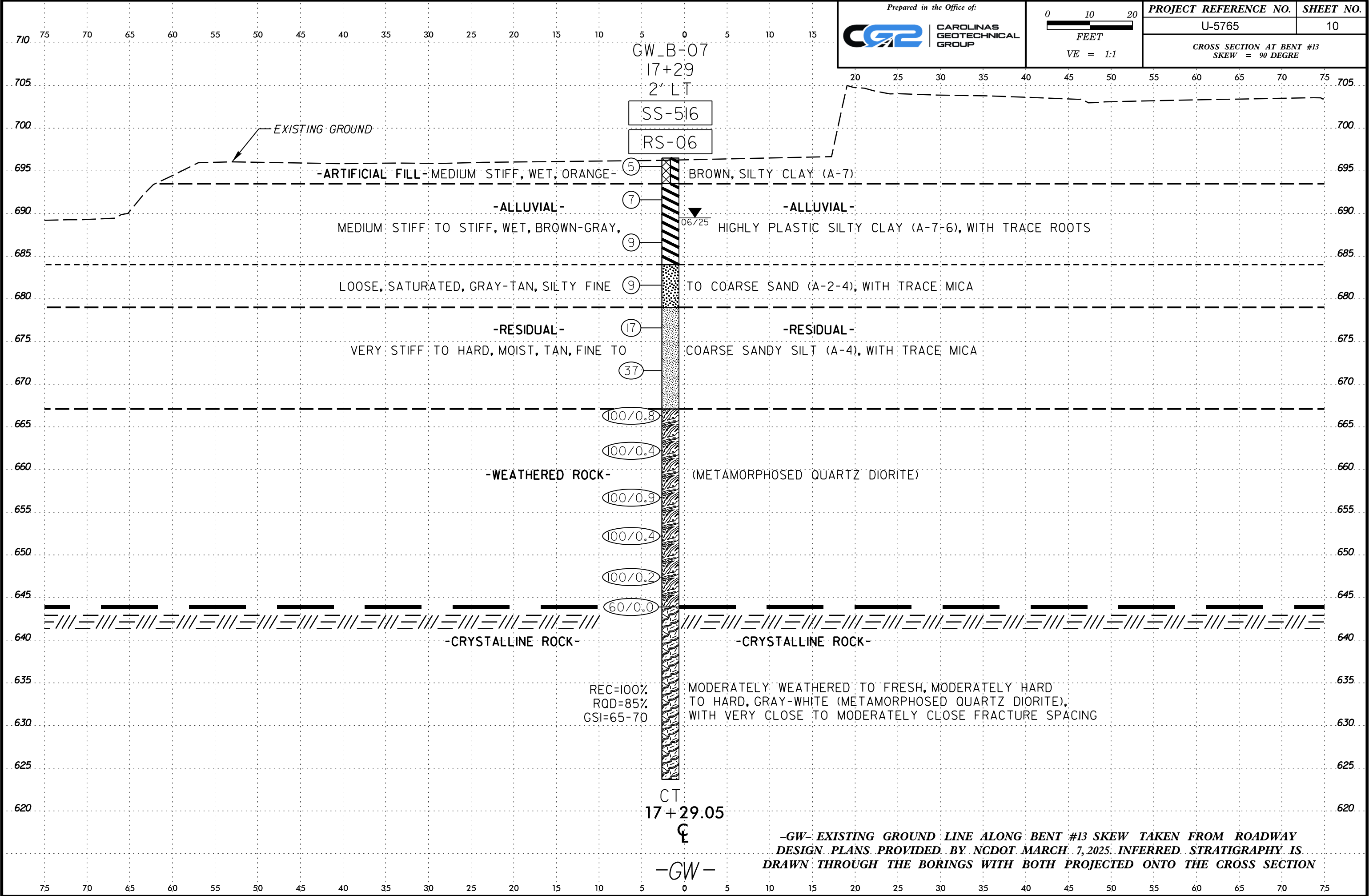
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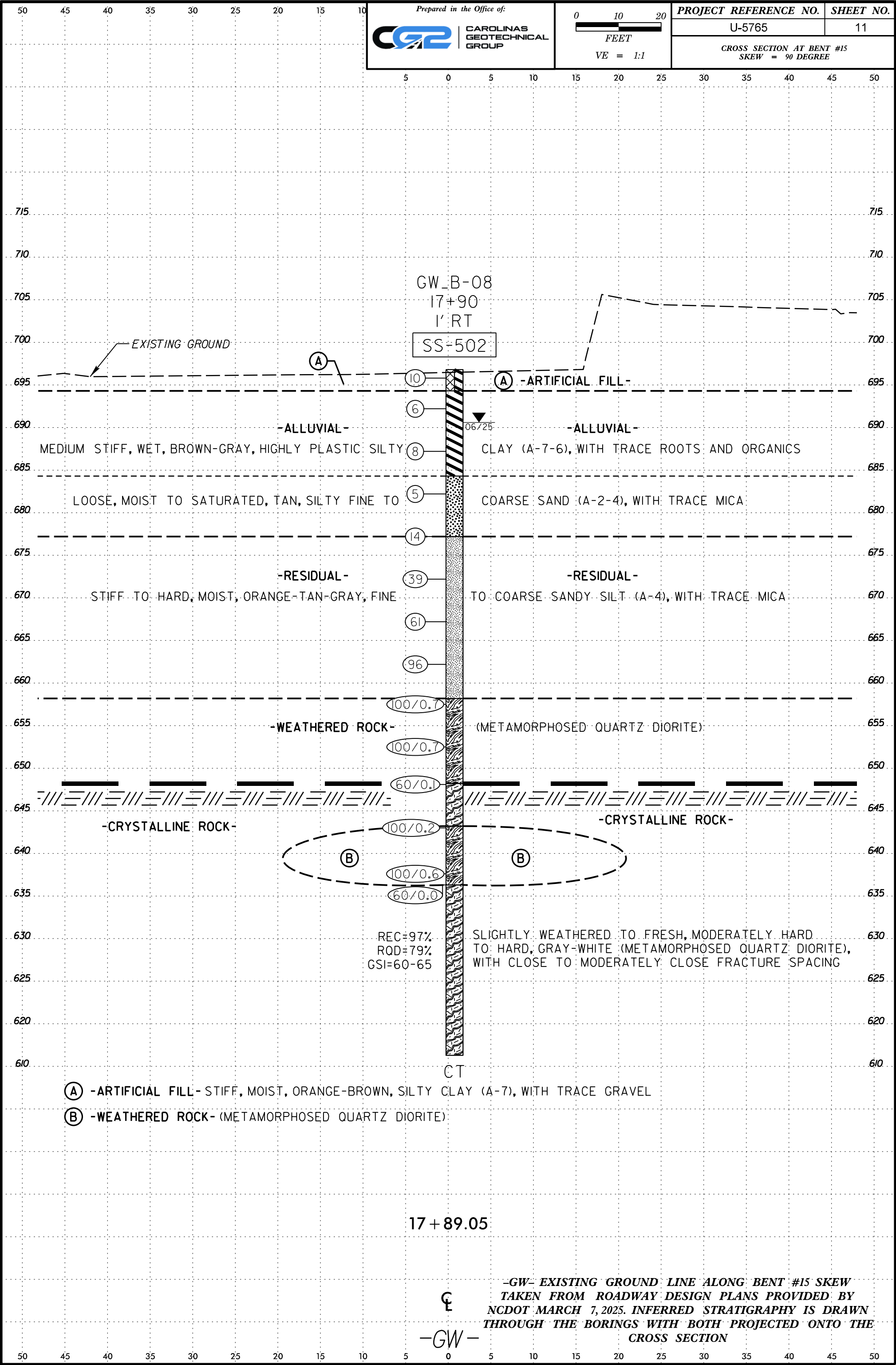
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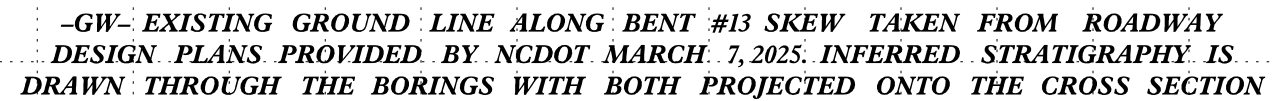


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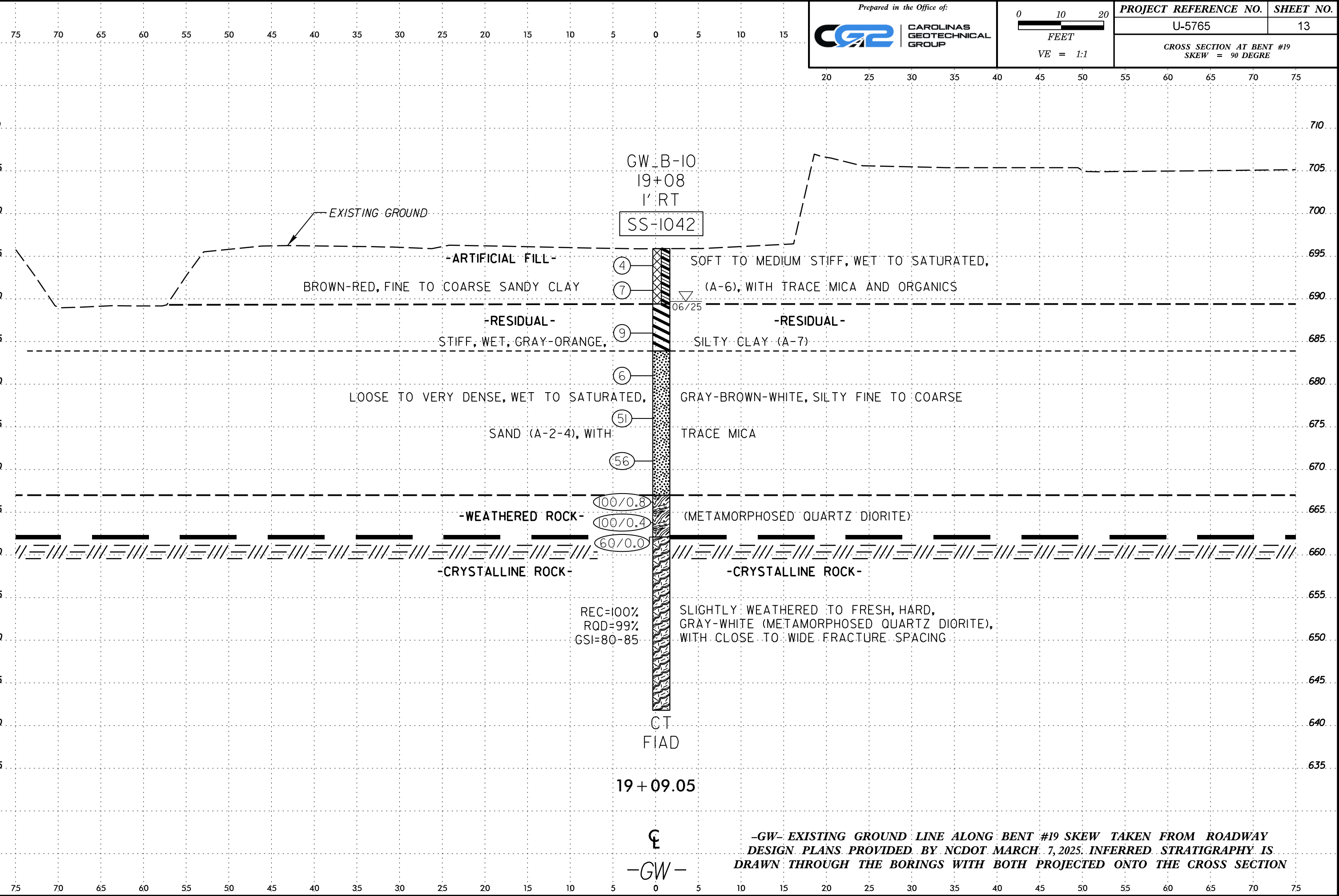






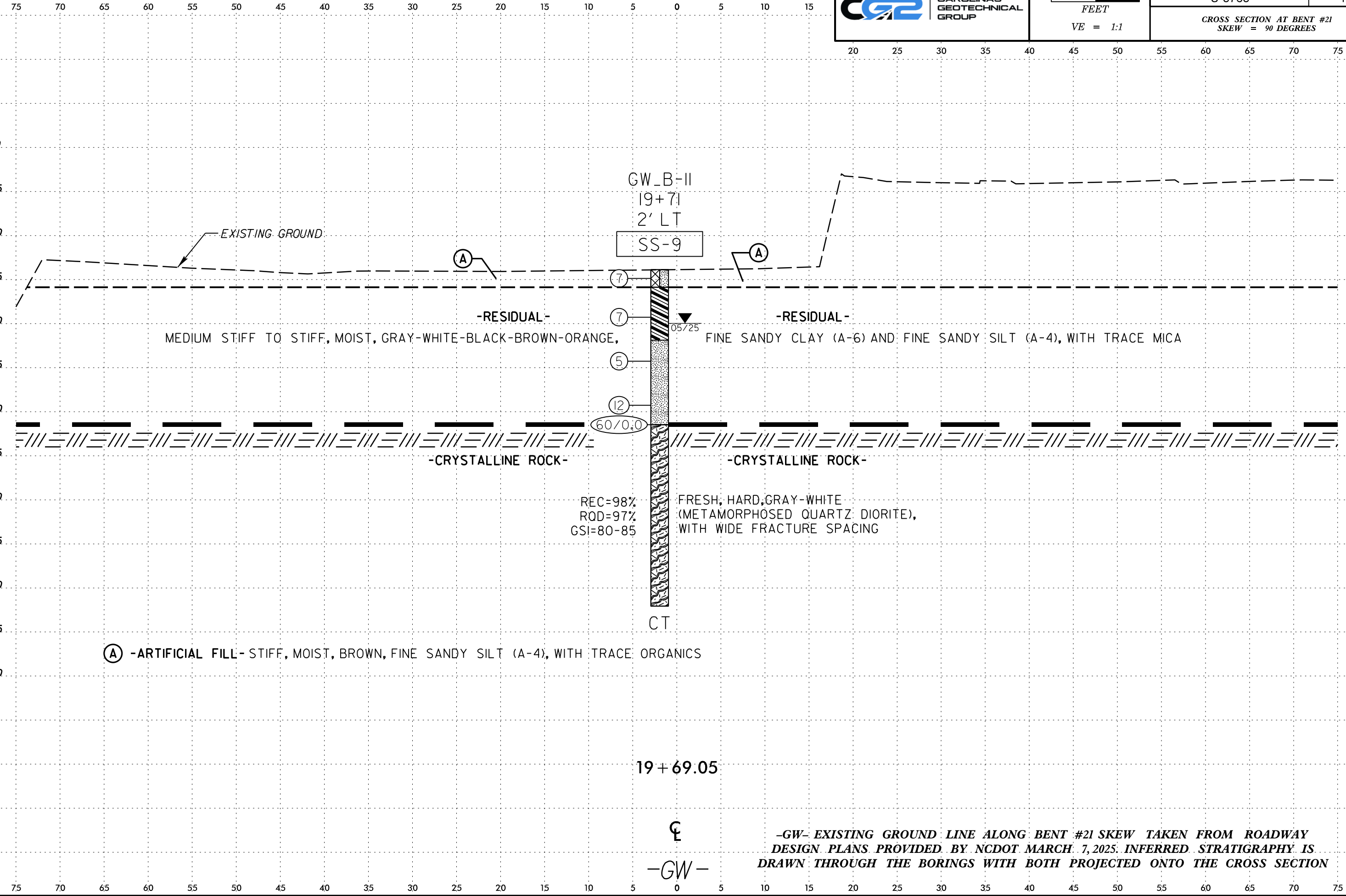
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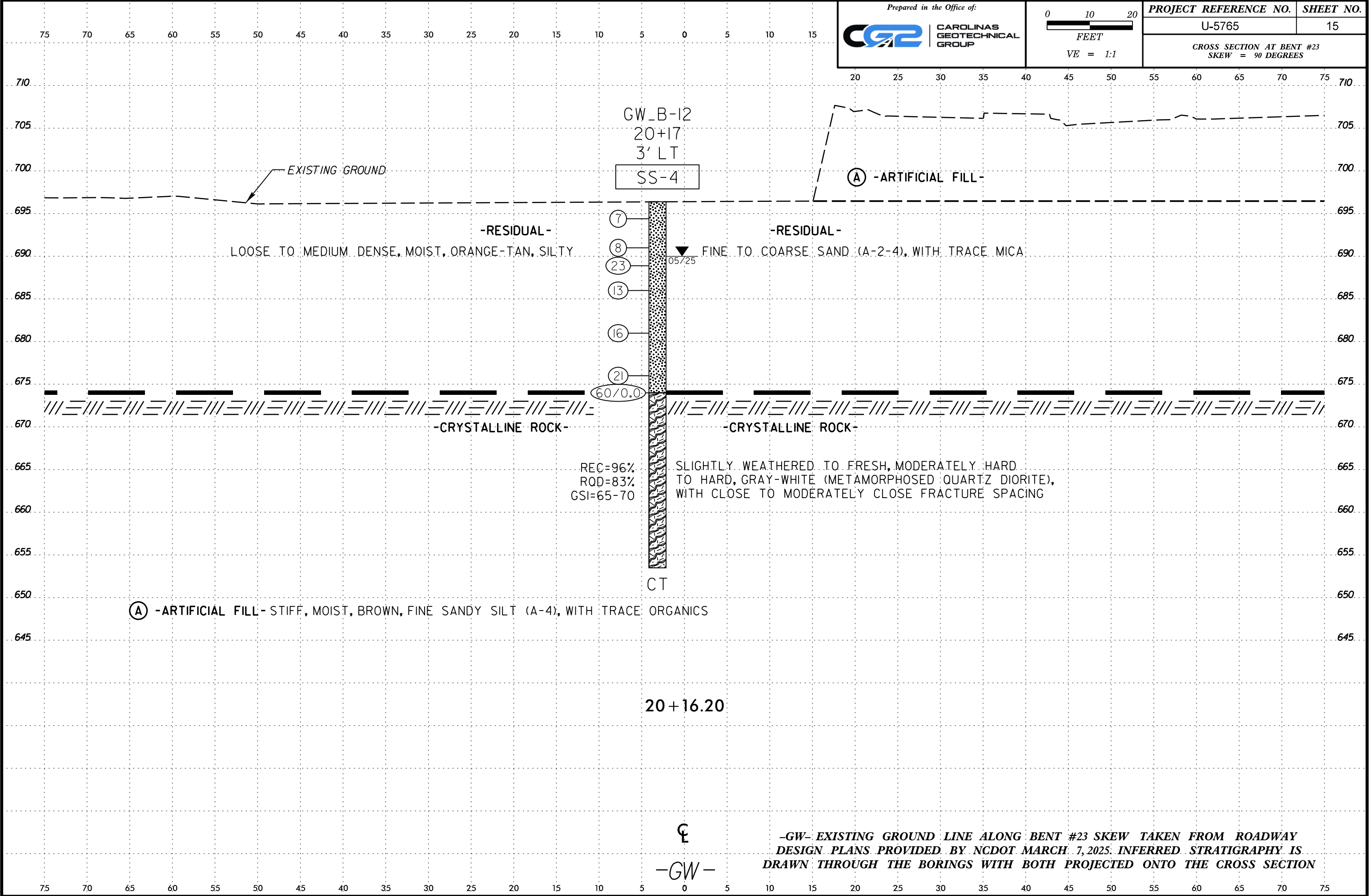
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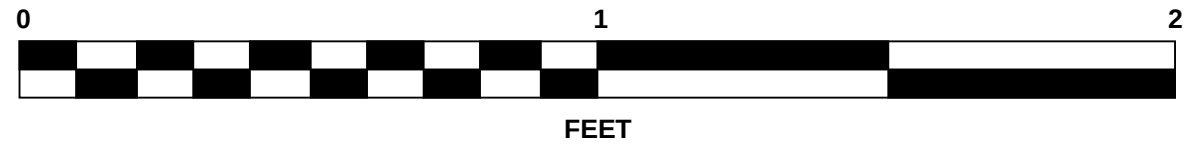
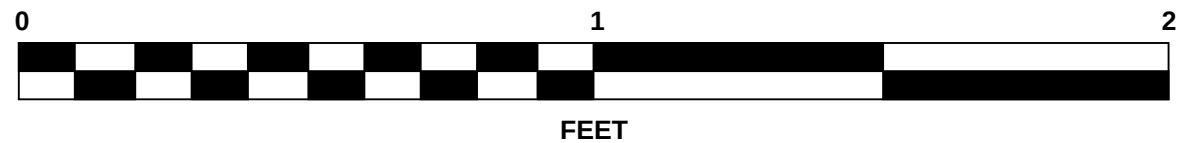
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WBS 50178.1.1						TIP U-5765		COUNTY MECKLENBURG			GEOLOGIST M. Malisher		
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville									GROUND WTR (ft)				
BORING NO. GW_B-01			STATION 12+78			OFFSET 15 ft LT			ALIGNMENT -GW-			0 HR.	14.6
COLLAR ELEV. 715.2 ft			TOTAL DEPTH 41.9 ft			NORTHING 621,770			EASTING 1,440,670			24 HR.	18.9
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic				
DRILLER J.Kiker			START DATE 05/22/25			COMP. DATE 05/22/25			SURFACE WATER DEPTH N/A				
CORE SIZE N/A			TOTAL RUN 19.9 ft										
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN		SAMP. NO.	STRATA		L O G	DESCRIPTION AND REMARKS		
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %		ELEV. (ft)	DEPTH (ft)	
693.2											Begin Coring @ 22.0 ft		
	693.2	22.0	2.9	N=60/0.0 3:46/1.0 3:26/1.0 2:18/0.9	(2.5) 86%	(2.5) 86%		(19.3) 97%	(18.3) 92%		693.2	CRYSTALLINE ROCK	22.0
690	690.3	24.9		2:31/1.0 2:36/1.0 2:23/1.0 2:42/1.0 2:23/1.0	(5.0) 100%	(4.9) 98%						Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Wide Fracture Spacing	
			5.0									GSI = 75-80	
685	685.3	29.9											
			5.0	2:47/1.0 2:30/1.0 2:23/1.0 3:09/1.0 2:58/1.0	(5.0) 100%	(4.5) 90%							
680	680.3	34.9											
			5.0	2:44/1.0 2:45/1.0 2:09/1.0 2:55/1.0 2:47/1.0	(4.8) 96%	(4.4) 88%							
675	675.3	39.9											
	673.3	41.9	2.0	3:30/1.0 3:52/1.0	(2.0) 100%	(2.0) 100%					673.3	Boring Terminated at Elevation 673.3 ft In Crystalline Rock (Metamorphosed Quartz Diorite)	41.9
												Surficial Organic Soil: 0.1'	

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-01
22.0 to 41.9 Feet**



GEOTECHNICAL BORING REPORT

BORE LOG

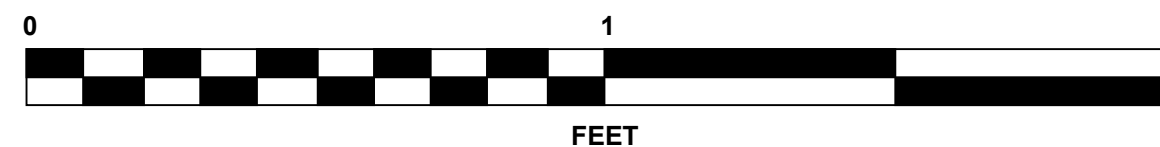
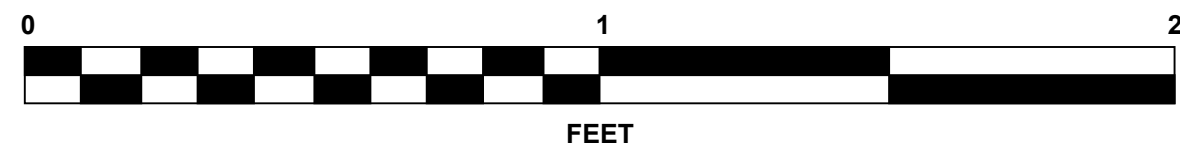
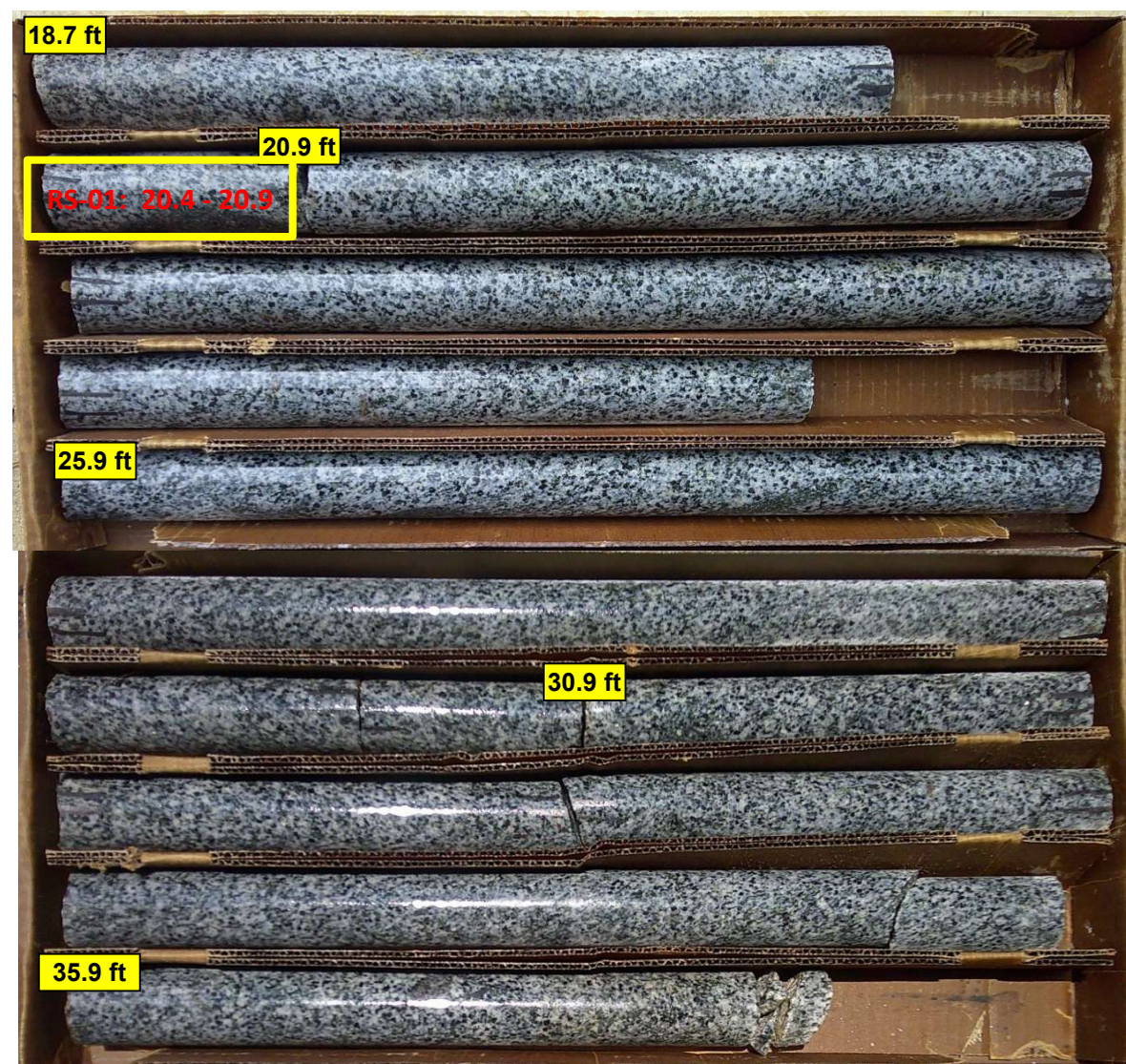
WBS 50178.1.1		TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Malisher														
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville								GROUND WTR (ft)												
BORING NO. GW_B-02		STATION 13+25		OFFSET 5 ft LT		ALIGNMENT -GW-		0 HR.	13.9											
COLLAR ELEV. 709.4 ft		TOTAL DEPTH 38.9 ft		NORTHING 621,730		EASTING 1,440,653		24 HR.	14.8											
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025				DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic													
DRILLER J.Kiker		START DATE 05/20/25		COMP. DATE 05/20/25		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)					
710														709.4	0.0					
	708.4	1.0	3	4	6											M		ARTIFICIAL FILL		
	706.0	3.4	5	8	11											SS-1012	25%		Stiff, Orange-Red, Fine to Coarse Sandy CLAY (A-6), with trace organics	3.0
705																			RESIDUAL	
														701.9	7.5					
700	701.0	8.4	2	3	3							M		Very Stiff, Red-Orange-Gray, Highly Plastic Silty CLAY (A-7-6(21))						
														696.0	13.4					
695	696.0	13.4	4	96/0.4						100/0.9				WEATHERED ROCK						
														690.7	18.7					
690	690.7	18.7	60/0.0							60/0.0		RS-01		CRYSTALLINE ROCK						
685																				
680																				
675																				
														670.5	38.9					
														Boring Terminated at Elevation 670.5 ft In Crystalline Rock (Metamorphosed Quartz Diorite)						
														Surficial Organic Soil: 0.2'						

GEOTECHNICAL BORING REPORT

CORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Malisher					
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)	
BORING NO. GW_B-02				STATION 13+25			OFFSET 5 ft LT			ALIGNMENT -GW-		0 HR.	13.9
COLLAR ELEV. 709.4 ft				TOTAL DEPTH 38.9 ft			NORTHING 621,730			EASTING 1,440,653		24 HR.	14.8
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic		
DRILLER J.Kiker				START DATE 05/20/25			COMP. DATE 05/20/25			SURFACE WATER DEPTH N/A			
CORE SIZE N/A				TOTAL RUN 20.2 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %ROD (ft) %		SAMP. NO.	STRATA REC. (ft) %ROD (ft) %		L O G	DESCRIPTION AND REMARKS ELEV. (ft)DEPTH (ft)		
690.7											Begin Coring @ 18.7 ft		
685	690.7	18.7	2.2	N=60/0.0	(2.1)	(2.1)	RS-01	(19.6)	(18.7)		690.7	18.7	
	688.5	20.9	5.0	4:58/1.0 3:07/1.0 0:42/0.2	95% (4.9) 98%	95% (4.9) 98%		CRISTALLINE ROCK Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Wide Fracture Spacing					
				3:33/1.0 3:55/1.0 3:38/1.0 3:22/1.0 3:27/1.0				GSI = 75-80					
680	683.5	25.9	5.0	3:20/1.0 3:56/1.0 4:34/1.0 4:13/1.0 5:50/1.0	(5.0) 100%	(5.0) 100%					RS-01: 20.4-20.9' Unit Weight: 175.0 pcf Unconfined Compressive Strength: 15,750 psi (2,268 ksf)		
	678.5	30.9	5.0	4:47/1.0 5:03/1.0 4:44/1.0 5:12/1.0 5:39/1.0	(5.0) 100%	(4.6) 92%							
	673.5	35.9	3.0	5:52/1.0 4:13/1.0 5:03/1.0	(2.6) 87%	(2.1) 70%					670.5	38.9	
	670.5	38.9									Boring Terminated at Elevation 670.5 ft In Crystalline Rock (Metamorphosed Quartz Diorite) Surficial Organic Soil: 0.2'		

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-02
18.7 to 38.9 Feet**



GEOTECHNICAL BORING REPORT

BORE LOG

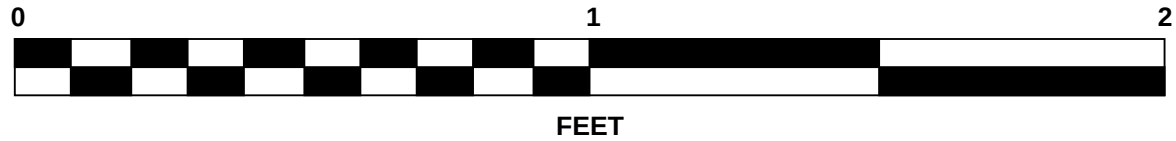
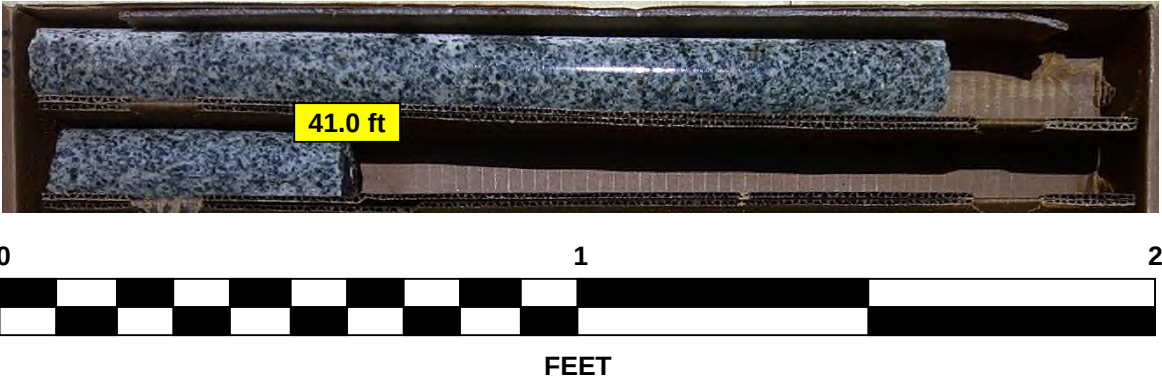
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GEOTECHNICAL BORING REPORT

CORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Malisher				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville										GROUND WTR (ft)		
BORING NO. GW_B-03				STATION 13+92			OFFSET 3 ft RT		ALIGNMENT -GW-		0 HR. N/A	
COLLAR ELEV. 700.6 ft				TOTAL DEPTH 41.0 ft			NORTHING 621,664		EASTING 1,440,643		24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic		
DRILLER J.Kiker				START DATE 05/20/25			COMP. DATE 05/21/25		SURFACE WATER DEPTH N/A			
CORE SIZE N/A				TOTAL RUN 19.8 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % ROD (ft) %		SAMP. NO.	STRATA REC. (ft) % ROD (ft) %		L O G	DESCRIPTION AND REMARKS ELEV. (ft) DEPTH (ft)	
679.4	679.4	21.2	4.8	N=60/0.0 5:19/1.0 5:24/1.0 5:35/1.0 4:45/1.0 4:23/0.8	(4.4) 92%	(4.4) 92%		(19.2) 97%	(19.2) 97%		Begin Coring @ 21.2 ft CRYSTALLINE ROCK Very Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Wide Fracture Spacing GSI = 80-85	21.2
675	674.6	26.0										
			5.0	7:02/1.0 9:19/1.0 8:33/1.0 11:16/1.0 8:05/1.0	(5.0) 100%	(5.0) 100%						
670	669.6	31.0										
			5.0	8:21/1.0 5:53/1.0 6:29/1.0 6:55/1.0 8:20/1.0	(4.8) 96%	(4.8) 96%						
665	664.6	36.0										
			5.0	5:55/1.0 7:46/1.0 8:15/1.0 8:10/1.0 9:00/1.0	(5.0) 100%	(5.0) 100%						
660	659.6	41.0									Boring Terminated at Elevation 659.6 ft In Crystalline Rock (Metamorphosed Quartz Diorite) Surficial Organic Soil: 0.2'	41.0

WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-03
21.2 to 41.0 Feet



NCDOT BORE DOUBLE U5765 GEO PED BRDG GTM.GPJ NC DOT.GDT 7/29/25

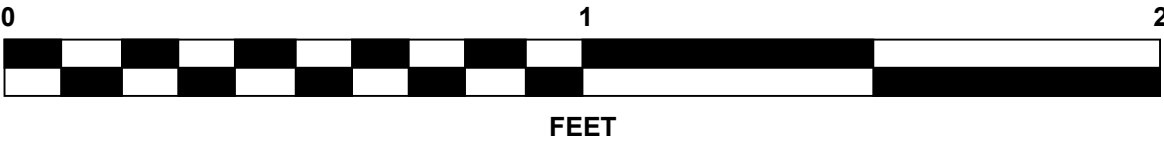
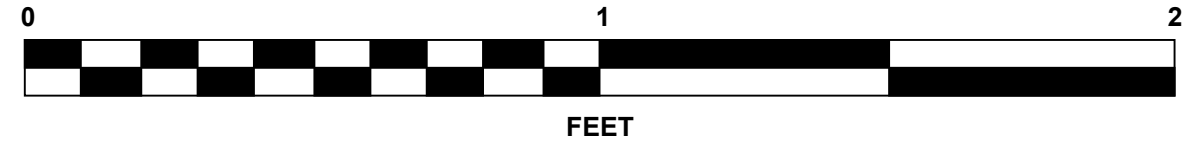
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GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1					TIP U-5765		COUNTY MECKLENBURG			GEOLOGIST M. Malisher				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville											GROUND WTR (ft)			
BORING NO. GW_B-04					STATION 14+40			OFFSET CL		ALIGNMENT -GW-		0 HR.	14.6	
COLLAR ELEV. 703.2 ft					TOTAL DEPTH 85.3 ft			NORTHING 621,616		EASTING 1,440,642		24 HR.	10.6	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic			
DRILLER J.Kiker					START DATE 05/21/25			COMP. DATE 05/21/25		SURFACE WATER DEPTH N/A				
CORE SIZE N/A					TOTAL RUN 37.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %RQD (ft) %		SAMP. NO.	STRATA REC. (ft) %RQD (ft) %		L O G	DESCRIPTION AND REMARKS			
											ELEV. (ft)	DEPTH (ft)		
654.9											Begin Coring @ 48.3 ft			
	654.9	48.3	2.0	N=60/0.0	(1.6)	(0.8)		(2.8)	(1.1)		654.9	48.3		
	652.9	50.3		3:23/1.0	80%	40%		88%	34%		CRYSTALLINE ROCK			
			5.0	3:06/1.0							651.7	51.5		
650				3:20/1.0	(1.2)	(0.3)		(0.8)	(0.0)		Slightly Weathered, Moderately Hard, Gray-White-Brown, (Metamorphosed Quartz Diorite), with Moderately Close Fracture Spacing			
				3:12/1.0	24%	6%		9%	0%		GSI = 30-35			
	647.9	55.3		1:40/1.0							WEATHERED ROCK			
			5.0	2:10/1.0							Gray-White (Metamorphosed Quartz Diorite)			
645				3:30/1.0	(0.8)	(0.0)					GSI = 15-20			
				1:54/1.0	16%	0%								
	642.9	60.3		1:33/1.0							642.9	60.3		
			5.0	1:57/1.0				(2.8)	(0.0)		CRYSTALLINE ROCK			
640				1:35/1.0				100%	0%		640.1	63.1		
				3:00/1.0	(2.8)	(0.0)		(0.0)	(0.0)		Moderately Weathered, Medium Hard to Moderately Hard, Gray-White (Metamorphosed Quartz Diorite) with Close Fracture Spacing			
	637.9	65.3		2:09/1.0				0%	0%		637.9	65.3		
			5.0	2:30/1.0							GSI = 15-20			
635				2:48/1.0	(5.0)	(3.0)	RS-02	(11.4)	(5.4)		WEATHERED ROCK			
				1:42/1.0	100%	60%		100%	47%		Gray-White (Metamorphosed Quartz Diorite)			
				2:09/1.0							GSI = 15-20			
	632.9	70.3		1:22/1.0							CRYSTALLINE ROCK			
			5.0	1:40/1.0							Moderately Severe to Slightly Weathered, Moderately Hard, Gray-White (Metamorphosed Quartz Diorite), with Close to Moderately Close Fracture Spacing			
630				2:38/1.0	(5.0)	(1.7)								
				2:41/1.0	100%	34%								
	627.9	75.3		2:59/1.0										
			5.0	2:49/1.0										
625				2:23/1.0							626.5	76.7		
				2:38/1.0	(1.4)	(0.7)		(0.0)	(0.0)		GSI = 35-40			
				2:20/1.0	28%	14%		0%	0%		RS-02: 66.3-66.8'			
	622.9	80.3		2:40/1.0								Unit WEight: 168.0 pcf		
			5.0	2:20/1.0							Unconfined Compressive Strength: 1,700 psi (245 ksf)		80.3	
620				1:40/1.0	(4.9)	(3.8)		(4.9)	(3.8)		622.9	80.3		
				3:48/1.0							WEATHERED ROCK			
				4:46/1.0	98%	76%		98%	76%		Gray-White (Metamorphosed Quartz Diorite)			
	617.9	85.3		4:00/1.0										
				3:39/1.0							617.9	85.3		
				4:18/1.0							CRYSTALLINE ROCK			
											Slightly Weathered, Moderately Hard to Hard, Gray-White (Metamorphosed Quartz Diorite), with Close to Moderately Close Fracture Spcaing			
											GSI = 55-60			
											Boring Terminated at Elevation 617.9 ft In Crystalline Rock (Metamorphosed Quartz Diorite)			

NCDOT CORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-04
48.3 to 85.3 Feet



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 50178.1.1			TIP U-5765			COUNTY MECKLENBURG			GEOLOGIST M. Malisher						
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville									GROUND WTR (ft)						
BORING NO. GW_B-05			STATION 16+19			OFFSET 1 ft RT			ALIGNMENT -GW-			0 HR.	9.4		
COLLAR ELEV. 701.0 ft			TOTAL DEPTH 69.0 ft			NORTHING 621,437			EASTING 1,440,626			24 HR.	14.0		
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic						
DRILLER J.Kiker			START DATE 05/19/25			COMP. DATE 05/19/25			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)
705															
700	700.0	1.0	3	2	4									701.0	GROUND SURFACE 0.0
695	697.2	3.8	2	2	3									698.0	ROADWAY EMBANKMENT Medium Stiff, Brown-Gray, Fine to Coarse Sandy CLAY (A-6), with trace mica 3.0
690	692.2	8.8	WOH	2	4									694.0	Medium Stiff, Red, Fine Sandy SILT (A-4), with trace gravel 7.0
685	687.2	13.8	2	2	5									689.0	ALLUVIAL Medium Stiff, Gray, Highly Plastic Silty CLAY (A-7-6(43)), with trace organics 12.0
680	682.2	18.8	6	7	10									684.0	RESIDUAL Medium Stiff, Gray-Brown, Silty CLAY (A-7) 17.0
675	677.2	23.8	8	12	13										Medium Dense to Very Dense, Tan-Gray-White-Black, Silty Fine to Coarse SAND (A-2-4), with trace mica
670	672.2	28.8	18	27	20										
665	667.2	33.8	16	33	59										
660	662.2	38.8	55	29	63										
655	657.2	43.8	100/0.3											657.2	WEATHERED ROCK Gray-White-Black, (Metamorphosed Quartz Diorite) 43.8
650	652.2	48.8	60/0.1											652.1	CRYSTALLINE ROCK Gray-White, (Metamorphosed Quartz Diorite) 48.9
645															REC = 99% RQD = 97% GSI = 80-85
640															
635															
														632.0	Boring Terminated at Elevation 632.0 ft In Crystalline Rock (Metamorphosed Quartz Diorite) 69.0

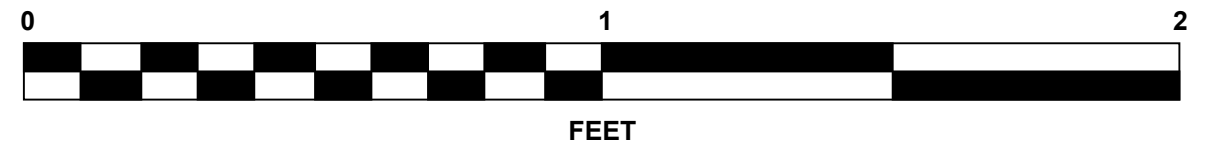
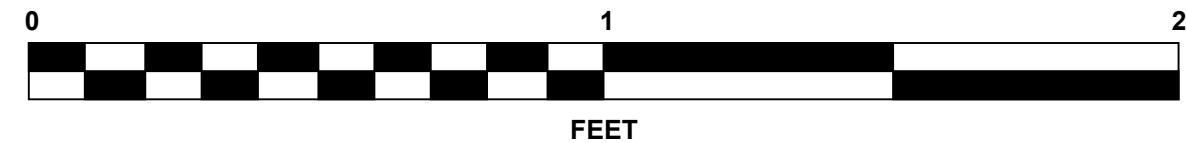
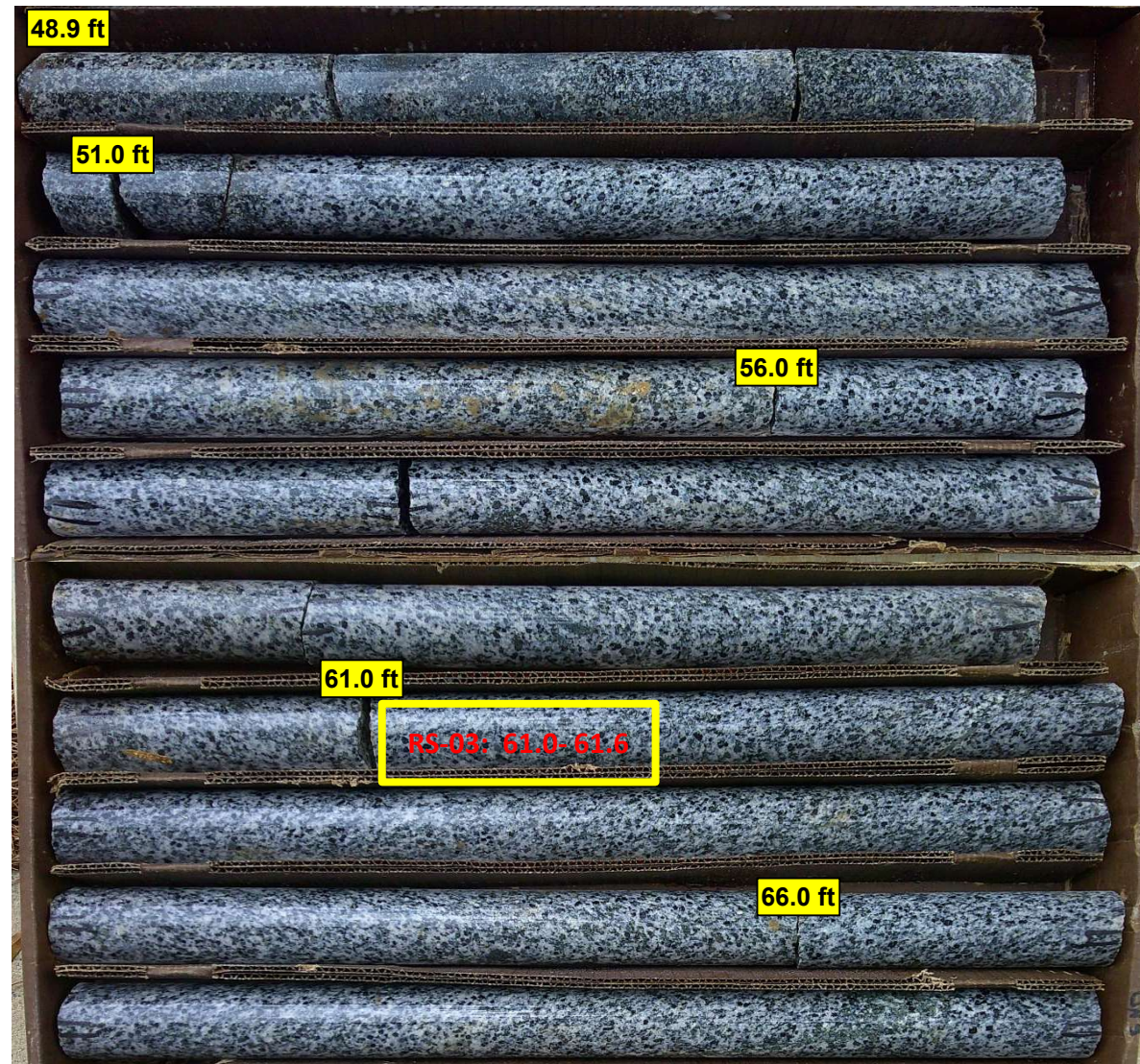
GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Malisher							
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville										GROUND WTR (ft)					
BORING NO. GW_B-05				STATION 16+19			OFFSET 1 ft RT		ALIGNMENT -GW-		0 HR. 9.4				
COLLAR ELEV. 701.0 ft				TOTAL DEPTH 69.0 ft			NORTHING 621,437		EASTING 1,440,626		24 HR. 14.0				
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic					
DRILLER J.Kiker				START DATE 05/19/25			COMP. DATE 05/19/25		SURFACE WATER DEPTH N/A						
CORE SIZE N/A				TOTAL RUN 20.1 ft											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		ROD (ft) %	SAMP. NO.	STRATA REC. (ft) %		ROD (ft) %	L O G	DESCRIPTION AND REMARKS		DEPTH (ft)
652.1													Begin Coring @ 48.9 ft		
650	652.1 650.0	48.9 51.0	2.1	4:22/1.0 4:48/1.0	(2.0) 95%	(1.8) 86%			(19.9) 99%	(19.5) 97%			CRYSTALLINE ROCK		48.9
			5.0	0:30/0.1 3:13/1.0 2:59/1.0 2:10/1.0 2:54/1.0 3:22/1.0	(5.0) 100%	(4.8) 96%							Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Wide Fracture Spacing		
													GSI = 80-85		
645	645.0	56.0											RS-03: 61.0-61.6' Unit Weight: 173.7 pcf Unconfined Compressive Strength: 13,680 psi (1,970 ksf)		
			5.0	3:10/1.0 3:15/1.0 3:23/1.0 3:24/1.0 3:34/1.0	(5.0) 100%	(5.0) 100%									
640	640.0	61.0													
			5.0	4:43/1.0 3:56/1.0 4:38/1.0 4:34/1.0 4:31/1.0	(4.9) 98%	(4.9) 98%	RS-03								
635	635.0	66.0													
			3.0	5:10/1.0 5:58/1.0 5:14/1.0	(3.0) 100%	(3.0) 100%									
	632.0	69.0											Boring Terminated at Elevation 632.0 ft In Crystalline Rock (Metamorphosed Quartz Diorite)		69.0

NCDOT BORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

NCDOT CORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-05
48.9 to 69.0 Feet**



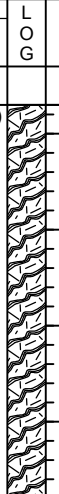
GEOTECHNICAL BORING REPORT

BORE LOG

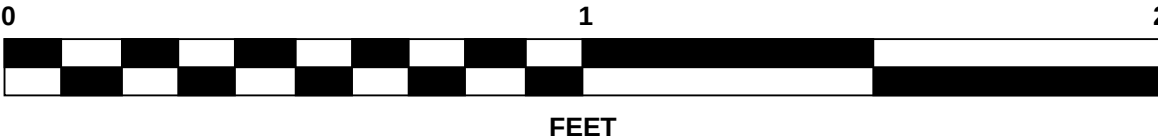
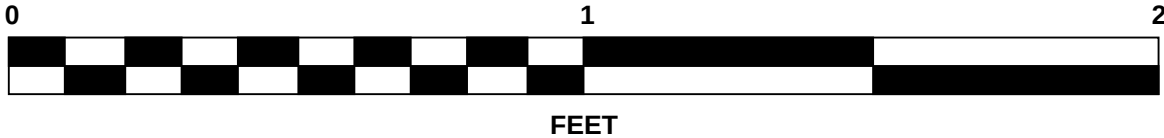
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GEOTECHNICAL BORING REPORT

CORE LOG

WBS 50178.1.1				TIP U-5765				COUNTY MECKLENBURG				GEOLOGIST T. Wenner			
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)			
BORING NO. GW_B-06				STATION 16+71				OFFSET 3 ft LT				ALIGNMENT -GW-		0 HR. N/A	
COLLAR ELEV. 697.1 ft				TOTAL DEPTH 66.1 ft				NORTHING 621,385				EASTING 1,440,622		24 HR. 4.8	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic			
DRILLER J.Kiker				START DATE 06/11/25				COMP. DATE 06/11/25				SURFACE WATER DEPTH N/A			
CORE SIZE N/A				TOTAL RUN 20.5 ft											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %ROD (ft) %		SAMP. NO.	STRATA REC. (ft) %ROD (ft) %		L O G	DESCRIPTION AND REMARKS				
												ELEV. (ft)	DEPTH (ft)		
651.5	651.5	45.6	0.5	N=60/0.0	(0.5)	(0.0)		(20.5)	(19.0)		651.5	45.6			
650	651.0	48.1	5.0	1:58/0.5	100%	0%			100%		93%	Begin Coring @ 45.6 ft CRYSTALLINE ROCK			
				3:47/1.0	(5.0)	(4.5)						Slightly Weathered to Fresh, Moderately Hard to Very Hard, Gray-White, (Metamorphosed Quartz Diorite), with Very Close to Moderately Close Fracture Spacing			
	646.0	51.1		3:50/1.0	100%	90%						GSI = 75-80			
645			5.0	4:19/1.0	(5.0)	(4.5)						Healed vertical fractures entire length of Run 4 and Run 5.			
				3:28/1.0											
				3:40/1.0											
				3:10/1.0	100%	90%									
				3:47/1.0											
				4:56/1.0											
	641.0	56.1		1:20/1.0	(5.0)	(5.0)									
640			5.0	1:35/1.0	100%	100%									
				2:42/1.0											
				3:07/1.0											
				2:59/1.0											
	636.0	61.1		3:19/1.0											
635			5.0	3:09/1.0	(5.0)	(5.0)									
				4:33/1.0	100%	100%									
				5:00/1.0											
				2:49/1.0											
	631.0	66.1		3:08/1.0											
				3:31/1.0											
										Boring Terminated at Elevation 631.0 ft In Crystalline Rock (Metamorphosed Quartz Diorite)					

WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-06
45.6 to 66.1 Feet



GEOTECHNICAL BORING REPORT
BORE LOG

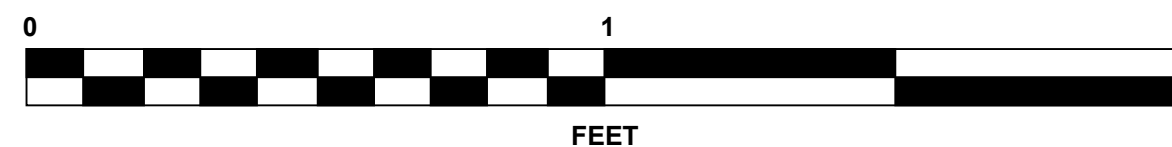
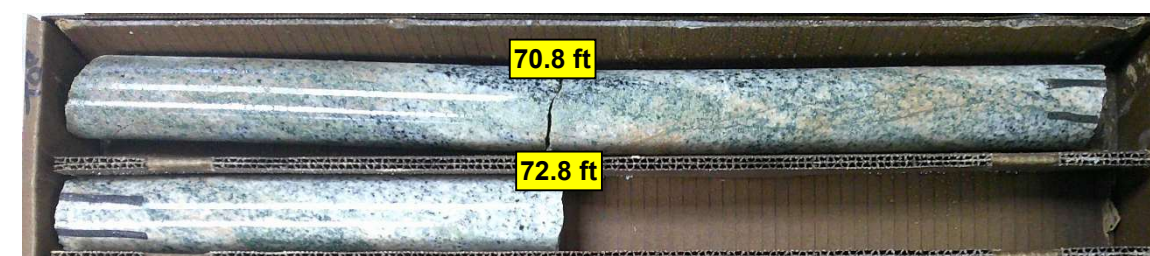
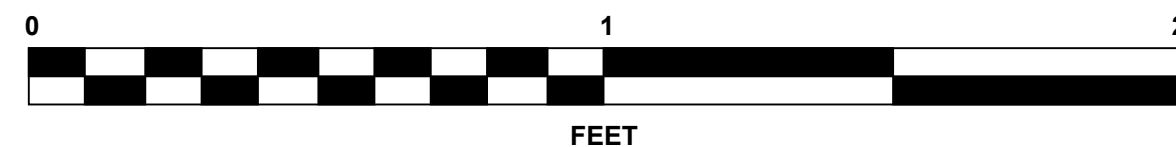
WBS 50178.1.1			TIP U-5765			COUNTY MECKLENBURG			GEOLOGIST T. Wenner						
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville									GROUND WTR (ft)						
BORING NO. GW_B-07			STATION 17+29			OFFSET 2 ft LT			ALIGNMENT -GW-			0 HR. N/A			
COLLAR ELEV. 696.5 ft			TOTAL DEPTH 72.8 ft			NORTHING 621,330			EASTING 1,440,605			24 HR. 7.0			
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025						DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic						
DRILLER J.Kiker			START DATE 06/10/25			COMP. DATE 06/10/25			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)
700															
	696.5	0.0												696.5	0.0
695			4	2	3										
	692.6	3.9	3	3	4									693.5	3.0
690															
	687.6	8.9	2	4	5										
685															
	682.6	13.9	1	4	5									684.0	12.5
680															
	677.6	18.9	5	5	12									679.0	17.5
675															
	672.6	23.9	8	15	22										
670															
	667.6	28.9	14	40	60/0.3									667.1	29.4
665															
	662.6	33.9	100/0.4												
660															
	657.6	38.9	11	89/0.4											
655															
	652.6	43.9	100/0.4												
650															
	647.6	48.9	100/0.2												
645															
	643.9	52.6	60/0.0											643.9	52.6
640															
635															
630															
625															
														623.7	72.8
														Boring Terminated at Elevation 623.7 ft In Crystalline Rock (Metamorphosed Quartz Diorite)	

NCDOT BORE DOUBLE U5765_GEO_PED_BRDG GTM.GPJ NC DOT.GDT 7/29/25

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST T. Wenner				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville										GROUND WTR (ft)		
BORING NO. GW_B-07				STATION 17+29			OFFSET 2 ft LT		ALIGNMENT -GW-		0 HR. N/A	
COLLAR ELEV. 696.5 ft				TOTAL DEPTH 72.8 ft			NORTHING 621,330		EASTING 1,440,605		24 HR. 7.0	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic		
DRILLER J.Kiker				START DATE 06/10/25			COMP. DATE 06/10/25		SURFACE WATER DEPTH N/A			
CORE SIZE N/A				TOTAL RUN 20.2 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % RQD (ft) %		SAMP. NO.	STRATA REC. (ft) % RQD (ft) %		L O G	DESCRIPTION AND REMARKS ELEV. (ft) DEPTH (ft)	
643.85											Begin Coring @ 52.6 ft	
640	643.9	52.6	3.2	N=60/0.0 3:42/1.0 6:07/1.0 6:58/1.0 0:58/0.2	(3.2) 100%	(2.7) 84%	RS-06	(20.2) 100%	(17.1) 85%		643.9	52.6
		640.7	55.8	5.0	3:56/1.0 3:48/1.0 3:11/1.0 4:31/1.0 5:53/1.0	(5.0) 100%					(3.2) 64%	Moderately Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Very Close to Moderately Close Fracture Spacing
												GSI = 65-70
635	635.7	60.8	5.0	3:55/1.0 4:26/1.0 4:08/1.0 4:19/1.0 4:19/1.0	(5.0) 100%	(4.8) 96%					RS-06: 56.9-57.5' Unit Weight: 172.0 pcf Unconfined Compressive Strength: 14,710 psi (2,118 ksf)	
630	630.7	65.8	5.0	4:04/1.0 3:04/1.0 5:05/1.0 3:52/1.0 4:12/1.0	(5.0) 100%	(4.4) 88%						
625	625.7	70.8		4:26/1.0 5:36/1.0	(2.0) 100%	(2.0) 100%						
	623.7	72.8	2.0					623.7	72.8	Boring Terminated at Elevation 623.7 ft In Crystalline Rock (Metamorphosed Quartz Diorite)		

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-07
52.6 to 72.8 Feet**



NCDOT BORE DOUBLE U5765 GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

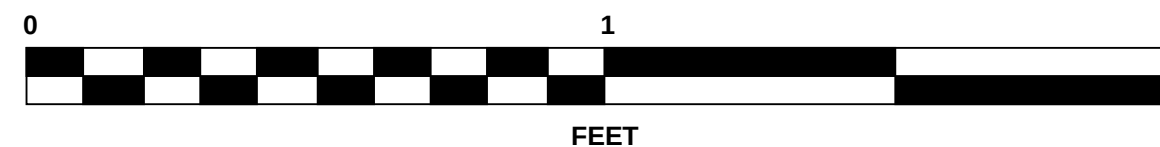
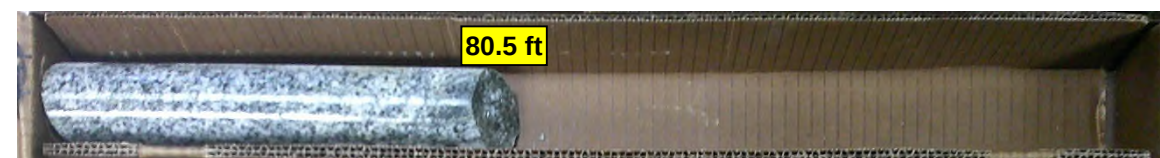
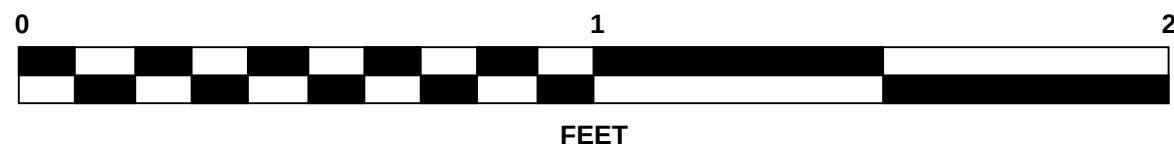
WBS 50178.1.1						TIP U-5765			COUNTY MECKLENBURG				GEOLOGIST T. Wenner				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville													GROUND WTR (ft)				
BORING NO. GW_B-08						STATION 17+90				OFFSET 1 ft RT				ALIGNMENT -GW-		0 HR. N/A	
COLLAR ELEV. 696.8 ft						TOTAL DEPTH 80.5 ft				NORTHING 621,274				EASTING 1,440,581		24 HR. 6.2	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025									DRILL METHOD SPT Core Boring					HAMMER TYPE Automatic			
DRILLER J.Kiker						START DATE 06/09/25				COMP. DATE 06/09/25				SURFACE WATER DEPTH N/A			
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.		L O G	SOIL AND ROCK DESCRIPTION			
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							MOI
620						Match Line											
													616.3 80.5				
														Boring Terminated at Elevation 616.3 ft In Crystalline Rock (Metamorphosed Quartz Diorite)			

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1					TIP U-5765			COUNTY MECKLENBURG			GEOLOGIST T. Wenner			
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville											GROUND WTR (ft)			
BORING NO. GW_B-08					STATION 17+90			OFFSET 1 ft RT			ALIGNMENT -GW-		0 HR. N/A	
COLLAR ELEV. 696.8 ft					TOTAL DEPTH 80.5 ft			NORTHING 621,274			EASTING 1,440,581		24 HR. 6.2	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic			
DRILLER J.Kiker					START DATE 06/09/25			COMP. DATE 06/09/25			SURFACE WATER DEPTH N/A			
CORE SIZE N/A					TOTAL RUN 20.0 ft									
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %RQD (ft) %		SAMP. NO.	STRATA REC. (ft) %RQD (ft) %		L O G	DESCRIPTION AND REMARKS			
											ELEV. (ft)	DEPTH (ft)		
636.27											Begin Coring @ 60.5 ft			
635	636.3	60.5	5.0	N=60/0.0 4:10/1.0 4:43/1.0 4:58/1.0 3:17/1.0 4:35/1.0	(4.8) 96%	(4.3) 86%		(19.4) 97%	(15.8) 79%		636.3	60.5		
											CRYSTALLINE ROCK			
											Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Moderately Close Fracture Spacing			
630	631.3	65.5	5.0	3:43/1.0 3:06/1.0 4:21/1.0 3:20/1.0 5:09/1.0	(4.8) 96%	(3.4) 68%					GSI = 60-65			
											Infilled Vertical Fracture from 68.6' - 73.0'			
625	626.3	70.5	5.0	4:52/1.0 2:50/1.0 2:49/1.0 3:20/1.0 4:20/1.0	(5.0) 100%	(3.5) 70%								
620	621.3	75.5	5.0	3:24/1.0 3:36/1.0 4:28/1.0 4:16/1.0 5:57/1.0	(4.8) 96%	(4.6) 92%								
	616.3	80.5									616.3	80.5		
											Boring Terminated at Elevation 616.3 ft In Crystalline Rock (Metamorphosed Quartz Diorite)			

NCDOT CORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-08
60.5 to 80.5 Feet**



NCDOT BORE DOUBLE U5765 GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

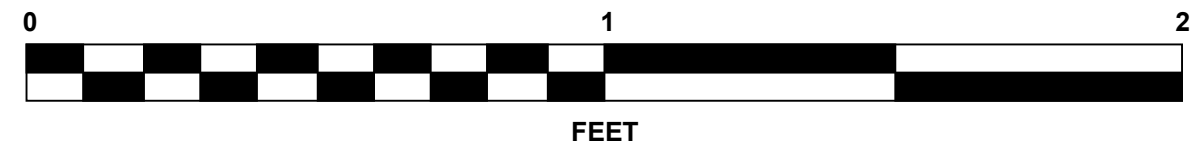
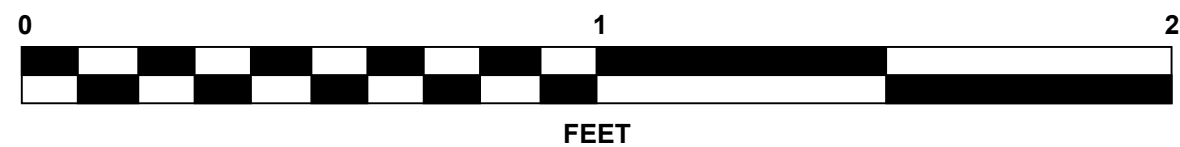
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GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Malisher				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville											GROUND WTR (ft)	
BORING NO. GW_B-09				STATION 18+47			OFFSET 1 ft RT		ALIGNMENT -GW-		0 HR.	5.5
COLLAR ELEV. 696.1 ft				TOTAL DEPTH 73.9 ft			NORTHING 621,224		EASTING 1,440,554		24 HR.	5.8
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic		
DRILLER J.Kiker				START DATE 06/04/25			COMP. DATE 06/06/25		SURFACE WATER DEPTH N/A			
CORE SIZE N/A				TOTAL RUN 20.2 ft								
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %RQD (ft) %		SAMP. NO.	STRATA REC. (ft) %RQD (ft) %		L O G	DESCRIPTION AND REMARKS ELEV. (ft)DEPTH (ft)	
642.4											Begin Coring @ 53.7 ft	
640	642.4	53.7	3.2	N=60/0.0 1:07/0.2 3:52/1.0 5:15/1.0 6:13/1.0	(2.9) 91%	(1.7) 53%		(19.1) 95%	(14.7) 73%		642.4	53.7
	639.2	56.9		5:26/1.0 3:23/1.0 1:49/1.0 4:33/1.0 4:03/1.0	(4.7) 94%	(3.5) 70%					Moderately Severely Weathered to Fresh, Medium Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Very Close to Wide Fracture Spacing	
635			5.0				RS-04				GSI = 55-60	
	634.2	61.9									RS-04: 60.5-61.0' Unit Weight: 172.0 pcf Unconfined Compressive Strength: 19,520 psi (2,811 ksf)	
630			5.0	3:07/1.0 3:22/1.0 4:13/1.0 4:09/1.0 5:00/1.0	(5.0) 100%	(2.5) 50%						
	629.2	66.9										
625			5.0	3:25/1.0 2:50/1.0 2:58/1.0 2:30/1.0 2:46/1.0	(5.0) 100%	(5.0) 100%						
	624.2	71.9	2.0	3:19/1.0 3:08/1.0	(2.0) 100%	(2.0) 100%					622.2	73.9
	622.2	73.9									Boring Terminated at Elevation 622.2 ft In Crystalline Rock (Metamorphosed Quartz Diorite)	

NCDOT CORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-09
53.7 to 73.9 Feet**



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 50178.1.1				TIP U-5765				COUNTY MECKLENBURG				GEOLOGIST T. Wenner					
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)					
BORING NO. GW_B-10				STATION 19+08				OFFSET 1 ft RT				ALIGNMENT -GW-				0 HR. 6.2	
COLLAR ELEV. 695.9 ft				TOTAL DEPTH 54.1 ft				NORTHING 621,172				EASTING 1,440,522				24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic					
DRILLER J.Kiker				START DATE 06/04/25				COMP. DATE 06/04/25				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)		
700																	
695	694.9	1.0	WOH	1	3									695.9	0.0		
	692.0	3.9	WOH	2	5												
690														689.4	6.5		
	687.0	8.9		2	3	6											
685														683.9	12.0		
	682.0	13.9		2	3	3											
680																	
	677.0	18.9		8	22	29											
675																	
	672.0	23.9		26	34	22											
670																	
	667.0	28.9												667.0	28.9		
665				52	48/0.3												
	664.2	31.7															
	662.1	33.8												662.1	33.8		
660																	
655																	
650																	
645																	

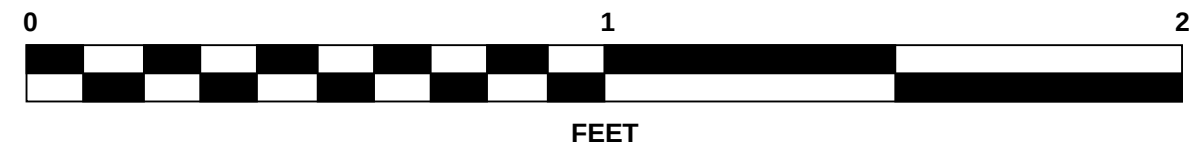
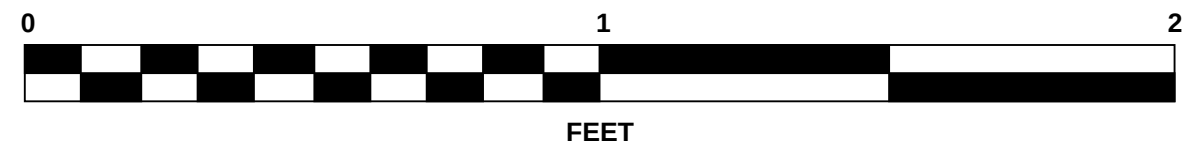
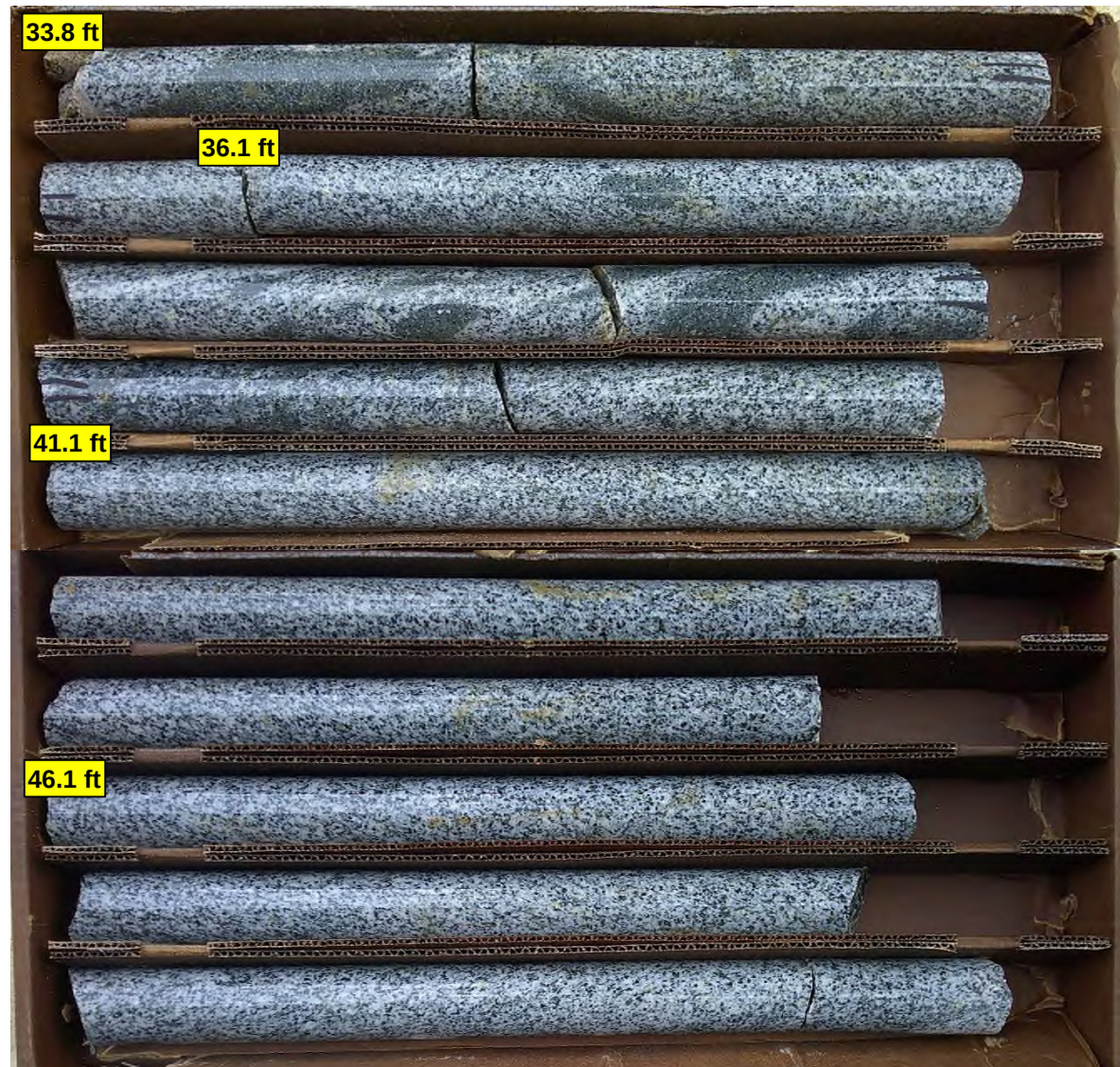
GEOTECHNICAL BORING REPORT

CORE LOG

WBS 50178.1.1				TIP U-5765				COUNTY MECKLENBURG				GEOLOGIST T. Wenner				
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)				
BORING NO. GW_B-10				STATION 19+08				OFFSET 1 ft RT				ALIGNMENT -GW-		0 HR. 6.2		
COLLAR ELEV. 695.9 ft				TOTAL DEPTH 54.1 ft				NORTHING 621,172				EASTING 1,440,522		24 HR. FIAD		
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic				
DRILLER J.Kiker				START DATE 06/04/25				COMP. DATE 06/04/25				SURFACE WATER DEPTH N/A				
CORE SIZE N/A				TOTAL RUN 20.3 ft												
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %		RQD (ft) %	L O G	DESCRIPTION AND REMARKS		DEPTH (ft)	
662.1													Begin Coring @ 33.8 ft			
660	662.1 659.8	33.8 36.1	2.3	N=60/0.0 2:21/0.3 2:52/1.0 3:45/1.0	(2.3) 100%	(2.2) 96%			(20.3) 100%	(20.1) 99%			662.1	CRYSTALLINE ROCK	33.8	
			5.0	3:42/1.0 4:10/1.0 4:35/1.0 4:24/1.0 3:50/1.0	(5.0) 100%	(5.0) 100%							Slightly Weathered to Fresh, Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Wide Fracture Spacing			
655	654.8	41.1												GSI = 80-85		
			5.0	4:14/1.0 4:46/1.0 4:49/1.0 5:20/1.0 4:59/1.0	(5.0) 100%	(4.9) 98%										
650	649.8	46.1														
			5.0	4:51/1.0 5:30/1.0 6:26/1.0 6:37/1.0 6:43/1.0	(5.0) 100%	(5.0) 100%										
645	644.8	51.1														
			3.0	7:25/1.0 6:50/1.0 6:12/1.0	(3.0) 100%	(3.0) 100%										
	641.8	54.1												641.8	Boring Terminated at Elevation 641.8 ft In Crystalline Rock (Metamorphosed Quartz Diorite)	54.1

NCDDOT CORE DOUBLE US/85 GEO PED BRDG GIM/GPJ NC_DOT.GDT 7/29/25

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-10
33.8 to 54.1 Feet**



GEOTECHNICAL BORING REPORT

BORE LOG

WBS 50178.1.1		TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST M. Brewer										
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville											GROUND WTR (ft)					
BORING NO. GW_B-11		STATION 19+71		OFFSET 2 ft LT		ALIGNMENT -GW-		0 HR. N/A		24 HR. 6.1						
COLLAR ELEV. 696.1 ft		TOTAL DEPTH 38.2 ft		NORTHING 621,117		EASTING 1,440,491										
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025					DRILL METHOD SPT Core Boring			HAMMER TYPE Automatic								
DRILLER J.Kiker			START DATE 05/16/25		COMP. DATE 05/16/25		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						
700																
695	696.1	0.0	WOH	2	5	7								696.1	GROUND SURFACE	0.0
														694.1	ARTIFICIAL FILL Stiff, Brown, Fine Sandy SILT (A-4), with trace organics	2.0
690	691.7	4.4		2	3	4									RESIDUAL Stiff, Black-Orange, Fine Sandy CLAY (A-6), with trace mica	
														688.1	Medium Stiff to Stiff, Gray-White-Black-Brown-Orange, Fine Sandy SILT (A-4(0)), with trace mica	8.0
685	686.7	9.4		1	2	3	5					SS-9	29%			
680	681.7	14.4		4	5	7	12						M			
	678.5	17.6	60/0.0											678.5	CRYSTALLINE ROCK Gray-Black-White, (Metamorphosed Quartz Diorite)	17.6
675															REC = 98% RQD = 97% GSI = 80-85	
670												RS-05				
665																
660																
														657.9	Boring Terminated at Elevation 657.9 ft In Crystalline Rock (Metamorphosed Quartz Diorite)	38.2

NCDOT BORE DOUBLE U5765 GEO PED BRDG GTM.GPJ NC DOT.GDT 7/29/25

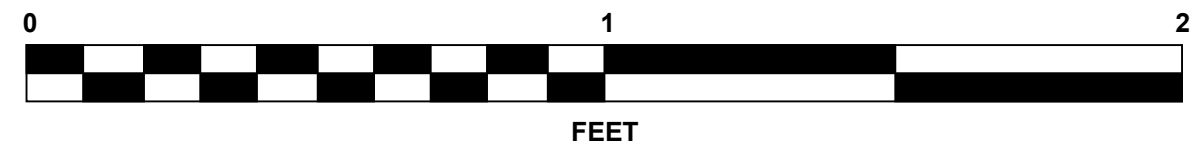
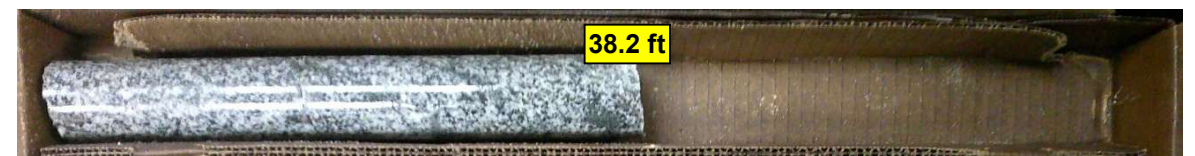
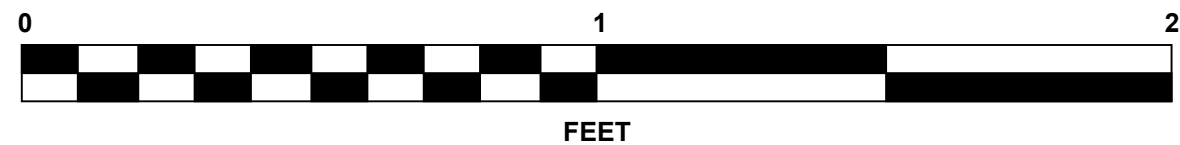
GEOTECHNICAL BORING REPORT

CORE LOG

WBS 50178.1.1				TIP U-5765				COUNTY MECKLENBURG				GEOLOGIST M. Brewer							
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)							
BORING NO. GW_B-11				STATION 19+71				OFFSET 2 ft LT				ALIGNMENT -GW-				0 HR. N/A			
COLLAR ELEV. 696.1 ft				TOTAL DEPTH 38.2 ft				NORTHING 621,117				EASTING 1,440,491				24 HR. 6.1			
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic							
DRILLER J.Kiker				START DATE 05/16/25				COMP. DATE 05/16/25				SURFACE WATER DEPTH N/A							
CORE SIZE N/A				TOTAL RUN 20.6 ft															
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) %		RQD (ft) %	SAMP. NO.	STRATA REC. (ft) %		RQD (ft) %	L O G	DESCRIPTION AND REMARKS				DEPTH (ft)		
678.5													Begin Coring @ 17.6 ft						
	678.5	17.6	3.6	N=60/0.0 4:08/0.6 3:58/1.0 4:39/1.0 5:01/1.0	(3.6) 100%	(3.6) 100%			(20.2) 98%	(20.0) 97%			678.5 FRESH, HARD, GRAY-BLACK-WHITE, (METAMORPHOSED QUARTZ DIORITE), WITH WIDE FRACTURE SPACING				17.6		
675	674.9	21.2																	
			5.0	5:11/1.0 4:46/1.0 5:02/1.0 5:07/1.0 6:04/1.0	(5.0) 100%	(5.0) 100%							GSI = 80-85						
													Weathered Seam from 33.5' - 33.9'						
670	669.9	26.2																	
			5.0	2:21/1.0 2:46/1.0 2:11/1.0 2:33/1.0 2:09/1.0	(5.0) 100%	(5.0) 100%	RS-05						RS-05: 26.2-26.7' Unit Weight: 170.7 pcf Unconfined Compressive Strength: 14,140 psi (2,036 ksf)						
665	664.9	31.2																	
			5.0	2:15/1.0 2:45/1.0 2:52/1.0 3:50/1.0 2:15/1.0	(4.6) 92%	(4.4) 88%													
660	659.9	36.2																	
	657.9	38.2	2.0	2:30/1.0 1:50/1.0	(2.0) 100%	(2.0) 100%							657.9 Boring Terminated at Elevation 657.9 ft In Crystalline Rock (Metamorphosed Quartz Diorite)				38.2		

NCDOT CORE DOUBLE U5765 GEO PED BRDG GTM.GPJ NC DOT.GDT 7/29/25

**WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-11
17.6 to 38.2 Feet**



GEOTECHNICAL BORING REPORT
BORE LOG

WBS 50178.1.1				TIP U-5765		COUNTY MECKLENBURG		GEOLOGIST T. Wenner							
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)			
BORING NO. GW_B-12				STATION 20+17			OFFSET 3 ft LT			ALIGNMENT -GW-		0 HR.	N/A		
COLLAR ELEV. 696.4 ft				TOTAL DEPTH 42.9 ft			NORTHING 621,078			EASTING 1,440,464		24 HR.	6.4		
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025							DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic				
DRILLER J.Kiker				START DATE 05/15/25			COMP. DATE 05/15/25			SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	▼ MOI	L O G	SOIL AND ROCK DESCRIPTION	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				ELEV. (ft)	DEPTH (ft)
700															
695	695.4	1.0												696.4	GROUND SURFACE 0.0
690	692.0	4.4												RESIDUAL Loose to Medium Dense, Orange-Tan, Silty Fine to Coarse SAND (A-2-4), with trace mica	
	689.9	6.5													
685	687.0	9.4													
											SS-4	21%			
680	682.0	14.4													
675	677.0	19.4													
	674.0	22.4												674.0	22.4
670														CRYSTALLINE ROCK Gray-White, (Metamorphosed Quartz Diorite) REC = 96% RQD = 83% GSI = 65-70	
665															
660															
655														653.5	42.9
														Boring Terminated at Elevation 653.5 ft In Crystalline Rock (Metamorphosed Quartz Diorite) Surficial Organic Soil: 0.2'	

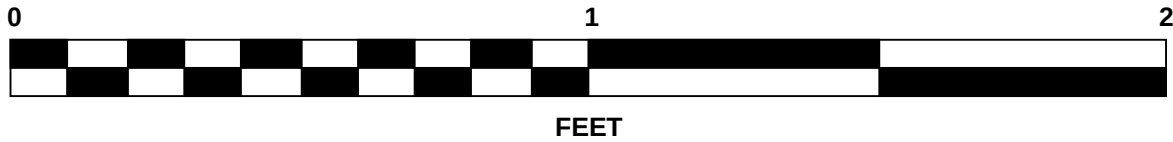
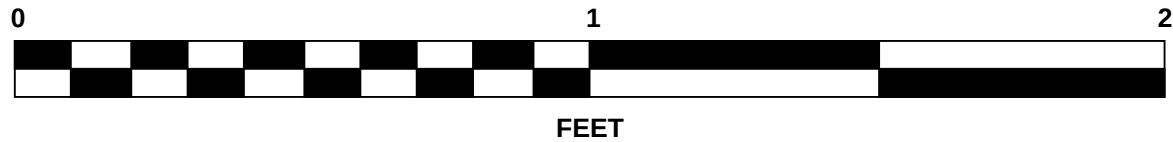
NCDOT BORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

GEOTECHNICAL BORING REPORT
CORE LOG

WBS 50178.1.1				TIP U-5765				COUNTY MECKLENBURG				GEOLOGIST T. Wenner													
SITE DESCRIPTION NC 73 from SR 5544 to SR 2316 Widening - Pedestrian Bridge for City of Huntersville												GROUND WTR (ft)													
BORING NO. GW_B-12				STATION 20+17				OFFSET 3 ft LT				ALIGNMENT -GW-				0 HR. N/A									
COLLAR ELEV. 696.4 ft				TOTAL DEPTH 42.9 ft				NORTHING 621,078				EASTING 1,440,464				24 HR. 6.4									
DRILL RIG/HAMMER EFF./DATE CG23639 CME-550X 88% 05/06/2025								DRILL METHOD SPT Core Boring				HAMMER TYPE Automatic													
DRILLER J.Kiker				START DATE 05/15/25				COMP. DATE 05/15/25				SURFACE WATER DEPTH N/A													
CORE SIZE N/A				TOTAL RUN 20.5 ft																					
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	RUN REC. (ft) % ROD (ft) %		SAMP. NO.	STRATA REC. (ft) % ROD (ft) %		LOG	DESCRIPTION AND REMARKS														
											ELEV. (ft)	DEPTH (ft)													
674											Begin Coring @ 22.4 ft														
	674.0	22.4	3.5	N=60/0.0 2:13/0.5 3:10/1.0 2:19/1.0 2:20/1.0	(3.0) 86%	(3.0) 86%		(19.6) 96%	(17.0) 83%		674.0	22.4													
670	670.5	25.9		2:47/1.0 2:30/1.0 2:26/1.0 2:45/1.0 2:55/1.0	(5.0) 100%	(5.0) 100%					CRYSTALLINE ROCK Slightly Weathered to Fresh, Moderately Hard to Hard, Gray-White, (Metamorphosed Quartz Diorite), with Close to Moderately Close Fracture Spacing														
			5.0								GSI = 65-70														
665	665.5	30.9		1:35/1.0 2:08/1.0 1:52/1.0 1:51/1.0 2:10/1.0	(4.8) 96%	(2.7) 54%					Vertical Fractures from 33.4' to 35.9'														
			5.0																						
660	660.5	35.9		3:01/1.0 2:01/1.0 2:31/1.0 2:30/1.0 2:39/1.0	(4.8) 96%	(4.3) 86%																			
			5.0																						
655	655.5	40.9		2:39/1.0 3:05/1.0	(2.0) 100%	(2.0) 100%																			
	653.5	42.9									653.5	42.9													
														Boring Terminated at Elevation 653.5 ft In Crystalline Rock (Metamorphosed Quartz Diorite)											
														Surficial Organic Soil: 0.2'											

NCDOT BORE DOUBLE U5765_GEO_PED_BRDG_GTM.GPJ NC_DOT.GDT 7/29/25

WBS: 50178.1.1 - NC 73 (Sam Furr Road) from SR 5544 (West Catawba Avenue) to SR 2316
(Northcross Avenue) Widening - Pedestrian Bridge for City of Huntersville
Mecklenburg County, North Carolina
Rock Core Photographs
U-5765_GW_B-12
22.4 to 42.9 Feet



SOIL TEST RESULTS																		
BORING ID	SAMPLE NO.	OFFSET	STATION	NORTHING	EASTING	DEPTH INTERVAL	AASHTO CLASS.	L.L.	P.I.	% BY WEIGHT				% PASSING (SIEVES)			% MOISTURE	% ORGANIC
										C. SAND	F. SAND	SILT	CLAY	10	40	200		
GW B-01	SS-1035	15' LT	12 + 78 -GW-	621770	1440670	7.5 - 9.0'	A-7-6(16)	64	39	36.1	13.1	10.2	40.6	99.8	74.1	52.2	25.1	ND
GW B-02	SS-1012	5' LT	13 + 25 -GW-	621730	1440653	3.4 - 4.9'	A-7-6(21)	68	41	31.6	11.0	10.6	46.8	99.1	76.6	58.0	25.0	ND
GW B-03	SS-1017	3' RT	13 + 92 -GW-	621664	1440643	3.8 - 5.3'	A-4(0)	NP	NP	17.4	6.9	30.7	45.0	99.0	85.6	76.0	30.1	ND
GW B-04	SS-1025	CL	14 + 40 -GW-	621616	1440642	13.3 - 14.8'	A-7-6(19)	49	29	21.7	10.3	27.2	40.8	99.6	83.4	69.4	25.3	ND
GW B-05	SS-1002	1' RT	16 + 19 -GW-	621437	1440626	8.8 - 10.3'	A-7-6(43)	66	39	2.7	2.8	23.8	70.7	100.0	98.6	95.1	35.3	ND
GW B-06	SS-528	3' LT	16 + 71 -GW-	621385	1440622	8.9 - 10.4'	A-7-5(44)	74	44	5.2	10.2	28.0	56.6	99.9	97.3	86.7	39.8	ND
GW B-07	SS-516	2' LT	17 + 29 -GW-	621330	1440605	8.9 - 10.4'	A-7-6(45)	64	42	2.8	3.7	31.0	62.5	100.0	98.2	94.6	28.4	ND
GW B-08	SS-502	1' RT	17 + 90 -GW-	621274	1440581	8.6 - 10.1'	A-7-6(27)	52	34	9.5	13.8	27.0	49.7	100.0	94.1	79.3	24.7	ND
GW B-09	SS-1050	1' RT	18 + 47 -GW-	621224	1440554	8.9 - 10.4'	A-7-6(56)	76	49	0.8	3.0	29.0	67.2	100.0	99.5	97.3	28.3	ND
GW B-10	SS-1042	1' RT	19 + 08 -GW-	621172	1440522	13.9 - 15.4'	A-2-4	NP	NP	33.5	37.9	22.6	6.0	97.6	78.7	31.9	34.2	ND
GW B-11	SS-9	2' LT	19 + 71 -GW-	621117	1440491	9.4 - 10.9'	A-4(0)	NP	NP	35.4	27.6	31.0	6.0	100.0	77.9	40.8	29.0	ND
GW B-12	SS-4	3' LT	20 + 17 -GW-	621078	1440464	9.4 - 10.9'	A-2-4	NP	NP	40.9	27.2	29.9	2.0	96.3	68.1	34.3	20.6	ND

ROCK TEST RESULTS									
SAMPLE NO.	BORING ID	OFFSET	STATION	NORTHING	EASTING	DEPTH INTERVAL	ROCK TYPE	UNIT WEIGHT (PCF)	UNCONFINED COMPRESSIVE STRENGTH
RS-01	GW_B-02	5' LT	13+25 -GW-	621730	1440653	20.4 - 20.9'	METAMORPHOSED QUARTZ DIORITE	175.0	15,750 psi /2,268 ksf
RS-02	GW_B-04	CL	14+40 -GW-	621616	1440642	66.3 - 66.8'	METAMORPHOSED QUARTZ DIORITE	168.0	1,700 psi /245 ksf
RS-03	GW_B-05	1' RT	16+19 -GW-	621437	1440626	61.0 - 61.6'	METAMORPHOSED QUARTZ DIORITE	173.7	13,680 psi /1,970 ksf
RS-04	GW_B-09	1' RT	18+47 -GW-	621224	1440554	60.5 - 61.0'	METAMORPHOSED QUARTZ DIORITE	172.0	19,520 psi /2,811 ksf
RS-05	GW_B-11	2' LT	19+71 -GW-	621117	1440491	26.2 - 26.7'	METAMORPHOSED QUARTZ DIORITE	170.7	14,140 psi /2,036 ksf
RS-06	GW_B-07	2' LT	17+29 -GW-	621330	1440605	59.6 - 57.5'	METAMORPHOSED QUARTZ DIORITE	172.0	14,710 psi /2,118 ksf



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



PHOTO #1: VIEW ALONG -GW- ALIGNMENT, FACING SOUTH FROM BENT #9.



PHOTO #2: LOOKING NORTHWEST FROM BENT #6.