

REFERENCE: HS-2006Q

PROJECT: 00579838

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

STRUCTURE  
SUBSURFACE INVESTIGATION

COUNTY HARNETT  
PROJECT DESCRIPTION BRIDGE NO. 420015 OVER BLACK  
RIVER ON SR 1532 (LANGDON ROAD)

CONTENTS

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HS-2006Q	1	12

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

CG2 EXPLORATION

S. PATTERSON, P.G.

INVESTIGATED BY CG2, PLLC

DRAWN BY S. PATTERSON, P.G.

CHECKED BY R. KRAL, P.E.

SUBMITTED BY CG2, PLLC

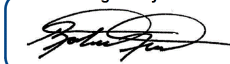
DATE MARCH 2023

Prepared in the Office of:



**CAROLINAS  
GEOTECHNICAL  
GROUP**  
2400 CROWNPOINT EXECUTIVE DRIVE  
SUITE 800  
CHARLOTTE, NC 28227  
(980) 339-8684

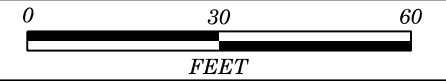


DocuSigned by:  
  
 8AD703B2A8484F4... 03/27/2023  
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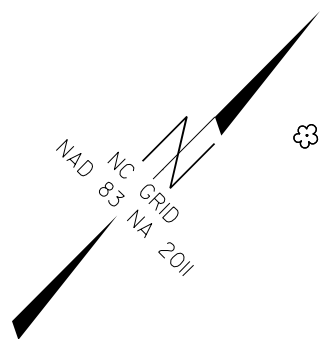
**DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED**



# SITE PLAN



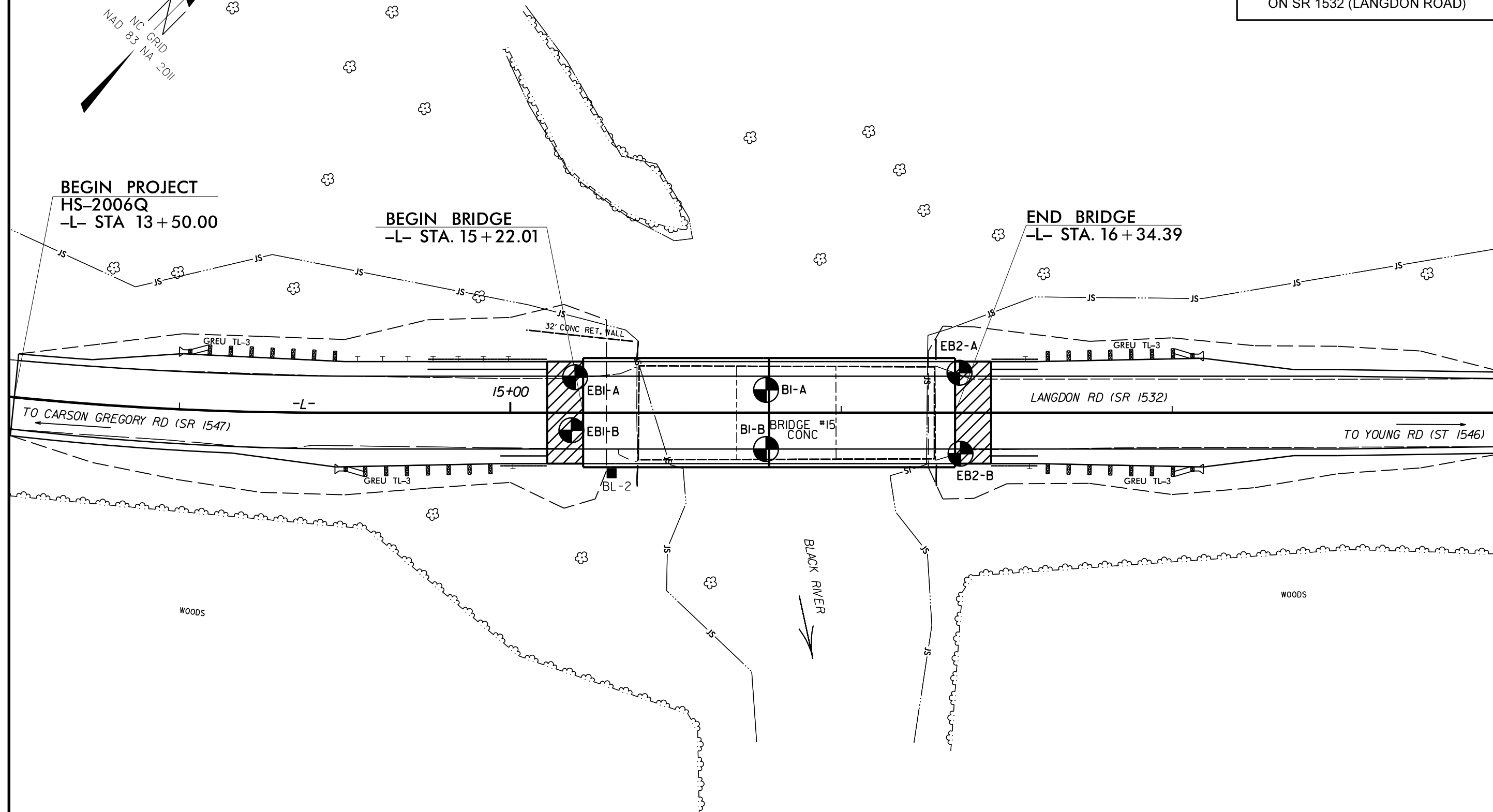
BRIDGE NO. 015 OVER BLACK RIVER  
ON SR 1532 (LANGDON ROAD)



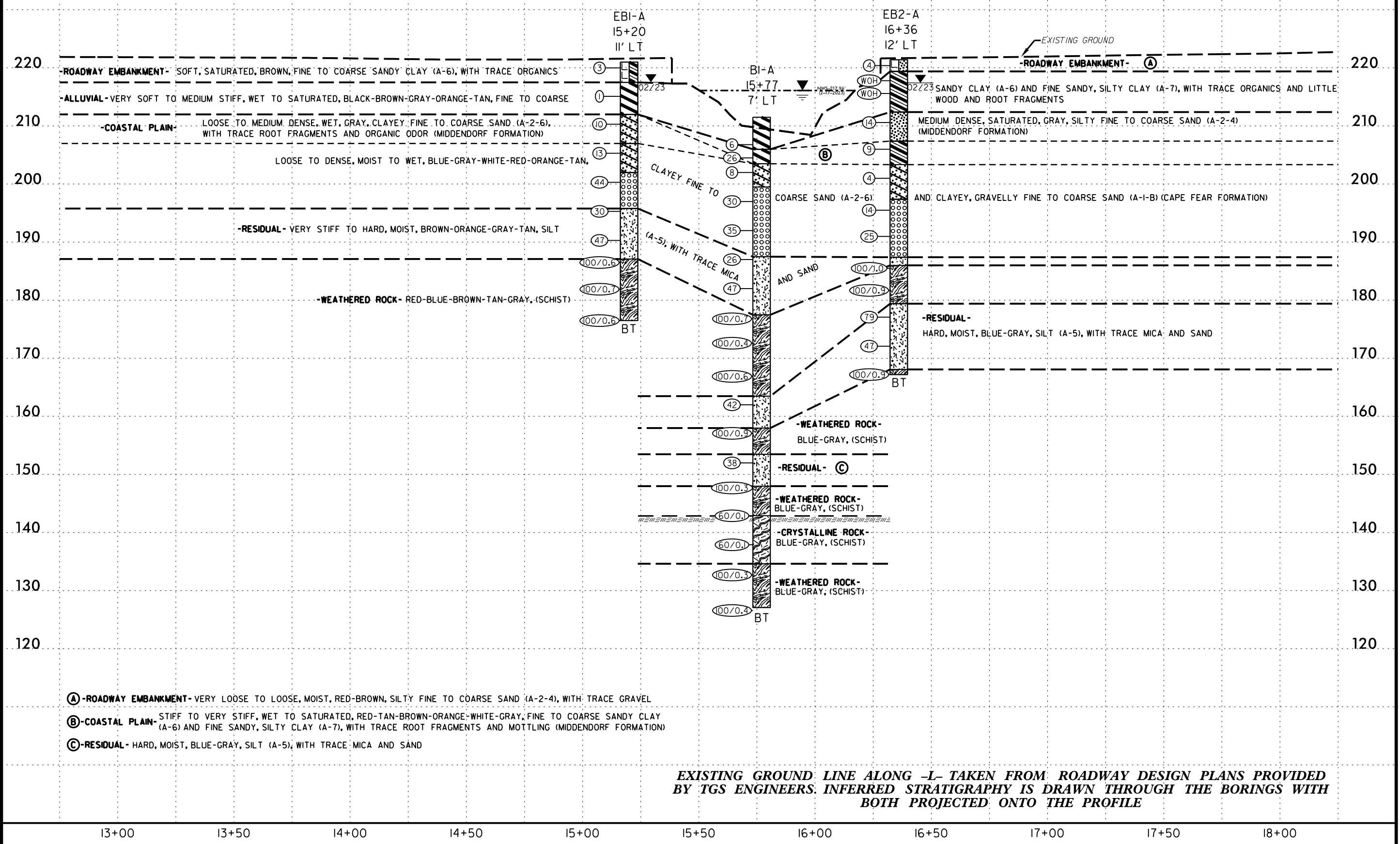
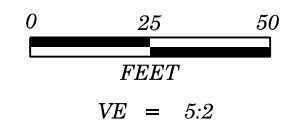
BEGIN PROJECT  
HS-2006Q  
-L- STA 13+50.00

BEGIN BRIDGE  
-L- STA. 15+22.01

END BRIDGE  
-L- STA. 16+34.39




5/14/99

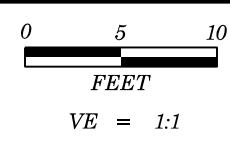


**EXISTING GROUND LINE ALONG -L- TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE**

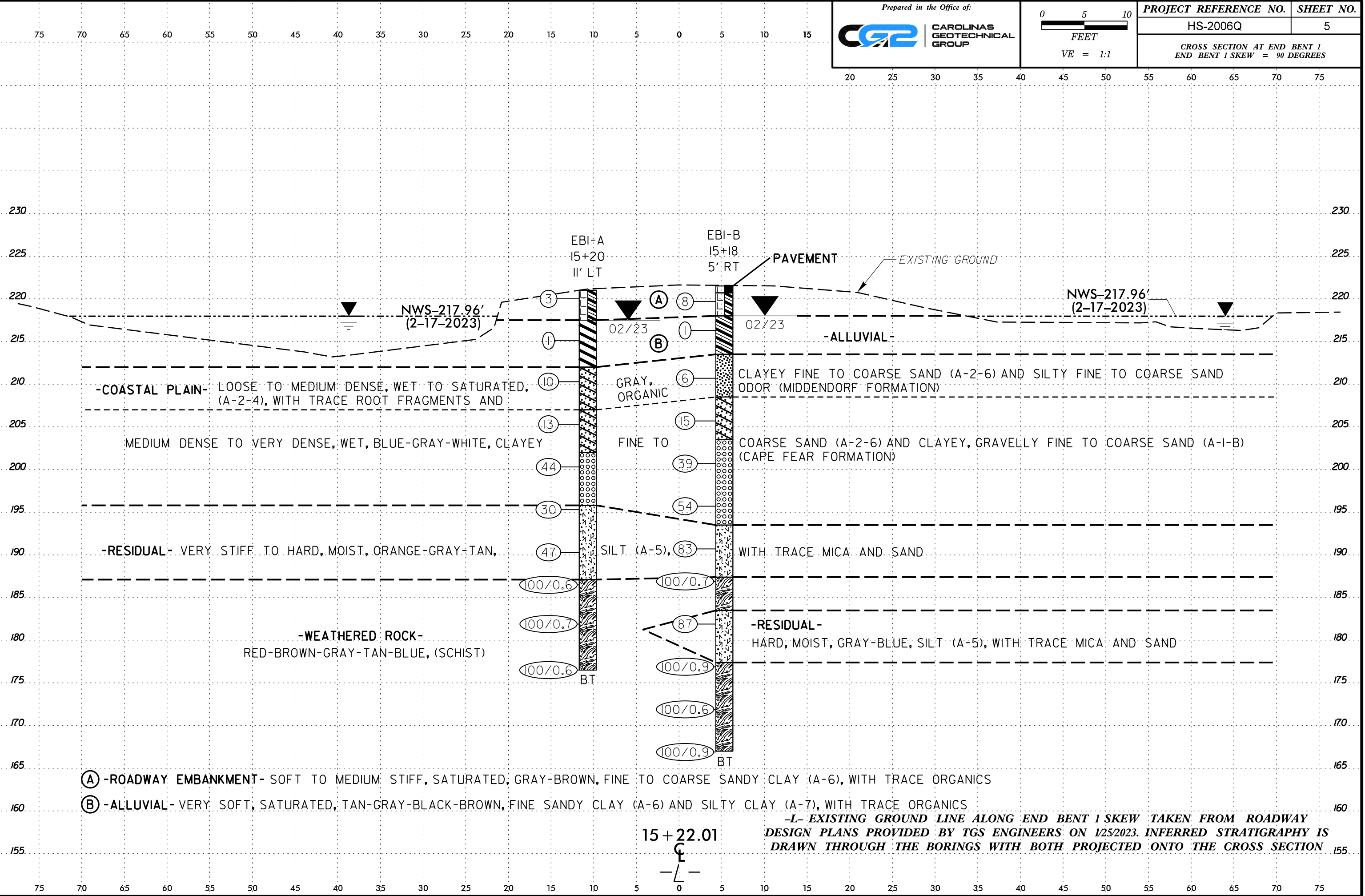
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 \$\$\$\$ STANDARD \$\$\$

6/23/16  
22-MAR-2023 11:27  
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\$\$\$\$\$USERNAME\$\$\$\$\$

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 CAROLINAS  
GEO TECHNICAL  
GROUP



PROJECT REFERENCE NO.	SHEET NO.
HS-2006Q	5
CROSS SECTION AT END BENT 1 END BENT 1 SKEW = 90 DEGREES	



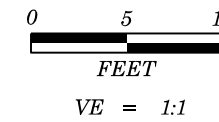
6/23/16

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Prepared in the Office of:



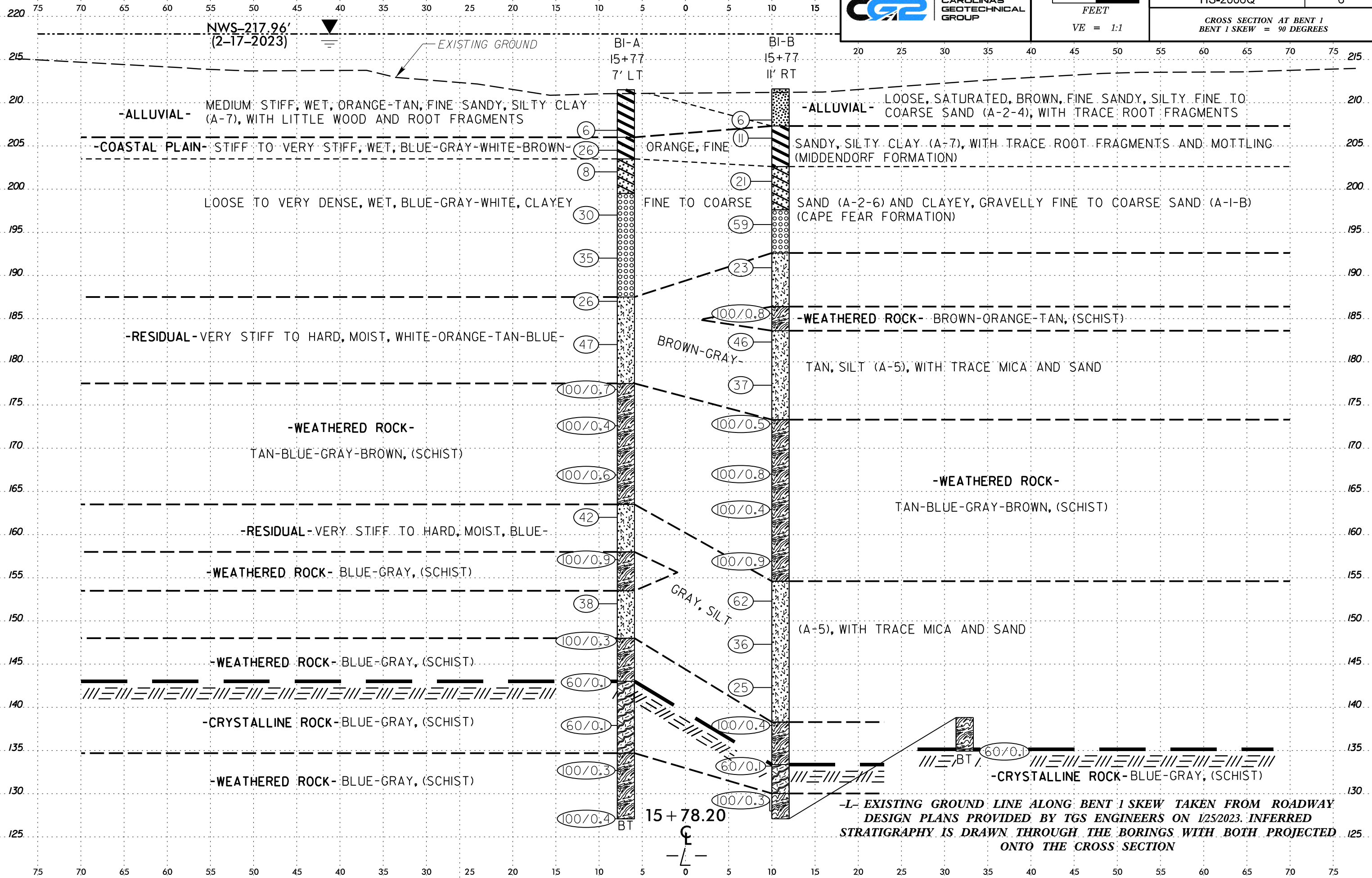
CAROLINAS GEOTECHNICAL GROUP



PROJECT REFERENCE NO. SHEET NO.

HS-2006Q 6

CROSS SECTION AT BENT 1 BENT 1 SKEW = 90 DEGREES



NWS-217.96' (2-17-2023)

EXISTING GROUND

BI-A 15+77 7' LT

BI-B 15+77 11' RT

-ALLUVIAL- MEDIUM STIFF, WET, ORANGE-TAN, FINE SANDY, SILTY CLAY (A-7), WITH LITTLE WOOD AND ROOT FRAGMENTS

-ALLUVIAL- LOOSE, SATURATED, BROWN, FINE SANDY, SILTY FINE TO COARSE SAND (A-2-4), WITH TRACE ROOT FRAGMENTS

-COASTAL PLAIN- STIFF TO VERY STIFF, WET, BLUE-GRAY-WHITE-BROWN

SANDY, SILTY CLAY (A-7), WITH TRACE ROOT FRAGMENTS AND MOTTLING (MIDDENDORF FORMATION)

LOOSE TO VERY DENSE, WET, BLUE-GRAY-WHITE, CLAYEY

FINE TO COARSE

SAND (A-2-6) AND CLAYEY, GRAVELLY FINE TO COARSE SAND (A-I-B) (CAPE FEAR FORMATION)

-RESIDUAL- VERY STIFF TO HARD, MOIST, WHITE-ORANGE-TAN-BLUE

-WEATHERED ROCK- BROWN-ORANGE-TAN, (SCHIST)

-WEATHERED ROCK-

TAN-BLUE-GRAY-BROWN, (SCHIST)

-WEATHERED ROCK-

TAN-BLUE-GRAY-BROWN, (SCHIST)

-RESIDUAL- VERY STIFF TO HARD, MOIST, BLUE

-WEATHERED ROCK- BLUE-GRAY, (SCHIST)

-WEATHERED ROCK- BLUE-GRAY, (SCHIST)

-CRYSTALLINE ROCK- BLUE-GRAY, (SCHIST)

-WEATHERED ROCK- BLUE-GRAY, (SCHIST)

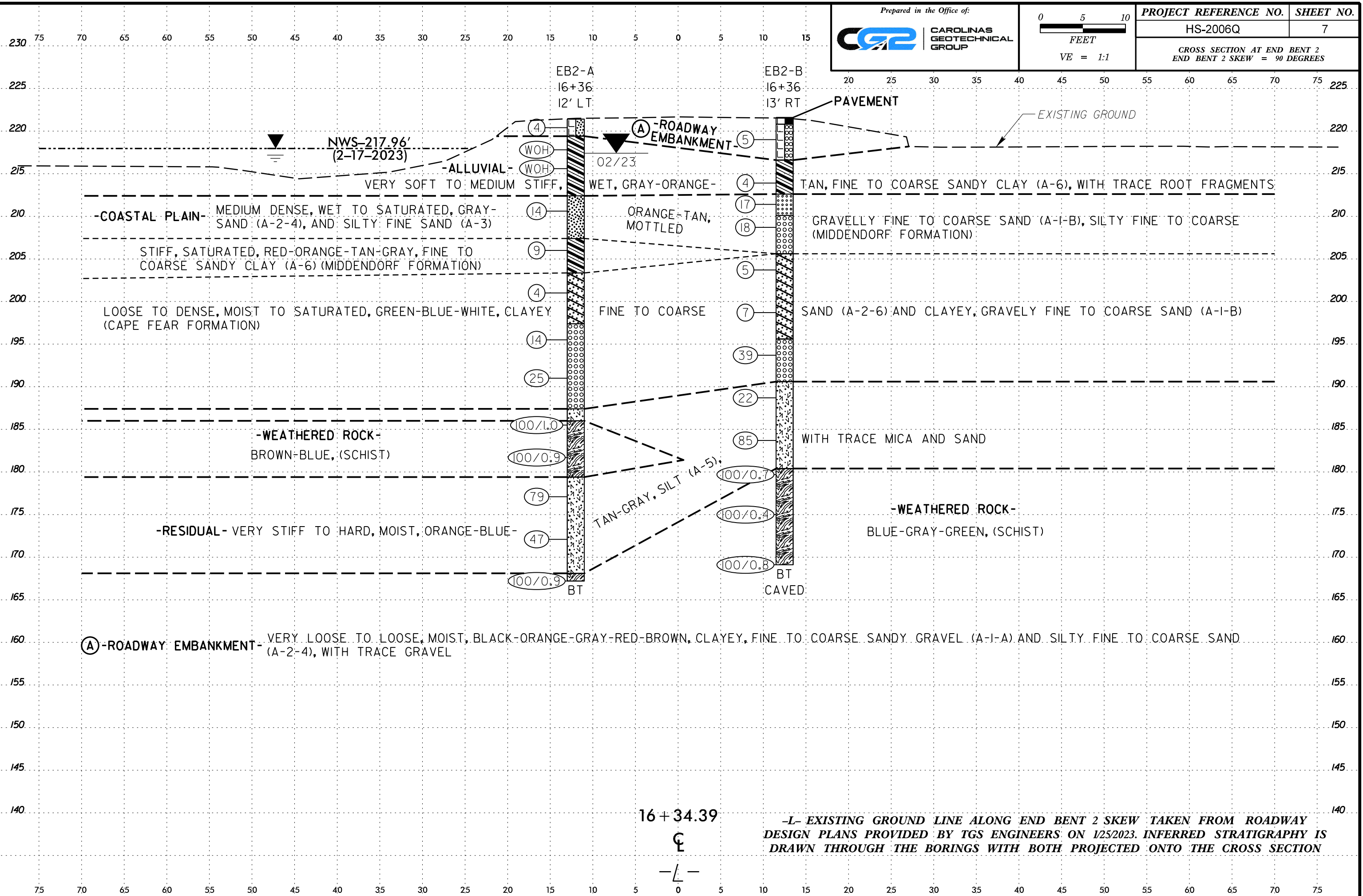
-L- EXISTING GROUND LINE ALONG BENT 1 SKEW TAKEN FROM ROADWAY DESIGN PLANS PROVIDED BY TGS ENGINEERS ON 1/25/2023. INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION

15 + 78.20

BT

6/23/16

22-MAR-2023 11:27 C:\Users\matt\OneDrive\Documents\Projects\0169 - Harnett\015\_TGS\CADD\GEO\TECH\Site\Sub\HS-2006Q\_GEO\_BRDC015\_HARNETT.XSL.dgn



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.									
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 15+20		OFFSET 11 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 221.0 ft		TOTAL DEPTH 44.5 ft		NORTHING 625,362		EASTING 2,097,898									
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 02/14/23		COMP. DATE 02/14/23		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					
225															
220	221.0	0.0	2	1	2								Sat.	221.0 GROUND SURFACE 0.0	
														217.5 ROADWAY EMBANKMENT 3.5	
														217.5 Soft, Brown, Fine to Coarse Sandy CLAY (A-6), with trace organics	
215	216.1	4.9	WOH	WOH	1								Sat.	212.0 ALLUVIAL 9.0	
														212.0 Very Soft, Black-Brown, Silty CLAY (A-7), with trace organics	
210	211.3	9.7											W	212.0 COASTAL PLAIN 9.0	
														207.0 Loose to Medium Dense, Gray, Clayey Fine to Coarse SAND (A-2-6), with trace root fragments and organic odor (Middendorf Formation)	
205	206.3	14.7	3	6	7								W	207.0 Medium Dense, Blue-Gray-White, Clayey Fine to Coarse SAND (A-2-6) (Cape Fear Formation)	
200	201.3	19.7	10	18	26								W	202.0 Dense, Blue-Gray-White, Clayey, Gravelly Fine to Coarse SAND (A-1-b) (Cape Fear Formation)	
195	196.3	24.7	8	18	12								M	195.8 RESIDUAL 25.2	
														195.8 Very Stiff to Hard, Orange-Gray-Tan, SILT (A-5), with trace mica and sand	
190	191.3	29.7	9	17	30								M	187.1 WEATHERED ROCK 33.9	
														187.1 Red-Blue-Brown-Tan, (SCHIST)	
185	187.6	33.4	23	60	40/0.1									176.5 Boring Terminated at Elevation 176.5 ft In Weathered Rock (SCHIST)	
180	182.6	38.4	50	50/0.2											
	177.6	43.4	25	70	30/0.1										

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.									
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 15+18		OFFSET 5 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 221.5 ft		TOTAL DEPTH 54.5 ft		NORTHING 625,350		EASTING 2,097,909									
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 02/14/23		COMP. DATE 02/14/23		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					
225															
220	220.7	0.8	3	5	3									221.5 GROUND SURFACE 0.0	
														220.7 Asphalt (0.8 ft) 0.8	
215	217.3	4.2	WOH	WOH	1								Sat.	218.0 ROADWAY EMBANKMENT 3.5	
														218.0 Medium Stiff, Gray-Brown, Fine Sandy CLAY (A-6)	
210	211.7	9.8											Sat.	213.5 ALLUVIAL 8.0	
														213.5 Very Soft, Tan-Gray, Fine Sandy CLAY (A-6)	
205	206.7	14.8	6	7	8								W	213.5 COASTAL PLAIN 8.0	
														208.5 Loose, Gray, Silty Fine to Coarse SAND (A-2-4) (Middendorf Formation)	
200	201.7	19.8	11	17	22								W	208.5 Medium Dense, Gray-White, Clayey Fine to Coarse SAND (A-2-6) (Cape Fear Formation)	
195	196.7	24.8	12	22	32								W	203.5 Dense to Very Dense, Blue-Gray-White, Clayey, Gravelly Fine to Coarse SAND (A-1-b) (Cape Fear Formation)	
190	191.7	29.8	16	27	56								W	193.5 RESIDUAL 28.0	
														193.5 Hard, Gray-Tan, SILT (A-5), with trace mica and sand	
185	187.9	33.6	24	59	41/0.2								M	187.4 WEATHERED ROCK 34.1	
														187.4 Gray-Tan, (SCHIST)	
180	182.9	38.6	20	33	54								M	183.5 RESIDUAL 38.0	
														183.5 Hard, Gray-Blue, SILT (A-5), with trace mica and sand	
175	177.9	43.6	18	41	59/0.4									177.4 WEATHERED ROCK 44.1	
														177.4 Tan-Blue, (SCHIST)	
170	172.9	48.6	20	70	30/0.1										
	167.9	53.6	20	80/0.4										167.0 Boring Terminated at Elevation 167.0 ft In Weathered Rock (SCHIST)	

NCDOT BORE DOUBLE HARNETT015.GPJ NC\_DOT.GDT 3/10/23



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.									
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)								
BORING NO. B1-A		STATION 15+77		OFFSET 7 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 211.5 ft		TOTAL DEPTH 84.4 ft		NORTHING 625,400		EASTING 2,097,942									
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 02/16/23		COMP. DATE 02/16/23		SURFACE WATER DEPTH 6.6ft									
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					
215															
210	207.8	3.7	3	4	2										
205	205.5	6.0	7	12	14										
200	203.0	8.5	4	4	4										
195	198.0	13.5	8	16	14										
190	193.0	18.5	7	16	19										
185	188.0	23.5	5	11	15										
180	183.0	28.5	9	17	30										
175	178.0	33.5	22	50	50/0.2										
170	173.0	38.5	100/0.4												
165	168.0	43.5	28	50	50/0.1										
160	163.0	48.5	12	19	23										
155	158.0	53.5	33	67/0.4											
150	153.0	58.5	11	14	24										
145	148.0	63.5	100/0.3												
140	143.0	68.5	60/0.1												
135	138.0	73.5	60/0.1												

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.									
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)								
BORING NO. B1-A		STATION 15+77		OFFSET 7 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 211.5 ft		TOTAL DEPTH 84.4 ft		NORTHING 625,400		EASTING 2,097,942									
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER C. Odom		START DATE 02/16/23		COMP. DATE 02/16/23		SURFACE WATER DEPTH 6.6ft									
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					
135															
130	133.0	78.5	100/0.3												
	128.0	83.5	23	77/0.4											

NCDOT BORE DOUBLE HARNETT015.GPJ NC\_DOT.GDT 3/10/23

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.	
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)
BORING NO. B1-B		STATION 15+77		OFFSET 11 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 211.6 ft		TOTAL DEPTH 88.4 ft		NORTHING 625,387		EASTING 2,097,954	
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER C. Odom		START DATE 02/15/23		COMP. DATE 02/16/23		SURFACE WATER DEPTH 6.5ft	

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				
215														SOIL AND ROCK DESCRIPTION
														WATER SURFACE (02/15/23)
														GROUND SURFACE 211.6 0.0
210	209.0	2.6												ALLUVIAL
	206.9	4.7	5	3	3									Loose, Brown, Silty Fine to Coarse SAND (A-2-4), with trace root fragments
205														COASTAL PLAIN
	202.6		2	4	7									Stiff, Blue-Gray-White, Fine Sandy, Silty CLAY (A-7), with trace root fragments and mottling (Middendorf Formation)
200	201.9	9.7	4	6	15									Medium Dense, Blue-White, Clayey Fine to Coarse SAND (A-2-6) (Cape Fear Formation)
195	196.9	14.7	19	22	37									Very Dense, Blue-White, Clayey, Gravelly Fine to Coarse SAND (A-1-b) (Cape Fear Formation)
190	191.9	19.7	7	10	13									RESIDUAL
	186.9	24.7	23	51	49/0.3									Very Stiff, White-Orange-Tan, SILT (A-5), with trace mica and sand
185	183.3	28.3	13	20	26									WEATHERED ROCK
	178.3	33.3	9	14	23									Hard, Blue-Brown-Tan, SILT (A-5), with trace mica and sand
180	173.3	38.3	100/0.5											RESIDUAL
	168.3	43.3	25	41	59/0.3									Very Stiff to Hard, Blue-Gray, SILT (A-5), with trace mica and sand
175	163.3	48.3	100/0.4											WEATHERED ROCK
	158.3	53.3	23	44	56/0.4									Blue-Gray, (SCHIST)
170	153.3	58.3	22	24	38									RESIDUAL
	148.3	63.3	10	13	23									Very Stiff to Hard, Blue-Gray, SILT (A-5), with trace mica and sand
165	143.3	68.3	7	8	17									WEATHERED ROCK
	138.3	73.3	100/0.4											Blue-Gray, (SCHIST)
160														
155														
150														
145														
140														
135														

NCDOT BORE DOUBLE HARNETT015.GPJ NC\_DOT.GDT 3/10/23

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.	
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)
BORING NO. B1-B		STATION 15+77		OFFSET 11 ft RT		ALIGNMENT -L-	
COLLAR ELEV. 211.6 ft		TOTAL DEPTH 88.4 ft		NORTHING 625,387		EASTING 2,097,954	
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic		
DRILLER C. Odom		START DATE 02/15/23		COMP. DATE 02/16/23		SURFACE WATER DEPTH 6.5ft	

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				
135														SOIL AND ROCK DESCRIPTION
														Match Line
	133.3	78.3												CRYSTALLINE ROCK
	129.6													Blue-Gray, (SCHIST)
	128.3	83.3												WEATHERED ROCK
	123.3	88.3												Blue-Gray, (SCHIST)
125														CRYSTALLINE ROCK
	123.3													Blue-Gray, (SCHIST)
	123.2													Boring Terminated at Elevation 123.2 ft In Crystalline Rock (SCHIST)

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.										
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 16+36		OFFSET 12 ft LT		ALIGNMENT -L-										
COLLAR ELEV. 221.4 ft		TOTAL DEPTH 54.2 ft		NORTHING 625,445		EASTING 2,097,980										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER C. Odom		START DATE 02/13/23		COMP. DATE 02/13/23		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						
225																
220	221.4	0.0	3	2	2										221.4	GROUND SURFACE
	218.8	2.6	WOH	WOH	WOH										219.4	ROADWAY EMBANKMENT Very Loose to Loose, Red-Brown, Silty Fine to Coarse SAND (A-2-4), with trace gravel / ALLUVIAL
215	216.6	4.8	WOH	WOH	WOH										212.4	ALLUVIAL Very Soft, Gray-Orange-Tan, Fine to Coarse SANDY CLAY (A-6)
210	211.6	9.8	6	7	7										207.4	COASTAL PLAIN Medium Dense, Gray, Silty Fine to Coarse SAND (A-2-4) (Middendorf Formation)
205	207.0	14.4	3	3	6										203.4	COASTAL PLAIN Stiff, Red-Orange-Tan-Gray, Fine to Coarse SANDY CLAY (A-6) (Middendorf Formation)
200	202.0	19.4	3	2	2										203.4	COASTAL PLAIN Loose, Blue-White, Clayey Fine to Coarse SAND (A-2-6) (Cape Fear Formation)
195	196.5	24.9	6	7	7										197.4	COASTAL PLAIN Medium Dense, Blue-White, Clayey, Gravelly Fine to Coarse SAND (A-1-b) (Cape Fear Formation)
190	192.0	29.4	9	11	14										187.4	RESIDUAL Very Stiff, Orange-Gray-Tan, SILT (A-5), with trace mica and sand
185	186.5	34.9	14	20	80/0.5										186.0	RESIDUAL Very Stiff, Orange-Gray-Tan, SILT (A-5), with trace mica and sand
180	183.1	38.3	27	46	54/0.4										179.4	RESIDUAL Hard, Blue-Gray, SILT (A-5), with trace mica and sand
175	178.1	43.3	20	33	46										168.1	WEATHERED ROCK Blue-Gray, (SCHIST)
170	173.1	48.3	13	21	26										167.2	WEATHERED ROCK Blue-Gray, (SCHIST)
	168.1	53.3	18	82/0.4												Boring Terminated at Elevation 167.2 ft In Weathered Rock (SCHIST)

WBS 00579838		TIP HS-2006Q		COUNTY HARNETT		GEOLOGIST S. Patterson, P.G.										
SITE DESCRIPTION Bridge No. 420015 over Black River on SR 1532 (Langdon Road)							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 16+36		OFFSET 13 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 221.6 ft		TOTAL DEPTH 52.5 ft		NORTHING 625,428		EASTING 2,097,997										
DRILL RIG/HAMMER EFF./DATE CG24113 CME-550X 74% 04/08/2022			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER J. Kiker		START DATE 02/09/23		COMP. DATE 02/10/23		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						
225																
220	220.0	1.6	7	3	2										221.6	GROUND SURFACE
															220.8	Asphalt (0.8 ft)
215	214.9	6.7	1	2	2										216.6	ROADWAY EMBANKMENT Loose, Black-Orange-Gray, Clayey, Fine to Coarse SANDY GRAVEL (A-1-a)
210	212.4	9.2	16	10	7										212.6	ALLUVIAL Soft to Medium Stiff, Gray, Fine SANDY CLAY (A-6), with trace root fragments
205	209.7	11.9	6	6	12										210.1	COASTAL PLAIN Medium Dense, Gray-Orange-Tan, Silty Fine SAND (A-3), mottled (Middendorf Formation)
200	204.7	16.9	3	2	3										205.6	COASTAL PLAIN Medium Dense, Gray, Gravelly Fine to Coarse SAND (A-1-b) (Middendorf Formation)
195	199.7	21.9	4	3	4										205.6	COASTAL PLAIN Loose, Blue-White, Clayey Fine to Coarse SAND (A-2-6) (Cape Fear Formation)
190	194.7	26.9	11	18	21										195.6	COASTAL PLAIN Dense, Green-Blue-White, Clayey, Gravelly Fine to Coarse SAND (A-1-b) (Cape Fear Formation)
185	189.7	31.9	10	8	14										190.6	RESIDUAL Very Stiff to Hard, Blue-Tan-Gray, SILT (A-5), with trace mica and sand
180	184.7	36.9	14	27	58										180.4	RESIDUAL Very Stiff to Hard, Blue-Tan-Gray, SILT (A-5), with trace mica and sand
175	180.4	41.2	36	64/0.2											180.4	WEATHERED ROCK Gray-Green, (SCHIST)
170	175.4	46.2	100/0.4												169.1	WEATHERED ROCK Gray-Green, (SCHIST)
	170.4	51.2	21	63	36/0.3											Boring Terminated at Elevation 169.1 ft In Weathered Rock (SCHIST)

NCDOT BORE DOUBLE HARNETT015.GPJ NC\_DOT.GDT 3/10/23

**SITE PHOTOS**



PHOTO #1: BRIDGE NO. 015 AT END BENT 1 (LT) LOOKING EAST (UPSTATION)



PHOTO #2: BRIDGE NO. 015 AT END BENT 1 (RT) LOOKING EAST (UPSTATION)



PHOTO #3: BRIDGE NO. 015 AT END BENT 2 LOOKING WEST (DOWNSTATION)