

REFERENCE: U-2519BA

PROJECT: 34817

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY CUMBERLAND  
 PROJECT DESCRIPTION FAYETTEVILLE OUTER LOOP  
FROM SOUTH OF SR 1003 (CAMDEN RD.) TO  
SOUTH OF SR 1104 (STRICKLAND BRIDGE RD.)  
 SITE DESCRIPTION BRIDGE #447 ON CAMDEN RD.  
(-Y13-) OVER FAYETTEVILLE OUTER LOOP  
BETWEEN SR 3438 AND SR 4176

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	U-2519BA	1	10

**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.

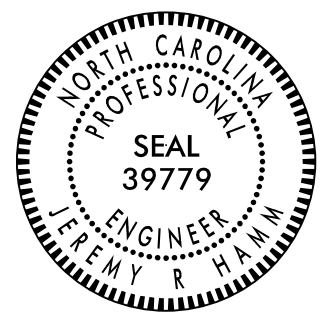
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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 MAKE SUCH INDEPENDENT SUBSURFACE INVESTIGATIONS AS HE DEEMS NECESSARY TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

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

PERSONNEL

MID-ATLANTIC  
HAMM, J.R.  
GOODNIGHT, D.J.

INVESTIGATED BY GOODNIGHT, D.J.  
 DRAWN BY HILL, M.J.  
 CHECKED BY HAMM, J.R.  
 SUBMITTED BY FALCON ENG.  
 DATE MAY 2017

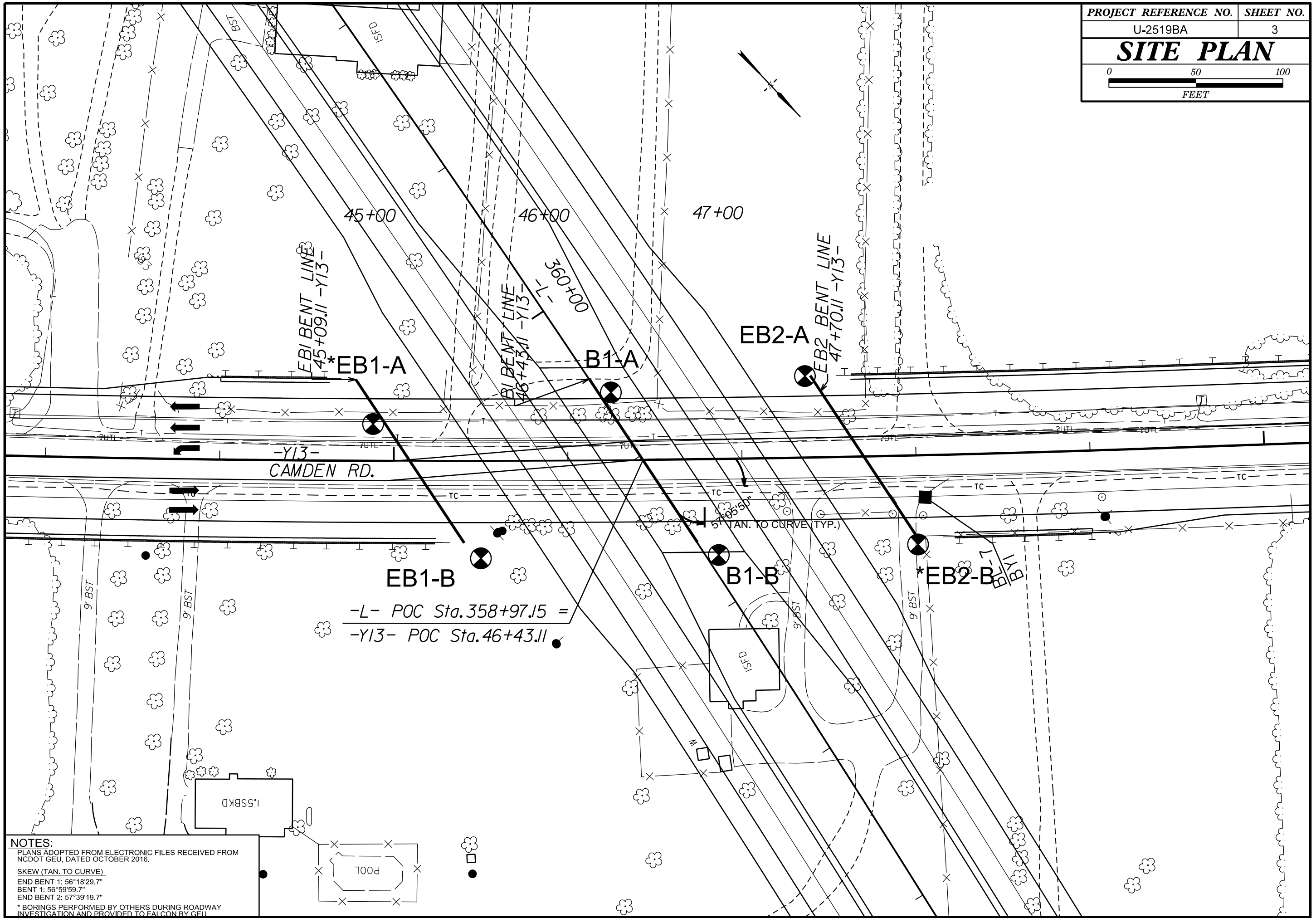


DocuSigned by:  
 Jeremy R Hamm 6/8/2017  
 ED7938089E22487...  
 SIGNATURE DATE

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

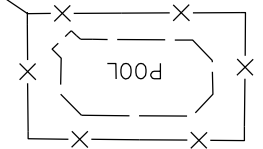
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SUBSURFACE INVESTIGATION
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

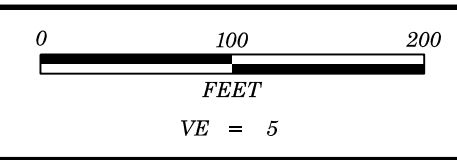
Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, EQUIPMENT USED ON SUBJECT PROJECT, FRACTURE SPACING, BEDDING, and INDURATION.



$$\begin{array}{l}
 -L- \text{ POC Sta. } 358+97.15 = \\
 -Y13- \text{ POC Sta. } 46+43.11
 \end{array}$$

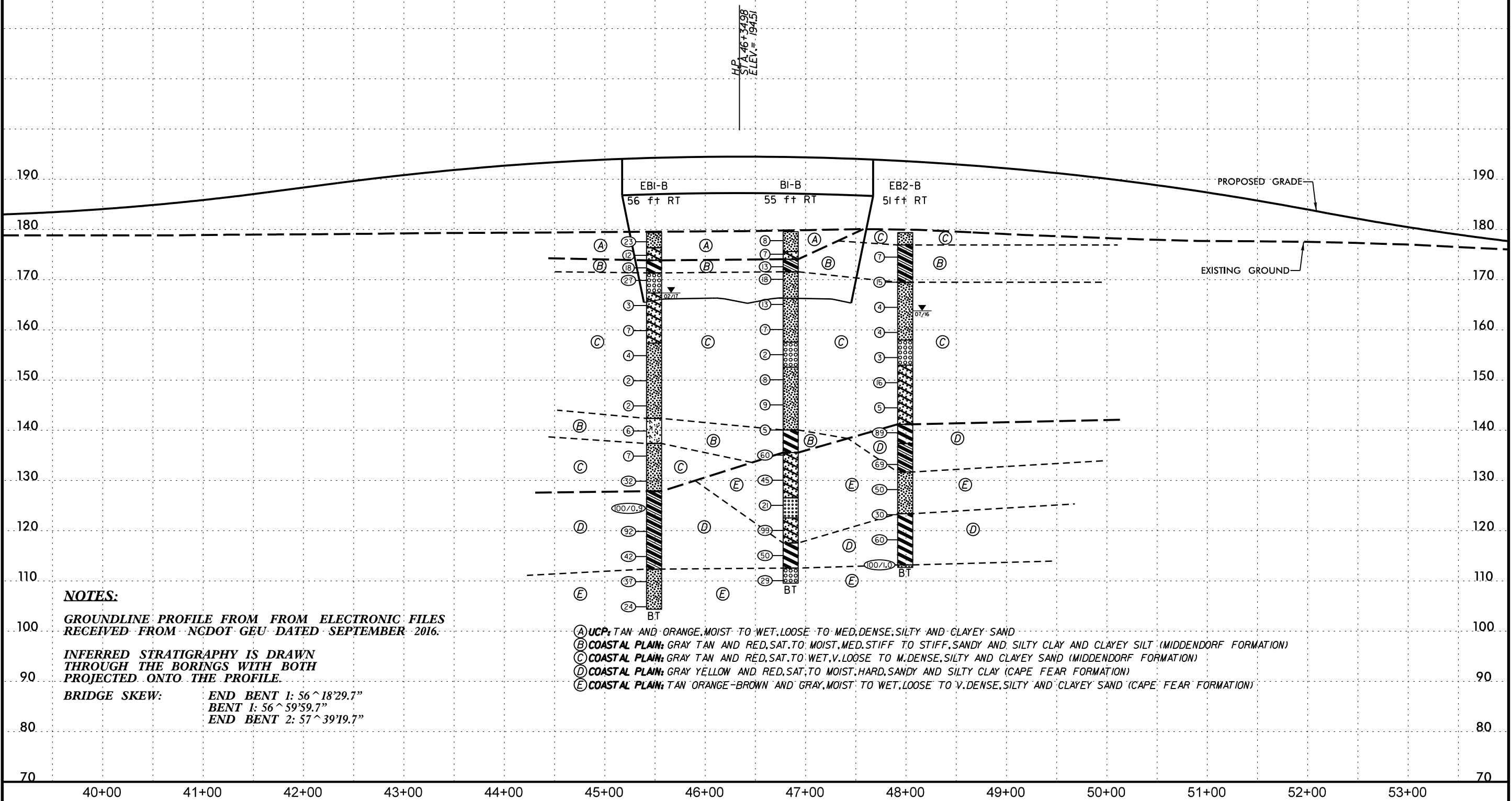
**NOTES:**  
 PLANS ADOPTED FROM ELECTRONIC FILES RECEIVED FROM NCDOT GEU, DATED OCTOBER 2016.  
 SKEW (TAN. TO CURVE)  
 END BENT 1: 56°18'29.7"  
 BENT 1: 56°59'59.7"  
 END BENT 2: 57°39'19.7"  
 \* BORINGS PERFORMED BY OTHERS DURING ROADWAY INVESTIGATION AND PROVIDED TO FALCON BY GEU.





<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
U-2519BA	4
BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)	

# -Y13-



**NOTES:**

GROUNDLINE PROFILE FROM FROM ELECTRONIC FILES RECEIVED FROM NCDOT GEU DATED SEPTEMBER 2016.

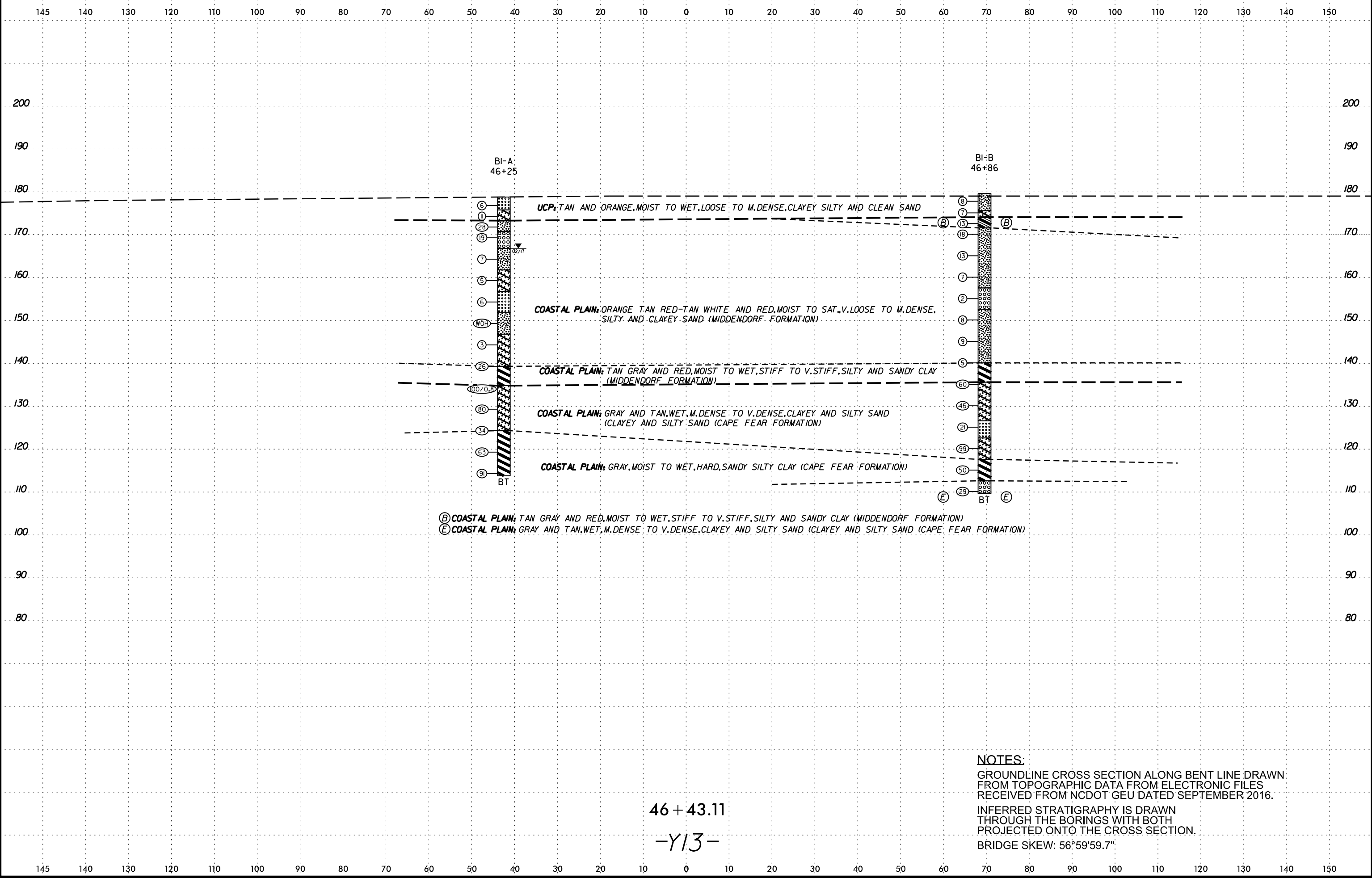
INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE PROFILE.

BRIDGE SKEW:      END BENT 1: 56°18'29.7"  
                           BENT 1: 56°59'59.7"  
                           END BENT 2: 57°39'19.7"

- (A) UCP: TAN AND ORANGE, MOIST TO WET, LOOSE TO MED. DENSE, SILTY AND CLAYEY SAND
- (B) COASTAL PLAIN: GRAY TAN AND RED, SAT. TO MOIST, MED. STIFF TO STIFF, SANDY AND SILTY CLAY AND CLAYEY SILT (MIDDENDORF FORMATION)
- (C) COASTAL PLAIN: GRAY TAN AND RED, SAT. TO WET, V. LOOSE TO M. DENSE, SILTY AND CLAYEY SAND (MIDDENDORF FORMATION)
- (D) COASTAL PLAIN: GRAY YELLOW AND RED, SAT. TO MOIST, HARD, SANDY AND SILTY CLAY (CAPE FEAR FORMATION)
- (E) COASTAL PLAIN: TAN ORANGE-BROWN AND GRAY, MOIST TO WET, LOOSE TO V. DENSE, SILTY AND CLAYEY SAND (CAPE FEAR FORMATION)



8/23/99



(B) COASTAL PLAIN: TAN GRAY AND RED, MOIST TO WET, STIFF TO V. STIFF, SILTY AND SANDY CLAY (MIDDENDORF FORMATION)  
 (E) COASTAL PLAIN: GRAY AND TAN, WET, M. DENSE TO V. DENSE, CLAYEY AND SILTY SAND (CLAYEY AND SILTY SAND (CAPE FEAR FORMATION))

46 + 43.11

-Y13-

**NOTES:**  
 GROUNDLINE CROSS SECTION ALONG BENT LINE DRAWN FROM TOPOGRAPHIC DATA FROM ELECTRONIC FILES RECEIVED FROM NCDOT GEU DATED SEPTEMBER 2016.  
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH PROJECTED ONTO THE CROSS SECTION.  
 BRIDGE SKEW: 56°59'59.7"

26-APR-2017 14:51  
 I:\Projects\2017\017005.00 NCDOT GEU U-2519BA Sites 1,3&4\U2519BA\_GEO\_BRDG\_SITE\_1\CADD\_GEO\TECH\XSEC\U2519BA\_GEO\_XSI.dgn  
 cadmschline AT GEU-4



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Smith, B.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 44+88		OFFSET 21 ft LT		ALIGNMENT -Y13-										
COLLAR ELEV. 178.7 ft		TOTAL DEPTH 79.8 ft		NORTHING 442,641		EASTING 1,992,551										
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 81% 11/09/2016				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Moseley, M.		START DATE 07/07/16		COMP. DATE 07/07/16		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						
180														178.7	0.0	COASTAL PLAIN ORANGE-BROWN, CLAYEY SAND (MIDDENDORF FORMATION)
175	175.0	3.7	4	8	8								M	172.2	6.5	GRAY, YELLOW-BROWN AND RED, SILTY CLAY
170	169.4	9.3	8	14	15								M	168.9	9.8	ORANGE-BROWN AND RED, SILTY SAND
165	164.4	14.3	1	5	5								M	166.9	11.8	YELLOW-BROWN AND RED, SILTY CLAY ORANGE-BROWN, BROWN, WHITE AND RED, SILTY SAND WITH TRACE TO LITTLE CLAY AND FINE TO COARSE SAND
160	159.4	19.3	4	10	4								Sat.	163.4	15.3	
155	154.4	24.3	1	1	3								Sat.			
150	149.4	29.3	1	1	1								Sat.			
145	144.4	34.3	3	3	3								Sat.			
140	139.4	39.3	2	3	3								Sat.	141.9	36.8	
135	134.4	44.3	3	10	17								Sat.	136.9	41.8	COASTAL PLAIN GRAY AND BLACK SILTY CLAY AND SANDY CLAY WITH LITTLE WOOD FRAGMENTS (CAPE FEAR FORMATION)
130	129.4	49.3	8	14	24								M	131.9	46.8	
125	124.4	54.3	13	14	10								W	126.9	51.8	ORANGE-BROWN AND RED-BROWN, SILTY SAND WITH LITTLE CLAY
120	119.4	59.3	32	50	50/0.4								Sat.	122.7	56.0	COASTAL PLAIN SEDIMENTARY ROCK (SANDY MUDSTONE)
115	114.3	64.4	18	33	56								Sat.	116.9	61.8	COASTAL PLAIN GRAY, TAN-BROWN, ORANGE-BROWN, RED-BROWN AND GRAY, CLAYEY SAND, SILTY SAND WITH LITTLE CLAY, AND FINE TO COARSE SAND WITH TRACE GRAVEL
110	109.4	69.3	3	1	2								Sat.	111.9	66.8	
105	104.4	74.3	8	25	23								Sat.	106.9	71.8	
100	99.4	79.3	100/0.5										Sat.	101.9	76.8	COASTAL PLAIN SEDIMENTARY ROCK (SANDY MUDSTONE)
														98.9	79.8	Boring Terminated at Elevation 98.9 ft IN COASTAL PLAIN SEDIMENTARY ROCK (SANDY MUDSTONE)
*NOTE: BORING PERFORMED BY OTHERS DURING ROADWAY INVESTIGATION AND PROVIDED TO FALCON BY NCDOT GEU.																

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Hamm, J.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 45+50		OFFSET 56 ft RT		ALIGNMENT -Y13-										
COLLAR ELEV. 178.8 ft		TOTAL DEPTH 75.0 ft		NORTHING 442,633		EASTING 1,992,650										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 83% 08/09/2016				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Wiggins, M.		START DATE 02/13/17		COMP. DATE 02/13/17		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						
180														178.8	0.0	UNDIVIDED COASTAL PLAIN TAN, SILTY F. SAND (A-2-4)
175	175.3	3.5	6	11	12								M	175.8	3.0	TAN AND ORANGE, CLAYEY SAND (A-2-6)
170	172.8	6.0	4	7	11								W	173.3	5.5	
165	170.3	8.5	19	15	12								W	170.8	8.0	COASTAL PLAIN GRAY TAN AND MAROON, F. SANDY SILTY CLAY (A-7)
160	165.3	13.5	1	2	1								W	166.8	12.0	(MIDDENDORF FORMATION)
155	163.4	15.3											Sat.			TAN AND RED, SLI. SILTY SAND (A-1a) WITH IRON CEMENTED CONCRETIONS, TAN RED AND GRAY, CLAYEY SAND (A-2-7) WITH FAT CLAY LAYERS
150	160.3	18.5	1	3	4								Sat.			
145	155.3	23.5	2	1	3								Sat.	156.8	22.0	TAN RED AND GRAY, SILTY SAND (A-2-4)
140	150.3	28.5	1	1	1								Sat.			
135	145.3	33.5	1	1	1								Sat.			
130	140.3	38.5	2	2	4								Sat.	141.8	37.0	GRAY AND TAN, SANDY CLAYEY SILT (A-5) WITH FAT CLAY LAYERS
125	135.3	43.5	2	2	5								Sat.	136.8	42.0	TAN AND RED, SILTY SAND (A-2-4) WITH IRON CONCRETIONS AND FAT CLAY LAYERS
120	130.3	48.5	4	10	22								Sat.	127.3	51.5	COASTAL PLAIN DARK GRAY, SANDY CLAY (A-6) (CAPE FEAR FORMATION)
115	125.3	53.5	25	51	49/0.4								W	122.7	56.0	
110	120.3	58.5	19	37	55								W	116.9	61.8	
105	115.3	63.5	18	22	20								W	111.9	66.8	
	110.3	68.5	8	16	21								W	106.9	71.8	GRAY, SILTY CSE. SAND (A-2-4)
	105.3	73.5	12	15	9								W	101.9	76.8	
														98.9	79.8	Boring Terminated at Elevation 103.8 ft IN COASTAL PLAIN (CAPE FEAR FORMATION)

NCDOT BORE DOUBLE U2519BA\_GEO\_BRDG0447\_SPT\_BORINGS.GPJ\_NC\_DOT.GDT 3/30/17



# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. B1-A		STATION 46+25		OFFSET 39 ft LT		ALIGNMENT -Y13-										
COLLAR ELEV. 178.7 ft		TOTAL DEPTH 65.0 ft		NORTHING 442,752		EASTING 1,992,632										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 83% 08/09/2016			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Wiggins, M.		START DATE 02/14/17		COMP. DATE 02/14/17		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						
180															178.7	0.0
175	177.7	1.0	3	4	2								M	UNDIVIDED COASTAL PLAIN TAN, F. SAND (A-3)	3.0	
	175.2	3.5	3	4	7								M	TAN, CLAYEY SAND (A-2-6)	5.5	
	172.7	6.0	7	13	15								M	COASTAL PLAIN ORANGE AND TAN, SILTY F. SAND (A-2-4)	8.0	
170	170.2	8.5	8	10	9								M	(MIDDENDORF FORMATION)	12.0	
165	165.2	13.5	3	4	3								W	RED-TAN, SLI. SILTY F. TO CSE. SAND (A-1-B)	17.0	
160	160.2	18.5	3	3	2								W	RED-TAN, SILTY CLAYEY SAND (A-2-5) RED-TAN, CLAYEY SAND (A-2-6)	22.0	
155	155.2	23.5	3	3	3								Sat.	WHITE AND TAN, SLIGHTLY SILTY SAND (A-3)	27.0	
150	150.2	28.5	WOH	1	WOH								Sat.	LIGHT TAN, SILTY SAND (A-2-4)	32.0	
145	145.2	33.5	1	2	1								Sat.	RED-TAN, CLAYEY SAND (A-2-6)	39.5	
140	140.2	38.5	4	9	17								M	TAN AND GRAY, SILTY CLAY (A-7)	44.0	
135	135.2	43.5	28	52	48/0.3								W	COASTAL PLAIN GRAY AND TAN, CLAYEY F. SAND (A-2-6) WITH LENSES OF CLEAN SAND (CAPE FEAR FORMATION)	54.5	
130	130.2	48.5	20	32	48								M	GRAY, F. SANDY SILTY CLAY (A-7)	65.0	
125	125.2	53.5	13	12	22								M			
120	120.2	58.5	14	26	37								M			
115	115.2	63.5	17	36	55								M			
																Boring Terminated at Elevation 113.7 ft IN COASTAL PLAIN (CAPE FEAR FORMATION)

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Hamm, J. / Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. B1-B		STATION 46+86		OFFSET 55 ft RT		ALIGNMENT -Y13-										
COLLAR ELEV. 179.1 ft		TOTAL DEPTH 70.0 ft		NORTHING 442,734		EASTING 1,992,742										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 83% 08/09/2016			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER Wiggins, M.		START DATE 02/13/17		COMP. DATE 02/14/17		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						
180															179.1	0.0
175	178.3	0.8	3	4	4								M	UNDIVIDED COASTAL PLAIN TAN, SILTY SAND (A-2-4) WITH TRACE ROOTS	4.0	
	175.6	3.5	3	3	4								W	TAN AND ORANGE, CSE. SAND (A-2-6)	5.5	
	173.1	6.0	7	6	7								W	COASTAL PLAIN TAN AND RED, SANDY CLAY (A-6) (MIDDENDORF FORMATION)	8.0	
170	170.6	8.5	6	9	9								W	TAN, SILTY SAND (A-2-4) WITH CLAY AND CSE. SAND	12.0	
165	165.6	13.5	5	6	7								Sat.		17.0	
160	160.6	18.5	3	4	3								Sat.		22.0	
155	155.6	23.5	1	1	1								Sat.	WHITE, CSE. SAND (A-1-a)	27.0	
150	150.6	28.5	2	3	5								Sat.	TAN AND RED, SILTY F. SAND (A-2-4)	32.0	
145	145.6	33.5	3	4	5								Sat.		39.5	
140	140.6	38.5	1	1	4								Sat.	GRAY AND RED, SILTY CLAY (A-7)	44.0	
135	135.6	43.5	18	27	33								W	COASTAL PLAIN GRAY, CLAYEY SAND (A-2-6) (CAPE FEAR FORMATION)	53.0	
130	130.6	48.5	16	19	26								W	TAN, SLI. SILTY SAND (A-3)	57.0	
125	125.6	53.5	6	9	12								W	GRAY, CLAYEY SAND (A-2-6)	62.0	
120	120.6	58.5	22	48	51								W	GRAY, F. SANDY SILTY CLAY (A-7)	67.0	
115	115.6	63.5	12	21	29								W	GRAY, SLI. CLAYEY F. TO CSE. SAND (A-1-b)	70.0	
110	110.6	68.5	9	13	16								W	Boring Terminated at Elevation 109.1 ft IN COASTAL PLAIN (CAPE FEAR FORMATION)		

NCDOT BORE DOUBLE U2519BA\_GEO\_BRDG0447\_SPT\_BORINGS.GPJ NC\_DOT.GDT 3/30/17

# GEOTECHNICAL BORING REPORT

## BORE LOG

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Goodnight, D.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 47+37		OFFSET 47 ft LT		ALIGNMENT -Y13-										
COLLAR ELEV. 178.5 ft		TOTAL DEPTH 70.0 ft		NORTHING 442,841		EASTING 1,992,702										
DRILL RIG/HAMMER EFF./DATE MID3964 CME-45C 83% 08/09/2016				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Wiggins, M.		START DATE 02/15/17		COMP. DATE 02/15/17		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						
180															178.5	0.0
175	177.5	1.0	2	1	2										174.0	4.5
	175.0	3.5	3	3	5										173.0	5.5
	172.5	6.0	4	5	9										170.5	8.0
170	170.0	8.5	9	11	10										166.5	12.0
165	165.0	13.5	4	6	6										156.5	22.0
160	160.0	18.5	2	4	5										151.5	27.0
155	155.0	23.5	2	2	2										146.5	32.0
150	150.0	28.5	2	4	6										139.5	39.0
145	145.0	33.5	3	5	6										136.5	42.0
140	140.0	38.5	5	16	26										131.5	47.0
135	135.0	43.5	19	33	38										126.5	52.0
130	130.0	48.5	15	21	31										122.5	56.0
125	125.0	53.5	8	3	5										116.5	62.0
120	120.0	58.5	32	68/0.4											111.5	67.0
115	115.0	63.5	11	65	35/0.3										108.5	70.0
110	110.0	68.5	22	24	23											

WBS 34817.1.FR7		TIP U-2519BA		COUNTY CUMBERLAND		GEOLOGIST Smith, B.										
SITE DESCRIPTION BRIDGE NO. 447 ON CAMDEN RD. (-Y13-) OVER FAYETTEVILLE OUTER LOOP (-L-)							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 48+00		OFFSET 51 ft RT		ALIGNMENT -Y13-										
COLLAR ELEV. 179.4 ft		TOTAL DEPTH 66.7 ft		NORTHING 442,821		EASTING 1,992,816										
DRILL RIG/HAMMER EFF./DATE SUM3359 CME-450 81% 11/09/2016				DRILL METHOD Mud Rotary		HAMMER TYPE Automatic										
DRILLER Moseley, M.		START DATE 06/30/16		COMP. DATE 06/30/16		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						
180															179.4	0.0
175	175.5	3.9	2	2	5										176.9	2.5
170	170.5	8.9	4	6	9										169.5	9.9
165	165.5	13.9	3	2	2										158.0	21.4
160	160.5	18.9	1	2	2										153.0	26.4
155	155.5	23.9	2	1	2										141.2	38.2
150	150.5	28.9	3	7	9										137.4	42.0
145	145.5	33.9	1	2	3										131.7	47.7
140	140.5	38.9	6	29	60										123.4	56.0
135	134.2	45.2	14	25	44										113.2	66.2
130	129.2	50.2	25	22	28										112.7	66.7
125	124.2	55.2	4	5	25											
120	119.2	60.2	13	23	37											
115	114.2	65.2	15	23	77											

NCDOT BORE DOUBLE U2519BA\_GEO\_BRDG0447\_SPT\_BORINGS.GPJ NC\_DOT\_GDT 3/30/17

\*NOTE: BORING PERFORMED BY OTHERS DURING ROADWAY INVESTIGATION AND PROVIDED TO FALCON BY NCDOT GEU.