

PROJECT: 33803

REFERENCE: B-4628

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

**STRUCTURE
SUBSURFACE INVESTIGATION**

COUNTY ROWAN
PROJECT DESCRIPTION BRIDGE NO. 6 ON SR 1753
(BELK RD.) OVER BACK CREEK

CONTENTS

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2	LEGEND (SOIL & ROCK)
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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4628	1	8

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 1991 T07-6850. 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:
1. 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.
 2. 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

J.K. STICKNEY

C.L. SMITH

M.R. MOORE

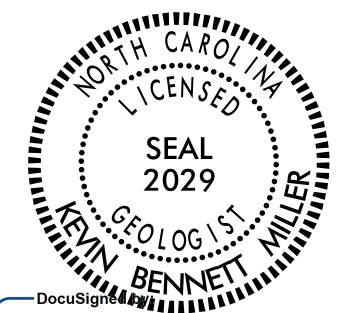
INVESTIGATED BY J.K. STICKNEY

DRAWN BY T.T. WALKER, F&R Inc.

CHECKED BY K.B. MILLER

SUBMITTED BY K.B. MILLER

DATE May 2017



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5/30/2017

SIGNATURE

DATE

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

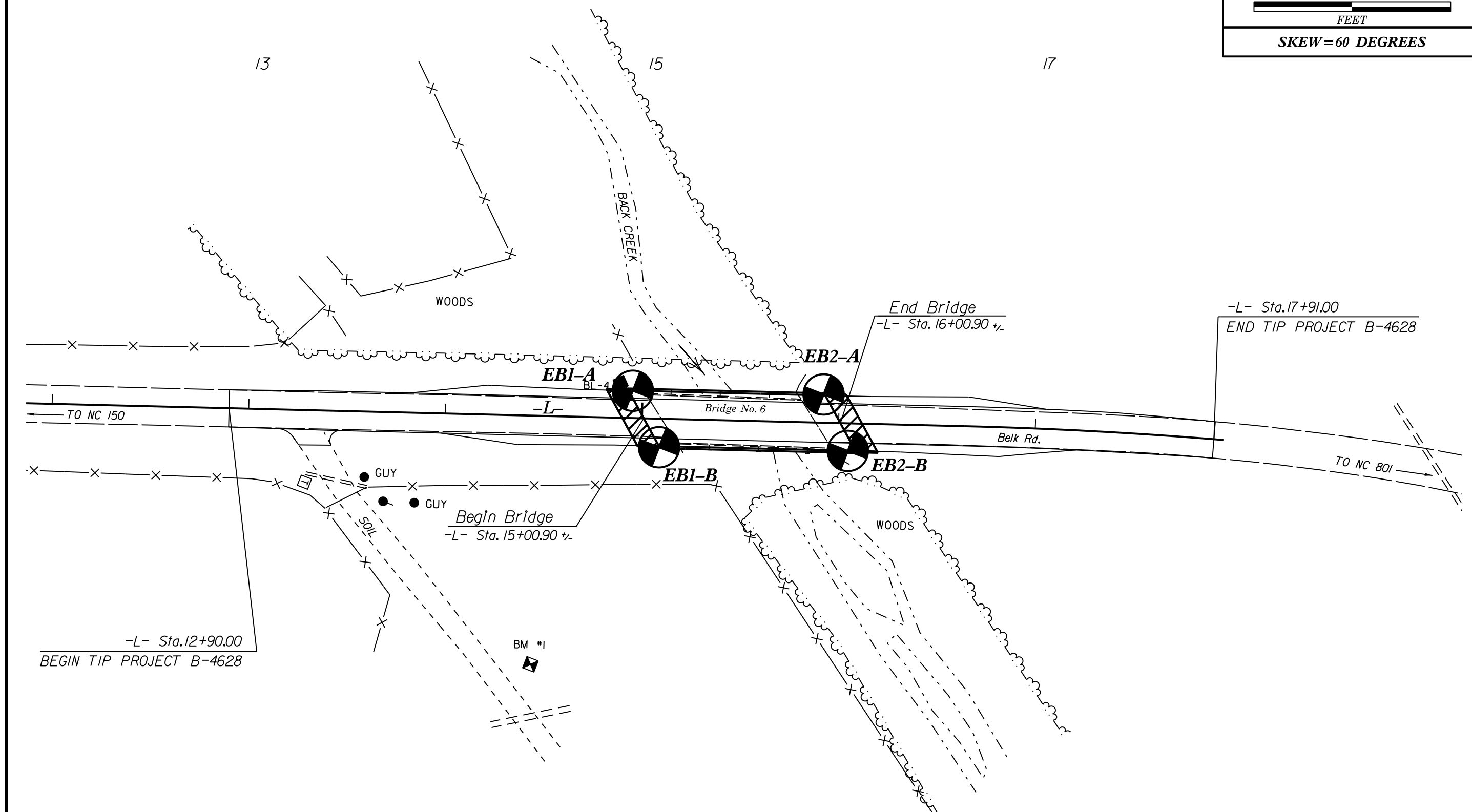
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

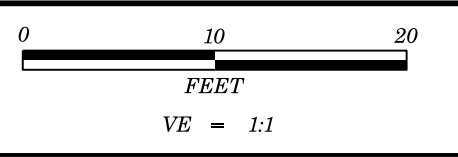
SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

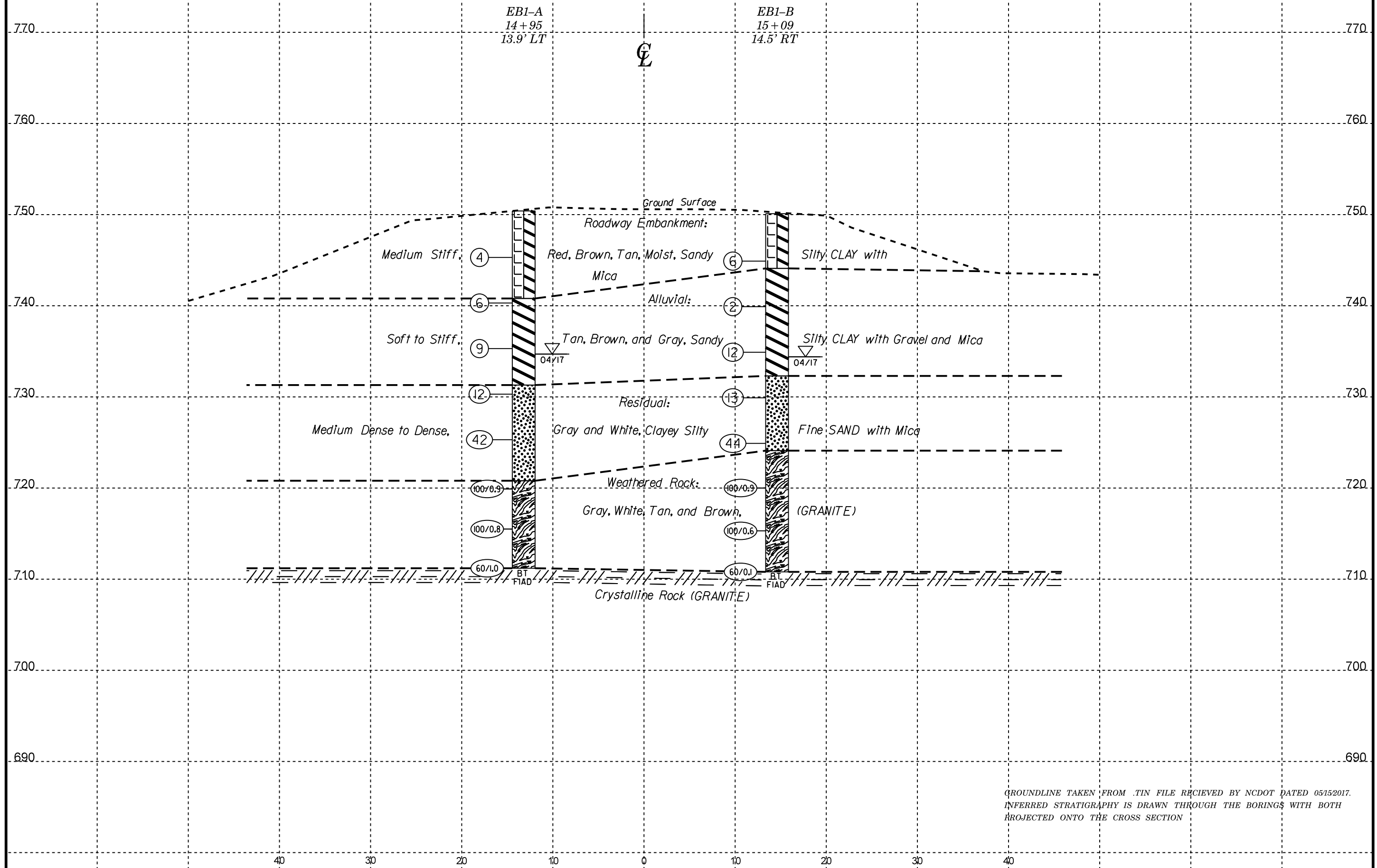
Table with 4 main columns: SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, and TERMS AND DEFINITIONS. Includes sub-sections like SOIL LEGEND AND AASHTO CLASSIFICATION, CONSISTENCY OR DENSENESS, TEXTURE OR GRAIN SIZE, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, and EQUIPMENT USED ON SUBJECT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

PROJECT REFERENCE NO.	SHEET NO.
B-4628	3
SITE PLAN	
 0 50 100 FEET	
SKEW = 60 DEGREES	

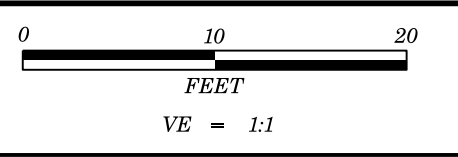




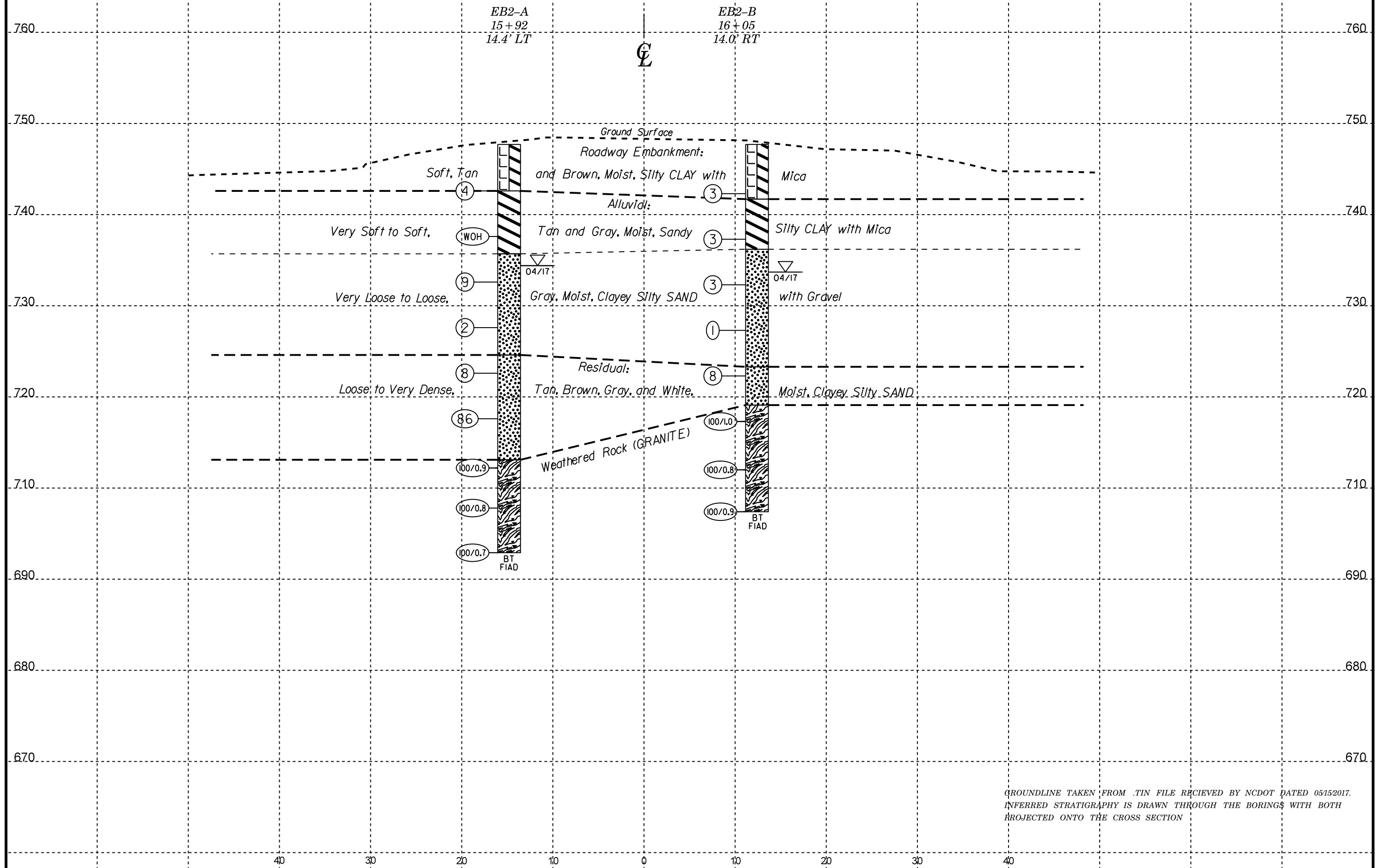
PROJECT REFERENCE NO.	SHEET NO.
B-4628	4
CROSS SECTION THROUGH END BENT 1	
AT -L- STATION 15+00.90	
SKEW=60°	



GROUNDLINE TAKEN FROM TIN FILE RECEIVED BY NCDOT DATED 05152017.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
 PROJECTED ONTO THE CROSS SECTION



PROJECT REFERENCE NO.	SHEET NO.
B-4628	5
CROSS SECTION THROUGH END BENT 2	
AT -L- STATION 16+00.60	
SKEW=60°	



GROUNDLINE TAKEN FROM .TIN FILE RECEIVED BY NCDOT DATED 05/15/2017.
 INFERRED STRATIGRAPHY IS DRAWN THROUGH THE BORINGS WITH BOTH
 PROJECTED ONTO THE CROSS SECTION

GEOTECHNICAL BORING REPORT BORE LOG

WBS 33803.1.2		TIP B-4628		COUNTY ROWAN		GEOLOGIST Stickney, J. K.									
SITE DESCRIPTION Bridge No. 6 on SR 1753 (Belk Rd.) over Back Creek							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 14+95		OFFSET 14 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 750.4 ft		TOTAL DEPTH 39.2 ft		NORTHING 691,663		EASTING 1,481,883									
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Smith, C. L.		START DATE 04/27/17		COMP. DATE 04/27/17		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
755															
750															750.4 GROUND SURFACE 0.0
745	746.3	4.1	1	2	2							M			
740	741.3	9.1	2	3	3							M			740.8 ROADWAY EMBANKMENT Red, Brown, and Tan, Sandy Silty CLAY with Mica 9.6
735	736.3	14.1	3	4	5							M			
730	731.3	19.1	3	5	7							M			731.3 ALLUVIAL Tan, Brown, and Gray, Sandy Silty CLAY with Gravel and Mica 19.1
725	726.3	24.1	15	18	24							M			
720	721.3	29.1	16	51	49/0.4							M			720.8 RESIDUAL Gray and White, Clayey Silty Fine SAND with Mica 29.6
715	716.3	34.1	44	56/0.3								M			
	711.3	39.1	60/0.1												711.2 WEATHERED ROCK Gray, White, and Tan (GRANITE) 39.2
															Boring Terminated with Standard Penetration Test Refusal at Elevation 711.2 ft on Crystalline Rock (GRANITE)

WBS 33803.1.2		TIP B-4628		COUNTY ROWAN		GEOLOGIST Stickney, J. K.									
SITE DESCRIPTION Bridge No. 6 on SR 1753 (Belk Rd.) over Back Creek							GROUND WTR (ft)								
BORING NO. EB1-B		STATION 15+09		OFFSET 15 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 750.1 ft		TOTAL DEPTH 39.3 ft		NORTHING 691,685		EASTING 1,481,905									
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Smith, C. L.		START DATE 04/27/17		COMP. DATE 04/27/17		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
755															
750															750.1 GROUND SURFACE 0.0
745	745.9	4.2	2	3	3							M			
740	740.9	9.2	1	1	1							M			744.1 ROADWAY EMBANKMENT Red, Brown, and Tan, Sandy Silty CLAY with Mica 6.0
735	735.9	14.2	1	4	8							M			
730	730.9	19.2	5	6	7							M			732.3 ALLUVIAL Tan, Brown, and Gray, Sandy Silty CLAY with Mica 17.8
725	725.9	24.2	11	22	22							M			
720	720.9	29.2	35	65/0.4								M			724.1 RESIDUAL Gray and White, Clayey Silty Fine SAND with Some Mica 26.0
715	715.9	34.2	71	29/0.1								M			
	710.9	39.2	60/0.1												710.8 WEATHERED ROCK Tan, Brown, and Gray 39.3
															Boring Terminated with Standard Penetration Test Refusal at Elevation 710.8 ft on Crystalline Rock (GRANITE)

NCDOT BORE DOUBLE B4628_GEO_BH_BRDG006.GPJ NC_DOT.GDT 5/19/17

GEOTECHNICAL BORING REPORT BORE LOG

WBS 33803.1.2		TIP B-4628		COUNTY ROWAN		GEOLOGIST Stickney, J. K.									
SITE DESCRIPTION Bridge No. 6 on SR 1753 (Belk Rd.) over Back Creek							GROUND WTR (ft)								
BORING NO. EB2-A		STATION 15+92		OFFSET 14 ft LT		ALIGNMENT -L-									
COLLAR ELEV. 747.7 ft		TOTAL DEPTH 44.8 ft		NORTHING 691,754		EASTING 1,481,850									
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Smith, C. L.		START DATE 04/25/17		COMP. DATE 04/25/17		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
750														747.7	0.0
745	743.6	4.1	1	3	1								M	ROADWAY EMBANKMENT Tan and Brown, Silty CLAY with Mica	5.1
740	738.6	9.1	WOH	WOH	WOH								M	ALLUVIAL Gray, Sandy Silty CLAY with Mica	12.9
735	733.6	14.1	3	5	4								M	Gray, Clayey Silty SAND with Gravel	23.1
730	728.6	19.1	1	1	1								M		
725	723.6	24.1	3	4	4								M	RESIDUAL Tan, Gray, and White, Clayey Silty SAND	34.6
720	718.6	29.1	16	29	57								M		
715	713.6	34.1	16	43	57/0.4								M	WEATHERED ROCK Black and White (GRANITE)	44.8
710	708.6	39.1	63	37/0.3											
705	703.6	44.1	50	50/0.2											
															Boring Terminated at Elevation 702.9 ft in Weathered Rock (GRANITE)

WBS 33803.1.2		TIP B-4628		COUNTY ROWAN		GEOLOGIST Stickney, J. K.									
SITE DESCRIPTION Bridge No. 6 on SR 1753 (Belk Rd.) over Back Creek							GROUND WTR (ft)								
BORING NO. EB2-B		STATION 16+05		OFFSET 14 ft RT		ALIGNMENT -L-									
COLLAR ELEV. 747.7 ft		TOTAL DEPTH 40.3 ft		NORTHING 691,775		EASTING 1,481,872									
DRILL RIG/HAMMER EFF./DATE HFC0072 CME-550X 85% 05/20/2016				DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic									
DRILLER Smith, C. L.		START DATE 04/26/17		COMP. DATE 04/26/17		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
750														747.7	0.0
745	743.3	4.4	WOH	1	2								M	ROADWAY EMBANKMENT Tan and Brown, Sandy Silty CLAY with Mica	6.0
740	738.3	9.4	1	1	2								M	ALLUVIAL Tan and Gray, Sandy Silty CLAY with Mica	11.5
735	733.3	14.4	2	2	1								M	Gray, Clayey Silty SAND with Gravel	24.4
730	728.3	19.4	WOH	WOH	1								M		
725	723.3	24.4	4	3	5								M	RESIDUAL Tan, Brown, Gray, and White, Clayey Silty SAND with Mica	28.6
720	718.3	29.4	30	35	65/0.5								M	WEATHERED ROCK Gray and White (GRANITE)	40.3
715	713.3	34.4	28	47	53/0.3										
710	708.3	39.4	33	67/0.4											
															Boring Terminated at Elevation 707.4 ft in Weathered Rock (GRANITE)

NCDOT BORE DOUBLE B4628_BH_BRDG006.GPJ NC_DOT.GDT 5/19/17

SITE PHOTOGRAPHS



Photograph No. 1: At End Bent 1 looking towards End Bent 2



Photograph No. 2: Looking Downstream