

PROJECT: 67009 REFERENCE: BR-0009

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

STRUCTURE SUBSURFACE INVESTIGATION

COUNTY BUNCOMBE
 PROJECT DESCRIPTION REPLACE BRIDGE #0079
ON NC 9 OVER BROAD RIVER

SITE DESCRIPTION _____

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BR-0009	1	7

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF PREPARING THE SCOPE OF WORK TO BE INCLUDED IN THE REQUEST FOR PROPOSAL. 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.

SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA AND BOREHOLE. INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN BORINGS. 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

CD JOHNSON
DO CHEEK
CJ COFFEY

INVESTIGATED BY DM MULLEN
 DRAWN BY DMM
 CHECKED BY JC KUHNE
 SUBMITTED BY JCK
 DATE 4/22/2019



DocuSigned by:
D Matt Mullen 4/23/2019
 18909BD330BAMQURE DATE

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

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

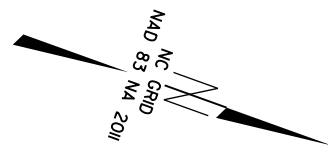
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION, GRADATION, ROCK DESCRIPTION, TERMS AND DEFINITIONS, SOIL LEGEND AND AASHTO CLASSIFICATION, MINERALOGICAL COMPOSITION, COMPRESSIBILITY, PERCENTAGE OF MATERIAL, GROUND WATER, MISCELLANEOUS SYMBOLS, RECOMMENDATION SYMBOLS, ABBREVIATIONS, SOIL MOISTURE - CORRELATION OF TERMS, PLASTICITY, COLOR, FRACTURE SPACING, BEDDING, INDURATION, EQUIPMENT USED ON SUBJECT PROJECT, NOTES

PROJECT REFERENCE NO.	SHEET NO.
BR-0009	3
SITE PLAN	
 0 20 40 FEET	

BUNCOMBE BRIDGE
#0079

14

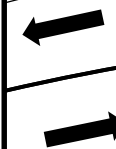


12

13

SOIL

BROAD RIVER



TO BAT CAVE

EB1-A
12+70
17' LT
2185.5'

EB2-A
13+42
28' LT
2180.2'

EB1-B ALT
12+48
13.5' RT
2186.3

EB2-B
13+23
13' RT
2185.8

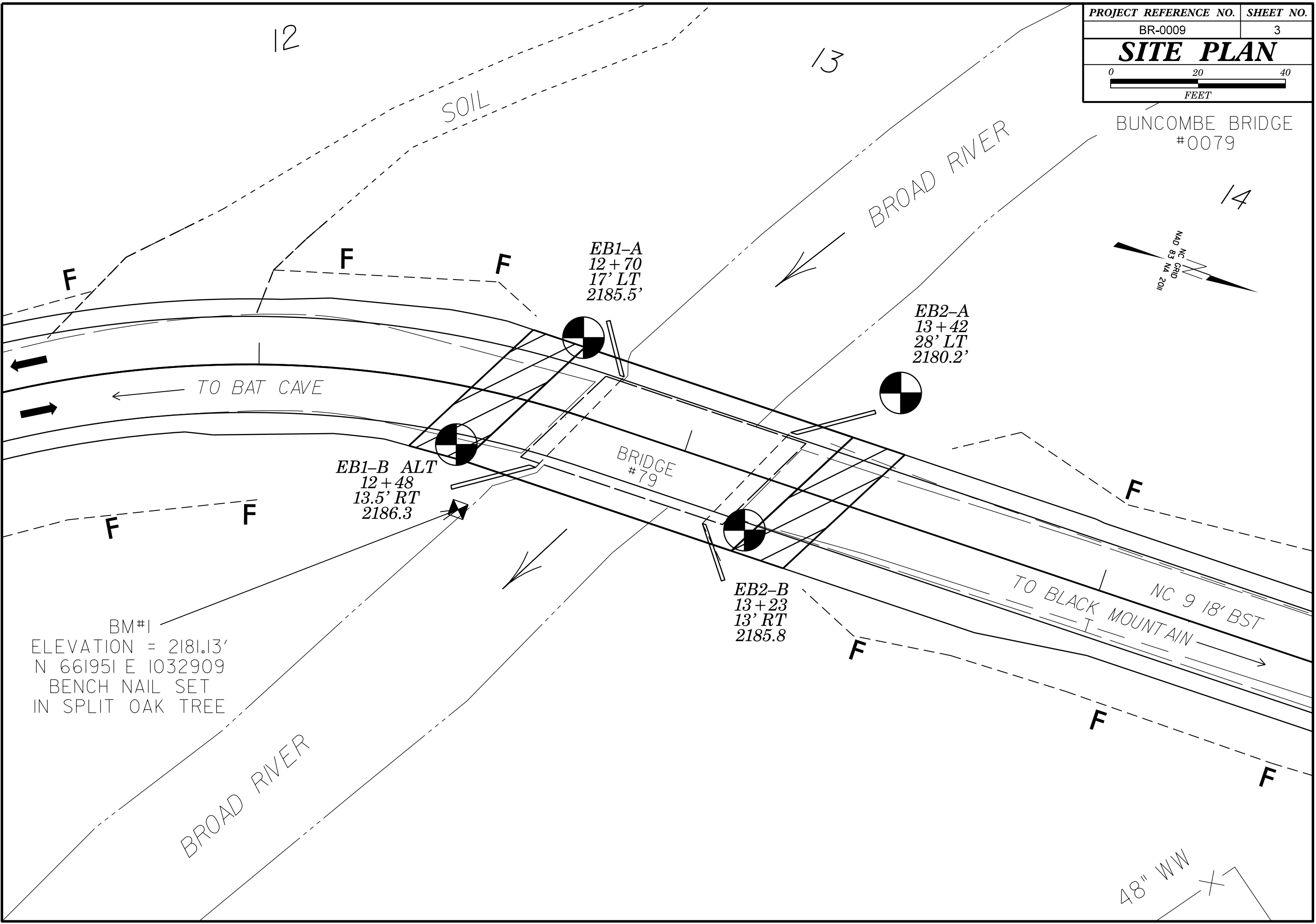
BRIDGE
#79

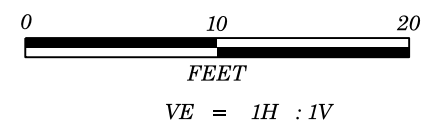
TO BLACK MOUNTAIN
NC 9 18' BST

BM#1
ELEVATION = 2181.13'
N 661951 E 1032909
BENCH NAIL SET
IN SPLIT OAK TREE

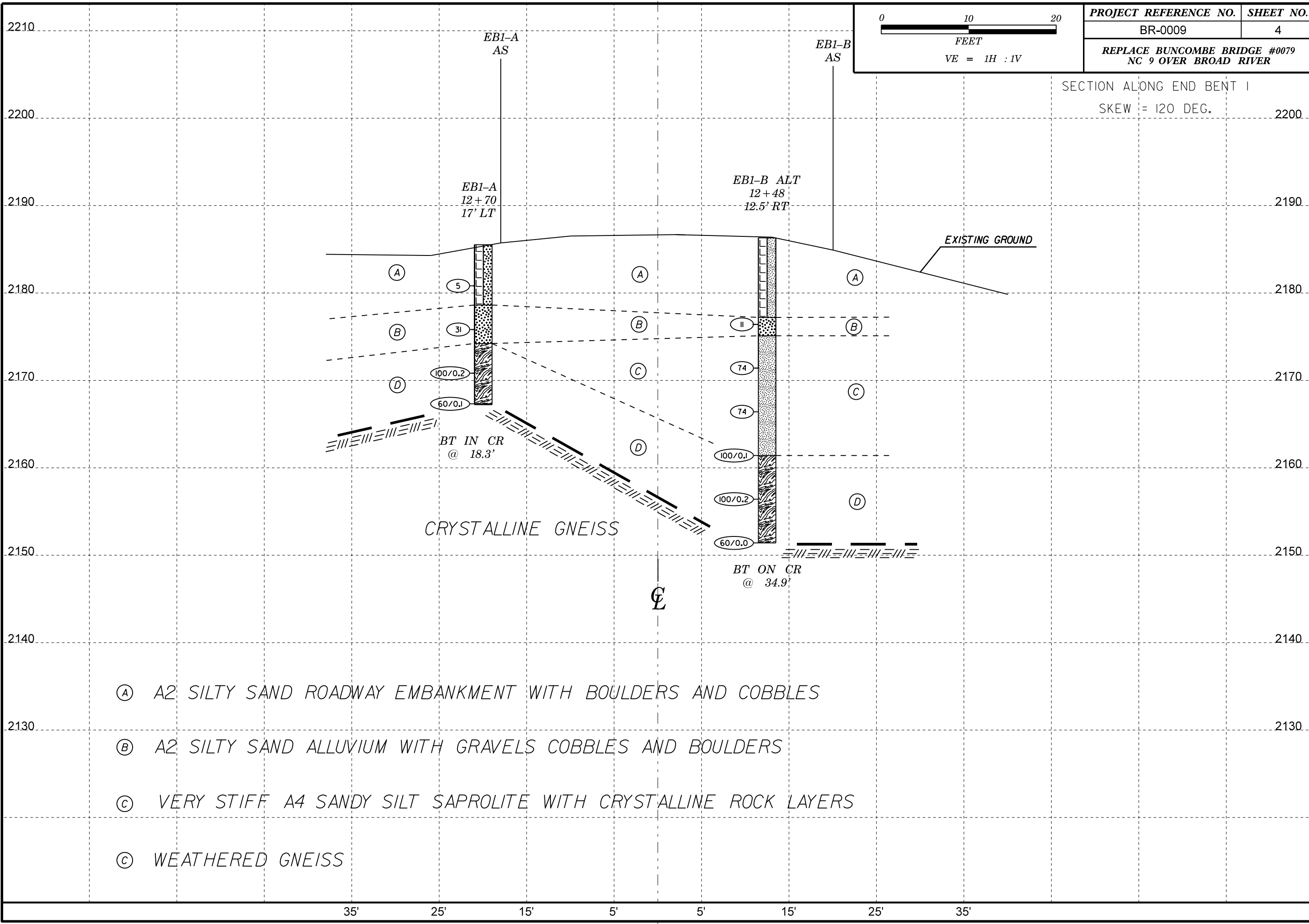
BROAD RIVER

48" WW



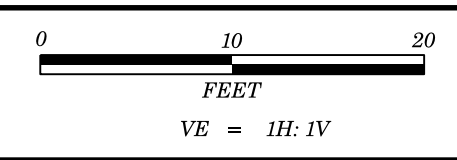


SECTION ALONG END BENT I
SKEW = 120 DEG.



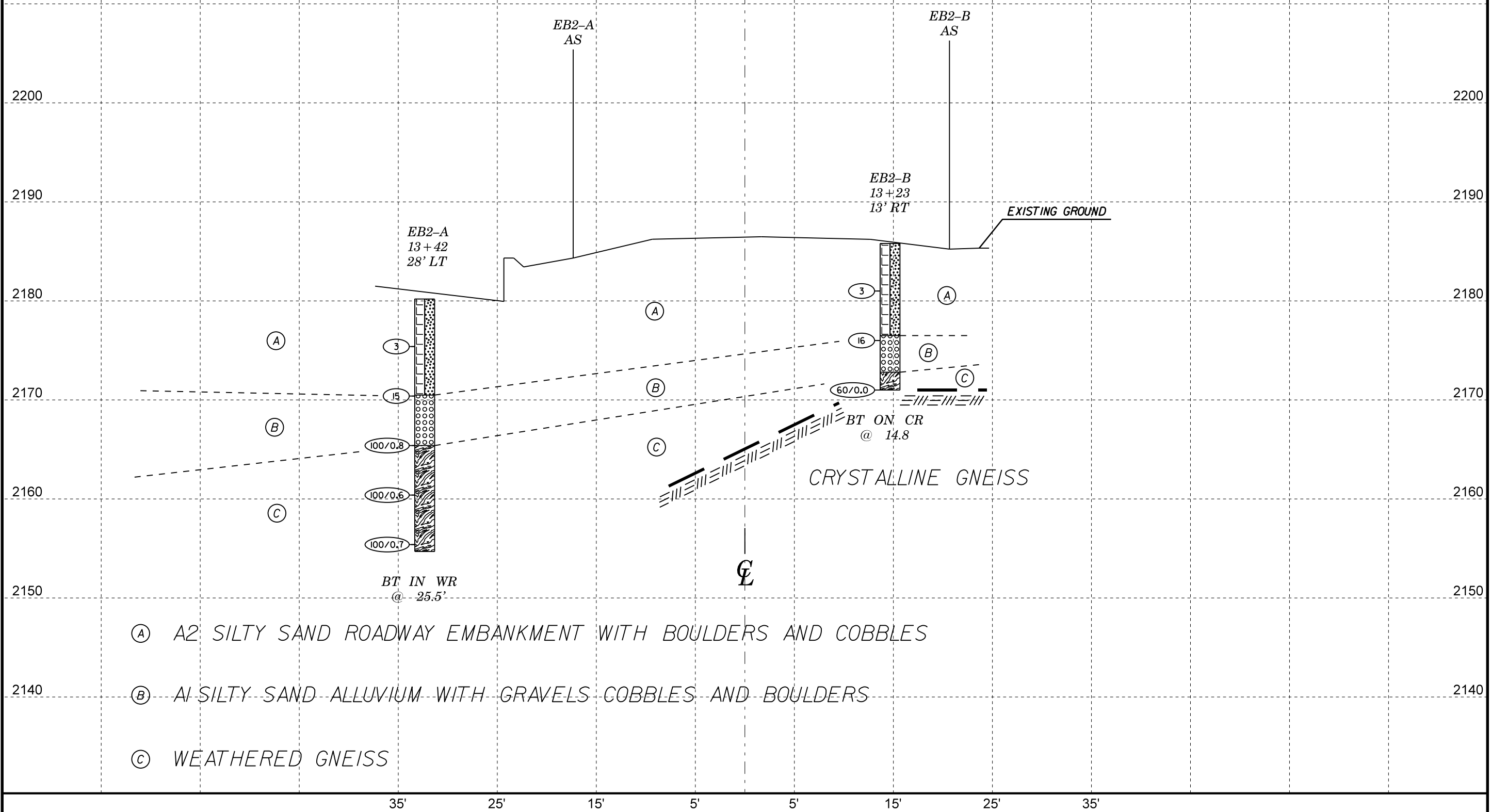
- Ⓐ A2 SILTY SAND ROADWAY EMBANKMENT WITH BOULDERS AND COBBLES
- Ⓑ A2 SILTY SAND ALLUVIUM WITH GRAVELS COBBLES AND BOULDERS
- Ⓒ VERY STIFF A4 SANDY SILT SAPROLITE WITH CRYSTALLINE ROCK LAYERS
- Ⓒ WEATHERED GNEISS

35' 25' 15' 5' 5' 15' 25' 35'



PROJECT REFERENCE NO.	SHEET NO.
BR-0009	5
REPLACE BUNCOMBE BRIDGE #0079 NC 9 OVER BROAD RIVER	

SECTION ALONG END BENT 2
SKEW = 120 DEG.



- Ⓐ A2 SILTY SAND ROADWAY EMBANKMENT WITH BOULDERS AND COBBLES
- Ⓑ A1 SILTY SAND ALLUVIUM WITH GRAVELS COBBLES AND BOULDERS
- Ⓒ WEATHERED GNEISS

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 67009.1.1		TIP BR-0009		COUNTY BUNCOMBE		GEOLOGIST Johnson, C. D.									
SITE DESCRIPTION N/A							GROUND WTR (ft)								
BORING NO. EB1-A		STATION 12+70		OFFSET 17 ft LT		ALIGNMENT L									
COLLAR ELEV. 2,185.5 ft		TOTAL DEPTH 18.3 ft		NORTHING 661,965		EASTING 1,032,862									
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 92% 07/31/2017		DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic											
DRILLER Cheek, D. O.		START DATE 02/14/19		COMP. DATE 02/14/19		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					
2190															
2185														2,185.5	0.0
2180	2,180.8	4.7	1	2	3									2,178.6	6.9
2175	2,175.8	9.7	10	11	20									2,174.2	11.3
2170	2,170.8	14.7	100/0.2											2,167.3	18.2
														2,167.2	18.3
	2,167.3	18.2	60/0.1												

WBS 67009.1.1		TIP BR-0009		COUNTY BUNCOMBE		GEOLOGIST Johnson, C. D.									
SITE DESCRIPTION N/A							GROUND WTR (ft)								
BORING NO. EB1-B ALT		STATION 12+48		OFFSET 13 ft RT		ALIGNMENT L									
COLLAR ELEV. 2,186.3 ft		TOTAL DEPTH 34.9 ft		NORTHING 661,946		EASTING 1,032,895									
DRILL RIG/HAMMER EFF./DATE AFO6744 CME - 45C 92% 07/31/2017		DRILL METHOD NW Casing w/ SPT		HAMMER TYPE Automatic											
DRILLER Cheek, D. O.		START DATE 04/16/19		COMP. DATE 04/16/19		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					
2190															
2185														2,186.3	0.0
2180														2,177.2	9.1
														2,175.1	11.2
2175	2,176.4	9.9	5	5	6										
2170	2,171.4	14.9	19	32	42										
2165	2,166.4	19.9	38	43	31										
2160	2,161.4	24.9	100/0.1											2,161.4	24.9
2155	2,156.4	29.9	100/0.2												
	2,151.4	34.9	60/0.0											2,151.4	34.9

