

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS NO. 17BP.13.R.94	1	10

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

STRUCTURE SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. WBS NO. 17BP.13.R.94 F.A. PROJ. _____

COUNTY YANCEY

PROJECT DESCRIPTION DIVISION 13

LOW IMPACT BRIDGE REPLACEMENT

SITE DESCRIPTION BRIDGE NO. 293 ON SR 1411
(LITTLE CREEK ROAD) OVER BALD MOUNTAIN CREEK

CONTENTS

<u>SHEET</u>	<u>DESCRIPTION</u>
1	TITLE SHEET
2, 2A	LEGEND
3	BORING LOCATION MAP
4-9	BORE LOGS WITH CORE PHOTOGRAPH

PERSONNEL

R. DeLOST

F. WOODARD

M. MORGAN

INVESTIGATED BY FLORENCE & HUTCHESON

CHECKED BY S. PROVANCE

SUBMITTED BY FLORENCE & HUTCHESON

DATE 9/28/2012

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) 250-4088. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

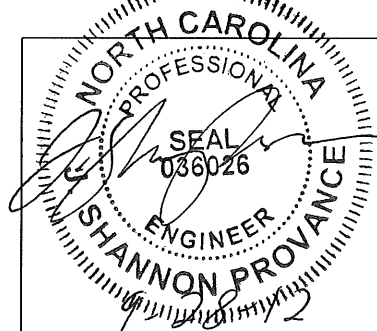
SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA, AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS 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 DEPARTMENT DOES NOT WARRANT OR GUARANTEE THE SUFFICIENCY OR ACCURACY OF THE INVESTIGATION 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.

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IT IS CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

NOTE - 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.

DRAWN BY: T. RIDEOUT

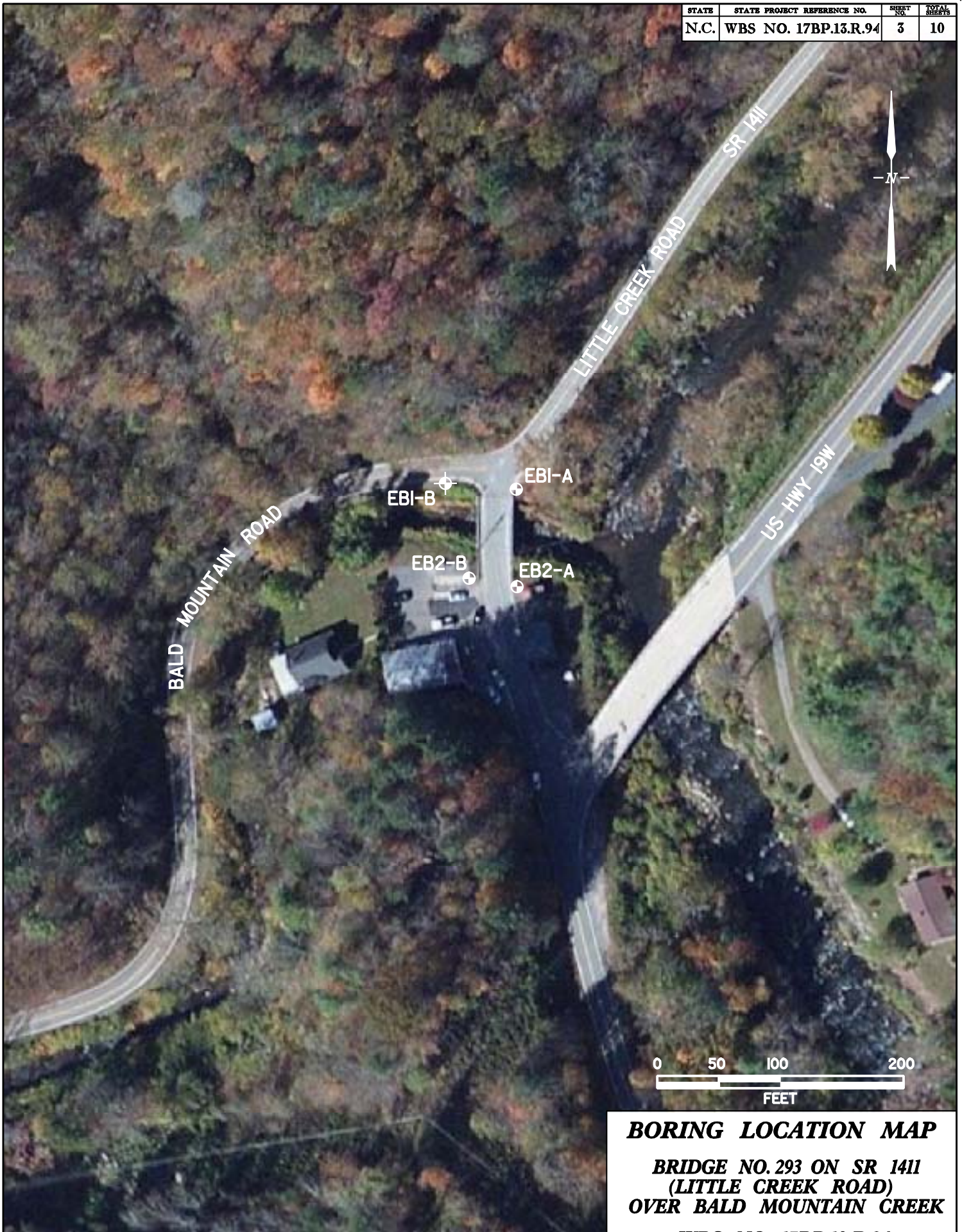


NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT
SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION SOIL IS CONSIDERED TO BE THE 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 STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE: <i>VERY STIFF, GRAY, SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>										GRADATION WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORM - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES. ANGULARITY OF GRAINS THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS <u>ANGULAR</u> , <u>SUBANGULAR</u> , <u>SUBROUNDED</u> , OR <u>ROUNDED</u> . MINERALOGICAL COMPOSITION MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE. COMPRESSIBILITY SLIGHTLY COMPRESSIBLE MODERATELY COMPRESSIBLE HIGHLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31 LIQUID LIMIT EQUAL TO 31-50 LIQUID LIMIT GREATER THAN 50																																																																																																																																																																																																																											
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		PROJECT REFERENCE NO. WBS NO. 17BP.13.R.94	SHEET NO. 2A

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS NO. 17BP.13.R.94	3	10



BORING LOCATION MAP
BRIDGE NO. 293 ON SR 1411
(LITTLE CREEK ROAD)
OVER BALD MOUNTAIN CREEK

WBS NO. 17BP.13.R.94
 YANCEY COUNTY, NORTH CAROLINA

DRAWN BY: _____ T. RIDEOUT



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

SHEET 4

WBS 17BP.13.R.94		TIP 17BP.13.R.94		COUNTY YANCEY		GEOLOGIST DeLost, R.						
SITE DESCRIPTION Bridge No. 293 on SR 1411 (Little Creek Road) over Bald Mountain Creek							GROUND WTR (ft)					
BORING NO. EB1-A		STATION N/A		OFFSET N/A		ALIGNMENT -L-	0 HR. N/A					
COLLAR ELEV. 100.2 ft		TOTAL DEPTH 15.3 ft		NORTHING 834,023		EASTING 996,262	24 HR. N/A					
DRILL RIG/HAMMER EFF./DATE F&H0404 CME-45C 79.0% 08/8/2012				DRILL METHOD H.S. Augers		HAMMER TYPE Automatic						
DRILLER Woodard, F.		START DATE 09/20/12		COMP. DATE 09/20/12		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)
105												
100												100.2 GROUND SURFACE 0.0
95	95.0	5.2	11	7	9						Sat.	RESIDUAL Black, brown & white, loose to med. dense, f. grain, micaceous, quartz saprolitic sand w/rock frags. (A-2-5).
90	90.0	10.2	4	4	4						Sat.	
85	85.0	15.2	60/0.1									84.9 15.3
Boring Terminated with Standard Penetration Test Refusal at Elevation 84.9 ft on Crystalline Rock (Biotite Gneiss).												



NCDOT GEOTECHNICAL ENGINEERING UNIT BORELOG REPORT

SHEET 5

WBS 17BP.13.R.94		TIP 17BP.13.R.94		COUNTY YANCEY		GEOLOGIST DeLost, R.					
SITE DESCRIPTION Bridge No. 293 on SR 1411 (Little Creek Road) over Bald Mountain Creek							GROUND WTR (ft)				
BORING NO. EB1-B		STATION N/A		OFFSET N/A		ALIGNMENT -L-	0 HR. N/A				
COLLAR ELEV. 100.3 ft		TOTAL DEPTH 9.8 ft		NORTHING 834,032		EASTING 996,207	24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE F&H0404 CME-45C 79.0% 08/8/2012				DRILL METHOD NW Casing w/ Advancer		HAMMER TYPE Automatic					
DRILLER Woodard, F.		START DATE 09/21/12		COMP. DATE 09/21/12		SURFACE WATER DEPTH N/A					
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	ELEV. (ft) DEPTH (ft)
105											
100											100.3 GROUND SURFACE 0.0
95	95.5	4.8									95.5 COLLUVIAL Interpreted as brown, med. stiff, plastic, f. grain, quartz sandy, micaceous silt w/rock frags. (A-5). 4.8
		60/0.0									90.5 CRYSTALLINE ROCK Crystalline rock (Biotite Quartz Gneiss) 9.8
											Boring Terminated at Elevation 90.5 ft in Crystalline Rock (Biotite Quartz Gneiss).



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

SHEET 6

WBS 17BP.13.R.94				TIP 17BP.13.R.94				COUNTY YANCEY				GEOLOGIST DeLost, R.			
SITE DESCRIPTION Bridge No. 293 on SR 1411 (Little Creek Road) over Bald Mountain Creek												GROUND WTR (ft)			
BORING NO. EB1-B				STATION N/A				OFFSET N/A				ALIGNMENT -L-			
COLLAR ELEV. 100.3 ft				TOTAL DEPTH 9.8 ft				NORTHING 834,032				EASTING 996,207			
DRILL RIG/HAMMER EFF./DATE F&H0404 CME-45C 79.0% 08/8/2012				DRILL METHOD NW Casing w/ Advancer				HAMMER TYPE Automatic							
DRILLER Woodward, F.				START DATE 09/21/12				COMP. DATE 09/21/12				SURFACE WATER DEPTH N/A			
CORE SIZE NQ-2				TOTAL RUN 5.0 ft											
ELEV (ft)	RUN ELEV (ft)	DEPTH (ft)	RUN (ft)	DRILL RATE (Min/ft)	REC. (ft) %	RQD (ft) %	SAMP. NO.	REC. (ft) %	RQD (ft) %	STRATA	L O G	DESCRIPTION AND REMARKS		DEPTH (ft)	
95.5												Begin Coring @ 4.8 ft			
95.5	95.5	4.8	5.0	N=60/0.0 5:43 6:01 7:40 10:21 8:20	(4.8) 96%	(4.4) 88%		(4.8) 96%	(4.4) 88%			CRYSTALLINE ROCK Black, gray & white, fresh to mod. weathered Biotite Quartz Gneiss w/infilled veins and large frac. spacing @ 30°.		4.8	
90.5	90.5	9.8										Boring Terminated at Elevation 90.5 ft in Crystalline Rock (Biotite Quartz Gneiss).		9.8	

CORE PHOTOGRAPHIC RECORD
Bridge No. 293 on SR 1411 (Little Creek Road)
Over Bald Mountain Creek

SHEET 7





NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

SHEET 8

WBS 17BP.13.R.94		TIP 17BP.13.R.94		COUNTY YANCEY		GEOLOGIST DeLost, R.					
SITE DESCRIPTION Bridge No. 293 on SR 1411 (Little Creek Road) over Bald Mountain Creek							GROUND WTR (ft)				
BORING NO. EB2-A		STATION N/A		OFFSET N/A		ALIGNMENT -L-	0 HR. N/A				
COLLAR ELEV. 99.4 ft		TOTAL DEPTH 14.6 ft		NORTHING 833,947		EASTING 996,259	24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE F&H0404 CME-45C 79.0% 08/8/2012				DRILL METHOD NW Casing w/ Advancer		HAMMER TYPE Automatic					
DRILLER Woodward, F.		START DATE 09/21/12		COMP. DATE 09/21/12		SURFACE WATER DEPTH N/A					
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	ELEV. (ft) DEPTH (ft)
100											99.4 GROUND SURFACE 0.0
95	94.5	4.9	1	WOH	1						Sat. COLLUVIAL Brown & black, v. soft, plastic, f. grain, quartz, sandy, micaceous silt w/rock frags. (A-5).
90	89.5	9.9	4	4	13						Sat. 91.2 Brown & black, med. dense, f. to cse. grain, micaceous, muddy quartz sand w/rock frags. (A-2-6). 8.2
85	84.9	14.5	60/0.1								Sat. 84.8 Boring Terminated with Standard Penetration Test Refusal at Elevation 84.8 ft on Crystalline Rock (Biotite Gneiss). 14.6



NCDOT GEOTECHNICAL ENGINEERING UNIT

BORELOG REPORT

SHEET 9

WBS 17BP.13.R.94		TIP 17BP.13.R.94		COUNTY YANCEY		GEOLOGIST DeLost, R.						
SITE DESCRIPTION Bridge No. 293 on SR 1411 (Little Creek Road) over Bald Mountain Creek							GROUND WTR (ft)					
BORING NO. EB2-B		STATION N/A		OFFSET N/A		ALIGNMENT -L-	0 HR. N/A					
COLLAR ELEV. 99.7 ft		TOTAL DEPTH 15.0 ft		NORTHING 833,956		EASTING 996,220	24 HR. N/A					
DRILL RIG/HAMMER EFF./DATE F&H0404 CME-45C 79.0% 08/8/2012				DRILL METHOD NW Casing w/ Advancer		HAMMER TYPE Automatic						
DRILLER Woodard, F.		START DATE 09/21/12		COMP. DATE 09/21/12		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)
100												99.7 GROUND SURFACE 0.0
95	94.8	4.9	11	3	3						Sat.	COLLUVIAL Brown, tan & black, med. stiff, f. grain, quartz sandy, micaceous silt w/rock frags. & petroliferous odor(A-5).
90	89.8	9.9	1	1	4						Sat.	
85	84.8	14.9										
			60/0.1						60/0.1			84.7 15.0
												Boring Terminated with Standard Penetration Test Refusal at Elevation 84.7 ft on Crystalline Rock (Biotite Gneiss).