

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS NO. 17BP.14.R.81	1	10

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

STRUCTURE
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. WBS NO. 17BP.14.R.81 F.A. PROJ. _____

COUNTY HAYWOOD

PROJECT DESCRIPTION DIVISION 14

LOW IMPACT BRIDGE REPLACEMENT

SITE DESCRIPTION BRIDGE NO. 310 ON SR 1348 (LAUREL BRANCH ROAD) ACROSS LAUREL BRANCH

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PERSONNEL

M. GRAGG

B. SMITH

C. BANNING

INVESTIGATED BY F&H

CHECKED BY S. PROVANCE

SUBMITTED BY F&H

DATE 10/31/2011

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.

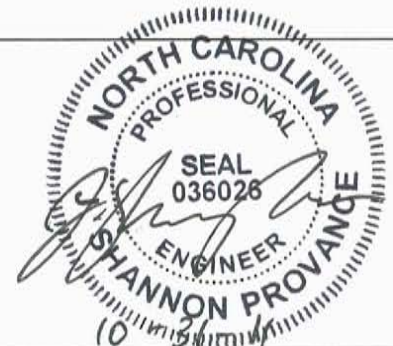
SOIL AND ROCK BOUNDARIES WITHIN A BOREHOLE ARE BASED ON GEOTECHNICAL INTERPRETATION UNLESS ENCOUNTERED IN A SAMPLE. INTERPRETED BOUNDARIES MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS BETWEEN SAMPLED STRATA, AND BOREHOLE INFORMATION MAY NOT NECESSARILY REFLECT ACTUAL SUBSURFACE CONDITIONS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



SOIL DESCRIPTION

VERY STIFF, GRAY-SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

GRADATION

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.

SLIGHTLY COMPRESSIBLE
MODERATELY COMPRESSIBLE
HIGHLY COMPRESSIBLE

LIQUID LIMIT LESS THAN 31
LIQUID LIMIT EQUAL TO 31-50
LIQUID LIMIT GREATER THAN 50

ORGANIC MATERIAL	GRANULAR	SILT - CLAY	OTHER MATERIAL	
	SOILS	SOILS		
TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	1 - 10%
LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	10 - 20%
MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	20 - 35%
HIGHLY ORGANIC	>10%	>20%	HIGHLY	35% AND ABOVE

GROUND WATER	
	WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING
	STATIC WATER LEVEL AFTER 24 HOURS
	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA
	SPRING OR SEEP

MISCELLANEOUS SYMBOLS

	ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION		TEST BORING		TEST BORING W/ CORE
	SOIL SYMBOL		AUGER BORING		SPT N-VALUE
	ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT		CORE BORING		SPT REFUSAL
	INFERRED SOIL BOUNDARY		MONITORING WELL		
	INFERRED ROCK LINE		PIEZOMETER INSTALLATION		
	ALLUVIAL SOIL BOUNDARY		SLOPE INDICATOR INSTALLATION		
	DIP & DIP DIRECTION OF ROCK STRUCTURES		CONE PENETROMETER TEST		
			SOUNDING ROD		

ABBREVIATIONS

AR - ADHER REFUSAL	MED. - MEDIUM	VST - VANE SHEAR TEST
BT - BORING TERMINATED	MICA. - MICACEOUS	WEA. - WEATHERED
CL - CLAY	MOD. - MODERATELY	γ - UNIT WEIGHT
CPT - CONE PENETRATION TEST	NP - NON PLASTIC	γ_d - DRY UNIT WEIGHT
CSE. - COARSE	ORG. - ORGANIC	
DMT - DILATOMETER TEST	PMT - PRESSUREMETER TEST	<u>SAMPLE ABBREVIATIONS</u>
DPT - DYNAMIC PENETRATION TEST	SAP. - SAPROLITIC	S - BULK
e - VOID RATIO	SD. - SAND, SANDY	SS - SPLIT SPOON
F - FINE	SL. - SILT, SILTY	ST - SHELBY TUBE
FOSS. - FOSSILIFEROUS	SLI. - SLIGHTLY	RS - ROCK
FRAC. - FRACTURED, FRACTURES	TCR - TRICONE REFUSAL	RT - RECOMPACTED TRIAXIAL
FRAGS. - FRAGMENTS	w - MOISTURE CONTENT	CBR - CALIFORNIA BEARING
HI. - HIGHLY	v - VELOCITY	RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS: ☐ MOBILE B- _____ ☐ BK-51 ☒ CME-45C ☐ CME-550 ☐ PORTABLE HDIST ☐ _____ ☐ _____	ADVANCING TOOLS: ☐ CLAY BITS ☐ 6" CONTINUOUS FLIGHT AUGER ☐ 8" HOLLOW AUGERS ☐ HARD FACED FINGER BITS ☐ TUNG.-CARBIDE INSERTS ☒ CASING ☒ W/ ADVANCER ☐ TRICONE _____ ' STEEL TEETH ☐ TRICONE _____ ' TUNG.-CARB. ☒ CORE BIT ☐ _____	HAMMER TYPE: ☒ AUTOMATIC ☐ MANUAL CORE SIZE: ☐ -B _____ ☒ -N <u>02</u> ☐ -H _____ HAND TOOLS: ☐ POST HOLE DIGGER ☐ HAND AUGER ☐ SOUNDING ROD ☐ VANE SHEAR TEST ☐ _____
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NONPLASTIC
LOW PLASTICITY
MED. PLASTICITY
HIGH PLASTICITY

PLASTICITY INDEX (PI)

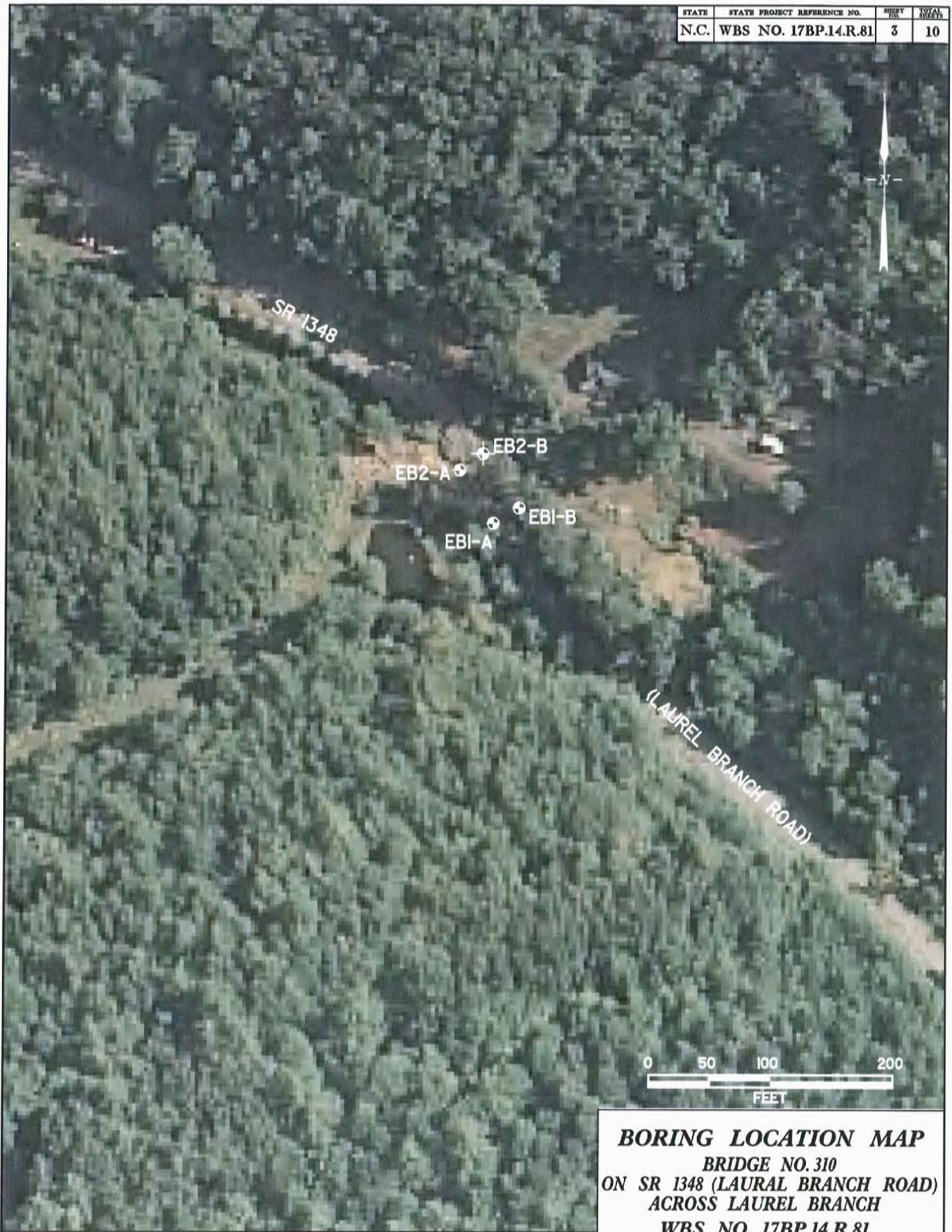
RY STRENGTH

MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.

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

ROCK DESCRIPTION		TERMS AND DEFINITIONS			
HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT IF TESTED, WOULD YIELD SPT REFUSAL. AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH NON-COASTAL PLAIN MATERIAL WOULD YIELD SPT REFUSAL. SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. IN NON-COASTAL PLAIN MATERIAL, THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK. ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:					
WEATHERED ROCK (WR)		NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100 BLOWS PER FOOT IF TESTED.			
CRYSTALLINE ROCK (CR)		FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES GRANITE, GNEISS, GABBRO, SCHIST, ETC.			
NON-CRYSTALLINE ROCK (NCR)		FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YIELD SPT REFUSAL IF TESTED. ROCK TYPE INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.			
COASTAL PLAIN SEDIMENTARY ROCK (CP)		COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.			
WEATHERING					
FRESH	ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.				
VERY SLIGHT (V SL.)	ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN. CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.				
SLIGHT (SL.)	ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO 1 INCH. OPEN JOINTS MAY CONTAIN CLAY. IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS.				
MODERATE (MOD.)	SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY. ROCK HAS DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.				
MODERATELY SEVERE (MOD. SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. IN GRANITOID ROCKS, ALL FELDSPARS DULL AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. IF TESTED, WOULD YIELD SPT REFUSAL.				
SEVERE (SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF.				
VERY SEVERE (V SEV.)	ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK REMAINING. SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. IF TESTED, YIELDS SPT N VALUES < 100 BPF.				
COMPLETE	ROCK REDUCED TO SOIL. ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS ALSO AN EXAMPLE.				
ROCK HARDNESS					
VERY HARD	CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK. BREAKING OF HAND SPECIMENS REQUIRES SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.				
HARD	CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.				
MODERATELY HARD	CAN BE SCRATCHED BY KNIFE OR PICK. GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK. HAND SPECIMENS CAN BE DETACHED BY MODERATE BLOWS.				
MEDIUM HARD	CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. CAN BE EXCAVATED IN SMALL CHIPS TO PIECES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE POINT OF A GEOLOGIST'S PICK.				
SOFT	CAN BE GROOVED OR GOUGED READILY BY KNIFE OR PICK. CAN BE EXCAVATED IN FRAGMENTS FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.				
VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGER NAIL.				
FRACTURE SPACING		BEDDING			
TERM	SPACING	TERM	THICKNESS		
VERY WIDE	MORE THAN 10 FEET	VERY THICKLY BEDDED	> 4 FEET		
WIDE	3 TO 10 FEET	THICKLY BEDDED	1.5 - 4 FEET		
MODERATELY CLOSE	1 TO 3 FEET	THINLY BEDDED	0.16 - 1.5 FEET		
CLOSE	0.16 TO 1 FEET	VERY THINLY BEDDED	0.03 - 0.16 FEET		
VERY CLOSE	LESS THAN 0.16 FEET	THICKLY LAMINATED	0.008 - 0.03 FEET		
		THINLY LAMINATED	< 0.008 FEET		
INDURATION					
FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.					
FRIABLE	RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				
MODERATELY INDURATED	GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE; BREAKS EASILY WHEN HIT WITH HAMMER.				
INDURATED	GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE; DIFFICULT TO BREAK WITH HAMMER.				
EXTREMELY INDURATED	SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE; SAMPLE BREAKS ACROSS GRAINS.				
BENCH MARK: ORANGE PAINT CIRCLE LABELED G SE CORNER OF BRIDGE DECK (NEAREST EB1-B)		ELEVATION: 100 FT.			
NOTES:					

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	WBS NO. 17BP.14.R.81	3	10



BORING LOCATION MAP
BRIDGE NO. 310
ON SR 1348 (LAUREL BRANCH ROAD)
ACROSS LAUREL BRANCH
WBS NO. 17BP.14.R.81
 HAYWOOD COUNTY, NORTH CAROLINA

DRAWN BY: T. RIDEOUT

[illegible]



WBS 17BP.14.R.81						TIP 17BP.14.R.81						COUNTY HAYWOOD						GEOLOGIST Smith, B. C.											
SITE DESCRIPTION Bridge No. 310 on -L- (SR 1348, Laurel Branch Road) Across Laurel Branch																		GROUND WTR (ft)											
BORING NO. EB1-B						STATION 11+50						OFFSET 15 ft RT						ALIGNMENT -L-						0 HR. 6.2					
COLLAR ELEV. 96.2 ft						TOTAL DEPTH 9.3 ft						NORTHING 710,014						EASTING 812,014						24 HR. FIAD					
DRILL RIG/HAMMER EFF./DATE F&H5404 CME-45C 82% 10/21/2011												DRILL METHOD NW Casing w/ Advancer						HAMMER TYPE Automatic											
DRILLER Banning, C.						START DATE 10/25/11						COMP. DATE 10/25/11						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																													
		96.2		0.0																96.2 GROUND SURFACE 0.0									
95						3 3 24			27							W		OOO		Brown, med. dense, silty sand w/rock frags. (A-1-b).									
		92.0		4.2		24 76/0.3			100/0.8									VVV		91.5 WEATHERED ROCK 4.7									
90																		VVV		Weathered rock (Metasedimentary)									
		87.0		9.2		60/0.1			60/0.1									VVV		86.9 Boring Terminated with Standard Penetration Test Refusal at Elevation 86.9 ft on Crystalline Rock (Metasedimentary). 9.3									



WBS 17BP.14.R.81				TIP 17BP.14.R.81				COUNTY HAYWOOD				GEOLOGIST Smith, B. C.						
SITE DESCRIPTION Bridge No. 310 on -L- (SR 1348, Laurel Branch Road) Across Laurel Branch												GROUND WTR (ft)						
BORING NO. EB2-A				STATION 13+00				OFFSET 13 ft LT				ALIGNMENT -L-						
COLLAR ELEV. 104.8 ft				TOTAL DEPTH 19.6 ft				NORTHING 710,109				EASTING 811,914						
DRILL RIG/HAMMER EFF./DATE F&H5404 CME-45C 82% 10/21/2011								DRILL METHOD NW Casing w/ Advancer				HAMMER TYPE Automatic						
DRILLER Banning, C.				START DATE 10/26/11				COMP. DATE 10/26/11				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	104.8	0.0	2	6	7								104.8	0.0	GROUND SURFACE			
	100.2	4.6	11	12	88/0.2							W		99.2	5.6	COLLUVIAL Brown, stiff, silty clay w/trace rock frags (A-6).		
95	95.2	9.6	100/0.4													WEATHERED ROCK Weathered rock (Metasedimentary)		
	90.2	14.6	61															
90	85.2	19.6	60/0.0															
																85.2	19.6	Boring Terminated with Standard Penetration Test Refusal at Elevation 85.2 ft on Crystalline Rock (Metasedimentary).



WBS 17BP.14.R.81			TIP 17BP.14.R.81			COUNTY HAYWOOD			GEOLOGIST Smith, B. C.			
SITE DESCRIPTION Bridge No. 310 on -L- (SR 1348, Laurel Branch Road) Across Laurel Branch									GROUND WTR (ft)			
BORING NO. EB2-B			STATION 12+83			OFFSET 3 ft RT			ALIGNMENT -L-			
COLLAR ELEV. 104.2 ft			TOTAL DEPTH 14.6 ft			NORTHING 710,114			EASTING 811,939			
DRILL RIG/HAMMER EFF./DATE F&H5404 CME-45C 82% 10/21/2011						DRILL METHOD NW Casing w/ Core			HAMMER TYPE Automatic			
DRILLER Banning, C.			START DATE 10/27/11			COMP. DATE 10/27/11			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		
105	104.2	0.0	5	4	5							GROUND SURFACE 0.0
100	99.6	4.6	23	77/0.2								COLLUVIAL Brown, stiff, sandy silt w/trace rock frags. (A-4). 5.1
95	94.6	9.6	60/0.0									WEATHERED ROCK Weathered rock (Metasedimentary) 9.6
90												CRYSTALLINE ROCK Metagraywacke 14.6
												Boring Terminated at Elevation 89.6 ft in Crystalline Rock (Metagraywacke).



NCDOT GEOTECHNICAL ENGINEERING UNIT CORE BORING REPORT

SHEET 8 OF 9

WBS 17BP.14.R.81		TIP 17BP.14.R.81		COUNTY HAYWOOD		GEOLOGIST Smith, B. C.						
SITE DESCRIPTION Bridge No. 310 on -L- (SR 1348, Laurel Branch Road) Across Laurel Branch							GROUND WTR (ft)					
BORING NO. EB2-B		STATION 12+83		OFFSET 3 ft RT		ALIGNMENT -L-						
COLLAR ELEV. 104.2 ft		TOTAL DEPTH 14.6 ft		NORTHING 710,114		EASTING 811,939						
DRILL RIG/HAMMER EFF./DATE F&H5404 CME-45C 82% 10/21/2011				DRILL METHOD NW Casing w/ Core		HAMMER TYPE Automatic						
DRILLER Banning, C.		START DATE 10/27/11		COMP. DATE 10/27/11		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)	RUN		SAMP. NO.	STRATA		LOG	DESCRIPTION AND REMARKS	DEPTH (ft)
					REC. (ft) %	RQD (ft) %		REC. (ft) %	RQD (ft) %			
94.6												
	94.6	9.6	1.0	N=60/0.0	(0.7)	(0.4)		(4.7)	(4.3)		Begin Coring @ 9.6 ft	
	93.6	10.6	4.0	1:35/1.0	70%	40%		94%	86%		CRYSTALLINE ROCK	9.6
				3:03/1.0							Gray, v. sli. weathering, v. hard, mod. close to wide frac. spacing, extremely	
				4:58/1.0	(4.0)	(3.9)					indurated, Metagraywacke - Copper Hill Formation.	
90	89.6	14.6		5:12/1.0	100%	98%						
				6:52/1.0							Boring Terminated at Elevation 89.6 ft in Crystalline Rock (Metagraywacke).	14.6

CORE PHOTOGRAPHIC RECORD
Bridge No. 310 on SR 1348 (Laurel Branch Road)
Across Laurel Branch



Boring EB2-B – Box 1 of 1