

NORTH CAROLINA DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

SOIL AND ROCK CLASSIFICATION, LEGEND, AND ABBREVIATIONS

SOIL LEGEND AND AASHTO CLASSIFICATION										CONSISTENCY OR DENSENESS			
GENERAL CLASS.	GRANULAR MATERIALS (≤ 35% PASSING #200)			SILT-CLAY MATERIALS (> 35% PASSING #200)			ORGANIC MATERIALS			PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N - VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (qu) (kN / m ²)
GROUP CLASS.	A-1	A-3	A-2	A-4	A-5	A-6	A-7	A-1,A-2	A-4,A-5				
SYMBOL													
% PASSING	#10 50 MX	#40 30 MX 50 MX 51 MN	#200 15 MX 25 MX 10 MX 35 MX 35 MX 35 MX 36 MN 36 MN 36 MN 36 MN					GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT			
(PASSING #40)		LL PI											
GROUP INDEX	0	0	0	4 MX	8 MX	12 MX	16 MX	NO MX					
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL & SAND	FINE GRAVEL AND SAND	SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS	CLAYEY SOILS			SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	HIGHLY ORGANIC SOILS				

GROUND WATER

WATER LEVEL IN BORE HOLE [IMMEDIATELY AFTER DRILLING (I.A.D.)]
 [SOON AFTER DRILLING (S.A.D.)]

STATIC WATER LEVEL (AFTER _____ HRS.)

PERCHED WATER (PW), SATURATED ZONE, OR WATER BEARING STRATA

SPRING OR SEEPAGE

TEXTURE OR GRAIN SIZE

BOULDER	COBBLE	GRAVEL	COARSE SAND	MED. SAND	FINE SAND	SILT	CLAY	
GRAIN (mm)	305	75	2	0.6	0.425	0.2	0.075	0.005
SIZE (IN)	12	3						

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL LIQUID LIMIT	-SATURATED- (SAT.)	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
PLASTIC RANGE (P) PL PLASTIC LIMIT	-WET- (W)	SEMISOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
OM OPTIMUM MOISTURE	-MOIST- (M)	SOLID; AT OR NEAR OPTIMUM MOISTURE
SL SHRINKAGE LIMIT	-DRY- (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

ROCK DESCRIPTION

IN THE BROADEST MEANING, HARD ROCK IS CONSIDERED TO BE THAT INDURATED EARTH MATERIAL WHICH CANNOT BE SAMPLED BY CONVENTIONAL SOIL SAMPLING TOOLS OR TECHNIQUES. THE BOUNDARY BETWEEN SOIL AND ROCK IS ARBITRARY. TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF 'WEATHERED ROCK'. FOR THE PURPOSE OF THIS INVESTIGATION, THESE MATERIALS ARE DIVIDED AS FOLLOWS:

TERM	SYMBOLS	DESCRIPTION
HARD ROCK (HR)		MATERIAL THAT CANNOT BE PENETRATED BY POWER AUGERS, EXCEPT IN THIN LEDGES, AND REQUIRES ROCK CORING TOOLS FOR OBTAINING A SAMPLE
WEATHERED ROCK (WR)		MATERIAL THAT CAN BE PENETRATED WITH GREAT DIFFICULTY USING POWER AUGERS AND YIELDS SPT REFUSAL
		MATERIAL THAT CAN BE PENETRATED WITH SOME DIFFICULTY USING POWER AUGERS AND YIELDS SPT VALUES > 100 BLOWS BUT < SPT REFUSAL

¹ SPT REFUSAL ≤ 2.5 cm OF PENETRATION PER 50 BLOWS IN SPT.

² AN INFERRED ROCK LINE INDICATES THE LEVEL AT WHICH AUGERS COULD NO LONGER PENETRATE. THE HARD ROCK SYMBOL IS SHOWN WHEN ROCK IS CORED AND ONLY TO THAT DEPTH CORED. A DESCRIPTION OF ROCK IS GIVEN, INCLUDING:

CORE RECOVERY (REC.) - TOTAL LENGTH OF ROCK RECOVERED IN THE CORE BARREL DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.

ROCK QUALITY DESIGNATION (ROD) - TOTAL LENGTH OF SOUND ROCK SEGMENTS RECOVERED THAT ARE LONGER THAN OR EQUAL TO 10 cm DIVIDED BY THE TOTAL LENGTH OF THE CORE RUN TIMES 100%.

ABBREVIATIONS

ALLUV.	ALLUVIUM	MIC.	MICACEOUS
AR	AUGER REFUSAL	MOT.	MOTTLED
BLDR.	BOULDER	N	BLOWS / 30 CM
CALC.	CALCAREOUS	NS	NO SAMPLE TAKEN
CL.	CLAY	ORG.	ORGANIC
CLY.	CLAYEY	REF.	REFER TO
COB.	COBBLE	RES.	RESIDUAL
CSE.	COARSE	S.	SOFT
DPT	DYNAMIC PENETRATION TEST	SAT.	SATURATED
EST.	ESTIMATED	SD.	SAND
F.	FINE	SDY.	SANDY
FOSS.	FOSSILIFEROUS	SED(S).	SEDIMENT(S)
FRAC.	FRACTURED	SL.	SILT, SILTY
FRAG(S).	FRAGMENT(S)	SLI.	SLIGHTLY
GR.	GRAVEL	SPT	STANDARD PENETRATION TEST
GS	SPECIFIC GRAVITY	TS.	TOPSOIL
GW	GROUND WATER	VST	VANE SHEAR TEST
MED.	MEDIUM	V.	VERY
		W/	WITH

BENCH MARK:

STATE PROJECT NO. 8-1910203

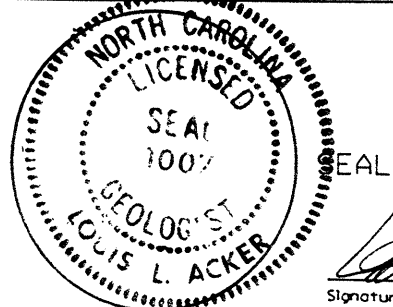
T.I.P. NO. R 977A F.A. NO. _____

COUNTY CHEROKEE ROUTE _____

SITE DESCRIPTION BRIDGE ON US64 OVER SR155B (BRIDGE 3)

PROJECT GEOLOGIST LL ACKER SUBMITTED BY LL ACKER

PERSONNEL LA MANN
TP SHELTON
WA GOSNELL DATE SUBMITTED 3-10-98
DK KEIVER
RE RIDDLE



Signature Louis L. Acker