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		SHEET NUMBERS						
LINE	STATION	PLAN EARTHWORK XSECT						
-L-	10+50.00 to 23+75.00	3	3A	5,6,7 & 8				

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
GEOTECHNICAL ENGINEERING UNIT

ROADWAY SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. **B-3803**COUNTY **ASHE**PROJECT DESCRIPTION **APPROACHES TO BRIDGE NO. 334 OVER SOUTH FORK OF THE NEW RIVER ON SR 1169 INVENTORY**

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 SOUL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHWICAL ENGINEERING UNIT AT (1919) 250-4088, NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOSS, ROCK CORES, OR SOL TEST DATA ARE 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 BORNIOS OR BETWEEN SAMPLED STRATA WITHIN THE BORGHOLE, THE LABORATORY SAMPLE DATA AND THE IN SITU MIN-PLACED 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 NOTICETED IN THE SUBSURFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOIL MOISTURE CONDITIONS MOLY VARY CONSIDERBALLY WITH THE ACCORDING TO CLUMATIC 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 PPELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT, FOR BIDDING AND CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT DOES NOT WARRANTOR CUARANTEE 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 MINISTER AS TO CONDITIONS TO BE ENCOUNTERED ON THIS PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OR FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONDITIONS TO BE ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.



TO YATESSE 1003 ---

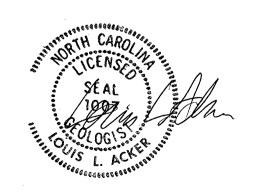
INVESTIGATED BY L.L ACKER

CHECKED BY W.D. FRYE

SUBMITTED BY W.D. FRYE

DATE 11/01/05

END PROJECT B-3803 -L- STA 23+75.00



BEGIN PROJECT B-3803
-L- STA 10+50.00

| BEGIN BRIDGE | STA. 14+72 | END BRIDGE | STA. 16+72

DRAWN BY: J.T. WILLIAMS

3803

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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.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PROJECT REFERENCE NO.

B-3803

SHEET NO.

2/8

DIVISION OF HIGHWAYS

GEOTECHNICAL ENGINEERING UNIT

SUBSURFACE INVESTIGATION

	SOIL AND ROCK LEGEND, TERM	MS, SYMBOLS, AND ABBREVIATIONS				
SOIL DESCRIPTION	GRADATION	ROCK DESCRIPTION	TERMS AND DEFINITIONS			
SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED, OR WEATHERED EARTH MATERIALS	<u>WELL GRADED</u> - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. <u>UNIFORM</u> - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. (ALSO	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.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.			
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	POORLY GRADED) GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.	SPT REFUSAL IS PENETRATION BY A SPLIT SPOON SAMPLER EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.	S. AQUIFER - A WATER REARING FORMATION OR STRATA			
CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE:	ANGULARITY OF GRAINS	IN NON-COASTAL PLAIN MATERIAL. THE TRANSITION BETWEEN SOIL AND ROCK IS OFTEN REPRESENTED BY A ZONE OF WEATHERED ROCK.	ZONE ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.			
CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:	THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS; ANGULAR,	ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:	ARGILLACEDUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS,			
YERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6	SUBANGULAR, SUBROUNDED, OR ROUNDED.	WEATHERED NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT N VALUES > 100	OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.			
SOIL LEGEND AND AASHTO CLASSIFICATION	MINERALOGICAL COMPOSITION	ROCK (WR) BLOWS PER FOOT IF TESTED.	ARTESIAN - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL			
GENERAL GRANIII AR MATERIALS SILT-CLAY MATERIALS	MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS	CRYSTALLINE FINE TO COARSE GRAIN IGNEOUS AND METAMORPHIC ROCK THAT	AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.			
CLASS. (≤ 35% PASSING #200) (> 35% PASSING #200) ORGANIC MATERIALS	WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.	GNEISS, GABBRO, SCHIST, ETC.	CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.			
GROUP A-1 A-3 A-2 A-4 A-5 A-6 A-7 A-1, A-2 A-4, A-5	COMPRESSIBILITY	NON-CRYSTALLINE FINE TO COARSE GRAIN METAMORPHIC AND NON-COASTAL PLAIN SEDIMENTARY ROCK THAT WOULD YELLD SPT REFUSAL IF TESTED. ROCK TYPE	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM			
CLASS. A-1-a A-1-b A-2-4 A-2-5 A-2-6 A-2-7 A-7-6 A-3 A-6, A-7	SLIGHTLY COMPRESSIBLE LIQUID LIMIT LESS THAN 31	INCLUDES PHYLLITE, SLATE, SANDSTONE, ETC.	OF SLOPE.			
SYMBOL 000000000000000000000000000000000000	MODERATELY COMPRESSIBLE LIQUID LIMIT EQUAL TO 31-50 HIGHLY COMPRESSIBLE LIQUID LIMIT GREATER THAN 50	COASTAL PLAIN COASTAL PLAIN SEDIMENTS CEMENTED INTO ROCK, BUT MAY NOT YIELD SEDIMENTARY ROCK SEDIMENTARY ROC	CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL			
PASSING	PERCENTAGE OF MATERIAL	SEDIMENTARY ROCK SPT REFUSAL. ROCK TYPE INCLUDES LIMESTONE, SANDSTONE, CEMENTED SHELL BEDS, ETC.	LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.			
# 10 GRANULAR GRAN	GRANULAR SILT - CLAY	WEATHERING	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.			
* 40 30 MX 50 MX 51 MN SOILS SOILS SOILS SOILS PEAT \$	TOUGH OF ORDING WATER	FRESH ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER	DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE			
DOOR LINEY	TRACE OF ORGANIC MATTER	HAMMER IF CRYSTALLINE.	HORIZONTAL.			
1000D LIMIT	MODERATELY ORGANIC 5 - 10% 12 - 20% SOME 20 - 35%	VERY SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED, SOME JOINTS MAY SHOW THIN CLAY COATINGS IF OPEN, (V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY, ROCK RINGS UNDER HAMMER RI OWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF			
HIGHLY	HIGHLY ORGANIC >10% >20% HIGHLY 35% AND ABOVE	(V SLI.) CRYSTALS ON A BROKEN SPECIMEN FACE SHINE BRIGHTLY. ROCK RINGS UNDER HAMMER BLOWS IF OF A CRYSTALLINE NATURE.	THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.			
CHAIR TYPE STORE FRACE	GROUND WATER	SLIGHT ROCK GENERALLY FRESH, JOINTS STAINED AND DISCOLORATION EXTENDS INTO ROCK UP TO	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.			
IF MAIDE GRAVEL AND FINE SILTY OR CLAYEY SILTY CLAYEY ORGANIC	water level in Bore Hole immediately after drilling	(SLI.) 1 INCH, OPEN JOINTS MAY CONTAIN CLAY, IN GRANITOID ROCKS SOME OCCASIONAL FELDSPAR	· ·			
HATERIALS SAND STATE STA	STATIC WATER LEVEL AFTER <u>24</u> HOURS	CRYSTALS ARE DULL AND DISCOLORED. CRYSTALLINE ROCKS RING UNDER HAMMER BLOWS. MODERATE SIGNIFICANT PORTIONS OF ROCK SHOW DISCOLORATION AND WEATHERING EFFECTS. IN	FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.			
EN. RATING AS A EXCELLENT TO GOOD FAIR TO POOR FAIR TO POOR UNSUITABLE	PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA	(MOD.) GRANITOID ROCKS, MOST FELDSPARS ARE DULL AND DISCOLORED, SOME SHOW CLAY, ROCK HAS	FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.			
SUBGRADE POOR POOR ORGANIANCE	SPRING OR SEEP	DULL SOUND UNDER HAMMER BLOWS AND SHOWS SIGNIFICANT LOSS OF STRENGTH AS COMPARED WITH FRESH ROCK.	FLOOD PLAIN (FP) - LAND BORDERING A STREAM BUILT OF SEDIMENTS DEPOSITED BY			
PI OF A-7-5 SUBGROUP IS ≤ LL - 30 ; PI OF A-7-6 SUBGROUP IS > LL - 30		MODERATELY ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED, IN GRANITOID ROCKS, ALL FELDSPARS DULL	THE STREAM.			
CONSISTENCY OR DENSENESS RANGE OF STANDARD RANGE OF UNCONFINED	MISCELLANEOUS SYMBOLS	SEVERE AND DISCOLORED AND A MAJORITY SHOW KAOLINIZATION. ROCK SHOWS SEVERE LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN			
RY SOIL TYPE COMPACTNESS OR PENETRATION RESISTENCE COMPRESSIVE STRENGTH	ROADWAY EMBANKMENT STEP OPT ONT TEST BORING SAMPLE WITH SOIL DESCRIPTION STEP OPT ONT TEST BORING SAMPLE STEP OPT ONT TEST BORING SAMPLE STEP OPT OPT OPT OPT OPT OPT OPT OPT OPT OP	(MOD. SEV.) AND CAN BE EXCAVATED WITH A GEOLOGIST'S PICK, ROCK GIVES 'CLUNK' SOUND WHEN STRUCK, IF TESTED, WOULD YIELD SPT REFUSAL	THE FIELD.			
(N=VALUE) (TUNS/FT=)	WITH SOIL DESCRIPTION VST PMT DESIGNATIONS	SEVERE ALL ROCK EXCEPT QUARTZ DISCOLORED OR STAINED ROCK FABRIC CLEAR AND EVIDENT BUT REDUCED	JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.			
GENERALLY	SOIL SYMBOL AUGER BORING S - BULK SAMPLE	(SEV.) IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCKS ALL FELDSPARS ARE KAOLINIZED TO SOME	LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.			
MATERIAL MEDIUM DENSE 10 TO 30 N/A	ARTIFICIAL FILL OTHER THAN \ SS - SPLIT SPOON	EXTENT. SOME FRAGMENTS OF STRONG ROCK USUALLY REMAIN. IF TESTED, YIELDS SPT N VALUES > 100 BPF	LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.			
(NON-COHESIVE) DENSE 30 TO 50	ROADWAY EMBANKMENT - CORE BORING SAMPLE	VERY SEVERE ALL ROCK EXCEPT DUARTZ DISCOLORED OR STAINED. ROCK FABRIC ELEMENTS ARE DISCERNIBLE BUT	MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS, MOTTLING IN			
VEDV COST	. INFERRED SOIL BOUNDARY ST - SHELBY TUBE	(V SEV.) THE MASS IS EFFECTIVELY REDUCED TO SOIL STATUS, WITH ONLY FRAGMENTS OF STRONG ROCK	SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.			
VERY SOFT <2 <0.25 GENERALLY SOFT 2 TO 4 0.25 TO 0.50	MONITORING WELL SAMPLE THE TIET INFERRED ROCK LINE RS - ROCK SAMPLE	REMAINING, SAPROLITE IS AN EXAMPLE OF ROCK WEATHERED TO A DEGREE SUCH THAT ONLY MINOR VESTIGES OF THE ORIGINAL ROCK FABRIC REMAIN. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i>	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.			
SILT-CLAY MEDIUM STIFF 4 TO 8 0.5 TO 1.0	PIEZOMETER	COMPLETE ROCK REDUCED TO SOIL, ROCK FABRIC NOT DISCERNIBLE, OR DISCERNIBLE ONLY IN SMALL AND	RESIDUAL SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.			
MATERIAL STIFF 8 TO 15 1 TO 2 (COHESIVE) VERY STIFF 15 TO 30 2 TO 4	INSTALLATION RT - RECOMPACTED SI OPE INDICATOR TRIAXIAL SAMPLE	SCATTERED CONCENTRATIONS. QUARTZ MAY BE PRESENT AS DIKES OR STRINGERS. SAPROLITE IS	ROCK QUALITY DESIGNATION (ROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY TOTAL LENGTH OF			
HARD >30 >4	25/025 DIP & DIP DIRECTION OF INSTALLATION CRR - CALIFORNIA BEADING	ALSO AN EXAMPLE.	ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND			
TEXTURE OR GRAIN SIZE	ROCK STRUCTURES SPT N-VALUE RATIO SAMPLE	ROCK HARDNESS	EXPRESSED AS A PERCENTAGE.			
J.S. STD. SIEVE SIZE 4 10 40 60 200 270	● SDUNDING ROD (REF)— SPT REFUSAL	VERY HARD CANNOT BE SCRATCHED BY KNIFE OR SHARP PICK, BREAKING OF HAND SPECIMENS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.			
PENING (MM) 4.76 2.00 0.42 0.25 0.075 0.053		SEVERAL HARD BLOWS OF THE GEOLOGIST'S PICK.	SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND			
COARSE FINE	ABBREVIATIONS	HARD CAN BE SCRATCHED BY KNIFE OR PICK ONLY WITH DIFFICULTY. HARD HAMMER BLOWS REQUIRED TO DETACH HAND SPECIMEN.	RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL			
BOULDER	AR - AUGER REFUSAL HI HIGHLY V - VERY BT - BORING TERMINATED MED MEDIUM VST - VANE SHEAR TEST	MODERATELY CAN BE SCRATCHED BY KNIFE OR PICK, GOUGES OR GROOVES TO 0.25 INCHES DEEP CAN BE	TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS.			
(CSE, SD,) (F SD,)	CL CLAY MICA MICACEOUS 7 - UNIT WEIGHT	HARD EXCAVATED BY HARD BLOW OF A GEOLOGIST'S PICK, HAND SPECIMENS CAN BE DETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.			
GRAIN MM 305 75 2.0 0.25 0.05 0.005 SIZE IN. 12 3	CPT - CONE PENETRATION TEST MOD MODERATELY 7d - DRY UNIT WEIGHT	BY MODERATE BLOWS.	STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) OF			
SOIL MOISTURE - CORRELATION OF TERMS	CSE COARSE NP - NON PLASTIC DMT - DILATOMETER TEST PMT - PRESSUREMETER TEST	MEDIUM CAN BE GROOVED OR GOUGED 0.05 INCHES DEEP BY FIRM PRESSURE OF KNIFE OR PICK POINT. HARD CAN BE EXCAVATED IN SMALL CHIPS TO PEICES 1 INCH MAXIMUM SIZE BY HARD BLOWS OF THE	A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH			
SOU MOISTURE SCALE FIELD MOISTURE	DPT - DYNAMIC PENETRATION TEST SAP SAPROLITIC	POINT OF A GEOLOGIST'S PICK.	A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER, SPT REFUSAL IS PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS.			
(ATTERBERG LIMITS) DESCRIPTION GUIDE FOR FIELD MOISTURE DESCRIPTION	e - VOID RATIO SD SAND, SANDY F - FINE SL SILT, SILTY	SOFT CAN BE GROVED OR GOUGED READILY BY KNIFE OR PICK, CAN BE EXCAVATED IN FRAGMENTS	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH			
- SATURATED - USUALLY LIQUID; VERY WET, USUALLY	F - FINE SL SILTY FOSS FOSSILIFEROUS SLI SLIGHTLY	FROM CHIPS TO SEVERAL INCHES IN SIZE BY MODERATE BLOWS OF A PICK POINT. SMALL, THIN PIECES CAN BE BROKEN BY FINGER PRESSURE.	OF STRATUM AND EXPRESSED AS A PERCENTAGE.			
(SAT.) FROM BELOW THE GROUND WATER TABLE	FRACL - FRACTURED TCR - TRICONE REFUSAL FRAGS FRAGMENTS W - MOISTURE CONTENT	VERY CAN BE CARVED WITH KNIFE. CAN BE EXCAVATED READILY WITH POINT OF PICK. PIECES 1 INCH	STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY			
LL LIQUID LIMIT	FRAGS FRAGMENTS W - MOISTURE CONTENT	SOFT OR MORE IN THICKNESS CAN BE BROKEN BY FINGER PRESSURE. CAN BE SCRATCHED READILY BY FINGERNAIL.	TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.			
RANGE SEMISOLID; REQUIRES DRYING TO	EQUIPMENT USED ON SUBJECT PROJECT	FRACTURE SPACING BEDDING	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.			
PL PLASTIC LIMIT	·	TEDM THICKNESS	DM #1 DL CTA 10:07 70 104 00/ LT			
COLUD AT OR MEAN ARTHUR	DRILL UNITS: ADVANCING TOOLS: HAMMER TYPE:	TERM SPACING TERM THICKNESS VERY WIDE MORE THAN 10 FEET VERY THICKLY BEDDED > 4 FEET	BENCH MARK: BM #1-BL- STA. 19+07.70 194.26' LT			
OM OPTIMUM MOISTURE - MOIST - (M) SOLID; AT OR NEAR OPTIMUM MOISTURE	MOBILE B- CLAY BITS AUTOMATIC MANUAL	WIDE 3 TO 10 FEET THICKLY BEDDED 1.5 - 4 FEET	ELEVATION: 2851.08 FT.			
SL SHRINKAGE LIMIT	6' CONTINUOUS FLIGHT AUGER CORE SIZE:	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				
- DRY - (D) REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE	DV 51	VERY CLOSE LESS THAN 0.16 FFFT THICKLY LAMINATED 0.008 - 0.03 FEET	NOTES:			
PLASTICITY	8* HOLLOW AUGERS	THINLY LAMINATED < 0.008 FEET INDURATION				
	CME-45C HARD FACED FINGER BITS	FOR SEDIMENTARY ROCKS, INDURATION IS THE HARDENING OF THE MATERIAL BY CEMENTING, HEAT, PRESSURE, ETC.				
PLASTICITY INDEX (PI) DRY STRENGTH VONPLASTIC 0-5 VERY LOW	TUNGCARBIDE INSERTS -H	DUDDING WITH FINGER PROFESSION OF THE				
LOW PLASTICITY 6-15 SLIGHT	CASING W/ ADVANCER	FRIABLE RUBBING WITH FINGER FREES NUMEROUS GRAINS; GENTLE BLOW BY HAMMER DISINTEGRATES SAMPLE.				
MED. PLASTICITY 16-25 MEDIUM HIGH PLASTICITY 26 OR MORE HIGH	PORTABLE HOIST TRICONE *STEEL TEETH POST HOLE DIGGER	MODERATELY INDURATED GRAINS CAN BE SEPARATED FROM SAMPLE WITH STEEL PROBE;				
	TRICONE "TUNG,-CARB. HAND AUGER	BREAKS EASILY WHEN HIT WITH HAMMER.				
COLOR	OTHER COUNDING POD	INDURATED GRAINS ARE DIFFICULT TO SEPARATE WITH STEEL PROBE;				
DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY).	VANE SHEAR TEST	DIFFICULT TO BREAK WITH HAMMER.				
MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.	OTHER OTHER OTHER	EXTREMELY INDURATED SHARP HAMMER BLOWS REQUIRED TO BREAK SAMPLE;				
		SAMPLE BREAKS ACROSS GRAINS.				



STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY **GOVERNOR**

LYNDO TIPPETT SECRETARY

November 1, 2005

STATE PROJECT:

33259.1.1 (B-3803)

F. A. PROJECT:

BRZ-1169(2)

COUNTY:

Ashe

DESCRIPTION:

Approaches to Bridge No. 334 over South Fork New River

on SR 1169 (Conley Creek Road)

SUBJECT:

Geotechnical Report - Inventory

Site Description

This project is located in the southern part of Ashe County, approximately 15 miles from the town of West Jefferson and one mile north of the intersection of SR 1169 and SR 1003 (Idlewild Road). SR 1169 crosses the South Fork of the New River on a onelane, low water bridge. The river at the site is approximately 100 feet wide flowing on a bed of hard rock and gravel, in a flood plain more than 600 feet wide, most of which lies on the west side of the river. A small stream with a narrow floodplain lies along the south side of SR 1169 on the east bank of the river. The road on the east side of the river is cut into the base of a hill.

Plans call for widening the approaches and for construction of a new bridge on alignment -L-, at an angle to the Centerline of the existing bridge and up to 25 feet Right. Construction will involve a Left Side cut approximately 15 feet deep where an existing cut bank is to be extended into the hill slope. Proposed fills are not more than 10 feet high over the floodplain on the approaches.

The Geotechnical Engineering Unit made a reconnaissance of the site on October 3 and October 12, 2005. Special attention was paid to the area of the proposed cut. Materials exposed in the existing cut were identified and were further investigated by digging into the cut slope with a spade. Strike and dip of the rock foliation was noted.

MAILING ADDRESS: NC DEPARTMENT OF TRANSPORTATION GEOTECHNICAL ENGINEERING UNIT 1589 MAIL SERVICE CENTER RALEIGH NC 27699-1589

TELEPHONE: 919-250-4088 FAX: 919-250-4237

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION: **CENTURY CENTER COMPLEX** BUILDING B 1020 BIRCH RIDGE DRIVE RALEIGH NC 27610

Items of Special Geotechnical Interest

Hard Rock in Cut

Hard rock will be encountered in the Left Side cut on -L- between Station 19+00 and 21+50. The hard rock line is approximately five feet below natural ground from Station 19+00 to Station 20+00, and it descends from there to about 10 feet below natural ground at Station 21+00. The hard rock is overlain by weathered rock and micaceous, sandy saprolite. The lithology is moderately hard mica schist with some hard layers of mica gneiss. The rock appears to be only moderately weathered around Station 19+00, but it is progressively more thoroughly weathered in the up station direction. The foliation dips 35 to 50 degrees southeast, almost perpendicular to the cut face.

Soil and Rock Materials

This site lies on the Yadkin River floodplain. Most soils to be encountered in construction are alluvial flood plain soils. There has been no investigation of those materials other than some shallow excavations with a hand spade. Both sandy and silty alluvial soils were found.

Residual saprolite, weathered rock and hard rock are exposed on the Left Side of -L- from about Station 18+50 to Station 22+00, and it can be assumed that those materials underlie the Right Side as well in that area at least as far as Station 21+00. The saprolite is moist, micaceous silty sand. The rock at this site is well foliated, mica schist with layers of mica gneiss.

Respectfully submitted,

Louis L. Acker, LG **Project Geologist**

EARTHWORK BALANCE SHEET

PROJ	ECTB	<i>2–3803</i>	-	COUNI	YA	SHE			PUTED BY:		•	SHEET)F1_
STATION	STATION	TOTAL EXCAV. (UNCL.)	ROCK EXCAV.	UNDERCUT EXCAV.	UNSUIT. EXCAV.	SUITABLE EARTH EXCAV.	TOTAL EMB.	ROCK EMB.	EARTH EMB.	<i>EMB</i> . + <u>15</u> %	BORROW	SUITABLE WASTE	UNSUIT. WASTE	TOTAL WASTE
1	L- ·													
10+50.00	REGIN RRIDGE 14 + 72.00	25	0	0	0	25	1,351	. 0	1,351	1,554	1,529	0	0	0
-DRI	IVE1-				<u>, , , , , , , , , , , , , , , , , , , </u>									
10+10.03	10+70.00	0	0	. 0	0	0	57	0	57	66	66	0 ·	. 0	0
						·	"			,			• .	
SUBT	OTAL:	25	0	0	0	25	1,408	0	1,408	1,620	1,595	0	0	0
-1	L-													
end bridge 16 + 72.00	23 + 75.00	2,002	723	0	0	1279	1,094	723	263	1,025	0	977	0	977
-DR	IVE2-													-
10+10.00	11+09.01	2	0	0	0	2	207	0	207	230	228	0	0	0
-DRI	VE3-													
10+10.00	11+17.18	46	0	0	0	46	197	0	197	227	181	0	0	0
SUBT	OTAL:	2,050	723	0	0	1,327	1,498	723	663	1,482	409	977	0	977
DDO HOT	OVER TOTAL	2.075		0		1.22	2,906	502	2.071	2 100			0	
	SUBTOTAL:	2,075	723		0	1,352		723	2,071	3,102	2,004	977		977
DDITIONAL	UNDERCUT	0	0	300	0	0	300	0	300	345	345	300	0	300
PROJEC	T TOTAL:	2,075	723	300	0	1,352	3,206	723	2,371	3,447	2,349	1,277	0	1,277
WASTE OF BO	IN LIEU RROW	0	0	0	0	0	o	0	0	0	-1,277	-1,277	0	-1,277
	JE TO GRUBBING	-200	0	0	0	-200	0	0	0	0	+200	0	0	. 0
	% TO REPLACE		0	0	0	0	0	0	0	0	64	0	0	0
GRAND		1,875	723	300	0	1,152	3,206	723	2,371	3,447	1,336	0	0	0
SA	<i>Y:</i>	1,900	·		·						1,350			

GEOTECH REC'S

FABRIC for SOIL STABILIZATION = 500 SY
UNDERDRAIN = 300 FT
UNDERCUT = 300 CY
SELECT GRANULAR MATERIAL, CLASS II OR III = 500 TONS
SELECT GRANUAL MATERIAL, CLASS IV = 600 CY

"EARTHWORK QUANTITIES ARE CALCULATED BY THE ROADWAY DESIGN UNIT. THESE EARTHWORK QUANTITIES ARE BASED IN PART ON SUBSURFACE DATA PROVIDED BY THE GEOTECHNICAL ENGINEERING UNIT."

Note: Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading."

