

CONTRACT: ID: B-3538

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

DIVISION OF HIGHWAYS

GEOTECHNICAL UNIT

STRUCTURE SUBSURFACE INVESTIGATION

STATE PROJECT 33145.1.1 I.D. NO. B-3538
F.A. PROJECT BRZ-1222(4)
COUNTY WAYNE
PROJECT DESCRIPTION BRIDGE NO. 296 ON
SR 1222 OVER NEUSE RIVER CUTOFF
AT -L- STATION 14+24.5

INVENTORY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	33145.1.1 (B-3538)	1	16
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
		P.E.	
		CONST.	

CONTENTS:

SHEET	DESCRIPTION
1	TITLE SHEET
2	LEGEND
3	STRUCTURE INVENTORY REPORT
4	TEST SITE PLAN
5,6	PROFILES
7-13	-L- AND -DET- BORING LOGS
14	SOIL TEST RESULTS
15	SCOUR REPORT
16	SITE PHOTOGRAPH

CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WAS MADE FOR THE PURPOSE OF STUDY, PLANNING AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. 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 UNIT @ (919) 250-4088. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL TEST DATA IS 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 BORINGS OR BETWEEN SAMPLED STRATA WITHIN THE BOREHOLE. 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.

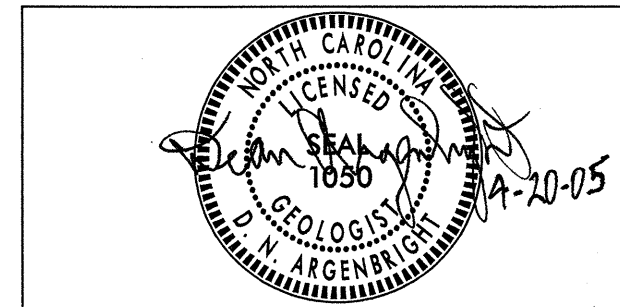
THE BIDDER OR CONTRACTOR IS CAUTIONED THAT DETAILS SHOWN ON THE SUBSURFACE PLANS ARE PRELIMINARY ONLY AND IN MANY CASES THE FINAL DESIGN DETAILS ARE DIFFERENT. FOR BIDDING AND CONSTRUCTION PURPOSES, REFER TO THE CONSTRUCTION PLANS AND DOCUMENTS FOR FINAL DESIGN INFORMATION ON THIS PROJECT. THE DEPARTMENT 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 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 ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION.

INVESTIGATED BY J.R. McCRAY PERSONNEL JRM
 CHECKED BY D.N. ARGENBRIGHT JLS
 SUBMITTED BY D.N. ARGENBRIGHT LWD
 DATE APRIL 2005 MGW
DBC
MBO
JEB

DRAWN BY: T.T. WALKER

NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N.C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT 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
DIVISION OF HIGHWAYS
GEOTECHNICAL UNIT

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B-3538	33145.1.1	2	16

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION		GRADATION		ROCK DESCRIPTION		TERMS AND DEFINITIONS																																								
<p>SOIL IS CONSIDERED TO BE THE UNCONSOLIDATED, SEMI-CONSOLIDATED OR WEATHERED EARTH MATERIALS WHICH CAN BE PENETRATED WITH A CONTINUOUS FLIGHT POWER AUGER, AND WHICH YIELDS LESS THAN 100 BLOWS PER FOOT ACCORDING TO STANDARD PENETRATION TEST (AASHTO T206, ASTM D-1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM AND BASIC DESCRIPTIONS GENERALLY SHALL INCLUDE: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. EXAMPLE:</p> <p align="center"><i>VERY STIFF, GRAY SILTY CLAY, MOST WITH INTERBEDDED FINE SAND LAYERS, HEAVY PLASTIC, A-7-6</i></p>		<p>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)</p> <p>GAP-GRADED: INDICATES A MIXTURE OF UNIFORM PARTICLES OF TWO OR MORE SIZES.</p> <p>THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS ARE DESIGNATED BY THE TERMS: <u>ANGULAR</u>, <u>SUBANGULAR</u>, <u>SUBROUNDED</u>, OR <u>ROUNDED</u>.</p>		<p>HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WHEN 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.</p> <p>ROCK MATERIALS ARE TYPICALLY DIVIDED AS FOLLOWS:</p>		<p><u>ALLUVIUM (ALLUV.)</u> - SOILS WHICH HAVE BEEN TRANSPORTED BY WATER.</p> <p><u>AQUIFER</u> - A WATER BEARING FORMATION OR STRATA.</p> <p><u>ARENACEOUS</u> - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.</p> <p><u>ARGILLACEOUS</u> - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, AS SHALE, SLATE, ETC.</p> <p><u>ARTESIAN</u> - GROUND WATER THAT IS UNDER SUFFICIENT PRESSURE TO RISE ABOVE THE LEVEL AT WHICH IT IS ENCOUNTERED, BUT WHICH DOES NOT NECESSARILY RISE TO OR ABOVE THE GROUND SURFACE.</p> <p><u>CALCAREOUS (CALC.)</u> - SOILS WHICH CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.</p> <p><u>COLLUVIUM</u> - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.</p> <p><u>CORE RECOVERY (REC.)</u> - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.</p> <p><u>DIKE</u> - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.</p> <p><u>DIP</u> - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.</p> <p><u>DIP DIRECTION (DIP AZIMUTH)</u> - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.</p> <p><u>FAULT</u> - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.</p> <p><u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES.</p> <p><u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM PARENT MATERIAL.</p> <p><u>FLOOD PLAIN (F.P.)</u> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.</p> <p><u>FORMATION (FM.)</u> - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.</p> <p><u>JOINT</u> - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED.</p> <p><u>LEDGE</u> - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT.</p> <p><u>LENS</u> - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS.</p> <p><u>MOTTLED (MOT.)</u> - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.</p> <p><u>PERCHED WATER</u> - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIOUS STRATUM.</p> <p><u>RESIDUAL SOIL</u> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.</p> <p><u>ROCK QUALITY DESIGNATION (R.Q.D.)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS EQUAL TO OR GREATER THAN 4 INCHES DIVIDED BY THE TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE.</p> <p><u>SAPROLITE (SAP.)</u> - RESIDUAL SOIL WHICH RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.</p> <p><u>SILL</u> - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, WHICH HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRODUCED ROCKS.</p> <p><u>SLICKENSIDE</u> - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.</p> <p><u>STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT)</u> - NUMBER OF BLOWS (N OR B.P.F.) OF A 140 LB. HAMMER FALLING 30 INCHES REQUIRED TO PRODUCE A PENETRATION OF 1 FOOT INTO SOIL WITH A 2 INCH OUTSIDE DIAMETER SPLIT SPOON SAMPLER. SPT REFUSAL IS LESS THAN 0.1 FOOT PENETRATION WITH 60 BLOWS.</p> <p><u>STRATA CORE RECOVERY (SREC.)</u> - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.</p> <p><u>STRATA ROCK QUALITY DESIGNATION (S.R.Q.D.)</u> - A MEASURE OF ROCK QUALITY DESCRIBED BY: TOTAL LENGTH OF ROCK SEGMENTS WITHIN A STRATUM EQUAL TO OR GREATER THAN 10 CENTIMETERS DIVIDED BY THE TOTAL LENGTH OF STRATA AND EXPRESSED AS A PERCENTAGE.</p> <p><u>TOPSOIL (T.S.)</u> - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.</p>																																								
<p align="center">SOIL LEGEND AND AASHTO CLASSIFICATION</p> <table border="1"> <tr> <th>GENERAL CLASS.</th> <th>GRANULAR MATERIALS (>85% PASSING #200)</th> <th>SILT-CLAY MATERIALS (>85% PASSING #200)</th> <th>ORGANIC MATERIALS</th> </tr> <tr> <td>GROUP CLASS.</td> <td>A-1, A-1-b, A-3</td> <td>A-2, A-2-4, A-2-5, A-2-6, A-2-7</td> <td>A-4, A-5, A-6, A-7, A-7-5, A-7-6</td> </tr> <tr> <td>SYMBOL</td> <td></td> <td></td> <td></td> </tr> <tr> <td>% PASSING</td> <td>50 MX, 30 MX, 15 MX, 10 MX, 5 MX</td> <td>40 MX, 35 MX, 30 MX, 25 MX, 20 MX, 15 MX, 10 MX, 5 MX</td> <td>40 MX, 35 MX, 30 MX, 25 MX, 20 MX, 15 MX, 10 MX, 5 MX</td> </tr> <tr> <td>LIQUID LIMIT PLASTIC INDEX</td> <td>6 MX</td> <td>N.P., 10 MX, 11 MN, 12 MN, 13 MN, 14 MN, 15 MN, 16 MN, 17 MN, 18 MN, 19 MN, 20 MN, 21 MN, 22 MN, 23 MN, 24 MN, 25 MN, 26 MN, 27 MN, 28 MN, 29 MN, 30 MN, 31 MN, 32 MN, 33 MN, 34 MN, 35 MN, 36 MN, 37 MN, 38 MN, 39 MN, 40 MN, 41 MN, 42 MN, 43 MN, 44 MN, 45 MN, 46 MN, 47 MN, 48 MN, 49 MN, 50 MN</td> <td>SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER</td> </tr> <tr> <td>GROUP INDEX</td> <td>0</td> <td>0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50</td> <td>HIGHLY ORGANIC SOILS</td> </tr> <tr> <td>USUAL TYPES OF MAJOR MATERIALS</td> <td>STONE FRAGS. GRAVEL AND SAND</td> <td>SILT-CLAY SAND, SILTY OR CLAYEY GRAVEL AND SAND</td> <td>SILTY SOILS, CLAYEY SOILS</td> </tr> <tr> <td>GEN. RATING AS A SUBGRADE</td> <td>EXCELLENT TO GOOD</td> <td>FAIR TO POOR</td> <td>FAIR TO POOR, POOR, UNSUITABLE</td> </tr> </table> <p align="center">P.I. OF A-7-5 ≤ L.L. - 30 ; P.I. OF A-7-6 > L.L. - 30</p>		GENERAL CLASS.	GRANULAR MATERIALS (>85% PASSING #200)	SILT-CLAY MATERIALS (>85% PASSING #200)	ORGANIC MATERIALS	GROUP CLASS.	A-1, A-1-b, A-3	A-2, A-2-4, A-2-5, A-2-6, A-2-7	A-4, A-5, A-6, A-7, A-7-5, A-7-6	SYMBOL				% PASSING	50 MX, 30 MX, 15 MX, 10 MX, 5 MX	40 MX, 35 MX, 30 MX, 25 MX, 20 MX, 15 MX, 10 MX, 5 MX	40 MX, 35 MX, 30 MX, 25 MX, 20 MX, 15 MX, 10 MX, 5 MX	LIQUID LIMIT PLASTIC INDEX	6 MX	N.P., 10 MX, 11 MN, 12 MN, 13 MN, 14 MN, 15 MN, 16 MN, 17 MN, 18 MN, 19 MN, 20 MN, 21 MN, 22 MN, 23 MN, 24 MN, 25 MN, 26 MN, 27 MN, 28 MN, 29 MN, 30 MN, 31 MN, 32 MN, 33 MN, 34 MN, 35 MN, 36 MN, 37 MN, 38 MN, 39 MN, 40 MN, 41 MN, 42 MN, 43 MN, 44 MN, 45 MN, 46 MN, 47 MN, 48 MN, 49 MN, 50 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER	GROUP INDEX	0	0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50	HIGHLY ORGANIC SOILS	USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL AND SAND	SILT-CLAY SAND, SILTY OR CLAYEY GRAVEL AND SAND	SILTY SOILS, CLAYEY SOILS	GEN. RATING AS A SUBGRADE	EXCELLENT TO GOOD	FAIR TO POOR	FAIR TO POOR, POOR, UNSUITABLE	<p align="center">MINERALOGICAL COMPOSITION</p> <p>MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHENEVER THEY ARE CONSIDERED OF SIGNIFICANCE.</p>		<p align="center">WEATHERING</p> <p>FRESH: ROCK FRESH, CRYSTALS BRIGHT, FEW JOINTS MAY SHOW SLIGHT STAINING, ROCK RINGS UNDER HAMMER IF CRYSTALLINE.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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 MAJORITY'S PICK. ROCK GIVES "CLUNK" SOUND WHEN STRUCK. <i>IF TESTED, WOULD YIELD SPT REFUSAL</i></p> <p>SEVERE (SEV.): ALL ROCKS 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. <i>IF TESTED, YIELDS SPT N VALUES > 100 BPF</i></p> <p>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. <i>IF TESTED, YIELDS SPT N VALUES < 100 BPF</i></p> <p>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.</p>										
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<p align="center">COMPRESSION</p> <p>SLIGHTLY COMPRESSIBLE: LIQUID LIMIT LESS THAN 30</p> <p>MODERATELY COMPRESSIBLE: LIQUID LIMIT 31-50</p> <p>HIGHLY COMPRESSIBLE: LIQUID LIMIT GREATER THAN 50</p>		<p align="center">PERCENTAGE OF MATERIAL</p> <table border="1"> <tr> <th>ORGANIC MATERIAL</th> <th>GRANULAR SOILS</th> <th>SILT-CLAY SOILS</th> <th>OTHER MATERIAL</th> </tr> <tr> <td>TRACE OF ORGANIC MATTER</td> <td>2 - 3%</td> <td>3 - 5%</td> <td>TRACE</td> </tr> <tr> <td>LITTLE ORGANIC MATTER</td> <td>3 - 5%</td> <td>5 - 12%</td> <td>LITTLE</td> </tr> <tr> <td>MODERATELY ORGANIC</td> <td>5 - 10%</td> <td>12 - 20%</td> <td>SOME</td> </tr> <tr> <td>HIGHLY ORGANIC</td> <td>>10%</td> <td>>20%</td> <td>HIGHLY</td> </tr> </table>		ORGANIC MATERIAL	GRANULAR SOILS	SILT-CLAY SOILS	OTHER MATERIAL	TRACE OF ORGANIC MATTER	2 - 3%	3 - 5%	TRACE	LITTLE ORGANIC MATTER	3 - 5%	5 - 12%	LITTLE	MODERATELY ORGANIC	5 - 10%	12 - 20%	SOME	HIGHLY ORGANIC	>10%	>20%	HIGHLY	<p align="center">GROUND WATER</p> <p>▽ WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING.</p> <p>▽ STATIC WATER LEVEL AFTER 24 HOURS.</p> <p>▽ PW PERCHED WATER, SATURATED ZONE OR WATER BEARING STRATA</p> <p>○ SPRING OR SEEPAGE</p>																						
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GRAIN SIZE MM 395	75	2.0	0.25	0.05	0.005																																									
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STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

P.O. BOX 25201, RALEIGH, N.C. 27611-5201

LYNDO TIPPETT
SECRETARY

April 20, 2005

STATE PROJECT: 33145.1.1 (B-3538)
FEDERAL PROJECT: BRZ-1222(4)
COUNTY: Wayne
DESCRIPTION: Bridge No. 296 on SR 1222 over Neuse River Cutoff

SUBJECT: Bridge Inventory Report – Bridge Foundation Investigation for Bridge No. 296 on SR 1222 over Neuse River Cutoff at -L- Station 14+24.5

Site Description

The proposed project is located at the existing SR 1222 bridge over the Neuse River cutoff south of Goldsboro. The replacement structure will be located at the same site as the existing bridge. Based on the proposed design, the new structure will consist of three spans having a total length of 175 feet and the bents will have a skew of 90 degrees. During construction, traffic will be routed across a 170 foot single-span detour bridge located 38 feet to the north of the alignment.

A total of seven Standard Penetration Test borings were made on or near each of the proposed bent locations as site conditions would allow. Borings EB1-A DET, B1-B, B2-B, EB2-A DET, and the boring at -L- Sta. 14+74 were conducted during a previous investigation for an earlier design for the replacement structure. Subsurface conditions were noted to be similar across the site. The borings were made using either an ATV mounted CME 45B or CME 45C drill machine and advanced by rotary drill methods using bentonite drilling fluid.

The project is located in the Coastal Plain Physiographic Province and is underlain by roadway embankment soils, Recent alluvium, sediments of the Cretaceous Black Creek Formation, and residual soils derived from rock of the Eastern Slate Belt. The topography of the surrounding area is very gently to gently rolling with elevations at the site ranging from 47± feet along the stream bed to 75± feet above sea level along the existing SR 1222. Neuse River Cutoff is an 80± feet wide 4± feet deep channel of the Neuse River in a rural setting. During our

investigation, water levels in the bore holes and the surface of Neuse River Cutoff were measured at elevations ranging from 48.5 to 55.5 feet.

Soil Description

Subsurface conditions at the site are typically uniform. The stratigraphy at the site is characterized by roadway embankment that has been placed on Recent alluvial sands underlain by sands and clays of the Cretaceous Black Creek Formation, which overlie residual soils. Alluvial soils encountered during the investigation consist of 7± to 13± feet of loose to medium dense fine to coarse sand (A-3) and silty fine to coarse sand (A-2-4).

Cretaceous age sediments of the Black Creek Formation underlie the Recent alluvial soils at elevations ranging from 57± to 59.5± feet. The upper sediments of the Black Creek Formation encountered at the site consist primarily of 10 to 19 feet of loose to dense fine sand and silty fine sand (A-2-4, A-3), including a lignite rich layer. The upper sand beds are underlain by interlayered medium stiff to hard sandy to silty clay and sandy silt (A-6, A-7-6, and A-4) and medium to very dense silty sand and sand to coarse sand (A-2-4, A-3, and A-1-b). The silt and clay layers vary from 7± to 35± feet thick and are the dominant soils at the western end of the site. Silty sand and sand becomes the dominant soil to the east and is thickest in boring EB2-A (DET) reaching a thickness of over 57 feet. Residual soils were encountered at elevations between -12.5± and -21.4± feet, with the surface sloping west to east, and consist of hard sandy and silty clay (A-6 and A-7-6). Boring B1-B was extended to elevation -35.4 feet with no significant change in stratigraphy noted.

Based on the proposed design, the existing grade will be maintained at End Bent 1 and lowered less than one foot at End Bent 2. The existing roadway embankment at the site is constructed of up to 11 feet of loose to medium dense silty sand (A-2-4) and exhibits good engineering properties. The proposed end slopes will be constructed approximately at the location of the existing end slopes. Borrow meeting Coastal Plain criteria should be available in nearby areas.

Location information for the Geotechnical foundation report is based on the Bridge Survey and Hydraulic Design Report for Neuse River Cutoff, revised October 28, 2004. If significant changes are made in the design or location of the proposed structure, the subsurface information should be reviewed and modified as necessary.

Prepared by:

Kevin B. Miller
Engineering Geologist II

NWW/CAG/JRM/KBM

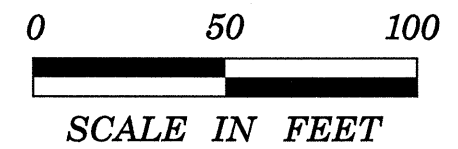
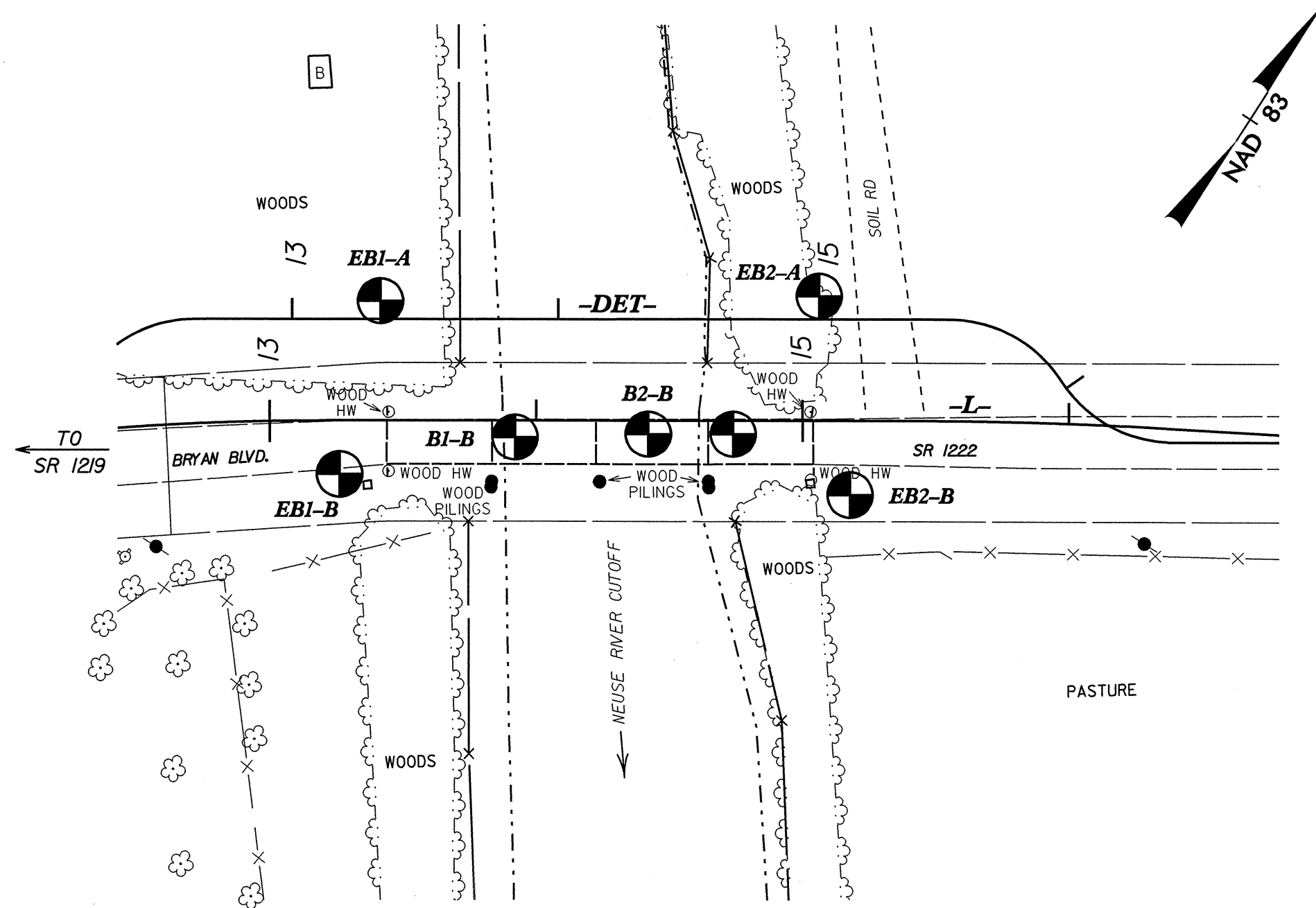
MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL ENGINEERING UNIT
1589 MAIL SERVICE CENTER
RALEIGH NC 27699-1589

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

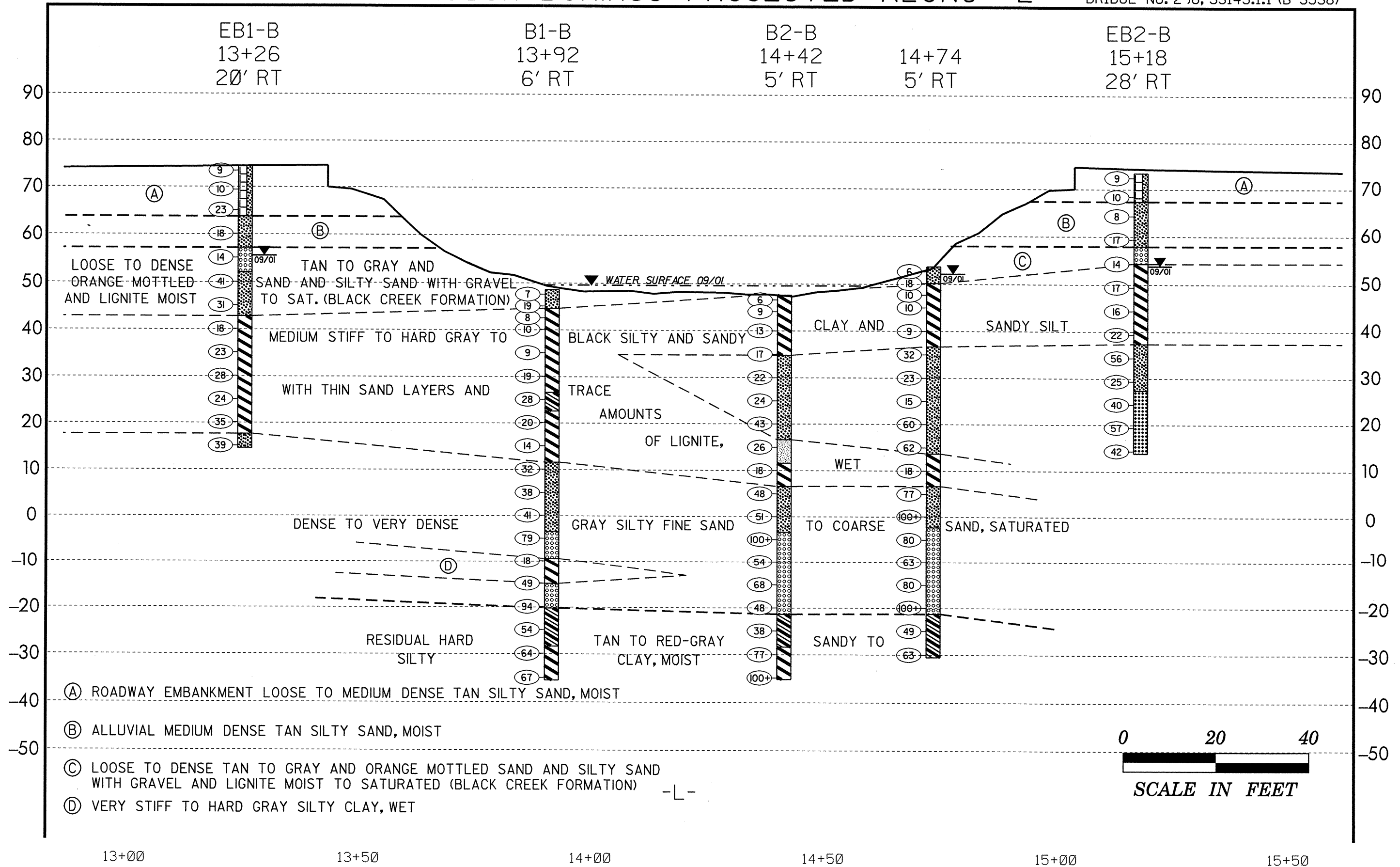
WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
ENTRANCE B-2
1020 BIRCH RIDGE DRIVE
RALEIGH NC

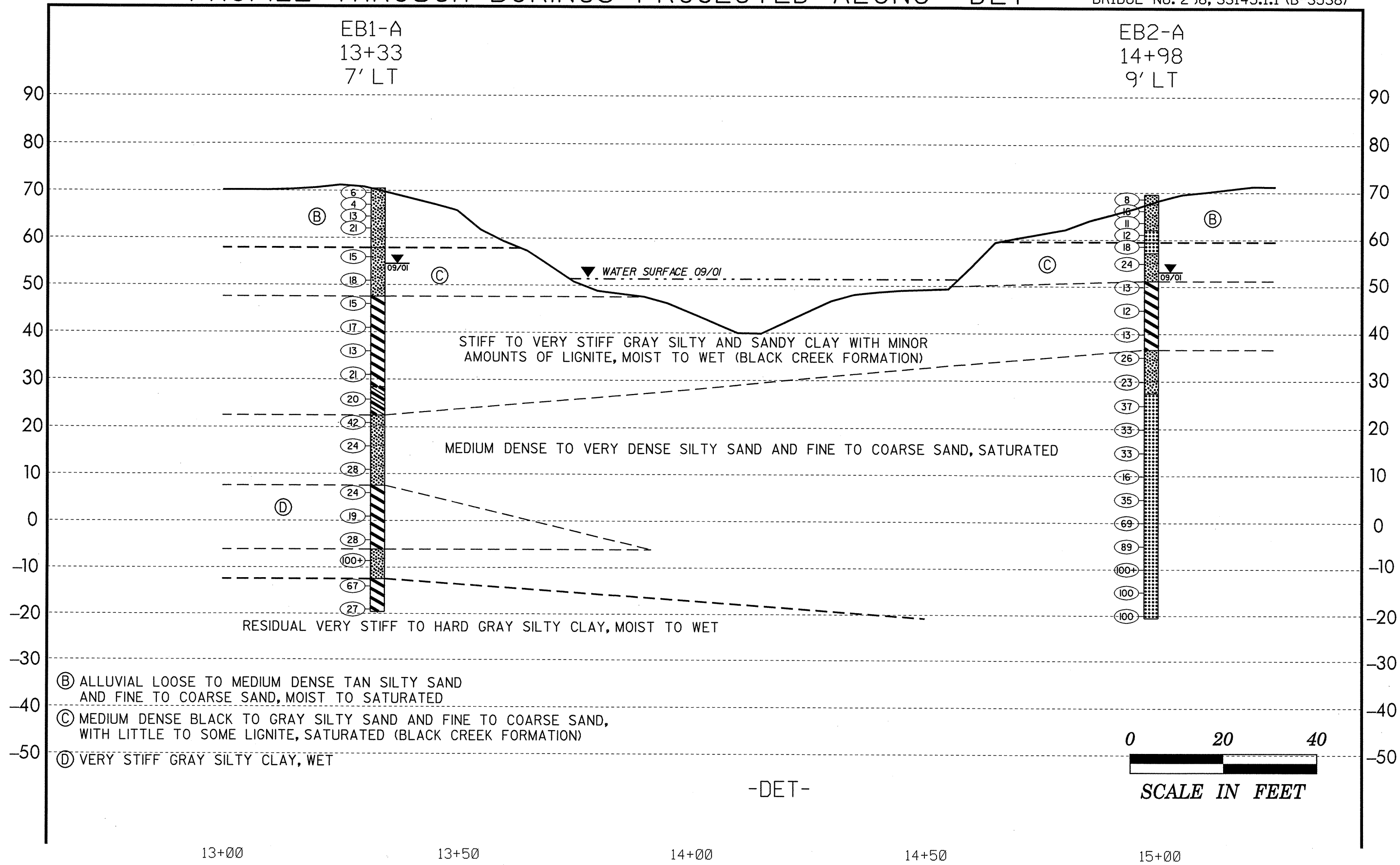
TEST SITE PLAN



PROFILE THROUGH BORINGS PROJECTED ALONG -L-



PROFILE THROUGH BORINGS PROJECTED ALONG -DET-



**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
GEOTECHNICAL UNIT BORING LOG**

SHEET 7 OF 16

PROJECT NO. 33145.1.1	ID. B-3538	COUNTY WAYNE	GEOLOGIST J.L. STONE
SITE DESCRIPTION BRIDGE NO. 296 ON SR 1222 OVER NEUSE RIVER CUT-OFF			GROUND WATER
BORING NO. EBI-B	BORING LOCATION 13+26	OFFSET 20' RT	ALIGNMENT -L-
COLLAR ELEVATION 74.4'	NORTHING 0.00	EASTING 0.00	0 HR. N/A 24 HR. 18.9'
TOTAL DEPTH 59.8'	DRILL MACHINE CME-45B	DRILL METHOD ROTARY W/MUD	HAMMER TYPE AUTOMATIC
START DATE 1/26/05	COMPLETION DATE 1/26/05	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT					SAMPLE NUMBER	LOG	SOIL AND ROCK DESCRIPTION	
		0.5'	0.5'	0.5'		0	25	50	75	100				
74.4	0.0	2	4	5	1.0									
70.0	4.0	4	5	5	1.0									ROADWAY EMBANKMENT, TAN TO BROWN SILTY SAND, MOIST
65.0	8.3	4	10	13	1.0									
60.0	13.3	3	7	11	1.0									ALLUVIAL, TAN, SILTY SAND, MOIST
55.0	18.3	7	7	7	1.0									
50.0	23.3	15	18	23	1.0									TAN, GRAY AND MOTTLED ORANGE, COARSE SAND AND SILTY SAND WITH SOME LIGNITE, SATURATED (BLACK CREEK FORMATION)
45.0	28.3	8	16	15	1.0									
40.0	33.3	4	8	10	1.0									
35.0	38.3	5	9	14	1.0									GRAY TO BLACK, SILTY CLAY WITH THIN SAND LAYERS AND TRACE AMOUNTS OF LIGNITE, MOIST
30.0	43.3	6	13	15	1.0									
25.0	48.3	7	11	13	1.0									
20.0	53.3	3	10	25	1.0									
15.0	58.3	9	11	28	1.0									GRAY, SILTY FINE SAND WITH TRACE LIGNITE, SATURATED
10.0														BORING TERMINATED AT ELEVATION 14.6 FEET IN DENSE SILTY SAND (BLACK CREEK FORMATION)
5.0														
0.0														
-5.0														

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 33145.1.1		ID. B-3538		COUNTY WAYNE		GEOLOGIST D.B. CATES	
SITE DESCRIPTION BRIDGE NO. 296 ON SR 1222 OVER NEUSE RIVER CUTOFF							GROUND WATER
BORING NO. B2-B		BORING LOCATION 14+42		OFFSET 5' RT		ALIGNMENT -L-	
COLLAR ELEVATION 47.6'		NORTHING 0.00		EASTING 0.00		0 HR. N/A	
TOTAL DEPTH 82.7'		DRILL MACHINE CME-45C		DRILL METHOD ROTARY W/MUD		HAMMER TYPE AUTOMATIC	
START DATE 9/13/01		COMPLETION DATE 9/13/01		SURFACE WATER DEPTH 2.6'		DEPTH TO ROCK N/A	
ELEV.	DEPTH (FT.)	BLOW COUNT	PEN. (FT.)	BLOWS PER FOOT	SAMPLE NUMBER	MOI.	LOG
		0.5' 0.5' 0.5'		0 25 50 75 100			
47.6	0.0	3	3	3	1.0	X6	
45.0	2.5	4	4	5	1.0	X9	
40.0	6.6	3	5	8	1.0	X13	
35.0	11.6	2	5	12	1.0	X17	
30.0	16.6	7	8	14	1.0	X22	SS-36
25.0	21.6	8	10	14	1.0	X24	
20.0	26.6	10	23	20	1.0	X43	
15.0	31.6	9	8	18	1.0	X26	SS-37
10.0	36.6	6	8	10	1.0	X18	
5.0	41.6	11	25	23	1.0	X48	SS-38
0.0	46.6	15	24	27	1.0	X51	SS-39
-5.0	51.6	21	46	54	0.6	100+	SS-40
-10.0	56.6	15	33	21	1.0	54	
-15.0	61.6	23	41	27	1.0	X68	SS-41
-20.0	66.6	11	17	31	1.0	X48	
-25.0	71.6	10	17	21	1.0	X38	SS-42
-30.0	76.6	19	29	48	1.0	X77	SS-43
							SS-44

PROJECT NO. 33145.1.1		ID. B-3538		COUNTY WAYNE		GEOLOGIST D.B. CATES	
SITE DESCRIPTION BRIDGE NO. 296 ON SR 1222 OVER NEUSE RIVER CUTOFF							GROUND WATER
BORING NO. B2-B		BORING LOCATION 14+42		OFFSET 5' RT		ALIGNMENT -L-	
COLLAR ELEVATION 47.6'		NORTHING 0.00		EASTING 0.00		0 HR. N/A	
TOTAL DEPTH 82.7'		DRILL MACHINE CME-45C		DRILL METHOD ROTARY W/MUD		HAMMER TYPE AUTOMATIC	
START DATE 9/13/01		COMPLETION DATE 9/13/01		SURFACE WATER DEPTH 2.6'		DEPTH TO ROCK N/A	
ELEV.	DEPTH (FT.)	BLOW COUNT	PEN. (FT.)	BLOWS PER FOOT	SAMPLE NUMBER	MOI.	LOG
		0.5' 0.5' 0.5'		0 25 50 75 100			
32.0	8.6	19	40	60	0.6	100+	
-37.0							
-42.0							
-47.0							
-52.0							
-57.0							
-62.0							
-67.0							
-72.0							
-77.0							
-82.0							
-87.0							
-92.0							
-97.0							
-102.0							
-107.0							
-112.0							

GRAY, SILTY CLAY, WET
 (BLACK CREEK FORMATION)

GRAY, SILTY FINE SAND, SATURATED

GRAY, FINE SANDY CLAYEY SILT
 AND SILTY CLAY, WET

GRAY, SILTY FINE SAND TO
 COARSE SAND, SATURATED

RESIDUAL,
 RED-GRAY TO TAN, SANDY TO
 SILTY CLAY, WET

BORING TERMINATED AT
 ELEVATION = 35.1 FEET IN
 HARD SILTY CLAY
 (SAPROLITE)

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

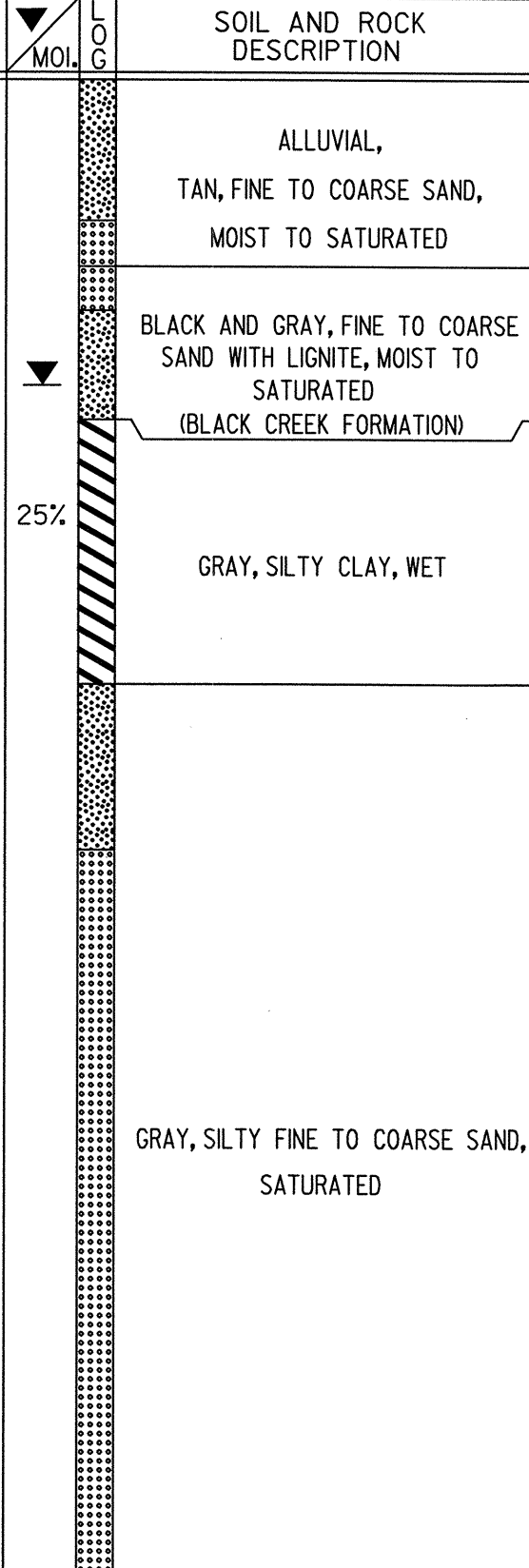
NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
 GEOTECHNICAL UNIT BORING LOG

PROJECT NO. 33145.1.1	ID. B-3538	COUNTY WAYNE	GEOLOGIST D.B. CATES
SITE DESCRIPTION BRIDGE NO. 296 ON SR 1222 OVER NEUSE RIVER CUTOFF			GROUND WATER
BORING NO. EB2-A	BORING LOCATION 14+98	OFFSET 9' LT	ALIGNMENT -DET- 0 HR. N/A 24 HR. 16.5'
COLLAR ELEVATION 69.6'	NORTHING 0.00	EASTING 0.00	
TOTAL DEPTH 90.1'	DRILL MACHINE CME-45B	DRILL METHOD ROTARY W/MUD	HAMMER TYPE AUTOMATIC
START DATE 9/4/01	COMPLETION DATE 9/5/01	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

PROJECT NO. 33145.1.1	ID. B-3538	COUNTY WAYNE	GEOLOGIST D.B. CATES
SITE DESCRIPTION BRIDGE NO. 296 ON SR 1222 OVER NEUSE RIVER CUTOFF			GROUND WATER
BORING NO. EB2-A	BORING LOCATION 14+98	OFFSET 9' LT	ALIGNMENT -DET- 0 HR. N/A 24 HR. 16.5'
COLLAR ELEVATION 69.6'	NORTHING 0.00	EASTING 0.00	
TOTAL DEPTH 90.1'	DRILL MACHINE CME-45B	DRILL METHOD ROTARY W/MUD	HAMMER TYPE AUTOMATIC
START DATE 9/4/01	COMPLETION DATE 9/5/01	SURFACE WATER DEPTH N/A	DEPTH TO ROCK N/A

ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT					SAMPLE NUMBER	LOG	SOIL AND ROCK DESCRIPTION				
		0.5'	0.5'	0.5'		0	25	50	75	100							
69.6	0.0	0	2	6	1.0												
	2.5	5	8	8	1.0												
65.0	5.0	4	5	6	1.0												
	7.5	5	6	6	1.0												
60.0	10.0	6	8	10	1.0												
	13.7	11	13	11	1.0												
55.0	18.7	7	7	6	1.0												
50.0	23.7	3	5	7	1.0												
45.0	28.7	3	5	8	1.0												
40.0	33.7	9	11	15	1.0												
35.0	38.7	6	9	14	1.0												
30.0	43.7	12	17	20	1.0												
25.0	48.7	13	16	17	1.0												
20.0	53.7	13	14	19	1.0												
15.0	58.7	8	6	10	1.0												
10.0	63.7	14	15	20	1.0												
5.0	68.6	15	30	39	1.0												
0.0	73.6	41	46	43	1.0												
-5.0	78.6	40	72	28	0.8												
-10.0																	

ELEV. (FT.)	DEPTH (FT.)	BLOW COUNT			PEN. (FT.)	BLOWS PER FOOT					SAMPLE NUMBER	LOG	SOIL AND ROCK DESCRIPTION				
		0.5'	0.5'	0.5'		0	25	50	75	100							
12.0	83.6	13	18	82	1.0												
-17.0	88.6	26	46	54	1.0												
-22.0																	
-27.0																	
-32.0																	
-37.0																	
-42.0																	
-47.0																	
-52.0																	
-57.0																	
-62.0																	
-67.0																	
-72.0																	
-77.0																	
-82.0																	
-87.0																	
-92.0																	



BORING TERMINATED AT ELEVATION -20.5 FEET IN VERY DENSE FINE SAND (BLACK CREEK FORMATION)

GRAY, SILTY FINE TO COARSE SAND, SATURATED

B-3538
Wayne County
Bridge No. 296 over Neuse River Cut-Off on SR 1222

HOLE #	SAMPLE #	RET 4	PASS 10	PASS 40	PASS 200	CSESAND	FINESAND	SI	CL	LL	PI	CLASS	DEPTH	MOIST.	ORG.
EB2-A (DET)	SS-1		97	81	21	39.0	41.9	6.0	13.1	16	NP	A-2-4(0)	2.5-4.0		
	SS-2		94	54	7	69.6	24.0	0.3	6.1	19	NP	A-3(0)	10.0-11.5		
	SS-3		100	98	86	2.6	16.6	30.3	50.5	53	32	A-7-6(29)	23.7-25.2	24.6	
	SS-4		100	99	24	4.0	75.3	3.5	17.2	26	5	A-2-4(0)	33.7-35.2		
	SS-5		100	99	10	15.4	76.2	2.4	6.1	24	NP	A-3(0)	43.7-45.2		
	SS-6		100	94	8	31.8	60.9	2.2	5.1	20	NP	A-3(0)	58.7-60.2		
	SS-45		95	52	9	64.7	27.9	3.3	4.0	19	NP	A-3(0)	73.6-75.1		
	SS-46		98	68	10	68.1	22.9	2.9	6.1	18	NP	A-3(0)	88.6-90.1		
EB1-A (DET)	SS-7		95	56	12	57.6	30.6	2.7	9.1	19	NP	A-2-4(0)	2.5-4.0		
	SS-8		99	81	33	35.4	36.5	11.0	17.2	21	5	A-2-4(0)	7.5-9.0		
	SS-9		95	55	11	58.6	30.9	1.4	9.1	20	NP	A-2-4(0)	13.6-15.1		
	SS-10		100	85	42	45.1	14.2	16.5	24.2	44	26	A-7-6(6)	23.6-25.1		
	SS-11		100	98	81	2.8	19.8	41.0	36.4	54	30	A-7-6(26)	28.6-30.1	21.8	
	SS-12		100	99	77	1.8	34.3	39.6	24.2	40	21	A-6(15)	43.6-45.1		
	SS-13		100	99	15	9.7	77.9	3.3	9.1	22	NP	A-2-4(0)	48.6-50.1		
	SS-14		100	99	93	1.0	11.3	31.1	56.6	55	33	A-7-6(34)	63.6-65.1		
	SS-15		97	76	11	54.6	35.1	5.3	5.1	18	NP	A-2-4(0)	78.6-79.6		
14+74 5' RT	SS-16		100	95	84	6.9	16.8	38.0	38.4	48	25	A-7-6(22)	5.0-6.5		
	SS-17		100	100	22	1.8	80.3	5.8	12.1	22	NP	A-2-4(0)	17.7-19.2		
	SS-18		100	98	11	20.0	70.5	3.4	6.1	20	NP	A-2-4(0)	32.7-34.2		
	SS-19		100	100	94	0.8	9.9	38.8	50.5	48	30	A-7-6(30)	42.7-44.2		
	SS-20		100	57	13	76.8	10.8	4.3	8.1	36	NP	A-2-4(0)	47.7-49.2		
	SS-21		95	43	7	76.2	17.9	1.9	4.0	18	NP	A-1-b(0)	57.7-59.2		
	SS-22		64	35	8	67.2	22.0	4.7	6.1	17	NP	A-1-b(0)	72.7-74.1		
	SS-23		90	76	73	16.8	2.6	30.1	50.5	39	20	A-6(13)	77.7-79.2		
	SS-24		98	88	80	12.7	8.3	28.5	50.5	37	12	A-6(10)	82.7-84.2		
B1-B	SS-25		91	68	14	51.9	34.7	6.3	7.1	27	NP	A-2-4(0)	0.0-1.5		
	SS-26		100	98	87	2.8	18.6	48.3	30.3	59	31	A-7-6(30)	5.0-6.5		
	SS-27		100	99	77	1.6	32.1	46.1	20.2	42	23	A-7-6(17)	17.5-19.0		
	SS-28		100	100	54	0.5	60.8	24.5	14.1	30	13	A-6(4)	22.5-24.0		
	SS-29		100	98	75	3.2	36.8	43.8	16.2	46	23	A-7-6(17)	27.5-29.0		
	SS-30		99	98	34	2.1	71.7	11	15.2	20	NP	A-2-4(0)	42.5-44.0		
	SS-31		90	38	9	67.1	24.9	3.9	4	18	NP	A-1-b(0)	52.5-54.0		
	SS-32		100	98	85	3.4	15.2	30.9	50.5	54	34	A-7-6(30)	62.5-63.5		
	SS-33		65	30	8	70.4	19.8	4.7	5.1	17	NP	A-1-b(0)	67.5-68.8		
	SS-34		91	72	66	23.6	5.3	26.7	44.4	35	18	A-6(10)	72.5-74.0		
	SS-35		100	97	91	3.6	6.1	41.8	48.5	42	14	A-7-6(15)	77.5-79.0		
B2-B	SS-36		98	95	85	3.8	17	46.9	32.3	52	29	A-7-6(26)	0.0-1.5	26.8	
	SS-37		100	99	25	6.1	71.6	8.2	14.1	22	NP	A-2-4(0)	16.6-18.1		
	SS-38		100	100	55	0.6	60	17.2	22.2	25	8	A-4(2)	31.6-33.1		
	SS-39		100	100	94	0.4	10.1	39	50.5	49	27	A-7-6(28)	36.6-38.1		
	SS-40		100	99	17	4.2	82.8	4.8	8.1	22	NP	A-2-4(0)	41.6-43.1		
	SS-41		85	35	8	73.6	19	3.3	4	17	NP	A-1-b(0)	51.6-52.7		
	SS-42		98	40	9	79	13.2	2.7	5.1	19	NP	A-1-b(0)	66.6-68.1		
	SS-43		98	79	76	20.2	3.4	27.9	48.5	35	18	A-6(12)	71.6-73.1		
	SS-44		100	96	93	5.1	2.6	45.9	46.5	44	14	A-7-5(16)	76.6-78.1		

Rev. 5/91

GEOTECHNICAL UNIT FIELD SCOUR REPORT

PROJECT: 33145.1.1 ID: B-3538 COUNTY: Wayne

DESCRIPTION (1): Bridge No. 296 over Neuse River Cut-Off on SR 1222

INFORMATION ON EXISTING BRIDGES Information obtained from field inspection
 microfilm (Reel: _____ Position: _____)
 other _____

COUNTY BRIDGE NO. 296 BRIDGE LENGTH 161 NO. BENTS 5 NO. BENTS IN CHANNEL 3 FLOOD PLAIN 2

FOUNDATION TYPE: Timber Piles

EVIDENCE OF SCOUR (2):

ABUTMENTS OR END BENT SLOPES: Minor sloughing of bank material at End Bent 2

INTERIOR BENTS: Small scour pocket at Bent 2

CHANNEL BED: None observed

CHANNEL BANKS: Undercut banks along with over steepening and sloughing of bank material

EXISTING SCOUR PROTECTION:

TYPE (3): Timber end walls and rip-rap on end slopes

EXTENT (4): End walls extend to approximate shoulder points; rip-rap to just below water surface

EFFECTIVENESS (5): moderately effective

OBSTRUCTIONS (6) (DAMS, DEBRIS, ETC.): Large storage tank (approximately 20 feet long by 6 feet in dia.)

DESIGN INFORMATION

CHANNEL BED MATERIAL (7) (SAMPLE RESULTS ATTACHED): Medium stiff silty clay; (SS-36) and

loose fine to coarse sand (SS-25)

CHANNEL BANK MATERIAL (8) (SAMPLE RESULTS ATTACHED): Loose to medium dense sand and silty sand ;

(SS-1, SS-2, SS-8, and SS-9)

CHANNEL BANK COVER (9): Trees, brush, and grass

DESIGN INFORMATION CONT.

FLOOD PLAIN WIDTH (10): 3 to 4 miles

FLOOD PLAIN COVER (11): Mixed woodland, agricultural, commercial, and residential

STREAM IS DEGRADING AGGRADING EQUILIBRIUM (12)

OTHER OBSERVATIONS AND COMMENTS: Stream was straightened and channelized

CHANNEL MIGRATION TENDENCY (13): Low

GEOTECHNICALLY ADJUSTED SCOUR ELEVATION (14): The GASE is determined to be 43.6 feet above sea level .

This is 3.5 feet higher than the potential scour calculated by the Hydraulic Unit.

REPORTED BY: J. R. McCray DATE: April 11, 2005

INSTRUCTIONS

- (1) GIVE THE DESCRIPTION OF THE SPECIFIC SITE GIVING ROUTE NUMBER AND BODY OF WATER CROSSED.
- (2) NOTE ANY EVIDENCE OF SCOUR AT THE EXISTING END BENTS OR ABUTMENTS (UNDERMINING, SLOUGHING, SCOUR LOCATIONS, DEGRADATIONS, ETC.)
- (3) NOTE ANY EXISTING SCOUR PROTECTION (RIP RAP, ETC.)
- (4) DESCRIBE THE EXTENT OF ANY EXISTING SCOUR PROTECTION.
- (5) DESCRIBE WHETHER OR NOT THE SCOUR PROTECTION APPEARS TO BE WORKING.
- (6) NOTE ANY DAMS, FALLEN TREES, DEBRIS AT BENTS, ETC.
- (7) DESCRIBE THE CHANNEL BED MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION. ATTACH LAB RESULTS.
- (8) DESCRIBE THE CHANNEL BANK MATERIAL: A SAMPLE SHOULD BE TAKEN FOR GRAIN SIZE DISTRIBUTION. ATTACH LAB RESULTS.
- (9) DESCRIBE THE BANK COVERING (GRASS, TREES, RIP RAP, NONE, ETC.)
- (10) GIVE THE APPROXIMATE FLOOD PLAIN WIDTH (ESTIMATE).
- (11) DESCRIBE THE FLOOD PLAIN COVERING (GRASS, TREES, CROPS, ETC.)
- (12) CHECK THE APPROPRIATE SPACE AS TO WHETHER THE STREAM IS DEGRADING, AGGRADING, OR EQUILIBRIUM.
- (13) DESCRIBE THE POTENTIAL OF THE BODY OF WATER TO MIGRATE Laterally DURING THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS).
- (14) GIVE THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION EXPECTED OVER THE LIFE OF THE BRIDGE (APPROXIMATELY 100 YEARS). THIS CAN BE GIVEN AS AN ELEVATION RANGE ACROSS THE SITE, OR ON A BENT BY BENT BASIS WHERE VARIATIONS EXIST. DISCUSS RELATIONSHIP BETWEEN THE HYDRAULICS THEORETICAL SCOUR AND THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION. THE GEOTECHNICALLY ADJUSTED SCOUR ELEVATION IS BASED ON THE ERODABILITY OF MATERIALS WITH CONSIDERATION FOR JOINTING, FOLIATION, BEDDING ORIENTATION AND FREQUENCY; CORE RECOVERY PERCENTAGE; PERCENTAGE RQD; DIFFERENTIAL WEATHERING; SHEAR STRENGTH; OBSERVATIONS AT EXISTING STRUCTURES; OTHER TESTS DEEMED APPROPRIATE; AND OVERALL GEOLOGIC CONDITIONS AT THE SITE.

B-3538

Wayne County

Bridge No. 296 over Neuse River Cut-Off on SR 1222

SHEET 16 OF 16
33145.1.1 (B-3538)



View looking west toward End Bent 1 along Bridge No. 296