

SEE SHEET 3 FOR PLAN SHEET LAYOUT
AT TIME OF INVESTIGATION

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

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5947	1	13

CONTENTS

LINE	STATION	PLAN
-LREV-	12+02 TO 36+95	4-5

**ROADWAY
SUBSURFACE INVESTIGATION**

COUNTY NASH
PROJECT DESCRIPTION BRIDGE NO. 91 ON NC 581
OVER TAR RIVER

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 SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1919 TOT-6850. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT 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 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.

NOTES:

1. THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS ACCURATE NOR IS IT CONSIDERED PART OF THE PLANS, SPECIFICATIONS OR CONTRACT FOR THE PROJECT.
2. 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.

PERSONNEL

O. B. OTI

A. N. JONES

D. G. PINTER

INVESTIGATED BY A. N. JONES

DRAWN BY A. N. JONES

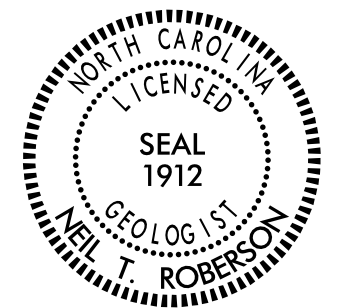
CHECKED BY N. T. ROBERSON

SUBMITTED BY N. T. ROBERSON

DATE JANUARY 2020

REFERENCE: B-5947

PROJECT: 45983



SIGNATURE

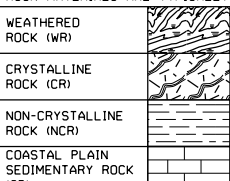
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**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

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

SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

SOIL DESCRIPTION					GRADATION					ROCK DESCRIPTION					TERMS AND DEFINITIONS				
SOIL IS CONSIDERED 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 THE STANDARD PENETRATION TEST (AASHTO T 206, ASTM D1586). SOIL CLASSIFICATION IS BASED ON THE AASHTO SYSTEM. BASIC DESCRIPTIONS GENERALLY INCLUDE THE FOLLOWING: CONSISTENCY, COLOR, TEXTURE, MOISTURE, AASHTO CLASSIFICATION, AND OTHER PERTINENT FACTORS SUCH AS MINERALOGICAL COMPOSITION, ANGULARITY, STRUCTURE, PLASTICITY, ETC. FOR EXAMPLE, <i>VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6</i>					WELL GRADED - INDICATES A GOOD REPRESENTATION OF PARTICLE SIZES FROM FINE TO COARSE. UNIFORMLY GRADED - INDICATES THAT SOIL PARTICLES ARE ALL APPROXIMATELY THE SAME SIZE. GAP-GRADED - INDICATES A MIXTURE OF UNIFORM PARTICLE SIZES OF TWO OR MORE SIZES.					HARD ROCK IS NON-COASTAL PLAIN MATERIAL THAT WOULD YIELD SPT REFUSAL IF TESTED, 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: 					ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER. AQUIFER - A WATER BEARING FORMATION OR STRATA. ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND. ARGILLACEOUS - APPLIED TO ALL ROCKS OR SUBSTANCES COMPOSED OF CLAY MINERALS, OR HAVING A NOTABLE PROPORTION OF CLAY IN THEIR COMPOSITION, SUCH AS SHALE, SLATE, ETC. ARTESIAN - 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. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE. COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE. CORE RECOVERY (REC.) - TOTAL LENGTH OF ALL MATERIAL RECOVERED IN THE CORE BARREL DIVIDED BY TOTAL LENGTH OF CORE RUN AND EXPRESSED AS A PERCENTAGE. DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK. DIP - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL. DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH. FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE. FISSILE - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. FLOAT - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLOGGED FROM PARENT MATERIAL. FLOOD PLAIN (FP) - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM. FORMATION (FM) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD. JOINT - FRACTURE IN ROCK ALONG WHICH NO APPRECIABLE MOVEMENT HAS OCCURRED. LEDGE - A SHELF-LIKE RIDGE OR PROJECTION OF ROCK WHOSE THICKNESS IS SMALL COMPARED TO ITS LATERAL EXTENT. LENS - A BODY OF SOIL OR ROCK THAT THINS OUT IN ONE OR MORE DIRECTIONS. MOTTLED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE. PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE OF AN INTERVENING IMPERVIUS STRATUM. RESIDUAL (RES.) SOIL - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK. ROCK QUALITY DESIGNATION (RQD) - 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. SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK. SILL - AN INTRUSIVE BODY OF IGNEOUS ROCK OF APPROXIMATELY UNIFORM THICKNESS AND RELATIVELY THIN COMPARED WITH ITS LATERAL EXTENT, THAT HAS BEEN EMPLACED PARALLEL TO THE BEDDING OR SCHISTOSITY OF THE INTRUDED ROCKS. SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE. STANDARD PENETRATION TEST (PENETRATION RESISTANCE) (SPT) - NUMBER OF BLOWS (N OR BPF) 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 PENETRATION EQUAL TO OR LESS THAN 0.1 FOOT PER 60 BLOWS. STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE. STRATA ROCK QUALITY DESIGNATION (SROD) - A MEASURE OF ROCK QUALITY DESCRIBED BY 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. TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.				
SOIL LEGEND AND AASHTO CLASSIFICATION																			
GRANULAR MATERIALS (≤ 35% PASSING #200)					SILT-CLAY MATERIALS (> 35% PASSING #200)					ORGANIC MATERIALS									
GROUP CLASS.	A-1	A-1-b	A-2-4	A-2-5	A-2-6	A-2-7	A-4	A-5	A-6	A-7	A-1, A-2	A-3	A-4, A-5	A-6, A-7					
SYMBOL	○	○	○	○	○	○	○	○	○	○	○	○	○	○					
% PASSING	50	30	10	5	10	15	15	10	10	10	10	10	10	10					
GROUP INDEX	0	0	0	0	0	0	0	0	0	0	0	0	0	0					

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-5947	3	13
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
45983.1.1		PE	

1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107

WETHERILL
ENGINEERING

TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

BRIDGE #630091

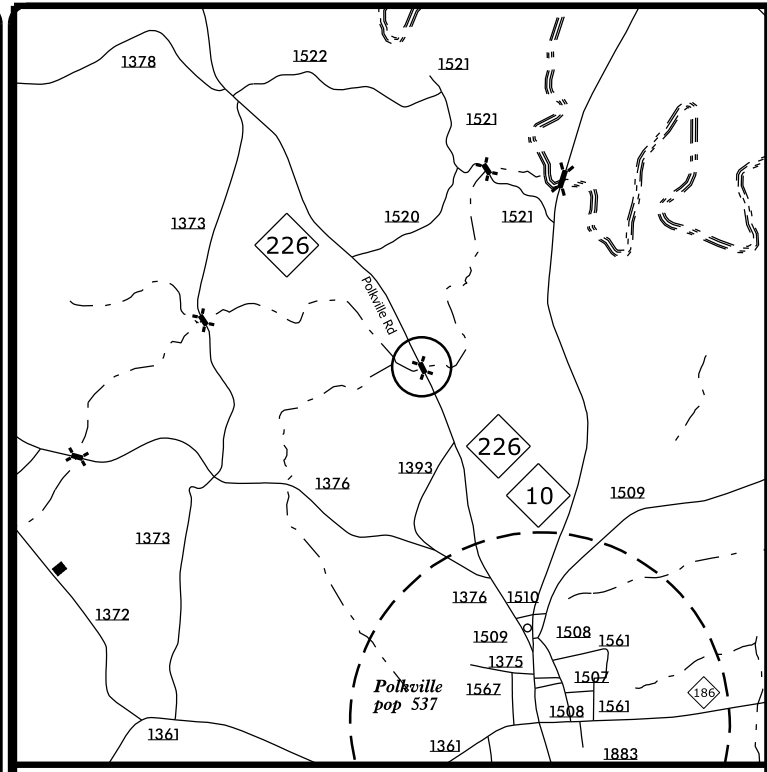
25% PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NASH COUNTY

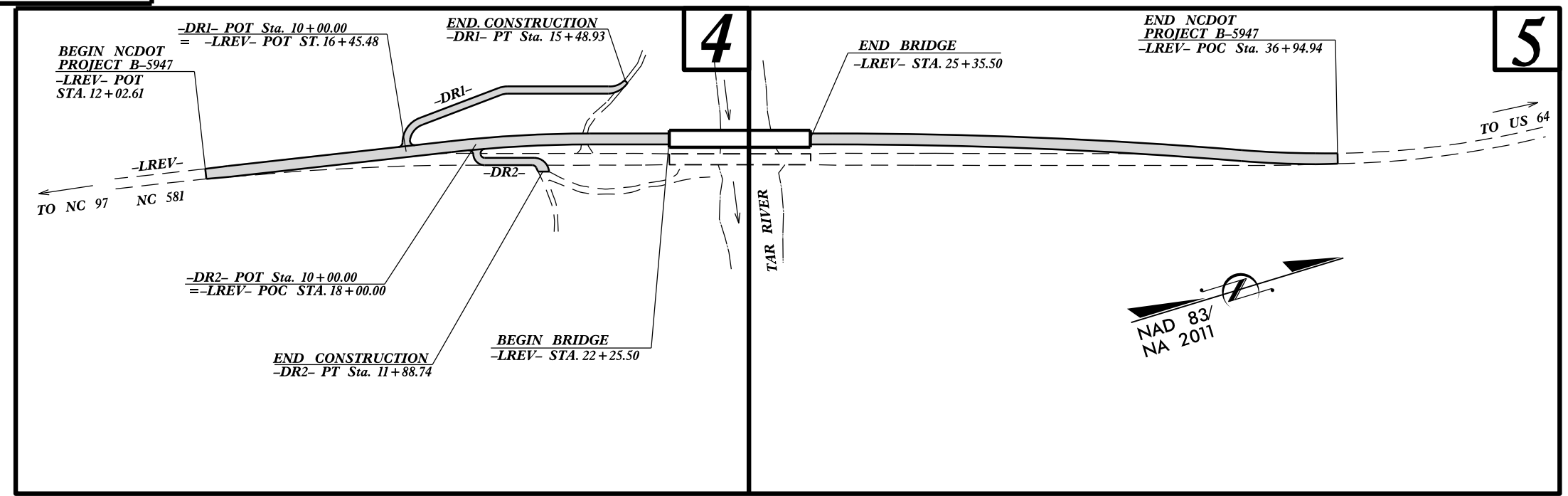
**LOCATION: BRIDGE NO. 630091 OVER TAR RIVER
ON NC 581**

TYPE OF WORK: GRADING, DRAINAGE, PAVING & STRUCTURE



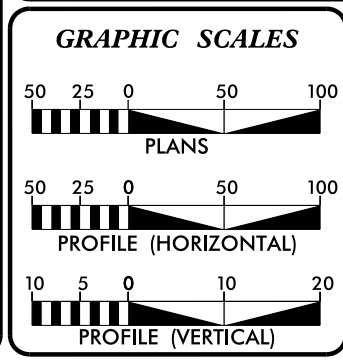
VICINITY MAP

PROJECT: B-5947



CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD .
THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES.

INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT 2020 =	5,300
ADT 2040 =	6,300
K =	10 %
D =	55 %
T =	5 % *
V =	60 MPH

* (TTST = 1% +
DUAL = 4%)
FUNC CLASS =
MAJOR COLLECTOR
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-5947 =	0.413 MILES
LENGTH STRUCTURE PROJECT B-5947 =	0.059 MILES
TOTAL LENGTH PROJECT B-5947 =	0.472 MILES

NCDOT CONTACT: DAVID STUTTS, PE
PROJECT ENGINEER - PE/PROGRAM MGT.

Prepared for:
DIVISION OF HIGHWAYS
STRUCTURES MANAGEMENT UNIT
1000 BIRCH RIDGE DRIVE RALEIGH NC, 27610

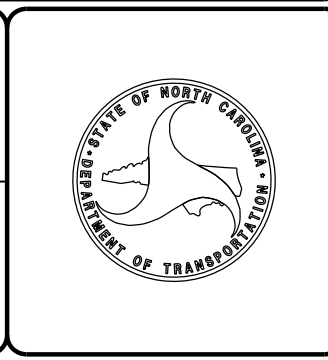
2018 STANDARD SPECIFICATIONS	EDWARD G. WETHERILL, PE PROJECT ENGINEER
RIGHT OF WAY DATE: DECEMBER 23, 2019	
LETTING DATE: DECEMBER 22, 2020	GREG S. PURVIS, PE PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

SIGNATURE: _____ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: _____ P.E.



24-OCT-2019 14:35 S:\EP0\Projects\Investigation\TIP\B5947_GEO_RDWY\CADD_GEO\TECH\PlanProj\B-5947_r_dy_TSH.dgn



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

ROY COOPER
GOVERNOR

JAMES H. TROGDON, III
SECRETARY

January 8, 2020

STATE PROJECT: 45983.1.1 (B-5947)
FEDERAL PROJECT: N/A
COUNTY: NASH

DESCRIPTION: Replace Bridge No. 91 on NC 581 over Middle Creek

SUBJECT: Geotechnical Report – Inventory

The Geotechnical Engineering Unit has completed a subsurface investigation for this project and presents the following inventory.

Project Description

This project consists of replacing the existing structure on new location and realigning and widening the approaches to bridge number 91 over the Tar River. The types of work included grading, drainage, paving, and structure. The structure subsurface inventory will be completed at a later date.

Geotechnical investigations were conducted during June of 2012 and October of 2019. Eleven hand auger borings and four SPT borings were performed by the Geotechnical Engineering Unit.

The following alignment, totaling 0.47 miles, was investigated. Subsurface plans and borelogs of this alignment are included in this report.

<u>Line</u>	<u>Stations</u>
-LREV-	12+02 to 36+94

Physiography and Geology

The project is located south of the town limits of Spring Hope, and within the Eastern Slate Belt in the Piedmont Physiographic Province of North Carolina. Soils consist of residual derived from underlying felsic metavolcanic rock of the Eastern Slate Belt. The topography consists of rolling hills. The new location portion of the project consists of mostly wooded floodplain.

Soils Properties

Soils encountered during this investigation were Roadway Embankment, Alluvial, and Residual.

Roadway Embankment soils consist of tan, brown, and gray, dry to moist, soft to medium stiff, sandy silt (A-4) and silty clay(A-7-6).

Alluvial soils were encountered in the SPT borings. These soils consist of tan, brown, and gray, moist, sandy silt (A-4) and sandy and silty clay (A-6, A-7-6).

Residual soils were encountered throughout the project. These soils are characterized by orange, tan, and gray, dry to moist, soft to very stiff, sandy silt (A-4) and sandy clay (A-6).

Rock Properties

Weathered rock in the Eastern Slate Belt is derived from the underlying felsic metavolcanic schist. Weathered rock was encountered in the existing cut section at the following station:

<u>Alignment</u>	<u>Station</u>
-LREV-	16+25 to 19+25, LT

Crystalline rock for this area consists of felsic metavolcanic schist. Several crystalline rock outcrops can be found in the existing cut slope, within the riverbed, and throughout the project area.

Groundwater

Groundwater measurements in the hand auger borings were taken in October of 2019 following a heavy rainfall event. The water level observed in the centerline boring at -LREV- Sta. 33+50 is the result of rainfall runoff. Groundwater was not encountered in any of the hand auger borings performed on this project.

8/17/99

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REVISIONS

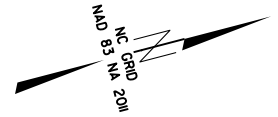
WV WETHERILL
ENGINEERING
1223 Jones Franklin Rd.
Raleigh, N.C. 27606
License No. F-0377
Bus: 919 851 8077
Fax: 919 851 8107
TRANSPORTATION PLANNING/DESIGN - BRIDGE/STRUCTURE DESIGN
CIVIL/SITE DESIGN - GIS/GPS - CONSTRUCTION OBSERVATION

PROJECT REFERENCE NO. B-5947	SHEET NO. 4
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

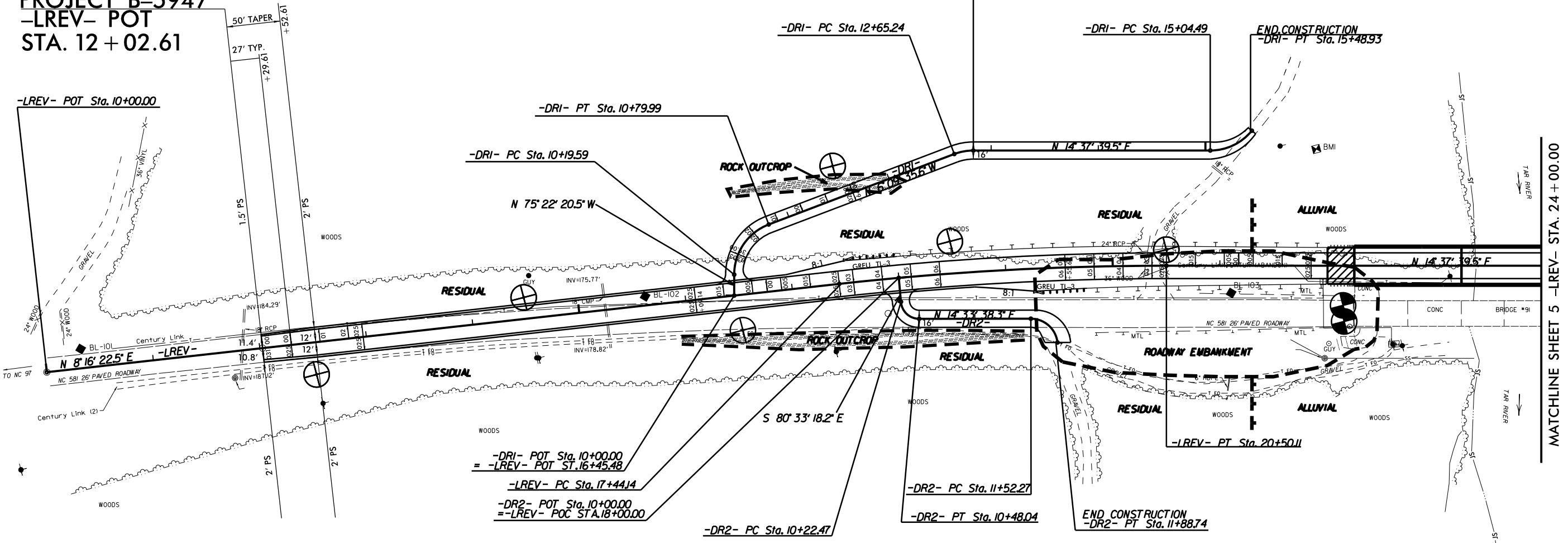
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UNLESS ALL SIGNATURES COMPLETED**

15
20

ELEVATION - 146.10
N 777073 E 2269535
BL STATION 16+56.00 134 LEFT
BENCHMARK NAIL SET IN 16" HARDWOOD



**BEGIN NCDOT
PROJECT B-5947
-LREV- POT
STA. 12 + 02.61**



MATCHLINE SHEET 5 -LREV- STA. 24 + 00.00

GEOTECHNICAL BORING REPORT BORE LOG

WBS 45983.1.1				TIP B-5947				COUNTY NASH				GEOLOGIST Jones, A. N.					
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581												GROUND WTR (ft)					
BORING NO. LREV_1250				STATION 12+50				OFFSET 30 ft RT				ALIGNMENT -LREV-				0 HR. Dry	
COLLAR ELEV. 190.8 ft				TOTAL DEPTH 2.0 ft				NORTHING 776,117				EASTING 2,269,503				24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE N/A								DRILL METHOD Hand Auger				HAMMER TYPE N/A					
DRILLER Pinter, D. G.				START DATE 10/10/19				COMP. DATE 10/10/19				SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
195																	
190															190.8	0.0	
															189.8	1.0	
															188.8	2.0	

WBS 45983.1.1				TIP B-5947				COUNTY NASH				GEOLOGIST Jones, A. N.					
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581												GROUND WTR (ft)					
BORING NO. LREV_1450				STATION 14+50				OFFSET 20 ft LT				ALIGNMENT -LREV-				0 HR. Dry	
COLLAR ELEV. 185.3 ft				TOTAL DEPTH 1.0 ft				NORTHING 776,323				EASTING 2,269,482				24 HR. FIAD	
DRILL RIG/HAMMER EFF./DATE N/A								DRILL METHOD Hand Auger				HAMMER TYPE N/A					
DRILLER Pinter, D. G.				START DATE 10/10/19				COMP. DATE 10/10/19				SURFACE WATER DEPTH N/A					
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	ELEV. (ft)	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100							
190																	
															185.3	0.0	
															184.3	1.0	

GEOTECHNICAL BORING REPORT BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. LREV_1650		STATION 16+50		OFFSET 33 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 178.6 ft		TOTAL DEPTH 0.5 ft		NORTHING 776,513		EASTING 2,269,563										
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD Hand Auger		HAMMER TYPE N/A										
DRILLER Pinter, D. G.		START DATE 10/10/19		COMP. DATE 10/10/19		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)	
180																

GROUND SURFACE
ELEV. 178.6
RESIDUAL
ORANGE-TAN, MEDIUM STIFF TO STIFF,
SANDY WITH TRACE GRAVEL
Boring Terminated BY AUGER REFUSAL at
Elevation 178.1 ft IN RESIDUAL (SANDY
SILT)

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. LREV_1750		STATION 17+50		OFFSET 110 ft LT		ALIGNMENT -LREV-										
COLLAR ELEV. 152.7 ft		TOTAL DEPTH 2.0 ft		NORTHING 776,633		EASTING 2,269,436										
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD Hand Auger		HAMMER TYPE N/A										
DRILLER Pinter, D. G.		START DATE 10/10/19		COMP. DATE 10/10/19		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)	
155																

GROUND SURFACE
ELEV. 152.7
RESIDUAL
TAN, STIFF TO VERY STIFF, SANDY SILT
WITH TRACE GRAVEL
Boring Terminated BY AUGER REFUSAL at
Elevation 150.7 ft IN RESIDUAL (SANDY
SILT)

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Oti, O. B.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. EB1-A		STATION 22+15		OFFSET 37 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 157.7 ft		TOTAL DEPTH 26.7 ft		NORTHING 777,061		EASTING 2,269,683										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 06/13/12		COMP. DATE 06/13/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
160														157.7	GROUND SURFACE	0.0
														156.9	ROADWAY EMBANKMENT ASPHALT & ABC	0.8
155	154.4	3.3	1	2	3							M				
150	149.4	8.3	1	2	4							M				
145	144.4	13.3	1	2	5							M				
140	139.4	18.3	1	2	3							M		141.7	ALLUVIAL TAN-BROWN, SANDY SILT	16.0
135	134.4	23.3	6	9	10							M		134.7	RESIDUAL TAN-BROWN, FINE TO COARSE SAND	23.0
	131.0	26.7	60/0.0											131.7	WEATHERED ROCK (METAVOLCANIC SCHIST)	26.0
														131.0	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 131.0 ft ON CRYSTALLINE ROCK (METAVOLCANIC SCHIST)	26.7

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Oti, O. B.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. EB1-B		STATION 22+16		OFFSET 52 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 157.6 ft		TOTAL DEPTH 28.3 ft		NORTHING 777,058		EASTING 2,269,697										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 06/13/12		COMP. DATE 06/13/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
160														157.6	GROUND SURFACE	0.0
														156.5	ROADWAY EMBANKMENT ASPHALT & ABC	1.1
155	154.3	3.3	1	2	2							M				
150	149.3	8.3	1	3	4							M				
145	144.3	13.3	2	3	4							M				
140	139.3	18.3	1	2	3							M		141.6	ALLUVIAL TAN-BROWN, SANDY SILT	16.0
135	134.3	23.3	4	7	8							M		134.6	RESIDUAL TAN-BROWN, COARSE SAND	23.0
	129.3	28.3	60/0.0											129.6	WEATHERED ROCK (METAVOLCANIC SCHIST)	28.0
														129.3	Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 129.3 ft ON CRYSTALLINE ROCK (METAVOLCANIC SCHIST)	28.3

NCDOT BORE DOUBLE B5947_GEO_BRDG_BH.GPJ_NC_DOT.GDT 1/7/20

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Oti, O. B.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. EB2-A		STATION 25+50		OFFSET 38 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 157.6 ft		TOTAL DEPTH 44.1 ft		NORTHING 777,385		EASTING 2,269,768										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 06/13/12		COMP. DATE 06/13/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
160														157.6	0.0	GROUND SURFACE
														156.3	1.3	ROADWAY EMBANKMENT ASPHALT & ABC
155	154.3	3.3	1	2	2											TAN, BROWN, AND GRAY, SILTY CLAY
150	149.3	8.3	2	2	2											
145	144.3	13.3	1	1	1											
140	139.3	18.3	1	1	2											ALLUVIAL GRAY-TAN, SANDY CLAY
135	134.3	23.3	2	3	5											TAN-BROWN, SANDY SILT
130	129.3	28.3	2	5	25											RESIDUAL GRAY-TAN, SILTY SAND
125	124.3	33.3	23	77/0.2												WEATHERED ROCK (METAVOLCANIC SCHIST)
120	119.3	38.3	85	15/0.2												
115	114.3	43.3	50	50/0.3												
																Boring Terminated at Elevation 113.5 ft IN WEATHERED ROCK (METAVOLCANIC SCHIST)

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Oti, O. B.										
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)									
BORING NO. EB2-B		STATION 25+51		OFFSET 51 ft RT		ALIGNMENT -LREV-										
COLLAR ELEV. 157.6 ft		TOTAL DEPTH 41.6 ft		NORTHING 777,382		EASTING 2,269,781										
DRILL RIG/HAMMER EFF./DATE TER6847 CME-75 91% 02/02/2012			DRILL METHOD H.S. Augers			HAMMER TYPE Automatic										
DRILLER Contract Driller		START DATE 06/13/12		COMP. DATE 06/13/12		SURFACE WATER DEPTH N/A										
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)		
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
160														157.6	0.0	GROUND SURFACE
														156.2	1.4	ROADWAY EMBANKMENT ASPHALT & ABC
155	154.2	3.4	2	2	3											TAN-BROWN, SILTY CLAY
150	149.2	8.4	1	2	1											
145	144.2	13.4	1	1	2											
140	139.2	18.4	WOH	1	2											ALLUVIAL TAN-BROWN, SILTY CLAY
135	134.2	23.4	1	1	3											RESIDUAL TAN-BROWN, SAPROLITIC, SANDY SILT
130	129.2	28.4	1	2	9											
125	124.2	33.4	24	27	68											
120	119.2	38.4	27	23	77/0.2											
	116.0	41.6	60/0.0													
																Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 116.0 ft ON CRYSTALLINE ROCK (METAVOLCANIC SCHIST)

NCDOT BORE DOUBLE B5947_GEO_BRDG_BH.GPJ_NC_DOT.GDT 1/7/20

GEOTECHNICAL BORING REPORT

BORE LOG

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.									
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)								
BORING NO. LREV_2750		STATION 27+50		OFFSET 30 ft LT		ALIGNMENT -LREV-									
COLLAR ELEV. 141.7 ft		TOTAL DEPTH 5.0 ft		NORTHING 777,595		EASTING 2,269,754									
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD Hand Auger			HAMMER TYPE N/A									
DRILLER Pinter, D. G.		START DATE 10/10/19		COMP. DATE 10/10/19		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
145															
														141.7	0.0
140												M		136.7	5.0

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.									
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)								
BORING NO. LREV_2950		STATION 29+50		OFFSET 30 ft LT		ALIGNMENT -LREV-									
COLLAR ELEV. 144.4 ft		TOTAL DEPTH 2.5 ft		NORTHING 777,788		EASTING 2,269,809									
DRILL RIG/HAMMER EFF./DATE N/A			DRILL METHOD Hand Auger			HAMMER TYPE N/A									
DRILLER Pinter, D. G.		START DATE 10/10/19		COMP. DATE 10/10/19		SURFACE WATER DEPTH N/A									
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	SOIL AND ROCK DESCRIPTION	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
145															
														144.4	0.0
														141.9	2.5

NCDOT BORE DOUBLE B5947_GEO_BRDG_BH.GPJ_NC_DOT.GDT 1/7/20

WBS 45983.1.1		TIP B-5947		COUNTY NASH		GEOLOGIST Jones, A. N.								
SITE DESCRIPTION BRIDGE NO. 91 OVER TAR RIVER ON NC 581							GROUND WTR (ft)							
BORING NO. LREV_3550		STATION 35+50		OFFSET 28 ft LT		ALIGNMENT -LREV-	0 HR. Dry							
COLLAR ELEV. 160.0 ft		TOTAL DEPTH 0.5 ft		NORTHING 778,359		EASTING 2,269,996	24 HR. FIAD							
DRILL RIG/HAMMER EFF./DATE N/A				DRILL METHOD Hand Auger		HAMMER TYPE N/A								
DRILLER Pinter, D. G.		START DATE 10/10/19		COMP. DATE 10/10/19		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				
160														160.0 GROUND SURFACE 0.0 159.5 D RESIDUAL TAN, MEDIUM STIFF TO STIFF, SANDY SILT WITH TRACE GRAVEL Boring Terminated BY AUGER REFUSAL at Elevation 159.5 ft IN RESIDUAL (SANDY SILT)