

NOTE: SEE SHEET 2A 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-4816	1	10
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
38586.1.1	BRSTP-0015(22)	PE	
38586.2.1	BRSTP-0015(22)	RW & UTILITIES	
38586.3.FD1	BRSTP-0015(22)	CONSTRUCTION	

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2	LEGEND SHEET
2A	ROADWAY TITLESHEET
3	INVENTORY REPORT
3A	EARTHWORK BALANCE SHEET
4	SITE PLAN
5	PROFILE
6-9	BORING LOGS (BRIDGE ON -L-)
10	LAB TEST DATA

ROADWAY  
SUBSURFACE INVESTIGATION

PROJ. REFERENCE NO. 38586.1.1 (B-4816) F.A. PROJ. BRSTP-0015(22)  
COUNTY SCOTLAND  
PROJECT DESCRIPTION BRIDGE 65 OVER JUNIPER CREEK ON  
US 15-501

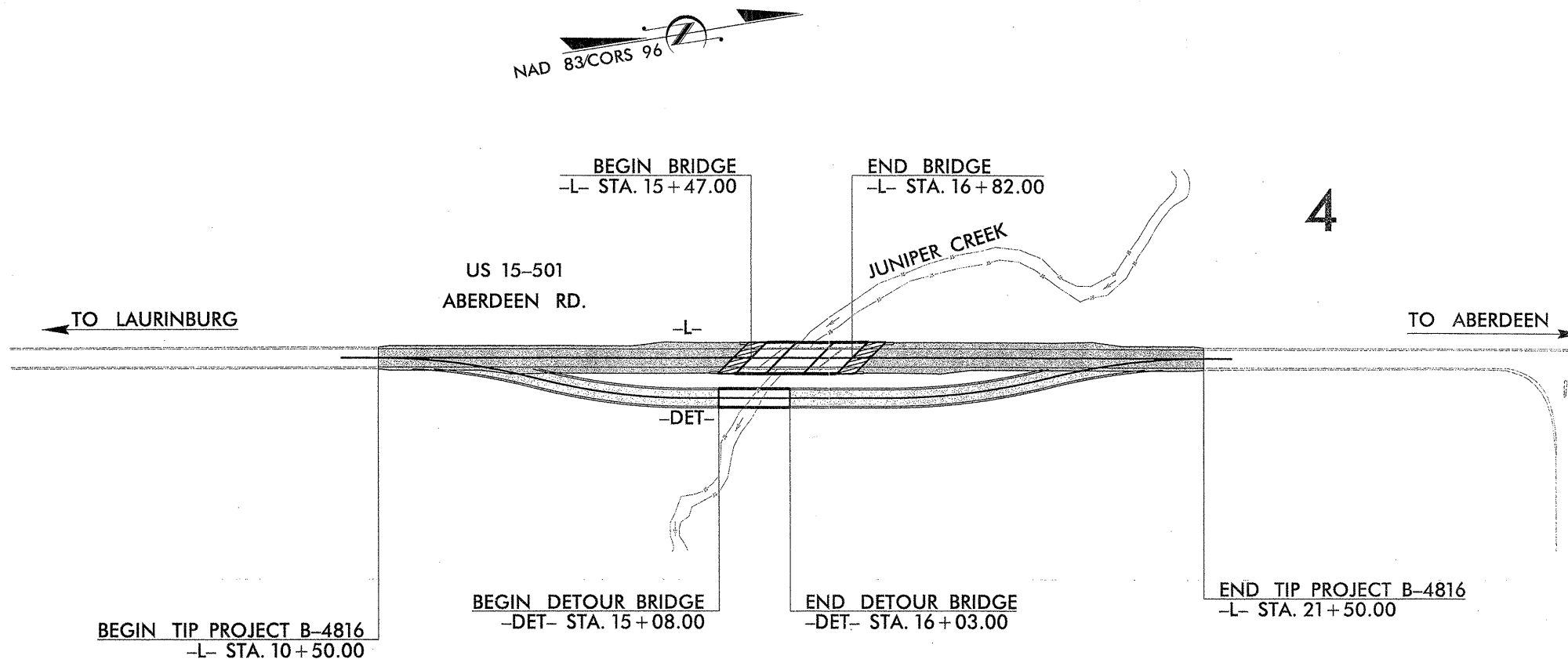
**CAUTION NOTICE**  
THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNING, AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES, AND SOIL TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N. C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1950 707-6850. NEITHER THE SUBSURFACE PLANS AND REPORTS, NOR THE FIELD BORING LOGS, ROCK CORES, OR SOIL 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 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.

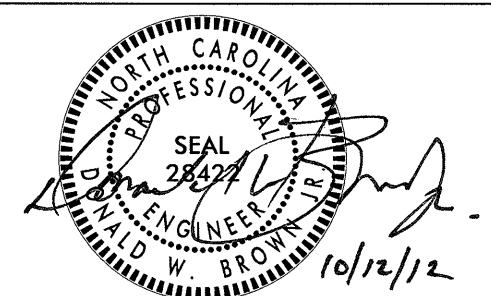
INVENTORY

CONTRACT: C203285 ID: B-4816



PERSONNEL
MIDATLANTIC

INVESTIGATED BY J. ULLUM, EI  
CHECKED BY D. BROWN, PE  
SUBMITTED BY D. BROWN, PE  
DATE OCTOBER, 2012



DRAWN BY: J. HEFNER /D. BROWN

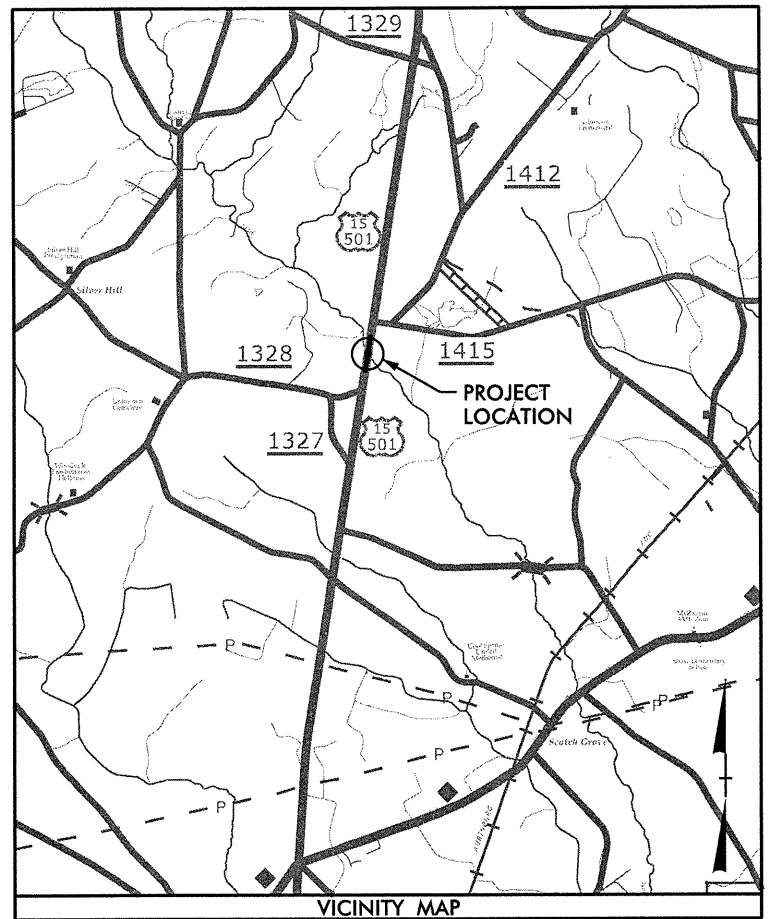
NOTE - THE INFORMATION CONTAINED HEREIN IS NOT IMPLIED OR GUARANTEED BY THE N. C. DEPARTMENT OF TRANSPORTATION AS BEING ACCURATE NOR IS IT CONSIDERED TO BE PART OF THE PLANS, SPECIFICATIONS, OR CONTRACT FOR THE PROJECT.

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.



09/08/09

TIP PROJECT: B-4816



VICINITY MAP  
See Sheet 1-A For Index of Sheets  
See Sheet 1-B For Conventional Symbols

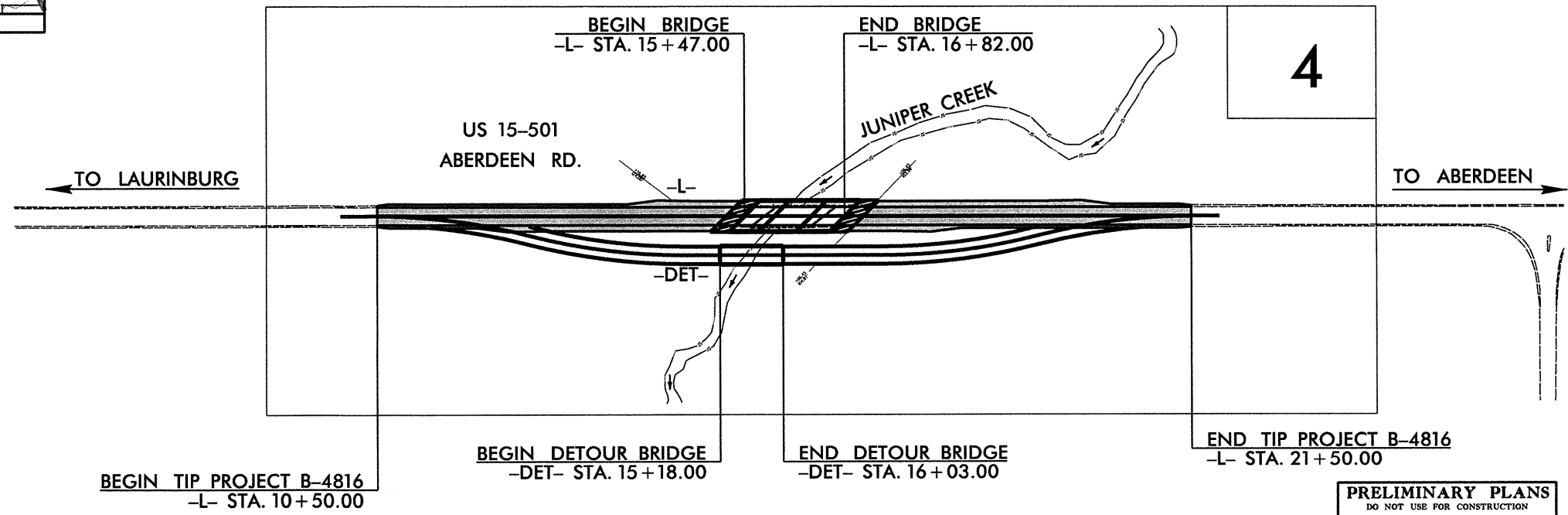
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

**SCOTLAND COUNTY**

LOCATION: BRIDGE NO. 65 OVER JUNIPER CREEK  
ON US 15-501

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND STRUCTURE

25% PLANS

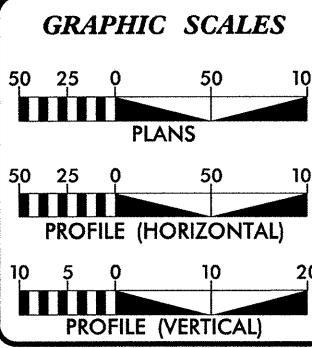


THIS PROJECT IS NOT WITHIN ANY MUNICIPAL BOUNDARIES

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD \_\_\_\_\_

PRELIMINARY PLANS  
DO NOT USE FOR CONSTRUCTION  
INCOMPLETE PLANS  
DO NOT USE FOR R/W ACQUISITION

CONTRACT:



**DESIGN DATA**

ADT 2013 = 6050  
ADT 2033 = 9280  
DHV = 10%  
D = 60%  
T = 25% \*  
\* (TTST 6% + DUAL 19%)  
V = 60 MPH  
CLASS = RURAL MINOR ARTERIAL  
REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY TIP PROJECT B-4816 = 0.182 mi.  
LENGTH STRUCTURE TIP PROJECT B-4816 = 0.026 mi.  
TOTAL LENGTH TIP PROJECT B-4816 = 0.208 mi.

**STEWART**  
421 Fayetteville Street Hall  
Suite 400  
Raleigh, NC 27601  
T 919 380 8750  
F 919 380 8752  
www.stewart-eng.com  
FIRM NO. 1-C-1051

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
DECEMBER 19, 2012

LETTING DATE:  
DECEMBER 20, 2013

Prepared in the Office of:  
STEWART ENGINEERING  
For  
NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION

BEN CRAWFORD, PE  
PROJECT ENGINEER

JONATHAN HEFNER, PE  
PROJECT DESIGN ENGINEER

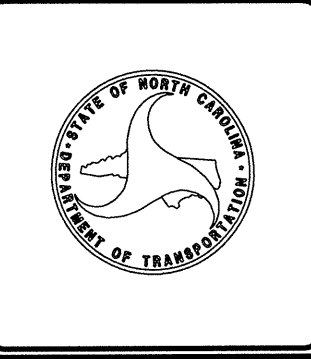
BRENDA L. MOORE, PE  
NCDOT CONTACT

HYDRAULICS ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.

ROADWAY DESIGN ENGINEER

SIGNATURE: \_\_\_\_\_ P.E.



SYSTEM\$\$\$\$\$  
\$\$\$\$\$DN\$\$\$\$\$  
\$\$\$\$\$USER\$\$\$\$\$



# STEWART

October 12, 2012

STATE PROJECT: 38586.1.1  
 TIP No.: B-4816  
 F.A. PROJECT: BRSTP-0015(22)  
 COUNTY: SCOTLAND  
 DESCRIPTION: BRIDGE NO. 65 OVER JUNIPER CREEK ON US 15-501  
 SUBJECT: GEOTECHNICAL REPORT - ROADWAY INVENTORY

## Project Description

The project will involve the replacement of the existing bridge over Juniper Creek and the associated segment roadway to the north and south. In total, the project will include 0.182 miles of roadway work and 0.026 miles of structure. During construction of the new bridge, a detour roadway and bridge will be constructed for temporary use approximately 50 feet east of the existing roadway. The temporary facility will be 0.210 miles long and include 0.194 miles of detour roadway and 0.016 miles of structure.

The geotechnical investigation was conducted in late August 2012. Drilling, standard penetration testing and soil sampling were provided by Mid-Atlantic Drilling, Inc. using a CME 45B on a track-mounted ATV unit and a trailer-mounted CME 45C, both of which were equipped with automatic hammers. Drilling was performed using mud-rotary methods. Fieldwork was supervised and documented by Stewart. Select samples were tested using NCDOT methods.

The following alignment was investigated for this inventory report:

<u>Line</u>	<u>Station</u>
-DET-	10+50 to 21+59

## Areas of Special Geotechnical Interest

Alluvial (Muck) Soils – Due to the low-lying elevations of the general site area in relation to Juniper Creek, the entire project corridor contains alluvial soil. Three of the four detour boring locations encountered muck (highly organics silts and sands) extending to 3 to 7 feet below the existing ground surface. The remaining alluvial soils generally consisted of loose to medium dense sands. Alluvial soils are generally poorly consolidated due to their deposition and can lead to settlement and/or instability of overlying construction. Alluvial muck is expected in the following area:

<u>Line</u>	<u>Station</u>	<u>Offset</u>
-DET-	14+00 to 19+25	Full width left to right

## Physiography and Geology

The project corridor is located on US Highway 15-501 in Scotland County, approximately 7 miles north of Laurinburg, North Carolina. This is within the Coastal Plain Physiographic Province. Review of the Geologic Map of North Carolina (compiled by the North Carolina Geological Survey, 1985) indicates that the subject site is underlain by the Middendorf Formation (Km). This formation is typically known to contain sands, sandstone and mudstone. Cross-bedding is common in this formation.

## Soil Properties

Roadway embankment soils are present within the project corridor, however, the embankment fill is limited within the footprint of the planned detour alignment. As such, no drilling/sampling was performed in the existing roadway embankment fill.

The detour alignment contains 4 to 9 inches of topsoil at the ground surface.

The project corridor contains alluvial soil directly below the topsoil layer. Alluvial soils associated with Juniper Creek were encountered at three test locations (DET-2, DET-3, and DET-4) Gray and black highly-organic very loose to loose sand and very soft silt, classified as muck, extends to depths ranging from 3 to 7 feet below the current ground surface. Below the muck, alluvial, loose to medium, black, brown/tan, and gray sands (A-2-4) were encountered to 12.5 to 15 feet below the ground surface.

Coastal Plain deposits were encountered below the alluvium. These deposits consisted primarily of very loose, brown and gray sands (A-2-4) with layers of soft to very hard, brown/tan and gray clays (A-7-5 and A-7-6). The clay layers ranged from 5 to 15 feet in thickness.

## Groundwater

Measurements taken during this evaluation indicate that the groundwater is 1.8 feet or less below the ground surface at the test locations. Seasonal fluctuations of the groundwater depth should be expected.

Respectfully Submitted,

Donald W. Brown, Jr., PE 10/12/12  
 Sr. Geotechnical Engineer

PROJECT: B-4816

COUNTY: Scotland

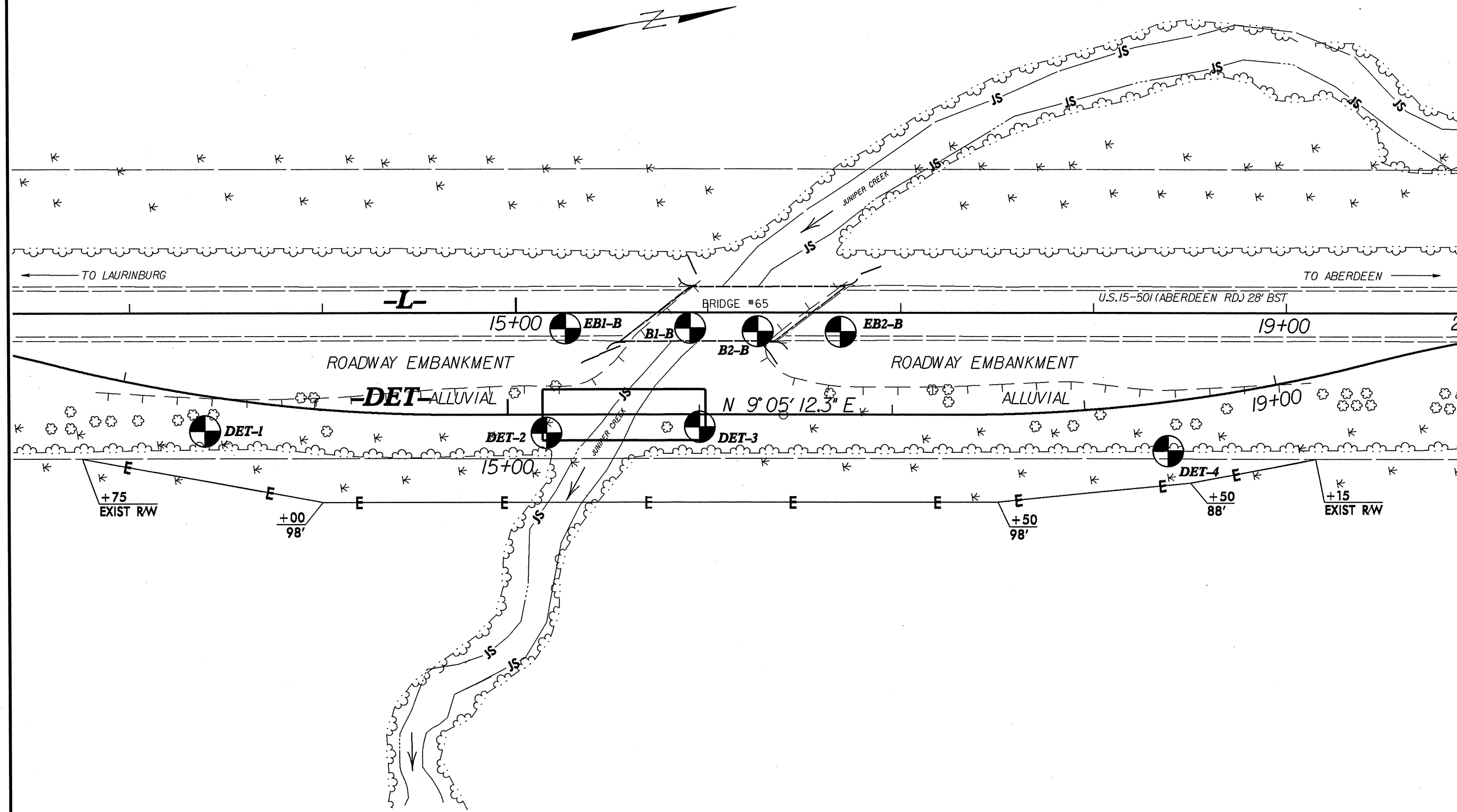
Volumes in Cubic Yards  
DATE: 10/3/2012

COMPILED BY: JCH

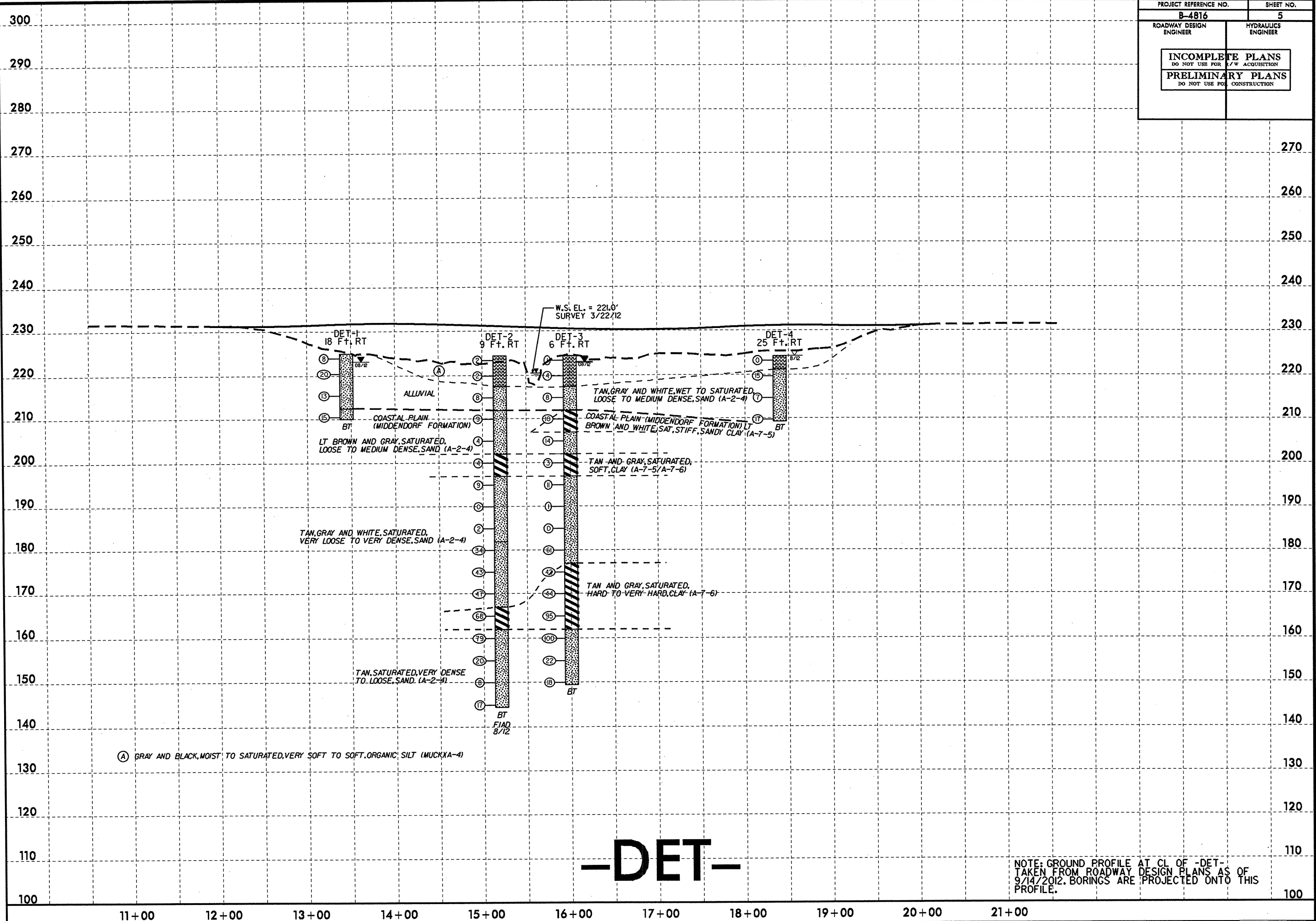
SHEET 1 OF 1 SHEETS

STATION	STATION	EXCAVATION				EMBANKMENT				BORROW	WASTE			
		TOTAL UNCLASS.	ROCK	UNDERCUT	UNSUIT. UNCLASS.	SUITABLE UNCLASS.	TOTAL	ROCK	EARTH		EMBANK. +25%	ROCK	SUITABLE	UNSUIT.
DETOUR														
-DET- 10+50.00	-DET- 15+03.53	43				43		2,308	2,308	2,885	2,842			
-DET- 15+98.53	-DET- 21+00.00	19				19		2,690	2,690	3,363	3,344			
	<b>SUBTOTAL</b>	62				62		4,998	4,998	6,248	6,186			
-L-														
-L- 10+50.00	-L- 15+47.00	64				64		536	536	670	606			
-L- 16+82.00	-L- 21+50.00	47				47		562	562	703	656			
	<b>SUBTOTAL</b>	111				111		1,098	1,098	1,373	1,262			
DETOUR REMOVAL														
-DET- 11+00.00	-DET- 15+03.53	2,576				2,576						2,576		2,576
-DET- 15+98.53	-DET- 21+00.00	3,073				3,073						3,073		3,073
	<b>SUBTOTAL</b>	5,649				5,649						5,649		5,649
	<b>SUBTOTAL</b>													
	<b>SUBTOTAL</b>													
	<b>TOTAL</b>	5,822				5,822		6,096	6,096	7,620	7,447	5,649		5,649
EST. SHOULDER MATERIAL								280	280	350	350			
LOSS DUE TO CLEARING & GRUBBING														
	<b>PROJECT TOTAL</b>	5,822				5,822		6,376	6,376	7,970	7,797	5,649		5,649
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT											390			
	<b>GRAND TOTAL</b>	5,822				5,822		6,376	6,376	7,970	8,187	5,649		5,649
	<b>SAY</b>	6,000									8,300			
PER GEOTECH RECOMMENDATIONS, CONTINGENCY ESTIMATE 200 CY OF UNDERCUT EXCAVATION FOR EMBANKMENT STABILTY; CONTINGENCY ESTIMATE 100 CY OF UNDERCUT EXCAVATION FOR SUBGRADE STABILITY														
PER GEOTECH RECOMMENDATIONS, CONTINGENCY ESTIMATE 3600 CY OF SELECT GRANULAR MATERIAL														
NOTE: 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, FINE GRADING,CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR "GRADING"														

PROJECT REFERENCE NO.	SHEET
38586.1.1 (B-4816)	4
<b>SITE PLAN</b>	
FEET	



PROJECT REFERENCE NO. <b>B-4816</b>	SHEET NO. <b>5</b>
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>INCOMPLETE PLANS</b> DO NOT USE FOR ACQUISITION <b>PRELIMINARY PLANS</b> DO NOT USE FOR CONSTRUCTION	



**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38586.1.1	TIP B-4816	COUNTY SCOTLAND	GEOLOGIST J. ULLUM
SITE DESCRIPTION BRIDGE NO. 65 OVER JUNIPER CREEK ON US 15-501			GROUND WTR (ft)
BORING NO. EB1-B	STATION 15+26	OFFSET 8 ft RT	ALIGNMENT -L-
COLLAR ELEV. 230.5 ft	TOTAL DEPTH 85.0 ft	NORTHING 412,918	EASTING 1,864,453
DRILL RIG/HAMMER EFF./DATE MAD92544 CME 45 77% 3/31/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER M. COOGAN	START DATE 08/28/12	COMP. DATE 08/28/12	SURFACE WATER DEPTH N/A

WBS 38586.1.1	TIP B-4816	COUNTY SCOTLAND	GEOLOGIST J. ULLUM
SITE DESCRIPTION BRIDGE NO. 65 OVER JUNIPER CREEK ON US 15-501			GROUND WTR (ft)
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DRILLER M. COOGAN	START DATE 08/28/12	COMP. DATE 08/28/12	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	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
235															
230														GROUND SURFACE ROADWAY EMBANKMENT GRAY AND BROWN, SILTY SAND	0.0
227.0		3.5													
225			2	2	2										
222.0		8.5	WOH	WOH	1										
220															
217.0		13.5													
215			6	7	9										
212.0		18.5													
210			8	7	4										
207.0		23.5													
205			3	3	3										
202.0		28.5													
200			1	2	1										
197.0		33.5													
195			5	7	12										
192.0		38.5	WOH	1	1										
190															
187.0		43.5	WOH	3	3										
185															
182.0		48.5	WOH	WOH	1										
180															
177.0		53.5													
175			2	1	1										
172.0		58.5													
170			12	29	36										
167.0		63.5													
165			16	28	50										
162.0		68.5													
160			32	50	50										
157.0		73.5													
155			13	19	23										

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG MOI	LOG G	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
155															
152.0		78.5													
150			2	2	2										
147.0		83.5	7	6	8										
145.5															

NCDOT BORE DOUBLE B4816 GEO BH.GPJ NC DOT.GDT 10/22/12





**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38586.1.1		TIP B-4816		COUNTY SCOTLAND		GEOLOGIST J. ULLUM										
SITE DESCRIPTION BRIDGE NO. 65 OVER JUNIPER CREEK ON US 15-501							GROUND WTR (ft)									
BORING NO. B2-B		STATION 16+26		OFFSET 10 ft RT		ALIGNMENT -L-										
COLLAR ELEV. 221.7 ft		TOTAL DEPTH 81.7 ft		NORTHING 413,016		EASTING 1,864,471										
DRILL RIG/HAMMER EFF./DATE MAD92544 CME 45 77% 3/31/2011			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER M. COOGAN		START DATE 08/29/12		COMP. DATE 08/29/12		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	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
235																
230																
225																
220																
215	216.5	5.2	WOH	1	4											
210	211.5	10.2		6	4	5										
205	206.5	15.2		2	1	3										
200	201.5	20.2		3	4	6										
195	196.5	25.2		5	10	11										
190	191.5	30.2	WOH	WOH	WOH											
185	186.5	35.2	WOH	1	2											
180	181.5	40.2		1	1	1										
175	176.5	45.2		8	9	10										
170	171.5	50.2		3	2	7										
165	166.5	55.2		18	27	41										
160	161.5	60.2		48	50	50										
155	156.5	65.2		13	16	13										

WBS 38586.1.1		TIP B-4816		COUNTY SCOTLAND		GEOLOGIST J. ULLUM										
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BORING NO. B2-B		STATION 16+26		OFFSET 10 ft RT		ALIGNMENT -L-										
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DRILL RIG/HAMMER EFF./DATE MAD92544 CME 45 77% 3/31/2011			DRILL METHOD Mud Rotary		HAMMER TYPE Automatic											
DRILLER M. COOGAN		START DATE 08/29/12		COMP. DATE 08/29/12		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	DEPTH (ft)	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100						
155																
150	151.5	70.2		1	4	5										
145	146.5	75.2		2	4	4										
140	141.5	80.2		2	5	8										

NCDOT BORE DOUBLE B4816 GEO\_BH.GPJ NC\_DOT.GDT 10/22/12

**NCDOT GEOTECHNICAL ENGINEERING UNIT**  
**BORELOG REPORT**

WBS 38586.1.1	TIP B-4816	COUNTY SCOTLAND	GEOLOGIST J. ULLUM
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BORING NO. EB2-B	STATION 16+69	OFFSET 10 ft RT	ALIGNMENT -L-
COLLAR ELEV. 230.5 ft	TOTAL DEPTH 85.4 ft	NORTHING 413,059	EASTING 1,864,477
DRILL RIG/HAMMER EFF./DATE MAD92544 CME 45 77% 3/31/2011		DRILL METHOD Mud Rotary	HAMMER TYPE Automatic
DRILLER M. COOGAN	START DATE 08/29/12	COMP. DATE 08/29/12	SURFACE WATER DEPTH N/A

ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	LOG	SOIL AND ROCK DESCRIPTION	DEPTH (ft)
			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
235														
230													GROUND SURFACE ROADWAY EMBANKMENT GRAY AND LIGHT BROWN, SAND	0.0
225	226.6	3.9	1	4	4									
220	221.6	8.9	WOH	1	1								ALLUVIAL BLACK, ORGANIC, SILT	7.0
215	216.6	13.9	4	9	9								GRAY, SAND	12.0
210	211.6	18.9	4	7	10								COASTAL PLAIN (MIDDENDORF FORMATION) TAN, SAND	17.0
205	206.6	23.9	5	4	2									
200	201.6	28.9	5	6	7									
195	196.6	33.9	2	3	6									
190	191.6	38.9	WOH	WOH	1									
185	186.6	43.9	WOH	1	2									
180	181.6	48.9	WOH	WOH	WOH									
175	176.6	53.9	2	2	1									
170	171.6	58.9	2	1	2									
165	166.6	63.9	18	31	50								GRAY, CLAY	62.0
160	161.6	68.9	50	50	50									
155	156.6	73.9	3	3	2								WHITE AND LIGHT BROWN, SAND	72.0

WBS 38586.1.1	TIP B-4816	COUNTY SCOTLAND	GEOLOGIST J. ULLUM
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			0.5ft	0.5ft	0.5ft	0	25	50	75	100				
155														
150	151.6	78.9	2	3	6								WHITE AND LIGHT BROWN, SAND (continued)	
	146.6	83.9	4	4	3									
													Boring Terminated at Elevation 145.1 ft in Coastal Plain Sand (Middendorf Formation)	85.4

NCDOT BORE DOUBLE B4816 GEO BH.GPJ NC\_DOT.GDT 10/22/12

M&T 503E

**NORTH CAROLINA DEPARTMENT OF TRANSPORTATION  
DIVISION OF HIGHWAYS-MATERIALS AND TESTS UNIT  
SOILS TEST REPORT-SOILS LABORATORY**

T.I.P. ID #: B-4816

REPORT ON SAMPLES OF:

<b>PROJECT:</b>	BRIDGE 65 OVER JUNIPER	<b>COUNTY:</b>	SCOTLAND	<b>Owner:</b>	NCDOT
<b>DATE SAMPLED:</b>	SEE REMARKS	<b>DATE RECEIVED:</b>	8-31-12	<b>DATE REPORTED:</b>	9-10-12
<b>SAMPLED FROM:</b>	SOIL TEST BORINGS	<b>SAMPLED BY:</b>	J. ULLUM, EI		
<b>SUBMITTED BY:</b>	D. BROWN, PE			<b>STANDARD SPECIFICATION</b>	
<b>LABORATORY:</b>	STEWART (LAB CERT. #128-1010)				

**TEST RESULTS**

<b>Project Sample No.</b>	SS-1	SS-2						
<b>Lab Sample No.</b>	A-							
<b>HICAMS Sample #</b>								
<b>Retained #4 Sieve %</b>	0	0						
<b>Passing #10 Sieve %</b>	100	100						
<b>Passing #40 Sieve %</b>	99	99						
<b>Passing #200 Sieve %</b>	90	87						

**MINUS #10 FRACTION**

<b>Soil Mortar - 100%</b>								
<b>Coarse Sand - Ret. #60</b>	4.4	3.2						
<b>Fine Sand - Ret. #270</b>	8.4	12.4						
<b>Silt 0.05-0.005 mm %</b>	23.8	20.8						
<b>Clay &lt; 0.005 mm %</b>	63.4	63.6						
<b>Passing # 40 Sieve %</b>								
<b>Passing # 200 Sieve %</b>								

<b>Liquid Limit</b>	67	63						
<b>Plastic Index</b>	41	25						
<b>AASHTO Classification</b>	A-7-6 (42)	A-7-5 (25)						
<b>Texture</b>								
<b>Station</b>	16+00	15+20						
<b>Hole No.</b>	DET-3	DET-2						
<b>Depth (ft) From:</b>	23.5	23.5						
<b>To:</b>	25.0	25.0						

**Remarks:**  
SS-1 SAMPLED ON 8-30-12. SS-2 SAMPLED ON 8-31-12.

**CC:**


**SOILS ENGINEER:** JOHN CREECH (CERT. NO. 128-01-1010)

