

February 20, 2017

STATE PROJECT:	17BP.8.R.118 (SF-750122)
PROJECT ID:	29450
COUNTY:	Randolph
DESCRIPTION:	Bridge No. 122 on SR 2111 (Bull Run Creek Rd.) over Bull Run
	Creek

SUBJECT:

GEOTECHNICAL REPORT - INVENTORY

PROJECT DESCRIPTION

This project consists of the reconstruction of SR 2111 (-L-) which is a two-lane roadway as part of the replacement of Bridge No. 122 over Bull Run Creek.

The geotechnical investigation was conducted in December of 2016. Standard Penetration Test borings were advanced with a CME 55 utilizing an automatic hammer. Hand auger borings were also completed. Representative soil samples were collected for visual classification in the field.

The following alignment, totaling 500 feet, was investigated.

LINE	STATIONS
-L-	12+65 to 17+65

PHYSIOGRAPHY AND GEOLOGY

The project is located in the Piedmont Physiographic Province. The project corridor is comprised primarily of residential, undeveloped and agricultural properties. The general topography along the project consists of rolling hills with severe slopes towards Bull Run Creek.

Geologically, the site is located within the Carolina Slate Belt. Soils are derived from the underlying metamorphic bedrock. The bedrock primarily consists of Felsic Metavolcanic Rock.

SOIL PROPERTIES

Materials encountered during this investigation are separated into three categories based on origin. They consist of roadway embankment, alluvial, and residual soil.

Roadway Embankment soils are present along the existing roadway (-L-) on the project. These soils consist of moist, loose to medium dense, non-plastic, fine to coarse sandy gravels and silty, fine to coarse sands (A-1, A-2-4), moist, soft to medium stiff, slightly to moderately plastic, silty clays (A-6), and moist, medium stiff, slightly plastic, fine sandy silts (A-4).

Soils identified as alluvial consist of wet, soft, slightly plastic to potentially highly plastic, fine sandy clays and silty clays (A-6, A-7).

Soils identified as residual consist of moist, medium dense, non-plastic to slightly plastic, fine to coarse sand with rock fragments and silty, fine to coarse sands (A-1, A-2-4), moist, stiff, non-plastic, coarse to fine sandy silts (A-4), and moist, medium stiff, slightly plastic, fine sandy clays (A-6).

ROCK PROPERTIES

Weathered rock was encountered along the existing roadway (-L-) at elevations ranging from 672.3 to 679.1 feet (MSL). The weathered rock consists of gray felsic metavolcanic rock. Crystalline rock was encountered along the existing roadway (-L-) at elevations ranging from 670.3 to 680.6 feet (MSL). The crystalline rock consists of felsic metavolcanic rock.

GROUNDWATER

Groundwater was encountered at elevations ranging from 672.3 to 680.58 feet MSL along the proposed roadways of the project. Some fluctuation in groundwater levels can occur with climatic and seasonal variations. Therefore, subsurface water conditions at other times may be different from those described in this report.

KLEINFELDER

Prepared by,



Benjamin A. Johnson, El Staff Professional

BAJ/XCB:cas Attachment

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WBS	17BP.	.8.R.11	8		TI	I P S	F-750 ⁻	122		COL	JNTY	R/	ANDOL	PH			GEOLOGIST B. Johnson		
SITE	DESCR		N Brid	lge No	. 122	on SF	R 2111	(Bull	Run	Cree	ek Ro	oad) (over B	ull Run	Creek			GROUN	D WTR (ft
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LEV	DRIVE ELEV	DEPTH	BLC		-]				PER F				SAMF	P. ▼ ∕		SOIL AND ROCK DESC	RIPTION	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	2	25	5	50		75	100	NO.	Имо		ELEV. (ft)		DEPTH (
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SITE	DESCR		Bric	dge No	o. 122	on SR 2	2111 (Bull Ru	n Creek	Road)	over B	ull Run (Creek			GROUND WTR (ft
BOR	NG NO.	EB1	-A		S	TATION	I 15-	+05		OF	FSET	12 ft LT			ALIGNMENT -L-	0 HR. Dr
OLI	AR ELI	EV. 68	88.2 ft		Т	OTAL D	EPTH	i 13.5	ft	NO	RTHING	3 760,5	572		EASTING 1,773,427	24 HR. FIAD
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SITE	DESCR		N Brid	dge No). 122 (on SR 21	11 (Bull Run Creek	Road) over B	ull Run (Creek			GROUND WTR (ft
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WBS	17BP.	8.R.11	8		Т	P SF-750	122	COUN	TY F	RANDOL	.PH			GEOLOGIST B. Johnson		
SITE	DESCR	IPTION	Brid	lge No). 122 (on SR 211	1 (Bull R	un Creek I	Road) over Bı	ull Run (Creek			GROUND V	VTR (f
	NG NO.			-		TATION 1			-	FSET				ALIGNMENT -L-	0 HR.	Dr
	AR ELE					OTAL DEP		2 ft	-	ORTHING		:40		EASTING 1,773,413	24 HR.	FIAD
				IEI		CME-55 77%							Ю Н.	· · · · · · · · · · · · · · · · · · ·	IER TYPE Au	tomatic
DRILI	ER R	. Tooth	iman		S	TART DAT	E 12/27	7/16	CC	OMP. DA	TE 12/	27/16		SURFACE WATER DEPTH N	/A	
LEV	DRIVE ELEV	DEPTH	BLC	w co	UNT		BLOW	S PER FOO	т		SAMP.	▼∕		SOIL AND ROCK DES	CRIPTION	
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030														- 688.1 GROUND SURF.		C
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675	_	L							• •				R.	- CRYSTALLINE R Light Greenish Gray	OCK FELSIC	
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WBS	17BF	P.8.R.1	18		Т	IP S	F-750	122	Τ	COUN	NTY	RA	NDOL	.PH			GEOLOGI	ST B. Johr	ison		
SITE	DESC	RIPTIO	N Brid	dge N	o. 122	on SF	R 2111	(Bull	Run	Creek	Roa	ad) oʻ	ver Bu	ull Run	Creek					GROUND V	VTR (ft
) . EB2		-			DN 1	-						14 ft RT			ALIGNME	NT -L-		0 HR.	Dr
		.EV. 6					DEP1		0 ft		_			3 760,0				1,773,438		24 HR.	FIA
		AMMER											- inve			יי ח <u>י</u>	S. Augers	1,110,400		ER TYPE Aut	
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DRILI		R. Toot	1				DATE					COM	P. DA	TE 12	1	A	SURFACE	WATER DE	PTH N	/A	
LEV (ft)	DRIVE ELEV (ft)	DEPT (ft)	H BLO	OW CC 0.5ft	DUNT t 0.5ft	0	2	BLO 25	WS P	ER FO	OT 7	5	100	SAMP NO.	Моі	/ L O I G	ELEV. (ft)	SOIL AND R	OCK DES		DEPTH
690	688.6	- 0.0					-										- 688.6		ND SURF		C
		‡	9	7	4	:	∳ 11 :		· · ·		· ·	· · ·			M		- - 696 1 (ROADWA Gray, Fine to C			
685	685.1	3.5				lĿ	<u>; · · ·</u>		• •		• •					LS				Trace Gravel	2
		+	3	4	4		8								M	L	-				
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ł	680.6	+ 8.0	60/0.0			<u> ·</u>	· · ·	<u> </u>			· ·	<u>نن</u>	 50/0.0	\mathbf{H}			- 680.6	Boring Termi	nated with	Standard	
		**********************																ft on CRYSTAL METAVC	LINE RO		

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SITE	DESCR		Bric	dge No	o. 122	on S	SR 2111 (I	Bull Run	Creek R	oad) o	ver Bu	ll Run C	Creek				GR	
BORI	NG NO.	. L_16	625		s	STAT	ION 16+	25		OFFS	SET 3	0 ft LT			ALIGNMEN	Γ -L-	0 H	IR. D
COLL	AR ELE	EV. 68	36.7 ft		Т	ΟΤΑ	L DEPTH	1.6 ft		NOR	THING	760,6	85		EASTING	1,773,383	24 ⊢	ir. Fia
	RIG/HAI									1				D Ha	nd Auger	1		PE N/A
	ER N		-			TAR	RT DATE	12/28/1	6	сом		E 12/2						
LEV		DEPTH	BIO	ow co					PER FOOT			SAMP.	· /	L				
(ft)	ELEV (ft)	DEPTF (ft)	0.5ft	-					50	75	100	NO.	мо	O G	S ELEV. (ft)	SOIL AND ROCK	DESCRIPT	ION DEPTH
	(14)											-						DEFI
690	-	F													-			
	-	ŧ													686.7	GROUND S	URFACE	
	-					·					••		M		685.1 - Brown	ROADWAY EN	BANKMEN	IT dv. CLAX (— -
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	-	F													-	Topsoil (0.01	to 0.3 foot)	
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