#### **CONTENTS**

<u>SHEET NO.</u>
I
2
3
4-5
6-7

8

6

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REFERENCE

**DESCRIPTION** TITLE SHEET LEGEND (SOIL & ROCK) SITE PLAN CROSS SECTION(S) BORE LOG(S) SITE PHOTOGRAPH(S)

# STATE OF NORTH CAROLINA

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

# **STRUCTURE** SUBSURFACE INVESTIGATION

COUNTY ROWAN

SITE DESCRIPTION BRIDGE NO. 3 ON NC 8/49 OVER YADKIN RIVER AND WINSTON-SALEM SOUTHBOUND RAILROAD

# 8443 3 PROJEC

STATE	STATE PROJECT REFERENCE NO.	SHEET NQ.	TOTAL SHEETS
N.C	B-4626	1	8

#### CAUTION NOTICE

THE SUBSURFACE INFORMATION AND THE SUBSURFACE INVESTIGATION ON WHICH IT IS BASED WERE MADE FOR THE PURPOSE OF STUDY, PLANNIKG AND DESIGN, AND NOT FOR CONSTRUCTION OR PAY PURPOSES. THE VARIOUS FIELD BORING LOGS, ROCK CORES AND SOLI TEST DATA AVAILABLE MAY BE REVIEWED OR INSPECTED IN RALEIGH BY CONTACTING THE N.C. DEPARTMENT OF TRANSPORTATION, GEOTECHNICAL ENGINEERING UNIT AT 1999 707-6860. THE SUBSURFACE PLANS AND REPORTS, FIELD BORING LOGS, ROCK CORES AND SOIL TEST DATA ARE NOT PART OF THE CONTRACT.

CENERAL SOIL AND ROCK STRATA DESCRIPTIONS AND INDICATED BOUNDARIES ARE BASED ON A GEOTECHNICAL INTERPRETATION OF ALL AVAILABLE SUBSUFFACE DATA AND MAY NOT NECESSARILY REFLECT THE ACTUAL SUBSUFFACE 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 DECREE OF RELIABILITY INHERENT IN THE STANDARD TEST METHOD. THE OBSERVED WATER LEVELS OR SOL MOISTURE CONDITIONS INDICATED IN THE SUBSUFFACE INVESTIGATIONS ARE AS RECORDED AT THE TIME OF THE INVESTIGATION. THESE WATER LEVELS OR SOL MOISTIGE 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, ON POPINON 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 INVESTIGATION AS HE DEEMS NECESSART TO SATISFY HIMSELF AS TO CONDITIONS TO BE ENCOUNTERED ON THE PROJECT. THE CONTRACTOR SHALL HAVE NO CLAIM FOR ADDITIONAL COMPENSATION OF FOR AN EXTENSION OF TIME FOR ANY REASON RESULTING FROM THE ACTUAL CONTENES ENCOUNTERED AT THE SITE DIFFERING FROM THOSE INDICATED IN THE SUBSURFACE INFORMATION,

- NOTES: I. 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

J.K.	STICKNEY	ľ

C.L. SMITH
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INVESTIGATED BY J.K. STICKNEY
DRAWN BY
CHECKED BY
SUBMITTED BY K.B. MILLER
DATE



# NORTH CAROLINA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS GEOTECHNICAL ENGINEERING UNIT SUBSURFACE INVESTIGATION

SOIL AND ROCK LEGEND, TERMS, SYMBOLS, AND ABBREVIATIONS

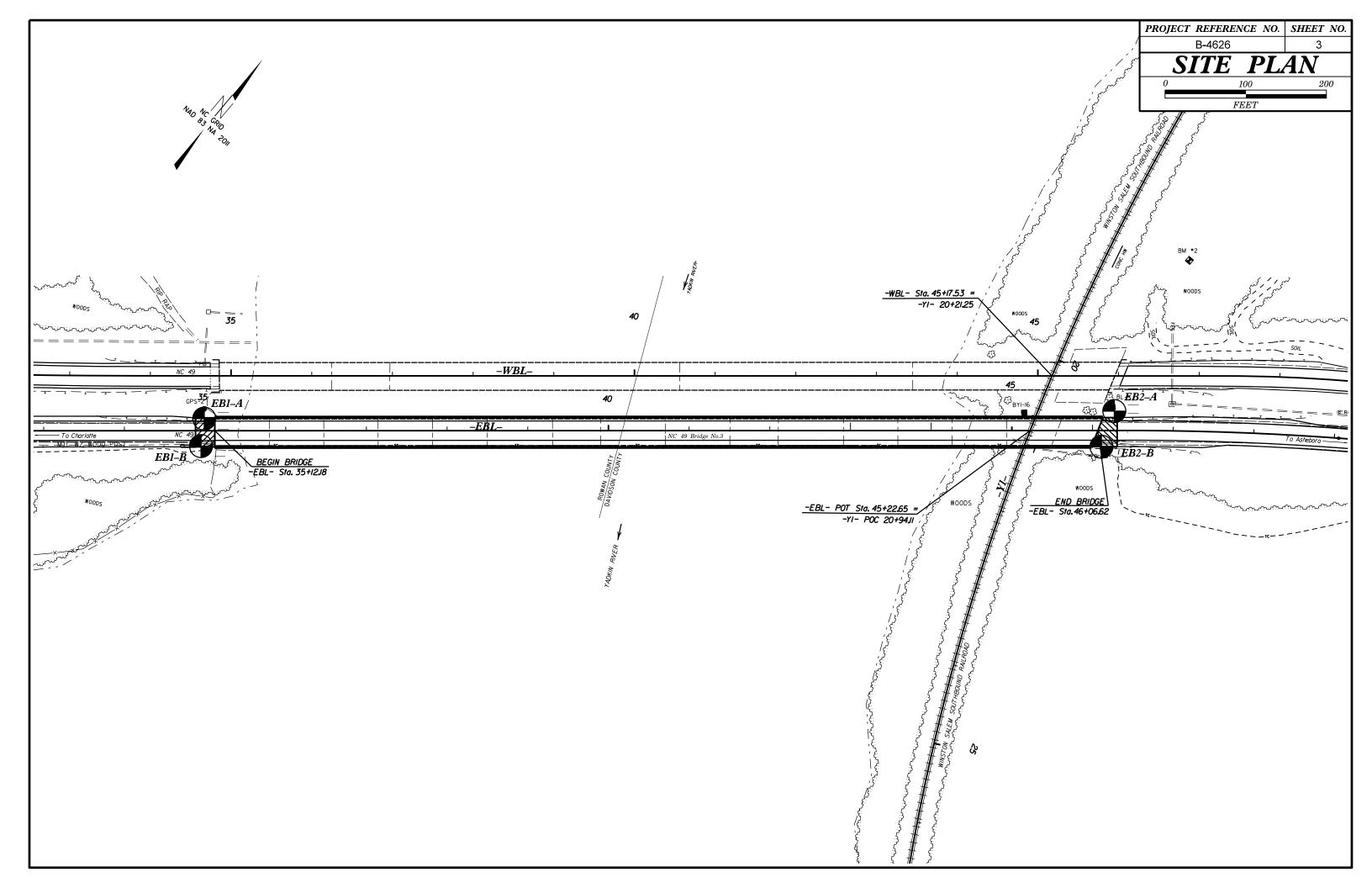
	SOIL D	ESCRIPTION				GRADATIO	)N	ROCK DESCRIPTION								
BE PENETRATED WI ACCORDING TO TH IS BASED ON	ED UNCONSOLIDATED, SEMI-CONS ITH A CONTINUOUS FLIGHT POW HE STANDARD PENETRATION TES THE AASHTO SYSTEM, BASIC D DR, TEXTURE, MOISTURE, AASHTO	ER AUGER AND YIELD LESS ST (AASHTO T 206, ASTM DI ESCRIPTIONS GENERALLY IN	THAN 100 BLOWS PE 586). SOIL CLASSIFIC ICLUDE THE FOLLOWI	R FOOT CATION NG:	UNIFORMLY GRADED - IN	TES A GOOD REPRESENTATION O NDICATES THAT SOIL PARTICLES S A MIXTURE OF UNIFORM PART	S ARE ALL AP RTICLE SIZES (	PROXIMATELY THE SAME SIZE.	ROCK LINE IN SPT REFUSAL BLOWS IN NO	IDICATES THE LEVEL AT WHICH NON-( IS PENETRATION BY A SPLIT SPOON	T WOULD YIELD SPT REFUSAL IF TEST COASTAL PLAIN MATERIAL WOULD YIELI SAMPLER EQUAL TO OR LESS THAN Ø TRANSITION BETWEEN SOIL AND ROCK					
AS MINERAL	LOGICAL COMPOSITION, ANGULAR	ITY, STRUCTURE, PLASTICITY	, ETC. FOR EXAMPLE,	5 5001	THE ANGULARIT	Y OR ROUNDNESS OF SOIL GRAD		NATED BY THE TERMS:	ROCK MATERIA	ALS ARE TYPICALLY DIVIDED AS FOL						
		ASHTO CLASSIFI			- <u>ANGULAR, SUBAN</u>	NGULAR, SUBROUNDED, OR ROUNDE			WEATHERED ROCK (WR)		LAIN MATERIAL THAT WOULD YIELD SP FOOT IF TESTED.					
GENERAL	GRANULAR MATERIALS	SILT-CLAY MATERIALS	ORGANIC MATERI	ALS		MINERALOGICAL CO			CRYSTALLINE		E GRAIN IGNEOUS AND METAMORPHIC R					
CLASS. GROUP A-1	(≤ 35% PASSING ■200) A-3 A-2	( > 35% PASSING *200) A-4 A-5 A-6 A-7	A-1. A-2 A-4. A-5			MES SUCH AS QUARTZ,FELDSPAN N DESCRIPTIONS WHEN THEY AR			ROCK (CR)	J. J. GNEISS, GABBRO						
CLASS. A-1-a A-1-i	·b A-2-4 A-2-5 A-2-6 A-2-3	7 4-7-5, 4-7-6	A-3 A-6, A-7			COMPRESSIBI			NON-CRYSTALL ROCK (NCR)	SEDIMENTARY R	E GRAIN METAMORPHIC AND NON-COAST OCK THAT WOULD YEILD SPT REFUSAL					
SYMBOL 000000000000000000000000000000000000					MODE	HTLY COMPRESSIBLE RATELY COMPRESSIBLE	LI	L < 31 L = 31 - 50	COASTAL PLAT	IN COASTAL PLAIN	LUDES PHYLLITE, SLATE, SANDSTONE, E SEDIMENTS CEMENTED INTO ROCK, BUT					
% PASSING 10 50 MX			GRANULAR SILT-	MUCK.	HIGHL	PERCENTAGE OF		L > 50	SEDIMENTARY (CP)	SHELL BEDS, ET						
*40 30 MX 50 M			SOILS SOILS	PEAT		GRANULAR SILT - C			·		THERING					
■200 15 MX 25 M MATERIAL PASSING ■40 LL —	MX 10 MX 35 MX 35 MX 35 MX 35 M - 40 MX 41 MN 40 MX 41 MM	x 36 min 36 min 36 min 36 min 37 min 36 min 37 min 36 min 37 min 37 min 38 min	SOILS WITH LITTLE OR		ORGANIC MATERIAL TRACE OF ORGANIC MA LITTLE ORGANIC MATT MODERATELY ORGANIC	ATTER 2 - 3% 3 - 5 TER 3 - 5% 5 - 12 5 - 10% 12 - 2	5% 2% 1 20% 5	OTHER MATERIAL           TRACE         1 - 10%           LITTLE         10 - 20%           SOME         20 - 35%		HAMMER IF CRYSTALLINE. ROCK GENERALLY FRESH, JOINTS STAIN	DINTS MAY SHOW SLIGHT STAINING. ROCK ED,SOME JOINTS MAY SHOW THIN CLAY E SHINE BRIGHTLY. ROCK RINGS UNDER					
PI 6 MX GROUP INDEX Ø	NP         10 MX         10 MX         11 MN         11 MN           0         0         4 MX	I         I         MX         I         MN         II         MN           8         MX         12         MX         16         MX         NO         MX	MODERATE AMOUNTS OF	HIGHLY ORGANIC SOILS	HIGHLY ORGANIC	> 10% > 20%		HIGHLY 35% AND ABOVE	SLIGHT	OF A CRYSTALLINE NATURE. ROCK GENERALLY FRESH, JOINTS STAIN	ED AND DISCOLORATION EXTENDS INTO R					
USUAL TYPES STONE FRAGS OF MAJOR GRAVEL, AND MATERIALS SAND		SILTY CLAYEY SOILS SOILS	ORGANIC MATTER		$\nabla$	WATER LEVEL IN BORE HOLE STATIC WATER LEVEL AFTER			(SLI.) MODERATE	CRYSTALS ARE DULL AND DISCOLORED.	Y. IN GRANITOID ROCKS SOME OCCASION CRYSTALLINE ROCKS RING UNDER HAMME DISCOLORATION AND WEATHERING EFFEC					
GEN, RATING AS SUBGRADE	EXCELLENT TO GOOD	FAIR TO POOR	FAIR TO POOR POOR	UNSUITABLE		PERCHED WATER, SATURATED			(MOD.)	GRANITOID ROCKS, MOST FELDSPARS AR	E DULL AND DISCOLORED, SOME SHOW CL D SHOWS SIGNIFICANT LOSS OF STRENGT					
	PI OF A-7-5 SUBGROUP IS ≤ LL -	30 ; PI OF A-7-6 SUBGROUP IS :	> LL - 30		0 00 -	MISCELLANEOUS			ALL ROCK EXCEPT QUARTZ DISCOLORED							
PRIMARY SOIL TYPE	COMPACTNESS OR	RANGE OF STANDARD	RANGE OF UNC COMPRESSIVE S	ONFINED		25 (025	DIP DIRECTIO		SEVERE (MOD. SEV.)		W KAOLINIZATION. ROCK SHOWS SEVERE GIST'S PICK. ROCK GIVES "CLUNK" SOUND					
GENERALLY GRANULAR	VERY LOOSE	(N-VALUE) < 4 4 TO 10	(TONS/FT		SOIL SYMBOL	SCRIPTION - OF RC	OCK STRUCTUR TEST BORING	SEVERE (SEV.)	(SEV.) REDUCED IN STRENGTH TO STRONG SOIL. IN GRANITOID ROCK TO SOME EXTENT. SOME FRAGMENTS OF STRONG ROCK USUAL							
MATERIAL (NON-COHESIVE)	MEDIUM DENSE DENSE VERY DENSE	10 TO 30 30 TO 50 > 50	N/A		ARTIFICIAL FI		R BORING BORING	VERY SEVERE (V SEV.)	BUT MASS IS EFFECTIVELY REDUCED T	S > 100 BPF OR STAINED. ROCK FABRIC ELEMENTS A O SOIL STATUS, WITH ONLY FRAGMENTS I OF ROCK WEATHERED TO A DEGREE THA						
GENERALLY SILT-CLAY MATERIAL	VERY SOFT SOFT MEDIUM STIFF STIFF	<pre>&lt; 2 2 TO 4 4 TO 8 8 TO 15</pre>	< 0.25 0.25 TO 0 0.5 TO 1 1 TO 2	0.5 .0			TORING WELL	COMPLETE	VESTIGES OF ORIGINAL ROCK FABRIC F ROCK REDUCED TO SOIL. ROCK FABRIC	EMAIN. IF TESTED, WOULD YIELD SPT N NOT DISCERNIBLE, OR DISCERNIBLE ONLY MAY BE PRESENT AS DIKES OR STRINGEF						
(COHESIVE)	VERY STIFF HARD	15 TO 30 > 30	2 TO 4		TTTTT ALLUVIAL SOI		DMETER	- SPT N-VALUE	ALSO AN EXAMPLE.							
	TEXTURE	OR GRAIN SIZE				RECOMMENDATION	SYMBOLS	6	VERY HARD		HARUNESS HARP PICK. BREAKING OF HAND SPECIME					
U.S. STD. SIEVE SIZE OPENING (MM)	4 10 4.76 2.00	40 60 200 0.42 0.25 0.075	270 0.053			UNCLASSIFIED EXCAVATION UNSUITABLE WASTE		UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE		SEVERAL HARD BLOWS OF THE GEOLOG	ST'S PICK.					
	COBBLE GRAVEL	COARSE FINE	SILT	CLAY		UNCLASSIFIED EXCAVATION ACCEPTABLE DEGRADABLE	- ROCK	USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL	HARD	CAN BE SCRATCHED BY KNIFE OR PICK TO DETACH HAND SPECIMEN.	ONLY WITH DIFFICULTY. HARD HAMMER					
	(COB.) (GR.) 75 2.0	SAND SAND (CSE. SD.) (F SD. 0.25	(SL)	(CL.)	AR - AUGER REFUSAL	ABBREVIATI MED MEDIUM		VST - VANE SHEAR TEST			. GOUGES OR GROOVES TO 0.25 INCHES ( DGIST'S PICK. HAND SPECIMENS CAN BE					
SIZE IN. 12	3 SOIL MOISTURE - C				BT - BORING TERMINATED CL CLAY CPT - CONE PENETRATION	MOD MODERATE	ĽΥ	MEDIUM HARD		HES DEEP BY FIRM PRESSURE OF KNIFE O PEICES 1 INCH MAXIMUM SIZE BY HARD						
SOIL MOISTURE (ATTERBERG L	E SCALE FIELD MO	ISTURE CUIDE FOR F	IELD MOISTURE DES	CRIPTION	CSE COARSE DMT - DILATOMETER TES DPT - DYNAMIC PENETRAI	ORG ORGANIC ST PMT - PRESSURE	METER TEST	SOFT	CAN BE GROVED OR GOUGED READILY E	Y KNIFE OR PICK. CAN BE EXCAVATED IN IZE BY MODERATE BLOWS OF A PICK POL						
	- SATURA (SAT.) ID LIMIT		UID; VERY WET, USU THE GROUND WATE		e - VOID RATIO F - FINE FOSS FOSSILIFEROUS	SD SAND, SAND SL SILT, SILTY SLI SLIGHTLY	IΥ	S - BULK SS - SPLIT SPOON ST - SHELBY TUBE RS - ROCK	VERY SOFT	CAN BE CARVED WITH KNIFE. CAN BE I OR MORE IN THICKNESS CAN BE BROKE	EXCAVATED READILY WITH POINT OF PICK N BY FINGER PRESSURE. CAN BE SCRATC					
PLASTIC RANGE < (PI)	- WET - 0		EQUIRES DRYING TO MUM MOISTURE		FRAC FRACTURED, FRAC FRAGS FRAGMENTS	TURES TCR - TRICONE R W - MOISTURE C		RT - RECOMPACTED TRIAXIAL CBR - CALIFORNIA BEARING	F	FINGERNAIL.	BEDDING					
	TIC LIMIT	- (M) SOLID; AT OR	NEAR OPTIMUM MO	ISTURE	HI HIGHLY EQU DRILL UNITS:	V - VERY UIPMENT USED ON SU ADVANCING TOOLS:		RATIO ROJECT HAMMER TYPE:	VERY WIDE WIDE MODERATEL	3 TO 10 FEET	TERM VERY THICKLY BEDDED THICKLY BEDDED THINLY BEDDED Ø					
	- DRY - (		DITIONAL WATER TO MUM MOISTURE	)	CME-45C	CLAY BITS		X AUTOMATIC MANUAL	CLOSE VERY CLOS	0.16 TO 1 FOOT SE LESS THAN 0.16 FEET	VERY THINLY BEDDED 0. THICKLY LAMINATED 0.0 THINLY LAMINATED					
	PLA	STICITY				X 8 HOLLOW AUGERS		вн			URATION					
NON PLASTIC SLIGHTLY PL	ASTIC	CITY INDEX (PI) 0-5 6-15	DRY STRENG VERY LOW SLIGHT		CME-550	HARD FACED FINGER BIT		-N	FOR SEDIMENT	RUBBING WI	DENING OF MATERIAL BY CEMENTING,H IH FINGER FREES NUMEROUS GRAINS; W BY HAMMER DISINTEGRATES SAMPLE					
MODERATELY HIGHLY PLAS	STIC 26	16-25 5 OR MORE	MEDIUM HIGH		PORTABLE HOIST			POST HOLE DIGGER	MODER		BE SEPARATED FROM SAMPLE WITH S ILY WHEN HIT WITH HAMMER.					
	Y INCLUDE COLOR OR COLOR	COMBINATIONS (TAN. BED. )		-68421	X <u>CME-550X</u>	TRICONE TUNG	GCARB.	SOUNDING ROD	INDURA	DIFFICULT	DIFFICULT TO SEPARATE WITH STEEL TO BREAK WITH HAMMER.					
	SUCH AS LIGHT, DARK, STREAM					ГП		¯	EXTREM		IER BLOWS REQUIRED TO BREAK SAMPL AKS ACROSS GRAINS.					

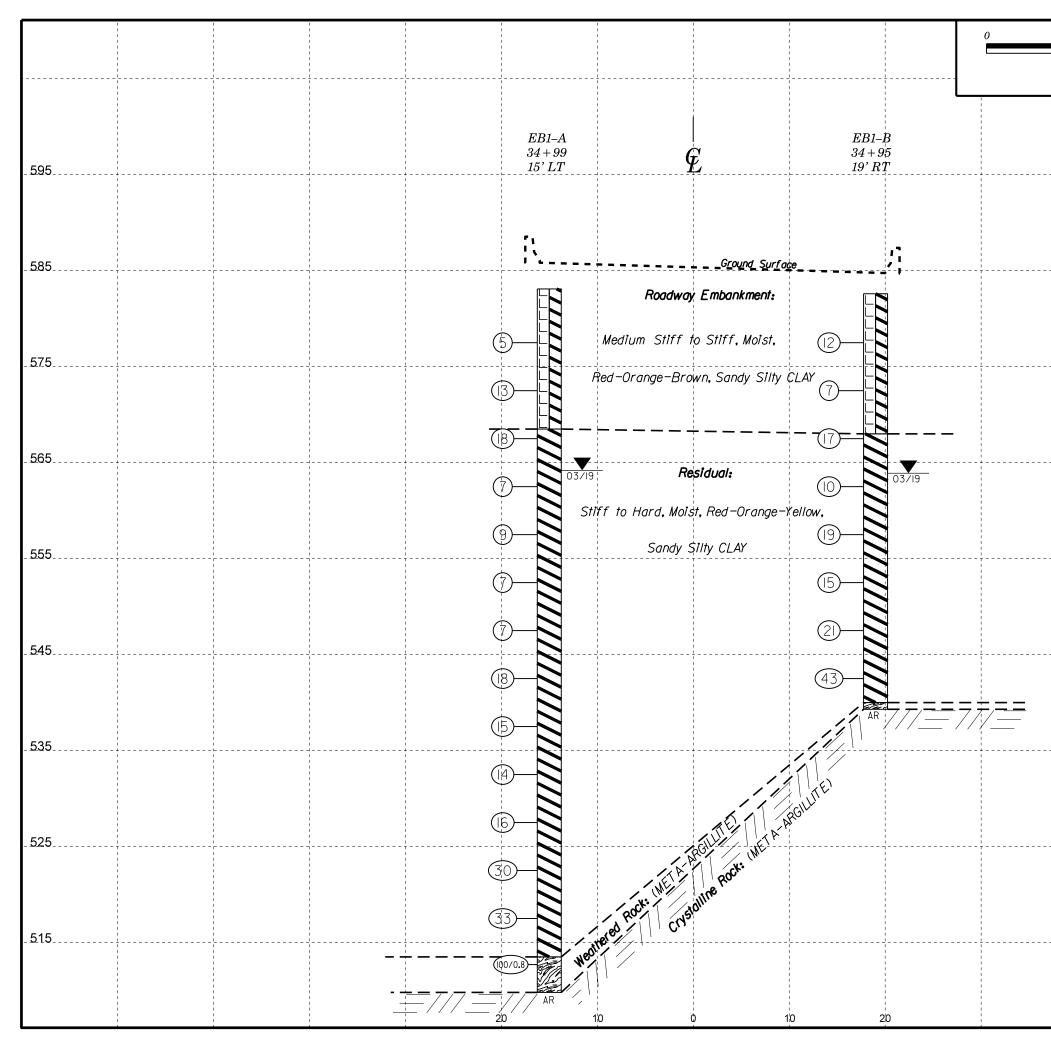
#### SHEET NO.

### PROJECT REPERENCE NO. B-4626

DATE: 8-15-14

	TERMS AND DEFINITIONS
TED. AN INFERRED D SPT REFUSAL.	ALLUVIUM (ALLUV.) - SOILS THAT HAVE BEEN TRANSPORTED BY WATER.
0.1 FOOT PER 60	AQUIFER - A WATER BEARING FORMATION OR STRATA.
< IS OFTEN	ARENACEOUS - APPLIED TO ROCKS THAT HAVE BEEN DERIVED FROM SAND OR THAT CONTAIN SAND.
PT N VALUES >	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.
РОСК ТНАТ	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
INCLUDES GRANITE,	SURFACE. CALCAREOUS (CALC.) - SOILS THAT CONTAIN APPRECIABLE AMOUNTS OF CALCIUM CARBONATE.
TAL PLAIN . IF TESTED. TC.	COLLUVIUM - ROCK FRAGMENTS MIXED WITH SOIL DEPOSITED BY GRAVITY ON SLOPE OR AT BOTTOM OF SLOPE.
T MAY NOT YIELD DSTONE, CEMENTED	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.
< RINGS UNDER	DIKE - A TABULAR BODY OF IGNEOUS ROCK THAT CUTS ACROSS THE STRUCTURE OF ADJACENT ROCKS OR CUTS MASSIVE ROCK.
COATINGS IF OPEN.	$\overline{\text{DIP}}$ - THE ANGLE AT WHICH A STRATUM OR ANY PLANAR FEATURE IS INCLINED FROM THE HORIZONTAL.
HAMMER BLOWS IF	DIP DIRECTION (DIP AZIMUTH) - THE DIRECTION OR BEARING OF THE HORIZONTAL TRACE OF THE LINE OF DIP, MEASURED CLOCKWISE FROM NORTH.
Rock up to IAL Feldspar	FAULT - A FRACTURE OR FRACTURE ZONE ALONG WHICH THERE HAS BEEN DISPLACEMENT OF THE SIDES RELATIVE TO ONE ANOTHER PARALLEL TO THE FRACTURE.
ER BLOWS. TS. IN	<u>FISSILE</u> - A PROPERTY OF SPLITTING ALONG CLOSELY SPACED PARALLEL PLANES. <u>FLOAT</u> - ROCK FRAGMENTS ON SURFACE NEAR THEIR ORIGINAL POSITION AND DISLODGED FROM
AY. ROCK HAS TH AS COMPARED	PARENT MATERIAL. F <u>LOOD PLAIN (FP)</u> - LAND BORDERING A STREAM, BUILT OF SEDIMENTS DEPOSITED BY THE STREAM.
FELDSPARS DULL LOSS OF STRENGTH	FORMATION (FM.) - A MAPPABLE GEOLOGIC UNIT THAT CAN BE RECOGNIZED AND TRACED IN THE FIELD.
WHEN STRUCK.	<u>JOINT</u> - 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
EVIDENT BUT ARE KAOLINIZED	LEDUCE AN ONLY FINE AND AN INDUCTION OF ADDRESS AND
	MOTILED (MOT.) - IRREGULARLY MARKED WITH SPOTS OF DIFFERENT COLORS. MOTTLING IN SOILS USUALLY INDICATES POOR AERATION AND LACK OF GOOD DRAINAGE.
ARE DISCERNIBLE OF STRONG ROCK	PERCHED WATER - WATER MAINTAINED ABOVE THE NORMAL GROUND WATER LEVEL BY THE PRESENCE
at only minor Values < 100 BPF	OF AN INTERVENING IMPERVIOUS STRATUM. R <u>ESIDUAL (RES.)SOIL</u> - SOIL FORMED IN PLACE BY THE WEATHERING OF ROCK.
Y IN SMALL AND RS. SAPROLITE IS	ROCK DUALITY DESIGNATION (ROD) - 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.
INS REQUIRES	SAPROLITE (SAP.) - RESIDUAL SOIL THAT RETAINS THE RELIC STRUCTURE OR FABRIC OF THE PARENT ROCK.
BLOWS REQUIRED	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.
DEEP CAN BE DETACHED	SLICKENSIDE - POLISHED AND STRIATED SURFACE THAT RESULTS FROM FRICTION ALONG A FAULT OR SLIP PLANE.
OR PICK POINT. D BLOWS OF THE	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.
N FRAGMENTS INT. SMALL, THIN	STRATA CORE RECOVERY (SREC.) - TOTAL LENGTH OF STRATA MATERIAL RECOVERED DIVIDED BY TOTAL LENGTH OF STRATUM AND EXPRESSED AS A PERCENTAGE.
K. PIECES 1 INCH	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.
CHED READILY BY	TOPSOIL (TS.) - SURFACE SOILS USUALLY CONTAINING ORGANIC MATTER.
	BENCH MARK: GPS-2= N: 640824.688.0, E: 1647248.5700 STA. 31+11.77
4 FEET	<u>BL-5= N: 641550.9460, E: 1648108.5708 STA. 42+37.41</u> ELEVATION: GPS-2 = 582.72', BL-5= 606.26'FEET
1.5 - 4 FEET 0.16 - 1.5 FEET	
.03 - 0.16 FEET	
008 - 0.03 FEET < 0.008 FEET	FIAD= FILLED IMMEDIATELY AFTER DRILLING
EAT, PRESSURE, ETC.	
-	
E. STEEL PROBE:	
PROBE;	
F.	
LE;	





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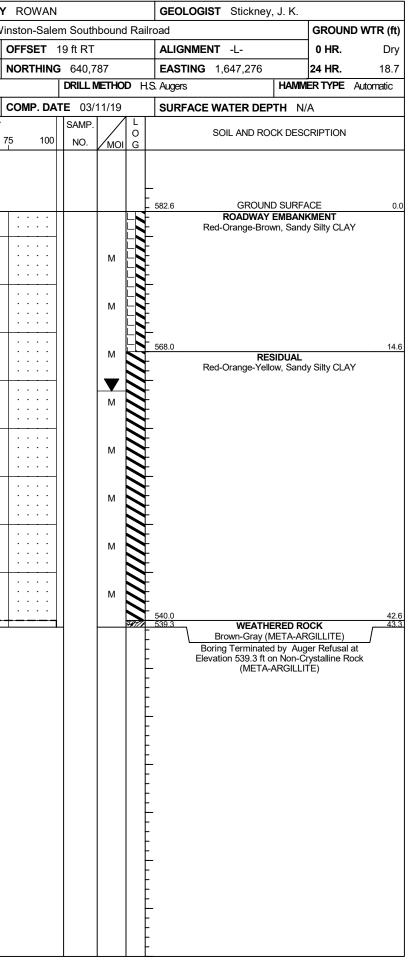
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	Medi — — —	um Stiff to Very	Stiff,	Dry to Moist. Red-Orange-Brow	n,Sandy Silty CL	AY				
_ 595	Stiff to	Very Stiff, Moist Clayey SILT		h-Brown-Gray, M	edium Stiff to S		Tan-Brow CLAY	ν <b>η,</b>		               
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## GEOTECHNICAL BORING REPORT BORE LOG

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				dge No						liver	and V	-				nd Ra						R (ft)										River and	d Win
BOR	ING NO.	. EB1	-A			STATI	ON 3	34+9	9			OFI	SET	15 ft L	Γ		ALIG	NMENT	-L-	0 H	IR.	23.0							TATIO	N 34	+95		0
						TOTAL						NO	RTHIN	<b>G</b> 640				<b>EASTING</b> 1,647,256 <b>24 HR.</b> 18.9									TOTAL DEPTH 43.3 ft						
DRILL	RIG/HA	MMER E	FF./DA	TE H	F000	70 CME	-550X	81%	06/04,	1/2018	3			DRILL	METH	OD	H.S. Auger	Augers HAMMER TYPE Automatic			DRILL RIG/HAMMER EFF./DATE HFO						0070 CME-550X 81% 06/04/2018						
DRIL	LER S		. L.			START	T DAT	<b>E</b> 0	)3/11/	/19		CO	MP. DA	<b>TE</b> 03			SUR	SURFACE WATER DEPTH N/A			DRIL	LER S					<b>START DATE</b> 03/11/19						
ELEV	DRIVE ELEV			ow co	-				LOWS		FOOT				P. <b>▼</b> ∕			SOIL	_ AND ROCK DE	ESCRIPT	ION		ELEV	DRIVE ELEV		· — —	ow co	_				S PER FC	
(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5	ft 0		25		50		75 I	100	NO.		) G	ELEV. (					PTH (ft)	(ft)	(ft)	(ft)	0.5ft	0.5ft	0.5ft	0	25	5 	50	75
585		Ļ															-						585		+								
	-	<b>†</b>				<u>    r</u>				· .		· .			_	+	583.1	P	GROUND SUF		IT	0.0			<u>‡</u>					·			
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	578.5	+ + 4.6						1.		.   .				11		F	-						- 000	578.5	+ 4.1			_					
	-	ŧ	2	2	3	🔶	5		· · · · · ·		· · · ·	.   .	· · · · · ·		M	F	•								Ŧ	3	5	7		D12	· · · · · ·	· · · · ·	
575	-	ŧ					<u>\</u>	· ·	· · ·	·   ·		•   •	· · ·			F	+						575	-	Ŧ				;		· · ·	• • •	
	573.5	+ 9.6 +	3	5	8	-  :	· · · ·		· · · ·				· · · · · ·		м	F	1							573.5	<u>+ 9.1</u> +	3	3	4	·/·   ·/·		· · · ·		
570	-	ŧ					· + ·		· · · · · ·		· · · ·		· · · · · ·			F	1						570		Ŧ				Ĩ		· · · ·	· · · · · · ·	
0.0	568.5	14.6												11			568.5	-				14.6	0.0	568.5	+ 14.1					<u>\</u> .			
	-	Ŧ	5	8	10		•1	8	· · ·	.   .	· · · ·	.   .	· · · · · ·		M			Red-O	<b>RESIDUA</b> range-Yellow, Sa		CLAY				Ŧ	3	<i>'</i>	10		<b>•</b> 17	••••	· · · ·	
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	563.5	<u>† 19.6</u> 	3	3	4		, · · ·				· · · ·		· · · ·		м		-							563.5_	<u>+ 19.1</u> +	3	3	7		10		· · · ·	
560	-	Ŧ							· · · ·								5						560		Ŧ					N			
	558.5	24.6				$- \overline{1}$											F							558.5	24.1	7		10		·\.			
	-	Ŧ	2	4	5	:	<b>9</b> .		· · · ·	.   .	· · · ·	.   .	· · · ·		M		5								Ŧ	'	9	10					
555		Ŧ					· · · 		· · ·	·   ·		·   ·					-						555		Ŧ					<u>-</u>  - - -			
	553.5	<u>T 29.6</u> I	2	3	4		7						· · · ·		м		ł							553.5	<u>+ 29.1</u>	5	6	9		415			
550	_	Ŧ															E						550		Ŧ					$\frac{1}{2}$			
	548.5	34.6	2	3	4	_  []				•		·   ·					E							548.5	34.1	5	8	13		- N			• •
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		- 43.0	3	6	8	<b> </b>  :			· · ·	.   .		.   .	· · ·		м										‡								
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	528.5	<u>+</u> 54.6	5	7	9				· · · · · ·	·   ·	· · ·	·   ·	· · · · · ·		М										‡								
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520	-	‡						<u>i</u>		·   ·		•   •													‡								
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	513.5	+ - <u>69</u> .6								<u> </u>				1			- 513.5					69.6		-	‡								
510	-	‡	36	64/0.3	1		· · · · · ·		<del>· · ·</del>	.   .		.   .	100/0.8	<b>•</b>				Brov	WEATHERED	ROCK	TE)				‡								
510		<u>‡</u>					· · ·	•	· · ·	·   ·		• •	· · ·	<u>l</u>			509.8					73.3		-	‡								
	-	‡			1												ļ.	Boring Elevatior	Terminated by A 509.8 ft on Nor	n-Crystalli	rusal at ine Rock				‡								
	-	‡															Ę		(META-ARGII	LLITE)					‡								
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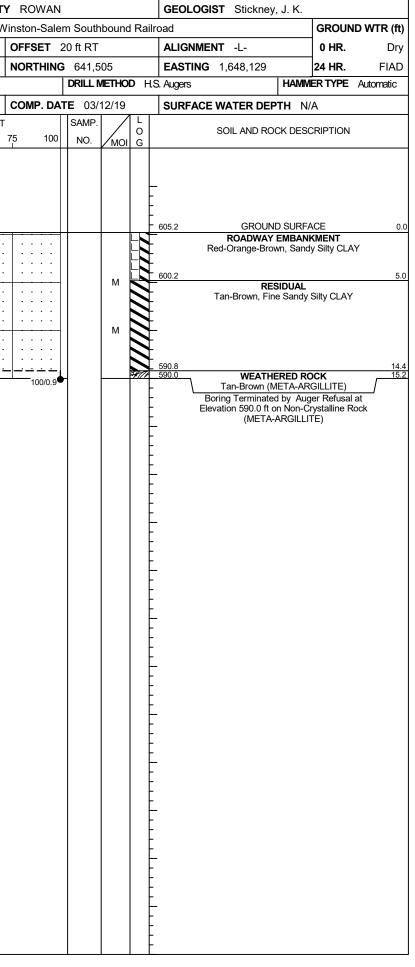
#### SHEET 6



## GEOTECHNICAL BORING REPORT BORE LOG

								-													,				
	<b>3</b> 8443					<b>P</b> B-4626			Y ROWAN					OGIST Stickney, J. K.			-	<b>S</b> 38443				TIP B-4626 COUNT			
SITE	DESCR	RIPTION	Bric	lge No	. 3 NC	8/49 over	<sup>-</sup> Yadkin Ri	ver and W	vinston-Sale	m South	nbound	d Ra	ilroad		GROUND	WTR (ft)	SITE	DESCR	IPTION	Bridg	e No. 3 N	IC 8/49	over Yadkir	River and	Wir
BOR	ING NO.	. EB2-	-A		ST	ATION 4	46+27		OFFSET 2	24 ft LT			ALIG	IMENT -L-	0 HR.	Dry	BOF	RING NO.	EB2-	-B	:	STATIO	<b>N</b> 46+11		
COL	LAR ELE	<b>EV.</b> 60	05.7 ft		тс	DTAL DEP	<b>TH</b> 18.31	ft	NORTHING					<b>EASTING</b> 1,648,113 <b>24 HR.</b> FIAD				LAR ELI	<b>EV.</b> 60	DEPTH 15	5.2 ft	1			
DRIL	l rig/hai	MMER E	FF./DA	TE HF	-00070	CME-550X	81% 06/04/	2018		DRILLI	METHO	D H	I.S. Augers	Augers HAMMER TYPE Automatic				l Rig/Ha	MMER E	FF./DAT	E HFOOD	FO0070 CME-550X 81% 06/04/2018			
DRIL	LER S	mith, C	C. L.		ST	ART DAT	<b>E</b> 03/12/ <sup>-</sup>	19	COMP. DA	TE 03/	/12/19		SURF	SURFACE WATER DEPTH N/A				LLER S	mith, C	. L.	:	<b>START DATE</b> 03/12/19			
ELEV	DRIVE ELEV	DEPTH	BLC	ow col	JNT		BLOWS	PER FOOT		SAMP.	<b>V</b>	L					ELEV	, DRIVE ELEV	DEPTH	BLOV	V COUNT		BLO	NS PER FO	от
(ft)	ELEV (ft)	(ft)		0.5ft	0.5ft	0	25	50	75 100	NO.	Имо	O I G	ELEV. (ft	SOIL AND ROCK DES	SCRIPTION	DEPTH (ft)	(ft)	ELEV (ft)	(ft)		0.5ft 0.5f	ft 0	25	50	75
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605		<u> </u>					<b>I</b>						605.7	GROUND SURF ROADWAY EMBAI	FACE NKMENT	0.0	605		-				<u> </u>	<del></del>	
	-	ł											Ł	Red-Orange-Brown, San				-	Ł						
	601.3	4.4										F	600.7			5.0		600.8 -	4.4						
600		Ŧ	16	14	12		26				D	V V		<b>RESIDUAL</b> Tan-Brown-Gray, Cla		0.0	600			2	3 4	-			
	-	Ŧ											Ē.	Tall-Blown-Glay, G	ayey SILT			-	F						
595	596.3	9.4	4	6	8						м	NN	- -				595	- 595.8	9.4			_   :i:	· ·   · · · ·   · ·	· ·   · · · · ·   · · ·	
- 595	-	ŧ				<b>— — — — — — — — — —</b>						ΝV	.— ↓-				- 393	-	F	4	3 5	<b>−</b> •€	3		
	- 591.3	+										7 V V	Ļ					-	ŧ.				· ·   · · · ·   · ·	· ·   · · · · ·   · · ·	
590		14.4 -	18	82/0.3		· · · · · <u>· · · · · · · · · · · · · · </u>	+	<u> </u>	100/0.8				<u> </u>	WEATHERED F	ROCK	14.9	590	590.8	- 14.4	19 8	1/0.4	' <u>-</u>	_`	<u> </u>	
	-	ł											587.4	Tan-Brown-Gray (META	A-ARGILLITE)	18.3		-	Ł						
	-	+								-		V/2	- 567.4	Boring Terminated by Au	uger Refusal a	t		-	F						
	_	Ŧ											F	Elevation 587.4 ft on Non- (META-ARGILL		CK			F						
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#### SHEET 7



# BRIDGE NO. 3 on NC 8/49 over Yadkin River and Winston Salem Southbound Railroad



Site Photographs

-EBL-

Photograph No. 1: Looking at End Bent 1 toward End Bent 2

**Photograph No. 2:** Looking at End Bent 1 to End Bent 2

