

REFERENCE: R-5739

PROJECT: 50197

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

**STRUCTURE**  
**SUBSURFACE INVESTIGATION**

COUNTY NORTHAMPTON

PROJECT DESCRIPTION -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE

SITE DESCRIPTION TEMPORARY SHORING INVESTIGATION FOR CULVERTS AT -L- STA. 38 + 74, 280 + 87, 324 + 26, 451 + 96, 499 + 65, 520 + 60, 529 + 00

REVISED

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5739	1	16

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 (919) 707-6850. 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 PERFORM INDEPENDENT SUBSURFACE INVESTIGATIONS AND MAKE INTERPRETATIONS AS NECESSARY TO CONFIRM CONDITIONS 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:
- 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.
  - 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

S.N. ZIMARINO

T.W. MILLER

J.M. EDMONDSON

C.M. WALKER

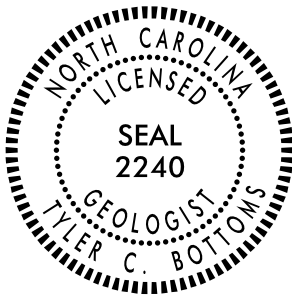
INVESTIGATED BY T.C. BOTTOMS

DRAWN BY T.W. MILLER

CHECKED BY D.N. ARGENBRIGHT

SUBMITTED BY D.N. ARGENBRIGHT

DATE JANUARY 2024



DocuSigned by:

Tyler Bottoms

01/24/2024

48A2D3BD08CF4A6...  
SIGNATURE

DATE

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

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,   
VERY STIFF, GRAY, SILTY CLAY, MOIST WITH INTERBEDDED FINE SAND LAYERS, HIGHLY PLASTIC, A-7-6

SOIL LEGEND AND AASHTO CLASSIFICATION

GENERAL CLASS.	GRANULAR MATERIALS (< 35% PASSING #200)						SILT-CLAY MATERIALS (> 35% PASSING #200)				ORGANIC MATERIALS		
GROUP CLASS.	A-1	A-3	A-2				A-4	A-5	A-6	A-7	A-1, A-2	A-4, A-5	
SYMBOL													
% PASSING #10 #40 #200	50 MX 30 MX 15 MX	50 MX 25 MX	51 MN 35 MX	35 MX 35 MX	35 MX 35 MX	35 MX 35 MX	36 MN 36 MN	36 MN 36 MN	36 MN 36 MN	36 MN	GRANULAR SOILS	SILT-CLAY SOILS	MUCK, PEAT
MATERIAL PASSING #40 LL PI	— 6 MX		— NP		40 MX 10 MX	41 MN 10 MX	40 MX 11 MN	41 MN 11 MN	40 MX 10 MX	41 MN 11 MN	SOILS WITH LITTLE OR MODERATE AMOUNTS OF ORGANIC MATTER		HIGHLY ORGANIC SOILS
GROUP INDEX	0		0		4 MX		8 MX	12 MX	16 MX	NO MX			
USUAL TYPES OF MAJOR MATERIALS	STONE FRAGS. GRAVEL, AND SAND		FINE SAND		SILTY OR CLAYEY GRAVEL AND SAND		SILTY SOILS		CLAYEY SOILS				
GEN. RATING AS SUBGRADE	EXCELLENT TO GOOD						FAIR TO POOR				FAIR TO POOR	POOR	UNSUITABLE

CONSISTENCY OR DENSENESS

PRIMARY SOIL TYPE	COMPACTNESS OR CONSISTENCY	RANGE OF STANDARD PENETRATION RESISTANCE (N-VALUE)	RANGE OF UNCONFINED COMPRESSIVE STRENGTH (TONS/FT <sup>2</sup> )
GENERALLY GRANULAR MATERIAL (NON-COHESIVE)	VERY LOOSE LOOSE MEDIUM DENSE DENSE VERY DENSE	< 4 4 TO 10 10 TO 30 30 TO 50 > 50	N/A
GENERALLY SILT-CLAY MATERIAL (COHESIVE)	VERY SOFT SOFT MEDIUM STIFF STIFF VERY STIFF HARD	< 2 2 TO 4 4 TO 8 8 TO 15 15 TO 30 > 30	< 0.25 0.25 TO 0.5 0.5 TO 1.0 1 TO 2 2 TO 4 > 4

TEXTURE OR GRAIN SIZE

U.S. STD. SIEVE SIZE OPENING (MM)	4	10	40	60	200	270
	4.76	2.00	0.42	0.25	0.075	0.053
BOULDER (BLDR.)	COBBLE (COB.)	GRAVEL (GR.)	COARSE SAND (CSE. SD.)	FINE SAND (F. SD.)	SILT (SL.)	CLAY (CL.)

GRAIN MM SIZE	305	75	2.0	0.25	0.05	0.005
	12	3				

SOIL MOISTURE - CORRELATION OF TERMS

SOIL MOISTURE SCALE (ATTERBERG LIMITS)	FIELD MOISTURE DESCRIPTION	GUIDE FOR FIELD MOISTURE DESCRIPTION
LL PL OM SL	LIQUID LIMIT	USUALLY LIQUID; VERY WET, USUALLY FROM BELOW THE GROUND WATER TABLE
	PLASTIC LIMIT	
	OPTIMUM MOISTURE SHRINKAGE LIMIT	SEMI-SOLID; REQUIRES DRYING TO ATTAIN OPTIMUM MOISTURE
		SOLID; AT OR NEAR OPTIMUM MOISTURE
	- SATURATED - (SAT.)	
	- WET - (W)	
	- MOIST - (M)	
	- DRY - (D)	REQUIRES ADDITIONAL WATER TO ATTAIN OPTIMUM MOISTURE

PLASTICITY

	PLASTICITY INDEX (PI)	DRY STRENGTH
NON PLASTIC	0-5	VERY LOW
SLIGHTLY PLASTIC	6-15	SLIGHT
MODERATELY PLASTIC	16-25	MEDIUM
HIGHLY PLASTIC	26 OR MORE	HIGH

COLOR

DESCRIPTIONS MAY INCLUDE COLOR OR COLOR COMBINATIONS (TAN, RED, YELLOW-BROWN, BLUE-GRAY). MODIFIERS SUCH AS LIGHT, DARK, STREAKED, ETC. ARE USED TO DESCRIBE APPEARANCE.
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GRADATION

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.

ANGULARITY OF GRAINS

THE ANGULARITY OR ROUNDNESS OF SOIL GRAINS IS DESIGNATED BY THE TERMS: ANGULAR, SUBANGULAR, SUBROUNDED, OR ROUNDED.

MINERALOGICAL COMPOSITION

MINERAL NAMES SUCH AS QUARTZ, FELDSPAR, MICA, TALC, KAOLIN, ETC. ARE USED IN DESCRIPTIONS WHEN THEY ARE CONSIDERED OF SIGNIFICANCE.

COMPRESSIBILITY

SLIGHTLY COMPRESSIBLE	LL < 31
MODERATELY COMPRESSIBLE	LL = 31 - 50
HIGHLY COMPRESSIBLE	LL > 50

PERCENTAGE OF MATERIAL

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

GROUND WATER

WATER LEVEL IN BORE HOLE IMMEDIATELY AFTER DRILLING

STATIC WATER LEVEL AFTER 24 HOURS

PERCHED WATER, SATURATED ZONE, OR WATER BEARING STRATA

SPRING OR SEEP

MISCELLANEOUS SYMBOLS

ROADWAY EMBANKMENT (RE) WITH SOIL DESCRIPTION

SOIL SYMBOL

ARTIFICIAL FILL (AF) OTHER THAN ROADWAY EMBANKMENT

INFERRED SOIL BOUNDARY

INFERRED ROCK LINE

ALLUVIAL SOIL BOUNDARY

DIP & DIP DIRECTION OF ROCK STRUCTURES

TEST BORING

AUGER BORING

CORE BORING

MONITORING WELL

PIEZOMETER INSTALLATION

SLOPE INDICATOR INSTALLATION

CONE PENETROMETER TEST

SOUNDING ROD

TEST BORING WITH CORE

SPT N-VALUE

RECOMMENDATION SYMBOLS

UNDERCUT

SHALLOW UNDERCUT

UNCLASSIFIED EXCAVATION - UNSUITABLE WASTE

UNCLASSIFIED EXCAVATION - ACCEPTABLE DEGRADABLE ROCK

UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FEET OF EMBANKMENT OR BACKFILL

ABBREVIATIONS

AR - AUGER REFUSAL  
BT - BORING TERMINATED  
CL - CLAY  
CPT - CONE PENETRATION TEST  
CSE - COARSE  
DMT - DILATOMETER TEST  
DPT - DYNAMIC PENETRATION TEST  
e - VOID RATIO  
f - FINE  
FOSS. - FOSSILIFEROUS  
FRAC. - FRACTURED, FRACTURES  
FRAGS. - FRAGMENTS  
HL - HIGHLY

MED. - MEDIUM  
MICA. - MICACEOUS  
MOD. - MODERATELY  
NP - NON PLASTIC  
ORG. - ORGANIC  
PMT - PRESSUREMETER TEST  
SAP. - SAPROLITIC  
SD. - SAND, SANDY  
SL. - SILT, SILTY  
SLI. - SLIGHTLY  
TCR. - TRICONE REFUSAL  
w - MOISTURE CONTENT  
V - VERY

VST - VANE SHEAR TEST  
WEA. - WEATHERED  
γ - UNIT WEIGHT  
γ<sub>d</sub> - DRY UNIT WEIGHT

SAMPLE ABBREVIATIONS

S - BULK  
SS - SPLIT SPOON  
ST - SHELBY TUBE  
RS - ROCK  
RT - RECOMPACTED TRIAXIAL  
CBR - CALIFORNIA BEARING RATIO

EQUIPMENT USED ON SUBJECT PROJECT

DRILL UNITS:

☐ CME-45C

☒ CME-55

☐ CME-550

☐ VANE SHEAR TEST

☐ PORTABLE MOIST

☐


☐

ADVANCING TOOLS:

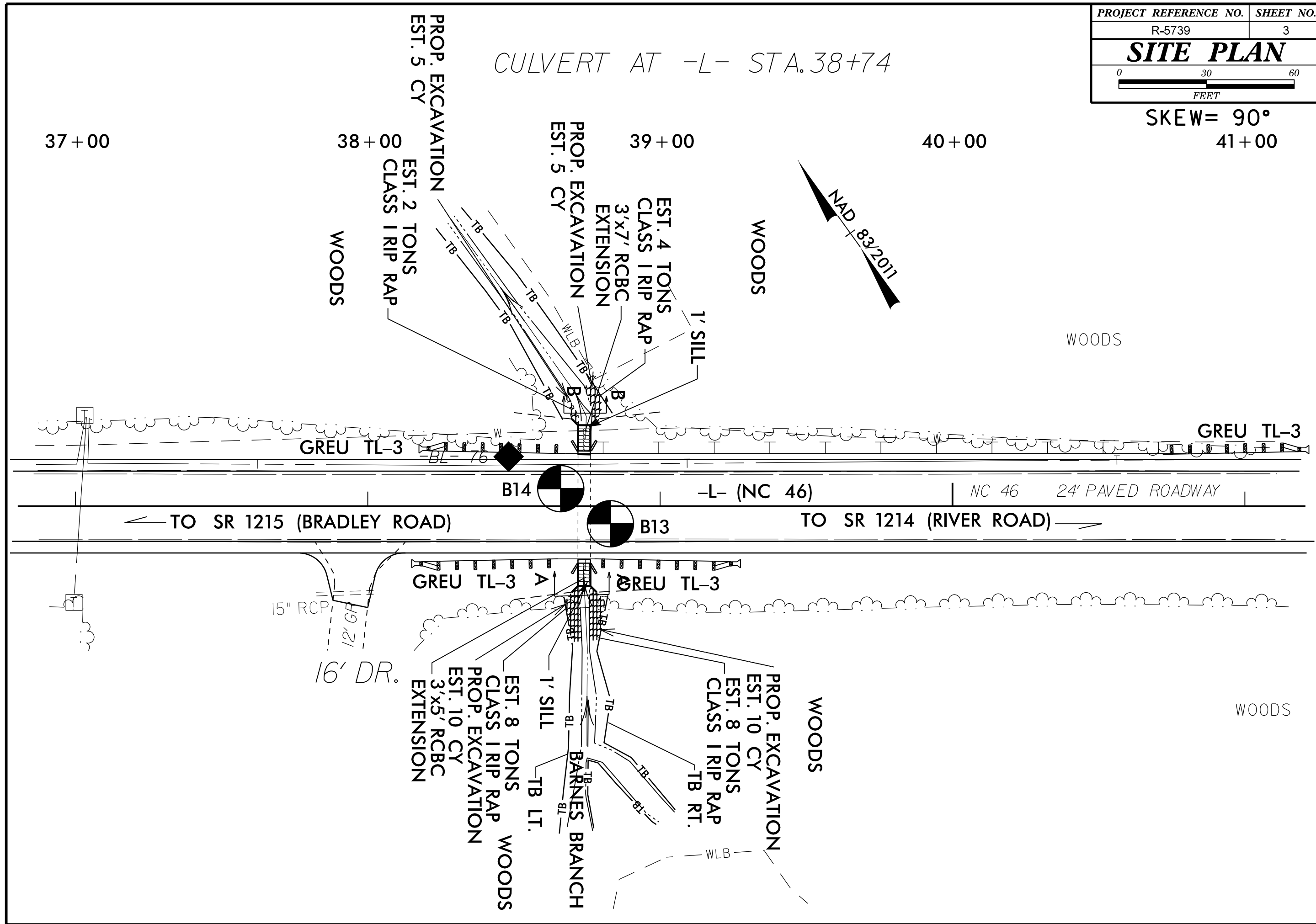
☐ CLAY BITS

☐ 6" CONTINUOUS FLIGHT AUGER

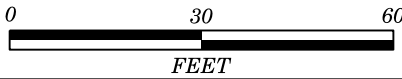
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<b>PROJECT REFERENCE NO.</b>	<b>SHEET NO.</b>
R-5739	3
<b><i>SITE PLAN</i></b>	
<div style="display: flex; justify-content: space-between; align-items: center;"> <span>0</span> <span>30</span> <span>60</span> </div>  <div style="text-align: center; margin-top: 5px;"> <b>FEET</b> </div>	

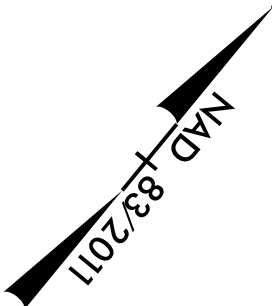
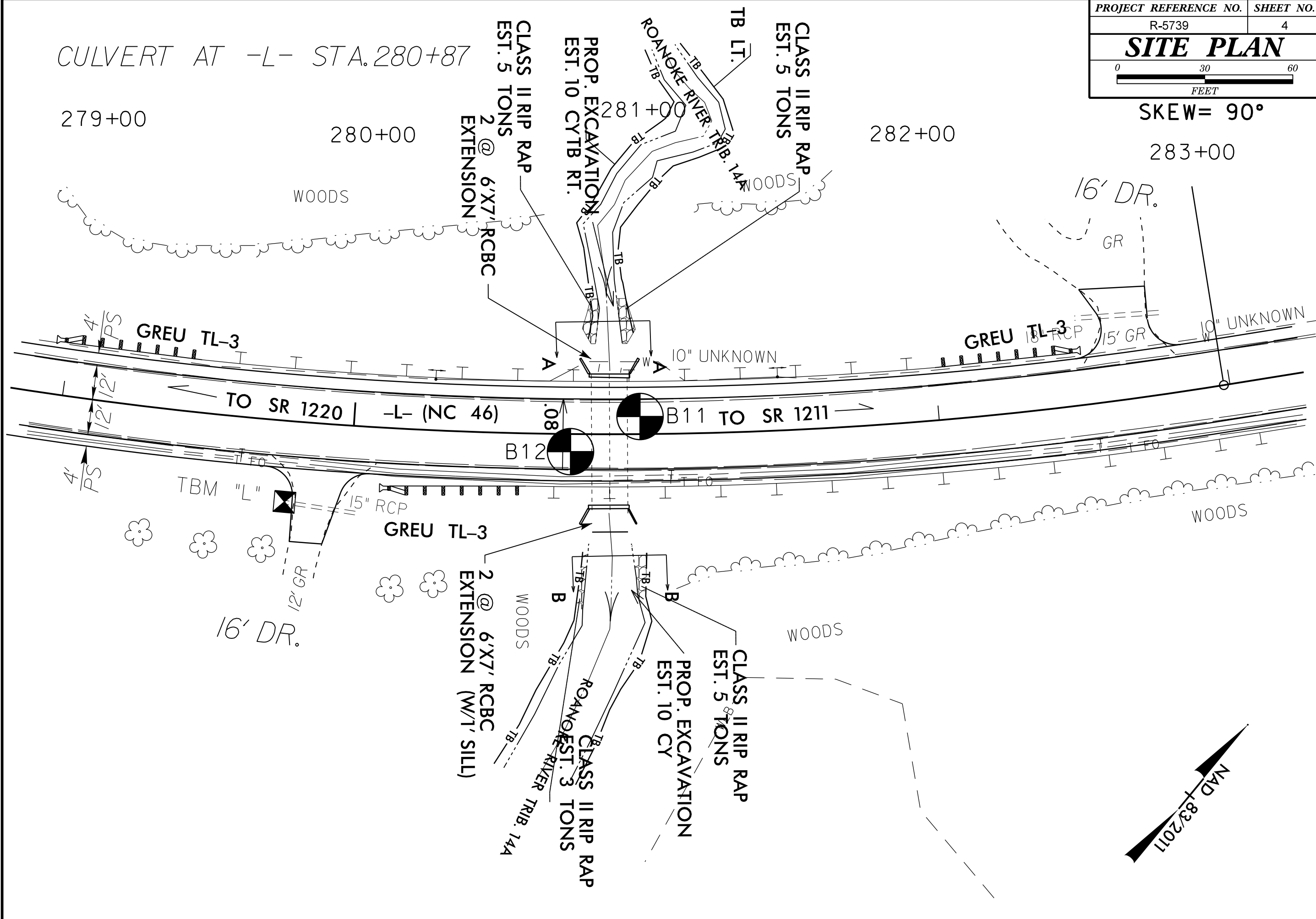
**SKEW= 90°**  
**41+00**



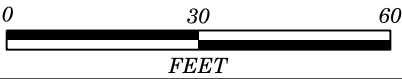
SITE PLAN



SKEW= 90°

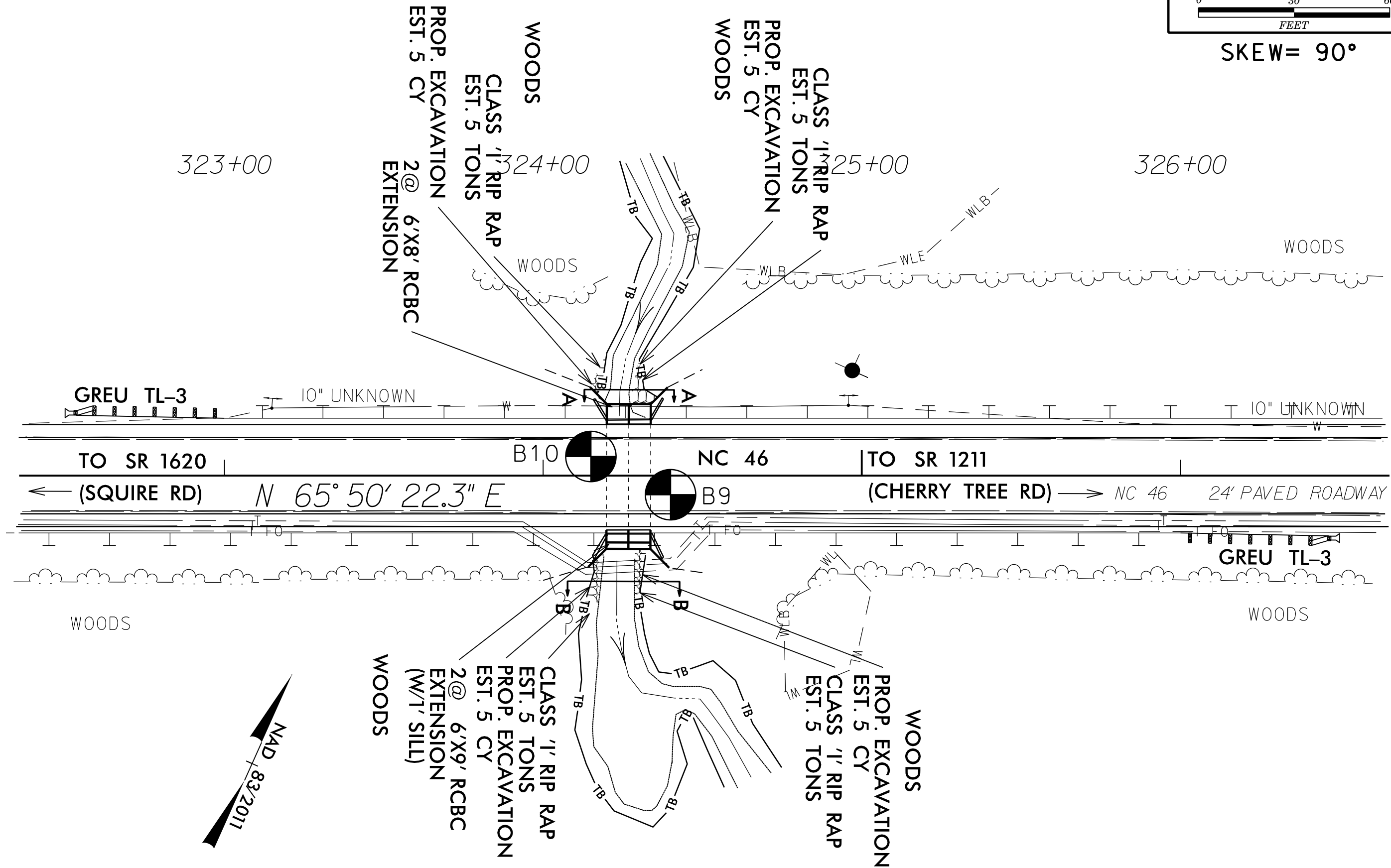


SITE PLAN

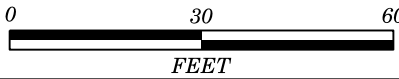


SKEW= 90°

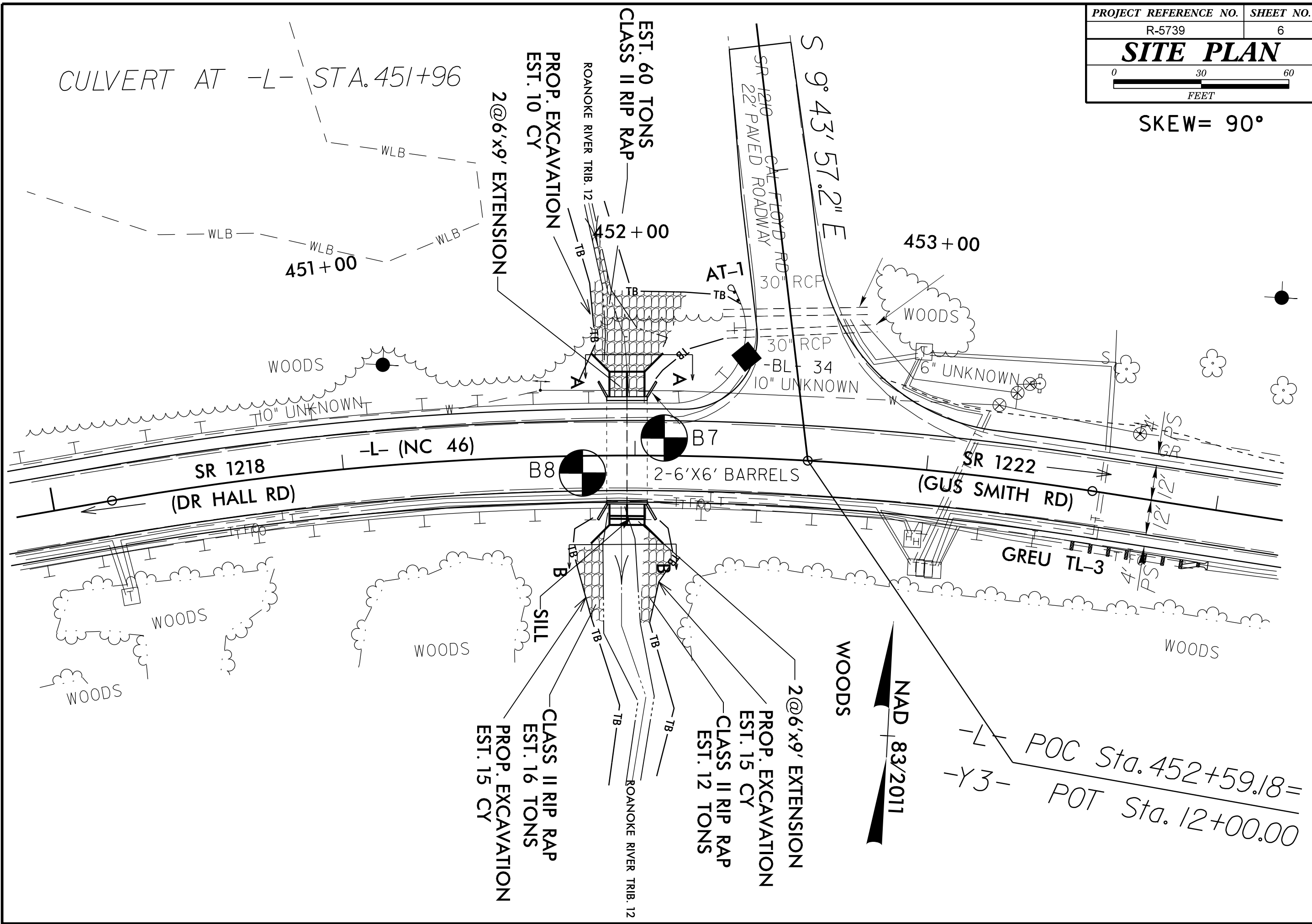
CULVERT AT -L- STA.324+26



SITE PLAN

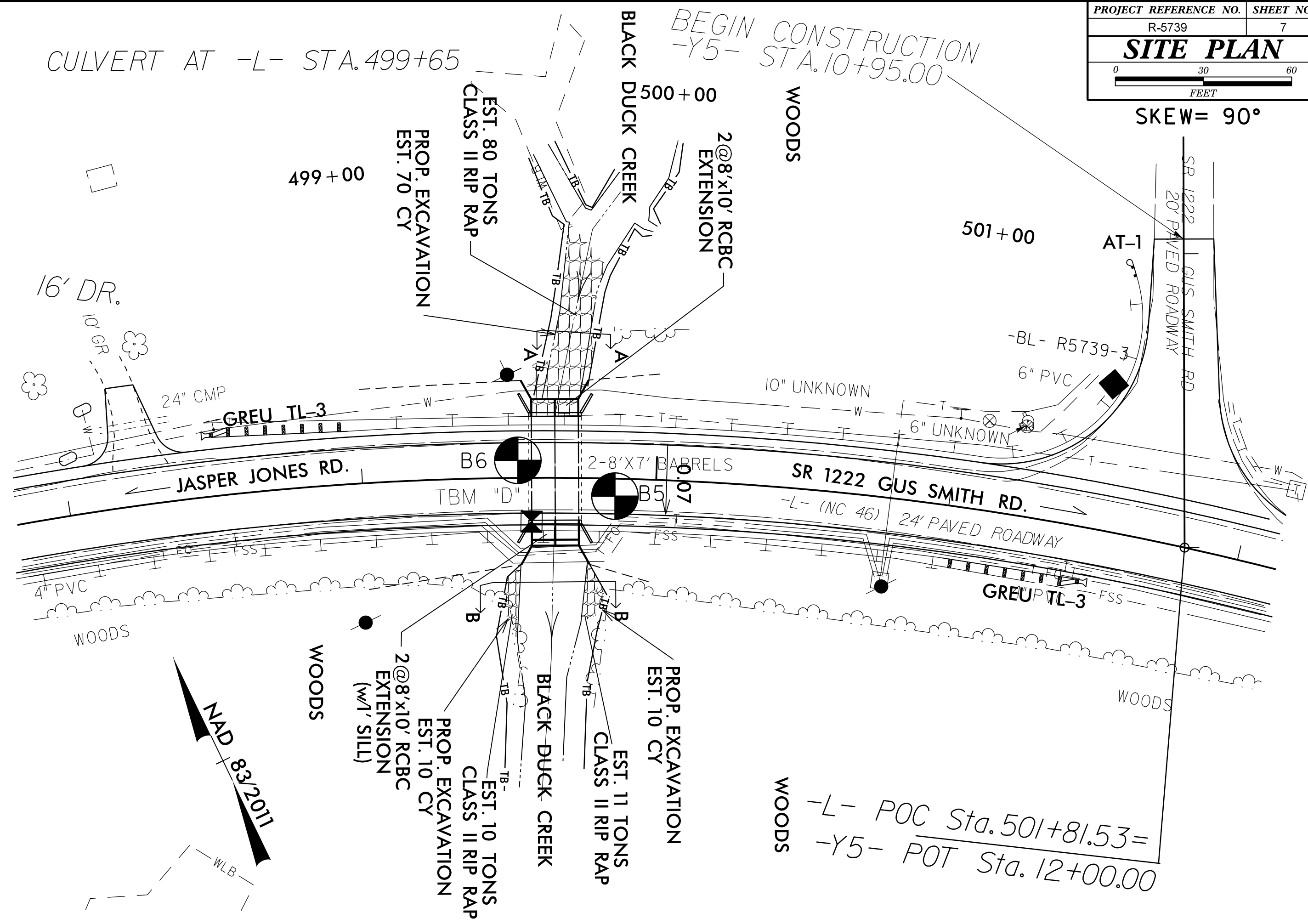


SKIEW= 90°



PROJECT REFERENCE NO.	SHEET NO.
R-5739	7
<b>SITE PLAN</b>	

SKEW= 90°



CULVERT AT -L- STA.499+65

BEGIN CONSTRUCTION  
-Y5- STA.10+95.00

499+00

500+00

501+00

16' DR.

GREU TL-3

JASPER JONES RD.

SR 1222 GUS SMITH RD.

GREU TL-3

WOODS

WOODS

WOODS

MAAD 83/21011

WLB

PROP. EXCAVATION  
EST. 70 CY

EST. 80 TONS  
CLASS II RIP RAP

2@8'x10' RCBC  
EXTENSION

BLACK DUCK CREEK

B6

B5

2-8'x7' BARRELS

TBM "D"

-L- (NC 46)

24' PAVED ROADWAY

4" PVC

WOODS

2@8'x10' RCBC  
EXTENSION  
(w/1' SILL)

PROP. EXCAVATION  
EST. 10 CY

EST. 10 TONS  
CLASS II RIP RAP

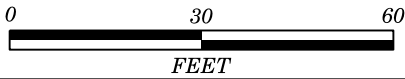
BLACK DUCK CREEK

PROP. EXCAVATION  
EST. 10 CY

EST. 11 TONS  
CLASS II RIP RAP

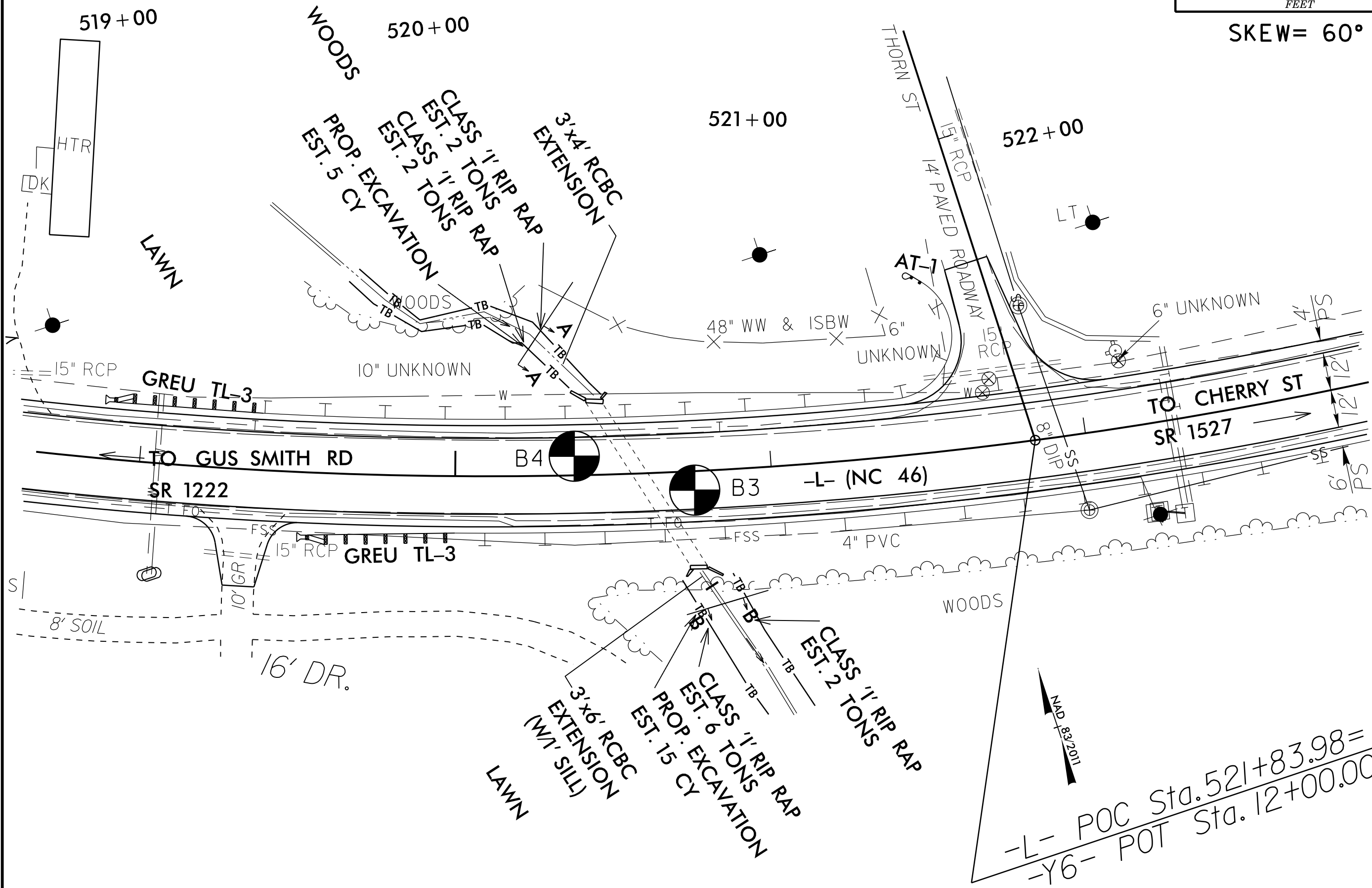
-L- POC Sta.501+81.53=  
-Y5- POT Sta.12+00.00

SITE PLAN



SKEW= 60°

CULVERT AT -L- STA.520+60







GEOTECHNICAL BORING REPORT  
BORE LOG

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.				
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE										GROUND WTR (ft)			
BORING NO. B14			STATION 38+66			OFFSET 6 ft LT			ALIGNMENT -L-			0 HR. 10.0 Caved	
COLLAR ELEV. 301.4 ft			TOTAL DEPTH 35.2 ft			NORTHING 1,017,356			EASTING 2,353,422			24 HR. N/A	
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic			
DRILLER Edmondson, J. M.			START DATE 12/20/23			COMP. DATE 01/11/24			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			ELEV. (ft) DEPTH (ft)
305													
300	300.4	1.0											301.4 GROUND SURFACE 0.0
													300.4 PAVEMENT 1.0
	297.7	3.7	7	14	13								ROADWAY EMBANKMENT TAN SILTY SAND, MOIST
295			8	6	5								295.4 ALLUVIAL 6.0
	292.7	8.7											GREEN AND GRAY SANDY CLAY WITH GRAVEL, MOIST TO WET
290			3	6	7								290.4 SAPROLITE 11.0
	287.7	13.7											GREEN AND ORANGE, SAPROLITIC, SILTY CLAY WITH MICA, WET
285			2	3	4								285.4 LIGHT GRAY AND ORANGE, SAPROLITIC, CLAYEY SAND WITH MICA, SATURATED 16.0
	282.7	18.7											280.4 LIGHT GRAY, TAN, AND ORANGE, SAPROLITIC, SILTY SAND WITH MICA, SATURATED 21.0
280			2	2	4								
	277.7	23.7											
275			2	2	3								
	272.7	28.7											
270			2	2	7								270.4 GRAY AND TAN MICACEOUS CLAYEY SILT, SAPROLITIC, WET 31.0
	267.7	33.7											
			4	5	6								266.2 Boring Terminated at Elevation 266.2 ft IN STIFF CLAYEY SILT 35.2

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.				
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE									GROUND WTR (ft)				
BORING NO. B13			STATION 38+83			OFFSET 6 ft RT			ALIGNMENT -L-			0 HR. 8.7 Caved	
COLLAR ELEV. 301.9 ft			TOTAL DEPTH 30.2 ft			NORTHING 1,017,337			EASTING 2,353,429			24 HR. N/A	
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.			START DATE 12/20/23			COMP. DATE 01/11/24			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		MOI	
305													
300	301.1	0.8	4	5	6	11	.	.	.	.			301.9 GROUND SURFACE 0.0 301.1 PAVEMENT 0.8
	298.2	3.7	9	8	5	13	.	.	.	.			ROADWAY EMBANKMENT TAN SILTY SAND, MOIST
295													295.9 ALLUVIAL 6.0
	293.2	8.7	2	5	7	12	.	.	.	.			GRAY AND GREEN SANDY CLAY WITH WOOD FRAGMENTS, MOIST TO WET
290													290.9 SAPROLITE 11.0
	288.2	13.7	1	2	2	4	.	.	.	.			TAN, ORANGE, AND GRAY, SAPROLITIC, SANDY CLAY WITH MICA AND QUARTZ, WET
285													285.9 TAN, ORANGE, AND GRAY, SAPROLITIC, SILTY CLAY WITH MICA AND QUARTZ, WET 16.0
	283.2	18.7	3	1	4	5	.	.	.	.			
280													
	278.2	23.7	3	5	7	12	.	.	.	.			
275													
	273.2	28.7	7	13	27	40	.	.	.	.			271.7 Boring Terminated at Elevation 271.7 ft IN HARD SILTY CLAY 30.2

NCDOT BORE DOUBLE R-5739\_GEO\_TEMP\_SHORING.GPJ NC\_DOT.GDT 1/22/24

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.					
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE									GROUND WTR (ft)					
BORING NO. B12			STATION 280+74			OFFSET 6 ft RT			ALIGNMENT -L-			0 HR. 15.5 Caved		
COLLAR ELEV. 213.9 ft			TOTAL DEPTH 40.2 ft			NORTHING 1,004,744			EASTING 2,371,972			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER Edmondson, J. M.			START DATE 12/20/23			COMP. DATE 01/11/24			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		MOI	ELEV. (ft)	DEPTH (ft)
215														
	213.1	0.8	8	8	10								213.9	GROUND SURFACE 0.0
													213.1	PAVEMENT 0.8
210	210.2	3.7	8	8	7								ROADWAY EMBANKMENT	
													TAN AND ORANGE SILTY SAND, MOIST	
													207.9	6.0
205	205.2	8.7	2	2	1								ALLUVIAL	
													GRAY SILTY SAND, MOIST TO SATURATED	
													202.9	11.0
200	200.2	13.7	WOH	2	2								SAPROLITE	
													WHITE, GRAY, RED, TAN, GREEN, ORANGE, BROWN, PURPLE, SAPROLITIC, MICACEOUS SILTY CLAY, WET	
195	195.2	18.7	4	6	7									
190	190.2	23.7	4	8	14									
185	185.2	28.7	12	19	33									
180	180.2	33.7	10	14	18									
175	175.2	38.7	22	30	56									
													173.7	40.2
													Boring Terminated at Elevation 173.7 ft IN HARD SILTY CLAY	

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.					
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE									GROUND WTR (ft)					
BORING NO. B11			STATION 280+98			OFFSET 6 ft LT			ALIGNMENT -L-			0 HR. 15.9 Caved		
COLLAR ELEV. 213.0 ft			TOTAL DEPTH 24.9 ft			NORTHING 1,004,768			EASTING 2,371,983			24 HR. N/A		
DRILL RIG/HAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic					
DRILLER Edmondson, J. M.			START DATE 12/20/23			COMP. DATE 12/20/23			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	MOI			
215														
	212.2	0.8		5	6	7								213.0 GROUND SURFACE 0.0
210														212.2 PAVEMENT 0.8
	209.3	3.7		4	3	2								ROADWAY EMBANKMENT TAN SILTY SAND, MOIST
205														207.0 SAPROLITE 6.0
	204.3	8.7		20	17	15								GRAY, GREEN, RED, SAPROLITIC, SILTY CLAY, MOIST TO WET
200														
	199.3	13.7		11	18	25								
195														197.0 WEATHERED ROCK (GRANITE) 16.0
	194.3	18.7		21	87	13/0.0								
190														
	189.3	23.7		33	57	43/0.2								188.1 Boring Terminated at Elevation 188.1 ft IN WEATHERED ROCK 24.9

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BORE LOG

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.				
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE									GROUND WTR (ft)				
BORING NO. B10			STATION 324+15			OFFSET 6 ft LT			ALIGNMENT -L-			0 HR. 7.7 Caved	
COLLAR ELEV. 189.7 ft			TOTAL DEPTH 14.7 ft			NORTHING 1,006,956			EASTING 2,375,648			24 HR. N/A	
DRILL RIG/HAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.			START DATE 12/20/23			COMP. DATE 12/20/23			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			
190													
	188.7	1.0	11	20	15								
185	185.9	3.8	4	6	13								
180	180.9	8.8	WOH	WOH	1								
175	175.9	13.8											
	175.1	14.6	46	100/0.2									
			60/0.1										

WBS 50197.1.1			TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.				
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE									GROUND WTR (ft)				
BORING NO. B9			STATION 324+40			OFFSET 6 ft RT			ALIGNMENT -L-			0 HR. 7.0 Caved	
COLLAR ELEV. 189.4 ft			TOTAL DEPTH 14.1 ft			NORTHING 1,006,955			EASTING 2,375,675			24 HR. N/A	
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers			HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.			START DATE 12/19/23			COMP. DATE 12/19/23			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			
190													
	188.6	0.8	12	5	6								189.4 GROUND SURFACE 0.0
													188.6 PAVEMENT 0.8
185	185.7	3.7	4	3	2								ROADWAY EMBANKMENT
													TAN SILTY SAND, MOIST
													183.4 ALLUVIAL 6.0
													GRAY SILTY SAND, MOIST TO SATURATED
180	180.7	8.7	WOH	4	8								178.4 WEATHERED ROCK 11.0
													(GRANITE)
	175.7	13.7											175.3 CRYSTALLINE ROCK 14.1
	175.3	14.1	100/0.4										(GRANITE)
			60/0.0										Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 175.3 ft ON CRYSTALLINE ROCK

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GEOTECHNICAL BORING REPORT  
BORE LOG

WBS 50197.1.1				TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.					
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE										GROUND WTR (ft)					
BORING NO. B6				STATION 499+53			OFFSET 6 ft LT			ALIGNMENT -L-			0 HR. 7.5 Caved		
COLLAR ELEV. 138.5 ft				TOTAL DEPTH 13.7 ft			NORTHING 1,004,831			EASTING 2,392,612			24 HR. N/A		
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022							DRILL METHOD H.S. Augers				HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.				START DATE 12/19/23			COMP. DATE 12/19/23			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					
140															
135	137.7	0.8	7	4	5	9									138.5 GROUND SURFACE 0.0 137.7 PAVEMENT 0.8
	134.7	3.8	5	7	4	11									ROADWAY EMBANKMENT TAN AND ORANGE SILTY SAND, MOIST
130	129.7	8.8	9	14	6	20									132.5 ALLUVIAL 6.0 GRAY SILTY SAND, MOIST TO SATURATED
	124.8	13.7	60/0.0												124.8 CRYSTALLINE ROCK 13.7 (GRANITE) Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 124.8 ft ON CRYSTALLINE ROCK

WBS 50197.1.1				TIP R-5739			COUNTY NORTHAMPTON			GEOLOGIST Miller, T. W.					
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE										GROUND WTR (ft)					
BORING NO. B5				STATION 499+86			OFFSET 6 ft RT			ALIGNMENT -L-			0 HR. 9.4 Caved		
COLLAR ELEV. 137.3 ft				TOTAL DEPTH 11.7 ft			NORTHING 1,004,806			EASTING 2,392,637			24 HR. N/A		
DRILL RIGHAMMER EFF./DATE RFC0074 CME-55 92% 08/02/2022							DRILL METHOD H.S. Augers				HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.				START DATE 12/19/23			COMP. DATE 12/19/23			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	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100					
140															
135	136.4	0.9	9	8	5									137.3 GROUND SURFACE 0.0	
	133.5	3.8	2	2	2									136.4 PAVEMENT 0.9	
130														ROADWAY EMBANKMENT	
														ORANGE AND TAN SILTY SAND, MOIST	
	128.5	8.8	18	27	18									131.3 ALLUVIAL 6.0	
	125.6	11.7	60/0.0											GRAY SAND WITH GRAVEL, MOIST TO SATURATED	
														125.6 CRYSTALLINE ROCK 11.7	
														(GRANITE)	
														Boring Terminated WITH STANDARD	
														PENETRATION TEST REFUSAL at	
														Elevation 125.6 ft ON CRYSTALLINE	
														ROCK	

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WBS		50197.1.1		TIP		R-5739		COUNTY		NORTHAMPTON		GEOLOGIST		Miller, T. W.																	
SITE DESCRIPTION												TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE				GROUND WTR (ft)															
BORING NO.				B3		STATION				520+75		OFFSET		6 ft RT		ALIGNMENT		-L-		0 HR.		10.6 Caved									
COLLAR ELEV.				135.8 ft		TOTAL DEPTH				23.2 ft		NORTHING		1,003,589		EASTING		2,394,317		24 HR.		N/A									
DRILL RIG/HAMMER EFF./DATE										RFC0074 CME-55 92% 08/02/2022										DRILL METHOD				H.S. Augers				HAMMER TYPE		Automatic	
DRILLER				Edmondson, J. M.		START DATE				12/19/23		COMP. DATE				01/17/24		SURFACE WATER DEPTH						N/A							
ELEV (ft)	DRIVE ELEV (ft)	DEPTH (ft)	BLOW COUNT			BLOWS PER FOOT					SAMP. NO.	<div>MOI</div>	<div>LOG</div>	SOIL AND ROCK DESCRIPTION																	
			0.5ft	0.5ft	0.5ft	0	25	50	75	100																					
140																															
135	134.8	1.0	4	4	4									135.8 GROUND SURFACE 0.0																	
														134.8 PAVEMENT 1.0																	
130	131.8	4.0	3	2	1									ROADWAY EMBANKMENT																	
														TAN SILTY SAND, MOIST																	
125	126.8	9.0	2	5	6									128.8 SAPROLITE 7.0																	
														TAN, SAPROLITIC, SILTY SAND WITH QUARTZ, MOIST TO SATURATED																	
120	121.8	14.0	3	2	3									123.8 BLUE, GRAY, ORANGE, AND GREEN, 12.0																	
														SAPROLITIC, SILTY CLAY WITH QUARTZ, WET																	
115	116.8	19.0	WOH		1																										
	115.3	20.5	1	5	13									123.8																	
	112.6	23.2												112.6 23.2																	
			60/0.0													CRYSTALLINE ROCK (GRANITE)															
															Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 112.6 ft ON CRYSTALLINE ROCK																

GEOTECHNICAL BORING REPORT  
BORE LOG

WBS 50197.1.1				TIP R-5739		COUNTY NORTHAMPTON		GEOLOGIST Miller, T. W.								
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE												GROUND WTR (ft)				
BORING NO. B2				STATION 528+89			OFFSET 6 ft LT			ALIGNMENT -L-		0 HR. 12.8 Caved				
COLLAR ELEV. 122.5 ft				TOTAL DEPTH 37.2 ft			NORTHING 1,003,554			EASTING 2,395,128		24 HR. N/A				
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 08/02/2022							DRILL METHOD H.S. Augers				HAMMER TYPE Automatic					
DRILLER Edmondson, J. M.				START DATE 12/18/23			COMP. DATE 01/17/24			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						
125																
120	121.6	0.9	4	6	3										122.5 GROUND SURFACE 0.0	
															121.6 PAVEMENT 0.9	
115	118.1	4.4	3	2	2										ROADWAY EMBANKMENT TAN SILTY SAND, MOIST	
110	113.1	9.4	2	2	2										SAPROLITE BLUE, RED, TAN, GRAY, SAPROLITIC, SILTY CLAY WITH QUARTZ, MOIST TO WET	
105	108.1	14.4	3	8	11											
100	103.1	19.4	7	14	17										RED, TAN, GRAY, SAPROLITIC, SANDY CLAY WITH QUARTZ, WET	
95	98.1	24.4	14	38	48										WEATHERED ROCK (GRANITE)	
90	93.7	28.8	12	47	53/0.4											
	88.7	33.8	92	100/0.2											CRYSTALLINE ROCK (GRANITE)  Boring Terminated WITH STANDARD PENETRATION TEST REFUSAL at Elevation 85.3 ft ON CRYSTALLINE ROCK	
	85.3	37.2	60/0.0													

WBS 50197.1.1				TIP R-5739		COUNTY NORTHAMPTON		GEOLOGIST Miller, T. W.						
SITE DESCRIPTION TEMPORARY SHORING ALONG -L- (NC 46) FROM NC 48 IN GASTON TO VIRGINIA STATE LINE										GROUND WTR (ft)				
BORING NO. B1			STATION 529+15			OFFSET 7 ft RT			ALIGNMENT -L-		0 HR. 16.7 Caved			
COLLAR ELEV. 122.6 ft			TOTAL DEPTH 26.6 ft			NORTHING 1,003,541			EASTING 2,395,154		24 HR. N/A			
DRILL RIG/HAMMER EFF./DATE RFO0074 CME-55 92% 08/02/2022						DRILL METHOD H.S. Augers				HAMMER TYPE Automatic				
DRILLER Edmondson, J. M.			START DATE 12/18/23			COMP. DATE 12/18/23			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				
125														
120	121.3	1.3	2	2	3									122.6 GROUND SURFACE 0.0
														121.3 PAVEMENT 1.3
115	118.8	3.8	3	3	2									ROADWAY EMBANKMENT
														TAN AND ORANGE SILTY SAND, MOIST
110	113.8	8.8	6	9	5									116.6 SAPROLITE 6.0
														BLUE, GRAY, TAN, RED, SAPROLITIC, SILTY CLAY WITH QUARTZ, MOIST TO WET
105	108.8	13.8	4	6	8									
	103.8	18.8	7	5	5									
100	98.8	23.8	4	39	61/0.4									98.3 WEATHERED ROCK 24.3
	97.4	25.2	31	63	37/0.4									96.0 WEATHERED ROCK (GRANITE) 26.6
														Boring Terminated at Elevation 96.0 ft IN WEATHERED ROCK

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