

**This electronic collection of documents is provided  
for the convenience of the user  
and is Not a Certified Document –**

**The documents contained herein were originally issued  
and sealed by the individuals whose names and license  
numbers appear on each page, on the dates appearing  
with their signature on that page.**

**This file or an individual page  
shall not be considered a certified document.**

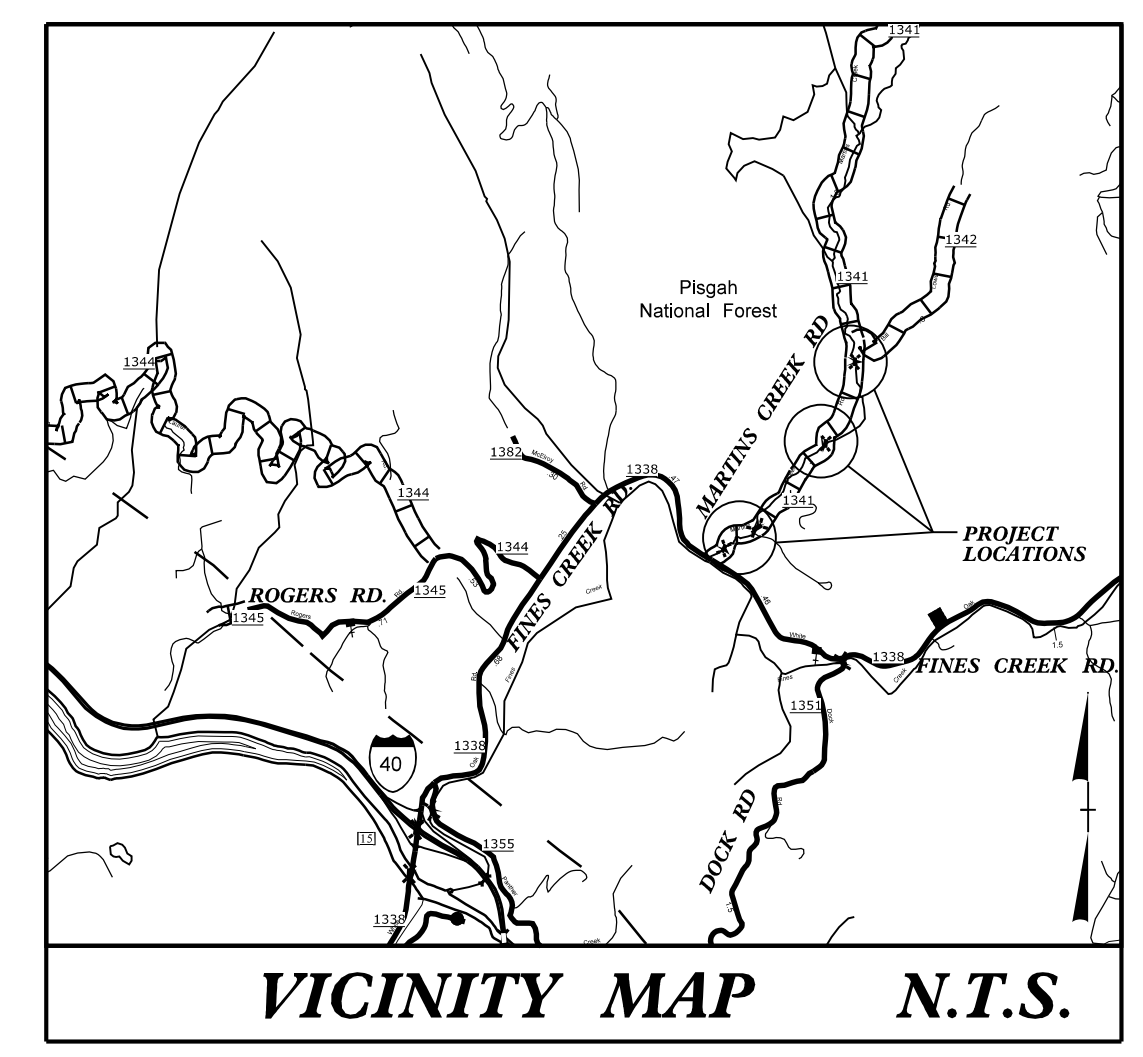
09/28/24

See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols

# STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS **HAYWOOD COUNTY**

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	<b>BP14.R002</b>	<b>1</b>	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
BP14.R002.1	N/A	PE	
BP14.R002.2	N/A	ROW, UTL.	
BP14.R002.3	N/A	CONST	

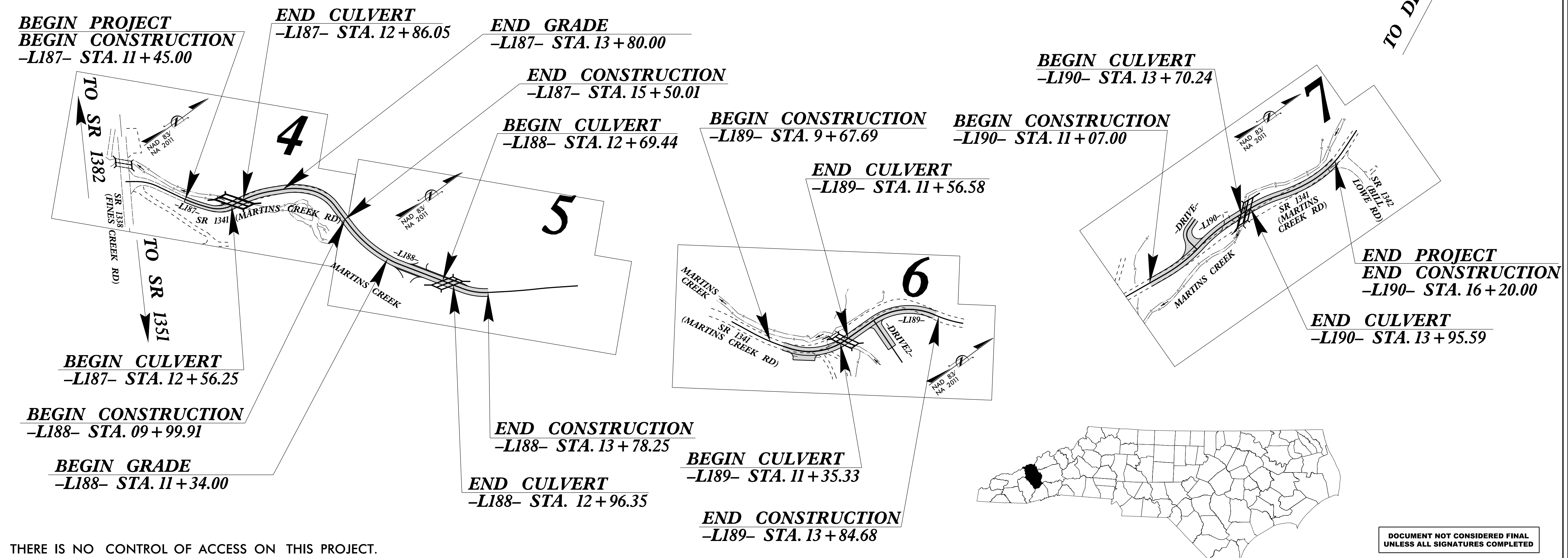
**WBS: BP14.R002**



**100% PLANS**

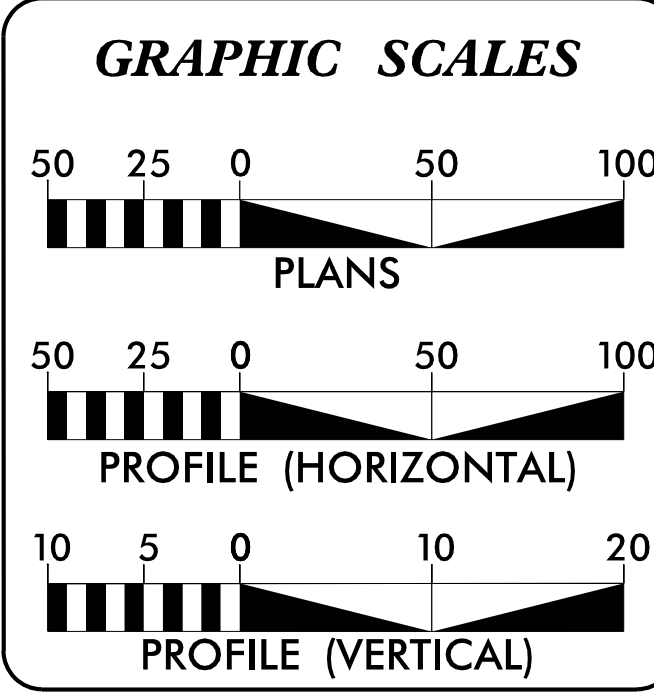
**LOCATION: CULVERTS 430187, 430188, 430189 AND 430190 OVER  
MARTINS CREEK ON SR 1341 (MARTINS CREEK RD)**

**TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERTS**



THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

**CONTRACT: DN00492**



**DESIGN DATA**

ADT 2016 = 100

T = 6%

V = 25 MPH

430187, 430188, 430189

V = 30 MPH

430190

FUNC CLASS =

LOCAL

SUB REGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY = 0.305 MILES

LENGTH STRUCTURE = 0.020 MILES

TOTAL LENGTH = 0.325 MILES

-L187-, -L188-, -L189- & -L190- USED TO CALCULATE LENGTH

Prepared in the Office of:  
**RS&H**  
**ARCHITECTS-ENGINEERS-PLANNERS, INC.**  
8521 SIX FORKS RD, SUITE 400  
RALEIGH, NC 27615

2024 STANDARD SPECIFICATIONS

**RIGHT OF WAY DATE:**  
MARCH 2024

**LETTING DATE:**  
JANUARY 27, 2026

**SEAN KORTOVICH, PE**  
PROJECT ENGINEER

**ALLISON HARRIS, PE**  
PROJECT DESIGN ENGINEER

**ZACH SHULER, PE**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**

Seal: SEAL 049764

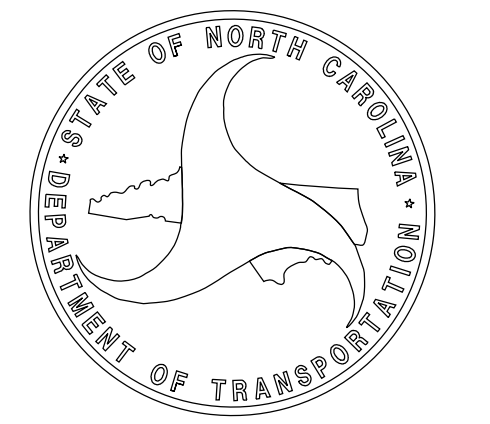
Signed by: Alexander R Vinson, P.E. 12/1/2025

**ROADWAY DESIGN ENGINEER**

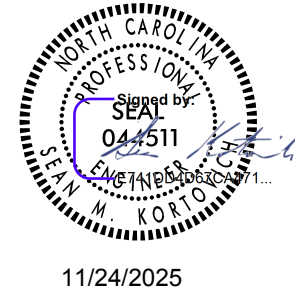
Seal: SEAL 044511

Signed by: ZACH SHULER, P.E. 11/24/2025

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED



22-OCT-2025 15:00  
RA:Roadway Proj\RI173 BRIDGES\_Rdy\_Tsh.dgn  
harris

PROJECT REFERENCE NO.	SHEET NO.
BP14.R002	1A
	ROADWAY DESIGN ENGINEER
	
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

# INDEX OF SHEETS

SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND LIST OF STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1 THRU 2A-2	PAVEMENT SCHEDULE, TYPICAL SECTIONS
2C-1 THRU 2C-2	GUARDRAIL PLACEMENT DETAILS
3B-1 THRU 3B-2	EARTHWORK, PAVEMENT REMOVAL, FENCE RESET, AND GUARDRAIL SUMMARIES
3D-1	DRAINAGE SUMMARIES
3P-1	PARCEL INDEX SHEET
4	430187 PLAN AND PROFILE SHEET
5	430188 PLAN AND PROFILE SHEET
6	430189 PLAN AND PROFILE SHEET
7	430190 PLAN AND PROFILE SHEET
RW01 THRU RW07	RIGHT OF WAY SHEETS
TMP-1 THRU TMP-12	TRANSPORTATION MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-15	EROSION CONTROL PLANS
U0-1 THRU U0-5	UTILITIES BY OTHERS PLANS
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-20	CROSS-SECTIONS
C1-1 THRU C1-10	STRUCTURE PLANS (STR. 187)
C2-1 THRU C2-8	STRUCTURE PLANS (STR. 188)
C3-1 THRU C3-7	STRUCTURE PLANS (STR. 189)
C4-1 THRU C4-10	STRUCTURE PLANS (STR. 190)
SN	STRUCTURE STANDARD NOTES SHEET

# GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS  
EFFECTIVE: 01-16-2024  
REVISED:

GRADE LINE:  
GRADING AND SURFACING:  
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:  
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD 11.

SUPERELEVATION:  
ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:  
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

GUARDRAIL:  
THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:  
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:  
UTILITY OWNERS ON THIS PROJECT ARE HAYWOOD EMC, AT&T, AND SKYRUNNER. ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:  
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

# STANDARD DRAWINGS

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO. TITLE

DIVISION 2 - EARTHWORK

200.02 Method of Clearing - Method 11  
225.02 Guide for Grading Subgrade - Secondary and Local  
225.04 Method of Obtaining Superelevation - Two Lane Pavement

DIVISION 3 - PIPE CULVERTS

300.01 Method of Pipe Installation (Use Details in Lieu of Standards for Sheets 1 and 2 of 2)  
310.10 Driveway Pipe Construction

DIVISION 5 - SUBGRADE, BASES AND SHOULDERS

560.01 Method of Shoulder Construction - High Side of Superelevated Curve - Method 1

DIVISION 8 - INCIDENTALS

838.01 Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew  
838.11 Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew  
838.80 Precast Endwalls - 12" thru 72" Pipe 90 Skew

862.01 Guardrail Placement (Use Details in Lieu of Standards for Sheets 4, 6, 12, and 14 of 15)  
862.02 Guardrail Installation  
866.04 Barbed Wire Fence - with Wood Posts  
876.01 Rip Rap in Channels and Ditches  
876.02 Guide for Rip Rap at Pipe Outlets  
876.04 Drainage Ditches with Class "B" Rip Rap

5/20/2024

Note: Not to Scale

# STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

## CONVENTIONAL PLAN SHEET SYMBOLS

### BOUNDARIES AND PROPERTY:

State Line	-----
County Line	-----
Township Line	-----
City Line	-----
Reservation Line	-----
Property Line	-----
Existing Iron Pin (EIP)	○
Computed Property Corner	×
Existing Concrete Monument (ECM)	□
Parcel / Sequence Number	(23)
Existing Fence Line	-x-x-x-
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	□
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	WLB
Proposed Wetland Boundary	WLB
Existing Endangered Animal Boundary	EAB
Existing Endangered Plant Boundary	EPB
Existing Historic Property Boundary	HPB
Known Contamination Area: Soil	☒ -s- ☒ -s-
Potential Contamination Area: Soil	☒ -s- ☒ -s-
Known Contamination Area: Water	☒ -w- ☒ -w-
Potential Contamination Area: Water	☒ -w- ☒ -w-
Contaminated Site: Known or Potential	☠ ☒

### BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	○
Well	○
Small Mine	⚡
Foundation	□
Area Outline	□
Cemetery	↑
Building	□
School	□
Church	⛪
Dam	—

### HYDROLOGY:

Stream or Body of Water	-----
Hydro, Pool or Reservoir	-----
Jurisdictional Stream	JS
Buffer Zone 1	BZ 1
Buffer Zone 2	BZ 2
Flow Arrow	←
Disappearing Stream	→
Spring	○
Wetland	↓
Proposed Lateral, Tail, Head Ditch	→
False Sump	▽

### RAILROADS:

Standard Gauge	-----
RR Signal Milepost	○
Switch	□
RR Abandoned	-----
RR Dismantled	-----

### RIGHT OF WAY & PROJECT CONTROL:

Primary Horiz Control Point	○
Primary Horiz and Vert Control Point	●
Secondary Horiz and Vert Control Point	◆
Vertical Benchmark	⊕
Existing Right of Way Monument	△
Proposed Right of Way Monument (Rebar and Cap)	▲
Proposed Right of Way Monument (Concrete)	▲
Existing Permanent Easement Monument	◇
Proposed Permanent Easement Monument (Rebar and Cap)	◆
Existing C/A Monument	△
Proposed C/A Monument (Rebar and Cap)	▲
Proposed C/A Monument (Concrete)	▲
Existing Right of Way Line	-----
Proposed Right of Way Line	-----
Existing Control of Access Line	-----
Proposed Control of Access Line	-----
Proposed ROW and CA Line	-----
Existing Easement Line	-----
Proposed Temporary Construction Easement	E
Proposed Temporary Drainage Easement	TDE
Proposed Permanent Drainage Easement	PDE
Proposed Permanent Drainage/Utility Easement	DUE
Proposed Permanent Utility Easement	PUE
Proposed Temporary Utility Easement	TUE
Proposed Aerial Utility Easement	AUE

### ROADS AND RELATED FEATURES:

Existing Edge of Pavement	-----
Existing Curb	-----
Proposed Slope Stakes Cut	C
Proposed Slope Stakes Fill	F
Proposed Curb Ramp	CR
Existing Metal Guardrail	-----
Proposed Guardrail	-----
Existing Cable Guiderail	-----
Proposed Cable Guiderail	-----
Equality Symbol	⊕
Pavement Removal	-----

### VEGETATION:

Single Tree	○
Single Shrub	○
Hedge	-----

Woods Line	-----
Orchard	-----
Vineyard	-----

### EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	CONC
Bridge Wing Wall, Head Wall and End Wall	CONC WW
MINOR:	
Head and End Wall	CONC HW
Pipe Culvert	-----
Footbridge	-----
Drainage Box: Catch Basin, DI or JB	CB
Paved Ditch Gutter	-----
Storm Sewer Manhole	⊕
Storm Sewer	s

### UTILITIES:

\* SUE - Subsurface Utility Engineering  
LOS - Level of Service - A,B,C or D (Accuracy)

### POWER:

Existing Power Pole	●
Proposed Power Pole	○
Existing Joint Use Pole	●
Proposed Joint Use Pole	○
Power Manhole	⊕
Power Line Tower	⊗
Power Transformer	⊗
U/G Power Cable Hand Hole	⊕
H-Frame Pole	●
U/G Power Line Test Hole (SUE - LOS A)*	⊕
U/G Power Line (SUE - LOS B)*	-----
U/G Power Line (SUE - LOS C)*	-----
U/G Power Line (SUE - LOS D)*	-----

### TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	○
Telephone Manhole	⊕
Telephone Pedestal	⊕
Telephone Cell Tower	⊕
U/G Telephone Cable Hand Hole	⊕
U/G Telephone Test Hole (SUE - LOS A)*	⊕
U/G Telephone Cable (SUE - LOS B)*	-----
U/G Telephone Cable (SUE - LOS C)*	-----
U/G Telephone Cable (SUE - LOS D)*	-----
U/G Telephone Conduit (SUE - LOS B)*	-----
U/G Telephone Conduit (SUE - LOS C)*	-----
U/G Telephone Conduit (SUE - LOS D)*	-----
U/G Fiber Optics Cable (SUE - LOS B)*	-----
U/G Fiber Optics Cable (SUE - LOS C)*	-----
U/G Fiber Optics Cable (SUE - LOS D)*	-----

### WATER:

Water Manhole	⊕
Water Meter	○
Water Valve	⊗
Water Hydrant	⊕
U/G Water Line Test Hole (SUE - LOS A)*	⊕
U/G Water Line (SUE - LOS B)*	-----
U/G Water Line (SUE - LOS C)*	-----
U/G Water Line (SUE - LOS D)*	-----
Above Ground Water Line	A/G Water

### TV:

TV Pedestal	⊕
TV Tower	⊗
U/G TV Cable Hand Hole	⊕
U/G TV Test Hole (SUE - LOS A)*	⊕
U/G TV Cable (SUE - LOS B)*	-----
U/G TV Cable (SUE - LOS C)*	-----
U/G TV Cable (SUE - LOS D)*	-----
U/G Fiber Optic Cable (SUE - LOS B)*	-----
U/G Fiber Optic Cable (SUE - LOS C)*	-----
U/G Fiber Optic Cable (SUE - LOS D)*	-----

### GAS:

Gas Valve	◇
Gas Meter	⊕
U/G Gas Line Test Hole (SUE - LOS A)*	⊕
U/G Gas Line (SUE - LOS B)*	-----
U/G Gas Line (SUE - LOS C)*	-----
U/G Gas Line (SUE - LOS D)*	-----
Above Ground Gas Line	A/G Gas

### SANITARY SEWER:

Sanitary Sewer Manhole	⊕
Sanitary Sewer Cleanout	⊕
U/G Sanitary Sewer Line	SS
Above Ground Sanitary Sewer	A/G Sanitary Sewer
SS Force Main Line Test Hole (SUE - LOS A)*	⊕
SS Force Main Line (SUE - LOS B)*	-----
SS Force Main Line (SUE - LOS C)*	-----
SS Force Main Line (SUE - LOS D)*	-----

### MISCELLANEOUS:

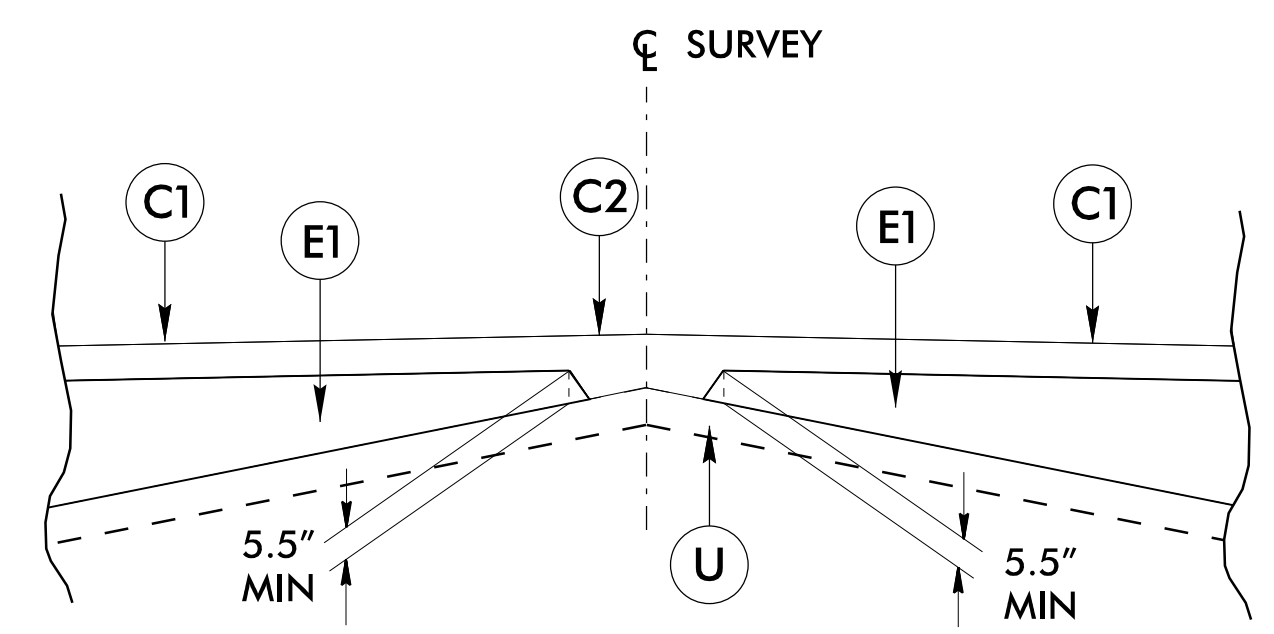
Utility Pole	●
Utility Pole with Base	⊕
Utility Located Object	○
Utility Traffic Signal Box	⊕
Utility Unknown U/G Line (SUE - LOS B)*	-----
U/G Tank; Water, Gas, Oil	□
Underground Storage Tank, Approx. Loc.	UST
A/G Tank; Water, Gas, Oil	□
Geoenvironmental Boring	⊕
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

8/17/99

### PAVEMENT SCHEDULE (FINAL PAVEMENT SCHEDULE)

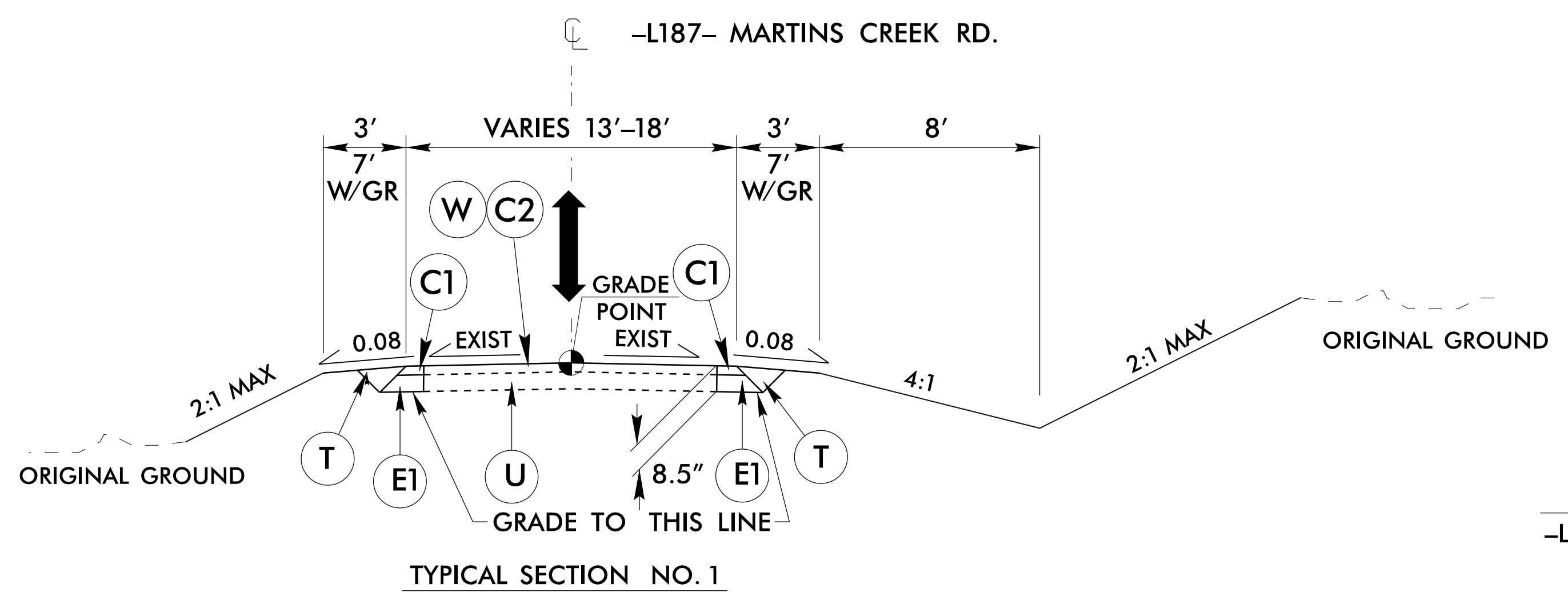
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
C2	PROP. VAR. DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 112 LBS. PER SQ. YD. PER 1" DEPTH. TO BE PLACED IN LAYERS NOT LESS THAN 1.5" IN DEPTH OR GREATER THAN 2" IN DEPTH.
E1	PROP. APPROX. 5 1/2" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
J1	8" ABC
T	EARTH MATERIAL
W	VARIABLE DEPTH ASPHALT PAVEMENT (SEE WEDGING DETAIL.)
U	EXISTING PAVEMENT.

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS LABELED OTHERWISE.

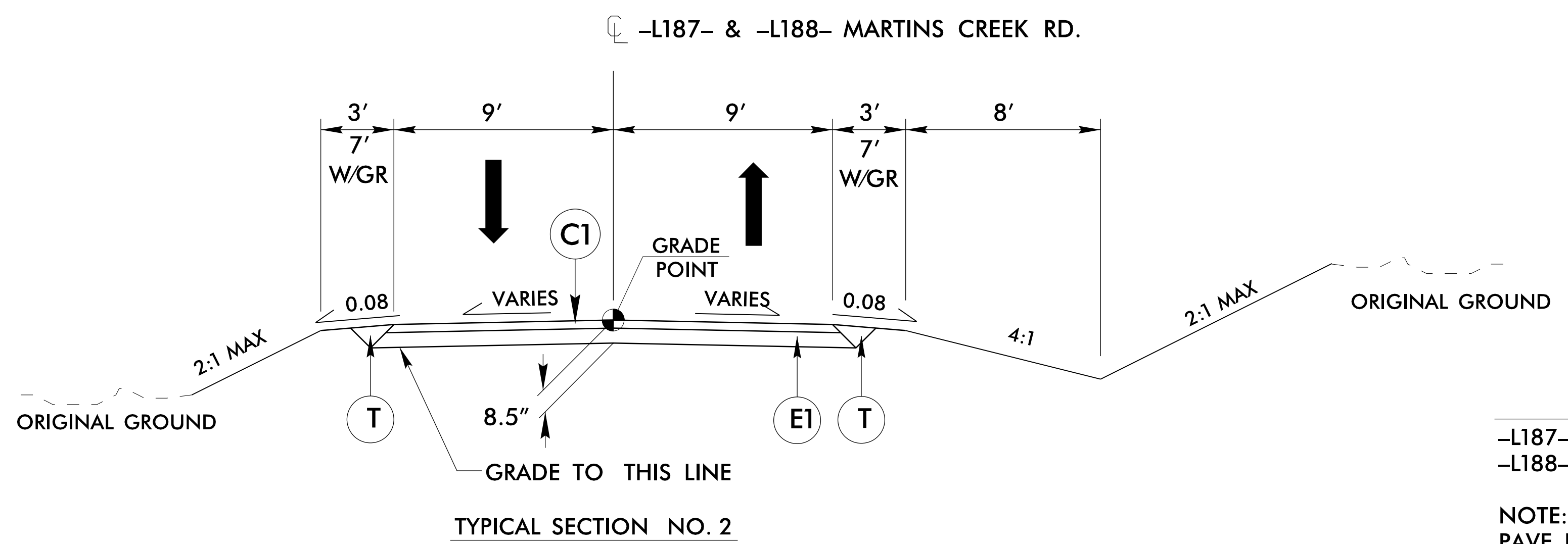


Detail Showing Method of Wedging (W)

### CULVERTS NO. 430187, 430188, 430189 & 430190

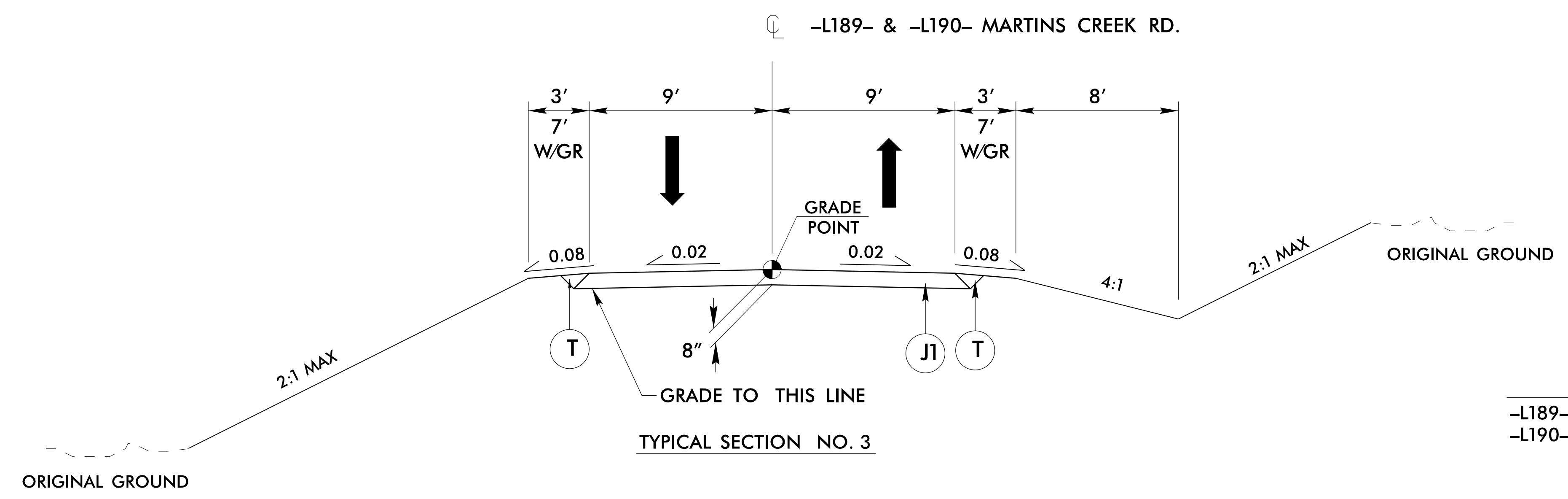


USE TYPICAL SECTION NO. 1  
-L187- STA. 11+45.00 TO -L187- STA. 12+62.00



USE TYPICAL SECTION NO. 2  
-L187- STA. 12+62.00 TO -L187- STA. 13+80.00  
-L188- STA. 11+34.00 TO -L188- STA. 13+78.25

NOTE:  
PAVE EXISTING ROAD FROM -L187- STA. 13+80.00 TO -L188- STA. 11+34.00. MATCH EXISTING WIDTH.



USE TYPICAL SECTION NO. 3  
-L189- STA. 10+00.00 TO -L189- STA. 13+73.50  
-L190- STA. 11+07.00 TO -L190- STA. 16+20.00

PROJECT REFERENCE NO. BPI4.R002	SHEET NO. 2A-1
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<p><b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b></p>	
<small>8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 NC FIRM LICENSE No: F-0493</small>	

REVISIONS

01-DEC-2025 14:25  
R:\Roadway\Proj\N.R.173 BRIDGES.Raj\_.typ.dgn  
raj

8/17/99

### PAVEMENT SCHEDULE (FINAL PAVEMENT SCHEDULE)

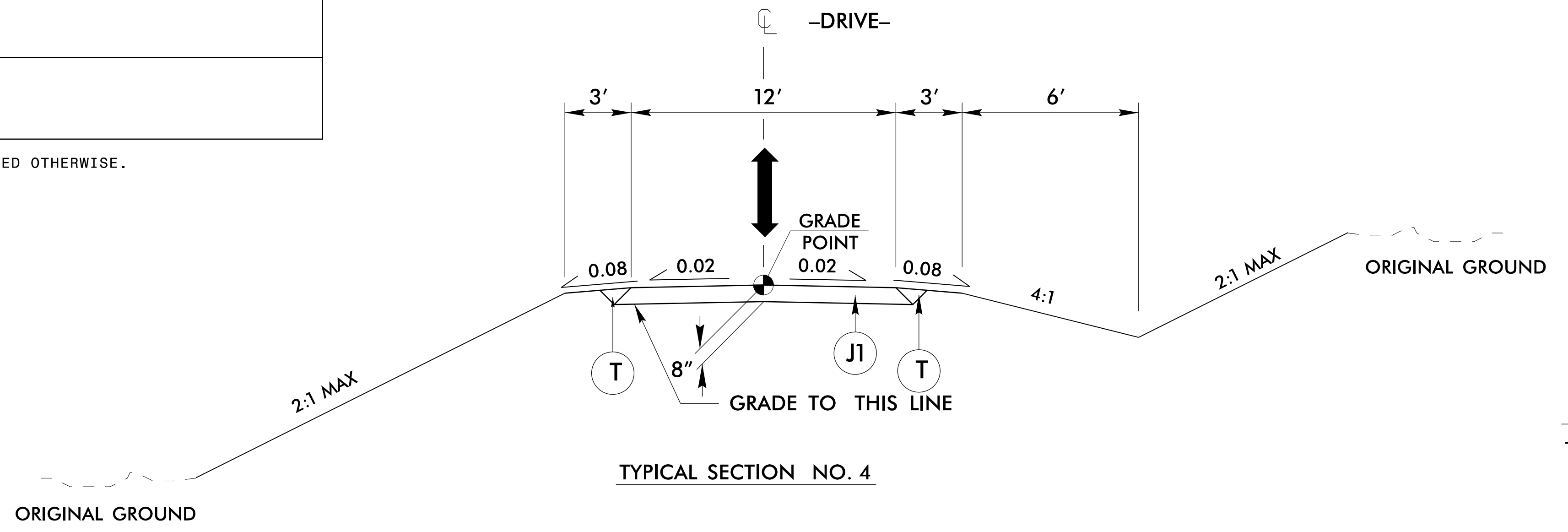
C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
E1	PROP. APPROX. 5½" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
J1	8" ABC
T	EARTH MATERIAL

NOTE: ALL PAVEMENT SLOPES ARE 1:1 UNLESS LABELED OTHERWISE.

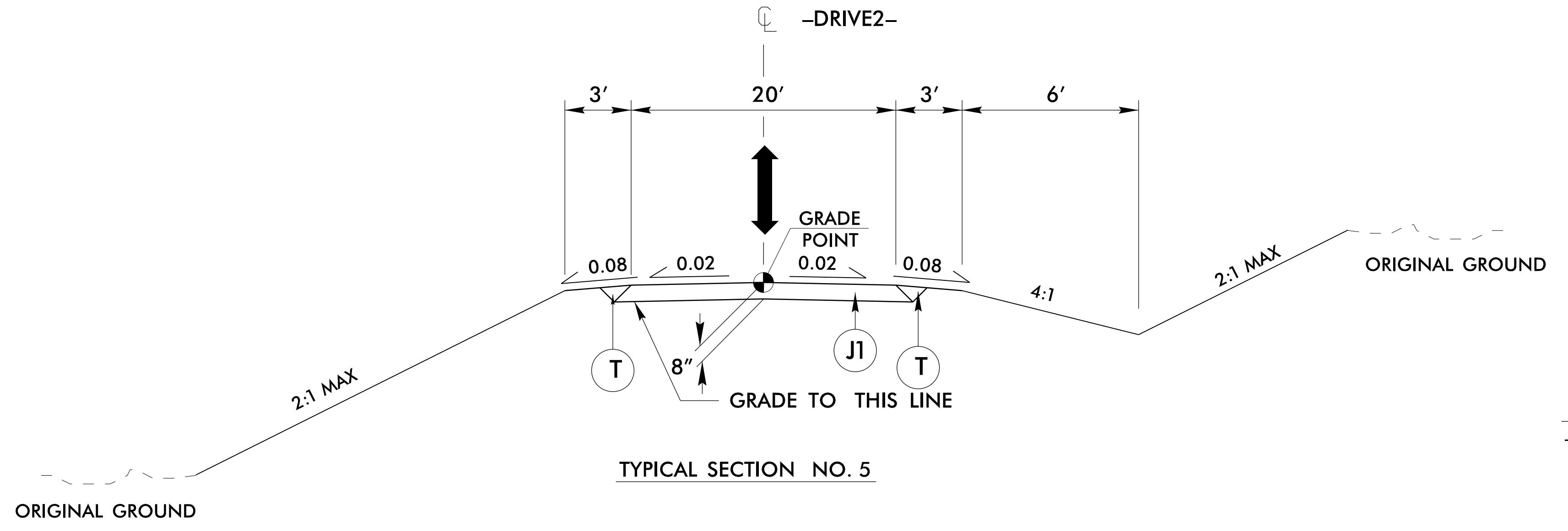
### CULVERTS NO. 430187, 430188, 430189 & 430190

PROJECT REFERENCE NO. <i>BPI4.R002</i>	SHEET NO. <i>2A-2</i>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**RS&H**  
8521 SIX FORKS ROAD, SUITE 400  
 RALEIGH, NC 27615  
 NC FIRM LICENSE No: F-0493



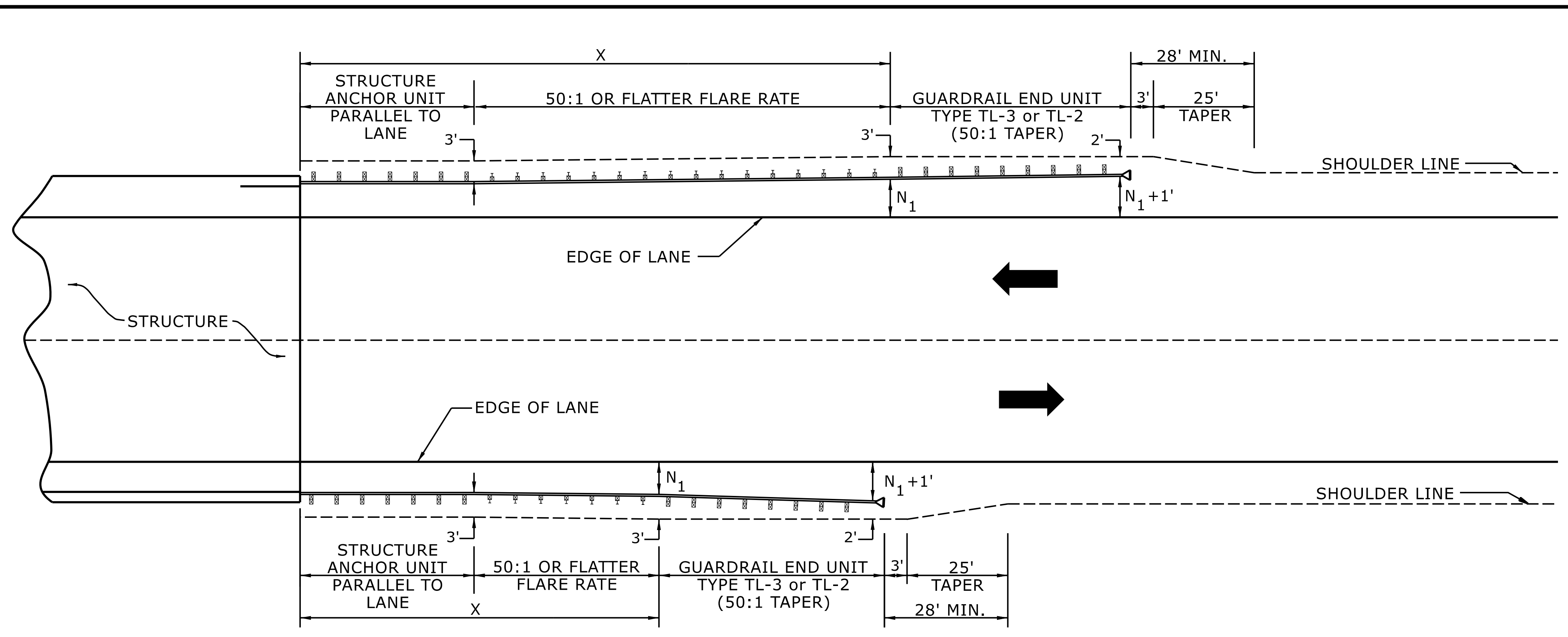
USE TYPICAL SECTION NO. 4  
 -DRIVE- STA. 10+09.00 TO -DRIVE- STA. 10+84.00



USE TYPICAL SECTION NO. 5  
 -DRIVE2- STA. 10+09.00 TO -DRIVE2- STA. 10+75.00

REVISIONS

01-DEC-2025 14:27  
 R:\Roadway\Proj\N.R.173 BRIDGES.Raj\_.typ.dgn  
 rajr154



USE FLARE RATE AS THE CONTROL IF THE " $N_1$ " DISTANCE IS NOT OBTAINED.  
 (" $N_1$ " IS BASED ON SHOULDER WIDTHS IN THE ROADWAY DESIGN MANUAL)

SEE STD. 862.03 FOR STRUCTURE ANCHOR UNITS

FOR POSTED SPEEDS  $\geq$  45MPH USE GREU TYPE TL-3  
 FOR POSTED SPEEDS  $<$  45MPH USE GREU TYPE TL-2

GUARDRAIL LENGTH OF NEED ( $X$ ) IS CALCULATED BASED ON THE AASHTO ROADSIDE DESIGN GUIDE.

**LENGTHS AND OFFSETS FOR PROPOSED GUARDRAIL AT TWO LANE - TWO WAY LOCATIONS**

STATE OF NORTH CAROLINA  
 DEPT. OF TRANSPORTATION  
 DIVISION OF HIGHWAYS  
 RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**



Signed by:  
*Nicole M. Hackler*  
 088432034164CS  
 11/24/2025

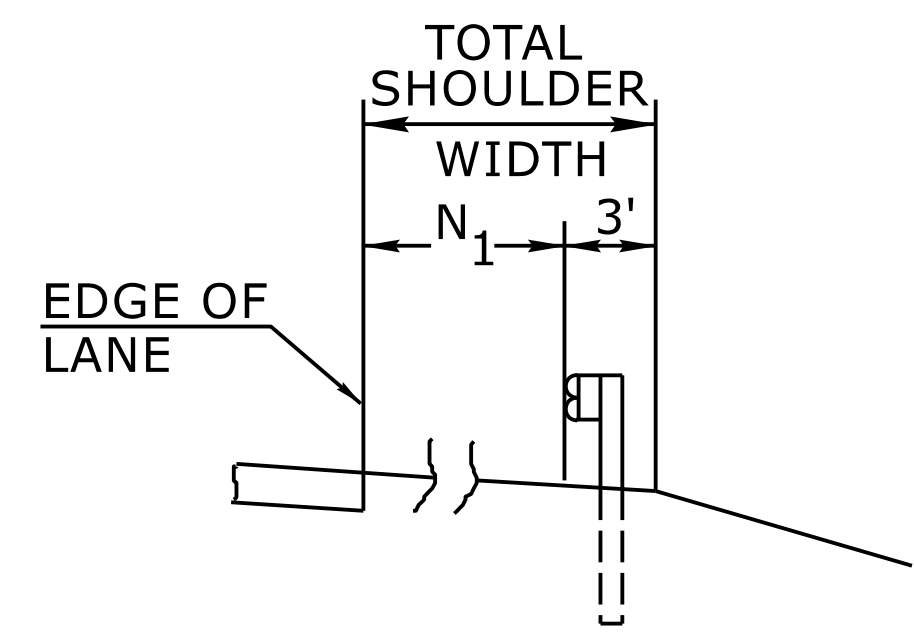
SHEET 4 OF 15  
**862D01**

DOCUMENT NOT CONSIDERED FINAL  
 UNLESS ALL SIGNATURES COMPLETED

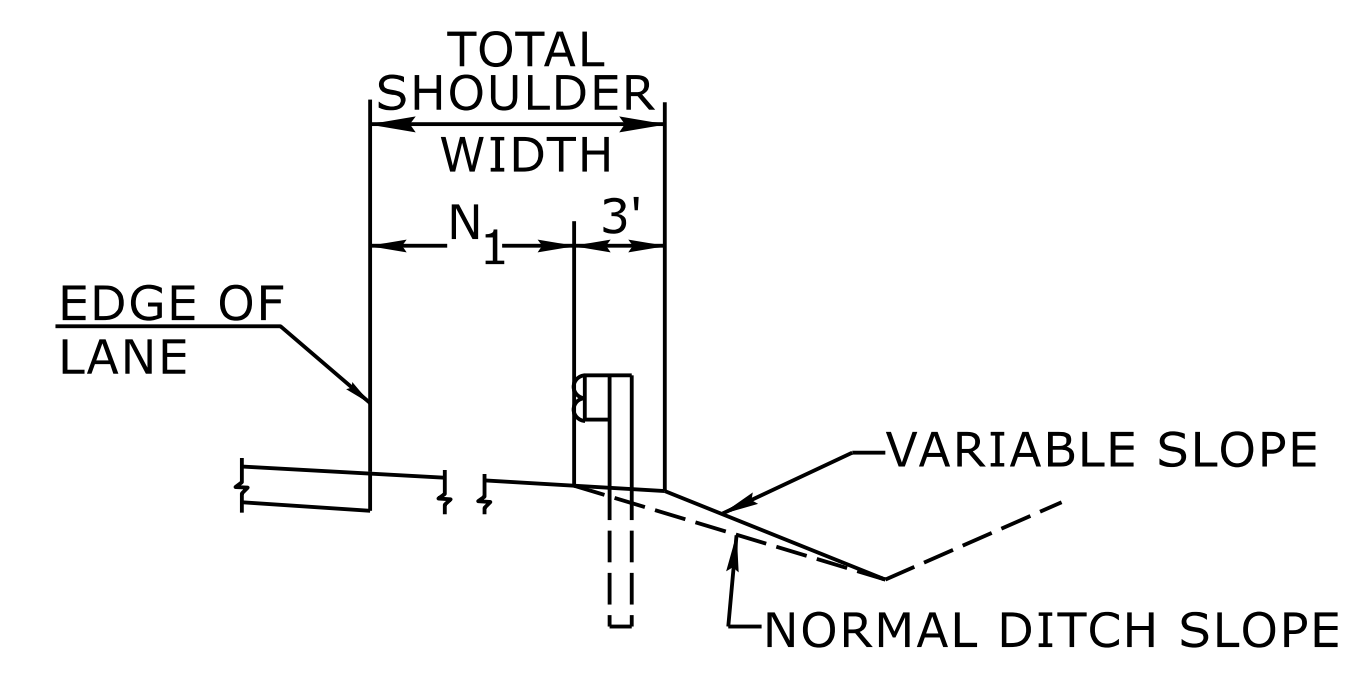
**CONTRACTS STANDARDS AND DEVELOPMENT UNIT**  
 Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN DATE: 7-25-2024  
 MODIFIED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_ DATE: \_\_\_\_\_  
 FILE SPEC.: \_\_\_\_\_

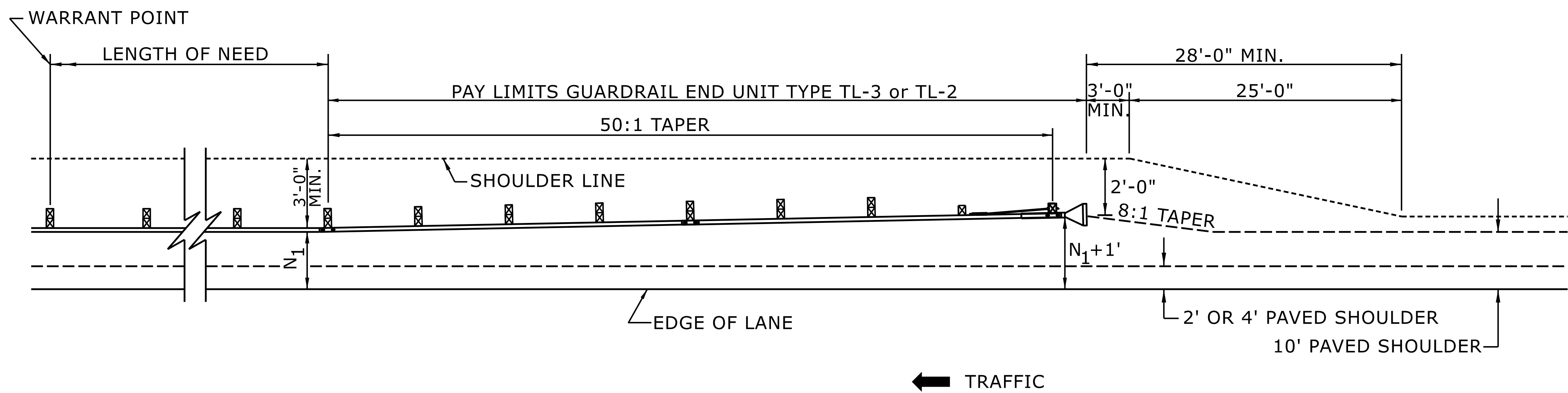


**FILL SECTION**



**CUT SECTION**

"N<sub>1</sub>" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL WHERE GUARDRAIL IS PARALLEL TO LANE.



FOR POSTED SPEEDS ≥ 45mph USE GREU TYPE TL-3  
FOR POSTED SPEEDS < 45mph USE GREU TYPE TL-2

**DETAIL OF BEGINNING OF GUARDRAIL IN CUT OR FILL SECTION**

STATE OF  
NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL PLACEMENT**

SHEET 6 OF 15  
**862D01**



Signed by:  
*Nicole M. Hackler*  
11/24/2025

DOCUMENT NOT CONSIDERED FINAL  
UNLESS ALL SIGNATURES COMPLETED

**CONTRACTS STANDARDS  
AND DEVELOPMENT UNIT**  
Office 919-707-6950 FAX 919-250-4119

**SEE TITLE BLOCK**

ORIGINAL BY: S.CALHOUN	DATE: 7-25-2024
MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

12/06/07

COMPUTED BY: ARH DATE: 5/27/25  
 CHECKED BY: SMK DATE: 5/27/25

STATE OF NORTH CAROLINA  
 DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. BPI4.R002 SHEET NO. 3B-1

**-L187- & -L188-  
 SUMMARY OF EARTHWORK**

STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
PHASE I:					
-L187- 13 + 50.00	-L187- 15 + 50.00	64	3		61
-L188- 10 + 00.00	-L188- 14 + 50.00	31	2		29
SUBTOTALS:		95	5		90
PHASE II:					
-L187- 11 + 45.00	-L187- 15 + 50.00	198	90		108
-L188- 10 + 00.00	-L188- 14 + 00.00	204	62		142
SUBTOTALS:		402	152		250
PHASE III:					
-L187- 11 + 45.00	-L187- 15 + 50.00	101	80		21
-L188- 10 + 00.00	-L188- 14 + 00.00	48	34		14
SUBTOTALS:		149	114		35
PHASE IV:					
-L187- 11 + 45.00	-L187- 15 + 50.00	4	121	117	
-L188- 10 + 00.00	-L188- 14 + 00.00		2	2	
SUBTOTALS:		4	123	119	
PROJECT TOTALS:		650	394	119	375
WASTE IN LIEU OF BORROW				-119	-119
EST. 5% TO REPLACE TOP SOIL					
GRAND TOTALS:		650	394		256
SAY:		660	400		260

EST. UNDERCUT = 100 CY (CONTINGENCY)  
 EST. SELECT GRANULAR MATERIAL = 100 CY (CONTINGENCY)  
 EST. FABRIC FOR SOIL STABILIZATION = 100 SY (CONTINGENCY)

**-L189-  
 SUMMARY OF EARTHWORK**

STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
PHASE I:					
-L189- 10 + 00.00	-L189- 13 + 73.50	313	569	256	
-DRIVE2- 10 + 09.00	-DRIVE2- 10 + 75.00		48	48	
SUBTOTALS:		313	617	304	
PHASE II:					
-L189- 10 + 00.00	-L189- 13 + 73.50	260	69		191
SUBTOTALS:		260	69		191
PROJECT TOTALS:					
WASTE IN LIEU OF BORROW					
EST. 5% TO REPLACE TOP SOIL					
GRAND TOTALS:		573	686	304	191
SAY:		580	690	320	200

EST. UNDERCUT = 50 CY (CONTINGENCY)  
 EST. SELECT GRANULAR MATERIAL = 50 CY (CONTINGENCY)  
 EST. FABRIC FOR SOIL STABILIZATION = 50 SY (CONTINGENCY)

**-L190-  
 SUMMARY OF EARTHWORK**

STATION	STATION	UNCL. EXCAV.	EMBANK. +15%	BORROW	WASTE
PHASE I:					
-L190- 15 + 00.00	-L190- 16 + 20.00	33			33
SUBTOTALS:		33			33
PHASE II:					
-L190- 11 + 07.00	-L190- 16 + 20.00	420	118		302
-DRIVE- 10 + 09.00	-DRIVE- 10 + 84.00	467	3		464
SUBTOTALS:		887	121		766
PHASE III:					
-L190- 11 + 07.00	-L190- 16 + 20.00	250	80		170
SUBTOTALS:		250	80		170
PROJECT TOTALS:					
WASTE IN LIEU OF BORROW					
EST. 5% TO REPLACE TOP SOIL					
GRAND TOTALS:		1170	201		969
SAY:		1180	210		970

EST. UNDERCUT = 50 CY (CONTINGENCY)  
 EST. SELECT GRANULAR MATERIAL = 50 CY (CONTINGENCY)  
 EST. FABRIC FOR SOIL STABILIZATION = 50 SY (CONTINGENCY)

**BARBED WIRE FENCING RESET**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L187-	13 + 00.00	14 + 61.56	LT	185.90
-L189-	13 + 39.51	13 + 73.63	LT	65.71
-L190-	10 + 78.85	12 + 83.92	LT	215.00
TOTAL:				466.61
SAY:				470

**ELECTRIC FENCING RESET**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	LF
-L188-	12 + 21.32	12 + 79.73	RT	64.91
-L188-	12 + 69.79	13 + 22.08	LT	59.10
-L190-	11 + 39.59	11 + 76.22	RT	41.82
-L190-	12 + 02.34	16 + 07.74	RT	412.29
TOTAL:				578.12
SAY:				580

**PAVEMENT ASPHALT REMOVAL SUMMARY**

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD <sup>3</sup>
-L187-	11 + 56.89	11 + 65.49	LT	0.01
-L187-	11 + 86.79	12 + 19.35	LT	0.49
-L187-	12 + 00.13	12 + 21.64	RT	0.71
TEMP PVMT:				
-L187-	11 + 71.34	14 + 71.47	LT	253.01
-L188-	13 + 17.68	14 + 10.25	LT	14.99
TOTAL:				269.20
SAY:				270

24 JUN 2025 13:58  
 R:\Roadway\Projects\173 BRIDGES.Rdy.sum.dgn  
 Harris

12/06/2025

COMPUTED BY: ARH DATE: 6/25/2025  
CHECKED BY: SMK DATE: 6/25/2025

PROJECT REFERENCE NO. BPI4.R002  
SHEET NO. 3B-2

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GREU, TL-2, AT-1, CAT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

ANCHOR DEDUCTION  
TYPE GREU, TL-2: 4 @ 25' = 100'  
GRAND TOTAL = 100'  
ADDITIONAL GUARDRAIL POSTS = 5

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GREU, TL-2, AT-1, CAT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

ANCHOR DEDUCTION  
TYPE GREU, TL-2: 4 @ 25' = 100'  
GRAND TOTAL = 100'  
ADDITIONAL GUARDRAIL POSTS = 5

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GREU, TL-2, AT-1, CAT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

ANCHOR DEDUCTION  
TYPE GREU, TL-2: 5 @ 25' = 125'  
CAT-1: 1 @ 6.25' = 6.25'  
GRAND TOTAL = 131.25'  
ADDITIONAL GUARDRAIL POSTS = 5

GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GREU, TL-2, AT-1, CAT-1), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

ANCHOR DEDUCTION  
TYPE GREU, TL-2: 4 @ 25' = 100'  
GRAND TOTAL = 100'  
ADDITIONAL GUARDRAIL POSTS = 5

TEMPORARY GUARDRAIL SUMMARY

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.  
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.  
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.  
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.  
G = GATING IMPACT ATTENUATOR TYPE 350  
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

Table with columns: SURVEY LINE, BEG. STA., END STA., LOCATION, LENGTH (STRAIGHT, SHOP CURVED, DOUBLE FACED), WARRANT POINT (APPROACH END, TRAILING END), "N" DIST. FROM E.O.L., TOTAL SHOUL. WIDTH, FLARE LENGTH (APPROACH END, TRAILING END), W (APPROACH END, TRAILING END), ANCHORS (GREU, TL-2, AT-1, CAT-1, B-77), IMPACT ATTENUATOR TYPE 350 (EA, G, NG), SINGLE FACED GUARDRAIL, REMOVE EXISTING GUARDRAIL, REMOVE AND STOCKPILE EXISTING GUARDRAIL, REMARKS.

ANCHOR DEDUCTION  
TYPE GREU, TL-2: 13 @ 25' = 325'  
TYPE B-77: 1 @ 22.875' = 22.875'  
GRAND TOTAL = 347.875'  
ADDITIONAL GUARDRAIL POSTS = 5

21 NOV 2025 10:11 AM  
R:\Roadway\Proj\173 BRIDGES.Rdy.sum.dgn  
Harris

12/06/07

COMPUTED BY: LKM DATE: 8/5/25  
CHECKED BY: ARV DATE: 8/5/25

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

PROJECT REFERENCE NO. BPI4.R002  
SHEET NO. 30-1

NOTE:  
INVERT ELEVATIONS INDICATED ARE FOR BID PURPOSES ONLY AND SHALL NOT BE USED FOR PROJECT CONSTRUCTION STAKE OUT.  
SEE "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES, SECTION 300-5".

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

Table with columns: STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, DRAINAGE PIPE, C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS V), ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, TYPE OF GRATE, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes rows for stations -L189- 10+50, -L189- 12+27, and -L189- SUBTOTALS.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

Table with columns: STATION, LOCATION, STRUCTURE NO., TOP ELEVATION, INVERT ELEVATION, SLOPE CRITICAL, DRAINAGE PIPE, C.S. PIPE, R.C. PIPE (CLASS III), R.C. PIPE (CLASS IV), ENDWALLS, QUANTITIES FOR DRAINAGE STRUCTURES, TYPE OF GRATE, CONCRETE TRANSITIONAL SECTION, and REMARKS. Includes rows for station -L190- 12+41, -L190- SUBTOTALS, and GRAND TOTALS.

22-OCT-2025 15:17  
R:\Roadway\Proj\173 BRIDGES.Rdy..sum.dgn  
harris



8/17/19

REVISIONS  
 06-26-2024: ROW REVISION - DO NOT DISTURB NOTE ADDED TO KENNEL ON PARCEL 1.(S/MK)  
 07-12-2024: ROW REVISION - TCE REDUCED ON PARCEL 2.DO NOT DISTURB NOTE ADDED TO TREES ON PARCEL 2.(S/MK)

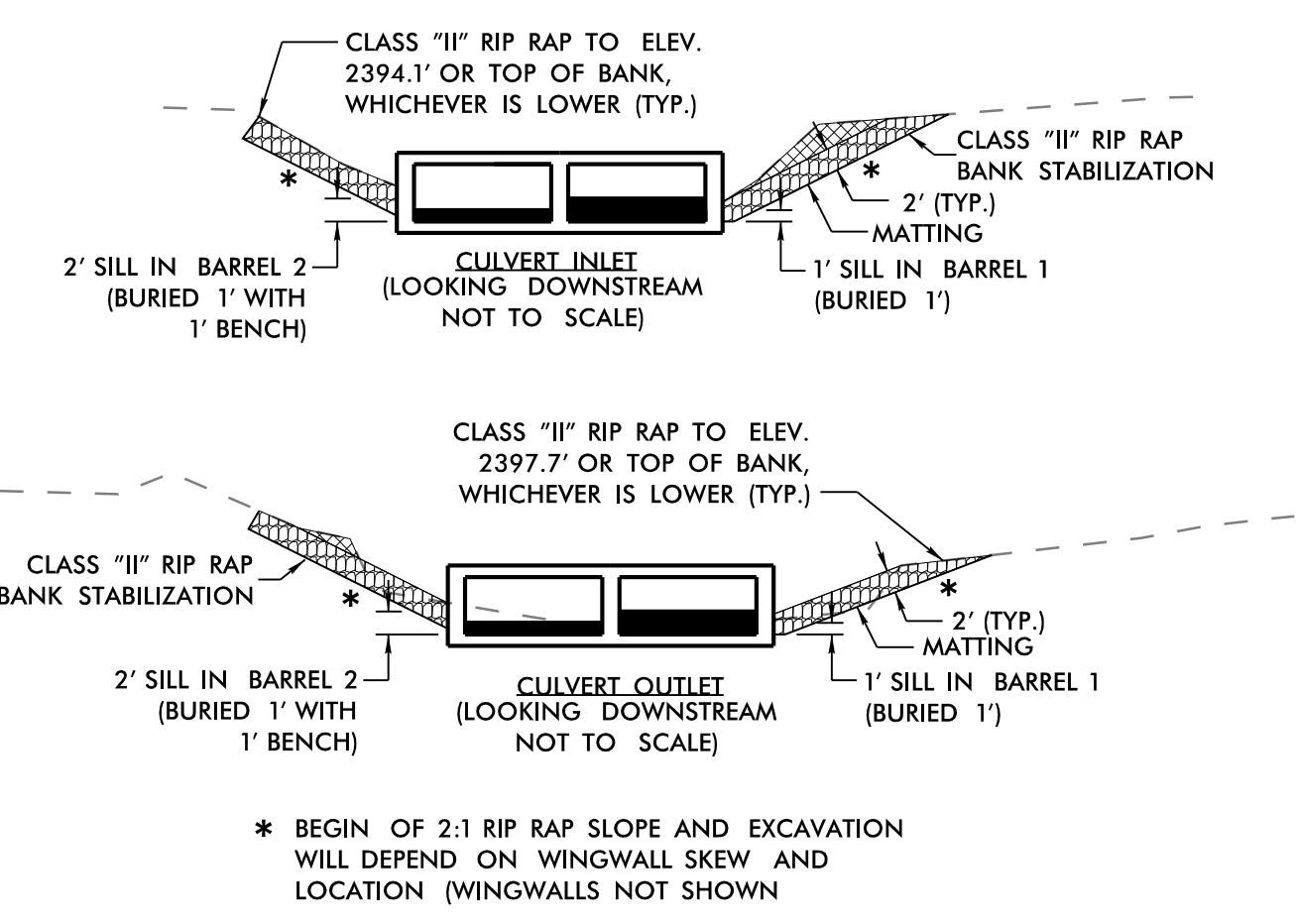
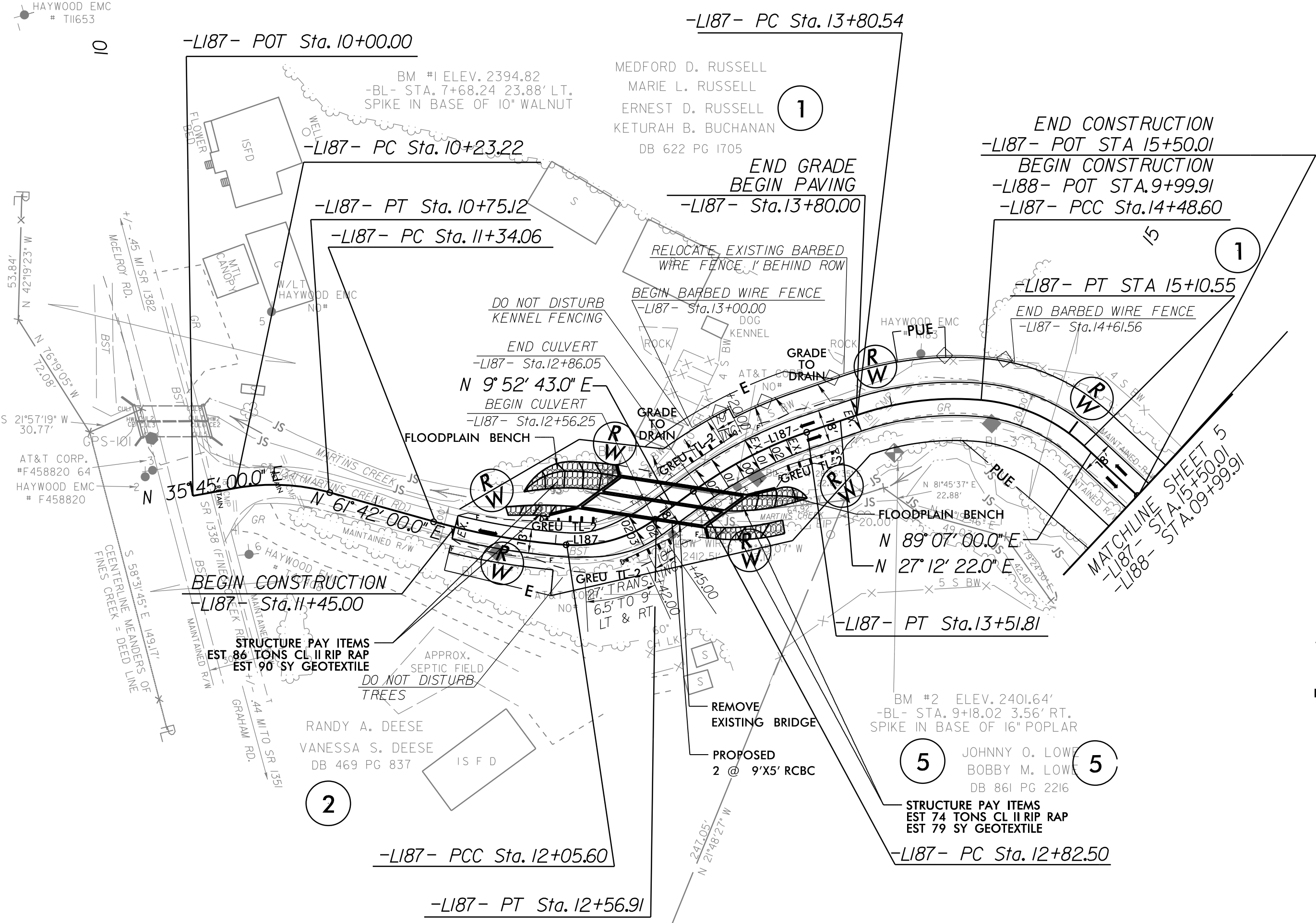
22-OCT-2025 15:18  
 R:\Projects\2025\1518\BRIDGE\173 BRIDGE S.Row.psh\_4.dgn  
 USER:RUSSELL

**-LI87- CURVE DATA**

**-LI87- CURVE RADII AND SUPERELEVATIONS MATCHED TO -EL-**

PI Sta 10+49.63 Δ = 25° 57' 00.0" (RT) D = 50' 00' 00.0" L = 51.90' T = 26.40' R = 114.59' SE = EXIST	PI Sta 11+69.95 Δ = 1° 24' 43.7" (LT) D = 15' 57' 06.3" L = 71.54' T = 35.89' R = 359.18' SE = EXIST	PI Sta 12+32.37 Δ = 40° 24' 33.3" (LT) D = 78' 45' 22.4" L = 51.31' T = 26.77' R = 72.75' SE = 02*
PI Sta 13+17.42 Δ = 17° 19' 39.0" (RT) D = 25' 00' 00.0" L = 69.31' T = 34.92' R = 229.18' SE = 02*	PI Sta 14+15.07 Δ = 23° 50' 33.5" (RT) D = 35' 01' 53.0" L = 68.06' T = 34.53' R = 163.56' SE = EXIST	PI Sta 14+80.77 Δ = 38° 04' 04.5" (RT) D = 61' 27' 27.7" L = 61.94' T = 32.16' R = 93.23' SE = EXIST

\* SUPERELEVATION TO MATCH EXISTING EXCEPT FOR TRANSITIONS TO 02 ON CULVERT.



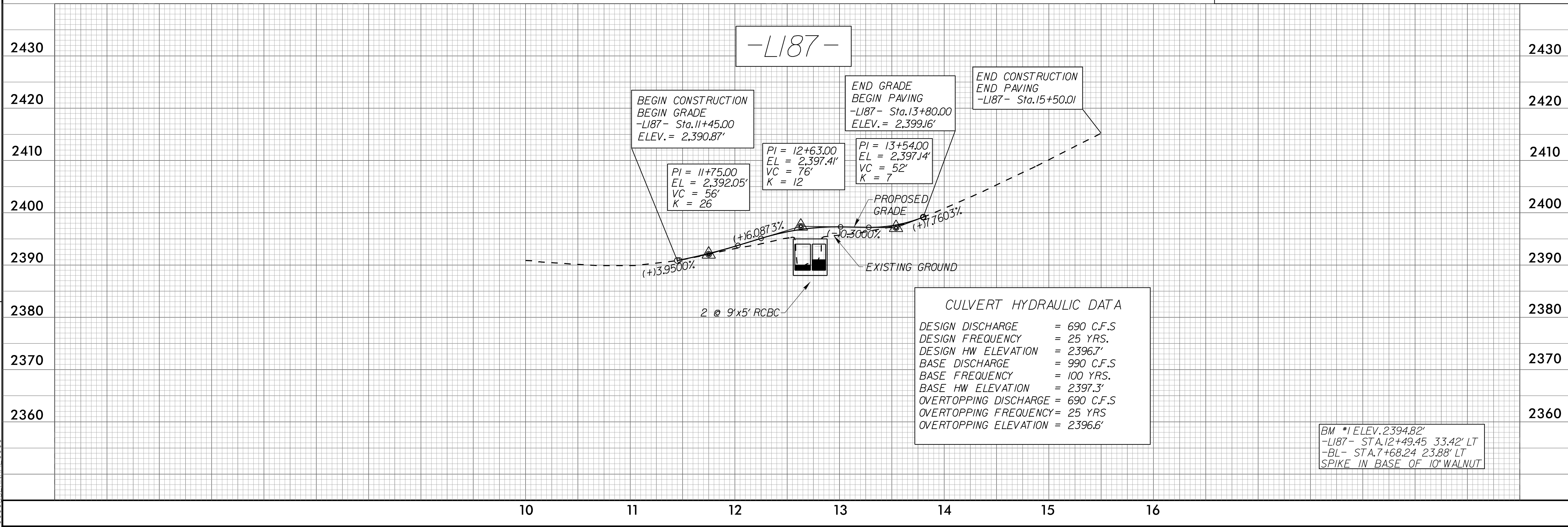
PROJECT REFERENCE NO. <b>BPI4.R002</b>	SHEET NO. <b>4</b>
RW SHEET NO.	
ROADWAY DESIGN ENGINEER 	HYDRAULICS ENGINEER 

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

**RS&H** 8521 SIX FORKS ROAD, SUITE 400  
RALEIGH, NC 27615  
NC FIRM LICENSE No: F-0493

SEE SHEET RW04 FOR -LI87- RW

SEE SHEETS C1-1 THRU C1-10 FOR CULVERT PLANS

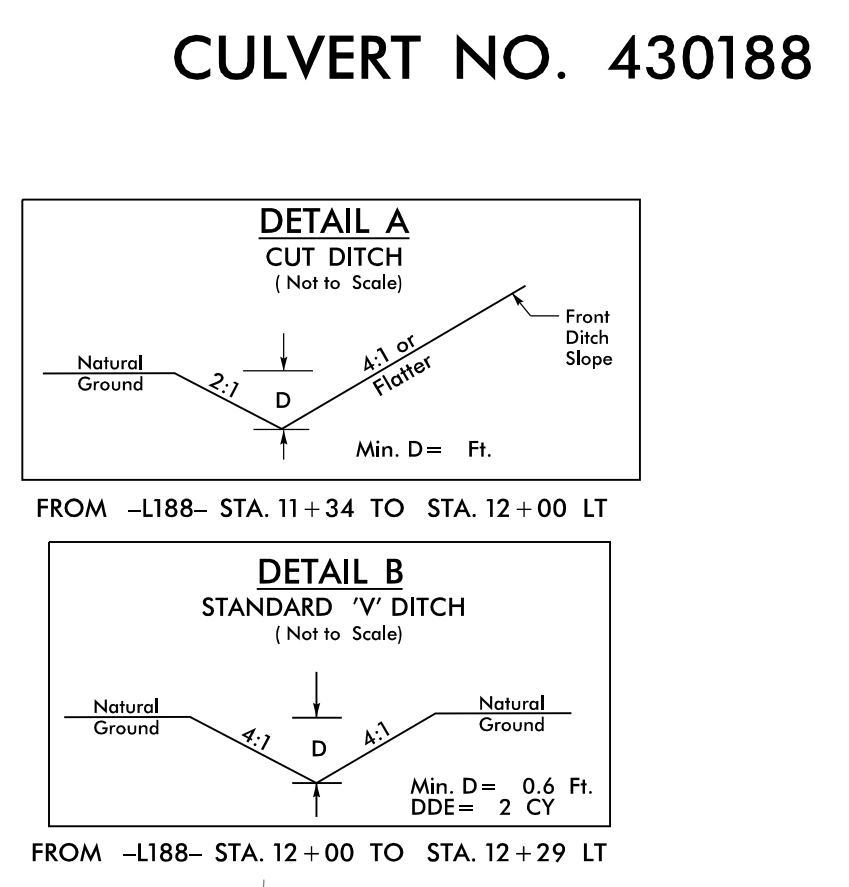
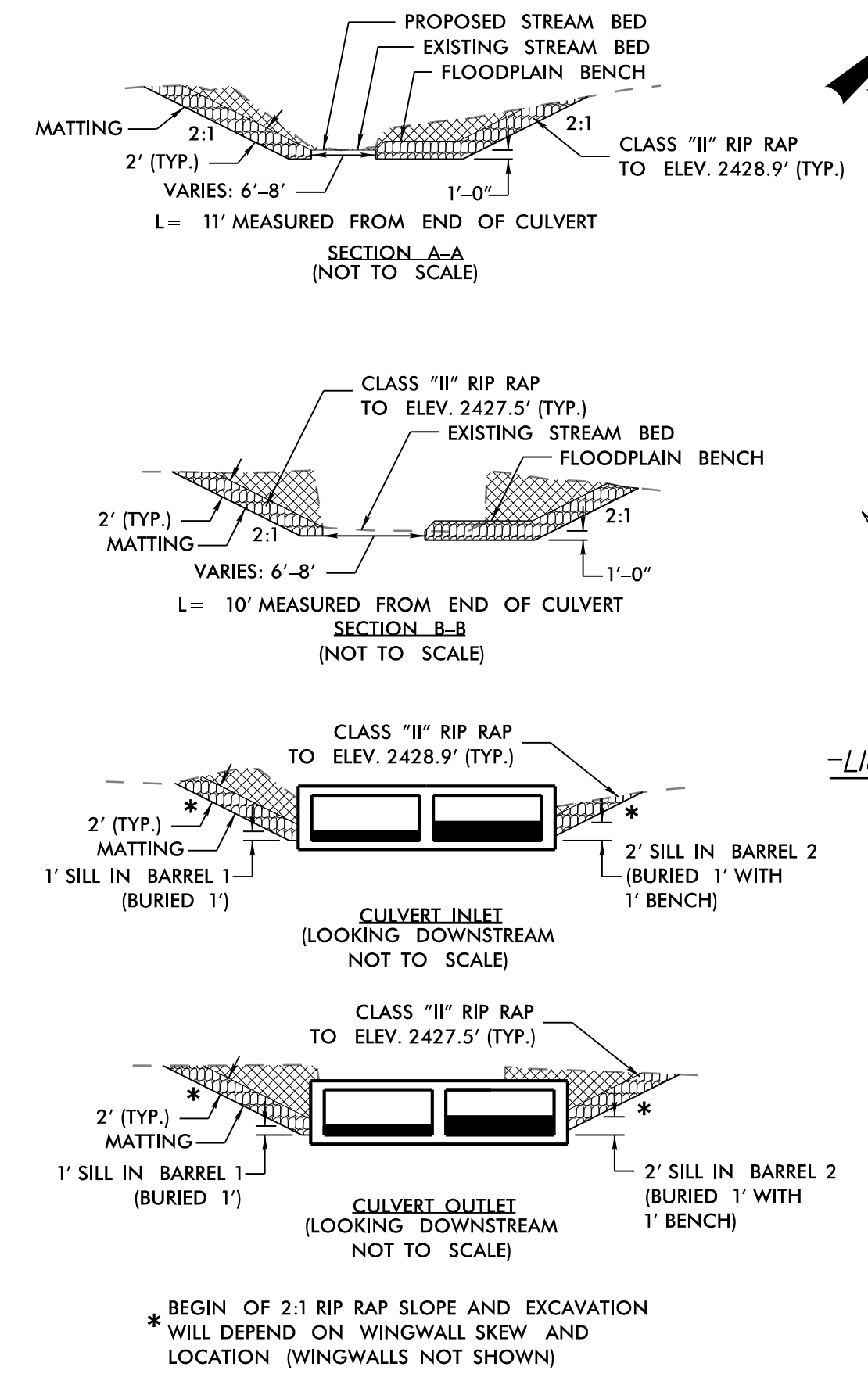
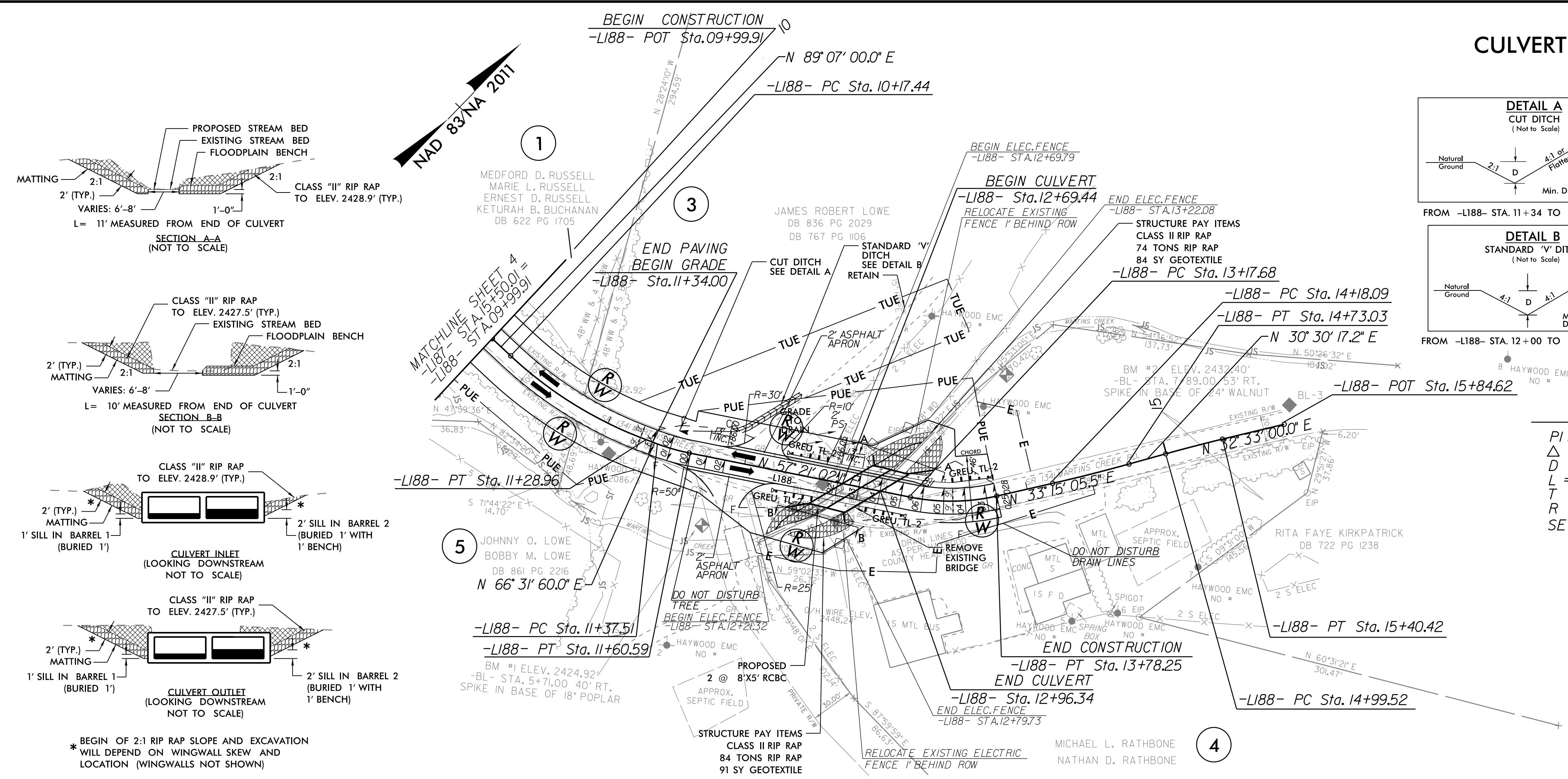


BM #1 ELEV. 2394.82'  
-LI87- STA. 12+49.45 33.42' LT  
-BL- STA. 7+68.24 23.88' LT  
SPIKE IN BASE OF 10' WALNUT

8/17/19

REVISIONS  
06-26-2024: ROW REVISION - DO NOT DISTURB NOTE ADDED TO DRAIN LINES ON PARCEL 4. DO NOT DISTURB NOTE ADDED TO TREE ON PARCEL 5. (SMK)

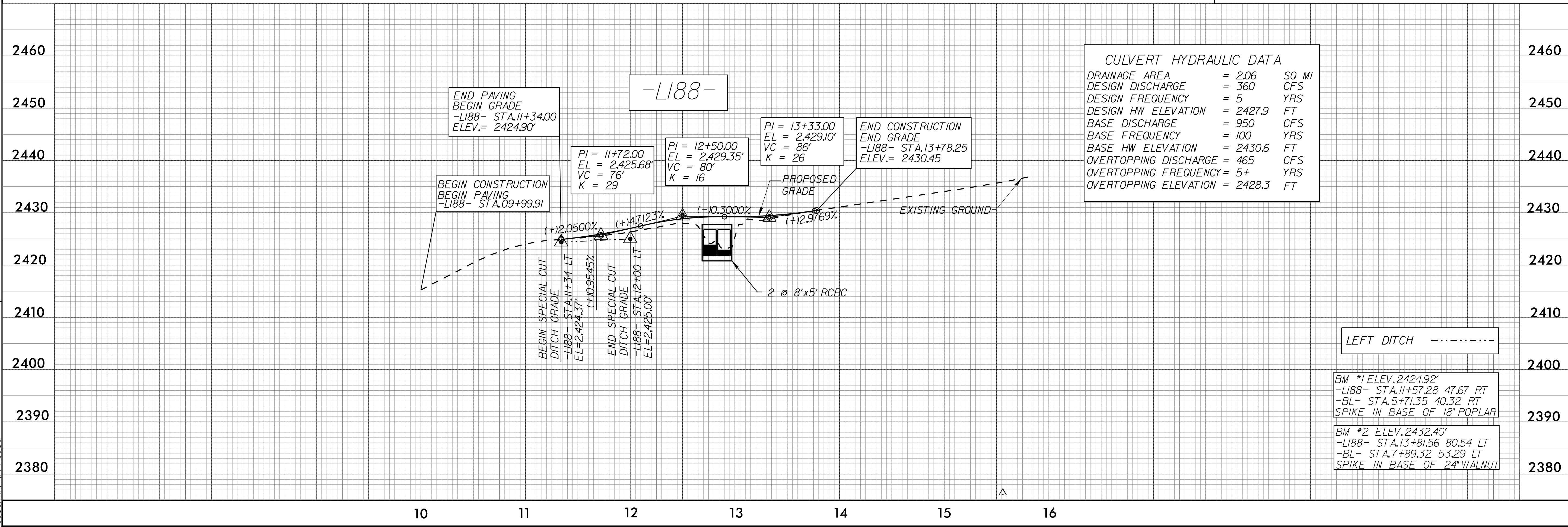
21-NOV-2025 11:44  
R:\Projects\2024\173 BRIDGES\5. Rdj\_psh\_5.dgn  
5:53:33 PM



**-L188- CURVE DATA**

Station	PI	Delta	D	L	T	R	SE
10+73.93	10+73.93	22° 35' 00.00" (LT)	20' 15" 00.0"	111.52'	56.49'	282.94'	EXIST
11+49.07	11+49.07	9° 10' 57.8" (LT)	39' 47" 19.4"	23.08'	11.56'	144.00'	EXIST
13+48.42	13+48.42	24° 05' 56.6" (LT)	39' 47" 19.4"	60.57'	30.74'	144.00'	06
14+45.57	14+45.57	2° 44' 48.3" (LT)	5' 00" 00.0"	54.94'	27.47'	1,455.92'	
15+19.97	15+19.97	2° 02' 42.8" (RT)	5' 00" 00.0"	40.90'	20.45'	1,455.92'	

SEE SHEET RW05 FOR -L188- RW  
SEE SHEETS C2-1 THRU C2-8 FOR CULVERT PLANS



**CULVERT HYDRAULIC DATA**

DRAINAGE AREA	= 2.06	SQ MI
DESIGN DISCHARGE	= 360	CFS
DESIGN FREQUENCY	= 5	YRS
DESIGN HW ELEVATION	= 2427.9	FT
BASE DISCHARGE	= 950	CFS
BASE FREQUENCY	= 100	YRS
BASE HW ELEVATION	= 2430.6	FT
OVERTOPPING DISCHARGE	= 465	CFS
OVERTOPPING FREQUENCY	= 5+	YRS
OVERTOPPING ELEVATION	= 2428.3	FT

LEFT DITCH -----

BM #1 ELEV. 2424.92'  
-L188- STA. 11+57.28 47.67 RT  
-BL- STA. 5+71.35 40.32 RT  
SPIKE IN BASE OF 18" POPLAR

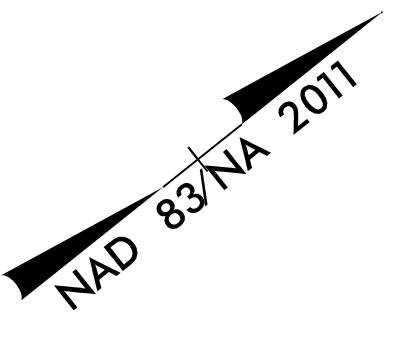
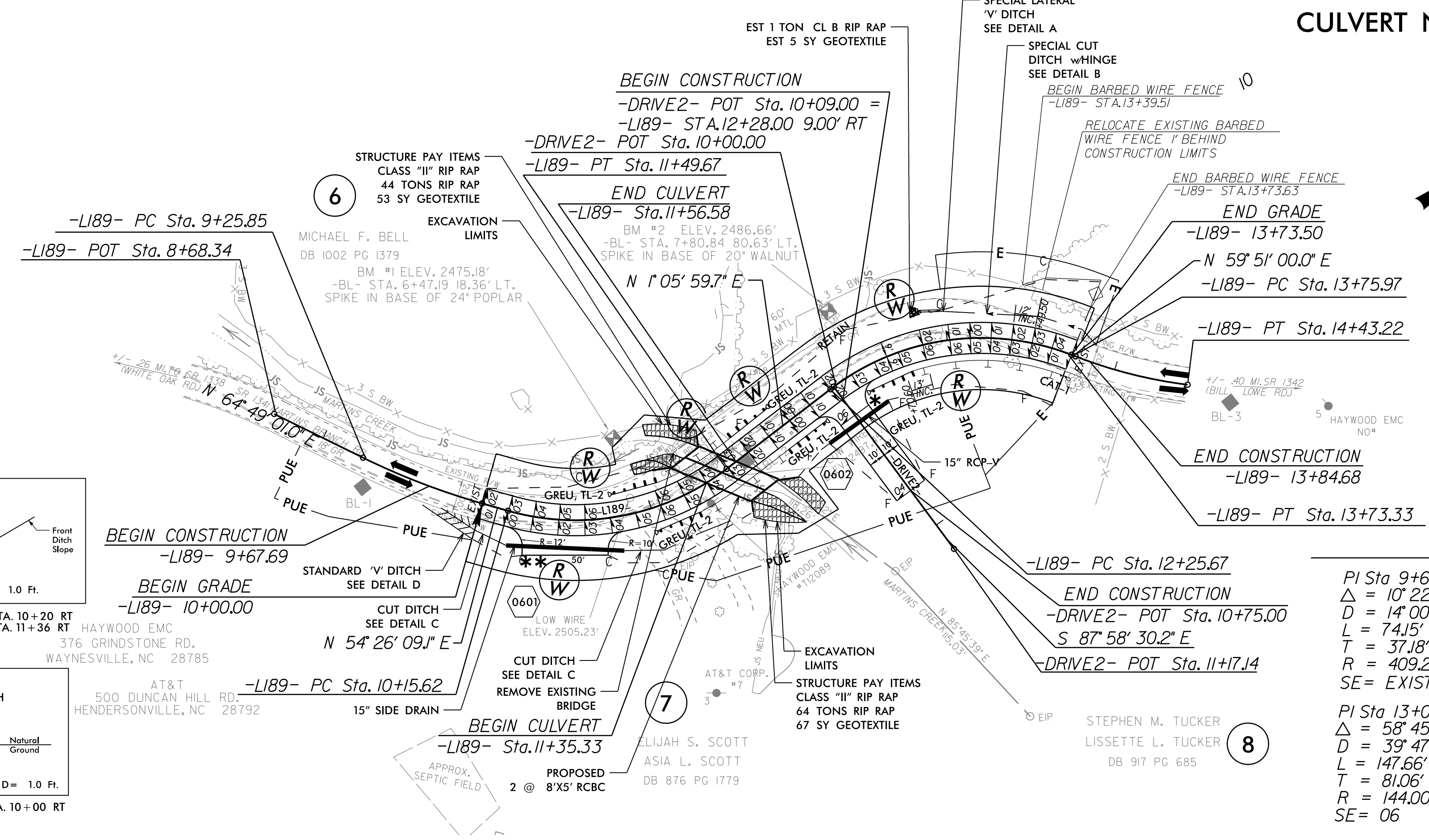
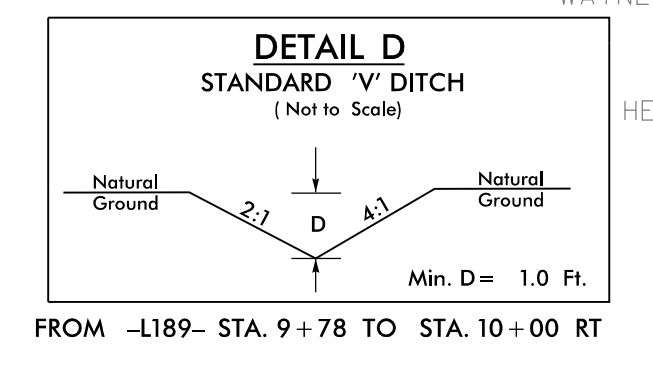
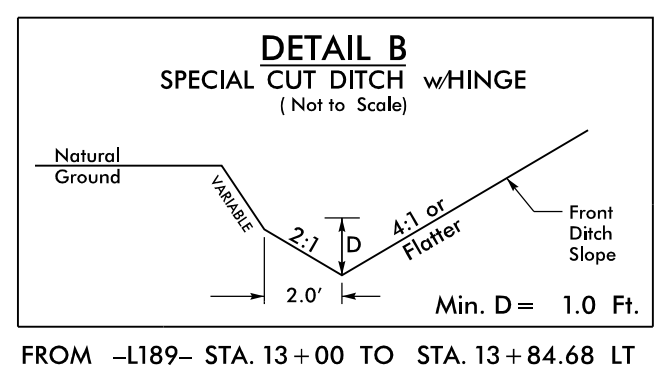
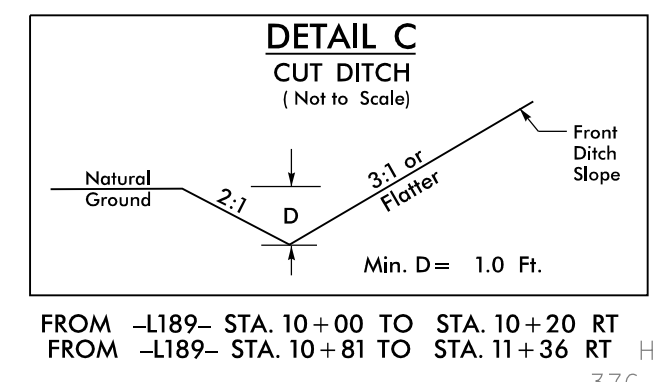
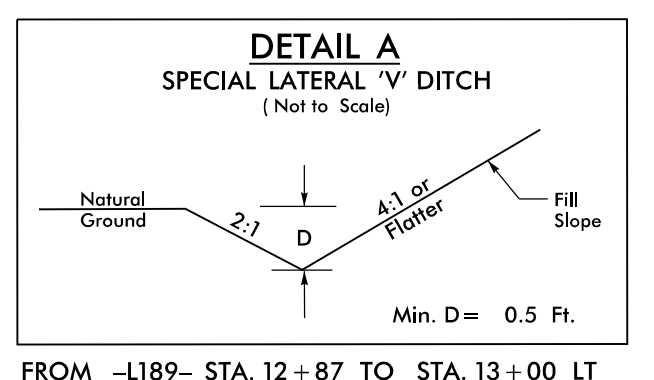
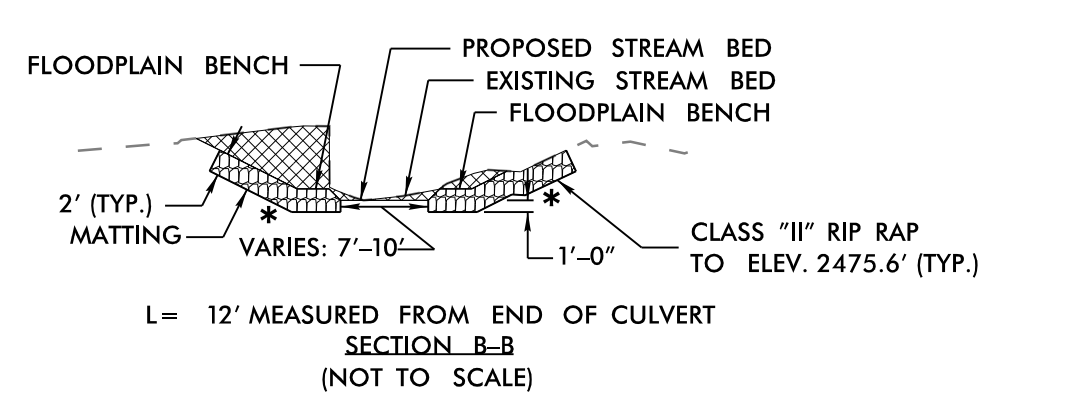
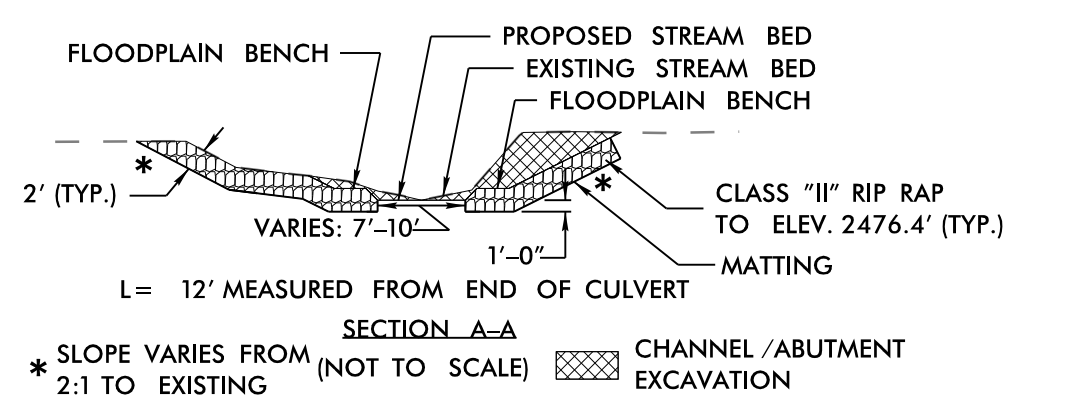
BM #2 ELEV. 2432.40'  
-L188- STA. 13+81.56 80.54 LT  
-BL- STA. 7+89.32 53.29 LT  
SPIKE IN BASE OF 24" WALNUT

8/17/99

# CULVERT NO. 430189

PROJECT REFERENCE NO. BPI4.R002	SHEET NO. 6
RW SHEET NO. ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

**RS&H**  
8521 SIX FORKS ROAD, SUITE 400  
RALEIGH, NC 27615  
NC FIRM LICENSE No. F-0493



**-L189- CURVE DATA**

PI Sta 9+63.03 Δ = 10° 22' 53.0" (LT) D = 14' 00" 00.0" L = 74.15' T = 37.18' R = 409.26' SE = EXIST	PI Sta 10+87.94 Δ = 53° 20' 09.4" (LT) D = 39' 47" 19.4" L = 134.05' T = 72.32' R = 144.00' SE = 06
PI Sta 13+06.73 Δ = 58° 45' 00.3" (RT) D = 39' 47" 19.4" L = 147.66' T = 81.06' R = 144.00' SE = 06	PI Sta 14+09.76 Δ = 14° 07' 22.7" (LT) D = 21' 00" 00.0" L = 67.25' T = 33.80' R = 272.84' SE = EXIST

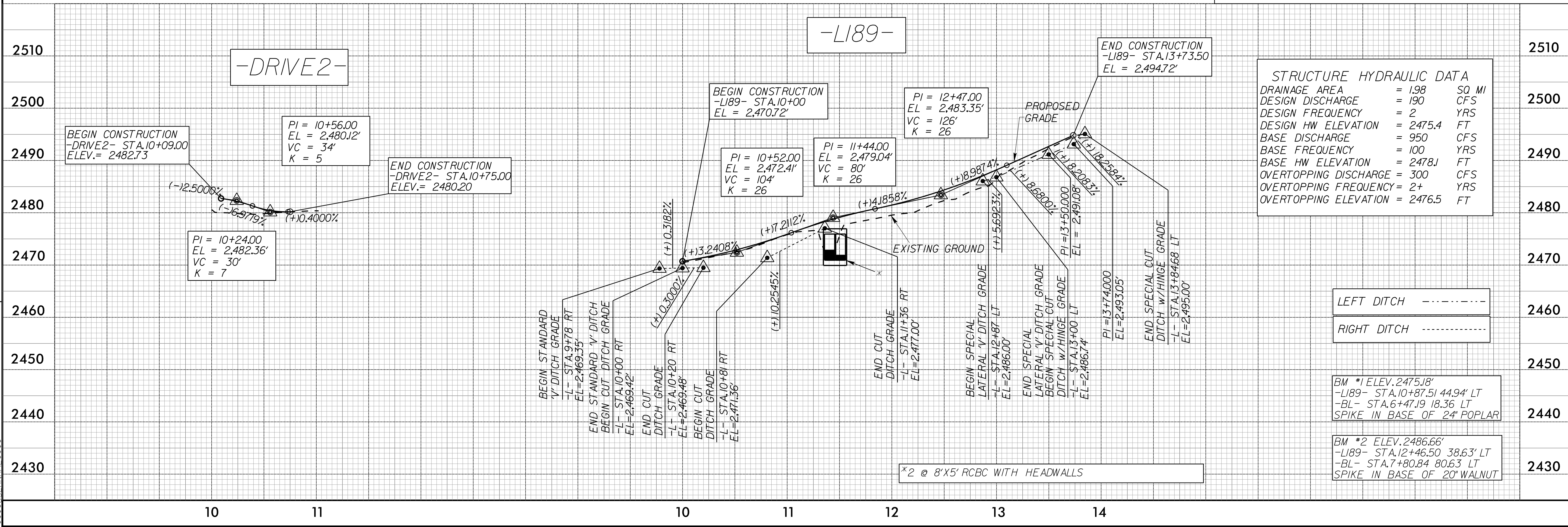
\* R=10' FOR -DRIVE2-  
\*\* APPROXIMATE FUTURE DRIVEWAY LOCATION. NO FS AVAILABLE FOR THIS DRIVEWAY.

SEE SHEET RW06 FOR -L189- RW

SEE SHEETS C3-1 THRU C3-7 FOR CULVERT PLANS

ROW REVISION 7- --22: PUE REVISED ON PARCELS 7 AND 8. TCE REVISED ON PARCEL 8 BECAUSE OF PUE REVISION. (SMK)

22-OCT-2025 15:22 R:\Roadway\Projects\173 BRIDGES S.Rdy\_psh\_6.dgn



LEFT DITCH -----  
RIGHT DITCH -----

BM #1 ELEV. 2475.18'  
-L189- STA. 10+87.51 44.94' LT  
-BL- STA. 6+47.19 18.36 LT  
SPIKE IN BASE OF 24" POPLAR

BM #2 ELEV. 2486.66'  
-L189- STA. 12+46.50 38.63' LT  
-BL- STA. 7+80.84 80.63' LT  
SPIKE IN BASE OF 20" WALNUT

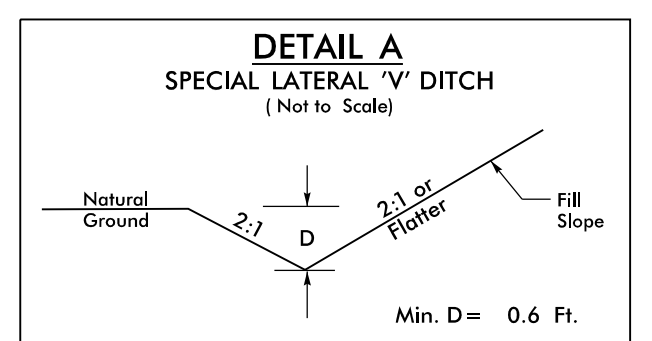
8/17/09

# CULVERT NO. 430190

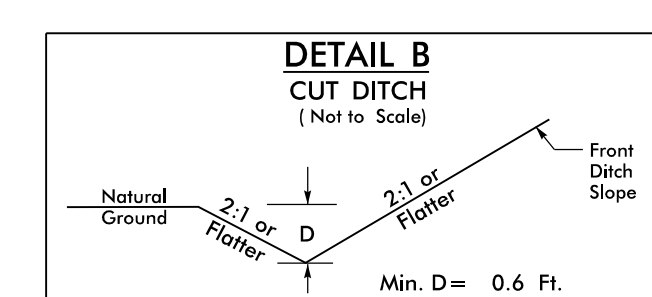
PROJECT REFERENCE NO. BPI4.R002	SHEET NO. 7
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	

RS&H 8521 SIX FORKS ROAD, SUITE 400 RALEIGH, NC 27615 NC FIRM LICENSE No. F-0493

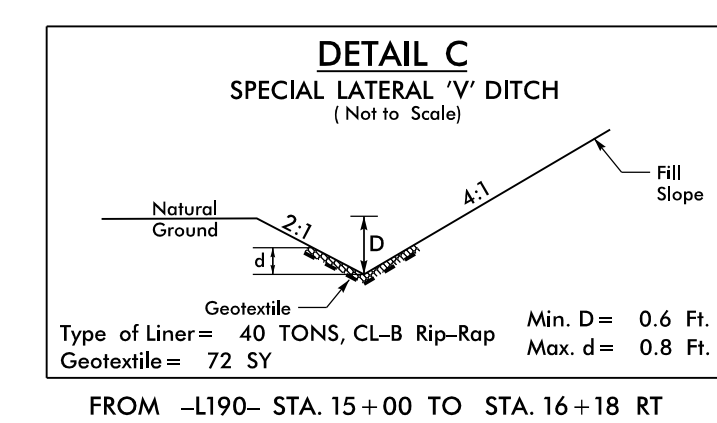
-DRIVE- CURVE DATA		-LI90- CURVE DATA			
PI Sta 10+44.12	PI Sta 11+98.55	PI Sta 12+97.55	PI Sta 14+29.59	PI Sta 15+07.81	PI Sta 15+98.18
$\Delta = 81^{\circ} 19' 22.6''$ (RT)	$\Delta = 17^{\circ} 46' 51.0''$ (LT)	$\Delta = 15^{\circ} 37' 55.0''$ (RT)	$\Delta = 14^{\circ} 12' 19.4''$ (RT)	$\Delta = 12^{\circ} 11' 12.2''$ (LT)	$\Delta = 26^{\circ} 35' 09.7''$ (LT)
D = 229' 10" 59.2"	D = 16' 51" 06.1"	D = 16' 51" 06.1"	D = 16' 51" 06.1"	D = 16' 51" 06.1"	D = 24' 54" 40.4"
L = 35.48'	L = 105.51'	L = 92.76'	L = 84.30'	L = 72.32'	L = 106.72'
T = 21.47'	T = 53.18'	T = 46.67'	T = 42.37'	T = 36.30'	T = 54.34'
R = 25.00'	R = 340.00'	R = 340.00'	R = 340.00'	R = 340.00'	R = 230.00'
	SE = 06	SE = 06	SE = 06	SE = 06	SE = EXIST



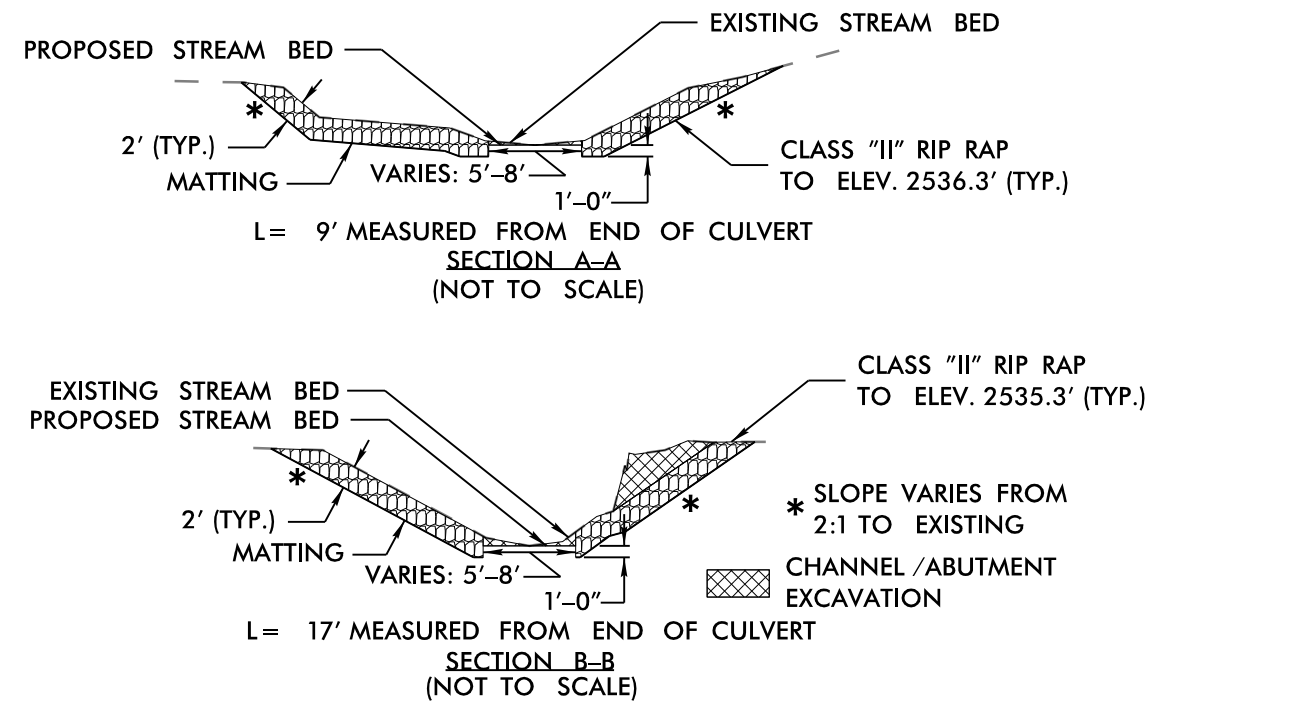
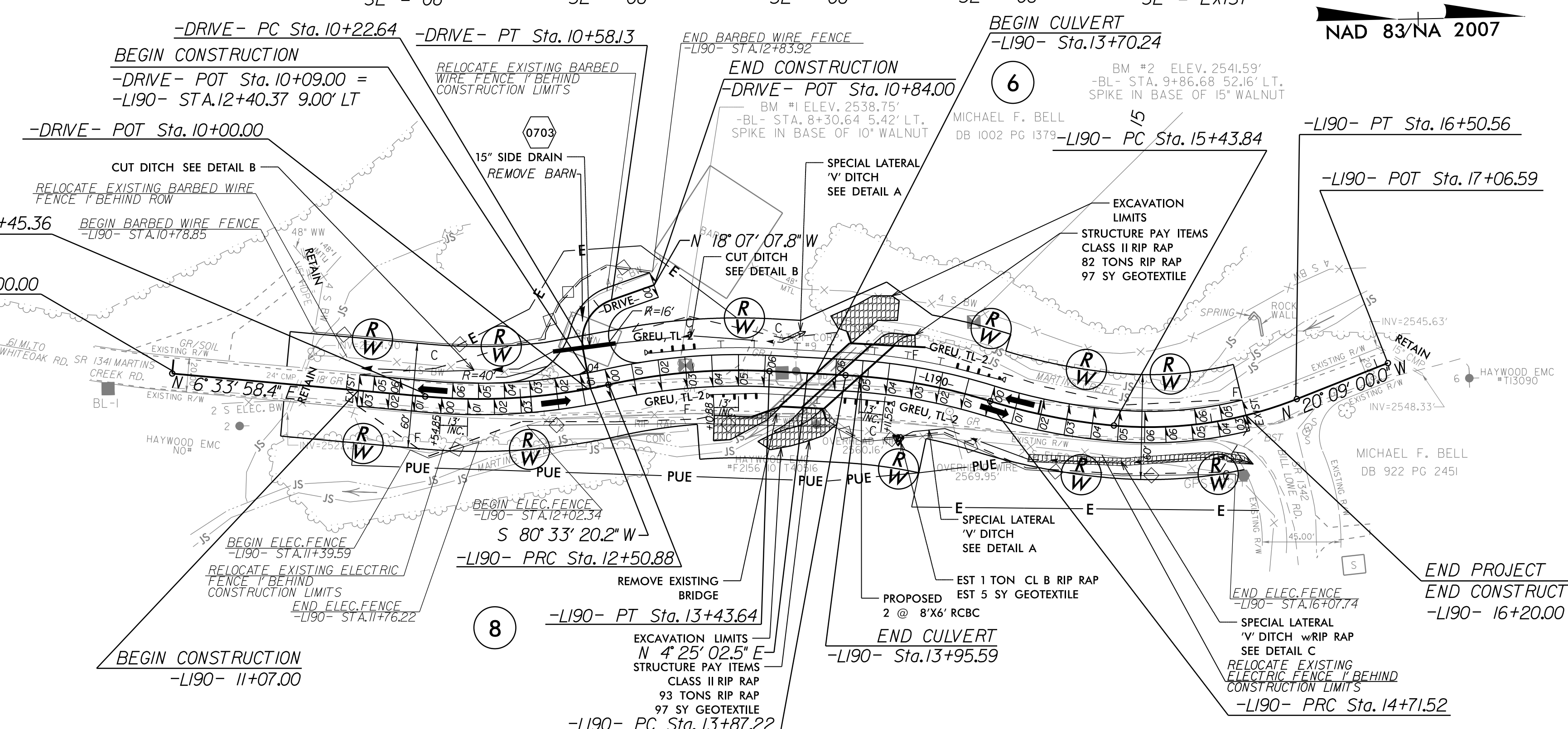
FROM -LI90- STA. 13+50 TO STA. 13+65 LT  
FROM -LI90- STA. 14+25 TO STA. 15+00 RT



FROM -LI90- STA. 11+07 TO STA. 12+24 LT  
FROM -LI90- STA. 12+60 TO STA. 13+50 LT

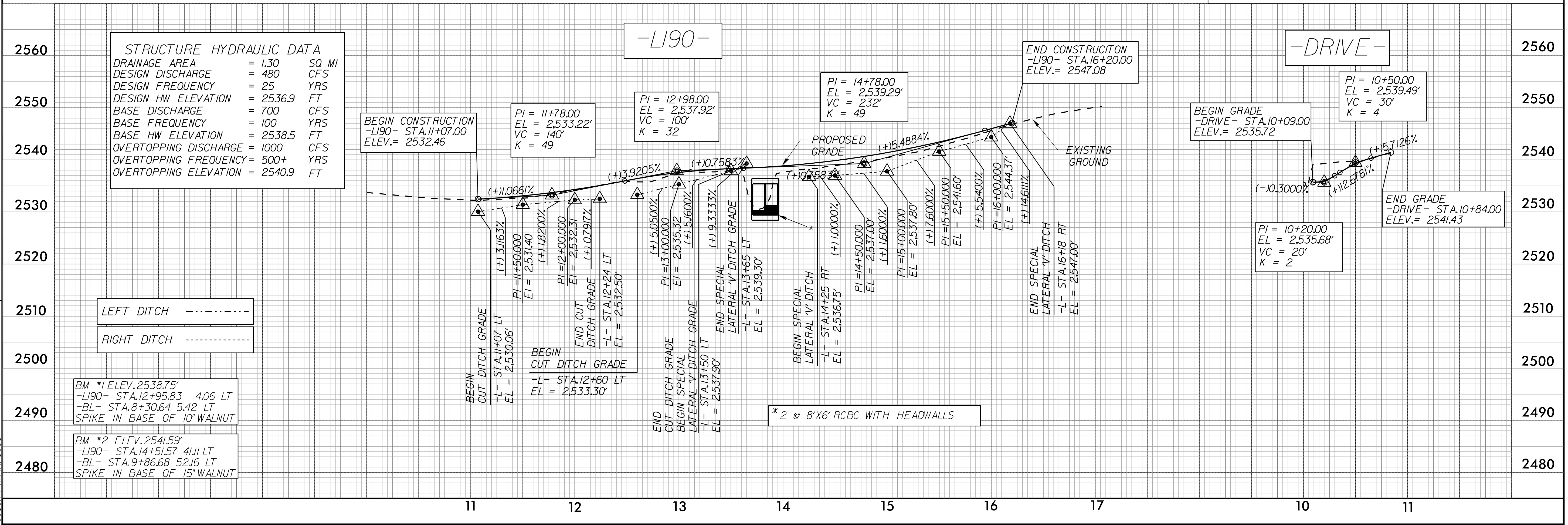


FROM -LI90- STA. 15+00 TO STA. 16+18 RT



SEE SHEET RW07 FOR -LI90- RW

SEE SHEETS C4-1 THRU C4-10 FOR CULVERT PLANS



STRUCTURE HYDRAULIC DATA	
DRAINAGE AREA	= 1.30 SQ MI
DESIGN DISCHARGE	= 480 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2536.9 FT
BASE DISCHARGE	= 700 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2538.5 FT
OVERTOPPING DISCHARGE	= 1000 CFS
OVERTOPPING FREQUENCY	= 500+ YRS
OVERTOPPING ELEVATION	= 2540.9 FT

LEFT DITCH -----

RIGHT DITCH -----

BM #1 ELEV. 2538.75'  
-LI90- STA. 12+95.83 4.06 LT  
-BL- STA. 8+30.64 5.42 LT  
SPIKE IN BASE OF 10' WALNUT

BM #2 ELEV. 2541.59'  
-LI90- STA. 14+51.57 4.11 LT  
-BL- STA. 9+86.68 5.216 LT  
SPIKE IN BASE OF 15' WALNUT

REVISIONS

22-OCT-2025 15:24  
R:\Projects\2025\1524 BRIDGES S. Rd., psh\_7.dgn  
USER:RVALE

TIP PROJECT: BP14.R002

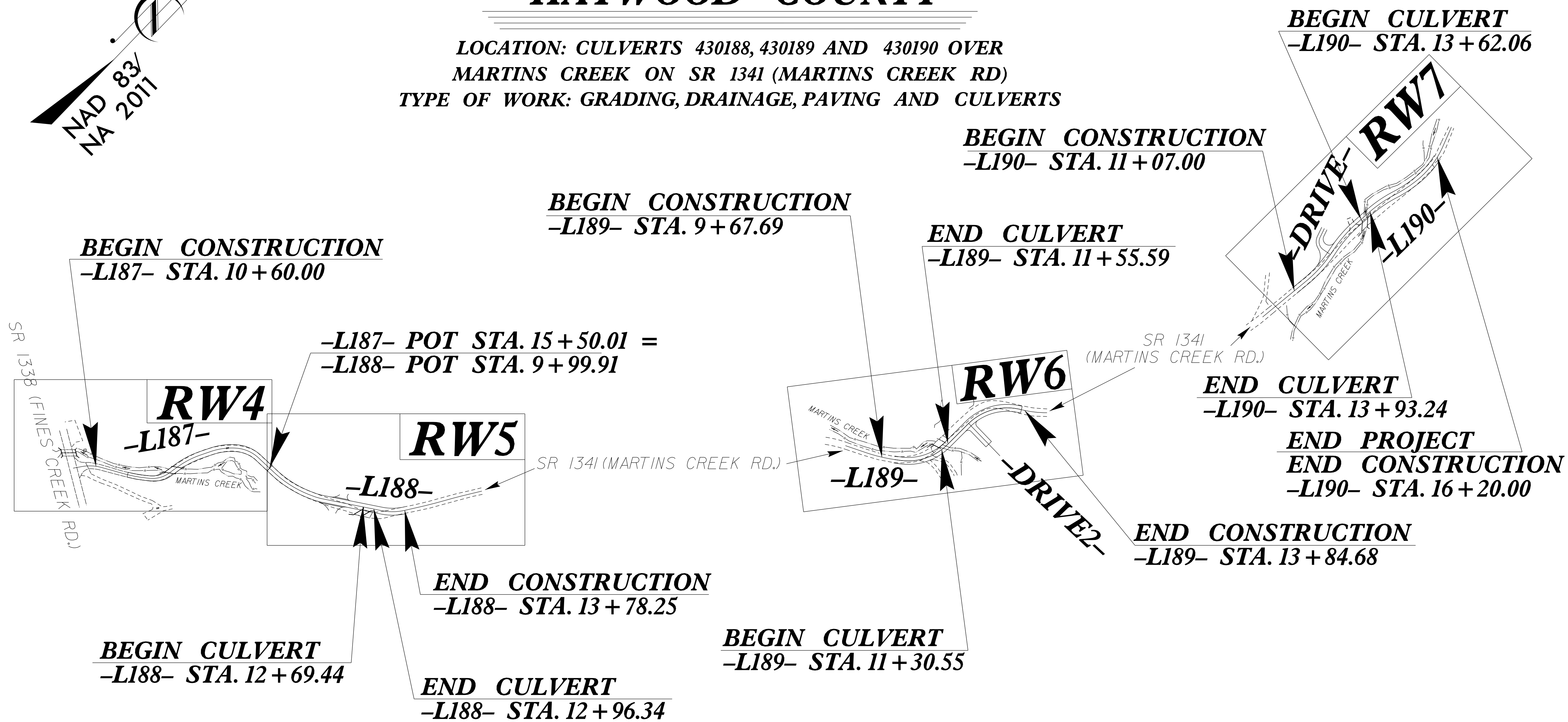
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	BP14.R.002	RW01	17

STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

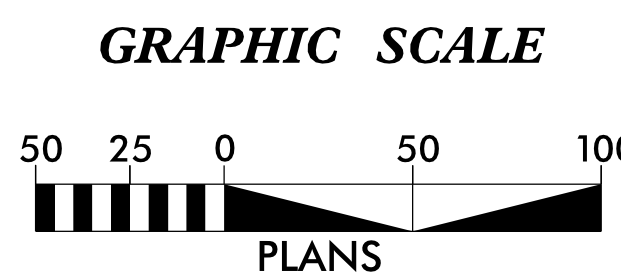
SURVEY CONTROL, EXISTING CENTERLINES,  
RIGHT OF WAY, EASEMENTS AND PROPERTY TIES

**HAYWOOD COUNTY**

LOCATION: CULVERTS 430188, 430189 AND 430190 OVER  
MARTINS CREEK ON SR 1341 (MARTINS CREEK RD)  
TYPE OF WORK: GRADING, DRAINAGE, PAVING AND CULVERTS



12-NOV-2025 14:39  
C:\Sylvia\Bridges\430187\_2025 Revisions\bp14\_r002\_ls\_rw01.dgn  
babar.watt AT LS-330173L



**DATUM DESCRIPTION**

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "GPS-103" WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 728,454.276(ft) EASTING: 820,264.062(ft) ELEVATION: 2,549.46(ft) THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9997875932 THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "GPS-103" TO -L188- STATION 10+00.00 IS S 37°36'33.2" W 3,161.32'(ft) ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES VERTICAL DATUM USED IS NAVD 88

Prepared in the Office of:

LOCATION AND SURVEYS, DIVISION 14  
122 BONNIE LANE  
SYLVA, NC 28779

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:  
MARCH 2024

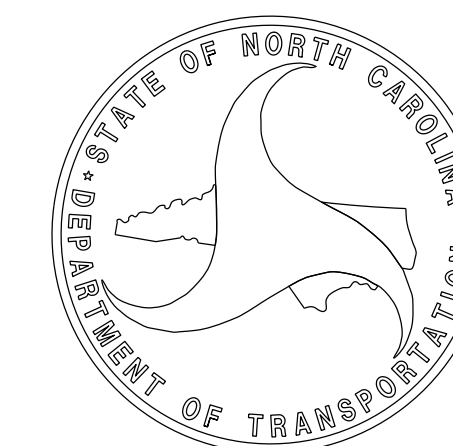
LETTING DATE:  
JANUARY 27, 2026

PROFESSIONAL LAND  
SURVEYOR




DocuSigned by:  
*Brian Barritt*  
SIGNATURE

11/12/2025  
Date:



# SURVEY CONTROL SHEET

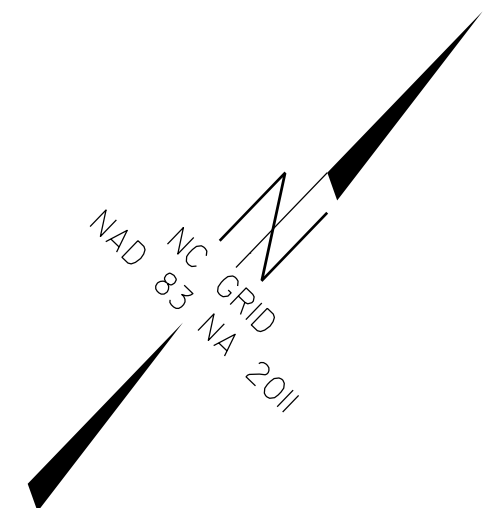
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
BPI4.R002	RW02C-1
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	GPS101	GPS-101	725602.6300	817929.8910	2389.99
1		BL-1	725687.9010	818107.2453	2391.33
2		BL-2	725814.4064	818180.1158	2396.05
3		BL-3	725923.2595	818251.0152	2405.26

\*\*\*\*\*  
 BM1 ELEVATION = 2394.82  
 N 725762 E 818122  
 SPIKE IN BASE OF 10" WALNUT  
 \*\*\*\*\*  
 BM2 ELEVATION = 2401.64  
 N 725876 E 818224  
 SPIKE IN BASE OF 16" POPLAR  
 \*\*\*\*\*

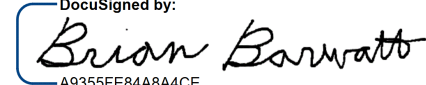


I, Brian Barwatt, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**  
 Type of GPS field procedure: VRS  
 Dates of survey: May 10, 2016  
 Datum/Epoch: NAD83/NA 2011  
 Published/Fixed-control use: N/A  
 Localized around: GPS-103  
 Northing: 728454.276'  
 Easting: 820264.062'  
 Combined grid factor: 0.9997875932  
 Geoid model: 12A  
 Units: U.S. Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed during May 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 12th day of February, 2025.

DocuSigned by:  
  
 Professional Land Surveyor L-4727

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	POT	725595.774	817967.508							
	LINE			N 35°45'00.0" E	23.22					
	PC	725614.622	817981.076							
	CURVE	725648.567	818019.749	N 48°43'30.0" E	51.46	25°57'00.0"(RT)	50°00'00.0"	51.90	26.40	114.59
	PT	725676.506	818071.637							
	LINE			N 61°42'00.0" E	58.93					
	PC	725716.452	818130.846							
	CURVE	725759.935	818156.035	N 55°59'38.2" E	71.42	11°24'43.7"(LT)	15°57'06.3"	71.54	35.89	359.18
	PCC	725785.150	818160.426							
	CURVE	725814.406	818180.116	N 30°04'59.7" E	50.25	40°24'33.3"(LT)	78°45'22.4"	51.31	26.77	72.75
	PT	725850.611	818182.383							
	LINE			N 09°52'43.0" E	25.59					
	PC	725876.166	818195.520							
	CURVE	725923.259	818251.015	N 18°32'32.5" E	69.05	17°19'39.0"(RT)	25°00'00.0"	69.31	34.92	229.18
	PT	725949.907	818334.796							
	LINE			N 27°12'22.0" E	28.73					
	PC	725949.907	818334.796							
	CURVE	725949.907	818334.796	N 39°02'51.4" E	67.12	23°40'58.8"(RT)	35°01'53.0"	67.61	34.29	163.56
	PCC	725949.907	818334.796							
	CURVE	725949.907	818334.796	N 70°00'10.4" E	61.42	38°13'39.2"(RT)	61°05'16.1"	62.58	32.50	93.79
	PT	725949.907	818334.796							
	LINE			N 89°07'00.0" E	39.27					
	POT	725949.907	818334.796							

EY	POINT	N	E	BEARING	DIST
	POT	725649.902	817879.078		
	LINE			S 58°31'44.7" E	205.55
	POT	725542.590	818054.396		

**NOTES:**


1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

I2-FEB-2025 14:57 C:\Sullivan\Bor\p14.r002\_...ls.rw02c-1.dgn bobbar-watt AT LS-330173L

# SURVEY CONTROL SHEET 43-0188

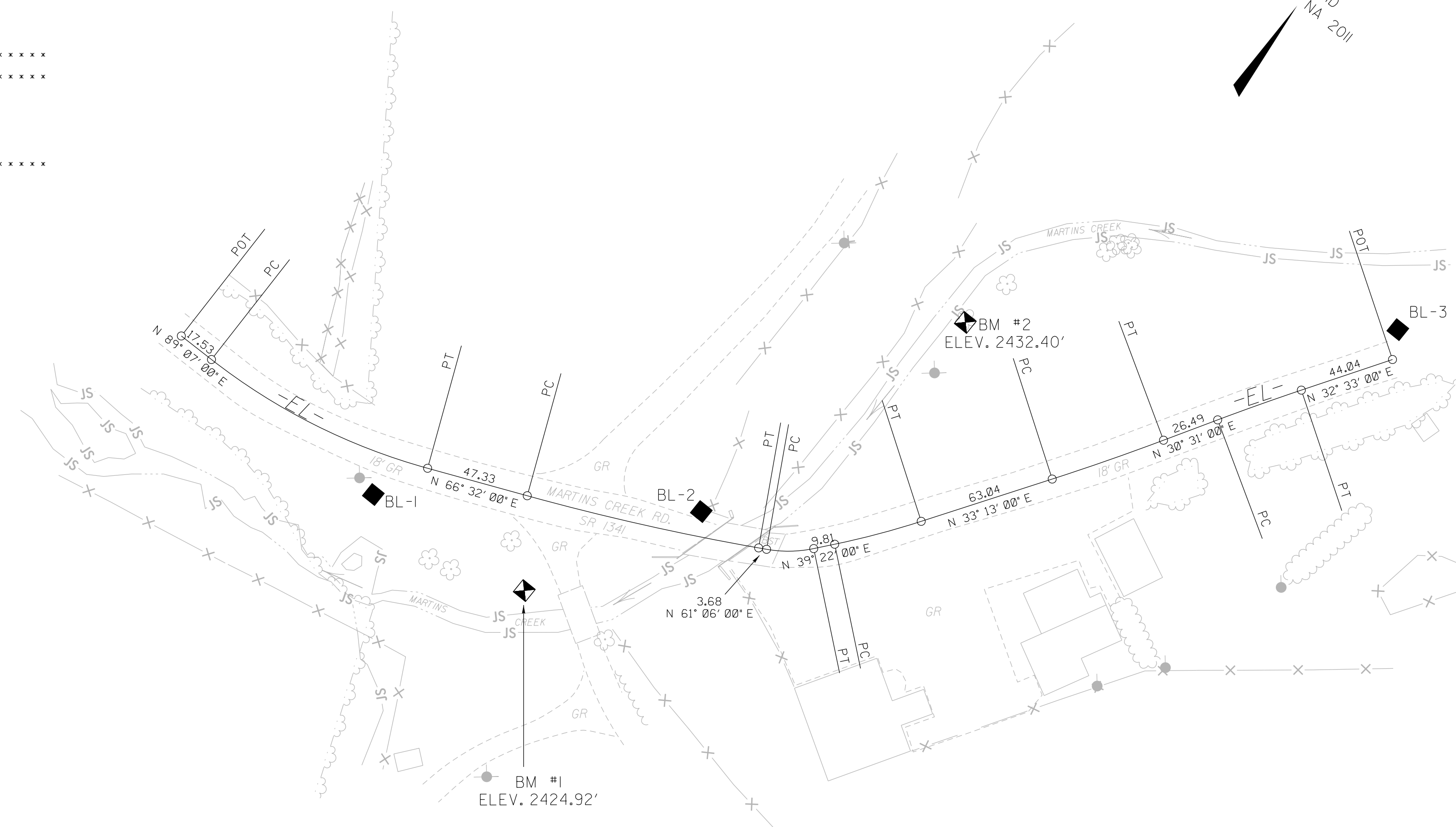
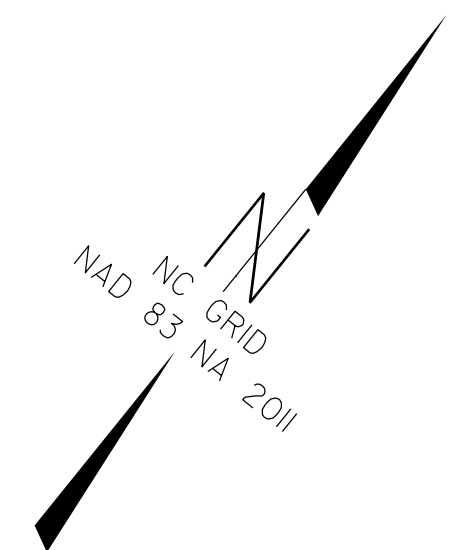
## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW02C-2
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	1	BL-1	725948.5413	818448.8324	2424.71
	2	BL-2	726036.7601	818570.6253	2428.15
	3	BL-3	726301.8934	818766.5865	2436.72

\*\*\*\*\*  
 BM1      ELEVATION = 2424.92  
 N 725958      E 818530  
 SPIKE IN BASE OF 18" POPLAR  
 \*\*\*\*\*  
 \*\*\*\*\*  
 BM2      ELEVATION = 2432.40  
 N 726180      E 818610  
 SPIKE IN BASE OF 24" WALNUT  
 \*\*\*\*\*

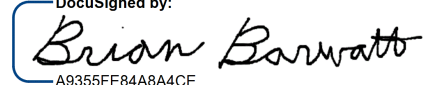


I, Brian Barwatt, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**  
 Type of GPS field procedure: VRS  
 Dates of survey: May 10, 2016  
 Datum/Epoch: NAD83/NA 2011  
 Published/Fixed-control use: N/A  
 Localized around: GPS-103  
 Northing: 728454.276'  
 Easting: 820264.062'  
 Combined grid factor: 0.9997875932  
 Geoid model: 12A  
 Units: U.S. Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed during May 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 15th day of March, 2022.

DocuSigned by:  
  
 Professional Land Surveyor L-4727

EL	POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
	POT	725949.907	818334.796							
	LINE			N 89°07'00.0" E	17.53					
	PC	725950.177	818352.322							
	CURVE			N 77°49'30.0" E	110.80	22°35'00.0"(LT)	20°15'00.0"	111.52	56.49	282.94
	PT	725973.545	818460.632							
	LINE			N 66°32'00.0" E	47.33					
	PC	725992.393	818504.048							
	CURVE			N 63°49'00.0" E	108.63	05°26'00.0"(LT)	05°00'00.0"	108.67	54.37	1145.92
	PT	726040.324	818601.528							
	LINE			N 61°06'00.0" E	3.68					
	PC	726042.104	818604.754							
	CURVE			N 50°14'00.0" E	21.60	21°44'00.0"(LT)	100°00'00.0"	21.73	11.00	57.30
	PT	726055.923	818621.359							
	LINE			N 39°22'00.0" E	9.81					
	PC	726063.508	818627.582							
	CURVE			N 36°17'30.0" E	40.98	06°09'00.0"(LT)	15°00'00.0"	41.00	20.52	381.97
	PT	726096.539	818651.838							
	LINE			N 33°13'00.0" E	63.04					
	PC	726149.277	818686.371							
	CURVE			N 31°52'00.0" E	54.00	02°42'00.0"(LT)	05°00'00.0"	54.00	27.00	1145.92
	PT	726195.134	818714.878							
	LINE			N 30°31'00.0" E	26.49					
	PC	726217.955	818728.329							
	CURVE			N 31°32'00.0" E	40.66	02°02'00.0"(RT)	05°00'00.0"	40.67	20.34	1145.92
	PT	726252.614	818749.596							
	LINE			N 32°33'00.0" E	44.04					
	POT	726289.739	818773.293							

**NOTES:**

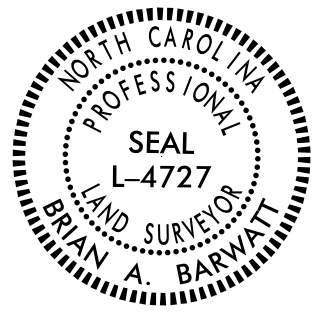
1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

I5-MAR-2022 08:28 C:\sylvia\Bridges\430188\430188 RW Sheets\To Send\bp14\_r002.ls\_rw02c-2.dgn bobbarwatt AT LS-317902

# SURVEY CONTROL SHEET 43-0189

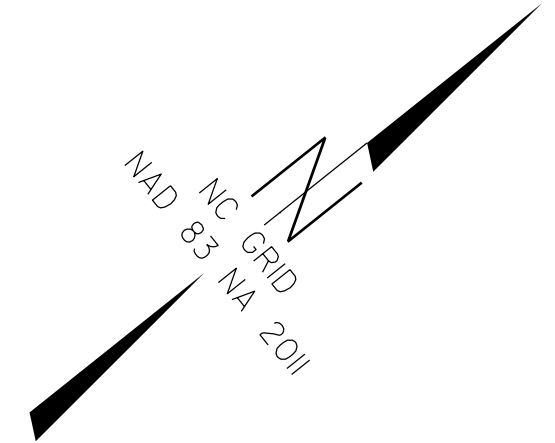
## W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW02C-3
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
1	BL-1		727043.5639	819436.4644	2469.71
2	BL-2		727226.8257	819563.5261	2478.36
3	BL-3		727467.8337	819712.3543	2501.81

\*\*\*\*\*  
 BM1        ELEVATION = 2475.18  
 N 727175        E 819505  
 SPIKE IN BASE OF 24" POPLAR  
 \*\*\*\*\*  
 \*\*\*\*\*  
 BM2        ELEVATION = 2486.66  
 N 727318        E 819525  
 SPIKE IN BASE OF 20" WALNUT  
 \*\*\*\*\*

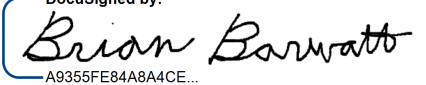


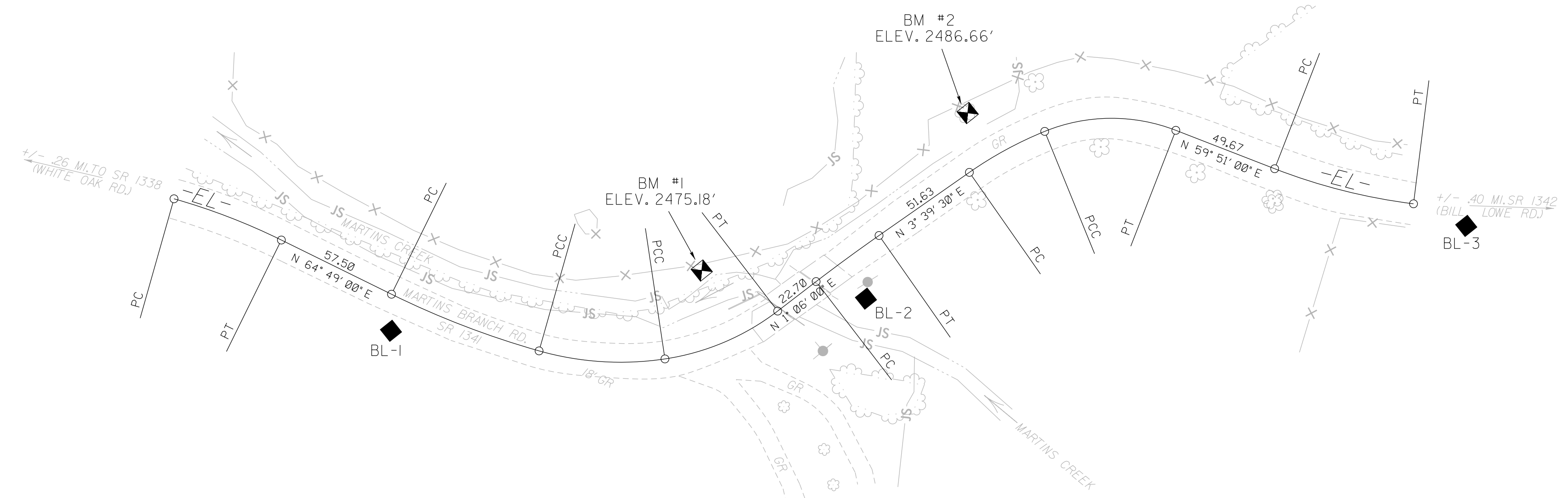
I, Brian Barwatt, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: **AA**  
 Type of GPS field procedure: VRS  
 Dates of survey: May 10, 2016  
 Datum/Epoch: NAD83/NA 2011  
 Published/Fixed-control use: N/A  
 Localized around: GPS-103  
 Northing: 728454.276'  
 Easting: 820264.062'  
 Combined grid factor: 0.9997875932  
 Geoid model: 12A  
 Units: U.S. Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed during May 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 16th day of March, 2022.

DocuSigned by:  
  
 Professional Land Surveyor L-4727



EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
PC	727002.771	819324.724							
CURVE			N 59°37'26.8\" E	53.87	10°23'06.4\"(RT)	19°15'00.0\"	53.95	27.05	297.64
PT	727030.014	819371.203							
LINE			N 64°49'00.0\" E	57.50					
PC	727054.482	819423.240							
CURVE			N 59°37'33.5\" E	74.05	10°22'53.0\"(LT)	14°00'00.0\"	74.15	37.18	409.26
PCC	727091.926	819487.128							
CURVE			N 42°15'50.5\" E	59.09	24°20'33.1\"(LT)	40°53'23.4\"	59.53	30.22	140.12
PCC	727135.652	819526.865							
CURVE			N 15°35'47.0\" E	57.37	28°59'33.9\"(LT)	49°59'59.9\"	57.99	29.63	114.59
PT	727190.909	819542.289							
LINE			N 01°06'00.0\" E	22.70					
PC	727213.603	819542.725							
CURVE			N 02°22'45.0\" E	36.54	02°33'30.0\"(RT)	07°00'00.0\"	36.55	18.28	818.51
PT	727250.117	819544.242							
LINE			N 03°39'30.0\" E	51.63					
PC	727301.644	819547.537							
CURVE			N 10°02'57.9\" E	40.18	12°46'55.8\"(RT)	31°45'00.0\"	40.26	20.21	180.46
PCC	727341.203	819554.547							
CURVE			N 38°08'42.9\" E	61.42	43°24'34.2\"(RT)	69°00'00.0\"	62.91	33.05	83.04
PT	727389.505	819592.483							
LINE			N 59°51'00.0\" E	49.67					
PC	727414.455	819635.436							
CURVE			N 52°47'17.7\" E	67.08	14°07'24.5\"(LT)	21°00'00.0\"	67.25	33.80	272.84
PT	727455.025	819688.863							

**NOTES:**


1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

REVISIONS

I6-MAR-2022 08:38  
 C:\Sylvia\Bridges\430189\Revised Rw Sheets\bp14.r002 Revised Rw Sheets\To Send\bp14.r002.ls.rw02c-3.dgn  
 bobbarwatt AT LS-317902

# SURVEY CONTROL SHEET 43-0190

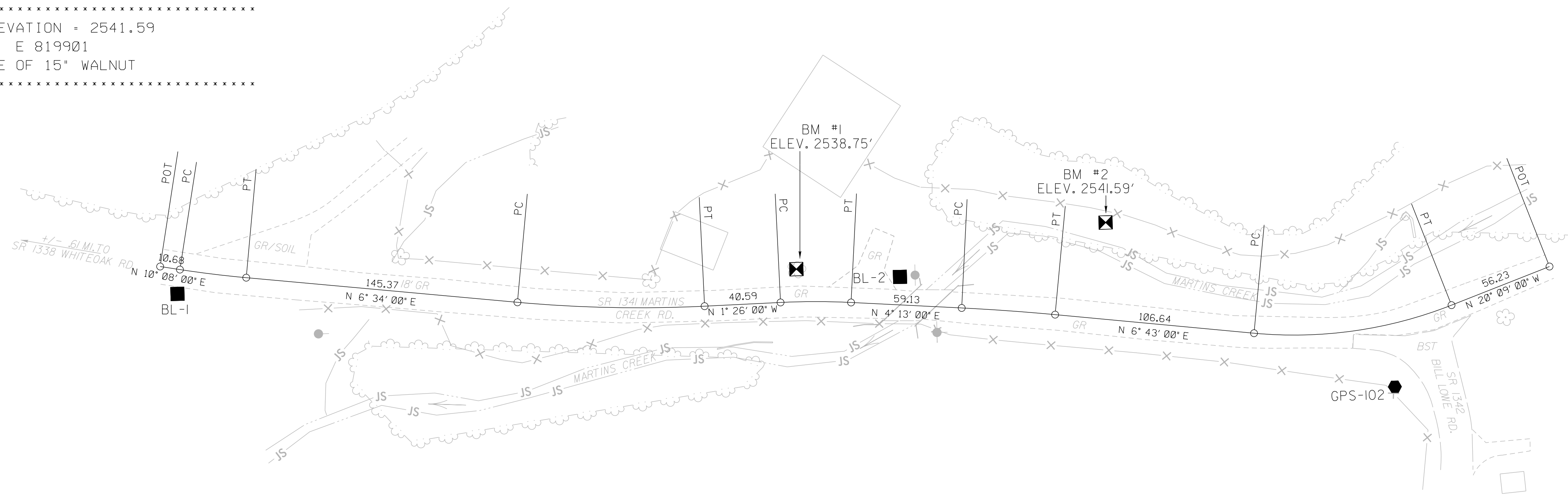
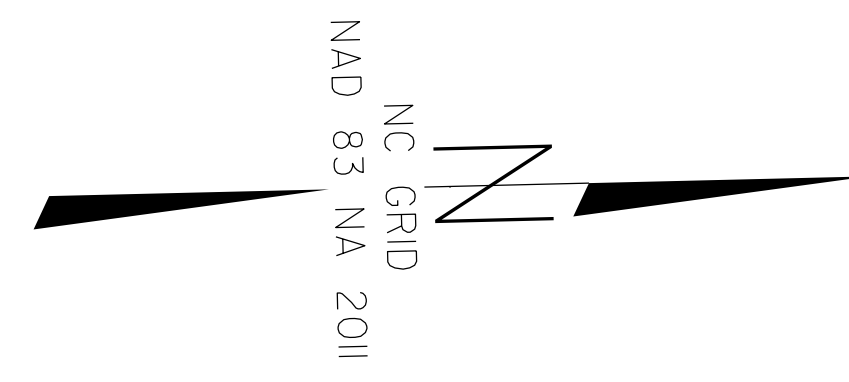
W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW02C-4
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

## BASELINE

BL	POINT	DESC.	NORTH	EAST	ELEVATION
	1	BL-1	727985.5704	819927.2197	2533.86
	2	BL-2	728371.3568	819927.4193	2537.71
	GPS102	GPS-102	728634.1060	819992.4320	2549.22

\*\*\*\*\*  
 BM1 ELEVATION = 2538.75  
 N 728316 E 819922  
 SPIKE IN BASE OF 10" WALNUT  
 \*\*\*\*\*  
 \*\*\*\*\*  
 BM2 ELEVATION = 2541.59  
 N 728482 E 819901  
 SPIKE IN BASE OF 15" WALNUT  
 \*\*\*\*\*



I, Brian Barwatt, PLS, certify that the Project Control was verified under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: AA  
 Type of GPS field procedure: VRS  
 Dates of survey: May 10, 2016  
 Datum/Epoch: NAD83/NA 2011  
 Published/Fixed-control use: N/A  
 Localized around: GPS-103  
 Northing: 728454.276'  
 Easting: 820264.062'  
 Combined grid factor: 0.9997875932  
 Geoid model: 12A  
 Units: U.S. Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed during May 2016, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of March, 2022.

DocuSigned by:  
  
 Brian Barwatt  
 Professional Land Surveyor L-4727

REVISIONS


EL POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	727976.719	819912.409							
LINE			N 10°08'00.0" E	10.68					
PC	727987.231	819914.288							
CURVE			N 08°21'00.0" E	35.66	03°34'00.0"(LT)	10°00'00.0"	35.67	17.84	572.96
PT	728022.514	819919.466							
LINE			N 06°34'00.0" E	145.37					
PC	728166.930	819936.091							
CURVE			N 02°34'00.0" E	99.92	08°00'00.0"(LT)	08°00'00.0"	100.00	50.08	716.20
PT	728266.748	819940.565							
LINE			N 01°26'00.0" W	40.59					
PC	728307.329	819939.550							
CURVE			N 01°23'30.0" E	37.65	05°39'00.0"(RT)	15°00'00.0"	37.67	18.85	381.97
PT	728344.969	819940.464							
LINE			N 04°13'00.0" E	59.13					
PC	728403.936	819944.012							
CURVE			N 05°28'00.0" E	50.00	02°30'00.0"(RT)	05°00'00.0"	50.00	25.00	1145.92
PT	728453.704	819949.575							
LINE			N 06°43'00.0" E	106.64					
PC	728559.614	819962.047							
CURVE			N 06°43'00.0" W	106.48	26°52'00.0"(LT)	25°00'00.0"	107.47	54.74	229.18
PT	728665.368	819949.593							
LINE			N 20°09'00.0" W	56.23					
POT	728718.153	819930.224							



**NOTES:**

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

# PROPOSED ALIGNMENT CONTROL SHEET 43-0187

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW02D-1
Location and Surveys	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Brian Barwatt, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 12th day of February, 2025.

DocuSigned by:  
*Brian Barwatt*  
L-4727  
Professional Land Surveyor L-4727

L187

TYPE	STATION	NORTH	EAST
POT	10+00.00	725595.7742	817967.5076
PC	10+23.22	725614.6222	817981.0762
PT	10+75.12	725648.5674	818019.7492
PC	11+34.06	725676.5064	818071.6375
PCC	12+05.60	725716.4521	818130.8459
PT	12+56.91	725759.9354	818156.0353
PC	12+82.50	725785.1496	818160.4262
PT	13+51.81	725850.6115	818182.3833
PC	13+80.54	725876.1656	818195.5198
PCC	14+48.60	725928.5833	818238.1602
PT	15+10.55	725949.2985	818295.3315
POT	15+50.01	725949.9070	818334.7955

REVISIONS


**NOTES:**

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.



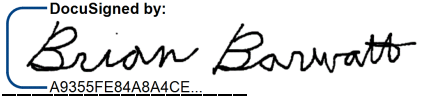


# PROPOSED ALIGNMENT CONTROL SHEET 43-0190

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW02D-4
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Brian Barwatt, PLS, certify that the data compiled came from available surveys/mapping performed by others and provided to me by NCDOT and do not certify to the accuracy or quality of the individual data sources.

This 21st day of March, 2022.

  
Professional Land Surveyor L-4727

L190

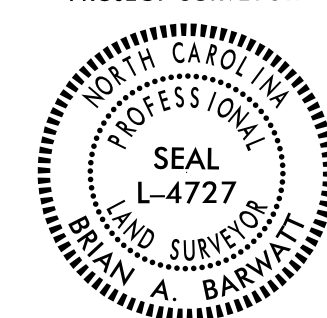
TYPE	STATION	NORTH	EAST
POT	10+00.00	728022.5139	819919.4662
PC	11+45.36	728166.9240	819936.0888
PRC	12+50.88	728271.9282	819931.8270
PT	13+43.64	728364.2399	819926.3449
PC	13+87.22	728407.6932	819929.7017
PRC	14+71.52	728490.0801	819946.4935
PCC	15+43.84	728560.5422	819962.1525
PT	16+50.56	728665.5540	819949.5247
POT	17+06.59	728718.1564	819930.2229

REVISIONS

21-MAR-2022 15:17  
 C:\Users\barwatt\Documents\430190\430190.RW\_Sheets\To\_Send\bp14.r002.ls.rw02d-4.dgn  
 Brian Barwatt  
 PL L-4727

**NOTES:**

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE PROPOSED ALIGNMENT CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW03E-1
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR 	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

# RIGHT OF WAY CONTROL SHEET 43-0187

## ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L187	11+45.00	-10.00	725690.4972	818076.1863
L187	11+45.00	10.00	725673.1847	818086.2001
L187	11+45.00	14.00	725669.7213	818088.2013
L187	12+00.00	14.00	725702.0015	818135.2883
L187	12+00.00	28.00	725691.0938	818144.0645
L187	12+20.00	-57.00	725762.5161	818096.6134
L187	12+83.00	-28.00	725790.5054	818132.9381
L187	13+18.00	51.00	725803.1160	818217.4879
L187	13+20.00	-22.50	725828.8227	818148.6051
L187	13+20.00	-28.00	725830.6363	818143.4128
L187	13+51.81	-22.50	725860.8983	818162.3725
L187	13+80.54	22.50	725865.8788	818215.5305
L187	13+80.54	-22.50	725886.4524	818175.5090
L187	14+48.60	22.50	725911.0855	818252.3050
L187	14+48.60	-22.50	725946.0811	818224.0153
L187	15+10.55	-22.50	725971.7959	818294.9846
L187	15+10.55	22.50	725926.8012	818295.6784
L187	15+50.01	22.50	725927.4097	818335.1424
L187	15+50.01	-22.50	725972.4043	818334.4484

## PUE

## ROW MARKER PERMANENT EASEMENT-E

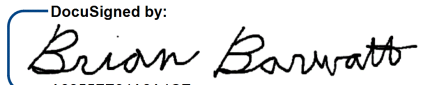
ALIGN	STATION	OFFSET	NORTH	EAST
L187	14+07.00	-39.00	725921.8007	818178.1010
L187	14+07.00	-22.50	725911.9920	818191.3690
L187	14+30.00	-22.50	725931.8701	818208.3482
L187	14+30.00	-39.00	725943.4416	818196.5859
L187	14+39.00	22.50	725905.6921	818246.0199

POINT NOT SET ( IN ROCK )  
POINT NOT SET ( IN FENCE )

POINT NOT SET ( IN ROCK )

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on February 18, 2025, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 58.1600 as applicable.

This 19th day of February, 2025.

Digitized by  
  
Professional Land Surveyor L-4727

### NOTES:

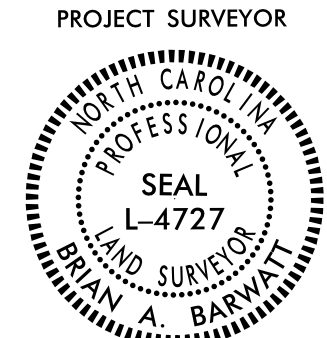
1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED DURING MAY OF 2024.

6/2/19

REVISIONS


19-FEB-2025 09:47  
B:\55-2025-09-47  
BP14.R002-15-3301731  
Revisions\bp14.r002-15-3301731  
barwatt

# RIGHT OF WAY CONTROL SHEET 43-0188

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW03E-2
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVIA, NC 28779	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed during May of 2024, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of February, 2025.

Documented by:  
  
 Professional Land Surveyor L-4727

REVISIONS

### ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L188	10+17.44	-22.50	725972.6746	818351.9756
L188	10+17.44	22.50	725927.6799	818352.6694
L188	11+28.96	-22.50	725994.1843	818451.6726
L188	11+28.96	22.50	725952.9061	818469.5923
L188	11+61.00	-30.00	726013.2751	818472.9803
L188	11+61.00	-22.50	726006.9602	818477.0265
L188	11+72.81	26.00	725972.4965	818513.1378
L188	12+13.00	46.00	725977.3374	818557.7645
L188	12+65.00	50.00	726002.0233	818603.7059
L188	12+85.00	-30.00	726080.1722	818577.3859
L188	12+90.00	26.28	726035.4827	818611.9587
L188	13+19.49	-54.78	726119.2782	818592.4778
L188	13+38.39	15.00	726073.5889	818647.4803
L188	13+50.00	-50.00	726127.9148	818610.4558
L188	13+50.00	-31.07	726114.6505	818623.9577
L188	13+78.25	-30.00	726131.2821	818638.7352
L188	13+78.25	-11.28	726121.0157	818654.3931
L188	13+78.25	15.00	726106.6079	818676.3674
L188	13+78.25	8.73	726110.0482	818671.1204

POINT NOT SET (IN TREE)  
PUNCH HOLE IN ROCK

8" NAIL SET

NAIL SET IN ROCK

### PUE

### ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L188	11+00.00	48.00	725917.6384	818448.0389
L188	13+80.00	-84.00	726162.3558	818594.5368


PUNCH HOLE IN ROCK

**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED DURING MAY OF 2024.



# RIGHT OF WAY CONTROL SHEET 43-0190

PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW03E-4
Location and Surveys	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

### ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L190	10+65.00	30.00	728083.6569	819956.7028
L190	10+65.00	10.00	728085.9440	819936.8340
L190	10+65.00	-10.00	728088.2310	819916.9652
L190	10+65.00	-30.00	728090.5181	819897.0959
L190	11+45.36	30.00	728163.4934	819965.8920
L190	11+45.36	-30.00	728170.3545	819906.2856
L190	12+17.06	-30.00	728235.6054	819906.8833
L190	12+50.88	30.00	728277.7627	819961.2542
L190	12+71.55	-30.00	728288.2819	819898.6977
L190	13+00.00	30.00	728322.1714	819955.7420
L190	13+00.00	50.00	728323.1960	819975.7157
L190	13+43.64	50.00	728360.3889	819976.1964
L190	13+43.64	-30.00	728366.5505	819896.4340
L190	13+60.00	-30.00	728382.8630	819897.6942
L190	13+87.22	50.00	728403.8421	819979.5532
L190	14+05.00	-55.00	728432.4712	819876.9934
L190	14+30.00	-40.00	728458.0860	819896.4881
L190	14+40.00	30.00	728452.8815	819967.0205
L190	14+40.00	50.00	728448.2766	819986.4831
L190	14+71.52	-40.00	728502.8535	819908.5879
L190	14+71.52	-30.00	728499.6601	819918.0643
L190	14+71.52	30.00	728480.5000	819974.9228
L190	15+43.84	-30.00	728563.9050	819932.3416
L190	15+43.84	30.00	728557.1794	819991.9635
L190	16+12.57	30.00	728634.5363	819989.0929
L190	16+20.00	-9.98	728634.0851	819948.3746
L190	16+20.00	-30.00	728629.7394	819928.8329

— PAINT ON ROCK

### PUE


### ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L190	11+07.00	43.00	728123.8949	819974.4198
L190	11+07.00	30.00	728125.3815	819961.5051
L190	13+80.00	61.00	728395.7947	819989.9643
L190	14+92.00	30.00	728501.8236	819981.4002

**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON 01/20/2022.

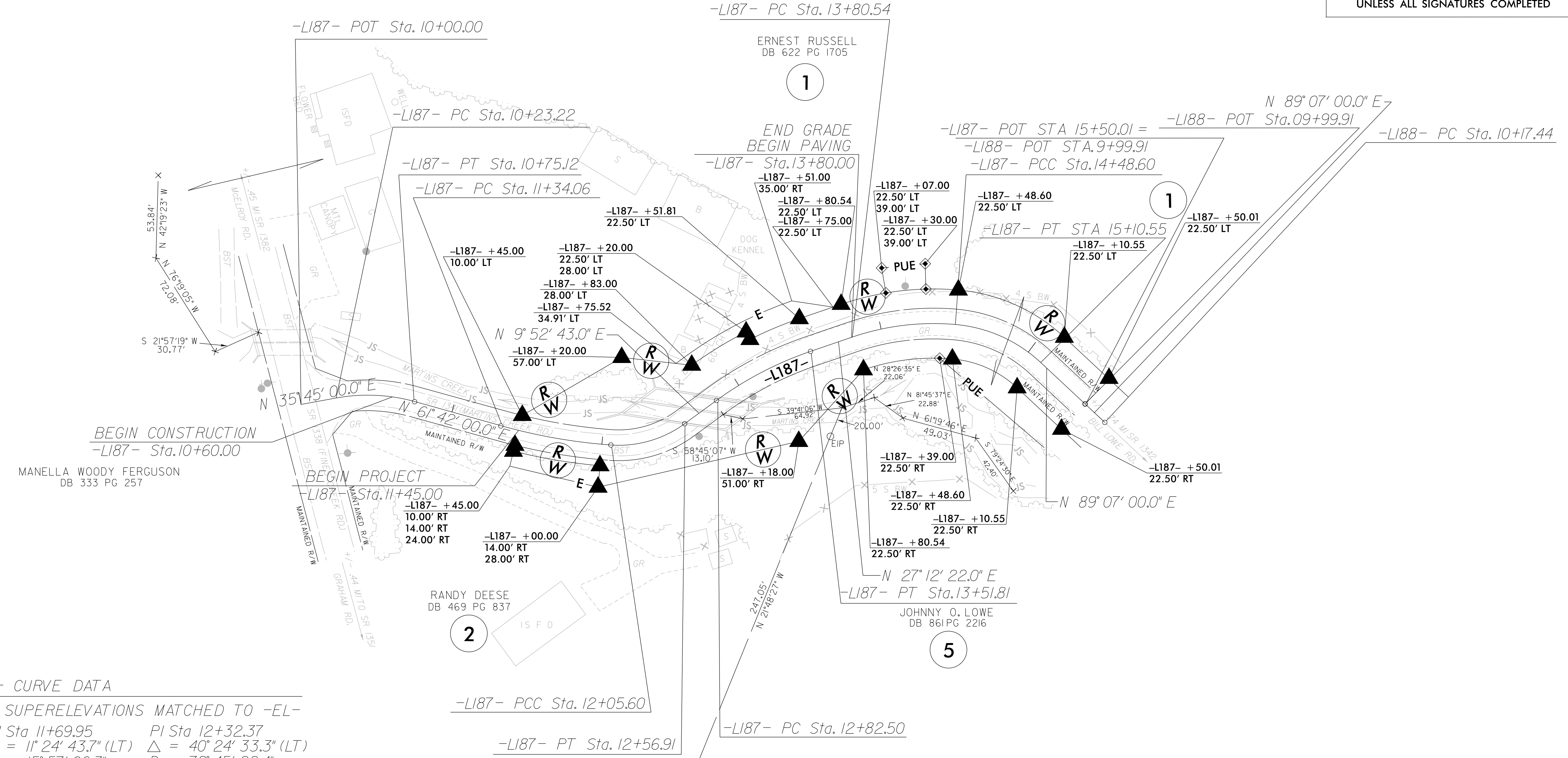
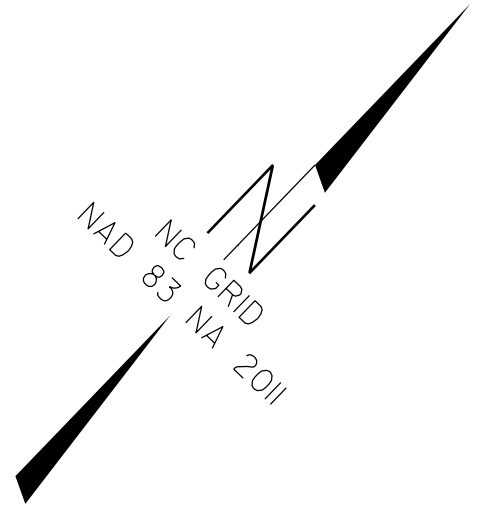
REVISIONS

PROJECT REFERENCE NO.	SHEET NO.
BP14.R002	RW04
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on February 18, 2025, and all coordinates are based on NAD83/2011; That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 19th day of February, 2025.

DocuSigned by:  
*Brian Barwatt*  
Professional Land Surveyor L-4727



-LI87- CURVE DATA

-LI87- CURVE RADII AND SUPERELEVATIONS MATCHED TO -EL-

PI Sta 10+49.63	PI Sta 11+69.95	PI Sta 12+32.37
$\Delta = 25^\circ 57' 00.0''$ (RT)	$\Delta = 11^\circ 24' 43.7''$ (LT)	$\Delta = 40^\circ 24' 33.3''$ (LT)
D = 50' 00' 00.0"	D = 15' 57' 06.3"	D = 78' 45' 22.4"
L = 51.90'	L = 71.54'	L = 51.31'
T = 26.40'	T = 35.89'	T = 26.77'
R = 114.59'	R = 359.18'	R = 72.75'
SE = EXIST	SE = EXIST	SE = 02*

PI Sta 13+17.42	PI Sta 14+15.07	PI Sta 14+80.77
$\Delta = 17^\circ 19' 39.0''$ (RT)	$\Delta = 23^\circ 50' 33.5''$ (RT)	$\Delta = 38^\circ 04' 04.5''$ (RT)
D = 25' 00' 00.0"	D = 35' 01' 53.0"	D = 61' 27' 27.7"
L = 69.31'	L = 68.06'	L = 61.94'
T = 34.92'	T = 34.53'	T = 32.16'
R = 229.18'	R = 163.56'	R = 93.23'
SE = 02*	SE = EXIST	SE = EXIST


**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED DURING MAY OF 2024.

REVISIONS

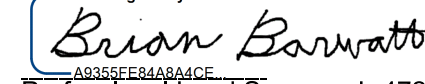
6/2/19

19-FEB-2025 10:48 C:\p14\130187\2025 Revisions\lpl14.r002\_ls.rw04.dgn

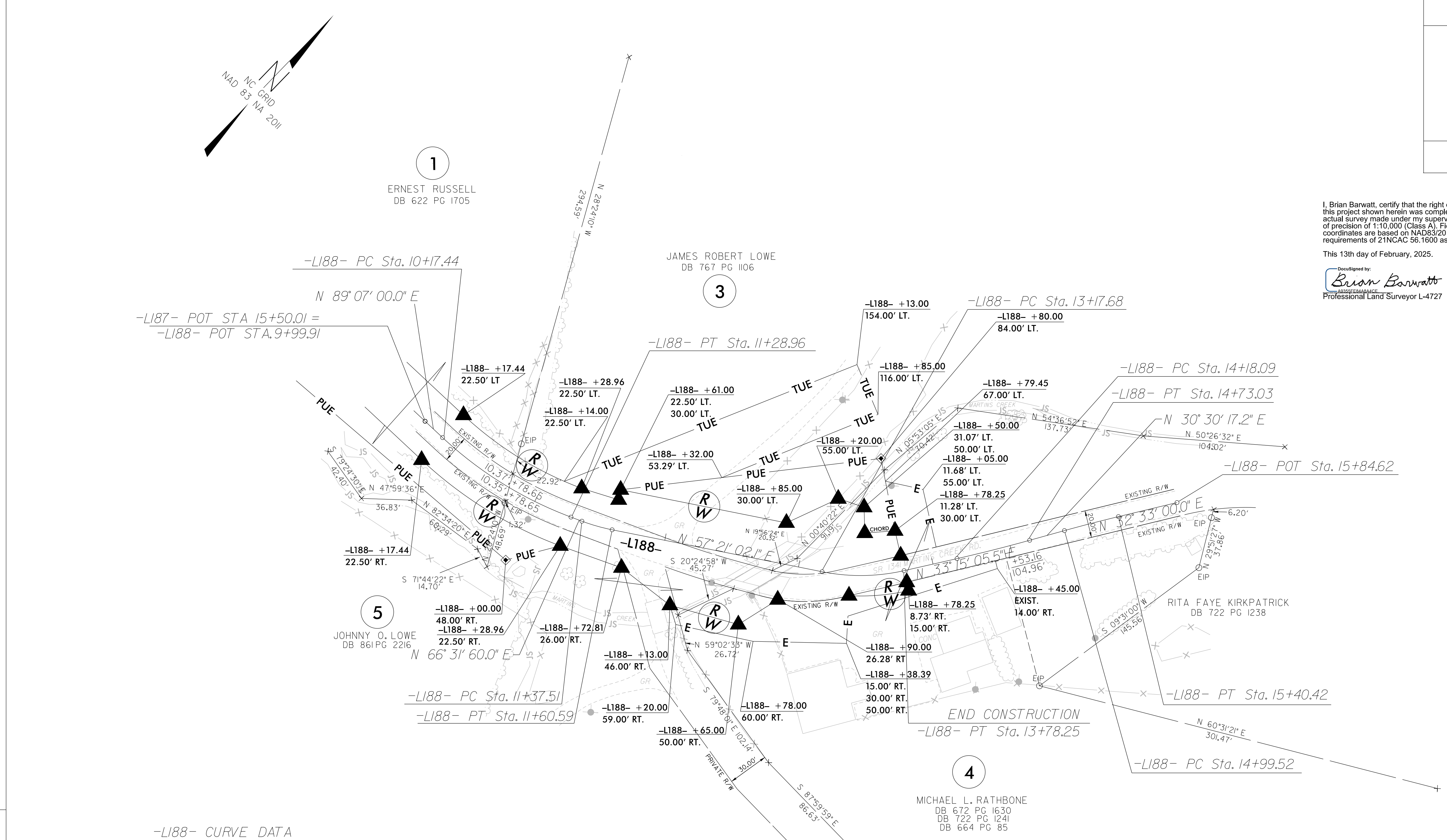
PROJECT REFERENCE NO. BP14.R002	SHEET NO. RW05
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed during May of 2024, and all coordinates are based on NAD83/2011. That this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 13th day of February, 2025.

DocuSigned by:  
  
 Brian Barwatt  
 Professional Land Surveyor L-4727

REVISIONS



-L188- CURVE DATA


PI Sta 10+73.93 Δ = 22° 35' 00.00" (LT) D = 20° 15' 00.0" L = 111.52' T = 56.49' R = 282.94' SE = EXIST	PI Sta 11+49.07 Δ = 9° 10' 57.8" (LT) D = 39° 47' 19.4" L = 23.08' T = 11.56' R = 144.00' SE = EXIST	PI Sta 13+48.42 Δ = 24° 05' 56.6" (LT) D = 39° 47' 19.4" L = 60.57' T = 30.74' R = 144.00' SE = 06
PI Sta 14+45.57 Δ = 2° 44' 48.3" (LT) D = 5° 00' 00.0" L = 54.94' T = 27.47' R = 1,45.92'	PI Sta 15+19.97 Δ = 2° 02' 42.8" (RT) D = 5° 00' 00.0" L = 40.90' T = 20.45' R = 1,45.92'	

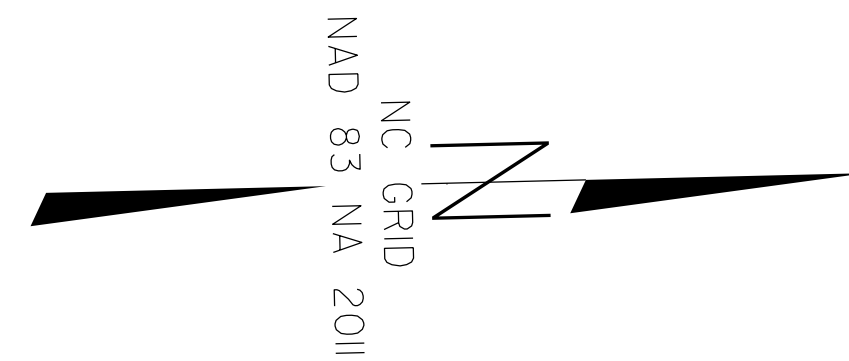
**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED DURING MAY OF 2024.

15-FEB-2025 08:31  
 C:\S\14\va\p\06\06\14\30188\2025 Revisions\bp14.r\002\_1.s\_r.w05.dgn  
 Brian Barwatt  
 PL S-3301731

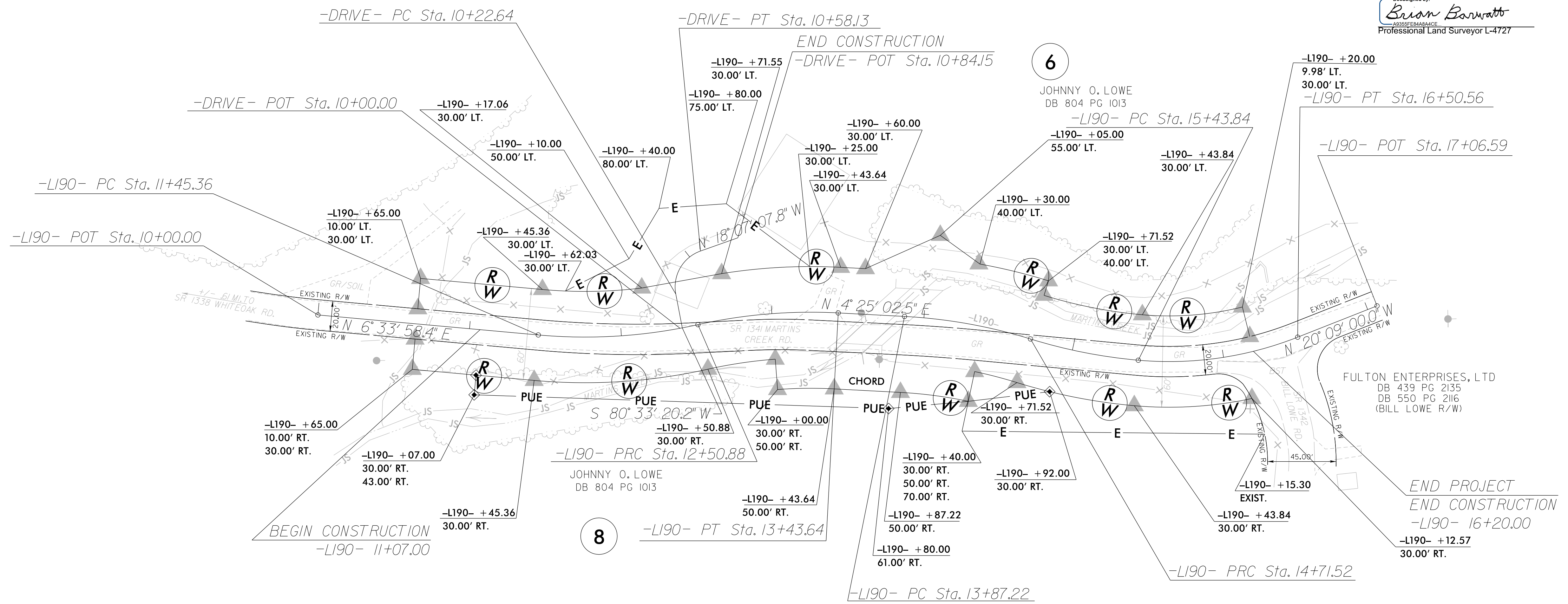


PROJECT REFERENCE NO.	SHEET NO.
BP14.R002	RW07
<b>Location and Surveys</b>	
LOCATION AND SURVEYS, DIVISION 14 122 BONNIE LANE SYLVA, NC 28779	
PROJECT SURVEYOR	
	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



I, Brian Barwatt, certify that the right of way and permanent easement monumentation for this project shown herein was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:10,000 (Class A). Field work was performed on 01/20/2022, and all coordinates are based on NAD83/2011; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 21st day of March, 2022.  
 DocuSigned by:  
*Brian Barwatt*  
 Professional Land Surveyor L-4727



**-LI90- CURVE DATA**

PI Sta 11+98.55 Δ = 17° 46' 51.0" (LT) D = 16° 51' 06.1" L = 105.51' T = 53.18' R = 340.00' SE = 06	PI Sta 12+97.55 Δ = 15° 37' 55.0" (RT) D = 16° 51' 06.1" L = 92.76' T = 46.67' R = 340.00' SE = 06	PI Sta 14+29.59 Δ = 14° 12' 19.4" (RT) D = 16° 51' 06.1" L = 84.30' T = 42.37' R = 340.00' SE = 06	PI Sta 15+07.81 Δ = 12° 11' 12.2" (LT) D = 16° 51' 06.1" L = 72.32' T = 36.30' R = 340.00' SE = 06	PI Sta 15+98.18 Δ = 26° 35' 09.7" (LT) D = 24° 54' 40.4" L = 106.72' T = 54.34' R = 230.00' SE = EXIST
---	--	--	--	--

**-DRIVE- CURVE DATA**

PI Sta 10+44.12 Δ = 81° 19' 22.6" (RT) D = 229° 10' 59.2" L = 35.48' T = 21.47' R = 25.00'
---

**NOTES:**

1. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.
2. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
3. RIGHT OF WAY MONUMENTATION ESTABLISHED ON 01/20/2022.

REVISIONS

C:\MAR-2022\1154\_C:\Users\barwatt\OneDrive\Documents\1301190\_4301190\_RW\_Sheets\To Send\bp14.r002\_11s.rw07.dgn  
 6/2/19  
 Brian Barwatt