

09\_05/19

TIP PROJECT: 17BP.5.R.78

CONTRACT: DE00359

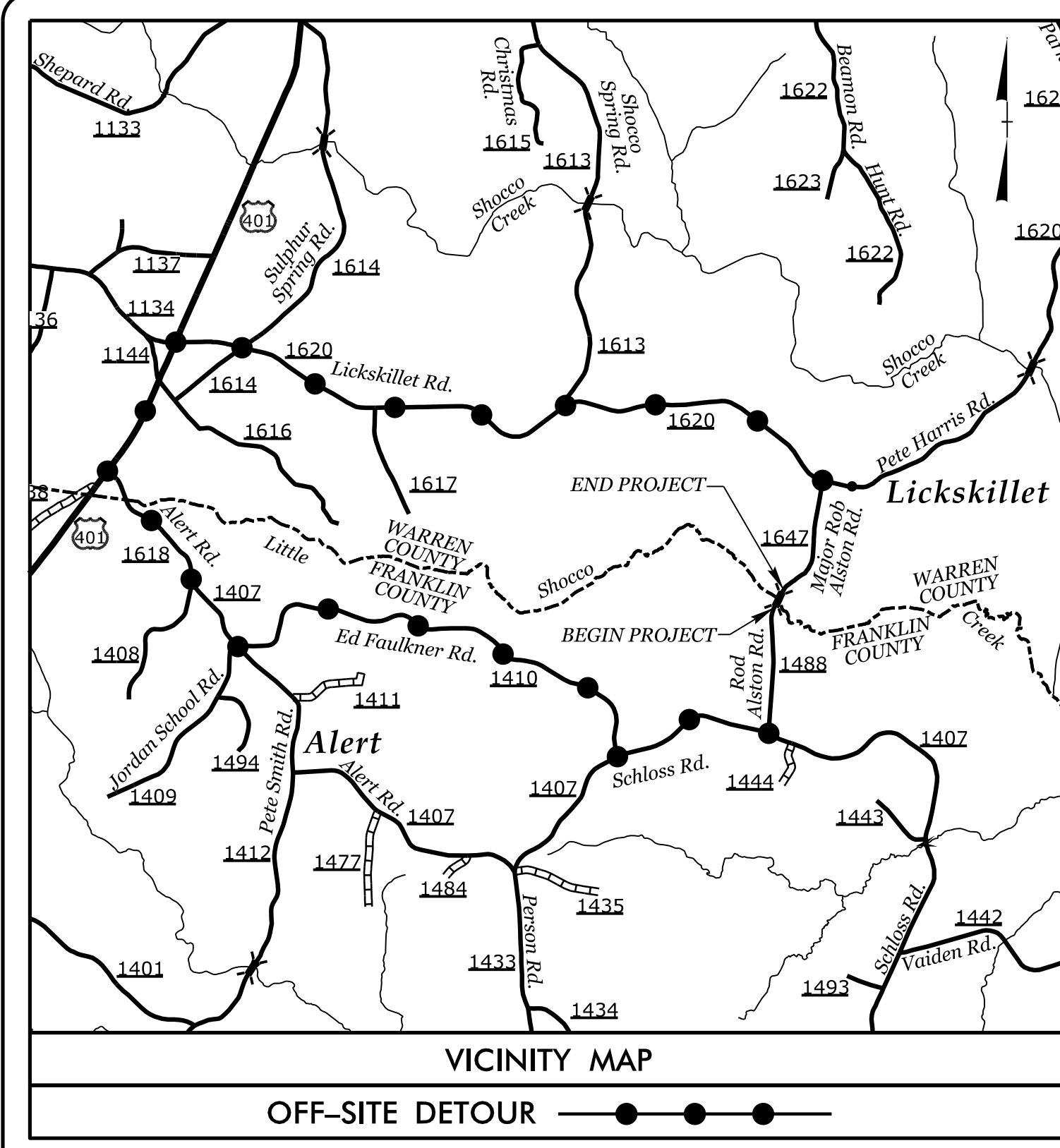
STATE OF NORTH CAROLINA  
DIVISION OF HIGHWAYS

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	17BP.5.R.78	1	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.5.R.78	N/A	PE	
17BP.5.R.78	N/A	RIGHT-OF-WAY	
17BP.5.R.78	N/A	UTILITIES	
17BP.5.R.78	N/A	CONSTRUCTION	

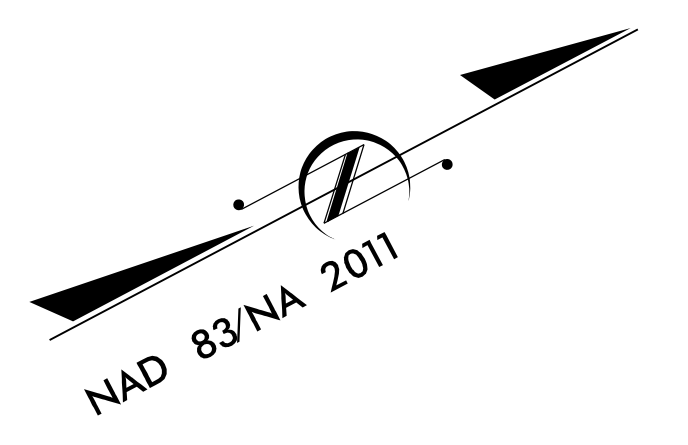
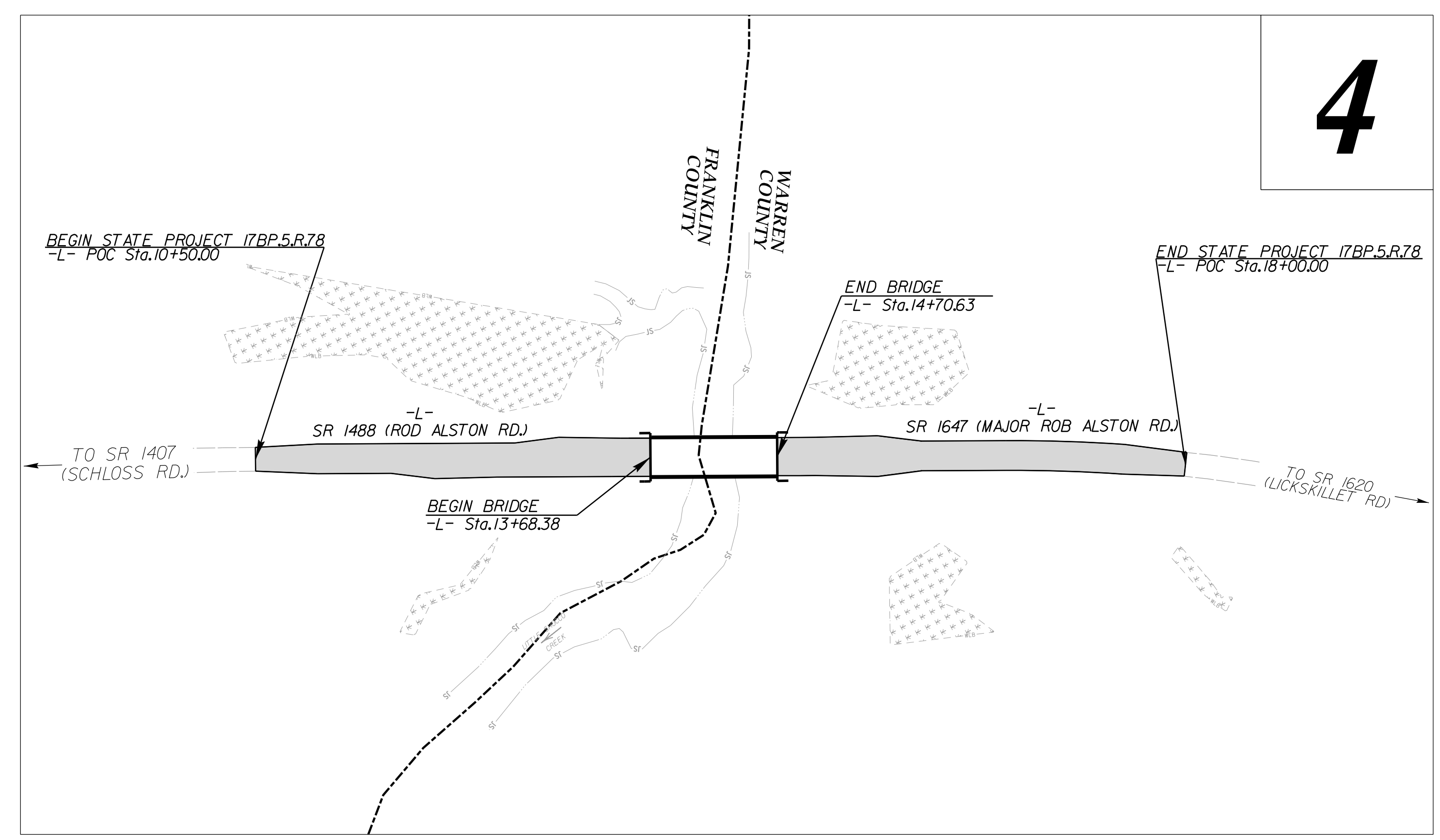
# FRANKLIN & WARREN COUNTIES

LOCATION: BRIDGE NO. 140 OVER LITTLE SHOCCO CREEK ON  
SR 1488 (ROD ALSTON RD.) / SR 1647 (MAJOR ROB ALSTON RD.)

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

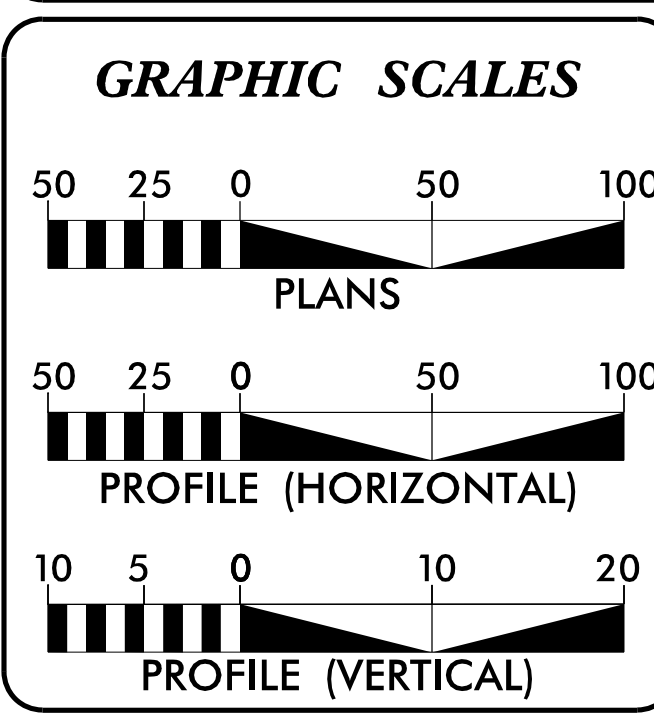


See Sheet 1A For Index of Sheets  
See Sheet 1B For Conventional Symbols



# 4

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UNLESS ALL SIGNATURES COMPLETED



**DESIGN DATA**

ADT = 120  
V = 60 MPH  
CLASS = RURAL LOCAL  
SUBREGIONAL TIER

**PROJECT LENGTH**

LENGTH ROADWAY STATE PROJECT 17BP.5.R.78 = 0.123 mi.  
LENGTH STRUCTURES STATE PROJECT 17BP.5.R.78 = 0.019 mi.  
TOTAL LENGTH STATE PROJECT 17BP.5.R.78 = 0.142 mi.

Prepared in the Offices of:

223 S. WEST ST., STE 1100  
RALEIGH, NC 27603  
T 919.380.8730

VHB Engineering NC, P.C. (C-3705)  
940 Main Campus Drive, Suite 500  
Raleigh, NC 27606

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: DECEMBER 12, 2017  
RIGHT OF WAY COMPLETE: JANUARY 22, 2019  
LETTING DATE: JANUARY 18, 2022

**ANDY YOUNG, PE**  
PROJECT ENGINEER

**MICHAEL BURNS, PE**  
PROJECT DESIGN ENGINEER

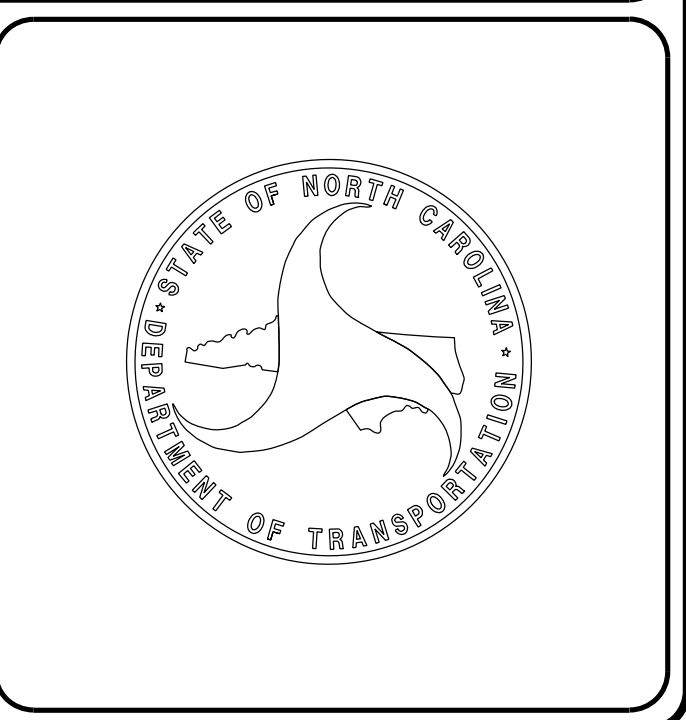
**LISA GILCHRIST, EI**  
NCDOT CONTACT

**HYDRAULICS ENGINEER**  
1/5/2023

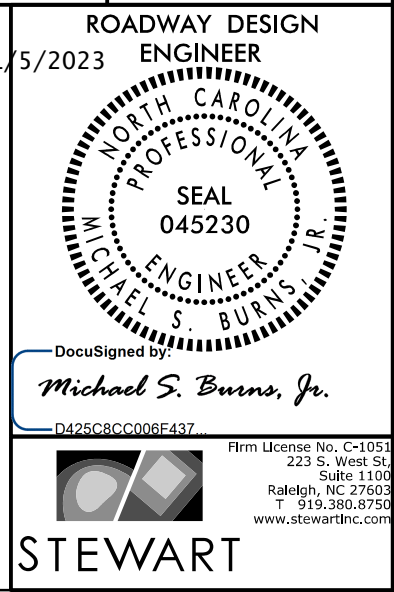
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*Rid E. Robel*  
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SIGNATURE:

**ROADWAY DESIGN ENGINEER**  
1/5/2023

DocuSigned by:  
*Michael S. Burns, Jr.*  
D425C8CC208F437...  
SIGNATURE:



1/4/2023  
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USER:m burns



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

	INDEX OF SHEETS
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
2C-1	GUARDRAIL INSTALLATION DETAIL
2C-2	STRUCTURE ANCHOR UNIT DETAIL
2C-3	EXTRA LENGTH GUARDRAIL POST DETAIL
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARY
3G-1	GEOTECHNICAL SUMMARY
4	PLAN SHEET
5	PROFILE SHEET
TMP-1 THRU TMP-4	TRAFFIC MANAGEMENT PLANS
PMP-1 THRU PMP-2	PAVEMENT MARKING PLANS
EC-1 THRU EC-5	EROSION CONTROL PLANS
RF-1	REFORESTATION PLAN
X-1A	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-5	CROSS-SECTIONS
S-1 THRU S-16	STRUCTURE PLANS

EFF. 01-16-2018  
REV.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.03	Method of Clearing - Method III
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
DIVISION 4 - MAJOR STRUCTURES	
422.02	Bridge Approach Fills - Type II Modified Approach Fill
DIVISION 5 - SUBGRADE, BASES AND SHOULDERS	
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
DIVISION 8 - INCIDENTALS	
806.01	Concrete Right-of-Way Marker
806.02	Granite Right-of-Way Marker
840.00	Concrete Base Pad for Drainage Structures
840.25	Anchorage for Frames - Brick or Concrete or Precast
840.29	Frames and Narrow Slot Flat Grates
840.35	Traffic Bearing Grated Drop Inlet - for Cast Iron Double Frame and Grates
840.46	Traffic Bearing Precast Drainage Structure
846.04	Drop Inlet Installation in Shoulder Berm Gutter
862.01	Guardrail Placement
862.02	Guardrail Installation (Use Detail Sheet 2C-1 in lieu of Sheet 6 of 8)
862.03	Structure Anchor Units (Use Detail Sheet 2C-2 in lieu of Sheets 1 of 7 & 2 of 7)

GENERAL NOTES: 2018 SPECIFICATIONS  
EFFECTIVE: 01-16-2018  
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 III.

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 WILL BE PAID FOR AS "EXTRA WORK" IN ACCORDANCE WITH SECTION 104-7.

END BENTS:

THE SURVEYOR SHALL CHECK THE STRUCTURE END BENT PLANS, DETAILS, AND CROSS-SECTION PRIOR TO SETTING OF THE SLOPE STAKES FOR THE EMBANKMENT OR EXCAVATION APPROACHING A BRIDGE.

RIGHT-OF-WAY MARKERS:

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

REVISIONS

8/17/99

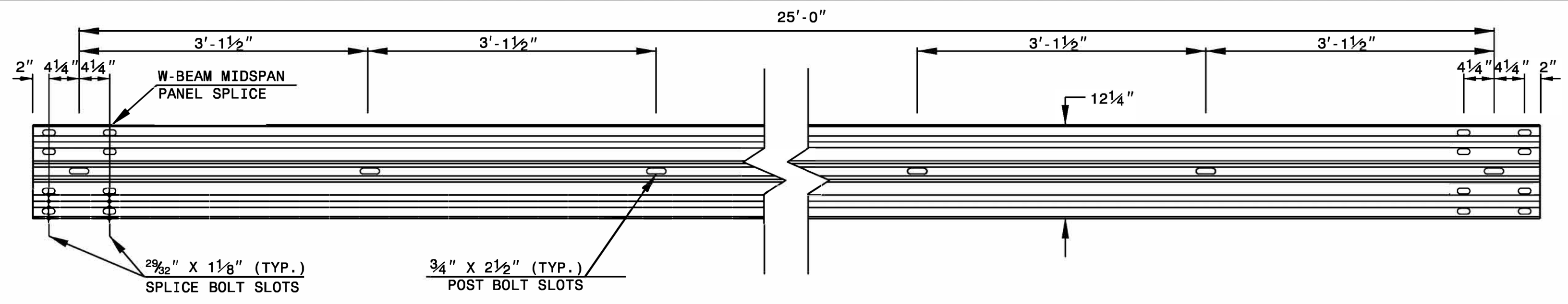
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USER:burns



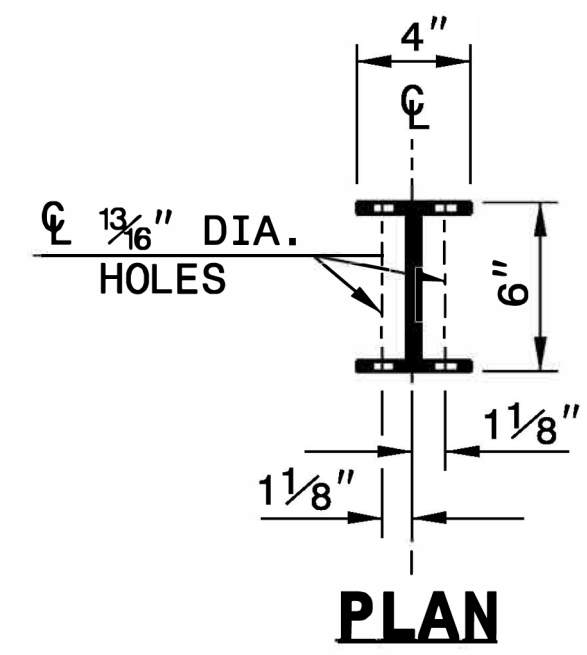
STATE OF NORTH CAROLINA  
DEPT. OF TRANSPORTATION  
DIVISION OF HIGHWAYS  
RALEIGH, N.C.

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

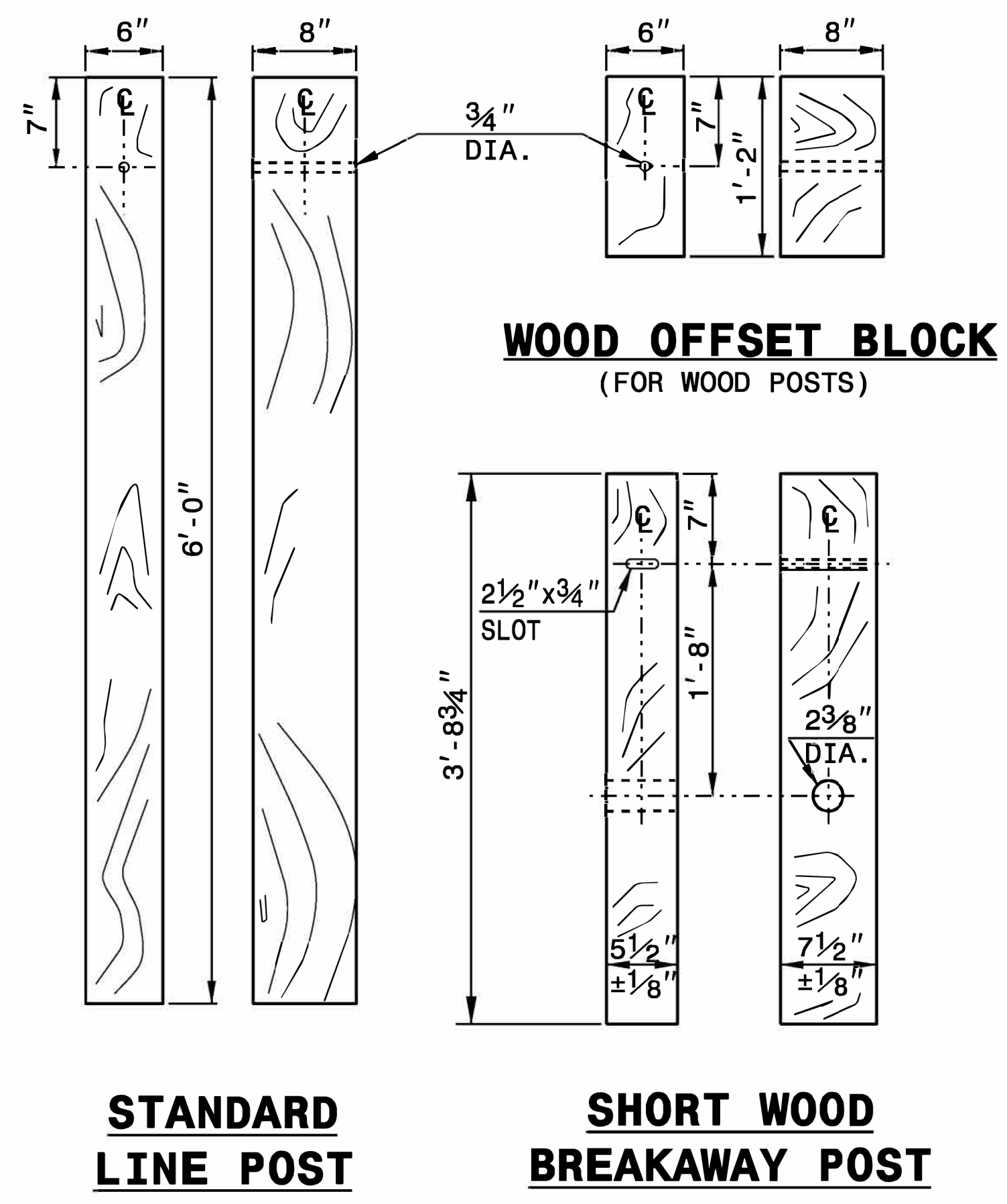
SHEET 6 OF 8  
**862D02**



**STANDARD W-BEAM GUARDRAIL**

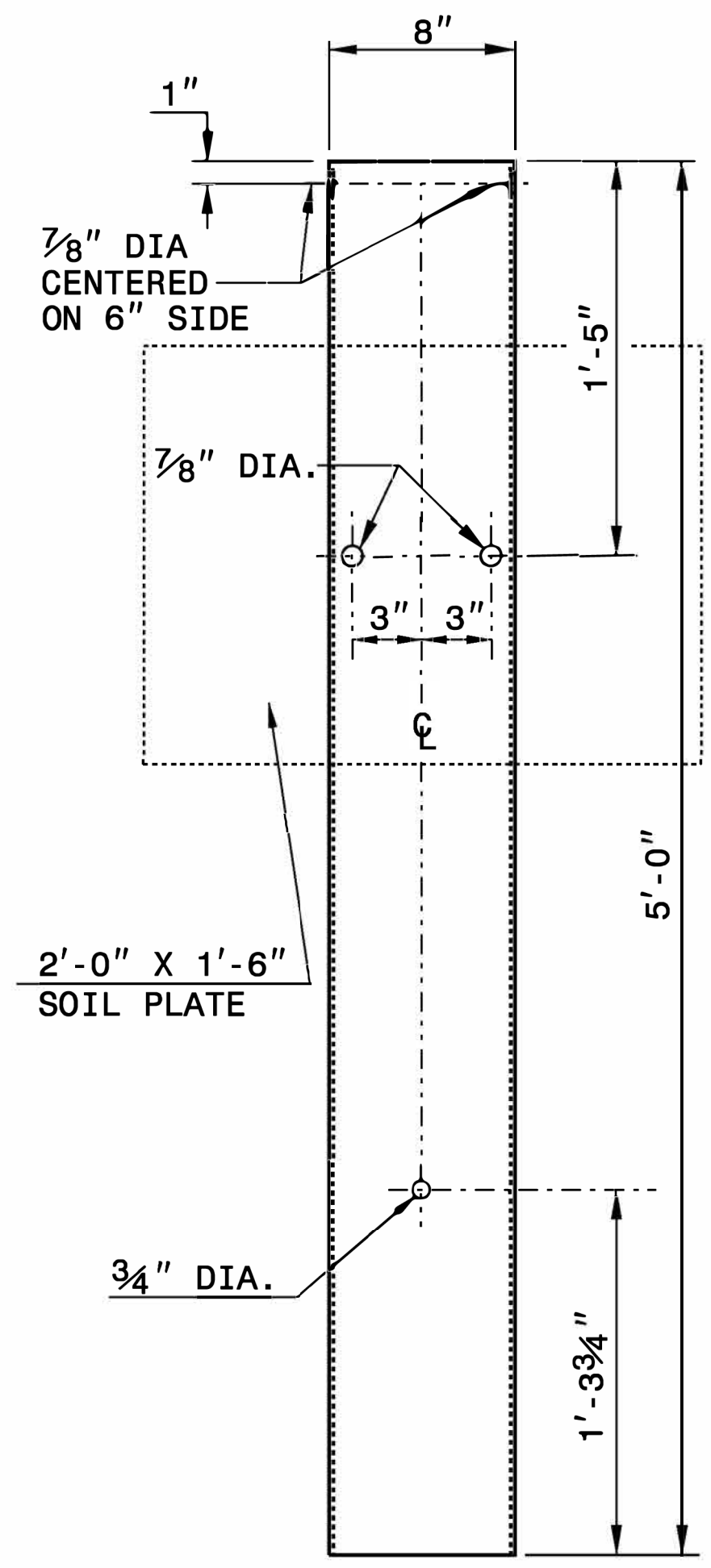


**PLAN**

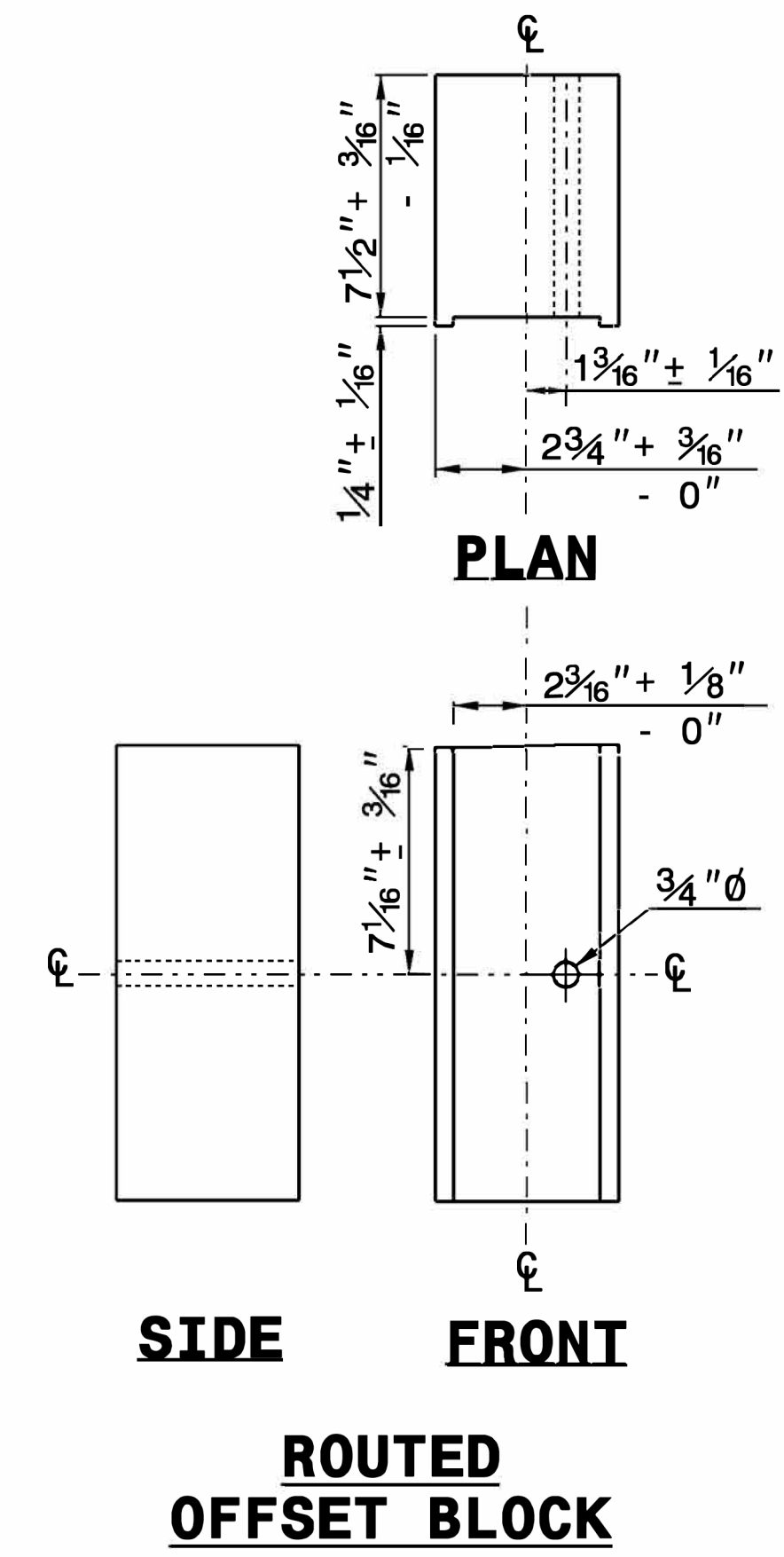


**STANDARD LINE POST**

**SHORT WOOD BREAKAWAY POST**



**STEEL TUBE**  
TS 6"x8"x0.1875"

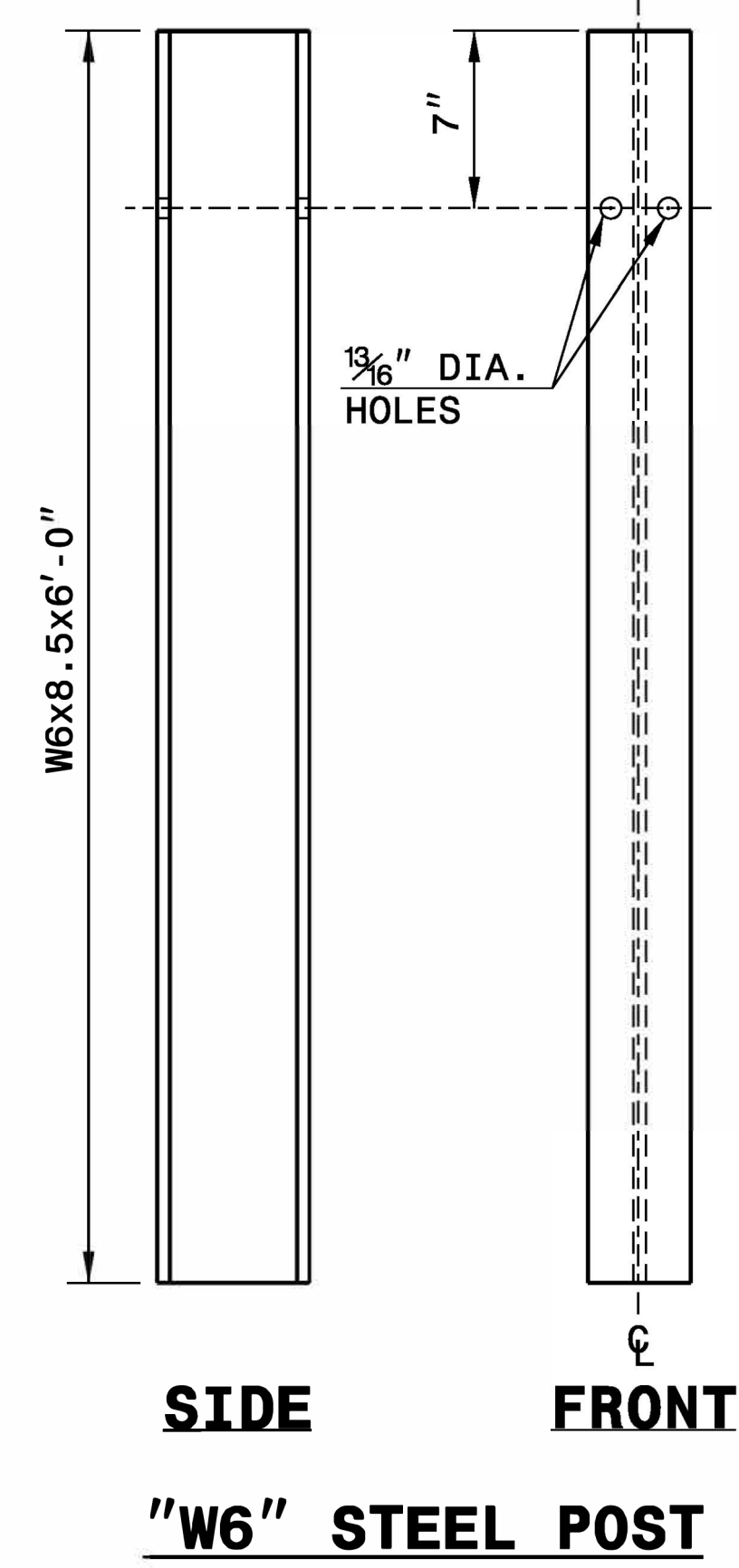


**PLAN**

**SIDE**

**FRONT**

**ROUTED OFFSET BLOCK**



**SIDE**

**FRONT**

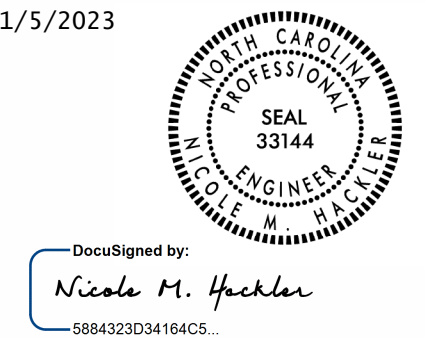
**"W6" STEEL POST**

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

ROADWAY DETAIL DRAWING FOR  
**GUARDRAIL INSTALLATION**

SHEET 6 OF 8  
**862D02**

1/5/2023



DocuSigned by:  
Nicole M. Hecker  
528432304164C5

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

**SEE TITLE BLOCK**

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MODIFIED BY:	DATE:
CHECKED BY:	DATE:
FILE SPEC.:	

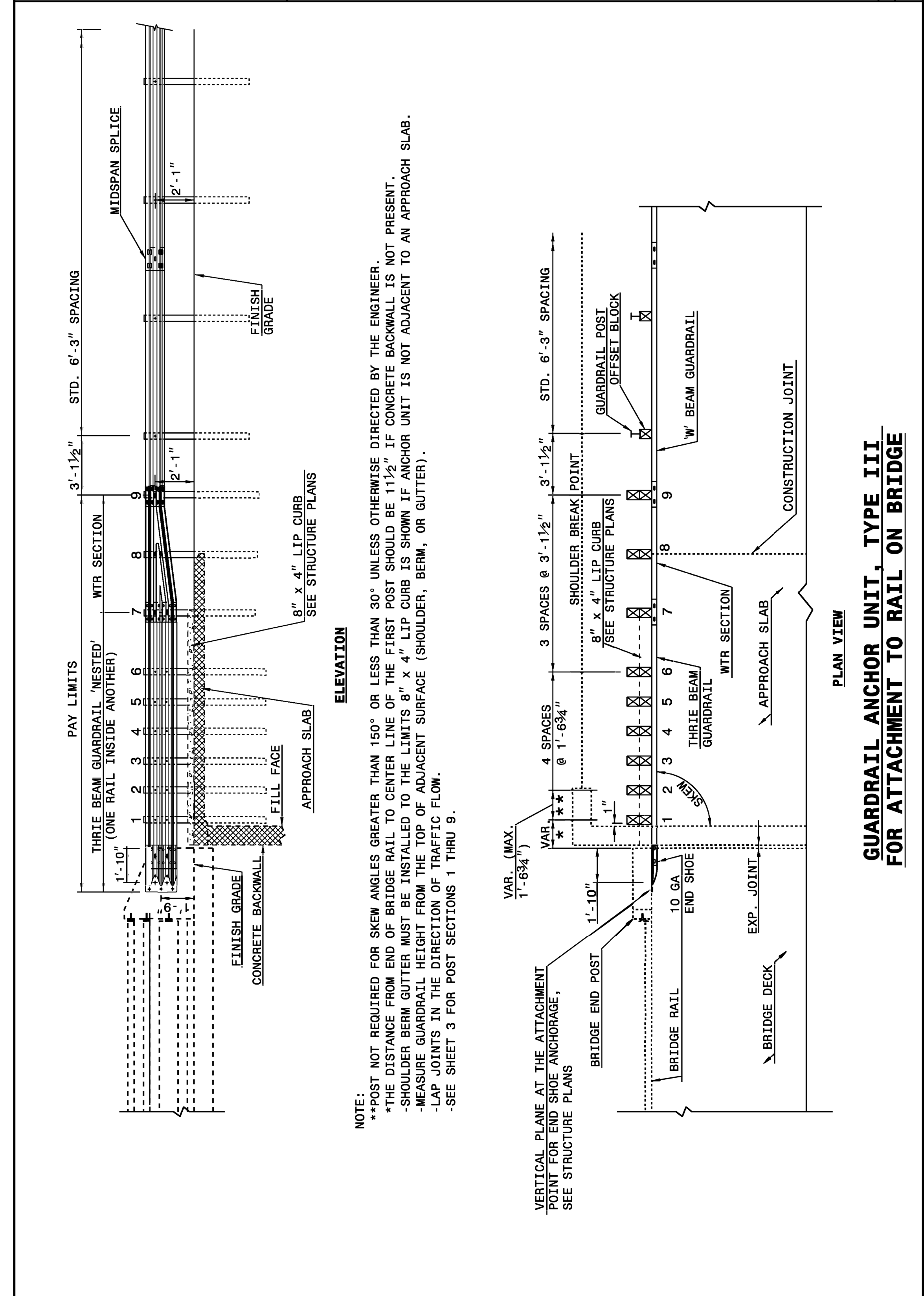


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 Howerton AT CSU-212895

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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

SHEET 1 OF 7  
**862D03**



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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE

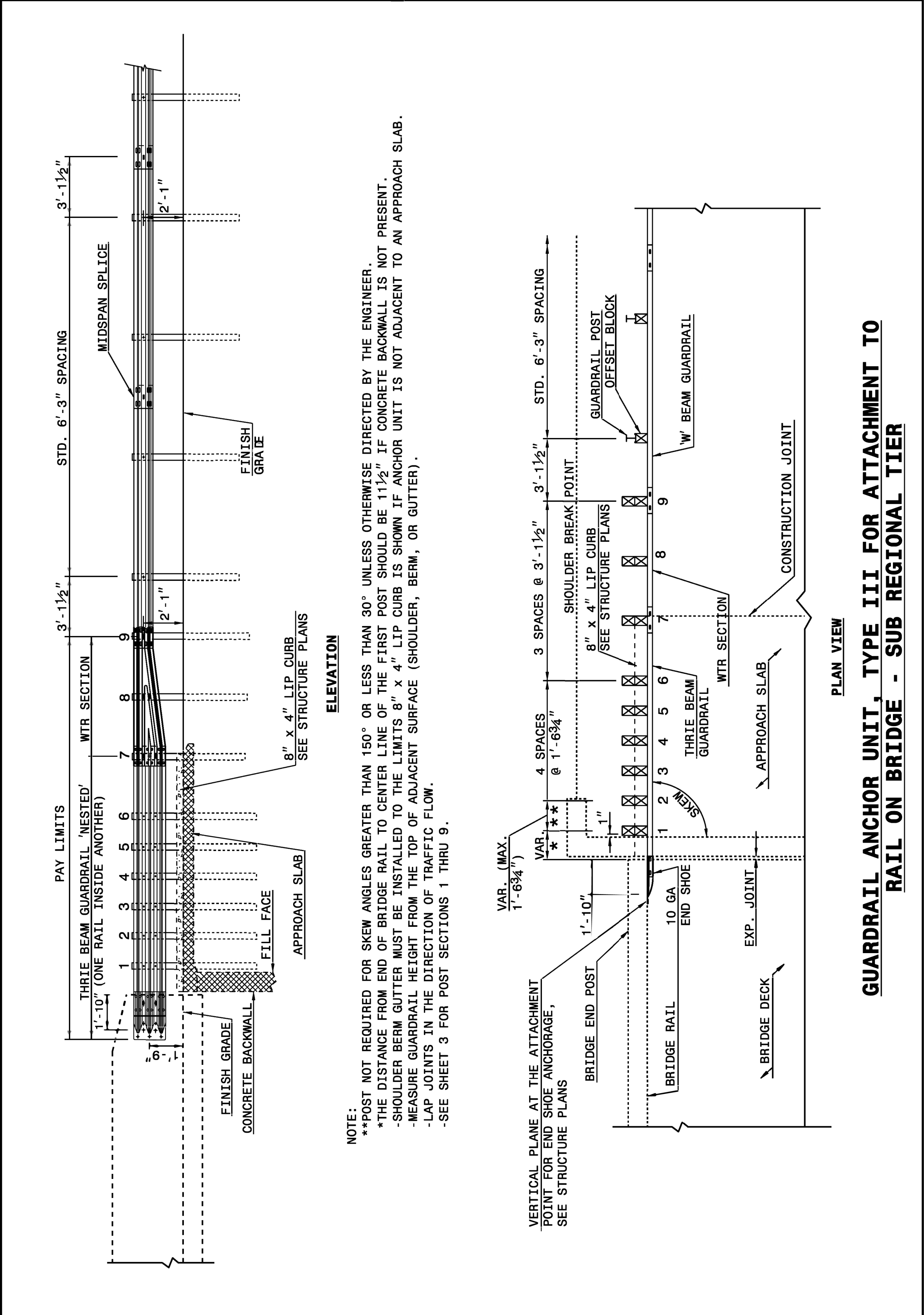
SHEET 1 OF 7  
**862D03**

**NOTE:**  
 \*\*POST NOT REQUIRED FOR SKEW ANGLES GREATER THAN 150° OR LESS THAN 30° UNLESS OTHERWISE DIRECTED BY THE ENGINEER.  
 \*THE DISTANCE FROM END OF BRIDGE RAIL TO CENTER LINE OF THE FIRST POST SHOULD BE 11½" IF CONCRETE BACKWALL IS NOT PRESENT.  
 -SHOULDER BERM GUTTER MUST BE INSTALLED TO THE LIMITS 8" x 4" LIP CURB IS SHOWN IF ANCHOR UNIT IS NOT ADJACENT TO AN APPROACH SLAB.  
 -MEASURE GUARDRAIL HEIGHT FROM THE TOP OF ADJACENT SURFACE (SHOULDER, BERM, OR GUTTER).  
 -LAP JOINTS IN THE DIRECTION OF TRAFFIC FLOW.  
 -SEE SHEET 3 FOR POST SECTIONS 1 THRU 9.

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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**



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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**

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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**



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

ROADWAY DETAIL DRAWING FOR STRUCTURE ANCHOR UNITS GUARDRAIL ANCHOR UNIT, TYPE III FOR ATTACHMENT TO RAIL ON BRIDGE - SUB REGIONAL TIER

SHEET 2 OF 7  
**862D03**

1/5/2023

DocuSigned by:  
 Nicole M. Hecker  
 5884323034164C5

PROFESSIONAL ENGINEER  
 SEAL 33144  
 N.C. STATE BOARD OF EXAMINERS

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

**SEE TITLE BLOCK**

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 MODIFIED BY: DATE:  
 CHECKED BY: DATE:  
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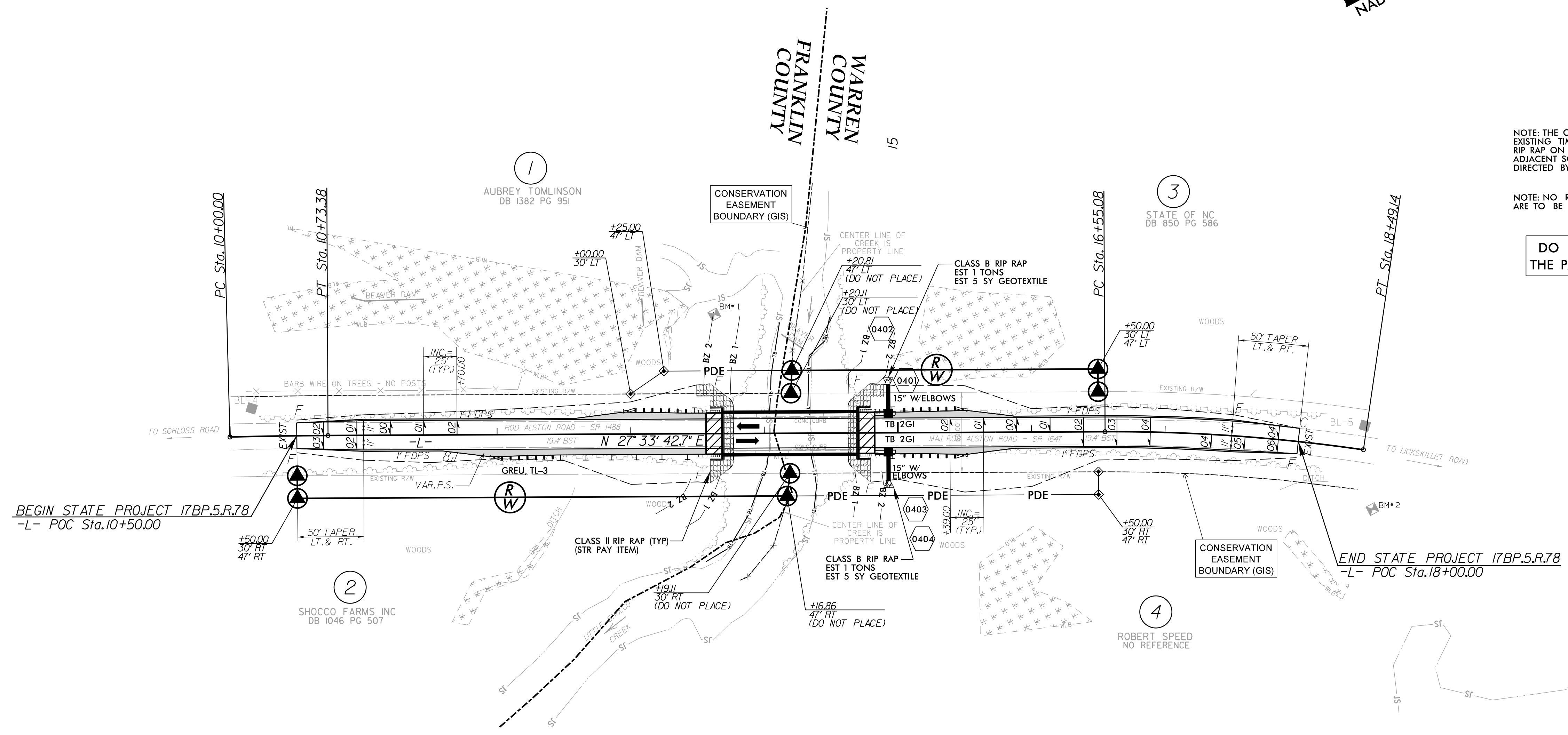
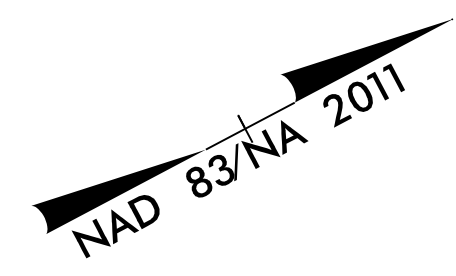




8/17/99

-L-	
PI Sta 10+36.69	PI Sta 17+52.29
$\Delta = 1' 14" 11.5" (RT)$	$\Delta = 8' 33" 09.3" (RT)$
$D = 1' 41" 06.6"$	$D = 4' 24" 26.5"$
$L = 73.38'$	$L = 194.05'$
$T = 36.69'$	$T = 97.21'$
$R = 3,400.00'$	$R = 1,300.00'$
$S_e = Exist.$	$S_e = Exist.$

PROJECT REFERENCE NO. <b>17BP.5.R.78</b>	SHEET NO. <b>4</b>
ROADWAY DESIGN ENGINEER 1/5/2023 MICHAEL S. BURNS PROFESSIONAL SEAL 045230	HYDRAULICS ENGINEER 1/5/2023 KEITH B. ROBEL PROFESSIONAL SEAL 043870
DocuSigned by: Michael S. Burns, Jr. 045230300000437	DocuSigned by: Keith B. Robel 043870300000437
STEWART	VHB VHB Engineering NC, P.C. (C-3705) 940 Main Campus Drive, Suite 500 Raleigh, NC 27606
<b>DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED</b>	



NOTE: THE CONTRACTOR IS TO COMPLETELY REMOVE THE EXISTING TIMBER ABUTMENTS AND BENTS. SOME OF THE EXISTING RIP RAP ON THE SOUTH STREAMBANK WILL BE PULLED INTO THE ADJACENT SCOUR HOLE UNDER THE BRIDGE DECK AS DIRECTED BY THE ENGINEER.

NOTE: NO ROW MARKERS NOR WHITE STAKING INDICATING ROW ARE TO BE PLACED IN THE STREAM.

DO NOT MODIFY THE POSTS WITHIN THE PAY ITEM LIMITS OF THE GREU, TL3

REVISIONS

10/25/2023 10:14:01 RDY\_PSH04.dgn

FOR -L- PROFILE, SEE SHEET 5

FOR STRUCTURE PLANS, SEE SHEETS S-1 THRU S-16

**STATE OF NORTH CAROLINA  
DEPARTMENT OF TRANSPORTATION**

**PAVEMENT MARKING PLAN  
FRANKLIN & WARREN COUNTIES**

LOCATION: BRIDGE NO.140 OVER LITTLE SHOCCO CREEK ON  
SR 1488 (ROD ALSTON RD.)/SR 1647 (MAJOR ROB ALSTON RD.)

**ROADWAY STANDARD DRAWING**

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - CONTRACT STANDARDS AND DEVELOPMENT UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1261.01	GUARDRAIL AND BARRIER DELINEATORS - INSTALLATION SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATORS - TYPES AND MOUNTING
1262.01	GUARDRAIL END DELINEATION

**PAVEMENT MARKING SCHEDULE**

SYMBOL	DESCRIPTION
PA	PAINT WHITE EDGELINE (4") X2
PI	PAINT YELLOW DOUBLE CENTER (4") X2

**GENERAL NOTES**

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

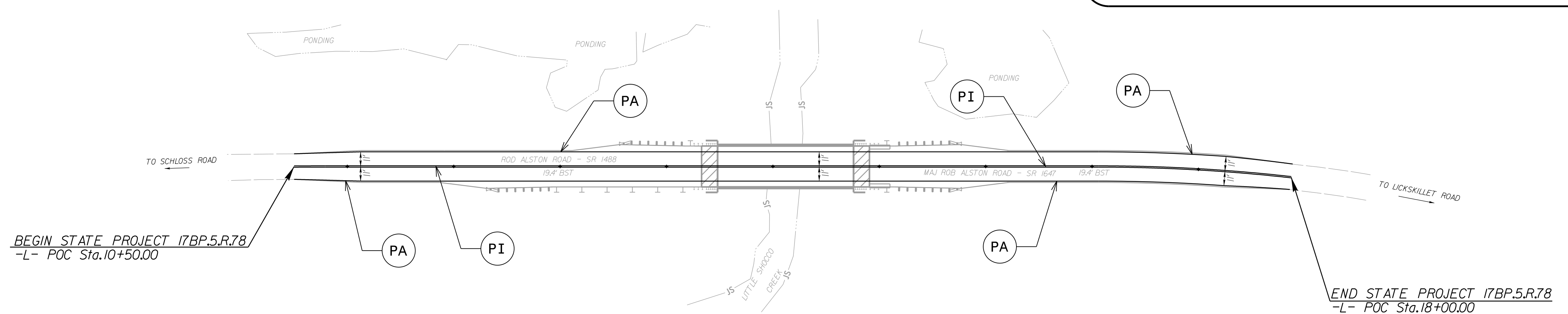
ROAD NAME	MARKING	MARKER
ROD ALSTON RD. / MAJOR ROB ALSTON RD.	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

C) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

D) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

F) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.



**INDEX**

SHEET NO.	DESCRIPTION
PMP - 1	INDEX, ROADWAY STANDARD DRAWINGS, PAVEMENT MARKING SCHEDULE, GENERAL NOTES, PAVEMENT MARKING DETAIL
PMP - 2	REVISED PAVEMENT MARKING ROADWAY STANDARD DRAWING 1205D12

**PLAN PREPARED BY: STEWART**

**ANDY YOUNG, PE** PROJECT ENGINEER  
**MICHAEL BURNS, PE** PROJECT DESIGN ENGINEER



**T.I.P.: 17BP.5.R.78**

**CONTRACT: DE00359**